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The AME2016 atomic mass evaluation *

(II). Tables, graphs and references

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Abstract This paper is the second part of the new evaluation of atomic masses, AME2016. Using least-squares adjustments to all evaluated and accepted experimental data, described in Part I, we derive tables with numerical values and graphs to replace those given in AME2012. The first table lists the recommended atomic mass values and their uncertainties. It is followed by a table of the influences of data on primary nuclides, a table of various reaction and decay energies, and finally, a series of graphs of separation and decay energies. The last section of this paper lists all references of the input data used in the AME2016 and the NUBASE2016 evaluations (first paper in this issue).

AMDC: <http://amdc.impcas.ac.cn/>

Keywords: atomic mass evaluation, atomic mass table, separation and reaction energies, trends from the mass surface

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1 Introduction

The description of the AME2016 general procedures and policies are given in Part I of this series of two papers, where the input data used in the evaluation are presented. In this paper, we present tables with numerical values and graphs derived from the evaluation of the input data presented in Part I.

Firstly, we present the table of atomic masses (Table I) expressed as mass excess in keV, together with the binding energy per nucleon, the beta-decay energy and the total atomic mass in mass units.

Secondly, we provide the table of influences for primary nuclides (Table II). For each primary nuclide, we give three main data and their influences on its mass (see the definitions in Part I, Section 5.1, p. 030002-18).

Thirdly, we give a table of values and their uncertainties for the separation and reaction energies for twelve selected combinations of nuclides. This selection, together with the β -decay energies in Table I, provides all differences in masses between any pair of nuclides differing at most by two units in Z and N . A method is indicated in which many more different reaction energy values can

be derived from the present table.

The following series of graphs are then presented: two-neutron separation energies and α -decay energies as a function of neutron number, and two-proton separation energies as a function of proton number. These graphs are considered to be the most illustrative ones for representing the regular trends from the mass surface (TMS) and deriving estimates for unknown masses.

Finally, references of the input data used in the AME2016 and the NUBASE2016 evaluations, the first paper of this issue, are given in Section 6.

2 Atomic mass table

The tables containing the values of atomic masses and other derived quantities given in the present work are similar to those published in the earlier AME editions [1–9]. With few exceptions, experimental data on masses of nuclides refer to “atomic” masses or to masses of singly ionized atoms. In the last case, the ionization energy is generally (much) smaller than the uncertainty of the mass and, for a small number of very precise mass measurements, corrections for the first- and second-

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ionization potentials can be applied without much loss of accuracy. The same is true for the electron mass, M_e ; see Table A in Part I. This is the reason for the decision to present atomic rather than nuclear masses in our evaluations.

In general, the nuclear masses M_N can be calculated from the atomic ones M_A :

$$M_N(A, Z) = M_A(A, Z) - Z \times M_e + B_e(Z). \quad (1)$$

Nowadays, several mass measurements are conducted with fully or almost fully ionized atoms. In such cases, a correction must be made for the total binding energy of all the removed electrons $B_e(Z)$, which can be found in the table of calculated total atomic binding energy of all electrons by Huang *et al* [10]. Unfortunately, the precision of the calculated $B_e(Z)$ values is not well established, since this quantity (approximately 760 keV for $_{92}\text{U}$) cannot be easily measured. However, we can state with a high confidence that the precision for $_{92}\text{U}$ is better compared to that for the best known masses of the uranium isotopes, which is about 1.1 keV. An approximate formula for B_e can be found in the review of Lunney, Pearson and Thibault [11]:

$$B_e(Z) = 14.4381 Z^{2.39} + 1.55468 \times 10^{-6} Z^{5.35} \text{ eV}. \quad (2)$$

The atomic masses are given in mass units and the derived quantities in energy units. For the atomic mass unit we use the “unified atomic mass unit”, symbol “u”, defined as 1/12 of the atomic mass of one ^{12}C atom in its electronic and nuclear ground states and in its rest coordinate system. In our work, energy values are expressed as electron-volt, using the *maintained* volt V_{90} . For a discussion see Part I, Section 2.

Due to the dramatic increase in the accuracy of mass for some light nuclides, the printing format of the mass table is not adequate for the most precisely known masses, which require many more digits. Table A gives values of mass excesses and atomic masses for 16 nuclides, whose masses are the most precisely known, with an uncertainty below 1 eV $_{90}$.

Mass excesses expressed in keV, which are of practical use, are also given. Conversion of the uncertainties from μu to keV can be obtained by:

$$\sigma_{M_{\text{keV}}}^2 = (\sigma_{M_u} \times u)^2 + (M_u \times \sigma_u)^2, \quad (3)$$

where M_u and σ_{M_u} are the mass excess and its uncertainty in μu , and σ_u is the uncertainty of u expressed in eV $_{90}$. The second term in Eq. 3 is only important for a very few nuclides.

Table A. The most precisely known masses.

| | Mass excess (keV $_{90}$) | Uncertainty (keV $_{90}$) | Atomic mass (μu) | Uncertainty (μu) |
|------------------|----------------------------|----------------------------|-------------------------------|-------------------------------|
| ^1n | 8 071.317 133 | 0.000 458 | 1 008 664.915 823 | 0.000 491 |
| ^1H | 7 288.970 613 | 0.000 087 | 1 007 825.032 241 | 0.000 094 |
| ^2H | 13 135.721 756 | 0.000 113 | 2 014 101.778 114 | 0.000 122 |
| ^3H | 14 949.809 935 | 0.000 215 | 3 016 049.281 985 | 0.000 231 |
| ^3He | 14 931.217 929 | 0.000 205 | 3 016 029.322 645 | 0.000 220 |
| ^4He | 2 424.915 612 | 0.000 059 | 4 002 603.254 130 | 0.000 063 |
| ^{13}C | 3 125.008 881 | 0.000 215 | 13 003 354.835 209 | 0.000 231 |
| ^{14}N | 2 863.416 722 | 0.000 193 | 14 003 074.004 460 | 0.000 207 |
| ^{15}N | 101.438 709 | 0.000 601 | 15 000 108.898 939 | 0.000 645 |
| ^{16}O | − 4 737.001 351 | 0.000 162 | 15 994 914.619 598 | 0.000 173 |
| ^{17}O | − 808.763 482 | 0.000 655 | 16 999 131.756 642 | 0.000 704 |
| ^{18}O | − 782.815 600 | 0.000 706 | 17 999 159.612 840 | 0.000 758 |
| ^{19}F | − 1 487.444 200 | 0.000 864 | 18 998 403.162 882 | 0.000 927 |
| ^{28}Si | − 21 492.794 304 | 0.000 488 | 27 976 926.534 991 | 0.000 524 |
| ^{29}Si | − 21 895.078 375 | 0.000 559 | 28 976 494.665 252 | 0.000 600 |
| ^{31}P | − 24 440.540 953 | 0.000 674 | 30 973 761.998 625 | 0.000 724 |

Table B. Correlation matrices for the most precisely known very light nuclei (in squared nano atomic mass units).

| | n | H | D | ⁴ He | ¹³ C | ¹⁴ N | ¹⁵ N | ¹⁶ O | ²⁸ Si |
|------------------|------------|------------|------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|
| n | 0.241391 | | | | | | | | |
| H | − 0.006172 | 0.008794 | | | | | | | |
| D | 0.012177 | 0.002620 | 0.014802 | | | | | | |
| ⁴ He | 0.000000 | 0.000000 | 0.000000 | 0.004011 | | | | | |
| ¹³ C | 0.004685 | − 0.006200 | − 0.001514 | 0.000000 | 0.053148 | | | | |
| ¹⁴ N | − 0.001300 | 0.002355 | 0.001055 | 0.000000 | 0.039083 | 0.042986 | | | |
| ¹⁵ N | − 0.001181 | 0.013972 | 0.012791 | 0.000000 | − 0.003234 | 0.009421 | 0.416385 | | |
| ¹⁶ O | − 0.000837 | 0.002306 | 0.001470 | 0.000000 | 0.011842 | 0.014288 | 0.007047 | 0.030065 | |
| ²⁸ Si | − 0.005085 | 0.009502 | 0.004416 | 0.000000 | 0.041404 | 0.043532 | 0.051304 | 0.024329 | 0.274560 |

| | n | H | D | ³ H | ³ He | ¹⁶ O | ²⁰ Ne | ²³ Na | ²⁸ Si |
|------------------|------------|----------|----------|----------------|-----------------|-----------------|------------------|------------------|------------------|
| n | 0.241391 | | | | | | | | |
| H | − 0.006172 | 0.008794 | | | | | | | |
| D | 0.012177 | 0.002620 | 0.014802 | | | | | | |
| ³ H | 0.006005 | 0.011413 | 0.017422 | 0.053335 | | | | | |
| ³ He | 0.006005 | 0.011413 | 0.017422 | 0.048435 | 0.048435 | | | | |
| ¹⁶ O | − 0.000837 | 0.002306 | 0.001470 | 0.003776 | 0.003776 | 0.030065 | | | |
| ²⁰ Ne | 0.027152 | 0.012479 | 0.039644 | 0.052123 | 0.052123 | 0.006215 | 2.829718 | | |
| ²³ Na | 0.000000 | 0.000001 | 0.000001 | 0.000001 | 0.000001 | 0.000004 | 0.000007 | 3.781636 | |
| ²⁸ Si | − 0.005085 | 0.009502 | 0.004416 | 0.013918 | 0.013918 | 0.024329 | 0.019401 | 0.000047 | 0.274560 |

Since AME2003, we give in Table I the binding energy per nucleon, which is of educational interest, since it connects to the Aston Curve, displaying the maximum stability around the ‘iron-peak’ which is of importance in astrophysics. The highest binding energy per nucleon is observed for ⁶²Ni, followed sequentially by ⁵⁸Fe and ⁵⁶Fe.

3 Influences on primary nuclides

Table II lists all primary nuclides, together with the main data that contribute to their mass determination (up to the three most important ones) and the *influences* of these data on their masses. It complements the information given in the main table (Part I, Table I) where the *significance* (total flux) and the main *flux* of each datum are displayed. In other words, the flow-of-information matrix **F**, defined in Part I, Section 5.1, is (partly) displayed once along lines and once along columns.

4 Nuclear reaction and decay energies

The linear combinations involving neighboring nuclides with small differences in atomic number and mass number, and particles such as n, p, d, t, ³He and α , are important for studies of the trends in the nuclear energy surface and for Q-values of frequently used reactions. In Table III, values for 12 such combinations and their uncertainties are presented.

With the help of the instructions given in the explanation of Table III, values for 28 additional reactions and their uncertainties can be derived (cf. p. 030003-

99). The derived values will be correct, but in a few cases (when reactions involving light nuclei measured with very high precision) the uncertainties will be slightly larger than those obtained when correlations in the calculation are included.

In cases where any combination of the most precise mass values are involved, the uncertainties can be obtained with the help of the correlation coefficients given in Table B, where the variances and covariances for the most precisely known light nuclei are listed. When calculating uncertainties of mass combinations, one should use the mass values and their uncertainties in μ u, and not the mass excesses (in keV). As an example, if one considers the mass difference between ³H and ³He, the mass difference can be easily obtained from the values listed in Table A. However, the corresponding uncertainty cannot be simply determined from the square root of the quadratic sum of the individual uncertainties, which would be:

$$\sqrt{0.231^2 + 0.220^2} = 0.32 \text{ nu.} \quad (4)$$

Since there is a strong correlation between these two nuclides, the uncertainty of the mass difference should be calculated using the correlation information provided in Table B. Thus, its uncertainty can be obtained from the square root of the sum of the variances minus twice the covariance:

$$\sqrt{0.231^2 + 0.220^2 - 2 \cdot 0.048435} = 0.07 \text{ nu.} \quad (5)$$

As a result, the final uncertainty is much smaller when the correlation is taken into account.

The result of the least-squares adjustment of the experimental data that are used to determine atomic

masses, as described in Part I, is not represented completely by the atomic mass values given in the Table I and the energy values in Table III. A complete representation would require reproduction of a matrix of correlation coefficients. This matrix contains $\frac{1}{2}N(N+1)$ elements in which $N=1207$. As for AME2012, we made available at the AMDC website a full list of correlation coefficients for AME2016 [12], of which a very short sample is displayed in Table C.

We have also prepared a table of neutron, proton and deuteron pairing energies, available from the Atomic Mass Data Center (AMDC) [13], defined as:

Table C. Sample of variances and covariances in squared nano atomic mass units. Nuclides coded as AAAZZZi (i=isomeric state), e.g. $^1\text{H}=10010$, $^{16}\text{O}=160080$. Full table is on the AMDC website [12]

| nuclide 1 | nuclide 2 | Variance or Covariance |
|-----------|-----------|------------------------|
| 10000 | 10000 | 0.24139060 |
| 10010 | 10000 | -0.61717354E-02 |
| | | |
| 30010 | 30010 | 0.53335160E-01 |
| 30020 | 10000 | 0.60053621E-02 |
| 30020 | 10010 | 0.11413390E-01 |
| 30020 | 20010 | 0.17421780E-01 |
| 30020 | 30010 | 0.48435162E-01 |
| | | |
| 2541020 | 2531020 | 541761.20 |
| 2541020 | 2541020 | 0.10749120E+09 |

$$\begin{aligned}
 P_n(A, Z) &= \frac{1}{4}(-1)^{A-Z+1}[S_n(A+1, Z) - 2S_n(A, Z) + S_n(A-1, Z)], \\
 P_p(A, Z) &= \frac{1}{4}(-1)^{Z+1}[S_p(A+1, Z+1) - 2S_p(A, Z) + S_p(A-1, Z-1)], \\
 P_d(A, Z) &= \frac{1}{4}(-1)^{Z+1}[S_d(A+2, Z+1) - 2S_d(A, Z) + S_d(A-2, Z-1)].
 \end{aligned}$$

S_n , S_p , and S_d are the neutron, proton and deuteron separation energies, the latter being defined as:

$$S_d(A, Z) = -M(A, Z) + M(A-2, Z-1) + M(d) = -Q(\gamma, d).$$

The quantities S_n , and S_p are defined in the Explanation of Table III and $Q(\gamma, d)$ can be calculated as indicated there.

Remark: P_n is also sometimes written as:

$$P_n(A, Z) = \frac{1}{4}(-1)^{A-Z+1}[-M(A+1, Z) + 3M(A, Z) - 3M(A-1, Z) + M(A-2, Z)],$$

displaying thus more clearly the combination of the involved masses. Similar expressions are valid for P_p and P_d .

5 Graphs of trends from the mass surface

All the information contained in the mass table (Table I) and in the nuclear reaction and separation energy table (Table III) can in principle be displayed in plots of the binding energy (or mass) versus Z , N , or A . The atomic mass surface as a function of Z and N splits into four sheets due to the pairing energy, as discussed in Part I, Section 4. These sheets are nearly parallel almost everywhere in this three-dimensional space and have remarkably regular trends, as one may convince oneself by making various cuts (e.g. Z or N or A constant). Any derivative of the binding energies also defines four sheets. In this context, *derivative* means a specified difference between the masses of two nearby nuclides. For a derivative specified in such a way where the differences are between nuclides in the same mass sheet, the nearly parallelism of these sheets leads to an (almost) unified

surface for the derivative, thus allowing a single display. The derivatives are also smooth and have the advantage of displaying much smaller variations in data. Therefore, in order to illustrate the regular trends in the mass surface, three derivatives of this last type were chosen:

1. the two-neutron separation energies versus N , with lines connecting the isotopes of a given element (Figs. 1–9);
2. the two-proton separation energies versus Z , with lines connecting the isotones (the same number of neutrons) (Figs. 10–17);
3. the α -decay energies versus N , with lines connecting the isotopes of a given element (Figs. 18–26);

These figures supersede the ones published in Ref. [2].

In the previous AME publications, the graphs of the double β -decay energies versus A were also given. Such

drawings were not included in the present publication, but can be easily derived from the data in Table I.

The Trends from the Mass Surface (TMS) can be quite useful for checking the quality of any interpolation or extrapolation (if not too far). When some masses deviate from the regular TMS in a specific mass region, there could be a serious physical cause, like a shell or subshell closure or an onset of deformation. However, if only one mass exhibits an irregular pattern, thus violating the general smooth trends, then one may seriously question the correctness of the related input data (see the discussion in Part I, Section 4, p. 030002-11).

6 List of references

A complete list of references related to the input data used in the AME2016 and the NUBASE2016 evaluations are presented at the end of this paper. The individual references are identified using the CODEN style [14] (see

p. 030003-261). There is only one exception for the Eur. Phys. A journal, where instead of the ‘ZAANE’ identifier [14], we have used ‘EPJAA’.

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Table I. The 2016 Atomic mass table**EXPLANATION OF TABLE**

| | |
|----------------------------|--|
| N | Number of neutrons. |
| Z | Number of protons. |
| A | Mass number $A = N + Z$. |
| Elt. | Element symbol (for $Z \geq 113$ see Part I, Section 6.8, p. 030002-31). |
| Orig. | Origin of values for secondary nuclides. |
| | $zp\ mn$ mass of AZ derived from mass of ${}^{A+z+n}(Z+z)$. Special notations: IT when $z = 0, n = 0$; $+$ when $z = +1, n = -1$; $-$ when $z = -1, n = +1$; $++$ when $z = +2, n = -2$; $--$ when $z = -2, n = +2$; εp when $z = -2, n = +1$; $+\alpha$ when $z = +2, n = +2$; $-\alpha$ when $z = -2, n = -2$; x for distant connection. |
| Mass excess | Mass excess $[M(\text{in u}) - A]$, in keV, and its uncertainty (one-standard deviation). In cases where the furthest-left significant digit in the uncertainty was larger than 3, values and uncertainties were rounded off, but not to more than tens of keV. (Examples: $2345.67 \pm 2.78 \rightarrow 2345.7 \pm 2.8$, $2345.67 \pm 4.68 \rightarrow 2346 \pm 5$, but $2346.7 \pm 468.2 \rightarrow 2350 \pm 470$). $\#$ in place of decimal point: value and uncertainty derived not from purely experimental data, but at least partly from TMS (see Part I, Section 4, p. 030002-9). |
| Binding energy per nucleon | Tabulated binding energy per nucleon (in keV): $B/A = 1/A[ZM({}^1\text{H}) + NM({}^1\text{n}) - M(A, Z)]$. and its uncertainty. $\#$ in place of decimal point: see above. a in place of uncertainty : uncertainty smaller than 0.5 eV. |
| Beta-decay energy | Direction of decay, value and uncertainty in keV: for β^- : $Q^- = M(A, Z) - M(A, Z + 1)$; for β^+ : $Q^+ = M(A, Z) - M(A, Z - 1)$. For a few odd-odd nuclides near maximum β -stability decaying both β^- and β^+ , the Q^+ values are given as negative Q^- values for the preceding even-even isobar. $*$ in place of value: not calculable. $\#$ in place of decimal point: see above. a in place of uncertainty : uncertainty smaller than 0.5 eV. |
| Atomic mass | Atomic mass M and its uncertainty in μu . $\#$ in place of decimal point: see above. |

Table I. The 2016 Atomic mass table (Explanation of Table on p. 030003-6)

| N | Z | A | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μu | |
|-----|-----|-----|------|------------|----------------------|---------|-------------------------------------|-------|----------------------------|----------|-------|------------------------|---------|
| 1 | 0 | 1 | n | | 8071.3171 | 0.0005 | 0.0 | 0.0 | β^- | 782.346 | 0.001 | 1 008664.9158 | 0.0005 |
| 0 | 1 | | H | | 7288.97061 | 0.00009 | 0.0 | 0.0 | * | * | | 1 007825.03224 | 0.00009 |
| 1 | 1 | 2 | H | | 13135.72176 | 0.00011 | 1112.283 | a | | * | | 2 014101.77811 | 0.00012 |
| 2 | 1 | 3 | H | | 14949.80993 | 0.00022 | 2827.265 | a | β^- | 18.592 | a | 3 016049.28199 | 0.00023 |
| 1 | 2 | | He | | 14931.21793 | 0.00021 | 2572.680 | a | * | * | | 3 016029.32265 | 0.00022 |
| 0 | 3 | | Li | -pp | 28670# | 2000# | -2270# | 670# | β^+ | 13740# | 2000# | 3 030780# | 2150# |
| 3 | 1 | 4 | H | -n | 24620 | 100 | 1720 | 25 | β^- | 22200 | 100 | 4 026430 | 110 |
| 2 | 2 | | He | | 2424.91561 | 0.00006 | 7073.915 | a | * | * | | 4 002603.25413 | 0.00006 |
| 1 | 3 | | Li | -p | 25320 | 210 | 1150 | 50 | β^+ | 22900 | 210 | 4 027190 | 230 |
| 4 | 1 | 5 | H | -nn | 32890 | 90 | 1336 | 18 | β^- | 21660 | 90 | 5 035310 | 100 |
| 3 | 2 | | He | -n | 11231 | 20 | 5512 | 4 | * | * | | 5 012057 | 21 |
| 2 | 3 | | Li | -p | 11680 | 50 | 5266 | 10 | β^+ | 450 | 50 | 5 012540 | 50 |
| 1 | 4 | | Be | x | 37140# | 2000# | 20# | 400# | β^+ | 25460# | 2000# | 5 039870# | 2150# |
| 5 | 1 | 6 | H | -3n | 41880 | 250 | 960 | 40 | β^- | 24280 | 250 | 6 044960 | 270 |
| 4 | 2 | | He | | 17592.10 | 0.05 | 4878.519 | 0.009 | β^- | 3505.22 | 0.05 | 6 018885.89 | 0.06 |
| 3 | 3 | | Li | | 14086.8789 | 0.0014 | 5332.331 | a | * | * | | 6 015122.8874 | 0.0015 |
| 2 | 4 | | Be | — | 18375 | 5 | 4487.2 | 0.9 | β^+ | 4288 | 5 | 6 019726 | 6 |
| 1 | 5 | | B | x | 47320# | 2000# | -470# | 330# | β^+ | 28950# | 2000# | 6 050800# | 2150# |
| 6 | 1 | 7 | H | -nn | 49140# | 1000# | 940# | 140# | β^- | 23060# | 1000# | 7 052750# | 1080# |
| 5 | 2 | | He | -n | 26073 | 8 | 4123.1 | 1.1 | β^- | 11166 | 8 | 7 027991 | 8 |
| 4 | 3 | | Li | | 14907.105 | 0.004 | 5606.439 | 0.001 | * | * | | 7 016003.437 | 0.005 |
| 3 | 4 | | Be | | 15769.00 | 0.07 | 5371.548 | 0.010 | β^+ | 861.89 | 0.07 | 7 016928.72 | 0.08 |
| 2 | 5 | | B | p4n | 27677 | 25 | 3559 | 4 | β^+ | 11908 | 25 | 7 029712 | 27 |
| 6 | 2 | 8 | He | | 31609.68 | 0.09 | 3924.520 | 0.011 | β^- | 10663.88 | 0.10 | 8 033934.39 | 0.10 |
| 5 | 3 | | Li | | 20945.80 | 0.05 | 5159.712 | 0.006 | β^- | 16004.13 | 0.06 | 8 022486.25 | 0.05 |
| 4 | 4 | | Be | — α | 4941.67 | 0.04 | 7062.435 | 0.004 | * | * | | 8 005305.10 | 0.04 |
| 3 | 5 | | B | | 22921.6 | 1.0 | 4717.15 | 0.12 | β^+ | 17979.9 | 1.0 | 8 024607.3 | 1.1 |
| 2 | 6 | | C | | 35064 | 18 | 3101.5 | 2.3 | β^+ | 12143 | 18 | 8 037643 | 20 |
| 7 | 2 | 9 | He | | 40940 | 50 | 3349 | 5 | β^- | 15980 | 50 | 9 043950 | 50 |
| 6 | 3 | | Li | -3n | 24954.90 | 0.19 | 5037.768 | 0.021 | β^- | 13606.45 | 0.20 | 9 026790.19 | 0.20 |
| 5 | 4 | | Be | | 11348.45 | 0.08 | 6462.668 | 0.009 | * | * | | 9 012183.07 | 0.08 |
| 4 | 5 | | B | — | 12416.5 | 0.9 | 6257.07 | 0.10 | β^+ | 1068.0 | 0.9 | 9 013329.6 | 1.0 |
| 3 | 6 | | C | -pp | 28911.0 | 2.1 | 4337.42 | 0.24 | β^+ | 16494.5 | 2.3 | 9 031037.2 | 2.3 |
| 8 | 2 | 10 | He | -nn | 49200 | 90 | 2995 | 9 | β^- | 16140 | 90 | 10 052820 | 100 |
| 7 | 3 | | Li | -n | 33053 | 13 | 4531.4 | 1.3 | β^- | 20445 | 13 | 10 035483 | 14 |
| 6 | 4 | | Be | | 12607.49 | 0.08 | 6497.630 | 0.008 | β^- | 556.88 | 0.08 | 10 013534.70 | 0.09 |
| 5 | 5 | | B | | 12050.609 | 0.015 | 6475.083 | 0.002 | * | * | | 10 012936.862 | 0.016 |
| 4 | 6 | | C | | 15698.67 | 0.07 | 6032.042 | 0.007 | β^+ | 3648.06 | 0.07 | 10 016853.22 | 0.08 |
| 3 | 7 | | N | — | 38800 | 400 | 3640 | 40 | β^+ | 23100 | 400 | 10 041650 | 430 |
| 8 | 3 | 11 | Li | x | 40728.3 | 0.6 | 4155.38 | 0.06 | β^- | 20551.1 | 0.7 | 11 043723.6 | 0.7 |
| 7 | 4 | | Be | | 20177.17 | 0.24 | 5952.540 | 0.022 | β^- | 11509.46 | 0.24 | 11 021661.08 | 0.26 |
| 6 | 5 | | B | | 8667.707 | 0.012 | 6927.732 | 0.001 | * | * | | 11 009305.167 | 0.013 |
| 5 | 6 | | C | | 10649.40 | 0.06 | 6676.456 | 0.005 | β^+ | 1981.69 | 0.06 | 11 011432.60 | 0.06 |
| 4 | 7 | | N | -p | 24300 | 50 | 5364 | 4 | β^+ | 13650 | 50 | 11 026090 | 50 |
| 9 | 3 | 12 | Li | -n | 49010 | 30 | 3791.6 | 2.5 | β^- | 23930 | 30 | 12 052610 | 30 |
| 8 | 4 | | Be | | 25077.8 | 1.9 | 5720.72 | 0.16 | β^- | 11708.4 | 2.3 | 12 026922.1 | 2.0 |
| 7 | 5 | | B | | 13369.4 | 1.3 | 6631.22 | 0.11 | β^- | 13369.4 | 1.3 | 12 014352.6 | 1.4 |
| 6 | 6 | | C | | 0.0 | 0.0 | 7680.144 | a | * | * | | 12 000000.0 | 0.0 |
| 5 | 7 | | N | | 17338.1 | 1.0 | 6170.11 | 0.08 | β^+ | 17338.1 | 1.0 | 12 018613.2 | 1.1 |
| 4 | 8 | | O | -pp | 31915 | 24 | 4890.2 | 2.0 | β^+ | 14577 | 24 | 12 034262 | 26 |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ | |
|----------|----------|----------|------|-------|----------------------|---------|-------------------------------------|----------|----------------------------|----------|-------|----------------------|---------|
| 10 | 3 | 13 | Li | -nn | 56980 | 70 | 3508 | 5 | β^- | 23320 | 70 | 13 061170 | 80 |
| 9 | 4 | | Be | -n | 33659 | 10 | 5241.4 | 0.8 | β^- | 17097 | 10 | 13 036135 | 11 |
| 8 | 5 | | B | -nn | 16561.9 | 1.0 | 6496.42 | 0.08 | β^- | 13436.9 | 1.0 | 13 017780.0 | 1.1 |
| 7 | 6 | | C | | 3125.00888 | 0.00021 | 7469.849 | <i>a</i> | * | | | 13 003354.83521 | 0.00023 |
| 6 | 7 | | N | | 5345.48 | 0.27 | 7238.863 | 0.021 | β^+ | 2220.47 | 0.27 | 13 005738.61 | 0.29 |
| 5 | 8 | | O | +3n | 23115 | 10 | 5811.8 | 0.7 | β^+ | 17770 | 10 | 13 024815 | 10 |
| 10 | 4 | 14 | Be | x | 39950 | 130 | 4994 | 9 | β^- | 16290 | 130 | 14 042890 | 140 |
| 9 | 5 | | B | | 23664 | 21 | 6101.6 | 1.5 | β^- | 20644 | 21 | 14 025404 | 23 |
| 8 | 6 | | C | | 3019.893 | 0.004 | 7520.319 | <i>a</i> | β^- | 156.476 | 0.004 | 14 003241.988 | 0.004 |
| 7 | 7 | | N | | 2863.41672 | 0.00019 | 7475.614 | <i>a</i> | * | | | 14 003074.00446 | 0.00021 |
| 6 | 8 | | O | | 8007.781 | 0.025 | 7052.278 | 0.002 | β^+ | 5144.364 | 0.025 | 14 008596.706 | 0.027 |
| 5 | 9 | | F | -p | 31960 | 40 | 5285.2 | 2.9 | β^+ | 23960 | 40 | 14 034320 | 40 |
| 11 | 4 | 15 | Be | -n | 49830 | 170 | 4541 | 11 | β^- | 20870 | 170 | 15 053490 | 180 |
| 10 | 5 | | B | | 28958 | 21 | 5880.0 | 1.4 | β^- | 19085 | 21 | 15 031088 | 23 |
| 9 | 6 | | C | -n | 9873.1 | 0.8 | 7100.17 | 0.05 | β^- | 9771.7 | 0.8 | 15 010599.3 | 0.9 |
| 8 | 7 | | N | | 101.4387 | 0.0006 | 7699.460 | <i>a</i> | * | | | 15 000108.8989 | 0.0006 |
| 7 | 8 | | O | | 2855.6 | 0.5 | 7463.69 | 0.03 | β^+ | 2754.2 | 0.5 | 15 003065.6 | 0.5 |
| 6 | 9 | | F | -p | 16567 | 14 | 6497.5 | 0.9 | β^+ | 13711 | 14 | 15 017785 | 15 |
| 5 | 10 | | Ne | -pp | 40220 | 70 | 4869 | 4 | β^+ | 23650 | 70 | 15 043170 | 70 |
| 12 | 4 | 16 | Be | -nn | 57450 | 170 | 4285 | 10 | β^- | 20330 | 170 | 16 061670 | 180 |
| 11 | 5 | | B | | 37113 | 25 | 5507.3 | 1.5 | β^- | 23418 | 25 | 16 039842 | 26 |
| 10 | 6 | | C | -nn | 13694 | 4 | 6922.05 | 0.22 | β^- | 8010 | 4 | 16 014701 | 4 |
| 9 | 7 | | N | -n | 5683.9 | 2.3 | 7373.80 | 0.14 | β^- | 10420.9 | 2.3 | 16 006101.9 | 2.5 |
| 8 | 8 | | O | | -4737.00135 | 0.00016 | 7976.206 | <i>a</i> | * | | | 15 994914.61960 | 0.00017 |
| 7 | 9 | | F | — | 10680 | 8 | 6963.7 | 0.5 | β^+ | 15417 | 8 | 16 011466 | 9 |
| 6 | 10 | | Ne | — | 23987 | 20 | 6083.2 | 1.3 | β^+ | 13307 | 22 | 16 025751 | 22 |
| 12 | 5 | 17 | B | x | 43720 | 200 | 5270 | 12 | β^- | 22680 | 200 | 17 046930 | 220 |
| 11 | 6 | | C | 2p-n | 21032 | 17 | 6558.0 | 1.0 | β^- | 13162 | 23 | 17 022579 | 19 |
| 10 | 7 | | N | +p | 7870 | 15 | 7286.2 | 0.9 | β^- | 8679 | 15 | 17 008449 | 16 |
| 9 | 8 | | O | | -808.7635 | 0.0007 | 7750.728 | <i>a</i> | * | | | 16 999131.7566 | 0.0007 |
| 8 | 9 | | F | | 1951.70 | 0.25 | 7542.328 | 0.015 | β^+ | 2760.47 | 0.25 | 17 002095.24 | 0.27 |
| 7 | 10 | | Ne | | 16500.4 | 0.4 | 6640.499 | 0.021 | β^+ | 14548.7 | 0.4 | 17 017714.0 | 0.4 |
| 6 | 11 | | Na | x | 35170 | 1000 | 5500 | 60 | β^+ | 18670 | 1000 | 17 037760 | 1080 |
| 13 | 5 | 18 | B | -n | 51790 | 200 | 4977 | 11 | β^- | 26870 | 210 | 18 055600 | 220 |
| 12 | 6 | | C | ++ | 24920 | 30 | 6426.1 | 1.7 | β^- | 11810 | 40 | 18 026750 | 30 |
| 11 | 7 | | N | + | 13113 | 19 | 7038.6 | 1.0 | β^- | 13896 | 19 | 18 014078 | 20 |
| 10 | 8 | | O | | -782.8156 | 0.0007 | 7767.097 | <i>a</i> | * | | | 17 999159.6128 | 0.0008 |
| 9 | 9 | | F | | 873.1 | 0.5 | 7631.638 | 0.026 | β^+ | 1655.9 | 0.5 | 18 000937.3 | 0.5 |
| 8 | 10 | | Ne | | 5317.6 | 0.4 | 7341.257 | 0.020 | β^+ | 4444.5 | 0.6 | 18 005708.7 | 0.4 |
| 7 | 11 | | Na | | 25040 | 90 | 6202 | 5 | β^+ | 19720 | 90 | 18 026880 | 100 |
| 14 | 5 | 19 | B | x | 59770 | 530 | 4720 | 28 | β^- | 27360 | 530 | 19 064170 | 560 |
| 13 | 6 | | C | -n | 32410 | 100 | 6118 | 5 | β^- | 16560 | 100 | 19 034800 | 110 |
| 12 | 7 | | N | p-2n | 15856 | 16 | 6948.5 | 0.9 | β^- | 12523 | 17 | 19 017022 | 18 |
| 11 | 8 | | O | -n | 3332.9 | 2.6 | 7566.49 | 0.14 | β^- | 4820.3 | 2.6 | 19 003578.0 | 2.8 |
| 10 | 9 | | F | | -1487.4442 | 0.0009 | 7779.018 | <i>a</i> | * | | | 18 998403.1629 | 0.0009 |
| 9 | 10 | | Ne | +3n | 1752.05 | 0.16 | 7567.343 | 0.008 | β^+ | 3239.49 | 0.16 | 19 001880.90 | 0.17 |
| 8 | 11 | | Na | | 12929 | 11 | 6937.9 | 0.6 | β^+ | 11177 | 11 | 19 013880 | 11 |
| 7 | 12 | | Mg | -pp | 31830 | 50 | 5902.0 | 2.6 | β^+ | 18900 | 50 | 19 034170 | 50 |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ u | |
|----------|----------|----------|------|--------------|----------------------|--------|-------------------------------------|----------|----------------------------|----------|-------|------------------------|--------|
| 15 | 5 | 20 | B | x | 68450# | 800# | 4450# | 40# | β^- | 30950# | 830# | 20 073480# | 860# |
| 14 | 6 | | C | x | 37500 | 230 | 5961 | 12 | β^- | 15740 | 240 | 20 040260 | 250 |
| 13 | 7 | | N | x | 21770 | 80 | 6709 | 4 | β^- | 17970 | 80 | 20 023370 | 80 |
| 12 | 8 | | O | -nn | 3796.2 | 0.9 | 7568.57 | 0.04 | β^- | 3813.6 | 0.9 | 20 004075.4 | 0.9 |
| 11 | 9 | | F | -n | -17.463 | 0.030 | 7720.134 | 0.002 | β^- | 7024.467 | 0.030 | 19 999981.25 | 0.03 |
| 10 | 10 | | Ne | | -7041.9305 | 0.0016 | 8032.240 | <i>a</i> | * | * | * | 19 992440.1762 | 0.0017 |
| 9 | 11 | | Na | | 6850.6 | 1.1 | 7298.50 | 0.06 | β^+ | 13892.5 | 1.1 | 20 007354.4 | 1.2 |
| 8 | 12 | | Mg | +t | 17477.7 | 1.9 | 6728.02 | 0.09 | β^+ | 10627.1 | 2.2 | 20 018763.1 | 2.0 |
| | | | | | | | | | | | | | |
| 16 | 5 | 21 | B | x | 77330# | 900# | 4200# | 40# | β^- | 31690# | 1080# | 21 083020# | 970# |
| 15 | 6 | | C | x | 45640# | 600# | 5674# | 28# | β^- | 20410# | 610# | 21 049000# | 640# |
| 14 | 7 | | N | x | 25230 | 130 | 6609 | 6 | β^- | 17170 | 130 | 21 027090 | 140 |
| 13 | 8 | | O | -3n | 8062 | 12 | 7389.4 | 0.6 | β^- | 8110 | 12 | 21 008655 | 13 |
| 12 | 9 | | F | -nn | -47.6 | 1.8 | 7738.29 | 0.09 | β^- | 5684.2 | 1.8 | 20 999948.9 | 1.9 |
| 11 | 10 | | Ne | | -5731.78 | 0.04 | 7971.713 | 0.002 | * | * | * | 20 993846.69 | 0.04 |
| 10 | 11 | | Na | | -2184.63 | 0.10 | 7765.547 | 0.005 | β^+ | 3547.14 | 0.09 | 20 997654.70 | 0.11 |
| 9 | 12 | | Mg | x | 10903.8 | 0.8 | 7105.03 | 0.04 | β^+ | 13088.5 | 0.8 | 21 011705.8 | 0.8 |
| 8 | 13 | | Al | x | 26990# | 600# | 6302# | 28# | β^+ | 16090# | 600# | 21 028980# | 640# |
| | | | | | | | | | | | | | |
| 16 | 6 | 22 | C | -nn | 53610 | 230 | 5421 | 11 | β^- | 21850 | 310 | 22 057550 | 250 |
| 15 | 7 | | N | x | 31760 | 210 | 6379 | 9 | β^- | 22480 | 220 | 22 034100 | 220 |
| 14 | 8 | | O | -4n | 9280 | 60 | 7364.9 | 2.6 | β^- | 6490 | 60 | 22 009970 | 60 |
| 13 | 9 | | F | + | 2793 | 12 | 7624.3 | 0.6 | β^- | 10818 | 12 | 22 002999 | 13 |
| 12 | 10 | | Ne | | -8024.719 | 0.018 | 8080.465 | 0.001 | * | * | * | 21 991385.110 | 0.019 |
| 11 | 11 | | Na | | -5181.51 | 0.17 | 7915.667 | 0.008 | β^+ | 2843.21 | 0.17 | 21 994437.42 | 0.18 |
| 10 | 12 | | Mg | | -399.9 | 0.3 | 7662.761 | 0.014 | β^+ | 4781.6 | 0.3 | 21 999570.7 | 0.3 |
| 9 | 13 | | Al | x | 18200# | 400# | 6782# | 18# | β^+ | 18600# | 400# | 22 019540# | 430# |
| 8 | 14 | | Si | x | 33340# | 500# | 6058# | 23# | β^+ | 15140# | 640# | 22 035790# | 540# |
| | | | | | | | | | | | | | |
| 17 | 6 | 23 | C | x | 64170# | 1000# | 5080# | 40# | β^- | 27450# | 1080# | 23 068890# | 1070# |
| 16 | 7 | | N | x | 36720 | 420 | 6237 | 18 | β^- | 22100 | 440 | 23 039420 | 450 |
| 15 | 8 | | O | x | 14620 | 120 | 7163 | 5 | β^- | 11340 | 130 | 23 015700 | 130 |
| 14 | 9 | | F | | 3290 | 30 | 7622.3 | 1.4 | β^- | 8440 | 30 | 23 003530 | 40 |
| 13 | 10 | | Ne | -n | -5154.05 | 0.10 | 7955.256 | 0.005 | β^- | 4375.80 | 0.10 | 22 994466.90 | 0.11 |
| 12 | 11 | | Na | | -9529.8525 | 0.0018 | 8111.493 | <i>a</i> | * | * | * | 22 989769.2820 | 0.0019 |
| 11 | 12 | | Mg | — | -5473.51 | 0.16 | 7901.115 | 0.007 | β^+ | 4056.34 | 0.16 | 22 994123.94 | 0.17 |
| 10 | 13 | | Al | — | 6748.1 | 0.3 | 7335.727 | 0.015 | β^+ | 12221.6 | 0.4 | 23 007244.4 | 0.4 |
| 9 | 14 | | Si | x | 23700# | 500# | 6565# | 22# | β^+ | 16950# | 500# | 23 025440# | 540# |
| | | | | | | | | | | | | | |
| 17 | 7 | 24 | N | x | 46940# | 400# | 5887# | 17# | β^- | 28440# | 430# | 24 050390# | 430# |
| 16 | 8 | | O | x | 18500 | 160 | 7040 | 7 | β^- | 10960 | 190 | 24 019860 | 180 |
| 15 | 9 | | F | x | 7540 | 100 | 7464 | 4 | β^- | 13500 | 100 | 24 008100 | 100 |
| 14 | 10 | | Ne | -nn | -5951.6 | 0.5 | 7993.325 | 0.021 | β^- | 2466.3 | 0.5 | 23 993610.6 | 0.6 |
| 13 | 11 | | Na | -n | -8417.901 | 0.017 | 8063.488 | 0.001 | β^- | 5515.669 | 0.021 | 23 990963.011 | 0.018 |
| 12 | 12 | | Mg | | -13933.569 | 0.013 | 8260.709 | 0.001 | * | * | * | 23 985041.697 | 0.014 |
| 11 | 13 | | Al | ϵ p | -48.86 | 0.23 | 7649.582 | 0.010 | β^+ | 13884.70 | 0.23 | 23 999947.54 | 0.25 |
| 10 | 14 | | Si | — | 10745 | 19 | 7167.2 | 0.8 | β^+ | 10794 | 19 | 24 011535 | 21 |
| 9 | 15 | | P | x | 33320# | 500# | 6194# | 21# | β^+ | 22570# | 500# | 24 035770# | 540# |
| | | | | | | | | | | | | | |
| 18 | 7 | 25 | N | x | 55980# | 500# | 5613# | 20# | β^- | 28650# | 530# | 25 060100# | 540# |
| 17 | 8 | | O | -n | 27330 | 170 | 6728 | 7 | β^- | 15990 | 190 | 25 029340 | 180 |
| 16 | 9 | | F | x | 11330 | 100 | 7336 | 4 | β^- | 13370 | 100 | 25 012170 | 100 |
| 15 | 10 | | Ne | | -2036 | 29 | 7839.8 | 1.2 | β^- | 7322 | 29 | 24 997810 | 30 |
| 14 | 11 | | Na | -nn | -9357.8 | 1.2 | 8101.40 | 0.05 | β^- | 3835.0 | 1.2 | 24 989954.0 | 1.3 |
| 13 | 12 | | Mg | | -13192.78 | 0.05 | 8223.502 | 0.002 | * | * | * | 24 985836.96 | 0.05 |
| 12 | 13 | | Al | | -8915.97 | 0.06 | 8021.136 | 0.003 | β^+ | 4276.81 | 0.04 | 24 990428.31 | 0.07 |
| 11 | 14 | | Si | +3n | 3827 | 10 | 7480.1 | 0.4 | β^+ | 12743 | 10 | 25 004109 | 11 |
| 10 | 15 | | P | x | 19740# | 400# | 6812# | 16# | β^+ | 15910# | 400# | 25 021190# | 430# |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ u | | |
|----------|----------|----------|------|--------|----------------------|--------|-------------------------------------|-----------|----------------------------|-----------|------------|------------------------|------------|------|
| 18 | 8 | 26 | O | -nn | 34660 | 160 | 6497 | 6 | β^- | 16010 | 200 | 26 037210 | 180 | |
| 17 | 9 | | F | x | 18650 | 110 | 7083 | 4 | β^- | 18170 | 110 | 26 020020 | 120 | |
| 16 | 10 | | Ne | x | 481 | 18 | 7751.9 | 0.7 | β^- | 7342 | 19 | 26 000516 | 20 | |
| 15 | 11 | | Na | x | -6861 | 4 | 8004.20 | 0.13 | β^- | 9354 | 4 | 25 992635 | 4 | |
| 14 | 12 | | Mg | | -16214.542 | 0.030 | 8333.870 | 0.001 | * | | | 25 982592.97 | 0.03 | |
| 13 | 13 | | Al | | -12210.15 | 0.07 | 8149.765 | 0.003 | β^+ | 4004.39 | 0.06 | 25 986891.86 | 0.07 | |
| 12 | 14 | | Si | — | -7141.02 | 0.11 | 7924.708 | 0.004 | β^+ | 5069.14 | 0.08 | 25 992333.80 | 0.12 | |
| 11 | 15 | | P | x | 10970# | 200# | 7198# | 8# | β^+ | 18110# | 200# | 26 011780# | 210# | |
| 10 | 16 | S | x | 27080# | 600# | 6548# | 23# | β^+ | 16110# | 630# | 26 029070# | 640# | | |
| 19 | 8 | 27 | O | x | 44670# | 500# | 6185# | 19# | β^- | 19220# | 630# | 27 047960# | 540# | |
| 18 | 9 | | F | x | 25450 | 390 | 6868 | 14 | β^- | 18400 | 400 | 27 027320 | 420 | |
| 17 | 10 | | Ne | x | 7050 | 90 | 7520 | 3 | β^- | 12570 | 90 | 27 007570 | 100 | |
| 16 | 11 | | Na | ++ | -5518 | 4 | 7956.95 | 0.14 | β^- | 9069 | 4 | 26 994076 | 4 | |
| 15 | 12 | | Mg | -n | -14586.61 | 0.05 | 8263.852 | 0.002 | β^- | 2610.25 | 0.07 | 26 984340.63 | 0.05 | |
| 14 | 13 | | Al | | -17196.86 | 0.05 | 8331.553 | 0.002 | * | | | 26 981538.41 | 0.05 | |
| 13 | 14 | | Si | — | -12384.50 | 0.11 | 8124.341 | 0.004 | β^+ | 4812.36 | 0.10 | 26 986704.69 | 0.12 | |
| 12 | 15 | | P | p4n | -722 | 26 | 7663.4 | 1.0 | β^+ | 11662 | 26 | 26 999224 | 28 | |
| 11 | 16 | | S | — | 17030# | 400# | 6977# | 15# | β^+ | 17750# | 400# | 27 018280# | 430# | |
| 20 | 8 | | 28 | O | x | 52080# | 700# | 5988# | 25# | β^- | 18340# | 800# | 28 055910# | 750# |
| 19 | 9 | | | F | -n | 33740 | 390 | 6615 | 14 | β^- | 22440 | 410 | 28 036220 | 420 |
| 18 | 10 | Ne | | x | 11300 | 130 | 7388 | 5 | β^- | 12290 | 130 | 28 012130 | 140 | |
| 17 | 11 | Na | | x | -988 | 10 | 7799.3 | 0.4 | β^- | 14031 | 10 | 27 998939 | 11 | |
| 16 | 12 | Mg | | + | -15018.8 | 2.0 | 8272.41 | 0.07 | β^- | 1831.8 | 2.0 | 27 983876.6 | 2.1 | |
| 15 | 13 | Al | | -n | -16850.64 | 0.08 | 8309.894 | 0.003 | β^- | 4642.15 | 0.08 | 27 981910.09 | 0.08 | |
| 14 | 14 | Si | | | -21492.7943 | 0.0005 | 8447.744 | <i>a</i> | * | | | 27 976926.5350 | 0.0005 | |
| 13 | 15 | P | | | -7147.7 | 1.2 | 7907.48 | 0.04 | β^+ | 14345.1 | 1.2 | 27 992326.6 | 1.2 | |
| 12 | 16 | S | | — | 4070 | 160 | 7479 | 6 | β^+ | 11220 | 160 | 28 004370 | 170 | |
| 11 | 17 | Cl | | x | 27520# | 600# | 6614# | 21# | β^+ | 23440# | 620# | 28 029540# | 640# | |
| 20 | 9 | 29 | | F | x | 40150 | 530 | 6444 | 18 | β^- | 21750 | 550 | 29 043100 | 560 |
| 19 | 10 | | Ne | x | 18400 | 150 | 7167 | 5 | β^- | 15720 | 150 | 29 019750 | 160 | |
| 18 | 11 | | Na | | 2680 | 7 | 7682.15 | 0.25 | β^- | 13283 | 14 | 29 002877 | 8 | |
| 17 | 12 | | Mg | x | -10603 | 11 | 8113.2 | 0.4 | β^- | 7605 | 11 | 28 988617 | 12 | |
| 16 | 13 | | Al | x | -18207.8 | 0.3 | 8348.464 | 0.012 | β^- | 3687.3 | 0.3 | 28 980453.2 | 0.4 | |
| 15 | 14 | | Si | | -21895.0784 | 0.0006 | 8448.635 | <i>a</i> | * | | | 28 976494.6653 | 0.0006 | |
| 14 | 15 | | P | | -16952.8 | 0.4 | 8251.236 | 0.012 | β^+ | 4942.2 | 0.4 | 28 981800.4 | 0.4 | |
| 13 | 16 | | S | +3n | -3160 | 50 | 7748.5 | 1.7 | β^+ | 13800 | 50 | 28 996610 | 50 | |
| 12 | 17 | Cl | -p | 13160 | 190 | 7159 | 7 | β^+ | 16320 | 200 | 29 014130 | 200 | | |
| 21 | 9 | 30 | F | x | 48110# | 600# | 6233# | 20# | β^- | 24830# | 650# | 30 051650# | 640# | |
| 20 | 10 | | Ne | | 23280 | 250 | 7035 | 8 | β^- | 14810 | 250 | 30 024990 | 270 | |
| 19 | 11 | | Na | | 8475 | 5 | 7501.97 | 0.16 | β^- | 17358 | 6 | 30 009098 | 5 | |
| 18 | 12 | | Mg | x | -8884 | 3 | 8054.51 | 0.11 | β^- | 6981 | 4 | 29 990463 | 4 | |
| 17 | 13 | | Al | x | -15864.8 | 2.9 | 8261.13 | 0.10 | β^- | 8568.1 | 2.9 | 29 982968 | 3 | |
| 16 | 14 | | Si | -n | -24432.960 | 0.022 | 8520.654 | 0.001 | * | | | 29 973770.137 | 0.023 | |
| 15 | 15 | | P | — | -20200.85 | 0.07 | 8353.506 | 0.002 | β^+ | 4232.11 | 0.06 | 29 978313.49 | 0.07 | |
| 14 | 16 | | S | — | -14059.25 | 0.21 | 8122.707 | 0.007 | β^+ | 6141.60 | 0.20 | 29 984906.77 | 0.22 | |
| 13 | 17 | | Cl | x | 4440# | 200# | 7480# | 7# | β^+ | 18500# | 200# | 30 004770# | 210# | |
| 12 | 18 | | Ar | -pp | 20930 | 210 | 6904 | 7 | β^+ | 16490# | 280# | 30 022470 | 220 | |
| 22 | 9 | 31 | F | -nn | 56140# | 550# | 6033# | 18# | β^- | 24960# | 610# | 31 060270# | 590# | |
| 21 | 10 | | Ne | | 31180 | 270 | 6813 | 9 | β^- | 18940 | 270 | 31 033470 | 290 | |
| 20 | 11 | | Na | x | 12246 | 14 | 7398.7 | 0.5 | β^- | 15368 | 14 | 31 013147 | 15 | |
| 19 | 12 | | Mg | x | -3122 | 3 | 7869.19 | 0.10 | β^- | 11829 | 4 | 30 996648 | 3 | |
| 18 | 13 | | Al | x | -14950.7 | 2.2 | 8225.52 | 0.07 | β^- | 7998.3 | 2.2 | 30 983949.8 | 2.4 | |
| 17 | 14 | | Si | -n | -22949.04 | 0.04 | 8458.291 | 0.001 | β^- | 1491.50 | 0.04 | 30 975363.19 | 0.05 | |
| 16 | 15 | | P | | -24440.5410 | 0.0007 | 8481.167 | <i>a</i> | * | | | 30 973761.9986 | 0.0007 | |
| 15 | 16 | | S | | -19042.52 | 0.23 | 8281.800 | 0.007 | β^+ | 5398.02 | 0.23 | 30 979557.01 | 0.25 | |
| 14 | 17 | | Cl | — | -7035 | 3 | 7869.21 | 0.11 | β^+ | 12008 | 3 | 30 992448 | 4 | |
| 13 | 18 | | Ar | — | 11330# | 200# | 7252# | 6# | β^+ | 18360# | 200# | 31 012160# | 220# | |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ u | |
|----------|----------|----------|------|-------|----------------------|--------|-------------------------------------|----------|----------------------------|----------|-------|------------------------|--------|
| 22 | 10 | 32 | Ne | x | 37000# | 500# | 6671# | 16# | β^- | 18360# | 500# | 32 039720# | 540# |
| 21 | 11 | | Na | x | 18640 | 40 | 7219.9 | 1.2 | β^- | 19470 | 40 | 32 020010 | 40 |
| 20 | 12 | | Mg | x | -829 | 3 | 7803.84 | 0.10 | β^- | 10270 | 8 | 31 999110 | 4 |
| 19 | 13 | | Al | x | -11099 | 7 | 8100.34 | 0.22 | β^- | 12978 | 7 | 31 988084 | 8 |
| 18 | 14 | | Si | x | -24077.69 | 0.30 | 8481.468 | 0.009 | β^- | 227.2 | 0.3 | 31 974151.5 | 0.3 |
| 17 | 15 | | P | -n | -24304.87 | 0.04 | 8464.120 | 0.001 | β^- | 1710.66 | 0.04 | 31 973907.64 | 0.04 |
| 16 | 16 | | S | | -26015.5336 | 0.0013 | 8493.129 | <i>a</i> | | * | | 31 972071.1744 | 0.0014 |
| 15 | 17 | | Cl | | -13334.7 | 0.6 | 8072.404 | 0.018 | β^+ | 12680.9 | 0.6 | 31 985684.6 | 0.6 |
| 14 | 18 | | Ar | x | -2200.4 | 1.8 | 7700.01 | 0.06 | β^+ | 11134.3 | 1.9 | 31 997637.8 | 1.9 |
| 13 | 19 | | K | x | 21100# | 400# | 6947# | 13# | β^+ | 23300# | 400# | 32 022650# | 430# |
| | | | | | | | | | | | | | |
| 23 | 10 | 33 | Ne | x | 46000# | 600# | 6440# | 18# | β^- | 22220# | 750# | 33 049380# | 640# |
| 22 | 11 | | Na | x | 23780 | 450 | 7090 | 14 | β^- | 18820 | 450 | 33 025530 | 480 |
| 21 | 12 | | Mg | x | 4962.3 | 2.9 | 7636.45 | 0.09 | β^- | 13460 | 8 | 33 005327 | 3 |
| 20 | 13 | | Al | x | -8497 | 7 | 8020.62 | 0.21 | β^- | 12017 | 7 | 32 990878 | 8 |
| 19 | 14 | | Si | x | -20514.3 | 0.7 | 8361.059 | 0.021 | β^- | 5823.0 | 1.3 | 32 977977.0 | 0.8 |
| 18 | 15 | | P | + | -26337.3 | 1.1 | 8513.81 | 0.03 | β^- | 248.5 | 1.1 | 32 971725.7 | 1.2 |
| 17 | 16 | | S | | -26585.8543 | 0.0014 | 8497.630 | <i>a</i> | | * | | 32 971458.9099 | 0.0015 |
| 16 | 17 | | Cl | | -21003.3 | 0.4 | 8304.755 | 0.012 | β^+ | 5582.5 | 0.4 | 32 977452.0 | 0.4 |
| 15 | 18 | | Ar | x | -9384.3 | 0.4 | 7928.955 | 0.012 | β^+ | 11619.0 | 0.6 | 32 989925.5 | 0.4 |
| 14 | 19 | | K | x | 7040# | 200# | 7407# | 6# | β^+ | 16430# | 200# | 33 007560# | 210# |
| | | | | | | | | | | | | | |
| 24 | 10 | 34 | Ne | -nn | 52840# | 510# | 6287# | 15# | β^- | 21160# | 790# | 34 056730# | 550# |
| 23 | 11 | | Na | x | 31680 | 600 | 6886 | 18 | β^- | 23360 | 600 | 34 034010 | 640 |
| 22 | 12 | | Mg | x | 8323 | 29 | 7550.4 | 0.8 | β^- | 11324 | 29 | 34 008940 | 30 |
| 21 | 13 | | Al | x | -3000 | 3 | 7860.43 | 0.09 | β^- | 16957 | 14 | 33 996779 | 3 |
| 20 | 14 | | Si | +pp | -19957 | 14 | 8336.1 | 0.4 | β^- | 4592 | 14 | 33 978575 | 15 |
| 19 | 15 | | P | x | -24548.7 | 0.8 | 8448.185 | 0.024 | β^- | 5383.0 | 0.8 | 33 973645.9 | 0.9 |
| 18 | 16 | | S | | -29931.69 | 0.04 | 8583.498 | 0.001 | | * | | 33 967867.01 | 0.05 |
| 17 | 17 | | Cl | | -24440.08 | 0.05 | 8398.970 | 0.002 | β^+ | 5491.60 | 0.04 | 33 973762.49 | 0.05 |
| 16 | 18 | | Ar | | -18378.29 | 0.08 | 8197.672 | 0.002 | β^+ | 6061.79 | 0.06 | 33 980270.09 | 0.08 |
| 15 | 19 | | K | x | -1220# | 200# | 7670# | 6# | β^+ | 17160# | 200# | 33 998690# | 210# |
| 14 | 20 | | Ca | x | 13850# | 300# | 7204# | 9# | β^+ | 15070# | 360# | 34 014870# | 320# |
| | | | | | | | | | | | | | |
| 24 | 11 | 35 | Na | -n | 38230# | 670# | 6733# | 19# | β^- | 22590# | 720# | 35 041040# | 720# |
| 23 | 12 | | Mg | x | 15640 | 270 | 7356 | 8 | β^- | 15860 | 270 | 35 016790 | 290 |
| 22 | 13 | | Al | x | -224 | 7 | 7787.12 | 0.21 | β^- | 14170 | 40 | 34 999760 | 8 |
| 21 | 14 | | Si | 2p-n | -14390 | 40 | 8169.6 | 1.0 | β^- | 10470 | 40 | 34 984550 | 40 |
| 20 | 15 | | P | +p | -24857.8 | 1.9 | 8446.25 | 0.05 | β^- | 3988.4 | 1.9 | 34 973314.1 | 2.0 |
| 19 | 16 | | S | | -28846.21 | 0.04 | 8537.850 | 0.001 | β^- | 167.322 | 0.026 | 34 969032.32 | 0.04 |
| 18 | 17 | | Cl | | -29013.53 | 0.04 | 8520.278 | 0.001 | | * | | 34 968852.69 | 0.04 |
| 17 | 18 | | Ar | — | -23047.3 | 0.7 | 8327.461 | 0.019 | β^+ | 5966.2 | 0.7 | 34 975257.7 | 0.7 |
| 16 | 19 | | K | 4n | -11172.9 | 0.5 | 7965.840 | 0.015 | β^+ | 11874.4 | 0.9 | 34 988005.4 | 0.6 |
| 15 | 20 | | Ca | x | 4790# | 200# | 7487# | 6# | β^+ | 15960# | 200# | 35 005140# | 210# |
| | | | | | | | | | | | | | |
| 25 | 11 | 36 | Na | -n | 46300# | 680# | 6546# | 19# | β^- | 25920# | 970# | 36 049710# | 730# |
| 24 | 12 | | Mg | x | 20380 | 690 | 7244 | 19 | β^- | 14430 | 710 | 36 021880 | 740 |
| 23 | 13 | | Al | x | 5950 | 150 | 7624 | 4 | β^- | 18390 | 170 | 36 006390 | 160 |
| 22 | 14 | | Si | x | -12440 | 70 | 8112.5 | 2.0 | β^- | 7810 | 70 | 35 986650 | 80 |
| 21 | 15 | | P | + | -20251 | 13 | 8307.9 | 0.4 | β^- | 10413 | 13 | 35 978260 | 14 |
| 20 | 16 | | S | | -30664.13 | 0.19 | 8575.389 | 0.005 | β^- | -1142.13 | 0.19 | 35 967080.70 | 0.20 |
| 19 | 17 | | Cl | | -29522.01 | 0.04 | 8521.931 | 0.001 | β^- | 709.53 | 0.04 | 35 968306.82 | 0.04 |
| 18 | 18 | | Ar | | -30231.540 | 0.027 | 8519.909 | 0.001 | | * | | 35 967545.105 | 0.029 |
| 17 | 19 | | K | | -17417.1 | 0.3 | 8142.219 | 0.009 | β^+ | 12814.5 | 0.3 | 35 981302.0 | 0.4 |
| 16 | 20 | | Ca | 4n | -6450 | 40 | 7815.9 | 1.1 | β^+ | 10970 | 40 | 35 993070 | 40 |
| 15 | 21 | | Sc | x | 15350# | 300# | 7189# | 8# | β^+ | 21800# | 300# | 36 016480# | 320# |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ u | |
|----------|----------|----------|------|-------|----------------------|--------|-------------------------------------|----------|----------------------------|----------|------|------------------------|--------|
| 26 | 11 | 37 | Na | -nn | 53530# | 690# | 6392# | 19# | β^- | 25320# | 980# | 37 057470# | 740# |
| 25 | 12 | | Mg | -n | 28210 | 700 | 7055 | 19 | β^- | 18400 | 720 | 37 030290 | 750 |
| 24 | 13 | | Al | x | 9810 | 180 | 7531 | 5 | β^- | 16380 | 210 | 37 010530 | 190 |
| 23 | 14 | | Si | x | -6570 | 110 | 7953 | 3 | β^- | 12420 | 120 | 36 992950 | 120 |
| 22 | 15 | | P | p-2n | -19000 | 40 | 8267.6 | 1.0 | β^- | 7900 | 40 | 36 979610 | 40 |
| 21 | 16 | | S | -n | -26896.42 | 0.20 | 8459.935 | 0.005 | β^- | 4865.12 | 0.20 | 36 971125.51 | 0.21 |
| 20 | 17 | | Cl | | -31761.54 | 0.05 | 8570.281 | 0.001 | * | | | 36 965902.58 | 0.06 |
| 19 | 18 | | Ar | — | -30947.66 | 0.21 | 8527.139 | 0.006 | β^+ | 813.87 | 0.20 | 36 966776.31 | 0.22 |
| 18 | 19 | | K | -p | -24800.20 | 0.09 | 8339.847 | 0.003 | β^+ | 6147.47 | 0.23 | 36 973375.89 | 0.10 |
| 17 | 20 | | Ca | x | -13136.1 | 0.6 | 8003.456 | 0.017 | β^+ | 11664.1 | 0.6 | 36 985897.9 | 0.7 |
| 16 | 21 | | Sc | x | 3520# | 300# | 7532# | 8# | β^+ | 16660# | 300# | 37 003780# | 320# |
| | | | | | | | | | | | | | |
| 26 | 12 | 38 | Mg | x | 34070# | 500# | 6928# | 13# | β^- | 17860# | 630# | 38 036580# | 540# |
| 25 | 13 | | Al | x | 16210 | 370 | 7377 | 10 | β^- | 20380 | 390 | 38 017400 | 400 |
| 24 | 14 | | Si | x | -4170 | 100 | 7892.8 | 2.8 | β^- | 10450 | 130 | 37 995520 | 110 |
| 23 | 15 | | P | x | -14620 | 70 | 8147.3 | 1.9 | β^- | 12240 | 70 | 37 984300 | 80 |
| 22 | 16 | | S | + | -26861 | 7 | 8448.78 | 0.19 | β^- | 2937 | 7 | 37 971163 | 8 |
| 21 | 17 | | Cl | -n | -29798.10 | 0.10 | 8505.481 | 0.003 | β^- | 4916.72 | 0.22 | 37 968010.42 | 0.11 |
| 20 | 18 | | Ar | | -34714.82 | 0.19 | 8614.280 | 0.005 | * | | | 37 962732.10 | 0.21 |
| 19 | 19 | | K | | -28800.75 | 0.20 | 8438.058 | 0.005 | β^+ | 5914.07 | 0.04 | 37 969081.12 | 0.21 |
| 18 | 20 | | Ca | | -22058.50 | 0.19 | 8240.043 | 0.005 | β^+ | 6742.26 | 0.06 | 37 976319.23 | 0.21 |
| 17 | 21 | | Sc | x | -4250# | 200# | 7751# | 5# | β^+ | 17810# | 200# | 37 995440# | 220# |
| 16 | 22 | | Ti | x | 10870# | 300# | 7332# | 8# | β^+ | 15120# | 360# | 38 011670# | 320# |
| | | | | | | | | | | | | | |
| 27 | 12 | 39 | Mg | -n | 42280# | 510# | 6747# | 13# | β^- | 21630# | 650# | 39 045380# | 550# |
| 26 | 13 | | Al | x | 20650# | 400# | 7281# | 10# | β^- | 18330# | 420# | 39 022170# | 430# |
| 25 | 14 | | Si | x | 2320 | 140 | 7731 | 3 | β^- | 15090 | 180 | 39 002490 | 150 |
| 24 | 15 | | P | x | -12770 | 110 | 8098.0 | 2.9 | β^- | 10390 | 120 | 38 986290 | 120 |
| 23 | 16 | | S | 2p-n | -23160 | 50 | 8344.3 | 1.3 | β^- | 6640 | 50 | 38 975130 | 50 |
| 22 | 17 | | Cl | -nn | -29800.2 | 1.7 | 8494.40 | 0.04 | β^- | 3442 | 5 | 38 968008.2 | 1.9 |
| 21 | 18 | | Ar | + | -33242 | 5 | 8562.60 | 0.13 | β^- | 565 | 5 | 38 964313 | 5 |
| 20 | 19 | | K | | -33807.190 | 0.005 | 8557.025 | <i>a</i> | * | | | 38 963706.487 | 0.005 |
| 19 | 20 | | Ca | | -27282.7 | 0.6 | 8369.670 | 0.015 | β^+ | 6524.5 | 0.6 | 38 970710.8 | 0.6 |
| 18 | 21 | | Sc | 2n-p | -14173 | 24 | 8013.5 | 0.6 | β^+ | 13110 | 24 | 38 984785 | 26 |
| 17 | 22 | | Ti | x | 2200# | 200# | 7574# | 5# | β^+ | 16370# | 200# | 39 002360# | 220# |
| | | | | | | | | | | | | | |
| 28 | 12 | 40 | Mg | x | 48350# | 500# | 6628# | 13# | β^- | 20760# | 640# | 40 051910# | 540# |
| 27 | 13 | | Al | x | 27590# | 400# | 7127# | 10# | β^- | 22160# | 530# | 40 029620# | 430# |
| 26 | 14 | | Si | x | 5430 | 350 | 7662 | 9 | β^- | 13540 | 380 | 40 005830 | 370 |
| 25 | 15 | | P | x | -8110 | 150 | 7981 | 4 | β^- | 14720 | 150 | 39 991290 | 160 |
| 24 | 16 | | S | | -22838 | 4 | 8329.32 | 0.10 | β^- | 4720 | 30 | 39 975483 | 4 |
| 23 | 17 | | Cl | + | -27560 | 30 | 8427.8 | 0.8 | β^- | 7480 | 30 | 39 970420 | 30 |
| 22 | 18 | | Ar | | -35039.8946 | 0.0022 | 8595.259 | <i>a</i> | β^- | -1504.40 | 0.06 | 39 962383.1238 | 0.0024 |
| 21 | 19 | | K | | -33535.49 | 0.06 | 8538.090 | 0.001 | β^- | 1310.89 | 0.06 | 39 963998.17 | 0.06 |
| 20 | 20 | | Ca | | -34846.384 | 0.021 | 8551.303 | 0.001 | * | | | 39 962590.866 | 0.022 |
| 19 | 21 | | Sc | — | -20523.3 | 2.8 | 8173.67 | 0.07 | β^+ | 14323.0 | 2.8 | 39 977967 | 3 |
| 18 | 22 | | Ti | -- | -8850 | 160 | 7862 | 4 | β^+ | 11670 | 160 | 39 990500 | 170 |
| 17 | 23 | | V | x | 12170# | 300# | 7317# | 7# | β^+ | 21020# | 340# | 40 013070# | 320# |
| | | | | | | | | | | | | | |
| 28 | 13 | 41 | Al | x | 33420# | 500# | 7008# | 12# | β^- | 21300# | 750# | 41 035880# | 540# |
| 27 | 14 | | Si | x | 12120 | 550 | 7509 | 14 | β^- | 17100 | 570 | 41 013010 | 600 |
| 26 | 15 | | P | x | -4980 | 120 | 7906.6 | 2.9 | β^- | 14030 | 120 | 40 994650 | 130 |
| 25 | 16 | | S | x | -19009 | 4 | 8229.64 | 0.10 | β^- | 8300 | 70 | 40 979593 | 4 |
| 24 | 17 | | Cl | x | -27310 | 70 | 8413.0 | 1.7 | β^- | 5760 | 70 | 40 970680 | 70 |
| 23 | 18 | | Ar | -n | -33067.5 | 0.3 | 8534.372 | 0.008 | β^- | 2492.0 | 0.3 | 40 964500.6 | 0.4 |
| 22 | 19 | | K | | -35559.543 | 0.004 | 8576.072 | <i>a</i> | * | | | 40 961825.258 | 0.004 |
| 21 | 20 | | Ca | | -35137.89 | 0.14 | 8546.706 | 0.003 | β^+ | 421.65 | 0.14 | 40 962277.92 | 0.15 |
| 20 | 21 | | Sc | | -28642.41 | 0.08 | 8369.198 | 0.002 | β^+ | 6495.48 | 0.16 | 40 969251.10 | 0.09 |
| 19 | 22 | | Ti | x | -15698 | 28 | 8034.4 | 0.7 | β^+ | 12945 | 28 | 40 983150 | 30 |
| 18 | 23 | | V | x | 320# | 200# | 7625# | 5# | β^+ | 16020# | 200# | 41 000340# | 220# |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| N | Z | A | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μu | |
|-----|-----|-----|------|-----------|----------------------|------|-------------------------------------|-------|----------------------------|---------|-------|------------------------|------|
| 29 | 13 | 42 | Al | x | 40100# | 600# | 6874# | 14# | β^- | 23630# | 780# | 42 043050# | 640# |
| 28 | 14 | | Si | x | 16470# | 500# | 7418# | 12# | β^- | 15460# | 590# | 42 017680# | 540# |
| 27 | 15 | | P | x | 1010 | 310 | 7768 | 7 | β^- | 18650 | 310 | 42 001080 | 340 |
| 26 | 16 | | S | x | -17637.7 | 2.8 | 8193.23 | 0.07 | β^- | 7190 | 60 | 41 981065 | 3 |
| 25 | 17 | | Cl | x | -24830 | 60 | 8345.9 | 1.4 | β^- | 9590 | 60 | 41 973340 | 60 |
| 24 | 18 | | Ar | x | -34423 | 6 | 8555.61 | 0.14 | β^- | 599 | 6 | 41 963046 | 6 |
| 23 | 19 | | K | -n | -35022.03 | 0.11 | 8551.256 | 0.003 | β^- | 3525.22 | 0.18 | 41 962402.31 | 0.11 |
| 22 | 20 | | Ca | | -38547.24 | 0.15 | 8616.563 | 0.004 | * | | | 41 958617.83 | 0.16 |
| 21 | 21 | | Sc | | -32121.15 | 0.17 | 8444.933 | 0.004 | β^+ | 6426.09 | 0.10 | 41 965516.52 | 0.18 |
| 20 | 22 | | Ti | | -25104.67 | 0.28 | 8259.247 | 0.007 | β^+ | 7016.48 | 0.22 | 41 973049.02 | 0.30 |
| 19 | 23 | | V | x | -7620# | 200# | 7824# | 5# | β^+ | 17490# | 200# | 41 991820# | 210# |
| 18 | 24 | | Cr | x | 6730# | 400# | 7464# | 10# | β^+ | 14350# | 450# | 42 007230# | 430# |
| 30 | 13 | 43 | Al | x | 47020# | 800# | 6741# | 19# | β^- | 23920# | 1000# | 43 050480# | 860# |
| 29 | 14 | | Si | x | 23100# | 600# | 7279# | 14# | β^- | 18420# | 810# | 43 024800# | 640# |
| 28 | 15 | | P | x | 4680 | 550 | 7690 | 13 | β^- | 16880 | 550 | 43 005020 | 600 |
| 27 | 16 | | S | x | -12195 | 5 | 8063.83 | 0.12 | β^- | 11960 | 60 | 42 986908 | 5 |
| 26 | 17 | | Cl | x | -24160 | 60 | 8323.9 | 1.4 | β^- | 7850 | 60 | 42 974060 | 70 |
| 25 | 18 | | Ar | x | -32010 | 5 | 8488.24 | 0.12 | β^- | 4566 | 5 | 42 965636 | 6 |
| 24 | 19 | | K | -4n | -36575.4 | 0.4 | 8576.220 | 0.010 | β^- | 1833.4 | 0.5 | 42 960734.7 | 0.4 |
| 23 | 20 | | Ca | | -38408.82 | 0.23 | 8600.663 | 0.005 | * | | | 42 958766.43 | 0.24 |
| 22 | 21 | | Sc | -p | -36188.1 | 1.9 | 8530.82 | 0.04 | β^+ | 2220.7 | 1.9 | 42 961150.5 | 2.0 |
| 21 | 22 | | Ti | -n2p | -29321 | 7 | 8352.93 | 0.17 | β^+ | 6867 | 7 | 42 968523 | 8 |
| 20 | 23 | | V | x | -17920 | 40 | 8069.5 | 1.0 | β^+ | 11400 | 40 | 42 980770 | 50 |
| 19 | 24 | | Cr | x | -1970# | 400# | 7680# | 9# | β^+ | 15950# | 400# | 42 997890# | 430# |
| 30 | 14 | 44 | Si | x | 28510# | 600# | 7174# | 14# | β^- | 18060# | 780# | 44 030610# | 640# |
| 29 | 15 | | P | x | 10450# | 500# | 7567# | 11# | β^- | 19660# | 500# | 44 011220# | 540# |
| 28 | 16 | | S | x | -9204 | 5 | 7996.01 | 0.12 | β^- | 11180 | 140 | 43 990119 | 6 |
| 27 | 17 | | Cl | x | -20380 | 140 | 8232 | 3 | β^- | 12290 | 140 | 43 978120 | 150 |
| 26 | 18 | | Ar | x | -32673.3 | 1.6 | 8493.84 | 0.04 | β^- | 3108.2 | 1.6 | 43 964923.8 | 1.7 |
| 25 | 19 | | K | x | -35781.5 | 0.4 | 8546.701 | 0.010 | β^- | 5687.2 | 0.5 | 43 961587.0 | 0.5 |
| 24 | 20 | | Ca | | -41468.7 | 0.3 | 8658.175 | 0.007 | * | | | 43 955481.5 | 0.3 |
| 23 | 21 | | Sc | -p | -37816.0 | 1.8 | 8557.38 | 0.04 | β^+ | 3652.7 | 1.8 | 43 959402.9 | 1.9 |
| 22 | 22 | | Ti | $-\alpha$ | -37548.6 | 0.7 | 8533.520 | 0.016 | β^+ | 267.4 | 1.9 | 43 959690.0 | 0.8 |
| 21 | 23 | | V | x | -24120 | 180 | 8210 | 4 | β^+ | 13430 | 180 | 43 974110 | 200 |
| 20 | 24 | | Cr | x | -13360# | 300# | 7948# | 7# | β^+ | 10760# | 350# | 43 985660# | 320# |
| 19 | 25 | | Mn | x | 7030# | 500# | 7467# | 11# | β^+ | 20390# | 580# | 44 007550# | 540# |
| 31 | 14 | 45 | Si | x | 37490# | 700# | 6995# | 16# | β^- | 21890# | 860# | 45 040250# | 750# |
| 30 | 15 | | P | x | 15600# | 500# | 7464# | 11# | β^- | 19590# | 1150# | 45 016750# | 540# |
| 29 | 16 | | S | x | -3990 | 1040 | 7882 | 23 | β^- | 14270 | 1040 | 44 995720 | 1110 |
| 28 | 17 | | Cl | x | -18260 | 140 | 8182 | 3 | β^- | 11510 | 140 | 44 980390 | 150 |
| 27 | 18 | | Ar | x | -29770.8 | 0.5 | 8419.952 | 0.011 | β^- | 6844.8 | 0.7 | 44 968039.7 | 0.6 |
| 26 | 19 | | K | x | -36615.6 | 0.5 | 8554.674 | 0.012 | β^- | 4196.5 | 0.6 | 44 960691.5 | 0.6 |
| 25 | 20 | | Ca | | -40812.2 | 0.4 | 8630.545 | 0.008 | β^- | 259.7 | 0.7 | 44 956186.3 | 0.4 |
| 24 | 21 | | Sc | | -41071.9 | 0.7 | 8618.931 | 0.015 | * | | | 44 955907.5 | 0.7 |
| 23 | 22 | | Ti | | -39009.8 | 0.8 | 8555.722 | 0.019 | β^+ | 2062.1 | 0.5 | 44 958121.2 | 0.9 |
| 22 | 23 | | V | | -31886.0 | 0.9 | 8380.029 | 0.019 | β^+ | 7123.82 | 0.21 | 44 965769.0 | 0.9 |
| 21 | 24 | | Cr | x | -19510 | 40 | 8087.7 | 0.8 | β^+ | 12370 | 40 | 44 979050 | 40 |
| 20 | 25 | | Mn | x | -5250# | 400# | 7753# | 9# | β^+ | 14270# | 400# | 44 994360# | 430# |
| 19 | 26 | | Fe | -pp | 13760# | 400# | 7313# | 9# | β^+ | 19010# | 570# | 45 014770# | 430# |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ | |
|----------|----------|----------|------|-------|----------------------|------|-------------------------------------|-------|----------------------------|---------|------|----------------------|------|
| 31 | 15 | 46 | P | x | 22970# | 700# | 7317# | 15# | β^- | 22630# | 860# | 46 024660# | 750# |
| 30 | 16 | | S | x | 340# | 500# | 7792# | 11# | β^- | 14200# | 540# | 46 000370# | 540# |
| 29 | 17 | | Cl | x | -13860 | 210 | 8083 | 5 | β^- | 15910 | 210 | 45 985120 | 220 |
| 28 | 18 | | Ar | x | -29772.9 | 1.1 | 8412.419 | 0.024 | β^- | 5641.0 | 1.3 | 45 968037.4 | 1.2 |
| 27 | 19 | | K | x | -35413.9 | 0.7 | 8518.042 | 0.016 | β^- | 7725.4 | 2.4 | 45 961981.6 | 0.8 |
| 26 | 20 | | Ca | | -43139.4 | 2.2 | 8668.98 | 0.05 | β^- | -1378.1 | 2.3 | 45 953688.0 | 2.4 |
| 25 | 21 | | Sc | -n | -41761.2 | 0.7 | 8622.012 | 0.015 | β^- | 2366.6 | 0.7 | 45 955167.5 | 0.7 |
| 24 | 22 | | Ti | | -44127.80 | 0.16 | 8656.451 | 0.004 | * | | | 45 952626.86 | 0.18 |
| 23 | 23 | | V | | -37075.35 | 0.20 | 8486.130 | 0.004 | β^+ | 7052.45 | 0.09 | 45 960197.97 | 0.22 |
| 22 | 24 | | Cr | | -29472 | 11 | 8303.82 | 0.25 | β^+ | 7604 | 11 | 45 968361 | 12 |
| 21 | 25 | | Mn | x | -12570# | 400# | 7919# | 9# | β^+ | 16900# | 400# | 45 986510# | 430# |
| 20 | 26 | | Fe | x | 910# | 500# | 7609# | 11# | β^+ | 13480# | 640# | 46 000980# | 540# |
| 32 | 15 | 47 | P | x | 29710# | 800# | 7190# | 17# | β^- | 22340# | 940# | 47 031900# | 860# |
| 31 | 16 | | S | x | 7370# | 500# | 7648# | 11# | β^- | 17150# | 640# | 47 007910# | 540# |
| 30 | 17 | | Cl | x | -9780# | 400# | 7996# | 9# | β^- | 15590# | 400# | 46 989500# | 430# |
| 29 | 18 | | Ar | x | -25366.3 | 1.1 | 8311.404 | 0.024 | β^- | 10345.6 | 1.8 | 46 972768.1 | 1.2 |
| 28 | 19 | | K | x | -35712.0 | 1.4 | 8514.879 | 0.030 | β^- | 6632.4 | 2.6 | 46 961661.6 | 1.5 |
| 27 | 20 | | Ca | | -42344.4 | 2.2 | 8639.35 | 0.05 | β^- | 1992.2 | 1.2 | 46 954541.4 | 2.4 |
| 26 | 21 | | Sc | | -44336.6 | 1.9 | 8665.09 | 0.04 | β^- | 600.8 | 1.9 | 46 952402.7 | 2.1 |
| 25 | 22 | | Ti | | -44937.36 | 0.12 | 8661.227 | 0.003 | * | | | 46 951757.75 | 0.12 |
| 24 | 23 | | V | | -42006.62 | 0.17 | 8582.225 | 0.004 | β^+ | 2930.75 | 0.14 | 46 954904.04 | 0.18 |
| 23 | 24 | | Cr | | -34563 | 6 | 8407.20 | 0.13 | β^+ | 7444 | 6 | 46 962896 | 6 |
| 22 | 25 | | Mn | x | -22570 | 30 | 8135.3 | 0.7 | β^+ | 12000 | 30 | 46 975770 | 30 |
| 21 | 26 | | Fe | x | -6870# | 500# | 7785# | 11# | β^+ | 15700# | 500# | 46 992630# | 540# |
| 20 | 27 | | Co | x | 10370# | 600# | 7401# | 13# | β^+ | 17240# | 780# | 47 011130# | 640# |
| 32 | 16 | 48 | S | x | 12760# | 600# | 7545# | 12# | β^- | 17040# | 780# | 48 013700# | 640# |
| 31 | 17 | | Cl | x | -4280# | 500# | 7883# | 10# | β^- | 18000# | 590# | 47 995410# | 540# |
| 30 | 18 | | Ar | x | -22280 | 310 | 8242 | 6 | β^- | 10000 | 310 | 47 976080 | 330 |
| 29 | 19 | | K | x | -32284.5 | 0.8 | 8434.232 | 0.016 | β^- | 11940.2 | 0.8 | 47 965341.2 | 0.8 |
| 28 | 20 | | Ca | | -44224.63 | 0.10 | 8666.686 | 0.002 | β^- | 279 | 5 | 47 952522.90 | 0.10 |
| 27 | 21 | | Sc | | -44504 | 5 | 8656.20 | 0.10 | β^- | 3989 | 5 | 47 952223 | 5 |
| 26 | 22 | | Ti | | -48492.71 | 0.11 | 8723.006 | 0.002 | * | | | 47 947940.93 | 0.12 |
| 25 | 23 | | V | | -44477.7 | 1.0 | 8623.061 | 0.020 | β^+ | 4015.0 | 1.0 | 47 952251.2 | 1.0 |
| 24 | 24 | | Cr | +nn | -42822 | 7 | 8572.27 | 0.15 | β^+ | 1656 | 7 | 47 954029 | 8 |
| 23 | 25 | | Mn | | -29296 | 7 | 8274.19 | 0.14 | β^+ | 13526 | 10 | 47 968549 | 7 |
| 22 | 26 | | Fe | x | -18000# | 400# | 8023# | 8# | β^+ | 11300# | 400# | 47 980680# | 430# |
| 21 | 27 | | Co | x | 1500# | 500# | 7600# | 10# | β^+ | 19500# | 640# | 48 001610# | 540# |
| 20 | 28 | | Ni | -pp | 16790# | 500# | 7265# | 10# | β^+ | 15290# | 710# | 48 018030# | 540# |
| 33 | 16 | 49 | S | -n | 21090# | 670# | 7385# | 14# | β^- | 20150# | 900# | 49 022640# | 720# |
| 32 | 17 | | Cl | x | 940# | 600# | 7781# | 12# | β^- | 18130# | 720# | 49 001010# | 640# |
| 31 | 18 | | Ar | x | -17190# | 400# | 8135# | 8# | β^- | 12420# | 400# | 48 981550# | 430# |
| 30 | 19 | | K | x | -29611.5 | 0.8 | 8372.274 | 0.016 | β^- | 11688.3 | 0.8 | 48 968210.8 | 0.9 |
| 29 | 20 | | Ca | -n | -41299.77 | 0.20 | 8594.844 | 0.004 | β^- | 5261.5 | 2.7 | 48 955662.88 | 0.22 |
| 28 | 21 | | Sc | | -46561.3 | 2.7 | 8686.26 | 0.06 | β^- | 2002.5 | 2.7 | 48 950014.4 | 2.9 |
| 27 | 22 | | Ti | | -48563.79 | 0.11 | 8711.157 | 0.002 | * | | | 48 947864.63 | 0.12 |
| 26 | 23 | | V | — | -47961.9 | 0.8 | 8682.908 | 0.017 | β^+ | 601.9 | 0.8 | 48 948510.7 | 0.9 |
| 25 | 24 | | Cr | | -45333.1 | 2.2 | 8613.29 | 0.05 | β^+ | 2628.9 | 2.4 | 48 951333.0 | 2.4 |
| 24 | 25 | | Mn | | -37620.6 | 2.3 | 8439.93 | 0.05 | β^+ | 7712.43 | 0.23 | 48 959612.6 | 2.4 |
| 23 | 26 | | Fe | x | -24751 | 24 | 8161.3 | 0.5 | β^+ | 12870 | 24 | 48 973429 | 26 |
| 22 | 27 | | Co | x | -9880# | 500# | 7842# | 10# | β^+ | 14870# | 500# | 48 989390# | 540# |
| 21 | 28 | | Ni | x | 8200# | 600# | 7457# | 12# | β^+ | 18080# | 780# | 49 008800# | 640# |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ | |
|----------|----------|----------|------|-------|----------------------|------|-------------------------------------|-------|----------------------------|---------|------|----------------------|------|
| 33 | 17 | 50 | Cl | x | 7740# | 600# | 7651# | 12# | β^- | 21070# | 780# | 50 008310# | 640# |
| 32 | 18 | | Ar | x | -13330# | 500# | 8056# | 10# | β^- | 12400# | 500# | 49 985690# | 540# |
| 31 | 19 | | K | x | -25728 | 8 | 8288.58 | 0.15 | β^- | 13861 | 8 | 49 972380 | 8 |
| 30 | 20 | | Ca | x | -39589.2 | 1.6 | 8550.16 | 0.03 | β^- | 4958 | 15 | 49 957499.2 | 1.7 |
| 29 | 21 | | Sc | -pn | -44547 | 15 | 8633.7 | 0.3 | β^- | 6884 | 15 | 49 952176 | 16 |
| 28 | 22 | | Ti | | -51431.66 | 0.12 | 8755.718 | 0.002 | β^- | -2207.6 | 0.4 | 49 944785.84 | 0.13 |
| 27 | 23 | | V | +n | -49224.0 | 0.4 | 8695.918 | 0.008 | β^- | 1038.06 | 0.30 | 49 947155.8 | 0.4 |
| 26 | 24 | | Cr | | -50262.1 | 0.4 | 8701.032 | 0.009 | * | | | 49 946041.4 | 0.5 |
| 25 | 25 | | Mn | | -42627.6 | 0.4 | 8532.696 | 0.009 | β^+ | 7634.48 | 0.07 | 49 954237.4 | 0.5 |
| 24 | 26 | | Fe | x | -34476 | 8 | 8354.03 | 0.17 | β^+ | 8151 | 8 | 49 962988 | 9 |
| 23 | 27 | | Co | x | -17630# | 400# | 8001# | 8# | β^+ | 16850# | 400# | 49 981070# | 430# |
| 22 | 28 | | Ni | x | -4120# | 500# | 7716# | 10# | β^+ | 13510# | 640# | 49 995580# | 540# |
| 34 | 17 | 51 | Cl | x | 14290# | 700# | 7530# | 14# | β^- | 20980# | 920# | 51 015340# | 750# |
| 33 | 18 | | Ar | x | -6690# | 600# | 7926# | 12# | β^- | 15830# | 600# | 50 992820# | 640# |
| 32 | 19 | | K | x | -22516 | 13 | 8221.35 | 0.26 | β^- | 13816 | 13 | 50 975828 | 14 |
| 31 | 20 | | Ca | x | -36332.3 | 0.5 | 8476.913 | 0.010 | β^- | 6896 | 20 | 50 960995.7 | 0.6 |
| 30 | 21 | | Sc | -p2n | -43229 | 20 | 8596.8 | 0.4 | β^- | 6504 | 20 | 50 953592 | 21 |
| 29 | 22 | | Ti | -n | -49732.8 | 0.5 | 8708.988 | 0.010 | β^- | 2471.0 | 0.6 | 50 946609.6 | 0.5 |
| 28 | 23 | | V | | -52203.8 | 0.4 | 8742.099 | 0.008 | * | | | 50 943956.9 | 0.4 |
| 27 | 24 | | Cr | | -51451.4 | 0.4 | 8712.005 | 0.008 | β^+ | 752.45 | 0.21 | 50 944764.7 | 0.4 |
| 26 | 25 | | Mn | | -48243.9 | 0.5 | 8633.772 | 0.010 | β^+ | 3207.5 | 0.3 | 50 948208.1 | 0.5 |
| 25 | 26 | | Fe | | -40203 | 9 | 8460.76 | 0.18 | β^+ | 8041 | 9 | 50 956841 | 10 |
| 24 | 27 | | Co | x | -27340 | 50 | 8193.3 | 0.9 | β^+ | 12860 | 50 | 50 970650 | 50 |
| 23 | 28 | | Ni | x | -11900# | 500# | 7875# | 10# | β^+ | 15440# | 500# | 50 987230# | 540# |
| 34 | 18 | 52 | Ar | x | -1280# | 600# | 7825# | 12# | β^- | 15860# | 600# | 51 998630# | 640# |
| 33 | 19 | | K | x | -17140 | 30 | 8115.0 | 0.6 | β^- | 17130 | 30 | 51 981600 | 40 |
| 32 | 20 | | Ca | x | -34266.3 | 0.7 | 8429.381 | 0.013 | β^- | 6180 | 80 | 51 963213.6 | 0.7 |
| 31 | 21 | | Sc | x | -40440 | 80 | 8533.1 | 1.6 | β^- | 9030 | 80 | 51 956580 | 90 |
| 30 | 22 | | Ti | -nn | -49470 | 7 | 8691.67 | 0.14 | β^- | 1974 | 7 | 51 946892 | 8 |
| 29 | 23 | | V | -n | -51443.8 | 0.4 | 8714.582 | 0.008 | β^- | 3975.5 | 0.5 | 51 944772.8 | 0.5 |
| 28 | 24 | | Cr | | -55419.2 | 0.3 | 8775.989 | 0.007 | * | | | 51 940505.0 | 0.4 |
| 27 | 25 | | Mn | | -50707.3 | 1.8 | 8670.33 | 0.04 | β^+ | 4712.0 | 1.9 | 51 945563.5 | 2.0 |
| 26 | 26 | | Fe | | -48330 | 5 | 8609.57 | 0.10 | β^+ | 2377 | 5 | 51 948115 | 5 |
| 25 | 27 | | Co | x | -34361 | 8 | 8325.89 | 0.16 | β^+ | 13969 | 10 | 51 963112 | 9 |
| 24 | 28 | | Ni | x | -22330# | 400# | 8079# | 8# | β^+ | 12030# | 400# | 51 976030# | 430# |
| 23 | 29 | | Cu | x | -2280# | 600# | 7679# | 12# | β^+ | 20050# | 720# | 51 997550# | 640# |
| 35 | 18 | 53 | Ar | x | 6790# | 700# | 7677# | 13# | β^- | 19090# | 710# | 53 007290# | 750# |
| 34 | 19 | | K | x | -12300 | 110 | 8022.8 | 2.1 | β^- | 17090 | 120 | 52 986800 | 120 |
| 33 | 20 | | Ca | x | -29390 | 40 | 8330.6 | 0.8 | β^- | 9520 | 100 | 52 968450 | 50 |
| 32 | 21 | | Sc | x | -38910 | 90 | 8495.4 | 1.8 | β^- | 7920 | 140 | 52 958230 | 100 |
| 31 | 22 | | Ti | + | -46830 | 100 | 8630.2 | 1.9 | β^- | 5020 | 100 | 52 949720 | 110 |
| 30 | 23 | | V | +p | -51851 | 3 | 8710.13 | 0.06 | β^- | 3436 | 3 | 52 944336 | 3 |
| 29 | 24 | | Cr | | -55287.0 | 0.3 | 8760.198 | 0.007 | * | | | 52 940647.0 | 0.4 |
| 28 | 25 | | Mn | | -54690.1 | 0.5 | 8734.175 | 0.009 | β^+ | 596.9 | 0.4 | 52 941287.7 | 0.5 |
| 27 | 26 | | Fe | | -50947.5 | 1.7 | 8648.80 | 0.03 | β^+ | 3742.6 | 1.7 | 52 945305.6 | 1.8 |
| 26 | 27 | | Co | | -42659.4 | 1.7 | 8477.66 | 0.03 | β^+ | 8288.1 | 0.4 | 52 954203.2 | 1.8 |
| 25 | 28 | | Ni | x | -29631 | 25 | 8217.1 | 0.5 | β^+ | 13029 | 25 | 52 968190 | 27 |
| 24 | 29 | | Cu | x | -13270# | 500# | 7894# | 9# | β^+ | 16360# | 500# | 52 985750# | 540# |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ u | |
|----------|----------|----------|------|-------|----------------------|------|-------------------------------------|-------|----------------------------|---------|-------|------------------------|------|
| 35 | 19 | 54 | K | x | -5000# | 600# | 7889# | 11# | β^- | 20160# | 600# | 53 994630# | 640# |
| 34 | 20 | | Ca | x | -25160 | 50 | 8247.5 | 0.9 | β^- | 8730 | 280 | 53 972990 | 50 |
| 33 | 21 | | Sc | x | -33890 | 270 | 8395 | 5 | β^- | 11730 | 280 | 53 963620 | 290 |
| 32 | 22 | | Ti | x | -45620 | 80 | 8597.4 | 1.5 | β^- | 4270 | 80 | 53 951020 | 90 |
| 31 | 23 | | V | + | -49893 | 15 | 8662.04 | 0.28 | β^- | 7042 | 15 | 53 946437 | 16 |
| 30 | 24 | | Cr | | -56934.8 | 0.4 | 8777.955 | 0.007 | β^- | -1377.1 | 1.0 | 53 938878.0 | 0.4 |
| 29 | 25 | | Mn | -p | -55557.6 | 1.1 | 8737.965 | 0.020 | β^- | 696.9 | 1.1 | 53 940356.4 | 1.1 |
| 28 | 26 | | Fe | | -56254.5 | 0.4 | 8736.382 | 0.007 | | * | | 53 939608.3 | 0.4 |
| 27 | 27 | | Co | | -48010.0 | 0.4 | 8569.217 | 0.007 | β^+ | 8244.55 | 0.09 | 53 948459.2 | 0.4 |
| 26 | 28 | | Ni | x | -39278 | 5 | 8393.03 | 0.09 | β^+ | 8732 | 5 | 53 957833 | 5 |
| 25 | 29 | | Cu | x | -21410# | 400# | 8048# | 7# | β^+ | 17870# | 400# | 53 977020# | 430# |
| 24 | 30 | | Zn | -pp | -6270# | 400# | 7753# | 7# | β^+ | 15140# | 570# | 53 993270# | 430# |
| 36 | 19 | 55 | K | x | 710# | 700# | 7788# | 13# | β^- | 19060# | 760# | 55 000760# | 750# |
| 35 | 20 | | Ca | x | -18350# | 300# | 8120# | 5# | β^- | 11810# | 540# | 54 980300# | 320# |
| 34 | 21 | | Sc | x | -30160 | 450 | 8321 | 8 | β^- | 11510 | 480 | 54 967620 | 490 |
| 33 | 22 | | Ti | | -41670 | 160 | 8516.0 | 2.9 | β^- | 7480 | 160 | 54 955270 | 170 |
| 32 | 23 | | V | | -49140 | 100 | 8637.7 | 1.7 | β^- | 5970 | 100 | 54 947240 | 100 |
| 31 | 24 | | Cr | | -55109.7 | 0.4 | 8731.924 | 0.007 | β^- | 2602.7 | 0.4 | 54 940837.3 | 0.4 |
| 30 | 25 | | Mn | | -57712.4 | 0.3 | 8765.022 | 0.006 | | * | | 54 938043.2 | 0.3 |
| 29 | 26 | | Fe | | -57481.3 | 0.3 | 8746.595 | 0.006 | β^+ | 231.11 | 0.18 | 54 938291.3 | 0.4 |
| 28 | 27 | | Co | | -54029.9 | 0.4 | 8669.618 | 0.008 | β^+ | 3451.4 | 0.3 | 54 941996.5 | 0.5 |
| 27 | 28 | | Ni | — | -45335.8 | 0.7 | 8497.320 | 0.013 | β^+ | 8694.0 | 0.6 | 54 951330.0 | 0.8 |
| 26 | 29 | | Cu | x | -31640 | 160 | 8234.0 | 2.8 | β^+ | 13700 | 160 | 54 966040 | 170 |
| 25 | 30 | | Zn | x | -14570# | 400# | 7909# | 7# | β^+ | 17070# | 430# | 54 984360# | 430# |
| 37 | 19 | 56 | K | x | 7930# | 800# | 7664# | 14# | β^- | 21830# | 900# | 56 008510# | 860# |
| 36 | 20 | | Ca | x | -13900# | 400# | 8040# | 7# | β^- | 10950# | 710# | 55 985080# | 430# |
| 35 | 21 | | Sc | x | -24850 | 590 | 8222 | 10 | β^- | 14470 | 600 | 55 973320 | 630 |
| 34 | 22 | | Ti | | -39320 | 120 | 8466.1 | 2.2 | β^- | 6830 | 190 | 55 957790 | 130 |
| 33 | 23 | | V | | -46150 | 180 | 8574 | 3 | β^- | 9130 | 180 | 55 950450 | 190 |
| 32 | 24 | | Cr | ++ | -55285.0 | 0.6 | 8723.258 | 0.011 | β^- | 1626.5 | 0.6 | 55 940649.1 | 0.6 |
| 31 | 25 | | Mn | -n | -56911.5 | 0.3 | 8738.333 | 0.006 | β^- | 3695.54 | 0.21 | 55 938902.9 | 0.4 |
| 30 | 26 | | Fe | | -60607.1 | 0.3 | 8790.354 | 0.005 | | * | | 55 934935.6 | 0.3 |
| 29 | 27 | | Co | | -56040.4 | 0.5 | 8694.836 | 0.009 | β^+ | 4566.7 | 0.4 | 55 939838.2 | 0.5 |
| 28 | 28 | | Ni | | -53907.5 | 0.4 | 8642.779 | 0.008 | β^+ | 2132.9 | 0.4 | 55 942127.9 | 0.5 |
| 27 | 29 | | Cu | x | -38643 | 15 | 8356.23 | 0.27 | β^+ | 15265 | 15 | 55 958515 | 16 |
| 26 | 30 | | Zn | x | -25390# | 400# | 8106# | 7# | β^+ | 13250# | 400# | 55 972740# | 430# |
| 25 | 31 | | Ga | x | -3390# | 500# | 7699# | 9# | β^+ | 22000# | 640# | 55 996360# | 540# |
| 37 | 20 | 57 | Ca | x | -6870# | 400# | 7917# | 7# | β^- | 14120# | 1360# | 56 992620# | 430# |
| 36 | 21 | | Sc | x | -21000 | 1300 | 8151 | 23 | β^- | 12920 | 1330 | 56 977460 | 1400 |
| 35 | 22 | | Ti | x | -33920 | 260 | 8364 | 4 | β^- | 10500 | 270 | 56 963590 | 280 |
| 34 | 23 | | V | x | -44410 | 80 | 8534.8 | 1.4 | β^- | 8110 | 80 | 56 952320 | 90 |
| 33 | 24 | | Cr | x | -52524.7 | 1.1 | 8663.394 | 0.019 | β^- | 4961.5 | 1.8 | 56 943612.4 | 1.1 |
| 32 | 25 | | Mn | | -57486.3 | 1.5 | 8736.713 | 0.026 | β^- | 2695.6 | 1.5 | 56 938286.0 | 1.6 |
| 31 | 26 | | Fe | | -60181.8 | 0.3 | 8770.279 | 0.005 | | * | | 56 935392.1 | 0.3 |
| 30 | 27 | | Co | | -59345.6 | 0.5 | 8741.882 | 0.009 | β^+ | 836.3 | 0.5 | 56 936289.9 | 0.6 |
| 29 | 28 | | Ni | | -56083.8 | 0.6 | 8670.933 | 0.010 | β^+ | 3261.7 | 0.6 | 56 939791.5 | 0.6 |
| 28 | 29 | | Cu | | -47308.9 | 0.5 | 8503.262 | 0.009 | β^+ | 8774.9 | 0.4 | 56 949211.8 | 0.6 |
| 27 | 30 | | Zn | x | -32550# | 200# | 8231# | 4# | β^+ | 14760# | 200# | 56 965060# | 220# |
| 26 | 31 | | Ga | x | -15010# | 400# | 7909# | 7# | β^+ | 17540# | 450# | 56 983890# | 430# |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ u | |
|----------|----------|----------|------|-------|----------------------|------|-------------------------------------|-------|----------------------------|---------|------|------------------------|------|
| 38 | 20 | 58 | Ca | x | -1920# | 500# | 7835# | 9# | β^- | 12960# | 640# | 57 997940# | 540# |
| 37 | 21 | | Sc | x | -14880# | 400# | 8045# | 7# | β^- | 16230# | 450# | 57 984030# | 430# |
| 36 | 22 | | Ti | x | -31110# | 200# | 8311# | 3# | β^- | 9290# | 220# | 57 966600# | 220# |
| 35 | 23 | | V | x | -40400 | 90 | 8457.7 | 1.5 | β^- | 11590 | 90 | 57 956630 | 100 |
| 34 | 24 | | Cr | x | -51991.8 | 1.5 | 8643.998 | 0.026 | β^- | 3836 | 3 | 57 944184.5 | 1.6 |
| 33 | 25 | | Mn | x | -55827.6 | 2.7 | 8696.64 | 0.05 | β^- | 6327.6 | 2.7 | 57 940066.6 | 2.9 |
| 32 | 26 | | Fe | | -62155.1 | 0.3 | 8792.250 | 0.006 | β^- | -2308.0 | 1.1 | 57 933273.7 | 0.4 |
| 31 | 27 | | Co | | -59847.2 | 1.2 | 8738.969 | 0.020 | β^- | 381.6 | 1.1 | 57 935751.4 | 1.2 |
| 30 | 28 | | Ni | | -60228.7 | 0.4 | 8732.059 | 0.006 | | * | | 57 935341.8 | 0.4 |
| 29 | 29 | | Cu | | -51667.7 | 0.6 | 8570.967 | 0.010 | β^+ | 8561.0 | 0.4 | 57 944532.4 | 0.6 |
| 28 | 30 | | Zn | -- | -42300 | 50 | 8395.9 | 0.9 | β^+ | 9370 | 50 | 57 954590 | 50 |
| 27 | 31 | | Ga | x | -23540# | 300# | 8059# | 5# | β^+ | 18760# | 300# | 57 974730# | 320# |
| 26 | 32 | | Ge | x | -7080# | 500# | 7762# | 9# | β^+ | 16460# | 580# | 57 992400# | 540# |
| 38 | 21 | 59 | Sc | x | -10300# | 400# | 7967# | 7# | β^- | 15210# | 450# | 58 988940# | 430# |
| 37 | 22 | | Ti | x | -25510# | 200# | 8212# | 3# | β^- | 12320# | 260# | 58 972610# | 220# |
| 36 | 23 | | V | x | -37830 | 160 | 8407.6 | 2.7 | β^- | 10250 | 270 | 58 959390 | 170 |
| 35 | 24 | | Cr | x | -48090 | 220 | 8568 | 4 | β^- | 7440 | 220 | 58 948380 | 230 |
| 34 | 25 | | Mn | x | -55525.3 | 2.3 | 8680.92 | 0.04 | β^- | 5139.5 | 2.4 | 58 940391.1 | 2.5 |
| 33 | 26 | | Fe | | -60664.8 | 0.4 | 8754.771 | 0.006 | β^- | 1564.9 | 0.4 | 58 934873.6 | 0.4 |
| 32 | 27 | | Co | | -62229.7 | 0.4 | 8768.035 | 0.007 | | * | | 58 933193.7 | 0.4 |
| 31 | 28 | | Ni | | -61156.7 | 0.4 | 8736.588 | 0.006 | β^+ | 1073.00 | 0.19 | 58 934345.6 | 0.4 |
| 30 | 29 | | Cu | | -56358.3 | 0.5 | 8642.000 | 0.009 | β^+ | 4798.4 | 0.4 | 58 939496.8 | 0.6 |
| 29 | 30 | | Zn | | -47215.6 | 0.8 | 8473.777 | 0.013 | β^+ | 9142.8 | 0.6 | 58 949312.0 | 0.8 |
| 28 | 31 | | Ga | x | -33760# | 170# | 8232# | 3# | β^+ | 13460# | 170# | 58 963760# | 180# |
| 27 | 32 | | Ge | x | -15870# | 400# | 7916# | 7# | β^+ | 17890# | 430# | 58 982960# | 430# |
| 39 | 21 | 60 | Sc | x | -4050# | 500# | 7865# | 8# | β^- | 18280# | 580# | 59 995650# | 540# |
| 38 | 22 | | Ti | x | -22330# | 300# | 8157# | 5# | β^- | 10910# | 370# | 59 976030# | 320# |
| 37 | 23 | | V | x | -33240 | 220 | 8325 | 4 | β^- | 13430 | 290 | 59 964310 | 240 |
| 36 | 24 | | Cr | x | -46670 | 190 | 8536 | 3 | β^- | 6300 | 190 | 59 949900 | 210 |
| 35 | 25 | | Mn | x | -52967.9 | 2.3 | 8628.14 | 0.04 | β^- | 8445 | 4 | 59 943136.6 | 2.5 |
| 34 | 26 | | Fe | -nn | -61413 | 3 | 8755.85 | 0.06 | β^- | 237 | 3 | 59 934070 | 4 |
| 33 | 27 | | Co | -n | -61650.3 | 0.4 | 8746.766 | 0.007 | β^- | 2822.81 | 0.21 | 59 933815.7 | 0.5 |
| 32 | 28 | | Ni | | -64473.1 | 0.4 | 8780.774 | 0.006 | | * | | 59 930785.3 | 0.4 |
| 31 | 29 | | Cu | — | -58345.1 | 1.6 | 8665.602 | 0.027 | β^+ | 6128.0 | 1.6 | 59 937363.9 | 1.7 |
| 30 | 30 | | Zn | | -54174.3 | 0.6 | 8583.050 | 0.009 | β^+ | 4170.8 | 1.6 | 59 941841.5 | 0.6 |
| 29 | 31 | | Ga | x | -39590# | 200# | 8327# | 3# | β^+ | 14580# | 200# | 59 957500# | 220# |
| 28 | 32 | | Ge | x | -27090# | 300# | 8106# | 5# | β^+ | 12500# | 360# | 59 970920# | 320# |
| 27 | 33 | | As | x | -5470# | 400# | 7732# | 7# | β^+ | 21620# | 500# | 59 994130# | 430# |
| 40 | 21 | 61 | Sc | x | 930# | 600# | 7787# | 10# | β^- | 17280# | 720# | 61 001000# | 640# |
| 39 | 22 | | Ti | x | -16350# | 400# | 8057# | 7# | β^- | 14160# | 980# | 60 982450# | 430# |
| 38 | 23 | | V | x | -30510 | 890 | 8276 | 15 | β^- | 11970 | 900 | 60 967250 | 960 |
| 37 | 24 | | Cr | x | -42480 | 100 | 8459.8 | 1.7 | β^- | 9270 | 100 | 60 954400 | 110 |
| 36 | 25 | | Mn | x | -51742.1 | 2.3 | 8598.91 | 0.04 | β^- | 7178 | 3 | 60 944452.5 | 2.5 |
| 35 | 26 | | Fe | x | -58920.5 | 2.6 | 8703.77 | 0.04 | β^- | 3977.6 | 2.7 | 60 936746.2 | 2.8 |
| 34 | 27 | | Co | p2n | -62898.1 | 0.8 | 8756.148 | 0.014 | β^- | 1323.8 | 0.8 | 60 932476.1 | 0.9 |
| 33 | 28 | | Ni | | -64221.9 | 0.4 | 8765.025 | 0.006 | | * | | 60 931054.9 | 0.4 |
| 32 | 29 | | Cu | p2n | -61984.1 | 1.0 | 8715.514 | 0.016 | β^+ | 2237.8 | 1.0 | 60 933457.4 | 1.0 |
| 31 | 30 | | Zn | | -56349 | 16 | 8610.31 | 0.26 | β^+ | 5635 | 16 | 60 939507 | 17 |
| 30 | 31 | | Ga | | -47130 | 40 | 8446.4 | 0.6 | β^+ | 9210 | 40 | 60 949400 | 40 |
| 29 | 32 | | Ge | x | -33360# | 300# | 8208# | 5# | β^+ | 13780# | 300# | 60 964190# | 320# |
| 28 | 33 | | As | x | -16900# | 300# | 7925# | 5# | β^+ | 16460# | 420# | 60 981860# | 320# |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ u | |
|----------|----------|----------|------|-------|----------------------|------|-------------------------------------|-------|----------------------------|----------|-------|------------------------|------|
| 40 | 22 | 62 | Ti | x | -12500# | 400# | 7995# | 6# | β^- | 12980# | 500# | 61 986580# | 430# |
| 39 | 23 | | V | x | -25480# | 300# | 8192# | 5# | β^- | 15420# | 330# | 61 972650# | 320# |
| 38 | 24 | | Cr | x | -40890 | 150 | 8428.1 | 2.4 | β^- | 7630 | 150 | 61 956100 | 160 |
| 37 | 25 | | Mn | IT | -48524 | 7 | 8538.50 | 0.11 | β^- | 10354 | 7 | 61 947907 | 7 |
| 36 | 26 | | Fe | x | -58878.0 | 2.8 | 8692.88 | 0.05 | β^- | 2546 | 19 | 61 936792 | 3 |
| 35 | 27 | | Co | + | -61424 | 19 | 8721.33 | 0.30 | β^- | 5322 | 19 | 61 934058 | 20 |
| 34 | 28 | | Ni | | -66746.3 | 0.4 | 8794.553 | 0.007 | * | | | 61 928344.9 | 0.5 |
| 33 | 29 | | Cu | — | -62787.4 | 0.6 | 8718.081 | 0.010 | β^+ | 3958.9 | 0.5 | 61 932594.9 | 0.7 |
| 32 | 30 | | Zn | | -61168.0 | 0.6 | 8679.343 | 0.010 | β^+ | 1619.5 | 0.7 | 61 934333.5 | 0.7 |
| 31 | 31 | | Ga | | -51986.9 | 0.6 | 8518.642 | 0.010 | β^+ | 9181.1 | 0.4 | 61 944189.8 | 0.7 |
| 30 | 32 | | Ge | x | -41740# | 140# | 8341# | 2# | β^+ | 10250# | 140# | 61 955190# | 150# |
| 29 | 33 | | As | x | -24320# | 300# | 8047# | 5# | β^+ | 17420# | 330# | 61 973890# | 320# |
| 41 | 22 | 63 | Ti | x | -5750# | 500# | 7889# | 8# | β^- | 16140# | 640# | 62 993830# | 540# |
| 40 | 23 | | V | x | -21890# | 400# | 8133# | 6# | β^- | 14120# | 540# | 62 976500# | 430# |
| 39 | 24 | | Cr | x | -36010 | 360 | 8345 | 6 | β^- | 10880 | 360 | 62 961340 | 380 |
| 38 | 25 | | Mn | x | -46887 | 4 | 8505.10 | 0.06 | β^- | 8749 | 6 | 62 949665 | 4 |
| 37 | 26 | | Fe | | -55636 | 4 | 8631.55 | 0.07 | β^- | 6216 | 19 | 62 940273 | 5 |
| 36 | 27 | | Co | | -61851 | 19 | 8717.79 | 0.29 | β^- | 3661 | 19 | 62 933600 | 20 |
| 35 | 28 | | Ni | | -65512.8 | 0.4 | 8763.493 | 0.007 | β^- | 66.977 | 0.015 | 62 929669.1 | 0.5 |
| 34 | 29 | | Cu | | -65579.8 | 0.4 | 8752.138 | 0.007 | * | | | 62 929597.2 | 0.5 |
| 33 | 30 | | Zn | | -62213.4 | 1.6 | 8686.285 | 0.025 | β^+ | 3366.4 | 1.5 | 62 933211.2 | 1.7 |
| 32 | 31 | | Ga | x | -56547.1 | 1.3 | 8583.926 | 0.021 | β^+ | 5666.3 | 2.0 | 62 939294.2 | 1.4 |
| 31 | 32 | | Ge | x | -46920 | 40 | 8418.7 | 0.6 | β^+ | 9630 | 40 | 62 949630 | 40 |
| 30 | 33 | | As | x | -33500# | 200# | 8193# | 3# | β^+ | 13420# | 200# | 62 964040# | 220# |
| 42 | 22 | 64 | Ti | x | -1030# | 600# | 7818# | 9# | β^- | 15300# | 720# | 63 998900# | 640# |
| 41 | 23 | | V | x | -16320# | 400# | 8045# | 6# | β^- | 17160# | 590# | 63 982480# | 430# |
| 40 | 24 | | Cr | x | -33480 | 440 | 8301 | 7 | β^- | 9510 | 440 | 63 964060 | 470 |
| 39 | 25 | | Mn | x | -42989 | 4 | 8437.42 | 0.06 | β^- | 11981 | 6 | 63 953849 | 4 |
| 38 | 26 | | Fe | x | -54970 | 5 | 8612.39 | 0.08 | β^- | 4823 | 21 | 63 940988 | 5 |
| 37 | 27 | | Co | + | -59792 | 20 | 8675.5 | 0.3 | β^- | 7307 | 20 | 63 935810 | 21 |
| 36 | 28 | | Ni | | -67098.9 | 0.5 | 8777.461 | 0.007 | β^- | -1674.38 | 0.23 | 63 927966.3 | 0.5 |
| 35 | 29 | | Cu | | -65424.5 | 0.4 | 8739.075 | 0.007 | β^- | 579.5 | 0.6 | 63 929763.9 | 0.5 |
| 34 | 30 | | Zn | | -66004.0 | 0.6 | 8735.905 | 0.010 | * | | | 63 929141.8 | 0.7 |
| 33 | 31 | | Ga | | -58832.8 | 1.4 | 8611.631 | 0.022 | β^+ | 7171.2 | 1.5 | 63 936840.4 | 1.5 |
| 32 | 32 | | Ge | x | -54315 | 4 | 8528.82 | 0.06 | β^+ | 4517 | 4 | 63 941690 | 4 |
| 31 | 33 | | As | -p | -39530# | 200# | 8286# | 3# | β^+ | 14780# | 200# | 63 957560# | 220# |
| 30 | 34 | | Se | x | -26700# | 500# | 8073# | 8# | β^+ | 12830# | 540# | 63 971340# | 540# |
| 42 | 23 | 65 | V | x | -11780# | 500# | 7976# | 8# | β^- | 16440# | 580# | 64 987350# | 540# |
| 41 | 24 | | Cr | x | -28220# | 300# | 8217# | 5# | β^- | 12750# | 300# | 64 969710# | 320# |
| 40 | 25 | | Mn | x | -40967 | 4 | 8400.68 | 0.06 | β^- | 10251 | 6 | 64 956020 | 4 |
| 39 | 26 | | Fe | x | -51218 | 5 | 8546.35 | 0.08 | β^- | 7967 | 6 | 64 945015 | 5 |
| 38 | 27 | | Co | x | -59185.2 | 2.1 | 8656.88 | 0.03 | β^- | 5940.5 | 2.1 | 64 936462.1 | 2.2 |
| 37 | 28 | | Ni | -n | -65125.7 | 0.5 | 8736.240 | 0.008 | β^- | 2138.0 | 0.7 | 64 930084.7 | 0.5 |
| 36 | 29 | | Cu | | -67263.7 | 0.6 | 8757.096 | 0.010 | * | | | 64 927789.5 | 0.7 |
| 35 | 30 | | Zn | | -65912.0 | 0.6 | 8724.265 | 0.010 | β^+ | 1351.6 | 0.4 | 64 929240.5 | 0.7 |
| 34 | 31 | | Ga | | -62657.5 | 0.8 | 8662.160 | 0.013 | β^+ | 3254.5 | 0.7 | 64 932734.4 | 0.9 |
| 33 | 32 | | Ge | | -56478.2 | 2.2 | 8555.06 | 0.03 | β^+ | 6179.3 | 2.3 | 64 939368.1 | 2.3 |
| 32 | 33 | | As | x | -46940 | 80 | 8396.2 | 1.3 | β^+ | 9540 | 80 | 64 949610 | 90 |
| 31 | 34 | | Se | x | -33020# | 300# | 8170# | 5# | β^+ | 13920# | 310# | 64 964550# | 320# |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | Atomic mass μ u | |
|----------|----------|----------|------|-------|----------------------|------|-------------------------------------|-------|----------------------------|-------------|------------------------|------|
| 43 | 23 | 66 | V | x | -5610# | 500# | 7884# | 8# | β^- | 19110# 640# | 65 993980# | 540# |
| 42 | 24 | | Cr | x | -24720# | 400# | 8161# | 6# | β^- | 12030# 400# | 65 973460# | 430# |
| 41 | 25 | | Mn | x | -36750 | 11 | 8331.80 | 0.17 | β^- | 13317 12 | 65 960547 | 12 |
| 40 | 26 | | Fe | x | -50068 | 4 | 8521.72 | 0.06 | β^- | 6341 15 | 65 946250 | 4 |
| 39 | 27 | | Co | x | -56409 | 14 | 8605.94 | 0.21 | β^- | 9598 14 | 65 939443 | 15 |
| 38 | 28 | | Ni | x | -66006.3 | 1.4 | 8739.508 | 0.021 | β^- | 252.0 1.5 | 65 929139.3 | 1.5 |
| 37 | 29 | | Cu | | -66258.3 | 0.7 | 8731.472 | 0.010 | β^- | 2640.9 0.9 | 65 928868.8 | 0.7 |
| 36 | 30 | | Zn | | -68899.2 | 0.7 | 8759.632 | 0.011 | * | | 65 926033.7 | 0.8 |
| 35 | 31 | | Ga | — | -63723.7 | 1.1 | 8669.361 | 0.017 | β^+ | 5175.5 0.8 | 65 931589.8 | 1.2 |
| 34 | 32 | | Ge | x | -61607.0 | 2.4 | 8625.44 | 0.04 | β^+ | 2116.6 2.6 | 65 933862.1 | 2.6 |
| 33 | 33 | | As | x | -52025 | 6 | 8468.40 | 0.09 | β^+ | 9582 6 | 65 944149 | 6 |
| 32 | 34 | | Se | x | -41660# | 200# | 8300# | 3# | β^+ | 10370# 200# | 65 955280# | 220# |
| 44 | 23 | 67 | V | x | -650# | 600# | 7812# | 9# | β^- | 18030# 720# | 66 999300# | 640# |
| 43 | 24 | | Cr | x | -18680# | 400# | 8070# | 6# | β^- | 14780# 500# | 66 979950# | 430# |
| 42 | 25 | | Mn | x | -33460# | 300# | 8279# | 4# | β^- | 12150# 400# | 66 964080# | 320# |
| 41 | 26 | | Fe | x | -45610 | 270 | 8448 | 4 | β^- | 9710 270 | 66 951040 | 290 |
| 40 | 27 | | Co | x | -55322 | 6 | 8581.74 | 0.10 | β^- | 8421 7 | 66 940610 | 7 |
| 39 | 28 | | Ni | x | -63742.7 | 2.9 | 8695.75 | 0.04 | β^- | 3577 3 | 66 931569 | 3 |
| 38 | 29 | | Cu | | -67319.5 | 0.9 | 8737.458 | 0.013 | β^- | 560.8 0.8 | 66 927729.5 | 1.0 |
| 37 | 30 | | Zn | | -67880.3 | 0.8 | 8734.152 | 0.011 | * | | 66 927127.5 | 0.8 |
| 36 | 31 | | Ga | | -66879.0 | 1.2 | 8707.531 | 0.018 | β^+ | 1001.3 1.1 | 66 928202.4 | 1.3 |
| 35 | 32 | | Ge | -n2p | -62658 | 5 | 8632.86 | 0.07 | β^+ | 4221 5 | 66 932734 | 5 |
| 34 | 33 | | As | | -56587.2 | 0.4 | 8530.568 | 0.007 | β^+ | 6071 5 | 66 939251.1 | 0.5 |
| 33 | 34 | | Se | x | -46580 | 70 | 8369.5 | 1.0 | β^+ | 10010 70 | 66 949990 | 70 |
| 32 | 35 | | Br | x | -32790# | 400# | 8152# | 6# | β^+ | 13790# 410# | 66 964800# | 430# |
| 44 | 24 | 68 | Cr | x | -14800# | 500# | 8013# | 7# | β^- | 13580# 640# | 67 984110# | 540# |
| 43 | 25 | | Mn | x | -28380# | 400# | 8201# | 6# | β^- | 15110# 540# | 67 969530# | 430# |
| 42 | 26 | | Fe | x | -43490 | 370 | 8412 | 5 | β^- | 8440 410 | 67 953310 | 390 |
| 41 | 27 | | Co | x | -51930 | 190 | 8524.4 | 2.8 | β^- | 11530 190 | 67 944250 | 200 |
| 40 | 28 | | Ni | x | -63463.8 | 3.0 | 8682.47 | 0.04 | β^- | 2103 3 | 67 931869 | 3 |
| 39 | 29 | | Cu | x | -65567.0 | 1.6 | 8701.890 | 0.023 | β^- | 4440.1 1.8 | 67 929610.9 | 1.7 |
| 38 | 30 | | Zn | | -70007.1 | 0.8 | 8755.680 | 0.012 | * | | 67 924844.3 | 0.8 |
| 37 | 31 | | Ga | — | -67086.0 | 1.4 | 8701.218 | 0.021 | β^+ | 2921.1 1.2 | 67 927980.2 | 1.5 |
| 36 | 32 | | Ge | x | -66978.8 | 1.9 | 8688.136 | 0.028 | β^+ | 107.2 2.4 | 67 928095.3 | 2.0 |
| 35 | 33 | | As | | -58894.5 | 1.8 | 8557.745 | 0.027 | β^+ | 8084.3 2.6 | 67 936774.1 | 2.0 |
| 34 | 34 | | Se | x | -54189.4 | 0.5 | 8477.047 | 0.007 | β^+ | 4705.1 1.9 | 67 941825.2 | 0.5 |
| 33 | 35 | | Br | -p | -38790# | 260# | 8239# | 4# | β^+ | 15400# 260# | 67 958360# | 280# |
| 45 | 24 | 69 | Cr | x | -8580# | 500# | 7924# | 7# | β^- | 16190# 640# | 68 990790# | 540# |
| 44 | 25 | | Mn | x | -24770# | 400# | 8147# | 6# | β^- | 14260# 570# | 68 973410# | 430# |
| 43 | 26 | | Fe | x | -39030# | 400# | 8342# | 6# | β^- | 11250# 420# | 68 958100# | 430# |
| 42 | 27 | | Co | x | -50280 | 140 | 8493.9 | 2.0 | β^- | 9700 140 | 68 946020 | 150 |
| 41 | 28 | | Ni | x | -59979 | 4 | 8623.10 | 0.05 | β^- | 5758 4 | 68 935610 | 4 |
| 40 | 29 | | Cu | x | -65736.2 | 1.4 | 8695.204 | 0.020 | β^- | 2681.6 1.6 | 68 929429.3 | 1.5 |
| 39 | 30 | | Zn | -n | -68417.8 | 0.8 | 8722.729 | 0.012 | β^- | 910.0 1.4 | 68 926550.4 | 0.9 |
| 38 | 31 | | Ga | | -69327.8 | 1.2 | 8724.579 | 0.017 | * | | 68 925573.5 | 1.3 |
| 37 | 32 | | Ge | | -67100.7 | 1.3 | 8680.963 | 0.019 | β^+ | 2227.1 0.5 | 68 927964.5 | 1.4 |
| 36 | 33 | | As | | -63110 | 30 | 8611.8 | 0.5 | β^+ | 3990 30 | 68 932250 | 30 |
| 35 | 34 | | Se | | -56434.7 | 1.5 | 8503.707 | 0.022 | β^+ | 6680 30 | 68 939414.8 | 1.6 |
| 34 | 35 | | Br | -p | -46260 | 40 | 8344.9 | 0.6 | β^+ | 10180 40 | 68 950340 | 50 |
| 33 | 36 | | Kr | x | -32440# | 400# | 8133# | 6# | β^+ | 13830# 400# | 68 965180# | 430# |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| N | Z | A | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ | |
|-----|-----|-----|------|-------|----------------------|------|-------------------------------------|-------|----------------------------|--------|------|----------------------|------|
| 46 | 24 | 70 | Cr | x | -4480# | 600# | 7867# | 9# | β^- | 15020# | 780# | 69 995190# | 640# |
| 45 | 25 | | Mn | x | -19500# | 500# | 8070# | 7# | β^- | 17010# | 640# | 69 979070# | 540# |
| 44 | 26 | | Fe | x | -36510# | 400# | 8302# | 6# | β^- | 10120# | 500# | 69 960810# | 430# |
| 43 | 27 | | Co | x | -46630# | 300# | 8436# | 4# | β^- | 12580# | 300# | 69 949940# | 320# |
| 42 | 28 | | Ni | x | -59213.9 | 2.1 | 8604.29 | 0.03 | β^- | 3762.5 | 2.4 | 69 936431.3 | 2.3 |
| 41 | 29 | | Cu | x | -62976.4 | 1.1 | 8646.865 | 0.015 | β^- | 6588.4 | 2.2 | 69 932392.1 | 1.2 |
| 40 | 30 | | Zn | | -69564.7 | 1.9 | 8729.808 | 0.027 | β^- | -654.6 | 1.6 | 69 925319.2 | 2.1 |
| 39 | 31 | | Ga | | -68910.1 | 1.2 | 8709.280 | 0.017 | β^- | 1651.7 | 1.5 | 69 926021.9 | 1.3 |
| 38 | 32 | | Ge | | -70561.9 | 0.8 | 8721.700 | 0.012 | * | | | 69 924248.7 | 0.9 |
| 37 | 33 | | As | — | -64340 | 50 | 8621.7 | 0.7 | β^+ | 6220 | 50 | 69 930930 | 50 |
| 36 | 34 | | Se | x | -61929.9 | 1.6 | 8576.033 | 0.023 | β^+ | 2410 | 50 | 69 933515.5 | 1.7 |
| 35 | 35 | | Br | x | -51426 | 15 | 8414.80 | 0.21 | β^+ | 10504 | 15 | 69 944792 | 16 |
| 34 | 36 | | Kr | x | -41100# | 200# | 8256# | 3# | β^+ | 10330# | 200# | 69 955880# | 220# |
| 46 | 25 | 71 | Mn | x | -15570# | 500# | 8015# | 7# | β^- | 15860# | 640# | 70 983290# | 540# |
| 45 | 26 | | Fe | x | -31430# | 400# | 8227# | 6# | β^- | 12940# | 610# | 70 966260# | 430# |
| 44 | 27 | | Co | x | -44370 | 470 | 8399 | 7 | β^- | 11040 | 470 | 70 952370 | 500 |
| 43 | 28 | | Ni | x | -55406.2 | 2.2 | 8543.16 | 0.03 | β^- | 7304.9 | 2.7 | 70 940519.0 | 2.4 |
| 42 | 29 | | Cu | x | -62711.1 | 1.5 | 8635.022 | 0.021 | β^- | 4618 | 3 | 70 932676.8 | 1.6 |
| 41 | 30 | | Zn | | -67328.8 | 2.7 | 8689.04 | 0.04 | β^- | 2810.4 | 2.8 | 70 927719.6 | 2.8 |
| 40 | 31 | | Ga | | -70139.1 | 0.8 | 8717.604 | 0.011 | * | | | 70 924702.5 | 0.9 |
| 39 | 32 | | Ge | | -69906.5 | 0.8 | 8703.309 | 0.012 | β^+ | 232.64 | 0.22 | 70 924952.3 | 0.9 |
| 38 | 33 | | As | — | -67893 | 4 | 8663.93 | 0.06 | β^+ | 2013 | 4 | 70 927114 | 4 |
| 37 | 34 | | Se | x | -63146.5 | 2.8 | 8586.06 | 0.04 | β^+ | 4747 | 5 | 70 932209 | 3 |
| 36 | 35 | | Br | | -56502 | 5 | 8481.46 | 0.08 | β^+ | 6644 | 6 | 70 939342 | 6 |
| 35 | 36 | | Kr | | -46330 | 130 | 8327.1 | 1.8 | β^+ | 10180 | 130 | 70 950270 | 140 |
| 34 | 37 | | Rb | x | -32060# | 400# | 8115# | 6# | β^+ | 14270# | 420# | 70 965580# | 430# |
| 47 | 25 | 72 | Mn | x | -9900# | 600# | 7937# | 8# | β^- | 18530# | 780# | 71 989370# | 640# |
| 46 | 26 | | Fe | x | -28430# | 500# | 8184# | 7# | β^- | 11770# | 640# | 71 969480# | 540# |
| 45 | 27 | | Co | x | -40200# | 400# | 8336# | 6# | β^- | 14030# | 400# | 71 956840# | 430# |
| 44 | 28 | | Ni | x | -54226.1 | 2.2 | 8520.21 | 0.03 | β^- | 5556.9 | 2.6 | 71 941785.9 | 2.4 |
| 43 | 29 | | Cu | x | -59783.0 | 1.4 | 8586.525 | 0.019 | β^- | 8362.5 | 2.6 | 71 935820.3 | 1.5 |
| 42 | 30 | | Zn | x | -68145.5 | 2.1 | 8691.805 | 0.030 | β^- | 442.8 | 2.3 | 71 926842.8 | 2.3 |
| 41 | 31 | | Ga | | -68588.3 | 0.8 | 8687.089 | 0.011 | β^- | 3997.6 | 0.8 | 71 926367.4 | 0.9 |
| 40 | 32 | | Ge | | -72585.90 | 0.08 | 8731.745 | 0.001 | * | | | 71 922075.83 | 0.08 |
| 39 | 33 | | As | — | -68230 | 4 | 8660.38 | 0.06 | β^+ | 4356 | 4 | 71 926752 | 4 |
| 38 | 34 | | Se | x | -67868.2 | 2.0 | 8644.489 | 0.027 | β^+ | 362 | 5 | 71 927140.5 | 2.1 |
| 37 | 35 | | Br | x | -59061.7 | 1.0 | 8511.312 | 0.014 | β^+ | 8806.4 | 2.2 | 71 936594.6 | 1.1 |
| 36 | 36 | | Kr | x | -53941 | 8 | 8429.32 | 0.11 | β^+ | 5121 | 8 | 71 942092 | 9 |
| 35 | 37 | | Rb | x | -38330# | 500# | 8202# | 7# | β^+ | 15610# | 500# | 71 958850# | 540# |
| 47 | 26 | 73 | Fe | x | -22900# | 500# | 8106# | 7# | β^- | 14520# | 640# | 72 975420# | 540# |
| 46 | 27 | | Co | x | -37420# | 400# | 8295# | 5# | β^- | 12690# | 400# | 72 959830# | 430# |
| 45 | 28 | | Ni | x | -50108.2 | 2.4 | 8457.65 | 0.03 | β^- | 8879 | 3 | 72 946206.7 | 2.6 |
| 44 | 29 | | Cu | | -58987.4 | 1.9 | 8568.569 | 0.027 | β^- | 6606.0 | 2.7 | 72 936674.4 | 2.1 |
| 43 | 30 | | Zn | x | -65593.4 | 1.9 | 8648.345 | 0.026 | β^- | 4105.9 | 2.5 | 72 929582.6 | 2.0 |
| 42 | 31 | | Ga | x | -69699.3 | 1.7 | 8693.873 | 0.023 | β^- | 1598.2 | 1.7 | 72 925174.7 | 1.8 |
| 41 | 32 | | Ge | | -71297.52 | 0.06 | 8705.049 | 0.001 | * | | | 72 923458.96 | 0.06 |
| 40 | 33 | | As | | -70953 | 4 | 8689.61 | 0.05 | β^+ | 345 | 4 | 72 923829 | 4 |
| 39 | 34 | | Se | | -68227 | 7 | 8641.56 | 0.10 | β^+ | 2725 | 7 | 72 926755 | 8 |
| 38 | 35 | | Br | x | -63647 | 7 | 8568.10 | 0.10 | β^+ | 4580 | 10 | 72 931672 | 8 |
| 37 | 36 | | Kr | x | -56552 | 7 | 8460.18 | 0.09 | β^+ | 7096 | 10 | 72 939289 | 7 |
| 36 | 37 | | Rb | -p | -46080# | 200# | 8306# | 3# | β^+ | 10470# | 200# | 72 950530# | 220# |
| 35 | 38 | | Sr | x | -31950# | 400# | 8102# | 5# | β^+ | 14130# | 450# | 72 965700# | 430# |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | Atomic mass μ | |
|----------|----------|----------|------|-------|----------------------|-------|-------------------------------------|----------|----------------------------|-------------|----------------------|-------|
| 48 | 26 | 74 | Fe | x | -19590# | 600# | 8061# | 8# | β^- | 13230# 780# | 73 978970# | 640# |
| 47 | 27 | | Co | x | -32820# | 500# | 8229# | 7# | β^- | 15640# 540# | 73 964770# | 540# |
| 46 | 28 | | Ni | x | -48460# | 200# | 8430# | 3# | β^- | 7550# 200# | 73 947980# | 210# |
| 45 | 29 | | Cu | x | -56006 | 6 | 8521.56 | 0.08 | β^- | 9751 7 | 73 939875 | 7 |
| 44 | 30 | | Zn | x | -65756.7 | 2.5 | 8642.75 | 0.03 | β^- | 2293 4 | 73 929407.3 | 2.7 |
| 44 | 31 | | Ga | x | -68049.6 | 3.0 | 8663.17 | 0.04 | β^- | 5372.8 3.0 | 73 926946 | 3 |
| 42 | 32 | | Ge | | -73422.442 | 0.013 | 8725.200 | <i>a</i> | β^- | -2562.4 1.7 | 73 921177.762 | 0.013 |
| 41 | 33 | | As | | -70860.1 | 1.7 | 8680.001 | 0.023 | β^- | 1353.1 1.7 | 73 923928.6 | 1.8 |
| 40 | 34 | | Se | | -72213.201 | 0.015 | 8687.715 | <i>a</i> | * | | 73 922475.935 | 0.016 |
| 39 | 35 | | Br | | -65288 | 6 | 8583.56 | 0.08 | β^+ | 6925 6 | 73 929910 | 6 |
| 38 | 36 | | Kr | | -62331.8 | 2.0 | 8533.038 | 0.027 | β^+ | 2956 6 | 73 933084.0 | 2.2 |
| 37 | 37 | | Rb | | -51916 | 3 | 8381.71 | 0.04 | β^+ | 10416 3 | 73 944266 | 3 |
| 36 | 38 | | Sr | x | -40830# | 100# | 8221# | 1# | β^+ | 11090# 100# | 73 956170# | 110# |
| | | | | | | | | | | | | |
| 49 | 26 | 75 | Fe | x | -13640# | 600# | 7982# | 8# | β^- | 16010# 780# | 74 985360# | 640# |
| 48 | 27 | | Co | x | -29650# | 500# | 8185# | 7# | β^- | 14380# 580# | 74 968170# | 540# |
| 47 | 28 | | Ni | x | -44030# | 300# | 8366# | 4# | β^- | 10440# 300# | 74 952730# | 320# |
| 46 | 29 | | Cu | x | -54471.3 | 2.3 | 8495.09 | 0.03 | β^- | 8088 3 | 74 941522.6 | 2.5 |
| 45 | 30 | | Zn | x | -62558.9 | 2.0 | 8592.497 | 0.026 | β^- | 5906 3 | 74 932840.2 | 2.1 |
| 44 | 31 | | Ga | x | -68464.6 | 2.4 | 8660.81 | 0.03 | β^- | 3392.4 2.4 | 74 926500.2 | 2.6 |
| 43 | 32 | | Ge | -n | -71856.96 | 0.05 | 8695.609 | 0.001 | β^- | 1177.2 0.9 | 74 922858.37 | 0.06 |
| 42 | 33 | | As | | -73034.2 | 0.9 | 8700.874 | 0.012 | * | | 74 921594.6 | 0.9 |
| 41 | 34 | | Se | | -72169.48 | 0.07 | 8678.913 | 0.001 | β^+ | 864.7 0.9 | 74 922522.87 | 0.08 |
| 40 | 35 | | Br | x | -69107 | 4 | 8627.65 | 0.06 | β^+ | 3062 4 | 74 925811 | 5 |
| 39 | 36 | | Kr | x | -64324 | 8 | 8553.44 | 0.11 | β^+ | 4783 9 | 74 930946 | 9 |
| 38 | 37 | | Rb | x | -57218.7 | 1.2 | 8448.275 | 0.016 | β^+ | 7105 8 | 74 938573.2 | 1.3 |
| 37 | 38 | | Sr | — | -46620 | 220 | 8296.5 | 2.9 | β^+ | 10600 220 | 74 949950 | 240 |
| 36 | 39 | | Y | x | -31820# | 300# | 8089# | 4# | β^+ | 14800# 370# | 74 965840# | 320# |
| | | | | | | | | | | | | |
| 49 | 27 | 76 | Co | x | -24510# | 600# | 8116# | 8# | β^- | 17120# 720# | 75 973690# | 640# |
| 48 | 28 | | Ni | x | -41630# | 400# | 8331# | 5# | β^- | 9350# 400# | 75 955310# | 430# |
| 47 | 29 | | Cu | x | -50976 | 7 | 8443.53 | 0.09 | β^- | 11327 7 | 75 945275 | 7 |
| 46 | 30 | | Zn | | -62303.0 | 1.5 | 8582.273 | 0.019 | β^- | 3993.6 2.4 | 75 933115.0 | 1.6 |
| 45 | 31 | | Ga | x | -66296.6 | 2.0 | 8624.526 | 0.026 | β^- | 6916.2 2.0 | 75 928827.6 | 2.1 |
| 44 | 32 | | Ge | | -73212.889 | 0.018 | 8705.236 | <i>a</i> | β^- | -921.5 0.9 | 75 921402.727 | 0.019 |
| 43 | 33 | | As | -n | -72291.4 | 0.9 | 8682.816 | 0.012 | β^- | 2960.6 0.9 | 75 922392.0 | 1.0 |
| 42 | 34 | | Se | | -75251.950 | 0.016 | 8711.477 | <i>a</i> | * | | 75 919213.704 | 0.017 |
| 41 | 35 | | Br | — | -70289 | 9 | 8635.88 | 0.12 | β^+ | 4963 9 | 75 924542 | 10 |
| 40 | 36 | | Kr | | -69014 | 4 | 8608.81 | 0.05 | β^+ | 1275 10 | 75 925911 | 4 |
| 39 | 37 | | Rb | x | -60479.1 | 0.9 | 8486.215 | 0.012 | β^+ | 8535 4 | 75 935073.0 | 1.0 |
| 38 | 38 | | Sr | x | -54250 | 30 | 8393.9 | 0.5 | β^+ | 6230 30 | 75 941760 | 40 |
| 37 | 39 | | Y | x | -38480# | 300# | 8176# | 4# | β^+ | 15770# 300# | 75 958690# | 320# |
| | | | | | | | | | | | | |
| 50 | 27 | 77 | Co | x | -21020# | 600# | 8070# | 8# | β^- | 15790# 780# | 76 977440# | 640# |
| 49 | 28 | | Ni | x | -36800# | 500# | 8265# | 6# | β^- | 11820# 520# | 76 960490# | 540# |
| 48 | 29 | | Cu | x | -48620# | 150# | 8408# | 2# | β^- | 10170# 150# | 76 947800# | 160# |
| 47 | 30 | | Zn | | -58789.2 | 2.0 | 8530.003 | 0.026 | β^- | 7203 3 | 76 936887.2 | 2.1 |
| 46 | 31 | | Ga | x | -65992.3 | 2.4 | 8613.39 | 0.03 | β^- | 5220.5 2.4 | 76 929154.3 | 2.6 |
| 45 | 32 | | Ge | -n | -71212.86 | 0.05 | 8671.029 | 0.001 | β^- | 2703.5 1.7 | 76 923549.84 | 0.06 |
| 44 | 33 | | As | | -73916.3 | 1.7 | 8695.978 | 0.022 | β^- | 683.2 1.7 | 76 920647.6 | 1.8 |
| 43 | 34 | | Se | | -74599.49 | 0.06 | 8694.690 | 0.001 | * | | 76 919914.15 | 0.07 |
| 42 | 35 | | Br | — | -73234.8 | 2.8 | 8666.81 | 0.04 | β^+ | 1364.7 2.8 | 76 921379 | 3 |
| 41 | 36 | | Kr | x | -70169.4 | 2.0 | 8616.836 | 0.025 | β^+ | 3065 3 | 76 924670.0 | 2.1 |
| 40 | 37 | | Rb | x | -64830.5 | 1.3 | 8537.339 | 0.017 | β^+ | 5339.0 2.4 | 76 930401.6 | 1.4 |
| 39 | 38 | | Sr | x | -57803 | 8 | 8435.92 | 0.10 | β^+ | 7027 8 | 76 937945 | 9 |
| 38 | 39 | | Y | -p | -46440# | 200# | 8278# | 3# | β^+ | 11370# 200# | 76 950150# | 220# |
| 37 | 40 | | Zr | x | -32040# | 400# | 8081# | 5# | β^+ | 14400# 450# | 76 965600# | 430# |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ | |
|----------|----------|----------|------|-------|----------------------|------|-------------------------------------|-------|----------------------------|---------|------|----------------------|------|
| 50 | 28 | 78 | Ni | x | -33890# | 600# | 8225# | 8# | β^- | 10610# | 780# | 77 963620# | 640# |
| 49 | 29 | | Cu | x | -44500 | 500 | 8351 | 6 | β^- | 12990 | 500 | 77 952230 | 540 |
| 48 | 30 | | Zn | | -57483.2 | 1.9 | 8507.379 | 0.025 | β^- | 6222.7 | 2.7 | 77 938289.2 | 2.1 |
| 47 | 31 | | Ga | | -63706.0 | 1.9 | 8577.127 | 0.024 | β^- | 8156 | 4 | 77 931608.8 | 2.0 |
| 46 | 32 | | Ge | -nn | -71862 | 4 | 8671.66 | 0.05 | β^- | 955 | 10 | 77 922853 | 4 |
| 45 | 33 | | As | +pn | -72817 | 10 | 8673.87 | 0.13 | β^- | 4209 | 10 | 77 921828 | 11 |
| 44 | 34 | | Se | | -77025.94 | 0.18 | 8717.806 | 0.002 | β^- | -3574 | 4 | 77 917309.24 | 0.19 |
| 43 | 35 | | Br | — | -73452 | 4 | 8661.96 | 0.05 | β^- | 726 | 4 | 77 921146 | 4 |
| 42 | 36 | | Kr | | -74178.3 | 0.3 | 8661.238 | 0.004 | * | | | 77 920366.3 | 0.3 |
| 41 | 37 | | Rb | x | -66935 | 3 | 8558.35 | 0.04 | β^+ | 7243 | 3 | 77 928142 | 3 |
| 40 | 38 | | Sr | x | -63174 | 7 | 8500.10 | 0.10 | β^+ | 3761 | 8 | 77 932180 | 8 |
| 39 | 39 | | Y | x | -52170# | 300# | 8349# | 4# | β^+ | 11000# | 300# | 77 943990# | 320# |
| 38 | 40 | | Zr | x | -40850# | 400# | 8194# | 5# | β^+ | 11320# | 500# | 77 956150# | 430# |
| 51 | 28 | 79 | Ni | x | -27570# | 600# | 8143# | 8# | β^- | 14170# | 670# | 78 970400# | 640# |
| 50 | 29 | | Cu | x | -41740# | 300# | 8312# | 4# | β^- | 11690# | 300# | 78 955190# | 320# |
| 49 | 30 | | Zn | | -53432.3 | 2.2 | 8450.582 | 0.028 | β^- | 9115.4 | 2.9 | 78 942638.1 | 2.4 |
| 48 | 31 | | Ga | | -62547.7 | 1.9 | 8556.063 | 0.024 | β^- | 6980 | 40 | 78 932852.3 | 2.0 |
| 47 | 32 | | Ge | | -69530 | 40 | 8634.5 | 0.5 | β^- | 4110 | 40 | 78 925360 | 40 |
| 46 | 33 | | As | | -73636 | 5 | 8676.62 | 0.07 | β^- | 2281 | 5 | 78 920948 | 6 |
| 45 | 34 | | Se | -n | -75917.46 | 0.22 | 8695.592 | 0.003 | β^- | 150.6 | 1.0 | 78 918499.25 | 0.24 |
| 44 | 35 | | Br | +n | -76068.0 | 1.0 | 8687.594 | 0.013 | * | | | 78 918337.6 | 1.1 |
| 43 | 36 | | Kr | — | -74442 | 3 | 8657.11 | 0.04 | β^+ | 1626 | 3 | 78 920083 | 4 |
| 42 | 37 | | Rb | x | -70803.0 | 2.1 | 8601.142 | 0.027 | β^+ | 3639 | 4 | 78 923989.9 | 2.3 |
| 41 | 38 | | Sr | x | -65477 | 8 | 8523.82 | 0.11 | β^+ | 5326 | 9 | 78 929708 | 9 |
| 40 | 39 | | Y | x | -57820 | 80 | 8417.0 | 1.0 | β^+ | 7660 | 80 | 78 937930 | 90 |
| 39 | 40 | | Zr | x | -46770# | 300# | 8267# | 4# | β^+ | 11050# | 310# | 78 949790# | 320# |
| 38 | 41 | | Nb | x | -31650# | 500# | 8066# | 6# | β^+ | 15120# | 580# | 78 966020# | 540# |
| 52 | 28 | 80 | Ni | x | -22630# | 700# | 8080# | 9# | β^- | 13570# | 810# | 79 975710# | 750# |
| 51 | 29 | | Cu | x | -36200# | 400# | 8240# | 5# | β^- | 15450# | 400# | 79 961140# | 430# |
| 50 | 30 | | Zn | | -51648.6 | 2.6 | 8423.54 | 0.03 | β^- | 7575 | 4 | 79 944552.9 | 2.8 |
| 49 | 31 | | Ga | x | -59223.7 | 2.9 | 8508.45 | 0.04 | β^- | 10312 | 4 | 79 936421 | 3 |
| 48 | 32 | | Ge | x | -69535.3 | 2.1 | 8627.570 | 0.026 | β^- | 2679 | 4 | 79 925350.8 | 2.2 |
| 47 | 33 | | As | x | -72214 | 3 | 8651.28 | 0.04 | β^- | 5545 | 3 | 79 922475 | 4 |
| 46 | 34 | | Se | | -77759.5 | 1.0 | 8710.813 | 0.012 | β^- | -1870.5 | 0.3 | 79 916521.8 | 1.0 |
| 45 | 35 | | Br | — | -75889.0 | 1.0 | 8677.653 | 0.013 | β^- | 2004.4 | 1.2 | 79 918529.8 | 1.1 |
| 44 | 36 | | Kr | | -77893.3 | 0.7 | 8692.928 | 0.009 | * | | | 79 916378.0 | 0.7 |
| 43 | 37 | | Rb | x | -72175.5 | 1.9 | 8611.675 | 0.023 | β^+ | 5717.9 | 2.0 | 79 922516.4 | 2.0 |
| 42 | 38 | | Sr | x | -70311 | 3 | 8578.60 | 0.04 | β^+ | 1864 | 4 | 79 924518 | 4 |
| 41 | 39 | | Y | x | -61148 | 6 | 8454.28 | 0.08 | β^+ | 9163 | 7 | 79 934355 | 7 |
| 40 | 40 | | Zr | x | -54360# | 300# | 8360# | 4# | β^+ | 6790# | 300# | 79 941640# | 320# |
| 39 | 41 | | Nb | x | -38420# | 400# | 8151# | 5# | β^+ | 15940# | 500# | 79 958750# | 430# |
| 52 | 29 | 81 | Cu | x | -31420# | 500# | 8179# | 6# | β^- | 14780# | 500# | 80 966270# | 540# |
| 51 | 30 | | Zn | x | -46200 | 5 | 8351.93 | 0.06 | β^- | 11428 | 6 | 80 950403 | 5 |
| 50 | 31 | | Ga | x | -57628 | 3 | 8483.36 | 0.04 | β^- | 8664 | 4 | 80 938134 | 4 |
| 49 | 32 | | Ge | x | -66291.7 | 2.1 | 8580.658 | 0.025 | β^- | 6242 | 3 | 80 928832.9 | 2.2 |
| 48 | 33 | | As | | -72533.3 | 2.6 | 8648.06 | 0.03 | β^- | 3855.7 | 2.8 | 80 922132.3 | 2.8 |
| 47 | 34 | | Se | | -76389.0 | 1.0 | 8685.999 | 0.012 | β^- | 1588.0 | 1.4 | 80 917993.0 | 1.1 |
| 46 | 35 | | Br | | -77977.0 | 1.0 | 8695.946 | 0.012 | * | | | 80 916288.2 | 1.0 |
| 45 | 36 | | Kr | | -77696.2 | 1.1 | 8682.820 | 0.013 | β^+ | 280.9 | 0.5 | 80 916589.7 | 1.2 |
| 44 | 37 | | Rb | | -75457 | 5 | 8645.51 | 0.06 | β^+ | 2240 | 5 | 80 918994 | 5 |
| 43 | 38 | | Sr | x | -71528 | 3 | 8587.35 | 0.04 | β^+ | 3929 | 6 | 80 923211 | 3 |
| 42 | 39 | | Y | x | -65713 | 5 | 8505.90 | 0.07 | β^+ | 5815 | 6 | 80 929454 | 6 |
| 41 | 40 | | Zr | x | -57460 | 90 | 8394.4 | 1.2 | β^+ | 8250 | 90 | 80 938310 | 100 |
| 40 | 41 | | Nb | x | -46360# | 400# | 8248# | 5# | β^+ | 11100# | 410# | 80 950230# | 430# |
| 39 | 42 | | Mo | x | -31750# | 500# | 8058# | 6# | β^+ | 14610# | 640# | 80 965920# | 540# |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ u | |
|----------|----------|----------|------|-------|----------------------|-------|-------------------------------------|----------|----------------------------|---------|------|------------------------|-------|
| 53 | 29 | 82 | Cu | x | -25320# | 600# | 8103# | 7# | β^- | 16990# | 600# | 81 972820# | 640# |
| 52 | 30 | | Zn | x | -42314 | 3 | 8301.12 | 0.04 | β^- | 10617 | 4 | 81 954574 | 3 |
| 51 | 31 | | Ga | x | -52930.7 | 2.4 | 8421.049 | 0.030 | β^- | 12484 | 3 | 81 943176.5 | 2.6 |
| 50 | 32 | | Ge | x | -65415.1 | 2.2 | 8563.756 | 0.027 | β^- | 4690 | 4 | 81 929774.0 | 2.4 |
| 49 | 33 | | As | x | -70105 | 4 | 8611.41 | 0.05 | β^- | 7488 | 4 | 81 924739 | 4 |
| 48 | 34 | | Se | | -77593.9 | 0.5 | 8693.196 | 0.006 | β^- | -95.2 | 1.1 | 81 916699.5 | 0.5 |
| 47 | 35 | | Br | | -77498.7 | 1.0 | 8682.494 | 0.012 | β^- | 3093.1 | 1.0 | 81 916801.8 | 1.0 |
| 46 | 36 | | Kr | | -80591.785 | 0.005 | 8710.675 | <i>a</i> | | * | | 81 913481.155 | 0.006 |
| 45 | 37 | | Rb | IT | -76188 | 3 | 8647.43 | 0.04 | β^+ | 4404 | 3 | 81 918209 | 3 |
| 44 | 38 | | Sr | | -76010 | 6 | 8635.72 | 0.07 | β^+ | 178 | 7 | 81 918400 | 6 |
| 43 | 39 | | Y | x | -68064 | 5 | 8529.28 | 0.07 | β^+ | 7946 | 8 | 81 926930 | 6 |
| 42 | 40 | | Zr | x | -63631 | 11 | 8465.68 | 0.14 | β^+ | 4433 | 12 | 81 931689 | 12 |
| 41 | 41 | | Nb | x | -52090# | 300# | 8315# | 4# | β^+ | 11540# | 300# | 81 944080# | 320# |
| 40 | 42 | | Mo | x | -40370# | 400# | 8163# | 5# | β^+ | 11720# | 500# | 81 956660# | 430# |
| 53 | 30 | 83 | Zn | x | -36290# | 300# | 8226# | 4# | β^- | 12970# | 300# | 82 961040# | 320# |
| 52 | 31 | | Ga | x | -49257.1 | 2.6 | 8372.57 | 0.03 | β^- | 11719 | 4 | 82 947120.3 | 2.8 |
| 51 | 32 | | Ge | x | -60976.4 | 2.4 | 8504.345 | 0.029 | β^- | 8693 | 4 | 82 934539.1 | 2.6 |
| 50 | 33 | | As | x | -69669.3 | 2.8 | 8599.65 | 0.03 | β^- | 5671 | 4 | 82 925207 | 3 |
| 49 | 34 | | Se | -n | -75341 | 3 | 8658.56 | 0.04 | β^- | 3673 | 5 | 82 919119 | 3 |
| 48 | 35 | | Br | | -79014 | 4 | 8693.38 | 0.05 | β^- | 977 | 4 | 82 915175 | 4 |
| 47 | 36 | | Kr | | -79990.633 | 0.009 | 8695.729 | <i>a</i> | | * | | 82 914126.518 | 0.010 |
| 46 | 37 | | Rb | | -79070.6 | 2.3 | 8675.218 | 0.028 | β^+ | 920.0 | 2.3 | 82 915114.2 | 2.5 |
| 45 | 38 | | Sr | | -76798 | 7 | 8638.41 | 0.08 | β^+ | 2273 | 6 | 82 917554 | 7 |
| 44 | 39 | | Y | x | -72206 | 19 | 8573.66 | 0.22 | β^+ | 4592 | 20 | 82 922484 | 20 |
| 43 | 40 | | Zr | x | -65912 | 6 | 8488.40 | 0.08 | β^+ | 6294 | 20 | 82 929241 | 7 |
| 42 | 41 | | Nb | x | -57560 | 150 | 8378.3 | 1.8 | β^+ | 8360 | 150 | 82 938210 | 160 |
| 41 | 42 | | Mo | x | -46340# | 400# | 8234# | 5# | β^+ | 11220# | 430# | 82 950250# | 430# |
| 40 | 43 | | Tc | x | -31320# | 500# | 8043# | 6# | β^+ | 15020# | 640# | 82 966380# | 540# |
| 54 | 30 | 84 | Zn | x | -31930# | 400# | 8172# | 5# | β^- | 12160# | 450# | 83 965720# | 430# |
| 53 | 31 | | Ga | x | -44090# | 200# | 8307# | 2# | β^- | 14060# | 200# | 83 952670# | 220# |
| 52 | 32 | | Ge | x | -58148 | 3 | 8465.52 | 0.04 | β^- | 7705 | 4 | 83 937575 | 3 |
| 51 | 33 | | As | x | -65854 | 3 | 8547.94 | 0.04 | β^- | 10094 | 4 | 83 929303 | 3 |
| 50 | 34 | | Se | | -75947.7 | 2.0 | 8658.793 | 0.023 | β^- | 1835 | 26 | 83 918466.8 | 2.1 |
| 49 | 35 | | Br | | -77783 | 26 | 8671.3 | 0.3 | β^- | 4656 | 26 | 83 916496 | 28 |
| 48 | 36 | | Kr | | -82439.335 | 0.004 | 8717.446 | <i>a</i> | β^- | -2680.4 | 2.2 | 83 911497.729 | 0.004 |
| 47 | 37 | | Rb | | -79759.0 | 2.2 | 8676.224 | 0.026 | β^- | 890.6 | 2.3 | 83 914375.2 | 2.4 |
| 46 | 38 | | Sr | | -80649.6 | 1.2 | 8677.512 | 0.015 | | * | | 83 913419.1 | 1.3 |
| 45 | 39 | | Y | | -73894 | 4 | 8587.78 | 0.05 | β^+ | 6755 | 4 | 83 920671 | 5 |
| 44 | 40 | | Zr | x | -71422 | 5 | 8549.03 | 0.07 | β^+ | 2473 | 7 | 83 923326 | 6 |
| 43 | 41 | | Nb | x | -61219 | 13 | 8418.25 | 0.16 | β^+ | 10203 | 14 | 83 934279 | 14 |
| 42 | 42 | | Mo | x | -54170# | 300# | 8325# | 4# | β^+ | 7050# | 300# | 83 941850# | 320# |
| 41 | 43 | | Tc | x | -37700# | 400# | 8120# | 5# | β^+ | 16470# | 500# | 83 959530# | 430# |
| 55 | 30 | 85 | Zn | x | -25230# | 500# | 8092# | 6# | β^- | 14620# | 580# | 84 972910# | 540# |
| 54 | 31 | | Ga | x | -39850# | 300# | 8255# | 4# | β^- | 13270# | 300# | 84 957220# | 320# |
| 53 | 32 | | Ge | x | -53123 | 4 | 8401.77 | 0.04 | β^- | 10066 | 5 | 84 942970 | 4 |
| 52 | 33 | | As | x | -63189 | 3 | 8510.98 | 0.04 | β^- | 9224 | 4 | 84 932164 | 3 |
| 51 | 34 | | Se | +3p | -72413.6 | 2.6 | 8610.30 | 0.03 | β^- | 6162 | 4 | 84 922260.8 | 2.8 |
| 50 | 35 | | Br | +n2p | -78575 | 3 | 8673.59 | 0.04 | β^- | 2905 | 4 | 84 915646 | 3 |
| 49 | 36 | | Kr | + | -81480.3 | 2.0 | 8698.562 | 0.024 | β^- | 687.0 | 2.0 | 84 912527.3 | 2.1 |
| 48 | 37 | | Rb | | -82167.331 | 0.005 | 8697.441 | <i>a</i> | | * | | 84 911789.738 | 0.005 |
| 47 | 38 | | Sr | | -81103.3 | 2.8 | 8675.72 | 0.03 | β^+ | 1064.1 | 2.8 | 84 912932 | 3 |
| 46 | 39 | | Y | x | -77842 | 19 | 8628.15 | 0.22 | β^+ | 3261 | 19 | 84 916433 | 20 |
| 45 | 40 | | Zr | x | -73175 | 6 | 8564.04 | 0.08 | β^+ | 4667 | 20 | 84 921443 | 7 |
| 44 | 41 | | Nb | x | -66280 | 4 | 8473.71 | 0.05 | β^+ | 6896 | 8 | 84 928846 | 4 |
| 43 | 42 | | Mo | x | -57510 | 16 | 8361.33 | 0.19 | β^+ | 8770 | 16 | 84 938261 | 17 |
| 42 | 43 | | Tc | x | -45850# | 400# | 8215# | 5# | β^+ | 11660# | 400# | 84 950780# | 430# |
| 41 | 44 | | Ru | x | -30950# | 500# | 8030# | 6# | β^+ | 14900# | 640# | 84 966770# | 540# |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| N | Z | A | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μu | |
|-----|-----|-----|------|-------|----------------------|-------|-------------------------------------|-------|----------------------------|---------|-------|------------------------|-------|
| 55 | 31 | 86 | Ga | x | -34080# | 400# | 8186# | 5# | β^- | 15320# | 590# | 85 963410# | 430# |
| 54 | 32 | | Ge | x | -49400 | 440 | 8355 | 5 | β^- | 9560 | 440 | 85 946970 | 470 |
| 53 | 33 | | As | x | -58962 | 3 | 8456.72 | 0.04 | β^- | 11541 | 4 | 85 936702 | 4 |
| 52 | 34 | | Se | x | -70503.2 | 2.5 | 8581.822 | 0.029 | β^- | 5129 | 4 | 85 924311.7 | 2.7 |
| 51 | 35 | | Br | +pp | -75632 | 3 | 8632.37 | 0.04 | β^- | 7633 | 3 | 85 918805 | 3 |
| 50 | 36 | | Kr | | -83265.666 | 0.004 | 8712.029 | a | β^- | -518.67 | 0.20 | 85 910610.626 | 0.004 |
| 49 | 37 | | Rb | -n | -82746.99 | 0.20 | 8696.900 | 0.002 | β^- | 1776.10 | 0.20 | 85 911167.44 | 0.21 |
| 48 | 38 | | Sr | | -84523.089 | 0.005 | 8708.456 | a | * | | | 85 909260.726 | 0.006 |
| 47 | 39 | | Y | — | -79283 | 14 | 8638.43 | 0.16 | β^+ | 5240 | 14 | 85 914886 | 15 |
| 46 | 40 | | Zr | | -77969 | 4 | 8614.05 | 0.04 | β^+ | 1314 | 15 | 85 916297 | 4 |
| 45 | 41 | | Nb | x | -69134 | 5 | 8502.22 | 0.06 | β^+ | 8835 | 7 | 85 925782 | 6 |
| 44 | 42 | | Mo | x | -64110 | 4 | 8434.71 | 0.04 | β^+ | 5024 | 7 | 85 931175 | 4 |
| 43 | 43 | | Tc | x | -51570# | 300# | 8280# | 3# | β^+ | 12540# | 300# | 85 944640# | 320# |
| 42 | 44 | | Ru | x | -39770# | 400# | 8133# | 5# | β^+ | 11800# | 500# | 85 957310# | 430# |
| 56 | 31 | 87 | Ga | x | -29250# | 500# | 8129# | 6# | β^- | 14830# | 580# | 86 968600# | 540# |
| 55 | 32 | | Ge | x | -44080# | 300# | 8290# | 3# | β^- | 11540# | 300# | 86 952680# | 320# |
| 54 | 33 | | As | x | -55617.9 | 3.0 | 8413.85 | 0.03 | β^- | 10808 | 4 | 86 940292 | 3 |
| 53 | 34 | | Se | x | -66426.1 | 2.2 | 8529.091 | 0.026 | β^- | 7466 | 4 | 86 928688.6 | 2.4 |
| 52 | 35 | | Br | 2p-n | -73892 | 3 | 8605.91 | 0.04 | β^- | 6818 | 3 | 86 920674 | 3 |
| 51 | 36 | | Kr | -n | -80709.52 | 0.25 | 8675.283 | 0.003 | β^- | 3888.27 | 0.25 | 86 913354.76 | 0.26 |
| 50 | 37 | | Rb | | -84597.791 | 0.006 | 8710.983 | a | β^- | 282.275 | 0.006 | 86 909180.531 | 0.006 |
| 49 | 38 | | Sr | | -84880.066 | 0.005 | 8705.236 | a | * | | | 86 908877.496 | 0.005 |
| 48 | 39 | | Y | — | -83018.4 | 1.1 | 8674.844 | 0.013 | β^+ | 1861.7 | 1.1 | 86 910876.1 | 1.2 |
| 47 | 40 | | Zr | | -79347 | 4 | 8623.65 | 0.05 | β^+ | 3671 | 4 | 86 914817 | 4 |
| 46 | 41 | | Nb | x | -73874 | 7 | 8551.76 | 0.08 | β^+ | 5473 | 8 | 86 920692 | 7 |
| 45 | 42 | | Mo | | -66884.8 | 2.9 | 8462.42 | 0.03 | β^+ | 6990 | 7 | 86 928196 | 3 |
| 44 | 43 | | Tc | x | -57690 | 4 | 8347.74 | 0.05 | β^+ | 9195 | 5 | 86 938067 | 5 |
| 43 | 44 | | Ru | x | -45520# | 400# | 8199# | 5# | β^+ | 12170# | 400# | 86 951130# | 430# |
| 56 | 32 | 88 | Ge | x | -40140# | 400# | 8243# | 5# | β^- | 10580# | 450# | 87 956910# | 430# |
| 55 | 33 | | As | x | -50720# | 200# | 8354# | 2# | β^- | 13160# | 200# | 87 945550# | 210# |
| 54 | 34 | | Se | x | -63884 | 3 | 8495.00 | 0.04 | β^- | 6832 | 5 | 87 931417 | 4 |
| 53 | 35 | | Br | ++ | -70716 | 3 | 8563.75 | 0.04 | β^- | 8975 | 4 | 87 924083 | 3 |
| 52 | 36 | | Kr | x | -79691.3 | 2.6 | 8656.849 | 0.030 | β^- | 2917.7 | 2.6 | 87 914447.9 | 2.8 |
| 51 | 37 | | Rb | | -82608.99 | 0.16 | 8681.115 | 0.002 | β^- | 5312.62 | 0.16 | 87 911315.59 | 0.17 |
| 50 | 38 | | Sr | | -87921.618 | 0.006 | 8732.595 | a | * | | | 87 905612.256 | 0.006 |
| 49 | 39 | | Y | — | -84299.0 | 1.5 | 8682.539 | 0.017 | β^+ | 3622.6 | 1.5 | 87 909501.3 | 1.6 |
| 48 | 40 | | Zr | | -83629 | 5 | 8666.03 | 0.06 | β^+ | 670 | 6 | 87 910221 | 6 |
| 47 | 41 | | Nb | | -76170 | 60 | 8572.4 | 0.7 | β^+ | 7460 | 60 | 87 918220 | 60 |
| 46 | 42 | | Mo | x | -72687 | 4 | 8523.91 | 0.04 | β^+ | 3490 | 60 | 87 921968 | 4 |
| 45 | 43 | | Tc | x | -61680 | 150 | 8390.0 | 1.7 | β^+ | 11010 | 150 | 87 933780 | 160 |
| 44 | 44 | | Ru | x | -54340# | 300# | 8298# | 3# | β^+ | 7340# | 340# | 87 941660# | 320# |
| 43 | 45 | | Rh | x | -36860# | 400# | 8090# | 5# | β^+ | 17480# | 500# | 87 960430# | 430# |
| 57 | 32 | 89 | Ge | x | -33730# | 400# | 8169# | 4# | β^- | 13070# | 500# | 88 963790# | 430# |
| 56 | 33 | | As | x | -46800# | 300# | 8307# | 3# | β^- | 12190# | 300# | 88 949760# | 320# |
| 55 | 34 | | Se | x | -58992 | 4 | 8435.28 | 0.04 | β^- | 9282 | 5 | 88 936669 | 4 |
| 54 | 35 | | Br | x | -68274 | 3 | 8530.78 | 0.04 | β^- | 8262 | 4 | 88 926705 | 4 |
| 53 | 36 | | Kr | x | -76535.8 | 2.1 | 8614.815 | 0.024 | β^- | 5177 | 6 | 88 917835.5 | 2.3 |
| 52 | 37 | | Rb | | -81712 | 5 | 8664.19 | 0.06 | β^- | 4497 | 5 | 88 912278 | 6 |
| 51 | 38 | | Sr | | -86209.02 | 0.09 | 8705.922 | 0.001 | β^- | 1499.3 | 1.6 | 88 907450.81 | 0.10 |
| 50 | 39 | | Y | | -87708.4 | 1.6 | 8713.978 | 0.018 | * | | | 88 905841.2 | 1.7 |
| 49 | 40 | | Zr | | -84876 | 3 | 8673.36 | 0.03 | β^+ | 2832.8 | 2.8 | 88 908882 | 3 |
| 48 | 41 | | Nb | | -80625 | 24 | 8616.81 | 0.27 | β^+ | 4250 | 24 | 88 913445 | 25 |
| 47 | 42 | | Mo | x | -75015 | 4 | 8544.98 | 0.04 | β^+ | 5610 | 24 | 88 919468 | 4 |
| 46 | 43 | | Tc | x | -67395 | 4 | 8450.57 | 0.04 | β^+ | 7620 | 5 | 88 927649 | 4 |
| 45 | 44 | | Ru | x | -58260# | 300# | 8339# | 3# | β^+ | 9140# | 300# | 88 937460# | 320# |
| 44 | 45 | | Rh | -p | -45860# | 360# | 8191# | 4# | β^+ | 12400# | 470# | 88 950770# | 390# |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ | |
|----------|----------|----------|------|-------|----------------------|------|-------------------------------------|-------|----------------------------|---------|------|----------------------|------|
| 58 | 32 | 90 | Ge | x | -29220# | 500# | 8118# | 6# | β^- | 12110# | 640# | 89 968630# | 540# |
| 57 | 33 | | As | x | -41330# | 400# | 8244# | 4# | β^- | 14470# | 520# | 89 955630# | 430# |
| 56 | 34 | | Se | x | -55800 | 330 | 8396 | 4 | β^- | 8200 | 330 | 89 940100 | 350 |
| 55 | 35 | | Br | x | -64000 | 3 | 8478.19 | 0.04 | β^- | 10959 | 4 | 89 931293 | 4 |
| 54 | 36 | | Kr | x | -74959.2 | 1.9 | 8591.259 | 0.021 | β^- | 4405 | 7 | 89 919527.9 | 2.0 |
| 53 | 37 | | Rb | | -79364 | 6 | 8631.51 | 0.07 | β^- | 6584 | 7 | 89 914799 | 7 |
| 52 | 38 | | Sr | | -85948.1 | 2.1 | 8695.972 | 0.024 | β^- | 545.9 | 1.4 | 89 907730.9 | 2.3 |
| 51 | 39 | | Y | | -86494.1 | 1.6 | 8693.345 | 0.018 | β^- | 2278.5 | 1.6 | 89 907144.8 | 1.7 |
| 50 | 40 | | Zr | | -88772.54 | 0.12 | 8709.969 | 0.001 | * | | | 89 904698.76 | 0.13 |
| 49 | 41 | | Nb | | -82662 | 3 | 8633.38 | 0.04 | β^+ | 6111 | 3 | 89 911259 | 4 |
| 48 | 42 | | Mo | | -80173 | 3 | 8597.03 | 0.04 | β^+ | 2489 | 3 | 89 913931 | 4 |
| 47 | 43 | | Tc | x | -70724.7 | 1.0 | 8483.359 | 0.011 | β^+ | 9448 | 4 | 89 924073.9 | 1.1 |
| 46 | 44 | | Ru | | -64884 | 4 | 8409.77 | 0.04 | β^+ | 5841 | 4 | 89 930344 | 4 |
| 45 | 45 | | Rh | x | -51700# | 300# | 8255# | 3# | β^+ | 13180# | 300# | 89 944500# | 320# |
| 44 | 46 | | Pd | x | -39710# | 400# | 8113# | 4# | β^+ | 11990# | 500# | 89 957370# | 430# |
| 58 | 33 | 91 | As | x | -36900# | 400# | 8193# | 4# | β^- | 13680# | 590# | 90 960390# | 430# |
| 57 | 34 | | Se | x | -50580 | 430 | 8335 | 5 | β^- | 10530 | 430 | 90 945700 | 470 |
| 56 | 35 | | Br | -n2p | -61107 | 4 | 8441.92 | 0.04 | β^- | 9867 | 4 | 90 934399 | 4 |
| 55 | 36 | | Kr | x | -70974.0 | 2.2 | 8541.751 | 0.025 | β^- | 6771 | 8 | 90 923806.3 | 2.4 |
| 54 | 37 | | Rb | | -77745 | 8 | 8607.56 | 0.09 | β^- | 5907 | 9 | 90 916537 | 8 |
| 53 | 38 | | Sr | | -83652 | 5 | 8663.87 | 0.06 | β^- | 2699 | 5 | 90 910196 | 6 |
| 52 | 39 | | Y | | -86351.3 | 1.8 | 8684.941 | 0.020 | β^- | 1544.3 | 1.8 | 90 907298.1 | 2.0 |
| 51 | 40 | | Zr | | -87895.57 | 0.10 | 8693.314 | 0.001 | * | | | 90 905640.22 | 0.11 |
| 50 | 41 | | Nb | | -86638.0 | 2.9 | 8670.90 | 0.03 | β^+ | 1257.6 | 2.9 | 90 906990 | 3 |
| 49 | 42 | | Mo | | -82209 | 6 | 8613.63 | 0.07 | β^+ | 4429 | 7 | 90 911745 | 7 |
| 48 | 43 | | Tc | | -75986.6 | 2.4 | 8536.655 | 0.026 | β^+ | 6222 | 7 | 90 918425.0 | 2.5 |
| 47 | 44 | | Ru | | -68239.8 | 2.2 | 8442.928 | 0.024 | β^+ | 7747 | 3 | 90 926741.5 | 2.4 |
| 46 | 45 | | Rh | x | -58570# | 300# | 8328# | 3# | β^+ | 9670# | 300# | 90 937120# | 320# |
| 45 | 46 | | Pd | x | -45930# | 400# | 8181# | 4# | β^+ | 12640# | 500# | 90 950690# | 430# |
| 59 | 33 | 92 | As | x | -30980# | 500# | 8127# | 5# | β^- | 15740# | 640# | 91 966740# | 540# |
| 58 | 34 | | Se | x | -46720# | 400# | 8290# | 4# | β^- | 9510# | 400# | 91 949840# | 430# |
| 57 | 35 | | Br | x | -56233 | 7 | 8384.91 | 0.07 | β^- | 12537 | 7 | 91 939632 | 7 |
| 56 | 36 | | Kr | x | -68769.3 | 2.7 | 8512.674 | 0.029 | β^- | 6003 | 7 | 91 926173.1 | 2.9 |
| 55 | 37 | | Rb | | -74772 | 6 | 8569.42 | 0.07 | β^- | 8095 | 6 | 91 919728 | 7 |
| 54 | 38 | | Sr | | -82867 | 3 | 8648.91 | 0.04 | β^- | 1949 | 9 | 91 911038 | 4 |
| 53 | 39 | | Y | | -84816 | 9 | 8661.59 | 0.10 | β^- | 3643 | 9 | 91 908946 | 10 |
| 52 | 40 | | Zr | | -88459.03 | 0.10 | 8692.678 | 0.001 | β^- | -2005.7 | 1.8 | 91 905035.32 | 0.11 |
| 51 | 41 | | Nb | | -86453.3 | 1.8 | 8662.372 | 0.019 | β^- | 355.3 | 1.8 | 91 907188.6 | 1.9 |
| 50 | 42 | | Mo | | -86808.58 | 0.16 | 8657.730 | 0.002 | * | | | 91 906807.16 | 0.17 |
| 49 | 43 | | Tc | | -78926 | 3 | 8563.54 | 0.03 | β^+ | 7883 | 3 | 91 915270 | 3 |
| 48 | 44 | | Ru | | -74301.2 | 2.7 | 8504.773 | 0.030 | β^+ | 4624 | 4 | 91 920234.4 | 2.9 |
| 47 | 45 | | Rh | x | -62999 | 4 | 8373.42 | 0.05 | β^+ | 11302 | 5 | 91 932368 | 5 |
| 46 | 46 | | Pd | x | -54580# | 300# | 8273# | 3# | β^+ | 8420# | 300# | 91 941410# | 320# |
| 45 | 47 | | Ag | x | -37130# | 500# | 8075# | 5# | β^+ | 17450# | 580# | 91 960140# | 540# |
| 59 | 34 | 93 | Se | x | -40720# | 400# | 8223# | 4# | β^- | 12180# | 590# | 92 956290# | 430# |
| 58 | 35 | | Br | x | -52890 | 430 | 8346 | 5 | β^- | 11250 | 430 | 92 943220 | 460 |
| 57 | 36 | | Kr | x | -64136.0 | 2.5 | 8458.108 | 0.027 | β^- | 8484 | 8 | 92 931147.2 | 2.7 |
| 56 | 37 | | Rb | | -72620 | 8 | 8540.92 | 0.08 | β^- | 7466 | 9 | 92 922039 | 8 |
| 55 | 38 | | Sr | | -80086 | 8 | 8612.79 | 0.08 | β^- | 4141 | 12 | 92 914024 | 8 |
| 54 | 39 | | Y | | -84227 | 10 | 8648.90 | 0.11 | β^- | 2895 | 10 | 92 909578 | 11 |
| 53 | 40 | | Zr | | -87122.0 | 0.5 | 8671.620 | 0.005 | β^- | 90.8 | 1.5 | 92 906470.6 | 0.5 |
| 52 | 41 | | Nb | | -87212.8 | 1.5 | 8664.184 | 0.016 | * | | | 92 906373.2 | 1.6 |
| 51 | 42 | | Mo | -n | -86807.07 | 0.18 | 8651.409 | 0.002 | β^+ | 405.8 | 1.5 | 92 906808.77 | 0.19 |
| 50 | 43 | | Tc | -p | -83606.1 | 1.0 | 8608.577 | 0.011 | β^+ | 3201.0 | 1.0 | 92 910245.1 | 1.1 |
| 49 | 44 | | Ru | | -77216.7 | 2.1 | 8531.462 | 0.022 | β^+ | 6389.4 | 2.3 | 92 917104.4 | 2.2 |
| 48 | 45 | | Rh | | -69011.8 | 2.6 | 8434.825 | 0.028 | β^+ | 8205 | 3 | 92 925912.8 | 2.8 |
| 47 | 46 | | Pd | +p | -59000# | 300# | 8319# | 3# | β^+ | 10010# | 300# | 92 936660# | 320# |
| 46 | 47 | | Ag | x | -46270# | 400# | 8173# | 4# | β^+ | 12730# | 500# | 92 950330# | 430# |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| N | Z | A | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ | |
|----|----|----|------|--------------|----------------------|------|-------------------------------------|-------|----------------------------|---------|------|----------------------|------|
| 60 | 34 | 94 | Se | x | -36800# | 500# | 8180# | 5# | β^- | 10600# | 580# | 93 960490# | 540# |
| 59 | 35 | | Br | x | -47400# | 300# | 8284# | 3# | β^- | 13950# | 300# | 93 949110# | 320# |
| 58 | 36 | | Kr | x | -61348 | 12 | 8424.33 | 0.13 | β^- | 7215 | 12 | 93 934140 | 13 |
| 57 | 37 | | Rb | | -68562.8 | 2.0 | 8492.764 | 0.022 | β^- | 10282.9 | 2.6 | 93 926394.8 | 2.2 |
| 56 | 38 | | Sr | | -78845.7 | 1.7 | 8593.834 | 0.018 | β^- | 3506 | 6 | 93 915355.6 | 1.8 |
| 55 | 39 | | Y | | -82351 | 6 | 8622.81 | 0.07 | β^- | 4918 | 6 | 93 911592 | 7 |
| 54 | 40 | | Zr | | -87269.32 | 0.16 | 8666.801 | 0.002 | β^- | -900.3 | 1.5 | 93 906312.52 | 0.18 |
| 53 | 41 | | Nb | | -86369.1 | 1.5 | 8648.901 | 0.016 | β^- | 2045.0 | 1.5 | 93 907279.0 | 1.6 |
| 52 | 42 | | Mo | | -88414.06 | 0.14 | 8662.333 | 0.002 | * | | | 93 905083.59 | 0.15 |
| 51 | 43 | | Tc | — | -84158 | 4 | 8608.74 | 0.04 | β^+ | 4256 | 4 | 93 909652 | 4 |
| 50 | 44 | | Ru | | -82584 | 3 | 8583.66 | 0.03 | β^+ | 1575 | 5 | 93 911343 | 3 |
| 49 | 45 | | Rh | | -72908 | 3 | 8472.40 | 0.04 | β^+ | 9676 | 5 | 93 921730 | 4 |
| 48 | 46 | | Pd | x | -66102 | 4 | 8391.68 | 0.05 | β^+ | 6805 | 5 | 93 929036 | 5 |
| 47 | 47 | | Ag | x | -52410# | 400# | 8238# | 4# | β^+ | 13690# | 400# | 93 943740# | 430# |
| 46 | 48 | | Cd | x | -40140# | 500# | 8099# | 5# | β^+ | 12270# | 640# | 93 956910# | 540# |
| 61 | 34 | 95 | Se | x | -30460# | 500# | 8112# | 5# | β^- | 13310# | 580# | 94 967300# | 540# |
| 60 | 35 | | Br | x | -43770# | 300# | 8244# | 3# | β^- | 12390# | 300# | 94 953010# | 320# |
| 59 | 36 | | Kr | x | -56159 | 19 | 8366.00 | 0.20 | β^- | 9733 | 28 | 94 939711 | 20 |
| 58 | 37 | | Rb | | -65891 | 20 | 8460.21 | 0.21 | β^- | 9228 | 20 | 94 929263 | 22 |
| 57 | 38 | | Sr | | -75120 | 6 | 8549.11 | 0.06 | β^- | 6089 | 7 | 94 919356 | 6 |
| 56 | 39 | | Y | | -81209 | 7 | 8604.97 | 0.07 | β^- | 4451 | 7 | 94 912819 | 7 |
| 55 | 40 | | Zr | | -85659.9 | 0.9 | 8643.592 | 0.009 | β^- | 1126.3 | 1.0 | 94 908040.3 | 0.9 |
| 54 | 41 | | Nb | | -86786.3 | 0.5 | 8647.212 | 0.005 | β^- | 925.6 | 0.5 | 94 906831.1 | 0.5 |
| 53 | 42 | | Mo | | -87711.86 | 0.12 | 8648.720 | 0.001 | * | | | 94 905837.44 | 0.13 |
| 52 | 43 | | Tc | | -86021 | 5 | 8622.69 | 0.05 | β^+ | 1691 | 5 | 94 907652 | 5 |
| 51 | 44 | | Ru | | -83458 | 10 | 8587.47 | 0.10 | β^+ | 2564 | 11 | 94 910404 | 10 |
| 50 | 45 | | Rh | | -78341 | 4 | 8525.37 | 0.04 | β^+ | 5117 | 10 | 94 915898 | 4 |
| 49 | 46 | | Pd | x | -69966 | 3 | 8428.98 | 0.03 | β^+ | 8375 | 5 | 94 924889 | 3 |
| 48 | 47 | | Ag | x | -59600# | 300# | 8312# | 3# | β^+ | 10370# | 300# | 94 936020# | 320# |
| 47 | 48 | | Cd | x | -46630# | 400# | 8167# | 4# | β^+ | 12970# | 500# | 94 949940# | 430# |
| 61 | 35 | 96 | Br | x | -38160# | 300# | 8184# | 3# | β^- | 14920# | 300# | 95 959030# | 320# |
| 60 | 36 | | Kr | x | -53080 | 20 | 8330.85 | 0.21 | β^- | 8275 | 21 | 95 943017 | 22 |
| 59 | 37 | | Rb | | -61354 | 3 | 8408.90 | 0.03 | β^- | 11570 | 9 | 95 934133 | 4 |
| 58 | 38 | | Sr | | -72924 | 8 | 8521.26 | 0.09 | β^- | 5412 | 10 | 95 921713 | 9 |
| 57 | 39 | | Y | | -78336 | 6 | 8569.49 | 0.06 | β^- | 7103 | 6 | 95 915903 | 7 |
| 56 | 40 | | Zr | | -85438.85 | 0.11 | 8635.327 | 0.001 | β^- | 163.97 | 0.10 | 95 908277.62 | 0.12 |
| 55 | 41 | | Nb | | -85602.82 | 0.15 | 8628.886 | 0.002 | β^- | 3192.06 | 0.11 | 95 908101.59 | 0.16 |
| 54 | 42 | | Mo | | -88794.88 | 0.12 | 8653.987 | 0.001 | β^- | -2973 | 5 | 95 904674.77 | 0.13 |
| 53 | 43 | | Tc | — | -85822 | 5 | 8614.87 | 0.05 | β^- | 259 | 5 | 95 907867 | 6 |
| 52 | 44 | | Ru | | -86080.37 | 0.17 | 8609.412 | 0.002 | * | | | 95 907588.91 | 0.18 |
| 51 | 45 | | Rh | — | -79688 | 10 | 8534.67 | 0.10 | β^+ | 6393 | 10 | 95 914452 | 11 |
| 50 | 46 | | Pd | x | -76183 | 4 | 8490.02 | 0.04 | β^+ | 3504 | 11 | 95 918214 | 5 |
| 49 | 47 | | Ag | ϵp | -64510 | 90 | 8360.3 | 0.9 | β^+ | 11670 | 90 | 95 930740 | 100 |
| 48 | 48 | | Cd | x | -55570# | 400# | 8259# | 4# | β^+ | 8940# | 410# | 95 940340# | 430# |
| 47 | 49 | | In | x | -37890# | 500# | 8067# | 5# | β^+ | 17680# | 640# | 95 959320# | 540# |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ | |
|----------|----------|----------|------|-------|----------------------|------|-------------------------------------|-------|----------------------------|--------|------|----------------------|------|
| 62 | 35 | 97 | Br | x | -34060# | 400# | 8140# | 4# | β^- | 13370# | 420# | 96 963440# | 430# |
| 61 | 36 | | Kr | x | -47420 | 130 | 8269.9 | 1.3 | β^- | 11100 | 130 | 96 949090 | 140 |
| 60 | 37 | | Rb | | -58519.1 | 1.9 | 8376.186 | 0.020 | β^- | 10062 | 4 | 96 937177.1 | 2.1 |
| 59 | 38 | | Sr | | -68581 | 3 | 8471.86 | 0.03 | β^- | 7540 | 8 | 96 926375 | 4 |
| 58 | 39 | | Y | + | -76121 | 7 | 8541.52 | 0.07 | β^- | 6821 | 7 | 96 918280 | 7 |
| 57 | 40 | | Zr | | -82942.7 | 0.4 | 8603.779 | 0.004 | β^- | 2663 | 4 | 96 910957.4 | 0.4 |
| 56 | 41 | | Nb | | -85606 | 4 | 8623.17 | 0.04 | β^- | 1939 | 4 | 96 908098 | 5 |
| 55 | 42 | | Mo | | -87544.69 | 0.16 | 8635.092 | 0.002 | * | | | 96 906016.90 | 0.18 |
| 54 | 43 | | Tc | | -87224 | 4 | 8623.72 | 0.04 | β^+ | 320 | 4 | 96 906361 | 4 |
| 53 | 44 | | Ru | -n | -86120.6 | 2.8 | 8604.279 | 0.028 | β^+ | 1104 | 5 | 96 907545.8 | 3.0 |
| 52 | 45 | | Rh | — | -82600 | 40 | 8559.9 | 0.4 | β^+ | 3520 | 40 | 96 911330 | 40 |
| 51 | 46 | | Pd | x | -77806 | 5 | 8502.43 | 0.05 | β^+ | 4790 | 40 | 96 916472 | 5 |
| 50 | 47 | | Ag | — | -70830 | 110 | 8422.4 | 1.1 | β^+ | 6980 | 110 | 96 923970 | 120 |
| 49 | 48 | | Cd | x | -60450# | 300# | 8307# | 3# | β^+ | 10370# | 320# | 96 935100# | 320# |
| 48 | 49 | | In | x | -47190# | 400# | 8163# | 4# | β^+ | 13260# | 500# | 96 949340# | 430# |
| 63 | 35 | 98 | Br | x | -28250# | 400# | 8080# | 4# | β^- | 16060# | 500# | 97 969670# | 430# |
| 62 | 36 | | Kr | x | -44310# | 300# | 8236# | 3# | β^- | 10060# | 300# | 97 952430# | 320# |
| 61 | 37 | | Rb | | -54369 | 16 | 8330.73 | 0.16 | β^- | 12054 | 16 | 97 941632 | 17 |
| 60 | 38 | | Sr | | -66423 | 3 | 8445.75 | 0.03 | β^- | 5872 | 9 | 97 928692 | 3 |
| 59 | 39 | | Y | p-2n | -72295 | 8 | 8497.68 | 0.08 | β^- | 8992 | 12 | 97 922388 | 9 |
| 58 | 40 | | Zr | | -81287 | 8 | 8581.45 | 0.09 | β^- | 2238 | 10 | 97 912735 | 9 |
| 57 | 41 | | Nb | -pn | -83525 | 5 | 8596.30 | 0.05 | β^- | 4591 | 5 | 97 910333 | 5 |
| 56 | 42 | | Mo | | -88115.97 | 0.17 | 8635.168 | 0.002 | β^- | -1684 | 3 | 97 905403.61 | 0.19 |
| 55 | 43 | | Tc | | -86432 | 3 | 8610.00 | 0.03 | β^- | 1793 | 7 | 97 907211 | 4 |
| 54 | 44 | | Ru | | -88225 | 6 | 8620.31 | 0.07 | * | | | 97 905287 | 7 |
| 53 | 45 | | Rh | — | -83175 | 12 | 8560.80 | 0.12 | β^+ | 5050 | 10 | 97 910708 | 13 |
| 52 | 46 | | Pd | | -81321 | 5 | 8533.90 | 0.05 | β^+ | 1854 | 13 | 97 912698 | 5 |
| 51 | 47 | | Ag | | -73070 | 30 | 8441.7 | 0.3 | β^+ | 8250 | 30 | 97 921560 | 40 |
| 50 | 48 | | Cd | — | -67640 | 50 | 8378.3 | 0.5 | β^+ | 5430 | 40 | 97 927390 | 60 |
| 49 | 49 | | In | x | -53900# | 300# | 8230# | 3# | β^+ | 13740# | 300# | 97 942140# | 320# |
| 63 | 36 | 99 | Kr | x | -38760# | 400# | 8178# | 4# | β^- | 12360# | 400# | 98 958390# | 430# |
| 62 | 37 | | Rb | x | -51121 | 4 | 8295.30 | 0.04 | β^- | 11400 | 6 | 98 945119 | 4 |
| 61 | 38 | | Sr | | -62521 | 5 | 8402.55 | 0.05 | β^- | 8128 | 8 | 98 932881 | 5 |
| 60 | 39 | | Y | x | -70650 | 7 | 8476.75 | 0.07 | β^- | 6971 | 12 | 98 924154 | 7 |
| 59 | 40 | | Zr | | -77621 | 11 | 8539.26 | 0.11 | β^- | 4715 | 16 | 98 916671 | 11 |
| 58 | 41 | | Nb | +p | -82335 | 12 | 8578.99 | 0.12 | β^- | 3635 | 12 | 98 911609 | 13 |
| 57 | 42 | | Mo | | -85970.10 | 0.23 | 8607.797 | 0.002 | β^- | 1357.8 | 0.9 | 98 907707.30 | 0.25 |
| 56 | 43 | | Tc | | -87327.9 | 0.9 | 8613.610 | 0.009 | β^- | 297.5 | 0.9 | 98 906249.7 | 1.0 |
| 55 | 44 | | Ru | | -87625.4 | 0.3 | 8608.712 | 0.003 | * | | | 98 905930.3 | 0.4 |
| 54 | 45 | | Rh | | -85581 | 7 | 8580.16 | 0.07 | β^+ | 2044 | 7 | 98 908125 | 7 |
| 53 | 46 | | Pd | | -82183 | 5 | 8537.93 | 0.05 | β^+ | 3399 | 8 | 98 911773 | 5 |
| 52 | 47 | | Ag | x | -76712 | 6 | 8474.77 | 0.06 | β^+ | 5470 | 8 | 98 917646 | 7 |
| 51 | 48 | | Cd | x | -69931.1 | 1.6 | 8398.373 | 0.016 | β^+ | 6781 | 6 | 98 924925.8 | 1.7 |
| 50 | 49 | | In | x | -61380# | 300# | 8304# | 3# | β^+ | 8560# | 300# | 98 934110# | 320# |
| 49 | 50 | | Sn | x | -47940# | 500# | 8160# | 5# | β^+ | 13430# | 590# | 98 948530# | 540# |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ u | |
|----------|----------|----------|------|-------|----------------------|------|-------------------------------------|-------|----------------------------|--------|------|------------------------|------|
| 64 | 36 | 100 | Kr | x | -35050# | 400# | 8140# | 4# | β^- | 11200# | 400# | 99 962370# | 430# |
| 63 | 37 | | Rb | x | -46247 | 20 | 8244.32 | 0.20 | β^- | 13574 | 21 | 99 950352 | 21 |
| 62 | 38 | | Sr | | -59821 | 7 | 8372.23 | 0.07 | β^- | 7506 | 13 | 99 935780 | 8 |
| 61 | 39 | | Y | x | -67327 | 11 | 8439.48 | 0.11 | β^- | 9050 | 14 | 99 927721 | 12 |
| 60 | 40 | | Zr | | -76377 | 8 | 8522.15 | 0.08 | β^- | 3420 | 11 | 99 918005 | 9 |
| 59 | 41 | | Nb | IT | -79797 | 8 | 8548.53 | 0.08 | β^- | 6396 | 8 | 99 914334 | 9 |
| 58 | 42 | | Mo | | -86193.0 | 0.3 | 8604.662 | 0.003 | β^- | -172.1 | 1.4 | 99 907468.0 | 0.3 |
| 57 | 43 | | Tc | -n | -86020.9 | 1.4 | 8595.118 | 0.014 | β^- | 3206.4 | 1.4 | 99 907652.7 | 1.5 |
| 56 | 44 | | Ru | | -89227.4 | 0.3 | 8619.359 | 0.003 | | * | | 99 904210.5 | 0.4 |
| 55 | 45 | | Rh | | -85591 | 18 | 8575.17 | 0.18 | β^+ | 3636 | 18 | 99 908114 | 19 |
| 54 | 46 | | Pd | | -85213 | 18 | 8563.57 | 0.18 | β^+ | 378 | 25 | 99 908520 | 19 |
| 53 | 47 | | Ag | x | -78138 | 5 | 8484.99 | 0.05 | β^+ | 7075 | 18 | 99 916115 | 5 |
| 52 | 48 | | Cd | | -74194.6 | 1.7 | 8437.737 | 0.017 | β^+ | 3943 | 5 | 99 920348.8 | 1.8 |
| 51 | 49 | | In | | -64310 | 180 | 8331.1 | 1.8 | β^+ | 9880 | 180 | 99 930960 | 200 |
| 50 | 50 | | Sn | — | -57280 | 300 | 8253 | 3 | β^+ | 7030 | 240 | 99 938500 | 320 |
| 65 | 36 | 101 | Kr | x | -29130# | 500# | 8081# | 5# | β^- | 13720# | 540# | 100 968730# | 540# |
| 64 | 37 | | Rb | + | -42850# | 200# | 8209# | 2# | β^- | 12480# | 200# | 100 954000# | 220# |
| 63 | 38 | | Sr | x | -55325 | 8 | 8324.74 | 0.08 | β^- | 9736 | 11 | 100 940606 | 9 |
| 62 | 39 | | Y | x | -65061 | 7 | 8413.39 | 0.07 | β^- | 8105 | 11 | 100 930154 | 8 |
| 61 | 40 | | Zr | | -73166 | 8 | 8485.89 | 0.08 | β^- | 5726 | 9 | 100 921453 | 9 |
| 60 | 41 | | Nb | x | -78891 | 4 | 8534.83 | 0.04 | β^- | 4628 | 4 | 100 915306 | 4 |
| 59 | 42 | | Mo | -n | -83519.9 | 0.3 | 8572.915 | 0.003 | β^- | 2825 | 24 | 100 910337.6 | 0.3 |
| 58 | 43 | | Tc | + | -86345 | 24 | 8593.14 | 0.24 | β^- | 1614 | 24 | 100 907305 | 26 |
| 57 | 44 | | Ru | | -87958.1 | 0.4 | 8601.365 | 0.004 | | * | | 100 905573.1 | 0.4 |
| 56 | 45 | | Rh | | -87412 | 6 | 8588.22 | 0.06 | β^+ | 546 | 6 | 100 906159 | 6 |
| 55 | 46 | | Pd | | -85432 | 5 | 8560.86 | 0.05 | β^+ | 1980 | 4 | 100 908285 | 5 |
| 54 | 47 | | Ag | x | -81334 | 5 | 8512.55 | 0.05 | β^+ | 4098 | 7 | 100 912684 | 5 |
| 53 | 48 | | Cd | x | -75836.5 | 1.5 | 8450.365 | 0.015 | β^+ | 5498 | 5 | 100 918586.2 | 1.6 |
| 52 | 49 | | In | x | -68610# | 200# | 8371# | 2# | β^+ | 7220# | 200# | 100 926340# | 210# |
| 51 | 50 | | Sn | εp | -60310 | 300 | 8281.1 | 3.0 | β^+ | 8310# | 360# | 100 935260 | 320 |
| 65 | 37 | 102 | Rb | x | -37710# | 300# | 8157# | 3# | β^- | 14450# | 310# | 101 959520# | 320# |
| 64 | 38 | | Sr | x | -52160 | 70 | 8291.2 | 0.7 | β^- | 9010 | 70 | 101 944000 | 70 |
| 63 | 39 | | Y | x | -61173 | 4 | 8371.92 | 0.04 | β^- | 10415 | 10 | 101 934328 | 4 |
| 62 | 40 | | Zr | | -71588 | 9 | 8466.35 | 0.09 | β^- | 4717 | 9 | 101 923147 | 9 |
| 61 | 41 | | Nb | | -76304.5 | 2.5 | 8504.928 | 0.025 | β^- | 7262 | 9 | 101 918083.7 | 2.7 |
| 60 | 42 | | Mo | | -83566 | 8 | 8568.45 | 0.08 | β^- | 1007 | 12 | 101 910288 | 9 |
| 59 | 43 | | Tc | | -84573 | 9 | 8570.65 | 0.09 | β^- | 4534 | 9 | 101 909207 | 10 |
| 58 | 44 | | Ru | | -89106.4 | 0.4 | 8607.427 | 0.004 | β^- | -2323 | 6 | 101 904340.3 | 0.4 |
| 57 | 45 | | Rh | — | -86783 | 6 | 8576.98 | 0.06 | β^- | 1120 | 6 | 101 906834 | 7 |
| 56 | 46 | | Pd | | -87903.2 | 0.6 | 8580.290 | 0.005 | | * | | 101 905632.1 | 0.6 |
| 55 | 47 | | Ag | + | -82247 | 8 | 8517.16 | 0.08 | β^+ | 5656 | 8 | 101 911705 | 9 |
| 54 | 48 | | Cd | | -79659.7 | 1.7 | 8484.131 | 0.016 | β^+ | 2587 | 8 | 101 914481.8 | 1.8 |
| 53 | 49 | | In | | -70695 | 5 | 8388.57 | 0.04 | β^+ | 8965 | 5 | 101 924106 | 5 |
| 52 | 50 | | Sn | — | -64930 | 100 | 8324.4 | 1.0 | β^+ | 5760 | 100 | 101 930290 | 110 |
| 66 | 37 | 103 | Rb | x | -33610# | 400# | 8117# | 4# | β^- | 13810# | 450# | 102 963920# | 430# |
| 65 | 38 | | Sr | x | -47420# | 200# | 8243# | 2# | β^- | 11040# | 200# | 102 949090# | 210# |
| 64 | 39 | | Y | x | -58458 | 11 | 8342.64 | 0.11 | β^- | 9358 | 15 | 102 937243 | 12 |
| 63 | 40 | | Zr | x | -67815 | 9 | 8425.89 | 0.09 | β^- | 7213 | 10 | 102 927197 | 10 |
| 62 | 41 | | Nb | x | -75029 | 4 | 8488.33 | 0.04 | β^- | 5932 | 10 | 102 919453 | 4 |
| 61 | 42 | | Mo | x | -80961 | 9 | 8538.33 | 0.09 | β^- | 3643 | 13 | 102 913085 | 10 |
| 60 | 43 | | Tc | +p | -84604 | 10 | 8566.10 | 0.10 | β^- | 2663 | 10 | 102 909174 | 11 |
| 59 | 44 | | Ru | | -87267.2 | 0.4 | 8584.365 | 0.004 | β^- | 764.5 | 2.3 | 102 906314.8 | 0.5 |
| 58 | 45 | | Rh | | -88031.7 | 2.3 | 8584.192 | 0.022 | | * | | 102 905494.1 | 2.5 |
| 57 | 46 | | Pd | -n | -87457.2 | 0.9 | 8571.019 | 0.009 | β^+ | 574.5 | 2.4 | 102 906110.8 | 1.0 |
| 56 | 47 | | Ag | x | -84803 | 4 | 8537.65 | 0.04 | β^+ | 2654 | 4 | 102 908961 | 4 |
| 55 | 48 | | Cd | | -80651.6 | 1.8 | 8489.754 | 0.018 | β^+ | 4151 | 4 | 102 913416.9 | 1.9 |
| 54 | 49 | | In | | -74633 | 10 | 8423.72 | 0.09 | β^+ | 6019 | 10 | 102 919879 | 10 |
| 53 | 50 | | Sn | — | -66970 | 70 | 8341.8 | 0.7 | β^+ | 7660 | 70 | 102 928100 | 80 |
| 52 | 51 | | Sb | x | -56180# | 300# | 8229# | 3# | β^+ | 10790# | 310# | 102 939690# | 320# |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ | |
|----------|----------|----------|------|-----------|----------------------|------|-------------------------------------|-------|----------------------------|---------|-------|----------------------|------|
| 66 | 38 | 104 | Sr | x | -44110# | 300# | 8210# | 3# | β^- | 9960# | 500# | 103 952650# | 320# |
| 65 | 39 | | Y | x | -54060# | 400# | 8298# | 4# | β^- | 11660# | 400# | 103 941960# | 430# |
| 64 | 40 | | Zr | x | -65724 | 9 | 8402.38 | 0.09 | β^- | 6095 | 10 | 103 929442 | 10 |
| 63 | 41 | | Nb | x | -71819.0 | 2.7 | 8453.459 | 0.026 | β^- | 8531 | 9 | 103 922899.1 | 2.9 |
| 62 | 42 | | Mo | | -80350 | 9 | 8527.97 | 0.09 | β^- | 2153 | 24 | 103 913741 | 10 |
| 61 | 43 | | Tc | | -82503 | 25 | 8541.15 | 0.24 | β^- | 5592 | 25 | 103 911429 | 27 |
| 60 | 44 | | Ru | | -88095.7 | 2.5 | 8587.399 | 0.024 | β^- | -1136 | 3 | 103 905425.4 | 2.7 |
| 59 | 45 | | Rh | -n | -86959.3 | 2.3 | 8568.949 | 0.022 | β^- | 2435.8 | 2.7 | 103 906645.3 | 2.5 |
| 58 | 46 | | Pd | +n | -89395.1 | 1.3 | 8584.848 | 0.013 | * | | | 103 904030.4 | 1.4 |
| 57 | 47 | | Ag | — | -85116 | 4 | 8536.18 | 0.04 | β^+ | 4279 | 4 | 103 908624 | 5 |
| 56 | 48 | | Cd | | -83968.4 | 1.7 | 8517.622 | 0.016 | β^+ | 1148 | 5 | 103 909856.2 | 1.8 |
| 55 | 49 | | In | x | -76183 | 6 | 8435.24 | 0.06 | β^+ | 7786 | 6 | 103 918215 | 6 |
| 54 | 50 | | Sn | | -71627 | 6 | 8383.91 | 0.06 | β^+ | 4556 | 8 | 103 923105 | 6 |
| 53 | 51 | | Sb | -p | -59170 | 120 | 8256.6 | 1.2 | β^+ | 12450 | 120 | 103 936470 | 130 |
| 67 | 38 | 105 | Sr | x | -38610# | 500# | 8156# | 5# | β^- | 12660# | 1430# | 104 958550# | 540# |
| 66 | 39 | | Y | x | -51270 | 1340 | 8269 | 13 | β^- | 10190 | 1340 | 104 944960 | 1440 |
| 65 | 40 | | Zr | x | -61465 | 12 | 8358.66 | 0.12 | β^- | 8451 | 13 | 104 934015 | 13 |
| 64 | 41 | | Nb | x | -69916 | 4 | 8431.69 | 0.04 | β^- | 7422 | 10 | 104 924943 | 4 |
| 63 | 42 | | Mo | | -77337 | 9 | 8494.92 | 0.09 | β^- | 4950 | 40 | 104 916975 | 10 |
| 62 | 43 | | Tc | | -82290 | 40 | 8534.6 | 0.3 | β^- | 3640 | 40 | 104 911660 | 40 |
| 61 | 44 | | Ru | | -85934.5 | 2.5 | 8561.900 | 0.024 | β^- | 1916.8 | 2.9 | 104 907745.5 | 2.7 |
| 60 | 45 | | Rh | | -87851.2 | 2.5 | 8572.704 | 0.024 | β^- | 566.6 | 2.3 | 104 905687.8 | 2.7 |
| 59 | 46 | | Pd | | -88417.9 | 1.1 | 8570.650 | 0.011 | * | | | 104 905079.5 | 1.2 |
| 58 | 47 | | Ag | | -87071 | 5 | 8550.37 | 0.04 | β^+ | 1347 | 5 | 104 906526 | 5 |
| 57 | 48 | | Cd | | -84333.8 | 1.4 | 8516.852 | 0.013 | β^+ | 2737 | 4 | 104 909463.9 | 1.5 |
| 56 | 49 | | In | x | -79641 | 10 | 8464.70 | 0.10 | β^+ | 4693 | 10 | 104 914502 | 11 |
| 55 | 50 | | Sn | | -73338 | 4 | 8397.23 | 0.04 | β^+ | 6303 | 11 | 104 921268 | 4 |
| 54 | 51 | | Sb | $+\alpha$ | -64015 | 22 | 8300.99 | 0.21 | β^+ | 9323 | 22 | 104 931277 | 23 |
| 53 | 52 | | Te | $-\alpha$ | -52810 | 300 | 8186.8 | 2.9 | β^+ | 11200 | 300 | 104 943300 | 320 |
| 68 | 38 | 106 | Sr | x | -34790# | 600# | 8119# | 6# | β^- | 11260# | 780# | 105 962650# | 640# |
| 67 | 39 | | Y | x | -46050# | 500# | 8218# | 5# | β^- | 12500# | 660# | 105 950560# | 540# |
| 66 | 40 | | Zr | x | -58550 | 430 | 8328 | 4 | β^- | 7650 | 430 | 105 937140 | 470 |
| 65 | 41 | | Nb | x | -66203 | 4 | 8393.27 | 0.04 | β^- | 9931 | 10 | 105 928928 | 4 |
| 64 | 42 | | Mo | x | -76135 | 9 | 8479.58 | 0.09 | β^- | 3642 | 15 | 105 918266 | 10 |
| 63 | 43 | | Tc | + | -79776 | 12 | 8506.56 | 0.12 | β^- | 6547 | 11 | 105 914357 | 13 |
| 62 | 44 | | Ru | | -86323 | 5 | 8560.94 | 0.05 | β^- | 39.40 | 0.21 | 105 907328 | 6 |
| 61 | 45 | | Rh | | -86363 | 5 | 8553.93 | 0.05 | β^- | 3545 | 5 | 105 907286 | 6 |
| 60 | 46 | | Pd | | -89907.5 | 1.1 | 8579.992 | 0.010 | β^- | -2965.1 | 2.8 | 105 903480.3 | 1.2 |
| 59 | 47 | | Ag | | -86942 | 3 | 8544.639 | 0.028 | β^- | 189.8 | 2.8 | 105 906664 | 3 |
| 58 | 48 | | Cd | | -87132.1 | 1.1 | 8539.048 | 0.010 | * | | | 105 906459.8 | 1.2 |
| 57 | 49 | | In | — | -80608 | 12 | 8470.12 | 0.12 | β^+ | 6524 | 12 | 105 913464 | 13 |
| 56 | 50 | | Sn | | -77354 | 5 | 8432.04 | 0.05 | β^+ | 3254 | 13 | 105 916957 | 5 |
| 55 | 51 | | Sb | x | -66473 | 7 | 8322.01 | 0.07 | β^+ | 10880 | 9 | 105 928638 | 8 |
| 54 | 52 | | Te | $-\alpha$ | -58220 | 100 | 8236.8 | 0.9 | β^+ | 8250 | 100 | 105 937500 | 110 |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ u | |
|----------|----------|----------|-----------|-----------|----------------------|----------|-------------------------------------|-----------|----------------------------|--------|--------------|------------------------|------|
| 69 | 38 | 107 | Sr | x | -28900# | 700# | 8064# | 7# | β^- | 13470# | 860# | 106 968980# | 750# |
| 68 | 39 | | Y | x | -42360# | 500# | 8182# | 5# | β^- | 12020# | 1230# | 106 954520# | 540# |
| 67 | 40 | | Zr | x | -54380 | 1120 | 8287 | 10 | β^- | 9340 | 1120 | 106 941620 | 1210 |
| 66 | 41 | | Nb | x | -63724 | 8 | 8367.09 | 0.07 | β^- | 8828 | 12 | 106 931590 | 9 |
| 65 | 42 | | Mo | x | -72552 | 9 | 8442.28 | 0.09 | β^- | 6198 | 13 | 106 922113 | 10 |
| 64 | 43 | | Tc | x | -78750 | 9 | 8492.90 | 0.08 | β^- | 5113 | 12 | 106 915458 | 9 |
| 63 | 44 | | Ru | -nn | -83863 | 9 | 8533.37 | 0.08 | β^- | 3001 | 15 | 106 909970 | 9 |
| 62 | 45 | | Rh | +p | -86864 | 12 | 8554.10 | 0.11 | β^- | 1509 | 12 | 106 906748 | 13 |
| 61 | 46 | | Pd | | -88372.6 | 1.2 | 8560.894 | 0.011 | β^- | 34.0 | 2.3 | 106 905128.1 | 1.3 |
| 60 | 47 | | Ag | | -88406.7 | 2.4 | 8553.900 | 0.022 | * | | | 106 905091.5 | 2.6 |
| 59 | 48 | 108 | Cd | | -86990.3 | 1.7 | 8533.351 | 0.016 | β^+ | 1416.4 | 2.6 | 106 906612.1 | 1.8 |
| 58 | 49 | | In | — | -83564 | 11 | 8494.02 | 0.10 | β^+ | 3426 | 11 | 106 910290 | 12 |
| 57 | 50 | | Sn | x | -78512 | 5 | 8439.49 | 0.05 | β^+ | 5052 | 12 | 106 915714 | 6 |
| 56 | 51 | | Sb | | -70653 | 4 | 8358.73 | 0.04 | β^+ | 7859 | 7 | 106 924151 | 4 |
| 55 | 52 | | Te | $-\alpha$ | -60540 | 70 | 8256.9 | 0.7 | β^+ | 10110 | 70 | 106 935010 | 80 |
| 54 | 53 | | I | x | -49430# | 300# | 8146# | 3# | β^+ | 11110# | 310# | 106 946940# | 320# |
| 69 | 39 | | Y | x | -37300# | 600# | 8134# | 6# | β^- | 14060# | 720# | 107 959960# | 640# |
| 68 | 40 | | Zr | x | -51350# | 400# | 8257# | 4# | β^- | 8190# | 400# | 107 944870# | 430# |
| 67 | 41 | | Nb | x | -59546 | 8 | 8325.66 | 0.08 | β^- | 11210 | 12 | 107 936075 | 9 |
| 66 | 42 | | Mo | x | -70756 | 9 | 8422.22 | 0.09 | β^- | 5167 | 13 | 107 924040 | 10 |
| 65 | 43 | Tc | x | -75923 | 9 | 8462.82 | 0.08 | β^- | 7739 | 12 | 107 918494 | 9 | |
| 64 | 44 | Ru | -3n | -83661 | 9 | 8527.23 | 0.08 | β^- | 1370 | 16 | 107 910186 | 9 | |
| 63 | 45 | Rh | x | -85032 | 14 | 8532.67 | 0.13 | β^- | 4492 | 14 | 107 908715 | 15 | |
| 62 | 46 | Pd | | -89524.2 | 1.1 | 8567.023 | 0.010 | β^- | -1917.4 | 2.6 | 107 903891.8 | 1.2 | |
| 61 | 47 | Ag | -n | -87606.8 | 2.4 | 8542.025 | 0.022 | β^- | 1645.7 | 2.6 | 107 905950.3 | 2.6 | |
| 60 | 48 | Cd | | -89252.4 | 1.1 | 8550.019 | 0.010 | * | | | 107 904183.6 | 1.2 | |
| 59 | 49 | In | | -84120 | 9 | 8495.25 | 0.08 | β^+ | 5133 | 9 | 107 909694 | 9 | |
| 58 | 50 | Sn | | -82070 | 5 | 8469.03 | 0.05 | β^+ | 2050 | 10 | 107 911894 | 6 | |
| 57 | 51 | Sb | x | -72445 | 5 | 8372.67 | 0.05 | β^+ | 9625 | 8 | 107 922227 | 6 | |
| 56 | 52 | Te | | -65782 | 5 | 8303.72 | 0.05 | β^+ | 6664 | 8 | 107 929380 | 6 | |
| 55 | 53 | I | $-\alpha$ | -52650 | 130 | 8174.9 | 1.2 | β^+ | 13130 | 130 | 107 943480 | 140 | |
| 70 | 39 | 109 | Y | x | -33200# | 700# | 8096# | 6# | β^- | 12990# | 860# | 108 964360# | 750# |
| 69 | 40 | | Zr | x | -46190# | 500# | 8208# | 5# | β^- | 10500# | 570# | 108 950410# | 540# |
| 68 | 41 | | Nb | x | -56690 | 260 | 8297.1 | 2.4 | β^- | 9980 | 260 | 108 939140 | 280 |
| 67 | 42 | | Mo | x | -66666 | 11 | 8381.48 | 0.10 | β^- | 7617 | 15 | 108 928431 | 12 |
| 66 | 43 | | Tc | x | -74283 | 10 | 8444.18 | 0.09 | β^- | 6456 | 13 | 108 920254 | 10 |
| 65 | 44 | | Ru | -4n | -80738 | 9 | 8496.23 | 0.08 | β^- | 4261 | 10 | 108 913324 | 10 |
| 64 | 45 | | Rh | | -84999 | 4 | 8528.14 | 0.04 | β^- | 2607 | 4 | 108 908749 | 4 |
| 63 | 46 | | Pd | | -87606.5 | 1.1 | 8544.882 | 0.010 | β^- | 1112.9 | 1.4 | 108 905950.6 | 1.2 |
| 62 | 47 | | Ag | | -88719.4 | 1.3 | 8547.915 | 0.012 | * | | | 108 904755.8 | 1.4 |
| 61 | 48 | | Cd | | -88504.3 | 1.5 | 8538.764 | 0.014 | β^+ | 215.1 | 1.8 | 108 904986.7 | 1.6 |
| 60 | 49 | 110 | In | | -86490 | 4 | 8513.10 | 0.04 | β^+ | 2015 | 4 | 108 907150 | 4 |
| 59 | 50 | | Sn | | -82630 | 8 | 8470.52 | 0.07 | β^+ | 3859 | 9 | 108 911293 | 9 |
| 58 | 51 | | Sb | | -76251 | 5 | 8404.82 | 0.05 | β^+ | 6379 | 9 | 108 918141 | 6 |
| 57 | 52 | | Te | | -67715 | 4 | 8319.33 | 0.04 | β^+ | 8536 | 7 | 108 927305 | 5 |
| 56 | 53 | | I | -p | -57672 | 7 | 8220.02 | 0.06 | β^+ | 10043 | 8 | 108 938086 | 7 |
| 55 | 54 | | Xe | $-\alpha$ | -46170 | 300 | 8107.3 | 2.8 | β^+ | 11500 | 300 | 108 950430 | 320 |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μu | |
|----------|----------|----------|-----------|-----------|----------------------|---------|-------------------------------------|-----------|----------------------------|--------|-------------|------------------------|------|
| 70 | 40 | 110 | Zr | x | -42890# | 600# | 8177# | 5# | β^- | 9420# | 1030# | 109 953960# | 640# |
| 69 | 41 | | Nb | x | -52310 | 840 | 8255 | 8 | β^- | 12230 | 840 | 109 943840 | 900 |
| 68 | 42 | | Mo | x | -64543 | 24 | 8359.35 | 0.22 | β^- | 6492 | 26 | 109 930711 | 26 |
| 67 | 43 | | Tc | x | -71035 | 9 | 8411.26 | 0.09 | β^- | 9038 | 13 | 109 923741 | 10 |
| 66 | 44 | | Ru | | -80073 | 9 | 8486.31 | 0.08 | β^- | 2756 | 19 | 109 914039 | 10 |
| 65 | 45 | | Rh | | -82829 | 18 | 8504.25 | 0.16 | β^- | 5502 | 18 | 109 911080 | 19 |
| 64 | 46 | | Pd | | -88330.9 | 0.6 | 8547.162 | 0.006 | β^- | -873.6 | 1.4 | 109 905172.9 | 0.7 |
| 63 | 47 | | Ag | | -87457.3 | 1.3 | 8532.108 | 0.012 | β^- | 2890.7 | 1.3 | 109 906110.7 | 1.4 |
| 62 | 48 | | Cd | | -90348.0 | 0.4 | 8551.275 | 0.003 | | * | | 109 903007.5 | 0.4 |
| 61 | 49 | | In | — | -86470 | 12 | 8508.91 | 0.11 | β^+ | 3878 | 12 | 109 907171 | 12 |
| 60 | 50 | | Sn | x | -85842 | 14 | 8496.09 | 0.13 | β^+ | 628 | 18 | 109 907845 | 15 |
| 59 | 51 | | Sb | x | -77450 | 6 | 8412.68 | 0.05 | β^+ | 8392 | 15 | 109 916854 | 6 |
| 58 | 52 | | Te | | -72230 | 7 | 8358.12 | 0.06 | β^+ | 5220 | 9 | 109 922458 | 7 |
| 57 | 53 | | I | $-\alpha$ | -60460 | 50 | 8244.0 | 0.5 | β^+ | 11770 | 50 | 109 935090 | 50 |
| 56 | 54 | Xe | $-\alpha$ | -51920 | 100 | 8159.3 | 0.9 | β^+ | 8540 | 110 | 109 944260 | 110 | |
| 71 | 40 | 111 | Zr | x | -37560# | 700# | 8128# | 6# | β^- | 11320# | 760# | 110 959680# | 750# |
| 70 | 41 | | Nb | x | -48880# | 300# | 8223# | 3# | β^- | 11060# | 300# | 110 947530# | 320# |
| 69 | 42 | | Mo | + | -59940 | 13 | 8315.29 | 0.11 | β^- | 9085 | 7 | 110 935652 | 14 |
| 68 | 43 | | Tc | x | -69025 | 11 | 8390.09 | 0.10 | β^- | 7761 | 14 | 110 925899 | 11 |
| 67 | 44 | | Ru | x | -76785 | 10 | 8452.96 | 0.09 | β^- | 5519 | 12 | 110 917568 | 10 |
| 66 | 45 | | Rh | | -82304 | 7 | 8495.63 | 0.06 | β^- | 3681 | 7 | 110 911643 | 7 |
| 65 | 46 | | Pd | -n | -85985.9 | 0.7 | 8521.749 | 0.007 | β^- | 2229.6 | 1.6 | 110 907690.3 | 0.8 |
| 64 | 47 | | Ag | + | -88215.4 | 1.5 | 8534.787 | 0.013 | β^- | 1036.8 | 1.4 | 110 905296.8 | 1.6 |
| 63 | 48 | | Cd | | -89252.2 | 0.4 | 8537.079 | 0.003 | | * | | 110 904183.8 | 0.4 |
| 62 | 49 | | In | | -88392 | 3 | 8522.28 | 0.03 | β^+ | 860 | 3 | 110 905107 | 4 |
| 61 | 50 | | Sn | +n | -85939 | 5 | 8493.13 | 0.05 | β^+ | 2453 | 6 | 110 907741 | 6 |
| 60 | 51 | | Sb | x | -80837 | 9 | 8440.12 | 0.08 | β^+ | 5102 | 10 | 110 913218 | 10 |
| 59 | 52 | | Te | x | -73587 | 6 | 8367.76 | 0.06 | β^+ | 7249 | 11 | 110 921001 | 7 |
| 58 | 53 | | I | | -64954 | 5 | 8282.93 | 0.04 | β^+ | 8634 | 8 | 110 930269 | 5 |
| 57 | 54 | Xe | $-\alpha$ | -54400 | 90 | 8180.8 | 0.8 | β^+ | 10560 | 90 | 110 941600 | 90 | |
| 56 | 55 | Cs | x | -42820# | 200# | 8069# | 2# | β^+ | 11580# | 210# | 110 954030# | 210# | |
| 72 | 40 | 112 | Zr | x | -33810# | 700# | 8094# | 6# | β^- | 10460# | 760# | 111 963700# | 750# |
| 71 | 41 | | Nb | x | -44270# | 300# | 8180# | 3# | β^- | 13190# | 360# | 111 952470# | 320# |
| 70 | 42 | | Mo | x | -57460# | 200# | 8291# | 2# | β^- | 7800# | 200# | 111 938310# | 210# |
| 69 | 43 | | Tc | x | -65259 | 6 | 8353.62 | 0.05 | β^- | 10372 | 11 | 111 929942 | 6 |
| 68 | 44 | | Ru | x | -75631 | 10 | 8439.24 | 0.09 | β^- | 4100 | 50 | 111 918807 | 10 |
| 67 | 45 | | Rh | | -79730 | 40 | 8468.9 | 0.4 | β^- | 6590 | 40 | 111 914400 | 50 |
| 66 | 46 | | Pd | | -86322 | 7 | 8520.72 | 0.06 | β^- | 262 | 7 | 111 907330 | 7 |
| 65 | 47 | | Ag | x | -86583.7 | 2.4 | 8516.080 | 0.022 | β^- | 3991.1 | 2.4 | 111 907048.6 | 2.6 |
| 64 | 48 | | Cd | | -90574.86 | 0.25 | 8544.730 | 0.002 | β^- | -2585 | 4 | 111 902763.88 | 0.27 |
| 63 | 49 | | In | | -87990 | 4 | 8514.67 | 0.04 | β^- | 665 | 4 | 111 905539 | 5 |
| 62 | 50 | | Sn | | -88655.06 | 0.29 | 8513.618 | 0.003 | | * | | 111 904824.9 | 0.3 |
| 61 | 51 | | Sb | x | -81599 | 18 | 8443.63 | 0.16 | β^+ | 7056 | 18 | 111 912400 | 19 |
| 60 | 52 | | Te | x | -77568 | 8 | 8400.65 | 0.07 | β^+ | 4031 | 20 | 111 916728 | 9 |
| 59 | 53 | | I | x | -67063 | 10 | 8299.88 | 0.09 | β^+ | 10504 | 13 | 111 928005 | 11 |
| 58 | 54 | Xe | $-\alpha$ | -60026 | 8 | 8230.06 | 0.07 | β^+ | 7037 | 13 | 111 935559 | 9 | |
| 57 | 55 | Cs | -p | -46290 | 90 | 8100.4 | 0.8 | β^+ | 13740 | 90 | 111 950310 | 90 | |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| N | Z | A | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ | |
|-----|-----|-----|------|-----------|----------------------|-------|-------------------------------------|-------|----------------------------|---------|-------|----------------------|-------|
| 72 | 41 | 113 | Nb | x | -40510# | 400# | 8146# | 4# | β^- | 11980# | 500# | 112 956510# | 430# |
| 71 | 42 | | Mo | x | -52490# | 300# | 8245# | 3# | β^- | 10320# | 300# | 112 943650# | 320# |
| 70 | 43 | | Tc | x | -62812 | 3 | 8329.464 | 0.030 | β^- | 9060 | 40 | 112 932569 | 4 |
| 69 | 44 | | Ru | | -71870 | 40 | 8402.7 | 0.3 | β^- | 6900 | 40 | 112 922850 | 40 |
| 68 | 45 | | Rh | x | -78768 | 7 | 8456.82 | 0.06 | β^- | 4824 | 10 | 112 915440 | 8 |
| 67 | 46 | | Pd | x | -83591 | 7 | 8492.58 | 0.06 | β^- | 3436 | 18 | 112 910261 | 7 |
| 66 | 47 | | Ag | + | -87027 | 17 | 8516.07 | 0.15 | β^- | 2016 | 17 | 112 906573 | 18 |
| 65 | 48 | | Cd | | -89043.28 | 0.24 | 8526.987 | 0.002 | β^- | 323.83 | 0.27 | 112 904408.10 | 0.26 |
| 64 | 49 | | In | | -89367.12 | 0.19 | 8522.929 | 0.002 | | * | | 112 904060.45 | 0.20 |
| 63 | 50 | | Sn | | -88328.1 | 1.6 | 8506.811 | 0.014 | β^+ | 1039.0 | 1.6 | 112 905175.8 | 1.7 |
| 62 | 51 | | Sb | — | -84417 | 17 | 8465.28 | 0.15 | β^+ | 3911 | 17 | 112 909375 | 18 |
| 61 | 52 | | Te | x | -78347 | 28 | 8404.64 | 0.25 | β^+ | 6070 | 30 | 112 915890 | 30 |
| 60 | 53 | | I | x | -71120 | 8 | 8333.75 | 0.07 | β^+ | 7228 | 29 | 112 923650 | 9 |
| 59 | 54 | | Xe | | -62204 | 7 | 8247.93 | 0.06 | β^+ | 8916 | 11 | 112 933222 | 7 |
| 58 | 55 | | Cs | -p | -51765 | 9 | 8148.62 | 0.08 | β^+ | 10439 | 11 | 112 944428 | 9 |
| 57 | 56 | | Ba | x | -39780# | 300# | 8036# | 3# | β^+ | 11980# | 300# | 112 957290# | 320# |
| | | | | | | | | | | | | | |
| 73 | 41 | 114 | Nb | x | -35390# | 500# | 8100# | 4# | β^- | 14420# | 590# | 113 962010# | 540# |
| 72 | 42 | | Mo | x | -49810# | 300# | 8220# | 3# | β^- | 8790# | 530# | 113 946530# | 320# |
| 71 | 43 | | Tc | x | -58600 | 430 | 8290 | 4 | β^- | 11620 | 430 | 113 937090 | 470 |
| 70 | 44 | | Ru | x | -70222 | 4 | 8385.34 | 0.03 | β^- | 5490 | 70 | 113 924614 | 4 |
| 69 | 45 | | Rh | | -75710 | 70 | 8426.6 | 0.6 | β^- | 7780 | 70 | 113 918720 | 80 |
| 68 | 46 | | Pd | x | -83491 | 7 | 8488.01 | 0.06 | β^- | 1440 | 8 | 113 910369 | 7 |
| 67 | 47 | | Ag | x | -84931 | 5 | 8493.78 | 0.04 | β^- | 5084 | 5 | 113 908823 | 5 |
| 66 | 48 | | Cd | | -90014.93 | 0.28 | 8531.513 | 0.002 | β^- | -1445.1 | 0.4 | 113 903364.99 | 0.30 |
| 65 | 49 | | In | | -88569.8 | 0.3 | 8511.973 | 0.003 | β^- | 1989.9 | 0.3 | 113 904916.4 | 0.3 |
| 64 | 50 | | Sn | | -90559.723 | 0.029 | 8522.566 | a | | * | | 113 902780.13 | 0.03 |
| 63 | 51 | | Sb | | -84497 | 22 | 8462.52 | 0.19 | β^+ | 6063 | 22 | 113 909289 | 23 |
| 62 | 52 | | Te | x | -81889 | 28 | 8432.78 | 0.25 | β^+ | 2610 | 40 | 113 912090 | 30 |
| 61 | 53 | | I | x | -72800# | 150# | 8346# | 1# | β^+ | 9090# | 150# | 113 921850# | 160# |
| 60 | 54 | | Xe | x | -67086 | 11 | 8289.20 | 0.10 | β^+ | 5710# | 150# | 113 927980 | 12 |
| 59 | 55 | | Cs | $-\alpha$ | -54680 | 70 | 8173.5 | 0.6 | β^+ | 12400 | 70 | 113 941300 | 80 |
| 58 | 56 | | Ba | $-\alpha$ | -45910 | 100 | 8089.7 | 0.9 | β^+ | 8780 | 120 | 113 950720 | 110 |
| | | | | | | | | | | | | | |
| 74 | 41 | 115 | Nb | x | -31350# | 500# | 8065# | 4# | β^- | 13400# | 640# | 114 966340# | 540# |
| 73 | 42 | | Mo | x | -44750# | 400# | 8175# | 3# | β^- | 11570# | 890# | 114 951960# | 430# |
| 72 | 43 | | Tc | x | -56320 | 790 | 8269 | 7 | β^- | 9870 | 790 | 114 939540 | 850 |
| 71 | 44 | | Ru | x | -66190 | 90 | 8347.5 | 0.8 | β^- | 8040 | 90 | 114 928940 | 100 |
| 70 | 45 | | Rh | x | -74230 | 7 | 8410.66 | 0.06 | β^- | 6197 | 15 | 114 920311 | 8 |
| 69 | 46 | | Pd | | -80426 | 14 | 8457.74 | 0.12 | β^- | 4556 | 22 | 114 913659 | 15 |
| 68 | 47 | | Ag | | -84983 | 18 | 8490.56 | 0.16 | β^- | 3102 | 18 | 114 908767 | 20 |
| 67 | 48 | | Cd | | -88084.5 | 0.7 | 8510.724 | 0.006 | β^- | 1451.9 | 0.7 | 114 905437.4 | 0.7 |
| 66 | 49 | | In | | -89536.346 | 0.012 | 8516.546 | a | β^- | 497.489 | 0.010 | 114 903878.774 | 0.013 |
| 65 | 50 | | Sn | | -90033.835 | 0.015 | 8514.069 | a | | * | | 114 903344.697 | 0.016 |
| 64 | 51 | | Sb | x | -87003 | 16 | 8480.91 | 0.14 | β^+ | 3030 | 16 | 114 906598 | 17 |
| 63 | 52 | | Te | x | -82063 | 28 | 8431.15 | 0.24 | β^+ | 4940 | 30 | 114 911900 | 30 |
| 62 | 53 | | I | x | -76338 | 29 | 8374.56 | 0.25 | β^+ | 5720 | 40 | 114 918050 | 30 |
| 61 | 54 | | Xe | x | -68657 | 12 | 8300.97 | 0.11 | β^+ | 7680 | 30 | 114 926294 | 13 |
| 60 | 55 | | Cs | x | -59700# | 100# | 8216# | 1# | β^+ | 8960# | 100# | 114 935910# | 110# |
| 59 | 56 | | Ba | x | -49020# | 200# | 8117# | 2# | β^+ | 10680# | 230# | 114 947380# | 220# |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ u | |
|----------|----------|----------|------|--------------|----------------------|------|-------------------------------------|-------|----------------------------|---------|------|------------------------|------|
| 74 | 42 | 116 | Mo | x | -41500# | 500# | 8146# | 4# | β^- | 9960# | 580# | 115 955450# | 540# |
| 73 | 43 | | Tc | x | -51460# | 300# | 8225# | 3# | β^- | 12610# | 300# | 115 944760# | 320# |
| 72 | 44 | | Ru | x | -64069 | 4 | 8326.88 | 0.03 | β^- | 6670 | 70 | 115 931219 | 4 |
| 71 | 45 | | Rh | | -70740 | 70 | 8377.6 | 0.6 | β^- | 9100 | 70 | 115 924060 | 80 |
| 70 | 46 | | Pd | x | -79832 | 7 | 8449.28 | 0.06 | β^- | 2711 | 8 | 115 914297 | 8 |
| 69 | 47 | | Ag | x | -82543 | 3 | 8465.907 | 0.028 | β^- | 6170 | 3 | 115 911387 | 4 |
| 68 | 48 | | Cd | | -88712.48 | 0.16 | 8512.350 | 0.001 | β^- | -462.73 | 0.27 | 115 904763.23 | 0.17 |
| 67 | 49 | | In | -n | -88249.75 | 0.22 | 8501.617 | 0.002 | β^- | 3276.22 | 0.24 | 115 905259.99 | 0.24 |
| 66 | 50 | | Sn | | -91525.97 | 0.10 | 8523.116 | 0.001 | * | | | 115 901742.82 | 0.10 |
| 65 | 51 | | Sb | | -86822 | 5 | 8475.82 | 0.04 | β^+ | 4704 | 5 | 115 906793 | 6 |
| 64 | 52 | | Te | x | -85269 | 28 | 8455.69 | 0.24 | β^+ | 1553 | 28 | 115 908460 | 30 |
| 63 | 53 | | I | + | -77490 | 100 | 8381.9 | 0.8 | β^+ | 7780 | 100 | 115 916810 | 100 |
| 62 | 54 | | Xe | x | -73047 | 13 | 8336.83 | 0.11 | β^+ | 4450 | 100 | 115 921581 | 14 |
| 61 | 55 | | Cs | ea | -62040# | 100# | 8235# | 1# | β^+ | 11000# | 100# | 115 933400# | 110# |
| 60 | 56 | | Ba | x | -54580# | 200# | 8164# | 2# | β^+ | 7460# | 220# | 115 941410# | 220# |
| 59 | 57 | | La | $-\alpha$ | -40650# | 310# | 8037# | 3# | β^+ | 13940# | 370# | 115 956370# | 340# |
| 75 | 42 | 117 | Mo | x | -36170# | 500# | 8100# | 4# | β^- | 12210# | 640# | 116 961170# | 540# |
| 74 | 43 | | Tc | x | -48380# | 400# | 8197# | 3# | β^- | 11110# | 590# | 116 948060# | 430# |
| 73 | 44 | | Ru | x | -59490 | 430 | 8286 | 4 | β^- | 9410 | 430 | 116 936140 | 470 |
| 72 | 45 | | Rh | x | -68897 | 9 | 8359.28 | 0.08 | β^- | 7527 | 11 | 116 926036 | 10 |
| 71 | 46 | | Pd | | -76424 | 7 | 8416.93 | 0.06 | β^- | 5758 | 15 | 116 917955 | 8 |
| 70 | 47 | | Ag | | -82182 | 14 | 8459.45 | 0.12 | β^- | 4236 | 14 | 116 911774 | 15 |
| 69 | 48 | | Cd | -n | -86418.4 | 1.0 | 8488.973 | 0.009 | β^- | 2525 | 5 | 116 907226.0 | 1.1 |
| 68 | 49 | | In | | -88943 | 5 | 8503.86 | 0.04 | β^- | 1455 | 5 | 116 904516 | 5 |
| 67 | 50 | | Sn | | -90397.8 | 0.5 | 8509.611 | 0.004 | * | | | 116 902954.0 | 0.5 |
| 66 | 51 | | Sb | | -88640 | 8 | 8487.90 | 0.07 | β^+ | 1758 | 8 | 116 904842 | 9 |
| 65 | 52 | | Te | | -85095 | 13 | 8450.92 | 0.12 | β^+ | 3544 | 13 | 116 908646 | 14 |
| 64 | 53 | | I | | -80436 | 26 | 8404.41 | 0.22 | β^+ | 4659 | 29 | 116 913648 | 28 |
| 63 | 54 | | Xe | x | -74185 | 10 | 8344.30 | 0.09 | β^+ | 6251 | 28 | 116 920359 | 11 |
| 62 | 55 | | Cs | x | -66490 | 60 | 8271.9 | 0.5 | β^+ | 7690 | 60 | 116 928620 | 70 |
| 61 | 56 | | Ba | ϵ p | -57460 | 250 | 8188.0 | 2.1 | β^+ | 9040 | 260 | 116 938320 | 270 |
| 60 | 57 | | La | -p | -46470# | 200# | 8087# | 2# | β^+ | 10990# | 320# | 116 950110# | 220# |
| 76 | 42 | 118 | Mo | x | -32630# | 500# | 8069# | 4# | β^- | 11160# | 640# | 117 964970# | 540# |
| 75 | 43 | | Tc | x | -43790# | 400# | 8157# | 3# | β^- | 13470# | 450# | 117 952990# | 430# |
| 74 | 44 | | Ru | x | -57260# | 200# | 8265# | 2# | β^- | 7630# | 200# | 117 938530# | 220# |
| 73 | 45 | | Rh | x | -64887 | 24 | 8322.86 | 0.21 | β^- | 10501 | 24 | 117 930340 | 26 |
| 72 | 46 | | Pd | | -75388.7 | 2.5 | 8405.222 | 0.021 | β^- | 4165 | 4 | 117 919066.8 | 2.7 |
| 71 | 47 | | Ag | x | -79553.8 | 2.5 | 8433.889 | 0.021 | β^- | 7148 | 20 | 117 914595.5 | 2.7 |
| 70 | 48 | | Cd | -nn | -86702 | 20 | 8487.83 | 0.17 | β^- | 527 | 21 | 117 906922 | 21 |
| 69 | 49 | | In | | -87228 | 8 | 8485.67 | 0.07 | β^- | 4425 | 8 | 117 906357 | 8 |
| 68 | 50 | | Sn | | -91652.9 | 0.5 | 8516.533 | 0.004 | * | | | 117 901606.6 | 0.5 |
| 67 | 51 | | Sb | — | -87996 | 3 | 8478.915 | 0.026 | β^+ | 3656.6 | 3.0 | 117 905532 | 3 |
| 66 | 52 | | Te | +nn | -87697 | 18 | 8469.75 | 0.16 | β^+ | 300 | 19 | 117 905854 | 20 |
| 65 | 53 | | I | x | -80971 | 20 | 8406.12 | 0.17 | β^+ | 6726 | 27 | 117 913074 | 21 |
| 64 | 54 | | Xe | x | -78079 | 10 | 8374.98 | 0.09 | β^+ | 2892 | 22 | 117 916179 | 11 |
| 63 | 55 | | Cs | IT | -68409 | 13 | 8286.40 | 0.11 | β^+ | 9670 | 16 | 117 926560 | 14 |
| 62 | 56 | | Ba | x | -62350# | 200# | 8228# | 2# | β^+ | 6060# | 200# | 117 933060# | 210# |
| 61 | 57 | | La | x | -49560# | 300# | 8113# | 3# | β^+ | 12790# | 360# | 117 946800# | 320# |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ u | | |
|----------|----------|----------|------|--------------|----------------------|-------|-------------------------------------|-----------|----------------------------|--------|------|------------------------|--------------|------|
| 76 | 43 | 119 | Tc | x | -40370# | 500# | 8128# | 4# | β^- | 12190# | 590# | 118 956660# | 540# | |
| 75 | 44 | | Ru | x | -52560# | 300# | 8224# | 3# | β^- | 10260# | 300# | 118 943570# | 320# | |
| 74 | 45 | | Rh | x | -62823 | 9 | 8303.39 | 0.08 | β^- | 8585 | 12 | 118 932557 | 10 | |
| 73 | 46 | | Pd | x | -71408 | 8 | 8368.96 | 0.07 | β^- | 7238 | 17 | 118 923340 | 9 | |
| 72 | 47 | | Ag | | -78646 | 15 | 8423.21 | 0.12 | β^- | 5330 | 40 | 118 915570 | 16 | |
| 71 | 48 | | Cd | | -83980 | 40 | 8461.4 | 0.3 | β^- | 3720 | 40 | 118 909850 | 40 | |
| 70 | 49 | | In | | -87699 | 7 | 8486.14 | 0.06 | β^- | 2366 | 7 | 118 905851 | 8 | |
| 69 | 50 | | Sn | | -90065.0 | 0.7 | 8499.449 | 0.006 | | * | | | 118 903311.2 | 0.8 |
| 68 | 51 | | Sb | | -89474 | 8 | 8487.91 | 0.06 | β^+ | 591 | 8 | | 118 903946 | 8 |
| 67 | 52 | | Te | — | -87181 | 8 | 8462.07 | 0.07 | β^+ | 2293.0 | 2.0 | | 118 906407 | 9 |
| 66 | 53 | | I | x | -83766 | 28 | 8426.79 | 0.23 | β^+ | 3416 | 29 | | 118 910070 | 30 |
| 65 | 54 | | Xe | x | -78794 | 10 | 8378.44 | 0.09 | β^+ | 4971 | 30 | | 118 915411 | 11 |
| 64 | 55 | | Cs | IT | -72305 | 14 | 8317.33 | 0.12 | β^+ | 6489 | 17 | | 118 922377 | 15 |
| 63 | 56 | | Ba | ϵ p | -64590 | 200 | 8245.9 | 1.7 | β^+ | 7710 | 200 | | 118 930660 | 210 |
| 62 | 57 | La | x | -54790# | 300# | 8157# | 3# | β^+ | 9800# | 360# | | 118 941180# | 320# | |
| 61 | 58 | Ce | x | -43940# | 500# | 8059# | 4# | β^+ | 10850# | 580# | | 118 952830# | 540# | |
| 77 | 43 | 120 | Tc | x | -35520# | 500# | 8087# | 4# | β^- | 14490# | 640# | 119 961870# | 540# | |
| 76 | 44 | | Ru | x | -50010# | 400# | 8201# | 3# | β^- | 8800# | 450# | 119 946310# | 430# | |
| 75 | 45 | | Rh | x | -58820# | 200# | 8268# | 2# | β^- | 11470# | 200# | 119 936860# | 210# | |
| 74 | 46 | | Pd | | -70280.1 | 2.3 | 8357.085 | 0.019 | β^- | 5371 | 5 | 119 924551.3 | 2.5 | |
| 73 | 47 | | Ag | x | -75652 | 4 | 8395.33 | 0.04 | β^- | 8306 | 6 | 119 918785 | 5 | |
| 72 | 48 | | Cd | x | -83957 | 4 | 8458.02 | 0.03 | β^- | 1770 | 40 | 119 909868 | 4 | |
| 71 | 49 | | In | + | -85730 | 40 | 8466.3 | 0.3 | β^- | 5370 | 40 | 119 907970 | 40 | |
| 70 | 50 | | Sn | | -91098.4 | 0.9 | 8504.492 | 0.007 | β^- | -2681 | 7 | 119 902201.9 | 1.0 | |
| 69 | 51 | | Sb | — | -88418 | 7 | 8475.63 | 0.06 | β^- | 950 | 8 | 119 905080 | 8 | |
| 68 | 52 | | Te | | -89368 | 3 | 8477.034 | 0.026 | | * | | | 119 904060 | 3 |
| 67 | 53 | | I | — | -83753 | 15 | 8423.72 | 0.13 | β^+ | 5615 | 15 | | 119 910087 | 16 |
| 66 | 54 | | Xe | x | -82172 | 12 | 8404.03 | 0.10 | β^+ | 1581 | 19 | | 119 911784 | 13 |
| 65 | 55 | | Cs | IT | -73889 | 10 | 8328.48 | 0.08 | β^+ | 8284 | 15 | | 119 920677 | 11 |
| 64 | 56 | | Ba | — | -68890 | 300 | 8280.3 | 2.5 | β^+ | 5000 | 300 | | 119 926050 | 320 |
| 63 | 57 | La | x | -57570# | 300# | 8179# | 2# | β^+ | 11320# | 420# | | 119 938200# | 320# | |
| 62 | 58 | Ce | x | -49600# | 500# | 8107# | 4# | β^+ | 7970# | 580# | | 119 946750# | 540# | |
| 78 | 43 | 121 | Tc | x | -31780# | 500# | 8056# | 4# | β^- | 13270# | 640# | 120 965880# | 540# | |
| 77 | 44 | | Ru | x | -45050# | 400# | 8159# | 3# | β^- | 11200# | 740# | 120 951640# | 430# | |
| 76 | 45 | | Rh | x | -56250 | 620 | 8245 | 5 | β^- | 9930 | 620 | 120 939610 | 670 | |
| 75 | 46 | | Pd | x | -66182 | 3 | 8320.858 | 0.028 | β^- | 8220 | 13 | 120 928950 | 4 | |
| 74 | 47 | | Ag | x | -74403 | 12 | 8382.33 | 0.10 | β^- | 6671 | 12 | 120 920125 | 13 | |
| 73 | 48 | | Cd | x | -81073.8 | 1.9 | 8430.996 | 0.016 | β^- | 4762 | 27 | 120 912963.7 | 2.1 | |
| 72 | 49 | | In | +p | -85836 | 27 | 8463.89 | 0.23 | β^- | 3361 | 27 | 120 907851 | 29 | |
| 71 | 50 | | Sn | | -89197.3 | 1.0 | 8485.201 | 0.008 | β^- | 403.1 | 2.7 | 120 904242.8 | 1.0 | |
| 70 | 51 | | Sb | | -89600.3 | 2.6 | 8482.066 | 0.021 | | * | | | 120 903810.1 | 2.8 |
| 69 | 52 | | Te | | -88546 | 26 | 8466.88 | 0.21 | β^+ | 1055 | 26 | | 120 904942 | 28 |
| 68 | 53 | | I | | -86251 | 5 | 8441.46 | 0.04 | β^+ | 2294 | 26 | | 120 907405 | 6 |
| 67 | 54 | | Xe | | -82481 | 10 | 8403.83 | 0.08 | β^+ | 3770 | 12 | | 120 911453 | 11 |
| 66 | 55 | | Cs | | -77102 | 14 | 8352.91 | 0.12 | β^+ | 5379 | 14 | | 120 917227 | 15 |
| 65 | 56 | | Ba | — | -70740 | 140 | 8293.9 | 1.2 | β^+ | 6360 | 140 | | 120 924050 | 150 |
| 64 | 57 | | La | x | -62190# | 300# | 8217# | 2# | β^+ | 8560# | 330# | | 120 933240# | 320# |
| 63 | 58 | | Ce | x | -52690# | 400# | 8132# | 3# | β^+ | 9500# | 500# | | 120 943440# | 430# |
| 62 | 59 | | Pr | -p | -41420# | 500# | 8032# | 4# | β^+ | 11270# | 640# | | 120 955530# | 540# |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ u | |
|----------|----------|----------|------|---------|----------------------|-------|-------------------------------------|-----------|----------------------------|---------|-------------|------------------------|------|
| 78 | 44 | 122 | Ru | x | -42150# | 500# | 8135# | 4# | β^- | 9930# | 580# | 121 954750# | 540# |
| 77 | 45 | | Rh | x | -52080# | 300# | 8210# | 2# | β^- | 12540# | 300# | 121 944090# | 320# |
| 76 | 46 | | Pd | x | -64616 | 20 | 8305.97 | 0.16 | β^- | 6490 | 40 | 121 930632 | 21 |
| 75 | 47 | | Ag | x | -71110 | 40 | 8352.8 | 0.3 | β^- | 9510 | 40 | 121 923660 | 40 |
| 74 | 48 | | Cd | | -80612.4 | 2.3 | 8424.266 | 0.019 | β^- | 2960 | 50 | 121 913459.1 | 2.5 |
| 73 | 49 | | In | + | -83570 | 50 | 8442.1 | 0.4 | β^- | 6370 | 50 | 121 910280 | 50 |
| 72 | 50 | | Sn | | -89941.3 | 2.4 | 8487.907 | 0.020 | β^- | -1606 | 3 | 121 903444.0 | 2.6 |
| 71 | 51 | | Sb | | -88335.4 | 2.6 | 8468.331 | 0.021 | β^- | 1979.1 | 2.1 | 121 905168.1 | 2.8 |
| 70 | 52 | | Te | | -90314.5 | 1.5 | 8478.140 | 0.012 | * | | | 121 903043.4 | 1.6 |
| 69 | 53 | | I | — | -86080 | 5 | 8437.02 | 0.04 | β^+ | 4234 | 5 | 121 907589 | 6 |
| 68 | 54 | | Xe | x | -85355 | 11 | 8424.66 | 0.09 | β^+ | 725 | 12 | 121 908368 | 12 |
| 67 | 55 | | Cs | | -78140 | 30 | 8359.15 | 0.28 | β^+ | 7210 | 40 | 121 916110 | 40 |
| 66 | 56 | | Ba | x | -74609 | 28 | 8323.76 | 0.23 | β^+ | 3540 | 40 | 121 919900 | 30 |
| 65 | 57 | | La | x | -64540# | 300# | 8235# | 2# | β^+ | 10070# | 300# | 121 930710# | 320# |
| 64 | 58 | Ce | x | -57870# | 400# | 8174# | 3# | β^+ | 6670# | 500# | 121 937870# | 430# | |
| 63 | 59 | Pr | x | -44780# | 500# | 8060# | 4# | β^+ | 13090# | 640# | 121 951930# | 540# | |
| 79 | 44 | 123 | Ru | x | -37080# | 500# | 8093# | 4# | β^- | 12280# | 640# | 122 960190# | 540# |
| 78 | 45 | | Rh | x | -49360# | 400# | 8186# | 3# | β^- | 11070# | 890# | 122 947010# | 430# |
| 77 | 46 | | Pd | x | -60430 | 790 | 8270 | 6 | β^- | 9120 | 790 | 122 935130 | 850 |
| 76 | 47 | | Ag | x | -69550 | 30 | 8337.80 | 0.25 | β^- | 7870 | 30 | 122 925340 | 30 |
| 75 | 48 | | Cd | | -77414.2 | 2.7 | 8395.395 | 0.022 | β^- | 6016 | 20 | 122 916892.5 | 2.9 |
| 74 | 49 | | In | | -83430 | 20 | 8437.95 | 0.16 | β^- | 4386 | 20 | 122 910434 | 21 |
| 73 | 50 | | Sn | | -87816.2 | 2.4 | 8467.243 | 0.020 | β^- | 1407.9 | 2.7 | 122 905725.4 | 2.6 |
| 72 | 51 | | Sb | | -89224.1 | 1.5 | 8472.328 | 0.012 | * | | | 122 904214.0 | 1.6 |
| 71 | 52 | | Te | | -89172.2 | 1.5 | 8465.546 | 0.012 | β^+ | 51.91 | 0.07 | 122 904269.7 | 1.6 |
| 70 | 53 | | I | | -87944 | 4 | 8449.20 | 0.03 | β^+ | 1228 | 3 | 122 905589 | 4 |
| 69 | 54 | | Xe | | -85249 | 10 | 8420.93 | 0.08 | β^+ | 2695 | 10 | 122 908482 | 10 |
| 68 | 55 | | Cs | x | -81044 | 12 | 8380.38 | 0.10 | β^+ | 4205 | 15 | 122 912996 | 13 |
| 67 | 56 | | Ba | x | -75655 | 12 | 8330.21 | 0.10 | β^+ | 5389 | 17 | 122 918781 | 13 |
| 66 | 57 | | La | x | -68650# | 200# | 8267# | 2# | β^+ | 7000# | 200# | 122 926300# | 210# |
| 65 | 58 | Ce | x | -60290# | 300# | 8193# | 2# | β^+ | 8370# | 360# | 122 935280# | 320# | |
| 64 | 59 | Pr | x | -50230# | 400# | 8104# | 3# | β^+ | 10060# | 500# | 122 946080# | 430# | |
| 80 | 44 | 124 | Ru | x | -33960# | 600# | 8068# | 5# | β^- | 10930# | 720# | 123 963540# | 640# |
| 79 | 45 | | Rh | x | -44890# | 400# | 8149# | 3# | β^- | 13500# | 500# | 123 951810# | 430# |
| 78 | 46 | | Pd | x | -58390# | 300# | 8252# | 2# | β^- | 7810# | 390# | 123 937320# | 320# |
| 77 | 47 | | Ag | x | -66200 | 250 | 8308.7 | 2.0 | β^- | 10500 | 250 | 123 928930 | 270 |
| 76 | 48 | | Cd | | -76701.7 | 3.0 | 8387.035 | 0.024 | β^- | 4170 | 30 | 123 917657 | 3 |
| 75 | 49 | | In | | -80870 | 30 | 8414.34 | 0.25 | β^- | 7360 | 30 | 123 913180 | 30 |
| 74 | 50 | | Sn | | -88234.2 | 1.0 | 8467.421 | 0.008 | β^- | -613.9 | 1.5 | 123 905276.7 | 1.1 |
| 73 | 51 | | Sb | -n | -87620.2 | 1.5 | 8456.160 | 0.012 | β^- | 2905.07 | 0.13 | 123 905935.8 | 1.6 |
| 72 | 52 | | Te | | -90525.3 | 1.5 | 8473.279 | 0.012 | β^- | -3159.6 | 1.9 | 123 902817.1 | 1.6 |
| 71 | 53 | | I | — | -87365.7 | 2.4 | 8441.489 | 0.019 | β^- | 295.7 | 2.8 | 123 906209.0 | 2.6 |
| 70 | 54 | | Xe | | -87661.4 | 1.8 | 8437.565 | 0.014 | * | | | 123 905891.6 | 1.9 |
| 69 | 55 | | Cs | x | -81731 | 8 | 8383.43 | 0.07 | β^+ | 5930 | 8 | 123 912258 | 9 |
| 68 | 56 | | Ba | x | -79090 | 12 | 8355.82 | 0.10 | β^+ | 2642 | 15 | 123 915094 | 13 |
| 67 | 57 | | La | x | -70260 | 60 | 8278.3 | 0.5 | β^+ | 8830 | 60 | 123 924570 | 60 |
| 66 | 58 | Ce | x | -64920# | 300# | 8229# | 2# | β^+ | 5340# | 300# | 123 930310# | 320# | |
| 65 | 59 | Pr | x | -53150# | 400# | 8128# | 3# | β^+ | 11770# | 500# | 123 942940# | 430# | |
| 64 | 60 | Nd | x | -44530# | 500# | 8052# | 4# | β^+ | 8630# | 640# | 123 952200# | 540# | |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ u | |
|----------|----------|----------|------|-------|----------------------|------|-------------------------------------|-------|----------------------------|--------|------|------------------------|------|
| 80 | 45 | 125 | Rh | x | -42000# | 500# | 8126# | 4# | β^- | 12120# | 640# | 124 954910# | 540# |
| 79 | 46 | | Pd | x | -54120# | 400# | 8216# | 3# | β^- | 10400# | 590# | 124 941900# | 430# |
| 78 | 47 | | Ag | x | -64520 | 430 | 8293 | 3 | β^- | 8830 | 430 | 124 930740 | 470 |
| 77 | 48 | | Cd | | -73348.1 | 2.9 | 8357.681 | 0.023 | β^- | 7129 | 27 | 124 921258 | 3 |
| 76 | 49 | | In | | -80477 | 27 | 8408.45 | 0.22 | β^- | 5420 | 27 | 124 913605 | 29 |
| 75 | 50 | | Sn | | -85896.4 | 1.0 | 8445.550 | 0.008 | β^- | 2359.9 | 2.6 | 124 907786.4 | 1.1 |
| 74 | 51 | | Sb | + | -88256.3 | 2.6 | 8458.170 | 0.021 | β^- | 766.7 | 2.1 | 124 905253.0 | 2.8 |
| 73 | 52 | | Te | | -89023.0 | 1.5 | 8458.045 | 0.012 | | * | | 124 904429.9 | 1.6 |
| 72 | 53 | | I | — | -88837.2 | 1.5 | 8450.300 | 0.012 | β^+ | 185.77 | 0.06 | 124 904629.3 | 1.6 |
| 71 | 54 | | Xe | | -87193.4 | 1.8 | 8430.890 | 0.015 | β^+ | 1643.8 | 2.2 | 124 906394.1 | 2.0 |
| 70 | 55 | | Cs | | -84088 | 8 | 8399.79 | 0.06 | β^+ | 3105 | 8 | 124 909728 | 8 |
| 69 | 56 | | Ba | | -79669 | 11 | 8358.18 | 0.09 | β^+ | 4419 | 13 | 124 914472 | 12 |
| 68 | 57 | | La | | -73759 | 26 | 8304.64 | 0.21 | β^+ | 5909 | 28 | 124 920816 | 28 |
| 67 | 58 | | Ce | x | -66660# | 200# | 8242# | 2# | β^+ | 7100# | 200# | 124 928440# | 210# |
| 66 | 59 | | Pr | x | -57940# | 300# | 8166# | 2# | β^+ | 8720# | 360# | 124 937800# | 320# |
| 65 | 60 | | Nd | x | -47600# | 400# | 8077# | 3# | β^+ | 10340# | 500# | 124 948900# | 430# |
| 81 | 45 | 126 | Rh | x | -37300# | 500# | 8088# | 4# | β^- | 14560# | 640# | 125 959960# | 540# |
| 80 | 46 | | Pd | x | -51860# | 400# | 8197# | 3# | β^- | 8820# | 450# | 125 944330# | 430# |
| 79 | 47 | | Ag | x | -60680# | 200# | 8261# | 2# | β^- | 11580# | 200# | 125 934860# | 220# |
| 78 | 48 | | Cd | | -72256.8 | 2.5 | 8346.747 | 0.020 | β^- | 5516 | 27 | 125 922429.1 | 2.7 |
| 77 | 49 | | In | | -77773 | 27 | 8384.32 | 0.21 | β^- | 8242 | 27 | 125 916507 | 29 |
| 76 | 50 | | Sn | | -86015 | 10 | 8443.52 | 0.08 | β^- | 380 | 30 | 125 907659 | 11 |
| 75 | 51 | | Sb | — | -86390 | 30 | 8440.31 | 0.25 | β^- | 3670 | 30 | 125 907250 | 30 |
| 74 | 52 | | Te | | -90065.3 | 1.5 | 8463.248 | 0.012 | β^- | -2154 | 4 | 125 903310.9 | 1.6 |
| 73 | 53 | | I | | -87911 | 4 | 8439.94 | 0.03 | β^- | 1236 | 5 | 125 905623 | 4 |
| 72 | 54 | | Xe | | -89147 | 3 | 8443.541 | 0.028 | | * | | 125 904297 | 4 |
| 71 | 55 | | Cs | | -84351 | 10 | 8399.27 | 0.08 | β^+ | 4796 | 11 | 125 909446 | 11 |
| 70 | 56 | | Ba | x | -82670 | 12 | 8379.72 | 0.10 | β^+ | 1681 | 16 | 125 911250 | 13 |
| 69 | 57 | | La | x | -74970 | 90 | 8312.4 | 0.7 | β^+ | 7700 | 90 | 125 919510 | 100 |
| 68 | 58 | | Ce | x | -70821 | 28 | 8273.26 | 0.22 | β^+ | 4150 | 90 | 125 923970 | 30 |
| 67 | 59 | | Pr | x | -60320# | 200# | 8184# | 2# | β^+ | 10500# | 200# | 125 935240# | 210# |
| 66 | 60 | | Nd | x | -52990# | 300# | 8119# | 2# | β^+ | 7330# | 360# | 125 943110# | 320# |
| 65 | 61 | | Pm | x | -39350# | 500# | 8005# | 4# | β^+ | 13640# | 580# | 125 957760# | 540# |
| 82 | 45 | 127 | Rh | x | -34030# | 600# | 8062# | 5# | β^- | 13150# | 780# | 126 963470# | 640# |
| 81 | 46 | | Pd | x | -47180# | 500# | 8159# | 4# | β^- | 11260# | 540# | 126 949350# | 540# |
| 80 | 47 | | Ag | x | -58440# | 200# | 8242# | 2# | β^- | 10310# | 200# | 126 937260# | 220# |
| 79 | 48 | | Cd | x | -68747 | 12 | 8316.95 | 0.10 | β^- | 8149 | 24 | 126 926197 | 13 |
| 78 | 49 | | In | | -76896 | 21 | 8374.95 | 0.17 | β^- | 6575 | 19 | 126 917449 | 23 |
| 77 | 50 | | Sn | | -83471 | 10 | 8420.56 | 0.08 | β^- | 3229 | 11 | 126 910390 | 11 |
| 76 | 51 | | Sb | | -86699 | 5 | 8439.82 | 0.04 | β^- | 1582 | 5 | 126 906924 | 6 |
| 75 | 52 | | Te | | -88281.7 | 1.5 | 8446.118 | 0.012 | β^- | 702 | 4 | 126 905225.7 | 1.6 |
| 74 | 53 | | I | | -88984 | 4 | 8445.487 | 0.029 | | * | | 126 904472 | 4 |
| 73 | 54 | | Xe | | -88322 | 4 | 8434.11 | 0.03 | β^+ | 662.3 | 2.0 | 126 905183 | 4 |
| 72 | 55 | | Cs | | -86240 | 6 | 8411.56 | 0.04 | β^+ | 2081 | 6 | 126 907417 | 6 |
| 71 | 56 | | Ba | | -82818 | 11 | 8378.46 | 0.09 | β^+ | 3422 | 13 | 126 911091 | 12 |
| 70 | 57 | | La | | -77896 | 26 | 8333.54 | 0.20 | β^+ | 4922 | 28 | 126 916375 | 28 |
| 69 | 58 | | Ce | x | -71979 | 29 | 8280.79 | 0.23 | β^+ | 5920 | 40 | 126 922730 | 30 |
| 68 | 59 | | Pr | x | -64540# | 200# | 8216# | 2# | β^+ | 7440# | 200# | 126 930710# | 210# |
| 67 | 60 | | Nd | x | -55540# | 300# | 8139# | 2# | β^+ | 9010# | 360# | 126 940380# | 320# |
| 66 | 61 | | Pm | x | -44790# | 400# | 8048# | 3# | β^+ | 10750# | 500# | 126 951920# | 430# |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ | |
|----------|----------|----------|------|--------------|----------------------|-------|-------------------------------------|----------|----------------------------|--------|------|----------------------|-------|
| 82 | 46 | 128 | Pd | x | -44490# | 500# | 8138# | 4# | β^- | 10130# | 580# | 127 952240# | 540# |
| 81 | 47 | | Ag | x | -54620# | 300# | 8211# | 2# | β^- | 12620# | 300# | 127 941360# | 320# |
| 80 | 48 | | Cd | | -67242 | 7 | 8303.26 | 0.06 | β^- | 6900 | 150 | 127 927813 | 8 |
| 79 | 49 | | In | | -74150 | 150 | 8351.1 | 1.2 | β^- | 9220 | 150 | 127 920400 | 160 |
| 78 | 50 | | Sn | | -83362 | 18 | 8416.98 | 0.14 | β^- | 1268 | 14 | 127 910507 | 19 |
| 77 | 51 | | Sb | IT | -84630 | 19 | 8420.78 | 0.15 | β^- | 4363 | 19 | 127 909146 | 21 |
| 76 | 52 | | Te | | -88993.7 | 0.9 | 8448.752 | 0.007 | β^- | -1255 | 4 | 127 904461.3 | 0.9 |
| 75 | 53 | | I | | -87739 | 4 | 8432.836 | 0.028 | β^- | 2122 | 4 | 127 905809 | 4 |
| 74 | 54 | | Xe | | -89860.3 | 1.1 | 8443.298 | 0.008 | * | | | 127 903531.0 | 1.1 |
| 73 | 55 | | Cs | | -85932 | 5 | 8406.49 | 0.04 | β^+ | 3929 | 5 | 127 907749 | 6 |
| 72 | 56 | | Ba | | -85378 | 5 | 8396.06 | 0.04 | β^+ | 553 | 8 | 127 908342 | 6 |
| 71 | 57 | | La | x | -78630 | 50 | 8337.2 | 0.4 | β^+ | 6750 | 50 | 127 915590 | 60 |
| 70 | 58 | | Ce | x | -75534 | 28 | 8306.93 | 0.22 | β^+ | 3090 | 60 | 127 918910 | 30 |
| 69 | 59 | | Pr | x | -66331 | 30 | 8228.91 | 0.23 | β^+ | 9200 | 40 | 127 928790 | 30 |
| 68 | 60 | | Nd | x | -60310# | 200# | 8176# | 2# | β^+ | 6020# | 200# | 127 935250# | 210# |
| 67 | 61 | | Pm | x | -47790# | 300# | 8072# | 2# | β^+ | 12530# | 360# | 127 948700# | 320# |
| 66 | 62 | | Sm | x | -38670# | 500# | 7994# | 4# | β^+ | 9120# | 580# | 127 958490# | 540# |
| 83 | 46 | 129 | Pd | x | -37610# | 600# | 8084# | 5# | β^- | 14370# | 720# | 128 959620# | 640# |
| 82 | 47 | | Ag | x | -51980# | 400# | 8189# | 3# | β^- | 11080# | 400# | 128 944200# | 430# |
| 81 | 48 | | Cd | x | -63058 | 17 | 8269.03 | 0.13 | β^- | 9780 | 17 | 128 932304 | 18 |
| 80 | 49 | | In | | -72837.7 | 2.7 | 8338.780 | 0.021 | β^- | 7753 | 17 | 128 921805.5 | 2.9 |
| 79 | 50 | | Sn | | -80591 | 17 | 8392.82 | 0.13 | β^- | 4038 | 27 | 128 913482 | 19 |
| 78 | 51 | | Sb | + | -84629 | 21 | 8418.06 | 0.16 | β^- | 2375 | 21 | 128 909147 | 23 |
| 77 | 52 | | Te | | -87004.8 | 0.9 | 8430.409 | 0.007 | β^- | 1502 | 3 | 128 906596.5 | 0.9 |
| 76 | 53 | | I | | -88507 | 3 | 8435.990 | 0.025 | β^- | 189 | 3 | 128 904984 | 3 |
| 75 | 54 | | Xe | | -88696.059 | 0.005 | 8431.390 | <i>a</i> | * | | | 128 904780.859 | 0.006 |
| 74 | 55 | | Cs | | -87499 | 5 | 8416.05 | 0.04 | β^+ | 1197 | 5 | 128 906066 | 5 |
| 73 | 56 | | Ba | | -85063 | 11 | 8391.10 | 0.08 | β^+ | 2436 | 11 | 128 908681 | 11 |
| 72 | 57 | | La | | -81325 | 21 | 8356.05 | 0.17 | β^+ | 3739 | 22 | 128 912694 | 23 |
| 71 | 58 | | Ce | x | -76287 | 28 | 8310.94 | 0.22 | β^+ | 5040 | 40 | 128 918100 | 30 |
| 70 | 59 | | Pr | x | -69774 | 30 | 8254.38 | 0.23 | β^+ | 6510 | 40 | 128 925100 | 30 |
| 69 | 60 | | Nd | ϵ p | -62320# | 200# | 8190# | 2# | β^+ | 7460# | 200# | 128 933100# | 220# |
| 68 | 61 | | Pm | x | -52880# | 300# | 8111# | 2# | β^+ | 9430# | 360# | 128 943230# | 320# |
| 67 | 62 | | Sm | x | -42000# | 500# | 8021# | 4# | β^+ | 10880# | 580# | 128 954910# | 540# |
| 83 | 47 | 130 | Ag | -nn | -45700# | 500# | 8140# | 4# | β^- | 15420# | 500# | 129 950940# | 540# |
| 82 | 48 | | Cd | x | -61118 | 22 | 8252.59 | 0.17 | β^- | 8770 | 40 | 129 934388 | 24 |
| 81 | 49 | | In | + | -69880 | 40 | 8314.00 | 0.29 | β^- | 10250 | 40 | 129 924980 | 40 |
| 80 | 50 | | Sn | | -80132.2 | 1.9 | 8386.816 | 0.014 | β^- | 2153 | 14 | 129 913974.5 | 2.0 |
| 79 | 51 | | Sb | | -82286 | 14 | 8397.36 | 0.11 | β^- | 5067 | 14 | 129 911663 | 15 |
| 78 | 52 | | Te | | -87352.949 | 0.011 | 8430.324 | <i>a</i> | β^- | -417 | 3 | 129 906222.747 | 0.012 |
| 77 | 53 | | I | -n | -86936 | 3 | 8421.100 | 0.024 | β^- | 2944 | 3 | 129 906670 | 3 |
| 76 | 54 | | Xe | | -89880.463 | 0.009 | 8437.731 | <i>a</i> | β^- | -2981 | 8 | 129 903509.349 | 0.010 |
| 75 | 55 | | Cs | | -86900 | 8 | 8408.78 | 0.06 | β^- | 362 | 9 | 129 906709 | 9 |
| 74 | 56 | | Ba | | -87261.5 | 2.6 | 8405.549 | 0.020 | * | | | 129 906320.9 | 2.7 |
| 73 | 57 | | La | x | -81627 | 26 | 8356.19 | 0.20 | β^+ | 5634 | 26 | 129 912369 | 28 |
| 72 | 58 | | Ce | x | -79423 | 28 | 8333.22 | 0.21 | β^+ | 2200 | 40 | 129 914740 | 30 |
| 71 | 59 | | Pr | x | -71180 | 60 | 8263.8 | 0.5 | β^+ | 8250 | 70 | 129 923590 | 70 |
| 70 | 60 | | Nd | x | -66596 | 28 | 8222.51 | 0.21 | β^+ | 4580 | 70 | 129 928510 | 30 |
| 69 | 61 | | Pm | x | -55400# | 200# | 8130# | 2# | β^+ | 11200# | 200# | 129 940530# | 210# |
| 68 | 62 | | Sm | x | -47510# | 400# | 8064# | 3# | β^+ | 7890# | 450# | 129 949000# | 430# |
| 67 | 63 | | Eu | -p | -33680# | 500# | 7951# | 4# | β^+ | 13820# | 640# | 129 963840# | 540# |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ | |
|----------|----------|----------|------|-------|----------------------|-------|-------------------------------------|----------|----------------------------|---------|------|----------------------|-------|
| 84 | 47 | 131 | Ag | x | -40380# | 500# | 8099# | 4# | β^- | 14840# | 510# | 130 956650# | 540# |
| 83 | 48 | | Cd | x | -55220 | 100 | 8206.2 | 0.8 | β^- | 12810 | 100 | 130 940720 | 110 |
| 82 | 49 | | In | x | -68025.0 | 2.7 | 8297.959 | 0.021 | β^- | 9240 | 5 | 130 926972.1 | 2.9 |
| 81 | 50 | | Sn | | -77265 | 4 | 8362.517 | 0.028 | β^- | 4717 | 4 | 130 917053 | 4 |
| 80 | 51 | | Sb | | -81981.4 | 2.1 | 8392.552 | 0.016 | β^- | 3229.6 | 2.1 | 130 911989.3 | 2.2 |
| 79 | 52 | | Te | -n | -85211.01 | 0.06 | 8411.233 | 0.001 | β^- | 2231.7 | 0.6 | 130 908522.21 | 0.07 |
| 78 | 53 | | I | + | -87442.7 | 0.6 | 8422.297 | 0.005 | β^- | 970.8 | 0.6 | 130 906126.4 | 0.6 |
| 77 | 54 | | Xe | | -88413.558 | 0.009 | 8423.736 | <i>a</i> | * | | | 130 905084.136 | 0.009 |
| 76 | 55 | | Cs | | -88059 | 5 | 8415.06 | 0.04 | β^+ | 355 | 5 | 130 905465 | 5 |
| 75 | 56 | | Ba | | -86683.7 | 2.6 | 8398.587 | 0.020 | β^+ | 1375 | 5 | 130 906941.2 | 2.8 |
| 74 | 57 | | La | x | -83769 | 28 | 8370.37 | 0.21 | β^+ | 2914 | 28 | 130 910070 | 30 |
| 73 | 58 | | Ce | | -79710 | 30 | 8333.40 | 0.25 | β^+ | 4060 | 40 | 130 914430 | 40 |
| 72 | 59 | | Pr | | -74300 | 50 | 8286.1 | 0.4 | β^+ | 5410 | 60 | 130 920230 | 50 |
| 71 | 60 | | Nd | | -67768 | 28 | 8230.30 | 0.21 | β^+ | 6530 | 50 | 130 927248 | 30 |
| 70 | 61 | | Pm | x | -59660# | 200# | 8162# | 2# | β^+ | 8110# | 200# | 130 935950# | 220# |
| 69 | 62 | | Sm | x | -50130# | 400# | 8084# | 3# | β^+ | 9530# | 450# | 130 946180# | 430# |
| 68 | 63 | | Eu | -p | -39270# | 400# | 7995# | 3# | β^+ | 10860# | 570# | 130 957840# | 430# |
| 85 | 47 | 132 | Ag | x | -33790# | 500# | 8049# | 4# | β^- | 16470# | 540# | 131 963730# | 540# |
| 84 | 48 | | Cd | x | -50260# | 200# | 8168# | 1# | β^- | 12150# | 210# | 131 946040# | 210# |
| 83 | 49 | | In | + | -62410 | 60 | 8253.7 | 0.5 | β^- | 14140 | 60 | 131 933000 | 60 |
| 82 | 50 | | Sn | | -76546.5 | 2.0 | 8354.872 | 0.015 | β^- | 3089 | 3 | 131 917823.9 | 2.1 |
| 81 | 51 | | Sb | | -79635.3 | 2.5 | 8372.344 | 0.019 | β^- | 5553 | 4 | 131 914508.0 | 2.6 |
| 80 | 52 | | Te | | -85188 | 3 | 8408.485 | 0.026 | β^- | 515 | 3 | 131 908547 | 4 |
| 79 | 53 | | I | | -85703 | 4 | 8406.46 | 0.03 | β^- | 3575 | 4 | 131 907994 | 4 |
| 78 | 54 | | Xe | | -89278.962 | 0.005 | 8427.622 | <i>a</i> | β^- | -2126.3 | 1.0 | 131 904155.087 | 0.006 |
| 77 | 55 | | Cs | | -87152.7 | 1.0 | 8405.587 | 0.008 | β^- | 1282.3 | 1.5 | 131 906437.7 | 1.1 |
| 76 | 56 | | Ba | | -88435.0 | 1.1 | 8409.375 | 0.008 | * | | | 131 905061.1 | 1.1 |
| 75 | 57 | | La | | -83720 | 40 | 8367.76 | 0.28 | β^+ | 4710 | 40 | 131 910120 | 40 |
| 74 | 58 | | Ce | | -82471 | 20 | 8352.34 | 0.15 | β^+ | 1250 | 40 | 131 911464 | 22 |
| 73 | 59 | | Pr | x | -75227 | 29 | 8291.54 | 0.22 | β^+ | 7240 | 40 | 131 919240 | 30 |
| 72 | 60 | | Nd | x | -71426 | 24 | 8256.81 | 0.18 | β^+ | 3800 | 40 | 131 923321 | 26 |
| 71 | 61 | | Pm | x | -61630# | 150# | 8177# | 1# | β^+ | 9800# | 150# | 131 933840# | 160# |
| 70 | 62 | | Sm | x | -55080# | 300# | 8121# | 2# | β^+ | 6550# | 330# | 131 940870# | 320# |
| 69 | 63 | | Eu | x | -42200# | 400# | 8018# | 3# | β^+ | 12880# | 500# | 131 954700# | 430# |
| 85 | 48 | 133 | Cd | x | -43920# | 300# | 8119# | 2# | β^- | 13540# | 360# | 132 952850# | 320# |
| 84 | 49 | | In | x | -57460# | 200# | 8215# | 1# | β^- | 13410# | 200# | 132 938310# | 210# |
| 83 | 50 | | Sn | | -70873.9 | 1.9 | 8310.088 | 0.014 | β^- | 8050 | 4 | 132 923913.8 | 2.0 |
| 82 | 51 | | Sb | | -78924 | 3 | 8364.729 | 0.024 | β^- | 4014 | 4 | 132 915272 | 3 |
| 81 | 52 | | Te | | -82937.1 | 2.1 | 8389.025 | 0.016 | β^- | 2921 | 7 | 132 910963.3 | 2.2 |
| 80 | 53 | | I | ++ | -85858 | 6 | 8405.11 | 0.05 | β^- | 1785 | 7 | 132 907827 | 7 |
| 79 | 54 | | Xe | + | -87643.6 | 2.4 | 8412.647 | 0.018 | β^- | 427.4 | 2.4 | 132 905910.8 | 2.6 |
| 78 | 55 | | Cs | | -88070.931 | 0.008 | 8409.978 | <i>a</i> | * | | | 132 905451.961 | 0.009 |
| 77 | 56 | | Ba | | -87553.6 | 1.0 | 8400.206 | 0.007 | β^+ | 517.3 | 1.0 | 132 906007.3 | 1.1 |
| 76 | 57 | | La | x | -85494 | 28 | 8378.84 | 0.21 | β^+ | 2059 | 28 | 132 908220 | 30 |
| 75 | 58 | | Ce | x | -82418 | 16 | 8349.83 | 0.12 | β^+ | 3080 | 30 | 132 911520 | 18 |
| 74 | 59 | | Pr | x | -77938 | 12 | 8310.26 | 0.09 | β^+ | 4481 | 21 | 132 916331 | 13 |
| 73 | 60 | | Nd | x | -72330 | 50 | 8262.2 | 0.4 | β^+ | 5610 | 50 | 132 922350 | 50 |
| 72 | 61 | | Pm | x | -65410 | 50 | 8204.3 | 0.4 | β^+ | 6920 | 70 | 132 929780 | 50 |
| 71 | 62 | | Sm | x | -57230# | 300# | 8137# | 2# | β^+ | 8180# | 300# | 132 938560# | 320# |
| 70 | 63 | | Eu | x | -47240# | 300# | 8056# | 2# | β^+ | 10000# | 420# | 132 949290# | 320# |
| 69 | 64 | | Gd | x | -35860# | 500# | 7964# | 4# | β^+ | 11380# | 580# | 132 961500# | 540# |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ u | |
|----------|----------|----------|------|-------|----------------------|-------|-------------------------------------|----------|----------------------------|-----------|-------|------------------------|-------|
| 86 | 48 | 134 | Cd | x | -38920# | 400# | 8082# | 3# | β^- | 12740# | 500# | 133 958220# | 430# |
| 85 | 49 | | In | x | -51660# | 300# | 8171# | 2# | β^- | 14770# | 300# | 133 944540# | 320# |
| 84 | 50 | | Sn | x | -66434 | 3 | 8275.171 | 0.024 | β^- | 7587 | 4 | 133 928680 | 3 |
| 83 | 51 | | Sb | x | -74020.5 | 1.7 | 8325.950 | 0.013 | β^- | 8513 | 3 | 133 920535.7 | 1.8 |
| 82 | 52 | | Te | | -82533.7 | 2.7 | 8383.643 | 0.020 | β^- | 1510 | 5 | 133 911396.4 | 2.9 |
| 81 | 53 | | I | | -84043 | 5 | 8389.07 | 0.04 | β^- | 4082 | 5 | 133 909776 | 5 |
| 80 | 54 | | Xe | | -88125.822 | 0.009 | 8413.699 | <i>a</i> | β^- | -1234.667 | 0.018 | 133 905393.034 | 0.010 |
| 79 | 55 | | Cs | | -86891.154 | 0.016 | 8398.646 | <i>a</i> | β^- | 2058.7 | 0.3 | 133 906718.504 | 0.018 |
| 78 | 56 | | Ba | | -88949.9 | 0.3 | 8408.171 | 0.002 | | * | | 133 904508.4 | 0.3 |
| 77 | 57 | | La | x | -85219 | 20 | 8374.49 | 0.15 | β^+ | 3731 | 20 | 133 908514 | 21 |
| 76 | 58 | | Ce | x | -84833 | 20 | 8365.77 | 0.15 | β^+ | 386 | 29 | 133 908928 | 22 |
| 75 | 59 | | Pr | x | -78528 | 20 | 8312.88 | 0.15 | β^+ | 6305 | 29 | 133 915697 | 22 |
| 74 | 60 | | Nd | x | -75646 | 12 | 8285.54 | 0.09 | β^+ | 2882 | 24 | 133 918790 | 13 |
| 73 | 61 | | Pm | x | -66740 | 60 | 8213.2 | 0.4 | β^+ | 8910 | 60 | 133 928350 | 60 |
| 72 | 62 | | Sm | x | -61380# | 200# | 8167# | 1# | β^+ | 5360# | 200# | 133 934110# | 210# |
| 71 | 63 | | Eu | x | -49930# | 300# | 8076# | 2# | β^+ | 11450# | 360# | 133 946400# | 320# |
| 70 | 64 | | Gd | x | -41300# | 400# | 8006# | 3# | β^+ | 8630# | 500# | 133 955660# | 430# |
| 86 | 49 | 135 | In | x | -46530# | 400# | 8132# | 3# | β^- | 14100# | 400# | 134 950050# | 430# |
| 85 | 50 | | Sn | x | -60632 | 3 | 8230.687 | 0.023 | β^- | 9058 | 4 | 134 934909 | 3 |
| 84 | 51 | | Sb | | -69690.3 | 2.6 | 8291.989 | 0.020 | β^- | 8038 | 3 | 134 925184.4 | 2.8 |
| 83 | 52 | | Te | | -77728.8 | 1.7 | 8345.738 | 0.013 | β^- | 6050.4 | 2.7 | 134 916554.7 | 1.8 |
| 82 | 53 | | I | | -83779.1 | 2.1 | 8384.760 | 0.015 | β^- | 2634 | 4 | 134 910059.4 | 2.2 |
| 81 | 54 | | Xe | | -86413 | 4 | 8398.476 | 0.028 | β^- | 1168 | 4 | 134 907232 | 4 |
| 80 | 55 | | Cs | | -87581.6 | 1.0 | 8401.336 | 0.007 | β^- | 268.9 | 1.0 | 134 905977.2 | 1.1 |
| 79 | 56 | | Ba | | -87850.5 | 0.3 | 8397.533 | 0.002 | | * | | 134 905688.6 | 0.3 |
| 78 | 57 | | La | | -86643 | 9 | 8382.80 | 0.07 | β^+ | 1207 | 9 | 134 906985 | 10 |
| 77 | 58 | | Ce | | -84616 | 10 | 8361.98 | 0.08 | β^+ | 2027 | 5 | 134 909161 | 11 |
| 76 | 59 | | Pr | x | -80936 | 12 | 8328.93 | 0.09 | β^+ | 3680 | 16 | 134 913112 | 13 |
| 75 | 60 | | Nd | x | -76214 | 19 | 8288.15 | 0.14 | β^+ | 4722 | 22 | 134 918181 | 21 |
| 74 | 61 | | Pm | x | -70050 | 80 | 8236.7 | 0.6 | β^+ | 6160 | 80 | 134 924800 | 80 |
| 73 | 62 | | Sm | x | -62860 | 150 | 8177.6 | 1.1 | β^+ | 7190 | 170 | 134 932520 | 170 |
| 72 | 63 | | Eu | x | -54150# | 200# | 8107# | 1# | β^+ | 8710# | 250# | 134 941870# | 210# |
| 71 | 64 | | Gd | x | -44390# | 400# | 8029# | 3# | β^+ | 9760# | 450# | 134 952350# | 430# |
| 70 | 65 | | Tb | -p | -32830# | 400# | 7938# | 3# | β^+ | 11570# | 570# | 134 964760# | 430# |
| 87 | 49 | 136 | In | x | -40510# | 400# | 8087# | 3# | β^- | 15390# | 500# | 135 956510# | 430# |
| 86 | 50 | | Sn | x | -55900# | 300# | 8195# | 2# | β^- | 8610# | 300# | 135 939990# | 320# |
| 85 | 51 | | Sb | | -64507 | 6 | 8252.25 | 0.04 | β^- | 9918 | 6 | 135 930749 | 6 |
| 84 | 52 | | Te | | -74425.3 | 2.3 | 8319.429 | 0.017 | β^- | 5120 | 14 | 135 920101.2 | 2.4 |
| 83 | 53 | | I | | -79545 | 14 | 8351.32 | 0.10 | β^- | 6884 | 14 | 135 914605 | 15 |
| 82 | 54 | | Xe | | -86429.159 | 0.007 | 8396.188 | <i>a</i> | β^- | -90.5 | 1.9 | 135 907214.476 | 0.007 |
| 81 | 55 | | Cs | + | -86338.7 | 1.9 | 8389.770 | 0.014 | β^- | 2548.2 | 1.9 | 135 907311.6 | 2.0 |
| 80 | 56 | | Ba | | -88886.9 | 0.3 | 8402.755 | 0.002 | β^- | -2850 | 50 | 135 904576.0 | 0.3 |
| 79 | 57 | | La | x | -86040 | 50 | 8376.1 | 0.4 | β^- | 470 | 50 | 135 907630 | 60 |
| 78 | 58 | | Ce | | -86508.4 | 0.4 | 8373.760 | 0.003 | | * | | 135 907129.4 | 0.4 |
| 77 | 59 | | Pr | | -81340 | 11 | 8330.01 | 0.08 | β^+ | 5168 | 11 | 135 912678 | 12 |
| 76 | 60 | | Nd | x | -79199 | 12 | 8308.51 | 0.09 | β^+ | 2141 | 16 | 135 914976 | 13 |
| 75 | 61 | | Pm | x | -71170 | 70 | 8243.7 | 0.5 | β^+ | 8030 | 70 | 135 923600 | 70 |
| 74 | 62 | | Sm | x | -66811 | 12 | 8205.92 | 0.09 | β^+ | 4360 | 70 | 135 928276 | 13 |
| 73 | 63 | | Eu | x | -56240# | 200# | 8122# | 1# | β^+ | 10570# | 200# | 135 939620# | 210# |
| 72 | 64 | | Gd | x | -49090# | 300# | 8064# | 2# | β^+ | 7150# | 360# | 135 947300# | 320# |
| 71 | 65 | | Tb | x | -36130# | 500# | 7963# | 4# | β^+ | 12960# | 580# | 135 961210# | 540# |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ u | |
|----------|----------|----------|------|-------|----------------------|------|-------------------------------------|-------|----------------------------|---------|-------|------------------------|------|
| 88 | 49 | 137 | In | x | -35040# | 500# | 8047# | 4# | β^- | 14750# | 640# | 136 962380# | 540# |
| 87 | 50 | | Sn | x | -49790# | 400# | 8149# | 3# | β^- | 10270# | 400# | 136 946550# | 430# |
| 86 | 51 | | Sb | x | -60060 | 50 | 8218.5 | 0.4 | β^- | 9240 | 50 | 136 935520 | 60 |
| 85 | 52 | | Te | | -69303.8 | 2.1 | 8280.235 | 0.015 | β^- | 7053 | 9 | 136 925599.4 | 2.3 |
| 84 | 53 | | I | p-2n | -76356 | 8 | 8326.00 | 0.06 | β^- | 6027 | 8 | 136 918028 | 9 |
| 83 | 54 | | Xe | -n | -82383.40 | 0.10 | 8364.286 | 0.001 | β^- | 4162.2 | 0.4 | 136 911557.77 | 0.11 |
| 82 | 55 | | Cs | + | -86545.6 | 0.4 | 8388.956 | 0.003 | β^- | 1175.63 | 0.17 | 136 907089.5 | 0.4 |
| 81 | 56 | | Ba | | -87721.2 | 0.3 | 8391.827 | 0.002 | * | | | 136 905827.4 | 0.3 |
| 80 | 57 | | La | + | -87140.7 | 1.7 | 8381.879 | 0.012 | β^+ | 580.5 | 1.6 | 136 906450.6 | 1.8 |
| 79 | 58 | | Ce | | -85918.6 | 0.4 | 8367.248 | 0.003 | β^+ | 1222.1 | 1.6 | 136 907762.6 | 0.5 |
| 78 | 59 | | Pr | | -83202 | 8 | 8341.71 | 0.06 | β^+ | 2717 | 8 | 136 910679 | 9 |
| 77 | 60 | | Nd | | -79585 | 12 | 8309.59 | 0.09 | β^+ | 3617 | 14 | 136 914562 | 13 |
| 76 | 61 | | Pm | x | -74073 | 13 | 8263.65 | 0.10 | β^+ | 5512 | 18 | 136 920480 | 14 |
| 75 | 62 | | Sm | | -68030 | 40 | 8213.8 | 0.3 | β^+ | 6050 | 40 | 136 926970 | 50 |
| 74 | 63 | | Eu | x | -60146 | 4 | 8150.57 | 0.03 | β^+ | 7880 | 40 | 136 935431 | 5 |
| 73 | 64 | | Gd | x | -51210# | 300# | 8080# | 2# | β^+ | 8930# | 300# | 136 945020# | 320# |
| 72 | 65 | | Tb | x | -40970# | 400# | 7999# | 3# | β^+ | 10250# | 500# | 136 956020# | 430# |
| | | | | | | | | | | | | | |
| 88 | 50 | 138 | Sn | x | -44860# | 500# | 8113# | 4# | β^- | 9360# | 1180# | 137 951840# | 540# |
| 87 | 51 | | Sb | x | -54220 | 1060 | 8175 | 8 | β^- | 11480 | 1060 | 137 941790 | 1140 |
| 86 | 52 | | Te | | -65696 | 4 | 8252.578 | 0.027 | β^- | 6284 | 7 | 137 929472 | 4 |
| 85 | 53 | | I | x | -71980 | 6 | 8292.44 | 0.04 | β^- | 7992 | 7 | 137 922726 | 6 |
| 84 | 54 | | Xe | | -79972.2 | 2.8 | 8344.690 | 0.020 | β^- | 2915 | 10 | 137 914146 | 3 |
| 83 | 55 | | Cs | | -82887 | 9 | 8360.14 | 0.07 | β^- | 5375 | 9 | 137 911017 | 10 |
| 82 | 56 | | Ba | | -88261.6 | 0.3 | 8393.420 | 0.002 | β^- | -1742 | 3 | 137 905247.2 | 0.3 |
| 81 | 57 | | La | | -86519 | 3 | 8375.125 | 0.023 | β^- | 1052 | 4 | 137 907118 | 3 |
| 80 | 58 | | Ce | | -87571 | 5 | 8377.08 | 0.04 | * | | | 137 905989 | 5 |
| 79 | 59 | | Pr | — | -83134 | 11 | 8339.26 | 0.08 | β^+ | 4437 | 10 | 137 910752 | 12 |
| 78 | 60 | | Nd | | -82018 | 12 | 8325.50 | 0.08 | β^+ | 1116 | 16 | 137 911950 | 12 |
| 77 | 61 | | Pm | | -74940 | 28 | 8268.54 | 0.20 | β^+ | 7078 | 29 | 137 919548 | 30 |
| 76 | 62 | | Sm | x | -71498 | 12 | 8237.93 | 0.09 | β^+ | 3440 | 30 | 137 923244 | 13 |
| 75 | 63 | | Eu | x | -61750 | 28 | 8161.62 | 0.20 | β^+ | 9750 | 30 | 137 933710 | 30 |
| 74 | 64 | | Gd | x | -55800# | 200# | 8113# | 1# | β^+ | 5950# | 200# | 137 940100# | 210# |
| 73 | 65 | | Tb | x | -43670# | 300# | 8019# | 2# | β^+ | 12130# | 360# | 137 953120# | 320# |
| 72 | 66 | | Dy | x | -34930# | 500# | 7950# | 4# | β^+ | 8740# | 590# | 137 962500# | 540# |
| | | | | | | | | | | | | | |
| 89 | 50 | 139 | Sn | x | -38440# | 500# | 8066# | 4# | β^- | 11350# | 640# | 138 958730# | 540# |
| 88 | 51 | | Sb | x | -49790# | 400# | 8142# | 3# | β^- | 10420# | 400# | 138 946550# | 430# |
| 87 | 52 | | Te | x | -60205 | 4 | 8211.771 | 0.025 | β^- | 8266 | 5 | 138 935367 | 4 |
| 86 | 53 | | I | x | -68471 | 4 | 8265.609 | 0.029 | β^- | 7174 | 5 | 138 926493 | 4 |
| 85 | 54 | | Xe | x | -75644.6 | 2.1 | 8311.590 | 0.015 | β^- | 5056 | 4 | 138 918792.2 | 2.3 |
| 84 | 55 | | Cs | + | -80701 | 3 | 8342.338 | 0.023 | β^- | 4213 | 3 | 138 913364 | 3 |
| 83 | 56 | | Ba | | -84913.8 | 0.3 | 8367.017 | 0.002 | β^- | 2312.5 | 2.0 | 138 908841.3 | 0.3 |
| 82 | 57 | | La | | -87226.2 | 2.0 | 8378.025 | 0.014 | * | | | 138 906358.8 | 2.2 |
| 81 | 58 | | Ce | | -86948 | 7 | 8370.39 | 0.05 | β^+ | 278 | 7 | 138 906658 | 8 |
| 80 | 59 | | Pr | | -84819 | 8 | 8349.45 | 0.06 | β^+ | 2129.1 | 3.0 | 138 908943 | 8 |
| 79 | 60 | | Nd | | -82014 | 28 | 8323.64 | 0.20 | β^+ | 2805 | 28 | 138 911954 | 30 |
| 78 | 61 | | Pm | | -77500 | 14 | 8285.54 | 0.10 | β^+ | 4513 | 26 | 138 916800 | 15 |
| 77 | 62 | | Sm | x | -72380 | 11 | 8243.08 | 0.08 | β^+ | 5120 | 17 | 138 922297 | 12 |
| 76 | 63 | | Eu | x | -65398 | 13 | 8187.22 | 0.09 | β^+ | 6982 | 17 | 138 929792 | 14 |
| 75 | 64 | | Gd | x | -57630# | 200# | 8126# | 1# | β^+ | 7770# | 200# | 138 938130# | 210# |
| 74 | 65 | | Tb | x | -48130# | 300# | 8052# | 2# | β^+ | 9500# | 360# | 138 948330# | 320# |
| 73 | 66 | | Dy | x | -37640# | 500# | 7971# | 4# | β^+ | 10490# | 590# | 138 959590# | 540# |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ u | |
|----------|----------|----------|------|---------|----------------------|--------|-------------------------------------|-----------|----------------------------|--------|-------------|------------------------|------|
| 89 | 51 | 140 | Sb | x | -43940# | 600# | 8100# | 4# | β^- | 12640# | 600# | 139 952830# | 640# |
| 88 | 52 | | Te | x | -56580 | 60 | 8184.8 | 0.4 | β^- | 7030 | 60 | 139 939260 | 70 |
| 87 | 53 | | I | x | -63606 | 12 | 8229.47 | 0.09 | β^- | 9380 | 12 | 139 931716 | 13 |
| 86 | 54 | | Xe | x | -72986.5 | 2.3 | 8290.887 | 0.017 | β^- | 4064 | 9 | 139 921645.8 | 2.5 |
| 85 | 55 | | Cs | | -77050 | 8 | 8314.32 | 0.06 | β^- | 6219 | 10 | 139 917283 | 9 |
| 84 | 56 | | Ba | | -83269 | 8 | 8353.16 | 0.06 | β^- | 1047 | 8 | 139 910607 | 9 |
| 83 | 57 | | La | | -84315.9 | 2.0 | 8355.047 | 0.014 | β^- | 3760.2 | 1.7 | 139 909483.2 | 2.2 |
| 82 | 58 | | Ce | | -88076.1 | 1.6 | 8376.317 | 0.011 | * | | | 139 905446.4 | 1.7 |
| 81 | 59 | | Pr | — | -84688 | 6 | 8346.53 | 0.04 | β^+ | 3388 | 6 | 139 909084 | 7 |
| 80 | 60 | | Nd | x | -84259 | 3 | 8337.875 | 0.025 | β^+ | 429 | 7 | 139 909544 | 4 |
| 79 | 61 | | Pm | — | -78214 | 24 | 8289.11 | 0.17 | β^+ | 6045 | 24 | 139 916034 | 26 |
| 78 | 62 | | Sm | x | -75456 | 12 | 8263.82 | 0.09 | β^+ | 2758 | 27 | 139 918995 | 13 |
| 77 | 63 | | Eu | — | -66990 | 50 | 8197.7 | 0.4 | β^+ | 8470 | 50 | 139 928090 | 60 |
| 76 | 64 | | Gd | x | -61782 | 28 | 8154.97 | 0.20 | β^+ | 5200 | 60 | 139 933670 | 30 |
| 75 | 65 | Tb | — | -50480 | 800 | 8069 | 6 | β^+ | 11300 | 800 | 139 945810 | 860 | |
| 74 | 66 | Dy | x | -42830# | 400# | 8008# | 3# | β^+ | 7650# | 900# | 139 954020# | 430# | |
| 73 | 67 | Ho | -p | -29260# | 500# | 7906# | 4# | β^+ | 13570# | 640# | 139 968590# | 540# | |
| 90 | 51 | 141 | Sb | x | -39110# | 500# | 8066# | 4# | β^- | 11380# | 640# | 140 958010# | 540# |
| 89 | 52 | | Te | x | -50490# | 400# | 8141# | 3# | β^- | 9440# | 400# | 140 945800# | 430# |
| 88 | 53 | | I | x | -59927 | 16 | 8202.26 | 0.11 | β^- | 8271 | 16 | 140 935666 | 17 |
| 87 | 54 | | Xe | x | -68197.3 | 2.9 | 8255.364 | 0.020 | β^- | 6280 | 10 | 140 926787 | 3 |
| 86 | 55 | | Cs | | -74478 | 9 | 8294.36 | 0.07 | β^- | 5255 | 10 | 140 920045 | 10 |
| 85 | 56 | | Ba | | -79733 | 5 | 8326.08 | 0.04 | β^- | 3199 | 7 | 140 914404 | 6 |
| 84 | 57 | | La | | -82932 | 4 | 8343.217 | 0.030 | β^- | 2501 | 4 | 140 910969 | 5 |
| 83 | 58 | | Ce | | -85432.9 | 1.6 | 8355.408 | 0.011 | β^- | 582.7 | 1.2 | 140 908284.0 | 1.7 |
| 82 | 59 | | Pr | | -86015.6 | 1.7 | 8353.992 | 0.012 | * | | | 140 907658.4 | 1.8 |
| 81 | 60 | | Nd | — | -84193 | 3 | 8335.515 | 0.023 | β^+ | 1823.0 | 2.8 | 140 909615 | 4 |
| 80 | 61 | | Pm | x | -80523 | 14 | 8303.94 | 0.10 | β^+ | 3670 | 14 | 140 913555 | 15 |
| 79 | 62 | | Sm | | -75934 | 9 | 8265.84 | 0.06 | β^+ | 4589 | 16 | 140 918482 | 9 |
| 78 | 63 | | Eu | | -69926 | 13 | 8217.68 | 0.09 | β^+ | 6008 | 14 | 140 924932 | 14 |
| 77 | 64 | | Gd | x | -63224 | 20 | 8164.61 | 0.14 | β^+ | 6701 | 23 | 140 932126 | 21 |
| 76 | 65 | Tb | x | -54540 | 110 | 8097.5 | 0.7 | β^+ | 8680 | 110 | 140 941450 | 110 | |
| 75 | 66 | Dy | x | -45380# | 300# | 8027# | 2# | β^+ | 9160# | 320# | 140 951280# | 320# | |
| 74 | 67 | Ho | -p | -34360# | 400# | 7943# | 3# | β^+ | 11020# | 500# | 140 963110# | 430# | |
| 90 | 52 | 142 | Te | x | -46370# | 500# | 8111# | 4# | β^- | 8400# | 630# | 141 950220# | 540# |
| 89 | 53 | | I | x | -54770 | 370 | 8165.0 | 2.6 | β^- | 10460 | 370 | 141 941200 | 400 |
| 88 | 54 | | Xe | x | -65229.6 | 2.7 | 8233.169 | 0.019 | β^- | 5285 | 8 | 141 929973.1 | 2.9 |
| 87 | 55 | | Cs | | -70515 | 7 | 8264.88 | 0.05 | β^- | 7328 | 8 | 141 924300 | 8 |
| 86 | 56 | | Ba | | -77842 | 6 | 8310.97 | 0.04 | β^- | 2182 | 8 | 141 916433 | 6 |
| 85 | 57 | | La | | -80024 | 6 | 8320.83 | 0.04 | β^- | 4509 | 6 | 141 914090 | 7 |
| 84 | 58 | | Ce | | -84533.2 | 2.5 | 8347.071 | 0.018 | β^- | -745.7 | 2.5 | 141 909249.9 | 2.7 |
| 83 | 59 | | Pr | | -83787.5 | 1.7 | 8336.310 | 0.012 | β^- | 2162.5 | 1.4 | 141 910050.4 | 1.8 |
| 82 | 60 | | Nd | | -85950.0 | 1.4 | 8346.030 | 0.010 | * | | | 141 907728.9 | 1.5 |
| 81 | 61 | | Pm | | -81142 | 24 | 8306.66 | 0.17 | β^+ | 4808 | 24 | 141 912890 | 25 |
| 80 | 62 | | Sm | | -78986 | 3 | 8285.972 | 0.022 | β^+ | 2156 | 24 | 141 915205 | 3 |
| 79 | 63 | | Eu | — | -71310 | 30 | 8226.43 | 0.21 | β^+ | 7670 | 30 | 141 923440 | 30 |
| 78 | 64 | | Gd | x | -66960 | 28 | 8190.26 | 0.20 | β^+ | 4350 | 40 | 141 928120 | 30 |
| 77 | 65 | | Tb | — | -56560 | 700 | 8112 | 5 | β^+ | 10400 | 700 | 141 939280 | 750 |
| 76 | 66 | Dy | — | -50120# | 730# | 8061# | 5# | β^+ | 6440# | 200# | 141 946190# | 780# | |
| 75 | 67 | Ho | x | -37250# | 400# | 7965# | 3# | β^+ | 12870# | 830# | 141 960010# | 430# | |
| 74 | 68 | Er | x | -28030# | 500# | 7894# | 4# | β^+ | 9220# | 640# | 141 969910# | 540# | |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| N | Z | A | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μu | |
|-----|-----|-----|------|-------|----------------------|------|-------------------------------------|-------|----------------------------|---------|------|------------------------|------|
| 91 | 52 | 143 | Te | x | -40280# | 500# | 8068# | 4# | β^- | 10350# | 540# | 142 956760# | 540# |
| 90 | 53 | | I | x | -50630# | 200# | 8135# | 1# | β^- | 9570# | 200# | 142 945650# | 220# |
| 89 | 54 | | Xe | x | -60203 | 5 | 8196.88 | 0.03 | β^- | 7473 | 9 | 142 935370 | 5 |
| 88 | 55 | | Cs | | -67676 | 8 | 8243.67 | 0.05 | β^- | 6262 | 10 | 142 927347 | 8 |
| 87 | 56 | | Ba | | -73937 | 7 | 8281.99 | 0.05 | β^- | 4234 | 10 | 142 920625 | 7 |
| 86 | 57 | | La | | -78172 | 7 | 8306.13 | 0.05 | β^- | 3435 | 8 | 142 916079 | 8 |
| 85 | 58 | | Ce | | -81606.7 | 2.5 | 8324.678 | 0.018 | β^- | 1461.6 | 1.9 | 142 912391.6 | 2.7 |
| 84 | 59 | | Pr | | -83068.2 | 1.9 | 8329.428 | 0.013 | β^- | 934.0 | 1.4 | 142 910822.6 | 2.0 |
| 83 | 60 | | Nd | | -84002.2 | 1.4 | 8330.488 | 0.010 | * | | | 142 909819.9 | 1.5 |
| 82 | 61 | | Pm | | -82960.7 | 3.0 | 8317.733 | 0.021 | β^+ | 1041.6 | 2.7 | 142 910938 | 3 |
| 81 | 62 | | Sm | | -79517.2 | 2.8 | 8288.182 | 0.020 | β^+ | 3443 | 4 | 142 914635 | 3 |
| 80 | 63 | | Eu | x | -74241 | 11 | 8245.82 | 0.08 | β^+ | 5276 | 11 | 142 920299 | 12 |
| 79 | 64 | | Gd | — | -68230 | 200 | 8198.3 | 1.4 | β^+ | 6010 | 200 | 142 926750 | 220 |
| 78 | 65 | | Tb | x | -60420 | 50 | 8138.2 | 0.4 | β^+ | 7810 | 210 | 142 935140 | 60 |
| 77 | 66 | | Dy | x | -52169 | 13 | 8075.05 | 0.09 | β^+ | 8250 | 50 | 142 943994 | 14 |
| 76 | 67 | | Ho | x | -42050# | 300# | 7999# | 2# | β^+ | 10120# | 300# | 142 954860# | 320# |
| 75 | 68 | | Er | x | -31260# | 400# | 7918# | 3# | β^+ | 10790# | 500# | 142 966440# | 430# |
| 91 | 53 | 144 | I | x | -45280# | 400# | 8098# | 3# | β^- | 11590# | 400# | 143 951390# | 430# |
| 90 | 54 | | Xe | x | -56872 | 5 | 8172.88 | 0.04 | β^- | 6399 | 21 | 143 938945 | 6 |
| 89 | 55 | | Cs | | -63271 | 20 | 8211.89 | 0.14 | β^- | 8496 | 20 | 143 932075 | 22 |
| 88 | 56 | | Ba | | -71767 | 7 | 8265.45 | 0.05 | β^- | 3083 | 15 | 143 922955 | 8 |
| 87 | 57 | | La | x | -74850 | 13 | 8281.43 | 0.09 | β^- | 5582 | 13 | 143 919646 | 14 |
| 86 | 58 | | Ce | + | -80431.9 | 2.9 | 8314.760 | 0.020 | β^- | 318.6 | 0.8 | 143 913653 | 3 |
| 85 | 59 | | Pr | + | -80750.5 | 2.8 | 8311.540 | 0.019 | β^- | 2997.4 | 2.4 | 143 913310.8 | 3.0 |
| 84 | 60 | | Nd | | -83748.0 | 1.4 | 8326.922 | 0.009 | β^- | -2331.9 | 2.6 | 143 910092.9 | 1.5 |
| 83 | 61 | | Pm | | -81416.1 | 3.0 | 8305.296 | 0.021 | β^- | 549.4 | 2.7 | 143 912596 | 3 |
| 82 | 62 | | Sm | | -81965.5 | 1.6 | 8303.679 | 0.011 | * | | | 143 912006.4 | 1.7 |
| 81 | 63 | | Eu | | -75619 | 11 | 8254.17 | 0.07 | β^+ | 6346 | 11 | 143 918820 | 12 |
| 80 | 64 | | Gd | x | -71760 | 28 | 8221.94 | 0.19 | β^+ | 3860 | 30 | 143 922960 | 30 |
| 79 | 65 | | Tb | x | -62368 | 28 | 8151.29 | 0.19 | β^+ | 9390 | 40 | 143 933050 | 30 |
| 78 | 66 | | Dy | x | -56570 | 7 | 8105.59 | 0.05 | β^+ | 5798 | 29 | 143 939270 | 8 |
| 77 | 67 | | Ho | x | -44610 | 8 | 8017.10 | 0.06 | β^+ | 11961 | 11 | 143 952110 | 9 |
| 76 | 68 | | Er | x | -36610# | 200# | 7956# | 1# | β^+ | 8000# | 200# | 143 960700# | 210# |
| 75 | 69 | | Tm | -p | -22260# | 400# | 7851# | 3# | β^+ | 14350# | 450# | 143 976100# | 430# |
| 92 | 53 | 145 | I | x | -40940# | 500# | 8068# | 3# | β^- | 10550# | 500# | 144 956050# | 540# |
| 91 | 54 | | Xe | x | -51493 | 11 | 8135.09 | 0.08 | β^- | 8561 | 14 | 144 944720 | 12 |
| 90 | 55 | | Cs | | -60054 | 9 | 8188.73 | 0.06 | β^- | 7462 | 12 | 144 935529 | 10 |
| 89 | 56 | | Ba | x | -67516 | 8 | 8234.80 | 0.06 | β^- | 5319 | 15 | 144 927518 | 9 |
| 88 | 57 | | La | | -72835 | 12 | 8266.09 | 0.08 | β^- | 4230 | 40 | 144 921808 | 13 |
| 87 | 58 | | Ce | | -77070 | 30 | 8289.88 | 0.23 | β^- | 2560 | 30 | 144 917270 | 40 |
| 86 | 59 | | Pr | | -79626 | 7 | 8302.13 | 0.05 | β^- | 1806 | 7 | 144 914518 | 8 |
| 85 | 60 | | Nd | | -81432.0 | 1.4 | 8309.187 | 0.010 | * | | | 144 912579.2 | 1.5 |
| 84 | 61 | | Pm | | -81267.5 | 2.9 | 8302.657 | 0.020 | β^+ | 164.5 | 2.5 | 144 912756 | 3 |
| 83 | 62 | | Sm | | -80651.3 | 1.6 | 8293.013 | 0.011 | β^+ | 616.2 | 2.5 | 144 913417.2 | 1.7 |
| 82 | 63 | | Eu | | -77992 | 3 | 8269.274 | 0.021 | β^+ | 2659.8 | 2.7 | 144 916273 | 3 |
| 81 | 64 | | Gd | | -72926 | 20 | 8228.95 | 0.14 | β^+ | 5065 | 20 | 144 921710 | 21 |
| 80 | 65 | | Tb | | -66390 | 110 | 8178.5 | 0.8 | β^+ | 6540 | 110 | 144 928730 | 120 |
| 79 | 66 | | Dy | x | -58243 | 7 | 8116.89 | 0.04 | β^+ | 8150 | 110 | 144 937474 | 7 |
| 78 | 67 | | Ho | x | -49120 | 7 | 8048.58 | 0.05 | β^+ | 9122 | 10 | 144 947267 | 8 |
| 77 | 68 | | Er | x | -39240# | 200# | 7975# | 1# | β^+ | 9880# | 200# | 144 957870# | 220# |
| 76 | 69 | | Tm | -p | -27580# | 200# | 7889# | 1# | β^+ | 11660# | 280# | 144 970390# | 210# |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ u | |
|----------|----------|----------|------|-------|----------------------|------|-------------------------------------|-------|----------------------------|--------|------|------------------------|------|
| 92 | 54 | 146 | Xe | x | -47955 | 24 | 8110.41 | 0.17 | β^- | 7355 | 24 | 145 948518 | 26 |
| 91 | 55 | | Cs | x | -55310.4 | 2.9 | 8155.436 | 0.020 | β^- | 9637 | 21 | 145 940622 | 3 |
| 90 | 56 | | Ba | | -64947 | 21 | 8216.08 | 0.14 | β^- | 4100 | 30 | 145 930276 | 22 |
| 89 | 57 | | La | | -69050 | 30 | 8238.83 | 0.23 | β^- | 6590 | 30 | 145 925870 | 40 |
| 88 | 58 | | Ce | | -75635 | 16 | 8278.57 | 0.11 | β^- | 1050 | 30 | 145 918802 | 18 |
| 87 | 59 | | Pr | | -76680 | 30 | 8280.38 | 0.24 | β^- | 4240 | 30 | 145 917680 | 40 |
| 86 | 60 | | Nd | | -80925.9 | 1.4 | 8304.092 | 0.009 | β^- | -1472 | 4 | 145 913122.5 | 1.5 |
| 85 | 61 | | Pm | + | -79454 | 4 | 8288.654 | 0.030 | β^- | 1542 | 3 | 145 914702 | 5 |
| 84 | 62 | | Sm | | -80996 | 3 | 8293.857 | 0.021 | * | | | 145 913047 | 3 |
| 83 | 63 | | Eu | | -77118 | 6 | 8261.93 | 0.04 | β^+ | 3879 | 6 | 145 917211 | 6 |
| 82 | 64 | | Gd | | -76086 | 4 | 8249.506 | 0.028 | β^+ | 1032 | 7 | 145 918319 | 4 |
| 81 | 65 | | Tb | | -67760 | 40 | 8187.1 | 0.3 | β^+ | 8320 | 40 | 145 927250 | 50 |
| 80 | 66 | | Dy | | -62555 | 7 | 8146.11 | 0.05 | β^+ | 5210 | 50 | 145 932845 | 7 |
| 79 | 67 | | Ho | | -51238 | 7 | 8063.24 | 0.05 | β^+ | 11317 | 9 | 145 944994 | 7 |
| 78 | 68 | | Er | | -44322 | 7 | 8010.51 | 0.05 | β^+ | 6916 | 9 | 145 952418 | 7 |
| 77 | 69 | | Tm | -p | -31060# | 200# | 7914# | 1# | β^+ | 13270# | 200# | 145 966660# | 220# |
| 93 | 54 | 147 | Xe | x | -42360# | 200# | 8072# | 1# | β^- | 9560# | 200# | 146 954530# | 220# |
| 92 | 55 | | Cs | x | -51920 | 8 | 8131.80 | 0.06 | β^- | 8344 | 21 | 146 944262 | 9 |
| 91 | 56 | | Ba | x | -60264 | 20 | 8183.24 | 0.13 | β^- | 6414 | 22 | 146 935304 | 21 |
| 90 | 57 | | La | x | -66678 | 11 | 8221.55 | 0.07 | β^- | 5336 | 14 | 146 928418 | 12 |
| 89 | 58 | | Ce | | -72014 | 9 | 8252.53 | 0.06 | β^- | 3430 | 16 | 146 922690 | 9 |
| 88 | 59 | | Pr | | -75444 | 16 | 8270.54 | 0.11 | β^- | 2703 | 16 | 146 919007 | 17 |
| 87 | 60 | | Nd | | -78146.7 | 1.4 | 8283.603 | 0.009 | β^- | 895.5 | 0.5 | 146 916106.0 | 1.5 |
| 86 | 61 | | Pm | | -79042.3 | 1.4 | 8284.372 | 0.010 | β^- | 224.09 | 0.29 | 146 915144.6 | 1.5 |
| 85 | 62 | | Sm | | -79266.4 | 1.4 | 8280.575 | 0.009 | * | | | 146 914904.1 | 1.5 |
| 84 | 63 | | Eu | | -77544.8 | 2.6 | 8263.541 | 0.018 | β^+ | 1721.6 | 2.3 | 146 916752.3 | 2.8 |
| 83 | 64 | | Gd | | -75356.9 | 2.0 | 8243.336 | 0.013 | β^+ | 2187.8 | 2.5 | 146 919101.0 | 2.1 |
| 82 | 65 | | Tb | | -70743 | 8 | 8206.62 | 0.06 | β^+ | 4614 | 8 | 146 924055 | 9 |
| 81 | 66 | | Dy | x | -64196 | 9 | 8156.77 | 0.06 | β^+ | 6547 | 12 | 146 931083 | 10 |
| 80 | 67 | | Ho | | -55757 | 5 | 8094.04 | 0.03 | β^+ | 8439 | 10 | 146 940142 | 5 |
| 79 | 68 | | Er | x | -46610 | 40 | 8026.48 | 0.26 | β^+ | 9150 | 40 | 146 949960 | 40 |
| 78 | 69 | | Tm | | -35974 | 7 | 7948.82 | 0.05 | β^+ | 10630 | 40 | 146 961380 | 7 |
| 94 | 54 | 148 | Xe | x | -38600# | 300# | 8047# | 2# | β^- | 8310# | 300# | 147 958560# | 320# |
| 93 | 55 | | Cs | x | -46911 | 13 | 8097.55 | 0.09 | β^- | 10680 | 60 | 147 949639 | 14 |
| 92 | 56 | | Ba | + | -57590 | 60 | 8164.4 | 0.4 | β^- | 5110 | 60 | 147 938170 | 70 |
| 91 | 57 | | La | x | -62709 | 19 | 8193.72 | 0.13 | β^- | 7690 | 22 | 147 932679 | 21 |
| 90 | 58 | | Ce | | -70398 | 11 | 8240.39 | 0.08 | β^- | 2137 | 13 | 147 924424 | 12 |
| 89 | 59 | | Pr | | -72535 | 15 | 8249.54 | 0.10 | β^- | 4873 | 15 | 147 922130 | 16 |
| 88 | 60 | | Nd | | -77408.0 | 2.1 | 8277.177 | 0.014 | β^- | -542 | 6 | 147 916899.1 | 2.3 |
| 87 | 61 | | Pm | +p | -76866 | 6 | 8268.23 | 0.04 | β^- | 2471 | 6 | 147 917481 | 6 |
| 86 | 62 | | Sm | | -79336.3 | 1.4 | 8279.633 | 0.009 | * | | | 147 914829.0 | 1.5 |
| 85 | 63 | | Eu | | -76299 | 10 | 8253.83 | 0.07 | β^+ | 3037 | 10 | 147 918089 | 11 |
| 84 | 64 | | Gd | | -76269.3 | 1.6 | 8248.338 | 0.011 | β^+ | 30 | 10 | 147 918121.5 | 1.7 |
| 83 | 65 | | Tb | | -70537 | 12 | 8204.32 | 0.08 | β^+ | 5732 | 13 | 147 924275 | 13 |
| 82 | 66 | | Dy | | -67860 | 9 | 8180.94 | 0.06 | β^+ | 2678 | 10 | 147 927150 | 9 |
| 81 | 67 | | Ho | x | -57990 | 80 | 8109.0 | 0.6 | β^+ | 9870 | 80 | 147 937740 | 90 |
| 80 | 68 | | Er | x | -51479 | 10 | 8059.69 | 0.07 | β^+ | 6510 | 80 | 147 944735 | 11 |
| 79 | 69 | | Tm | x | -38765 | 10 | 7968.50 | 0.07 | β^+ | 12714 | 14 | 147 958384 | 11 |
| 78 | 70 | | Yb | x | -30330# | 400# | 7906# | 3# | β^+ | 8440# | 400# | 147 967440# | 430# |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| N | Z | A | Elt. | Orig. | Mass excess (keV) | Binding energy per nucleon (keV) | Beta-decay energy (keV) | Atomic mass μu |
|-----|-----|-----|------|-----------------|----------------------|-------------------------------------|-------------------------------------|------------------------|
| 94 | 55 | 149 | Cs | x | -43250# | 400# | 8073# 3# β^- 9870# 590# | 148 953570# 430# |
| 93 | 56 | | Ba | x | -53120 | 440 | 8133.8 2.9 β^- 7100 480 | 148 942970 470 |
| 92 | 57 | | La | + | -60220 | 200 | 8176.2 1.3 β^- 6450 200 | 148 935350 210 |
| 91 | 58 | | Ce | x | -66670 | 10 | 8214.23 0.07 β^- 4369 14 | 148 928427 11 |
| 90 | 59 | | Pr | x | -71039 | 10 | 8238.30 0.07 β^- 3336 10 | 148 923736 11 |
| 89 | 60 | | Nd | -n | -74375.5 | 2.1 | 8255.442 0.014 β^- 1688.8 2.5 | 148 920154.6 2.3 |
| 88 | 61 | | Pm | | -76064.3 | 2.3 | 8261.526 0.015 β^- 1071.5 1.9 | 148 918341.7 2.4 |
| 87 | 62 | | Sm | | -77135.7 | 1.3 | 8263.466 0.009 * | 148 917191.4 1.4 |
| 86 | 63 | | Eu | | -76441 | 4 | 8253.554 0.027 β^+ 695 4 | 148 917937 4 |
| 85 | 64 | | Gd | | -75127 | 3 | 8239.484 0.023 β^+ 1314 4 | 148 919348 4 |
| 84 | 65 | | Tb | | -71489 | 4 | 8209.815 0.025 β^+ 3638 4 | 148 923254 4 |
| 83 | 66 | | Dy | | -67696 | 9 | 8179.11 0.06 β^+ 3793 9 | 148 927325 10 |
| 82 | 67 | | Ho | | -61647 | 12 | 8133.26 0.08 β^+ 6049 13 | 148 933820 13 |
| 81 | 68 | | Er | x | -53742 | 28 | 8074.96 0.19 β^+ 7900 30 | 148 942310 30 |
| 80 | 69 | | Tm | x | -43880# | 200# | 8004# 1# β^+ 9860# 200# | 148 952890# 210# |
| 79 | 70 | | Yb | x | -33200# | 300# | 7927# 2# β^+ 10680# 360# | 148 964360# 320# |
| 95 | 55 | 150 | Cs | x | -38170# | 400# | 8039# 3# β^- 11730# 500# | 149 959020# 430# |
| 94 | 56 | | Ba | x | -49900# | 300# | 8112# 2# β^- 6230# 530# | 149 946430# 320# |
| 93 | 57 | | La | x | -56130 | 440 | 8148.2 2.9 β^- 8720 440 | 149 939740 470 |
| 92 | 58 | | Ce | | -64847 | 12 | 8201.12 0.08 β^- 3454 14 | 149 930384 13 |
| 91 | 59 | | Pr | | -68300 | 9 | 8218.93 0.06 β^- 5379 9 | 149 926676 10 |
| 90 | 60 | | Nd | | -73679.8 | 1.3 | 8249.577 0.009 β^- -83 20 | 149 920901.5 1.4 |
| 89 | 61 | | Pm | + | -73597 | 20 | 8243.81 0.13 β^- 3454 20 | 149 920990 22 |
| 88 | 62 | | Sm | | -77051.1 | 1.3 | 8261.621 0.009 β^- -2259 6 | 149 917282.2 1.4 |
| 87 | 63 | | Eu | | -74792 | 6 | 8241.35 0.04 β^- 972 4 | 149 919707 7 |
| 86 | 64 | | Gd | | -75764 | 6 | 8242.61 0.04 * | 149 918664 7 |
| 85 | 65 | | Tb | | -71106 | 7 | 8206.34 0.05 β^+ 4658 8 | 149 923665 8 |
| 84 | 66 | | Dy | | -69310 | 4 | 8189.149 0.029 β^+ 1796 8 | 149 925593 5 |
| 83 | 67 | | Ho | | -61946 | 14 | 8134.84 0.09 β^+ 7364 14 | 149 933498 15 |
| 82 | 68 | | Er | | -57831 | 17 | 8102.20 0.11 β^+ 4115 14 | 149 937916 18 |
| 81 | 69 | | Tm | x | -46490# | 200# | 8021# 1# β^+ 11340# 200# | 149 950090# 210# |
| 80 | 70 | | Yb | x | -38640# | 300# | 7964# 2# β^+ 7850# 360# | 149 958520# 320# |
| 79 | 71 | | Lu | -p | -24640# | 300# | 7865# 2# β^+ 14000# 420# | 149 973550# 320# |
| 96 | 55 | 151 | Cs | x | -34230# | 500# | 8013# 3# β^- 10710# 640# | 150 963250# 540# |
| 95 | 56 | | Ba | x | -44940# | 400# | 8079# 3# β^- 8370# 590# | 150 951760# 430# |
| 94 | 57 | | La | x | -53310 | 440 | 8129.0 2.9 β^- 7910 440 | 150 942770 470 |
| 93 | 58 | | Ce | x | -61225 | 18 | 8176.28 0.12 β^- 5555 21 | 150 934272 19 |
| 92 | 59 | | Pr | | -66780 | 12 | 8207.88 0.08 β^- 4163 12 | 150 928309 13 |
| 91 | 60 | | Nd | | -70943.0 | 1.3 | 8230.272 0.009 β^- 2443 4 | 150 923839.6 1.4 |
| 90 | 61 | | Pm | | -73386 | 5 | 8241.27 0.03 β^- 1190 4 | 150 921217 5 |
| 89 | 62 | | Sm | | -74576.3 | 1.3 | 8243.971 0.008 β^- 76.6 0.5 | 150 919939.1 1.4 |
| 88 | 63 | | Eu | | -74652.9 | 1.3 | 8239.297 0.009 * | 150 919856.9 1.4 |
| 87 | 64 | | Gd | | -74189 | 3 | 8231.043 0.020 β^+ 464.1 2.8 | 150 920355 3 |
| 86 | 65 | | Tb | | -71624 | 4 | 8208.873 0.027 β^+ 2565 4 | 150 923109 4 |
| 85 | 66 | | Dy | $-\alpha$ | -68752 | 3 | 8184.678 0.022 β^+ 2871 5 | 150 926191 4 |
| 84 | 67 | | Ho | $-\alpha$ | -63623 | 8 | 8145.53 0.05 β^+ 5130 9 | 150 931698 9 |
| 83 | 68 | | Er | x | -58266 | 16 | 8104.87 0.11 β^+ 5356 18 | 150 937449 18 |
| 82 | 69 | | Tm | $+\alpha$ | -50773 | 19 | 8050.06 0.13 β^+ 7494 25 | 150 945493 21 |
| 81 | 70 | | Yb | εp | -41540 | 300 | 7983.8 2.0 β^+ 9230 300 | 150 955400 320 |
| 80 | 71 | | Lu | -p | -30110# | 300# | 7903# 2# β^+ 11430# 430# | 150 967680# 320# |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ u | |
|----------|----------|----------|------------|------------|----------------------|---------|-------------------------------------|-----------|----------------------------|---------|-------------|------------------------|------|
| 97 | 55 | 152 | Cs | x | -28930# | 500# | 7979# | 3# | β^- | 12780# | 640# | 151 968940# | 540# |
| 96 | 56 | | Ba | x | -41710# | 400# | 8057# | 3# | β^- | 7580# | 500# | 151 955220# | 430# |
| 95 | 57 | | La | x | -49290# | 300# | 8102# | 2# | β^- | 9690# | 360# | 151 947090# | 320# |
| 94 | 58 | | Ce | x | -58980# | 200# | 8161# | 1# | β^- | 4780# | 200# | 151 936680# | 220# |
| 93 | 59 | | Pr | x | -63758 | 19 | 8187.10 | 0.12 | β^- | 6390 | 30 | 151 931553 | 20 |
| 92 | 60 | | Nd | | -70149 | 24 | 8224.01 | 0.16 | β^- | 1105 | 19 | 151 924692 | 26 |
| 91 | 61 | | Pm | | -71254 | 26 | 8226.13 | 0.17 | β^- | 3508 | 26 | 151 923505 | 28 |
| 90 | 62 | | Sm | | -74762.6 | 1.2 | 8244.061 | 0.008 | β^- | -1874.3 | 0.7 | 151 919739.0 | 1.3 |
| 89 | 63 | | Eu | | -72888.3 | 1.3 | 8226.583 | 0.009 | β^- | 1818.7 | 0.7 | 151 921751.2 | 1.4 |
| 88 | 64 | | Gd | | -74706.9 | 1.2 | 8233.401 | 0.008 | | * | | 151 919798.8 | 1.3 |
| 87 | 65 | | Tb | — | -70720 | 40 | 8202.00 | 0.26 | β^+ | 3990 | 40 | 151 924080 | 40 |
| 86 | 66 | | Dy | — α | -70118 | 5 | 8192.92 | 0.03 | β^+ | 600 | 40 | 151 924725 | 5 |
| 85 | 67 | | Ho | | -63605 | 13 | 8144.92 | 0.08 | β^+ | 6513 | 13 | 151 931717 | 13 |
| 84 | 68 | | Er | | -60500 | 9 | 8119.35 | 0.06 | β^+ | 3104 | 10 | 151 935050 | 9 |
| 83 | 69 | | Tm | | -51720 | 50 | 8056.4 | 0.4 | β^+ | 8780 | 50 | 151 944480 | 60 |
| 82 | 70 | Yb | | -46270 | 150 | 8015.4 | 1.0 | β^+ | 5450 | 140 | 151 950330 | 160 | |
| 81 | 71 | Lu | x | -33420# | 200# | 7926# | 1# | β^+ | 12850# | 250# | 151 964120# | 210# | |
| 97 | 56 | 153 | Ba | x | -36470# | 400# | 8023# | 3# | β^- | 9590# | 500# | 152 960850# | 430# |
| 96 | 57 | | La | x | -46060# | 300# | 8081# | 2# | β^- | 8850# | 360# | 152 950550# | 320# |
| 95 | 58 | | Ce | x | -54910# | 200# | 8134# | 1# | β^- | 6660# | 200# | 152 941050# | 220# |
| 94 | 59 | | Pr | | -61568 | 12 | 8172.04 | 0.08 | β^- | 5762 | 12 | 152 933904 | 13 |
| 93 | 60 | | Nd | | -67330.3 | 2.7 | 8204.582 | 0.018 | β^- | 3318 | 9 | 152 927717.9 | 2.9 |
| 92 | 61 | | Pm | | -70648 | 9 | 8221.15 | 0.06 | β^- | 1912 | 9 | 152 924156 | 10 |
| 91 | 62 | | Sm | -n | -72559.7 | 1.2 | 8228.534 | 0.008 | β^- | 807.5 | 0.7 | 152 922104.0 | 1.3 |
| 90 | 63 | | Eu | | -73367.2 | 1.3 | 8228.699 | 0.009 | | * | | 152 921237.0 | 1.4 |
| 89 | 64 | | Gd | | -72882.6 | 1.2 | 8220.418 | 0.008 | β^+ | 484.7 | 0.7 | 152 921757.4 | 1.3 |
| 88 | 65 | | Tb | | -71313 | 4 | 8205.048 | 0.026 | β^+ | 1569 | 4 | 152 923442 | 4 |
| 87 | 66 | | Dy | | -69143 | 4 | 8185.749 | 0.026 | β^+ | 2170.4 | 1.9 | 152 925772 | 4 |
| 86 | 67 | | Ho | — α | -65012 | 5 | 8153.64 | 0.03 | β^+ | 4131 | 6 | 152 930207 | 5 |
| 85 | 68 | | Er | | -60469 | 9 | 8118.83 | 0.06 | β^+ | 4543 | 10 | 152 935084 | 10 |
| 84 | 69 | | Tm | | -53973 | 12 | 8071.26 | 0.08 | β^+ | 6495 | 13 | 152 942057 | 13 |
| 83 | 70 | Yb | x | -47210# | 200# | 8022# | 1# | β^+ | 6770# | 200# | 152 949320# | 210# | |
| 82 | 71 | Lu | + α | -38370 | 150 | 7959.1 | 1.0 | β^+ | 8840# | 250# | 152 958810 | 160 | |
| 81 | 72 | Hf | x | -27300# | 300# | 7882# | 2# | β^+ | 11070# | 340# | 152 970690# | 320# | |
| 98 | 56 | 154 | Ba | x | -32820# | 500# | 8000# | 3# | β^- | 8710# | 580# | 153 964770# | 540# |
| 97 | 57 | | La | x | -41530# | 300# | 8051# | 2# | β^- | 10690# | 360# | 153 955420# | 320# |
| 96 | 58 | | Ce | x | -52220# | 200# | 8116# | 1# | β^- | 5890# | 230# | 153 943940# | 220# |
| 95 | 59 | | Pr | + | -58100 | 110 | 8148.9 | 0.7 | β^- | 7720 | 100 | 153 937620 | 120 |
| 94 | 60 | | Nd | + | -65820 | 50 | 8193.9 | 0.3 | β^- | 2687 | 25 | 153 929330 | 60 |
| 93 | 61 | | Pm | IT | -68510 | 50 | 8206.3 | 0.3 | β^- | 3940 | 50 | 153 926450 | 50 |
| 92 | 62 | | Sm | | -72455.2 | 1.5 | 8226.835 | 0.009 | β^- | -717.1 | 1.1 | 153 922216.2 | 1.6 |
| 91 | 63 | | Eu | | -71738.1 | 1.3 | 8217.098 | 0.009 | β^- | 1967.8 | 0.8 | 153 922986.0 | 1.4 |
| 90 | 64 | | Gd | | -73706.0 | 1.2 | 8224.796 | 0.008 | β^- | -3550 | 50 | 153 920873.4 | 1.3 |
| 89 | 65 | | Tb | — | -70160 | 50 | 8196.67 | 0.29 | β^- | 240 | 50 | 153 924680 | 50 |
| 88 | 66 | | Dy | | -70394 | 7 | 8193.13 | 0.05 | | * | | 153 924429 | 8 |
| 87 | 67 | | Ho | — α | -64639 | 8 | 8150.68 | 0.05 | β^+ | 5755 | 10 | 153 930607 | 9 |
| 86 | 68 | | Er | | -62605 | 5 | 8132.39 | 0.03 | β^+ | 2034 | 9 | 153 932791 | 5 |
| 85 | 69 | | Tm | — α | -54427 | 14 | 8074.21 | 0.09 | β^+ | 8178 | 15 | 153 941570 | 15 |
| 84 | 70 | Yb | | -49932 | 17 | 8039.94 | 0.11 | β^+ | 4495 | 14 | 153 946396 | 19 | |
| 83 | 71 | Lu | + α | -39720# | 200# | 7969# | 1# | β^+ | 10220# | 200# | 153 957360# | 210# | |
| 82 | 72 | Hf | x | -32670# | 300# | 7918# | 2# | β^+ | 7050# | 360# | 153 964930# | 320# | |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | Binding energy per nucleon (keV) | Beta-decay energy (keV) | Atomic mass μ u |
|----------|----------|----------|------|-----------|----------------------|-------------------------------------|-------------------------------------|------------------------|
| 98 | 57 | 155 | La | x | -37930# | 400# | 8028# 3# β^- 9850# 500# | 154 959280# 430# |
| 97 | 58 | | Ce | x | -47780# | 300# | 8087# 2# β^- 7640# 300# | 154 948710# 320# |
| 96 | 59 | | Pr | | -55415 | 17 | 8131.04 0.11 β^- 6868 19 | 154 940509 18 |
| 95 | 60 | | Nd | | -62284 | 9 | 8170.30 0.06 β^- 4656 10 | 154 933136 10 |
| 94 | 61 | | Pm | | -66940 | 5 | 8195.30 0.03 β^- 3251 5 | 154 928137 5 |
| 93 | 62 | | Sm | -n | -70190.8 | 1.5 | 8211.223 0.010 β^- 1627.3 1.2 | 154 924647.1 1.6 |
| 92 | 63 | | Eu | | -71818.1 | 1.4 | 8216.674 0.009 β^- 251.8 0.9 | 154 922900.1 1.5 |
| 91 | 64 | | Gd | | -72069.9 | 1.2 | 8213.251 0.008 * | 154 922629.8 1.3 |
| 90 | 65 | | Tb | + | -71250 | 10 | 8202.91 0.06 β^+ 820 10 | 154 923510 11 |
| 89 | 66 | | Dy | | -69156 | 10 | 8184.35 0.06 β^+ 2094.5 1.9 | 154 925758 10 |
| 88 | 67 | | Ho | | -66040 | 17 | 8159.20 0.11 β^+ 3116 17 | 154 929104 19 |
| 87 | 68 | | Er | $-\alpha$ | -62209 | 6 | 8129.44 0.04 β^+ 3830 18 | 154 933216 7 |
| 86 | 69 | | Tm | $-\alpha$ | -56626 | 10 | 8088.38 0.06 β^+ 5583 12 | 154 939210 11 |
| 85 | 70 | | Yb | $-\alpha$ | -50503 | 17 | 8043.82 0.11 β^+ 6123 19 | 154 945783 18 |
| 84 | 71 | | Lu | $+\alpha$ | -42545 | 19 | 7987.44 0.12 β^+ 7958 25 | 154 954326 21 |
| 83 | 72 | | Hf | x | -34170# | 300# | 7928# 2# β^+ 8380# 300# | 154 963320# 320# |
| 82 | 73 | | Ta | -p | -23930# | 300# | 7857# 2# β^+ 10240# 420# | 154 974310# 320# |
| 99 | 57 | 156 | La | x | -33050# | 400# | 7997# 3# β^- 11770# 500# | 155 964520# 430# |
| 98 | 58 | | Ce | x | -44820# | 300# | 8068# 2# β^- 6750# 360# | 155 951880# 320# |
| 97 | 59 | | Pr | x | -51570# | 200# | 8106# 1# β^- 8910# 280# | 155 944640# 220# |
| 96 | 60 | | Nd | + | -60470 | 200 | 8158.1 1.3 β^- 3690 200 | 155 935080 210 |
| 95 | 61 | | Pm | | -64164 | 4 | 8176.705 0.023 β^- 5197 9 | 155 931117 4 |
| 94 | 62 | | Sm | | -69360 | 9 | 8205.00 0.05 β^- 722 8 | 155 925539 9 |
| 93 | 63 | | Eu | | -70083 | 4 | 8204.617 0.023 β^- 2452 3 | 155 924763 4 |
| 92 | 64 | | Gd | | -72534.9 | 1.2 | 8215.322 0.008 β^- -2444 4 | 155 922130.6 1.3 |
| 91 | 65 | | Tb | | -70091 | 4 | 8194.639 0.024 β^- 438 4 | 155 924754 4 |
| 90 | 66 | | Dy | | -70529.0 | 1.2 | 8192.433 0.008 * | 155 924284.0 1.3 |
| 89 | 67 | | Ho | - | -65480 | 60 | 8155.0 0.4 β^+ 5050 60 | 155 929710 60 |
| 88 | 68 | | Er | | -64212 | 25 | 8141.91 0.16 β^+ 1270 60 | 155 931066 26 |
| 87 | 69 | | Tm | | -56835 | 14 | 8089.60 0.09 β^+ 7377 27 | 155 938986 15 |
| 86 | 70 | | Yb | | -53266 | 9 | 8061.71 0.06 β^+ 3569 13 | 155 942817 10 |
| 85 | 71 | | Lu | $-\alpha$ | -43700 | 50 | 7995.4 0.3 β^+ 9570 50 | 155 953090 60 |
| 84 | 72 | | Hf | | -37820 | 150 | 7952.7 1.0 β^+ 5880 140 | 155 959400 160 |
| 83 | 73 | | Ta | -p | -25860# | 300# | 7871# 2# β^+ 11960# 330# | 155 972240# 320# |
| 99 | 58 | 157 | Ce | x | -39930# | 400# | 8037# 3# β^- 8610# 500# | 156 957130# 430# |
| 98 | 59 | | Pr | x | -48540# | 300# | 8086# 2# β^- 7920# 300# | 156 947890# 320# |
| 97 | 60 | | Nd | | -56462 | 25 | 8131.96 0.16 β^- 5835 26 | 156 939386 27 |
| 96 | 61 | | Pm | | -62297 | 7 | 8164.14 0.04 β^- 4381 8 | 156 933121 8 |
| 95 | 62 | | Sm | | -66678 | 4 | 8187.063 0.028 β^- 2781 6 | 156 928419 5 |
| 94 | 63 | | Eu | | -69459 | 4 | 8199.795 0.027 β^- 1365 4 | 156 925433 5 |
| 93 | 64 | | Gd | | -70823.5 | 1.2 | 8203.504 0.008 * | 156 923967.9 1.3 |
| 92 | 65 | | Tb | | -70763.4 | 1.2 | 8198.138 0.008 β^+ 60.04 0.30 | 156 924032.3 1.3 |
| 91 | 66 | | Dy | | -69425 | 5 | 8184.63 0.03 β^+ 1339 5 | 156 925470 6 |
| 90 | 67 | | Ho | | -66833 | 23 | 8163.14 0.15 β^+ 2592 24 | 156 928252 25 |
| 89 | 68 | | Er | | -63414 | 27 | 8136.37 0.17 β^+ 3420 30 | 156 931923 28 |
| 88 | 69 | | Tm | x | -58709 | 28 | 8101.43 0.18 β^+ 4700 40 | 156 936970 30 |
| 87 | 70 | | Yb | | -53422 | 11 | 8062.77 0.07 β^+ 5290 30 | 156 942649 12 |
| 86 | 71 | | Lu | | -46441 | 12 | 8013.32 0.08 β^+ 6981 14 | 156 950144 13 |
| 85 | 72 | | Hf | $-\alpha$ | -38900# | 200# | 7960# 1# β^+ 7540# 200# | 156 958240# 210# |
| 84 | 73 | | Ta | IT | -29590 | 150 | 7896.0 1.0 β^+ 9310# 250# | 156 968230 160 |
| 83 | 74 | | W | x | -19470# | 400# | 7827# 3# β^+ 10120# 430# | 156 979100# 430# |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ u | |
|----------|----------|----------|------|-----------|----------------------|------|-------------------------------------|-------|----------------------------|---------|------|------------------------|------|
| 100 | 58 | 158 | Ce | x | -36660# | 400# | 8016# | 3# | β^- | 7670# | 500# | 157 960640# | 430# |
| 99 | 59 | | Pr | x | -44330# | 300# | 8060# | 2# | β^- | 9730# | 360# | 157 952410# | 320# |
| 98 | 60 | | Nd | x | -54060# | 200# | 8116# | 1# | β^- | 5040# | 200# | 157 941970# | 220# |
| 97 | 61 | | Pm | | -59089 | 13 | 8143.25 | 0.09 | β^- | 6161 | 14 | 157 936565 | 14 |
| 96 | 62 | | Sm | | -65250 | 5 | 8177.30 | 0.03 | β^- | 2005 | 10 | 157 929951 | 5 |
| 95 | 63 | | Eu | | -67255 | 10 | 8185.03 | 0.06 | β^- | 3434 | 10 | 157 927799 | 11 |
| 94 | 64 | | Gd | | -70689.5 | 1.2 | 8201.819 | 0.008 | β^- | -1218.9 | 1.0 | 157 924111.6 | 1.3 |
| 93 | 65 | | Tb | | -69470.7 | 1.4 | 8189.153 | 0.009 | β^- | 936.7 | 2.5 | 157 925420.2 | 1.5 |
| 92 | 66 | | Dy | | -70407.3 | 2.4 | 8190.130 | 0.015 | * | | | 157 924414.6 | 2.5 |
| 91 | 67 | | Ho | — | -66188 | 27 | 8158.47 | 0.17 | β^+ | 4220 | 27 | 157 928945 | 29 |
| 90 | 68 | | Er | | -65304 | 25 | 8147.93 | 0.16 | β^+ | 880 | 40 | 157 929893 | 27 |
| 89 | 69 | | Tm | | -58703 | 25 | 8101.20 | 0.16 | β^+ | 6600 | 30 | 157 936980 | 27 |
| 88 | 70 | | Yb | | -56010 | 8 | 8079.20 | 0.05 | β^+ | 2693 | 26 | 157 939871 | 9 |
| 87 | 71 | | Lu | $-\alpha$ | -47212 | 15 | 8018.57 | 0.10 | β^+ | 8798 | 17 | 157 949316 | 16 |
| 86 | 72 | | Hf | | -42102 | 17 | 7981.28 | 0.11 | β^+ | 5110 | 15 | 157 954801 | 19 |
| 85 | 73 | | Ta | $+\alpha$ | -31170# | 200# | 7907# | 1# | β^+ | 10940# | 200# | 157 966540# | 210# |
| 84 | 74 | | W | $-\alpha$ | -23630# | 300# | 7854# | 2# | β^+ | 7530# | 360# | 157 974630# | 320# |
| 100 | 59 | 159 | Pr | x | -41090# | 400# | 8039# | 3# | β^- | 8720# | 500# | 158 955890# | 430# |
| 99 | 60 | | Nd | x | -49810# | 300# | 8089# | 2# | β^- | 6750# | 300# | 158 946530# | 320# |
| 98 | 61 | | Pm | | -56554 | 10 | 8126.86 | 0.06 | β^- | 5653 | 12 | 158 939286 | 11 |
| 97 | 62 | | Sm | | -62208 | 6 | 8157.50 | 0.04 | β^- | 3836 | 7 | 158 933217 | 6 |
| 96 | 63 | | Eu | | -66043 | 4 | 8176.697 | 0.027 | β^- | 2518 | 4 | 158 929100 | 5 |
| 95 | 64 | | Gd | | -68561.4 | 1.2 | 8187.614 | 0.007 | β^- | 970.9 | 0.8 | 158 926396.3 | 1.3 |
| 94 | 65 | | Tb | | -69532.4 | 1.3 | 8188.800 | 0.008 | * | | | 158 925353.9 | 1.3 |
| 93 | 66 | | Dy | | -69167.1 | 1.5 | 8181.583 | 0.010 | β^+ | 365.2 | 1.2 | 158 925746.0 | 1.6 |
| 92 | 67 | | Ho | — | -67330 | 3 | 8165.105 | 0.019 | β^+ | 1837.6 | 2.7 | 158 927719 | 3 |
| 91 | 68 | | Er | — | -64561 | 4 | 8142.773 | 0.023 | β^+ | 2768.5 | 2.0 | 158 930691 | 4 |
| 90 | 69 | | Tm | x | -60570 | 28 | 8112.75 | 0.18 | β^+ | 3991 | 28 | 158 934980 | 30 |
| 89 | 70 | | Yb | x | -55839 | 18 | 8078.07 | 0.11 | β^+ | 4730 | 30 | 158 940055 | 19 |
| 88 | 71 | | Lu | x | -49710 | 40 | 8034.60 | 0.24 | β^+ | 6130 | 40 | 158 946640 | 40 |
| 87 | 72 | | Hf | $-\alpha$ | -42853 | 17 | 7986.56 | 0.11 | β^+ | 6860 | 40 | 158 953996 | 18 |
| 86 | 73 | | Ta | IT | -34439 | 20 | 7928.73 | 0.12 | β^+ | 8413 | 26 | 158 963028 | 21 |
| 85 | 74 | | W | $-\alpha$ | -25300# | 300# | 7866# | 2# | β^+ | 9150# | 300# | 158 972850# | 320# |
| 84 | 75 | | Re | IT | -14750# | 310# | 7795# | 2# | β^+ | 10550# | 430# | 158 984170# | 330# |
| 101 | 59 | 160 | Pr | x | -36520# | 400# | 8011# | 2# | β^- | 10610# | 500# | 159 960790# | 430# |
| 100 | 60 | | Nd | x | -47130# | 300# | 8073# | 2# | β^- | 5870# | 360# | 159 949400# | 320# |
| 99 | 61 | | Pm | x | -53000# | 200# | 8104# | 1# | β^- | 7230# | 200# | 159 943100# | 220# |
| 98 | 62 | | Sm | | -60235 | 6 | 8144.63 | 0.04 | β^- | 3246 | 11 | 159 935335 | 6 |
| 97 | 63 | | Eu | | -63480 | 10 | 8160.02 | 0.06 | β^- | 4461 | 10 | 159 931851 | 10 |
| 96 | 64 | | Gd | | -67941.7 | 1.3 | 8183.014 | 0.008 | β^- | -105.5 | 1.0 | 159 927061.5 | 1.4 |
| 95 | 65 | | Tb | | -67836.3 | 1.3 | 8177.465 | 0.008 | β^- | 1836.5 | 1.2 | 159 927174.8 | 1.4 |
| 94 | 66 | | Dy | | -69672.7 | 0.8 | 8184.054 | 0.005 | * | | | 159 925203.2 | 0.8 |
| 93 | 67 | | Ho | — | -66383 | 15 | 8158.60 | 0.09 | β^+ | 3290 | 15 | 159 928735 | 16 |
| 92 | 68 | | Er | | -66064 | 24 | 8151.72 | 0.15 | β^+ | 319 | 29 | 159 929077 | 26 |
| 91 | 69 | | Tm | | -60300 | 30 | 8110.82 | 0.21 | β^+ | 5760 | 40 | 159 935260 | 40 |
| 90 | 70 | | Yb | | -58163 | 7 | 8092.56 | 0.05 | β^+ | 2140 | 40 | 159 937560 | 8 |
| 89 | 71 | | Lu | x | -50270 | 60 | 8038.3 | 0.4 | β^+ | 7890 | 60 | 159 946030 | 60 |
| 88 | 72 | | Hf | | -45939 | 10 | 8006.38 | 0.06 | β^+ | 4330 | 60 | 159 950683 | 10 |
| 87 | 73 | | Ta | $-\alpha$ | -35820 | 50 | 7938.3 | 0.3 | β^+ | 10120 | 60 | 159 961540 | 60 |
| 86 | 74 | | W | | -29330 | 150 | 7892.8 | 0.9 | β^+ | 6500 | 140 | 159 968520 | 160 |
| 85 | 75 | | Re | $-\alpha$ | -16740# | 300# | 7809# | 2# | β^+ | 12590# | 330# | 159 982030# | 320# |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ u | |
|----------|----------|----------|------|-----------|----------------------|------|-------------------------------------|-------|----------------------------|--------|-------|------------------------|------|
| 101 | 60 | 161 | Nd | x | -42590# | 400# | 8044# | 2# | β^- | 7650# | 500# | 160 954280# | 430# |
| 100 | 61 | | Pm | x | -50240# | 300# | 8087# | 2# | β^- | 6440# | 300# | 160 946070# | 320# |
| 99 | 62 | | Sm | | -56672 | 7 | 8122.04 | 0.04 | β^- | 5120 | 12 | 160 939160 | 7 |
| 98 | 63 | | Eu | | -61792 | 10 | 8148.98 | 0.06 | β^- | 3714 | 11 | 160 933664 | 11 |
| 97 | 64 | | Gd | -n | -65505.8 | 1.6 | 8167.191 | 0.010 | β^- | 1955.8 | 1.4 | 160 929676.6 | 1.7 |
| 96 | 65 | | Tb | | -67461.6 | 1.4 | 8174.479 | 0.008 | β^- | 594.2 | 1.3 | 160 927577.0 | 1.4 |
| 95 | 66 | | Dy | | -68055.8 | 0.8 | 8173.310 | 0.005 | * | | | 160 926939.1 | 0.8 |
| 94 | 67 | | Ho | | -67197.3 | 2.2 | 8163.119 | 0.014 | β^+ | 858.5 | 2.2 | 160 927860.8 | 2.4 |
| 93 | 68 | | Er | +n | -65202 | 9 | 8145.86 | 0.05 | β^+ | 1996 | 9 | 160 930003 | 9 |
| 92 | 69 | | Tm | x | -61899 | 28 | 8120.49 | 0.17 | β^+ | 3303 | 29 | 160 933550 | 30 |
| 91 | 70 | | Yb | x | -57839 | 15 | 8090.42 | 0.10 | β^+ | 4060 | 30 | 160 937907 | 16 |
| 90 | 71 | | Lu | x | -52562 | 28 | 8052.78 | 0.17 | β^+ | 5280 | 30 | 160 943570 | 30 |
| 89 | 72 | | Hf | | -46315 | 23 | 8009.12 | 0.14 | β^+ | 6250 | 40 | 160 950279 | 24 |
| 88 | 73 | | Ta | $+\alpha$ | -38779 | 24 | 7957.45 | 0.15 | β^+ | 7540 | 30 | 160 958369 | 26 |
| 87 | 74 | | W | $-\alpha$ | -30560# | 200# | 7902# | 1# | β^+ | 8220# | 200# | 160 967200# | 210# |
| 86 | 75 | | Re | | -20840 | 150 | 7836.3 | 0.9 | β^+ | 9720# | 250# | 160 977630 | 160 |
| 85 | 76 | | Os | $-\alpha$ | -9980# | 400# | 7764# | 2# | β^+ | 10860# | 430# | 160 989290# | 430# |
| 102 | 60 | 162 | Nd | x | -39550# | 400# | 8026# | 2# | β^- | 6820# | 500# | 161 957540# | 430# |
| 101 | 61 | | Pm | x | -46370# | 300# | 8063# | 2# | β^- | 8160# | 360# | 161 950220# | 320# |
| 100 | 62 | | Sm | x | -54530# | 200# | 8109# | 1# | β^- | 4170# | 200# | 161 941460# | 210# |
| 99 | 63 | | Eu | + | -58700 | 40 | 8129.44 | 0.22 | β^- | 5580 | 40 | 161 936980 | 40 |
| 98 | 64 | | Gd | -nn | -64280 | 4 | 8159.035 | 0.025 | β^- | 1400 | 40 | 161 930992 | 4 |
| 97 | 65 | | Tb | + | -65680 | 40 | 8162.82 | 0.22 | β^- | 2510 | 40 | 161 929490 | 40 |
| 96 | 66 | | Dy | | -68181.5 | 0.8 | 8173.457 | 0.005 | β^- | -2140 | 3 | 161 926804.2 | 0.8 |
| 95 | 67 | | Ho | | -66042 | 3 | 8155.418 | 0.020 | β^- | 293 | 3 | 161 929101 | 3 |
| 94 | 68 | | Er | | -66334.5 | 0.8 | 8152.397 | 0.005 | * | | | 161 928787.0 | 0.9 |
| 93 | 69 | | Tm | — | -61478 | 26 | 8117.59 | 0.16 | β^+ | 4857 | 26 | 161 934001 | 28 |
| 92 | 70 | | Yb | x | -59826 | 15 | 8102.56 | 0.09 | β^+ | 1650 | 30 | 161 935774 | 16 |
| 91 | 71 | | Lu | x | -52830 | 80 | 8054.6 | 0.5 | β^+ | 6990 | 80 | 161 943280 | 80 |
| 90 | 72 | | Hf | | -49169 | 9 | 8027.12 | 0.06 | β^+ | 3660 | 80 | 161 947215 | 10 |
| 89 | 73 | | Ta | $-\alpha$ | -39780 | 50 | 7964.3 | 0.3 | β^+ | 9390 | 50 | 161 957290 | 60 |
| 88 | 74 | | W | | -33999 | 18 | 7923.82 | 0.11 | β^+ | 5780 | 50 | 161 963500 | 19 |
| 87 | 75 | | Re | $+\alpha$ | -22500# | 200# | 7848# | 1# | β^+ | 11500# | 200# | 161 975840# | 210# |
| 86 | 76 | | Os | $-\alpha$ | -14440# | 300# | 7793# | 2# | β^+ | 8060# | 360# | 161 984500# | 320# |
| 102 | 61 | 163 | Pm | x | -43250# | 400# | 8044# | 2# | β^- | 7470# | 500# | 162 953570# | 430# |
| 101 | 62 | | Sm | x | -50720# | 300# | 8085# | 2# | β^- | 5770# | 310# | 162 945550# | 320# |
| 100 | 63 | | Eu | + | -56480 | 70 | 8115.5 | 0.4 | β^- | 4830 | 70 | 162 939360 | 70 |
| 99 | 64 | | Gd | | -61314 | 8 | 8140.30 | 0.05 | β^- | 3282 | 9 | 162 934177 | 9 |
| 98 | 65 | | Tb | +p | -64596 | 4 | 8155.633 | 0.025 | β^- | 1785 | 4 | 162 930653 | 4 |
| 97 | 66 | | Dy | | -66381.2 | 0.8 | 8161.785 | 0.005 | * | | | 162 928736.9 | 0.8 |
| 96 | 67 | | Ho | | -66378.3 | 0.8 | 8156.968 | 0.005 | β^+ | 2.834 | 0.019 | 162 928739.9 | 0.8 |
| 95 | 68 | | Er | | -65168 | 5 | 8144.741 | 0.028 | β^+ | 1211 | 5 | 162 930040 | 5 |
| 94 | 69 | | Tm | — | -62729 | 6 | 8124.98 | 0.03 | β^+ | 2439 | 3 | 162 932658 | 6 |
| 93 | 70 | | Yb | x | -59299 | 15 | 8099.14 | 0.09 | β^+ | 3430 | 16 | 162 936340 | 16 |
| 92 | 71 | | Lu | x | -54791 | 28 | 8066.68 | 0.17 | β^+ | 4510 | 30 | 162 941180 | 30 |
| 91 | 72 | | Hf | | -49264 | 25 | 8027.97 | 0.15 | β^+ | 5530 | 40 | 162 947113 | 27 |
| 90 | 73 | | Ta | $-\alpha$ | -42530 | 40 | 7981.89 | 0.23 | β^+ | 6730 | 50 | 162 954340 | 40 |
| 89 | 74 | | W | $-\alpha$ | -34910 | 50 | 7930.3 | 0.3 | β^+ | 7630 | 70 | 162 962520 | 60 |
| 88 | 75 | | Re | $+\alpha$ | -26002 | 19 | 7870.86 | 0.11 | β^+ | 8910 | 60 | 162 972085 | 20 |
| 87 | 76 | | Os | $-\alpha$ | -16190# | 300# | 7806# | 2# | β^+ | 9810# | 300# | 162 982620# | 320# |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | Atomic mass μ u | |
|----------|----------|----------|------|-----------|----------------------|------|-------------------------------------|-------|----------------------------|-------------|------------------------|------|
| 103 | 61 | 164 | Pm | x | -38870# | 400# | 8017# | 2# | β^- | 9230# 500# | 163 958270# | 430# |
| 102 | 62 | | Sm | x | -48100# | 300# | 8069# | 2# | β^- | 5280# 320# | 163 948360# | 320# |
| 101 | 63 | | Eu | + | -53380# | 110# | 8096# | 1# | β^- | 6390 50 | 163 942690# | 120# |
| 100 | 64 | | Gd | x | -59770# | 100# | 8130# | 1# | β^- | 2300# 140# | 163 935830# | 110# |
| 99 | 65 | | Tb | + | -62080 | 100 | 8139.8 | 0.6 | β^- | 3890 100 | 163 933360 | 110 |
| 98 | 66 | | Dy | | -65968.0 | 0.8 | 8158.714 | 0.005 | β^- | -986.5 1.4 | 163 929180.5 | 0.8 |
| 97 | 67 | | Ho | | -64981.5 | 1.5 | 8147.929 | 0.009 | β^- | 961.4 1.4 | 163 930239.5 | 1.6 |
| 96 | 68 | | Er | | -65942.9 | 0.8 | 8149.020 | 0.005 | * | | 163 929207.4 | 0.8 |
| 95 | 69 | | Tm | | -61904 | 24 | 8119.62 | 0.15 | β^+ | 4039 24 | 163 933543 | 26 |
| 94 | 70 | | Yb | x | -61017 | 15 | 8109.45 | 0.09 | β^+ | 887 29 | 163 934495 | 16 |
| 93 | 71 | | Lu | x | -54642 | 28 | 8065.80 | 0.17 | β^+ | 6380 30 | 163 941340 | 30 |
| 92 | 72 | | Hf | | -51819 | 16 | 8043.81 | 0.10 | β^+ | 2820 30 | 163 944371 | 17 |
| 91 | 73 | | Ta | x | -43283 | 28 | 7987.00 | 0.17 | β^+ | 8540 30 | 163 953530 | 30 |
| 90 | 74 | | W | | -38236 | 10 | 7951.45 | 0.06 | β^+ | 5047 30 | 163 958952 | 10 |
| 89 | 75 | | Re | $-\alpha$ | -27470 | 50 | 7881.1 | 0.3 | β^+ | 10760 60 | 163 970510 | 60 |
| 88 | 76 | | Os | | -20420 | 150 | 7833.3 | 0.9 | β^+ | 7050 140 | 163 978080 | 160 |
| 87 | 77 | | Ir | $-\alpha$ | -7340# | 310# | 7749# | 2# | β^+ | 13080# 350# | 163 992120# | 340# |
| 103 | 62 | 165 | Sm | x | -43810# | 400# | 8043# | 2# | β^- | 6920# 420# | 164 952970# | 430# |
| 102 | 63 | | Eu | + | -50720# | 140# | 8080# | 1# | β^- | 5730 70 | 164 945550# | 150# |
| 101 | 64 | | Gd | + | -56450# | 120# | 8110# | 1# | β^- | 4110 70 | 164 939400# | 130# |
| 100 | 65 | | Tb | x | -60570# | 100# | 8130# | 1# | β^- | 3050# 100# | 164 934980# | 110# |
| 99 | 66 | | Dy | -n | -63612.6 | 0.8 | 8143.909 | 0.005 | β^- | 1286.4 0.8 | 164 931709.1 | 0.8 |
| 98 | 67 | | Ho | | -64899.0 | 1.0 | 8146.964 | 0.006 | * | | 164 930328.0 | 1.1 |
| 97 | 68 | | Er | | -64521.6 | 1.0 | 8139.936 | 0.006 | β^+ | 377.4 1.0 | 164 930733.2 | 1.0 |
| 96 | 69 | | Tm | | -62929.6 | 1.7 | 8125.546 | 0.010 | β^+ | 1592.0 1.5 | 164 932442.3 | 1.8 |
| 95 | 70 | | Yb | | -60295 | 27 | 8104.84 | 0.16 | β^+ | 2634 27 | 164 935270 | 28 |
| 94 | 71 | | Lu | | -56442 | 27 | 8076.75 | 0.16 | β^+ | 3850 40 | 164 939407 | 28 |
| 93 | 72 | | Hf | x | -51636 | 28 | 8042.87 | 0.17 | β^+ | 4810 40 | 164 944570 | 30 |
| 92 | 73 | | Ta | | -45848 | 14 | 8003.05 | 0.08 | β^+ | 5790 30 | 164 950780 | 15 |
| 91 | 74 | | W | | -38861 | 25 | 7955.97 | 0.15 | β^+ | 6987 29 | 164 958281 | 27 |
| 90 | 75 | | Re | $+\alpha$ | -30660 | 24 | 7901.52 | 0.14 | β^+ | 8200 30 | 164 967085 | 25 |
| 89 | 76 | | Os | $-\alpha$ | -21800# | 200# | 7843# | 1# | β^+ | 8870# 200# | 164 976600# | 210# |
| 88 | 77 | | Ir | IT | -11590# | 160# | 7776# | 1# | β^+ | 10200# 250# | 164 987560# | 170# |
| 104 | 62 | 166 | Sm | x | -40730# | 400# | 8024# | 2# | β^- | 6480# 540# | 165 956280# | 430# |
| 103 | 63 | | Eu | + | -47210# | 360# | 8059# | 2# | β^- | 7320 300 | 165 949320# | 380# |
| 102 | 64 | | Gd | x | -54530# | 200# | 8098# | 1# | β^- | 3360# 210# | 165 941460# | 210# |
| 101 | 65 | | Tb | + | -57880 | 70 | 8113.7 | 0.4 | β^- | 4700 70 | 165 937860 | 80 |
| 100 | 66 | | Dy | -n | -62584.8 | 0.9 | 8137.280 | 0.005 | β^- | 486.5 0.9 | 165 932812.5 | 0.9 |
| 99 | 67 | | Ho | | -63071.3 | 1.0 | 8135.499 | 0.006 | β^- | 1854.7 0.9 | 165 932290.1 | 1.1 |
| 98 | 68 | | Er | | -64926.0 | 1.2 | 8141.959 | 0.007 | * | | 165 930299.0 | 1.3 |
| 97 | 69 | | Tm | — | -61888 | 12 | 8118.95 | 0.07 | β^+ | 3038 12 | 165 933560 | 12 |
| 96 | 70 | | Yb | +nn | -61596 | 7 | 8112.47 | 0.04 | β^+ | 293 14 | 165 933874 | 8 |
| 95 | 71 | | Lu | x | -56021 | 30 | 8074.17 | 0.18 | β^+ | 5570 30 | 165 939860 | 30 |
| 94 | 72 | | Hf | x | -53859 | 28 | 8056.44 | 0.17 | β^+ | 2160 40 | 165 942180 | 30 |
| 93 | 73 | | Ta | x | -46098 | 28 | 8004.97 | 0.17 | β^+ | 7760 40 | 165 950510 | 30 |
| 92 | 74 | | W | | -41888 | 9 | 7974.90 | 0.06 | β^+ | 4210 30 | 165 955031 | 10 |
| 91 | 75 | | Re | $-\alpha$ | -31890 | 70 | 7910.0 | 0.4 | β^+ | 9990 70 | 165 965760 | 80 |
| 90 | 76 | | Os | | -25432 | 18 | 7866.34 | 0.11 | β^+ | 6460 70 | 165 972698 | 19 |
| 89 | 77 | | Ir | -p | -13350# | 200# | 7789# | 1# | β^+ | 12080# 200# | 165 985660# | 210# |
| 88 | 78 | | Pt | $-\alpha$ | -4730# | 300# | 7732# | 2# | β^+ | 8620# 360# | 165 994920# | 320# |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ u | |
|----------|----------|----------|------|-----------|----------------------|------|-------------------------------------|-------|----------------------------|---------|------|------------------------|------|
| 104 | 63 | 167 | Eu | x | -44010# | 400# | 8040# | 2# | β^- | 6800# | 500# | 166 952750# | 430# |
| 103 | 64 | | Gd | x | -50810# | 300# | 8076# | 2# | β^- | 5110# | 360# | 166 945450# | 320# |
| 102 | 65 | | Tb | x | -55930# | 200# | 8102# | 1# | β^- | 4000# | 210# | 166 939960# | 210# |
| 101 | 66 | | Dy | + | -59930 | 60 | 8121.0 | 0.4 | β^- | 2350 | 60 | 166 935660 | 60 |
| 100 | 67 | | Ho | p2n | -62281 | 5 | 8130.38 | 0.03 | β^- | 1011 | 5 | 166 933139 | 6 |
| 99 | 68 | | Er | | -63291.2 | 1.2 | 8131.746 | 0.007 | * | | | 166 932054.1 | 1.3 |
| 98 | 69 | | Tm | | -62543.6 | 1.3 | 8122.585 | 0.008 | β^+ | 747.5 | 1.5 | 166 932856.6 | 1.4 |
| 97 | 70 | | Yb | | -60591 | 4 | 8106.205 | 0.024 | β^+ | 1953 | 4 | 166 934953 | 4 |
| 96 | 71 | | Lu | x | -57500 | 30 | 8083.02 | 0.19 | β^+ | 3090 | 30 | 166 938270 | 30 |
| 95 | 72 | | Hf | x | -53468 | 28 | 8054.18 | 0.17 | β^+ | 4030 | 40 | 166 942600 | 30 |
| 94 | 73 | | Ta | x | -48351 | 28 | 8018.86 | 0.17 | β^+ | 5120 | 40 | 166 948090 | 30 |
| 93 | 74 | | W | | -42098 | 18 | 7976.73 | 0.11 | β^+ | 6250 | 30 | 166 954806 | 20 |
| 92 | 75 | | Re | $+\alpha$ | -34830# | 40# | 7929# | 0# | β^+ | 7270# | 40# | 166 962610# | 40# |
| 91 | 76 | | Os | $-\alpha$ | -26500 | 70 | 7874.0 | 0.4 | β^+ | 8330# | 80# | 166 971550 | 80 |
| 90 | 77 | | Ir | | -17072 | 18 | 7812.82 | 0.11 | β^+ | 9430 | 70 | 166 981672 | 20 |
| 89 | 78 | | Pt | $-\alpha$ | -6610# | 300# | 7746# | 2# | β^+ | 10460# | 300# | 166 992900# | 330# |
| 105 | 63 | 168 | Eu | x | -39740# | 500# | 8014# | 3# | β^- | 8620# | 640# | 167 957340# | 540# |
| 104 | 64 | | Gd | x | -48360# | 400# | 8061# | 2# | β^- | 4360# | 500# | 167 948080# | 430# |
| 103 | 65 | | Tb | x | -52720# | 300# | 8082# | 2# | β^- | 5840# | 330# | 167 943400# | 320# |
| 102 | 66 | | Dy | +pp | -58560 | 140 | 8112.5 | 0.8 | β^- | 1500 | 140 | 167 937130 | 150 |
| 101 | 67 | | Ho | + | -60060 | 30 | 8116.82 | 0.18 | β^- | 2930 | 30 | 167 935520 | 30 |
| 100 | 68 | | Er | | -62991.2 | 1.2 | 8129.601 | 0.007 | β^- | -1678.3 | 1.9 | 167 932376.2 | 1.3 |
| 99 | 69 | | Tm | | -61312.9 | 1.7 | 8114.954 | 0.010 | β^- | 269.0 | 1.9 | 167 934177.9 | 1.8 |
| 98 | 70 | | Yb | | -61581.9 | 1.2 | 8111.898 | 0.007 | * | | | 167 933889.1 | 1.3 |
| 97 | 71 | | Lu | — | -57070 | 40 | 8080.37 | 0.23 | β^+ | 4510 | 40 | 167 938740 | 40 |
| 96 | 72 | | Hf | x | -55361 | 28 | 8065.55 | 0.17 | β^+ | 1710 | 50 | 167 940570 | 30 |
| 95 | 73 | | Ta | x | -48394 | 28 | 8019.43 | 0.17 | β^+ | 6970 | 40 | 167 948050 | 30 |
| 94 | 74 | | W | | -44893 | 13 | 7993.93 | 0.08 | β^+ | 3500 | 30 | 167 951805 | 14 |
| 93 | 75 | | Re | $-\alpha$ | -35790 | 30 | 7935.12 | 0.18 | β^+ | 9100 | 30 | 167 961570 | 30 |
| 92 | 76 | | Os | | -29995 | 10 | 7895.94 | 0.06 | β^+ | 5800 | 30 | 167 967799 | 11 |
| 91 | 77 | | Ir | $-\alpha$ | -18670 | 60 | 7823.9 | 0.3 | β^+ | 11330 | 60 | 167 979960 | 60 |
| 90 | 78 | | Pt | $-\alpha$ | -11010 | 150 | 7773.6 | 0.9 | β^+ | 7660 | 140 | 167 988180 | 160 |
| 105 | 64 | 169 | Gd | x | -44150# | 500# | 8036# | 3# | β^- | 6180# | 590# | 168 952600# | 540# |
| 104 | 65 | | Tb | x | -50330# | 300# | 8068# | 2# | β^- | 5270# | 420# | 168 945970# | 320# |
| 103 | 66 | | Dy | + | -55600 | 300 | 8094.8 | 1.8 | β^- | 3200 | 300 | 168 940310 | 320 |
| 102 | 67 | | Ho | +p | -58797 | 20 | 8109.07 | 0.12 | β^- | 2126 | 20 | 168 936879 | 22 |
| 101 | 68 | | Er | -n | -60923.1 | 1.2 | 8117.019 | 0.007 | β^- | 352.1 | 1.1 | 168 934596.4 | 1.3 |
| 100 | 69 | | Tm | | -61275.2 | 0.8 | 8114.473 | 0.005 | * | | | 168 934218.4 | 0.9 |
| 99 | 70 | | Yb | -n | -60377.6 | 1.2 | 8104.532 | 0.007 | β^+ | 897.6 | 1.1 | 168 935182.0 | 1.3 |
| 98 | 71 | | Lu | — | -58085 | 3 | 8086.335 | 0.019 | β^+ | 2293 | 3 | 168 937644 | 3 |
| 97 | 72 | | Hf | x | -54717 | 28 | 8061.78 | 0.17 | β^+ | 3368 | 28 | 168 941260 | 30 |
| 96 | 73 | | Ta | x | -50290 | 28 | 8030.96 | 0.17 | β^+ | 4430 | 40 | 168 946010 | 30 |
| 95 | 74 | | W | | -44918 | 15 | 7994.54 | 0.09 | β^+ | 5370 | 30 | 168 951779 | 17 |
| 94 | 75 | | Re | $+\alpha$ | -38409 | 11 | 7951.40 | 0.07 | β^+ | 6509 | 19 | 168 958766 | 12 |
| 93 | 76 | | Os | $-\alpha$ | -30723 | 25 | 7901.28 | 0.15 | β^+ | 7687 | 28 | 168 967018 | 27 |
| 92 | 77 | | Ir | $+\alpha$ | -22094 | 23 | 7845.60 | 0.14 | β^+ | 8630 | 30 | 168 976281 | 25 |
| 91 | 78 | | Pt | $-\alpha$ | -12510# | 200# | 7784# | 1# | β^+ | 9580# | 200# | 168 986570# | 210# |
| 90 | 79 | | Au | x | -1790# | 300# | 7716# | 2# | β^+ | 10720# | 360# | 168 998080# | 320# |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ | |
|----------|----------|----------|------|-----------|----------------------|-------|-------------------------------------|----------|----------------------------|--------|------|----------------------|-------|
| 106 | 64 | 170 | Gd | x | -41380# | 600# | 8020# | 4# | β^- | 5340# | 720# | 169 955580# | 640# |
| 105 | 65 | | Tb | x | -46720# | 400# | 8047# | 2# | β^- | 6940# | 450# | 169 949840# | 430# |
| 104 | 66 | | Dy | x | -53660# | 200# | 8083# | 1# | β^- | 2580# | 200# | 169 942390# | 210# |
| 103 | 67 | | Ho | + | -56240 | 50 | 8093.80 | 0.29 | β^- | 3870 | 50 | 169 939630 | 50 |
| 102 | 68 | | Er | | -60108.7 | 1.5 | 8111.959 | 0.009 | β^- | -312.8 | 1.8 | 169 935470.7 | 1.7 |
| 101 | 69 | | Tm | | -59795.9 | 0.8 | 8105.517 | 0.005 | β^- | 968.1 | 0.8 | 169 935806.5 | 0.9 |
| 100 | 70 | | Yb | | -60763.919 | 0.010 | 8106.609 | <i>a</i> | | * | | 169 934767.246 | 0.011 |
| 99 | 71 | | Lu | — | -57306 | 17 | 8081.67 | 0.10 | β^+ | 3458 | 17 | 169 938479 | 18 |
| 98 | 72 | | Hf | x | -56254 | 28 | 8070.88 | 0.16 | β^+ | 1050 | 30 | 169 939610 | 30 |
| 97 | 73 | | Ta | x | -50138 | 28 | 8030.30 | 0.16 | β^+ | 6120 | 40 | 169 946180 | 30 |
| 96 | 74 | | W | | -47291 | 13 | 8008.95 | 0.08 | β^+ | 2850 | 30 | 169 949231 | 14 |
| 95 | 75 | | Re | | -38913 | 23 | 7955.07 | 0.14 | β^+ | 8378 | 27 | 169 958225 | 25 |
| 94 | 76 | | Os | | -33926 | 10 | 7921.13 | 0.06 | β^+ | 4987 | 25 | 169 963579 | 10 |
| 93 | 77 | | Ir | $-\alpha$ | -23360# | 90# | 7854# | 1# | β^+ | 10570# | 90# | 169 974920# | 100# |
| 92 | 78 | | Pt | | -16299 | 18 | 7808.24 | 0.11 | β^+ | 7060# | 90# | 169 982502 | 20 |
| 91 | 79 | | Au | -p | -3750# | 200# | 7730# | 1# | β^+ | 12550# | 200# | 169 995970# | 210# |
| 106 | 65 | 171 | Tb | x | -44030# | 500# | 8031# | 3# | β^- | 6160# | 590# | 170 952730# | 540# |
| 105 | 66 | | Dy | x | -50190# | 300# | 8063# | 2# | β^- | 4330# | 670# | 170 946120# | 320# |
| 104 | 67 | | Ho | + | -54520 | 600 | 8084 | 4 | β^- | 3200 | 600 | 170 941470 | 640 |
| 103 | 68 | | Er | | -57719.0 | 1.6 | 8097.746 | 0.009 | β^- | 1491.3 | 1.3 | 170 938036.1 | 1.7 |
| 102 | 69 | | Tm | | -59210.3 | 1.0 | 8101.893 | 0.006 | β^- | 96.5 | 1.0 | 170 936435.1 | 1.0 |
| 101 | 70 | | Yb | | -59306.810 | 0.013 | 8097.882 | <i>a</i> | | * | | 170 936331.517 | 0.014 |
| 100 | 71 | | Lu | | -57828.4 | 1.9 | 8084.661 | 0.011 | β^+ | 1478.4 | 1.9 | 170 937918.7 | 2.0 |
| 99 | 72 | | Hf | x | -55431 | 29 | 8066.07 | 0.17 | β^+ | 2397 | 29 | 170 940490 | 30 |
| 98 | 73 | | Ta | x | -51720 | 28 | 8039.79 | 0.16 | β^+ | 3710 | 40 | 170 944480 | 30 |
| 97 | 74 | | W | x | -47086 | 28 | 8008.12 | 0.16 | β^+ | 4630 | 40 | 170 949450 | 30 |
| 96 | 75 | | Re | x | -41250 | 28 | 7969.41 | 0.16 | β^+ | 5840 | 40 | 170 955720 | 30 |
| 95 | 76 | | Os | | -34302 | 18 | 7924.20 | 0.10 | β^+ | 6950 | 30 | 170 963175 | 19 |
| 94 | 77 | | Ir | $-\alpha$ | -26410 | 40 | 7873.49 | 0.22 | β^+ | 7890 | 40 | 170 971650 | 40 |
| 93 | 78 | | Pt | $-\alpha$ | -17470 | 70 | 7816.6 | 0.4 | β^+ | 8940 | 80 | 170 981250 | 80 |
| 92 | 79 | | Au | -p | -7562 | 21 | 7754.11 | 0.12 | β^+ | 9910 | 80 | 170 991882 | 22 |
| 91 | 80 | | Hg | $-\alpha$ | 3480# | 300# | 7685# | 2# | β^+ | 11040# | 300# | 171 003740# | 330# |
| 107 | 65 | 172 | Tb | x | -39850# | 500# | 8007# | 3# | β^- | 8160# | 590# | 171 957220# | 540# |
| 106 | 66 | | Dy | x | -48010# | 300# | 8050# | 2# | β^- | 3470# | 360# | 171 948460# | 320# |
| 105 | 67 | | Ho | x | -51480# | 200# | 8066# | 1# | β^- | 5000# | 200# | 171 944730# | 210# |
| 104 | 68 | | Er | | -56484 | 4 | 8090.410 | 0.023 | β^- | 891 | 5 | 171 939362 | 4 |
| 103 | 69 | | Tm | | -57374 | 6 | 8091.04 | 0.03 | β^- | 1881 | 6 | 171 938406 | 6 |
| 102 | 70 | | Yb | | -59255.446 | 0.014 | 8097.429 | <i>a</i> | | * | | 171 936386.659 | 0.015 |
| 101 | 71 | | Lu | | -56736.0 | 2.3 | 8078.232 | 0.014 | β^+ | 2519.5 | 2.3 | 171 939091.4 | 2.5 |
| 100 | 72 | | Hf | x | -56402 | 24 | 8071.74 | 0.14 | β^+ | 334 | 25 | 171 939450 | 26 |
| 99 | 73 | | Ta | x | -51330 | 28 | 8037.70 | 0.16 | β^+ | 5070 | 40 | 171 944900 | 30 |
| 98 | 74 | | W | x | -49097 | 28 | 8020.17 | 0.16 | β^+ | 2230 | 40 | 171 947290 | 30 |
| 97 | 75 | | Re | | -41540 | 40 | 7971.67 | 0.23 | β^+ | 7560 | 50 | 171 955410 | 40 |
| 96 | 76 | | Os | | -37244 | 13 | 7942.16 | 0.07 | β^+ | 4290 | 40 | 171 960017 | 14 |
| 95 | 77 | | Ir | $-\alpha$ | -27380 | 30 | 7880.26 | 0.19 | β^+ | 9860 | 30 | 171 970610 | 30 |
| 94 | 78 | | Pt | | -21107 | 10 | 7839.25 | 0.06 | β^+ | 6270 | 30 | 171 977341 | 11 |
| 93 | 79 | | Au | $-\alpha$ | -9320 | 60 | 7766.2 | 0.3 | β^+ | 11790 | 60 | 171 990000 | 60 |
| 92 | 80 | | Hg | $-\alpha$ | -1060 | 150 | 7713.6 | 0.9 | β^+ | 8260 | 140 | 171 998860 | 160 |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ | |
|----------|----------|----------|------|-----------|----------------------|-------|-------------------------------------|----------|----------------------------|---------|------|----------------------|-------|
| 107 | 66 | 173 | Dy | x | -43940# | 400# | 8027# | 2# | β^- | 5410# | 500# | 172 952830# | 430# |
| 106 | 67 | | Ho | x | -49350# | 300# | 8054# | 2# | β^- | 4300# | 360# | 172 947020# | 320# |
| 105 | 68 | | Er | x | -53650# | 200# | 8074# | 1# | β^- | 2600# | 200# | 172 942400# | 210# |
| 104 | 69 | | Tm | p2n | -56256 | 4 | 8084.463 | 0.025 | β^- | 1295 | 4 | 172 939607 | 5 |
| 103 | 70 | | Yb | | -57551.225 | 0.011 | 8087.427 | <i>a</i> | * | | | 172 938216.215 | 0.012 |
| 102 | 71 | | Lu | | -56880.9 | 1.6 | 8079.030 | 0.009 | β^+ | 670.3 | 1.6 | 172 938935.8 | 1.7 |
| 101 | 72 | | Hf | x | -55412 | 28 | 8066.02 | 0.16 | β^+ | 1469 | 28 | 172 940510 | 30 |
| 100 | 73 | | Ta | x | -52397 | 28 | 8044.06 | 0.16 | β^+ | 3020 | 40 | 172 943750 | 30 |
| 99 | 74 | | W | x | -48727 | 28 | 8018.33 | 0.16 | β^+ | 3670 | 40 | 172 947690 | 30 |
| 98 | 75 | | Re | x | -43554 | 28 | 7983.91 | 0.16 | β^+ | 5170 | 40 | 172 953240 | 30 |
| 97 | 76 | | Os | | -37438 | 15 | 7944.03 | 0.09 | β^+ | 6120 | 30 | 172 959808 | 16 |
| 96 | 77 | | Ir | | -30268 | 11 | 7898.07 | 0.06 | β^+ | 7170 | 19 | 172 967505 | 12 |
| 95 | 78 | | Pt | $-\alpha$ | -21940 | 60 | 7845.4 | 0.3 | β^+ | 8330 | 60 | 172 976440 | 60 |
| 94 | 79 | | Au | $+\alpha$ | -12832 | 23 | 7788.24 | 0.13 | β^+ | 9110 | 60 | 172 986224 | 24 |
| 93 | 80 | | Hg | $-\alpha$ | -2710# | 200# | 7725# | 1# | β^+ | 10120# | 200# | 172 997090# | 210# |
| | | | | | | | | | | | | | |
| 108 | 66 | 174 | Dy | x | -41370# | 500# | 8012# | 3# | β^- | 4320# | 590# | 173 955590# | 540# |
| 107 | 67 | | Ho | x | -45690# | 300# | 8033# | 2# | β^- | 6260# | 420# | 173 950950# | 320# |
| 106 | 68 | | Er | x | -51950# | 300# | 8064# | 2# | β^- | 1920# | 300# | 173 944230# | 320# |
| 105 | 69 | | Tm | + | -53860 | 40 | 8070.64 | 0.26 | β^- | 3080 | 40 | 173 942170 | 50 |
| 104 | 70 | | Yb | | -56944.512 | 0.011 | 8083.847 | <i>a</i> | β^- | -1374.3 | 1.6 | 173 938867.548 | 0.012 |
| 103 | 71 | | Lu | | -55570.2 | 1.6 | 8071.453 | 0.009 | β^- | 274.3 | 2.2 | 173 940342.9 | 1.7 |
| 102 | 72 | | Hf | | -55844.5 | 2.3 | 8068.533 | 0.013 | * | | | 173 940048.5 | 2.4 |
| 101 | 73 | | Ta | x | -51741 | 28 | 8040.45 | 0.16 | β^+ | 4104 | 28 | 173 944450 | 30 |
| 100 | 74 | | W | x | -50227 | 28 | 8027.26 | 0.16 | β^+ | 1510 | 40 | 173 946080 | 30 |
| 99 | 75 | | Re | x | -43673 | 28 | 7985.09 | 0.16 | β^+ | 6550 | 40 | 173 953120 | 30 |
| 98 | 76 | | Os | | -39995 | 10 | 7959.46 | 0.06 | β^+ | 3678 | 30 | 173 957063 | 11 |
| 97 | 77 | | Ir | | -30863 | 24 | 7902.48 | 0.14 | β^+ | 9132 | 26 | 173 966867 | 26 |
| 96 | 78 | | Pt | $-\alpha$ | -25318 | 10 | 7866.12 | 0.06 | β^+ | 5545 | 26 | 173 972820 | 11 |
| 95 | 79 | | Au | $-\alpha$ | -14240# | 90# | 7798# | 1# | β^+ | 11080# | 90# | 173 984720# | 100# |
| 94 | 80 | | Hg | $-\alpha$ | -6641 | 19 | 7749.78 | 0.11 | β^+ | 7590# | 90# | 173 992871 | 21 |
| | | | | | | | | | | | | | |
| 108 | 67 | 175 | Ho | x | -43200# | 400# | 8019# | 2# | β^- | 5450# | 570# | 174 953620# | 430# |
| 107 | 68 | | Er | x | -48650# | 400# | 8045# | 2# | β^- | 3660# | 400# | 174 947770# | 430# |
| 106 | 69 | | Tm | + | -52310 | 50 | 8061.77 | 0.29 | β^- | 2380 | 50 | 174 943840 | 50 |
| 105 | 70 | | Yb | | -54695.55 | 0.07 | 8070.925 | 0.001 | β^- | 470.0 | 1.2 | 174 941281.91 | 0.08 |
| 104 | 71 | | Lu | | -55165.6 | 1.2 | 8069.140 | 0.007 | * | | | 174 940777.3 | 1.3 |
| 103 | 72 | | Hf | | -54481.7 | 2.3 | 8060.761 | 0.013 | β^+ | 683.9 | 2.0 | 174 941511.5 | 2.4 |
| 102 | 73 | | Ta | x | -52409 | 28 | 8044.44 | 0.16 | β^+ | 2073 | 28 | 174 943740 | 30 |
| 101 | 74 | | W | x | -49633 | 28 | 8024.11 | 0.16 | β^+ | 2780 | 40 | 174 946720 | 30 |
| 100 | 75 | | Re | x | -45288 | 28 | 7994.82 | 0.16 | β^+ | 4340 | 40 | 174 951380 | 30 |
| 99 | 76 | | Os | | -40105 | 12 | 7960.73 | 0.07 | β^+ | 5180 | 30 | 174 956945 | 13 |
| 98 | 77 | | Ir | | -33395 | 12 | 7917.91 | 0.07 | β^+ | 6711 | 17 | 174 964150 | 13 |
| 97 | 78 | | Pt | | -25713 | 18 | 7869.55 | 0.10 | β^+ | 7681 | 22 | 174 972395 | 20 |
| 96 | 79 | | Au | $-\alpha$ | -17400 | 40 | 7817.59 | 0.22 | β^+ | 8310 | 40 | 174 981320 | 40 |
| 95 | 80 | | Hg | $-\alpha$ | -7970 | 70 | 7759.2 | 0.4 | β^+ | 9430 | 80 | 174 991440 | 80 |
| | | | | | | | | | | | | | |
| 109 | 67 | 176 | Ho | x | -39290# | 500# | 7997# | 3# | β^- | 7340# | 640# | 175 957820# | 540# |
| 108 | 68 | | Er | x | -46630# | 400# | 8034# | 2# | β^- | 2740# | 410# | 175 949940# | 430# |
| 107 | 69 | | Tm | + | -49370 | 100 | 8045.1 | 0.6 | β^- | 4120 | 100 | 175 947000 | 110 |
| 106 | 70 | | Yb | | -53491.314 | 0.015 | 8064.085 | <i>a</i> | β^- | -109.1 | 1.2 | 175 942574.709 | 0.016 |
| 105 | 71 | | Lu | | -53382.2 | 1.2 | 8059.020 | 0.007 | β^- | 1194.1 | 0.9 | 175 942691.8 | 1.3 |
| 104 | 72 | | Hf | | -54576.3 | 1.5 | 8061.359 | 0.008 | * | | | 175 941409.9 | 1.6 |
| 103 | 73 | | Ta | x | -51370 | 30 | 8038.67 | 0.17 | β^+ | 3210 | 30 | 175 944860 | 30 |
| 102 | 74 | | W | x | -50642 | 28 | 8030.11 | 0.16 | β^+ | 720 | 40 | 175 945630 | 30 |
| 101 | 75 | | Re | x | -45063 | 28 | 7993.97 | 0.16 | β^+ | 5580 | 40 | 175 951620 | 30 |
| 100 | 76 | | Os | x | -42098 | 28 | 7972.68 | 0.16 | β^+ | 2960 | 40 | 175 954810 | 30 |
| 99 | 77 | | Ir | | -33878 | 17 | 7921.53 | 0.10 | β^+ | 8220 | 30 | 175 963630 | 18 |
| 98 | 78 | | Pt | | -28934 | 13 | 7888.99 | 0.07 | β^+ | 4944 | 21 | 175 968938 | 14 |
| 97 | 79 | | Au | $-\alpha$ | -18520 | 30 | 7825.38 | 0.19 | β^+ | 10410 | 40 | 175 980120 | 40 |
| 96 | 80 | | Hg | | -11785 | 11 | 7782.67 | 0.06 | β^+ | 6740 | 30 | 175 987348 | 12 |
| 95 | 81 | | Tl | -p | 580 | 80 | 7708.0 | 0.4 | β^+ | 12370 | 80 | 176 000620 | 80 |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ u | |
|----------|----------|----------|------|-----------|----------------------|------|-------------------------------------|-------|----------------------------|--------|------|------------------------|------|
| 109 | 68 | 177 | Er | x | -42860# | 500# | 8013# | 3# | β^- | 4610# | 590# | 176 953990# | 540# |
| 108 | 69 | | Tm | x | -47470# | 300# | 8035# | 2# | β^- | 3520# | 300# | 176 949040# | 320# |
| 107 | 70 | | Yb | -n | -50986.40 | 0.22 | 8049.973 | 0.001 | β^- | 1397.4 | 1.2 | 176 945263.85 | 0.24 |
| 106 | 71 | | Lu | | -52383.8 | 1.2 | 8053.448 | 0.007 | β^- | 496.8 | 0.8 | 176 943763.7 | 1.3 |
| 105 | 72 | | Hf | | -52880.6 | 1.4 | 8051.835 | 0.008 | * | | | 176 943230.3 | 1.5 |
| 104 | 73 | | Ta | — | -51715 | 3 | 8040.827 | 0.019 | β^+ | 1166 | 3 | 176 944482 | 4 |
| 103 | 74 | | W | x | -49702 | 28 | 8025.04 | 0.16 | β^+ | 2013 | 28 | 176 946640 | 30 |
| 102 | 75 | | Re | x | -46269 | 28 | 8001.22 | 0.16 | β^+ | 3430 | 40 | 176 950330 | 30 |
| 101 | 76 | | Os | $+\alpha$ | -41956 | 15 | 7972.44 | 0.08 | β^+ | 4310 | 30 | 176 954958 | 16 |
| 100 | 77 | | Ir | x | -36047 | 20 | 7934.63 | 0.11 | β^+ | 5909 | 25 | 176 961302 | 21 |
| 99 | 78 | | Pt | | -29370 | 15 | 7892.49 | 0.08 | β^+ | 6677 | 25 | 176 968470 | 16 |
| 98 | 79 | | Au | | -21545 | 10 | 7843.86 | 0.06 | β^+ | 7825 | 18 | 176 976870 | 11 |
| 97 | 80 | | Hg | $-\alpha$ | -12780 | 80 | 7789.9 | 0.4 | β^+ | 8760 | 80 | 176 986280 | 80 |
| 96 | 81 | | Tl | IT | -3341 | 22 | 7732.17 | 0.12 | β^+ | 9440 | 80 | 176 996414 | 23 |
| 110 | 68 | 178 | Er | x | -40260# | 600# | 7999# | 3# | β^- | 3860# | 720# | 177 956780# | 640# |
| 109 | 69 | | Tm | x | -44120# | 400# | 8016# | 2# | β^- | 5580# | 400# | 177 952640# | 430# |
| 108 | 70 | | Yb | -nn | -49695 | 10 | 8042.84 | 0.06 | β^- | 642 | 10 | 177 946650 | 11 |
| 107 | 71 | | Lu | | -50337.8 | 2.3 | 8042.054 | 0.013 | β^- | 2097.5 | 2.1 | 177 945960.2 | 2.4 |
| 106 | 72 | | Hf | | -52435.2 | 1.4 | 8049.442 | 0.008 | * | | | 177 943708.5 | 1.5 |
| 105 | 73 | | Ta | IT | -50600# | 50# | 8035# | 0# | β^+ | 1840# | 50# | 177 945680# | 60# |
| 104 | 74 | | W | — | -50407 | 15 | 8029.26 | 0.09 | β^+ | 190# | 50# | 177 945886 | 16 |
| 103 | 75 | | Re | x | -45653 | 28 | 7998.16 | 0.16 | β^+ | 4750 | 30 | 177 950990 | 30 |
| 102 | 76 | | Os | | -43544 | 14 | 7981.91 | 0.08 | β^+ | 2110 | 30 | 177 953253 | 15 |
| 101 | 77 | | Ir | x | -36252 | 20 | 7936.55 | 0.11 | β^+ | 7292 | 24 | 177 961082 | 21 |
| 100 | 78 | | Pt | | -31998 | 10 | 7908.25 | 0.06 | β^+ | 4254 | 22 | 177 965649 | 11 |
| 99 | 79 | | Au | | -22304 | 10 | 7849.40 | 0.06 | β^+ | 9694 | 14 | 177 976056 | 11 |
| 98 | 80 | | Hg | $-\alpha$ | -16316 | 11 | 7811.36 | 0.06 | β^+ | 5988 | 15 | 177 982484 | 12 |
| 97 | 81 | | Tl | $-\alpha$ | -4790# | 90# | 7742# | 1# | β^+ | 11530# | 90# | 177 994860# | 100# |
| 96 | 82 | | Pb | $-\alpha$ | 3574 | 24 | 7690.83 | 0.13 | β^+ | 8370# | 90# | 178 003837 | 26 |
| 110 | 69 | 179 | Tm | x | -41600# | 500# | 8002# | 3# | β^- | 4940# | 540# | 178 955340# | 540# |
| 109 | 70 | | Yb | x | -46540# | 200# | 8025# | 1# | β^- | 2520# | 200# | 178 950040# | 210# |
| 108 | 71 | | Lu | | -49059 | 5 | 8035.073 | 0.029 | β^- | 1404 | 5 | 178 947333 | 6 |
| 107 | 72 | | Hf | | -50462.9 | 1.4 | 8038.546 | 0.008 | * | | | 178 945825.8 | 1.5 |
| 106 | 73 | | Ta | | -50357.3 | 1.5 | 8033.585 | 0.008 | β^+ | 105.6 | 0.4 | 178 945939.2 | 1.6 |
| 105 | 74 | | W | | -49295 | 15 | 8023.28 | 0.08 | β^+ | 1062 | 15 | 178 947080 | 16 |
| 104 | 75 | | Re | | -46584 | 25 | 8003.77 | 0.14 | β^+ | 2711 | 27 | 178 949990 | 26 |
| 103 | 76 | | Os | | -43019 | 17 | 7979.48 | 0.09 | β^+ | 3565 | 30 | 178 953817 | 18 |
| 102 | 77 | | Ir | | -38082 | 10 | 7947.52 | 0.05 | β^+ | 4938 | 19 | 178 959118 | 10 |
| 101 | 78 | | Pt | | -32268 | 8 | 7910.68 | 0.04 | β^+ | 5814 | 13 | 178 965359 | 9 |
| 100 | 79 | | Au | | -24989 | 12 | 7865.64 | 0.07 | β^+ | 7280 | 14 | 178 973174 | 13 |
| 99 | 80 | | Hg | | -16928 | 27 | 7816.24 | 0.15 | β^+ | 8060 | 30 | 178 981827 | 29 |
| 98 | 81 | | Tl | $-\alpha$ | -8270 | 40 | 7763.49 | 0.22 | β^+ | 8660 | 50 | 178 991120 | 40 |
| 97 | 82 | | Pb | $-\alpha$ | 2050 | 80 | 7701.5 | 0.4 | β^+ | 10320 | 80 | 179 002200 | 80 |
| 111 | 69 | 180 | Tm | x | -37920# | 500# | 7982# | 3# | β^- | 6680# | 590# | 179 959290# | 540# |
| 110 | 70 | | Yb | x | -44600# | 300# | 8015# | 2# | β^- | 2080# | 310# | 179 952120# | 320# |
| 109 | 71 | | Lu | + | -46680 | 70 | 8022.0 | 0.4 | β^- | 3100 | 70 | 179 949890 | 80 |
| 108 | 72 | | Hf | | -49779.3 | 1.4 | 8034.930 | 0.008 | β^- | -846.5 | 2.3 | 179 946559.7 | 1.5 |
| 107 | 73 | | Ta | +n | -48932.9 | 1.9 | 8025.881 | 0.011 | β^- | 703.2 | 2.3 | 179 947468.4 | 2.1 |
| 106 | 74 | | W | | -49636.1 | 1.4 | 8025.442 | 0.008 | * | | | 179 946713.4 | 1.5 |
| 105 | 75 | | Re | x | -45837 | 21 | 7999.99 | 0.12 | β^+ | 3799 | 21 | 179 950792 | 23 |
| 104 | 76 | | Os | | -44358 | 16 | 7987.43 | 0.09 | β^+ | 1480 | 27 | 179 952380 | 18 |
| 103 | 77 | | Ir | x | -37978 | 22 | 7947.63 | 0.12 | β^+ | 6380 | 27 | 179 959229 | 23 |
| 102 | 78 | | Pt | $+\alpha$ | -34436 | 11 | 7923.61 | 0.06 | β^+ | 3542 | 24 | 179 963032 | 12 |
| 101 | 79 | | Au | | -25626 | 5 | 7870.318 | 0.027 | β^+ | 8810 | 12 | 179 972490 | 5 |
| 100 | 80 | | Hg | | -20250 | 13 | 7836.11 | 0.07 | β^+ | 5375 | 14 | 179 978260 | 14 |
| 99 | 81 | | Tl | $-\alpha$ | -9390 | 60 | 7771.4 | 0.3 | β^+ | 10860 | 60 | 179 989920 | 60 |
| 98 | 82 | | Pb | $-\alpha$ | -1941 | 12 | 7725.70 | 0.07 | β^+ | 7450 | 60 | 179 997916 | 13 |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ u | |
|----------|----------|----------|------|-----------|----------------------|------|-------------------------------------|-------|----------------------------|--------|------|------------------------|------|
| 112 | 69 | 181 | Tm | x | -35170# | 600# | 7967# | 3# | β^- | 5920# | 670# | 180 962240# | 640# |
| 111 | 70 | | Yb | x | -41090# | 300# | 7996# | 2# | β^- | 3710# | 320# | 180 955890# | 320# |
| 110 | 71 | | Lu | x | -44800 | 130 | 8011.9 | 0.7 | β^- | 2610 | 130 | 180 951910 | 140 |
| 109 | 72 | | Hf | -n | -47402.8 | 1.4 | 8022.002 | 0.008 | β^- | 1035.5 | 1.8 | 180 949111.0 | 1.5 |
| 108 | 73 | | Ta | | -48438.3 | 1.4 | 8023.400 | 0.008 | * | | | 180 947999.3 | 1.5 |
| 107 | 74 | | W | -n | -48233.8 | 1.4 | 8017.948 | 0.008 | β^+ | 204.5 | 1.9 | 180 948218.9 | 1.6 |
| 106 | 75 | | Re | 4n | -46517 | 13 | 8004.14 | 0.07 | β^+ | 1716 | 13 | 180 950062 | 13 |
| 105 | 76 | | Os | | -43550 | 25 | 7983.43 | 0.14 | β^+ | 2967 | 28 | 180 953247 | 27 |
| 104 | 77 | | Ir | $+\alpha$ | -39463 | 5 | 7956.523 | 0.029 | β^+ | 4087 | 26 | 180 957635 | 6 |
| 103 | 78 | | Pt | | -34382 | 14 | 7924.13 | 0.08 | β^+ | 5082 | 15 | 180 963090 | 15 |
| 102 | 79 | | Au | $-\alpha$ | -27871 | 20 | 7883.84 | 0.11 | β^+ | 6510 | 24 | 180 970079 | 21 |
| 101 | 80 | | Hg | | -20661 | 15 | 7839.68 | 0.08 | β^+ | 7210 | 25 | 180 977819 | 17 |
| 100 | 81 | | Tl | | -12799 | 9 | 7791.92 | 0.05 | β^+ | 7862 | 18 | 180 986260 | 10 |
| 99 | 82 | | Pb | $-\alpha$ | -3120 | 80 | 7734.1 | 0.4 | β^+ | 9680 | 80 | 180 996650 | 80 |
| 112 | 70 | 182 | Yb | x | -38820# | 400# | 7984# | 2# | β^- | 3060# | 450# | 181 958330# | 430# |
| 111 | 71 | | Lu | x | -41880# | 200# | 7996# | 1# | β^- | 4170# | 200# | 181 955040# | 210# |
| 110 | 72 | | Hf | -nn | -46050 | 6 | 8014.84 | 0.03 | β^- | 380 | 6 | 181 950564 | 7 |
| 109 | 73 | | Ta | | -46429.9 | 1.4 | 8012.628 | 0.008 | β^- | 1816.1 | 1.4 | 181 950155.4 | 1.5 |
| 108 | 74 | | W | | -48246.1 | 0.7 | 8018.308 | 0.004 | * | | | 181 948205.7 | 0.8 |
| 107 | 75 | | Re | IT | -45450 | 100 | 7998.6 | 0.6 | β^+ | 2800 | 100 | 181 951210 | 110 |
| 106 | 76 | | Os | | -44609 | 22 | 7989.73 | 0.12 | β^+ | 840 | 100 | 181 952110 | 23 |
| 105 | 77 | | Ir | | -39052 | 21 | 7954.89 | 0.12 | β^+ | 5560 | 30 | 181 958076 | 23 |
| 104 | 78 | | Pt | | -36168 | 13 | 7934.75 | 0.07 | β^+ | 2883 | 25 | 181 961172 | 14 |
| 103 | 79 | | Au | $-\alpha$ | -28301 | 20 | 7887.23 | 0.11 | β^+ | 7868 | 24 | 181 969618 | 22 |
| 102 | 80 | | Hg | | -23577 | 10 | 7856.97 | 0.05 | β^+ | 4724 | 23 | 181 974689 | 11 |
| 101 | 81 | | Tl | $-\alpha$ | -13328 | 12 | 7796.36 | 0.07 | β^+ | 10249 | 15 | 181 985692 | 13 |
| 100 | 82 | | Pb | $-\alpha$ | -6825 | 12 | 7756.33 | 0.07 | β^+ | 6503 | 17 | 181 992673 | 13 |
| 113 | 70 | 183 | Yb | x | -35100# | 400# | 7964# | 2# | β^- | 4620# | 410# | 182 962320# | 430# |
| 112 | 71 | | Lu | x | -39720 | 80 | 7984.8 | 0.4 | β^- | 3570 | 90 | 182 957360 | 90 |
| 111 | 72 | | Hf | + | -43280 | 30 | 8000.03 | 0.16 | β^- | 2010 | 30 | 182 953530 | 30 |
| 110 | 73 | | Ta | -n | -45292.8 | 1.4 | 8006.735 | 0.008 | β^- | 1072.8 | 1.4 | 182 951376.2 | 1.5 |
| 109 | 74 | | W | | -46365.6 | 0.7 | 8008.322 | 0.004 | * | | | 182 950224.5 | 0.8 |
| 108 | 75 | | Re | — | -45810 | 8 | 8001.01 | 0.04 | β^+ | 556 | 8 | 182 950821 | 9 |
| 107 | 76 | | Os | | -43660 | 50 | 7985.01 | 0.27 | β^+ | 2150 | 50 | 182 953120 | 50 |
| 106 | 77 | | Ir | | -40203 | 24 | 7961.82 | 0.13 | β^+ | 3460 | 50 | 182 956840 | 26 |
| 105 | 78 | | Pt | | -35772 | 16 | 7933.34 | 0.08 | β^+ | 4431 | 29 | 182 961597 | 17 |
| 104 | 79 | | Au | | -30191 | 9 | 7898.56 | 0.05 | β^+ | 5581 | 18 | 182 967588 | 10 |
| 103 | 80 | | Hg | | -23805 | 7 | 7859.39 | 0.04 | β^+ | 6387 | 12 | 182 974445 | 8 |
| 102 | 81 | | Tl | | -16587 | 9 | 7815.67 | 0.05 | β^+ | 7217 | 12 | 182 982193 | 10 |
| 101 | 82 | | Pb | $-\alpha$ | -7575 | 28 | 7762.15 | 0.15 | β^+ | 9012 | 30 | 182 991870 | 30 |
| 114 | 70 | 184 | Yb | x | -32540# | 500# | 7951# | 3# | β^- | 3870# | 590# | 183 965070# | 540# |
| 113 | 71 | | Lu | x | -36410# | 300# | 7967# | 2# | β^- | 5090# | 300# | 183 960910# | 320# |
| 112 | 72 | | Hf | + | -41500 | 40 | 7990.72 | 0.22 | β^- | 1340 | 30 | 183 955450 | 40 |
| 111 | 73 | | Ta | + | -42839 | 26 | 7993.75 | 0.14 | β^- | 2866 | 26 | 183 954010 | 28 |
| 110 | 74 | | W | | -45705.4 | 0.7 | 8005.077 | 0.004 | β^- | -1486 | 4 | 183 950933.3 | 0.8 |
| 109 | 75 | | Re | | -44220 | 4 | 7992.750 | 0.023 | β^- | 33 | 4 | 183 952528 | 5 |
| 108 | 76 | | Os | | -44252.5 | 0.8 | 7988.677 | 0.005 | * | | | 183 952492.9 | 0.9 |
| 107 | 77 | | Ir | x | -39611 | 28 | 7959.20 | 0.15 | β^+ | 4642 | 28 | 183 957480 | 30 |
| 106 | 78 | | Pt | | -37334 | 16 | 7942.57 | 0.08 | β^+ | 2280 | 30 | 183 959920 | 17 |
| 105 | 79 | | Au | $-\alpha$ | -30319 | 22 | 7900.19 | 0.12 | β^+ | 7016 | 27 | 183 967452 | 24 |
| 104 | 80 | | Hg | | -26349 | 10 | 7874.37 | 0.05 | β^+ | 3970 | 24 | 183 971713 | 11 |
| 103 | 81 | | Tl | | -16883 | 10 | 7818.67 | 0.05 | β^+ | 9466 | 14 | 183 981875 | 11 |
| 102 | 82 | | Pb | | -11052 | 13 | 7782.73 | 0.07 | β^+ | 5832 | 16 | 183 988136 | 14 |
| 101 | 83 | | Bi | $-\alpha$ | 1060 | 80 | 7712.6 | 0.4 | β^+ | 12110 | 80 | 184 001140 | 80 |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ u | |
|----------|----------|----------|------|-----------|----------------------|------|-------------------------------------|-------|----------------------------|---------|-------|------------------------|------|
| 115 | 70 | 185 | Yb | x | -28500# | 500# | 7929# | 3# | β^- | 5390# | 590# | 184 969400# | 540# |
| 114 | 71 | | Lu | x | -33890# | 300# | 7954# | 2# | β^- | 4430# | 310# | 184 963620# | 320# |
| 113 | 72 | | Hf | x | -38320 | 60 | 7974.0 | 0.3 | β^- | 3070 | 70 | 184 958860 | 70 |
| 112 | 73 | | Ta | + | -41394 | 14 | 7986.36 | 0.08 | β^- | 1994 | 14 | 184 955561 | 15 |
| 111 | 74 | | W | | -43387.8 | 0.7 | 7992.907 | 0.004 | β^- | 431.2 | 0.7 | 184 953421.3 | 0.8 |
| 110 | 75 | | Re | | -43819.0 | 0.8 | 7991.009 | 0.004 | * | | | 184 952958.3 | 0.9 |
| 109 | 76 | | Os | | -42805.9 | 0.8 | 7981.304 | 0.004 | β^+ | 1013.1 | 0.4 | 184 954046.0 | 0.9 |
| 108 | 77 | | Ir | x | -40336 | 28 | 7963.72 | 0.15 | β^+ | 2470 | 28 | 184 956700 | 30 |
| 107 | 78 | | Pt | | -36688 | 26 | 7939.78 | 0.14 | β^+ | 3650 | 40 | 184 960614 | 28 |
| 106 | 79 | | Au | x | -31858.1 | 2.6 | 7909.440 | 0.014 | β^+ | 4830 | 26 | 184 965798.9 | 2.8 |
| 105 | 80 | | Hg | | -26184 | 14 | 7874.54 | 0.07 | β^+ | 5674 | 14 | 184 971891 | 15 |
| 104 | 81 | | Tl | IT | -19758 | 21 | 7835.57 | 0.11 | β^+ | 6426 | 25 | 184 978789 | 22 |
| 103 | 82 | | Pb | $-\alpha$ | -11541 | 16 | 7786.93 | 0.09 | β^+ | 8217 | 26 | 184 987610 | 17 |
| 102 | 83 | | Bi | IT | -2240# | 80# | 7732# | 0# | β^+ | 9310# | 80# | 184 997600# | 90# |
| 115 | 71 | 186 | Lu | x | -30210# | 400# | 7935# | 2# | β^- | 6210# | 400# | 185 967570# | 430# |
| 114 | 72 | | Hf | x | -36420 | 50 | 7964.30 | 0.28 | β^- | 2180 | 80 | 185 960900 | 60 |
| 113 | 73 | | Ta | + | -38610 | 60 | 7971.8 | 0.3 | β^- | 3900 | 60 | 185 958550 | 60 |
| 112 | 74 | | W | | -42508.5 | 1.2 | 7988.601 | 0.007 | β^- | -581.4 | 1.2 | 185 954365.2 | 1.3 |
| 111 | 75 | | Re | | -41927.1 | 0.8 | 7981.269 | 0.004 | β^- | 1072.9 | 0.8 | 185 954989.4 | 0.9 |
| 110 | 76 | | Os | | -42999.9 | 0.8 | 7982.831 | 0.004 | * | | | 185 953837.7 | 0.8 |
| 109 | 77 | | Ir | x | -39172 | 17 | 7958.05 | 0.09 | β^+ | 3828 | 17 | 185 957947 | 18 |
| 108 | 78 | | Pt | | -37864 | 22 | 7946.81 | 0.12 | β^+ | 1308 | 27 | 185 959351 | 23 |
| 107 | 79 | | Au | | -31715 | 21 | 7909.54 | 0.11 | β^+ | 6150 | 30 | 185 965953 | 23 |
| 106 | 80 | | Hg | | -28539 | 12 | 7888.26 | 0.06 | β^+ | 3176 | 24 | 185 969362 | 13 |
| 105 | 81 | | Tl | x | -19887 | 22 | 7837.54 | 0.12 | β^+ | 8652 | 25 | 185 978651 | 24 |
| 104 | 82 | | Pb | $-\alpha$ | -14682 | 11 | 7805.35 | 0.06 | β^+ | 5205 | 25 | 185 984238 | 12 |
| 103 | 83 | | Bi | $-\alpha$ | -3146 | 17 | 7739.12 | 0.09 | β^+ | 11536 | 20 | 185 996622 | 18 |
| 102 | 84 | | Po | $-\alpha$ | 4101 | 18 | 7695.95 | 0.10 | β^+ | 7247 | 25 | 186 004403 | 20 |
| 116 | 71 | 187 | Lu | x | -27580# | 400# | 7922# | 2# | β^- | 5240# | 500# | 186 970390# | 430# |
| 115 | 72 | | Hf | x | -32820# | 300# | 7946# | 2# | β^- | 4080# | 300# | 186 964770# | 320# |
| 114 | 73 | | Ta | x | -36900 | 60 | 7963.21 | 0.30 | β^- | 3010 | 60 | 186 960390 | 60 |
| 113 | 74 | | W | | -39904.0 | 1.2 | 7975.116 | 0.006 | β^- | 1312.5 | 1.1 | 186 957161.3 | 1.3 |
| 112 | 75 | | Re | | -41216.5 | 0.7 | 7977.951 | 0.004 | β^- | 2.467 | 0.002 | 186 955752.3 | 0.8 |
| 111 | 76 | | Os | | -41218.9 | 0.7 | 7973.780 | 0.004 | * | | | 186 955749.6 | 0.8 |
| 110 | 77 | | Ir | x | -39549 | 28 | 7960.67 | 0.15 | β^+ | 1670 | 28 | 186 957540 | 30 |
| 109 | 78 | | Pt | | -36685 | 24 | 7941.17 | 0.13 | β^+ | 2860 | 40 | 186 960617 | 26 |
| 108 | 79 | | Au | | -33028 | 22 | 7917.43 | 0.12 | β^+ | 3657 | 27 | 186 964543 | 24 |
| 107 | 80 | | Hg | | -28118 | 14 | 7886.99 | 0.07 | β^+ | 4910 | 26 | 186 969814 | 15 |
| 106 | 81 | | Tl | | -22445 | 8 | 7852.46 | 0.04 | β^+ | 5673 | 16 | 186 975905 | 9 |
| 105 | 82 | | Pb | | -14987 | 5 | 7808.400 | 0.027 | β^+ | 7458 | 10 | 186 983911 | 5 |
| 104 | 83 | | Bi | $-\alpha$ | -6383 | 10 | 7758.21 | 0.05 | β^+ | 8604 | 11 | 186 993147 | 11 |
| 103 | 84 | | Po | $-\alpha$ | 2830 | 30 | 7704.76 | 0.17 | β^+ | 9210 | 30 | 187 003040 | 30 |
| 117 | 71 | 188 | Lu | x | -23790# | 500# | 7902# | 3# | β^- | 7090# | 590# | 187 974460# | 540# |
| 116 | 72 | | Hf | x | -30880# | 300# | 7936# | 2# | β^- | 2730# | 300# | 187 966850# | 320# |
| 115 | 73 | | Ta | x | -33610 | 50 | 7946.32 | 0.29 | β^- | 5060 | 60 | 187 963920 | 60 |
| 114 | 74 | | W | + | -38668 | 3 | 7969.052 | 0.016 | β^- | 349 | 3 | 187 958488 | 3 |
| 113 | 75 | | Re | -n | -39016.8 | 0.7 | 7966.747 | 0.004 | β^- | 2120.42 | 0.15 | 187 958113.7 | 0.8 |
| 112 | 76 | | Os | | -41137.2 | 0.7 | 7973.864 | 0.004 | * | | | 187 955837.4 | 0.8 |
| 111 | 77 | | Ir | | -38345 | 9 | 7954.85 | 0.05 | β^+ | 2792 | 9 | 187 958835 | 10 |
| 110 | 78 | | Pt | | -37821 | 5 | 7947.902 | 0.028 | β^+ | 524 | 9 | 187 959398 | 6 |
| 109 | 79 | | Au | x | -32371.3 | 2.7 | 7914.753 | 0.014 | β^+ | 5450 | 6 | 187 965248.0 | 2.9 |
| 108 | 80 | | Hg | | -30202 | 12 | 7899.05 | 0.07 | β^+ | 2169 | 13 | 187 967577 | 13 |
| 107 | 81 | | Tl | x | -22336 | 30 | 7853.05 | 0.16 | β^+ | 7870 | 30 | 187 976020 | 30 |
| 106 | 82 | | Pb | $-\alpha$ | -17815 | 11 | 7824.84 | 0.06 | β^+ | 4520 | 30 | 187 980875 | 11 |
| 105 | 83 | | Bi | $-\alpha$ | -7195 | 11 | 7764.19 | 0.06 | β^+ | 10621 | 15 | 187 992276 | 12 |
| 104 | 84 | | Po | $-\alpha$ | -544 | 20 | 7724.65 | 0.11 | β^+ | 6650 | 23 | 187 999416 | 21 |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ u | |
|----------|----------|----------|------|-----------|----------------------|------|-------------------------------------|-------|----------------------------|---------|------|------------------------|------|
| 117 | 72 | 189 | Hf | x | -27160# | 300# | 7917# | 2# | β^- | 4670# | 360# | 188 970840# | 320# |
| 116 | 73 | | Ta | x | -31830# | 200# | 7938# | 1# | β^- | 3790# | 200# | 188 965830# | 210# |
| 115 | 74 | | W | x | -35620 | 40 | 7953.45 | 0.21 | β^- | 2360 | 40 | 188 961760 | 40 |
| 114 | 75 | | Re | +p | -37979 | 8 | 7961.81 | 0.04 | β^- | 1008 | 8 | 188 959228 | 9 |
| 113 | 76 | | Os | | -38986.7 | 0.7 | 7963.002 | 0.004 | * | | | 188 958146.0 | 0.7 |
| 112 | 77 | | Ir | | -38450 | 13 | 7956.02 | 0.07 | β^+ | 537 | 13 | 188 958723 | 14 |
| 111 | 78 | | Pt | | -36469 | 10 | 7941.40 | 0.05 | β^+ | 1980 | 14 | 188 960849 | 11 |
| 110 | 79 | | Au | x | -33582 | 20 | 7921.99 | 0.11 | β^+ | 2887 | 22 | 188 963948 | 22 |
| 109 | 80 | | Hg | | -29630 | 30 | 7896.92 | 0.17 | β^+ | 3960 | 40 | 188 968190 | 30 |
| 108 | 81 | | Tl | | -24616 | 8 | 7866.27 | 0.04 | β^+ | 5010 | 30 | 188 973574 | 9 |
| 107 | 82 | | Pb | | -17844 | 14 | 7826.30 | 0.07 | β^+ | 6772 | 16 | 188 980844 | 15 |
| 106 | 83 | | Bi | $-\alpha$ | -10065 | 21 | 7781.00 | 0.11 | β^+ | 7779 | 25 | 188 989195 | 22 |
| 105 | 84 | | Po | $-\alpha$ | -1422 | 22 | 7731.13 | 0.12 | β^+ | 8640 | 30 | 188 998473 | 24 |
| 118 | 72 | 190 | Hf | x | -25030# | 400# | 7907# | 2# | β^- | 3480# | 450# | 189 973130# | 430# |
| 117 | 73 | | Ta | x | -28510# | 200# | 7921# | 1# | β^- | 5870# | 200# | 189 969390# | 210# |
| 116 | 74 | | W | | -34380 | 40 | 7947.57 | 0.21 | β^- | 1250 | 60 | 189 963090 | 40 |
| 115 | 75 | | Re | | -35640 | 70 | 7950.1 | 0.4 | β^- | 3070 | 70 | 189 961740 | 80 |
| 114 | 76 | | Os | | -38707.8 | 0.6 | 7962.104 | 0.003 | β^- | -1954.2 | 1.2 | 189 958445.5 | 0.7 |
| 113 | 77 | | Ir | +n | -36753.5 | 1.4 | 7947.701 | 0.007 | β^- | 552.9 | 1.3 | 189 960543.4 | 1.5 |
| 112 | 78 | | Pt | | -37306.5 | 0.7 | 7946.493 | 0.003 | * | | | 189 959949.9 | 0.7 |
| 111 | 79 | | Au | x | -32834 | 3 | 7918.834 | 0.018 | β^+ | 4473 | 4 | 189 964752 | 4 |
| 110 | 80 | | Hg | | -31371 | 16 | 7907.02 | 0.08 | β^+ | 1463 | 16 | 189 966322 | 17 |
| 109 | 81 | | Tl | $+\alpha$ | -24372 | 8 | 7866.06 | 0.04 | β^+ | 6999 | 18 | 189 973836 | 9 |
| 108 | 82 | | Pb | $-\alpha$ | -20417 | 13 | 7841.13 | 0.07 | β^+ | 3955 | 15 | 189 978082 | 13 |
| 107 | 83 | | Bi | $-\alpha$ | -10600 | 23 | 7785.34 | 0.12 | β^+ | 9817 | 26 | 189 988621 | 24 |
| 106 | 84 | | Po | $-\alpha$ | -4564 | 13 | 7749.46 | 0.07 | β^+ | 6036 | 26 | 189 995101 | 14 |
| 118 | 73 | 191 | Ta | x | -26490# | 300# | 7911# | 2# | β^- | 4680# | 300# | 190 971560# | 320# |
| 117 | 74 | | W | x | -31180 | 40 | 7931.44 | 0.22 | β^- | 3170 | 40 | 190 966530 | 50 |
| 116 | 75 | | Re | +p | -34350 | 10 | 7943.96 | 0.05 | β^- | 2045 | 10 | 190 963123 | 11 |
| 115 | 76 | | Os | | -36395.2 | 0.7 | 7950.568 | 0.003 | β^- | 313.6 | 1.1 | 190 960928.2 | 0.7 |
| 114 | 77 | | Ir | | -36708.8 | 1.3 | 7948.113 | 0.007 | * | | | 190 960591.5 | 1.4 |
| 113 | 78 | | Pt | | -35698 | 4 | 7938.727 | 0.022 | β^+ | 1011 | 4 | 190 961676 | 4 |
| 112 | 79 | | Au | | -33798 | 5 | 7924.681 | 0.026 | β^+ | 1900 | 6 | 190 963716 | 5 |
| 111 | 80 | | Hg | | -30592 | 22 | 7903.80 | 0.12 | β^+ | 3206 | 23 | 190 967158 | 24 |
| 110 | 81 | | Tl | $+\alpha$ | -26283 | 7 | 7877.14 | 0.04 | β^+ | 4309 | 23 | 190 971784 | 8 |
| 109 | 82 | | Pb | x | -20230 | 40 | 7841.36 | 0.20 | β^+ | 6050 | 40 | 190 978280 | 40 |
| 108 | 83 | | Bi | | -13239 | 7 | 7800.66 | 0.04 | β^+ | 6990 | 40 | 190 985787 | 8 |
| 107 | 84 | | Po | | -5069 | 7 | 7753.79 | 0.04 | β^+ | 8171 | 10 | 190 994558 | 8 |
| 106 | 85 | | At | $-\alpha$ | 3864 | 16 | 7702.92 | 0.08 | β^+ | 8933 | 18 | 191 004148 | 17 |
| 119 | 73 | 192 | Ta | x | -23060# | 400# | 7894# | 2# | β^- | 6590# | 450# | 191 975240# | 430# |
| 118 | 74 | | W | x | -29650# | 200# | 7924# | 1# | β^- | 1940# | 210# | 191 968170# | 210# |
| 117 | 75 | | Re | x | -31590 | 70 | 7930.2 | 0.4 | β^- | 4290 | 70 | 191 966090 | 80 |
| 116 | 76 | | Os | | -35882.2 | 2.3 | 7948.525 | 0.012 | β^- | -1046.6 | 2.4 | 191 961478.9 | 2.5 |
| 115 | 77 | | Ir | | -34835.6 | 1.3 | 7938.999 | 0.007 | β^- | 1452.9 | 2.3 | 191 962602.5 | 1.4 |
| 114 | 78 | | Pt | | -36288.5 | 2.6 | 7942.491 | 0.013 | * | | | 191 961042.7 | 2.8 |
| 113 | 79 | | Au | — | -32772 | 16 | 7920.10 | 0.08 | β^+ | 3516 | 16 | 191 964818 | 17 |
| 112 | 80 | | Hg | x | -32012 | 16 | 7912.07 | 0.08 | β^+ | 761 | 22 | 191 965634 | 17 |
| 111 | 81 | | Tl | x | -25870 | 30 | 7876.02 | 0.16 | β^+ | 6140 | 40 | 191 972230 | 30 |
| 110 | 82 | | Pb | $-\alpha$ | -22556 | 13 | 7854.67 | 0.07 | β^+ | 3320 | 30 | 191 975785 | 14 |
| 109 | 83 | | Bi | $-\alpha$ | -13530 | 30 | 7803.61 | 0.16 | β^+ | 9020 | 30 | 191 985470 | 30 |
| 108 | 84 | | Po | $-\alpha$ | -8071 | 11 | 7771.08 | 0.06 | β^+ | 5460 | 30 | 191 991336 | 12 |
| 107 | 85 | | At | $-\alpha$ | 2926 | 28 | 7709.73 | 0.15 | β^+ | 11000 | 30 | 192 003141 | 30 |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ u | |
|----------|----------|----------|------|-----------|----------------------|------|-------------------------------------|-------|----------------------------|---------|------|------------------------|------|
| 120 | 73 | 193 | Ta | x | -20870# | 400# | 7884# | 2# | β^- | 5420# | 450# | 192 977600# | 430# |
| 119 | 74 | | W | x | -26290# | 200# | 7908# | 1# | β^- | 3950# | 200# | 192 971780# | 210# |
| 118 | 75 | | Re | x | -30230 | 40 | 7923.94 | 0.20 | β^- | 3160 | 40 | 192 967550 | 40 |
| 117 | 76 | | Os | | -33394.3 | 2.3 | 7936.270 | 0.012 | β^- | 1141.9 | 2.4 | 192 964149.8 | 2.5 |
| 116 | 77 | | Ir | | -34536.2 | 1.3 | 7938.133 | 0.007 | | * | | 192 962923.8 | 1.4 |
| 115 | 78 | | Pt | | -34479.6 | 1.4 | 7933.786 | 0.007 | β^+ | 56.63 | 0.30 | 192 962984.6 | 1.5 |
| 114 | 79 | | Au | | -33405 | 9 | 7924.16 | 0.04 | β^+ | 1075 | 9 | 192 964138 | 9 |
| 113 | 80 | | Hg | | -31062 | 16 | 7907.97 | 0.08 | β^+ | 2343 | 14 | 192 966653 | 17 |
| 112 | 81 | | Tl | x | -27477 | 7 | 7885.34 | 0.03 | β^+ | 3585 | 17 | 192 970502 | 7 |
| 111 | 82 | | Pb | x | -22190 | 50 | 7853.92 | 0.26 | β^+ | 5280 | 50 | 192 976170 | 50 |
| 110 | 83 | | Bi | | -15885 | 8 | 7817.17 | 0.04 | β^+ | 6310 | 50 | 192 982947 | 8 |
| 109 | 84 | | Po | $-\alpha$ | -8325 | 15 | 7773.95 | 0.08 | β^+ | 7559 | 16 | 192 991062 | 16 |
| 108 | 85 | | At | $-\alpha$ | -67 | 22 | 7727.11 | 0.11 | β^+ | 8258 | 26 | 192 999928 | 23 |
| 107 | 86 | | Rn | $-\alpha$ | 9043 | 25 | 7675.85 | 0.13 | β^+ | 9110 | 30 | 193 009708 | 27 |
| 121 | 73 | 194 | Ta | x | -17300# | 500# | 7866# | 3# | β^- | 7230# | 590# | 193 981430# | 540# |
| 120 | 74 | | W | x | -24530# | 300# | 7899# | 2# | β^- | 2710# | 360# | 193 973670# | 320# |
| 119 | 75 | | Re | x | -27240# | 200# | 7909# | 1# | β^- | 5200# | 200# | 193 970760# | 210# |
| 118 | 76 | | Os | + | -32435.1 | 2.4 | 7932.022 | 0.012 | β^- | 96.6 | 2.0 | 193 965179.5 | 2.6 |
| 117 | 77 | | Ir | -n | -32531.7 | 1.3 | 7928.487 | 0.007 | β^- | 2228.4 | 1.3 | 193 965075.8 | 1.4 |
| 116 | 78 | | Pt | | -34760.1 | 0.5 | 7935.941 | 0.003 | | * | | 193 962683.5 | 0.5 |
| 115 | 79 | | Au | +3n | -32211.9 | 2.1 | 7918.774 | 0.011 | β^+ | 2548.1 | 2.1 | 193 965419.1 | 2.3 |
| 114 | 80 | | Hg | x | -32183.9 | 2.9 | 7914.597 | 0.015 | β^+ | 28 | 4 | 193 965449 | 3 |
| 113 | 81 | | Tl | x | -26937 | 14 | 7883.52 | 0.07 | β^+ | 5246 | 14 | 193 971081 | 15 |
| 112 | 82 | | Pb | | -24208 | 17 | 7865.42 | 0.09 | β^+ | 2730 | 22 | 193 974012 | 19 |
| 111 | 83 | | Bi | $+\alpha$ | -16029 | 6 | 7819.22 | 0.03 | β^+ | 8179 | 18 | 193 982792 | 7 |
| 110 | 84 | | Po | $-\alpha$ | -11005 | 13 | 7789.29 | 0.07 | β^+ | 5024 | 14 | 193 988186 | 14 |
| 109 | 85 | | At | $-\alpha$ | -720 | 25 | 7732.25 | 0.13 | β^+ | 10284 | 28 | 193 999227 | 27 |
| 108 | 86 | | Rn | $-\alpha$ | 5723 | 17 | 7695.00 | 0.09 | β^+ | 6440 | 30 | 194 006144 | 18 |
| 121 | 74 | 195 | W | x | -21010# | 300# | 7882# | 2# | β^- | 4570# | 420# | 194 977450# | 320# |
| 120 | 75 | | Re | x | -25580# | 300# | 7902# | 2# | β^- | 3930# | 300# | 194 972540# | 320# |
| 119 | 76 | | Os | x | -29510 | 60 | 7917.74 | 0.29 | β^- | 2180 | 60 | 194 968320 | 60 |
| 118 | 77 | | Ir | -n | -31692.3 | 1.3 | 7924.915 | 0.007 | β^- | 1101.6 | 1.3 | 194 965977.0 | 1.4 |
| 117 | 78 | | Pt | | -32793.8 | 0.5 | 7926.552 | 0.003 | | * | | 194 964794.4 | 0.5 |
| 116 | 79 | | Au | | -32567.0 | 1.1 | 7921.377 | 0.006 | β^+ | 226.8 | 1.0 | 194 965037.9 | 1.2 |
| 115 | 80 | | Hg | | -31013 | 23 | 7909.40 | 0.12 | β^+ | 1554 | 23 | 194 966706 | 25 |
| 114 | 81 | | Tl | | -28155 | 11 | 7890.73 | 0.06 | β^+ | 2858 | 26 | 194 969774 | 12 |
| 113 | 82 | | Pb | | -23708 | 18 | 7863.91 | 0.09 | β^+ | 4448 | 21 | 194 974549 | 19 |
| 112 | 83 | | Bi | | -18026 | 5 | 7830.757 | 0.027 | β^+ | 5682 | 19 | 194 980649 | 6 |
| 111 | 84 | | Po | $-\alpha$ | -11060 | 40 | 7791.01 | 0.19 | β^+ | 6970 | 40 | 194 988130 | 40 |
| 110 | 85 | | At | $-\alpha$ | -3470 | 10 | 7748.09 | 0.05 | β^+ | 7590 | 40 | 194 996274 | 10 |
| 109 | 86 | | Rn | $-\alpha$ | 5050 | 50 | 7700.38 | 0.26 | β^+ | 8520 | 50 | 195 005420 | 50 |
| 122 | 74 | 196 | W | x | -18880# | 400# | 7872# | 2# | β^- | 3660# | 500# | 195 979730# | 430# |
| 121 | 75 | | Re | x | -22540# | 300# | 7887# | 2# | β^- | 5740# | 300# | 195 975800# | 320# |
| 120 | 76 | | Os | +pp | -28280 | 40 | 7912.23 | 0.20 | β^- | 1160 | 60 | 195 969640 | 40 |
| 119 | 77 | | Ir | + | -29440 | 40 | 7914.15 | 0.20 | β^- | 3210 | 40 | 195 968400 | 40 |
| 118 | 78 | | Pt | | -32644.5 | 0.5 | 7926.529 | 0.003 | β^- | -1505.8 | 3.0 | 195 964954.7 | 0.5 |
| 117 | 79 | | Au | | -31138.7 | 3.0 | 7914.855 | 0.015 | β^- | 687 | 3 | 195 966571 | 3 |
| 116 | 80 | | Hg | | -31825.9 | 2.9 | 7914.369 | 0.015 | | * | | 195 965833 | 3 |
| 115 | 81 | | Tl | x | -27497 | 12 | 7888.29 | 0.06 | β^+ | 4329 | 12 | 195 970481 | 13 |
| 114 | 82 | | Pb | | -25348 | 8 | 7873.34 | 0.04 | β^+ | 2148 | 14 | 195 972787 | 8 |
| 113 | 83 | | Bi | x | -18009 | 24 | 7831.90 | 0.12 | β^+ | 7339 | 26 | 195 980667 | 26 |
| 112 | 84 | | Po | $-\alpha$ | -13473 | 14 | 7804.77 | 0.07 | β^+ | 4536 | 28 | 195 985536 | 15 |
| 111 | 85 | | At | $-\alpha$ | -3910 | 30 | 7752.01 | 0.15 | β^+ | 9560 | 30 | 195 995800 | 30 |
| 110 | 86 | | Rn | $-\alpha$ | 1971 | 14 | 7717.99 | 0.07 | β^+ | 5890 | 30 | 196 002116 | 15 |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ u | |
|----------|----------|----------|------|-----------|----------------------|------|-------------------------------------|-------|----------------------------|--------|------|------------------------|------|
| 123 | 74 | 197 | W | x | -15140# | 400# | 7854# | 2# | β^- | 5360# | 500# | 196 983750# | 430# |
| 122 | 75 | | Re | x | -20500# | 300# | 7878# | 2# | β^- | 4810# | 360# | 196 977990# | 320# |
| 121 | 76 | | Os | x | -25310# | 200# | 7898# | 1# | β^- | 2960# | 200# | 196 972830# | 210# |
| 120 | 77 | | Ir | +p | -28264 | 20 | 7909.00 | 0.10 | β^- | 2156 | 20 | 196 969657 | 22 |
| 119 | 78 | | Pt | | -30419.7 | 0.5 | 7915.971 | 0.003 | β^- | 720.0 | 0.5 | 196 967343.1 | 0.6 |
| 118 | 79 | | Au | | -31139.7 | 0.5 | 7915.654 | 0.003 | * | | | 196 966570.1 | 0.6 |
| 117 | 80 | | Hg | | -30540 | 3 | 7908.640 | 0.016 | β^+ | 600 | 3 | 196 967214 | 3 |
| 116 | 81 | | Tl | $+\alpha$ | -28342 | 16 | 7893.51 | 0.08 | β^+ | 2199 | 17 | 196 969574 | 18 |
| 115 | 82 | | Pb | | -24745 | 5 | 7871.282 | 0.024 | β^+ | 3596 | 17 | 196 973435 | 5 |
| 114 | 83 | | Bi | $+\alpha$ | -19687 | 8 | 7841.63 | 0.04 | β^+ | 5058 | 10 | 196 978865 | 9 |
| 113 | 84 | | Po | $-\alpha$ | -13360 | 50 | 7805.53 | 0.25 | β^+ | 6330 | 50 | 196 985660 | 50 |
| 112 | 85 | | At | | -6355 | 8 | 7766.02 | 0.04 | β^+ | 7000 | 50 | 196 993177 | 9 |
| 111 | 86 | | Rn | $-\alpha$ | 1510 | 16 | 7722.12 | 0.08 | β^+ | 7866 | 18 | 197 001621 | 17 |
| 110 | 87 | | Fr | $-\alpha$ | 10250 | 50 | 7673.76 | 0.28 | β^+ | 8740 | 60 | 197 011010 | 60 |
| 123 | 75 | 198 | Re | x | -17140# | 400# | 7862# | 2# | β^- | 6700# | 450# | 197 981600# | 430# |
| 122 | 76 | | Os | x | -23840# | 200# | 7891# | 1# | β^- | 1980# | 280# | 197 974410# | 210# |
| 121 | 77 | | Ir | x | -25820# | 200# | 7897# | 1# | β^- | 4080# | 200# | 197 972280# | 210# |
| 120 | 78 | | Pt | | -29904.0 | 2.1 | 7914.150 | 0.011 | β^- | -323.2 | 2.1 | 197 967896.7 | 2.3 |
| 119 | 79 | | Au | | -29580.8 | 0.5 | 7908.567 | 0.003 | β^- | 1373.5 | 0.5 | 197 968243.7 | 0.6 |
| 118 | 80 | | Hg | | -30954.3 | 0.5 | 7911.552 | 0.002 | * | | | 197 966769.2 | 0.5 |
| 117 | 81 | | Tl | x | -27529 | 8 | 7890.30 | 0.04 | β^+ | 3426 | 8 | 197 970447 | 8 |
| 116 | 82 | | Pb | | -26067 | 9 | 7878.97 | 0.04 | β^+ | 1461 | 12 | 197 972015 | 9 |
| 115 | 83 | | Bi | x | -19369 | 28 | 7841.19 | 0.14 | β^+ | 6698 | 29 | 197 979210 | 30 |
| 114 | 84 | | Po | | -15473 | 17 | 7817.56 | 0.09 | β^+ | 3900 | 30 | 197 983389 | 19 |
| 113 | 85 | | At | x | -6715 | 6 | 7769.373 | 0.030 | β^+ | 8759 | 18 | 197 992792 | 6 |
| 112 | 86 | | Rn | $-\alpha$ | -1230 | 13 | 7737.72 | 0.07 | β^+ | 5484 | 15 | 197 998679 | 14 |
| 111 | 87 | | Fr | $-\alpha$ | 9570 | 30 | 7679.21 | 0.16 | β^+ | 10800 | 30 | 198 010280 | 30 |
| 124 | 75 | 199 | Re | x | -14860# | 400# | 7851# | 2# | β^- | 5620# | 450# | 198 984050# | 430# |
| 123 | 76 | | Os | x | -20480# | 200# | 7875# | 1# | β^- | 3920# | 200# | 198 978010# | 210# |
| 122 | 77 | | Ir | p-2n | -24400 | 40 | 7891.21 | 0.21 | β^- | 2990 | 40 | 198 973810 | 40 |
| 121 | 78 | | Pt | -n | -27388.7 | 2.2 | 7902.300 | 0.011 | β^- | 1705.1 | 2.1 | 198 970597.0 | 2.3 |
| 120 | 79 | | Au | | -29093.7 | 0.5 | 7906.937 | 0.003 | β^- | 452.3 | 0.6 | 198 968766.6 | 0.6 |
| 119 | 80 | | Hg | | -29546.1 | 0.5 | 7905.279 | 0.003 | * | | | 198 968281.0 | 0.6 |
| 118 | 81 | | Tl | x | -28059 | 28 | 7893.88 | 0.14 | β^+ | 1487 | 28 | 198 969880 | 30 |
| 117 | 82 | | Pb | $+\alpha$ | -25232 | 10 | 7875.74 | 0.05 | β^+ | 2828 | 30 | 198 972913 | 11 |
| 116 | 83 | | Bi | | -20798 | 11 | 7849.52 | 0.05 | β^+ | 4434 | 15 | 198 977673 | 11 |
| 115 | 84 | | Po | $-\alpha$ | -15208 | 18 | 7817.50 | 0.09 | β^+ | 5589 | 21 | 198 983673 | 19 |
| 114 | 85 | | At | | -8823 | 5 | 7781.488 | 0.027 | β^+ | 6385 | 19 | 198 990528 | 6 |
| 113 | 86 | | Rn | $-\alpha$ | -1500 | 40 | 7740.75 | 0.19 | β^+ | 7320 | 40 | 198 998390 | 40 |
| 112 | 87 | | Fr | $-\alpha$ | 6771 | 14 | 7695.26 | 0.07 | β^+ | 8270 | 40 | 199 007269 | 15 |
| 124 | 76 | 200 | Os | x | -18780# | 300# | 7868# | 1# | β^- | 2830# | 360# | 199 979840# | 320# |
| 123 | 77 | | Ir | x | -21610# | 200# | 7878# | 1# | β^- | 4990# | 200# | 199 976800# | 210# |
| 122 | 78 | | Pt | -nn | -26599 | 20 | 7899.20 | 0.10 | β^- | 640 | 30 | 199 971445 | 22 |
| 121 | 79 | | Au | | -27240 | 27 | 7898.49 | 0.13 | β^- | 2263 | 27 | 199 970757 | 29 |
| 120 | 80 | | Hg | | -29503.3 | 0.5 | 7905.895 | 0.003 | * | | | 199 968326.9 | 0.6 |
| 119 | 81 | | Tl | - | -27047 | 6 | 7889.703 | 0.029 | β^+ | 2456 | 6 | 199 970964 | 6 |
| 118 | 82 | | Pb | 4n | -26251 | 11 | 7881.81 | 0.05 | β^+ | 796 | 12 | 199 971818 | 12 |
| 117 | 83 | | Bi | $+\alpha$ | -20371 | 22 | 7848.50 | 0.11 | β^+ | 5880 | 25 | 199 978131 | 24 |
| 116 | 84 | | Po | | -16942 | 8 | 7827.44 | 0.04 | β^+ | 3429 | 24 | 199 981812 | 8 |
| 115 | 85 | | At | $-\alpha$ | -8988 | 24 | 7783.76 | 0.12 | β^+ | 7954 | 26 | 199 990351 | 26 |
| 114 | 86 | | Rn | $-\alpha$ | -4005 | 14 | 7754.93 | 0.07 | β^+ | 4983 | 28 | 199 995701 | 15 |
| 113 | 87 | | Fr | $-\alpha$ | 6130 | 30 | 7700.33 | 0.15 | β^+ | 10140 | 30 | 200 006580 | 30 |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| N | Z | A | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μu | |
|-----|-----|-----|------|-----------|----------------------|------|-------------------------------------|-------|----------------------------|--------|------|------------------------|------|
| 125 | 76 | 201 | Os | x | -15240# | 300# | 7851# | 1# | β^- | 4660# | 360# | 200 983640# | 320# |
| 124 | 77 | | Ir | x | -19900# | 200# | 7871# | 1# | β^- | 3840# | 200# | 200 978640# | 210# |
| 123 | 78 | | Pt | + | -23740 | 50 | 7885.83 | 0.25 | β^- | 2660 | 50 | 200 974510 | 50 |
| 122 | 79 | | Au | | -26401 | 3 | 7895.175 | 0.016 | β^- | 1262 | 3 | 200 971658 | 3 |
| 121 | 80 | | Hg | | -27662.5 | 0.7 | 7897.560 | 0.004 | * | | | 200 970303.0 | 0.8 |
| 120 | 81 | | Tl | | -27181 | 14 | 7891.27 | 0.07 | β^+ | 482 | 14 | 200 970820 | 15 |
| 119 | 82 | | Pb | | -25271 | 14 | 7877.88 | 0.07 | β^+ | 1910 | 19 | 200 972870 | 15 |
| 118 | 83 | | Bi | $+\alpha$ | -21416 | 15 | 7854.81 | 0.08 | β^+ | 3855 | 20 | 200 977009 | 16 |
| 117 | 84 | | Po | | -16521 | 5 | 7826.561 | 0.025 | β^+ | 4895 | 16 | 200 982264 | 5 |
| 116 | 85 | | At | $+\alpha$ | -10789 | 8 | 7794.15 | 0.04 | β^+ | 5732 | 10 | 200 988417 | 9 |
| 115 | 86 | | Rn | $-\alpha$ | -4070 | 50 | 7756.84 | 0.25 | β^+ | 6720 | 50 | 200 995630 | 50 |
| 114 | 87 | | Fr | $-\alpha$ | 3589 | 9 | 7714.84 | 0.05 | β^+ | 7660 | 50 | 201 003852 | 10 |
| 113 | 88 | | Ra | $-\alpha$ | 11937 | 20 | 7669.41 | 0.10 | β^+ | 8348 | 22 | 201 012815 | 22 |
| 126 | 76 | 202 | Os | x | -13090# | 400# | 7842# | 2# | β^- | 3690# | 500# | 201 985950# | 430# |
| 125 | 77 | | Ir | x | -16780# | 300# | 7856# | 1# | β^- | 5920# | 300# | 201 981990# | 320# |
| 124 | 78 | | Pt | x | -22692 | 25 | 7881.56 | 0.12 | β^- | 1660 | 30 | 201 975639 | 27 |
| 123 | 79 | | Au | x | -24353 | 23 | 7885.91 | 0.12 | β^- | 2992 | 23 | 201 973856 | 25 |
| 122 | 80 | | Hg | | -27345.3 | 0.7 | 7896.850 | 0.003 | * | | | 201 970643.6 | 0.8 |
| 121 | 81 | | Tl | | -25980.2 | 1.6 | 7886.219 | 0.008 | β^+ | 1365.1 | 1.6 | 201 972109.1 | 1.7 |
| 120 | 82 | | Pb | | -25941 | 4 | 7882.150 | 0.019 | β^+ | 40 | 4 | 201 972152 | 4 |
| 119 | 83 | | Bi | | -20741 | 15 | 7852.54 | 0.08 | β^+ | 5199 | 16 | 201 977733 | 17 |
| 118 | 84 | | Po | | -17942 | 9 | 7834.80 | 0.04 | β^+ | 2800 | 18 | 201 980739 | 9 |
| 117 | 85 | | At | $-\alpha$ | -10591 | 28 | 7794.54 | 0.14 | β^+ | 7351 | 29 | 201 988630 | 30 |
| 116 | 86 | | Rn | $-\alpha$ | -6275 | 18 | 7769.30 | 0.09 | β^+ | 4320 | 30 | 201 993264 | 19 |
| 115 | 87 | | Fr | $-\alpha$ | 3096 | 7 | 7719.04 | 0.03 | β^+ | 9371 | 19 | 202 003324 | 8 |
| 114 | 88 | | Ra | $-\alpha$ | 9075 | 15 | 7685.57 | 0.07 | β^+ | 5979 | 17 | 202 009742 | 16 |
| 127 | 76 | 203 | Os | x | -7640# | 400# | 7816# | 2# | β^- | 7050# | 570# | 202 991800# | 430# |
| 126 | 77 | | Ir | x | -14690# | 400# | 7847# | 2# | β^- | 4940# | 450# | 202 984230# | 430# |
| 125 | 78 | | Pt | x | -19630# | 200# | 7867# | 1# | β^- | 3520# | 200# | 202 978930# | 210# |
| 124 | 79 | | Au | | -23143 | 3 | 7880.864 | 0.015 | β^- | 2126 | 3 | 202 975154 | 3 |
| 123 | 80 | | Hg | | -25269.3 | 1.6 | 7887.482 | 0.008 | β^- | 492.1 | 1.2 | 202 972872.3 | 1.7 |
| 122 | 81 | | Tl | | -25761.4 | 1.2 | 7886.053 | 0.006 | * | | | 202 972344.0 | 1.3 |
| 121 | 82 | | Pb | | -24787 | 7 | 7877.40 | 0.03 | β^+ | 975 | 6 | 202 973391 | 7 |
| 120 | 83 | | Bi | $+\alpha$ | -21525 | 13 | 7857.48 | 0.06 | β^+ | 3262 | 14 | 202 976892 | 14 |
| 119 | 84 | | Po | $+\alpha$ | -17311 | 9 | 7832.86 | 0.04 | β^+ | 4214 | 15 | 202 981416 | 9 |
| 118 | 85 | | At | | -12163 | 11 | 7803.65 | 0.05 | β^+ | 5148 | 14 | 202 986943 | 11 |
| 117 | 86 | | Rn | $-\alpha$ | -6154 | 18 | 7770.19 | 0.09 | β^+ | 6009 | 21 | 202 993394 | 20 |
| 116 | 87 | | Fr | | 876 | 6 | 7731.71 | 0.03 | β^+ | 7030 | 19 | 203 000941 | 7 |
| 115 | 88 | | Ra | $-\alpha$ | 8660 | 40 | 7689.50 | 0.19 | β^+ | 7790 | 40 | 203 009300 | 40 |
| 127 | 77 | 204 | Ir | x | -9690# | 400# | 7824# | 2# | β^- | 8230# | 450# | 203 989600# | 430# |
| 126 | 78 | | Pt | x | -17920# | 200# | 7860# | 1# | β^- | 2730# | 280# | 203 980760# | 210# |
| 125 | 79 | | Au | + | -20650# | 200# | 7870# | 1# | β^- | 4040# | 200# | 203 977830# | 220# |
| 124 | 80 | | Hg | | -24690.1 | 0.5 | 7885.545 | 0.003 | β^- | -344.0 | 1.2 | 203 973494.0 | 0.5 |
| 123 | 81 | | Tl | | -24346.1 | 1.2 | 7880.023 | 0.006 | β^- | 763.75 | 0.18 | 203 973863.3 | 1.2 |
| 122 | 82 | | Pb | | -25109.9 | 1.1 | 7879.932 | 0.006 | * | | | 203 973043.4 | 1.2 |
| 121 | 83 | | Bi | $+\alpha$ | -20646 | 9 | 7854.21 | 0.05 | β^+ | 4464 | 9 | 203 977836 | 10 |
| 120 | 84 | | Po | $-\alpha$ | -18341 | 11 | 7839.08 | 0.05 | β^+ | 2305 | 14 | 203 980310 | 12 |
| 119 | 85 | | At | | -11875 | 22 | 7803.55 | 0.11 | β^+ | 6466 | 25 | 203 987251 | 24 |
| 118 | 86 | | Rn | | -7970 | 7 | 7780.57 | 0.04 | β^+ | 3905 | 23 | 203 991444 | 8 |
| 117 | 87 | | Fr | $-\alpha$ | 607 | 25 | 7734.69 | 0.12 | β^+ | 8578 | 26 | 204 000652 | 26 |
| 116 | 88 | | Ra | $-\alpha$ | 6057 | 15 | 7704.14 | 0.07 | β^+ | 5449 | 29 | 204 006502 | 16 |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ u | |
|----------|----------|----------|------|-----------|----------------------|------|-------------------------------------|-------|----------------------------|--------|------|------------------------|------|
| 128 | 77 | 205 | Ir | x | -5960# | 500# | 7807# | 2# | β^- | 7010# | 590# | 204 993600# | 540# |
| 127 | 78 | | Pt | x | -12970# | 300# | 7837# | 1# | β^- | 5800# | 360# | 204 986080# | 320# |
| 126 | 79 | | Au | x | -18770# | 200# | 7861# | 1# | β^- | 3520# | 200# | 204 979850# | 210# |
| 125 | 80 | | Hg | | -22288 | 4 | 7874.732 | 0.018 | β^- | 1533 | 4 | 204 976073 | 4 |
| 124 | 81 | | Tl | | -23820.9 | 1.2 | 7878.394 | 0.006 | * | | | 204 974427.2 | 1.3 |
| 123 | 82 | | Pb | | -23770.2 | 1.1 | 7874.331 | 0.006 | β^+ | 50.6 | 0.5 | 204 974481.6 | 1.2 |
| 122 | 83 | | Bi | | -21065 | 5 | 7857.316 | 0.025 | β^+ | 2706 | 5 | 204 977386 | 5 |
| 121 | 84 | | Po | | -17521 | 10 | 7836.22 | 0.05 | β^+ | 3543 | 11 | 204 981190 | 11 |
| 120 | 85 | | At | $+\alpha$ | -12972 | 15 | 7810.21 | 0.07 | β^+ | 4549 | 18 | 204 986074 | 16 |
| 119 | 86 | | Rn | | -7710 | 5 | 7780.722 | 0.025 | β^+ | 5262 | 16 | 204 991723 | 5 |
| 118 | 87 | | Fr | x | -1310 | 8 | 7745.69 | 0.04 | β^+ | 6400 | 9 | 204 998594 | 8 |
| 117 | 88 | | Ra | $-\alpha$ | 5840 | 70 | 7707.0 | 0.3 | β^+ | 7150 | 70 | 205 006270 | 80 |
| 116 | 89 | | Ac | $-\alpha$ | 14110 | 50 | 7662.85 | 0.25 | β^+ | 8270 | 90 | 205 015140 | 50 |
| 128 | 78 | 206 | Pt | x | -9630# | 300# | 7822# | 1# | β^- | 4580# | 420# | 205 989660# | 320# |
| 127 | 79 | | Au | x | -14220# | 300# | 7840# | 1# | β^- | 6730# | 300# | 205 984740# | 320# |
| 126 | 80 | | Hg | $+\alpha$ | -20946 | 20 | 7869.17 | 0.10 | β^- | 1308 | 20 | 205 977514 | 22 |
| 125 | 81 | | Tl | | -22253.4 | 1.3 | 7871.721 | 0.006 | β^- | 1532.2 | 0.6 | 205 976110.0 | 1.4 |
| 124 | 82 | | Pb | | -23785.6 | 1.1 | 7875.362 | 0.006 | * | | | 205 974465.1 | 1.2 |
| 123 | 83 | | Bi | — | -20028 | 8 | 7853.32 | 0.04 | β^+ | 3757 | 8 | 205 978499 | 8 |
| 122 | 84 | | Po | $-\alpha$ | -18189 | 4 | 7840.597 | 0.019 | β^+ | 1840 | 9 | 205 980474 | 4 |
| 121 | 85 | | At | | -12430 | 15 | 7808.84 | 0.07 | β^+ | 5759 | 16 | 205 986656 | 16 |
| 120 | 86 | | Rn | | -9133 | 9 | 7789.04 | 0.04 | β^+ | 3297 | 17 | 205 990195 | 9 |
| 119 | 87 | | Fr | $-\alpha$ | -1242 | 28 | 7746.94 | 0.14 | β^+ | 7891 | 29 | 205 998670 | 30 |
| 118 | 88 | | Ra | $-\alpha$ | 3566 | 18 | 7719.80 | 0.09 | β^+ | 4810 | 30 | 206 003828 | 19 |
| 117 | 89 | | Ac | $-\alpha$ | 13480 | 50 | 7667.88 | 0.25 | β^+ | 9910 | 50 | 206 014470 | 50 |
| 129 | 78 | 207 | Pt | x | -4540# | 400# | 7798# | 2# | β^- | 6270# | 500# | 206 995130# | 430# |
| 128 | 79 | | Au | x | -10810# | 300# | 7825# | 1# | β^- | 5680# | 300# | 206 988400# | 320# |
| 127 | 80 | | Hg | x | -16487 | 30 | 7848.61 | 0.14 | β^- | 4550 | 30 | 206 982300 | 30 |
| 126 | 81 | | Tl | | -21034 | 5 | 7866.797 | 0.026 | β^- | 1418 | 5 | 206 977419 | 6 |
| 125 | 82 | | Pb | | -22452.0 | 1.1 | 7869.866 | 0.006 | * | | | 206 975896.7 | 1.2 |
| 124 | 83 | | Bi | | -20054.6 | 2.4 | 7854.505 | 0.012 | β^+ | 2397.4 | 2.1 | 206 978470.5 | 2.6 |
| 123 | 84 | | Po | | -17146 | 7 | 7836.67 | 0.03 | β^+ | 2909 | 7 | 206 981593 | 7 |
| 122 | 85 | | At | $+\alpha$ | -13227 | 12 | 7813.96 | 0.06 | β^+ | 3918 | 14 | 206 985800 | 13 |
| 121 | 86 | | Rn | $+\alpha$ | -8635 | 8 | 7788.00 | 0.04 | β^+ | 4593 | 15 | 206 990730 | 9 |
| 120 | 87 | | Fr | | -2844 | 18 | 7756.25 | 0.08 | β^+ | 5790 | 19 | 206 996946 | 19 |
| 119 | 88 | | Ra | $-\alpha$ | 3540 | 50 | 7721.60 | 0.26 | β^+ | 6390 | 60 | 207 003810 | 60 |
| 118 | 89 | | Ac | $-\alpha$ | 11150 | 50 | 7681.10 | 0.24 | β^+ | 7600 | 70 | 207 011970 | 50 |
| 130 | 78 | 208 | Pt | x | -990# | 400# | 7783# | 2# | β^- | 5110# | 500# | 207 998940# | 430# |
| 129 | 79 | | Au | x | -6100# | 300# | 7804# | 1# | β^- | 7160# | 300# | 207 993450# | 320# |
| 128 | 80 | | Hg | x | -13270 | 30 | 7834.19 | 0.15 | β^- | 3480 | 30 | 207 985760 | 30 |
| 127 | 81 | | Tl | $+\alpha$ | -16750.1 | 1.9 | 7847.183 | 0.009 | β^- | 4998.5 | 1.7 | 207 982018.0 | 2.0 |
| 126 | 82 | | Pb | | -21748.6 | 1.1 | 7867.453 | 0.006 | * | | | 207 976651.9 | 1.2 |
| 125 | 83 | | Bi | $+\alpha$ | -18870.2 | 2.3 | 7849.853 | 0.011 | β^+ | 2878.4 | 2.0 | 207 979742.0 | 2.5 |
| 124 | 84 | | Po | $-\alpha$ | -17469.6 | 1.7 | 7839.358 | 0.008 | β^+ | 1400.6 | 2.4 | 207 981245.6 | 1.9 |
| 123 | 85 | | At | $+\alpha$ | -12470 | 9 | 7811.56 | 0.04 | β^+ | 5000 | 9 | 207 986613 | 10 |
| 122 | 86 | | Rn | $-\alpha$ | -9656 | 11 | 7794.27 | 0.05 | β^+ | 2814 | 14 | 207 989634 | 12 |
| 121 | 87 | | Fr | | -2666 | 12 | 7756.90 | 0.06 | β^+ | 6990 | 16 | 207 997138 | 13 |
| 120 | 88 | | Ra | $-\alpha$ | 1728 | 9 | 7732.02 | 0.04 | β^+ | 4394 | 15 | 208 001855 | 10 |
| 119 | 89 | | Ac | $-\alpha$ | 10750 | 60 | 7684.86 | 0.27 | β^+ | 9030 | 60 | 208 011540 | 60 |
| 118 | 90 | | Th | $-\alpha$ | 16680 | 30 | 7652.59 | 0.16 | β^+ | 5930 | 70 | 208 017910 | 40 |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ u | |
|----------|----------|----------|------|-----------|----------------------|------|-------------------------------------|-------|----------------------------|---------|------|------------------------|------|
| 130 | 79 | 209 | Au | x | -2540# | 400# | 7788# | 2# | β^- | 6100# | 430# | 208 997270# | 430# |
| 129 | 80 | | Hg | x | -8640# | 150# | 7813# | 1# | β^- | 5000# | 150# | 208 990720# | 160# |
| 128 | 81 | | Tl | $+\alpha$ | -13645 | 6 | 7833.397 | 0.029 | β^- | 3970 | 6 | 208 985352 | 7 |
| 127 | 82 | | Pb | | -17614.6 | 1.7 | 7848.648 | 0.008 | β^- | 644.0 | 1.1 | 208 981089.9 | 1.9 |
| 126 | 83 | | Bi | | -18258.7 | 1.4 | 7847.987 | 0.007 | * | | | 208 980398.5 | 1.5 |
| 125 | 84 | | Po | $-\alpha$ | -16366.1 | 1.8 | 7835.188 | 0.009 | β^+ | 1892.6 | 1.6 | 208 982430.3 | 1.9 |
| 124 | 85 | | At | | -12883 | 5 | 7814.777 | 0.024 | β^+ | 3483 | 5 | 208 986170 | 5 |
| 123 | 86 | | Rn | | -8941 | 10 | 7792.17 | 0.05 | β^+ | 3942 | 11 | 208 990401 | 11 |
| 122 | 87 | | Fr | x | -3770 | 15 | 7763.69 | 0.07 | β^+ | 5171 | 18 | 208 995953 | 16 |
| 121 | 88 | | Ra | $-\alpha$ | 1858 | 6 | 7733.017 | 0.027 | β^+ | 5628 | 16 | 209 001995 | 6 |
| 120 | 89 | | Ac | $-\alpha$ | 8840 | 50 | 7695.85 | 0.24 | β^+ | 6990 | 50 | 209 009490 | 50 |
| 119 | 90 | | Th | IT | 16370# | 140# | 7656# | 1# | β^+ | 7520# | 150# | 209 017570# | 150# |
| 131 | 79 | 210 | Au | x | 2330# | 400# | 7766# | 2# | β^- | 7690# | 450# | 210 002500# | 430# |
| 130 | 80 | | Hg | x | -5370# | 200# | 7799# | 1# | β^- | 3880# | 200# | 209 994240# | 210# |
| 129 | 81 | | Tl | $+\alpha$ | -9247 | 12 | 7813.59 | 0.06 | β^- | 5482 | 12 | 209 990073 | 12 |
| 128 | 82 | | Pb | | -14728.5 | 1.4 | 7835.965 | 0.007 | β^- | 63.5 | 0.5 | 209 984188.3 | 1.6 |
| 127 | 83 | | Bi | | -14792.0 | 1.4 | 7832.542 | 0.006 | β^- | 1161.2 | 0.8 | 209 984120.2 | 1.5 |
| 126 | 84 | | Po | | -15953.1 | 1.1 | 7834.346 | 0.005 | * | | | 209 982873.6 | 1.2 |
| 125 | 85 | | At | $-\alpha$ | -11972 | 8 | 7811.66 | 0.04 | β^+ | 3981 | 8 | 209 987147 | 8 |
| 124 | 86 | | Rn | $-\alpha$ | -9605 | 5 | 7796.665 | 0.022 | β^+ | 2367 | 9 | 209 989689 | 5 |
| 123 | 87 | | Fr | | -3333 | 15 | 7763.07 | 0.07 | β^+ | 6272 | 16 | 209 996422 | 16 |
| 122 | 88 | | Ra | $-\alpha$ | 443 | 9 | 7741.37 | 0.04 | β^+ | 3776 | 18 | 210 000475 | 10 |
| 121 | 89 | | Ac | $-\alpha$ | 8790 | 60 | 7697.90 | 0.27 | β^+ | 8350 | 60 | 210 009440 | 60 |
| 120 | 90 | | Th | $-\alpha$ | 14059 | 19 | 7669.08 | 0.09 | β^+ | 5270 | 60 | 210 015093 | 20 |
| 131 | 80 | 211 | Hg | x | -620# | 200# | 7778# | 1# | β^- | 5450# | 200# | 210 999330# | 210# |
| 130 | 81 | | Tl | x | -6080 | 40 | 7799.79 | 0.20 | β^- | 4410 | 40 | 210 993480 | 50 |
| 129 | 82 | | Pb | | -10492.9 | 2.3 | 7817.007 | 0.011 | β^- | 1366 | 5 | 210 988735.4 | 2.4 |
| 128 | 83 | | Bi | | -11859 | 5 | 7819.774 | 0.026 | β^- | 573 | 5 | 210 987269 | 6 |
| 127 | 84 | | Po | $-\alpha$ | -12432.6 | 1.3 | 7818.784 | 0.006 | * | | | 210 986653.1 | 1.3 |
| 126 | 85 | | At | $-\alpha$ | -11647.3 | 2.7 | 7811.354 | 0.013 | β^+ | 785.3 | 2.5 | 210 987496.1 | 2.9 |
| 125 | 86 | | Rn | $-\alpha$ | -8755 | 7 | 7793.94 | 0.03 | β^+ | 2892 | 7 | 210 990601 | 7 |
| 124 | 87 | | Fr | | -4140 | 12 | 7768.36 | 0.06 | β^+ | 4615 | 14 | 210 995555 | 13 |
| 123 | 88 | | Ra | x | 832 | 8 | 7741.09 | 0.04 | β^+ | 4972 | 14 | 211 000893 | 9 |
| 122 | 89 | | Ac | $-\alpha$ | 7200 | 50 | 7707.19 | 0.25 | β^+ | 6370 | 50 | 211 007730 | 60 |
| 121 | 90 | | Th | $-\alpha$ | 13910 | 70 | 7671.7 | 0.3 | β^+ | 6710 | 90 | 211 014930 | 80 |
| 120 | 91 | | Pa | x | 22080# | 100# | 7629# | 0# | β^+ | 8170# | 130# | 211 023700# | 110# |
| 132 | 80 | 212 | Hg | x | 2760# | 300# | 7763# | 1# | β^- | 4310# | 360# | 212 002960# | 320# |
| 131 | 81 | | Tl | $+\alpha$ | -1550# | 200# | 7780# | 1# | β^- | 6000# | 200# | 211 998340# | 220# |
| 130 | 82 | | Pb | | -7548.8 | 1.8 | 7804.319 | 0.009 | β^- | 569.1 | 1.8 | 211 991896.0 | 2.0 |
| 129 | 83 | | Bi | | -8118.0 | 1.9 | 7803.313 | 0.009 | β^- | 2251.5 | 1.7 | 211 991285.0 | 2.0 |
| 128 | 84 | | Po | | -10369.5 | 1.2 | 7810.243 | 0.005 | β^- | -1741.3 | 2.1 | 211 988867.9 | 1.2 |
| 127 | 85 | | At | $-\alpha$ | -8628.2 | 2.4 | 7798.340 | 0.011 | β^- | 31 | 4 | 211 990737.2 | 2.6 |
| 126 | 86 | | Rn | $-\alpha$ | -8660 | 3 | 7794.797 | 0.015 | * | | | 211 990704 | 3 |
| 125 | 87 | | Fr | | -3516 | 9 | 7766.84 | 0.04 | β^+ | 5144 | 9 | 211 996225 | 9 |
| 124 | 88 | | Ra | $-\alpha$ | -199 | 11 | 7747.51 | 0.05 | β^+ | 3317 | 14 | 211 999786 | 12 |
| 123 | 89 | | Ac | $-\alpha$ | 7280 | 50 | 7708.55 | 0.24 | β^+ | 7480 | 50 | 212 007810 | 60 |
| 122 | 90 | | Th | $-\alpha$ | 12111 | 10 | 7682.06 | 0.05 | β^+ | 4830 | 50 | 212 013001 | 11 |
| 121 | 91 | | Pa | $-\alpha$ | 21590 | 70 | 7633.6 | 0.4 | β^+ | 9480 | 80 | 212 023180 | 80 |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| N | Z | A | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μu | |
|-----|-----|-----|------|-----------|----------------------|------|-------------------------------------|-------|----------------------------|-------|------|------------------------|------|
| 133 | 80 | 213 | Hg | x | 7670# | 300# | 7741# | 1# | β^- | 5880# | 300# | 213 008230# | 320# |
| 132 | 81 | | Tl | x | 1784 | 27 | 7765.43 | 0.13 | β^- | 4987 | 28 | 213 001915 | 29 |
| 131 | 82 | | Pb | $+\alpha$ | -3204 | 7 | 7785.17 | 0.03 | β^- | 2028 | 8 | 212 996561 | 7 |
| 130 | 83 | | Bi | | -5232 | 5 | 7791.021 | 0.024 | β^- | 1422 | 5 | 212 994384 | 5 |
| 129 | 84 | | Po | | -6654 | 3 | 7794.024 | 0.014 | | * | | 212 992857 | 3 |
| 128 | 85 | | At | $-\alpha$ | -6580 | 5 | 7790.003 | 0.023 | β^+ | 74 | 5 | 212 992937 | 5 |
| 127 | 86 | | Rn | $-\alpha$ | -5696 | 3 | 7782.182 | 0.016 | β^+ | 884 | 6 | 212 993885 | 4 |
| 126 | 87 | | Fr | | -3553 | 5 | 7768.447 | 0.024 | β^+ | 2143 | 6 | 212 996186 | 5 |
| 125 | 88 | | Ra | | 346 | 10 | 7746.47 | 0.05 | β^+ | 3898 | 11 | 213 000371 | 11 |
| 124 | 89 | | Ac | $-\alpha$ | 6155 | 15 | 7715.53 | 0.07 | β^+ | 5809 | 18 | 213 006607 | 16 |
| 123 | 90 | | Th | $-\alpha$ | 12120 | 9 | 7683.85 | 0.04 | β^+ | 5965 | 18 | 213 013011 | 10 |
| 122 | 91 | | Pa | $-\alpha$ | 19660 | 70 | 7644.8 | 0.3 | β^+ | 7540 | 70 | 213 021110 | 80 |
| 134 | 80 | 214 | Hg | x | 11180# | 400# | 7727# | 2# | β^- | 4710# | 450# | 214 012000# | 430# |
| 133 | 81 | | Tl | x | 6470# | 200# | 7745# | 1# | β^- | 6650# | 200# | 214 006940# | 210# |
| 132 | 82 | | Pb | | -182.8 | 2.0 | 7772.394 | 0.009 | β^- | 1018 | 11 | 213 999803.8 | 2.1 |
| 131 | 83 | | Bi | | -1201 | 11 | 7773.49 | 0.05 | β^- | 3269 | 11 | 213 998711 | 12 |
| 130 | 84 | | Po | | -4470.0 | 1.4 | 7785.116 | 0.007 | β^- | -1090 | 4 | 213 995201.2 | 1.6 |
| 129 | 85 | | At | $-\alpha$ | -3380 | 4 | 7776.366 | 0.020 | β^- | 940 | 10 | 213 996372 | 5 |
| 128 | 86 | | Rn | $-\alpha$ | -4320 | 9 | 7777.10 | 0.04 | | * | | 213 995363 | 10 |
| 127 | 87 | | Fr | $-\alpha$ | -959 | 9 | 7757.74 | 0.04 | β^+ | 3361 | 13 | 213 998971 | 9 |
| 126 | 88 | | Ra | $-\alpha$ | 93 | 5 | 7749.171 | 0.025 | β^+ | 1051 | 10 | 214 000100 | 6 |
| 125 | 89 | | Ac | $-\alpha$ | 6444 | 15 | 7715.84 | 0.07 | β^+ | 6351 | 16 | 214 006918 | 16 |
| 124 | 90 | | Th | $-\alpha$ | 10695 | 11 | 7692.32 | 0.05 | β^+ | 4251 | 19 | 214 011481 | 11 |
| 123 | 91 | | Pa | $-\alpha$ | 19490 | 80 | 7647.6 | 0.4 | β^+ | 8790 | 80 | 214 020920 | 80 |
| 135 | 80 | 215 | Hg | x | 16210# | 400# | 7705# | 2# | β^- | 6300# | 500# | 215 017400# | 430# |
| 134 | 81 | | Tl | x | 9910# | 300# | 7730# | 1# | β^- | 5570# | 300# | 215 010640# | 320# |
| 133 | 82 | | Pb | $+\alpha$ | 4340 | 50 | 7752.74 | 0.24 | β^- | 2710 | 50 | 215 004660 | 60 |
| 132 | 83 | | Bi | | 1629 | 6 | 7761.717 | 0.026 | β^- | 2171 | 6 | 215 001749 | 6 |
| 131 | 84 | | Po | | -541.7 | 2.1 | 7768.176 | 0.010 | β^- | 714 | 7 | 214 999418.5 | 2.3 |
| 130 | 85 | | At | $-\alpha$ | -1256 | 7 | 7767.86 | 0.03 | | * | | 214 998652 | 7 |
| 129 | 86 | | Rn | $-\alpha$ | -1169 | 8 | 7763.81 | 0.04 | β^+ | 87 | 10 | 214 998745 | 8 |
| 128 | 87 | | Fr | $-\alpha$ | 318 | 7 | 7753.26 | 0.03 | β^+ | 1487 | 10 | 215 004660 | 8 |
| 127 | 88 | | Ra | $-\alpha$ | 2534 | 8 | 7739.32 | 0.04 | β^+ | 2216 | 10 | 215 002720 | 8 |
| 126 | 89 | | Ac | $-\alpha$ | 6031 | 12 | 7719.41 | 0.06 | β^+ | 3497 | 15 | 215 006474 | 13 |
| 125 | 90 | | Th | $-\alpha$ | 10922 | 9 | 7693.03 | 0.04 | β^+ | 4891 | 15 | 215 011725 | 9 |
| 124 | 91 | | Pa | $-\alpha$ | 17860 | 70 | 7657.1 | 0.3 | β^+ | 6940 | 70 | 215 019180 | 80 |
| 123 | 92 | | U | $-\alpha$ | 24920 | 90 | 7620.6 | 0.4 | β^+ | 7060 | 110 | 215 026760 | 90 |
| 136 | 80 | 216 | Hg | x | 19860# | 400# | 7690# | 2# | β^- | 5140# | 500# | 216 021320# | 430# |
| 135 | 81 | | Tl | x | 14720# | 300# | 7710# | 1# | β^- | 7240# | 360# | 216 015800# | 320# |
| 134 | 82 | | Pb | x | 7480# | 200# | 7740# | 1# | β^- | 1610# | 200# | 216 008030# | 210# |
| 133 | 83 | | Bi | x | 5874 | 11 | 7743.50 | 0.05 | β^- | 4092 | 11 | 216 006306 | 12 |
| 132 | 84 | | Po | | 1782.4 | 1.8 | 7758.819 | 0.008 | β^- | -474 | 4 | 216 001913.5 | 1.9 |
| 131 | 85 | | At | $-\alpha$ | 2257 | 4 | 7753.002 | 0.017 | β^- | 2004 | 7 | 216 002423 | 4 |
| 130 | 86 | | Rn | $-\alpha$ | 253 | 6 | 7758.657 | 0.028 | | * | | 216 000271 | 6 |
| 129 | 87 | | Fr | $-\alpha$ | 2971 | 4 | 7742.451 | 0.019 | β^+ | 2718 | 7 | 216 003189 | 4 |
| 128 | 88 | | Ra | $-\alpha$ | 3291 | 9 | 7737.35 | 0.04 | β^+ | 320 | 10 | 216 003533 | 9 |
| 127 | 89 | | Ac | $-\alpha$ | 8144 | 11 | 7711.26 | 0.05 | β^+ | 4853 | 14 | 216 008743 | 12 |
| 126 | 90 | | Th | $-\alpha$ | 10298 | 12 | 7697.66 | 0.06 | β^+ | 2154 | 16 | 216 011056 | 13 |
| 125 | 91 | | Pa | $-\alpha$ | 17800 | 50 | 7659.31 | 0.25 | β^+ | 7500 | 50 | 216 019110 | 60 |
| 124 | 92 | | U | $-\alpha$ | 23066 | 28 | 7631.31 | 0.13 | β^+ | 5270 | 60 | 216 024760 | 30 |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| N | Z | A | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μu | |
|-----|-----|-----|-----------|-----------|----------------------|---------|-------------------------------------|-----------|----------------------------|--------|-------------|------------------------|------|
| 136 | 81 | 217 | Tl | x | 18310# | 400# | 7695# | 2# | β^- | 6070# | 500# | 217 019660# | 430# |
| 135 | 82 | | Pb | x | 12240# | 300# | 7719# | 1# | β^- | 3510# | 300# | 217 013140# | 320# |
| 134 | 83 | | Bi | x | 8730 | 18 | 7731.85 | 0.08 | β^- | 2846 | 19 | 217 009372 | 19 |
| 133 | 84 | | Po | $+\alpha$ | 5884 | 7 | 7741.36 | 0.03 | β^- | 1489 | 8 | 217 006316 | 7 |
| 132 | 85 | | At | | 4395 | 5 | 7744.616 | 0.023 | β^- | 736 | 6 | 217 004718 | 5 |
| 131 | 86 | | Rn | $-\alpha$ | 3659 | 4 | 7744.403 | 0.019 | * | | | 217 003928 | 5 |
| 130 | 87 | | Fr | $-\alpha$ | 4315 | 7 | 7737.77 | 0.03 | β^+ | 656 | 8 | 217 004632 | 7 |
| 129 | 88 | | Ra | $-\alpha$ | 5890 | 7 | 7726.91 | 0.03 | β^+ | 1575 | 10 | 217 006323 | 8 |
| 128 | 89 | | Ac | $-\alpha$ | 8704 | 11 | 7710.34 | 0.05 | β^+ | 2814 | 13 | 217 009344 | 12 |
| 127 | 90 | | Th | $-\alpha$ | 12206 | 11 | 7690.59 | 0.05 | β^+ | 3502 | 16 | 217 013103 | 11 |
| 126 | 91 | Pa | $-\alpha$ | 17068 | 16 | 7664.58 | 0.07 | β^+ | 4863 | 19 | 217 018324 | 17 | |
| 125 | 92 | U | $-\alpha$ | 22970# | 70# | 7634# | 0# | β^+ | 5910# | 70# | 217 024660# | 80# | |
| 137 | 81 | 218 | Tl | x | 23180# | 400# | 7674# | 2# | β^- | 7730# | 500# | 218 024890# | 430# |
| 136 | 82 | | Pb | x | 15450# | 300# | 7706# | 1# | β^- | 2240# | 300# | 218 016590# | 320# |
| 135 | 83 | | Bi | x | 13216 | 27 | 7712.83 | 0.12 | β^- | 4859 | 27 | 218 014188 | 29 |
| 134 | 84 | | Po | | 8356.9 | 2.0 | 7731.528 | 0.009 | β^- | 259 | 12 | 218 008971.5 | 2.1 |
| 133 | 85 | | At | $-\alpha$ | 8098 | 12 | 7729.13 | 0.05 | β^- | 2881 | 12 | 218 008694 | 12 |
| 132 | 86 | | Rn | | 5217.3 | 2.3 | 7738.752 | 0.011 | β^- | -1842 | 5 | 218 005601.1 | 2.5 |
| 131 | 87 | | Fr | $-\alpha$ | 7059 | 5 | 7726.715 | 0.022 | β^- | 408 | 12 | 218 007578 | 5 |
| 130 | 88 | | Ra | $-\alpha$ | 6651 | 11 | 7725.00 | 0.05 | * | | | 218 007140 | 12 |
| 129 | 89 | | Ac | $-\alpha$ | 10840 | 50 | 7702.18 | 0.23 | β^+ | 4190 | 50 | 218 011640 | 50 |
| 128 | 90 | | Th | $-\alpha$ | 12367 | 11 | 7691.60 | 0.05 | β^+ | 1520 | 50 | 218 013276 | 11 |
| 127 | 91 | Pa | $-\alpha$ | 18684 | 18 | 7659.04 | 0.08 | β^+ | 6317 | 21 | 218 020058 | 20 | |
| 126 | 92 | U | $-\alpha$ | 21895 | 14 | 7640.72 | 0.06 | β^+ | 3211 | 23 | 218 023505 | 15 | |
| 137 | 82 | 219 | Pb | x | 20280# | 400# | 7686# | 2# | β^- | 4000# | 450# | 219 021770# | 430# |
| 136 | 83 | | Bi | x | 16280# | 200# | 7700# | 1# | β^- | 3600# | 200# | 219 017480# | 210# |
| 135 | 84 | | Po | x | 12681 | 16 | 7713.33 | 0.07 | β^- | 2285 | 16 | 219 013614 | 17 |
| 134 | 85 | | At | | 10396 | 3 | 7720.196 | 0.015 | β^- | 1566.7 | 2.9 | 219 011161 | 3 |
| 133 | 86 | | Rn | | 8829.4 | 2.1 | 7723.777 | 0.010 | β^- | 212 | 7 | 219 009478.8 | 2.3 |
| 132 | 87 | | Fr | $-\alpha$ | 8618 | 7 | 7721.17 | 0.03 | * | | | 219 009252 | 8 |
| 131 | 88 | | Ra | $-\alpha$ | 9394 | 8 | 7714.05 | 0.04 | β^+ | 777 | 11 | 219 010085 | 9 |
| 130 | 89 | | Ac | $-\alpha$ | 11570 | 50 | 7700.55 | 0.23 | β^+ | 2180 | 50 | 219 012420 | 50 |
| 129 | 90 | | Th | $-\alpha$ | 14470 | 50 | 7683.73 | 0.23 | β^+ | 2900 | 70 | 219 015540 | 50 |
| 128 | 91 | | Pa | $-\alpha$ | 18540 | 50 | 7661.57 | 0.24 | β^+ | 4070 | 70 | 219 019900 | 60 |
| 127 | 92 | U | $-\alpha$ | 23290 | 50 | 7636.33 | 0.23 | β^+ | 4750 | 70 | 219 025000 | 50 | |
| 126 | 93 | Np | $-\alpha$ | 29460 | 90 | 7604.6 | 0.4 | β^+ | 6170 | 100 | 219 031620 | 90 | |
| 138 | 82 | 220 | Pb | x | 23670# | 400# | 7672# | 2# | β^- | 2850# | 500# | 220 025410# | 430# |
| 137 | 83 | | Bi | x | 20820# | 300# | 7682# | 1# | β^- | 5560# | 300# | 220 022350# | 320# |
| 136 | 84 | | Po | x | 15263 | 18 | 7703.22 | 0.08 | β^- | 888 | 23 | 220 016386 | 19 |
| 135 | 85 | | At | x | 14376 | 14 | 7703.70 | 0.06 | β^- | 3764 | 14 | 220 015433 | 15 |
| 134 | 86 | | Rn | | 10612.1 | 1.8 | 7717.254 | 0.008 | β^- | -870 | 4 | 220 011392.5 | 1.9 |
| 133 | 87 | | Fr | $-\alpha$ | 11482 | 4 | 7709.742 | 0.018 | β^- | 1212 | 9 | 220 012327 | 4 |
| 132 | 88 | | Ra | $-\alpha$ | 10270 | 8 | 7711.70 | 0.04 | * | | | 220 011026 | 9 |
| 131 | 89 | | Ac | $-\alpha$ | 13744 | 6 | 7692.351 | 0.028 | β^+ | 3473 | 10 | 220 014754 | 7 |
| 130 | 90 | | Th | $-\alpha$ | 14669 | 22 | 7684.59 | 0.10 | β^+ | 925 | 23 | 220 015748 | 24 |
| 129 | 91 | | Pa | $-\alpha$ | 20220# | 50# | 7656# | 0# | β^+ | 5550# | 60# | 220 021710# | 60# |
| 128 | 92 | U | $-\alpha$ | 22930# | 100# | 7640# | 0# | β^+ | 2720# | 110# | 220 024620# | 110# | |
| 127 | 93 | Np | x | 30310# | 200# | 7603# | 1# | β^+ | 7380# | 220# | 220 032540# | 210# | |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| N | Z | A | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μu | |
|-----|-----|-----|------|-----------|----------------------|------|-------------------------------------|-------|----------------------------|--------|------|------------------------|------|
| 138 | 83 | 221 | Bi | x | 24100# | 300# | 7668# | 1# | β^- | 4320# | 300# | 221 025870# | 320# |
| 137 | 84 | | Po | x | 19774 | 20 | 7684.48 | 0.09 | β^- | 2991 | 24 | 221 021228 | 21 |
| 136 | 85 | | At | x | 16783 | 14 | 7694.47 | 0.06 | β^- | 2311 | 15 | 221 018017 | 15 |
| 135 | 86 | | Rn | $+\alpha$ | 14471 | 6 | 7701.393 | 0.026 | β^- | 1194 | 7 | 221 015536 | 6 |
| 134 | 87 | | Fr | | 13277 | 5 | 7703.256 | 0.022 | β^- | 313 | 6 | 221 014254 | 5 |
| 133 | 88 | | Ra | $-\alpha$ | 12964 | 5 | 7701.135 | 0.021 | * | | | 221 013917 | 5 |
| 132 | 89 | | Ac | $-\alpha$ | 14520 | 50 | 7690.54 | 0.23 | β^+ | 1560 | 50 | 221 015590 | 50 |
| 131 | 90 | | Th | $-\alpha$ | 16940 | 8 | 7676.06 | 0.04 | β^+ | 2420 | 50 | 221 018186 | 9 |
| 130 | 91 | | Pa | $-\alpha$ | 20380 | 50 | 7656.97 | 0.23 | β^+ | 3440 | 50 | 221 021870 | 60 |
| 129 | 92 | | U | $-\alpha$ | 24520 | 50 | 7634.68 | 0.23 | β^+ | 4140 | 70 | 221 026320 | 50 |
| 128 | 93 | | Np | x | 29850# | 200# | 7607# | 1# | β^+ | 5330# | 210# | 221 032050# | 220# |
| 139 | 83 | 222 | Bi | x | 28730# | 300# | 7649# | 1# | β^- | 6240# | 300# | 222 030840# | 320# |
| 138 | 84 | | Po | x | 22490 | 40 | 7674.00 | 0.18 | β^- | 1530 | 40 | 222 024140 | 40 |
| 137 | 85 | | At | x | 20953 | 16 | 7677.39 | 0.07 | β^- | 4581 | 16 | 222 022494 | 17 |
| 136 | 86 | | Rn | | 16372.2 | 1.9 | 7694.497 | 0.009 | β^- | -6 | 8 | 222 017576.3 | 2.1 |
| 135 | 87 | | Fr | x | 16378 | 7 | 7690.95 | 0.03 | β^- | 2058 | 9 | 222 017583 | 8 |
| 134 | 88 | | Ra | | 14320 | 4 | 7696.692 | 0.020 | * | | | 222 015373 | 5 |
| 133 | 89 | | Ac | $-\alpha$ | 16621 | 5 | 7682.802 | 0.023 | β^+ | 2301 | 7 | 222 017844 | 6 |
| 132 | 90 | | Th | $-\alpha$ | 17203 | 12 | 7676.66 | 0.06 | β^+ | 582 | 13 | 222 018468 | 13 |
| 131 | 91 | | Pa | $-\alpha$ | 22160# | 70# | 7651# | 0# | β^+ | 4950# | 70# | 222 023780# | 80# |
| 130 | 92 | | U | $-\alpha$ | 24270 | 50 | 7637.76 | 0.23 | β^+ | 2120# | 90# | 222 026060 | 60 |
| 129 | 93 | | Np | x | 31020# | 200# | 7604# | 1# | β^+ | 6750# | 200# | 222 033300# | 210# |
| 140 | 83 | 223 | Bi | x | 32140# | 400# | 7636# | 2# | β^- | 5060# | 450# | 223 034500# | 430# |
| 139 | 84 | | Po | x | 27080# | 200# | 7655# | 1# | β^- | 3650# | 200# | 223 029070# | 210# |
| 138 | 85 | | At | x | 23428 | 14 | 7668.05 | 0.06 | β^- | 3038 | 16 | 223 025151 | 15 |
| 137 | 86 | | Rn | | 20390 | 8 | 7678.17 | 0.04 | β^- | 2007 | 8 | 223 021889 | 8 |
| 136 | 87 | | Fr | | 18382.4 | 1.9 | 7683.664 | 0.009 | β^- | 1149.1 | 0.8 | 223 019734.3 | 2.1 |
| 135 | 88 | | Ra | | 17233.3 | 2.1 | 7685.309 | 0.009 | * | | | 223 018500.7 | 2.2 |
| 134 | 89 | | Ac | $-\alpha$ | 17826 | 7 | 7679.14 | 0.03 | β^+ | 593 | 7 | 223 019137 | 8 |
| 133 | 90 | | Th | $-\alpha$ | 19386 | 9 | 7668.64 | 0.04 | β^+ | 1560 | 12 | 223 020812 | 10 |
| 132 | 91 | | Pa | $-\alpha$ | 22320 | 70 | 7652.0 | 0.3 | β^+ | 2930 | 70 | 223 023960 | 80 |
| 131 | 92 | | U | $-\alpha$ | 25840 | 70 | 7632.7 | 0.3 | β^+ | 3520 | 100 | 223 027740 | 80 |
| 130 | 93 | | Np | x | 30600# | 200# | 7608# | 1# | β^+ | 4760# | 210# | 223 032850# | 210# |
| 141 | 83 | 224 | Bi | x | 36830# | 400# | 7617# | 2# | β^- | 6920# | 450# | 224 039540# | 430# |
| 140 | 84 | | Po | x | 29910# | 200# | 7644# | 1# | β^- | 2200# | 200# | 224 032110# | 210# |
| 139 | 85 | | At | x | 27711 | 22 | 7650.73 | 0.10 | β^- | 5266 | 24 | 224 029749 | 24 |
| 138 | 86 | | Rn | | 22445 | 10 | 7670.75 | 0.04 | β^- | 696 | 15 | 224 024096 | 11 |
| 137 | 87 | | Fr | x | 21749 | 11 | 7670.37 | 0.05 | β^- | 2923 | 11 | 224 023348 | 12 |
| 136 | 88 | | Ra | | 18825.9 | 1.8 | 7679.922 | 0.008 | β^- | -1408 | 4 | 224 020210.5 | 1.9 |
| 135 | 89 | | Ac | $-\alpha$ | 20234 | 4 | 7670.143 | 0.018 | β^- | 240 | 11 | 224 021722 | 4 |
| 134 | 90 | | Th | $-\alpha$ | 19994 | 10 | 7667.72 | 0.05 | * | | | 224 021464 | 11 |
| 133 | 91 | | Pa | $-\alpha$ | 23862 | 8 | 7646.96 | 0.03 | β^+ | 3869 | 13 | 224 025617 | 8 |
| 132 | 92 | | U | $-\alpha$ | 25722 | 23 | 7635.16 | 0.10 | β^+ | 1860 | 24 | 224 027614 | 25 |
| 131 | 93 | | Np | x | 31880# | 200# | 7604# | 1# | β^+ | 6150# | 200# | 224 034220# | 210# |
| 141 | 84 | 225 | Po | x | 34530# | 300# | 7626# | 1# | β^- | 4140# | 420# | 225 037070# | 320# |
| 140 | 85 | | At | x | 30400# | 300# | 7641# | 1# | β^- | 3860# | 300# | 225 032630# | 320# |
| 139 | 86 | | Rn | | 26534 | 11 | 7654.36 | 0.05 | β^- | 2714 | 16 | 225 028486 | 12 |
| 138 | 87 | | Fr | | 23821 | 12 | 7662.94 | 0.05 | β^- | 1828 | 12 | 225 025572 | 13 |
| 137 | 88 | | Ra | | 21993.1 | 2.6 | 7667.586 | 0.012 | β^- | 356 | 5 | 225 023610.6 | 2.8 |
| 136 | 89 | | Ac | | 21637 | 5 | 7665.690 | 0.021 | * | | | 225 023229 | 5 |
| 135 | 90 | | Th | $-\alpha$ | 22310 | 5 | 7659.222 | 0.023 | β^+ | 673 | 7 | 225 023951 | 5 |
| 134 | 91 | | Pa | $-\alpha$ | 24340 | 70 | 7646.7 | 0.3 | β^+ | 2030 | 70 | 225 026130 | 80 |
| 133 | 92 | | U | $-\alpha$ | 27380 | 11 | 7629.74 | 0.05 | β^+ | 3040 | 70 | 225 029394 | 12 |
| 132 | 93 | | Np | $-\alpha$ | 31590 | 70 | 7607.6 | 0.3 | β^+ | 4210 | 70 | 225 033910 | 80 |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| N | Z | A | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ u | |
|-----|-----|-----|------|-----------|----------------------|------|-------------------------------------|-------|----------------------------|---------|------|------------------------|------|
| 142 | 84 | 226 | Po | x | 37550# | 400# | 7614# | 2# | β^- | 2930# | 500# | 226 040310# | 430# |
| 141 | 85 | | At | x | 34610# | 300# | 7624# | 1# | β^- | 5870# | 300# | 226 037160# | 320# |
| 140 | 86 | | Rn | | 28747 | 10 | 7646.41 | 0.05 | β^- | 1227 | 12 | 226 030861 | 11 |
| 139 | 87 | | Fr | | 27521 | 6 | 7648.376 | 0.028 | β^- | 3853 | 7 | 226 029545 | 7 |
| 138 | 88 | | Ra | | 23667.8 | 1.9 | 7661.962 | 0.009 | β^- | -641 | 3 | 226 025408.5 | 2.1 |
| 137 | 89 | | Ac | | 24309 | 3 | 7655.662 | 0.014 | β^- | 1112 | 5 | 226 026097 | 3 |
| 136 | 90 | | Th | | 23198 | 4 | 7657.119 | 0.020 | * | | | 226 024904 | 5 |
| 135 | 91 | | Pa | $-\alpha$ | 26033 | 11 | 7641.11 | 0.05 | β^+ | 2836 | 12 | 226 027948 | 12 |
| 134 | 92 | | U | $-\alpha$ | 27329 | 13 | 7631.92 | 0.06 | β^+ | 1296 | 17 | 226 029339 | 14 |
| 133 | 93 | | Np | $-\alpha$ | 32780# | 90# | 7604# | 0# | β^+ | 5450# | 90# | 226 035190# | 100# |
| 143 | 84 | 227 | Po | x | 42280# | 400# | 7596# | 2# | β^- | 4800# | 500# | 227 045390# | 430# |
| 142 | 85 | | At | x | 37480# | 300# | 7613# | 1# | β^- | 4600# | 300# | 227 040240# | 320# |
| 141 | 86 | | Rn | | 32886 | 14 | 7630.05 | 0.06 | β^- | 3203 | 15 | 227 035304 | 15 |
| 140 | 87 | | Fr | | 29682 | 6 | 7640.715 | 0.026 | β^- | 2505 | 6 | 227 031865 | 6 |
| 139 | 88 | | Ra | -n | 27177.7 | 2.0 | 7648.303 | 0.009 | β^- | 1328.1 | 2.3 | 227 029176.5 | 2.1 |
| 138 | 89 | | Ac | | 25849.6 | 1.9 | 7650.707 | 0.008 | β^- | 44.8 | 0.8 | 227 027750.7 | 2.1 |
| 137 | 90 | | Th | | 25804.8 | 2.1 | 7647.458 | 0.009 | * | | | 227 027702.6 | 2.2 |
| 136 | 91 | | Pa | $-\alpha$ | 26831 | 7 | 7639.49 | 0.03 | β^+ | 1026 | 7 | 227 028804 | 8 |
| 135 | 92 | | U | $-\alpha$ | 29045 | 10 | 7626.29 | 0.04 | β^+ | 2214 | 12 | 227 031182 | 10 |
| 134 | 93 | | Np | $-\alpha$ | 32560 | 70 | 7607.4 | 0.3 | β^+ | 3520 | 70 | 227 034960 | 80 |
| 133 | 94 | | Pu | x | 36770# | 100# | 7585# | 0# | β^+ | 4210# | 120# | 227 039470# | 110# |
| 143 | 85 | 228 | At | x | 41680# | 400# | 7597# | 2# | β^- | 6440# | 400# | 228 044750# | 430# |
| 142 | 86 | | Rn | | 35243 | 18 | 7621.64 | 0.08 | β^- | 1859 | 19 | 228 037835 | 19 |
| 141 | 87 | | Fr | | 33384 | 7 | 7626.368 | 0.030 | β^- | 4444 | 7 | 228 035839 | 7 |
| 140 | 88 | | Ra | $+\alpha$ | 28940.3 | 2.0 | 7642.428 | 0.009 | β^- | 45.5 | 0.6 | 228 031068.7 | 2.1 |
| 139 | 89 | | Ac | — | 28894.7 | 2.1 | 7639.196 | 0.009 | β^- | 2123.7 | 2.6 | 228 031019.8 | 2.2 |
| 138 | 90 | | Th | | 26771.0 | 1.8 | 7645.080 | 0.008 | * | | | 228 028739.8 | 1.9 |
| 137 | 91 | | Pa | $-\alpha$ | 28924 | 4 | 7632.207 | 0.019 | β^+ | 2153 | 4 | 228 031051 | 5 |
| 136 | 92 | | U | $-\alpha$ | 29222 | 14 | 7627.47 | 0.06 | β^+ | 299 | 15 | 228 031371 | 15 |
| 135 | 93 | | Np | $-\alpha$ | 33600 | 50 | 7604.85 | 0.22 | β^+ | 4370 | 50 | 228 036070 | 50 |
| 134 | 94 | | Pu | $-\alpha$ | 36087 | 29 | 7590.49 | 0.13 | β^+ | 2490 | 60 | 228 038740 | 30 |
| 144 | 85 | 229 | At | x | 44820# | 400# | 7585# | 2# | β^- | 5460# | 400# | 229 048120# | 430# |
| 143 | 86 | | Rn | x | 39362 | 13 | 7605.62 | 0.06 | β^- | 3694 | 14 | 229 042257 | 14 |
| 142 | 87 | | Fr | | 35668 | 5 | 7618.337 | 0.022 | β^- | 3106 | 16 | 229 038291 | 5 |
| 141 | 88 | | Ra | x | 32562 | 15 | 7628.49 | 0.07 | β^- | 1872 | 20 | 229 034957 | 17 |
| 140 | 89 | | Ac | x | 30690 | 12 | 7633.24 | 0.05 | β^- | 1104 | 12 | 229 032947 | 13 |
| 139 | 90 | | Th | | 29585.6 | 2.4 | 7634.650 | 0.011 | * | | | 229 031761.4 | 2.6 |
| 138 | 91 | | Pa | | 29897 | 3 | 7629.874 | 0.014 | β^+ | 311 | 4 | 229 032096 | 4 |
| 137 | 92 | | U | $-\alpha$ | 31211 | 6 | 7620.721 | 0.026 | β^+ | 1314 | 7 | 229 033506 | 6 |
| 136 | 93 | | Np | $-\alpha$ | 33780 | 90 | 7606.1 | 0.4 | β^+ | 2570 | 90 | 229 036260 | 90 |
| 135 | 94 | | Pu | $-\alpha$ | 37400 | 50 | 7586.88 | 0.22 | β^+ | 3620 | 100 | 229 040150 | 50 |
| 134 | 95 | | Am | $-\alpha$ | 42150 | 90 | 7562.7 | 0.4 | β^+ | 4750 | 100 | 229 045250 | 90 |
| 144 | 86 | 230 | Rn | x | 42050# | 200# | 7596# | 1# | β^- | 2560# | 200# | 230 045140# | 210# |
| 143 | 87 | | Fr | | 39487 | 7 | 7603.704 | 0.028 | β^- | 4970 | 12 | 230 042391 | 7 |
| 142 | 88 | | Ra | x | 34516 | 10 | 7621.91 | 0.04 | β^- | 678 | 19 | 230 037055 | 11 |
| 141 | 89 | | Ac | x | 33838 | 16 | 7621.46 | 0.07 | β^- | 2976 | 16 | 230 036327 | 17 |
| 140 | 90 | | Th | | 30862.6 | 1.2 | 7630.996 | 0.005 | β^- | -1311.0 | 2.8 | 230 033132.4 | 1.3 |
| 139 | 91 | | Pa | | 32174 | 3 | 7621.895 | 0.013 | β^- | 559 | 5 | 230 034540 | 3 |
| 138 | 92 | | U | $-\alpha$ | 31615 | 5 | 7620.922 | 0.020 | * | | | 230 033940 | 5 |
| 137 | 93 | | Np | $-\alpha$ | 35240 | 50 | 7601.78 | 0.22 | β^+ | 3620 | 50 | 230 037830 | 60 |
| 136 | 94 | | Pu | $-\alpha$ | 36934 | 15 | 7590.99 | 0.06 | β^+ | 1700 | 50 | 230 039651 | 16 |
| 135 | 95 | | Am | $-\alpha$ | 42930# | 130# | 7562# | 1# | β^+ | 6000# | 130# | 230 046090# | 140# |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ u | |
|----------|----------|----------|------|-----------|----------------------|------|-------------------------------------|-------|----------------------------|--------|------|------------------------|------|
| 145 | 86 | 231 | Rn | x | 46450# | 300# | 7579# | 1# | β^- | 4370# | 300# | 231 049870# | 320# |
| 144 | 87 | | Fr | x | 42081 | 8 | 7594.50 | 0.03 | β^- | 3864 | 14 | 231 045175 | 8 |
| 143 | 88 | | Ra | | 38216 | 11 | 7607.84 | 0.05 | β^- | 2454 | 17 | 231 041027 | 12 |
| 142 | 89 | | Ac | x | 35763 | 13 | 7615.08 | 0.06 | β^- | 1947 | 13 | 231 038393 | 14 |
| 141 | 90 | | Th | | 33815.9 | 1.2 | 7620.118 | 0.005 | β^- | 391.5 | 1.5 | 231 036302.9 | 1.3 |
| 140 | 91 | | Pa | | 33424.4 | 1.8 | 7618.426 | 0.008 | * | | | 231 035882.6 | 1.9 |
| 139 | 92 | | U | $-\alpha$ | 33806.0 | 2.7 | 7613.387 | 0.012 | β^+ | 381.6 | 2.0 | 231 036292.3 | 2.9 |
| 138 | 93 | | Np | $-\alpha$ | 35620 | 50 | 7602.13 | 0.22 | β^+ | 1820 | 50 | 231 038240 | 50 |
| 137 | 94 | | Pu | $-\alpha$ | 38309 | 23 | 7587.12 | 0.10 | β^+ | 2680 | 60 | 231 041126 | 24 |
| 136 | 95 | | Am | x | 42410# | 300# | 7566# | 1# | β^+ | 4100# | 300# | 231 045530# | 320# |
| 135 | 96 | | Cm | x | 47270# | 300# | 7542# | 1# | β^+ | 4860# | 420# | 231 050750# | 320# |
| 145 | 87 | 232 | Fr | x | 46073 | 14 | 7579.35 | 0.06 | β^- | 5576 | 17 | 232 049461 | 15 |
| 144 | 88 | | Ra | | 40497 | 9 | 7600.01 | 0.04 | β^- | 1343 | 16 | 232 043475 | 10 |
| 143 | 89 | | Ac | x | 39154 | 13 | 7602.42 | 0.06 | β^- | 3708 | 13 | 232 042034 | 14 |
| 142 | 90 | | Th | | 35446.8 | 1.4 | 7615.033 | 0.006 | β^- | -500 | 8 | 232 038053.7 | 1.5 |
| 141 | 91 | | Pa | + | 35947 | 8 | 7609.51 | 0.03 | β^- | 1337 | 7 | 232 038590 | 8 |
| 140 | 92 | | U | | 34609.5 | 1.8 | 7611.897 | 0.008 | * | | | 232 037154.9 | 1.9 |
| 139 | 93 | | Np | — | 37360# | 100# | 7597# | 0# | β^+ | 2750# | 100# | 232 040110# | 110# |
| 138 | 94 | | Pu | $-\alpha$ | 38363 | 18 | 7588.97 | 0.08 | β^+ | 1000# | 100# | 232 041185 | 19 |
| 137 | 95 | | Am | x | 43340# | 300# | 7564# | 1# | β^+ | 4980# | 300# | 232 046530# | 320# |
| 136 | 96 | | Cm | $-\alpha$ | 46310# | 200# | 7548# | 1# | β^+ | 2970# | 360# | 232 049720# | 220# |
| 146 | 87 | 233 | Fr | x | 48920 | 20 | 7569.24 | 0.08 | β^- | 4586 | 21 | 233 052518 | 21 |
| 145 | 88 | | Ra | | 44334 | 9 | 7585.56 | 0.04 | β^- | 3026 | 16 | 233 047595 | 9 |
| 144 | 89 | | Ac | x | 41308 | 13 | 7595.19 | 0.06 | β^- | 2576 | 13 | 233 044346 | 14 |
| 143 | 90 | | Th | | 38731.7 | 1.4 | 7602.893 | 0.006 | β^- | 1242.2 | 1.1 | 233 041580.2 | 1.5 |
| 142 | 91 | | Pa | | 37489.5 | 1.3 | 7604.866 | 0.006 | β^- | 570.3 | 2.0 | 233 040246.6 | 1.4 |
| 141 | 92 | | U | | 36919.2 | 2.3 | 7603.956 | 0.010 | * | | | 233 039634.4 | 2.4 |
| 140 | 93 | | Np | $-\alpha$ | 37950 | 50 | 7596.18 | 0.22 | β^+ | 1030 | 50 | 233 040740 | 50 |
| 139 | 94 | | Pu | $-\alpha$ | 40050 | 50 | 7583.80 | 0.22 | β^+ | 2100 | 70 | 233 043000 | 50 |
| 138 | 95 | | Am | $-\alpha$ | 43260# | 100# | 7567# | 0# | β^+ | 3210# | 110# | 233 046450# | 110# |
| 137 | 96 | | Cm | $-\alpha$ | 47290 | 70 | 7546.0 | 0.3 | β^+ | 4030# | 120# | 233 050770 | 80 |
| 136 | 97 | | Bk | $-\alpha$ | 52860# | 220# | 7519# | 1# | β^+ | 5570# | 240# | 233 056750# | 240# |
| 146 | 88 | 234 | Ra | x | 46931 | 8 | 7576.54 | 0.04 | β^- | 2089 | 16 | 234 050382 | 9 |
| 145 | 89 | | Ac | x | 44841 | 14 | 7582.13 | 0.06 | β^- | 4228 | 14 | 234 048139 | 15 |
| 144 | 90 | | Th | $+\alpha$ | 40613.0 | 2.6 | 7596.855 | 0.011 | β^- | 274 | 3 | 234 043599.9 | 2.8 |
| 143 | 91 | | Pa | IT | 40339 | 4 | 7594.683 | 0.017 | β^- | 2194 | 4 | 234 043306 | 4 |
| 142 | 92 | | U | | 38145.0 | 1.1 | 7600.715 | 0.005 | * | | | 234 040950.4 | 1.2 |
| 141 | 93 | | Np | — | 39955 | 8 | 7589.64 | 0.04 | β^+ | 1810 | 8 | 234 042893 | 9 |
| 140 | 94 | | Pu | $-\alpha$ | 40350 | 7 | 7584.605 | 0.029 | β^+ | 395 | 11 | 234 043317 | 7 |
| 139 | 95 | | Am | $-\alpha$ | 44460# | 160# | 7564# | 1# | β^+ | 4110# | 160# | 234 047730# | 170# |
| 138 | 96 | | Cm | $-\alpha$ | 46725 | 17 | 7550.68 | 0.07 | β^+ | 2260# | 160# | 234 050161 | 19 |
| 137 | 97 | | Bk | $-\alpha$ | 53460# | 140# | 7519# | 1# | β^+ | 6730# | 140# | 234 057390# | 150# |
| 147 | 88 | 235 | Ra | x | 51130# | 300# | 7561# | 1# | β^- | 3770# | 300# | 235 054890# | 320# |
| 146 | 89 | | Ac | x | 47357 | 14 | 7573.50 | 0.06 | β^- | 3339 | 19 | 235 050840 | 15 |
| 145 | 90 | | Th | x | 44018 | 13 | 7584.39 | 0.06 | β^- | 1729 | 19 | 235 047255 | 14 |
| 144 | 91 | | Pa | x | 42289 | 14 | 7588.41 | 0.06 | β^- | 1370 | 14 | 235 045399 | 15 |
| 143 | 92 | | U | | 40918.8 | 1.1 | 7590.914 | 0.005 | * | | | 235 043928.2 | 1.2 |
| 142 | 93 | | Np | | 41043.1 | 1.4 | 7587.056 | 0.006 | β^+ | 124.3 | 0.9 | 235 044061.6 | 1.5 |
| 141 | 94 | | Pu | $-\alpha$ | 42182 | 21 | 7578.88 | 0.09 | β^+ | 1139 | 20 | 235 045285 | 22 |
| 140 | 95 | | Am | $-\alpha$ | 44630 | 50 | 7565.15 | 0.22 | β^+ | 2440 | 60 | 235 047910 | 60 |
| 139 | 96 | | Cm | $-\alpha$ | 48030# | 200# | 7547# | 1# | β^+ | 3410# | 210# | 235 051570# | 220# |
| 138 | 97 | | Bk | x | 52700# | 400# | 7524# | 2# | β^+ | 4670# | 450# | 235 056580# | 430# |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| N | Z | A | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μu | |
|-----|-----|-----|-----------|-----------|----------------------|--------|-------------------------------------|-----------|----------------------------|--------|-------------|------------------------|------|
| 147 | 89 | 236 | Ac | x | 51220 | 40 | 7559.24 | 0.16 | β^- | 4970 | 40 | 236 054990 | 40 |
| 146 | 90 | | Th | x | 46255 | 14 | 7576.97 | 0.06 | β^- | 921 | 20 | 236 049657 | 15 |
| 145 | 91 | | Pa | x | 45334 | 14 | 7577.56 | 0.06 | β^- | 2889 | 14 | 236 048668 | 15 |
| 144 | 92 | | U | | 42444.6 | 1.1 | 7586.484 | 0.005 | β^- | -930 | 50 | 236 045566.2 | 1.2 |
| 143 | 93 | | Np | IT | 43380 | 50 | 7579.21 | 0.21 | β^- | 480 | 50 | 236 046570 | 50 |
| 142 | 94 | | Pu | | 42901.6 | 1.8 | 7577.918 | 0.008 | * | | | 236 046056.8 | 1.9 |
| 141 | 95 | | Am | $-\alpha$ | 46040# | 110# | 7561# | 0# | β^+ | 3140# | 110# | 236 049430# | 120# |
| 140 | 96 | | Cm | $-\alpha$ | 47855 | 18 | 7550.30 | 0.08 | β^+ | 1810# | 110# | 236 051375 | 20 |
| 139 | 97 | Bk | x | 53540# | 400# | 7523# | 2# | β^+ | 5690# | 400# | 236 057480# | 430# | |
| 148 | 89 | 237 | Ac | x | 54020# | 400# | 7550# | 2# | β^- | 4070# | 400# | 237 057990# | 430# |
| 147 | 90 | | Th | x | 49955 | 16 | 7563.44 | 0.07 | β^- | 2427 | 21 | 237 053629 | 17 |
| 146 | 91 | | Pa | x | 47528 | 13 | 7570.38 | 0.06 | β^- | 2137 | 13 | 237 051023 | 14 |
| 145 | 92 | | U | | 45390.2 | 1.2 | 7576.102 | 0.005 | β^- | 518.5 | 0.5 | 237 048728.4 | 1.3 |
| 144 | 93 | | Np | | 44871.7 | 1.1 | 7574.989 | 0.005 | * | | | 237 048171.7 | 1.2 |
| 143 | 94 | | Pu | | 45091.7 | 1.7 | 7570.759 | 0.007 | β^+ | 220.1 | 1.3 | 237 048408.0 | 1.8 |
| 142 | 95 | | Am | $-\alpha$ | 46570# | 60# | 7561# | 0# | β^+ | 1480# | 60# | 237 050000# | 60# |
| 141 | 96 | | Cm | $-\alpha$ | 49250 | 70 | 7546.62 | 0.30 | β^+ | 2680# | 90# | 237 052870 | 80 |
| 140 | 97 | Bk | $-\alpha$ | 53190# | 220# | 7527# | 1# | β^+ | 3940# | 240# | 237 057100# | 240# | |
| 139 | 98 | Cf | $-\alpha$ | 57940 | 90 | 7503.3 | 0.4 | β^+ | 4750# | 240# | 237 062200 | 90 | |
| 148 | 90 | 238 | Th | $+\alpha$ | 52530# | 280# | 7555# | 1# | β^- | 1630# | 280# | 238 056390# | 300# |
| 147 | 91 | | Pa | x | 50894 | 16 | 7558.34 | 0.07 | β^- | 3586 | 16 | 238 054637 | 17 |
| 146 | 92 | | U | | 47307.8 | 1.5 | 7570.125 | 0.006 | β^- | -146.9 | 1.2 | 238 050787.0 | 1.6 |
| 145 | 93 | | Np | -n | 47454.7 | 1.1 | 7566.221 | 0.005 | β^- | 1291.4 | 0.5 | 238 050944.7 | 1.2 |
| 144 | 94 | | Pu | | 46163.2 | 1.1 | 7568.360 | 0.005 | * | | | 238 049558.3 | 1.2 |
| 143 | 95 | | Am | $-\alpha$ | 48420 | 50 | 7555.58 | 0.21 | β^+ | 2260 | 50 | 238 051980 | 50 |
| 142 | 96 | | Cm | $-\alpha$ | 49445 | 12 | 7548.00 | 0.05 | β^+ | 1020 | 50 | 238 053082 | 13 |
| 141 | 97 | | Bk | $-\alpha$ | 54220# | 260# | 7525# | 1# | β^+ | 4770# | 260# | 238 058200# | 270# |
| 140 | 98 | Cf | x | 57280# | 300# | 7509# | 1# | β^+ | 3060# | 390# | 238 061490# | 320# | |
| 149 | 90 | 239 | Th | x | 56450# | 400# | 7541# | 2# | β^- | 3110# | 450# | 239 060600# | 430# |
| 148 | 91 | | Pa | x | 53340# | 200# | 7550# | 1# | β^- | 2770# | 200# | 239 057260# | 210# |
| 147 | 92 | | U | -n | 50572.7 | 1.5 | 7558.561 | 0.006 | β^- | 1261.7 | 1.5 | 239 054292.0 | 1.6 |
| 146 | 93 | | Np | | 49311.1 | 1.3 | 7560.567 | 0.005 | β^- | 722.8 | 0.9 | 239 052937.6 | 1.4 |
| 145 | 94 | | Pu | | 48588.3 | 1.1 | 7560.318 | 0.005 | * | | | 239 052161.7 | 1.2 |
| 144 | 95 | | Am | $-\alpha$ | 49390.4 | 2.0 | 7553.688 | 0.008 | β^+ | 802.1 | 1.7 | 239 053022.8 | 2.1 |
| 143 | 96 | | Cm | $-\alpha$ | 51150 | 50 | 7543.06 | 0.23 | β^+ | 1760 | 50 | 239 054910 | 60 |
| 142 | 97 | | Bk | $-\alpha$ | 54250# | 210# | 7527# | 1# | β^+ | 3100# | 210# | 239 058240# | 220# |
| 141 | 98 | Cf | $-\alpha$ | 58270# | 210# | 7507# | 1# | β^+ | 4020# | 290# | 239 062550# | 220# | |
| 140 | 99 | Es | x | 63560# | 300# | 7481# | 1# | β^+ | 5290# | 360# | 239 068230# | 320# | |
| 149 | 91 | 240 | Pa | x | 56910# | 200# | 7538# | 1# | β^- | 4190# | 200# | 240 061100# | 220# |
| 148 | 92 | | U | | 52715.5 | 2.6 | 7551.770 | 0.011 | β^- | 399 | 17 | 240 056592.4 | 2.7 |
| 147 | 93 | | Np | | 52316 | 17 | 7550.17 | 0.07 | β^- | 2191 | 17 | 240 056164 | 18 |
| 146 | 94 | | Pu | | 50125.4 | 1.1 | 7556.042 | 0.005 | * | | | 240 053811.8 | 1.2 |
| 145 | 95 | | Am | +n | 51510 | 14 | 7547.01 | 0.06 | β^+ | 1385 | 14 | 240 055298 | 15 |
| 144 | 96 | | Cm | | 51724.3 | 1.9 | 7542.861 | 0.008 | β^+ | 214 | 14 | 240 055528.3 | 2.0 |
| 143 | 97 | | Bk | — | 55660# | 150# | 7523# | 1# | β^+ | 3940# | 150# | 240 059760# | 160# |
| 142 | 98 | | Cf | $-\alpha$ | 57991 | 19 | 7510.23 | 0.08 | β^+ | 2330# | 150# | 240 062256 | 20 |
| 141 | 99 | Es | x | 64200# | 400# | 7481# | 2# | β^+ | 6210# | 400# | 240 068920# | 430# | |
| 150 | 91 | 241 | Pa | x | 59640# | 300# | 7528# | 1# | β^- | 3440# | 360# | 241 064030# | 320# |
| 149 | 92 | | U | x | 56200# | 200# | 7539# | 1# | β^- | 1940# | 210# | 241 060330# | 210# |
| 148 | 93 | | Np | + | 54260 | 70 | 7544.27 | 0.29 | β^- | 1310 | 70 | 241 058250 | 80 |
| 147 | 94 | | Pu | | 52955.2 | 1.1 | 7546.439 | 0.005 | β^- | 20.78 | 0.17 | 241 056849.7 | 1.2 |
| 146 | 95 | | Am | | 52934.4 | 1.1 | 7543.278 | 0.005 | * | | | 241 056827.4 | 1.2 |
| 145 | 96 | | Cm | | 53701.8 | 1.6 | 7536.848 | 0.007 | β^+ | 767.4 | 1.2 | 241 057651.3 | 1.7 |
| 144 | 97 | | Bk | — | 56030# | 200# | 7524# | 1# | β^+ | 2330# | 200# | 241 060150# | 220# |
| 143 | 98 | | Cf | $-\alpha$ | 59330# | 170# | 7507# | 1# | β^+ | 3300# | 260# | 241 063690# | 180# |
| 142 | 99 | Es | $-\alpha$ | 63860# | 230# | 7485# | 1# | β^+ | 4540# | 280# | 241 068560# | 240# | |
| 141 | 100 | Fm | x | 69130# | 300# | 7460# | 1# | β^+ | 5260# | 370# | 241 074210# | 320# | |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| N | Z | A | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μu | |
|-----|-----|-----|------|-----------|----------------------|------|-------------------------------------|-------|----------------------------|--------|------|------------------------|------|
| 150 | 92 | 242 | U | $+\alpha$ | 58620# | 200# | 7532# | 1# | β^- | 1200# | 280# | 242 062930# | 220# |
| 149 | 93 | | Np | + | 57420 | 200 | 7533.4 | 0.8 | β^- | 2700 | 200 | 242 061640 | 210 |
| 148 | 94 | | Pu | | 54716.9 | 1.2 | 7541.327 | 0.005 | β^- | -751.1 | 0.7 | 242 058741.0 | 1.3 |
| 147 | 95 | | Am | -n | 55468.1 | 1.1 | 7534.991 | 0.005 | β^- | 664.3 | 0.4 | 242 059547.4 | 1.2 |
| 146 | 96 | | Cm | | 54803.8 | 1.1 | 7534.503 | 0.005 | * | | | 242 058834.3 | 1.2 |
| 145 | 97 | | Bk | - | 57730# | 200# | 7519# | 1# | β^+ | 2930# | 200# | 242 061980# | 220# |
| 144 | 98 | | Cf | $-\alpha$ | 59387 | 13 | 7509.10 | 0.05 | β^+ | 1650# | 200# | 242 063755 | 14 |
| 143 | 99 | | Es | $-\alpha$ | 64800# | 260# | 7483# | 1# | β^+ | 5410# | 260# | 242 069570# | 280# |
| 142 | 100 | | Fm | x | 68400# | 400# | 7465# | 2# | β^+ | 3600# | 480# | 242 073430# | 430# |
| 151 | 92 | 243 | U | x | 62360# | 300# | 7518# | 1# | β^- | 2480# | 300# | 243 066950# | 320# |
| 150 | 93 | | Np | IT | 59880# | 30# | 7525# | 0# | β^- | 2120# | 30# | 243 064280# | 30# |
| 149 | 94 | | Pu | | 57754.6 | 2.5 | 7531.008 | 0.010 | β^- | 579.6 | 2.6 | 243 062002.1 | 2.7 |
| 148 | 95 | | Am | | 57175.0 | 1.4 | 7530.173 | 0.006 | * | | | 243 061379.9 | 1.5 |
| 147 | 96 | | Cm | $-\alpha$ | 57182.0 | 1.5 | 7526.925 | 0.006 | β^+ | 7.0 | 1.6 | 243 061387.4 | 1.6 |
| 146 | 97 | | Bk | $-\alpha$ | 58690 | 5 | 7517.501 | 0.019 | β^+ | 1508 | 5 | 243 063006 | 5 |
| 145 | 98 | | Cf | $-\alpha$ | 60990# | 110# | 7505# | 0# | β^+ | 2300# | 110# | 243 065480# | 120# |
| 144 | 99 | | Es | $-\alpha$ | 64750# | 210# | 7486# | 1# | β^+ | 3760# | 240# | 243 069510# | 220# |
| 143 | 100 | | Fm | $-\alpha$ | 69390# | 220# | 7464# | 1# | β^+ | 4640# | 300# | 243 074490# | 230# |
| 151 | 93 | 244 | Np | x | 63200# | 300# | 7514# | 1# | β^- | 3400# | 300# | 244 067850# | 320# |
| 150 | 94 | | Pu | | 59806.0 | 2.3 | 7524.815 | 0.010 | β^- | -73.2 | 2.7 | 244 064204.4 | 2.5 |
| 149 | 95 | | Am | + | 59879.2 | 1.5 | 7521.308 | 0.006 | β^- | 1427.3 | 1.0 | 244 064283.0 | 1.6 |
| 148 | 96 | | Cm | $-\alpha$ | 58451.9 | 1.1 | 7523.952 | 0.005 | * | | | 244 062750.7 | 1.2 |
| 147 | 97 | | Bk | $-\alpha$ | 60714 | 14 | 7511.47 | 0.06 | β^+ | 2262 | 14 | 244 065179 | 15 |
| 146 | 98 | | Cf | | 61478.2 | 2.6 | 7505.136 | 0.011 | β^+ | 764 | 15 | 244 065999.5 | 2.8 |
| 145 | 99 | | Es | $-\alpha$ | 66030# | 180# | 7483# | 1# | β^+ | 4550# | 180# | 244 070880# | 200# |
| 144 | 100 | | Fm | $-\alpha$ | 68970# | 200# | 7468# | 1# | β^+ | 2940# | 270# | 244 074040# | 220# |
| 152 | 93 | 245 | Np | x | 65890# | 300# | 7505# | 1# | β^- | 2710# | 300# | 245 070740# | 320# |
| 151 | 94 | | Pu | -n | 63178 | 14 | 7513.28 | 0.06 | β^- | 1278 | 14 | 245 067825 | 15 |
| 150 | 95 | | Am | $+\alpha$ | 61900.5 | 1.9 | 7515.303 | 0.008 | β^- | 895.9 | 1.5 | 245 066452.9 | 2.0 |
| 149 | 96 | | Cm | | 61004.6 | 1.1 | 7515.767 | 0.005 | * | | | 245 065491.1 | 1.2 |
| 148 | 97 | | Bk | $-\alpha$ | 61813.8 | 1.8 | 7509.270 | 0.007 | β^+ | 809.3 | 1.5 | 245 066359.9 | 1.9 |
| 147 | 98 | | Cf | | 63385.2 | 2.4 | 7499.663 | 0.010 | β^+ | 1571.4 | 2.6 | 245 068046.8 | 2.6 |
| 146 | 99 | | Es | $-\alpha$ | 66370# | 200# | 7484# | 1# | β^+ | 2980# | 200# | 245 071250# | 220# |
| 145 | 100 | | Fm | $-\alpha$ | 70190# | 200# | 7466# | 1# | β^+ | 3820# | 280# | 245 075350# | 210# |
| 144 | 101 | | Md | $-\alpha$ | 75270# | 310# | 7442# | 1# | β^+ | 5090# | 360# | 245 080810# | 330# |
| 152 | 94 | 246 | Pu | | 65395 | 15 | 7506.54 | 0.06 | β^- | 401# | 14# | 246 070204 | 16 |
| 151 | 95 | | Am | IT | 64994# | 18# | 7505# | 0# | β^- | 2377# | 18# | 246 069774# | 19# |
| 150 | 96 | | Cm | | 62617.0 | 1.5 | 7511.471 | 0.006 | * | | | 246 067222.1 | 1.6 |
| 149 | 97 | | Bk | - | 63970 | 60 | 7502.80 | 0.24 | β^+ | 1350 | 60 | 246 068670 | 60 |
| 148 | 98 | | Cf | | 64090.3 | 1.5 | 7499.121 | 0.006 | β^+ | 120 | 60 | 246 068803.8 | 1.6 |
| 147 | 99 | | Es | $-\alpha$ | 67900# | 220# | 7480# | 1# | β^+ | 3810# | 220# | 246 072890# | 240# |
| 146 | 100 | | Fm | $-\alpha$ | 70189 | 15 | 7467.97 | 0.06 | β^+ | 2290# | 220# | 246 075351 | 16 |
| 145 | 101 | | Md | $-\alpha$ | 76120# | 260# | 7441# | 1# | β^+ | 5930# | 260# | 246 081710# | 280# |
| 153 | 94 | 247 | Pu | x | 69110# | 200# | 7494# | 1# | β^- | 1950# | 220# | 247 074190# | 210# |
| 152 | 95 | | Am | + | 67150# | 100# | 7499# | 0# | β^- | 1620# | 100# | 247 072090# | 110# |
| 151 | 96 | | Cm | | 65533 | 4 | 7501.931 | 0.015 | β^- | 44 | 6 | 247 070353 | 4 |
| 150 | 97 | | Bk | $-\alpha$ | 65490 | 5 | 7498.940 | 0.021 | * | | | 247 070306 | 6 |
| 149 | 98 | | Cf | $+\alpha$ | 66104 | 15 | 7493.29 | 0.06 | β^+ | 614 | 16 | 247 070965 | 16 |
| 148 | 99 | | Es | $+\alpha$ | 68578 | 19 | 7480.10 | 0.08 | β^+ | 2474 | 25 | 247 073622 | 21 |
| 147 | 100 | | Fm | $+\alpha$ | 71670# | 120# | 7464# | 0# | β^+ | 3090# | 120# | 247 076940# | 120# |
| 146 | 101 | | Md | $-\alpha$ | 75940# | 210# | 7444# | 1# | β^+ | 4260# | 240# | 247 081520# | 220# |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| N | Z | A | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ | |
|-----|-----|-----|------|-----------|----------------------|------|-------------------------------------|-------|----------------------------|-------|------|----------------------|------|
| 153 | 95 | 248 | Am | + | 70560# | 200# | 7487# | 1# | β^- | 3170# | 200# | 248 075750# | 220# |
| 152 | 96 | | Cm | | 67392.8 | 2.4 | 7496.728 | 0.010 | β^- | -690# | 70# | 248 072349.1 | 2.5 |
| 151 | 97 | | Bk | IT | 68080# | 70# | 7491# | 0# | β^- | 840# | 70# | 248 073090# | 80# |
| 150 | 98 | | Cf | $-\alpha$ | 67238 | 5 | 7491.043 | 0.021 | * | | | 248 072183 | 5 |
| 149 | 99 | | Es | $-\alpha$ | 70300# | 50# | 7476# | 0# | β^+ | 3060# | 50# | 248 075470# | 60# |
| 148 | 100 | | Fm | | 71898 | 8 | 7465.94 | 0.03 | β^+ | 1600# | 50# | 248 077186 | 9 |
| 147 | 101 | | Md | $-\alpha$ | 77150# | 240# | 7442# | 1# | β^+ | 5250# | 240# | 248 082820# | 260# |
| 146 | 102 | | No | $-\alpha$ | 80620# | 220# | 7424# | 1# | β^+ | 3470# | 330# | 248 086550# | 240# |
| 154 | 95 | 249 | Am | x | 73100# | 300# | 7479# | 1# | β^- | 2350# | 300# | 249 078480# | 320# |
| 153 | 96 | | Cm | -n | 70750.7 | 2.4 | 7485.550 | 0.010 | β^- | 904.3 | 2.6 | 249 075954.0 | 2.5 |
| 152 | 97 | | Bk | + | 69846.4 | 1.2 | 7486.040 | 0.005 | β^- | 123.6 | 0.4 | 249 074983.2 | 1.3 |
| 151 | 98 | | Cf | | 69722.8 | 1.2 | 7483.394 | 0.005 | * | | | 249 074850.5 | 1.3 |
| 150 | 99 | | Es | $-\alpha$ | 71180# | 30# | 7474# | 0# | β^+ | 1450# | 30# | 249 076410# | 30# |
| 149 | 100 | | Fm | | 73519 | 6 | 7461.864 | 0.025 | β^+ | 2340# | 30# | 249 078926 | 7 |
| 148 | 101 | | Md | $-\alpha$ | 77230# | 200# | 7444# | 1# | β^+ | 3710# | 200# | 249 082910# | 220# |
| 147 | 102 | | No | $-\alpha$ | 81780# | 280# | 7422# | 1# | β^+ | 4550# | 340# | 249 087800# | 300# |
| 154 | 96 | 250 | Cm | -nn | 72990 | 10 | 7478.94 | 0.04 | β^- | 40 | 11 | 250 078358 | 11 |
| 153 | 97 | | Bk | $+\alpha$ | 72950 | 4 | 7475.967 | 0.015 | β^- | 1780 | 3 | 250 078315 | 4 |
| 152 | 98 | | Cf | $-\alpha$ | 71170.4 | 1.5 | 7479.956 | 0.006 | * | | | 250 076404.6 | 1.7 |
| 151 | 99 | | Es | - | 73230# | 100# | 7469# | 0# | β^+ | 2060# | 100# | 250 078610# | 110# |
| 150 | 100 | | Fm | | 74072 | 8 | 7462.09 | 0.03 | β^+ | 850# | 100# | 250 079520 | 8 |
| 149 | 101 | | Md | $-\alpha$ | 78630# | 300# | 7441# | 1# | β^+ | 4560# | 300# | 250 084410# | 320# |
| 148 | 102 | | No | $-\alpha$ | 81560# | 200# | 7426# | 1# | β^+ | 2930# | 360# | 250 087560# | 220# |
| 155 | 96 | 251 | Cm | + | 76648 | 23 | 7466.72 | 0.09 | β^- | 1420 | 20 | 251 082285 | 24 |
| 154 | 97 | | Bk | + | 75228 | 11 | 7469.26 | 0.04 | β^- | 1093 | 10 | 251 080761 | 12 |
| 153 | 98 | | Cf | $-\alpha$ | 74135 | 4 | 7470.500 | 0.016 | * | | | 251 079587 | 4 |
| 152 | 99 | | Es | $-\alpha$ | 74512 | 6 | 7465.881 | 0.024 | β^+ | 377 | 7 | 251 079992 | 6 |
| 151 | 100 | | Fm | $+\alpha$ | 75954 | 15 | 7457.02 | 0.06 | β^+ | 1442 | 16 | 251 081540 | 16 |
| 150 | 101 | | Md | $+\alpha$ | 78967 | 19 | 7441.90 | 0.08 | β^+ | 3013 | 24 | 251 084774 | 20 |
| 149 | 102 | | No | IT | 82850# | 110# | 7423# | 0# | β^+ | 3880# | 120# | 251 088940# | 120# |
| 148 | 103 | | Lr | x | 87730# | 300# | 7401# | 1# | β^+ | 4880# | 320# | 251 094180# | 320# |
| 156 | 96 | 252 | Cm | x | 79060# | 300# | 7460# | 1# | β^- | 520# | 360# | 252 084870# | 320# |
| 155 | 97 | | Bk | + | 78540# | 200# | 7459# | 1# | β^- | 2500# | 200# | 252 084310# | 220# |
| 154 | 98 | | Cf | $-\alpha$ | 76034.6 | 2.4 | 7465.347 | 0.009 | β^- | -1260 | 50 | 252 081626.5 | 2.5 |
| 153 | 99 | | Es | - | 77290 | 50 | 7457.24 | 0.20 | β^- | 480 | 50 | 252 082980 | 50 |
| 152 | 100 | | Fm | $-\alpha$ | 76816 | 5 | 7456.038 | 0.022 | * | | | 252 082465 | 6 |
| 151 | 101 | | Md | IT | 80510# | 130# | 7438# | 1# | β^+ | 3700# | 130# | 252 086430# | 140# |
| 150 | 102 | | No | | 82871 | 9 | 7425.80 | 0.04 | β^+ | 2360# | 130# | 252 088966 | 10 |
| 149 | 103 | | Lr | $-\alpha$ | 88740# | 240# | 7399# | 1# | β^+ | 5870# | 240# | 252 095260# | 260# |
| 156 | 97 | 253 | Bk | $-\alpha$ | 80930# | 360# | 7451# | 1# | β^- | 1630# | 360# | 253 086880# | 390# |
| 155 | 98 | | Cf | $-\alpha$ | 79302 | 4 | 7454.829 | 0.017 | β^- | 291 | 4 | 253 085134 | 5 |
| 154 | 99 | | Es | $-\alpha$ | 79010.5 | 1.2 | 7452.887 | 0.005 | * | | | 253 084821.3 | 1.3 |
| 153 | 100 | | Fm | $-\alpha$ | 79345.7 | 2.9 | 7448.470 | 0.012 | β^+ | 335.2 | 2.7 | 253 085181 | 3 |
| 152 | 101 | | Md | $-\alpha$ | 81170# | 30# | 7438# | 0# | β^+ | 1830# | 30# | 253 087140# | 30# |
| 151 | 102 | | No | | 84359 | 7 | 7422.471 | 0.027 | β^+ | 3190# | 30# | 253 090563 | 7 |
| 150 | 103 | | Lr | $-\alpha$ | 88580# | 200# | 7403# | 1# | β^+ | 4220# | 200# | 253 095090# | 220# |
| 149 | 104 | | Rf | $-\alpha$ | 93560# | 410# | 7380# | 2# | β^+ | 4980# | 460# | 253 100440# | 440# |
| 157 | 97 | 254 | Bk | x | 84390# | 300# | 7440# | 1# | β^- | 3050# | 300# | 254 090600# | 320# |
| 156 | 98 | | Cf | $-\alpha$ | 81341 | 11 | 7449.23 | 0.05 | β^- | -649 | 12 | 254 087324 | 12 |
| 155 | 99 | | Es | $-\alpha$ | 81991 | 4 | 7443.589 | 0.016 | β^- | 1088 | 3 | 254 088021 | 4 |
| 154 | 100 | | Fm | $-\alpha$ | 80902.8 | 2.4 | 7444.792 | 0.010 | * | | | 254 086852.7 | 2.6 |
| 153 | 101 | | Md | - | 83450# | 100# | 7432# | 0# | β^+ | 2550# | 100# | 254 089590# | 110# |
| 152 | 102 | | No | | 84723 | 10 | 7423.59 | 0.04 | β^+ | 1270# | 100# | 254 090954 | 10 |
| 151 | 103 | | Lr | $-\alpha$ | 89870# | 300# | 7400# | 1# | β^+ | 5150# | 300# | 254 096480# | 320# |
| 150 | 104 | | Rf | $-\alpha$ | 93200# | 280# | 7384# | 1# | β^+ | 3330# | 410# | 254 100050# | 300# |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| <i>N</i> | <i>Z</i> | <i>A</i> | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ u | |
|----------|----------|----------|------|-----------|----------------------|------|-------------------------------------|-------|----------------------------|--------|------|------------------------|------|
| 157 | 98 | 255 | Cf | + | 84810# | 200# | 7438# | 1# | β^- | 720# | 200# | 255 091050# | 220# |
| 156 | 99 | | Es | $-\alpha$ | 84089 | 11 | 7437.82 | 0.04 | β^- | 290 | 10 | 255 090274 | 12 |
| 155 | 100 | | Fm | $-\alpha$ | 83800 | 4 | 7435.888 | 0.017 | * | | | 255 089963 | 5 |
| 154 | 101 | | Md | $-\alpha$ | 84843 | 7 | 7428.729 | 0.026 | β^+ | 1043 | 8 | 255 091083 | 7 |
| 153 | 102 | | No | x | 86807 | 15 | 7417.96 | 0.06 | β^+ | 1964 | 16 | 255 093191 | 16 |
| 152 | 103 | | Lr | x | 89947 | 18 | 7402.58 | 0.07 | β^+ | 3140 | 23 | 255 096562 | 19 |
| 151 | 104 | | Rf | $-\alpha$ | 94330# | 120# | 7382# | 0# | β^+ | 4380# | 120# | 255 101270# | 120# |
| 150 | 105 | | Db | $-\alpha$ | 99590# | 360# | 7359# | 1# | β^+ | 5260# | 380# | 255 106920# | 390# |
| 158 | 98 | 256 | Cf | $-\alpha$ | 87040# | 310# | 7432# | 1# | β^- | -150# | 330# | 256 093440# | 340# |
| 157 | 99 | | Es | + | 87190# | 100# | 7428# | 0# | β^- | 1700# | 100# | 256 093600# | 110# |
| 156 | 100 | | Fm | $-\alpha$ | 85487 | 6 | 7431.780 | 0.022 | * | | | 256 091774 | 6 |
| 155 | 101 | | Md | IT | 87460# | 120# | 7421# | 0# | β^+ | 1970# | 120# | 256 093890# | 130# |
| 154 | 102 | | No | $-\alpha$ | 87822 | 8 | 7416.55 | 0.03 | β^+ | 370# | 120# | 256 094281 | 8 |
| 153 | 103 | | Lr | x | 91750 | 80 | 7398.2 | 0.3 | β^+ | 3920 | 80 | 256 098490 | 90 |
| 152 | 104 | | Rf | $-\alpha$ | 94222 | 18 | 7385.43 | 0.07 | β^+ | 2480 | 80 | 256 101152 | 19 |
| 151 | 105 | | Db | $-\alpha$ | 100500# | 240# | 7358# | 1# | β^+ | 6280# | 240# | 256 107890# | 260# |
| 158 | 99 | 257 | Es | $-\alpha$ | 89400# | 410# | 7422# | 2# | β^- | 810# | 410# | 257 095980# | 440# |
| 157 | 100 | | Fm | $-\alpha$ | 88590 | 4 | 7422.194 | 0.017 | * | | | 257 095105 | 5 |
| 156 | 101 | | Md | $-\alpha$ | 88993.1 | 1.6 | 7417.582 | 0.006 | β^+ | 403 | 5 | 257 095538.0 | 1.7 |
| 155 | 102 | | No | $-\alpha$ | 90247 | 7 | 7409.657 | 0.026 | β^+ | 1254 | 7 | 257 096884 | 7 |
| 154 | 103 | | Lr | $-\alpha$ | 92670# | 40# | 7397# | 0# | β^+ | 2420# | 50# | 257 099480# | 50# |
| 153 | 104 | | Rf | $-\alpha$ | 95866 | 11 | 7381.70 | 0.04 | β^+ | 3200# | 50# | 257 102917 | 12 |
| 152 | 105 | | Db | $-\alpha$ | 100210# | 200# | 7362# | 1# | β^+ | 4340# | 200# | 257 107580# | 220# |
| 159 | 99 | 258 | Es | x | 92700# | 400# | 7412# | 2# | β^- | 2280# | 450# | 258 099520# | 430# |
| 158 | 100 | | Fm | $-\alpha$ | 90430# | 200# | 7418# | 1# | β^- | -1260# | 200# | 258 097080# | 220# |
| 157 | 101 | | Md | $-\alpha$ | 91687 | 4 | 7409.675 | 0.017 | β^- | 210# | 100# | 258 098430 | 5 |
| 156 | 102 | | No | $-\alpha$ | 91480# | 100# | 7407# | 0# | * | | | 258 098210# | 110# |
| 155 | 103 | | Lr | $-\alpha$ | 94780# | 100# | 7392# | 0# | β^+ | 3300# | 140# | 258 101750# | 110# |
| 154 | 104 | | Rf | $-\alpha$ | 96340 | 30 | 7382.54 | 0.12 | β^+ | 1560# | 110# | 258 103430 | 30 |
| 153 | 105 | | Db | $-\alpha$ | 101800# | 310# | 7358# | 1# | β^+ | 5460# | 310# | 258 109280# | 330# |
| 152 | 106 | | Sg | $-\alpha$ | 105240# | 410# | 7342# | 2# | β^+ | 3450# | 510# | 258 112980# | 440# |
| 159 | 100 | 259 | Fm | $-\alpha$ | 93700# | 280# | 7407# | 1# | β^- | 80# | 350# | 259 100600# | 300# |
| 158 | 101 | | Md | $-\alpha$ | 93620# | 200# | 7405# | 1# | * | | | 259 100510# | 220# |
| 157 | 102 | | No | $-\alpha$ | 94079 | 7 | 7399.974 | 0.025 | β^+ | 450# | 200# | 259 100998 | 7 |
| 156 | 103 | | Lr | $-\alpha$ | 95850# | 70# | 7390# | 0# | β^+ | 1770# | 70# | 259 102900# | 80# |
| 155 | 104 | | Rf | $-\alpha$ | 98360# | 70# | 7377# | 0# | β^+ | 2510# | 100# | 259 105600# | 80# |
| 154 | 105 | | Db | $-\alpha$ | 101990 | 50 | 7360.36 | 0.20 | β^+ | 3630# | 90# | 259 109490 | 60 |
| 153 | 106 | | Sg | $-\alpha$ | 106520# | 120# | 7340# | 0# | β^+ | 4530# | 130# | 259 114350# | 120# |
| 160 | 100 | 260 | Fm | $-\alpha$ | 95770# | 440# | 7402# | 2# | β^- | -790# | 540# | 260 102810# | 470# |
| 159 | 101 | | Md | $-\alpha$ | 96550# | 320# | 7396# | 1# | β^- | 940# | 370# | 260 103650# | 340# |
| 158 | 102 | | No | $-\alpha$ | 95610# | 200# | 7397# | 1# | * | | | 260 102640# | 220# |
| 157 | 103 | | Lr | $-\alpha$ | 98280# | 120# | 7383# | 0# | β^+ | 2670# | 240# | 260 105500# | 130# |
| 156 | 104 | | Rf | $-\alpha$ | 99150# | 200# | 7377# | 1# | β^+ | 870# | 240# | 260 106440# | 220# |
| 155 | 105 | | Db | $-\alpha$ | 103670# | 90# | 7357# | 0# | β^+ | 4530# | 220# | 260 111300# | 100# |
| 154 | 106 | | Sg | $-\alpha$ | 106548 | 21 | 7342.56 | 0.08 | β^+ | 2880# | 100# | 260 114384 | 22 |
| 153 | 107 | | Bh | $-\alpha$ | 113320# | 250# | 7313# | 1# | β^+ | 6780# | 250# | 260 121660# | 260# |
| 160 | 101 | 261 | Md | $-\alpha$ | 98580# | 510# | 7391# | 2# | β^- | 120# | 550# | 261 105830# | 550# |
| 159 | 102 | | No | $-\alpha$ | 98460# | 200# | 7388# | 1# | * | | | 261 105700# | 220# |
| 158 | 103 | | Lr | $-\alpha$ | 99560# | 200# | 7381# | 1# | β^+ | 1100# | 280# | 261 106880# | 220# |
| 157 | 104 | | Rf | $-\alpha$ | 101320 | 50 | 7371.38 | 0.19 | β^+ | 1760# | 210# | 261 108770 | 50 |
| 156 | 105 | | Db | $-\alpha$ | 104310# | 110# | 7357# | 0# | β^+ | 2990# | 120# | 261 111980# | 120# |
| 155 | 106 | | Sg | $-\alpha$ | 108005 | 18 | 7339.77 | 0.07 | β^+ | 3700# | 110# | 261 115948 | 20 |
| 154 | 107 | | Bh | $-\alpha$ | 113130# | 210# | 7317# | 1# | β^+ | 5130# | 210# | 261 121450# | 220# |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| N | Z | A | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ u | |
|-----|-----|-----|------|-----------|----------------------|------|-------------------------------------|------|----------------------------|--------|------|------------------------|------|
| 161 | 101 | 262 | Md | $-\alpha$ | 101630# | 500# | 7382# | 2# | β^- | 1530# | 620# | 262 109100# | 540# |
| 160 | 102 | | No | $-\alpha$ | 100100# | 360# | 7385# | 1# | * | | | 262 107460# | 390# |
| 159 | 103 | | Lr | $-\alpha$ | 102100# | 200# | 7374# | 1# | β^+ | 2000# | 410# | 262 109610# | 220# |
| 158 | 104 | | Rf | $-\alpha$ | 102390# | 220# | 7370# | 1# | β^+ | 290# | 300# | 262 109920# | 240# |
| 157 | 105 | | Db | $-\alpha$ | 106250# | 140# | 7352# | 1# | β^+ | 3860# | 270# | 262 114070# | 150# |
| 156 | 106 | | Sg | $-\alpha$ | 108370 | 40 | 7341.19 | 0.14 | β^+ | 2110# | 150# | 262 116340 | 40 |
| 155 | 107 | | Bh | $-\alpha$ | 114540# | 310# | 7315# | 1# | β^+ | 6180# | 310# | 262 122970# | 330# |
| 161 | 102 | 263 | No | $-\alpha$ | 103130# | 490# | 7376# | 2# | * | | | 263 110710# | 530# |
| 160 | 103 | | Lr | $-\alpha$ | 103730# | 280# | 7371# | 1# | β^+ | 600# | 570# | 263 111360# | 300# |
| 159 | 104 | | Rf | $-\alpha$ | 104760# | 150# | 7364# | 1# | β^+ | 1030# | 320# | 263 112460# | 160# |
| 158 | 105 | | Db | $-\alpha$ | 107110# | 170# | 7352# | 1# | β^+ | 2360# | 230# | 263 114990# | 180# |
| 157 | 106 | | Sg | $-\alpha$ | 110190# | 100# | 7337# | 0# | β^+ | 3080# | 190# | 263 118290# | 100# |
| 156 | 107 | | Bh | $-\alpha$ | 114500# | 310# | 7318# | 1# | β^+ | 4310# | 320# | 263 122920# | 330# |
| 155 | 108 | | Hs | $-\alpha$ | 119680# | 130# | 7295# | 0# | β^+ | 5180# | 330# | 263 128480# | 130# |
| 162 | 102 | 264 | No | $-\alpha$ | 105010# | 590# | 7371# | 2# | β^- | -1370# | 730# | 264 112730# | 630# |
| 161 | 103 | | Lr | $-\alpha$ | 106380# | 440# | 7363# | 2# | β^- | 300# | 570# | 264 114200# | 470# |
| 160 | 104 | | Rf | $-\alpha$ | 106080# | 360# | 7361# | 1# | * | | | 264 113880# | 390# |
| 159 | 105 | | Db | $-\alpha$ | 109360# | 240# | 7346# | 1# | β^+ | 3290# | 430# | 264 117410# | 250# |
| 158 | 106 | | Sg | $-\alpha$ | 110780# | 280# | 7338# | 1# | β^+ | 1420# | 370# | 264 118930# | 300# |
| 157 | 107 | | Bh | $-\alpha$ | 116060# | 180# | 7315# | 1# | β^+ | 5280# | 330# | 264 124590# | 190# |
| 156 | 108 | | Hs | $-\alpha$ | 119563 | 29 | 7298.38 | 0.11 | β^+ | 3510# | 180# | 264 128360 | 30 |
| 162 | 103 | 265 | Lr | $-\alpha$ | 108230# | 550# | 7359# | 2# | * | | | 265 116190# | 590# |
| 161 | 104 | | Rf | $-\alpha$ | 108690# | 360# | 7354# | 1# | β^+ | 460# | 660# | 265 116680# | 390# |
| 160 | 105 | | Db | $-\alpha$ | 110480# | 220# | 7344# | 1# | β^+ | 1790# | 420# | 265 118610# | 240# |
| 159 | 106 | | Sg | $-\alpha$ | 112790# | 120# | 7333# | 0# | β^+ | 2310# | 260# | 265 121090# | 130# |
| 158 | 107 | | Bh | $-\alpha$ | 116420# | 230# | 7316# | 1# | β^+ | 3620# | 260# | 265 124980# | 250# |
| 157 | 108 | | Hs | $-\alpha$ | 120900 | 24 | 7296.25 | 0.09 | β^+ | 4490# | 240# | 265 129792 | 26 |
| 156 | 109 | | Mt | $-\alpha$ | 126680# | 450# | 7271# | 2# | β^+ | 5780# | 450# | 265 136000# | 480# |
| 163 | 103 | 266 | Lr | $-\alpha$ | 111620# | 580# | 7349# | 2# | β^- | 1550# | 750# | 266 119830# | 630# |
| 162 | 104 | | Rf | $-\alpha$ | 110080# | 470# | 7352# | 2# | * | | | 266 118170# | 500# |
| 161 | 105 | | Db | $-\alpha$ | 112740# | 280# | 7339# | 1# | β^+ | 2660# | 550# | 266 121030# | 300# |
| 160 | 106 | | Sg | $-\alpha$ | 113620# | 250# | 7332# | 1# | β^+ | 880# | 370# | 266 121970# | 260# |
| 159 | 107 | | Bh | $-\alpha$ | 118100# | 160# | 7313# | 1# | β^+ | 4490# | 290# | 266 126790# | 180# |
| 158 | 108 | | Hs | $-\alpha$ | 121140 | 40 | 7298.27 | 0.15 | β^+ | 3030# | 170# | 266 130050 | 40 |
| 157 | 109 | | Mt | $-\alpha$ | 127960# | 310# | 7270# | 1# | β^+ | 6830# | 310# | 266 137370# | 330# |
| 163 | 104 | 267 | Rf | $-\alpha$ | 113440# | 580# | 7342# | 2# | * | | | 267 121790# | 620# |
| 162 | 105 | | Db | $-\alpha$ | 114070# | 410# | 7336# | 2# | β^+ | 630# | 710# | 267 122460# | 440# |
| 161 | 106 | | Sg | $-\alpha$ | 115810# | 260# | 7327# | 1# | β^+ | 1730# | 490# | 267 124320# | 280# |
| 160 | 107 | | Bh | $-\alpha$ | 118770# | 260# | 7313# | 1# | β^+ | 2960# | 370# | 267 127500# | 280# |
| 159 | 108 | | Hs | $-\alpha$ | 122650# | 100# | 7295# | 0# | β^+ | 3890# | 280# | 267 131670# | 100# |
| 158 | 109 | | Mt | $-\alpha$ | 127790# | 500# | 7273# | 2# | β^+ | 5140# | 510# | 267 137190# | 540# |
| 157 | 110 | | Ds | $-\alpha$ | 133880# | 140# | 7248# | 1# | β^+ | 6090# | 520# | 267 143730# | 150# |
| 164 | 104 | 268 | Rf | $-\alpha$ | 115480# | 660# | 7337# | 2# | β^- | -1590# | 850# | 268 123970# | 710# |
| 163 | 105 | | Db | $-\alpha$ | 117060# | 530# | 7328# | 2# | β^- | 260# | 710# | 268 125670# | 570# |
| 162 | 106 | | Sg | $-\alpha$ | 116800# | 470# | 7326# | 2# | * | | | 268 125390# | 500# |
| 161 | 107 | | Bh | $-\alpha$ | 120810# | 380# | 7308# | 1# | β^+ | 4010# | 610# | 268 129690# | 410# |
| 160 | 108 | | Hs | $-\alpha$ | 122830# | 280# | 7298# | 1# | β^+ | 2020# | 480# | 268 131860# | 300# |
| 159 | 109 | | Mt | $-\alpha$ | 129150# | 230# | 7271# | 1# | β^+ | 6320# | 370# | 268 138650# | 250# |
| 158 | 110 | | Ds | $-\alpha$ | 133650# | 300# | 7252# | 1# | β^+ | 4500# | 380# | 268 143480# | 320# |
| 164 | 105 | 269 | Db | $-\alpha$ | 119150# | 620# | 7323# | 2# | * | | | 269 127910# | 670# |
| 163 | 106 | | Sg | $-\alpha$ | 119760# | 360# | 7318# | 1# | β^+ | 610# | 720# | 269 128570# | 390# |
| 162 | 107 | | Bh | $-\alpha$ | 121480# | 370# | 7309# | 1# | β^+ | 1720# | 520# | 269 130410# | 400# |
| 161 | 108 | | Hs | $-\alpha$ | 124560# | 120# | 7294# | 0# | β^+ | 3090# | 390# | 269 133730# | 130# |
| 160 | 109 | | Mt | $-\alpha$ | 129370# | 460# | 7273# | 2# | β^+ | 4810# | 480# | 269 138880# | 500# |
| 159 | 110 | | Ds | $-\alpha$ | 134830 | 30 | 7250.15 | 0.12 | β^+ | 5470# | 460# | 269 144750 | 30 |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| N | Z | A | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | | Atomic mass μ u | |
|-----|-----|-----|------|-----------|----------------------|------|-------------------------------------|------|----------------------------|-------|------|------------------------|------|
| 165 | 105 | 270 | Db | $-\alpha$ | 122310# | 620# | 7314# | 2# | β^- | 820# | 830# | 270 131300# | 660# |
| 164 | 106 | | Sg | $-\alpha$ | 121490# | 560# | 7314# | 2# | | * | | 270 130430# | 600# |
| 163 | 107 | | Bh | $-\alpha$ | 124230# | 290# | 7301# | 1# | β^+ | 2740# | 630# | 270 133360# | 310# |
| 162 | 108 | | Hs | $-\alpha$ | 125110# | 250# | 7295# | 1# | β^+ | 890# | 380# | 270 134310# | 270# |
| 161 | 109 | | Mt | $-\alpha$ | 130710# | 170# | 7271# | 1# | β^+ | 5600# | 300# | 270 140320# | 180# |
| 160 | 110 | | Ds | $-\alpha$ | 134680 | 50 | 7253.77 | 0.18 | β^+ | 3970# | 180# | 270 144580 | 50 |
| 165 | 106 | 271 | Sg | $-\alpha$ | 124760# | 590# | 7305# | 2# | | * | | 271 133930# | 630# |
| 164 | 107 | | Bh | $-\alpha$ | 125920# | 420# | 7298# | 2# | β^+ | 1160# | 720# | 271 135180# | 450# |
| 163 | 108 | | Hs | $-\alpha$ | 127740# | 280# | 7288# | 1# | β^+ | 1820# | 500# | 271 137140# | 300# |
| 162 | 109 | | Mt | $-\alpha$ | 131100# | 330# | 7273# | 1# | β^+ | 3360# | 430# | 271 140740# | 350# |
| 161 | 110 | | Ds | $-\alpha$ | 135950# | 100# | 7252# | 0# | β^+ | 4850# | 340# | 271 145950# | 100# |
| 166 | 106 | 272 | Sg | $-\alpha$ | 126580# | 730# | 7301# | 3# | | * | | 272 135890# | 780# |
| 165 | 107 | | Bh | $-\alpha$ | 128790# | 530# | 7290# | 2# | β^+ | 2210# | 900# | 272 138260# | 570# |
| 164 | 108 | | Hs | $-\alpha$ | 129010# | 510# | 7286# | 2# | β^+ | 220# | 740# | 272 138490# | 550# |
| 163 | 109 | | Mt | $-\alpha$ | 133580# | 490# | 7267# | 2# | β^+ | 4580# | 700# | 272 143410# | 520# |
| 162 | 110 | | Ds | $-\alpha$ | 136020# | 410# | 7255# | 2# | β^+ | 2430# | 640# | 272 146020# | 440# |
| 161 | 111 | | Rg | $-\alpha$ | 142770# | 230# | 7227# | 1# | β^+ | 6760# | 470# | 272 153270# | 250# |
| 167 | 106 | 273 | Sg | x | 130020# | 500# | 7291# | 2# | | * | | 273 139580# | 540# |
| 166 | 107 | | Bh | $-\alpha$ | 130630# | 690# | 7286# | 3# | β^+ | 620# | 860# | 273 140240# | 740# |
| 165 | 108 | | Hs | $-\alpha$ | 131890# | 370# | 7279# | 1# | β^+ | 1260# | 780# | 273 141590# | 390# |
| 164 | 109 | | Mt | $-\alpha$ | 134710# | 420# | 7265# | 2# | β^+ | 2820# | 560# | 273 144620# | 460# |
| 163 | 110 | | Ds | $-\alpha$ | 138360# | 130# | 7249# | 0# | β^+ | 3640# | 450# | 273 148530# | 140# |
| 162 | 111 | | Rg | $-\alpha$ | 142700# | 530# | 7231# | 2# | β^+ | 4340# | 540# | 273 153190# | 570# |
| 167 | 107 | 274 | Bh | $-\alpha$ | 133680# | 620# | 7278# | 2# | β^- | 200# | 860# | 274 143510# | 660# |
| 166 | 108 | | Hs | $-\alpha$ | 133490# | 590# | 7276# | 2# | | * | | 274 143300# | 640# |
| 165 | 109 | | Mt | $-\alpha$ | 137250# | 350# | 7259# | 1# | β^+ | 3760# | 690# | 274 147340# | 380# |
| 164 | 110 | | Ds | $-\alpha$ | 139200# | 390# | 7249# | 1# | β^+ | 1950# | 530# | 274 149430# | 420# |
| 163 | 111 | | Rg | $-\alpha$ | 144610# | 180# | 7227# | 1# | β^+ | 5420# | 430# | 274 155250# | 190# |
| 168 | 107 | 275 | Bh | x | 135690# | 600# | 7273# | 2# | | * | | 275 145670# | 640# |
| 167 | 108 | | Hs | $-\alpha$ | 136620# | 590# | 7267# | 2# | β^+ | 930# | 840# | 275 146670# | 630# |
| 166 | 109 | | Mt | $-\alpha$ | 138830# | 420# | 7256# | 2# | β^+ | 2210# | 720# | 275 149040# | 450# |
| 165 | 110 | | Ds | $-\alpha$ | 141570# | 410# | 7244# | 1# | β^+ | 2740# | 590# | 275 151980# | 440# |
| 164 | 111 | | Rg | $-\alpha$ | 145300# | 520# | 7227# | 2# | β^+ | 3730# | 660# | 275 155980# | 560# |
| 168 | 108 | 276 | Hs | $-\alpha$ | 138290# | 750# | 7264# | 3# | | * | | 276 148460# | 810# |
| 167 | 109 | | Mt | $-\alpha$ | 141320# | 530# | 7250# | 2# | β^+ | 3030# | 920# | 276 151710# | 570# |
| 166 | 110 | | Ds | $-\alpha$ | 142540# | 550# | 7243# | 2# | β^+ | 1230# | 760# | 276 153020# | 590# |
| 165 | 111 | | Rg | $-\alpha$ | 147490# | 630# | 7222# | 2# | β^+ | 4950# | 830# | 276 158330# | 680# |
| 164 | 112 | | Cn | x | 150350# | 600# | 7209# | 2# | β^+ | 2870# | 870# | 276 161410# | 640# |
| 169 | 108 | 277 | Hs | $-\alpha$ | 141490# | 540# | 7255# | 2# | | * | | 277 151900# | 580# |
| 168 | 109 | | Mt | $-\alpha$ | 142970# | 700# | 7247# | 3# | β^+ | 1480# | 880# | 277 153480# | 750# |
| 167 | 110 | | Ds | $-\alpha$ | 145140# | 380# | 7237# | 1# | β^+ | 2170# | 800# | 277 155820# | 410# |
| 166 | 111 | | Rg | $-\alpha$ | 148340# | 520# | 7222# | 2# | β^+ | 3200# | 650# | 277 159250# | 560# |
| 165 | 112 | | Cn | $-\alpha$ | 152400# | 140# | 7205# | 1# | β^+ | 4070# | 540# | 277 163610# | 150# |
| 169 | 109 | 278 | Mt | $-\alpha$ | 145740# | 620# | 7240# | 2# | | * | | 278 156450# | 670# |
| 168 | 110 | | Ds | $-\alpha$ | 146380# | 630# | 7235# | 2# | β^+ | 650# | 880# | 278 157150# | 670# |
| 167 | 111 | | Rg | $-\alpha$ | 150520# | 360# | 7218# | 1# | β^+ | 4140# | 720# | 278 161590# | 380# |
| 166 | 112 | | Cn | $-\alpha$ | 152930# | 440# | 7206# | 2# | β^+ | 2420# | 570# | 278 164180# | 470# |
| 165 | 113 | | Ed | $-\alpha$ | 158890# | 180# | 7182# | 1# | β^+ | 5960# | 480# | 278 170570# | 200# |
| 170 | 109 | 279 | Mt | $-\alpha$ | 147500# | 670# | 7237# | 2# | | * | | 279 158340# | 720# |
| 169 | 110 | | Ds | $-\alpha$ | 149130# | 600# | 7228# | 2# | β^+ | 1630# | 900# | 279 160090# | 640# |
| 168 | 111 | | Rg | $-\alpha$ | 151780# | 420# | 7216# | 2# | β^+ | 2650# | 730# | 279 162940# | 450# |
| 167 | 112 | | Cn | $-\alpha$ | 155030# | 460# | 7202# | 2# | β^+ | 3260# | 620# | 279 166430# | 490# |
| 166 | 113 | | Ed | x | 159240# | 700# | 7184# | 3# | β^+ | 4210# | 840# | 279 170950# | 750# |

Table I. The 2012 Atomic mass table (continued, Explanation of Table on p. 030003-6)

| N | Z | A | Elt. | Orig. | Mass excess (keV) | | Binding energy per nucleon (keV) | | Beta-decay energy (keV) | | Atomic mass μu | |
|-----|-----|-----|------|-----------|----------------------|------|-------------------------------------|----|----------------------------|-------------|------------------------|------|
| 170 | 110 | 280 | Ds | $-\alpha$ | 150520# | 780# | 7226# | 3# | * | | 280 161590# | 840# |
| 169 | 111 | | Rg | $-\alpha$ | 153890# | 530# | 7212# | 2# | β^+ | 3370# 940# | 280 165200# | 570# |
| 168 | 112 | | Cn | $-\alpha$ | 155700# | 580# | 7202# | 2# | β^+ | 1810# 790# | 280 167150# | 630# |
| 167 | 113 | | Ed | x | 161140# | 400# | 7180# | 1# | β^+ | 5440# 710# | 280 172990# | 430# |
| 171 | 110 | 281 | Ds | $-\alpha$ | 153430# | 580# | 7219# | 2# | * | | 281 164720# | 620# |
| 170 | 111 | | Rg | $-\alpha$ | 155300# | 810# | 7210# | 3# | β^+ | 1870# 990# | 281 166720# | 870# |
| 169 | 112 | | Cn | $-\alpha$ | 158020# | 390# | 7197# | 1# | β^+ | 2720# 890# | 281 169640# | 420# |
| 168 | 113 | | Ed | x | 161810# | 300# | 7181# | 1# | β^+ | 3790# 490# | 281 173710# | 320# |
| 171 | 111 | 282 | Rg | $-\alpha$ | 157800# | 650# | 7204# | 2# | * | | 282 169410# | 700# |
| 170 | 112 | | Cn | $-\alpha$ | 158980# | 660# | 7197# | 2# | β^+ | 1180# 930# | 282 170670# | 700# |
| 169 | 113 | | Ed | $-\alpha$ | 163730# | 360# | 7177# | 1# | β^+ | 4750# 750# | 282 175770# | 390# |
| 172 | 111 | 283 | Rg | $-\alpha$ | 159280# | 700# | 7202# | 2# | * | | 283 171000# | 750# |
| 171 | 112 | | Cn | $-\alpha$ | 161490# | 610# | 7191# | 2# | β^+ | 2210# 930# | 283 173360# | 650# |
| 170 | 113 | | Ed | $-\alpha$ | 164710# | 440# | 7177# | 2# | β^+ | 3220# 750# | 283 176820# | 470# |
| 172 | 112 | 284 | Cn | $-\alpha$ | 162550# | 810# | 7190# | 3# | * | | 284 174500# | 870# |
| 171 | 113 | | Ed | $-\alpha$ | 166590# | 530# | 7173# | 2# | β^+ | 4050# 970# | 284 178840# | 570# |
| 170 | 114 | | Fl | $-\alpha$ | 168920# | 660# | 7162# | 2# | β^+ | 2330# 850# | 284 181340# | 700# |
| 173 | 112 | 285 | Cn | $-\alpha$ | 165170# | 580# | 7184# | 2# | * | | 285 177320# | 620# |
| 172 | 113 | | Ed | $-\alpha$ | 167730# | 810# | 7173# | 3# | β^+ | 2560# 1000# | 285 180070# | 870# |
| 171 | 114 | | Fl | $-\alpha$ | 171000# | 390# | 7158# | 1# | β^+ | 3270# 900# | 285 183580# | 420# |
| 173 | 113 | 286 | Ed | $-\alpha$ | 170010# | 660# | 7168# | 2# | * | | 286 182520# | 700# |
| 172 | 114 | | Fl | $-\alpha$ | 171770# | 660# | 7159# | 2# | β^+ | 1760# 930# | 286 184410# | 710# |
| 174 | 113 | 287 | Ed | $-\alpha$ | 171250# | 730# | 7167# | 3# | * | | 287 183840# | 780# |
| 173 | 114 | | Fl | $-\alpha$ | 174070# | 610# | 7154# | 2# | β^+ | 2830# 950# | 287 186880# | 660# |
| 172 | 115 | | Ef | $-\alpha$ | 177900# | 440# | 7138# | 2# | β^+ | 3820# 750# | 287 190980# | 470# |
| 174 | 114 | 288 | Fl | $-\alpha$ | 175040# | 810# | 7154# | 3# | * | | 288 187920# | 870# |
| 173 | 115 | | Ef | $-\alpha$ | 179770# | 540# | 7135# | 2# | β^+ | 4730# 970# | 288 192990# | 580# |
| 175 | 114 | 289 | Fl | $-\alpha$ | 177560# | 580# | 7148# | 2# | * | | 289 190620# | 630# |
| 174 | 115 | | Ef | $-\alpha$ | 180670# | 810# | 7135# | 3# | β^+ | 3100# 1000# | 289 193950# | 870# |
| 173 | 116 | | Lv | $-\alpha$ | 184530# | 490# | 7119# | 2# | β^+ | 3860# 950# | 289 198100# | 530# |
| 175 | 115 | 290 | Ef | $-\alpha$ | 182890# | 660# | 7130# | 2# | * | | 290 196350# | 710# |
| 174 | 116 | | Lv | $-\alpha$ | 185200# | 660# | 7120# | 2# | β^+ | 2300# 930# | 290 198820# | 710# |
| 176 | 115 | 291 | Ef | $-\alpha$ | 183990# | 780# | 7130# | 3# | * | | 291 197520# | 840# |
| 175 | 116 | | Lv | $-\alpha$ | 187390# | 610# | 7116# | 2# | β^+ | 3400# 1000# | 291 201170# | 660# |
| 174 | 117 | | Eh | $-\alpha$ | 191800# | 590# | 7098# | 2# | β^+ | 4410# 850# | 291 205910# | 640# |
| 176 | 116 | 292 | Lv | $-\alpha$ | 188240# | 810# | 7116# | 3# | * | | 292 202090# | 870# |
| 175 | 117 | | Eh | $-\alpha$ | 193580# | 670# | 7095# | 2# | β^+ | 5330# 1050# | 292 207810# | 720# |
| 177 | 116 | 293 | Lv | $-\alpha$ | 190670# | 590# | 7111# | 2# | * | | 293 204690# | 630# |
| 176 | 117 | | Eh | $-\alpha$ | 194390# | 810# | 7095# | 3# | β^+ | 3720# 1000# | 293 208680# | 870# |
| 175 | 118 | | Ei | $-\alpha$ | 198870# | 700# | 7077# | 2# | β^+ | 4490# 1070# | 293 213500# | 750# |
| 177 | 117 | 294 | Eh | $-\alpha$ | 196520# | 660# | 7092# | 2# | * | | 294 210970# | 710# |
| 176 | 118 | | Ei | $-\alpha$ | 199460# | 660# | 7079# | 2# | β^+ | 2940# 940# | 294 214130# | 710# |
| 177 | 118 | 295 | Ei | $-\alpha$ | 201510# | 640# | 7075# | 2# | * | | 295 216330# | 690# |

Table II. Influences on primary nuclides**EXPLANATION OF TABLE**

This table gives for each of the 1207 primary nuclides the up to three most important contributing data and their *influences* ($\times 100$) on its mass, as given by the flow-of-information matrix.

| Nuclide | Nuclidic name (primaries only) | | | | | |
|--------------|--|--------------------------------|-------|-----------------------------------|-------|-------------------------|
| Influence | <i>Influence</i> ($\times 100$) brought to the determination of the mass of the nuclide, by the piece of data represented by the equation in following column | | | | | |
| Equation | K^m , Cs^m , Cs^n , In^p , Tl^q : higher isomers, see NUBASE. In nuclear reactions: ε = electron capture, In mass-doublet equation: $H = {}^1H$, $N = {}^{14}N$, $D = {}^2H$, $O = {}^{16}O$, $C = {}^{12}C$, u = absolute mass-doublet. In mass-triplet equation: Rb^x , Rb^y : different mixtures of isomers or contaminants. | | | | | |
| Nuclide | Infl. | Equation | Infl. | Equation | Infl. | Equation |
| $0\pi^+$ | 100.0 | π^+ | | | | |
| $0\pi^-$ | 99.6 | $\pi^+(2\beta^+)\pi^-$ | | | | |
| $1\ n$ | 100.0 | ${}^1H(n,\gamma){}^2H$ | | | | |
| 1H | 43.8 | $H_{12}-C$ | 24.4 | H_2-D | 16.5 | $C_2\ H_4-{}^{28}Si$ |
| 2H | 78.0 | D_6-C | 7.8 | H_2-D | 3.2 | $C\ D_3-{}^{18}O$ |
| 3H | 100.0 | ${}^3H-{}^3He$ | | | | |
| 3He | 100.0 | ${}^3He-H\ D$ | | | | |
| 4He | 100.0 | ${}^4He_3-C$ | | | | |
| 6He | 100.0 | ${}^6He-{}^7Li_{1.857}$ | | | | |
| 6Li | 100.0 | ${}^6Li_2-C$ | | | | |
| 7Li | 99.8 | ${}^7Li-H_7$ | 0.1 | ${}^7Li(n,\gamma){}^8Li$ | 0.1 | ${}^8He-{}^7Li_{1.143}$ |
| ${}^7Li^i$ | 61.0 | ${}^9Be(p,{}^3He){}^7Li^i$ | 39.0 | ${}^6Li(n,\gamma){}^7Li^i$ | | |
| 7Be | 100.0 | ${}^7Li(p,n){}^7Be$ | | | | |
| 8He | 74.9 | ${}^8He-{}^7Li_{1.143}$ | 25.1 | ${}^8He-{}^6Li_{1.333}$ | | |
| 8Li | 78.7 | ${}^7Li(n,\gamma){}^8Li$ | 21.3 | ${}^8Li-{}^6Li_{1.333}$ | | |
| ${}^8Be^j$ | 57.1 | ${}^{10}Be(p,t){}^8Be^j$ | 42.9 | ${}^6Li(d,\gamma){}^8Be^j$ | | |
| 8B | 100.0 | ${}^6Li({}^3He,n){}^8B$ | | | | |
| 8C | 62.5 | ${}^{12}C(\alpha,{}^8He){}^8C$ | 37.5 | ${}^8C-u$ | | |
| 9He | 56.2 | ${}^9He(\gamma,n){}^8He$ | 43.8 | ${}^9Be(\pi^-, \pi^+){}^9He$ | | |
| 9Be | 67.1 | ${}^9Be-{}^7Li_{1.286}$ | 32.9 | ${}^9Be(n,\gamma){}^{10}Be$ | | |
| ${}^{10}Be$ | 55.6 | ${}^9Be(n,\gamma){}^{10}Be$ | 44.4 | ${}^{10}Be-{}^7Li_{1.429}$ | | |
| ${}^{10}B$ | 100.0 | ${}^{10}B-u$ | | | | |
| ${}^{10}C$ | 67.2 | ${}^{10}C-{}^{10}B$ | 32.8 | ${}^{10}B(p,n){}^{10}C$ | | |
| ${}^{11}Be$ | 83.1 | ${}^{11}Be-{}^6Li_{1.833}$ | 16.9 | ${}^{11}Be-{}^7Li_{1.571}$ | | |
| ${}^{11}B$ | 100.0 | ${}^{11}B-u$ | | | | |
| ${}^{11}B^i$ | 79.1 | ${}^9Be({}^3He,p){}^{11}B^i$ | 20.9 | ${}^7Li(\alpha,\gamma){}^{11}B^i$ | | |
| ${}^{11}C$ | 100.0 | ${}^{11}C-{}^{14}N_{1.786}$ | | | | |
| ${}^{11}C^i$ | 50.0 | ${}^{11}B({}^3He,t){}^{11}C^i$ | 50.0 | ${}^9Be({}^3He,n){}^{11}C^i$ | | |
| ${}^{12}Be$ | 79.4 | ${}^{12}Be-C$ | 20.6 | ${}^{10}Be(t,p){}^{12}Be$ | | |
| ${}^{12}B$ | 89.1 | ${}^{14}C(d,\alpha){}^{12}B$ | 10.9 | ${}^{11}B(d,p){}^{12}B$ | | |
| ${}^{12}B^i$ | 86.3 | ${}^{14}C(p,{}^3He){}^{12}B^i$ | 13.7 | ${}^9Be({}^7Li,\alpha){}^{12}B^i$ | | |
| ${}^{12}C^i$ | 69.2 | ${}^{11}B(d,n){}^{12}C^i$ | 30.8 | ${}^{10}B({}^3He,p){}^{12}C^i$ | | |

Table II. Influences on primary nuclides (continued, Explanation of Table on page 030003-74)

| Nuclide | Infl. | Equation | Infl. | Equation | Infl. | Equation |
|--------------------|-------|--|-------|--|-------|---|
| ^{12}N | 100.0 | $^{14}\text{N}(\text{p},\text{t})^{12}\text{N}$ | | | | |
| ^{13}C | 78.6 | $^{13}\text{C}\text{H}-^{14}\text{N}$ | 20.8 | $^{13}\text{C}_2\text{H}_2-^{28}\text{Si}$ | 0.5 | $^{13}\text{C}\text{D}_3-^{19}\text{F}$ |
| ^{13}N | 100.0 | $^{12}\text{C}(\text{p},\gamma)^{13}\text{N}$ | | | | |
| ^{14}B | 100.0 | $^{14}\text{C}(^7\text{Li},^7\text{Be})^{14}\text{B}$ | | | | |
| ^{14}C | 80.0 | $^{14}\text{C}\text{H}_2-\text{N D}$ | 20.0 | $\text{C D}_2-^{14}\text{C}\text{H}_2$ | | |
| ^{14}N | 81.3 | $\text{N}_2-\text{C O}$ | 15.5 | $^{13}\text{C}\text{H}-^{14}\text{N}$ | 1.2 | $^{86}\text{Kr}-\text{N}_6$ |
| ^{14}O | 100.0 | $^{14}\text{O}-^{14}\text{N}$ | | | | |
| ^{15}B | 88.4 | $^{18}\text{O}(^{48}\text{Ca},^{51}\text{V})^{15}\text{B}$ | 11.6 | $^{16}\text{B}(\gamma,\text{n})^{15}\text{B}$ | | |
| ^{15}N | 60.9 | $\text{C D H}-^{15}\text{N}$ | 26.2 | $^{15}\text{N}_2-^{28}\text{Si}\text{H}_2$ | 13.0 | $\text{C H}_3-^{15}\text{N}$ |
| ^{15}O | 70.3 | $^{15}\text{N}(\text{p},\text{n})^{15}\text{O}$ | 29.7 | $^{14}\text{N}(\text{p},\gamma)^{15}\text{O}$ | | |
| ^{16}B | 83.2 | $^{16}\text{B}(\gamma,\text{n})^{15}\text{B}$ | 16.8 | $^{14}\text{C}(^{14}\text{C},^{12}\text{N})^{16}\text{B}$ | | |
| ^{16}O | 92.8 | C_4-O_3 | 3.5 | $\text{O}_2-^{31}\text{P H}$ | 1.4 | $^{32}\text{S}-\text{O}_2$ |
| $^{16}\text{O}^i$ | 54.4 | $^{14}\text{N}(^3\text{He},\text{p})^{16}\text{O}^i$ | 45.6 | $^{15}\text{N}(\text{p},\gamma)^{16}\text{O}^i$ | | |
| $^{16}\text{O}^j$ | 77.0 | $^{14}\text{N}(\text{d},\gamma)^{16}\text{O}^j$ | 23.0 | $^{14}\text{C}(^3\text{He},\text{n})^{16}\text{O}^j$ | | |
| ^{17}O | 81.7 | $^{17}\text{O}_2-^{28}\text{Si D}_3$ | 18.3 | $^{17}\text{O}-^{16}\text{O H}$ | | |
| ^{17}F | 100.0 | $^{16}\text{O}(\text{p},\gamma)^{17}\text{F}$ | | | | |
| ^{17}Ne | 100.0 | $^{17}\text{Ne}-^{22}\text{Ne}_{.773}$ | | | | |
| ^{18}O | 84.1 | $\text{C D}_3-^{18}\text{O}$ | 15.9 | $\text{C}_3-^{18}\text{O}_2$ | | |
| ^{18}F | 59.6 | $^{17}\text{O}(\text{p},\gamma)^{18}\text{F}$ | 40.4 | $^{18}\text{O}(\text{p},\text{n})^{18}\text{F}$ | | |
| ^{18}Ne | 99.9 | $^{18}\text{Ne}-^{22}\text{Ne}_{.818}$ | 0.1 | $^{22}\text{Mg}^i(\alpha)^{18}\text{Ne}$ | | |
| ^{18}Na | 69.7 | $^{18}\text{Na}(\text{p})^{17}\text{Ne}$ | 30.3 | $^{18}\text{Na}-\text{u}$ | | |
| ^{19}F | 84.5 | $^{13}\text{C D}_3-^{19}\text{F}$ | 15.5 | $^{28}\text{Si H}_3-\text{C }^{19}\text{F}$ | | |
| ^{19}Na | 77.1 | $^{24}\text{Mg}(^3\text{He},^8\text{Li})^{19}\text{Na}$ | 22.9 | $^{19}\text{Na}(\text{p})^{18}\text{Ne}$ | | |
| ^{20}Ne | 60.5 | $^{20}\text{Ne}_2-^{40}\text{Ar}$ | 39.5 | $\text{C D}_4-^{20}\text{Ne}$ | | |
| ^{20}Na | 100.0 | $^{20}\text{Ne}(^3\text{He},\text{t})^{20}\text{Na}-^{36}\text{Ar}()^{36}\text{K}$ | | | | |
| ^{21}Ne | 100.0 | $^{20}\text{Ne}(\text{n},\gamma)^{21}\text{Ne}$ | | | | |
| ^{21}Na | 100.0 | $^{21}\text{Na}-^{21}\text{Ne}$ | | | | |
| ^{22}Ne | 98.9 | $^{22}\text{Ne}-\text{u}$ | 0.5 | $^{46}\text{Ti}-^{22}\text{Ne}_{2.091}$ | 0.3 | $^{46}\text{V}-^{22}\text{Ne}_{2.091}$ |
| ^{22}Na | 30.8 | $^{22}\text{Na}-^{22}\text{Ne}$ | 17.8 | $^{22}\text{Na}-^{23}\text{Na}_{.957}$ | 16.6 | $^{22}\text{Na}-^{39}\text{K}_{.564}$ |
| ^{22}Mg | 40.9 | $^{22}\text{Mg}-^{39}\text{K}_{.564}$ | 38.0 | $^{22}\text{Mg}-^{22}\text{Na}$ | 21.1 | $^{22}\text{Mg}-^{22}\text{Ne}$ |
| $^{22}\text{Mg}^i$ | 60.1 | $^{22}\text{Mg}^i(\alpha)^{18}\text{Ne}$ | 22.8 | $^{22}\text{Mg}^i(2\text{p})^{20}\text{Ne}$ | 17.1 | $^{22}\text{Mg}^i(\text{p})^{21}\text{Na}$ |
| ^{23}F | 86.3 | $^{23}\text{F}-\text{u}$ | 13.7 | $^{22}\text{Ne}(^{18}\text{O},^{17}\text{F})^{23}\text{F}$ | | |
| ^{23}Na | 100.0 | $^{23}\text{Na}-\text{u}$ | | | | |
| ^{24}Mg | 98.1 | $^{24}\text{Mg}-\text{H}_{24}$ | 1.9 | $^{24}\text{Mg}(\text{n},\gamma)^{25}\text{Mg}$ | 0.1 | $^{22}\text{Na}-^{24}\text{Mg}_{.917}$ |
| ^{25}Ne | 57.8 | $^{25}\text{Ne}-\text{u}$ | 42.2 | $^{26}\text{Mg}(^7\text{Li},^8\text{B})^{25}\text{Ne}$ | | |
| ^{25}Mg | 45.7 | $^{25}\text{Mg}(\text{n},\gamma)^{26}\text{Mg}$ | 43.1 | $^{24}\text{Mg}(\text{n},\gamma)^{25}\text{Mg}$ | 11.2 | $^{25}\text{Mg}(\text{p},\gamma)^{26}\text{Al}$ |
| ^{25}Al | 100.0 | $^{25}\text{Al}-^{25}\text{Mg}$ | | | | |
| $^{25}\text{Al}^i$ | 84.7 | $^{25}\text{Al}^i(\text{IT})^{25}\text{Al}$ | 15.3 | $^{27}\text{Al}(\text{p},\text{t})^{25}\text{Al}^i$ | | |
| ^{26}Mg | 88.9 | $^{26}\text{Mg}-\text{H}_{26}$ | 8.9 | $^{25}\text{Mg}(\text{n},\gamma)^{26}\text{Mg}$ | 0.9 | $^{26}\text{Al}-^{26}\text{Mg}$ |
| ^{26}Al | 64.1 | $^{26}\text{Mg}(\text{p},\gamma)^{26}\text{Al}$ | 15.0 | $^{26}\text{Al}-^{26}\text{Mg}$ | 14.9 | $^{26}\text{Al}^m(\text{IT})^{26}\text{Al}$ |
| $^{26}\text{Al}^m$ | 84.5 | $^{26}\text{Al}^m(\text{IT})^{26}\text{Al}$ | 15.5 | $^{26}\text{Al}^m-^{26}\text{Mg}$ | | |
| ^{27}Al | 88.5 | $^{27}\text{Al}-^{23}\text{Na}_{1.174}$ | 11.4 | $^{27}\text{Al}(\text{p},\gamma)^{28}\text{Si}$ | | |
| $^{27}\text{Si}^i$ | 78.7 | $^{28}\text{Si}(^3\text{He},\alpha)^{27}\text{Si}^i$ | 21.3 | $^{29}\text{Si}(\text{p},\text{t})^{27}\text{Si}^i$ | | |
| ^{28}Si | 37.9 | $\text{C}_2\text{H}_4-^{28}\text{Si}$ | 34.3 | $^{13}\text{C}_2\text{H}_2-^{28}\text{Si}$ | 17.2 | $^{31}\text{P}-^{28}\text{Si H}_3$ |
| ^{28}P | 100.0 | $^{28}\text{Si}(^3\text{He},\text{t})^{28}\text{P}-^{36}\text{Ar}()^{36}\text{K}$ | | | | |
| ^{29}Na | 63.3 | $^{29}\text{Na}-^{39}\text{K}_{.744}$ | 36.7 | $^{29}\text{Na}-\text{u}$ | | |
| ^{29}Si | 100.0 | $^{29}\text{Si}-^{28}\text{Si H}$ | | | | |
| ^{29}P | 59.4 | $^{29}\text{P }^{40}\text{Ar}-\text{u}$ | 40.2 | $^{28}\text{Si}(\text{p},\gamma)^{29}\text{P}$ | 0.4 | $^{29}\text{P}^i(\text{IT})^{29}\text{P}$ |
| $^{29}\text{P}^i$ | 75.8 | $^{29}\text{P}^i(\text{IT})^{29}\text{P}$ | 24.2 | $^{28}\text{Si}(\text{p},\gamma)^{29}\text{P}^i$ | | |
| ^{30}Ne | 72.5 | $^{30}\text{Ne}-\text{u}$ | 27.5 | $^{30}\text{Ne}(\text{n},\gamma)^{31}\text{Ne}$ | | |
| ^{30}Na | 82.1 | $^{30}\text{Na}-\text{O}_{1.876}$ | 17.9 | $^{30}\text{Na}-^{39}\text{K}_{.769}$ | | |
| ^{31}Ne | 67.3 | $^{30}\text{Ne}(\text{n},\gamma)^{31}\text{Ne}$ | 32.7 | $^{31}\text{Ne}-\text{u}$ | | |

Table II. Influences on primary nuclides (continued, Explanation of Table on page 030003-74)

| Nuclide | Infl. | Equation | Infl. | Equation | Infl. | Equation |
|--------------------|-------|---|-------|---|-------|--|
| ^{31}P | 60.7 | $\text{O}_2 - ^{31}\text{P H}$ | 39.3 | $^{31}\text{P} - ^{28}\text{Si H}_3$ | | |
| ^{31}S | 96.9 | $^{31}\text{S} - ^{31}\text{P}$ | 3.1 | $^{32}\text{Cl}(\text{p})^{31}\text{S}$ | | |
| ^{32}S | 51.7 | $^{32}\text{S} - \text{C}_2 \text{D}_4$ | 48.3 | $^{32}\text{S} - \text{O}_2$ | | |
| ^{32}Cl | 76.3 | $^{32}\text{Cl}(\text{p})^{31}\text{S}$ | 23.7 | $^{32}\text{S}(^3\text{He}, \text{t})^{32}\text{Cl} - ^{36}\text{Ar}()^{36}\text{K}$ | | |
| ^{33}S | 100.0 | $^{33}\text{S} - ^{32}\text{S H}$ | | | | |
| ^{33}Cl | 79.9 | $^{32}\text{S}(\text{p}, \gamma)^{33}\text{Cl}$ | 20.1 | $^{33}\text{Cl}^i(\text{IT})^{33}\text{Cl}$ | | |
| $^{33}\text{Cl}^i$ | 63.1 | $^{33}\text{Cl}^i(\text{IT})^{33}\text{Cl}$ | 36.9 | $^{32}\text{S}(\text{p}, \gamma)^{33}\text{Cl}^i$ | | |
| ^{34}S | 46.4 | $^{34}\text{S}(\text{n}, \gamma)^{35}\text{S}$ | 23.7 | $^{33}\text{S}(\text{n}, \gamma)^{34}\text{S}$ | 18.0 | $^{34}\text{Cl} - ^{34}\text{S}$ |
| ^{34}Cl | 48.4 | $^{33}\text{S}(\text{p}, \gamma)^{34}\text{Cl}$ | 31.0 | $^{34}\text{Cl} - ^{34}\text{S}$ | 18.4 | $^{34}\text{Cl}^m(\text{IT})^{34}\text{Cl}$ |
| $^{34}\text{Cl}^m$ | 65.1 | $^{34}\text{Cl}^m(\text{IT})^{34}\text{Cl}$ | 30.7 | $^{34}\text{Cl}^m - ^{34}\text{S}$ | 4.2 | $^{34}\text{Cl}^m - ^{34}\text{Ar}$ |
| ^{34}Ar | 52.0 | $^{34}\text{Ar} - ^{34}\text{Cl}$ | 35.1 | $^{34}\text{Cl}^m - ^{34}\text{Ar}$ | 12.9 | $^{34}\text{S} - ^{34}\text{Ar}$ |
| ^{35}S | 71.4 | $^{35}\text{S}(\beta^-)^{35}\text{Cl}$ | 28.6 | $^{34}\text{S}(\text{n}, \gamma)^{35}\text{S}$ | | |
| ^{35}Cl | 55.8 | $\text{C}_3 - ^{35}\text{Cl H}$ | 19.5 | $^{35}\text{S}(\beta^-)^{35}\text{Cl}$ | 15.3 | $\text{C}_5 \text{H}_{10} - ^{35}\text{Cl}_2$ |
| ^{36}S | 63.6 | $^{36}\text{S}(\text{p}, \gamma)^{37}\text{Cl}$ | 36.4 | $^{36}\text{S}(\text{p}, \text{n})^{36}\text{Cl}$ | | |
| ^{36}Cl | 99.1 | $^{35}\text{Cl}(\text{n}, \gamma)^{36}\text{Cl}$ | 0.9 | $^{36}\text{S}(\text{p}, \text{n})^{36}\text{Cl}$ | | |
| ^{36}Ar | 100.0 | $^{36}\text{Ar} - \text{u}$ | | | | |
| ^{36}K | 92.8 | $^{36}\text{K} - ^{39}\text{K}_{.923}$ | 7.2 | $^{32}\text{S}(^3\text{He}, \text{t})^{32}\text{Cl} - ^{36}\text{Ar}()^{36}\text{K}$ | | |
| ^{37}Cl | 85.2 | $\text{C}_3 \text{H}_6 \text{O}_2 - ^{37}\text{Cl}_2$ | 9.2 | $\text{C}_5 \text{H}_{12} - ^{35}\text{Cl } ^{37}\text{Cl}$ | 1.8 | $^{36}\text{S}(\text{p}, \gamma)^{37}\text{Cl}$ |
| ^{38}Ar | 32.0 | $^{38}\text{Ar} - ^{39}\text{K}_{.974}$ | 27.4 | $^{38}\text{K}^m - ^{38}\text{Ar}$ | 23.5 | $^{38}\text{K} - ^{38}\text{Ar}$ |
| ^{38}K | 26.5 | $^{38}\text{K} - ^{38}\text{Ar}$ | 26.1 | $^{38}\text{K}^m - ^{38}\text{K}$ | 24.6 | $^{38}\text{Ca} - ^{38}\text{K}$ |
| $^{38}\text{K}^m$ | 44.5 | $^{38}\text{K}^m - ^{38}\text{Ar}$ | 34.0 | $^{38}\text{K}^m - ^{38}\text{K}$ | 21.5 | $^{38}\text{K}^m - ^{38}\text{Ca}$ |
| ^{38}Ca | 48.4 | $^{38}\text{Ca} - \text{H}_6 \text{O}_2$ | 20.5 | $^{38}\text{Ca} - ^{38}\text{K}$ | 15.8 | $^{38}\text{K}^m - ^{38}\text{Ca}$ |
| ^{39}K | 99.8 | $^{39}\text{K} - ^{40}\text{Ar}$ | 0.1 | $^{39}\text{K}(\text{n}, \gamma)^{40}\text{K}$ | 0.1 | $^{48}\text{Ca} - ^{39}\text{K}_{1.231}$ |
| ^{39}Ca | 100.0 | $^{39}\text{Ca } ^{19}\text{F} - ^{39}\text{K}_{1.487}$ | | | | |
| ^{40}S | 79.3 | $^{40}\text{S} - ^{40}\text{Ar}$ | 20.7 | $^{40}\text{S} - ^{41}\text{K}_{.976}$ | | |
| ^{40}Ar | 46.2 | $\text{C}_3 \text{H}_4 - ^{40}\text{Ar}$ | 32.9 | $\text{C}_2 \text{D}_8 - ^{40}\text{Ar}$ | 13.5 | $^{20}\text{Ne}_2 - ^{40}\text{Ar}$ |
| ^{40}K | 60.9 | $^{39}\text{K}(\text{n}, \gamma)^{40}\text{K}$ | 39.1 | $^{40}\text{K}(\text{n}, \gamma)^{41}\text{K}$ | | |
| ^{40}Ca | 98.9 | $^{40}\text{Ca} - \text{H}_{40}$ | 1.1 | $^{48}\text{Ca} - ^{40}\text{Ca}_{1.200}$ | | |
| ^{41}K | 99.9 | $^{41}\text{K} - ^{40}\text{Ar H}$ | 0.1 | $^{40}\text{K}(\text{n}, \gamma)^{41}\text{K}$ | | |
| ^{41}Ca | 99.6 | $^{40}\text{Ca}(\text{n}, \gamma)^{41}\text{Ca}$ | 0.4 | $^{41}\text{Ca}(\text{n}, \gamma)^{42}\text{Ca}$ | | |
| ^{41}Sc | 79.2 | $^{40}\text{Ca}(\text{p}, \gamma)^{41}\text{Sc}$ | 20.8 | $^{41}\text{Sc}^r(\text{IT})^{41}\text{Sc}$ | | |
| $^{41}\text{Sc}^r$ | 72.4 | $^{41}\text{Sc}^r(\text{IT})^{41}\text{Sc}$ | 27.6 | $^{41}\text{Ca}(\text{p}, \gamma)^{42}\text{Sc}^r - ^{40}\text{Ca}()^{41}\text{Sc}^r$ | | |
| ^{42}Ca | 90.3 | $^{41}\text{Ca}(\text{n}, \gamma)^{42}\text{Ca}$ | 3.4 | $^{42}\text{Sc} - ^{42}\text{Ca}$ | 2.9 | $^{42}\text{Sc}^m - ^{42}\text{Ca}$ |
| ^{42}Sc | 49.6 | $^{42}\text{Sc}^r(\text{IT})^{42}\text{Sc}$ | 18.9 | $^{42}\text{Sc} - ^{42}\text{Ca}$ | 16.5 | $^{42}\text{Sc}^m(\text{IT})^{42}\text{Sc}$ |
| $^{42}\text{Sc}^m$ | 76.3 | $^{42}\text{Sc}^m(\text{IT})^{42}\text{Sc}$ | 21.8 | $^{42}\text{Sc}^m - ^{42}\text{Ca}$ | 2.0 | $^{42}\text{Ti} - ^{42}\text{Sc}^m$ |
| $^{42}\text{Sc}^r$ | 66.0 | $^{41}\text{Ca}(\text{p}, \gamma)^{42}\text{Sc}^r - ^{40}\text{Ca}()^{41}\text{Sc}^r$ | 34.0 | $^{42}\text{Sc}^r(\text{IT})^{42}\text{Sc}$ | | |
| ^{42}Ti | 48.8 | $^{42}\text{Ti} - ^{42}\text{Sc}$ | 38.5 | $^{42}\text{Ti} - ^{42}\text{Sc}^m$ | 12.7 | $^{42}\text{Ti} - ^{42}\text{Ca}$ |
| ^{43}Ca | 98.8 | $^{42}\text{Ca}(\text{n}, \gamma)^{43}\text{Ca}$ | 1.1 | $^{43}\text{Ca}(\text{n}, \gamma)^{44}\text{Ca}$ | | |
| $^{43}\text{Ca}^i$ | 76.8 | $^{44}\text{Ca}(\text{p}, \text{d})^{43}\text{Ca}^i$ | 23.2 | $^{41}\text{K}(^3\text{He}, \text{p})^{43}\text{Ca}^i$ | | |
| $^{43}\text{Sc}^i$ | 83.3 | $^{43}\text{Ca}(^3\text{He}, \text{t})^{43}\text{Sc}^i$ | 16.7 | $^{42}\text{Ca}(^3\text{He}, \text{d})^{43}\text{Sc}^i$ | | |
| $^{43}\text{V}^i$ | 88.8 | $^{43}\text{V}^i(2\text{p})^{41}\text{Sc}$ | 11.2 | $^{43}\text{V}^i(\text{p})^{42}\text{Ti}$ | | |
| ^{44}Ca | 97.5 | $^{43}\text{Ca}(\text{n}, \gamma)^{44}\text{Ca}$ | 2.3 | $^{44}\text{Ca}(\text{n}, \gamma)^{45}\text{Ca}$ | 0.2 | $^{44}\text{Ca}(^3\text{He}, \text{t})^{44}\text{Sc}^i$ |
| $^{44}\text{Sc}^i$ | 75.6 | $^{44}\text{Ca}(^3\text{He}, \text{t})^{44}\text{Sc}^i$ | 24.4 | $^{43}\text{Ca}(^3\text{He}, \text{d})^{44}\text{Sc}^i$ | | |
| ^{45}Ca | 97.0 | $^{44}\text{Ca}(\text{n}, \gamma)^{45}\text{Ca}$ | 3.0 | $^{45}\text{Ca}(\beta^-)^{45}\text{Sc}$ | | |
| ^{45}Sc | 87.9 | $^{45}\text{Sc}(\text{p}, \gamma)^{46}\text{Ti}$ | 11.0 | $^{45}\text{Ca}(\beta^-)^{45}\text{Sc}$ | 1.1 | $^{45}\text{Sc}(^3\text{He}, \text{t})^{45}\text{Ti}^i$ |
| ^{45}Ti | 100.0 | $^{45}\text{Sc}(\text{p}, \text{n})^{45}\text{Ti}$ | | | | |
| $^{45}\text{Ti}^i$ | 60.3 | $^{45}\text{Sc}(^3\text{He}, \text{t})^{45}\text{Ti}^i$ | 39.7 | $^{46}\text{Ti}(\text{p}, \text{d})^{45}\text{Ti}^i$ | | |
| ^{45}V | 100.0 | $^{45}\text{V} - ^{45}\text{Ti}$ | | | | |
| ^{46}Ca | 90.4 | $^{46}\text{Ca}(\text{n}, \gamma)^{47}\text{Ca}$ | 9.6 | $^{46}\text{Ca}(^3\text{He}, \text{t})^{46}\text{Sc}^i$ | | |
| $^{46}\text{Sc}^i$ | 62.6 | $^{46}\text{Ca}(^3\text{He}, \text{t})^{46}\text{Sc}^i$ | 37.4 | $^{48}\text{Ti}(\text{p}, ^3\text{He})^{46}\text{Sc}^i$ | | |
| ^{46}Ti | 33.1 | $^{46}\text{Ti}(\text{p}, \gamma)^{47}\text{V}$ | 33.1 | $^{46}\text{Ti}(^3\text{He}, \text{t})^{46}\text{V} - ^{47}\text{Ti}()^{47}\text{V}$ | 25.2 | $^{46}\text{Ti}(\text{d}, \text{p})^{47}\text{Ti} - ^{48}\text{Ti}()^{49}\text{Ti}$ |
| ^{46}V | 100.0 | $^{46}\text{V} - ^{46}\text{Ti}$ | 13.8 | $^{46}\text{V} - ^{22}\text{Ne}_{2.091}$ | 0.1 | $^{46}\text{Ti}(^3\text{He}, \text{t})^{46}\text{V} - ^{48}\text{Ti}()^{48}\text{Vxi}$ |

Table II. Influences on primary nuclides (continued, Explanation of Table on page 030003-74)

| Nuclide | Infl. | Equation | Infl. | Equation | Infl. | Equation |
|--------------------|-------|--|-------|--|-------|---|
| ^{46}Cr | 67.2 | $^{46}\text{Cr}-\text{u}$ | 32.8 | $^{32}\text{S}(^{16}\text{O},2\text{n})^{46}\text{Cr}$ | | |
| ^{47}Ca | 90.5 | $^{47}\text{Ca}(\beta^-)^{47}\text{Sc}$ | 9.5 | $^{46}\text{Ca}(\text{n},\gamma)^{47}\text{Ca}$ | | |
| ^{47}Sc | 93.0 | $^{47}\text{Sc}(\beta^-)^{47}\text{Ti}$ | 7.0 | $^{47}\text{Ca}(\beta^-)^{47}\text{Sc}$ | | |
| ^{47}Ti | 90.7 | $^{47}\text{Ti}(\text{n},\gamma)^{48}\text{Ti}$ | 3.5 | $^{46}\text{Ti}(^3\text{He},\text{t})^{46}\text{V}-^{47}\text{Ti}()$ | 3.4 | $^{46}\text{Ti}(\text{d},\text{p})^{47}\text{Ti}-^{48}\text{Ti}()$ |
| ^{47}V | 61.0 | $^{46}\text{Ti}(\text{p},\gamma)^{47}\text{V}$ | 39.0 | $^{46}\text{Ti}(^3\text{He},\text{t})^{46}\text{V}-^{47}\text{Ti}()$ | | |
| ^{47}Cr | 56.7 | $^{47}\text{Cr}-\text{u}$ | 24.8 | $^{48}\text{Mn}^i(\text{p})^{47}\text{Cr}$ | 18.5 | $^{50}\text{Cr}(^3\text{He},^6\text{He})^{47}\text{Cr}$ |
| ^{48}Ca | 23.0 | $^{48}\text{Ti}-^{48}\text{Ca}$ | 22.1 | $^{48}\text{Ca}-^{41}\text{K}_{1.171}$ | 22.1 | $^{48}\text{Ca}-^{39}\text{K}_{1.231}$ |
| ^{48}Sc | 50.0 | $^{48}\text{Ca}(\text{p},\text{n})^{48}\text{Sc}$ | 50.0 | $^{48}\text{Sc}(\beta^-)^{48}\text{Ti}$ | | |
| ^{48}Ti | 64.8 | $^{48}\text{Ti}-^{48}\text{Ca}$ | 26.1 | $^{48}\text{Ti}-\text{N}^{18}\text{O O}$ | 8.3 | $^{47}\text{Ti}(\text{n},\gamma)^{48}\text{Ti}$ |
| ^{48}V | 89.6 | $^{48}\text{V}^i(\text{IT})^{48}\text{V}$ | 10.4 | $^{48}\text{V}(\beta^+)^{48}\text{Ti}$ | | |
| $^{48}\text{V}^i$ | 99.5 | $^{46}\text{Ti}(^3\text{He},\text{t})^{46}\text{V}-^{48}\text{Ti}()$ | 0.5 | $^{48}\text{V}^i(\text{IT})^{48}\text{V}$ | | |
| ^{48}Mn | 55.5 | $^{48}\text{Mn}-\text{u}$ | 44.5 | $^{48}\text{Mn}^i(\text{IT})^{48}\text{Mn}$ | | |
| $^{48}\text{Mn}^i$ | 55.1 | $^{48}\text{Mn}^i(\text{IT})^{48}\text{Mn}$ | 44.9 | $^{48}\text{Mn}^i(\text{p})^{47}\text{Cr}$ | | |
| ^{49}Sc | 70.9 | $^{48}\text{Ca}(\text{p},\gamma)^{49}\text{Sc}$ | 29.1 | $^{49}\text{Sc}(\beta^-)^{49}\text{Ti}$ | | |
| ^{49}Ti | 100.0 | $^{48}\text{Ti}(\text{n},\gamma)^{49}\text{Ti}$ | | | | |
| ^{49}Cr | 100.0 | $^{50}\text{Cr}(\text{d},\text{t})^{49}\text{Cr}$ | | | | |
| ^{49}Mn | 100.0 | $^{49}\text{Mn}-^{49}\text{Cr}$ | | | | |
| ^{50}Ti | 100.0 | $^{49}\text{Ti}(\text{n},\gamma)^{50}\text{Ti}$ | | | | |
| $^{50}\text{V}^i$ | 100.0 | $^{46}\text{Ti}(^3\text{He},\text{t})^{46}\text{V}-^{50}\text{Ti}()$ | | | | |
| ^{50}Cr | 86.8 | $^{50}\text{Cr}(\text{n},\gamma)^{51}\text{Cr}$ | 13.1 | $^{50}\text{Cr}(\text{p},\gamma)^{51}\text{Mn}$ | 0.1 | $^{50}\text{Cr}(^3\text{He},^6\text{He})^{47}\text{Cr}$ |
| ^{50}Mn | 52.0 | $^{50}\text{Mn}-^{50}\text{Cr}$ | 36.5 | $^{50}\text{Mn}^m-^{50}\text{Mn}$ | 11.5 | $^{50}\text{Cr}(^3\text{He},\text{t})^{50}\text{Mn}-^{54}\text{Fe}()$ |
| $^{50}\text{Mn}^m$ | 81.2 | $^{50}\text{Mn}^m-^{50}\text{Cr}$ | 18.8 | $^{50}\text{Mn}^m-^{50}\text{Mn}$ | | |
| ^{51}V | 53.6 | $^{51}\text{V}-^{39}\text{K}_{1.308}$ | 39.4 | $^{51}\text{V}(\text{p},\text{n})^{51}\text{Cr}$ | 7.0 | $^{51}\text{Cr}-^{51}\text{V}$ |
| ^{51}Cr | 43.2 | $^{51}\text{Cr}-^{39}\text{K}_{1.308}$ | 39.1 | $^{51}\text{V}(\text{p},\text{n})^{51}\text{Cr}$ | 10.8 | $^{50}\text{Cr}(\text{n},\gamma)^{51}\text{Cr}$ |
| ^{51}Mn | 81.5 | $^{50}\text{Cr}(\text{p},\gamma)^{51}\text{Mn}$ | 18.5 | $^{54}\text{Fe}(\text{p},\alpha)^{51}\text{Mn}$ | | |
| ^{51}Fe | 64.3 | $^{51}\text{Fe}-\text{u}$ | 35.7 | $^{54}\text{Fe}(^3\text{He},^6\text{He})^{51}\text{Fe}$ | | |
| ^{52}Cr | 57.7 | $^{52}\text{Cr}-^{39}\text{K}_{1.333}$ | 33.2 | $^{52}\text{Cr}(\text{n},\gamma)^{53}\text{Cr}$ | 9.0 | $^{52}\text{Cr}(\text{p},\gamma)^{53}\text{Mn}$ |
| ^{52}Mn | 96.9 | $^{54}\text{Fe}(\text{d},\alpha)^{52}\text{Mn}$ | 3.1 | $^{52}\text{Fe}(\beta^+)^{52}\text{Mn}$ | | |
| ^{52}Fe | 61.4 | $^{52}\text{Fe}(\beta^+)^{52}\text{Mn}$ | 38.6 | $^{53}\text{Co}^m(\text{p})^{52}\text{Fe}$ | | |
| ^{53}Cr | 62.0 | $^{52}\text{Cr}(\text{n},\gamma)^{53}\text{Cr}$ | 38.0 | $^{53}\text{Cr}(\text{n},\gamma)^{54}\text{Cr}$ | | |
| ^{53}Mn | 76.6 | $^{52}\text{Cr}(\text{p},\gamma)^{53}\text{Mn}$ | 23.4 | $^{56}\text{Fe}(\text{p},\alpha)^{53}\text{Mn}$ | | |
| ^{53}Fe | 97.6 | $^{54}\text{Fe}(\text{d},\text{t})^{53}\text{Fe}$ | 1.4 | $^{53}\text{Co}^m-^{53}\text{Fe}$ | 1.0 | $^{53}\text{Co}-^{53}\text{Fe}$ |
| ^{53}Co | 93.2 | $^{53}\text{Co}-^{53}\text{Fe}$ | 6.8 | $^{53}\text{Co}^m-^{53}\text{Co}$ | | |
| $^{53}\text{Co}^m$ | 57.7 | $^{53}\text{Co}^m-^{53}\text{Fe}$ | 39.1 | $^{53}\text{Co}^m-^{53}\text{Co}$ | 3.2 | $^{53}\text{Co}^m(\text{p})^{52}\text{Fe}$ |
| ^{54}Cr | 58.3 | $^{53}\text{Cr}(\text{n},\gamma)^{54}\text{Cr}$ | 41.7 | $^{54}\text{Cr}(\text{p},\gamma)^{55}\text{Mn}$ | 0.1 | $^{54}\text{Cr}(^3\text{He},\text{t})^{54}\text{Mn}^i$ |
| $^{54}\text{Mn}^i$ | 51.3 | $^{52}\text{Cr}(^3\text{He},\text{p})^{54}\text{Mn}^i$ | 48.7 | $^{54}\text{Cr}(^3\text{He},\text{t})^{54}\text{Mn}^i$ | | |
| ^{54}Fe | 71.4 | $^{54}\text{Fe}(\text{n},\gamma)^{55}\text{Fe}$ | 18.4 | $^{54}\text{Fe}(\text{p},\gamma)^{55}\text{Co}$ | 9.1 | $^{54}\text{Fe}(\text{p},\alpha)^{51}\text{Mn}$ |
| ^{54}Co | 46.9 | $^{54}\text{Co}-^{54}\text{Fe}$ | 29.7 | $^{54}\text{Co}^m-^{54}\text{Co}$ | 23.5 | $^{50}\text{Cr}(^3\text{He},\text{t})^{50}\text{Mn}-^{54}\text{Fe}()$ |
| $^{54}\text{Co}^m$ | 80.8 | $^{54}\text{Co}^m-^{54}\text{Fe}$ | 19.2 | $^{54}\text{Co}^m-^{54}\text{Co}$ | | |
| ^{55}Ti | 52.2 | $^{55}\text{Ti}(\beta^-)^{55}\text{V}$ | 47.8 | $^{55}\text{Ti}-\text{u}$ | | |
| ^{55}V | 90.4 | $^{55}\text{V}(\beta^-)^{55}\text{Cr}$ | 9.6 | $^{55}\text{Ti}(\beta^-)^{55}\text{V}$ | | |
| ^{55}Cr | 100.0 | $^{54}\text{Cr}(\text{n},\gamma)^{55}\text{Cr}$ | | | | |
| ^{55}Mn | 44.1 | $^{55}\text{Mn}(\text{p},\gamma)^{56}\text{Fe}$ | 21.3 | $^{54}\text{Cr}(\text{p},\gamma)^{55}\text{Mn}$ | 15.0 | $^{55}\text{Mn}-^{85}\text{Rb}_{.647}$ |
| ^{55}Fe | 81.8 | $^{55}\text{Fe}(\epsilon)^{55}\text{Mn}$ | 18.2 | $^{54}\text{Fe}(\text{n},\gamma)^{55}\text{Fe}$ | | |
| ^{55}Co | 55.3 | $^{54}\text{Fe}(\text{p},\gamma)^{55}\text{Co}$ | 33.0 | $^{56}\text{Ni}-^{55}\text{Co}_{1.018}$ | 11.6 | $^{58}\text{Ni}(\text{p},\alpha)^{55}\text{Co}$ |
| ^{56}Ti | 90.2 | $^{56}\text{Ti}-\text{u}$ | 9.8 | $^{56}\text{Ti}(\beta^-)^{56}\text{V}$ | | |
| ^{56}V | 75.0 | $^{56}\text{V}-\text{u}$ | 25.0 | $^{56}\text{Ti}(\beta^-)^{56}\text{V}$ | | |
| ^{56}Fe | 42.1 | $^{55}\text{Mn}(\text{p},\gamma)^{56}\text{Fe}$ | 27.3 | $^{56}\text{Fe}-^{85}\text{Rb}_{.659}$ | 15.8 | $^{56}\text{Fe}(\text{n},\gamma)^{57}\text{Fe}$ |
| ^{56}Co | 50.8 | $^{56}\text{Co}-^{58}\text{Ni}_{.966}$ | 49.2 | $^{56}\text{Ni}-^{56}\text{Co}$ | | |
| ^{56}Ni | 39.7 | $^{56}\text{Ni}-^{56}\text{Fe}$ | 27.1 | $^{56}\text{Ni}-^{55}\text{Co}_{1.018}$ | 17.8 | $^{56}\text{Ni}-^{56}\text{Co}$ |
| ^{57}Mn | 49.3 | $^{57}\text{Mn}-^{85}\text{Rb}_{.671}$ | 33.3 | $^{57}\text{Mn}-^{39}\text{K}_{1.462}$ | 17.4 | $^{55}\text{Mn}(\text{t},\text{p})^{57}\text{Mn}$ |
| ^{57}Fe | 83.2 | $^{56}\text{Fe}(\text{n},\gamma)^{57}\text{Fe}$ | 10.3 | $^{57}\text{Fe}(\text{n},\gamma)^{58}\text{Fe}$ | 5.3 | $^{57}\text{Fe}-^{58}\text{Ni}_{.983}$ |

Table II. Influences on primary nuclides (continued, Explanation of Table on page 030003-74)

| Nuclide | Infl. | Equation | Infl. | Equation | Infl. | Equation |
|--------------------|-------|---|-------|---|-------|---|
| ^{57}Co | 33.1 | $^{60}\text{Ni}(p,\alpha)^{57}\text{Co}$ | 28.5 | $^{56}\text{Fe}(p,\gamma)^{57}\text{Co}$ | 28.3 | $^{58}\text{Fe}(p,\gamma)^{59}\text{Co}-^{56}\text{Fe}()^{57}\text{Co}$ |
| ^{57}Ni | 50.1 | $^{57}\text{Ni}-^{58}\text{Ni}_{.983}$ | 49.9 | $^{57}\text{Cu}-^{57}\text{Ni}$ | | |
| ^{57}Cu | 47.9 | $^{57}\text{Cu}-^{56}\text{Ni}_{1.018}$ | 28.5 | $^{57}\text{Cu}-^{57}\text{Fe}$ | 23.6 | $^{57}\text{Cu}-^{57}\text{Ni}$ |
| ^{58}Fe | 82.4 | $^{57}\text{Fe}(n,\gamma)^{58}\text{Fe}$ | 13.4 | $^{58}\text{Fe}(n,\gamma)^{59}\text{Fe}$ | 4.2 | $^{58}\text{Fe}(p,\gamma)^{59}\text{Co}-^{56}\text{Fe}()^{57}\text{Co}$ |
| ^{58}Co | 60.9 | $^{59}\text{Co}(d,t)^{58}\text{Co}$ | 25.1 | $^{60}\text{Ni}(d,\alpha)^{58}\text{Co}$ | 14.0 | $^{57}\text{Fe}(p,\gamma)^{58}\text{Co}$ |
| ^{58}Ni | 28.3 | $^{57}\text{Fe}-^{58}\text{Ni}_{.983}$ | 27.7 | $^{58}\text{Ni}(n,\gamma)^{59}\text{Ni}$ | 25.7 | $^{56}\text{Fe}-^{58}\text{Ni}_{.966}$ |
| ^{58}Cu | 90.2 | $^{58}\text{Cu}-^{58}\text{Ni}$ | 9.8 | $^{59}\text{Zn}-^{58}\text{Cu}_{1.017}$ | | |
| ^{59}Fe | 85.5 | $^{58}\text{Fe}(n,\gamma)^{59}\text{Fe}$ | 14.5 | $^{59}\text{Fe}-^{85}\text{Rb}_{.694}$ | | |
| ^{59}Co | 90.4 | $^{59}\text{Co}(p,n)^{59}\text{Ni}$ | 8.5 | $^{58}\text{Fe}(p,\gamma)^{59}\text{Co}-^{56}\text{Fe}()^{57}\text{Co}$ | 1.1 | $^{59}\text{Co}(d,t)^{58}\text{Co}$ |
| ^{59}Ni | 71.8 | $^{58}\text{Ni}(n,\gamma)^{59}\text{Ni}$ | 24.1 | $^{59}\text{Ni}(n,\gamma)^{60}\text{Ni}$ | 4.1 | $^{59}\text{Co}(p,n)^{59}\text{Ni}$ |
| ^{59}Cu | 62.5 | $^{58}\text{Ni}(p,\gamma)^{59}\text{Cu}$ | 30.3 | $^{60}\text{Zn}-^{59}\text{Cu}_{1.017}$ | 7.2 | $^{59}\text{Zn}-^{59}\text{Cu}$ |
| ^{59}Zn | 73.3 | $^{59}\text{Zn}-^{59}\text{Cu}$ | 26.7 | $^{59}\text{Zn}-^{58}\text{Cu}_{1.017}$ | | |
| ^{60}Ni | 75.3 | $^{59}\text{Ni}(n,\gamma)^{60}\text{Ni}$ | 20.5 | $^{60}\text{Ni}(n,\gamma)^{61}\text{Ni}$ | 4.0 | $^{60}\text{Ni}(p,\alpha)^{57}\text{Co}$ |
| $^{60}\text{Cu}^i$ | 73.5 | $^{60}\text{Ni}(^3\text{He},t)^{60}\text{Cu}^i$ | 26.5 | $^{58}\text{Ni}(^3\text{He},p)^{60}\text{Cu}^i$ | | |
| ^{60}Zn | 65.0 | $^{60}\text{Zn}-^{58}\text{Ni}_{1.034}$ | 35.0 | $^{60}\text{Zn}-^{59}\text{Cu}_{1.017}$ | | |
| ^{61}Ni | 79.2 | $^{60}\text{Ni}(n,\gamma)^{61}\text{Ni}$ | 20.8 | $^{61}\text{Ni}(n,\gamma)^{62}\text{Ni}$ | | |
| ^{61}Zn | 95.4 | $^{64}\text{Zn}(^3\text{He},^6\text{He})^{61}\text{Zn}$ | 4.6 | $^{61}\text{Ga}(\beta^+)^{61}\text{Zn}$ | | |
| ^{61}Ga | 52.2 | $^{61}\text{Ga}(\beta^+)^{61}\text{Zn}$ | 47.8 | $^{61}\text{Ga}-u$ | | |
| ^{62}Ni | 66.9 | $^{61}\text{Ni}(n,\gamma)^{62}\text{Ni}$ | 15.9 | $^{62}\text{Ni}(p,\gamma)^{63}\text{Cu}$ | 13.9 | $^{62}\text{Ni}(n,\gamma)^{63}\text{Ni}$ |
| ^{62}Zn | 67.7 | $^{62}\text{Zn}-^{62}\text{Ni}$ | 32.3 | $^{62}\text{Ga}-^{62}\text{Zn}$ | | |
| ^{62}Ga | 51.7 | $^{62}\text{Ga}-^{62}\text{Ni}$ | 48.3 | $^{62}\text{Ga}-^{62}\text{Zn}$ | | |
| ^{63}Fe | 57.3 | $^{63}\text{Fe}-^{39}\text{K}_{1.615}$ | 21.3 | $^{63}\text{Fe}-\text{H C}_2\text{ F}_2$ | 21.3 | $^{63}\text{Fe}-\text{C }^{32}\text{S F}$ |
| ^{63}Co | 86.2 | $^{64}\text{Ni}(t,\alpha)^{63}\text{Co}$ | 13.8 | $^{63}\text{Co}(\beta^-)^{63}\text{Ni}$ | | |
| ^{63}Ni | 55.3 | $^{63}\text{Ni}(\beta^-)^{63}\text{Cu}$ | 33.6 | $^{62}\text{Ni}(n,\gamma)^{63}\text{Ni}$ | 11.1 | $^{63}\text{Ni}(n,\gamma)^{64}\text{Ni}$ |
| ^{63}Cu | 43.1 | $^{63}\text{Ni}(\beta^-)^{63}\text{Cu}$ | 37.8 | $^{62}\text{Ni}(p,\gamma)^{63}\text{Cu}$ | 9.7 | $^{63}\text{Cu}(n,\gamma)^{64}\text{Cu}$ |
| ^{63}Zn | 72.7 | $^{64}\text{Zn}(d,t)^{63}\text{Zn}$ | 27.3 | $^{63}\text{Cu}(p,n)^{63}\text{Zn}$ | | |
| $^{64}\text{Co}^m$ | 86.8 | $\text{H C}_2\text{ F}_2-^{64}\text{Co}^m_{.984}$ | 13.2 | $^{64}\text{Co}^m-^{32}\text{S O}_2$ | | |
| ^{64}Ni | 86.7 | $^{63}\text{Ni}(n,\gamma)^{64}\text{Ni}$ | 13.3 | $^{64}\text{Ni}-^{85}\text{Rb}_{.753}$ | | |
| ^{64}Cu | 89.8 | $^{63}\text{Cu}(n,\gamma)^{64}\text{Cu}$ | 10.2 | $^{64}\text{Cu}(\beta^-)^{64}\text{Zn}$ | | |
| ^{64}Zn | 43.6 | $^{64}\text{Zn}(n,\gamma)^{65}\text{Zn}$ | 32.0 | $^{64}\text{Cu}(\beta^-)^{64}\text{Zn}$ | 17.1 | $^{64}\text{Zn}(p,\gamma)^{65}\text{Ga}$ |
| ^{64}Ga | 37.6 | $^{64}\text{Ga}-^{85}\text{Rb}_{.753}$ | 32.7 | $\text{C}_5\text{ H}_2-^{64}\text{Ga}_{.969}$ | 13.1 | $^{64}\text{Ga}-^{64}\text{Zn}$ |
| $^{64}\text{Ga}^i$ | 83.2 | $^{64}\text{Ga}^i(\text{IT})^{64}\text{Ga}$ | 16.8 | $^{64}\text{Zn}(^3\text{He},t)^{64}\text{Ga}^i$ | | |
| ^{65}Cu | 45.6 | $^{65}\text{Cu}(p,n)^{65}\text{Zn}$ | 33.8 | $^{65}\text{Cu}-^{85}\text{Rb}_{.765}$ | 10.4 | $^{65}\text{Cu}(p,\alpha)^{62}\text{Ni}$ |
| ^{65}Zn | 54.6 | $^{64}\text{Zn}(n,\gamma)^{65}\text{Zn}$ | 45.4 | $^{65}\text{Cu}(p,n)^{65}\text{Zn}$ | | |
| ^{65}Ga | 66.0 | $^{64}\text{Zn}(p,\gamma)^{65}\text{Ga}$ | 34.0 | $^{65}\text{Ga}-^{85}\text{Rb}_{.765}$ | | |
| ^{65}Ge | 56.7 | $\text{C}_5\text{ H}_2-^{65}\text{Ge}_{.939}$ | 29.2 | $^{65}\text{Ge O H}-^{85}\text{Rb}_{.965}$ | 14.0 | $^{65}\text{Ge H}-^{85}\text{Rb}_{.776}$ |
| ^{66}Cu | 89.8 | $^{65}\text{Cu}(n,\gamma)^{66}\text{Cu}$ | 10.2 | $^{66}\text{Cu}-^{85}\text{Rb}_{.776}$ | | |
| ^{66}Zn | 65.9 | $^{66}\text{Zn}(p,\alpha)^{63}\text{Cu}$ | 34.1 | $^{66}\text{Zn}(n,\gamma)^{67}\text{Zn}$ | | |
| ^{67}Cu | 54.5 | $^{67}\text{Cu}-^{85}\text{Rb}_{.788}$ | 45.5 | $^{67}\text{Cu}(\beta^-)^{67}\text{Zn}$ | | |
| ^{67}Zn | 63.7 | $^{66}\text{Zn}(n,\gamma)^{67}\text{Zn}$ | 23.4 | $^{67}\text{Cu}(\beta^-)^{67}\text{Zn}$ | 11.6 | $^{67}\text{Zn}(p,n)^{67}\text{Ga}$ |
| ^{67}Ga | 54.6 | $^{67}\text{Zn}(p,n)^{67}\text{Ga}$ | 45.4 | $^{70}\text{Ge}(p,\alpha)^{67}\text{Ga}$ | | |
| ^{67}As | 77.4 | $^{67}\text{As}-^{85}\text{Rb}_{.788}$ | 22.6 | $^{67}\text{As O}-^{85}\text{Rb}_{.976}$ | | |
| ^{68}Zn | 98.6 | $^{67}\text{Zn}(n,\gamma)^{68}\text{Zn}$ | 1.4 | $^{70}\text{Zn }^{35}\text{Cl}-^{68}\text{Zn }^{37}\text{Cl}$ | | |
| ^{68}As | 87.5 | $^{68}\text{As}-\text{C}_5\text{ H}_8$ | 12.5 | $\text{C F}_3-^{68}\text{As}_{1.015}$ | | |
| ^{69}Ga | 64.5 | $^{69}\text{Ga}-^{85}\text{Rb}_{.812}$ | 35.4 | $^{69}\text{Ga}(n,\gamma)^{70}\text{Ga}$ | | |
| ^{69}Ge | 100.0 | $^{69}\text{Ga}(p,n)^{69}\text{Ge}$ | | | | |
| ^{69}As | 81.8 | $^{69}\text{As}(\beta^+)^{69}\text{Ge}$ | 18.2 | $^{69}\text{Se}(\beta^+)^{69}\text{As}$ | | |
| ^{69}Se | 100.0 | $\text{C F}_3-^{69}\text{Se}$ | | | | |
| ^{70}Zn | 87.6 | $^{70}\text{Zn}(p,n)^{70}\text{Ga}$ | 9.0 | $^{70}\text{Zn }^{35}\text{Cl}-^{68}\text{Zn }^{37}\text{Cl}$ | 3.4 | $^{70}\text{Zn}(d,p)^{71}\text{Zn}$ |
| ^{70}Ga | 64.1 | $^{69}\text{Ga}(n,\gamma)^{70}\text{Ga}$ | 31.4 | $^{70}\text{Ga}-^{85}\text{Rb}_{.824}$ | 4.5 | $^{70}\text{Zn}(p,n)^{70}\text{Ga}$ |
| ^{70}Ge | 85.4 | $^{70}\text{Ge}(n,\gamma)^{71}\text{Ge}$ | 14.6 | $^{70}\text{Ge}(p,\alpha)^{67}\text{Ga}$ | | |
| ^{71}Zn | 93.2 | $^{71}\text{Zn}^m(\text{IT})^{71}\text{Zn}$ | 6.8 | $^{70}\text{Zn}(d,p)^{71}\text{Zn}$ | | |

Table II. Influences on primary nuclides (continued, Explanation of Table on page 030003-74)

| Nuclide | Infl. | Equation | Infl. | Equation | Infl. | Equation |
|--------------------|-------|---|-------|--|-------|--|
| $^{71}\text{Zn}^m$ | 94.7 | $^{71}\text{Zn}^m - ^{85}\text{Rb}_{.835}$ | 5.3 | $^{71}\text{Zn}^m(\text{IT})^{71}\text{Zn}$ | | |
| ^{71}Ga | 53.3 | $^{71}\text{Ga} - ^{85}\text{Rb}_{.835}$ | 33.1 | $^{71}\text{Ga}(\text{n}, \gamma)^{72}\text{Ga}$ | 13.5 | $^{71}\text{Ge}(\epsilon)^{71}\text{Ga}$ |
| ^{71}Ge | 85.6 | $^{71}\text{Ge}(\epsilon)^{71}\text{Ga}$ | 14.4 | $^{70}\text{Ge}(\text{n}, \gamma)^{71}\text{Ge}$ | | |
| ^{71}Br | 100.0 | $^{71}\text{Br} \text{H}_2 - \text{C}_4 \text{H}_9 \text{O}$ | | | | |
| ^{71}Kr | 83.8 | $^{71}\text{Kr} - \text{u}$ | 16.2 | $^{71}\text{Kr}(\epsilon)^{71}\text{Br}$ | | |
| ^{72}Ga | 65.7 | $^{71}\text{Ga}(\text{n}, \gamma)^{72}\text{Ga}$ | 34.3 | $^{72}\text{Ga} - ^{85}\text{Rb}_{.847}$ | | |
| ^{72}Ge | 100.0 | $^{72}\text{Ge}(\text{n}, \gamma)^{73}\text{Ge}$ | | | | |
| ^{73}Cu | 75.4 | $^{73}\text{Cu} - ^{72}\text{Ge}_{1.014}$ | 24.6 | $^{73}\text{Cu} - ^{85}\text{Rb}_{.859}$ | | |
| ^{73}Ge | 100.0 | $^{73}\text{Ge}(\text{n}, \gamma)^{74}\text{Ge}$ | | | | |
| ^{73}As | 92.8 | $^{72}\text{Ge}(\beta^+)^{73}\text{As}$ | 7.2 | $^{73}\text{Se}(\beta^+)^{73}\text{As}$ | | |
| ^{73}Se | 52.5 | $^{73}\text{Se} - ^{85}\text{Rb}_{.859}$ | 47.5 | $^{73}\text{Se}(\beta^+)^{73}\text{As}$ | | |
| ^{74}Ge | 100.0 | $^{74}\text{Ge} - ^{84}\text{Kr}$ | | | | |
| ^{74}As | 82.1 | $^{74}\text{As}(\beta^+)^{74}\text{Ge}$ | 17.9 | $^{74}\text{As}(\beta^-)^{74}\text{Se}$ | | |
| ^{74}Se | 100.0 | $^{74}\text{Se} - ^{74}\text{Ge}$ | | | | |
| ^{74}Br | 84.9 | $^{74}\text{Br} - ^{27}\text{Al} - ^{85}\text{Rb}_{1.188}$ | 15.1 | $^{74}\text{Se}(\text{p}, \text{n})^{74}\text{Br}$ | | |
| ^{74}Kr | 93.3 | $^{74}\text{Kr} - ^{85}\text{Rb}_{.871}$ | 6.7 | $^{74}\text{Rb}(\beta^+)^{74}\text{Kr}$ | | |
| ^{74}Rb | 82.8 | $^{74}\text{Rb} - ^{85}\text{Rb}_{.871}$ | 17.2 | $^{74}\text{Rb}(\beta^+)^{74}\text{Kr}$ | | |
| ^{75}As | 85.3 | $^{75}\text{As}(\text{p}, \text{n})^{75}\text{Se}$ | 14.7 | $^{78}\text{Se}(\text{p}, \alpha)^{75}\text{As}$ | | |
| ^{75}Se | 99.9 | $^{74}\text{Se}(\text{n}, \gamma)^{75}\text{Se}$ | 0.1 | $^{75}\text{As}(\text{p}, \text{n})^{75}\text{Se}$ | | |
| ^{76}Zn | 61.1 | $^{76}\text{Zn} - ^{85}\text{Rb}_{.894}$ | 38.9 | $^{76}\text{Zn} - ^{88}\text{Rb}_{.864}$ | | |
| ^{76}Ge | 100.0 | $^{76}\text{Ge} - ^{76}\text{Se}$ | | | | |
| ^{76}Se | 100.0 | $^{76}\text{Se} - ^{84}\text{Kr}$ | | | | |
| ^{76}Kr | 84.0 | $^{76}\text{Kr} - ^{85}\text{Rb}_{.894}$ | 16.0 | $^{80}\text{Kr}(\alpha, ^6\text{He})^{78}\text{Kr} - ^{78}\text{Kr}()^{76}\text{Kr}$ | | |
| ^{77}Zn | 77.9 | $^{77}\text{Zn} - ^{85}\text{Rb}_{.906}$ | 22.1 | $^{77}\text{Zn} - ^{88}\text{Rb}_{.875}$ | | |
| ^{77}As | 32.4 | $^{80}\text{Se}(\text{p}, \alpha)^{77}\text{As}$ | 31.8 | $^{76}\text{Ge}(\beta^+)^{77}\text{As}$ | 17.9 | $^{77}\text{As}(\beta^-)^{77}\text{Se}$ |
| ^{77}Se | 99.4 | $^{76}\text{Se}(\text{n}, \gamma)^{77}\text{Se}$ | 0.5 | $^{77}\text{Se}(\text{n}, \gamma)^{78}\text{Se}$ | | |
| ^{78}Zn | 51.6 | $^{78}\text{Zn} - ^{88}\text{Rb}_{.886}$ | 48.4 | $^{78}\text{Zn} - ^{85}\text{Rb}_{.918}$ | | |
| ^{78}Ga | 61.7 | $^{78}\text{Ga} - ^{85}\text{Rb}_{.918}$ | 38.3 | $^{78}\text{Ga} - ^{88}\text{Rb}_{.886}$ | | |
| ^{78}Se | 95.3 | $^{77}\text{Se}(\text{n}, \gamma)^{78}\text{Se}$ | 3.5 | $^{78}\text{Kr} - ^{78}\text{Se}$ | 0.5 | $^{80}\text{Se}(\text{p}, \text{t})^{78}\text{Se}$ |
| ^{78}Kr | 88.8 | $^{78}\text{Kr} - ^{78}\text{Se}$ | 10.9 | $^{78}\text{Kr} - ^{86}\text{Kr}_{.907}$ | 0.3 | $^{80}\text{Kr}(\alpha, ^6\text{He})^{78}\text{Kr} - ^{78}\text{Kr}()^{76}\text{Kr}$ |
| ^{79}Zn | 67.7 | $^{79}\text{Zn} - ^{88}\text{Rb}_{.898}$ | 32.3 | $^{79}\text{Zn} - ^{85}\text{Rb}_{.929}$ | | |
| ^{79}Ga | 100.0 | $^{79}\text{Ga} - ^{88}\text{Rb}_{.898}$ | | | | |
| ^{79}Ge | 86.2 | $^{79}\text{Ga}(\beta^-)^{79}\text{Ge}$ | 13.8 | $^{79}\text{Ge}(\beta^-)^{79}\text{As}$ | | |
| ^{79}As | 99.8 | $^{80}\text{Se}(\text{d}, ^3\text{He})^{79}\text{As}$ | 0.2 | $^{79}\text{Ge}(\beta^-)^{79}\text{As}$ | | |
| ^{80}Zn | 85.6 | $^{80}\text{Zn} - ^{85}\text{Rb}_{.941}$ | 14.4 | $^{80}\text{Zn} - ^{88}\text{Rb}_{.909}$ | | |
| ^{80}Se | 37.0 | $^{82}\text{Se} - ^{35}\text{Cl} - ^{80}\text{Se} - ^{37}\text{Cl}$ | 26.0 | $^{80}\text{Se}(\text{n}, \gamma)^{81}\text{Se}$ | 20.5 | $^{80}\text{Se}(\text{p}, \text{t})^{78}\text{Se}$ |
| ^{80}Kr | 45.5 | $^{80}\text{Kr} - ^{86}\text{Kr}_{.930}$ | 19.1 | $^{80}\text{Kr} - ^{85}\text{Rb}_{.941}$ | 7.9 | $^{81}\text{Se} - ^{80}\text{Kr}_{1.013}$ |
| ^{81}As | 73.8 | $^{81}\text{As} - ^{88}\text{Rb}_{.920}$ | 26.2 | $^{82}\text{Se}(\text{d}, ^3\text{He})^{81}\text{As}$ | | |
| ^{81}Se | 71.3 | $^{80}\text{Se}(\text{n}, \gamma)^{81}\text{Se}$ | 17.8 | $^{81}\text{Se} - ^{80}\text{Kr}_{1.013}$ | 10.9 | $^{82}\text{Se}(\text{p}, \text{d})^{81}\text{Se}$ |
| ^{81}Br | 94.3 | $^{81}\text{Br}(\text{n}, \gamma)^{82}\text{Br}$ | 5.1 | $^{81}\text{Kr}(\epsilon)^{81}\text{Br}$ | 0.6 | $^{87}\text{Rb}(\beta^+)^{81}\text{Br} - ^{81}\text{Br}()^{81}\text{Kr}$ |
| ^{81}Kr | 83.7 | $^{81}\text{Kr}(\epsilon)^{81}\text{Br}$ | 9.3 | $^{87}\text{Rb}(\beta^+)^{81}\text{Br} - ^{81}\text{Br}()^{81}\text{Kr}$ | 7.0 | $^{80}\text{Kr}(\text{d}, \text{p})^{81}\text{Kr}$ |
| ^{81}Rb | 76.1 | $^{81}\text{Rb} - ^{85}\text{Rb}_{.953}$ | 23.9 | $^{80}\text{Kr}(\beta^+)^{81}\text{Rb}$ | | |
| ^{82}Se | 92.8 | $^{82}\text{Se} - ^{82}\text{Kr}$ | 4.1 | $^{82}\text{Se} - ^{35}\text{Cl} - ^{80}\text{Se} - ^{37}\text{Cl}$ | 1.1 | $^{82}\text{Se}(\text{p}, \text{d})^{81}\text{Se}$ |
| ^{82}Br | 94.4 | $^{82}\text{Br}(\beta^-)^{82}\text{Kr}$ | 5.6 | $^{81}\text{Br}(\text{n}, \gamma)^{82}\text{Br}$ | | |
| ^{82}Kr | 75.4 | $^{82}\text{Kr} - ^{84}\text{Kr}_{.976}$ | 24.6 | $^{82}\text{Kr} - ^{86}\text{Kr}_{.953}$ | | |
| ^{82}Sr | 64.7 | $^{82}\text{Sr} - ^{85}\text{Rb}_{.965}$ | 35.3 | $^{84}\text{Sr}(\text{p}, \text{t})^{82}\text{Sr}$ | | |
| ^{83}Br | 54.4 | $^{83}\text{Br}(\beta^-)^{83}\text{Kr}$ | 45.6 | $^{82}\text{Se}(\beta^+)^{83}\text{Br}$ | | |
| ^{83}Kr | 100.0 | $^{83}\text{Kr} - ^{84}\text{Kr}_{.988}$ | | | | |
| ^{83}Rb | 100.0 | $^{83}\text{Rb} - ^{85}\text{Rb}_{.976}$ | | | | |
| ^{83}Sr | 58.7 | $^{83}\text{Sr} - ^{83}\text{Rb}$ | 41.3 | $^{83}\text{Sr}(\beta^+)^{83}\text{Rb}$ | | |
| ^{84}Se | 99.9 | $^{84}\text{Se} - ^{88}\text{Rb}_{.955}$ | 0.1 | $^{84}\text{Se}(\beta^-)^{84}\text{Br}$ | | |
| ^{84}Br | 73.6 | $^{84}\text{Br}(\beta^-)^{84}\text{Kr}$ | 26.4 | $^{84}\text{Se}(\beta^-)^{84}\text{Br}$ | | |

Table II. Influences on primary nuclides (continued, Explanation of Table on page 030003-74)

| Nuclide | Infl. | Equation | Infl. | Equation | Infl. | Equation |
|------------------|-------|--|-------|--|-------|---|
| ^{84}Kr | 21.2 | $^{84}\text{Kr}-\text{N}_6$ | 19.7 | $^{86}\text{Kr}-^{84}\text{Kr}_{1.024}$ | 14.6 | $^{86}\text{Kr}-^{84}\text{Kr}$ |
| ^{84}Rb | 72.7 | $^{84}\text{Rb}(\beta^+)^{84}\text{Kr}$ | 27.3 | $^{84}\text{Rb}(\beta^-)^{84}\text{Sr}$ | | |
| ^{84}Sr | 88.8 | $^{84}\text{Sr}-^{85}\text{Rb}_{.988}$ | 6.8 | $^{84}\text{Rb}(\beta^-)^{84}\text{Sr}$ | 2.1 | $^{84}\text{Sr}(\text{d,p})^{85}\text{Sr}$ |
| ^{84}Y | 81.8 | $^{84}\text{Y O}-^{97}\text{Mo}_{1.031}$ | 18.2 | $^{84}\text{Y}(\beta^+)^{84}\text{Sr}$ | | |
| ^{85}Rb | 65.9 | $^{86}\text{Kr}-^{85}\text{Rb}$ | 34.1 | $^{85}\text{Rb}-^{84}\text{Kr}$ | | |
| ^{85}Sr | 87.9 | $^{85}\text{Rb}(\beta^+\text{He,t})^{85}\text{Sr}$ | 12.1 | $^{84}\text{Sr}(\text{d,p})^{85}\text{Sr}$ | | |
| ^{86}Kr | 27.0 | $^{86}\text{Kr}-\text{N}_6$ | 15.5 | $^{129}\text{Xe}_2-^{86}\text{Kr}_3$ | 12.0 | $\text{C}_2\text{O}_4-^{86}\text{Kr}$ |
| ^{86}Sr | 53.5 | $^{86}\text{Sr}-^{84}\text{Kr}_{1.024}$ | 46.5 | $^{86}\text{Sr}-^{86}\text{Kr}$ | | |
| ^{86}Zr | 69.2 | $^{86}\text{Zr}-^{85}\text{Rb}_{1.012}$ | 30.8 | $^{86}\text{Zr O}-^{98}\text{Mo}_{1.041}$ | | |
| ^{87}Rb | 81.3 | $^{87}\text{Rb}-^{86}\text{Kr}$ | 18.4 | $^{87}\text{Rb}-\text{C}_6\text{H}_{14}$ | 0.1 | $^{90}\text{Zr}-^{87}\text{Rb}_{1.034}$ |
| ^{87}Sr | 58.9 | $^{87}\text{Sr}-^{86}\text{Kr}_{1.012}$ | 41.1 | $^{87}\text{Sr}-^{84}\text{Kr}_{1.036}$ | | |
| ^{87}Zr | 73.2 | $^{87}\text{Zr O}-^{97}\text{Mo}_{1.062}$ | 26.8 | $^{90}\text{Zr}(\beta^+\text{He},^6\text{He})^{87}\text{Zr}$ | | |
| ^{87}Mo | 53.3 | $^{87}\text{Mo}-^{85}\text{Rb}_{1.024}$ | 46.7 | $^{87}\text{Mo}_{1.069}-\text{C}_7\text{H}_9$ | | |
| ^{88}Rb | 99.0 | $^{87}\text{Rb}(\text{n},\gamma)^{88}\text{Rb}$ | 0.2 | $^{76}\text{Zn}-^{88}\text{Rb}_{.864}$ | 0.1 | $^{94}\text{Rb}-^{88}\text{Rb}_{1.068}$ |
| ^{88}Sr | 58.3 | $^{88}\text{Sr}-^{86}\text{Kr}_{1.023}$ | 41.7 | $^{88}\text{Sr}-^{84}\text{Kr}_{1.048}$ | | |
| ^{88}Zr | 70.6 | $^{88}\text{Zr O}-^{98}\text{Mo}_{1.061}$ | 29.2 | $^{90}\text{Zr}(\text{p,t})^{88}\text{Zr}$ | 0.2 | $^{88}\text{Nb}(\beta^+)^{88}\text{Zr}$ |
| ^{88}Nb | 65.5 | $^{88}\text{Nb O}-^{98}\text{Mo}_{1.061}$ | 34.5 | $^{88}\text{Nb}(\beta^+)^{88}\text{Zr}$ | | |
| ^{89}Rb | 56.8 | $^{89}\text{Rb}(\beta^-)^{89}\text{Sr}$ | 41.9 | $^{89}\text{Rb}-^{85}\text{Rb}_{1.047}$ | 1.3 | $^{91}\text{Rb}-^{93}\text{Rb}_{.489}\text{ }^{89}\text{Rb}_{.511}$ |
| ^{89}Sr | 100.0 | $^{88}\text{Sr}(\text{n},\gamma)^{89}\text{Sr}$ | | | | |
| ^{89}Y | 63.2 | $^{89}\text{Y}(\text{n},\gamma)^{90}\text{Y}$ | 16.2 | $^{88}\text{Sr}(\text{p},\gamma)^{89}\text{Y}$ | 16.2 | $^{89}\text{Y}(\text{p},\gamma)^{90}\text{Zr}$ |
| ^{89}Zr | 80.9 | $^{89}\text{Zr}(\beta^+)^{89}\text{Y}$ | 18.8 | $^{90}\text{Zr}(\text{d,t})^{89}\text{Zr}$ | 0.3 | $^{89}\text{Nb}(\beta^+)^{89}\text{Zr}$ |
| ^{89}Nb | 77.7 | $^{89}\text{Nb}-\text{u}$ | 22.3 | $^{89}\text{Nb}(\beta^+)^{89}\text{Zr}$ | | |
| ^{90}Rb | 59.8 | $^{90}\text{Rb}-^{85}\text{Rb}_{1.059}$ | 40.2 | $^{90}\text{Rb}(\beta^-)^{90}\text{Sr}$ | | |
| ^{90}Sr | 97.3 | $^{90}\text{Sr}(\beta^-)^{90}\text{Y}$ | 2.7 | $^{90}\text{Rb}(\beta^-)^{90}\text{Sr}$ | | |
| ^{90}Y | 61.8 | $^{90}\text{Y}(\beta^-)^{90}\text{Zr}$ | 36.7 | $^{89}\text{Y}(\text{n},\gamma)^{90}\text{Y}$ | 1.5 | $^{90}\text{Sr}(\beta^-)^{90}\text{Y}$ |
| ^{90}Zr | 62.4 | $^{90}\text{Zr}-^{87}\text{Rb}_{1.034}$ | 30.2 | $^{90}\text{Zr}-\text{u}$ | 7.2 | $^{90}\text{Zr}(\text{n},\gamma)^{91}\text{Zr}$ |
| ^{90}Nb | 68.7 | $^{90}\text{Nb}(\beta^+)^{90}\text{Zr}$ | 31.3 | $^{90}\text{Mo}(\beta^+)^{90}\text{Nb}$ | | |
| ^{90}Mo | 62.6 | $^{90}\text{Mo}-\text{C}_7\text{H}_6$ | 37.4 | $^{90}\text{Mo}(\beta^+)^{90}\text{Nb}$ | | |
| ^{90}Ru | 85.9 | $^{90}\text{Ru}-^{85}\text{Rb}_{1.059}$ | 14.1 | $^{90}\text{Ru}_{1.033}-\text{C}_7\text{H}_9$ | | |
| ^{91}Rb | 70.1 | $^{91}\text{Rb}-^{85}\text{Rb}_{1.071}$ | 18.4 | $^{91}\text{Rb}(\beta^-)^{91}\text{Sr}$ | 11.5 | $^{91}\text{Rb}-^{93}\text{Rb}_{.489}\text{ }^{89}\text{Rb}_{.511}$ |
| ^{91}Sr | 81.0 | $^{91}\text{Sr}(\beta^-)^{91}\text{Y}$ | 11.1 | $^{92}\text{Rb}(\beta^- \text{n})^{91}\text{Sr}$ | 8.0 | $^{91}\text{Rb}(\beta^-)^{91}\text{Sr}$ |
| ^{91}Y | 98.2 | $^{91}\text{Y}(\beta^-)^{91}\text{Zr}$ | 1.8 | $^{91}\text{Sr}(\beta^-)^{91}\text{Y}$ | | |
| ^{91}Zr | 39.4 | $^{91}\text{Zr}(\text{n},\gamma)^{92}\text{Zr}$ | 34.8 | $^{91}\text{Zr}-^{87}\text{Rb}_{1.046}$ | 20.2 | $^{91}\text{Zr}-\text{u}$ |
| ^{91}Nb | 97.7 | $^{91}\text{Zr}(\text{p,n})^{91}\text{Nb}$ | 2.3 | $^{91}\text{Mo}(\beta^+)^{91}\text{Nb}$ | | |
| ^{91}Mo | 65.1 | $^{91}\text{Mo}-\text{C}_7\text{H}_7$ | 23.5 | $^{92}\text{Mo}(\text{p,d})^{91}\text{Mo}$ | 11.4 | $^{91}\text{Mo}(\beta^+)^{91}\text{Nb}$ |
| ^{91}Tc | 44.7 | $^{91}\text{Tc}-\text{C}_7\text{H}_7$ | 33.2 | $^{91}\text{Tc}-^{94}\text{Mo}_{.968}$ | 22.1 | $^{91}\text{Tc}-^{85}\text{Rb}_{1.071}$ |
| ^{91}Ru | 37.4 | $^{91}\text{Ru}-\text{C}_7\text{H}_7$ | 36.9 | $^{91}\text{Ru}-^{85}\text{Rb}_{1.071}$ | 25.7 | $^{91}\text{Ru}-^{94}\text{Mo}_{.968}$ |
| ^{92}Rb | 53.3 | $^{92}\text{Rb}-^{85}\text{Rb}_{1.082}$ | 31.7 | $^{92}\text{Rb}(\beta^-)^{92}\text{Sr}$ | 14.5 | $^{92}\text{Rb}(\beta^- \text{n})^{91}\text{Sr}$ |
| ^{92}Sr | 89.7 | $^{92}\text{Sr}-^{85}\text{Rb}_{1.082}$ | 7.3 | $^{92}\text{Rb}(\beta^-)^{92}\text{Sr}$ | 3.0 | $^{92}\text{Sr}(\beta^-)^{92}\text{Y}$ |
| ^{92}Y | 57.8 | $^{92}\text{Y}(\beta^-)^{92}\text{Zr}$ | 28.8 | $^{92}\text{Sr}(\beta^-)^{92}\text{Y}$ | 13.3 | $^{94}\text{Zr}(\text{d},\alpha)^{92}\text{Y}$ |
| ^{92}Zr | 37.2 | $^{92}\text{Zr}-\text{u}$ | 35.4 | $^{91}\text{Zr}(\text{n},\gamma)^{92}\text{Zr}$ | 27.3 | $^{92}\text{Zr}-^{87}\text{Rb}_{1.057}$ |
| ^{92}Nb | 72.7 | $^{92}\text{Zr}(\text{p,n})^{92}\text{Nb}$ | 27.3 | $^{93}\text{Nb}(\gamma,\text{n})^{92}\text{Nb}$ | | |
| ^{92}Mo | 87.2 | $^{92}\text{Mo}-^{87}\text{Rb}_{1.057}$ | 12.8 | $^{92}\text{Mo}-\text{u}$ | | |
| ^{92}Tc | 60.0 | $^{92}\text{Tc}-^{85}\text{Rb}_{1.082}$ | 40.0 | $^{92}\text{Tc}_{.989}-\text{C}_7\text{H}_7$ | | |
| ^{92}Ru | 72.3 | $^{92}\text{Ru}-^{85}\text{Rb}_{1.082}$ | 27.7 | $^{92}\text{Ru}_{1.011}-\text{C}_7\text{H}_9$ | | |
| ^{93}Rb | 70.7 | $^{93}\text{Rb}-^{85}\text{Rb}_{1.094}$ | 26.5 | $^{93}\text{Rb}(\beta^-)^{93}\text{Sr}$ | 2.5 | $^{91}\text{Rb}-^{93}\text{Rb}_{.489}\text{ }^{89}\text{Rb}_{.511}$ |
| ^{93}Sr | 65.8 | $^{93}\text{Sr}-^{85}\text{Rb}_{1.094}$ | 23.7 | $^{93}\text{Rb}(\beta^-)^{93}\text{Sr}$ | 10.5 | $^{93}\text{Sr}(\beta^-)^{93}\text{Y}$ |
| ^{93}Y | 76.3 | $^{93}\text{Y}(\beta^-)^{93}\text{Zr}$ | 23.7 | $^{93}\text{Sr}(\beta^-)^{93}\text{Y}$ | | |
| ^{93}Zr | 97.6 | $^{92}\text{Zr}(\text{n},\gamma)^{93}\text{Zr}$ | 2.4 | $^{93}\text{Zr}(\beta^-)^{93}\text{Nb}$ | | |
| ^{93}Nb | 52.7 | $^{93}\text{Zr}(\beta^-)^{93}\text{Nb}$ | 30.7 | $^{93}\text{Nb}(\text{n},\gamma)^{94}\text{Nb}$ | 16.6 | $^{93}\text{Nb}(\gamma,\text{n})^{92}\text{Nb}$ |
| ^{93}Ru | 73.4 | $^{93}\text{Ru}-\text{C}_7\text{H}_9$ | 26.6 | $^{93}\text{Ru}-^{85}\text{Rb}_{1.094}$ | | |
| ^{93}Rh | 55.1 | $^{93}\text{Rh}-\text{C}_7\text{H}_9$ | 44.9 | $^{93}\text{Rh}-^{85}\text{Rb}_{1.094}$ | | |

Table II. Influences on primary nuclides (continued, Explanation of Table on page 030003-74)

| Nuclide | Infl. | Equation | Infl. | Equation | Infl. | Equation |
|-------------------|-------|---|-------|---|-------|--|
| ^{94}Rb | 70.2 | $^{94}\text{Rb}-^{85}\text{Rb}_{1.106}$ | 29.6 | $^{94}\text{Rb}-^{88}\text{Rb}_{1.068}$ | 0.3 | $^{94}\text{Rb}-^{95}\text{Rb}_{.660} \ ^{92}\text{Rb}_{.341}$ |
| ^{94}Sr | 98.3 | $^{94}\text{Sr}-^{85}\text{Rb}_{1.106}$ | 1.7 | $^{94}\text{Sr}(\beta^-)^{94}\text{Y}$ | | |
| ^{94}Y | 50.2 | $^{94}\text{Y}(\beta^-)^{94}\text{Zr}$ | 39.6 | $^{94}\text{Sr}(\beta^-)^{94}\text{Y}$ | 10.2 | $^{96}\text{Zr}(\text{d},\alpha)^{94}\text{Y}$ |
| ^{94}Zr | 77.2 | $^{94}\text{Zr}-\text{u}$ | 22.5 | $^{94}\text{Zr}-^{87}\text{Rb}_{1.080}$ | 0.3 | $^{94}\text{Zr}(\text{n},\gamma)^{95}\text{Zr}$ |
| ^{94}Nb | 69.2 | $^{93}\text{Nb}(\text{n},\gamma)^{94}\text{Nb}$ | 30.8 | $^{94}\text{Nb}(\beta^-)^{94}\text{Mo}$ | | |
| ^{94}Mo | 67.9 | $^{94}\text{Mo}(\text{n},\gamma)^{95}\text{Mo}$ | 18.7 | $^{94}\text{Mo}-^{87}\text{Rb}_{1.080}$ | 13.0 | $^{94}\text{Mo}-\text{u}$ |
| ^{94}Ru | 56.2 | $^{94}\text{Ru}-^{85}\text{Rb}_{1.106}$ | 43.8 | $^{94}\text{Ru}-\text{C}_7 \text{H}_{10}$ | | |
| ^{94}Rh | 62.2 | $^{94}\text{Rh}-^{85}\text{Rb}_{1.106}$ | 37.8 | $^{94}\text{Rh}-\text{C}_7 \text{H}_{10}$ | | |
| ^{95}Rb | 51.4 | $^{95}\text{Rb}(\beta^-)^{95}\text{Sr}$ | 25.5 | $^{95}\text{Rb}-^{96}\text{Rb}_{.742} \ ^{92}\text{Rb}_{.258}$ | 12.7 | $^{94}\text{Rb}-^{95}\text{Rb}_{.660} \ ^{92}\text{Rb}_{.341}$ |
| ^{95}Sr | 38.9 | $^{95}\text{Sr}-^{85}\text{Rb}_{1.118}$ | 38.9 | $^{95}\text{Sr}-^{97}\text{Zr}_{.979}$ | 20.1 | $^{95}\text{Sr}(\beta^-)^{95}\text{Y}$ |
| ^{95}Y | 56.2 | $^{95}\text{Y}(\beta^-)^{95}\text{Zr}$ | 32.3 | $^{95}\text{Sr}(\beta^-)^{95}\text{Y}$ | 11.5 | $^{96}\text{Zr}(\text{t},\alpha)^{95}\text{Y}$ |
| ^{95}Zr | 91.4 | $^{94}\text{Zr}(\text{n},\gamma)^{95}\text{Zr}$ | 8.2 | $^{95}\text{Zr}(\beta^-)^{95}\text{Nb}$ | 0.4 | $^{95}\text{Y}(\beta^-)^{95}\text{Zr}$ |
| ^{95}Nb | 97.4 | $^{95}\text{Nb}(\beta^-)^{95}\text{Mo}$ | 2.6 | $^{95}\text{Zr}(\beta^-)^{95}\text{Nb}$ | | |
| ^{95}Mo | 66.5 | $^{95}\text{Mo}(\text{n},\gamma)^{96}\text{Mo}$ | 21.1 | $^{94}\text{Mo}(\text{n},\gamma)^{95}\text{Mo}$ | 12.2 | $^{95}\text{Mo}-\text{u}$ |
| ^{95}Tc | 97.4 | $^{95}\text{Tc}(\beta^+)^{95}\text{Mo}$ | 2.6 | $^{95}\text{Ru}(\beta^+)^{95}\text{Tc}$ | | |
| ^{95}Ru | 90.3 | $^{96}\text{Ru}(\text{p},\text{d})^{95}\text{Ru}$ | 9.7 | $^{95}\text{Ru}(\beta^+)^{95}\text{Tc}$ | | |
| ^{95}Rh | 85.9 | $^{95}\text{Rh}-^{85}\text{Rb}_{1.118}$ | 14.1 | $^{95}\text{Rh}_{.989}-\text{C}_7 \text{H}_{10}$ | | |
| ^{96}Rb | 99.7 | $^{96}\text{Rb}-^{88}\text{Rb}_{1.091}$ | 0.3 | $^{95}\text{Rb}-^{96}\text{Rb}_{.742} \ ^{92}\text{Rb}_{.258}$ | | |
| ^{96}Sr | 82.6 | $^{96}\text{Sr}-^{97}\text{Zr}_{.990}$ | 17.4 | $^{96}\text{Sr}(\beta^-)^{96}\text{Y}$ | | |
| ^{96}Y | 92.0 | $^{96}\text{Y}-^{97}\text{Zr}_{.990}$ | 8.0 | $^{96}\text{Sr}(\beta^-)^{96}\text{Y}$ | | |
| ^{96}Zr | 52.2 | $^{96}\text{Zr}-\text{u}$ | 29.3 | $^{96}\text{Zr}-^{96}\text{Mo}$ | 13.0 | $^{96}\text{Zr}-^{87}\text{Rb}_{1.103}$ |
| ^{96}Nb | 62.8 | $^{96}\text{Zr}-^{96}\text{Nb}$ | 37.2 | $^{96}\text{Nb}-^{96}\text{Mo}$ | | |
| ^{96}Mo | 46.1 | $^{96}\text{Zr}-^{96}\text{Mo}$ | 29.8 | $^{95}\text{Mo}(\text{n},\gamma)^{96}\text{Mo}$ | 15.4 | $^{96}\text{Mo}(\text{n},\gamma)^{97}\text{Mo}$ |
| ^{96}Ru | 100.0 | $^{96}\text{Ru}-^{96}\text{Mo}$ | | | | |
| ^{97}Rb | 87.0 | $^{97}\text{Rb}-^{85}\text{Rb}_{1.141}$ | 13.0 | $^{97}\text{Rb}-^{88}\text{Rb}_{1.102}$ | | |
| ^{97}Sr | 86.8 | $^{97}\text{Sr}-^{85}\text{Rb}_{1.141}$ | 13.2 | $^{97}\text{Sr}-^{97}\text{Zr}$ | | |
| ^{97}Zr | 98.8 | $^{96}\text{Zr}(\text{n},\gamma)^{97}\text{Zr}$ | 0.2 | $^{97}\text{Zr}(\beta^-)^{97}\text{Nb}$ | 0.2 | $^{99}\text{Sr}-^{97}\text{Zr}_{1.021}$ |
| ^{97}Nb | 50.1 | $^{97}\text{Nb}(\beta^-)^{97}\text{Mo}$ | 49.9 | $^{97}\text{Zr}(\beta^-)^{97}\text{Nb}$ | | |
| ^{97}Mo | 43.8 | $^{96}\text{Mo}(\text{n},\gamma)^{97}\text{Mo}$ | 24.1 | $^{97}\text{Mo}-\text{u}$ | 20.5 | $^{97}\text{Mo}-^{87}\text{Rb}_{1.115}$ |
| ^{97}Tc | 52.9 | $^{96}\text{Mo}(\text{}^3\text{He},\text{d})^{97}\text{Tc}$ | 47.1 | $^{97}\text{Mo}(\text{p},\text{n})^{97}\text{Tc}$ | | |
| ^{98}Rb | 70.9 | $^{98}\text{Rb}-\text{u}$ | 29.1 | $^{98}\text{Rb}-^{85}\text{Rb}_{1.153}$ | | |
| ^{98}Sr | 88.0 | $^{98}\text{Sr}-^{85}\text{Rb}_{1.153}$ | 12.0 | $^{98}\text{Sr}-^{97}\text{Zr}_{1.010}$ | | |
| ^{98}Zr | 82.1 | $^{98}\text{Zr}-^{97}\text{Zr}_{1.010}$ | 17.9 | $^{96}\text{Zr}(\text{t},\text{p})^{98}\text{Zr}$ | | |
| ^{98}Mo | 86.9 | $^{97}\text{Mo}(\text{n},\gamma)^{98}\text{Mo}$ | 12.4 | $^{98}\text{Mo}-\text{u}$ | 0.6 | $^{98}\text{Mo}(\text{n},\gamma)^{99}\text{Mo}$ |
| ^{98}Tc | 57.2 | $^{99}\text{Tc}(\text{p},\text{d})^{98}\text{Tc}$ | 29.2 | $^{97}\text{Mo}(\text{}^3\text{He},\text{d})^{98}\text{Tc}$ | 11.4 | $^{98}\text{Mo}(\text{p},\text{n})^{98}\text{Tc}$ |
| ^{98}Ru | 91.6 | $\text{C}_7 \text{H}_{14}-^{98}\text{Ru}$ | 8.4 | $^{98}\text{Tc}(\beta^-)^{98}\text{Ru}$ | | |
| ^{98}Pd | 99.6 | $^{98}\text{Pd}-^{85}\text{Rb}_{1.153}$ | 0.4 | $^{98}\text{Ag}(\beta^+)^{98}\text{Pd}$ | | |
| ^{98}Ag | 78.0 | $^{98}\text{Ag}-^{85}\text{Rb}_{1.153}$ | 22.0 | $^{98}\text{Ag}(\beta^+)^{98}\text{Pd}$ | | |
| ^{99}Sr | 52.9 | $^{99}\text{Sr}-^{85}\text{Rb}_{1.165}$ | 47.1 | $^{99}\text{Sr}-^{97}\text{Zr}_{1.021}$ | | |
| ^{99}Zr | 64.8 | $^{99}\text{Zr}-^{97}\text{Zr}_{1.021}$ | 35.2 | $^{99}\text{Zr}-\text{u}$ | | |
| ^{99}Mo | 98.9 | $^{98}\text{Mo}(\text{n},\gamma)^{99}\text{Mo}$ | 1.1 | $^{99}\text{Mo}(\beta^-)^{99}\text{Tc}$ | | |
| ^{99}Tc | 78.2 | $^{99}\text{Mo}(\beta^-)^{99}\text{Tc}$ | 20.0 | $^{99}\text{Tc}(\beta^-)^{99}\text{Ru}$ | 1.8 | $^{99}\text{Tc}(\text{p},\text{d})^{98}\text{Tc}$ |
| ^{99}Ru | 97.6 | $^{99}\text{Ru}(\text{n},\gamma)^{100}\text{Ru}$ | 2.4 | $^{99}\text{Tc}(\beta^-)^{99}\text{Ru}$ | | |
| ^{99}Rh | 89.5 | $^{99}\text{Rh}(\beta^+)^{99}\text{Ru}$ | 10.5 | $^{99}\text{Pd}(\beta^+)^{99}\text{Rh}$ | | |
| ^{99}Pd | 94.5 | $^{99}\text{Pd}-^{96}\text{Mo}_{1.031}$ | 5.5 | $^{99}\text{Pd}(\beta^+)^{99}\text{Rh}$ | | |
| ^{100}Sr | 59.0 | $^{100}\text{Sr}-^{97}\text{Zr}_{1.031}$ | 41.0 | $^{100}\text{Sr}-^{85}\text{Rb}_{1.176}$ | | |
| ^{100}Zr | 76.4 | $^{100}\text{Zr}-^{97}\text{Zr}_{1.031}$ | 23.6 | $^{100}\text{Zr}-\text{u}$ | | |
| ^{100}Mo | 65.5 | $^{100}\text{Mo}-\text{u}$ | 32.3 | $^{100}\text{Mo}-^{87}\text{Rb}_{1.149}$ | 2.2 | $^{100}\text{Mo}-^{100}\text{Ru}$ |
| ^{100}Ru | 97.1 | $^{100}\text{Mo}-^{100}\text{Ru}$ | 2.4 | $^{99}\text{Ru}(\text{n},\gamma)^{100}\text{Ru}$ | 0.5 | $^{100}\text{Ru}(\text{n},\gamma)^{101}\text{Ru}$ |
| ^{100}Rh | 82.1 | $^{100}\text{Rh}(\beta^+)^{100}\text{Ru}$ | 17.9 | $^{100}\text{Rh}-\text{u}$ | | |
| ^{100}Pd | 54.0 | $^{102}\text{Pd}(\text{p},\text{t})^{100}\text{Pd}$ | 46.0 | $^{96}\text{Ru}(\text{}^{16}\text{O}, \text{}^{12}\text{C})^{100}\text{Pd}$ | | |
| ^{100}Cd | 100.0 | $^{100}\text{Cd}-^{85}\text{Rb}_{1.176}$ | | | | |

Table II. Influences on primary nuclides (continued, Explanation of Table on page 030003-74)

| Nuclide | Infl. | Equation | Infl. | Equation | Infl. | Equation |
|---------------------|-------|---|-------|--|-------|--|
| ^{100}In | 63.0 | $^{100}\text{In}(\beta^+)^{100}\text{Cd}$ | 37.0 | $^{100}\text{In}-\text{u}$ | | |
| ^{101}Zr | 80.0 | $^{101}\text{Zr}-^{97}\text{Zr}_{1.041}$ | 20.0 | $^{101}\text{Zr}-\text{u}$ | | |
| ^{101}Ru | 99.3 | $^{100}\text{Ru}(\text{n},\gamma)^{101}\text{Ru}$ | 0.7 | $^{101}\text{Ru}(\text{n},\gamma)^{102}\text{Ru}$ | | |
| ^{101}Rh | 88.4 | $^{101}\text{Pd}(\beta^+)^{101}\text{Rh}$ | 11.6 | $^{103}\text{Rh}(\text{p},\text{t})^{101}\text{Rh}$ | | |
| ^{101}Pd | 93.2 | $^{101}\text{Pd}-^{96}\text{Mo}_{1.052}$ | 6.8 | $^{101}\text{Pd}(\beta^+)^{101}\text{Rh}$ | | |
| ^{102}Zr | 92.0 | $^{102}\text{Zr}-^{97}\text{Zr}_{1.052}$ | 8.0 | $^{102}\text{Zr}(\beta^-)^{102}\text{Nb}^m$ | | |
| ^{102}Nb | 99.4 | $^{102}\text{Nb}-^{97}\text{Zr}_{1.052}$ | 0.6 | $^{102}\text{Nb}^m-^{102}\text{Nb}$ | | |
| $^{102}\text{Nb}^m$ | 94.2 | $^{102}\text{Nb}^m-^{102}\text{Nb}$ | 5.8 | $^{102}\text{Zr}(\beta^-)^{102}\text{Nb}^m$ | | |
| ^{102}Mo | 82.7 | $^{102}\text{Mo}-^{97}\text{Zr}_{1.052}$ | 17.3 | $^{100}\text{Mo}(\text{t},\text{p})^{102}\text{Mo}$ | | |
| ^{102}Tc | 79.0 | $^{104}\text{Ru}(\text{d},\alpha)^{102}\text{Tc}$ | 21.0 | $^{100}\text{Mo}(^3\text{He},\text{p})^{102}\text{Tc}$ | | |
| ^{102}Ru | 99.3 | $^{101}\text{Ru}(\text{n},\gamma)^{102}\text{Ru}$ | 0.7 | $^{102}\text{Ru}(\text{n},\gamma)^{103}\text{Ru}$ | | |
| ^{102}Pd | 100.0 | $^{102}\text{Pd}-^{102}\text{Ru}$ | | | | |
| ^{102}Cd | 88.2 | $^{102}\text{Cd}-^{85}\text{Rb}_{1.200}$ | 11.8 | $^{102}\text{Cd}-^{96}\text{Mo}_{1.063}$ | | |
| ^{102}In | 85.7 | $^{102}\text{In}-^{96}\text{Mo}_{1.063}$ | 14.3 | $^{102}\text{In}-^{85}\text{Rb}_{1.200}$ | | |
| ^{103}Ru | 99.2 | $^{102}\text{Ru}(\text{n},\gamma)^{103}\text{Ru}$ | 0.8 | $^{104}\text{Ru}(\text{d},\text{t})^{103}\text{Ru}-^{148}\text{Gd}()^{147}\text{Gd}$ | 0.1 | $^{103}\text{Ru}(\beta^-)^{103}\text{Rh}$ |
| ^{103}Rh | 98.4 | $^{103}\text{Ru}(\beta^-)^{103}\text{Rh}$ | 1.6 | $^{103}\text{Rh}(\text{p},\text{t})^{101}\text{Rh}$ | | |
| ^{103}Cd | 85.7 | $^{103}\text{Cd}-^{85}\text{Rb}_{1.212}$ | 14.0 | $^{103}\text{Cd}-^{96}\text{Mo}_{1.073}$ | 0.4 | $^{103}\text{In}(\beta^+)^{103}\text{Cd}$ |
| ^{103}In | 88.2 | $^{103}\text{In}-^{85}\text{Rb}_{1.212}$ | 11.8 | $^{103}\text{In}(\beta^+)^{103}\text{Cd}$ | | |
| ^{104}Mo | 97.2 | $^{104}\text{Mo}-^{97}\text{Zr}_{1.072}$ | 2.8 | $^{104}\text{Mo}(\beta^-)^{104}\text{Tc}$ | | |
| ^{104}Tc | 70.2 | $^{104}\text{Mo}(\beta^-)^{104}\text{Tc}$ | 29.8 | $^{104}\text{Tc}(\beta^-)^{104}\text{Ru}$ | | |
| ^{104}Ru | 57.7 | $^{104}\text{Ru}(\text{d},\text{t})^{103}\text{Ru}-^{148}\text{Gd}()^{147}\text{Gd}$ | 30.9 | $^{104}\text{Ru}(\text{n},\gamma)^{105}\text{Ru}$ | 10.0 | $\text{C}_8\text{H}_8-^{104}\text{Ru}$ |
| ^{104}Cd | 89.3 | $^{104}\text{Cd}-^{85}\text{Rb}_{1.224}$ | 10.7 | $^{104}\text{Cd}-^{96}\text{Mo}_{1.083}$ | | |
| ^{104}Sn | 92.9 | $^{104}\text{Sn}-^{87}\text{Rb}_{1.195}$ | 7.1 | $^{108}\text{Te}(\alpha)^{104}\text{Sn}$ | | |
| ^{105}Mo | 98.4 | $^{105}\text{Mo}-^{97}\text{Zr}_{1.082}$ | 1.6 | $^{105}\text{Mo}(\beta^-)^{105}\text{Tc}$ | | |
| ^{105}Tc | 59.0 | $^{105}\text{Mo}(\beta^-)^{105}\text{Tc}$ | 41.0 | $^{105}\text{Tc}(\beta^-)^{105}\text{Ru}$ | | |
| ^{105}Ru | 69.1 | $^{104}\text{Ru}(\text{n},\gamma)^{105}\text{Ru}$ | 25.4 | $^{105}\text{Ru}(\beta^-)^{105}\text{Rh}$ | 5.1 | $^{106}\text{Ru}-^{105}\text{Ru}_{1.010}$ |
| ^{105}Rh | 74.6 | $^{105}\text{Rh}(\beta^-)^{105}\text{Pd}$ | 25.4 | $^{105}\text{Ru}(\beta^-)^{105}\text{Rh}$ | | |
| ^{105}Pd | 96.0 | $^{105}\text{Pd}(\text{n},\gamma)^{106}\text{Pd}$ | 3.9 | $^{105}\text{Rh}(\beta^-)^{105}\text{Pd}$ | 0.2 | $^{105}\text{Pd}(^3\text{He},\text{d})^{106}\text{Ag}$ |
| ^{105}Ag | 91.1 | $^{105}\text{Cd}(\beta^+)^{105}\text{Ag}$ | 8.9 | $^{107}\text{Ag}(\text{p},\text{t})^{105}\text{Ag}$ | | |
| ^{105}Cd | 99.2 | $^{105}\text{Cd}-^{85}\text{Rb}_{1.235}$ | 0.8 | $^{105}\text{Cd}(\beta^+)^{105}\text{Ag}$ | | |
| ^{105}Sn | 58.0 | $^{105}\text{Sn}-^{87}\text{Rb}_{1.207}$ | 36.1 | $^{105}\text{Sn}-^{85}\text{Rb}_{1.235}$ | 6.0 | $^{109}\text{Te}(\alpha)^{105}\text{Sn}$ |
| ^{106}Ru | 63.3 | $^{106}\text{Ru}(\beta^-)^{106}\text{Rh}$ | 36.7 | $^{106}\text{Ru}-^{105}\text{Ru}_{1.010}$ | | |
| ^{106}Rh | 63.3 | $^{106}\text{Rh}(\beta^-)^{106}\text{Pd}$ | 36.7 | $^{106}\text{Ru}(\beta^-)^{106}\text{Rh}$ | | |
| ^{106}Pd | 69.9 | $^{106}\text{Cd}-^{106}\text{Pd}$ | 20.2 | $^{106}\text{Pd}-\text{u}$ | 5.2 | $^{106}\text{Pd}(\text{n},\gamma)^{107}\text{Pd}$ |
| ^{106}Ag | 81.0 | $^{106}\text{Ag}(\epsilon)^{106}\text{Pd}$ | 12.3 | $^{105}\text{Pd}(^3\text{He},\text{d})^{106}\text{Ag}$ | 6.6 | $^{107}\text{Ag}(\text{p},\text{d})^{106}\text{Ag}$ |
| ^{106}Cd | 43.3 | $^{106}\text{Cd}-^{85}\text{Rb}_{1.247}$ | 29.9 | $^{106}\text{Cd}-^{106}\text{Pd}$ | 26.8 | $^{106}\text{Cd}-\text{u}$ |
| ^{106}Sn | 51.7 | $^{106}\text{Sn}-^{87}\text{Rb}_{1.218}$ | 39.5 | $^{106}\text{Sn}-^{85}\text{Rb}_{1.247}$ | 8.8 | $^{110}\text{Te}(\alpha)^{106}\text{Sn}$ |
| ^{107}Pd | 93.7 | $^{106}\text{Pd}(\text{n},\gamma)^{107}\text{Pd}$ | 6.3 | $^{107}\text{Pd}(\beta^-)^{107}\text{Ag}$ | | |
| ^{107}Ag | 53.3 | $^{107}\text{Pd}(\beta^-)^{107}\text{Ag}$ | 29.7 | $^{107}\text{Cd}(\beta^+)^{107}\text{Ag}$ | 10.9 | $\text{C}_8\text{H}_{11}-^{107}\text{Ag}$ |
| ^{107}Cd | 88.5 | $^{107}\text{Cd}-^{85}\text{Rb}_{1.259}$ | 11.5 | $^{107}\text{Cd}(\beta^+)^{107}\text{Ag}$ | | |
| ^{107}Sb | 58.9 | $^{107}\text{Sb}-^{87}\text{Rb}_{1.230}$ | 21.1 | $^{107}\text{Sb}-^{133}\text{Cs}_{.805}$ | 20.0 | $^{111}\text{I}(\alpha)^{107}\text{Sb}$ |
| ^{108}Pd | 40.8 | $^{108}\text{Pd}-^{108}\text{Cd}$ | 40.0 | $^{108}\text{Pd}-\text{u}$ | 19.1 | $^{108}\text{Pd}(\text{n},\gamma)^{109}\text{Pd}$ |
| ^{108}Cd | 45.7 | $^{108}\text{Pd}-^{108}\text{Cd}$ | 27.5 | $^{108}\text{Cd}-^{85}\text{Rb}_{1.271}$ | 25.1 | $^{108}\text{Cd}-\text{u}$ |
| ^{108}In | 88.6 | $^{108}\text{In}(\beta^+)^{108}\text{Cd}$ | 11.4 | $^{108}\text{Sn}(\beta^+)^{108}\text{In}$ | | |
| ^{108}Sn | 95.9 | $^{108}\text{Sn}-^{87}\text{Rb}_{1.241}$ | 4.1 | $^{108}\text{Sn}(\beta^+)^{108}\text{In}$ | | |
| ^{108}Te | 93.7 | $^{108}\text{Te}-^{87}\text{Rb}_{1.241}$ | 6.3 | $^{108}\text{Te}(\alpha)^{104}\text{Sn}$ | | |
| ^{109}Rh | 64.3 | $^{110}\text{Pd}(\text{d},^3\text{He})^{109}\text{Rh}$ | 35.7 | $^{109}\text{Rh}-^{120}\text{Sn}_{.908}$ | | |
| ^{109}Pd | 80.6 | $^{108}\text{Pd}(\text{n},\gamma)^{109}\text{Pd}$ | 19.4 | $^{109}\text{Pd}(\beta^-)^{109}\text{Ag}$ | | |
| ^{109}Ag | 56.6 | $^{109}\text{Ag}(\text{n},\gamma)^{110}\text{Ag}$ | 29.8 | $^{109}\text{Pd}(\beta^-)^{109}\text{Ag}$ | 13.7 | $^{109}\text{Cd}(\epsilon)^{109}\text{Ag}$ |
| ^{109}Cd | 75.3 | $^{109}\text{Cd}-^{85}\text{Rb}_{1.282}$ | 21.5 | $^{109}\text{Cd}(\epsilon)^{109}\text{Ag}$ | 3.1 | $^{109}\text{In}(\beta^+)^{109}\text{Cd}$ |
| ^{109}In | 70.0 | $^{108}\text{Cd}(^3\text{He},\text{d})^{109}\text{In}-^{110}\text{Cd}()^{111}\text{In}$ | 30.0 | $^{109}\text{In}(\beta^+)^{109}\text{Cd}$ | | |
| ^{109}Sn | 77.9 | $^{112}\text{Sn}(^3\text{He},^6\text{He})^{109}\text{Sn}$ | 22.1 | $^{109}\text{Sb}(\beta^+)^{109}\text{Sn}$ | | |

Table II. Influences on primary nuclides (continued, Explanation of Table on page 030003-74)

| Nuclide | Infl. | Equation | Infl. | Equation | Infl. | Equation |
|-------------------|-------|---|-------|--|-------|---|
| ^{109}Sb | 91.8 | $^{109}\text{Sb}-^{87}\text{Rb}_{1.253}$ | 8.2 | $^{109}\text{Sb}(\beta^+)^{109}\text{Sn}$ | | |
| ^{109}Te | 54.0 | $^{109}\text{Te}-^{87}\text{Rb}_{1.253}$ | 32.1 | $^{109}\text{Te}-^{133}\text{Cs}_{.820}$ | 7.4 | $^{109}\text{Te}(\alpha)^{105}\text{Sn}$ |
| ^{110}Ru | 97.2 | $^{110}\text{Ru}-^{105}\text{Ru}_{1.048}$ | 2.8 | $^{110}\text{Ru}(\beta^-)^{110}\text{Rh}$ | | |
| ^{110}Rh | 87.7 | $^{110}\text{Rh}(\beta^-)^{110}\text{Pd}$ | 12.3 | $^{110}\text{Ru}(\beta^-)^{110}\text{Rh}$ | | |
| ^{110}Pd | 71.4 | $^{110}\text{Pd}-^{110}\text{Cd}$ | 28.0 | $^{110}\text{Pd}-\text{u}$ | 0.5 | $^{110}\text{Pd}(\text{d}, ^3\text{He})^{109}\text{Rh}$ |
| ^{110}Ag | 56.7 | $^{110}\text{Ag}(\beta^-)^{110}\text{Cd}$ | 43.3 | $^{109}\text{Ag}(\text{n}, \gamma)^{110}\text{Ag}$ | | |
| ^{110}Cd | 77.2 | $^{110}\text{Cd}(\text{n}, \gamma)^{111}\text{Cd}$ | 12.0 | $^{110}\text{Cd}-\text{u}$ | 8.6 | $^{110}\text{Pd}-^{110}\text{Cd}$ |
| ^{110}Te | 84.0 | $^{110}\text{Te}-^{133}\text{Cs}_{.827}$ | 16.0 | $^{110}\text{Te}(\alpha)^{106}\text{Sn}$ | | |
| ^{111}Cd | 80.7 | $^{111}\text{Cd}(\text{n}, \gamma)^{112}\text{Cd}$ | 19.3 | $^{110}\text{Cd}(\text{n}, \gamma)^{111}\text{Cd}$ | | |
| ^{111}In | 69.0 | $^{113}\text{In}(\text{p}, \text{t})^{111}\text{In}-^{112}\text{Cd}()^{110}\text{Cd}$ | 19.3 | $^{108}\text{Cd}(^3\text{He}, \text{d})^{109}\text{In}-^{110}\text{Cd}()^{111}\text{In}$ | 11.7 | $^{113}\text{In}(\text{p}, \text{t})^{111}\text{In}-^{115}\text{In}()^{113}\text{In}$ |
| ^{111}I | 70.0 | $^{111}\text{I}-^{87}\text{Rb}_{1.276}$ | 30.0 | $^{111}\text{I}(\alpha)^{107}\text{Sb}$ | | |
| ^{112}Rh | 65.7 | $^{112}\text{Rh}(\beta^-)^{112}\text{Pd}$ | 18.5 | $^{112}\text{Rh}-^{120}\text{Sn}_{.933}$ | 15.8 | $^{112}\text{Rh}-\text{u}$ |
| ^{112}Pd | 88.8 | $^{112}\text{Pd}-^{120}\text{Sn}_{.933}$ | 10.7 | $^{110}\text{Pd}(\text{t}, \text{p})^{112}\text{Pd}$ | 0.5 | $^{112}\text{Rh}(\beta^-)^{112}\text{Pd}$ |
| ^{112}Cd | 48.4 | $^{113}\text{In}-^{112}\text{Cd}_{1.009}$ | 35.2 | $^{113}\text{Cd}-^{112}\text{Cd}_{1.009}$ | 8.3 | $^{111}\text{Cd}(\text{n}, \gamma)^{112}\text{Cd}$ |
| ^{112}In | 50.0 | $^{112}\text{Cd}(\text{p}, \text{n})^{112}\text{In}$ | 50.0 | $^{112}\text{In}(\beta^-)^{112}\text{Sn}$ | | |
| ^{112}Sn | 97.2 | $^{112}\text{Sn}-^{112}\text{Cd}$ | 2.1 | $^{112}\text{Sn}-^{120}\text{Sn}_{.933}$ | 0.7 | $^{112}\text{Sn}(\text{n}, \gamma)^{113}\text{Sn}$ |
| ^{113}Ru | 80.6 | $^{113}\text{Ru}-^{105}\text{Ru}_{1.076}$ | 19.4 | $^{113}\text{Ru}-\text{u}$ | | |
| ^{113}Cd | 59.5 | $^{113}\text{Cd}-^{115}\text{In}_{.983}$ | 29.7 | $^{113}\text{Cd}-^{112}\text{Cd}_{1.009}$ | 5.4 | $^{113}\text{Cd}(\text{n}, \gamma)^{114}\text{Cd}$ |
| ^{113}In | 77.1 | $^{113}\text{In}-^{115}\text{In}_{.983}$ | 16.6 | $^{113}\text{In}-^{112}\text{Cd}_{1.009}$ | 6.2 | $^{113}\text{In}(\text{n}, \gamma)^{114}\text{In}$ |
| ^{113}Sn | 69.3 | $^{112}\text{Sn}(\text{n}, \gamma)^{113}\text{Sn}$ | 16.7 | $^{113}\text{Sn}(\beta^+)^{113}\text{In}$ | 14.1 | $^{114}\text{Sn}(\text{d}, \text{t})^{113}\text{Sn}$ |
| ^{113}Xe | 82.2 | $^{113}\text{Xe}-^{133}\text{Cs}_{.850}$ | 17.8 | $^{113}\text{Xe}(\alpha)^{109}\text{Te}$ | | |
| ^{114}Rh | 59.0 | $^{114}\text{Rh}-^{120}\text{Sn}_{.950}$ | 41.0 | $^{114}\text{Rh}-\text{u}$ | | |
| ^{114}Cd | 92.9 | $^{113}\text{Cd}(\text{n}, \gamma)^{114}\text{Cd}$ | 7.1 | $^{116}\text{Cd } ^{35}\text{Cl}-^{114}\text{Cd } ^{37}\text{Cl}$ | | |
| ^{114}In | 81.9 | $^{113}\text{In}(\text{n}, \gamma)^{114}\text{In}$ | 18.1 | $^{114}\text{In}(\beta^-)^{114}\text{Sn}$ | | |
| ^{114}Sn | 99.9 | $^{114}\text{Sn}(\text{n}, \gamma)^{115}\text{Sn}$ | 0.1 | $^{114}\text{In}(\beta^-)^{114}\text{Sn}$ | | |
| ^{114}Sb | 61.1 | $^{114}\text{Sb}-\text{u}$ | 38.9 | $^{114}\text{Sn}(\text{p}, \text{n})^{114}\text{Sb}$ | | |
| ^{115}Pd | 93.6 | $^{115}\text{Pd}-^{120}\text{Sn}_{.958}$ | 6.4 | $^{115}\text{Pd}(\beta^-)^{115}\text{Ag}$ | | |
| ^{115}Ag | 66.8 | $^{115}\text{Ag}-^{133}\text{Cs}_{.865}$ | 20.9 | $^{115}\text{Ag}(\beta^-)^{115}\text{Cd}$ | 12.4 | $^{115}\text{Pd}(\beta^-)^{115}\text{Ag}$ |
| ^{115}Cd | 100.0 | $^{114}\text{Cd}(\text{d}, \text{p})^{115}\text{Cd}$ | | | | |
| ^{115}In | 100.0 | $^{115}\text{In}-^{129}\text{Xe}$ | | | | |
| ^{115}Sn | 100.0 | $^{115}\text{In}-^{115}\text{Sn}$ | | | | |
| ^{116}Rh | 62.8 | $^{116}\text{Rh}-^{120}\text{Sn}_{.967}$ | 37.2 | $^{116}\text{Rh}-\text{u}$ | | |
| ^{116}Cd | 97.8 | $^{116}\text{Cd}-^{116}\text{Sn}$ | 2.2 | $^{116}\text{Cd } ^{35}\text{Cl}-^{114}\text{Cd } ^{37}\text{Cl}$ | | |
| ^{116}Sn | 99.1 | $^{115}\text{Sn}(\text{n}, \gamma)^{116}\text{Sn}$ | 0.8 | $^{116}\text{Cd}-^{116}\text{Sn}$ | 0.1 | $^{116}\text{Sn}(\text{n}, \gamma)^{117}\text{Sn}$ |
| ^{116}Sb | 75.2 | $^{116}\text{Sn}(\text{p}, \text{n})^{116}\text{Sb}$ | 24.8 | $^{115}\text{Sn}(^3\text{He}, \text{d})^{116}\text{Sb}-^{120}\text{Sn}()^{121}\text{Sb}$ | | |
| ^{117}Pd | 95.8 | $^{117}\text{Pd}-^{120}\text{Sn}_{.975}$ | 4.2 | $^{117}\text{Pd}(\beta^-)^{117}\text{Ag}$ | | |
| ^{117}Ag | 82.9 | $^{117}\text{Ag}-^{133}\text{Cs}_{.880}$ | 17.1 | $^{117}\text{Pd}(\beta^-)^{117}\text{Ag}$ | | |
| ^{117}In | 94.3 | $^{117}\text{In}(\beta^-)^{117}\text{Sn}$ | 5.7 | $^{120}\text{Sn}(\text{t}, \alpha)^{119}\text{In}-^{118}\text{Sn}()^{117}\text{In}$ | | |
| ^{117}Sn | 96.8 | $^{116}\text{Sn}(\text{n}, \gamma)^{117}\text{Sn}$ | 3.1 | $^{117}\text{Sn}(\text{n}, \gamma)^{118}\text{Sn}$ | | |
| ^{117}Sb | 71.2 | $^{116}\text{Sn}(^3\text{He}, \text{d})^{117}\text{Sb}$ | 17.8 | $^{117}\text{Sn}(\text{p}, \text{n})^{117}\text{Sb}$ | 11.0 | $^{117}\text{Te}(\beta^+)^{117}\text{Sb}$ |
| ^{117}Te | 50.7 | $^{117}\text{Te}(\beta^+)^{117}\text{Sb}$ | 46.4 | $^{117}\text{Te}-\text{u}$ | 2.9 | $^{117}\text{I}(\beta^+)^{117}\text{Te}$ |
| ^{117}I | 87.9 | $^{117}\text{I}-\text{u}$ | 12.1 | $^{117}\text{I}(\beta^+)^{117}\text{Te}$ | | |
| ^{118}Pd | 61.3 | $^{118}\text{Pd}-^{120}\text{Sn}_{.983}$ | 38.7 | $^{118}\text{Pd}-^{129}\text{Xe}_{.915}$ | | |
| ^{118}In | 100.0 | $^{119}\text{Sn}(\text{t}, \alpha)^{118}\text{In}-^{118}\text{Sn}()^{117}\text{In}$ | | | | |
| ^{118}Sn | 96.7 | $^{117}\text{Sn}(\text{n}, \gamma)^{118}\text{Sn}$ | 3.3 | $^{118}\text{Sn}(\text{n}, \gamma)^{119}\text{Sn}$ | | |
| ^{119}Ag | 97.3 | $^{119}\text{Ag}-^{133}\text{Cs}_{.895}$ | 2.7 | $^{119}\text{Ag}(\beta^-)^{119}\text{Cd}$ | | |
| ^{119}Cd | 78.0 | $^{119}\text{Ag}(\beta^-)^{119}\text{Cd}$ | 22.0 | $^{119}\text{Cd}(\beta^-)^{119}\text{In}$ | | |
| ^{119}In | 86.2 | $^{120}\text{Sn}(\text{t}, \alpha)^{119}\text{In}-^{118}\text{Sn}()^{117}\text{In}$ | 13.1 | $^{120}\text{Sn}(\text{d}, ^3\text{He})^{119}\text{In}$ | 0.6 | $^{119}\text{Cd}(\beta^-)^{119}\text{In}$ |
| ^{119}Sn | 92.5 | $^{118}\text{Sn}(\text{n}, \gamma)^{119}\text{Sn}$ | 7.3 | $^{120}\text{Sn}(\text{d}, \text{t})^{119}\text{Sn}$ | 0.1 | $^{119}\text{Sb}(\epsilon)^{119}\text{Sn}$ |
| ^{119}Sb | 59.1 | $^{118}\text{Sn}(^3\text{He}, \text{d})^{119}\text{Sb}$ | 40.9 | $^{119}\text{Sb}(\epsilon)^{119}\text{Sn}$ | | |
| ^{120}Pd | 68.8 | $^{120}\text{Pd}-^{120}\text{Sn}$ | 31.2 | $^{120}\text{Pd}-^{129}\text{Xe}_{.930}$ | | |
| ^{120}Sn | 21.7 | $^{112}\text{Sn}-^{120}\text{Sn}_{.933}$ | 21.2 | $^{115}\text{Sn}-^{120}\text{Sn}_{.958}$ | 18.6 | $^{129}\text{Xe}-^{120}\text{Sn}_{1.075}$ |

Table II. Influences on primary nuclides (continued, Explanation of Table on page 030003-74)

| Nuclide | Infl. | Equation | Infl. | Equation | Infl. | Equation |
|---------------------|-------|---|-------|--|-------|--|
| ^{120}Te | 80.2 | $^{122}\text{Te}(\text{p,t})^{120}\text{Te}-^{132}\text{Ba}()^{130}\text{Ba}$ | 19.6 | $^{122}\text{Te}(\text{p,t})^{120}\text{Te}-^{144}\text{Sm}()^{142}\text{Sm}$ | 0.2 | $^{120}\text{Te}({}^3\text{He,d})^{121}\text{I}$ |
| ^{121}Sn | 96.7 | $^{120}\text{Sn}(\text{n},\gamma)^{121}\text{Sn}$ | 3.3 | $^{122}\text{Sn}(\text{d,t})^{121}\text{Sn}$ | | |
| ^{121}Sb | 95.1 | $^{121}\text{Sb}(\text{n},\gamma)^{122}\text{Sb}$ | 4.8 | $^{115}\text{Sn}({}^3\text{He,d})^{116}\text{Sb}-^{120}\text{Sn}()^{121}\text{Sb}$ | 0.1 | $^{121}\text{Te}(\beta^+)^{121}\text{Sb}$ |
| ^{121}Te | 73.6 | $^{121}\text{Te}(\beta^+)^{121}\text{Sb}$ | 26.4 | $^{121}\text{I}(\beta^+)^{121}\text{Te}$ | | |
| ^{121}I | 99.2 | $^{120}\text{Te}({}^3\text{He,d})^{121}\text{I}$ | 0.8 | $^{121}\text{I}(\beta^+)^{121}\text{Te}$ | | |
| ^{121}Xe | 85.0 | $^{121}\text{Xe}-^{133}\text{Cs}_{910}$ | 15.0 | $^{121}\text{Cs}(\beta^+)^{121}\text{Xe}$ | | |
| ^{121}Cs | 46.0 | $^{121}\text{Cs}(\beta^+)^{121}\text{Xe}$ | 37.7 | $^{121}\text{Cs}-^{133}\text{Cs}_{910}$ | 16.3 | $^{121}\text{Cs}-\text{u}$ |
| ^{122}Cd | 72.4 | $^{122}\text{Cd}-^{130}\text{Xe}_{938}$ | 27.6 | $^{122}\text{Cd}-^{133}\text{Cs}_{917}$ | | |
| ^{122}Sn | 56.8 | $^{122}\text{Sn}(\text{d,t})^{121}\text{Sn}$ | 43.2 | $^{122}\text{Sn}(\text{n},\gamma)^{123}\text{Sn}$ | | |
| ^{122}Sb | 67.2 | $^{122}\text{Sb}(\beta^-)^{122}\text{Te}$ | 27.8 | $^{123}\text{Sb}(\gamma,\text{n})^{122}\text{Sb}$ | 4.9 | $^{121}\text{Sb}(\text{n},\gamma)^{122}\text{Sb}$ |
| ^{122}Te | 98.3 | $^{122}\text{Te}(\text{n},\gamma)^{123}\text{Te}$ | 1.1 | $^{122}\text{Sb}(\beta^-)^{122}\text{Te}$ | 0.6 | $^{122}\text{Te}({}^3\text{He,d})^{123}\text{I}$ |
| ^{122}Cs | 56.8 | $^{122}\text{Cs}-^{133}\text{Cs}_{917}$ | 43.2 | $^{122}\text{Cs}-\text{u}$ | | |
| ^{123}Cd | 99.6 | $^{123}\text{Cd}-^{130}\text{Xe}_{946}$ | 0.4 | $^{123}\text{Cd}(\beta^-)^{123}\text{In}$ | | |
| ^{123}In | 43.4 | $^{123}\text{In}(\beta^-)^{123}\text{Sn}$ | 31.9 | $^{123}\text{Cd}(\beta^-)^{123}\text{In}$ | 24.7 | $^{124}\text{Sn}(\text{d},{}^3\text{He})^{123}\text{In}$ |
| ^{123}Sn | 50.5 | $^{122}\text{Sn}(\text{n},\gamma)^{123}\text{Sn}$ | 38.5 | $^{124}\text{Sn}(\text{d,t})^{123}\text{Sn}$ | 10.7 | $^{123}\text{Sn}(\beta^-)^{123}\text{Sb}$ |
| ^{123}Sb | 96.0 | $^{123}\text{Te}-^{123}\text{Sb}$ | 3.5 | $^{123}\text{Sn}(\beta^-)^{123}\text{Sb}$ | 0.5 | $^{123}\text{Sb}(\gamma,\text{n})^{122}\text{Sb}$ |
| ^{123}Te | 94.4 | $^{123}\text{Te}(\text{n},\gamma)^{124}\text{Te}$ | 3.9 | $^{123}\text{Te}-^{123}\text{Sb}$ | 1.7 | $^{122}\text{Te}(\text{n},\gamma)^{123}\text{Te}$ |
| ^{123}I | 96.2 | $^{122}\text{Te}({}^3\text{He,d})^{123}\text{I}$ | 3.8 | $^{123}\text{Xe}(\beta^+)^{123}\text{I}$ | | |
| ^{123}Xe | 62.0 | $^{123}\text{Xe}-^{133}\text{Cs}_{925}$ | 38.0 | $^{123}\text{Xe}(\beta^+)^{123}\text{I}$ | | |
| ^{124}Cd | 89.4 | $^{124}\text{Cd}-^{130}\text{Xe}_{954}$ | 10.3 | $^{124}\text{Cd}-^{133}\text{Cs}_{932}$ | 0.2 | $^{124}\text{Cd}(\beta^-)^{124}\text{In}$ |
| ^{124}In | 61.1 | $^{124}\text{Cd}(\beta^-)^{124}\text{In}$ | 38.9 | $^{124}\text{In}(\beta^-)^{124}\text{Sn}$ | | |
| ^{124}Sn | 37.2 | $^{124}\text{Sn}-^{13}\text{C }^{37}\text{Cl}_3$ | 26.9 | $^{124}\text{Sn}-^{129}\text{Xe}_{961}$ | 20.3 | $^{124}\text{Sn}-^{120}\text{Sn}_{1.033}$ |
| ^{124}Te | 40.7 | $^{124}\text{Sn}-^{124}\text{Te}$ | 26.1 | $^{124}\text{Te}-^{13}\text{C }^{37}\text{Cl}_3$ | 16.8 | $^{124}\text{Te}(\text{n},\gamma)^{125}\text{Te}$ |
| ^{124}Xe | 58.9 | $^{124}\text{Xe}-^{54}\text{Fe }^{35}\text{Cl}_2$ | 23.7 | $^{124}\text{Xe}-^{13}\text{C }^{37}\text{Cl}_3$ | 16.3 | $^{124}\text{Xe}-^{124}\text{Te}$ |
| ^{125}Cd | 99.8 | $^{125}\text{Cd}-^{130}\text{Xe}_{962}$ | 0.2 | $^{125}\text{Cd}(\beta^-)^{125}\text{In}$ | | |
| ^{125}In | 81.0 | $^{125}\text{In}(\beta^-)^{125}\text{Sn}$ | 19.0 | $^{125}\text{Cd}(\beta^-)^{125}\text{In}$ | | |
| ^{125}Sn | 100.0 | $^{124}\text{Sn}(\text{n},\gamma)^{125}\text{Sn}$ | | | | |
| ^{125}Te | 83.1 | $^{124}\text{Te}(\text{n},\gamma)^{125}\text{Te}$ | 16.9 | $^{125}\text{Te}(\text{n},\gamma)^{126}\text{Te}$ | | |
| ^{125}Xe | 98.8 | $^{124}\text{Xe}(\text{n},\gamma)^{125}\text{Xe}$ | 1.2 | $^{125}\text{Cs}(\beta^+)^{125}\text{Xe}$ | | |
| ^{125}Cs | 70.5 | $^{125}\text{Cs}-^{133}\text{Cs}_{940}$ | 29.5 | $^{125}\text{Cs}(\beta^+)^{125}\text{Xe}$ | | |
| ^{125}Ba | 97.9 | $^{125}\text{Ba}-^{133}\text{Cs}_{940}$ | 2.1 | $^{125}\text{La}(\beta^+)^{125}\text{Ba}$ | | |
| ^{125}La | 86.5 | $^{125}\text{La}-\text{u}$ | 13.5 | $^{125}\text{La}(\beta^+)^{125}\text{Ba}$ | | |
| ^{126}Cd | 64.9 | $^{126}\text{Cd}-^{130}\text{Xe}_{969}$ | 34.9 | $^{126}\text{Cd}-^{133}\text{Cs}_{947}$ | 0.2 | $^{126}\text{Cd}(\beta^-)^{126}\text{In}$ |
| ^{126}In | 55.7 | $^{126}\text{Cd}(\beta^-)^{126}\text{In}$ | 44.3 | $^{126}\text{In}(\beta^-)^{126}\text{Sn}$ | | |
| ^{126}Sn | 96.1 | $^{124}\text{Sn}(\text{t,p})^{126}\text{Sn}$ | 3.9 | $^{126}\text{In}(\beta^-)^{126}\text{Sn}$ | | |
| ^{126}Te | 83.1 | $^{125}\text{Te}(\text{n},\gamma)^{126}\text{Te}$ | 12.3 | $^{128}\text{Te }^{35}\text{Cl}-^{126}\text{Te }^{37}\text{Cl}$ | 2.5 | $^{126}\text{I}(\beta^+)^{126}\text{Te}$ |
| ^{126}I | 51.5 | $^{126}\text{I}(\beta^+)^{126}\text{Te}$ | 48.5 | $^{127}\text{I}(\gamma,\text{n})^{126}\text{I}$ | | |
| ^{126}Xe | 97.8 | $^{126}\text{Xe}-^{134}\text{Xe}_{940}$ | 2.2 | $^{126}\text{Cs}(\beta^+)^{126}\text{Xe}$ | | |
| ^{126}Cs | 73.8 | $^{126}\text{Cs}-^{133}\text{Cs}_{947}$ | 26.2 | $^{126}\text{Cs}(\beta^+)^{126}\text{Xe}$ | | |
| $^{127}\text{Cd}^m$ | 60.9 | $^{127}\text{Cd}^m-^{133}\text{Cs}_{955}$ | 37.6 | $^{127}\text{Cd}^m-^{130}\text{Xe}_{977}$ | 1.4 | $^{127}\text{Cd}^m(\beta^-)^{127}\text{In}$ |
| ^{127}In | 88.9 | $^{127}\text{In}(\beta^-)^{127}\text{Sn}$ | 11.1 | $^{127}\text{Cd}^m(\beta^-)^{127}\text{In}$ | | |
| ^{127}Sn | 81.0 | $^{127}\text{Sn }^{34}\text{S}-^{133}\text{Cs}_{1.211}$ | 16.8 | $^{127}\text{Sn}(\beta^-)^{127}\text{Sb}$ | 2.3 | $^{127}\text{In}(\beta^-)^{127}\text{Sn}$ |
| ^{127}Sb | 96.2 | $^{127}\text{Sb}(\beta^-)^{127}\text{Te}$ | 3.8 | $^{127}\text{Sn}(\beta^-)^{127}\text{Sb}$ | | |
| ^{127}Te | 97.9 | $^{126}\text{Te}(\text{n},\gamma)^{127}\text{Te}$ | 1.8 | $^{127}\text{Te}(\beta^-)^{127}\text{I}$ | 0.3 | $^{127}\text{Sb}(\beta^-)^{127}\text{Te}$ |
| ^{127}I | 35.0 | $^{127}\text{I}(\gamma,\text{n})^{126}\text{I}$ | 23.8 | $^{127}\text{Te}(\beta^-)^{127}\text{I}$ | 21.2 | $\text{C}_{10}\text{H}_7-^{127}\text{I}$ |
| ^{127}Xe | 91.1 | $^{127}\text{Xe}(\epsilon)^{127}\text{I}$ | 8.9 | $^{127}\text{Cs}(\beta^+)^{127}\text{Xe}$ | | |
| ^{127}Cs | 81.7 | $^{127}\text{Cs}-^{133}\text{Cs}_{955}$ | 18.3 | $^{127}\text{Cs}(\beta^+)^{127}\text{Xe}$ | | |
| ^{127}Ba | 97.7 | $^{127}\text{Ba}-^{133}\text{Cs}_{955}$ | 2.3 | $^{127}\text{La}(\beta^+)^{127}\text{Ba}$ | | |
| ^{127}La | 86.6 | $^{127}\text{La}-\text{u}$ | 13.4 | $^{127}\text{La}(\beta^+)^{127}\text{Ba}$ | | |
| ^{128}Cd | 50.0 | $^{128}\text{Cd}-^{133}\text{Cs}_{962}$ | 50.0 | $^{128}\text{Cd}-^{130}\text{Xe}_{985}$ | | |
| ^{128}In | 72.0 | $^{128}\text{In}(\beta^-)^{128}\text{Sn}$ | 28.0 | $^{128}\text{Cd}(\beta^-)^{128}\text{In}$ | | |
| ^{128}Sn | 57.5 | $^{128}\text{Sn}-\text{u}$ | 42.2 | $^{128}\text{Sn}(\beta^-)^{128}\text{Sb}^m$ | 0.3 | $^{128}\text{In}(\beta^-)^{128}\text{Sn}$ |

Table II. Influences on primary nuclides (continued, Explanation of Table on page 030003-74)

| Nuclide | Infl. | Equation | Infl. | Equation | Infl. | Equation |
|---------------------|-------|--|-------|--|-------|--|
| $^{128}\text{Sb}^m$ | 54.9 | $^{128}\text{Sb}^m(\beta^-)^{128}\text{Te}$ | 45.1 | $^{128}\text{Sn}(\beta^-)^{128}\text{Sb}^m$ | | |
| ^{128}Te | 73.8 | $^{130}\text{Te }^{35}\text{Cl}-^{128}\text{Te }^{37}\text{Cl}$ | 20.7 | $^{128}\text{Te}-^{128}\text{Xe}$ | 3.7 | $^{128}\text{Te }^{35}\text{Cl}-^{126}\text{Te }^{37}\text{Cl}$ |
| ^{128}I | 86.9 | $^{127}\text{I}(\text{n},\gamma)^{128}\text{I}$ | 13.1 | $^{128}\text{I}(\beta^-)^{128}\text{Xe}$ | | |
| ^{128}Xe | 56.1 | $^{128}\text{Te}-^{128}\text{Xe}$ | 42.3 | $\text{C}_{10}\text{H}_8-^{128}\text{Xe}$ | 0.9 | $^{128}\text{I}(\beta^-)^{128}\text{Xe}$ |
| ^{128}Cs | 79.8 | $^{128}\text{Cs}(\beta^+)^{128}\text{Xe}$ | 20.2 | $^{128}\text{Cs}-^{133}\text{Cs}_{962}$ | | |
| ^{128}Ba | 78.1 | $^{130}\text{Ba}(\text{p},\text{t})^{128}\text{Ba}-^{144}\text{Sm}()^{142}\text{Sm}$ | 21.9 | $^{128}\text{Ba}-^{133}\text{Cs}_{962}$ | | |
| ^{129}In | 99.4 | $^{129}\text{In}-^{130}\text{Xe}_{992}$ | 0.6 | $^{129}\text{In}(\beta^-)^{129}\text{Sn}$ | | |
| $^{129}\text{In}^m$ | 99.4 | $^{129}\text{In}^m-^{130}\text{Xe}_{992}$ | 0.6 | $^{129}\text{In}^m(\beta^-)^{129}\text{Sn}$ | | |
| ^{129}Sn | 43.7 | $^{129}\text{In}(\beta^-)^{129}\text{Sn}$ | 35.8 | $^{129}\text{Sn}-\text{u}$ | 20.5 | $^{129}\text{In}^m(\beta^-)^{129}\text{Sn}$ |
| ^{129}Te | 98.2 | $^{128}\text{Te}(\text{n},\gamma)^{129}\text{Te}$ | 1.8 | $^{129}\text{Te}(\beta^-)^{129}\text{I}$ | | |
| ^{129}I | 59.9 | $^{129}\text{Te}(\beta^-)^{129}\text{I}$ | 40.1 | $^{129}\text{I}(\beta^-)^{129}\text{Xe}$ | | |
| ^{129}Xe | 28.3 | $^{132}\text{Xe}-^{129}\text{Xe}$ | 15.1 | $\text{C}_{10}\text{H}_{10}-^{129}\text{Xe}$ | 14.1 | $^{129}\text{Xe}_2-^{86}\text{Kr}_3$ |
| ^{129}Cs | 83.0 | $^{129}\text{Cs}(\beta^+)^{129}\text{Xe}$ | 12.2 | $^{129}\text{Cs}-^{133}\text{Cs}_{970}$ | 4.8 | $^{129}\text{Ba}(\beta^+)^{129}\text{Cs}$ |
| ^{129}Ba | 48.3 | $^{130}\text{Ba}(\text{d},\text{t})^{129}\text{Ba}$ | 45.3 | $^{129}\text{Ba}(\beta^+)^{129}\text{Cs}$ | 6.4 | $^{129}\text{La}(\beta^+)^{129}\text{Ba}$ |
| ^{129}La | 58.4 | $^{129}\text{La}-\text{u}$ | 41.6 | $^{129}\text{La}(\beta^+)^{129}\text{Ba}$ | | |
| ^{130}Sn | 73.3 | $^{130}\text{Sn}-^{130}\text{Xe}$ | 26.6 | $^{130}\text{Sn}-^{133}\text{Cs}_{977}$ | 0.2 | $^{130}\text{Sn}(\beta^-)^{130}\text{Sb}$ |
| ^{130}Sb | 90.0 | $^{130}\text{Sn}(\beta^-)^{130}\text{Sb}$ | 10.0 | $^{130}\text{Sb}(\beta^-)^{130}\text{Te}$ | | |
| ^{130}Te | 77.5 | $^{130}\text{Te}-^{129}\text{Xe}$ | 22.5 | $^{130}\text{Te}-^{130}\text{Xe}$ | | |
| ^{130}Xe | 49.5 | $^{130}\text{Xe}-^{129}\text{Xe}$ | 38.0 | $^{132}\text{Xe}-^{130}\text{Xe}$ | 12.5 | $^{130}\text{Te}-^{130}\text{Xe}$ |
| ^{130}Cs | 47.6 | $^{130}\text{Cs}-^{133}\text{Cs}_{977}$ | 34.9 | $^{130}\text{Cs}(\beta^+)^{130}\text{Xe}$ | 17.5 | $^{129}\text{Xe}(\text{}^3\text{He},\text{d})^{130}\text{Cs}$ |
| ^{130}Ba | 65.0 | $^{130}\text{Ba}-^{85}\text{Rb}_{1,529}$ | 18.0 | $^{122}\text{Te}(\text{p},\text{t})^{120}\text{Te}-^{132}\text{Ba}()^{130}\text{Ba}$ | 10.3 | $^{130}\text{Ba}(\text{p},\text{t})^{128}\text{Ba}-^{144}\text{Sm}()^{142}\text{Sm}$ |
| ^{131}Sn | 80.9 | $^{131}\text{Sn }^{34}\text{S}-^{133}\text{Cs}_{1,241}$ | 19.1 | $^{131}\text{Sn}(\beta^-)^{131}\text{Sb}$ | | |
| ^{131}Sb | 94.6 | $^{131}\text{Sb}-^{130}\text{Xe}_{1,008}$ | 5.4 | $^{131}\text{Sn}(\beta^-)^{131}\text{Sb}$ | | |
| ^{131}Xe | 62.0 | $^{131}\text{Xe}-^{129}\text{Xe}_{1,016}$ | 38.0 | $^{131}\text{Xe}-^{132}\text{Xe}_{992}$ | | |
| ^{131}Cs | 60.5 | $^{131}\text{Cs}(\epsilon)^{131}\text{Xe}$ | 25.0 | $^{131}\text{Ba}(\beta^+)^{131}\text{Cs}$ | 14.6 | $^{131}\text{Cs}-^{133}\text{Cs}_{985}$ |
| ^{131}Ba | 94.7 | $^{130}\text{Ba}(\text{n},\gamma)^{131}\text{Ba}$ | 5.3 | $^{131}\text{Ba}(\beta^+)^{131}\text{Cs}$ | | |
| ^{131}Ce | 95.7 | $^{131}\text{Ce}-\text{u}$ | 4.3 | $^{131}\text{Pr}(\beta^+)^{131}\text{Ce}$ | | |
| ^{131}Pr | 81.2 | $^{131}\text{Pr}-\text{u}$ | 9.5 | $^{131}\text{Nd}(\beta^+)^{131}\text{Pr}$ | 9.3 | $^{131}\text{Pr}(\beta^+)^{131}\text{Ce}$ |
| ^{131}Nd | 97.0 | $^{131}\text{Nd}-\text{u}$ | 3.0 | $^{131}\text{Nd}(\beta^+)^{131}\text{Pr}$ | | |
| ^{132}Sn | 61.1 | $^{132}\text{Sn}-^{133}\text{Cs}_{992}$ | 38.9 | $^{132}\text{Sn}-^{132}\text{Xe}$ | | |
| ^{132}Sb | 83.4 | $^{132}\text{Sb}-^{130}\text{Xe}_{1,015}$ | 16.6 | $^{132}\text{Sb}-^{133}\text{Cs}_{992}$ | | |
| ^{132}Te | 75.8 | $^{132}\text{Te}-^{130}\text{Xe}_{1,015}$ | 24.2 | $^{132}\text{Te}(\beta^-)^{132}\text{I}$ | | |
| ^{132}I | 51.6 | $^{132}\text{Te}(\beta^-)^{132}\text{I}$ | 48.4 | $^{132}\text{I}(\beta^-)^{132}\text{Xe}$ | | |
| ^{132}Xe | 33.3 | $^{132}\text{Xe}-\text{C}_{10}\text{H}_{10}$ | 19.5 | $^{132}\text{Xe}-^{129}\text{Xe}$ | 15.3 | $^{132}\text{Xe}-\text{C}_3\text{O}_6$ |
| ^{132}Cs | 73.2 | $^{132}\text{Cs}-^{133}\text{Cs}_{992}$ | 26.8 | $^{133}\text{Cs}(\gamma,\text{n})^{132}\text{Cs}$ | | |
| ^{132}Ba | 98.3 | $^{132}\text{Ba}(\text{n},\gamma)^{133}\text{Ba}$ | 1.7 | $^{122}\text{Te}(\text{p},\text{t})^{120}\text{Te}-^{132}\text{Ba}()^{130}\text{Ba}$ | | |
| ^{132}La | 66.1 | $^{132}\text{La}(\beta^+)^{132}\text{Ba}$ | 33.9 | $^{132}\text{La}-\text{u}$ | | |
| ^{132}Ce | 53.5 | $^{132}\text{Ce}-\text{u}$ | 46.5 | $^{132}\text{Ce O}-^{142}\text{Sm}_{1,042}$ | | |
| ^{133}Sn | 72.5 | $^{133}\text{Sn}-^{134}\text{Xe}_{993}$ | 27.5 | $^{133}\text{Sn}-^{133}\text{Cs}$ | | |
| ^{133}Sb | 70.5 | $^{133}\text{Sb}-^{130}\text{Xe}_{1,023}$ | 18.3 | $^{133}\text{Sb}(\beta^-)^{133}\text{Te}$ | 11.3 | $^{133}\text{Sb}-^{136}\text{Xe}_{978}$ |
| ^{133}Te | 93.0 | $^{133}\text{Te}-^{130}\text{Xe}_{1,023}$ | 7.0 | $^{133}\text{Sb}(\beta^-)^{133}\text{Te}$ | | |
| ^{133}Cs | 45.2 | $^{133}\text{Cs}-^{132}\text{Xe}$ | 44.0 | $^{133}\text{Cs}-^{129}\text{Xe}$ | 10.8 | $^{133}\text{Cs}-\text{C}_3\text{O}_6$ |
| ^{133}Ba | 98.5 | $^{133}\text{Ba}(\epsilon)^{133}\text{Cs}$ | 1.5 | $^{132}\text{Ba}(\text{n},\gamma)^{133}\text{Ba}$ | | |
| ^{134}Te | 71.0 | $^{134}\text{Te}-^{130}\text{Xe}_{1,031}$ | 20.6 | $^{134}\text{Te}-^{136}\text{Xe}_{985}$ | 8.5 | $^{134}\text{Te}(\beta^-)^{134}\text{I}$ |
| ^{134}I | 58.8 | $^{134}\text{I}-^{133}\text{Cs}_{1,008}$ | 41.2 | $^{134}\text{Te}(\beta^-)^{134}\text{I}$ | | |
| ^{134}Xe | 100.0 | $^{134}\text{Xe}-^{132}\text{Xe}_{1,015}$ | | | | |
| ^{134}Cs | 99.9 | $^{133}\text{Cs}(\text{n},\gamma)^{134}\text{Cs}$ | 0.1 | $^{134}\text{Cs}(\beta^-)^{134}\text{Ba}$ | | |
| ^{134}Ba | 57.7 | $^{134}\text{Cs}(\beta^-)^{134}\text{Ba}$ | 42.3 | $^{134}\text{Ba}(\text{n},\gamma)^{135}\text{Ba}$ | | |
| ^{135}Sb | 83.6 | $^{135}\text{Sb}-^{130}\text{Xe}_{1,038}$ | 16.4 | $^{135}\text{Sb}-^{133}\text{Cs}_{1,015}$ | | |
| ^{135}Te | 59.4 | $^{135}\text{Te}-^{133}\text{Cs}_{1,015}$ | 40.6 | $^{135}\text{Te}-^{130}\text{Xe}_{1,038}$ | | |
| ^{135}I | 92.5 | $^{135}\text{I}-^{133}\text{Cs}_{1,015}$ | 7.5 | $^{135}\text{I}(\beta^-)^{135}\text{Xe}$ | | |
| ^{135}Xe | 65.9 | $^{135}\text{Xe}(\beta^-)^{135}\text{Cs}$ | 34.1 | $^{135}\text{I}(\beta^-)^{135}\text{Xe}$ | | |

Table II. Influences on primary nuclides (continued, Explanation of Table on page 030003-74)

| Nuclide | Infl. | Equation | Infl. | Equation | Infl. | Equation |
|---------------------|-------|--|-------|---|-------|---|
| ^{135}Cs | 98.4 | $^{134}\text{Cs}(\text{n},\gamma)^{135}\text{Cs}$ | 1.6 | $^{135}\text{Xe}(\beta^-)^{135}\text{Cs}$ | | |
| ^{135}Ba | 54.9 | $^{134}\text{Ba}(\text{n},\gamma)^{135}\text{Ba}$ | 45.1 | $^{135}\text{Ba}(\text{n},\gamma)^{136}\text{Ba}$ | | |
| ^{135}La | 88.9 | $^{135}\text{La}(\beta^+)^{135}\text{Ba}$ | 11.1 | $^{135}\text{Ce}(\beta^+)^{135}\text{La}$ | | |
| ^{135}Ce | 86.5 | $^{135}\text{Ce}(\beta^+)^{135}\text{La}$ | 13.5 | $^{135}\text{Ce}-\text{u}$ | | |
| ^{136}Sb | 84.7 | $^{136}\text{Sb}-^{130}\text{Xe}_{1.046}$ | 15.3 | $^{136}\text{Sb}-^{133}\text{Cs}_{1.023}$ | | |
| ^{136}Te | 62.4 | $^{136}\text{Te}-^{130}\text{Xe}_{1.046}$ | 24.0 | $^{136}\text{Te}-^{136}\text{Xe}$ | 13.0 | $^{136}\text{Te}-^{133}\text{Cs}_{1.023}$ |
| ^{136}I | 50.3 | $^{136}\text{I}(\beta^-)^{136}\text{Xe}$ | 49.7 | $^{136}\text{Te}(\beta^-)^{136}\text{I}$ | | |
| ^{136}Xe | 81.6 | $^{136}\text{Xe}-^{13}\text{C}_3\text{O}_6$ | 18.3 | $^{136}\text{Xe}-^{28}\text{Si}_4\text{D}_{12}$ | | |
| ^{136}Ba | 54.5 | $^{135}\text{Ba}(\text{n},\gamma)^{136}\text{Ba}$ | 44.8 | $^{136}\text{Xe}-^{136}\text{Ba}$ | 0.6 | $^{136}\text{Ba}(\text{n},\gamma)^{137}\text{Ba}$ |
| ^{136}Ce | 99.9 | $^{136}\text{Ce}-^{136}\text{Ba}$ | 0.1 | $^{136}\text{Ce}(\text{n},\gamma)^{137}\text{Ce}$ | | |
| ^{136}Pr | 67.2 | $^{136}\text{Pr}-^{133}\text{Cs}_{1.023}$ | 32.8 | $^{136}\text{Pr}(\beta^+)^{136}\text{Ce}$ | | |
| ^{137}Te | 69.8 | $^{137}\text{Te}-^{130}\text{Xe}_{1.054}$ | 30.2 | $^{137}\text{Te}-^{133}\text{Cs}_{1.030}$ | | |
| ^{137}Ba | 99.4 | $^{136}\text{Ba}(\text{n},\gamma)^{137}\text{Ba}$ | 0.6 | $^{137}\text{Ba}(\text{n},\gamma)^{138}\text{Ba}$ | | |
| ^{137}Ce | 99.9 | $^{136}\text{Ce}(\text{n},\gamma)^{137}\text{Ce}$ | 0.1 | $^{137}\text{Pr}(\beta^+)^{137}\text{Ce}$ | | |
| ^{137}Pr | 66.1 | $^{137}\text{Pr}(\beta^+)^{137}\text{Ce}$ | 33.9 | $^{137}\text{Pr}-^{133}\text{Cs}_{1.030}$ | | |
| ^{137}Nd | 81.0 | $^{137}\text{Nd}-^{133}\text{Cs}_{1.030}$ | 17.6 | $^{137}\text{Nd}-\text{u}$ | 1.4 | $^{137}\text{Pm}^m(\beta^+)^{137}\text{Nd}$ |
| $^{137}\text{Pm}^m$ | 69.9 | $^{137}\text{Pm}^m(\beta^+)^{137}\text{Nd}$ | 30.1 | $^{137}\text{Sm}(\beta^+)^{137}\text{Pm}^m$ | | |
| ^{137}Sm | 43.5 | $^{137}\text{Sm}-\text{u}$ | 34.0 | $^{137}\text{Sm}-^{133}\text{Cs}_{1.030}$ | 22.4 | $^{137}\text{Sm}(\beta^+)^{137}\text{Pmm}$ |
| ^{138}Te | 74.8 | $^{138}\text{Te}-^{130}\text{Xe}_{1.062}$ | 25.2 | $^{138}\text{Te}-^{133}\text{Cs}_{1.038}$ | | |
| ^{138}Xe | 74.0 | $^{138}\text{Xe}-^{133}\text{Cs}_{1.038}$ | 26.0 | $^{138}\text{Xe}-^{136}\text{Xe}_{1.015}$ | | |
| ^{138}Cs | 50.7 | $^{138}\text{Cs}(\beta^-)^{138}\text{Ba}$ | 49.3 | $^{138}\text{Cs}-^{133}\text{Cs}_{1.038}$ | | |
| ^{138}Ba | 99.4 | $^{137}\text{Ba}(\text{n},\gamma)^{138}\text{Ba}$ | 0.6 | $^{138}\text{Ba}(\text{n},\gamma)^{139}\text{Ba}$ | | |
| ^{138}La | 94.2 | $^{138}\text{La}(\text{d},\text{p})^{139}\text{La}$ | 5.8 | $^{138}\text{La}(\beta^-)^{138}\text{Ce}$ | | |
| ^{138}Ce | 82.4 | $^{138}\text{La}(\beta^-)^{138}\text{Ce}$ | 15.6 | $^{138}\text{Ce}(\text{t},\text{p})^{140}\text{Ce}$ | 2.1 | $^{138}\text{Pr}^m(\beta^+)^{138}\text{Ce}$ |
| $^{138}\text{Pr}^m$ | 64.8 | $^{138}\text{Pr}^m(\beta^+)^{138}\text{Ce}$ | 35.2 | $^{138}\text{Pr}^m-\text{u}$ | | |
| ^{138}Nd | 96.4 | $^{138}\text{Nd}-^{133}\text{Cs}_{1.038}$ | 3.6 | $^{138}\text{Pm}(\beta^+)^{138}\text{Nd}$ | | |
| ^{138}Pm | 72.4 | $^{138}\text{Pm}-\text{u}$ | 27.6 | $^{138}\text{Pm}(\beta^+)^{138}\text{Nd}$ | | |
| ^{139}Ba | 99.4 | $^{138}\text{Ba}(\text{n},\gamma)^{139}\text{Ba}$ | 0.6 | $^{139}\text{Ba}(\beta^-)^{139}\text{La}$ | 1.6 | $^{138}\text{La}(\text{d},\text{p})^{139}\text{La}$ |
| ^{139}La | 57.4 | $^{139}\text{La}(\text{n},\gamma)^{140}\text{La}$ | 40.9 | $^{139}\text{Ba}(\beta^-)^{139}\text{La}$ | | |
| ^{139}Ce | 98.5 | $^{139}\text{Ce}(\epsilon)^{139}\text{La}$ | 1.5 | $^{139}\text{Pr}(\beta^+)^{139}\text{Ce}$ | | |
| ^{139}Pr | 98.3 | $^{139}\text{Pr}(\beta^+)^{139}\text{Ce}$ | 1.7 | $^{139}\text{Nd}(\beta^+)^{139}\text{Pr}$ | | |
| ^{139}Nd | 70.3 | $^{139}\text{Pm}(\beta^+)^{139}\text{Nd}$ | 29.7 | $^{139}\text{Nd}(\beta^+)^{139}\text{Pr}$ | | |
| ^{139}Pm | 94.6 | $^{139}\text{Pm}-^{133}\text{Cs}_{1.045}$ | 5.4 | $^{139}\text{Pm}(\beta^+)^{139}\text{Nd}$ | | |
| ^{140}Cs | 79.1 | $^{140}\text{Cs}-^{133}\text{Cs}_{1.053}$ | 20.9 | $^{140}\text{Cs}(\beta^-)^{140}\text{Ba}$ | | |
| ^{140}Ba | 37.5 | $^{140}\text{Ba}(\beta^-)^{140}\text{La}$ | 37.0 | $^{140}\text{Ba}-^{133}\text{Cs}_{1.053}$ | 19.1 | $^{140}\text{Cs}(\beta^-)^{140}\text{Ba}$ |
| ^{140}La | 55.9 | $^{140}\text{La}(\beta^-)^{140}\text{Ce}$ | 42.6 | $^{139}\text{La}(\text{n},\gamma)^{140}\text{La}$ | 1.5 | $^{140}\text{Ba}(\beta^-)^{140}\text{La}$ |
| ^{140}Ce | 40.3 | $^{140}\text{Ce}\text{O}-^{133}\text{Cs}_{1.173}$ | 35.4 | $^{140}\text{Ce}(\text{n},\gamma)^{141}\text{Ce}$ | 18.7 | $^{140}\text{La}(\beta^-)^{140}\text{Ce}$ |
| $^{140}\text{Pm}^m$ | 77.9 | $^{140}\text{Pm}^m-^{133}\text{Cs}_{1.053}$ | 22.1 | $^{140}\text{Pm}^m-\text{u}$ | | |
| ^{141}Cs | 38.1 | $^{141}\text{Cs}-^{133}\text{Cs}_{1.060}$ | 33.1 | $^{141}\text{Cs}(\beta^-)^{141}\text{Ba}$ | 20.1 | $^{141}\text{Cs}-^{136}\text{Xe}_{1.037}$ |
| ^{141}Ba | 58.0 | $^{141}\text{Ba}-\text{u}$ | 27.2 | $^{141}\text{Ba}-^{133}\text{Cs}_{1.060}$ | 8.1 | $^{141}\text{Cs}(\beta^-)^{141}\text{Ba}$ |
| ^{141}La | 95.9 | $^{141}\text{La}(\beta^-)^{141}\text{Ce}$ | 4.1 | $^{141}\text{Ba}(\beta^-)^{141}\text{La}$ | | |
| ^{141}Ce | 64.5 | $^{140}\text{Ce}(\text{n},\gamma)^{141}\text{Ce}$ | 34.9 | $^{141}\text{Ce}(\beta^-)^{141}\text{Pr}$ | 0.6 | $^{141}\text{La}(\beta^-)^{141}\text{Ce}$ |
| ^{141}Pr | 52.4 | $^{141}\text{Pr}(\text{n},\gamma)^{142}\text{Pr}$ | 47.6 | $^{141}\text{Ce}(\beta^-)^{141}\text{Pr}$ | | |
| ^{141}Sm | 49.8 | $^{144}\text{Sm}({}^3\text{He}, {}^6\text{He})^{141}\text{Sm}$ | 42.9 | $^{141}\text{Sm}-^{133}\text{Cs}_{1.060}$ | 7.3 | $^{141}\text{Eu}(\beta^+)^{141}\text{Sm}$ |
| ^{141}Eu | 81.8 | $^{141}\text{Eu}-^{133}\text{Cs}_{1.060}$ | 18.2 | $^{141}\text{Eu}(\beta^+)^{141}\text{Sm}$ | | |
| ^{142}Cs | 47.6 | $^{142}\text{Cs}-^{136}\text{Xe}_{1.044}$ | 33.4 | $^{142}\text{Cs}-^{133}\text{Cs}_{1.068}$ | 18.8 | $^{142}\text{Cs}(\beta^-)^{142}\text{Ba}$ |
| ^{142}Ba | 48.8 | $^{142}\text{Ba}-\text{u}$ | 33.7 | $^{142}\text{Ba}-^{133}\text{Cs}_{1.068}$ | 12.2 | $^{142}\text{Cs}(\beta^-)^{142}\text{Ba}$ |
| ^{142}La | 94.0 | $^{142}\text{La}(\beta^-)^{142}\text{Ce}$ | 6.0 | $^{142}\text{Ba}(\beta^-)^{142}\text{La}$ | | |
| ^{142}Ce | 78.9 | $^{142}\text{Ce}(\text{n},\gamma)^{143}\text{Ce}$ | 20.2 | $^{140}\text{Ce}(\text{t},\text{p})^{142}\text{Ce}$ | 0.9 | $^{142}\text{La}(\beta^-)^{142}\text{Ce}$ |
| ^{142}Pr | 52.4 | $^{142}\text{Pr}(\beta^-)^{142}\text{Nd}$ | 47.6 | $^{141}\text{Pr}(\text{n},\gamma)^{142}\text{Pr}$ | | |
| ^{142}Nd | 79.1 | $^{142}\text{Nd}(\text{n},\gamma)^{143}\text{Nd}$ | 20.0 | $^{142}\text{Pr}(\beta^-)^{142}\text{Nd}$ | 0.7 | $^{146}\text{Sm}(\alpha)^{142}\text{Nd}$ |
| ^{142}Pm | 88.7 | $^{142}\text{Pm}-\text{u}$ | 11.3 | $^{142}\text{Sm}(\beta^+)^{142}\text{Pm}$ | | |

Table II. Influences on primary nuclides (continued, Explanation of Table on page 030003-74)

| Nuclide | Infl. | Equation | Infl. | Equation | Infl. | Equation |
|-------------------|-------|--|-------|--|-------|---|
| ^{142}Sm | 78.7 | $^{122}\text{Te}(\text{p,t})^{120}\text{Te}-^{144}\text{Sm}()$ | 10.7 | $^{130}\text{Ba}(\text{p,t})^{128}\text{Ba}-^{144}\text{Sm}()$ | 2.9 | $^{160}\text{Yb}-^{142}\text{Sm}_{1.127}$ |
| ^{143}Cs | 91.5 | $^{143}\text{Cs}-^{133}\text{Cs}_{1.075}$ | 8.5 | $^{143}\text{Cs}(\beta^-)^{143}\text{Ba}$ | | |
| ^{143}Ba | 72.8 | $^{143}\text{Ba}-\text{u}$ | 20.5 | $^{143}\text{Ba}-^{133}\text{Cs}_{1.075}$ | 6.6 | $^{143}\text{Cs}(\beta^-)^{143}\text{Ba}$ |
| ^{143}La | 81.8 | $^{143}\text{La}-\text{u}$ | 18.2 | $^{143}\text{La}(\beta^-)^{143}\text{Ce}$ | | |
| ^{143}Ce | 77.2 | $^{143}\text{Ce}(\beta^-)^{143}\text{Pr}$ | 21.1 | $^{142}\text{Ce}(\text{n},\gamma)^{143}\text{Ce}$ | 1.8 | $^{143}\text{La}(\beta^-)^{143}\text{Ce}$ |
| ^{143}Pr | 90.1 | $^{143}\text{Pr}(\beta^-)^{143}\text{Nd}$ | 9.9 | $^{143}\text{Ce}(\beta^-)^{143}\text{Pr}$ | | |
| ^{143}Nd | 38.3 | $^{143}\text{Nd}(\text{n},\gamma)^{144}\text{Nd}$ | 22.1 | $^{147}\text{Sm}(\alpha)^{143}\text{Nd}$ | 20.8 | $^{142}\text{Nd}(\text{n},\gamma)^{143}\text{Nd}$ |
| ^{143}Pm | 49.3 | $^{143}\text{Nd}(^3\text{He},\text{d})^{144}\text{Pm}-^{142}\text{Nd}()$ | 28.6 | $^{142}\text{Nd}(^3\text{He},\text{d})^{143}\text{Pm}$ | 22.2 | $^{147}\text{Eu}(\alpha)^{143}\text{Pm}$ |
| ^{143}Sm | 100.0 | $^{144}\text{Sm}(\text{p,d})^{143}\text{Sm}-^{148}\text{Gd}()$ | | | | |
| ^{144}Cs | 42.9 | $^{144}\text{Cs}-^{133}\text{Cs}_{1.083}$ | 37.5 | $^{144}\text{Cs}(\beta^-)^{144}\text{Ba}$ | 19.6 | $^{144}\text{Cs}-^{145}\text{Cs}_{.662}^{142}\text{Cs}_{.338}$ |
| ^{144}Ba | 70.9 | $^{144}\text{Ba}-\text{u}$ | 26.1 | $^{144}\text{Ba}-^{133}\text{Cs}_{1.083}$ | 3.0 | $^{144}\text{Cs}(\beta^-)^{144}\text{Ba}$ |
| ^{144}Nd | 61.2 | $^{143}\text{Nd}(\text{n},\gamma)^{144}\text{Nd}$ | 26.1 | $^{148}\text{Sm}(\alpha)^{144}\text{Nd}$ | 6.5 | $^{144}\text{Nd}(\text{n},\gamma)^{145}\text{Nd}$ |
| ^{144}Pm | 57.5 | $^{144}\text{Nd}(^3\text{He},\text{d})^{145}\text{Pm}-^{143}\text{Nd}()$ | 41.8 | $^{143}\text{Nd}(^3\text{He},\text{d})^{144}\text{Pm}-^{142}\text{Nd}()$ | 0.7 | $^{148}\text{Eu}(\alpha)^{144}\text{Pm}$ |
| ^{144}Sm | 85.4 | $^{144}\text{Sm}-^{144}\text{Nd}$ | 6.8 | $^{144}\text{Sm}(\text{n},\gamma)^{145}\text{Sm}$ | 3.6 | $^{148}\text{Gd}(\alpha)^{144}\text{Sm}$ |
| ^{144}Eu | 46.4 | $^{144}\text{Eu}-^{133}\text{Cs}_{1.083}$ | 38.7 | $^{144}\text{Eu}(\beta^+)^{144}\text{Sm}$ | 14.9 | $^{144}\text{Eu}-\text{u}$ |
| ^{145}Cs | 98.6 | $^{145}\text{Cs}-^{133}\text{Cs}_{1.090}$ | 1.4 | $^{144}\text{Cs}-^{145}\text{Cs}_{.662}^{142}\text{Cs}_{.338}$ | | |
| ^{145}La | 98.1 | $^{145}\text{La}-\text{u}$ | 1.9 | $^{145}\text{La}(\beta^-)^{145}\text{Ce}$ | | |
| ^{145}Ce | 66.9 | $^{145}\text{Ce}(\beta^-)^{145}\text{Pr}$ | 17.5 | $^{145}\text{La}(\beta^-)^{145}\text{Ce}$ | 15.6 | $^{145}\text{Ce}-\text{u}$ |
| ^{145}Pr | 49.5 | $^{145}\text{Pr}(\beta^-)^{145}\text{Nd}$ | 49.5 | $^{146}\text{Nd}(\text{d},^3\text{He})^{145}\text{Pr}$ | 1.0 | $^{145}\text{Ce}(\beta^-)^{145}\text{Pr}$ |
| ^{145}Nd | 89.0 | $^{144}\text{Nd}(\text{n},\gamma)^{145}\text{Nd}$ | 11.0 | $^{145}\text{Nd}(\text{n},\gamma)^{146}\text{Nd}$ | | |
| ^{145}Pm | 41.1 | $^{145}\text{Sm}(\epsilon)^{145}\text{Pm}$ | 33.5 | $^{144}\text{Nd}(^3\text{He},\text{d})^{145}\text{Pm}-^{143}\text{Nd}()$ | 25.4 | $^{144}\text{Nd}(^3\text{He},\text{d})^{145}\text{Pm}$ |
| ^{145}Sm | 92.4 | $^{144}\text{Sm}(\text{n},\gamma)^{145}\text{Sm}$ | 2.9 | $^{149}\text{Gd}(\alpha)^{145}\text{Sm}$ | 2.6 | $^{145}\text{Sm}(\epsilon)^{145}\text{Pm}$ |
| ^{145}Eu | 91.0 | $^{144}\text{Sm}(^3\text{He},\text{d})^{145}\text{Eu}$ | 9.0 | $^{149}\text{Tb}(\alpha)^{145}\text{Eu}$ | | |
| ^{145}Gd | 99.5 | $^{145}\text{Gd}-\text{u}$ | 0.5 | $^{145}\text{Tb}(\beta^+)^{145}\text{Gd}$ | | |
| ^{145}Tb | 80.6 | $^{145}\text{Tb}(\beta^+)^{145}\text{Gd}$ | 19.4 | $^{145}\text{Tb}-\text{u}$ | | |
| ^{146}Ba | 89.3 | $^{146}\text{Ba}-\text{u}$ | 10.7 | $^{146}\text{Ba}(\beta^-)^{146}\text{La}$ | | |
| ^{146}La | 45.4 | $^{146}\text{Ba}(\beta^-)^{146}\text{La}$ | 37.0 | $^{146}\text{La}(\beta^-)^{146}\text{Ce}$ | 17.6 | $^{146}\text{La}-\text{u}$ |
| ^{146}Ce | 90.0 | $^{146}\text{Ce}-\text{u}$ | 5.8 | $^{146}\text{La}(\beta^-)^{146}\text{Ce}$ | 4.2 | $^{146}\text{Ce}(\beta^-)^{146}\text{Pr}$ |
| ^{146}Pr | 75.8 | $^{146}\text{Ce}(\beta^-)^{146}\text{Pr}$ | 24.2 | $^{146}\text{Pr}(\beta^-)^{146}\text{Nd}$ | | |
| ^{146}Nd | 88.4 | $^{145}\text{Nd}(\text{n},\gamma)^{146}\text{Nd}$ | 10.1 | $^{146}\text{Nd}(\text{n},\gamma)^{147}\text{Nd}$ | 1.5 | $^{148}\text{Nd}^{35}\text{Cl}-^{146}\text{Nd}^{37}\text{Cl}$ |
| ^{146}Sm | 46.1 | $^{146}\text{Sm}(\alpha)^{142}\text{Nd}$ | 30.4 | $^{146}\text{Sm}(^3\text{He},\alpha)^{145}\text{Sm}$ | 12.3 | $^{148}\text{Sm}(\text{p,t})^{146}\text{Sm}$ |
| ^{146}Eu | 45.9 | $^{146}\text{Eu}(\beta^+)^{146}\text{Sm}$ | 24.1 | $^{144}\text{Sm}(^3\text{He},\text{p})^{146}\text{Eu}$ | 18.6 | $^{146}\text{Eu}-^{133}\text{Cs}_{1.098}$ |
| ^{146}Gd | 88.8 | $^{148}\text{Gd}(\text{p,t})^{146}\text{Gd}-^{65}\text{Cu}()$ | 7.0 | $^{150}\text{Dy}(\alpha)^{146}\text{Gd}$ | 4.0 | $^{147}\text{Tb}(\text{p})^{146}\text{Gd}$ |
| ^{146}Tb | 80.0 | $^{146}\text{Tb}(\beta^+)^{146}\text{Gd}$ | 20.0 | $^{146}\text{Dy}(\beta^+)^{146}\text{Tb}$ | | |
| ^{146}Dy | 99.6 | $^{146}\text{Dy}-^{85}\text{Rb}_{1.718}$ | 0.4 | $^{146}\text{Dy}(\beta^+)^{146}\text{Tb}$ | | |
| ^{146}Ho | 50.0 | $^{146}\text{Ho}-^{133}\text{Cs}_{1.098}$ | 50.0 | $^{146}\text{Ho}-^{85}\text{Rb}_{1.718}$ | | |
| ^{146}Er | 61.2 | $^{146}\text{Er}-^{85}\text{Rb}_{1.718}$ | 38.8 | $^{147}\text{Tm}(\text{p})^{146}\text{Er}$ | | |
| ^{147}Ce | 92.1 | $^{147}\text{Ce}-\text{u}$ | 7.9 | $^{147}\text{Ce}(\beta^-)^{147}\text{Pr}$ | | |
| ^{147}Pr | 52.4 | $^{147}\text{Ce}(\beta^-)^{147}\text{Pr}$ | 47.6 | $^{147}\text{Pr}(\beta^-)^{147}\text{Nd}$ | | |
| ^{147}Nd | 89.3 | $^{146}\text{Nd}(\text{n},\gamma)^{147}\text{Nd}$ | 10.1 | $^{147}\text{Nd}(\beta^-)^{147}\text{Pm}$ | 0.5 | $^{148}\text{Nd}(\text{d,t})^{147}\text{Nd}$ |
| ^{147}Pm | 86.9 | $^{147}\text{Pm}(\beta^-)^{147}\text{Sm}$ | 13.1 | $^{147}\text{Nd}(\beta^-)^{147}\text{Pm}$ | | |
| ^{147}Sm | 50.6 | $^{147}\text{Sm}(\text{n},\gamma)^{148}\text{Sm}$ | 27.7 | $^{147}\text{Sm}(\alpha)^{143}\text{Nd}$ | 14.2 | $^{149}\text{Sm}^{35}\text{Cl}-^{147}\text{Sm}^{37}\text{Cl}$ |
| ^{147}Eu | 56.9 | $^{147}\text{Eu}(\beta^+)^{147}\text{Sm}$ | 18.8 | $^{147}\text{Gd}(\beta^+)^{147}\text{Eu}$ | 14.4 | $^{147}\text{Eu}(\alpha)^{143}\text{Pm}$ |
| ^{147}Gd | 86.2 | $^{148}\text{Gd}(\text{p,d})^{147}\text{Gd}-^{148}\text{Sm}()$ | 6.6 | $^{147}\text{Gd}(\beta^+)^{147}\text{Eu}$ | 6.2 | $^{104}\text{Ru}(\text{d,t})^{103}\text{Ru}-^{148}\text{Gd}()$ |
| ^{147}Tb | 52.5 | $^{147}\text{Tb}-^{133}\text{Cs}_{1.105}$ | 28.5 | $^{147}\text{Tb}(\beta^+)^{147}\text{Gd}$ | 19.0 | $^{147}\text{Tb}(\text{p})^{146}\text{Gd}$ |
| ^{147}Ho | 52.6 | $^{147}\text{Ho}-^{85}\text{Rb}_{1.729}$ | 47.4 | $^{147}\text{Ho}-^{133}\text{Cs}_{1.105}$ | | |
| ^{147}Tm | 55.5 | $^{147}\text{Tm}(\text{p})^{146}\text{Er}$ | 44.5 | $^{147}\text{Tm}-^{85}\text{Rb}_{1.729}$ | | |
| ^{148}Ce | 85.5 | $^{148}\text{Ce}-\text{u}$ | 14.5 | $^{148}\text{Ce}(\beta^-)^{148}\text{Pr}$ | | |
| ^{148}Pr | 66.0 | $^{148}\text{Ce}(\beta^-)^{148}\text{Pr}$ | 34.0 | $^{148}\text{Pr}(\beta^-)^{148}\text{Nd}$ | | |
| ^{148}Nd | 60.7 | $^{148}\text{Nd}^{35}\text{Cl}-^{146}\text{Nd}^{37}\text{Cl}$ | 16.7 | $^{148}\text{Nd}(\text{d,t})^{147}\text{Nd}$ | 11.3 | $^{148}\text{Nd}^{35}\text{Cl}_2-^{144}\text{Nd}^{37}\text{Cl}_2$ |
| ^{148}Sm | 33.0 | $^{147}\text{Sm}(\text{n},\gamma)^{148}\text{Sm}$ | 26.4 | $^{150}\text{Sm}^{35}\text{Cl}-^{148}\text{Sm}^{37}\text{Cl}$ | 25.9 | $^{148}\text{Sm}(\alpha)^{144}\text{Nd}$ |
| ^{148}Eu | 51.4 | $^{148}\text{Eu}-^{133}\text{Cs}_{1.113}$ | 38.3 | $^{148}\text{Eu}-^{142}\text{Sm}_{1.042}$ | 10.4 | $^{148}\text{Eu}(\alpha)^{144}\text{Pm}$ |

Table II. Influences on primary nuclides (continued, Explanation of Table on page 030003-74)

| Nuclide | Infl. | Equation | Infl. | Equation | Infl. | Equation |
|---------------------|-------|---|-------|---|-------|---|
| ^{148}Gd | 96.4 | $^{148}\text{Gd}(\alpha)^{144}\text{Sm}$ | 2.4 | $^{148}\text{Gd}(\text{p,d})^{147}\text{Gd}-^{148}\text{Sm}()^{147}\text{Sm}$ | 0.9 | $^{148}\text{Gd}(\text{p,t})^{146}\text{Gd}-^{65}\text{Cu}()^{63}\text{Cu}$ |
| ^{148}Tb | 85.7 | $^{148}\text{Dy}(\beta^+)^{148}\text{Tb}$ | 9.7 | $^{148}\text{Tb}(\beta^+)^{148}\text{Gd}$ | 4.7 | $^{152}\text{Ho}(\alpha)^{148}\text{Tb}$ |
| ^{148}Dy | 79.0 | $^{148}\text{Dy}-^{133}\text{Cs}_{1.113}$ | 14.5 | $^{152}\text{Er}(\alpha)^{148}\text{Dy}$ | 6.4 | $^{148}\text{Dy}(\beta^+)^{148}\text{Tb}$ |
| ^{149}Pm | 86.7 | $^{149}\text{Pm}(\beta^-)^{149}\text{Sm}$ | 13.3 | $^{148}\text{Nd}({}^3\text{He,d})^{149}\text{Pm}$ | | |
| ^{149}Sm | 79.1 | $^{149}\text{Sm}(\text{n},\gamma)^{150}\text{Sm}$ | 10.0 | $^{148}\text{Sm}(\text{n},\gamma)^{149}\text{Sm}$ | 9.5 | $^{149}\text{Sm}^{35}\text{Cl}-^{147}\text{Sm}^{37}\text{Cl}$ |
| ^{149}Eu | 56.1 | $^{151}\text{Eu}(\text{p,t})^{149}\text{Eu}$ | 29.8 | $^{149}\text{Gd}(\epsilon)^{149}\text{Eu}$ | 14.1 | $^{149}\text{Eu}(\epsilon)^{149}\text{Sm}$ |
| ^{149}Gd | 52.9 | $^{149}\text{Gd}(\alpha)^{145}\text{Sm}$ | 21.1 | $^{153}\text{Dy}(\alpha)^{149}\text{Gd}$ | 17.8 | $^{149}\text{Gd}(\epsilon)^{149}\text{Eu}$ |
| ^{149}Tb | 85.8 | $^{149}\text{Tb}(\alpha)^{145}\text{Eu}$ | 10.5 | $^{149}\text{Tb}(\beta^+)^{149}\text{Gd}$ | 3.7 | $^{149}\text{Dy}(\beta^+)^{149}\text{Tb}$ |
| ^{149}Dy | 46.0 | $^{149}\text{Dy}(\beta^+)^{149}\text{Tb}$ | 36.1 | $^{149}\text{Dy}-^{142}\text{Sm}_{1.049}$ | 15.3 | $^{149}\text{Ho}(\beta^+)^{149}\text{Dy}$ |
| ^{149}Ho | 53.4 | $^{153}\text{Tm}(\alpha)^{149}\text{Ho}$ | 32.3 | $^{149}\text{Ho}(\beta^+)^{149}\text{Dy}$ | 14.3 | $^{149}\text{Ho}-\text{u}$ |
| ^{150}Ce | 91.9 | $^{150}\text{Ce}-\text{u}$ | 8.1 | $^{150}\text{Ce}(\beta^-)^{150}\text{Pr}$ | | |
| ^{150}Pr | 83.4 | $^{150}\text{Pr}-\text{u}$ | 12.0 | $^{150}\text{Pr}(\beta^-)^{150}\text{Nd}$ | 4.6 | $^{150}\text{Ce}(\beta^-)^{150}\text{Pr}$ |
| ^{150}Nd | 99.5 | $^{150}\text{Nd}-^{150}\text{Sm}$ | 0.2 | $^{150}\text{Nd}(\text{n},\gamma)^{151}\text{Nd}$ | 0.2 | $^{150}\text{Pr}(\beta^-)^{150}\text{Nd}$ |
| ^{150}Sm | 61.7 | $^{150}\text{Sm}(\text{n},\gamma)^{151}\text{Sm}$ | 16.1 | $^{149}\text{Sm}(\text{n},\gamma)^{150}\text{Sm}$ | 14.1 | $^{150}\text{Sm}^{35}\text{Cl}-^{148}\text{Sm}^{37}\text{Cl}$ |
| ^{150}Eu | 53.4 | $^{150}\text{Eu}(\beta^-)^{150}\text{Gd}$ | 46.6 | $^{151}\text{Eu}(\text{p,d})^{150}\text{Eu}$ | | |
| ^{150}Gd | 39.4 | $^{150}\text{Gd}(\alpha)^{146}\text{Sm}$ | 37.6 | $^{150}\text{Eu}(\beta^-)^{150}\text{Gd}$ | 11.7 | $^{150}\text{Tb}(\beta^+)^{150}\text{Gd}$ |
| ^{150}Tb | 80.5 | $^{150}\text{Tb}(\alpha)^{146}\text{Eu}$ | 19.5 | $^{150}\text{Tb}(\beta^+)^{150}\text{Gd}$ | | |
| $^{150}\text{Tb}^m$ | 89.2 | $^{150}\text{Tb}^m-\text{u}$ | 10.8 | $^{154}\text{Ho}^m(\alpha)^{150}\text{Tb}^m$ | | |
| ^{150}Dy | 92.0 | $^{150}\text{Dy}(\alpha)^{146}\text{Gd}$ | 6.2 | $^{154}\text{Er}(\alpha)^{150}\text{Dy}$ | 1.9 | $^{150}\text{Ho}(\epsilon)^{150}\text{Dy}$ |
| ^{150}Ho | 53.2 | $^{150}\text{Ho}-^{133}\text{Cs}_{1.128}$ | 26.8 | $^{150}\text{Ho}(\epsilon)^{150}\text{Dy}$ | 20.0 | $^{150}\text{Er}(\beta^+)^{150}\text{Ho}$ |
| ^{150}Er | 62.1 | $^{150}\text{Er}(\beta^+)^{150}\text{Ho}$ | 37.9 | $^{150}\text{Er}-\text{u}$ | | |
| ^{151}Pr | 76.5 | $^{151}\text{Pr}-\text{u}$ | 23.5 | $^{151}\text{Pr}(\beta^-)^{151}\text{Nd}$ | | |
| ^{151}Nd | 99.8 | $^{150}\text{Nd}(\text{n},\gamma)^{151}\text{Nd}$ | 0.2 | $^{151}\text{Pr}(\beta^-)^{151}\text{Nd}$ | | |
| ^{151}Pm | 80.0 | $^{150}\text{Nd}({}^3\text{He,d})^{151}\text{Pm}$ | 20.0 | $^{151}\text{Pm}(\beta^-)^{151}\text{Sm}$ | | |
| ^{151}Sm | 40.8 | $^{151}\text{Sm}(\text{n},\gamma)^{152}\text{Sm}$ | 37.8 | $^{150}\text{Sm}(\text{n},\gamma)^{151}\text{Sm}$ | 21.4 | $^{151}\text{Sm}(\beta^-)^{151}\text{Eu}$ |
| ^{151}Eu | 58.9 | $^{151}\text{Sm}(\beta^-)^{151}\text{Eu}$ | 39.1 | $^{151}\text{Eu}(\text{n},\gamma)^{152}\text{Eu}$ | 0.8 | $^{151}\text{Gd}(\epsilon)^{151}\text{Eu}$ |
| ^{151}Gd | 85.0 | $^{151}\text{Gd}(\epsilon)^{151}\text{Eu}$ | 15.0 | $^{151}\text{Tb}(\beta^+)^{151}\text{Gd}$ | | |
| ^{151}Tb | 51.5 | $^{151}\text{Tb}(\beta^+)^{151}\text{Gd}$ | 48.5 | $^{151}\text{Tb}(\alpha)^{147}\text{Eu}$ | | |
| ^{152}Nd | 66.4 | $^{150}\text{Nd}(\text{t,p})^{152}\text{Nd}$ | 33.6 | $^{152}\text{Nd}(\beta^-)^{152}\text{Pm}$ | | |
| ^{152}Pm | 51.4 | $^{152}\text{Nd}(\beta^-)^{152}\text{Pm}$ | 48.6 | $^{152}\text{Pm}(\beta^-)^{152}\text{Sm}$ | | |
| ^{152}Sm | 71.9 | $^{152}\text{Gd}-^{152}\text{Sm}$ | 17.0 | $^{151}\text{Sm}(\text{n},\gamma)^{152}\text{Sm}$ | 6.3 | $^{152}\text{Eu}(\beta^+)^{152}\text{Sm}$ |
| ^{152}Eu | 60.4 | $^{151}\text{Eu}(\text{n},\gamma)^{152}\text{Eu}$ | 26.5 | $^{152}\text{Eu}(\beta^+)^{152}\text{Sm}$ | 13.1 | $^{152}\text{Eu}(\text{n},\gamma)^{153}\text{Eu}$ |
| ^{152}Gd | 73.6 | $^{152}\text{Gd}(\text{n},\gamma)^{153}\text{Gd}$ | 26.4 | $^{152}\text{Gd}-^{152}\text{Sm}$ | | |
| ^{152}Ho | 95.3 | $^{152}\text{Ho}(\alpha)^{148}\text{Tb}$ | 4.7 | $^{156}\text{Tm}(\alpha)^{152}\text{Ho}$ | | |
| ^{152}Er | 85.0 | $^{152}\text{Er}(\alpha)^{148}\text{Dy}$ | 15.0 | $^{156}\text{Yb}(\alpha)^{152}\text{Er}$ | | |
| ^{152}Tm | 100.0 | $^{152}\text{Tm}-\text{u}$ | | | | |
| ^{152}Yb | 100.0 | $^{152}\text{Yb}(\beta^+)^{152}\text{Tm}$ | | | | |
| ^{153}Pr | 79.7 | $^{153}\text{Pr}-\text{u}$ | 10.2 | $^{153}\text{Pr}-^{86}\text{Kr}_{1.779}$ | 10.2 | $^{153}\text{Pr}-^{80}\text{Kr}_{1.913}$ |
| ^{153}Nd | 35.9 | $^{153}\text{Nd}-^{80}\text{Kr}_{1.913}$ | 32.2 | $^{153}\text{Nd}-\text{u}$ | 31.0 | $^{153}\text{Nd}-^{86}\text{Kr}_{1.779}$ |
| ^{153}Pm | 33.4 | $^{154}\text{Sm}(\text{d},{}^3\text{He})^{153}\text{Pm}$ | 17.9 | $^{153}\text{Pm}-\text{u}$ | 17.9 | $^{153}\text{Pm}-^{86}\text{Kr}_{1.779}$ |
| ^{153}Eu | 86.5 | $^{152}\text{Eu}(\text{n},\gamma)^{153}\text{Eu}$ | 13.5 | $^{153}\text{Eu}(\text{n},\gamma)^{154}\text{Eu}$ | | |
| ^{153}Gd | 74.0 | $^{153}\text{Gd}(\text{n},\gamma)^{154}\text{Gd}$ | 25.4 | $^{152}\text{Gd}(\text{n},\gamma)^{153}\text{Gd}$ | 0.5 | $^{153}\text{Tb}(\beta^+)^{153}\text{Gd}$ |
| ^{153}Tb | 58.6 | $^{153}\text{Tb}(\beta^+)^{153}\text{Gd}$ | 41.4 | $^{153}\text{Dy}(\beta^+)^{153}\text{Tb}$ | | |
| ^{153}Dy | 52.1 | $^{153}\text{Dy}(\beta^+)^{153}\text{Tb}$ | 47.9 | $^{153}\text{Dy}(\alpha)^{149}\text{Gd}$ | | |
| ^{153}Er | 97.3 | $^{153}\text{Er}(\alpha)^{149}\text{Dy}$ | 2.7 | $^{157}\text{Yb}(\alpha)^{153}\text{Er}$ | | |
| ^{153}Tm | 53.8 | $^{157}\text{Lu}^m(\alpha)^{153}\text{Tm}$ | 46.2 | $^{153}\text{Tm}(\alpha)^{149}\text{Ho}$ | | |
| ^{154}Sm | 78.5 | $^{154}\text{Sm}^{35}\text{Cl}-^{152}\text{Sm}^{37}\text{Cl}$ | 20.8 | $^{154}\text{Sm}-^{154}\text{Gd}$ | 0.6 | $^{154}\text{Sm}(\text{d},{}^3\text{He})^{153}\text{Pm}$ |
| ^{154}Eu | 85.2 | $^{153}\text{Eu}(\text{n},\gamma)^{154}\text{Eu}$ | 11.9 | $^{154}\text{Eu}(\beta^-)^{154}\text{Gd}$ | 2.1 | $^{154}\text{Eu}(\text{n},\gamma)^{155}\text{Eu}$ |
| ^{154}Gd | 72.6 | $^{154}\text{Gd}(\text{n},\gamma)^{155}\text{Gd}$ | 24.4 | $^{153}\text{Gd}(\text{n},\gamma)^{154}\text{Gd}$ | 2.4 | $^{154}\text{Eu}(\beta^-)^{154}\text{Gd}$ |
| ^{154}Dy | 81.5 | $^{154}\text{Dy}(\alpha)^{150}\text{Gd}$ | 17.7 | $^{154}\text{Dy}-^{133}\text{Cs}_{1.158}$ | 0.8 | $^{154}\text{Ho}^m(\beta^+)^{154}\text{Dy}$ |
| $^{154}\text{Ho}^m$ | 88.9 | $^{154}\text{Ho}^m(\alpha)^{150}\text{Tb}^m$ | 11.1 | $^{154}\text{Ho}^m(\beta^+)^{154}\text{Dy}$ | | |
| ^{154}Er | 91.6 | $^{154}\text{Er}(\alpha)^{150}\text{Dy}$ | 8.4 | $^{158}\text{Yb}(\alpha)^{154}\text{Er}$ | | |

Table II. Influences on primary nuclides (continued, Explanation of Table on page 030003-74)

| Nuclide | Infl. | Equation | Infl. | Equation | Infl. | Equation |
|------------------------------|-------|--|-------|--|-------|--|
| ^{154}Yb | 100.0 | $^{154}\text{Yb}(\alpha)^{150}\text{Er}$ | | | | |
| ^{155}Pr | 35.5 | $^{155}\text{Pr}-\text{u}$ | 33.3 | $^{155}\text{Pr}-^{86}\text{Kr}_{1.802}$ | 31.2 | $^{155}\text{Pr}-^{80}\text{Kr}_{1.938}$ |
| ^{155}Nd | 33.4 | $^{155}\text{Nd}-\text{u}$ | 33.4 | $^{155}\text{Nd}-^{86}\text{Kr}_{1.802}$ | 33.2 | $^{155}\text{Nd}-^{80}\text{Kr}_{1.938}$ |
| ^{155}Pm | 33.7 | $^{155}\text{Pm}-^{80}\text{Kr}_{1.938}$ | 33.1 | $^{155}\text{Pm}-\text{u}$ | 33.1 | $^{155}\text{Pm}-^{86}\text{Kr}_{1.802}$ |
| ^{155}Eu | 97.7 | $^{154}\text{Eu}(\text{n},\gamma)^{155}\text{Eu}$ | 2.3 | $^{158}\text{Gd}(\text{t},\alpha)^{157}\text{Eu}-^{156}\text{Gd}()^{155}\text{Eu}$ | | |
| ^{155}Gd | 58.6 | $^{155}\text{Gd}(\text{n},\gamma)^{156}\text{Gd}$ | 26.8 | $^{154}\text{Gd}(\text{n},\gamma)^{155}\text{Gd}$ | 10.7 | $^{155}\text{Gd O}-\text{C}_{15}$ |
| ^{155}Dy | 92.1 | $^{156}\text{Dy}(\text{d},\text{t})^{155}\text{Dy}$ | 7.9 | $^{155}\text{Ho}(\beta^+)^{155}\text{Dy}$ | | |
| ^{155}Ho | 60.9 | $^{155}\text{Ho}(\beta^+)^{155}\text{Dy}$ | 39.1 | $^{155}\text{Ho}-\text{u}$ | | |
| ^{156}Pm | 35.2 | $^{156}\text{Pm}-^{80}\text{Kr}_{1.950}$ | 32.9 | $^{156}\text{Pm}-^{86}\text{Kr}_{1.814}$ | 31.9 | $^{156}\text{Pm}-\text{u}$ |
| ^{156}Sm | 88.5 | $^{156}\text{Sm}(\beta^-)^{156}\text{Eu}$ | 11.5 | $^{154}\text{Sm}(\text{t},\text{p})^{156}\text{Sm}$ | | |
| ^{156}Eu | 70.1 | $^{154}\text{Eu}(\text{t},\text{p})^{156}\text{Eu}$ | 28.2 | $^{156}\text{Eu}(\beta^-)^{156}\text{Gd}$ | 1.7 | $^{156}\text{Sm}(\beta^-)^{156}\text{Eu}$ |
| ^{156}Gd | 56.6 | $^{156}\text{Gd}(\text{n},\gamma)^{157}\text{Gd}$ | 41.2 | $^{155}\text{Gd}(\text{n},\gamma)^{156}\text{Gd}$ | 8.1 | $^{156}\text{Dy}-^{156}\text{Gd}$ |
| ^{156}Tb | 100.0 | $^{155}\text{Gd}(\alpha,\text{t})^{156}\text{Tb}-^{158}\text{Gd}()^{159}\text{Tb}$ | | | | |
| ^{156}Dy | 91.9 | $^{156}\text{Dy}-^{156}\text{Gd}$ | 7.1 | $^{156}\text{Dy}-^{133}\text{Cs}_{1.173}$ | 0.9 | $^{156}\text{Dy}(\text{d},\text{p})^{157}\text{Dy}$ |
| ^{156}Er | 77.7 | $^{156}\text{Er}-\text{u}$ | 22.3 | $^{156}\text{Tm}(\beta^+)^{156}\text{Er}$ | | |
| ^{156}Tm | 93.8 | $^{156}\text{Tm}(\alpha)^{152}\text{Ho}$ | 6.2 | $^{156}\text{Tm}(\beta^+)^{156}\text{Er}$ | | |
| ^{156}Yb | 82.9 | $^{156}\text{Yb}(\alpha)^{152}\text{Er}$ | 17.1 | $^{160}\text{Hf}(\alpha)^{156}\text{Yb}$ | | |
| ^{156}Hf | 100.0 | $^{156}\text{Hf}(\alpha)^{152}\text{Yb}$ | | | | |
| ^{157}Nd | 33.8 | $^{157}\text{Nd}-^{86}\text{Kr}_{1.826}$ | 33.8 | $^{157}\text{Nd}-^{80}\text{Kr}_{1.963}$ | 32.4 | $^{157}\text{Nd}-\text{u}$ |
| ^{157}Pm | 33.5 | $^{157}\text{Pm}-\text{u}$ | 33.5 | $^{157}\text{Pm}-^{86}\text{Kr}_{1.826}$ | 33.1 | $^{157}\text{Pm}-^{80}\text{Kr}_{1.963}$ |
| ^{157}Sm | 34.2 | $^{157}\text{Sm}-^{80}\text{Kr}_{1.963}$ | 32.9 | $^{157}\text{Sm}-\text{u}$ | 32.9 | $^{157}\text{Sm}-^{86}\text{Kr}_{1.826}$ |
| ^{157}Eu | 67.0 | $^{158}\text{Gd}(\text{t},\alpha)^{157}\text{Eu}-^{156}\text{Gd}()^{155}\text{Eu}$ | 33.0 | $^{160}\text{Gd}(\text{t},\alpha)^{159}\text{Eu}-^{158}\text{Gd}()^{157}\text{Eu}$ | | |
| ^{157}Gd | 42.1 | $^{156}\text{Gd}(\text{n},\gamma)^{157}\text{Gd}$ | 41.5 | $^{157}\text{Gd}(\text{n},\gamma)^{158}\text{Gd}$ | 10.1 | $^{159}\text{Tb }^{35}\text{Cl}-^{157}\text{Gd }^{37}\text{Cl}$ |
| ^{157}Tb | 92.9 | $^{157}\text{Tb}(\epsilon)^{157}\text{Gd}$ | 7.1 | $^{156}\text{Gd}(\alpha,\text{t})^{157}\text{Tb}-^{158}\text{Gd}()^{159}\text{Tb}$ | | |
| ^{157}Dy | 51.6 | $^{156}\text{Dy}(\text{d},\text{p})^{157}\text{Dy}$ | 47.5 | $^{158}\text{Dy}(\text{d},\text{t})^{157}\text{Dy}$ | 0.8 | $^{157}\text{Ho}(\beta^+)^{157}\text{Dy}$ |
| ^{157}Ho | 70.5 | $^{157}\text{Ho}-\text{u}$ | 21.8 | $^{157}\text{Ho}(\beta^+)^{157}\text{Dy}$ | 7.7 | $^{157}\text{Er}(\beta^+)^{157}\text{Ho}$ |
| ^{157}Er | 90.0 | $^{157}\text{Er}-\text{u}$ | 10.0 | $^{157}\text{Er}(\beta^+)^{157}\text{Ho}$ | | |
| ^{157}Yb | 96.2 | $^{157}\text{Yb}(\alpha)^{153}\text{Er}$ | 3.8 | $^{161}\text{Hf}(\alpha)^{157}\text{Yb}$ | | |
| ^{157}Lu | 82.5 | $^{157}\text{Lu}^{\text{m}}(\text{IT})^{157}\text{Lu}$ | 17.5 | $^{157}\text{Lu}-\text{u}$ | | |
| $^{157}\text{Lu}^{\text{m}}$ | 45.5 | $^{157}\text{Lu}^{\text{m}}(\alpha)^{153}\text{Tm}$ | 37.4 | $^{161}\text{Ta}^{\text{m}}(\alpha)^{157}\text{Lu}^{\text{m}}$ | 17.1 | $^{157}\text{Lu}^{\text{m}}(\text{IT})^{157}\text{Lu}$ |
| ^{158}Pm | 33.4 | $^{158}\text{Pm}-\text{u}$ | 33.4 | $^{158}\text{Pm}-^{86}\text{Kr}_{1.837}$ | 33.3 | $^{158}\text{Pm}-^{80}\text{Kr}_{1.975}$ |
| ^{158}Sm | 32.4 | $^{158}\text{Sm}-^{80}\text{Kr}_{1.975}$ | 31.2 | $^{158}\text{Sm}-^{86}\text{Kr}_{1.837}$ | 30.6 | $^{158}\text{Sm}-\text{u}$ |
| ^{158}Eu | 41.9 | $^{158}\text{Sm}(\beta^-)^{158}\text{Eu}$ | 19.4 | $^{158}\text{Eu}-\text{u}$ | 19.4 | $^{158}\text{Eu}-^{86}\text{Kr}_{1.837}$ |
| ^{158}Gd | 58.1 | $^{157}\text{Gd}(\text{n},\gamma)^{158}\text{Gd}$ | 15.0 | $^{160}\text{Gd }^{35}\text{Cl}-^{158}\text{Gd }^{37}\text{Cl}$ | 11.6 | $^{160}\text{Gd}(\alpha,\text{t})^{161}\text{Tb}-^{158}\text{Gd}()^{159}\text{Tb}$ |
| ^{158}Tb | 39.5 | $^{157}\text{Gd}(\alpha,\text{t})^{158}\text{Tb}-^{158}\text{Gd}()^{159}\text{Tb}$ | 39.4 | $^{159}\text{Tb}(\text{d},\text{t})^{158}\text{Tb}-^{164}\text{Dy}()^{163}\text{Dy}$ | 17.5 | $^{158}\text{Gd}(\text{d},\text{t})^{157}\text{Gd}-^{159}\text{Tb}()^{158}\text{Tb}$ |
| ^{158}Dy | 63.7 | $^{160}\text{Dy}(\text{p},\text{t})^{158}\text{Dy}$ | 17.5 | $^{160}\text{Dy }^{35}\text{Cl}-^{158}\text{Dy }^{37}\text{Cl}$ | 13.7 | $^{158}\text{Tb}(\beta^-)^{158}\text{Dy}$ |
| ^{158}Er | 81.4 | $^{158}\text{Er}-\text{u}$ | 18.6 | $^{158}\text{Tm}(\beta^+)^{158}\text{Er}$ | | |
| ^{158}Tm | 81.4 | $^{158}\text{Tm}-\text{u}$ | 18.6 | $^{158}\text{Tm}(\beta^+)^{158}\text{Er}$ | | |
| ^{158}Yb | 71.3 | $^{158}\text{Yb}(\alpha)^{154}\text{Er}$ | 14.4 | $^{158}\text{Yb}-^{142}\text{Sm}_{1.113}$ | 14.3 | $^{162}\text{Hf}(\alpha)^{158}\text{Yb}$ |
| ^{158}Hf | 100.0 | $^{158}\text{Hf}(\alpha)^{154}\text{Yb}$ | | | | |
| ^{159}Pm | 35.8 | $^{159}\text{Pm}-\text{u}$ | 32.2 | $^{159}\text{Pm}-^{86}\text{Kr}_{1.849}$ | 32.0 | $^{159}\text{Pm}-^{80}\text{Kr}_{1.988}$ |
| ^{159}Sm | 33.5 | $^{159}\text{Sm}-\text{u}$ | 33.5 | $^{159}\text{Sm}-^{86}\text{Kr}_{1.849}$ | 32.9 | $^{159}\text{Sm}-^{80}\text{Kr}_{1.988}$ |
| ^{159}Eu | 35.8 | $^{160}\text{Gd}(\text{t},\alpha)^{159}\text{Eu}-^{158}\text{Gd}()^{157}\text{Eu}$ | 21.6 | $^{159}\text{Eu}-\text{u}$ | 21.6 | $^{159}\text{Eu}-^{86}\text{Kr}_{1.849}$ |
| ^{159}Gd | 90.7 | $^{158}\text{Gd}(\text{n},\gamma)^{159}\text{Gd}$ | 9.3 | $^{159}\text{Gd}(\beta^-)^{159}\text{Tb}$ | | |
| ^{159}Tb | 21.6 | $^{161}\text{Dy }^{35}\text{Cl}-^{159}\text{Tb }^{37}\text{Cl}$ | 18.2 | $^{159}\text{Tb }^{35}\text{Cl}-^{157}\text{Gd }^{37}\text{Cl}$ | 17.5 | $^{159}\text{Dy}(\epsilon)^{159}\text{Tb}$ |
| ^{159}Dy | 62.3 | $^{159}\text{Dy}(\epsilon)^{159}\text{Tb}$ | 37.7 | $^{161}\text{Dy}(\text{p},\text{t})^{159}\text{Dy}$ | | |
| ^{160}Sm | 33.5 | $^{160}\text{Sm}-\text{u}$ | 33.5 | $^{160}\text{Sm}-^{86}\text{Kr}_{1.860}$ | 32.9 | $^{160}\text{Sm}-^{80}\text{Kr}_{2.000}$ |
| ^{160}Eu | 36.0 | $^{160}\text{Eu}-\text{u}$ | 32.1 | $^{160}\text{Eu}-^{86}\text{Kr}_{1.860}$ | 31.9 | $^{160}\text{Eu}-^{80}\text{Kr}_{2.000}$ |
| ^{160}Gd | 35.4 | $^{160}\text{Gd }^{35}\text{Cl}-^{158}\text{Gd }^{37}\text{Cl}$ | 35.2 | $^{160}\text{Gd}-^{160}\text{Dy}$ | 27.5 | $^{160}\text{Gd}(\alpha,\text{t})^{161}\text{Tb}-^{158}\text{Gd}()^{159}\text{Tb}$ |
| ^{160}Tb | 90.1 | $^{159}\text{Tb}(\text{n},\gamma)^{160}\text{Tb}$ | 9.9 | $^{160}\text{Tb}(\text{n},\gamma)^{161}\text{Tb}$ | | |
| ^{160}Dy | 94.1 | $^{160}\text{Dy}(\text{n},\gamma)^{161}\text{Dy}$ | 5.3 | $^{160}\text{Gd}-^{160}\text{Dy}$ | 0.5 | $^{160}\text{Dy}(\text{p},\text{t})^{158}\text{Dy}$ |
| ^{160}Er | 94.8 | $^{160}\text{Er}-\text{u}$ | 5.2 | $^{160}\text{Tm}(\beta^+)^{160}\text{Er}$ | | |

Table II. Influences on primary nuclides (continued, Explanation of Table on page 030003-74)

| Nuclide | Infl. | Equation | Infl. | Equation | Infl. | Equation |
|---------------------|-------|---|-------|---|-------|--|
| ^{160}Tm | 88.9 | $^{160}\text{Tm}-\text{u}$ | 11.1 | $^{160}\text{Tm}(\beta^+)^{160}\text{Er}$ | | |
| ^{160}Yb | 85.4 | $^{160}\text{Yb}-^{133}\text{Cs}_{1.203}$ | 14.6 | $^{160}\text{Yb}-^{142}\text{Sm}_{1.127}$ | | |
| ^{160}Hf | 81.8 | $^{160}\text{Hf}(\alpha)^{156}\text{Yb}$ | 18.2 | $^{164}\text{W}(\alpha)^{160}\text{Hf}$ | | |
| ^{160}W | 100.0 | $^{160}\text{W}(\alpha)^{156}\text{Hf}$ | | | | |
| ^{161}Sm | 36.6 | $^{161}\text{Sm}-^{80}\text{Kr}_{2.013}$ | 31.7 | $^{161}\text{Sm}-\text{u}$ | 31.7 | $^{161}\text{Sm}-^{86}\text{Kr}_{1.872}$ |
| ^{161}Eu | 34.5 | $^{161}\text{Eu}-\text{u}$ | 34.3 | $^{161}\text{Eu}-^{80}\text{Kr}_{2.013}$ | 31.2 | $^{161}\text{Eu}-^{86}\text{Kr}_{1.872}$ |
| ^{161}Tb | 74.2 | $^{160}\text{Tb}(\text{n},\gamma)^{161}\text{Tb}$ | 25.8 | $^{160}\text{Gd}(\alpha,\text{t})^{161}\text{Tb}-^{158}\text{Gd}()^{159}\text{Tb}$ | | |
| ^{161}Dy | 88.0 | $^{161}\text{Dy}(\text{n},\gamma)^{162}\text{Dy}$ | 5.8 | $^{160}\text{Dy}(\text{n},\gamma)^{161}\text{Dy}$ | 3.4 | $^{161}\text{Dy } ^{35}\text{Cl}-^{159}\text{Tb } ^{37}\text{Cl}$ |
| ^{161}Ho | 100.0 | $^{160}\text{Dy}({}^3\text{He},\text{d})^{161}\text{Ho}-^{164}\text{Dy}()^{165}\text{Ho}$ | | | | |
| ^{161}Hf | 65.1 | $^{161}\text{Hf}-\text{u}$ | 19.4 | $^{161}\text{Hf}(\alpha)^{157}\text{Yb}$ | 15.5 | $^{165}\text{W}(\alpha)^{161}\text{Hf}$ |
| $^{161}\text{Ta}^m$ | 56.4 | $^{161}\text{Ta}^m(\alpha)^{157}\text{Lu}^m$ | 43.6 | $^{165}\text{Re}^m(\alpha)^{161}\text{Ta}^m$ | | |
| ^{161}Re | 79.2 | $^{161}\text{Re}(\text{p})^{160}\text{W}$ | 20.9 | $^{161}\text{Re}^m(\text{IT})^{161}\text{Re}$ | | |
| $^{161}\text{Re}^m$ | 78.1 | $^{161}\text{Re}^m(\text{IT})^{161}\text{Re}$ | 21.8 | $^{165}\text{Ir}^m(\alpha)^{161}\text{Re}^m$ | | |
| ^{162}Dy | 100.0 | $^{162}\text{Dy}(\text{n},\gamma)^{163}\text{Dy}$ | 12.0 | $^{161}\text{Dy}(\text{n},\gamma)^{162}\text{Dy}$ | | |
| ^{162}Ho | 100.0 | $^{161}\text{Dy}({}^3\text{He},\text{d})^{162}\text{Ho}-^{164}\text{Dy}()^{165}\text{Ho}$ | | | | |
| ^{162}Er | 99.9 | $^{162}\text{Er}-^{162}\text{Dy}$ | 0.1 | $^{162}\text{Er}(\text{d},\text{p})^{163}\text{Er}$ | | |
| ^{162}Hf | 80.9 | $^{162}\text{Hf}(\alpha)^{158}\text{Yb}$ | 19.1 | $^{166}\text{W}(\alpha)^{162}\text{Hf}$ | | |
| ^{162}W | 100.0 | $^{162}\text{W}(\alpha)^{158}\text{Hf}$ | | | | |
| ^{163}Gd | 36.4 | $^{163}\text{Gd}-^{86}\text{Kr}_{1.895}$ | 32.0 | $^{163}\text{Gd}-\text{u}$ | 31.7 | $^{163}\text{Gd}-^{80}\text{Kr}_{2.038}$ |
| ^{163}Dy | 40.5 | $^{163}\text{Dy O}-\text{C}_{15}$ | 30.8 | $^{163}\text{Ho}(\epsilon)^{163}\text{Dy}$ | 15.8 | $^{163}\text{Dy}(\text{n},\gamma)^{164}\text{Dy}$ |
| ^{163}Ho | 38.6 | $^{163}\text{Ho}(\epsilon)^{163}\text{Dy}$ | 31.9 | $^{163}\text{Ho O}-\text{C}_{15}$ | 17.0 | $^{163}\text{Ho}-^{163}\text{Dy}$ |
| ^{163}Er | 58.2 | $^{163}\text{Er}(\beta^+)^{163}\text{Ho}$ | 20.9 | $^{164}\text{Er}(\text{d},\text{t})^{163}\text{Er}$ | 20.9 | $^{162}\text{Er}(\text{d},\text{p})^{163}\text{Er}$ |
| ^{163}Hf | 78.6 | $^{163}\text{Hf}-\text{u}$ | 21.4 | $^{167}\text{W}(\alpha)^{163}\text{Hf}$ | | |
| ^{164}Dy | 83.7 | $^{163}\text{Dy}(\text{n},\gamma)^{164}\text{Dy}$ | 12.6 | $^{162}\text{Dy}({}^3\text{He},\text{d})^{163}\text{Ho}-^{164}\text{Dy}()^{165}\text{Ho}$ | 3.1 | $^{158}\text{Gd}(\alpha,\text{t})^{159}\text{Tb}-^{164}\text{Dy}()^{165}\text{Ho}$ |
| ^{164}Ho | 67.1 | $^{163}\text{Dy}({}^3\text{He},\text{d})^{164}\text{Ho}-^{164}\text{Dy}()^{165}\text{Ho}$ | 32.9 | $^{165}\text{Ho}(\gamma,\text{n})^{164}\text{Ho}$ | | |
| ^{164}Er | 100.0 | $^{164}\text{Er}-^{164}\text{Dy}$ | 2.6 | $^{164}\text{Er}(\text{n},\gamma)^{165}\text{Er}$ | | |
| ^{164}Tm | 76.2 | $^{164}\text{Tm}-\text{u}$ | 23.8 | $^{164}\text{Tm}(\beta^+)^{164}\text{Er}$ | | |
| ^{164}Hf | 68.0 | $^{168}\text{W}(\alpha)^{164}\text{Hf}$ | 32.0 | $^{164}\text{Hf}-\text{u}$ | | |
| ^{164}W | 81.2 | $^{164}\text{W}(\alpha)^{160}\text{Hf}$ | 18.8 | $^{168}\text{Os}(\alpha)^{164}\text{W}$ | | |
| ^{164}Os | 80.0 | $^{164}\text{Os}(\alpha)^{160}\text{W}$ | 20.0 | $^{165}\text{Ir}^m(\text{p})^{164}\text{Os}$ | | |
| ^{165}Ho | 55.6 | $^{162}\text{Dy}({}^3\text{He},\text{d})^{163}\text{Ho}-^{164}\text{Dy}()^{165}\text{Ho}$ | 23.4 | $^{165}\text{Ho}(\text{n},\gamma)^{166}\text{Ho}$ | 11.4 | $^{169}\text{Tm } ^{35}\text{Cl}_2-^{165}\text{Ho } ^{37}\text{Cl}_2$ |
| ^{165}Er | 93.7 | $^{164}\text{Er}(\text{n},\gamma)^{165}\text{Er}$ | 6.3 | $^{165}\text{Tm}(\beta^+)^{165}\text{Er}$ | | |
| ^{165}Tm | 52.8 | $^{165}\text{Tm}(\beta^+)^{165}\text{Er}$ | 47.2 | $^{164}\text{Er}(\alpha,\text{t})^{165}\text{Tm}-^{168}\text{Er}()^{169}\text{Tm}$ | | |
| ^{165}Yb | 90.2 | $^{165}\text{Yb}-\text{u}$ | 9.8 | $^{165}\text{Lu}(\beta^+)^{165}\text{Yb}$ | | |
| ^{165}Lu | 90.2 | $^{165}\text{Lu}-\text{u}$ | 9.8 | $^{165}\text{Lu}(\beta^+)^{165}\text{Yb}$ | | |
| ^{165}Ta | 75.4 | $^{169}\text{Re}^m(\alpha)^{165}\text{Ta}$ | 24.6 | $^{165}\text{Ta}-\text{u}$ | | |
| ^{165}W | 79.9 | $^{165}\text{W}-\text{u}$ | 20.1 | $^{165}\text{W}(\alpha)^{161}\text{Hf}$ | | |
| $^{165}\text{Re}^m$ | 55.1 | $^{165}\text{Re}^m(\alpha)^{161}\text{Ta}^m$ | 44.9 | $^{169}\text{Ir}^m(\alpha)^{165}\text{Re}^m$ | | |
| $^{165}\text{Ir}^m$ | 51.6 | $^{165}\text{Ir}^m(\text{p})^{164}\text{Os}$ | 48.4 | $^{165}\text{Ir}^m(\alpha)^{161}\text{Re}^m$ | | |
| ^{166}Ho | 76.5 | $^{165}\text{Ho}(\text{n},\gamma)^{166}\text{Ho}$ | 23.4 | $^{166}\text{Ho}(\beta^-)^{166}\text{Er}$ | | |
| ^{166}Er | 54.4 | $^{166}\text{Ho}(\beta^-)^{166}\text{Er}$ | 46.2 | $^{166}\text{Er}(\text{n},\gamma)^{167}\text{Er}$ | | |
| ^{166}W | 77.8 | $^{166}\text{W}(\alpha)^{162}\text{Hf}$ | 11.5 | $^{166}\text{W}-\text{u}$ | 10.7 | $^{170}\text{Os}(\alpha)^{166}\text{W}$ |
| ^{166}Os | 100.0 | $^{166}\text{Os}(\alpha)^{162}\text{W}$ | | | | |
| ^{167}Er | 53.1 | $^{166}\text{Er}(\text{n},\gamma)^{167}\text{Er}$ | 32.3 | $^{167}\text{Er}(\text{n},\gamma)^{168}\text{Er}$ | 14.6 | $^{169}\text{Tm } ^{35}\text{Cl}-^{167}\text{Er } ^{37}\text{Cl}$ |
| ^{167}Tm | 99.2 | $^{166}\text{Er}(\alpha,\text{t})^{167}\text{Tm}-^{168}\text{Er}()^{169}\text{Tm}$ | 0.8 | $^{167}\text{Yb}(\beta^+)^{167}\text{Tm}$ | | |
| ^{167}Yb | 89.3 | $^{167}\text{Yb}(\beta^+)^{167}\text{Tm}$ | 10.7 | $^{168}\text{Yb}(\text{d},\text{t})^{167}\text{Yb}$ | | |
| ^{167}W | 89.8 | $^{171}\text{Os}(\alpha)^{167}\text{W}$ | 10.2 | $^{167}\text{W}(\alpha)^{163}\text{Hf}$ | | |
| ^{167}Ir | 76.6 | $^{167}\text{Ir}(\text{p})^{166}\text{Os}$ | 23.4 | $^{167}\text{Ir}^m(\text{IT})^{167}\text{Ir}$ | | |
| $^{167}\text{Ir}^m$ | 70.3 | $^{167}\text{Ir}^m(\text{IT})^{167}\text{Ir}$ | 29.7 | $^{171}\text{Au}^m(\alpha)^{167}\text{Ir}^m$ | | |
| ^{168}Er | 67.4 | $^{167}\text{Er}(\text{n},\gamma)^{168}\text{Er}$ | 16.7 | $^{170}\text{Er}(\alpha,\text{t})^{171}\text{Tm}-^{168}\text{Er}()^{169}\text{Tm}$ | 11.5 | $^{164}\text{Er}(\alpha,\text{t})^{165}\text{Tm}-^{168}\text{Er}()^{169}\text{Tm}$ |
| ^{168}Tm | 100.0 | $^{167}\text{Er}(\alpha,\text{t})^{168}\text{Tm}-^{168}\text{Er}()^{169}\text{Tm}$ | | | | |
| ^{168}Yb | 99.3 | $^{168}\text{Yb}-^{168}\text{Er}$ | 0.7 | $^{168}\text{Yb}(\text{d},\text{t})^{167}\text{Yb}$ | | |

Table II. Influences on primary nuclides (continued, Explanation of Table on page 030003-74)

| Nuclide | Infl. | Equation | Infl. | Equation | Infl. | Equation |
|---------------------|-------|--|-------|--|-------|--|
| ^{168}W | 58.5 | $^{172}\text{Os}(\alpha)^{168}\text{W}$ | 22.6 | $^{168}\text{W}-\text{u}$ | 18.9 | $^{168}\text{W}(\alpha)^{164}\text{Hf}$ |
| ^{168}Os | 80.0 | $^{168}\text{Os}(\alpha)^{164}\text{W}$ | 20.0 | $^{172}\text{Pt}(\alpha)^{168}\text{Os}$ | | |
| ^{169}Tm | 79.5 | $^{169}\text{Tm}(\text{n},\gamma)^{170}\text{Tm}$ | 7.6 | $^{170}\text{Er}(\alpha,\text{t})^{171}\text{Tm}-^{168}\text{Er}()^{169}\text{Tm}$ | 5.9 | $^{169}\text{Tm}^{35}\text{Cl}_2-^{165}\text{Ho}^{37}\text{Cl}_2$ |
| ^{169}W | 69.5 | $^{173}\text{Os}(\alpha)^{169}\text{W}$ | 30.5 | $^{169}\text{W}-\text{u}$ | | |
| $^{169}\text{Re}^m$ | 76.3 | $^{173}\text{Ir}(\alpha)^{169}\text{Re}^m$ | 23.7 | $^{169}\text{Re}^m(\alpha)^{165}\text{Ta}$ | | |
| $^{169}\text{Ir}^m$ | 53.7 | $^{169}\text{Ir}^m(\alpha)^{165}\text{Re}^m$ | 46.3 | $^{173}\text{Au}^m(\alpha)^{169}\text{Ir}^m$ | | |
| ^{170}Er | 53.1 | $^{170}\text{Er}(\alpha,\text{t})^{171}\text{Tm}-^{168}\text{Er}()^{169}\text{Tm}$ | 36.3 | $^{170}\text{Er}(\text{n},\gamma)^{171}\text{Er}$ | 8.9 | $^{170}\text{Er}^{35}\text{Cl}-^{168}\text{Er}^{37}\text{Cl}$ |
| ^{170}Tm | 80.2 | $^{170}\text{Tm}(\beta^-)^{170}\text{Yb}$ | 19.8 | $^{169}\text{Tm}(\text{n},\gamma)^{170}\text{Tm}$ | | |
| ^{170}Yb | 52.6 | $^{170}\text{Yb}-^{129}\text{Xe}_{1.318}$ | 47.4 | $^{170}\text{Yb}-^{132}\text{Xe}_{1.288}$ | | |
| ^{170}W | 77.7 | $^{174}\text{Os}(\alpha)^{170}\text{W}$ | 22.3 | $^{170}\text{W}-\text{u}$ | | |
| ^{170}Re | 80.3 | $^{170}\text{Re}-\text{u}$ | 19.7 | $^{174}\text{Ir}(\alpha)^{170}\text{Re}$ | | |
| ^{170}Os | 88.5 | $^{170}\text{Os}(\alpha)^{166}\text{W}$ | 11.5 | $^{170}\text{Os}-\text{u}$ | | |
| ^{170}Pt | 84.4 | $^{170}\text{Pt}(\alpha)^{166}\text{Os}$ | 15.6 | $^{171}\text{Au}^m(\text{p})^{170}\text{Pt}$ | | |
| ^{171}Er | 61.8 | $^{170}\text{Er}(\text{n},\gamma)^{171}\text{Er}$ | 38.2 | $^{171}\text{Er}(\beta^-)^{171}\text{Tm}$ | | |
| ^{171}Tm | 94.4 | $^{171}\text{Tm}(\beta^-)^{171}\text{Yb}$ | 4.3 | $^{170}\text{Er}(\alpha,\text{t})^{171}\text{Tm}-^{168}\text{Er}()^{169}\text{Tm}$ | 1.2 | $^{171}\text{Er}(\beta^-)^{171}\text{Tm}$ |
| ^{171}Yb | 100.0 | $^{171}\text{Yb}-^{129}\text{Xe}_{1.326}$ | | | | |
| ^{171}Lu | 61.5 | $^{170}\text{Yb}(\alpha,\text{t})^{171}\text{Lu}-^{174}\text{Yb}()^{175}\text{Lu}$ | 38.5 | $^{171}\text{Lu}(\beta^+)^{171}\text{Yb}$ | | |
| ^{171}Os | 81.4 | $^{171}\text{Os}-\text{u}$ | 9.6 | $^{171}\text{Os}(\alpha)^{167}\text{W}$ | 9.0 | $^{175}\text{Pt}(\alpha)^{171}\text{Os}$ |
| $^{171}\text{Au}^m$ | 61.0 | $^{171}\text{Au}^m(\text{p})^{170}\text{Pt}$ | 39.0 | $^{171}\text{Au}^m(\alpha)^{167}\text{Ir}^m$ | | |
| ^{172}Er | 87.1 | $^{170}\text{Er}(\text{t},\text{p})^{172}\text{Er}$ | 12.9 | $^{172}\text{Er}(\beta^-)^{172}\text{Tm}$ | | |
| ^{172}Tm | 69.7 | $^{172}\text{Er}(\beta^-)^{172}\text{Tm}$ | 30.3 | $^{172}\text{Tm}(\beta^-)^{172}\text{Yb}$ | | |
| ^{172}Yb | 100.0 | $^{172}\text{Yb}-^{132}\text{Xe}_{1.303}$ | | | | |
| ^{172}Lu | 100.0 | $^{171}\text{Yb}(\alpha,\text{t})^{172}\text{Lu}-^{174}\text{Yb}()^{175}\text{Lu}$ | | | | |
| ^{172}Re | 54.4 | $^{176}\text{Ir}(\alpha)^{172}\text{Re}$ | 45.6 | $^{172}\text{Re}-\text{u}$ | | |
| ^{172}Os | 65.8 | $^{176}\text{Pt}(\alpha)^{172}\text{Os}$ | 34.2 | $^{172}\text{Os}(\alpha)^{168}\text{W}$ | | |
| ^{172}Pt | 77.2 | $^{172}\text{Pt}(\alpha)^{168}\text{Os}$ | 22.8 | $^{176}\text{Hg}(\alpha)^{172}\text{Pt}$ | | |
| ^{173}Yb | 55.8 | $^{173}\text{Yb}-^{129}\text{Xe}_{1.341}$ | 44.2 | $^{173}\text{Yb}-^{132}\text{Xe}_{1.311}$ | | |
| ^{173}Lu | 100.0 | $^{172}\text{Yb}(\alpha,\text{t})^{173}\text{Lu}-^{174}\text{Yb}()^{175}\text{Lu}$ | | | | |
| ^{173}Os | 43.9 | $^{177}\text{Pt}(\alpha)^{173}\text{Os}$ | 28.7 | $^{173}\text{Os}-\text{u}$ | 27.4 | $^{173}\text{Os}(\alpha)^{169}\text{W}$ |
| ^{173}Ir | 86.4 | $^{177}\text{Au}(\alpha)^{173}\text{Ir}$ | 13.6 | $^{173}\text{Ir}(\alpha)^{169}\text{Re}^m$ | | |
| $^{173}\text{Au}^m$ | 52.2 | $^{173}\text{Au}^m(\alpha)^{169}\text{Ir}^m$ | 47.8 | $^{177}\text{Tl}^m(\alpha)^{173}\text{Au}^m$ | | |
| ^{174}Yb | 68.3 | $^{174}\text{Yb}-^{129}\text{Xe}_{1.349}$ | 31.7 | $^{174}\text{Yb}-^{132}\text{Xe}_{1.318}$ | | |
| ^{174}Lu | 100.0 | $^{173}\text{Yb}(\alpha,\text{t})^{174}\text{Lu}-^{174}\text{Yb}()^{175}\text{Lu}$ | | | | |
| ^{174}Hf | 74.2 | $^{176}\text{Hf}^{35}\text{Cl}-^{174}\text{Hf}^{37}\text{Cl}$ | 13.8 | $^{174}\text{Hf}(\text{n},\gamma)^{175}\text{Hf}$ | 11.9 | $^{176}\text{Hf}(\text{p},\text{t})^{174}\text{Hf}$ |
| ^{174}Os | 74.7 | $^{178}\text{Pt}(\alpha)^{174}\text{Os}$ | 13.5 | $^{174}\text{Os}-\text{u}$ | 11.9 | $^{174}\text{Os}(\alpha)^{170}\text{W}$ |
| ^{174}Ir | 77.3 | $^{174}\text{Ir}(\alpha)^{170}\text{Re}$ | 22.7 | $^{178}\text{Au}(\alpha)^{174}\text{Ir}$ | | |
| ^{175}Yb | 99.9 | $^{174}\text{Yb}(\text{n},\gamma)^{175}\text{Yb}$ | 0.1 | $^{175}\text{Yb}(\beta^-)^{175}\text{Lu}$ | | |
| ^{175}Lu | 54.2 | $^{175}\text{Yb}(\beta^-)^{175}\text{Lu}$ | 20.9 | $^{175}\text{Lu}(\text{n},\gamma)^{176}\text{Lu}$ | 13.7 | $^{175}\text{Lu}^{35}\text{Cl}-^{173}\text{Yb}^{37}\text{Cl}$ |
| ^{175}Hf | 85.7 | $^{174}\text{Hf}(\text{n},\gamma)^{175}\text{Hf}$ | 14.3 | $^{177}\text{Hf}(\text{p},\text{t})^{175}\text{Hf}$ | | |
| ^{175}Os | 82.2 | $^{179}\text{Pt}(\alpha)^{175}\text{Os}$ | 17.8 | $^{175}\text{Os}-\text{u}$ | | |
| ^{175}Ir | 80.4 | $^{179}\text{Au}(\alpha)^{175}\text{Ir}$ | 19.6 | $^{175}\text{Ir}-\text{u}$ | | |
| ^{175}Pt | 90.6 | $^{175}\text{Pt}(\alpha)^{171}\text{Os}$ | 9.4 | $^{179}\text{Hg}(\alpha)^{175}\text{Pt}$ | | |
| ^{176}Yb | 73.0 | $^{176}\text{Yb}-^{129}\text{Xe}_{1.364}$ | 27.0 | $^{176}\text{Yb}-^{132}\text{Xe}_{1.333}$ | | |
| ^{176}Lu | 78.9 | $^{175}\text{Lu}(\text{n},\gamma)^{176}\text{Lu}$ | 11.4 | $^{176}\text{Lu}^{37}\text{Cl}-^{143}\text{Nd}^{35}\text{Cl}_2$ | 7.7 | $^{176}\text{Lu}(\text{n},\gamma)^{177}\text{Lu}$ |
| ^{176}Hf | 74.5 | $^{176}\text{Lu}(\beta^-)^{176}\text{Hf}$ | 23.3 | $^{180}\text{W}(\alpha)^{176}\text{Hf}$ | 1.9 | $^{176}\text{Hf}^{35}\text{Cl}-^{174}\text{Hf}^{37}\text{Cl}$ |
| ^{176}Ir | 59.3 | $^{180}\text{Au}(\alpha)^{176}\text{Ir}$ | 35.9 | $^{176}\text{Ir}-\text{u}$ | 4.8 | $^{176}\text{Ir}(\alpha)^{172}\text{Re}$ |
| ^{176}Pt | 66.4 | $^{180}\text{Hg}(\alpha)^{176}\text{Pt}$ | 33.6 | $^{176}\text{Pt}(\alpha)^{172}\text{Os}$ | | |
| ^{176}Hg | 71.9 | $^{176}\text{Hg}(\alpha)^{172}\text{Pt}$ | 28.1 | $^{177}\text{Tl}^m(\text{p})^{176}\text{Hg}$ | | |
| ^{177}Lu | 91.5 | $^{176}\text{Lu}(\text{n},\gamma)^{177}\text{Lu}$ | 8.4 | $^{177}\text{Lu}(\beta^-)^{177}\text{Hf}$ | 0.1 | $^{179}\text{Hf}(\text{t},\alpha)^{178}\text{Lu}-^{178}\text{Hf}()^{177}\text{Lu}$ |
| ^{177}Hf | 69.9 | $^{177}\text{Lu}(\beta^-)^{177}\text{Hf}$ | 28.7 | $^{177}\text{Hf}(\text{n},\gamma)^{178}\text{Hf}$ | 1.4 | $^{177}\text{Hf}(\text{p},\text{t})^{175}\text{Hf}$ |
| ^{177}Pt | 55.3 | $^{177}\text{Pt}(\alpha)^{173}\text{Os}$ | 28.8 | $^{177}\text{Pt}-\text{u}$ | 16.0 | $^{181}\text{Hg}(\alpha)^{177}\text{Pt}$ |
| ^{177}Au | 87.9 | $^{181}\text{Tl}(\alpha)^{177}\text{Au}$ | 12.1 | $^{177}\text{Au}(\alpha)^{173}\text{Ir}$ | | |

Table II. Influences on primary nuclides (continued, Explanation of Table on page 030003-74)

| Nuclide | Infl. | Equation | Infl. | Equation | Infl. | Equation |
|---------------------|-------|--|-------|--|-------|---|
| $^{177}\text{Tl}^m$ | 62.3 | $^{177}\text{Tl}^m(\text{p})^{176}\text{Hg}$ | 37.7 | $^{177}\text{Tl}^m(\alpha)^{173}\text{Au}^m$ | | |
| ^{178}Lu | 89.4 | $^{179}\text{Hf}(\text{t},\alpha)^{178}\text{Lu}-^{178}\text{Hf}(\gamma)^{177}\text{Lu}$ | 10.6 | $^{178}\text{Lu}^m(\text{IT})^{178}\text{Lu}$ | | |
| $^{178}\text{Lu}^m$ | 65.7 | $^{178}\text{Lu}^m(\text{IT})^{178}\text{Lu}$ | 34.3 | $^{176}\text{Lu}(\text{t},\text{p})^{178}\text{Lu}^m$ | | |
| ^{178}Hf | 70.5 | $^{177}\text{Hf}(\text{n},\gamma)^{178}\text{Hf}$ | 29.5 | $^{178}\text{Hf}(\text{n},\gamma)^{179}\text{Hf}$ | | |
| ^{178}Os | 76.2 | $^{182}\text{Pt}(\alpha)^{178}\text{Os}$ | 23.8 | $^{178}\text{Os}-\text{u}$ | | |
| ^{178}Pt | 62.4 | $^{182}\text{Hg}(\alpha)^{178}\text{Pt}$ | 24.5 | $^{178}\text{Pt}(\alpha)^{174}\text{Os}$ | 13.1 | $^{178}\text{Pt}-\text{u}$ |
| ^{178}Au | 96.9 | $^{178}\text{Au}-^{133}\text{Cs}_{1.338}$ | 3.1 | $^{178}\text{Au}(\alpha)^{174}\text{Ir}$ | | |
| ^{179}Lu | 100.0 | $^{180}\text{Hf}(\text{t},\alpha)^{179}\text{Lu}-^{178}\text{Hf}(\gamma)^{177}\text{Lu}$ | | | | |
| ^{179}Hf | 70.3 | $^{178}\text{Hf}(\text{n},\gamma)^{179}\text{Hf}$ | 15.9 | $^{179}\text{Hf}(\text{n},\gamma)^{180}\text{Hf}$ | 7.0 | $^{181}\text{Ta } ^{35}\text{Cl}-^{179}\text{Hf } ^{37}\text{Cl}$ |
| ^{179}Ta | 92.7 | $^{179}\text{Ta}(\epsilon)^{179}\text{Hf}$ | 7.3 | $^{181}\text{Ta}(\text{p},\text{t})^{179}\text{Ta}$ | | |
| ^{179}W | 93.5 | $^{180}\text{W}(\text{d},\text{t})^{179}\text{W}$ | 6.5 | $^{179}\text{Re}(\beta^+)^{179}\text{W}$ | | |
| ^{179}Re | 77.7 | $^{179}\text{Re}-\text{u}$ | 22.3 | $^{179}\text{Re}(\beta^+)^{179}\text{W}$ | | |
| ^{179}Os | 65.1 | $^{183}\text{Pt}(\alpha)^{179}\text{Os}$ | 34.9 | $^{179}\text{Os}-\text{u}$ | | |
| ^{179}Ir | 87.8 | $^{183}\text{Au}(\alpha)^{179}\text{Ir}$ | 12.2 | $^{179}\text{Ir}-\text{u}$ | | |
| ^{179}Pt | 92.8 | $^{183}\text{Hg}(\alpha)^{179}\text{Pt}$ | 7.2 | $^{179}\text{Pt}(\alpha)^{175}\text{Os}$ | | |
| ^{179}Au | 66.6 | $^{183}\text{Tl}^m(\alpha)^{179}\text{Au}$ | 16.9 | $^{179}\text{Au}(\alpha)^{175}\text{Ir}$ | 16.4 | $^{179}\text{Au}-\text{u}$ |
| ^{179}Hg | 74.1 | $^{179}\text{Hg}-^{208}\text{Pb}_{.861}$ | 25.9 | $^{179}\text{Hg}(\alpha)^{175}\text{Pt}$ | | |
| ^{180}Hf | 83.5 | $^{179}\text{Hf}(\text{n},\gamma)^{180}\text{Hf}$ | 16.5 | $^{180}\text{W}-^{180}\text{Hf}$ | | |
| ^{180}W | 81.8 | $^{180}\text{W}-^{180}\text{Hf}$ | 18.2 | $^{180}\text{W}(\alpha)^{176}\text{Hf}$ | 0.1 | $^{180}\text{W}(\text{d},\text{t})^{179}\text{W}$ |
| ^{180}Os | 65.6 | $^{184}\text{Pt}(\alpha)^{180}\text{Os}$ | 34.4 | $^{180}\text{Os}-\text{u}$ | | |
| ^{180}Au | 94.0 | $^{180}\text{Au}-^{133}\text{Cs}_{1.353}$ | 4.0 | $^{184}\text{Tl}(\alpha)^{180}\text{Au}$ | 2.0 | $^{180}\text{Au}(\alpha)^{176}\text{Ir}$ |
| ^{180}Hg | 38.0 | $^{180}\text{Hg}-^{208}\text{Pb}_{.865}$ | 32.8 | $^{180}\text{Hg}(\alpha)^{176}\text{Pt}$ | 29.2 | $^{184}\text{Pb}(\alpha)^{180}\text{Hg}$ |
| ^{181}Ta | 25.5 | $^{181}\text{Ta}(\text{n},\gamma)^{182}\text{Ta}$ | 21.9 | $^{181}\text{Ta } \text{O}-^{202}\text{Tl}_{.975}$ | 21.6 | $^{183}\text{W } ^{35}\text{Cl}-^{181}\text{Ta } ^{37}\text{Cl}$ |
| ^{181}Os | 64.0 | $^{181}\text{Os}-\text{u}$ | 36.0 | $^{185}\text{Pt}(\alpha)^{181}\text{Os}$ | | |
| ^{181}Pt | 52.0 | $^{185}\text{Hg}(\alpha)^{181}\text{Pt}$ | 48.0 | $^{181}\text{Pt}-\text{u}$ | | |
| ^{181}Hg | 83.0 | $^{181}\text{Hg}(\alpha)^{177}\text{Pt}$ | 17.0 | $^{181}\text{Hg}-^{208}\text{Pb}_{.870}$ | | |
| ^{181}Tl | 79.0 | $^{181}\text{Tl}-^{133}\text{Cs}_{1.361}$ | 12.2 | $^{185}\text{Bi}^m(\alpha)^{181}\text{Tl}$ | 8.8 | $^{181}\text{Tl}(\alpha)^{177}\text{Au}$ |
| ^{182}Ta | 74.4 | $^{181}\text{Ta}(\text{n},\gamma)^{182}\text{Ta}$ | 25.6 | $^{182}\text{Ta}(\beta^-)^{182}\text{W}$ | | |
| ^{182}W | 100.0 | $^{182}\text{W}(\text{n},\gamma)^{183}\text{W}$ | 4.0 | $^{182}\text{Ta}(\beta^-)^{182}\text{W}$ | | |
| ^{182}Os | 60.6 | $^{182}\text{Os}-\text{u}$ | 39.4 | $^{186}\text{Pt}(\alpha)^{182}\text{Os}$ | | |
| ^{182}Ir | 56.3 | $^{182}\text{Ir}-\text{u}$ | 43.7 | $^{186}\text{Au}(\alpha)^{182}\text{Ir}$ | | |
| ^{182}Pt | 56.8 | $^{186}\text{Hg}(\alpha)^{182}\text{Pt}$ | 22.0 | $^{182}\text{Pt}-\text{u}$ | 21.2 | $^{182}\text{Pt}(\alpha)^{178}\text{Os}$ |
| ^{182}Hg | 55.3 | $^{182}\text{Hg}-^{208}\text{Pb}_{.875}$ | 32.4 | $^{182}\text{Hg}(\alpha)^{178}\text{Pt}$ | 12.3 | $^{182}\text{Hg}-\text{u}$ |
| ^{183}W | 72.0 | $^{183}\text{W}(\text{n},\gamma)^{184}\text{W}$ | 15.4 | $^{183}\text{W } \text{O}-\text{C}_2 ^{35}\text{Cl}_5$ | 11.2 | $^{199}\text{Hg}-^{183}\text{W } \text{O}$ |
| ^{183}Os | 76.7 | $^{183}\text{Os}-\text{u}$ | 23.3 | $^{183}\text{Ir}(\beta^+)^{183}\text{Os}$ | | |
| ^{183}Ir | 76.2 | $^{183}\text{Ir}-\text{u}$ | 19.3 | $^{187}\text{Au}(\alpha)^{183}\text{Ir}$ | 4.5 | $^{183}\text{Ir}(\beta^+)^{183}\text{Os}$ |
| ^{183}Pt | 30.5 | $^{187}\text{Hg}(\alpha)^{183}\text{Pt}$ | 27.9 | $^{183}\text{Pt}(\alpha)^{179}\text{Os}$ | 27.2 | $^{183}\text{Pt}-\text{u}$ |
| ^{183}Au | 77.4 | $^{187}\text{Tl}^m(\alpha)^{183}\text{Au}$ | 11.4 | $^{183}\text{Au}-\text{u}$ | 11.2 | $^{183}\text{Au}(\alpha)^{179}\text{Ir}$ |
| ^{183}Hg | 62.6 | $^{187}\text{Pb}(\alpha)^{183}\text{Hg}$ | 31.8 | $^{183}\text{Hg}-^{208}\text{Pb}_{.880}$ | 5.6 | $^{183}\text{Hg}(\alpha)^{179}\text{Pt}$ |
| ^{183}Tl | 82.9 | $^{183}\text{Tl}-^{133}\text{Cs}_{1.376}$ | 17.1 | $^{183}\text{Tl}^m(\text{IT})^{183}\text{Tl}$ | | |
| $^{183}\text{Tl}^m$ | 82.9 | $^{183}\text{Tl}^m(\text{IT})^{183}\text{Tl}$ | 17.1 | $^{183}\text{Tl}^m(\alpha)^{179}\text{Au}$ | | |
| ^{184}W | 28.0 | $^{184}\text{W}-\text{u}$ | 26.8 | $^{183}\text{W}(\text{n},\gamma)^{184}\text{W}$ | 15.4 | $^{184}\text{Os}-^{184}\text{W}$ |
| ^{184}Re | 100.0 | $^{185}\text{Re}(\text{d},\text{t})^{184}\text{Re}-^{187}\text{Re}(\gamma)^{186}\text{Re}$ | | | | |
| ^{184}Os | 44.3 | $^{184}\text{Os}(\text{n},\gamma)^{185}\text{Os}$ | 31.0 | $^{184}\text{Os}-^{184}\text{W}$ | 24.3 | $^{184}\text{Os}-\text{u}$ |
| ^{184}Pt | 40.3 | $^{188}\text{Hg}(\alpha)^{184}\text{Pt}$ | 31.1 | $^{184}\text{Pt}-\text{u}$ | 28.6 | $^{184}\text{Pt}(\alpha)^{180}\text{Os}$ |
| ^{184}Hg | 38.9 | $^{184}\text{Hg}-\text{u}$ | 32.1 | $^{184}\text{Hg}-^{208}\text{Pb}_{.885}$ | 29.0 | $^{184}\text{Hg}-^{204}\text{Pb}_{.902}$ |
| ^{184}Tl | 78.5 | $^{184}\text{Tl}(\alpha)^{180}\text{Au}$ | 21.5 | $^{184}\text{Tl}-^{133}\text{Cs}_{1.383}$ | | |
| ^{184}Pb | 69.5 | $^{184}\text{Pb}(\alpha)^{180}\text{Hg}$ | 30.5 | $^{185}\text{Bi}^m(\text{p})^{184}\text{Pb}$ | | |
| ^{185}W | 84.7 | $^{184}\text{W}(\text{n},\gamma)^{185}\text{W}$ | 15.3 | $^{185}\text{W}(\beta^-)^{185}\text{Re}$ | | |
| ^{185}Re | 38.8 | $^{185}\text{Os}(\epsilon)^{185}\text{Re}$ | 28.5 | $^{185}\text{W}(\beta^-)^{185}\text{Re}$ | 27.2 | $^{185}\text{Re}(\text{n},\gamma)^{186}\text{Re}$ |
| ^{185}Os | 51.0 | $^{184}\text{Os}(\text{n},\gamma)^{185}\text{Os}$ | 49.0 | $^{185}\text{Os}(\epsilon)^{185}\text{Re}$ | | |
| ^{185}Pt | 60.3 | $^{185}\text{Pt}(\alpha)^{181}\text{Os}$ | 39.7 | $^{185}\text{Pt}-\text{u}$ | | |

Table II. Influences on primary nuclides (continued, Explanation of Table on page 030003-74)

| Nuclide | Infl. | Equation | Infl. | Equation | Infl. | Equation |
|---------------------|-------|---|-------|---|-------|---|
| ^{185}Hg | 45.3 | $^{185}\text{Hg}(\alpha)^{181}\text{Pt}$ | 25.5 | $^{185}\text{Hg}-^{208}\text{Pb}_{.889}$ | 15.2 | $^{189}\text{Pb}(\alpha)^{185}\text{Hg}$ |
| $^{185}\text{Bi}^m$ | 63.5 | $^{185}\text{Bi}^m(\alpha)^{181}\text{Tl}$ | 36.5 | $^{185}\text{Bi}^m(\text{p})^{184}\text{Pb}$ | | |
| ^{186}W | 54.6 | $^{186}\text{W}(\text{n},\gamma)^{187}\text{W}$ | 34.7 | $^{186}\text{W}(\text{p},\text{t})^{184}\text{W}-^{184}\text{W}(\text{)}^{182}\text{W}$ | 10.7 | $^{186}\text{W }^{35}\text{Cl}-^{184}\text{W }^{37}\text{Cl}$ |
| ^{186}Re | 71.7 | $^{185}\text{Re}(\text{n},\gamma)^{186}\text{Re}$ | 28.3 | $^{186}\text{Re}(\beta^-)^{186}\text{Os}$ | | |
| ^{186}Os | 39.5 | $^{186}\text{Os}(\text{n},\gamma)^{187}\text{Os}$ | 39.5 | $^{186}\text{Os}-^{190}\text{Pt}_{.979}$ | 21.0 | $^{186}\text{Re}(\beta^-)^{186}\text{Os}$ |
| ^{186}Pt | 60.6 | $^{186}\text{Pt}-\text{u}$ | 39.4 | $^{186}\text{Pt}(\alpha)^{182}\text{Os}$ | | |
| ^{186}Au | 56.3 | $^{186}\text{Au}-\text{u}$ | 43.7 | $^{186}\text{Au}(\alpha)^{182}\text{Ir}$ | | |
| ^{186}Hg | 56.2 | $^{186}\text{Hg}-^{204}\text{Pb}_{.912}$ | 26.4 | $^{186}\text{Hg}(\alpha)^{182}\text{Pt}$ | 17.4 | $^{186}\text{Hg}-\text{u}$ |
| ^{187}W | 54.6 | $^{187}\text{W}(\beta^-)^{187}\text{Re}$ | 45.4 | $^{186}\text{W}(\text{n},\gamma)^{187}\text{W}$ | | |
| ^{187}Re | 88.7 | $^{187}\text{Re}(\beta^-)^{187}\text{Os}$ | 8.3 | $^{187}\text{W}(\beta^-)^{187}\text{Re}$ | 4.0 | $^{187}\text{Re }^{35}\text{Cl}-^{185}\text{Re }^{37}\text{Cl}$ |
| ^{187}Os | 57.5 | $^{187}\text{Os}(\text{n},\gamma)^{188}\text{Os}$ | 30.3 | $^{186}\text{Os}(\text{n},\gamma)^{187}\text{Os}$ | 12.7 | $^{187}\text{Re}(\beta^-)^{187}\text{Os}$ |
| ^{187}Pt | 74.1 | $^{187}\text{Pt}-\text{u}$ | 25.9 | $^{187}\text{Au}(\beta^+)^{187}\text{Pt}$ | | |
| ^{187}Au | 63.7 | $^{187}\text{Au}-\text{u}$ | 20.9 | $^{187}\text{Au}(\beta^+)^{187}\text{Pt}$ | 15.4 | $^{187}\text{Au}(\alpha)^{183}\text{Ir}$ |
| ^{187}Hg | 55.5 | $^{187}\text{Hg}-^{208}\text{Pb}_{.899}$ | 18.5 | $^{187}\text{Hg}(\alpha)^{183}\text{Pt}$ | 17.2 | $^{187}\text{Hg}-\text{u}$ |
| $^{187}\text{Hg}^m$ | 51.0 | $^{187}\text{Hg}^m(\text{IT})^{187}\text{Hg}$ | 49.0 | $^{187}\text{Hg}^m(\alpha)^{183}\text{Pt}$ | | |
| ^{187}Tl | 69.2 | $^{191}\text{Bi}(\alpha)^{187}\text{Tl}$ | 30.8 | $^{187}\text{Tl}^m(\text{IT})^{187}\text{Tl}$ | | |
| $^{187}\text{Tl}^m$ | 72.2 | $^{191}\text{Bi}(\alpha)^{187}\text{Tl}^m$ | 13.9 | $^{187}\text{Tl}^m(\text{IT})^{187}\text{Tl}$ | 13.9 | $^{187}\text{Tl}^m(\alpha)^{183}\text{Au}$ |
| ^{187}Pb | 85.9 | $^{187}\text{Pb}-^{133}\text{Cs}_{1.406}$ | 14.1 | $^{187}\text{Pb}(\alpha)^{183}\text{Hg}$ | | |
| $^{187}\text{Pb}^m$ | 60.7 | $^{187}\text{Pb}^m(\text{IT})^{187}\text{Pb}$ | 39.3 | $^{191}\text{Po}(\alpha)^{187}\text{Pb}^m$ | | |
| ^{188}Os | 59.1 | $^{188}\text{Os}(\text{n},\gamma)^{189}\text{Os}$ | 40.8 | $^{187}\text{Os}(\text{n},\gamma)^{188}\text{Os}$ | 0.1 | $^{188}\text{Ir}(\beta^+)^{188}\text{Os}$ |
| ^{188}Ir | 68.1 | $^{188}\text{Pt}(\epsilon)^{188}\text{Ir}$ | 31.9 | $^{188}\text{Ir}(\beta^+)^{188}\text{Os}$ | | |
| ^{188}Pt | 64.7 | $^{188}\text{Pt}(\alpha)^{184}\text{Os}$ | 27.9 | $^{190}\text{Pt}(\text{p},\text{t})^{188}\text{Pt}$ | 7.4 | $^{188}\text{Pt}(\epsilon)^{188}\text{Ir}$ |
| ^{188}Hg | 62.4 | $^{188}\text{Hg}-^{208}\text{Pb}_{.904}$ | 19.3 | $^{188}\text{Hg}-\text{u}$ | 18.3 | $^{188}\text{Hg}(\alpha)^{184}\text{Pt}$ |
| ^{189}Os | 78.9 | $^{189}\text{Os}(\text{n},\gamma)^{190}\text{Os}$ | 21.1 | $^{188}\text{Os}(\text{n},\gamma)^{189}\text{Os}$ | | |
| ^{189}Ir | 69.7 | $^{191}\text{Ir}(\text{p},\text{t})^{189}\text{Ir}$ | 30.3 | $^{189}\text{Pt}(\beta^+)^{189}\text{Ir}$ | | |
| ^{189}Pt | 83.8 | $^{190}\text{Pt}(\text{p},\text{d})^{189}\text{Pt}$ | 16.2 | $^{189}\text{Pt}(\beta^+)^{189}\text{Ir}$ | | |
| ^{189}Hg | 65.0 | $^{189}\text{Hg}-\text{u}$ | 35.0 | $^{189}\text{Hg}^m(\text{IT})^{189}\text{Hg}$ | | |
| $^{189}\text{Hg}^m$ | 92.0 | $^{189}\text{Hg}^m-^{208}\text{Pb}_{.909}$ | 8.0 | $^{189}\text{Hg}^m(\text{IT})^{189}\text{Hg}$ | | |
| ^{189}Tl | 70.3 | $^{193}\text{Bi}(\alpha)^{189}\text{Tl}$ | 29.7 | $^{193}\text{Bi}^m(\alpha)^{189}\text{Tl}$ | | |
| ^{189}Pb | 67.2 | $^{189}\text{Pb}(\alpha)^{185}\text{Hg}$ | 19.7 | $^{189}\text{Pb}-\text{u}$ | 13.1 | $^{189}\text{Pb}^m(\text{IT})^{189}\text{Pb}$ |
| $^{189}\text{Pb}^m$ | 75.3 | $^{189}\text{Pb}^m(\text{IT})^{189}\text{Pb}$ | 24.7 | $^{189}\text{Pb}^m(\alpha)^{185}\text{Hg}$ | | |
| ^{190}W | 93.9 | $^{190}\text{W}-\text{u}$ | 6.1 | $^{190}\text{W}(\beta^-)^{190}\text{Re}$ | | |
| ^{190}Re | 76.3 | $^{190}\text{W}(\beta^-)^{190}\text{Re}$ | 23.7 | $^{190}\text{Re}(\beta^-)^{190}\text{Os}$ | | |
| ^{190}Os | 51.6 | $^{190}\text{Os}-^{194}\text{Pt}_{.979}$ | 29.5 | $^{190}\text{Os}-^{190}\text{Pt}$ | 18.3 | $^{189}\text{Os}(\text{n},\gamma)^{190}\text{Os}$ |
| ^{190}Pt | 53.4 | $^{190}\text{Pt}-^{194}\text{Pt}_{.979}$ | 32.6 | $^{190}\text{Os}-^{190}\text{Pt}$ | 13.7 | $^{186}\text{Os}-^{190}\text{Pt}_{.979}$ |
| ^{190}Hg | 72.6 | $^{190}\text{Hg}-^{208}\text{Pb}_{.913}$ | 27.4 | $^{194}\text{Pb}(\alpha)^{190}\text{Hg}$ | | |
| ^{191}Os | 99.4 | $^{190}\text{Os}(\text{n},\gamma)^{191}\text{Os}$ | 0.6 | $^{191}\text{Os}(\beta^-)^{191}\text{Ir}$ | | |
| ^{191}Ir | 89.8 | $^{191}\text{Os}(\beta^-)^{191}\text{Ir}$ | 8.4 | $^{191}\text{Ir}(\text{n},\gamma)^{192}\text{Ir}$ | 1.6 | $^{193}\text{Ir}(\text{t},\alpha)^{192}\text{Os}-^{191}\text{Ir}(\text{)}^{190}\text{Os}$ |
| ^{191}Pt | 74.1 | $^{192}\text{Pt}(\text{p},\text{d})^{191}\text{Pt}-^{194}\text{Pt}(\text{)}^{193}\text{Pt}$ | 25.9 | $^{192}\text{Pt}(\text{p},\text{d})^{191}\text{Pt}$ | | |
| ^{191}Au | 99.6 | $^{191}\text{Au}-^{133}\text{Cs}_{1.436}$ | 0.4 | $^{191}\text{Hg}(\beta^+)^{191}\text{Au}$ | | |
| ^{191}Hg | 67.9 | $^{191}\text{Hg}-^{208}\text{Pb}_{.918}$ | 22.0 | $^{191}\text{Hg}-\text{u}$ | 10.1 | $^{191}\text{Hg}(\beta^+)^{191}\text{Au}$ |
| ^{191}Bi | 87.4 | $^{191}\text{Bi}-^{133}\text{Cs}_{1.436}$ | 10.6 | $^{191}\text{Bi}(\alpha)^{187}\text{Tl}^m$ | 2.0 | $^{191}\text{Bi}(\alpha)^{187}\text{Tl}$ |
| ^{191}Po | 93.9 | $^{191}\text{Po}(\alpha)^{187}\text{Pb}$ | 6.1 | $^{191}\text{Po}(\alpha)^{187}\text{Pb}^m$ | | |
| ^{192}Os | 50.6 | $^{192}\text{Os}(\text{p},\text{t})^{190}\text{Os}$ | 30.7 | $^{193}\text{Ir}(\text{t},\alpha)^{192}\text{Os}-^{191}\text{Ir}(\text{)}^{190}\text{Os}$ | 18.6 | $^{192}\text{Os}(\text{n},\gamma)^{193}\text{Os}$ |
| ^{192}Ir | 91.5 | $^{191}\text{Ir}(\text{n},\gamma)^{192}\text{Ir}$ | 6.0 | $^{192}\text{Ir}(\text{n},\gamma)^{193}\text{Ir}$ | 2.5 | $^{192}\text{Ir}(\beta^-)^{192}\text{Pt}$ |
| ^{192}Pt | 87.2 | $^{192}\text{Ir}(\beta^-)^{192}\text{Pt}$ | 12.8 | $^{192}\text{Pt}(\text{p},\text{t})^{190}\text{Pt}$ | 3.0 | $^{192}\text{Pt}(\text{p},\text{d})^{191}\text{Pt}-^{194}\text{Pt}(\text{)}^{193}\text{Pt}$ |
| ^{193}Os | 81.2 | $^{192}\text{Os}(\text{n},\gamma)^{193}\text{Os}$ | 18.8 | $^{193}\text{Os}(\beta^-)^{193}\text{Ir}$ | | |
| ^{193}Ir | 93.7 | $^{192}\text{Ir}(\text{n},\gamma)^{193}\text{Ir}$ | 4.3 | $^{193}\text{Os}(\beta^-)^{193}\text{Ir}$ | 3.4 | $^{193}\text{Pt}(\epsilon)^{193}\text{Ir}$ |
| ^{193}Pt | 96.4 | $^{193}\text{Pt}(\epsilon)^{193}\text{Ir}$ | 3.6 | $^{192}\text{Pt}(\text{p},\text{d})^{191}\text{Pt}-^{194}\text{Pt}(\text{)}^{193}\text{Pt}$ | | |
| ^{193}Au | 92.5 | $^{197}\text{Au}(\alpha, ^8\text{He})^{193}\text{Au}$ | 7.5 | $^{193}\text{Hg}(\beta^+)^{193}\text{Au}$ | | |
| ^{193}Hg | 67.1 | $^{193}\text{Hg}(\beta^+)^{193}\text{Au}$ | 32.9 | $^{193}\text{Hg}-^{208}\text{Pb}_{.928}$ | | |
| ^{193}Bi | 62.0 | $^{193}\text{Bi}-^{133}\text{Cs}_{1.451}$ | 21.9 | $^{193}\text{Bi}(\alpha)^{189}\text{Tl}$ | 16.1 | $^{197}\text{At}(\alpha)^{193}\text{Bi}$ |

Table II. Influences on primary nuclides (continued, Explanation of Table on page 030003-74)

| Nuclide | Infl. | Equation | Infl. | Equation | Infl. | Equation |
|---------------------|-------|---|-------|---|-------|--|
| $^{193}\text{Bi}^m$ | 64.1 | $^{193}\text{Bi}^m(\alpha)^{189}\text{Tl}$ | 35.9 | $^{197}\text{At}^m(\alpha)^{193}\text{Bi}^m$ | | |
| ^{194}Pt | 63.2 | $^{194}\text{Pt}-\text{u}$ | 26.6 | $^{194}\text{Pt}(\text{n},\gamma)^{195}\text{Pt}$ | 5.3 | $^{190}\text{Os}-^{194}\text{Pt}_{.979}$ |
| ^{194}Pb | 60.4 | $^{198}\text{Po}(\alpha)^{194}\text{Pb}$ | 39.6 | $^{194}\text{Pb}(\alpha)^{190}\text{Hg}$ | | |
| ^{195}Pt | 72.2 | $^{194}\text{Pt}(\text{n},\gamma)^{195}\text{Pt}$ | 27.8 | $^{195}\text{Pt}(\text{n},\gamma)^{196}\text{Pt}$ | | |
| ^{195}Au | 100.0 | $^{195}\text{Au}(\epsilon)^{195}\text{Pt}$ | | | | |
| ^{195}Hg | 78.6 | $^{195}\text{Hg}-^{208}\text{Pb}_{.938}$ | 21.4 | $^{195}\text{Hg}(\beta^+)^{195}\text{Au}$ | | |
| ^{195}Tl | 56.4 | $^{199}\text{Bi}^m(\alpha)^{195}\text{Tl}$ | 21.9 | $^{195}\text{Tl}-\text{u}$ | 21.7 | $^{195}\text{Tl}-^{133}\text{Cs}_{1.466}$ |
| ^{195}Pb | 59.1 | $^{195}\text{Pb}-\text{u}$ | 40.9 | $^{195}\text{Pb}^m(\text{IT})^{195}\text{Pb}$ | | |
| $^{195}\text{Pb}^m$ | 59.0 | $^{195}\text{Pb}^m(\text{IT})^{195}\text{Pb}$ | 41.0 | $^{199}\text{Po}^m(\alpha)^{195}\text{Pb}^m$ | | |
| ^{195}Bi | 89.5 | $^{195}\text{Bi}-^{133}\text{Cs}_{1.466}$ | 10.5 | $^{199}\text{At}(\alpha)^{195}\text{Bi}$ | | |
| ^{196}Pt | 70.9 | $^{195}\text{Pt}(\text{n},\gamma)^{196}\text{Pt}$ | 28.9 | $^{196}\text{Pt}(\text{n},\gamma)^{197}\text{Pt}$ | 0.3 | $^{196}\text{Au}(\beta^+)^{196}\text{Pt}$ |
| ^{196}Au | 51.7 | $^{197}\text{Au}(\gamma,\text{n})^{196}\text{Au}$ | 30.7 | $^{196}\text{Au}(\beta^-)^{196}\text{Hg}$ | 17.6 | $^{196}\text{Au}(\beta^+)^{196}\text{Pt}$ |
| ^{196}Hg | 57.0 | $^{198}\text{Hg }^{35}\text{Cl}-^{196}\text{Hg }^{37}\text{Cl}$ | 30.1 | $^{196}\text{Au}(\beta^-)^{196}\text{Hg}$ | 12.9 | $^{196}\text{Hg}(\text{n},\gamma)^{197}\text{Hg}$ |
| ^{196}Pb | 78.7 | $^{200}\text{Po}(\alpha)^{196}\text{Pb}$ | 21.3 | $^{196}\text{Pb}-^{208}\text{Pb}_{.942}$ | | |
| ^{197}Pt | 65.2 | $^{196}\text{Pt}(\text{n},\gamma)^{197}\text{Pt}$ | 34.1 | $^{197}\text{Pt}(\beta^-)^{197}\text{Au}$ | 0.7 | $^{198}\text{Pt}(\text{p},\text{d})^{197}\text{Pt}$ |
| ^{197}Au | 62.8 | $^{197}\text{Au}(\text{n},\gamma)^{198}\text{Au}$ | 35.9 | $^{197}\text{Pt}(\beta^-)^{197}\text{Au}$ | 0.8 | $^{198}\text{Pt}-^{197}\text{Au}_{1.005}$ |
| ^{197}Hg | 84.1 | $^{196}\text{Hg}(\text{n},\gamma)^{197}\text{Hg}$ | 15.9 | $^{199}\text{Hg}(\text{p},\text{t})^{197}\text{Hg}$ | | |
| ^{197}Pb | 73.9 | $^{197}\text{Pb}^m(\text{IT})^{197}\text{Pb}$ | 26.1 | $^{201}\text{Po}(\alpha)^{197}\text{Pb}$ | | |
| $^{197}\text{Pb}^m$ | 73.9 | $^{197}\text{Pb}^m-^{133}\text{Cs}_{1.481}$ | 26.1 | $^{197}\text{Pb}^m(\text{IT})^{197}\text{Pb}$ | | |
| ^{197}At | 81.6 | $^{197}\text{At}(\alpha)^{193}\text{Bi}$ | 18.4 | $^{197}\text{At}-^{133}\text{Cs}_{1.481}$ | | |
| $^{197}\text{At}^m$ | 58.2 | $^{197}\text{At}^m(\alpha)^{193}\text{Bi}^m$ | 41.8 | $^{197}\text{At}^m-^{133}\text{Cs}_{1.481}$ | | |
| ^{198}Pt | 53.5 | $^{198}\text{Pt}-^{197}\text{Au}_{1.005}$ | 46.5 | $^{198}\text{Pt}(\text{p},\text{d})^{197}\text{Pt}$ | | |
| ^{198}Au | 44.1 | $^{198}\text{Au}(\beta^-)^{198}\text{Hg}$ | 36.5 | $^{197}\text{Au}(\text{n},\gamma)^{198}\text{Au}$ | 19.4 | $^{198}\text{Au}(\text{n},\gamma)^{199}\text{Au}$ |
| ^{198}Hg | 67.1 | $^{198}\text{Hg}-\text{u}$ | 21.7 | $^{198}\text{Au}(\beta^-)^{198}\text{Hg}$ | 10.8 | $^{200}\text{Hg }^{35}\text{Cl}-^{198}\text{Hg }^{37}\text{Cl}$ |
| ^{198}Pb | 73.8 | $^{202}\text{Po}(\alpha)^{198}\text{Pb}$ | 26.2 | $^{198}\text{Pb}-^{208}\text{Pb}_{.952}$ | | |
| ^{198}Po | 60.5 | $^{198}\text{Po}-^{208}\text{Pb}_{.952}$ | 39.5 | $^{198}\text{Po}(\alpha)^{194}\text{Pb}$ | | |
| ^{199}Au | 80.4 | $^{198}\text{Au}(\text{n},\gamma)^{199}\text{Au}$ | 19.6 | $^{199}\text{Au}(\beta^-)^{199}\text{Hg}$ | | |
| ^{199}Hg | 35.3 | $^{199}\text{Hg}-\text{C}_2^{35}\text{Cl}_5$ | 33.8 | $^{199}\text{Hg}(\text{n},\gamma)^{200}\text{Hg}$ | 17.9 | $^{199}\text{Au}(\beta^-)^{199}\text{Hg}$ |
| ^{199}Bi | 38.7 | $^{203}\text{At}(\alpha)^{199}\text{Bi}$ | 33.6 | $^{199}\text{Bi}^m(\text{IT})^{199}\text{Bi}$ | 27.7 | $^{199}\text{Bi}-\text{u}$ |
| $^{199}\text{Bi}^m$ | 63.9 | $^{199}\text{Bi}^m(\text{IT})^{199}\text{Bi}$ | 36.1 | $^{199}\text{Bi}^m(\alpha)^{195}\text{Tl}$ | | |
| $^{199}\text{Po}^m$ | 58.8 | $^{199}\text{Po}^m(\alpha)^{195}\text{Pb}^m$ | 41.2 | $^{203}\text{Rn}^m(\alpha)^{199}\text{Po}^m$ | | |
| ^{199}At | 89.0 | $^{199}\text{At}(\alpha)^{195}\text{Bi}$ | 11.0 | $^{203}\text{Fr}(\alpha)^{199}\text{At}$ | | |
| ^{200}Au | 71.2 | $^{200}\text{Au}-\text{u}$ | 28.8 | $^{200}\text{Au}(\beta^-)^{200}\text{Hg}$ | | |
| $^{200}\text{Au}^m$ | 72.6 | $^{200}\text{Au}^m-\text{u}$ | 27.4 | $^{200}\text{Au}^m(\beta^-)^{200}\text{Hg}$ | | |
| ^{200}Hg | 64.5 | $^{199}\text{Hg}(\text{n},\gamma)^{200}\text{Hg}$ | 16.9 | $^{200}\text{Hg }^{35}\text{Cl}-^{198}\text{Hg }^{37}\text{Cl}$ | 12.4 | $^{204}\text{Hg }^{35}\text{Cl}_2-^{200}\text{Hg }^{37}\text{Cl}_2$ |
| ^{200}Po | 79.7 | $^{204}\text{Rn}(\alpha)^{200}\text{Po}$ | 20.3 | $^{200}\text{Po}(\alpha)^{196}\text{Pb}$ | | |
| ^{201}Au | 100.0 | $^{202}\text{Hg}(\text{d},^3\text{He})^{201}\text{Au}-^{206}\text{Pb}()^{205}\text{Tl}$ | | | | |
| ^{201}Hg | 59.4 | $^{201}\text{Hg}(\text{n},\gamma)^{202}\text{Hg}$ | 39.2 | $^{201}\text{Hg }^{35}\text{Cl}-^{199}\text{Hg }^{37}\text{Cl}$ | 1.4 | $^{203}\text{Tl }^{35}\text{Cl}-^{201}\text{Hg }^{37}\text{Cl}$ |
| ^{201}Tl | 88.9 | $^{203}\text{Tl}(\text{p},\text{t})^{201}\text{Tl}$ | 11.1 | $^{201}\text{Pb}(\beta^+)^{201}\text{Tl}$ | | |
| ^{201}Pb | 89.7 | $^{205}\text{Po}(\alpha)^{201}\text{Pb}$ | 10.3 | $^{201}\text{Pb}(\beta^+)^{201}\text{Tl}$ | | |
| ^{201}Po | 71.4 | $^{201}\text{Po}(\alpha)^{197}\text{Pb}$ | 28.6 | $^{205}\text{Rn}(\alpha)^{201}\text{Po}$ | | |
| ^{202}Hg | 37.5 | $^{201}\text{Hg}(\text{n},\gamma)^{202}\text{Hg}$ | 28.3 | $^{202}\text{Hg }^{35}\text{Cl}-^{200}\text{Hg }^{37}\text{Cl}$ | 25.7 | $^{204}\text{Hg }^{35}\text{Cl}-^{202}\text{Hg }^{37}\text{Cl}$ |
| ^{202}Tl | 47.5 | $^{202}\text{Tl}-^{203}\text{Tl}_{.995}$ | 30.8 | $^{181}\text{Ta } \text{O}-^{202}\text{Tl}_{.975}$ | 21.7 | $^{202}\text{Tl}-^{133}\text{Cs}_{1.519}$ |
| ^{202}Pb | 85.8 | $^{202}\text{Pb}-^{133}\text{Cs}_{1.519}$ | 14.2 | $^{204}\text{Pb}(\text{p},\text{t})^{202}\text{Pb}$ | | |
| ^{202}Bi | 69.6 | $^{206}\text{At}(\alpha)^{202}\text{Bi}$ | 30.4 | $^{202}\text{Bi}-\text{u}$ | | |
| ^{202}Po | 74.5 | $^{206}\text{Rn}(\alpha)^{202}\text{Po}$ | 25.5 | $^{202}\text{Po}(\alpha)^{198}\text{Pb}$ | | |
| ^{203}Au | 100.0 | $^{204}\text{Hg}(\text{d},^3\text{He})^{203}\text{Au}-^{206}\text{Pb}()^{205}\text{Tl}$ | | | | |
| ^{203}Hg | 85.2 | $^{203}\text{Hg}(\beta^-)^{203}\text{Tl}$ | 10.2 | $^{204}\text{Hg}(\text{d},\text{t})^{203}\text{Hg}$ | 4.6 | $^{202}\text{Hg}(\text{d},\text{p})^{203}\text{Hg}-^{204}\text{Hg}()^{205}\text{Hg}$ |
| ^{203}Tl | 65.5 | $^{203}\text{Tl}(\text{n},\gamma)^{204}\text{Tl}$ | 15.3 | $^{202}\text{Tl}-^{203}\text{Tl}_{.995}$ | 8.4 | $^{203}\text{Tl }^{35}\text{Cl}-^{201}\text{Hg }^{37}\text{Cl}$ |
| ^{203}Pb | 52.1 | $^{204}\text{Pb}(\text{p},\text{d})^{203}\text{Pb}$ | 37.5 | $^{207}\text{Po}(\alpha)^{203}\text{Pb}$ | 10.4 | $^{203}\text{Pb}(\epsilon)^{203}\text{Tl}$ |
| ^{203}At | 61.2 | $^{203}\text{At}(\alpha)^{199}\text{Bi}$ | 20.6 | $^{203}\text{At}-^{208}\text{Pb}_{.976}$ | 14.3 | $^{203}\text{At}-\text{u}$ |
| $^{203}\text{Rn}^m$ | 58.6 | $^{203}\text{Rn}^m(\alpha)^{199}\text{Po}^m$ | 41.4 | $^{203}\text{Rn}^m-^{208}\text{Pb}_{.976}$ | | |

Table II. Influences on primary nuclides (continued, Explanation of Table on page 030003-74)

| Nuclide | Infl. | Equation | Infl. | Equation | Infl. | Equation |
|-------------------|-------|---|-------|--|-------|---|
| ^{203}Fr | 84.5 | $^{203}\text{Fr}(\alpha)^{199}\text{At}$ | 15.5 | $^{203}\text{Fr}-^{133}\text{Cs}_{1.526}$ | | |
| ^{204}Hg | 79.2 | $^{204}\text{Hg}-\text{u}$ | 10.8 | $^{204}\text{Hg } ^{35}\text{Cl}_2-^{200}\text{Hg } ^{37}\text{Cl}_2$ | 9.4 | $^{204}\text{Hg } ^{35}\text{Cl}-^{202}\text{Hg } ^{37}\text{Cl}$ |
| ^{204}Tl | 68.0 | $^{204}\text{Tl}(\beta^-)^{204}\text{Pb}$ | 28.3 | $^{203}\text{Tl}(\text{n},\gamma)^{204}\text{Tl}$ | 3.7 | $^{205}\text{Tl}(\text{d},\text{t})^{204}\text{Tl}$ |
| ^{204}Pb | 69.5 | $^{204}\text{Pb}(\text{n},\gamma)^{205}\text{Pb}$ | 29.1 | $^{204}\text{Tl}(\beta^-)^{204}\text{Pb}$ | 1.1 | $^{204}\text{Pb}(\text{p},\text{t})^{202}\text{Pb}$ |
| ^{204}At | 81.2 | $^{204}\text{At}-\text{u}$ | 18.8 | $^{208}\text{Fr}(\alpha)^{204}\text{At}$ | | |
| ^{204}Rn | 80.6 | $^{204}\text{Rn}-^{208}\text{Pb}_{.981}$ | 19.4 | $^{204}\text{Rn}(\alpha)^{200}\text{Po}$ | | |
| ^{205}Hg | 52.5 | $^{204}\text{Hg}(\text{d},\text{p})^{205}\text{Hg}$ | 47.5 | $^{202}\text{Hg}(\text{d},\text{p})^{203}\text{Hg}-^{204}\text{Hg}()^{205}\text{Hg}$ | | |
| ^{205}Tl | 60.2 | $^{205}\text{Tl}(\text{d},\text{t})^{204}\text{Tl}$ | 14.9 | $^{205}\text{Tl } ^{35}\text{Cl}-^{203}\text{Tl } ^{37}\text{Cl}$ | 12.2 | $^{205}\text{Tl}(^3\text{He},\text{d})^{206}\text{Pb}$ |
| ^{205}Pb | 69.3 | $^{205}\text{Pb}(\text{n},\gamma)^{206}\text{Pb}$ | 29.4 | $^{204}\text{Pb}(\text{n},\gamma)^{205}\text{Pb}$ | 1.3 | $^{205}\text{Bi}(\beta^+)^{205}\text{Pb}$ |
| ^{205}Bi | 50.9 | $^{205}\text{Bi}(\beta^+)^{205}\text{Pb}$ | 49.1 | $^{209}\text{At}(\alpha)^{205}\text{Bi}$ | | |
| ^{205}Po | 75.5 | $^{209}\text{Rn}(\alpha)^{205}\text{Po}$ | 19.3 | $^{205}\text{Po}-\text{u}$ | 5.2 | $^{205}\text{Po}(\alpha)^{201}\text{Pb}$ |
| ^{205}Rn | 68.5 | $^{205}\text{Rn}(\alpha)^{201}\text{Po}$ | 31.5 | $^{205}\text{Rn}-^{208}\text{Pb}_{.986}$ | | |
| ^{206}Tl | 83.7 | $^{205}\text{Tl}(\text{n},\gamma)^{206}\text{Tl}$ | 16.3 | $^{210}\text{Bi}(\alpha)^{206}\text{Tl}$ | | |
| ^{206}Pb | 53.8 | $^{206}\text{Pb } ^{35}\text{Cl}_2-^{202}\text{Hg } ^{37}\text{Cl}_2$ | 30.4 | $^{205}\text{Pb}(\text{n},\gamma)^{206}\text{Pb}$ | 13.2 | $^{206}\text{Pb}(\text{n},\gamma)^{207}\text{Pb}$ |
| ^{206}At | 42.8 | $^{210}\text{Fr}(\alpha)^{206}\text{At}$ | 29.0 | $^{206}\text{At}-\text{u}$ | 28.1 | $^{206}\text{At}(\alpha)^{202}\text{Bi}$ |
| ^{206}Rn | 37.8 | $^{206}\text{Rn}-^{133}\text{Cs}_{1.549}$ | 37.4 | $^{206}\text{Rn}-^{208}\text{Pb}_{.990}$ | 24.8 | $^{206}\text{Rn}(\alpha)^{202}\text{Po}$ |
| ^{207}Tl | 44.9 | $^{207}\text{Tl}(\beta^-)^{207}\text{Pb}$ | 42.4 | $^{211}\text{Bi}(\alpha)^{207}\text{Tl}$ | 12.8 | $^{205}\text{Tl}(\text{t},\text{p})^{207}\text{Tl}$ |
| ^{207}Pb | 86.6 | $^{206}\text{Pb}(\text{n},\gamma)^{207}\text{Pb}$ | 12.7 | $^{207}\text{Pb}(\text{n},\gamma)^{208}\text{Pb}$ | 0.7 | $^{207}\text{Tl}(\beta^-)^{207}\text{Pb}$ |
| ^{207}Bi | 97.4 | $^{209}\text{Bi}(\text{p},\text{t})^{207}\text{Bi}$ | 2.6 | $^{207}\text{Po}(\beta^+)^{207}\text{Bi}$ | | |
| ^{207}Po | 58.8 | $^{207}\text{Po}(\alpha)^{203}\text{Pb}$ | 41.2 | $^{207}\text{Po}(\beta^+)^{207}\text{Bi}$ | | |
| ^{207}Fr | 88.3 | $^{207}\text{Fr}-^{133}\text{Cs}_{1.556}$ | 11.7 | $^{207}\text{Fr}(\alpha)^{203}\text{At}$ | | |
| ^{208}Pb | 87.3 | $^{207}\text{Pb}(\text{n},\gamma)^{208}\text{Pb}$ | 9.0 | $^{212}\text{Po}(\alpha)^{208}\text{Pb}$ | 1.1 | $^{205}\text{Rn}-^{208}\text{Pb}_{.986}$ |
| ^{208}Fr | 95.5 | $^{208}\text{Fr}-^{133}\text{Cs}_{1.564}$ | 4.5 | $^{208}\text{Fr}(\alpha)^{204}\text{At}$ | | |
| ^{209}Pb | 86.9 | $^{209}\text{Pb}(\beta^-)^{209}\text{Bi}$ | 11.1 | $^{208}\text{Pb}(\text{d},\text{p})^{209}\text{Pb}$ | 2.0 | $^{213}\text{Po}(\alpha)^{209}\text{Pb}$ |
| ^{209}Bi | 85.8 | $^{209}\text{Bi}(\text{n},\gamma)^{210}\text{Bi}$ | 9.6 | $^{209}\text{Bi}(\alpha)^{205}\text{Tl}$ | 4.3 | $^{209}\text{Pb}(\beta^-)^{209}\text{Bi}$ |
| ^{209}At | 53.1 | $^{213}\text{Fr}(\alpha)^{209}\text{At}$ | 46.9 | $^{209}\text{At}(\alpha)^{205}\text{Bi}$ | | |
| ^{209}Rn | 76.2 | $^{213}\text{Ra}(\alpha)^{209}\text{Rn}$ | 23.8 | $^{209}\text{Rn}(\alpha)^{205}\text{Po}$ | | |
| ^{210}Pb | 97.5 | $^{210}\text{Pb}(\beta^-)^{210}\text{Bi}$ | 2.5 | $^{214}\text{Po}(\alpha)^{210}\text{Pb}$ | | |
| ^{210}Bi | 50.3 | $^{210}\text{Bi}(\beta^-)^{210}\text{Po}$ | 33.5 | $^{210}\text{Bi}(\alpha)^{206}\text{Tl}$ | 14.1 | $^{209}\text{Bi}(\text{n},\gamma)^{210}\text{Bi}$ |
| ^{210}Po | 98.1 | $^{210}\text{Po}(\alpha)^{206}\text{Pb}$ | 1.9 | $^{210}\text{Bi}(\beta^-)^{210}\text{Po}$ | | |
| ^{210}Fr | 54.3 | $^{210}\text{Fr}(\alpha)^{206}\text{At}$ | 45.7 | $^{210}\text{Fr}-^{226}\text{Ra}_{.929}$ | | |
| ^{211}Pb | 95.8 | $^{215}\text{Po}(\alpha)^{211}\text{Pb}$ | 4.2 | $^{211}\text{Pb}(\beta^-)^{211}\text{Bi}$ | | |
| ^{211}Bi | 57.5 | $^{211}\text{Bi}(\alpha)^{207}\text{Tl}$ | 42.5 | $^{211}\text{Pb}(\beta^-)^{211}\text{Bi}$ | | |
| ^{211}Fr | 73.6 | $^{211}\text{Fr}-^{133}\text{Cs}_{1.586}$ | 26.4 | $^{211}\text{Fr}-^{226}\text{Ra}_{.934}$ | | |
| ^{212}Pb | 67.1 | $^{216}\text{Po}(\alpha)^{212}\text{Pb}$ | 32.9 | $^{212}\text{Pb}(\beta^-)^{212}\text{Bi}$ | | |
| ^{212}Bi | 66.3 | $^{212}\text{Bi}(\beta^-)^{212}\text{Po}$ | 33.7 | $^{212}\text{Pb}(\beta^-)^{212}\text{Bi}$ | | |
| ^{212}Po | 90.9 | $^{212}\text{Po}(\alpha)^{208}\text{Pb}$ | 9.1 | $^{212}\text{Bi}(\beta^-)^{212}\text{Po}$ | | |
| ^{212}Fr | 88.7 | $^{212}\text{Fr}-^{133}\text{Cs}_{1.594}$ | 11.3 | $^{212}\text{Fr}-^{226}\text{Ra}_{.938}$ | | |
| ^{213}Bi | 76.7 | $^{217}\text{At}(\alpha)^{213}\text{Bi}$ | 23.3 | $^{213}\text{Bi}(\beta^-)^{213}\text{Po}$ | | |
| ^{213}Po | 93.2 | $^{213}\text{Po}(\alpha)^{209}\text{Pb}$ | 6.8 | $^{213}\text{Bi}(\beta^-)^{213}\text{Po}$ | | |
| ^{213}Fr | 54.5 | $^{213}\text{Fr}-^{133}\text{Cs}_{1.602}$ | 45.5 | $^{213}\text{Fr}(\alpha)^{209}\text{At}$ | | |
| ^{213}Ra | 77.2 | $^{213}\text{Ra}-^{133}\text{Cs}_{1.602}$ | 22.8 | $^{213}\text{Ra}(\alpha)^{209}\text{Rn}$ | | |
| ^{214}Pb | 99.4 | $^{218}\text{Po}(\alpha)^{214}\text{Pb}$ | 0.6 | $^{214}\text{Pb}(\beta^-)^{214}\text{Bi}$ | | |
| ^{214}Bi | 68.9 | $^{214}\text{Bi}(\beta^-)^{214}\text{Po}$ | 31.1 | $^{214}\text{Pb}(\beta^-)^{214}\text{Bi}$ | | |
| ^{214}Po | 97.4 | $^{214}\text{Po}(\alpha)^{210}\text{Pb}$ | 2.2 | $^{218}\text{Rn}(\alpha)^{214}\text{Po}$ | 0.3 | $^{214}\text{Bi}(\beta^-)^{214}\text{Po}$ |
| ^{215}Bi | 85.8 | $^{219}\text{At}(\alpha)^{215}\text{Bi}$ | 14.2 | $^{215}\text{Bi}-^{133}\text{Cs}_{1.617}$ | | |
| ^{215}Po | 96.3 | $^{219}\text{Rn}(\alpha)^{215}\text{Po}$ | 3.7 | $^{215}\text{Po}(\alpha)^{211}\text{Pb}$ | | |
| ^{216}Po | 68.9 | $^{220}\text{Rn}(\alpha)^{216}\text{Po}$ | 31.1 | $^{216}\text{Po}(\alpha)^{212}\text{Pb}$ | | |
| ^{217}At | 77.7 | $^{221}\text{Fr}(\alpha)^{217}\text{At}$ | 22.3 | $^{217}\text{At}(\alpha)^{213}\text{Bi}$ | | |
| ^{218}Po | 99.4 | $^{222}\text{Rn}(\alpha)^{218}\text{Po}$ | 0.6 | $^{218}\text{Po}(\alpha)^{214}\text{Pb}$ | | |
| ^{218}Rn | 93.5 | $^{218}\text{Rn}(\alpha)^{214}\text{Po}$ | 6.5 | $^{222}\text{Ra}(\alpha)^{218}\text{Rn}$ | | |
| ^{219}At | 78.7 | $^{223}\text{Fr}(\alpha)^{219}\text{At}$ | 17.1 | $^{219}\text{At}-^{133}\text{Cs}_{1.647}$ | 4.2 | $^{219}\text{At}(\alpha)^{215}\text{Bi}$ |

Table II. Influences on primary nuclides (continued, Explanation of Table on page 030003-74)

| Nuclide | Infl. | Equation | Infl. | Equation | Infl. | Equation |
|-------------------|-------|--|-------|--|-------|---|
| ^{219}Rn | 96.4 | $^{223}\text{Ra}(\alpha)^{219}\text{Rn}$ | 3.6 | $^{219}\text{Rn}(\alpha)^{215}\text{Po}$ | | |
| ^{220}Rn | 68.9 | $^{224}\text{Ra}(\alpha)^{220}\text{Rn}$ | 31.1 | $^{220}\text{Rn}(\alpha)^{216}\text{Po}$ | | |
| ^{221}Fr | 79.1 | $^{225}\text{Ac}(\alpha)^{221}\text{Fr}$ | 20.9 | $^{221}\text{Fr}(\alpha)^{217}\text{At}$ | | |
| ^{222}Rn | 99.4 | $^{226}\text{Ra}(\alpha)^{222}\text{Rn}$ | 0.6 | $^{222}\text{Rn}(\alpha)^{218}\text{Po}$ | | |
| ^{222}Ra | 62.4 | $^{222}\text{Ra}(\alpha)^{218}\text{Rn}$ | 37.6 | $^{226}\text{Th}(\alpha)^{222}\text{Ra}$ | | |
| ^{223}Rn | 58.3 | $^{223}\text{Rn}-^{133}\text{Cs}_{1.677}$ | 41.7 | $^{223}\text{Rn}-\text{u}$ | | |
| ^{223}Fr | 93.6 | $^{227}\text{Ac}(\alpha)^{223}\text{Fr}$ | 6.4 | $^{223}\text{Fr}(\alpha)^{219}\text{At}$ | | |
| ^{223}Ra | 96.4 | $^{227}\text{Th}(\alpha)^{223}\text{Ra}$ | 3.6 | $^{223}\text{Ra}(\alpha)^{219}\text{Rn}$ | | |
| ^{224}Rn | 56.6 | $^{224}\text{Rn}-\text{u}$ | 43.4 | $^{224}\text{Rn}-^{133}\text{Cs}_{1.684}$ | | |
| ^{224}Ra | 69.1 | $^{228}\text{Th}(\alpha)^{224}\text{Ra}$ | 30.9 | $^{224}\text{Ra}(\alpha)^{220}\text{Rn}$ | | |
| ^{225}Rn | 73.0 | $^{225}\text{Rn}-\text{u}$ | 27.0 | $^{225}\text{Rn}-^{133}\text{Cs}_{1.692}$ | | |
| ^{225}Fr | 84.2 | $^{225}\text{Fr}-\text{u}$ | 15.8 | $^{225}\text{Fr}(\beta^-)^{225}\text{Ra}$ | 0.6 | $^{225}\text{Fr}(\beta^-)^{225}\text{Ra}$ |
| ^{225}Ra | 94.8 | $^{229}\text{Th}(\alpha)^{225}\text{Ra}$ | 4.6 | $^{225}\text{Ra}(\beta^-)^{225}\text{Ac}$ | 19.4 | $^{225}\text{Ac}(\alpha)^{221}\text{Fr}$ |
| ^{225}Ac | 60.1 | $^{229}\text{Pa}(\alpha)^{225}\text{Ac}$ | 20.5 | $^{225}\text{Ra}(\beta^-)^{225}\text{Ac}$ | | |
| ^{226}Rn | 56.2 | $^{226}\text{Rn}-\text{u}$ | 43.8 | $^{226}\text{Rn}-^{133}\text{Cs}_{1.699}$ | | |
| ^{226}Fr | 73.5 | $^{226}\text{Fr}-^{133}\text{Cs}_{1.699}$ | 26.5 | $^{226}\text{Fr}-\text{u}$ | | |
| ^{226}Ra | 98.2 | $^{230}\text{Th}(\alpha)^{226}\text{Ra}$ | 0.6 | $^{226}\text{Ra}(\alpha)^{222}\text{Rn}$ | 0.4 | $^{211}\text{Fr}-^{226}\text{Ra}_{934}$ |
| ^{226}Ac | 87.1 | $^{230}\text{Pa}(\alpha)^{226}\text{Ac}$ | 12.9 | $^{226}\text{Ac}(\beta^-)^{226}\text{Th}$ | | |
| ^{226}Th | 61.1 | $^{226}\text{Th}(\alpha)^{222}\text{Ra}$ | 38.9 | $^{226}\text{Ac}(\beta^-)^{226}\text{Th}$ | | |
| ^{227}Rn | 63.4 | $^{227}\text{Rn}-^{133}\text{Cs}_{1.707}$ | 36.6 | $^{227}\text{Rn}-\text{u}$ | | |
| ^{227}Fr | 79.5 | $^{227}\text{Fr}-^{133}\text{Cs}_{1.707}$ | 20.5 | $^{227}\text{Fr}-\text{u}$ | | |
| ^{227}Ac | 90.7 | $^{231}\text{Pa}(\alpha)^{227}\text{Ac}$ | 6.4 | $^{227}\text{Ac}(\alpha)^{223}\text{Fr}$ | 3.0 | $^{227}\text{Ac}(\beta^-)^{227}\text{Th}$ |
| ^{227}Th | 96.4 | $^{227}\text{Ac}(\beta^-)^{227}\text{Th}$ | 3.6 | $^{227}\text{Th}(\alpha)^{223}\text{Ra}$ | | |
| ^{228}Rn | 62.5 | $^{228}\text{Rn}-^{133}\text{Cs}_{1.714}$ | 37.5 | $^{228}\text{Rn}-\text{u}$ | | |
| ^{228}Fr | 79.6 | $^{228}\text{Fr}-^{133}\text{Cs}_{1.714}$ | 20.4 | $^{228}\text{Fr}-\text{u}$ | | |
| ^{228}Th | 68.6 | $^{230}\text{Th}(\text{p,t})^{228}\text{Th}-^{232}\text{Th}()$ | 30.6 | $^{228}\text{Th}(\alpha)^{224}\text{Ra}$ | 0.8 | $^{232}\text{U}(\alpha)^{228}\text{Th}$ |
| ^{229}Fr | 70.4 | $^{229}\text{Fr}-^{133}\text{Cs}_{1.722}$ | 16.8 | $^{229}\text{Fr}-^{238}\text{U}_{962}$ | 12.8 | $^{229}\text{Fr}-\text{u}$ |
| ^{229}Th | 70.1 | $^{233}\text{U}(\alpha)^{229}\text{Th}$ | 25.5 | $^{230}\text{Th}(\text{d,t})^{229}\text{Th}$ | 4.3 | $^{229}\text{Th}(\alpha)^{225}\text{Ra}$ |
| ^{229}Pa | 87.4 | $^{231}\text{Pa}(\text{p,t})^{229}\text{Pa}$ | 12.6 | $^{229}\text{Pa}(\alpha)^{225}\text{Ac}$ | | |
| ^{230}Fr | 87.7 | $^{230}\text{Fr}-^{133}\text{Cs}_{1.729}$ | 12.3 | $^{230}\text{Fr}-\text{u}$ | | |
| ^{230}Th | 39.0 | $^{234}\text{U}(\alpha)^{230}\text{Th}$ | 32.4 | $^{230}\text{Th}(\text{p,t})^{228}\text{Th}-^{232}\text{Th}()$ | 24.9 | $^{230}\text{Th}(\text{n},\gamma)^{231}\text{Th}$ |
| ^{230}Pa | 87.8 | $^{230}\text{Pa}(\epsilon)^{230}\text{Th}$ | 12.2 | $^{230}\text{Pa}(\alpha)^{226}\text{Ac}$ | | |
| ^{231}Ra | 66.2 | $^{231}\text{Ra}-\text{u}$ | 33.8 | $^{231}\text{Ra}-^{133}\text{Cs}_{1.737}$ | | |
| ^{231}Th | 73.2 | $^{230}\text{Th}(\text{n},\gamma)^{231}\text{Th}$ | 20.8 | $^{235}\text{U}(\alpha)^{231}\text{Th}$ | 6.0 | $^{231}\text{Th}(\beta^-)^{231}\text{Pa}$ |
| ^{231}Pa | 47.3 | $^{231}\text{Th}(\beta^-)^{231}\text{Pa}$ | 42.2 | $^{235}\text{Np}(\alpha)^{231}\text{Pa}$ | 7.7 | $^{231}\text{Pa}(\alpha)^{227}\text{Ac}$ |
| ^{232}Ra | 57.1 | $^{232}\text{Ra}-^{133}\text{Cs}_{1.744}$ | 42.9 | $^{232}\text{Ra}-\text{u}$ | | |
| ^{232}Th | 83.0 | $^{236}\text{U}(\alpha)^{232}\text{Th}$ | 11.5 | $\text{C}_{24}\text{H}_{16}-^{232}\text{Th}\text{ }^{37}\text{Cl}\text{ }^{35}\text{Cl}$ | 8.3 | $^{232}\text{Th}(\text{n},\gamma)^{233}\text{Th}$ |
| ^{232}U | 99.2 | $^{232}\text{U}(\alpha)^{228}\text{Th}$ | 0.8 | $^{236}\text{Pu}(\alpha)^{232}\text{U}$ | | |
| ^{233}Ra | 70.5 | $^{233}\text{Ra}-^{133}\text{Cs}_{1.752}$ | 29.5 | $^{233}\text{Ra}-\text{u}$ | | |
| ^{233}Th | 91.6 | $^{232}\text{Th}(\text{n},\gamma)^{233}\text{Th}$ | 8.4 | $^{233}\text{Th}(\beta^-)^{233}\text{Pa}$ | | |
| ^{233}Pa | 90.1 | $^{237}\text{Np}(\alpha)^{233}\text{Pa}$ | 5.6 | $^{233}\text{Th}(\beta^-)^{233}\text{Pa}$ | 4.3 | $^{233}\text{Pa}(\beta^-)^{233}\text{U}$ |
| ^{233}U | 51.3 | $^{233}\text{Pa}(\beta^-)^{233}\text{U}$ | 23.3 | $^{233}\text{U}(\alpha)^{229}\text{Th}$ | 14.6 | $^{237}\text{Pu}(\alpha)^{233}\text{U}$ |
| ^{234}U | 62.8 | $^{234}\text{U}(\text{n},\gamma)^{235}\text{U}$ | 20.6 | $^{238}\text{Pu}(\alpha)^{234}\text{U}$ | 16.3 | $^{234}\text{U}(\alpha)^{230}\text{Th}$ |
| ^{235}U | 41.2 | $^{239}\text{Pu}(\alpha)^{235}\text{U}$ | 30.5 | $^{235}\text{U}(\text{n},\gamma)^{236}\text{U}$ | 18.5 | $^{234}\text{U}(\text{n},\gamma)^{235}\text{U}$ |
| ^{235}Np | 88.0 | $^{235}\text{Np}(\epsilon)^{235}\text{U}$ | 12.0 | $^{235}\text{Np}(\alpha)^{231}\text{Pa}$ | | |
| ^{236}U | 76.9 | $^{240}\text{Pu}(\alpha)^{236}\text{U}$ | 23.2 | $^{235}\text{U}(\text{n},\gamma)^{236}\text{U}$ | 1.1 | $^{236}\text{U}(\text{n},\gamma)^{237}\text{U}$ |
| ^{236}Pu | 99.2 | $^{236}\text{Pu}(\alpha)^{232}\text{U}$ | 0.8 | $^{240}\text{Cm}(\alpha)^{236}\text{Pu}$ | | |
| ^{237}U | 84.3 | $^{236}\text{U}(\text{n},\gamma)^{237}\text{U}$ | 15.7 | $^{241}\text{Pu}(\alpha)^{237}\text{U}$ | | |
| ^{237}Np | 99.0 | $^{241}\text{Am}(\alpha)^{237}\text{Np}$ | 1.0 | $^{237}\text{Np}(\alpha)^{233}\text{Pa}$ | | |
| ^{237}Pu | 94.2 | $^{241}\text{Cm}(\alpha)^{237}\text{Pu}$ | 5.8 | $^{237}\text{Pu}(\alpha)^{233}\text{U}$ | | |
| ^{238}U | 77.9 | $^{242}\text{Pu}(\alpha)^{238}\text{U}$ | 21.0 | $\text{C}_{24}\text{H}_{20}-^{238}\text{U}\text{ }^{35}\text{Cl}_2$ | 1.2 | $^{229}\text{Fr}-^{238}\text{U}_{962}$ |
| ^{238}Pu | 69.1 | $^{238}\text{Pu}(\alpha)^{234}\text{U}$ | 30.6 | $^{238}\text{Pu}(\text{n},\gamma)^{239}\text{Pu}$ | 0.3 | $^{242}\text{Cm}(\alpha)^{238}\text{Pu}$ |

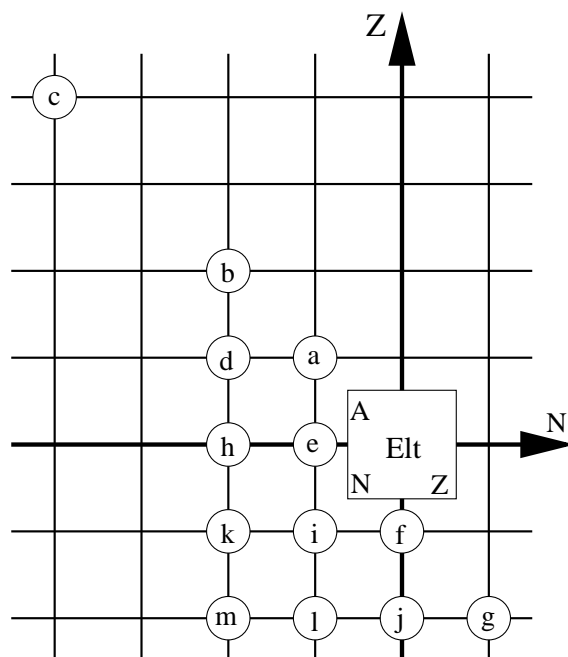
Table II. Influences on primary nuclides (continued, Explanation of Table on page 030003-74)

| Nuclide | Infl. | Equation | Infl. | Equation | Infl. | Equation |
|---------------------|-------|---|-------|---|-------|---|
| ^{239}Np | 67.2 | $^{239}\text{Np}(\beta^-)^{239}\text{Pu}$ | 32.8 | $^{243}\text{Am}(\alpha)^{239}\text{Np}$ | | |
| ^{239}Pu | 46.2 | $^{239}\text{Pu}(\text{n},\gamma)^{240}\text{Pu}$ | 27.1 | $^{239}\text{Pu}(\alpha)^{235}\text{U}$ | 19.4 | $^{239}\text{Np}(\beta^-)^{239}\text{Pu}$ |
| ^{240}U | 99.1 | $^{244}\text{Pu}(\alpha)^{240}\text{U}$ | 0.9 | $^{240}\text{U}(\beta^-)^{240}\text{Np}^m$ | | |
| ^{240}Np | 67.9 | $^{240}\text{Np}^m(\text{IT})^{240}\text{Np}$ | 32.1 | $^{240}\text{Np}(\beta^-)^{240}\text{Pu}$ | | |
| $^{240}\text{Np}^m$ | 42.7 | $^{240}\text{Np}^m(\beta^-)^{240}\text{Pu}$ | 42.2 | $^{240}\text{U}(\beta^-)^{240}\text{Np}^m$ | 15.2 | $^{240}\text{Np}^m(\text{IT})^{240}\text{Np}$ |
| ^{240}Pu | 60.8 | $^{240}\text{Pu}(\text{n},\gamma)^{241}\text{Pu}$ | 25.9 | $^{239}\text{Pu}(\text{n},\gamma)^{240}\text{Pu}$ | 13.3 | $^{240}\text{Pu}(\alpha)^{236}\text{U}$ |
| ^{240}Cm | 99.1 | $^{240}\text{Cm}(\alpha)^{236}\text{Pu}$ | 0.9 | $^{244}\text{Cf}(\alpha)^{240}\text{Cm}$ | | |
| ^{241}Pu | 39.2 | $^{240}\text{Pu}(\text{n},\gamma)^{241}\text{Pu}$ | 28.3 | $^{245}\text{Cm}(\alpha)^{241}\text{Pu}$ | 18.4 | $^{241}\text{Pu}(\beta^-)^{241}\text{Am}$ |
| ^{241}Am | 80.9 | $^{241}\text{Pu}(\beta^-)^{241}\text{Am}$ | 17.6 | $^{241}\text{Am O}-\text{C}_{22}$ | 0.7 | $^{241}\text{Am}(\alpha)^{237}\text{Np}$ |
| ^{241}Cm | 94.1 | $^{241}\text{Cm}(\epsilon)^{241}\text{Am}$ | 4.7 | $^{241}\text{Cm}(\alpha)^{237}\text{Pu}$ | 1.2 | $^{245}\text{Cf}(\alpha)^{241}\text{Cm}$ |
| ^{242}Pu | 80.8 | $^{241}\text{Pu}(\text{n},\gamma)^{242}\text{Pu}$ | 13.9 | $^{242}\text{Pu}(\alpha)^{238}\text{U}$ | 4.4 | $^{242}\text{Pu}(\text{n},\gamma)^{243}\text{Pu}$ |
| ^{242}Cm | 99.7 | $^{242}\text{Cm}(\alpha)^{238}\text{Pu}$ | 0.3 | $^{246}\text{Cf}(\alpha)^{242}\text{Cm}$ | | |
| ^{243}Pu | 59.0 | $^{242}\text{Pu}(\text{n},\gamma)^{243}\text{Pu}$ | 19.1 | $^{244}\text{Pu}(\text{d},\text{t})^{243}\text{Pu}$ | 11.4 | $^{243}\text{Pu}(\beta^-)^{243}\text{Am}$ |
| ^{243}Am | 53.8 | $^{243}\text{Am}(\alpha)^{239}\text{Np}$ | 43.9 | $^{243}\text{Am O}-\text{C}_{22}$ | 2.3 | $^{243}\text{Pu}(\beta^-)^{243}\text{Am}$ |
| ^{244}Pu | 78.1 | $^{244}\text{Pu O}-\text{C}_{22}$ | 15.3 | $^{244}\text{Pu}(\text{d},\text{t})^{243}\text{Pu}$ | 5.3 | $^{248}\text{Cm}(\alpha)^{244}\text{Pu}$ |
| ^{244}Cf | 98.3 | $^{244}\text{Cf}(\alpha)^{240}\text{Cm}$ | 1.7 | $^{248}\text{Fm}(\alpha)^{244}\text{Cf}$ | | |
| ^{245}Cm | 67.6 | $^{245}\text{Cm}(\alpha)^{241}\text{Pu}$ | 32.4 | $^{249}\text{Cf}(\alpha)^{245}\text{Cm}$ | | |
| ^{245}Cf | 97.2 | $^{245}\text{Cf}(\alpha)^{241}\text{Cm}$ | 2.8 | $^{249}\text{Fm}(\alpha)^{245}\text{Cf}$ | | |
| ^{246}Pu | 55.3 | $^{244}\text{Pu}(\text{t},\text{p})^{246}\text{Pu}$ | 44.7 | $^{246}\text{Pu}(\beta^-)^{246}\text{Am}^m$ | | |
| $^{246}\text{Am}^m$ | 55.7 | $^{246}\text{Am}^m(\beta^-)^{246}\text{Cm}$ | 44.3 | $^{246}\text{Pu}(\beta^-)^{246}\text{Am}^m$ | | |
| ^{246}Cm | 98.1 | $^{246}\text{Cm}(\alpha)^{242}\text{Pu}$ | 1.7 | $^{246}\text{Cm}(\text{d},\text{p})^{247}\text{Cm}$ | 0.2 | $^{246}\text{Am}^m(\beta^-)^{246}\text{Cm}$ |
| ^{246}Cf | 99.4 | $^{246}\text{Cf}(\alpha)^{242}\text{Cm}$ | 0.6 | $^{250}\text{Fm}(\alpha)^{246}\text{Cf}$ | | |
| ^{247}Cm | 60.2 | $^{247}\text{Cm}(\alpha)^{243}\text{Pu}$ | 20.6 | $^{246}\text{Cm}(\text{d},\text{p})^{247}\text{Cm}$ | 19.2 | $^{248}\text{Cm}(\text{d},\text{t})^{247}\text{Cm}$ |
| ^{248}Cm | 94.6 | $^{248}\text{Cm}(\alpha)^{244}\text{Pu}$ | 5.4 | $^{248}\text{Cm}(\text{d},\text{t})^{247}\text{Cm}$ | | |
| ^{248}Fm | 76.8 | $^{248}\text{Fm}(\alpha)^{244}\text{Cf}$ | 23.2 | $^{252}\text{No}(\alpha)^{248}\text{Fm}$ | | |
| ^{249}Cf | 63.4 | $^{249}\text{Cf}(\alpha)^{245}\text{Cm}$ | 36.6 | $^{249}\text{Cf O}-\text{C}_{22}$ | | |
| ^{249}Fm | 76.9 | $^{249}\text{Fm}(\alpha)^{245}\text{Cf}$ | 23.1 | $^{253}\text{No}(\alpha)^{249}\text{Fm}$ | | |
| ^{250}Fm | 79.6 | $^{250}\text{Fm}(\alpha)^{246}\text{Cf}$ | 20.4 | $^{254}\text{No}(\alpha)^{250}\text{Fm}$ | | |
| ^{252}No | 69.3 | $^{252}\text{No}(\alpha)^{248}\text{Fm}$ | 30.7 | $^{252}\text{No}-^{133}\text{Cs}_{1.895}$ | | |
| ^{253}No | 67.4 | $^{253}\text{No}(\alpha)^{249}\text{Fm}$ | 32.6 | $^{253}\text{No}-^{133}\text{Cs}_{1.902}$ | | |
| ^{254}No | 58.0 | $^{254}\text{No}(\alpha)^{250}\text{Fm}$ | 42.0 | $^{254}\text{No}-^{133}\text{Cs}_{1.910}$ | | |

Table III. Nuclear-reaction and separation energies**EXPLANATION OF TABLE**

We present, for all nuclides for which such data can be derived, separation energies (in keV) of particles (or groups of particles) and nuclear-reaction energies obtained as the following combinations of atomic masses (see accompanying diagram):

| | | | |
|-----------------|---|--|-----|
| $Q(\beta^-)$ | = | $M(A, Z) - M(A, Z + 1)$ (in Part I) | (a) |
| $Q(2\beta^-)$ | = | $M(A, Z) - M(A, Z + 2)$ | (b) |
| $Q(4\beta^-)$ | = | $M(A, Z) - M(A, Z + 4)$ | (c) |
| $Q(\beta^- n)$ | = | $M(A, Z) - M(A - 1, Z + 1) - n$ | (d) |
| $S(n)$ | = | $-M(A, Z) + M(A - 1, Z) + n$ | (e) |
| $S(p)$ | = | $-M(A, Z) + M(A - 1, Z - 1) + {}^1\text{H}$ | (f) |
| $Q(\epsilon p)$ | = | $M(A, Z) - M(A - 1, Z - 2) - {}^1\text{H}$ | (g) |
| $S(2n)$ | = | $-M(A, Z) + M(A - 2, Z) + 2n$ | (h) |
| $Q(d, \alpha)$ | = | $M(A, Z) - M(A - 2, Z - 1) - {}^2\text{H} - {}^4\text{He}$ | (i) |
| $S(2p)$ | = | $-M(A, Z) + M(A - 2, Z - 2) + 2{}^1\text{H}$ | (j) |
| $Q(p, \alpha)$ | = | $M(A, Z) - M(A - 3, Z - 1) - {}^4\text{He} + p$ | (k) |
| $Q(n, \alpha)$ | = | $M(A, Z) - M(A - 3, Z - 2) - {}^4\text{He} + n$ | (l) |
| $Q(\alpha)$ | = | $M(A, Z) - M(A - 4, Z - 2) - {}^4\text{He}$ | (m) |



| | |
|------|--|
| A | Mass number. |
| Elt. | Element symbol (for $Z \geq 113$ see Part I, Section 6.8, p. 030002-31). |
| Z | Atomic number. |

| | |
|--------------|--|
| 2224.57 0.04 | 2224.57 \pm 0.04 keV. The uncertainties are derived from the adjusted masses and the correlation matrix. For the most precise very light nuclides the precisions are often better than 5 eV and could not be given conveniently in this table. In Table B, the correlation matrix for these nuclides allows easy derivation. |
|--------------|--|

- * in place of value: not calculable from the present input data.
 # in place of decimal point: values and uncertainties estimated from TMS (see Part I, Section 4, p. 030002-9).
 a in place of uncertainty : uncertainty smaller than 5 eV.

Other reaction energies can be derived from the given data with the help of the following relations:

$$\begin{aligned}
 Q(\gamma, p) &= -S(p) \\
 Q(\gamma, n) &= -S(n) \\
 Q(\gamma, 2p) &= -S(2p) \\
 Q(\gamma, pn) &= Q(d, \alpha) - 26071.0939 \pm 0.0005 \\
 Q(\gamma, d) &= Q(d, \alpha) - 23846.5279 \pm 0.0002 \\
 Q(\gamma, 2n) &= -S(2n) \\
 Q(\gamma, t) &= Q(p, \alpha) - 19813.8649 \pm 0.0003 \\
 Q(\gamma, {}^3\text{He}) &= Q(n, \alpha) - 20577.6194 \pm 0.0005 \\
 Q(\gamma, \alpha) &= Q(\alpha)
 \end{aligned}$$

$$\begin{aligned}
 Q(p, n) &= Q(\beta^-) - 782.3465 \pm 0.0005 \\
 Q(p, 2p) &= -S(p) \\
 Q(p, pn) &= -S(n) \\
 Q(p, d) &= -S(n) + 2224.5660 \pm 0.0004 \\
 Q(p, 2n) &= Q(\beta^- n) - 782.3465 \pm 0.0005 \\
 Q(p, t) &= -S(2n) + 8481.7949 \pm 0.0009 \\
 Q(p, {}^3\text{He}) &= Q(d, \alpha) - 18353.0535 \pm 0.0003
 \end{aligned}$$

$$\begin{aligned}
 Q(n, 2p) &= Q(\varepsilon p) + 782.3465 \pm 0.0005 \\
 Q(n, np) &= -S(p) \\
 Q(n, d) &= -S(p) + 2224.5660 \pm 0.0004 \\
 Q(n, 2n) &= -S(n) \\
 Q(n, t) &= Q(d, \alpha) - 17589.2989 \pm 0.0005 \\
 Q(n, {}^3\text{He}) &= -S(2p) + 7718.0404 \pm 0.0005
 \end{aligned}$$

$$\begin{aligned}
 Q(d, pn) &= 0 - 2224.5660 \pm 0.0004 \\
 Q(d, t) &= -S(n) + 6257.2290 \pm 0.0005 \\
 Q(d, {}^3\text{He}) &= -S(p) + 5493.4744 \pm 0.0001
 \end{aligned}$$

$$\begin{aligned}
 Q({}^3\text{He}, t) &= Q(\beta^-) - 18.5920 \pm 0.0001 \\
 Q({}^3\text{He}, \alpha) &= -S(n) + 20577.6194 \pm 0.0005
 \end{aligned}$$

$$Q(t, \alpha) = -S(p) + 19813.8649 \pm 0.0003$$

Table III. Nuclear-reaction and separation energies (Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|----|------|---|----------|----------|----------|----------|---------------|-------|---------------|----------|---------------|----------|---------------|----------|
| 1 | n | 0 | 0.0 | 0.0 | * | | * | | * | | * | | * | |
| | H | 1 | * | | 0.0 | 0.0 | * | | * | | * | | * | |
| 2 | H | 1 | 2224.57 | <i>a</i> | 2224.57 | <i>a</i> | * | | 23846.53 | <i>a</i> | * | | * | |
| 3 | H | 1 | 6257.23 | <i>a</i> | * | | * | | 17589.30 | <i>a</i> | 19813.86 | <i>a</i> | * | |
| | He | 2 | * | | 5493.47 | <i>a</i> | * | | 18353.05 | <i>a</i> | * | | 20577.62 | <i>a</i> |
| | Li | 3 | * | | * | | * | | * | | * | | * | |
| 4 | H | 1 | -1600 | 100 | * | | * | | * | | 21410 | 100 | * | |
| | He | 2 | 20577.62 | <i>a</i> | 19813.86 | <i>a</i> | * | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | Li | 3 | 11420# | 2010# | -3100 | 210 | * | | * | | * | | 23680 | 210 |
| 5 | H | 1 | -200 | 130 | * | | * | | * | | * | | * | |
| | He | 2 | -735 | 20 | 20680 | 100 | * | | 6992 | 20 | 2960 | 20 | * | |
| | Li | 3 | 21720 | 220 | -1960 | 50 | * | | 7460 | 50 | * | | 4190 | 50 |
| | Be | 4 | * | | -4530# | 2010# | * | | 19180# | 2830# | * | | * | |
| 6 | H | 1 | -910 | 270 | * | | -5440# | 2020# | * | | * | | * | |
| | He | 2 | 1710 | 20 | 22590 | 90 | * | | 3680 | 100 | 7506.34 | 0.05 | * | |
| | Li | 3 | 5660 | 50 | 4433 | 20 | * | | 22372.77 | <i>a</i> | 4019.72 | <i>a</i> | 4783.47 | <i>a</i> |
| | Be | 4 | 26840# | 2000# | 590 | 50 | * | | 3760 | 210 | -5430# | 2000# | 9090 | 5 |
| | B | 5 | * | | -2890# | 2830# | * | | * | | * | | 24300# | 2830# |
| 7 | H | 1 | 810# | 1040# | * | | 21460# | 1000# | * | | * | | * | |
| | He | 2 | -410 | 8 | 23090 | 250 | * | | 3890 | 90 | 6320 | 100 | * | |
| | Li | 3 | 7251.09 | 0.01 | 9973.96 | 0.05 | * | | 14387 | 20 | 17346.24 | <i>a</i> | -4070 | 100 |
| | Be | 4 | 10677 | 5 | 5606.85 | 0.07 | * | | 14800 | 50 | -4690 | 210 | 18990.48 | 0.07 |
| | B | 5 | 27720# | 2000# | -2013 | 26 | * | | 1250# | 2000# | * | | 8000 | 210 |
| 8 | He | 2 | 2535 | 8 | 24810# | 1000# | -3455 | 18 | 440 | 250 | 3580 | 90 | * | |
| | Li | 3 | 2032.62 | 0.05 | 12416 | 8 | * | | 14064.51 | 0.07 | 14579 | 20 | -6300 | 90 |
| | Be | 4 | 18898.64 | 0.08 | 17254.40 | 0.04 | * | | 1565.60 | 0.04 | -1870 | 50 | -643 | 20 |
| | B | 5 | 12826 | 25 | 136.4 | 1.0 | * | | 15257 | 6 | -9350# | 2000# | 16890 | 50 |
| | C | 6 | * | | -100 | 30 | * | | -1550# | 2000# | * | | 3570# | 2000# |
| 9 | He | 2 | -1250 | 50 | * | | 12020 | 50 | 2510# | 1010# | 3920 | 260 | * | |
| | Li | 3 | 4062.22 | 0.19 | 13943.75 | 0.21 | * | | 9593 | 8 | 12226.86 | 0.19 | -11270 | 250 |
| | Be | 4 | 1664.54 | 0.08 | 16886.32 | 0.09 | * | | 7152.15 | 0.08 | 2125.63 | 0.08 | -597.24 | 0.09 |
| | B | 5 | 18576.4 | 1.3 | -185.8 | 0.9 | * | | 7358.3 | 0.9 | -1094 | 6 | 3976.0 | 0.9 |
| | C | 6 | 14225 | 18 | 1299.6 | 2.4 | * | | 11945 | 25 | -13550# | 2000# | 16182 | 6 |
| 10 | He | 2 | -190 | 100 | * | | 33500 | 90 | * | | 4930# | 1010# | * | |
| | Li | 3 | -26 | 13 | 15170 | 50 | -5750 | 400 | 12154 | 13 | 11844 | 15 | -10440# | 1000# |
| | Be | 4 | 6812.28 | 0.05 | 19636.39 | 0.20 | * | | 2372.49 | 0.09 | 2564.44 | 0.08 | -7819 | 8 |
| | B | 5 | 8437.2 | 0.9 | 6586.81 | 0.08 | * | | 17819.74 | 0.04 | 1145.67 | 0.07 | 2789.91 | 0.02 |
| | C | 6 | 21283.6 | 2.1 | 4006.8 | 0.9 | * | | 3487.9 | 1.0 | -7114 | 25 | 5576.07 | 0.10 |
| | N | 7 | * | | -2600 | 400 | * | | 14450 | 400 | * | | 16770 | 400 |
| 11 | Li | 3 | 396 | 13 | 15760 | 90 | 16420 | 50 | 10500 | 50 | 13982.6 | 0.6 | * | |
| | Be | 4 | 501.64 | 0.25 | 20164 | 13 | * | | 5933.1 | 0.3 | 4095.42 | 0.24 | -5786.11 | 0.25 |
| | B | 5 | 11454.22 | 0.02 | 11228.75 | 0.08 | * | | 8030.06 | 0.08 | 8590.09 | 0.04 | -6631.70 | 0.05 |
| | C | 6 | 13120.59 | 0.09 | 8690.18 | 0.06 | * | | 8943.7 | 0.9 | -7408.1 | 1.0 | 11354.13 | 0.07 |
| | N | 7 | 22570 | 400 | -1320 | 50 | * | | 6100 | 50 | -5900 | 50 | 7030 | 50 |
| 12 | Li | 3 | -210 | 30 | * | | 31670 | 30 | 10520 | 100 | 12940 | 60 | * | |
| | Be | 4 | 3170.7 | 1.9 | 22939.5 | 2.0 | -6837 | 24 | 2736 | 13 | 4986.9 | 1.9 | -10210 | 50 |
| | B | 5 | 3369.6 | 1.3 | 14096.7 | 1.3 | * | | 11472.7 | 1.3 | 6885.0 | 1.3 | -5939.1 | 1.3 |
| | C | 6 | 18720.71 | 0.06 | 15956.68 | 0.01 | * | | -1339.80 | 0.02 | -7552.4 | 0.9 | -5702.05 | 0.08 |
| | N | 7 | 15040 | 50 | 600.3 | 1.0 | * | | 12350.2 | 1.0 | -6708.8 | 2.4 | 10568.0 | 1.3 |
| | O | 8 | * | | -320 | 50 | * | | 3830 | 400 | * | | 8650 | 24 |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q($2\beta^-$) | | Q(ϵp) | | Q(β^- -n) | |
|----|------|---|----------|----------|----------|----------|---------------|----------|-----------------|-------|-------------------------|-------|------------------|-------|
| 1 | n | 0 | * | | * | | * | | * | | * | | * | |
| | H | 1 | * | | * | | * | | * | | * | | * | |
| 2 | H | 1 | * | | * | | * | | * | | * | | * | |
| 3 | H | 1 | 8481.79 | <i>a</i> | * | | * | | -13720# | 2000# | * | | * | |
| | He | 2 | * | | 7718.04 | <i>a</i> | * | | * | | * | | * | |
| | Li | 3 | * | | -6800# | 2000# | * | | * | | 8240# | 2000# | * | |
| 4 | H | 1 | 4660 | 100 | * | | * | | -700 | 230 | * | | 1620 | 100 |
| | He | 2 | * | | * | | 0.0 | 0.0 | * | | * | | -34310# | 2000# |
| | Li | 3 | * | | 2390 | 210 | * | | * | | 3080 | 210 | * | |
| 5 | H | 1 | -1800 | 90 | * | | * | | 21210 | 100 | * | | 22400 | 90 |
| | He | 2 | 19843 | 20 | * | | 735 | 20 | -25910# | 2000# | * | | -22160 | 210 |
| | Li | 3 | 33130# | 2000# | 17850 | 50 | 1960 | 50 | * | | -20230 | 110 | * | |
| | Be | 4 | * | | -7630# | 2000# | * | | * | | 27430# | 2000# | * | |
| 6 | H | 1 | -1110 | 270 | * | | * | | 27790 | 250 | * | | 22570 | 250 |
| | He | 2 | 975.45 | 0.05 | * | | * | | -783 | 5 | * | | -2160 | 50 |
| | Li | 3 | 27380 | 210 | 25110 | 100 | -1473.76 | <i>a</i> | -33230# | 2000# | -26090 | 90 | -31120# | 2000# |
| | Be | 4 | * | | -1372 | 5 | * | | * | | -145 | 21 | * | |
| | B | 5 | * | | -7420# | 2010# | * | | * | | 28350# | 2000# | * | |
| 7 | H | 1 | -100# | 1000# | * | | * | | 34230# | 1000# | * | | 23470# | 1000# |
| | He | 2 | 1301 | 21 | * | | * | | 10304 | 8 | * | | 3915 | 8 |
| | Li | 3 | 12910 | 50 | 32560 | 90 | -2467.62 | <i>a</i> | -12769 | 25 | -34260 | 250 | -11539 | 5 |
| | Be | 4 | 37510# | 2000# | 10040 | 20 | -1587.13 | 0.07 | * | | -9112.07 | 0.09 | -39620# | 2000# |
| | B | 5 | * | | -1420 | 60 | -3420# | 2000# | * | | 6301 | 25 | * | |
| 8 | He | 2 | 2125.05 | 0.10 | * | | * | | 26668.01 | 0.10 | * | | 8631.26 | 0.09 |
| | Li | 3 | 9283.71 | 0.05 | 35510 | 250 | -6100 | 100 | -1975.8 | 1.0 | -35480# | 1000# | -2894.51 | 0.09 |
| | Be | 4 | 29576 | 5 | 27228.37 | 0.06 | 91.84 | 0.04 | -30123 | 18 | -28420 | 8 | -30806 | 25 |
| | B | 5 | 40540# | 2000# | 5743.3 | 1.0 | -4830 | 210 | * | | 725.5 | 1.0 | * | |
| | C | 6 | * | | -2111 | 19 | * | | * | | 12006 | 18 | * | |
| 9 | He | 2 | 1280 | 50 | * | | * | | 29590 | 50 | * | | 11920 | 50 |
| | Li | 3 | 6094.84 | 0.19 | 38760# | 1000# | -10360 | 90 | 12538.4 | 0.9 | * | | 11941.91 | 0.19 |
| | Be | 4 | 20563.18 | 0.10 | 29303 | 8 | -2308 | 20 | -17562.5 | 2.1 | -27550.20 | 0.12 | -19644.4 | 1.0 |
| | B | 5 | 31403 | 25 | 17068.6 | 0.9 | -1690 | 50 | * | | -15818.3 | 0.9 | -30719 | 18 |
| | C | 6 | * | | 1436.0 | 2.1 | -10650# | 2000# | * | | 16680.3 | 2.1 | * | |
| 10 | He | 2 | -1440 | 90 | * | | * | | 36590 | 90 | * | | 16170 | 90 |
| | Li | 3 | 4036 | 13 | * | | -11250 | 250 | 21002 | 13 | * | | 13633 | 13 |
| | Be | 4 | 8476.82 | 0.09 | 33580.13 | 0.12 | -7409.52 | 0.10 | -3091.18 | 0.11 | -35620 | 50 | -7880.3 | 0.9 |
| | B | 5 | 27013.6 | 1.0 | 23473.14 | 0.05 | -4461.19 | 0.02 | -26750 | 400 | -20193.26 | 0.19 | -24931.7 | 2.1 |
| | C | 6 | 35508 | 18 | 3820.94 | 0.08 | -5101 | 5 | * | | -2938.75 | 0.10 | * | |
| | N | 7 | * | | -1300 | 400 | -10950# | 2040# | * | | 19090 | 400 | * | |
| 11 | Li | 3 | 369.3 | 0.6 | * | | -10830# | 1000# | 32060.5 | 0.6 | * | | 20049.4 | 0.6 |
| | Be | 4 | 7313.92 | 0.25 | 35340 | 50 | -8321 | 8 | 9527.77 | 0.25 | -36310 | 90 | 55.24 | 0.24 |
| | B | 5 | 19891.4 | 0.9 | 30865.14 | 0.19 | -8664.31 | 0.01 | -15640 | 50 | -31674 | 13 | -15102.28 | 0.07 |
| | C | 6 | 34404.2 | 2.1 | 15277.00 | 0.10 | -7544.52 | 0.09 | * | | -9247.06 | 0.10 | -36220 | 400 |
| | N | 7 | * | | 2690 | 50 | -5800 | 50 | * | | 4960 | 50 | * | |
| 12 | Li | 3 | 190 | 30 | * | | * | | 35640 | 30 | * | | 20760 | 30 |
| | Be | 4 | 3672.4 | 1.9 | 38700 | 90 | -8956.8 | 1.9 | 25077.8 | 1.9 | * | | 8338.7 | 1.9 |
| | B | 5 | 14823.8 | 1.3 | 34261 | 13 | -10001.3 | 1.3 | -3968.7 | 1.7 | -34647.8 | 1.5 | -5351.3 | 1.3 |
| | C | 6 | 31841.31 | 0.07 | 27185.43 | 0.08 | -7366.59 | 0.04 | -31915 | 24 | -27466.14 | 0.24 | -32370 | 50 |
| | N | 7 | 37600 | 400 | 9290.5 | 1.0 | -8008.4 | 1.4 | * | | 1381.4 | 1.0 | * | |
| | O | 8 | * | | -1638 | 24 | -5570 | 30 | * | | 13976 | 24 | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|----|------|----|----------|----------|----------|----------|---------------|------|---------------|----------|---------------|----------|---------------|----------|
| 13 | Li | 3 | 100 | 80 | * | | 51640 | 70 | * | | 12650 | 120 | * | |
| | Be | 4 | -510 | 10 | 22640 | 30 | 10544 | 14 | 3642 | 10 | 5471 | 16 | -9890 | 90 |
| | B | 5 | 4878.8 | 1.7 | 15804.8 | 2.2 | * | | 7095.6 | 1.0 | 8818.5 | 1.0 | -10844 | 13 |
| | C | 6 | 4946.31 | <i>a</i> | 17533.4 | 1.3 | * | | 5168.11 | 0.01 | -4061.55 | 0.02 | -3836.08 | 0.08 |
| | N | 7 | 20063.9 | 1.0 | 1943.49 | 0.27 | * | | 5406.89 | 0.28 | -5489.14 | 0.28 | -1058.73 | 0.27 |
| | O | 8 | 16870 | 26 | 1512 | 10 | * | | 9520 | 50 | -10820 | 400 | 13063 | 10 |
| 14 | Be | 4 | 1780 | 130 | 24320 | 150 | 31950 | 130 | 1660 | 140 | 4090 | 130 | * | |
| | B | 5 | 970 | 21 | 17284 | 24 | -8300 | 50 | 9297 | 21 | 8351 | 21 | -11418 | 21 |
| | C | 6 | 8176.43 | <i>a</i> | 20831.0 | 1.0 | * | | 361.3 | 1.3 | -783.76 | 0.01 | -11510.87 | 0.24 |
| | N | 7 | 10553.38 | 0.27 | 7550.56 | <i>a</i> | * | | 13574.22 | <i>a</i> | -2921.92 | 0.06 | -157.89 | 0.01 |
| | O | 8 | 23179 | 10 | 4626.67 | 0.27 | * | | 1380.5 | 1.0 | -11430 | 50 | 3004.79 | 0.06 |
| | F | 9 | * | | -1560 | 40 | * | | 10760 | 50 | * | | 13310 | 60 |
| 15 | Be | 4 | -1800 | 100 | * | | 46970 | 170 | 3560 | 180 | 5680 | 170 | * | |
| | B | 5 | 2777 | 30 | 18290 | 130 | 12391 | 25 | 6010 | 23 | 8745 | 21 | -14400 | 40 |
| | C | 6 | 1218.1 | 0.8 | 21080 | 21 | -30340 | 70 | 4022.0 | 1.3 | 1367.8 | 1.5 | -9558.2 | 2.1 |
| | N | 7 | 10833.30 | <i>a</i> | 10207.42 | <i>a</i> | * | | 7687.24 | <i>a</i> | 4965.49 | <i>a</i> | -7621.6 | 1.3 |
| | O | 8 | 13223.5 | 0.5 | 7296.8 | 0.5 | * | | 8220.9 | 0.6 | -9618.4 | 1.1 | 8502.0 | 0.5 |
| | F | 9 | 23470 | 40 | -1270 | 14 | * | | 4162 | 17 | -10484 | 28 | 4875 | 14 |
| | Ne | 10 | * | | -960 | 80 | * | | * | | * | | 13950 | 70 |
| 16 | Be | 4 | 450 | 140 | * | | 62180 | 170 | * | | 5330 | 180 | * | |
| | B | 5 | -83 | 15 | 20000 | 170 | 26432 | 26 | 7870 | 130 | 8317 | 27 | -14220 | 70 |
| | C | 6 | 4250 | 4 | 22553 | 21 | -10293 | 21 | 741 | 22 | 1996 | 4 | -14319 | 11 |
| | N | 7 | 2488.8 | 2.3 | 11478.2 | 2.4 | * | | 13374.8 | 2.3 | 7423.0 | 2.3 | -5231.6 | 2.5 |
| | O | 8 | 15663.9 | 0.5 | 12127.41 | <i>a</i> | * | | 3110.39 | <i>a</i> | -5218.43 | 0.27 | -2215.61 | <i>a</i> |
| | F | 9 | 13958 | 16 | -536 | 8 | * | | 13383 | 8 | -7571 | 13 | 10981 | 8 |
| | Ne | 10 | 24300 | 70 | -131 | 25 | * | | 2730 | 50 | * | | 6518 | 23 |
| 17 | B | 5 | 1470 | 210 | 21020 | 260 | 41760 | 200 | 4600 | 260 | 8630 | 240 | * | |
| | C | 6 | 734 | 18 | 23370 | 30 | 4531 | 17 | 2784 | 27 | 2232 | 27 | -13280 | 130 |
| | N | 7 | 5885 | 15 | 13113 | 15 | -27300 | 1000 | 8708 | 15 | 9714 | 15 | -10147 | 26 |
| | O | 8 | 4143.08 | <i>a</i> | 13781.6 | 2.3 | * | | 9800.60 | <i>a</i> | 1191.87 | <i>a</i> | 1817.74 | <i>a</i> |
| | F | 9 | 16800 | 8 | 600.27 | 0.25 | * | | 9806.9 | 0.5 | -1192.02 | 0.25 | 4734.69 | 0.25 |
| | Ne | 10 | 15558 | 20 | 1469 | 8 | * | | 10645 | 14 | -10600 | 40 | 14139.1 | 0.4 |
| | Na | 11 | * | | -3900 | 1000 | * | | 5670 | 1000 | * | | 8860 | 1000 |
| 18 | B | 5 | -5 | 5 | * | | 50920 | 200 | 5060 | 260 | 6830 | 260 | * | |
| | C | 6 | 4180 | 30 | 26090 | 210 | 19600 | 30 | -1480 | 40 | 830 | 40 | -19260 | 170 |
| | N | 7 | 2828 | 24 | 15208 | 25 | -11920 | 100 | 10130 | 19 | 8104 | 19 | -10199 | 28 |
| | O | 8 | 8045.37 | <i>a</i> | 15942 | 15 | * | | 4244.1 | 2.3 | 3979.80 | <i>a</i> | -5009.6 | 0.8 |
| | F | 9 | 9149.9 | 0.5 | 5607.1 | 0.5 | * | | 16320.9 | 0.5 | 2881.6 | 0.7 | 6418.1 | 0.5 |
| | Ne | 10 | 19254.2 | 0.5 | 3923.1 | 0.4 | * | | 5348 | 8 | -6385 | 14 | 8108.4 | 0.6 |
| | Na | 11 | 18210 | 1010 | -1250 | 90 | * | | 11760 | 100 | -10310 | 120 | 14120 | 90 |
| 19 | B | 5 | 90 | 560 | * | | 61260 | 530 | * | | 7190 | 550 | * | |
| | C | 6 | 580 | 90 | 26670 | 230 | 30660 | 100 | -590 | 230 | 170 | 100 | -19390 | 190 |
| | N | 7 | 5328 | 25 | 16350 | 30 | 2927 | 19 | 5535 | 24 | 7026 | 17 | -15610 | 30 |
| | O | 8 | 3955.6 | 2.6 | 17069 | 19 | -28500 | 50 | 6174 | 15 | 2513 | 3 | -4715 | 4 |
| | F | 9 | 10431.9 | 0.5 | 7993.60 | <i>a</i> | * | | 10032.13 | <i>a</i> | 8113.61 | <i>a</i> | -1524.9 | 2.3 |
| | Ne | 10 | 11636.9 | 0.4 | 6410.0 | 0.5 | * | | 10511.15 | 0.30 | -4064 | 8 | 12135.45 | 0.16 |
| | Na | 11 | 20180 | 90 | -323 | 11 | * | | 7140 | 11 | -6193 | 23 | 7896 | 13 |
| | Mg | 12 | * | | 500 | 110 | * | | 7370 | 1000 | * | | 13490 | 50 |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | $Q(\alpha)$ | | $Q(2\beta^-)$ | | $Q(\epsilon p)$ | | $Q(\beta^- n)$ | |
|----|------|----|----------|----------|----------|----------|-------------|----------|---------------|------|-----------------|------|----------------|------|
| 13 | Li | 3 | -110 | 70 | * | | * | | 40420 | 70 | * | | 23830 | 70 |
| | Be | 4 | 2661 | 10 | * | | -9700 | 50 | 30534 | 10 | * | | 12218 | 10 |
| | B | 5 | 8248.4 | 1.0 | 38744.2 | 1.2 | -10817.9 | 1.0 | 11216.5 | 1.0 | -39740 | 30 | 8490.6 | 1.0 |
| | C | 6 | 23667.02 | 0.06 | 31630.10 | 0.24 | -10648.36 | 0.08 | -19990 | 10 | -29241.7 | 1.9 | -22284.4 | 1.0 |
| | N | 7 | 35100 | 50 | 17900.17 | 0.27 | -9495.9 | 0.9 | * | | -15312.9 | 1.3 | -34640 | 24 |
| | O | 8 | * | | 2112 | 10 | -8220 | 10 | * | | 15826 | 10 | * | |
| 14 | Be | 4 | 1270 | 130 | * | | -11670 | 160 | 36930 | 130 | * | | 15320 | 130 |
| | B | 5 | 5848 | 21 | 39920 | 40 | -11814 | 25 | 20800 | 21 | -40610 | 70 | 12467 | 21 |
| | C | 6 | 13122.74 | <i>a</i> | 36635.8 | 1.9 | -12012.51 | 0.08 | -4987.89 | 0.03 | -37928 | 10 | -10396.91 | 0.27 |
| | N | 7 | 30617.3 | 1.0 | 25083.9 | 1.3 | -11612.11 | 0.02 | -29100 | 40 | -20987.5 | 1.0 | -28323 | 10 |
| | O | 8 | 40049 | 24 | 6570.16 | 0.03 | -10115.81 | 0.07 | * | | -2406.20 | 0.03 | * | |
| | F | 9 | * | | -50 | 40 | -9260 | 400 | * | | 19330 | 40 | * | |
| 15 | Be | 4 | -20 | 170 | * | | * | | 39950 | 170 | * | | 18090 | 170 |
| | B | 5 | 3746 | 21 | 42600 | 70 | -14195 | 21 | 28857 | 21 | * | | 17867 | 21 |
| | C | 6 | 9394.5 | 0.8 | 38364 | 10 | -12728.9 | 0.8 | 7017.5 | 0.9 | -37370 | 130 | -1061.6 | 0.8 |
| | N | 7 | 21386.68 | 0.27 | 31038.4 | 1.0 | -10991.18 | 0.01 | -16465 | 14 | -30851 | 21 | -15977.66 | 0.03 |
| | O | 8 | 36402 | 10 | 14847.3 | 0.5 | -10218.7 | 0.5 | -37360 | 70 | -7453.3 | 0.5 | -37180 | 40 |
| | F | 9 | * | | 3357 | 14 | -10160 | 50 | * | | 6414 | 14 | * | |
| | Ne | 10 | * | | -2520 | 70 | * | | * | | 24920 | 70 | * | |
| 16 | Be | 4 | -1350 | 100 | * | | * | | 43750 | 170 | * | | 20420 | 170 |
| | B | 5 | 2690 | 30 | * | | -14320 | 40 | 31429 | 25 | * | | 19168 | 25 |
| | C | 6 | 5468 | 4 | 40840 | 130 | -13809 | 4 | 18431 | 4 | -43420 | 170 | 5521 | 4 |
| | N | 7 | 13322.1 | 2.3 | 32558 | 21 | -10110.4 | 2.7 | -4996 | 9 | -30563 | 21 | -5243.0 | 2.4 |
| | O | 8 | 28887.42 | 0.03 | 22334.83 | <i>a</i> | -7161.92 | <i>a</i> | -28724 | 20 | -21899.1 | 0.8 | -29375 | 14 |
| | F | 9 | 37430 | 40 | 6761 | 8 | -9083 | 8 | * | | 3290 | 8 | -37610 | 70 |
| | Ne | 10 | * | | -1401 | 20 | -10350 | 30 | * | | 13842 | 20 | * | |
| 17 | B | 5 | 1380 | 210 | * | | -15690 | 220 | 35850 | 200 | * | | 21950 | 200 |
| | C | 6 | 4984 | 17 | 43370 | 170 | -15052 | 20 | 21841 | 17 | -43700 | 170 | 7277 | 18 |
| | N | 7 | 8374 | 15 | 35666 | 26 | -11117 | 15 | 5918 | 15 | -36531 | 29 | 4536 | 15 |
| | O | 8 | 19807.0 | 0.5 | 25259.8 | 0.8 | -6358.69 | <i>a</i> | -17309.2 | 0.4 | -21792 | 4 | -19560 | 8 |
| | F | 9 | 30758 | 14 | 12727.68 | 0.25 | -5818.7 | 0.4 | -33220 | 1000 | -11021.2 | 2.3 | -30106 | 20 |
| | Ne | 10 | 39860 | 70 | 933.1 | 0.6 | -9040 | 10 | * | | 13948.5 | 0.4 | * | |
| | Na | 11 | * | | -4030 | 1000 | * | | * | | 17200 | 1000 | * | |
| 18 | B | 5 | 1460 | 210 | * | | * | | 38680 | 210 | * | | 22690 | 200 |
| | C | 6 | 4920 | 30 | 47110 | 170 | -17460 | 140 | 25700 | 30 | * | | 8980 | 30 |
| | N | 7 | 8713 | 19 | 38580 | 30 | -12975 | 28 | 12240 | 19 | -37890 | 200 | 5851 | 19 |
| | O | 8 | 12188.45 | <i>a</i> | 29055 | 4 | -6227.62 | <i>a</i> | -6100.4 | 0.4 | -29104 | 17 | -10805.83 | 0.25 |
| | F | 9 | 25950 | 8 | 19388.7 | 2.3 | -4415.2 | 0.5 | -24160 | 90 | -14286 | 15 | -23698.7 | 0.6 |
| | Ne | 10 | 34812 | 20 | 4523.3 | 0.4 | -5115.1 | 0.4 | * | | -1162.6 | 0.4 | -37930 | 1000 |
| | Na | 11 | * | | 220 | 90 | -9350 | 100 | * | | 15800 | 90 | * | |
| 19 | B | 5 | 90 | 560 | * | | * | | 43910 | 530 | * | | 26780 | 530 |
| | C | 6 | 4760 | 100 | * | | -19840 | 190 | 29080 | 100 | * | | 11230 | 100 |
| | N | 7 | 8156 | 22 | 42440 | 200 | -15527 | 27 | 17344 | 16 | -43230 | 200 | 8568 | 16 |
| | O | 8 | 12001.0 | 2.6 | 32277 | 18 | -8965.2 | 2.8 | 1580.8 | 2.6 | -28880 | 30 | -5611.6 | 2.7 |
| | F | 9 | 19581.78 | 0.25 | 23935 | 15 | -4013.80 | <i>a</i> | -14417 | 11 | -21890 | 19 | -14876.4 | 0.4 |
| | Ne | 10 | 30891.0 | 0.4 | 12017.13 | 0.16 | -3528.5 | 0.5 | -30080 | 50 | -4754.10 | 0.16 | -31360 | 90 |
| | Na | 11 | 38390 | 1000 | 3600 | 11 | -6062 | 18 | * | | 4767 | 11 | * | |
| | Mg | 12 | * | | -750 | 50 | -10810 | 80 | * | | 19220 | 50 | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|----|------|----|----------|-------|----------|----------|---------------|-------|---------------|-------|---------------|----------|---------------|----------|
| 20 | B | 5 | −610# | 960# | * | | 68470# | 800# | * | | * | | * | |
| | C | 6 | 2980 | 250 | 29560 | 570 | 44550 | 230 | −3580 | 310 | −1350 | 310 | * | |
| | N | 7 | 2160 | 80 | 17940 | 130 | 14920 | 80 | 7560 | 80 | 5600 | 80 | −16300 | 220 |
| | O | 8 | 7608.0 | 2.8 | 19349 | 16 | −13681.5 | 2.1 | 1394 | 19 | 790 | 15 | −11589 | 17 |
| | F | 9 | 6601.34 | 0.03 | 10639.3 | 2.6 | * | | 11476.16 | 0.03 | 5655.35 | 0.03 | −2241 | 15 |
| | Ne | 10 | 16865.30 | 0.16 | 12843.46 | <i>a</i> | * | | 2795.8 | 0.5 | −4129.58 | 0.25 | −586.77 | <i>a</i> |
| | Na | 11 | 14150 | 11 | 2190.4 | 1.1 | * | | 12243.8 | 1.2 | −4785.8 | 1.2 | 10545.3 | 1.1 |
| | Mg | 12 | 22420 | 50 | 2741 | 11 | * | | 3150 | 90 | −12830 | 1000 | 6623.6 | 1.9 |
| 21 | B | 5 | −810# | 1200# | * | | 77380# | 900# | * | | * | | * | |
| | C | 6 | −70# | 640# | 30100# | 1000# | 51380# | 600# | −3420# | 800# | −1290# | 630# | * | |
| | N | 7 | 4610 | 160 | 19560 | 270 | 27420 | 130 | 3530 | 170 | 5180 | 140 | −20910 | 240 |
| | O | 8 | 3805 | 12 | 20990 | 80 | −2842 | 12 | 2917 | 20 | −187 | 22 | −11210 | 30 |
| | F | 9 | 8101.5 | 1.8 | 11132.7 | 2.0 | −27040# | 600# | 7330 | 3 | 5599.3 | 1.8 | −7514 | 19 |
| | Ne | 10 | 6761.16 | 0.04 | 13003.28 | 0.05 | * | | 6466.47 | 0.04 | −1740.8 | 0.5 | 697.44 | 0.04 |
| | Na | 11 | 17106.6 | 1.1 | 2431.67 | 0.10 | * | | 6774.12 | 0.19 | −2638.2 | 0.4 | 2588.7 | 0.5 |
| | Mg | 12 | 14645.2 | 2.0 | 3235.7 | 1.3 | * | | 8685 | 11 | −9270 | 90 | 11232.6 | 0.8 |
| | Al | 13 | * | | −2220# | 600# | * | | 5870# | 600# | * | | 7600# | 600# |
| 22 | C | 6 | 100# | 640# | 31010# | 930# | 61640 | 230 | −4130# | 830# | −1290 | 570 | * | |
| | N | 7 | 1540 | 250 | 21170# | 630# | 36950 | 210 | 4970 | 310 | 4220 | 230 | −22360 | 560 |
| | O | 8 | 6850 | 60 | 23240 | 150 | 9680 | 60 | −1770 | 100 | −1710 | 60 | −17480 | 110 |
| | F | 9 | 5230 | 13 | 12558 | 17 | −15410# | 400# | 9708 | 12 | 4325 | 13 | −7417 | 21 |
| | Ne | 10 | 10364.26 | 0.04 | 15266.1 | 1.8 | −41360# | 500# | 2703.55 | 0.03 | −1673.22 | 0.02 | −5711.2 | 2.6 |
| | Na | 11 | 11068.20 | 0.20 | 6738.71 | 0.18 | * | | 12571.23 | 0.17 | −2069.51 | 0.23 | 1952.33 | 0.17 |
| | Mg | 12 | 19375.1 | 0.8 | 5504.3 | 0.3 | * | | 3460.3 | 1.2 | −8465 | 11 | 3494.4 | 0.4 |
| | Al | 13 | 16860# | 720# | −10# | 400# | * | | 11440# | 400# | −8760# | 400# | 10920# | 400# |
| | Si | 14 | * | | 940# | 780# | * | | * | | * | | 7160# | 510# |
| 23 | C | 6 | −2490# | 1020# | * | | 69330# | 1000# | −2450# | 1340# | 590# | 1280# | * | |
| | N | 7 | 3120 | 470 | 24180 | 480 | 46250 | 420 | 1790# | 730# | 4080 | 480 | −26080# | 900# |
| | O | 8 | 2730 | 130 | 24430 | 240 | 20090 | 120 | 100 | 180 | −2280 | 150 | −17240 | 260 |
| | F | 9 | 7580 | 40 | 13290 | 70 | −3460 | 30 | 5930 | 40 | 4350 | 30 | −12830 | 90 |
| | Ne | 10 | 5200.65 | 0.10 | 15236 | 12 | −28850# | 500# | 5604.4 | 1.8 | −272.53 | 0.11 | −3303.8 | 0.9 |
| | Na | 11 | 12419.66 | 0.17 | 8794.11 | 0.02 | * | | 6912.73 | 0.04 | 2376.13 | <i>a</i> | −3865.99 | 0.03 |
| | Mg | 12 | 13144.9 | 0.4 | 7580.97 | 0.23 | * | | 7421.92 | 0.19 | −7460.1 | 1.1 | 7214.82 | 0.16 |
| | Al | 13 | 19530# | 400# | 141.0 | 0.5 | * | | 6555.0 | 0.8 | −5865.6 | 1.9 | 5543.9 | 1.2 |
| | Si | 14 | 17710# | 710# | 1790# | 640# | * | | 7420# | 780# | * | | 11870# | 500# |
| 24 | N | 7 | −2150# | 580# | 24520# | 1070# | 55360# | 400# | 4040# | 460# | 6160# | 720# | −24750# | 990# |
| | O | 8 | 4190 | 200 | 25510 | 450 | 32430 | 160 | −2550 | 270 | −1870 | 210 | −21500# | 620# |
| | F | 9 | 3810 | 100 | 14370 | 160 | 7590 | 100 | 8970 | 110 | 4350 | 100 | −12040 | 170 |
| | Ne | 10 | 8868.9 | 0.5 | 16530 | 30 | −16697 | 19 | 1966 | 12 | −1040.0 | 1.9 | −8367 | 12 |
| | Na | 11 | 6959.37 | 0.02 | 10552.82 | 0.11 | −41740# | 500# | 10317.62 | 0.02 | 2177.93 | 0.04 | −2723.9 | 1.8 |
| | Mg | 12 | 16531.37 | 0.16 | 11692.69 | 0.01 | * | | 1958.75 | 0.17 | −6884.88 | 0.10 | −2555.39 | 0.04 |
| | Al | 13 | 14868.3 | 0.4 | 1864.32 | 0.28 | * | | 11061.9 | 0.4 | −6088.7 | 0.8 | 7782.17 | 0.25 |
| | Si | 14 | 21020# | 500# | 3292 | 19 | * | | 3260# | 400# | −11380# | 600# | 5488 | 19 |
| | P | 15 | * | | −2330# | 710# | * | | 10690# | 710# | * | | 11980# | 780# |
| 25 | N | 7 | −970# | 640# | * | | 65340# | 500# | 2520# | 1120# | 7240# | 550# | * | |
| | O | 8 | −757 | 8 | 26900# | 430# | 40520 | 170 | 1320 | 450 | 430 | 270 | −20640 | 280 |
| | F | 9 | 4280 | 140 | 14460 | 190 | 20250 | 100 | 7420 | 160 | 6920 | 110 | −14780 | 230 |
| | Ne | 10 | 4155 | 29 | 16870 | 100 | −5860 | 30 | 5390 | 40 | 40 | 30 | −5670 | 60 |
| | Na | 11 | 9011.2 | 1.2 | 10695.1 | 1.3 | −29100# | 400# | 6507.0 | 1.2 | 3531.0 | 1.2 | −6505 | 12 |
| | Mg | 12 | 7330.53 | 0.05 | 12063.85 | 0.05 | * | | 7047.88 | 0.05 | −3147.22 | 0.18 | 478.34 | 0.05 |
| | Al | 13 | 16938.43 | 0.24 | 2271.38 | 0.07 | * | | 7268.34 | 0.17 | −3652.0 | 0.3 | 1911.94 | 0.18 |
| | Si | 14 | 14989 | 22 | 3413 | 10 | * | | 7790 | 10 | −9510# | 400# | 9874 | 10 |
| | P | 15 | 21650# | 640# | −1700# | 400# | * | | 6750# | 640# | −8740# | 640# | 7180# | 570# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | $Q(\alpha)$ | | $Q(2\beta^-)$ | | $Q(\epsilon p)$ | | $Q(\beta^- n)$ | |
|----|------|----|----------|-------|----------|----------|-------------|----------|---------------|-------|-----------------|-------|----------------|-------|
| 20 | B | 5 | −520# | 830# | * | | * | | 46680# | 800# | * | | 27970# | 810# |
| | C | 6 | 3560 | 230 | * | | −22370 | 280 | 33710 | 230 | * | | 13580 | 230 |
| | N | 7 | 7490 | 80 | 44600 | 220 | −17770 | 80 | 21780 | 80 | −45290 | 530 | 10360 | 80 |
| | O | 8 | 11563.6 | 0.9 | 35700 | 30 | −12323 | 4 | 10838.1 | 0.9 | −35910 | 100 | −2787.7 | 0.9 |
| | F | 9 | 17033.2 | 0.5 | 27709 | 19 | −8126.3 | 2.3 | −6868.1 | 1.1 | −23163 | 16 | −9840.83 | 0.16 |
| | Ne | 10 | 28502.2 | 0.4 | 20837.06 | <i>a</i> | −4729.84 | <i>a</i> | −24519.6 | 1.9 | −17663.8 | 2.6 | −28043 | 11 |
| | Na | 11 | 34330 | 90 | 8600.5 | 1.2 | −6255 | 8 | * | | 1049.1 | 1.1 | −33050 | 50 |
| | Mg | 12 | * | | 2417.9 | 1.9 | −8934 | 21 | * | | 8436.7 | 1.9 | * | |
| 21 | B | 5 | −1420# | 1040# | * | | * | | 52100# | 910# | * | | 31760# | 930# |
| | C | 6 | 2910# | 600# | * | | * | | 37580# | 600# | * | | 15810# | 600# |
| | N | 7 | 6770 | 140 | 49120 | 540 | −20910 | 240 | 25280 | 130 | −50510# | 810# | 13360 | 130 |
| | O | 8 | 11413 | 12 | 38930 | 100 | −15395 | 21 | 13794 | 12 | −36730 | 230 | 8 | 12 |
| | F | 9 | 14702.8 | 1.8 | 30482 | 17 | −10343 | 15 | 2137.0 | 1.8 | −29100 | 80 | −1077.0 | 1.8 |
| | Ne | 10 | 23626.46 | 0.16 | 23642.6 | 2.6 | −7347.93 | 0.04 | −16635.6 | 0.8 | −16816.9 | 0.9 | −20653.7 | 1.1 |
| | Na | 11 | 31257 | 11 | 15275.13 | 0.10 | −6561.25 | 0.27 | −29180# | 600# | −9456.14 | 0.10 | −27733.6 | 1.9 |
| | Mg | 12 | 37070 | 50 | 5426.1 | 0.8 | −8021.5 | 0.8 | * | | 10656.8 | 0.8 | * | |
| 22 | Al | 13 | * | | 520# | 600# | −10610# | 1170# | * | | 12850# | 600# | * | |
| | C | 6 | 35 | 20 | * | | * | | 44330 | 240 | * | | 20310 | 270 |
| | N | 7 | 6140 | 220 | 51260# | 830# | −22450 | 290 | 28970 | 210 | −52850# | 920# | 15630 | 210 |
| | O | 8 | 10660 | 60 | 42800 | 240 | −18060 | 60 | 17310 | 60 | −43650# | 600# | 1260 | 60 |
| | F | 9 | 13332 | 12 | 33550 | 80 | −12745 | 22 | 7975 | 12 | −29730 | 130 | 454 | 12 |
| | Ne | 10 | 17125.42 | 0.02 | 26398.8 | 0.9 | −9666.82 | 0.02 | −7624.8 | 0.3 | −23376 | 12 | −13911.40 | 0.10 |
| | Na | 11 | 28174.7 | 1.1 | 19741.99 | 0.17 | −8479.5 | 0.5 | −23380# | 400# | −12422.9 | 1.8 | −24156.7 | 0.8 |
| | Mg | 12 | 34020.3 | 1.9 | 7935.9 | 0.3 | −8142.5 | 0.5 | −33740# | 500# | −1957.1 | 0.3 | −35460# | 600# |
| 23 | Al | 13 | * | | 3230# | 400# | −9260# | 410# | * | | 13100# | 400# | * | |
| | Si | 14 | * | | −1280# | 500# | * | | * | | 15150# | 500# | * | |
| | C | 6 | −2390# | 1160# | * | | * | | 49550# | 1000# | * | | 24340# | 1020# |
| | N | 7 | 4650 | 440 | 55190# | 990# | −25470 | 670 | 33440 | 420 | * | | 19370 | 420 |
| | O | 8 | 9580 | 120 | 45600# | 610# | −20220 | 160 | 19780 | 120 | −46280 | 260 | 3760 | 120 |
| | F | 9 | 12810 | 30 | 36520 | 140 | −15000 | 40 | 12820 | 30 | −35770 | 210 | 3240 | 30 |
| | Ne | 10 | 15564.91 | 0.11 | 27794 | 12 | −10911.8 | 2.6 | 319.46 | 0.19 | −21730 | 60 | −8043.85 | 0.20 |
| | Na | 11 | 23487.86 | 0.10 | 24060.2 | 1.8 | −10467.32 | <i>a</i> | −16277.9 | 0.3 | −19612 | 12 | −17201.2 | 0.3 |
| 24 | Mg | 12 | 32520.0 | 0.8 | 14319.68 | 0.16 | −9650.48 | 0.23 | −29170# | 500# | −4737.76 | 0.16 | −31750# | 400# |
| | Al | 13 | 36390# | 600# | 5645.2 | 0.4 | −8606 | 11 | * | | 4640.6 | 0.4 | −34660# | 500# |
| | Si | 14 | * | | 1790# | 500# | −10560# | 510# | * | | 16810# | 500# | * | |
| | N | 7 | 970# | 450# | * | | −23940# | 900# | 39390# | 410# | * | | 24250# | 420# |
| | O | 8 | 6930 | 170 | 49690 | 280 | −21430 | 280 | 24450 | 160 | −52960# | 1010# | 7140 | 170 |
| | F | 9 | 11390 | 100 | 38800 | 230 | −16650 | 130 | 15960 | 100 | −36460 | 430 | 4630 | 100 |
| | Ne | 10 | 14069.6 | 0.5 | 29810 | 60 | −12172.7 | 1.0 | 7981.9 | 0.5 | −27860 | 120 | −4493.1 | 0.5 |
| | Na | 11 | 19379.02 | 0.17 | 25789 | 12 | −10825.35 | 0.03 | −8369.04 | 0.23 | −18990 | 30 | −11015.71 | 0.16 |
| 25 | Mg | 12 | 29676.3 | 0.3 | 20486.79 | 0.02 | −9316.55 | 0.01 | −24679 | 19 | −16068.49 | 0.11 | −28753.0 | 0.3 |
| | Al | 13 | 34390# | 400# | 9445.30 | 0.29 | −9324.4 | 1.1 | −33370# | 500# | 2192.02 | 0.23 | −31820# | 500# |
| | Si | 14 | 38740# | 500# | 3433 | 19 | −9157 | 20 | * | | 8930 | 19 | * | |
| | P | 15 | * | | −540# | 640# | * | | * | | 19280# | 500# | * | |
| | N | 7 | −3120# | 660# | * | | −23770# | 1030# | 44650# | 510# | * | | 29410# | 530# |
| | O | 8 | 3430 | 210 | 51420# | 1010# | −20740# | 620# | 29360 | 170 | * | | 11710 | 190 |
| | F | 9 | 8090 | 100 | 39960 | 430 | −16320 | 170 | 20690 | 100 | −42890# | 410# | 9210 | 100 |
| | Ne | 10 | 13024 | 29 | 31230 | 130 | −12520 | 30 | 11157 | 29 | −27820 | 170 | −1689 | 29 |
| 26 | Na | 11 | 15970.6 | 1.2 | 27220 | 30 | −11735.1 | 2.2 | −441.8 | 1.2 | −24190 | 100 | −3495.6 | 1.2 |
| | Mg | 12 | 23861.90 | 0.17 | 22616.68 | 0.11 | −9885.92 | 0.06 | −17020 | 10 | −14530.1 | 0.5 | −21215.23 | 0.24 |
| | Al | 13 | 31806.7 | 0.4 | 13964.06 | 0.06 | −9156.26 | 0.12 | −28650# | 400# | −7787.04 | 0.07 | −27732 | 19 |
| | Si | 14 | 36010# | 500# | 5277 | 10 | −9501 | 10 | * | | 10472 | 10 | −37560# | 500# |
| | P | 15 | * | | 1590# | 400# | −9680# | 720# | * | | 12500# | 400# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|----|------|----|----------|------|----------|------|---------------|------|---------------|------|---------------|------|---------------|-------|
| 26 | O | 8 | 739 | 10 | 28610# | 530# | 50880 | 160 | -1570# | 430# | 2800 | 450 | -23860# | 1010# |
| | F | 9 | 760 | 150 | 15970 | 200 | 30860 | 110 | 10860 | 200 | 8890 | 160 | -12430 | 440 |
| | Ne | 10 | 5550 | 30 | 18140 | 100 | 7622 | 18 | 3650 | 100 | 2060 | 40 | -8490 | 120 |
| | Na | 11 | 5574 | 4 | 12114 | 29 | -17830# | 200# | 9802 | 4 | 3157 | 4 | -4500 | 30 |
| | Mg | 12 | 11093.08 | 0.04 | 14145.7 | 1.2 | -43290# | 600# | 2914.16 | 0.03 | -1820.63 | 0.03 | -5414.09 | 0.11 |
| | Al | 13 | 11365.49 | 0.07 | 6306.34 | 0.06 | * | | 12434.22 | 0.07 | -1872.58 | 0.17 | 2966.10 | 0.07 |
| | Si | 14 | 19040 | 10 | 5514.01 | 0.11 | * | | 3618.66 | 0.26 | -9025.0 | 0.4 | 3978.90 | 0.19 |
| | P | 15 | 16840# | 450# | 140# | 200# | * | | 10940# | 200# | -7860# | 540# | 9870# | 200# |
| 27 | S | 16 | * | | -50# | 720# | * | | 4470# | 780# | * | | 9030# | 780# |
| | O | 8 | -1940# | 530# | * | | 59260# | 500# | -600# | 710# | 2600# | 640# | * | |
| | F | 9 | 1270 | 410 | 16500 | 420 | 42650 | 390 | 8830 | 420 | 11810 | 420 | -15840# | 560# |
| | Ne | 10 | 1500 | 90 | 18890 | 140 | 19440 | 90 | 6430 | 130 | 4370 | 130 | -5800 | 190 |
| | Na | 11 | 6728 | 5 | 13288 | 19 | -4795 | 27 | 7229 | 29 | 5298 | 4 | -7420 | 100 |
| | Mg | 12 | 6443.39 | 0.04 | 15015 | 4 | -31610# | 400# | 5482.0 | 1.2 | -1304.66 | 0.05 | -2988.6 | 0.5 |
| | Al | 13 | 13058.03 | 0.08 | 8271.29 | 0.06 | * | | 6706.73 | 0.07 | 1600.76 | 0.05 | -3132.56 | 0.05 |
| | Si | 14 | 13314.80 | 0.15 | 7463.32 | 0.13 | * | | 7242.28 | 0.13 | -7471.58 | 0.26 | 7195.47 | 0.11 |
| 28 | P | 15 | 19770# | 200# | 870 | 26 | * | | 6161 | 28 | -6600 | 30 | 4973 | 26 |
| | S | 16 | 18120# | 720# | 1230# | 450# | * | | 8000# | 570# | -11430# | 640# | 11930# | 400# |
| | O | 8 | 660# | 860# | * | | 67100# | 700# | * | | 960# | 860# | * | |
| | F | 9 | -220 | 50 | 18220# | 640# | 50590 | 390 | 9790 | 430 | 11280 | 430 | -16600# | 640# |
| | Ne | 10 | 3820 | 160 | 21440 | 410 | 32790 | 130 | 3360 | 170 | 4830 | 160 | -10380 | 210 |
| | Na | 11 | 3542 | 11 | 15330 | 90 | 6159 | 10 | 9241 | 21 | 5910 | 30 | -6680 | 100 |
| | Mg | 12 | 8503.6 | 2.0 | 16790 | 4 | -19090 | 160 | 2553 | 4 | -797.0 | 2.3 | -7337 | 29 |
| | Al | 13 | 7725.10 | 0.06 | 9553.00 | 0.09 | -44370# | 600# | 10074.70 | 0.08 | 1206.19 | 0.09 | -1846.4 | 1.2 |
| 29 | Si | 14 | 17179.61 | 0.11 | 11584.90 | 0.05 | * | | 1428.16 | 0.07 | -7712.76 | 0.06 | -2653.61 | 0.05 |
| | P | 15 | 14497 | 26 | 2052.2 | 1.2 | * | | 10704.1 | 1.2 | -6111 | 10 | 7414.6 | 1.2 |
| | S | 16 | 21030# | 430# | 2490 | 160 | * | | 3810# | 250# | -10800# | 430# | 5890 | 160 |
| | Cl | 17 | * | | -3200# | 720# | * | | 11150# | 840# | * | | 13420# | 720# |
| | F | 9 | 1660 | 660 | 19220# | 870# | 58360 | 530 | 6190# | 730# | 10350 | 550 | * | |
| | Ne | 10 | 970 | 200 | 22630 | 420 | 40290 | 150 | 3660 | 420 | 4610 | 190 | -10610 | 220 |
| | Na | 11 | 4403 | 13 | 15910 | 130 | 19633 | 7 | 6340 | 90 | 7063 | 20 | -10320 | 110 |
| | Mg | 12 | 3655 | 12 | 16903 | 15 | -7450 | 50 | 5626 | 12 | 1122 | 12 | -5438 | 22 |
| 30 | Al | 13 | 9428.4 | 0.4 | 10477.9 | 2.0 | -31370 | 190 | 7089.7 | 0.3 | 2870.8 | 0.3 | -5701 | 4 |
| | Si | 14 | 8473.60 | a | 12333.40 | 0.08 | * | | 6012.59 | 0.05 | -4820.87 | 0.07 | -34.13 | 0.03 |
| | P | 15 | 17876.4 | 1.2 | 2749.0 | 0.4 | * | | 6142.5 | 0.4 | -4947.8 | 0.4 | 903.7 | 0.4 |
| | S | 16 | 15300 | 170 | 3300 | 50 | * | | 8280 | 60 | -9270# | 200# | 9630 | 50 |
| | Cl | 17 | 22430# | 630# | -1800 | 100 | * | | 6850# | 440# | -9050# | 630# | 7840# | 270# |
| | F | 9 | 110# | 800# | * | | 63980# | 600# | 6740# | 920# | 8310# | 780# | * | |
| | Ne | 10 | 3190 | 290 | 24160 | 580 | 47710 | 250 | 250 | 470 | 2690 | 460 | -15740# | 560# |
| | Na | 11 | 2277 | 9 | 17210 | 150 | 28676 | 5 | 7890 | 130 | 6290 | 90 | -11330 | 390 |
| 31 | Mg | 12 | 6352 | 12 | 18853 | 8 | 5175 | 3 | 2815 | 11 | 1498 | 5 | -10290 | 90 |
| | Al | 13 | 5728.4 | 2.9 | 12551 | 12 | -20310# | 200# | 9865 | 4 | 3585.8 | 2.9 | -4701 | 5 |
| | Si | 14 | 10609.20 | 0.02 | 13514.2 | 0.3 | -45360 | 210 | 3128.49 | 0.08 | -2372.04 | 0.05 | -4199.95 | 0.05 |
| | P | 15 | 11319.3 | 0.4 | 5594.75 | 0.07 | * | | 12002.75 | 0.07 | -2952.30 | 0.13 | 2642.41 | 0.08 |
| | S | 16 | 18970 | 50 | 4395.4 | 0.4 | * | | 3799.3 | 1.2 | -8473 | 26 | 3971.65 | 0.23 |
| | Cl | 17 | 16790# | 270# | -310# | 200# | * | | 11080# | 250# | -7720# | 450# | 10810# | 200# |
| | Ar | 18 | * | | -480 | 160 | * | | 4130# | 630# | * | | 9550# | 450# |
| | F | 9 | 40# | 810# | * | | 71090# | 550# | * | | 8930# | 890# | * | |
| 31 | Ne | 10 | 170 | 130 | 24220# | 650# | 54130 | 270 | 1740 | 590 | 2300 | 470 | -15250# | 750# |
| | Na | 11 | 4300 | 15 | 18320 | 250 | 36687 | 14 | 4560 | 150 | 5810 | 130 | -15850 | 390 |
| | Mg | 12 | 2310 | 5 | 18886 | 6 | 15920 | 3 | 4909 | 8 | 2730 | 11 | -8780 | 130 |
| | Al | 13 | 7157 | 4 | 13356 | 4 | -7916 | 4 | 6363 | 12 | 4932 | 3 | -8316 | 10 |
| | Si | 14 | 6587.39 | 0.04 | 14373.2 | 2.9 | -34270# | 200# | 5969.5 | 0.3 | -1234.34 | 0.09 | -2283.8 | 2.0 |
| | P | 15 | 12311.00 | 0.07 | 7296.55 | 0.02 | * | | 8165.34 | a | 1916.31 | a | -1943.49 | 0.08 |
| | S | 16 | 13054.6 | 0.3 | 6130.64 | 0.24 | * | | 8621.1 | 0.4 | -7030.7 | 1.2 | 8096.67 | 0.23 |
| | Cl | 17 | 19550# | 200# | 264 | 3 | * | | 6830 | 50 | -6240 | 160 | 5760 | 4 |
| 31 | Ar | 18 | 17680# | 290# | 410# | 280# | * | | 8870# | 280# | -11330# | 630# | 12900# | 260# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q($2\beta^-$) | | Q(ϵ_p) | | Q(β^-n) | |
|----|------|----|----------|------|----------|------|---------------|-------|-----------------|------|-------------------|------|-----------------|------|
| 26 | O | 8 | -18 | 5 | * | | -21380 | 280 | 34180 | 170 | * | | 15260 | 190 |
| | F | 9 | 5040 | 150 | 42870# | 420# | -15540 | 240 | 25510 | 110 | -44620# | 520# | 12610 | 110 |
| | Ne | 10 | 9710 | 18 | 32600 | 170 | -11230 | 60 | 16696 | 18 | -34140 | 170 | 1768 | 18 |
| | Na | 11 | 14586 | 4 | 28980 | 100 | -12079 | 13 | 5349 | 4 | -25480 | 100 | -1739 | 4 |
| | Mg | 12 | 18423.61 | 0.03 | 24840.8 | 0.5 | -10614.74 | 0.03 | -9073.53 | 0.11 | -21468 | 29 | -15369.88 | 0.06 |
| | Al | 13 | 28303.92 | 0.24 | 18370.19 | 0.07 | -9453.56 | 0.18 | -23180# | 200# | -10141.3 | 1.2 | -24109 | 10 |
| | Si | 14 | 34029 | 19 | 7785.39 | 0.11 | -9166.0 | 0.3 | -34220# | 600# | -1237.20 | 0.10 | -34950# | 400# |
| | P | 15 | 38490# | 540# | 3560# | 200# | -9650# | 450# | * | | 12600# | 200# | * | |
| | S | 16 | * | | -1760# | 600# | -8690# | 780# | * | | 15960# | 600# | * | |
| 27 | O | 8 | -1200# | 530# | * | | -21930# | 1120# | 37620# | 510# | * | | 17950# | 510# |
| | F | 9 | 2030 | 400 | 45110# | 640# | -13700 | 570 | 30970 | 390 | * | | 16900 | 390 |
| | Ne | 10 | 7060 | 100 | 34860 | 190 | -10000 | 150 | 21640 | 90 | -34900 | 190 | 5840 | 90 |
| | Na | 11 | 12303 | 4 | 31430 | 100 | -11230 | 30 | 11679 | 4 | -31460 | 110 | 2625 | 4 |
| | Mg | 12 | 17536.46 | 0.06 | 27129 | 29 | -11857.48 | 0.12 | -2202.11 | 0.12 | -22357 | 18 | -10447.78 | 0.08 |
| | Al | 13 | 24423.52 | 0.08 | 22417.0 | 1.2 | -10091.92 | 0.05 | -16474 | 26 | -17625 | 4 | -18127.16 | 0.12 |
| | Si | 14 | 32354 | 10 | 13769.66 | 0.12 | -9335.91 | 0.19 | -29410# | 400# | -3458.93 | 0.11 | -31430# | 200# |
| | P | 15 | 36600# | 400# | 6384 | 26 | -9895 | 26 | * | | 4199 | 26 | -35870# | 600# |
| | S | 16 | * | | 1380# | 400# | -9100# | 640# | * | | 16880# | 400# | * | |
| 28 | O | 8 | -1280# | 720# | * | | * | | 40780# | 710# | * | | 18560# | 800# |
| | F | 9 | 1050 | 410 | * | | -15620# | 560# | 34730 | 390 | * | | 18620 | 400 |
| | Ne | 10 | 5320 | 130 | 37940 | 210 | -9630 | 210 | 26320 | 130 | -40660# | 520# | 8750 | 130 |
| | Na | 11 | 10270 | 11 | 34220 | 110 | -10960 | 100 | 15862 | 10 | -33730 | 390 | 5527 | 10 |
| | Mg | 12 | 14946.9 | 2.0 | 30078 | 19 | -11492.1 | 2.1 | 6473.9 | 2.0 | -29360 | 90 | -5893.3 | 2.0 |
| | Al | 13 | 20783.13 | 0.10 | 24568 | 4 | -10857.66 | 0.08 | -9702.9 | 1.2 | -18622 | 4 | -12537.46 | 0.11 |
| | Si | 14 | 30494.41 | 0.11 | 19856.19 | 0.03 | -9984.14 | 0.01 | -25570 | 160 | -14195.15 | 0.05 | -28842 | 26 |
| | P | 15 | 34260# | 200# | 9515.5 | 1.2 | -9523.8 | 1.2 | -34660# | 600# | 2760.2 | 1.2 | -32250# | 400# |
| | S | 16 | 39150# | 620# | 3360 | 160 | -9100 | 160 | * | | 9170 | 160 | * | |
| | Cl | 17 | * | | -1970# | 630# | -8230# | 780# | * | | 20950# | 600# | * | |
| 29 | F | 9 | 1440 | 650 | * | | -18260# | 730# | 37470 | 530 | * | | 20780 | 540 |
| | Ne | 10 | 4790 | 170 | 40850# | 520# | -11350 | 220 | 29000 | 150 | -40970# | 710# | 11320 | 150 |
| | Na | 11 | 7945 | 8 | 37350 | 390 | -11080 | 100 | 20888 | 7 | -38350 | 390 | 9628 | 8 |
| | Mg | 12 | 12159 | 11 | 32230 | 90 | -10990 | 30 | 11292 | 11 | -29190 | 130 | -1824 | 11 |
| | Al | 13 | 17153.5 | 0.3 | 27268 | 4 | -11274.9 | 1.2 | -1254.9 | 0.5 | -24508 | 10 | -4786.3 | 0.3 |
| | Si | 14 | 25653.21 | 0.11 | 21886.41 | 0.05 | -11127.21 | 0.05 | -18740 | 50 | -14165.2 | 2.0 | -22818.7 | 1.2 |
| | P | 15 | 32373 | 26 | 14333.9 | 0.4 | -10461.8 | 0.4 | -30120 | 190 | -7391.2 | 0.4 | -29100 | 160 |
| | S | 16 | 36330# | 400# | 5350 | 50 | -9410 | 50 | * | | 11050 | 50 | -38740# | 600# |
| | Cl | 17 | * | | 690 | 190 | -9000# | 440# | * | | 13020 | 190 | * | |
| 30 | F | 9 | 1770# | 710# | * | | * | | 39640# | 600# | * | | 21640# | 620# |
| | Ne | 10 | 4160 | 280 | 43380# | 740# | -13810 | 300 | 32160 | 250 | * | | 12530 | 250 |
| | Na | 11 | 6680 | 11 | 39840 | 390 | -12600 | 110 | 24340 | 6 | -38960 | 530 | 11006 | 12 |
| | Mg | 12 | 10008 | 4 | 34760 | 130 | -11790 | 19 | 15549 | 3 | -34570 | 150 | 1253 | 3 |
| | Al | 13 | 15156.8 | 2.9 | 29454 | 11 | -11429 | 5 | 4336.0 | 2.9 | -25834 | 8 | -2041.1 | 2.9 |
| | Si | 14 | 19082.80 | 0.02 | 23992.1 | 2.0 | -10643.33 | 0.04 | -10373.71 | 0.21 | -21119 | 11 | -15551.4 | 0.4 |
| | P | 15 | 29195.7 | 1.2 | 17928.15 | 0.10 | -10415.62 | 0.09 | -24640# | 200# | -9282.1 | 0.4 | -25120 | 50 |
| | S | 16 | 34280 | 160 | 7144.40 | 0.21 | -9343.15 | 0.23 | -34990 | 210 | 546.85 | 0.21 | -35290 | 190 |
| | Cl | 17 | 39220# | 630# | 2990# | 200# | -8960# | 280# | * | | 14110# | 200# | * | |
| | Ar | 18 | * | | -2280 | 130 | -8570# | 630# | * | | 16800 | 210 | * | |
| 31 | F | 9 | 150# | 150# | * | | * | | 43900# | 550# | * | | 24790# | 600# |
| | Ne | 10 | 3360 | 310 | * | | -15910# | 570# | 34300 | 270 | * | | 14640 | 270 |
| | Na | 11 | 6577 | 16 | 42480 | 530 | -15630 | 390 | 27197 | 14 | -43160# | 600# | 13059 | 14 |
| | Mg | 12 | 8662 | 12 | 36100 | 150 | -12600 | 90 | 19827 | 3 | -33690 | 250 | 4671 | 4 |
| | Al | 13 | 12885.6 | 2.3 | 32209 | 8 | -11858 | 4 | 9489.8 | 2.2 | -30714 | 5 | 1410.9 | 2.2 |
| | Si | 14 | 17196.59 | 0.04 | 26924 | 11 | -10787.34 | 0.07 | -3906.51 | 0.23 | -21354 | 3 | -10819.50 | 0.07 |
| | P | 15 | 23630.3 | 0.4 | 20810.7 | 0.3 | -9668.60 | 0.05 | -17406 | 3 | -15864.7 | 2.9 | -18452.60 | 0.21 |
| | S | 16 | 32030 | 50 | 11725.39 | 0.23 | -9082.94 | 0.25 | -30370# | 200# | -1898.54 | 0.23 | -31560# | 200# |
| | Cl | 17 | 36340 | 190 | 4660 | 3 | -8737 | 27 | * | | 5877 | 3 | -36040 | 210 |
| | Ar | 18 | * | | 100# | 210# | -8130# | 450# | * | | 18100# | 200# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|----|------|----|----------|------|---------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 32 | Ne | 10 | 2250# | 570# | 26430# | 740# | 61080# | 500# | -400# | 780# | 1710# | 730# | * | |
| | Na | 11 | 1680 | 40 | 19830 | 270 | 42950 | 40 | 6070 | 260 | 5100 | 150 | -15860 | 530 |
| | Mg | 12 | 5778 | 4 | 20364 | 14 | 25187 | 3 | 1407 | 6 | 1355 | 8 | -13580 | 150 |
| | Al | 13 | 4220 | 8 | 15266 | 8 | 2235 | 7 | 8495 | 8 | 4368 | 13 | -8133 | 10 |
| | Si | 14 | 9200.0 | 0.3 | 16416.0 | 2.3 | -21877.3 | 1.8 | 2498.0 | 2.9 | -1005.9 | 0.5 | -7828 | 11 |
| | P | 15 | 7935.65 | 0.04 | 8644.81 | 0.06 | -45400# | 400# | 10838.89 | 0.05 | 2454.26 | 0.04 | -450.7 | 0.3 |
| | S | 16 | 15044.33 | 0.23 | 8863.96 | a | * | | 4896.13 | 0.07 | -4198.6 | 0.4 | 1525.95 | a |
| | Cl | 17 | 14371 | 3 | 1581.1 | 0.5 | * | | 11435.4 | 0.6 | -5310 | 50 | 9264.6 | 0.7 |
| | Ar | 18 | 21600# | 200# | 2455 | 4 | * | | 4070# | 200# | -10500 | 190 | 6600 | 50 |
| | K | 19 | * | | -2480# | 450# | * | | 10880# | 450# | * | | 13580# | 440# |
| 33 | Ne | 10 | -930# | 780# | * | | 66510# | 600# | 570# | 810# | 2750# | 840# | * | |
| | Na | 11 | 2930 | 450 | 20510# | 680# | 50120 | 450 | 3310 | 520 | 5360 | 520 | -18690# | 750# |
| | Mg | 12 | 2280 | 4 | 20970 | 40 | 31548.2 | 2.9 | 3427 | 14 | 1352 | 6 | -12670 | 250 |
| | Al | 13 | 5469 | 10 | 14957 | 8 | 12506 | 7 | 5336 | 8 | 5250 | 8 | -11326 | 8 |
| | Si | 14 | 4508.0 | 0.8 | 16704 | 7 | -11130.0 | 0.8 | 5147.2 | 2.3 | 214.6 | 3.0 | -5984 | 4 |
| | P | 15 | 10103.8 | 1.1 | 9548.6 | 1.1 | -33380# | 200# | 7322.5 | 1.1 | 2959.7 | 1.1 | -4826 | 3 |
| | S | 16 | 8641.64 | a | 9569.95 | 0.04 | * | | 8565.49 | a | -1520.95 | 0.07 | 3493.51 | 0.02 |
| | Cl | 17 | 15740.0 | 0.7 | 2276.8 | 0.4 | * | | 8750.0 | 0.5 | -2080.0 | 0.4 | 4843.9 | 0.4 |
| | Ar | 18 | 15255.3 | 1.8 | 3338.6 | 0.7 | * | | 8361 | 3 | -8960# | 200# | 10321.4 | 0.5 |
| | K | 19 | 22130# | 450# | -1950# | 200# | * | | 6430# | 280# | -9030# | 280# | 8250# | 280# |
| 34 | Ne | 10 | 1230# | 790# | * | | 72800# | 510# | * | | 1560# | 750# | * | |
| | Na | 11 | 170 | 750 | 21610# | 850# | 56230 | 600 | 5390# | 780# | 5360 | 660 | -18820# | 810# |
| | Mg | 12 | 4710 | 29 | 22750 | 450 | 38255 | 29 | 390 | 50 | 940 | 30 | -17210 | 270 |
| | Al | 13 | 2574 | 8 | 15252 | 4 | 21440 | 3 | 8539 | 4 | 4986 | 4 | -9600 | 14 |
| | Si | 14 | 7514 | 14 | 18748 | 16 | -1579 | 14 | 1853 | 16 | -142 | 14 | -11188 | 14 |
| | P | 15 | 6282.7 | 1.4 | 11323.3 | 1.1 | -23330# | 200# | 10239.8 | 0.9 | 3264.4 | 0.8 | -3951.6 | 2.4 |
| | S | 16 | 11417.15 | 0.04 | 10883.3 | 1.1 | -43780# | 300# | 5083.99 | 0.06 | -627.09 | 0.04 | -1336.25 | 0.06 |
| | Cl | 17 | 11508.1 | 0.4 | 5143.20 | 0.05 | * | | 12286.26 | 0.05 | -533.50 | 0.23 | 5646.86 | 0.05 |
| | Ar | 18 | 17065.3 | 0.4 | 4663.9 | 0.4 | * | | 5667.2 | 0.6 | -6480 | 3 | 6310.64 | 0.24 |
| | K | 19 | 16330# | 280# | -880# | 200# | * | | 11690# | 200# | -7680# | 280# | 11460# | 200# |
| 35 | Na | 11 | 1520# | 300# | 21900# | 840# | 63090# | 670# | 2950# | 900# | 6100# | 840# | * | |
| | Mg | 12 | 750 | 270 | 23330 | 660 | 44490 | 270 | 2570 | 520 | 1860 | 270 | -15710# | 570# |
| | Al | 13 | 5295 | 8 | 15836 | 30 | 28790 | 7 | 5525 | 8 | 5469 | 8 | -13220 | 40 |
| | Si | 14 | 2510 | 40 | 18680 | 40 | 8660 | 40 | 4820 | 40 | 1570 | 40 | -7920 | 40 |
| | P | 15 | 8380.4 | 2.0 | 12190 | 14 | -13684.9 | 1.9 | 6367.3 | 2.0 | 4083.9 | 1.9 | -8112 | 7 |
| | S | 16 | 6985.84 | 0.04 | 11586.5 | 0.8 | -33630# | 200# | 8201.9 | 1.1 | 322.72 | 0.06 | 877.9 | 0.3 |
| | Cl | 17 | 12644.76 | 0.05 | 6370.81 | 0.04 | * | | 8283.13 | 0.04 | 1866.06 | 0.04 | 937.75 | 0.05 |
| | Ar | 18 | 12740.3 | 0.7 | 5896.2 | 0.7 | * | | 8666.9 | 0.8 | -4848.6 | 0.9 | 8614.7 | 0.7 |
| | K | 19 | 18020# | 200# | 83.6 | 0.5 | * | | 8922.2 | 0.7 | -4108.5 | 1.8 | 7808.2 | 0.8 |
| | Ca | 20 | 17140# | 360# | 1280# | 280# | * | | 8460# | 280# | -11450# | 450# | 12640# | 200# |
| 36 | Na | 11 | 0# | 100# | * | | 66550# | 680# | 4170# | 850# | 5170# | 900# | * | |
| | Mg | 12 | 3330 | 740 | 25140# | 960# | 51040 | 690 | -590 | 910 | 1460 | 820 | -19970# | 910# |
| | Al | 13 | 1900 | 150 | 16980 | 310 | 35470 | 150 | 8340 | 150 | 5850 | 150 | -12180 | 470 |
| | Si | 14 | 6120 | 80 | 19500 | 70 | 17800 | 70 | 1270 | 70 | 930 | 70 | -11750 | 70 |
| | P | 15 | 3465 | 13 | 13150 | 40 | -2834 | 13 | 10417 | 19 | 5127 | 13 | -6107 | 15 |
| | S | 16 | 9889.24 | 0.19 | 13095.3 | 1.9 | -24210 | 40 | 4595.4 | 0.8 | 537.3 | 1.1 | -4503.4 | 0.7 |
| | Cl | 17 | 8579.79 | 0.01 | 7964.77 | 0.03 | -44870# | 300# | 11120.49 | 0.04 | 1927.90 | 0.04 | 2461.7 | 1.1 |
| | Ar | 18 | 15255.6 | 0.7 | 8506.98 | 0.04 | * | | 4919.35 | 0.06 | -4364.1 | 0.4 | 2000.72 | 0.03 |
| | K | 19 | 14315.5 | 0.6 | 1658.8 | 0.8 | * | | 11672.0 | 0.3 | -3168.7 | 0.5 | 9232.7 | 0.5 |
| | Ca | 20 | 19310# | 200# | 2570 | 40 | * | | 5480# | 200# | -8630# | 200# | 8580 | 40 |
| 36 | Sc | 21 | * | | -3270# | 360# | * | | 12210# | 420# | * | | 13960# | 360# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q($2\beta^-$) | | Q(ϵp) | | Q(β^- -n) | |
|----|------|----|----------|------|----------|------|---------------|------|-----------------|------|-------------------------|------|------------------|------|
| 32 | Ne | 10 | 2420# | 560# | * | | -17510# | 860# | 37830# | 500# | * | | 16680# | 500# |
| | Na | 11 | 5980 | 40 | 44050# | 600# | -17530 | 390 | 29740 | 40 | -44790# | 550# | 13690 | 40 |
| | Mg | 12 | 8088 | 5 | 38690 | 250 | -14550 | 130 | 23249 | 3 | -39300 | 270 | 6050 | 4 |
| | Al | 13 | 11377 | 8 | 34152 | 9 | -12536 | 13 | 13206 | 7 | -30634 | 16 | 3778 | 7 |
| | Si | 14 | 15787.36 | 0.30 | 29772 | 3 | -11483.8 | 2.0 | 1937.85 | 0.30 | -28245 | 3 | -7708.46 | 0.30 |
| | P | 15 | 20246.65 | 0.08 | 23018.0 | 2.9 | -9879.14 | 0.09 | -10970.2 | 0.6 | -16643.1 | 2.2 | -13333.67 | 0.23 |
| | S | 16 | 28098.91 | 0.21 | 16160.51 | 0.02 | -6947.65 | a | -23815.2 | 1.8 | -10355.47 | 0.04 | -27052 | 3 |
| | Cl | 17 | 33920# | 200# | 7711.8 | 0.6 | -8611.9 | 1.3 | -34430# | 400# | 3816.9 | 0.6 | -32730# | 200# |
| | Ar | 18 | 39270 | 210 | 2719.0 | 1.8 | -8700 | 160 | * | | 9553.2 | 1.8 | * | |
| | K | 19 | * | | -2080# | 450# | -8840# | 720# | * | | 20840# | 400# | * | |
| 33 | Ne | 10 | 1330# | 650# | * | | * | | 41040# | 600# | * | | 19290# | 600# |
| | Na | 11 | 4610 | 450 | 46940# | 710# | -18790 | 690 | 32280 | 450 | * | | 16540 | 450 |
| | Mg | 12 | 8058 | 4 | 40800 | 270 | -15860 | 150 | 25476.6 | 3.0 | -39330# | 500# | 7990 | 8 |
| | Al | 13 | 9689 | 7 | 35321 | 16 | -13602 | 10 | 17840 | 7 | -34430 | 40 | 7509 | 7 |
| | Si | 14 | 13707.9 | 0.7 | 31970 | 3 | -12336 | 11 | 6071.5 | 0.7 | -26974 | 3 | -4280.8 | 0.7 |
| | P | 15 | 18039.4 | 1.1 | 25964.6 | 2.5 | -10554.5 | 1.1 | -5334.0 | 1.2 | -22527 | 7 | -8393.1 | 1.1 |
| | S | 16 | 23685.96 | 0.23 | 18214.76 | 0.04 | -7115.69 | a | -17201.6 | 0.4 | -9797.14 | 0.30 | -21322.5 | 0.6 |
| | Cl | 17 | 30111 | 3 | 11140.7 | 0.4 | -6475.4 | 0.5 | -28050# | 200# | -3987.4 | 0.4 | -26874.3 | 1.8 |
| | Ar | 18 | 36850# | 200# | 4919.7 | 0.5 | -8650 | 50 | * | | 9342.3 | 0.4 | -38550# | 400# |
| | K | 19 | * | | 500# | 200# | -8550# | 270# | * | | 13090# | 200# | * | |
| 34 | Ne | 10 | 300# | 100# | * | | * | | 44520# | 510# | * | | 20990# | 680# |
| | Na | 11 | 3100 | 600 | * | | -18860# | 850# | 34680 | 600 | * | | 18650 | 600 |
| | Mg | 12 | 6990 | 29 | 43250# | 500# | -17380 | 250 | 28280 | 30 | -44960# | 600# | 8749 | 30 |
| | Al | 13 | 8044 | 8 | 36220 | 40 | -13900 | 6 | 21548 | 3 | -34070 | 450 | 9443 | 3 |
| | Si | 14 | 12022 | 14 | 33706 | 14 | -13498 | 15 | 9975 | 14 | -32208 | 14 | -1691 | 14 |
| | P | 15 | 16386.5 | 0.8 | 28027 | 7 | -11108.8 | 3.0 | -108.6 | 0.8 | -23340 | 7 | -6034.2 | 0.8 |
| | S | 16 | 20058.79 | 0.04 | 20431.9 | 0.3 | -7923.64 | 0.05 | -11553.40 | 0.07 | -16706.3 | 0.7 | -16999.7 | 0.4 |
| | Cl | 17 | 27248.0 | 0.6 | 14713.15 | 0.06 | -6664.14 | 0.08 | -23220# | 200# | -5391.7 | 1.1 | -23127.1 | 0.4 |
| | Ar | 18 | 32320.6 | 1.8 | 6940.70 | 0.08 | -6743.95 | 0.22 | -32230# | 300# | 918.59 | 0.08 | -33490# | 200# |
| | K | 19 | 38460# | 450# | 2460# | 200# | -8090# | 280# | * | | 12490# | 200# | * | |
| 35 | Na | 11 | 1690# | 810# | * | | -20340# | 870# | 38460# | 670# | * | | 21840# | 670# |
| | Mg | 12 | 5470 | 270 | 44940# | 650# | -17970 | 380 | 30030 | 270 | -44490# | 580# | 10570 | 270 |
| | Al | 13 | 7869 | 10 | 38580 | 450 | -14895 | 16 | 24634 | 8 | -39190 | 600 | 11662 | 16 |
| | Si | 14 | 10020 | 40 | 33930 | 40 | -13690 | 40 | 14450 | 40 | -30000 | 50 | 2090 | 40 |
| | P | 15 | 14663.1 | 2.2 | 30938 | 7 | -12332.0 | 2.9 | 4155.7 | 1.9 | -29146 | 4 | -2997.4 | 1.9 |
| | S | 16 | 18402.99 | 0.04 | 22909.8 | 0.7 | -8322.09 | 0.06 | -5798.9 | 0.7 | -16178 | 14 | -12477.44 | 0.05 |
| | Cl | 17 | 24152.8 | 0.4 | 17254.1 | 1.1 | -6997.90 | 0.04 | -17840.6 | 0.5 | -11753.8 | 0.8 | -18706.56 | 0.08 |
| | Ar | 18 | 29805.6 | 0.8 | 11039.4 | 0.7 | -6429.7 | 0.7 | -27840# | 200# | -404.6 | 0.7 | -29900# | 200# |
| | K | 19 | 34360# | 200# | 4747.5 | 0.6 | -6563 | 3 | * | | 5978.2 | 0.5 | -33100# | 300# |
| | Ca | 20 | * | | 410# | 200# | -8960# | 280# | * | | 15880# | 200# | * | |
| 36 | Na | 11 | 1520# | 320# | * | | * | | 40350# | 690# | * | | 22590# | 730# |
| | Mg | 12 | 4090 | 690 | 47040# | 860# | -19040# | 850# | 32820 | 690 | * | | 12530 | 690 |
| | Al | 13 | 7190 | 150 | 40310 | 620 | -15110 | 150 | 26200 | 150 | -39570# | 690# | 12270 | 150 |
| | Si | 14 | 8620 | 70 | 35340 | 80 | -14030 | 70 | 18230 | 70 | -35360 | 280 | 4350 | 70 |
| | P | 15 | 11845 | 13 | 31829 | 13 | -11577 | 15 | 9271 | 13 | -27316 | 15 | 524 | 13 |
| | S | 16 | 16875.08 | 0.19 | 25285 | 14 | -9011.4 | 0.4 | -432.59 | 0.19 | -23560 | 40 | -9721.92 | 0.19 |
| | Cl | 17 | 21224.56 | 0.05 | 19551.2 | 0.8 | -7642.05 | 0.05 | -12104.9 | 0.3 | -11953.2 | 1.9 | -14546.0 | 0.7 |
| | Ar | 18 | 27995.88 | 0.08 | 14877.80 | 0.05 | -6640.92 | 0.03 | -23780 | 40 | -8674.30 | 0.05 | -27130.0 | 0.5 |
| | K | 19 | 32340# | 200# | 7554.9 | 0.3 | -6507.3 | 0.6 | -32770# | 300# | 4307.5 | 0.3 | -30280# | 200# |
| | Ca | 20 | 36450# | 300# | 2650 | 40 | -6680 | 40 | * | | 9310 | 40 | * | |
| 36 | Sc | 21 | * | | -1990# | 360# | -8170# | 500# | * | | 19240# | 300# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|----|------|----|----------|------|----------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 37 | Na | 11 | 840# | 180# | * | | 72530# | 690# | * | | 5560# | 860# | * | |
| | Mg | 12 | 240 | 110 | 25380# | 970# | 55110 | 700 | 690# | 970# | 1400 | 920 | -18980# | 870# |
| | Al | 13 | 4210 | 230 | 17860 | 710 | 41570 | 180 | 4880 | 320 | 6350 | 180 | -16220 | 630 |
| | Si | 14 | 2210 | 130 | 19810 | 190 | 24380 | 110 | 4360 | 110 | 1290 | 110 | -9250 | 120 |
| | P | 15 | 6820 | 40 | 13850 | 80 | 5800 | 40 | 6110 | 50 | 5820 | 40 | -10350 | 40 |
| | S | 16 | 4303.60 | 0.06 | 13934 | 13 | -13760.4 | 0.7 | 8672.2 | 1.9 | 2516.3 | 0.8 | -1293 | 14 |
| | Cl | 17 | 10310.85 | 0.06 | 8386.38 | 0.19 | -35280# | 300# | 7795.47 | 0.07 | 3034.20 | 0.07 | -1566.4 | 0.8 |
| | Ar | 18 | 8787.44 | 0.21 | 8714.63 | 0.21 | * | | 8776.67 | 0.21 | -1643.53 | 0.21 | 4630.42 | 0.21 |
| | K | 19 | 15454.5 | 0.4 | 1857.63 | 0.09 | * | | 8957.9 | 0.7 | -1557.85 | 0.12 | 5286.28 | 0.11 |
| | Ca | 20 | 14760 | 40 | 3008.0 | 0.7 | * | | 8747.6 | 0.8 | -7050# | 200# | 10888.6 | 0.6 |
| 38 | Sc | 21 | 19900# | 420# | -2680# | 300# | * | | 9440# | 360# | -5470# | 420# | 10390# | 360# |
| | Mg | 12 | 2210# | 860# | 26750# | 850# | 60940# | 500# | -1520# | 840# | 710# | 840# | * | |
| | Al | 13 | 1670 | 420 | 19290 | 790 | 46010 | 370 | 6540 | 790 | 5430 | 460 | -16380# | 770# |
| | Si | 14 | 5670 | 150 | 21270 | 210 | 30540 | 100 | 590 | 180 | 920 | 110 | -14160 | 290 |
| | P | 15 | 3700 | 80 | 15340 | 130 | 14180 | 70 | 8530 | 100 | 4630 | 80 | -8750 | 70 |
| | S | 16 | 8036 | 7 | 15150 | 40 | -4803 | 7 | 4101 | 15 | 2861 | 7 | -6820 | 40 |
| | Cl | 17 | 6107.88 | 0.08 | 10190.66 | 0.21 | -25550# | 200# | 11576.83 | 0.20 | 3912.16 | 0.11 | 706.1 | 1.9 |
| | Ar | 18 | 11838.47 | 0.28 | 10242.25 | 0.20 | -45580# | 300# | 5517.99 | 0.20 | -837.24 | 0.20 | -222.21 | 0.20 |
| | K | 19 | 12071.87 | 0.22 | 5142.06 | 0.28 | * | | 12141.59 | 0.20 | -889.4 | 0.7 | 5859.17 | 0.20 |
| | Ca | 20 | 16993.8 | 0.7 | 4547.27 | 0.22 | * | | 6069.4 | 0.4 | -6021.6 | 0.5 | 6635.2 | 0.7 |
| 39 | Sc | 21 | 15840# | 360# | -1600# | 200# | * | | 12910# | 200# | -4170# | 280# | 12570# | 200# |
| | Ti | 22 | * | | -60# | 420# | * | | 6230# | 420# | * | | 11730# | 360# |
| | Mg | 12 | -130# | 100# | * | | 65440# | 520# | -550# | 860# | 840# | 850# | * | |
| | Al | 13 | 3630# | 550# | 20710# | 640# | 50450# | 400# | 3150# | 810# | 5130# | 800# | -20010# | 790# |
| | Si | 14 | 1580 | 170 | 21180 | 400 | 35560 | 140 | 3220 | 230 | 1230 | 200 | -12410 | 700 |
| | P | 15 | 6220 | 130 | 15890 | 150 | 21030 | 110 | 4510 | 160 | 4530 | 130 | -13080 | 190 |
| | S | 16 | 4370 | 50 | 15830 | 90 | 4120 | 50 | 6540 | 60 | 1950 | 50 | -5080 | 90 |
| | Cl | 17 | 8073.4 | 1.7 | 10228 | 7 | -15627 | 24 | 7807.0 | 1.7 | 5728.0 | 1.7 | -3903 | 13 |
| | Ar | 18 | 6599 | 5 | 10733 | 5 | -35440# | 200# | 9230 | 5 | 1144 | 5 | 3068 | 5 |
| | K | 19 | 13077.75 | 0.20 | 6381.34 | 0.19 | * | | 7851.28 | 0.21 | 1288.41 | 0.03 | 1361.22 | 0.04 |
| 40 | Ca | 20 | 13295.5 | 0.6 | 5770.9 | 0.6 | * | | 8228.3 | 0.6 | -5001.6 | 0.7 | 8595.2 | 0.6 |
| | Sc | 21 | 18000# | 200# | -597 | 24 | * | | 9674 | 24 | -2860 | 50 | 8891 | 24 |
| | Ti | 22 | 16740# | 360# | 840# | 280# | * | | 9390# | 360# | -8290# | 360# | 14300# | 200# |
| | Mg | 12 | 2000# | 720# | * | | 71190# | 500# | * | | -320# | 850# | * | |
| | Al | 13 | 1130# | 570# | 21970# | 650# | 55150# | 400# | 4230# | 640# | 4240# | 810# | -20300# | 800# |
| | Si | 14 | 4960 | 370 | 22510# | 530# | 40470 | 350 | -70 | 510 | 480 | 390 | -17140 | 780 |
| | P | 15 | 3410 | 190 | 17720 | 200 | 25420 | 150 | 6770 | 190 | 3320 | 190 | -12280 | 240 |
| | S | 16 | 7750 | 50 | 17350 | 110 | 12009 | 4 | 2490 | 70 | 1020 | 40 | -10620 | 110 |
| | Cl | 17 | 5830 | 30 | 11680 | 60 | -7030 | 30 | 10010 | 30 | 4200 | 30 | -2920 | 50 |
| | Ar | 18 | 9869 | 5 | 12528.7 | 1.7 | -26190 | 160 | 5469.01 | 0.10 | 1585.70 | 0.05 | -2497.08 | 0.20 |
| 41 | K | 19 | 7799.62 | 0.06 | 7582 | 5 | -45710# | 300# | 11890.14 | 0.20 | 2276.23 | 0.21 | 3872.45 | 0.08 |
| | Ca | 20 | 15635.0 | 0.6 | 8328.17 | 0.02 | * | | 4665.18 | 0.20 | -5182.13 | 0.10 | 1747.68 | 0.21 |
| | Sc | 21 | 14422 | 24 | 529.6 | 2.9 | * | | 12246.0 | 2.8 | -2523.2 | 2.9 | 9923.3 | 2.8 |
| | Ti | 22 | 19120# | 260# | 1970 | 160 | * | | 6110# | 260# | -7510# | 340# | 9930 | 160 |
| | V | 23 | * | | -2680# | 360# | * | | 12010# | 420# | * | | 14300# | 420# |
| | Al | 13 | 2240# | 640# | 22220# | 710# | 60730# | 510# | 1860# | 720# | 4210# | 710# | * | |
| | Si | 14 | 1380 | 650 | 22760# | 680# | 45190 | 550 | 2180# | 680# | 770 | 670 | -16310# | 750# |
| | P | 15 | 4940 | 200 | 17700 | 370 | 30580 | 120 | 3410 | 180 | 4050 | 160 | -15540 | 390 |
| | S | 16 | 4242 | 6 | 18180 | 150 | 16129 | 4 | 4480 | 110 | 480 | 70 | -9190 | 100 |
| | Cl | 17 | 7820 | 80 | 11760 | 70 | 1340 | 70 | 6570 | 80 | 4420 | 70 | -7040 | 100 |
| 42 | Ar | 18 | 6098.9 | 0.3 | 12800 | 30 | -17370 | 28 | 7443.5 | 1.8 | 1594.7 | 0.4 | -560 | 7 |
| | K | 19 | 10095.37 | 0.06 | 7808.62 | a | -35880# | 200# | 8393 | 5 | 4019.33 | 0.20 | -115.04 | 0.10 |
| | Ca | 20 | 8362.82 | 0.14 | 8891.37 | 0.15 | * | | 9380.11 | 0.14 | -1473.08 | 0.24 | 5223.33 | 0.24 |
| | Sc | 21 | 16190.4 | 2.8 | 1085.00 | 0.08 | * | | 9351.1 | 0.6 | -1719.86 | 0.21 | 5804.74 | 0.21 |
| | Ti | 22 | 14920 | 160 | 2463 | 28 | * | | 9190 | 40 | -6580# | 200# | 12007 | 28 |
| | V | 23 | 19920# | 360# | -1880# | 260# | * | | 8830# | 280# | -5690# | 360# | 10220# | 280# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q($2\beta^-$) | | Q(ϵp) | | Q($\beta^- n$) | |
|----|------|----|----------|------|----------|------|---------------|------|-----------------|------|-------------------|------|------------------|------|
| 37 | Na | 11 | 840# | 150# | * | | * | | 43720# | 710# | * | | 25080# | 970# |
| | Mg | 12 | 3570 | 750 | * | | -20210# | 920# | 34780 | 710 | * | | 14190 | 710 |
| | Al | 13 | 6110 | 180 | 43000# | 690# | -16400 | 480 | 28810 | 180 | -43780# | 700# | 14170 | 190 |
| | Si | 14 | 8320 | 120 | 36790 | 290 | -13960 | 110 | 20320 | 110 | -34240 | 700 | 5610 | 110 |
| | P | 15 | 10280 | 40 | 33350 | 40 | -12920 | 40 | 12770 | 40 | -32240 | 150 | 3600 | 40 |
| | S | 16 | 14192.84 | 0.20 | 27080 | 40 | -8807.0 | 0.7 | 4051.25 | 0.28 | -21750 | 70 | -5445.73 | 0.20 |
| | Cl | 17 | 18890.64 | 0.06 | 21481.7 | 1.9 | -7849.1 | 1.1 | -6961.34 | 0.11 | -18799 | 13 | -9601.32 | 0.06 |
| | Ar | 18 | 24043.0 | 0.7 | 16679.40 | 0.21 | -6786.73 | 0.21 | -17811.6 | 0.7 | -7572.50 | 0.27 | -21601.9 | 0.4 |
| | K | 19 | 29769.9 | 0.5 | 10364.61 | 0.10 | -6221.8 | 0.4 | -28320# | 300# | -2567.16 | 0.10 | -26420 | 40 |
| | Ca | 20 | 34070# | 200# | 4666.7 | 0.9 | -6176.7 | 0.8 | * | | 9806.5 | 0.6 | -36560# | 300# |
| | Sc | 21 | * | | -120# | 300# | -5950# | 360# | * | | 13650# | 300# | * | |
| 38 | Mg | 12 | 2450# | 850# | * | | -21190# | 720# | 38240# | 510# | * | | 16190# | 530# |
| | Al | 13 | 5880 | 400 | 44670# | 770# | -17900 | 710 | 30830 | 380 | -44610# | 780# | 14710 | 390 |
| | Si | 14 | 7880 | 130 | 39130 | 700 | -14920 | 110 | 22690 | 110 | -39670 | 710 | 6750 | 110 |
| | P | 15 | 10510 | 70 | 35150 | 170 | -14050 | 70 | 15180 | 70 | -31720 | 190 | 4200 | 70 |
| | S | 16 | 12340 | 7 | 29000 | 70 | -9329 | 16 | 7854 | 7 | -27580 | 110 | -3171 | 7 |
| | Cl | 17 | 16418.73 | 0.10 | 24125 | 13 | -7674.3 | 0.8 | -997.35 | 0.22 | -18090 | 40 | -6921.76 | 0.22 |
| | Ar | 18 | 20625.92 | 0.20 | 18628.63 | 0.27 | -7208.05 | 0.20 | -12656.32 | 0.06 | -15107.37 | 0.28 | -17985.94 | 0.22 |
| | K | 19 | 27526.3 | 0.4 | 13856.69 | 0.20 | -6785.59 | 0.20 | -24550# | 200# | -4328.19 | 0.20 | -23736.0 | 0.7 |
| | Ca | 20 | 31750 | 40 | 6404.90 | 0.20 | -6105.12 | 0.21 | -32930# | 300# | 1600.19 | 0.28 | -33650# | 300# |
| | Sc | 21 | 35740# | 360# | 1410# | 200# | -5450# | 280# | * | | 13260# | 200# | * | |
| | Ti | 22 | * | | -2740# | 300# | -5410# | 420# | * | | 16720# | 300# | * | |
| 39 | Mg | 12 | 2080# | 870# | * | | * | | 39960# | 530# | * | | 17990# | 640# |
| | Al | 13 | 5300# | 440# | 47460# | 800# | -20010# | 780# | 33430# | 420# | * | | 16750# | 410# |
| | Si | 14 | 7250 | 180 | 40470 | 710 | -15740 | 300 | 25480 | 140 | -39040# | 520# | 8870 | 150 |
| | P | 15 | 9920 | 120 | 37160 | 210 | -14980 | 110 | 17030 | 110 | -36270 | 390 | 6020 | 110 |
| | S | 16 | 12410 | 50 | 31170 | 120 | -11200 | 60 | 10080 | 50 | -26280 | 120 | -1440 | 50 |
| | Cl | 17 | 14181.3 | 1.7 | 25380 | 40 | -7367.3 | 2.5 | 4007.0 | 1.7 | -22470 | 70 | -3156.7 | 1.7 |
| | Ar | 18 | 18437 | 5 | 20924 | 5 | -6821 | 5 | -5959 | 5 | -13670 | 9 | -12513 | 5 |
| | K | 19 | 25149.63 | 0.09 | 16623.59 | 0.05 | -7218.58 | 0.04 | -19634 | 24 | -11298.06 | 0.10 | -19820.01 | 0.19 |
| | Ca | 20 | 30289.3 | 0.9 | 10913.0 | 0.6 | -6660.3 | 0.9 | -29480# | 200# | 143.1 | 0.6 | -31110# | 200# |
| | Sc | 21 | 33840# | 300# | 3950 | 24 | -5425 | 24 | * | | 7339 | 24 | -33110# | 300# |
| | Ti | 22 | * | | -760# | 200# | -5010# | 280# | * | | 16970# | 200# | * | |
| 40 | Mg | 12 | 1870# | 710# | * | | * | | 42920# | 610# | * | | 19630# | 640# |
| | Al | 13 | 4760# | 550# | * | | -21140# | 790# | 35700# | 430# | * | | 17200# | 420# |
| | Si | 14 | 6540 | 360 | 43220# | 610# | -17380 | 770 | 28270 | 350 | -44140# | 620# | 10130 | 360 |
| | P | 15 | 9640 | 170 | 38900 | 400 | -16490 | 210 | 19440 | 160 | -36050# | 430# | 6980 | 160 |
| | S | 16 | 12119 | 8 | 33250 | 100 | -12830 | 70 | 12202 | 4 | -32450 | 140 | -1109 | 4 |
| | Cl | 17 | 13900 | 30 | 27510 | 80 | -9730 | 30 | 5980 | 30 | -22070 | 120 | -2390 | 30 |
| | Ar | 18 | 16467.71 | 0.19 | 22757 | 7 | -6800.68 | 0.19 | -193.51 | 0.02 | -19170 | 50 | -9304.02 | a |
| | K | 19 | 20877.37 | 0.20 | 18315.33 | 0.11 | -6438.40 | 0.07 | -13012.2 | 2.8 | -11024.3 | 1.7 | -14324.1 | 0.6 |
| | Ca | 20 | 28930.52 | 0.20 | 14709.50 | 0.20 | -7039.76 | 0.03 | -26000 | 160 | -8893 | 5 | -28745 | 24 |
| | Sc | 21 | 32420# | 200# | 6300.5 | 2.8 | -5531.2 | 2.8 | -32690# | 300# | 5994.9 | 2.8 | -30800# | 200# |
| | Ti | 22 | 35860# | 340# | 1370 | 160 | -4820 | 160 | * | | 11140 | 160 | * | |
| | V | 23 | * | | -1840# | 360# | -5610# | 420# | * | | 19050# | 300# | * | |
| 41 | Al | 13 | 3370# | 640# | * | | -22540# | 850# | 38400# | 510# | * | | 19920# | 610# |
| | Si | 14 | 6340 | 570 | 44730# | 760# | -18520 | 890 | 31130 | 550 | -43520# | 750# | 12160 | 580 |
| | P | 15 | 8350 | 160 | 40210# | 420# | -17210 | 220 | 22330 | 140 | -39860# | 420# | 9790 | 120 |
| | S | 16 | 11990 | 50 | 35910 | 140 | -14860 | 110 | 14059 | 4 | -31730 | 350 | 480 | 30 |
| | Cl | 17 | 13650 | 70 | 29110 | 130 | -10740 | 80 | 8250 | 70 | -26480 | 170 | -340 | 70 |
| | Ar | 18 | 15968 | 5 | 24480 | 50 | -8596.0 | 0.4 | 2070.4 | 0.4 | -17519 | 4 | -7603.3 | 0.4 |
| | K | 19 | 17894.99 | 0.01 | 20337.3 | 1.7 | -6222.92 | 0.05 | -6917.13 | 0.08 | -15290 | 30 | -8784.48 | 0.02 |
| | Ca | 20 | 23997.8 | 0.6 | 16474 | 5 | -6615.14 | 0.25 | -19440 | 28 | -7386.97 | 0.14 | -22685.9 | 2.8 |
| | Sc | 21 | 30612 | 24 | 9413.16 | 0.08 | -6267.13 | 0.13 | -28960# | 200# | -2395.89 | 0.10 | -27860 | 160 |
| | Ti | 22 | 34040# | 200# | 2993 | 28 | -4986 | 28 | * | | 11860 | 28 | -35940# | 300# |
| | V | 23 | * | | 90# | 200# | -5630# | 360# | * | | 13560# | 200# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|----|------|----|----------|-------|----------|-------|---------------|------|---------------|-------|---------------|------|---------------|-------|
| 42 | Al | 13 | 1390# | 780# | * | | 64930# | 600# | 2460# | 780# | 2690# | 790# | * | |
| | Si | 14 | 3720# | 750# | 24240# | 710# | 50890# | 500# | -410# | 640# | 680# | 640# | -20160# | 720# |
| | P | 15 | 2080 | 340 | 18400 | 640 | 36030 | 310 | 6290 | 470 | 3550 | 340 | -13990# | 510# |
| | S | 16 | 6700 | 5 | 19950 | 120 | 20909.5 | 2.8 | 1190 | 150 | 0 | 110 | -14310 | 140 |
| | Cl | 17 | 5600 | 90 | 13110 | 60 | 7290 | 60 | 8720 | 60 | 3190 | 80 | -6410 | 130 |
| | Ar | 18 | 9426 | 6 | 14400 | 70 | -9318 | 6 | 3850 | 30 | 242 | 6 | -5610 | 50 |
| | K | 19 | 7533.80 | 0.11 | 9243.5 | 0.4 | -27400# | 200# | 10728.67 | 0.11 | 3084 | 5 | 424.6 | 1.7 |
| | Ca | 20 | 11480.67 | 0.06 | 10276.67 | 0.15 | -45280# | 400# | 5699.05 | 0.16 | 124.00 | 0.15 | 341 | 5 |
| | Sc | 21 | 11550.06 | 0.16 | 4272.23 | 0.10 | * | | 13436.04 | 0.17 | 25.6 | 0.6 | 7332.44 | 0.17 |
| | Ti | 22 | 17478 | 28 | 3751.23 | 0.27 | * | | 6129.5 | 2.8 | -6068 | 24 | 7824.4 | 0.7 |
| | V | 23 | 16010# | 280# | -790# | 200# | * | | 11940# | 250# | -4960# | 280# | 12200# | 200# |
| | Cr | 24 | * | | 880# | 450# | * | | 5270# | 500# | * | | 10180# | 450# |
| 43 | Al | 13 | 1150# | 1000# | * | | 71180# | 800# | * | | 3530# | 940# | * | |
| | Si | 14 | 1440# | 780# | 24290# | 850# | 55110# | 600# | 390# | 780# | 380# | 720# | -19600# | 780# |
| | P | 15 | 4400 | 640 | 19080# | 750# | 41260 | 550 | 3270 | 780 | 4110 | 650 | -17260# | 680# |
| | S | 16 | 2629 | 6 | 20490 | 310 | 26213 | 5 | 3500 | 120 | 780 | 150 | -11980 | 350 |
| | Cl | 17 | 7400 | 90 | 13810 | 60 | 12030 | 60 | 5560 | 60 | 3540 | 60 | -10400 | 170 |
| | Ar | 18 | 5658 | 8 | 14470 | 60 | -2689 | 9 | 6010 | 70 | 410 | 30 | -3526 | 7 |
| | K | 19 | 9624.7 | 0.4 | 9442 | 6 | -18660 | 40 | 7202.9 | 0.5 | 3328.6 | 0.4 | -3370 | 30 |
| | Ca | 20 | 7932.89 | 0.17 | 10675.77 | 0.25 | -36440# | 400# | 7861.53 | 0.23 | -9.28 | 0.23 | 2277.47 | 0.23 |
| | Sc | 21 | 12138.3 | 1.9 | 4929.8 | 1.9 | * | | 9660.6 | 1.9 | 3522.3 | 1.9 | 2993.8 | 1.9 |
| | Ti | 22 | 12288 | 7 | 4489 | 7 | * | | 10032 | 7 | -3934 | 8 | 11172 | 7 |
| | V | 23 | 18370# | 200# | 100 | 40 | * | | 8490 | 50 | -4200 | 170 | 8250 | 40 |
| | Cr | 24 | 16770# | 570# | 1640# | 450# | * | | 8420# | 450# | -9280# | 500# | 12530# | 430# |
| 44 | Si | 14 | 2660# | 840# | 25800# | 1000# | 61190# | 600# | -880# | 850# | -40# | 780# | * | |
| | P | 15 | 2300# | 750# | 19940# | 780# | 46230# | 500# | 4690# | 710# | 3200# | 750# | -17320# | 710# |
| | S | 16 | 5080 | 7 | 21170 | 550 | 32264 | 5 | 500 | 310 | 640 | 120 | -15680 | 550 |
| | Cl | 17 | 4300 | 150 | 15480 | 140 | 17430 | 140 | 7960 | 140 | 3490 | 140 | -9760 | 180 |
| | Ar | 18 | 8735 | 6 | 15800 | 60 | 4875.3 | 1.7 | 2870 | 60 | -500 | 70 | -8018 | 4 |
| | K | 19 | 7277.4 | 0.6 | 11061 | 5 | -11670 | 180 | 9352 | 6 | 2150.1 | 0.5 | -2830 | 70 |
| | Ca | 20 | 11131.17 | 0.23 | 12182.3 | 0.5 | -28110# | 300# | 4264.2 | 0.3 | -1045.1 | 0.3 | -2754.8 | 0.5 |
| | Sc | 21 | 9699.2 | 2.6 | 6696.1 | 1.7 | -44850# | 500# | 11442.1 | 1.7 | 2186.0 | 1.8 | 3390.0 | 1.8 |
| | Ti | 22 | 16299 | 7 | 8649.4 | 2.0 | * | | 5283.4 | 0.7 | -4042.1 | 0.7 | 3235.7 | 0.7 |
| | V | 23 | 14270 | 190 | 2080 | 180 | * | | 11700 | 180 | -3550 | 180 | 10170 | 180 |
| | Cr | 24 | 19460# | 500# | 2730# | 300# | * | | 4970# | 360# | -8820# | 360# | 7980# | 300# |
| | Mn | 25 | * | | -1710# | 640# | * | | 11010# | 640# | * | | 12360# | 540# |
| 45 | Si | 14 | -910# | 920# | * | | 67260# | 700# | 1180# | 1060# | 2250# | 920# | * | |
| | P | 15 | 2920# | 710# | 20200# | 780# | 52220# | 500# | 3210# | 780# | 3990# | 710# | -18850# | 780# |
| | S | 16 | 2860 | 1040 | 21730# | 1150# | 36820 | 1040 | 2040 | 1170 | -140 | 1080 | -14810# | 1150# |
| | Cl | 17 | 5950 | 190 | 16350 | 140 | 22810 | 140 | 4640 | 140 | 4240 | 140 | -13630 | 340 |
| | Ar | 18 | 5168.9 | 1.7 | 16680 | 140 | 9239.0 | 1.0 | 5100 | 60 | -70 | 60 | -6486.6 | 2.8 |
| | K | 19 | 8905.5 | 0.7 | 11231.4 | 1.7 | -4729.6 | 1.0 | 6105 | 5 | 2671 | 6 | -6140 | 60 |
| | Ca | 20 | 7414.82 | 0.17 | 12319.7 | 0.6 | -21300 | 40 | 6474.0 | 0.5 | -926.1 | 0.4 | -743 | 6 |
| | Sc | 21 | 11327.2 | 1.9 | 6892.2 | 0.7 | -35820# | 400# | 8047.7 | 0.7 | 2339.4 | 0.7 | -403.5 | 0.7 |
| | Ti | 22 | 9532.6 | 1.1 | 8482.8 | 1.9 | -52770# | 400# | 7889.1 | 2.0 | -2024.6 | 0.9 | 5183.8 | 0.9 |
| | V | 23 | 15840 | 180 | 1626.4 | 1.1 | * | | 8146 | 7 | -1917.3 | 0.9 | 5881.5 | 0.9 |
| | Cr | 24 | 14230# | 300# | 2690 | 190 | * | | 9110 | 60 | -7030# | 200# | 11240 | 40 |
| | Mn | 25 | 20350# | 640# | -820# | 500# | * | | 7430# | 570# | -7120# | 570# | 8020# | 450# |
| | Fe | 26 | * | | 560# | 640# | * | | * | | * | | 12680# | 570# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q($2\beta^-$) | | Q(ϵp) | | Q($\beta^- n$) | |
|----|------|----|----------|------|----------|-------|---------------|------|-----------------|-------|-------------------|-------|------------------|------|
| 42 | Al | 13 | 3630# | 720# | * | | * | | 39090# | 680# | * | | 19910# | 820# |
| | Si | 14 | 5100# | 610# | 46460# | 710# | -20030# | 710# | 34110# | 500# | * | | 13380# | 510# |
| | P | 15 | 7020 | 350 | 41160# | 510# | -17630 | 490 | 25840 | 320 | -39700# | 590# | 11950 | 310 |
| | S | 16 | 10943 | 5 | 37650 | 350 | -15890 | 100 | 16785 | 6 | -37050 | 550 | 1600 | 70 |
| | Cl | 17 | 13420 | 70 | 31300 | 160 | -12640 | 90 | 10190 | 60 | -27140 | 130 | 160 | 60 |
| | Ar | 18 | 15525 | 6 | 26163 | 7 | -9986 | 9 | 4125 | 6 | -22703 | 7 | -6934 | 6 |
| | K | 19 | 17629.17 | 0.12 | 22040 | 30 | -7648.84 | 0.14 | -2900.87 | 0.20 | -15000 | 70 | -7955.45 | 0.17 |
| | Ca | 20 | 19843.49 | 0.15 | 18085.29 | 0.15 | -6257.34 | 0.25 | -13442.57 | 0.24 | -12768.7 | 0.4 | -17976.15 | 0.16 |
| | Sc | 21 | 27740.5 | 2.8 | 13163.60 | 0.18 | -5745.31 | 0.26 | -24500# | 200# | -3850.58 | 0.17 | -24495 | 28 |
| | Ti | 22 | 32400 | 160 | 4836.23 | 0.28 | -5471.1 | 0.3 | -31840# | 400# | 2744.25 | 0.24 | -33500# | 200# |
| | V | 23 | 35930# | 360# | 1670# | 200# | -5800# | 280# | * | | 13730# | 200# | * | |
| | Cr | 24 | * | | -1000# | 430# | -6560# | 500# | * | | 15140# | 400# | * | |
| 43 | Al | 13 | 2540# | 940# | * | | * | | 42340# | 970# | * | | 22480# | 940# |
| | Si | 14 | 5160# | 810# | * | | -21600# | 790# | 35300# | 600# | * | | 14020# | 670# |
| | P | 15 | 6480 | 570 | 43320# | 750# | -18400# | 680# | 28840 | 560 | -42710# | 820# | 14250 | 550 |
| | S | 16 | 9330 | 6 | 38890 | 550 | -16940 | 140 | 19814 | 7 | -35950# | 500# | 4560 | 60 |
| | Cl | 17 | 12990 | 90 | 33760 | 140 | -13810 | 130 | 12420 | 60 | -32460 | 320 | 2190 | 60 |
| | Ar | 18 | 15085 | 5 | 27579 | 7 | -11270 | 50 | 6399 | 5 | -21661 | 6 | -5059 | 5 |
| | K | 19 | 17158.5 | 0.4 | 23850 | 70 | -9200.1 | 1.8 | -387.3 | 1.9 | -19030 | 60 | -6099.5 | 0.4 |
| | Ca | 20 | 19413.57 | 0.18 | 19919.3 | 0.4 | -7592 | 5 | -9088 | 7 | -11275 | 6 | -14358.99 | 0.20 |
| | Sc | 21 | 23688.3 | 1.9 | 15206.5 | 1.9 | -4805.8 | 1.9 | -18270 | 40 | -8455.0 | 1.9 | -19154.7 | 1.9 |
| | Ti | 22 | 29766 | 29 | 8761 | 7 | -4463 | 7 | -27350# | 400# | 1937 | 7 | -29770# | 200# |
| | V | 23 | 34380# | 210# | 3850 | 40 | -6170 | 50 | * | | 6920 | 40 | -32720# | 400# |
| | Cr | 24 | * | | 850# | 400# | -6600# | 450# | * | | 15850# | 400# | * | |
| 44 | Si | 14 | 4100# | 780# | * | | -22260# | 780# | 37720# | 600# | * | | 15760# | 810# |
| | P | 15 | 6700# | 590# | 44230# | 780# | -19560# | 640# | 30840# | 520# | -43860# | 940# | 14580# | 500# |
| | S | 16 | 7709 | 6 | 40250# | 500# | -17060 | 350 | 23469 | 5 | -39590# | 600# | 6880 | 60 |
| | Cl | 17 | 11700 | 150 | 35970 | 340 | -14700 | 210 | 15400 | 140 | -32350 | 570 | 3550 | 140 |
| | Ar | 18 | 14393 | 6 | 29613 | 3 | -12260 | 4 | 8795.4 | 1.6 | -27767 | 5 | -4169.2 | 1.6 |
| | K | 19 | 16902.1 | 0.4 | 25530 | 60 | -10650 | 30 | 2034.5 | 1.8 | -18910 | 60 | -5444.0 | 0.5 |
| | Ca | 20 | 19064.06 | 0.29 | 21624 | 6 | -8853.7 | 0.3 | -3920.1 | 0.8 | -16748 | 5 | -13351.9 | 1.9 |
| | Sc | 21 | 21837.5 | 1.8 | 17371.9 | 1.8 | -6705.4 | 1.8 | -13700 | 180 | -8529.6 | 1.8 | -16566 | 7 |
| | Ti | 22 | 28586.5 | 0.8 | 13579.3 | 0.7 | -5127.1 | 0.7 | -24190# | 300# | -6428.7 | 0.7 | -27700 | 40 |
| | V | 23 | 32640# | 270# | 6570 | 180 | -6020 | 180 | -31150# | 530# | 4780 | 180 | -30220# | 440# |
| | Cr | 24 | 36230# | 500# | 2830# | 300# | -6940# | 340# | * | | 8670# | 300# | * | |
| | Mn | 25 | * | | -70# | 540# | -7570# | 580# | * | | 17660# | 500# | * | |
| 45 | Si | 14 | 1750# | 920# | * | | * | | 41480# | 1250# | * | | 18970# | 860# |
| | P | 15 | 5220# | 750# | 46000# | 940# | -20250# | 710# | 33860# | 520# | * | | 16730# | 500# |
| | S | 16 | 7940 | 1040 | 41670# | 1200# | -18530 | 1170 | 25780 | 1040 | -39790# | 1200# | 8320 | 1040 |
| | Cl | 17 | 10250 | 150 | 37520 | 570 | -15710 | 180 | 18350 | 140 | -36000# | 520# | 6340 | 140 |
| | Ar | 18 | 13904 | 5 | 32153 | 5 | -13187 | 4 | 11041.4 | 0.6 | -27856 | 5 | -2060.6 | 0.7 |
| | K | 19 | 16182.9 | 0.7 | 27030 | 60 | -11730 | 70 | 4456.3 | 0.9 | -23520 | 140 | -3218.3 | 0.6 |
| | Ca | 20 | 18545.99 | 0.29 | 23380 | 5 | -10169.6 | 0.5 | -1802.3 | 0.9 | -15427.9 | 1.6 | -11067.5 | 1.8 |
| | Sc | 21 | 21026.4 | 2.0 | 19074.4 | 0.8 | -7937.3 | 0.7 | -9185.9 | 0.6 | -12579.4 | 0.8 | -11594.6 | 1.0 |
| | Ti | 22 | 25831 | 7 | 15179.0 | 0.9 | -6296.9 | 0.9 | -19500 | 40 | -4830.1 | 0.9 | -22960 | 180 |
| | V | 23 | 30110 | 40 | 10275.9 | 2.1 | -5668.5 | 0.9 | -26640# | 400# | -1359.0 | 2.0 | -26600# | 300# |
| | Cr | 24 | 33690# | 400# | 4770 | 40 | -6240 | 50 | -33280# | 400# | 10740 | 40 | -34620# | 500# |
| | Mn | 25 | * | | 1910# | 400# | -8000# | 450# | * | | 11580# | 440# | * | |
| | Fe | 26 | * | | -1154 | 16 | * | | * | | 19830# | 500# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|----|------|----|----------|-------|---------|-------|---------------|------|---------------|-------|---------------|-------|---------------|-------|
| 46 | P | 15 | 700# | 860# | 21810# | 990# | 58380# | 700# | 5170# | 920# | 4730# | 920# | -18400# | 1060# |
| | S | 16 | 3740# | 1150# | 22550# | 710# | 43480# | 500# | 600# | 710# | 520# | 750# | -17120# | 780# |
| | Cl | 17 | 3670 | 250 | 17160 | 1060 | 27900 | 210 | 6060 | 210 | 3200 | 210 | -12890 | 590 |
| | Ar | 18 | 8073.4 | 1.2 | 18800 | 140 | 14354.9 | 1.1 | 1320 | 140 | -750 | 60 | -11931 | 5 |
| | K | 19 | 6869.6 | 0.9 | 12932.1 | 0.9 | 1661.4 | 0.8 | 7970.1 | 1.7 | 1460 | 5 | -5610 | 60 |
| | Ca | 20 | 10398.5 | 2.3 | 13812.7 | 2.3 | -13668 | 12 | 3352.9 | 2.3 | -1699.9 | 2.3 | -5483 | 6 |
| | Sc | 21 | 8760.64 | 0.10 | 8238.0 | 0.8 | -29190# | 400# | 10418.3 | 0.7 | 1511.7 | 0.7 | 460.6 | 0.8 |
| | Ti | 22 | 13189.3 | 0.8 | 10344.9 | 0.7 | -45040# | 500# | 4399.0 | 1.8 | -3075.6 | 1.9 | -72.58 | 0.28 |
| | V | 23 | 13260.7 | 0.9 | 5354.5 | 0.8 | * | | 11184.0 | 0.7 | -2890 | 7 | 4759.2 | 1.9 |
| | Cr | 24 | 18030 | 40 | 4875 | 11 | * | | 5360 | 180 | -6690 | 40 | 5496 | 14 |
| | Mn | 25 | 15390# | 570# | 340# | 400# | * | | 11500# | 500# | -5740# | 570# | 10990# | 400# |
| | Fe | 26 | 20920# | 640# | 1130# | 640# | * | | 4590# | 710# | * | | 8530# | 640# |
| 47 | P | 15 | 1330# | 1060# | * | | 65420# | 800# | 2930# | 1060# | 6060# | 1000# | * | |
| | S | 16 | 1040# | 710# | 22890# | 860# | 49710# | 500# | 2480# | 710# | 1780# | 710# | -15500# | 780# |
| | Cl | 17 | 3990# | 450# | 17410# | 640# | 34560# | 400# | 4920# | 1110# | 4290# | 400# | -14580# | 640# |
| | Ar | 18 | 3664.7 | 1.6 | 18800 | 210 | 19571.0 | 1.1 | 3610 | 140 | -120 | 140 | -10516 | 5 |
| | K | 19 | 8369.4 | 1.6 | 13228.0 | 1.8 | 6294.6 | 1.4 | 4769.6 | 1.5 | 1825.3 | 2.1 | -9680 | 140 |
| | Ca | 20 | 7276.37 | 0.27 | 14219.5 | 2.3 | -7782 | 6 | 4982.0 | 2.3 | -1698.9 | 2.3 | -4024.8 | 2.7 |
| | Sc | 21 | 10646.7 | 2.0 | 8486.2 | 1.2 | -21770 | 30 | 7186.4 | 2.0 | 1996.1 | 2.0 | -2908.7 | 2.0 |
| | Ti | 22 | 8880.88 | 0.13 | 10465.1 | 0.7 | -38070# | 500# | 6845.3 | 0.7 | -2257.3 | 1.8 | 2177.7 | 0.3 |
| | V | 23 | 13002.58 | 0.11 | 5167.79 | 0.07 | -52380# | 600# | 7714.0 | 0.8 | 406.0 | 0.7 | 1455.8 | 1.8 |
| | Cr | 24 | 13162 | 13 | 4776 | 6 | * | | 8034 | 6 | -5580 | 180 | 8632 | 6 |
| | Mn | 25 | 18070# | 400# | 380 | 30 | * | | 7660 | 50 | -4340# | 300# | 7200 | 180 |
| | Fe | 26 | 15850# | 710# | 1590# | 640# | * | | 9090# | 640# | -9040# | 710# | 12140# | 580# |
| | Co | 27 | * | | -2170# | 780# | * | | 7320# | 720# | * | | 8990# | 780# |
| 48 | S | 16 | 2680# | 780# | 24240# | 1000# | 56990# | 600# | 500# | 920# | 2030# | 780# | -19080# | 920# |
| | Cl | 17 | 2570# | 640# | 18940# | 710# | 40220# | 500# | 6090# | 710# | 4570# | 1150# | -14230# | 710# |
| | Ar | 18 | 4990 | 310 | 19790# | 500# | 26210 | 310 | 2290 | 370 | 850 | 340 | -12650 | 1080 |
| | K | 19 | 4643.8 | 1.6 | 14207.1 | 1.4 | 12193.2 | 1.2 | 8199.3 | 1.4 | 2350.4 | 0.9 | -8380 | 140 |
| | Ca | 20 | 9951.5 | 2.2 | 15801.6 | 1.4 | -1403 | 7 | 1900.1 | 0.7 | -2744.9 | 0.5 | -8807.4 | 0.5 |
| | Sc | 21 | 8239 | 5 | 9448 | 5 | -15208 | 9 | 9346 | 5 | 1172 | 5 | -2242 | 5 |
| | Ti | 22 | 11626.66 | 0.04 | 11445.1 | 1.9 | -30490# | 400# | 3979.3 | 0.7 | -2556.8 | 0.7 | -2034.1 | 0.4 |
| | V | 23 | 10542.4 | 1.0 | 6829.3 | 1.0 | -45980# | 500# | 10360.9 | 1.0 | -603.8 | 1.3 | 2240.6 | 1.2 |
| | Cr | 24 | 16331 | 9 | 8104 | 7 | -59620# | 500# | 4964 | 7 | -6072 | 7 | 1834 | 7 |
| | Mn | 25 | 14800 | 30 | 2023 | 6 | * | | 10886 | 13 | -4920 | 40 | 8236 | 7 |
| | Fe | 26 | 19200# | 640# | 2720# | 400# | * | | 5280# | 570# | -7890# | 570# | 7160# | 400# |
| | Co | 27 | 16940# | 780# | -1080# | 710# | * | | 11300# | 710# | -7400# | 640# | 12400# | 640# |
| | Ni | 28 | * | | 870# | 780# | * | | * | | * | | 8680# | 640# |
| 49 | S | 16 | -260# | 300# | * | | 62390# | 670# | 2090# | 1040# | 2990# | 970# | * | |
| | Cl | 17 | 2850# | 780# | 19110# | 850# | 47500# | 600# | 4280# | 780# | 5460# | 780# | -16380# | 920# |
| | Ar | 18 | 2980# | 500# | 20200# | 640# | 31370# | 400# | 3300# | 570# | 1530# | 450# | -11880# | 640# |
| | K | 19 | 5398.3 | 1.1 | 14620 | 310 | 18350.4 | 1.2 | 6465.7 | 1.4 | 5025.5 | 1.4 | -10110 | 210 |
| | Ca | 20 | 5146.45 | 0.18 | 16304.3 | 0.8 | 4033.3 | 2.3 | 5123.0 | 1.4 | -1021.8 | 0.8 | -5880.4 | 1.1 |
| | Sc | 21 | 10129 | 6 | 9625.6 | 2.7 | -8941 | 4 | 6494 | 3 | 1442 | 4 | -5500.9 | 2.8 |
| | Ti | 22 | 8142.40 | 0.03 | 11349 | 5 | -23813 | 24 | 6483.6 | 1.9 | -1938.5 | 0.7 | 222.0 | 2.2 |
| | V | 23 | 11555.6 | 1.3 | 6758.2 | 0.8 | -38080# | 500# | 7686.2 | 0.8 | 1029.9 | 0.8 | -554.3 | 1.1 |
| | Cr | 24 | 10582 | 8 | 8144.3 | 2.4 | -53530# | 600# | 7384.4 | 2.2 | -3393.7 | 2.3 | 4441.1 | 2.2 |
| | Mn | 25 | 16396 | 7 | 2088 | 8 | * | | 7653 | 6 | -3285 | 12 | 5101.1 | 2.3 |
| | Fe | 26 | 14820# | 400# | 2743 | 25 | * | | 8530 | 40 | -7320# | 400# | 10367 | 27 |
| | Co | 27 | 19450# | 710# | -830# | 640# | * | | 7700# | 710# | -5930# | 710# | 8340# | 640# |
| | Ni | 28 | 16670# | 780# | 590# | 780# | * | | 8540# | 850# | * | | 12940# | 780# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | $Q(\alpha)$ | | $Q(2\beta^-)$ | | $Q(\epsilon p)$ | | $Q(\beta^- n)$ | |
|----|------|----|----------|-------|---------|-------|-------------|-------|---------------|------|-----------------|------|----------------|-------|
| 46 | P | 15 | 3620# | 860# | * | | -19560# | 920# | 36830# | 730# | * | | 18890# | 1250# |
| | S | 16 | 6600# | 500# | 42750# | 780# | -18560# | 710# | 30110# | 500# | -44440# | 860# | 10530# | 520# |
| | Cl | 17 | 9620 | 250 | 38890# | 540# | -17290 | 380 | 21550 | 210 | -36750# | 540# | 7840 | 210 |
| | Ar | 18 | 13242.3 | 1.9 | 35147 | 5 | -14560 | 3 | 13366.4 | 2.5 | -33070 | 1040 | -1228.6 | 1.2 |
| | K | 19 | 15775.1 | 0.8 | 29610 | 140 | -13010 | 60 | 6347.3 | 1.0 | -24440 | 140 | -2673.1 | 0.8 |
| | Ca | 20 | 17813.3 | 2.3 | 25044.0 | 2.7 | -11142 | 6 | 988.4 | 2.2 | -20657.5 | 2.3 | -10138.8 | 2.3 |
| | Sc | 21 | 20087.9 | 1.9 | 20557.7 | 0.8 | -9164.1 | 0.7 | -4685.9 | 0.7 | -12434.6 | 0.9 | -10822.7 | 0.5 |
| | Ti | 22 | 22721.9 | 0.7 | 17237.1 | 0.4 | -8005.47 | 0.22 | -14656 | 11 | -10604.6 | 0.4 | -20313.1 | 0.9 |
| | V | 23 | 29100 | 180 | 13837.3 | 1.8 | -7379.11 | 0.26 | -24310# | 400# | -3292.4 | 0.7 | -25630 | 40 |
| | Cr | 24 | 32250# | 300# | 6501 | 11 | -6792 | 11 | -30380# | 500# | 2249 | 11 | -32290# | 400# |
| | Mn | 25 | 35740# | 640# | 3030# | 440# | -7380# | 450# | * | | 12030# | 400# | -34400# | 570# |
| | Fe | 26 | * | | 310# | 580# | -8250# | 640# | * | | 13140# | 500# | * | |
| 47 | P | 15 | 2030# | 940# | * | | -19740# | 1130# | 39490# | 890# | * | | 21300# | 940# |
| | S | 16 | 4780# | 1150# | 44700# | 860# | -18160# | 780# | 32740# | 500# | * | | 13160# | 540# |
| | Cl | 17 | 7660# | 420# | 39960# | 640# | -16880# | 680# | 25930# | 400# | -40040# | 810# | 11920# | 400# |
| | Ar | 18 | 11738.2 | 1.2 | 35950 | 1040 | -15596 | 5 | 16978.1 | 2.5 | -33000# | 500# | 1976.3 | 1.3 |
| | K | 19 | 15239.0 | 1.5 | 32030 | 140 | -13980 | 60 | 8624.6 | 2.4 | -29140 | 210 | -643.9 | 2.6 |
| | Ca | 20 | 17674.9 | 2.3 | 27151.6 | 2.3 | -12760 | 6 | 2592.9 | 2.2 | -19860.5 | 2.5 | -8654.5 | 2.3 |
| | Sc | 21 | 19407.3 | 2.0 | 22298.9 | 2.0 | -10186.1 | 2.0 | -2330.0 | 1.9 | -16211.6 | 2.1 | -8280.1 | 1.9 |
| | Ti | 22 | 22070.2 | 0.8 | 18703.1 | 0.4 | -8953.46 | 0.25 | -10375 | 6 | -9087.0 | 2.2 | -15933.33 | 0.18 |
| | V | 23 | 26263.2 | 0.9 | 15512.7 | 0.7 | -8243.4 | 1.9 | -19440 | 30 | -7534.4 | 0.7 | -20606 | 11 |
| | Cr | 24 | 31190 | 40 | 10131 | 6 | -7666 | 9 | -27690# | 500# | 2276 | 6 | -30060# | 400# |
| | Mn | 25 | 33460# | 400# | 5260 | 30 | -7070 | 50 | -32940# | 600# | 7220 | 30 | -31550# | 500# |
| | Fe | 26 | 36770# | 640# | 1930# | 500# | -7330# | 640# | * | | 15310# | 500# | * | |
| | Co | 27 | * | | -1040# | 720# | * | | * | | 15650# | 720# | * | |
| 48 | S | 16 | 3720# | 780# | * | | -18180# | 840# | 35040# | 670# | * | | 14470# | 720# |
| | Cl | 17 | 6560# | 540# | 41830# | 860# | -17160# | 710# | 28000# | 500# | -41280# | 940# | 13020# | 500# |
| | Ar | 18 | 8650 | 310 | 37200# | 590# | -15500 | 310 | 21940 | 310 | -36940# | 590# | 5360 | 310 |
| | K | 19 | 13013.2 | 1.1 | 33000 | 210 | -14320 | 140 | 12219 | 5 | -29790# | 400# | 1988.6 | 2.4 |
| | Ca | 20 | 17227.9 | 2.2 | 29029.6 | 1.1 | -13976.3 | 1.6 | 4268.08 | 0.08 | -26147.3 | 1.1 | -7959.4 | 1.9 |
| | Sc | 21 | 18885 | 5 | 23668 | 5 | -11147 | 5 | -26 | 5 | -16081 | 5 | -7638 | 5 |
| | Ti | 22 | 20507.54 | 0.14 | 19931.3 | 2.2 | -9448.9 | 0.3 | -5671 | 7 | -13437.3 | 2.2 | -14557.41 | 0.14 |
| | V | 23 | 23545.0 | 1.0 | 17294.4 | 1.2 | -9086.6 | 2.0 | -15181 | 7 | -7430.1 | 2.2 | -17986 | 6 |
| | Cr | 24 | 29493 | 14 | 13272 | 7 | -7698 | 7 | -24820# | 400# | -5174 | 7 | -28330 | 30 |
| | Mn | 25 | 32870# | 400# | 6799 | 7 | -7600 | 180 | -30800# | 500# | 5421 | 7 | -30500# | 500# |
| | Fe | 26 | 35050# | 640# | 3110# | 400# | -7070# | 500# | -34790# | 640# | 9270# | 400# | -36440# | 720# |
| | Co | 27 | * | | 510# | 640# | -7960# | 710# | * | | 16780# | 500# | * | |
| | Ni | 28 | * | | -1310 | 40 | * | | * | | 16370# | 710# | * | |
| 49 | S | 16 | 2420# | 830# | * | | -18820# | 970# | 38280# | 780# | * | | 17300# | 830# |
| | Cl | 17 | 5420# | 720# | 43350# | 1000# | -17090# | 780# | 30550# | 600# | * | | 15150# | 670# |
| | Ar | 18 | 7970# | 400# | 39140# | 640# | -15630# | 1110# | 24110# | 400# | -37240# | 720# | 7020# | 400# |
| | K | 19 | 10042.1 | 1.6 | 34410# | 400# | -13770 | 140 | 16949.8 | 2.8 | -32620# | 500# | 6541.8 | 0.8 |
| | Ca | 20 | 15098.0 | 2.2 | 30511.4 | 1.1 | -13953.9 | 0.6 | 7264.02 | 0.19 | -26310 | 310 | -4867 | 5 |
| | Sc | 21 | 18367 | 3 | 25427 | 3 | -12370.5 | 2.7 | 1400.7 | 2.8 | -21565.8 | 2.8 | -6139.9 | 2.7 |
| | Ti | 22 | 19769.06 | 0.05 | 20797.3 | 2.2 | -10176.5 | 0.4 | -3230.7 | 2.2 | -11628.13 | 0.08 | -12157.4 | 1.0 |
| | V | 23 | 22097.9 | 0.8 | 18203.3 | 2.1 | -9315.0 | 1.1 | -10341.3 | 2.4 | -10747 | 5 | -13211 | 7 |
| | Cr | 24 | 26913 | 6 | 14973.6 | 2.2 | -8748.1 | 2.4 | -20582 | 24 | -4129.3 | 2.2 | -24108 | 7 |
| | Mn | 25 | 31200 | 30 | 10192.0 | 2.3 | -8159.5 | 2.4 | -27740# | 500# | -431.9 | 2.5 | -27690# | 400# |
| | Fe | 26 | 34020# | 500# | 4766 | 25 | -7660 | 40 | -32950# | 600# | 10782 | 25 | -34320# | 500# |
| | Co | 27 | 36390# | 780# | 1890# | 500# | -7060# | 640# | * | | 12130# | 500# | -34750# | 710# |
| | Ni | 28 | * | | -490# | 780# | -7990# | 720# | * | | 18910# | 720# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|----|------|----|----------|------|---------|------|---------------|------|---------------|------|---------------|------|---------------|-------|
| 50 | Cl | 17 | 1270# | 850# | 20640# | 900# | 52290# | 600# | 5690# | 850# | 5230# | 780# | -16320# | 1000# |
| | Ar | 18 | 4210# | 640# | 21560# | 780# | 38100# | 500# | 1660# | 710# | 1310# | 640# | -15050# | 710# |
| | K | 19 | 4188 | 8 | 15830# | 400# | 23496 | 8 | 7260 | 310 | 4503 | 8 | -10300# | 400# |
| | Ca | 20 | 6360.8 | 1.6 | 17266.7 | 1.8 | 10672.8 | 1.6 | 3406.1 | 1.8 | 986.8 | 2.1 | -8576.5 | 1.9 |
| | Sc | 21 | 6057 | 15 | 10537 | 15 | -1920 | 15 | 10388 | 15 | 2661 | 15 | -3189 | 15 |
| | Ti | 22 | 10939.19 | 0.04 | 12159.4 | 2.7 | -16955 | 8 | 3783 | 5 | -2231.0 | 1.9 | -3440.8 | 2.2 |
| | V | 23 | 9333.4 | 0.9 | 7949.2 | 0.4 | -31590# | 400# | 9979.5 | 0.4 | 577.4 | 0.4 | 759.0 | 2.0 |
| | Cr | 24 | 13000.3 | 2.2 | 9589.1 | 0.9 | -46140# | 500# | 4926.4 | 1.1 | -3391.4 | 0.5 | 321.7 | 0.5 |
| | Mn | 25 | 13078.3 | 2.2 | 4583.5 | 2.2 | * | | 10905 | 7 | -3201 | 6 | 5025.4 | 0.5 |
| | Fe | 26 | 17797 | 26 | 4145 | 9 | * | | 5531 | 11 | -7050 | 30 | 5733 | 10 |
| | Co | 27 | 15820# | 640# | 170# | 400# | * | | 11080# | 570# | -5900# | 640# | 10580# | 400# |
| | Ni | 28 | 20390# | 780# | 1530# | 710# | * | | 5090# | 710# | -9630# | 780# | 8400# | 710# |
| 51 | Cl | 17 | 1520# | 920# | * | | 57520# | 700# | 3910# | 970# | 6390# | 920# | * | |
| | Ar | 18 | 1430# | 780# | 21720# | 850# | 43040# | 600# | 3080# | 850# | 2450# | 780# | -13810# | 850# |
| | K | 19 | 4860 | 15 | 16480# | 500# | 29688 | 13 | 5380# | 400# | 4630 | 310 | -12590# | 500# |
| | Ca | 20 | 4814.4 | 1.7 | 17893 | 8 | 15119.1 | 0.7 | 3990.0 | 1.0 | 816.2 | 0.9 | -8400 | 310 |
| | Sc | 21 | 6753 | 25 | 10928 | 20 | 5015 | 20 | 8782 | 20 | 5860 | 20 | -5298 | 20 |
| | Ti | 22 | 6372.5 | 0.5 | 12474 | 15 | -9530 | 9 | 7539.2 | 2.7 | -365 | 5 | 138.2 | 0.5 |
| | V | 23 | 11051.15 | 0.08 | 8061.2 | 0.4 | -24860 | 50 | 7070.8 | 0.4 | 1152.9 | 0.4 | -2054 | 5 |
| | Cr | 24 | 9260.64 | 0.20 | 9516.35 | 0.23 | -39550# | 500# | 7221.3 | 0.9 | -2109.6 | 1.1 | 2687.7 | 0.4 |
| | Mn | 25 | 13687.60 | 0.30 | 5270.78 | 0.29 | * | | 7800.0 | 2.2 | -558 | 7 | 1880.2 | 1.1 |
| | Fe | 26 | 13797 | 12 | 4864 | 9 | * | | 8129 | 9 | -6042 | 11 | 8266 | 12 |
| | Co | 27 | 17780# | 400# | 150 | 50 | * | | 8120 | 50 | -4480# | 400# | 7600 | 50 |
| | Ni | 28 | 15850# | 710# | 1560# | 640# | * | | 8690# | 710# | -8540# | 710# | 11750# | 640# |
| 52 | Ar | 18 | 2660# | 850# | 22860# | 920# | 48190# | 600# | 1690# | 850# | 2640# | 850# | -16730# | 900# |
| | K | 19 | 2690 | 40 | 17740# | 600# | 34310 | 30 | 6900# | 500# | 4920# | 400# | -12430# | 600# |
| | Ca | 20 | 6005.3 | 0.8 | 19039 | 13 | 21153.0 | 0.8 | 2172 | 8 | 209.3 | 1.0 | -11430# | 400# |
| | Sc | 21 | 5290 | 80 | 11400 | 80 | 10260 | 80 | 9860 | 80 | 5720 | 80 | -5190 | 80 |
| | Ti | 22 | 7808 | 7 | 13530 | 21 | -1139 | 9 | 5788 | 17 | 1955 | 8 | -2524 | 7 |
| | V | 23 | 7311.24 | 0.13 | 8999.9 | 0.7 | -17083 | 8 | 10698.7 | 0.4 | 1984.1 | 0.4 | 763.9 | 2.7 |
| | Cr | 24 | 12039.2 | 0.5 | 10504.4 | 0.5 | -33090# | 400# | 4515.6 | 0.5 | -2593.3 | 0.9 | -1209.1 | 0.4 |
| | Mn | 25 | 10534.7 | 1.9 | 6544.9 | 1.9 | -48430# | 600# | 10265.6 | 1.9 | -510.2 | 2.9 | 2901.0 | 2.0 |
| | Fe | 26 | 16199 | 10 | 7375 | 5 | * | | 5008 | 5 | -5846 | 6 | 2649 | 6 |
| | Co | 27 | 15090 | 50 | 1447 | 12 | * | | 10826 | 12 | -4746 | 26 | 8906 | 9 |
| | Ni | 28 | 18500# | 640# | 2280# | 400# | * | | 6010# | 570# | -7590# | 640# | 8070# | 400# |
| | Cu | 29 | * | | -2330# | 780# | * | | 12550# | 780# | -5620# | 850# | 13250# | 780# |
| 53 | Ar | 18 | 0# | 920# | * | | 53620# | 710# | 3210# | 990# | 3920# | 920# | * | |
| | K | 19 | 3230 | 120 | 18310# | 610# | 39560 | 110 | 5110# | 610# | 5900# | 510# | -14390# | 610# |
| | Ca | 20 | 3190 | 40 | 19540 | 60 | 25900 | 40 | 3840 | 50 | 1200 | 40 | -10410# | 500# |
| | Sc | 21 | 6530 | 120 | 11930 | 90 | 15780 | 90 | 8140 | 90 | 5550 | 90 | -7530 | 90 |
| | Ti | 22 | 5430 | 100 | 13680 | 130 | 4120 | 100 | 7110 | 100 | 2580 | 100 | -1600 | 100 |
| | V | 23 | 8479 | 3 | 9670 | 8 | -9192 | 4 | 8593 | 3 | 4445 | 3 | -1657 | 15 |
| | Cr | 24 | 7939.07 | 0.14 | 11132.2 | 0.5 | -25656 | 25 | 7627.6 | 0.5 | -1198.9 | 0.5 | 1791.1 | 0.4 |
| | Mn | 25 | 12054.1 | 1.9 | 6559.8 | 0.3 | -41420# | 500# | 7472.1 | 0.6 | 436.0 | 0.6 | 180.3 | 0.6 |
| | Fe | 26 | 10688 | 5 | 7529.2 | 2.4 | * | | 8007.2 | 1.7 | -3455.9 | 1.7 | 4960.9 | 1.7 |
| | Co | 27 | 16370 | 9 | 1618 | 5 | * | | 8254 | 9 | -3319 | 9 | 5614.6 | 1.8 |
| | Ni | 28 | 15370# | 400# | 2559 | 27 | * | | 8420 | 50 | -7140# | 400# | 10492 | 27 |
| | Cu | 29 | 19060# | 780# | -1770# | 640# | * | | 9340# | 710# | -4290# | 710# | 10010# | 640# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | $Q(\alpha)$ | | $Q(2\beta^-)$ | | $Q(\epsilon p)$ | | $Q(\beta^- n)$ | |
|----|------|----|----------|------|----------|------|-------------|-------|---------------|------|-----------------|------|----------------|------|
| 50 | Cl | 17 | 4120# | 780# | * | | -17660# | 920# | 33470# | 600# | * | | 16860# | 720# |
| | Ar | 18 | 7190# | 590# | 40670# | 780# | -16100# | 710# | 26260# | 500# | -41710# | 830# | 8210# | 500# |
| | K | 19 | 9586 | 8 | 36030# | 500# | -14290 | 210 | 18820 | 17 | -33960# | 600# | 7501 | 8 |
| | Ca | 20 | 11507.2 | 1.6 | 31890 | 310 | -12241.2 | 1.9 | 11842.4 | 1.6 | -29690# | 400# | -1099 | 3 |
| | Sc | 21 | 16186 | 16 | 26841 | 15 | -11558 | 15 | 4677 | 15 | -22225 | 15 | -4055 | 15 |
| | Ti | 22 | 19081.59 | 0.05 | 21784.97 | 0.09 | -10717.2 | 2.2 | -1169.6 | 0.5 | -17420.87 | 0.20 | -11541.0 | 0.8 |
| | V | 23 | 20889.0 | 1.1 | 19298 | 5 | -9887.7 | 0.8 | -6596.4 | 0.3 | -9951.7 | 2.7 | -11962.3 | 2.2 |
| | Cr | 24 | 23583 | 7 | 16347.3 | 0.4 | -8559.2 | 0.5 | -15786 | 8 | -8987.3 | 0.5 | -20712.8 | 2.2 |
| | Mn | 25 | 29474 | 7 | 12727.8 | 1.1 | -7977.2 | 0.5 | -25000# | 400# | -1954.6 | 0.9 | -25948 | 24 |
| | Fe | 26 | 32620# | 400# | 6232 | 11 | -7430 | 14 | -30360# | 500# | 3568 | 9 | -32670# | 500# |
| | Co | 27 | 35270# | 640# | 2910# | 400# | -7490# | 570# | * | | 12700# | 400# | -33900# | 720# |
| | Ni | 28 | 37060# | 710# | 700# | 640# | -7460# | 710# | * | | 13340# | 500# | * | |
| 51 | Cl | 17 | 2790# | 920# | * | | -17850# | 1060# | 36810# | 700# | * | | 19550# | 860# |
| | Ar | 18 | 5640# | 720# | 42360# | 900# | -16490# | 780# | 29640# | 600# | * | | 10970# | 600# |
| | K | 19 | 9047 | 13 | 38030# | 600# | -15160# | 400# | 20712 | 24 | -37550# | 600# | 9002 | 13 |
| | Ca | 20 | 11175.2 | 0.6 | 33720# | 400# | -13390.9 | 1.2 | 13400.5 | 0.7 | -30290# | 500# | 144 | 15 |
| | Sc | 21 | 12810 | 20 | 28195 | 20 | -9942 | 20 | 8975 | 20 | -24790 | 21 | 132 | 20 |
| | Ti | 22 | 17311.7 | 0.5 | 23011.0 | 0.5 | -9813.3 | 2.3 | 1718.6 | 0.6 | -17432.6 | 1.7 | -8580.1 | 0.6 |
| | V | 23 | 20384.5 | 0.9 | 20220.5 | 2.7 | -10292.2 | 2.0 | -3960.0 | 0.4 | -14945 | 15 | -10013.09 | 0.29 |
| | Cr | 24 | 22261.0 | 2.2 | 17465.5 | 0.4 | -8938.9 | 0.4 | -11249 | 9 | -7308.7 | 0.4 | -16895.12 | 0.21 |
| | Mn | 25 | 26765.9 | 2.2 | 14859.9 | 1.0 | -8662.2 | 0.5 | -20900 | 50 | -6308.8 | 0.4 | -21839 | 8 |
| | Fe | 26 | 31594 | 26 | 9447 | 9 | -8065 | 11 | -28300# | 500# | 2771 | 9 | -30640# | 400# |
| | Co | 27 | 33600# | 500# | 4300 | 50 | -7200 | 60 | * | | 8000 | 50 | -31290# | 500# |
| | Ni | 28 | 36240# | 780# | 1730# | 500# | -7460# | 710# | * | | 15290# | 500# | * | |
| 52 | Ar | 18 | 4090# | 780# | * | | -16470# | 850# | 32990# | 600# | * | | 13170# | 600# |
| | K | 19 | 7550 | 30 | 39460# | 600# | -15280# | 500# | 23310 | 90 | -38720# | 700# | 11120 | 30 |
| | Ca | 20 | 10819.7 | 1.7 | 35520# | 500# | -14410 | 310 | 15204 | 7 | -34870# | 600# | 891 | 20 |
| | Sc | 21 | 12040 | 80 | 29290 | 80 | -10580 | 80 | 11000 | 80 | -25220 | 80 | 1220 | 80 |
| | Ti | 22 | 14181 | 7 | 24459 | 7 | -7670 | 7 | 5949 | 7 | -20426 | 7 | -5337 | 7 |
| | V | 23 | 18362.39 | 0.15 | 21474 | 15 | -9365 | 5 | -736.5 | 1.9 | -15504 | 20 | -8063.69 | 0.25 |
| | Cr | 24 | 21299.8 | 0.5 | 18565.5 | 0.4 | -9351.4 | 0.4 | -7089 | 5 | -12975.4 | 0.6 | -15246.7 | 0.6 |
| | Mn | 25 | 24222.3 | 1.9 | 16061.2 | 1.9 | -8654.5 | 2.1 | -16346 | 9 | -5792.4 | 1.9 | -18576 | 9 |
| | Fe | 26 | 29997 | 10 | 12646 | 5 | -7933 | 9 | -26000# | 400# | -4168 | 5 | -29060 | 50 |
| | Co | 27 | 32870# | 400# | 6311 | 8 | -7490 | 11 | -32080# | 600# | 6594 | 8 | -30530# | 500# |
| | Ni | 28 | 34350# | 640# | 2430# | 400# | -6750# | 570# | * | | 10580# | 400# | * | |
| | Cu | 29 | * | | -770# | 720# | -6210# | 780# | * | | 17770# | 600# | * | |
| 53 | Ar | 18 | 2660# | 920# | * | | -16730# | 970# | 36180# | 700# | * | | 15860# | 700# |
| | K | 19 | 5920 | 110 | 41160# | 710# | -15660# | 610# | 26610 | 150 | * | | 13900 | 110 |
| | Ca | 20 | 9200 | 40 | 37280# | 600# | -14620# | 400# | 17440 | 110 | -35400# | 600# | 2980 | 90 |
| | Sc | 21 | 11820 | 100 | 30970 | 90 | -11720 | 90 | 12940 | 90 | -29060 | 100 | 2490 | 90 |
| | Ti | 22 | 13240 | 100 | 25080 | 100 | -7960 | 100 | 8460 | 100 | -19850 | 100 | -3460 | 100 |
| | V | 23 | 15790 | 3 | 23200 | 20 | -7715 | 4 | 2839 | 3 | -18700 | 80 | -4503 | 3 |
| | Cr | 24 | 19978.2 | 0.5 | 20132.1 | 0.6 | -9148.1 | 0.4 | -4339.5 | 1.7 | -13106 | 7 | -12651.0 | 1.9 |
| | Mn | 25 | 22588.9 | 0.7 | 17064.2 | 0.6 | -9153.1 | 0.9 | -12030.7 | 1.7 | -10535.3 | 0.6 | -14431 | 5 |
| | Fe | 26 | 26888 | 9 | 14074.1 | 1.7 | -8039.4 | 2.8 | -21317 | 25 | -2817.3 | 1.7 | -24658 | 9 |
| | Co | 27 | 31460 | 50 | 8993.5 | 1.8 | -7463.7 | 2.8 | -29390# | 500# | 758.9 | 2.4 | -28400# | 400# |
| | Ni | 28 | 33870# | 500# | 4006 | 27 | -7310 | 30 | * | | 11411 | 26 | -35420# | 600# |
| | Cu | 29 | * | | 510# | 500# | -5820# | 710# | * | | 13800# | 500# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | Q($4\beta^-$) | | Q(d, α) | | Q(p, α) | | Q(n, α) | |
|----|------|----|----------|-------|----------|-------|-----------------|------|-----------------|-------|-----------------|-------|-----------------|-------|
| 54 | K | 19 | 780# | 610# | 19080# | 920# | 44890# | 600# | 6990# | 850# | 6550# | 850# | -13650# | 920# |
| | Ca | 20 | 3840 | 70 | 20150 | 120 | 31770 | 50 | 2690 | 60 | 2220 | 50 | -12820# | 600# |
| | Sc | 21 | 3060 | 290 | 11790 | 280 | 21670 | 270 | 11090 | 270 | 7310 | 270 | -5730 | 270 |
| | Ti | 22 | 6860 | 130 | 14000 | 130 | 10630 | 80 | 5530 | 120 | 2470 | 80 | -3640 | 80 |
| | V | 23 | 6113 | 15 | 10350 | 100 | -1883 | 15 | 10287 | 17 | 4704 | 15 | -1018 | 25 |
| | Cr | 24 | 9719.08 | 0.12 | 12373 | 3 | -17656 | 5 | 5219.8 | 0.5 | 133.1 | 0.5 | -1555.5 | 0.6 |
| | Mn | 25 | 8938.8 | 1.1 | 7559.6 | 1.0 | -34150# | 400# | 10572.4 | 1.0 | 757.8 | 1.1 | 2292.6 | 1.1 |
| | Fe | 26 | 13378.3 | 1.6 | 8853.4 | 0.5 | -49980# | 400# | 5163.6 | 1.8 | -3146.6 | 0.6 | 843.3 | 0.5 |
| | Co | 27 | 13421.8 | 1.7 | 4351.4 | 1.6 | * | | 11031 | 5 | -2943 | 9 | 5880.3 | 0.6 |
| | Ni | 28 | 17719 | 26 | 3908 | 5 | * | | 5793 | 10 | -7070 | 50 | 6571 | 10 |
| | Cu | 29 | 16210# | 640# | -930# | 400# | * | | 11630# | 570# | -4650# | 640# | 11580# | 400# |
| | Zn | 30 | * | | 290# | 640# | * | | 6720# | 720# | * | | 11270# | 640# |
| 55 | K | 19 | 2360# | 920# | * | | 49850# | 710# | 4630# | 990# | 6850# | 920# | * | |
| | Ca | 20 | 1260# | 300# | 20640# | 670# | 36760# | 300# | 4660# | 320# | 3650# | 300# | -11420# | 670# |
| | Sc | 21 | 4340 | 530 | 12290 | 460 | 27550 | 450 | 9940 | 460 | 8970 | 450 | -7380 | 460 |
| | Ti | 22 | 4120 | 180 | 15070 | 320 | 15810 | 160 | 7950 | 190 | 3640 | 180 | -1760 | 160 |
| | V | 23 | 7320 | 100 | 10810 | 130 | 4890 | 100 | 8400 | 140 | 5190 | 100 | -3050 | 130 |
| | Cr | 24 | 6246.26 | 0.19 | 12506 | 15 | -9773.9 | 0.8 | 7452 | 3 | 1198.1 | 0.6 | 7 | 7 |
| | Mn | 25 | 10226.1 | 1.1 | 8066.6 | 0.3 | -26080 | 160 | 8285.4 | 0.3 | 2570.9 | 0.3 | -622.2 | 0.5 |
| | Fe | 26 | 9298.12 | 0.19 | 9212.6 | 1.1 | -42910# | 400# | 7919.6 | 0.5 | -1910.0 | 1.8 | 3584.3 | 0.4 |
| | Co | 27 | 14091.2 | 0.3 | 5064.35 | 0.30 | * | | 7628.5 | 1.6 | -835 | 5 | 2323.8 | 1.8 |
| | Ni | 28 | 14129 | 5 | 4614.9 | 0.7 | * | | 8034.4 | 1.8 | -6111 | 8 | 8641 | 5 |
| | Cu | 29 | 18300# | 430# | -350 | 160 | * | | 8710 | 160 | -4440# | 430# | 8370 | 160 |
| | Zn | 30 | 16370# | 570# | 450# | 570# | * | | 9410# | 640# | -7430# | 720# | 13410# | 570# |
| 56 | K | 19 | 850# | 1060# | * | | 54080# | 820# | * | | 6000# | 1060# | * | |
| | Ca | 20 | 3620# | 500# | 21900# | 810# | 41390# | 400# | 1820# | 720# | 3260# | 420# | -15040# | 810# |
| | Sc | 21 | 2760 | 740 | 13790# | 660# | 32060 | 590 | 11020 | 590 | 9400 | 590 | -6910 | 600 |
| | Ti | 22 | 5720 | 200 | 16450 | 470 | 21290 | 120 | 5280 | 300 | 4450 | 150 | -4290 | 130 |
| | V | 23 | 5080 | 200 | 11780 | 240 | 9890 | 180 | 10180 | 200 | 5540 | 200 | -1600 | 200 |
| | Cr | 24 | 8246.6 | 0.6 | 13430 | 100 | -1377.5 | 0.6 | 5319 | 15 | 1430 | 3 | -2810 | 100 |
| | Mn | 25 | 7270.44 | 0.13 | 9090.8 | 0.4 | -18269 | 15 | 10734.0 | 0.3 | 3239.5 | 0.3 | 586 | 3 |
| | Fe | 26 | 11197.10 | 0.23 | 10183.64 | 0.16 | -35220# | 400# | 5661.4 | 1.1 | -1052.9 | 0.4 | 326.3 | 0.3 |
| | Co | 27 | 10081.8 | 0.5 | 5848.1 | 0.4 | -52650# | 500# | 10924.9 | 0.5 | -228.8 | 1.7 | 4296.1 | 0.6 |
| | Ni | 28 | 16643.0 | 0.7 | 7166.6 | 0.3 | * | | 4813.2 | 0.4 | -6384.1 | 1.7 | 2686.4 | 1.7 |
| | Cu | 29 | 15080 | 160 | 596 | 15 | * | | 11346 | 16 | -4148 | 29 | 9663 | 15 |
| | Zn | 30 | 18890# | 570# | 1040# | 430# | * | | 6730# | 570# | -7260# | 640# | 9890# | 400# |
| | Ga | 31 | * | | -3890# | 640# | * | | 13590# | 640# | * | | 15530# | 710# |
| 57 | Ca | 20 | 1050# | 570# | 22090# | 900# | 45650# | 400# | 3130# | 810# | 2990# | 720# | * | |
| | Sc | 21 | 4210 | 1430 | 14390# | 1360# | 36490 | 1300 | 8070# | 1340# | 9030 | 1300 | -10350# | 1430# |
| | Ti | 22 | 2670 | 280 | 16350 | 640 | 26270 | 260 | 6950 | 520 | 4840 | 370 | -3110 | 260 |
| | V | 23 | 6330 | 190 | 12380 | 150 | 14930 | 80 | 7970 | 180 | 6070 | 120 | -4880 | 280 |
| | Cr | 24 | 5311.0 | 1.2 | 13660 | 180 | 3559.1 | 1.2 | 7330 | 100 | 2233 | 15 | -1260 | 80 |
| | Mn | 25 | 8646.0 | 1.5 | 9490.2 | 1.6 | -10177.4 | 1.6 | 8334.3 | 1.6 | 4312.6 | 1.5 | -1947 | 15 |
| | Fe | 26 | 7646.07 | 0.04 | 10559.27 | 0.21 | -27630# | 200# | 8241.38 | 0.16 | 239.8 | 1.1 | 2399.3 | 0.3 |
| | Co | 27 | 11376.5 | 0.6 | 6027.5 | 0.4 | -44340# | 400# | 8846.5 | 0.5 | 1773.0 | 0.5 | 1858.5 | 1.1 |
| | Ni | 28 | 10247.6 | 0.5 | 7332.4 | 0.6 | * | | 8656.9 | 0.6 | -3209.8 | 0.6 | 5817.1 | 0.6 |
| | Cu | 29 | 16737 | 15 | 690.3 | 0.4 | * | | 8737.8 | 0.8 | -3167 | 5 | 6347.5 | 0.5 |
| | Zn | 30 | 15230# | 450# | 1200# | 200# | * | | 9800# | 250# | -6280# | 450# | 12380# | 200# |
| | Ga | 31 | 19690# | 640# | -3090# | 570# | * | | 10270# | 570# | -3870# | 570# | 12050# | 570# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q($2\beta^-$) | | Q(ϵ_p) | | Q(β^-n) | |
|----|------|----|----------|-------|---------|-------|---------------|------|-----------------|------|-------------------|-------|-----------------|------|
| 54 | K | 19 | 4010# | 600# | * | | -15170# | 850# | 28890# | 660# | * | | 16310# | 600# |
| | Ca | 20 | 7040 | 50 | 38460# | 600# | -14260# | 500# | 20460 | 100 | -39240# | 700# | 5670 | 110 |
| | Sc | 21 | 9590 | 280 | 31330 | 270 | -10590 | 270 | 16000 | 270 | -28880 | 290 | 4870 | 290 |
| | Ti | 22 | 12290 | 80 | 25930 | 80 | -8460 | 80 | 11310 | 80 | -23520 | 90 | -1840 | 80 |
| | V | 23 | 14592 | 15 | 24030 | 80 | -7771 | 21 | 5664 | 15 | -18280 | 100 | -2677 | 15 |
| | Cr | 24 | 17658.16 | 0.18 | 22043 | 7 | -7928.0 | 0.4 | -680.3 | 0.4 | -17390 | 100 | -10316.0 | 0.4 |
| | Mn | 25 | 20993.0 | 2.1 | 18691.8 | 1.1 | -8758.5 | 1.1 | -7547.7 | 1.1 | -10996 | 3 | -12681.4 | 1.9 |
| | Fe | 26 | 24067 | 5 | 15413.2 | 0.4 | -8417.3 | 0.5 | -16976 | 5 | -8256.5 | 0.4 | -21666.4 | 1.7 |
| | Co | 27 | 29792 | 8 | 11880.6 | 1.8 | -7807.3 | 0.5 | -26600# | 400# | -608.8 | 0.5 | -26450 | 25 |
| | Ni | 28 | 33090# | 400# | 5526 | 7 | -7227 | 10 | -33010# | 400# | 4380 | 5 | -34080# | 500# |
| | Cu | 29 | 35270# | 720# | 1630# | 400# | -6210# | 570# | * | | 13960# | 400# | * | |
| | Zn | 30 | * | | -1480 | 20 | -4580# | 640# | * | | 16070# | 400# | * | |
| 55 | K | 19 | 3140# | 710# | * | | -16010# | 990# | 30870# | 830# | * | | 17800# | 700# |
| | Ca | 20 | 5110# | 300# | 39720# | 760# | -14090# | 670# | 23320# | 340# | * | | 7470# | 410# |
| | Sc | 21 | 7400 | 460 | 32440 | 470 | -10070 | 450 | 18990 | 460 | -32450# | 750# | 7390 | 460 |
| | Ti | 22 | 10980 | 190 | 26860 | 170 | -7760 | 160 | 13440 | 160 | -23800 | 170 | 150 | 160 |
| | V | 23 | 13440 | 100 | 24820 | 130 | -8340 | 100 | 8570 | 100 | -22540 | 290 | -280 | 100 |
| | Cr | 24 | 15965.35 | 0.22 | 22860 | 100 | -7801.8 | 0.6 | 2371.6 | 0.4 | -16780 | 80 | -7623.4 | 1.0 |
| | Mn | 25 | 19164.9 | 0.4 | 20439 | 3 | -7933.5 | 0.5 | -3682.5 | 0.3 | -15108 | 15 | -9529.23 | 0.25 |
| | Fe | 26 | 22676.4 | 1.6 | 16772.2 | 0.4 | -8454.8 | 0.5 | -12145.5 | 0.7 | -7835.5 | 0.4 | -17542.66 | 0.21 |
| | Co | 27 | 27513.1 | 1.7 | 13917.7 | 0.5 | -8210.9 | 0.6 | -22390 | 160 | -5761.2 | 1.1 | -22823 | 5 |
| | Ni | 28 | 31848 | 25 | 8966.3 | 1.7 | -7558 | 9 | -30770# | 400# | 3629.7 | 0.6 | -32000# | 400# |
| | Cu | 29 | 34510# | 520# | 3550 | 160 | -6720 | 160 | * | | 9090 | 160 | -33440# | 430# |
| | Zn | 30 | * | | -480# | 400# | -5100# | 640# | * | | 17420# | 400# | * | |
| 56 | K | 19 | 3210# | 1000# | * | | * | | 32780# | 990# | * | | 18210# | 860# |
| | Ca | 20 | 4880# | 400# | * | | -15040# | 720# | 25420# | 420# | * | | 8190# | 610# |
| | Sc | 21 | 7100 | 650 | 34430# | 840# | -10140 | 590 | 21300 | 610 | -32850# | 910# | 8740 | 610 |
| | Ti | 22 | 9840 | 150 | 28740 | 130 | -7480 | 120 | 15960 | 120 | -28260# | 320# | 1750 | 150 |
| | V | 23 | 12400 | 180 | 26840 | 330 | -8140 | 190 | 10760 | 180 | -23280 | 490 | 880 | 180 |
| | Cr | 24 | 14492.9 | 0.6 | 24240 | 80 | -8240 | 7 | 5322.1 | 0.5 | -20910 | 160 | -5643.9 | 0.5 |
| | Mn | 25 | 17496.5 | 1.1 | 21596 | 15 | -7892.7 | 0.5 | -871.1 | 0.4 | -15060 | 100 | -7501.56 | 0.22 |
| | Fe | 26 | 20495.22 | 0.28 | 18250.3 | 0.3 | -7612.8 | 0.3 | -6699.5 | 0.3 | -12786.3 | 0.4 | -14648.5 | 0.3 |
| | Co | 27 | 24173.1 | 0.5 | 15060.7 | 1.1 | -7758.0 | 1.9 | -17397 | 15 | -5617.0 | 0.4 | -18775.9 | 0.7 |
| | Ni | 28 | 30772 | 5 | 12231.0 | 0.4 | -8002 | 5 | -28520# | 400# | -3715.2 | 0.4 | -30340 | 160 |
| | Cu | 29 | 33380# | 400# | 5211 | 15 | -6707 | 17 | -35250# | 500# | 8098 | 15 | -32140# | 400# |
| | Zn | 30 | 35260# | 570# | 690# | 400# | -5490# | 570# | * | | 12660# | 400# | * | |
| | Ga | 31 | * | | -3440# | 640# | -3530# | 780# | * | | 20960# | 520# | * | |
| 57 | Ca | 20 | 4670# | 500# | * | | -16090# | 810# | 27040# | 480# | * | | 9910# | 710# |
| | Sc | 21 | 6980 | 1380 | 36280# | 1480# | -11130 | 1310 | 23420 | 1310 | -36210# | 1530# | 10250 | 1310 |
| | Ti | 22 | 8390 | 300 | 30140# | 400# | -6950 | 260 | 18610 | 260 | -27310# | 480# | 4170 | 310 |
| | V | 23 | 11410 | 120 | 28830 | 460 | -7930 | 120 | 13070 | 80 | -26850 | 590 | 2800 | 80 |
| | Cr | 24 | 13557.6 | 1.1 | 25430 | 160 | -8120 | 100 | 7657.1 | 1.1 | -20490 | 120 | -3684.5 | 1.1 |
| | Mn | 25 | 15916.5 | 1.5 | 22920 | 100 | -8060 | 3 | 1859.3 | 1.6 | -18620 | 180 | -4950.5 | 1.5 |
| | Fe | 26 | 18843.17 | 0.23 | 19650.1 | 0.4 | -7319.8 | 0.3 | -4098.0 | 0.5 | -12185.8 | 0.5 | -12212.8 | 0.4 |
| | Co | 27 | 21458.3 | 0.5 | 16211.1 | 0.5 | -7080.4 | 0.6 | -12036.7 | 0.6 | -9723.0 | 0.5 | -13509.3 | 0.5 |
| | Ni | 28 | 26890.6 | 0.8 | 13180.5 | 0.5 | -7561.2 | 1.7 | -23530# | 200# | -2765.7 | 0.5 | -25512 | 15 |
| | Cu | 29 | 31820 | 160 | 7856.9 | 0.5 | -7074.4 | 1.7 | -32300# | 400# | 1442.5 | 0.5 | -29990# | 400# |
| | Zn | 30 | 34120# | 450# | 1790# | 200# | -5340# | 200# | * | | 14070# | 200# | -37230# | 540# |
| | Ga | 31 | * | | -2050# | 430# | -4170# | 640# | * | | 16340# | 400# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|----|------|----|----------|-------|---------|-------|---------------|------|---------------|-------|---------------|-------|---------------|------|
| 58 | Ca | 20 | 3120# | 640# | * | | 50070# | 500# | 870# | 940# | 2240# | 860# | * | |
| | Sc | 21 | 1950# | 1360# | 15290# | 570# | 40950# | 400# | 9730# | 570# | 8340# | 500# | -9940# | 810# |
| | Ti | 22 | 5270# | 330# | 17400# | 1320# | 31050# | 200# | 4450# | 620# | 3910# | 500# | -7110# | 360# |
| | V | 23 | 4060 | 120 | 13780 | 270 | 19450 | 90 | 9630 | 150 | 6130 | 180 | -4600 | 460 |
| | Cr | 24 | 7538.4 | 1.8 | 14870 | 80 | 8236.9 | 1.5 | 4870 | 180 | 2020 | 100 | -4680 | 160 |
| | Mn | 25 | 6413 | 3 | 10591.8 | 2.9 | -4159.8 | 2.8 | 10168.2 | 2.8 | 4146.2 | 2.7 | -1040 | 100 |
| | Fe | 26 | 10044.59 | 0.18 | 11957.8 | 1.5 | -19860 | 50 | 5467.23 | 0.28 | 421.36 | 0.24 | -1399.0 | 0.4 |
| | Co | 27 | 8572.9 | 1.2 | 6954.3 | 1.1 | -36310# | 300# | 11470.7 | 1.1 | 2498.2 | 1.1 | 3511.7 | 1.1 |
| | Ni | 28 | 12216.2 | 0.5 | 8172.2 | 0.4 | -53150# | 500# | 6522.5 | 0.4 | -1334.8 | 0.4 | 2899.0 | 0.3 |
| | Cu | 29 | 12430.2 | 0.6 | 2872.9 | 0.7 | * | | 12950.6 | 0.6 | -1467.8 | 0.8 | 8008.6 | 0.6 |
| | Zn | 30 | 17820# | 210# | 2280 | 50 | * | | 7060 | 50 | -5800 | 160 | 8680 | 50 |
| | Ga | 31 | 16600# | 500# | -1720# | 360# | * | | 12560# | 500# | -4110# | 500# | 13740# | 340# |
| | Ge | 32 | * | | -640# | 640# | * | | 7020# | 710# | * | | 13140# | 640# |
| 59 | Sc | 21 | 3500# | 570# | 15670# | 640# | 45220# | 400# | 7280# | 570# | 8460# | 570# | -12580# | 900# |
| | Ti | 22 | 2470# | 280# | 17920# | 450# | 35160# | 200# | 6200# | 1320# | 4210# | 620# | -5970# | 450# |
| | V | 23 | 5500 | 180 | 14010# | 260# | 24400 | 160 | 6790 | 300 | 6350 | 200 | -7330 | 610 |
| | Cr | 24 | 4170 | 220 | 14970 | 230 | 13070 | 220 | 7040 | 230 | 2930 | 280 | -3120 | 250 |
| | Mn | 25 | 7769 | 4 | 10822.5 | 2.8 | 833.0 | 2.4 | 7710.2 | 2.6 | 4623.7 | 2.4 | -3720 | 180 |
| | Fe | 26 | 6581.01 | 0.11 | 12126.2 | 2.7 | -13449.3 | 0.7 | 7532.3 | 1.5 | 1110.79 | 0.29 | 266.6 | 0.6 |
| | Co | 27 | 10453.9 | 1.1 | 7363.6 | 0.4 | -28470# | 170# | 8662.9 | 0.3 | 3241.4 | 0.3 | 328.2 | 0.4 |
| | Ni | 28 | 8999.28 | 0.05 | 8598.5 | 1.1 | -45290# | 400# | 8899.7 | 0.4 | -252.2 | 0.4 | 5096.78 | 0.26 |
| | Cu | 29 | 12761.9 | 0.6 | 3418.6 | 0.4 | * | | 10436.3 | 0.6 | 2413.3 | 0.5 | 5328.5 | 0.6 |
| | Zn | 30 | 12990 | 50 | 2836.8 | 0.7 | * | | 10804.1 | 0.8 | -3708 | 15 | 12338.4 | 0.8 |
| | Ga | 31 | 18290# | 350# | -1250# | 180# | * | | 9500# | 260# | -3510# | 430# | 10530# | 170# |
| | Ge | 32 | 16860# | 640# | -380# | 500# | * | | 9850# | 570# | -7620# | 640# | 15170# | 570# |
| 60 | Sc | 21 | 1820# | 640# | * | | 48920# | 500# | 8580# | 710# | 7690# | 640# | * | |
| | Ti | 22 | 4890# | 360# | 19320# | 500# | 39080# | 300# | 3260# | 500# | 3530# | 1340# | -9810# | 500# |
| | V | 23 | 3480 | 270 | 15020# | 300# | 28410 | 220 | 8580# | 300# | 5540 | 340 | -6600 | 1320 |
| | Cr | 24 | 6660 | 290 | 16130 | 250 | 17800 | 190 | 4440 | 210 | 2610 | 210 | -7110 | 320 |
| | Mn | 25 | 5514 | 3 | 12170 | 220 | 5377.2 | 2.8 | 9734.7 | 2.8 | 4420.8 | 2.6 | -2910 | 80 |
| | Fe | 26 | 8820 | 3 | 13177 | 4 | -7239 | 3 | 5125 | 4 | 937 | 4 | -3242 | 4 |
| | Co | 27 | 7491.92 | 0.07 | 8274.5 | 0.4 | -22060# | 200# | 11215.6 | 0.4 | 3395.6 | 0.3 | 1482.3 | 1.6 |
| | Ni | 28 | 11387.73 | 0.05 | 9532.38 | 0.20 | -37380# | 300# | 6084.8 | 1.1 | -263.5 | 0.4 | 1355.12 | 0.26 |
| | Cu | 29 | 10058.1 | 1.6 | 4477.4 | 1.6 | -52880# | 400# | 12594.4 | 1.6 | 2602.8 | 1.7 | 6646.8 | 1.6 |
| | Zn | 30 | 15030.1 | 0.7 | 5105.0 | 0.4 | * | | 8204.2 | 0.6 | -2001.4 | 0.6 | 7555.9 | 0.6 |
| | Ga | 31 | 13900# | 260# | -340# | 200# | * | | 13420# | 210# | -2180# | 280# | 13370# | 200# |
| | Ge | 32 | 19290# | 500# | 620# | 350# | * | | 7160# | 420# | -7220# | 500# | 11110# | 360# |
| | As | 33 | * | | -3110# | 570# | * | | 12320# | 640# | * | | 15190# | 570# |
| 61 | Sc | 21 | 3090# | 780# | * | | 52670# | 600# | * | | 7710# | 780# | * | |
| | Ti | 22 | 2090# | 500# | 19590# | 640# | 42570# | 400# | 4660# | 570# | 3390# | 570# | -8780# | 640# |
| | V | 23 | 5340 | 920 | 15470# | 940# | 32390 | 890 | 5710# | 920# | 5470# | 920# | -9980# | 980# |
| | Cr | 24 | 3880 | 220 | 16520 | 240 | 21750 | 100 | 6070 | 190 | 2790 | 140 | -5720# | 220# |
| | Mn | 25 | 6846 | 3 | 12360 | 190 | 10241.9 | 2.5 | 7050 | 220 | 5113.7 | 2.8 | -5690 | 90 |
| | Fe | 26 | 5579 | 4 | 13242 | 3 | -2572 | 16 | 7316 | 3 | 1771 | 4 | -1282 | 3 |
| | Co | 27 | 9319.1 | 0.8 | 8774 | 3 | -15760 | 40 | 8477.5 | 0.8 | 4121.1 | 0.8 | -1424.1 | 2.8 |
| | Ni | 28 | 7820.10 | 0.05 | 9860.57 | 0.22 | -30860# | 300# | 8718.61 | 0.21 | 489.3 | 1.1 | 3579.6 | 0.3 |
| | Cu | 29 | 11710.2 | 1.8 | 4799.9 | 1.0 | -45080# | 300# | 9883.5 | 1.0 | 3108.7 | 1.0 | 3509.5 | 1.5 |
| | Zn | 30 | 10246 | 16 | 5293 | 16 | * | | 10720 | 16 | 183 | 16 | 9526 | 16 |
| | Ga | 31 | 15620# | 200# | 250 | 40 | * | | 10790 | 40 | 30 | 60 | 10180 | 40 |
| | Ge | 32 | 14340# | 420# | 1060# | 360# | * | | 11110# | 350# | -4960# | 420# | 14590# | 300# |
| | As | 33 | 19500# | 500# | -2900# | 420# | * | | 9680# | 500# | -4960# | 580# | 12290# | 420# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q($2\beta^-$) | | Q(ϵ_p) | | Q(β^-n) | |
|----|------|----|----------|-------|----------|------|---------------|------|-----------------|-------|-------------------|-------|-----------------|-------|
| 58 | Ca | 20 | 4160# | 640# | * | | * | | 29190# | 540# | * | | 11010# | 1400# |
| | Sc | 21 | 6170# | 710# | 37380# | 900# | -12300# | 720# | 25530# | 410# | * | | 10970# | 480# |
| | Ti | 22 | 7930# | 230# | 31790# | 450# | -8370# | 210# | 20880# | 200# | -31530# | 450# | 5230# | 220# |
| | V | 23 | 10390 | 200 | 30130 | 590 | -8940 | 290 | 15430 | 90 | -26690 | 1310 | 4050 | 90 |
| | Cr | 24 | 12849.4 | 1.6 | 27250 | 120 | -8790 | 80 | 10163.3 | 1.5 | -25370 | 260 | -2576.9 | 2.1 |
| | Mn | 25 | 15058.7 | 2.7 | 24250 | 180 | -8359 | 15 | 4019.6 | 2.9 | -18700 | 80 | -3717.0 | 2.7 |
| | Fe | 26 | 17690.66 | 0.18 | 21448.1 | 0.6 | -7645.3 | 0.4 | -1926.4 | 0.3 | -16919.4 | 1.1 | -10880.9 | 0.5 |
| | Co | 27 | 19949.4 | 1.2 | 17513.6 | 1.1 | -6714.4 | 1.5 | -8179.4 | 1.2 | -9649.9 | 1.9 | -11834.6 | 1.2 |
| | Ni | 28 | 22463.8 | 0.3 | 14199.60 | 0.25 | -6399.2 | 0.4 | -17930 | 50 | -7335.88 | 0.25 | -20991.2 | 0.4 |
| | Cu | 29 | 29167 | 15 | 10205.3 | 0.6 | -6082.7 | 0.6 | -28130# | 300# | 388.9 | 0.6 | -27190# | 200# |
| | Zn | 30 | 33050# | 400# | 2970 | 50 | -5450 | 50 | -35220# | 500# | 6500 | 50 | -35360# | 400# |
| | Ga | 31 | 36290# | 580# | -530# | 300# | -4550# | 500# | * | | 16480# | 300# | * | |
| | Ge | 32 | * | | -3730# | 640# | -3230# | 640# | * | | 18180# | 540# | * | |
| 59 | Sc | 21 | 5450# | 1360# | * | | -13440# | 810# | 27530# | 430# | * | | 12740# | 450# |
| | Ti | 22 | 7740# | 330# | 33210# | 450# | -9580# | 360# | 22580# | 300# | -30880# | 540# | 6820# | 220# |
| | V | 23 | 9560 | 180 | 31410 | 1310 | -10100 | 480 | 17690 | 160 | -30250# | 430# | 6090 | 160 |
| | Cr | 24 | 11700 | 220 | 28750 | 340 | -8840 | 270 | 12580 | 220 | -24270# | 300# | -330 | 220 |
| | Mn | 25 | 14181.7 | 2.8 | 25690 | 80 | -8810 | 100 | 6704.4 | 2.4 | -22410 | 90 | -1441.5 | 2.4 |
| | Fe | 26 | 16625.60 | 0.21 | 22718.0 | 1.1 | -7980.0 | 0.4 | 491.9 | 0.3 | -15962.0 | 1.5 | -8889.0 | 1.1 |
| | Co | 27 | 19026.8 | 0.4 | 19321.4 | 1.6 | -6942.2 | 0.3 | -5871.4 | 0.4 | -13691.1 | 2.7 | -10072.28 | 0.20 |
| | Ni | 28 | 21215.5 | 0.5 | 15552.81 | 0.26 | -6100.3 | 0.3 | -13941.2 | 0.7 | -6290.6 | 0.3 | -17560.3 | 0.4 |
| | Cu | 29 | 25192.1 | 0.6 | 11590.7 | 0.6 | -4753.4 | 0.5 | -22600# | 170# | -3800.1 | 1.2 | -22130 | 50 |
| | Zn | 30 | 30810# | 200# | 5709.7 | 0.8 | -4304.6 | 1.0 | -31350# | 400# | 5724.2 | 0.7 | -31750# | 300# |
| | Ga | 31 | 34890# | 430# | 1030# | 170# | -4550# | 230# | * | | 10620# | 170# | -34750# | 530# |
| | Ge | 32 | * | | -2100# | 450# | -3720# | 570# | * | | 19140# | 400# | * | |
| 60 | Sc | 21 | 5320# | 640# | * | | -14400# | 940# | 29190# | 550# | * | | 13390# | 540# |
| | Ti | 22 | 7360# | 360# | 34990# | 580# | -10860# | 500# | 24340# | 360# | * | | 7430# | 340# |
| | V | 23 | 8980 | 240 | 32940# | 460# | -10810 | 630 | 19730 | 220 | -30230# | 460# | 6770 | 310 |
| | Cr | 24 | 10820 | 190 | 30140# | 280# | -9770 | 230 | 14740 | 190 | -28450# | 280# | 780 | 190 |
| | Mn | 25 | 13283 | 4 | 27140 | 90 | -9240 | 180 | 8682.4 | 2.4 | -22420 | 160 | -374.4 | 2.4 |
| | Fe | 26 | 15401 | 3 | 23999 | 4 | -8553 | 3 | 3060 | 3 | -20620 | 220 | -7255 | 3 |
| | Co | 27 | 17945.8 | 1.1 | 20400.7 | 2.7 | -7163.7 | 0.4 | -3305.2 | 1.6 | -13414.0 | 2.4 | -8564.92 | 0.21 |
| | Ni | 28 | 20387.01 | 0.07 | 16895.9 | 0.3 | -6290.95 | 0.26 | -10298.8 | 0.4 | -11097.3 | 0.3 | -16186.1 | 0.4 |
| | Cu | 29 | 22820.0 | 1.6 | 13075.9 | 1.9 | -4729.6 | 1.6 | -18760# | 200# | -3404.4 | 1.6 | -19200.9 | 1.7 |
| | Zn | 30 | 28020 | 50 | 8523.5 | 0.4 | -2691.7 | 0.5 | -27090# | 300# | -306.6 | 0.4 | -28490# | 170# |
| | Ga | 31 | 32190# | 360# | 2500# | 200# | -3370# | 200# | -34120# | 450# | 9480# | 200# | -31790# | 450# |
| | Ge | 32 | 36150# | 580# | -630# | 300# | -4130# | 500# | * | | 12840# | 300# | * | |
| | As | 33 | * | | -3490# | 500# | -4510# | 640# | * | | 21000# | 430# | * | |
| 61 | Sc | 21 | 4910# | 720# | * | | * | | 31440# | 1080# | * | | 15190# | 670# |
| | Ti | 22 | 6980# | 450# | * | | -11900# | 570# | 26130# | 410# | * | | 8820# | 460# |
| | V | 23 | 8820 | 910 | 34780# | 980# | -11940 | 1580 | 21240 | 890 | -33740# | 1030# | 8090 | 910 |
| | Cr | 24 | 10530 | 240 | 31540# | 220# | -10980 | 280 | 16450 | 100 | -27430# | 320# | 2420 | 100 |
| | Mn | 25 | 12359 | 3 | 28490 | 160 | -9750 | 80 | 11155.9 | 2.5 | -25790 | 220 | 1600 | 4 |
| | Fe | 26 | 14398.3 | 2.6 | 25410 | 220 | -8820.7 | 2.8 | 5301.4 | 2.6 | -19540 | 190 | -5341.5 | 2.6 |
| | Co | 27 | 16811.0 | 0.8 | 21950.7 | 2.5 | -7836.7 | 1.7 | -914.0 | 1.2 | -17219.1 | 2.5 | -6496.3 | 0.8 |
| | Ni | 28 | 19207.83 | 0.07 | 18135.0 | 0.3 | -6464.98 | 0.26 | -7873 | 16 | -10098 | 3 | -13948.1 | 1.6 |
| | Cu | 29 | 21768.4 | 1.0 | 14332.3 | 1.0 | -5063.4 | 1.0 | -14850 | 40 | -7622.7 | 1.0 | -15881.0 | 1.1 |
| | Zn | 30 | 25276 | 16 | 9770 | 16 | -2690 | 16 | -22990# | 300# | 835 | 16 | -24830# | 200# |
| | Ga | 31 | 29520# | 180# | 5350 | 40 | -2250 | 40 | -30240# | 300# | 3920 | 40 | -28120# | 300# |
| | Ge | 32 | 33630# | 500# | 720# | 300# | -3230# | 360# | * | | 13530# | 300# | -35960# | 500# |
| | As | 33 | * | | -2280# | 350# | -4320# | 500# | * | | 15400# | 360# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|----|------|----|---------|------|---------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 62 | Ti | 22 | 4220# | 570# | 20720# | 720# | 46380# | 400# | 2260# | 640# | 2670# | 570# | * | |
| | V | 23 | 3040# | 940# | 16420# | 500# | 35950# | 300# | 7560# | 420# | 4900# | 360# | -9530# | 500# |
| | Cr | 24 | 6490 | 180 | 17680 | 910 | 25850 | 150 | 3060 | 270 | 1800 | 220 | -9740# | 250# |
| | Mn | 25 | 4853 | 7 | 13340 | 100 | 14263 | 7 | 8860 | 190 | 4430 | 220 | -5050 | 160 |
| | Fe | 26 | 8029 | 4 | 14425 | 4 | 2289.9 | 2.9 | 4801 | 4 | 1511 | 4 | -5150 | 220 |
| | Co | 27 | 6598 | 19 | 9793 | 19 | -9437 | 19 | 10700 | 19 | 4105 | 19 | -253 | 19 |
| | Ni | 28 | 10595.7 | 0.3 | 11137.2 | 0.7 | -25010# | 140# | 5614.8 | 0.4 | 347.4 | 0.4 | -435.1 | 0.4 |
| | Cu | 29 | 8874.7 | 1.1 | 5854.5 | 0.6 | -38470# | 300# | 12396.5 | 0.6 | 3233.3 | 0.6 | 5088.7 | 0.6 |
| | Zn | 30 | 12890 | 16 | 6472.9 | 1.1 | * | | 7888.0 | 1.7 | 54.4 | 0.7 | 5635.1 | 0.5 |
| | Ga | 31 | 12920 | 40 | 2927 | 16 | * | | 12898.2 | 0.7 | 92.7 | 0.9 | 10017.8 | 0.7 |
| | Ge | 32 | 16450# | 330# | 1900# | 150# | * | | 8560# | 240# | -3120# | 220# | 11120# | 140# |
| | As | 33 | 15490# | 420# | -1750# | 420# | * | | 13480# | 420# | -3590# | 500# | 15090# | 350# |
| 63 | Ti | 22 | 1320# | 640# | * | | 49890# | 500# | 4030# | 780# | 3170# | 710# | * | |
| | V | 23 | 4490# | 500# | 16680# | 570# | 39960# | 400# | 5170# | 570# | 5300# | 500# | -12190# | 640# |
| | Cr | 24 | 3180 | 390 | 17820# | 470# | 29510 | 360 | 5210 | 960 | 2100 | 420 | -8030# | 470# |
| | Mn | 25 | 6434 | 8 | 13280 | 150 | 18693 | 4 | 6300 | 100 | 4650 | 190 | -8000 | 220 |
| | Fe | 26 | 4829 | 5 | 14401 | 8 | 6578 | 5 | 6817 | 5 | 2196 | 5 | -3320 | 190 |
| | Co | 27 | 8498 | 26 | 10262 | 19 | -5304 | 19 | 7780 | 19 | 4426 | 19 | -3237 | 19 |
| | Ni | 28 | 6837.77 | 0.06 | 11377 | 19 | -18590 | 40 | 8096.1 | 0.7 | 1001.6 | 0.4 | 1547 | 3 |
| | Cu | 29 | 10863.6 | 0.5 | 6122.40 | 0.06 | -32080# | 200# | 9353.0 | 0.3 | 3757.4 | 0.3 | 1717.0 | 0.4 |
| | Zn | 30 | 9116.7 | 1.6 | 6714.9 | 1.6 | * | | 10481.5 | 1.6 | 995.8 | 2.2 | 7906.1 | 1.6 |
| | Ga | 31 | 12631.5 | 1.5 | 2668.1 | 1.4 | * | | 10513 | 16 | 2491.3 | 1.4 | 7444.4 | 2.1 |
| | Ge | 32 | 13250# | 150# | 2220 | 40 | * | | 10920 | 50 | -2470# | 200# | 12900 | 40 |
| | As | 33 | 17250# | 360# | -950# | 240# | * | | 10570# | 360# | -1550# | 360# | 11740# | 280# |
| 64 | Ti | 22 | 3350# | 780# | * | | 53950# | 600# | * | | 2910# | 850# | * | |
| | V | 23 | 2500# | 570# | 17860# | 640# | 43470# | 400# | 6890# | 570# | 4890# | 570# | -11610# | 720# |
| | Cr | 24 | 5540 | 570 | 18880# | 590# | 33620 | 440 | 2710# | 530# | 1890 | 1000 | -11480# | 590# |
| | Mn | 25 | 4173 | 5 | 14270 | 360 | 22436 | 4 | 8620 | 150 | 4350 | 100 | -6840 | 890 |
| | Fe | 26 | 7405 | 7 | 15371 | 6 | 11034 | 5 | 4265 | 8 | 1637 | 6 | -6850 | 100 |
| | Co | 27 | 6012 | 27 | 11446 | 20 | -960 | 20 | 9797 | 20 | 3992 | 20 | -2404 | 20 |
| | Ni | 28 | 9657.46 | 0.20 | 12536 | 19 | -12783 | 4 | 5036 | 19 | 663.2 | 0.7 | -2532.0 | 2.7 |
| | Cu | 29 | 7916.11 | 0.10 | 7200.74 | 0.10 | -25890# | 200# | 12032.58 | 0.11 | 3661.4 | 0.3 | 3119.9 | 0.7 |
| | Zn | 30 | 11861.9 | 1.5 | 7713.2 | 0.6 | -39300# | 500# | 7494.2 | 0.8 | 844.1 | 0.7 | 3864.3 | 0.7 |
| | Ga | 31 | 10357.0 | 1.9 | 3908.4 | 2.1 | * | | 13046.0 | 1.5 | 2380 | 16 | 8797.6 | 1.6 |
| | Ge | 32 | 15470 | 40 | 5057 | 4 | * | | 8382 | 4 | -2320 | 40 | 7680 | 16 |
| | As | 33 | 14100# | 290# | -100# | 200# | * | | 12920# | 250# | -1310# | 360# | 13250# | 210# |
| | Se | 34 | * | | 490# | 540# | * | | 8330# | 590# | -4940# | 590# | 12310# | 590# |
| 65 | V | 23 | 3530# | 640# | 18040# | 780# | 47410# | 500# | 4680# | 710# | 5580# | 640# | * | |
| | Cr | 24 | 2810# | 530# | 19190# | 500# | 36910# | 300# | 4380# | 500# | 2120# | 420# | -10070# | 500# |
| | Mn | 25 | 6050 | 5 | 14780 | 440 | 26296 | 4 | 5750 | 360 | 4790 | 150 | -9850# | 300# |
| | Fe | 26 | 4320 | 7 | 15518 | 6 | 14694 | 5 | 6380 | 6 | 2170 | 8 | -4680 | 150 |
| | Co | 27 | 7464 | 20 | 11505 | 5 | 3472.3 | 2.2 | 7161 | 5 | 4557 | 3 | -5015 | 7 |
| | Ni | 28 | 6098.08 | 0.14 | 12622 | 20 | -8647.5 | 2.2 | 7437 | 19 | 1163 | 19 | -601.2 | 2.8 |
| | Cu | 29 | 9910.4 | 0.7 | 7453.7 | 0.7 | -20330 | 80 | 8959.9 | 0.7 | 4346.7 | 0.7 | -193 | 19 |
| | Zn | 30 | 7979.32 | 0.17 | 7776.4 | 0.7 | -32890# | 300# | 10378.5 | 0.7 | 1739.5 | 0.8 | 6480.7 | 0.7 |
| | Ga | 31 | 11896.0 | 1.6 | 3942.5 | 0.6 | * | | 10266.7 | 1.6 | 3374.5 | 0.9 | 5776.3 | 1.0 |
| | Ge | 32 | 10234 | 4 | 4934.4 | 2.6 | * | | 10779.7 | 2.5 | 372.7 | 2.3 | 10336.2 | 2.3 |
| | As | 33 | 15480# | 220# | -90 | 80 | * | | 10690 | 90 | -330# | 160# | 10700 | 80 |
| | Se | 34 | 14390# | 590# | 780# | 360# | * | | 11190# | 360# | -3840# | 420# | 14370# | 330# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q($2\beta^-$) | | Q(ϵ_p) | | Q(β^-n) | |
|----|------|----|----------|------|---------|------|---------------|------|-----------------|------|-------------------|------|-----------------|------|
| 62 | Ti | 22 | 6310# | 500# | * | | -13010# | 640# | 28400# | 430# | * | | 9940# | 980# |
| | V | 23 | 8380# | 370# | 36000# | 580# | -13030# | 500# | 23050# | 300# | -33700# | 670# | 8930# | 320# |
| | Cr | 24 | 10370 | 240 | 33140# | 340# | -12210# | 250# | 17980 | 150 | -31830# | 430# | 2780 | 150 |
| | Mn | 25 | 11699 | 7 | 29860 | 220 | -10550 | 90 | 12900 | 20 | -25310 | 890 | 2325 | 7 |
| | Fe | 26 | 13608 | 4 | 26790 | 190 | -9311 | 3 | 7868.3 | 2.8 | -23690 | 100 | -4051.3 | 2.9 |
| | Co | 27 | 15917 | 19 | 23034 | 19 | -8022 | 19 | 1363 | 19 | -16971 | 19 | -5274 | 19 |
| | Ni | 28 | 18415.8 | 0.3 | 19911 | 3 | -7016.1 | 0.4 | -5578.4 | 0.4 | -15114.8 | 2.6 | -12833.6 | 1.0 |
| | Cu | 29 | 20584.9 | 1.7 | 15715.1 | 0.6 | -5365.2 | 1.2 | -10800.5 | 0.7 | -7178.3 | 0.9 | -14510 | 16 |
| | Zn | 30 | 23136.3 | 0.7 | 11272.8 | 0.5 | -3364.1 | 0.5 | -19430# | 140# | -4235.0 | 0.5 | -22100 | 40 |
| | Ga | 31 | 28540# | 200# | 8219.7 | 1.7 | -2744.1 | 0.7 | -27670# | 300# | 2708.2 | 1.1 | -26700# | 300# |
| | Ge | 32 | 30790# | 330# | 2140# | 140# | -1870# | 150# | * | | 7320# | 140# | -32910# | 330# |
| | As | 33 | 34990# | 500# | -690# | 360# | -3210# | 420# | * | | 15530# | 300# | * | |
| 63 | Ti | 22 | 5540# | 640# | * | | * | | 30260# | 620# | * | | 11660# | 580# |
| | V | 23 | 7530# | 980# | 37400# | 720# | -14010# | 570# | 25000# | 400# | * | | 10930# | 430# |
| | Cr | 24 | 9670 | 370 | 34240# | 540# | -12920# | 410# | 19630 | 360 | -30800# | 540# | 4450 | 360 |
| | Mn | 25 | 11288 | 4 | 30960 | 890 | -11480 | 160 | 14964 | 19 | -28700# | 300# | 3920 | 5 |
| | Fe | 26 | 12858 | 5 | 27740 | 100 | -9970 | 220 | 9877 | 4 | -22030 | 150 | -2283 | 19 |
| | Co | 27 | 15096 | 19 | 24687 | 19 | -8751 | 19 | 3728 | 19 | -20616 | 20 | -3176 | 19 |
| | Ni | 28 | 17433.5 | 0.3 | 21170.2 | 2.6 | -7272.9 | 0.4 | -3299.4 | 1.5 | -13923.7 | 2.8 | -10796.7 | 0.5 |
| | Cu | 29 | 19738.3 | 1.0 | 17259.6 | 0.7 | -5775.0 | 0.4 | -9032.7 | 1.4 | -11444 | 19 | -12483.1 | 0.4 |
| | Zn | 30 | 22007 | 16 | 12569.4 | 1.6 | -3481.6 | 1.6 | -15290 | 40 | -2756.0 | 1.5 | -18297.8 | 1.6 |
| | Ga | 31 | 25560 | 40 | 9141.0 | 1.6 | -2613.7 | 1.4 | -23050# | 200# | -1048.6 | 1.5 | -22880# | 140# |
| | Ge | 32 | 29700# | 300# | 5150 | 40 | -2130 | 40 | * | | 6960 | 40 | -30670# | 300# |
| | As | 33 | 32740# | 360# | 940# | 200# | -2170# | 260# | * | | 11200# | 200# | * | |
| 64 | Ti | 22 | 4670# | 720# | * | | * | | 32460# | 740# | * | | 12790# | 720# |
| | V | 23 | 6990# | 500# | * | | -14690# | 640# | 26670# | 400# | * | | 11620# | 540# |
| | Cr | 24 | 8730 | 460 | 35560# | 590# | -13580# | 530# | 21490 | 440 | -35020# | 670# | 5340 | 440 |
| | Mn | 25 | 10608 | 7 | 32090# | 300# | -12170 | 220 | 16803 | 20 | -28390# | 400# | 4575 | 6 |
| | Fe | 26 | 12234 | 6 | 28650 | 150 | -10720 | 190 | 12129 | 5 | -26250 | 360 | -1189 | 19 |
| | Co | 27 | 14511 | 27 | 25846 | 21 | -9249 | 20 | 5632 | 20 | -20194 | 20 | -2351 | 20 |
| | Ni | 28 | 16495.23 | 0.21 | 22798.8 | 2.8 | -8111 | 3 | -1094.9 | 0.7 | -18752 | 4 | -9590.49 | 0.20 |
| | Cu | 29 | 18779.8 | 0.5 | 18578 | 19 | -6199.2 | 0.4 | -6591.7 | 1.5 | -10862 | 19 | -11282.5 | 1.5 |
| | Zn | 30 | 20978.7 | 0.8 | 13835.6 | 0.6 | -3955.8 | 0.7 | -11689 | 4 | -7780.2 | 0.6 | -17528.2 | 1.5 |
| | Ga | 31 | 22988.5 | 1.5 | 10623.3 | 1.5 | -2912.6 | 2.1 | -19300# | 200# | -542.0 | 1.5 | -19980 | 40 |
| | Ge | 32 | 28720# | 140# | 7725 | 4 | -2566 | 4 | -27620# | 500# | 609 | 4 | -28890# | 200# |
| | As | 33 | 31360# | 360# | 2120# | 200# | -2370# | 290# | * | | 9730# | 200# | * | |
| | Se | 34 | * | | -460# | 520# | -2040# | 590# | * | | 12930# | 500# | * | |
| 65 | V | 23 | 6030# | 640# | * | | -15140# | 780# | 29190# | 500# | * | | 13630# | 670# |
| | Cr | 24 | 8360# | 470# | 37050# | 580# | -14300# | 500# | 23000# | 300# | -34480# | 670# | 6700# | 300# |
| | Mn | 25 | 10223 | 5 | 33660# | 400# | -12890 | 890 | 18218 | 4 | -31940# | 400# | 5931 | 6 |
| | Fe | 26 | 11725 | 7 | 29790 | 360 | -11170 | 100 | 13908 | 5 | -25030 | 440 | 503 | 21 |
| | Co | 27 | 13476 | 19 | 26876 | 4 | -9868 | 3 | 8078.5 | 2.2 | -23485 | 4 | -157.6 | 2.1 |
| | Ni | 28 | 15755.54 | 0.25 | 24068 | 4 | -8630.1 | 2.7 | 786.3 | 0.7 | -17445 | 5 | -7772.46 | 0.26 |
| | Cu | 29 | 17826.5 | 0.7 | 19990 | 19 | -6790.5 | 1.0 | -4606.2 | 0.7 | -14760 | 20 | -9331.0 | 0.4 |
| | Zn | 30 | 19841.3 | 1.5 | 14977.2 | 0.7 | -4115.0 | 0.7 | -9433.8 | 2.3 | -6102.1 | 0.7 | -15150.5 | 1.5 |
| | Ga | 31 | 22253.0 | 1.5 | 11655.7 | 0.8 | -3098.4 | 1.0 | -15720 | 80 | -4521.9 | 0.8 | -16413 | 4 |
| | Ge | 32 | 25700 | 40 | 8842.8 | 2.7 | -2554 | 16 | -23460# | 300# | 2236.8 | 2.3 | -25020# | 200# |
| | As | 33 | 29580# | 220# | 4970 | 80 | -2230 | 90 | * | | 4610 | 80 | -28310# | 510# |
| | Se | 34 | * | | 680# | 300# | -2090# | 420# | * | | 14010# | 300# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|----|------|----|----------|------|---------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 66 | V | 23 | 1900# | 710# | * | | 50800# | 500# | 6130# | 780# | 5000# | 710# | * | |
| | Cr | 24 | 4570# | 500# | 20230# | 640# | 41290# | 400# | 2310# | 570# | 2030# | 570# | -13320# | 640# |
| | Mn | 25 | 3854 | 12 | 15820# | 300# | 29508 | 11 | 7440 | 440 | 4120 | 360 | -9210# | 400# |
| | Fe | 26 | 6921 | 7 | 16389 | 6 | 18831 | 4 | 3632 | 5 | 1683 | 6 | -8410 | 360 |
| | Co | 27 | 5295 | 14 | 12480 | 15 | 7315 | 14 | 9272 | 15 | 4091 | 15 | -3875 | 14 |
| | Ni | 28 | 8951.9 | 1.5 | 14110.1 | 2.5 | -4399.3 | 2.8 | 4497 | 20 | 709 | 19 | -4724 | 5 |
| | Cu | 29 | 7065.93 | 0.09 | 8421.6 | 0.7 | -14233 | 6 | 11551.5 | 0.7 | 4118.6 | 0.7 | 1240 | 19 |
| | Zn | 30 | 11058.5 | 0.9 | 8924.5 | 0.9 | -27240# | 200# | 7236.2 | 0.7 | 1544.6 | 0.7 | 2260.0 | 0.7 |
| | Ga | 31 | 9137.5 | 1.3 | 5100.6 | 1.2 | * | | 12991.2 | 1.2 | 3353.8 | 1.9 | 7502.5 | 1.1 |
| | Ge | 32 | 13200 | 3 | 6238.5 | 2.5 | * | | 7936.6 | 2.8 | -195.9 | 2.7 | 6252.8 | 2.9 |
| | As | 33 | 13160 | 80 | 2836 | 6 | * | | 13001 | 7 | -240 | 40 | 10168 | 6 |
| | Se | 34 | 16710# | 360# | 2010# | 220# | * | | 8580# | 290# | -3300# | 280# | 10910# | 200# |
| 67 | V | 23 | 3110# | 780# | * | | 54670# | 600# | * | | 5240# | 850# | * | |
| | Cr | 24 | 2030# | 570# | 20360# | 640# | 45060# | 400# | 3810# | 640# | 2500# | 570# | -12010# | 720# |
| | Mn | 25 | 4780# | 300# | 16030# | 500# | 33860# | 300# | 5470# | 420# | 4880# | 530# | -11490# | 500# |
| | Fe | 26 | 3610 | 270 | 16150 | 270 | 22270 | 270 | 6070 | 270 | 2240 | 270 | -6480 | 520 |
| | Co | 27 | 6985 | 15 | 12543 | 8 | 11557 | 7 | 6607 | 8 | 4512 | 8 | -6686 | 7 |
| | Ni | 28 | 5808 | 3 | 14623 | 14 | -1084 | 5 | 6153 | 4 | 914 | 20 | -3127 | 6 |
| | Cu | 29 | 9132.6 | 1.1 | 8602.2 | 1.7 | -10732.3 | 1.0 | 8517.0 | 0.9 | 4643.5 | 0.9 | -1881 | 20 |
| | Zn | 30 | 7052.47 | 0.23 | 8911.0 | 0.9 | -21300 | 70 | 10094.2 | 0.9 | 2408.3 | 0.7 | 4865.0 | 0.7 |
| | Ga | 31 | 11226.7 | 1.4 | 5268.9 | 1.1 | -34090# | 400# | 9743.8 | 1.3 | 3989.0 | 1.3 | 4191.9 | 1.2 |
| | Ge | 32 | 9123 | 5 | 6224 | 5 | * | | 10710 | 5 | 1039 | 5 | 8992 | 5 |
| | As | 33 | 12633 | 6 | 2269.2 | 2.4 | * | | 10601.8 | 2.2 | 2592 | 4 | 7892.0 | 1.5 |
| | Se | 34 | 12990# | 210# | 1840 | 70 | * | | 11070 | 110 | -2180# | 210# | 13380 | 70 |
| | Br | 35 | * | | -1580# | 450# | * | | 10940# | 500# | -1230# | 640# | 12390# | 450# |
| 68 | Cr | 24 | 4190# | 640# | 21440# | 780# | 48660# | 500# | 1520# | 710# | 1840# | 710# | * | |
| | Mn | 25 | 2990# | 500# | 16990# | 570# | 37190# | 400# | 7050# | 570# | 4700# | 500# | -10950# | 640# |
| | Fe | 26 | 5950 | 450 | 17320# | 470# | 26520 | 370 | 3970 | 370 | 2340 | 370 | -9620# | 470# |
| | Co | 27 | 4680 | 190 | 13610 | 330 | 15160 | 190 | 8850 | 190 | 4150 | 190 | -5320 | 190 |
| | Ni | 28 | 7792 | 4 | 15431 | 7 | 3515 | 4 | 3656 | 14 | 585 | 4 | -6600 | 6 |
| | Cu | 29 | 6318.8 | 1.8 | 9113 | 3 | -6672.5 | 2.4 | 11150.1 | 2.1 | 4422.7 | 1.7 | -735.4 | 2.6 |
| | Zn | 30 | 10198.10 | 0.19 | 9976.6 | 0.9 | -15817.7 | 0.9 | 6962.0 | 1.0 | 2120.6 | 1.0 | 765.0 | 0.8 |
| | Ga | 31 | 8278.3 | 1.7 | 6494.6 | 1.2 | -28300# | 260# | 12524.0 | 1.2 | 3690.1 | 1.5 | 5824.1 | 1.5 |
| | Ge | 32 | 12392 | 5 | 7388.7 | 2.2 | * | | 7455.7 | 2.2 | 542.8 | 2.0 | 4579.6 | 2.0 |
| | As | 33 | 10378.6 | 1.9 | 3525 | 5 | * | | 13423 | 3 | 2447.8 | 2.8 | 9409.4 | 2.0 |
| | Se | 34 | 15680 | 70 | 4891.2 | 0.7 | * | | 8546 | 6 | -2390 | 80 | 7935.2 | 2.2 |
| | Br | 35 | 14070# | 480# | -500# | 250# | * | | 13580# | 330# | -910# | 400# | 13790# | 270# |
| 69 | Cr | 24 | 1850# | 710# | * | | 51400# | 500# | 2780# | 780# | 1890# | 710# | * | |
| | Mn | 25 | 4460# | 570# | 17260# | 640# | 40970# | 400# | 4620# | 570# | 4810# | 570# | -13510# | 640# |
| | Fe | 26 | 3610# | 540# | 17940# | 570# | 29390# | 400# | 5140# | 500# | 2590# | 400# | -8660# | 570# |
| | Co | 27 | 6420 | 240 | 14080 | 390 | 19050 | 140 | 6040 | 300 | 4650 | 140 | -7880 | 140 |
| | Ni | 28 | 4586 | 5 | 15340 | 190 | 7122 | 4 | 6054 | 7 | 1294 | 14 | -4264 | 6 |
| | Cu | 29 | 8240.5 | 2.1 | 9561 | 3 | -2620 | 30 | 8717 | 3 | 5134.1 | 2.0 | -3681 | 14 |
| | Zn | 30 | 6482.07 | 0.16 | 10139.8 | 1.8 | -11983.1 | 1.7 | 9612.5 | 0.9 | 2704.5 | 1.0 | 3234.8 | 1.6 |
| | Ga | 31 | 10313.1 | 1.9 | 6609.7 | 1.4 | -23070 | 40 | 9263.3 | 1.4 | 4435.4 | 1.4 | 2576.9 | 1.4 |
| | Ge | 32 | 8193.2 | 2.3 | 7303.6 | 1.9 | -34670# | 400# | 10489.2 | 1.8 | 1487.1 | 1.7 | 7444.9 | 1.5 |
| | As | 33 | 12290 | 30 | 3420 | 30 | * | | 10260 | 30 | 3360 | 30 | 6260 | 30 |
| | Se | 34 | 10316.6 | 1.6 | 4829.2 | 2.4 | * | | 10863.3 | 1.6 | 454 | 6 | 10818.7 | 2.8 |
| | Br | 35 | 15540# | 260# | -640 | 40 | * | | 11030 | 80 | 270# | 210# | 11410 | 40 |
| | Kr | 36 | * | | 930# | 480# | * | | 11070# | 570# | * | | 14870# | 450# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | $Q(\alpha)$ | | $Q(2\beta^-)$ | | $Q(\epsilon p)$ | | $Q(\beta^- n)$ | |
|----|------|----|----------|------|---------|------|-------------|------|---------------|------|-----------------|------|----------------|------|
| 66 | V | 23 | 5430# | 640# | * | | * | | 31140# | 500# | * | | 14540# | 580# |
| | Cr | 24 | 7380# | 590# | 38270# | 720# | -14650# | 570# | 25350# | 400# | * | | 8180# | 400# |
| | Mn | 25 | 9904 | 12 | 35010# | 400# | -13700# | 300# | 19658 | 18 | -32260# | 500# | 6396 | 12 |
| | Fe | 26 | 11241 | 6 | 31170 | 440 | -11600 | 150 | 15938 | 4 | -29140# | 300# | 1046 | 5 |
| | Co | 27 | 12759 | 24 | 27997 | 14 | -10309 | 15 | 9850 | 14 | -22730 | 14 | 646 | 14 |
| | Ni | 28 | 15050.0 | 1.5 | 25615 | 5 | -9553 | 3 | 2892.9 | 1.6 | -22077 | 5 | -6813.9 | 1.5 |
| | Cu | 29 | 16976.4 | 0.7 | 21044 | 20 | -7259 | 19 | -2534.6 | 1.2 | -14362.0 | 2.2 | -8417.6 | 0.4 |
| | Zn | 30 | 19037.8 | 0.9 | 16378.2 | 0.7 | -4577.8 | 0.7 | -7292.1 | 2.5 | -11062.4 | 0.7 | -14313.0 | 1.1 |
| | Ga | 31 | 21033.5 | 1.8 | 12877.1 | 1.1 | -3361.1 | 1.2 | -11699 | 6 | -3749.0 | 1.2 | -15316.8 | 2.4 |
| | Ge | 32 | 23434 | 4 | 10181.0 | 2.5 | -2864.0 | 2.5 | -19950# | 200# | -2984.0 | 2.5 | -22740 | 80 |
| | As | 33 | 28640# | 200# | 7770 | 6 | -2463 | 6 | * | | 3343 | 6 | -27080# | 300# |
| | Se | 34 | 31100# | 540# | 1920# | 200# | -2350# | 240# | * | | 7530# | 200# | * | |
| 67 | V | 23 | 5010# | 780# | * | | * | | 32810# | 670# | * | | 16000# | 720# |
| | Cr | 24 | 6600# | 500# | * | | -15360# | 640# | 26930# | 480# | * | | 10000# | 400# |
| | Mn | 25 | 8640# | 300# | 36260# | 580# | -14000# | 500# | 21860# | 300# | -35140# | 580# | 8540# | 300# |
| | Fe | 26 | 10530 | 270 | 31970# | 400# | -12030 | 450 | 18130 | 270 | -28180# | 480# | 2730 | 270 |
| | Co | 27 | 12279 | 7 | 28932 | 7 | -10860 | 7 | 11998 | 7 | -25860 | 13 | 2613 | 7 |
| | Ni | 28 | 14759.6 | 2.9 | 27103 | 6 | -10532 | 5 | 4137.6 | 3.0 | -20964 | 5 | -5555.7 | 3.0 |
| | Cu | 29 | 16198.5 | 1.1 | 22712.3 | 2.3 | -7893 | 19 | -440.5 | 1.3 | -18200 | 14 | -6491.7 | 0.8 |
| | Zn | 30 | 18110.9 | 0.9 | 17332.6 | 0.7 | -4792.5 | 0.7 | -5222 | 5 | -9163.0 | 1.6 | -12228.0 | 0.8 |
| | Ga | 31 | 20364.2 | 1.4 | 14193.3 | 1.3 | -3724.2 | 1.2 | -10291.8 | 1.3 | -7909.7 | 1.3 | -13343.3 | 2.7 |
| | Ge | 32 | 22323 | 5 | 11324 | 5 | -2870 | 5 | -16080 | 70 | -1048 | 5 | -18704 | 7 |
| | As | 33 | 25790 | 80 | 8507.7 | 0.9 | -2465.0 | 1.4 | -23800# | 400# | -152.5 | 1.2 | -23000# | 200# |
| | Se | 34 | 29700# | 310# | 4680 | 70 | -2080 | 80 | * | | 7740 | 70 | * | |
| | Br | 35 | * | | 430# | 410# | -1720# | 450# | * | | 11950# | 400# | * | |
| 68 | Cr | 24 | 6220# | 640# | * | | -16200# | 780# | 28690# | 620# | * | | 10590# | 580# |
| | Mn | 25 | 7770# | 400# | 37350# | 640# | -14490# | 570# | 23550# | 440# | -35020# | 720# | 9160# | 480# |
| | Fe | 26 | 9560 | 370 | 33350# | 540# | -12430 | 570 | 19980 | 370 | -32100# | 540# | 3760 | 370 |
| | Co | 27 | 11660 | 190 | 29760 | 190 | -11370 | 190 | 13640 | 190 | -25760# | 360# | 3740 | 190 |
| | Ni | 28 | 13600 | 3 | 27974 | 5 | -10919 | 6 | 6543 | 3 | -25140 | 270 | -4216 | 3 |
| | Cu | 29 | 15451.4 | 1.7 | 23736 | 14 | -8200 | 20 | 1519.0 | 2.1 | -17534 | 7 | -5758.0 | 1.8 |
| | Zn | 30 | 17250.6 | 0.3 | 18578.7 | 1.6 | -5333.1 | 0.8 | -3028.3 | 2.0 | -13553.4 | 3.0 | -11199.4 | 1.1 |
| | Ga | 31 | 19505.0 | 1.5 | 15405.7 | 1.5 | -4086.4 | 1.4 | -8191.5 | 2.3 | -7055.5 | 1.5 | -12499 | 5 |
| | Ge | 32 | 21514 | 3 | 12657.6 | 2.0 | -3399.7 | 2.0 | -12789.3 | 1.9 | -6387.4 | 2.0 | -18462.9 | 1.9 |
| | As | 33 | 23012 | 6 | 9748.8 | 2.1 | -2486.6 | 2.3 | -20100# | 260# | 695.6 | 2.2 | -20390 | 70 |
| | Se | 34 | 28670# | 200# | 7160.3 | 2.5 | -2299 | 4 | * | | 1180 | 5 | -29470# | 400# |
| | Br | 35 | * | | 1340# | 260# | -1680# | 330# | * | | 10510# | 260# | * | |
| 69 | Cr | 24 | 6040# | 640# | * | | * | | 30450# | 640# | * | | 11730# | 640# |
| | Mn | 25 | 7450# | 500# | 38700# | 720# | -15420# | 640# | 25510# | 420# | * | | 10650# | 540# |
| | Fe | 26 | 9560# | 480# | 34930# | 570# | -13240# | 500# | 20950# | 400# | -31520# | 640# | 4830# | 440# |
| | Co | 27 | 11100 | 140 | 31400# | 330# | -11740 | 140 | 15460 | 140 | -29190# | 420# | 5110 | 140 |
| | Ni | 28 | 12379 | 5 | 28950 | 270 | -11186 | 6 | 8439 | 4 | -23780 | 370 | -2483 | 4 |
| | Cu | 29 | 14559.3 | 1.7 | 24992 | 7 | -8975.9 | 2.5 | 3591.6 | 1.8 | -21090 | 190 | -3800.4 | 1.6 |
| | Zn | 30 | 16680.17 | 0.25 | 19253.1 | 3.0 | -5717.1 | 0.8 | -1317.2 | 1.5 | -12243 | 3 | -9403.2 | 1.2 |
| | Ga | 31 | 18591.4 | 1.7 | 16586.2 | 1.5 | -4489.1 | 1.4 | -6220 | 30 | -11049.7 | 2.0 | -10420.3 | 2.2 |
| | Ge | 32 | 20585 | 5 | 13798.3 | 1.5 | -3613.6 | 1.5 | -10666.0 | 2.0 | -4382.5 | 1.5 | -16277.5 | 2.3 |
| | As | 33 | 22670 | 30 | 10810 | 30 | -2880 | 30 | -16850 | 50 | -3320 | 30 | -16990 | 30 |
| | Se | 34 | 26000 | 70 | 8354 | 5 | -2381.4 | 2.6 | -24000# | 400# | 3255.1 | 2.4 | -25720# | 260# |
| | Br | 35 | 29610# | 400# | 4250 | 40 | -1750 | 90 | * | | 5350 | 40 | * | |
| | Kr | 36 | * | | 430# | 410# | -1840# | 500# | * | | 14470# | 400# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|----|------|----|---------|------|---------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 70 | Cr | 24 | 3970# | 780# | * | | 54730# | 600# | * | | 1040# | 850# | * | |
| | Mn | 25 | 2800# | 640# | 18210# | 710# | 43480# | 500# | 6010# | 710# | 4040# | 640# | -13200# | 780# |
| | Fe | 26 | 5550# | 570# | 19030# | 570# | 33060# | 400# | 2580# | 570# | 1810# | 500# | -12180# | 570# |
| | Co | 27 | 4420# | 330# | 14890# | 500# | 22280# | 300# | 7570# | 470# | 3850# | 400# | -7520# | 420# |
| | Ni | 28 | 7307 | 4 | 16220 | 140 | 11348.0 | 2.3 | 3430 | 190 | 972 | 7 | -7960 | 270 |
| | Cu | 29 | 5311.5 | 1.8 | 10287 | 4 | 1370 | 50 | 11198 | 3 | 5630 | 3 | -2008 | 7 |
| | Zn | 30 | 9218.2 | 2.1 | 11117.5 | 2.4 | -7634.8 | 2.5 | 6713.1 | 2.5 | 2618.8 | 2.1 | -176 | 3 |
| | Ga | 31 | 7653.65 | 0.17 | 7781.3 | 1.4 | -17485 | 15 | 11807.8 | 1.4 | 3834.2 | 1.4 | 4055.8 | 1.5 |
| | Ge | 32 | 11532.5 | 1.6 | 8523.0 | 1.5 | -29460# | 200# | 7234.9 | 1.6 | 1181.2 | 1.2 | 2964.8 | 1.0 |
| | As | 33 | 9300 | 60 | 4530 | 50 | * | | 13350 | 50 | 3180 | 50 | 8180 | 50 |
| | Se | 34 | 13566.5 | 2.2 | 6110 | 30 | * | | 7675.4 | 2.4 | -478.6 | 1.6 | 6375 | 5 |
| | Br | 35 | 13240 | 40 | 2280 | 15 | * | | 13475 | 15 | 20 | 70 | 10808 | 15 |
| | Kr | 36 | 16740# | 450# | 2130# | 210# | * | | 8400# | 330# | -3450# | 450# | 11130# | 210# |
| 71 | Mn | 25 | 4140# | 710# | 18380# | 780# | 47140# | 500# | 3720# | 710# | 4090# | 710# | * | |
| | Fe | 26 | 2990# | 570# | 19220# | 640# | 35900# | 400# | 4050# | 570# | 1810# | 570# | -10980# | 640# |
| | Co | 27 | 5810# | 550# | 15150# | 610# | 25770 | 470 | 5370# | 610# | 3980 | 590 | -10340# | 610# |
| | Ni | 28 | 4264 | 3 | 16070# | 300# | 14500.3 | 2.4 | 5580 | 140 | 1390 | 190 | -6270 | 370 |
| | Cu | 29 | 7806.1 | 1.8 | 10786.2 | 2.6 | 5182 | 4 | 7978 | 4 | 5617 | 3 | -5130 | 190 |
| | Zn | 30 | 5835 | 3 | 11641.4 | 2.9 | -4182 | 4 | 9118.2 | 3.0 | 3102 | 3 | 1781 | 4 |
| | Ga | 31 | 9300.3 | 1.4 | 7863.4 | 2.1 | -13637 | 5 | 8989.5 | 1.1 | 4732.0 | 1.0 | 1074.3 | 1.8 |
| | Ge | 32 | 7415.94 | 0.11 | 8285.3 | 1.5 | -23580 | 130 | 10132.1 | 1.5 | 2043.6 | 1.6 | 5747.0 | 1.1 |
| | As | 33 | 11620 | 50 | 4620 | 4 | -35830# | 400# | 9918 | 4 | 3950 | 5 | 4839 | 4 |
| | Se | 34 | 9288 | 3 | 6090 | 50 | * | | 10680 | 30 | 612 | 3 | 9479 | 3 |
| | Br | 35 | 13148 | 16 | 1861 | 6 | * | | 10643 | 6 | 2551 | 5 | 8039 | 6 |
| | Kr | 36 | 13300# | 240# | 2190 | 130 | * | | 10640 | 140 | -2670# | 290# | 13510 | 130 |
| | Rb | 37 | * | | -1750# | 450# | * | | 11090# | 570# | * | | 12380# | 480# |
| 72 | Mn | 25 | 2400# | 780# | * | | 49880# | 600# | 5290# | 850# | 3540# | 780# | * | |
| | Fe | 26 | 5070# | 640# | 20150# | 710# | 39720# | 500# | 1780# | 710# | 1200# | 640# | -14200# | 710# |
| | Co | 27 | 3900# | 610# | 16060# | 570# | 28390# | 400# | 7020# | 570# | 3690# | 570# | -9780# | 570# |
| | Ni | 28 | 6891 | 3 | 17150 | 470 | 18359.8 | 2.2 | 3110# | 300# | 920 | 140 | -9550# | 400# |
| | Cu | 29 | 5143.2 | 2.0 | 11665.7 | 2.6 | 8447 | 4 | 10141.7 | 2.6 | 5060 | 4 | -3860 | 140 |
| | Zn | 30 | 8888 | 3 | 12723.3 | 2.6 | -277.3 | 2.9 | 5541.7 | 2.4 | 2454.8 | 2.6 | -2520 | 4 |
| | Ga | 31 | 6520.47 | 0.19 | 8548.5 | 2.8 | -9526.6 | 1.3 | 11687.2 | 2.1 | 4693.6 | 1.1 | 2794.3 | 1.6 |
| | Ge | 32 | 10750.7 | 0.8 | 9735.7 | 0.8 | -18645 | 8 | 7035.0 | 1.2 | 1606.0 | 1.2 | 1478.3 | 0.8 |
| | As | 33 | 8408 | 6 | 5612 | 4 | -29900# | 500# | 13043 | 4 | 3735 | 4 | 6744 | 4 |
| | Se | 34 | 12793 | 3 | 7264 | 5 | * | | 7180 | 50 | 110 | 30 | 4878.9 | 2.4 |
| | Br | 35 | 10631 | 5 | 3204.2 | 3.0 | * | | 13579.0 | 1.9 | 2237.0 | 1.8 | 9700 | 30 |
| | Kr | 36 | 15680 | 130 | 4727 | 10 | * | | 8196 | 17 | -2820 | 40 | 8141 | 8 |
| | Rb | 37 | 14340# | 640# | -710# | 520# | * | | 13480# | 540# | -1030# | 640# | 13580# | 500# |
| 73 | Fe | 26 | 2540# | 710# | 20290# | 780# | 42690# | 500# | 3380# | 710# | 1460# | 710# | -12770# | 780# |
| | Co | 27 | 5290# | 570# | 16280# | 640# | 32280# | 400# | 4720# | 570# | 3960# | 570# | -12270# | 640# |
| | Ni | 28 | 3953 | 3 | 17200# | 400# | 21189.4 | 2.4 | 4970 | 470 | 1390# | 300# | -7950# | 400# |
| | Cu | 29 | 7275.8 | 2.4 | 12050.3 | 3.0 | 11965 | 4 | 7129.6 | 3.0 | 5090.5 | 2.9 | -6710# | 300# |
| | Zn | 30 | 5519.2 | 2.8 | 13099.4 | 2.3 | 2634 | 8 | 7828.5 | 2.4 | 2247.0 | 2.2 | -733.1 | 2.8 |
| | Ga | 31 | 9182.4 | 1.9 | 8842.8 | 2.7 | -6052 | 7 | 8340 | 3 | 4729.5 | 2.5 | -1076.6 | 2.0 |
| | Ge | 32 | 6782.94 | 0.05 | 9998.2 | 0.8 | -14746 | 7 | 9552.4 | 0.8 | 2476.7 | 1.2 | 3913.6 | 1.9 |
| | As | 33 | 10794 | 6 | 5656 | 4 | -24870# | 200# | 9665 | 4 | 4473 | 4 | 3604 | 4 |
| | Se | 34 | 8431 | 8 | 7287 | 8 | -36280# | 400# | 10377 | 9 | 980 | 50 | 7981 | 7 |
| | Br | 35 | 12657 | 7 | 3068 | 8 | * | | 10210 | 8 | 3146 | 7 | 6340 | 50 |
| | Kr | 36 | 10682 | 10 | 4779 | 7 | * | | 10661 | 9 | -262 | 16 | 11025 | 7 |
| | Rb | 37 | 15820# | 540# | -570# | 200# | * | | 10960# | 240# | -120# | 280# | 10990# | 200# |
| | Sr | 38 | * | | 910# | 640# | * | | 10820# | 570# | * | | 14800# | 450# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q($2\beta^-$) | | Q(ϵp) | | Q($\beta^- n$) | |
|----|------|----|---------|------|---------|------|---------------|------|-----------------|------|-------------------|------|------------------|------|
| 70 | Cr | 24 | 5820# | 780# | * | | * | | 32030# | 720# | * | | 12220# | 720# |
| | Mn | 25 | 7260# | 640# | * | | -16310# | 710# | 27130# | 580# | * | | 11460# | 640# |
| | Fe | 26 | 9170# | 540# | 36290# | 640# | -14220# | 570# | 22700# | 400# | -35220# | 640# | 5700# | 420# |
| | Co | 27 | 10840# | 360# | 32830# | 500# | -12300# | 300# | 16350# | 300# | -29150# | 500# | 5280# | 300# |
| | Ni | 28 | 11893 | 4 | 30300 | 370 | -11571 | 5 | 10350.9 | 2.9 | -27470# | 400# | -1549.0 | 2.6 |
| | Cu | 29 | 13552.0 | 1.9 | 25620 | 190 | -8993 | 14 | 5933.8 | 1.6 | -19990 | 140 | -2629.8 | 1.3 |
| | Zn | 30 | 15700.3 | 2.0 | 20679 | 4 | -5983.4 | 2.4 | 997.1 | 2.1 | -16875 | 4 | -8308.2 | 1.6 |
| | Ga | 31 | 17966.8 | 1.9 | 17921.0 | 2.0 | -5076.8 | 1.4 | -4570 | 50 | -10462.9 | 1.8 | -9880.8 | 0.6 |
| | Ge | 32 | 19725.7 | 2.1 | 15132.7 | 1.1 | -4087.6 | 1.0 | -8632.0 | 1.8 | -9433.0 | 1.1 | -15520 | 30 |
| | As | 33 | 21590 | 50 | 11830 | 50 | -3040 | 50 | -12920 | 50 | -2300 | 50 | -15980 | 50 |
| | Se | 34 | 23883.1 | 1.7 | 9529.0 | 2.5 | -2747.8 | 2.9 | -20830# | 200# | -2118.2 | 2.1 | -23740 | 40 |
| | Br | 35 | 28780# | 260# | 7109 | 15 | -1825 | 16 | * | | 4400 | 40 | -27060# | 400# |
| | Kr | 36 | * | | 1490# | 200# | -1870# | 280# | * | | 8050# | 200# | * | |
| 71 | Mn | 25 | 6940# | 640# | * | | -17350# | 780# | 28800# | 680# | * | | 12870# | 640# |
| | Fe | 26 | 8540# | 570# | 37430# | 640# | -15170# | 570# | 23980# | 400# | -34240# | 720# | 7130# | 500# |
| | Co | 27 | 10230 | 490 | 34180# | 610# | -13340# | 550# | 18340 | 470 | -32160# | 680# | 6770 | 470 |
| | Ni | 28 | 11570 | 4 | 30960# | 400# | -12220 | 270 | 11923 | 3 | -26190# | 400# | -501.2 | 2.5 |
| | Cu | 29 | 13117.5 | 2.0 | 27010 | 140 | -9814 | 7 | 7428.0 | 1.7 | -23370# | 300# | -1217.7 | 2.4 |
| | Zn | 30 | 15053.6 | 2.8 | 21928 | 5 | -6011 | 4 | 2577.7 | 2.8 | -15404 | 3 | -6490.0 | 2.9 |
| | Ga | 31 | 16954.0 | 1.4 | 18980.9 | 1.6 | -5244.5 | 1.2 | -2246 | 4 | -14451.7 | 1.4 | -7648.58 | 0.25 |
| | Ge | 32 | 18948.5 | 1.6 | 16066.6 | 1.1 | -4451.1 | 1.0 | -6760.0 | 2.9 | -7630.7 | 2.1 | -13640 | 50 |
| | As | 33 | 20920 | 30 | 13143 | 4 | -3439 | 4 | -11391 | 7 | -6272 | 4 | -14035 | 4 |
| | Se | 34 | 22854 | 3 | 10624 | 3 | -2913 | 5 | -16820 | 130 | 126.4 | 2.9 | -19792 | 15 |
| | Br | 35 | 26390 | 40 | 7970 | 30 | -2340 | 5 | -24440# | 400# | 550 | 50 | -23470# | 200# |
| | Kr | 36 | 30040# | 420# | 4470 | 130 | -2170 | 150 | * | | 8310 | 130 | * | |
| | Rb | 37 | * | | 380# | 400# | -1700# | 570# | * | | 12080# | 400# | * | |
| 72 | Mn | 25 | 6540# | 780# | * | | * | | 30300# | 720# | * | | 13460# | 720# |
| | Fe | 26 | 8060# | 640# | 38530# | 780# | -16060# | 710# | 25800# | 500# | * | | 7870# | 680# |
| | Co | 27 | 9710# | 500# | 35280# | 640# | -14250# | 570# | 19580# | 400# | -31920# | 640# | 7140# | 400# |
| | Ni | 28 | 11155 | 3 | 32290# | 400# | -13160 | 370 | 13919 | 3 | -30090# | 400# | 413.7 | 2.7 |
| | Cu | 29 | 12949.3 | 1.8 | 27730# | 300# | -10280 | 190 | 8805.3 | 1.6 | -22700 | 470 | -525.5 | 3.0 |
| | Zn | 30 | 14723.4 | 2.9 | 23510 | 3 | -7107 | 4 | 4440.4 | 2.1 | -20028 | 3 | -6077.7 | 2.3 |
| | Ga | 31 | 15820.8 | 1.5 | 20189.9 | 1.4 | -5446.2 | 1.8 | -358 | 4 | -13166.1 | 1.7 | -6753.11 | 0.29 |
| | Ge | 32 | 18166.7 | 0.8 | 17599.1 | 1.9 | -5003.7 | 0.8 | -4717.7 | 2.0 | -12546.1 | 2.7 | -12764 | 4 |
| | As | 33 | 20030 | 50 | 13898 | 4 | -3569 | 4 | -9168 | 4 | -5380 | 4 | -13155 | 5 |
| | Se | 34 | 22080.9 | 2.5 | 11884.2 | 2.1 | -3314.3 | 2.7 | -13928 | 8 | -5250.7 | 2.1 | -19437 | 6 |
| | Br | 35 | 23779 | 15 | 9300 | 50 | -2592.1 | 2.1 | -20730# | 500# | 1542 | 4 | -20810 | 130 |
| | Kr | 36 | 28980# | 200# | 6589 | 8 | -2176 | 8 | * | | 1917 | 8 | -29950# | 400# |
| | Rb | 37 | * | | 1480# | 500# | -1960# | 560# | * | | 10880# | 500# | * | |
| 73 | Fe | 26 | 7610# | 640# | * | | -16750# | 710# | 27210# | 500# | * | | 9230# | 640# |
| | Co | 27 | 9190# | 610# | 36430# | 640# | -15070# | 570# | 21570# | 400# | -34810# | 720# | 8740# | 400# |
| | Ni | 28 | 10845 | 3 | 33260# | 400# | -13500# | 400# | 15485 | 3 | -28970# | 500# | 1603.5 | 2.8 |
| | Cu | 29 | 12418.9 | 2.4 | 29200 | 470 | -11130 | 140 | 10711.9 | 2.6 | -26080# | 400# | 1086.7 | 2.9 |
| | Zn | 30 | 14407 | 3 | 24765.1 | 2.9 | -8040 | 4 | 5704.1 | 1.9 | -18656.3 | 2.9 | -5076.4 | 2.0 |
| | Ga | 31 | 15702.8 | 1.9 | 21566.1 | 2.2 | -6388.0 | 2.2 | 1253 | 4 | -17205.3 | 2.2 | -5184.8 | 1.7 |
| | Ge | 32 | 17533.7 | 0.8 | 18546.7 | 2.7 | -5304.6 | 0.8 | -3070 | 7 | -10441.0 | 2.1 | -11139 | 4 |
| | As | 33 | 19202 | 6 | 15392 | 4 | -4050 | 4 | -7305 | 8 | -9653 | 4 | -11156 | 4 |
| | Se | 34 | 21224 | 8 | 12899 | 7 | -3552 | 8 | -11676 | 10 | -2930 | 7 | -17237 | 7 |
| | Br | 35 | 23288 | 9 | 10332 | 8 | -2960 | 30 | -17570# | 200# | -2707 | 8 | -17778 | 11 |
| | Kr | 36 | 26370 | 130 | 7983 | 7 | -2542 | 7 | -24600# | 400# | 4027 | 7 | -26290# | 500# |
| | Rb | 37 | 30160# | 450# | 4160# | 200# | -2250# | 210# | * | | 5690# | 200# | * | |
| | Sr | 38 | * | | 200# | 420# | -1940# | 570# | * | | 14700# | 400# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|----|------|----|----------|------|---------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 74 | Fe | 26 | 4760# | 780# | * | | 46170# | 600# | 1020# | 850# | 840# | 780# | * | |
| | Co | 27 | 3470# | 640# | 17210# | 710# | 35230# | 500# | 6320# | 710# | 3470# | 640# | -11600# | 710# |
| | Ni | 28 | 6420# | 200# | 18330# | 450# | 24970# | 200# | 2450# | 450# | 780# | 500# | -11380# | 450# |
| | Cu | 29 | 5090 | 6 | 13187 | 7 | 14854 | 6 | 8931 | 7 | 4264 | 7 | -5990 | 470 |
| | Zn | 30 | 8235 | 3 | 14058 | 3 | 6456.5 | 2.5 | 4737.1 | 2.9 | 1818.5 | 2.9 | -4704 | 3 |
| | Ga | 31 | 6422 | 3 | 9745 | 4 | -2761 | 7 | 10807 | 4 | 4143 | 4 | 308 | 3 |
| | Ge | 32 | 10196.24 | 0.06 | 11012.1 | 1.7 | -11090.6 | 2.0 | 5876.7 | 0.8 | 1580.7 | 0.8 | -447.3 | 2.7 |
| | As | 33 | 7979 | 4 | 6851.5 | 1.7 | -18944 | 3 | 12436.7 | 1.7 | 3910.5 | 1.9 | 4925.5 | 1.9 |
| | Se | 34 | 12057 | 7 | 8549 | 4 | -31390# | 100# | 6727 | 4 | 544 | 4 | 3339.7 | 0.8 |
| | Br | 35 | 9712 | 9 | 4350 | 9 | * | | 13291 | 6 | 2722 | 6 | 8251 | 7 |
| | Kr | 36 | 13851 | 7 | 5973 | 8 | * | | 7440.7 | 2.3 | -965 | 6 | 6461 | 3 |
| | Rb | 37 | 13910# | 200# | 2653 | 7 | * | | 12735 | 9 | -720 | 130 | 10233 | 6 |
| | Sr | 38 | 16950# | 410# | 2040# | 220# | * | | 8210# | 510# | -3900# | 410# | 11150# | 160# |
| 75 | Fe | 26 | 2120# | 850# | * | | 48920# | 600# | * | | 1120# | 850# | * | |
| | Co | 27 | 4900# | 710# | 17350# | 780# | 38820# | 500# | 3960# | 710# | 3650# | 710# | -14100# | 780# |
| | Ni | 28 | 3650# | 360# | 18500# | 580# | 27830# | 300# | 4100# | 500# | 1030# | 500# | -9950# | 580# |
| | Cu | 29 | 6536 | 7 | 13300# | 200# | 18562.9 | 2.5 | 6348 | 3 | 4619 | 3 | -8630# | 400# |
| | Zn | 30 | 4874 | 3 | 13842 | 6 | 9610.6 | 2.0 | 7139.3 | 2.8 | 2088.1 | 2.4 | -2686.4 | 3.0 |
| | Ga | 31 | 8486 | 4 | 9997 | 3 | 642 | 5 | 7840 | 3 | 4545 | 3 | -3035.2 | 2.8 |
| | Ge | 32 | 6505.84 | 0.05 | 11096.3 | 3.0 | -7533 | 8 | 8553.2 | 1.7 | 1595.4 | 0.8 | 1934.9 | 2.1 |
| | As | 33 | 10245.5 | 1.9 | 6900.7 | 0.9 | -15815.5 | 1.5 | 8974.1 | 0.9 | 4415.8 | 0.9 | 1200.5 | 1.2 |
| | Se | 34 | 8027.60 | 0.07 | 8598.4 | 1.7 | -25550 | 220 | 9494 | 4 | 924 | 4 | 6062.82 | 0.10 |
| | Br | 35 | 11890 | 7 | 4183 | 4 | -37290# | 300# | 9831 | 9 | 3625 | 5 | 4769 | 6 |
| | Kr | 36 | 10063 | 8 | 6324 | 10 | * | | 10035 | 11 | -398 | 8 | 9191 | 8 |
| | Rb | 37 | 13374 | 3 | 2175.8 | 2.3 | * | | 10044 | 7 | 1586 | 8 | 7489.5 | 1.6 |
| | Sr | 38 | 13860# | 240# | 1990 | 220 | * | | 10170# | 300# | -3430# | 550# | 12970 | 220 |
| | Y | 39 | * | | -1720# | 320# | * | | 10840# | 500# | * | | 12160# | 580# |
| 76 | Co | 27 | 2930# | 780# | 18160# | 850# | 41790# | 600# | 5790# | 850# | 3250# | 780# | * | |
| | Ni | 28 | 5670# | 500# | 19270# | 640# | 31580# | 400# | 1900# | 640# | 650# | 570# | -13080# | 640# |
| | Cu | 29 | 4576 | 7 | 14240# | 300# | 21315 | 7 | 8190# | 200# | 3996 | 7 | -7910# | 400# |
| | Zn | 30 | 7815.4 | 2.4 | 15120.6 | 2.7 | 12948.9 | 1.5 | 4414 | 6 | 1548.5 | 2.4 | -6548.5 | 2.8 |
| | Ga | 31 | 5903 | 3 | 11026.7 | 2.8 | 3992 | 10 | 10171 | 3 | 4160.8 | 2.7 | -1662.8 | 2.8 |
| | Ge | 32 | 9427.24 | 0.05 | 12037.3 | 2.4 | -4199 | 4 | 5547.5 | 3.0 | 1350.5 | 1.7 | -1973.1 | 1.9 |
| | As | 33 | 7328.50 | 0.07 | 7723.4 | 0.9 | -11812.3 | 1.3 | 11841.9 | 0.9 | 3870.2 | 0.9 | 3054.4 | 1.9 |
| | Se | 34 | 11153.79 | 0.07 | 9506.7 | 0.9 | -21000 | 30 | 6318.9 | 1.7 | 565 | 4 | 1691.97 | 0.06 |
| | Br | 35 | 9253 | 10 | 5409 | 9 | -31810# | 300# | 12635 | 9 | 2802 | 12 | 6310 | 10 |
| | Kr | 36 | 12761 | 9 | 7196 | 6 | * | | 6985 | 7 | -502 | 8 | 4860 | 8 |
| | Rb | 37 | 11331.7 | 1.5 | 3444 | 8 | * | | 12563.6 | 2.2 | 937 | 7 | 8815 | 7 |
| | Sr | 38 | 15700 | 220 | 4320 | 30 | * | | 8380 | 30 | -3300# | 200# | 7950 | 40 |
| | Y | 39 | 14730# | 420# | -850# | 370# | * | | 13060# | 320# | -1670# | 500# | 13250# | 360# |
| 77 | Co | 27 | 4580# | 850# | * | | 44980# | 600# | 3340# | 850# | 3440# | 850# | * | |
| | Ni | 28 | 3240# | 640# | 19580# | 780# | 34410# | 500# | 3560# | 710# | 890# | 710# | -11560# | 780# |
| | Cu | 29 | 5720# | 150# | 14280# | 430# | 25290# | 150# | 6120# | 340# | 4700# | 250# | -10160# | 520# |
| | Zn | 30 | 4557.5 | 2.5 | 15102 | 7 | 15810.3 | 2.0 | 6393 | 3 | 2081 | 6 | -4690# | 200# |
| | Ga | 31 | 7767 | 3 | 10978.3 | 2.8 | 7242 | 4 | 7277 | 3 | 4628 | 3 | -4340 | 7 |
| | Ge | 32 | 6071.29 | 0.05 | 12205.2 | 2.0 | -1043.4 | 2.0 | 7962.5 | 2.4 | 1700.8 | 3.0 | 190.3 | 2.5 |
| | As | 33 | 9696.3 | 1.9 | 7992.4 | 1.7 | -9085.8 | 2.1 | 8651.5 | 1.7 | 4370.2 | 1.7 | -220 | 3 |
| | Se | 34 | 7418.86 | 0.06 | 9597.1 | 0.9 | -16796 | 8 | 9145.5 | 0.9 | 1124.6 | 1.7 | 4469.35 | 0.06 |
| | Br | 35 | 11017 | 10 | 5271.8 | 2.8 | -26800# | 200# | 9645.5 | 2.8 | 3842.4 | 2.8 | 3272 | 3 |
| | Kr | 36 | 9227 | 4 | 7169 | 10 | -38130# | 400# | 9648 | 5 | -17 | 6 | 7690.2 | 2.0 |
| | Rb | 37 | 12422.7 | 1.6 | 3106 | 4 | * | | 10204 | 8 | 2365.4 | 2.4 | 6104 | 6 |
| | Sr | 38 | 11630 | 40 | 4613 | 8 | * | | 10126 | 8 | -1023 | 8 | 10175 | 8 |
| | Y | 39 | 16030# | 360# | -520# | 200# | * | | 10890# | 300# | -750# | 230# | 11120# | 200# |
| | Zr | 40 | * | | 850# | 500# | * | | 10490# | 500# | * | | 14430# | 410# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q($2\beta^-$) | | Q(ϵp) | | Q($\beta^- n$) | |
|----|------|----|----------|------|----------|------|---------------|------|-----------------|------|-------------------|------|------------------|------|
| 74 | Fe | 26 | 7300# | 780# | * | | -17540# | 850# | 28870# | 630# | * | | 9760# | 720# |
| | Co | 27 | 8760# | 640# | 37500# | 780# | -15750# | 710# | 23190# | 500# | * | | 9220# | 500# |
| | Ni | 28 | 10370# | 200# | 34600# | 540# | -14370# | 450# | 17300# | 200# | -32850# | 540# | 2460# | 200# |
| | Cu | 29 | 12366 | 6 | 30390# | 400# | -11800# | 300# | 12043 | 7 | -25880# | 400# | 1516 | 6 |
| | Zn | 30 | 13754 | 3 | 26109 | 3 | -8968 | 3 | 7665.7 | 2.5 | -22938 | 3 | -4129 | 3 |
| | Ga | 31 | 15604 | 3 | 22845 | 3 | -7498 | 3 | 2810 | 3 | -16351 | 4 | -4823.4 | 3.0 |
| | Ge | 32 | 16979.18 | 0.07 | 19854.9 | 2.1 | -6282.6 | 1.9 | -1209.24 | 0.01 | -15118.0 | 1.9 | -10541 | 4 |
| | As | 33 | 18773 | 4 | 16849.7 | 1.9 | -4374.8 | 2.1 | -5572 | 6 | -8449.7 | 2.4 | -10704 | 8 |
| | Se | 34 | 20487.7 | 2.0 | 14205.24 | 0.08 | -4076.2 | 0.8 | -9881.4 | 2.0 | -8204.65 | 0.06 | -16637 | 7 |
| | Br | 35 | 22369 | 6 | 11636 | 7 | -3370 | 50 | -13372 | 7 | -1624 | 7 | -16808 | 9 |
| | Kr | 36 | 24534 | 8 | 9041.6 | 2.8 | -2826.9 | 2.6 | -21500# | 100# | -1393 | 8 | -24320# | 200# |
| | Rb | 37 | 29730# | 500# | 7432 | 3 | -2915 | 15 | * | | 4442 | 8 | -28040# | 400# |
| | Sr | 38 | * | | 1470# | 100# | -2150# | 220# | * | | 8440# | 100# | * | |
| 75 | Fe | 26 | 6880# | 780# | * | | * | | 30390# | 670# | * | | 11110# | 780# |
| | Co | 27 | 8370# | 640# | * | | -16500# | 710# | 24820# | 500# | * | | 10740# | 540# |
| | Ni | 28 | 10060# | 300# | 35710# | 580# | -15030# | 500# | 18530# | 300# | -31730# | 670# | 3910# | 300# |
| | Cu | 29 | 11627 | 3 | 31630# | 400# | -12530 | 470 | 13993 | 3 | -28940# | 500# | 3214 | 3 |
| | Zn | 30 | 13108.1 | 2.7 | 27029 | 3 | -9577.6 | 3.0 | 9298.1 | 2.0 | -21390# | 200# | -2581 | 4 |
| | Ga | 31 | 14907.9 | 2.9 | 24055 | 3 | -8178.4 | 2.8 | 4569.6 | 2.6 | -19747 | 7 | -3113.5 | 2.4 |
| | Ge | 32 | 16702.08 | 0.07 | 20841.5 | 1.9 | -6953.1 | 2.7 | 312.52 | 0.09 | -13389.2 | 2.5 | -9068.2 | 1.7 |
| | As | 33 | 18224 | 4 | 17912.8 | 1.9 | -5320.0 | 1.2 | -3927 | 4 | -12274 | 3 | -8892.3 | 0.9 |
| | Se | 34 | 20085 | 7 | 15449.90 | 0.09 | -4687.9 | 0.8 | -7846 | 8 | -6036.01 | 0.07 | -14953 | 6 |
| | Br | 35 | 21602 | 8 | 12732 | 6 | -3639 | 6 | -11888 | 4 | -5536 | 5 | -14846 | 5 |
| | Kr | 36 | 23915 | 10 | 10674 | 11 | -3602 | 9 | -17700 | 220 | 601 | 8 | -20479 | 9 |
| | Rb | 37 | 27280# | 200# | 8149 | 7 | -3141 | 6 | -25400# | 300# | 780 | 6 | -24460# | 100# |
| | Sr | 38 | 30810# | 460# | 4640 | 220 | -2720 | 250 | * | | 8420 | 220 | * | |
| | Y | 39 | * | | 320# | 360# | -2190# | 500# | * | | 12810# | 300# | * | |
| 76 | Co | 27 | 7830# | 780# | * | | -17040# | 850# | 26470# | 600# | * | | 11450# | 670# |
| | Ni | 28 | 9320# | 450# | 36620# | 720# | -15630# | 640# | 20670# | 400# | -35280# | 720# | 4770# | 400# |
| | Cu | 29 | 11112 | 9 | 32730# | 500# | -13200# | 400# | 15321 | 7 | -28620# | 500# | 3512 | 7 |
| | Zn | 30 | 12688.9 | 2.9 | 28430# | 200# | -10501.9 | 2.7 | 10909.9 | 1.5 | -25560# | 300# | -1909.8 | 2.8 |
| | Ga | 31 | 14390 | 4 | 24868 | 6 | -8938.6 | 2.4 | 5994.7 | 2.1 | -19114 | 3 | -2511.0 | 2.0 |
| | Ge | 32 | 15933.08 | 0.02 | 22034.1 | 2.5 | -7492.3 | 2.1 | 2039.06 | 0.01 | -17943.0 | 2.0 | -8250.0 | 0.9 |
| | As | 33 | 17574.0 | 1.9 | 18820 | 3 | -6128.0 | 1.2 | -2002 | 9 | -11115.8 | 2.6 | -8193.2 | 0.9 |
| | Se | 34 | 19181.38 | 0.02 | 16407.45 | 0.02 | -5090.97 | 0.08 | -6238 | 4 | -10683.96 | 0.05 | -14216 | 4 |
| | Br | 35 | 21144 | 11 | 14007 | 9 | -4484 | 10 | -9810 | 9 | -4544 | 9 | -14037 | 12 |
| | Kr | 36 | 22825 | 4 | 11378 | 4 | -3570 | 4 | -14770 | 30 | -4133 | 4 | -19866 | 4 |
| | Rb | 37 | 24706 | 3 | 9769 | 6 | -3842.3 | 1.4 | -22000# | 300# | 1339 | 4 | -21930 | 220 |
| | Sr | 38 | 29560# | 110# | 6490 | 30 | -2730 | 40 | * | | 2790 | 40 | -30500# | 300# |
| | Y | 39 | * | | 1140# | 300# | -2580# | 580# | * | | 11450# | 300# | * | |
| 77 | Co | 27 | 7510# | 780# | * | | * | | 27610# | 620# | * | | 12550# | 720# |
| | Ni | 28 | 8910# | 580# | 37740# | 780# | -16330# | 710# | 21990# | 500# | * | | 6110# | 500# |
| | Cu | 29 | 10300# | 150# | 33550# | 520# | -13630# | 430# | 17370# | 150# | -31400# | 620# | 5610# | 150# |
| | Zn | 30 | 12372.9 | 2.8 | 29340# | 300# | -11106 | 3 | 12423.7 | 2.0 | -24450# | 400# | -563.9 | 2.8 |
| | Ga | 31 | 13670 | 3 | 26099 | 3 | -9430 | 3 | 7924.0 | 3.0 | -22305 | 7 | -850.8 | 2.4 |
| | Ge | 32 | 15498.53 | 0.07 | 23231.9 | 2.0 | -8044.4 | 1.9 | 3386.63 | 0.08 | -16198.8 | 1.5 | -6992.8 | 0.9 |
| | As | 33 | 17024.8 | 1.9 | 20029.7 | 3.0 | -6641.9 | 2.4 | -682 | 3 | -14908.6 | 2.6 | -6735.7 | 1.7 |
| | Se | 34 | 18572.64 | 0.10 | 17320.47 | 0.08 | -5726.88 | 0.08 | -4430.0 | 2.0 | -8675.57 | 0.06 | -12382 | 9 |
| | Br | 35 | 20270 | 5 | 14778.6 | 2.9 | -4707 | 5 | -8404 | 3 | -8232.4 | 2.9 | -12292 | 5 |
| | Kr | 36 | 21988 | 8 | 12577.9 | 2.0 | -4367 | 8 | -12366 | 8 | -2206.5 | 2.0 | -17761.7 | 2.2 |
| | Rb | 37 | 23754.4 | 1.8 | 10301 | 4 | -3608 | 7 | -18390# | 200# | -1830 | 9 | -18650 | 30 |
| | Sr | 38 | 27330 | 220 | 8058 | 11 | -3677 | 10 | -25760# | 400# | 3921 | 9 | -27400# | 300# |
| | Y | 39 | 30760# | 360# | 3800# | 200# | -2780# | 290# | * | | 6750# | 200# | * | |
| | Zr | 40 | * | | -0# | 460# | -2510# | 570# | * | | 14920# | 400# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|----|------|----|----------|------|---------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 78 | Ni | 28 | 5160# | 780# | 20160# | 850# | 37970# | 600# | 1330# | 850# | 620# | 780# | -14600# | 850# |
| | Cu | 29 | 3950# | 530# | 14990# | 710# | 28320 | 500 | 7840# | 640# | 4400# | 590# | -9200# | 710# |
| | Zn | 30 | 6765.4 | 2.8 | 16150# | 150# | 19542.7 | 2.0 | 4204 | 7 | 1852 | 3 | -7810# | 300# |
| | Ga | 31 | 5785 | 3 | 12205.7 | 2.7 | 9746 | 4 | 9307.9 | 2.4 | 3717.0 | 2.7 | -3588 | 3 |
| | Ge | 32 | 8721 | 4 | 13159 | 4 | 2316 | 4 | 5145 | 4 | 1467 | 4 | -3657 | 4 |
| | As | 33 | 6972 | 10 | 8893 | 10 | -5882 | 10 | 11107 | 10 | 3904 | 10 | 1294 | 10 |
| | Se | 34 | 10497.77 | 0.17 | 10398.6 | 1.7 | -13852 | 7 | 5976.2 | 0.9 | 872.3 | 0.9 | 477.42 | 0.19 |
| | Br | 35 | 8289 | 5 | 6142 | 4 | -21280# | 300# | 12511 | 4 | 3581 | 4 | 5228 | 4 |
| | Kr | 36 | 12080.1 | 2.0 | 8232.4 | 2.8 | -33330# | 400# | 6822 | 9 | -207 | 4 | 3637.6 | 0.3 |
| | Rb | 37 | 10176 | 3 | 4055 | 4 | * | | 12789 | 5 | 2252 | 9 | 7818 | 5 |
| | Sr | 38 | 13442 | 11 | 5632 | 8 | * | | 8016 | 8 | -1091 | 8 | 6796 | 11 |
| | Y | 39 | 13810# | 360# | 1660# | 300# | * | | 12790# | 300# | -690# | 370# | 10690# | 300# |
| | Zr | 40 | 16880# | 570# | 1700# | 450# | * | | 8340# | 500# | -4170# | 500# | 11420# | 460# |
| 79 | Ni | 28 | 1750# | 850# | * | | 41960# | 600# | 4160# | 850# | 1800# | 850# | * | |
| | Cu | 29 | 5310# | 590# | 15140# | 670# | 31900# | 300# | 5770# | 580# | 4750# | 500# | -11580# | 670# |
| | Zn | 30 | 4020.4 | 3.0 | 16220 | 500 | 22485.2 | 2.2 | 5900# | 150# | 2408 | 7 | -6160# | 400# |
| | Ga | 31 | 6913.0 | 2.7 | 12353.4 | 2.7 | 13520.4 | 2.1 | 6952.3 | 2.7 | 4619.4 | 2.4 | -5925 | 7 |
| | Ge | 32 | 5740 | 40 | 13110 | 40 | 4920 | 40 | 7180 | 40 | 1630 | 40 | -1580 | 40 |
| | As | 33 | 8890 | 11 | 9063 | 6 | -2833 | 6 | 8288 | 5 | 4441 | 5 | -1693 | 6 |
| | Se | 34 | 6962.83 | 0.13 | 10389 | 10 | -10441 | 8 | 8709.7 | 1.7 | 1238.0 | 0.9 | 2941.83 | 0.22 |
| | Br | 35 | 10687 | 4 | 6331.1 | 1.0 | -18250 | 80 | 9242.3 | 1.0 | 4048.0 | 1.0 | 1869.7 | 1.4 |
| | Kr | 36 | 8335 | 3 | 8279 | 5 | -27670# | 300# | 9503 | 4 | 711 | 10 | 6456 | 3 |
| | Rb | 37 | 11939 | 4 | 3913.7 | 2.2 | -39150# | 500# | 10077.3 | 2.9 | 3075 | 5 | 5132 | 10 |
| | Sr | 38 | 10374 | 11 | 5830 | 9 | * | | 10064 | 8 | -134 | 8 | 9183 | 9 |
| | Y | 39 | 13720# | 310# | 1930 | 80 | * | | 10700 | 80 | 1290 | 90 | 8310 | 80 |
| | Zr | 40 | 13990# | 500# | 1890# | 420# | * | | 10380# | 360# | -3430# | 420# | 13120# | 300# |
| | Nb | 41 | * | | -1910# | 640# | * | | 11100# | 640# | * | | 12480# | 580# |
| 80 | Ni | 28 | 3130# | 920# | * | | 46910# | 700# | * | | 3250# | 920# | * | |
| | Cu | 29 | 2530# | 500# | 15920# | 720# | 36020# | 400# | 8400# | 720# | 5460# | 640# | -9540# | 720# |
| | Zn | 30 | 6288 | 3 | 17200# | 300# | 26110.8 | 2.8 | 3560 | 500 | 1840# | 150# | -9200# | 500# |
| | Ga | 31 | 4747 | 3 | 13080 | 4 | 16665 | 3 | 8970 | 3 | 4430 | 3 | -4950# | 150# |
| | Ge | 32 | 8080 | 40 | 14276.6 | 2.8 | 8358.0 | 2.2 | 4881.5 | 2.8 | 1321 | 3 | -5099.7 | 2.8 |
| | As | 33 | 6650 | 6 | 9980 | 40 | -39 | 4 | 10358 | 5 | 3862 | 3 | -576 | 4 |
| | Se | 34 | 9913.3 | 1.0 | 11412 | 5 | -7448 | 4 | 5768 | 10 | 1020.9 | 1.8 | -900.2 | 1.0 |
| | Br | 35 | 7892.28 | 0.13 | 7260.5 | 1.0 | -14741 | 6 | 11847.8 | 1.0 | 3574.6 | 1.0 | 3673.7 | 1.8 |
| | Kr | 36 | 11522 | 4 | 9114.3 | 1.2 | -23530# | 300# | 6270 | 4 | 205.5 | 2.9 | 2352.5 | 0.7 |
| | Rb | 37 | 9443.8 | 2.8 | 5022 | 4 | -33760# | 400# | 12713.6 | 1.9 | 2858.0 | 2.7 | 6706 | 3 |
| | Sr | 38 | 12906 | 9 | 6797 | 4 | * | | 7335 | 5 | -617 | 4 | 5504 | 4 |
| | Y | 39 | 11400 | 80 | 2960 | 10 | * | | 12737 | 10 | 1519 | 10 | 9329 | 6 |
| | Zr | 40 | 15660# | 420# | 3830# | 310# | * | | 8520# | 420# | -3060# | 360# | 9090# | 300# |
| | Nb | 41 | 14840# | 640# | -1060# | 500# | * | | 13140# | 570# | -1520# | 570# | 13670# | 450# |
| 81 | Cu | 29 | 3290# | 640# | 16080# | 860# | 41110# | 500# | 6860# | 780# | 7330# | 780# | * | |
| | Zn | 30 | 2622 | 6 | 17290# | 400# | 30189 | 5 | 6250# | 300# | 3160 | 500 | -6660# | 600# |
| | Ga | 31 | 6476 | 4 | 13268 | 4 | 20349 | 3 | 6515 | 4 | 4719 | 4 | -7480 | 500 |
| | Ge | 32 | 4827.7 | 2.9 | 14357 | 4 | 11404.5 | 2.3 | 6966.8 | 2.8 | 2278.3 | 2.8 | -3162.1 | 2.8 |
| | As | 33 | 8390 | 4 | 10287 | 3 | 2923 | 6 | 7700 | 40 | 4193 | 4 | -3181 | 3 |
| | Se | 34 | 6700.8 | 0.3 | 11463 | 3 | -4861 | 3 | 7958 | 5 | 1292 | 10 | 1119 | 4 |
| | Br | 35 | 10159.4 | 1.4 | 7506.5 | 1.4 | -12264 | 5 | 8651.2 | 1.0 | 3913.0 | 1.0 | 486 | 10 |
| | Kr | 36 | 7874.2 | 1.2 | 9096.2 | 1.5 | -20240 | 90 | 9082.7 | 1.5 | 620 | 4 | 4976.2 | 1.1 |
| | Rb | 37 | 11353 | 5 | 4852 | 5 | -29100# | 400# | 9696 | 6 | 3586 | 5 | 3642 | 6 |
| | Sr | 38 | 9288 | 5 | 6642 | 4 | -39780# | 500# | 9986 | 4 | 271 | 5 | 8297 | 3 |
| | Y | 39 | 12636 | 8 | 2690 | 6 | * | | 10475 | 10 | 2325 | 9 | 6869 | 6 |
| | Zr | 40 | 11170# | 310# | 3600 | 90 | * | | 11070 | 120 | -420# | 310# | 11360 | 90 |
| | Nb | 41 | 16010# | 570# | -710# | 500# | * | | 11120# | 500# | -650# | 570# | 11460# | 500# |
| | Mo | 42 | * | | 620# | 640# | * | | 10610# | 710# | * | | 14750# | 640# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q($2\beta^-$) | | Q(ϵp) | | Q($\beta^- n$) | |
|----|------|----|----------|------|----------|------|---------------|------|-----------------|------|-------------------|------|------------------|------|
| 78 | Ni | 28 | 8400# | 720# | * | | -16720# | 850# | 23590# | 600# | * | | 6660# | 620# |
| | Cu | 29 | 9660 | 500 | 34570# | 780# | -14100# | 710# | 19210 | 500 | -30770# | 780# | 6220 | 500 |
| | Zn | 30 | 11322.9 | 2.4 | 30430# | 400# | -11450# | 200# | 14379 | 4 | -27970# | 500# | 438 | 3 |
| | Ga | 31 | 13551.9 | 2.7 | 27308 | 7 | -10125 | 6 | 9111 | 10 | -22370# | 150# | -564.4 | 1.9 |
| | Ge | 32 | 14792 | 4 | 24137 | 4 | -8530 | 4 | 5164 | 4 | -20362 | 4 | -6017 | 4 |
| | As | 33 | 16668 | 10 | 21098 | 10 | -7192 | 10 | 635 | 10 | -14114 | 10 | -6289 | 10 |
| | Se | 34 | 17916.63 | 0.18 | 18391.00 | 0.18 | -6028.42 | 0.18 | -2847.67 | 0.26 | -13102.05 | 0.19 | -11862.5 | 2.8 |
| | Br | 35 | 19306 | 10 | 15739 | 4 | -5017 | 4 | -6517 | 5 | -6825 | 4 | -11354 | 4 |
| | Kr | 36 | 21307 | 4 | 13504.3 | 0.3 | -4390.0 | 0.3 | -11004 | 7 | -6867.8 | 0.3 | -17419.1 | 1.3 |
| | Rb | 37 | 22599 | 3 | 11224 | 10 | -4072 | 7 | -14760# | 300# | -990 | 4 | -17203 | 9 |
| | Sr | 38 | 25070 | 40 | 8738 | 8 | -3267 | 8 | -22320# | 400# | -293 | 8 | -24810# | 200# |
| | Y | 39 | 29840# | 420# | 6270# | 300# | -2680# | 300# | * | | 5370# | 300# | -28210# | 500# |
| | Zr | 40 | * | | 1180# | 400# | -2450# | 410# | * | | 9670# | 400# | * | |
| 79 | Ni | 28 | 6910# | 780# | * | | -16360# | 850# | 25860# | 600# | * | | 8860# | 780# |
| | Cu | 29 | 9260# | 340# | 35300# | 670# | -14520# | 580# | 20810# | 300# | * | | 7670# | 300# |
| | Zn | 30 | 10785.7 | 3.0 | 31210# | 500# | -11830# | 300# | 16090 | 40 | -26830# | 600# | 2202.3 | 2.9 |
| | Ga | 31 | 12698 | 3 | 28500# | 150# | -10501.3 | 3.0 | 11088 | 6 | -25340 | 500 | 1243 | 4 |
| | Ge | 32 | 14460 | 40 | 25320 | 40 | -9390 | 40 | 6390 | 40 | -19330 | 40 | -4780 | 40 |
| | As | 33 | 15862 | 6 | 22222 | 6 | -7596 | 6 | 2432 | 5 | -17219 | 6 | -4681 | 5 |
| | Se | 34 | 17460.60 | 0.21 | 19282.54 | 0.23 | -6485.41 | 0.23 | -1475 | 3 | -11344 | 4 | -10537 | 4 |
| | Br | 35 | 18975.9 | 3.0 | 16729.7 | 1.8 | -5458.8 | 1.3 | -5265.0 | 2.4 | -10540 | 10 | -9961.1 | 1.1 |
| | Kr | 36 | 20415 | 4 | 14421 | 3 | -4698 | 3 | -8965 | 9 | -4705 | 3 | -15578 | 5 |
| | Rb | 37 | 22115.1 | 2.5 | 12146 | 4 | -4121 | 5 | -12990 | 80 | -4640 | 4 | -15700 | 8 |
| | Sr | 38 | 23816 | 12 | 9885 | 9 | -3578 | 12 | -18710# | 300# | 1412 | 8 | -21380# | 300# |
| | Y | 39 | 27520# | 220# | 7570 | 80 | -3020 | 80 | -26170# | 510# | 1830 | 80 | -25040# | 410# |
| | Zr | 40 | 30870# | 500# | 3550# | 300# | -2580# | 370# | * | | 9120# | 300# | * | |
| | Nb | 41 | * | | -210# | 540# | -2260# | 580# | * | | 13230# | 580# | * | |
| 80 | Ni | 28 | 4880# | 920# | * | | * | | 29020# | 700# | * | | 11040# | 760# |
| | Cu | 29 | 7850# | 640# | * | | -14110# | 720# | 23020# | 400# | * | | 9160# | 400# |
| | Zn | 30 | 10308 | 3 | 32340# | 600# | -12440# | 400# | 17887 | 3 | -31370# | 600# | 2828 | 3 |
| | Ga | 31 | 11660 | 3 | 29300 | 500 | -10673 | 7 | 12991 | 4 | -24770# | 300# | 2230 | 40 |
| | Ge | 32 | 13816 | 4 | 26630.0 | 2.8 | -9657.2 | 2.5 | 8224.2 | 2.3 | -23392 | 3 | -3971 | 6 |
| | As | 33 | 15540 | 10 | 23086 | 4 | -8343 | 4 | 3675 | 3 | -16956 | 4 | -4368 | 3 |
| | Se | 34 | 16876.1 | 1.0 | 20475 | 4 | -6971.5 | 1.0 | 133.9 | 1.1 | -15520 | 40 | -9762.7 | 0.3 |
| | Br | 35 | 18579 | 4 | 17650 | 10 | -6022.5 | 1.3 | -3713.5 | 2.1 | -9542 | 5 | -9518 | 3 |
| | Kr | 36 | 19857.7 | 0.8 | 15445.3 | 0.7 | -5066.3 | 0.7 | -7582 | 4 | -9264.9 | 0.7 | -15161.7 | 2.3 |
| | Rb | 37 | 21383 | 4 | 13301 | 4 | -4311 | 10 | -11027 | 7 | -3396.4 | 2.1 | -14770 | 9 |
| | Sr | 38 | 23280 | 8 | 10711 | 3 | -3723 | 5 | -15950# | 300# | -3158 | 5 | -20560 | 80 |
| | Y | 39 | 25120# | 300# | 8791 | 7 | -3094 | 6 | -22730# | 400# | 2366 | 7 | -22450# | 300# |
| | Zr | 40 | 29650# | 500# | 5760# | 300# | -2540# | 300# | * | | 3830# | 300# | -30780# | 580# |
| | Nb | 41 | * | | 830# | 500# | -2370# | 500# | * | | 12110# | 410# | * | |
| 81 | Cu | 29 | 5820# | 580# | * | | -12830# | 780# | 26210# | 500# | * | | 12160# | 500# |
| | Zn | 30 | 8910 | 6 | 33210# | 600# | -11830# | 500# | 20092 | 5 | -30860# | 700# | 4953 | 6 |
| | Ga | 31 | 11223 | 4 | 30470# | 300# | -11430# | 150# | 14905 | 4 | -28720# | 400# | 3836 | 4 |
| | Ge | 32 | 12910 | 40 | 27437 | 3 | -9927.4 | 2.8 | 10097.3 | 2.3 | -21932 | 3 | -2149 | 4 |
| | As | 33 | 15040 | 6 | 24564 | 3 | -8966 | 4 | 5443.7 | 2.8 | -20599 | 4 | -2845.2 | 2.8 |
| | Se | 34 | 16614.2 | 1.0 | 21440 | 40 | -7601.0 | 1.0 | 1307.2 | 1.5 | -14142.7 | 2.3 | -8571.3 | 0.5 |
| | Br | 35 | 18051.6 | 1.4 | 18919 | 5 | -6485.6 | 2.0 | -2520 | 5 | -13052 | 3 | -8155.0 | 1.2 |
| | Kr | 36 | 19397 | 4 | 16356.7 | 1.1 | -5521.6 | 1.1 | -6168 | 3 | -7225.7 | 1.4 | -13592.0 | 2.2 |
| | Rb | 37 | 20796 | 5 | 13967 | 5 | -4647 | 6 | -9744 | 7 | -6857 | 5 | -13217 | 6 |
| | Sr | 38 | 22194 | 9 | 11664 | 5 | -3784 | 4 | -14070 | 90 | -924 | 3 | -18451 | 7 |
| | Y | 39 | 24040 | 80 | 9488 | 6 | -3307 | 6 | -19350# | 400# | -826 | 6 | -19420# | 300# |
| | Zr | 40 | 26830# | 310# | 6560 | 90 | -2080 | 90 | -25710# | 510# | 5560 | 90 | -27110# | 410# |
| | Nb | 41 | 30850# | 640# | 3120# | 410# | -2350# | 450# | * | | 7500# | 400# | * | |
| | Mo | 42 | * | | -440# | 580# | -2140# | 640# | * | | 15320# | 580# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|----|------|----|----------|------|---------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 82 | Cu | 29 | 1970# | 780# | * | | 44790# | 600# | 8020# | 920# | 7120# | 850# | * | |
| | Zn | 30 | 4186 | 6 | 18180# | 500# | 35280 | 3 | 4600# | 400# | 4290# | 300# | -9100# | 600# |
| | Ga | 31 | 3374 | 4 | 14020 | 6 | 24567.9 | 2.6 | 9429 | 4 | 5366 | 3 | -5540# | 300# |
| | Ge | 32 | 7195 | 3 | 15076 | 4 | 15176.7 | 2.2 | 4519 | 4 | 1996.7 | 2.9 | -6336 | 3 |
| | As | 33 | 5643 | 5 | 11103 | 4 | 6082 | 5 | 10141 | 4 | 4290 | 40 | -1911 | 4 |
| | Se | 34 | 9276.2 | 1.0 | 12349.5 | 2.7 | -1584 | 6 | 5331 | 3 | 906 | 5 | -2420 | 40 |
| | Br | 35 | 7592.94 | 0.12 | 8398.6 | 1.4 | -9435 | 6 | 10971.6 | 1.4 | 3282.9 | 1.0 | 1784 | 5 |
| | Kr | 36 | 10966.9 | 1.1 | 9903.7 | 1.0 | -16960 | 11 | 6008.0 | 1.0 | 340.3 | 1.0 | 972.08 | 0.22 |
| | Rb | 37 | 8802 | 6 | 5781 | 3 | -24100# | 300# | 12416 | 3 | 3119 | 5 | 5527 | 3 |
| | Sr | 38 | 12553 | 7 | 7842 | 8 | -35640# | 400# | 6876 | 6 | -343 | 6 | 4079 | 7 |
| | Y | 39 | 10422 | 8 | 3825 | 6 | * | | 12958 | 6 | 2277 | 10 | 8385 | 6 |
| | Zr | 40 | 14240 | 90 | 5207 | 12 | * | | 8228 | 13 | -950 | 80 | 7492 | 14 |
| | Nb | 41 | 13800# | 500# | 1920# | 310# | * | | 12980# | 420# | -460# | 420# | 11370# | 310# |
| | Mo | 42 | 16690# | 640# | 1300# | 570# | * | | 8760# | 570# | -3860# | 640# | 12050# | 500# |
| 83 | Zn | 30 | 2050# | 300# | 18260# | 670# | 39050# | 300# | 5840# | 580# | 4770# | 500# | -8010# | 760# |
| | Ga | 31 | 4398 | 4 | 14232 | 4 | 29757 | 5 | 7653 | 6 | 7256 | 4 | -7410# | 400# |
| | Ge | 32 | 3633 | 3 | 15335 | 3 | 19014.2 | 2.4 | 7362 | 4 | 3111 | 4 | -3681 | 4 |
| | As | 33 | 7635 | 5 | 11543 | 4 | 9401 | 4 | 7333 | 3 | 4730 | 3 | -4799 | 4 |
| | Se | 34 | 5818 | 3 | 12524 | 5 | 1457 | 7 | 7904 | 4 | 1738 | 5 | -159 | 4 |
| | Br | 35 | 9586 | 4 | 8709 | 4 | -6808 | 19 | 8086 | 4 | 3610 | 4 | -1153 | 5 |
| | Kr | 36 | 7470.16 | 0.01 | 9780.9 | 1.0 | -14079 | 6 | 8697.2 | 1.0 | 762.4 | 1.0 | 3415.2 | 1.0 |
| | Rb | 37 | 10954 | 4 | 5767.8 | 2.3 | -21510 | 150 | 9336.4 | 2.6 | 3686.8 | 2.4 | 2464.8 | 2.5 |
| | Sr | 38 | 8859 | 9 | 7899 | 7 | -30460# | 400# | 9370 | 8 | 242 | 7 | 6742 | 7 |
| | Y | 39 | 12213 | 19 | 3485 | 20 | -40890# | 500# | 10033 | 19 | 2970 | 19 | 5616 | 19 |
| | Zr | 40 | 10352 | 13 | 5137 | 8 | * | | 10512 | 8 | 101 | 9 | 10046 | 7 |
| | Nb | 41 | 13540# | 340# | 1210 | 150 | * | | 10610 | 180 | 1670# | 340# | 9240 | 150 |
| | Mo | 42 | 14040# | 570# | 1540# | 500# | * | | 10730# | 570# | -3060# | 570# | 13670# | 500# |
| | Tc | 43 | * | | -1760# | 640# | * | | 11140# | 710# | * | | 12750# | 640# |
| 84 | Zn | 30 | 3710# | 500# | * | | 44020# | 400# | 4100# | 720# | 4360# | 640# | * | |
| | Ga | 31 | 2900# | 200# | 15090# | 360# | 33700# | 200# | 8940# | 200# | 6980# | 200# | -7020# | 540# |
| | Ge | 32 | 5243 | 4 | 16180 | 4 | 24291 | 3 | 5493 | 4 | 4344 | 5 | -6302 | 6 |
| | As | 33 | 4256 | 4 | 12166 | 4 | 13905 | 4 | 10272 | 4 | 5302 | 4 | -2579 | 5 |
| | Se | 34 | 8679 | 4 | 13567 | 3 | 4701.8 | 2.3 | 4869 | 4 | 1450 | 3 | -4009.6 | 2.8 |
| | Br | 35 | 6841 | 26 | 9732 | 26 | -3889 | 26 | 10522 | 26 | 3470 | 26 | 397 | 26 |
| | Kr | 36 | 10520.02 | 0.01 | 10715 | 4 | -11018 | 5 | 5770.1 | 1.0 | 401.8 | 1.0 | -403.9 | 1.0 |
| | Rb | 37 | 8760 | 3 | 7057.3 | 2.2 | -18540 | 13 | 11543.6 | 2.2 | 2801.3 | 2.4 | 3864.5 | 2.4 |
| | Sr | 38 | 11923 | 7 | 8867.9 | 2.6 | -26480# | 300# | 6249 | 3 | -329 | 5 | 2693.0 | 1.6 |
| | Y | 39 | 9760 | 19 | 4386 | 8 | -36190# | 400# | 12826 | 7 | 2498 | 5 | 7209 | 7 |
| | Zr | 40 | 13581 | 8 | 6505 | 19 | * | | 7353 | 8 | -845 | 8 | 5753 | 6 |
| | Nb | 41 | 11730 | 150 | 2596 | 15 | * | | 13123 | 17 | 1110 | 90 | 10141 | 14 |
| | Mo | 42 | 15900# | 500# | 3900# | 330# | * | | 8630# | 420# | -2950# | 500# | 8940# | 310# |
| | Tc | 43 | 14450# | 640# | -1350# | 570# | * | | 13380# | 570# | -1090# | 640# | 14310# | 570# |
| 85 | Zn | 30 | 1370# | 640# | * | | 47180# | 500# | * | | 4950# | 780# | * | |
| | Ga | 31 | 3830# | 360# | 15210# | 500# | 38730# | 300# | 7150# | 420# | 7330# | 300# | -8880# | 670# |
| | Ge | 32 | 3046 | 5 | 16330# | 200# | 28357 | 4 | 6845 | 5 | 4671 | 4 | -5163 | 5 |
| | As | 33 | 5407 | 4 | 12330 | 4 | 18978 | 3 | 8498 | 4 | 7090 | 4 | -4612 | 4 |
| | Se | 34 | 4537 | 3 | 13849 | 4 | 8690 | 4 | 7966 | 4 | 2556 | 5 | -1352 | 3 |
| | Br | 35 | 8864 | 26 | 9917 | 4 | -733 | 19 | 7476 | 4 | 3882 | 3 | -2824 | 5 |
| | Kr | 36 | 7112.3 | 2.0 | 10986 | 26 | -8305 | 7 | 8244 | 4 | 882.4 | 2.2 | 1760.0 | 2.1 |
| | Rb | 37 | 10479.7 | 2.2 | 7016.97 | a | -15888 | 4 | 8534.11 | 0.01 | 3288.51 | 0.01 | 977.7 | 1.0 |
| | Sr | 38 | 8525 | 3 | 8633 | 4 | -23594 | 16 | 8678 | 4 | -51 | 4 | 5134.9 | 2.8 |
| | Y | 39 | 12019 | 19 | 4482 | 19 | -31990# | 400# | 9666 | 20 | 3032 | 20 | 3992 | 19 |
| | Zr | 40 | 9825 | 8 | 6570 | 8 | -42230# | 500# | 9741 | 20 | -247 | 8 | 8481 | 9 |
| | Nb | 41 | 13132 | 14 | 2147 | 7 | * | | 10343 | 8 | 2216 | 12 | 7431 | 7 |
| | Mo | 42 | 11410# | 300# | 3580 | 21 | * | | 10760 | 150 | -560# | 300# | 11768 | 19 |
| | Tc | 43 | 16220# | 570# | -1030# | 500# | * | | 11200# | 570# | -620# | 570# | 11890# | 500# |
| | Ru | 44 | * | | 540# | 640# | * | | 11080# | 710# | * | | 15070# | 640# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | $Q(\alpha)$ | | $Q(2\beta^-)$ | | $Q(\epsilon p)$ | | $Q(\beta^- n)$ | |
|----|------|----|----------|------|---------|------|-------------|------|---------------|------|-----------------|------|----------------|------|
| 82 | Cu | 29 | 5260# | 720# | * | | * | | 27610# | 600# | * | | 12810# | 600# |
| | Zn | 30 | 6808 | 4 | 34260# | 700# | -10850# | 600# | 23101 | 4 | * | | 7243 | 4 |
| | Ga | 31 | 9850 | 4 | 31310# | 400# | -10860 | 500 | 17175 | 4 | -28800# | 500# | 5290 | 3 |
| | Ge | 32 | 12022 | 3 | 28344 | 3 | -10356.7 | 3.0 | 12178.8 | 2.3 | -26504 | 6 | -953 | 3 |
| | As | 33 | 14034 | 5 | 25460 | 5 | -8824 | 4 | 7393 | 4 | -19766 | 5 | -1788 | 4 |
| | Se | 34 | 15977.1 | 0.9 | 22636.5 | 2.1 | -8157 | 4 | 2997.9 | 0.5 | -18591.2 | 2.1 | -7688.2 | 1.1 |
| | Br | 35 | 17752.3 | 1.4 | 19862 | 3 | -7107 | 10 | -1311 | 3 | -12254.3 | 2.8 | -7873.8 | 0.5 |
| | Kr | 36 | 18841.1 | 0.7 | 17410.3 | 1.0 | -5990.76 | 0.18 | -4582 | 6 | -11491.8 | 1.0 | -13206 | 5 |
| | Rb | 37 | 20155 | 4 | 14877 | 3 | -5161 | 5 | -8124 | 6 | -5500 | 3 | -12731 | 4 |
| | Sr | 38 | 21841 | 7 | 12695 | 6 | -4257 | 6 | -12379 | 13 | -5603 | 6 | -18368 | 8 |
| | Y | 39 | 23059 | 8 | 10467 | 6 | -3554 | 6 | -15970# | 300# | 104 | 7 | -18680 | 90 |
| | Zr | 40 | 25410# | 300# | 7898 | 12 | -2882 | 13 | -23260# | 400# | 608 | 12 | -25340# | 400# |
| | Nb | 41 | 29810# | 500# | 5520# | 300# | -2340# | 420# | * | | 6330# | 300# | -28410# | 580# |
| | Mo | 42 | * | | 590# | 500# | -1950# | 570# | * | | 9800# | 410# | * | |
| 83 | Zn | 30 | 6230# | 300# | * | | -11150# | 670# | 24690# | 300# | * | | 8570# | 300# |
| | Ga | 31 | 7772 | 4 | 32420# | 500# | -9940# | 300# | 20412 | 4 | -31230# | 600# | 8087 | 3 |
| | Ge | 32 | 10827 | 3 | 29355 | 6 | -9969 | 3 | 14364 | 4 | -25951 | 4 | 1058 | 4 |
| | As | 33 | 13279 | 4 | 26619 | 4 | -9547 | 3 | 9344 | 5 | -24028 | 4 | -146.8 | 2.8 |
| | Se | 34 | 15094 | 3 | 23627 | 4 | -8240 | 40 | 4650 | 3 | -17214 | 4 | -5913 | 3 |
| | Br | 35 | 17179 | 4 | 21058 | 5 | -7803 | 7 | 57 | 4 | -16197 | 5 | -6493 | 4 |
| | Kr | 36 | 18437.1 | 1.1 | 18179.6 | 1.0 | -6498.09 | 0.22 | -3193 | 7 | -9685.7 | 0.5 | -11874 | 3 |
| | Rb | 37 | 19757 | 5 | 15671.5 | 2.5 | -5427.5 | 2.5 | -6865 | 19 | -8860.9 | 2.5 | -11132 | 6 |
| | Sr | 38 | 21412 | 8 | 13679 | 7 | -4780 | 8 | -10886 | 9 | -3495 | 7 | -16805 | 9 |
| | Y | 39 | 22635 | 19 | 11327 | 19 | -3828 | 19 | -14650 | 150 | -3307 | 19 | -16646 | 22 |
| | Zr | 40 | 24590 | 90 | 8961 | 7 | -2860 | 11 | -19570# | 400# | 2809 | 9 | -21890# | 300# |
| | Nb | 41 | 27340# | 430# | 6420 | 150 | -2160 | 170 | -26240# | 520# | 3220 | 150 | -25260# | 430# |
| | Mo | 42 | 30730# | 640# | 3460# | 410# | -2000# | 500# | * | | 10000# | 400# | * | |
| | Tc | 43 | * | | -460# | 640# | -2090# | 710# | * | | 13480# | 580# | * | |
| 84 | Zn | 30 | 5760# | 400# | * | | -11730# | 810# | 26220# | 400# | * | | 9260# | 400# |
| | Ga | 31 | 7300# | 200# | 33350# | 630# | -10310# | 450# | 21770# | 200# | * | | 8820# | 200# |
| | Ge | 32 | 8876 | 4 | 30412 | 4 | -8925 | 4 | 17799 | 4 | -29150# | 300# | 3450 | 4 |
| | As | 33 | 11891 | 5 | 27501 | 4 | -9055 | 4 | 11930 | 26 | -23885 | 4 | 1416 | 4 |
| | Se | 34 | 14496.5 | 2.0 | 25110.6 | 3.0 | -8837.3 | 2.8 | 6491.6 | 2.0 | -22260 | 3 | -5005 | 4 |
| | Br | 35 | 16427 | 26 | 22256 | 26 | -7994 | 26 | 1976 | 26 | -15403 | 26 | -5864 | 26 |
| | Kr | 36 | 17990.18 | a | 19423.4 | 0.5 | -7104.8 | 1.0 | -1789.8 | 1.2 | -14388 | 3 | -11440.0 | 2.3 |
| | Rb | 37 | 19714 | 4 | 16838.2 | 2.4 | -6294.9 | 2.4 | -5865 | 5 | -8034 | 4 | -11033 | 7 |
| | Sr | 38 | 20782 | 6 | 14635.7 | 1.2 | -5181.1 | 1.4 | -9228 | 6 | -7947.9 | 1.2 | -16515 | 19 |
| | Y | 39 | 21973 | 7 | 12285 | 5 | -4144 | 5 | -12676 | 14 | -2113 | 5 | -16054 | 8 |
| | Zr | 40 | 23933 | 12 | 9990 | 8 | -3535 | 6 | -17250# | 300# | -1913 | 9 | -21940 | 150 |
| | Nb | 41 | 25270# | 300# | 7733 | 14 | -2495 | 14 | -23520# | 400# | 3698 | 23 | -22950# | 400# |
| | Mo | 42 | 29940# | 500# | 5120# | 300# | -2240# | 420# | * | | 4450# | 300# | -30920# | 580# |
| | Tc | 43 | * | | 190# | 500# | -1710# | 570# | * | | 12570# | 430# | * | |
| 85 | Zn | 30 | 5080# | 580# | * | | * | | 27890# | 500# | * | | 10790# | 540# |
| | Ga | 31 | 6740# | 300# | * | | -10850# | 580# | 23340# | 300# | * | | 10230# | 300# |
| | Ge | 32 | 8290 | 4 | 31410# | 300# | -9349 | 6 | 19290 | 5 | -28480# | 400# | 4659 | 5 |
| | As | 33 | 9662 | 4 | 28510 | 4 | -7986 | 4 | 15386 | 4 | -26390# | 200# | 4687 | 4 |
| | Se | 34 | 13216 | 4 | 26015 | 4 | -8547 | 3 | 9067 | 3 | -21554 | 4 | -2702 | 26 |
| | Br | 35 | 15704 | 5 | 23484 | 4 | -8467 | 4 | 3592 | 3 | -20011 | 4 | -4207 | 3 |
| | Kr | 36 | 17632.3 | 2.0 | 20718 | 4 | -7516.3 | 2.2 | -377 | 3 | -12821.6 | 2.8 | -9792.7 | 3.0 |
| | Rb | 37 | 19239.3 | 2.3 | 17732 | 4 | -6615.2 | 1.0 | -4325 | 19 | -11673 | 26 | -9589.1 | 1.2 |
| | Sr | 38 | 20448 | 7 | 15690.6 | 2.8 | -5832 | 3 | -7928 | 7 | -5952.9 | 2.8 | -15280 | 5 |
| | Y | 39 | 21779 | 27 | 13349 | 19 | -4810 | 20 | -11562 | 19 | -5372 | 19 | -14492 | 20 |
| | Zr | 40 | 23406 | 9 | 10956 | 9 | -4072 | 7 | -15665 | 17 | 185 | 7 | -20028 | 15 |
| | Nb | 41 | 24870 | 150 | 8652 | 19 | -2992 | 7 | -20430# | 400# | 326 | 6 | -20180# | 300# |
| | Mo | 42 | 27310# | 400# | 6176 | 17 | -2470 | 100 | -26560# | 500# | 6623 | 17 | -27880# | 400# |
| | Tc | 43 | 30670# | 640# | 2870# | 430# | -1910# | 570# | * | | 8080# | 400# | * | |
| | Ru | 44 | * | | -810# | 640# | -1630# | 710# | * | | 15930# | 580# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|----|------|----|----------|------|----------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 86 | Ga | 31 | 2300# | 500# | 16140# | 640# | 41550# | 400# | 8560# | 570# | 7070# | 500# | * | |
| | Ge | 32 | 4350 | 440 | 16840# | 530# | 33870 | 440 | 5400# | 480# | 4720 | 440 | -7460# | 530# |
| | As | 33 | 3844 | 5 | 13128 | 5 | 23785 | 3 | 9897 | 5 | 6878 | 4 | -4059 | 4 |
| | Se | 34 | 6161 | 4 | 14603 | 4 | 14019.9 | 2.5 | 6061 | 4 | 4030 | 4 | -3880 | 3 |
| | Br | 35 | 5128 | 4 | 10508 | 4 | 3651 | 14 | 11026 | 4 | 4572 | 4 | -317 | 4 |
| | Kr | 36 | 9856.7 | 2.0 | 11979 | 3 | -5297 | 4 | 5228 | 26 | 612 | 4 | -2279 | 3 |
| | Rb | 37 | 8650.98 | 0.20 | 8555.6 | 2.0 | -13613 | 6 | 10403.15 | 0.20 | 2107.70 | 0.20 | 1913 | 4 |
| | Sr | 38 | 11491.1 | 2.8 | 9644.73 | 0.01 | -20413 | 4 | 5946.7 | 2.2 | -588.4 | 2.3 | 1113.95 | 0.01 |
| | Y | 39 | 9512 | 24 | 5469 | 14 | -27710# | 300# | 12077 | 14 | 2379 | 16 | 5434 | 14 |
| | Zr | 40 | 12865 | 7 | 7416 | 19 | -38200# | 400# | 6636 | 6 | -899 | 19 | 4475 | 8 |
| | Nb | 41 | 10926 | 7 | 3248 | 8 | * | | 12998 | 8 | 1642 | 8 | 8718 | 19 |
| | Mo | 42 | 14672 | 16 | 5120 | 6 | * | | 7819 | 14 | -1690 | 150 | 7448 | 7 |
| | Tc | 43 | 13790# | 500# | 1350# | 300# | * | | 13310# | 420# | -370# | 500# | 11630# | 340# |
| | Ru | 44 | 16890# | 640# | 1210# | 570# | * | | 8640# | 570# | -3590# | 640# | 12220# | 570# |
| 87 | Ga | 31 | 3240# | 640# | * | | 44640# | 500# | 6690# | 710# | 7540# | 640# | * | |
| | Ge | 32 | 2750# | 530# | 17290# | 500# | 36630# | 300# | 6480# | 420# | 4870# | 360# | -6500# | 500# |
| | As | 33 | 4727 | 5 | 13510 | 440 | 28979.9 | 3.0 | 8216 | 5 | 7395 | 4 | -5880# | 200# |
| | Se | 34 | 3994 | 3 | 14753 | 4 | 18453.9 | 2.2 | 7474 | 4 | 4291 | 4 | -2631 | 4 |
| | Br | 35 | 6331 | 4 | 10677 | 4 | 9127 | 3 | 9233 | 4 | 6920 | 4 | -2392 | 4 |
| | Kr | 36 | 5515.17 | 0.25 | 12366 | 3 | -1362 | 4 | 8577 | 3 | 1938 | 26 | 884.6 | 2.0 |
| | Rb | 37 | 9922.11 | 0.20 | 8621.10 | 0.01 | -10723 | 7 | 7593.3 | 2.0 | 2705.60 | 0.01 | -1168 | 26 |
| | Sr | 38 | 8428.29 | 0.01 | 9422.04 | 0.20 | -17995.3 | 2.9 | 7998.07 | 0.01 | -257.0 | 2.2 | 3205.67 | a |
| | Y | 39 | 11807 | 14 | 5784.3 | 1.1 | -25328 | 4 | 8796 | 3 | 2495.2 | 1.7 | 2387.0 | 2.5 |
| | Zr | 40 | 9449 | 5 | 7353 | 15 | -33830# | 400# | 9206 | 19 | -589 | 6 | 6949 | 4 |
| | Nb | 41 | 12812 | 9 | 3194 | 8 | * | | 10012 | 9 | 2411 | 9 | 5666 | 8 |
| | Mo | 42 | 10846 | 5 | 5040 | 6 | * | | 10106 | 5 | -802 | 13 | 10183 | 6 |
| | Tc | 43 | 14190# | 300# | 869 | 6 | * | | 10531 | 16 | 1340# | 300# | 9175 | 14 |
| | Ru | 44 | 13820# | 570# | 1240# | 500# | * | | 11040# | 570# | -2960# | 570# | 14300# | 500# |
| 88 | Ge | 32 | 4130# | 500# | 18180# | 640# | 39550# | 400# | 4650# | 570# | 4580# | 500# | -9260# | 640# |
| | As | 33 | 3170# | 200# | 13930# | 360# | 31890# | 200# | 9390# | 480# | 7270# | 200# | -5220# | 360# |
| | Se | 34 | 5529 | 4 | 15555 | 4 | 24037 | 3 | 5789 | 5 | 4169 | 5 | -5114 | 5 |
| | Br | 35 | 4896 | 4 | 11579 | 4 | 13583 | 4 | 10498 | 4 | 6562 | 4 | -1880 | 4 |
| | Kr | 36 | 7053.1 | 2.6 | 13089 | 4 | 3938 | 6 | 6652 | 4 | 3748 | 4 | -1631 | 4 |
| | Rb | 37 | 6082.52 | 0.16 | 9188.44 | 0.29 | -6440 | 60 | 11367.48 | 0.16 | 3735.4 | 2.0 | 1613 | 3 |
| | Sr | 38 | 11112.87 | 0.01 | 10612.80 | 0.01 | -15235 | 4 | 5536.18 | 0.20 | -890.23 | 0.01 | -794.9 | 2.0 |
| | Y | 39 | 9352.0 | 1.9 | 6707.9 | 1.5 | -22620 | 150 | 10934.9 | 1.5 | 1668 | 3 | 3514.7 | 1.5 |
| | Zr | 40 | 12353 | 7 | 7899 | 6 | -29290# | 300# | 6365 | 15 | -923 | 20 | 3121 | 6 |
| | Nb | 41 | 10370 | 60 | 4120 | 60 | -39310# | 400# | 12510 | 60 | 1870 | 60 | 7310 | 60 |
| | Mo | 42 | 13873 | 5 | 6101 | 8 | * | | 7158 | 7 | -1543 | 6 | 6135 | 7 |
| | Tc | 43 | 12060 | 150 | 2090 | 150 | * | | 13140 | 150 | 690 | 150 | 10240 | 150 |
| | Ru | 44 | 16890# | 500# | 3940# | 300# | * | | 7940# | 420# | -3630# | 500# | 8820# | 300# |
| | Rh | 45 | * | | -1370# | 570# | * | | 13620# | 570# | -1050# | 640# | 14640# | 570# |
| 89 | Ge | 32 | 1660# | 570# | * | | 42810# | 400# | 6230# | 640# | 5210# | 570# | * | |
| | As | 33 | 4150# | 360# | 13950# | 500# | 34910# | 300# | 7990# | 420# | 7470# | 530# | -7070# | 500# |
| | Se | 34 | 3180 | 5 | 15560# | 200# | 27217 | 4 | 7336 | 5 | 4834 | 5 | -3950 | 440 |
| | Br | 35 | 5630 | 5 | 11679 | 5 | 19434 | 4 | 8863 | 4 | 7093 | 4 | -3666 | 5 |
| | Kr | 36 | 4916 | 3 | 13109 | 4 | 8340 | 4 | 8067 | 4 | 3961 | 4 | -386 | 3 |
| | Rb | 37 | 7175 | 5 | 9310 | 6 | -1087 | 24 | 9708 | 5 | 6417 | 5 | -434 | 6 |
| | Sr | 38 | 6358.72 | 0.09 | 10888.99 | 0.18 | -11194 | 4 | 9099.58 | 0.09 | 1402.03 | 0.22 | 2703.05 | 0.09 |
| | Y | 39 | 11480.7 | 2.2 | 7075.7 | 1.6 | -20314 | 4 | 7882.5 | 1.6 | 1678.8 | 1.6 | 685.0 | 1.6 |
| | Zr | 40 | 9318 | 6 | 7866 | 3 | -26620# | 300# | 8854 | 3 | -728 | 14 | 5294 | 3 |
| | Nb | 41 | 12520 | 60 | 4285 | 24 | -34770# | 360# | 9433 | 24 | 2208 | 24 | 4304 | 28 |
| | Mo | 42 | 10400 | 5 | 6130 | 60 | * | | 9570 | 8 | -1017 | 7 | 8600 | 5 |
| | Tc | 43 | 13780 | 150 | 1997 | 5 | * | | 10201 | 5 | 1579 | 5 | 7386 | 7 |
| | Ru | 44 | 11990# | 420# | 3870# | 330# | * | | 10140# | 300# | -1830# | 420# | 11500# | 300# |
| | Rh | 45 | 17070# | 540# | -1190# | 200# | * | | 10370# | 540# | -1230# | 540# | 11360# | 470# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q($2\beta^-$) | | Q(ϵp) | | Q($\beta^- n$) | |
|----|------|----|----------|----------|----------|----------|---------------|----------|-----------------|----------|-------------------|----------|------------------|----------|
| 86 | Ga | 31 | 6140# | 450# | * | | -11190# | 720# | 24880# | 400# | * | | 10970# | 400# |
| | Ge | 32 | 7390 | 440 | 32050# | 590# | -9510 | 440 | 21100 | 440 | -31460# | 670# | 5720 | 440 |
| | As | 33 | 9251 | 5 | 29450# | 200# | -8456 | 4 | 16670 | 5 | -26400# | 300# | 5380 | 4 |
| | Se | 34 | 10698 | 3 | 26933 | 4 | -7513 | 3 | 12762.5 | 2.5 | -24669 | 4 | 1 | 4 |
| | Br | 35 | 13992 | 26 | 24357 | 4 | -7952 | 5 | 7115 | 3 | -19732 | 4 | -2223 | 4 |
| | Kr | 36 | 16968.96 | <i>a</i> | 21895.9 | 2.0 | -8096.7 | 0.5 | 1257.42 | <i>a</i> | -18141.0 | 2.6 | -9169.65 | <i>a</i> |
| | Rb | 37 | 19130.7 | 2.2 | 19542 | 26 | -7673.2 | 1.0 | -3464 | 14 | -11460 | 3 | -9715.0 | 2.8 |
| | Sr | 38 | 20016.2 | 1.2 | 16661.70 | <i>a</i> | -6356.22 | 0.01 | -6554 | 4 | -10331.7 | 2.0 | -14752 | 19 |
| | Y | 39 | 21531 | 15 | 14102 | 14 | -5520 | 14 | -10149 | 15 | -4405 | 14 | -14179 | 16 |
| | Zr | 40 | 22690 | 7 | 11897 | 4 | -4384 | 7 | -13859 | 5 | -4155 | 5 | -19761 | 5 |
| | Nb | 41 | 24058 | 14 | 9818 | 7 | -3495 | 8 | -17560# | 300# | 1419 | 20 | -19696 | 17 |
| | Mo | 42 | 26080# | 300# | 7267 | 7 | -2904 | 12 | -24340# | 400# | 1776 | 7 | -26330# | 400# |
| | Tc | 43 | 30010# | 500# | 4930# | 300# | -1910# | 420# | * | | 7420# | 300# | -28690# | 580# |
| | Ru | 44 | * | | 180# | 500# | -1830# | 570# | * | | 10450# | 400# | * | |
| 87 | Ga | 31 | 5540# | 580# | * | | * | | 26370# | 500# | * | | 12080# | 670# |
| | Ge | 32 | 7100# | 300# | 33430# | 580# | -10210# | 420# | 22350# | 300# | * | | 6810# | 300# |
| | As | 33 | 8571 | 4 | 30350# | 300# | -8786 | 4 | 18274 | 4 | -28830# | 400# | 6814 | 4 |
| | Se | 34 | 10155 | 3 | 27881 | 4 | -7875 | 3 | 14283.4 | 2.3 | -24320 | 440 | 1135 | 4 |
| | Br | 35 | 11459 | 4 | 25280 | 4 | -6647 | 4 | 10706 | 3 | -22219 | 5 | 1303 | 3 |
| | Kr | 36 | 15371.8 | 2.0 | 22873.8 | 2.6 | -7794 | 3 | 4170.54 | 0.25 | -17495.3 | 2.5 | -6033.8 | 0.3 |
| | Rb | 37 | 18573.09 | 0.01 | 20600 | 3 | -8009 | 4 | -1579.4 | 1.1 | -16255 | 3 | -8146.02 | 0.01 |
| | Sr | 38 | 19919.4 | 2.8 | 17977.7 | 2.0 | -7314.35 | 0.01 | -5533 | 4 | -8903.37 | <i>a</i> | -13668 | 14 |
| | Y | 39 | 21319 | 19 | 15429.0 | 1.1 | -6372.7 | 2.6 | -9144 | 7 | -7560.4 | 1.1 | -13121 | 4 |
| | Zr | 40 | 22315 | 8 | 12822 | 5 | -4974 | 8 | -12462 | 5 | -2113 | 4 | -18284 | 7 |
| | Nb | 41 | 23737 | 8 | 10610 | 20 | -4094 | 20 | -16184 | 8 | -1880 | 16 | -17836 | 8 |
| | Mo | 42 | 25518 | 16 | 8288 | 7 | -3398 | 7 | -21370# | 400# | 3795 | 5 | -23390# | 300# |
| | Tc | 43 | 27980# | 400# | 5988 | 6 | -2560 | 150 | * | | 4155 | 7 | -25990# | 400# |
| | Ru | 44 | 30710# | 640# | 2590# | 400# | -1610# | 570# | * | | 11300# | 400# | * | |
| 88 | Ge | 32 | 6880# | 590# | * | | -10630# | 570# | 23750# | 400# | * | | 7410# | 400# |
| | As | 33 | 7900# | 200# | 31220# | 450# | -9060# | 280# | 20000# | 200# | -28760# | 540# | 7640# | 200# |
| | Se | 34 | 9524 | 4 | 29060 | 440 | -8161 | 5 | 15807 | 4 | -27100# | 300# | 1936 | 5 |
| | Br | 35 | 11226 | 4 | 26332 | 5 | -7287 | 4 | 11893 | 3 | -22387 | 4 | 1922 | 3 |
| | Kr | 36 | 12568.3 | 2.6 | 23766 | 4 | -6168 | 3 | 8230.3 | 2.6 | -20554 | 3 | -3164.8 | 2.6 |
| | Rb | 37 | 16004.64 | 0.26 | 21555 | 3 | -7251 | 26 | 1690.0 | 1.5 | -16006 | 3 | -5800.25 | 0.16 |
| | Sr | 38 | 19541.16 | 0.01 | 19233.89 | <i>a</i> | -7907.20 | <i>a</i> | -4293 | 5 | -14501.07 | 0.25 | -12974.6 | 1.1 |
| | Y | 39 | 21159 | 14 | 16130.0 | 1.5 | -6965.0 | 2.7 | -8130 | 60 | -6990.2 | 1.5 | -13023 | 4 |
| | Zr | 40 | 21802 | 6 | 13684 | 5 | -5404 | 6 | -10942 | 7 | -6038 | 5 | -17826 | 9 |
| | Nb | 41 | 23180 | 60 | 11470 | 60 | -4700 | 60 | -14490 | 160 | -440 | 60 | -17360 | 60 |
| | Mo | 42 | 24719 | 5 | 9295 | 5 | -3690 | 7 | -18350# | 300# | -628 | 6 | -23068 | 6 |
| | Tc | 43 | 26250# | 340# | 7130 | 150 | -2890 | 150 | -24820# | 430# | 4900 | 150 | -24230# | 430# |
| | Ru | 44 | 30710# | 500# | 4810# | 300# | -2590# | 420# | * | | 5260# | 300# | * | |
| | Rh | 45 | * | | -130# | 500# | -1590# | 570# | * | | 13540# | 400# | * | |
| 89 | Ge | 32 | 5790# | 500# | * | | -10920# | 640# | 25260# | 400# | * | | 8920# | 450# |
| | As | 33 | 7320# | 300# | 32130# | 580# | -9370# | 420# | 21480# | 300# | * | | 9020# | 300# |
| | Se | 34 | 8709 | 4 | 29490# | 300# | -8294 | 5 | 17543 | 4 | -26140# | 400# | 3652 | 5 |
| | Br | 35 | 10525 | 5 | 27234 | 4 | -7510 | 4 | 13438 | 6 | -24840# | 200# | 3346 | 4 |
| | Kr | 36 | 11968.9 | 2.2 | 24688 | 3 | -6547 | 3 | 9673.2 | 2.1 | -19941 | 4 | -1998.1 | 2.1 |
| | Rb | 37 | 13257 | 5 | 22399 | 6 | -5562 | 6 | 5996 | 6 | -18285 | 6 | -1862 | 5 |
| | Sr | 38 | 17471.58 | 0.09 | 20077.44 | 0.26 | -7153.6 | 2.0 | -1333 | 3 | -13806.7 | 2.6 | -9981.3 | 1.5 |
| | Y | 39 | 20832.6 | 2.0 | 17688.5 | 1.6 | -7965.9 | 1.6 | -7083 | 24 | -12388.3 | 1.6 | -12151 | 6 |
| | Zr | 40 | 21671 | 5 | 14573 | 3 | -6197 | 4 | -9861 | 5 | -4243 | 3 | -16770 | 60 |
| | Nb | 41 | 22893 | 25 | 12185 | 24 | -5210 | 30 | -13230 | 24 | -3615 | 24 | -16010 | 24 |
| | Mo | 42 | 24273 | 5 | 10246 | 6 | -4265 | 8 | -16760# | 300# | 1325 | 7 | -21400 | 150 |
| | Tc | 43 | 25847 | 6 | 8098 | 8 | -3540 | 6 | -21530# | 360# | 1490 | 60 | -21130# | 300# |
| | Ru | 44 | 28880# | 500# | 5950# | 300# | -3180# | 300# | * | | 7140# | 300# | -29470# | 500# |
| | Rh | 45 | * | | 2750# | 360# | -2440# | 540# | * | | 8530# | 390# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|----|------|----|---------|------|--------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 90 | Ge | 32 | 3560# | 640# | * | | 45740# | 500# | * | | 4890# | 710# | * | |
| | As | 33 | 2600# | 500# | 14890# | 570# | 38030# | 400# | 9520# | 570# | 7610# | 500# | -6430# | 640# |
| | Se | 34 | 4880 | 330 | 16290# | 450# | 30150 | 330 | 5630# | 380# | 4680 | 330 | -6080# | 450# |
| | Br | 35 | 3797 | 5 | 12297 | 5 | 22494 | 4 | 10595 | 5 | 7290 | 4 | -2736 | 4 |
| | Kr | 36 | 6494.8 | 2.8 | 13974 | 4 | 13813.3 | 1.9 | 6468 | 4 | 3796 | 4 | -2886.7 | 2.9 |
| | Rb | 37 | 5723 | 8 | 10118 | 7 | 3297 | 7 | 11038 | 7 | 6209 | 6 | 174 | 7 |
| | Sr | 38 | 7810.4 | 2.1 | 11525 | 6 | -5776 | 4 | 7371.7 | 2.1 | 3513.7 | 2.1 | 407.8 | 2.1 |
| | Y | 39 | 6857.03 | 0.10 | 7574.0 | 1.6 | -15769.4 | 1.9 | 12138.4 | 1.6 | 3250.1 | 1.6 | 3750.1 | 1.6 |
| | Zr | 40 | 11968 | 3 | 8353.2 | 1.6 | -23889 | 4 | 6237.3 | 1.5 | -890.1 | 1.1 | 1753.93 | 0.12 |
| | Nb | 41 | 10108 | 24 | 5075 | 5 | -30960# | 300# | 11678 | 6 | 1550 | 5 | 6003 | 4 |
| | Mo | 42 | 13229 | 5 | 6836 | 24 | -40460# | 400# | 6710 | 60 | -1434 | 8 | 4821 | 5 |
| | Tc | 43 | 11401 | 4 | 2999 | 4 | * | | 12673 | 4 | 1024 | 3 | 8796 | 7 |
| | Ru | 44 | 14700# | 300# | 4778 | 5 | * | | 7510 | 150 | -2330 | 6 | 7647 | 5 |
| | Rh | 45 | 13910# | 470# | 730# | 420# | * | | 13350# | 420# | -1320# | 500# | 11640# | 300# |
| | Pd | 46 | * | | 1140# | 540# | * | | 7860# | 570# | * | | 11460# | 570# |
| 91 | As | 33 | 3640# | 570# | 14960# | 640# | 40850# | 400# | 7540# | 570# | 8110# | 570# | * | |
| | Se | 34 | 2850 | 540 | 16540# | 590# | 33070 | 430 | 6930# | 530# | 5000# | 480# | -4800# | 590# |
| | Br | 35 | 5178 | 5 | 12600 | 330 | 25244 | 4 | 8596 | 5 | 7641 | 5 | -4740# | 200# |
| | Kr | 36 | 4086.0 | 2.9 | 14263 | 4 | 16921.6 | 2.2 | 8011 | 4 | 4606 | 4 | -1443 | 4 |
| | Rb | 37 | 6452 | 10 | 10075 | 8 | 8893 | 8 | 9502 | 8 | 6810 | 8 | -1383 | 8 |
| | Sr | 38 | 5775 | 6 | 11576 | 8 | -1443 | 8 | 8771 | 8 | 3821 | 5 | 1686 | 6 |
| | Y | 39 | 7928.6 | 2.4 | 7692.1 | 2.8 | -10364.6 | 3.0 | 10568.5 | 1.8 | 6434.4 | 1.8 | 1904.1 | 1.9 |
| | Zr | 40 | 7194.35 | 0.15 | 8690.5 | 1.6 | -19655.7 | 2.2 | 10523.6 | 1.6 | 1267.5 | 1.5 | 5672.45 | 0.10 |
| | Nb | 41 | 12048 | 4 | 5154.4 | 2.9 | -28070# | 300# | 8948 | 4 | 1855 | 6 | 3307 | 3 |
| | Mo | 42 | 10108 | 7 | 6836 | 7 | -36280# | 400# | 9127 | 24 | -1170 | 60 | 7066 | 8 |
| | Tc | 43 | 13333.3 | 2.6 | 3103 | 4 | * | | 9739 | 5 | 1564 | 4 | 5830 | 60 |
| | Ru | 44 | 11427 | 4 | 4804.1 | 2.4 | * | | 9866 | 4 | -1690 | 150 | 10093 | 4 |
| | Rh | 45 | 14940# | 420# | 980# | 300# | * | | 10400# | 420# | 630# | 420# | 8760# | 330# |
| | Pd | 46 | 14290# | 570# | 1520# | 500# | * | | 10640# | 540# | -4210# | 570# | 14060# | 500# |
| 92 | As | 33 | 2160# | 640# | * | | 43790# | 500# | 8950# | 710# | 7610# | 640# | * | |
| | Se | 34 | 4220# | 590# | 17120# | 570# | 36140# | 400# | 5320# | 570# | 4940# | 500# | -7350# | 570# |
| | Br | 35 | 3197 | 8 | 12940 | 430 | 28584 | 11 | 10280 | 330 | 7624 | 8 | -3790# | 300# |
| | Kr | 36 | 5867 | 4 | 14951 | 4 | 19689.7 | 2.7 | 5942 | 4 | 4369 | 4 | -4131 | 5 |
| | Rb | 37 | 5099 | 10 | 11087 | 7 | 11681 | 6 | 10898 | 6 | 6627 | 6 | -852 | 7 |
| | Sr | 38 | 7287 | 6 | 12411 | 9 | 3941 | 3 | 7208 | 7 | 3709 | 6 | -685 | 4 |
| | Y | 39 | 6537 | 9 | 8454 | 11 | -5891 | 10 | 11842 | 9 | 6257 | 9 | 2542 | 11 |
| | Zr | 40 | 8634.78 | 0.09 | 9396.7 | 1.8 | -14157.8 | 2.7 | 8745.8 | 1.6 | 4113.4 | 1.6 | 3396.39 | 0.14 |
| | Nb | 41 | 7887 | 3 | 5846.7 | 1.8 | -23454 | 5 | 13030.0 | 1.8 | 3286 | 4 | 6901.5 | 2.4 |
| | Mo | 42 | 12671 | 6 | 7459.5 | 2.9 | -32230# | 300# | 6564 | 3 | -1319 | 24 | 3713 | 3 |
| | Tc | 43 | 11010 | 4 | 4006 | 7 | -41800# | 500# | 11958 | 5 | 953 | 5 | 7346 | 24 |
| | Ru | 44 | 14133 | 4 | 5604 | 4 | * | | 7134.3 | 2.9 | -2042 | 5 | 6360 | 5 |
| | Rh | 45 | 12500# | 300# | 2048 | 5 | * | | 12596 | 6 | 130# | 300# | 10042 | 6 |
| | Pd | 46 | 16720# | 500# | 3300# | 420# | * | | 7830# | 420# | -3860# | 470# | 9330# | 420# |
| | Ag | 47 | * | | -1510# | 640# | * | | 13290# | 640# | * | | 14380# | 620# |
| 93 | Se | 34 | 2060# | 570# | 17020# | 640# | 39370# | 400# | 6890# | 570# | 5480# | 570# | -5850# | 640# |
| | Br | 35 | 4730 | 430 | 13460# | 590# | 31340 | 430 | 8400 | 610 | 7770 | 540 | -5910# | 590# |
| | Kr | 36 | 3438 | 4 | 15192 | 7 | 22986.0 | 2.6 | 7682 | 4 | 4728 | 4 | -2690 | 330 |
| | Rb | 37 | 5919 | 10 | 11140 | 8 | 14593 | 8 | 9065 | 8 | 7203 | 8 | -2973 | 9 |
| | Sr | 38 | 5290 | 8 | 12602 | 10 | 6721 | 8 | 8370 | 11 | 4143 | 10 | 520 | 8 |
| | Y | 39 | 7482 | 14 | 8649 | 11 | -621 | 11 | 10136 | 12 | 6585 | 11 | 784 | 12 |
| | Zr | 40 | 6734.3 | 0.4 | 9595 | 9 | -9905.3 | 2.1 | 9940.1 | 1.9 | 4236.1 | 1.7 | 4472.5 | 2.2 |
| | Nb | 41 | 8830.9 | 2.0 | 6042.8 | 1.5 | -18201 | 3 | 11393.5 | 1.5 | 6423.8 | 1.5 | 4927.6 | 2.2 |
| | Mo | 42 | 8069.81 | 0.09 | 7642.7 | 1.8 | -27810# | 300# | 10541.7 | 2.9 | 719 | 3 | 7611.87 | 0.22 |
| | Tc | 43 | 12752 | 3 | 4086.5 | 1.0 | -37340# | 400# | 9314 | 6 | 1430 | 4 | 4702 | 3 |
| | Ru | 44 | 10987 | 3 | 5580 | 4 | * | | 9481 | 3 | -1628.0 | 2.3 | 8602 | 4 |
| | Rh | 45 | 14084 | 5 | 2000 | 4 | * | | 9939 | 3 | 736 | 5 | 7359.3 | 2.8 |
| | Pd | 46 | 12490# | 430# | 3290# | 300# | * | | 10280# | 420# | -2440# | 430# | 11530# | 300# |
| | Ag | 47 | 17210# | 640# | -1020# | 500# | * | | 10370# | 570# | -1690# | 570# | 11080# | 500# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q($2\beta^-$) | | Q(ϵp) | | Q($\beta^- n$) | |
|----|------|----|----------|------|----------|------|---------------|------|-----------------|------|-------------------|------|------------------|------|
| 90 | Ge | 32 | 5230# | 640# | * | | * | | 26580# | 600# | * | | 9510# | 580# |
| | As | 33 | 6750# | 450# | * | | -9680# | 570# | 22670# | 400# | * | | 9590# | 400# |
| | Se | 34 | 8060 | 330 | 30240# | 520# | -8830 | 550 | 19160 | 330 | -29360# | 520# | 4400 | 330 |
| | Br | 35 | 9427 | 5 | 27860# | 200# | -7463 | 5 | 15364 | 7 | -24490# | 300# | 4464 | 4 |
| | Kr | 36 | 11411 | 3 | 25653 | 4 | -6881 | 3 | 10988.9 | 2.8 | -23256 | 4 | -1318 | 6 |
| | Rb | 37 | 12898 | 6 | 23226 | 7 | -6157 | 7 | 7130 | 7 | -18379 | 7 | -1227 | 6 |
| | Sr | 38 | 14169.1 | 2.1 | 20835 | 3 | -5107.4 | 2.1 | 2824.4 | 2.1 | -16701 | 3 | -6311.1 | 1.4 |
| | Y | 39 | 18337.7 | 2.2 | 18463.0 | 1.6 | -6172.0 | 1.6 | -3833 | 4 | -12071 | 6 | -9689.8 | 2.8 |
| | Zr | 40 | 21286 | 5 | 15428.86 | 0.12 | -6674.36 | 0.12 | -8600 | 3 | -9852.49 | 0.15 | -16219 | 24 |
| | Nb | 41 | 22630 | 60 | 12940 | 4 | -5803 | 15 | -11937 | 3 | -2242 | 4 | -15718 | 5 |
| | Mo | 42 | 23629 | 5 | 11122 | 6 | -4628 | 5 | -15289 | 5 | -2586 | 5 | -20849 | 5 |
| | Tc | 43 | 25190 | 150 | 9130 | 60 | -4016 | 6 | -19030# | 300# | 2612 | 24 | -20540# | 300# |
| | Ru | 44 | 26690# | 300# | 6775 | 5 | -3198 | 5 | -25170# | 400# | 2842 | 5 | -27090# | 360# |
| | Rh | 45 | 30980# | 500# | 4600# | 340# | -2550# | 420# | * | | 8410# | 300# | * | |
| | Pd | 46 | * | | -50# | 500# | -2360# | 570# | * | | 11260# | 500# | * | |
| 91 | As | 33 | 6240# | 500# | * | | -10070# | 640# | 24210# | 400# | * | | 10830# | 520# |
| | Se | 34 | 7730 | 430 | 31430# | 590# | -8930# | 530# | 20390 | 430 | -28650# | 660# | 5350 | 430 |
| | Br | 35 | 8976 | 5 | 28890# | 300# | -7914 | 5 | 16638 | 9 | -27070# | 400# | 5781 | 4 |
| | Kr | 36 | 10581 | 3 | 26560 | 4 | -6973 | 3 | 12678 | 6 | -22460 | 330 | 319 | 7 |
| | Rb | 37 | 12175 | 9 | 24049 | 8 | -6278 | 8 | 8606 | 8 | -21034 | 8 | 132 | 8 |
| | Sr | 38 | 13586 | 5 | 21694 | 6 | -5367 | 5 | 4244 | 5 | -15982 | 6 | -5229 | 6 |
| | Y | 39 | 14785.6 | 2.4 | 19217 | 6 | -4178.4 | 1.8 | 287 | 3 | -14276 | 7 | -5650.1 | 1.8 |
| | Zr | 40 | 19163 | 3 | 16264.49 | 0.14 | -5440.42 | 0.10 | -5687 | 6 | -9236.4 | 2.1 | -13305 | 3 |
| | Nb | 41 | 22155 | 24 | 13508 | 3 | -6045 | 3 | -10651 | 4 | -7433 | 3 | -14537 | 5 |
| | Mo | 42 | 23337 | 7 | 11911 | 7 | -5287 | 7 | -13969 | 7 | -725 | 6 | -19555 | 6 |
| | Tc | 43 | 24734 | 4 | 9939 | 24 | -4537 | 7 | -17420# | 300# | -614 | 4 | -19174 | 4 |
| | Ru | 44 | 26120# | 300# | 7803 | 4 | -3780 | 4 | -22310# | 400# | 4644 | 4 | -24610# | 300# |
| | Rh | 45 | 28850# | 470# | 5750# | 300# | -3300# | 300# | * | | 4870# | 300# | -26930# | 500# |
| | Pd | 46 | * | | 2250# | 500# | -2840# | 570# | * | | 11670# | 400# | * | |
| 92 | As | 33 | 5790# | 640# | * | | * | | 25250# | 500# | * | | 11530# | 660# |
| | Se | 34 | 7070# | 520# | 32080# | 640# | -9010# | 570# | 22050# | 400# | * | | 6310# | 400# |
| | Br | 35 | 8375 | 7 | 29480# | 400# | -7940# | 200# | 18540 | 9 | -26630# | 400# | 6670 | 7 |
| | Kr | 36 | 9953 | 3 | 27550 | 330 | -7310 | 4 | 14098 | 4 | -25480 | 430 | 904 | 8 |
| | Rb | 37 | 11551 | 9 | 25350 | 7 | -6481 | 7 | 10044 | 11 | -20954 | 7 | 808 | 8 |
| | Sr | 38 | 13062 | 4 | 22486 | 4 | -5601 | 4 | 5592 | 3 | -19182 | 4 | -4587 | 4 |
| | Y | 39 | 14465 | 9 | 20030 | 11 | -4632 | 9 | 1637 | 9 | -14360 | 12 | -4992 | 9 |
| | Zr | 40 | 15829.13 | 0.15 | 17088.8 | 2.1 | -2962.33 | 0.10 | -1650.45 | 0.19 | -12096 | 5 | -9892.3 | 2.9 |
| | Nb | 41 | 19934 | 4 | 14537.2 | 2.4 | -4579.2 | 2.3 | -7528 | 4 | -7391.0 | 2.6 | -12316 | 6 |
| | Mo | 42 | 22779 | 3 | 12613.98 | 0.20 | -5605 | 5 | -12507.4 | 2.7 | -6201.98 | 0.19 | -18893.2 | 2.4 |
| | Tc | 43 | 24344 | 3 | 10842 | 5 | -5180 | 60 | -15927 | 5 | 423 | 4 | -18757 | 4 |
| | Ru | 44 | 25560 | 5 | 8707 | 4 | -4040 | 5 | -19720# | 300# | 619 | 7 | -23800# | 300# |
| | Rh | 45 | 27440# | 300# | 6852 | 4 | -3740 | 150 | -25870# | 500# | 5699 | 5 | -25140# | 400# |
| | Pd | 46 | 31010# | 500# | 4270# | 300# | -2670# | 420# | * | | 6370# | 300# | * | |
| | Ag | 47 | * | | 10# | 580# | -2700# | 640# | * | | 14150# | 580# | * | |
| 93 | Se | 34 | 6280# | 590# | * | | -9410# | 570# | 23420# | 400# | * | | 7450# | 400# |
| | Br | 35 | 7930 | 430 | 30570# | 590# | -8520# | 520# | 19730 | 430 | -29200# | 660# | 7810 | 430 |
| | Kr | 36 | 9305 | 3 | 28130 | 430 | -7569 | 4 | 15950 | 8 | -24700# | 400# | 2565 | 7 |
| | Rb | 37 | 11017 | 11 | 26091 | 9 | -6771 | 8 | 11607 | 13 | -23676 | 10 | 2176 | 9 |
| | Sr | 38 | 12577 | 9 | 23690 | 8 | -5975 | 8 | 7036 | 8 | -18605 | 8 | -3341 | 12 |
| | Y | 39 | 14018 | 11 | 21060 | 13 | -4940 | 12 | 2986 | 11 | -16744 | 12 | -3839 | 10 |
| | Zr | 40 | 15369.1 | 0.5 | 18048 | 5 | -3337.9 | 0.5 | -315.0 | 0.5 | -11544 | 3 | -8740.1 | 1.8 |
| | Nb | 41 | 16717 | 3 | 15439.5 | 2.4 | -1929.4 | 2.2 | -3606.7 | 1.8 | -9685 | 9 | -8475.6 | 1.5 |
| | Mo | 42 | 20741 | 6 | 13489.44 | 0.21 | -4356 | 3 | -9590.4 | 2.1 | -5637.01 | 0.21 | -15953 | 3 |
| | Tc | 43 | 23762.1 | 2.6 | 11546 | 3 | -5406 | 24 | -14594.3 | 2.8 | -4441.8 | 2.1 | -17376.2 | 2.9 |
| | Ru | 44 | 25120 | 3 | 9586 | 7 | -4627 | 4 | -18220# | 300# | 2302.9 | 2.1 | -22289 | 5 |
| | Rh | 45 | 26590# | 300# | 7603 | 4 | -4042 | 5 | -22740# | 400# | 2625 | 4 | -22500# | 300# |
| | Pd | 46 | 29210# | 500# | 5340# | 300# | -3170# | 420# | * | | 8010# | 300# | -29940# | 580# |
| | Ag | 47 | * | | 2280# | 500# | -2830# | 540# | * | | 9440# | 400# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|----|------|----|---------|------|--------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 94 | Se | 34 | 4160# | 640# | * | | 42040# | 500# | 4890# | 710# | 4960# | 640# | * | |
| | Br | 35 | 2580# | 530# | 13970# | 500# | 34950# | 300# | 10040# | 500# | 8040# | 530# | -4860# | 500# |
| | Kr | 36 | 5283 | 12 | 15750 | 430 | 25922 | 12 | 5596 | 14 | 4624 | 13 | -5120 | 430 |
| | Rb | 37 | 4014 | 8 | 11716 | 3 | 17806.3 | 2.5 | 10917 | 3 | 7275 | 3 | -1809 | 4 |
| | Sr | 38 | 6831 | 8 | 13515 | 8 | 9568.4 | 1.7 | 6638 | 6 | 3763 | 8 | -2225.3 | 2.8 |
| | Y | 39 | 6196 | 12 | 9555 | 10 | 1807 | 8 | 11227 | 7 | 6165 | 8 | 1040 | 10 |
| | Zr | 40 | 8218.6 | 0.5 | 10331 | 10 | -4686 | 3 | 8258 | 9 | 3946.0 | 1.9 | 2029 | 5 |
| | Nb | 41 | 7227.54 | 0.08 | 6536.0 | 1.5 | -13461 | 4 | 12800.8 | 1.5 | 6390.6 | 1.5 | 5628.6 | 2.4 |
| | Mo | 42 | 9678.31 | 0.23 | 8490.2 | 1.5 | -22312 | 4 | 8750.0 | 1.8 | 3088.0 | 2.9 | 5127.90 | 0.18 |
| | Tc | 43 | 8624 | 4 | 4640 | 4 | -31750# | 400# | 13361 | 4 | 2915 | 7 | 8126 | 5 |
| | Ru | 44 | 13438 | 4 | 6266 | 3 | -42440# | 500# | 7053 | 4 | -1733 | 4 | 5272 | 7 |
| | Rh | 45 | 11967 | 4 | 2980 | 4 | * | | 12104 | 4 | 196 | 4 | 8725 | 4 |
| | Pd | 46 | 15170# | 300# | 4379 | 5 | * | | 7608 | 6 | -2670# | 300# | 7784 | 5 |
| | Ag | 47 | 14210# | 570# | 700# | 500# | * | | 12880# | 500# | -1620# | 570# | 11810# | 500# |
| | Cd | 48 | * | | 1160# | 640# | * | | 7700# | 710# | * | | 11440# | 640# |
| 95 | Se | 34 | 1730# | 710# | * | | 44660# | 500# | * | | 5390# | 710# | * | |
| | Br | 35 | 4440# | 420# | 14260# | 580# | 37440# | 300# | 7660# | 500# | 7820# | 500# | -7140# | 580# |
| | Kr | 36 | 2882 | 22 | 16050# | 300# | 29501 | 19 | 7440 | 430 | 4938 | 20 | -3790# | 400# |
| | Rb | 37 | 5400 | 20 | 11833 | 24 | 20895 | 20 | 8955 | 20 | 7742 | 20 | -4012 | 21 |
| | Sr | 38 | 4345 | 6 | 13846 | 6 | 12592 | 6 | 8211 | 10 | 4517 | 8 | -704 | 6 |
| | Y | 39 | 6929 | 9 | 9652 | 7 | 4812 | 8 | 9588 | 10 | 6523 | 8 | -790 | 9 |
| | Zr | 40 | 6461.9 | 0.9 | 10597 | 6 | -2202 | 10 | 9278 | 11 | 4021 | 9 | 2854 | 4 |
| | Nb | 41 | 8488.5 | 1.6 | 6805.9 | 0.5 | -8446 | 4 | 11046.6 | 0.7 | 6536.8 | 0.5 | 3677 | 9 |
| | Mo | 42 | 7369.11 | 0.09 | 8631.8 | 1.5 | -17746 | 3 | 10211.8 | 1.5 | 3605.5 | 1.8 | 6393.57 | 0.16 |
| | Tc | 43 | 9934 | 7 | 4896 | 5 | -26420# | 300# | 11497 | 5 | 5651 | 5 | 6078 | 5 |
| | Ru | 44 | 8945 | 10 | 6588 | 10 | -36830# | 400# | 10859 | 10 | 332 | 10 | 8997 | 10 |
| | Rh | 45 | 13504 | 5 | 3046 | 5 | * | | 9587 | 4 | 825 | 5 | 6231 | 5 |
| | Pd | 46 | 11935 | 5 | 4347 | 5 | * | | 9757 | 4 | -2103 | 5 | 9982 | 4 |
| | Ag | 47 | 15260# | 500# | 780# | 300# | * | | 10120# | 420# | -150# | 420# | 9050# | 300# |
| | Cd | 48 | 14560# | 640# | 1510# | 570# | * | | 10350# | 570# | -4640# | 640# | 13600# | 500# |
| 96 | Br | 35 | 2460# | 420# | 14990# | 580# | 40170# | 300# | 9350# | 580# | 7420# | 500# | * | |
| | Kr | 36 | 4992 | 28 | 16600# | 300# | 32359 | 20 | 5030# | 300# | 4670 | 430 | -6720# | 400# |
| | Rb | 37 | 3534 | 20 | 12484 | 19 | 24248 | 3 | 10704 | 13 | 7646 | 4 | -2820 | 430 |
| | Sr | 38 | 5876 | 10 | 14322 | 22 | 15871 | 8 | 6349 | 9 | 4560 | 12 | -3142 | 9 |
| | Y | 39 | 5198 | 9 | 10505 | 8 | 7486 | 8 | 11221 | 6 | 6614 | 10 | -70 | 10 |
| | Zr | 40 | 7850.2 | 0.9 | 11519 | 7 | 641.53 | 0.14 | 7623 | 6 | 3652 | 10 | 293 | 8 |
| | Nb | 41 | 6887.9 | 0.5 | 7231.8 | 0.9 | -5915 | 10 | 12377.31 | 0.22 | 6383.3 | 0.5 | 4271 | 10 |
| | Mo | 42 | 9154.33 | 0.05 | 9297.6 | 0.5 | -12611 | 4 | 8285.0 | 1.5 | 3282.0 | 1.5 | 3973.6 | 0.5 |
| | Tc | 43 | 7872 | 7 | 5399 | 5 | -21310 | 90 | 13303 | 5 | 5849 | 5 | 7038 | 5 |
| | Ru | 44 | 10694 | 10 | 7348 | 5 | -30510# | 400# | 8789 | 4 | 2389.8 | 1.0 | 6373.10 | 0.25 |
| | Rh | 45 | 9418 | 11 | 3519 | 14 | -41800# | 500# | 13607 | 10 | 2393 | 10 | 9565 | 10 |
| | Pd | 46 | 14289 | 5 | 5132 | 6 | * | | 7435 | 5 | -2308 | 5 | 6680 | 5 |
| | Ag | 47 | 12990# | 310# | 1830 | 90 | * | | 12300 | 90 | -650# | 310# | 10150 | 90 |
| | Cd | 48 | 17010# | 570# | 3270# | 500# | * | | 7550# | 570# | -4440# | 570# | 9070# | 500# |
| | In | 49 | * | | -1450# | 640# | * | | 12960# | 710# | * | | 14020# | 640# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q($2\beta^-$) | | Q(ϵp) | | Q($\beta^- n$) | |
|----|------|----|----------|------|----------|------|---------------|------|-----------------|------|-------------------|------|------------------|------|
| 94 | Se | 34 | 6220# | 640# | * | | -10010# | 710# | 24540# | 500# | * | | 8020# | 660# |
| | Br | 35 | 7310# | 300# | 31000# | 580# | -8500# | 500# | 21160# | 300# | * | | 8670# | 300# |
| | Kr | 36 | 8721 | 12 | 29200# | 400# | -7970 | 330 | 17498 | 12 | -27920# | 400# | 3201 | 14 |
| | Rb | 37 | 9933 | 6 | 26908 | 7 | -6987 | 4 | 13789 | 7 | -22960 | 430 | 3452 | 8 |
| | Sr | 38 | 12121 | 4 | 24654 | 3 | -6311.4 | 2.5 | 8423.6 | 1.7 | -21999 | 3 | -2690 | 11 |
| | Y | 39 | 13678 | 11 | 22157 | 9 | -5412 | 9 | 4018 | 7 | -17021 | 10 | -3301 | 6 |
| | Zr | 40 | 14952.93 | 0.19 | 18980 | 3 | -3746.1 | 2.1 | 1144.74 | 0.22 | -14472 | 8 | -8127.8 | 1.5 |
| | Nb | 41 | 16058.4 | 2.0 | 16131 | 9 | -2299.9 | 2.2 | -2211 | 4 | -9431 | 11 | -7633.3 | 1.5 |
| | Mo | 42 | 17748.12 | 0.21 | 14532.98 | 0.17 | -2066.45 | 0.18 | -5830 | 3 | -8581.0 | 0.5 | -12879.3 | 1.0 |
| | Tc | 43 | 21375 | 5 | 12283 | 4 | -3922 | 5 | -11251 | 5 | -4234 | 4 | -15013 | 5 |
| | Ru | 44 | 24425 | 4 | 10353 | 3 | -4836 | 5 | -16481 | 5 | -3065 | 3 | -21643 | 4 |
| | Rh | 45 | 26051 | 6 | 8560 | 5 | -4608 | 4 | -20500# | 400# | 3410 | 4 | -21980# | 300# |
| | Pd | 46 | 27670# | 300# | 6379 | 5 | -3643 | 6 | -25960# | 500# | 3825 | 5 | -27910# | 400# |
| | Ag | 47 | 31420# | 640# | 3990# | 400# | -3140# | 500# | * | | 9310# | 400# | * | |
| | Cd | 48 | * | | 140# | 580# | -2860# | 640# | * | | 11570# | 580# | * | |
| 95 | Se | 34 | 5890# | 640# | * | | * | | 25700# | 500# | * | | 8870# | 580# |
| | Br | 35 | 7020# | 520# | * | | -9300# | 500# | 22120# | 300# | * | | 9510# | 300# |
| | Kr | 36 | 8166 | 19 | 30020# | 400# | -8000 | 430 | 18961 | 20 | -26650# | 500# | 4333 | 19 |
| | Rb | 37 | 9414 | 22 | 27580 | 430 | -7209 | 21 | 15317 | 21 | -25780# | 300# | 4883 | 20 |
| | Sr | 38 | 11176 | 10 | 25561 | 6 | -6571 | 6 | 10540 | 6 | -21061 | 13 | -839 | 9 |
| | Y | 39 | 13124 | 12 | 23167 | 10 | -5889 | 10 | 5577 | 7 | -19935 | 7 | -2011 | 7 |
| | Zr | 40 | 14680.5 | 1.0 | 20152 | 8 | -4433 | 6 | 2051.9 | 0.9 | -14103.2 | 1.9 | -7362.2 | 1.7 |
| | Nb | 41 | 15716.1 | 1.6 | 17137 | 11 | -2859.9 | 1.9 | -765 | 5 | -11724 | 6 | -6443.5 | 0.5 |
| | Mo | 42 | 17047.42 | 0.22 | 15167.8 | 0.5 | -2241.21 | 0.16 | -4254 | 10 | -7731.51 | 0.20 | -11625 | 4 |
| | Tc | 43 | 18558 | 5 | 13386 | 5 | -1808 | 6 | -7681 | 6 | -6941 | 5 | -11509 | 6 |
| | Ru | 44 | 22384 | 10 | 11229 | 10 | -3674 | 11 | -13492 | 10 | -2333 | 10 | -18621 | 10 |
| | Rh | 45 | 25471 | 5 | 9312 | 4 | -4779 | 5 | -18740# | 300# | -1471 | 6 | -20310 | 6 |
| | Pd | 46 | 27110# | 300# | 7327 | 4 | -4151 | 4 | -23340# | 400# | 5329 | 4 | -25630# | 400# |
| | Ag | 47 | 29470# | 500# | 5160# | 300# | -3450# | 420# | * | | 6020# | 300# | -27530# | 580# |
| | Cd | 48 | * | | 2210# | 500# | -3130# | 570# | * | | 12180# | 400# | * | |
| 96 | Br | 35 | 6910# | 420# | * | | -9610# | 580# | 23190# | 300# | * | | 9920# | 300# |
| | Kr | 36 | 7875 | 24 | 30850# | 500# | -8780# | 400# | 19844 | 22 | -29910# | 500# | 4740 | 29 |
| | Rb | 37 | 8934 | 4 | 28530# | 300# | -7546 | 7 | 16982 | 7 | -24870# | 300# | 5694 | 7 |
| | Sr | 38 | 10221 | 9 | 26154 | 15 | -6580 | 9 | 12515 | 8 | -24054 | 20 | 213 | 11 |
| | Y | 39 | 12127 | 9 | 24351 | 6 | -5988 | 9 | 7267 | 6 | -19733 | 21 | -747 | 6 |
| | Zr | 40 | 14312.16 | 0.20 | 21171.1 | 1.7 | -4996 | 3 | 3356.03 | 0.07 | -17608 | 6 | -6723.9 | 0.5 |
| | Nb | 41 | 15376.4 | 1.5 | 17829 | 6 | -3211 | 9 | 219 | 5 | -11683 | 7 | -5962.28 | 0.12 |
| | Mo | 42 | 16523.45 | 0.10 | 16103.49 | 0.20 | -2760.76 | 0.16 | -2714.50 | 0.12 | -10423.9 | 0.9 | -10845 | 5 |
| | Tc | 43 | 17806 | 7 | 14031 | 5 | -1793 | 5 | -6134 | 11 | -6324 | 5 | -10435 | 11 |
| | Ru | 44 | 19639 | 3 | 12244.25 | 0.16 | -1696.71 | 0.23 | -9897 | 4 | -5657.48 | 0.13 | -15811 | 4 |
| | Rh | 45 | 22923 | 11 | 10107 | 11 | -3187 | 10 | -15180 | 90 | -955 | 11 | -17793 | 10 |
| | Pd | 46 | 26224 | 6 | 8178 | 5 | -4307 | 5 | -20610# | 400# | -15 | 10 | -24660# | 300# |
| | Ag | 47 | 28250# | 410# | 6180 | 90 | -3940 | 90 | -26620# | 510# | 6540 | 90 | -25950# | 410# |
| | Cd | 48 | 31580# | 640# | 4050# | 400# | -3420# | 500# | * | | 7100# | 400# | * | |
| | In | 49 | * | | 60# | 640# | -3190# | 710# | * | | 14420# | 580# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|----|------|----|---------|------|---------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 97 | Br | 35 | 3960# | 500# | * | | 42070# | 400# | 7120# | 640# | 7610# | 640# | * | |
| | Kr | 36 | 2420 | 130 | 16550# | 330# | 35520 | 130 | 7060# | 330# | 4840# | 330# | -4970# | 520# |
| | Rb | 37 | 5236 | 4 | 12728 | 21 | 27087 | 5 | 8351 | 19 | 7693 | 12 | -5470# | 300# |
| | Sr | 38 | 3729 | 9 | 14516 | 5 | 18963 | 3 | 8021 | 21 | 4845 | 4 | -1587 | 13 |
| | Y | 39 | 5857 | 9 | 10486 | 11 | 11103 | 8 | 9709 | 9 | 7588 | 7 | -1912 | 7 |
| | Zr | 40 | 5575.1 | 0.4 | 11896 | 6 | 3177.9 | 2.8 | 8977 | 7 | 4273 | 6 | 1549.5 | 1.7 |
| | Nb | 41 | 8074 | 4 | 7456 | 4 | -3010 | 40 | 10765 | 4 | 6528 | 4 | 2392 | 8 |
| | Mo | 42 | 6821.13 | 0.16 | 9230.85 | 0.19 | -9739 | 5 | 9952.4 | 0.5 | 3688.4 | 1.5 | 5371.03 | 0.23 |
| | Tc | 43 | 9474 | 7 | 5719 | 4 | -16400 | 110 | 11198 | 4 | 6054 | 4 | 4791 | 4 |
| | Ru | 44 | 8111.5 | 2.8 | 7588 | 6 | -25670# | 300# | 10612 | 6 | 2902 | 5 | 7939.9 | 2.8 |
| | Rh | 45 | 10980 | 40 | 3810 | 40 | -35410# | 400# | 11570 | 40 | 4850 | 40 | 7210 | 40 |
| | Pd | 46 | 9694 | 6 | 5407 | 11 | * | | 11246 | 6 | -34 | 6 | 10424 | 6 |
| | Ag | 47 | 14390 | 140 | 1930 | 110 | * | | 9850 | 110 | 140 | 110 | 7730 | 110 |
| | Cd | 48 | 12950# | 500# | 3230# | 310# | * | | 9850# | 420# | -3180# | 500# | 11300# | 300# |
| | In | 49 | 17370# | 640# | -1090# | 570# | * | | 10150# | 570# | -2190# | 640# | 10870# | 570# |
| 98 | Br | 35 | 2270# | 570# | * | | 44040# | 400# | * | | 7070# | 640# | * | |
| | Kr | 36 | 4960# | 330# | 17550# | 500# | 36980# | 300# | 4560# | 420# | 4320# | 420# | -8210# | 580# |
| | Rb | 37 | 3921 | 16 | 14230 | 130 | 29155 | 17 | 9421 | 26 | 6654 | 25 | -4950# | 300# |
| | Sr | 38 | 5913 | 5 | 15193 | 4 | 21693 | 3 | 5642 | 5 | 4332 | 21 | -4618 | 19 |
| | Y | 39 | 4245 | 10 | 11002 | 9 | 14137 | 9 | 11340 | 12 | 7689 | 10 | -757 | 22 |
| | Zr | 40 | 6415 | 8 | 12454 | 11 | 6938 | 11 | 7760 | 10 | 4786 | 11 | -521 | 10 |
| | Nb | 41 | 5990 | 7 | 7871 | 5 | -349 | 13 | 12625 | 5 | 6999 | 5 | 3331 | 8 |
| | Mo | 42 | 8642.60 | 0.06 | 9799 | 4 | -6795 | 5 | 8197.65 | 0.20 | 3534.3 | 0.5 | 3190.4 | 0.9 |
| | Tc | 43 | 7279 | 5 | 6176 | 3 | -13370 | 30 | 13073 | 3 | 6144 | 3 | 6000 | 3 |
| | Ru | 44 | 10176 | 7 | 8289 | 8 | -20590 | 50 | 8308 | 8 | 2661 | 8 | 5133 | 6 |
| | Rh | 45 | 8650 | 40 | 4344 | 12 | -29280# | 300# | 13616 | 12 | 5147 | 15 | 8493 | 13 |
| | Pd | 46 | 11586 | 7 | 6010 | 40 | * | | 9078 | 11 | 1884 | 6 | 7783 | 11 |
| | Ag | 47 | 10310 | 110 | 2550 | 30 | * | | 13830 | 30 | 1760 | 30 | 10920 | 30 |
| | Cd | 48 | 15250# | 300# | 4100 | 120 | * | | 7590 | 100 | -3180# | 300# | 7980 | 50 |
| | In | 49 | 14780# | 500# | 730# | 420# | * | | 12390# | 500# | -2400# | 500# | 11350# | 420# |
| 99 | Kr | 36 | 2520# | 500# | 17800# | 570# | 38860# | 400# | 6010# | 570# | 4270# | 500# | * | |
| | Rb | 37 | 4823 | 17 | 14100# | 300# | 31214 | 13 | 7010 | 130 | 6823 | 21 | -7310# | 300# |
| | Sr | 38 | 4170 | 6 | 15441 | 17 | 23449 | 5 | 6709 | 5 | 3697 | 6 | -3795 | 21 |
| | Y | 39 | 6426 | 10 | 11516 | 7 | 16678 | 7 | 8642 | 7 | 7138 | 11 | -3649 | 7 |
| | Zr | 40 | 4405 | 13 | 12615 | 13 | 10005 | 11 | 9212 | 12 | 5579 | 12 | 950 | 13 |
| | Nb | 41 | 6882 | 13 | 8338 | 15 | 3246 | 14 | 11318 | 12 | 7968 | 12 | 1647 | 13 |
| | Mo | 42 | 5925.44 | 0.15 | 9734 | 5 | -3787 | 5 | 10346 | 4 | 4496.77 | 0.25 | 5115.15 | 0.23 |
| | Tc | 43 | 8967 | 3 | 6500.9 | 0.9 | -10615 | 6 | 10927.6 | 0.9 | 6331.1 | 0.9 | 3921.4 | 0.9 |
| | Ru | 44 | 7472 | 6 | 8482 | 3 | -17694.3 | 1.6 | 10310 | 4 | 3060 | 5 | 6815.9 | 0.4 |
| | Rh | 45 | 10477 | 14 | 4645 | 9 | -24210# | 300# | 11250 | 7 | 5363 | 7 | 5887 | 8 |
| | Pd | 46 | 8933 | 7 | 6296 | 13 | -34240# | 500# | 11130 | 40 | 2369 | 11 | 9544 | 5 |
| | Ag | 47 | 11720 | 30 | 2680 | 8 | * | | 11804 | 8 | 4335 | 8 | 8622 | 12 |
| | Cd | 48 | 10370 | 50 | 4150 | 30 | * | | 11610 | 110 | -560 | 90 | 11899 | 4 |
| | In | 49 | 15550# | 420# | 1030# | 300# | * | | 9790# | 420# | -940# | 500# | 8780# | 310# |
| | Sn | 50 | * | | 1340# | 590# | * | | 9960# | 640# | -5190# | 710# | 13280# | 640# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q($2\beta^-$) | | Q(ϵp) | | Q($\beta^- n$) | |
|----|------|----|----------|------|----------|------|---------------|------|-----------------|------|-------------------|------|------------------|------|
| 97 | Br | 35 | 6430# | 500# | * | * | * | * | 24460# | 400# | * | * | 10950# | 400# |
| | Kr | 36 | 7410 | 130 | 31540# | 520# | -9130# | 420# | 21160 | 130 | * | * | 5860 | 130 |
| | Rb | 37 | 8770 | 20 | 29330# | 300# | -8050 | 430 | 17602 | 7 | -27650# | 300# | 6334 | 9 |
| | Sr | 38 | 9605 | 7 | 27000 | 19 | -6870 | 4 | 14361 | 3 | -22791 | 21 | 1683 | 7 |
| | Y | 39 | 11055 | 10 | 24808 | 21 | -5926 | 10 | 9484 | 8 | -22056 | 8 | 1246 | 7 |
| | Zr | 40 | 13425.4 | 1.0 | 22401 | 6 | -5282 | 8 | 4602.0 | 0.4 | -17307 | 8 | -5411.2 | 0.4 |
| | Nb | 41 | 14962 | 4 | 18975 | 8 | -3804 | 11 | 1619 | 6 | -14559 | 7 | -4882 | 4 |
| | Mo | 42 | 15975.47 | 0.17 | 16462.7 | 0.9 | -2847.6 | 0.5 | -1424.1 | 2.8 | -9394.82 | 0.17 | -9794 | 5 |
| | Tc | 43 | 17346 | 7 | 15016 | 4 | -2437 | 4 | -4630 | 40 | -8911 | 4 | -9215 | 4 |
| | Ru | 44 | 18805 | 10 | 12986.6 | 2.8 | -1738.4 | 2.8 | -8315 | 6 | -4614.6 | 2.8 | -14504 | 10 |
| | Rh | 45 | 20400 | 40 | 11150 | 40 | -1420 | 40 | -11770 | 120 | -4060 | 40 | -14490 | 40 |
| | Pd | 46 | 23983 | 6 | 8926 | 11 | -3014 | 5 | -17350# | 300# | 986 | 5 | -21370 | 90 |
| | Ag | 47 | 27370# | 320# | 7060 | 110 | -4240 | 110 | -23640# | 420# | 1570 | 110 | -23320# | 420# |
| | Cd | 48 | 29970# | 500# | 5070# | 300# | -3880# | 420# | * | * | 8440# | 300# | -30640# | 580# |
| | In | 49 | * | * | 2170# | 500# | -3350# | 570# | * | * | 10030# | 410# | * | * |
| 98 | Br | 35 | 6230# | 500# | * | * | * | * | 26120# | 400# | * | * | 11100# | 420# |
| | Kr | 36 | 7370# | 300# | * | * | -9930# | 580# | 22110# | 300# | * | * | 6140# | 300# |
| | Rb | 37 | 9157 | 16 | 30780# | 300# | -9390# | 300# | 17926 | 18 | -27600# | 400# | 6141 | 16 |
| | Sr | 38 | 9642 | 9 | 27921 | 21 | -7500 | 13 | 14864 | 9 | -26290 | 130 | 1627 | 7 |
| | Y | 39 | 10102 | 10 | 25518 | 9 | -6157 | 8 | 11230 | 9 | -21065 | 8 | 2577 | 8 |
| | Zr | 40 | 11990 | 8 | 22940 | 12 | -4866 | 9 | 6829 | 8 | -19994 | 9 | -3752 | 9 |
| | Nb | 41 | 14064 | 5 | 19767 | 8 | -3598 | 8 | 2908 | 6 | -14692 | 8 | -4051 | 5 |
| | Mo | 42 | 15463.73 | 0.17 | 17255.07 | 0.18 | -3271.57 | 0.24 | 109 | 6 | -12462.3 | 0.4 | -8963 | 4 |
| | Tc | 43 | 16753 | 6 | 15407 | 3 | -2488 | 4 | -3257 | 12 | -8115 | 5 | -8383 | 4 |
| | Ru | 44 | 18287 | 6 | 14008 | 6 | -2236 | 6 | -6904 | 8 | -7969 | 6 | -13700 | 40 |
| | Rh | 45 | 19630 | 16 | 11932 | 13 | -1442 | 13 | -10110 | 30 | -3240 | 13 | -13441 | 13 |
| | Pd | 46 | 21280 | 6 | 9819 | 5 | -1162 | 6 | -13680 | 50 | -2489 | 5 | -18570 | 110 |
| | Ag | 47 | 24700 | 100 | 7960 | 30 | -2580 | 30 | -19170# | 300# | 2240 | 50 | -20680# | 300# |
| | Cd | 48 | 28210# | 400# | 6030 | 50 | -3960 | 50 | * | * | 2880 | 50 | -28520# | 400# |
| | In | 49 | 32150# | 580# | 3960# | 310# | -3910# | 500# | * | * | 9640# | 320# | * | * |
| 99 | Kr | 36 | 7480# | 420# | * | * | -10730# | 640# | 23760# | 400# | * | * | 7540# | 400# |
| | Rb | 37 | 8745 | 4 | 31640# | 400# | -9780# | 300# | 19529 | 8 | -30160# | 400# | 7231 | 5 |
| | Sr | 38 | 10083 | 6 | 29680 | 130 | -8787 | 19 | 15099 | 12 | -25500# | 300# | 1702 | 9 |
| | Y | 39 | 10671 | 9 | 26709 | 7 | -7183 | 21 | 11686 | 14 | -23570 | 17 | 2566 | 11 |
| | Zr | 40 | 10821 | 10 | 23617 | 11 | -4926 | 12 | 8349 | 11 | -18486 | 11 | -2167 | 12 |
| | Nb | 41 | 12872 | 13 | 20792 | 14 | -3551 | 14 | 4993 | 12 | -17330 | 14 | -2291 | 12 |
| | Mo | 42 | 14568.04 | 0.16 | 17605.4 | 0.5 | -2735.1 | 0.9 | 1655.3 | 0.4 | -11972 | 8 | -7609 | 3 |
| | Tc | 43 | 16246 | 4 | 16300 | 4 | -2966.5 | 1.0 | -1747 | 7 | -11092 | 5 | -7174 | 7 |
| | Ru | 44 | 17647.5 | 2.8 | 14658.6 | 0.4 | -2338.4 | 0.4 | -5443 | 5 | -6798.4 | 0.4 | -12521 | 12 |
| | Rh | 45 | 19130 | 40 | 12935 | 8 | -1985 | 8 | -8869 | 9 | -6438 | 7 | -12332 | 8 |
| | Pd | 46 | 20519 | 7 | 10640 | 6 | -1150 | 11 | -12252 | 5 | -1247 | 8 | -17190 | 30 |
| | Ag | 47 | 22030 | 110 | 8690 | 40 | -797 | 7 | -15340# | 300# | -826 | 13 | -17150 | 50 |
| | Cd | 48 | 25620# | 300# | 6703 | 5 | -2390 | 3 | -21990# | 500# | 4101 | 5 | -24110# | 300# |
| | In | 49 | 30330# | 500# | 5130# | 320# | -4200# | 420# | * | * | 4400# | 300# | * | * |
| | Sn | 50 | * | * | 2070# | 590# | -3740# | 640# | * | * | 12400# | 510# | * | * |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|----|---------|------|--------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 100 | Kr | 36 | 4360# | 570# | * | | 41330# | 400# | 3910# | 570# | 3870# | 570# | * | |
| | Rb | 37 | 3197 | 20 | 14780# | 400# | 33550 | 21 | 8780# | 300# | 6040 | 130 | -6550# | 400# |
| | Sr | 38 | 5371 | 9 | 15989 | 8 | 26372 | 7 | 5259 | 18 | 3562 | 7 | -6750 | 130 |
| | Y | 39 | 4749 | 13 | 12095 | 12 | 18694 | 11 | 9807 | 12 | 6118 | 12 | -3162 | 11 |
| | Zr | 40 | 6828 | 13 | 13017 | 10 | 12850 | 8 | 6628 | 11 | 4608 | 11 | -2150 | 9 |
| | Nb | 41 | 5533 | 14 | 9466 | 13 | 5794 | 20 | 12200 | 12 | 8009 | 8 | 1970 | 10 |
| | Mo | 42 | 8294.2 | 0.4 | 11147 | 12 | -980 | 18 | 8042 | 5 | 4277 | 4 | 2396.0 | 0.5 |
| | Tc | 43 | 6764.4 | 1.0 | 7339.8 | 1.3 | -7883 | 5 | 12805.8 | 1.3 | 6387.8 | 1.3 | 5231 | 4 |
| | Ru | 44 | 9673.32 | 0.03 | 9188.5 | 0.9 | -15032.8 | 1.7 | 7916 | 3 | 2861 | 4 | 3963.7 | 0.4 |
| | Rh | 45 | 8081 | 19 | 5255 | 18 | -21280 | 180 | 13345 | 19 | 5393 | 18 | 7280 | 19 |
| | Pd | 46 | 11101 | 18 | 6920 | 19 | -27930 | 300 | 8673 | 21 | 2250 | 40 | 6554 | 18 |
| | Ag | 47 | 9497 | 8 | 3244 | 7 | * | | 13894 | 7 | 4532 | 7 | 10110 | 40 |
| | Cd | 48 | 12334.8 | 2.3 | 4771 | 6 | * | | 9580 | 30 | 1500 | 110 | 9258 | 5 |
| | In | 49 | 11010# | 350# | 1670 | 180 | * | | 14030 | 190 | 1010# | 350# | 12160 | 210 |
| | Sn | 50 | 17410# | 590# | 3200# | 420# | * | | 7320# | 420# | -5230# | 500# | 8820# | 420# |
| 101 | Kr | 36 | 2150# | 640# | * | | 44040# | 500# | * | | 3990# | 640# | * | |
| | Rb | 37 | 4670# | 200# | 15080# | 450# | 36050# | 200# | 6630# | 450# | 6330# | 360# | -8950# | 450# |
| | Sr | 38 | 3575 | 11 | 16367 | 21 | 28195 | 8 | 6507 | 9 | 3908 | 18 | -5370# | 300# |
| | Y | 39 | 5805 | 13 | 12529 | 10 | 21284 | 25 | 8171 | 9 | 6226 | 8 | -5045 | 18 |
| | Zr | 40 | 4860 | 12 | 13128 | 14 | 14792 | 8 | 8195 | 11 | 3993 | 11 | -1096 | 9 |
| | Nb | 41 | 7165 | 9 | 9803 | 9 | 8521 | 7 | 9440 | 11 | 7259 | 9 | -950 | 9 |
| | Mo | 42 | 5398.24 | 0.07 | 11012 | 8 | 1912 | 5 | 9526 | 12 | 4869 | 5 | 3413 | 8 |
| | Tc | 43 | 8395 | 24 | 7441 | 24 | -5010 | 24 | 10336 | 24 | 6635 | 24 | 2826 | 25 |
| | Ru | 44 | 6802.04 | 0.24 | 9226.1 | 1.4 | -12121.7 | 1.5 | 10080.6 | 1.0 | 3338 | 3 | 5804.3 | 0.4 |
| | Rh | 45 | 9893 | 19 | 5474 | 6 | -18800# | 200# | 10924 | 6 | 5676 | 9 | 4666 | 7 |
| | Pd | 46 | 8291 | 18 | 7130 | 19 | -25130 | 300 | 10860 | 8 | 2607 | 13 | 8439 | 8 |
| | Ag | 47 | 11268 | 7 | 3411 | 18 | * | | 11559 | 7 | 4851 | 7 | 7487 | 13 |
| | Cd | 48 | 9713.2 | 2.2 | 4987 | 5 | * | | 11587 | 6 | 2090 | 30 | 11131 | 5 |
| | In | 49 | 12370# | 270# | 1710# | 200# | * | | 12030# | 200# | 3890# | 200# | 10100# | 200# |
| | Sn | 50 | 11090 | 430 | 3280 | 350 | * | | 11780# | 420# | -1550# | 420# | 12980 | 300 |
| 102 | Rb | 37 | 2930# | 360# | 15870# | 590# | 38600# | 300# | 8060# | 500# | 5920# | 500# | * | |
| | Sr | 38 | 4910 | 70 | 16600# | 210# | 31410 | 70 | 4800 | 70 | 3830 | 70 | -7750# | 410# |
| | Y | 39 | 4183 | 8 | 13137 | 9 | 23400 | 10 | 9359 | 8 | 6212 | 6 | -4406 | 6 |
| | Zr | 40 | 6493 | 12 | 13816 | 11 | 17519 | 9 | 6450 | 14 | 3926 | 11 | -3420 | 10 |
| | Nb | 41 | 5484 | 5 | 10428 | 9 | 10479 | 7 | 10784 | 9 | 6180 | 11 | -8 | 7 |
| | Mo | 42 | 8117 | 8 | 11964 | 9 | 4337 | 8 | 6942 | 12 | 3633 | 15 | -299 | 13 |
| | Tc | 43 | 6300 | 26 | 8342 | 9 | -2326 | 12 | 12331 | 9 | 6261 | 9 | 3409 | 15 |
| | Ru | 44 | 9219.64 | 0.05 | 10051 | 24 | -9446.7 | 1.7 | 7625.3 | 1.4 | 3085.5 | 1.0 | 2510.1 | 0.5 |
| | Rh | 45 | 7442 | 9 | 6114 | 6 | -16088 | 8 | 13155 | 6 | 5706 | 6 | 6191 | 6 |
| | Pd | 46 | 10542 | 5 | 7780 | 6 | -22970 | 100 | 8399 | 18 | 2542 | 7 | 5368.6 | 0.4 |
| | Ag | 47 | 8984 | 9 | 4104 | 9 | * | | 13677 | 19 | 4800 | 10 | 8981 | 11 |
| | Cd | 48 | 11894.6 | 2.2 | 5614 | 5 | * | | 9189 | 5 | 1917 | 6 | 8169 | 5 |
| | In | 49 | 10150# | 200# | 2147 | 5 | * | | 14211 | 5 | 4100 | 5 | 11664 | 8 |
| | Sn | 50 | 12700 | 320 | 3610# | 220# | * | | 10090 | 210 | 1310# | 310# | 10640 | 100 |
| 103 | Rb | 37 | 3970# | 500# | * | | 41420# | 400# | 6230# | 640# | 6310# | 570# | * | |
| | Sr | 38 | 3330# | 210# | 17000# | 360# | 33540# | 200# | 6130# | 280# | 3690# | 200# | -6720# | 450# |
| | Y | 39 | 5356 | 12 | 13590 | 70 | 26146 | 15 | 7578 | 14 | 6227 | 13 | -6564 | 23 |
| | Zr | 40 | 4299 | 13 | 13931 | 10 | 19452 | 9 | 7956 | 12 | 4376 | 14 | -2348 | 12 |
| | Nb | 41 | 6795 | 5 | 10730 | 10 | 13003 | 5 | 8848 | 9 | 6213 | 9 | -2055 | 12 |
| | Mo | 42 | 5466 | 12 | 11945 | 10 | 6497 | 9 | 8642 | 10 | 3701 | 12 | 1063 | 12 |
| | Tc | 43 | 8102 | 13 | 8327 | 13 | 199 | 11 | 9627 | 10 | 6453 | 10 | 840 | 13 |
| | Ru | 44 | 6232.05 | 0.15 | 9983 | 9 | -6615.6 | 1.9 | 9788 | 24 | 3617.8 | 1.4 | 4572.3 | 0.3 |
| | Rh | 45 | 9320 | 7 | 6214.2 | 2.3 | -13399 | 10 | 10637.2 | 2.3 | 6059.7 | 2.3 | 3635.6 | 2.7 |
| | Pd | 46 | 7625.3 | 0.8 | 7963 | 6 | -20480 | 70 | 10666 | 6 | 2998 | 18 | 7416.6 | 0.9 |
| | Ag | 47 | 10627 | 9 | 4188 | 4 | -28620# | 300# | 11340 | 6 | 5274 | 18 | 6435 | 19 |
| | Cd | 48 | 9063.2 | 2.5 | 5694 | 8 | * | | 11394 | 5 | 2350 | 5 | 10208 | 18 |
| | In | 49 | 12009 | 11 | 2262 | 10 | * | | 11915 | 10 | 4426 | 10 | 9152 | 11 |
| | Sn | 50 | 10110 | 120 | 3570 | 70 | * | | 12350# | 210# | 2200 | 200 | 12870 | 70 |
| | Sb | 51 | * | | -1470# | 310# | * | | 14840# | 420# | 5970# | 420# | 13780# | 350# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q($2\beta^-$) | | Q(ϵp) | | Q($\beta^- n$) | |
|-----|------|----|----------|------|----------|------|---------------|------|-----------------|------|-------------------|------|------------------|------|
| 100 | Kr | 36 | 6880# | 500# | * | | * | | 24770# | 400# | * | | 8000# | 400# |
| | Rb | 37 | 8021 | 25 | 32580# | 400# | -10510# | 300# | 21080 | 23 | * | | 8203 | 20 |
| | Sr | 38 | 9540 | 8 | 30090# | 300# | -9166 | 22 | 16557 | 11 | -28350# | 400# | 2758 | 10 |
| | Y | 39 | 11175 | 14 | 27536 | 20 | -8398 | 12 | 12470 | 14 | -23495 | 12 | 2222 | 15 |
| | Zr | 40 | 11233 | 12 | 24532 | 9 | -5878 | 12 | 9816 | 8 | -21145 | 9 | -2113 | 15 |
| | Nb | 41 | 12415 | 9 | 22081 | 11 | -3886 | 10 | 6224 | 8 | -16437 | 10 | -1899 | 8 |
| | Mo | 42 | 14219.7 | 0.3 | 19484 | 8 | -3179.1 | 0.3 | 3034.36 | 0.17 | -15861 | 11 | -6936.5 | 0.9 |
| | Tc | 43 | 15731 | 4 | 17074 | 5 | -2843.0 | 1.4 | -430 | 18 | -10975 | 12 | -6466.9 | 1.4 |
| | Ru | 44 | 17145 | 6 | 15689.4 | 0.4 | -2857.4 | 0.4 | -4015 | 18 | -10546.3 | 0.4 | -11717 | 7 |
| | Rh | 45 | 18559 | 22 | 13737 | 18 | -2194 | 19 | -7453 | 19 | -5552 | 18 | -11480 | 19 |
| | Pd | 46 | 20034 | 18 | 11566 | 19 | -1557 | 18 | -11018 | 18 | -4876 | 18 | -16572 | 19 |
| | Ag | 47 | 21210 | 30 | 9541 | 13 | -875 | 11 | -13820 | 180 | 154 | 8 | -16278 | 5 |
| | Cd | 48 | 22700 | 50 | 7452 | 5 | -436 | 5 | -16910 | 300 | 699 | 5 | -20890# | 300# |
| | In | 49 | 26560# | 350# | 5820 | 190 | -2230 | 200 | * | | 5110 | 180 | -24440# | 540# |
| | Sn | 50 | * | | 4220 | 310 | -4140# | 500# | * | | 5360 | 300 | * | |
| 101 | Kr | 36 | 6510# | 640# | * | | * | | 26200# | 500# | * | | 9050# | 500# |
| | Rb | 37 | 7870# | 200# | * | | -11210# | 450# | 22220# | 200# | * | | 8910# | 200# |
| | Sr | 38 | 8946 | 10 | 31140# | 400# | -10330 | 130 | 17841 | 12 | -27560# | 400# | 3931 | 14 |
| | Y | 39 | 10554 | 10 | 28518 | 8 | -8967 | 7 | 13830 | 8 | -26103 | 21 | 3245 | 11 |
| | Zr | 40 | 11688 | 13 | 25222 | 10 | -7009 | 9 | 10354 | 8 | -20634 | 11 | -1440 | 12 |
| | Nb | 41 | 12699 | 13 | 22820 | 8 | -5195 | 8 | 7453 | 24 | -18853 | 12 | -770 | 4 |
| | Mo | 42 | 13692.5 | 0.4 | 20477 | 11 | -3002.2 | 0.5 | 4438.16 | 0.30 | -14431 | 8 | -5570.3 | 1.4 |
| | Tc | 43 | 15159 | 24 | 18587 | 27 | -3164 | 24 | 1068 | 25 | -13836 | 25 | -5189 | 24 |
| | Ru | 44 | 16475.37 | 0.24 | 16566.0 | 0.5 | -2838.3 | 0.4 | -2526 | 5 | -9054.06 | 0.29 | -10438 | 18 |
| | Rh | 45 | 17974 | 9 | 14662 | 6 | -2613 | 7 | -6078 | 8 | -8680 | 6 | -10271 | 19 |
| | Pd | 46 | 19392 | 7 | 12385 | 5 | -1736 | 5 | -9596 | 5 | -3494 | 5 | -15365 | 7 |
| | Ag | 47 | 20765 | 8 | 10331 | 8 | -1160 | 40 | -12720# | 200# | -3032 | 19 | -15211 | 5 |
| | Cd | 48 | 22048.0 | 2.2 | 8232 | 5 | -456 | 5 | -15530 | 300 | 2087 | 18 | -19590 | 180 |
| | In | 49 | 23380# | 360# | 6480# | 200# | -210# | 220# | * | | 2240# | 200# | -19400# | 360# |
| | Sn | 50 | 28500# | 590# | 4950 | 300 | -2280# | 420# | * | | 6600 | 300 | * | |
| 102 | Rb | 37 | 7600# | 300# | * | | -11880# | 500# | 23470# | 300# | * | | 9550# | 300# |
| | Sr | 38 | 8480 | 70 | 31690# | 410# | -10270# | 310# | 19430 | 70 | -30320# | 510# | 4830 | 70 |
| | Y | 39 | 9988 | 12 | 29504 | 20 | -9229 | 17 | 15131 | 5 | -25620# | 200# | 3921 | 9 |
| | Zr | 40 | 11353 | 12 | 26345 | 11 | -7590 | 9 | 11978 | 12 | -23552 | 12 | -768 | 10 |
| | Nb | 41 | 12650 | 8 | 23555 | 11 | -6435 | 8 | 8268 | 10 | -18533 | 8 | -855.9 | 2.6 |
| | Mo | 42 | 13516 | 8 | 21767 | 12 | -4704 | 12 | 5540 | 8 | -17689 | 12 | -5293 | 25 |
| | Tc | 43 | 14695 | 9 | 19353 | 12 | -3473 | 10 | 2210 | 11 | -12970 | 10 | -4686 | 9 |
| | Ru | 44 | 16021.68 | 0.24 | 17491.35 | 0.29 | -3415.4 | 0.5 | -1203.3 | 0.4 | -12875.5 | 0.3 | -9765 | 6 |
| | Rh | 45 | 17335 | 19 | 15340 | 7 | -2776 | 7 | -4537 | 10 | -7728 | 25 | -9423 | 8 |
| | Pd | 46 | 18833 | 18 | 13253.7 | 0.4 | -2103 | 6 | -8243.5 | 1.8 | -7234.0 | 0.4 | -14640 | 5 |
| | Ag | 47 | 20251 | 10 | 11234 | 20 | -1496 | 14 | -11552 | 9 | -2123 | 10 | -14482 | 8 |
| | Cd | 48 | 21607.7 | 2.4 | 9025 | 18 | -764 | 5 | -14720 | 100 | -1517 | 5 | -19120# | 200# |
| | In | 49 | 22520 | 180 | 7135 | 7 | -50 | 30 | * | | 3351 | 7 | -18460 | 300 |
| | Sn | 50 | 23790 | 320 | 5320 | 100 | 280 | 110 | * | | 3610 | 100 | * | |
| 103 | Rb | 37 | 6910# | 450# | * | | * | | 24850# | 400# | * | | 10480# | 410# |
| | Sr | 38 | 8240# | 200# | 32870# | 540# | -11090# | 450# | 20390# | 200# | * | | 5680# | 200# |
| | Y | 39 | 9539 | 13 | 30190# | 200# | -9761 | 12 | 16571 | 12 | -28040# | 300# | 5059 | 14 |
| | Zr | 40 | 10792 | 12 | 27068 | 13 | -7719 | 10 | 13145 | 13 | -22950 | 70 | 418 | 10 |
| | Nb | 41 | 12280 | 5 | 24546 | 8 | -6804 | 8 | 9575 | 11 | -21144 | 6 | 466 | 9 |
| | Mo | 42 | 13583 | 9 | 22373 | 12 | -5765 | 14 | 6307 | 9 | -16662 | 13 | -4459 | 13 |
| | Tc | 43 | 14402 | 26 | 20290 | 10 | -4693 | 15 | 3428 | 10 | -15588 | 10 | -3569 | 10 |
| | Ru | 44 | 15451.69 | 0.16 | 18325.2 | 0.3 | -3722.0 | 0.5 | 190.0 | 0.9 | -10990 | 8 | -8555 | 6 |
| | Rh | 45 | 16762 | 6 | 16265 | 24 | -3128.8 | 2.5 | -3229 | 5 | -10748 | 9 | -8199.9 | 2.3 |
| | Pd | 46 | 18168 | 5 | 14077.0 | 0.9 | -2256.7 | 0.9 | -6805.6 | 2.0 | -5639.7 | 0.9 | -13282 | 8 |
| | Ag | 47 | 19611 | 6 | 11968 | 7 | -1646 | 8 | -10170 | 10 | -5308 | 8 | -13214 | 4 |
| | Cd | 48 | 20957.8 | 2.3 | 9797 | 5 | -894 | 5 | -13680 | 70 | -37.4 | 1.9 | -18028 | 5 |
| | In | 49 | 22160# | 200# | 7876 | 11 | -345 | 11 | -18450# | 300# | 325 | 13 | -17770 | 100 |
| | Sn | 50 | 22810 | 310 | 5710 | 70 | 530 | 70 | * | | 5400 | 70 | * | |
| | Sb | 51 | * | | 2140# | 360# | 2770# | 420# | * | | 7230# | 300# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | Q(4β ⁻) | | Q(d,α) | | Q(p,α) | | Q(n,α) | |
|-----|------|--------|---------|-------|--------|-------|---------------------|--------|---------|-------|--------|--------|--------|-------|
| 104 | Sr | 38 | 4760# | 360# | 17790# | 500# | 36240# | 300# | 4310# | 420# | 3600# | 360# | -9330# | 590# |
| | Y | 39 | 3680# | 400# | 13930# | 450# | 28440# | 400# | 8810# | 410# | 6130# | 400# | -5570# | 450# |
| | Zr | 40 | 5980 | 13 | 14555 | 15 | 22372 | 10 | 6160 | 10 | 4201 | 12 | -4753 | 13 |
| | Nb | 41 | 4862 | 5 | 11293 | 10 | 15140 | 4 | 10480 | 9 | 6211 | 9 | -1112 | 8 |
| | Mo | 42 | 7461 | 13 | 12610 | 10 | 9045 | 9 | 6665 | 9 | 3406 | 10 | -1538 | 12 |
| | Tc | 43 | 5971 | 27 | 8832 | 27 | 2613 | 25 | 11773 | 26 | 5881 | 25 | 2034 | 25 |
| | Ru | 44 | 8899.9 | 2.5 | 10781 | 9 | -4127 | 3 | 7188 | 9 | 3113 | 24 | 1070.6 | 2.5 |
| | Rh | 45 | 6998.96 | 0.08 | 6981.1 | 2.3 | -10777 | 6 | 12857.9 | 2.3 | 5862.8 | 2.3 | 5032 | 24 |
| | Pd | 46 | 10009.2 | 1.6 | 8652.4 | 2.7 | -17768 | 6 | 8099 | 7 | 2881 | 6 | 4209.4 | 1.4 |
| | Ag | 47 | 8385 | 6 | 4948 | 4 | -25940 | 120 | 13498 | 4 | 5180 | 6 | 7942 | 7 |
| | Cd | 48 | 11388.1 | 2.5 | 6455 | 4 | * | | 8989 | 8 | 2230 | 5 | 7110 | 5 |
| | In | 49 | 9621 | 11 | 2820 | 6 | * | | 14188 | 6 | 4518 | 6 | 10798 | 8 |
| | Sn | 50 | 12730 | 70 | 4283 | 11 | * | | 9779 | 7 | 1850# | 200# | 9856 | 6 |
| Sb | 51 | 11070# | 320# | -510 | 100 | * | | 16470 | 160 | 6000 | 320 | 15090# | 230# | |
| 105 | Sr | 38 | 2580# | 590# | * | | 38730# | 500# | 5710# | 640# | 3960# | 590# | * | |
| | Y | 39 | 5280# | 1400# | 14450# | 1370# | 31020 | 1340 | 6860# | 1350# | 5750 | 1340 | -7920# | 1370# |
| | Zr | 40 | 3812 | 15 | 14690# | 400# | 24470 | 12 | 7704 | 17 | 4572 | 13 | -3660 | 70 |
| | Nb | 41 | 6168 | 5 | 11480 | 10 | 17936 | 5 | 8611 | 10 | 6536 | 10 | -3096 | 6 |
| | Mo | 42 | 5058 | 13 | 12807 | 9 | 11081 | 9 | 8402 | 10 | 3831 | 9 | -103 | 13 |
| | Tc | 43 | 7860 | 40 | 9230 | 40 | 4780 | 40 | 9380 | 40 | 6140 | 40 | -340 | 40 |
| | Ru | 44 | 5910.10 | 0.11 | 10720 | 25 | -1600.7 | 2.9 | 9380 | 9 | 3502 | 9 | 3278 | 9 |
| | Rh | 45 | 8963 | 3 | 7044.5 | 2.9 | -8211 | 11 | 10126.7 | 2.5 | 6119.2 | 2.5 | 2368 | 9 |
| | Pd | 46 | 7094.1 | 0.7 | 8747.5 | 2.6 | -15080 | 4 | 10324.6 | 2.6 | 3229 | 7 | 6335.0 | 1.2 |
| | Ag | 47 | 10026 | 6 | 4965 | 5 | -23055 | 22 | 11097 | 5 | 5696 | 5 | 5359 | 8 |
| | Cd | 48 | 8436.8 | 2.2 | 6506 | 4 | -31520 | 300 | 11180 | 4 | 2777 | 8 | 9215.7 | 1.5 |
| | In | 49 | 11529 | 12 | 2961 | 10 | * | | 11722 | 10 | 4883 | 10 | 8253 | 13 |
| | Sn | 50 | 9782 | 7 | 4444 | 7 | * | | 12005 | 10 | 2221 | 6 | 11968 | 4 |
| | Sb | 51 | 12910 | 120 | -323 | 22 | * | | 13670 | 70 | 5780 | 100 | 12326 | 22 |
| Te | 52 | * | | 930 | 320 | * | | 14080# | 420# | * | | 17770 | 320 | |
| 106 | Sr | 38 | 4250# | 780# | * | | 41340# | 600# | * | | 3680# | 720# | * | |
| | Y | 39 | 2850# | 1430# | 14730# | 710# | 33720# | 500# | 8760# | 590# | 6230# | 540# | -6800# | 640# |
| | Zr | 40 | 5160 | 430 | 14570 | 1410 | 27770 | 430 | 6230# | 590# | 4770 | 430 | -5480# | 480# |
| | Nb | 41 | 4359 | 6 | 12028 | 13 | 20159 | 7 | 10232 | 10 | 6476 | 10 | -2099 | 12 |
| | Mo | 42 | 6869 | 13 | 13508 | 10 | 13773 | 9 | 6395 | 10 | 3758 | 10 | -2673 | 13 |
| | Tc | 43 | 5560 | 40 | 9728 | 15 | 7166 | 13 | 11285 | 15 | 6049 | 15 | 899 | 13 |
| | Ru | 44 | 8460 | 5 | 11320 | 40 | 809 | 5 | 6891 | 25 | 3145 | 11 | 284 | 11 |
| | Rh | 45 | 6583 | 6 | 7717 | 5 | -5754 | 13 | 12444 | 5 | 5769 | 5 | 3888 | 11 |
| | Pd | 46 | 9560.96 | 0.28 | 9345.3 | 2.4 | -12554 | 5 | 7762.6 | 2.6 | 2988.2 | 2.6 | 3006.0 | 1.2 |
| | Ag | 47 | 7943 | 5 | 5813.5 | 2.8 | -20469 | 8 | 13163.5 | 2.9 | 5379 | 3 | 6736 | 4 |
| | Cd | 48 | 10869.6 | 1.8 | 7350 | 5 | -28910 | 100 | 8695 | 4 | 2535 | 4 | 5971.5 | 1.5 |
| | In | 49 | 9039 | 16 | 3563 | 12 | * | | 14071 | 12 | 4908 | 12 | 9841 | 13 |
| | Sn | 50 | 12087 | 6 | 5002 | 11 | * | | 9540 | 8 | 2143 | 11 | 8944 | 5 |
| | Sb | 51 | 10529 | 23 | 424 | 8 | * | | 15865 | 9 | 5360 | 70 | 13806 | 12 |
| | Te | 52 | 13480 | 320 | 1490 | 100 | * | | 11660 | 160 | 2820# | 320# | 14400 | 120 |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q($2\beta^-$) | | Q(ϵp) | | Q($\beta^- n$) | |
|-----|------|----|---------|------|---------|-------|---------------|-------|-----------------|------|-------------------|------|------------------|-------|
| 104 | Sr | 38 | 8090# | 310# | * | | -11480# | 500# | 21620# | 300# | * | | 6280# | 300# |
| | Y | 39 | 9030# | 400# | 30940# | 500# | -10240# | 400# | 17760# | 400# | -27750# | 570# | 5680# | 400# |
| | Zr | 40 | 10279 | 13 | 28140 | 70 | -8328 | 12 | 14626 | 13 | -25590# | 200# | 1233 | 10 |
| | Nb | 41 | 11657 | 4 | 25224 | 5 | -6917 | 11 | 10684 | 25 | -20650 | 12 | 1070 | 10 |
| | Mo | 42 | 12927 | 12 | 23340 | 12 | -6397 | 12 | 7746 | 9 | -19824 | 13 | -3817 | 13 |
| | Tc | 43 | 14073 | 26 | 20777 | 25 | -5131 | 26 | 4456 | 25 | -14764 | 25 | -3308 | 25 |
| | Ru | 44 | 15131.9 | 2.5 | 19108 | 9 | -4327.6 | 2.5 | 1299.4 | 2.7 | -14424 | 10 | -8135 | 3 |
| | Rh | 45 | 16319 | 7 | 16964 | 9 | -3363.3 | 2.7 | -1843 | 5 | -9644 | 10 | -7573.5 | 2.4 |
| | Pd | 46 | 17634.6 | 1.4 | 14866.6 | 1.4 | -2592.6 | 1.4 | -5426.7 | 2.1 | -9416.9 | 1.4 | -12664 | 4 |
| | Ag | 47 | 19012 | 9 | 12911 | 8 | -1950 | 19 | -8934 | 7 | -4374 | 5 | -12536 | 5 |
| | Cd | 48 | 20451.3 | 2.4 | 10643.2 | 1.8 | -1181 | 18 | -12341 | 6 | -3800.2 | 1.9 | -17407 | 10 |
| | In | 49 | 21630 | 7 | 8514 | 10 | -470 | 8 | -17010 | 120 | 1331 | 7 | -17280 | 70 |
| | Sn | 50 | 22830 | 100 | 6545 | 6 | 143 | 6 | * | | 1736 | 6 | -23520# | 300# |
| | Sb | 51 | * | | 3060 | 120 | 2710 | 220 | * | | 8170 | 120 | * | |
| 105 | Sr | 38 | 7330# | 540# | * | | -11910# | 710# | 22850# | 500# | * | | 7380# | 640# |
| | Y | 39 | 8960 | 1340 | 32240# | 1400# | -10850# | 1350# | 18650 | 1340 | * | | 6380 | 1340 |
| | Zr | 40 | 9792 | 15 | 28620# | 200# | -8565 | 15 | 15872 | 15 | -24650# | 300# | 2283 | 12 |
| | Nb | 41 | 11030 | 6 | 26036 | 12 | -7279 | 8 | 12370 | 40 | -23140# | 400# | 2363 | 10 |
| | Mo | 42 | 12519 | 13 | 24100 | 13 | -6596 | 12 | 8597 | 9 | -18902 | 13 | -2905 | 26 |
| | Tc | 43 | 13830 | 40 | 21840 | 40 | -5820 | 40 | 5560 | 40 | -17760 | 40 | -2270 | 40 |
| | Ru | 44 | 14810.0 | 2.5 | 19552 | 10 | -4839.5 | 2.5 | 2483.4 | 2.6 | -12873 | 9 | -7046 | 3 |
| | Rh | 45 | 15962 | 3 | 17825 | 10 | -3932 | 24 | -780 | 5 | -12637 | 25 | -6527.5 | 2.4 |
| | Pd | 46 | 17103.3 | 1.5 | 15728.7 | 1.2 | -2884.7 | 1.2 | -4084.0 | 1.8 | -7611.1 | 2.6 | -11373 | 4 |
| | Ag | 47 | 18411 | 6 | 13617 | 5 | -2083 | 7 | -7430 | 11 | -7400 | 5 | -11174 | 5 |
| | Cd | 48 | 19824.9 | 2.3 | 11454.6 | 1.7 | -1327 | 5 | -10996 | 4 | -2227.7 | 1.9 | -16222 | 6 |
| | In | 49 | 21151 | 14 | 9416 | 11 | -731 | 11 | -15625 | 24 | -1813 | 11 | -16085 | 12 |
| | Sn | 50 | 22510 | 70 | 7264 | 4 | 74 | 4 | -20530 | 300 | 3341 | 4 | -22240 | 120 |
| | Sb | 51 | 23980# | 300# | 3961 | 24 | 2170# | 200# | * | | 4878 | 23 | * | |
| | Te | 52 | * | | 420 | 310 | 5069 | 3 | * | | 11530 | 300 | * | |
| 106 | Sr | 38 | 6830# | 670# | * | | * | | 23760# | 740# | * | | 8410# | 1470# |
| | Y | 39 | 8130# | 640# | * | | -10770# | 590# | 20150# | 500# | * | | 7340# | 500# |
| | Zr | 40 | 8970 | 430 | 29020# | 530# | -8820 | 440 | 17580 | 430 | -27230# | 660# | 3290 | 430 |
| | Nb | 41 | 10527 | 5 | 26720# | 400# | -7455 | 6 | 13573 | 13 | -22220 | 1340 | 3062 | 10 |
| | Mo | 42 | 11927 | 13 | 24988 | 13 | -6972 | 13 | 10189 | 11 | -21959 | 15 | -1920 | 40 |
| | Tc | 43 | 13415 | 28 | 22535 | 13 | -5897 | 13 | 6586 | 11 | -17150 | 13 | -1913 | 12 |
| | Ru | 44 | 14370 | 5 | 20551 | 10 | -5182 | 10 | 3584 | 5 | -16275 | 11 | -6543 | 6 |
| | Rh | 45 | 15546 | 6 | 18437 | 25 | -4215 | 10 | 580 | 6 | -11360 | 40 | -6016 | 5 |
| | Pd | 46 | 16655.1 | 0.8 | 16389.8 | 2.6 | -3226.0 | 1.2 | -2775.39 | 0.10 | -11262.0 | 2.6 | -10908 | 5 |
| | Ag | 47 | 17969 | 5 | 14561 | 4 | -2584 | 7 | -6334 | 12 | -6380 | 4 | -10680 | 3 |
| | Cd | 48 | 19306.4 | 2.0 | 12315.0 | 0.8 | -1653.9 | 1.2 | -9778 | 5 | -6003.2 | 0.3 | -15563 | 10 |
| | In | 49 | 20568 | 14 | 10070 | 13 | -786 | 15 | -14135 | 14 | -826 | 13 | -15341 | 13 |
| | Sn | 50 | 21869 | 8 | 7963 | 5 | -119 | 5 | -19130 | 100 | -309 | 5 | -21410 | 22 |
| | Sb | 51 | 23440 | 120 | 4869 | 9 | 1797 | 9 | * | | 5878 | 13 | -21730 | 300 |
| | Te | 52 | * | | 1170 | 100 | 4290 | 9 | * | | 7830 | 100 | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|----|---------|-------|--------|-------|---------------|------|---------------|------|---------------|-------|---------------|-------|
| 107 | Sr | 38 | 2180# | 920# | * | | 43650# | 700# | * | | * | | * | |
| | Y | 39 | 4380# | 710# | 14860# | 780# | 36390# | 500# | 6960# | 710# | 6610# | 590# | * | |
| | Zr | 40 | 3900 | 1200 | 15620# | 1230# | 29480 | 1120 | 7600 | 1750 | 4550# | 1190# | -4630# | 1160# |
| | Nb | 41 | 5592 | 9 | 12460 | 430 | 23140 | 14 | 8452 | 15 | 6864 | 12 | -4010# | 400# |
| | Mo | 42 | 4488 | 13 | 13637 | 10 | 15821 | 9 | 8075 | 10 | 4132 | 10 | -1181 | 13 |
| | Tc | 43 | 7045 | 15 | 9904 | 13 | 9657 | 9 | 9298 | 13 | 6464 | 12 | -1285 | 9 |
| | Ru | 44 | 5611 | 10 | 11375 | 15 | 3128 | 9 | 9140 | 40 | 3505 | 26 | 2134 | 12 |
| | Rh | 45 | 8572 | 13 | 7829 | 13 | -3299 | 16 | 9782 | 12 | 6096 | 12 | 1286 | 28 |
| | Pd | 46 | 6536.4 | 0.5 | 9299 | 5 | -9860 | 5 | 10189.4 | 2.4 | 3450.8 | 2.6 | 5369.5 | 2.6 |
| | Ag | 47 | 9536 | 4 | 5788.1 | 2.3 | -17753 | 5 | 10722.0 | 2.3 | 5852.5 | 2.4 | 4199 | 3 |
| | Cd | 48 | 7929.4 | 1.9 | 7337 | 3 | -26450 | 70 | 10791 | 5 | 2990 | 5 | 8051.2 | 2.1 |
| | In | 49 | 11027 | 17 | 3721 | 11 | -34140# | 300# | 11480 | 11 | 5268 | 11 | 7199 | 12 |
| | Sn | 50 | 9230 | 7 | 5193 | 13 | * | | 11839 | 12 | 2534 | 8 | 11103 | 6 |
| | Sb | 51 | 12251 | 9 | 589 | 7 | * | | 13396 | 6 | 5838 | 7 | 11176 | 7 |
| | Te | 52 | 10390 | 120 | 1360 | 70 | * | | 14190 | 70 | 3500 | 100 | 16730 | 70 |
| | I | 53 | * | | -1500# | 320# | * | | 14090# | 420# | * | | 15390# | 320# |
| 108 | Y | 39 | 3000# | 780# | 15690# | 920# | 38630# | 600# | 8200# | 850# | 6180# | 780# | * | |
| | Zr | 40 | 5050# | 1190# | 16280# | 640# | 32310# | 400# | 5410# | 640# | 4780# | 1400# | -7100# | 640# |
| | Nb | 41 | 3893 | 11 | 12460 | 1120 | 25486 | 16 | 9720 | 430 | 6783 | 15 | -2630 | 1340 |
| | Mo | 42 | 6276 | 13 | 14321 | 12 | 18768 | 9 | 6158 | 10 | 4024 | 10 | -3645 | 15 |
| | Tc | 43 | 5244 | 12 | 10660 | 13 | 11684 | 9 | 10923 | 13 | 6278 | 13 | -361 | 10 |
| | Ru | 44 | 7870 | 12 | 12200 | 12 | 5591 | 9 | 6826 | 15 | 3490 | 40 | -678 | 13 |
| | Rh | 45 | 6239 | 18 | 8458 | 16 | -912 | 16 | 12002 | 15 | 5767 | 14 | 2900 | 40 |
| | Pd | 46 | 9222.9 | 1.6 | 9949 | 12 | -7454 | 5 | 7549 | 6 | 3191.1 | 2.7 | 2056.7 | 2.7 |
| | Ag | 47 | 7271.41 | 0.17 | 6523.1 | 2.3 | -15161 | 6 | 13011.6 | 2.3 | 5675.2 | 2.3 | 5891 | 3 |
| | Cd | 48 | 10333.5 | 2.0 | 8134.7 | 2.6 | -23471 | 6 | 8401 | 3 | 2682 | 5 | 4811.9 | 1.6 |
| | In | 49 | 8627 | 14 | 4419 | 9 | -31470 | 130 | 13723 | 9 | 5078 | 9 | 8597 | 10 |
| | Sn | 50 | 11629 | 8 | 5795 | 12 | * | | 9249 | 13 | 2435 | 12 | 7910 | 6 |
| | Sb | 51 | 9863 | 7 | 1222 | 8 | * | | 15619 | 7 | 5757 | 7 | 12842 | 12 |
| | Te | 52 | 13310 | 70 | 2417 | 7 | * | | 11402 | 9 | 3098 | 21 | 13203 | 7 |
| | I | 53 | 11290# | 330# | -600 | 110 | * | | 16280 | 170 | 5030 | 330 | 17010 | 130 |
| 109 | Y | 39 | 3980# | 920# | * | | 41080# | 700# | 6410# | 990# | 6450# | 920# | * | |
| | Zr | 40 | 2910# | 640# | 16190# | 780# | 34550# | 500# | 6880# | 710# | 4720# | 710# | -5760# | 780# |
| | Nb | 41 | 5220 | 260 | 12630# | 480# | 28310 | 260 | 8400 | 1150 | 6720 | 500 | -4990# | 570# |
| | Mo | 42 | 3981 | 14 | 14409 | 14 | 20940 | 11 | 7769 | 14 | 4401 | 12 | -2470 | 430 |
| | Tc | 43 | 6431 | 13 | 10816 | 13 | 14437 | 10 | 8980 | 13 | 6716 | 13 | -2433 | 11 |
| | Ru | 44 | 5148 | 12 | 12105 | 12 | 7766 | 9 | 8722 | 12 | 3902 | 15 | 1043 | 13 |
| | Rh | 45 | 8039 | 15 | 8627 | 10 | 1490 | 6 | 9574 | 10 | 6188 | 7 | 423 | 13 |
| | Pd | 46 | 6153.59 | 0.15 | 9864 | 14 | -4976 | 8 | 9968 | 12 | 3620 | 6 | 4363 | 6 |
| | Ag | 47 | 9184.0 | 2.7 | 6484.2 | 1.4 | -12468 | 5 | 10364.0 | 1.8 | 6052.2 | 1.7 | 3290 | 6 |
| | Cd | 48 | 7323.2 | 1.8 | 8186.5 | 2.8 | -20789 | 5 | 10613.2 | 2.8 | 3302 | 3 | 7049.6 | 1.9 |
| | In | 49 | 10441 | 9 | 4526 | 4 | -28817 | 8 | 11212 | 4 | 5507 | 4 | 6099 | 5 |
| | Sn | 50 | 8632 | 10 | 5799 | 12 | -36460 | 300 | 11645 | 14 | 2842 | 15 | 10148 | 8 |
| | Sb | 51 | 11877 | 8 | 1470 | 8 | * | | 12972 | 7 | 5967 | 7 | 10004 | 13 |
| | Te | 52 | 10005 | 7 | 2559 | 7 | * | | 13649 | 6 | 3622 | 9 | 15285 | 7 |
| | I | 53 | 13090 | 130 | -820 | 4 | * | | 13580 | 70 | 5410 | 100 | 14447 | 10 |
| | Xe | 54 | * | | 810 | 330 | * | | 13970# | 420# | * | | 17700 | 320 |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | $Q(\alpha)$ | | $Q(2\beta^-)$ | | $Q(\epsilon p)$ | | $Q(\beta^- n)$ | |
|-----|------|----|---------|-------|---------|-------|-------------|-------|---------------|-------|-----------------|-------|----------------|-------|
| 107 | Sr | 38 | 6430# | 860# | * | | * | | 25480# | 1320# | * | | 9080# | 860# |
| | Y | 39 | 7240# | 1430# | * | | -11180# | 640# | 21360# | 500# | * | | 8110# | 660# |
| | Zr | 40 | 9060 | 1120 | 30350# | 1230# | -9380# | 1140# | 18170 | 1120 | -26880# | 1270# | 3750 | 1120 |
| | Nb | 41 | 9951 | 9 | 27030 | 1340 | -7691 | 14 | 15026 | 12 | -24960# | 500# | 4339 | 12 |
| | Mo | 42 | 11357 | 13 | 25665 | 15 | -7161 | 13 | 11311 | 13 | -21290 | 430 | -847 | 15 |
| | Tc | 43 | 12600 | 40 | 23412 | 10 | -6146 | 10 | 8114 | 15 | -19836 | 10 | -498 | 10 |
| | Ru | 44 | 14071 | 8 | 21103 | 13 | -5327 | 13 | 4510 | 9 | -15017 | 13 | -5571 | 10 |
| | Rh | 45 | 15155 | 12 | 19150 | 40 | -4685 | 16 | 1543 | 12 | -14376 | 17 | -5027 | 12 |
| | Pd | 46 | 16097.4 | 0.6 | 17016.1 | 2.6 | -3530.4 | 1.3 | -1382.4 | 2.0 | -9338 | 5 | -9501.6 | 2.9 |
| | Ag | 47 | 17478 | 5 | 15133 | 3 | -2800 | 3 | -4842 | 11 | -9333 | 6 | -9345.8 | 2.3 |
| | Cd | 48 | 18799.1 | 2.2 | 13150.3 | 2.0 | -1958.0 | 1.9 | -8478 | 6 | -4371.7 | 1.9 | -14453 | 12 |
| | In | 49 | 20066 | 15 | 11071 | 12 | -1186 | 12 | -12911 | 12 | -3911 | 12 | -14282 | 12 |
| | Sn | 50 | 21317 | 7 | 8756 | 5 | -286 | 6 | -17970 | 70 | 1331 | 5 | -20110 | 9 |
| | Sb | 51 | 22780 | 22 | 5591 | 11 | 1554 | 10 | -21220# | 300# | 2666 | 13 | -20500 | 100 |
| | Te | 52 | 23870 | 310 | 1780 | 70 | 4008 | 5 | * | | 9530 | 70 | * | |
| | I | 53 | * | | -10# | 300# | 4320# | 420# | * | | 9760# | 300# | * | |
| 108 | Y | 39 | 7390# | 780# | * | | * | | 22250# | 600# | * | | 9010# | 1270# |
| | Zr | 40 | 8950# | 590# | 31140# | 720# | -9670# | 500# | 19400# | 400# | -29740# | 810# | 4300# | 400# |
| | Nb | 41 | 9485 | 9 | 28070# | 500# | -7910# | 400# | 16377 | 12 | -24470# | 500# | 4934 | 12 |
| | Mo | 42 | 10764 | 13 | 26780 | 430 | -7457 | 13 | 12905 | 13 | -23670 | 1120 | -77 | 13 |
| | Tc | 43 | 12289 | 15 | 24297 | 10 | -6529 | 9 | 9109 | 17 | -19488 | 12 | -132 | 12 |
| | Ru | 44 | 13481 | 10 | 22105 | 13 | -5736 | 12 | 5863 | 9 | -18399 | 13 | -4869 | 15 |
| | Rh | 45 | 14812 | 15 | 19833 | 19 | -4953 | 29 | 2575 | 14 | -13571 | 16 | -4730 | 14 |
| | Pd | 46 | 15759.3 | 1.6 | 17779 | 6 | -3853.4 | 2.7 | -271.8 | 0.8 | -12951 | 9 | -9188.9 | 2.6 |
| | Ag | 47 | 16807 | 4 | 15822 | 6 | -3072 | 3 | -3487 | 9 | -8032 | 12 | -8687.8 | 2.6 |
| | Cd | 48 | 18262.9 | 1.6 | 13922.8 | 1.6 | -2282.2 | 1.7 | -7182 | 5 | -8168.7 | 1.6 | -13759 | 11 |
| | In | 49 | 19654 | 15 | 11755 | 9 | -1428 | 10 | -11674 | 10 | -3002 | 9 | -13679 | 10 |
| | Sn | 50 | 20859 | 7 | 9516 | 5 | -526 | 6 | -16288 | 8 | -2369 | 6 | -19488 | 7 |
| | Sb | 51 | 22115 | 9 | 6415 | 13 | 1312 | 8 | -19800 | 130 | 3830 | 12 | -19980 | 70 |
| | Te | 52 | 23700 | 100 | 3006 | 7 | 3420 | 8 | * | | 5442 | 8 | -24420# | 300# |
| | I | 53 | * | | 750 | 130 | 4100 | 50 | * | | 10710 | 130 | * | |
| 109 | Y | 39 | 6980# | 860# | * | | * | | 23490# | 750# | * | | 10080# | 810# |
| | Zr | 40 | 7960# | 1230# | 31870# | 860# | -10010# | 710# | 20470# | 500# | * | | 5280# | 500# |
| | Nb | 41 | 9110 | 260 | 28900# | 570# | -7840 | 1360 | 17590 | 260 | -26680# | 650# | 5990 | 260 |
| | Mo | 42 | 10257 | 14 | 26860 | 1120 | -7626 | 16 | 14072 | 14 | -22600# | 400# | 1185 | 14 |
| | Tc | 43 | 11675 | 12 | 25137 | 13 | -6792 | 10 | 10717 | 10 | -22026 | 13 | 1307 | 12 |
| | Ru | 44 | 13019 | 12 | 22765 | 13 | -5826 | 13 | 6868 | 9 | -17271 | 13 | -3778 | 17 |
| | Rh | 45 | 14278 | 13 | 20827 | 10 | -5130 | 40 | 3720 | 4 | -16366 | 10 | -3547 | 4 |
| | Pd | 46 | 15376.5 | 1.6 | 18322 | 9 | -4096.9 | 2.7 | 897.8 | 1.8 | -11234 | 9 | -8071.0 | 2.6 |
| | Ag | 47 | 16455.4 | 2.7 | 16434 | 12 | -3293.1 | 2.8 | -2230 | 4 | -10977 | 14 | -7538.3 | 1.5 |
| | Cd | 48 | 17656.7 | 2.3 | 14709.6 | 2.0 | -2511.3 | 1.9 | -5874 | 8 | -6269.1 | 1.8 | -12456 | 9 |
| | In | 49 | 19068 | 12 | 12661 | 5 | -1844 | 6 | -10239 | 7 | -6172 | 5 | -12491 | 7 |
| | Sn | 50 | 20261 | 10 | 10218 | 8 | -721 | 8 | -14915 | 9 | -667 | 8 | -18256 | 10 |
| | Sb | 51 | 21740 | 7 | 7265 | 12 | 965 | 12 | -18578 | 9 | 580 | 10 | -18541 | 8 |
| | Te | 52 | 23320 | 70 | 3781 | 7 | 3198 | 6 | -21550 | 300 | 7066 | 7 | -23140 | 130 |
| | I | 53 | 24390# | 300# | 1597 | 8 | 3918 | 21 | * | | 7484 | 9 | * | |
| | Xe | 54 | * | | 210 | 310 | 4217 | 7 | * | | 12320 | 300 | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | Q($4\beta^-$) | | Q(d, α) | | Q(p, α) | | Q(n, α) | |
|-----|------|----|---------|------|--------|------|-----------------|------|-----------------|------|-----------------|------|-----------------|------|
| 110 | Zr | 40 | 4770# | 780# | 16980# | 920# | 37190# | 600# | 5120# | 840# | 4340# | 780# | -8340# | 920# |
| | Nb | 41 | 3690 | 880 | 13410# | 980# | 30520 | 840 | 9750# | 930# | 6930 | 1400 | -4300# | 980# |
| | Mo | 42 | 5948 | 27 | 15140 | 260 | 23788 | 24 | 5714 | 26 | 4045 | 26 | -4520 | 1120 |
| | Tc | 43 | 4823 | 13 | 11657 | 15 | 16423 | 10 | 10432 | 13 | 6381 | 13 | -1664 | 12 |
| | Ru | 44 | 7405 | 12 | 13079 | 13 | 10275 | 9 | 6561 | 12 | 3541 | 12 | -1875 | 13 |
| | Rh | 45 | 5901 | 18 | 9379 | 20 | 3641 | 21 | 11543 | 20 | 5898 | 20 | 1568 | 20 |
| | Pd | 46 | 8795.7 | 1.3 | 10620 | 4 | -2489 | 14 | 7412 | 14 | 3397 | 12 | 1178 | 9 |
| | Ag | 47 | 6809.19 | 0.10 | 7139.8 | 1.4 | -10008 | 6 | 12777.7 | 1.4 | 5779.4 | 1.8 | 5053 | 12 |
| | Cd | 48 | 9915.0 | 1.6 | 8917.5 | 1.3 | -18118 | 7 | 7969.6 | 2.4 | 2922.8 | 2.4 | 3671.1 | 1.3 |
| | In | 49 | 8052 | 12 | 5255 | 12 | -26010 | 50 | 13493 | 12 | 5384 | 12 | 7583 | 12 |
| | Sn | 50 | 11283 | 16 | 6641 | 14 | -33920 | 100 | 8989 | 16 | 2586 | 18 | 6795 | 14 |
| | Sb | 51 | 9270 | 8 | 2109 | 10 | * | | 15331 | 8 | 5927 | 8 | 11761 | 13 |
| | Te | 52 | 12586 | 8 | 3268 | 8 | * | | 10926 | 9 | 3287 | 8 | 11929 | 8 |
| | I | 53 | 10860 | 50 | 40 | 50 | * | | 16030 | 50 | 4940 | 90 | 15840 | 50 |
| | Xe | 54 | 13820 | 320 | 1540 | 100 | * | | 11440 | 170 | 2370# | 320# | 14260 | 120 |
| 111 | Zr | 40 | 2750# | 920# | * | | 39230# | 700# | 6350# | 990# | 4600# | 920# | * | |
| | Nb | 41 | 4640# | 890# | 13280# | 670# | 33430# | 300# | 8030# | 590# | 7340# | 500# | -5930# | 670# |
| | Mo | 42 | 3468 | 27 | 14920 | 840 | 26046 | 13 | 7460 | 260 | 4470 | 15 | -2940# | 400# |
| | Tc | 43 | 6061 | 14 | 11771 | 26 | 19191 | 11 | 8352 | 15 | 6595 | 14 | -3832 | 13 |
| | Ru | 44 | 4784 | 13 | 13040 | 13 | 12467 | 10 | 8208 | 13 | 4002 | 13 | -383 | 13 |
| | Rh | 45 | 7547 | 19 | 9521 | 11 | 6088 | 8 | 9145 | 11 | 6221 | 11 | -735 | 11 |
| | Pd | 46 | 5726.3 | 0.4 | 10446 | 18 | -47 | 5 | 9724 | 4 | 3910 | 14 | 3322 | 9 |
| | Ag | 47 | 8829.5 | 1.9 | 7173.5 | 1.5 | -7379 | 9 | 10101.8 | 1.8 | 6172.8 | 1.8 | 2463 | 14 |
| | Cd | 48 | 6975.60 | 0.17 | 9083.9 | 1.3 | -15665 | 6 | 10178.0 | 1.3 | 3218.6 | 2.4 | 5918.4 | 1.1 |
| | In | 49 | 9993 | 12 | 5333 | 3 | -23438 | 6 | 10823 | 4 | 5724 | 4 | 4861 | 4 |
| | Sn | 50 | 8168 | 15 | 6758 | 13 | -31540 | 90 | 11262 | 7 | 3045 | 10 | 8960 | 5 |
| | Sb | 51 | 11458 | 11 | 2284 | 16 | -38020# | 200# | 12504 | 12 | 6097 | 10 | 8929 | 12 |
| | Te | 52 | 9429 | 9 | 3427 | 9 | * | | 13374 | 8 | 3722 | 8 | 14129 | 8 |
| | I | 53 | 12560 | 50 | 13 | 8 | * | | 13472 | 6 | 5692 | 7 | 13138 | 7 |
| | Xe | 54 | 10540 | 130 | 1220 | 100 | * | | 13990 | 90 | 3120 | 120 | 17030 | 90 |
| | Cs | 55 | * | | -1810# | 220# | * | | 14060# | 360# | * | | 15480# | 240# |
| 112 | Zr | 40 | 4320# | 990# | * | | 41820# | 700# | * | | 4250# | 990# | * | |
| | Nb | 41 | 3470# | 420# | 14000# | 760# | 35460# | 300# | 9320# | 670# | 6780# | 590# | -5430# | 760# |
| | Mo | 42 | 5600# | 200# | 15880# | 360# | 28860# | 200# | 5560# | 860# | 4090# | 320# | -5630# | 540# |
| | Tc | 43 | 4306 | 12 | 12608 | 14 | 21325 | 6 | 9994 | 25 | 6271 | 12 | -2920 | 260 |
| | Ru | 44 | 6917 | 13 | 13895 | 14 | 14944 | 10 | 6114 | 13 | 3516 | 13 | -3318 | 15 |
| | Rh | 45 | 5500 | 40 | 10240 | 50 | 8260 | 40 | 11050 | 40 | 5870 | 40 | 200 | 50 |
| | Pd | 46 | 8407 | 7 | 11306 | 9 | 2333 | 7 | 7218 | 19 | 3542 | 8 | 63 | 11 |
| | Ag | 47 | 6439.6 | 2.8 | 7886.8 | 2.5 | -4985 | 18 | 12458.0 | 2.5 | 5886.8 | 2.7 | 4062 | 5 |
| | Cd | 48 | 9393.93 | 0.28 | 9648.4 | 1.4 | -13007 | 8 | 7593.2 | 1.3 | 3008.6 | 1.3 | 2678.0 | 1.1 |
| | In | 49 | 7669 | 5 | 6027 | 4 | -20927 | 11 | 13069 | 4 | 5378 | 5 | 6376 | 4 |
| | Sn | 50 | 10788 | 5 | 7552 | 3 | -28629 | 8 | 8526 | 12 | 2699 | 4 | 5495.7 | 1.6 |
| | Sb | 51 | 8834 | 20 | 2949 | 19 | -35310 | 90 | 14954 | 23 | 5895 | 20 | 10537 | 18 |
| | Te | 52 | 12051 | 11 | 4020 | 12 | * | | 10593 | 10 | 3548 | 10 | 10709 | 12 |
| | I | 53 | 10181 | 11 | 765 | 12 | * | | 15877 | 12 | 5516 | 11 | 14834 | 12 |
| | Xe | 54 | 13700 | 90 | 2362 | 10 | * | | 11150 | 50 | 2510 | 7 | 13335 | 9 |
| | Cs | 55 | 11540# | 210# | -816 | 4 | * | | 16340 | 130 | 4740 | 310 | 17030 | 90 |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q($2\beta^-$) | | Q(ϵp) | | Q($\beta^- n$) | |
|-----|------|----|---------|------|---------|-------|---------------|------|-----------------|------|-------------------|-------|------------------|-------|
| 110 | Zr | 40 | 7680# | 720# | * | | -10520# | 850# | 21660# | 600# | * | | 5730# | 650# |
| | Nb | 41 | 8910 | 840 | 29590# | 1030# | -8680# | 980# | 18720 | 840 | -26400# | 1090# | 6280 | 840 |
| | Mo | 42 | 9929 | 26 | 27770# | 400# | -8420 | 430 | 15530 | 26 | -25640# | 500# | 1669 | 26 |
| | Tc | 43 | 11254 | 12 | 26067 | 13 | -7256 | 10 | 11794 | 20 | -21630 | 260 | 1633 | 13 |
| | Ru | 44 | 12554 | 12 | 23895 | 13 | -6363 | 13 | 8258 | 9 | -20696 | 14 | -3144 | 10 |
| | Rh | 45 | 13940 | 23 | 21484 | 20 | -5477 | 22 | 4629 | 18 | -15835 | 20 | -3294 | 18 |
| | Pd | 46 | 14949.3 | 1.3 | 19247 | 9 | -4433 | 5 | 2017.1 | 0.5 | -14881 | 9 | -7682.8 | 1.4 |
| | Ag | 47 | 15993.2 | 2.7 | 17004 | 14 | -3520 | 6 | -987 | 12 | -9747 | 4 | -7024.3 | 1.8 |
| | Cd | 48 | 17238.2 | 1.2 | 15401.7 | 1.2 | -2865.4 | 1.2 | -4506 | 14 | -10030.5 | 1.2 | -11930 | 4 |
| | In | 49 | 18493 | 14 | 13441 | 12 | -1953 | 12 | -9020 | 13 | -5040 | 12 | -11911 | 14 |
| | Sn | 50 | 19915 | 15 | 11168 | 14 | -1135 | 14 | -13612 | 15 | -4627 | 14 | -17662 | 15 |
| | Sb | 51 | 21147 | 8 | 7908 | 10 | 733 | 14 | -16990 | 50 | 1751 | 7 | -17806 | 7 |
| | Te | 52 | 22591 | 9 | 4738 | 8 | 2699 | 8 | -20310 | 100 | 3111 | 10 | -22629 | 9 |
| | I | 53 | 23960 | 140 | 2600 | 50 | 3580 | 50 | * | | 8500 | 50 | -22370 | 300 |
| | Xe | 54 | * | | 720 | 100 | 3872 | 9 | * | | 8500 | 100 | * | |
| 111 | Zr | 40 | 7510# | 860# | * | | -11090# | 990# | 22380# | 700# | * | | 6680# | 1090# |
| | Nb | 41 | 8330# | 400# | 30250# | 760# | -8940# | 590# | 20150# | 300# | * | | 7600# | 300# |
| | Mo | 42 | 9416 | 17 | 28330# | 500# | -7980 | 1120 | 16846 | 15 | -24340# | 600# | 3023 | 15 |
| | Tc | 43 | 10884 | 14 | 26910 | 260 | -7726 | 13 | 13280 | 13 | -24000 | 840 | 2977 | 13 |
| | Ru | 44 | 12190 | 13 | 24697 | 15 | -6659 | 13 | 9201 | 10 | -19532 | 26 | -2028 | 20 |
| | Rh | 45 | 13448 | 8 | 22600 | 12 | -5979 | 11 | 5911 | 7 | -18559 | 12 | -2045 | 7 |
| | Pd | 46 | 14522.0 | 1.3 | 19825 | 9 | -4548 | 9 | 3266.4 | 0.7 | -13202 | 9 | -6599.9 | 1.4 |
| | Ag | 47 | 15638.7 | 1.9 | 17794 | 4 | -3777 | 12 | 177 | 4 | -12676 | 18 | -5938.8 | 1.4 |
| | Cd | 48 | 16890.6 | 1.6 | 16223.7 | 1.2 | -3304.5 | 1.3 | -3314 | 5 | -8210.3 | 0.6 | -10854 | 12 |
| | In | 49 | 18045.2 | 2.7 | 14251 | 4 | -2410 | 4 | -7555 | 9 | -8224 | 4 | -10621 | 14 |
| | Sn | 50 | 19451 | 10 | 12012 | 6 | -1373 | 6 | -12351 | 8 | -2880 | 5 | -16560 | 8 |
| | Sb | 51 | 20728 | 10 | 8925 | 10 | 303 | 14 | -15883 | 10 | -1656 | 15 | -16678 | 11 |
| | Te | 52 | 22015 | 8 | 5535 | 10 | 2500 | 8 | -19190 | 90 | 4966 | 15 | -21190 | 50 |
| | I | 53 | 23424 | 8 | 3281 | 7 | 3275 | 5 | -22130# | 200# | 5207 | 8 | -21100 | 100 |
| | Xe | 54 | 24370 | 310 | 1260 | 90 | 3720 | 50 | * | | 10550 | 90 | * | |
| | Cs | 55 | * | | -270# | 200# | 4180# | 360# | * | | 10350# | 200# | * | |
| 112 | Zr | 40 | 7070# | 920# | * | | * | | 23650# | 730# | * | | 6990# | 760# |
| | Nb | 41 | 8110# | 890# | * | | -9400# | 670# | 20990# | 300# | * | | 7600# | 300# |
| | Mo | 42 | 9060# | 200# | 29160# | 630# | -8540# | 450# | 18170# | 200# | -27190# | 730# | 3490# | 200# |
| | Tc | 43 | 10367 | 11 | 27530 | 840 | -8138 | 10 | 14470 | 40 | -23670# | 300# | 3455 | 11 |
| | Ru | 44 | 11701 | 13 | 25666 | 26 | -7300 | 13 | 10691 | 12 | -22980 | 15 | -1398 | 12 |
| | Rh | 45 | 13050 | 50 | 23270 | 50 | -6230 | 40 | 6850 | 40 | -18000 | 50 | -1820 | 40 |
| | Pd | 46 | 14133 | 7 | 20827 | 11 | -5085 | 11 | 4253 | 7 | -16825 | 12 | -6177 | 7 |
| | Ag | 47 | 15269.1 | 2.7 | 18333 | 18 | -3977 | 14 | 1406 | 5 | -11568 | 7 | -5402.8 | 2.4 |
| | Cd | 48 | 16369.5 | 0.3 | 16821.9 | 0.6 | -3475.6 | 1.1 | -1919.80 | 0.16 | -11877.9 | 0.7 | -10254 | 3 |
| | In | 49 | 17663 | 12 | 15111 | 4 | -2808 | 5 | -6391 | 18 | -7064 | 4 | -10123 | 7 |
| | Sn | 50 | 18956 | 14 | 12885.0 | 0.4 | -1827.6 | 1.2 | -11088 | 8 | -6691.8 | 0.3 | -15890 | 9 |
| | Sb | 51 | 20292 | 19 | 9707 | 21 | 96 | 20 | -14536 | 21 | -496 | 18 | -16083 | 19 |
| | Te | 52 | 21480 | 11 | 6303 | 16 | 2078 | 10 | -17541 | 12 | 1082 | 10 | -20685 | 10 |
| | I | 53 | 22740 | 50 | 4192 | 12 | 2957 | 12 | -20770 | 90 | 6484 | 14 | -20740 | 90 |
| | Xe | 54 | 24250 | 100 | 2374 | 11 | 3330 | 6 | * | | 6272 | 10 | -25280# | 200# |
| | Cs | 55 | * | | 400 | 100 | 3930 | 120 | * | | 11370 | 90 | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|----|---------|------|---------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 113 | Nb | 41 | 4310# | 500# | 13990# | 810# | 38260# | 400# | 7760# | 810# | 7240# | 720# | * | |
| | Mo | 42 | 3100# | 360# | 15510# | 420# | 31100# | 300# | 7100# | 420# | 4680# | 890# | -3960# | 670# |
| | Tc | 43 | 5624 | 6 | 12640# | 200# | 24215 | 17 | 7839 | 13 | 6595 | 24 | -4860 | 840 |
| | Ru | 44 | 4310 | 40 | 13900 | 40 | 17180 | 40 | 7870 | 40 | 4030 | 40 | -1680 | 40 |
| | Rh | 45 | 7110 | 40 | 10426 | 12 | 10600 | 7 | 8729 | 12 | 6169 | 11 | -2087 | 12 |
| | Pd | 46 | 5341 | 9 | 11150 | 40 | 4737 | 7 | 9424 | 10 | 4102 | 19 | 2128 | 11 |
| | Ag | 47 | 8514 | 17 | 7994 | 18 | -2610 | 24 | 9670 | 17 | 6168 | 17 | 1448 | 24 |
| | Cd | 48 | 6539.74 | 0.22 | 9748.5 | 2.4 | -10696 | 28 | 9883.0 | 1.5 | 3278.1 | 1.3 | 4934.0 | 0.6 |
| | In | 49 | 9448 | 4 | 6081.23 | 0.24 | -18248 | 8 | 10595.9 | 0.4 | 5844.9 | 0.4 | 3736.6 | 1.3 |
| | Sn | 50 | 7744.4 | 1.6 | 7627 | 5 | -26125 | 7 | 10775 | 4 | 3006 | 12 | 7666.2 | 1.6 |
| | Sb | 51 | 10889 | 25 | 3051 | 17 | -32652 | 19 | 12232 | 18 | 6289 | 22 | 7699 | 21 |
| | Te | 52 | 8851 | 29 | 4040 | 30 | -38560# | 300# | 13201 | 29 | 3967 | 29 | 13140 | 30 |
| | I | 53 | 12127 | 13 | 841 | 12 | * | | 13179 | 10 | 5974 | 10 | 11977 | 10 |
| | Xe | 54 | 10249 | 11 | 2429 | 12 | * | | 13461 | 8 | 3120 | 50 | 15673 | 9 |
| | Cs | 55 | 13550 | 90 | -972.8 | 2.2 | * | | 13340 | 90 | 5020 | 100 | 14350 | 50 |
| | Ba | 56 | * | | 780# | 310# | * | | 13750# | 360# | * | | 17790# | 320# |
| 114 | Nb | 41 | 2950# | 640# | * | | 40320# | 510# | 9130# | 860# | 7040# | 860# | * | |
| | Mo | 42 | 5390# | 420# | 16590# | 500# | 33680# | 300# | 5180# | 420# | 3930# | 420# | -6600# | 760# |
| | Tc | 43 | 3860 | 430 | 13400# | 530# | 26330 | 430 | 9570# | 480# | 6200 | 430 | -4080# | 530# |
| | Ru | 44 | 6430 | 40 | 14699 | 5 | 19793 | 4 | 5748 | 7 | 3667 | 11 | -4636 | 13 |
| | Rh | 45 | 5010 | 70 | 11130 | 80 | 12860 | 70 | 10630 | 70 | 5940 | 70 | -1040 | 70 |
| | Pd | 46 | 7971 | 10 | 12012 | 10 | 7069 | 7 | 6950 | 40 | 3678 | 10 | -1059 | 12 |
| | Ag | 47 | 5975 | 17 | 8629 | 8 | -434 | 22 | 12102 | 8 | 5919 | 5 | 3020 | 8 |
| | Cd | 48 | 9042.97 | 0.14 | 10277 | 17 | -8126 | 28 | 7279.6 | 2.4 | 3064.6 | 1.5 | 1617.4 | 0.7 |
| | In | 49 | 7274.00 | 0.25 | 6815.5 | 0.4 | -15770# | 150# | 12715.9 | 0.3 | 5546.5 | 0.4 | 5292.0 | 1.5 |
| | Sn | 50 | 10302.9 | 1.6 | 8481.58 | 0.19 | -23474 | 11 | 8141 | 4 | 2696 | 3 | 4338.9 | 0.4 |
| | Sb | 51 | 8151 | 28 | 3457 | 22 | -29810 | 70 | 14869 | 22 | 6306 | 22 | 9542 | 22 |
| | Te | 52 | 11610 | 40 | 4760 | 30 | -35980 | 110 | 10420 | 30 | 3812 | 29 | 9696 | 28 |
| | I | 53 | 9750# | 150# | 1740# | 150# | * | | 15480# | 150# | 5660# | 150# | 13690# | 150# |
| | Xe | 54 | 12954 | 13 | 3255 | 14 | * | | 10688 | 15 | 2732 | 12 | 12148 | 13 |
| | Cs | 55 | 10990 | 70 | -230 | 70 | * | | 16050 | 70 | 4580 | 110 | 15920 | 70 |
| | Ba | 56 | 14190# | 320# | 1430 | 100 | * | | 11100 | 130 | 1780# | 220# | 14140 | 130 |
| 115 | Nb | 41 | 4040# | 710# | * | | 42880# | 500# | * | | 7320# | 860# | * | |
| | Mo | 42 | 3010# | 500# | 16650# | 640# | 35680# | 400# | 6470# | 570# | 4390# | 500# | -5290# | 810# |
| | Tc | 43 | 5790 | 900 | 13800# | 840# | 28660 | 790 | 6880# | 850# | 6010# | 810# | -6400# | 840# |
| | Ru | 44 | 4040 | 90 | 14880 | 440 | 21890 | 90 | 7330 | 90 | 3930 | 90 | -3080# | 220# |
| | Rh | 45 | 6590 | 70 | 11297 | 8 | 15307 | 7 | 8350 | 40 | 6265 | 12 | -3324 | 9 |
| | Pd | 46 | 5007 | 15 | 12000 | 70 | 9607 | 14 | 9052 | 15 | 4170 | 50 | 851 | 17 |
| | Ag | 47 | 8123 | 19 | 8781 | 20 | 2021 | 24 | 9319 | 20 | 6203 | 19 | 400 | 50 |
| | Cd | 48 | 6140.9 | 0.6 | 10443 | 5 | -6022 | 28 | 9653 | 17 | 3363.3 | 2.5 | 3883 | 7 |
| | In | 49 | 9037.9 | 0.3 | 6810.38 | 0.28 | -13199 | 29 | 10217.74 | 0.24 | 5902.57 | 0.25 | 2693.8 | 2.4 |
| | Sn | 50 | 7545.43 | 0.03 | 8753.0 | 0.3 | -21377 | 12 | 10044.09 | 0.19 | 2820 | 4 | 6187.43 | 0.25 |
| | Sb | 51 | 10578 | 27 | 3733 | 16 | -27300# | 100# | 12036 | 16 | 6516 | 16 | 6633 | 17 |
| | Te | 52 | 8250 | 40 | 4860 | 40 | -33040# | 200# | 13070 | 30 | 4400 | 30 | 12239 | 28 |
| | I | 53 | 11610# | 150# | 1740 | 40 | * | | 12720 | 40 | 6090 | 30 | 10910 | 30 |
| | Xe | 54 | 9642 | 16 | 3150# | 150# | * | | 13174 | 15 | 3271 | 16 | 14557 | 15 |
| | Cs | 55 | 13090# | 130# | -100# | 100# | * | | 13220# | 100# | 5190# | 100# | 13010# | 100# |
| | Ba | 56 | 11190# | 230# | 1630# | 210# | * | | 13460# | 200# | 2130# | 220# | 16650# | 200# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q($2\beta^-$) | | Q(ϵp) | | Q($\beta^- n$) | |
|-----|------|----|----------|------|----------|------|---------------|------|-----------------|------|-------------------|------|------------------|------|
| 113 | Nb | 41 | 7780# | 500# | * | | -9740# | 810# | 22300# | 400# | * | | 8880# | 450# |
| | Mo | 42 | 8690# | 300# | 29510# | 760# | -8720# | 590# | 19380# | 300# | -25970# | 760# | 4700# | 300# |
| | Tc | 43 | 9930 | 11 | 28510# | 300# | -8550 | 260 | 15956 | 8 | -25830# | 300# | 4748 | 10 |
| | Ru | 44 | 11230 | 40 | 26510 | 40 | -7630 | 40 | 11720 | 40 | -21690# | 200# | -210 | 60 |
| | Rh | 45 | 12606 | 10 | 24321 | 13 | -6910 | 12 | 8259 | 18 | -20798 | 9 | -517 | 10 |
| | Pd | 46 | 13748 | 7 | 21384 | 12 | -5278 | 11 | 5452 | 7 | -15249 | 12 | -5079 | 7 |
| | Ag | 47 | 14954 | 17 | 19300 | 18 | -4452 | 17 | 2340 | 17 | -14580 | 50 | -4523 | 17 |
| | Cd | 48 | 15933.7 | 0.3 | 17635.3 | 0.7 | -3861.7 | 1.1 | -715.2 | 1.6 | -10011 | 7 | -9124 | 4 |
| | In | 49 | 17118 | 3 | 15729.6 | 1.5 | -3072.6 | 1.3 | -4950 | 17 | -10072.4 | 2.4 | -8783.38 | 0.28 |
| | Sn | 50 | 18532 | 6 | 13653.8 | 1.6 | -2248.7 | 2.2 | -9981 | 28 | -5042.2 | 1.6 | -14800 | 18 |
| | Sb | 51 | 19723 | 19 | 10603 | 18 | -352 | 18 | -13297 | 19 | -3716 | 18 | -14921 | 19 |
| | Te | 52 | 20902 | 29 | 6986 | 28 | 1858 | 29 | -16143 | 29 | 3019 | 28 | -19355 | 30 |
| | I | 53 | 22308 | 9 | 4861 | 12 | 2707 | 10 | -19355 | 12 | 3190 | 20 | -19164 | 12 |
| | Xe | 54 | 23950 | 90 | 3194 | 9 | 3087 | 8 | -22420# | 300# | 8075 | 11 | -23980 | 90 |
| | Cs | 55 | 25090# | 200# | 1389 | 10 | 3483 | 8 | * | | 8010 | 13 | * | |
| | Ba | 56 | * | | -30# | 310# | 3960# | 420# | * | | 12950# | 300# | * | |
| 114 | Nb | 41 | 7260# | 590# | * | | * | | 23210# | 660# | * | | 9030# | 590# |
| | Mo | 42 | 8490# | 360# | 30570# | 760# | -9350# | 670# | 20420# | 300# | * | | 4930# | 300# |
| | Tc | 43 | 9480 | 430 | 28900# | 530# | -8720 | 940 | 17110 | 440 | -25380# | 590# | 5200 | 430 |
| | Ru | 44 | 10734 | 10 | 27340# | 200# | -8104 | 24 | 13269 | 8 | -25020# | 300# | 474 | 8 |
| | Rh | 45 | 12120 | 80 | 25030 | 70 | -7100 | 70 | 9220 | 70 | -20190 | 70 | -190 | 70 |
| | Pd | 46 | 13312 | 9 | 22438 | 12 | -5843 | 11 | 6524 | 7 | -18910 | 40 | -4535 | 18 |
| | Ag | 47 | 14490 | 5 | 19780 | 40 | -4527 | 18 | 3639 | 5 | -13452 | 8 | -3959 | 5 |
| | Cd | 48 | 15582.71 | 0.25 | 18271 | 7 | -4108.9 | 0.6 | 544.79 | 0.28 | -13713 | 7 | -8719.13 | 0.30 |
| | In | 49 | 16722 | 4 | 16564.0 | 2.4 | -3537.4 | 1.3 | -4073 | 22 | -8832 | 17 | -8313.0 | 1.6 |
| | Sn | 50 | 18047.30 | 0.30 | 14562.81 | 0.25 | -2636.7 | 0.4 | -8671 | 28 | -8805.41 | 0.25 | -14214 | 17 |
| | Sb | 51 | 19040 | 28 | 11084 | 22 | -452 | 25 | -11700# | 150# | -2418 | 22 | -14220 | 40 |
| | Te | 52 | 20464 | 29 | 7811 | 28 | 1530 | 30 | -14800 | 30 | -849 | 28 | -18840 | 29 |
| | I | 53 | 21880# | 150# | 5780# | 150# | 2230# | 150# | -18110# | 170# | 4330# | 150# | -18660# | 150# |
| | Xe | 54 | 23202 | 14 | 4096 | 14 | 2719 | 13 | -21180 | 100 | 3970 | 30 | -23393 | 14 |
| | Cs | 55 | 24530 | 110 | 2200 | 70 | 3360 | 50 | * | | 9150 | 70 | -22970# | 310# |
| | Ba | 56 | * | | 460 | 100 | 3592 | 19 | * | | 9010 | 100 | * | |
| 115 | Nb | 41 | 6990# | 640# | * | | * | | 24970# | 940# | * | | 10380# | 590# |
| | Mo | 42 | 8400# | 500# | * | | -9610# | 810# | 21440# | 410# | * | | 5780# | 590# |
| | Tc | 43 | 9650 | 790 | 30390# | 890# | -9870# | 840# | 17910 | 790 | -28220# | 940# | 5830 | 790 |
| | Ru | 44 | 10460 | 100 | 28280# | 310# | -8670 | 90 | 14240 | 90 | -23670# | 310# | 1450 | 110 |
| | Rh | 45 | 11605 | 10 | 25996 | 8 | -7630 | 13 | 10753 | 20 | -22920 | 430 | 1190 | 10 |
| | Pd | 46 | 12978 | 15 | 23140 | 40 | -6066 | 17 | 7658 | 14 | -17494 | 14 | -3567 | 14 |
| | Ag | 47 | 14098 | 25 | 20793 | 20 | -5103 | 20 | 4554 | 18 | -16560 | 70 | -3039 | 18 |
| | Cd | 48 | 15183.8 | 0.6 | 19071 | 7 | -4523.5 | 1.0 | 1949.4 | 0.7 | -11883 | 7 | -7586.0 | 0.7 |
| | In | 49 | 16311.86 | 0.19 | 17087 | 17 | -3745.8 | 1.5 | -2533 | 16 | -11895 | 5 | -7047.94 | 0.03 |
| | Sn | 50 | 17848.3 | 1.6 | 15568.49 | 0.24 | -3206.5 | 0.4 | -7971 | 28 | -7307.87 | 0.28 | -13609 | 22 |
| | Sb | 51 | 18729 | 24 | 12214 | 16 | -1036 | 16 | -10670 | 30 | -5723 | 16 | -13190 | 30 |
| | Te | 52 | 19860 | 40 | 8313 | 28 | 1451 | 28 | -13410 | 30 | 1208 | 28 | -17340# | 150# |
| | I | 53 | 21361 | 30 | 6500 | 30 | 2070 | 30 | -16640# | 110# | 870 | 40 | -17320 | 30 |
| | Xe | 54 | 22596 | 14 | 4890 | 30 | 2506 | 14 | -19640# | 200# | 5940 | 30 | -22050 | 70 |
| | Cs | 55 | 24080# | 100# | 3160# | 100# | 2830# | 100# | * | | 5810# | 180# | -21870# | 150# |
| | Ba | 56 | 25380# | 360# | 1390# | 200# | 2950# | 220# | * | | 10780# | 200# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|----|---------|------|---------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 116 | Mo | 42 | 4820# | 640# | 17440# | 710# | 38330# | 500# | 4600# | 710# | 3880# | 640# | * | |
| | Tc | 43 | 3210# | 840# | 14000# | 500# | 31090# | 300# | 9060# | 420# | 5900# | 420# | -5300# | 500# |
| | Ru | 44 | 5950 | 90 | 15040 | 790 | 24644 | 4 | 5240 | 430 | 3607 | 5 | -5930# | 300# |
| | Rh | 45 | 4580 | 70 | 11840 | 120 | 17510 | 70 | 10200 | 70 | 6000 | 80 | -2280 | 70 |
| | Pd | 46 | 7477 | 15 | 12891 | 10 | 11694 | 7 | 6590 | 70 | 3800 | 10 | -2320 | 40 |
| | Ag | 47 | 5631 | 19 | 9405 | 14 | 4279 | 6 | 11659 | 8 | 5912 | 8 | 1871 | 8 |
| | Cd | 48 | 8699.3 | 0.7 | 11019 | 18 | -3444 | 28 | 6929 | 5 | 3178 | 17 | 525 | 7 |
| | In | 49 | 6784.72 | 0.22 | 7454.2 | 0.7 | -10760 | 100 | 12476.0 | 0.4 | 5657.6 | 0.3 | 4423 | 17 |
| | Sn | 50 | 9563.45 | 0.09 | 9278.59 | 0.10 | -18479 | 13 | 7754.6 | 0.3 | 2705.20 | 0.21 | 3163.72 | 0.26 |
| | Sb | 51 | 7890 | 17 | 4077 | 5 | -24780# | 100# | 14448 | 5 | 6370 | 5 | 8191 | 5 |
| | Te | 52 | 11280 | 40 | 5550 | 30 | -30690# | 200# | 9940 | 40 | 4010 | 30 | 8706 | 28 |
| | I | 53 | 9230 | 100 | 2720 | 100 | -36850# | 330# | 15110 | 100 | 5720 | 100 | 12570 | 100 |
| | Xe | 54 | 12461 | 18 | 4000 | 30 | * | | 10460# | 150# | 2937 | 15 | 10950 | 30 |
| | Cs | 55 | 10410# | 140# | 680# | 100# | * | | 15750# | 100# | 5030# | 100# | 14720# | 100# |
| | Ba | 56 | 13630# | 280# | 2170# | 230# | * | | 10810# | 210# | 2050# | 200# | 13270# | 200# |
| | La | 57 | * | | -1090# | 370# | * | | 15970# | 330# | 4000# | 430# | 16770# | 310# |
| 117 | Mo | 42 | 2740# | 710# | * | | 40260# | 500# | 5900# | 710# | 4080# | 710# | * | |
| | Tc | 43 | 5000# | 500# | 14170# | 640# | 33800# | 400# | 7080# | 570# | 6290# | 500# | -7350# | 640# |
| | Ru | 44 | 3490 | 430 | 15320# | 530# | 26930 | 430 | 7540 | 900 | 3970 | 610 | -4040# | 530# |
| | Rh | 45 | 6230 | 70 | 12117 | 10 | 20046 | 10 | 8000 | 90 | 6188 | 9 | -4650 | 430 |
| | Pd | 46 | 4664 | 10 | 12980 | 70 | 13973 | 7 | 8516 | 10 | 4150 | 70 | -556 | 8 |
| | Ag | 47 | 7711 | 14 | 9639 | 15 | 6458 | 16 | 8955 | 19 | 6173 | 15 | -820 | 70 |
| | Cd | 48 | 5777.2 | 1.0 | 11165 | 3 | -1323 | 13 | 9275 | 18 | 3376 | 5 | 2719 | 7 |
| | In | 49 | 8765 | 5 | 7520 | 5 | -8507 | 27 | 9852 | 5 | 5936 | 5 | 1634 | 7 |
| | Sn | 50 | 6943.1 | 0.5 | 9437.0 | 0.5 | -16212 | 10 | 9849.4 | 0.5 | 3036.1 | 0.6 | 5263.6 | 0.6 |
| | Sb | 51 | 9889 | 10 | 4403 | 8 | -22150 | 60 | 12105 | 8 | 6784 | 8 | 5577 | 8 |
| | Te | 52 | 7900 | 30 | 5562 | 14 | -27640 | 250 | 12619 | 21 | 4265 | 26 | 11111 | 13 |
| | I | 53 | 11020 | 100 | 2460 | 40 | -33970# | 200# | 12340 | 40 | 6320 | 40 | 9710 | 30 |
| | Xe | 54 | 9210 | 17 | 3980 | 100 | * | | 12860 | 30 | 3480# | 150# | 13350 | 30 |
| | Cs | 55 | 12520# | 120# | 740 | 60 | * | | 12870 | 60 | 5460 | 60 | 11950# | 160# |
| | Ba | 56 | 10950# | 320# | 2700# | 270# | * | | 12950# | 270# | 2090 | 260 | 15270 | 250 |
| | La | 57 | 13900# | 370# | -820 | 3 | * | | 13260# | 280# | 4300# | 230# | 13860# | 210# |
| 118 | Mo | 42 | 4530# | 710# | * | | 42760# | 500# | * | | 3590# | 710# | * | |
| | Tc | 43 | 3480# | 570# | 14910# | 640# | 35760# | 400# | 8420# | 640# | 5820# | 570# | -6790# | 640# |
| | Ru | 44 | 5840# | 480# | 16170# | 450# | 29440# | 200# | 4910# | 360# | 3920# | 810# | -6860# | 450# |
| | Rh | 45 | 4061 | 26 | 12690 | 430 | 22341 | 25 | 9892 | 25 | 6170 | 90 | -2920 | 790 |
| | Pd | 46 | 7036 | 8 | 13780 | 9 | 16264.1 | 2.5 | 6060 | 70 | 3705 | 8 | -3550 | 90 |
| | Ag | 47 | 5443 | 14 | 10418 | 8 | 8442 | 4 | 10989 | 8 | 5737 | 14 | 322 | 8 |
| | Cd | 48 | 8355 | 20 | 11809 | 24 | 995 | 27 | 6552 | 20 | 3145 | 27 | -629 | 24 |
| | In | 49 | 6356 | 6 | 8099 | 8 | -6257 | 21 | 12195 | 8 | 5720 | 8 | 3401 | 20 |
| | Sn | 50 | 9326.42 | 0.13 | 9999 | 5 | -13574 | 10 | 7307.7 | 0.5 | 2747.5 | 0.5 | 2078.0 | 0.8 |
| | Sb | 51 | 7428 | 9 | 4887.4 | 3.0 | -19587 | 13 | 14241 | 3 | 6902 | 3 | 7187 | 3 |
| | Te | 52 | 10672 | 23 | 6346 | 20 | -25340# | 200# | 9836 | 19 | 4171 | 24 | 7984 | 18 |
| | I | 53 | 8610 | 30 | 3165 | 24 | -31410# | 300# | 15010 | 30 | 5960 | 30 | 11679 | 25 |
| | Xe | 54 | 11965 | 15 | 4932 | 28 | * | | 10120 | 100 | 3120 | 30 | 9630 | 30 |
| | Cs | 55 | 9990 | 60 | 1513 | 16 | * | | 15348 | 18 | 5111 | 18 | 13570 | 30 |
| | Ba | 56 | 12970# | 320# | 3150# | 210# | * | | 10400# | 220# | 2210# | 220# | 11950# | 200# |
| | La | 57 | 11160# | 360# | -610# | 390# | * | | 15730# | 360# | 4320# | 360# | 15790# | 320# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q($2\beta^-$) | | Q(ϵp) | | Q($\beta^- n$) | |
|-----|------|----|----------|------|----------|------|---------------|------|-----------------|------|-------------------|------|------------------|------|
| 116 | Mo | 42 | 7840# | 580# | * | | -10110# | 860# | 22570# | 500# | * | | 6750# | 940# |
| | Tc | 43 | 9000# | 530# | 30650# | 590# | -9610# | 420# | 19280# | 310# | -27390# | 590# | 6660# | 310# |
| | Ru | 44 | 9990 | 5 | 28840# | 300# | -9030# | 200# | 15763 | 8 | -26610# | 400# | 2090 | 8 |
| | Rh | 45 | 11170 | 100 | 26710 | 440 | -7900 | 70 | 11810 | 70 | -21710 | 790 | 1620 | 80 |
| | Pd | 46 | 12483 | 10 | 24188 | 8 | -6626 | 12 | 8881 | 7 | -20930 | 90 | -2920 | 20 |
| | Ag | 47 | 13754 | 6 | 21410 | 70 | -5240 | 40 | 5707 | 3 | -15602 | 8 | -2529 | 3 |
| | Cd | 48 | 14840.2 | 0.3 | 19799 | 7 | -4816 | 7 | 2813.49 | 0.13 | -15575 | 14 | -7247.45 | 0.16 |
| | In | 49 | 15822.6 | 0.4 | 17897 | 5 | -4090.9 | 2.4 | -1428 | 5 | -10556 | 18 | -6287.23 | 0.22 |
| | Sn | 50 | 17108.88 | 0.10 | 16088.98 | 0.29 | -3376.03 | 0.27 | -6257 | 28 | -10730.5 | 0.7 | -12594 | 16 |
| | Sb | 51 | 18468 | 22 | 12830 | 5 | -1257 | 7 | -9330 | 100 | -4575 | 5 | -12831 | 28 |
| | Te | 52 | 19520 | 40 | 9287 | 28 | 961 | 28 | -12220 | 30 | -2524 | 28 | -17000 | 40 |
| | I | 53 | 20840# | 180# | 7570 | 100 | 1680 | 100 | -15450# | 140# | 2220 | 100 | -16910 | 100 |
| | Xe | 54 | 22103 | 17 | 5740 | 30 | 2096 | 16 | -18470# | 200# | 1730 | 30 | -21420# | 100# |
| | Cs | 55 | 23500# | 120# | 3820# | 180# | 2600# | 100# | -21400# | 330# | 7010# | 100# | -21090# | 220# |
| | Ba | 56 | 24820# | 230# | 2070# | 200# | 3020# | 200# | * | | 6790# | 200# | * | |
| | La | 57 | * | | 540# | 320# | 3220# | 300# | * | | 11770# | 330# | * | |
| 117 | Mo | 42 | 7560# | 640# | * | | * | | 23320# | 660# | * | | 7210# | 580# |
| | Tc | 43 | 8200# | 890# | 31610# | 640# | -10300# | 570# | 20520# | 400# | * | | 7620# | 400# |
| | Ru | 44 | 9440 | 440 | 29320# | 590# | -9430# | 530# | 16930 | 430 | -25280# | 660# | 3170 | 440 |
| | Rh | 45 | 10810 | 11 | 27160 | 790 | -8511 | 10 | 13285 | 16 | -24730# | 300# | 2863 | 11 |
| | Pd | 46 | 12141 | 15 | 24810 | 90 | -6980 | 40 | 9994 | 7 | -19645 | 8 | -1953 | 8 |
| | Ag | 47 | 13342 | 23 | 22530 | 15 | -5839 | 15 | 6761 | 14 | -18730 | 80 | -1541 | 14 |
| | Cd | 48 | 14476.5 | 1.2 | 20570 | 14 | -5252 | 7 | 3979.4 | 1.1 | -13876 | 7 | -6240.0 | 1.0 |
| | In | 49 | 15549 | 5 | 18538 | 19 | -4341 | 17 | -304 | 10 | -13689 | 6 | -5488 | 5 |
| | Sn | 50 | 16506.5 | 0.5 | 16891.2 | 0.8 | -3779.4 | 0.5 | -5302 | 13 | -8974.2 | 0.5 | -11647 | 5 |
| | Sb | 51 | 17779 | 18 | 13681 | 8 | -1697 | 8 | -8203 | 27 | -7679 | 8 | -11442 | 29 |
| | Te | 52 | 19180 | 30 | 9640 | 13 | 808 | 14 | -10910 | 17 | -858 | 13 | -15670 | 100 |
| | I | 53 | 20240 | 40 | 8010 | 30 | 1560 | 30 | -13940 | 70 | -903 | 27 | -15461 | 29 |
| | Xe | 54 | 21671 | 16 | 6701 | 30 | 1737 | 30 | -16730 | 250 | 3795 | 30 | -20210# | 100# |
| | Cs | 55 | 22940# | 120# | 4730 | 70 | 2200 | 60 | -20020# | 210# | 3710 | 110 | -19980# | 210# |
| | Ba | 56 | 24580# | 320# | 3380 | 250 | 2320 | 250 | * | | 8300 | 250 | -24880# | 400# |
| | La | 57 | * | | 1350# | 230# | 2870# | 200# | * | | 8280# | 220# | * | |
| 118 | Mo | 42 | 7270# | 710# | * | | * | | 24630# | 540# | * | | 7680# | 640# |
| | Tc | 43 | 8480# | 500# | * | | -10830# | 640# | 21100# | 400# | * | | 7630# | 590# |
| | Ru | 44 | 9330# | 200# | 30340# | 540# | -9880# | 360# | 18130# | 200# | -28380# | 540# | 3570# | 200# |
| | Rh | 45 | 10290 | 80 | 28010# | 300# | -8710 | 430 | 14666 | 24 | -23800# | 400# | 3466 | 25 |
| | Pd | 46 | 11700 | 7 | 25898 | 4 | -7592 | 4 | 11313 | 20 | -23190 | 430 | -1278 | 14 |
| | Ag | 47 | 13154 | 4 | 23400 | 70 | -6270 | 70 | 7674 | 8 | -17945 | 9 | -1206.7 | 2.7 |
| | Cd | 48 | 14132 | 20 | 21448 | 21 | -5636 | 21 | 4951 | 20 | -17566 | 21 | -5830 | 21 |
| | In | 49 | 15121 | 8 | 19263 | 8 | -4722 | 9 | 768 | 8 | -12335 | 16 | -4902 | 8 |
| | Sn | 50 | 16269.5 | 0.5 | 17518.3 | 0.5 | -4062.8 | 0.6 | -3956 | 18 | -12523.4 | 1.1 | -11085 | 8 |
| | Sb | 51 | 17317 | 6 | 14324 | 3 | -1851 | 3 | -7025 | 20 | -6342 | 6 | -10972 | 14 |
| | Te | 52 | 18570 | 30 | 10749 | 18 | 438 | 18 | -9618 | 21 | -4588 | 18 | -15330 | 30 |
| | I | 53 | 19620 | 100 | 8727 | 20 | 1101 | 29 | -12562 | 24 | 380 | 21 | -14857 | 22 |
| | Xe | 54 | 21175 | 17 | 7388 | 30 | 1385 | 30 | -15730# | 200# | -273 | 17 | -19660 | 60 |
| | Cs | 55 | 22510# | 100# | 5500 | 100 | 1960# | 150# | -18850# | 300# | 4738 | 29 | -19020 | 250 |
| | Ba | 56 | 23920# | 280# | 3890# | 200# | 2310# | 200# | * | | 4540# | 200# | -23960# | 280# |
| | La | 57 | 25060# | 430# | 2100# | 320# | 2700# | 310# | * | | 9640# | 310# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|----|--------|------|--------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 119 | Tc | 43 | 4650# | 640# | 15030# | 710# | 38280# | 500# | 6510# | 710# | 5990# | 710# | * | |
| | Ru | 44 | 3380# | 360# | 16060# | 500# | 31410# | 300# | 6530# | 500# | 3760# | 420# | −5420# | 580# |
| | Rh | 45 | 6007 | 26 | 12850# | 200# | 24876 | 12 | 7380 | 430 | 6110 | 10 | −5720# | 300# |
| | Pd | 46 | 4090 | 9 | 13809 | 26 | 18657 | 8 | 8200 | 12 | 4190 | 70 | −1693 | 9 |
| | Ag | 47 | 7163 | 15 | 10546 | 15 | 10828 | 17 | 8490 | 16 | 6050 | 16 | −2260 | 80 |
| | Cd | 48 | 5350 | 40 | 11710 | 40 | 3200 | 40 | 8920 | 40 | 3430 | 40 | 1500 | 40 |
| | In | 49 | 8542 | 8 | 8287 | 21 | −3934 | 29 | 9430 | 7 | 5877 | 7 | 490 | 8 |
| | Sn | 50 | 6483.5 | 0.5 | 10126 | 8 | −11271 | 10 | 9589 | 5 | 3048.8 | 0.8 | 4293.9 | 0.7 |
| | Sb | 51 | 9549 | 8 | 5110 | 8 | −17169 | 16 | 11634 | 8 | 6916 | 8 | 4422 | 8 |
| | Te | 52 | 7556 | 20 | 6474 | 8 | −22590 | 200 | 12169 | 12 | 4505 | 9 | 9991 | 8 |
| | I | 53 | 10870 | 30 | 3360 | 30 | −28980# | 300# | 12040 | 30 | 6370 | 40 | 8703 | 28 |
| | Xe | 54 | 8787 | 15 | 5112 | 22 | −34850# | 500# | 12352 | 28 | 3560 | 100 | 12121 | 30 |
| | Cs | 55 | 11967 | 19 | 1515 | 17 | * | | 12591 | 17 | 5606 | 19 | 10830 | 100 |
| | Ba | 56 | 10310# | 280# | 3470 | 200 | * | | 12610 | 210 | 2320# | 220# | 14100 | 200 |
| | La | 57 | 13300# | 420# | −280# | 360# | * | | 13380# | 390# | 4650# | 360# | 12900# | 320# |
| | Ce | 58 | * | | 1670# | 580# | * | | 13240# | 540# | 1570# | 590# | 16290# | 540# |
| 120 | Tc | 43 | 3220# | 710# | * | | 40130# | 500# | 7820# | 710# | 5520# | 710# | * | |
| | Ru | 44 | 5520# | 500# | 16930# | 640# | 33950# | 400# | 4490# | 570# | 3230# | 570# | −8200# | 640# |
| | Rh | 45 | 4060# | 200# | 13540# | 360# | 26910# | 200# | 9160# | 280# | 5540# | 480# | −4790# | 450# |
| | Pd | 46 | 6943 | 8 | 14746 | 10 | 20818.3 | 2.2 | 5318 | 24 | 3481 | 9 | −5140 | 430 |
| | Ag | 47 | 5077 | 15 | 11533 | 9 | 12766 | 8 | 10448 | 5 | 5637 | 9 | −1108 | 10 |
| | Cd | 48 | 8050 | 40 | 12601 | 15 | 5411 | 5 | 6307 | 4 | 3089 | 14 | −1886 | 8 |
| | In | 49 | 6100 | 40 | 9040 | 50 | −1980 | 40 | 11680 | 40 | 5550 | 40 | 2100 | 40 |
| | Sn | 50 | 9104.7 | 1.1 | 10688 | 7 | −8926 | 12 | 6841 | 8 | 2709 | 5 | 966.4 | 1.4 |
| | Sb | 51 | 7015 | 11 | 5642 | 7 | −14529 | 12 | 13946 | 7 | 6844 | 7 | 6172 | 9 |
| | Te | 52 | 10258 | 9 | 7183 | 8 | −20480 | 300 | 9339 | 4 | 4136 | 9 | 6676 | 3 |
| | I | 53 | 8060 | 30 | 3861 | 17 | −26180# | 300# | 14654 | 24 | 6206 | 20 | 10533 | 17 |
| | Xe | 54 | 11449 | 16 | 5700 | 30 | −32570# | 500# | 9509 | 23 | 3128 | 29 | 8569 | 18 |
| | Cs | 55 | 9655 | 17 | 2383 | 14 | * | | 14901 | 14 | 5161 | 14 | 12194 | 28 |
| | Ba | 56 | 12370 | 360 | 3870 | 300 | * | | 10230 | 300 | 2470 | 310 | 10940 | 300 |
| | La | 57 | 10850# | 420# | 270# | 360# | * | | 15500# | 360# | 4750# | 390# | 14570# | 310# |
| | Ce | 58 | 13730# | 710# | 2100# | 580# | * | | 10670# | 580# | 1740# | 540# | 13500# | 560# |
| 121 | Tc | 43 | 4330# | 710# | * | | 42620# | 500# | * | | 5720# | 710# | * | |
| | Ru | 44 | 3110# | 570# | 16820# | 640# | 36030# | 400# | 6040# | 640# | 3610# | 570# | −6770# | 640# |
| | Rh | 45 | 5510# | 650# | 13530# | 740# | 29590 | 620 | 7030# | 690# | 5870# | 650# | −6810# | 740# |
| | Pd | 46 | 3974 | 4 | 14660# | 200# | 23015 | 3 | 7351 | 10 | 3569 | 24 | −3280# | 200# |
| | Ag | 47 | 6823 | 13 | 11412 | 12 | 15198 | 12 | 7716 | 15 | 5850 | 12 | −3869 | 27 |
| | Cd | 48 | 5188 | 4 | 12711 | 5 | 7472 | 26 | 8283 | 15 | 3344 | 3 | −39 | 3 |
| | In | 49 | 8180 | 50 | 9168 | 28 | 415 | 28 | 8850 | 50 | 5730 | 30 | −636 | 28 |
| | Sn | 50 | 6170.2 | 0.3 | 10760 | 40 | −6716 | 10 | 9213 | 7 | 2895 | 8 | 3151 | 20 |
| | Sb | 51 | 9254 | 8 | 5790.9 | 2.7 | −12498 | 15 | 11175.5 | 2.7 | 6916.6 | 2.6 | 3274 | 8 |
| | Te | 52 | 7249 | 26 | 7417 | 27 | −17800 | 140 | 11639 | 27 | 4315 | 26 | 8754 | 26 |
| | I | 53 | 10570 | 16 | 4172 | 4 | −24060# | 300# | 11641 | 10 | 6309 | 19 | 7391 | 6 |
| | Xe | 54 | 8380 | 16 | 6017 | 18 | −29790# | 400# | 11995 | 30 | 3354 | 22 | 10862 | 21 |
| | Cs | 55 | 11285 | 17 | 2219 | 19 | −35680# | 500# | 12403 | 18 | 5841 | 18 | 9515 | 24 |
| | Ba | 56 | 9930 | 330 | 4150 | 140 | * | | 12270 | 140 | 2530 | 140 | 12980 | 140 |
| | La | 57 | 12690# | 420# | 590# | 420# | * | | 13110# | 360# | 5030# | 360# | 11870# | 300# |
| | Ce | 58 | 11160# | 640# | 2410# | 500# | * | | 12810# | 500# | 1730# | 500# | 15310# | 450# |
| | Pr | 59 | * | | −890 | 10 | * | | 13230# | 710# | * | | 13790# | 580# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | $Q(\alpha)$ | | $Q(2\beta^-)$ | | $Q(\epsilon p)$ | | $Q(\beta^- n)$ | |
|-----|------|----|---------|------|---------|------|-------------|------|---------------|------|-----------------|------|----------------|------|
| 119 | Tc | 43 | 8130# | 640# | * | | -11440# | 710# | 22450# | 500# | * | | 8820# | 540# |
| | Ru | 44 | 9220# | 530# | 30970# | 580# | -10240# | 500# | 18840# | 300# | -27220# | 580# | 4250# | 300# |
| | Rh | 45 | 10068 | 13 | 29020# | 400# | -8930 | 790 | 15823 | 17 | -26320# | 400# | 4495 | 10 |
| | Pd | 46 | 11126 | 11 | 26500 | 430 | -7640 | 90 | 12570 | 40 | -21440# | 200# | 75 | 9 |
| | Ag | 47 | 12606 | 20 | 24326 | 17 | -6841 | 16 | 9054 | 16 | -21047 | 28 | -15 | 25 |
| | Cd | 48 | 13700 | 40 | 22130 | 40 | -5980 | 40 | 6090 | 40 | -15880 | 40 | -4820 | 40 |
| | In | 49 | 14899 | 6 | 20095 | 15 | -5142 | 20 | 1775 | 11 | -15434 | 8 | -4118 | 7 |
| | Sn | 50 | 15809.9 | 0.6 | 18224.6 | 1.2 | -4405.5 | 1.0 | -2884 | 8 | -10652 | 20 | -10140 | 3 |
| | Sb | 51 | 16977 | 11 | 15109 | 9 | -2363 | 8 | -5709 | 29 | -9535 | 11 | -9849 | 20 |
| | Te | 52 | 18228 | 16 | 11361 | 8 | 428 | 8 | -8387 | 13 | -2817 | 8 | -14281 | 21 |
| | I | 53 | 19470 | 40 | 9704 | 29 | 810 | 30 | -11460 | 30 | -3058 | 28 | -13758 | 30 |
| | Xe | 54 | 20752 | 15 | 8277 | 17 | 843 | 30 | -14200 | 200 | 1613 | 21 | -18456 | 16 |
| | Cs | 55 | 21950 | 60 | 6447 | 30 | 1610 | 30 | -17520# | 300# | 1377 | 24 | -18020# | 200# |
| | Ba | 56 | 23270 | 320 | 4980 | 200 | 1640 | 200 | -20650# | 540# | 6200 | 200 | -23100# | 360# |
| | La | 57 | 24460# | 360# | 2870# | 310# | 2490# | 320# | * | | 6330# | 300# | * | |
| | Ce | 58 | * | | 1060# | 560# | 2660# | 540# | * | | 11130# | 540# | * | |
| 120 | Tc | 43 | 7870# | 640# | * | | * | | 23300# | 540# | * | | 8980# | 590# |
| | Ru | 44 | 8900# | 450# | 31960# | 640# | -10940# | 640# | 20270# | 400# | * | | 4740# | 400# |
| | Rh | 45 | 10070# | 200# | 29600# | 450# | -9780# | 360# | 16840# | 200# | -25730# | 540# | 4520# | 200# |
| | Pd | 46 | 11034 | 3 | 27600# | 200# | -8636 | 4 | 13677 | 4 | -25010# | 300# | 294 | 15 |
| | Ag | 47 | 12240 | 5 | 25342 | 25 | -7340 | 70 | 10080 | 40 | -20118 | 10 | 250 | 40 |
| | Cd | 48 | 13398 | 20 | 23147 | 4 | -6551 | 8 | 7141 | 4 | -19838 | 9 | -4329 | 8 |
| | In | 49 | 14640 | 40 | 20750 | 40 | -5610 | 40 | 2690 | 40 | -14370 | 40 | -3730 | 40 |
| | Sn | 50 | 15588.1 | 1.0 | 18975 | 20 | -4810.8 | 0.9 | -1730 | 3 | -14410 | 40 | -9696 | 8 |
| | Sb | 51 | 16564 | 8 | 15767 | 11 | -2593 | 7 | -4665 | 17 | -8007 | 10 | -9308 | 11 |
| | Te | 52 | 17814 | 18 | 12293 | 3 | -267 | 3 | -7196 | 12 | -6592 | 3 | -13674 | 28 |
| | I | 53 | 18925 | 25 | 10335 | 16 | 644 | 16 | -9864 | 18 | -1568 | 17 | -13030 | 18 |
| | Xe | 54 | 20236 | 16 | 9054 | 22 | 670 | 30 | -13280 | 300 | -2280 | 14 | -17939 | 18 |
| | Cs | 55 | 21622 | 16 | 7496 | 22 | 1180 | 100 | -16320# | 300# | 2588 | 30 | -17370 | 200 |
| | Ba | 56 | 22680# | 360# | 5390 | 300 | 1730 | 300 | -19290# | 580# | 2620 | 300 | -22170# | 420# |
| | La | 57 | 24150# | 420# | 3740# | 300# | 2050# | 320# | * | | 7450# | 300# | -21700# | 580# |
| | Ce | 58 | * | | 1820# | 540# | 2560# | 540# | * | | 7700# | 540# | * | |
| 121 | Tc | 43 | 7550# | 710# | * | | * | | 24470# | 800# | * | | 10160# | 640# |
| | Ru | 44 | 8630# | 500# | * | | -11300# | 640# | 21140# | 400# | * | | 5700# | 450# |
| | Rh | 45 | 9570 | 620 | 30460# | 800# | -10290# | 740# | 18150 | 620 | -28020# | 800# | 5960 | 620 |
| | Pd | 46 | 10917 | 9 | 28200# | 300# | -9120 | 430 | 14891 | 4 | -23460# | 400# | 1398 | 6 |
| | Ag | 47 | 11900 | 19 | 26158 | 15 | -7930 | 15 | 11433 | 30 | -22880# | 200# | 1483 | 13 |
| | Cd | 48 | 13240 | 40 | 24244 | 8 | -7074 | 8 | 8123.4 | 2.2 | -18083 | 3 | -3420 | 40 |
| | In | 49 | 14279 | 28 | 21770 | 30 | -6080 | 30 | 3764 | 28 | -17473 | 28 | -2809 | 27 |
| | Sn | 50 | 15274.9 | 1.1 | 19800 | 40 | -5203.8 | 1.4 | -652 | 26 | -12529 | 4 | -8851 | 7 |
| | Sb | 51 | 16269 | 8 | 16479 | 8 | -3082 | 6 | -3349 | 6 | -11160 | 40 | -8304 | 3 |
| | Te | 52 | 17507 | 27 | 13058 | 26 | -573 | 26 | -6065 | 28 | -4736 | 26 | -12864 | 30 |
| | I | 53 | 18629 | 28 | 11355 | 9 | -37 | 10 | -9149 | 15 | -5123 | 9 | -12150 | 13 |
| | Xe | 54 | 19829 | 15 | 9878 | 13 | 190 | 17 | -11740 | 140 | -402 | 11 | -16664 | 14 |
| | Cs | 55 | 20940 | 20 | 7910 | 30 | 909 | 30 | -14910# | 300# | -638 | 21 | -16290 | 300 |
| | Ba | 56 | 22300 | 250 | 6530 | 140 | 1020 | 140 | -18060# | 430# | 4140 | 140 | -21250# | 330# |
| | La | 57 | 23540# | 420# | 4460# | 300# | 1880# | 310# | -20770# | 580# | 4410# | 300# | -20660# | 580# |
| | Ce | 58 | 24890# | 640# | 2680# | 450# | 2340# | 470# | * | | 8910# | 500# | * | |
| | Pr | 59 | * | | 1210# | 580# | 2620# | 540# | * | | 8860# | 580# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|----|---------|------|---------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 122 | Ru | 44 | 5170# | 640# | 17660# | 710# | 38460# | 500# | 4080# | 710# | 3090# | 710# | * | |
| | Rh | 45 | 3900# | 690# | 14320# | 500# | 31490# | 300# | 8640# | 500# | 5350# | 420# | -6060# | 590# |
| | Pd | 46 | 6505 | 20 | 15660 | 620 | 25325 | 20 | 4910# | 200# | 3071 | 22 | -6410# | 300# |
| | Ag | 47 | 4770 | 40 | 12210 | 40 | 17230 | 40 | 9880 | 40 | 5170 | 40 | -2640 | 40 |
| | Cd | 48 | 7610 | 3 | 13499 | 12 | 9702.1 | 2.7 | 5750 | 5 | 2897 | 15 | -3558 | 9 |
| | In | 49 | 5810 | 60 | 9790 | 50 | 2510 | 50 | 11100 | 50 | 5270 | 60 | 720 | 50 |
| | Sn | 50 | 8815.4 | 2.3 | 11394 | 27 | -4586 | 11 | 6500 | 40 | 2622 | 8 | -320 | 40 |
| | Sb | 51 | 6806.37 | 0.13 | 6427.1 | 2.7 | -10190 | 30 | 13473.8 | 2.7 | 6593.7 | 2.7 | 5010 | 8 |
| | Te | 52 | 9840 | 26 | 8003.1 | 2.1 | -15706 | 28 | 8814 | 7 | 4024 | 8 | 5397.0 | 1.7 |
| | I | 53 | 7900 | 7 | 4824 | 26 | -21540# | 300# | 13998 | 6 | 5965 | 10 | 9040 | 9 |
| | Xe | 54 | 10945 | 15 | 6392 | 12 | -27480# | 400# | 9109 | 19 | 3270 | 30 | 7473 | 14 |
| | Cs | 55 | 9110 | 40 | 2950 | 40 | -33370# | 500# | 14740 | 40 | 5510 | 40 | 11270 | 40 |
| | Ba | 56 | 11940 | 140 | 4800 | 30 | * | | 9991 | 30 | 2560 | 30 | 9832 | 30 |
| | La | 57 | 10420# | 420# | 1090# | 330# | * | | 15060# | 420# | 4910# | 360# | 13410# | 300# |
| | Ce | 58 | 13260# | 570# | 2970# | 500# | * | | 10410# | 500# | 1780# | 500# | 12360# | 450# |
| | Pr | 59 | 11430# | 710# | -620# | 640# | * | | 15530# | 710# | 4030# | 710# | 15660# | 580# |
| 123 | Ru | 44 | 3000# | 710# | * | | 40330# | 500# | 5410# | 710# | 3300# | 710# | * | |
| | Rh | 45 | 5350# | 500# | 14500# | 640# | 34070# | 400# | 6400# | 570# | 5520# | 570# | -8200# | 640# |
| | Pd | 46 | 3880 | 790 | 15640# | 850# | 27390 | 790 | 6530 | 1000 | 3250# | 810# | -4770# | 890# |
| | Ag | 47 | 6510 | 50 | 12220 | 40 | 19680 | 30 | 7350 | 30 | 5600 | 30 | -5090# | 200# |
| | Cd | 48 | 4873 | 4 | 13600 | 40 | 11758 | 3 | 7699 | 12 | 3101 | 5 | -1488 | 4 |
| | In | 49 | 7930 | 50 | 10107 | 20 | 4513 | 20 | 8354 | 20 | 5391 | 20 | -2132 | 20 |
| | Sn | 50 | 5946.2 | 1.2 | 11530 | 50 | -2567 | 10 | 8731 | 27 | 2780 | 40 | 1788 | 4 |
| | Sb | 51 | 8960.0 | 2.1 | 6571.7 | 2.7 | -8180 | 12 | 10684.0 | 1.7 | 6738.4 | 1.7 | 2150 | 40 |
| | Te | 52 | 6929.01 | 0.08 | 8125.8 | 2.1 | -13517 | 12 | 11139.0 | 2.1 | 4110 | 7 | 7572.6 | 1.7 |
| | I | 53 | 9935 | 6 | 4918 | 3 | -19290# | 200# | 11313 | 26 | 6288 | 4 | 6120 | 8 |
| | Xe | 54 | 7965 | 15 | 6457 | 11 | -24960# | 300# | 11714 | 11 | 3368 | 18 | 9766 | 10 |
| | Cs | 55 | 10970 | 40 | 2978 | 16 | -30810# | 400# | 12148 | 16 | 5993 | 17 | 8356 | 20 |
| | Ba | 56 | 9120 | 30 | 4800 | 40 | * | | 12158 | 19 | 3098 | 16 | 12164 | 17 |
| | La | 57 | 12180# | 360# | 1330# | 200# | * | | 12810# | 240# | 5100# | 360# | 10880# | 200# |
| | Ce | 58 | 10480# | 500# | 3030# | 420# | * | | 12620# | 420# | 2150# | 420# | 14250# | 420# |
| | Pr | 59 | 13520# | 640# | -360# | 570# | * | | 13170# | 570# | 4230# | 640# | 12990# | 500# |
| 124 | Ru | 44 | 4950# | 780# | * | | 42740# | 600# | * | | 2680# | 780# | * | |
| | Rh | 45 | 3600# | 570# | 15100# | 640# | 35980# | 400# | 7970# | 640# | 5020# | 570# | -7460# | 640# |
| | Pd | 46 | 6030# | 840# | 16320# | 500# | 29840# | 300# | 4400# | 420# | 2720# | 690# | -7700# | 500# |
| | Ag | 47 | 4720 | 250 | 13060 | 830 | 21420 | 250 | 9130 | 250 | 4850 | 250 | -4300 | 670 |
| | Cd | 48 | 7359 | 4 | 14440 | 30 | 13824 | 3 | 5120 | 40 | 2565 | 12 | -4873 | 4 |
| | In | 49 | 5510 | 40 | 10740 | 30 | 6500 | 30 | 10450 | 30 | 5070 | 30 | -820 | 30 |
| | Sn | 50 | 8489.3 | 2.4 | 12093 | 20 | -572.8 | 2.0 | 6050 | 50 | 2466 | 27 | -1514.0 | 2.2 |
| | Sb | 51 | 6467.50 | 0.06 | 7093.0 | 2.7 | -5889 | 8 | 13031.9 | 2.7 | 6441.1 | 1.7 | 3862 | 27 |
| | Te | 52 | 9424.48 | 0.09 | 8590.22 | 0.12 | -11436 | 13 | 8520.9 | 2.1 | 3939.1 | 2.1 | 4318.3 | 1.7 |
| | I | 53 | 7493 | 4 | 5482.5 | 1.9 | -17110 | 60 | 13659.5 | 1.9 | 6044 | 26 | 7881.0 | 2.8 |
| | Xe | 54 | 10484 | 10 | 7007 | 4 | -22750# | 300# | 9130 | 5 | 3454 | 6 | 6530 | 26 |
| | Cs | 55 | 8759 | 15 | 3772 | 13 | -28580# | 400# | 14334 | 14 | 5614 | 13 | 10167 | 10 |
| | Ba | 56 | 11506 | 17 | 5335 | 17 | -34560# | 500# | 9770 | 40 | 2877 | 19 | 9038 | 16 |
| | La | 57 | 9680# | 200# | 1890 | 60 | * | | 15060 | 60 | 5350 | 150 | 12490 | 60 |
| | Ce | 58 | 12700# | 420# | 3550# | 360# | * | | 10340# | 420# | 2140# | 420# | 11480# | 330# |
| | Pr | 59 | 10990# | 570# | 150# | 500# | * | | 15430# | 570# | 4400# | 570# | 14690# | 500# |
| | Nd | 60 | * | | 1590# | 640# | * | | 10970# | 710# | 1760# | 710# | 13810# | 640# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q($2\beta^-$) | | Q(ϵ_p) | | Q(β^-n) | |
|-----|------|----|----------|------|---------|------|---------------|------|-----------------|------|-------------------|------|-----------------|------|
| 122 | Ru | 44 | 8280# | 640# | * | | -11950# | 710# | 22470# | 500# | * | | 6030# | 800# |
| | Rh | 45 | 9410# | 360# | 31140# | 590# | -10720# | 500# | 19030# | 300# | -27590# | 580# | 6030# | 300# |
| | Pd | 46 | 10479 | 20 | 29180# | 400# | -9780# | 200# | 15996 | 20 | -26860# | 400# | 1715 | 23 |
| | Ag | 47 | 11600 | 40 | 26870# | 200# | -8640 | 50 | 12470 | 60 | -22140 | 620 | 1900 | 40 |
| | Cd | 48 | 12798 | 4 | 24910 | 3 | -7649 | 3 | 9329 | 3 | -21719 | 4 | -2848 | 28 |
| | In | 49 | 13990 | 60 | 22500 | 50 | -6440 | 50 | 4760 | 50 | -16460 | 50 | -2450 | 50 |
| | Sn | 50 | 14985.6 | 2.3 | 20562 | 4 | -5665 | 20 | 373.1 | 2.7 | -16156 | 3 | -8412 | 3 |
| | Sb | 51 | 16060 | 8 | 17180 | 40 | -3532 | 8 | -2255 | 5 | -9788 | 28 | -7861 | 26 |
| | Te | 52 | 17089.1 | 2.7 | 13794.0 | 1.7 | -1086.5 | 1.6 | -4959 | 11 | -8406.2 | 1.7 | -12134 | 5 |
| | I | 53 | 18470 | 16 | 12241 | 9 | -509 | 6 | -7940 | 30 | -3769 | 5 | -11671 | 11 |
| | Xe | 54 | 19325 | 16 | 10565 | 12 | -83 | 22 | -10750 | 30 | -4098 | 28 | -16324 | 18 |
| | Cs | 55 | 20400 | 40 | 8970 | 40 | 400 | 40 | -13600# | 300# | 820 | 30 | -15470 | 150 |
| | Ba | 56 | 21860 | 300 | 7010 | 30 | 1045 | 30 | -16740# | 400# | 583 | 30 | -20490# | 300# |
| | La | 57 | 23120# | 420# | 5230# | 300# | 1440# | 300# | -19760# | 580# | 5270# | 300# | -19930# | 500# |
| | Ce | 58 | 24420# | 640# | 3560# | 500# | 2060# | 450# | * | | 5580# | 430# | -24520# | 640# |
| | Pr | 59 | * | | 1790# | 580# | 2360# | 580# | * | | 10120# | 580# | * | |
| 123 | Ru | 44 | 8180# | 640# | * | | * | | 23350# | 940# | * | | 6930# | 580# |
| | Rh | 45 | 9250# | 740# | 32160# | 640# | -11410# | 640# | 20190# | 400# | * | | 7190# | 400# |
| | Pd | 46 | 10390 | 790 | 29960# | 890# | -10290# | 840# | 16980 | 790 | -25570# | 940# | 2610 | 790 |
| | Ag | 47 | 11290 | 30 | 27880 | 620 | -9150 | 30 | 13880 | 40 | -24760# | 300# | 2990 | 30 |
| | Cd | 48 | 12483 | 3 | 25810 | 4 | -8431 | 9 | 10402 | 4 | -20087 | 20 | -1910 | 50 |
| | In | 49 | 13740 | 30 | 23605 | 23 | -7210 | 25 | 5794 | 20 | -19610 | 40 | -1560 | 20 |
| | Sn | 50 | 14761.6 | 2.4 | 21320 | 3 | -6260 | 40 | 1356.0 | 2.7 | -14493 | 3 | -7552 | 3 |
| | Sb | 51 | 15766.4 | 2.1 | 17966 | 27 | -3950 | 7 | -1280 | 3 | -12940 | 50 | -6980.93 | 0.10 |
| | Te | 52 | 16769 | 26 | 14552.8 | 1.7 | -1532.0 | 1.7 | -3923 | 10 | -6519.8 | 2.7 | -11163 | 5 |
| | I | 53 | 17835 | 6 | 12921 | 4 | -894 | 9 | -6900 | 13 | -6897 | 4 | -10660 | 12 |
| | Xe | 54 | 18910 | 14 | 11281 | 28 | -492 | 12 | -9594 | 15 | -2223 | 10 | -15180 | 40 |
| | Cs | 55 | 20084 | 19 | 9370 | 13 | 300 | 30 | -12390# | 200# | -2252 | 13 | -14510 | 30 |
| | Ba | 56 | 21050 | 140 | 7752 | 16 | 715 | 16 | -15370# | 300# | 2411 | 16 | -19180# | 300# |
| | La | 57 | 22600# | 360# | 6130# | 200# | 1230# | 200# | -18420# | 450# | 2210# | 200# | -18850# | 450# |
| | Ce | 58 | 23740# | 500# | 4120# | 330# | 1880# | 360# | * | | 7030# | 300# | -23580# | 580# |
| | Pr | 59 | 24950# | 640# | 2620# | 500# | 2140# | 500# | * | | 7020# | 500# | * | |
| 124 | Ru | 44 | 7950# | 780# | * | | * | | 24430# | 670# | * | | 7330# | 720# |
| | Rh | 45 | 8950# | 500# | * | | -11800# | 640# | 21310# | 470# | * | | 7470# | 890# |
| | Pd | 46 | 9920# | 300# | 30820# | 580# | -10800# | 500# | 18310# | 300# | -28600# | 580# | 3090# | 300# |
| | Ag | 47 | 11240 | 250 | 28700# | 390# | -9810# | 320# | 14670 | 250 | -24130# | 470# | 3140 | 250 |
| | Cd | 48 | 12232 | 4 | 26663 | 20 | -8847 | 4 | 11533 | 3 | -23560 | 790 | -1343 | 20 |
| | In | 49 | 13440 | 60 | 24340 | 50 | -7640 | 30 | 6750 | 30 | -18610 | 40 | -1130 | 30 |
| | Sn | 50 | 14435.5 | 2.4 | 22199.8 | 2.5 | -6702 | 4 | 2291.1 | 1.5 | -18109.0 | 2.9 | -7081.4 | 1.5 |
| | Sb | 51 | 15427.5 | 2.1 | 18630 | 50 | -4320 | 40 | -254.5 | 1.9 | -11479 | 20 | -6519.41 | 0.09 |
| | Te | 52 | 16353.50 | 0.12 | 15161.9 | 2.7 | -1851.9 | 1.7 | -2863.9 | 2.2 | -9998.1 | 2.7 | -10653 | 3 |
| | I | 53 | 17428 | 5 | 13608.3 | 2.8 | -1373 | 8 | -5634 | 9 | -5430.6 | 1.9 | -10188 | 10 |
| | Xe | 54 | 18449 | 11 | 11924.9 | 2.2 | -718 | 3 | -8572 | 13 | -5778.2 | 2.2 | -14689 | 12 |
| | Cs | 55 | 19730 | 30 | 10229 | 10 | -403 | 17 | -11470 | 60 | -1077 | 9 | -14148 | 15 |
| | Ba | 56 | 20620 | 30 | 8313 | 17 | 658 | 17 | -14170# | 300# | -1130 | 16 | -18510# | 200# |
| | La | 57 | 21860# | 300# | 6690 | 70 | 1210 | 60 | -17110# | 410# | 3500 | 60 | -18040# | 300# |
| | Ce | 58 | 23190# | 500# | 4890# | 300# | 1550# | 420# | -20390# | 590# | 3450# | 300# | -22760# | 500# |
| | Pr | 59 | 24510# | 640# | 3190# | 500# | 1990# | 500# | * | | 8210# | 450# | * | |
| | Nd | 60 | * | | 1230# | 640# | 2650# | 710# | * | | 8470# | 590# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|----|---------|------|---------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 125 | Rh | 45 | 5180# | 640# | 15330# | 780# | 38480# | 500# | 5790# | 710# | 5010# | 710# | * | |
| | Pd | 46 | 3800# | 500# | 16520# | 570# | 31780# | 400# | 5950# | 570# | 2820# | 500# | -6320# | 640# |
| | Ag | 47 | 6390 | 500 | 13420# | 530# | 23740 | 430 | 6620 | 900 | 4960 | 430 | -6790# | 530# |
| | Cd | 48 | 4718 | 4 | 14440 | 250 | 15675 | 3 | 6910 | 30 | 2620 | 40 | -3086 | 20 |
| | In | 49 | 7680 | 40 | 11064 | 27 | 8360 | 27 | 7648 | 27 | 5000 | 27 | -3720 | 50 |
| | Sn | 50 | 5733.50 | 0.20 | 12320 | 30 | 1297.0 | 2.1 | 8245 | 20 | 2540 | 50 | 362.4 | 2.5 |
| | Sb | 51 | 8707.3 | 2.1 | 7311.1 | 2.6 | -4168 | 8 | 10271 | 3 | 6549 | 3 | 960 | 50 |
| | Te | 52 | 6568.97 | 0.03 | 8691.70 | 0.14 | -9354 | 11 | 10911.90 | 0.12 | 4176.5 | 2.1 | 6564.8 | 2.7 |
| | I | 53 | 9542.8 | 1.9 | 5600.85 | 0.07 | -15078 | 26 | 11045.76 | 0.12 | 6341.31 | 0.14 | 5144.6 | 2.1 |
| | Xe | 54 | 7603.3 | 0.4 | 7116.6 | 2.9 | -20540# | 200# | 11461 | 4 | 3751 | 5 | 8767.5 | 2.2 |
| | Cs | 55 | 10428 | 11 | 3716 | 8 | -26150# | 300# | 11872 | 12 | 6131 | 14 | 7639 | 9 |
| | Ba | 56 | 8651 | 17 | 5227 | 14 | -32070# | 400# | 12085 | 16 | 3340 | 40 | 11332 | 16 |
| | La | 57 | 11570 | 60 | 1959 | 29 | * | | 12606 | 29 | 5710 | 40 | 10030 | 40 |
| | Ce | 58 | 9810# | 360# | 3690# | 200# | * | | 12700# | 280# | 2750# | 360# | 13600# | 200# |
| | Pr | 59 | 12860# | 500# | 310# | 420# | * | | 13060# | 420# | 4800# | 500# | 12250# | 420# |
| | Nd | 60 | 11150# | 640# | 1740# | 570# | * | | 13340# | 570# | 2040# | 640# | 15920# | 570# |
| 126 | Rh | 45 | 3370# | 710# | * | | 40470# | 500# | 7370# | 780# | 4640# | 710# | * | |
| | Pd | 46 | 5810# | 570# | 17150# | 640# | 34160# | 400# | 3740# | 570# | 2360# | 570# | -9130# | 640# |
| | Ag | 47 | 4230# | 480# | 13850# | 450# | 25710# | 200# | 8420# | 360# | 4610# | 810# | -5670# | 450# |
| | Cd | 48 | 6980 | 4 | 15030 | 430 | 17808.5 | 2.9 | 4650 | 250 | 2160 | 30 | -6180 | 790 |
| | In | 49 | 5370 | 40 | 11714 | 27 | 10138 | 27 | 9640 | 27 | 4505 | 27 | -2580 | 40 |
| | Sn | 50 | 8190 | 10 | 12827 | 29 | 3132 | 11 | 5570 | 30 | 2279 | 22 | -2955 | 11 |
| | Sb | 51 | 6210 | 30 | 7790 | 30 | -2040 | 30 | 12550 | 30 | 6290 | 30 | 2680 | 40 |
| | Te | 52 | 9113.69 | 0.08 | 9098.0 | 2.1 | -7395 | 13 | 8265.71 | 0.16 | 4022.78 | 0.14 | 3397.2 | 2.7 |
| | I | 53 | 7145 | 4 | 6177 | 4 | -12940 | 90 | 13325 | 4 | 6125 | 4 | 6959 | 4 |
| | Xe | 54 | 10025 | 4 | 7599 | 4 | -18326 | 28 | 8930 | 4 | 3661 | 5 | 5672 | 4 |
| | Cs | 55 | 8334 | 13 | 4446 | 11 | -24030# | 200# | 14021 | 11 | 5762 | 14 | 9239 | 11 |
| | Ba | 56 | 11072 | 17 | 5871 | 15 | -29680# | 300# | 9772 | 15 | 3238 | 17 | 8225 | 16 |
| | La | 57 | 9290 | 90 | 2590 | 90 | -35620# | 510# | 14830 | 90 | 5550 | 90 | 11720 | 90 |
| | Ce | 58 | 12230# | 200# | 4350 | 40 | * | | 10150 | 60 | 2700# | 200# | 10480 | 30 |
| | Pr | 59 | 10460# | 360# | 960# | 280# | * | | 15300# | 360# | 4830# | 360# | 13970# | 280# |
| | Nd | 60 | 13470# | 500# | 2340# | 420# | * | | 10870# | 500# | 2100# | 500# | 12940# | 420# |
| | Pm | 61 | * | | -960# | 640# | * | | 15890# | 710# | * | | 16530# | 640# |
| 127 | Rh | 45 | 4800# | 780# | * | | 42870# | 600# | * | | 4790# | 850# | * | |
| | Pd | 46 | 3390# | 640# | 17170# | 710# | 36290# | 500# | 5530# | 710# | 2570# | 640# | -7570# | 780# |
| | Ag | 47 | 5830# | 280# | 13870# | 450# | 28260# | 200# | 6390# | 450# | 4810# | 360# | -7900# | 450# |
| | Cd | 48 | 4562 | 12 | 15360# | 200# | 19534 | 12 | 6480 | 430 | 2320 | 250 | -4710# | 300# |
| | In | 49 | 7190 | 30 | 11928 | 21 | 12088 | 21 | 7163 | 21 | 4670 | 21 | -5050 | 250 |
| | Sn | 50 | 5527 | 14 | 12987 | 29 | 4851 | 11 | 7717 | 29 | 2260 | 30 | -1123 | 10 |
| | Sb | 51 | 8380 | 30 | 7973 | 12 | -459 | 8 | 9908 | 5 | 6399 | 5 | -180 | 30 |
| | Te | 52 | 6287.65 | 0.18 | 9180 | 30 | -5464 | 11 | 10685.4 | 2.1 | 4202.63 | 0.24 | 5598.9 | 1.5 |
| | I | 53 | 9143.9 | 2.7 | 6208 | 4 | -11088 | 26 | 10750 | 4 | 6405 | 4 | 4283 | 4 |
| | Xe | 54 | 7246 | 5 | 7699 | 3 | -16342 | 29 | 11226 | 4 | 3908 | 4 | 7850 | 4 |
| | Cs | 55 | 9961 | 12 | 4382 | 7 | -21700# | 200# | 11664 | 6 | 6285 | 6 | 6772 | 6 |
| | Ba | 56 | 8219 | 17 | 5756 | 15 | -27280# | 300# | 11981 | 14 | 3777 | 14 | 10490 | 11 |
| | La | 57 | 10990 | 90 | 2515 | 29 | -33110# | 400# | 12484 | 28 | 6058 | 29 | 9482 | 27 |
| | Ce | 58 | 9230 | 40 | 4290 | 100 | * | | 12490 | 40 | 3140 | 60 | 12760 | 30 |
| | Pr | 59 | 12290# | 280# | 1010# | 200# | * | | 12830# | 280# | 5240# | 360# | 11360# | 200# |
| | Nd | 60 | 10610# | 420# | 2500# | 360# | * | | 13120# | 420# | 2480# | 500# | 15030# | 420# |
| | Pm | 61 | 13510# | 640# | -920# | 500# | * | | 13520# | 570# | 4600# | 640# | 14010# | 570# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q($2\beta^-$) | | Q(ϵp) | | Q($\beta^- n$) | |
|-----|------|----|----------|------|----------|------|---------------|------|-----------------|------|-------------------|------|------------------|------|
| 125 | Rh | 45 | 8780# | 640# | * | | -12650# | 710# | 22520# | 660# | * | | 8320# | 580# |
| | Pd | 46 | 9830# | 890# | 31620# | 640# | -11500# | 570# | 19230# | 400# | -27450# | 720# | 4010# | 470# |
| | Ag | 47 | 11110 | 430 | 29740# | 590# | -10690 | 760 | 15960 | 430 | -26920# | 590# | 4110 | 430 |
| | Cd | 48 | 12077 | 4 | 27500 | 790 | -9591 | 4 | 12548 | 3 | -22250# | 300# | -550 | 30 |
| | In | 49 | 13190 | 30 | 25510 | 40 | -8499 | 30 | 7779 | 27 | -21570 | 250 | -314 | 27 |
| | Sn | 50 | 14222.8 | 2.4 | 23060.1 | 2.9 | -7247.5 | 2.2 | 3126.6 | 1.5 | -16484 | 3 | -6347.4 | 1.5 |
| | Sb | 51 | 15174.8 | 2.1 | 19404 | 20 | -4845 | 28 | 580.9 | 2.1 | -14680 | 30 | -5802.3 | 2.1 |
| | Te | 52 | 15993.45 | 0.10 | 15784.7 | 2.7 | -2250.6 | 1.7 | -1829.6 | 2.2 | -8077.8 | 1.5 | -9728.6 | 1.9 |
| | I | 53 | 17036 | 3 | 14191.08 | 0.13 | -1661.8 | 2.1 | -4749 | 8 | -8505.93 | 0.15 | -9247.1 | 2.2 |
| | Xe | 54 | 18087 | 10 | 12599.2 | 2.2 | -1073 | 26 | -7524 | 11 | -3957.0 | 2.2 | -13533 | 9 |
| | Cs | 55 | 19187 | 14 | 10722 | 9 | -261 | 9 | -10328 | 27 | -4011 | 8 | -13069 | 15 |
| | Ba | 56 | 20157 | 16 | 8998 | 15 | 387 | 15 | -13010# | 200# | 703 | 11 | -17480 | 60 |
| | La | 57 | 21250# | 200# | 7294 | 29 | 918 | 30 | -15820# | 300# | 683 | 27 | -16920# | 300# |
| | Ce | 58 | 22510# | 360# | 5580# | 200# | 1660# | 240# | -19060# | 450# | 5140# | 200# | -21580# | 450# |
| | Pr | 59 | 23850# | 500# | 3870# | 360# | 1830# | 420# | * | | 5030# | 310# | -21490# | 590# |
| | Nd | 60 | * | | 1890# | 500# | 2670# | 570# | * | | 10030# | 500# | * | |
| 126 | Rh | 45 | 8550# | 640# | * | | * | | 23380# | 540# | * | | 8750# | 640# |
| | Pd | 46 | 9610# | 500# | 32480# | 720# | -12140# | 640# | 20400# | 400# | * | | 4590# | 590# |
| | Ag | 47 | 10620# | 320# | 30370# | 450# | -11030# | 360# | 17090# | 200# | -25970# | 540# | 4600# | 200# |
| | Cd | 48 | 11698 | 4 | 28450# | 300# | -10066 | 20 | 13758 | 11 | -25430# | 400# | 149 | 27 |
| | In | 49 | 13050 | 40 | 26150 | 250 | -9090 | 50 | 8620 | 40 | -20540 | 430 | 52 | 27 |
| | Sn | 50 | 13924 | 10 | 23892 | 11 | -7828 | 11 | 4050 | 11 | -19956 | 11 | -5830 | 11 |
| | Sb | 51 | 14920 | 30 | 20100 | 40 | -5250 | 60 | 1520 | 30 | -13210 | 40 | -5440 | 30 |
| | Te | 52 | 15682.66 | 0.09 | 16409.1 | 1.5 | -2548.9 | 2.7 | -918 | 4 | -11457.9 | 1.5 | -9299.46 | 0.10 |
| | I | 53 | 16688 | 4 | 14869 | 4 | -2001 | 4 | -3560 | 11 | -6944 | 4 | -8789 | 4 |
| | Xe | 54 | 17628 | 4 | 13200 | 4 | -1257 | 4 | -6477 | 13 | -7413 | 4 | -13130 | 8 |
| | Cs | 55 | 18762 | 13 | 11563 | 11 | -695 | 12 | -9380 | 90 | -2803 | 11 | -12753 | 15 |
| | Ba | 56 | 19723 | 18 | 9586 | 13 | 260 | 17 | -11850 | 30 | -2765 | 13 | -16982 | 29 |
| | La | 57 | 20860 | 110 | 7820 | 90 | 750 | 100 | -14650# | 220# | 1830 | 90 | -16390# | 220# |
| | Ce | 58 | 22050# | 300# | 6310 | 30 | 1360 | 40 | -17830# | 300# | 1560 | 30 | -20950# | 300# |
| | Pr | 59 | 23320# | 450# | 4640# | 200# | 1800# | 360# | -20970# | 540# | 6150# | 200# | -20800# | 450# |
| | Nd | 60 | 24610# | 590# | 2660# | 420# | 2460# | 500# | * | | 6380# | 360# | * | |
| | Pm | 61 | * | | 780# | 640# | 3010# | 710# | * | | 11300# | 580# | * | |
| 127 | Rh | 45 | 8170# | 780# | * | | * | | 24410# | 630# | * | | 9760# | 720# |
| | Pd | 46 | 9200# | 640# | * | | -12530# | 710# | 21570# | 500# | * | | 5430# | 540# |
| | Ag | 47 | 10060# | 480# | 31020# | 540# | -11510# | 450# | 18460# | 200# | -28430# | 540# | 5750# | 200# |
| | Cd | 48 | 11542 | 12 | 29210# | 400# | -10740 | 790 | 14723 | 16 | -24180# | 400# | 954 | 30 |
| | In | 49 | 12560 | 30 | 26950 | 430 | -9770 | 40 | 9803 | 22 | -23510# | 200# | 1048 | 24 |
| | Sn | 50 | 13717 | 10 | 24701 | 10 | -8482 | 10 | 4811 | 10 | -18503 | 10 | -5150 | 30 |
| | Sb | 51 | 14586 | 5 | 20801 | 27 | -5694 | 20 | 2284 | 6 | -16216 | 27 | -4705 | 5 |
| | Te | 52 | 15401.34 | 0.20 | 16963.2 | 1.5 | -2890.4 | 2.7 | 40 | 4 | -9555 | 11 | -8442 | 4 |
| | I | 53 | 16289 | 4 | 15306 | 4 | -2185 | 4 | -2744 | 6 | -9880 | 30 | -7908 | 5 |
| | Xe | 54 | 17271 | 4 | 13877 | 4 | -1574 | 4 | -5504 | 12 | -5545 | 4 | -12042 | 11 |
| | Cs | 55 | 18295 | 10 | 11981 | 6 | -721 | 7 | -8344 | 27 | -5618 | 6 | -11642 | 14 |
| | Ba | 56 | 19292 | 16 | 10203 | 12 | 6 | 15 | -10840 | 30 | -960 | 12 | -15920 | 90 |
| | La | 57 | 20280 | 40 | 8386 | 27 | 723 | 29 | -13350# | 200# | -834 | 28 | -15150 | 40 |
| | Ce | 58 | 21460# | 200# | 6890 | 30 | 1250 | 30 | -16440# | 300# | 3400 | 30 | -19730# | 200# |
| | Pr | 59 | 22750# | 360# | 5360# | 200# | 1680# | 280# | -19760# | 450# | 3140# | 220# | -19620# | 360# |
| | Nd | 60 | 24080# | 500# | 3460# | 360# | 2330# | 420# | * | | 8000# | 300# | -24260# | 580# |
| | Pm | 61 | * | | 1420# | 500# | 3020# | 570# | * | | 8250# | 450# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|----|---------|------|--------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 128 | Pd | 46 | 5380# | 710# | 17750# | 780# | 38870# | 500# | 3520# | 710# | 2370# | 710# | * | |
| | Ag | 47 | 4250# | 360# | 14730# | 580# | 30010# | 300# | 7950# | 500# | 4360# | 500# | −6970# | 580# |
| | Cd | 48 | 6566 | 14 | 16090# | 200# | 21752 | 7 | 4150# | 200# | 2140 | 430 | −7480# | 400# |
| | In | 49 | 5320 | 150 | 12690 | 150 | 13590 | 150 | 8820 | 150 | 4070 | 150 | −3980 | 460 |
| | Sn | 50 | 7963 | 20 | 13755 | 28 | 6498 | 18 | 5120 | 30 | 1980 | 30 | −4368 | 18 |
| | Sb | 51 | 6002 | 20 | 8448 | 22 | 1301 | 20 | 12096 | 22 | 6130 | 19 | 1490 | 30 |
| | Te | 52 | 8783.4 | 1.7 | 9583 | 5 | −3615 | 5 | 8110 | 30 | 4126.6 | 2.7 | 2549.1 | 1.3 |
| | I | 53 | 6826.13 | 0.05 | 6746 | 4 | −9110 | 50 | 13037 | 4 | 6148 | 4 | 6164 | 4 |
| | Xe | 54 | 9610 | 4 | 8165 | 4 | −14326 | 28 | 8762 | 4 | 3841.0 | 1.8 | 4809.1 | 1.8 |
| | Cs | 55 | 7763 | 8 | 4899 | 7 | −19600 | 30 | 13926 | 6 | 6126 | 6 | 8552 | 6 |
| | Ba | 56 | 10632 | 12 | 6427 | 8 | −25060# | 200# | 9683 | 12 | 3574 | 9 | 7461 | 6 |
| | La | 57 | 8800 | 60 | 3100 | 60 | −30840# | 300# | 14760 | 60 | 5910 | 60 | 11110 | 50 |
| | Ce | 58 | 11630 | 40 | 4930 | 40 | −36860# | 500# | 10150 | 90 | 3090 | 40 | 9780 | 30 |
| | Pr | 59 | 9860# | 200# | 1640 | 40 | * | | 15200 | 40 | 5190# | 200# | 13080 | 40 |
| | Nd | 60 | 12850# | 360# | 3060# | 280# | * | | 10720# | 280# | 2490# | 360# | 11990# | 280# |
| | Pm | 61 | 11070# | 500# | −460# | 420# | * | | 15920# | 420# | 4680# | 500# | 15800# | 420# |
| | Sm | 62 | * | | 1170# | 640# | * | | 11390# | 710# | * | | 14580# | 640# |
| 129 | Pd | 46 | 1190# | 780# | * | | 42980# | 600# | 7130# | 850# | 4550# | 780# | * | |
| | Ag | 47 | 5430# | 500# | 14780# | 640# | 32650# | 400# | 5910# | 640# | 4740# | 570# | −9030# | 640# |
| | Cd | 48 | 3887 | 18 | 15730# | 300# | 23947 | 17 | 6090# | 200# | 2490# | 200# | −5550# | 400# |
| | In | 49 | 6760 | 150 | 12885 | 8 | 15669 | 4 | 6620 | 12 | 4283 | 4 | −6510# | 200# |
| | Sn | 50 | 5300 | 25 | 13730 | 150 | 8105 | 17 | 7016 | 27 | 2050 | 30 | −2688 | 17 |
| | Sb | 51 | 8070 | 29 | 8556 | 28 | 2870 | 22 | 9552 | 23 | 6250 | 24 | −1210 | 30 |
| | Te | 52 | 6082.41 | 0.08 | 9663 | 19 | −1942 | 11 | 10405 | 5 | 4250 | 30 | 4657 | 10 |
| | I | 53 | 8840 | 5 | 6802 | 3 | −7183 | 22 | 10485 | 3 | 6422 | 3 | 3530 | 30 |
| | Xe | 54 | 6907.1 | 1.1 | 8246 | 4 | −12409 | 28 | 10999 | 4 | 4079 | 4 | 7015.7 | 1.5 |
| | Cs | 55 | 9639 | 7 | 4928 | 5 | −17730 | 30 | 11533 | 6 | 6512 | 6 | 6058 | 6 |
| | Ba | 56 | 7756 | 11 | 6421 | 12 | −22750# | 200# | 11888 | 12 | 4152 | 15 | 9730 | 11 |
| | La | 57 | 10770 | 60 | 3235 | 22 | −28440# | 300# | 12204 | 24 | 6209 | 25 | 8673 | 24 |
| | Ce | 58 | 8820 | 40 | 4950 | 60 | −34290# | 500# | 12320 | 40 | 3550 | 90 | 12030 | 30 |
| | Pr | 59 | 11510 | 40 | 1530 | 40 | * | | 12920 | 40 | 5910 | 40 | 10850 | 100 |
| | Nd | 60 | 10070# | 280# | 3270# | 200# | * | | 12940# | 280# | 2870# | 280# | 14150# | 200# |
| | Pm | 61 | 13170# | 420# | −140# | 360# | * | | 13370# | 420# | 4980# | 420# | 13090# | 360# |
| | Sm | 62 | 11400# | 710# | 1500# | 580# | * | | 13500# | 640# | 2210# | 710# | 16640# | 580# |
| 130 | Ag | 47 | 1790# | 640# | 15380# | 780# | 36590# | 500# | 9500# | 710# | 6350# | 710# | −6020# | 780# |
| | Cd | 48 | 6131 | 28 | 16430# | 400# | 26235 | 22 | 4210# | 300# | 2190# | 200# | −8290# | 500# |
| | In | 49 | 5120 | 40 | 14110 | 40 | 17050 | 40 | 8070 | 40 | 3730 | 40 | −5800# | 200# |
| | Sn | 50 | 7613 | 17 | 14583 | 3 | 9748.3 | 1.9 | 4720 | 150 | 1628 | 21 | −5738 | 12 |
| | Sb | 51 | 5728 | 26 | 8984 | 22 | 4614 | 16 | 11787 | 23 | 6049 | 17 | 257 | 25 |
| | Te | 52 | 8419.5 | 0.9 | 10013 | 21 | −91.4 | 2.6 | 7988 | 19 | 4211 | 5 | 1764 | 10 |
| | I | 53 | 6500.33 | 0.04 | 7220 | 3 | −5309 | 26 | 12768 | 3 | 6210 | 3 | 5410 | 6 |
| | Xe | 54 | 9255.72 | 0.01 | 8662 | 3 | −10458 | 28 | 8569 | 4 | 3968 | 4 | 4047.6 | 1.5 |
| | Cs | 55 | 7472 | 10 | 5493 | 8 | −15720 | 60 | 13671 | 8 | 6286 | 9 | 7731 | 9 |
| | Ba | 56 | 10270 | 11 | 7051 | 5 | −20665 | 28 | 9381 | 6 | 3843 | 6 | 6706 | 5 |
| | La | 57 | 8370 | 30 | 3853 | 28 | −26230# | 200# | 14462 | 26 | 6055 | 28 | 10259 | 27 |
| | Ce | 58 | 11210 | 40 | 5390 | 40 | −31920# | 400# | 9910 | 60 | 3340 | 40 | 9040 | 30 |
| | Pr | 59 | 9470 | 70 | 2180 | 70 | −37490# | 510# | 15070 | 70 | 5670 | 70 | 12370 | 70 |
| | Nd | 60 | 12350# | 200# | 4110 | 40 | * | | 10450 | 40 | 2810# | 200# | 11030 | 40 |
| | Pm | 61 | 10590# | 360# | 370# | 280# | * | | 15630# | 280# | 5000# | 360# | 14790# | 280# |
| | Sm | 62 | 13580# | 640# | 1910# | 500# | * | | 10990# | 500# | 2140# | 570# | 13680# | 500# |
| | Eu | 63 | * | | −1028 | 15 | * | | 15700# | 710# | * | | 16750# | 640# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q($2\beta^-$) | | Q(ϵ_p) | | Q(β^-n) | |
|-----|------|----|---------|------|---------|------|---------------|------|-----------------|------|-------------------|------|-----------------|------|
| 128 | Pd | 46 | 8770# | 640# | * | | -12960# | 780# | 22750# | 500# | * | | 5880# | 540# |
| | Ag | 47 | 10080# | 360# | 31900# | 580# | -12160# | 500# | 19530# | 340# | -27880# | 670# | 6060# | 300# |
| | Cd | 48 | 11128 | 8 | 29960# | 400# | -11280# | 300# | 16120 | 19 | -27350# | 500# | 1583 | 22 |
| | In | 49 | 12520 | 160 | 28040# | 250# | -10370 | 290 | 10480 | 150 | -23000# | 250# | 1250 | 150 |
| | Sn | 50 | 13489 | 21 | 25683 | 18 | -9085 | 18 | 5632 | 18 | -21904 | 21 | -4734 | 18 |
| | Sb | 51 | 14380 | 40 | 21440 | 30 | -6190 | 40 | 3108 | 19 | -15023 | 29 | -4420 | 19 |
| | Te | 52 | 15071.0 | 1.7 | 17556 | 10 | -3184.4 | 1.3 | 866.6 | 0.9 | -12812 | 10 | -8081 | 4 |
| | I | 53 | 15970.0 | 2.7 | 15920 | 30 | -2543 | 4 | -1807 | 7 | -8328 | 6 | -7488.5 | 2.0 |
| | Xe | 54 | 16856 | 4 | 14372.9 | 1.8 | -1759.9 | 1.8 | -4482 | 5 | -8867.6 | 1.8 | -11691 | 6 |
| | Cs | 55 | 17723 | 12 | 12598 | 7 | -991 | 6 | -7310 | 50 | -4237 | 7 | -11185 | 13 |
| | Ba | 56 | 18851 | 14 | 10809 | 6 | -142 | 5 | -9845 | 28 | -4346 | 7 | -15554 | 27 |
| | La | 57 | 19790 | 110 | 8850 | 60 | 680 | 60 | -12290 | 60 | 330 | 50 | -14720 | 60 |
| | Ce | 58 | 20860 | 40 | 7440 | 30 | 1130 | 30 | -15220# | 200# | -0 | 30 | -19060# | 200# |
| | Pr | 59 | 22150# | 200# | 5940 | 100 | 1500 | 60 | -18550# | 300# | 4280 | 40 | -18870# | 300# |
| | Nd | 60 | 23460# | 360# | 4070# | 200# | 2180# | 360# | -21640# | 540# | 4380# | 200# | -23600# | 450# |
| | Pm | 61 | 24580# | 580# | 2040# | 360# | 2940# | 500# | * | | 9470# | 360# | * | |
| | Sm | 62 | * | | 260# | 580# | 3430# | 710# | * | | 9580# | 580# | * | |
| 129 | Pd | 46 | 6570# | 780# | * | | * | | 25450# | 600# | * | | 8940# | 670# |
| | Ag | 47 | 9680# | 450# | 32530# | 720# | -12410# | 640# | 20860# | 400# | * | | 7190# | 400# |
| | Cd | 48 | 10453 | 21 | 30460# | 500# | -11360# | 400# | 17533 | 24 | -25860# | 500# | 3020 | 150 |
| | In | 49 | 12084 | 21 | 28980# | 200# | -10740 | 430 | 11792 | 21 | -25510# | 300# | 2453 | 18 |
| | Sn | 50 | 13263 | 20 | 26421 | 21 | -9668 | 18 | 6414 | 17 | -20638 | 19 | -4032 | 26 |
| | Sb | 51 | 14072 | 22 | 22311 | 30 | -6580 | 30 | 3878 | 21 | -17770 | 150 | -3707 | 21 |
| | Te | 52 | 14865.8 | 1.7 | 18112 | 10 | -3533.3 | 1.3 | 1691.3 | 0.9 | -10932 | 18 | -7337 | 4 |
| | I | 53 | 15666 | 5 | 16386 | 6 | -2676 | 4 | -1008 | 6 | -11166 | 19 | -6718 | 3 |
| | Xe | 54 | 16517 | 4 | 14992.3 | 1.5 | -2098.0 | 1.5 | -3633 | 11 | -6991.3 | 0.9 | -10836 | 5 |
| | Cs | 55 | 17402 | 7 | 13093 | 6 | -1087 | 5 | -6175 | 22 | -7049 | 6 | -10192 | 7 |
| | Ba | 56 | 18388 | 16 | 11320 | 11 | -295 | 11 | -8776 | 30 | -2492 | 11 | -14510 | 60 |
| | La | 57 | 19570 | 30 | 9662 | 22 | 338 | 23 | -11550 | 40 | -2682 | 22 | -13860 | 40 |
| | Ce | 58 | 20450 | 40 | 8050 | 30 | 960 | 30 | -13970# | 200# | 1802 | 28 | -18030 | 40 |
| | Pr | 59 | 21370# | 200# | 6460 | 40 | 1560 | 40 | -16890# | 300# | 1560 | 60 | -17530# | 200# |
| | Nd | 60 | 22920# | 360# | 4910# | 200# | 1920# | 280# | -20320# | 540# | 5930# | 200# | -22600# | 360# |
| | Pm | 61 | 24240# | 500# | 2920# | 360# | 2630# | 420# | * | | 6160# | 300# | -22280# | 580# |
| | Sm | 62 | * | | 1040# | 580# | 3170# | 640# | * | | 11030# | 540# | * | |
| 130 | Ag | 47 | 7220# | 400# | * | | -10820# | 710# | 24190# | 500# | * | | 9290# | 500# |
| | Cd | 48 | 10018 | 24 | 31210# | 500# | -11680# | 400# | 19015 | 22 | -30800# | 600# | 3649 | 23 |
| | In | 49 | 11880 | 160 | 29840# | 300# | -11630# | 200# | 12400 | 40 | -25190# | 400# | 2640 | 40 |
| | Sn | 50 | 12913 | 18 | 27468 | 7 | -10300 | 3 | 7220.7 | 1.9 | -24363 | 17 | -3574 | 21 |
| | Sb | 51 | 13798 | 24 | 22720 | 150 | -6940 | 30 | 4650 | 15 | -16737 | 14 | -3352 | 14 |
| | Te | 52 | 14501.9 | 0.9 | 18569 | 18 | -3763 | 10 | 2527.51 | 0.01 | -14051 | 17 | -6917 | 3 |
| | I | 53 | 15340 | 5 | 16884 | 19 | -2970 | 30 | -36 | 9 | -9596 | 21 | -6311 | 3 |
| | Xe | 54 | 16162.8 | 1.1 | 15464.7 | 0.9 | -2240.0 | 1.5 | -2618.9 | 2.6 | -10164.6 | 0.9 | -10453 | 5 |
| | Cs | 55 | 17111 | 10 | 13739 | 9 | -1413 | 9 | -5272 | 27 | -5682 | 9 | -9908 | 13 |
| | Ba | 56 | 18025.7 | 2.8 | 11979.2 | 2.8 | -539 | 4 | -7839 | 28 | -5854.5 | 2.6 | -14008 | 21 |
| | La | 57 | 19140 | 60 | 10274 | 27 | 299 | 28 | -10450 | 70 | -1417 | 26 | -13410 | 40 |
| | Ce | 58 | 20030 | 40 | 8622 | 28 | 820 | 30 | -12830 | 40 | -1649 | 30 | -17720 | 40 |
| | Pr | 59 | 20990 | 70 | 7130 | 80 | 1370 | 110 | -15780# | 210# | 2860 | 70 | -16930# | 210# |
| | Nd | 60 | 22430# | 200# | 5640 | 40 | 1800 | 40 | -19090# | 400# | 2400 | 40 | -21790# | 300# |
| | Pm | 61 | 23750# | 360# | 3640# | 200# | 2500# | 280# | -21710# | 540# | 7090# | 200# | -21470# | 540# |
| | Sm | 62 | 24980# | 640# | 1770# | 450# | 3060# | 500# | * | | 7520# | 450# | * | |
| | Eu | 63 | * | | 480# | 580# | 3240# | 710# | * | | 11910# | 580# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|----|---------|------|---------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 131 | Ag | 47 | 2750# | 710# | * | | 41600# | 500# | 7940# | 780# | 8970# | 710# | * | |
| | Cd | 48 | 2170 | 100 | 16810# | 510# | 29990 | 100 | 7470# | 410# | 4270# | 320# | -5080# | 510# |
| | In | 49 | 6210 | 40 | 14196 | 23 | 19417.7 | 2.8 | 5744 | 17 | 4081 | 8 | -7760# | 300# |
| | Sn | 50 | 5204 | 4 | 14670 | 40 | 11149 | 4 | 6284 | 5 | 1750 | 150 | -4376 | 8 |
| | Sb | 51 | 7767 | 14 | 9138.2 | 2.8 | 6077 | 5 | 9320 | 17 | 6245 | 18 | -2190 | 150 |
| | Te | 52 | 5929.38 | 0.06 | 10214 | 14 | 1472.7 | 2.6 | 10129 | 21 | 4283 | 19 | 3797 | 18 |
| | I | 53 | 8578 | 3 | 7378.7 | 0.6 | -3673 | 28 | 10272.9 | 1.1 | 6415.1 | 1.1 | 2834 | 19 |
| | Xe | 54 | 6604.41 | 0.01 | 8766 | 3 | -8710 | 30 | 10804 | 3 | 4189 | 4 | 6226.6 | 0.9 |
| | Cs | 55 | 9230 | 10 | 5467 | 5 | -13760 | 50 | 11348 | 5 | 6666 | 5 | 5326 | 6 |
| | Ba | 56 | 7493.50 | 0.30 | 7073 | 9 | -18916 | 28 | 11526 | 5 | 4112 | 6 | 8823.0 | 2.8 |
| | La | 57 | 10210 | 40 | 3797 | 28 | -24110# | 200# | 12005 | 30 | 6473 | 28 | 7809 | 28 |
| | Ce | 58 | 8360 | 40 | 5370 | 40 | -29580# | 400# | 12330 | 40 | 3780 | 60 | 11320 | 30 |
| | Pr | 59 | 11200 | 80 | 2170 | 50 | -35030# | 400# | 12700 | 50 | 6100 | 50 | 9970 | 70 |
| | Nd | 60 | 9240 | 40 | 3880 | 70 | * | | 12720 | 40 | 3430 | 40 | 13410 | 40 |
| | Pm | 61 | 12340# | 280# | 350# | 200# | * | | 13370# | 280# | 5520# | 280# | 12320# | 200# |
| | Sm | 62 | 10700# | 570# | 2030# | 450# | * | | 13460# | 500# | 2520# | 500# | 15830# | 450# |
| | Eu | 63 | 13660# | 640# | -947 | 5 | * | | 13440# | 640# | 4260# | 640# | 14160# | 500# |
| 132 | Ag | 47 | 1480# | 710# | * | | 45850# | 500# | * | | 8680# | 780# | * | |
| | Cd | 48 | 3120# | 220# | 17170# | 540# | 34930# | 200# | 6150# | 540# | 6580# | 450# | -7010# | 630# |
| | In | 49 | 2460 | 60 | 14480 | 120 | 23290 | 60 | 9420 | 60 | 5510 | 60 | -4790# | 400# |
| | Sn | 50 | 7353 | 4 | 15810 | 3 | 12732.4 | 2.0 | 4050 | 40 | 1155 | 3 | -7842 | 17 |
| | Sb | 51 | 5725 | 3 | 9660 | 4 | 7517.4 | 2.7 | 11208 | 3 | 5820 | 17 | -1151 | 4 |
| | Te | 52 | 8048 | 3 | 10496 | 4 | 3247 | 4 | 7808 | 15 | 4305 | 22 | 1049 | 18 |
| | I | 53 | 6332 | 4 | 7781 | 4 | -1980 | 40 | 12360 | 4 | 6165 | 4 | 4572 | 22 |
| | Xe | 54 | 8936.72 | 0.01 | 9125.2 | 0.6 | -6808 | 20 | 8368 | 3 | 4092 | 3 | 3372.2 | 0.9 |
| | Cs | 55 | 7165 | 5 | 6028.1 | 1.0 | -11925 | 29 | 13438.6 | 1.0 | 6407.4 | 1.0 | 7001 | 3 |
| | Ba | 56 | 9822.6 | 2.7 | 7665 | 5 | -17009 | 24 | 9176 | 8 | 3928 | 5 | 5907.4 | 1.1 |
| | La | 57 | 8030 | 50 | 4330 | 40 | -22100# | 150# | 14250 | 40 | 6200 | 40 | 9420 | 40 |
| | Ce | 58 | 10830 | 40 | 5990 | 30 | -27390# | 300# | 9870 | 30 | 3718 | 30 | 8239 | 23 |
| | Pr | 59 | 9000 | 60 | 2810 | 40 | -33030# | 400# | 14910 | 40 | 5920 | 40 | 11740 | 40 |
| | Nd | 60 | 11730 | 40 | 4410 | 50 | * | | 10460 | 70 | 3210 | 40 | 10510 | 40 |
| | Pm | 61 | 10040# | 250# | 1150# | 150# | * | | 15680# | 150# | 5550# | 250# | 13790# | 150# |
| | Sm | 62 | 13020# | 500# | 2710# | 360# | * | | 11030# | 360# | 2670# | 420# | 12880# | 360# |
| | Eu | 63 | 11000# | 570# | -640# | 570# | * | | 16020# | 570# | 4660# | 640# | 16330# | 500# |
| 133 | Cd | 48 | 1730# | 360# | 17420# | 580# | 39020# | 300# | 7170# | 580# | 6640# | 580# | * | |
| | In | 49 | 3120# | 210# | 14490# | 280# | 28390# | 200# | 8470# | 220# | 8520# | 200# | -6120# | 540# |
| | Sn | 50 | 2398.7 | 2.7 | 15750 | 60 | 16770 | 3 | 7862 | 3 | 3870 | 40 | -4110 | 22 |
| | Sb | 51 | 7360 | 4 | 9666 | 4 | 9147 | 3 | 9052 | 5 | 6073 | 4 | -3390 | 40 |
| | Te | 52 | 5820 | 4 | 10591 | 3 | 4616.5 | 2.3 | 9755.1 | 2.9 | 4213 | 14 | 2841.5 | 2.8 |
| | I | 53 | 8226 | 8 | 7959 | 7 | -364 | 29 | 10064 | 6 | 6359 | 6 | 2074 | 16 |
| | Xe | 54 | 6435.9 | 2.4 | 9229 | 5 | -5225 | 17 | 10509.9 | 2.5 | 4157 | 4 | 5355.8 | 2.4 |
| | Cs | 55 | 8989.6 | 1.0 | 6080.94 | 0.01 | -10133 | 12 | 11053.43 | 0.01 | 6673.59 | 0.01 | 4512 | 3 |
| | Ba | 56 | 7189.9 | 0.4 | 7689.9 | 1.4 | -15220 | 50 | 11216 | 5 | 4210 | 8 | 7973.3 | 1.0 |
| | La | 57 | 9840 | 50 | 4348 | 28 | -20090 | 60 | 11900 | 28 | 6631 | 28 | 7052 | 29 |
| | Ce | 58 | 8019 | 26 | 5980 | 40 | -25190# | 300# | 12060 | 30 | 4070 | 30 | 10490 | 17 |
| | Pr | 59 | 10780 | 30 | 2756 | 24 | -30700# | 300# | 12480 | 40 | 6350 | 30 | 9336 | 29 |
| | Nd | 60 | 8980 | 50 | 4390 | 50 | -36470# | 500# | 12680 | 70 | 3710 | 80 | 12740 | 50 |
| | Pm | 61 | 11850# | 160# | 1270 | 60 | * | | 13070 | 60 | 6050 | 60 | 11410 | 80 |
| | Sm | 62 | 10220# | 420# | 2890# | 330# | * | | 13140# | 360# | 3030# | 360# | 15010# | 300# |
| | Eu | 63 | 13110# | 500# | -550# | 420# | * | | 13610# | 500# | 5130# | 500# | 13810# | 360# |
| | Gd | 64 | * | | 950# | 640# | * | | 14120# | 640# | 2690# | 710# | 17290# | 640# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | $Q(\alpha)$ | | $Q(2\beta^-)$ | | $Q(\epsilon p)$ | | $Q(\beta^- n)$ | |
|-----|------|----|----------|------|----------|------|-------------|------|---------------|------|-----------------|------|----------------|------|
| 131 | Ag | 47 | 4540# | 640# | * | | -8780# | 780# | 27650# | 500# | * | | 12670# | 500# |
| | Cd | 48 | 8300 | 100 | 32190# | 610# | -10460# | 510# | 22050 | 100 | * | | 6590 | 110 |
| | In | 49 | 11330 | 4 | 30620# | 400# | -12010# | 200# | 13956 | 3 | -29620# | 500# | 4036 | 3 |
| | Sn | 50 | 12816 | 18 | 28784 | 17 | -10942 | 13 | 7946 | 4 | -23436 | 23 | -3050 | 15 |
| | Sb | 51 | 13495 | 21 | 23722 | 3 | -7510 | 21 | 5461.3 | 2.2 | -19390 | 40 | -2699.8 | 2.1 |
| | Te | 52 | 14348.8 | 0.9 | 19198 | 17 | -4165 | 10 | 3202.55 | 0.06 | -12367.8 | 1.9 | -6346 | 3 |
| | I | 53 | 15078 | 3 | 17391 | 21 | -3168 | 5 | 616 | 5 | -12446 | 14 | -5633.6 | 0.6 |
| | Xe | 54 | 15860.13 | 0.01 | 15986.7 | 0.9 | -2556.8 | 1.5 | -1729.8 | 2.6 | -8349.58 | 0.01 | -9585 | 8 |
| | Cs | 55 | 16702 | 7 | 14130 | 6 | -1500 | 6 | -4290 | 28 | -8412 | 6 | -8869 | 5 |
| | Ba | 56 | 17763 | 11 | 12565.6 | 2.6 | -787 | 5 | -6980 | 30 | -4092.2 | 2.6 | -13128 | 26 |
| | La | 57 | 18590 | 40 | 10848 | 28 | 46 | 28 | -9470 | 50 | -4158 | 29 | -12420 | 40 |
| | Ce | 58 | 19560 | 40 | 9220 | 30 | 680 | 30 | -11940 | 40 | 260 | 30 | -16600 | 70 |
| | Pr | 59 | 20670 | 60 | 7550 | 50 | 1170 | 50 | -14640# | 210# | 40 | 50 | -15780 | 50 |
| | Nd | 60 | 21600# | 200# | 6060 | 40 | 1790 | 40 | -17640# | 400# | 4370 | 40 | -20440# | 200# |
| | Pm | 61 | 22920# | 360# | 4470# | 200# | 2460# | 280# | -20390# | 450# | 4230# | 210# | -20230# | 450# |
| | Sm | 62 | 24280# | 640# | 2400# | 450# | 2980# | 500# | * | | 9170# | 400# | -24520# | 640# |
| | Eu | 63 | * | | 970# | 500# | 3090# | 570# | * | | 8840# | 450# | * | |
| 132 | Ag | 47 | 4240# | 710# | * | | * | | 28620# | 500# | * | | 13360# | 510# |
| | Cd | 48 | 5290# | 200# | * | | -8200# | 540# | 26280# | 200# | * | | 9690# | 200# |
| | In | 49 | 8670 | 70 | 31290# | 500# | -10220# | 310# | 17220 | 60 | -29320# | 500# | 6780 | 60 |
| | Sn | 50 | 12557.0 | 2.7 | 30007 | 22 | -11730 | 8 | 8642 | 4 | -28620 | 100 | -2636.5 | 2.9 |
| | Sb | 51 | 13492 | 14 | 24330 | 40 | -7910 | 150 | 6068 | 5 | -18899 | 4 | -2495.6 | 2.5 |
| | Te | 52 | 13978 | 3 | 19634 | 4 | -4251 | 18 | 4091 | 3 | -15213 | 5 | -5817 | 4 |
| | I | 53 | 14910 | 5 | 17996 | 15 | -3498 | 20 | 1449 | 4 | -11011 | 5 | -5361 | 4 |
| | Xe | 54 | 15541.13 | 0.01 | 16503.95 | 0.01 | -2710.2 | 0.9 | -843.9 | 1.1 | -11356.92 | 0.06 | -9291 | 5 |
| | Cs | 55 | 16396 | 8 | 14794 | 3 | -1839 | 4 | -3430 | 40 | -6998.9 | 1.2 | -8540.3 | 2.8 |
| | Ba | 56 | 17316.1 | 2.7 | 13132.5 | 1.1 | -999.6 | 1.5 | -5964 | 20 | -7310.4 | 1.1 | -12737 | 28 |
| | La | 57 | 18240 | 40 | 11400 | 40 | -220 | 40 | -8500 | 50 | -2950 | 40 | -12090 | 50 |
| | Ce | 58 | 19190 | 30 | 9787 | 20 | 483 | 21 | -11050 | 30 | -3076 | 20 | -16240 | 50 |
| | Pr | 59 | 20190 | 70 | 8180 | 40 | 970 | 60 | -13600# | 150# | 1250 | 40 | -15530 | 40 |
| | Nd | 60 | 20970 | 40 | 6580 | 40 | 1680 | 40 | -16350# | 300# | 990 | 40 | -19840# | 200# |
| | Pm | 61 | 22370# | 250# | 5030# | 160# | 2280# | 150# | -19430# | 430# | 5380# | 160# | -19570# | 430# |
| | Sm | 62 | 23720# | 500# | 3060# | 300# | 2810# | 360# | * | | 5400# | 300# | -23880# | 500# |
| | Eu | 63 | 24660# | 640# | 1380# | 450# | 3160# | 500# | * | | 10170# | 450# | * | |
| 133 | Cd | 48 | 4840# | 320# | * | | -8740# | 670# | 26950# | 300# | * | | 10420# | 300# |
| | In | 49 | 5580# | 200# | 31660# | 540# | -7910# | 450# | 21460# | 200# | -30960# | 540# | 11010# | 200# |
| | Sn | 50 | 9752 | 4 | 30230 | 100 | -10241 | 17 | 12063.2 | 2.8 | -27900# | 200# | 690 | 3 |
| | Sb | 51 | 13085 | 4 | 25476 | 4 | -8511 | 4 | 6935 | 7 | -23800 | 60 | -1807 | 5 |
| | Te | 52 | 13868.7 | 2.1 | 20250 | 4 | -4771 | 17 | 4706 | 3 | -13679.6 | 2.9 | -5305 | 5 |
| | I | 53 | 14558 | 6 | 18455 | 7 | -3654 | 22 | 2213 | 6 | -13512 | 7 | -4651 | 6 |
| | Xe | 54 | 15372.6 | 2.4 | 17010.5 | 2.4 | -3063.7 | 2.6 | -90.0 | 2.6 | -9744 | 4 | -8562.2 | 2.6 |
| | Cs | 55 | 16155 | 5 | 15206.2 | 0.6 | -1989 | 3 | -2577 | 28 | -9656 | 4 | -7707.2 | 1.1 |
| | Ba | 56 | 17012.5 | 2.7 | 13718.0 | 1.0 | -1282.5 | 1.0 | -5135 | 16 | -5563.6 | 1.0 | -11900 | 40 |
| | La | 57 | 17870 | 40 | 12014 | 28 | -420 | 28 | -7560 | 30 | -5631 | 28 | -11090 | 30 |
| | Ce | 58 | 18850 | 40 | 10312 | 17 | 220 | 19 | -10090 | 50 | -1272 | 16 | -15260 | 30 |
| | Pr | 59 | 19780 | 50 | 8750 | 30 | 962 | 25 | -12530 | 50 | -1500 | 40 | -14583 | 27 |
| | Nd | 60 | 20710 | 50 | 7200 | 60 | 1530 | 50 | -15100# | 300# | 2850 | 50 | -18780# | 160# |
| | Pm | 61 | 21890# | 210# | 5680 | 70 | 1940 | 60 | -18170# | 300# | 2530 | 60 | -18400# | 300# |
| | Sm | 62 | 23240# | 500# | 4040# | 300# | 2660# | 360# | -21370# | 580# | 6910# | 300# | -23100# | 500# |
| | Eu | 63 | 24110# | 500# | 2150# | 360# | 3220# | 420# | * | | 7100# | 330# | * | |
| | Gd | 64 | * | | 310# | 640# | 3720# | 710# | * | | 11930# | 580# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|----|---------|------|---------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 134 | Cd | 48 | 3070# | 500# | * | | 43610# | 400# | 5580# | 640# | 6330# | 640# | * | |
| | In | 49 | 2270# | 360# | 15030# | 420# | 32380# | 300# | 9310# | 360# | 8420# | 320# | -5630# | 580# |
| | Sn | 50 | 3631 | 4 | 16260# | 200# | 21692 | 3 | 6690 | 60 | 6455 | 4 | -5570 | 100 |
| | Sb | 51 | 3168 | 4 | 10435.6 | 2.6 | 12870.6 | 1.7 | 13236.8 | 2.6 | 8108 | 4 | -349 | 3 |
| | Te | 52 | 7668 | 3 | 10899 | 4 | 6416.1 | 2.8 | 7812 | 4 | 4312 | 3 | 377 | 5 |
| | I | 53 | 6256 | 8 | 8395 | 5 | 1175 | 21 | 11856 | 6 | 6032 | 5 | 3584 | 5 |
| | Xe | 54 | 8553.6 | 2.4 | 9557 | 6 | -3293 | 20 | 8288 | 4 | 4180.9 | 0.6 | 2731.59 | 0.06 |
| | Cs | 55 | 6891.54 | 0.01 | 6536.6 | 2.4 | -8363 | 20 | 13098.61 | 0.02 | 6386.46 | 0.02 | 6198.0 | 0.6 |
| | Ba | 56 | 9467.6 | 1.0 | 8167.9 | 0.3 | -13303 | 12 | 8913.6 | 1.1 | 3973 | 5 | 5110.1 | 0.3 |
| | La | 57 | 7800 | 30 | 4954 | 20 | -18480 | 60 | 13927 | 20 | 6329 | 20 | 8487 | 21 |
| | Ce | 58 | 10486 | 26 | 6630 | 30 | -23460# | 200# | 9600 | 40 | 3800 | 30 | 7497 | 21 |
| | Pr | 59 | 8662 | 24 | 3399 | 26 | -28600# | 300# | 14654 | 29 | 6040 | 40 | 10890 | 30 |
| | Nd | 60 | 11390 | 50 | 4998 | 17 | -34340# | 400# | 10290 | 30 | 3520 | 50 | 9710 | 30 |
| | Pm | 61 | 9400 | 80 | 1700 | 70 | * | | 15400 | 60 | 5890 | 60 | 13210 | 70 |
| | Sm | 62 | 12220# | 360# | 3260# | 200# | * | | 10960# | 250# | 3150# | 280# | 12040# | 200# |
| | Eu | 63 | 10760# | 420# | -10# | 420# | * | | 15860# | 420# | 5070# | 500# | 15380# | 360# |
| | Gd | 64 | 13510# | 640# | 1360# | 500# | * | | 11610# | 570# | 2830# | 570# | 14480# | 570# |
| 135 | In | 49 | 2940# | 500# | 14900# | 570# | 37250# | 400# | 8100# | 500# | 8600# | 450# | -7090# | 640# |
| | Sn | 50 | 2270 | 4 | 16260# | 300# | 25781 | 5 | 7540# | 200# | 6640 | 60 | -4720# | 200# |
| | Sb | 51 | 3741 | 3 | 10546 | 4 | 17891.3 | 2.8 | 11894 | 3 | 11720 | 3 | -1630 | 60 |
| | Te | 52 | 3266 | 3 | 10997.2 | 2.4 | 10121.7 | 1.7 | 11906 | 4 | 6771 | 3 | 4464.2 | 2.6 |
| | I | 53 | 7807 | 5 | 8534 | 3 | 2864 | 10 | 9868.8 | 2.9 | 6273 | 4 | 1503 | 3 |
| | Xe | 54 | 6359 | 4 | 9659 | 6 | -1797 | 11 | 10156 | 7 | 4154 | 6 | 4421 | 5 |
| | Cs | 55 | 8761.8 | 1.0 | 6744.8 | 1.0 | -6646 | 12 | 10772.7 | 2.6 | 6561.4 | 1.0 | 3768 | 4 |
| | Ba | 56 | 6971.96 | 0.10 | 8248.3 | 0.3 | -11637 | 19 | 10931.2 | 0.3 | 4166.2 | 1.1 | 7074.9 | 0.3 |
| | La | 57 | 9496 | 22 | 4982 | 9 | -16590 | 80 | 11621 | 9 | 6656 | 9 | 6156 | 9 |
| | Ce | 58 | 7855 | 23 | 6686 | 22 | -21760 | 150 | 11589 | 30 | 3970 | 40 | 9465 | 10 |
| | Pr | 59 | 10479 | 24 | 3392 | 24 | -26790# | 200# | 12193 | 20 | 6399 | 24 | 8430 | 40 |
| | Nd | 60 | 8638 | 22 | 4975 | 28 | -31820# | 400# | 12435 | 23 | 3880 | 30 | 11904 | 28 |
| | Pm | 61 | 11380 | 100 | 1690 | 80 | -37230# | 410# | 12990 | 90 | 6240 | 80 | 10820 | 80 |
| | Sm | 62 | 9550# | 250# | 3410 | 170 | * | | 13260 | 160 | 3630# | 220# | 14210 | 160 |
| | Eu | 63 | 12290# | 360# | 60# | 280# | * | | 13790# | 360# | 5800# | 360# | 13130# | 250# |
| | Gd | 64 | 11160# | 570# | 1750# | 500# | * | | 13560# | 500# | 2670# | 570# | 16340# | 500# |
| | Tb | 65 | * | | -1188 | 7 | * | | 13750# | 640# | * | | 15020# | 570# |
| 136 | In | 49 | 2050# | 570# | * | | 39040# | 400# | 9120# | 570# | 8270# | 500# | * | |
| | Sn | 50 | 3340# | 300# | 16660# | 500# | 30530# | 300# | 6470# | 420# | 6430# | 360# | -6330# | 420# |
| | Sb | 51 | 2888 | 6 | 11164 | 7 | 21832 | 6 | 12638 | 7 | 11231 | 6 | -1400# | 200# |
| | Te | 52 | 4767.8 | 2.9 | 12024 | 3 | 14461.7 | 2.3 | 10306.1 | 2.8 | 9362 | 4 | 2095.0 | 3.0 |
| | I | 53 | 3837 | 14 | 9105 | 14 | 6490 | 60 | 13699 | 14 | 8256 | 14 | 5025 | 15 |
| | Xe | 54 | 8087 | 4 | 9939.0 | 2.1 | 79.2 | 0.4 | 8325 | 5 | 4293 | 6 | 2154.4 | 2.1 |
| | Cs | 55 | 6828.4 | 2.1 | 7215 | 4 | -4998 | 12 | 12497.9 | 1.9 | 6169 | 3 | 5166 | 7 |
| | Ba | 56 | 9107.74 | 0.04 | 8594.2 | 1.0 | -9688 | 12 | 8715.0 | 0.3 | 4048.1 | 0.3 | 4403.1 | 2.4 |
| | La | 57 | 7470 | 50 | 5480 | 50 | -14870 | 90 | 13620 | 50 | 6380 | 50 | 7680 | 50 |
| | Ce | 58 | 9964 | 10 | 7154 | 9 | -19697 | 13 | 9421 | 20 | 3850 | 28 | 6691.6 | 1.1 |
| | Pr | 59 | 8476 | 16 | 4013 | 15 | -25100# | 200# | 14203 | 23 | 5942 | 20 | 9800 | 30 |
| | Nd | 60 | 11057 | 22 | 5552 | 17 | -30110# | 300# | 10040 | 24 | 3602 | 17 | 8865 | 20 |
| | Pm | 61 | 9190 | 100 | 2250 | 70 | -35040# | 510# | 15190 | 70 | 6030 | 80 | 12410 | 70 |
| | Sm | 62 | 12020 | 160 | 4050 | 80 | * | | 10640 | 60 | 3460 | 50 | 11170 | 50 |
| | Eu | 63 | 10170# | 280# | 680# | 250# | * | | 15840# | 280# | 5850# | 360# | 14810# | 200# |
| | Gd | 64 | 12770# | 500# | 2230# | 360# | * | | 11550# | 420# | 3010# | 420# | 13790# | 420# |
| | Tb | 65 | 11380# | 640# | -970# | 640# | * | | 15880# | 640# | 4590# | 710# | 16750# | 580# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q(2β ⁻) | | Q(εp) | | Q(β ⁻ n) | |
|-----|------|--------|----------|-------|----------|-------|----------|--------|---------------------|-------|----------|---------|---------------------|------|
| 134 | Cd | 48 | 4800# | 450# | * | * | * | 27510# | 400# | * | * | 10470# | 450# | |
| | In | 49 | 5390# | 300# | 32450# | 580# | -8390# | 580# | 22360# | 300# | * | 11140# | 300# | |
| | Sn | 50 | 6030 | 4 | 30750# | 200# | -7741 | 23 | 16100 | 4 | -29800# | 300# | 4418 | 4 |
| | Sb | 51 | 10527.9 | 3.0 | 26190 | 60 | -6560 | 40 | 10023 | 5 | -23850# | 200# | 845.3 | 2.7 |
| | Te | 52 | 13488 | 4 | 20565 | 3 | -4826 | 3 | 5592.1 | 2.7 | -18949 | 3 | -4747 | 7 |
| | I | 53 | 14483 | 6 | 18986 | 5 | -4183 | 15 | 2848 | 5 | -12409 | 6 | -4471 | 5 |
| | Xe | 54 | 14989.49 | 0.01 | 17516 | 3 | -3197.79 | 0.01 | 824.0 | 0.3 | -12477.7 | 2.1 | -8126.21 | 0.01 |
| | Cs | 55 | 15881.1 | 1.0 | 15766 | 4 | -2380 | 3 | -1673 | 20 | -8322 | 6 | -7408.9 | 1.0 |
| | Ba | 56 | 16657.5 | 1.1 | 14248.8 | 0.3 | -1494.3 | 0.3 | -4117 | 20 | -8595.3 | 2.4 | -11527 | 28 |
| | La | 57 | 17640 | 40 | 12644 | 20 | -744 | 22 | -6691 | 28 | -4437 | 20 | -10872 | 26 |
| | Ce | 58 | 18505 | 29 | 10976 | 20 | 4 | 21 | -9186 | 24 | -4568 | 20 | -14967 | 24 |
| | Pr | 59 | 19440 | 40 | 9380 | 40 | 670 | 30 | -11790 | 60 | -320 | 30 | -14270 | 50 |
| | Nd | 60 | 20363 | 27 | 7753 | 24 | 1350 | 30 | -14270# | 200# | -517 | 20 | -18310 | 50 |
| | Pm | 61 | 21250# | 160# | 6090 | 60 | 2010 | 90 | -16810# | 300# | 3910 | 60 | -17580# | 300# |
| | Sm | 62 | 22440# | 360# | 4530# | 200# | 2800# | 200# | -20070# | 450# | 3670# | 200# | -22210# | 360# |
| Eu | 63 | 23870# | 500# | 2880# | 330# | 3040# | 360# | * | * | 8190# | 300# | -22140# | 580# | |
| Gd | 64 | * | * | 800# | 500# | 3780# | 570# | * | * | 8640# | 500# | * | * | |
| 135 | In | 49 | 5210# | 450# | * | * | -8570# | 640# | 23160# | 400# | * | * | 11830# | 400# |
| | Sn | 50 | 5901 | 4 | 31290# | 300# | -7840 | 100 | 17097 | 4 | -29000# | 400# | 5317 | 4 |
| | Sb | 51 | 6909 | 4 | 26800# | 200# | -4090 | 4 | 14089 | 3 | -25320# | 300# | 4772 | 4 |
| | Te | 52 | 10934.3 | 2.7 | 21432.8 | 2.6 | -2889 | 4 | 8684 | 4 | -18584 | 4 | -1757 | 5 |
| | I | 53 | 14064 | 7 | 19434 | 4 | -4222.7 | 2.9 | 3802.5 | 2.3 | -17047.6 | 2.7 | -3724.6 | 2.1 |
| | Xe | 54 | 14912 | 4 | 18054 | 4 | -3627 | 4 | 1437 | 4 | -11168 | 5 | -7593 | 4 |
| | Cs | 55 | 15653.3 | 1.0 | 16301 | 7 | -2563.8 | 1.2 | -938 | 9 | -10827 | 5 | -6703.1 | 1.0 |
| | Ba | 56 | 16439.5 | 1.0 | 14784.9 | 2.4 | -1861.9 | 0.3 | -3234 | 10 | -7013.6 | 0.3 | -10703 | 20 |
| | La | 57 | 17292 | 29 | 13150 | 9 | -1009 | 11 | -5707 | 15 | -7041 | 9 | -9882 | 22 |
| | Ce | 58 | 18341 | 19 | 11640 | 10 | -357 | 11 | -8403 | 22 | -2955 | 10 | -14159 | 23 |
| | Pr | 59 | 19141 | 17 | 10020 | 30 | 410 | 30 | -10880 | 80 | -3006 | 23 | -13361 | 17 |
| | Nd | 60 | 20020 | 50 | 8373 | 25 | 1070 | 40 | -13360 | 160 | 1330 | 28 | -17550 | 60 |
| | Pm | 61 | 20790 | 90 | 6690 | 80 | 1820 | 90 | -15900# | 210# | 1190 | 80 | -16750# | 210# |
| | Sm | 62 | 21770# | 340# | 5100 | 160 | 2490 | 160 | -18470# | 430# | 5500 | 160 | -21000# | 340# |
| | Eu | 63 | 23050# | 360# | 3320# | 200# | 3090# | 280# | -21320# | 450# | 5300# | 200# | -20920# | 450# |
| Gd | 64 | 24670# | 640# | 1740# | 500# | 3320# | 570# | * | * | 9700# | 450# | * | * | |
| Tb | 65 | * | * | 170# | 500# | 4020# | 570# | * | * | 9810# | 500# | * | * | |
| 136 | In | 49 | 4990# | 500# | * | * | -9150# | 640# | 24000# | 400# | * | * | 12050# | 400# |
| | Sn | 50 | 5610# | 300# | 31560# | 500# | -8060# | 360# | 18530# | 300# | * | * | 5720# | 300# |
| | Sb | 51 | 6629 | 6 | 27420# | 300# | -4520 | 60 | 15038 | 15 | -25270# | 400# | 5151 | 6 |
| | Te | 52 | 8034 | 4 | 22569 | 4 | -304 | 3 | 12003.9 | 2.3 | -21082 | 4 | 1283 | 3 |
| | I | 53 | 11644 | 15 | 20103 | 14 | -2335 | 14 | 6793 | 14 | -17144 | 14 | -1203 | 15 |
| | Xe | 54 | 14445.97 | 0.01 | 18473.4 | 2.7 | -3666 | 3 | 2457.8 | 0.3 | -15989.3 | 1.7 | -6918.8 | 1.0 |
| | Cs | 55 | 15590.2 | 1.9 | 16873 | 5 | -3060 | 4 | -300 | 50 | -9848.5 | 2.8 | -6559.5 | 1.9 |
| | Ba | 56 | 16079.70 | 0.11 | 15339.0 | 0.3 | -2032.9 | 0.3 | -2378.55 | 0.27 | -9763 | 4 | -10315 | 9 |
| | La | 57 | 16960 | 60 | 13720 | 50 | -1310 | 50 | -4700 | 50 | -5740 | 50 | -9490 | 50 |
| | Ce | 58 | 17818 | 20 | 12136.46 | 0.29 | -498.3 | 1.1 | -7309 | 12 | -5946.84 | 0.27 | -13644 | 12 |
| | Pr | 59 | 18955 | 23 | 10700 | 23 | -40 | 40 | -10170 | 70 | -1986 | 15 | -13198 | 22 |
| | Nd | 60 | 19695 | 17 | 8944 | 24 | 847 | 24 | -12388 | 17 | -1872 | 16 | -17220 | 80 |
| | Pm | 61 | 20570 | 90 | 7220 | 70 | 1630 | 70 | -14930# | 210# | 2480 | 70 | -16380 | 170 |
| | Sm | 62 | 21580# | 200# | 5742 | 17 | 2190 | 27 | -17720# | 300# | 2114 | 23 | -20730# | 200# |
| | Eu | 63 | 22460# | 360# | 4080# | 200# | 2960# | 250# | -20110# | 540# | 6520# | 210# | -19930# | 450# |
| | Gd | 64 | 23930# | 500# | 2290# | 360# | 3570# | 420# | * | * | 6480# | 340# | -24340# | 500# |
| | Tb | 65 | * | * | 780# | 580# | 3650# | 640# | * | * | 10730# | 540# | * | * |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|----|---------|-------|---------|-------|---------------|------|---------------|---------------|--------|---------------|--------|
| 137 | In | 49 | 2600# | 640# | * | | 41320# | 500# | * | | 8740# | 640# | * |
| | Sn | 50 | 1960# | 500# | 16570# | 570# | 32600# | 400# | 7450# | 570# | 6740# | 500# | -5220# |
| | Sb | 51 | 3620 | 50 | 11450# | 300# | 26490 | 50 | 11280 | 50 | 11240 | 50 | -2750# |
| | Te | 52 | 2950 | 3 | 12086 | 6 | 18417.5 | 2.1 | 11097 | 3 | 9580.8 | 2.7 | 2776 |
| | I | 53 | 4882 | 16 | 9220 | 9 | 10784 | 9 | 12083 | 9 | 11042 | 9 | 3311 |
| | Xe | 54 | 4025.56 | 0.10 | 10127 | 14 | 3535.2 | 0.4 | 12106.5 | 2.1 | 6524 | 5 | 5796.7 |
| | Cs | 55 | 8278.2 | 1.9 | 7405.4 | 0.4 | -3344 | 8 | 10578 | 4 | 6444.3 | 0.4 | 3144 |
| | Ba | 56 | 6905.63 | 0.07 | 8671.5 | 1.9 | -8137 | 12 | 10571.2 | 1.0 | 4034.0 | 0.3 | 6051.0 |
| | La | 57 | 9170 | 50 | 5542.7 | 1.6 | -13068 | 13 | 11420.6 | 1.6 | 6673.2 | 1.6 | 5396.9 |
| | Ce | 58 | 7481.53 | 0.16 | 7170 | 50 | -17890 | 40 | 11436 | 9 | 4164 | 20 | 8677.7 |
| | Pr | 59 | 9933 | 14 | 3982 | 8 | -23056 | 9 | 12125 | 13 | 6495 | 22 | 7663 |
| | Nd | 60 | 8457 | 17 | 5533 | 16 | -28370# | 300# | 12062 | 17 | 3807 | 23 | 10895 |
| | Pm | 61 | 10970 | 70 | 2163 | 18 | -33110# | 400# | 12852 | 23 | 6438 | 18 | 10102 |
| | Sm | 62 | 9290 | 40 | 4150 | 80 | * | | 12740 | 90 | 3580 | 70 | 13270 |
| | Eu | 63 | 11970# | 200# | 624 | 13 | * | | 13420 | 150 | 6090# | 200# | 12240 |
| | Gd | 64 | 10200# | 420# | 2260# | 360# | * | | 13650# | 360# | 3580# | 420# | 15810# |
| | Tb | 65 | 12910# | 640# | -830# | 500# | * | | 14130# | 570# | 5200# | 570# | 14610# |
| 138 | Sn | 50 | 3140# | 640# | 17110# | 710# | 35110# | 500# | 6360# | 640# | 6530# | 640# | * |
| | Sb | 51 | 2230 | 1070 | 11720# | 1140# | 28670 | 1060 | 12390# | 1110# | 11280 | 1060 | -2050# |
| | Te | 52 | 4464 | 4 | 12920 | 50 | 22566 | 4 | 9522 | 7 | 8858 | 5 | 583 |
| | I | 53 | 3695 | 10 | 9965 | 6 | 14539 | 7 | 13156 | 6 | 10613 | 6 | 3357 |
| | Xe | 54 | 5660.1 | 2.8 | 10905 | 9 | 7599 | 6 | 10284 | 14 | 8671 | 3 | 3403 |
| | Cs | 55 | 4413 | 9 | 7793 | 9 | 247 | 14 | 14253 | 9 | 8390 | 10 | 6539 |
| | Ba | 56 | 8611.72 | 0.04 | 9005.00 | 0.18 | -6243 | 12 | 8787.9 | 1.9 | 4184.1 | 1.0 | 3798 |
| | La | 57 | 7450 | 4 | 6087 | 3 | -11579 | 28 | 13079 | 3 | 6195 | 3 | 6709 |
| | Ce | 58 | 9724 | 5 | 7719 | 5 | -16073 | 13 | 9180 | 50 | 3936 | 11 | 5926 |
| | Pr | 59 | 8004 | 14 | 4504 | 11 | -21380 | 30 | 14085 | 11 | 6346 | 15 | 9156 |
| | Nd | 60 | 10505 | 17 | 6106 | 14 | -26220# | 200# | 10033 | 16 | 3782 | 17 | 8244 |
| | Pm | 61 | 8940 | 30 | 2640 | 30 | -31270# | 300# | 14970 | 30 | 6140 | 30 | 11640 |
| | Sm | 62 | 11540 | 40 | 4714 | 18 | -36570# | 500# | 10380 | 70 | 3420 | 80 | 10362 |
| | Eu | 63 | 9675 | 28 | 1010 | 50 | * | | 15770 | 30 | 5970 | 160 | 13950 |
| | Gd | 64 | 12660# | 360# | 2940# | 200# | * | | 11150# | 280# | 3210# | 280# | 12700# |
| | Tb | 65 | 10770# | 500# | -260# | 420# | * | | 16130# | 420# | 5590# | 500# | 16130# |
| | Dy | 66 | * | | 1250# | 640# | * | | 11910# | 710# | 2760# | 640# | 15110# |
| 139 | Sn | 50 | 1650# | 710# | * | | 37210# | 500# | 7310# | 710# | 6930# | 640# | * |
| | Sb | 51 | 3640# | 1140# | 12220# | 640# | 30910# | 400# | 10710# | 570# | 10980# | 500# | -3630# |
| | Te | 52 | 2580 | 5 | 13270 | 1060 | 24709 | 4 | 10570 | 50 | 9166 | 7 | 1340# |
| | I | 53 | 4562 | 7 | 10064 | 6 | 18755 | 4 | 11544 | 5 | 10818 | 5 | 1682 |
| | Xe | 54 | 3744 | 4 | 10954 | 6 | 11303 | 8 | 11422 | 9 | 8765 | 14 | 4427 |
| | Cs | 55 | 5885 | 10 | 8018 | 4 | 4118 | 8 | 12393 | 3 | 10592 | 3 | 4491 |
| | Ba | 56 | 4723.43 | 0.04 | 9316 | 9 | -2900 | 28 | 12342.66 | 0.18 | 6289.0 | 1.9 | 7161.8 |
| | La | 57 | 8778.3 | 2.5 | 6253.5 | 2.0 | -9726 | 14 | 11205.8 | 2.0 | 6524.8 | 2.0 | 4758.9 |
| | Ce | 58 | 7448 | 8 | 7718 | 7 | -14568 | 13 | 10904 | 7 | 3950 | 50 | 7585 |
| | Pr | 59 | 9756 | 13 | 4537 | 9 | -19421 | 15 | 11811 | 8 | 6554 | 8 | 6870 |
| | Nd | 60 | 8067 | 30 | 6169 | 30 | -24380# | 200# | 11899 | 29 | 4190 | 30 | 10141 |
| | Pm | 61 | 10630 | 30 | 2771 | 18 | -29370# | 300# | 12795 | 18 | 6563 | 18 | 9486 |
| | Sm | 62 | 8954 | 16 | 4729 | 30 | -34740# | 500# | 12403 | 17 | 3650 | 70 | 12465 |
| | Eu | 63 | 11720 | 30 | 1189 | 18 | * | | 13340 | 40 | 6277 | 18 | 11420 |
| | Gd | 64 | 9900# | 280# | 3170# | 200# | * | | 13230# | 200# | 3480# | 280# | 14830# |
| | Tb | 65 | 12530# | 420# | -380# | 360# | * | | 13790# | 420# | 5820# | 420# | 13760# |
| | Dy | 66 | 10780# | 710# | 1260# | 590# | * | | 14040# | 640# | 3350# | 710# | 17090# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q(2β ⁻) | | Q(εp) | | Q(β ⁻ n) | |
|-----|------|--------|----------|-------|---------|-------|---------|--------|---------------------|--------|----------|---------|---------------------|-------|
| 137 | In | 49 | 4660# | 640# | * | * | * | 25020# | 500# | * | * | 12790# | 580# | |
| | Sn | 50 | 5300# | 400# | * | | -8290# | 500# | 19520# | 400# | * | 6650# | 400# | |
| | Sb | 51 | 6510 | 50 | 28110# | 400# | -5020# | 200# | 16300 | 50 | -26840# | 400# | 6290 | 50 |
| | Te | 52 | 7717.6 | 2.7 | 23249 | 4 | -854.8 | 2.8 | 13079.7 | 2.1 | -20690# | 300# | 2170 | 14 |
| | I | 53 | 8720 | 9 | 21244 | 9 | 142 | 9 | 10189 | 8 | -19138 | 10 | 2002 | 8 |
| | Xe | 54 | 12113 | 4 | 19232.6 | 1.7 | -1871.2 | 2.1 | 5337.8 | 0.3 | -15247.1 | 2.3 | -4116.0 | 1.9 |
| | Cs | 55 | 15106.6 | 1.1 | 17344.4 | 2.1 | -3112 | 6 | 595.1 | 1.6 | -14289 | 14 | -5730.00 | 0.19 |
| | Ba | 56 | 16013.37 | 0.08 | 15886 | 4 | -2502.6 | 2.4 | -1802.6 | 0.3 | -8581.0 | 0.3 | -9760 | 50 |
| | La | 57 | 16640 | 10 | 14137.0 | 1.9 | -1494.7 | 1.7 | -3939 | 8 | -8091.0 | 2.5 | -8703.6 | 1.6 |
| | Ce | 58 | 17445 | 10 | 12646.0 | 0.3 | -789.9 | 1.1 | -6334 | 12 | -4320.6 | 0.3 | -12650 | 11 |
| | Pr | 59 | 18408 | 14 | 11136 | 12 | -132 | 29 | -9129 | 15 | -4450 | 50 | -12074 | 14 |
| | Nd | 60 | 19514 | 22 | 9546 | 16 | 409 | 20 | -11560 | 40 | -365 | 12 | -16490 | 70 |
| | Pm | 61 | 20160 | 80 | 7715 | 18 | 1440 | 18 | -13927 | 14 | -21 | 17 | -15333 | 18 |
| | Sm | 62 | 21310 | 160 | 6390 | 50 | 1880 | 60 | -16810# | 300# | 3880 | 40 | -19850# | 200# |
| | Eu | 63 | 22140# | 200# | 4670 | 80 | 2840 | 50 | -19180# | 400# | 3740 | 70 | -19130# | 300# |
| Gd | 64 | 22970# | 500# | 2930# | 340# | 3590# | 420# | * | | 8310# | 300# | -23160# | 580# | |
| Tb | 65 | 24280# | 570# | 1400# | 450# | 3840# | 500# | * | | 7990# | 450# | * | | |
| 138 | Sn | 50 | 5100# | 590# | * | | -8370# | 640# | 20840# | 500# | * | | 7130# | 510# |
| | Sb | 51 | 5860 | 1060 | 28290# | 1140# | -4990# | 1110# | 17760 | 1060 | -26470# | 1180# | 7010 | 1060 |
| | Te | 52 | 7413 | 4 | 24380# | 300# | -1687 | 5 | 14276 | 5 | -23200# | 400# | 2589 | 9 |
| | I | 53 | 8577 | 15 | 22051 | 8 | -384 | 6 | 10907 | 11 | -19210 | 50 | 2332 | 6 |
| | Xe | 54 | 9685.7 | 2.8 | 20125 | 4 | 137 | 4 | 8289.4 | 2.8 | -17957 | 4 | -1497.9 | 2.8 |
| | Cs | 55 | 12691 | 9 | 17920 | 17 | -1268 | 10 | 3632 | 10 | -13820 | 12 | -3237 | 9 |
| | Ba | 56 | 15517.35 | 0.08 | 16410.4 | 0.3 | -2560.7 | 0.3 | -691 | 5 | -13167.2 | 0.3 | -9192.3 | 1.6 |
| | La | 57 | 16620 | 50 | 14758 | 4 | -2053 | 3 | -3385 | 11 | -7263 | 3 | -8672 | 3 |
| | Ce | 58 | 17205 | 5 | 13262 | 5 | -1046 | 5 | -5553 | 13 | -7139 | 5 | -12441 | 10 |
| | Pr | 59 | 17936 | 16 | 11670 | 50 | -340 | 23 | -8193 | 30 | -3282 | 11 | -11621 | 16 |
| | Nd | 60 | 18962 | 17 | 10088 | 12 | 390 | 23 | -10521 | 17 | -3389 | 12 | -16017 | 17 |
| | Pm | 61 | 19910 | 70 | 8180 | 30 | 1160 | 30 | -13190 | 40 | 972 | 29 | -14990 | 50 |
| | Sm | 62 | 20830 | 17 | 6876 | 17 | 1724 | 17 | -15700# | 200# | 798 | 17 | -19423 | 13 |
| | Eu | 63 | 21650# | 200# | 5160 | 70 | 2560 | 60 | -18080# | 300# | 5030 | 30 | -18610# | 300# |
| | Gd | 64 | 22850# | 360# | 3570# | 200# | 3150# | 280# | -20870# | 540# | 4940# | 200# | -22900# | 450# |
| Tb | 65 | 23680# | 580# | 2000# | 360# | 3840# | 420# | * | | 9190# | 300# | * | | |
| Dy | 66 | * | | 420# | 590# | 3950# | 640# | * | | 8990# | 590# | * | | |
| 139 | Sn | 50 | 4790# | 640# | * | | * | | 21770# | 500# | * | | 7710# | 1180# |
| | Sb | 51 | 5870# | 400# | 29330# | 640# | -5690# | 570# | 18680# | 400# | * | | 7840# | 400# |
| | Te | 52 | 7044 | 4 | 25000# | 400# | -1998 | 5 | 15440 | 4 | -22630# | 500# | 3704 | 7 |
| | I | 53 | 8257 | 9 | 22990 | 50 | -1206 | 5 | 12230 | 5 | -21540 | 1060 | 3430 | 5 |
| | Xe | 54 | 9403.8 | 2.1 | 20919 | 3 | -340.7 | 2.7 | 9269.2 | 2.2 | -17238 | 4 | -829 | 9 |
| | Cs | 55 | 10298 | 3 | 18923 | 9 | 653 | 4 | 6525 | 4 | -16010 | 7 | -511 | 3 |
| | Ba | 56 | 13335.15 | 0.06 | 17108.3 | 0.3 | -926 | 4 | 2034 | 7 | -12230.5 | 2.8 | -6466 | 3 |
| | La | 57 | 16228.2 | 2.6 | 15258.5 | 2.0 | -2069.5 | 2.2 | -2407 | 8 | -11628 | 9 | -7727 | 5 |
| | Ce | 58 | 17172 | 7 | 13805 | 7 | -1522 | 7 | -4934 | 28 | -5975 | 7 | -11885 | 13 |
| | Pr | 59 | 17760 | 11 | 12256 | 8 | -600 | 12 | -7318 | 15 | -5589 | 8 | -10872 | 14 |
| | Nd | 60 | 18572 | 30 | 10673 | 28 | 177 | 29 | -9634 | 30 | -1732 | 28 | -15140 | 40 |
| | Pm | 61 | 19570 | 19 | 8877 | 16 | 1010 | 18 | -12102 | 19 | -1656 | 18 | -14074 | 18 |
| | Sm | 62 | 20500 | 40 | 7374 | 16 | 1408 | 22 | -14750# | 200# | 2349 | 16 | -18702 | 30 |
| | Eu | 63 | 21395 | 14 | 5903 | 19 | 2230 | 80 | -17270# | 300# | 2250 | 30 | -17670# | 200# |
| | Gd | 64 | 22560# | 360# | 4180# | 200# | 2800# | 250# | -19990# | 540# | 6580# | 200# | -22030# | 360# |
| Tb | 65 | 23310# | 500# | 2560# | 300# | 3590# | 360# | * | | 6330# | 300# | -21270# | 590# | |
| Dy | 66 | * | | 1010# | 590# | 4320# | 640# | * | | 10870# | 540# | * | | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|----|---------|------|--------|------|---------------|------|---------------|-------|---------------|-------|---------------|------|
| 140 | Sb | 51 | 2220# | 720# | 12790# | 780# | 33110# | 600# | 11630# | 780# | 10710# | 720# | -3250# | 780# |
| | Te | 52 | 4440 | 60 | 14080# | 410# | 26690 | 60 | 8350 | 1070 | 8350 | 80 | -1140# | 410# |
| | I | 53 | 3207 | 13 | 10690 | 13 | 20710 | 12 | 12801 | 13 | 10562 | 12 | 2100 | 50 |
| | Xe | 54 | 5413 | 3 | 11804 | 5 | 15089.6 | 2.8 | 9704 | 6 | 8234 | 9 | 1964 | 3 |
| | Cs | 55 | 4421 | 9 | 8694 | 8 | 7638 | 10 | 13633 | 9 | 10197 | 8 | 4953 | 12 |
| | Ba | 56 | 6427 | 8 | 9857 | 9 | 990 | 9 | 10328 | 12 | 8140 | 8 | 4760 | 8 |
| | La | 57 | 5160.98 | 0.04 | 6691.1 | 2.0 | -6102 | 24 | 14656.6 | 2.0 | 8269.4 | 2.0 | 7876.1 | 2.0 |
| | Ce | 58 | 9200 | 7 | 8138.8 | 1.7 | -12620 | 13 | 9154 | 3 | 3928.7 | 2.3 | 5291.5 | 1.6 |
| | Pr | 59 | 7941 | 10 | 5029 | 9 | -17700 | 50 | 13594 | 8 | 6095 | 6 | 8099 | 6 |
| | Nd | 60 | 10316 | 28 | 6729 | 9 | -22477 | 28 | 9586 | 12 | 3807 | 9 | 7306 | 3 |
| | Pm | 61 | 8785 | 28 | 3490 | 40 | -27730 | 800 | 14515 | 27 | 6235 | 27 | 10634 | 26 |
| | Sm | 62 | 11147 | 17 | 5244 | 18 | -32630# | 400# | 10200 | 30 | 3481 | 18 | 9775 | 17 |
| | Eu | 63 | 9660 | 50 | 1890 | 50 | -37730# | 510# | 15220 | 50 | 5900 | 70 | 12730 | 50 |
| | Gd | 64 | 12220# | 200# | 3670 | 30 | * | | 10680 | 40 | 3228 | 28 | 11890 | 50 |
| | Tb | 65 | 10420# | 850# | 140# | 820# | * | | 16030# | 820# | 5600# | 850# | 15310 | 800 |
| | Dy | 66 | 13260# | 640# | 1990# | 500# | * | | 11550# | 500# | 3000# | 570# | 14030# | 500# |
| | Ho | 67 | * | | -1094 | 10 | * | | 16380# | 710# | * | | 17360# | 640# |
| 141 | Sb | 51 | 3240# | 780# | * | | 35370# | 500# | 10040# | 710# | 10620# | 710# | * | |
| | Te | 52 | 1980# | 410# | 13840# | 720# | 29250# | 400# | 10010# | 570# | 8600# | 1140# | 20# | 640# |
| | I | 53 | 4392 | 20 | 10640 | 60 | 23005 | 16 | 10989 | 16 | 10633 | 16 | -60 | 1060 |
| | Xe | 54 | 3282 | 4 | 11880 | 12 | 17236 | 3 | 10984 | 5 | 8647 | 7 | 3145 | 5 |
| | Cs | 55 | 5499 | 12 | 8780 | 9 | 11538 | 9 | 11878 | 9 | 10359 | 10 | 3149 | 11 |
| | Ba | 56 | 4535 | 9 | 9971 | 10 | 4460 | 6 | 11679 | 6 | 8018 | 11 | 5886 | 6 |
| | La | 57 | 6687 | 4 | 6951 | 9 | -2409 | 15 | 12693 | 4 | 10194 | 4 | 5602 | 10 |
| | Ce | 58 | 5428.14 | 0.10 | 8406.0 | 1.7 | -9499 | 9 | 12504.1 | 1.7 | 5950 | 3 | 8475.1 | 1.6 |
| | Pr | 59 | 9399 | 6 | 5228.5 | 1.2 | -16090 | 13 | 11643 | 7 | 6419 | 5 | 6150 | 3 |
| | Nd | 60 | 8005 | 5 | 6794 | 7 | -20968 | 20 | 11337 | 8 | 3805 | 11 | 9025 | 6 |
| | Pm | 61 | 10381 | 28 | 3553 | 14 | -25980 | 110 | 12200 | 30 | 6359 | 18 | 8257 | 18 |
| | Sm | 62 | 8549 | 15 | 5009 | 26 | -30550# | 300# | 12277 | 16 | 3871 | 29 | 11731 | 14 |
| | Eu | 63 | 11010 | 50 | 1759 | 18 | -35560# | 400# | 13165 | 17 | 6436 | 17 | 10660 | 30 |
| | Gd | 64 | 9510 | 30 | 3530 | 60 | * | | 12885 | 24 | 3390 | 30 | 13920 | 23 |
| | Tb | 65 | 12130 | 810 | 50 | 110 | * | | 13800# | 220# | 6120# | 220# | 12860 | 110 |
| | Dy | 66 | 10620# | 500# | 2190# | 850# | * | | 13460# | 420# | 3150# | 420# | 16060# | 360# |
| | Ho | 67 | 13180# | 640# | -1177 | 7 | * | | 13990# | 640# | 5430# | 640# | 14950# | 500# |
| 142 | Te | 52 | 3950# | 640# | 14550# | 710# | 31470# | 500# | 8280# | 780# | 8280# | 640# | -2280# | 710# |
| | I | 53 | 2910 | 370 | 11570# | 550# | 25250 | 370 | 12520 | 380 | 10300 | 370 | 670# | 550# |
| | Xe | 54 | 5104 | 4 | 12592 | 16 | 19304 | 4 | 9087 | 12 | 8105 | 5 | 622 | 4 |
| | Cs | 55 | 4108 | 12 | 9606 | 8 | 13273 | 7 | 13183 | 7 | 9994 | 7 | 3603 | 8 |
| | Ba | 56 | 6181 | 8 | 10654 | 11 | 8108 | 6 | 9919 | 10 | 7723 | 7 | 3449 | 6 |
| | La | 57 | 5164 | 7 | 7581 | 8 | 1118 | 24 | 13956 | 10 | 9754 | 6 | 6323 | 7 |
| | Ce | 58 | 7171.6 | 2.5 | 8891 | 5 | -5547 | 4 | 10493.5 | 2.9 | 7557.1 | 2.9 | 6027.0 | 2.5 |
| | Pr | 59 | 5843.15 | 0.08 | 5643.5 | 1.2 | -12470 | 30 | 14999.4 | 1.2 | 8024 | 7 | 9085.1 | 2.0 |
| | Nd | 60 | 9829 | 3 | 7223.3 | 1.4 | -18990 | 28 | 9449 | 6 | 3733 | 8 | 6644 | 7 |
| | Pm | 61 | 8690 | 27 | 4238 | 24 | -24580 | 700 | 13828 | 24 | 5740 | 40 | 9323 | 25 |
| | Sm | 62 | 11124 | 9 | 5753 | 14 | -28870# | 730# | 9938 | 24 | 3378 | 14 | 8674 | 28 |
| | Eu | 63 | 9460 | 30 | 2670 | 30 | -34060# | 400# | 14850 | 30 | 5930 | 30 | 11830 | 30 |
| | Gd | 64 | 11810 | 30 | 4320 | 30 | -38930# | 500# | 10740 | 60 | 3300 | 30 | 11067 | 30 |
| | Tb | 65 | 10090 | 710 | 620 | 700 | * | | 15930 | 700 | 5940# | 730# | 14480 | 700 |
| | Dy | 66 | 12810# | 790# | 2870# | 740# | * | | 11070# | 1080# | 2880# | 790# | 13160# | 750# |
| | Ho | 67 | 10960# | 570# | -840# | 500# | * | | 16290# | 570# | 5260# | 640# | 16530# | 500# |
| | Er | 68 | * | | 950# | 640# | * | | 11940# | 710# | * | | 15260# | 710# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q($2\beta^-$) | | Q(ϵp) | | Q($\beta^- n$) | |
|-----|------|----|---------|-------|---------|------|---------------|------|-----------------|------|-------------------|------|------------------|------|
| 140 | Sb | 51 | 5860# | 1220# | * | | -5850# | 720# | 19670# | 600# | * | | 8200# | 600# |
| | Te | 52 | 7020 | 60 | 26290# | 510# | -3100# | 310# | 16410 | 60 | -25430# | 500# | 3820 | 60 |
| | I | 53 | 7769 | 13 | 23960 | 1060 | -1524 | 13 | 13444 | 15 | -21110# | 400# | 3967 | 12 |
| | Xe | 54 | 9157 | 4 | 21868 | 4 | -986 | 3 | 10283 | 8 | -20070 | 4 | -357 | 4 |
| | Cs | 55 | 10306 | 12 | 19648 | 10 | 70 | 16 | 7266 | 8 | -15868 | 9 | -208 | 8 |
| | Ba | 56 | 11150 | 8 | 17875 | 8 | 735 | 8 | 4807 | 8 | -14914 | 8 | -4114 | 8 |
| | La | 57 | 13939.3 | 2.5 | 16007 | 9 | -402.1 | 2.7 | 372 | 6 | -10904 | 4 | -5439 | 7 |
| | Ce | 58 | 16648 | 5 | 14392.4 | 1.6 | -1614.1 | 1.6 | -3817 | 4 | -10451.3 | 1.6 | -11329 | 8 |
| | Pr | 59 | 17697 | 13 | 12747 | 7 | -1080 | 50 | -6474 | 25 | -4751 | 6 | -10745 | 28 |
| | Nd | 60 | 18383 | 12 | 11266 | 6 | -175 | 3 | -8803 | 13 | -4600 | 8 | -14830 | 14 |
| | Pm | 61 | 19420 | 40 | 9658 | 27 | 702 | 27 | -11230 | 60 | -684 | 25 | -13905 | 27 |
| | Sm | 62 | 20101 | 17 | 8016 | 17 | 1318 | 17 | -13670 | 30 | -730 | 30 | -18129 | 18 |
| | Eu | 63 | 21380 | 60 | 6620 | 60 | 1760 | 90 | -16500 | 800 | 3230 | 50 | -17430# | 200# |
| | Gd | 64 | 22130# | 200# | 4860 | 30 | 2600 | 30 | -18950# | 400# | 3309 | 30 | -21720# | 300# |
| | Tb | 65 | 22960# | 850# | 3310 | 800 | 3340# | 820# | -21220# | 950# | 7630 | 800 | -20910# | 950# |
| | Dy | 66 | 24040# | 640# | 1610# | 450# | 3840# | 500# | * | | 7510# | 450# | * | |
| | Ho | 67 | * | | 170# | 590# | 4450# | 710# | * | | 11580# | 590# | * | |
| 141 | Sb | 51 | 5460# | 640# | * | | -6500# | 710# | 20820# | 500# | * | | 9400# | 500# |
| | Te | 52 | 6430# | 400# | 26630# | 640# | -3120# | 570# | 17710# | 400# | * | | 5050# | 400# |
| | I | 53 | 7598 | 16 | 24720# | 400# | -2290 | 50 | 14551 | 18 | -23280# | 600# | 4988 | 16 |
| | Xe | 54 | 8695 | 4 | 22570 | 5 | -1318 | 4 | 11535 | 6 | -18910 | 60 | 781 | 9 |
| | Cs | 55 | 9919 | 10 | 20585 | 10 | -546 | 12 | 8454 | 10 | -18160 | 15 | 721 | 12 |
| | Ba | 56 | 10962 | 5 | 18666 | 6 | 226 | 5 | 5700 | 6 | -14035 | 6 | -3488 | 6 |
| | La | 57 | 11848 | 4 | 16809 | 5 | 1189 | 4 | 3084 | 4 | -13171 | 9 | -2927 | 4 |
| | Ce | 58 | 14628 | 7 | 15097.1 | 1.6 | -136.6 | 1.6 | -1240 | 3 | -9453 | 8 | -8816 | 6 |
| | Pr | 59 | 17339 | 8 | 13367.4 | 2.0 | -1299.9 | 2.3 | -5493 | 14 | -8988.7 | 2.0 | -9828 | 4 |
| | Nd | 60 | 18321 | 28 | 11823 | 8 | -699 | 3 | -8259 | 9 | -3406 | 3 | -14050 | 24 |
| | Pm | 61 | 19165 | 19 | 10282 | 16 | 254 | 16 | -10597 | 19 | -3124 | 15 | -13138 | 19 |
| | Sm | 62 | 19696 | 14 | 8498 | 29 | 1226 | 15 | -12710 | 22 | 1036 | 9 | -17020 | 50 |
| | Eu | 63 | 20670 | 18 | 7003 | 19 | 1722 | 18 | -15380 | 110 | 999 | 27 | -16210 | 30 |
| | Gd | 64 | 21740# | 200# | 5422 | 23 | 2380 | 50 | -17840# | 300# | 4943 | 23 | -20810 | 800 |
| | Tb | 65 | 22550# | 320# | 3720 | 110 | 3180 | 110 | -20180# | 410# | 5160 | 120 | -19780# | 410# |
| | Dy | 66 | 23880# | 590# | 2330# | 360# | 3410# | 420# | * | | 9110# | 300# | -24200# | 590# |
| | Ho | 67 | * | | 810# | 500# | 4180# | 570# | * | | 8830# | 900# | * | |
| 142 | Te | 52 | 5940# | 510# | * | | -3930# | 710# | 18860# | 500# | * | | 5490# | 500# |
| | I | 53 | 7310 | 370 | 25410# | 700# | -2970 | 1130 | 15740 | 370 | -22950# | 630# | 5360 | 370 |
| | Xe | 54 | 8386 | 4 | 23230 | 60 | -1959 | 5 | 12613 | 7 | -22030# | 400# | 1177 | 10 |
| | Cs | 55 | 9607 | 11 | 21486 | 14 | -960 | 9 | 9510 | 9 | -17877 | 17 | 1147 | 9 |
| | Ba | 56 | 10716 | 10 | 19434 | 6 | -295 | 7 | 6691 | 6 | -16934 | 7 | -2982 | 7 |
| | La | 57 | 11851 | 6 | 17552 | 10 | 438 | 11 | 3763 | 6 | -12836 | 11 | -2663 | 6 |
| | Ce | 58 | 12599.7 | 2.5 | 15842 | 8 | 1303.5 | 2.5 | 1416.8 | 2.2 | -12090 | 6 | -6588.9 | 2.5 |
| | Pr | 59 | 15242 | 6 | 14049.5 | 2.0 | 307 | 3 | -2645 | 24 | -8145 | 4 | -7666.2 | 2.8 |
| | Nd | 60 | 17834 | 4 | 12451.8 | 1.6 | -804 | 5 | -6963.5 | 2.8 | -7806.0 | 1.6 | -13498 | 14 |
| | Pm | 61 | 19070 | 30 | 11032 | 24 | -433 | 26 | -9830 | 40 | -2415 | 24 | -13279 | 25 |
| | Sm | 62 | 19673 | 13 | 9305 | 5 | 607 | 12 | -12027 | 28 | -2083 | 4 | -17132 | 13 |
| | Eu | 63 | 20470 | 60 | 7680 | 40 | 1200 | 40 | -14750 | 700 | 1920 | 30 | -16160 | 40 |
| | Gd | 64 | 21320 | 40 | 6080 | 30 | 2110 | 30 | -16840# | 730# | 1685 | 29 | -20490 | 110 |
| | Tb | 65 | 22220 | 1060 | 4150 | 700 | 2770 | 700 | -19310# | 810# | 6080 | 700 | -19250# | 760# |
| | Dy | 66 | 23430# | 830# | 2920# | 730# | 3260# | 750# | -22090# | 880# | 5820# | 730# | -23830# | 830# |
| | Ho | 67 | 24130# | 640# | 1350# | 900# | 3990# | 500# | * | | 10000# | 410# | * | |
| | Er | 68 | * | | -220# | 640# | 4480# | 710# | * | | 10060# | 580# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|----|---------|------|--------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 143 | Te | 52 | 1980# | 710# | * | | 33660# | 500# | 9540# | 710# | 8530# | 780# | * | |
| | I | 53 | 3930# | 430# | 11550# | 540# | 27540# | 200# | 10570# | 450# | 10810# | 210# | -1050# | 630# |
| | Xe | 54 | 3045 | 5 | 12720 | 370 | 21404 | 5 | 10435 | 17 | 8267 | 13 | 2020 | 60 |
| | Cs | 55 | 5232 | 10 | 9735 | 8 | 15393 | 8 | 11233 | 8 | 10175 | 8 | 1577 | 14 |
| | Ba | 56 | 4166 | 9 | 10712 | 10 | 10065 | 7 | 11251 | 11 | 7977 | 11 | 4696 | 7 |
| | La | 57 | 6219 | 10 | 7618 | 9 | 4789 | 8 | 12272 | 9 | 9962 | 11 | 4525 | 11 |
| | Ce | 58 | 5144.80 | 0.09 | 8871 | 6 | -2090 | 3 | 12036 | 5 | 7573.3 | 2.9 | 7309 | 8 |
| | Pr | 59 | 7352.1 | 1.9 | 5824.0 | 1.9 | -8827 | 11 | 13075.5 | 2.0 | 9871.9 | 2.0 | 6894.0 | 2.5 |
| | Nd | 60 | 6123.57 | 0.07 | 7503.7 | 1.4 | -15770 | 200 | 12724.2 | 1.4 | 5550 | 6 | 9720.3 | 1.6 |
| | Pm | 61 | 9890 | 24 | 4299.6 | 2.7 | -22540 | 50 | 11943 | 4 | 6162 | 5 | 7374 | 7 |
| | Sm | 62 | 8602 | 4 | 5664 | 24 | -27348 | 13 | 11717 | 14 | 3561 | 24 | 10388 | 4 |
| | Eu | 63 | 11000 | 30 | 2544 | 11 | -32190# | 300# | 12403 | 14 | 6079 | 17 | 9619 | 27 |
| | Gd | 64 | 9340 | 200 | 4210 | 200 | -36970# | 450# | 12410 | 200 | 3620 | 210 | 12870 | 200 |
| | Tb | 65 | 11930 | 700 | 750 | 60 | * | | 13520 | 50 | 6230 | 60 | 12210 | 70 |
| | Dy | 66 | 10120# | 730# | 2900 | 700 | * | | 13080 | 110 | 3180 | 800 | 15260 | 30 |
| | Ho | 67 | 12870# | 500# | -780# | 790# | * | | 14050# | 420# | 5650# | 500# | 14080# | 850# |
| | Er | 68 | 11300# | 640# | 1300# | 570# | * | | 13820# | 570# | 2860# | 640# | 17220# | 570# |
| 144 | I | 53 | 2720# | 450# | 12290# | 640# | 29570# | 400# | 11800# | 640# | 10070# | 570# | -520# | 640# |
| | Xe | 54 | 4741 | 7 | 13530# | 200# | 23560 | 6 | 8610 | 370 | 7918 | 17 | -740# | 400# |
| | Cs | 55 | 3667 | 22 | 10357 | 21 | 17479 | 20 | 12669 | 20 | 9790 | 20 | 2302 | 26 |
| | Ba | 56 | 5901 | 10 | 11381 | 10 | 11981 | 7 | 9458 | 10 | 7574 | 12 | 2077 | 8 |
| | La | 57 | 4749 | 15 | 8201 | 15 | 6566 | 13 | 13703 | 14 | 9747 | 14 | 5274 | 16 |
| | Ce | 58 | 6897 | 3 | 9549 | 8 | 1533.7 | 2.7 | 10303 | 7 | 7364 | 5 | 4947 | 6 |
| | Pr | 59 | 5753.6 | 2.8 | 6433 | 3 | -5131 | 11 | 14493 | 3 | 9546.5 | 2.9 | 7828 | 5 |
| | Nd | 60 | 7817.04 | 0.05 | 7968.7 | 1.4 | -11988 | 28 | 10750.3 | 1.4 | 7131.7 | 1.4 | 7331.4 | 1.6 |
| | Pm | 61 | 6526.8 | 1.5 | 4702.8 | 2.6 | -19048 | 28 | 15244.7 | 2.6 | 7641 | 4 | 10246.0 | 3.0 |
| | Sm | 62 | 10519.7 | 2.3 | 6293.9 | 2.7 | -25395 | 7 | 9887 | 24 | 3421 | 14 | 7873 | 3 |
| | Eu | 63 | 9449 | 15 | 3391 | 11 | -31010 | 14 | 14078 | 11 | 5179 | 14 | 10550 | 18 |
| | Gd | 64 | 11600 | 200 | 4810 | 30 | -35150# | 200# | 10260 | 40 | 3030 | 30 | 9821 | 29 |
| | Tb | 65 | 10020 | 60 | 1430 | 200 | -40110# | 400# | 15300 | 40 | 5720 | 30 | 13200 | 30 |
| | Dy | 66 | 12472 | 15 | 3440 | 50 | * | | 10700 | 700 | 2830 | 110 | 12301 | 21 |
| | Ho | 67 | 10630# | 300# | -270 | 16 | * | | 16220# | 730# | 5640# | 300# | 15580 | 110 |
| | Er | 68 | 13420# | 450# | 1850# | 360# | * | | 11350# | 450# | 2620# | 450# | 14420# | 360# |
| | Tm | 69 | * | | -1712 | 16 | * | | 16480# | 640# | * | | 17750# | 570# |
| 145 | I | 53 | 3730# | 640# | * | | 31900# | 500# | 10050# | 710# | 10300# | 710# | * | |
| | Xe | 54 | 2692 | 12 | 13500# | 400# | 25570 | 40 | 9850# | 200# | 8140 | 370 | 520# | 500# |
| | Cs | 55 | 4854 | 22 | 10471 | 11 | 19572 | 12 | 10859 | 10 | 10039 | 9 | 360 | 370 |
| | Ba | 56 | 3820 | 11 | 11534 | 22 | 13916 | 9 | 10870 | 11 | 7862 | 11 | 3360 | 9 |
| | La | 57 | 6057 | 18 | 8357 | 14 | 8432 | 13 | 11813 | 14 | 9871 | 14 | 3326 | 14 |
| | Ce | 58 | 4710 | 30 | 9510 | 40 | 3580 | 30 | 11820 | 30 | 7820 | 30 | 6420 | 30 |
| | Pr | 59 | 6947 | 7 | 6483 | 7 | -1634 | 8 | 12692 | 7 | 9771 | 7 | 6045 | 9 |
| | Nd | 60 | 5755.31 | 0.23 | 7970.4 | 2.4 | -8506 | 20 | 12347.1 | 1.4 | 7219.6 | 1.4 | 8747.6 | 2.2 |
| | Pm | 61 | 7922.7 | 1.5 | 4808.5 | 2.5 | -14880 | 110 | 13445.6 | 2.5 | 9546.6 | 2.5 | 8166.4 | 2.9 |
| | Sm | 62 | 6757.10 | 0.30 | 6524.2 | 2.7 | -22409 | 7 | 13020.1 | 2.7 | 5355 | 24 | 10945.1 | 0.8 |
| | Eu | 63 | 10444 | 11 | 3314.9 | 2.7 | -28871 | 8 | 12236 | 4 | 5859 | 4 | 8797 | 24 |
| | Gd | 64 | 9240 | 30 | 4596 | 22 | -33690# | 200# | 12026 | 23 | 3250 | 40 | 11707 | 20 |
| | Tb | 65 | 12090 | 110 | 1920 | 110 | -38810# | 220# | 12550 | 230 | 5440 | 110 | 10570 | 110 |
| | Dy | 66 | 9744 | 10 | 3163 | 29 | * | | 12890 | 50 | 3180 | 700 | 14363 | 29 |
| | Ho | 67 | 12582 | 11 | -161 | 10 | * | | 13760 | 15 | 5860# | 730# | 13090 | 700 |
| | Er | 68 | 10700# | 280# | 1920# | 200# | * | | 13520# | 360# | 2870# | 450# | 16530# | 760# |
| | Tm | 69 | 13400# | 450# | -1736 | 7 | * | | 14390# | 450# | 5310# | 540# | 15310# | 450# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q($2\beta^-$) | | Q(ϵp) | | Q($\beta^- n$) | |
|-----|------|----|----------|------|---------|------|---------------|------|-----------------|------|-------------------|------|------------------|------|
| 143 | Te | 52 | 5930# | 640# | * | | -4260# | 710# | 19930# | 500# | * | | 6420# | 630# |
| | I | 53 | 6850# | 200# | 26100# | 540# | -3270# | 450# | 17050# | 200# | * | | 6530# | 200# |
| | Xe | 54 | 8148 | 5 | 24290# | 400# | -2423 | 6 | 13734 | 8 | -21120# | 500# | 2240 | 8 |
| | Cs | 55 | 9341 | 12 | 22327 | 18 | -1629 | 9 | 10496 | 11 | -20190 | 370 | 2095 | 10 |
| | Ba | 56 | 10347 | 9 | 20318 | 7 | -718 | 7 | 7669 | 7 | -15997 | 7 | -1984 | 9 |
| | La | 57 | 11383 | 8 | 18272 | 12 | 104 | 8 | 4897 | 7 | -14946 | 10 | -1710 | 8 |
| | Ce | 58 | 12316.4 | 2.5 | 16452 | 6 | 882.2 | 2.5 | 2395.6 | 2.2 | -11053 | 6 | -5890.5 | 2.5 |
| | Pr | 59 | 13195.2 | 1.9 | 14715 | 4 | 1733.1 | 2.5 | -108 | 3 | -10333 | 6 | -5189.6 | 1.4 |
| | Nd | 60 | 15952 | 3 | 13147.3 | 1.6 | 521 | 7 | -4485.1 | 2.5 | -6758.0 | 2.2 | -10932 | 24 |
| | Pm | 61 | 18580 | 14 | 11523 | 3 | -567 | 8 | -8719 | 11 | -6462 | 3 | -12045 | 4 |
| | Sm | 62 | 19726 | 9 | 9902 | 4 | 72 | 28 | -11290 | 200 | -856.1 | 2.5 | -16270 | 30 |
| | Eu | 63 | 20458 | 17 | 8296 | 18 | 834 | 17 | -13820 | 50 | -388 | 26 | -15350 | 30 |
| | Gd | 64 | 21150 | 200 | 6880 | 200 | 1720 | 200 | -16060 | 200 | 3470 | 200 | -19740 | 730 |
| | Tb | 65 | 22020 | 120 | 5070 | 50 | 2550 | 50 | -18370# | 300# | 3610 | 60 | -18370# | 730# |
| | Dy | 66 | 22930# | 300# | 3523 | 24 | 3040# | 200# | -20910# | 400# | 7500 | 30 | -22990# | 400# |
| | Ho | 67 | 23830# | 500# | 2090# | 320# | 3660# | 420# | * | | 7220# | 760# | -22090# | 580# |
| | Er | 68 | * | | 460# | 500# | 3960# | 640# | * | | 11570# | 830# | * | |
| 144 | I | 53 | 6650# | 550# | * | | -3770# | 720# | 17990# | 400# | * | | 6850# | 400# |
| | Xe | 54 | 7785 | 6 | 25080# | 500# | -2720 | 60 | 14895 | 9 | -23880# | 500# | 2732 | 9 |
| | Cs | 55 | 8899 | 21 | 23080 | 380 | -2090 | 23 | 11578 | 24 | -19930# | 200# | 2595 | 21 |
| | Ba | 56 | 10067 | 9 | 21115 | 8 | -1206 | 8 | 8665 | 8 | -18853 | 9 | -1667 | 10 |
| | La | 57 | 10968 | 14 | 18913 | 15 | -224 | 15 | 5901 | 13 | -14463 | 15 | -1314 | 13 |
| | Ce | 58 | 12041 | 3 | 17168 | 7 | 413 | 8 | 3316.1 | 2.5 | -13784 | 7 | -5434.9 | 2.9 |
| | Pr | 59 | 13105.7 | 2.8 | 15304 | 7 | 1140 | 3 | 666 | 4 | -9868 | 8 | -4819.6 | 2.4 |
| | Nd | 60 | 13940.61 | 0.09 | 13792.7 | 2.2 | 1903.2 | 1.6 | -1782.4 | 0.8 | -9430.3 | 2.2 | -8858.6 | 2.7 |
| | Pm | 61 | 16417 | 24 | 12206.6 | 3.0 | 847 | 7 | -5797 | 11 | -5636.8 | 3.0 | -9970 | 4 |
| | Sm | 62 | 19121.7 | 2.7 | 10593.5 | 0.8 | -132 | 4 | -10206 | 28 | -5252.3 | 0.8 | -15796 | 11 |
| | Eu | 63 | 20450 | 30 | 9055 | 26 | 170 | 27 | -13251 | 30 | 53 | 11 | -15460 | 200 |
| | Gd | 64 | 20940 | 40 | 7351 | 28 | 1270 | 30 | -15189 | 29 | 469 | 28 | -19410 | 60 |
| | Tb | 65 | 21950 | 700 | 5630 | 40 | 2190 | 60 | -17759 | 29 | 4580 | 30 | -18270 | 30 |
| | Dy | 66 | 22590# | 730# | 4189 | 29 | 2787 | 29 | -19960# | 200# | 4370 | 200 | -22590# | 300# |
| | Ho | 67 | 23500# | 400# | 2630 | 700 | 3450 | 800 | -22350# | 400# | 8520 | 50 | -21420# | 400# |
| | Er | 68 | 24720# | 540# | 1070# | 750# | 3800# | 450# | * | | 8270# | 200# | * | |
| | Tm | 69 | * | | -410# | 570# | 4580# | 640# | * | | 12500# | 500# | * | |
| 145 | I | 53 | 6450# | 540# | * | | -4250# | 710# | 19120# | 500# | * | | 7860# | 500# |
| | Xe | 54 | 7433 | 12 | 25790# | 500# | -3430# | 400# | 16023 | 14 | * | | 3707 | 23 |
| | Cs | 55 | 8522 | 12 | 24000# | 200# | -2553 | 18 | 12781 | 15 | -22060# | 400# | 3641 | 11 |
| | Ba | 56 | 9722 | 11 | 21891 | 10 | -1744 | 9 | 9550 | 30 | -17933 | 10 | -738 | 15 |
| | La | 57 | 10806 | 14 | 19738 | 14 | -783 | 15 | 6791 | 14 | -16853 | 24 | -475 | 13 |
| | Ce | 58 | 11600 | 30 | 17710 | 30 | 240 | 30 | 4360 | 30 | -12590 | 30 | -4390 | 30 |
| | Pr | 59 | 12700 | 7 | 16032 | 10 | 881 | 8 | 1642 | 7 | -12065 | 15 | -3949 | 7 |
| | Nd | 60 | 13572.35 | 0.24 | 14403.2 | 2.2 | 1576.0 | 1.6 | -780.6 | 0.9 | -8289.1 | 2.6 | -8087.2 | 2.7 |
| | Pm | 61 | 14449.5 | 2.1 | 12777.2 | 2.9 | 2323.3 | 2.9 | -3276 | 4 | -7806 | 3 | -7373.3 | 2.5 |
| | Sm | 62 | 17276.8 | 2.4 | 11227.0 | 0.8 | 1116 | 3 | -7725 | 20 | -4192.3 | 0.8 | -13104 | 11 |
| | Eu | 63 | 19893 | 11 | 9609 | 4 | 106 | 14 | -11600 | 110 | -3864 | 4 | -14303 | 28 |
| | Gd | 64 | 20840 | 200 | 7987 | 20 | 583 | 21 | -14684 | 21 | 1750 | 20 | -18630 | 30 |
| | Tb | 65 | 22110 | 120 | 6730 | 110 | 1110 | 110 | -17270 | 110 | 1940 | 110 | -17890 | 110 |
| | Dy | 66 | 22216 | 15 | 4590 | 200 | 2557 | 21 | -19000# | 200# | 6228 | 29 | -21704 | 11 |
| | Ho | 67 | 23220# | 300# | 3280 | 50 | 3000 | 110 | -21540# | 200# | 5959 | 29 | -20580# | 200# |
| | Er | 68 | 24120# | 450# | 1650# | 200# | 3720# | 360# | * | | 10040# | 200# | -25050# | 450# |
| | Tm | 69 | * | | 110# | 360# | 4360# | 450# | * | | 9740# | 200# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|----|---------|------|--------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 146 | Xe | 54 | 4533 | 27 | 14310# | 500# | 27680 | 29 | 8040# | 400# | 7540# | 200# | -2030# | 500# |
| | Cs | 55 | 3327 | 10 | 11106 | 12 | 21370 | 30 | 12273 | 6 | 9757 | 5 | 970# | 200# |
| | Ba | 56 | 5502 | 23 | 12182 | 23 | 15979 | 21 | 9035 | 29 | 7592 | 22 | 902 | 21 |
| | La | 57 | 4290 | 40 | 8820 | 30 | 10400 | 30 | 13430 | 30 | 9750 | 30 | 4270 | 30 |
| | Ce | 58 | 6640 | 40 | 10089 | 20 | 5361 | 17 | 9925 | 21 | 7400 | 18 | 3948 | 18 |
| | Pr | 59 | 5130 | 40 | 6900 | 50 | 440 | 40 | 14460 | 30 | 9790 | 30 | 7140 | 40 |
| | Nd | 60 | 7565.23 | 0.09 | 8589 | 7 | -4840 | 4 | 10535.5 | 2.4 | 7006.4 | 1.4 | 6327.2 | 2.2 |
| | Pm | 61 | 6258 | 5 | 5311 | 4 | -11690 | 50 | 15004 | 4 | 9412 | 4 | 9260 | 4 |
| | Sm | 62 | 8416.3 | 2.9 | 7018 | 4 | -18441 | 7 | 11131 | 4 | 6828 | 4 | 8652.3 | 2.8 |
| | Eu | 63 | 7197 | 7 | 3755 | 6 | -25879 | 9 | 15559 | 6 | 7264 | 6 | 11490 | 7 |
| | Gd | 64 | 11231 | 20 | 5383 | 5 | -31764 | 8 | 10244 | 11 | 3020 | 12 | 9078 | 4 |
| | Tb | 65 | 9450 | 120 | 2130 | 50 | -36710# | 210# | 14710 | 50 | 5330 | 210 | 12120 | 50 |
| | Dy | 66 | 12384 | 9 | 3460 | 110 | * | | 10524 | 29 | 2730 | 50 | 11320 | 200 |
| | Ho | 67 | 10189 | 10 | 285 | 9 | * | | 16043 | 10 | 5795 | 15 | 14830 | 50 |
| | Er | 68 | 13150# | 200# | 2491 | 10 | * | | 10998 | 11 | 2590# | 300# | 13493 | 15 |
| | Tm | 69 | 11540# | 280# | -896 | 6 | * | | 16260# | 280# | 5070# | 450# | 16640# | 360# |
| 147 | Xe | 54 | 2480# | 200# | * | | 29650# | 200# | 9290# | 540# | 7780# | 450# | * | |
| | Cs | 55 | 4681 | 9 | 11254 | 26 | 23524 | 18 | 10284 | 14 | 9816 | 10 | -990# | 400# |
| | Ba | 56 | 3388 | 29 | 12243 | 20 | 17883 | 20 | 10501 | 22 | 7871 | 28 | 2255 | 20 |
| | La | 57 | 5700 | 40 | 9020 | 23 | 12364 | 11 | 11549 | 14 | 9953 | 13 | 2239 | 23 |
| | Ce | 58 | 4450 | 18 | 10250 | 30 | 7252 | 9 | 11532 | 15 | 7700 | 16 | 5400 | 11 |
| | Pr | 59 | 6830 | 40 | 7098 | 23 | 2101 | 16 | 12330 | 40 | 9852 | 16 | 5052 | 20 |
| | Nd | 60 | 5292.20 | 0.09 | 8750 | 30 | -2789.8 | 1.5 | 12190 | 7 | 7467.8 | 2.4 | 7931.5 | 2.6 |
| | Pm | 61 | 7659 | 4 | 5405.4 | 0.5 | -8300 | 8 | 13100.5 | 0.5 | 9569.8 | 0.4 | 7354.7 | 2.4 |
| | Sm | 62 | 6341.4 | 2.8 | 7101 | 4 | -15070 | 9 | 12711.9 | 2.5 | 7013.8 | 2.7 | 10128.0 | 0.4 |
| | Eu | 63 | 8499 | 6 | 3837 | 4 | -21788 | 6 | 13817.4 | 2.4 | 9284.8 | 2.4 | 9518 | 3 |
| | Gd | 64 | 7342 | 4 | 5528 | 6 | -28750 | 40 | 13345.4 | 3.0 | 5126 | 11 | 12255.0 | 1.2 |
| | Tb | 65 | 11050 | 50 | 1946 | 9 | -34768 | 11 | 12894 | 21 | 5881 | 29 | 10523 | 13 |
| | Dy | 66 | 9712 | 11 | 3720 | 50 | * | | 12900 | 110 | 3036 | 29 | 13210 | 29 |
| | Ho | 67 | 12590 | 8 | 491 | 8 | * | | 13196 | 8 | 5677 | 9 | 12257 | 28 |
| | Er | 68 | 10360 | 40 | 2660 | 40 | * | | 13220 | 40 | 2870 | 40 | 15610 | 40 |
| | Tm | 69 | 12990# | 200# | -1059 | 3 | * | | 13980# | 200# | 5500# | 200# | 14282 | 11 |
| 148 | Xe | 54 | 4310# | 360# | * | | 31800# | 300# | * | | 7200# | 590# | * | |
| | Cs | 55 | 3062 | 16 | 11840# | 200# | 25624 | 20 | 11755 | 28 | 9446 | 17 | -330# | 500# |
| | Ba | 56 | 5400 | 70 | 12960 | 60 | 19810 | 60 | 8430 | 60 | 7320 | 60 | -450 | 60 |
| | La | 57 | 4102 | 22 | 9734 | 28 | 14157 | 20 | 12949 | 29 | 9671 | 21 | 2992 | 21 |
| | Ce | 58 | 6456 | 14 | 11009 | 15 | 8938 | 11 | 9360 | 40 | 7301 | 17 | 2764 | 14 |
| | Pr | 59 | 5163 | 22 | 7811 | 17 | 3764 | 18 | 13811 | 22 | 9400 | 40 | 5946 | 19 |
| | Nd | 60 | 7332.6 | 1.7 | 9253 | 16 | -1138.7 | 1.8 | 9980 | 30 | 7082 | 7 | 5310 | 30 |
| | Pm | 61 | 5895 | 6 | 6008 | 6 | -6329 | 14 | 14771 | 6 | 9430 | 6 | 8407 | 9 |
| | Sm | 62 | 8141.23 | 0.26 | 7583.0 | 0.4 | -11477 | 9 | 10829 | 4 | 6795.3 | 2.5 | 7742.1 | 0.4 |
| | Eu | 63 | 6826 | 10 | 4322 | 10 | -18310 | 80 | 15408 | 10 | 9216 | 10 | 10615 | 10 |
| | Gd | 64 | 8983.7 | 1.2 | 6013.5 | 2.4 | -24790 | 10 | 11559 | 6 | 6586.2 | 2.7 | 10028.4 | 0.3 |
| | Tb | 65 | 7866 | 15 | 2469 | 13 | -31772 | 16 | 16260 | 13 | 7253 | 23 | 13101 | 13 |
| | Dy | 66 | 11735 | 12 | 4406 | 12 | -37530# | 400# | 10610 | 50 | 3390 | 110 | 10713 | 22 |
| | Ho | 67 | 10310 | 80 | 1080 | 80 | * | | 15270 | 80 | 5120 | 80 | 14040 | 140 |
| | Er | 68 | 12940 | 40 | 3011 | 11 | * | | 10470 | 12 | 2505 | 13 | 12410 | 12 |
| | Tm | 69 | 10862 | 12 | -550 | 40 | * | | 16268 | 12 | 5340# | 200# | 16001 | 13 |
| | Yb | 70 | * | | 1650# | 400# | * | | 11440# | 450# | 2120# | 450# | 14560# | 450# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q($2\beta^-$) | | Q(ϵp) | | Q($\beta^- n$) | |
|-----|------|----|----------|------|---------|------|---------------|------|-----------------|------|-------------------|------|------------------|------|
| 146 | Xe | 54 | 7225 | 25 | * | | -4010# | 500# | 16990 | 30 | * | | 4028 | 26 |
| | Cs | 55 | 8182 | 20 | 24610# | 400# | -2970 | 370 | 13740 | 30 | -21660# | 500# | 4134 | 9 |
| | Ba | 56 | 9323 | 22 | 22653 | 22 | -2142 | 21 | 10688 | 26 | -20743 | 24 | -183 | 24 |
| | La | 57 | 10340 | 40 | 20360 | 40 | -960 | 30 | 7630 | 50 | -16280 | 30 | -50 | 50 |
| | Ce | 58 | 11346 | 17 | 18446 | 18 | -218 | 17 | 5290 | 16 | -15408 | 18 | -4081 | 18 |
| | Pr | 59 | 12070 | 30 | 16410 | 40 | 920 | 40 | 2770 | 40 | -11130 | 40 | -3320 | 30 |
| | Nd | 60 | 13320.54 | 0.24 | 15071.9 | 2.6 | 1182.4 | 2.2 | 70.4 | 2.8 | -11150 | 30 | -7729.7 | 2.5 |
| | Pm | 61 | 14181 | 5 | 13282 | 5 | 1908 | 4 | -2337 | 7 | -7117 | 8 | -6874 | 4 |
| | Sm | 62 | 15173.4 | 2.8 | 11826.3 | 2.8 | 2528.8 | 2.8 | -4911 | 5 | -6853.3 | 2.8 | -11076 | 4 |
| | Eu | 63 | 17641 | 12 | 10279 | 6 | 1600 | 24 | -9350 | 50 | -3139 | 6 | -12263 | 21 |
| | Gd | 64 | 20469 | 28 | 8698 | 4 | 476 | 5 | -13531 | 8 | -2723 | 4 | -17770 | 110 |
| | Tb | 65 | 21540 | 50 | 6720 | 50 | 1120 | 50 | -16530 | 50 | 2940 | 40 | -17590 | 50 |
| | Dy | 66 | 22127 | 10 | 5373 | 29 | 1980 | 29 | -18233 | 9 | 3082 | 21 | -21506 | 10 |
| | Ho | 67 | 22771 | 11 | 3448 | 29 | 2900 | 700 | -20180# | 200# | 7860 | 110 | -20070# | 200# |
| | Er | 68 | 23860# | 200# | 2330 | 10 | 3370# | 730# | * | | 6632 | 9 | -24810# | 200# |
| | Tm | 69 | 24940# | 450# | 1020# | 200# | 3770# | 450# | * | | 10780# | 200# | * | |
| 147 | Xe | 54 | 7010# | 200# | * | | -4510# | 540# | 17900# | 200# | * | | 4880# | 200# |
| | Cs | 55 | 8008 | 12 | 25560# | 500# | -3720# | 200# | 14758 | 14 | * | | 4956 | 22 |
| | Ba | 56 | 8890 | 21 | 23349 | 23 | -2486 | 20 | 11750 | 22 | -19600 | 30 | 710 | 40 |
| | La | 57 | 9986 | 16 | 21202 | 14 | -1428 | 13 | 8766 | 19 | -18657 | 11 | 886 | 20 |
| | Ce | 58 | 11090 | 30 | 19076 | 12 | -502 | 11 | 6133 | 9 | -14356 | 23 | -3400 | 40 |
| | Pr | 59 | 11961 | 17 | 17187 | 20 | 303 | 17 | 3598 | 16 | -13680 | 40 | -2590 | 16 |
| | Nd | 60 | 12857.43 | 0.12 | 15660 | 30 | 1035.0 | 2.2 | 1119.6 | 0.4 | -9800 | 16 | -6764 | 4 |
| | Pm | 61 | 13917.4 | 2.6 | 13994 | 7 | 1601.1 | 1.4 | -1497.5 | 2.3 | -9650 | 30 | -6117.3 | 2.8 |
| | Sm | 62 | 14757.7 | 0.9 | 12412.3 | 0.4 | 2311.0 | 0.4 | -3909.4 | 1.5 | -5629.5 | 0.4 | -10220 | 6 |
| | Eu | 63 | 15696 | 4 | 10855 | 3 | 2991 | 3 | -6802 | 8 | -5379 | 5 | -9530 | 4 |
| | Gd | 64 | 18573 | 20 | 9283.6 | 1.3 | 1735.3 | 2.0 | -11161 | 9 | -1650 | 3 | -15660 | 40 |
| | Tb | 65 | 20500 | 110 | 7329 | 9 | 1074 | 14 | -14986 | 10 | -914 | 10 | -16259 | 11 |
| | Dy | 66 | 22096 | 11 | 5848 | 22 | 1610 | 200 | -17590 | 40 | 4601 | 10 | -21029 | 11 |
| | Ho | 67 | 22780 | 9 | 3950 | 110 | 2240 | 50 | -19783 | 8 | 4720 | 50 | -19506 | 8 |
| | Er | 68 | 23510# | 200# | 2940 | 40 | 3140 | 40 | * | | 8660 | 40 | -23620# | 200# |
| | Tm | 69 | 24530# | 200# | 1432 | 10 | 3650# | 300# | * | | 7975 | 9 | * | |
| 148 | Xe | 54 | 6790# | 300# | * | | * | | 18990# | 310# | * | | 5250# | 300# |
| | Cs | 55 | 7743 | 13 | * | | -4060# | 400# | 15798 | 23 | * | | 5282 | 24 |
| | Ba | 56 | 8790 | 70 | 24220 | 70 | -3150 | 60 | 12800 | 60 | -22520# | 210# | 1010 | 60 |
| | La | 57 | 9800 | 40 | 21976 | 20 | -1862 | 28 | 9827 | 25 | -18078 | 21 | 1234 | 21 |
| | Ce | 58 | 10906 | 20 | 20029 | 24 | -1056 | 13 | 7010 | 11 | -17423 | 23 | -3026 | 19 |
| | Pr | 59 | 12000 | 40 | 18060 | 40 | -111 | 20 | 4330 | 16 | -13146 | 18 | -2460 | 15 |
| | Nd | 60 | 12624.8 | 1.7 | 16351 | 16 | 599 | 3 | 1928.3 | 1.7 | -12683 | 9 | -6437.1 | 1.7 |
| | Pm | 61 | 13554 | 7 | 14760 | 40 | 1460 | 6 | -566 | 11 | -8711 | 17 | -5671 | 6 |
| | Sm | 62 | 14482.6 | 2.8 | 12988.3 | 0.4 | 1986.8 | 0.4 | -3066.9 | 0.9 | -8478.5 | 0.4 | -9862.8 | 2.3 |
| | Eu | 63 | 15324 | 12 | 11423 | 11 | 2692 | 10 | -5762 | 16 | -4546 | 10 | -9014 | 10 |
| | Gd | 64 | 16326 | 4 | 9851.0 | 2.8 | 3271.29 | 0.03 | -8410 | 9 | -4291.9 | 0.9 | -13598 | 8 |
| | Tb | 65 | 18920 | 50 | 7997 | 14 | 2657 | 16 | -12550 | 80 | -281 | 13 | -14412 | 15 |
| | Dy | 66 | 21447 | 11 | 6352 | 10 | 1475 | 29 | -16381 | 13 | 208 | 9 | -20174 | 10 |
| | Ho | 67 | 22900 | 80 | 4810 | 100 | 1950 | 90 | -19230 | 80 | 5460 | 80 | -19450 | 90 |
| | Er | 68 | 23300 | 12 | 3502 | 12 | 2666 | 13 | -21150# | 400# | 5428 | 14 | -23576 | 12 |
| | Tm | 69 | 23850# | 200# | 2105 | 12 | 3420 | 13 | * | | 9703 | 11 | * | |
| | Yb | 70 | * | | 590# | 400# | 3850# | 450# | * | | 8990# | 400# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|----|---------|------|---------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 149 | Cs | 55 | 4410# | 400# | 11940# | 500# | 27790# | 400# | 9820# | 450# | 9570# | 400# | * | |
| | Ba | 56 | 3600 | 440 | 13500 | 440 | 21260 | 440 | 9510 | 440 | 7050 | 440 | 480 | 440 |
| | La | 57 | 5580 | 200 | 9920 | 210 | 15840 | 200 | 10750 | 200 | 9590 | 200 | 740 | 200 |
| | Ce | 58 | 4343 | 15 | 11250 | 22 | 10466 | 10 | 10719 | 15 | 7240 | 40 | 3924 | 23 |
| | Pr | 59 | 6575 | 18 | 7930 | 15 | 5402 | 11 | 11685 | 13 | 9460 | 19 | 3660 | 40 |
| | Nd | 60 | 5038.79 | 0.07 | 9129 | 15 | 752 | 4 | 11779 | 16 | 7170 | 30 | 6906 | 16 |
| | Pm | 61 | 7270 | 6 | 5945.2 | 2.5 | -4576 | 4 | 12793.3 | 2.1 | 9725.7 | 2.1 | 6260 | 30 |
| | Sm | 62 | 5870.8 | 0.9 | 7559 | 6 | -9440 | 9 | 12617.3 | 1.0 | 7183 | 4 | 9436.5 | 1.0 |
| | Eu | 63 | 8213 | 11 | 4394 | 4 | -14795 | 13 | 13536 | 4 | 9419 | 5 | 8660 | 6 |
| | Gd | 64 | 6929 | 3 | 6117 | 10 | -21385 | 28 | 13129 | 4 | 6855 | 7 | 11516 | 4 |
| | Tb | 65 | 9023 | 13 | 2508 | 3 | -27610# | 200# | 14579 | 4 | 9461 | 5 | 11275 | 7 |
| | Dy | 66 | 7908 | 12 | 4448 | 15 | -34500# | 300# | 13758 | 12 | 4930 | 50 | 14036 | 10 |
| | Ho | 67 | 11730 | 80 | 1076 | 12 | * | | 13260 | 15 | 5772 | 14 | 11760 | 50 |
| | Er | 68 | 10334 | 30 | 3040 | 90 | * | | 12726 | 28 | 2361 | 29 | 14460 | 29 |
| | Tm | 69 | 13190# | 200# | -310# | 200# | * | | 13440# | 200# | 5300# | 200# | 13000# | 200# |
| | Yb | 70 | 10940# | 500# | 1720# | 300# | * | | 13490# | 300# | 2720# | 360# | 16770# | 300# |
| 150 | Cs | 55 | 2990# | 570# | * | | 30130# | 400# | 11140# | 500# | 9050# | 450# | * | |
| | Ba | 56 | 4850# | 530# | 13940# | 500# | 23780# | 300# | 7720# | 300# | 6880# | 300# | -1890# | 360# |
| | La | 57 | 3980 | 480 | 10300 | 620 | 17470 | 440 | 12170 | 440 | 9000 | 440 | 1440 | 440 |
| | Ce | 58 | 6248 | 16 | 11920 | 200 | 12204 | 12 | 8573 | 23 | 6696 | 16 | 1064 | 23 |
| | Pr | 59 | 5332 | 13 | 8920 | 14 | 6492 | 11 | 12809 | 14 | 8577 | 12 | 4024 | 14 |
| | Nd | 60 | 7375.6 | 1.9 | 9929 | 10 | 2084 | 6 | 9566 | 15 | 6628 | 16 | 3981 | 9 |
| | Pm | 61 | 5604 | 20 | 6511 | 20 | -2491 | 21 | 14522 | 20 | 9414 | 20 | 7493 | 26 |
| | Sm | 62 | 7986.7 | 0.4 | 8275.9 | 1.9 | -7742 | 4 | 10525 | 6 | 6855.2 | 0.9 | 6742.0 | 1.0 |
| | Eu | 63 | 6422 | 7 | 4945 | 6 | -12846 | 15 | 15255 | 6 | 9338 | 6 | 9896 | 6 |
| | Gd | 64 | 8708 | 7 | 6612 | 7 | -17933 | 18 | 11246 | 12 | 6645 | 6 | 9149 | 6 |
| | Tb | 65 | 7688 | 8 | 3268 | 8 | -24620# | 200# | 15874 | 7 | 9115 | 7 | 12085 | 8 |
| | Dy | 66 | 9685 | 10 | 5110 | 5 | -30670# | 300# | 11938 | 13 | 6297 | 9 | 11694 | 4 |
| | Ho | 67 | 8371 | 19 | 1539 | 17 | -37310# | 300# | 16624 | 17 | 7114 | 17 | 14443 | 16 |
| | Er | 68 | 12160 | 30 | 3474 | 21 | * | | 10870 | 90 | 2790 | 18 | 12011 | 19 |
| | Tm | 69 | 10680# | 280# | 40# | 200# | * | | 15700# | 200# | 4980# | 200# | 14910# | 200# |
| | Yb | 70 | 13510# | 420# | 2050# | 360# | * | | 10840# | 300# | 2200# | 300# | 13620# | 300# |
| | Lu | 71 | * | | -1269.6 | 2.3 | * | | 16400# | 500# | * | | 16980# | 300# |
| 151 | Cs | 55 | 4130# | 640# | * | | 32550# | 500# | * | | 9240# | 580# | * | |
| | Ba | 56 | 3110# | 500# | 14060# | 570# | 26000# | 400# | 9020# | 570# | 6840# | 400# | -690# | 500# |
| | La | 57 | 5250 | 620 | 10700# | 530# | 20080 | 440 | 10520 | 620 | 9150 | 440 | -750 | 440 |
| | Ce | 58 | 4450 | 21 | 12380 | 440 | 13351 | 18 | 9710 | 200 | 6348 | 26 | 2020 | 70 |
| | Pr | 59 | 6550 | 15 | 9222 | 17 | 7873 | 12 | 10601 | 16 | 8483 | 16 | 1576 | 23 |
| | Nd | 60 | 5334.55 | 0.10 | 9931 | 9 | 3245.7 | 2.8 | 10807 | 10 | 6456 | 15 | 5102 | 11 |
| | Pm | 61 | 7860 | 20 | 6995 | 4 | -1763 | 6 | 11700 | 5 | 8886 | 5 | 4796 | 16 |
| | Sm | 62 | 5596.46 | 0.11 | 8268 | 20 | -5824 | 3 | 12198.8 | 1.9 | 7153 | 6 | 8478.1 | 1.9 |
| | Eu | 63 | 7932 | 6 | 4890.7 | 0.5 | -11030 | 8 | 13193.7 | 0.7 | 9547.5 | 1.0 | 7859 | 6 |
| | Gd | 64 | 6496 | 7 | 6685 | 7 | -15922 | 17 | 12963 | 5 | 6975 | 10 | 10793.9 | 2.9 |
| | Tb | 65 | 8589 | 8 | 3149 | 7 | -20851 | 20 | 14214 | 5 | 9510 | 4 | 10322 | 11 |
| | Dy | 66 | 7514 | 5 | 4936 | 8 | -27210 | 300 | 13447 | 4 | 6649 | 13 | 13163.3 | 2.9 |
| | Ho | 67 | 9748 | 16 | 1602 | 9 | -33510# | 300# | 14784 | 12 | 9101 | 12 | 12561 | 15 |
| | Er | 68 | 8506 | 24 | 3609 | 22 | * | | 14091 | 20 | 4590 | 90 | 15240 | 19 |
| | Tm | 69 | 12350# | 200# | 230 | 9 | * | | 13680 | 30 | 5570 | 22 | 12860 | 90 |
| | Yb | 70 | 10980# | 430# | 2340# | 360# | * | | 13050# | 360# | 2090 | 300 | 15580 | 300 |
| | Lu | 71 | 13540# | 420# | -1241.0 | 1.8 | * | | 13800# | 420# | 5090# | 500# | 14300# | 300# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | $Q(\alpha)$ | | $Q(2\beta^-)$ | | $Q(\epsilon p)$ | | $Q(\beta^- n)$ | |
|-----|------|----|---------|------|---------|------|-------------|------|---------------|------|-----------------|------|----------------|------|
| 149 | Cs | 55 | 7470# | 400# | * | | -4740# | 640# | 16970# | 450# | * | | 6270# | 410# |
| | Ba | 56 | 9000 | 440 | 25340# | 480# | -4050 | 440 | 13550 | 440 | -21810# | 530# | 1520 | 440 |
| | La | 57 | 9680 | 200 | 22880 | 200 | -2590 | 200 | 10820 | 200 | -20600 | 200 | 2110 | 200 |
| | Ce | 58 | 10799 | 13 | 20984 | 22 | -1579 | 13 | 7706 | 10 | -16370 | 60 | -2206 | 18 |
| | Pr | 59 | 11738 | 19 | 18939 | 15 | -629 | 16 | 5025 | 10 | -15620 | 22 | -1703 | 10 |
| | Nd | 60 | 12371.4 | 1.7 | 16940 | 9 | 270 | 30 | 2760.3 | 1.9 | -11266 | 11 | -5581 | 6 |
| | Pm | 61 | 13164.6 | 2.1 | 15198 | 16 | 1137 | 7 | 377 | 4 | -10818 | 15 | -4799.3 | 2.0 |
| | Sm | 62 | 14012.0 | 0.9 | 13566.9 | 1.0 | 1871.3 | 1.0 | -2009 | 3 | -7016.7 | 1.9 | -8908 | 10 |
| | Eu | 63 | 15039 | 4 | 11977 | 4 | 2401 | 5 | -4952 | 5 | -6864 | 7 | -8243 | 4 |
| | Gd | 64 | 15913 | 3 | 10439 | 3 | 3099 | 3 | -7431 | 10 | -3080 | 3 | -12661 | 13 |
| | Tb | 65 | 16889 | 9 | 8522 | 4 | 4077.9 | 2.2 | -9842 | 12 | -2478 | 11 | -11700 | 9 |
| | Dy | 66 | 19643 | 13 | 6917 | 9 | 2805 | 22 | -13954 | 29 | 1284 | 9 | -17780 | 80 |
| | Ho | 67 | 22032 | 13 | 5482 | 14 | 2320 | 110 | -17760# | 200# | 1602 | 15 | -18239 | 16 |
| | Er | 68 | 23280 | 50 | 4124 | 29 | 2076 | 29 | -20540# | 300# | 6829 | 29 | -23048 | 30 |
| | Tm | 69 | 24050# | 200# | 2700# | 200# | 2810# | 200# | * | | 6820# | 210# | -21620# | 450# |
| | Yb | 70 | * | | 1170# | 300# | 3620# | 360# | * | | 10990# | 300# | * | |
| 150 | Cs | 55 | 7400# | 400# | * | | * | | 17960# | 590# | * | | 6880# | 590# |
| | Ba | 56 | 8450# | 310# | 25880# | 420# | -4370# | 300# | 14950# | 300# | * | | 2250# | 360# |
| | La | 57 | 9560 | 440 | 23800 | 440 | -3240 | 440 | 12170 | 440 | -20170# | 590# | 2470 | 440 |
| | Ce | 58 | 10591 | 16 | 21830 | 60 | -2325 | 24 | 8833 | 12 | -19020 | 440 | -1879 | 15 |
| | Pr | 59 | 11908 | 18 | 20170 | 21 | -1680 | 30 | 5297 | 22 | -15370 | 200 | -1996 | 9 |
| | Nd | 60 | 12414.4 | 1.9 | 17859 | 11 | -469 | 16 | 3371.38 | 0.20 | -14299 | 10 | -5686.8 | 1.9 |
| | Pm | 61 | 12874 | 21 | 15640 | 25 | 660 | 40 | 1195 | 21 | -9847 | 22 | -4533 | 20 |
| | Sm | 62 | 13857.5 | 0.9 | 14221.1 | 1.9 | 1449.8 | 1.0 | -1287 | 6 | -9964.6 | 1.9 | -8681 | 4 |
| | Eu | 63 | 14636 | 12 | 12504 | 8 | 2237 | 7 | -3687 | 9 | -6017 | 6 | -7737 | 7 |
| | Gd | 64 | 15637 | 6 | 11006 | 6 | 2807 | 6 | -6454 | 7 | -5917 | 6 | -12347 | 7 |
| | Tb | 65 | 16711 | 14 | 9384 | 12 | 3587 | 5 | -9160 | 16 | -1954 | 8 | -11481 | 12 |
| | Dy | 66 | 17593 | 10 | 7618 | 4 | 4351.3 | 1.5 | -11478 | 18 | -1472 | 5 | -15734 | 13 |
| | Ho | 67 | 20100 | 90 | 5987 | 19 | 3390 | 50 | -15460# | 200# | 2254 | 15 | -16280 | 30 |
| | Er | 68 | 22495 | 20 | 4550 | 19 | 2299 | 18 | -19190# | 300# | 2576 | 19 | -22020# | 200# |
| | Tm | 69 | 23870# | 200# | 3080# | 210# | 2320# | 200# | -21850# | 360# | 7870# | 200# | -21360# | 360# |
| | Yb | 70 | 24450# | 500# | 1740# | 300# | 3260# | 300# | * | | 7810# | 300# | * | |
| | Lu | 71 | * | | 450# | 300# | 3990# | 360# | * | | 11950# | 360# | * | |
| 151 | Cs | 55 | 7120# | 640# | * | | * | | 19080# | 660# | * | | 7600# | 580# |
| | Ba | 56 | 7960# | 590# | * | | -5010# | 450# | 16290# | 400# | * | | 3120# | 590# |
| | La | 57 | 9230 | 480 | 24640# | 590# | -3820 | 440 | 13470 | 440 | -22430# | 590# | 3470 | 440 |
| | Ce | 58 | 10698 | 20 | 22680 | 440 | -3386 | 27 | 9718 | 18 | -18610# | 300# | -996 | 20 |
| | Pr | 59 | 11883 | 15 | 21140 | 200 | -2526 | 16 | 6606 | 13 | -17940 | 440 | -1171 | 12 |
| | Nd | 60 | 12710.2 | 1.9 | 18851 | 10 | -1354 | 9 | 3633.29 | 0.24 | -13385 | 12 | -5417 | 20 |
| | Pm | 61 | 13464 | 5 | 16925 | 11 | -367 | 16 | 1267 | 5 | -12375 | 10 | -4406 | 4 |
| | Sm | 62 | 13583.2 | 0.4 | 14778.8 | 1.9 | 1145.6 | 1.0 | -387.5 | 2.8 | -8185.50 | 0.22 | -7855 | 6 |
| | Eu | 63 | 14354 | 4 | 13166.5 | 2.0 | 1964.5 | 1.1 | -3029 | 4 | -8345 | 20 | -6960 | 6 |
| | Gd | 64 | 15204 | 4 | 11630.9 | 2.8 | 2652.7 | 2.9 | -5436 | 4 | -4426.6 | 2.8 | -11154 | 8 |
| | Tb | 65 | 16277 | 5 | 9760 | 5 | 3496 | 4 | -8001 | 9 | -4120 | 7 | -10385 | 6 |
| | Dy | 66 | 17199 | 10 | 8203 | 4 | 4179.6 | 2.6 | -10486 | 17 | -277 | 7 | -14878 | 15 |
| | Ho | 67 | 18119 | 15 | 6712 | 9 | 4695.0 | 1.8 | -12850 | 21 | 194 | 11 | -13863 | 19 |
| | Er | 68 | 20670 | 30 | 5148 | 19 | 3505 | 19 | -16720 | 300 | 3754 | 17 | -19850# | 200# |
| | Tm | 69 | 23030# | 200# | 3704 | 23 | 2559 | 20 | -20660# | 300# | 3884 | 16 | -20210# | 300# |
| | Yb | 70 | 24490# | 430# | 2380 | 300 | 2640 | 300 | * | | 9000 | 300 | -24970# | 430# |
| | Lu | 71 | * | | 800# | 360# | 3440# | 300# | * | | 9090# | 360# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|----|---------|------|--------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 152 | Cs | 55 | 2770# | 710# | * | | 34830# | 500# | * | | * | | * | |
| | Ba | 56 | 4840# | 570# | 14770# | 640# | 28440# | 400# | 7170# | 570# | 6400# | 570# | * | |
| | La | 57 | 4050# | 530# | 11640# | 500# | 21960# | 300# | 11320# | 420# | 8690# | 530# | −390# | 500# |
| | Ce | 58 | 5830# | 200# | 12960# | 480# | 15780# | 200# | 7860# | 480# | 6100# | 280# | −210# | 480# |
| | Pr | 59 | 5050 | 22 | 9822 | 26 | 9130 | 19 | 11800 | 22 | 7776 | 21 | 2110 | 200 |
| | Nd | 60 | 7278 | 24 | 10659 | 27 | 4558 | 24 | 8862 | 26 | 5754 | 26 | 2167 | 27 |
| | Pm | 61 | 5939 | 26 | 7600 | 26 | −540 | 50 | 13136 | 26 | 7985 | 26 | 5432 | 28 |
| | Sm | 62 | 8257.6 | 0.6 | 8666 | 5 | −4645 | 5 | 9545 | 20 | 6165.7 | 2.0 | 5259.3 | 1.9 |
| | Eu | 63 | 6306.72 | 0.10 | 5600.9 | 0.5 | −9283 | 13 | 14873.7 | 0.6 | 9111.5 | 0.7 | 8822.4 | 2.0 |
| | Gd | 64 | 8589.5 | 2.9 | 7343.0 | 0.7 | −14207 | 9 | 10796 | 6 | 6598 | 4 | 8075.2 | 0.7 |
| | Tb | 65 | 7160 | 40 | 3820 | 40 | −19000 | 70 | 15760 | 40 | 9270 | 40 | 11370 | 40 |
| | Dy | 66 | 9437 | 5 | 5783 | 6 | −23850 | 150 | 11699 | 9 | 6235 | 5 | 10656 | 5 |
| | Ho | 67 | 8053 | 15 | 2141 | 13 | −30180# | 200# | 16416 | 13 | 8955 | 15 | 13530 | 13 |
| | Er | 68 | 10305 | 19 | 4167 | 12 | * | | 12156 | 17 | 6010 | 12 | 12842 | 12 |
| | Tm | 69 | 9020 | 60 | 740 | 60 | * | | 16820 | 60 | 6890 | 60 | 15570 | 60 |
| | Yb | 70 | 12800 | 340 | 2790 | 150 | * | | 10930# | 250# | 2480# | 250# | 13120 | 150 |
| | Lu | 71 | 11390# | 360# | −830# | 360# | * | | 15930# | 360# | 4640# | 360# | 16110# | 280# |
| 153 | Ba | 56 | 2830# | 570# | 14830# | 640# | 30860# | 400# | 8470# | 640# | 6560# | 570# | * | |
| | La | 57 | 4840# | 420# | 11640# | 500# | 24590# | 300# | 9590# | 500# | 8710# | 420# | −2240# | 500# |
| | Ce | 58 | 4000# | 280# | 12910# | 360# | 17650# | 200# | 9110# | 480# | 6080# | 480# | 640# | 360# |
| | Pr | 59 | 5882 | 22 | 9880# | 200# | 11799 | 12 | 10367 | 21 | 8142 | 17 | 210 | 440 |
| | Nd | 60 | 5252 | 25 | 10861 | 19 | 5552.3 | 3.0 | 10160 | 12 | 5834 | 9 | 3163 | 12 |
| | Pm | 61 | 7465 | 27 | 7787 | 26 | 666 | 10 | 11006 | 9 | 7896 | 9 | 3299 | 13 |
| | Sm | 62 | 5868.40 | 0.13 | 8594 | 26 | −3417 | 4 | 11537 | 5 | 5902 | 20 | 6766.5 | 0.7 |
| | Eu | 63 | 8550.28 | 0.12 | 5893.6 | 0.7 | −8355 | 5 | 11919.9 | 0.6 | 8548.0 | 0.6 | 5876 | 20 |
| | Gd | 64 | 6246.95 | 0.13 | 7283.3 | 0.7 | −12414 | 9 | 12481.1 | 0.7 | 6774 | 6 | 9815.0 | 0.6 |
| | Tb | 65 | 8670 | 40 | 3895 | 4 | −17340 | 13 | 13586 | 5 | 9315 | 7 | 9125 | 7 |
| | Dy | 66 | 7096 | 6 | 5710 | 40 | −21940# | 200# | 13191 | 6 | 6827 | 8 | 12267 | 7 |
| | Ho | 67 | 9479 | 13 | 2183 | 7 | −26640 | 150 | 14451 | 6 | 9162 | 6 | 11740 | 9 |
| | Er | 68 | 8040 | 12 | 4153 | 15 | −33170# | 300# | 13865 | 12 | 6341 | 17 | 14487 | 10 |
| | Tm | 69 | 10320 | 60 | 762 | 12 | * | | 15004 | 20 | 8722 | 21 | 13619 | 19 |
| | Yb | 70 | 9010# | 250# | 2780# | 200# | * | | 14280# | 200# | 4150# | 280# | 16270# | 200# |
| | Lu | 71 | 13020# | 250# | −609 | 10 | * | | 13880 | 340 | 5130# | 340# | 13760# | 250# |
| | Hf | 72 | * | | 1170# | 360# | * | | 13520# | 420# | 2200# | 420# | 16990# | 420# |
| 154 | Ba | 56 | 4420# | 640# | * | | 33010# | 500# | 6820# | 710# | 6270# | 710# | * | |
| | La | 57 | 3540# | 420# | 12350# | 500# | 26980# | 300# | 10890# | 500# | 8270# | 500# | −1650# | 580# |
| | Ce | 58 | 5380# | 280# | 13450# | 360# | 20240# | 200# | 7780# | 360# | 5960# | 480# | −1630# | 450# |
| | Pr | 59 | 4610 | 110 | 10480# | 230# | 13630 | 110 | 11590# | 230# | 7980 | 110 | 850 | 450 |
| | Nd | 60 | 6570 | 50 | 11550 | 50 | 7880 | 50 | 8640 | 60 | 5820 | 50 | 1050 | 60 |
| | Pm | 61 | 5940 | 50 | 8470 | 50 | 1640 | 60 | 12350 | 50 | 7300 | 50 | 3910 | 50 |
| | Sm | 62 | 7966.8 | 0.8 | 9096 | 9 | −2061 | 7 | 9510 | 26 | 5795 | 5 | 4134.2 | 1.1 |
| | Eu | 63 | 6442.22 | 0.24 | 6467.4 | 0.7 | −7099 | 8 | 13735.3 | 0.7 | 7702.2 | 0.6 | 7294 | 5 |
| | Gd | 64 | 8894.72 | 0.17 | 7627.7 | 0.7 | −11101 | 5 | 9893.1 | 0.7 | 5811.0 | 0.7 | 6516.7 | 0.7 |
| | Tb | 65 | 6910 | 50 | 4560 | 50 | −15730 | 50 | 15260 | 50 | 8900 | 50 | 10140 | 50 |
| | Dy | 66 | 9322 | 8 | 6370 | 8 | −20462 | 19 | 11030 | 40 | 6094 | 8 | 9441 | 8 |
| | Ho | 67 | 7699 | 10 | 2785 | 9 | −24920# | 200# | 16189 | 9 | 8977 | 9 | 12631 | 9 |
| | Er | 68 | 10208 | 10 | 4882 | 7 | −29940# | 300# | 11711 | 13 | 5882 | 9 | 11794 | 6 |
| | Tm | 69 | 8525 | 19 | 1247 | 17 | * | | 16784 | 17 | 8703 | 22 | 14842 | 17 |
| | Yb | 70 | 10800# | 200# | 3248 | 21 | * | | 12500 | 60 | 5705 | 9 | 13981 | 24 |
| | Lu | 71 | 9410# | 250# | −204 | 14 | * | | 17270# | 250# | 6690# | 360# | 16700# | 200# |
| | Hf | 72 | 13440# | 420# | 1590# | 340# | * | | 11460# | 360# | 2300# | 420# | 14520# | 430# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q($2\beta^-$) | | Q(ϵp) | | Q($\beta^- n$) | |
|-----|------|----|----------|------|----------|------|---------------|------|-----------------|------|-------------------|------|------------------|------|
| 152 | Cs | 55 | 6900# | 640# | * | | * | | 20360# | 580# | * | | 7940# | 640# |
| | Ba | 56 | 7950# | 500# | * | | -5540# | 500# | 17270# | 450# | * | | 3530# | 590# |
| | La | 57 | 9300# | 530# | 25700# | 500# | -4800# | 300# | 14470# | 300# | -22350# | 580# | 3860# | 300# |
| | Ce | 58 | 10280# | 200# | 23660# | 360# | -3810# | 210# | 11170# | 200# | -21330# | 450# | -270# | 200# |
| | Pr | 59 | 11600 | 21 | 22210 | 440 | -3474 | 27 | 7500 | 30 | -17740 | 440 | -886 | 19 |
| | Nd | 60 | 12612 | 24 | 19880 | 27 | -2176 | 27 | 4613 | 24 | -16210 | 30 | -4835 | 25 |
| | Pm | 61 | 13800 | 30 | 17532 | 27 | -1144 | 30 | 1634 | 26 | -11764 | 28 | -4749 | 26 |
| | Sm | 62 | 13854.1 | 0.6 | 15660.8 | 0.6 | 220.5 | 1.9 | -55.69 | 0.18 | -11108.6 | 0.7 | -8181.1 | 0.7 |
| | Eu | 63 | 14239 | 6 | 13869 | 20 | 1553 | 6 | -2170 | 40 | -6791 | 5 | -6770.8 | 2.8 |
| | Gd | 64 | 15086 | 6 | 12233.7 | 0.6 | 2204.4 | 1.0 | -4589 | 5 | -7419.6 | 0.6 | -11155 | 4 |
| | Tb | 65 | 15750 | 40 | 10500 | 40 | 3160 | 40 | -7110 | 40 | -3350 | 40 | -10040 | 40 |
| | Dy | 66 | 16951 | 6 | 8932 | 7 | 3727 | 4 | -9617 | 10 | -3218 | 5 | -14566 | 9 |
| | Ho | 67 | 17802 | 19 | 7077 | 15 | 4507.4 | 1.3 | -11880 | 60 | 730 | 13 | -13410 | 21 |
| | Er | 68 | 18812 | 19 | 5769 | 10 | 4934.3 | 1.6 | -14230 | 150 | 963 | 9 | -17799 | 21 |
| | Tm | 69 | 21370# | 200# | 4350 | 60 | 3850 | 100 | -18300# | 200# | 4610 | 50 | -18250 | 310 |
| | Yb | 70 | 23780# | 340# | 3020 | 150 | 2780 | 150 | * | | 4710 | 150 | -24230# | 340# |
| | Lu | 71 | 24930# | 360# | 1510# | 280# | 2920# | 200# | * | | 10060# | 200# | * | |
| 153 | Ba | 56 | 7670# | 570# | * | | * | | 18440# | 450# | * | | 4750# | 500# |
| | La | 57 | 8890# | 530# | 26410# | 580# | -5230# | 500# | 15510# | 300# | -24420# | 580# | 4850# | 360# |
| | Ce | 58 | 9830# | 200# | 24550# | 450# | -4210# | 480# | 12420# | 200# | -20490# | 450# | 780# | 200# |
| | Pr | 59 | 10931 | 17 | 22840 | 440 | -3770 | 200 | 9079 | 15 | -19570# | 300# | 510 | 27 |
| | Nd | 60 | 12530 | 3 | 20683 | 18 | -3085 | 11 | 5229 | 3 | -15640# | 200# | -4147 | 26 |
| | Pm | 61 | 13404 | 10 | 18446 | 15 | -2033 | 13 | 2719 | 9 | -14179 | 21 | -3957 | 9 |
| | Sm | 62 | 14126.0 | 0.6 | 16194.6 | 0.7 | -609.1 | 1.9 | 322.87 | 0.25 | -9699 | 24 | -7742.7 | 0.7 |
| | Eu | 63 | 14857.00 | 0.16 | 14559 | 5 | 272.1 | 2.0 | -2054 | 4 | -9402 | 26 | -6731.6 | 0.7 |
| | Gd | 64 | 14836.4 | 2.9 | 12884.2 | 0.6 | 1828.3 | 0.7 | -3740 | 4 | -5408.92 | 0.22 | -10240 | 40 |
| | Tb | 65 | 15832 | 6 | 11238 | 4 | 2703 | 5 | -6301 | 6 | -5714 | 4 | -9267 | 6 |
| | Dy | 66 | 16533 | 5 | 9532 | 5 | 3559 | 4 | -8674 | 10 | -1725 | 4 | -13609 | 13 |
| | Ho | 67 | 17532 | 10 | 7967 | 6 | 4052 | 4 | -11039 | 13 | -1580 | 40 | -12583 | 10 |
| | Er | 68 | 18345 | 19 | 6294 | 10 | 4802.4 | 1.4 | -13260# | 200# | 2360 | 10 | -16820 | 50 |
| | Tm | 69 | 19343 | 23 | 4929 | 15 | 5248.3 | 1.5 | -15600 | 150 | 2342 | 16 | -15770 | 150 |
| | Yb | 70 | 21810# | 360# | 3520# | 200# | 4110# | 200# | -19910# | 360# | 6000# | 200# | -21860# | 280# |
| | Lu | 71 | 24410# | 340# | 2180 | 150 | 3090# | 250# | * | | 6060 | 140 | * | |
| | Hf | 72 | * | | 340# | 430# | 3470# | 420# | * | | 11680# | 340# | * | |
| 154 | Ba | 56 | 7250# | 640# | * | | * | | 19400# | 540# | * | | 5170# | 580# |
| | La | 57 | 8380# | 420# | 27180# | 580# | -5790# | 500# | 16580# | 320# | * | | 5310# | 360# |
| | Ce | 58 | 9380# | 280# | 25090# | 450# | -4740# | 360# | 13610# | 210# | -23040# | 450# | 1280# | 200# |
| | Pr | 59 | 10490 | 110 | 23390# | 320# | -4400 | 450 | 10410 | 100 | -19330# | 320# | 1150 | 110 |
| | Nd | 60 | 11820 | 60 | 21420# | 210# | -3400 | 50 | 6630 | 50 | -18200# | 210# | -3250 | 50 |
| | Pm | 61 | 13400 | 50 | 19330 | 50 | -2640 | 50 | 3230 | 50 | -14230 | 50 | -4020 | 50 |
| | Sm | 62 | 13835.2 | 0.8 | 16884 | 24 | -1200.3 | 1.1 | 1250.8 | 0.9 | -12414 | 3 | -7159.3 | 1.1 |
| | Eu | 63 | 14992.50 | 0.27 | 15062 | 26 | -566 | 20 | -1580 | 50 | -8379 | 9 | -6926.9 | 0.7 |
| | Gd | 64 | 15141.67 | 0.21 | 13521.29 | 0.27 | 920.3 | 0.7 | -3312 | 7 | -8435.2 | 0.3 | -10464 | 4 |
| | Tb | 65 | 15580 | 60 | 11850 | 50 | 2210 | 50 | -5520 | 50 | -4080 | 50 | -9080 | 50 |
| | Dy | 66 | 16419 | 9 | 10265 | 7 | 2945 | 5 | -7789 | 9 | -4800 | 7 | -13453 | 9 |
| | Ho | 67 | 17177 | 15 | 8500 | 40 | 4041 | 4 | -10212 | 17 | -615 | 9 | -12242 | 12 |
| | Er | 68 | 18247 | 10 | 7065 | 6 | 4279.7 | 2.6 | -12673 | 18 | -751 | 6 | -16703 | 13 |
| | Tm | 69 | 18850 | 60 | 5400 | 19 | 5093.8 | 2.6 | -14710# | 200# | 3296 | 15 | -15290# | 200# |
| | Yb | 70 | 19800 | 150 | 4010 | 19 | 5474.3 | 1.7 | -17260# | 300# | 3248 | 20 | -19630 | 150 |
| | Lu | 71 | 22440# | 280# | 2570# | 200# | 4350# | 280# | * | | 6970# | 200# | -20490# | 360# |
| | Hf | 72 | * | | 980# | 340# | 3540# | 420# | * | | 7250# | 360# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | Q(4 β^-) | | Q(d, α) | | Q(p, α) | | Q(n, α) | |
|-----|------|----|---------|------|--------|------|-----------------|------|-----------------|------|-----------------|------|-----------------|------|
| 155 | La | 57 | 4470# | 500# | 12400# | 640# | 29010# | 400# | 9250# | 570# | 8640# | 570# | -3350# | 640# |
| | Ce | 58 | 3630# | 360# | 13540# | 420# | 22410# | 300# | 8990# | 420# | 6370# | 420# | -420# | 500# |
| | Pr | 59 | 5380 | 110 | 10490# | 200# | 16403 | 17 | 10210# | 200# | 8430# | 200# | -480# | 300# |
| | Nd | 60 | 4530 | 50 | 11470 | 110 | 9786 | 9 | 9996 | 15 | 6338 | 21 | 2340# | 200# |
| | Pm | 61 | 6500 | 50 | 8400 | 50 | 4310 | 11 | 11101 | 5 | 8074 | 25 | 2465 | 19 |
| | Sm | 62 | 5806.96 | 0.27 | 8970 | 50 | -1035 | 10 | 11168 | 9 | 5927 | 26 | 5605 | 24 |
| | Eu | 63 | 8151.3 | 0.4 | 6651.9 | 1.2 | -5779 | 17 | 11452.4 | 0.8 | 7808.6 | 0.8 | 5082 | 26 |
| | Gd | 64 | 6435.24 | 0.18 | 7620.7 | 0.8 | -9861 | 6 | 12008.1 | 0.7 | 5682.4 | 0.7 | 8339.1 | 0.3 |
| | Tb | 65 | 9170 | 50 | 4833 | 10 | -14624 | 14 | 12343 | 10 | 8321 | 10 | 7285 | 10 |
| | Dy | 66 | 6833 | 12 | 6290 | 50 | -18653 | 19 | 12869 | 10 | 6430 | 40 | 11198 | 10 |
| | Ho | 67 | 9472 | 19 | 2935 | 19 | -23494 | 26 | 13814 | 18 | 8942 | 18 | 10320 | 40 |
| | Er | 68 | 7675 | 8 | 4859 | 10 | -28040# | 300# | 13514 | 8 | 6260 | 14 | 13555 | 7 |
| | Tm | 69 | 10270 | 17 | 1310 | 11 | -32700# | 300# | 14553 | 14 | 8739 | 13 | 12625 | 16 |
| | Yb | 70 | 8642 | 24 | 3364 | 22 | * | | 14182 | 20 | 6080 | 60 | 15644 | 19 |
| | Lu | 71 | 10900# | 200# | -98 | 8 | * | | 15370# | 200# | 8590 | 150 | 14820 | 60 |
| | Hf | 72 | 9570# | 420# | 1740# | 360# | * | | 14910# | 330# | 4120# | 360# | 17750# | 330# |
| | Ta | 73 | * | | -1453 | 15 | * | | 14080# | 420# | * | | 15140# | 360# |
| 156 | La | 57 | 3190# | 570# | * | | 31110# | 400# | 10480# | 640# | 8280# | 570# | * | |
| | Ce | 58 | 5110# | 420# | 14180# | 500# | 24540# | 300# | 7420# | 420# | 6100# | 420# | -2700# | 500# |
| | Pr | 59 | 4220# | 200# | 11080# | 360# | 18520# | 200# | 11360# | 280# | 8210# | 280# | 140# | 360# |
| | Nd | 60 | 6260 | 200 | 12350 | 200 | 12060 | 200 | 8340 | 230 | 5960 | 200 | 80# | 280# |
| | Pm | 61 | 5295 | 6 | 9169 | 10 | 5927 | 5 | 12370 | 50 | 8031 | 4 | 3051 | 12 |
| | Sm | 62 | 7241 | 9 | 9709 | 10 | 1169 | 8 | 9860 | 50 | 6151 | 12 | 3616 | 9 |
| | Eu | 63 | 6336 | 3 | 7181 | 4 | -4600 | 60 | 13083 | 4 | 7341 | 3 | 6212 | 10 |
| | Gd | 64 | 8536.35 | 0.07 | 8005.8 | 0.9 | -8323 | 25 | 9914.0 | 0.8 | 5696.4 | 0.8 | 5671.2 | 0.4 |
| | Tb | 65 | 6912 | 10 | 5310 | 4 | -13256 | 15 | 14326 | 4 | 7656 | 4 | 8923 | 4 |
| | Dy | 66 | 9445 | 10 | 6568 | 10 | -17263 | 9 | 10340 | 50 | 5648 | 4 | 7999.99 | 0.27 |
| | Ho | 67 | 7510 | 60 | 3610 | 60 | -21780 | 80 | 15630 | 60 | 8530 | 60 | 11480 | 60 |
| | Er | 68 | 10074 | 25 | 5460 | 30 | -26390 | 150 | 11138 | 26 | 5664 | 25 | 10578 | 25 |
| | Tm | 69 | 8280 | 17 | 1914 | 16 | -30970# | 300# | 16481 | 15 | 8498 | 17 | 13824 | 15 |
| | Yb | 70 | 10834 | 19 | 3929 | 14 | * | | 11872 | 17 | 5572 | 12 | 12849 | 12 |
| | Lu | 71 | 9230 | 60 | 490 | 60 | * | | 16940 | 60 | 8370# | 200# | 15920 | 60 |
| | Hf | 72 | 11720# | 330# | 2560 | 150 | * | | 12610# | 250# | 5420 | 9 | 15040# | 250# |
| | Ta | 73 | 10000# | 420# | -1020 | 4 | * | | 17520# | 420# | 6300# | 420# | 18160# | 330# |
| 157 | Ce | 58 | 3180# | 500# | 14170# | 570# | 26750# | 400# | 8710# | 570# | 6460# | 500# | -1460# | 640# |
| | Pr | 59 | 5040# | 360# | 11010# | 420# | 20920# | 300# | 9950# | 420# | 8540# | 360# | -1360# | 420# |
| | Nd | 60 | 4060 | 200 | 12180# | 200# | 14362 | 25 | 9660 | 30 | 6510 | 120 | 1400# | 200# |
| | Pm | 61 | 6205 | 8 | 9110 | 200 | 8466 | 7 | 10697 | 12 | 8390 | 50 | 1450 | 110 |
| | Sm | 62 | 5388 | 10 | 9803 | 6 | 2747 | 7 | 10973 | 6 | 6700 | 50 | 4790 | 50 |
| | Eu | 63 | 7448 | 5 | 7387 | 9 | -2626 | 24 | 11443 | 4 | 7860 | 4 | 4700 | 50 |
| | Gd | 64 | 6359.88 | 0.15 | 8030 | 3 | -7410 | 27 | 11705.4 | 0.9 | 5778.7 | 0.8 | 7278.1 | 0.9 |
| | Tb | 65 | 8744 | 4 | 5517.5 | 0.3 | -12054 | 28 | 12017.3 | 0.3 | 7806.6 | 0.4 | 6621.1 | 0.8 |
| | Dy | 66 | 6967 | 5 | 6623 | 6 | -16003 | 12 | 12536 | 11 | 5600 | 50 | 9928 | 5 |
| | Ho | 67 | 9430 | 60 | 3593 | 23 | -20392 | 26 | 13034 | 25 | 8425 | 25 | 8970 | 50 |
| | Er | 68 | 7270 | 40 | 5220 | 70 | -24510# | 200# | 13340 | 30 | 6090 | 28 | 12627 | 28 |
| | Tm | 69 | 9950 | 30 | 1790 | 40 | -29120 | 150 | 14211 | 29 | 8760 | 28 | 11576 | 29 |
| | Yb | 70 | 8227 | 14 | 3876 | 18 | -33950# | 400# | 13915 | 15 | 5869 | 18 | 14830 | 12 |
| | Lu | 71 | 10810 | 60 | 464 | 12 | * | | 14773 | 21 | 8356 | 21 | 13633 | 19 |
| | Hf | 72 | 9160# | 250# | 2490# | 200# | * | | 14350# | 200# | 5676 | 14 | 16680# | 200# |
| | Ta | 73 | 11800# | 330# | -935 | 10 | * | | 15290# | 330# | 7940# | 340# | 15770# | 250# |
| | W | 74 | * | | 900# | 500# | * | | 15170# | 500# | * | | 18850# | 500# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q($2\beta^-$) | | Q(ϵ_p) | | Q(β^-n) | |
|-----|------|----|----------|------|----------|------|---------------|------|-----------------|------|-------------------|------|-----------------|------|
| 155 | La | 57 | 8010# | 500# | * | | -6130# | 640# | 17490# | 400# | * | | 6220# | 450# |
| | Ce | 58 | 9010# | 360# | 25890# | 500# | -5270# | 500# | 14500# | 300# | -22250# | 580# | 2250# | 320# |
| | Pr | 59 | 9989 | 21 | 23930# | 300# | -4530 | 440 | 11525 | 18 | -21180# | 300# | 2340 | 60 |
| | Nd | 60 | 11096 | 10 | 21950# | 200# | -3484 | 20 | 7907 | 9 | -17350# | 200# | -1840 | 50 |
| | Pm | 61 | 12435 | 10 | 19949 | 13 | -2585 | 13 | 4878 | 5 | -16120 | 110 | -2556 | 5 |
| | Sm | 62 | 13773.8 | 0.9 | 17438 | 3 | -1672.7 | 1.1 | 1879.1 | 0.9 | -11650 | 50 | -6524.0 | 1.1 |
| | Eu | 63 | 14593.5 | 0.5 | 15748 | 9 | -857 | 5 | -568 | 10 | -10600 | 50 | -6183.5 | 0.9 |
| | Gd | 64 | 15329.96 | 0.25 | 14088.1 | 0.4 | 81.5 | 0.7 | -2914 | 10 | -6903.7 | 0.9 | -9980 | 50 |
| | Tb | 65 | 16079 | 11 | 12461 | 10 | 978 | 10 | -5211 | 17 | -6801 | 10 | -8927 | 12 |
| | Dy | 66 | 16155 | 10 | 10851 | 10 | 2608 | 10 | -6946 | 11 | -2739 | 10 | -12588 | 13 |
| | Ho | 67 | 17170 | 18 | 9304 | 18 | 3159 | 18 | -9414 | 20 | -3170 | 50 | -11506 | 18 |
| | Er | 68 | 17883 | 11 | 7644 | 7 | 4118 | 5 | -11707 | 18 | 896 | 9 | -15853 | 16 |
| | Tm | 69 | 18795 | 16 | 6192 | 11 | 4572 | 5 | -14081 | 22 | 724 | 13 | -14765 | 20 |
| | Yb | 70 | 19440# | 200# | 4612 | 19 | 5338.8 | 2.1 | -16330# | 300# | 4813 | 17 | -18860# | 200# |
| | Lu | 71 | 20310 | 150 | 3150 | 23 | 5802.8 | 2.6 | -18620# | 300# | 4593 | 16 | -17950# | 300# |
| | Hf | 72 | 23010# | 420# | 1540# | 360# | 4950# | 420# | * | | 8470# | 300# | * | |
| | Ta | 73 | * | | 130# | 340# | 3760# | 420# | * | | 8500# | 360# | * | |
| 156 | La | 57 | 7660# | 500# | * | | -6550# | 640# | 18520# | 450# | * | | 6660# | 500# |
| | Ce | 58 | 8740# | 360# | 26580# | 580# | -5530# | 500# | 15650# | 360# | * | | 2520# | 300# |
| | Pr | 59 | 9610# | 230# | 24620# | 360# | -4700# | 360# | 12600# | 200# | -20930# | 450# | 2650# | 200# |
| | Nd | 60 | 10790 | 210 | 22830# | 280# | -3920# | 280# | 8890 | 200 | -19980# | 360# | -1610 | 200 |
| | Pm | 61 | 11790 | 50 | 20640 | 110 | -2830 | 19 | 5919 | 5 | -16037 | 18 | -2044 | 4 |
| | Sm | 62 | 13048 | 9 | 18110 | 50 | -1636 | 26 | 3174 | 8 | -14366 | 13 | -5614 | 8 |
| | Eu | 63 | 14487 | 3 | 16150 | 50 | -1253 | 26 | 8 | 5 | -10432 | 6 | -6084 | 3 |
| | Gd | 64 | 14971.59 | 0.19 | 14657.7 | 0.9 | -197.2 | 0.3 | -2005.95 | 0.10 | -9633.1 | 0.9 | -9356 | 10 |
| | Tb | 65 | 16080 | 50 | 12931 | 4 | 373 | 4 | -4610 | 60 | -5562 | 4 | -9007 | 10 |
| | Dy | 66 | 16278 | 7 | 11400.95 | 0.22 | 1753.0 | 0.3 | -6317 | 25 | -5748.05 | 0.12 | -12561 | 17 |
| | Ho | 67 | 16980 | 60 | 9900 | 80 | 2810 | 70 | -8640 | 60 | -1520 | 60 | -11340 | 60 |
| | Er | 68 | 17749 | 25 | 8396 | 26 | 3481 | 25 | -10946 | 26 | -2345 | 26 | -15657 | 27 |
| | Tm | 69 | 18550 | 20 | 6773 | 16 | 4345 | 7 | -13140 | 60 | 1916 | 23 | -14403 | 22 |
| | Yb | 70 | 19476 | 20 | 5239 | 11 | 4810 | 4 | -15450 | 150 | 1654 | 11 | -18792 | 21 |
| | Lu | 71 | 20130# | 200# | 3850 | 60 | 5596 | 3 | -17840# | 300# | 5640 | 60 | -17600# | 300# |
| | Hf | 72 | 21290# | 340# | 2460 | 150 | 6029 | 4 | * | | 5400 | 150 | -21960# | 340# |
| | Ta | 73 | * | | 720# | 360# | 5140# | 360# | * | | 9400# | 300# | * | |
| 157 | Ce | 58 | 8290# | 500# | * | | -5890# | 570# | 16530# | 400# | * | | 3570# | 450# |
| | Pr | 59 | 9270# | 300# | 25190# | 500# | -4910# | 420# | 13760# | 300# | -22780# | 500# | 3860# | 360# |
| | Nd | 60 | 10320 | 27 | 23260# | 300# | -3980# | 200# | 10216 | 25 | -18930# | 300# | -369 | 25 |
| | Pm | 61 | 11500 | 8 | 21460 | 19 | -3153 | 14 | 7162 | 8 | -18020# | 200# | -1008 | 11 |
| | Sm | 62 | 12629 | 5 | 18972 | 10 | -1772 | 5 | 4146 | 5 | -13490 | 200 | -4666 | 6 |
| | Eu | 63 | 13783 | 4 | 17097 | 6 | -1236 | 10 | 1305 | 4 | -12584 | 6 | -4995 | 4 |
| | Gd | 64 | 14896.23 | 0.16 | 15210.6 | 0.9 | -688.7 | 0.4 | -1399 | 5 | -8752 | 8 | -8804 | 4 |
| | Tb | 65 | 15656 | 10 | 13523.3 | 0.9 | 178.9 | 0.8 | -3931 | 23 | -7970 | 3 | -8305.8 | 0.3 |
| | Dy | 66 | 16412 | 11 | 11933 | 5 | 1033 | 5 | -6011 | 27 | -4179 | 5 | -12020 | 60 |
| | Ho | 67 | 16936 | 29 | 10161 | 25 | 2056 | 24 | -8120 | 40 | -4031 | 24 | -10690 | 30 |
| | Er | 68 | 17347 | 27 | 8836 | 28 | 3304 | 27 | -9992 | 29 | -174 | 27 | -14650 | 30 |
| | Tm | 69 | 18226 | 30 | 7250 | 30 | 3878 | 28 | -12270 | 30 | -520 | 70 | -13515 | 29 |
| | Yb | 70 | 19062 | 20 | 5791 | 12 | 4622 | 6 | -14520# | 200# | 3501 | 27 | -17790 | 60 |
| | Lu | 71 | 20038 | 23 | 4393 | 16 | 5107.9 | 2.9 | -16850 | 150 | 3105 | 17 | -16690 | 150 |
| | Hf | 72 | 20880# | 360# | 2980# | 200# | 5880 | 3 | -19430# | 450# | 7070# | 200# | -21110# | 360# |
| | Ta | 73 | 21810# | 340# | 1630 | 150 | 6355 | 6 | * | | 6820 | 140 | * | |
| | W | 74 | * | | -120# | 500# | 5410# | 500# | * | | 11060# | 430# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|----|---------|------|--------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 158 | Ce | 58 | 4800# | 570# | * | | 28590# | 400# | 7100# | 570# | 6140# | 570# | * | |
| | Pr | 59 | 3860# | 420# | 11690# | 500# | 22930# | 300# | 11200# | 420# | 8310# | 420# | -750# | 500# |
| | Nd | 60 | 5660# | 200# | 12800# | 360# | 16640# | 200# | 8220# | 280# | 6230# | 200# | -630# | 360# |
| | Pm | 61 | 4863 | 15 | 9917 | 28 | 10381 | 14 | 12100 | 200 | 8059 | 16 | 1972 | 22 |
| | Sm | 62 | 6644 | 7 | 10242 | 9 | 5157 | 5 | 9624 | 6 | 6554 | 7 | 2680 | 10 |
| | Eu | 63 | 5868 | 11 | 7867 | 11 | -1068 | 29 | 12816 | 13 | 7800 | 10 | 5331 | 11 |
| | Gd | 64 | 7937.39 | 0.06 | 8520 | 4 | -5386 | 25 | 10104 | 3 | 5992.6 | 0.9 | 5147.7 | 0.9 |
| | Tb | 65 | 6778.6 | 1.0 | 5936.2 | 1.0 | -10767 | 25 | 13775.1 | 1.0 | 7463.3 | 1.0 | 7993.8 | 1.3 |
| | Dy | 66 | 9054 | 5 | 6932.9 | 2.4 | -14397 | 8 | 10394 | 4 | 5707 | 10 | 7308.9 | 2.4 |
| | Ho | 67 | 7430 | 40 | 4052 | 27 | -18980 | 30 | 15052 | 27 | 7832 | 29 | 10709 | 29 |
| | Er | 68 | 9960 | 40 | 5760 | 30 | -23200 | 30 | 10890 | 70 | 5600 | 30 | 9498 | 27 |
| | Tm | 69 | 8070 | 40 | 2580 | 40 | -27540# | 200# | 16220 | 40 | 8370 | 26 | 12980 | 30 |
| | Yb | 70 | 10660 | 13 | 4590 | 29 | -32380# | 300# | 11535 | 16 | 5480 | 12 | 11845 | 10 |
| | Lu | 71 | 8843 | 19 | 1079 | 19 | * | | 16764 | 18 | 8154 | 22 | 15060 | 18 |
| | Hf | 72 | 11270# | 200# | 2951 | 21 | * | | 12310 | 60 | 5307 | 8 | 14047 | 24 |
| | Ta | 73 | 9650# | 250# | -448 | 13 | * | | 17360# | 250# | 7870# | 360# | 17030# | 200# |
| | W | 74 | 12230# | 500# | 1330# | 340# | * | | 12940# | 420# | 5160 | 15 | 16180# | 420# |
| 159 | Pr | 59 | 4830# | 500# | 11720# | 570# | 24960# | 400# | 9550# | 570# | 8600# | 500# | -2390# | 570# |
| | Nd | 60 | 3820# | 360# | 12770# | 420# | 18750# | 300# | 9440# | 420# | 6630# | 360# | 660# | 420# |
| | Pm | 61 | 5536 | 17 | 9790# | 200# | 12978 | 10 | 10618 | 27 | 8780 | 200 | 660# | 200# |
| | Sm | 62 | 5029 | 8 | 10408 | 15 | 6959 | 6 | 10800 | 9 | 6820 | 7 | 3910 | 200 |
| | Eu | 63 | 6859 | 11 | 8082 | 7 | 1286 | 5 | 11345 | 6 | 8181 | 10 | 3767 | 6 |
| | Gd | 64 | 5943.21 | 0.08 | 8595 | 10 | -4000 | 4 | 11608 | 4 | 6385 | 3 | 6445 | 8 |
| | Tb | 65 | 8133.0 | 0.6 | 6131.8 | 0.8 | -8962 | 28 | 12001.9 | 0.8 | 7866.6 | 0.8 | 6197 | 3 |
| | Dy | 66 | 6831.1 | 2.6 | 6985.4 | 1.3 | -13329 | 18 | 12307.1 | 1.3 | 5788 | 4 | 9014.2 | 1.3 |
| | Ho | 67 | 9213 | 27 | 4211 | 4 | -17620 | 40 | 12806 | 6 | 8063.5 | 3.0 | 8408 | 5 |
| | Er | 68 | 7329 | 25 | 5662 | 27 | -21708 | 17 | 12983 | 24 | 5780 | 60 | 11614 | 4 |
| | Tm | 69 | 9940 | 40 | 2560 | 40 | -26130 | 30 | 13550 | 40 | 8510 | 40 | 10550 | 70 |
| | Yb | 70 | 7900 | 19 | 4420 | 30 | -30540# | 300# | 13580 | 30 | 5860 | 23 | 14020 | 30 |
| | Lu | 71 | 10570 | 40 | 990 | 40 | -34960# | 310# | 14420 | 40 | 8420 | 40 | 12770 | 40 |
| | Hf | 72 | 8822 | 24 | 2929 | 23 | * | | 14299 | 21 | 5710 | 60 | 16060 | 19 |
| | Ta | 73 | 11340# | 200# | -374 | 9 | * | | 15180# | 200# | 8240 | 150 | 14910 | 60 |
| | W | 74 | 9730# | 420# | 1420# | 360# | * | | 15010# | 330# | 5431 | 6 | 18170# | 330# |
| | Re | 75 | * | | -1600# | 50# | * | | 15440# | 500# | * | | 16760# | 430# |
| 160 | Pr | 59 | 3500# | 570# | * | | 26960# | 400# | 10850# | 570# | 8270# | 570# | * | |
| | Nd | 60 | 5400# | 420# | 13330# | 500# | 20810# | 300# | 7910# | 420# | 6270# | 420# | -1560# | 500# |
| | Pm | 61 | 4520# | 200# | 10480# | 360# | 14830# | 200# | 11760# | 280# | 8320# | 200# | 1190# | 360# |
| | Sm | 62 | 6098 | 8 | 10969 | 12 | 9438 | 6 | 9565 | 15 | 6926 | 9 | 1873 | 26 |
| | Eu | 63 | 5508 | 10 | 8562 | 11 | 2902 | 18 | 12481 | 11 | 8061 | 10 | 4463 | 12 |
| | Gd | 64 | 7451.6 | 0.7 | 9187 | 4 | -1878 | 24 | 10024 | 10 | 6381 | 4 | 4382 | 5 |
| | Tb | 65 | 6375.21 | 0.13 | 6563.8 | 0.8 | -7530 | 30 | 13564.1 | 0.8 | 7851.3 | 0.8 | 7269 | 4 |
| | Dy | 66 | 8576.9 | 1.4 | 7429.3 | 1.2 | -11510 | 7 | 10508.7 | 1.3 | 5954.8 | 1.2 | 6797.1 | 1.1 |
| | Ho | 67 | 7125 | 15 | 4505 | 15 | -16110 | 60 | 14735 | 15 | 7906 | 16 | 10027 | 15 |
| | Er | 68 | 9575 | 25 | 6024 | 24 | -20125 | 26 | 10830 | 40 | 5630 | 30 | 9007 | 25 |
| | Tm | 69 | 7800 | 40 | 3030 | 30 | -24480 | 60 | 15710 | 40 | 7980 | 40 | 12180 | 40 |
| | Yb | 70 | 10395 | 19 | 4881 | 29 | -28840 | 150 | 11251 | 26 | 5411 | 29 | 10897 | 27 |
| | Lu | 71 | 8630 | 70 | 1720 | 60 | -33530# | 300# | 16450 | 60 | 8020 | 60 | 14090 | 60 |
| | Hf | 72 | 11158 | 19 | 3520 | 40 | * | | 11984 | 18 | 5366 | 12 | 13129 | 14 |
| | Ta | 73 | 9460 | 60 | 260 | 60 | * | | 16990 | 60 | 7940# | 200# | 16260 | 60 |
| | W | 74 | 12100# | 330# | 2180 | 150 | * | | 12550# | 250# | 5131 | 9 | 15220# | 250# |
| | Re | 75 | 10070# | 430# | -1267 | 7 | * | | 17610# | 420# | 7600# | 500# | 18500# | 330# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q(2 β^-) | | Q(ϵ_p) | | Q(β^-n) | |
|-----|------|----|----------|------|---------|------|---------------|------|-----------------|------|-------------------|------|-----------------|------|
| 158 | Ce | 58 | 7980# | 500# | * | | -6270# | 640# | 17400# | 450# | * | | 3810# | 500# |
| | Pr | 59 | 8910# | 360# | 25860# | 500# | -5230# | 420# | 14760# | 300# | * | | 4060# | 300# |
| | Nd | 60 | 9720# | 280# | 23810# | 360# | -4260# | 280# | 11200# | 200# | -21410# | 450# | 170# | 200# |
| | Pm | 61 | 11068 | 14 | 22100# | 200# | -3410 | 110 | 8166 | 17 | -17840# | 300# | -483 | 14 |
| | Sm | 62 | 12032 | 10 | 19350 | 200 | -1850 | 50 | 5439 | 5 | -16078 | 25 | -3863 | 6 |
| | Eu | 63 | 13315 | 11 | 17669 | 11 | -1170 | 50 | 2215 | 10 | -12247 | 12 | -4503 | 10 |
| | Gd | 64 | 14297.27 | 0.16 | 15907 | 8 | -659.3 | 0.9 | -282.2 | 2.4 | -11301 | 5 | -7997.4 | 0.3 |
| | Tb | 65 | 15523 | 4 | 13966 | 4 | -157.5 | 1.2 | -3283 | 27 | -7301 | 4 | -8117 | 5 |
| | Dy | 66 | 16021.0 | 2.4 | 12450.4 | 2.4 | 873.7 | 2.4 | -5104 | 25 | -6872.8 | 2.4 | -11646 | 24 |
| | Ho | 67 | 16850 | 70 | 10675 | 27 | 1540 | 50 | -7480 | 40 | -2713 | 27 | -10850 | 40 |
| | Er | 68 | 17230 | 40 | 9353 | 25 | 2665 | 26 | -9294 | 26 | -3168 | 26 | -14670 | 40 |
| | Tm | 69 | 18011 | 29 | 7800 | 70 | 3511 | 27 | -11491 | 29 | 840 | 30 | -13353 | 27 |
| | Yb | 70 | 18887 | 12 | 6376 | 26 | 4170 | 7 | -13908 | 19 | 114 | 28 | -17641 | 14 |
| | Lu | 71 | 19660 | 60 | 4956 | 21 | 4790 | 5 | -16050# | 200# | 4210 | 30 | -16380# | 200# |
| | Hf | 72 | 20430 | 150 | 3415 | 20 | 5404.8 | 2.7 | -18470# | 300# | 4031 | 21 | -20580 | 150 |
| | Ta | 73 | 21450# | 360# | 2050# | 200# | 6124 | 4 | * | | 7990# | 200# | -19770# | 450# |
| | W | 74 | * | | 390# | 340# | 6613 | 3 | * | | 7980# | 360# | * | |
| 159 | Pr | 59 | 8690# | 500# | * | | -5580# | 570# | 15470# | 400# | * | | 4900# | 450# |
| | Nd | 60 | 9490# | 300# | 24460# | 500# | -4450# | 420# | 12400# | 300# | -20440# | 500# | 1210# | 300# |
| | Pm | 61 | 10400 | 12 | 22590# | 300# | -3564 | 20 | 9489 | 11 | -19510# | 300# | 625 | 11 |
| | Sm | 62 | 11673 | 7 | 20324 | 26 | -2349 | 11 | 6354 | 6 | -15440# | 200# | -3024 | 12 |
| | Eu | 63 | 12727 | 4 | 18324 | 8 | -1528 | 6 | 3489 | 4 | -14243 | 14 | -3425 | 4 |
| | Gd | 64 | 13880.60 | 0.11 | 16462 | 5 | -795.5 | 0.9 | 605.7 | 1.3 | -10600 | 5 | -7162.1 | 1.0 |
| | Tb | 65 | 14911.6 | 0.8 | 14651 | 4 | -139.2 | 1.1 | -2202.8 | 2.9 | -9566 | 10 | -7196.3 | 2.4 |
| | Dy | 66 | 15885 | 5 | 12921.6 | 1.3 | 477.8 | 1.3 | -4606 | 3 | -5766.6 | 1.3 | -11051 | 27 |
| | Ho | 67 | 16639 | 24 | 11144 | 3 | 1496 | 10 | -6759 | 28 | -5147.8 | 3.0 | -10097 | 25 |
| | Er | 68 | 17290 | 27 | 9714 | 6 | 2170 | 10 | -8722 | 18 | -1443 | 4 | -13929 | 25 |
| | Tm | 69 | 18000 | 40 | 8320 | 40 | 3040 | 30 | -10860 | 50 | -1670 | 40 | -12631 | 29 |
| | Yb | 70 | 18559 | 21 | 7000 | 30 | 3946 | 19 | -12986 | 24 | 2180 | 30 | -16698 | 23 |
| | Lu | 71 | 19410 | 40 | 5580 | 50 | 4490 | 40 | -15270 | 40 | 1710 | 50 | -15680 | 40 |
| | Hf | 72 | 20090# | 200# | 4009 | 20 | 5225.1 | 2.7 | -17560# | 300# | 5869 | 19 | -19760# | 200# |
| | Ta | 73 | 20990 | 150 | 2577 | 23 | 5681 | 6 | -19690# | 310# | 5484 | 17 | -18880# | 300# |
| | W | 74 | 21970# | 500# | 970# | 360# | 6450 | 4 | * | | 9520# | 300# | * | |
| | Re | 75 | * | | -270# | 340# | 6760# | 60# | * | | 9130# | 360# | * | |
| 160 | Pr | 59 | 8330# | 500# | * | | -5900# | 570# | 16480# | 450# | * | | 5220# | 500# |
| | Nd | 60 | 9220# | 360# | 25050# | 500# | -4740# | 420# | 13100# | 300# | * | | 1350# | 300# |
| | Pm | 61 | 10060# | 200# | 23250# | 360# | -3860# | 280# | 10480# | 200# | -19200# | 450# | 1130# | 200# |
| | Sm | 62 | 11127 | 8 | 20760# | 200# | -2190 | 200 | 7707 | 6 | -17720# | 300# | -2263 | 7 |
| | Eu | 63 | 12368 | 14 | 18969 | 16 | -1742 | 10 | 4356 | 10 | -14215 | 14 | -2990 | 10 |
| | Gd | 64 | 13394.8 | 0.7 | 17269 | 5 | -1006 | 9 | 1731.0 | 1.2 | -13023 | 6 | -6480.7 | 1.0 |
| | Tb | 65 | 14508.2 | 0.7 | 15159 | 10 | -179 | 3 | -1454 | 15 | -9082 | 4 | -6740.4 | 1.2 |
| | Dy | 66 | 15408.0 | 2.3 | 13561.1 | 1.1 | 437.3 | 1.1 | -3609 | 24 | -8400.3 | 1.1 | -10415 | 3 |
| | Ho | 67 | 16340 | 30 | 11490 | 15 | 1283 | 15 | -6080 | 40 | -4139 | 15 | -9893 | 15 |
| | Er | 68 | 16900 | 30 | 10235 | 24 | 2040 | 24 | -7902 | 25 | -4186 | 24 | -13570 | 40 |
| | Tm | 69 | 17740 | 40 | 8690 | 40 | 2750 | 70 | -10030 | 70 | -260 | 30 | -12530 | 40 |
| | Yb | 70 | 18295 | 11 | 7437 | 26 | 3624 | 26 | -12224 | 12 | -891 | 8 | -16530 | 40 |
| | Lu | 71 | 19200 | 60 | 6140 | 60 | 4140 | 60 | -14450 | 80 | 3010 | 60 | -15490 | 60 |
| | Hf | 72 | 19979 | 20 | 4507 | 12 | 4901.9 | 2.6 | -16610 | 150 | 2611 | 20 | -19571 | 22 |
| | Ta | 73 | 20800# | 200# | 3190 | 60 | 5451 | 5 | -19090# | 300# | 6600 | 70 | -18600# | 300# |
| | W | 74 | 21840# | 340# | 1800 | 150 | 6066 | 5 | * | | 6240 | 150 | -22650# | 340# |
| | Re | 75 | * | | 150# | 360# | 6698 | 4 | * | | 10410# | 300# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|----|---------|------|---------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 161 | Nd | 60 | 3530# | 500# | 13360# | 570# | 22920# | 400# | 9210# | 570# | 6610# | 500# | -280# | 570# |
| | Pm | 61 | 5310# | 360# | 10390# | 420# | 17230# | 300# | 10280# | 420# | 8680# | 360# | -260# | 420# |
| | Sm | 62 | 4508 | 9 | 10960# | 200# | 11384 | 7 | 10593 | 12 | 7281 | 15 | 3030# | 200# |
| | Eu | 63 | 6382 | 14 | 8846 | 12 | 5406 | 11 | 11127 | 12 | 8323 | 11 | 2944 | 17 |
| | Gd | 64 | 5635.4 | 1.0 | 9314 | 10 | -304 | 9 | 11248 | 4 | 6613 | 10 | 5391 | 5 |
| | Tb | 65 | 7696.6 | 0.6 | 6808.8 | 1.0 | -5563 | 28 | 11810.7 | 1.0 | 8092.0 | 1.0 | 5440 | 10 |
| | Dy | 66 | 6454.39 | 0.08 | 7508.5 | 1.2 | -10216 | 15 | 12187.4 | 1.2 | 6278.9 | 1.3 | 8280.1 | 1.1 |
| | Ho | 67 | 8886 | 15 | 4813.5 | 2.2 | -14635 | 28 | 12680.7 | 2.6 | 8074 | 3 | 7919.8 | 2.5 |
| | Er | 68 | 7209 | 26 | 6108 | 17 | -18887 | 24 | 12839 | 9 | 5850 | 28 | 10852 | 9 |
| | Tm | 69 | 9670 | 40 | 3120 | 40 | -23120 | 40 | 13373 | 28 | 8270 | 40 | 9940 | 40 |
| | Yb | 70 | 7748 | 17 | 4830 | 40 | -27280# | 200# | 13440 | 30 | 5728 | 30 | 13111 | 30 |
| | Lu | 71 | 10360 | 60 | 1689 | 29 | -31720 | 150 | 13990 | 30 | 8312 | 29 | 11790 | 40 |
| | Hf | 72 | 8447 | 24 | 3330 | 60 | -36340# | 400# | 14100 | 40 | 5762 | 27 | 15342 | 24 |
| | Ta | 73 | 11030 | 60 | 129 | 23 | * | | 14784 | 30 | 8190 | 30 | 14080 | 29 |
| | W | 74 | 9300# | 250# | 2020# | 200# | * | | 14600# | 200# | 5475 | 12 | 17190# | 200# |
| | Re | 75 | 12170# | 330# | -1197 | 5 | * | | 15170# | 330# | 7660# | 340# | 15970# | 250# |
| | Os | 76 | * | | 530# | 500# | * | | 15480# | 500# | * | | 19300# | 500# |
| 162 | Nd | 60 | 5030# | 570# | * | | 24730# | 400# | 7680# | 570# | 6400# | 570# | * | |
| | Pm | 61 | 4210# | 420# | 11070# | 500# | 19310# | 300# | 11480# | 420# | 8300# | 420# | 370# | 500# |
| | Sm | 62 | 5930# | 200# | 11580# | 360# | 13650# | 200# | 9180# | 280# | 6890# | 200# | 920# | 360# |
| | Eu | 63 | 4980 | 40 | 9320 | 40 | 7340 | 40 | 12240 | 40 | 8370 | 40 | 3500 | 40 |
| | Gd | 64 | 6846 | 4 | 9778 | 11 | 2054 | 4 | 9911 | 10 | 6627 | 6 | 3574 | 7 |
| | Tb | 65 | 6290 | 40 | 7460 | 40 | -4200 | 40 | 12980 | 40 | 7750 | 40 | 6010 | 40 |
| | Dy | 66 | 8196.99 | 0.06 | 8008.9 | 1.3 | -8355 | 15 | 10365.6 | 1.2 | 6214.9 | 1.2 | 6026.4 | 1.1 |
| | Ho | 67 | 6916 | 4 | 5275 | 3 | -13210 | 80 | 14342 | 3 | 7990 | 3 | 9137 | 3 |
| | Er | 68 | 9204 | 9 | 6426.2 | 2.2 | -17166 | 9 | 10759 | 15 | 5859 | 3 | 8479.0 | 1.5 |
| | Tm | 69 | 7650 | 40 | 3565 | 27 | -21700 | 60 | 15300 | 40 | 7947 | 26 | 11498 | 26 |
| | Yb | 70 | 10058 | 21 | 5220 | 30 | -25827 | 23 | 11190 | 40 | 5610 | 30 | 10381 | 16 |
| | Lu | 71 | 8340 | 80 | 2280 | 80 | -30330# | 210# | 16040 | 80 | 7870 | 80 | 13390 | 80 |
| | Hf | 72 | 10926 | 24 | 3896 | 29 | -34730# | 300# | 11810 | 60 | 5400 | 40 | 12316 | 20 |
| | Ta | 73 | 9070 | 60 | 750 | 60 | * | | 16870 | 50 | 7940 | 50 | 15570 | 60 |
| | W | 74 | 11520# | 200# | 2510 | 30 | * | | 12540 | 60 | 5304 | 9 | 14500 | 24 |
| | Re | 75 | 9730# | 250# | -765 | 11 | * | | 17540# | 250# | 7660# | 360# | 17580# | 200# |
| | Os | 76 | 12530# | 500# | 890# | 340# | * | | 13010# | 420# | 5170# | 50# | 16500# | 420# |
| 163 | Pm | 61 | 4950# | 500# | 10990# | 570# | 21350# | 400# | 10050# | 570# | 8750# | 500# | -1080# | 570# |
| | Sm | 62 | 4260# | 360# | 11640# | 420# | 15660# | 300# | 10230# | 420# | 7150# | 360# | 2060# | 420# |
| | Eu | 63 | 5850 | 70 | 9240# | 210# | 9890 | 70 | 10900 | 70 | 8610 | 70 | 2160# | 210# |
| | Gd | 64 | 5105 | 9 | 9900 | 40 | 3854 | 10 | 11188 | 13 | 7031 | 13 | 4567 | 10 |
| | Tb | 65 | 6990 | 40 | 7605 | 6 | -1867 | 7 | 11621 | 4 | 8210 | 4 | 4531 | 10 |
| | Dy | 66 | 6271.01 | 0.05 | 7990 | 40 | -7082 | 15 | 11791.2 | 1.3 | 6319.1 | 1.2 | 7207.0 | 1.2 |
| | Ho | 67 | 8408 | 3 | 5485.83 | 0.05 | -11587 | 28 | 12388.27 | 0.08 | 8158.45 | 0.11 | 7104.3 | 1.2 |
| | Er | 68 | 6905 | 5 | 6415 | 6 | -15904 | 25 | 12740 | 5 | 6079 | 16 | 10151 | 5 |
| | Tm | 69 | 9322 | 27 | 3683 | 5 | -20190 | 40 | 13184 | 10 | 8200 | 25 | 9300 | 16 |
| | Yb | 70 | 7544 | 21 | 5110 | 30 | -24390 | 50 | 13310 | 30 | 5870 | 40 | 12412 | 29 |
| | Lu | 71 | 10030 | 80 | 2250 | 30 | -28790 | 30 | 13760 | 30 | 8235 | 29 | 11160 | 40 |
| | Hf | 72 | 8166 | 26 | 3720 | 80 | -33070# | 300# | 14010 | 40 | 5870 | 60 | 14545 | 26 |
| | Ta | 73 | 10830 | 60 | 650 | 40 | * | | 14490 | 40 | 8270 | 40 | 13380 | 70 |
| | W | 74 | 8980 | 60 | 2420 | 70 | * | | 14580 | 60 | 5780 | 80 | 16680 | 50 |
| | Re | 75 | 11570# | 200# | -708 | 6 | * | | 15260# | 200# | 8190 | 150 | 15470 | 60 |
| | Os | 76 | 9820# | 420# | 980# | 360# | * | | 15360# | 330# | 5410 | 11 | 18780# | 330# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q($2\beta^-$) | | Q(ϵp) | | Q($\beta^- n$) | |
|-----|------|----|----------|------|---------|------|---------------|------|-----------------|------|-------------------|------|------------------|------|
| 161 | Nd | 60 | 8920# | 500# | * | | -5080# | 570# | 14080# | 400# | * | | 2340# | 450# |
| | Pm | 61 | 9820# | 300# | 23730# | 500# | -4120# | 420# | 11560# | 300# | -21000# | 500# | 1930# | 300# |
| | Sm | 62 | 10607 | 9 | 21440# | 300# | -2635 | 26 | 8834 | 7 | -16830# | 300# | -1263 | 12 |
| | Eu | 63 | 11891 | 11 | 19815 | 14 | -1919 | 13 | 5670 | 10 | -16080# | 200# | -1921 | 10 |
| | Gd | 64 | 13087.0 | 1.2 | 17876 | 6 | -1253 | 5 | 2550.0 | 1.6 | -12560 | 6 | -5740.9 | 1.4 |
| | Tb | 65 | 14071.9 | 0.6 | 15996 | 4 | -428 | 4 | -264.3 | 2.5 | -11270 | 10 | -5860.2 | 1.3 |
| | Dy | 66 | 15031.3 | 1.4 | 14072.3 | 1.1 | 342.8 | 1.1 | -2854 | 9 | -7403.0 | 1.2 | -9744 | 15 |
| | Ho | 67 | 16010 | 4 | 12242.8 | 2.4 | 1141.2 | 2.4 | -5299 | 28 | -6650.0 | 2.4 | -9204 | 24 |
| | Er | 68 | 16783 | 9 | 10612 | 9 | 1798 | 10 | -7362 | 18 | -2818 | 9 | -12970 | 40 |
| | Tm | 69 | 17470 | 40 | 9147 | 28 | 2510 | 40 | -9340 | 40 | -2800 | 30 | -11807 | 29 |
| | Yb | 70 | 18143 | 23 | 7856 | 16 | 3150 | 30 | -11525 | 27 | 936 | 29 | -15640 | 60 |
| | Lu | 71 | 19000 | 50 | 6570 | 40 | 3720 | 40 | -13780 | 40 | 450 | 40 | -14695 | 30 |
| | Hf | 72 | 19605 | 28 | 5054 | 29 | 4682 | 24 | -15760# | 200# | 4559 | 24 | -18560 | 60 |
| | Ta | 73 | 20480 | 30 | 3650 | 40 | 5237 | 24 | -17940 | 150 | 4200 | 60 | -17520 | 150 |
| | W | 74 | 21400# | 360# | 2280# | 200# | 5923 | 4 | -20580# | 450# | 8100# | 200# | -21890# | 360# |
| | Re | 75 | 22240# | 340# | 980 | 150 | 6328 | 7 | * | | 7690 | 140 | * | |
| | Os | 76 | * | | -740# | 500# | 7066 | 12 | * | | 12060# | 430# | * | |
| 162 | Nd | 60 | 8560# | 500# | * | | -5320# | 570# | 14980# | 450# | * | | 2610# | 500# |
| | Pm | 61 | 9510# | 360# | 24430# | 500# | -4470# | 420# | 12330# | 300# | * | | 2230# | 300# |
| | Sm | 62 | 10440# | 200# | 21970# | 360# | -2900# | 280# | 9750# | 200# | -19230# | 450# | -810# | 200# |
| | Eu | 63 | 11370 | 40 | 20280# | 200# | -2040 | 40 | 6970 | 50 | -15760# | 300# | -1270 | 40 |
| | Gd | 64 | 12481 | 4 | 18624 | 7 | -1455 | 6 | 3901 | 4 | -14897 | 8 | -4890 | 4 |
| | Tb | 65 | 13980 | 40 | 16770 | 40 | -850 | 40 | 370 | 40 | -11170 | 40 | -5690 | 40 |
| | Dy | 66 | 14651.38 | 0.10 | 14817.7 | 1.2 | 83.2 | 1.1 | -1846.96 | 0.30 | -9964.6 | 1.6 | -9055.5 | 2.2 |
| | Ho | 67 | 15801 | 15 | 12783 | 3 | 1004 | 3 | -4564 | 26 | -5869 | 3 | -8911 | 9 |
| | Er | 68 | 16413 | 24 | 11239.7 | 0.3 | 1647.9 | 2.3 | -6508 | 15 | -5567.7 | 0.3 | -12507 | 28 |
| | Tm | 69 | 17320 | 40 | 9670 | 30 | 2280 | 40 | -8650 | 80 | -1569 | 26 | -11710 | 30 |
| | Yb | 70 | 17806 | 17 | 8340 | 29 | 3053 | 30 | -10657 | 18 | -1914 | 18 | -15340 | 30 |
| | Lu | 71 | 18700 | 90 | 7110 | 80 | 3450 | 80 | -13050 | 90 | 1780 | 80 | -14590 | 80 |
| | Hf | 72 | 19373 | 13 | 5584 | 11 | 4416 | 5 | -15170 | 20 | 1381 | 18 | -18461 | 26 |
| | Ta | 73 | 20100 | 80 | 4090 | 80 | 5010 | 50 | -17280# | 200# | 5490 | 60 | -17300# | 200# |
| | W | 74 | 20820 | 150 | 2638 | 20 | 5678.3 | 2.4 | -19560# | 300# | 5026 | 29 | -21230 | 150 |
| | Re | 75 | 21910# | 360# | 1260# | 200# | 6240 | 5 | * | | 8990# | 200# | -20590# | 450# |
| | Os | 76 | * | | -310# | 340# | 6767 | 3 | * | | 8830# | 360# | * | |
| 163 | Pm | 61 | 9160# | 500# | * | | -4590# | 570# | 13240# | 410# | * | | 3210# | 450# |
| | Sm | 62 | 10190# | 300# | 22710# | 500# | -3340# | 420# | 10590# | 300# | -18460# | 500# | -90# | 300# |
| | Eu | 63 | 10840 | 70 | 20830# | 310# | -2360 | 70 | 8110 | 70 | -17400# | 310# | -280 | 70 |
| | Gd | 64 | 11951 | 9 | 19220 | 11 | -1531 | 10 | 5067 | 8 | -14070# | 200# | -3710 | 40 |
| | Tb | 65 | 13277 | 4 | 17382 | 11 | -978 | 6 | 1782 | 4 | -13180 | 40 | -4486 | 4 |
| | Dy | 66 | 14468.00 | 0.08 | 15453.3 | 1.6 | -244.6 | 1.1 | -1213 | 5 | -9390 | 4 | -8411 | 3 |
| | Ho | 67 | 15323.7 | 2.2 | 13494.7 | 1.3 | 729.1 | 1.2 | -3650 | 5 | -7990 | 40 | -8115.1 | 0.3 |
| | Er | 68 | 16109 | 10 | 11690 | 5 | 1574 | 5 | -5869 | 16 | -4275 | 5 | -11761 | 26 |
| | Tm | 69 | 16973 | 28 | 10109 | 6 | 2176 | 6 | -7937 | 28 | -3976 | 6 | -10974 | 16 |
| | Yb | 70 | 17602 | 21 | 8675 | 18 | 2837 | 16 | -10035 | 29 | -254 | 15 | -14540 | 80 |
| | Lu | 71 | 18370 | 40 | 7470 | 40 | 3350 | 40 | -12260 | 50 | -600 | 40 | -13694 | 29 |
| | Hf | 72 | 19090 | 30 | 6002 | 29 | 4150 | 30 | -14360 | 60 | 3274 | 29 | -17550 | 60 |
| | Ta | 73 | 19900 | 50 | 4550 | 50 | 4749 | 5 | -16530 | 40 | 3010 | 80 | -16610 | 40 |
| | W | 74 | 20500# | 200# | 3170 | 60 | 5520 | 50 | -18720# | 300# | 6970 | 50 | -20480# | 200# |
| | Re | 75 | 21300 | 150 | 1800 | 30 | 6012 | 8 | * | | 6490 | 50 | -19630# | 300# |
| | Os | 76 | 22360# | 500# | 220# | 360# | 6677 | 8 | * | | 10520# | 300# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|----|---------|------|---------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 164 | Pm | 61 | 3690# | 570# | * | | 23210# | 410# | 11390# | 570# | 8580# | 570# | * | |
| | Sm | 62 | 5450# | 420# | 12140# | 500# | 17870# | 300# | 8980# | 420# | 7000# | 420# | 130# | 500# |
| | Eu | 63 | 4970# | 130# | 9950# | 320# | 11600# | 110# | 11860# | 230# | 8160# | 110# | 2500# | 320# |
| | Gd | 64 | 6530# | 100# | 10580# | 120# | 6170# | 100# | 9640# | 110# | 6880# | 100# | 2540# | 100# |
| | Tb | 65 | 5550 | 100 | 8050 | 100 | -170 | 100 | 12910 | 100 | 8290 | 100 | 5360 | 100 |
| | Dy | 66 | 7658.11 | 0.07 | 8661 | 4 | -4951 | 15 | 10420 | 40 | 6357.7 | 1.3 | 5184.3 | 1.6 |
| | Ho | 67 | 6674.5 | 1.4 | 5889.3 | 1.4 | -10339 | 28 | 13910.8 | 1.4 | 7938.4 | 1.4 | 8126.5 | 1.8 |
| | Er | 68 | 8846 | 5 | 6853.52 | 0.13 | -14124 | 16 | 10809 | 3 | 6118.4 | 2.2 | 7759.31 | 0.15 |
| | Tm | 69 | 7247 | 25 | 4025 | 25 | -18620 | 40 | 15141 | 24 | 8162 | 26 | 10940 | 24 |
| | Yb | 70 | 9790 | 21 | 5578 | 16 | -22782 | 18 | 11170 | 30 | 5750 | 30 | 9831 | 18 |
| | Lu | 71 | 7920 | 40 | 2630 | 30 | -27170 | 60 | 15890 | 30 | 8060 | 30 | 12900 | 40 |
| | Hf | 72 | 10626 | 29 | 4320 | 30 | -31400 | 150 | 11720 | 80 | 5610 | 30 | 11667 | 22 |
| | Ta | 73 | 8820 | 50 | 1310 | 40 | -35940# | 320# | 16597 | 29 | 7900 | 40 | 14930 | 40 |
| | W | 74 | 11400 | 50 | 2990 | 40 | * | | 12260 | 50 | 5407 | 23 | 13725 | 24 |
| | Re | 75 | 9540 | 60 | -150 | 80 | * | | 17240 | 60 | 7950# | 200# | 16950 | 60 |
| | Os | 76 | 12300# | 330# | 1710 | 150 | * | | 12790# | 250# | 5282 | 6 | 15780# | 250# |
| | Ir | 77 | * | | -1560# | 100# | * | | 17810# | 440# | 7500# | 510# | 19140# | 350# |
| 165 | Sm | 62 | 3780# | 500# | 12230# | 570# | 19800# | 400# | 10150# | 570# | 7430# | 500# | 1390# | 570# |
| | Eu | 63 | 5410# | 180# | 9910# | 330# | 14180# | 140# | 10710# | 330# | 8670# | 240# | 1290# | 330# |
| | Gd | 64 | 4750# | 160# | 10360# | 170# | 8070# | 120# | 10740# | 140# | 7120# | 130# | 3720# | 230# |
| | Tb | 65 | 6560# | 140# | 8080# | 150# | 2360# | 100# | 11460# | 100# | 8580# | 100# | 3780# | 110# |
| | Dy | 66 | 5715.96 | 0.05 | 8820 | 100 | -3317 | 27 | 11694 | 4 | 6930 | 40 | 6314 | 4 |
| | Ho | 67 | 7988.8 | 1.1 | 6220.0 | 0.8 | -8457 | 27 | 12193.0 | 0.8 | 8146.5 | 0.8 | 6420 | 40 |
| | Er | 68 | 6650.0 | 0.6 | 6829.1 | 1.5 | -12886 | 28 | 12567.5 | 0.6 | 6384 | 3 | 9306.3 | 0.6 |
| | Tm | 69 | 9097 | 24 | 4275.7 | 1.6 | -17082 | 14 | 12949 | 5 | 8269.0 | 1.6 | 8758 | 4 |
| | Yb | 70 | 7350 | 30 | 5680 | 40 | -21430 | 40 | 13144 | 27 | 6050 | 40 | 11686 | 27 |
| | Lu | 71 | 9870 | 40 | 2710 | 30 | -25780 | 40 | 13570 | 30 | 8250 | 30 | 10680 | 40 |
| | Hf | 72 | 7890 | 30 | 4280 | 40 | -29840# | 200# | 13870 | 40 | 6060 | 80 | 13840 | 30 |
| | Ta | 73 | 10640 | 30 | 1318 | 20 | -34260# | 160# | 14127 | 28 | 8185 | 17 | 12630 | 80 |
| | W | 74 | 8697 | 27 | 2870 | 40 | * | | 14380 | 50 | 5780 | 60 | 15954 | 27 |
| | Re | 75 | 11260 | 60 | -287 | 23 | * | | 14960 | 60 | 8203 | 29 | 14770 | 60 |
| | Os | 76 | 9440# | 250# | 1610# | 200# | * | | 14920# | 200# | 5570 | 10 | 17850# | 200# |
| | Ir | 77 | 12320# | 350# | -1540# | 50# | * | | 15310# | 340# | 7710# | 340# | 16560# | 250# |
| 166 | Sm | 62 | 4990# | 570# | * | | 21860# | 400# | 8850# | 570# | 7380# | 570# | * | |
| | Eu | 63 | 4560# | 380# | 10690# | 540# | 15860# | 360# | 11610# | 470# | 8380# | 470# | 1690# | 540# |
| | Gd | 64 | 6150# | 230# | 11100# | 240# | 10400# | 200# | 9560# | 230# | 6820# | 210# | 1840# | 360# |
| | Tb | 65 | 5390# | 120# | 8720# | 140# | 4000 | 70 | 12600# | 120# | 8290 | 70 | 4250 | 100 |
| | Dy | 66 | 7043.5 | 0.4 | 9310# | 100# | -989 | 7 | 10200 | 100 | 6875 | 4 | 4375 | 8 |
| | Ho | 67 | 6243.64 | 0.02 | 6747.7 | 0.8 | -7050 | 30 | 13607.4 | 0.8 | 8173.9 | 0.8 | 7171 | 4 |
| | Er | 68 | 8475.7 | 1.3 | 7316.0 | 0.9 | -11067 | 28 | 10766.3 | 1.5 | 6316.3 | 1.1 | 7101.5 | 1.1 |
| | Tm | 69 | 7030 | 12 | 4656 | 12 | -15790 | 30 | 14765 | 12 | 8143 | 12 | 10136 | 12 |
| | Yb | 70 | 9372 | 27 | 5955 | 7 | -19708 | 12 | 11019 | 25 | 5997 | 9 | 9218 | 8 |
| | Lu | 71 | 7650 | 40 | 3010 | 40 | -24130 | 80 | 15710 | 30 | 8140 | 30 | 12350 | 30 |
| | Hf | 72 | 10290 | 40 | 4710 | 40 | -28430 | 30 | 11490 | 40 | 5800 | 40 | 11090 | 30 |
| | Ta | 73 | 8320 | 30 | 1750 | 40 | -32740# | 200# | 16430 | 30 | 8030 | 40 | 14340 | 40 |
| | W | 74 | 11098 | 27 | 3329 | 17 | -37160# | 300# | 12106 | 30 | 5510 | 40 | 13022 | 27 |
| | Re | 75 | 9310 | 80 | 320 | 80 | * | | 17050 | 70 | 7880 | 90 | 16290 | 80 |
| | Os | 76 | 11710# | 200# | 2061 | 30 | * | | 12750 | 60 | 5435 | 5 | 15120 | 60 |
| | Ir | 77 | 9830# | 250# | -1152 | 8 | * | | 17780# | 250# | 7700# | 360# | 18300# | 200# |
| | Pt | 78 | * | | 430# | 340# | * | | 13330# | 440# | * | | 17110# | 420# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | $Q(\alpha)$ | | $Q(2\beta^-)$ | | $Q(\epsilon p)$ | | $Q(\beta^- n)$ | |
|-----|------|----|----------|------|----------|------|-------------|------|---------------|------|-----------------|------|----------------|------|
| 164 | Pm | 61 | 8640# | 500# | * | | -4780# | 570# | 14510# | 420# | * | | 3780# | 500# |
| | Sm | 62 | 9720# | 360# | 23130# | 500# | -3390# | 420# | 11670# | 320# | * | | 310# | 310# |
| | Eu | 63 | 10820# | 120# | 21590# | 320# | -2800# | 230# | 8700# | 150# | -17420# | 420# | -140# | 110# |
| | Gd | 64 | 11640# | 100# | 19820# | 220# | -1960# | 100# | 6190# | 100# | -16340# | 320# | -3250# | 100# |
| | Tb | 65 | 12540 | 110 | 17950 | 110 | -1020 | 100 | 2900 | 100 | -12880 | 120 | -3770 | 100 |
| | Dy | 66 | 13929.12 | 0.08 | 16266 | 4 | -451.1 | 1.2 | -25.08 | 0.11 | -11943 | 8 | -7660.95 | 0.07 |
| | Ho | 67 | 15083 | 3 | 13880 | 40 | 429.8 | 1.8 | -3077 | 24 | -7674 | 4 | -7885 | 5 |
| | Er | 68 | 15751.0 | 0.3 | 12339.35 | 0.14 | 1304.92 | 0.17 | -4925 | 15 | -6850.69 | 0.13 | -11285 | 5 |
| | Tm | 69 | 16570 | 40 | 10440 | 25 | 2054 | 29 | -7260 | 40 | -2815 | 24 | -10676 | 29 |
| | Yb | 70 | 17334 | 21 | 9261 | 15 | 2622 | 29 | -9199 | 22 | -3139 | 16 | -14300 | 30 |
| | Lu | 71 | 17950 | 80 | 7740 | 40 | 3230 | 40 | -11360 | 40 | 797 | 28 | -13450 | 40 |
| | Hf | 72 | 18792 | 18 | 6570 | 22 | 3919 | 17 | -13583 | 19 | 192 | 22 | -17360 | 40 |
| | Ta | 73 | 19650 | 60 | 5030 | 80 | 4560 | 60 | -15810 | 60 | 4220 | 40 | -16450 | 60 |
| | W | 74 | 20379 | 20 | 3645 | 13 | 5278.3 | 2.0 | -17810 | 150 | 3739 | 27 | -20305 | 21 |
| | Re | 75 | 21110# | 200# | 2270 | 80 | 5926 | 5 | -20130# | 320# | 7770 | 70 | -19350# | 300# |
| | Os | 76 | 22120# | 340# | 1000 | 150 | 6479 | 5 | * | | 7200 | 160 | * | |
| | Ir | 77 | * | | -580# | 370# | 6970# | 100# | * | | 11370# | 320# | * | |
| 165 | Sm | 62 | 9230# | 500# | * | | -3650# | 570# | 12650# | 420# | * | | 1500# | 420# |
| | Eu | 63 | 10380# | 150# | 22050# | 420# | -2910# | 330# | 9840 | 90 | -19140# | 420# | 980# | 170# |
| | Gd | 64 | 11280# | 120# | 20310# | 320# | -2210# | 120# | 7160# | 120# | -15640# | 320# | -2450# | 160# |
| | Tb | 65 | 12110# | 100# | 18660# | 120# | -1200# | 100# | 4330# | 100# | -14470# | 150# | -2670# | 100# |
| | Dy | 66 | 13374.07 | 0.09 | 16877 | 8 | -531.7 | 1.6 | 909.0 | 0.6 | -11130# | 100# | -6702.4 | 1.4 |
| | Ho | 67 | 14663.3 | 0.8 | 14881 | 4 | 137.7 | 1.5 | -1969.4 | 1.8 | -10110 | 100 | -7027.4 | 0.8 |
| | Er | 68 | 15497 | 5 | 12718.4 | 0.6 | 1109.3 | 0.6 | -4226 | 27 | -5842.6 | 0.6 | -10689 | 24 |
| | Tm | 69 | 16344 | 6 | 11129.2 | 1.6 | 1842.7 | 2.7 | -6487 | 27 | -5237.1 | 2.2 | -9984 | 15 |
| | Yb | 70 | 17140 | 30 | 9706 | 27 | 2481 | 28 | -8660 | 40 | -1641 | 27 | -13720 | 40 |
| | Lu | 71 | 17790 | 40 | 8291 | 27 | 3030 | 40 | -10594 | 30 | -1830 | 40 | -12700 | 30 |
| | Hf | 72 | 18510 | 40 | 6910 | 30 | 3780 | 30 | -12770 | 40 | 2090 | 30 | -16420 | 40 |
| | Ta | 73 | 19460 | 40 | 5630 | 30 | 4290 | 30 | -15188 | 27 | 1510 | 30 | -15683 | 17 |
| | W | 74 | 20100 | 60 | 4180 | 40 | 5029 | 30 | -17070# | 200# | 5669 | 30 | -19460 | 60 |
| | Re | 75 | 20800 | 30 | 2700 | 40 | 5694 | 6 | -19070# | 160# | 5330 | 40 | -18310 | 150 |
| | Os | 76 | 21750# | 360# | 1470# | 200# | 6335 | 6 | * | | 9150# | 200# | -22520# | 370# |
| | Ir | 77 | * | | 170# | 160# | 6820# | 50# | * | | 8590# | 150# | * | |
| 166 | Sm | 62 | 8770# | 500# | * | | -3600# | 570# | 13800# | 450# | * | | 1920# | 420# |
| | Eu | 63 | 9970# | 380# | 22920# | 540# | -3260# | 470# | 10680# | 370# | * | | 1170# | 380# |
| | Gd | 64 | 10900# | 220# | 21010# | 360# | -2430# | 280# | 8060# | 200# | -18010# | 450# | -2040# | 220# |
| | Tb | 65 | 11950 | 120 | 19080# | 130# | -1610 | 80 | 5190 | 70 | -14450# | 150# | -2340 | 70 |
| | Dy | 66 | 12759.5 | 0.4 | 17390# | 100# | -729 | 4 | 2341.3 | 1.2 | -13420# | 120# | -5757.1 | 0.9 |
| | Ho | 67 | 14232.5 | 1.1 | 15570 | 100 | 180 | 40 | -1183 | 12 | -9800# | 100# | -6621.0 | 1.0 |
| | Er | 68 | 15125.8 | 1.1 | 13536.0 | 1.1 | 830.5 | 1.1 | -3330 | 7 | -8602.4 | 1.1 | -10067.7 | 2.1 |
| | Tm | 69 | 16127 | 27 | 11485 | 12 | 1728 | 12 | -5870 | 30 | -4278 | 12 | -9664 | 29 |
| | Yb | 70 | 16721 | 17 | 10231 | 7 | 2314 | 7 | -7737 | 29 | -4363 | 7 | -13225 | 27 |
| | Lu | 71 | 17520 | 40 | 8690 | 40 | 3030 | 40 | -9920 | 40 | -380 | 30 | -12460 | 40 |
| | Hf | 72 | 18180 | 30 | 7420 | 30 | 3540 | 30 | -11971 | 30 | -850 | 40 | -16080 | 30 |
| | Ta | 73 | 18960 | 40 | 6030 | 40 | 4310 | 80 | -14200 | 80 | 3060 | 40 | -15310 | 40 |
| | W | 74 | 19795 | 14 | 4647 | 18 | 4856 | 4 | -16457 | 20 | 2459 | 30 | -19300 | 25 |
| | Re | 75 | 20560 | 90 | 3190 | 80 | 5460 | 50 | -18540# | 210# | 6670 | 70 | -18170# | 210# |
| | Os | 76 | 21150 | 150 | 1774 | 20 | 6143 | 3 | -20700# | 300# | 6140 | 30 | -21910# | 160# |
| | Ir | 77 | 22150# | 370# | 460# | 200# | 6722 | 6 | * | | 10020# | 200# | * | |
| | Pt | 78 | * | | -1120# | 340# | 7286 | 15 | * | | 9780# | 360# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|----|---------|------|--------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 167 | Eu | 63 | 4870# | 540# | 10570# | 570# | 18270# | 400# | 10510# | 570# | 8960# | 500# | 510# | 570# |
| | Gd | 64 | 4360# | 360# | 10890# | 470# | 12480# | 300# | 10620# | 330# | 7430# | 320# | 2940# | 420# |
| | Tb | 65 | 6110# | 210# | 8690# | 280# | 6620# | 200# | 11240# | 230# | 8710# | 220# | 3100# | 230# |
| | Dy | 66 | 5420 | 60 | 9330 | 90 | 660 | 60 | 11350# | 120# | 7010 | 120 | 5490# | 120# |
| | Ho | 67 | 7281 | 5 | 6985 | 5 | -4780 | 30 | 12043 | 5 | 8551 | 5 | 5440 | 100 |
| | Er | 68 | 6436.46 | 0.18 | 7508.8 | 0.9 | -9823 | 28 | 12318.6 | 0.9 | 6554.4 | 1.5 | 8323.2 | 1.1 |
| | Tm | 69 | 8727 | 12 | 4906.6 | 1.5 | -14193 | 28 | 12688.8 | 1.5 | 8263.3 | 1.4 | 8084.3 | 1.9 |
| | Yb | 70 | 7066 | 8 | 5991 | 12 | -18493 | 19 | 13050 | 4 | 6178 | 25 | 10999 | 4 |
| | Lu | 71 | 9550 | 40 | 3190 | 30 | -22670# | 50# | 13510 | 40 | 8380 | 40 | 10050 | 40 |
| | Hf | 72 | 7680 | 40 | 4740 | 40 | -26970 | 80 | 13690 | 40 | 6040 | 40 | 13200 | 30 |
| | Ta | 73 | 10320 | 40 | 1780 | 40 | -31280 | 30 | 14000 | 40 | 8330 | 30 | 11940 | 40 |
| | W | 74 | 8281 | 21 | 3290 | 30 | -35490# | 300# | 14461 | 23 | 6050 | 30 | 15367 | 24 |
| | Re | 75 | 11010# | 80# | 230# | 40# | * | | 14740# | 50# | 8270# | 40# | 14100# | 50# |
| | Os | 76 | 9140 | 70 | 1900 | 100 | * | | 14870 | 80 | 5830 | 90 | 17380 | 70 |
| | Ir | 77 | 11790# | 200# | -1070 | 4 | * | | 15430# | 200# | 8210 | 150 | 16050 | 60 |
| | Pt | 78 | 9950# | 430# | 550# | 360# | * | | 15690# | 340# | 5600# | 110# | 19460# | 340# |
| 168 | Eu | 63 | 3800# | 640# | * | | 20320# | 500# | 11700# | 640# | 8930# | 640# | * | |
| | Gd | 64 | 5620# | 500# | 11640# | 570# | 14630# | 400# | 9560# | 540# | 7230# | 420# | 1090# | 570# |
| | Tb | 65 | 4870# | 360# | 9200# | 420# | 8590# | 300# | 12520# | 360# | 8590# | 320# | 3650# | 330# |
| | Dy | 66 | 6700 | 150 | 9920# | 240# | 3020 | 140 | 10040 | 160 | 6870# | 170# | 3540# | 190# |
| | Ho | 67 | 5850 | 30 | 7420 | 70 | -2990 | 50 | 13230 | 30 | 8420 | 30 | 6150# | 110# |
| | Er | 68 | 7771.31 | 0.12 | 8000 | 5 | -7631 | 28 | 10791.0 | 0.9 | 6771.9 | 0.9 | 6267.8 | 1.1 |
| | Tm | 69 | 6840.6 | 1.8 | 5310.7 | 1.9 | -12919 | 28 | 14323.9 | 1.9 | 8072.7 | 1.9 | 9232.5 | 1.8 |
| | Yb | 70 | 9063 | 4 | 6327.2 | 1.5 | -16689 | 13 | 11017 | 12 | 6211.8 | 2.1 | 8586.1 | 1.3 |
| | Lu | 71 | 7640 | 50 | 3770 | 40 | -21270 | 50 | 15240 | 40 | 8090 | 50 | 11510 | 40 |
| | Hf | 72 | 9960 | 40 | 5150 | 40 | -25365 | 30 | 11370 | 40 | 5950 | 40 | 10580 | 40 |
| | Ta | 73 | 8110 | 40 | 2220 | 40 | -29730 | 60 | 16180 | 40 | 8110 | 40 | 13690 | 40 |
| | W | 74 | 10866 | 23 | 3830 | 30 | -33890 | 150 | 11920 | 30 | 5819 | 18 | 12390 | 30 |
| | Re | 75 | 9040# | 50# | 990 | 40 | * | | 16800 | 30 | 7930 | 40 | 15700 | 30 |
| | Os | 76 | 11560 | 70 | 2450# | 40# | * | | 12610 | 70 | 5529 | 22 | 14512 | 27 |
| | Ir | 77 | 9670 | 60 | -550 | 90 | * | | 17480 | 60 | 7990# | 200# | 17640 | 60 |
| | Pt | 78 | 12470# | 340# | 1220 | 150 | * | | 13060# | 250# | 5450# | 50# | 16430# | 250# |
| 169 | Gd | 64 | 3860# | 640# | 11700# | 710# | 16770# | 500# | 10570# | 640# | 7920# | 620# | 2220# | 640# |
| | Tb | 65 | 5680# | 420# | 9250# | 500# | 10950# | 300# | 11200# | 420# | 9070# | 360# | 2530# | 470# |
| | Dy | 66 | 5110 | 330 | 10160# | 420# | 4780 | 300 | 11040# | 360# | 7150 | 310 | 4580# | 360# |
| | Ho | 67 | 6810 | 40 | 7530 | 140 | -713 | 20 | 11840 | 60 | 8652 | 20 | 4730 | 70 |
| | Er | 68 | 6003.25 | 0.15 | 8150 | 30 | -6206 | 28 | 12068 | 5 | 7012.3 | 0.9 | 7308.1 | 1.2 |
| | Tm | 69 | 8033.6 | 1.5 | 5573.0 | 1.1 | -10985 | 28 | 12726.8 | 1.1 | 8514.9 | 1.1 | 7442.5 | 1.1 |
| | Yb | 70 | 6866.98 | 0.15 | 6353.6 | 1.9 | -15460 | 15 | 12876.9 | 1.5 | 6375 | 12 | 10194.9 | 0.4 |
| | Lu | 71 | 9090 | 40 | 3792 | 3 | -19675 | 12 | 13217 | 5 | 8375 | 8 | 9450 | 12 |
| | Hf | 72 | 7430 | 40 | 4940 | 50 | -23990 | 40 | 13500 | 40 | 6170 | 40 | 12525 | 29 |
| | Ta | 73 | 9970 | 40 | 2220 | 40 | -28200 | 40 | 13890 | 40 | 8430 | 40 | 11380 | 40 |
| | W | 74 | 8096 | 20 | 3810 | 30 | -32410# | 200# | 14140 | 30 | 6040 | 30 | 14590 | 30 |
| | Re | 75 | 10690 | 30 | 805 | 16 | -36620# | 300# | 14400 | 22 | 8343 | 15 | 13330 | 30 |
| | Os | 76 | 8799 | 27 | 2220 | 40 | * | | 14820# | 50# | 6030 | 80 | 16812 | 27 |
| | Ir | 77 | 11500 | 60 | -612 | 22 | * | | 15120 | 80 | 8202 | 29 | 15450 | 80 |
| | Pt | 78 | 9580# | 250# | 1140# | 200# | * | | 15270# | 200# | 5706 | 9 | 18570# | 200# |
| | Au | 79 | * | | -1930# | 330# | * | | 15540# | 430# | 7810# | 420# | 17210# | 360# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q($2\beta^-$) | | Q(ϵp) | | Q($\beta^- n$) | |
|-----|------|----|----------|------|---------|------|---------------|------|-----------------|------|-------------------|------|------------------|------|
| 167 | Eu | 63 | 9430# | 420# | * | | -3190# | 570# | 11920# | 450# | * | | 2450# | 450# |
| | Gd | 64 | 10500# | 320# | 21580# | 500# | -2520# | 420# | 9120# | 300# | -17370# | 500# | -1000# | 310# |
| | Tb | 65 | 11500# | 220# | 19780# | 240# | -1870# | 210# | 6350# | 200# | -16010# | 410# | -1410# | 200# |
| | Dy | 66 | 12460 | 60 | 18060# | 140# | -1040 | 60 | 3360 | 60 | -12690# | 210# | -4930 | 60 |
| | Ho | 67 | 13524 | 5 | 16290# | 100# | -109 | 7 | 263 | 5 | -11680 | 70 | -5426 | 5 |
| | Er | 68 | 14912.2 | 1.3 | 14256.5 | 1.1 | 665.1 | 1.1 | -2701 | 4 | -7995.4 | 1.2 | -9474 | 12 |
| | Tm | 69 | 15756.7 | 2.0 | 12222.6 | 1.5 | 1409.8 | 1.4 | -5040 | 30 | -6761.3 | 1.5 | -9019 | 7 |
| | Yb | 70 | 16438 | 27 | 10647 | 4 | 2152 | 6 | -7123 | 28 | -2954 | 4 | -12640 | 30 |
| | Lu | 71 | 17200 | 40 | 9150 | 30 | 2800 | 30 | -9150 | 40 | -2900 | 30 | -11710 | 40 |
| | Hf | 72 | 17970 | 40 | 7750 | 40 | 3410 | 30 | -11370 | 30 | 839 | 29 | -15440 | 40 |
| | Ta | 73 | 18650 | 30 | 6490 | 40 | 4020 | 40 | -13520# | 50# | 380 | 40 | -14534 | 30 |
| | W | 74 | 19380 | 30 | 5040 | 30 | 4741 | 28 | -15600 | 70 | 4470 | 30 | -18280 | 70 |
| | Re | 75 | 20310# | 50# | 3560# | 40# | 5279# | 14# | -17760# | 40# | 3980# | 50# | -17470# | 40# |
| | Os | 76 | 20850# | 210# | 2220 | 80 | 5980 | 50 | -19890# | 310# | 8100 | 70 | -21220# | 210# |
| | Ir | 77 | 21620# | 160# | 991 | 30 | 6504.9 | 2.6 | * | | 7530 | 70 | -20410# | 300# |
| | Pt | 78 | * | | -610# | 360# | 7160 | 50 | * | | 11530# | 300# | * | |
| 168 | Eu | 63 | 8680# | 620# | * | | -3300# | 640# | 12980# | 580# | * | | 3000# | 580# |
| | Gd | 64 | 9980# | 450# | 22210# | 570# | -2690# | 500# | 10200# | 420# | * | | -510# | 450# |
| | Tb | 65 | 10980# | 310# | 20090# | 470# | -1770# | 320# | 7340# | 300# | -16000# | 500# | -860# | 300# |
| | Dy | 66 | 12120 | 140 | 18610# | 240# | -1210# | 170# | 4430 | 140 | -15040# | 330# | -4350 | 140 |
| | Ho | 67 | 13130 | 30 | 16750 | 80 | -410 | 100 | 1250 | 30 | -11420# | 200# | -4840 | 30 |
| | Er | 68 | 14207.76 | 0.21 | 14984.3 | 1.2 | 551.9 | 1.1 | -1409.27 | 0.25 | -10350 | 60 | -8518.8 | 1.5 |
| | Tm | 69 | 15567 | 12 | 12819.5 | 1.8 | 1243.7 | 2.2 | -4250 | 40 | -6321 | 6 | -8794 | 4 |
| | Yb | 70 | 16129 | 7 | 11233.8 | 0.3 | 1936.1 | 1.2 | -6221 | 28 | -5579.69 | 0.28 | -12150 | 30 |
| | Lu | 71 | 17190 | 50 | 9760 | 40 | 2410 | 50 | -8670 | 50 | -1810 | 40 | -11670 | 50 |
| | Hf | 72 | 17640 | 40 | 8343 | 29 | 3230 | 30 | -10470 | 30 | -2059 | 28 | -15080 | 40 |
| | Ta | 73 | 18440 | 40 | 6950 | 40 | 3820 | 40 | -12600 | 40 | 1820 | 40 | -14370 | 30 |
| | W | 74 | 19148 | 16 | 5610 | 30 | 4500 | 11 | -14898 | 17 | 1290 | 30 | -18130# | 40# |
| | Re | 75 | 20040 | 80 | 4280 | 40 | 5063 | 13 | -17130 | 60 | 5270 | 40 | -17360 | 80 |
| | Os | 76 | 20706 | 21 | 2685 | 14 | 5815.6 | 2.7 | -18990 | 150 | 4814 | 21 | -20994 | 21 |
| | Ir | 77 | 21460# | 200# | 1350 | 90 | 6381 | 9 | * | | 8880# | 70# | -20130# | 310# |
| | Pt | 78 | 22420# | 340# | 150 | 150 | 6990 | 3 | * | | 8210 | 170 | * | |
| 169 | Gd | 64 | 9480# | 590# | * | | -2770# | 640# | 11440# | 590# | * | | 500# | 590# |
| | Tb | 65 | 10540# | 360# | 20900# | 500# | -2030# | 330# | 8470# | 300# | -17880# | 580# | 160# | 330# |
| | Dy | 66 | 11810 | 310 | 19360# | 420# | -1570# | 320# | 5330 | 300 | -14520# | 500# | -3610 | 300 |
| | Ho | 67 | 12659 | 21 | 17450# | 200# | -660# | 100# | 2478 | 20 | -13360# | 300# | -3877 | 20 |
| | Er | 68 | 13774.56 | 0.19 | 15570 | 60 | 264.6 | 1.1 | -545.5 | 0.3 | -9650 | 140 | -7681.5 | 1.9 |
| | Tm | 69 | 14874.2 | 1.0 | 13573 | 5 | 1198.9 | 1.1 | -3191 | 3 | -8500 | 30 | -7764.6 | 1.1 |
| | Yb | 70 | 15930 | 4 | 11664.3 | 0.3 | 1719.1 | 1.3 | -5661 | 28 | -4675.36 | 0.29 | -11380 | 40 |
| | Lu | 71 | 16730 | 30 | 10119 | 3 | 2420 | 4 | -7794 | 28 | -4061 | 4 | -10795 | 28 |
| | Hf | 72 | 17390 | 40 | 8704 | 28 | 3150 | 40 | -9800 | 30 | -424 | 28 | -14390 | 40 |
| | Ta | 73 | 18080 | 40 | 7370 | 40 | 3730 | 40 | -11880 | 30 | -510 | 50 | -13470 | 30 |
| | W | 74 | 18962 | 24 | 6030 | 30 | 4290 | 30 | -14195 | 30 | 3150 | 30 | -17190 | 30 |
| | Re | 75 | 19720# | 40# | 4640 | 30 | 5014 | 14 | -16315 | 26 | 2700 | 30 | -16485 | 15 |
| | Os | 76 | 20360 | 80 | 3200 | 30 | 5713 | 3 | -18210# | 200# | 6881 | 28 | -20130 | 60 |
| | Ir | 77 | 21164 | 30 | 1840# | 50# | 6141 | 4 | -20310# | 300# | 6410 | 40 | -19160 | 150 |
| | Pt | 78 | 22040# | 360# | 590# | 210# | 6858 | 5 | * | | 10190# | 200# | * | |
| | Au | 79 | * | | -710# | 300# | 7380# | 340# | * | | 9590# | 300# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|----|---------|------|--------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 170 | Gd | 64 | 5300# | 780# | * | | 18730# | 600# | 9070# | 780# | 7500# | 720# | * | |
| | Tb | 65 | 4470# | 500# | 9860# | 640# | 13070# | 400# | 12350# | 570# | 8950# | 500# | 2930# | 570# |
| | Dy | 66 | 6140# | 360# | 10620# | 360# | 7100# | 200# | 9770# | 360# | 7130# | 280# | 2800# | 360# |
| | Ho | 67 | 5510 | 50 | 7930 | 300 | 1070 | 50 | 13030 | 150 | 8560 | 80 | 5340# | 200# |
| | Er | 68 | 7256.9 | 1.5 | 8600 | 20 | -3855 | 28 | 10660 | 30 | 7036 | 5 | 5470 | 60 |
| | Tm | 69 | 6591.96 | 0.17 | 6161.7 | 1.1 | -9658 | 28 | 13906.1 | 1.1 | 8359.4 | 1.1 | 8131 | 5 |
| | Yb | 70 | 8457.7 | 1.2 | 6777.7 | 0.8 | -13473 | 13 | 11259.8 | 1.7 | 6643.8 | 1.3 | 8173.7 | 1.2 |
| | Lu | 71 | 7293 | 17 | 4218 | 17 | -18393 | 29 | 14986 | 17 | 8148 | 17 | 10884 | 17 |
| | Hf | 72 | 9610 | 40 | 5458 | 28 | -22328 | 30 | 11520 | 50 | 6110 | 40 | 9983 | 28 |
| | Ta | 73 | 7920 | 40 | 2710 | 40 | -26780# | 90# | 15930 | 40 | 8190 | 40 | 13010 | 40 |
| | W | 74 | 10444 | 20 | 4290 | 30 | -30992 | 23 | 11810 | 30 | 5920 | 30 | 11820 | 30 |
| | Re | 75 | 8575 | 26 | 1284 | 28 | -35160# | 200# | 16691 | 27 | 8049 | 29 | 15080 | 40 |
| | Os | 76 | 11275 | 27 | 2806 | 15 | * | | 12580 | 30 | 5770# | 40# | 13818 | 21 |
| | Ir | 77 | 9340# | 90# | -70# | 90# | * | | 17350# | 90# | 8010# | 120# | 17120# | 100# |
| | Pt | 78 | 11860# | 200# | 1494 | 30 | * | | 13080 | 60 | 5637 | 4 | 15850 | 70 |
| | Au | 79 | 10040# | 360# | -1472 | 12 | * | | 17970# | 250# | 7730# | 360# | 18970# | 200# |
| 171 | Tb | 65 | 5380# | 640# | 9940# | 780# | 15180# | 500# | 10830# | 710# | 9200# | 640# | 1360# | 710# |
| | Dy | 66 | 4600# | 360# | 10750# | 500# | 9120# | 300# | 10850# | 420# | 7400# | 420# | 3820# | 500# |
| | Ho | 67 | 6350 | 600 | 8150# | 630# | 3310 | 600 | 11790 | 670 | 8900 | 620 | 3850# | 670# |
| | Er | 68 | 5681.6 | 0.4 | 8770 | 50 | -2288 | 29 | 11789 | 20 | 7210 | 30 | 6490 | 140 |
| | Tm | 69 | 7485.8 | 1.2 | 6390.6 | 1.2 | -7490 | 28 | 12423.6 | 1.5 | 8644.9 | 1.5 | 6500 | 30 |
| | Yb | 70 | 6614.21 | 0.01 | 6799.9 | 0.8 | -12221 | 28 | 12679.2 | 0.8 | 6870.2 | 1.7 | 9330.8 | 1.2 |
| | Lu | 71 | 8593 | 17 | 4353.4 | 1.9 | -16578 | 28 | 13260.0 | 2.2 | 8617.6 | 2.2 | 9130.9 | 2.5 |
| | Hf | 72 | 7250 | 40 | 5410 | 30 | -21130 | 30 | 13364 | 29 | 6500 | 50 | 11797 | 29 |
| | Ta | 73 | 9650 | 40 | 2760 | 40 | -25310 | 50 | 13710 | 40 | 8500 | 40 | 10990 | 50 |
| | W | 74 | 7870 | 30 | 4240 | 40 | -29620 | 80 | 13920 | 40 | 6170 | 40 | 13920 | 40 |
| | Re | 75 | 10410 | 40 | 1250 | 30 | -33690 | 30 | 14380 | 30 | 8510 | 30 | 12790 | 40 |
| | Os | 76 | 8447 | 20 | 2678 | 29 | -37780# | 300# | 14818 | 21 | 6360 | 40 | 16238 | 22 |
| | Ir | 77 | 11120# | 100# | -230 | 40 | * | | 15020 | 50 | 8450 | 40 | 15030 | 50 |
| | Pt | 78 | 9240 | 80 | 1400# | 120# | * | | 15330 | 80 | 6060 | 90 | 18170 | 70 |
| | Au | 79 | 11880# | 200# | -1448 | 10 | * | | 15660# | 200# | 8310 | 150 | 16750 | 60 |
| | Hg | 80 | * | | 60# | 360# | * | | 15980# | 430# | * | | 20130# | 340# |
| 172 | Tb | 65 | 3890# | 710# | * | | 17520# | 500# | 12240# | 780# | 9170# | 710# | * | |
| | Dy | 66 | 5890# | 420# | 11270# | 590# | 11250# | 300# | 9430# | 500# | 7180# | 420# | 1790# | 590# |
| | Ho | 67 | 5040# | 630# | 8580# | 360# | 5250# | 200# | 12890# | 280# | 8980# | 360# | 4490# | 360# |
| | Er | 68 | 6836 | 4 | 9250 | 600 | -81 | 25 | 10470 | 50 | 7178 | 20 | 4760 | 300 |
| | Tm | 69 | 6235 | 5 | 6944 | 5 | -6044 | 28 | 13445 | 5 | 8413 | 6 | 7069 | 21 |
| | Yb | 70 | 8019.95 | 0.02 | 7334.1 | 1.0 | -10158 | 28 | 11251.2 | 0.8 | 6883.8 | 0.8 | 7314.1 | 1.2 |
| | Lu | 71 | 6978.9 | 2.6 | 4718.1 | 2.3 | -15200 | 40 | 14738.7 | 2.3 | 8505.6 | 2.6 | 10185.6 | 2.5 |
| | Hf | 72 | 9040 | 40 | 5863 | 24 | -19158 | 28 | 11615 | 30 | 6546 | 25 | 9622 | 24 |
| | Ta | 73 | 7680 | 40 | 3190 | 40 | -23950 | 40 | 15630 | 40 | 8250 | 40 | 12401 | 28 |
| | W | 74 | 10080 | 40 | 4670 | 40 | -27990 | 30 | 11750 | 40 | 6060 | 40 | 11270 | 40 |
| | Re | 75 | 8360 | 50 | 1740 | 50 | -32220 | 70 | 16460 | 40 | 8240 | 40 | 14400 | 50 |
| | Os | 76 | 11013 | 22 | 3280 | 30 | -36190 | 150 | 12380 | 26 | 6029 | 15 | 13320 | 20 |
| | Ir | 77 | 9040 | 50 | 370 | 40 | * | | 17260 | 30 | 8210 | 40 | 16680 | 30 |
| | Pt | 78 | 11710 | 70 | 1980 | 40 | * | | 12960# | 90# | 5851 | 22 | 15262 | 27 |
| | Au | 79 | 9830 | 60 | -860 | 90 | * | | 17690 | 60 | 8060# | 200# | 18420 | 60 |
| | Hg | 80 | 12610# | 340# | 790 | 150 | * | | 13400# | 250# | 5590# | 330# | 17100# | 250# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q($2\beta^-$) | | Q(ϵp) | | Q($\beta^- n$) | |
|-----|------|----|----------|------|---------|------|---------------|------|-----------------|------|-------------------|------|------------------|------|
| 170 | Gd | 64 | 9160# | 720# | * | | -3080# | 720# | 12280# | 630# | * | | 880# | 670# |
| | Tb | 65 | 10140# | 500# | 21560# | 640# | -1940# | 540# | 9520# | 400# | * | | 800# | 500# |
| | Dy | 66 | 11250# | 240# | 19880# | 450# | -1560# | 280# | 6450# | 200# | -16800# | 540# | -2940# | 200# |
| | Ho | 67 | 12320 | 60 | 18090# | 300# | -780 | 90 | 3560 | 50 | -13200# | 300# | -3390 | 50 |
| | Er | 68 | 13260.1 | 1.5 | 16130 | 140 | 51.2 | 1.7 | 655.2 | 1.5 | -11800 | 300 | -6904.8 | 1.8 |
| | Tm | 69 | 14625.6 | 1.5 | 14310 | 30 | 850.6 | 1.1 | -2490 | 17 | -8288 | 20 | -7489.6 | 1.1 |
| | Yb | 70 | 15324.7 | 1.2 | 12350.7 | 1.2 | 1737.2 | 1.2 | -4510 | 28 | -7129.8 | 1.2 | -10751 | 3 |
| | Lu | 71 | 16380 | 40 | 10571 | 17 | 2157 | 20 | -7170 | 30 | -3320 | 17 | -10660 | 30 |
| | Hf | 72 | 17040 | 40 | 9250 | 28 | 2917 | 29 | -8960 | 30 | -3165 | 28 | -14030 | 40 |
| | Ta | 73 | 17890 | 40 | 7650 | 50 | 3460 | 40 | -11220 | 40 | 658 | 28 | -13290 | 30 |
| | W | 74 | 18540 | 19 | 6510 | 30 | 4140 | 30 | -13365 | 16 | 140 | 30 | -16953 | 17 |
| | Re | 75 | 19260 | 40 | 5100 | 40 | 4760 | 40 | -15550# | 90# | 4090 | 40 | -16260 | 30 |
| | Os | 76 | 20074 | 14 | 3611 | 16 | 5536.9 | 2.7 | -17627 | 21 | 3703 | 18 | -19904 | 25 |
| | Ir | 77 | 20840# | 100# | 2140# | 90# | 6110# | 50# | -19610# | 220# | 7760# | 90# | -18920# | 220# |
| | Pt | 78 | 21430 | 150 | 882 | 21 | 6707 | 3 | * | | 7130 | 30 | -22580# | 300# |
| | Au | 79 | * | | -340# | 200# | 7177 | 15 | * | | 11050# | 200# | * | |
| 171 | Tb | 65 | 9850# | 590# | * | | -2450# | 640# | 10490# | 780# | * | | 1560# | 540# |
| | Dy | 66 | 10730# | 420# | 20610# | 590# | -1800# | 420# | 7530# | 300# | -16100# | 670# | -2020# | 300# |
| | Ho | 67 | 11860 | 600 | 18770# | 670# | -1020# | 630# | 4690 | 600 | -15080# | 720# | -2480 | 600 |
| | Er | 68 | 12938.5 | 1.5 | 16700 | 300 | -210 | 60 | 1587.9 | 1.6 | -11350# | 200# | -5994.4 | 1.8 |
| | Tm | 69 | 14077.7 | 1.2 | 14991 | 20 | 645 | 5 | -1381.9 | 2.1 | -10260 | 50 | -6517.7 | 1.0 |
| | Yb | 70 | 15071.9 | 1.2 | 12961.6 | 1.2 | 1559.5 | 1.2 | -3875 | 29 | -6487.1 | 1.5 | -10072 | 17 |
| | Lu | 71 | 15886 | 4 | 11131.1 | 2.0 | 2290.3 | 2.3 | -6108 | 28 | -5321.5 | 2.0 | -9646 | 28 |
| | Hf | 72 | 16860 | 40 | 9632 | 29 | 2734 | 29 | -8350 | 40 | -1956 | 29 | -13360 | 40 |
| | Ta | 73 | 17570 | 40 | 8214 | 28 | 3360 | 40 | -10470 | 40 | -1700 | 30 | -12500 | 30 |
| | W | 74 | 18310 | 30 | 6950 | 40 | 3960 | 40 | -12780 | 30 | 1880 | 40 | -16240 | 40 |
| | Re | 75 | 18980 | 30 | 5540 | 40 | 4680 | 40 | -14840 | 50 | 1600 | 40 | -15395 | 30 |
| | Os | 76 | 19720 | 30 | 3962 | 24 | 5371 | 4 | -16830 | 70 | 5700 | 22 | -19010# | 90# |
| | Ir | 77 | 20460 | 40 | 2580 | 40 | 5994# | 13# | -18850 | 40 | 5210 | 40 | -18180 | 40 |
| | Pt | 78 | 21100# | 210# | 1320 | 80 | 6607 | 3 | -20950# | 310# | 9170 | 70 | -21790# | 210# |
| | Au | 79 | 21920# | 300# | 50 | 30 | 7085 | 11 | * | | 8510# | 90# | * | |
| | Hg | 80 | * | | -1420# | 360# | 7668 | 15 | * | | 12490# | 300# | * | |
| 172 | Tb | 65 | 9270# | 640# | * | | -2540# | 710# | 11630# | 540# | * | | 2270# | 590# |
| | Dy | 66 | 10490# | 360# | 21210# | 670# | -2070# | 500# | 8470# | 300# | * | | -1560# | 670# |
| | Ho | 67 | 11390# | 200# | 19340# | 450# | -1190# | 360# | 5890# | 200# | -14740# | 540# | -1840# | 200# |
| | Er | 68 | 12518 | 4 | 17400# | 200# | -350 | 140 | 2772 | 4 | -13580# | 300# | -5345 | 4 |
| | Tm | 69 | 13721 | 6 | 15710 | 50 | 260 | 30 | -638 | 6 | -10140 | 600 | -6139 | 6 |
| | Yb | 70 | 14634.16 | 0.02 | 13724.7 | 1.5 | 1310.8 | 1.2 | -2853 | 24 | -8825.5 | 1.6 | -9498.4 | 1.9 |
| | Lu | 71 | 15572 | 17 | 11518.1 | 2.5 | 2152.0 | 2.9 | -5406 | 28 | -4814.7 | 2.5 | -9376 | 29 |
| | Hf | 72 | 16290 | 40 | 10216 | 24 | 2755 | 24 | -7310 | 40 | -4384 | 24 | -12750 | 40 |
| | Ta | 73 | 17330 | 40 | 8600 | 30 | 3310 | 50 | -9790 | 50 | -791 | 28 | -12320 | 40 |
| | W | 74 | 17950 | 30 | 7420 | 40 | 3840 | 40 | -11850 | 30 | -950 | 40 | -15920 | 40 |
| | Re | 75 | 18770 | 50 | 5980 | 50 | 4430 | 50 | -14160 | 50 | 2890 | 50 | -15310 | 40 |
| | Os | 76 | 19460 | 16 | 4531 | 18 | 5224 | 7 | -16137 | 16 | 2550 | 30 | -18900 | 40 |
| | Ir | 77 | 20160# | 90# | 3040 | 40 | 5991 | 10 | -18060 | 60 | 6580 | 40 | -17980 | 80 |
| | Pt | 78 | 20950 | 21 | 1759 | 14 | 6463 | 4 | -20050 | 150 | 5906 | 21 | -21616 | 23 |
| | Au | 79 | 21710# | 200# | 540# | 110# | 6923 | 10 | * | | 9810 | 70 | -20870# | 310# |
| | Hg | 80 | * | | -660 | 150 | 7524 | 6 | * | | 9120 | 170 | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|----|---------|------|--------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 173 | Dy | 66 | 4000# | 500# | 11380# | 640# | 13610# | 400# | 10800# | 640# | 7650# | 570# | 3090# | 720# |
| | Ho | 67 | 5940# | 360# | 8630# | 420# | 7530# | 300# | 11550# | 420# | 9180# | 360# | 3020# | 500# |
| | Er | 68 | 5240# | 200# | 9460# | 280# | 1760# | 200# | 11580# | 630# | 7450# | 200# | 5660# | 280# |
| | Tm | 69 | 6953 | 7 | 7061 | 6 | -3860 | 28 | 12174 | 5 | 8717 | 5 | 5630 | 50 |
| | Yb | 70 | 6367.10 | 0.02 | 7466 | 6 | -8824 | 28 | 12369.9 | 1.0 | 7108.7 | 0.8 | 8203.9 | 1.5 |
| | Lu | 71 | 8216.3 | 2.2 | 4914.4 | 1.6 | -13327 | 28 | 13136.7 | 1.6 | 8747.1 | 1.6 | 8561.3 | 1.8 |
| | Hf | 72 | 7080 | 40 | 5965 | 28 | -17970 | 30 | 13127 | 28 | 6760 | 30 | 10999 | 28 |
| | Ta | 73 | 9140 | 40 | 3280 | 40 | -22130 | 30 | 13750 | 40 | 8720 | 40 | 10560 | 30 |
| | W | 74 | 7700 | 40 | 4690 | 40 | -26780 | 60 | 13700 | 40 | 6270 | 40 | 13170 | 40 |
| | Re | 75 | 10090 | 50 | 1750 | 40 | -30720 | 40 | 14240 | 40 | 8600 | 30 | 12230 | 40 |
| | Os | 76 | 8266 | 20 | 3190 | 40 | -34730# | 200# | 14520 | 30 | 6339 | 28 | 15499 | 20 |
| | Ir | 77 | 10960 | 30 | 314 | 15 | * | | 14744 | 21 | 8522 | 15 | 14291 | 26 |
| | Pt | 78 | 8910 | 60 | 1850 | 60 | * | | 15180 | 70 | 6280# | 110# | 17630 | 60 |
| | Au | 79 | 11590 | 60 | -986 | 21 | * | | 15350 | 80 | 8331 | 29 | 16170# | 90# |
| | Hg | 80 | 9720# | 250# | 680# | 200# | * | | 15560# | 200# | 5906 | 13 | 19240# | 200# |
| 174 | Dy | 66 | 5500# | 640# | * | | 15570# | 500# | 9190# | 710# | 7530# | 710# | * | |
| | Ho | 67 | 4410# | 420# | 9040# | 500# | 9880# | 300# | 13030# | 420# | 9360# | 420# | 3990# | 590# |
| | Er | 68 | 6370# | 360# | 9890# | 420# | 3900# | 300# | 10250# | 360# | 7430# | 670# | 3890# | 420# |
| | Tm | 69 | 5680 | 40 | 7500# | 200# | -2120 | 50 | 13330 | 40 | 8720 | 40 | 6300 | 600 |
| | Yb | 70 | 7464.60 | 0.01 | 7977 | 4 | -6717 | 28 | 11141 | 6 | 7129.8 | 1.0 | 6420.8 | 1.6 |
| | Lu | 71 | 6760.6 | 1.4 | 5307.9 | 1.6 | -11897 | 28 | 14396.1 | 1.6 | 8600.7 | 1.6 | 9286.5 | 1.8 |
| | Hf | 72 | 8504 | 28 | 6252.5 | 2.2 | -15849 | 10 | 11602.3 | 2.8 | 6848.0 | 2.6 | 9108.7 | 2.3 |
| | Ta | 73 | 7420 | 40 | 3620 | 40 | -20880 | 40 | 15370 | 40 | 8550 | 40 | 11734 | 28 |
| | W | 74 | 9570 | 40 | 5120 | 40 | -24909 | 30 | 11810 | 40 | 6360 | 40 | 10850 | 40 |
| | Re | 75 | 8190 | 40 | 2230 | 40 | -29440# | 90# | 16130 | 40 | 8280 | 40 | 13690 | 40 |
| | Os | 76 | 10628 | 18 | 3731 | 30 | -33354 | 22 | 12250 | 40 | 6119 | 30 | 12737 | 30 |
| | Ir | 77 | 8666 | 27 | 714 | 29 | * | | 17091 | 27 | 8300 | 30 | 16030 | 40 |
| | Pt | 78 | 11450 | 60 | 2339 | 15 | * | | 12770 | 30 | 5960 | 40 | 14630 | 21 |
| | Au | 79 | 9470# | 90# | -420# | 110# | * | | 17580# | 90# | 8100# | 120# | 17820# | 100# |
| | Hg | 80 | 12000# | 200# | 1098 | 30 | * | | 13390 | 60 | 5785 | 11 | 16480 | 80 |
| 175 | Ho | 67 | 5580# | 500# | 9120# | 640# | 11960# | 400# | 11450# | 570# | 9670# | 500# | 2290# | 640# |
| | Er | 68 | 4770# | 500# | 10250# | 500# | 5830# | 400# | 11410# | 500# | 7700# | 450# | 5000# | 500# |
| | Tm | 69 | 6520 | 70 | 7650# | 300# | 100 | 60 | 12050# | 200# | 9040 | 50 | 4820# | 200# |
| | Yb | 70 | 5822.35 | 0.07 | 8120 | 40 | -5063 | 28 | 12271 | 4 | 7543 | 6 | 7434 | 4 |
| | Lu | 71 | 7666.7 | 1.0 | 5510.0 | 1.2 | -9877 | 28 | 13096.4 | 1.2 | 8953.9 | 1.2 | 7855 | 6 |
| | Hf | 72 | 6708.5 | 0.4 | 6200.4 | 2.2 | -14376 | 12 | 13110.1 | 2.2 | 7118.4 | 2.8 | 10420.2 | 2.3 |
| | Ta | 73 | 8740 | 40 | 3853 | 28 | -19010 | 30 | 13710 | 40 | 8860 | 40 | 9974 | 28 |
| | W | 74 | 7480 | 40 | 5180 | 40 | -23920 | 30 | 13470 | 40 | 6560 | 40 | 12420 | 40 |
| | Re | 75 | 9690 | 40 | 2350 | 40 | -27880 | 50 | 14150 | 40 | 8670 | 40 | 11690 | 40 |
| | Os | 76 | 8181 | 16 | 3720 | 30 | -32130 | 70 | 14160 | 30 | 6300 | 40 | 14640 | 30 |
| | Ir | 77 | 10602 | 27 | 688 | 16 | * | | 14755 | 19 | 8713 | 18 | 13790 | 40 |
| | Pt | 78 | 8467 | 21 | 2140 | 30 | * | | 15266 | 21 | 6530 | 40 | 17177 | 22 |
| | Au | 79 | 11240# | 100# | -630 | 40 | * | | 15250 | 70 | 8570 | 40 | 15620 | 50 |
| | Hg | 80 | 9400 | 80 | 1030# | 120# | * | | 15570 | 80 | 6210 | 90 | 18780 | 70 |
| 176 | Ho | 67 | 4160# | 640# | * | | 14090# | 500# | 12790# | 710# | 9510# | 640# | * | |
| | Er | 68 | 6050# | 570# | 10720# | 570# | 7950# | 400# | 9770# | 500# | 7580# | 500# | 2950# | 570# |
| | Tm | 69 | 5130 | 110 | 8010# | 410# | 1990 | 100 | 13290# | 310# | 9150# | 220# | 5630# | 310# |
| | Yb | 70 | 6867.08 | 0.07 | 8470 | 50 | -2850 | 28 | 11080 | 40 | 7629 | 4 | 5810# | 200# |
| | Lu | 71 | 6287.97 | 0.15 | 5975.7 | 1.2 | -8319 | 28 | 14273.1 | 1.2 | 9033.0 | 1.2 | 8520 | 5 |
| | Hf | 72 | 8166.0 | 1.8 | 6699.7 | 0.9 | -12478 | 28 | 11704.7 | 1.3 | 7168.6 | 1.3 | 8621.3 | 1.5 |
| | Ta | 73 | 7030 | 40 | 4170 | 30 | -17490 | 40 | 15190 | 30 | 8910 | 40 | 11160 | 30 |
| | W | 74 | 9080 | 40 | 5520 | 40 | -21710 | 30 | 11810 | 40 | 6620 | 40 | 10420 | 40 |
| | Re | 75 | 7850 | 40 | 2720 | 40 | -26540 | 40 | 15880 | 40 | 8530 | 40 | 12980 | 40 |
| | Os | 76 | 10060 | 30 | 4100 | 40 | -30310 | 30 | 12290 | 40 | 6320 | 40 | 12280 | 40 |
| | Ir | 77 | 8555 | 21 | 1062 | 20 | -34460 | 80 | 16828 | 20 | 8424 | 22 | 15320 | 30 |
| | Pt | 78 | 11292 | 22 | 2828 | 18 | * | | 12640 | 27 | 6199 | 15 | 14151 | 20 |
| | Au | 79 | 9190 | 50 | 100 | 40 | * | | 17510 | 30 | 8290 | 70 | 17390 | 30 |
| | Hg | 80 | 11880 | 70 | 1670 | 40 | * | | 13160# | 90# | 5912 | 21 | 15800 | 60 |
| | Tl | 81 | * | | -1265 | 18 | * | | 17930 | 80 | 8160# | 210# | 19060 | 80 |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | $Q(\alpha)$ | | $Q(2\beta^-)$ | | $Q(\epsilon p)$ | | $Q(\beta^- n)$ | |
|-----|------|----|----------|------|---------|------|-------------|------|---------------|------|-----------------|------|----------------|------|
| 173 | Dy | 66 | 9890# | 500# | * | | -2210# | 640# | 9720# | 450# | * | | -530# | 450# |
| | Ho | 67 | 10970# | 670# | 19900# | 590# | -1450# | 420# | 6910# | 300# | -16790# | 590# | -940# | 300# |
| | Er | 68 | 12080# | 200# | 18040# | 360# | -480# | 360# | 3900# | 200# | -12930# | 360# | -4350# | 200# |
| | Tm | 69 | 13188 | 5 | 16320 | 600 | 116 | 21 | 625 | 5 | -12060# | 200# | -5072 | 4 |
| | Yb | 70 | 14387.05 | 0.02 | 14410.2 | 1.6 | 947.0 | 1.2 | -2139 | 28 | -8357 | 4 | -8886.6 | 2.3 |
| | Lu | 71 | 15195.2 | 2.0 | 12248.6 | 1.8 | 1969.4 | 1.8 | -4484 | 28 | -6796 | 6 | -8550 | 24 |
| | Hf | 72 | 16120 | 40 | 10683 | 28 | 2541 | 28 | -6680 | 40 | -3445 | 28 | -12150 | 40 |
| | Ta | 73 | 16820 | 40 | 9146 | 28 | 3263 | 28 | -8840 | 40 | -2950 | 28 | -11370 | 40 |
| | W | 74 | 17780 | 40 | 7870 | 40 | 3560 | 40 | -11290 | 30 | 390 | 40 | -15260 | 50 |
| | Re | 75 | 18450 | 40 | 6410 | 40 | 4310 | 40 | -13290 | 30 | 490 | 40 | -14380 | 30 |
| | Os | 76 | 19279 | 23 | 4930 | 30 | 5055 | 6 | -15500 | 60 | 4370 | 30 | -18130 | 40 |
| | Ir | 77 | 20000 | 40 | 3600 | 30 | 5716 | 10 | -17436 | 25 | 3980 | 40 | -17233 | 15 |
| | Pt | 78 | 20620 | 90 | 2220 | 60 | 6350 | 50 | -19230# | 200# | 8010 | 60 | -20700 | 80 |
| | Au | 79 | 21410 | 30 | 1000 | 40 | 6836 | 5 | * | | 7260 | 40 | -19850 | 150 |
| | Hg | 80 | 22330# | 360# | -180# | 210# | 7378 | 4 | * | | 11110# | 200# | * | |
| 174 | Dy | 66 | 9500# | 590# | * | | -2420# | 780# | 10580# | 590# | * | | -90# | 590# |
| | Ho | 67 | 10350# | 360# | 20420# | 590# | -1390# | 500# | 8180# | 300# | * | | -110# | 360# |
| | Er | 68 | 11610# | 300# | 18520# | 420# | -710# | 360# | 5000# | 300# | -15300# | 500# | -3770# | 300# |
| | Tm | 69 | 12630 | 50 | 16960# | 200# | -50 | 70 | 1710 | 40 | -11800# | 300# | -4380 | 40 |
| | Yb | 70 | 13831.70 | 0.02 | 15039 | 4 | 739.3 | 1.5 | -1100.0 | 2.3 | -10580# | 200# | -8134.9 | 1.6 |
| | Lu | 71 | 14976.8 | 2.2 | 12774 | 6 | 1800.7 | 1.8 | -3829 | 28 | -6603 | 5 | -8230 | 28 |
| | Hf | 72 | 15585 | 25 | 11167.0 | 2.3 | 2494.5 | 2.3 | -5617 | 28 | -5582.2 | 2.3 | -11519 | 28 |
| | Ta | 73 | 16550 | 40 | 9583 | 28 | 3140 | 30 | -8070 | 40 | -2149 | 28 | -11080 | 40 |
| | W | 74 | 17270 | 40 | 8400 | 40 | 3600 | 40 | -10232 | 30 | -2100 | 40 | -14740 | 40 |
| | Re | 75 | 18280 | 50 | 6920 | 40 | 4040 | 40 | -12810 | 40 | 1430 | 40 | -14310 | 30 |
| | Os | 76 | 18894 | 16 | 5476 | 30 | 4871 | 10 | -14677 | 15 | 1443 | 30 | -17798 | 15 |
| | Ir | 77 | 19630 | 40 | 3900 | 50 | 5625 | 10 | -16630# | 90# | 5400 | 40 | -16990 | 60 |
| | Pt | 78 | 20354 | 15 | 2652 | 16 | 6183 | 3 | -18677 | 22 | 4831 | 18 | -20557 | 25 |
| | Au | 79 | 21060# | 110# | 1430# | 100# | 6699 | 7 | * | | 8740# | 90# | -19600# | 220# |
| | Hg | 80 | 21720 | 150 | 112 | 22 | 7233 | 6 | * | | 8010 | 60 | * | |
| 175 | Ho | 67 | 10000# | 500# | * | | -1600# | 640# | 9110# | 400# | * | | 680# | 500# |
| | Er | 68 | 11140# | 450# | 19290# | 570# | -890# | 500# | 6040# | 400# | -14570# | 640# | -2860# | 400# |
| | Tm | 69 | 12200 | 50 | 17540# | 300# | -220 | 600 | 2860 | 50 | -13910# | 300# | -3440 | 50 |
| | Yb | 70 | 13286.96 | 0.07 | 15620# | 200# | 598.5 | 1.6 | -213.9 | 2.3 | -10040# | 300# | -7196.7 | 1.6 |
| | Lu | 71 | 14427.3 | 1.0 | 13487 | 5 | 1619.8 | 1.5 | -2757 | 28 | -8590 | 40 | -7392.4 | 1.9 |
| | Hf | 72 | 15213 | 28 | 11508.4 | 2.3 | 2400.2 | 2.3 | -4849 | 28 | -4826.1 | 2.3 | -10812 | 28 |
| | Ta | 73 | 16150 | 40 | 10106 | 28 | 2995 | 28 | -7120 | 40 | -4127 | 28 | -10250 | 40 |
| | W | 74 | 17050 | 40 | 8800 | 40 | 3370 | 40 | -9530 | 30 | -1077 | 28 | -14030 | 40 |
| | Re | 75 | 17880 | 40 | 7470 | 40 | 4010 | 40 | -11890 | 30 | -840 | 40 | -13364 | 30 |
| | Os | 76 | 18810 | 19 | 5960 | 30 | 4560 | 30 | -14392 | 22 | 2830 | 30 | -17313 | 27 |
| | Ir | 77 | 19269 | 17 | 4420 | 30 | 5430 | 30 | -15990 | 40 | 2990 | 30 | -16148 | 16 |
| | Pt | 78 | 19910 | 60 | 2853 | 24 | 6164 | 4 | -17740 | 80 | 6993 | 21 | -19550# | 90# |
| | Au | 79 | 20710 | 40 | 1710 | 40 | 6583 | 4 | * | | 6170 | 50 | -18830 | 40 |
| | Hg | 80 | 21410# | 210# | 610 | 90 | 7072 | 5 | * | | 10060 | 70 | * | |
| 176 | Ho | 67 | 9740# | 590# | * | | -1870# | 710# | 10080# | 510# | * | | 1290# | 640# |
| | Er | 68 | 10820# | 500# | 19840# | 640# | -1050# | 500# | 6860# | 400# | * | | -2390# | 400# |
| | Tm | 69 | 11650 | 110 | 18260# | 310# | -310# | 220# | 4010 | 100 | -13460# | 410# | -2750 | 100 |
| | Yb | 70 | 12689.44 | 0.02 | 16120# | 300# | 567 | 4 | 1085.0 | 1.5 | -12130# | 400# | -6397.0 | 1.2 |
| | Lu | 71 | 13954.7 | 1.0 | 14100 | 40 | 1567 | 6 | -2020 | 30 | -8360 | 50 | -6971.9 | 1.9 |
| | Hf | 72 | 14874.5 | 1.7 | 12209.8 | 1.5 | 2254.2 | 1.5 | -3935 | 28 | -7169.7 | 1.5 | -10239 | 28 |
| | Ta | 73 | 15770 | 40 | 10370 | 30 | 2950 | 30 | -6300 | 40 | -3490 | 30 | -9800 | 40 |
| | W | 74 | 16560 | 40 | 9375 | 28 | 3340 | 40 | -8540 | 40 | -3449 | 28 | -13420 | 40 |
| | Re | 75 | 17530 | 40 | 7900 | 40 | 3840 | 40 | -11180 | 30 | 60 | 40 | -13030 | 30 |
| | Os | 76 | 18245 | 30 | 6450 | 40 | 4570 | 40 | -13160 | 30 | 250 | 40 | -16770 | 30 |
| | Ir | 77 | 19157 | 30 | 4780 | 30 | 5230 | 40 | -15360 | 40 | 4120 | 30 | -16236 | 25 |
| | Pt | 78 | 19758 | 16 | 3516 | 16 | 5885.1 | 2.1 | -17149 | 17 | 3883 | 17 | -19600 | 40 |
| | Au | 79 | 20430# | 100# | 2240 | 40 | 6433 | 7 | -19100 | 80 | 7580 | 40 | -18620 | 80 |
| | Hg | 80 | 21287 | 22 | 1045 | 15 | 6897 | 6 | * | | 6640 | 21 | * | |
| | Tl | 81 | * | | -240# | 120# | 7470 | 90 | * | | 10700 | 80 | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|----|---------|------|--------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 177 | Er | 68 | 4300# | 640# | 10860# | 710# | 10020# | 500# | 11060# | 640# | 7700# | 590# | 4160# | 710# |
| | Tm | 69 | 6170# | 310# | 8130# | 500# | 4250# | 300# | 11890# | 500# | 9350# | 420# | 3870# | 420# |
| | Yb | 70 | 5566.40 | 0.22 | 8900 | 100 | -1285 | 28 | 12030 | 50 | 7740 | 40 | 6610# | 300# |
| | Lu | 71 | 7072.89 | 0.16 | 6181.5 | 1.2 | -6115 | 28 | 13022.5 | 1.2 | 9424.8 | 1.2 | 7130 | 40 |
| | Hf | 72 | 6375.6 | 1.0 | 6787.4 | 0.8 | -10924 | 15 | 12995.8 | 0.8 | 7553.6 | 1.3 | 9710.3 | 1.4 |
| | Ta | 73 | 8420 | 30 | 4427 | 3 | -15667 | 20 | 13478 | 4 | 8994 | 4 | 9502 | 3 |
| | W | 74 | 7130 | 40 | 5630 | 40 | -20330 | 30 | 13420 | 40 | 6900 | 40 | 11789 | 28 |
| | Re | 75 | 9280 | 40 | 2920 | 40 | -24724 | 30 | 14070 | 40 | 8820 | 40 | 11120 | 40 |
| | Os | 76 | 7930 | 30 | 4180 | 30 | -29170 | 80 | 14040 | 30 | 6580 | 30 | 13920 | 30 |
| | Ir | 77 | 10240 | 26 | 1240 | 30 | -32707 | 29 | 14769 | 23 | 8812 | 22 | 13270 | 30 |
| | Pt | 78 | 8508 | 20 | 2781 | 22 | * | | 14735 | 19 | 6357 | 29 | 16271 | 18 |
| | Au | 79 | 11100 | 30 | -100 | 15 | * | | 14879 | 21 | 8637 | 15 | 14965 | 26 |
| | Hg | 80 | 9070 | 80 | 1550 | 80 | * | | 15330 | 80 | 6320# | 120# | 18180 | 80 |
| | Tl | 81 | 11990 | 80 | -1155 | 19 | * | | 15340 | 80 | 8165 | 29 | 16540# | 90# |
| 178 | Er | 68 | 5470# | 780# | * | | 12180# | 600# | 9740# | 780# | 7810# | 720# | * | |
| | Tm | 69 | 4720# | 500# | 8550# | 640# | 6480# | 400# | 13230# | 570# | 9400# | 570# | 4730# | 570# |
| | Yb | 70 | 6780 | 10 | 9520# | 300# | 711 | 18 | 10390 | 100 | 7480 | 50 | 4600# | 400# |
| | Lu | 71 | 6025.3 | 1.9 | 6640.4 | 2.3 | -4684 | 28 | 13864.3 | 2.3 | 9221.8 | 2.3 | 7620 | 50 |
| | Hf | 72 | 7625.94 | 0.18 | 7340.4 | 0.8 | -8891 | 14 | 11657.8 | 0.8 | 7594.4 | 0.8 | 7906.7 | 1.4 |
| | Ta | 73 | 6960# | 50# | 5010# | 50# | -14350# | 60# | 14690# | 50# | 8750# | 50# | 10210# | 50# |
| | W | 74 | 8780 | 30 | 5981 | 15 | -18409 | 18 | 11670 | 30 | 6870 | 30 | 9721 | 15 |
| | Re | 75 | 7460 | 40 | 3240 | 40 | -23350 | 30 | 15700 | 40 | 8840 | 40 | 12400 | 40 |
| | Os | 76 | 9659 | 20 | 4560 | 30 | -27228 | 17 | 12230 | 30 | 6610 | 30 | 11730 | 30 |
| | Ir | 77 | 8276 | 28 | 1584 | 25 | -31460# | 90# | 16560 | 30 | 8718 | 23 | 14680 | 30 |
| | Pt | 78 | 10698 | 18 | 3239 | 22 | -35572 | 26 | 12592 | 20 | 6261 | 16 | 13754 | 16 |
| | Au | 79 | 8830 | 15 | 222 | 18 | * | | 17341 | 16 | 8274 | 21 | 16737 | 16 |
| | Hg | 80 | 11600 | 80 | 2060 | 15 | * | | 12920 | 30 | 5950 | 40 | 15044 | 21 |
| | Tl | 81 | 9520# | 90# | -700# | 120# | * | | 17710# | 90# | 8050# | 120# | 18260# | 100# |
| | Pb | 82 | * | | 370 | 30 | * | | 13700 | 80 | * | | 17190 | 80 |
| 179 | Tm | 69 | 5560# | 640# | 8630# | 780# | 8760# | 500# | 11970# | 710# | 9890# | 640# | 3340# | 710# |
| | Yb | 70 | 4910# | 200# | 9710# | 450# | 2760# | 200# | 11640# | 360# | 7700# | 220# | 5740# | 450# |
| | Lu | 71 | 6792 | 5 | 6652 | 11 | -2475 | 25 | 12638 | 5 | 9296 | 5 | 5960 | 100 |
| | Hf | 72 | 6098.99 | 0.08 | 7414.1 | 2.1 | -7443 | 17 | 12631.7 | 0.8 | 7783.4 | 0.8 | 8674.8 | 1.4 |
| | Ta | 73 | 7830# | 50# | 5211.1 | 0.4 | -12276 | 10 | 13234.1 | 0.5 | 9083.1 | 1.1 | 8671.3 | 0.9 |
| | W | 74 | 6960 | 21 | 5990# | 50# | -17027 | 17 | 13130 | 15 | 6930 | 30 | 10928 | 15 |
| | Re | 75 | 9000 | 40 | 3466 | 29 | -21596 | 27 | 13830 | 40 | 8920 | 40 | 10430 | 40 |
| | Os | 76 | 7547 | 21 | 4660 | 30 | -26090 | 30 | 13960 | 30 | 6910 | 30 | 13270 | 30 |
| | Ir | 77 | 9901 | 22 | 1826 | 17 | -29810 | 40 | 14586 | 18 | 8880 | 30 | 12628 | 30 |
| | Pt | 78 | 8342 | 13 | 3305 | 21 | -34320 | 80 | 14490 | 21 | 6474 | 19 | 15476 | 29 |
| | Au | 79 | 10756 | 15 | 280 | 15 | * | | 15093 | 19 | 8809 | 17 | 14536 | 20 |
| | Hg | 80 | 8684 | 29 | 1913 | 29 | * | | 15328 | 29 | 6460 | 40 | 17650 | 30 |
| | Tl | 81 | 11550# | 100# | -760 | 40 | * | | 15220 | 80 | 8380 | 40 | 15900 | 50 |
| | Pb | 82 | 9590 | 80 | 450# | 120# | * | | 16100 | 80 | 6333 | 27 | 19480 | 80 |
| 180 | Tm | 69 | 4390# | 710# | * | | 11010# | 500# | 13050# | 780# | 9800# | 710# | * | |
| | Yb | 70 | 6130# | 360# | 10290# | 590# | 5040# | 300# | 10230# | 500# | 7730# | 420# | 3910# | 590# |
| | Lu | 71 | 5690 | 70 | 7430# | 210# | -840 | 70 | 13730 | 70 | 9170 | 70 | 6440# | 310# |
| | Hf | 72 | 7387.76 | 0.15 | 8009 | 5 | -5422 | 16 | 11269.2 | 2.1 | 7468.5 | 0.8 | 6853.5 | 1.4 |
| | Ta | 73 | 6646.9 | 2.3 | 5758.9 | 2.3 | -10955 | 22 | 14213.2 | 2.3 | 8811.8 | 2.3 | 9097.3 | 2.2 |
| | W | 74 | 8412 | 15 | 6567.8 | 0.5 | -15200 | 11 | 11670# | 50# | 6943 | 3 | 8890.9 | 0.4 |
| | Re | 75 | 7320 | 30 | 3831 | 26 | -20212 | 22 | 15280 | 26 | 8730 | 40 | 11524 | 22 |
| | Os | 76 | 9410 | 23 | 5063 | 30 | -24107 | 21 | 12010 | 30 | 6780 | 30 | 10990 | 30 |
| | Ir | 77 | 7967 | 24 | 2247 | 27 | -28590 | 60 | 16278 | 26 | 8843 | 26 | 13940 | 40 |
| | Pt | 78 | 10239 | 14 | 3643 | 15 | -32494 | 17 | 12527 | 23 | 6476 | 23 | 13167 | 18 |
| | Au | 79 | 8708 | 13 | 646 | 9 | * | | 17083 | 11 | 8609 | 16 | 16068 | 20 |
| | Hg | 80 | 11390 | 30 | 2551 | 17 | * | | 12764 | 16 | 6159 | 15 | 14766 | 20 |
| | Tl | 81 | 9190 | 70 | -250 | 70 | * | | 17640 | 60 | 8260 | 100 | 17800 | 60 |
| | Pb | 82 | 12060 | 80 | 960 | 40 | * | | 13560# | 90# | 6263 | 20 | 16490 | 80 |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q($2\beta^-$) | | Q(ϵp) | | Q($\beta^- n$) | |
|-----|------|----|----------|------|---------|------|---------------|------|-----------------|------|-------------------|------|------------------|------|
| 177 | Er | 68 | 10350# | 640# | * | | -1340# | 640# | 8130# | 500# | * | | -1560# | 510# |
| | Tm | 69 | 11300# | 300# | 18840# | 500# | -540# | 420# | 4920# | 300# | -15470# | 590# | -2050# | 300# |
| | Yb | 70 | 12433.48 | 0.23 | 16910# | 400# | 240# | 200# | 1894.2 | 1.4 | -11650# | 400# | -5675.5 | 1.2 |
| | Lu | 71 | 13360.86 | 0.22 | 14650 | 50 | 1447 | 5 | -669 | 3 | -10300 | 100 | -5878.8 | 0.9 |
| | Hf | 72 | 14541.6 | 2.0 | 12763.0 | 1.4 | 2245.7 | 1.4 | -3179 | 28 | -6678.3 | 1.4 | -9590 | 30 |
| | Ta | 73 | 15449 | 28 | 11127 | 3 | 2741 | 3 | -5445 | 28 | -5621 | 3 | -9144 | 28 |
| | W | 74 | 16210 | 40 | 9798 | 28 | 3290 | 40 | -7750 | 30 | -2414 | 28 | -12710 | 40 |
| | Re | 75 | 17120 | 40 | 8440 | 40 | 3700 | 40 | -10220 | 30 | -2190 | 40 | -12240 | 40 |
| | Os | 76 | 17994 | 19 | 6900 | 30 | 4350 | 30 | -12586 | 21 | 1400 | 30 | -16149 | 22 |
| | Ir | 77 | 18796 | 23 | 5340 | 30 | 5080 | 30 | -14502 | 22 | 1730 | 30 | -15185 | 24 |
| | Pt | 78 | 19800 | 24 | 3843 | 19 | 5642.9 | 2.7 | -16590 | 80 | 5440 | 30 | -18920 | 40 |
| | Au | 79 | 20280 | 40 | 2729 | 16 | 6298 | 4 | -18205 | 24 | 5044 | 20 | -17831 | 15 |
| | Hg | 80 | 20950 | 100 | 1650 | 80 | 6740 | 50 | * | | 8860 | 80 | -21440 | 110 |
| | Tl | 81 | * | | 510 | 40 | 7067 | 7 | * | | 7890 | 40 | * | |
| 178 | Er | 68 | 9770# | 720# | * | | -1320# | 780# | 9440# | 600# | * | | -860# | 670# |
| | Tm | 69 | 10890# | 410# | 19400# | 640# | -850# | 500# | 6220# | 400# | * | | -1200# | 400# |
| | Yb | 70 | 12347 | 10 | 17640# | 400# | -170# | 300# | 2740 | 10 | -14130# | 500# | -5383 | 10 |
| | Lu | 71 | 13098.2 | 1.9 | 15540 | 100 | 1100 | 40 | 260# | 50# | -10160# | 300# | -5528.5 | 2.1 |
| | Hf | 72 | 14001.5 | 1.0 | 13521.9 | 1.4 | 2084.4 | 1.4 | -2028 | 15 | -8737.8 | 1.4 | -8792 | 3 |
| | Ta | 73 | 15380# | 60# | 11790# | 50# | 2550# | 50# | -4950# | 60# | -5500# | 50# | -8970# | 60# |
| | W | 74 | 15910 | 30 | 10409 | 15 | 3013 | 15 | -6863 | 20 | -4815 | 15 | -12210 | 30 |
| | Re | 75 | 16730 | 40 | 8870 | 40 | 3660 | 40 | -9400 | 30 | -1228 | 28 | -11770 | 30 |
| | Os | 76 | 17590 | 30 | 7480 | 30 | 4260 | 30 | -11547 | 17 | -1130 | 30 | -15568 | 24 |
| | Ir | 77 | 18516 | 26 | 5770 | 30 | 5000 | 30 | -13948 | 22 | 2730 | 30 | -14953 | 25 |
| | Pt | 78 | 19206 | 16 | 4478 | 30 | 5573.0 | 2.2 | -15682 | 15 | 2670 | 18 | -18524 | 15 |
| | Au | 79 | 19930 | 30 | 3003 | 20 | 6135 | 25 | -17510# | 90# | 6455 | 22 | -17590 | 80 |
| | Hg | 80 | 20674 | 15 | 1960 | 17 | 6577.3 | 3.0 | -19890 | 26 | 5766 | 18 | -21047 | 24 |
| | Tl | 81 | 21520# | 120# | 850# | 100# | 7020 | 10 | * | | 9470# | 90# | * | |
| | Pb | 82 | * | | -781 | 26 | 7790 | 14 | * | | 9070 | 80 | * | |
| 179 | Tm | 69 | 10270# | 590# | * | | -820# | 640# | 7460# | 500# | * | | 20# | 500# |
| | Yb | 70 | 11690# | 200# | 18260# | 540# | -310# | 450# | 3930# | 200# | -13570# | 630# | -4270# | 200# |
| | Lu | 71 | 12818 | 5 | 16170# | 300# | 830 | 50 | 1298 | 5 | -12230# | 400# | -4695 | 5 |
| | Hf | 72 | 13724.93 | 0.19 | 14054.5 | 1.4 | 1807.7 | 1.4 | -1168 | 15 | -8056 | 10 | -7940# | 50# |
| | Ta | 73 | 14785 | 3 | 12551.5 | 0.9 | 2383.3 | 0.9 | -3773 | 25 | -7308.5 | 2.1 | -8022 | 15 |
| | W | 74 | 15740 | 30 | 10992 | 15 | 2762 | 15 | -6276 | 22 | -4149 | 15 | -11710 | 30 |
| | Re | 75 | 16460 | 40 | 9448 | 25 | 3400 | 40 | -8503 | 27 | -3280# | 60# | -11111 | 28 |
| | Os | 76 | 17206 | 22 | 7900 | 30 | 4190 | 30 | -10751 | 18 | 98 | 22 | -14839 | 26 |
| | Ir | 77 | 18177 | 22 | 6390 | 30 | 4782 | 30 | -13093 | 15 | 283 | 30 | -14156 | 14 |
| | Pt | 78 | 19040 | 17 | 4890 | 17 | 5412 | 9 | -15340 | 28 | 3987 | 16 | -18036 | 13 |
| | Au | 79 | 19586 | 16 | 3519 | 23 | 5981 | 5 | -16720 | 40 | 3974 | 23 | -16744 | 16 |
| | Hg | 80 | 20290 | 80 | 2140 | 30 | 6360 | 30 | -18980 | 80 | 7780 | 29 | -20210# | 90# |
| | Tl | 81 | 21070 | 40 | 1300 | 40 | 6711 | 3 | * | | 6750 | 40 | -19910 | 50 |
| | Pb | 82 | * | | -260 | 110 | 7598 | 20 | * | | 11080 | 80 | * | |
| 180 | Tm | 69 | 9950# | 640# | * | | -1060# | 710# | 8760# | 510# | * | | 550# | 540# |
| | Yb | 70 | 11050# | 300# | 18920# | 670# | -390# | 500# | 5180# | 300# | * | | -3610# | 300# |
| | Lu | 71 | 12480 | 70 | 17140# | 410# | 270 | 120 | 2260 | 70 | -12370# | 510# | -4280 | 70 |
| | Hf | 72 | 13486.75 | 0.17 | 14662 | 10 | 1287.1 | 1.4 | -143.23 | 0.28 | -10530# | 200# | -7493.3 | 0.4 |
| | Ta | 73 | 14480# | 50# | 13173.0 | 2.9 | 2024.4 | 2.2 | -3096 | 21 | -7163 | 5 | -7709 | 15 |
| | W | 74 | 15372 | 15 | 11778.8 | 0.3 | 2515.3 | 1.0 | -5278 | 16 | -6462.2 | 0.3 | -11123 | 25 |
| | Re | 75 | 16330 | 40 | 9820# | 60# | 3100 | 40 | -7860 | 30 | -2769 | 21 | -10889 | 27 |
| | Os | 76 | 16956 | 21 | 8529 | 22 | 3860 | 30 | -9922 | 20 | -2352 | 22 | -14347 | 19 |
| | Ir | 77 | 17868 | 29 | 6900 | 40 | 4660 | 40 | -12352 | 22 | 1320 | 30 | -13781 | 23 |
| | Pt | 78 | 18581 | 15 | 5470 | 17 | 5240 | 30 | -14185 | 17 | 1295 | 20 | -17519 | 16 |
| | Au | 79 | 19464 | 11 | 3952 | 20 | 5828 | 17 | -16240 | 60 | 5167 | 11 | -16769 | 28 |
| | Hg | 80 | 20077 | 17 | 2831 | 16 | 6258.5 | 2.4 | -18309 | 18 | 4729 | 15 | -20050 | 40 |
| | Tl | 81 | 20740# | 110# | 1660 | 60 | 6710 | 50 | * | | 8310 | 60 | -19510 | 100 |
| | Pb | 82 | 21658 | 27 | 203 | 16 | 7419 | 5 | * | | 7698 | 30 | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|----|---------|------|--------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 181 | Tm | 69 | 5320# | 780# | * | | 13270# | 600# | * | | 9950# | 840# | * | |
| | Yb | 70 | 4560# | 420# | 10460# | 590# | 7150# | 300# | 11220# | 590# | 7890# | 500# | 4820# | 670# |
| | Lu | 71 | 6190 | 140 | 7490# | 320# | 1720 | 130 | 12450# | 230# | 9760 | 130 | 4970# | 420# |
| | Hf | 72 | 5694.80 | 0.07 | 8020 | 70 | -3853 | 25 | 12367 | 5 | 7799.0 | 2.1 | 7939 | 10 |
| | Ta | 73 | 7576.8 | 1.3 | 5947.9 | 1.8 | -8975 | 5 | 12735.4 | 1.8 | 8861.0 | 1.8 | 7545.9 | 2.6 |
| | W | 74 | 6669.02 | 0.16 | 6589.9 | 2.3 | -13852 | 14 | 12834.3 | 0.5 | 7230# | 50# | 9847.8 | 0.4 |
| | Re | 75 | 8751 | 25 | 4170 | 13 | -18646 | 24 | 13489 | 19 | 8754 | 20 | 9730# | 50# |
| | Os | 76 | 7260 | 30 | 5000 | 30 | -22889 | 30 | 13750 | 40 | 6970 | 40 | 12503 | 30 |
| | Ir | 77 | 9557 | 22 | 2394 | 17 | -26664 | 11 | 14267 | 17 | 8945 | 15 | 11837 | 28 |
| | Pt | 78 | 8017 | 18 | 3693 | 26 | -31260 | 80 | 14411 | 17 | 6734 | 24 | 14809 | 19 |
| | Au | 79 | 10317 | 21 | 724 | 23 | * | | 15108 | 22 | 8990 | 22 | 14027 | 28 |
| | Hg | 80 | 8482 | 20 | 2325 | 16 | * | | 15038 | 19 | 6507 | 18 | 16983 | 18 |
| | Tl | 81 | 11480 | 60 | -163 | 14 | * | | 14840 | 29 | 8381 | 14 | 15151 | 14 |
| | Pb | 82 | 9250 | 80 | 1020 | 100 | * | | 15860 | 80 | 6540# | 120# | 18840 | 80 |
| 182 | Yb | 70 | 5800# | 500# | 10940# | 720# | 9430# | 400# | 9810# | 640# | 7650# | 640# | * | |
| | Lu | 71 | 5150# | 230# | 8080# | 360# | 3570# | 220# | 13430# | 360# | 9520# | 280# | 5370# | 540# |
| | Hf | 72 | 6718 | 6 | 8540 | 130 | -1440 | 23 | 11340 | 70 | 7873 | 8 | 6130# | 200# |
| | Ta | 73 | 6062.94 | 0.11 | 6316.1 | 1.8 | -7378 | 21 | 14060.2 | 1.8 | 8897.0 | 1.8 | 8275 | 5 |
| | W | 74 | 8083.6 | 1.6 | 7096.7 | 1.4 | -12078 | 13 | 11397.6 | 1.9 | 6975.3 | 1.6 | 7863.2 | 1.6 |
| | Re | 75 | 7000 | 100 | 4500 | 100 | -17150 | 100 | 14900 | 100 | 8710 | 100 | 10560 | 100 |
| | Os | 76 | 9130 | 30 | 5381 | 25 | -21032 | 24 | 11940 | 30 | 6840 | 30 | 10332 | 26 |
| | Ir | 77 | 7660 | 22 | 2790 | 30 | -25724 | 24 | 16017 | 27 | 8832 | 27 | 13180 | 30 |
| | Pt | 78 | 9858 | 19 | 3994 | 14 | -29343 | 18 | 12520 | 25 | 6777 | 16 | 12497 | 21 |
| | Au | 79 | 8501 | 28 | 1208 | 24 | * | | 16846 | 23 | 8831 | 22 | 15427 | 22 |
| | Hg | 80 | 10987 | 18 | 2995 | 22 | * | | 12759 | 11 | 6276 | 15 | 14338 | 13 |
| | Tl | 81 | 8601 | 15 | -44 | 19 | * | | 17633 | 17 | 8464 | 30 | 17307 | 17 |
| | Pb | 82 | 11780 | 80 | 1315 | 15 | * | | 13270 | 60 | 6310 | 40 | 15749 | 30 |
| 183 | Yb | 70 | 4350# | 570# | * | | 11270# | 400# | 10780# | 720# | 7690# | 640# | * | |
| | Lu | 71 | 5910# | 210# | 8190# | 410# | 6090 | 80 | 12080# | 310# | 9750# | 310# | 3850# | 510# |
| | Hf | 72 | 5300 | 30 | 8690# | 200# | 380 | 60 | 12230 | 130 | 8260 | 80 | 6960# | 300# |
| | Ta | 73 | 6934.18 | 0.20 | 6532 | 6 | -5089 | 24 | 12820.8 | 1.8 | 9350.6 | 1.8 | 7030 | 70 |
| | W | 74 | 6190.84 | 0.04 | 7224.6 | 1.4 | -10593 | 16 | 12783.5 | 1.4 | 7431.4 | 1.9 | 9060.2 | 1.6 |
| | Re | 75 | 8430 | 100 | 4852 | 8 | -15618 | 12 | 13135 | 8 | 8691 | 8 | 8770 | 8 |
| | Os | 76 | 7130 | 50 | 5510 | 110 | -19860 | 50 | 13560 | 50 | 7040 | 50 | 11620 | 50 |
| | Ir | 77 | 9220 | 30 | 2880 | 30 | -23616 | 26 | 14060 | 40 | 9019 | 29 | 11280 | 30 |
| | Pt | 78 | 7675 | 20 | 4010 | 26 | -28200 | 30 | 14401 | 16 | 7069 | 27 | 14232 | 23 |
| | Au | 79 | 9962 | 22 | 1312 | 16 | * | | 14901 | 17 | 9108 | 14 | 13432 | 24 |
| | Hg | 80 | 8299 | 12 | 2793 | 21 | * | | 14777 | 21 | 6685 | 9 | 16278 | 13 |
| | Tl | 81 | 11331 | 15 | 299 | 14 | * | | 14785 | 18 | 8527 | 16 | 14685 | 10 |
| | Pb | 82 | 8820 | 30 | 1540 | 30 | * | | 15934 | 30 | 6680 | 70 | 18320 | 30 |
| 184 | Yb | 70 | 5510# | 640# | * | | 13170# | 500# | * | | 7500# | 780# | * | |
| | Lu | 71 | 4770# | 310# | 8600# | 500# | 7810# | 300# | 13120# | 500# | 9540# | 420# | 4410# | 670# |
| | Hf | 72 | 6290 | 50 | 9070 | 90 | 2750 | 40 | 11090# | 200# | 8160 | 130 | 5240# | 300# |
| | Ta | 73 | 5618 | 26 | 6850 | 40 | -3230 | 40 | 13921 | 27 | 9428 | 26 | 7600 | 130 |
| | W | 74 | 7411.11 | 0.13 | 7701.5 | 1.4 | -8371 | 16 | 11435.4 | 1.4 | 7597.0 | 1.4 | 7343.9 | 1.6 |
| | Re | 75 | 6481 | 9 | 5143 | 4 | -13901 | 23 | 14737 | 4 | 8878 | 5 | 9865 | 4 |
| | Os | 76 | 8660 | 50 | 5732 | 8 | -17904 | 10 | 11900 | 100 | 7129 | 13 | 9627.7 | 1.6 |
| | Ir | 77 | 7480 | 40 | 3240 | 60 | -22728 | 30 | 15710 | 40 | 8800 | 40 | 12550 | 30 |
| | Pt | 78 | 9633 | 22 | 4420 | 29 | -26283 | 20 | 12428 | 26 | 6993 | 16 | 11862 | 30 |
| | Au | 79 | 8199 | 24 | 1835 | 27 | -31380 | 80 | 16561 | 26 | 8927 | 26 | 14791 | 23 |
| | Hg | 80 | 10616 | 12 | 3446 | 14 | * | | 12663 | 23 | 6386 | 22 | 13679 | 17 |
| | Tl | 81 | 8367 | 14 | 368 | 12 | * | | 17404 | 14 | 8642 | 18 | 16634 | 22 |
| | Pb | 82 | 11550 | 30 | 1753 | 16 | * | | 12987 | 17 | 6611 | 14 | 15256 | 20 |
| | Bi | 83 | * | | -1350 | 80 | * | | 18600 | 80 | 9040 | 110 | 19510 | 80 |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q(2β ⁻) | | Q(εp) | | Q(β ⁻ n) | |
|-----|------|----|----------|--------|---------|------|--------|------|---------------------|-------|---------|------|---------------------|--------|
| 181 | Tm | 69 | 9710# | 780# | * | | * | | 9630# | 610# | * | | 1360# | 670# |
| | Yb | 70 | 10690# | 360# | * | | -660# | 590# | 6320# | 300# | * | | -2480# | 310# |
| | Lu | 71 | 11880 | 130 | 17780# | 520# | 250# | 320# | 3640 | 130 | -14170# | 520# | -3090 | 130 |
| | Hf | 72 | 13082.56 | 0.17 | 15440# | 200# | 1158.7 | 1.4 | 831.0 | 0.3 | -10090# | 300# | -6541.3 | 2.3 |
| | Ta | 73 | 14223.6 | 1.9 | 13957 | 5 | 1520.6 | 1.7 | -1921 | 13 | -9050 | 70 | -6873.5 | 1.8 |
| | W | 74 | 15081 | 15 | 12348.9 | 0.4 | 2221.9 | 0.4 | -4684 | 25 | -5743.4 | 0.3 | -10468 | 21 |
| | Re | 75 | 16076 | 28 | 10738 | 13 | 2772 | 13 | -7054 | 14 | -4873 | 13 | -10231 | 21 |
| | Os | 76 | 16670 | 30 | 8833 | 29 | 3730 | 40 | -9168 | 29 | -1203 | 25 | -13640 | 30 |
| | Ir | 77 | 17524 | 11 | 7457 | 25 | 4381 | 28 | -11592 | 21 | -915 | 22 | -13098 | 12 |
| | Pt | 78 | 18256 | 16 | 5940 | 21 | 5150 | 5 | -13720 | 21 | 2687 | 21 | -16827 | 15 |
| | Au | 79 | 19025 | 23 | 4367 | 22 | 5751.4 | 2.9 | -15072 | 22 | 2817 | 29 | -15692 | 24 |
| | Hg | 80 | 19880 | 30 | 2971 | 17 | 6284 | 4 | -17540 | 80 | 6486 | 19 | -19350 | 60 |
| | Tl | 81 | 20670 | 40 | 2388 | 15 | 6321 | 6 | * | | 5538 | 10 | -18929 | 15 |
| | Pb | 82 | 21310 | 110 | 770 | 80 | 7240 | 7 | * | | 9840 | 80 | * | |
| 182 | Yb | 70 | 10360# | 500# | * | | -990# | 720# | 7230# | 400# | * | | -2090# | 420# |
| | Lu | 71 | 11350# | 210# | 18540# | 540# | -190# | 450# | 4550# | 200# | -14000# | 630# | -2550# | 200# |
| | Hf | 72 | 12413 | 6 | 16030# | 300# | 1221 | 12 | 2197 | 6 | -12250# | 300# | -5683 | 6 |
| | Ta | 73 | 13639.7 | 1.3 | 14330 | 70 | 1482.9 | 2.6 | -980 | 100 | -8920 | 130 | -6267.4 | 1.9 |
| | W | 74 | 14752.6 | 1.6 | 13044.7 | 1.6 | 1764.3 | 1.6 | -3637 | 22 | -8132.2 | 1.6 | -9800 | 13 |
| | Re | 75 | 15750 | 100 | 11090 | 100 | 2730# | 120# | -6390 | 100 | -4300 | 100 | -9970 | 110 |
| | Os | 76 | 16394 | 27 | 9551 | 22 | 3373 | 27 | -8441 | 25 | -3664 | 22 | -13217 | 22 |
| | Ir | 77 | 17220 | 30 | 7792 | 30 | 4180 | 30 | -10751 | 29 | 177 | 24 | -12741 | 25 |
| | Pt | 78 | 17875 | 17 | 6389 | 21 | 4951 | 5 | -12592 | 16 | 93 | 29 | -16369 | 24 |
| | Au | 79 | 18818 | 21 | 4901 | 30 | 5526 | 4 | -14973 | 23 | 3873 | 21 | -15711 | 25 |
| | Hg | 80 | 19469 | 16 | 3719 | 15 | 5996 | 5 | -16752 | 16 | 3516 | 17 | -18850 | 13 |
| | Tl | 81 | 20080 | 60 | 2280 | 13 | 6551 | 6 | * | | 7254 | 23 | -18280 | 80 |
| | Pb | 82 | 21026 | 17 | 1153 | 18 | 7066 | 6 | * | | 6547 | 20 | * | |
| | 183 | Yb | 70 | 10150# | 500# | * | | * | | 8180# | 400# | * | | -1290# |
| Lu | | 71 | 11060 | 150 | 19120# | 600# | -540# | 510# | 5580 | 80 | * | | -1740 | 80 |
| Hf | | 72 | 12020 | 30 | 16770# | 300# | 830# | 200# | 3080 | 30 | -11750# | 400# | -4920 | 30 |
| Ta | | 73 | 12997.12 | 0.23 | 15070 | 130 | 1341 | 5 | 517 | 8 | -10700# | 200# | -5118.1 | 1.4 |
| W | | 74 | 14274.4 | 1.6 | 13540.7 | 1.6 | 1672.4 | 1.6 | -2700 | 50 | -7605 | 6 | -8990 | 100 |
| Re | | 75 | 15435 | 15 | 11949 | 8 | 2123 | 8 | -5606 | 26 | -6669 | 8 | -9272 | 23 |
| Os | | 76 | 16260 | 60 | 10010 | 50 | 3210 | 50 | -7890 | 50 | -2710 | 50 | -12680 | 50 |
| Ir | | 77 | 16883 | 25 | 8264 | 27 | 3960 | 30 | -10012 | 26 | -2050 | 100 | -12106 | 28 |
| Pt | | 78 | 17534 | 21 | 6800 | 30 | 4822 | 9 | -11968 | 17 | 1548 | 27 | -15543 | 26 |
| Au | | 79 | 18463 | 22 | 5306 | 11 | 5465.3 | 2.9 | -13604 | 13 | 1571 | 23 | -14686 | 14 |
| Hg | | 80 | 19286 | 17 | 4001 | 15 | 6039 | 4 | -16229 | 29 | 5075 | 15 | -18548 | 14 |
| Tl | | 81 | 19931 | 13 | 3294 | 22 | 5976 | 9 | * | | 4425 | 22 | -17833 | 15 |
| Pb | | 82 | 20600 | 80 | 1490 | 30 | 6928 | 7 | * | | 8713 | 30 | * | |
| 184 | | Yb | 70 | 9860# | 640# | * | | * | | 8960# | 510# | * | | -900# |
| | Lu | 71 | 10680# | 360# | * | | -920# | 590# | 6430# | 300# | * | | -1200# | 300# |
| | Hf | 72 | 11590 | 40 | 17260# | 400# | 680# | 300# | 4210 | 40 | -13690# | 400# | -4280 | 40 |
| | Ta | 73 | 12552 | 26 | 15540# | 200# | 1410 | 80 | 1380 | 26 | -10410 | 80 | -4545 | 26 |
| | W | 74 | 13601.95 | 0.14 | 14234 | 6 | 1649.1 | 1.6 | -1452.8 | 0.7 | -9710 | 30 | -7967 | 8 |
| | Re | 75 | 14920 | 100 | 12368 | 4 | 2288 | 5 | -4609 | 28 | -6216 | 4 | -8630 | 50 |
| | Os | 76 | 15786 | 22 | 10584.4 | 0.7 | 2958.7 | 1.6 | -6918 | 16 | -5175.9 | 0.7 | -12121 | 24 |
| | Ir | 77 | 16700 | 30 | 8740 | 110 | 3800 | 40 | -9290 | 40 | -1090 | 29 | -11910 | 30 |
| | Pt | 78 | 17308 | 20 | 7303 | 27 | 4599 | 8 | -10985 | 19 | -960 | 50 | -15214 | 18 |
| | Au | 79 | 18160 | 30 | 5840 | 30 | 5234 | 5 | -13435 | 24 | 2600 | 30 | -14585 | 23 |
| | Hg | 80 | 18915 | 14 | 4758 | 16 | 5662 | 4 | -15297 | 16 | 2135 | 18 | -17833 | 14 |
| | Tl | 81 | 19698 | 16 | 3160 | 23 | 6317 | 9 | -17950 | 80 | 6019 | 14 | -17379 | 30 |
| | Pb | 82 | 20369 | 18 | 2053 | 16 | 6774 | 3 | * | | 5464 | 15 | * | |
| | Bi | 83 | * | | 190 | 80 | 8020 | 50 | * | | 10360 | 80 | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|----|---------|------|---------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 185 | Yb | 70 | 4030# | 710# | * | | 14890# | 500# | * | | * | | * | |
| | Lu | 71 | 5550# | 420# | 8640# | 590# | 9930# | 300# | 11920# | 500# | 9800# | 500# | * | |
| | Hf | 72 | 4890 | 80 | 9200# | 310# | 4490 | 60 | 12110 | 100 | 8420# | 210# | 6150# | 410# |
| | Ta | 73 | 6626 | 30 | 7180 | 40 | -1060 | 30 | 12600 | 30 | 9519 | 15 | 6130# | 200# |
| | W | 74 | 5753.74 | 0.05 | 7837 | 26 | -6700 | 26 | 12615.8 | 1.4 | 7906.2 | 1.4 | 8308 | 6 |
| | Re | 75 | 7671 | 4 | 5402.6 | 0.7 | -11960.9 | 2.7 | 13257.4 | 0.7 | 9291.1 | 0.7 | 8257.3 | 1.5 |
| | Os | 76 | 6624.66 | 0.27 | 5875 | 4 | -16622 | 14 | 13715 | 8 | 7500 | 100 | 11086.6 | 0.7 |
| | Ir | 77 | 8800 | 40 | 3372 | 28 | -20580 | 30 | 14040 | 60 | 9140 | 40 | 10760 | 110 |
| | Pt | 78 | 7430 | 30 | 4370 | 40 | -25150 | 30 | 14230 | 40 | 7230 | 30 | 13570 | 30 |
| | Au | 79 | 9611 | 22 | 1813 | 16 | -29620# | 80# | 14625 | 16 | 9174 | 13 | 12840 | 21 |
| | Hg | 80 | 7906 | 17 | 3154 | 26 | * | | 14719 | 17 | 6981 | 24 | 15631 | 19 |
| | Tl | 81 | 10946 | 23 | 698 | 23 | * | | 14758 | 22 | 8683 | 23 | 14189 | 29 |
| | Pb | 82 | 8561 | 21 | 1947 | 19 | * | | 15757 | 19 | 6651 | 20 | 17682 | 19 |
| | Bi | 83 | 11370# | 110# | -1530# | 80# | * | | 16050# | 90# | 9450# | 80# | 16740# | 80# |
| 186 | Lu | 71 | 4390# | 500# | 9000# | 640# | 11720# | 400# | 13040# | 640# | 9750# | 570# | * | |
| | Hf | 72 | 6180 | 80 | 9830# | 300# | 6580 | 50 | 10700# | 300# | 8160 | 100 | 4320# | 400# |
| | Ta | 73 | 5280 | 60 | 7580 | 90 | 560 | 60 | 13600 | 70 | 9540 | 70 | 6750 | 100 |
| | W | 74 | 7192.1 | 1.2 | 8403 | 14 | -4644 | 22 | 11042 | 26 | 7648.3 | 1.8 | 6420 | 30 |
| | Re | 75 | 6179.38 | 0.17 | 5828.3 | 0.7 | -10212 | 21 | 14489.1 | 0.7 | 9302.5 | 0.7 | 9012.1 | 1.5 |
| | Os | 76 | 8265.4 | 0.9 | 6469.9 | 0.8 | -14461 | 12 | 11930 | 4 | 7674 | 8 | 9012.0 | 0.9 |
| | Ir | 77 | 6910 | 30 | 3655 | 17 | -19286 | 28 | 15791 | 17 | 9360 | 50 | 12284 | 18 |
| | Pt | 78 | 9250 | 30 | 4820 | 40 | -23182 | 25 | 12460 | 40 | 7200 | 30 | 11450 | 50 |
| | Au | 79 | 7928 | 21 | 2320 | 30 | -28569 | 27 | 16330 | 26 | 8922 | 26 | 14130 | 30 |
| | Hg | 80 | 10427 | 18 | 3970 | 12 | -32640 | 22 | 12490 | 25 | 6516 | 15 | 12880 | 19 |
| | Tl | 81 | 8200 | 30 | 992 | 26 | * | | 17173 | 25 | 8782 | 23 | 15951 | 24 |
| | Pb | 82 | 11212 | 20 | 2213 | 24 | * | | 12912 | 15 | 6769 | 15 | 14769 | 13 |
| | Bi | 83 | 8980# | 80# | -1106 | 23 | * | | 18616 | 21 | 9290 | 30 | 19087 | 19 |
| | Po | 84 | * | | 950# | 80# | * | | 13750 | 80 | * | | 17320 | 30 |
| 187 | Lu | 71 | 5440# | 570# | * | | 13640# | 400# | 11630# | 640# | 9820# | 640# | * | |
| | Hf | 72 | 4460# | 300# | 9900# | 500# | 8400# | 300# | 11780# | 420# | 8460# | 420# | 5370# | 590# |
| | Ta | 73 | 6360 | 80 | 7760 | 80 | 2650 | 60 | 12140 | 90 | 9470 | 70 | 5160# | 300# |
| | W | 74 | 5466.76 | 0.04 | 8590 | 60 | -3219 | 24 | 12201 | 14 | 7799 | 26 | 7240 | 40 |
| | Re | 75 | 7360.7 | 0.9 | 5996.9 | 1.1 | -8189 | 22 | 12882.1 | 0.9 | 9353.0 | 0.9 | 7269 | 26 |
| | Os | 76 | 6290.3 | 0.5 | 6580.8 | 0.9 | -13101 | 14 | 13310.9 | 0.9 | 7865 | 4 | 10132.8 | 0.9 |
| | Ir | 77 | 8450 | 30 | 3838 | 28 | -17105 | 29 | 13967 | 28 | 9567 | 28 | 10317 | 28 |
| | Pt | 78 | 6890 | 30 | 4802 | 29 | -21698 | 25 | 14360 | 40 | 7790 | 40 | 13214 | 24 |
| | Au | 79 | 9380 | 30 | 2450 | 30 | -26645 | 24 | 14370 | 30 | 9170 | 27 | 12230 | 40 |
| | Hg | 80 | 7650 | 18 | 3692 | 25 | -30950 | 30 | 14451 | 14 | 7065 | 26 | 14863 | 21 |
| | Tl | 81 | 10629 | 24 | 1194 | 14 | * | | 14450 | 16 | 8768 | 13 | 13521 | 24 |
| | Pb | 82 | 8376 | 12 | 2389 | 23 | * | | 15482 | 21 | 6760 | 11 | 17008 | 11 |
| | Bi | 83 | 11308 | 20 | -1010 | 15 | * | | 15869 | 19 | 9532 | 16 | 16146 | 14 |
| | Po | 84 | 9340 | 40 | 1310 | 40 | * | | 15780# | 90# | 6630 | 80 | 19530 | 30 |
| 188 | Lu | 71 | 4280# | 640# | * | | 15230# | 500# | * | | 9570# | 710# | * | |
| | Hf | 72 | 6130# | 420# | 10590# | 500# | 10260# | 300# | 10040# | 500# | 7870# | 420# | 3270# | 590# |
| | Ta | 73 | 4790 | 80 | 8080# | 300# | 4730 | 60 | 13520 | 80 | 9570 | 80 | 5920# | 300# |
| | W | 74 | 6835 | 3 | 9060 | 60 | -847 | 6 | 10650 | 60 | 7591 | 14 | 5300 | 60 |
| | Re | 75 | 5871.65 | 0.04 | 6401.8 | 1.1 | -6645.5 | 2.8 | 14202.5 | 1.1 | 9235.0 | 0.9 | 8024 | 14 |
| | Os | 76 | 7989.61 | 0.15 | 7209.73 | 0.15 | -10935 | 12 | 11500.7 | 0.9 | 7545.8 | 0.9 | 7897.0 | 0.9 |
| | Ir | 77 | 6867 | 29 | 4415 | 9 | -16010 | 30 | 15366 | 9 | 9325 | 9 | 11121 | 9 |
| | Pt | 78 | 9207 | 25 | 5561 | 28 | -20006 | 12 | 12062 | 17 | 7379 | 28 | 10631 | 5 |
| | Au | 79 | 7415 | 22 | 2975 | 24 | -25177 | 12 | 16204 | 22 | 9181 | 26 | 13611 | 28 |
| | Hg | 80 | 10155 | 19 | 4463 | 25 | -29658 | 23 | 12224 | 24 | 6520 | 13 | 12133 | 29 |
| | Tl | 81 | 7960 | 30 | 1510 | 30 | * | | 16910 | 30 | 8710 | 30 | 15170 | 30 |
| | Pb | 82 | 10900 | 12 | 2660 | 13 | * | | 12782 | 25 | 6807 | 23 | 14015 | 17 |
| | Bi | 83 | 8883 | 15 | -503 | 12 | * | | 18198 | 16 | 9211 | 20 | 18209 | 24 |
| | Po | 84 | 11440 | 40 | 1450 | 22 | * | | 13313 | 26 | 6560# | 80# | 16643 | 26 |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q(2 β^-) | | Q(ϵ_p) | | Q(β^-n) | |
|-----|------|----|----------|------|---------|------|---------------|------|-----------------|------|-------------------|------|-----------------|------|
| 185 | Yb | 70 | 9540# | 640# | * | | * | | 9820# | 510# | * | | -160# | 590# |
| | Lu | 71 | 10310# | 310# | * | | -1140# | 670# | 7510# | 300# | * | | -460# | 300# |
| | Hf | 72 | 11180 | 70 | 17800# | 410# | 340# | 310# | 5070 | 60 | -13070# | 510# | -3550 | 70 |
| | Ta | 73 | 12244 | 14 | 16260 | 80 | 980 | 130 | 2425 | 14 | -12270# | 300# | -3760 | 14 |
| | W | 74 | 13164.85 | 0.14 | 14680 | 30 | 1590.1 | 1.6 | -581.9 | 0.7 | -9180 | 40 | -7239 | 4 |
| | Re | 75 | 14152 | 8 | 13104.2 | 1.5 | 2194.4 | 1.5 | -3483 | 28 | -8269 | 26 | -7637.8 | 0.5 |
| | Os | 76 | 15280 | 50 | 11018.2 | 0.7 | 3003.0 | 1.6 | -6118 | 26 | -4389.5 | 0.7 | -11266 | 28 |
| | Ir | 77 | 16270 | 40 | 9104 | 29 | 3760 | 30 | -8477 | 28 | -3405 | 28 | -11070 | 30 |
| | Pt | 78 | 17060 | 30 | 7600 | 60 | 4437 | 10 | -10504 | 29 | 275 | 26 | -14440 | 30 |
| | Au | 79 | 17809 | 10 | 6233 | 25 | 5180 | 5 | -12100 | 21 | 464 | 28 | -13580 | 10 |
| | Hg | 80 | 18522 | 15 | 4989 | 21 | 5773 | 4 | -14642 | 21 | 3862 | 21 | -17372 | 17 |
| | Tl | 81 | 19313 | 23 | 4144 | 23 | 5688 | 5 | -17520# | 80# | 3270 | 30 | -16778 | 24 |
| | Pb | 82 | 20110 | 30 | 2314 | 18 | 6695 | 5 | * | | 7519 | 19 | -20680 | 80 |
| | Bi | 83 | * | | 230# | 80# | 8140# | 80# | * | | 7360# | 80# | * | |
| 186 | Lu | 71 | 9940# | 500# | * | | * | | 8400# | 410# | * | | 40# | 410# |
| | Hf | 72 | 11070 | 60 | 18460# | 510# | -30# | 400# | 6080 | 50 | -15210# | 510# | -3100 | 50 |
| | Ta | 73 | 11910 | 70 | 16770# | 300# | 850# | 210# | 3320 | 60 | -12010# | 300# | -3290 | 60 |
| | W | 74 | 12945.8 | 1.2 | 15590 | 40 | 1116 | 6 | 491.4 | 1.2 | -11480 | 60 | -6760.8 | 1.2 |
| | Re | 75 | 13850 | 4 | 13666 | 26 | 2077.9 | 1.5 | -2755 | 17 | -7822 | 14 | -7192.5 | 0.5 |
| | Os | 76 | 14890.0 | 0.9 | 11872.5 | 0.9 | 2821.2 | 0.9 | -5135 | 22 | -6901.1 | 0.9 | -10736 | 28 |
| | Ir | 77 | 15700 | 30 | 9531 | 17 | 3850 | 100 | -7457 | 27 | -2642 | 17 | -10560 | 30 |
| | Pt | 78 | 16673 | 27 | 8190 | 22 | 4320 | 18 | -9325 | 25 | -2348 | 22 | -14078 | 22 |
| | Au | 79 | 17540 | 30 | 6680 | 30 | 4912 | 14 | -11830 | 30 | 1330 | 30 | -13603 | 25 |
| | Hg | 80 | 18333 | 15 | 5783 | 19 | 5204 | 10 | -13857 | 16 | 860 | 28 | -16853 | 24 |
| | Tl | 81 | 19146 | 24 | 4150 | 30 | 5990 | 30 | -16740 | 28 | 4683 | 23 | -16417 | 28 |
| | Pb | 82 | 19773 | 17 | 2911 | 15 | 6470 | 6 | -18783 | 22 | 4213 | 18 | -20520# | 80# |
| | Bi | 83 | 20350 | 80 | 841 | 20 | 7757 | 12 | * | | 9323 | 27 | * | |
| | Po | 84 | * | | -575 | 22 | 8501 | 14 | * | | 8353 | 24 | * | |
| 187 | Lu | 71 | 9840# | 500# | * | | * | | 9320# | 400# | * | | 770# | 400# |
| | Hf | 72 | 10640# | 310# | 18890# | 590# | -140# | 500# | 7090# | 300# | * | | -2280# | 300# |
| | Ta | 73 | 11640 | 60 | 17590# | 300# | 400 | 100 | 4320 | 60 | -13970# | 400# | -2460 | 60 |
| | W | 74 | 12658.8 | 1.2 | 16160 | 60 | 950 | 30 | 1315.0 | 1.1 | -10770 | 50 | -6048.2 | 1.2 |
| | Re | 75 | 13540.1 | 0.9 | 14400 | 14 | 1651.4 | 1.5 | -1667 | 28 | -9900 | 60 | -6287.9 | 0.5 |
| | Os | 76 | 14555.7 | 0.9 | 12409.1 | 0.9 | 2721.7 | 0.9 | -4534 | 24 | -5999.4 | 1.1 | -10118 | 17 |
| | Ir | 77 | 15360 | 40 | 10308 | 28 | 3835 | 29 | -6520 | 40 | -4911 | 28 | -9760 | 40 |
| | Pt | 78 | 16140 | 40 | 8457 | 24 | 4550 | 60 | -8567 | 28 | -974 | 24 | -13040 | 30 |
| | Au | 79 | 17312 | 22 | 7270 | 40 | 4751 | 29 | -10583 | 24 | -1144 | 28 | -12560 | 25 |
| | Hg | 80 | 18077 | 19 | 6008 | 29 | 5230 | 14 | -13131 | 15 | 2458 | 26 | -16303 | 26 |
| | Tl | 81 | 18829 | 22 | 5164 | 8 | 5322 | 7 | -16061 | 13 | 1981 | 22 | -15834 | 14 |
| | Pb | 82 | 19588 | 17 | 3381 | 15 | 6393 | 6 | -17820 | 30 | 6263 | 13 | -19912 | 18 |
| | Bi | 83 | 20290# | 80# | 1203 | 23 | 7779 | 4 | * | | 6214 | 24 | -18556 | 21 |
| | Po | 84 | * | | 210 | 40 | 7979 | 15 | * | | 10220 | 30 | * | |
| 188 | Lu | 71 | 9720# | 640# | * | | * | | 9820# | 510# | * | | 960# | 590# |
| | Hf | 72 | 10600# | 300# | * | | -760# | 590# | 7790# | 300# | * | | -2060# | 300# |
| | Ta | 73 | 11150 | 80 | 17980# | 400# | 380# | 300# | 5400 | 50 | -13320# | 400# | -1780 | 50 |
| | W | 74 | 12302 | 3 | 16820 | 50 | 410 | 40 | 2469 | 3 | -13140# | 300# | -5523 | 3 |
| | Re | 75 | 13232.4 | 0.9 | 14990 | 60 | 1398 | 26 | -672 | 9 | -9410 | 60 | -5869.18 | 0.04 |
| | Os | 76 | 14279.9 | 0.5 | 13206.6 | 1.1 | 2143.2 | 0.9 | -3316 | 5 | -8522.2 | 1.1 | -9659 | 28 |
| | Ir | 77 | 15315 | 19 | 10996 | 9 | 3450 | 10 | -5974 | 10 | -4417 | 9 | -9731 | 26 |
| | Pt | 78 | 16099 | 22 | 9399 | 5 | 4007 | 5 | -7619 | 13 | -3891 | 5 | -12864 | 23 |
| | Au | 79 | 16799 | 21 | 7777 | 17 | 4815 | 28 | -10030 | 30 | -111 | 28 | -12325 | 14 |
| | Hg | 80 | 17805 | 17 | 6915 | 25 | 4707 | 16 | -12387 | 16 | -806 | 27 | -15829 | 15 |
| | Tl | 81 | 18590 | 40 | 5200 | 40 | 5560 | 40 | -15140 | 30 | 3400 | 40 | -15420 | 30 |
| | Pb | 82 | 19276 | 16 | 3854 | 16 | 6109 | 3 | -17271 | 23 | 3014 | 17 | -19503 | 15 |
| | Bi | 83 | 20191 | 20 | 1886 | 25 | 7264 | 5 | * | | 7961 | 14 | -18090 | 30 |
| | Po | 84 | 20788 | 27 | 440 | 23 | 8082 | 15 | * | | 7154 | 21 | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|----|---------|------|--------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 189 | Hf | 72 | 4360# | 420# | 10660# | 590# | 11820# | 300# | 11130# | 500# | 7910# | 500# | * | |
| | Ta | 73 | 6290# | 200# | 8240# | 360# | 6620# | 200# | 11700# | 360# | 9460# | 200# | 4030# | 450# |
| | W | 74 | 5020 | 40 | 9290 | 70 | 850 | 40 | 11990 | 70 | 7850 | 70 | 6450 | 70 |
| | Re | 75 | 7034 | 8 | 6600 | 9 | -4397 | 22 | 12636 | 8 | 9394 | 8 | 6270 | 60 |
| | Os | 76 | 5920.8 | 0.4 | 7258.9 | 0.5 | -9360 | 30 | 12940.5 | 0.5 | 7804.4 | 0.9 | 9168.2 | 1.2 |
| | Ir | 77 | 8176 | 16 | 4601 | 13 | -13833 | 15 | 13480 | 13 | 9414 | 13 | 9124 | 13 |
| | Pt | 78 | 6720 | 11 | 5413 | 14 | -18625 | 17 | 13791 | 30 | 7567 | 19 | 12177 | 10 |
| | Au | 79 | 9282 | 20 | 3050 | 21 | -23517 | 29 | 13810 | 30 | 9147 | 30 | 11237 | 26 |
| | Hg | 80 | 7500 | 30 | 4540 | 30 | -28200 | 40 | 14110 | 40 | 6950 | 40 | 13880 | 40 |
| | Tl | 81 | 10350 | 30 | 1703 | 15 | * | | 14213 | 16 | 8787 | 14 | 12745 | 23 |
| | Pb | 82 | 8100 | 18 | 2800 | 30 | * | | 15311 | 16 | 6907 | 26 | 16341 | 18 |
| | Bi | 83 | 10941 | 24 | -462 | 23 | * | | 15633 | 21 | 9481 | 24 | 15470 | 30 |
| | Po | 84 | 8949 | 30 | 1516 | 25 | * | | 15672 | 24 | 6588 | 28 | 18906 | 25 |
| 190 | Hf | 72 | 5940# | 500# | * | | 13680# | 400# | 9470# | 640# | 7410# | 570# | * | |
| | Ta | 73 | 4760# | 280# | 8640# | 360# | 8240# | 200# | 13080# | 360# | 9170# | 360# | 4710# | 450# |
| | W | 74 | 6840 | 60 | 9840# | 200# | 2920 | 40 | 9940 | 70 | 7380 | 70 | 4080# | 300# |
| | Re | 75 | 5730 | 70 | 7310 | 80 | -2800 | 70 | 13740 | 70 | 9130 | 70 | 6910 | 90 |
| | Os | 76 | 7792.34 | 0.19 | 8018 | 8 | -7337 | 16 | 11019.8 | 0.5 | 7372.8 | 0.5 | 6842.6 | 1.2 |
| | Ir | 77 | 6375 | 13 | 5055.8 | 1.2 | -12382 | 8 | 15094.5 | 1.3 | 9329.5 | 1.3 | 10109.3 | 1.3 |
| | Pt | 78 | 8908 | 10 | 6146 | 13 | -16890 | 13 | 11749 | 9 | 7107 | 28 | 9558.9 | 0.6 |
| | Au | 79 | 7323 | 20 | 3653 | 11 | -22234 | 23 | 15698 | 6 | 8716 | 24 | 12362 | 28 |
| | Hg | 80 | 9820 | 40 | 5078 | 26 | -26807 | 21 | 11711 | 16 | 6521 | 27 | 10961 | 29 |
| | Tl | 81 | 7827 | 12 | 2030 | 30 | * | | 16541 | 15 | 8610 | 16 | 14302 | 24 |
| | Pb | 82 | 10644 | 19 | 3090 | 15 | * | | 12630 | 30 | 6892 | 15 | 13348 | 19 |
| | Bi | 83 | 8610 | 30 | 45 | 27 | * | | 17926 | 25 | 9251 | 23 | 17491 | 24 |
| | Po | 84 | 11213 | 26 | 1788 | 25 | * | | 13342 | 18 | 6683 | 17 | 16070 | 14 |
| 191 | Ta | 73 | 6050# | 360# | 8750# | 500# | 10220# | 300# | 11380# | 420# | 9250# | 420# | 2950# | 590# |
| | W | 74 | 4870 | 60 | 9950# | 200# | 4520 | 40 | 11360# | 200# | 7300 | 70 | 5350# | 300# |
| | Re | 75 | 6790 | 70 | 7260 | 40 | -552 | 11 | 11980 | 40 | 9182 | 11 | 4910 | 60 |
| | Os | 76 | 5758.73 | 0.11 | 8050 | 70 | -5803 | 22 | 12295 | 8 | 7485.7 | 0.5 | 7919 | 3 |
| | Ir | 77 | 8026.5 | 0.4 | 5290.0 | 1.1 | -10426 | 7 | 12988.8 | 1.2 | 9292.5 | 1.2 | 7954.5 | 1.2 |
| | Pt | 78 | 6463 | 4 | 6234 | 4 | -15470 | 40 | 13462 | 13 | 7511 | 10 | 11085 | 4 |
| | Au | 79 | 9036 | 6 | 3780 | 5 | -20559 | 9 | 13382 | 11 | 8887 | 7 | 10193 | 11 |
| | Hg | 80 | 7293 | 27 | 5047 | 23 | -25523 | 23 | 13701 | 30 | 6643 | 22 | 12875 | 23 |
| | Tl | 81 | 9982 | 11 | 2201 | 18 | -30147 | 18 | 14050 | 30 | 8783 | 14 | 11735 | 8 |
| | Pb | 82 | 7890 | 40 | 3150 | 40 | * | | 15100 | 40 | 6970 | 50 | 15620 | 40 |
| | Bi | 83 | 10711 | 24 | 112 | 15 | * | | 15315 | 16 | 9440 | 13 | 14740 | 30 |
| | Po | 84 | 8576 | 15 | 1758 | 24 | * | | 15707 | 22 | 6990 | 13 | 18393 | 13 |
| | At | 85 | * | | -1139 | 21 | * | | 15997 | 27 | 9272 | 26 | 16705 | 20 |
| 192 | Ta | 73 | 4640# | 500# | * | | 11770# | 400# | 12680# | 570# | 8960# | 500# | * | |
| | W | 74 | 6550# | 200# | 10450# | 360# | 6640# | 200# | 9570# | 280# | 7040# | 280# | 3160# | 360# |
| | Re | 75 | 5310 | 70 | 7700 | 80 | 1180 | 70 | 13500 | 80 | 8890 | 80 | 5890# | 210# |
| | Os | 76 | 7558.3 | 2.2 | 8821 | 10 | -3871 | 16 | 10460 | 70 | 6961 | 8 | 5380 | 40 |
| | Ir | 77 | 6198.12 | 0.11 | 5729.3 | 1.1 | -8960 | 30 | 14583.0 | 1.1 | 9015.2 | 1.2 | 8790 | 8 |
| | Pt | 78 | 8661.5 | 2.9 | 6868.7 | 2.3 | -13732 | 14 | 11175.9 | 2.3 | 7025 | 13 | 8344.7 | 2.5 |
| | Au | 79 | 7046 | 17 | 4363 | 16 | -19240 | 30 | 15245 | 16 | 8561 | 19 | 11324 | 20 |
| | Hg | 80 | 9491 | 27 | 5503 | 16 | -23941 | 19 | 11533 | 16 | 6434 | 25 | 10104 | 19 |
| | Tl | 81 | 7660 | 30 | 2570 | 40 | -28800 | 40 | 16210 | 40 | 8620 | 40 | 13360 | 40 |
| | Pb | 82 | 10400 | 40 | 3562 | 15 | * | | 12527 | 15 | 6924 | 16 | 12720 | 30 |
| | Bi | 83 | 8370 | 30 | 590 | 50 | * | | 17590 | 30 | 9170 | 30 | 16730 | 30 |
| | Po | 84 | 11073 | 13 | 2120 | 13 | * | | 13240 | 25 | 6858 | 24 | 15420 | 18 |
| | At | 85 | 9010 | 30 | -706 | 29 | * | | 18200 | 30 | 9210 | 40 | 18640 | 30 |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q($2\beta^-$) | | Q(ϵp) | | Q($\beta^- n$) | |
|-----|------|----|----------|------|---------|------|---------------|------|-----------------|------|-------------------|------|------------------|------|
| 189 | Hf | 72 | 10490# | 420# | * | | -1090# | 590# | 8460# | 300# | * | | -1620# | 300# |
| | Ta | 73 | 11080# | 200# | 18830# | 450# | -370# | 360# | 6150# | 200# | -15330# | 540# | -1230# | 200# |
| | W | 74 | 11860 | 40 | 17380# | 300# | 280 | 80 | 3370 | 40 | -12030# | 300# | -4670 | 40 |
| | Re | 75 | 12905 | 8 | 15660 | 60 | 990 | 16 | 471 | 15 | -11660 | 60 | -4913 | 8 |
| | Os | 76 | 13910.4 | 0.5 | 13660.7 | 1.2 | 1976.1 | 0.9 | -2517 | 10 | -7608 | 3 | -8713 | 9 |
| | Ir | 77 | 15040 | 30 | 11811 | 13 | 2945 | 13 | -4868 | 24 | -6722 | 13 | -8700 | 14 |
| | Pt | 78 | 15927 | 26 | 9828 | 10 | 3912 | 10 | -6840 | 30 | -2621 | 10 | -12169 | 10 |
| | Au | 79 | 16700 | 30 | 8610 | 30 | 4330 | 30 | -8966 | 22 | -2526 | 22 | -11451 | 24 |
| | Hg | 80 | 17650 | 30 | 7520 | 40 | 4640 | 40 | -11780 | 30 | 910 | 30 | -15360 | 40 |
| | Tl | 81 | 18314 | 12 | 6166 | 24 | 4817 | 9 | -14551 | 22 | 466 | 9 | -14872 | 14 |
| | Pb | 82 | 19000 | 15 | 4304 | 20 | 5915 | 4 | -16422 | 26 | 5069 | 19 | -18721 | 18 |
| | Bi | 83 | 19824 | 23 | 2198 | 22 | 7268.2 | 2.7 | * | | 4980 | 40 | -17592 | 29 |
| | Po | 84 | 20390 | 40 | 1013 | 23 | 7694 | 15 | * | | 9104 | 24 | * | |
| 190 | Hf | 72 | 10290# | 500# | * | | * | | 9350# | 400# | * | | -1270# | 450# |
| | Ta | 73 | 11040# | 200# | 19300# | 540# | -730# | 450# | 7120# | 210# | * | | -970# | 200# |
| | W | 74 | 11860 | 40 | 18080# | 300# | -380 | 60 | 4330 | 40 | -14510# | 300# | -4470 | 40 |
| | Re | 75 | 12760 | 70 | 16600 | 90 | 550 | 90 | 1120 | 70 | -11100# | 210# | -4720 | 70 |
| | Os | 76 | 13713.2 | 0.5 | 14618 | 3 | 1375.8 | 1.2 | -1401.3 | 0.4 | -10380 | 40 | -8330 | 13 |
| | Ir | 77 | 14551 | 9 | 12314.7 | 1.3 | 2748.6 | 1.5 | -3920 | 4 | -6063 | 8 | -8356 | 10 |
| | Pt | 78 | 15628 | 5 | 10747.2 | 0.6 | 3268.6 | 0.6 | -5936 | 16 | -5608.7 | 0.5 | -11796 | 20 |
| | Au | 79 | 16605 | 4 | 9067 | 10 | 3914 | 17 | -8462 | 9 | -1673 | 13 | -11280 | 30 |
| | Hg | 80 | 17311 | 20 | 8128 | 17 | 4069 | 27 | -10954 | 20 | -2190 | 19 | -14826 | 18 |
| | Tl | 81 | 18180 | 30 | 6579 | 8 | 4918 | 22 | -13772 | 24 | 1921 | 22 | -14599 | 16 |
| | Pb | 82 | 18744 | 16 | 4793 | 18 | 5698 | 5 | -15853 | 18 | 1920 | 30 | -18423 | 24 |
| | Bi | 83 | 19548 | 25 | 2840 | 40 | 6862 | 3 | * | | 6728 | 24 | -17250 | 30 |
| | Po | 84 | 20162 | 24 | 1327 | 17 | 7693 | 7 | * | | 5991 | 19 | * | |
| 191 | Ta | 73 | 10810# | 360# | * | | -1340# | 500# | 7860# | 300# | * | | -180# | 300# |
| | W | 74 | 11700 | 60 | 18590# | 300# | -790# | 300# | 5220 | 40 | -13440# | 400# | -3610 | 80 |
| | Re | 75 | 12514 | 13 | 17100# | 200# | 120 | 60 | 2358 | 10 | -13130# | 200# | -3714 | 10 |
| | Os | 76 | 13551.07 | 0.22 | 15360 | 40 | 1083.9 | 1.2 | -697 | 4 | -9300 | 40 | -7713.0 | 1.2 |
| | Ir | 77 | 14402 | 13 | 13308 | 8 | 2082.8 | 1.2 | -2911 | 5 | -8360 | 70 | -7473.6 | 1.2 |
| | Pt | 78 | 15372 | 11 | 11289 | 4 | 3096 | 4 | -5106 | 23 | -4279 | 4 | -10936 | 5 |
| | Au | 79 | 16359 | 21 | 9926 | 14 | 3327 | 28 | -7515 | 9 | -4333 | 5 | -10499 | 17 |
| | Hg | 80 | 17110 | 40 | 8700 | 24 | 3670 | 30 | -10360 | 40 | -574 | 22 | -14291 | 24 |
| | Tl | 81 | 17809 | 11 | 7279 | 21 | 4320 | 23 | -13044 | 10 | -738 | 8 | -13938 | 15 |
| | Pb | 82 | 18530 | 40 | 5180 | 50 | 5460 | 40 | -15160 | 40 | 3850 | 40 | -17700 | 40 |
| | Bi | 83 | 19317 | 22 | 3201 | 11 | 6780 | 3 | -17103 | 18 | 3844 | 11 | -16747 | 15 |
| | Po | 84 | 19789 | 23 | 1803 | 16 | 7493 | 5 | * | | 8059 | 14 | * | |
| | At | 85 | * | | 649 | 26 | 7822 | 14 | * | | 7175 | 28 | * | |
| 192 | Ta | 73 | 10690# | 450# | * | | -1700# | 640# | 8530# | 410# | * | | 40# | 400# |
| | W | 74 | 11410# | 200# | 19200# | 450# | -1200# | 360# | 6230# | 200# | * | | -3370# | 200# |
| | Re | 75 | 12100 | 100 | 17650# | 210# | -400 | 90 | 3250 | 70 | -12390# | 310# | -3260 | 70 |
| | Os | 76 | 13317.1 | 2.2 | 16080 | 40 | 361 | 4 | 406 | 3 | -11990 | 40 | -7244.8 | 2.4 |
| | Ir | 77 | 14224.7 | 0.4 | 13780 | 70 | 1756.3 | 1.2 | -2063 | 16 | -7774 | 10 | -7209 | 4 |
| | Pt | 78 | 15124.6 | 2.5 | 12158.6 | 2.5 | 2423.9 | 2.5 | -4277 | 16 | -7182.2 | 2.5 | -10562 | 6 |
| | Au | 79 | 16081 | 16 | 10597 | 16 | 3148 | 18 | -6900 | 40 | -3352 | 16 | -10252 | 27 |
| | Hg | 80 | 16783 | 22 | 9283 | 16 | 3384 | 16 | -9456 | 20 | -3602 | 16 | -13800 | 17 |
| | Tl | 81 | 17640 | 30 | 7620 | 30 | 4070 | 30 | -12340 | 40 | 640 | 30 | -13710 | 50 |
| | Pb | 82 | 18282 | 18 | 5763 | 21 | 5221 | 5 | -14485 | 17 | 747 | 26 | -17388 | 15 |
| | Bi | 83 | 19080 | 40 | 3740 | 30 | 6377 | 4 | -16460 | 40 | 5460 | 30 | -16540 | 30 |
| | Po | 84 | 19649 | 17 | 2232 | 17 | 7320 | 3 | * | | 4870 | 40 | -20006 | 20 |
| | At | 85 | * | | 1050 | 40 | 7696 | 26 | * | | 8876 | 29 | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|----|---------|------|--------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 193 | Ta | 73 | 5880# | 570# | * | | 13670# | 400# | * | | 9020# | 570# | * | |
| | W | 74 | 4710# | 280# | 10510# | 450# | 8190# | 200# | 10920# | 360# | 7090# | 280# | 4390# | 450# |
| | Re | 75 | 6710 | 80 | 7870# | 200# | 3170 | 40 | 11660 | 60 | 9010 | 60 | 3930# | 200# |
| | Os | 76 | 5583.42 | 0.20 | 9090 | 70 | -2332 | 16 | 11667 | 10 | 7110 | 70 | 6630 | 40 |
| | Ir | 77 | 7771.99 | 0.20 | 5943.0 | 2.4 | -7059 | 7 | 12569.8 | 1.2 | 9035.6 | 1.2 | 6750 | 70 |
| | Pt | 78 | 6262.5 | 2.3 | 6933.0 | 0.4 | -12290 | 50 | 12940.0 | 0.4 | 7138.0 | 0.5 | 9874.6 | 1.2 |
| | Au | 79 | 8704 | 18 | 4405 | 9 | -17520 | 12 | 13004 | 10 | 8766 | 9 | 8995 | 9 |
| | Hg | 80 | 7122 | 22 | 5579 | 22 | -22737 | 21 | 13447 | 16 | 6635 | 16 | 11891 | 16 |
| | Tl | 81 | 9680 | 30 | 2755 | 17 | -27410 | 23 | 13825 | 23 | 8758 | 17 | 11003 | 8 |
| | Pb | 82 | 7710 | 50 | 3610 | 60 | -31240 | 60 | 14800 | 50 | 7040 | 50 | 14820 | 50 |
| | Bi | 83 | 10420 | 30 | 618 | 15 | * | | 15060 | 40 | 9396 | 15 | 14134 | 11 |
| | Po | 84 | 8326 | 18 | 2080 | 30 | * | | 15625 | 16 | 7138 | 27 | 17738 | 19 |
| | At | 85 | 11060 | 40 | -714 | 24 | * | | 15712 | 23 | 9361 | 25 | 16180 | 30 |
| | Rn | 86 | * | | 1170 | 40 | * | | 15890 | 30 | * | | 19253 | 28 |
| 194 | Ta | 73 | 4500# | 640# | * | | 15230# | 500# | * | | * | | * | |
| | W | 74 | 6310# | 360# | 10950# | 500# | 10230# | 300# | 9250# | 500# | 6830# | 420# | * | |
| | Re | 75 | 5080# | 200# | 8240# | 280# | 4980# | 200# | 13120# | 280# | 8800# | 200# | 4900# | 360# |
| | Os | 76 | 7112 | 3 | 9490 | 40 | -251 | 4 | 9860 | 70 | 6779 | 10 | 4390 | 40 |
| | Ir | 77 | 6066.79 | 0.11 | 6426.4 | 2.4 | -5594 | 14 | 14061.3 | 2.4 | 8727.5 | 1.2 | 7465 | 10 |
| | Pt | 78 | 8351.8 | 1.3 | 7512.8 | 1.3 | -10552 | 17 | 10786.3 | 1.2 | 6812.7 | 1.2 | 7281.5 | 0.5 |
| | Au | 79 | 6878 | 9 | 5021.3 | 2.5 | -16183 | 7 | 14787 | 3 | 8350 | 5 | 10143.2 | 2.4 |
| | Hg | 80 | 9193 | 16 | 6068 | 9 | -21179 | 13 | 11299 | 16 | 6478 | 6 | 9161 | 5 |
| | Tl | 81 | 7532 | 15 | 3164 | 21 | -26217 | 29 | 15785 | 21 | 8518 | 26 | 12507 | 15 |
| | Pb | 82 | 10080 | 50 | 4020 | 19 | -29931 | 24 | 12380 | 40 | 6939 | 19 | 12030 | 28 |
| | Bi | 83 | 8216 | 10 | 1120 | 50 | * | | 17238 | 15 | 9070 | 40 | 15901 | 10 |
| | Po | 84 | 10751 | 19 | 2409 | 15 | * | | 13240 | 30 | 7099 | 15 | 14870 | 40 |
| | At | 85 | 8720 | 30 | -316 | 29 | * | | 18061 | 27 | 9213 | 26 | 18166 | 26 |
| | Rn | 86 | 11390 | 30 | 1498 | 27 | * | | 13510 | 30 | 6724 | 23 | 16439 | 18 |
| 195 | W | 74 | 4560# | 420# | 11000# | 590# | 11780# | 300# | 10570# | 500# | 6920# | 500# | * | |
| | Re | 75 | 6410# | 360# | 8340# | 420# | 6990# | 300# | 11420# | 360# | 8940# | 360# | 3130# | 500# |
| | Os | 76 | 5150 | 60 | 9560# | 200# | 1500 | 60 | 11430 | 70 | 6940 | 90 | 5780# | 200# |
| | Ir | 77 | 7231.86 | 0.06 | 6546.1 | 2.0 | -3537 | 11 | 12412.8 | 2.4 | 9054.0 | 2.4 | 5540 | 70 |
| | Pt | 78 | 6105.10 | 0.12 | 7551.1 | 1.3 | -9086 | 18 | 12453.2 | 1.3 | 6905.8 | 1.2 | 8734.7 | 2.3 |
| | Au | 79 | 8426.4 | 2.3 | 5095.9 | 1.0 | -14541 | 5 | 12623.4 | 1.6 | 8585.5 | 2.7 | 7914.9 | 1.6 |
| | Hg | 80 | 6901 | 23 | 6090 | 23 | -19960 | 40 | 13102 | 25 | 6623 | 28 | 10921 | 23 |
| | Tl | 81 | 9289 | 18 | 3260 | 11 | -24685 | 15 | 13618 | 19 | 8720 | 19 | 10263 | 19 |
| | Pb | 82 | 7571 | 25 | 4059 | 23 | -28760 | 50 | 14480 | 19 | 7030 | 40 | 13950 | 24 |
| | Bi | 83 | 10068 | 8 | 1107 | 18 | * | | 14880 | 50 | 9395 | 14 | 13490 | 30 |
| | Po | 84 | 8120 | 40 | 2320 | 40 | * | | 15540 | 40 | 7340 | 50 | 17150 | 40 |
| | At | 85 | 10821 | 27 | -245 | 16 | * | | 15566 | 17 | 9464 | 15 | 15710 | 30 |
| | Rn | 86 | 8740 | 50 | 1520 | 60 | * | | 15830 | 50 | 6990 | 60 | 18770 | 50 |
| 196 | W | 74 | 5940# | 500# | * | | 13760# | 400# | 9130# | 640# | 6850# | 570# | * | |
| | Re | 75 | 5040# | 420# | 8820# | 420# | 8600# | 300# | 12700# | 420# | 8610# | 360# | 3970# | 500# |
| | Os | 76 | 6840 | 70 | 9990# | 300# | 3550 | 40 | 9670# | 200# | 6820 | 60 | 3660# | 200# |
| | Ir | 77 | 5810 | 40 | 7210 | 70 | -1940 | 40 | 13710 | 40 | 8820 | 40 | 6440 | 50 |
| | Pt | 78 | 7921.98 | 0.13 | 8241.2 | 1.3 | -7296 | 8 | 10598.0 | 1.3 | 6755.8 | 1.3 | 6396.2 | 2.3 |
| | Au | 79 | 6643 | 3 | 5633.8 | 3.0 | -13130 | 25 | 14332.2 | 3.0 | 8205 | 3 | 9044 | 3 |
| | Hg | 80 | 8884 | 23 | 6548 | 3 | -18353 | 14 | 11097 | 4 | 6443 | 9 | 8300 | 3 |
| | Tl | 81 | 7413 | 16 | 3772 | 26 | -23580 | 30 | 15398 | 12 | 8430 | 20 | 11555 | 15 |
| | Pb | 82 | 9712 | 20 | 4482 | 13 | -27319 | 16 | 12300 | 16 | 6993 | 10 | 11360 | 17 |
| | Bi | 83 | 8055 | 25 | 1590 | 30 | * | | 16910 | 30 | 9050 | 60 | 15115 | 25 |
| | Po | 84 | 10490 | 40 | 2736 | 15 | * | | 13267 | 15 | 7276 | 15 | 14370 | 50 |
| | At | 85 | 8520 | 30 | 150 | 50 | * | | 17800 | 30 | 9270 | 30 | 17620 | 30 |
| | Rn | 86 | 11150 | 50 | 1848 | 17 | * | | 13402 | 29 | 6902 | 26 | 15943 | 20 |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | $Q(\alpha)$ | | $Q(2\beta^-)$ | | $Q(\epsilon p)$ | | $Q(\beta^- n)$ | |
|-----|------|----|----------|------|---------|------|-------------|------|---------------|------|-----------------|------|----------------|------|
| 193 | Ta | 73 | 10520# | 500# | * | | * | | 9360# | 400# | * | | 710# | 450# |
| | W | 74 | 11250# | 200# | * | | -1550# | 360# | 7110# | 200# | * | | -2770# | 210# |
| | Re | 75 | 12020 | 40 | 18320# | 300# | -830# | 200# | 4300 | 40 | -14460# | 400# | -2420 | 40 |
| | Os | 76 | 13141.7 | 2.2 | 16800 | 40 | -200 | 40 | 1085.3 | 2.4 | -11030# | 200# | -6630.0 | 2.4 |
| | Ir | 77 | 13970.11 | 0.23 | 14764 | 10 | 1018 | 8 | -1131 | 9 | -10240 | 70 | -6319.1 | 2.3 |
| | Pt | 78 | 14924 | 4 | 12662.4 | 1.2 | 2082.2 | 1.2 | -3417 | 16 | -5886.4 | 2.4 | -9779 | 16 |
| | Au | 79 | 15750 | 10 | 11274 | 9 | 2620 | 15 | -5928 | 11 | -5858 | 9 | -9465 | 18 |
| | Hg | 80 | 16613 | 27 | 9942 | 16 | 2982 | 18 | -8870 | 50 | -2063 | 16 | -13260 | 40 |
| | Tl | 81 | 17337 | 10 | 8257 | 8 | 3680 | 21 | -11593 | 10 | -1994 | 17 | -12993 | 15 |
| | Pb | 82 | 18110 | 60 | 6180 | 50 | 5010 | 60 | -13870 | 50 | 2530 | 50 | -16730 | 60 |
| | Bi | 83 | 18788 | 11 | 4180 | 11 | 6307 | 5 | -15817 | 23 | 2700 | 30 | -15885 | 13 |
| | Po | 84 | 19399 | 16 | 2670 | 40 | 7094 | 4 | -17368 | 29 | 6942 | 20 | -19320 | 30 |
| | At | 85 | 20074 | 27 | 1406 | 23 | 7572 | 7 | * | | 6180 | 40 | * | |
| | Rn | 86 | * | | 466 | 26 | 8040 | 12 | * | | 9825 | 27 | * | |
| 194 | Ta | 73 | 10380# | 640# | * | | * | | 9940# | 540# | * | | 920# | 540# |
| | W | 74 | 11020# | 360# | * | | -1920# | 500# | 7910# | 300# | * | | -2370# | 300# |
| | Re | 75 | 11790# | 210# | 18750# | 450# | -1150# | 280# | 5300# | 200# | -13660# | 450# | -1910# | 200# |
| | Os | 76 | 12696 | 3 | 17360# | 200# | -480 | 40 | 2325.0 | 2.4 | -13440# | 200# | -5970.2 | 2.0 |
| | Ir | 77 | 13838.78 | 0.23 | 15520 | 70 | 680 | 70 | -319.8 | 2.5 | -9590 | 40 | -6123.4 | 0.3 |
| | Pt | 78 | 14614.2 | 2.5 | 13455.8 | 2.3 | 1522.8 | 0.5 | -2576.1 | 2.9 | -8654.8 | 2.3 | -9427 | 9 |
| | Au | 79 | 15582 | 16 | 11954.3 | 2.4 | 2116.7 | 2.5 | -5274 | 14 | -4964.7 | 2.5 | -9221 | 16 |
| | Hg | 80 | 16315 | 16 | 10473 | 4 | 2697.6 | 3.0 | -7976 | 18 | -4993 | 3 | -12778 | 7 |
| | Tl | 81 | 17210 | 30 | 8743 | 21 | 3471 | 14 | -10909 | 15 | -822 | 16 | -12810 | 50 |
| | Pb | 82 | 17795 | 22 | 6774 | 23 | 4738 | 17 | -13203 | 22 | -435 | 23 | -16395 | 19 |
| | Bi | 83 | 18640 | 30 | 4730 | 30 | 5918 | 5 | -15309 | 26 | 4159 | 9 | -15775 | 16 |
| | Po | 84 | 19077 | 17 | 3027 | 19 | 6987 | 3 | -16728 | 21 | 3900 | 50 | -19009 | 25 |
| | At | 85 | 19790 | 40 | 1760 | 40 | 7454 | 11 | * | | 7875 | 26 | -17830 | 40 |
| | Rn | 86 | * | | 784 | 20 | 7862 | 10 | * | | 6760 | 22 | * | |
| 195 | W | 74 | 10870# | 360# | * | | * | | 8500# | 300# | * | | -1840# | 360# |
| | Re | 75 | 11490# | 300# | 19290# | 500# | -1510# | 420# | 6110# | 300# | -15570# | 590# | -1220# | 300# |
| | Os | 76 | 12260 | 60 | 17800# | 200# | -760 | 70 | 3280 | 60 | -12270# | 300# | -5050 | 60 |
| | Ir | 77 | 13298.65 | 0.13 | 16040 | 40 | 233 | 10 | 874.8 | 1.6 | -11740# | 200# | -5003.5 | 1.3 |
| | Pt | 78 | 14456.9 | 1.3 | 13977.5 | 2.3 | 1176.4 | 0.5 | -1780 | 23 | -7647.7 | 2.4 | -8653.2 | 2.1 |
| | Au | 79 | 15305 | 9 | 12608.7 | 1.6 | 1716.8 | 1.6 | -4412 | 11 | -7324.3 | 1.6 | -8454 | 3 |
| | Hg | 80 | 16094 | 28 | 11112 | 23 | 2260 | 24 | -7306 | 29 | -3542 | 23 | -12147 | 27 |
| | Tl | 81 | 16821 | 13 | 9328 | 14 | 3218 | 12 | -10130 | 12 | -3232 | 11 | -12019 | 21 |
| | Pb | 82 | 17660 | 50 | 7223 | 24 | 4459 | 29 | -12650 | 40 | 1187 | 18 | -15750 | 19 |
| | Bi | 83 | 18284 | 9 | 5126 | 9 | 5832 | 5 | -14555 | 11 | 1623 | 15 | -15092 | 14 |
| | Po | 84 | 18870 | 40 | 3440 | 60 | 6749.9 | 2.8 | -16110 | 60 | 5860 | 40 | -18410 | 40 |
| | At | 85 | 19546 | 24 | 2164 | 12 | 7344 | 6 | * | | 5270 | 11 | -17265 | 19 |
| | Rn | 86 | 20140 | 60 | 1200 | 50 | 7690 | 50 | * | | 8770 | 50 | * | |
| 196 | W | 74 | 10500# | 500# | * | | * | | 9400# | 400# | * | | -1370# | 500# |
| | Re | 75 | 11450# | 360# | 19820# | 590# | -1900# | 500# | 6890# | 300# | * | | -1100# | 300# |
| | Os | 76 | 11980 | 40 | 18330# | 300# | -1050# | 200# | 4370 | 40 | -14560# | 300# | -4660 | 40 |
| | Ir | 77 | 13050 | 40 | 16780# | 200# | -270 | 80 | 1700 | 40 | -11150# | 300# | -4710 | 40 |
| | Pt | 78 | 14027.07 | 0.17 | 14787.3 | 2.4 | 812.8 | 2.3 | -818.6 | 3.0 | -10420 | 60 | -8148.8 | 1.0 |
| | Au | 79 | 15069 | 4 | 13185 | 3 | 1272 | 3 | -3642 | 12 | -6735 | 3 | -8197 | 23 |
| | Hg | 80 | 15785 | 4 | 11643.8 | 3.0 | 2038 | 4 | -6478 | 8 | -6321.1 | 3.0 | -11742 | 11 |
| | Tl | 81 | 16702 | 18 | 9863 | 12 | 2851 | 20 | -9488 | 27 | -2219 | 12 | -11860 | 22 |
| | Pb | 82 | 17283 | 19 | 7742 | 8 | 4238 | 17 | -11875 | 16 | -1624 | 24 | -15394 | 9 |
| | Bi | 83 | 18123 | 25 | 5649 | 28 | 5440 | 40 | -14090 | 40 | 2857 | 27 | -15020 | 40 |
| | Po | 84 | 18611 | 19 | 3843 | 22 | 6658.1 | 2.4 | -15444 | 20 | 2946 | 22 | -18074 | 17 |
| | At | 85 | 19340 | 40 | 2460 | 30 | 7195 | 3 | * | | 6820 | 30 | -17040 | 60 |
| | Rn | 86 | 19895 | 22 | 1602 | 19 | 7617 | 9 | * | | 5740 | 40 | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|----|---------|------|--------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 197 | W | 74 | 4330# | 570# | * | | 15280# | 400# | * | | 7020# | 640# | * | |
| | Re | 75 | 6030# | 420# | 8910# | 500# | 10640# | 300# | 11220# | 420# | 8890# | 420# | 2440# | 590# |
| | Os | 76 | 5100# | 200# | 10060# | 360# | 5230# | 200# | 10980# | 360# | 6790# | 280# | 4860# | 360# |
| | Ir | 77 | 6900 | 40 | 7280 | 40 | 78 | 26 | 11960 | 60 | 9035 | 20 | 4620# | 200# |
| | Pt | 78 | 5846.56 | 0.26 | 8270 | 40 | -5674 | 5 | 11983.3 | 1.3 | 6976.0 | 1.3 | 7661.8 | 2.4 |
| | Au | 79 | 8072.3 | 2.9 | 5784.2 | 0.5 | -11453 | 8 | 12364.9 | 0.5 | 8484.4 | 0.5 | 7038.4 | 1.4 |
| | Hg | 80 | 6785.6 | 1.5 | 6690 | 3 | -17180 | 50 | 12738 | 3 | 6536 | 4 | 9866 | 3 |
| | Tl | 81 | 8916 | 20 | 3805 | 17 | -21986 | 18 | 13383 | 28 | 8706 | 17 | 9517 | 16 |
| | Pb | 82 | 7468 | 9 | 4538 | 13 | -26256 | 17 | 14121 | 12 | 7056 | 15 | 13085 | 6 |
| | Bi | 83 | 9749 | 26 | 1628 | 11 | -29940 | 60 | 14731 | 20 | 9385 | 19 | 12897 | 16 |
| | Po | 84 | 7960 | 50 | 2640 | 60 | * | | 15380 | 50 | 7530 | 50 | 16500 | 50 |
| | At | 85 | 10510 | 30 | 171 | 16 | * | | 15410 | 40 | 9513 | 15 | 15320 | 10 |
| | Rn | 86 | 8532 | 22 | 1860 | 30 | * | | 15691 | 19 | 7095 | 30 | 18161 | 21 |
| | Fr | 87 | * | | -990 | 60 | * | | 15910 | 70 | 9390 | 60 | 16620 | 60 |
| 198 | Re | 75 | 4710# | 500# | 9290# | 570# | 12440# | 400# | 12450# | 570# | 8730# | 500# | * | |
| | Os | 76 | 6600# | 280# | 10620# | 360# | 7120# | 200# | 9420# | 360# | 6610# | 360# | 2820# | 360# |
| | Ir | 77 | 5630# | 200# | 7800# | 280# | 1710# | 200# | 13170# | 200# | 8560# | 200# | 5400# | 360# |
| | Pt | 78 | 7555.6 | 2.1 | 8929 | 20 | -3837 | 9 | 10240 | 40 | 6652.3 | 2.4 | 5250 | 60 |
| | Au | 79 | 6512.36 | 0.09 | 6450.0 | 0.5 | -10211 | 28 | 13774.5 | 0.5 | 8077.1 | 0.5 | 7757.9 | 1.4 |
| | Hg | 80 | 8485 | 3 | 7103.5 | 0.5 | -15481 | 17 | 10895.2 | 3.0 | 6476.8 | 1.2 | 7485.9 | 0.6 |
| | Tl | 81 | 7258 | 18 | 4277 | 8 | -20814 | 10 | 15008 | 8 | 8349 | 24 | 10685 | 8 |
| | Pb | 82 | 9393 | 10 | 5015 | 19 | -24837 | 16 | 12140 | 15 | 6952 | 14 | 10592 | 25 |
| | Bi | 83 | 7754 | 29 | 1913 | 28 | -28940 | 40 | 16690 | 29 | 9200 | 30 | 14430 | 30 |
| | Po | 84 | 10190 | 50 | 3075 | 19 | * | | 13250 | 30 | 7416 | 18 | 13881 | 25 |
| | At | 85 | 8431 | 10 | 650 | 50 | * | | 17469 | 15 | 9210 | 40 | 16957 | 8 |
| | Rn | 86 | 10812 | 21 | 2164 | 16 | * | | 13400 | 30 | 7104 | 16 | 15470 | 40 |
| | Fr | 87 | 8750 | 60 | -770 | 40 | * | | 18310 | 40 | 9390 | 60 | 18690 | 30 |
| 199 | Re | 75 | 5790# | 570# | * | | 14230# | 400# | 10990# | 570# | 8880# | 570# | * | |
| | Os | 76 | 4720# | 280# | 10630# | 450# | 9060# | 200# | 10730# | 360# | 6920# | 360# | 4040# | 450# |
| | Ir | 77 | 6650# | 200# | 7850# | 200# | 3660 | 50 | 11620# | 200# | 8740 | 60 | 3790# | 300# |
| | Pt | 78 | 5556.0 | 0.5 | 8860# | 200# | -2157 | 10 | 11586 | 20 | 6910 | 40 | 6530 | 40 |
| | Au | 79 | 7584.28 | 0.06 | 6478.7 | 2.1 | -8296 | 11 | 12036.8 | 0.5 | 8414.8 | 0.5 | 5990 | 40 |
| | Hg | 80 | 6663.1 | 0.6 | 7254.3 | 0.6 | -14338 | 18 | 12304.5 | 0.6 | 6456.7 | 3.0 | 8744.8 | 0.7 |
| | Tl | 81 | 8602 | 29 | 4394 | 28 | -19236 | 28 | 13192 | 28 | 8631 | 28 | 8726 | 28 |
| | Pb | 82 | 7236 | 13 | 4992 | 13 | -23730 | 40 | 13821 | 19 | 7129 | 16 | 12241 | 10 |
| | Bi | 83 | 9499 | 30 | 2019 | 14 | -27569 | 17 | 14659 | 12 | 9415 | 13 | 12345 | 16 |
| | Po | 84 | 7806 | 25 | 3130 | 30 | * | | 15190 | 20 | 7660 | 30 | 15786 | 20 |
| | At | 85 | 10180 | 8 | 639 | 18 | * | | 15250 | 50 | 9514 | 15 | 14832 | 25 |
| | Rn | 86 | 8340 | 40 | 2070 | 40 | * | | 15570 | 40 | 7280 | 50 | 17620 | 40 |
| | Fr | 87 | 10870 | 40 | -713 | 19 | * | | 15972 | 21 | 9664 | 20 | 16330 | 30 |
| 200 | Os | 76 | 6370# | 360# | 11210# | 500# | 10720# | 300# | 9070# | 500# | 6590# | 420# | 2010# | 500# |
| | Ir | 77 | 5280# | 200# | 8420# | 280# | 5440# | 200# | 12940# | 280# | 8560# | 280# | 4540# | 360# |
| | Pt | 78 | 7282 | 20 | 9490 | 50 | -348 | 23 | 9930# | 200# | 6529 | 28 | 4360# | 200# |
| | Au | 79 | 6218 | 27 | 7140 | 27 | -6870 | 30 | 13375 | 27 | 8044 | 27 | 6670 | 30 |
| | Hg | 80 | 8028.52 | 0.11 | 7698.5 | 0.6 | -12562 | 8 | 10788.3 | 0.6 | 6500.5 | 0.6 | 6562.9 | 0.7 |
| | Tl | 81 | 7059 | 29 | 4790 | 6 | -18059 | 25 | 14618 | 6 | 8357 | 7 | 9739 | 6 |
| | Pb | 82 | 9091 | 15 | 5480 | 30 | -22246 | 17 | 11988 | 13 | 6955 | 20 | 9936 | 11 |
| | Bi | 83 | 7645 | 25 | 2428 | 24 | -26500 | 40 | 16408 | 24 | 9239 | 23 | 13617 | 28 |
| | Po | 84 | 9805 | 20 | 3433 | 13 | * | | 13139 | 29 | 7609 | 11 | 13450 | 9 |
| | At | 85 | 8236 | 25 | 1070 | 30 | * | | 17200 | 30 | 9230 | 60 | 16346 | 26 |
| | Rn | 86 | 10580 | 40 | 2470 | 15 | * | | 13421 | 15 | 7215 | 16 | 15000 | 50 |
| | Fr | 87 | 8710 | 30 | -340 | 50 | * | | 18070 | 30 | 9490 | 30 | 18130 | 30 |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q($2\beta^-$) | | Q(ϵp) | | Q($\beta^- n$) | |
|-----|------|----|----------|------|---------|------|---------------|------|-----------------|------|-------------------|------|------------------|------|
| 197 | W | 74 | 10270# | 500# | * | | * | | 10170# | 450# | * | | -670# | 500# |
| | Re | 75 | 11070# | 420# | * | | -2060# | 500# | 7760# | 300# | * | | -300# | 300# |
| | Os | 76 | 11940# | 200# | 18880# | 360# | -1450# | 280# | 5110# | 200# | -13720# | 450# | -3950# | 200# |
| | Ir | 77 | 12714 | 20 | 17260# | 300# | -460 | 40 | 2876 | 20 | -13010# | 300# | -3691 | 20 |
| | Pt | 78 | 13768.54 | 0.29 | 15490 | 60 | 549.6 | 2.3 | 120 | 3 | -9430 | 40 | -7352.4 | 3.0 |
| | Au | 79 | 14715.3 | 1.1 | 14025.4 | 1.4 | 971.6 | 1.4 | -2798 | 16 | -8990 | 40 | -7385.1 | 2.9 |
| | Hg | 80 | 15669 | 23 | 12324 | 3 | 1514 | 3 | -5795 | 6 | -5185 | 3 | -11115 | 13 |
| | Tl | 81 | 16329 | 20 | 10353 | 16 | 2638 | 18 | -8654 | 18 | -4492 | 17 | -11065 | 18 |
| | Pb | 82 | 17180 | 19 | 8310 | 24 | 3892 | 16 | -11390 | 50 | -208 | 6 | -14808 | 25 |
| | Bi | 83 | 17804 | 10 | 6110 | 14 | 5365 | 11 | -13332 | 12 | 520 | 15 | -14285 | 16 |
| | Po | 84 | 18440 | 60 | 4230 | 50 | 6412 | 3 | -14870 | 50 | 4700 | 50 | -17510 | 60 |
| | At | 85 | 19028 | 12 | 2908 | 10 | 7104 | 3 | -16610 | 50 | 4365 | 26 | -16398 | 16 |
| | Rn | 86 | 19680 | 50 | 2010 | 40 | 7411 | 7 | * | | 7694 | 21 | * | |
| | Fr | 87 | * | | 850 | 60 | 7900 | 50 | * | | 6880 | 60 | * | |
| 198 | Re | 75 | 10740# | 500# | * | | -2270# | 640# | 8680# | 450# | * | | 100# | 450# |
| | Os | 76 | 11700# | 200# | 19530# | 450# | -1740# | 360# | 6070# | 200# | -15990# | 450# | -3640# | 200# |
| | Ir | 77 | 12530# | 200# | 17860# | 360# | -1010# | 280# | 3760# | 200# | -12610# | 360# | -3470# | 200# |
| | Pt | 78 | 13402.1 | 2.1 | 16200 | 40 | 106 | 3 | 1050.3 | 2.1 | -11880# | 200# | -6835.6 | 2.1 |
| | Au | 79 | 14584.7 | 2.9 | 14720 | 40 | 526.0 | 1.4 | -2052 | 8 | -8606 | 20 | -7112 | 3 |
| | Hg | 80 | 15271.0 | 2.9 | 12887.7 | 0.6 | 1380.8 | 0.6 | -4887 | 9 | -7823.5 | 0.6 | -10684 | 16 |
| | Tl | 81 | 16175 | 14 | 10968 | 8 | 2258 | 8 | -8159 | 29 | -3678 | 8 | -10855 | 9 |
| | Pb | 82 | 16862 | 12 | 8819 | 9 | 3692 | 9 | -10594 | 19 | -2816 | 9 | -14452 | 12 |
| | Bi | 83 | 17500 | 40 | 6450 | 30 | 5140 | 30 | -12655 | 29 | 1680 | 30 | -14080 | 60 |
| | Po | 84 | 18143 | 22 | 4703 | 19 | 6309.7 | 1.4 | -14243 | 22 | 1983 | 18 | -17189 | 19 |
| | At | 85 | 18940 | 30 | 3283 | 25 | 6889.4 | 1.9 | -16290 | 30 | 5684 | 10 | -16296 | 17 |
| | Rn | 86 | 19344 | 20 | 2335 | 19 | 7349 | 4 | * | | 4840 | 50 | -19560 | 60 |
| | Fr | 87 | * | | 1090 | 40 | 7869 | 20 | * | | 8640 | 30 | * | |
| 199 | Re | 75 | 10500# | 500# | * | | * | | 9540# | 400# | * | | 910# | 450# |
| | Os | 76 | 11320# | 280# | 19920# | 450# | -1900# | 360# | 6910# | 200# | * | | -2730# | 280# |
| | Ir | 77 | 12280 | 50 | 18470# | 300# | -1250# | 300# | 4700 | 40 | -14550# | 400# | -2570 | 40 |
| | Pt | 78 | 13111.6 | 2.1 | 16660# | 200# | -300 | 60 | 2157.4 | 2.2 | -10840# | 200# | -5879.2 | 2.1 |
| | Au | 79 | 14096.64 | 0.11 | 15408 | 20 | 173.6 | 1.4 | -1034 | 28 | -10560# | 200# | -6210.7 | 0.5 |
| | Hg | 80 | 15148 | 3 | 13704.3 | 0.7 | 822.9 | 0.7 | -4314 | 10 | -6931.0 | 2.1 | -10089 | 8 |
| | Tl | 81 | 15860 | 30 | 11498 | 28 | 2083 | 28 | -7262 | 30 | -5768 | 28 | -10063 | 29 |
| | Pb | 82 | 16629 | 11 | 9270 | 10 | 3357 | 25 | -10023 | 21 | -1566 | 10 | -13934 | 30 |
| | Bi | 83 | 17253 | 13 | 7034 | 19 | 4933 | 7 | -11974 | 12 | -558 | 13 | -13396 | 20 |
| | Po | 84 | 17990 | 50 | 5041 | 19 | 6074.3 | 1.9 | -13710 | 40 | 3570 | 20 | -16565 | 19 |
| | At | 85 | 18611 | 10 | 3714 | 10 | 6777.3 | 1.2 | -15595 | 15 | 3257 | 28 | -15664 | 14 |
| | Rn | 86 | 19150 | 40 | 2720 | 60 | 7132 | 4 | * | | 6680 | 40 | -19140 | 50 |
| | Fr | 87 | 19630 | 60 | 1451 | 16 | 7817 | 10 | * | | 6197 | 15 | * | |
| 200 | Os | 76 | 11090# | 360# | * | | -2320# | 500# | 7820# | 300# | * | | -2450# | 300# |
| | Ir | 77 | 11930# | 280# | 19050# | 450# | -1490# | 360# | 5630# | 200# | -14040# | 450# | -2290# | 200# |
| | Pt | 78 | 12838 | 20 | 17340# | 200# | -750 | 40 | 2904 | 20 | -13410# | 200# | -5577 | 20 |
| | Au | 79 | 13802 | 27 | 16000# | 200# | -230 | 50 | -193 | 27 | -10130 | 50 | -5765 | 27 |
| | Hg | 80 | 14691.6 | 0.6 | 14177.2 | 2.1 | 716.3 | 0.7 | -3252 | 11 | -9403.6 | 2.2 | -9515 | 28 |
| | Tl | 81 | 15661 | 9 | 12044 | 6 | 1667 | 6 | -6676 | 23 | -5242 | 6 | -9887 | 12 |
| | Pb | 82 | 16326 | 14 | 9875 | 11 | 3150 | 11 | -9309 | 13 | -3994 | 11 | -13525 | 15 |
| | Bi | 83 | 17140 | 40 | 7420 | 24 | 4701 | 25 | -11380 | 30 | 400 | 40 | -13234 | 29 |
| | Po | 84 | 17611 | 19 | 5452 | 12 | 5981.6 | 1.8 | -12937 | 16 | 1001 | 13 | -16190 | 9 |
| | At | 85 | 18416 | 25 | 4200 | 40 | 6596.2 | 1.3 | -15120 | 40 | 4521 | 27 | -15560 | 40 |
| | Rn | 86 | 18917 | 19 | 3109 | 22 | 7043.4 | 2.1 | * | | 3915 | 23 | -18847 | 19 |
| | Fr | 87 | 19580 | 40 | 1730 | 30 | 7622 | 4 | * | | 7670 | 30 | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|----|---------|------|--------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 201 | Os | 76 | 4530# | 420# | * | | 12420# | 300# | 10330# | 500# | 6760# | 500# | * | |
| | Ir | 77 | 6360# | 280# | 8410# | 360# | 7280# | 200# | 11300# | 280# | 8800# | 280# | 2890# | 450# |
| | Pt | 78 | 5210 | 50 | 9420# | 200# | 1530 | 50 | 11370 | 60 | 6940# | 200# | 5740# | 200# |
| | Au | 79 | 7232 | 27 | 7091 | 20 | -4984 | 16 | 11699 | 4 | 8367 | 4 | 5070# | 200# |
| | Hg | 80 | 6230.6 | 0.6 | 7711 | 27 | -11141 | 5 | 12142.0 | 0.8 | 6782.3 | 0.8 | 7887.9 | 2.2 |
| | Tl | 81 | 8205 | 15 | 4967 | 14 | -16391 | 16 | 13076 | 14 | 8638 | 14 | 8046 | 14 |
| | Pb | 82 | 7091 | 18 | 5513 | 15 | -21200 | 50 | 13500 | 30 | 7122 | 16 | 11330 | 14 |
| | Bi | 83 | 9117 | 27 | 2454 | 19 | -25005 | 18 | 14526 | 18 | 9515 | 18 | 11759 | 17 |
| | Po | 84 | 7651 | 9 | 3439 | 23 | -28458 | 21 | 14987 | 12 | 7712 | 28 | 15193 | 10 |
| | At | 85 | 9873 | 26 | 1137 | 11 | * | | 15130 | 20 | 9548 | 19 | 14226 | 29 |
| | Rn | 86 | 8140 | 50 | 2370 | 60 | * | | 15460 | 50 | 7510 | 50 | 17050 | 50 |
| | Fr | 87 | 10620 | 30 | -304 | 16 | * | | 15800 | 40 | 9683 | 16 | 15949 | 11 |
| | Ra | 88 | * | | 1480 | 40 | * | | 15876 | 25 | 7230 | 40 | 18814 | 24 |
| 202 | Os | 76 | 5920# | 500# | * | | 14260# | 400# | * | | 6640# | 570# | * | |
| | Ir | 77 | 4950# | 360# | 8830# | 420# | 9200# | 300# | 12710# | 420# | 8570# | 360# | 3730# | 500# |
| | Pt | 78 | 7020 | 60 | 10080# | 200# | 3248 | 25 | 9630# | 200# | 6570 | 50 | 3440# | 200# |
| | Au | 79 | 6024 | 24 | 7900 | 60 | -3611 | 28 | 12960 | 30 | 7900 | 23 | 5690 | 50 |
| | Hg | 80 | 7754.10 | 0.20 | 8234 | 3 | -9404 | 9 | 10606 | 27 | 6612.5 | 0.8 | 5689.8 | 2.2 |
| | Tl | 81 | 6871 | 14 | 5606.6 | 1.6 | -15389 | 28 | 14233.9 | 1.6 | 8429.9 | 1.6 | 8759.9 | 1.7 |
| | Pb | 82 | 8741 | 14 | 6049 | 15 | -19666 | 18 | 11817 | 7 | 6983 | 28 | 9252 | 4 |
| | Bi | 83 | 7396 | 22 | 2759 | 21 | -23838 | 17 | 16220 | 19 | 9354 | 18 | 12960 | 30 |
| | Po | 84 | 9492 | 10 | 3814 | 17 | -27016 | 17 | 13140 | 24 | 7720 | 14 | 12937 | 13 |
| | At | 85 | 7873 | 29 | 1359 | 28 | * | | 17062 | 29 | 9480 | 30 | 15853 | 30 |
| | Rn | 86 | 10270 | 50 | 2774 | 19 | * | | 13420 | 30 | 7413 | 18 | 14580 | 25 |
| | Fr | 87 | 8564 | 11 | 120 | 50 | * | | 17812 | 15 | 9460 | 40 | 17566 | 9 |
| | Ra | 88 | 10933 | 25 | 1803 | 18 | * | | 13650 | 30 | 7168 | 20 | 16220 | 40 |
| 203 | Os | 76 | 2620# | 570# | * | | 17630# | 400# | * | | * | | * | |
| | Ir | 77 | 5990# | 500# | 8890# | 570# | 11070# | 400# | 11260# | 500# | 8950# | 500# | * | |
| | Pt | 78 | 5010# | 200# | 10140# | 360# | 5160# | 200# | 10980# | 280# | 6850# | 280# | 4800# | 360# |
| | Au | 79 | 6862 | 23 | 7740 | 25 | -1619 | 13 | 11310 | 50 | 8320 | 20 | 4110# | 200# |
| | Hg | 80 | 5995.3 | 1.6 | 8205 | 23 | -7958 | 9 | 11842 | 4 | 6835 | 27 | 6976 | 20 |
| | Tl | 81 | 7852.5 | 1.6 | 5705.0 | 1.1 | -13599 | 11 | 12612.0 | 1.1 | 8605.9 | 1.2 | 7125 | 27 |
| | Pb | 82 | 6917 | 8 | 6095 | 7 | -18633 | 19 | 13105 | 16 | 7125 | 9 | 10363 | 7 |
| | Bi | 83 | 8855 | 20 | 2873 | 13 | -22401 | 14 | 14457 | 19 | 9590 | 17 | 11169 | 14 |
| | Po | 84 | 7441 | 12 | 3858 | 18 | -25970 | 40 | 14816 | 17 | 7924 | 24 | 14587 | 14 |
| | At | 85 | 9643 | 30 | 1510 | 14 | * | | 15069 | 12 | 9643 | 13 | 13855 | 25 |
| | Rn | 86 | 7950 | 25 | 2850 | 30 | * | | 15347 | 20 | 7700 | 30 | 16434 | 20 |
| | Fr | 87 | 10291 | 9 | 138 | 19 | * | | 15660 | 50 | 9745 | 15 | 15511 | 25 |
| | Ra | 88 | 8480 | 40 | 1720 | 40 | * | | 15780 | 40 | 7390 | 50 | 18310 | 40 |
| 204 | Ir | 77 | 3070# | 570# | 9340# | 570# | 14660# | 400# | 14110# | 570# | 10420# | 500# | * | |
| | Pt | 78 | 6370# | 280# | 10520# | 450# | 7190# | 200# | 9570# | 360# | 6840# | 280# | 2960# | 360# |
| | Au | 79 | 5580# | 200# | 8310# | 280# | -0# | 200# | 12750# | 200# | 7960# | 210# | 4890# | 280# |
| | Hg | 80 | 7492.2 | 1.6 | 8836 | 3 | -6349 | 11 | 10374 | 23 | 6575 | 3 | 4700 | 50 |
| | Tl | 81 | 6656.08 | 0.29 | 6365.9 | 1.3 | -12471 | 22 | 13710.0 | 1.1 | 8180.5 | 1.1 | 7701 | 3 |
| | Pb | 82 | 8395 | 6 | 6637.5 | 0.3 | -17140 | 7 | 11581.1 | 1.6 | 6935 | 14 | 8199.1 | 1.1 |
| | Bi | 83 | 7192 | 16 | 3148 | 11 | -21253 | 26 | 16006 | 10 | 9489 | 17 | 12181 | 17 |
| | Po | 84 | 9102 | 14 | 4105 | 17 | -24398 | 19 | 13111 | 19 | 7939 | 19 | 12576 | 18 |
| | At | 85 | 7784 | 25 | 1854 | 24 | * | | 16777 | 24 | 9510 | 23 | 15187 | 27 |
| | Rn | 86 | 9888 | 20 | 3097 | 13 | * | | 13331 | 29 | 7683 | 11 | 14197 | 9 |
| | Fr | 87 | 8340 | 25 | 530 | 30 | * | | 17590 | 30 | 9540 | 60 | 17043 | 26 |
| | Ra | 88 | 10680 | 40 | 2109 | 16 | * | | 13671 | 17 | 7332 | 18 | 15780 | 50 |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q($2\beta^-$) | | Q(ϵp) | | Q($\beta^- n$) | |
|-----|------|----|---------|------|---------|------|---------------|------|-----------------|------|-------------------|------|------------------|------|
| 201 | Os | 76 | 10900# | 360# | * | | -2530# | 500# | 8500# | 300# | * | | -1700# | 360# |
| | Ir | 77 | 11640# | 200# | 19620# | 450# | -1820# | 360# | 6500# | 200# | * | | -1370# | 200# |
| | Pt | 78 | 12490 | 50 | 17840# | 200# | -860# | 200# | 3920 | 50 | -12250# | 300# | -4570 | 60 |
| | Au | 79 | 13450 | 3 | 16580 | 40 | -562 | 20 | 780 | 15 | -12080# | 200# | -4969 | 3 |
| | Hg | 80 | 14259.1 | 0.6 | 14851.8 | 2.2 | 332.3 | 0.8 | -2392 | 14 | -8352 | 20 | -8687 | 6 |
| | Tl | 81 | 15260 | 30 | 12665 | 14 | 1534 | 14 | -5764 | 21 | -7230 | 30 | -9001 | 18 |
| | Pb | 82 | 16182 | 17 | 10303 | 14 | 2844 | 14 | -8750 | 15 | -3057 | 14 | -12972 | 26 |
| | Bi | 83 | 16762 | 18 | 7930 | 30 | 4500 | 6 | -10627 | 17 | -1658 | 16 | -12546 | 17 |
| | Po | 84 | 17435 | 19 | 5867 | 11 | 5799.3 | 1.7 | -12450 | 50 | 2441 | 12 | -15605 | 25 |
| | At | 85 | 18109 | 10 | 4570 | 13 | 6472.8 | 1.6 | -14378 | 12 | 2292 | 24 | -14856 | 16 |
| | Rn | 86 | 18720 | 60 | 3440 | 50 | 6860.7 | 2.3 | -16010 | 50 | 5580 | 50 | -18280 | 60 |
| | Fr | 87 | 19325 | 16 | 2166 | 11 | 7519 | 4 | * | | 5287 | 26 | * | |
| | Ra | 88 | * | | 1140 | 40 | 8002 | 12 | * | | 8653 | 24 | * | |
| 202 | Os | 76 | 10450# | 500# | * | | * | | 9610# | 400# | * | | -1260# | 450# |
| | Ir | 77 | 11310# | 360# | * | | -2060# | 500# | 7580# | 300# | * | | -1110# | 300# |
| | Pt | 78 | 12240 | 30 | 18490# | 300# | -1280# | 200# | 4653 | 25 | -14740# | 300# | -4363 | 25 |
| | Au | 79 | 13260 | 40 | 17320# | 200# | -960# | 200# | 1627 | 23 | -11750# | 200# | -4762 | 23 |
| | Hg | 80 | 13984.7 | 0.6 | 15324 | 20 | 133.8 | 2.2 | -1405 | 4 | -10890 | 50 | -8236 | 14 |
| | Tl | 81 | 15076 | 6 | 13318 | 27 | 1175.6 | 1.7 | -5239 | 15 | -6868 | 4 | -8780 | 14 |
| | Pb | 82 | 15832 | 12 | 11015 | 4 | 2589 | 4 | -7999 | 9 | -5567 | 4 | -12595 | 16 |
| | Bi | 83 | 16513 | 27 | 8272 | 16 | 4362 | 17 | -10150 | 30 | -850 | 21 | -12292 | 16 |
| | Po | 84 | 17142 | 11 | 6269 | 14 | 5701.0 | 1.7 | -11667 | 20 | 40 | 16 | -15223 | 12 |
| | At | 85 | 17750 | 40 | 4800 | 40 | 6353.8 | 1.3 | -13687 | 29 | 3540 | 30 | -14590 | 60 |
| | Rn | 86 | 18413 | 22 | 3911 | 19 | 6773.8 | 1.8 | -15349 | 23 | 2958 | 18 | -17935 | 20 |
| | Fr | 87 | 19180 | 30 | 2494 | 25 | 7386 | 4 | * | | 6597 | 11 | -16912 | 21 |
| | Ra | 88 | * | | 1498 | 20 | 7880 | 7 | * | | 5860 | 50 | * | |
| 203 | Os | 76 | 8540# | 500# | * | | * | | 11990# | 450# | * | | 1070# | 500# |
| | Ir | 77 | 10940# | 450# | * | | -2250# | 570# | 8450# | 400# | * | | -70# | 400# |
| | Pt | 78 | 12030# | 200# | 18970# | 360# | -1570# | 280# | 5640# | 200# | -13830# | 450# | -3350# | 200# |
| | Au | 79 | 12885 | 4 | 17830# | 200# | -1170 | 40 | 2618 | 3 | -13660# | 300# | -3869 | 3 |
| | Hg | 80 | 13749.4 | 1.6 | 16110 | 50 | -305.5 | 2.7 | -483 | 7 | -9866 | 25 | -7360.4 | 2.0 |
| | Tl | 81 | 14723 | 14 | 13939 | 3 | 907.4 | 1.2 | -4237 | 13 | -8697 | 23 | -7892 | 4 |
| | Pb | 82 | 15658 | 15 | 11702 | 7 | 2335 | 7 | -7476 | 11 | -4730 | 7 | -12116 | 17 |
| | Bi | 83 | 16251 | 20 | 8922 | 19 | 4110 | 30 | -9362 | 17 | -2834 | 13 | -11655 | 15 |
| | Po | 84 | 16932 | 10 | 6618 | 16 | 5496 | 5 | -11157 | 20 | 1341 | 9 | -14791 | 29 |
| | At | 85 | 17516 | 13 | 5324 | 19 | 6210.1 | 0.8 | -13039 | 12 | 1290 | 19 | -13959 | 20 |
| | Rn | 86 | 18220 | 50 | 4210 | 19 | 6629.9 | 2.1 | -14820 | 40 | 4499 | 20 | -17321 | 19 |
| | Fr | 87 | 18855 | 11 | 2912 | 10 | 7275 | 4 | * | | 4178 | 29 | -16270 | 16 |
| | Ra | 88 | 19420 | 40 | 1840 | 60 | 7736 | 6 | * | | 7650 | 40 | * | |
| 204 | Ir | 77 | 9050# | 500# | * | | * | | 10960# | 450# | * | | 1870# | 450# |
| | Pt | 78 | 11370# | 200# | 19410# | 450# | -1570# | 360# | 6770# | 200# | -17570# | 450# | -2850# | 200# |
| | Au | 79 | 12440# | 200# | 18450# | 360# | -1460# | 280# | 3700# | 200# | -13250# | 450# | -3450# | 200# |
| | Hg | 80 | 13487.5 | 0.7 | 16576 | 25 | -516 | 20 | 419.7 | 1.2 | -12350# | 200# | -7000.1 | 1.2 |
| | Tl | 81 | 14508.6 | 1.6 | 14571 | 23 | 469 | 27 | -3700 | 9 | -8492 | 3 | -7631 | 6 |
| | Pb | 82 | 15312 | 4 | 12342.5 | 1.1 | 1968.5 | 1.1 | -6769 | 11 | -7129.6 | 1.3 | -11656 | 13 |
| | Bi | 83 | 16047 | 18 | 9244 | 9 | 3976 | 11 | -8770 | 24 | -2173 | 9 | -11406 | 13 |
| | Po | 84 | 16542 | 14 | 6979 | 12 | 5484.9 | 1.4 | -10371 | 13 | -844 | 13 | -14250 | 15 |
| | At | 85 | 17430 | 40 | 5712 | 27 | 6070.4 | 1.2 | -12480 | 30 | 2360 | 26 | -13793 | 29 |
| | Rn | 86 | 17838 | 19 | 4607 | 11 | 6546.7 | 1.8 | -14027 | 17 | 2052 | 11 | -16918 | 10 |
| | Fr | 87 | 18632 | 26 | 3380 | 40 | 7170.3 | 2.4 | * | | 5481 | 27 | -16130 | 50 |
| | Ra | 88 | 19161 | 21 | 2247 | 23 | 7637 | 7 | * | | 4922 | 24 | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|----|---------|------|---------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 205 | Ir | 77 | 4340# | 640# | * | | 17860# | 500# | 12390# | 640# | 11990# | 640# | * | |
| | Pt | 78 | 3120# | 360# | 10570# | 500# | 10800# | 300# | 12430# | 500# | 8670# | 420# | 5770# | 500# |
| | Au | 79 | 6190# | 280# | 8140# | 280# | 2300# | 200# | 11570# | 280# | 8790# | 200# | 3650# | 360# |
| | Hg | 80 | 5669 | 4 | 8930# | 200# | -4766 | 11 | 11567 | 5 | 6929 | 24 | 6051 | 25 |
| | Tl | 81 | 7546.0 | 0.5 | 6419.7 | 1.3 | -10849 | 15 | 12159.2 | 1.3 | 8388.5 | 1.2 | 6179 | 23 |
| | Pb | 82 | 6731.66 | 0.11 | 6713.06 | 0.21 | -16060 | 5 | 12701.9 | 0.4 | 7074.0 | 1.6 | 9221.5 | 1.1 |
| | Bi | 83 | 8490 | 11 | 3244 | 5 | -19755 | 9 | 14433 | 8 | 9740 | 6 | 10562 | 5 |
| | Po | 84 | 7251 | 15 | 4164 | 14 | -23360 | 70 | 14714 | 16 | 8084 | 18 | 14066 | 11 |
| | At | 85 | 9168 | 27 | 1920 | 19 | -27080 | 50 | 15050 | 17 | 9834 | 17 | 13416 | 21 |
| | Rn | 86 | 7811 | 9 | 3123 | 23 | * | | 15164 | 12 | 7745 | 28 | 15878 | 10 |
| | Fr | 87 | 9988 | 26 | 629 | 11 | * | | 15555 | 20 | 9829 | 19 | 14927 | 29 |
| | Ra | 88 | 8290 | 70 | 2060 | 70 | * | | 15670 | 70 | 7610 | 70 | 17760 | 70 |
| | Ac | 89 | * | | -760 | 50 | * | | 16160 | 60 | 9900 | 50 | 16660 | 50 |
| 206 | Pt | 78 | 4740# | 420# | 10960# | 590# | 14150# | 300# | 10770# | 500# | 9920# | 500# | 3660# | 500# |
| | Au | 79 | 3520# | 360# | 8540# | 420# | 5810# | 300# | 14420# | 360# | 10280# | 360# | 6120# | 500# |
| | Hg | 80 | 6729 | 21 | 9470# | 200# | -2757 | 21 | 10420# | 200# | 7062 | 21 | 4330# | 200# |
| | Tl | 81 | 6503.8 | 0.4 | 7255 | 4 | -9824 | 15 | 13147.6 | 1.3 | 7880.0 | 1.4 | 6536 | 3 |
| | Pb | 82 | 8086.66 | 0.06 | 7253.7 | 0.5 | -14653 | 9 | 11271.37 | 0.21 | 6839.8 | 0.4 | 7130.1 | 1.3 |
| | Bi | 83 | 7035 | 9 | 3547 | 8 | -18786 | 29 | 15792 | 8 | 9622 | 10 | 11380 | 8 |
| | Po | 84 | 8739 | 11 | 4413 | 6 | -21754 | 18 | 13168 | 10 | 8200 | 13 | 12244 | 8 |
| | At | 85 | 7529 | 21 | 2197 | 18 | -25910 | 50 | 16622 | 19 | 9745 | 17 | 14742 | 20 |
| | Rn | 86 | 9494 | 10 | 3450 | 17 | * | | 13453 | 24 | 7894 | 14 | 13824 | 12 |
| | Fr | 87 | 8004 | 29 | 822 | 29 | * | | 17439 | 29 | 9780 | 30 | 16570 | 30 |
| | Ra | 88 | 10340 | 70 | 2414 | 20 | * | | 13670 | 30 | 7553 | 19 | 15366 | 26 |
| | Ac | 89 | 8700 | 70 | -350 | 90 | * | | 18130 | 50 | 9680 | 60 | 18250 | 50 |
| 207 | Pt | 78 | 2980# | 500# | * | | 17910# | 400# | 12130# | 640# | 10010# | 570# | * | |
| | Au | 79 | 4670# | 420# | 8470# | 420# | 9250# | 300# | 12870# | 420# | 11980# | 360# | 4520# | 500# |
| | Hg | 80 | 3610 | 40 | 9560# | 300# | 660 | 30 | 12990# | 200# | 9030# | 200# | 7080# | 200# |
| | Tl | 81 | 6852 | 5 | 7378 | 21 | -7807 | 14 | 11964 | 7 | 8520 | 5 | 5260# | 200# |
| | Pb | 82 | 6737.78 | 0.10 | 7487.7 | 0.6 | -13817 | 9 | 12079.6 | 0.5 | 6758.15 | 0.23 | 7884.5 | 1.2 |
| | Bi | 83 | 8098 | 8 | 3558.0 | 2.1 | -17210 | 18 | 14426.4 | 2.1 | 9919.3 | 2.1 | 9937.9 | 2.1 |
| | Po | 84 | 7028 | 8 | 4406 | 10 | -20690 | 50 | 14630 | 8 | 8364 | 11 | 13611 | 7 |
| | At | 85 | 8869 | 19 | 2328 | 13 | -24370 | 50 | 15005 | 16 | 9978 | 17 | 13065 | 15 |
| | Rn | 86 | 7573 | 12 | 3494 | 17 | * | | 15048 | 17 | 8105 | 24 | 15353 | 14 |
| | Fr | 87 | 9670 | 30 | 1000 | 19 | * | | 15576 | 18 | 9990 | 19 | 14677 | 28 |
| | Ra | 88 | 8090 | 60 | 2500 | 60 | * | | 15570 | 50 | 7800 | 60 | 17160 | 50 |
| | Ac | 89 | 10400 | 70 | -290 | 50 | * | | 16020 | 90 | 9950 | 50 | 16190 | 60 |
| 208 | Pt | 78 | 4520# | 570# | * | | 20760# | 400# | * | | 9830# | 640# | * | |
| | Au | 79 | 3360# | 420# | 8850# | 500# | 12770# | 300# | 14240# | 420# | 11730# | 420# | 5510# | 590# |
| | Hg | 80 | 4850 | 40 | 9740# | 300# | 4200 | 30 | 11660# | 300# | 10370# | 200# | 5350# | 300# |
| | Tl | 81 | 3787 | 6 | 7552 | 30 | -4280 | 9 | 14906 | 20 | 10402 | 4 | 7670# | 200# |
| | Pb | 82 | 7367.87 | 0.05 | 8003 | 5 | -12093 | 11 | 11215.6 | 0.6 | 6936.3 | 0.5 | 6186 | 4 |
| | Bi | 83 | 6886.9 | 2.7 | 3707.1 | 2.0 | -16204 | 12 | 15626.2 | 2.0 | 9764.1 | 2.0 | 10597.1 | 2.0 |
| | Po | 84 | 8395 | 7 | 4703.9 | 2.5 | -19197 | 9 | 13269 | 8 | 8459 | 5 | 11947.0 | 1.3 |
| | At | 85 | 7314 | 15 | 2613 | 11 | -23220 | 60 | 16430 | 10 | 9916 | 13 | 14241 | 10 |
| | Rn | 86 | 9092 | 14 | 3717 | 17 | -26340 | 40 | 13485 | 19 | 8180 | 19 | 13512 | 15 |
| | Fr | 87 | 7893 | 21 | 1320 | 15 | * | | 17178 | 15 | 9908 | 13 | 15952 | 19 |
| | Ra | 88 | 9890 | 50 | 2717 | 20 | * | | 13681 | 30 | 7902 | 12 | 15084 | 10 |
| | Ac | 89 | 8460 | 80 | 80 | 80 | * | | 17900 | 60 | 9780 | 90 | 17710 | 60 |
| | Th | 90 | * | | 1750 | 60 | * | | 13920 | 60 | 7440 | 60 | 16490 | 80 |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q(2β ⁻) | | Q(εp) | | Q(β ⁻ n) | |
|-----|------|----|----------|------|---------|------|--------|------|---------------------|------|---------|--------|---------------------|------|
| 205 | Ir | 77 | 7410# | 640# | * | | * | | 12810# | 540# | * | | 3890# | 540# |
| | Pt | 78 | 9480# | 360# | 19900# | 500# | -150# | 420# | 9320# | 300# | * | | -390# | 360# |
| | Au | 79 | 11770# | 200# | 18660# | 450# | -1300# | 280# | 5050# | 200# | -16370# | 450# | -2150# | 200# |
| | Hg | 80 | 13161 | 4 | 17240# | 200# | -970 | 50 | 1482 | 4 | -11660# | 200# | -6013 | 4 |
| | Tl | 81 | 14202.1 | 0.5 | 15255 | 3 | 155 | 3 | -2756 | 5 | -10460# | 200# | -6782.3 | 0.5 |
| | Pb | 82 | 15126 | 6 | 13078.9 | 1.3 | 1467.4 | 1.1 | -6249 | 10 | -6369.1 | 1.2 | -11196 | 9 |
| | Bi | 83 | 15682 | 14 | 9881 | 5 | 3691 | 15 | -8093 | 16 | -4007 | 5 | -10795 | 12 |
| | Po | 84 | 16353 | 13 | 7313 | 12 | 5325 | 10 | -9812 | 11 | 300 | 10 | -13717 | 24 |
| | At | 85 | 16952 | 18 | 6025 | 20 | 6019.6 | 1.7 | -11662 | 17 | 385 | 18 | -13073 | 17 |
| | Rn | 86 | 17699 | 19 | 4977 | 10 | 6386.5 | 1.8 | -13550 | 70 | 3342 | 12 | -16388 | 25 |
| | Fr | 87 | 18329 | 10 | 3725 | 13 | 7054.7 | 2.4 | -15420 | 50 | 3277 | 24 | -15438 | 17 |
| | Ra | 88 | 18970 | 80 | 2590 | 70 | 7490 | 50 | * | 6520 | 70 | * | * | |
| Ac | 89 | * | | 1350 | 50 | 8090 | 50 | * | 6210 | 60 | * | * | | |
| 206 | Pt | 78 | 7850# | 360# | * | | 1030# | 500# | 11310# | 300# | * | | 1070# | 360# |
| | Au | 79 | 9710# | 360# | 19110# | 500# | 140# | 420# | 8040# | 300# | -15540# | 590# | 0# | 300# |
| | Hg | 80 | 12398 | 20 | 17600# | 200# | -680 | 30 | 2840 | 20 | -15270# | 300# | -5196 | 20 |
| | Tl | 81 | 14049.9 | 0.6 | 16180# | 200# | -325 | 23 | -2225 | 8 | -10770# | 200# | -6554.4 | 0.6 |
| | Pb | 82 | 14818.33 | 0.12 | 13673.4 | 1.2 | 1134.8 | 1.1 | -5597 | 4 | -8787 | 4 | -10792 | 5 |
| | Bi | 83 | 15525 | 12 | 10260 | 8 | 3527 | 8 | -7599 | 17 | -3496 | 8 | -10578 | 13 |
| | Po | 84 | 15990 | 12 | 7657 | 4 | 5327.0 | 1.3 | -9056 | 9 | -1707 | 4 | -13288 | 16 |
| | At | 85 | 16697 | 27 | 6362 | 18 | 5887 | 5 | -11190 | 30 | 1346 | 16 | -12791 | 16 |
| | Rn | 86 | 17305 | 11 | 5370 | 14 | 6383.7 | 1.6 | -12699 | 20 | 1099 | 13 | -15894 | 12 |
| | Fr | 87 | 17990 | 40 | 3940 | 40 | 6923 | 4 | -14720 | 60 | 4440 | 30 | -15150 | 80 |
| | Ra | 88 | 18634 | 24 | 3042 | 19 | 7415 | 4 | * | 3986 | 19 | -18610 | 50 | |
| | Ac | 89 | * | | 1710 | 60 | 7960 | 50 | * | 7500 | 50 | * | * | |
| 207 | Pt | 78 | 7720# | 500# | * | | 680# | 570# | 11950# | 400# | * | | 1600# | 500# |
| | Au | 79 | 8180# | 360# | 19430# | 590# | 1460# | 500# | 10220# | 300# | * | | 2060# | 300# |
| | Hg | 80 | 10340 | 30 | 18100# | 300# | 710# | 200# | 5965 | 30 | -14150# | 300# | -2305 | 30 |
| | Tl | 81 | 13356 | 5 | 16840# | 200# | -316 | 6 | -980 | 6 | -14110# | 300# | -5320 | 5 |
| | Pb | 82 | 14824.44 | 0.11 | 14742 | 4 | 392.3 | 1.3 | -5306 | 7 | -8795 | 20 | -10495 | 8 |
| | Bi | 83 | 15133 | 6 | 10811.7 | 2.1 | 3281.8 | 2.1 | -6827 | 13 | -5090.2 | 2.1 | -9937 | 5 |
| | Po | 84 | 15767 | 12 | 7953 | 7 | 5215.9 | 2.5 | -8511 | 11 | -649 | 7 | -12787 | 16 |
| | At | 85 | 16398 | 19 | 6741 | 13 | 5872 | 3 | -10383 | 21 | -488 | 15 | -12166 | 15 |
| | Rn | 86 | 17068 | 10 | 5691 | 13 | 6251.2 | 1.6 | -12180 | 50 | 2265 | 9 | -15464 | 29 |
| | Fr | 87 | 17677 | 19 | 4450 | 23 | 6893 | 20 | -13990 | 50 | 2296 | 23 | -14481 | 25 |
| | Ra | 88 | 18440 | 90 | 3320 | 50 | 7270 | 50 | * | 5390 | 50 | -18010 | 70 | |
| | Ac | 89 | 19100 | 70 | 2120 | 50 | 7840 | 50 | * | 5100 | 60 | * | * | |
| 208 | Pt | 78 | 7500# | 500# | * | | * | | 12280# | 400# | * | | 1750# | 500# |
| | Au | 79 | 8030# | 420# | * | | 1160# | 500# | 10650# | 300# | * | | 2320# | 300# |
| | Hg | 80 | 8460 | 40 | 18210# | 300# | 2230# | 200# | 8480 | 30 | -16010# | 400# | -300 | 30 |
| | Tl | 81 | 10639.4 | 1.8 | 17110# | 300# | 1480# | 200# | 2120.1 | 2.6 | -13230# | 300# | -2369.4 | 1.7 |
| | Pb | 82 | 14105.65 | 0.11 | 15381 | 20 | 516.6 | 1.2 | -4279.0 | 1.3 | -12550 | 30 | -9765.3 | 2.1 |
| | Bi | 83 | 14985 | 8 | 11194.8 | 2.0 | 3051.0 | 2.0 | -6400 | 9 | -5125 | 6 | -9796 | 7 |
| | Po | 84 | 15424 | 4 | 8262.0 | 1.3 | 5215.4 | 1.3 | -7814 | 11 | -2306.5 | 1.3 | -12313 | 13 |
| | At | 85 | 16183 | 17 | 7020 | 12 | 5751.1 | 2.2 | -9804 | 15 | 296 | 9 | -11906 | 12 |
| | Rn | 86 | 16665 | 14 | 6045 | 12 | 6260.7 | 1.7 | -11383 | 14 | 201 | 13 | -14883 | 21 |
| | Fr | 87 | 17570 | 30 | 4814 | 19 | 6785 | 24 | -13420 | 60 | 3273 | 17 | -14280 | 50 |
| | Ra | 88 | 17980 | 20 | 3717 | 12 | 7273 | 5 | -14960 | 40 | 3074 | 12 | -17490 | 50 |
| | Ac | 89 | 18870 | 80 | 2580 | 60 | 7720 | 50 | * | 6310 | 60 | * | * | |
| Th | 90 | * | | 1460 | 40 | 8200 | 30 | * | 5850 | 60 | * | * | | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|----|---------|------|--------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 209 | Au | 79 | 4510# | 500# | 8840# | 570# | 15720# | 400# | 12710# | 570# | 11960# | 500# | * | |
| | Hg | 80 | 3450# | 150# | 9830# | 330# | 7720# | 150# | 12880# | 340# | 10430# | 330# | 6630# | 330# |
| | Tl | 81 | 4966 | 6 | 7670 | 30 | -762 | 8 | 13550 | 30 | 12165 | 21 | 6220# | 300# |
| | Pb | 82 | 3937.4 | 1.3 | 8153.5 | 2.1 | -8674 | 10 | 14131 | 6 | 9502.8 | 1.4 | 8978 | 20 |
| | Bi | 83 | 7459.8 | 1.9 | 3799.0 | 0.8 | -14489 | 15 | 14904.2 | 0.8 | 10391.0 | 0.8 | 9641.1 | 0.8 |
| | Po | 84 | 6967.8 | 1.9 | 4784.8 | 2.4 | -18224 | 6 | 14399.3 | 2.5 | 8526 | 8 | 13065.9 | 1.4 |
| | At | 85 | 8484 | 10 | 2702 | 5 | -21730 | 50 | 14974 | 8 | 10170 | 6 | 12792 | 9 |
| | Rn | 86 | 7357 | 15 | 3760 | 13 | -25310# | 140# | 14997 | 16 | 8353 | 18 | 14894 | 11 |
| | Fr | 87 | 9175 | 19 | 1403 | 18 | * | | 15576 | 17 | 10227 | 17 | 14307 | 21 |
| | Ra | 88 | 7941 | 11 | 2765 | 13 | * | | 15413 | 18 | 7965 | 29 | 16638 | 10 |
| | Ac | 89 | 9980 | 80 | 170 | 50 | * | | 16010 | 70 | 10140 | 50 | 15730 | 60 |
| | Th | 90 | 8390# | 140# | 1680# | 150# | * | | 15930# | 150# | 7750# | 150# | 18450# | 140# |
| 210 | Au | 79 | 3200# | 570# | * | | 17120# | 400# | 14030# | 570# | 11730# | 570# | * | |
| | Hg | 80 | 4790# | 250# | 10110# | 450# | 10590# | 200# | 11450# | 360# | 10310# | 360# | 4820# | 450# |
| | Tl | 81 | 3674 | 13 | 7890# | 150# | 2725 | 14 | 14730 | 30 | 12100 | 30 | 7210# | 300# |
| | Pb | 82 | 5185.2 | 1.3 | 8373 | 6 | -5124 | 5 | 12732.4 | 1.9 | 11170 | 5 | 7405 | 30 |
| | Bi | 83 | 4604.63 | 0.08 | 4466.3 | 1.1 | -11459 | 15 | 17667.4 | 0.8 | 12524.1 | 0.8 | 11889 | 5 |
| | Po | 84 | 7658.4 | 1.4 | 4983.4 | 0.8 | -16396 | 9 | 13627.9 | 2.0 | 8965.5 | 2.1 | 12145.31 | 0.12 |
| | At | 85 | 7161 | 9 | 2895 | 8 | -20760 | 60 | 16208 | 8 | 10038 | 10 | 13729 | 8 |
| | Rn | 86 | 8735 | 11 | 4011 | 7 | -23664 | 19 | 13576 | 10 | 8487 | 13 | 13187 | 8 |
| | Fr | 87 | 7635 | 21 | 1681 | 18 | * | | 17033 | 19 | 10166 | 17 | 15541 | 20 |
| | Ra | 88 | 9487 | 11 | 3077 | 17 | * | | 13820 | 15 | 8151 | 20 | 14724 | 13 |
| | Ac | 89 | 8130 | 80 | 360 | 60 | * | | 17770 | 60 | 10110 | 80 | 17280 | 60 |
| | Th | 90 | 10380# | 140# | 2070 | 50 | * | | 14020 | 60 | 7780 | 50 | 16160 | 60 |
| 211 | Hg | 80 | 3330# | 280# | 10240# | 450# | 11810# | 200# | 12630# | 450# | 10340# | 360# | 6010# | 450# |
| | Tl | 81 | 4900 | 40 | 8000# | 200# | 5570 | 40 | 13280# | 160# | 12050 | 50 | 5670# | 300# |
| | Pb | 82 | 3835.8 | 2.6 | 8535 | 12 | -1738 | 7 | 13863 | 6 | 11121.2 | 2.7 | 8420 | 30 |
| | Bi | 83 | 5138 | 5 | 4420 | 5 | -7719 | 13 | 16466 | 6 | 14754 | 5 | 10537 | 6 |
| | Po | 84 | 4550.8 | 0.5 | 4929.6 | 0.9 | -13265 | 8 | 16536.9 | 0.9 | 11301.7 | 2.1 | 14962.4 | 0.5 |
| | At | 85 | 7746 | 8 | 2983.1 | 2.5 | -18850 | 50 | 15429.6 | 2.8 | 10686.4 | 2.8 | 12869 | 3 |
| | Rn | 86 | 7222 | 8 | 4072 | 10 | -22670 | 70 | 14838 | 8 | 8579 | 11 | 14361 | 7 |
| | Fr | 87 | 8878 | 19 | 1824 | 13 | -26220# | 100# | 15512 | 16 | 10379 | 16 | 13976 | 15 |
| | Ra | 88 | 7682 | 12 | 3124 | 17 | * | | 15312 | 17 | 8362 | 14 | 16134 | 14 |
| | Ac | 89 | 9660 | 80 | 530 | 50 | * | | 16050 | 50 | 10340 | 50 | 15510 | 50 |
| | Th | 90 | 8220 | 80 | 2170 | 90 | * | | 15780 | 90 | 8020 | 90 | 17830 | 70 |
| | Pa | 91 | * | | -730# | 100# | * | | 16420# | 170# | 10260# | 110# | 16970# | 120# |
| 212 | Hg | 80 | 4690# | 360# | * | | 13130# | 300# | 11140# | 500# | 10160# | 500# | * | |
| | Tl | 81 | 3540# | 210# | 8220# | 280# | 7080# | 200# | 14530# | 280# | 11960# | 250# | 6640# | 450# |
| | Pb | 82 | 5127.2 | 2.5 | 8760 | 40 | 1111 | 3 | 12409 | 12 | 10960 | 6 | 6740# | 150# |
| | Bi | 83 | 4330 | 6 | 4914.0 | 2.7 | -4602 | 9 | 17321.4 | 1.9 | 14360.7 | 2.1 | 11173 | 6 |
| | Po | 84 | 6008.2 | 0.5 | 5799 | 5 | -10171 | 11 | 15133.3 | 0.8 | 12753.2 | 0.8 | 12891.6 | 1.3 |
| | At | 85 | 5052 | 3 | 3484.6 | 2.2 | -15910 | 50 | 18035.7 | 2.1 | 12601.9 | 2.5 | 15276.8 | 2.0 |
| | Rn | 86 | 7976 | 7 | 4301 | 4 | -20770 | 10 | 14023 | 8 | 9087 | 6 | 13353 | 3 |
| | Fr | 87 | 7447 | 15 | 2050 | 11 | -25110 | 80 | 16800 | 10 | 10289 | 13 | 15013 | 10 |
| | Ra | 88 | 9102 | 14 | 3348 | 16 | * | | 13845 | 19 | 8435 | 18 | 14388 | 15 |
| | Ac | 89 | 8000 | 70 | 840 | 50 | * | | 17550 | 50 | 10280 | 50 | 16690 | 50 |
| | Th | 90 | 9870 | 70 | 2380 | 50 | * | | 14030 | 60 | 8130 | 50 | 15899 | 12 |
| | Pa | 91 | 8560# | 130# | -390 | 100 | * | | 18240 | 80 | 10090# | 160# | 18400 | 90 |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q($2\beta^-$) | | Q(ϵp) | | Q($\beta^- n$) | |
|-----|------|----|----------|------|---------|------|---------------|------|-----------------|------|-------------------|------|------------------|------|
| 209 | Au | 79 | 7870# | 500# | * | | 1000# | 640# | 11110# | 400# | * | | 2650# | 400# |
| | Hg | 80 | 8300# | 150# | 18680# | 430# | 1900# | 330# | 8970# | 150# | -14940# | 430# | 40# | 150# |
| | Tl | 81 | 8753 | 8 | 17410# | 300# | 2700# | 200# | 4614 | 6 | -14830# | 300# | 33 | 6 |
| | Pb | 82 | 11305.2 | 1.3 | 15705 | 30 | 2248 | 4 | -1248.6 | 1.9 | -11640 | 30 | -6815.7 | 2.2 |
| | Bi | 83 | 14346.7 | 2.0 | 11802 | 5 | 3137.3 | 0.8 | -5376 | 5 | -8797.5 | 1.8 | -8860.4 | 1.5 |
| | Po | 84 | 15363 | 7 | 8492.0 | 1.4 | 4979.2 | 1.4 | -7425 | 10 | -1906.5 | 1.4 | -11968 | 9 |
| | At | 85 | 15798 | 13 | 7406 | 6 | 5757.0 | 2.0 | -9113 | 16 | -1301 | 5 | -11298 | 12 |
| | Rn | 86 | 16449 | 13 | 6373 | 12 | 6155.4 | 2.0 | -10799 | 11 | 1240 | 10 | -14346 | 15 |
| | Fr | 87 | 17068 | 23 | 5120 | 19 | 6777 | 4 | -12610 | 50 | 1411 | 17 | -13569 | 17 |
| | Ra | 88 | 17830 | 50 | 4085 | 10 | 7143.1 | 2.7 | -14510# | 140# | 4225 | 13 | -16970 | 60 |
| | Ac | 89 | 18450 | 70 | 2890 | 50 | 7730 | 50 | * | | 4220 | 50 | -15910 | 60 |
| | Th | 90 | * | | 1760# | 150# | 8100# | 140# | * | | 7350# | 140# | * | |
| 210 | Au | 79 | 7710# | 500# | * | | * | | 11580# | 400# | * | | 2900# | 430# |
| | Hg | 80 | 8240# | 200# | 18950# | 450# | 1840# | 360# | 9360# | 200# | * | | 210# | 200# |
| | Tl | 81 | 8639 | 12 | 17720# | 300# | 2540# | 300# | 5545 | 12 | -14000# | 400# | 296 | 12 |
| | Pb | 82 | 9122.5 | 0.9 | 16040 | 30 | 3792 | 20 | 1224.6 | 0.9 | -13370# | 150# | -4541.2 | 0.5 |
| | Bi | 83 | 12064.4 | 1.9 | 12619.8 | 1.8 | 5036.5 | 0.8 | -2820 | 8 | -8436 | 6 | -6497.2 | 1.6 |
| | Po | 84 | 14626.2 | 1.3 | 8782.48 | 0.13 | 5407.53 | 0.07 | -6348 | 5 | -5627.5 | 1.3 | -11142 | 5 |
| | At | 85 | 15645 | 12 | 7680 | 8 | 5631.2 | 1.0 | -8639 | 17 | -1002 | 8 | -11102 | 13 |
| | Rn | 86 | 16092 | 12 | 6713 | 5 | 6159.0 | 2.2 | -10048 | 10 | -528 | 5 | -13907 | 15 |
| | Fr | 87 | 16810 | 19 | 5441 | 18 | 6672 | 5 | -12120 | 60 | 2260 | 16 | -13263 | 16 |
| | Ra | 88 | 17428 | 13 | 4480 | 14 | 7151 | 3 | -13617 | 21 | 2095 | 14 | -16470 | 50 |
| | Ac | 89 | 18110 | 80 | 3120 | 60 | 7610 | 50 | * | | 5270 | 60 | -15650# | 150# |
| | Th | 90 | 18770 | 40 | 2246 | 21 | 8069 | 6 | * | | 4912 | 20 | * | |
| 211 | Hg | 80 | 8120# | 250# | * | | 1490# | 450# | 9870# | 200# | * | | 550# | 200# |
| | Tl | 81 | 8580 | 40 | 18120# | 400# | 2310# | 300# | 5780 | 40 | -15700# | 400# | 580 | 40 |
| | Pb | 82 | 9020.9 | 2.7 | 16430# | 150# | 3570 | 30 | 1939.6 | 2.5 | -12420# | 200# | -3772.3 | 2.5 |
| | Bi | 83 | 9743 | 5 | 12792 | 8 | 6750.4 | 0.5 | -212 | 6 | -9901 | 13 | -3977 | 5 |
| | Po | 84 | 12209.1 | 1.5 | 9395.9 | 1.4 | 7594.6 | 0.5 | -3677 | 7 | -4993.0 | 1.0 | -8532 | 8 |
| | At | 85 | 14907 | 6 | 7966.5 | 2.4 | 5982.4 | 1.3 | -7507 | 12 | -4144.3 | 2.4 | -10114 | 5 |
| | Rn | 86 | 15957 | 12 | 6967 | 7 | 5965.5 | 1.4 | -9587 | 10 | -91 | 7 | -13494 | 17 |
| | Fr | 87 | 16513 | 19 | 5836 | 13 | 6662 | 3 | -11340 | 50 | 543 | 14 | -12654 | 15 |
| | Ra | 88 | 17169 | 10 | 4805 | 13 | 7042 | 3 | -13080 | 70 | 3148 | 9 | -16030 | 60 |
| | Ac | 89 | 17780 | 70 | 3610 | 50 | 7620 | 50 | -14880# | 120# | 3250 | 60 | -14930 | 60 |
| | Th | 90 | 18600# | 160# | 2530 | 70 | 7940 | 50 | * | | 6180 | 70 | * | |
| | Pa | 91 | * | | 1340# | 110# | 8510# | 110# | * | | 6000# | 120# | * | |
| 212 | Hg | 80 | 8020# | 360# | * | | 1320# | 500# | 10310# | 300# | * | | 760# | 300# |
| | Tl | 81 | 8450# | 200# | 18460# | 450# | 2130# | 360# | 6570# | 200# | * | | 870# | 200# |
| | Pb | 82 | 8963.0 | 2.1 | 16760# | 200# | 3290 | 30 | 2820.6 | 1.9 | -14210# | 200# | -3761 | 6 |
| | Bi | 83 | 9468.6 | 1.8 | 13449 | 12 | 6207.26 | 0.03 | 510.3 | 2.7 | -9330 | 40 | -3756.7 | 1.7 |
| | Po | 84 | 10558.98 | 0.17 | 10218.9 | 0.9 | 8954.20 | 0.11 | -1709.9 | 2.9 | -7165.5 | 2.4 | -6793.5 | 2.5 |
| | At | 85 | 12799 | 8 | 8414.2 | 2.0 | 7817.1 | 0.6 | -5112 | 9 | -4058 | 6 | -7944 | 7 |
| | Rn | 86 | 15197 | 6 | 7284.4 | 2.9 | 6385.1 | 2.6 | -8461 | 12 | -3516.0 | 3.0 | -12591 | 12 |
| | Fr | 87 | 16325 | 18 | 6122 | 12 | 6529.0 | 1.6 | -10790 | 50 | 842 | 9 | -12419 | 12 |
| | Ra | 88 | 16784 | 14 | 5172 | 12 | 7031.7 | 1.7 | -12310 | 15 | 1267 | 13 | -15470 | 50 |
| | Ac | 89 | 17660 | 80 | 3970 | 50 | 7520 | 50 | -14320 | 90 | 4130 | 50 | -14700 | 90 |
| | Th | 90 | 18091 | 21 | 2910 | 14 | 7958 | 5 | * | | 3990 | 13 | -18040# | 100# |
| | Pa | 91 | * | | 1770 | 90 | 8420 | 50 | * | | 7100 | 90 | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|----|--------|------|-------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 213 | Hg | 80 | 3160# | 420# | * | | 14320# | 300# | * | | 10200# | 500# | * | |
| | Tl | 81 | 4740# | 200# | 8260# | 300# | 8363 | 27 | 13120# | 200# | 12010# | 200# | 5100# | 400# |
| | Pb | 82 | 3726 | 7 | 8940# | 200# | 2492 | 8 | 13590 | 40 | 10907 | 13 | 7810# | 200# |
| | Bi | 83 | 5185 | 5 | 4972 | 5 | -1679 | 7 | 15972 | 5 | 14361 | 5 | 9662 | 13 |
| | Po | 84 | 4355.4 | 2.9 | 5825 | 3 | -6999 | 10 | 15916 | 6 | 13002.4 | 2.8 | 13721.3 | 2.8 |
| | At | 85 | 6023 | 5 | 3499 | 5 | -12734 | 16 | 16564 | 5 | 14238 | 5 | 13859 | 5 |
| | Rn | 86 | 5108 | 4 | 4357 | 4 | -17816 | 10 | 16662 | 4 | 11140 | 8 | 15904 | 3 |
| | Fr | 87 | 8108 | 10 | 2182 | 6 | -23220 | 70 | 15913 | 8 | 10916 | 7 | 14066 | 9 |
| | Ra | 88 | 7527 | 15 | 3427 | 13 | * | | 15197 | 15 | 8543 | 18 | 15597 | 11 |
| | Ac | 89 | 9190 | 50 | 935 | 19 | * | | 16033 | 17 | 10576 | 18 | 15134 | 21 |
| | Th | 90 | 8062 | 14 | 2450 | 50 | * | | 15630 | 50 | 8190 | 60 | 17324 | 13 |
| | Pa | 91 | 10000 | 100 | -260 | 70 | * | | 16460 | 100 | 10470 | 70 | 16520 | 90 |
| 214 | Hg | 80 | 4560# | 500# | * | | 15650# | 400# | * | | * | | * | |
| | Tl | 81 | 3390# | 200# | 8490# | 360# | 9840# | 200# | 14420# | 360# | 11950# | 280# | * | |
| | Pb | 82 | 5051 | 7 | 9256 | 27 | 4137 | 9 | 12080# | 200# | 10760 | 40 | 6090# | 200# |
| | Bi | 83 | 4040 | 12 | 5286 | 13 | -242 | 14 | 17059 | 11 | 14156 | 11 | 10520 | 40 |
| | Po | 84 | 5887.8 | 2.8 | 6527 | 5 | -4563 | 5 | 14358.7 | 1.9 | 12253 | 5 | 11669.3 | 2.6 |
| | At | 85 | 4872 | 6 | 4015 | 5 | -9824 | 16 | 17700 | 4 | 13917 | 4 | 14126 | 7 |
| | Rn | 86 | 6695 | 10 | 5029 | 10 | -15015 | 14 | 15019 | 9 | 12192 | 9 | 13759 | 9 |
| | Fr | 87 | 5477 | 10 | 2552 | 9 | -20440 | 80 | 18412 | 9 | 12661 | 11 | 16335 | 9 |
| | Ra | 88 | 8324 | 11 | 3643 | 7 | * | | 14320 | 10 | 9097 | 13 | 14495 | 9 |
| | Ac | 89 | 7782 | 22 | 1191 | 18 | * | | 17354 | 19 | 10476 | 17 | 16231 | 19 |
| | Th | 90 | 9497 | 14 | 2749 | 19 | * | | 14130 | 50 | 8360 | 50 | 15509 | 13 |
| | Pa | 91 | 8250 | 100 | -80 | 80 | * | | 18090 | 80 | 10440 | 110 | 17930 | 90 |
| 215 | Hg | 80 | 3040# | 570# | * | | 16750# | 400# | * | | * | | * | |
| | Tl | 81 | 4630# | 360# | 8560# | 500# | 11170# | 300# | 12960# | 420# | 12020# | 420# | * | |
| | Pb | 82 | 3550 | 50 | 9410# | 200# | 5510 | 50 | 13270 | 60 | 10760# | 210# | 7230# | 300# |
| | Bi | 83 | 5241 | 13 | 5477 | 6 | 1311 | 9 | 15544 | 9 | 14042 | 6 | 8830# | 200# |
| | Po | 84 | 4143.0 | 2.5 | 6630 | 11 | -3075 | 8 | 15401 | 5 | 12440.3 | 2.6 | 12653.5 | 2.3 |
| | At | 85 | 5947 | 8 | 4075 | 7 | -7286 | 14 | 16109 | 7 | 13978 | 7 | 12509 | 7 |
| | Rn | 86 | 4920 | 12 | 5078 | 9 | -12090 | 12 | 16122 | 9 | 12324 | 8 | 14847 | 8 |
| | Fr | 87 | 6795 | 11 | 2651 | 11 | -17550 | 70 | 16725 | 8 | 13842 | 8 | 14593 | 7 |
| | Ra | 88 | 5630 | 9 | 3797 | 11 | -22390 | 90 | 16797 | 9 | 10914 | 12 | 16840 | 8 |
| | Ac | 89 | 8485 | 20 | 1351 | 13 | * | | 16396 | 16 | 11094 | 17 | 15193 | 15 |
| | Th | 90 | 7845 | 14 | 2811 | 18 | * | | 15478 | 18 | 8510 | 50 | 16767 | 14 |
| | Pa | 91 | 9690 | 110 | 120 | 70 | * | | 16450 | 70 | 10620 | 70 | 16230 | 90 |
| | U | 92 | * | | 1850 | 120 | * | | 15970 | 110 | 8190 | 120 | 18460 | 90 |
| 216 | Hg | 80 | 4420# | 570# | * | | 18080# | 400# | * | | * | | * | |
| | Tl | 81 | 3270# | 420# | 8780# | 500# | 12460# | 300# | 14250# | 500# | 11920# | 420# | * | |
| | Pb | 82 | 4930# | 200# | 9720# | 360# | 7230# | 200# | 11730# | 280# | 10560# | 200# | 5460# | 360# |
| | Bi | 83 | 3827 | 13 | 5760 | 50 | 2903 | 12 | 16768 | 11 | 13942 | 13 | 9737 | 29 |
| | Po | 84 | 5747.2 | 2.3 | 7136 | 6 | -1509 | 9 | 13694 | 11 | 11878 | 5 | 10632 | 7 |
| | At | 85 | 4559 | 8 | 4491 | 4 | -5888 | 11 | 17438 | 4 | 13774 | 4 | 13135 | 6 |
| | Rn | 86 | 6650 | 10 | 5780 | 9 | -10045 | 13 | 14344 | 7 | 11697 | 8 | 12553 | 7 |
| | Fr | 87 | 5418 | 8 | 3149 | 9 | -14830 | 50 | 18001 | 10 | 13531 | 5 | 15197 | 6 |
| | Ra | 88 | 7314 | 11 | 4316 | 11 | -19775 | 29 | 14961 | 12 | 11708 | 10 | 14634 | 9 |
| | Ac | 89 | 5958 | 16 | 1678 | 13 | * | | 18762 | 12 | 12663 | 15 | 17344 | 12 |
| | Th | 90 | 8695 | 15 | 3021 | 17 | * | | 14565 | 20 | 9008 | 19 | 15599 | 16 |
| | Pa | 91 | 8140 | 90 | 410 | 50 | * | | 17820 | 50 | 10540 | 50 | 17290 | 60 |
| | U | 92 | 9930 | 90 | 2090 | 80 | * | | 14290 | 80 | 8270 | 80 | 16593 | 30 |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | $Q(\alpha)$ | | $Q(2\beta^-)$ | | $Q(\epsilon p)$ | | $Q(\beta^- n)$ | |
|-----|------|----|---------|------|---------|------|-------------|------|---------------|------|-----------------|------|----------------|------|
| 213 | Hg | 80 | 7850# | 360# | * | | * | | 10870# | 300# | * | | 1150# | 360# |
| | Tl | 81 | 8280 | 50 | * | | 1900# | 400# | 7015 | 27 | * | | 1261 | 27 |
| | Pb | 82 | 8853 | 7 | 17160# | 200# | 3020# | 150# | 3450 | 8 | -13250# | 300# | -3157 | 7 |
| | Bi | 83 | 9515 | 7 | 13730 | 40 | 5988 | 3 | 1348 | 7 | -10970# | 200# | -2933 | 5 |
| | Po | 84 | 10363.6 | 2.9 | 10739 | 4 | 8536.1 | 2.6 | -958 | 4 | -6394 | 3 | -6097 | 3 |
| | At | 85 | 11075 | 5 | 9298 | 7 | 9254 | 5 | -3027 | 7 | -5751 | 5 | -5991 | 6 |
| | Rn | 86 | 13083 | 7 | 7841 | 3 | 8245.2 | 2.9 | -6042 | 10 | -2616 | 3 | -10251 | 9 |
| | Fr | 87 | 15555 | 13 | 6484 | 6 | 6904.9 | 1.2 | -9708 | 16 | -2214 | 6 | -11425 | 12 |
| | Ra | 88 | 16629 | 13 | 5477 | 12 | 6861.7 | 2.3 | -11775 | 13 | 1716 | 10 | -15000 | 50 |
| | Ac | 89 | 17190 | 60 | 4283 | 19 | 7499 | 4 | -13510 | 70 | 2382 | 18 | -14027 | 18 |
| | Th | 90 | 17930 | 70 | 3290 | 12 | 7837 | 7 | * | | 5030 | 15 | -17540 | 80 |
| | Pa | 91 | 18560# | 130# | 2120 | 90 | 8390 | 50 | * | | 5100 | 90 | * | |
| 214 | Hg | 80 | 7720# | 500# | * | | * | | 11360# | 400# | * | | 1320# | 400# |
| | Tl | 81 | 8130# | 280# | * | | 1710# | 450# | 7670# | 200# | * | | 1600# | 200# |
| | Pb | 82 | 8776.6 | 2.0 | 17520# | 300# | 2760# | 200# | 4287.3 | 2.3 | -15140# | 300# | -3022 | 5 |
| | Bi | 83 | 9225 | 11 | 14230# | 200# | 5621 | 3 | 2179 | 12 | -10274 | 29 | -2618 | 12 |
| | Po | 84 | 10243.2 | 0.9 | 11499.1 | 2.1 | 7833.54 | 0.06 | -150 | 9 | -8555 | 7 | -5962 | 5 |
| | At | 85 | 10894 | 5 | 9840 | 4 | 8987 | 4 | -2421 | 10 | -5437 | 7 | -5755 | 5 |
| | Rn | 86 | 11803 | 10 | 8528 | 9 | 9208 | 9 | -4412 | 11 | -4955 | 10 | -8838 | 10 |
| | Fr | 87 | 13585 | 12 | 6908 | 9 | 8589 | 4 | -7403 | 18 | -1668 | 10 | -9376 | 13 |
| | Ra | 88 | 15851 | 12 | 5826 | 6 | 7272.6 | 2.6 | -10602 | 12 | -1500 | 6 | -14133 | 16 |
| | Ac | 89 | 16980 | 50 | 4618 | 18 | 7352.1 | 2.5 | -13040 | 80 | 2708 | 16 | -13748 | 18 |
| | Th | 90 | 17559 | 15 | 3684 | 15 | 7827 | 5 | * | | 3060 | 14 | -17040 | 70 |
| | Pa | 91 | 18250 | 110 | 2370 | 90 | 8270 | 50 | * | | 6040 | 80 | * | |
| 215 | Hg | 80 | 7600# | 500# | * | | * | | 11870# | 400# | * | | 1670# | 450# |
| | Tl | 81 | 8020# | 300# | * | | * | | 8280# | 300# | * | | 2020# | 300# |
| | Pb | 82 | 8600 | 50 | 17900# | 300# | 2540# | 200# | 4880 | 50 | -14130# | 400# | -2530 | 50 |
| | Bi | 83 | 9282 | 7 | 14732 | 28 | 5280 | 40 | 2885 | 9 | -12120# | 200# | -1972 | 6 |
| | Po | 84 | 10031 | 4 | 11916 | 7 | 7526.3 | 0.8 | 627 | 8 | -7647.9 | 2.5 | -5233 | 5 |
| | At | 85 | 10819 | 8 | 10602 | 8 | 8178 | 4 | -1574 | 10 | -7344 | 13 | -5007 | 11 |
| | Rn | 86 | 11615 | 8 | 9093 | 8 | 8839 | 8 | -3702 | 11 | -3987 | 8 | -8281 | 11 |
| | Fr | 87 | 12272 | 9 | 7680 | 8 | 9540 | 7 | -5713 | 14 | -3591 | 8 | -7846 | 9 |
| | Ra | 88 | 13954 | 12 | 6348 | 8 | 8864 | 3 | -8388 | 12 | -435 | 12 | -11981 | 17 |
| | Ac | 89 | 16267 | 20 | 4994 | 13 | 7746 | 3 | -11830 | 70 | -300 | 15 | -12736 | 16 |
| | Th | 90 | 17341 | 13 | 4002 | 13 | 7665 | 4 | -14000 | 90 | 3540 | 10 | -16640 | 80 |
| | Pa | 91 | 17940 | 100 | 2870 | 70 | 8240 | 50 | * | | 4130 | 70 | * | |
| | U | 92 | * | | 1770 | 90 | 8590 | 50 | * | | 6940 | 90 | * | |
| 216 | Hg | 80 | 7460# | 570# | * | | * | | 12380# | 450# | * | | 1880# | 500# |
| | Tl | 81 | 7890# | 360# | * | | * | | 8840# | 300# | * | | 2300# | 300# |
| | Pb | 82 | 8480# | 200# | 18280# | 450# | 2300# | 360# | 5700# | 200# | -16020# | 450# | -2220# | 200# |
| | Bi | 83 | 9068 | 16 | 15170# | 200# | 5000# | 200# | 3617 | 12 | -11330# | 300# | -1656 | 11 |
| | Po | 84 | 9890.2 | 2.1 | 12612.8 | 2.0 | 6906.4 | 0.5 | 1530 | 6 | -9850 | 50 | -5033 | 7 |
| | At | 85 | 10506 | 5 | 11121 | 12 | 7950 | 3 | -714 | 5 | -6662 | 7 | -4646 | 8 |
| | Rn | 86 | 11570 | 11 | 9855 | 6 | 8197 | 6 | -3038 | 10 | -6494 | 6 | -8137 | 9 |
| | Fr | 87 | 12213 | 9 | 8227 | 6 | 9174 | 3 | -5173 | 12 | -3062 | 8 | -7634 | 9 |
| | Ra | 88 | 12944 | 10 | 6967 | 13 | 9526 | 8 | -7007 | 15 | -2829 | 12 | -10811 | 15 |
| | Ac | 89 | 14442 | 19 | 5475 | 14 | 9235 | 6 | -9650 | 50 | 537 | 13 | -10849 | 14 |
| | Th | 90 | 16539 | 16 | 4372 | 13 | 8072 | 4 | -12770 | 30 | 476 | 14 | -15640 | 70 |
| | Pa | 91 | 17830 | 90 | 3220 | 60 | 8097 | 15 | * | | 4480 | 50 | -15200 | 100 |
| | U | 92 | * | | 2210 | 30 | 8531 | 26 | * | | 4856 | 29 | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|----|--------|------|--------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 217 | Tl | 81 | 4480# | 500# | 8840# | 570# | 13920# | 400# | 12820# | 570# | 12000# | 570# | * | |
| | Pb | 82 | 3310# | 360# | 9770# | 420# | 8580# | 300# | 13040# | 420# | 10640# | 360# | 6710# | 500# |
| | Bi | 83 | 5215 | 21 | 6040# | 200# | 4415 | 19 | 15100 | 60 | 13777 | 18 | 7910# | 200# |
| | Po | 84 | 3970 | 7 | 7279 | 13 | -6 | 10 | 14965 | 9 | 11948 | 13 | 11713 | 7 |
| | At | 85 | 5933 | 6 | 4677 | 5 | -4309 | 12 | 15647 | 5 | 13729 | 5 | 11242 | 12 |
| | Rn | 86 | 4666 | 7 | 5887 | 5 | -8547 | 11 | 15625 | 8 | 11902 | 6 | 13775 | 4 |
| | Fr | 87 | 6728 | 8 | 3227 | 9 | -12754 | 17 | 16194 | 10 | 13498 | 11 | 13341 | 8 |
| | Ra | 88 | 5473 | 11 | 4370 | 8 | -17080# | 70# | 16282 | 10 | 11712 | 11 | 15856 | 12 |
| | Ac | 89 | 7512 | 16 | 1876 | 14 | * | | 16881 | 14 | 13475 | 13 | 15309 | 14 |
| | Th | 90 | 6164 | 16 | 3228 | 15 | * | | 16886 | 16 | 10626 | 19 | 17759 | 12 |
| | Pa | 91 | 8800 | 60 | 519 | 20 | * | | 16858 | 18 | 11238 | 19 | 16271 | 22 |
| | U | 92 | 8160# | 80# | 2120# | 90# | * | | 15820# | 100# | 8350# | 100# | 17930# | 70# |
| 218 | Tl | 81 | 3200# | 570# | * | | 15080# | 400# | 14030# | 570# | 11840# | 570# | * | |
| | Pb | 82 | 4860# | 420# | 10150# | 500# | 10240# | 300# | 11450# | 420# | 10410# | 420# | 4890# | 500# |
| | Bi | 83 | 3590 | 30 | 6310# | 300# | 6157 | 27 | 16450# | 200# | 13740 | 60 | 8950# | 300# |
| | Po | 84 | 5598 | 7 | 7662 | 18 | 1706 | 11 | 13194 | 11 | 11592 | 6 | 9660 | 50 |
| | At | 85 | 4368 | 13 | 5074 | 13 | -2750 | 50 | 17027 | 12 | 13504 | 12 | 12115 | 13 |
| | Rn | 86 | 6512 | 4 | 6466 | 5 | -7149 | 11 | 13671 | 4 | 11337 | 7 | 11405 | 3 |
| | Fr | 87 | 5327 | 8 | 3888 | 6 | -11625 | 19 | 17517 | 7 | 13092 | 9 | 13961 | 8 |
| | Ra | 88 | 7310 | 13 | 4952 | 13 | -15243 | 18 | 14391 | 12 | 11197 | 13 | 13466 | 13 |
| | Ac | 89 | 5930 | 50 | 2340 | 50 | * | | 18260 | 50 | 13170 | 50 | 16170 | 50 |
| | Th | 90 | 7910 | 15 | 3626 | 15 | * | | 14933 | 15 | 11200 | 16 | 15479 | 13 |
| | Pa | 91 | 6456 | 24 | 811 | 21 | * | | 19096 | 22 | 12626 | 20 | 18300 | 22 |
| | U | 92 | 9150# | 70# | 2463 | 21 | * | | 14810 | 60 | 8890 | 70 | 16619 | 16 |
| 219 | Pb | 82 | 3250# | 500# | 10190# | 570# | 11450# | 400# | 12680# | 570# | 10430# | 500# | 6070# | 570# |
| | Bi | 83 | 5010# | 200# | 6460# | 360# | 7670# | 200# | 14750# | 360# | 13670# | 280# | 7210# | 360# |
| | Po | 84 | 3747 | 16 | 7820 | 30 | 3287 | 18 | 14662 | 24 | 11671 | 19 | 10850# | 200# |
| | At | 85 | 5773 | 12 | 5250 | 4 | -1170 | 50 | 15223 | 7 | 13478 | 3 | 10168 | 12 |
| | Rn | 86 | 4459 | 3 | 6558 | 12 | -5640 | 50 | 15146 | 5 | 11437 | 4 | 12693.4 | 2.3 |
| | Fr | 87 | 6513 | 8 | 3889 | 7 | -9920 | 50 | 15670 | 8 | 13229 | 9 | 12008 | 8 |
| | Ra | 88 | 5328 | 14 | 4954 | 9 | -13890 | 50 | 15790 | 10 | 11287 | 9 | 14788 | 10 |
| | Ac | 89 | 7350 | 70 | 2370 | 50 | -17890 | 100 | 16390 | 50 | 13140 | 50 | 14240 | 50 |
| | Th | 90 | 5970 | 50 | 3660 | 70 | * | | 16480 | 50 | 11190 | 50 | 16830 | 50 |
| | Pa | 91 | 8210 | 50 | 1120 | 50 | * | | 17050 | 50 | 13110 | 50 | 16040 | 50 |
| | U | 92 | 6680 | 50 | 2690 | 50 | * | | 16930 | 50 | 10350 | 70 | 18630 | 50 |
| | Np | 93 | * | | -270 | 90 | * | | 17190# | 110# | 11250 | 90 | 17300 | 100 |
| 220 | Pb | 82 | 4680# | 570# | * | | 13060# | 400# | 11200# | 570# | 10220# | 570# | * | |
| | Bi | 83 | 3540# | 360# | 6750# | 500# | 9340# | 300# | 16080# | 420# | 13440# | 420# | 8150# | 500# |
| | Po | 84 | 5489 | 24 | 8310# | 200# | 4993 | 20 | 12760 | 30 | 11398 | 25 | 8670# | 300# |
| | At | 85 | 4092 | 14 | 5595 | 21 | 632 | 15 | 16730 | 14 | 13356 | 15 | 11292 | 23 |
| | Rn | 86 | 6288.6 | 2.3 | 7073 | 3 | -4057 | 22 | 13225 | 12 | 11081 | 5 | 10375 | 7 |
| | Fr | 87 | 5207 | 8 | 4636 | 4 | -8740# | 50# | 16976 | 4 | 12688 | 6 | 12734 | 6 |
| | Ra | 88 | 7195 | 12 | 5636 | 11 | -12660# | 100# | 13922 | 9 | 10820 | 10 | 12258 | 9 |
| | Ac | 89 | 5900 | 50 | 2940 | 10 | -16570# | 200# | 17803 | 13 | 12718 | 9 | 15075 | 9 |
| | Th | 90 | 7870 | 60 | 4190 | 60 | * | | 14540 | 60 | 10829 | 25 | 14426 | 23 |
| | Pa | 91 | 6390# | 70# | 1540# | 70# | * | | 18560# | 50# | 12880# | 50# | 17160# | 50# |
| | U | 92 | 8430# | 110# | 2900# | 110# | * | | 14960# | 100# | 10730# | 100# | 16370# | 100# |
| | Np | 93 | 7220# | 220# | 270# | 200# | * | | 19130# | 200# | 12200# | 210# | 18890# | 200# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q($2\beta^-$) | | Q(ϵp) | | Q($\beta^- n$) | |
|-----|------|----|---------|------|---------|------|---------------|------|-----------------|------|-------------------|------|------------------|------|
| 217 | Tl | 81 | 7740# | 500# | * | | * | | 9580# | 400# | * | | 2760# | 450# |
| | Pb | 82 | 8250# | 300# | 18550# | 500# | 2150# | 420# | 6360# | 300# | -14910# | 500# | -1710# | 300# |
| | Bi | 83 | 9042 | 19 | 15760# | 300# | 4520 | 30 | 4335 | 18 | -13280# | 300# | -1124 | 18 |
| | Po | 84 | 9717 | 7 | 13040 | 50 | 6662.1 | 2.4 | 2225 | 8 | -8890# | 200# | -4444 | 7 |
| | At | 85 | 10492 | 8 | 11813 | 7 | 7201.4 | 1.2 | 80 | 8 | -8768 | 12 | -3930 | 8 |
| | Rn | 86 | 11316 | 9 | 10378 | 5 | 7887.2 | 2.9 | -2231 | 8 | -5413 | 4 | -7384 | 6 |
| | Fr | 87 | 12146 | 9 | 9008 | 9 | 8469 | 4 | -4389 | 13 | -5231 | 7 | -7048 | 11 |
| | Ra | 88 | 12787 | 10 | 7520 | 10 | 9161 | 6 | -6316 | 13 | -1652 | 9 | -10326 | 13 |
| | Ac | 89 | 13470 | 17 | 6192 | 13 | 9832 | 10 | -8365 | 20 | -1556 | 12 | -9666 | 17 |
| | Th | 90 | 14858 | 14 | 4906 | 13 | 9435 | 4 | -10770# | 70# | 1626 | 14 | -13660 | 50 |
| | Pa | 91 | 16940 | 70 | 3540 | 20 | 8489 | 4 | * | | 1635 | 19 | -14070 | 30 |
| | U | 92 | 18090# | 110# | 2530# | 70# | 8430# | 70# | * | | 5390# | 70# | * | |
| 218 | Tl | 81 | 7680# | 500# | * | | * | | 9960# | 400# | * | | 2870# | 500# |
| | Pb | 82 | 8170# | 360# | 18980# | 500# | 1850# | 500# | 7100# | 300# | * | | -1350# | 300# |
| | Bi | 83 | 8801 | 29 | 16080# | 300# | 4330# | 200# | 5118 | 29 | -12390# | 400# | -739 | 28 |
| | Po | 84 | 9568.2 | 2.0 | 13700# | 200# | 6114.75 | 0.09 | 3139.6 | 2.9 | -11170# | 300# | -4109 | 5 |
| | At | 85 | 10301 | 12 | 12354 | 16 | 6874 | 3 | 1039 | 12 | -7921 | 21 | -3632 | 12 |
| | Rn | 86 | 11178 | 6 | 11143.0 | 2.7 | 7262.5 | 1.9 | -1434 | 11 | -7955 | 7 | -7169 | 7 |
| | Fr | 87 | 12054 | 6 | 9775 | 6 | 8014.0 | 2.0 | -3780 | 50 | -4624 | 7 | -6902 | 8 |
| | Ra | 88 | 12783 | 14 | 8180 | 13 | 8546 | 6 | -5716 | 15 | -4296 | 12 | -10124 | 16 |
| | Ac | 89 | 13440 | 50 | 6710 | 50 | 9380 | 50 | -7840 | 50 | -760 | 50 | -9430 | 50 |
| | Th | 90 | 14074 | 16 | 5502 | 14 | 9849 | 9 | -9528 | 17 | -812 | 13 | -12773 | 19 |
| | Pa | 91 | 15260 | 60 | 4039 | 21 | 9815 | 10 | * | | 2691 | 22 | -12360# | 70# |
| | U | 92 | 17310 | 30 | 2982 | 18 | 8775 | 9 | * | | 2400 | 17 | * | |
| 219 | Pb | 82 | 8100# | 500# | * | | 1650# | 570# | 7600# | 400# | * | | -1010# | 400# |
| | Bi | 83 | 8590# | 200# | 16610# | 450# | 3950# | 360# | 5890# | 200# | -14190# | 450# | -150# | 200# |
| | Po | 84 | 9345 | 17 | 14140# | 300# | 5910 | 50 | 3852 | 16 | -10060# | 300# | -3488 | 20 |
| | At | 85 | 10141 | 6 | 12912 | 18 | 6342 | 5 | 1778 | 8 | -10109 | 27 | -2893 | 4 |
| | Rn | 86 | 10972 | 5 | 11632 | 7 | 6946.2 | 0.3 | -565 | 8 | -6816.5 | 2.4 | -6301 | 5 |
| | Fr | 87 | 11839 | 10 | 10355 | 8 | 7448.6 | 1.8 | -2950 | 50 | -6769 | 14 | -6105 | 13 |
| | Ra | 88 | 12638 | 11 | 8842 | 9 | 8138 | 3 | -5080 | 50 | -3112 | 8 | -9520 | 50 |
| | Ac | 89 | 13280 | 50 | 7320 | 50 | 8830 | 50 | -6970 | 70 | -2780 | 50 | -8870 | 50 |
| | Th | 90 | 13880 | 50 | 6000 | 50 | 9510 | 50 | -8820 | 70 | 530 | 50 | -12280 | 50 |
| | Pa | 91 | 14670 | 50 | 4740 | 50 | 10080 | 50 | -10920 | 100 | 410 | 70 | -11430 | 50 |
| | U | 92 | 15830# | 90# | 3500 | 50 | 9940 | 50 | * | | 3630 | 50 | * | |
| | Np | 93 | * | | 2190 | 90 | 9170 | 50 | * | | 3480 | 90 | * | |
| 220 | Pb | 82 | 7930# | 500# | * | | 1390# | 570# | 8410# | 400# | * | | -690# | 450# |
| | Bi | 83 | 8540# | 300# | 16940# | 500# | 3680# | 420# | 6440# | 300# | * | | 70# | 300# |
| | Po | 84 | 9236 | 18 | 14770# | 300# | 5360# | 200# | 4651 | 18 | -12300# | 400# | -3204 | 18 |
| | At | 85 | 9865 | 18 | 13420 | 30 | 6077 | 18 | 2893 | 15 | -9200# | 200# | -2525 | 14 |
| | Rn | 86 | 10747.9 | 2.7 | 12322.8 | 2.0 | 6404.74 | 0.10 | 342 | 8 | -9358 | 16 | -6077 | 7 |
| | Fr | 87 | 11719 | 6 | 11194 | 12 | 6800.7 | 1.9 | -2261 | 7 | -6203 | 5 | -5983 | 9 |
| | Ra | 88 | 12524 | 14 | 9525 | 8 | 7592 | 6 | -4399 | 24 | -5848 | 8 | -9370 | 50 |
| | Ac | 89 | 13240 | 50 | 7893 | 8 | 8348 | 4 | -6480# | 50# | -2163 | 9 | -8800 | 50 |
| | Th | 90 | 13840 | 25 | 6560 | 25 | 8953 | 20 | -8260# | 100# | -2014 | 24 | -11940 | 60 |
| | Pa | 91 | 14610# | 50# | 5200# | 70# | 9650# | 50# | -10090# | 200# | 1360# | 70# | -11140# | 70# |
| | U | 92 | 15100# | 100# | 4010# | 100# | 10210# | 100# | * | | 1170# | 110# | -14600# | 130# |
| | Np | 93 | * | | 2950# | 200# | 10090# | 200# | * | | 4480# | 200# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|----|--------|------|--------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 221 | Bi | 83 | 4790# | 420# | 6860# | 500# | 10820# | 300# | 14530# | 500# | 13510# | 420# | 6560# | 500# |
| | Po | 84 | 3561 | 26 | 8330# | 300# | 6810 | 20 | 14200# | 200# | 11420 | 30 | 9970# | 300# |
| | At | 85 | 5664 | 20 | 5770 | 23 | 2260 | 50 | 14812 | 21 | 13290 | 14 | 9210 | 30 |
| | Rn | 86 | 4212 | 6 | 7193 | 15 | -2469 | 10 | 14786 | 6 | 11237 | 13 | 11761 | 6 |
| | Fr | 87 | 6276 | 6 | 4624 | 5 | -7100 | 50 | 15159 | 5 | 12924 | 5 | 10826 | 13 |
| | Ra | 88 | 5378 | 9 | 5807 | 6 | -11560 | 50 | 15057 | 8 | 10769 | 6 | 13393 | 5 |
| | Ac | 89 | 7290 | 50 | 3040 | 50 | -15330# | 210# | 15840 | 50 | 12740 | 50 | 13110 | 50 |
| | Th | 90 | 5800 | 24 | 4092 | 10 | * | | 16080 | 50 | 10960 | 50 | 15936 | 14 |
| | Pa | 91 | 7910# | 70# | 1580 | 60 | * | | 16620 | 70 | 12870 | 50 | 15180 | 70 |
| | U | 92 | 6490# | 110# | 2990# | 70# | * | | 16690 | 70 | 10700 | 50 | 17800 | 50 |
| | Np | 93 | 8530# | 280# | 370# | 220# | * | | 17270# | 210# | 12820# | 200# | 16810# | 200# |
| 222 | Bi | 83 | 3440# | 420# | * | | 12350# | 300# | 15770# | 500# | 13320# | 500# | * | |
| | Po | 84 | 5360 | 40 | 8900# | 300# | 8170 | 40 | 12380# | 300# | 11070# | 200# | 7850# | 400# |
| | At | 85 | 3901 | 21 | 6110 | 25 | 4332 | 17 | 16400 | 24 | 13136 | 22 | 10320# | 200# |
| | Rn | 86 | 6171 | 6 | 7699 | 14 | -831 | 12 | 12707 | 14 | 10840 | 4 | 9337 | 16 |
| | Fr | 87 | 4971 | 9 | 5382 | 9 | -5780# | 70# | 16477 | 8 | 12413 | 8 | 11628 | 8 |
| | Ra | 88 | 6715 | 6 | 6246 | 6 | -9950 | 50 | 13549 | 6 | 10566 | 8 | 11137 | 5 |
| | Ac | 89 | 5970 | 50 | 3631 | 7 | -14400# | 200# | 17062 | 10 | 12091 | 10 | 13650 | 9 |
| | Th | 90 | 7809 | 15 | 4610 | 50 | * | | 14170 | 14 | 10500 | 50 | 13455 | 15 |
| | Pa | 91 | 6290# | 90# | 2080# | 70# | * | | 18200# | 80# | 12550# | 90# | 16230# | 90# |
| | U | 92 | 8320 | 70 | 3390 | 70 | * | | 14770# | 70# | 10600 | 70 | 15450 | 70 |
| | Np | 93 | 6900# | 280# | 790# | 200# | * | | 18800# | 220# | 12600# | 200# | 18130# | 200# |
| 223 | Bi | 83 | 4660# | 500# | * | | 13750# | 400# | * | | 13330# | 570# | * | |
| | Po | 84 | 3480# | 200# | 8940# | 360# | 9850# | 200# | 13690# | 360# | 11120# | 360# | 9060# | 450# |
| | At | 85 | 5596 | 21 | 6350 | 40 | 5602 | 16 | 14365 | 24 | 13029 | 23 | 8260# | 300# |
| | Rn | 86 | 4054 | 8 | 7852 | 18 | 1004 | 12 | 14318 | 16 | 10878 | 16 | 10773 | 19 |
| | Fr | 87 | 6067 | 8 | 5278.8 | 2.3 | -3940 | 70 | 14622 | 6 | 12634.4 | 2.1 | 9653 | 14 |
| | Ra | 88 | 5158 | 5 | 6434 | 8 | -8600 | 70 | 14667 | 5 | 10615 | 4 | 12267.6 | 2.3 |
| | Ac | 89 | 6867 | 9 | 3783 | 8 | -12770# | 200# | 15573 | 8 | 12420 | 11 | 11990 | 8 |
| | Th | 90 | 5889 | 15 | 4525 | 10 | * | | 15570 | 50 | 10506 | 11 | 14762 | 12 |
| | Pa | 91 | 7910# | 100# | 2170 | 70 | * | | 16090 | 70 | 12520 | 70 | 14220 | 70 |
| | U | 92 | 6510 | 90 | 3610# | 100# | * | | 16170 | 90 | 10480# | 90# | 16810 | 70 |
| | Np | 93 | 8490# | 280# | 960# | 200# | * | | 16790# | 200# | 12530# | 220# | 16030# | 200# |
| 224 | Bi | 83 | 3380# | 570# | * | | 15080# | 400# | * | | * | | * | |
| | Po | 84 | 5240# | 280# | 9520# | 450# | 11080# | 200# | 11890# | 360# | 10680# | 360# | * | |
| | At | 85 | 3788 | 26 | 6660# | 200# | 7477 | 23 | 15940 | 50 | 12801 | 30 | 9260# | 300# |
| | Rn | 86 | 6016 | 13 | 8272 | 17 | 2451 | 14 | 12203 | 19 | 10526 | 17 | 8318 | 22 |
| | Fr | 87 | 4705 | 11 | 5930 | 14 | -2114 | 14 | 16087 | 11 | 12141 | 13 | 10612 | 18 |
| | Ra | 88 | 6478.7 | 2.3 | 6845.4 | 2.1 | -6896 | 23 | 13159 | 8 | 10413 | 5 | 10001 | 6 |
| | Ac | 89 | 5663 | 8 | 4288 | 4 | -11640# | 200# | 16625 | 6 | 12134 | 6 | 12603 | 6 |
| | Th | 90 | 7463 | 14 | 5121 | 12 | * | | 14083 | 11 | 10330 | 50 | 12676 | 11 |
| | Pa | 91 | 6530 | 70 | 2813 | 12 | * | | 17370 | 14 | 11786 | 11 | 14990 | 50 |
| | U | 92 | 8190 | 70 | 3890 | 70 | * | | 14280# | 80# | 10210 | 60 | 14428 | 25 |
| | Np | 93 | 6800# | 280# | 1250# | 210# | * | | 18310# | 200# | 12220# | 200# | 17150# | 200# |
| 225 | Po | 84 | 3450# | 360# | 9590# | 500# | 12540# | 300# | 13110# | 500# | 10670# | 420# | * | |
| | At | 85 | 5390# | 300# | 6810# | 360# | 8760# | 300# | 14030# | 360# | 12770# | 300# | 7310# | 420# |
| | Rn | 86 | 3982 | 15 | 8466 | 25 | 4224 | 12 | 13817 | 18 | 10445 | 19 | 9690 | 40 |
| | Fr | 87 | 5999 | 16 | 5913 | 15 | -520 | 70 | 14142 | 14 | 12312 | 12 | 8514 | 20 |
| | Ra | 88 | 4904.1 | 2.8 | 7044 | 11 | -5387 | 11 | 14321.5 | 2.9 | 10479 | 8 | 11267.3 | 2.9 |
| | Ac | 89 | 6668 | 6 | 4478 | 5 | -9950 | 70 | 15115 | 5 | 12181 | 6 | 10906 | 9 |
| | Th | 90 | 5755 | 11 | 5213 | 6 | * | | 15195 | 9 | 10553 | 7 | 13636 | 7 |
| | Pa | 91 | 7590 | 70 | 2940 | 70 | * | | 15670 | 70 | 12000 | 70 | 13370 | 70 |
| | U | 92 | 6414 | 26 | 3771 | 13 | * | | 15770 | 70 | 10090# | 70# | 15823 | 16 |
| | Np | 93 | 8360# | 210# | 1420 | 80 | * | | 16460 | 100 | 12180 | 90 | 15080# | 100# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q($2\beta^-$) | | Q(ϵp) | | Q($\beta^- n$) | |
|-----|------|----|---------|------|---------|------|---------------|------|-----------------|------|-------------------|------|------------------|------|
| 221 | Bi | 83 | 8330# | 360# | * | | 3360# | 500# | 7320# | 300# | * | | 760# | 300# |
| | Po | 84 | 9050 | 25 | 15080# | 400# | 5110# | 300# | 5302 | 20 | -11180# | 400# | -2673 | 24 |
| | At | 85 | 9756 | 14 | 14080# | 200# | 5628 | 23 | 3505 | 15 | -11330# | 300# | -1901 | 14 |
| | Rn | 86 | 10501 | 6 | 12788 | 17 | 6163 | 3 | 1508 | 7 | -8081 | 19 | -5082 | 7 |
| | Fr | 87 | 11483 | 8 | 11697 | 6 | 6457.7 | 1.4 | -1250 | 50 | -8387 | 15 | -5064 | 10 |
| | Ra | 88 | 12573 | 9 | 10444 | 5 | 6880.4 | 2.0 | -3977 | 9 | -4937 | 5 | -8851 | 7 |
| | Ac | 89 | 13190 | 70 | 8670 | 50 | 7780 | 50 | -5850 | 70 | -4250 | 50 | -8220 | 60 |
| | Th | 90 | 13670 | 50 | 7032 | 12 | 8626 | 4 | -7580 | 50 | -619 | 11 | -11350# | 50# |
| | Pa | 91 | 14310 | 70 | 5770 | 70 | 9250 | 50 | -9470# | 210# | -660 | 50 | -10630# | 110# |
| | U | 92 | 14910 | 70 | 4530 | 70 | 9890 | 50 | * | | 2560 | 60 | -13860# | 200# |
| | Np | 93 | 15750# | 220# | 3270# | 210# | 10360# | 200# | * | | 2340# | 210# | * | |
| 222 | Bi | 83 | 8230# | 420# | * | | 3120# | 500# | 7780# | 300# | * | | 880# | 300# |
| | Po | 84 | 8920 | 40 | 15760# | 400# | 4610# | 300# | 6110 | 40 | * | | -2370 | 40 |
| | At | 85 | 9565 | 21 | 14440# | 300# | 5310 | 30 | 4575 | 18 | -10430# | 300# | -1590 | 17 |
| | Rn | 86 | 10382.5 | 1.9 | 13469 | 18 | 5590.4 | 0.3 | 2052 | 5 | -10691 | 20 | -4976 | 5 |
| | Fr | 87 | 11247 | 8 | 12576 | 16 | 5855 | 14 | -243 | 9 | -7694 | 16 | -4657 | 9 |
| | Ra | 88 | 12093 | 9 | 10870 | 5 | 6678 | 4 | -2883 | 13 | -7440 | 7 | -8270 | 50 |
| | Ac | 89 | 13265 | 8 | 9439 | 6 | 7137.4 | 2.0 | -5530# | 70# | -3945 | 7 | -8390 | 10 |
| | Th | 90 | 13609 | 25 | 7645 | 15 | 8127 | 5 | -7070 | 50 | -3050 | 13 | -11240 | 50 |
| | Pa | 91 | 14210# | 90# | 6170# | 70# | 8890# | 50# | -8860# | 210# | 340# | 90# | -10440# | 90# |
| | U | 92 | 14800# | 110# | 4970 | 60 | 9480 | 50 | * | | 40 | 50 | -13650# | 210# |
| | Np | 93 | 15440# | 280# | 3780# | 200# | 9910# | 200# | * | | 3350# | 200# | * | |
| 223 | Bi | 83 | 8100# | 500# | * | | * | | 8710# | 400# | * | | 1580# | 400# |
| | Po | 84 | 8840# | 200# | * | | 4380# | 450# | 6690# | 200# | * | | -1950# | 200# |
| | At | 85 | 9497 | 20 | 15250# | 300# | 4720# | 200# | 5046 | 14 | -12590# | 300# | -1016 | 14 |
| | Rn | 86 | 10224 | 10 | 13962 | 21 | 5283 | 18 | 3156 | 8 | -9390 | 40 | -4060 | 11 |
| | Fr | 87 | 11038 | 5 | 12978 | 14 | 5561.4 | 2.8 | 557 | 7 | -9860 | 16 | -4009 | 5 |
| | Ra | 88 | 11873 | 5 | 11816 | 6 | 5978.99 | 0.21 | -2153 | 9 | -6427.9 | 2.4 | -7459 | 6 |
| | Ac | 89 | 12840 | 50 | 10029 | 8 | 6783.2 | 1.0 | -4490 | 70 | -5841 | 10 | -7449 | 14 |
| | Th | 90 | 13697 | 12 | 8156 | 10 | 7567 | 4 | -6450 | 70 | -2223 | 10 | -10840# | 70# |
| | Pa | 91 | 14200 | 90 | 6780 | 90 | 8330 | 50 | -8280# | 210# | -1590 | 70 | -10020 | 90 |
| | U | 92 | 14830 | 90 | 5680 | 70 | 8940 | 50 | * | | 1340 | 70 | -13250# | 210# |
| | Np | 93 | 15390# | 280# | 4360# | 200# | 9640# | 200# | * | | 1160# | 210# | * | |
| 224 | Bi | 83 | 8040# | 500# | * | | * | | 9120# | 400# | * | | 1680# | 450# |
| | Po | 84 | 8720# | 200# | * | | 3820# | 450# | 7470# | 200# | * | | -1590# | 200# |
| | At | 85 | 9385 | 27 | 15600# | 300# | 4470# | 300# | 5962 | 25 | -11710# | 400# | -750 | 24 |
| | Rn | 86 | 10070 | 10 | 14620 | 40 | 4757 | 20 | 3619 | 10 | -11920# | 200# | -4009 | 10 |
| | Fr | 87 | 10772 | 13 | 13782 | 19 | 4948 | 18 | 1514 | 12 | -8968 | 18 | -3556 | 11 |
| | Ra | 88 | 11637 | 5 | 12124.2 | 1.9 | 5788.92 | 0.15 | -1168 | 10 | -8853 | 8 | -7071 | 7 |
| | Ac | 89 | 12530 | 6 | 10722 | 8 | 6326.9 | 0.7 | -3628 | 9 | -5437 | 4 | -7223 | 10 |
| | Th | 90 | 13352 | 16 | 8904 | 11 | 7299 | 6 | -5729 | 25 | -4529 | 10 | -10400 | 70 |
| | Pa | 91 | 14440# | 70# | 7337 | 9 | 7694 | 4 | -8010# | 200# | -1253 | 10 | -10050 | 70 |
| | U | 92 | 14690 | 60 | 6059 | 26 | 8628 | 7 | * | | -953 | 25 | -12950# | 200# |
| | Np | 93 | 15290# | 280# | 4860# | 210# | 9230# | 200# | * | | 2270# | 210# | * | |
| 225 | Po | 84 | 8690# | 360# | * | | * | | 8000# | 300# | * | | -1250# | 300# |
| | At | 85 | 9180# | 300# | 16320# | 500# | 3870# | 420# | 6570# | 300# | -13730# | 500# | -120# | 300# |
| | Rn | 86 | 9998 | 14 | 15120# | 200# | 4335 | 23 | 4541 | 11 | -10670# | 200# | -3286 | 16 |
| | Fr | 87 | 10704 | 12 | 14185 | 18 | 4613 | 18 | 2183 | 13 | -11179 | 25 | -3077 | 12 |
| | Ra | 88 | 11382.8 | 3.0 | 12975 | 8 | 5097 | 5 | -317 | 6 | -7741 | 10 | -6312 | 5 |
| | Ac | 89 | 12331 | 8 | 11323 | 5 | 5935.1 | 1.4 | -2700 | 70 | -7400 | 12 | -6428 | 11 |
| | Th | 90 | 13218 | 10 | 9501 | 5 | 6921.4 | 2.1 | -5070 | 12 | -3805 | 5 | -9623 | 9 |
| | Pa | 91 | 14120 | 100 | 8060 | 70 | 7390 | 50 | -7250 | 100 | -3180 | 70 | -9450 | 70 |
| | U | 92 | 14600 | 70 | 6584 | 14 | 8015 | 7 | * | | 97 | 15 | -12570# | 200# |
| | Np | 93 | 15160# | 210# | 5310 | 100 | 8790 | 50 | * | | 440 | 70 | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|----|---------|------|--------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 226 | Po | 84 | 5050# | 500# | * | | 13880# | 400# | 11430# | 570# | 10280# | 570# | * | |
| | At | 85 | 3850# | 420# | 7210# | 420# | 10310# | 300# | 15420# | 360# | 12400# | 360# | 8120# | 500# |
| | Rn | 86 | 5858 | 15 | 8940# | 300# | 5550 | 11 | 11747 | 25 | 10183 | 17 | 7320# | 200# |
| | Fr | 87 | 4371 | 13 | 6303 | 13 | 1487 | 13 | 15786 | 12 | 11995 | 10 | 9739 | 15 |
| | Ra | 88 | 6396.6 | 2.9 | 7442 | 12 | -3661 | 13 | 12630 | 11 | 10149.5 | 2.3 | 8924 | 8 |
| | Ac | 89 | 5399 | 6 | 4973 | 4 | -8470# | 90# | 16194 | 3 | 11940 | 3 | 11573 | 3 |
| | Th | 90 | 7184 | 7 | 5729 | 6 | * | | 13674 | 6 | 10236 | 8 | 11611 | 5 |
| | Pa | 91 | 6380 | 70 | 3566 | 12 | * | | 16750 | 15 | 11512 | 15 | 13854 | 13 |
| | U | 92 | 8122 | 17 | 4300 | 70 | * | | 14177 | 15 | 9870 | 70 | 13589 | 16 |
| | Np | 93 | 6880# | 110# | 1890# | 90# | * | | 17770# | 90# | 11800# | 110# | 16100# | 110# |
| 227 | Po | 84 | 3340# | 570# | * | | 15100# | 400# | * | | 10310# | 570# | * | |
| | At | 85 | 5200# | 420# | 7350# | 500# | 11630# | 300# | 13660# | 420# | 12440# | 360# | 6300# | 500# |
| | Rn | 86 | 3933 | 18 | 9020# | 300# | 7081 | 14 | 13200# | 300# | 10039 | 26 | 8620# | 200# |
| | Fr | 87 | 5909 | 9 | 6354 | 12 | 2851 | 9 | 13859 | 13 | 12101 | 11 | 7618 | 23 |
| | Ra | 88 | 4561.43 | 0.27 | 7632 | 7 | -1868 | 10 | 14068 | 12 | 10293 | 11 | 10379 | 10 |
| | Ac | 89 | 6531 | 3 | 5107.2 | 2.2 | -6710 | 70 | 14567.3 | 2.9 | 11887.7 | 2.1 | 9747 | 11 |
| | Th | 90 | 5464 | 5 | 5793 | 3 | -10970# | 100# | 14878 | 5 | 10435 | 4 | 12625.3 | 2.3 |
| | Pa | 91 | 7273 | 14 | 3655 | 9 | * | | 15232 | 9 | 11702 | 12 | 12243 | 8 |
| | U | 92 | 6355 | 16 | 4277 | 15 | * | | 15420 | 70 | 10047 | 12 | 14698 | 14 |
| | Np | 93 | 8290# | 110# | 2060 | 70 | * | | 15890 | 70 | 11700 | 80 | 14350 | 70 |
| | Pu | 94 | * | | 3300# | 130# | * | | 15890# | 120# | 9760# | 220# | 16690# | 100# |
| 228 | At | 85 | 3870# | 500# | 7890# | 570# | 12790# | 400# | 14850# | 570# | 12020# | 500# | * | |
| | Rn | 86 | 5714 | 23 | 9530# | 300# | 8472 | 18 | 11340# | 300# | 9710# | 300# | 6360# | 300# |
| | Fr | 87 | 4370 | 9 | 6791 | 16 | 4461 | 8 | 15348 | 12 | 11714 | 13 | 8640# | 300# |
| | Ra | 88 | 6308.8 | 2.3 | 8031 | 6 | -282 | 14 | 12131 | 7 | 9984 | 12 | 8053 | 11 |
| | Ac | 89 | 5026.2 | 2.4 | 5572.0 | 2.4 | -4700 | 50 | 15937.7 | 2.4 | 11765.7 | 2.9 | 10721 | 12 |
| | Th | 90 | 7105.2 | 2.3 | 6367.6 | 2.1 | -9316 | 29 | 13173 | 3 | 9998 | 5 | 10424.3 | 2.8 |
| | Pa | 91 | 5979 | 8 | 4170 | 5 | * | | 16437 | 6 | 11478 | 7 | 12933 | 6 |
| | U | 92 | 7895 | 17 | 4898 | 16 | * | | 13900 | 18 | 9750 | 70 | 12559 | 15 |
| | Np | 93 | 7040 | 90 | 2740 | 50 | * | | 16980 | 50 | 11080 | 50 | 14900 | 90 |
| | Pu | 94 | 8750# | 100# | 3760 | 80 | * | | 14020# | 90# | 9360 | 80 | 14350 | 30 |
| 229 | At | 85 | 4930# | 570# | * | | 14130# | 400# | 13250# | 570# | 12140# | 570# | * | |
| | Rn | 86 | 3952 | 22 | 9610# | 400# | 9777 | 13 | 12590# | 300# | 9610# | 300# | 7460# | 400# |
| | Fr | 87 | 5787 | 8 | 6864 | 18 | 5771 | 6 | 13493 | 15 | 11785 | 12 | 6700# | 300# |
| | Ra | 88 | 4450 | 16 | 8111 | 17 | 1351 | 17 | 13590 | 17 | 9905 | 17 | 9461 | 19 |
| | Ac | 89 | 6276 | 12 | 5539 | 12 | -3090 | 90 | 14223 | 12 | 11886 | 12 | 8816 | 14 |
| | Th | 90 | 5256.7 | 2.6 | 6598.1 | 2.8 | -7810 | 50 | 14446.8 | 2.7 | 10140 | 4 | 11564.2 | 2.7 |
| | Pa | 91 | 7098 | 5 | 4163 | 3 | -12250 | 90 | 14803 | 3 | 11563 | 5 | 11234 | 4 |
| | U | 92 | 6083 | 15 | 5002 | 7 | * | | 15090 | 9 | 10041 | 13 | 13659 | 7 |
| | Np | 93 | 7890 | 100 | 2730 | 90 | * | | 15450 | 90 | 11310 | 90 | 13390 | 90 |
| | Pu | 94 | 6760 | 60 | 3490 | 70 | * | | 15540 | 90 | 9480# | 100# | 15710 | 50 |
| | Am | 95 | * | | 1230 | 90 | * | | 16090# | 130# | * | | 15020# | 120# |
| 230 | Rn | 86 | 5390# | 200# | 10070# | 450# | 11190# | 200# | 11070# | 450# | 9430# | 360# | 5410# | 450# |
| | Fr | 87 | 4253 | 8 | 7165 | 15 | 7313 | 7 | 14954 | 19 | 11465 | 16 | 7650# | 300# |
| | Ra | 88 | 6117 | 19 | 8441 | 11 | 2901 | 11 | 11843 | 12 | 9698 | 12 | 7277 | 17 |
| | Ac | 89 | 4923 | 20 | 6013 | 22 | -1400 | 50 | 15609 | 16 | 11525 | 16 | 9802 | 17 |
| | Th | 90 | 6794.3 | 2.2 | 7116 | 12 | -6072 | 15 | 12678.7 | 1.9 | 9877.1 | 1.7 | 9331.3 | 1.5 |
| | Pa | 91 | 5795 | 4 | 4701 | 4 | -10760# | 130# | 16113 | 3 | 11233 | 3 | 11970 | 3 |
| | U | 92 | 7667 | 7 | 5571 | 5 | * | | 13402 | 6 | 9648 | 9 | 11457 | 5 |
| | Np | 93 | 6610 | 100 | 3260 | 50 | * | | 16720 | 50 | 11050 | 50 | 14050 | 50 |
| | Pu | 94 | 8530 | 50 | 4130 | 90 | * | | 14050 | 50 | 9240 | 70 | 13535 | 18 |
| | Am | 95 | 7290# | 160# | 1750# | 140# | * | | 17560# | 140# | 11030# | 170# | 16020# | 150# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | $Q(\alpha)$ | | $Q(2\beta^-)$ | | $Q(\epsilon p)$ | | $Q(\beta^- n)$ | |
|-----|------|----|---------|------|---------|------|-------------|------|---------------|------|-----------------|------|----------------|------|
| 226 | Po | 84 | 8500# | 450# | * | * | | | 8800# | 400# | * | | -920# | 500# |
| | At | 85 | 9240# | 300# | 16790# | 500# | 3460# | 420# | 7090# | 300# | * | | 10# | 300# |
| | Rn | 86 | 9841 | 14 | 15740# | 200# | 3840 | 40 | 5079 | 11 | -13070# | 300# | -3145 | 16 |
| | Fr | 87 | 10371 | 13 | 14768 | 23 | 4143 | 17 | 3211 | 7 | -10160# | 300# | -2544 | 7 |
| | Ra | 88 | 11300.7 | 1.9 | 13355 | 10 | 4870.70 | 0.25 | 470 | 5 | -10155 | 11 | -6041 | 5 |
| | Ac | 89 | 12068 | 5 | 12017 | 12 | 5506 | 8 | -1724 | 12 | -6800 | 12 | -6072 | 6 |
| | Th | 90 | 12939 | 11 | 10206 | 5 | 6452.5 | 1.0 | -4131 | 14 | -6084 | 5 | -9210 | 70 |
| | Pa | 91 | 13972 | 14 | 8779 | 12 | 6987 | 10 | -6740# | 90# | -2893 | 12 | -9418 | 16 |
| | U | 92 | 14536 | 27 | 7243 | 16 | 7701 | 4 | * | | -2270 | 14 | -12330 | 70 |
| | Np | 93 | 15240# | 220# | 5660# | 90# | 8200 | 50 | * | | 1150# | 110# | * | |
| 227 | Po | 84 | 8390# | 500# | * | * | | | 9400# | 400# | * | | -410# | 500# |
| | At | 85 | 9050# | 420# | * | | 2920# | 500# | 7800# | 300# | * | | 670# | 300# |
| | Rn | 86 | 9791 | 18 | 16220# | 300# | 3380# | 200# | 5708 | 14 | -11950# | 400# | -2706 | 15 |
| | Fr | 87 | 10281 | 13 | 15290# | 300# | 3830 | 15 | 3833 | 6 | -12220# | 300# | -2057 | 6 |
| | Ra | 88 | 10958.0 | 2.9 | 13934 | 11 | 4363 | 8 | 1372.9 | 2.4 | -8858 | 11 | -5203 | 3 |
| | Ac | 89 | 11930 | 5 | 12549 | 12 | 5042.27 | 0.14 | -982 | 7 | -8960 | 7 | -5419 | 5 |
| | Th | 90 | 12648 | 5 | 10766.2 | 3.0 | 6146.60 | 0.10 | -3241 | 10 | -5152.0 | 2.4 | -8300 | 12 |
| | Pa | 91 | 13650 | 70 | 9384 | 9 | 6580.4 | 2.1 | -5730 | 70 | -4767 | 8 | -8569 | 15 |
| | U | 92 | 14477 | 15 | 7843 | 11 | 7235 | 3 | -7720# | 100# | -1441 | 11 | -11800# | 90# |
| | Np | 93 | 15170 | 100 | 6360 | 100 | 7816 | 14 | * | | -760 | 70 | * | |
| | Pu | 94 | * | | 5190# | 100# | 8510# | 120# | * | | 2150# | 100# | * | |
| 228 | At | 85 | 9070# | 500# | * | | 2430# | 570# | 8300# | 400# | * | | 730# | 400# |
| | Rn | 86 | 9646 | 21 | 16880# | 400# | 2910# | 200# | 6303 | 18 | -14330# | 400# | -2510 | 19 |
| | Fr | 87 | 10279 | 9 | 15810# | 300# | 3248 | 23 | 4489 | 7 | -11390# | 300# | -1865 | 7 |
| | Ra | 88 | 10870.2 | 2.3 | 14385 | 11 | 4070 | 10 | 2169.3 | 2.6 | -11235 | 14 | -4980.6 | 2.3 |
| | Ac | 89 | 11557 | 3 | 13204 | 7 | 4721 | 11 | -29 | 5 | -8077 | 6 | -4981.4 | 2.6 |
| | Th | 90 | 12569 | 5 | 11474.8 | 1.9 | 5520.15 | 0.22 | -2451 | 14 | -7695.7 | 1.9 | -8132 | 8 |
| | Pa | 91 | 13252 | 12 | 9964 | 5 | 6264.5 | 1.5 | -4670 | 50 | -4215 | 5 | -8193 | 11 |
| | U | 92 | 14249 | 19 | 8553 | 15 | 6804 | 10 | -6870 | 30 | -3872 | 14 | -11410 | 70 |
| | Np | 93 | 15320# | 100# | 7020 | 50 | 7310 | 50 | * | | -520 | 50 | -11250# | 110# |
| | Pu | 94 | * | | 5820 | 30 | 7940 | 18 | * | | -250 | 30 | * | |
| 229 | At | 85 | 8800# | 500# | * | * | | | 9160# | 400# | * | | 1510# | 400# |
| | Rn | 86 | 9666 | 19 | 17500# | 400# | 2410# | 300# | 6800 | 20 | * | | -2093 | 15 |
| | Fr | 87 | 10157 | 8 | 16390# | 300# | 2850# | 300# | 4978 | 13 | -13310# | 400# | -1343 | 5 |
| | Ra | 88 | 10758 | 16 | 14902 | 21 | 3603 | 19 | 2976 | 16 | -9970 | 23 | -4404 | 16 |
| | Ac | 89 | 11302 | 12 | 13570 | 13 | 4444 | 17 | 793 | 13 | -9983 | 14 | -4152 | 12 |
| | Th | 90 | 12361.9 | 2.8 | 12170.1 | 2.7 | 5167.6 | 1.0 | -1625 | 6 | -6643.7 | 2.7 | -7409 | 5 |
| | Pa | 91 | 13077 | 8 | 10530.6 | 3.0 | 5835 | 4 | -3880 | 90 | -6287 | 4 | -7397 | 15 |
| | U | 92 | 13978 | 11 | 9172 | 6 | 6476 | 3 | -6190 | 50 | -2849 | 6 | -10460 | 50 |
| | Np | 93 | 14930 | 110 | 7630 | 90 | 7010 | 50 | -8370 | 120 | -2430 | 90 | -10380 | 90 |
| | Pu | 94 | 15520# | 110# | 6230 | 50 | 7590 | 50 | * | | 880 | 50 | * | |
| | Am | 95 | * | | 4990 | 110 | 8140 | 50 | * | | 1270 | 100 | * | |
| 230 | Rn | 86 | 9340# | 200# | * | | 2070# | 450# | 7530# | 200# | * | | -1690# | 200# |
| | Fr | 87 | 10040 | 9 | 16780# | 400# | 2450# | 300# | 5648 | 17 | -12630# | 400# | -1147 | 17 |
| | Ra | 88 | 10567 | 10 | 15305 | 20 | 3344 | 15 | 3654 | 10 | -12135 | 17 | -4245 | 16 |
| | Ac | 89 | 11199 | 16 | 14124 | 17 | 3893 | 17 | 1665 | 16 | -9119 | 17 | -3819 | 16 |
| | Th | 90 | 12051.0 | 1.1 | 12655.6 | 1.8 | 4769.9 | 1.5 | -752 | 5 | -8988 | 15 | -7106 | 3 |
| | Pa | 91 | 12893 | 5 | 11299 | 3 | 5439.4 | 0.7 | -3060 | 50 | -5805 | 12 | -7108 | 7 |
| | U | 92 | 13750 | 15 | 9734 | 5 | 5992.5 | 0.5 | -5319 | 15 | -5260 | 5 | -10240 | 90 |
| | Np | 93 | 14500 | 70 | 8270 | 50 | 6780 | 50 | -7700# | 140# | -1950 | 50 | -10230 | 70 |
| | Pu | 94 | 15300 | 30 | 6866 | 21 | 7181 | 7 | * | | -1565 | 16 | -13290 | 90 |
| | Am | 95 | * | | 5240# | 140# | 7730# | 100# | * | | 1860# | 160# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|----|---------|------|--------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 231 | Rn | 86 | 3670# | 360# | * | | 12640# | 300# | 12340# | 500# | 9630# | 500# | * | |
| | Fr | 87 | 5478 | 10 | 7260# | 200# | 8656 | 8 | 13429 | 15 | 11701 | 19 | 6040# | 400# |
| | Ra | 88 | 4371 | 15 | 8559 | 13 | 4410 | 12 | 13259 | 12 | 9696 | 13 | 8619 | 21 |
| | Ac | 89 | 6147 | 21 | 6042 | 17 | 140 | 50 | 13912 | 20 | 11687 | 13 | 8025 | 15 |
| | Th | 90 | 5118.02 | 0.20 | 7311 | 16 | -4493 | 23 | 13837 | 12 | 9785.2 | 1.9 | 10522.0 | 1.8 |
| | Pa | 91 | 6821 | 3 | 4727.2 | 1.5 | -8990# | 300# | 14549.6 | 2.6 | 11517.5 | 1.9 | 10176.1 | 2.3 |
| | U | 92 | 5880 | 5 | 5657 | 4 | -13460# | 300# | 14620 | 3 | 9746 | 5 | 12681.4 | 2.8 |
| | Np | 93 | 7680 | 70 | 3280 | 50 | * | | 15120 | 50 | 11270 | 50 | 12350 | 50 |
| | Pu | 94 | 6697 | 27 | 4220 | 60 | * | | 15240 | 90 | 9580 | 60 | 14733 | 27 |
| | Am | 95 | 8590# | 330# | 1810# | 300# | * | | 15730# | 300# | 11190# | 300# | 14460# | 300# |
| | Cm | 96 | * | | 2950# | 330# | * | | 15830# | 310# | * | | 16830# | 300# |
| 232 | Fr | 87 | 4079 | 16 | 7670# | 300# | 10126 | 16 | 14740# | 200# | 11574 | 19 | 6900# | 400# |
| | Ra | 88 | 5791 | 15 | 8873 | 12 | 5887 | 9 | 11721 | 11 | 9693 | 10 | 6781 | 16 |
| | Ac | 89 | 4680 | 18 | 6351 | 17 | 1800# | 100# | 15349 | 17 | 11457 | 20 | 9133 | 14 |
| | Th | 90 | 6440.4 | 1.1 | 7605 | 13 | -2916 | 18 | 12319 | 16 | 9621 | 12 | 8531 | 16 |
| | Pa | 91 | 5549 | 8 | 5158 | 8 | -7390# | 300# | 15795 | 8 | 11225 | 8 | 10903 | 14 |
| | U | 92 | 7267.8 | 2.8 | 6103.8 | 2.0 | -11700# | 200# | 13147 | 3 | 9577 | 3 | 10670.3 | 2.6 |
| | Np | 93 | 6340# | 110# | 3740# | 100# | * | | 16460# | 100# | 11010# | 100# | 13110# | 100# |
| | Pu | 94 | 8017 | 29 | 4550 | 50 | * | | 13840 | 50 | 9450 | 90 | 12799 | 19 |
| | Am | 95 | 7140# | 420# | 2260# | 300# | * | | 17120# | 300# | 10810# | 300# | 15210# | 310# |
| | Cm | 96 | 9030# | 360# | 3390# | 360# | * | | 14090# | 240# | 9030# | 220# | 14560# | 210# |
| 233 | Fr | 87 | 5224 | 24 | * | | 11431 | 20 | 13180# | 300# | 11740# | 200# | * | |
| | Ra | 88 | 4234 | 13 | 9028 | 16 | 7415 | 9 | 12964 | 12 | 9711 | 11 | 7930# | 200# |
| | Ac | 89 | 5918 | 18 | 6478 | 16 | 3360 | 50 | 13802 | 17 | 11656 | 17 | 7468 | 15 |
| | Th | 90 | 4786.39 | 0.09 | 7712 | 13 | -1320 | 50 | 13680 | 13 | 9757 | 16 | 9862 | 10 |
| | Pa | 91 | 6528 | 8 | 5246.3 | 1.1 | -5770# | 100# | 14384.4 | 1.0 | 11490.9 | 1.0 | 9297 | 16 |
| | U | 92 | 5761.7 | 2.5 | 6316 | 8 | -10370 | 70 | 14205.6 | 2.4 | 9610 | 3 | 11703.0 | 2.1 |
| | Np | 93 | 7480# | 110# | 3950 | 50 | -14910# | 230# | 14850 | 50 | 11200 | 50 | 11420 | 50 |
| | Pu | 94 | 6380 | 50 | 4600# | 110# | * | | 15140 | 70 | 9680 | 70 | 14080 | 50 |
| | Am | 95 | 8150# | 320# | 2390# | 100# | * | | 15670# | 100# | 11190# | 100# | 13670# | 110# |
| | Cm | 96 | 7090# | 210# | 3340# | 310# | * | | 15600# | 310# | 9230# | 150# | 16010 | 70 |
| | Bk | 97 | * | | 740# | 300# | * | | 16300# | 370# | * | | 15580# | 260# |
| 234 | Ra | 88 | 5475 | 12 | 9278 | 21 | 8786 | 8 | 11569 | 16 | 9714 | 11 | 6120# | 300# |
| | Ac | 89 | 4538 | 19 | 6782 | 16 | 4886 | 16 | 15055 | 17 | 11489 | 18 | 8407 | 16 |
| | Th | 90 | 6190.0 | 2.6 | 7984 | 13 | 263 | 7 | 12169 | 13 | 9714 | 13 | 8043 | 12 |
| | Pa | 91 | 5222 | 4 | 5682 | 4 | -4120# | 160# | 15603 | 4 | 11387 | 4 | 10222 | 14 |
| | U | 92 | 6845.5 | 2.0 | 6633.4 | 0.8 | -8580 | 17 | 12909 | 8 | 9584.7 | 1.5 | 9975.5 | 0.7 |
| | Np | 93 | 6070 | 50 | 4253 | 9 | -13500# | 140# | 16056 | 8 | 11013 | 9 | 12177 | 8 |
| | Pu | 94 | 7770 | 50 | 4890 | 50 | * | | 13700# | 100# | 9590 | 50 | 12190 | 7 |
| | Am | 95 | 6870# | 190# | 2880# | 170# | * | | 16810# | 160# | 11020# | 160# | 14480# | 170# |
| | Cm | 96 | 8640 | 70 | 3830# | 100# | * | | 14100# | 300# | 9180# | 300# | 14062 | 28 |
| | Bk | 97 | 7480# | 270# | 1130# | 160# | * | | 17850# | 250# | 11050# | 330# | 16690# | 330# |
| 235 | Ra | 88 | 3870# | 300# | * | | 10210# | 300# | 12920# | 300# | 9920# | 300# | * | |
| | Ac | 89 | 5555 | 20 | 6862 | 16 | 6314 | 14 | 13734 | 16 | 11724 | 17 | 6931 | 20 |
| | Th | 90 | 4667 | 13 | 8112 | 19 | 1835 | 24 | 13421 | 18 | 9727 | 18 | 9167 | 16 |
| | Pa | 91 | 6121 | 15 | 5613 | 14 | -2340 | 50 | 14268 | 14 | 11706 | 14 | 8781 | 19 |
| | U | 92 | 5297.50 | 0.23 | 6709 | 4 | -7120# | 200# | 14140.2 | 0.8 | 9836 | 8 | 11118.5 | 0.9 |
| | Np | 93 | 6983 | 8 | 4390.9 | 0.9 | -11660# | 400# | 14834.7 | 2.2 | 11297.6 | 1.8 | 10743 | 8 |
| | Pu | 94 | 6239 | 22 | 5061 | 22 | * | | 14940 | 50 | 9690# | 100# | 13219 | 21 |
| | Am | 95 | 7910# | 170# | 3010 | 50 | * | | 15280 | 70 | 11130 | 60 | 12910# | 110# |
| | Cm | 96 | 6760# | 200# | 3720# | 260# | * | | 15480# | 230# | 9560# | 360# | 15320# | 200# |
| | Bk | 97 | 8820# | 430# | 1310# | 400# | * | | 16120# | 410# | 11260# | 450# | 15010# | 500# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | $Q(\alpha)$ | | $Q(2\beta^-)$ | | $Q(\epsilon p)$ | | $Q(\beta^- n)$ | |
|-----|------|----|---------|------|---------|------|-------------|------|---------------|------|-----------------|------|----------------|------|
| 231 | Rn | 86 | 9050# | 300# | * | | 1750# | 500# | 8240# | 300# | * | | -1100# | 300# |
| | Fr | 87 | 9730 | 9 | 17320# | 400# | 2170# | 300# | 6318 | 15 | * | | -507 | 13 |
| | Ra | 88 | 10488 | 19 | 15724 | 17 | 2906 | 18 | 4401 | 11 | -11120# | 200# | -3693 | 19 |
| | Ac | 89 | 11070 | 18 | 14483 | 14 | 3655 | 14 | 2338 | 13 | -11013 | 15 | -3171 | 13 |
| | Th | 90 | 11912.3 | 2.2 | 13324 | 15 | 4213.3 | 1.6 | 9.9 | 2.5 | -7989 | 10 | -6429.0 | 2.8 |
| | Pa | 91 | 12615.1 | 2.8 | 11843 | 12 | 5149.9 | 0.8 | -2200 | 50 | -7703 | 16 | -6262 | 5 |
| | U | 92 | 13547 | 6 | 10358 | 3 | 5576.3 | 1.7 | -4503 | 23 | -4345.5 | 2.5 | -9500 | 50 |
| | Np | 93 | 14300 | 100 | 8850 | 50 | 6370 | 50 | -6790# | 300# | -3840 | 50 | -9380 | 50 |
| | Pu | 94 | 15230 | 60 | 7479 | 23 | 6839 | 20 | -8960# | 300# | -595 | 23 | -12690# | 140# |
| | Am | 95 | 15880# | 310# | 5950# | 310# | 7420# | 310# | * | | -120# | 300# | * | |
| | Cm | 96 | * | | 4700# | 300# | 8080# | 320# | * | | 3050# | 300# | * | |
| 232 | Fr | 87 | 9557 | 15 | * | | 1960# | 400# | 6918 | 19 | * | | -215 | 18 |
| | Ra | 88 | 10162 | 14 | 16130# | 200# | 2829 | 20 | 5050 | 9 | -13250# | 300# | -3337 | 16 |
| | Ac | 89 | 10827 | 21 | 14910 | 15 | 3345 | 15 | 3208 | 15 | -10215 | 15 | -2733 | 13 |
| | Th | 90 | 11558.4 | 1.1 | 13647 | 10 | 4081.6 | 1.4 | 837.3 | 2.2 | -10059 | 11 | -6048.9 | 1.7 |
| | Pa | 91 | 12370 | 8 | 12470 | 18 | 4627 | 8 | -1410# | 100# | -7105 | 15 | -5931 | 8 |
| | U | 92 | 13148 | 5 | 10831.0 | 1.1 | 5413.63 | 0.09 | -3754 | 18 | -6495.3 | 1.2 | -9090 | 50 |
| | Np | 93 | 14020# | 110# | 9390# | 100# | 6010# | 100# | -5980# | 320# | -3350# | 100# | -9020# | 100# |
| | Pu | 94 | 14714 | 23 | 7830 | 18 | 6716 | 10 | -7950# | 200# | -2732 | 18 | -12120# | 300# |
| | Am | 95 | 15740# | 330# | 6480# | 300# | 7320# | 300# | * | | 430# | 300# | -12000# | 420# |
| | Cm | 96 | * | | 5200# | 200# | 7800# | 200# | * | | 710# | 200# | * | |
| 233 | Fr | 87 | 9303 | 21 | * | | 1670# | 400# | 7612 | 24 | * | | 352 | 22 |
| | Ra | 88 | 10025 | 14 | 16700# | 300# | 2547 | 16 | 5602 | 9 | * | | -2892 | 16 |
| | Ac | 89 | 10597 | 18 | 15350 | 15 | 3215 | 14 | 3819 | 13 | -12054 | 19 | -2210 | 13 |
| | Th | 90 | 11226.8 | 1.1 | 14063 | 11 | 3745 | 16 | 1812.5 | 2.2 | -9054 | 9 | -5286 | 8 |
| | Pa | 91 | 12077.6 | 1.7 | 12851 | 13 | 4375 | 12 | -460 | 50 | -8954 | 13 | -5191.4 | 1.8 |
| | U | 92 | 13029 | 3 | 11474.7 | 2.1 | 4908.7 | 1.2 | -3130 | 50 | -5816.6 | 2.2 | -8510# | 100# |
| | Np | 93 | 13820 | 70 | 10050 | 50 | 5630 | 50 | -5320# | 110# | -5290 | 50 | -8490 | 50 |
| | Pu | 94 | 14400 | 60 | 8330 | 50 | 6420 | 50 | -7240 | 90 | -1850 | 50 | -11360# | 300# |
| | Am | 95 | 15290# | 320# | 6940# | 110# | 7060# | 50# | -9600# | 250# | -1390# | 140# | -11120# | 230# |
| | Cm | 96 | 16120# | 310# | 5590 | 70 | 7470 | 50 | * | | 1640 | 70 | * | |
| | Bk | 97 | * | | 4130# | 370# | 8290# | 210# | * | | 2230# | 370# | * | |
| 234 | Ra | 88 | 9709 | 12 | * | | 2460# | 200# | 6318 | 9 | * | | -2449 | 16 |
| | Ac | 89 | 10456 | 19 | 15810 | 20 | 2930 | 15 | 4502 | 15 | -11368 | 24 | -1962 | 14 |
| | Th | 90 | 10976.4 | 2.6 | 14462 | 10 | 3672 | 11 | 2468.0 | 2.4 | -11010 | 9 | -4947.8 | 2.5 |
| | Pa | 91 | 11750 | 9 | 13393 | 14 | 4076 | 16 | 384 | 9 | -8258 | 14 | -4652 | 4 |
| | U | 92 | 12607.1 | 1.6 | 11879.7 | 0.9 | 4857.5 | 0.7 | -2205 | 7 | -7875.7 | 0.9 | -7870 | 50 |
| | Np | 93 | 13550# | 100# | 10570 | 11 | 5356 | 9 | -4510# | 160# | -4824 | 8 | -8170 | 50 |
| | Pu | 94 | 14156 | 19 | 8837 | 7 | 6310 | 5 | -6375 | 19 | -3858 | 7 | -10990# | 100# |
| | Am | 95 | 15020# | 340# | 7480# | 190# | 6800# | 150# | -8990# | 210# | -780# | 170# | -10900# | 170# |
| | Cm | 96 | 15730# | 200# | 6216 | 25 | 7365 | 9 | * | | -620 | 50 | -14210# | 230# |
| | Bk | 97 | * | | 4460# | 330# | 8100 | 50 | * | | 2900# | 180# | * | |
| 235 | Ra | 88 | 9350# | 300# | * | | 2250# | 420# | 7110# | 300# | * | | -1780# | 300# |
| | Ac | 89 | 10094 | 19 | 16141 | 24 | 2852 | 16 | 5068 | 20 | * | | -1327 | 14 |
| | Th | 90 | 10857 | 13 | 14894 | 16 | 3376 | 17 | 3099 | 13 | -10202 | 16 | -4392 | 14 |
| | Pa | 91 | 11343 | 14 | 13597 | 19 | 4101 | 19 | 1246 | 14 | -9841 | 20 | -3927 | 14 |
| | U | 92 | 12143.0 | 2.0 | 12390.8 | 0.9 | 4678.0 | 0.7 | -1264 | 20 | -6983.1 | 2.4 | -7107 | 8 |
| | Np | 93 | 13050 | 50 | 11024.3 | 1.2 | 5193.8 | 1.5 | -3580 | 50 | -6585 | 4 | -7378 | 7 |
| | Pu | 94 | 14010 | 50 | 9315 | 21 | 5951 | 20 | -5850# | 200# | -3252 | 20 | -10350# | 160# |
| | Am | 95 | 14780# | 110# | 7900 | 70 | 6576 | 13 | -8080# | 400# | -2620 | 50 | -10170 | 50 |
| | Cm | 96 | 15400# | 210# | 6600# | 210# | 7300# | 200# | * | | 400# | 200# | -13490# | 250# |
| | Bk | 97 | 16300# | 460# | 5140# | 410# | 7870# | 500# | * | | 950# | 430# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|-----|---------|------|---------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 236 | Ac | 89 | 4210 | 40 | 7200# | 300# | 7840 | 60 | 15000 | 40 | 11750 | 40 | 7950 | 40 |
| | Th | 90 | 5834 | 19 | 8391 | 20 | 3354 | 14 | 12125 | 20 | 9811 | 19 | 7568 | 16 |
| | Pa | 91 | 5026 | 20 | 5973 | 19 | -710# | 110# | 15432 | 14 | 11466 | 14 | 9672 | 19 |
| | U | 92 | 6545.52 | 0.26 | 7133 | 14 | -5410 | 18 | 12817 | 4 | 9819.2 | 0.8 | 9359.3 | 0.9 |
| | Np | 93 | 5740 | 50 | 4830 | 50 | -10160# | 400# | 15940 | 50 | 11320 | 50 | 11540 | 50 |
| | Pu | 94 | 7352 | 21 | 5430.5 | 1.8 | * | | 13658 | 8 | 9820 | 50 | 11628.8 | 2.5 |
| | Am | 95 | 6660# | 120# | 3430# | 110# | * | | 16400# | 110# | 10850# | 120# | 13740# | 120# |
| | Cm | 96 | 8250# | 200# | 4060 | 60 | * | | 14110# | 160# | 9460# | 100# | 13450 | 50 |
| | Bk | 97 | 7230# | 570# | 1780# | 450# | * | | 17530# | 400# | 11110# | 410# | 15930# | 410# |
| 237 | Ac | 89 | 5270# | 400# | * | | 9150# | 400# | 13600# | 500# | 11950# | 400# | * | |
| | Th | 90 | 4371 | 21 | 8550 | 40 | 4863 | 16 | 13309 | 21 | 9978 | 21 | 8671 | 18 |
| | Pa | 91 | 5878 | 19 | 6017 | 19 | 960# | 60# | 14221 | 18 | 11779 | 13 | 8333 | 19 |
| | U | 92 | 5125.8 | 0.5 | 7233 | 14 | -3860 | 70 | 13812 | 14 | 9915 | 4 | 10423.6 | 2.5 |
| | Np | 93 | 6580 | 50 | 4861.95 | 0.25 | -8320# | 220# | 14663.6 | 0.3 | 11590.7 | 0.4 | 10179 | 4 |
| | Pu | 94 | 5881.2 | 2.1 | 5580 | 50 | -12850 | 90 | 14759.4 | 1.6 | 10001 | 8 | 12593.1 | 1.3 |
| | Am | 95 | 7540# | 130# | 3620# | 60# | * | | 15100# | 60# | 11080# | 60# | 12260# | 60# |
| | Cm | 96 | 6680 | 70 | 4080# | 130# | * | | 15330 | 90 | 9650# | 170# | 14540 | 70 |
| | Bk | 97 | 8430# | 460# | 1960# | 230# | * | | 15870# | 300# | 11330# | 230# | 14370# | 280# |
| | Cf | 98 | * | | 2890# | 410# | * | | 15950# | 410# | 9350# | 170# | 16860 | 90 |
| 238 | Th | 90 | 5500# | 280# | 8780# | 490# | 6360# | 280# | 12020# | 290# | 10030# | 280# | 7040# | 410# |
| | Pa | 91 | 4705 | 21 | 6350 | 22 | 2470 | 50 | 15350 | 21 | 11740 | 21 | 9183 | 21 |
| | U | 92 | 6153.7 | 1.3 | 7509 | 13 | -2137 | 12 | 12685 | 14 | 9883 | 14 | 8936 | 13 |
| | Np | 93 | 5488.32 | 0.20 | 5224.5 | 0.6 | -6760# | 260# | 15720.8 | 0.3 | 11399.9 | 0.4 | 10812 | 14 |
| | Pu | 94 | 6999.8 | 1.3 | 5997.4 | 0.4 | -11110# | 300# | 13500 | 50 | 9984.2 | 0.9 | 10890.77 | 0.28 |
| | Am | 95 | 6220# | 80# | 3960 | 50 | * | | 16230 | 50 | 11100 | 50 | 13020 | 50 |
| | Cm | 96 | 7870 | 70 | 4410# | 60# | * | | 14120# | 110# | 9680 | 50 | 12909 | 24 |
| | Bk | 97 | 7040# | 340# | 2320# | 270# | * | | 17070# | 260# | 11050# | 330# | 15240# | 260# |
| | Cf | 98 | 8730# | 310# | 3200# | 370# | * | | 14450# | 500# | 9440# | 500# | 14890# | 360# |
| 239 | Th | 90 | 4150# | 490# | * | | 7860# | 400# | 13140# | 570# | 10090# | 400# | * | |
| | Pa | 91 | 5630# | 200# | 6480# | 340# | 3950# | 200# | 14090# | 200# | 11950# | 200# | 7760# | 200# |
| | U | 92 | 4806.38 | 0.17 | 7610 | 16 | -570 | 50 | 13756 | 13 | 10103 | 14 | 9964 | 14 |
| | Np | 93 | 6214.9 | 1.0 | 5285.7 | 1.5 | -4940# | 210# | 14631.7 | 1.1 | 11730.5 | 1.0 | 9624 | 14 |
| | Pu | 94 | 5646.2 | 0.3 | 6155.3 | 0.4 | -9680# | 210# | 14427.4 | 0.3 | 10070 | 50 | 11790.04 | 0.25 |
| | Am | 95 | 7100 | 50 | 4061.8 | 1.7 | -14170# | 300# | 15009.5 | 2.1 | 11352.9 | 2.3 | 11660 | 50 |
| | Cm | 96 | 6370 | 60 | 4560 | 70 | * | | 15290# | 80# | 9970# | 120# | 13890 | 50 |
| | Bk | 97 | 8040# | 330# | 2480# | 210# | * | | 15710# | 220# | 11260# | 210# | 13860# | 240# |
| | Cf | 98 | 7080# | 360# | 3240# | 330# | * | | 15790# | 310# | 9590# | 450# | 16060# | 210# |
| | Es | 99 | * | | 1010# | 420# | * | | 16330# | 310# | * | | 15660# | 500# |
| 240 | Pa | 91 | 4500# | 280# | 6830# | 450# | 5400# | 200# | 15100# | 350# | 11820# | 200# | 8540# | 450# |
| | U | 92 | 5928.5 | 2.9 | 7910# | 200# | 991 | 3 | 12532 | 16 | 10052 | 13 | 8407 | 16 |
| | Np | 93 | 5066 | 17 | 5545 | 17 | -3350# | 150# | 15719 | 17 | 11790 | 17 | 10435 | 21 |
| | Pu | 94 | 6534.22 | 0.23 | 6474.6 | 1.0 | -7866 | 19 | 13381.53 | 0.29 | 10117.78 | 0.21 | 10381.6 | 0.5 |
| | Am | 95 | 5952 | 14 | 4367 | 14 | -12690# | 400# | 16058 | 14 | 11283 | 14 | 12285 | 14 |
| | Cm | 96 | 7490 | 50 | 4955.1 | 2.3 | * | | 14010 | 50 | 10020# | 60# | 12279.0 | 2.2 |
| | Bk | 97 | 6660# | 260# | 2770# | 160# | * | | 16930# | 150# | 11280# | 170# | 14740# | 160# |
| | Cf | 98 | 8350# | 210# | 3550# | 210# | * | | 14490# | 260# | 9670# | 230# | 14390 | 70 |
| | Es | 99 | 7430# | 500# | 1360# | 450# | * | | 17630# | 500# | 11120# | 410# | 16660# | 460# |
| 241 | Pa | 91 | 5340# | 360# | * | | 6710# | 300# | 13900# | 500# | 11980# | 410# | * | |
| | U | 92 | 4590# | 200# | 8000# | 280# | 2500# | 200# | 13570# | 280# | 10170# | 200# | 9320# | 340# |
| | Np | 93 | 6130 | 70 | 5740 | 70 | -1770# | 210# | 14400 | 70 | 11820 | 70 | 9010 | 70 |
| | Pu | 94 | 5241.52 | 0.03 | 6650 | 17 | -6370# | 170# | 14354.9 | 1.0 | 10364.57 | 0.29 | 11293.8 | 1.2 |
| | Am | 95 | 6647 | 14 | 4479.96 | 0.17 | -10930# | 230# | 15056.92 | 0.29 | 11635.2 | 0.4 | 11126.14 | 0.23 |
| | Cm | 96 | 6093.8 | 2.1 | 5097 | 14 | -15420# | 300# | 15022.2 | 2.0 | 10140 | 50 | 13185.0 | 1.2 |
| | Bk | 97 | 7700# | 250# | 2980# | 200# | * | | 15600# | 210# | 11450# | 200# | 13260# | 210# |
| | Cf | 98 | 6740# | 170# | 3630# | 220# | * | | 15790# | 270# | 9980# | 300# | 15530# | 170# |
| | Es | 99 | 8410# | 460# | 1420# | 230# | * | | 16310# | 310# | 11450# | 370# | 15290# | 340# |
| | Fm | 100 | * | | 2360# | 500# | * | | 16280# | 420# | * | | 17500# | 420# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q($2\beta^-$) | | Q(ϵp) | | Q($\beta^- n$) | |
|-----|------|-----|----------|------|---------|------|---------------|------|-----------------|------|-------------------|------|------------------|------|
| 236 | Ac | 89 | 9760 | 40 | * | | 2720 | 40 | 5890 | 40 | * | | -870 | 40 |
| | Th | 90 | 10500 | 14 | 15253 | 16 | 3333 | 17 | 3811 | 14 | -12160# | 300# | -4105 | 20 |
| | Pa | 91 | 11148 | 15 | 14085 | 20 | 3755 | 19 | 1960 | 50 | -9312 | 20 | -3656 | 14 |
| | U | 92 | 11843.0 | 0.3 | 12746.3 | 2.4 | 4572.9 | 0.9 | -456.9 | 1.6 | -8862 | 13 | -6669.8 | 0.9 |
| | Np | 93 | 12720 | 50 | 11540 | 50 | 5010 | 50 | -2660# | 120# | -6200 | 50 | -6880 | 50 |
| | Pu | 94 | 13591 | 7 | 9821.4 | 1.6 | 5867.15 | 0.08 | -4953 | 18 | -5306.2 | 1.6 | -9800 | 50 |
| | Am | 95 | 14560# | 190# | 8490# | 110# | 6260 | 50 | -7500# | 420# | -2290# | 110# | -10070# | 230# |
| | Cm | 96 | 15012 | 25 | 7073 | 19 | 7067 | 5 | * | | -1616 | 27 | -12920# | 400# |
| | Bk | 97 | 16060# | 430# | 5500# | 430# | 7780# | 500# | * | | 1630# | 400# | * | |
| 237 | Ac | 89 | 9480# | 400# | * | | 2680# | 400# | 6490# | 400# | * | | -310# | 400# |
| | Th | 90 | 10205 | 21 | 15750# | 300# | 3196 | 18 | 4565 | 16 | * | | -3450 | 21 |
| | Pa | 91 | 10904 | 19 | 14407 | 19 | 3795 | 18 | 2656 | 13 | -10980 | 40 | -2988 | 13 |
| | U | 92 | 11671.3 | 0.5 | 13205 | 13 | 4233.6 | 1.0 | 298.5 | 1.4 | -8154 | 14 | -6060 | 50 |
| | Np | 93 | 12314.1 | 0.9 | 11995 | 14 | 4957.3 | 0.7 | -1700# | 60# | -7751 | 14 | -6101.3 | 1.6 |
| | Pu | 94 | 13233 | 21 | 10405.1 | 1.3 | 5747.6 | 2.3 | -4160 | 70 | -4641.9 | 1.3 | -9020# | 110# |
| | Am | 95 | 14200# | 80# | 9050# | 60# | 6200# | 30# | -6620# | 230# | -4100# | 80# | -9360# | 60# |
| | Cm | 96 | 14930# | 210# | 7510 | 70 | 6770 | 50 | -8690 | 110 | -940 | 70 | -12370# | 410# |
| | Bk | 97 | 15660# | 460# | 6020# | 230# | 7500# | 200# | * | | -140# | 250# | * | |
| | Cf | 98 | * | | 4670# | 220# | 8220 | 50 | * | | 2790 | 90 | * | |
| 238 | Th | 90 | 9870# | 280# | * | | 3170# | 280# | 5220# | 280# | * | | -3070# | 280# |
| | Pa | 91 | 10583 | 21 | 14900 | 40 | 3628 | 21 | 3439 | 16 | -10420# | 400# | -2567 | 16 |
| | U | 92 | 11279.5 | 1.2 | 13525 | 14 | 4269.9 | 2.1 | 1144.6 | 1.2 | -9936 | 16 | -5635.2 | 1.2 |
| | Np | 93 | 12070 | 50 | 12457 | 14 | 4691 | 4 | -970 | 50 | -7362 | 13 | -5708.4 | 1.3 |
| | Pu | 94 | 12881.0 | 1.6 | 10859.4 | 0.4 | 5593.27 | 0.19 | -3282 | 12 | -6516.0 | 0.6 | -8480# | 60# |
| | Am | 95 | 13760# | 120# | 9530 | 70 | 6040 | 50 | -5800# | 260# | -3740 | 50 | -8900 | 90 |
| | Cm | 96 | 14552 | 22 | 8034 | 12 | 6670 | 10 | -7830# | 300# | -2936 | 12 | -11810# | 230# |
| | Bk | 97 | 15470# | 480# | 6400# | 280# | 7330# | 200# | * | | 360# | 260# | -11790# | 270# |
| | Cf | 98 | * | | 5160# | 300# | 8130# | 300# | * | | 740# | 310# | * | |
| 239 | Th | 90 | 9650# | 400# | * | | 2900# | 500# | 5880# | 400# | * | | -2520# | 400# |
| | Pa | 91 | 10330# | 200# | 15260# | 450# | 3560# | 200# | 4030# | 200# | * | | -2040# | 200# |
| | U | 92 | 10960.1 | 1.3 | 13960 | 16 | 4130 | 13 | 1984.4 | 1.2 | -9240# | 280# | -4953.3 | 1.2 |
| | Np | 93 | 11703.2 | 1.0 | 12795 | 13 | 4597 | 14 | -79.4 | 1.9 | -8872 | 16 | -4923.5 | 1.0 |
| | Pu | 94 | 12646.1 | 1.3 | 11379.9 | 0.5 | 5244.52 | 0.21 | -2560 | 50 | -6008.5 | 1.2 | -7900 | 50 |
| | Am | 95 | 13320# | 60# | 10059.2 | 1.7 | 5922.4 | 1.4 | -4860# | 210# | -5353.2 | 1.7 | -8126 | 12 |
| | Cm | 96 | 14240 | 90 | 8520 | 50 | 6540 | 50 | -7120# | 220# | -2310 | 50 | -11140# | 260# |
| | Bk | 97 | 15080# | 310# | 6900# | 220# | 7200# | 200# | -9310# | 360# | -1460# | 210# | -11100# | 360# |
| | Cf | 98 | 15810# | 230# | 5560# | 220# | 7810# | 60# | * | | 1540# | 210# | * | |
| | Es | 99 | * | | 4210# | 370# | 8430# | 500# | * | | 2050# | 390# | * | |
| 240 | Pa | 91 | 10130# | 200# | * | | 3260# | 200# | 4590# | 200# | * | | -1730# | 200# |
| | U | 92 | 10734.9 | 2.9 | 14390# | 280# | 4035 | 14 | 2590.1 | 2.7 | -11020# | 400# | -4666.9 | 2.8 |
| | Np | 93 | 11281 | 17 | 13156 | 23 | 4557 | 22 | 806 | 22 | -8310# | 200# | -4343 | 17 |
| | Pu | 94 | 12180.5 | 0.4 | 11760.3 | 1.2 | 5255.82 | 0.14 | -1598.9 | 1.7 | -7736.3 | 1.2 | -7336.4 | 1.7 |
| | Am | 95 | 13050 | 50 | 10522 | 14 | 5710 | 50 | -4150# | 150# | -5090 | 14 | -7710 | 60 |
| | Cm | 96 | 13864 | 12 | 9016.8 | 1.7 | 6397.8 | 0.6 | -6267 | 19 | -4152.9 | 1.7 | -10600# | 210# |
| | Bk | 97 | 14690# | 300# | 7340# | 160# | 7200# | 190# | -8530# | 430# | -1020# | 150# | -10680# | 260# |
| | Cf | 98 | 15430# | 300# | 6032 | 22 | 7711 | 4 | * | | -450 | 60 | -13640# | 300# |
| | Es | 99 | * | | 4600# | 480# | 8230# | 570# | * | | 2660# | 450# | * | |
| 241 | Pa | 91 | 9840# | 360# | * | | 3200# | 500# | 5380# | 310# | * | | -1150# | 300# |
| | U | 92 | 10520# | 200# | 14830# | 450# | 3820# | 200# | 3240# | 200# | * | | -4190# | 200# |
| | Np | 93 | 11190 | 70 | 13660# | 210# | 4310 | 70 | 1330 | 70 | -9940# | 210# | -3940 | 70 |
| | Pu | 94 | 11775.74 | 0.23 | 12195.5 | 1.2 | 5140.1 | 0.5 | -746.7 | 1.2 | -7049.3 | 2.7 | -6626 | 14 |
| | Am | 95 | 12598.7 | 1.7 | 10954.6 | 1.0 | 5637.82 | 0.12 | -3100# | 200# | -6671 | 17 | -6861.2 | 1.7 |
| | Cm | 96 | 13590 | 50 | 9464.4 | 1.2 | 6185.2 | 0.6 | -5630# | 170# | -3712.5 | 1.2 | -10030# | 150# |
| | Bk | 97 | 14360# | 290# | 7940# | 200# | 7040# | 210# | -7830# | 300# | -2770# | 200# | -10030# | 200# |
| | Cf | 98 | 15090# | 270# | 6400# | 180# | 7660# | 150# | -9800# | 340# | 310# | 170# | -12940# | 430# |
| | Es | 99 | 15840# | 370# | 4970# | 310# | 8250 | 20 | * | | 910# | 270# | * | |
| | Fm | 100 | * | | 3720# | 360# | 8760# | 310# | * | | 3850# | 300# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|-----|---------|------|---------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 242 | U | 92 | 5650# | 280# | 8310# | 360# | 3820# | 200# | 12420# | 280# | 10150# | 280# | 7820# | 450# |
| | Np | 93 | 4910 | 210 | 6070# | 280# | -320# | 280# | 15410 | 200 | 11710 | 200 | 9730# | 280# |
| | Pu | 94 | 6309.6 | 0.7 | 6830 | 70 | -4670 | 13 | 13111 | 17 | 10269.9 | 1.2 | 9790.6 | 1.0 |
| | Am | 95 | 5537.64 | 0.10 | 4776.07 | 0.19 | -9330# | 260# | 16053.50 | 0.20 | 11743.8 | 0.3 | 11803.4 | 1.0 |
| | Cm | 96 | 6969.4 | 1.2 | 5419.6 | 0.4 | -13600# | 400# | 14004 | 14 | 10277.4 | 1.7 | 11861.9 | 0.3 |
| | Bk | 97 | 6370# | 280# | 3260# | 200# | * | | 16720# | 200# | 11450# | 210# | 13990# | 200# |
| | Cf | 98 | 8010# | 170# | 3930# | 200# | * | | 14430# | 150# | 10000# | 210# | 13890 | 60 |
| | Es | 99 | 7130# | 340# | 1810# | 310# | * | | 17520# | 260# | 11400# | 330# | 16200# | 330# |
| | Fm | 100 | 8800# | 500# | 2750# | 460# | * | | 14910# | 570# | 9710# | 500# | 15780# | 450# |
| 243 | U | 92 | 4330# | 360# | * | | 5180# | 300# | 13430# | 420# | 10310# | 360# | * | |
| | Np | 93 | 5610# | 200# | 6030# | 200# | 1190# | 30# | 14390# | 200# | 12020# | 30# | 8610# | 200# |
| | Pu | 94 | 5033.6 | 2.4 | 6950 | 200 | -3240# | 110# | 14210 | 70 | 10302 | 17 | 10685 | 3 |
| | Am | 95 | 6364.3 | 1.2 | 4830.9 | 1.4 | -7570# | 210# | 14930.7 | 1.2 | 11913.7 | 1.2 | 10505 | 17 |
| | Cm | 96 | 5693.1 | 1.0 | 5575.0 | 1.0 | -12210# | 220# | 14958.4 | 1.0 | 10536 | 14 | 12703.0 | 1.0 |
| | Bk | 97 | 7120# | 200# | 3403 | 4 | * | | 15699 | 5 | 11829 | 5 | 12826 | 14 |
| | Cf | 98 | 6470# | 120# | 4030# | 230# | * | | 15670# | 230# | 10190# | 190# | 14910# | 110# |
| | Es | 99 | 8130# | 330# | 1930# | 210# | * | | 16130# | 270# | 11620# | 210# | 14730# | 260# |
| | Fm | 100 | 7080# | 460# | 2700# | 330# | * | | 16240# | 310# | 10050# | 460# | 17040# | 220# |
| 244 | Np | 93 | 4750# | 300# | 6450# | 420# | 2490# | 300# | 15290# | 360# | 11870# | 360# | 9210# | 420# |
| | Pu | 94 | 6019.9 | 2.9 | 7360# | 30# | -1672 | 3 | 13100 | 200 | 10410 | 70 | 9260# | 200# |
| | Am | 95 | 5367.2 | 1.6 | 5164.4 | 2.6 | -6150# | 180# | 15873.1 | 1.2 | 11788.1 | 1.0 | 11270 | 70 |
| | Cm | 96 | 6801.4 | 1.0 | 6012.1 | 1.2 | -10510# | 200# | 13694.63 | 0.20 | 10381.56 | 0.17 | 11143.12 | 0.04 |
| | Bk | 97 | 6047 | 15 | 3757 | 14 | * | | 16621 | 14 | 11876 | 14 | 13426 | 14 |
| | Cf | 98 | 7580# | 110# | 4500 | 5 | * | | 14460# | 200# | 10310# | 200# | 13422.8 | 2.8 |
| | Es | 99 | 6790# | 280# | 2250# | 210# | * | | 17350# | 180# | 11560# | 250# | 15640# | 270# |
| | Fm | 100 | 8490# | 290# | 3070# | 290# | * | | 14880# | 330# | 9970# | 300# | 15290# | 260# |
| 245 | Np | 93 | 5380# | 420# | * | | 4080# | 300# | 14240# | 420# | 12130# | 360# | * | |
| | Pu | 94 | 4699 | 13 | 7310# | 300# | -207 | 14 | 14010# | 30# | 10630 | 200 | 10210# | 200# |
| | Am | 95 | 6050.0 | 1.9 | 5194.5 | 2.9 | -4470# | 200# | 14856.7 | 2.9 | 12047.6 | 1.8 | 10130 | 200 |
| | Cm | 96 | 5518.6 | 0.5 | 6163.6 | 1.1 | -9180# | 200# | 14540.3 | 1.3 | 10400.6 | 0.5 | 11934.0 | 0.8 |
| | Bk | 97 | 6971 | 14 | 3927.0 | 1.4 | -13460# | 310# | 15342.6 | 1.7 | 11874.1 | 1.5 | 11992.2 | 1.4 |
| | Cf | 98 | 6164 | 3 | 4618 | 15 | * | | 15406 | 5 | 10520# | 200# | 14227.8 | 2.2 |
| | Es | 99 | 7730# | 270# | 2400# | 200# | * | | 16090# | 230# | 11840# | 200# | 14280# | 280# |
| | Fm | 100 | 6850# | 280# | 3130# | 270# | * | | 16150# | 280# | 10250# | 320# | 16450# | 200# |
| | Md | 101 | * | | 980# | 370# | * | | 16600# | 370# | 11740# | 500# | 16120# | 400# |
| 246 | Pu | 94 | 5855 | 20 | 7780# | 300# | 1305 | 15 | 12900# | 300# | 10380# | 40# | 8680# | 300# |
| | Am | 95 | 4978# | 18# | 5473# | 22# | -2910# | 220# | 15899# | 18# | 12103# | 18# | 10770# | 40# |
| | Cm | 96 | 6458.9 | 1.2 | 6572.5 | 2.0 | -7572 | 15 | 13448.6 | 1.5 | 10306.0 | 1.6 | 10508.8 | 2.5 |
| | Bk | 97 | 5920 | 60 | 4330 | 60 | -12150# | 270# | 16230 | 60 | 11650 | 60 | 12440 | 60 |
| | Cf | 98 | 7366.2 | 2.4 | 5012.5 | 1.8 | * | | 14087 | 14 | 10265 | 5 | 12554.7 | 1.4 |
| | Es | 99 | 6540# | 300# | 2770# | 220# | * | | 17130# | 220# | 11780# | 250# | 14860# | 220# |
| | Fm | 100 | 8070# | 200# | 3470# | 200# | * | | 14870# | 180# | 10310# | 210# | 14850# | 120# |
| | Md | 101 | 7230# | 400# | 1360# | 320# | * | | 17860# | 330# | 11590# | 340# | 17010# | 330# |
| 247 | Pu | 94 | 4360# | 200# | * | | 3000# | 200# | 13930# | 360# | 10770# | 360# | * | |
| | Am | 95 | 5910# | 100# | 5530# | 100# | -1430# | 100# | 14690# | 100# | 12210# | 100# | 9600# | 310# |
| | Cm | 96 | 5155 | 4 | 6750# | 18# | -6140# | 120# | 14343 | 4 | 10518 | 4 | 11374 | 4 |
| | Bk | 97 | 6550 | 60 | 4416 | 5 | -10450# | 210# | 15196 | 5 | 11902 | 5 | 11257 | 5 |
| | Cf | 98 | 6058 | 15 | 5150 | 60 | * | | 15001 | 15 | 10254 | 21 | 13298 | 15 |
| | Es | 99 | 7390# | 220# | 2801 | 19 | * | | 15904 | 20 | 11964 | 20 | 13511 | 24 |
| | Fm | 100 | 6590# | 120# | 3520# | 250# | * | | 16020# | 230# | 10510# | 220# | 15840# | 120# |
| | Md | 101 | 8250# | 330# | 1540# | 210# | * | | 16460# | 280# | 11840# | 290# | 15560# | 280# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | Q(α) | | Q($2\beta^-$) | | Q(ϵp) | | Q($\beta^- n$) | |
|-----|------|-----|---------|------|---------|------|---------------|------|-----------------|------|-------------------|------|------------------|------|
| 242 | U | 92 | 10240# | 200# | * | | 3670# | 200# | 3900# | 200# | * | | -3710# | 210# |
| | Np | 93 | 11040 | 200 | 14070# | 280# | 4100 | 200 | 1950 | 200 | -9510# | 360# | -3610 | 200 |
| | Pu | 94 | 11551.1 | 0.7 | 12576.5 | 2.7 | 4984.2 | 1.0 | -86.8 | 0.8 | -8770# | 200# | -6288.8 | 0.7 |
| | Am | 95 | 12185 | 14 | 11426 | 17 | 5588.50 | 0.25 | -2270# | 200# | -6080 | 70 | -6305.1 | 1.2 |
| | Cm | 96 | 13063.2 | 1.7 | 9899.6 | 0.4 | 6215.63 | 0.08 | -4583 | 13 | -5440.4 | 0.4 | -9300# | 200# |
| | Bk | 97 | 14070# | 250# | 8350# | 200# | 6890# | 210# | -7070# | 330# | -2490# | 200# | -9660# | 260# |
| | Cf | 98 | 14747 | 23 | 6915 | 13 | 7517 | 4 | -9010# | 400# | -1604 | 13 | -12550# | 230# |
| | Es | 99 | 15540# | 480# | 5440# | 300# | 8160 | 20 | * | | 1480# | 330# | -12400# | 390# |
| | Fm | 100 | * | | 4170# | 400# | 8700# | 500# | * | | 1780# | 430# | * | |
| 243 | U | 92 | 9980# | 360# | * | | 3480# | 500# | 4610# | 300# | * | | -3130# | 360# |
| | Np | 93 | 10530# | 80# | 14340# | 300# | 4110# | 200# | 2700# | 30# | * | | -2910# | 30# |
| | Pu | 94 | 11343.2 | 2.4 | 13020# | 200# | 4757.0 | 2.6 | 572.6 | 2.6 | -8150# | 200# | -5784.8 | 2.4 |
| | Am | 95 | 11902.0 | 1.2 | 11660 | 70 | 5439.1 | 0.9 | -1515 | 5 | -7530 | 200 | -5700.0 | 1.2 |
| | Cm | 96 | 12662.5 | 1.6 | 10351.1 | 1.0 | 6168.8 | 1.0 | -3810# | 110# | -4823.9 | 1.2 | -8620# | 200# |
| | Bk | 97 | 13490# | 200# | 8823 | 4 | 6874 | 4 | -6060# | 210# | -4067 | 4 | -8769 | 14 |
| | Cf | 98 | 14480# | 200# | 7290# | 110# | 7420# | 100# | -8400# | 240# | -1100# | 110# | -11880# | 280# |
| | Es | 99 | 15260# | 310# | 5860# | 290# | 8072 | 10 | * | | -280# | 290# | -11720# | 450# |
| | Fm | 100 | 15880# | 370# | 4520# | 270# | 8690 | 50 | * | | 2710# | 220# | * | |
| 244 | Np | 93 | 10360# | 360# | * | | 3870# | 360# | 3320# | 300# | * | | -2620# | 300# |
| | Pu | 94 | 11053.5 | 2.5 | 13390# | 200# | 4665.6 | 1.0 | 1354.1 | 2.5 | -9840# | 300# | -5440.3 | 2.6 |
| | Am | 95 | 11731.5 | 1.0 | 12120 | 200 | 5138 | 17 | -835 | 14 | -7290# | 30# | -5374.1 | 1.4 |
| | Cm | 96 | 12494.5 | 0.4 | 10843.0 | 0.7 | 5901.60 | 0.03 | -3026.3 | 2.5 | -6591.7 | 2.4 | -8309 | 4 |
| | Bk | 97 | 13160# | 200# | 9332 | 14 | 6779 | 4 | -5310# | 180# | -3750 | 14 | -8350# | 120# |
| | Cf | 98 | 14051 | 13 | 7903.5 | 2.5 | 7329.0 | 1.8 | -7490# | 200# | -2992.8 | 2.7 | -11340# | 210# |
| | Es | 99 | 14920# | 310# | 6290# | 270# | 7940# | 100# | * | | 50# | 180# | -11430# | 280# |
| | Fm | 100 | 15580# | 450# | 5000# | 200# | 8550# | 200# | * | | 690# | 230# | * | |
| 245 | Np | 93 | 10130# | 300# | * | | 3830# | 420# | 3990# | 300# | * | | -1990# | 300# |
| | Pu | 94 | 10719 | 14 | 13760# | 300# | 4560# | 200# | 2174 | 14 | * | | -4772 | 14 |
| | Am | 95 | 11417.2 | 2.0 | 12550# | 30# | 5220 | 70 | 86.6 | 2.1 | -8590# | 300# | -4622.7 | 1.6 |
| | Cm | 96 | 12320.1 | 1.1 | 11328.0 | 2.5 | 5624.5 | 0.5 | -2380.6 | 2.2 | -6090.4 | 2.5 | -7781 | 14 |
| | Bk | 97 | 13018 | 5 | 9939.2 | 1.9 | 6454.5 | 1.4 | -4550# | 200# | -5354.3 | 1.7 | -7735.7 | 2.9 |
| | Cf | 98 | 13750# | 110# | 8374.7 | 2.4 | 7258.5 | 1.8 | -6800# | 200# | -2355.7 | 2.2 | -10710# | 180# |
| | Es | 99 | 14520# | 290# | 6900# | 200# | 7909 | 3 | -8910# | 370# | -1640# | 200# | -10670# | 280# |
| | Fm | 100 | 15340# | 290# | 5380# | 230# | 8440# | 100# | * | | 1420# | 200# | * | |
| | Md | 101 | * | | 4050# | 370# | 8980# | 210# | * | | 1960# | 360# | * | |
| 246 | Pu | 94 | 10554 | 15 | * | | 4350# | 200# | 2778 | 15 | * | | -4577 | 15 |
| | Am | 95 | 11028# | 18# | 12790# | 300# | 5150# | 200# | 1030# | 60# | -8190# | 300# | -4082# | 18# |
| | Cm | 96 | 11977.6 | 1.1 | 11767.0 | 2.7 | 5475.1 | 0.9 | -1473.3 | 1.5 | -7850 | 14 | -7268.2 | 1.8 |
| | Bk | 97 | 12890 | 60 | 10490 | 60 | 6070 | 60 | -3930# | 230# | -5220 | 60 | -7490 | 60 |
| | Cf | 98 | 13530.5 | 2.7 | 8939.5 | 1.1 | 6861.6 | 1.0 | -6099 | 15 | -4203.3 | 1.2 | -10350# | 200# |
| | Es | 99 | 14270# | 290# | 7390# | 220# | 7740# | 100# | -8210# | 340# | -1200# | 220# | -10360# | 300# |
| | Fm | 100 | 14920# | 200# | 5867 | 15 | 8377 | 8 | * | | -485 | 15 | -13160# | 310# |
| | Md | 101 | * | | 4490# | 320# | 8890 | 40 | * | | 2460# | 330# | * | |
| 247 | Pu | 94 | 10210# | 200# | * | | 4320# | 360# | 3570# | 200# | * | | -3960# | 200# |
| | Am | 95 | 10890# | 100# | 13320# | 320# | 4850# | 110# | 1660# | 100# | * | | -3540# | 100# |
| | Cm | 96 | 11614 | 4 | 12223 | 14 | 5354 | 3 | -571 | 16 | -7151 | 15 | -6510 | 60 |
| | Bk | 97 | 12467 | 5 | 10989 | 5 | 5890 | 5 | -3089 | 20 | -6793# | 19# | -6672 | 5 |
| | Cf | 98 | 13424 | 16 | 9479 | 15 | 6497 | 15 | -5570# | 120# | -3802 | 15 | -9870# | 220# |
| | Es | 99 | 13930# | 200# | 7813 | 20 | 7464 | 20 | -7360# | 210# | -2680 | 60 | -9682 | 25 |
| | Fm | 100 | 14660# | 230# | 6290# | 120# | 8258 | 10 | * | | 290# | 120# | -12510# | 280# |
| | Md | 101 | 15480# | 370# | 5010# | 290# | 8764 | 10 | * | | 750# | 310# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|-----|---------|------|--------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 248 | Am | 95 | 4660# | 220# | 5830# | 280# | 260# | 210# | 15880# | 200# | 12250# | 200# | 10320# | 360# |
| | Cm | 96 | 6212 | 4 | 7050# | 100# | −4505 | 9 | 13110# | 18# | 10356.3 | 2.9 | 9861 | 13 |
| | Bk | 97 | 5480# | 70# | 4740# | 70# | −9070# | 250# | 16170# | 70# | 11940# | 70# | 11830# | 70# |
| | Cf | 98 | 6937 | 16 | 5541 | 7 | −13380# | 220# | 13980 | 60 | 10288 | 5 | 11880 | 5 |
| | Es | 99 | 6350# | 60# | 3090# | 50# | * | | 16920# | 50# | 11780# | 50# | 14130# | 50# |
| | Fm | 100 | 7850# | 120# | 3970 | 21 | * | | 14710# | 220# | 10400# | 200# | 14159 | 9 |
| | Md | 101 | 6860# | 320# | 1810# | 260# | * | | 17670# | 240# | 11830# | 310# | 16430# | 310# |
| | No | 102 | * | | 2610# | 310# | * | | 15220# | 340# | 10210# | 380# | 16080# | 300# |
| 249 | Am | 95 | 5530# | 360# | * | | 1930# | 300# | 14710# | 360# | 12570# | 300# | * | |
| | Cm | 96 | 4713.37 | 0.25 | 7100# | 200# | −2768 | 7 | 14310# | 100# | 10621# | 18# | 11002 | 15 |
| | Bk | 97 | 6310# | 70# | 4835.3 | 2.6 | −7390# | 200# | 15024 | 4 | 12093.5 | 1.4 | 10499# | 18# |
| | Cf | 98 | 5587 | 5 | 5650# | 70# | −12060# | 280# | 14944 | 5 | 10620 | 60 | 12752.2 | 1.3 |
| | Es | 99 | 7200# | 60# | 3350# | 30# | * | | 15780# | 30# | 11950# | 30# | 12850# | 70# |
| | Fm | 100 | 6450 | 10 | 4070# | 50# | * | | 15652 | 20 | 10480# | 220# | 15075 | 6 |
| | Md | 101 | 7990# | 310# | 1960# | 200# | * | | 16270# | 230# | 11910# | 200# | 14980# | 300# |
| | No | 102 | 6910# | 360# | 2660# | 370# | * | | 16560# | 350# | 10530# | 380# | 17240# | 280# |
| 250 | Cm | 96 | 5832 | 10 | 7400# | 300# | −1083 | 13 | 13140# | 200# | 10700# | 100# | 9530# | 200# |
| | Bk | 97 | 4968 | 4 | 5090 | 4 | −5680# | 300# | 16268 | 4 | 12281 | 5 | 11440# | 100# |
| | Cf | 98 | 6623.7 | 1.3 | 5965.0 | 1.4 | −10390# | 200# | 13800# | 70# | 10545 | 5 | 11284 | 4 |
| | Es | 99 | 6020# | 100# | 3790# | 100# | * | | 16700# | 100# | 11990# | 100# | 13380# | 100# |
| | Fm | 100 | 7518 | 10 | 4390# | 30# | * | | 14480# | 50# | 10358 | 21 | 13615 | 17 |
| | Md | 101 | 6670# | 360# | 2180# | 300# | * | | 17440# | 300# | 11820# | 320# | 15700# | 300# |
| | No | 102 | 8290# | 340# | 2960# | 280# | * | | 15130# | 310# | 10490# | 290# | 15540# | 230# |
| 251 | Cm | 96 | 4413 | 25 | * | | 694 | 27 | 14260# | 300# | 10950# | 200# | * | |
| | Bk | 97 | 5793 | 11 | 5051 | 15 | −3739 | 22 | 15188 | 11 | 12699 | 11 | 10310# | 200# |
| | Cf | 98 | 5107 | 4 | 6104 | 5 | −8710# | 120# | 14999 | 4 | 10920# | 70# | 12389 | 4 |
| | Es | 99 | 6780# | 100# | 3947 | 6 | −13220# | 300# | 15500 | 6 | 12138 | 8 | 12080# | 70# |
| | Fm | 100 | 6190 | 17 | 4560# | 100# | * | | 15490# | 30# | 10520# | 50# | 14362 | 16 |
| | Md | 101 | 7740# | 300# | 2394 | 20 | * | | 16158 | 20 | 11933 | 21 | 14310# | 60# |
| | No | 102 | 6790# | 230# | 3070# | 320# | * | | 16330# | 230# | 10570# | 260# | 16600# | 120# |
| | Lr | 103 | * | | 1130# | 360# | * | | 16660# | 410# | 11970# | 370# | 16230# | 380# |
| 252 | Cm | 96 | 5660# | 300# | * | | 2240# | 300# | * | | 10820# | 420# | * | |
| | Bk | 97 | 4770# | 200# | 5400# | 200# | −1980# | 240# | 16260# | 200# | 12650# | 200# | 11080# | 360# |
| | Cf | 98 | 6172 | 4 | 6482 | 11 | −6837 | 10 | 13795 | 4 | 11052.3 | 2.6 | 10930.32 | 0.25 |
| | Es | 99 | 5290 | 50 | 4130 | 50 | −11440# | 240# | 16840 | 50 | 12440 | 50 | 13090 | 50 |
| | Fm | 100 | 7210 | 16 | 4986 | 8 | * | | 14300# | 100# | 10510# | 30# | 12739 | 5 |
| | Md | 101 | 6530# | 130# | 2730# | 130# | * | | 17150# | 130# | 11860# | 130# | 14980# | 130# |
| | No | 102 | 8050# | 120# | 3384 | 21 | * | | 14950# | 300# | 10500# | 200# | 14999 | 11 |
| | Lr | 103 | 7060# | 380# | 1400# | 260# | * | | 17880# | 310# | 11820# | 370# | 17150# | 310# |
| 253 | Bk | 97 | 5680# | 410# | 5420# | 470# | −240# | 360# | 14990# | 360# | 12800# | 360# | * | |
| | Cf | 98 | 4804 | 4 | 6520# | 200# | −5057 | 8 | 14784 | 11 | 11216 | 6 | 11958 | 11 |
| | Es | 99 | 6360 | 50 | 4313.0 | 2.6 | −9570# | 200# | 15586 | 4 | 12704.2 | 1.4 | 11707 | 4 |
| | Fm | 100 | 5541 | 6 | 5240 | 50 | −14210# | 410# | 15544 | 7 | 10980# | 100# | 13821.8 | 3.0 |
| | Md | 101 | 7410# | 130# | 2930# | 30# | * | | 15930# | 40# | 11970# | 30# | 13590# | 110# |
| | No | 102 | 6584 | 12 | 3440# | 130# | * | | 16103 | 20 | 10590# | 300# | 15933 | 10 |
| | Lr | 103 | 8230# | 310# | 1590# | 200# | * | | 16440# | 230# | 11880# | 290# | 15590# | 360# |
| | Rf | 104 | * | | 2470# | 470# | * | | 16540# | 510# | * | | 17640# | 460# |
| 254 | Bk | 97 | 4610# | 470# | * | | 940# | 310# | 16050# | 420# | 12610# | 300# | * | |
| | Cf | 98 | 6031 | 12 | 6880# | 360# | −3382 | 15 | 13520# | 200# | 10977 | 16 | 10340 | 25 |
| | Es | 99 | 5091 | 4 | 4600 | 6 | −7880# | 300# | 16667 | 5 | 12720 | 5 | 12409 | 11 |
| | Fm | 100 | 6514 | 4 | 5396.7 | 2.3 | −12300# | 280# | 14320 | 50 | 11255 | 6 | 12414 | 4 |
| | Md | 101 | 5790# | 110# | 3180# | 100# | * | | 17350# | 100# | 12360# | 100# | 14590# | 100# |
| | No | 102 | 7707 | 12 | 3740# | 30# | * | | 14920# | 130# | 10621 | 21 | 14416 | 18 |
| | Lr | 103 | 6780# | 360# | 1780# | 300# | * | | 17710# | 300# | 11890# | 320# | 16550# | 300# |
| | Rf | 104 | 8430# | 500# | 2670# | 350# | * | | 15170# | 370# | 10340# | 410# | 16000# | 310# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | $Q(\alpha)$ | | $Q(2\beta^-)$ | | $Q(\epsilon p)$ | | $Q(\beta^- n)$ | |
|-----|------|-----|---------|------|---------|------|-------------|------|---------------|------|-----------------|------|----------------|------|
| 248 | Am | 95 | 10570# | 200# | * | | 4940# | 360# | 2480# | 210# | * | | -3040# | 200# |
| | Cm | 96 | 11366.8 | 2.7 | 12580 | 15 | 5161.81 | 0.25 | 155 | 6 | -9000# | 200# | -6168 | 6 |
| | Bk | 97 | 12030# | 90# | 11490# | 70# | 5780# | 70# | -2220# | 90# | -6360# | 120# | -6100# | 70# |
| | Cf | 98 | 12995 | 5 | 9957 | 5 | 6361 | 5 | -4660 | 10 | -5584 | 6 | -9412 | 20 |
| | Es | 99 | 13740# | 230# | 8250# | 80# | 7160# | 50# | -6850# | 240# | -2480# | 50# | -9450# | 130# |
| | Fm | 100 | 14434 | 17 | 6770 | 9 | 7995 | 8 | -8720# | 230# | -1495 | 18 | -12110# | 210# |
| | Md | 101 | 15110# | 350# | 5330# | 330# | 8700# | 150# | * | | 1280# | 240# | * | |
| | No | 102 | * | | 4150# | 230# | 9230# | 100# | * | | 1660# | 250# | * | |
| 249 | Am | 95 | 10190# | 310# | * | | 4790# | 420# | 3260# | 300# | * | | -2360# | 300# |
| | Cm | 96 | 10925 | 4 | 12940# | 200# | 5148 | 13 | 1027.9 | 2.6 | * | | -5400# | 70# |
| | Bk | 97 | 11786 | 5 | 11890# | 100# | 5521.0 | 1.4 | -1330# | 30# | -8010# | 200# | -5463 | 5 |
| | Cf | 98 | 12524 | 15 | 10388 | 4 | 6293.3 | 0.5 | -3796 | 6 | -4958.9 | 2.6 | -8650# | 50# |
| | Es | 99 | 13550# | 40# | 8890# | 30# | 6940# | 30# | -6060# | 200# | -4190# | 80# | -8790# | 30# |
| | Fm | 100 | 14300# | 120# | 7163 | 17 | 7709 | 6 | -8260# | 280# | -1008 | 8 | -11700# | 240# |
| | Md | 101 | 14850# | 290# | 5920# | 200# | 8441 | 18 | * | | -360# | 210# | -11460# | 300# |
| | No | 102 | * | | 4470# | 300# | 9170# | 200# | * | | 2600# | 280# | * | |
| 250 | Cm | 96 | 10546 | 10 | * | | 5170 | 18 | 1819 | 10 | * | | -4928 | 10 |
| | Bk | 97 | 11270# | 70# | 12190# | 200# | 5531# | 18# | -280# | 100# | -7440# | 300# | -4844 | 4 |
| | Cf | 98 | 12210 | 5 | 10800.3 | 2.7 | 6128.51 | 0.19 | -2902 | 8 | -6869.3 | 2.7 | -8080# | 30# |
| | Es | 99 | 13220# | 110# | 9430# | 120# | 6830# | 120# | -5410# | 320# | -3910# | 100# | -8370# | 100# |
| | Fm | 100 | 13968 | 12 | 7744 | 9 | 7557 | 8 | -7490# | 200# | -2940 | 8 | -11230# | 200# |
| | Md | 101 | 14660# | 380# | 6250# | 310# | 8310# | 200# | * | | 170# | 300# | -11220# | 410# |
| | No | 102 | 15200# | 300# | 4910# | 200# | 8950# | 200# | * | | 760# | 200# | * | |
| 251 | Cm | 96 | 10245 | 23 | * | | 5120# | 200# | 2513 | 22 | * | | -4373 | 23 |
| | Bk | 97 | 10761 | 11 | 12450# | 300# | 5650# | 100# | 716 | 12 | * | | -4014 | 11 |
| | Cf | 98 | 11730 | 4 | 11194 | 4 | 6177.0 | 0.9 | -1819 | 16 | -6144 | 11 | -7160# | 100# |
| | Es | 99 | 12810# | 30# | 9912 | 6 | 6598 | 3 | -4454 | 20 | -5727 | 7 | -7631 | 10 |
| | Fm | 100 | 13708 | 16 | 8347 | 15 | 7425.1 | 2.0 | -6900# | 120# | -2505 | 15 | -10750# | 300# |
| | Md | 101 | 14410# | 200# | 6790# | 40# | 7963 | 4 | -8760# | 300# | -1550# | 100# | -10670# | 200# |
| | No | 102 | 15080# | 300# | 5250# | 120# | 8752 | 4 | * | | 1490# | 120# | * | |
| | Lr | 103 | * | | 4080# | 360# | 9370# | 360# | * | | 1810# | 420# | * | |
| 252 | Cm | 96 | 10080# | 300# | * | | * | | 3020# | 300# | * | | -4240# | 300# |
| | Bk | 97 | 10560# | 200# | * | | 5550# | 280# | 1240# | 210# | * | | -3670# | 200# |
| | Cf | 98 | 11278.4 | 2.7 | 11533 | 10 | 6216.95 | 0.04 | -781 | 6 | -7902 | 23 | -6549 | 6 |
| | Es | 99 | 12070# | 110# | 10230 | 50 | 6790# | 50# | -3220# | 140# | -5220 | 50 | -6730 | 50 |
| | Fm | 100 | 13399 | 10 | 8933 | 6 | 7152.7 | 2.0 | -6056 | 11 | -4608 | 7 | -10222 | 20 |
| | Md | 101 | 14260# | 330# | 7290# | 160# | 7790# | 140# | -8230# | 270# | -1290# | 130# | -10410# | 170# |
| | No | 102 | 14840# | 200# | 5779 | 12 | 8549 | 5 | * | | -371 | 18 | -12930# | 300# |
| | Lr | 103 | * | | 4470# | 380# | 9164 | 17 | * | | 2480# | 240# | * | |
| 253 | Bk | 97 | 10440# | 360# | * | | 5400# | 200# | 1920# | 360# | * | | -3180# | 360# |
| | Cf | 98 | 10976 | 5 | 11924 | 23 | 6126 | 4 | -44 | 5 | -7040# | 300# | -6060 | 50 |
| | Es | 99 | 11644 | 6 | 10795 | 11 | 6739.24 | 0.05 | -2160# | 30# | -6810# | 200# | -5876 | 5 |
| | Fm | 100 | 12751 | 15 | 9367 | 5 | 7198.0 | 2.7 | -5013 | 7 | -3978 | 4 | -9240# | 130# |
| | Md | 101 | 13940# | 40# | 7920# | 30# | 7573 | 8 | -7400# | 200# | -3410# | 60# | -9770# | 30# |
| | No | 102 | 14630# | 120# | 6173 | 17 | 8415 | 4 | -9200# | 410# | 254 | 9 | -12450# | 240# |
| | Lr | 103 | 15300# | 360# | 4970# | 200# | 8918 | 20 | * | | 780# | 240# | * | |
| | Rf | 104 | * | | 3870# | 430# | 9350# | 300# | * | | 3400# | 410# | * | |
| 254 | Bk | 97 | 10280# | 360# | * | | * | | 2400# | 300# | * | | -2980# | 300# |
| | Cf | 98 | 10836 | 11 | 12290# | 300# | 5927 | 5 | 439 | 12 | * | | -5740 | 12 |
| | Es | 99 | 11450 | 50 | 11120# | 200# | 6615.7 | 1.5 | -1460# | 100# | -6230# | 360# | -5426 | 5 |
| | Fm | 100 | 12055 | 6 | 9710 | 3 | 7307.5 | 1.9 | -3821 | 10 | -5688 | 5 | -8340# | 30# |
| | Md | 101 | 13200# | 160# | 8420# | 110# | 7800# | 140# | -6420# | 320# | -2850# | 100# | -8980# | 100# |
| | No | 102 | 14291 | 13 | 6670 | 11 | 8226 | 8 | -8480# | 280# | -1911 | 10 | -11920# | 200# |
| | Lr | 103 | 15010# | 380# | 5220# | 330# | 8816 | 12 | * | | 1410# | 300# | -11760# | 510# |
| | Rf | 104 | * | | 4250# | 280# | 9210# | 200# | * | | 1550# | 280# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|-----|-------|------|-------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 255 | Cf | 98 | 4600# | 200# | 6870# | 360# | -2000# | 200# | 14590# | 410# | 11140# | 280# | 11400# | 360# |
| | Es | 99 | 5973 | 11 | 4541 | 16 | -5858 | 21 | 15499 | 11 | 12919 | 11 | 11200# | 200# |
| | Fm | 100 | 5174 | 5 | 5480 | 6 | -10530# | 120# | 15500 | 4 | 11370 | 50 | 13411 | 4 |
| | Md | 101 | 6680# | 100# | 3349 | 7 | -14750# | 360# | 16208 | 7 | 12891 | 8 | 13190 | 50 |
| | No | 102 | 5987 | 18 | 3940# | 100# | * | | 16350# | 40# | 11160# | 130# | 15638 | 16 |
| | Lr | 103 | 8000# | 300# | 2065 | 20 | * | | 16299 | 19 | 11940 | 20 | 15080# | 130# |
| | Rf | 104 | 6940# | 310# | 2830# | 320# | * | | 16470# | 230# | 10460# | 260# | 17110# | 120# |
| | Db | 105 | * | | 900# | 460# | * | | 16750# | 550# | * | | 16500# | 430# |
| 256 | Cf | 98 | 5840# | 370# | * | | -780# | 320# | 13360# | 430# | 10980# | 480# | * | |
| | Es | 99 | 4970# | 100# | 4910# | 220# | -4560# | 130# | 16560# | 100# | 12750# | 100# | 11910# | 370# |
| | Fm | 100 | 6384 | 7 | 5891 | 12 | -8735 | 19 | 14207 | 7 | 11340 | 6 | 11832 | 6 |
| | Md | 101 | 5460# | 120# | 3630# | 120# | -13040# | 270# | 17260# | 120# | 12970# | 120# | 14090# | 120# |
| | No | 102 | 7056 | 17 | 4310 | 10 | * | | 15080# | 100# | 11510# | 30# | 14123 | 8 |
| | Lr | 103 | 6270 | 80 | 2350 | 80 | * | | 17730 | 80 | 12250 | 80 | 16220# | 90# |
| | Rf | 104 | 8180# | 120# | 3014 | 25 | * | | 15060# | 300# | 10510# | 200# | 15510 | 19 |
| | Db | 105 | 7170# | 430# | 1120# | 270# | * | | 18010# | 370# | 11810# | 480# | 17570# | 310# |
| 257 | Es | 99 | 5860# | 420# | 4930# | 520# | -3260# | 410# | 15310# | 460# | 12930# | 410# | 10660# | 510# |
| | Fm | 100 | 4968 | 6 | 5890# | 100# | -7276 | 12 | 15212 | 12 | 11463 | 6 | 12895 | 12 |
| | Md | 101 | 6530# | 120# | 3783 | 6 | -11210# | 200# | 15904 | 4 | 12954.3 | 2.5 | 12649 | 4 |
| | No | 102 | 5646 | 10 | 4500# | 120# | * | | 16115 | 9 | 11660# | 100# | 14991 | 7 |
| | Lr | 103 | 7150# | 90# | 2450# | 50# | * | | 16570# | 50# | 12810# | 50# | 14860# | 110# |
| | Rf | 104 | 6427 | 21 | 3170 | 80 | * | | 16630 | 21 | 10860# | 300# | 16789 | 14 |
| | Db | 105 | 8360# | 310# | 1300# | 200# | * | | 16590# | 230# | 11870# | 350# | 15980# | 360# |
| 258 | Es | 99 | 4770# | 570# | * | | -2080# | 410# | 16370# | 510# | 12760# | 450# | * | |
| | Fm | 100 | 6240# | 200# | 6270# | 460# | -5920# | 200# | 13950# | 220# | 11200# | 200# | 11260# | 280# |
| | Md | 101 | 5378 | 4 | 4192 | 6 | -10110# | 310# | 16911 | 7 | 12751 | 6 | 13244 | 12 |
| | No | 102 | 6840# | 100# | 4800# | 100# | -13770# | 430# | 14730# | 160# | 11500# | 100# | 13320# | 100# |
| | Lr | 103 | 5960# | 110# | 2750# | 100# | * | | 17670# | 100# | 12840# | 100# | 15590# | 100# |
| | Rf | 104 | 7600 | 30 | 3610# | 60# | * | | 15310 | 90 | 11260 | 40 | 15180 | 40 |
| | Db | 105 | 6480# | 370# | 1360# | 310# | * | | 18290# | 310# | 12330# | 330# | 17500# | 310# |
| | Sg | 106 | * | | 2250# | 460# | * | | 15460# | 480# | 10520# | 550# | 16560# | 430# |
| 259 | Fm | 100 | 4790# | 350# | 6290# | 490# | -4660# | 290# | 15010# | 500# | 11380# | 300# | 12310# | 420# |
| | Md | 101 | 6130# | 200# | 4090# | 280# | -8370# | 210# | 15750# | 200# | 13000# | 200# | 12080# | 220# |
| | No | 102 | 5470# | 100# | 4897 | 8 | -12440# | 120# | 15796 | 7 | 11490# | 120# | 14238 | 8 |
| | Lr | 103 | 7000# | 120# | 2920# | 120# | * | | 16320# | 70# | 12890# | 70# | 14040# | 140# |
| | Rf | 104 | 6050# | 80# | 3710# | 130# | * | | 16410# | 90# | 11480# | 110# | 16190# | 70# |
| | Db | 105 | 7880# | 310# | 1640 | 60 | * | | 16840 | 50 | 12630 | 60 | 15890 | 100 |
| | Sg | 106 | 6800# | 430# | 2570# | 330# | * | | 17020# | 230# | 10890# | 270# | 17940# | 120# |
| 260 | Fm | 100 | 6010# | 520# | * | | -3380# | 480# | 13770# | 590# | 11230# | 600# | * | |
| | Md | 101 | 5140# | 370# | 4440# | 420# | -7120# | 330# | 16840# | 370# | 12830# | 320# | 12800# | 520# |
| | No | 102 | 6540# | 200# | 5300# | 280# | -10940# | 200# | 14640# | 200# | 11480# | 200# | 12670# | 200# |
| | Lr | 103 | 5650# | 140# | 3090# | 120# | -15050# | 280# | 17510# | 160# | 12890# | 120# | 14930# | 120# |
| | Rf | 104 | 7290# | 210# | 3990# | 210# | * | | 15080# | 230# | 11350# | 210# | 14550# | 200# |
| | Db | 105 | 6390# | 110# | 1980# | 120# | * | | 18040# | 100# | 12670# | 90# | 16650# | 100# |
| | Sg | 106 | 8040# | 120# | 2730 | 60 | * | | 15460# | 310# | 11210# | 200# | 16328 | 23 |
| | Bh | 107 | * | | 490# | 270# | * | | 18790# | 480# | * | | 18760# | 320# |
| 261 | Md | 101 | 6050# | 600# | 4480# | 670# | -5730# | 520# | 15590# | 580# | 13020# | 550# | 11520# | 650# |
| | No | 102 | 5230# | 280# | 5390# | 370# | -9550# | 200# | 15540# | 280# | 11630# | 200# | 13680# | 280# |
| | Lr | 103 | 6790# | 240# | 3340# | 280# | -13580# | 290# | 16190# | 200# | 12940# | 220# | 13520# | 200# |
| | Rf | 104 | 5900# | 210# | 4250# | 130# | * | | 16180# | 90# | 11400# | 110# | 15490# | 110# |
| | Db | 105 | 7440# | 140# | 2130# | 230# | * | | 16660# | 130# | 12830# | 120# | 15170# | 150# |
| | Sg | 106 | 6614 | 28 | 2960# | 100# | * | | 16720 | 60 | 11070# | 310# | 17310 | 40 |
| | Bh | 107 | 8260# | 320# | 700# | 210# | * | | 17330# | 240# | 12750# | 460# | 16980# | 370# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | $Q(\alpha)$ | | $Q(2\beta^-)$ | | $Q(\epsilon p)$ | | $Q(\beta^- n)$ | |
|-----|------|-----|--------|------|--------|------|-------------|------|---------------|------|-----------------|------|----------------|------|
| 255 | Cf | 98 | 10640# | 200# | * | | 5740# | 200# | 1010# | 200# | * | | -5250# | 200# |
| | Es | 99 | 11064 | 11 | 11420# | 360# | 6436.3 | 1.3 | -754 | 13 | -7590# | 300# | -4885 | 11 |
| | Fm | 100 | 11689 | 5 | 10080 | 6 | 7239.7 | 1.8 | -3008 | 16 | -4831 | 12 | -7720# | 100# |
| | Md | 101 | 12470# | 30# | 8745 | 7 | 7905.9 | 2.6 | -5104 | 19 | -4436 | 8 | -7952 | 12 |
| | No | 102 | 13694 | 16 | 7116 | 15 | 8428 | 3 | -7520# | 120# | -1385 | 15 | -11140# | 300# |
| | Lr | 103 | 14770# | 200# | 5800# | 40# | 8556 | 7 | -9650# | 360# | -790# | 100# | -11320# | 280# |
| | Rf | 104 | 15370# | 430# | 4610# | 120# | 9055 | 4 | * | | 2320# | 120# | * | |
| | Db | 105 | * | | 3560# | 410# | 9440# | 200# | * | | 2430# | 470# | * | |
| 256 | Cf | 98 | 10440# | 320# | * | | 5560# | 100# | 1550# | 310# | * | | -5120# | 320# |
| | Es | 99 | 10950# | 100# | 11780# | 310# | 6230# | 220# | -270# | 160# | * | | -4680# | 100# |
| | Fm | 100 | 11559 | 6 | 10433 | 12 | 7027 | 5 | -2335 | 10 | -6610# | 200# | -7428 | 9 |
| | Md | 101 | 12140# | 160# | 9110# | 120# | 7740# | 110# | -4290# | 150# | -3920# | 120# | -7420# | 120# |
| | No | 102 | 13044 | 12 | 7659 | 8 | 8582 | 5 | -6400 | 19 | -3267 | 9 | -10197 | 19 |
| | Lr | 103 | 14270# | 310# | 6280# | 130# | 8810# | 100# | -8750# | 250# | -390 | 80 | -10650# | 140# |
| | Rf | 104 | 15120# | 280# | 5079 | 20 | 8926 | 15 | * | | 126 | 23 | -13440# | 360# |
| | Db | 105 | * | | 3950# | 390# | 9340 | 30 | * | | 3260# | 240# | * | |
| 257 | Es | 99 | 10830# | 410# | * | | 6050# | 200# | 410# | 410# | * | | -4160# | 410# |
| | Fm | 100 | 11352 | 6 | 10800# | 200# | 6863.5 | 1.4 | -1657 | 8 | -5740# | 310# | -6940# | 120# |
| | Md | 101 | 11993 | 7 | 9674 | 11 | 7557.6 | 1.0 | -3670# | 40# | -5480# | 100# | -6900 | 8 |
| | No | 102 | 12703 | 16 | 8130 | 8 | 8477 | 6 | -5619 | 13 | -2529 | 9 | -9570 | 80 |
| | Lr | 103 | 13420# | 50# | 6760# | 50# | 9070 | 30 | -7540# | 210# | -2080# | 130# | -9630# | 50# |
| | Rf | 104 | 14610# | 120# | 5519 | 18 | 9083 | 8 | * | | 755 | 13 | -12700# | 240# |
| | Db | 105 | 15530# | 410# | 4320# | 200# | 9207 | 20 | * | | 1170# | 220# | * | |
| 258 | Es | 99 | 10630# | 410# | * | | 5880# | 500# | 1020# | 400# | * | | -3960# | 400# |
| | Fm | 100 | 11200# | 200# | 11190# | 370# | 6660# | 200# | -1050# | 220# | * | | -6640# | 200# |
| | Md | 101 | 11910# | 120# | 10080# | 100# | 7271.3 | 1.9 | -3100# | 100# | -5010# | 410# | -6632 | 8 |
| | No | 102 | 12490# | 100# | 8590# | 100# | 8150# | 100# | -4860# | 110# | -4400# | 100# | -9260# | 110# |
| | Lr | 103 | 13110# | 130# | 7250# | 160# | 8904 | 19 | -7020# | 320# | -1500# | 100# | -9160# | 100# |
| | Rf | 104 | 14020 | 40 | 6060 | 30 | 9190 | 30 | -8900# | 410# | -1200 | 30 | -11940# | 210# |
| | Db | 105 | 14840# | 390# | 4530# | 320# | 9500 | 50 | * | | 1840# | 310# | * | |
| | Sg | 106 | * | | 3560# | 410# | 9620# | 300# | * | | 2090# | 410# | * | |
| 259 | Fm | 100 | 11030# | 280# | * | | 6470# | 200# | -370# | 280# | * | | -6050# | 280# |
| | Md | 101 | 11510# | 200# | 10360# | 460# | 7110# | 200# | -2230# | 210# | -6370# | 450# | -5930# | 220# |
| | No | 102 | 12311 | 9 | 9089 | 8 | 7854 | 5 | -4280# | 70# | -3640# | 200# | -8780# | 100# |
| | Lr | 103 | 12960# | 80# | 7720# | 70# | 8580# | 70# | -6140# | 90# | -3120# | 70# | -8560# | 80# |
| | Rf | 104 | 13650# | 70# | 6460# | 70# | 9130# | 70# | -8160# | 140# | -400# | 120# | -11510# | 310# |
| | Db | 105 | 14360# | 210# | 5250# | 70# | 9620 | 50 | * | | -80# | 120# | -11320# | 420# |
| | Sg | 106 | * | | 3930# | 120# | 9765 | 8 | * | | 2890# | 120# | * | |
| 260 | Fm | 100 | 10800# | 480# | * | | 6300# | 300# | 150# | 480# | * | | -5930# | 480# |
| | Md | 101 | 11280# | 320# | 10730# | 510# | 6940# | 300# | -1730# | 340# | * | | -5600# | 320# |
| | No | 102 | 12010# | 220# | 9390# | 280# | 7700# | 200# | -3540# | 280# | -5380# | 350# | -8310# | 210# |
| | Lr | 103 | 12650# | 160# | 7990# | 120# | 8400# | 140# | -5400# | 160# | -2640# | 240# | -8160# | 140# |
| | Rf | 104 | 13340# | 200# | 6910# | 220# | 8900# | 200# | -7400# | 200# | -2220# | 200# | -10920# | 210# |
| | Db | 105 | 14270# | 320# | 5690# | 140# | 9500# | 40# | -9650# | 260# | 530# | 120# | -10920# | 150# |
| | Sg | 106 | 14840# | 410# | 4370 | 40 | 9901 | 10 | * | | 900# | 80# | * | |
| | Bh | 107 | * | | 3050# | 390# | 10400 | 50 | * | | 4040# | 250# | * | |
| 261 | Md | 101 | 11190# | 550# | * | | 6750# | 300# | -980# | 550# | * | | -5110# | 550# |
| | No | 102 | 11770# | 200# | 9830# | 350# | 7440# | 200# | -2860# | 210# | -4600# | 480# | -7890# | 240# |
| | Lr | 103 | 12440# | 210# | 8640# | 280# | 8140# | 200# | -4750# | 230# | -4280# | 370# | -7660# | 280# |
| | Rf | 104 | 13190# | 90# | 7340 | 50 | 8650 | 50 | -6690 | 50 | -1580# | 210# | -10430# | 110# |
| | Db | 105 | 13830# | 120# | 6120# | 130# | 9220# | 100# | -8830# | 240# | -1260# | 170# | -10310# | 110# |
| | Sg | 106 | 14660# | 120# | 4940# | 80# | 9714 | 15 | * | | 1570# | 200# | -13390# | 250# |
| | Bh | 107 | * | | 3440# | 220# | 10500 | 50 | * | | 2170# | 230# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|-----|-------|------|-------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| 262 | Md | 101 | 5020# | 710# | * | | -4630# | 520# | 16570# | 660# | 12790# | 580# | * | |
| | No | 102 | 6430# | 410# | 5770# | 620# | -8270# | 360# | 14260# | 480# | 11340# | 410# | 12040# | 460# |
| | Lr | 103 | 5530# | 280# | 3640# | 280# | -12440# | 370# | 17200# | 280# | 12890# | 200# | 14120# | 280# |
| | Rf | 104 | 7000# | 230# | 4450# | 300# | * | | 14830# | 260# | 11410# | 240# | 13960# | 220# |
| | Db | 105 | 6130# | 180# | 2350# | 150# | * | | 17820# | 250# | 12760# | 160# | 16050# | 160# |
| | Sg | 106 | 7710 | 40 | 3230# | 120# | * | | 15400# | 100# | 11240 | 60 | 15650# | 80# |
| | Bh | 107 | 6660# | 370# | 750# | 310# | * | | 18710# | 310# | 12890# | 330# | 18200# | 310# |
| 263 | No | 102 | 5040# | 610# | 5790# | 700# | -7060# | 500# | 15260# | 710# | 11440# | 580# | 13010# | 660# |
| | Lr | 103 | 6440# | 350# | 3660# | 460# | -10770# | 420# | 15990# | 350# | 12980# | 350# | 12820# | 420# |
| | Rf | 104 | 5710# | 270# | 4640# | 250# | -14920# | 200# | 15910# | 250# | 11340# | 200# | 14790# | 250# |
| | Db | 105 | 7210# | 220# | 2570# | 280# | * | | 16500# | 180# | 12830# | 260# | 14480# | 210# |
| | Sg | 106 | 6250# | 100# | 3350# | 170# | * | | 16590# | 150# | 11380# | 130# | 16690# | 220# |
| | Bh | 107 | 8120# | 430# | 1160# | 310# | * | | 17200# | 310# | 12810# | 310# | 16470# | 320# |
| | Hs | 108 | * | | 2150# | 330# | * | | 17260# | 240# | 11220# | 280# | 18780# | 130# |
| 264 | No | 102 | 6190# | 770# | * | | -5770# | 660# | 14090# | 770# | 11300# | 780# | * | |
| | Lr | 103 | 5420# | 520# | 4040# | 660# | -9680# | 470# | 16990# | 570# | 12790# | 480# | 13450# | 670# |
| | Rf | 104 | 6750# | 390# | 4940# | 460# | -13490# | 360# | 14690# | 410# | 11380# | 410# | 13270# | 410# |
| | Db | 105 | 5820# | 290# | 2680# | 280# | * | | 17680# | 330# | 12910# | 240# | 15450# | 310# |
| | Sg | 106 | 7480# | 300# | 3620# | 330# | * | | 15240# | 320# | 11340# | 300# | 15110# | 290# |
| | Bh | 107 | 6510# | 350# | 1420# | 200# | * | | 18400# | 180# | 12920# | 180# | 17400# | 210# |
| | Hs | 108 | 8190# | 130# | 2220# | 310# | * | | 15730# | 310# | 11290# | 210# | 17200 | 30 |
| 265 | Lr | 103 | 6220# | 700# | 4070# | 810# | -8180# | 600# | 15820# | 730# | 13000# | 660# | 12250# | 740# |
| | Rf | 104 | 5460# | 510# | 4980# | 570# | -12210# | 360# | 15670# | 460# | 11450# | 410# | 14240# | 510# |
| | Db | 105 | 6950# | 330# | 2880# | 420# | -16200# | 500# | 16440# | 270# | 12950# | 320# | 14030# | 300# |
| | Sg | 106 | 6060# | 310# | 3860# | 270# | * | | 16390# | 210# | 11410# | 190# | 16050# | 260# |
| | Bh | 107 | 7710# | 290# | 1660# | 370# | * | | 16940# | 250# | 12910# | 240# | 15810# | 270# |
| | Hs | 108 | 6730 | 40 | 2450# | 180# | * | | 17120# | 310# | 11220# | 310# | 18180 | 40 |
| | Mt | 109 | * | | 170# | 450# | * | | 17710# | 470# | * | | 17780# | 550# |
| 266 | Lr | 103 | 4680# | 800# | * | | -6480# | 610# | 17320# | 830# | 13360# | 760# | * | |
| | Rf | 104 | 6690# | 590# | 5450# | 720# | -11060# | 470# | 14410# | 640# | 11210# | 550# | 12590# | 680# |
| | Db | 105 | 5820# | 360# | 3240# | 460# | -15230# | 420# | 17370# | 460# | 12850# | 320# | 14650# | 400# |
| | Sg | 106 | 7250# | 270# | 4150# | 330# | * | | 14970# | 340# | 11370# | 300# | 14510# | 290# |
| | Bh | 107 | 6380# | 290# | 1980# | 200# | * | | 18030# | 330# | 12780# | 190# | 16640# | 230# |
| | Hs | 108 | 7840 | 50 | 2570# | 240# | * | | 15790# | 180# | 11500# | 310# | 16590# | 100# |
| | Mt | 109 | 6790# | 550# | 230# | 310# | * | | 19110# | 310# | 13150# | 330# | 19110# | 430# |
| 267 | Rf | 104 | 4700# | 740# | 5470# | 820# | -9210# | 580# | 15920# | 790# | 11930# | 720# | 14080# | 820# |
| | Db | 105 | 6730# | 500# | 3290# | 630# | -13720# | 650# | 16100# | 550# | 12860# | 550# | 13340# | 600# |
| | Sg | 106 | 5880# | 360# | 4220# | 380# | -18070# | 290# | 16030# | 340# | 11310# | 350# | 15380# | 440# |
| | Bh | 107 | 7410# | 310# | 2140# | 360# | * | | 16680# | 290# | 12850# | 390# | 15050# | 350# |
| | Hs | 108 | 6560# | 100# | 2740# | 190# | * | | 16950# | 250# | 11460# | 200# | 17520# | 300# |
| | Mt | 109 | 8240# | 590# | 630# | 500# | * | | 17600# | 500# | 13090# | 500# | 17380# | 530# |
| | Ds | 110 | * | | 1370# | 340# | * | | 17910# | 470# | * | | 19960# | 140# |
| 268 | Rf | 104 | 6040# | 880# | * | | -7350# | 720# | 14560# | 880# | 12110# | 860# | * | |
| | Db | 105 | 5080# | 670# | 3670# | 780# | -12090# | 580# | 17700# | 710# | 13240# | 640# | 14480# | 760# |
| | Sg | 106 | 7080# | 540# | 4560# | 630# | -16850# | 560# | 14780# | 550# | 11180# | 520# | 13760# | 590# |
| | Bh | 107 | 6030# | 460# | 2290# | 460# | * | | 17900# | 450# | 12880# | 400# | 15970# | 440# |
| | Hs | 108 | 7890# | 300# | 3230# | 390# | * | | 15440# | 330# | 11280# | 370# | 15680# | 310# |
| | Mt | 109 | 6710# | 550# | 790# | 250# | * | | 18730# | 240# | 13120# | 230# | 18380# | 330# |
| | Ds | 110 | 8300# | 330# | 1430# | 590# | * | | 16400# | 430# | 11830# | 540# | 18390# | 300# |
| 269 | Db | 105 | 5990# | 820# | 3620# | 910# | -10220# | 780# | 16420# | 850# | 13940# | 780# | 13170# | 850# |
| | Sg | 106 | 5110# | 590# | 4590# | 640# | -15070# | 370# | 16400# | 550# | 11890# | 460# | 15330# | 590# |
| | Bh | 107 | 7400# | 530# | 2610# | 600# | * | | 16380# | 450# | 12720# | 450# | 14390# | 470# |
| | Hs | 108 | 6340# | 310# | 3530# | 400# | * | | 16510# | 290# | 11320# | 210# | 16590# | 280# |
| | Mt | 109 | 7850# | 520# | 750# | 540# | * | | 17430# | 470# | 13100# | 470# | 16910# | 490# |
| | Ds | 110 | 6890# | 300# | 1610# | 240# | * | | 17760# | 500# | 11740# | 310# | 19340 | 50 |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | $Q(\alpha)$ | | $Q(2\beta^-)$ | | $Q(\epsilon p)$ | | $Q(\beta^- n)$ | |
|-----|------|-----|--------|------|--------|------|-------------|------|---------------|------|-----------------|------|----------------|------|
| 262 | Md | 101 | 11070# | 590# | * | | 6500# | 300# | -480# | 540# | * | | -4900# | 540# |
| | No | 102 | 11650# | 410# | 10240# | 570# | 7250# | 300# | -2290# | 420# | * | | -7530# | 410# |
| | Lr | 103 | 12320# | 240# | 9030# | 370# | 7990# | 200# | -4150# | 250# | -3770# | 550# | -7290# | 210# |
| | Rf | 104 | 12900# | 300# | 7800# | 300# | 8490# | 200# | -5970# | 230# | -3350# | 300# | -9990# | 250# |
| | Db | 105 | 13560# | 170# | 6600# | 190# | 9050# | 100# | -8290# | 340# | -590# | 250# | -9820# | 140# |
| | Sg | 106 | 14320 | 40 | 5360# | 200# | 9600 | 15 | * | | -240 | 60 | -12840# | 210# |
| | Bh | 107 | 14930# | 390# | 3710# | 320# | 10319 | 15 | * | | 2940# | 330# | * | |
| 263 | No | 102 | 11470# | 530# | * | | 7000# | 400# | -1630# | 510# | * | | -7040# | 530# |
| | Lr | 103 | 11970# | 350# | 9430# | 580# | 7680# | 200# | -3380# | 330# | -5190# | 580# | -6740# | 360# |
| | Rf | 104 | 12710# | 160# | 8280# | 250# | 8250# | 150# | -5440# | 180# | -2640# | 390# | -9570# | 210# |
| | Db | 105 | 13340# | 200# | 7030# | 260# | 8830# | 150# | -7390# | 350# | -2280# | 260# | -9330# | 170# |
| | Sg | 106 | 13960# | 100# | 5710# | 110# | 9400 | 60 | -9490# | 160# | 510# | 240# | -12420# | 320# |
| | Bh | 107 | 14780# | 370# | 4390# | 320# | 10080# | 300# | * | | 950# | 340# | * | |
| | Hs | 108 | * | | 2910# | 130# | 10730 | 50 | * | | 4020# | 130# | * | |
| 264 | No | 102 | 11230# | 690# | * | | 6820# | 400# | -1070# | 690# | * | | -6790# | 660# |
| | Lr | 103 | 11870# | 480# | 9830# | 660# | 7400# | 300# | -2990# | 500# | * | | -6450# | 460# |
| | Rf | 104 | 12460# | 420# | 8600# | 510# | 8040# | 300# | -4710# | 460# | -4340# | 610# | -9110# | 400# |
| | Db | 105 | 13030# | 280# | 7320# | 310# | 8660# | 200# | -6700# | 300# | -1660# | 370# | -8900# | 250# |
| | Sg | 106 | 13730# | 290# | 6190# | 360# | 9210# | 200# | -8780# | 280# | -1260# | 320# | -11790# | 420# |
| | Bh | 107 | 14630# | 350# | 4770# | 230# | 9960# | 150# | * | | 1660# | 240# | -11690# | 220# |
| | Hs | 108 | * | | 3380 | 50 | 10591 | 20 | * | | 2080# | 100# | * | |
| 265 | Lr | 103 | 11640# | 620# | * | | 7230# | 200# | -2250# | 590# | * | | -5920# | 660# |
| | Rf | 104 | 12210# | 390# | 9020# | 610# | 7810# | 300# | -4110# | 380# | -3610# | 690# | -8740# | 430# |
| | Db | 105 | 12770# | 280# | 7820# | 360# | 8500# | 100# | -5930# | 320# | -3180# | 490# | -8370# | 360# |
| | Sg | 106 | 13540# | 160# | 6540# | 200# | 9050# | 110# | -8110# | 130# | -570# | 380# | -11340# | 220# |
| | Bh | 107 | 14220# | 380# | 5270# | 290# | 9680# | 210# | -10260# | 510# | -240# | 330# | -11220# | 240# |
| | Hs | 108 | 14920# | 130# | 3870# | 100# | 10470 | 15 | * | | 2830# | 280# | * | |
| | Mt | 109 | * | | 2400# | 540# | 11120# | 400# | * | | 3330# | 490# | * | |
| 266 | Lr | 103 | 10900# | 730# | * | | 7570# | 300# | -1120# | 650# | * | | -5140# | 690# |
| | Rf | 104 | 12140# | 590# | 9510# | 750# | 7550# | 300# | -3540# | 530# | * | | -8480# | 520# |
| | Db | 105 | 12770# | 370# | 8220# | 520# | 8210# | 200# | -5370# | 330# | -2790# | 620# | -8130# | 310# |
| | Sg | 106 | 13310# | 370# | 7040# | 440# | 8800# | 100# | -7520# | 250# | -2360# | 440# | -10870# | 340# |
| | Bh | 107 | 14100# | 240# | 5840# | 290# | 9430# | 80# | -9860# | 350# | 330# | 280# | -10870# | 160# |
| | Hs | 108 | 14570 | 50 | 4220# | 290# | 10346 | 16 | * | | 1050# | 130# | -13610# | 450# |
| | Mt | 109 | * | | 2670# | 350# | 10996 | 25 | * | | 4260# | 390# | * | |
| 267 | Rf | 104 | 11390# | 680# | * | | 7890# | 300# | -2360# | 630# | * | | -7360# | 640# |
| | Db | 105 | 12550# | 470# | 8740# | 690# | 7920# | 300# | -4690# | 490# | -4840# | 720# | -7620# | 480# |
| | Sg | 106 | 13130# | 280# | 7460# | 440# | 8630# | 210# | -6850# | 270# | -1560# | 540# | -10370# | 300# |
| | Bh | 107 | 13790# | 350# | 6300# | 350# | 9230# | 200# | -9030# | 570# | -1260# | 390# | -10440# | 270# |
| | Hs | 108 | 14390# | 100# | 4720# | 160# | 10038 | 13 | -11230# | 170# | 1750# | 260# | -13380# | 320# |
| | Mt | 109 | 15030# | 680# | 3200# | 550# | 10870# | 400# | * | | 2400# | 530# | * | |
| | Ds | 110 | * | | 1600# | 140# | 11780 | 50 | * | | 5450# | 140# | * | |
| 268 | Rf | 104 | 10740# | 810# | * | | 8040# | 300# | -1330# | 810# | * | | -6670# | 780# |
| | Db | 105 | 11820# | 600# | 9140# | 790# | 8260# | 300# | -3750# | 650# | * | | -6820# | 590# |
| | Sg | 106 | 12960# | 530# | 7850# | 660# | 8300# | 300# | -6030# | 550# | -3930# | 740# | -10040# | 540# |
| | Bh | 107 | 13440# | 420# | 6510# | 480# | 9020# | 300# | -8340# | 450# | -560# | 560# | -9920# | 390# |
| | Hs | 108 | 14450# | 290# | 5370# | 380# | 9623 | 16 | -10820# | 410# | -270# | 380# | -13030# | 580# |
| | Mt | 109 | 14950# | 390# | 3530# | 280# | 10670# | 150# | * | | 3100# | 350# | -12800# | 270# |
| | Ds | 110 | * | | 2070# | 300# | 11660# | 300# | * | | 3710# | 320# | * | |
| 269 | Db | 105 | 11070# | 750# | * | | 8490# | 300# | -2330# | 730# | * | | -5730# | 780# |
| | Sg | 106 | 12190# | 450# | 8260# | 680# | 8650 | 50 | -4800# | 390# | -3000# | 760# | -9120# | 530# |
| | Bh | 107 | 13430# | 460# | 7170# | 560# | 8570# | 300# | -7890# | 600# | -2870# | 650# | -9420# | 470# |
| | Hs | 108 | 14230# | 160# | 5820# | 290# | 9340# | 160# | -10270# | 130# | 470# | 490# | -12660# | 260# |
| | Mt | 109 | 14560# | 680# | 3970# | 530# | 10530# | 400# | * | | 1270# | 600# | -12350# | 550# |
| | Ds | 110 | 15190# | 140# | 2400# | 100# | 11510 | 30 | * | | 4720# | 290# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|-----|-------|------|-------|-------|---------------|------|---------------|------|---------------|-------|---------------|------|
| 270 | Db | 105 | 4910# | 880# | * | | -8400# | 640# | 17540# | 910# | 13730# | 840# | * | |
| | Sg | 106 | 6340# | 670# | 4950# | 840# | -13190# | 560# | 15140# | 770# | 12280# | 690# | 13690# | 800# |
| | Bh | 107 | 5320# | 470# | 2830# | 460# | * | | 18140# | 550# | 13280# | 390# | 15800# | 500# |
| | Hs | 108 | 7520# | 280# | 3650# | 450# | * | | 15020# | 460# | 11210# | 360# | 14950# | 360# |
| | Mt | 109 | 6730# | 490# | 1140# | 210# | * | | 18590# | 330# | 12920# | 200# | 17590# | 310# |
| | Ds | 110 | 8230 | 60 | 1980# | 470# | * | | 16240# | 240# | 11750# | 510# | 17670# | 110# |
| 271 | Sg | 106 | 4810# | 810# | 4840# | 850# | -11190# | 590# | 16320# | 860# | 12560# | 790# | 14930# | 880# |
| | Bh | 107 | 6380# | 510# | 2860# | 700# | * | | 16870# | 550# | 13980# | 630# | 14510# | 670# |
| | Hs | 108 | 5440# | 370# | 3780# | 400# | * | | 16970# | 470# | 11800# | 470# | 16590# | 550# |
| | Mt | 109 | 7680# | 370# | 1300# | 410# | * | | 17250# | 350# | 13140# | 440# | 15940# | 500# |
| | Ds | 110 | 6800# | 110# | 2050# | 200# | * | | 17290# | 470# | 11660# | 250# | 18760# | 300# |
| | | | | | | | | | | | | | | |
| 272 | Sg | 106 | 6250# | 930# | * | | -9430# | 840# | 14980# | 950# | 12300# | 960# | * | |
| | Bh | 107 | 5200# | 680# | 3260# | 790# | -13980# | 580# | 18010# | 770# | 13890# | 640# | 15290# | 820# |
| | Hs | 108 | 6810# | 580# | 4200# | 660# | * | | 15490# | 590# | 12390# | 630# | 14890# | 630# |
| | Mt | 109 | 5590# | 590# | 1450# | 560# | * | | 19180# | 550# | 13880# | 500# | 17750# | 610# |
| | Ds | 110 | 8000# | 420# | 2380# | 530# | * | | 16020# | 450# | 11510# | 620# | 17100# | 430# |
| | Rg | 111 | * | | 460# | 250# | * | | 18810# | 240# | 12800# | 240# | 19050# | 520# |
| | | | | | | | | | | | | | | |
| 273 | Sg | 106 | 4630# | 880# | * | | -8340# | 520# | * | | 12580# | 800# | * | |
| | Bh | 107 | 6230# | 870# | 3240# | 1000# | -12060# | 870# | 16590# | 910# | 14010# | 890# | 13970# | 930# |
| | Hs | 108 | 5190# | 630# | 4190# | 650# | * | | 16680# | 560# | 12530# | 470# | 16050# | 670# |
| | Mt | 109 | 6940# | 650# | 1580# | 660# | * | | 17680# | 510# | 14460# | 490# | 16130# | 510# |
| | Ds | 110 | 5730# | 430# | 2520# | 500# | * | | 17970# | 360# | 12510# | 220# | 18890# | 280# |
| | Rg | 111 | 8150# | 580# | 610# | 670# | * | | 17460# | 540# | 12880# | 530# | 17630# | 550# |
| 274 | Bh | 107 | 5020# | 930# | 3630# | 800# | -10930# | 640# | 17810# | 960# | 13790# | 850# | * | |
| | Hs | 108 | 6480# | 700# | 4440# | 910# | * | | 15410# | 800# | 12430# | 720# | 14380# | 830# |
| | Mt | 109 | 5540# | 550# | 1930# | 510# | * | | 18950# | 620# | 14370# | 450# | 16970# | 550# |
| | Ds | 110 | 7230# | 410# | 2800# | 580# | * | | 16330# | 620# | 12960# | 510# | 17100# | 480# |
| | Rg | 111 | 6150# | 560# | 1030# | 220# | * | | 19310# | 450# | 13530# | 200# | 19160# | 380# |
| | | | | | | | | | | | | | | |
| 275 | Bh | 107 | 6060# | 860# | * | | -9610# | 790# | 16380# | 780# | 13970# | 940# | * | |
| | Hs | 108 | 4940# | 830# | 4350# | 850# | * | | 16700# | 910# | 12690# | 790# | 15690# | 940# |
| | Mt | 109 | 6490# | 550# | 1950# | 730# | * | | 17650# | 560# | 14690# | 660# | 15690# | 680# |
| | Ds | 110 | 5700# | 570# | 2970# | 540# | * | | 17560# | 590# | 12850# | 640# | 18210# | 660# |
| | Rg | 111 | 7390# | 550# | 1190# | 650# | * | | 17650# | 540# | 14150# | 660# | 17360# | 710# |
| | | | | | | | | | | | | | | |
| 276 | Hs | 108 | 6410# | 960# | 4690# | 960# | -12070# | 960# | 15320# | 980# | 12520# | 1020# | 13910# | 910# |
| | Mt | 109 | 5590# | 680# | 2590# | 790# | * | | 18540# | 800# | 14290# | 650# | 16330# | 870# |
| | Ds | 110 | 7100# | 680# | 3580# | 690# | * | | 16010# | 650# | 12690# | 690# | 16300# | 660# |
| | Rg | 111 | 5880# | 820# | 1370# | 750# | * | | 19000# | 740# | 14000# | 640# | 18420# | 760# |
| | Cn | 112 | * | | 2230# | 790# | * | | 16450# | 620# | 12520# | 800# | 17640# | 610# |
| | | | | | | | | | | | | | | |
| 277 | Hs | 108 | 4860# | 930# | * | | -10910# | 560# | 16510# | 810# | 12680# | 820# | * | |
| | Mt | 109 | 6420# | 880# | 2610# | 1030# | * | | 17060# | 910# | 14350# | 920# | 14930# | 930# |
| | Ds | 110 | 5470# | 670# | 3460# | 660# | * | | 17020# | 570# | 12760# | 520# | 17300# | 710# |
| | Rg | 111 | 7220# | 820# | 1490# | 760# | * | | 17480# | 660# | 14000# | 650# | 16740# | 630# |
| | Cn | 112 | 6020# | 610# | 2370# | 650# | * | | 17820# | 540# | 12650# | 230# | 18850# | 420# |
| | | | | | | | | | | | | | | |
| 278 | Mt | 109 | 5300# | 940# | 3050# | 820# | -13150# | 650# | 18160# | 980# | 13980# | 860# | 15690# | 860# |
| | Ds | 110 | 6830# | 730# | 3880# | 940# | * | | 15780# | 820# | 12420# | 750# | 15410# | 860# |
| | Rg | 111 | 5890# | 630# | 1910# | 520# | * | | 18690# | 650# | 13820# | 540# | 17340# | 550# |
| | Cn | 112 | 7540# | 460# | 2690# | 680# | * | | 16160# | 770# | 12500# | 680# | 17010# | 600# |
| | Ed | 113 | * | | 800# | 230# | * | | 19250# | 620# | * | | 19240# | 550# |
| | | | | | | | | | | | | | | |
| 279 | Mt | 109 | 6310# | 910# | * | | -11740# | 970# | 16710# | 860# | 14070# | 1010# | * | |
| | Ds | 110 | 5330# | 870# | 3900# | 860# | * | | 16870# | 920# | 12680# | 800# | 16490# | 960# |
| | Rg | 111 | 6810# | 550# | 1900# | 750# | * | | 17350# | 570# | 14100# | 690# | 16110# | 680# |
| | Cn | 112 | 5970# | 630# | 2780# | 580# | * | | 17400# | 690# | 12410# | 780# | 18140# | 710# |
| | Ed | 113 | 7720# | 720# | 980# | 820# | * | | 17550# | 710# | 13750# | 920# | 17400# | 940# |
| | | | | | | | | | | | | | | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | $Q(\alpha)$ | | $Q(2\beta^-)$ | | $Q(\epsilon p)$ | | $Q(\beta^- n)$ | |
|-----|------|-----|--------|------|-------|------|-------------|------|---------------|------|-----------------|------|----------------|------|
| 270 | Db | 105 | 10900# | 810# | * | | 8260# | 200# | -1920# | 680# | * | | -5530# | 720# |
| | Sg | 106 | 11450# | 730# | 8560# | 870# | 8990# | 300# | -3620# | 610# | * | | -8060# | 670# |
| | Bh | 107 | 12720# | 480# | 7410# | 600# | 9060 | 50 | -6480# | 330# | -2210# | 690# | -8410# | 310# |
| | Hs | 108 | 13860# | 380# | 6270# | 530# | 9070 | 40 | -9570# | 250# | -1940# | 440# | -12330# | 530# |
| | Mt | 109 | 14580# | 290# | 4670# | 420# | 10180 | 50 | * | | 1940# | 410# | -12200# | 170# |
| | Ds | 110 | 15110# | 310# | 2730# | 290# | 11117 | 28 | * | | 2830# | 130# | * | |
| 271 | Sg | 106 | 11150# | 690# | * | | 8890# | 110# | -2980# | 650# | * | | -7540# | 650# |
| | Bh | 107 | 11700# | 560# | 7810# | 750# | 9420 | 50 | -5180# | 530# | -3680# | 740# | -7260# | 480# |
| | Hs | 108 | 12970# | 310# | 6600# | 460# | 9510# | 110# | -8210# | 300# | -1040# | 620# | -11040# | 330# |
| | Mt | 109 | 14410# | 570# | 4960# | 500# | 9910# | 200# | * | | -410# | 440# | -11650# | 330# |
| | Ds | 110 | 15030# | 100# | 3190# | 160# | 10870 | 18 | * | | 3550# | 270# | * | |
| 272 | Sg | 106 | 11050# | 920# | * | | 8680# | 300# | -2430# | 890# | * | | -7410# | 840# |
| | Bh | 107 | 11580# | 600# | 8100# | 810# | 9300 | 50 | -4790# | 720# | * | | -7020# | 600# |
| | Hs | 108 | 12250# | 570# | 7060# | 760# | 9780# | 200# | -7010# | 660# | -3040# | 780# | -10170# | 610# |
| | Mt | 109 | 13270# | 510# | 5220# | 560# | 10350# | 300# | -9190# | 540# | 370# | 640# | -10440# | 500# |
| | Ds | 110 | 14810# | 420# | 3680# | 480# | 10760# | 300# | * | | 990# | 500# | * | |
| | Rg | 111 | * | | 2520# | 290# | 11197 | 13 | * | | 4380# | 400# | * | |
| 273 | Sg | 106 | 10880# | 770# | * | | * | | -1870# | 620# | * | | -6840# | 730# |
| | Bh | 107 | 11430# | 810# | * | | 9060# | 300# | -4080# | 810# | * | | -6450# | 860# |
| | Hs | 108 | 11990# | 460# | 7450# | 690# | 9700 | 50 | -6470# | 390# | -1980# | 820# | -9760# | 610# |
| | Mt | 109 | 12530# | 540# | 5790# | 590# | 10810# | 200# | -7980# | 680# | -1370# | 680# | -9370# | 590# |
| | Ds | 110 | 13740# | 170# | 3960# | 310# | 11370 | 50 | * | | 2060# | 530# | -12490# | 270# |
| | Rg | 111 | * | | 2980# | 620# | 10900# | 250# | * | | 1820# | 720# | * | |
| 274 | Bh | 107 | 11250# | 820# | * | | 8950 | 50 | -3560# | 710# | * | | -6280# | 720# |
| | Hs | 108 | 11660# | 780# | 7670# | 940# | 9570# | 200# | -5710# | 710# | -3820# | 780# | -9300# | 730# |
| | Mt | 109 | 12480# | 600# | 6120# | 640# | 10600# | 210# | -7370# | 400# | -680# | 780# | -9180# | 380# |
| | Ds | 110 | 12960# | 570# | 4390# | 640# | 11660# | 300# | * | | 20# | 540# | -11570# | 660# |
| | Rg | 111 | 14300# | 290# | 3550# | 520# | 11480 | 50 | * | | 2610# | 460# | * | |
| 275 | Bh | 107 | 11090# | 910# | * | | * | | -3140# | 730# | * | | -5870# | 840# |
| | Hs | 108 | 11410# | 690# | 7980# | 770# | 9440 | 50 | -4950# | 720# | * | | -8700# | 690# |
| | Mt | 109 | 12030# | 600# | 6380# | 810# | 10480 | 50 | -6470# | 670# | -2140# | 750# | -8440# | 570# |
| | Ds | 110 | 12930# | 430# | 4900# | 550# | 11400# | 300# | * | | 790# | 720# | -11120# | 450# |
| | Rg | 111 | 13540# | 740# | 4000# | 670# | 11770# | 400# | * | | 760# | 630# | * | |
| 276 | Hs | 108 | 11340# | 960# | * | | 9280# | 200# | -4260# | 930# | * | | -8620# | 860# |
| | Mt | 109 | 12070# | 640# | 6950# | 820# | 10100 | 9 | -6170# | 820# | -1670# | 800# | -8320# | 670# |
| | Ds | 110 | 12800# | 670# | 5520# | 810# | 11110# | 200# | -7810# | 810# | -1370# | 800# | -10830# | 750# |
| | Rg | 111 | 13270# | 650# | 4340# | 720# | 11480# | 400# | * | | 1370# | 760# | * | |
| | Cn | 112 | * | | 3420# | 710# | 11910# | 730# | * | | 1500# | 720# | * | |
| 277 | Hs | 108 | 11270# | 800# | * | | 9050# | 200# | -3650# | 660# | * | | -7890# | 760# |
| | Mt | 109 | 12000# | 820# | 7300# | 920# | 9910# | 100# | -5370# | 870# | * | | -7650# | 890# |
| | Ds | 110 | 12570# | 560# | 6060# | 700# | 10830# | 110# | -7260# | 410# | -430# | 850# | -10420# | 740# |
| | Rg | 111 | 13100# | 730# | 5070# | 670# | 11200# | 300# | * | | -270# | 740# | -10090# | 790# |
| | Cn | 112 | * | | 3740# | 430# | 11620 | 50 | * | | 2570# | 570# | * | |
| 278 | Mt | 109 | 11720# | 820# | * | | 9630 | 50 | -4780# | 720# | * | | -7480# | 730# |
| | Ds | 110 | 12300# | 830# | 6480# | 980# | 10470# | 200# | -6550# | 760# | -2400# | 830# | -10030# | 810# |
| | Rg | 111 | 13110# | 720# | 5380# | 640# | 10850 | 50 | -8370# | 400# | 260# | 790# | -9960# | 390# |
| | Cn | 112 | 13560# | 740# | 4190# | 700# | 11310# | 200# | * | | 500# | 580# | * | |
| | Ed | 113 | * | | 3180# | 660# | 11850 | 50 | * | | 3260# | 550# | * | |
| 279 | Mt | 109 | 11620# | 970# | * | | 9380# | 300# | -4280# | 790# | * | | -6960# | 910# |
| | Ds | 110 | 12160# | 710# | 6950# | 810# | 10080# | 110# | -5900# | 750# | * | | -9460# | 700# |
| | Rg | 111 | 12710# | 670# | 5770# | 820# | 10520 | 50 | -7460# | 820# | -1250# | 750# | -9230# | 610# |
| | Cn | 112 | 13520# | 480# | 4690# | 600# | 11040# | 200# | * | | 1360# | 770# | -11930# | 490# |
| | Ed | 113 | * | | 3680# | 870# | 11520# | 870# | * | | 1430# | 790# | * | |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(n) | | S(p) | | $Q(4\beta^-)$ | $Q(d,\alpha)$ | | $Q(p,\alpha)$ | | $Q(n,\alpha)$ | |
|-----|------|-----|-------|-------|-------|-------|---------------|---------------|-------|---------------|-------|---------------|-------|
| 280 | Ds | 110 | 6680# | 980# | 4260# | 1030# | * | 15500# | 1000# | 12420# | 1050# | 14670# | 950# |
| | Rg | 111 | 5960# | 680# | 2530# | 800# | * | 18220# | 820# | 13610# | 660# | 16560# | 880# |
| | Cn | 112 | 7410# | 740# | 3370# | 720# | * | 15890# | 680# | 12220# | 780# | 16200# | 700# |
| | Ed | 113 | 6170# | 810# | 1180# | 610# | * | 18920# | 590# | 13600# | 420# | 18450# | 660# |
| 281 | Ds | 110 | 5160# | 970# | * | | * | 16650# | 880# | 12560# | 850# | * | |
| | Rg | 111 | 6660# | 970# | 2510# | 1120# | * | 16880# | 1000# | 13780# | 1020# | 15210# | 1020# |
| | Cn | 112 | 5750# | 700# | 3160# | 660# | * | 16960# | 570# | 12370# | 530# | 17290# | 740# |
| | Ed | 113 | 7400# | 500# | 1180# | 660# | * | 17490# | 550# | 13740# | 530# | 16940# | 470# |
| 282 | Rg | 111 | 5570# | 1040# | 2920# | 870# | * | 17990# | 1020# | 13540# | 890# | 15950# | 940# |
| | Cn | 112 | 7120# | 760# | 3610# | 1040# | * | 15800# | 840# | 12070# | 780# | 15500# | 890# |
| | Ed | 113 | 6160# | 470# | 1580# | 530# | * | 18740# | 690# | 13560# | 580# | 17600# | 560# |
| 283 | Rg | 111 | 6590# | 960# | * | | * | 16560# | 910# | 13620# | 1050# | * | |
| | Cn | 112 | 5560# | 900# | 3600# | 890# | * | 16900# | 1010# | 12460# | 810# | 16610# | 990# |
| | Ed | 113 | 7090# | 570# | 1560# | 790# | * | 17400# | 580# | 13870# | 730# | 16470# | 690# |
| 284 | Cn | 112 | 7010# | 1010# | 4020# | 1070# | * | 15460# | 1040# | 12110# | 1140# | 14760# | 990# |
| | Ed | 113 | 6190# | 690# | 2180# | 810# | * | 18330# | 850# | 13440# | 660# | 16940# | 970# |
| | Fl | 114 | * | | 3070# | 790# | * | 15910# | 750# | 11980# | 720# | 16550# | 760# |
| 285 | Cn | 112 | 5440# | 990# | * | | * | 16600# | 910# | 12240# | 880# | * | |
| | Ed | 113 | 6930# | 970# | 2100# | 1140# | * | 16960# | 1010# | 13620# | 1040# | 15580# | 1040# |
| | Fl | 114 | 5990# | 760# | 2880# | 660# | * | 17010# | 590# | 12140# | 530# | 17670# | 760# |
| 286 | Ed | 113 | 5790# | 1040# | 2450# | 880# | * | 18180# | 1040# | 13390# | 900# | 16380# | 960# |
| | Fl | 114 | 7300# | 760# | 3250# | 1040# | * | 15890# | 850# | 11930# | 790# | 15930# | 900# |
| 287 | Ed | 113 | 6840# | 980# | * | | * | 16780# | 930# | 13560# | 1080# | * | |
| | Fl | 114 | 5770# | 900# | 3230# | 900# | * | 17050# | 1010# | 12350# | 810# | 17170# | 1010# |
| | Ef | 115 | * | | 1170# | 790# | * | 17600# | 590# | 13840# | 790# | 16950# | 690# |
| 288 | Fl | 114 | 7100# | 1010# | 3490# | 1080# | * | 15740# | 1040# | 12180# | 1140# | 15520# | 990# |
| | Ef | 115 | 6200# | 690# | 1590# | 810# | * | 18710# | 850# | 13630# | 660# | 17690# | 970# |
| 289 | Fl | 114 | 5550# | 1000# | * | | * | 17030# | 930# | 12410# | 880# | * | |
| | Ef | 115 | 7180# | 970# | 1670# | 1140# | * | 17300# | 1010# | 13760# | 1040# | 16300# | 1040# |
| | Lv | 116 | * | | 2530# | 730# | * | 17340# | 660# | * | | 18400# | 820# |
| 290 | Ef | 115 | 5840# | 1040# | 1960# | 880# | * | 18560# | 1040# | 13690# | 900# | 17300# | 980# |
| | Lv | 116 | 7400# | 820# | 2760# | 1040# | * | 16140# | 850# | 12170# | 790# | 16770# | 900# |
| 291 | Ef | 115 | 6980# | 1020# | * | | * | 17140# | 980# | 13810# | 1120# | * | |
| | Lv | 116 | 5880# | 900# | 2800# | 900# | * | 17430# | 1010# | 12480# | 810# | 17990# | 1010# |
| | Eh | 117 | * | | 690# | 890# | * | 17980# | 770# | * | | 17680# | 800# |
| 292 | Lv | 116 | 7220# | 1010# | 3040# | 1130# | * | 16060# | 1040# | 12440# | 1140# | 16320# | 1000# |
| | Eh | 117 | 6300# | 900# | 1100# | 910# | * | 19090# | 940# | 13910# | 830# | 18560# | 1050# |
| 293 | Lv | 116 | 5640# | 1000# | * | | * | 17390# | 980# | 12640# | 880# | * | |
| | Eh | 117 | 7260# | 1050# | 1150# | 1140# | * | 17710# | 1020# | 14050# | 1050# | 17140# | 1040# |
| | Ei | 118 | * | | 1990# | 970# | * | 17780# | 920# | * | | 19320# | 960# |
| 294 | Eh | 117 | 5940# | 1050# | 1440# | 880# | * | 18990# | 1040# | 14000# | 900# | 18180# | 1030# |
| | Ei | 118 | 7480# | 970# | 2210# | 1050# | * | 16600# | 940# | 12530# | 890# | 17720# | 900# |
| 295 | Ei | 118 | 6020# | 930# | 2300# | 920# | * | 17840# | 1040# | 12800# | 930# | 18920# | 1030# |

Table III. Nuclear-reaction and separation energies (continued, Explanation of Table on p. 030003-98)

| A | Elt. | Z | S(2n) | | S(2p) | | $Q(\alpha)$ | | $Q(2\beta^-)$ | | $Q(\epsilon p)$ | | $Q(\beta^- n)$ | |
|-----|------|-----|--------|-------|-------|-------|-------------|------|---------------|-------|-----------------|-------|----------------|-------|
| 280 | Ds | 110 | 12000# | 1000# | * | | 9810# | 200# | -5180# | 970# | * | | -9330# | 890# |
| | Rg | 111 | 12770# | 640# | 6430# | 820# | 10146 | 7 | -7250# | 670# | -900# | 850# | -9220# | 700# |
| | Cn | 112 | 13380# | 730# | 5260# | 850# | 10730# | 200# | * | | -720# | 840# | -11610# | 910# |
| | Ed | 113 | 13890# | 440# | 3960# | 540# | 11230# | 750# | * | | 2080# | 580# | * | |
| 281 | Ds | 110 | 11840# | 830# | * | | 9510# | 210# | -4590# | 700# | * | | -8530# | 790# |
| | Rg | 111 | 12620# | 910# | 6780# | 1050# | 9900# | 400# | -6510# | 860# | * | | -8470# | 990# |
| | Cn | 112 | 13150# | 600# | 5680# | 710# | 10450 | 50 | * | | 210# | 870# | -11190# | 560# |
| | Ed | 113 | 13570# | 760# | 4540# | 520# | 11050# | 600# | * | | 640# | 610# | * | |
| 282 | Rg | 111 | 12230# | 840# | * | | 9640# | 210# | -5930# | 750# | * | | -8290# | 760# |
| | Cn | 112 | 12860# | 880# | 6120# | 1020# | 10170# | 200# | * | | -1740# | 880# | -10910# | 720# |
| | Ed | 113 | 13560# | 540# | 4740# | 640# | 10780 | 50 | * | | 1140# | 880# | * | |
| 283 | Rg | 111 | 12160# | 1070# | * | | 9360# | 200# | -5430# | 820# | * | | -7770# | 960# |
| | Cn | 112 | 12680# | 720# | 6520# | 840# | 9940# | 110# | * | | * | | -10310# | 710# |
| | Ed | 113 | 13250# | 530# | 5170# | 920# | 10510# | 110# | * | | -380# | 790# | * | |
| 284 | Cn | 112 | 12570# | 1040# | * | | 9600# | 200# | -6380# | 1040# | * | | -10230# | 920# |
| | Ed | 113 | 13280# | 640# | 5790# | 840# | 10280 | 50 | * | | 20# | 880# | * | |
| | Fl | 114 | * | | 4630# | 930# | 10800# | 300# | * | | 150# | 900# | * | |
| 285 | Cn | 112 | 12460# | 840# | * | | 9320 | 50 | -5830# | 700# | * | | -9490# | 790# |
| | Ed | 113 | 13120# | 920# | 6130# | 1070# | 10010 | 50 | * | | * | | -9260# | 1040# |
| | Fl | 114 | * | | 5060# | 720# | 10560 | 50 | * | | 1170# | 900# | * | |
| 286 | Ed | 113 | 12720# | 850# | * | | 9790 | 50 | * | | * | | -9060# | 760# |
| | Fl | 114 | 13290# | 930# | 5350# | 1040# | 10370 | 30 | * | | -690# | 880# | * | |
| 287 | Ed | 113 | 12630# | 1090# | * | | 9540# | 200# | -6650# | 850# | * | | -8600# | 980# |
| | Fl | 114 | 13070# | 730# | 5680# | 840# | 10160 | 50 | * | | * | | * | |
| | Ef | 115 | * | | 4410# | 920# | 10760 | 50 | * | | 590# | 790# | * | |
| 288 | Fl | 114 | 12870# | 1040# | * | | 10072 | 13 | * | | * | | -10920# | 920# |
| | Ef | 115 | * | | 4820# | 850# | 10750 | 50 | * | | 1240# | 900# | * | |
| 289 | Fl | 114 | 12650# | 840# | * | | 9970 | 50 | -6960# | 760# | * | | -10280# | 790# |
| | Ef | 115 | 13370# | 920# | 5160# | 1090# | 10510 | 50 | * | | * | | * | |
| | Lv | 116 | * | | 4120# | 780# | 11100# | 300# | * | | 2200# | 940# | * | |
| 290 | Ef | 115 | 13020# | 850# | * | | 10450 | 50 | * | | * | | -9710# | 820# |
| | Lv | 116 | * | | 4420# | 1040# | 11000 | 70 | * | | 340# | 880# | * | |
| 291 | Ef | 115 | 12820# | 1130# | * | | 10320# | 300# | -7810# | 980# | * | | -9280# | 1030# |
| | Lv | 116 | 13280# | 790# | 4760# | 850# | 10890 | 50 | * | | * | | * | |
| | Eh | 117 | * | | 3440# | 1000# | 11480# | 400# | * | | 1620# | 890# | * | |
| 292 | Lv | 116 | 13100# | 1040# | * | | 10774 | 15 | * | | * | | -11630# | 1000# |
| | Eh | 117 | * | | 3900# | 940# | 11380# | 400# | * | | 2300# | 1030# | * | |
| 293 | Lv | 116 | 12860# | 850# | * | | 10680 | 50 | -8200# | 910# | * | | -10980# | 890# |
| | Eh | 117 | 13560# | 1000# | 4180# | 1130# | 11290 | 50 | * | | * | | * | |
| | Ei | 118 | * | | 3090# | 930# | 11920# | 500# | * | | 3340# | 1070# | * | |
| 294 | Eh | 117 | 13200# | 940# | * | | 11200 | 50 | * | | * | | -10420# | 960# |
| | Ei | 118 | * | | 3360# | 1040# | 11840 | 70 | * | | 1510# | 890# | * | |
| 295 | Ei | 118 | 13500# | 950# | 3730# | 870# | 11700# | 200# | * | | * | | * | |

Graphs of separation and decay energies

| | | | |
|-------|--------|------------|----------------------------------|
| Figs. | 1– 9. | S_{2n} | two-neutron separation energies. |
| Figs. | 10–17. | S_{2p} | two-proton separation energies. |
| Figs. | 18–26. | Q_α | α -decay energies. |

Mass numbers and element symbols are indicated only along the borders of the graphs; those for the intermediate points must be derived by enumeration.

Points represent experimental values.

Open circles represent values estimated from TMS (see Part I, p. 030002-9).

Lines connect points for isotopes (S_{2n}, Q_α) or isotones (S_{2p}).

Other types of graphs are available from the AMDC web-site (see text).

Fig. 1. Two-neutron separation energies $N = 0$ to 25

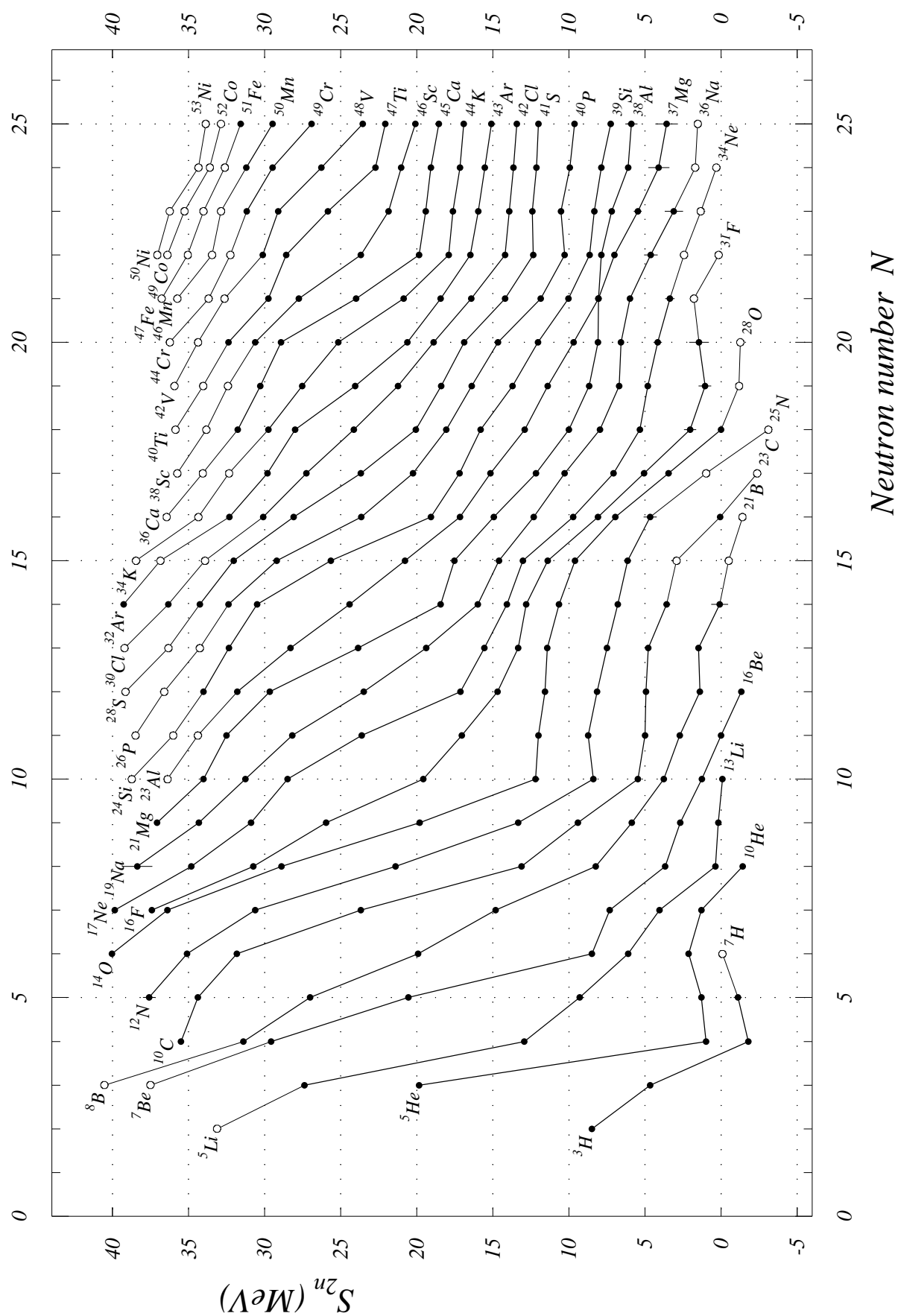


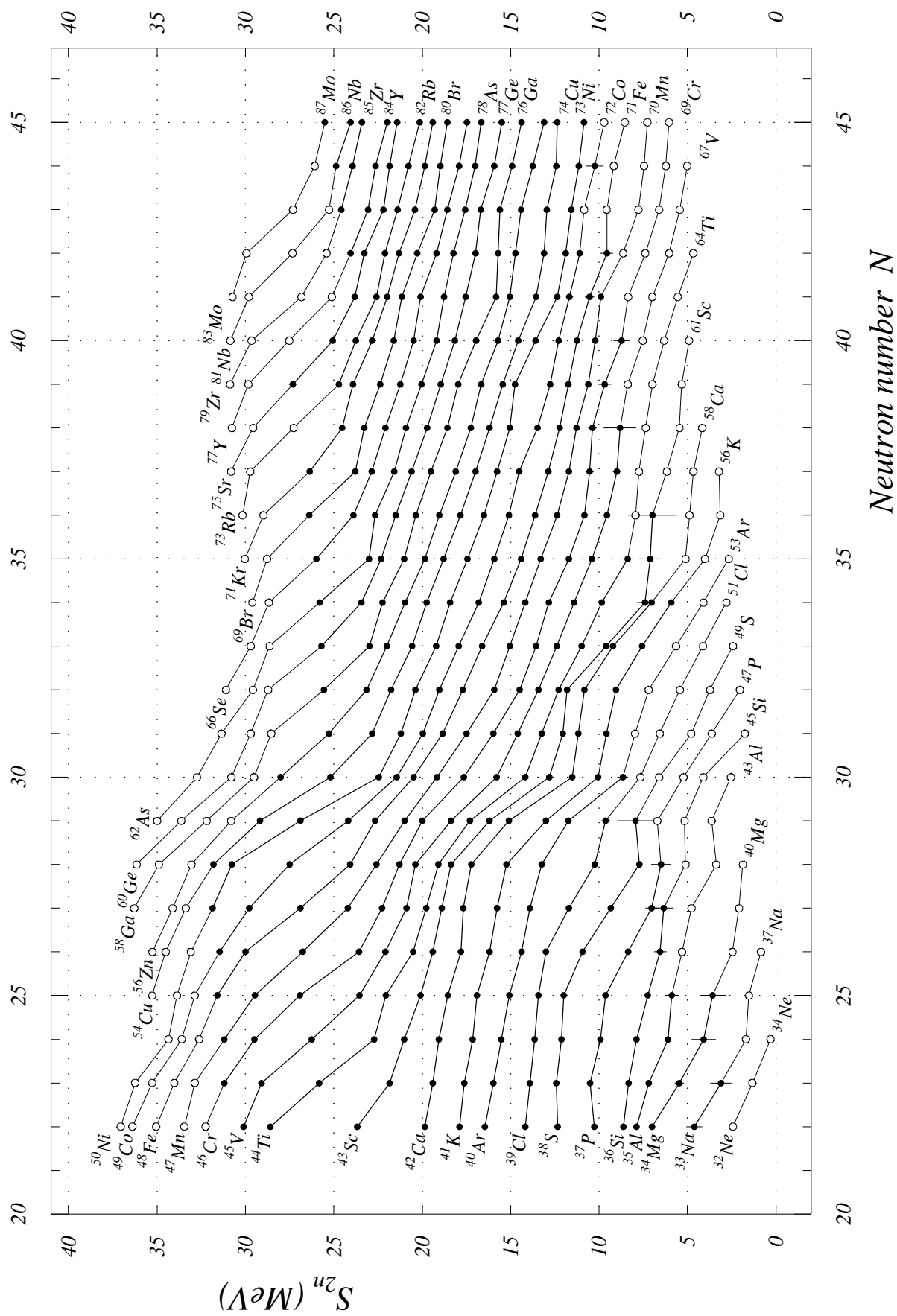
Fig. 2. Two-neutron separation energies $N = 22$ to 45

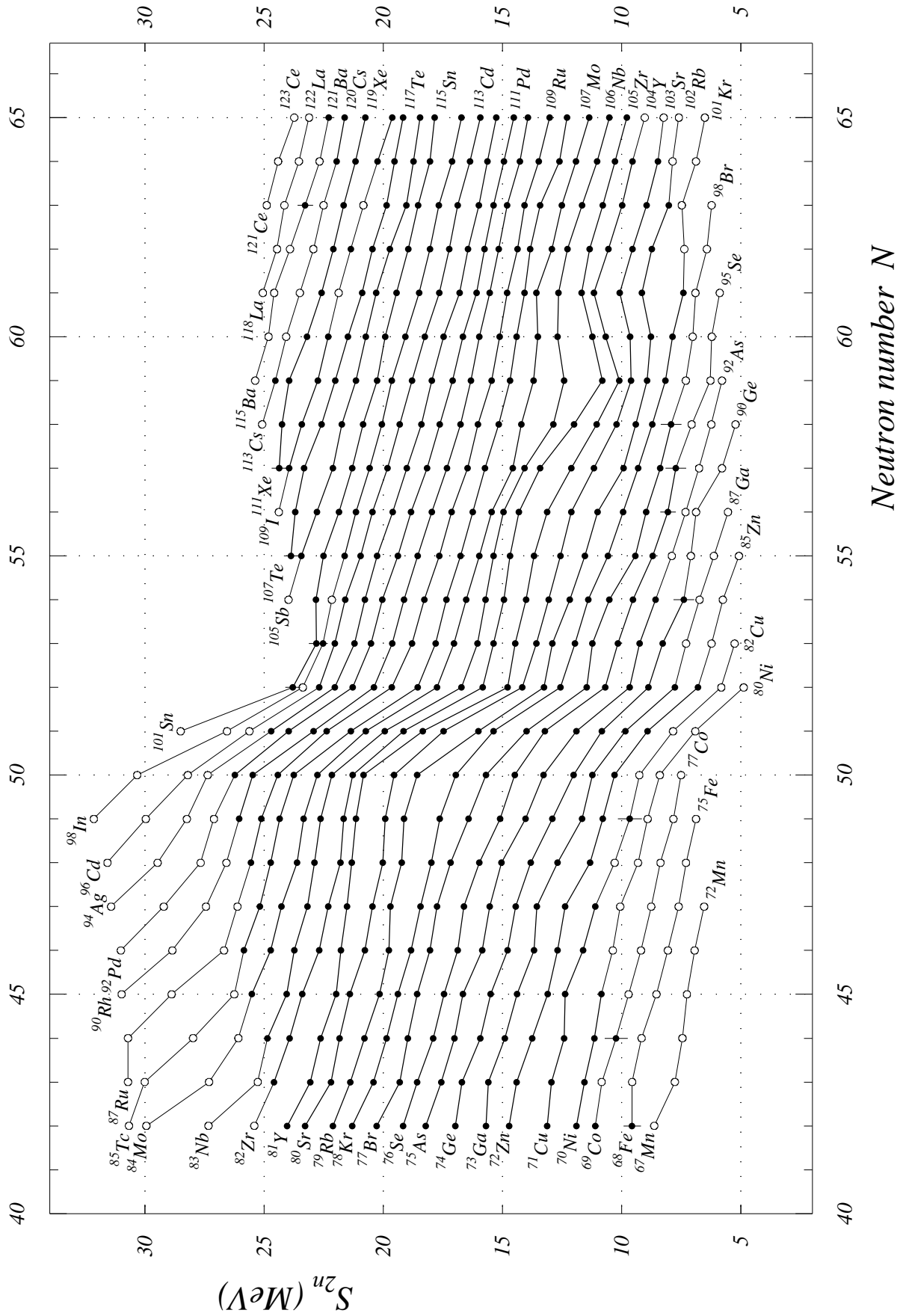
Fig. 3. Two-neutron separation energies $N = 42$ to 65

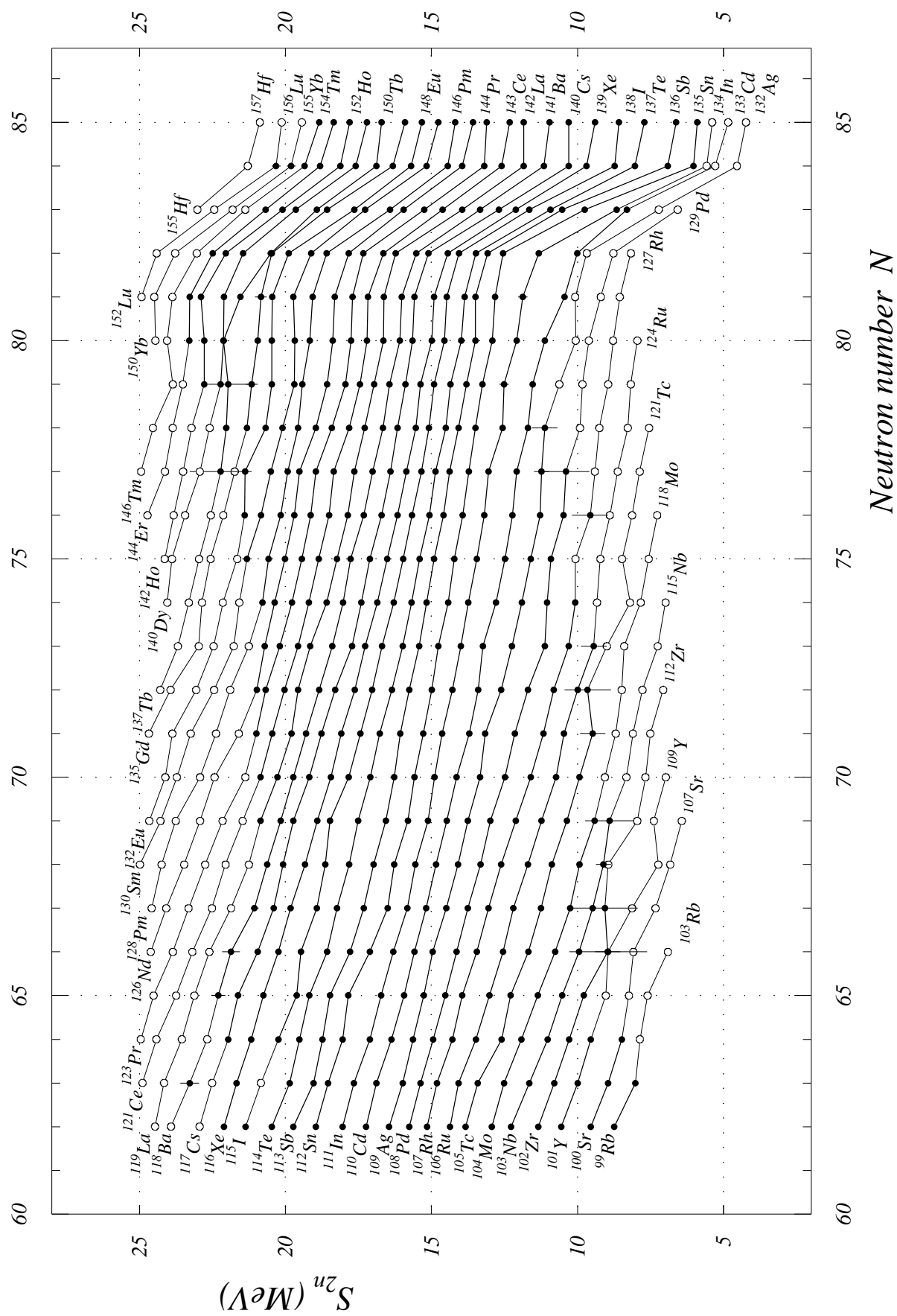
Fig. 4. Two-neutron separation energies $N = 62$ to 85

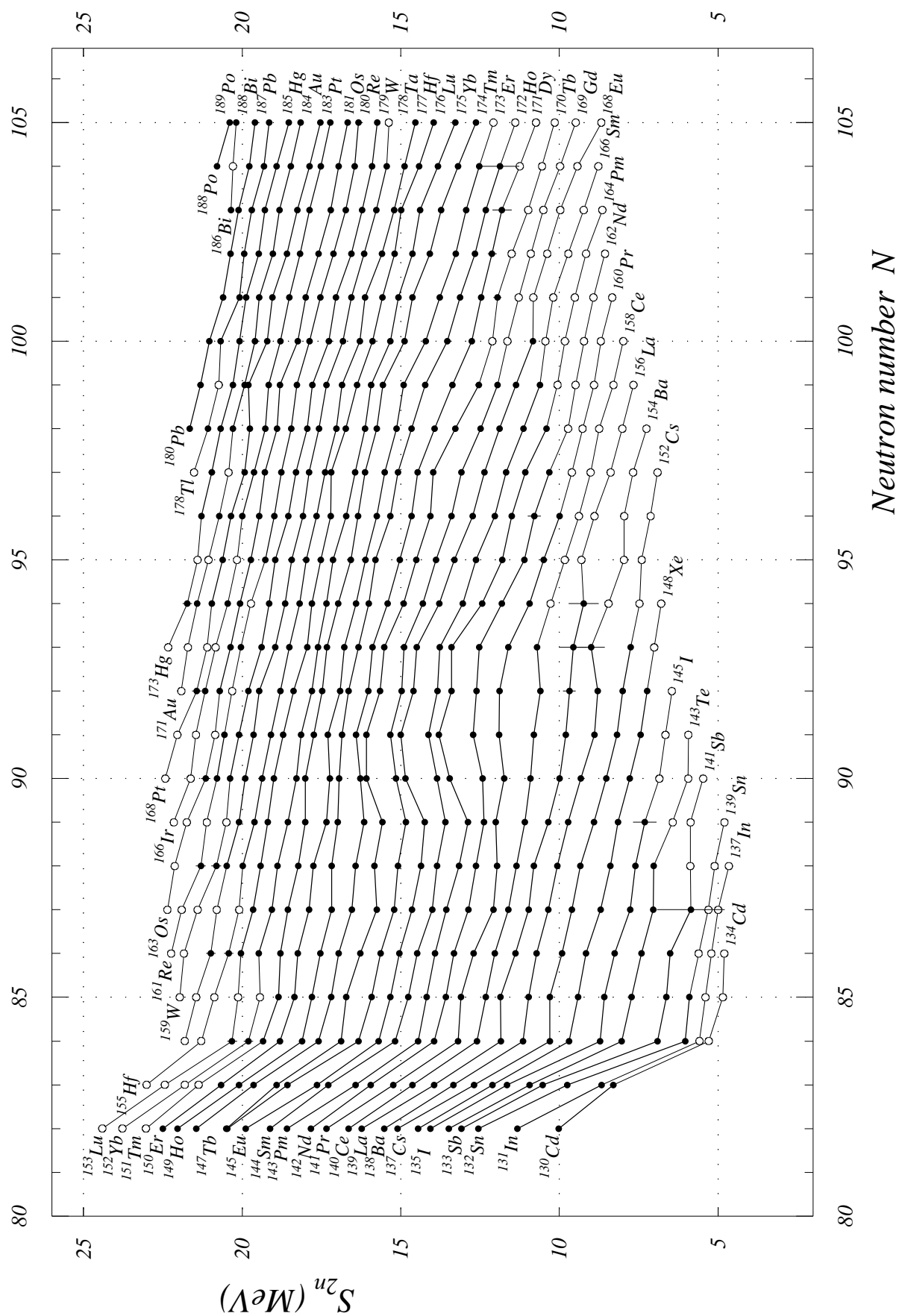
Fig. 5. Two-neutron separation energies $N = 82$ to 105

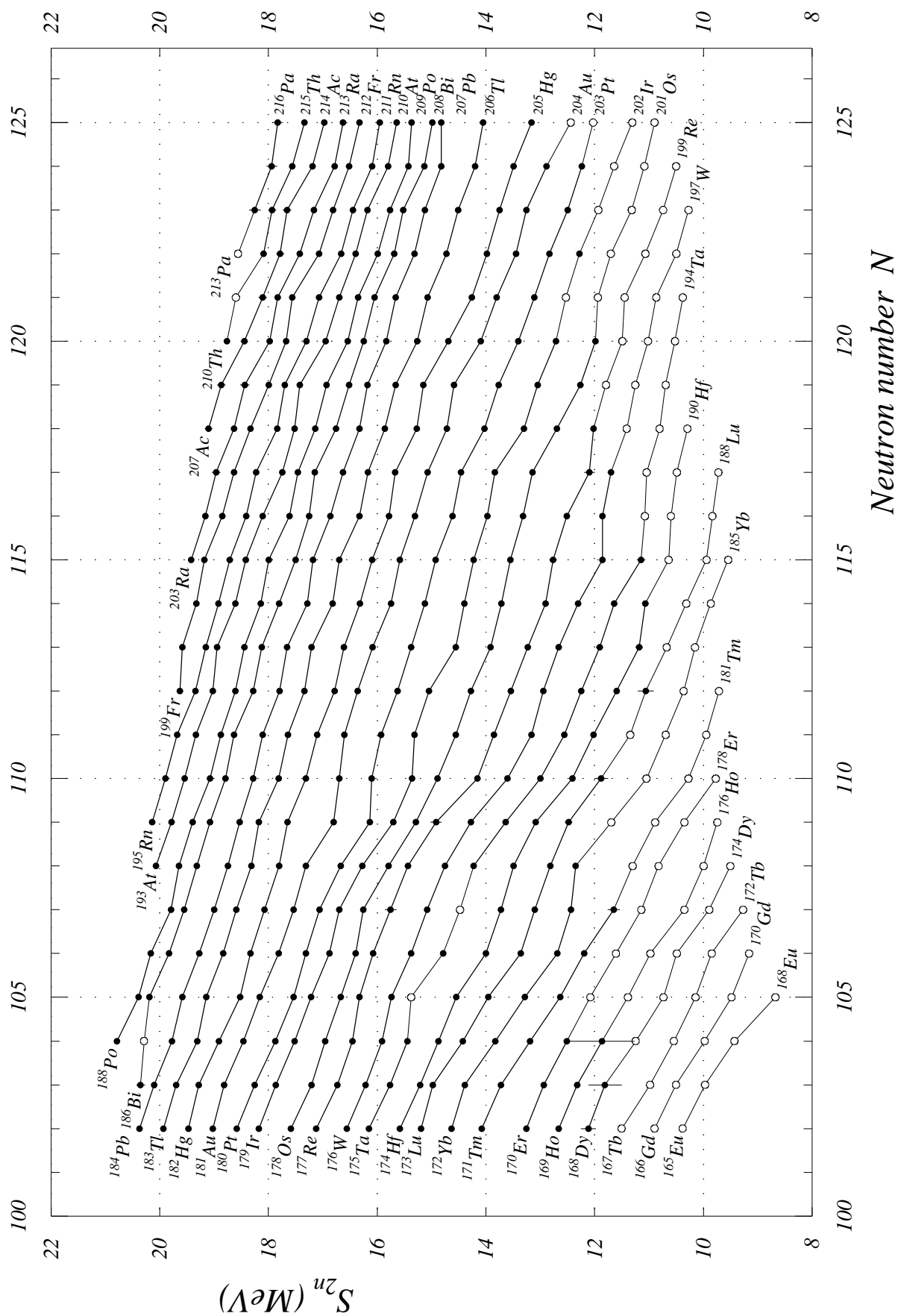
Fig. 6. Two-neutron separation energies $N = 102$ to 125

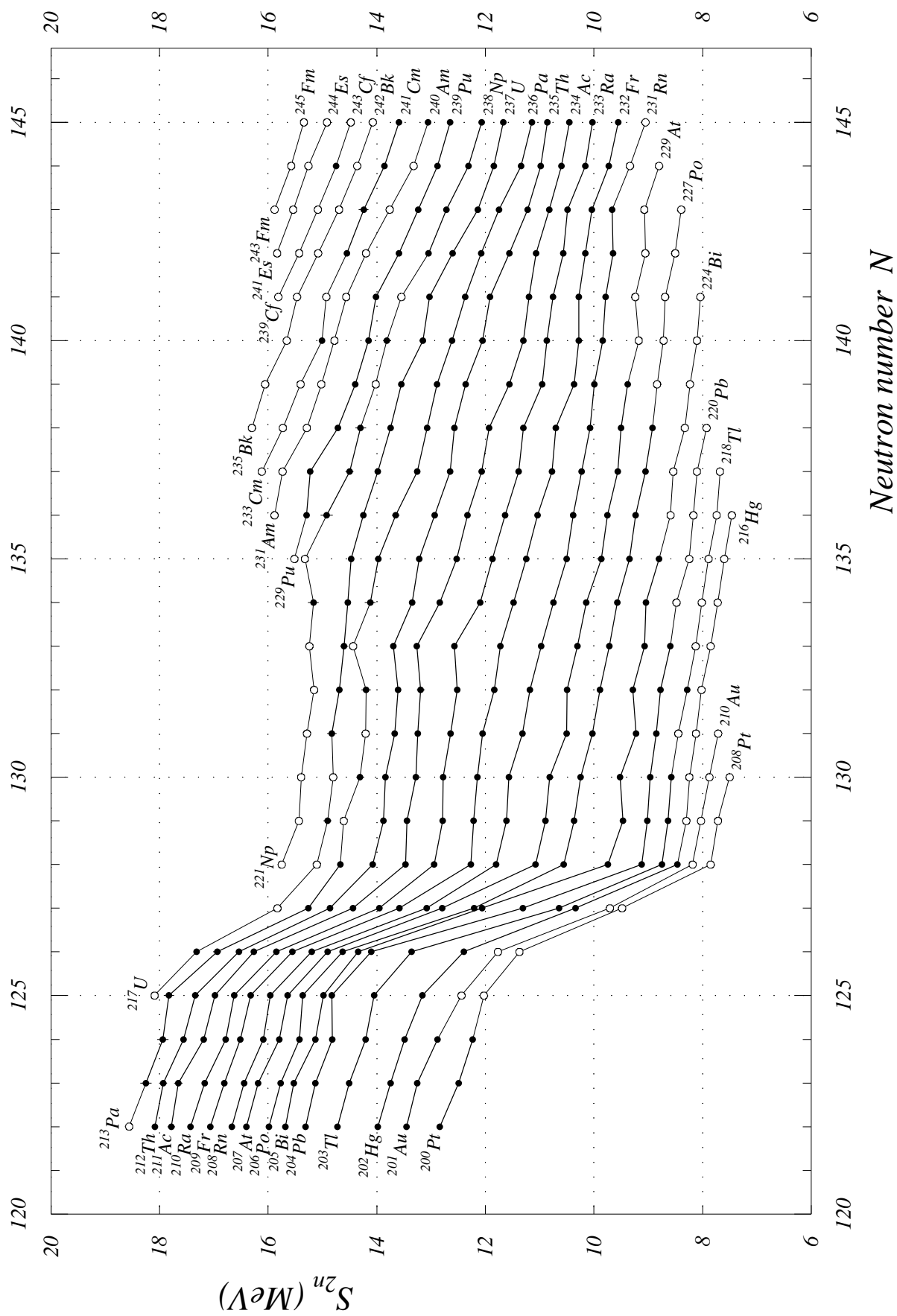
Fig. 7. Two-neutron separation energies $N = 122$ to 145

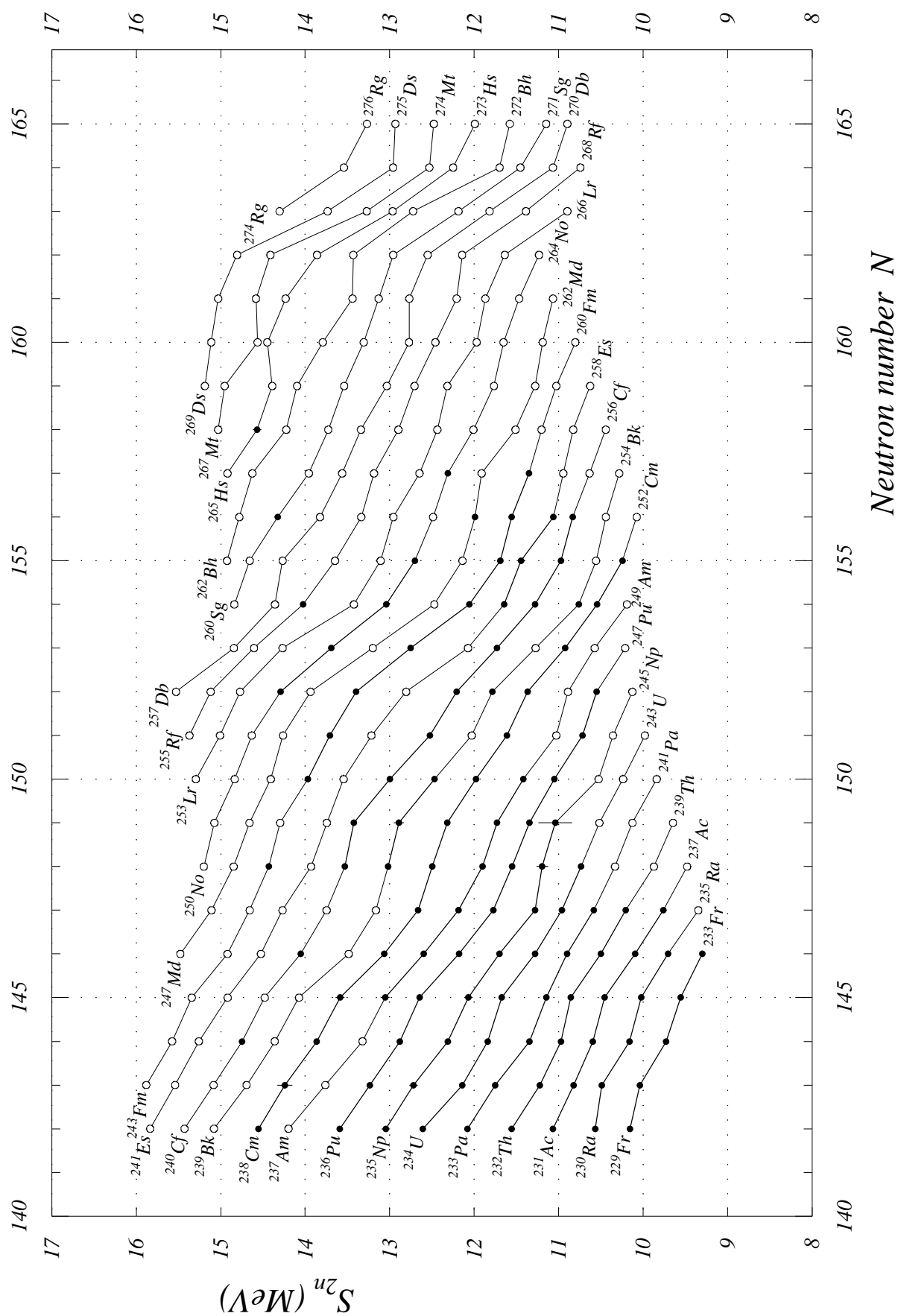
Fig. 8. Two-neutron separation energies $N = 142$ to 165

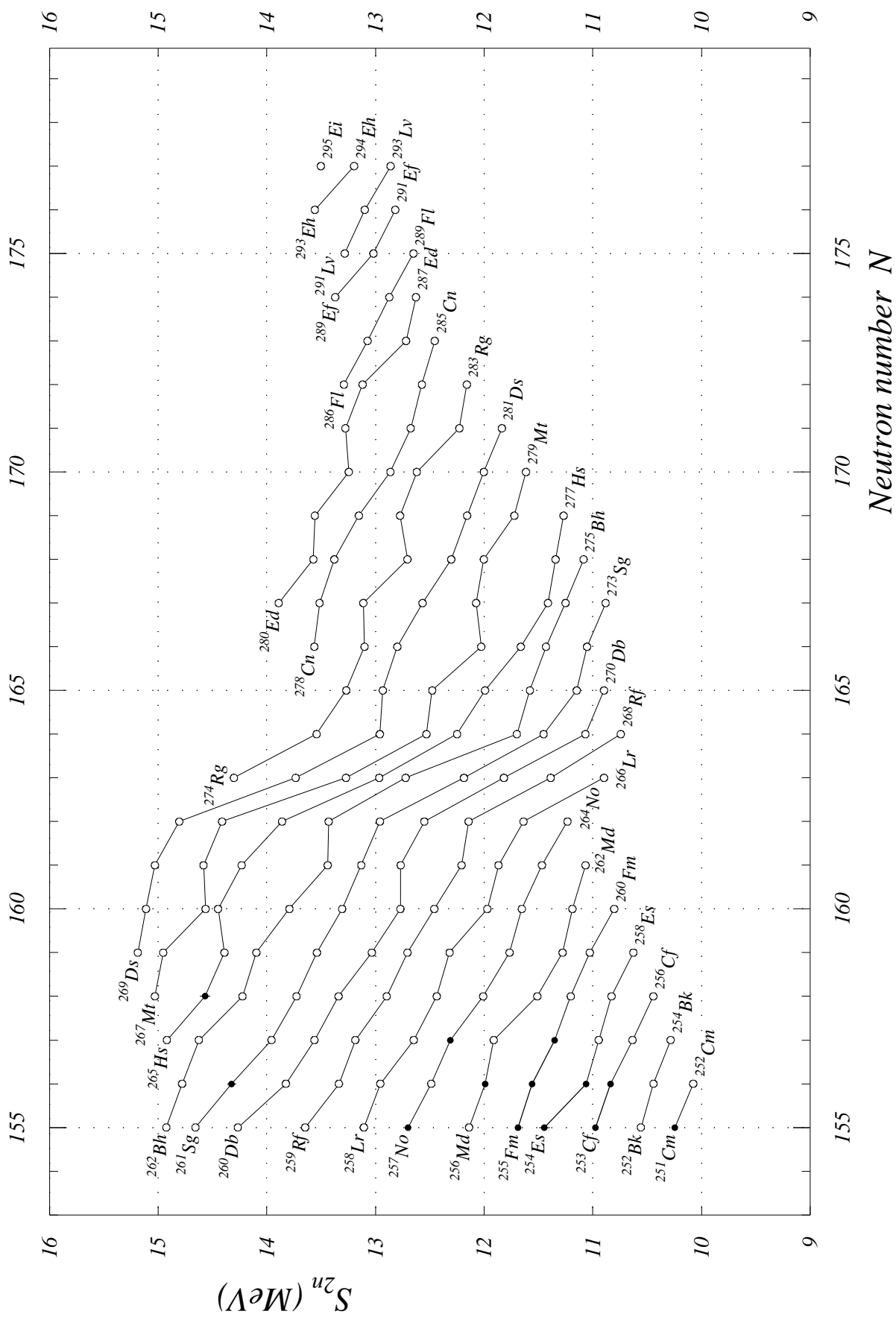
Fig. 9. Two-neutron separation energies $N = 155$ to 178

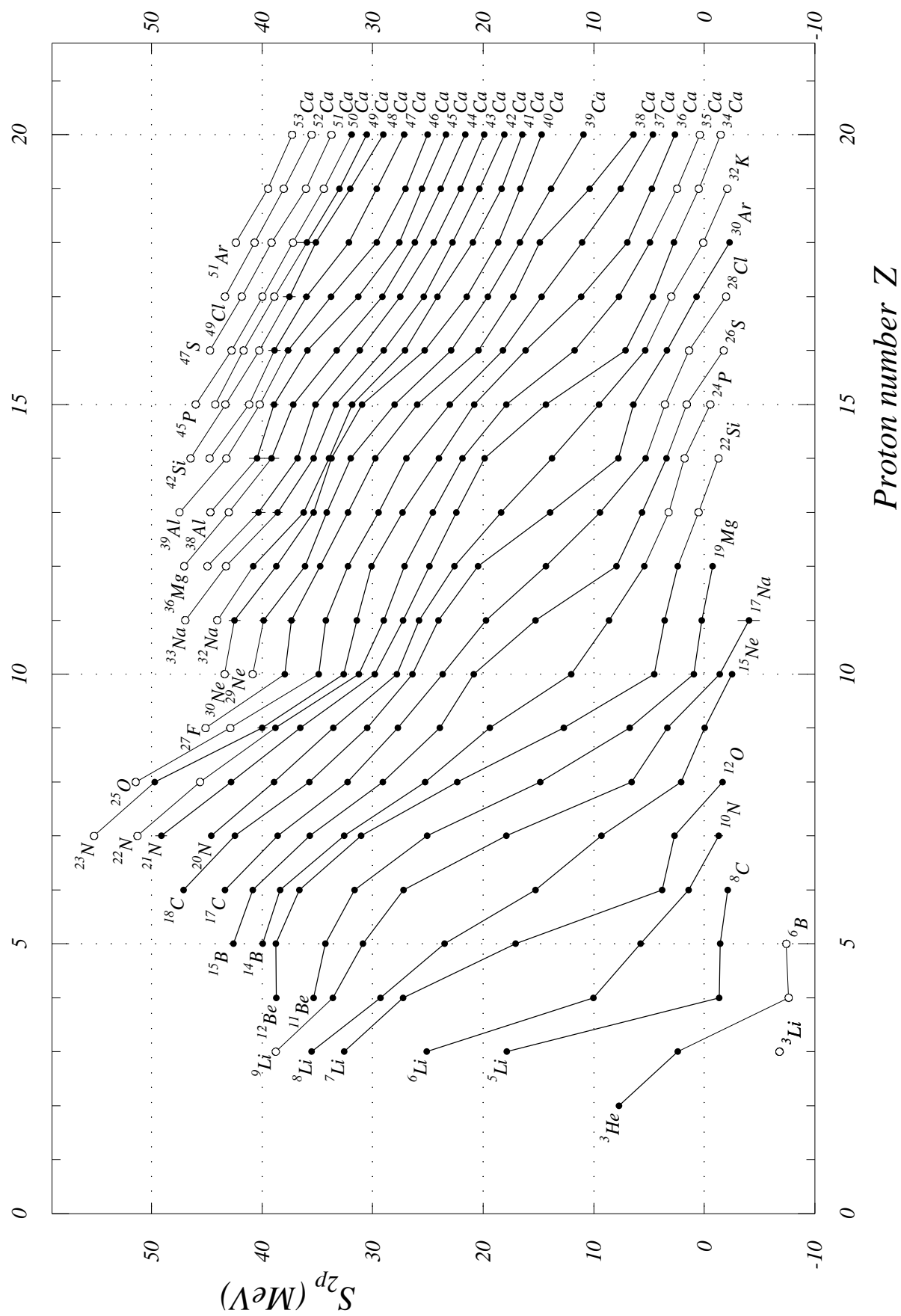
Fig. 10. Two-proton separation energies $Z = 0$ to 20

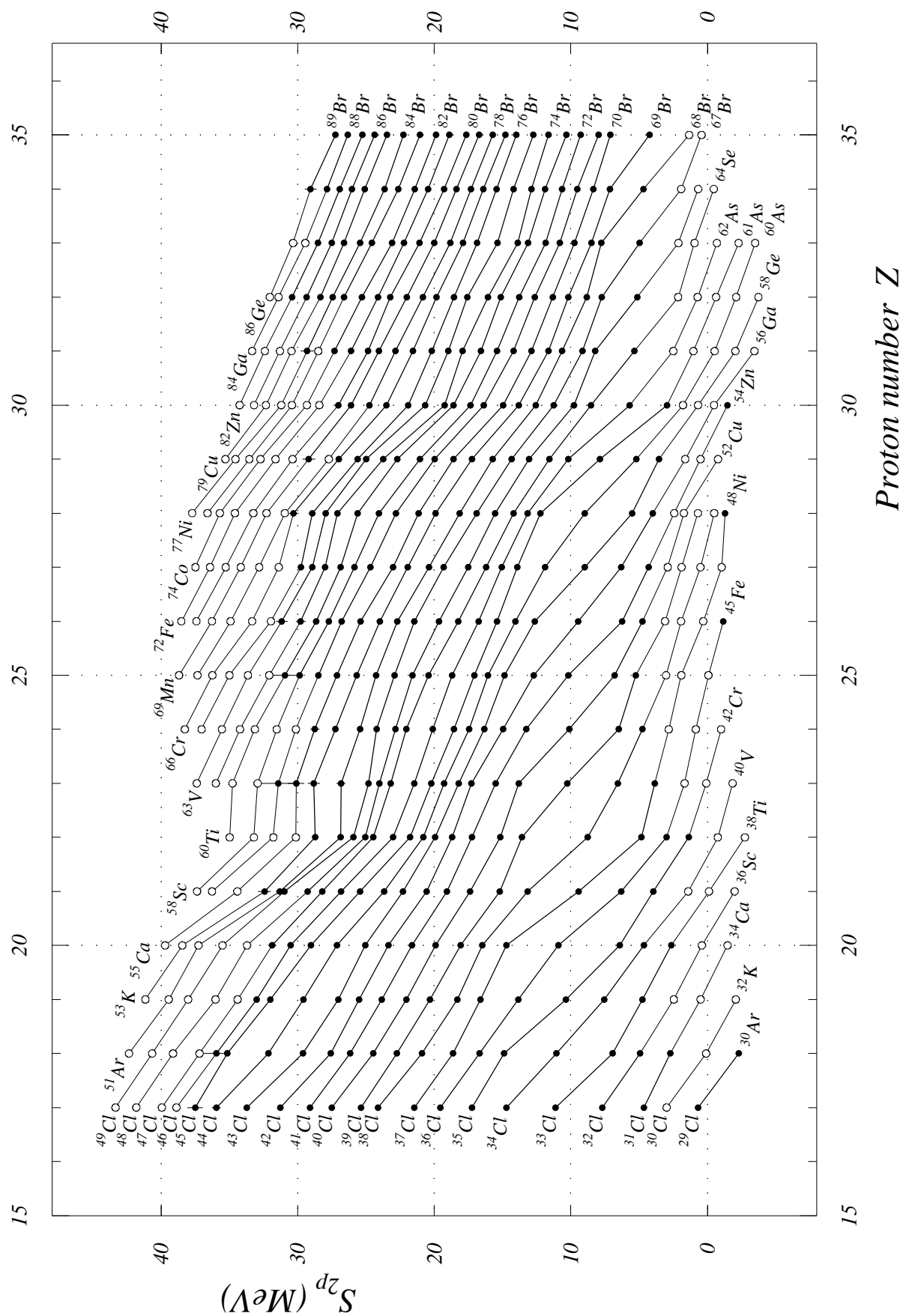
Fig. 11. Two-proton separation energies $Z = 17$ to 35

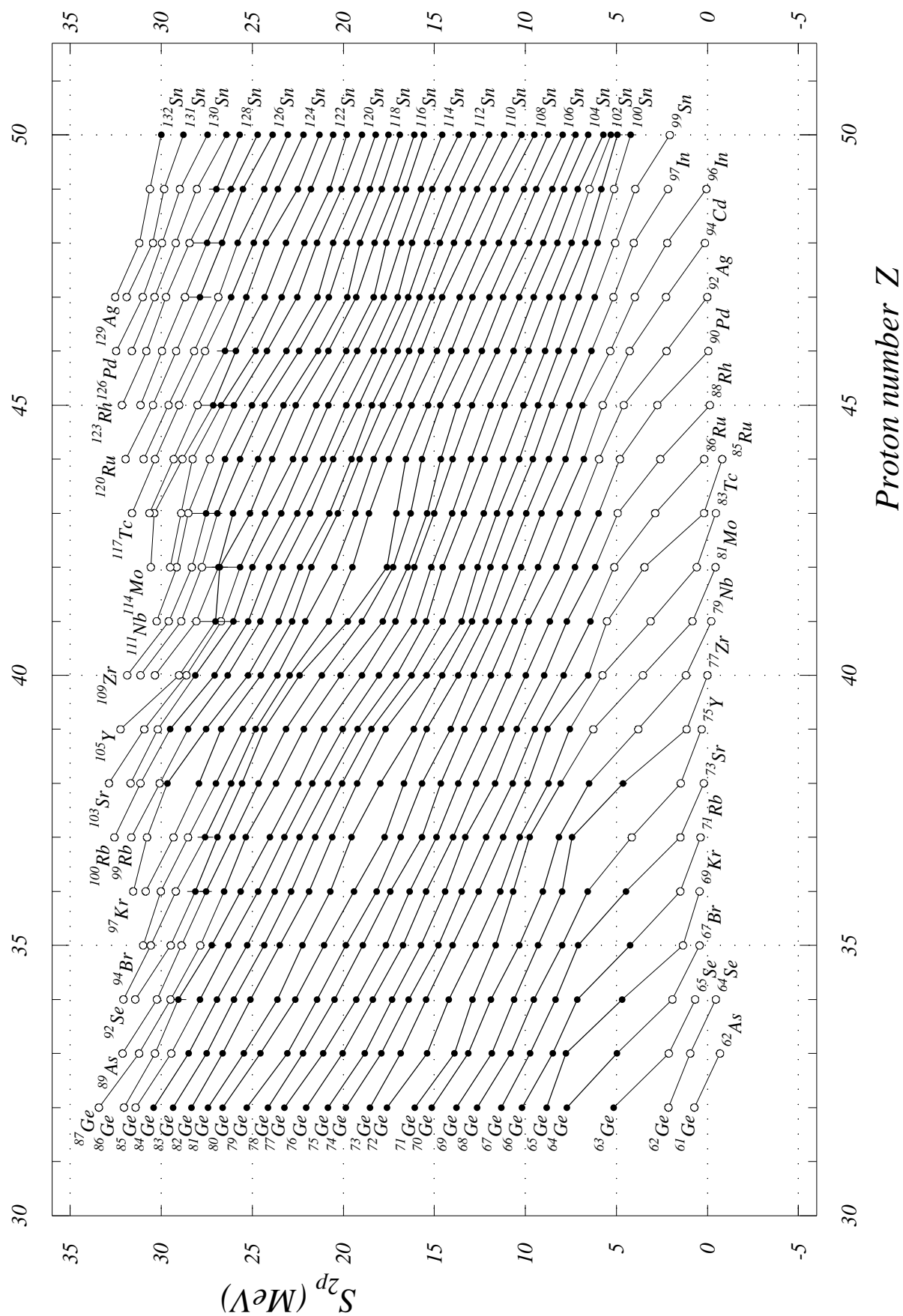
Fig. 12. Two-proton separation energies $Z = 32$ to 50

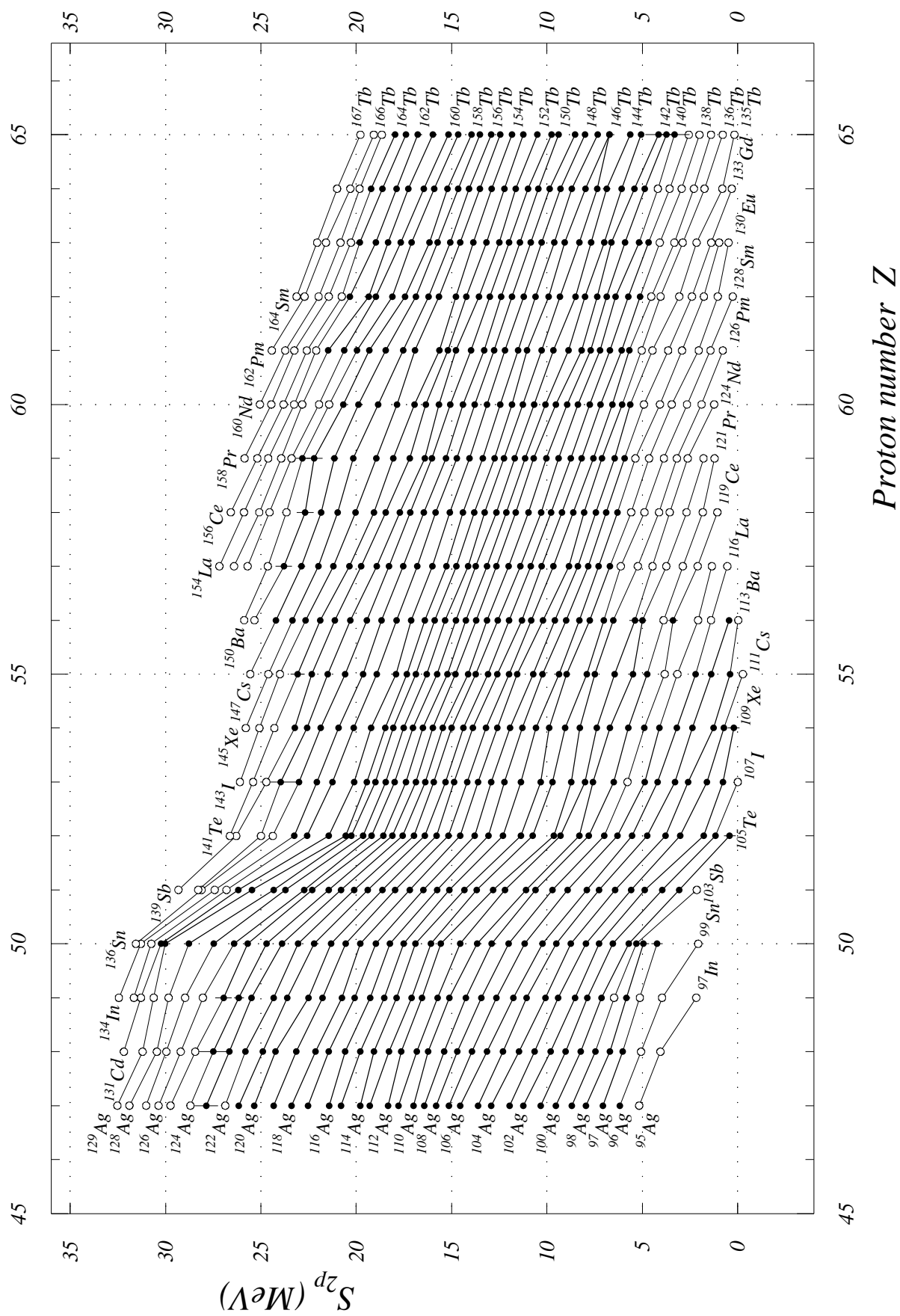
Fig. 13. Two-proton separation energies $Z = 47$ to 65

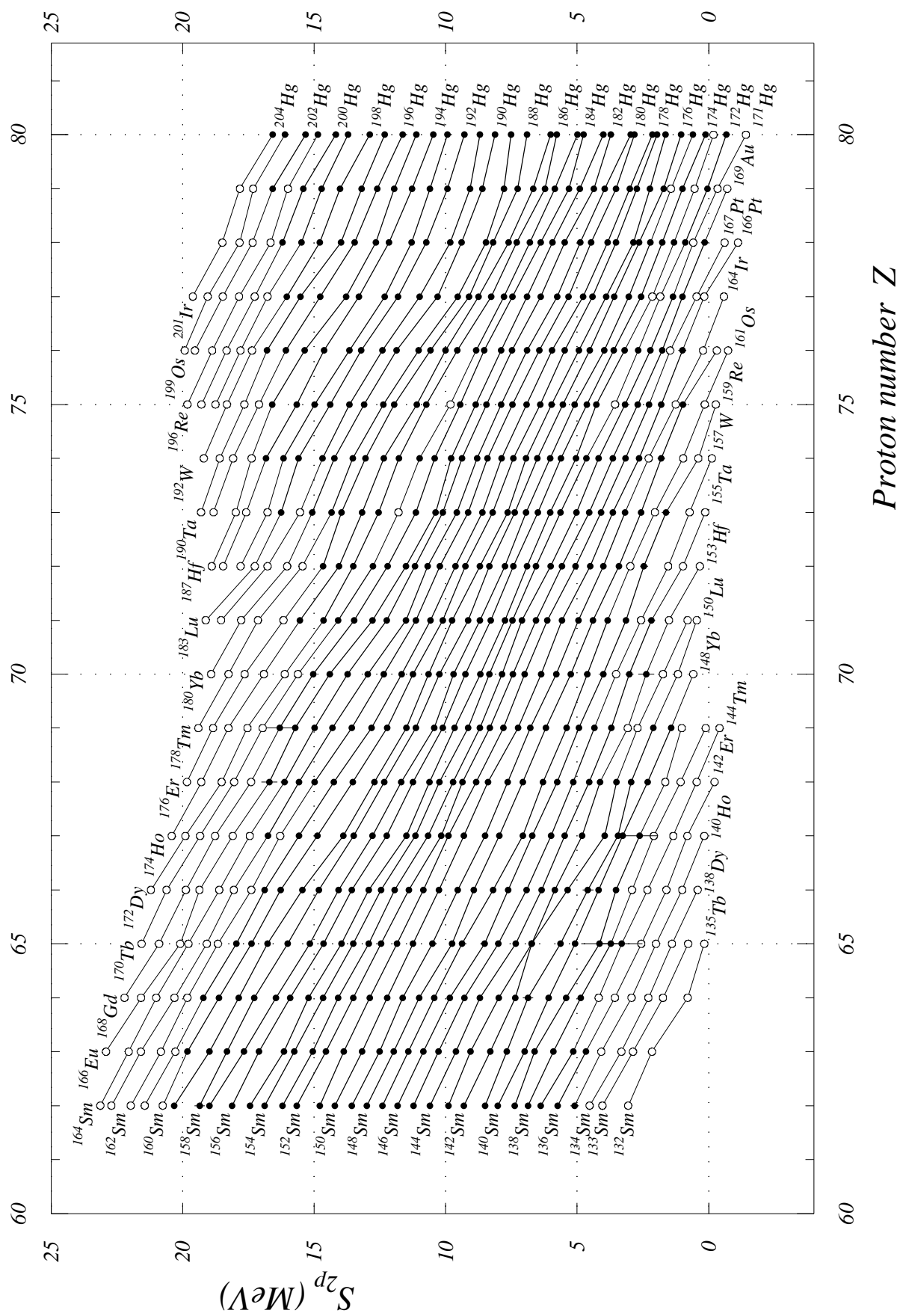
Fig. 14. Two-proton separation energies $Z = 62$ to 80

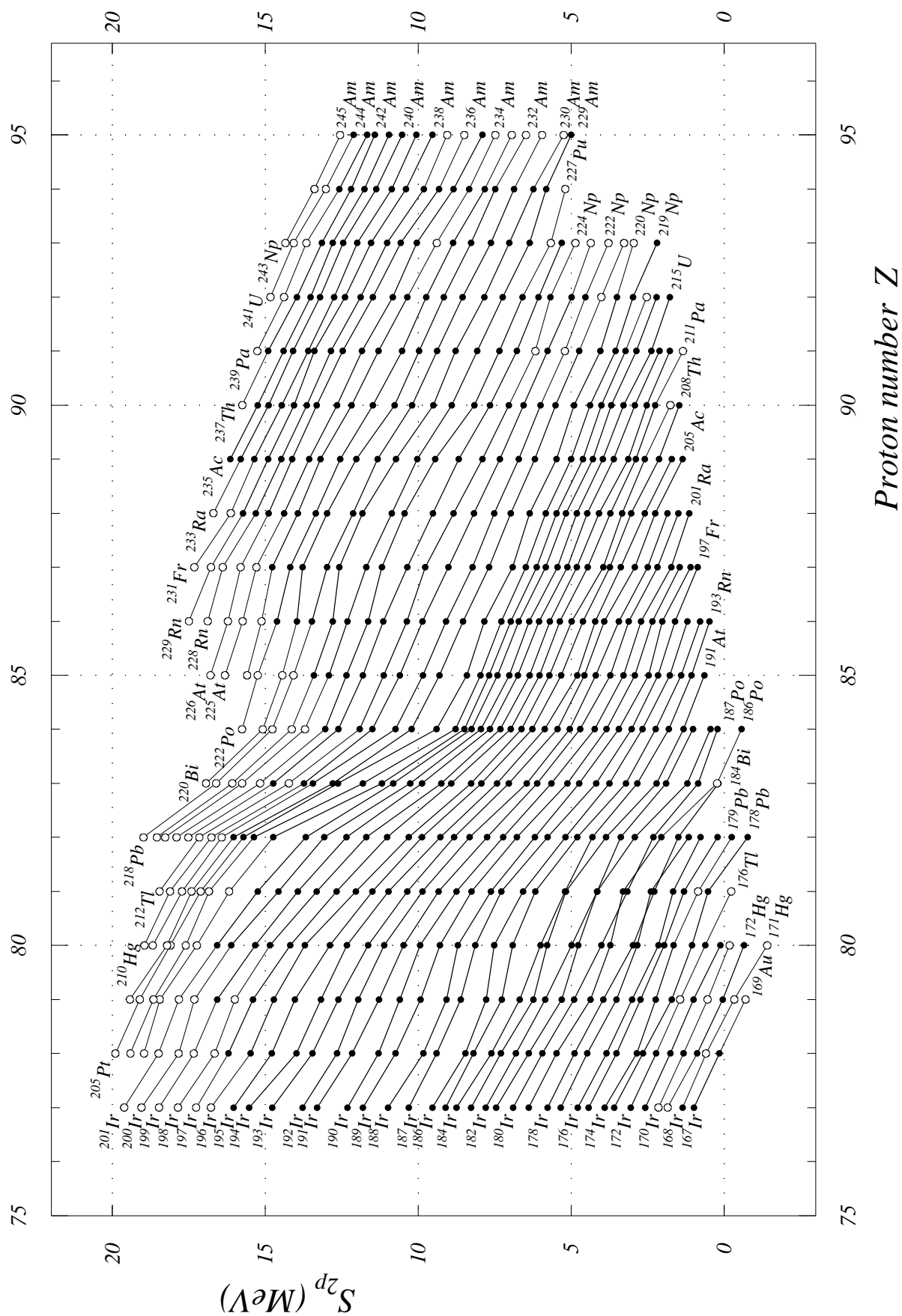
Fig. 15. Two-proton separation energies $Z = 77$ to 95

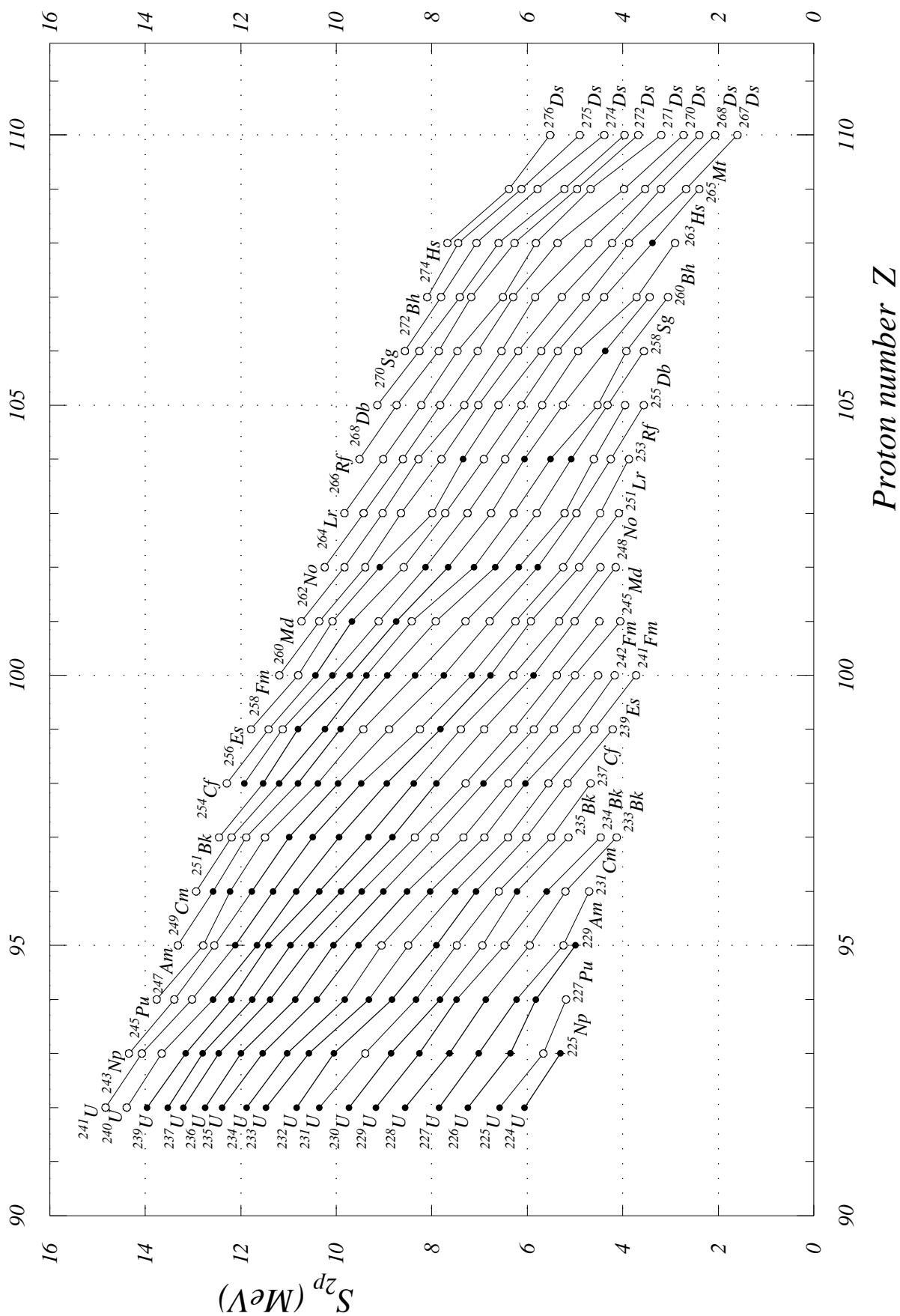
Fig. 16. Two-proton separation energies $Z = 92$ to 110 

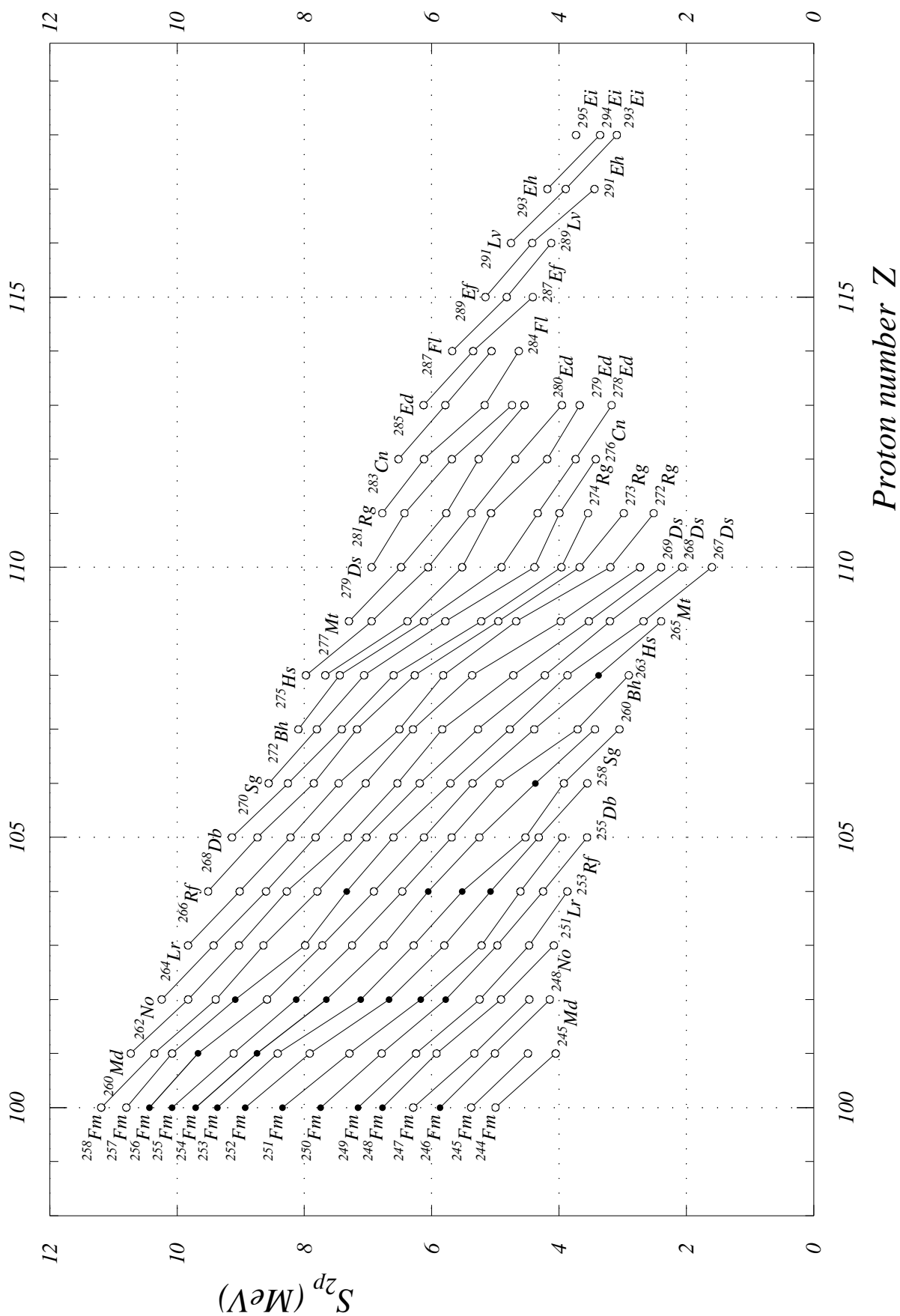
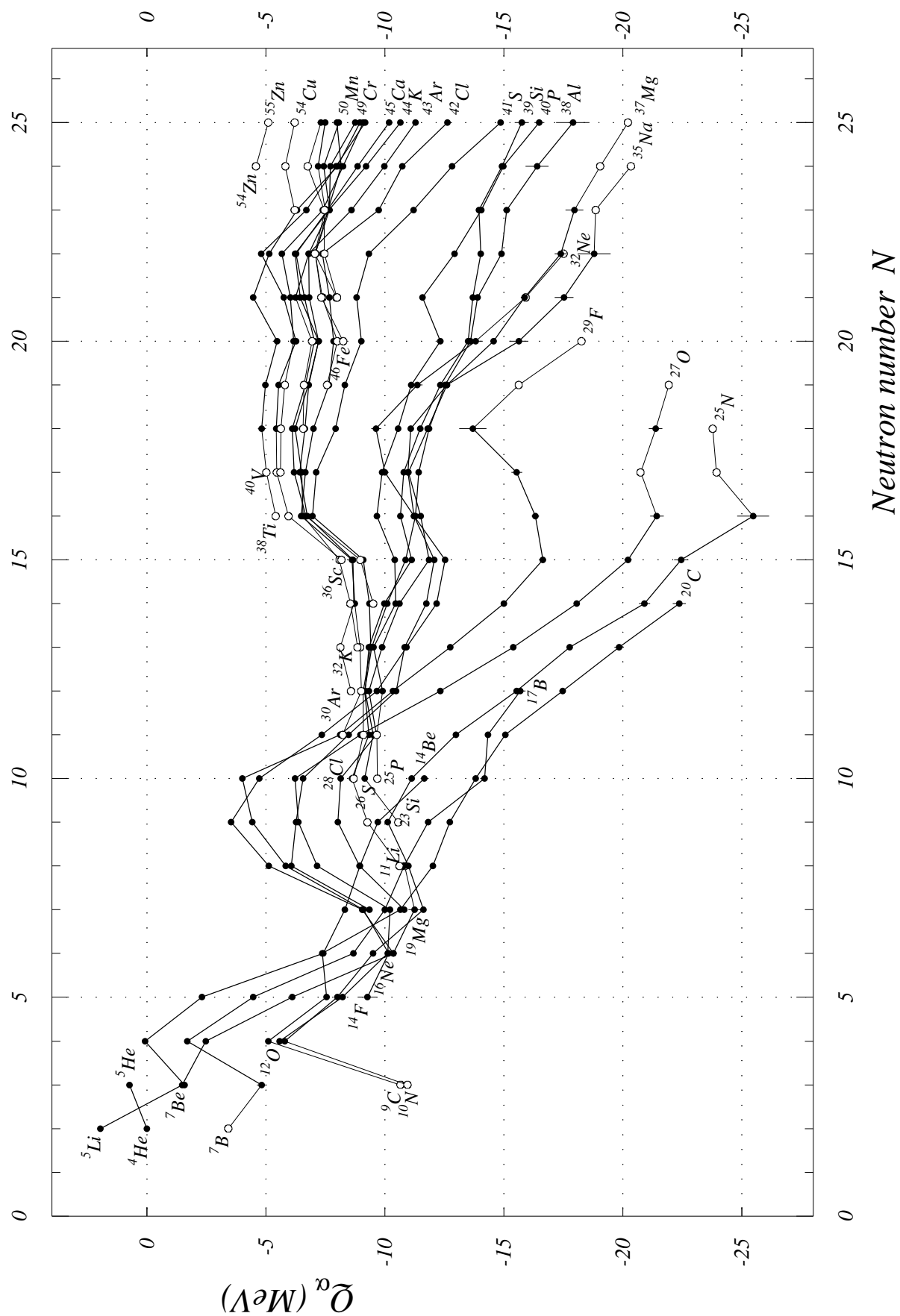
Fig. 17. Two-proton separation energies $Z = 100$ to 118

Fig. 18. α -decay energies

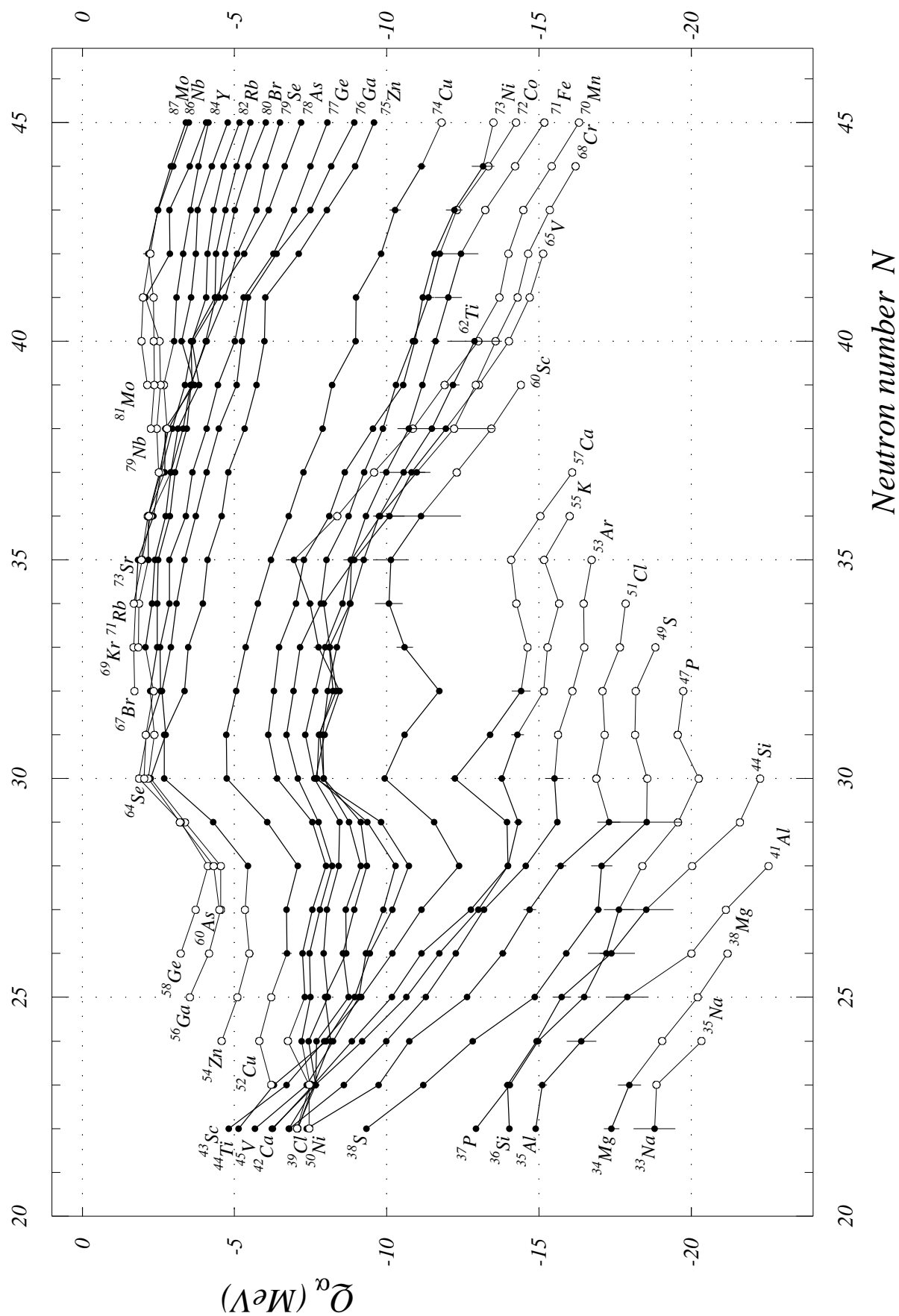


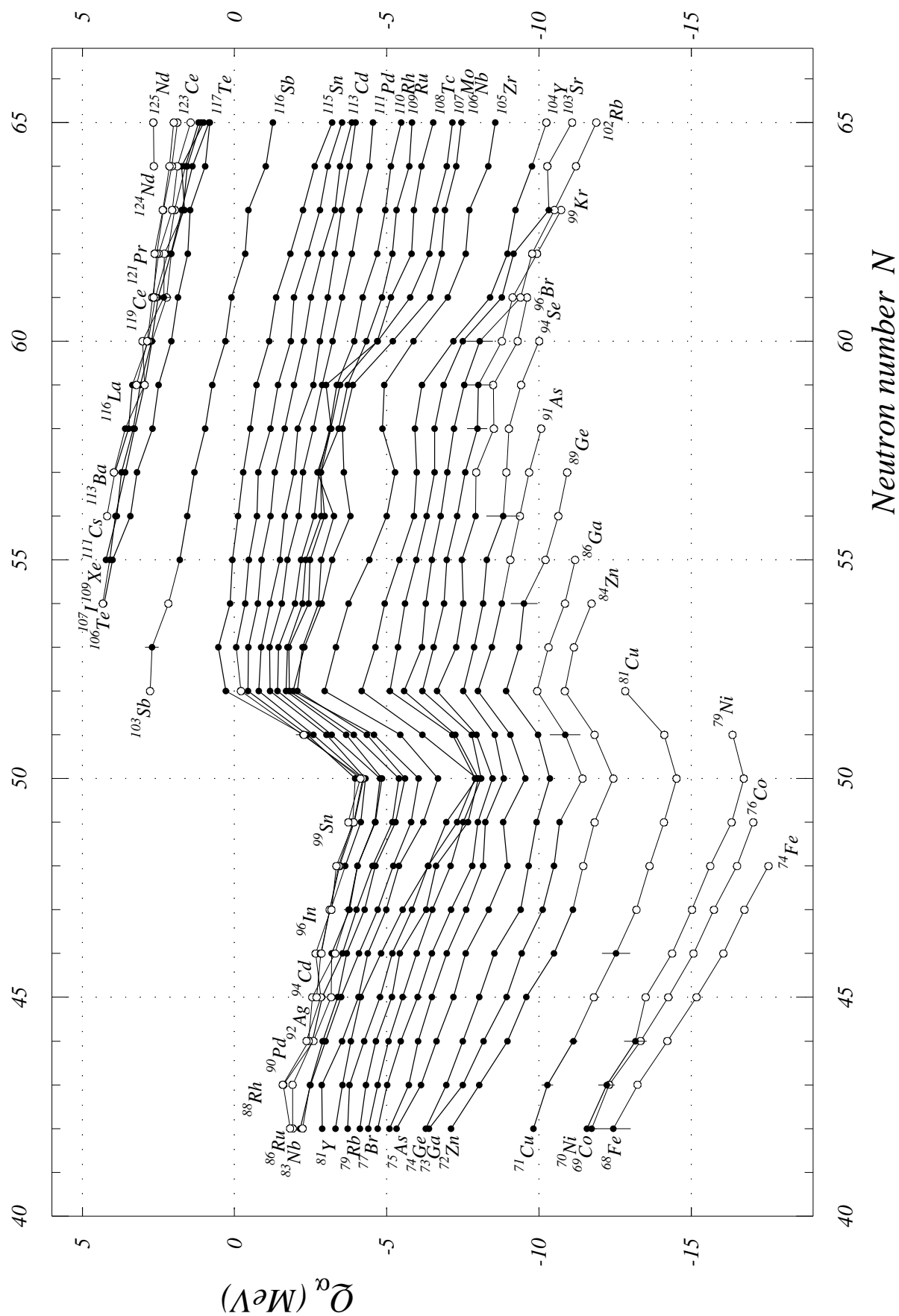
Fig. 20. α -decay energies

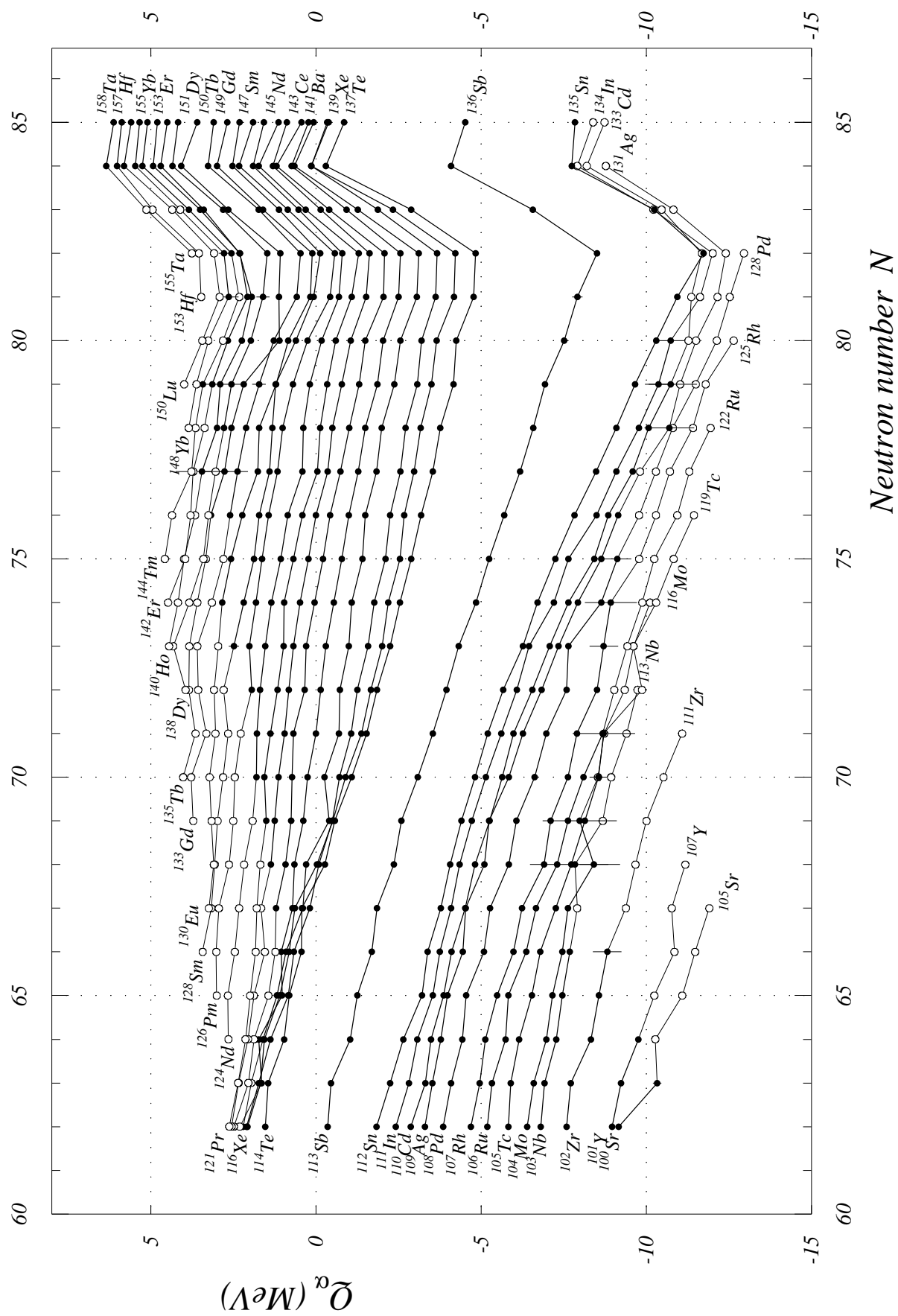
Fig. 21. α -decay energies

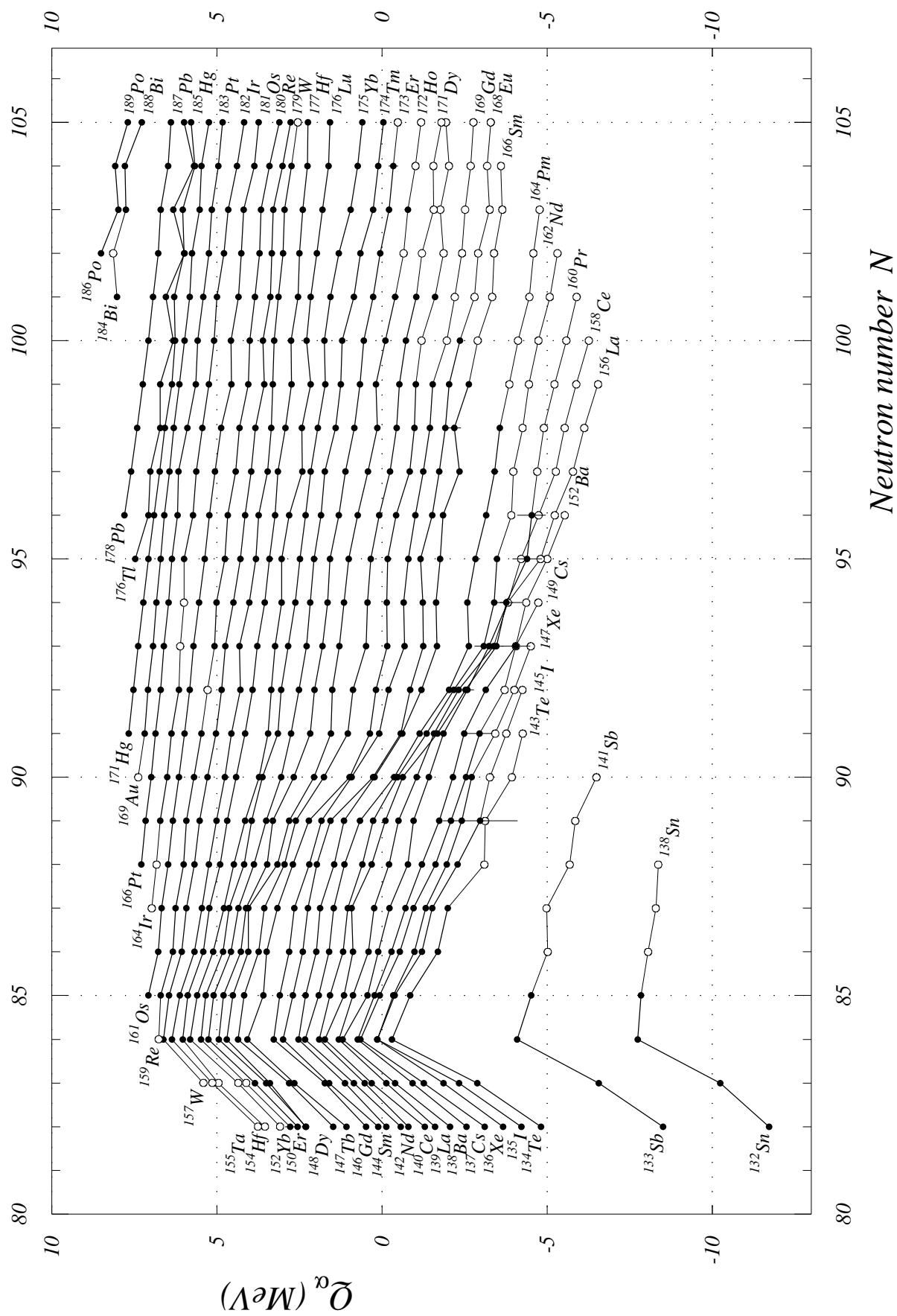
Fig. 22. α -decay energies

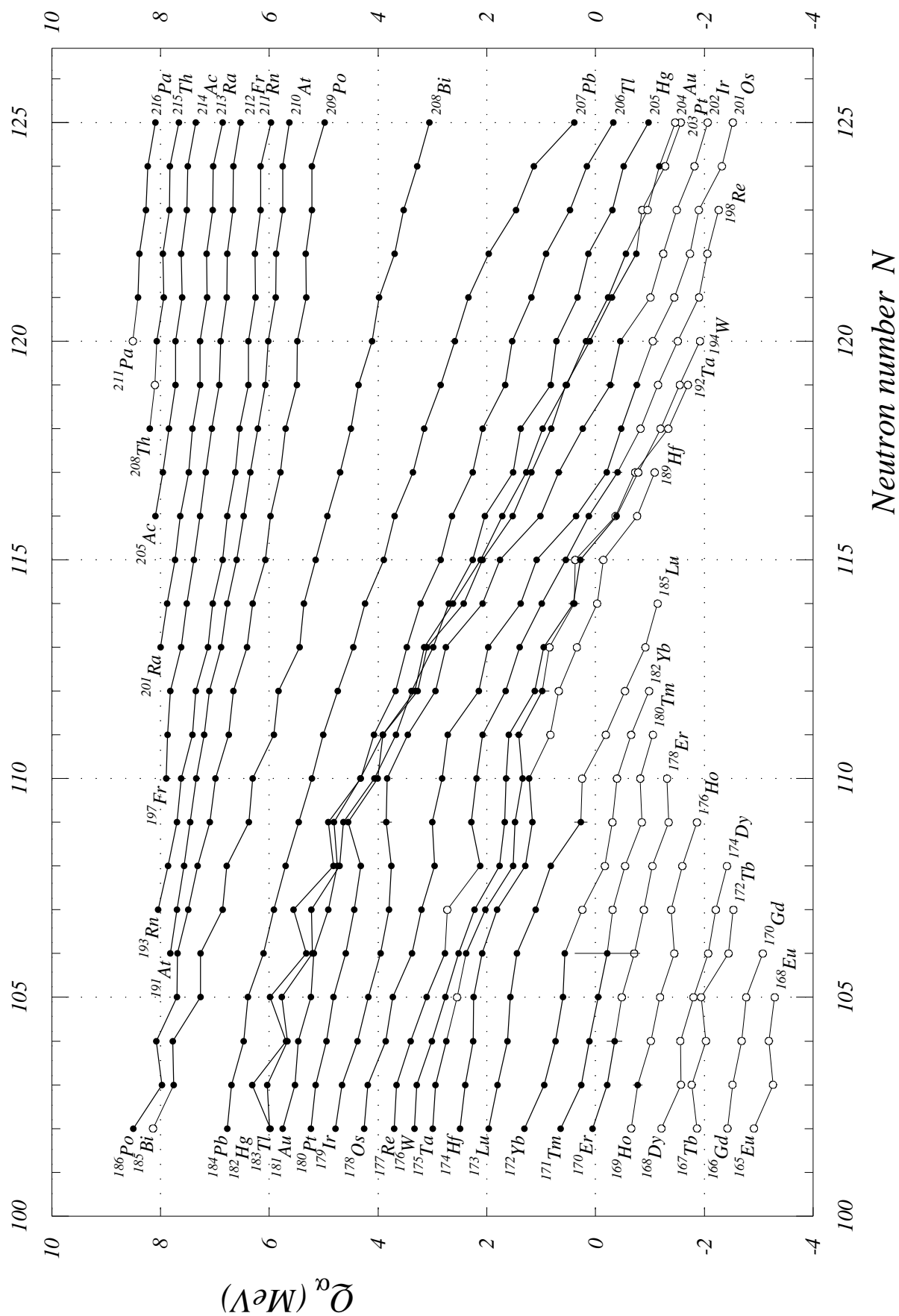
Fig. 23. α -decay energies

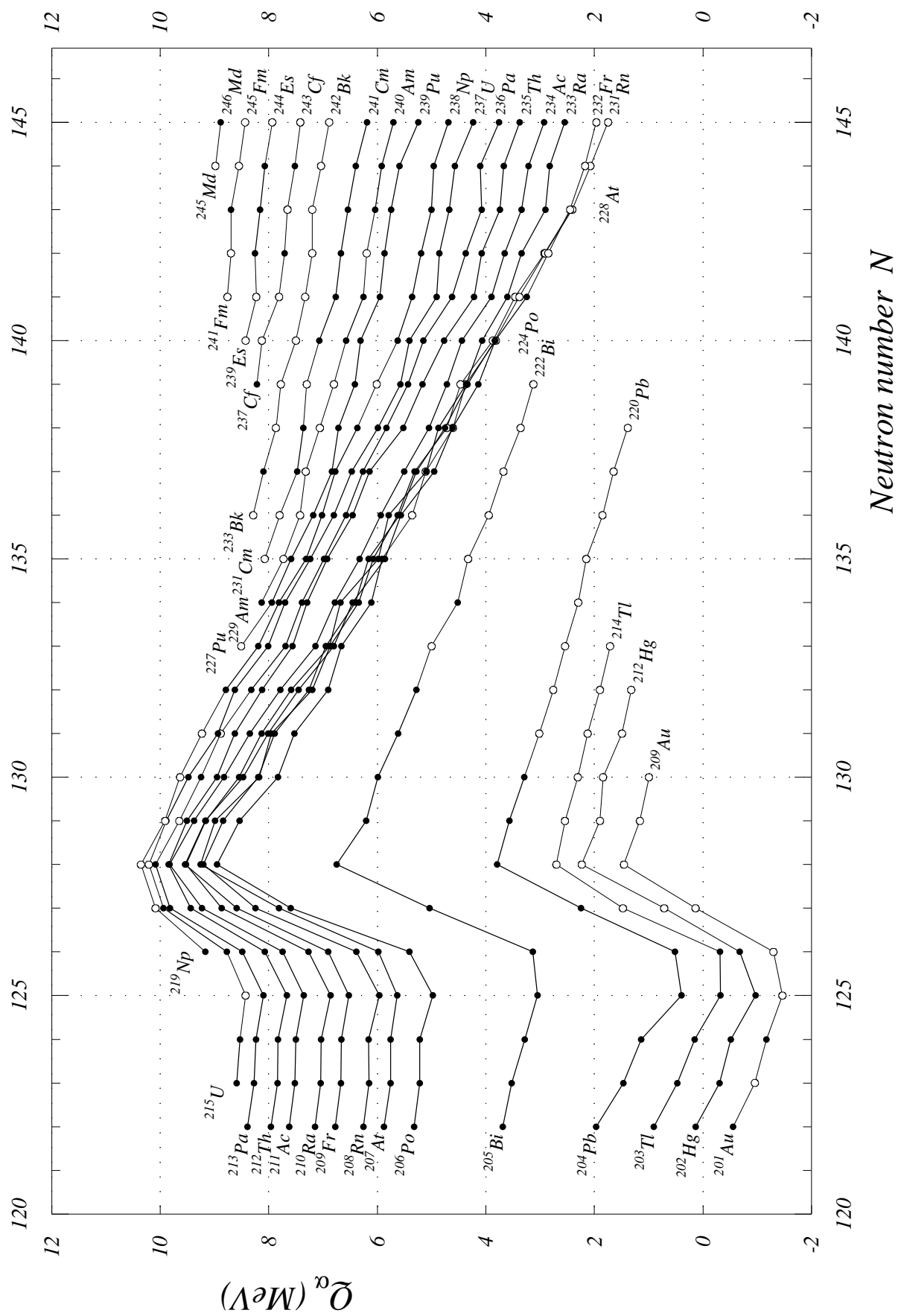
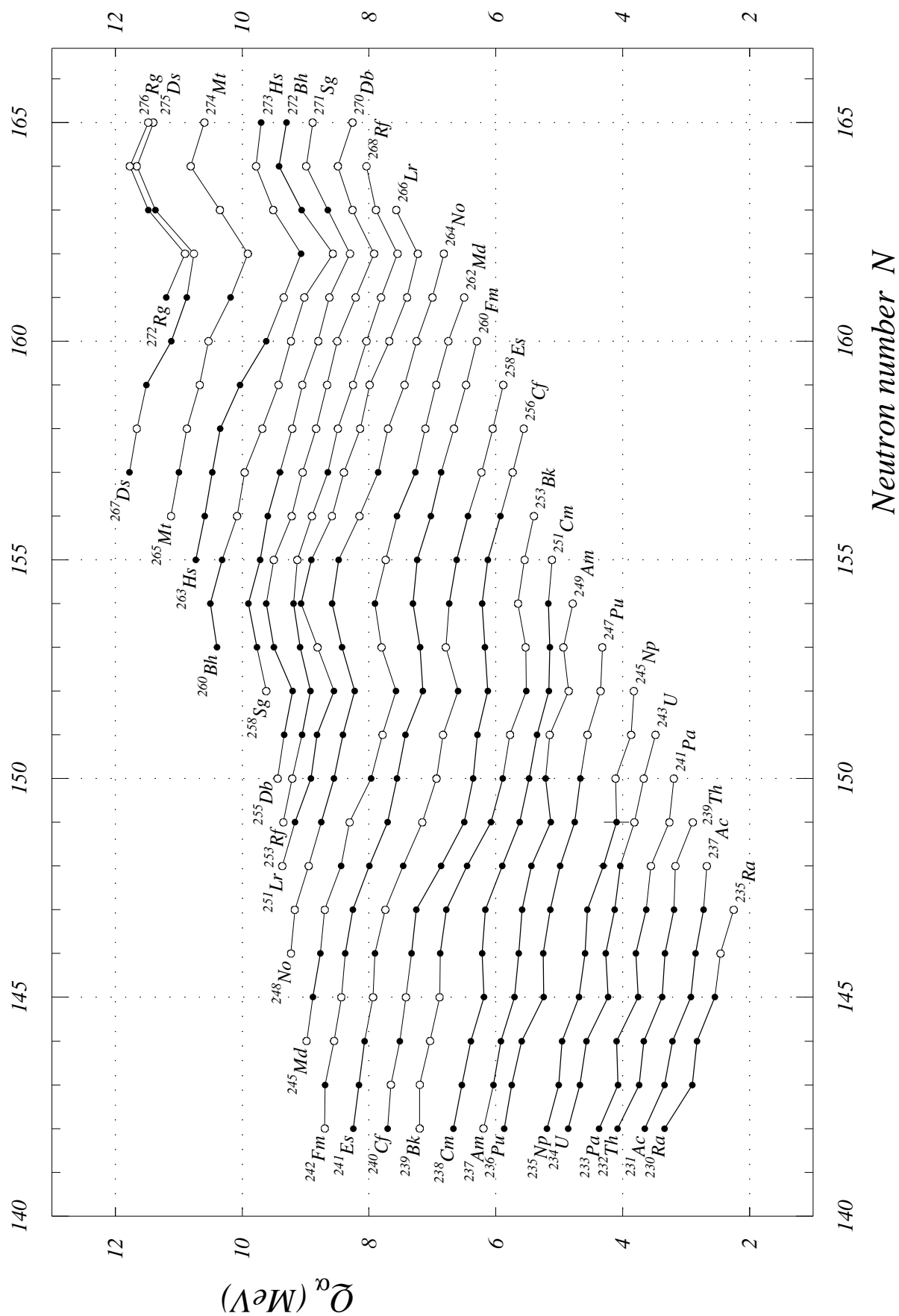
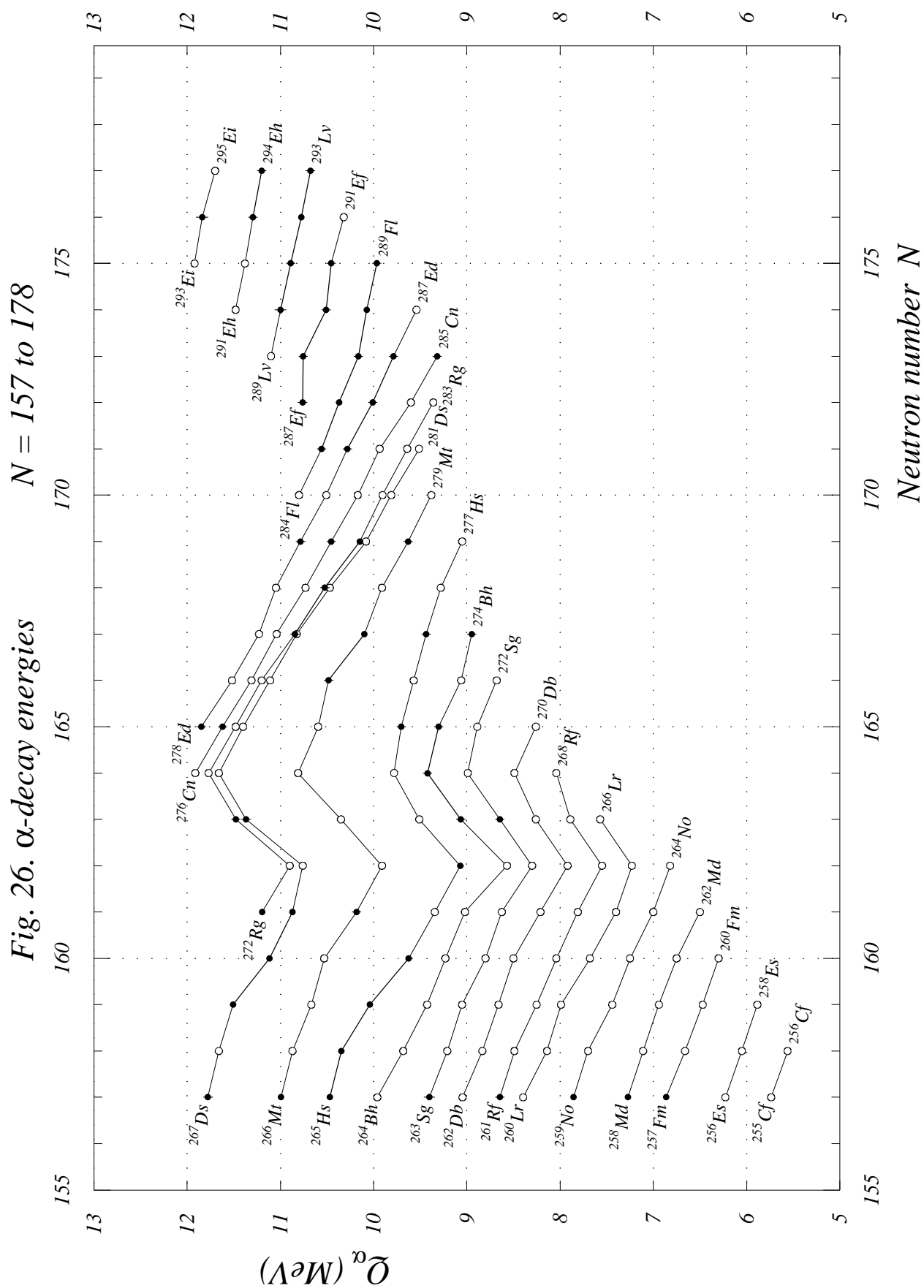
Fig. 24. α -decay energies

Fig. 25. α -decay energies



References used in the AME2016 and the NUBASE2016 evaluations

REGULAR JOURNALS (CODEN identifiers) AND BOOKS

| | | |
|-------|----------|---|
| AAFP | | Annales Academiae Scientiarum Fennicae, series A VI (Finland) |
| ADND | | Atomic Data and Nuclear Data Tables (Elsevier, USA) |
| AENGA | | Atomnaya Energiya (Russia) |
| AFYS | 1950-70 | Arkiv för Fysik (Sweden) |
| ANPH | | Annales de Physique (France) |
| ANPY | | Annalen der Physik (Germany,DR) |
| APAH | | Acta Physica Academiae Scientiarum Hungaricae |
| APAS | | Acta Physica Austriaca |
| APJL | | Astrophysical Journal Letters |
| APOB | 1970-... | Acta Physica Polonica Section B |
| APPO | ...-1969 | Acta Physica Polonica |
| ARIS | 1986-92 | International Journal of Radiation Applications and Instrumentation - Part A - Applied Radiation and Isotopes (Great Britain) |
| ARIS | 1993-... | Applied Radiation and Isotopes (Elsevier) |
| ATKE | | Atomkernenergie (Germany) |
| ATKO | | Atomki Kozlemenyek (Hungary) |
| AUJP | | Australian Journal Physics |
| BAPM | | Bulletin de l'Académie Polonaise des Sciences, Série des Sciences Mathématiques, Astronomiques et Physiques |
| BAPS | | Bulletin of the American Physical Society |
| BRSP | | Bulletin of the Russian Academy of Sciences, Physics |
| CHDB | 1966-... | Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences, serie B (France) |
| CHJP | | Acta Physica Sinica (Beijing) |
| CJCH | | Canadian Journal of Chemistry |
| CJPH | | Canadian Journal of Physics |
| CODB | | CODATA Bulletin (Committee on Data for Science and Technology - ICSU) |
| CORE | ...-1965 | Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences (France) |
| CPCH | 2008-... | Chinese Physics C (former "High-Energy Physics and Nuclear Physics") |
| CPHM | | Commentationes Physico-Mathematicae : Societas Scientiarum Fennicae (Finland) |
| CPLE | 1992-... | Chinese Physics Letters |
| CUSC | | Current Science (India) |
| CZYP | | Czechoslovak Journal of Physics (Kluwer, london) |
| DABBB | 1953-96 | Dissertation Abstract International B |
| DANK | | Doklady Akademii Nauk SSSR |
| EPJA | 1998-... | European Physical Journal A (replaces ZPAAD) |
| EPJD | 1998-... | European Physical Journal D |
| EPJD | 1999-... | European Physical Journal Direct |
| EPJS | 2007-... | European Physical Journal Special Topics [nsr: ZSTNE] |
| EULE | 1986-... | Europhysics Letters (replaces JPSLB and NCLTA) |
| FECL | | Particles and Nuclei, Letters (Russia) |
| FZKA | | Fizika (Croatia) |
| HPAC | | Helvetica Physica Acta |
| HYIN | | Hyperfine Interactions |
| IANF | | Izvestiya Akademii Nauk SSSR, seriya Fizicheskaya |
| IEIM | | IEEE Transactions on Instrumentation and Measurement (USA) |
| IJAR | 1956-85 | International Journal of Applied Radiation and Isotopes (Great Britain) |
| IJMP | | International Journal of Mass Spectrometry and Ion Processes (Elsevier) |
| IJOP | | Indian Journal of Pure and Applied Physics |
| IJPY | | Indian Journal of Physics and Proceedings of the Indian Association for the Cultivation of Science |

| | | |
|-------|----------|---|
| IMPAE | | International Journal of Modern Physics A (World Scientific Publishing, Singapore) |
| IMPEE | | International Journal of Modern Physics E (World Scientific Publishing, Singapore) |
| JCOMA | ...-1991 | Journal of the Less Common Metals (Switzerland) |
| JINCA | ...-1981 | Journal of Inorganic and Nuclear Chemistry (USA) |
| JLTPA | | Journal of Low Temperature Physics |
| JMOPE | | Journal of Modern Optics (Great Britain) |
| JNCEA | | Journal of Nuclear Energy A and B (Great Britain) |
| JNRSA | | Journal of Nuclear and Radiochemical Sciences (Japan) |
| JOPQA | 1961-98 | Journal de Physique (France) |
| JOPQS | | Journal de Physique (France) Suppl. Colloques |
| JPAGB | | Journal of Physics, A (Great Britain) |
| JPCSD | | Journal of Physics, G Conference Series (Great Britain) |
| JPGPE | 1989-... | Journal of Physics, G Nuclear Physics (Great Britain) |
| JPHGB | ...-1988 | Journal of Physics, G Nuclear Physics (Great Britain) |
| JPRAA | ...-1960 | Journal de Physique et le Radium (France) |
| JPSLB | ...-1985 | Journal de Physique Lettres (France) |
| JRNBA | | Journal of Research of the National Institute of Standards and Technology |
| JRNCD | | Journal Radioanal. Nuclear Chemistry |
| JUPSA | | Journal of the Physical Society of Japan |
| JUPSC | | Japanese Physical Society Conference Proceedings |
| KDVSA | | Det Kongelige Danske Videnskabernes Selskab, Matematisk-Fysiske Meddelelser |
| KERNA | | Kernenergie (Germany) |
| KPSJA | | Journal of the Korean Physical Society |
| KURAA | | Kyoto University, Research Reactor Institute : Annual Report |
| MPLAE | | Modern Physics Letters section A (World Scientific Publishing, Singapore) |
| MTRGA | | Metrologia |
| NATUA | | Nature (Great Britain) |
| NCIAA | 1955-99 | Nuovo Cimento A (Italy) |
| NCLTA | ...-1985 | Nuovo Cimento Lettere (Italy) |
| NDSAA | | Nuclear Data Tables, section A (USA) |
| NDSBA | | Nuclear Data Sheets (USA) |
| NIMAE | 1986-... | Nuclear Instruments and Methods in Physics Research A (Netherlands) |
| NIMBE | 1983-... | Nuclear Instruments and Methods in Physics Research B (Netherlands) |
| NSENA | | Nuclear Science and Engineering (American Nuclear Society, USA) |
| NUCIA | ...-1969 | Nuovo Cimento (Italy) |
| NUIMA | ...-1985 | Nuclear Instruments and Methods (Netherlands) |
| NUPAB | 1967-... | Nuclear Physics, section A (Netherlands) |
| NUPBB | 1967-... | Nuclear Physics, section B (Netherlands) |
| NUPHA | 1957-66 | Nuclear Physics (Netherlands) |
| PACHA | | Pure and Applied Chemistry |
| PCPSA | | Proceedings Cambridge Philosophical Society |
| PENUC | | Particle Emission from Nuclei, ed. by D.N. Poenaru and M.S. Ivaşcu, CRC Press (USA), 1989 |
| PHFEA | | Physica Fennica (Finland) |
| PHLTA | ...-1967 | Physics Letters (Netherlands) |
| PHMAA | ...-1955 | Philosophical Magazine (Great Britain) |
| PHMAB | 1956-... | Philosophical Magazine (Great Britain) |
| PHNOA | | Physica Norvegia |
| PHRVA | 1930-69 | Physical Review (USA) (not 1964 and 1965) |
| PHSTB | 1970-... | Physica Scripta (Sweden) |
| PHSTT | 1970-... | Physica Scripta (Sweden) T-volumes |
| PHYSA | | Physica (Netherlands) |
| PISAA | | Proceedings of the Indian Academy of Sciences, section A |
| PLRBA | 1964-65 | Physical Review, section B (USA) |

| | | |
|-------|----------|--|
| PLSSA | | Planetary and Space Science (Netherlands) |
| PPNPD | | Progress in Particle and Nuclear Physics |
| PPNUE | 2005 | Physics of Particle and Nuclei |
| PPSOA | | Proceedings of the Physical Society (Great Britain) |
| PRAMC | | Pramana, Journal of Physics (India) |
| PRLAA | | Proceedings of the Royal Society of London, Series A |
| PRLTA | | Physical Review Letters (USA) |
| PRVAA | 1970-... | Physical Review, section A (USA) |
| PRVCA | 1970-... | Physical Review, section C (USA) |
| PRVDA | 1970-... | Physical Review, section D (USA) |
| PRXHA | 2014-... | Physical Review, section X (USA) |
| PRYCA | | Proceedings of the Royal Society of Canada |
| PTPSA | -12 | Progress in Theoretical Physics (Kyoto), Suppl. |
| PYLAA | 1968-... | Physics Letters, section A (Netherlands) |
| PYLBB | 1968-... | Physics Letters, section B (Netherlands) |
| PZETA | | Pis'ma v Zhurnal Eksperimental'noi i Teoreticheskoi Fiziki (Russie) |
| RAACA | | Radiochimica Acta (Germany) |
| RAEFB | | Radiation Effects and Defects in Solids (Great Britain) |
| RBFSA | | Revista Brasileira de Fisica |
| RMPHA | | Reviews of Modern Physics (USA) |
| RMXFA | | Revista Mexicana de Física |
| RPHAA | 1966-90 | Revue de Physique Appliquée (Paris) |
| RPPHA | | Reports on Progress in Physics (Great Britain) |
| RRALA | | Radiochemical and Radioanalytical Letters (Hungary) |
| SAPHD | | South African Journal of Physics |
| SCIEA | | Science (American Association for the Advancement of Science) |
| SHIBA | | Shitsuryo Bunseki (Mass Spectrometry, Japan) |
| THISc | | Treatise on Heavy-Ion Science, ed. by D.A. Bromley, Plenum Press, 1989 |
| UFZHA | | Ukrains'kii Fizicheskii Zhurnal |
| VDPEA | | Verhandlungen der Deutschen Physikalischen Gesellschaft |
| VHDPG | | Verhandlungen der Deutschen Physikalischen Gesellschaft |
| YAFIA | | Yadernaya Fizika (Russia) |
| YTHLD | ...-1997 | Chinese Journal of Nuclear Physics |
| YWPIF | | Nuclear Physics Review (China) |
| ZDACE | 1974-... | Zeitschrift für Physik D (Germany) |
| ZENAA | | Zeitschrift für Naturforschung, part A (Germany) |
| ZEPYA | ...-1974 | Zeitschrift für Physik (Germany) |
| ZETFA | | Zhurnal Eksperimental'noi i Teoreticheskoi Fiziki (Russia) |
| ZPAAD | 1975-97 | Zeitschrift für Physik A (Germany) (replaces ZEPYA) |
| ZPCFD | 1975-97 | Zeitschrift für Physik C (Germany) |

REPORTS, PREPRINTS, THESIS, ABSTRACTS, COMMUNICATIONS

| | |
|----------------|--|
| AAAAA to be pd | To be published in journal AAAAA |
| PrvCom AHW Mon | Private communication to A.H. Wapstra in given Month |
| PrvCom Bpf Mon | Private communication to B. Pfeiffer in given Month |
| PrvCom FGK Mon | Private communication to F.G. Kondev in given Month |
| PrvCom GAu Mon | Private communication to G. Audi in given Month |
| PrvCom Hwj Mon | Private communication to Huang Wenjia in given Month |
| PrvCom JBl Mon | Private communication to J. Blachot in given Month |
| PrvCom NDG Mon | Private communication to Nuclear Data Group in given Month |
| PrvCom SNa Mon | Private communication to S. Naimi in given Month |
| PrvCom WgM Mon | Private communication to M. Wang in given Month |
| PrvCom Ref | Quoted by reference in question |

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| Table of Isotopes | Table of Isotopes, LBL Brookhaven |
| AnRpt Institute | Annual Report from Institute (or City) |
| ANL- | Argonne National Laboratory, report |
| CERN- | European Organization for Nuclear Research, report |
| COO- | Reports on work done with DOE support |
| DASA- | Defense Atomic Support Agency, Washington, DC, report |
| GANIL- | Grand Accelérateur National d'Ions Lourds, report |
| GSI- | Gesellschaft für Schwerionenforschung, report |
| IAEA- | International Atomic Energy Agency, report |
| IDO- | Idaho Operations Office of US Atomic Energy Commission, report |
| IPNO-DRE | Institut de Physique Nucléaire d'Orsay, report |
| JINR- | Joint Institute for Nuclear Research Dubna, report |
| KFK- | Kernphysik Zentrum Karlsruhe, report |
| LBL- | Lawrence Berkeley National Laboratory, report |
| LNPI- | Leningrad report |
| Leninst YF- | Leningradskii Institut Yadernoi Fiziki |
| NEANDC- | Nuclear Energy Agency - Nuclear Data Center |
| NP- | Cited in NSR for 1965An05 |
| ORNL- | Oak Ridge National Laboratory report |
| UCRL- | University of California Radiation Laboratory report |
| USIP- | University of Stockholm Institute of Physics report |
| Th.- City | Dissertation from corresponding University |

CONFERENCE PROCEEDINGS AND ABSTRACTS

| | | |
|--------------|------|---|
| P-Adelaide | 2016 | Int. Nucl. Physics Conf. (INPC2016), Adelaide, Australia, September 2016 |
| P-Aizu | 2002 | Proc. Frontiers of Collective Motion, Aizu, Japan, November 2002 |
| P-Alma Ata | 1978 | Program of 28th USSR Conference on Nuclear Spectroscopy |
| P-Alma Ata | 1984 | Program of 34th USSR Conference on Nuclear Spectroscopy |
| P-Amsterdam | 1974 | Proc. Intern. Conference Nuclear Structure |
| P-Amsterdam | 1982 | Proc. Intern. Conference Nuclear Structure |
| P-Amsterdam | 1996 | 2nd. North-West Europe Nuclear Physics Conference NWE'96 |
| P-Argonne | 2012 | Int. Conf. on Nuclear Structure 2012 |
| P-Arles | 1995 | Proc. Int. Conf. on Exotic Nuclei and Atomic Masses ENAM-95 |
| B-Arles | 1995 | Abstracts ENAM-95 |
| P-Aulanko | 2001 | Proc. Int. Conf. on Exotic Nuclei and Atomic Masses ENAM-2001 |
| B-Aulanko | 2001 | Abstracts ENAM-2001 |
| P-BadHonf | 1988 | Proc. Int. Workshop Nucl. Struct. of the Zr Region |
| P-Baku | 1976 | Program of 26th USSR Conference on Nuclear Spectroscopy |
| P-Bellaire | 1998 | Proc. Int. Conf. on Exotic Nuclei and Atomic Masses ENAM-98 |
| B-Bellaire | 1998 | Abstracts ENAM-98 |
| P-Berkeley | 1980 | Proc. Intern. Conf. Nuclear Physics Berkeley |
| P-Bernkastel | 1992 | Proc. 9th Int. Conf. Atomic Masses and Fundamental Constants AMCO-9, and 6th Int. Conf. Nuclei far from Stability NUFAS-6 |
| B-Bernkastel | 1992 | Abstracts AMCO-9 and NUFAS-6 |
| P-Birmingham | 1985 | Proc. Specialists Meeting on Delayed Neutron Properties |
| P-Bombay | 1974 | Proc. Nucl. Phys. and Solid State Phys. Symposium |
| P-Bombay | 1985 | Symposium on Quantum Electronics |
| P-Bormio | 1999 | XXXVII International Winter meeting on Nuclear Physics |
| P-Brookhaven | 1979 | Proc. 3rd Int. Conf. Neutron Capture Gamma Ray Spectroscopy |
| B-Bruges | 2016 | ND2016 conference |
| P-Budapest | 1972 | Proc. 1st Int. Conf. Neutron Capture Gamma Ray Spectroscopy |
| P-Cadarache | 2005 | Proc. Nuclear Fission and Fission-Product Spectroscopy, AIP-798 |
| P-Cargese | 1976 | Proc. 3rd Int. Conf. Nuclei far from Stability NUFAS-3 CERN 76-13 |

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|--------------|------|---|
| P-Charkov | 1986 | Program of 38th USSR Conference on Nuclear Spectroscopy |
| P-Darmstadt | 1984 | Proc. 7th Int. Conf. Atomic Masses and Fundamental Constants AMCO-7 |
| P-Debreccen | 1968 | Proc. Conf. Electron Capture and Higher Order Processes in Nuclear Decays |
| P-Debreccen | 2005 | Int. Symposium on Exotic Nuclear Systems, AIP-802 |
| P-Dubna | 1961 | Repts. Third Conf. Neutron-deficient Isotopes |
| P-Dubna | 1968 | Proc. International Symposium on Nuclear Structure |
| P-Dubna | 1989 | Int. School-Seminar on Heavy-Ion Physics |
| P-Dubna | 1999 | Proc.49th Ann.Conf.Nucl.Spectrosc.Struct.At.Nuclei |
| P-Florence | 1983 | Proc. Intern. Conf. Nuclear Physics Florence |
| P-Fribourg | 1993 | Proc. 8th Int. Symp. Capture Gamma Ray Spectroscopy and Related Topics |
| P-Gatlinburg | 1967 | Proc. Intern. Conf. Gatlinburg |
| P-Grenoble | 1981 | Proc. 4th Int. Conf. Neutron Capture Gamma Ray Spectroscopy |
| P-Helsingor | 1981 | Proc. 4th Int. Conf. Nuclei far from Stability NUFAST-4 CERN 81-09 |
| P-Kiev | 1982 | Program of 32th USSR Conference on Nuclear Spectroscopy |
| P-Knoxville | 1984 | Proc. 5th Int. Symp. Capture Gamma-Ray Spectroscopy and Related Topics |
| P-Kyoto | 1970 | Conference on Mass Spectroscopy |
| P-Kyoto | 1996 | Proc. Research Meeting Unstable Nuclei and Nuclear Methodology |
| P-Lansing | 1979 | Proc. 6th Int. Conf. Atomic Masses and Fundamental Constants AMCO-6 |
| P-Legnaro | 1971 | Proc. Conf. Structure of 1f7/2 Nuclei, Legnaro |
| P-Leningrad | 1975 | Program of 25th USSR Conference on Nuclear Spectroscopy |
| P-Leningrad | 1985 | Program of 35th USSR Conference on Nuclear Spectroscopy |
| P-Leningrad | 1990 | Program of 40th USSR Conference on Nuclear Spectroscopy |
| P-Leuven | 1987 | Proc. 6th Int. Symp. Capture Gamma-Ray Spectroscopy and Related Topics |
| P-Leuven | 2011 | Int. Conf. on Advances in Radioactive Isotope Science ARIS2011 |
| P-Leysin | 1970 | Proc. 2nd Int. Conf. Nuclei far from Stability NUFAST-2 CERN 70-30 |
| P-Lisbon | 2007 | Proc. Proton Emitting Nuclei and Related Topics -PROCON 2007, AIP-961 |
| P-Miami | 1989 | Symposium on Exotic Nuclear Spectroscopy |
| P-Minsk | 1991 | Program of 41th USSR Conference on Nuclear Spectroscopy |
| P-Monterey | 1990 | Proc. Xth Int. Conf. Neutron Capture Gamma Ray Spectroscopy |
| P-Moscow | 1955 | Conf. Acad. Sci. USSR Peaceful Use of Atomic Energy |
| P-Moscow | 1971 | Program of 21st USSR Conference on Nuclear Spectroscopy |
| P-Moscow | 1983 | Program of 33rd USSR Conference on Nuclear Spectroscopy |
| P-New-Dehli | 2012 | Frontiers in Gamma-Ray Spectroscopy 2012 - FIG12, AIP-1609 |
| P-Niigata | 1991 | Proc. Int. Symp. on Structure and Reactions of Unstable Nuclei |
| P-PacGrove | 1991 | Proc. 7th Int. Symp. Capture Gamma Ray Spectroscopy |
| P-Paris | 1958 | Compt.Rend.Congr.Intern.Phys.Nucl., Paris, P.Gugenberger, Ed., Dunod, Paris(1959) |
| P-Paris | 1975 | Proc. 5th Int. Conf. Atomic Masses and Fundamental Constants AMCO-5 |
| P-Petten | 1975 | Proc. 2nd Int. Conf. Neutron Capture Gamma Ray Spectroscopy |
| P-Rosseau | 1987 | Proc. 5th Int. Conf. Nuclei far from Stability NUFAST-5, AIP-164 |
| P-Samarkand | 1981 | Program of 31st USSR Conference on Nuclear Spectroscopy |
| P-Santa Fe | 2004 | Int. Conf. Nuclear Data for Science and Technology |
| B-Seeheim | 1999 | 1st Int. Conf. Chemistry and Physics of the Transactinide Elements (TAN'99) |
| P-StMalo | 1988 | Proc. 3rd Int. Conf. Nucleus-Nucleus Collisions |
| P-StPetersbg | 1995 | Low Energy Nuclear Dynamics, EPS XV Nucl. Phys. Div. |
| P-Studsvik | 1969 | Proc. Conf, Neutron Capture Gamma Ray Spectroscopy |
| P-Swansea | 1985 | 10th Int. Mass Spectrometry Conf. (in Adv. in Mass Spectr. 1985) |
| P-Tashkent | 1977 | Program of 27th USSR Conference on Nuclear Spectroscopy |
| P-Tbilis | 1964 | Program of 14th USSR Conference on Nuclear Spectroscopy |
| P-Teddington | 1972 | Proc. 4th Int. Conf. Atomic Masses and Fundamental Constants |
| P-Tokai | 1994 | Symposium on Nuclear Data, JAERI |
| P-Vienna | 1964 | Proc. 2nd Intern. Conf. Nuclidic Masses |
| P-Winnipeg | 1967 | Proc. 3rd Int. Conf. Atomic Masses and Fundamental Constants |
| P-Yerevan | 1969 | Program of 19th USSR Conference on Nuclear Spectroscopy |
| P-Yurmala | 1987 | Program of 37th USSR Conference on Nuclear Spectroscopy |

LIST OF REFERENCES

Before 1948

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|----------|-------|------|-----|---------------------------|
| 1934Le01 | PRLAA | 145, | 235 | W.B. Lewis, B.V. Bowden |
| 1940Kr08 | PCPSA | 36, | 490 | R.S. Krishnan, E.A. Nahum |

1948

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|----------|--------|------|--------|--|
| 1948Fe09 | PPSOA | 61, | 466 | N. Feather, J. Kyles, R.W. Pringle |
| 1948Ma29 | PPSOA | 60, | 466 | D.G.E. Martin, H.O.W. Richardson, Y.K. Hsu |
| 1948Ma30 | PRLAA | 195, | 287 | D.G.E. Martin, H.O.W. Richardson |
| 1948Sa18 | PHRVA | 74, | 1264 | D. Saxon |
| 1948St.A | PrvCom | | 58St50 | K. Street,Jr., A. Ghiorso, D.A. Orth, G.T. Seaborg |

1949

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|----------|----------|-----|------|---|
| 1949Be36 | PHRVA | 76, | 1624 | L.A. Beach, C.L. Peacock, R.G. Wilkinson |
| 1949Be53 | PHRVA | 76, | 574 | P.R. Bell, B.H. Ketelle, J.M. Cassidy |
| 1949Bo67 | PHRVA | 75, | 1401 | T.W. Bonner, J.E. Evans, J.C. Harris, G.C. Phillips |
| 1949Ch35 | PHRVA | 76, | 586 | C.Y. Chao, C.C. Lauritsen, A.V. Tollestrup |
| 1949Du15 | PHRVA | 76, | 1272 | R.B. Duffield, L.M. Langer |
| 1949Fe18 | PHRVA | 76, | 1888 | L. Feldman, L. Lidofsky, P. Macklin, C.S. Wu |
| 1949La06 | PHRVA | 76, | 641 | L.M. Langer, H.C. Price,Jr. |
| 1949Ma57 | PHRVA | 76, | 1719 | K.C. Mann, D. Rankin, P.N. Kaykin |
| 1949Pa.A | ORNL-499 | | 45 | G.W. Parker, G.E. Creek, G.M. Hebert, P.M. Lantz, W.J. Martin |
| 1949Pa.B | ORNL-336 | | 42 | G.W. Parker, G.E. Creek, G.M. Hebert, P.M. Lantz |
| 1949To16 | PHRVA | 76, | 428 | A.V. Tollestrup, C.C. Lauritsen, W.A. Fowler |
| 1949To23 | PHRVA | 75, | 1947 | A.V. Tollestrup, F.A. Jenkins, W.A. Fowler, C.C. Lauritsen |

1950

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|----------|-------|-----|-----|--|
| 1950Ag01 | PHRVA | 77, | 655 | H.M. Agnew |
| 1950BI92 | HPACA | 23, | 623 | J.P. Blaser, F. Boehm, P. Marmier |
| 1950Br52 | PHRVA | 79, | 606 | J.A. Bruner, L.M. Langer |
| 1950Br66 | PHRVA | 79, | 902 | A.R. Brosi, H. Zeldes, B.H. Ketelle |
| 1950Ch53 | PHRVA | 79, | 108 | C.Y. Chao, A.V. Tollestrup, W.A. Fowler, C.C. Lauritsen |
| 1950Fr10 | PHRVA | 80, | 30 | G. Friedlander, M.L. Perlman, D.E. Alburger, A.W. Sunyar |
| 1950Fr58 | PHRVA | 79, | 897 | M.S. Freedman, D.W. Engelkemeir |
| 1950Ha58 | PHRVA | 79, | 409 | R.W. Hayward |
| 1950Ha65 | PHRVA | 79, | 541 | R.W. Hayward |
| 1950Hu27 | PHRVA | 77, | 726 | D.J. Hughes, C. Egger, D.E. Alburger |
| 1950Ke11 | PHRVA | 79, | 242 | B.H. Ketelle, C.M. Nelson, G.E. Boyd |
| 1950La04 | PHRVA | 77, | 798 | L.M. Langer, J.W. Motz, H.C. Price,Jr. |
| 1950Ma14 | PHRVA | 78, | 363 | L.B. Magnusson, S.G. Thompson, G.T. Seaborg |
| 1950Ma76 | PHRVA | 80, | 977 | E.A. Martell, W.F. Libby |
| 1950Me55 | PHRVA | 79, | 19 | J.Y. Mei, A.C.G. Mitchell, C.M. Huddleston |
| 1950Mo56 | PHRVA | 80, | 309 | R.C. Mobley, R.A. Laubenstein |
| 1950Na09 | PHRVA | 77, | 398 | R.A. Naumann, F.L. Reynolds, I. Perlman |
| 1950Ok52 | PHRVA | 80, | 293 | G.D. O'Kelley, G.W. Barton,Jr. |
| 1950Ow03 | PHRVA | 78, | 606 | G.E. Owen, C. Sharp Cook, P.H. Owen |
| 1950Ri59 | PHRVA | 80, | 524 | H.T. Richards, R.V. Smith, C.P. Browne |

1951

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|----------|-------|-----|------|--|
| 1951Bo48 | PHRVA | 83, | 216 | G.E. Boyd, B.H. Ketelle |
| 1951Bo49 | PHRVA | 83, | 1091 | T.W. Bonner, J.W. Butler |
| 1951Br10 | PHRVA | 82, | 159 | A.B. Brown, C.W. Snyder, W.A. Fowler, C.C. Lauritsen |
| 1951Br87 | PHRVA | 84, | 292 | H.N. Brown, W.L. Bendel, F.J. Shore, R.A. Becker |

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|----------|------------|-----|------|--|
| 1951Ca04 | PHRVA | 81, | 485 | R. Canada, A.C.G. Mitchell |
| 1951Ca28 | PHRVA | 83, | 955 | R. Canada, A.C.G. Mitchell |
| 1951Ca37 | PHRVA | 84, | 749 | R.R. Carlson |
| 1951Ca43 | PHRVA | 83, | 483 | J.M. Cassidy |
| 1951Du03 | PHRVA | 81, | 203 | R.B. Duffield, L.M. Langer |
| 1951Du19 | PHRVA | 84, | 1065 | R.B. Duffield, L.M. Langer |
| 1951Fr19 | PHRVA | 84, | 231 | G. Friedlander, D.E. Alburger |
| 1951Hu38 | PHRVA | 84, | 289 | C.M. Huddleston, A.B. Smith |
| 1951Hy24 | PHRVA | 82, | 944 | E.K. Hyde, G.D. O'Kelley |
| 1951Je01 | PHRVA | 81, | 143 | E.N. Jensen, R.T. Nichols, J. Clement |
| 1951Kl55 | PHRVA | 83, | 212 | E.D. Klema, G.C. Phillips |
| 1951Ko17 | AFYSA | 3, | 47 | E. Kondaiah |
| 1951Li26 | PHRVA | 83, | 512 | C.W. Li, W. Whaling, W.A. Fowler, C.C. Lauritsen |
| 1951Li29 | PHRVA | 82, | 122 | C.W. Li, W. Whaling |
| 1951Ly10 | PHRVA | 82, | 276 | W.S. Lyon |
| 1951Mc11 | PHRVA | 81, | 734 | C.L. McGinnis |
| 1951Mc48 | PHRVA | 84, | 384 | J.J.G. McCue, W.M. Preston |
| 1951Me10 | PHRVA | 81, | 782 | W.W. Meinke, A. Ghiorso, G.T. Seaborg |
| 1951Or.A | UCRL- 1951 | | | D.A. Orth, K. Street, Jr. |
| 1951Ro50 | PHRVA | 83, | 349 | J.M. Robson |
| 1951Ta05 | PHRVA | 81, | 461 | S.I. Taimuty |
| 1951Ve05 | PHYSA | 17, | 637 | N.F. Verster, G.J. Nijgh, R. van Lieshout, C.J. Bakker |
| 1951Wh05 | PHRVA | 81, | 150 | W. Whaling, C.W. Li |
| 1951Wi26 | PHRVA | 84, | 731 | R.M. Williamson, C.P. Browne, D.S. Craig, D.J. Donahue |

1952

| | | | | |
|----------|--------------|-----|------|--|
| 1952Al06 | PHRVA | 85, | 734 | D.E. Alburger |
| 1952Be55 | AFYSA | 5, | 191 | I. Bergström |
| 1952Be78 | IANFA | 16, | 314 | E.Y. Berlovich |
| 1952Ch31 | PHRVA | 88, | 887 | L.S. Cheng, J.L. Dick, J.D. Kurbatov |
| 1952Cr30 | PHRVA | 88, | 808 | D.S. Craig, D.J. Donahue, K.W. Jones |
| 1952Fa14 | PHRVA | 87, | 252 | C.Y. Fan |
| 1952Fe16 | PHRVA | 87, | 1091 | L. Feldman, C.S. Wu |
| 1952Fr23 | PPSOA | 65, | 911 | J.H. Fremlin, M.C. Walters, and 95Tr07 and 02Tr04 |
| 1952Fu04 | PHRVA | 86, | 347 | S.C. Fultz, M.L. Pool |
| 1952Ha44 | PHRVA | 88, | 876 | J.R. Haskins, J.E. Duval, L.S. Cheng, J.D. Kurbatov |
| 1952Hi.A | Th.-Berkeley | | | G.H. Higgins |
| 1952Ka41 | PHRVA | 85, | 368 | M.I. Kalkstein, W.F. Libby |
| 1952Ko27 | AFYSA | 4, | 81 | E. Kondaiah |
| 1952Lo06 | PHRVA | 85, | 585 | J.A. Lovington, J.J.G. McCue, W.M. Preston |
| 1952Mc34 | PHRVA | 87, | 202 | C.L. McGinnis (also PrvCom NDG) |
| 1952Me53 | PHRVA | 88, | 1360 | F.R. Metzger |
| 1952Mi54 | PHRVA | 88, | 1254 | C. Mileikowsky, W. Whaling |
| 1952Mo12 | PHRVA | 85, | 501 | H.T. Motz |
| 1952Mo22 | PHRVA | 86, | 165 | H.T. Motz, D.E. Alburger |
| 1952Or.A | Th.-Berkeley | | | D.A. Orth |
| 1952Ro16 | PHRVA | 86, | 863 | D. Rose, G. Hinman, L.G. Lang |
| 1952Sc09 | PHRVA | 85, | 873 | W.A. Schoenfeld, R.W. Duborg, W.M. Preston, C. Goodman |
| 1952Sc11 | PHRVA | 85, | 1046 | C.L. Scoville, S.C. Fultz, M.L. Pool |
| 1952Sc15 | PHRVA | 86, | 248 | G. Schrank, J.R. Richardson |
| 1952Sm13 | PHRVA | 86, | 98 | A.B. Smith |
| 1952Sm41 | PHRVA | 87, | 454 | A.B. Smith, A.C.G. Mitchell, R.S. Caird |
| 1952Wa12 | PHRVA | 86, | 561 | A.H. Wapstra |
| 1952Wi26 | PHRVA | 85, | 687 | R.G. Winter |

1953

| | | | | |
|----------|-------|-----|----|--|
| 1953Am08 | PHRVA | 91, | 68 | D.P. Ames, M.E. Bunker, L.M. Langer, B.M. Sorenson |
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|----------|---------------|------|--------|---|
| 1953An01 | PHRVA | 90, | 656 | C.E. Anderson, G.W. Wheeler, W.W. Watson |
| 1953As.A | Th.-Berkeley | | | F. Asaro |
| 1953Ba81 | IANFA | 17, | 437 | A.A. Bashilov, N.M. Antoneva, B.S. Dzelepov, A.I. Dolgintseva |
| 1953Ba82 | IANFA | 17, | 468 | A.A. Bashilov, N.M. Antoneva, D.C. Broder, B.S. Dzelepov |
| 1953Be42 | PHRVA | 90, | 888 | W.L. Bendel, F.J. Shore, H.N. Brown, R.A. Becker |
| 1953BI44 | PHRVA | 90, | 464 | E. Bleuler, J.W. Blue, S.A. Chowdary, A.C. Johnson, D.J. Tendam |
| 1953Bu63 | PHRVA | 91, | 1219 | J.P. Butler, J.S. Adams |
| 1953Co02 | PRLAA | 216, | 242 | E.R. Collins, C.D. MacKenzie, C.A. Ramm |
| 1953Cr18 | PHRVA | 90, | 1124 | B. Crasemann, H.T. Easterday |
| 1953Cr.A | PrvCom | | 58St50 | W.W.T. Crane |
| 1953Do04 | PHRVA | 89, | 824 | D.J. Donahue, K.W. Jones, M.T. McEllistrem, H.T. Richards |
| 1953Du03 | PHRVA | 89, | 854 | R.B. Duffield, L.M. Langer |
| 1953Ea11 | PHRVA | 91, | 653 | H.T. Easterday |
| 1953Fa18 | PHRVA | 91, | 1195 | K.F. Famularo, G.C. Phillips |
| 1953Fi.A | Th.-Rochester | | | R.W. Fink |
| 1953Gl.A | ANL-5000 | | 55 | L.E. Glendenin, E.P. Steinberg |
| 1953Ha66 | CJPHA | 31, | 278 | J.A. Harvey |
| 1953Hy83 | PHRVA | 90, | 267 | E.K. Hyde, A. Ghiorso |
| 1953Jo20 | CJPHA | 31, | 1136 | F.A. Johnson |
| 1953Kn23 | PHRVA | 91, | 889 | J.D. Knight, M.E. Bunker, B. Warren, J.W. Starner |
| 1953Ky19 | PPSOA | 66, | 519 | J. Kyles, C.G. Campbell, W.J. Henderson |
| 1953Li01 | PHRVA | 90, | 387 | L. Lidofsky, E. Alperovitch, C.S. Wu |
| 1953Ma23 | PHRVA | 90, | 330 | L. Marquez |
| 1953Ma64 | PHRVA | 92, | 1511 | L. Marquez |
| 1953Pe14 | PHRVA | 92, | 687 | J.F. Perkins, S.K. Haynes |
| 1953Ph28 | PHRVA | 91, | 462 | G.C. Phillips, K.F. Famularo, C.R. Gosset |
| 1953Sa26 | COREA | 236, | 1249 | M. Sakai, P. Hubert |
| 1953Sh48 | PHRVA | 91, | 1203 | F.J. Shore, W.L. Bendel, H.N. Brown, R.A. Becker |
| 1953St31 | PHYSA | 19, | 279 | P.H. Stoker, Ong Ping Hok |
| 1953Wa05 | PHRVA | 89, | 502 | F. Wagner, Jr., M.S. Freedman, D.W. Engelkemeir, J.R. Huizenga |
| 1953Yo03 | JUPSA | 8, | 435 | Y. Yoshizawa |
| 1953Yu04 | COREA | 237, | 1077 | T. Yuasa |
| 1954 | | | | |
| 1954Ah20 | AFYSA | 7, | 459 | K. Ahnlund |
| 1954Ah37 | PHRVA | 96, | 999 | K. Ahnlund |
| 1954Ah47 | AFYSA | 8, | 489 | K. Ahnlund, S. Thulin, R. Pauli |
| 1954Al35 | PHRVA | 96, | 684 | K.W. Allen, E. Almqvist, J.T. Dewan, T. Pepper |
| 1954Be10 | PHRVA | 93, | 1073 | W. Bernstein, S.S. Markowitz, S. Katcoff |
| 1954Bo39 | PHRVA | 94, | 1078 | F.I. Boley |
| 1954Br37 | PPSOA | 67, | 397 | W.D. Brodie |
| 1954Br96 | PHRVA | 96, | 1372 | H.N. Brown, R.A. Becker |
| 1954Da22 | ZENAA | 9, | 402 | H. Daniel, W. Bothe |
| 1954Da31 | ZENAA | 9, | 974 | H. Daniel |
| 1954De13 | PHRVA | 95, | 646 | E. Der Mateosian |
| 1954De17 | PHRVA | 95, | 458 | E. Der Mateosian, C.S. Wu |
| 1954El10 | PRLAA | 224, | 129 | R.B. Elliott, D.J. Livesey |
| 1954El24 | PRYCA | 48, | 12 | L.G. Elliott, R.L. Graham, J. Walker, J.L. Wolfson |
| 1954Gr19 | PHRVA | 94, | 794 | R.L. Graham, J. Walker |
| 1954Ha68 | PHRVA | 96, | 1003 | T.H. Handley, E.L. Olsen |
| 1954Hu61 | PHRVA | 96, | 548 | J.R. Huizenga, C.M. Stevens |
| 1954Ki23 | RMPHA | 26, | 327 | R.W. King |
| 1954Le08 | PHRVA | 93, | 155 | M.R. Lee, R. Katz |
| 1954Li19 | PHRVA | 94, | 780 | L. Lidofsky, R. Gold, C.S. Wu |
| 1954Li24 | PHRVA | 95, | 444 | T. Lindqvist, A.C.G. Mitchell |
| 1954Li42 | PHRVA | 95, | 1535 | T. Lindqvist, A.C.G. Mitchell |
| 1954Ma54 | PHRVA | 95, | 708 | H.B. Mathur, E.K. Hyde |
| 1954Ma75 | PHRVA | 96, | 126 | H.B. Mathur, E.K. Hyde |

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|----------|-------|------|------|---|
| 1954Mi60 | AFYSA | 7, | 89 | C. Mileikowsky |
| 1954Mi61 | AFYSA | 8, | 117 | C. Mileikowsky |
| 1954Mi89 | PHRVA | 96, | 996 | C. Mileikowsky, K. Ahnlund |
| 1954Na14 | JPRAA | 15, | 570 | M.E. Nahmias, A.H. Wapstra |
| 1954Na18 | COREA | 239, | 47 | M.E. Nahmias, T. Yuasa |
| 1954Ni06 | PHRVA | 94, | 369 | R.T. Nichols, E.N. Jensen |
| 1954Nu26 | PHYSA | 20, | 555 | R.H. Nussbaum, R. van Lieshout, A.H. Wapstra, N.F. Verster, F.E.L. Ten Haaf, G.J. Nijgh, L. Th. M. Ornstein |
| 1954Nu27 | PHYSA | 20, | 571 | R.H. Nussbaum, A.H. Wapstra, R. van Lieshout, G.J. Nijgh, L. Th. M. Ornstein, (and PrvCom NDG) |
| 1954Ol03 | PHRVA | 93, | 1125 | J.L. Olsen, G.D. O'Kelley |
| 1954Ol05 | PHRVA | 95, | 1539 | J.L. Olsen, G.D. O'Kelley |
| 1954Pa39 | AFYSA | 8, | 212 | R. Pauli, K. Ahnlund, C. Mileikowsky |
| 1954Po26 | PHRVA | 95, | 1523 | A.V. Pohm, W.E. Lewis, J.H. Talboy, Jr., E.N. Jensen |
| 1954Pr31 | PHRVA | 96, | 1390 | C.H. Pruett, R.G. Wilkinson |
| 1954Ri09 | PHYSA | 20, | 107 | L.H. Th. Rietjens, H.J. van den Bold, P.M. Endt |
| 1954Sa22 | PHRVA | 94, | 642 | B. Saraf |
| 1954Th17 | AFYSA | 7, | 289 | S. Thulin, K. Nybø |
| 1954Th30 | PHRVA | 96, | 850 | J. Thirion, R. Cohen, W. Whaling |
| 1954Th36 | AFYSA | 8, | 219 | S. Thulin, J. Moreau, H. Atterling |
| 1954Th39 | AFYSA | 8, | 229 | S. Thulin, J. Moreau, H. Atterling |
| 1954Wo23 | PHRVA | 95, | 761 | C. Wong |
| 1954Za05 | IANFA | 18, | 563 | P.P. Zarubin |

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| 1955Ad10 | COREA | 240, | 1421 | J.P. Adloff |
| 1955Ah41 | AFYSA | 9, | 39 | K. Ahnlund |
| 1955At21 | PHYSA | 21, | 543 | A.H.W. Aten, Jr., G.D. De Feyfer |
| 1955Ba.A | P-Moscow | | 251 | S.A. Baranov, K.N. Shlyagin |
| 1955Be20 | ZEPYA | 142, | 585 | W. Beekman |
| 1955Be78 | PHMAA | 46, | 341 | E.H. Bellamy, F.C. Flack |
| 1955Bi29 | NUCIA | 2, | 1052 | A. Bisi, E. Germagnoli, L. Zappa |
| 1955BI23 | PHRVA | 100, | 1324 | J.W. Blue, E. Bleuler |
| 1955Br02 | JINCA | 1, | 254 | C.P. Browne, D.C. Hoffman, W.T. Crane, J.P. Balagna, G.H. Higgins, J.W. Barnes, R.W. Hoff, H.L. Smith, J.P. Mize, M.E. Bunker |
| 1955Br16 | PHRVA | 100, | 84 | R.M. Brugger, T.W. Bonner, J.B. Marion |
| 1955Bu01 | PHRVA | 97, | 1272 | M.E. Bunker, J.W. Starnier |
| 1955Bu.A | PHRVA | 99, | 659 | M.E. Bunker, J.P. Mize, J.W. Starnier |
| 1955Da37 | PHRVA | 100, | 796 | M.C. Day, Jr., G.W. Eakins, A.F. Voigt |
| 1955De18 | PHMAA | 46, | 445 | H. De Waard |
| 1955De40 | PHYSA | 21, | 803 | E.F. De Haan, G.J.S. Sizoo, P. Kramer |
| 1955Dr43 | IANFA | 19, | 324 | G.M. Drabkin, V.I. Orlov, L.I. Rusinov |
| 1955En16 | JINCA | 1, | 345 | D.W. Engelkemeir, P.R. Fields, S. Fried, G.L. Pyle, C.M. Stevens, L.B. Asprey, C.P. Browne, H.L. Smith, R.W. Spence |
| 1955Fa33 | PHRVA | 99, | 1440 | B. Farrelly, L. Koerts, N. Benczer, R. van Lieshout, C.S. Wu |
| 1955Go.A | P-Moscow | | 226 | L.L. Goldin, E.F. Tretyakov, G.I. Novikov |
| 1955Gr08 | PHRVA | 97, | 1033 | W.E. Graves, A.C.G. Mitchell |
| 1955Ha.A | Th.-Delft | | | H. Hagedoorn |
| 1955Jo02 | PHRVA | 97, | 1031 | J.T. Jones, Jr., E.N. Jensen |
| 1955Jo09 | PHRVA | 99, | 1645 | M.W. Johns, B.C. Chidley, I.R. Williams |
| 1955Ki28 | PHRVA | 99, | 1393 | J.D. Kington, J.K. Bair, H.O. Cohn, H.B. Willard |
| 1955Ko14 | PHRVA | 98, | 1230 | L. Koerts, P. Macklin, B. Farrelly, R. van Lieshout, C.S. Wu |
| 1955Ma01 | ZENAA | 10, | 168 | Th. Mayer-Kuckuk, H. Daniel |
| 1955Ma12 | PHRVA | 97, | 103 | P. Marmier, F. Boehm |
| 1955Ma13 | PHRVA | 97, | 117 | H.B. Mathur, E.K. Hyde, C.A. Levine, P.K. Kofstad |
| 1955Ma40 | COREA | 240, | 291 | N. Marty |
| 1955Ma62 | JPRAA | 16, | 458 | N. Marty |
| 1955Ma63 | HPACA | 28, | 193 | D. Maeder, P. Stahelin |

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| 1955Ma76 | PHRVA | 100, | 847 | J.B. Marion, T.W. Bonner, C.F. Cook |
| 1955Ma84 | PHRVA | 100, | 91 | J.B. Marion, T.W. Bonner, C.F. Cook |
| 1955Ma.A | ANL-5386 | | | L.B. Magnusson, F. Wagner, Jr., D.W. Engelkemeir, M.S. Freedman |
| 1955Mc17 | PHRVA | 97, | 93 | C.L. McGinnis |
| 1955Mi90 | PHRVA | 100, | 1390 | J.P. Mize, M.E. Bunker, J.W. Starnner |
| 1955Mo69 | JINCA | 1, | 274 | F.F. Momyer, Jr., F. Asaro, E.K. Hyde |
| 1955Mu19 | PHRVA | 97, | 1007 | J.J. Murray, F. Boehm, F. Marmier, J.W.M. Dumond |
| 1955Nu11 | PHYSA | 21, | 77 | R.H. Nussbaum, A.H. Wapstra, M.J. Sterk, R.E.W. Kropveld |
| 1955On05 | PHYSA | 21, | 676 | Ong Ping Hok, P. Kramer |
| 1955Pa50 | AFYSA | 9, | 571 | R.T. Pauli |
| 1955Pe24 | PHRVA | 98, | 262 | I. Perlman, F. Stephens, F. Asaro |
| 1955Ra27 | PHRVA | 99, | 42 | J.O. Rasmussen, H. Slati, T.O. Passel |
| 1955Ro05 | PHRVA | 97, | 97 | H. Roderick, O. Lonsjo, W.E. Meyerhof |
| 1955Sc09 | PHRVA | 99, | 810 | A.W. Schardt, J.P. Welker |
| 1955Th01 | AFYSA | 9, | 137 | S. Thulin |
| 1956 | | | | |
| 1956Ar33 | AFYSA | 10, | 1 | E. Arbmman, N. Svartholm |
| 1956As38 | PHRVA | 104, | 91 | F. Asaro, I. Perlman |
| 1956Av28 | ANPHA | 1, | 10 | P. Avignon |
| 1956Ba39 | ZETFA | 30, | 225 | S.A. Baranov, K.N. Shlyagin |
| 1956Ba95 | JNCEA | 3, | 132 | S.A. Baranov, K.N. Shlyagin |
| 1956Be18 | PHRVA | 101, | 1027 | N. Benczer, B. Farrelly, L. Koerts, C.S. Wu |
| 1956Bi30 | NUCIA | 4, | 758 | A. Bisi, S. Terrani, L. Zappa |
| 1956Bl10 | PHRVA | 104, | 202 | N.C. Blais, W.W. Watson |
| 1956Ch67 | PHRVA | 104, | 1314 | A. Chetham-Strode, L.W. Holm |
| 1956Ch.A | Th.-Berkeley | | | A. Chetham-Strode, Jr. UCRL-3322 |
| 1956Co13 | PHRVA | 101, | 1042 | J.M. Cork, M.K. Brice, D.W. Martin, L.C. Schmid, R.G. Helmer |
| 1956Da06 | ZENAA | 11, | 212 | H. Daniel, R. Nierhaus |
| 1956Do41 | PHRVA | 104, | 1059 | R.A. Douglas, J.W. Broer, R. Chiba, D.F. Herring, E.A. Silverstein |
| 1956Dr11 | PHRVA | 102, | 426 | B.J. Dropesky, A.W. Schardt |
| 1956Du31 | PHRVA | 103, | 1413 | V.S. Dubey, C.E. Mandeville, M.A. Rothman |
| 1956Gr07 | PHRVA | 101, | 776 | D. Green, J.R. Richardson |
| 1956Gr10 | PHRVA | 101, | 701 | W.E. Graves, A.C.G. Mitchell |
| 1956Gr11 | PHRVA | 101, | 1306 | P.R. Gray |
| 1956Gr12 | PHRVA | 101, | 1368 | W.E. Graves, S.K. Suri |
| 1956Gr35 | PHRVA | 102, | 761 | L. Grodzins, H. Motz |
| 1956Ha10 | PHRVA | 101, | 93 | R.W. Hayward, D.D. Hoppes |
| 1956Ha59 | PHRVA | 104, | 183 | R.W. Hayward, D.D. Hoppes |
| 1956Ho23 | JINCA | 2, | 209 | D.C. Hoffman, C.P. Browne |
| 1956Ho66 | PHRVA | 104, | 368 | D.D. Hoppes, R.W. Hayward |
| 1956Jo05 | CJPHA | 34, | 69 | M.W. Johns, C.V. McMullen, I.R. Williams, S.V. Nablo |
| 1956Jo20 | PHRVA | 102, | 831 | N.R. Johnson, R.K. Sheline, R. Wolfgang |
| 1956Ke23 | PHRVA | 103, | 190 | B.H. Ketelle, H. Thomas, A.R. Brosi |
| 1956Ki16 | PHRVA | 102, | 1140 | H.W. Kirby, G.R. Grove, D.L. Timma |
| 1956Ki29 | PHRVA | 104, | 154 | O.C. Kistner, A. Schwarzschild, B.M. Rustad |
| 1956Kn20 | PHRVA | 102, | 1592 | J.D. Knight, J.P. Mize, J.W. Starnner, J.W. Barnes |
| 1956Ko67 | ZETFA | 31, | 771 | L.M. Kondratev, G.I. Novikova, Y.P. Sobolev, L.L. Goldin |
| 1956La24 | ANPHA | 1, | 152 | J. Laberrigue-Frolow |
| 1956Ma14 | PHRVA | 101, | 283 | J.B. Marion, R.A. Chapman |
| 1956Ma27 | PHRVA | 102, | 457 | D.W. Martin, J.M. Cork, S.B. Burson |
| 1956Ma87 | PHRVA | 104, | 1028 | J. Marion, F.B. Hagedorn |
| 1956Nu02 | PHRVA | 101, | 905 | R.H. Nussbaum, A.H. Wapstra, W.A. Bruil, M.J. Sterk, G.J. Nijgh, N. Grobben |
| 1956Ok02 | PHRVA | 101, | 1059 | G.D. O'Kelley, N.H. Lazar, E. Eichler |
| 1956Pe38 | PHRVA | 104, | 740 | J.R. Penning, H.R. Maltrud, J.C. Hopkins, F.H. Schmidt |
| 1956Po16 | ZENAA | 11, | 143 | W. Porschen, W. Riezler |
| 1956Po28 | PHRVA | 103, | 921 | F.T. Porter, M.S. Freedman, T.B. Novey, F. Wagner, Jr. |
| 1956Sa06 | PHRVA | 104, | 1434 | R.M. Sanders |

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| 1956Sc.A | BAPSA | 1, | 162 | A.W. Scharadt, B. Dropesky |
| 1956Sh31 | ZETFA | 30, | 891 | K.N. Shlyagin |
| 1956Sm85 | JINCA | 3, | 93 | H.L. Smith, C.P. Browne, D.C. Hoffman, J.P. Mize, M.E. Bunker |
| 1956Sm96 | PHRVA | 104, | 706 | F.B. Smith, N.B. Gove, R.W. Henry, R.A. Becker |
| 1956Th11 | PHRVA | 102, | 195 | M.T. Thieme, E. Bleuler |
| 1956Tu17 | PHRVA | 103, | 1000 | W. Turchinets, R.W. Pringle |
| 1956Va14 | PHRVA | 103, | 656 | D.M. Van Patter, C.P. Swann, W.C. Porter, C.E. Mandeville |
| 1956Wa24 | PHRVA | 102, | 816 | R.G. Waddell, E.N. Jensen |
| 1956Wo09 | CJPHA | 34, | 256 | J.R. Wolfson |
| 1957 | | | | |
| 1957Ah19 | AFYSA | 11, | 379 | K. Ahnlund |
| 1957Am47 | PHRVA | 106, | 553 | S. Amiel, A. Chetham-Strode, Jr., G.R. Choppin, A. Ghiorso, B.G. Harvey, L.W. Holm, S.G. Thompson |
| 1957As.A | BAPSA | 2, | 393 | F. Asaro, S.G. Thompson, F.S. Stephens, Jr., I. Perlman |
| 1957Ba08 | ZENAA | 12, | 520 | G. Baro, P. Rey |
| 1957Be44 | PHRVA | 107, | 737 | E.M. Bernstein, H.W. Lewis |
| 1957Bi84 | PHRVA | 108, | 1025 | H. Bichsel, T.W. Bonner |
| 1957Bj56 | NUPHA | 4, | 313 | S. Bjornholm, O. Nathan, O.B. Nielsen, R.K. Sheline |
| 1957Br82 | PHRVA | 108, | 1007 | C.P. Browne |
| 1957Bu37 | PHRVA | 106, | 1224 | J.W. Butler, K.L. Dunning, R.O. Bondelid |
| 1957Bu41 | PHRVA | 105, | 227 | M.E. Bunker, J.P. Mize, J.W. Starnes |
| 1957Ch30 | PHRVA | 105, | 633 | R.A. Chapman, J.C. Slattery |
| 1957Co62 | PPSOA | 70, | 769 | R.D. Connor, I.L. Fairweather |
| 1957Da07 | ZENAA | 12, | 363 | H. Daniel |
| 1957Dz64 | IANFA | 21, | 978 | B.S. Dzelepov, O.E. Kraft, V.B. Zhinkina |
| 1957Fr.A | PrvCom | | 58St50 | M.S. Freedman, D.W. Engelkemeir, F.T. Porter, F. Wagner, Jr. |
| 1957Ga15 | PHRVA | 107, | 1628 | D.G. Gardner, W.W. Meinke |
| 1957Gl20 | PHMAB | 2, | 49 | R.N. Glover, D.E. Watt |
| 1957Gr47 | PHRVA | 105, | 1570 | H.G. Graetzer, A.B. Robbins |
| 1957Ha08 | CJPHA | 35, | 258 | B.G. Harvey, H.G. Jackson, T.A. Eastwood, G.C. Hanna |
| 1957Ha99 | PHRVA | 108, | 735 | F.B. Hagedorn |
| 1957He39 | PHRVA | 105, | 1011 | R.L. Heath |
| 1957He43 | NUPHA | 3, | 161 | C.J. Herrlander, T.R. Gerholm |
| 1957Je.A | PrvCom | NDG | Jun | E.N. Jensen |
| 1957Jo24 | PISAA | 45, | 390 | M.C. Joshi, B.N. Subba Rao, B.V. Thosar |
| 1957Ki22 | PHRVA | 105, | 1339 | O.G. Kistner, A. Schwarzschild, B.M. Rustadt, D.E. Alburger |
| 1957Kn.A | PrvCom | NDG | Apr | J.D. Knight |
| 1957Le27 | COREA | 244, | 1358 | C. Levi, L. Papineau |
| 1957Mi63 | ANPHA | 2, | 116 | A. Michalowicz |
| 1957Na03 | NUPHA | 4, | 125 | O. Nathan |
| 1957Ok.A | BAPSA | 2, | 24 | G.D. O'Kelley, Q.V. Larson, G.E. Boyd |
| 1957Oi05 | PHRVA | 106, | 985 | J.L. Olsen, L.G. Mann, M. Lindner |
| 1957Ra04 | PHRVA | 107, | 141 | J.O. Rasmussen, F.L. Canavan, J.M. Hollander |
| 1957Ri43 | ZENAA | 12, | 665 | W. Riezler, G. Kauw |
| 1957Ro54 | CJPHA | 35, | 649 | J.C. Roy, T.P. Kohman |
| 1957Sm73 | PHRVA | 107, | 1314 | W.G. Smith, R.L. Robinson, J.H. Hamilton, L.M. Langer |
| 1957Th10 | PHRVA | 106, | 1228 | T.D. Thomas, R. Vandenbosch, R.A. Glass, G.T. Seaborg |
| 1957Va03 | PHRVA | 107, | 171 | D.M. Van Patter, M.A. Rothman, W.C. Porter, C.E. Mandeville |
| 1957Va08 | PHYSA | 23, | 753 | B. Van Nooijen, J. Konijn, A. Heyligers, J.F. van den Brugge, A.H. Wapstra |
| 1957Wa01 | PHRVA | 105, | 639 | E.K. Warburton, J.N. McGruer |
| 1957Yo04 | PHRVA | 108, | 72 | T.E. Young, G.C. Phillips, R.R. Spencer |
| 1958 | | | | |
| 1958Al99 | PHRVA | 112, | 1998 | D.E. Alburger, S. Ofer, M. Goldhaber |
| 1958Ar56 | AFYSA | 13, | 501 | E. Arberman, J. Brude, T.R. Gerholm |
| 1958Bi41 | PHRVA | 112, | 1089 | H. Bichsel |

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|----------|--------------|------|------|---|
| 1958Br88 | HPACA | 31, | 335 | J. Brunner, J. Halter, P. Scherrer |
| 1958Du78 | PHRVA | 110, | 1076 | K.L. Dunning, J.W. Butler, R.O. Bondelid |
| 1958Ea06 | JINCA | 6, | 261 | T.A. Eastwood, R.P. Schuman |
| 1958El44 | PHRVA | 112, | 1200 | A.J. Elwyn, H.H. Landon, S. Oleksa, G.N. Glasoe |
| 1958Fe16 | PHRVA | 112, | 1238 | J.M. Ferguson |
| 1958Gi05 | PHRVA | 109, | 1263 | J.E. Gindler, J.R. Huizenga, D.W. Engelkemeir |
| 1958GI56 | IANFA | 22, | 941 | M.P. Glazunov, B.F. Fulev |
| 1958Go77 | PRLTA | 1, | 251 | H.E. Gove, J.A. Kuehner, A.E. Litherland, E. Almqvist, D.A. Bromley, A.D. Ferguson, P.H. Rose, R.P. Bastide, N. Brooks, R.D. Connor |
| 1958Gr07 | IANFA | 22, | 194 | E.P. Grigorev, A.V. Zolotavin, I.I. Kuzmin, E.D. Pavlitskaia |
| 1958Ha32 | PHRVA | 112, | 2010 | J.H. Hamilton, L.M. Langer, W.G. Smith |
| 1958Hi.A | Th.-Berkeley | | | M.W. Hill |
| 1958Ho02 | PHRVA | 109, | 1282 | D.C. Hoffman, B.J. Dropesky |
| 1958Jo01 | PHRVA | 109, | 1243 | C.H. Johnson, A. Galonsky, J.P. Ulrich |
| 1958Jo28 | PHRVA | 112, | 1252 | K.W. Jones, L.J. Lidofsky, J.L. Weil |
| 1958Ki40 | PHRVA | 112, | 1972 | O.C. Kistner, B.M. Rustad |
| 1958Ko57 | PHYSA | 24, | 377 | J. Konijn, B. van Nooijen, H.L. Hagedoorn |
| 1958Ko60 | PHYSA | 24, | 129 | J. Konijn, H.L. Hagedoorn, B. van Nooijen |
| 1958Mc64 | PHRVA | 111, | 1636 | M.T. McEllistrem, H.J. Martin, D.W. Miller, M.B. Sampson |
| 1958Na15 | CJPHA | 36, | 1409 | S.V. Nablo, M.W. Johns, A. Artna, R.H. Goodman |
| 1958Ni28 | NUPHA | 9, | 528 | G.J. Nijgh, A.H. Wapstra, L.T.M. Ornstein, N. Salomons-Grobbe |
| 1958No30 | AFYSA | 14, | 85 | T. Novakov, R. Stockendal, M. Schmorak, B. Johansson |
| 1958Pe17 | PHRVA | 110, | 381 | M.L. Perlman, J.P. Welker, M. Wolfsberg |
| 1958Po79 | PHRVA | 112, | 1954 | N.T. Porile |
| 1958Ri23 | ZENAA | 13, | 904 | W. Riezler, G. Kauw |
| 1958Ro09 | PHRVA | 109, | 1255 | R.L. Robinson, L.M. Langer |
| 1958Se71 | IANFA | 22, | 198 | V.A. Sergienko |
| 1958St50 | RMPHA | 30, | 585 | D. Strominger, J.M. Hollander, G.T. Seaborg |
| 1958Su60 | PHRVA | 109, | 109 | C.R. Sun, B.T. Wright |
| 1958Wa.A | P-Paris | | 910 | R.J. Walen, G. Bastin |
| 1958Yt22 | NUPHA | 9, | 108 | C. Ythier, R.K. Girgis, R.A. Ricci, R. van Lieshout |
| 1959 | | | | |
| 1959Ac28 | PHRVA | 114, | 137 | W.T. Achor, W.E. Phillips, J.I. Hopkins, S.K. Haynes |
| 1959Al06 | PHRVA | 116, | 939 | D.E. Alburger, A. Gallmann, D.H. Wilkinson |
| 1959Am16 | PISAA | 50, | 342 | K.S.Y. Ambie, M.C. Yoshi, B.V. Thosar |
| 1959An33 | NUPHA | 13, | 310 | S.L. Anderson, T. Holtebekk, O. Lonsjo, R. Tangen |
| 1959Ba13 | PPSOA | 73, | 513 | F. De S. Barros, P.D. Forsyth, A.A. Jaffe, I.J. Taylor |
| 1959Be72 | PHRVA | 115, | 108 | N. Benczer-Koller, A. Schwarzschild, C.S. Wu |
| 1959Bo52 | ZEPYA | 155, | 488 | F. Bonhoeffer, H.H. Hennies, A. Flammersfeld |
| 1959Bo61 | NUPHA | 14, | 145 | P. Boskma, H. De Waard |
| 1959Br06 | CJPHA | 37, | 1514 | D.A. Bromley, A.J. Ferguson, H.E. Gove, J.A. Kuehner, A.E. Litherland, E. Almqvist, R. Batchelor |
| 1959Br65 | PHRVA | 113, | 239 | A.R. Brosi, B.H. Ketelle, H.C. Thomas, R.J. Kerr |
| 1959Br74 | NUPHA | 12, | 662 | C.P. Browne |
| 1959Bu20 | PHRVA | 116, | 143 | M.E. Bunker, B.J. Dropesky, J.D. Knight, J.W. Stamer, B. Warren |
| 1959Co63 | PPSOA | 74, | 161 | R.D. Connor, I.L. Fairweather |
| 1959Cu86 | PHRVA | 114, | 1600 | J.B. Cumming |
| 1959Dr.A | BAPSA | 4, | 57 | B.J. Dropesky, D.C. Hoffman, W.R. Daniels |
| 1959Fe99 | CJPHA | 37, | 660 | A.J. Ferguson, H.E. Gove |
| 1959FI40 | PHRVA | 116, | 744 | K.F. Flynn, L.E. Glendenin |
| 1959Gh.A | UCRL- 8714 | | | A. Ghiorso |
| 1959Gi50 | NUPHA | 12, | 204 | R.K. Girgis, R. van Lieshout |
| 1959Gi54 | PHRVA | 115, | 1271 | J.E. Gindler, J. Gray, Jr., J.R. Huizenga |
| 1959Go68 | PHRVA | 113, | 246 | C.R. Gossett, J.W. Butler |
| 1959Gr93 | IANFA | 23, | 191 | E.P. Grigorev, A.V. Zolotavin, B. Kratsik |
| 1959Ha27 | PHRVA | 114, | 1133 | D.S. Harmer, M.L. Perlman |
| 1959Hi66 | PPSOA | 73, | 501 | S. Hinds, R. Middleton |

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| 1959Hi67 | PPSOA | 73, | 721 | S. Hinds, R. Middleton |
| 1959Hi68 | PPSOA | 73, | 727 | S. Hinds, R. Middleton |
| 1959Hi75 | PPSOA | 74, | 779 | S. Hinds, R. Middleton |
| 1959Ho97 | AFYSA | 15, | 387 | G. Holm, H. Ryde |
| 1959Jo37 | PHRVA | 114, | 279 | N.R. Johnson, G.D. O'Kelley |
| 1959Ju40 | PHRVA | 113, | 602 | J.O. Juliano, C.W. Kocher, T.D. Nainan, A.C.G. Mitchell |
| 1959Ke26 | NUPHA | 11, | 492 | W.H. Kelly, G.B. Beard, R.A. Peters |
| 1959Kn38 | JINCA | 10, | 183 | J.D. Knight, D.C. Hoffman, B.J. Dropesky, D.L. Frasco |
| 1959Ku79 | PHYSA | 25, | 600 | J. Kuperus, P.J.M. Smulders, P.M. Endt |
| 1959Me68 | PPSOA | 74, | 693 | R.E. Meads, J.E.G. McIldowie |
| 1959Mi19 | CJPHA | 37, | 1126 | C.H. Millar, T.A. Eastwood, J.C. Roy |
| 1959No41 | ZETFA | 37, | 928 | G.I. Novikova, E.A. Volkova, L.I. Goldin, D.M. Ziv, E.F. Tretyakov |
| 1959Pe27 | ZETFA | 37, | 1558 | V.P. Pereygin, E.D. Donets, G.N. Flerov |
| 1959Po77 | PHRVA | 114, | 1286 | F.T. Porter, P.P. Day |
| 1959Ri35 | NUPHA | 10, | 360 | R.A. Ricci, R. van Lieshout |
| 1959Ro53 | CJPHA | 37, | 385 | J.P. Roy, L.P. Roy |
| 1959Su.A | BAPSA | 4, | 278 | D.C. Sutton, H.A. Hill, R. Sherr, and PrvCom |
| 1959To25 | BAPSA | 4, | 366 | C.W. Townley, J.D. Kurbatov, M.H. Kurbatov |
| 1959Va02 | PHRVA | 115, | 115 | S.E. Vandenbosch, H. Diamond, R.K. Sjoblom, P.R. Fields |
| 1959Va32 | PHRVA | 113, | 259 | S.E. Vandenbosch |
| 1959We30 | PHRVA | 113, | 881 | H.I. West, Jr., L.G. Mann, G.M. Iddings |
| 1959Yo25 | PHRVA | 116, | 962 | T.E. Young, G.C. Phillips, R.R. Spencer, D.A.A.S.N. Rao |
| 1960 | | | | |
| 1960An04 | ZETFA | 38, | 372 | S.F. Antonova, S.S. Vasilenko, M.G. Kaganskii, D.L. Kaminskii |
| 1960Ar05 | CJPHA | 38, | 1577 | A. Artna, M.E. Law |
| 1960Ba17 | NUPHA | 15, | 566 | G. Backstrom, O. Bergman, J. Burde, J. Lindskog |
| 1960Ba44 | IANFA | 24, | 1035 | S.A. Baranov, A.G. Zelenkov, V.M. Kulakov |
| 1960Bo21 | PHRVA | 120, | 889 | R.O. Bondelid, C.A. Kennedy, J.W. Butler |
| 1960Cl02 | NUPHA | 14, | 472 | R.L. Clarke, E. Almqvist, E.B. Paul |
| 1960Cr01 | NUPHA | 14, | 578 | C.B. Creager, C.W. Kocher, A.C.G. Mitchell |
| 1960Dr03 | NUPHA | 16, | 357 | B.J. Dropesky, A.W. Schardt, T.T. Shull |
| 1960Dz02 | IANFA | 24, | 802 | B.S. Dzelepov, I.F. Uchevatkin, S.A. Shestopalova |
| 1960Fe03 | ANPHA | 5, | 181 | L. Feuvrais |
| 1960Fo01 | PPSOA | 75, | 291 | P.D. Forsyth, F. De S. Barros, A.A. Jaffe, T.J. Taylor, S. Ramavataram |
| 1960Fr04 | PHRVA | 120, | 1436 | J.M. Freeman |
| 1960Ge01 | PHRVA | 118, | 1302 | K.N. Geller, J. Halpern, E.G. Muirhead |
| 1960Gi01 | NUPHA | 14, | 589 | R.K. Girgis, R.A. Ricci, R. van Lieshout |
| 1960Gu05 | AFYSA | 17, | 337 | R.K. Gupta |
| 1960Ha26 | PHRVA | 119, | 772 | J.H. Hamilton, L.M. Langer, W.G. Smith |
| 1960He09 | PHRVA | 119, | 788 | R.G. Helmer, S.B. Burson |
| 1960Hi03 | PPSOA | 75, | 444 | S. Hinds, R. Middleton |
| 1960Ho.A | PrvCom | | Hyde | R.W. Hoff, F. Asaro, I. Perlman, in E.K. Hyde, I. Perlman, G.T. Seaborg, Nuclear Properties Heavy Elements p. 799 |
| 1960Ja07 | PHRVA | 117, | 1086 | T.H. Jacobi, H.A. Howie, J.R. Richardson |
| 1960Ja13 | PHRVA | 120, | 914 | N. Jarmie, M.G. Silbert |
| 1960Ja17 | PPSOA | 76, | 914 | A.A. Jaffe, F. De S. Barros, P.D. Forsyth, J. Muto, I.J. Taylor, S. Ramavataram |
| 1960Je03 | NUPHA | 19, | 654 | B.S. Jensen, O.B. Nielsen, O. Skilbreit |
| 1960Ka14 | PHRVA | 119, | 1953 | W.R. Kane, G.T. Emery, G. Scharff-Goldhaber, M. McKeown |
| 1960Ka20 | JUPSA | 15, | 2140 | T. Katoh, M. Nozawa, Y. Yoshizawa, Y. Koh |
| 1960Ko04 | ZETFA | 38, | 1436 | A.P. Komar, G.A. Korolev, G.E. Kocharov |
| 1960Ko12 | PHRVA | 120, | 1348 | C.W. Kocher, A.C.G. Mitchell, C.B. Creager, T.D. Nainan |
| 1960Ku06 | JUPSA | 15, | 2179 | T. Kuroyanagi |
| 1960La04 | PHRVA | 119, | 1308 | L.M. Langer, D.R. Smith |
| 1960Lu07 | ZENAA | 15, | 939 | G. Luhrs, C. Mayer-Borricke |
| 1960Ma21 | PPSOA | 76, | 56 | B.E.F. Macefield, J.H. Towle |
| 1960Ma.A | UCRL- 8740 | | | T.V. Marshall |
| 1960Mc12 | NUPHA | 17, | 116 | G.J. McCallum, A.T.G. Ferguson, G.S. Mani |

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| 1960Mi.A | Th.-Princeton | | | J.H. Miller III |
| 1960Mo01 | JUPSA | 15, | 213 | H. Morinaga, T. Kuroyanagi, H. Mitsui, K. Shoda |
| 1960Mo.A | BAPSA | 5, | 338 | R.B. Moore |
| 1960Mu07 | PPSOA | 75, | 929 | J. Muto, F. De S. Barros, A.A. Jaffe |
| 1960Nu02 | PHRVA | 120, | 1815 | H. Nutley, J.B. Gerhard |
| 1960Pr07 | PHRVA | 118, | 113 | W.W. Pratt, R.G. Cochran |
| 1960Sc14 | NUPHA | 21, | 55 | W. Schneider |
| 1960Se05 | NUPHA | 16, | 138 | O.J. Segaert, J. Demuynck, A.M. Hoogenboom, H. van den Bold |
| 1960Sp08 | NUPHA | 21, | 310 | R.R. Spencer, G.C. Phillips, T.E. Young |
| 1960Ta12 | PPSOA | 75, | 772 | I.J. Taylor, F. De S. Barros, P.D. Forsyth, A.A. Jaffe, S. Ramavataram |
| 1960Ta19 | NUPHA | 21, | 133 | K. Takahashi, H. Morinaga |
| 1960Vo05 | ZETFA | 39, | 70 | A.A. Vorobiev, A.P. Komar, V.A. Korolev |
| 1960Vo07 | IANFA | 24, | 1092 | A.A. Vorobiev, A.P. Komar, V.A. Korolev |
| 1960Wa03 | PHRVA | 117, | 191 | W.R. Ware, E.O. Wiig |
| 1960Wa04 | PHRVA | 117, | 1297 | R. Wallace, J.A. Welch, Jr. |
| 1960Wa10 | PHRVA | 118, | 181 | M.A. Wahlgren, W.W. Meinke |
| 1960Wa14 | NUPHA | 16, | 246 | R.J. Walen, G. Bastin-Scoffier |
| 1960Wi07 | PHRVA | 117, | 1325 | R.M. Williamson, T. Katman, B.S. Burton |
| 1960Yu01 | NUPHA | 16, | 119 | H. Yuta, H. Morinaga |
| 1960Ze02 | PHRVA | 120, | 1723 | B. Zeidman, J.L. Yntema, B.J. Raz |
| 1961 | | | | |
| 1961Ar05 | NUPHA | 22, | 341 | E. Arberman, I.B. Haller |
| 1961Ar15 | CJPHA | 39, | 1817 | A. Artina, M.W. Johns |
| 1961Ba43 | ZETFA | 41, | 1484 | K.A. Baskova, S.S. Vasilev, N.S. Chang, L.Y. Shavtvalov |
| 1961Ba44 | ZETFA | 41, | 1733 | S.A. Baranov, V.M. Kulakov, P.S. Samoilov, A.G. Zelenkov, Y.F. Rodionov |
| 1961Be13 | PHRVA | 123, | 2100 | E.H. Beckner, R.L. Bramblett, G.C. Phillips, T.A. Eastwood |
| 1961Be15 | PHRVA | 122, | 1576 | G.B. Beard, W.H. Kelly |
| 1961Be20 | ZETFA | 40, | 91 | A. Bedesku, O.M. Kalinkina, K.P. Mitrofanov, A.A. Sorokin, N.V. Forafontov, V.S. Shpinel |
| 1961Be41 | NUPHA | 28, | 570 | G.B. Beard, W.H. Kelly |
| 1961Bo13 | PHRVA | 124, | 213 | H.H. Bolotin, A.C. Li, A. Schwarzschild |
| 1961Bo24 | NUPHA | 27, | 581 | N.A. Bonch-Osmolovskaya, B.S. Dzelepov, O.E. Kraft, Y.Y. Yang |
| 1961Bo.B | P-Dubna | | | N.A. Bonch-Osmolovskaya, B.S. Dzelepov, O.E. Kraft |
| 1961Bu04 | PHRVA | 121, | 1770 | J.W. Butler, R.O. Bondelid |
| 1961Cu02 | PHRVA | 122, | 1267 | J.B. Cumming, N.T. Porile |
| 1961Da01 | ZEPYA | 164, | 303 | H. Daniel, P. Panussi |
| 1961De17 | NUPHA | 28, | 148 | H.G. Devare |
| 1961De25 | JOPQA | 22, | 656 | P. Depommier, M. Chabre |
| 1961Di04 | NUPHA | 25, | 248 | R.M. Diamond, J.M. Hollander, D.J. Horen, R.A. Naumann |
| 1961Du02 | PHRVA | 123, | 1321 | K.L. Dunning, J.W. Butler |
| 1961Er04 | AFYSA | 20, | 209 | P. Erman, Z. Sujkowski |
| 1961Fi05 | AFYSA | 19, | 323 | R.W. Fink, G. Andersson, J. Kantele |
| 1961Ga05 | PHRVA | 122, | 1590 | C.J. Gallagher, Jr., H.L. Nielsen, O.B. Nielsen |
| 1961GI02 | PHRVA | 122, | 229 | C.E. Gleit, C.D. Coryell |
| 1961GI06 | PHRVA | 124, | 1914 | C.E. Gleit, C.D. Coryell |
| 1961Gr33 | IANFA | 25, | 1217 | E.P. Grigorev, K.Y. Gromov, B.S. Dzelepov, Z.T. Zhelev, V. Zvolska, I. Zvolskii |
| 1961Gu02 | AFYSA | 18, | 443 | R.K. Gupta, J. Svedberg, G. Andersson |
| 1961Hi06 | JUPSA | 16, | 1280 | H. Hisatake |
| 1961Hi11 | PPSOA | 78, | 473 | S. Hinds, H. Marchant, R. Middleton |
| 1961Ho10 | JUPSA | 16, | 841 | S. Homma, T. Kuroyanagi, H. Morinaga |
| 1961Ho13 | JINCA | 18, | 1 | R.W. Hoff, J.M. Hollander, M.C. Michel |
| 1961Ja07 | PHRVA | 123, | 909 | N. Jarmie, M.G. Silbert |
| 1961Ja21 | PHRVA | 124, | 1142 | H.E. Jackson, L.M. Bollinger |
| 1961Ja22 | ZEPYA | 165, | 94 | J. Jaenecke, H. Jung |
| 1961Ja23 | RMXFA | 10, | 247 | A. Jaidar, G. Lopez, M. Mazari, R. Dominguez |
| 1961Jo08 | PHRVA | 122, | 1546 | N.R. Johnson, E. Eichler, G.D. O'Kelley, J.W. Chase, J.T. Wasson |
| 1961Jo15 | PHRVA | 124, | 157 | R.C. Jopson, H. Mark, C.S. Swift, J.H. Zenger |

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| 1961Ju05 | AFYSA | 17, | 429 | B. Jung, T. Svedberg |
| 1961Ko11 | IANFA | 25, | 237 | G.E. Kocharov, G.A. Korolev |
| 1961Ku09 | JUPSA | 16, | 2369 | T. Kuroyanagi |
| 1961Ku10 | JUPSA | 16, | 2393 | T. Kuroyanagi, H. Yuta, K. Takahashi, H. Morinaga |
| 1961La05 | DANKA | 137, | 551 | A.K. Lavrukhina, T.V. Malysheva, B.A. Khotin |
| 1961La16 | ZEPYA | 165, | 393 | H. Langhoff, P. Kilian, A. Flammersfeld |
| 1961Ma03 | PHRVA | 121, | 877 | H.J. Martin, M.B. Sampson, D.W. Miller |
| 1961Ma05 | PHRVA | 121, | 1758 | R.D. Macfarlane, T.P. Kohman |
| 1961Ma08 | PPSOA | 77, | 1050 | B.E.F. Macefield, J.H. Towle, W.B. Gilboy |
| 1961Ni02 | PHRVA | 122, | 172 | R.T. Nichols, R.E. McAdams, E.N. Jensen |
| 1961Pe23 | ZETFA | 41, | 1780 | K.A. Petrzhak, M.I. Yakunin |
| 1961Re06 | JINCA | 18, | 13 | I. Rezanka, J. Frana, M. Vobecky, A. Mastalka |
| 1961Ri02 | NUPHA | 24, | 494 | R. Rikmenspoel, C.M. Van Patter |
| 1961Ro12 | PHRVA | 123, | 1349 | E.L. Robinson, O.E. Johnson |
| 1961Ru06 | Th.-Berkeley | | | C.P. Ruiz |
| 1961Ry02 | HPACA | 34, | 240 | A. Rytz |
| 1961Ry04 | HPACA | 34, | 819 | A. Rytz, H. Winkler, F. Zamboni, W. Zych |
| 1961Ry05 | HPACA | 34, | 819 | A. Rytz, H.H. Staub, H. Winckler |
| 1961Sa11 | PHRVA | 123, | 855 | D. Sadeh |
| 1961Sc11 | PHRVA | 123, | 893 | A.W. Schardt, A. Goodman |
| 1961Se08 | IANFA | 25, | 848 | I.P. Selinov, V.L. Chikhladze, D.E. Khulelidze |
| 1961Sh23 | NUPHA | 28, | 649 | S.M. Shafroth |
| 1961Si03 | PHRVA | 123, | 221 | M.G. Silbert, N. Jarmie |
| 1961Sm05 | PHRVA | 122, | 1527 | A.M. Smith, F.E. Steigert |
| 1961Th01 | PHRVA | 124, | 1526 | T.T. Thwaites, W.W. Pratt |
| 1961To03 | PPSOA | 77, | 399 | J.H. Towle, B.E.F. Macefield |
| 1961To10 | JOPQA | 22, | 683 | J. Tousset, A. Moussa |
| 1961Va08 | ZETFA | 40, | 475 | S.S. Vasilev, No Hsieng Chang, L. Ya. Shavtvalov |
| 1961Va19 | IANFA | 25, | 1127 | A.K. Valter, I.I. Zalubovski, A.P. Klyucharev, V.A. Lutsik |
| 1961We11 | PHRVA | 124, | 527 | H.I. West, Jr., L.G. Mann, R.J. Nagle |
| 1961Ya01 | PHRVA | 121, | 600 | S.S. Yamamoto, F.E. Steigert |
| 1961Zy02 | APPOA | 20, | 321 | J. Żylicz, Z. Preibisz, S. Chojnacki, J. Wolowski, Y. Norseev |
| 1962 | | | | |
| 1962An05 | ZENAA | 17, | 238 | G. Andersson-Lindstrom |
| 1962Ar05 | PRLTA | 9, | 405 | P.E. Argan, G. Bendiscioli, A. Piazzoli, V. Bisi, M.I. Ferrero, G. Piragino |
| 1962Ba23 | PRLTA | 9, | 16 | R.C. Barber, L.A. Cambey, J.H. Ormrod, R.L. Bishop, H.E. Duckworth |
| 1962Ba24 | CJPHA | 40, | 1496 | R.C. Barber, R.L. Bishop, L.A. Cambey, W. McLatchie, H.E. Duckworth |
| 1962Ba26 | PHRVA | 127, | 583 | R.K. Bardin, C.A. Barnes, W.A. Fowler, P.A. Seeger |
| 1962Ba28 | NUPHA | 33, | 347 | B. Basu, A.P. Patro |
| 1962Ba32 | AFYSA | 21, | 65 | E. Bashandy, M.S. El-Nesr |
| 1962Bj01 | NUPHA | 30, | 488 | S. Bjornholm, O.B. Nielsen |
| 1962Bo22 | IANFA | 26, | 975 | N.A. Bonch-Osmolovskaya, K. Ya. Gromov, B.S. Dzelepov, O.E. Kraft, T.V. Malysheva, L.N. Nikityuk, B.A. Khotin, Chzhou, Yue-Va, V.G. Chumin |
| 1962Bo25 | AFYSA | 22, | 111 | E.C.O. Bonacalza, P. Thieberger, I. Bergström |
| 1962Br10 | PHRVA | 125, | 992 | C.P. Browne, W.E. Dorenbusch, J.R. Erskine |
| 1962Br15 | PHRVA | 125, | 1323 | H.W. Brandhorst, Jr., J.W. Cobble |
| 1962Bu16 | PHRVA | 127, | 844 | M.E. Bunker, B.J. Dropesky, J.D. Knight, J.W. Starner |
| 1962Ch21 | ZETFA | 43, | 453 | V.L. Chikhladze, D.E. Khulelidze, R.A. Ryukhin |
| 1962Cr04 | NUPHA | 34, | 580 | J.G. Cramer, Jr., C.M. Class |
| 1962Da03 | NUPHA | 31, | 293 | H. Daniel |
| 1962Ei02 | NUPHA | 35, | 625 | E. Eichler, G.D. O'Kelley, R.L. Robinson, J.A. Marinsky, N.R. Johnson |
| 1962El02 | NUPHA | 31, | 128 | M.S. El-Nesr, E. Bashandy |
| 1962Ew01 | NUPHA | 29, | 153 | G.T. Ewan, R.L. Graham, J.S. Geiger |
| 1962Fr07 | ZEPYA | 169, | 456 | L. Frevert |
| 1962Fr09 | NUPHA | 38, | 89 | J.M. Freeman, D. West |
| 1962Fu16 | NUPHA | 39, | 147 | E.G. Funk, Jr., J.W. Mihelich, C.F. Schwerdtfeger |
| 1962Ga07 | NUPHA | 33, | 285 | C.J. Gallagher, Jr., M. Jorgensen, O. Skilbreid |

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| 1962Gu03 | PHRVA | 126, | 642 | R. Gunnink, A.W. Stoner |
| 1962Hi01 | NUPHA | 31, | 118 | S. Hinds, M. Marchant, R. Middleton |
| 1962Hi06 | NUPHA | 38, | 81 | S. Hinds, H. Marchant, R. Middleton |
| 1962Ho14 | PHRVA | 128, | 2748 | D.A. Howe, L.M. Langer, E.H. Spejewski, D.E. Wortman |
| 1962In01 | NUPHA | 38, | 50 | H. Inoue, J. Ruan, S. Yasukawa, Y. Yoshizawa |
| 1962Ka08 | NUPHA | 32, | 25 | T. Katoh, M. Nozawa, Y. Yoshizawa |
| 1962Ka23 | NUPHA | 36, | 394 | T. Katoh, M. Nozawa, Y. Yoshizawa, Y. Koh |
| 1962Ka27 | AAFPA | 6, | 96 | P. Kauranen |
| 1962Kh05 | IANFA | 26, | 1036 | D.E. Khulelidze, V.L. Chikhladze, N.A. Vartenov, Y.A. Kyukhin |
| 1962Ko10 | NUPHA | 39, | 89 | K. Kotajima |
| 1962Ko12 | IANFA | 26, | 235 | G.A. Korolev, G.E. Kocharov |
| 1962La10 | NUPHA | 35, | 582 | N.L. Lark, P.F.A. Goudsmit, J.F.W. Jansen, J.E.J. Oberski, A.H. Wapstra |
| 1962Li03 | NUPHA | 31, | 584 | E.W.A. Lingeman, K.E.G. Lobner, G.J. Nijgh, A.H. Wapstra |
| 1962Lo10 | ZETFA | 43, | 1579 | V.M. Lobashov, V.A. Nazarenko, L.F. Saenko |
| 1962Ma06 | PHRVA | 125, | 942 | H.J. Martin, Jr., M.B. Sampson, R.L. Preston |
| 1962Ne08 | PHRVA | 125, | 2005 | J.W. Nelson, H.S. Plendl, R.H. Davis |
| 1962No06 | NUPHA | 36, | 411 | M. Nozawa |
| 1962Nu01 | PHRVA | 127, | 943 | M. Nurmia, P. Kauranen, A. Siivola |
| 1962Pa05 | PHRVA | 127, | 1258 | A.P. Patro, B. Basu |
| 1962Pe08 | HPACA | 35, | 175 | C.F. Perdrisat, J.H. Brunner, H.J. Leisi |
| 1962Pe15 | PHRVA | 127, | 917 | I. Perlman, F. Asaro, A. Ghiorso, A. Larsh, R. Latimer |
| 1962Pi02 | PHRVA | 127, | 1708 | W.R. Pierson, H.C. Griffin, C.D. Coryell |
| 1962Pu01 | NUPHA | 36, | 1 | D.J. Pullen, A.E. Litherland, S. Hinds, R. Middleton |
| 1962Ru05 | NUPHA | 36, | 431 | J. Ruan, Y. Yoshizawa, Y. Koh |
| 1962Sc04 | PHRVA | 125, | 1641 | C.F. Schwerdtfeger, E.G. Funk, Jr., J.W. Mihelich |
| 1962Se03 | PHRVA | 125, | 968 | M.L. Seghal |
| 1962Sh01 | NUPHA | 29, | 177 | R.K. Sheline, R.A. Harlan |
| 1962Si14 | AAFPA | 6, | 109 | A. Siivola |
| 1962Un01 | NUPHA | 36, | 284 | J. Unik, P. Day, S. Vandenbosch |
| 1962Va08 | NUPHA | 30, | 177 | S.E. Vandenbosch, P. Day |
| 1962Va10 | NUPHA | 31, | 406 | B. Van Nooijen, H. van Krugten, W.J. Wieseahn, A.H. Wapstra |
| 1962Wa15 | PHMAB | 7, | 105 | D.E. Watt, R.N. Glover |
| 1962Wa16 | NUPHA | 31, | 575 | A.H. Wapstra, J.F.W. Jansen, P.F.A. Goudsmit, J. Oberski |
| 1962Wa18 | NUPHA | 35, | 232 | R.J. Walen, V. Nedovesov, G. Bastin-Scoffier |
| 1962Wa20 | NUPHA | 36, | 207 | L.B. Warner, R.K. Sheline |
| 1962Wa28 | COREA | 255, | 1604 | R.J. Walen |
| 1962Ya01 | NUPHA | 30, | 68 | T. Yamazaki, H. Ikegami, M. Sakai |
| 1963 | | | | |
| 1963Ab02 | PHLTA | 5, | 359 | A. Abdumalikov, A. Abdurazakov, K. Gromov, Z. Zhelev, N. Lebedev, B. Dzelepov, A. Kudryavtseva |
| 1963Ba20 | CJPHA | 41, | 696 | R.C. Barber, R.L. Bishop, W. McLatchie, P. Van Rookhuyzen, H.E. Duckworth |
| 1963Ba31 | NUPHA | 43, | 264 | C.V.K. Baba, G.T. Ewan, J.F. Suarez |
| 1963Ba32 | NUPHA | 43, | 285 | C.V.K. Baba, G.T. Ewan, J.F. Suarez |
| 1963Ba37 | ZETFA | 44, | 35 | N.B. Badalov, S.S. Vasilenko, M.G. Kaganskii, D.L. Kaminskii, M.K. Nikitin |
| 1963Ba47 | CJPHA | 41, | 1482 | R.C. Barber, W. McLatchie, R.L. Bishop, P. Van Rookhuyzen, H.E. Duckworth |
| 1963Ba52 | PHRVA | 132, | 1763 | F.J. Bartis |
| 1963Bi03 | NUPHA | 41, | 21 | K.M. Bisgard, P. Dahl, P. Hornshøj, A.B. Knutsen |
| 1963Bi12 | CJPHA | 41, | 1532 | R.L. Bishop, R.C. Barber, W. McLatchie, J.D. Macdougall, P. Van Rookhuyzen, H.E. Duckworth |
| 1963Bj01 | NUPHA | 42, | 469 | S. Bjornholm, F. Boehm, A.B. Knutsen, O.B. Nielsen |
| 1963Bj02 | NUPHA | 42, | 642 | S. Bjornholm, O.B. Nielsen |
| 1963Bo07 | PHRVA | 130, | 1078 | R.O. Bondelid, J.W. Butler |
| 1963Bo14 | PHYSA | 29, | 277 | P. Born, C. Bobeldijk, W.A. Oost, J. Blok |
| 1963Bo17 | PHYSA | 29, | 535 | P. Born, A. Veefkind, W.H. Elsenaar, J. Blok |
| 1963Ca03 | PHRVA | 129, | 1782 | D.C. Camp, L.M. Langer |
| 1963Ca06 | PHRVA | 132, | 2239 | T.A. Carlson |
| 1963Ch03 | NUCIA | 27, | 86 | G. Chilosi, P. Cuzzocrea, G.B. Vingiani, R.A. Ricci, H. Morinaga |

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| 1963Cr06 | PHRVA | 132, | 1681 | B. Crasemann, G.T. Emery, W.R. Kane, M.L. Perlman |
| 1963Da03 | ZEPYA | 172, | 202 | H. Daniel, O. Mehling, D. Schotte |
| 1963Da10 | PHRVA | 132, | 1673 | R.A. Damerow, R.R. Ries, W.H. Johnson, Jr. |
| 1963De11 | JINCA | 25, | 741 | P. Del Marmol, P.F. Fettweis |
| 1963Di05 | JINCA | 25, | 143 | H. Diamond, J.E. Gindler |
| 1963Do07 | PHRVA | 132, | 2600 | I. Dostrovsky, S. Katcoff, R.W. Stoenner |
| 1963Dz07 | ZETFA | 45, | 1360 | B.S. Dzelepov, R.B. Ivanov, V.G. Nedovesov, V.P. Chechev |
| 1963Em02 | PHRVA | 129, | 2597 | G.T. Emery, W.R. Kane, M. McKeown, M.L. Perlman, G. Scharff-Goldhaber |
| 1963Fr04 | PHRVA | 131, | 772 | A.M. Friedman, J. Milsted |
| 1963Fr10 | PHRVA | 132, | 2169 | G. Frick, A. Gallmann, D.E. Alburger, D.H. Wilkinson, J.P. Coffin |
| 1963Fu17 | KERNA | 6, | 152 | L. Funke, K. Hohmuth, H. Jungclaussen, K.-H. Kaun, G. Muller, H. Sodan, L. Werner |
| 1963Ga09 | PHRVA | 131, | 1759 | B.R. Gasten |
| 1963Ge02 | NUPHA | 40, | 177 | K.N. Geller |
| 1963Gl04 | PHRVA | 130, | 299 | N.W. Glass, R.W. Peterson |
| 1963Go06 | NUCIA | 30, | 14 | K.P. Gopinathan, M.C. Joshi, M. Radha Menon |
| 1963Gr08 | AAFPA | 6, | 128 | G. Graeffe |
| 1963Gr.A | BAPSA | 8, | 486 | D.E. Groce, J.H. McNally, W. Whaling |
| 1963Gu04 | PHRVA | 131, | 301 | R. Gunnink |
| 1963Ho18 | JINCA | 25, | 1303 | R.W. Hoff, F. Asaro, I. Perlman |
| 1963Ho.A | PrvCom | AHW | | A.M. Hoogenboom |
| 1963Ik01 | NUPHA | 41, | 130 | H. Ikegami, K. Sugiyama, T. Yamazaki, M. Sakai |
| 1963Ja06 | NUPHA | 41, | 303 | A. Jasinski, J. Kownacki, H. Lancman, J. Ludziejewski, S. Chojnacki, I. Yutlandov |
| 1963Ja12 | PHLTA | 6, | 69 | J. Jaenecke |
| 1963Jo04 | NUPHA | 41, | 167 | C.H. Johnson, F. Pleasonton, T.A. Carlson |
| 1963Ka21 | PHLTA | 6, | 98 | M. Karras, J. Kantele |
| 1963Ko08 | PHRVA | 130, | 1503 | P.F.M. Koehler, L. Slack, N.B. Gove |
| 1963Kr04 | CZYPA | 13, | 79 | B. Kracik, Z. Miligui, V. Brabec, M. Vejs, A. Mastalka, T. Kucarova |
| 1963Ku22 | NUPHA | 48, | 675 | T. Kuroyanagi, T. Tamura |
| 1963La06 | PHRVA | 132, | 324 | L.M. Langer, D.E. Wortman |
| 1963Ma27 | NUPHA | 44, | 309 | B.E.F. Macefield, R. Middleton, D.J. Pullen |
| 1963Me06 | NUPHA | 46, | 233 | D.G. Megli, T.T. Thwaites |
| 1963Me08 | NUPHA | 48, | 90 | M.K. Mehta, W.E. Hunt, H.S. Plendl, R.H. Davis |
| 1963Mi17 | NUPHA | 49, | 315 | K. Miyano, T. Kuroyanagi |
| 1963Ne05 | PHRVA | 129, | 1723 | J.W. Nelson, E.B. Carter, G.E. Mitchell, R.H. Davis |
| 1963Ok01 | JUPSA | 18, | 1563 | K. Okano, K. Nishimira |
| 1963Or01 | PHRVA | 132, | 355 | C.J. Orth, M.E. Bunker, J.W. Starnner |
| 1963Pa09 | NUPHA | 45, | 336 | M. Pasternak, T. Sonnino |
| 1963Pe11 | AFYSA | 23, | 1 | L. Persson, R. Hardell, S. Nilsson |
| 1963Pe13 | NUPHA | 44, | 653 | L. Persson, H. Ryde, K. Oelsner-Ryde |
| 1963Pe16 | PHLTA | 6, | 347 | L. Persson |
| 1963Pl01 | CZYPA | 13, | 23 | Z. Plajner, L. Maly, N. Eissa, A. Benadek |
| 1963Pr13 | BAPMA | 11, | 691 | Z. Preibisz, K. Pawlak, K. Stryczniewicz |
| 1963Rh02 | PHRVA | 131, | 1227 | J.I. Rhode, O.E. Johnson |
| 1963Ri07 | PHRVA | 132, | 1662 | R.R. Ries, R.A. Damerow, W.H. Johnson, Jr. |
| 1963Ro10 | PHRVA | 129, | 2653 | P.C. Rogers, G.E. Gordon |
| 1963Ry01 | AFYSA | 23, | 171 | H. Ryde, L. Persson, K. Oelsner-Ryde |
| 1963Ry04 | NUPHA | 43, | 229 | A. Rytz, H.H. Staub, H. Winkler, F. Zamboni |
| 1963Sc15 | PHRVA | 132, | 2650 | F. Schima, E.G. Funk, Jr., J.W. Mihelich |
| 1963St06 | NUPHA | 41, | 524 | W.A. Stensland, A.F. Voigt |
| 1963Su.A | Th.-Berkeley | | | V.B. Subrahmanyam |
| 1963Ta05 | NUPHA | 41, | 221 | H.W. Taylor, G.N. White, R. McPherson |
| 1963Th02 | NUPHA | 41, | 380 | B.V. Thosar, R.P. Sharma, K.G. Prasad |
| 1963Th03 | PHRVA | 129, | 1778 | T.T. Thwaites |
| 1963Va24 | PHYSA | 29, | 990 | C. van der Leun, P.M. Endt |
| 1963Va37 | ZETFA | 45, | 1385 | S.S. Vasilev, L.Y. Shavtvalov |
| 1963Ve09 | PHRVA | 132, | 1736 | M.N. Vergnes, R.K. Sheline |
| 1963Wo01 | PHRVA | 131, | 325 | D.E. Wortman, L.M. Langer |

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|----------|----------|------|------|--|
| 1963Wo04 | RAACA | 1, | 225 | G. Wolzak, H. Morinaga |
| 1963Wu01 | CHJPB | 19, | 524 | P.-K. Wung, G.-G. Yan, S.-K. Chu, S.-P. Chen, S. Huo, S.-F. Wang, L.-S. Chen |
| 1963Yo07 | NUPHA | 46, | 78 | Y. Yoshizawa, H. Okamura, S. Iwata, I. Fugiwara, T. Shigematsu, M. Tabushi, T. Tarumoto, K. Sakamoto |
| 1963Zy01 | NUPHA | 42, | 330 | J. Żylicz, Z. Sujkowski, J. Jastrzebski, O. Wolczek, S. Chojnacki, I. Yutlandov |
| | | | 1964 | |
| 1964Ag.A | P-Tbilis | | 63 | V.K. Ageev, K.Y. Gromov, B.S. Dzelepov, Z. Zhelev, V. Kalinnikov, A. Kudryavtseva |
| 1964Al29 | AFYSA | 26, | 235 | N.H. Albins |
| 1964An12 | JOPQA | 25, | 673 | S. Andre, P. Depommier |
| 1964Ar17 | AFYSA | 26, | 153 | S.E. Arnell |
| 1964As01 | PLRBA | 133, | 291 | F. Asaro, S. Bjornholm, I. Perlman |
| 1964Ba03 | CJPHA | 42, | 391 | R.C. Barber, W. McLatchie, R.L. Bishop, J.D. Macdougall, P. van Rookhuyzen, H.E. Duckworth |
| 1964Ba13 | NUPHA | 52, | 125 | H. Bakhru, S.K. Mukherjee |
| 1964Ba15 | PRLTA | 12, | 597 | R.C. Barber, H.E. Duckworth, B.G. Hogg, J.D. Macdougall, W. McLatchie, P. Van Rookhuyzen |
| 1964Ba36 | PLRBA | 136, | 603 | E.L. Bahn, Jr., B.D. Pate, R.D. Fink, C.D. Coryell |
| 1964Ba46 | ZETFA | 47, | 1162 | K.A. Baskova, S.S. Vasilev, M.A. Khamo-LEILA, L.Y. Shavtvalov |
| 1964Be10 | NUPHA | 50, | 657 | U. Bertelsen, G.T. Ewan, H.L. Nielsen |
| 1964Bj02 | PLRBA | 136, | 1348 | J.H. Bjerregaard, H.R. Blieden, O. Hansen, G. Sidenius, G.R. Satchler |
| 1964BI11 | NUPHA | 55, | 331 | K.J. Blinowska, P.G. Hansen, H.L. Nielsen, O. Schult, K. Wien |
| 1964Bo10 | PLRBA | 134, | 591 | R.O. Bondelid, E.E. Dowling Whiting |
| 1964Bo13 | NUPHA | 53, | 618 | R.O. Bondelid, J.W. Butler |
| 1964Bo25 | AFYSA | 26, | 141 | E.C.O. Bonacalza |
| 1964Br08 | PLRBA | 134, | 133 | C.P. Browne, I. Michael |
| 1964Br09 | JINCA | 26, | 677 | R.L. Brodzinski, J.R. Finkel, D.C. Conway |
| 1964Bu10 | PLRBA | 136, | 1 | S.B. Burson, E.B. Shera, T. Gedayloo, R.G. Helmer, D. Zei |
| 1964Bu12 | JINCA | 26, | 1491 | F.D.S. Butement, S.M. Qaim |
| 1964Ch17 | NUPHA | 55, | 577 | P. Christmas |
| 1964Ch19 | PRLTA | 13, | 665 | L.F. Chase, Jr., H.A. Grench, R.E. McDonald, F.J. Vaughn |
| 1964Co11 | PLRBA | 135, | 383 | B.L. Cohen, R. Patell, A. Prakash, E.J. Schneid |
| 1964Da11 | NUPHA | 55, | 643 | E.A. Davis, T.W. Bonner, D.M. Worley, Jr., R. Bass |
| 1964Da15 | NUPHA | 56, | 147 | H. Daniel, J. Huefner, T. Lorenz, O.W.B. Schult, U. Gruber |
| 1964Da16 | PLRBA | 136, | 1240 | H. Daniel, G. Th. Kaschl, H. Schmitt, K. Springer |
| 1964De02 | PLRBA | 133, | 568 | S.H. Devare, H.G. Devare |
| 1964De10 | PLRBA | 134, | 705 | S.H. Devare, H.G. Devare |
| 1964De15 | P-Vienna | | 430 | R.A. Demirkhanov, V.V. Dorokhov, M.I. Dzkuya |
| 1964De16 | PHYSA | 30, | 1938 | A. De Beer, H.P. Blok, J. Blok |
| 1964Ej05 | NUPHA | 59, | 625 | H. Ejiri, Y. Nogami, Y. Nakajima, K. Horie, K. Etoh, A. Sugawara |
| 1964Er02 | PLRBA | 133, | 370 | J.R. Erskine, W.W. Buechner |
| 1964Er06 | PLRBA | 135, | 110 | J.R. Erskine |
| 1964Fi02 | PLRBA | 133, | 1502 | T.R. Fisher, W. Whaling |
| 1964FI02 | RAACA | 2, | 210 | J. Fleggenheimer, G.B. Baro |
| 1964Fr04 | CZYPA | 14, | 152 | J. Frana, I. Rezanka |
| 1964Fu08 | NUPHA | 60, | 294 | M. Fujioka, K. Hisatake, K. Takahashi |
| 1964Fu11 | NUPHA | 55, | 401 | L. Funke, H. Graber, K.-H. Kaun, H. Sodan, L. Werner |
| 1964Go08 | PLRBA | 134, | 297 | K.P. Gopinathan, M.G. Joshi |
| 1964Gr04 | PHRVA | 133, | 1373 | R.D. Griffioen, R.D. Macfarlane |
| 1964Gr11 | AAFPA | 6, | 145 | G. Graeffe, K. Valli, J. Aaltonen |
| 1964Ha29 | PHYSA | 30, | 1802 | J.H. Hamilton, K.E.G. Lobner, A.R. Sattler, R. van Lieshout |
| 1964Ho03 | JINCA | 26, | 1769 | D.C. Hoffman, W.R. Daniels |
| 1964Ho08 | NUPHA | 52, | 590 | K. Hohmuth, G. Muller, J. Schintlmeister |
| 1964Ho14 | PRLTA | 13, | 241 | R.E. Holland, F.J. Lynch, K.-E. Nysten |
| 1964Ho28 | APASA | 18, | 309 | I. Hofman |
| 1964Jo03 | PHLTA | 8, | 61 | H.S. Johansen, M. Jorgensen, O.B. Nielsen, G. Sidenius |
| 1964Jo09 | NUPHA | 52, | 301 | M.C. Joshi, B.V. Thosar, K.G. Prasad |

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| 1964Jo11 | PLRBA | 136, | 1719 | C.H. Johnson, C.C. Trail, A. Galonsky |
| 1964Ka08 | PLRBA | 133, | 1504 | R.W. Kavanagh |
| 1964Ka10 | PLRBA | 135, | 9 | J. Kantele, M. Karras |
| 1964Ka16 | AAFPa | 6, | 162 | J. Kantele, K.M. Broom, D.M. Chittenden |
| 1964Ka23 | AFYSA | 27, | 61 | S.E. Karlsson, O. Bergman, W. Scheuer |
| 1964Ke03 | PLRBA | 133, | 25 | R.A. Kenefick, R.K. Sheline |
| 1964Ku02 | NUPHA | 50, | 417 | T. Kuroyanagi, T. Tamura, K. Tanaka, H. Morinaga |
| 1964La03 | PLRBA | 133, | 1145 | L.M. Langer, E.H. Spejewski, D.E. Wortman |
| 1964La13 | PLRBA | 135, | 581 | L.M. Langer, E.H. Spejewski, D.E. Wortman |
| 1964Le05 | NUPHA | 50, | 648 | H. Leutz, K. Ziegler |
| 1964Le09 | JOPQA | 25, | 326 | J. Lehmann |
| 1964Le10 | PLRBA | 134, | 752 | J.C. Legg, E. Rost |
| 1964Li10 | NUPHA | 59, | 504 | P. Lipnik, G. Pralong, J.W. Sunier |
| 1964Ma30 | CJPHA | 42, | 1700 | K.C. Mann, F.A. Payne, R.P. Chaturvedi |
| 1964Ma36 | CZYPA | 14, | 240 | L. Maly, Z. Plajner, J. Jursik, M. Finger |
| 1964Ma.A | P-Vienna | | 279 | J.B. Marion |
| 1964Ma.B | P-Vienna | | 305 | M. Mazari, A. Jaidar, G. Lopez, A. Tejera, J. Caracea, R. Dominguez, F. Alba |
| 1964Mc07 | CJPHA | 42, | 926 | W. McLatchie, R.C. Barber, R.L. Bishop, H.E. Duckworth |
| 1964Mc11 | PHLTA | 10, | 330 | W. McLatchie, R.C. Barber, H.E. Duckworth, P. Van Rookhuysen |
| 1964Mc21 | CPHMA | 30, | #4 | J.D. McCoy |
| 1964Mi04 | NUPHA | 51, | 50 | R. Middleton, D.J. Pullen |
| 1964Mi.A | P-Vienna | | 329 | R. Middleton, H. Marchant |
| 1964Mo18 | PHLTA | 11, | 148 | H. Morinaga, G. Wolzak |
| 1964Mo.A | P-Vienna | | 423 | P.E. Moreland, Jr., K.T. Bainbridge |
| 1964Ne10 | PLRBA | 135, | 325 | C.L. Nealy, R.K. Sheline |
| 1964No06 | PLRBA | 136, | 40 | L.R. Norris, C.F. Moore |
| 1964Nu02 | AAFPa | 6, | 148 | M. Nurmi, G. Graeffe, K. Valli, J. Aaltonen |
| 1964On03 | PLRBA | 136, | 365 | R.J. Onega, W.W. Pratt |
| 1964Pa03 | APASA | 18, | 315 | H. Paul |
| 1964Pe17 | PLRBA | 136, | 330 | N.F. Peek, J.A. Jungerman, C.G. Patten |
| 1964Ro17 | PLRBA | 136, | 664 | B. Rosner |
| 1964Sa12 | NUPHA | 53, | 457 | R.C. Salgo, H.H. Staub, H. Winkler, F. Zamboni |
| 1964Sa32 | SHIBA | 5, | 54 | K. Sato |
| 1964Sc27 | IDO-17042 | | 11 | R.P. Schuman |
| 1964Sh04 | PHLTA | 8, | 121 | R.K. Sheline, C. Watson, E.W. Hamburger |
| 1964Sh06 | PLRBA | 133, | 624 | W.N. Shelton, R.K. Sheline |
| 1964Sh13 | PLRBA | 136, | 351 | R.K. Sheline, W.N. Shelton, H.T. Motz, R.E. Carter |
| 1964Sh21 | JUPSA | 19, | 245 | Y. Shida |
| 1964Si18 | PLRBA | 136, | 618 | R.J. Silva, G.E. Gordon |
| 1964Sm03 | PHYSA | 30, | 1197 | P.J.M. Smulders |
| 1964So01 | NUPHA | 54, | 568 | T. Sonino, E. Eichler, S. Amiel |
| 1964Sp12 | P-Vienna | | 289 | A. Sperduto, W.W. Buechner |
| 1964St01 | PLRBA | 133, | 911 | P.H. Stelson, F.K. McGowan |
| 1964Ta11 | JUPSA | 19, | 587 | E. Takekoshi, Z.-I. Matumoto, M. Ishii, K. Sugiyama, S. Hayashibe, H. Sekiguchi, H. Natsume |
| 1964Te02 | JINCA | 26, | 1129 | G.P. Tercho, J.A. Marinsky |
| 1964Th05 | NUPHA | 60, | 35 | K.S. Thorne, E. Kashy |
| 1964To04 | PLRBA | 136, | 1233 | K.S. Toth, T.H. Handley, E. Newman, I.R. Williams |
| 1964Va05 | PHLTA | 9, | 164 | R. van Lieshout, S. Monaro, G.B. Vingiani, H. Morinaga |
| 1964Va20 | AAFPa | 6, | 165 | K. Valli |
| 1964Ve02 | NUPHA | 57, | 451 | E. Veje, C. Droste, O. Hansen, S. Holm |
| 1964Wa14 | NUPHA | 54, | 519 | C. Watson, C.F. Moore, R.K. Sheline |
| 1964We06 | PLRBA | 134, | 257 | P. Weinzierl, E. Ujlaki, G. Preinreich, G. Eder |
| 1964Wi07 | PLRBA | 135, | 289 | D.C. Williams, R.A. Naumann |
| 1964Yn03 | PLRBA | 134, | 976 | J.L. Yntema, G.R. Satchler |
| 1965 | | | | |
| 1965An05 | AFYSA | 28, | 37 | G. Andersson, G. Rudstam, G. Sorensen |

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| 1965An07 | NP-15663 | | | S.C. Anspach, L.M. Cavallo, S.B. Garfinkel, J.M.R. Hutchinson, C.N. Smith |
| 1965Ba29 | PLRBA | 140, | 904 | J.B. Ball, R.F. Sweet |
| 1965Ba48 | IANFA | 29, | 2255 | Ts. Vylov, V.M. Gorodzankin, K. Ya. Gromov, V.V. Kuznetsov |
| 1965Be19 | PHLTA | 18, | 293 | D. Berenyi, C. Ujhelyi, I. Feher |
| 1965Be24 | NUPHA | 74, | 459 | H. Beekhuis, H. de Waard |
| 1965Bi04 | PLRBA | 138, | 514 | W.N. Bishop |
| 1965Bi12 | IANFA | 29, | 151 | E.I. Biryukov, V.T. Novikov, N.S. Shimanskaya |
| 1965Bi06 | AFYSA | 28, | 415 | P.H. Blichert-Toft |
| 1965Bi13 | PLRBA | 140, | 1567 | A.G. Blair, D.D. Armstrong |
| 1965Br12 | PLRBA | 138, | 1368 | R.L. Brodzinski, D.C. Conway |
| 1965Br25 | PHYSA | 31, | 1305 | G.A. Brinkman, A.H.W. Aten, Jr., J.T. Veenboer |
| 1965Br28 | NUPHA | 72, | 194 | C.P. Browne, W.E. Dorenbusch, F.H. O'Donnell |
| 1965Br31 | NUPHA | 72, | 529 | L. Broman, J. Dubois |
| 1965Bu03 | JINCA | 27, | 907 | F.D.S. Butement, S.M. Quaim |
| 1965Bu07 | NUPHA | 65, | 561 | J. Burde, M. Rakavi, G. Adam |
| 1965Ce02 | PRLTA | 15, | 300 | J. Cerny, C. Détraz, R.H. Pehl |
| 1965Co06 | CJPHA | 43, | 383 | C.R. Cothorn, R.D. Connor |
| 1965Cr04 | NUPHA | 70, | 129 | T. Cretzu, K. Hohmuth, J. Schintlmeister |
| 1965Da01 | NUPHA | 63, | 145 | H. Daniel, M. Kuntze, B. Martin, P. Schmidlin, H. Schmitt |
| 1965De08 | PRLTA | 14, | 708 | C. Détraz, J. Cerny, R.H. Pehl |
| 1965De09 | PLRBA | 138, | 540 | J.W. Dewdney, K.T. Bainbridge |
| 1965De13 | IANFA | 29, | 859 | R.A. Demirkhanov, V.V. Dorokhov, M.I. Dzkuya |
| 1965De15 | YAFIA | 1, | 198 | A.G. Demin, Y.P. Kushakevich |
| 1965De20 | NUPHA | 73, | 49 | S.A. De Wit, A.H. Wapstra |
| 1965De22 | PLRBA | 140, | 536 | S.H. Devare, R.M. Singru, H.G. Devare |
| 1965Du02 | COREA | 261, | 98 | J.C. Duperrin, A. Guizon-Juillard |
| 1965Er02 | PLRBA | 138, | 851 | J.R. Erskine |
| 1965Er03 | PLRBA | 138, | 66 | J.R. Erskine |
| 1965FI02 | NSENA | 22, | 416 | K.F. Flynn, L.E. Glendenin, E.P. Steinberg |
| 1965Fr04 | NUPHA | 64, | 303 | K. Fritze |
| 1965Fr12 | PLRBA | 140, | 563 | M.S. Freedman, F.T. Porter, F. Wagner, Jr. |
| 1965Fu13 | NUPHA | 70, | 335 | L. Kunke, H. Graber, K.-H. Kaun, H. Sodan, L. Werner |
| 1965Go05 | PLRBA | 137, | 1466 | S. Gorodetsky, A. Gallmann, R. Rebmeister |
| 1965Gr35 | YAFIA | 2, | 783 | K.Y. Gromov, Z.T. Zhelev, V. Zvolska, V.G. Kalinnikov |
| 1965Gu03 | NUPHA | 64, | 401 | M. Guttman, E.G. Funk, Jr., J.W. Mihelich |
| 1965Ha30 | PHLTA | 19, | 304 | P.G. Hansen, H.L. Nielsen, K. Wilsky, J. Treherne |
| 1965Ho07 | NUPHA | 71, | 449 | C.G. Hoot, M. Kondo, M.E. Rickey |
| 1965Hs02 | NUPHA | 73, | 379 | S.T. Hsue, L.M. Langer, S.M. Tang, D.A. Zollman |
| 1965Is01 | ZENAA | 20, | 541 | A. Isola, M. Nurmia |
| 1965Iv01 | IANFA | 29, | 157 | Y.F. Ivanov, I.A. Rumer, A.Y. Bukach |
| 1965Iw01 | JUPSA | 20, | 2105 | T. Iwashita |
| 1965Jo04 | NUPHA | 61, | 385 | M.W. Johns, M. Kawamura |
| 1965Jo13 | NUPHA | 72, | 617 | N.R. Johnson, K. Wilsky, P.G. Hansen, H.L. Nielsen |
| 1965Ka07 | JINCA | 27, | 1451 | P. Kauranen, H. Ihochi |
| 1965Ke04 | NUPHA | 61, | 513 | W.J. Keeler, R.D. Connor |
| 1965Ke09 | PLRBA | 139, | 1479 | R.A. Kenefick, R.K. Sheline |
| 1965Ko09 | ZENAA | 20, | 969 | W. Kohler, K. Knopf |
| 1965Ku02 | NUPHA | 64, | 524 | H.-M. Kuan, J.R. Risser |
| 1965Kv01 | NUPHA | 74, | 27 | E. Kvale, A.C. Pappas |
| 1965Le06 | NUPHA | 63, | 263 | H. Leutz, K. Schneckenberger, H. Wennige |
| 1965Le07 | NUPHA | 65, | 337 | W.H.G. Lewin, J. Lettinga, B. van Nooijen, A.H. Wapstra |
| 1965Ma07 | PHLTA | 14, | 46 | A. Marinov, J.R. Erskine |
| 1965Ma12 | PRLTA | 14, | 114 | R.D. Macfarlane, A. Siivola |
| 1965Ma32 | NUPHA | 67, | 73 | J.H.E. Mattauch, W. Thiele, A.H. Wapstra |
| 1965Ma51 | IANFA | 29, | 1121 | I. Mahunka, T. Fenyes |
| 1965Mc09 | PLRBA | 140, | 1513 | R. McPherson, R.A. Easterlund, A.M. Poskanzer, P.L. Reeder |
| 1965Me02 | JINCA | 27, | 33 | D. Metta, H. Diamond, R.F. Barnes, J. Milsted, J. Gray, Jr., D.J. Henderson, C.M. Stevens |
| 1965Me12 | PHLTA | 19, | 133 | R. Messlinger, H. Morinaga, C. Signorini |

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| 1965Mo05 | NUPHA | 61, | 613 | S. Morinobu, T. Hirose, K. Hisatake |
| 1965Mo16 | NUPHA | 74, | 403 | R. Moreh, T. Daniels |
| 1965Mo19 | NUPHA | 70, | 293 | R. Moreh |
| 1965Mu09 | NUPHA | 67, | 466 | A. Mukerji, D.N. McNelis, J.W. Kane, Jr. |
| 1965Ne02 | NUPHA | 62, | 434 | J.W. Nelson, J.D. Oberholtzer, H.S. Plendl |
| 1965Og01 | NUPHA | 66, | 119 | I. Ogawa, T. Doke, M. Miyajima, A. Nakamoto |
| 1965Pa08 | NUPHA | 72, | 326 | H. Paul |
| 1965Pe18 | AFYSA | 29, | 423 | H. Pettersson, O. Berhman, C. Bergman |
| 1965Pl01 | NUPHA | 73, | 131 | H.S. Plendl, L.J. Defelice, R.K. Sheline |
| 1965Pr03 | NUPHA | 67, | 302 | W.V. Prestwich, T.J. Kennett |
| 1965Ra02 | PLRBA | 137, | 13 | A.V. Ramaya, Y. Yoshizawa |
| 1965Re07 | NUPHA | 65, | 609 | R. Reising, B.D. Pate |
| 1965Ri06 | PHLTA | 17, | 296 | M.E. Rickey, P.D. Kunz, J.J. Kraushaar, W.G. Anderson |
| 1965Ry01 | NUPHA | 70, | 369 | A. Rytz |
| 1965Sc19 | PLRBA | 140, | 1496 | F. Schima, T. Katoh |
| 1965Si06 | NUPHA | 64, | 161 | A. Siivola, G. Graeffe |
| 1965St06 | PLRBA | 137, | 772 | G.L. Struble, J. Kern, R.K. Sheline |
| 1965Va02 | NUPHA | 63, | 241 | B. Van Nooijen, W. Lourens, H. van Krugten, A.H. Wapstra |
| 1965Wa14 | PLRBA | 140, | 882 | W.N. Wang, E.J. Winhold |
| 1965Wi08 | PHLTA | 15, | 143 | E.T. Williams, P.G. Hansen, J. Lipperts, H.L. Nielsen, K. Wilsky |
| 1965Za01 | PLRBA | 137, | 1479 | C.D. Zafiratos, F. Ajzenberg-Selove, F.S. Dietrich |
| 1966 | | | | |
| 1966Ah.A | UCRL-16580 | | 21 | I. Ahmad, F. Asaro, I. Perlman |
| 1966Ah.B | Th.-Berkeley | | | I. Ahmad |
| 1966Ak01 | AENGA | 21, | 243 | G.N. Akapev, A.G. Demin, V.A. Druin, E.G. Imaev, I.V. Kolesov, Y.V. Lobanov, L.P. Pashchenko |
| 1966An10 | CHDBA | 262, | 214 | S. Andre, P. Depommier |
| 1966Au04 | NUPHA | 81, | 441 | R.L. Auble, W.H. Kelly |
| 1966Av03 | IANFA | 30, | 542 | M.P. Avotina, E.P. Grigorev, B.S. Dzelepov, A.V. Zolotavin, V.O. Sergeev |
| 1966Ba07 | YAFIA | 4, | 1108 | S.A. Baranov, Y.F. Rodionov, V.M. Kulakov, V.M. Shatinskii |
| 1966Ba14 | CHDBA | 262, | 89 | G. Bastin, C.F. Leang, R.J. Walen |
| 1966Ba19 | CHDBA | 262, | 370 | G. Bastin, C.F. Leang, R.J. Walen |
| 1966Be10 | PHRVA | 141, | 1112 | J.L. Benson, W.H. Johnson, Jr. |
| 1966Be12 | PHLTA | 21, | 205 | H. Beekhuis |
| 1966Be21 | IANFA | 30, | 1130 | Yu. I. Belyanin, E.I. Biryukov, N.S. Shimanskaya |
| 1966Bj01 | NUPHA | 86, | 145 | J.H. Bjerregaard, O. Hansen, O. Nathan, S. Hinds |
| 1966Bj02 | NUPHA | 85, | 593 | J.H. Bjerregaard, O. Nathan, S. Hinds, R. Middleton |
| 1966Bl04 | NUPHA | 76, | 45 | L.M. Blau, W.P. Alford, D. Cline, H.E. Gove |
| 1966Bl15 | PHRVA | 151, | 930 | A.G. Blair, D.D. Armstrong |
| 1966Bo20 | NUPHA | 86, | 187 | B.E. Bonner, G. Rickards, D.L. Bernard, G.C. Phillips |
| 1966Br05 | NUPHA | 77, | 365 | G. Brown, S.E. Warren, R. Middleton |
| 1966Br06 | NUPHA | 77, | 385 | G. Brown, A. Macgregor, R. Middleton |
| 1966Br14 | NUPHA | 81, | 233 | H.F. Brinckmann, C. Heiser, K.F. Alexander, W. Neubert, H. Rotter |
| 1966Br18 | PHRVA | 149, | 767 | D.G. Burke, B. Zeidman, B. Elbek, B. Herskind, M. Olesen |
| 1966Bu16 | KDVSA | 35, | #2 | D.G. Burke, B. Zeidman, B. Elbek, B. Herskind, M. Olesen |
| 1966Ca09 | NUPHA | 82, | 471 | R.C. Catura, J.R. Richardson |
| 1966Ca10 | NUPHA | 85, | 317 | M.J. Canty, W.F. Davidson, R.D. Connor |
| 1966Cu02 | NUPHA | 86, | 481 | R.Y. Cusson |
| 1966Da04 | NUPHA | 76, | 97 | H. Daniel, G.T. Kaschl |
| 1966Da06 | PHRVA | 147, | 845 | W.R. Daniels, D.C. Hoffman |
| 1966De11 | NUPHA | 83, | 289 | E.Y. De Aisenberg, J.F. Suarez |
| 1966Do02 | PHRVA | 146, | 734 | W.E. Dorenbusch, T.A. Belote, O. Hansen |
| 1966Do06 | NUPHA | 81, | 390 | W.E. Dorenbusch, O. Hansen, D.J. Pullen, T.A. Belote, G. Sidenius |
| 1966Ei01 | PHRVA | 146, | 899 | E. Eichler, J.W. Chase, N.R. Johnson, G.D. O'Kelley |
| 1966El09 | ORNL-3889 | | 49 | J.S. Eldridge, W.S. Lyon |
| 1966Er02 | PHRVA | 142, | 633 | J.R. Erskine, A. Marinov, J.P. Schiffer |
| 1966Fi06 | PHRVA | 150, | 941 | H.J. Fischbeck, F.T. Porter, M.S. Freedman, F. Wagner, Jr., H.H. Bolotin |

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|----------|-------|------|------|---|
| 1966Fr11 | RAACA | 5, | 192 | A.M. Friedman, J. Milsted, D. Metta, D. Henderson, J. Lerner, A.L. Harkness, D.J. Rokop |
| 1966Fu05 | NUPHA | 84, | 461 | L. Funke, H. Graber, K.-H. Kaun, R. Ross, H. Sodan, L. Werner, J. Frana |
| 1966Fu08 | NUPHA | 84, | 424 | L. Funke, H. Graber, K.-H. Kaun, H. Sodan, G. Geske, J. Frana |
| 1966Ga03 | NUPHA | 76, | 353 | R. Gaeta, M.A. Vigon |
| 1966Ga06 | PHLTA | 20, | 669 | J. Gastebois, M. Berloutaud, J.M. Lagat, J. Quidort |
| 1966Ga08 | PHRVA | 147, | 753 | A. Gallmann, P. Fintz, J.B. Nelson, D.E. Alburger |
| 1966Gl02 | NUPHA | 86, | 279 | K.M. Glibert, H.T. Easterday |
| 1966Gr26 | PHNOA | 2, | 1 | A. Graue |
| 1966Gu05 | NUPHA | 85, | 288 | S.G. Gujrathi, S.K. Mukherjee |
| 1966Ha15 | NUPHA | 76, | 257 | P.G. Hansen, H.L. Nielsen, K. Wilsky, Y.K. Agarwal, C.V.K. Baba, S.K. Bhat-tacherjee |
| 1966Ha29 | NUPHA | 84, | 62 | G.R. Hagee, R.C. Lange, J.T. McCarty |
| 1966Ha32 | PHLTA | 23, | 487 | J.C. Hardy, D.J. Skyrme, I.S. Towner |
| 1966He10 | NUPHA | 88, | 561 | P.V. Hewka, C.H. Holbrow, R. Middleton |
| 1966Hi01 | PHLTA | 21, | 328 | S. Hinds, J.H. Bjerregaard, O. Hansen, O. Nathan |
| 1966Hi06 | NUPHA | 84, | 651 | S. Hinds, R. Middleton |
| 1966Hs01 | NUPHA | 80, | 657 | S.T. Hsue, L.M. Langer, E.H. Spejewski, S.M. Tang |
| 1966Ja12 | PHRVA | 151, | 956 | A.D. Jackson, Jr., J.S. Evans, R.A. Naumann, J.D. McCullen |
| 1966Jo07 | NUPHA | 84, | 569 | M.H. Jorgensen, O.B. Nielsen, O. Skilbreid |
| 1966Ki06 | CJPHA | 44, | 2661 | J.E. Kitching, M.W. Johns |
| 1966Kl02 | NUPHA | 79, | 27 | H. Klein, H. Leutz |
| 1966La04 | NUPHA | 78, | 1 | T. Lauritsen, F. Ajzenberg-Selove |
| 1966Le06 | NUPHA | 75, | 81 | H. Leutz, G. Schulz, H. Wenniger |
| 1966Li04 | PHRVA | 141, | 1089 | A.C. Li, I.L. Preiss, P.M. Strudler, D.A. Bromley |
| 1966Ma05 | ZENAA | 21, | 63 | J.D. Macdougall, W.M. McLatchie, S. Whineray, H.E. Duckworth |
| 1966Ma18 | PHLTA | 21, | 661 | N. Mangelson, M. Reed, C.C. Lu, F. Ajzenberg-Selove |
| 1966Ma49 | IANFA | 30, | 1185 | E.P. Mazets, Y.V. Sergeenkov |
| 1966Ma51 | IANFA | 30, | 1375 | I. Mahunka, L. Tron, T. Fenyes, V.A. Khalkin |
| 1966Ma60 | RMPHA | 38, | 660 | J. Marion |
| 1966Mc13 | NUPHA | 88, | 257 | J.H. McNally |
| 1966Mo06 | PHRVA | 141, | 1166 | C.F. Moore, P. Richard, C.E. Watson, D. Robson, J.D. Fox |
| 1966Ne01 | PRLTA | 16, | 28 | E. Newman, J.C. Hiebert, B. Zeidman |
| 1966No05 | NUPHA | 86, | 102 | A.E. Norris, G. Friedlander, E.M. Franz |
| 1966Ny01 | NUPHA | 88, | 63 | B. Nyman, A. Johansson, C. Bergman, G. Backstrom |
| 1966Pa06 | CJPHA | 44, | 1029 | P.J. Pan, Y.S. Horowitz, R.B. Moore, R. Barton |
| 1966Pa18 | NUPHA | 85, | 504 | P.B. Parks, P.M. Beard, E.G. Bilpuch, H.W. Newson |
| 1966Pa20 | PHLTA | 23, | 269 | B. Parsa, G.E. Gordon |
| 1966Pe10 | NUPHA | 83, | 33 | H. Pettersson, G. Backstrom, C. Bergman |
| 1966Po04 | PHRVA | 146, | 774 | F.T. Porter, M.S. Freedman, F. Wagner, Jr., K.A. Orlandini |
| 1966Qa02 | NUPHA | 88, | 285 | S.N. Qaim |
| 1966Ra03 | PHRVA | 142, | 768 | P.V. Rao, B. Crasemann |
| 1966Re02 | PHLTA | 20, | 40 | W. Reichart, H.H. Staub, H. Stussi, F. Zamboni |
| 1966Rg01 | PHRVA | 148, | 1192 | Research-Group, Combined Radioactivity Group LRL-LASL-UCRL-ANL |
| 1966Ri01 | NUPHA | 75, | 381 | P. Riehs |
| 1966Ri09 | NUPHA | 86, | 167 | G. Rickards, B.E. Bonner, G.C. Phillips |
| 1966Ry01 | NUPHA | 80, | 241 | H. Ryde, G.D. Symons, S. Szymanski |
| 1966Sc17 | PHRVA | 149, | 820 | J.J. Schwartz, W. Parker, Q. Alford |
| 1966Sc23 | NUPHA | 89, | 401 | D. Schwalm, B. Povh |
| 1966Sc24 | PHRVA | 151, | 950 | F.J. Schima |
| 1966Se07 | NUPHA | 85, | 227 | B. Sethi, S.K. Mukherjee |
| 1966Sh03 | PHRVA | 143, | 857 | R.K. Sheline, C.E. Watson, B.P. Maier, U. Gruber, R.H. Koch, O.W.B. Shult, H.T. Motz, E.T. Jurney, G.L. Struble, T. von Egidy, T. Elze, E. Bieber |
| 1966Sh14 | PHLTA | 22, | 648 | W.N. Shelton, C.E. Watson |
| 1966Sh16 | PHRVA | 151, | 1011 | R.K. Sheline, W.N. Shelton, T. Udagawa, E.T. Jurney, H.T. Motz |
| 1966Si08 | NUPHA | 84, | 385 | A. Siivola |
| 1966Sm05 | NUPHA | 89, | 561 | K.M. Smith, G.M. Lewis |
| 1966Sn02 | PHRVA | 147, | 967 | R.E. Snyder, G.B. Beard |
| 1966St15 | PHRVA | 151, | 969 | M.M. Stautberg, J.J. Kraushaar |

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|----------|--------------|------|------|---|
| 1966Va12 | PHRVA | 150, | 886 | J. Van Klinken, A.J. Bureau, G.W. Eakins, R.J. Hanson |
| 1966Va.A | UCRL-16580 | | 85 | K. Valli, E.K. Hyde |
| 1966Vo05 | ZEPYA | 195, | 343 | H. Vonach, H. Munzer, P. Hille |
| 1966Wh01 | PHRVA | 150, | 836 | W. Whaling |
| 1966Wi04 | ZEPYA | 191, | 137 | K. Wien |
| 1966Wi11 | PHLTA | 22, | 162 | D.C. Williams, J.D. Knight, W.T. Leland |
| 1966Wi12 | NUPHA | 84, | 609 | I.R. Williams, K.S. Toth, T.H. Handley |
| 1966Yo01 | PHLTA | 22, | 625 | D.H. Youngblood, G.C. Morrison, R.E. Segel |
| 1966Za01 | NUPHA | 77, | 81 | C.D. Zafiratos, F. Ajzenberg-Selove, F.S. Dietrich |
| 1966Zy02 | NUPHA | 84, | 13 | J. Żylicz, P.G. Hansen, H.L. Nielsen, K. Wilsky |
| 1967 | | | | |
| 1967Ad03 | PHRVA | 159, | 985 | I. Adam, K.S. Toth, R.A. Meyer |
| 1967Ah02 | PHRVA | 164, | 1537 | I. Ahmad, A.M. Friedman, R.F. Barnes, R.K. Sjoblom, J. Milsted, P.R. Fields |
| 1967Ai08 | NUPAB | 98, | 323 | A.M. Aldridge, H.S. Plendl, J.P. Aldridge, III |
| 1967An01 | NUPAB | 94, | 289 | S. Antman, H. Pettersson, A. Suarez |
| 1967Ar01 | PYLBB | 24, | 84 | E. Arei, H. Miessner |
| 1967As02 | PHRVA | 158, | 1073 | F. Asaro, I. Perlman |
| 1967Ba01 | NUPAB | 91, | 465 | V.A. Balalaev, B.S. Dzelepov, L.N. Moskvina, S.A. Shetopalova, N.A. Voinova |
| 1967Ba15 | PHRVA | 155, | 1319 | P.D. Barnes, J.R. Comfort, C.D. Bockelman |
| 1967Ba32 | PHRVA | 159, | 920 | P.D. Barnes, J.R. Comfort, C.D. Bockelman, O. Hansen, A. Sperduto |
| 1967Ba34 | PHRVA | 160, | 1011 | A. Backlin, A. Suarez, O.W.B. Schult, B.P.K. Mayer, U. Gruber, E.B. Shera, D.W. Hafemeister, W.N. Shelton, R.K. Sheline |
| 1967Ba42 | YAFIA | 5, | 241 | S.A. Baranov, I.G. Aliev, L.V. Chistyakov |
| 1967Ba43 | YAFIA | 5, | 518 | S.A. Baranov, M.K. Chadzhiev, V.M. Kulakov, V.M. Shatinskii |
| 1967Ba51 | CHDBA | 265, | 863 | G. Bastin-Scoffier |
| 1967Ba.A | P-Gatlinburg | | 261 | C.A. Barnes, E.G. Adelsberger, D.C. Hensley, A.B. Macdonald |
| 1967Be46 | NUPAB | 104, | 241 | G. Berzins, W.H. Kelly, G. Graeffe, W.B. Walters |
| 1967Bi04 | NUPAB | 97, | 203 | L. Birstein, C. Drory, A.A. Jaffe, Y. Zioni |
| 1967Bj01 | NUPAB | 94, | 457 | J.H. Bjerregaard, O. Hansen, O. Nathan, S. Hinds |
| 1967Bj02 | PHRVA | 155, | 1229 | J.H. Bjerregaard, O. Hansen |
| 1967Bj05 | PHRVA | 160, | 889 | J.H. Bjerregaard, O. Hansen, G.R. Satchler |
| 1967Bj06 | NUPAB | 103, | 33 | J.H. Bjerregaard, O. Hansen, O. Nathan, R. Chapman, S. Hinds, R. Middleton |
| 1967BI19 | PYLBB | 25, | 215 | R. Bloch, R.E. Pixley, P. Truol |
| 1967Bo41 | YAFIA | 6, | 893 | D.D. Bogdanov, S. Darotsi, V.A. Karnaukhov, L.A. Petrov, G.M. Ter-Akopyan |
| 1967Br10 | NUPAB | 101, | 163 | G. Brown, J.G.B. Haigh, F.R. Hudson, A.E. Macgregor |
| 1967Ca18 | NUPAB | 104, | 35 | M.J. Canty, R.D. Connor |
| 1967Ch05 | NUPAB | 94, | 417 | P. Charoenkwan, J.R. Richardson |
| 1967Ch16 | NUPAB | 102, | 481 | P.R. Christensen, B. Herskind, R.R. Borchers, L. Westgaard |
| 1967Co15 | PHRVA | 157, | 1065 | J.R. Comfort, C.K. Bockelman, P.D. Barnes |
| 1967Da10 | CJPHA | 45, | 2295 | W.F. Davidson, C.R. Cothorn, R.D. Connor |
| 1967De02 | NUPAB | 94, | 673 | M.E. De Lopez, M. Mazari, T.A. Belote, W.E. Dorenbusch, O. Hansen |
| 1967De15 | JNCEA | 21, | 833 | A.J. De Ruytter, P. Pelfer |
| 1967Do03 | NUPAB | 102, | 681 | W.E. Dorenbusch, J. Rapaport, T.A. Belote |
| 1967Dz02 | IANFA | 31, | 568 | B.S. Dzelepov, R.B. Ivanov, M.A. Mikhailov, L.N. Moskvina, O.M. Nazarenko, V.F. Radionov |
| 1967Eh02 | ZEPYA | 207, | 268 | D. Ehrlich |
| 1967Er02 | P-Winnipeg | | 622 | J.R. Erskine, A.M. Friedman, T.H. Braid, R.R. Chasman |
| 1967Es02 | PHRVA | 156, | 1094 | R.A. Esterlund, R. McPherson, A.M. Poskanzer, P.L. Reeder |
| 1967Fi04 | PYLBB | 24, | 340 | P.R. Fields, R.F. Barnes, R.K. Sjoblom, J. Milsted |
| 1967FI05 | YAFIA | 5, | 1186 | G.N. Flerov, S.M. Polikhonov, V.L. Mikheev, V.I. Ilyushchenko, V.F. Kushniruk, M.B. Miller, A.M. Sukhov, V.A. Schegolov |
| 1967FI15 | AENGA | 22, | 342 | G.N. Flerov, S.M. Polikhonov, V.L. Mikheev, V.I. Ilyushchenko, M.B. Miller, V.A. Shchegolev |
| 1967Fo04 | PHRVA | 155, | 1248 | C.M. Fou, R.W. Zurmuhle, J.M. Joyce |
| 1967Fr02 | NUPAB | 94, | 366 | J. Frana, I. Rezanka, Z. Plajner, A. Spalek, J. Jursik, M. Vobecky, A. Mastalka, L. Funke, A. Graber, H. Sodan |
| 1967Gh01 | PRLTA | 18, | 401 | A. Ghiorso, T. Sikkeland, M.J. Nurmia |

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|----------|------------|------|------|--|
| 1967Go22 | NUPAB | 104, | 497 | P.F.A. Goudsmit, J. Konijn, F.W.N. De Boer |
| 1967Go25 | PHYSA | 35, | 479 | P.F.A. Goudsmit |
| 1967Go32 | IANFA | 31, | 1618 | N.A. Golovkov, K.Y. Gromov, N.A. Lebedev, B. Makhmudov, A.S. Rudnev, V.G. Chumin |
| 1967Gr01 | PYLBB | 24, | 171 | M.W. Greene |
| 1967Gr21 | NUPAB | 103, | 209 | A. Graue, E. Jastad, J.R. Lien, P. Torvund, W.H. Moore |
| 1967Gu06 | PHRVA | 159, | 909 | S.C. Gujrathi, S.K. Mukherjee |
| 1967Gu11 | IJPYA | 41, | 633 | S.C. Gujrathi, S.K. Mukherjee |
| 1967Gu12 | IJPYA | 41, | 667 | S.C. Gujrathi, S.K. Mukherjee |
| 1967Ha03 | NUPAB | 90, | 573 | S.K. Haynes, M. Velinsky, L.J. Velinsky |
| 1967Ha04 | PYLBB | 24, | 95 | P.G. Hansen, H.L. Nielsen, K. Wilsky, J.G. Cuninghame |
| 1967Ha08 | NUPAB | 92, | 260 | W.D. Harrison |
| 1967Ha17 | NUPAB | 98, | 330 | H.J. Hay, D.C. Kean |
| 1967Ha25 | PHRVA | 160, | 1005 | R.A. Harlan, R.K. Sheline |
| 1967Ha.A | P-Winnipeg | | 527 | O. Hansen |
| 1967Hi01 | PYLBB | 24, | 89 | S. Hinds, H. Marchant, R. Middleton |
| 1967Hi02 | PYLBB | 24, | 34 | S. Hinds, H. Marchant, R. Middleton |
| 1967Hj01 | AFYSA | 33, | 147 | S.A. Hjorth |
| 1967Hj03 | AFYSA | 33, | 121 | S.A. Hjorth, L.H. Allen |
| 1967Ho01 | NUPAB | 90, | 545 | J.L. Honsaker |
| 1967Ho12 | PHRVA | 159, | 1000 | K.J. Hofstetter, P.J. Daly |
| 1967Ho19 | AFYSA | 36, | 211 | D.C. Hoffman, O.B. Michelsen, W.R. Daniels |
| 1967Hs01 | NUPAB | 94, | 146 | S.T. Hsue, M.U. Kim, S.M. Tang |
| 1967Hs03 | NUPAB | 101, | 688 | S.T. Hsue, M.U. Kim, L.M. Langer, E.H. Spejewski, J.B. Willet |
| 1967Hu05 | ZEPYA | 203, | 435 | E. Huster, H. Verbeek |
| 1967Hu07 | CHDBA | 265, | 162 | K. Hubenthal, J. Berthier, J.-C. Hocquenghem, A. Moussa |
| 1967Ii01 | YAFIA | 6, | 1117 | V.I. Ilyushchenko, M.B. Miller, V.L. Mikheev, V.A. Shchegolev |
| 1967Jo03 | PHRVA | 153, | 1169 | R.R. Johnson, N.M. Hintz |
| 1967Jo18 | P-Winnipeg | | 793 | W.H. Johnson, M.C. Hudson, R.A. Britten, D.C. Kayser |
| 1967Ka01 | NUPAB | 90, | 23 | V.A. Karnaukhov, G.M. Ter-Akopyan, L.S. Vertogradov, L.A. Petrov |
| 1967Ka11 | PHRVA | 159, | 931 | A.A. Katsanos, J.R. Huizenga |
| 1967Ke02 | PHRVA | 153, | 1331 | J. Kern, G.L. Struble, R.K. Sheline |
| 1967Ki01 | NUPAB | 98, | 337 | J.E. Kitching, M.W. Johns |
| 1967Ko01 | NUPAB | 90, | 558 | J. Konijn, E.W.A. Lingeman, S.A. De Wit |
| 1967Le06 | NUPAB | 98, | 273 | J. Lehmann |
| 1967Le21 | AFYSA | 36, | 183 | Y. Le Beyec, M. Lefort |
| 1967Ma07 | NUPAB | 95, | 632 | A. Marelus, P. Sparrman, S.-E. Hagglund |
| 1967Ma35 | PHRVA | 163, | 1098 | K.W. Marlow, M.A. Waggoner |
| 1967Mc03 | NUPAB | 92, | 401 | W.R. McMurray, P. Van Der Merwe, I.J. Van Heerden |
| 1967Mc07 | NUPAB | 99, | 6 | W.R. McMurray, M. Peisach, R. Pretorius, P. Van der Merwe, I.J. Van Heerden |
| 1967Mc10 | NUPAB | 98, | 577 | M.F. McCann, G.M. Lewis, K.M. Smith |
| 1967Mc14 | PRLTA | 19, | 1442 | R.L. McGrath, J. Cerny, E. Norbeck |
| 1967Mi02 | NUPAB | 94, | 261 | R.G. Miller, R.W. Kavanagh |
| 1967Mi03 | AENGA | 22, | 90 | V.L. Mikheev, V.I. Ilyushchenko, M.B. Miller, S.M. Polikanov, G.N. Flerov, Y.P. Kharitonov |
| 1967Mi06 | YAFIA | 5, | 49 | V.L. Mikheev, V.I. Ilyushchenko, M.B. Miller |
| 1967Mi13 | JUPSA | 23, | 1191 | K. Miyano |
| 1967Mo10 | CHDBA | 264, | 330 | E. Monnand, J.A. Pinston, R. Henck |
| 1967Mo11 | PYLBB | 25, | 22 | H. Morinaga, K. Miyano, K. Fujikawa, R. Chiba, K. Ebisawa, N. Kawai |
| 1967Mo12 | NUPAB | 99, | 652 | J.A. Moragues, P. Reyes-Suter, T. Suter |
| 1967Mo13 | NUPAB | 100, | 45 | Y. Motavalledi-Nobar, J. Berthier, J. Blachot, R. Henck |
| 1967Mo17 | NUPAB | 102, | 406 | W.G. Mourad, K.E. Nielsen, M. Petrilak |
| 1967Mo22 | NUPAB | 104, | 327 | W.H. Moore, G.K. Schlegel, S.O. Dell, A. Graue, J.R. Lien |
| 1967Mu16 | PHRVA | 159, | 1039 | G. Muehllehner, A.S. Poltorak, W.C. Parkinson, R.H. Bassel |
| 1967Na04 | PHRVA | 160, | 1035 | R.A. Naumann, P.K. Hopke |
| 1967Ne04 | PHRVA | 155, | 1314 | C.L. Nealy, R.K. Sheline |
| 1967Ne08 | PHRVA | 164, | 1503 | C.L. Nealy, R.K. Sheline |
| 1967Ni02 | NUPAB | 93, | 385 | H.L. Nielsen, K. Wilsky, J. Żylicz, G. Sorensen |
| 1967Nu01 | PYLBB | 26, | 78 | M. Nurmia, T. Sikkeland, R. Silva, A. Ghiorso |

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| 1967Oa01 | PYLBB | 24, | 142 | N.S. Oakey, R.D. McFarlane |
| 1967Ob04 | NUPAB | 104, | 609 | B.J. O'Brien, W.E. Dorenbusch, T.A. Belote, J. Rapaport |
| 1967Od01 | PHRVA | 158, | 957 | F.H. O'Donnel, C.P. Browne |
| 1967Pa04 | JOPQA | 28, | 388 | P. Paris |
| 1967Pa08 | CJPHA | 45, | 2621 | J.J.H. Park, P. Christmas |
| 1967Pi03 | PHRVA | 159, | 939 | W.R. Pierson, K. Rengan |
| 1967Pr04 | PHRVA | 157, | 779 | F.W. Prosser, Jr., G.U. Din, D.D. Tolbert |
| 1967Pr10 | PHRVA | 161, | 1080 | W.V. Prestwich, R.E. Cote, G.E. Thomas |
| 1967Ra13 | NUPAB | 99, | 547 | R.C. Ragaini, G.E. Gordon, W.B. Walters |
| 1967Ra14 | NUPAB | 100, | 280 | J. Rapaport, T.A. Belote, W.E. Dorenbusch |
| 1967Ri.A | BAPSA | 12, | 522 | F.A. Rickey, Jr., H.C. Britt, and PrvCom AHW |
| 1967Ro17 | JOPQA | 28, | 637 | G. Rotbart, J. Kalifa, G. Ronsin, M. Vergnes |
| 1967Sc01 | NUPAB | 96, | 337 | S.O. Schriber, M.W. Johns |
| 1967Sc05 | PHRVA | 154, | 1146 | O.W.B. Schult, M.E. Bunker, D.W. Hafemeister, E.B. Shera, E.T. Jurney, J.W. Starnier, A. Backlin, B. Fogelberg, U. Gruber, B.P.K. Maier, H.R. Koch, W.N. Shelton, M. Minor, R.K. Sheline |
| 1967Sc10 | ZEPYA | 203, | 289 | G. Schulz |
| 1967Sc15 | NUPAB | 101, | 177 | G. Schulte |
| 1967Sc26 | NUPAB | 104, | 692 | G. Schulz, K. Ziegler |
| 1967Sc30 | PHRVA | 164, | 1548 | O.W.B. Schult, W.R. Kane, M.A.J. Mariscotti, J.M. Simic |
| 1967Se10 | PHRVA | 164, | 1450 | K.K. Seth, J.A. Biggerstaff, P.D. Miller, G.R. Satchler |
| 1967Si02 | NUPAB | 92, | 475 | A. Siivola |
| 1967Si07 | PYLBB | 24, | 331 | T. Sikkeland, A. Ghiorso |
| 1967Si08 | PYLBB | 24, | 333 | T. Sikkeland, A. Ghiorso, J. Maly, M.J. Nurmi |
| 1967Si09 | NUPAB | 101, | 129 | A. Siivola |
| 1967Sp03 | PHRVA | 155, | 1368 | R.R. Spencer, K.T. Faler |
| 1967Sp06 | NUPAB | 99, | 625 | E.H. Spejewski, J.B. Willett |
| 1967Sp08 | ZEPYA | 204, | 129 | A. Spalek, I. Rezanka, J. Frana, A. Mastalka |
| 1967Sp09 | P-Winnipeg | | 657 | A. Sperduto |
| 1967St14 | YAFIA | 5, | 1205 | G.L. Struble, R.K. Sheline |
| 1967St24 | NUPAB | 104, | 67 | M.M. Stautberg, R.R. Johnson, J.J. Kraushaar, B.W. Ridley |
| 1967St30 | P-Winnipeg | | 495 | H.H. Staub |
| 1967Su05 | PHRVA | 163, | 1091 | J.W. Sunier, A.J. Armini, R.M. Polichar, J.R. Richardson |
| 1967Te02 | NUPAB | 98, | 417 | R.G. Tee, A. Aspinall |
| 1967Th05 | NUIMA | 56, | 325 | G.F. Thomas, D.E. Blatchley, L.M. Bollinger |
| 1967Ti04 | NUPAB | 100, | 425 | E. Tielsch-Cassel |
| 1967Tj01 | KDVSA | 36, | #8 | P.O. Tjom, B. Elbek |
| 1967Tr06 | NUPAB | 97, | 405 | W. Treytl, K. Valli |
| 1967Va01 | NUPAB | 91, | 157 | D. Varga, D. Berenyi, C. Ujhelyi, F. Molnar |
| 1967Va14 | NUPAB | 99, | 473 | J. Van Klinken, L.M. Taff |
| 1967Va17 | PHRVA | 159, | 1013 | K. Valli, M.J. Nurmi, E.K. Hyde |
| 1967Va20 | JINCA | 29, | 2503 | K. Valli, E.K. Hyde, W. Treytl |
| 1967Va22 | PHRVA | 161, | 1284 | K. Valli, W. Treytl, E.K. Hyde |
| 1967Va23 | NUPAB | 102, | 369 | L. Van Neste, R. Coussemment, J.P. Deutsch |
| 1967Va27 | IANFA | 31, | 284 | S.S. Vasilev, E.T. George, L.Y. Shavtalo |
| 1967Va.A | P-Winnipeg | | 296 | K. Valli |
| 1967Ve04 | NUPAB | 103, | 188 | E. Veje |
| 1967Vo05 | PHRVA | 164, | 1374 | D. Von Ehrenstein, J.P. Schiffer |
| 1967Vr04 | IANFA | 31, | 604 | J. Vrzal, K.Y. Gromov, J. Liptak, F. Molnar, V.A. Morozov, J. Urbanets, V.G. Chumin |
| 1967Wa09 | NUPAB | 97, | 641 | A.H. Wapstra |
| 1967Wa23 | PHRVA | 164, | 1545 | T.E. Ward, H. Ichoi, M. Karras, J.L. Meason |
| 1967Wh03 | PHRVA | 160, | 997 | C.A. Whitten, Jr., L.C. McIntyre |
| 1967Wi08 | NUPAB | 103, | 433 | C.A. Wiedner, A. Heusler, J. Solf, J.P. Wurm |
| 1967Wi14 | PHRVA | 163, | 1094 | S. Wirjoamidjojo, B.D. Kern |
| 1967Wi19 | NUIMA | 52, | 77 | J.B. Willet, E.H. Spejewski |
| 1967Yt03 | PHYSA | 34, | 559 | C. Ythier, J.C. Meyer, J. Konijn, R. van Lieshout |

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| 1968Ab14 | IANFA | 32, | 749 | A.A. Abdurazakov, J. Vrzal, K. Ya. Gromov, Zh. T. Zhelev, V.G. Kalinnikov, J. Liptak, S.K. Li, F.N. Mukhtasimov, U.K. Nazarov, J. Urbanets |
| 1968Ab17 | IANFA | 32, | 793 | L.N. Abesalashvili, K.Y. Gromov, Z.T. Zhelev, V.G. Kalinnikov, J. Liptak, U.K. Nazarov, J. Urbanets |
| 1968Ad03 | JPAGB | 1, | 549 | J.M. Adams, A. Adams, J.M. Calvert |
| 1968Ad04 | NUPAB | 121, | 289 | I. Adam, K.S. Toth, M.F. Roche |
| 1968Ad08 | APPOA | 34, | 529 | B. Adamowicz, Z. Moroz, Z. Preibisz, A. Zglinski |
| 1968Ah01 | NUPAB | 119, | 27 | I. Ahmad, A.M. Friedman, J.P. Unik |
| 1968An03 | NUPAB | 110, | 289 | S. Antman, H. Petterson, Y. Grunditz |
| 1968An11 | NUPAB | 121, | 337 | S. Andre, P. Liaud |
| 1968Ar03 | PHRVA | 165, | 1194 | A.J. Armini, J.W. Sunier, J.R. Richardson |
| 1968Au04 | NUPAB | 116, | 14 | R.L. Auble, J.B. Ball, C.B. Fulmer |
| 1968Az01 | ZEPYA | 208, | 234 | A. Azman, A. Mojlak, J. Pahor |
| 1968Ba25 | YAFIA | 7, | 727 | S.A. Baranov, V.M. Kulakov, V.M. Shatinskii |
| 1968Ba53 | YAFIA | 7, | 1153 | I. Bacso, D.D. Bogdanov, S. Darocsy, V.A. Karnaukhov, L.A. Petrov |
| 1968Ba73 | JOQPS | 1,C1 | 181 | G. Bastin, C.F. Leang, R.J. Walen |
| 1968Be02 | NUPAB | 106, | 296 | J.E. Benn, E.B. Dally, H.H. Muller, R.E. Pixley, H.H. Staub, H. Winkler |
| 1968Be06 | NUPAB | 108, | 382 | H. Beekhuis, R.J. Van Duinen |
| 1968Be10 | NUPAB | 109, | 666 | T.A. Belote, W.E. Dorenbusch, J. Rapaport |
| 1968Be13 | PHRVA | 167, | 1043 | R.C. Barse, D.H. Youngblood, J.L. Yntema |
| 1968Be21 | NUPAB | 121, | 433 | C.E. Bemis, Jr., J. Halperin |
| 1968Be35 | ZEPYA | 216, | 229 | E. Beck, H. Daniel |
| 1968Be36 | NUPAB | 120, | 401 | T.A. Belote, W.E. Dorenbusch, J. Rapaport |
| 1968Be.A | BAPSA | 13, | 1430 | M.J. Bennet, R.K. Sheline |
| 1968Bj01 | NUPAB | 107, | 241 | J.H. Bjerregaard, O. Hanson, O. Nathan, R. Chapman, S. Hinds |
| 1968Bj02 | NUPAB | 110, | 1 | J.H. Bjerregaard, O. Hansen, O. Nathan, L. Vistisen, R. Chapman, S. Hinds |
| 1968Bj03 | NUPAB | 113, | 484 | J.H. Bjerregaard, O. Hansen, O. Nathan, L. Vistisen, R. Chapman |
| 1968Bj05 | NUPAB | 118, | 241 | S. Bjornholm, J. Dubois, B. Elbek |
| 1968Br23 | PHRVA | 174, | 1247 | H. Brunnader, J.C. Hardy, J. Cerny |
| 1968Bu02 | PHRVA | 166, | 1096 | G.W. Butler, J. Cerny, S.W. Cosper, R.L. McGrath |
| 1968Ch20 | NUPAB | 119, | 305 | R. Chapman, S. Hinds, A.E. Macgregor |
| 1968Ch.A | PrvCom | AHW | May | R.E. Chrien |
| 1968Co20 | PHRVA | 172, | 1126 | E.R. Cosman, D.C. Slater |
| 1968Co22 | NUPAB | 117, | 449 | M. Conjeaud, S. Harar, Y. Cassagnou |
| 1968Da02 | NUPAB | 107, | 569 | W.R. Daniels, D.C. Hoffman, F.O. Lawrence, C.J. Orth |
| 1968Da09 | PHRVA | 172, | 1176 | J.M. D'Auria, H. Bakhru, J.C. Preiss |
| 1968Da13 | NUPAB | 112, | 241 | W.R. Daniels, F.O. Lawrence, D.C. Hoffman |
| 1968De17 | YAFIA | 8, | 255 | R.A. Demirkhanov, V.V. Dorokhov, M.I. Dzkuya |
| 1968Do02 | PYLBB | 26, | 148 | W.E. Dorenbusch, F.T. Dao, J. Rapaport, T.A. Belote |
| 1968Do03 | NUPAB | 109, | 649 | W.E. Dorenbusch, T.A. Belote, J. Rapaport |
| 1968Do06 | NUPAB | 112, | 385 | W.E. Dorenbusch |
| 1968Do12 | PHRVA | 175, | 1446 | K.W. Dolan, D.K. Daniels |
| 1968En01 | NUPAB | 107, | 305 | G.A.P. Engelbertink, H. Lindeman, M.J.N. Jacobs |
| 1968Et01 | PHRVA | 168, | 1249 | R.C. Etherton, L.M. Beyer, W.H. Kelly, D.J. Horen |
| 1968Fi01 | NUPAB | 111, | 338 | E. Fincke, U. Jahnke |
| 1968Fi04 | PHRVA | 173, | 1078 | H.J. Fischbeck |
| 1968Fu07 | NUPAB | 118, | 97 | L. Funcke, W. Andrejtscheff, H. Graber, U. Hagemann, K.-H. Kaun, P. Kemnitz, W. Meiling, H. Sodan, F. Stary, G. Winter |
| 1968Fu11 | JUPSA | 25, | 946 | S. Fukumoto, T. Matsuo, H. Matsuda |
| 1968Go34 | APPOA | 34, | 511 | M. Gonsior, G.I. Lizurei, G. Nevodnichanskii, A.V. Potempa |
| 1968Go.A | BAPSA | 13, | 1452 | K.P. Gopinathan, W. Robinson |
| 1968Go.B | P-Dubna | | 54 | N.A. Golovkov, R.B. Ivanov, Y.V. Norseev, So Ki Kvan, V.A. Khalkin, V.G. Shumin |
| 1968Go.C | P-Dubna | | 27 | N.A. Golovkov, S.V. Khvan, V.G. Chumin |
| 1968Gr09 | NUPAB | 113, | 353 | T.B. Grandy, W.J. McDonald, W.K. Dawson, G.C. Neilson |
| 1968Gr14 | PYLBB | 27, | 274 | R.C. Greenwood |
| 1968Gr16 | NUPAB | 120, | 493 | A. Graue, E. Hvidsen, J.R. Lien, G. Sandvik, W.H. Moore |
| 1968Gr17 | NUPAB | 120, | 513 | A. Graue, L. Herland, J.R. Lien, E.R. Cosman |

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| 1968Ha09 | PYLBB | 26, | 432 | M. Hagen, K.H. Maier, R. Michaelsen |
| 1968Ha10 | PHRVA | 168, | 1373 | R.A. Harlan, R.R. Sheline |
| 1968Ha13 | NUPAB | 113, | 75 | O. Hansen, O. Nathan, L. Vistisen, R. Chapman |
| 1968Ha14 | NUPAB | 113, | 206 | R.L. Hahn, M.F. Roche, K.S. Toth |
| 1968He03 | PYLBB | 26, | 435 | D.C. Hensley, P.H. Nettles, C.A. Barnes |
| 1968Ho10 | JOPQA | 29, | 138 | J.C. Hocquenghem, S. Andre, P. Liaud |
| 1968Ho13 | NUPAB | 115, | 225 | R.W. Hoff, J.E. Evans, E.K. Hulet, R.J. Dupzyk, B.J. Qualheim |
| 1968Ho22 | AFYSA | 37, | 1 | G. Holm |
| 1968Hs01 | NUPAB | 109, | 423 | S.T. Hsue, M.U. Kim, L.M. Langer, E.H. Spejewski |
| 1968Hs02 | NUPAB | 117, | 686 | S.T. Hsue, M.U. Kim, L.M. Langer, W.F. Piel, E.H. Spejewski |
| 1968Hu05 | PHRVA | 167, | 1064 | H.C. Hudson, W.H. Johnson, Jr. |
| 1968Ja06 | NUPAB | 115, | 321 | J.F.W. Jansen, W. Pauw, C.J. Touse |
| 1968Ja11 | AFYSA | 37, | 585 | A. Jasinski, C.J. Herrlander |
| 1968Jo11 | NUPAB | 113, | 104 | L.V. Johnson, T.J. Kennett |
| 1968Ki07 | YAFIA | 8, | 1057 | B.G. Kiselev, V.R. Burmistrov |
| 1968Ki08 | IANFA | 32, | 1640 | A.A. Klyushnikov, N.F. Mitrokhovich, A.I. Feoktistov |
| 1968La18 | PHRVA | 175, | 1507 | I.M. Ladenbauer-Bellis, H. Bakhru |
| 1968Le07 | CHDBA | 266, | 629 | C.F. Leang, G. Bastin-Scoffier |
| 1968Li01 | ZEPYA | 208, | 208 | E. Liukhonen, J. Kantele |
| 1968Li12 | NUPAB | 122, | 373 | H. Lindeman, G.A.P. Engelbertink, M.W. Ockeloen, H.S. Pruys |
| 1968Lo15 | YAFIA | 8, | 849 | Y.V. Lobanov, V.A. Durin |
| 1968Ma35 | PHRVA | 174, | 1485 | M.A.J. Mariscotti, W. Gelletly, J.A. Moragues, W.R. Kane |
| 1968Ma45 | JUPSA | 25, | 950 | H. Matsuda, T. Matsuo |
| 1968Mc06 | PHRVA | 168, | 1393 | M. McDonnell, M.K. Ramaswami |
| 1968Mc09 | PHRVA | 172, | 1253 | L.D. McIsaac |
| 1968Mc10 | PHRVA | 171, | 1254 | W.J. McDonald, J.T. Sample, D.M. Sheppard, G.M. Stinson, K.W. Jon |
| 1968Mc12 | PYLBB | 27, | 443 | R.L. McGrath, J.C. Hardy, J. Cerny |
| 1968Mi08 | NUPAB | 119, | 609 | W. Michaelis, F. Weller, H. Schmidt, G. Markus, U. Fanger |
| 1968Mo21 | PHRVA | 175, | 1516 | P.A. Moore, P.J. Riley, C.M. Jones, M.D. Mancusi, J.L. Foster, Jr. |
| 1968My.A | P-Debreccen | | 102 | B. Mysek, Z. Sujkowski, B. Kotlinska |
| 1968Pa03 | NUPAB | 110, | 674 | B. Parsa, G.E. Gordon, W.B. Walters |
| 1968Pe01 | NUPAB | 108, | 124 | H. Petterson, S. Antman, Y. Grunditz |
| 1968Pi03 | JOPQA | 29, | 257 | R.A. Pinston, E. Monnard, A. Moussa |
| 1968Re12 | JINCA | 30, | 2887 | K. Rengan, H.C. Griffin |
| 1968Ri07 | PHRVA | 170, | 1157 | F.A. Rickey, R.K. Sheline |
| 1968Ro09 | PHRVA | 170, | 1013 | J.E. Robertshaw, S. Mecca, A. Sperduto, W.W. Buechner |
| 1968Sa09 | NUPAB | 118, | 409 | R. Santo, R. Stock, J.H. Bjerregaard, O. Hansen, O. Nathan, R. Chapman, S. Hinds |
| 1968Sa13 | NUPAB | 121, | 65 | C. Samour, H.E. Jackson, J. Julien, A. Bloch, C. Lopata, J. Morgenstern |
| 1968Sc01 | PHRVA | 165, | 1184 | I.G. Schröder, M. McKeown, G. Scharff-Goldhaber |
| 1968Sc04 | PHRVA | 166, | 1212 | D. Schroer, P.S. Jastram |
| 1968Sc10 | JOPQA | 29, | 385 | F. Schussler |
| 1968Sc14 | ZEPYA | 217, | 282 | W.D. Schmidt-Ott, W. Weirauch, F. Smend, H. Langhoff, D.G. Foller |
| 1968Sc15 | PHRVA | 175, | 1453 | J.J. Schwartz |
| 1968Sh12 | PHRVA | 170, | 1108 | E.B. Shera, M.E. Bunker, R.K. Sheline, S.H. Vegors |
| 1968Si01 | NUPAB | 109, | 231 | A. Siivola |
| 1968Sn01 | NUPAB | 113, | 581 | R.E. Snyder, G.B. Beard |
| 1968Sp01 | NUPAB | 113, | 395 | R. Spilling, H. Gruppelaar, H.F. de Vries, A.M.J. Spits |
| 1968Su02 | PRLTA | 21, | 237 | A.W. Sunyar, G. Scharff-Goldhaber, M. McKeown |
| 1968Te01 | PYLBB | 26, | 371 | B. Teitelman, G.M. Temmer |
| 1968To10 | PHRVA | 174, | 1494 | D.F. Torgerson, R.A. Gough, R.D. Macfarlane |
| 1968Tr01 | NUPAB | 111, | 241 | A. Trier, L. Gonzáles, J. Rapaport, T.A. Belote, W.E. Dorenbusch |
| 1968Tr07 | ZENAA | 23, | 2127 | N. Trautmann, R. Denig, N. Karfeel, G. Herrmann |
| 1968Va04 | PHRVA | 167, | 1094 | K. Valli, W.J. Treytl, E.K. Hyde |
| 1968Va06 | NUPAB | 112, | 372 | J. Van Klinken, F. Pleiter, H.T. Dijkstra |
| 1968Va08 | ATKOA | 10, | 27 | E. Vatai, K. Hohmuth |
| 1968Va17 | PHYSA | 40, | 253 | H. Van Krugten, E.W. Koopmans |
| 1968Va18 | PHRVA | 176, | 1377 | K. Valli, E.K. Hyde |
| 1968Vi01 | PYLBB | 26, | 285 | G.B. Vingiani, G. Chilosi, W. Bruynesteyn |

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| 1968Vi05 | IANFA | 32, | 1625 | V.D. Vitman, B.S. Dzelepov, A.I. Medvedev |
| 1968We02 | NUPAB | 109, | 561 | H. Wenniger, J. Stiewe, H. Leutz |
| 1968Wh03 | NUIMA | 66, | 70 | D.H. White, D.J. Groves, R.E. Birket |
| 1968Wi21 | IANFA | 32, | 187 | K. Wilsky, K.Y. Gromov, Z.T. Zhelev, V.V. Kuznetsov, G. Muziol, O.B. Nielsen, O. Skillbreit |
| 1968Wi25 | ATKEA | 13, | 383 | P. Wille |
| 1968Wo01 | NUPAB | 107, | 332 | A.C. Wolff, M.A. Meyer, P.M. Endt |
| 1968Wo02 | NUPAB | 112, | 156 | J.L. Wolfson, A.J. Collier |
| 1968Wo09 | PYLBB | 28, | 77 | S.S.M. Wong, W.G. Davies |
| 1968Yo01 | PYLBB | 26, | 143 | H.J. Young, J. Rapaport, and PrvCom AHW |
| 1968Yo06 | PHRVA | 173, | 949 | P.G. Young, R.H. Stoker, G.G. Olsen |
| 1968Ze04 | APASA | 27, | 31 | H. Zemann, D. Zemrad |
| 1968Zh04 | IANFA | 32, | 1610 | Zh. Zhelev, V.G. Kalinnikov, J. Liptak, L.K. Peker |
| 1969 | | | | |
| 1969Aj03 | PHRVA | 188, | 1813 | F. Ajzenberg-Selove |
| 1969Ak01 | IANFA | 33, | 104 | M.R. Akhmed, K.A. Baskova, S.S. Vasilev, L.Y. Shaftalov |
| 1969An18 | PYLBB | 30, | 160 | S. Andre, P. Liaud, F. Perales, S.Y. van der Werf |
| 1969Ar23 | IANFA | 33, | 1218 | R. Arlt, Z. Malek, G. Musiol, G. Pfepper, H. Strusny |
| 1969Ar.A | P-Studsvik | | | S.E. Arnell, R. Hardell, O. Skeppstedt, E. Wallander |
| 1969Ba02 | CJPHA | 47, | 419 | H. Bakhru, R.I. Morse, I.L. Preiss |
| 1969Ba07 | PHRVA | 177, | 1686 | H. Bakhru, I.M. Ladenbauer-Bellis |
| 1969Ba31 | PHRVA | 184, | 1142 | H. Bakhru, I.M. Ladenbauer-Bellis |
| 1969Ba57 | YAFIA | 10, | 1110 | S.A. Baranov, V.M. Shatinskii, V.M. Kulakov |
| 1969Be06 | JINCA | 31, | 599 | C.E. Bemis, Jr., J. Halperin, R. Eby |
| 1969Be17 | NUPAB | 129, | 571 | K. Beg, R.D. Macfarlane |
| 1969Be74 | NUIMA | 76, | 77 | E. Beck |
| 1969Bj01 | NUPAB | 131, | 481 | J.H. Bjerregaard, O. Hansen, O. Nathan, R. Chapman, S. Hinds |
| 1969Bl01 | PRLTA | 22, | 470 | A.G. Blair, J.G. Beery, E.R. Flynn |
| 1969Bl03 | NUPAB | 123, | 129 | R. Bloch, T. Knellwolf, R.E. Pixley |
| 1969Bl16 | NUPAB | 139, | 434 | J. Blachot, J.A. Pinston, F. Schussler |
| 1969Bo48 | NUIMA | 72, | 40 | H.M.W. Booij, E.A. Van Hoek, J. Blok |
| 1969Bo49 | NUIMA | 73, | 323 | H.E. Bosch, M.A. Fariolli, N. Martin, M.C. Simon |
| 1969Br11 | PHRVA | 185, | 1553 | H.C. Britt, J.D. Cramer |
| 1969Br21 | NUPAB | 137, | 487 | H. Brunnader, J.C. Hardy, J. Cerny |
| 1969Bu01 | NUPAB | 124, | 683 | D.G. Burke, D.E. Nelson, C.W. Reich |
| 1969Bu05 | PHRVA | 179, | 1113 | D.L. Bushnell, R.P. Chaturvedi, R.K. Smither |
| 1969Bu.A | P-Yerevan | | 71 | V.R. Burmistrov, B.G. Kiselev |
| 1969Ca03 | NUPAB | 125, | 267 | G.C. Carlson, W.C. Schick, Jr., W.L. Talbert, Jr., F.K. Wohn |
| 1969Ce01 | PRLTA | 22, | 612 | J. Cerny, E.A. Mendelson, Jr., G.J. Wozniak, J.E. Esterl, J.S. Har |
| 1969Ch18 | PYLBB | 29, | 652 | J. Chaumont, E. Roeckl, Y. Nir-El, C. Thibault-Philippe, R. Klapisch, R. Bernas |
| 1969Co03 | NUPAB | 129, | 10 | M. Conjeaud, S. Harar, E. Thuriere |
| 1969Da15 | PHRVA | 181, | 1618 | J.W. Dawson, R.K. Sheline, E.T. Journey |
| 1969De19 | YAFIA | 10, | 433 | R.A. Demirkhanov, V.V. Dorokhov |
| 1969De27 | PYLBB | 30, | 639 | P. De Wit, C. Van der Leun |
| 1969Do01 | NUPAB | 133, | 146 | W.E. Dorenbusch, T.A. Belote, J. Rapaport |
| 1969Fa01 | NUPAB | 123, | 616 | K.T. Faler, R.R. Spencer, R.A. Harlan |
| 1969Fl02 | ZEPYA | 225, | 164 | D. Flothman, W. Wiesner, R. Lohken, H. Rebel |
| 1969Fr01 | NUPAB | 127, | 33 | A.M. Friedman, I. Ahmad, J. Milsted, D.W. Engelkemeir |
| 1969Fr08 | NUPAB | 132, | 593 | J.M. Freeman, J.G. Jenkin, G. Murray, D.C. Robinson, W.E. Burcham |
| 1969Fr22 | ANPYA | 23, | 168 | V.R. Friedrich, M. Kiesling, G. Otto |
| 1969Ge07 | PHRVA | 181, | 1682 | W. Gelletly, J.A. Moragues, M.A.J. Mariscotti, W.R. Kane |
| 1969Gh01 | PRLTA | 22, | 1317 | A. Ghiorso, M. Nurmia, J. Harris, K. Eskola, P. Eskola |
| 1969Go23 | IANFA | 33, | 1622 | N.A. Golovkov, S. Guetch, B.S. Dzelepov, Yu. V. Norseev, V.A. Chalkin, V.G. Shumin |
| 1969Gr08 | NUPAB | 131, | 180 | H. Gruppelaar, A.M.F. Op den Kamp, A.M.J. Spits |
| 1969Gr24 | NUPAB | 136, | 513 | A. Graue, J.R. Lien, S. Royrvik, O.J. Aaroy, W.H. Moore |
| 1969Gr28 | CHDBA | 269, | 652 | B. Grennberg, A. Rytz |

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| 1969Gr31 | YAFIA | 10, | 681 | L.V. Groshev, V.N. Dvoretiskii, A.M. Demidov, M.S. Alvash |
| 1969Ha11 | NUPAB | 127, | 71 | O. Hansen, O. Nathan, R. Chapman, S. Hinds |
| 1969Ha32 | PHRVA | 182, | 1329 | R.L. Hahn, M.F. Roche, K.S. Toth |
| 1969Ha44 | NUPAB | 136, | 414 | P.E. Haustein, A.F. Voigt |
| 1969Ha.A | P-Studsvik | | 209 | R. Hardell |
| 1969He05 | ZEPYA | 218, | 137 | G. Heymann, P. van der Merwe, I.J. van Heerden, I.C. Dormehl |
| 1969Ho10 | NUPAB | 131, | 551 | D.C. Hoffman, F.O. Lawrence, W.R. Daniels |
| 1969Ho37 | PHRVA | 187, | 1709 | P.K. Hopke, R.A. Naumann, E.H. Spejewski |
| 1969Jo16 | NUPAB | 133, | 213 | K.H. Johansen, B. Bengtson, P.G. Hansen, P. Hornshøj |
| 1969Ka06 | JUPSA | 26, | 1071 | T. Katoh, T. Morii, H. Inoue, Y. Yoshizawa, H. Gotoh, E. Sakai |
| 1969Ka13 | NUCIA | 61, | 220 | Y. Kabasakal, M.K. Ramaswamy |
| 1969Ki15 | IANFA | 33, | 1340 | B.G. Kiselev, V.R. Burmistrov |
| 1969Ki16 | YAFIA | 10, | 1105 | B.G. Kiselev, V.R. Burmistrov |
| 1969Ki.A | P-Yerevan | | 42 | B.G. Kiselev, V.N. Lebkovskii |
| 1969Ku03 | ZEPYA | 222, | 144 | E. Kuhlmann, K.E.G. Lobner |
| 1969Ku07 | NUPAB | 133, | 554 | T. Kuroyanagi, T. Tamura |
| 1969La11 | PHRVA | 178, | 1919 | R.G. Lanier, R.K. Sheline, H.F. Mahlein, T. von Egidy, W. Kaiser, H.R. Koch, U. Gruber, B.P.K. Maier, O.W.B. Schult, D.W. Hafemeister, E.B. Shera |
| 1969La15 | PHRVA | 180, | 1015 | I.M. Ladenbauer-Bellis, H. Bakhru |
| 1969La33 | PHRVA | 187, | 1739 | I.M. Ladenbauer-Bellis, H. Bakhru, A. Luzzati |
| 1969Le05 | NUPAB | 135, | 36 | C.M. Lederer, J.M. Jaklevic, S.G. Prussin |
| 1969Le.A | Th.-Paris | | | C.F. Leang |
| 1969Lu09 | APPOA | 36, | 939 | J. Ludziejewski, J. Kownacki, W. Klamra, J. Chaszczewska, W. Przyborski |
| 1969Ly06 | NUPAB | 135, | 97 | L.L. Lynn, W.E. Dorenbusch, T.A. Belote, J. Rapaport |
| 1969Mc05 | NUPAB | 127, | 531 | M. McDonnell, M.K. Ramaswami |
| 1969Mi10 | PHRVA | 177, | 1455 | R.C. Minehart, L. Coulson, W.F. Grubb, III, K. Ziock |
| 1969Mo13 | PHRVA | 180, | 1105 | J.A. Moragues, M.A.J. Mariscotti, W. Gelletly, W.R. Kane |
| 1969Mo16 | NUPAB | 134, | 321 | E. Monnard, J. Blachot, A. Moussa |
| 1969Na03 | PHRVA | 178, | 1968 | T. Nagarajan, M. Ravindranath, K.V. Reddy, S. Janananda |
| 1969Na05 | NUPAB | 134, | 433 | T. Nagarajan, M. Ravindranath, K.V. Reddy |
| 1969Na11 | NUPAB | 137, | 467 | T. Nagarajan, M. Ravindranath, K.V. Reddy |
| 1969Na21 | SHIBA | 17, | 705 | H. Nakabushi, I. Katakuse, K. Ogata |
| 1969Oh01 | PHRVA | 177, | 1695 | H. Ohnuma, J.R. Erskine, J.A. Nolen, Jr., J.P. Schiffer, P.G. Roos |
| 1969Ov01 | NUIMA | 68, | 61 | J.C. Overley, P.D. Parker, D.A. Bromley |
| 1969Ph01 | NUPAB | 135, | 116 | M.E. Phelps, D.G. Sarantes |
| 1969Ph03 | RRALA | 1, | 351 | A. Phillippe, C. Ballaux, R. Dams, F. Adams |
| 1969Pi08 | NUPAB | 133, | 124 | J.A. Pinston, F. Schussler, A. Moussa |
| 1969Pr04 | NUPAB | 131, | 679 | G. Presser, R. Bass, K. Kruger |
| 1969Pr06 | PHRVA | 180, | 945 | W.V. Prestwich, G.E. Thomas |
| 1969Pr11 | PHRVA | 188, | 1930 | V. Prodi, K.F. Flynn, L.E. Glendenin |
| 1969Ra02 | NUPAB | 123, | 627 | J. Rapaport, T.A. Belote, W.E. Dorenbusch |
| 1969Ra24 | NUPAB | 138, | 49 | S. Ray, J.N. Mo, S. Murzynski, S.K. Mark |
| 1969Re04 | PHYSA | 40, | 567 | E.R. Reddingius, H. Postma |
| 1969Sa08 | NUPAB | 130, | 97 | D.G. Sarantites, S. Gronemeyer |
| 1969Sh04 | NUPAB | 128, | 73 | M.H. Shapiro, C. Moss, W.M. Denny |
| 1969St02 | PHRVA | 178, | 2024 | R.H. Stokes, P.G. Young |
| 1969St07 | PHRVA | 178, | 1789 | R.H. Stokes, P.G. Young |
| 1969Te01 | PHRVA | 177, | 1595 | J. Tenenbaum, R. Moreh, Y. Wand, B. Arad, G. Ben-David |
| 1969Tj01 | KDVSA | 37, | #7 | P.O. Tjom, B. Elbek |
| 1969To14 | AFYSA | 38, | 261 | S. Toernqvist, S. Stroem |
| 1969Va06 | NUPAB | 130, | 586 | J.M. Vara, R. Gaeta |
| 1969Va17 | NUPAB | 134, | 215 | S.Y. Van der Werf, H. De Waard, H. Beekhuis |
| 1969Wa10 | PHRVA | 182, | 1186 | T.E. Ward, P.H. Riley, P.K. Kuroda |
| 1969Wa15 | JINCA | 31, | 2679 | T.E. Ward, P.H. Pile, P.K. Kuroda |
| 1969Wa19 | PHRVA | 185, | 1439 | J. Walinga, J.C. Manthuruthil, C.P. Poirier |
| 1969Wa24 | RAACA | 12, | 217 | T.E. Ward, P.K. Kuroda |
| 1969Wa.A | UCRL-18667 | | 54 | D. Ward, F.S. Stephens, R.M. Diamond |
| 1969Wi.A | Th.-Berkeley | | | J.B. Wilhelmy UCRL-18978] |
| 1969Ya02 | NUPAB | 130, | 456 | T. Yamazaki, J. Sato |

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|----------|--------------|------|------|--|
| 1969Zo04 | PHRVA | 185, | 1537 | W.H. Zoller, W.B. Walters, C.D. Coryell |
| | | | 1970 | |
| 1970Ab05 | NUPAB | 151, | 187 | C. Abulaffio, J. Felsteiner, R. Kalish, B. Rosner, G. Vourvopoulos |
| 1970Ab15 | NUCIA | 70, | 391 | U. Abbondanno, R. Giacomich, L. Granata, M. Lagonegro, G. Poiani, P. Blasi, R.A. Ricci |
| 1970Ad01 | NUPAB | 143, | 97 | E.G. Adelsberger, A.V. Nero, A.B. McDonald |
| 1970Af.A | JINR-P6-4972 | | | V.P. Afanasiev, M. Bocharova, N.A. Golovkov, I. Gromova, R.B. Ivanov, V.I. Kuzmin, Y.V. Norseev, V.G. Chumin |
| 1970Ag01 | IANFA | 34, | 397 | V.A. Ageev, N.F. Mitrokhovich, A.I. Feoktistov |
| 1970Ag02 | IANFA | 34, | 435 | V.A. Ageev, N.F. Mitrokhovich, A.I. Feoktistov |
| 1970Ag03 | IANFA | 34, | 201 | V.A. Ageev, N.F. Mitrokhovich, A.I. Feoktistov |
| 1970Ah01 | NUPAB | 140, | 141 | I. Ahmad, R.K. Sjoblom, R.F. Barnes, E.P. Horwitz, P.R. Fields |
| 1970Aj01 | NUPAB | 142, | 641 | F. Ajzenberg-Selove, G. Igo |
| 1970Ak02 | IANFA | 34, | 777 | A.I. Akhmadzhanov, R. Broda, V. Valyus, I. Zvolksi, I. Molnar, Y. Stygen, V.I. Fominikh, A. Krynkevich, V.M. Tsupko-Sitnikov |
| 1970An06 | ZEPYA | 234, | 455 | A. Antilla, M. Bister, E. Arminen |
| 1970An14 | NUPAB | 153, | 17 | M.L. Andersen, S.A. Andersen, O. Nathan, K.M. Bisgard, K. Gregersen, O. Hansen, S. Hinds, R. Chapman |
| 1970An25 | NUPAB | 157, | 561 | T.R. Anfinson, K. Bjorndal, A. Graue, J.R. Lien, G.E. Sandvik, L.O. Tveita, K. Ytterstad, E.R. Cosman |
| 1970Ar04 | IANFA | 34, | 409 | R. Arlt, G. Beyer, G. Musiol, L.K. Peker, G. Pfrepper, H. Strusny |
| 1970As08 | NUPAB | 158, | 146 | J. Ashkenazi, E. Friedman, D. Nir, J. Zioni |
| 1970Be24 | PRVCA | 2, | 297 | R.W. Bercaw, R.E. Warner |
| 1970Be48 | NUPAB | 157, | 520 | G.B. Beard, G.E. Thomas |
| 1970Be.A | P-Leysin | | 353 | E. Beck, ISOLDE |
| 1970Bo13 | PRVCA | 2, | 1841 | J. Borggreen, K. Valli, E.K. Hyde |
| 1970Bo19 | JINCA | 32, | 2805 | G.G.J. Boswell, T. McGee |
| 1970Bo29 | PRVCA | 2, | 1951 | L.M. Bollinger, G.E. Thomas |
| 1970Br01 | PRVCA | 1, | 275 | T.H. Braid, R.R. Chasman, J.R. Erskine, A.M. Friedman |
| 1970Br23 | NUPAB | 153, | 289 | C.P. Browne, G. Maille, R. Tarara J.R. Duray |
| 1970Br.A | JINR-E6-5197 | | | R. Broda, S. Chojnacki, C. Droste, T. Morek, W. Walus |
| 1970Bu19 | PRVCA | 2, | 1513 | D.J. Buss, R.K. Smither |
| 1970Ca01 | NUPAB | 141, | 97 | P.E. Cavanagh, C.F. Coleman, A.G. Hardacre, G.A. Gard, J.F. Turner |
| 1970Ce02 | PRLTA | 24, | 1128 | J. Cerny, C.U. Cardinal, H.C. Evans, K.P. Jackson, N.A. Jelley |
| 1970Ce04 | PYLBB | 33, | 284 | J. Cerny, J.E. Esterl, R.A. Gough, R.G. Sextro |
| 1970Ch02 | NUPAB | 142, | 634 | J.C. Chang, G. Schupp, R.R. Hurst |
| 1970Ch28 | NUPAB | 156, | 276 | A. Charvet, R. Duffait, A. Emsallem, R. Chéry |
| 1970Ch29 | JOQA | 31, | 737 | A. Charvet, R. Duffait, A. Emsallem, R. Chéry |
| 1970Ch.A | BAPSA | 15, | 87 | R.E. Chrien, S. Bokharee, J.B. Garg |
| 1970Cr04 | NUPAB | 153, | 413 | F.P. Cranston, R.E. Birkett, D.H. White, J.A. Hughes |
| 1970De39 | NUPAB | 158, | 166 | F.W.N. De Boer, E.W.A. Lingeman, R. van Lieshout, R.A. Ricci |
| 1970Do.A | COO-1779-49 | | 47 | R. Doeblner (Also Thesis Michigan State University) |
| 1970Dz04 | PYLBB | 33, | 302 | T.G. Dzubay, A.A. Jaffe, E.J. Ludwig, T.A. White, F. Everling, D.W. Miller, D.A. Outlaw |
| 1970Ei02 | NUPAB | 141, | 289 | J. Eidens, E. Roeckl, P. Armbruster |
| 1970El.A | BAPSA | 15, | 1670 | J.L. Ellis, H.E. Hall, Jr. |
| 1970Er03 | NUPAB | 146, | 43 | B. Erlandson, A. Marcinkowski |
| 1970Es02 | PRVCA | 2, | 1058 | P. Eskola, K. Eskola, M. Nurmi, A. Ghiorso |
| 1970Es03 | PYLBB | 33, | 287 | J.E. Esterl, J.C. Hardy, R.G. Sextro, J. Cerny |
| 1970Fa06 | NUPAB | 146, | 549 | U. Fanger, D. Heck, W. Michaelis, H. Ottmar, H. Schmidt, R. Gaeta |
| 1970Fi03 | NUPAB | 144, | 67 | E. Fincke, U. Jahnke, B. Schreiber, A. Weidinger |
| 1970Fi12 | NUPAB | 154, | 407 | P.R. Fields, I. Ahmad, R.F. Barnes, R.K. Sjoblom, E.P. Horwitz |
| 1970Fi.A | CERN-70-29 | | | M. Finger, R. Foucher, J.P. Husson, J. Jastrzebski, A. Johnson, C. Seville, R. Henck, J.M. Kuchly, R. Regal, P. Siffert, G. Astner, B.R. Erdal, E. Hagebo, A. Kjølberg, F. Munnich, P. Patzelt, E. Beck, H. Kugler |
| 1970FI05 | NUPAB | 154, | 225 | E.R. Flynn, J.G. Beery, A.G. Blair |
| 1970FI08 | NUPAB | 157, | 1 | D.G. Fleming, M. Blann, H.W. Fulbright, J.A. Robbins |

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|----------|----------|------|------|---|
| 1970Fo09 | PYLBB | 32, | 689 | I. Fodor, I. Szentpetery, J. Szucz |
| 1970Ga32 | IANFA | 34, | 2048 | S. Gabrakov, Z. Zhelev, N.G. Zaitseva, I. Penev, S.S. Sabirov |
| 1970Ge03 | PRVCA | 1, | 1052 | W. Gelletly, J.A. Moragues, M.A. Mariscotti, W.R. Kane |
| 1970Gh01 | PYLBB | 32, | 95 | A. Ghiorso, M. Nurmia, K. Eskola, P. Eskola |
| 1970Gh02 | PRLTA | 24, | 1498 | A. Ghiorso, M. Nurmia, K. Eskola, J. Harris, P. Eskola |
| 1970Go04 | PRVCA | 1, | 123 | D.R. Goosman, E.G. Adelsberger, K.A. Snover |
| 1970Go11 | PRVCA | 1, | 1939 | D.R. Goosman, R.W. Kavanagh |
| 1970Go20 | NUPAB | 151, | 513 | P.F.A. Goudsmit, J. Konijn, F.W.N. De Boer |
| 1970Go39 | NUIMA | 88, | 197 | W. Goedbloed, S.C. Goverse, C.P. Gerner, A. Brinkman, J. Blok |
| 1970Go42 | PRVCA | 2, | 2406 | D.J. Gorman, F. Asaro |
| 1970Go45 | PRVCA | 1, | 1939 | D.R. Goosman, R.W. Kavanagh |
| 1970Gr38 | PYLBB | 33, | 474 | J.W. Gruter, K. Sistemich, P. Armbruster, J. Eidens, H. Lawin |
| 1970Gr46 | KDVSA | 37, | #12 | T. Grottdal, K. Nybø, B. Elbek |
| 1970Gu14 | JINCA | 32, | 3425 | M.C. Gupta, R.D. MacFarlane |
| 1970Ha10 | PRVCA | 1, | 561 | J.C. Hardy, H. Brunnader, J. Cerny |
| 1970Ha18 | NUPAB | 148, | 249 | P.G. Hansen, H.L. Nielsen, K. Wilsky, M. Alpsten, M. Finger, A. Lindahl, R.A. Naumann, O.B. Nielsen |
| 1970Ha21 | NUPAB | 158, | 625 | T. Hattula, S. Andre, F. Schussler, A. Moussa |
| 1970Ha56 | PHSTB | 1, | 85 | R. Hardell, C. Boer |
| 1970Ha60 | PHSTB | 2, | 23 | A. Hasselgren |
| 1970He14 | CJPHA | 48, | 1040 | A.W. Herman, E.A. Heighway, J.D. McArthur |
| 1970He27 | NUPAB | 159, | 49 | D. Heck, N.M. Ahmed, U. Fanger, W. Michaelis, H. Ottmar, H. Schmidt |
| 1970Hi06 | PRLTA | 25, | 829 | R.A. Hinrichs, R. Sherr, G.M. Crawley, I. Proctor |
| 1970Ho01 | NUPAB | 140, | 658 | K.J. Hofstetter, T.T. Sugihara |
| 1970Ja22 | PYLBB | 33, | 281 | K.P. Jackson, C.U. Cardinal, H.C. Evans, N.A. Jelley, J. Cerny |
| 1970Jo08 | PRVCA | 1, | 2030 | H.D. Jones, R.K. Sheline |
| 1970Jo11 | NUPAB | 150, | 497 | H.D. Jones, R.K. Sheline |
| 1970Jo22 | PRVCA | 2, | 1747 | H.D. Jones, R.K. Sheline |
| 1970Ju04 | PRVCA | 2, | 2323 | E.T. Jurney, R.K. Sheline, E.B. Shera, H.R. Koch, B.P.K. Maier, U. Gruber, H. Baader, D. Breitig, O.W.B. Schult |
| 1970Ka04 | NUPAB | 147, | 120 | M. Karras, T.E. Ward, H. Schoche |
| 1970Ka22 | PRLTA | 25, | 953 | W.R. Kane |
| 1970Ke05 | P-Kyoto | | | D.P. Kerr, K.T. Bainbridge |
| 1970Ke08 | PRVCA | 2, | 213 | K.W. Kemper, C.M. McKenna, J.W. Nelson |
| 1970Ki01 | NUPAB | 142, | 35 | H.J. Kim, R.L. Robinson, C.H. Jonnson, S. Raman |
| 1970Ki05 | ZEPYA | 238, | 11 | H.V. Klapdor, K. Buchholz, F. Kaestner |
| 1970Kn03 | PRLTA | 25, | 1210 | D.W. Kneff, H.W. Lefevre, G.U. Din |
| 1970Kn05 | NUPAB | 159, | 642 | K.T. Knoepfle, M. Rogge, C. Mayer-Boricke, J. Pedersen, D. Burch |
| 1970Le05 | YAFIA | 11, | 483 | V.N. Levkovskii, I.V. Kazachevskii |
| 1970Li04 | AFYSA | 40, | 197 | H. Linusson, R. Hardell, S. Arnell |
| 1970Lo02 | NUPAB | 152, | 463 | W. Lourens, B.O. Ten Brink, A.H. Wapstra |
| 1970Ma05 | NUPAB | 145, | 223 | J.D. Macdougall, W. McLatchie, S. Whineray, H.E. Duckworth |
| 1970Ma11 | CJPHA | 48, | 2056 | J.F. Mason, M.W. Johns |
| 1970Ma19 | NUPAB | 147, | 513 | E.S. Macias, J.P. Op den Beeck, W.B. Walters |
| 1970Ma25 | NUPAB | 149, | 593 | S. Maripuu |
| 1970Ma31 | NUPAB | 151, | 465 | S. Maripuu |
| 1970Ma36 | NUPAB | 153, | 183 | S. Maripuu |
| 1970Ma47 | JUPSA | 29, | 1116 | Z.-I. Matumoto, T. Tamura |
| 1970Ma.A | P-Leysin | | 321 | M.I. Macias-Marques, R. Foucher, M. Caillau, J. Belhassen |
| 1970Mc01 | NUPAB | 140, | 529 | D.K. McMillan, B.D. Pate |
| 1970Mc03 | NUPAB | 145, | 244 | W. McLatchie, S. Whineray, J.D. Macdougall, H.E. Duckworth |
| 1970Mc06 | NUPAB | 144, | 593 | A.B. McDonald, E.G. Adelsberger |
| 1970Me11 | PRLTA | 25, | 533 | R. Mendelson, G.J. Wozniak, A.D. Bacher, J.M. Loiseaux, J. Cerny |
| 1970Mi01 | NUPAB | 143, | 225 | W. Michaelis, F. Weller, U. Fanger, R. Gaeta, G. Markus, H. Ottmar, H. Schmidt |
| 1970Mo08 | NUPAB | 145, | 423 | C.E. Moss |
| 1970Mu02 | NUPAB | 142, | 21 | G. Murray, W.J.K. White, J.C. Wilmott, R.F. Entwistle |
| 1970Mu15 | PRVCA | 2, | 655 | T.J. Mulligan, R.K. Sheline, M.E. Bunker, E.T. Jurney |
| 1970Mu17 | NUPAB | 158, | 183 | F. Münnich, A. Kjelberg, D.J. Hnatowich |
| 1970Ob02 | NUPAB | 153, | 593 | B.J. O'Brien, G.E. Coote |

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|----------|-----------|------|------|---|
| 1970Oh05 | JUPSA | 29, | 1435 | S. Ohya, T. Tamura, S. Kageyama |
| 1970Or.A | DASA-2570 | | | V.J. Orphan, N.C. Rasmussen, T.L. Harper |
| 1970Pe04 | ZEPYA | 233, | 260 | H. Petterson, S. Antman, Y. Grunditz |
| 1970Pi01 | NUPAB | 144, | 42 | J.A. Pinston, F. Schussler |
| 1970Qa03 | NUPAB | 154, | 145 | S.M. Qaim |
| 1970Ra14 | APAHA | 28, | 263 | K. Raichev, L. Tron |
| 1970Re02 | PRVCA | 1, | 721 | P.L. Reeder |
| 1970Re13 | RAACA | 14, | 46 | J.L. Repace |
| 1970Re.A | PrvCom | NDG | | A.C. Rester |
| 1970Ro06 | PRVCA | 1, | 1761 | A.A. Rollefson, P.F. Jones, R.J. Shea |
| 1970Ro07 | NUPAB | 147, | 235 | M.L. Roush, L.A. West, J.B. Marion |
| 1970Ru.A | P-Leysin | | 341 | G. Rudstam, E. Lund, L. Westgaard, B. Grapengieser, and PrvCom AHW |
| 1970Sa19 | NUPAB | 157, | 113 | M. Sakai, R. Bertini, C. Gehringer |
| 1970Sc06 | ZEPYA | 232, | 398 | W.D. Schmidt-Ott |
| 1970Sc20 | ZEPYA | 236, | 445 | W.D. Schmidt-Ott |
| 1970Sc22 | NUPAB | 153, | 502 | W. Schlegel, D. Schmitt, R. Santo, F. Puhlhofer |
| 1970Se14 | PHSTB | 2, | 169 | E. Selin |
| 1970Sh05 | PRVCA | 1, | 1835 | S. Shastri, H. Bakhru, I.M. Ladenbauer-Bellis |
| 1970Si19 | PRVCA | 2, | 1948 | R.J. Silva |
| 1970Sm.A | BAPSA | 15, | 549 | R.K. Smither, D.J. Bush, D.L. Bushnell |
| 1970Sp02 | NUPAB | 145, | 449 | A.M.J. Spits, A.M.F. Op den Kamp, H. Gruppelaar |
| 1970St25 | P-Kyoto | | 1296 | C.M. Stevens, P.E. Moreland |
| 1970Th.A | Th.-Paris | | | F. Thuriere |
| 1970To07 | NUPAB | 149, | 641 | D.F. Torgerson, R.D. Macfarlane |
| 1970To18 | PRVCA | 2, | 2309 | D.F. Torgerson, R.D. Macfarlane |
| 1970Um01 | PRVCA | 2, | 1378 | C.J. Umbarger, K.W. Kemper, J.W. Nelson, H.S. Plendl |
| 1970Va13 | PRVCA | 1, | 2115 | K. Valli, E.K. Hyde, J. Borggreen |
| 1970Va31 | NUPAB | 157, | 385 | J. Van Klinken, L.M. Taff, H.T. Dijkstra, A.H. De Haan, H. Hanson, B.K.S. Koene, J.W. Maring, J.J. Schuurman, F.B. Yano |
| 1970Va.A | PrvCom | AHW | Apr | B. Van Nooijen, N.R. Johnson |
| 1970Vo04 | PRVCA | 1, | 2066 | D. Von Ehrenstein, G.C. Morrison, J.A. Nolen, Jr., N. Williams |
| 1970Wa14 | NUPAB | 148, | 225 | T.E. Ward, P.H. Pile, P.K. Kuroda |
| 1970Wa20 | PRVCA | 2, | 675 | O.A. Wasson, R.E. Chrien |
| 1970Wa21 | JINCA | 32, | 2483 | T.E. Ward, D.L. Swindle, R.J. Wright, P.K. Kuroda |
| 1970Wh01 | NUPAB | 151, | 377 | S. Whineray, J.D. Macdougall, W. McLatchie, H.E. Duckworth |
| 1970Wh04 | PRVCA | 1, | 1455 | C.A. Whitten, Jr., M.C. Mermaz, D.A. Bromley |
| 1970Wo05 | NUPAB | 146, | 33 | F.K. Wohn, W.L. Talbert |
| 1970Wo08 | NUPAB | 152, | 561 | F.K. Wohn, W.L. Talbert, Jr., J.K. Halbig |
| 1970Ya03 | PRVCA | 1, | 290 | T. Yamazaki |
| 1970Ya05 | NUPAB | 149, | 45 | K. Yagi, Y. Aoki, K. Sato |
| 1971 | | | | |
| 1971Af05 | IANFA | 35, | 1618 | V.P. Afanasiev, V.S. Buttsev, I.I. Gromova, V.G. Kalinnikov, N.A. Tikhonov |
| 1971Al01 | NUPAB | 161, | 209 | G. Alenius, S.E. Arnell, C. Schale, E. Wallander |
| 1971Al14 | PHSTB | 3, | 55 | G. Alenius, S.E. Arnell, C. Schale, E. Wallander |
| 1971Al19 | NUPAB | 174, | 148 | W.P. Alford, N. Schulz, J. Jamshidi |
| 1971Al22 | PHSTB | 3, | 105 | G. Alenius, S.E. Arnell, C. Schale, E. Wallander |
| 1971Ar12 | NUPAB | 166, | 241 | S.E. Arnell, H. Linusson, Z. Sawa |
| 1971Ar23 | NUPAB | 169, | 209 | N.K. Aras, P. Fettweis, G. Chilosi, G.D. O'Kelley |
| 1971Ar39 | PHSTB | 4, | 89 | S.E. Arnell, R. Hardell, A. Hasselgren, C.G. Mattson, O. Skeppstedt |
| 1971Ba01 | NUPAB | 160, | 225 | J.B. Ball |
| 1971Ba08 | PRVCA | 3, | 937 | H. Bakhru, I.M. Ladenbauer-Bellis, I. Rezanka |
| 1971Ba18 | NUPAB | 164, | 552 | F. Bazan, R.A. Meyer |
| 1971Ba43 | PRVCA | 4, | 196 | J.B. Ball, R.L. Auble, P.G. Roos |
| 1971Bb10 | YAFIA | 14, | 1101 | S.A. Baranov, V.M. Shatinskii, V.M. Kulakov |
| 1971Be10 | PRVCA | 3, | 1294 | F.M. Bernthal, J.O. Rasmussen, J.M. Hollander |
| 1971Be29 | NUPAB | 168, | 151 | F.D. Becchetti, D. Dehnhard, T.G. Dzubay |
| 1971Be41 | NUPAB | 171, | 113 | M.J. Bennet, R.K. Sheline, Y. Shida |

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| 1971Bi.A | UCRL-51060 | | R.E. Birkett |
| 1971Bo01 | NUPAB | 160, | 337 H.M.W. Booij, E.A. Van Hoek, H. Van der Molen, W.F. Slot, J. Blok |
| 1971Bo06 | NUPAB | 162, | 407 J. Borggreen, E.K. Hyde |
| 1971Br13 | JOPQA | 32, | 101 J.P. Briand, P. Chevallier, A. Touati |
| 1971Ca19 | PRVCA | 4, | 130 R.F. Casten, E.R. Flynn, O. Hansen, T.J. Mulligan |
| 1971Ch26 | JOPQA | 32, | 359 A. Charvet, D.H. Phuoc, R. Duffait, A. Emsallem, R. Chery |
| 1971Da16 | NUPAB | 170, | 253 W. Darcey, R. Chapman, S. Hinds |
| 1971Da19 | PRVCA | 4, | 919 W.R. Daniels, D.C. Hoffman |
| 1971Da28 | NUPAB | 178, | 172 J.M. D'Auria, D. Ostrom, S.C. Gujrathi |
| 1971De52 | RMXFA | 20, | 17 H. Del Castillo, R. Roos, A. Tejera, F. Alba |
| 1971Di03 | PRLTA | 26, | 1037 P.F. Dittner, C.E. Bemis, Jr., D.C. Henley, R.J. Silva, C.D. Goodman |
| 1971Do18 | PYLBB | 37, | 173 W.E. Dorenbusch, J.B. Ball, R.L. Auble, J. Rapaport, T.A. Belote |
| 1971Du02 | PRVCA | 3, | 1391 J.L. Dubbard, R.K. Sheline, J.B. Ball |
| 1971Dy01 | NUPAB | 173, | 393 N.C. Dyer, J.H. Hamilton |
| 1971Dz08 | IANFA | 35, | 2249 B.S. Dzelepov, A.G. Dmitriev, N.N. Zhukovskii |
| 1971El05 | NUPAB | 170, | 209 C. Ellegaard, P.D. Barnes, E.R. Flynn |
| 1971En01 | PRVCA | 3, | 180 G.A.P. Engelbertink, J.W. Olness |
| 1971Es01 | PRVCA | 4, | 632 K. Eskola, P. Eskola, M. Nurmia, A. Ghiorso |
| 1971Ev01 | CJPHA | 49, | 402 F. Everling, G.L. Morgan, D.W. Miller, L.W. Seagondollar, P.W. Tillman, Jr. |
| 1971Fi01 | NUPAB | 160, | 460 P.R. Fields, I. Ahmad, A.M. Friedman, J. Lerner, D.N. Metta |
| 1971Fo01 | PRVCA | 3, | 337 H.T. Fortune, G.C. Morrisson, J.A. Nolen, Jr., P. Kienle |
| 1971Fo22 | PYLBB | 36, | 334 B. Fogelberg, A. Backlin, T. Nagarajan |
| 1971Fr03 | NUPAB | 165, | 625 A. Frana, A. Spalek, M. Fiser, A. Kolec |
| 1971Ge05 | PRVCA | 3, | 1678 W. Gelletly, W.R. Kane, D.R. MacKenzie |
| 1971Gh01 | PRVCA | 4, | 1850 A. Ghiorso, M. Nurmia, K. Eskola, P. Eskola |
| 1971Gh03 | NATUA | 229, | 603 A. Ghiorso, M. Nurmia, J. Harris, K. Eskola, P. Eskola |
| 1971Go01 | PRVCA | 3, | 746 D.J. Gorman, F. Asaro |
| 1971Go18 | PRVCA | 4, | 1800 D.R. Goosman, K.W. Jones, E.K. Warburton, D.E. Alburger |
| 1971Go21 | YAFIA | 14, | 3 K.S. Goncharov, A.P. Klyucharev, S.A. Pisminetskii, Y.N. Rakivnenko, V.V. Re- |
| | | | maev, I.A. Romanii, E.A. Skakun |
| 1971Go35 | IANFA | 35, | 2272 N.A. Golovkov, R.B. Ivanov, A. Kolaczowski, Y.V. Norseev, V.G. Chumin |
| 1971Gr01 | NUPAB | 160, | 497 A. Graue, J.R. Lien, H. Vinje, P.B. Vold, W.H. Moore |
| 1971Gr04 | NUPAB | 162, | 593 A. Graue, J.R. Lien, L. Rasmussen, G.E. Sandvik, E.R. Cosman |
| 1971Gr17 | MTRGA | 7, | 65 B. Grennberg, A. Rytz |
| 1971Gr22 | YAFIA | 13, | 681 L.V. Groshev, A.M. Demidov, V.F. Leonov, L.L. Sokolovskii |
| 1971Gr28 | YAFIA | 13, | 1129 L.V. Groshev, L.I. Govor, A.M. Demidov, A.S. Rachimov |
| 1971Gr37 | YAFIA | 14, | 473 L.V. Groshev, A.M. Demidov, V.F. Leonov, L.L. Sokolovskii |
| 1971Gr42 | IANFA | 35, | 1644 L.V. Groshev, A.M. Demidov, V.F. Leonov, L.L. Sokolovskii |
| 1971Gr.A | P-Moscow | | 70 L.V. Groshev, V.N. Dvoretzkii, A.M. Demidov |
| 1971Gu02 | NUPAB | 161, | 410 S.C. Gujrathi, J.M. D'Auria |
| 1971Gu18 | NUPAB | 172, | 353 S.C. Gujrathi, J.M. D'Auria |
| 1971Gu.A | Th.-Strasbourg | | G. Guillaume |
| 1971Ha01 | NUPAB | 175, | 428 U. Hagemann, W. Neubert, W. Schulze |
| 1971He10 | NUPAB | 165, | 327 D. Heck, U. Fanger, W. Michaelis, H. Ottmar, J. Schmidt |
| 1971He13 | NUPAB | 168, | 449 R.G. Helmer, R.C. Greenwood, C.W. Reich |
| 1971Ho01 | NUPAB | 163, | 277 P. Hornshøj, K. Wilsky, P.G. Hansen, A. Lindahl, O.B. Nielsen |
| 1971Ho07 | PYLBB | 34, | 591 P. Hornshøj, K. Wilsky, P.G. Hansen, A. Lindahl, O.B. Nielsen |
| 1971Ho16 | NUPAB | 169, | 641 R.W. Hoff, E.K. Hulet, R.J. Dupzyk, R.W. Loughheed, J.E. Evans |
| 1971Ho24 | PRVCA | 4, | 1182 M. Honda, M. Imamura |
| 1971Ho26 | PRLTA | 27, | 1086 H.H. Howard, R.H. Stokes, B.H. Erkila |
| 1971Hs03 | NUPAB | 174, | 365 T.H. Hsu, J.L. Honsaker, W.J. McDonald, G.C. Nelson |
| 1971Hu03 | PRLTA | 26, | 523 E.K. Hulet, J.F. Wild, R.W. Loughheed, J.E. Evans, B.J. Qualheim, M. Nurmia, |
| | | | A. Ghiorso |
| 1971Ib01 | PHSTB | 4, | 161 N. Ibrahim, H. Pettersson |
| 1971Ja09 | PRVCA | 3, | 2489 A.A. Jaffe, G.A. Bissinger, S.M. Shafroth, T.A. White, T.G. Dzubay, F. Everling, |
| | | | D.W. Miller, D.A. Outlaw |
| 1971Jo14 | JINCA | 33, | 1215 K.C. Jordan, G.W. Otto, R.P. Ratay |
| 1971Ka22 | ZEPYA | 245, | 451 N. Kaffrell |
| 1971Ka42 | APOBB | 2, | 423 R. Kaczarowski, W. Kurcewicz, A. Płochocki, J. Żylicz |

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|----------|-----------|------|------|--|
| 1971Ke01 | CJPHA | 49, | 756 | D.P. Kerr, K.T. Bainbridge |
| 1971Ke02 | CJPHA | 49, | 1950 | D.P. Kerr, K.T. Bainbridge |
| 1971Ke07 | PRVCA | 4, | 1431 | B.H. Ketelle, A.R. Brosi, J.R. van Hise |
| 1971Ke21 | NUPAB | 176, | 449 | R.L. Kernell, H.J. Kim, R.L. Robinson, C.H. Johnson |
| 1971Ki01 | NUPAB | 170, | 187 | C.H. King, P.R. Maurenzig, N. Stein, T.P. Cleary |
| 1971Ki15 | YAFIA | 14, | 249 | B.G. Kiselev, V.N. Levkovskii, O.I. Artem'ev |
| 1971La02 | PRVCA | 3, | 188 | H. Lancman, J.M. Lebowitz |
| 1971Le21 | NUPAB | 170, | 115 | J.R. Leslie, W. McLatchie, C.F. Monahan, J.K. Thrasher |
| 1971Li02 | NUPAB | 160, | 630 | E.W.A. Lingeman, F.W.N. De Boer, P. Koldewijn, P.R. Maurenzig |
| 1971Lo15 | NUPAB | 171, | 337 | W. Lourens, B.O. Ten Brink, A.H. Wapstra |
| 1971Lu01 | PRVCA | 3, | 1243 | M.T. Lu, W.P. Alford |
| 1971Ma11 | PRVCA | 3, | 1162 | J.V. Maher, J.R. Comfort, G.C. Morrisson |
| 1971Ma24 | NUPAB | 166, | 573 | S.G. Malmkog, V. Berg, B. Fogelberg, A. Backlin |
| 1971Ma45 | NUPAB | 172, | 298 | P. Manfrass, H. Prade, M.R. Beitins, W.A. Bondarenko, N.D. Kramer, P.T. Prokofjew |
| 1971Ma47 | NUPAB | 174, | 343 | S. Matsuki, Y. Yoshida, M. Hyakutake, M. Matoba, S. Nakamura |
| 1971Mi01 | PRVCA | 3, | 766 | M.M. Minor, R.K. Sheline, E.T. Journey |
| 1971Mo01 | PRVCA | 3, | 438 | J.M. Mosher, R.W. Kavanagh, T.H. Tombrello |
| 1971Mo02 | NUPAB | 161, | 228 | J.M. Morton, W.G. Davies, W. McLatchie, W. Darcey, J.E. Kitching |
| 1971Mo03 | PRLTA | 26, | 854 | H.T. Motz, E.T. Journey, E.B. Shera, R.K. Sheline |
| 1971Mo20 | NUPAB | 168, | 561 | N.A. Morcos, T.E. Ward, P.K. Kuroda |
| 1971My01 | APOBB | 2, | 441 | B. Myslek, B. Pietrzek, Z. Sujkowski, J. Szczepankowski |
| 1971Na01 | PRVCA | 3, | 247 | T. Nagarajan, M. Ravindranath, K.V. Reddy |
| 1971Na02 | PRVCA | 3, | 254 | T. Nagarajan, M. Ravindranath, K.V. Reddy |
| 1971Ne.A | BAPSA | 16, | 489 | P.H. Nettles, C.A. Barbes, D.C. Hensley, C.D. Goodman, and Nettles Thesis |
| 1971Oh01 | PRVCA | 3, | 158 | H. Ohnuma, A.M. Sourkes |
| 1971Or04 | PRVCA | 3, | 2402 | C.J. Orth, B.J. Dropesky, N.J. Freeman |
| 1971Ot01 | NUPAB | 164, | 69 | H. Ottmar, N.M. Ahmed, U. Fanger, D. Heck, W. Michaelis, H. Schmidt |
| 1971Pe23 | NUPAB | 167, | 387 | B.I. Person, J.L. Plessier, J.W. Sunier |
| 1971Pi08 | ZEPYA | 247, | 400 | M. Piiparinen, A. Anttila, M. Viitasalo |
| 1971PI08 | IANFA | 35, | 1569 | Z. Plajner, M. Vejs, I. Prochazka, A. Mashtalka, O. Voitishak, M. Gonusek, A. Kokesh |
| 1971Po.A | P-Legnaro | | 375 | C.P. Poirier, J.C. Manthuruthil |
| 1971Pr03 | NUPAB | 167, | 667 | R. Prieels, J.P. Deutsch |
| 1971Pr13 | NUPAB | 176, | 338 | R.H. Price, D.G. Burke, M.W. Johns |
| 1971Ra08 | ZEPYA | 243, | 105 | F. Rauch |
| 1971Ra09 | NUPAB | 168, | 177 | J. Rapaport, T.A. Belote, D.E. Bainum, W.E. Dorenbusch |
| 1971Ra17 | NUPAB | 170, | 199 | J. Rapaport, T.A. Belote, D.E. Bainum |
| 1971Ra35 | NUPAB | 177, | 307 | J. Rapaport, W.E. Dorenbusch, T.A. Belote |
| 1971Ro19 | JINCA | 33, | 2684 | G. Rossner, G. Herrmann |
| 1971Ru17 | PYLAA | 36, | 321 | S.L. Ruby, R.G. Clark, L.E. Glendenin |
| 1971Sc07 | NUPAB | 165, | 415 | L.A. Schaller, J. Kern, B. Michaud |
| 1971Sh04 | ZEPYA | 242, | 368 | W.N. Shelton, R.K. Sheline |
| 1971Sm01 | PRVCA | 4, | 22 | L.G. Smith |
| 1971Su14 | YAFIA | 14, | 1297 | G.Y. Sung-Ching-Yang, V.A. Druiin, A.S. Trofimov |
| 1971Sw01 | PRVCA | 3, | 259 | D.L. Swindle, T.E. Ward, P.K. Kuroda |
| 1971Ta07 | PRVCA | 4, | 517 | K. Takehashi, D.L. Swindle, P.K. Kuroda |
| 1971To01 | PRVCA | 3, | 854 | K.S. Toth, R.L. Hahn |
| 1971To05 | NUPAB | 171, | 305 | R. Torti, R. Graetzer |
| 1971To10 | PRVCA | 4, | 2223 | K.S. Toth, R.L. Hahn, M.A. Ijaz |
| 1971Tr03 | PRVCA | 3, | 2205 | G.F. Trentelman, B.M. Freedom, E. Kashy |
| 1971Um03 | NUPAB | 169, | 109 | C.J. Umbarger, J.A. Robinson, R.R. Reece, R.C. Bearce |
| 1971Va18 | NUPAB | 170, | 607 | J.G. Vanderbaan, H.G. Leighton |
| 1971Va21 | NUPAB | 173, | 456 | J.G. Vanderbaan, B.R. Sikura |
| 1971Ve03 | PRVCA | 3, | 1570 | J. Vervier, H.H. Bolotin |
| 1971Vi14 | CPHMA | 41, | 319 | M. Viitasalo |
| 1971Wa21 | NUPAB | 173, | 634 | B.A. Watson, C.C. Chang, M. Hasinoff |
| 1971We01 | PRVCA | 3, | 1668 | C.V. Weiffenbach, R. Tickle |
| 1971Wi04 | PRVCA | 3, | 1199 | B.H. Wildenthal, E. Newman, R.L. Auble |

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| 1971Wi07 | NUPAB | 166, | 661 | D.H. Wilkinson, D.E. Alburger, D.R. Goosman, K.W. Jones, E.K. Warburton, G.T. Garvey, R.L. Williams |
| 1971Ya10 | PYLBB | 37, | 369 | K. Yagi, K. Sato, Y. Aoki |
| 1971Zi03 | PRVCA | 4, | 1809 | M.S. Zisman, B.G. Harvey |
| 1972 | | | | |
| 1972Ah04 | NUPAB | 186, | 620 | I. Ahmad, R.K. Sjoblom, R.F. Barnes, F. Wagner, Jr., P.R. Fields |
| 1972Ah07 | JINCA | 34, | 3335 | I. Ahmad, R.F. Barnes, R.K. Sjoblom, P.R. Fields |
| 1972Ai19 | NUPAB | 186, | 209 | G. Alenius, S.E. Arnell, C. Schale, E. Wallander |
| 1972Ba08 | CJPHA | 50, | 34 | R.C. Barber, R.L. Bishop, J.O. Meredith, F.C.G. Southon, P. Williams, H.E. Duckworth, P. van Rookhuyzen |
| 1972Ba26 | PRVCA | 5, | 1351 | T.T. Bardin, J.A. Becker, T.R. Fisher |
| 1972Ba31 | NUPAB | 184, | 609 | D. Bachner, H. Kelleter, B. Schmidt, W. Seliger |
| 1972Ba35 | PRLTA | 28, | 1069 | G.C. Ball, W.G. Davies, J.S. Forster, J.C. Hardy |
| 1972Ba37 | NUPAB | 186, | 321 | H. Bakhru, I.M. Ladenbauer-Bellis, B. Jones |
| 1972Ba91 | IANFA | 36, | 782 | G.Y. Baier, V.S. Buttsev, K.Y. Gromov, V.G. Kalinnikov, K.O. Mortensen, G.L. Nilsson, N.A. Tikhonov |
| 1972Bb24 | ZETFA | 63, | 375 | S.A. Baranov, V.M. Shatinskii, V.M. Kulakov, Y.F. Radionov |
| 1972Be07 | NUPAB | 182, | 69 | R.R. Betts, O. Hansen, D.J. Pullen |
| 1972Be11 | NUPBB | 39, | 371 | K.-E. Bergkvist |
| 1972Be12 | PRVCA | 5, | 1426 | W. Benenson, J. Driesbach, I.D. Proctor, G.F. Trentelman, B.M. Freedom |
| 1972Be44 | ZEPYA | 252, | 349 | H. Behrens, M. Kobelt, W.G. Thies, H. Appel |
| 1972Be51 | PRVCA | 6, | 957 | R.R. Betts, H.T. Fortune, D.J. Pullen |
| 1972Bl16 | NUPAB | 197, | 620 | J. Bleck, R. Butt, K.H. Lindenberger, W. Ribbe, W. Zeitz |
| 1972Bo46 | PRVCA | 6, | 1322 | L.M. Bollinger, G.E. Thomas |
| 1972Br13 | NUPAB | 185, | 289 | M. Brien, J.E. Kitching, J.K.P. Lee, P.F. Hinrichsen |
| 1972Br31 | APOBB | 3, | 263 | R. Broda, M. Rybicka, J. Styczen, W. Walus, K. Krolas |
| 1972Bu05 | JINCA | 34, | 1087 | F.T. Bunus |
| 1972Ca01 | KDVSA | 38, | #13 | R.F. Casten, P. Kleinheinz, P.J. Daly, B. Elbek |
| 1972Ca07 | NUIMA | 98, | 432 | J.L. Campbell, L.A. McNellen |
| 1972Ca10 | NUPAB | 184, | 357 | R.F. Casten, E.R. Flynn, O. Hansen, T.J. Mulligan |
| 1972Ca33 | NUPAB | 198, | 289 | P.L. Carson, L.C. McIntyre |
| 1972Ce01 | NUPAB | 188, | 666 | J. Cerny, R.A. Gough, R.G. Sextro, J.E. Esterl |
| 1972Ch11 | NUPAB | 186, | 603 | R. Chapman, W. McLatchie, J.E. Kitching |
| 1972Ch33 | NUPAB | 193, | 225 | H.C. Cheung, J.K.P. Lee, J.E. Kitching, S.K. Mark, Tseh Y. Li |
| 1972Ch44 | NUPAB | 197, | 490 | A. Charvet, R. Chery, D.H. Phuoc, R. Duffait, A. Emsallem, G. Marguier |
| 1972Co13 | NUPAB | 185, | 644 | W.F. Coetzee, M.A. Meyer, D. Reitmann |
| 1972Cu07 | NUPAB | 196, | 593 | J.C. Cunnane, R. Hochel, C.W. Yates, P.J. Daly |
| 1972Da.A | BAPSA | 17, | 71 | C.N. Davids, D.L. Matthews, D. Whitmire |
| 1972De11 | P-Teddington | | 210 | R.A. Demirkhanov, V.V. Dorokhov, M.I. Dzkuya see also 72De39 |
| 1972De47 | NUPAB | 195, | 385 | P. Debenham, N.H. Hintz |
| 1972Dz13 | YAFIA | 15, | 1093 | J.D. Dzafar, A.A. Abdullah, N.H. Al Quaraishi, M.S. Alwash, M.A. Khalil, A.M. Demidov |
| 1972EI03 | CJPHA | 50, | 674 | S.A. Elbakr, C. Glavina, W.K. Dawson, V.K. Gupta, W.J. McDonald, G.C. Nelson |
| 1972Em01 | NSENA | 48, | 319 | J.F. Emery, S.A. Reynolds, E.I. Wyatt, G.I. Gleason |
| 1972Er05 | NUPAB | 194, | 449 | B.R. Erdal, L. Westgaard, J. Żylicz, E. Roeckl, ISOLDE |
| 1972Es03 | PRVCA | 5, | 942 | K. Eskola |
| 1972Fa08 | NUPAB | 186, | 545 | L.C. Farwell, J.J. Kraushaar, H.W. Baer |
| 1972Fe06 | NUPAB | 187, | 123 | J.A. Fenton, T.H. Kruse, N. Williams, M.E. Williams, R.N. Boyd, W. Savin |
| 1972Fi.A | AnRpt MSUCL | | 28 | R.B. Firestone, K. Kosanke, W.C. McHarris, W.H. Kelly |
| 1972FI17 | PYLBB | 42, | 49 | E.R. Flynn, J.D. Garrett |
| 1972Fo25 | PHSTB | 6, | 309 | I. Forsblom, T. Weckstrom, T. Sundius, G. Bergstrom, S. Forss, G. Wansen |
| 1972Fu10 | NCLTA | 4, | 430 | A. Fubini |
| 1972Ga27 | PRLTA | 29, | 958 | H. Gauvin, Y. Le Beyec, M. Lefort, N.T. Porile |
| 1972Gi17 | NUIMA | 105, | 179 | H.J. Gils, R. Lohken, W. Wiesner |
| 1972Go31 | PRVCA | 6, | 820 | D.R. Goosman, D.E. Alburger |
| 1972Go33 | CHDBA | 275, | 291 | J. Gorman, A. Rytz, H.V. Michel |

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| 1972Go.A | PrvCom | | 91Ry01 | J. Gorman, A. Rytz |
| 1972Gr12 | NUPAB | 187, | 141 | A. Graue, L.H. Herland, K.J. Lervik, J.T. Nesse, E.R. Cosman |
| 1972Gr19 | NUPAB | 189, | 592 | T. Grottdal, J. Limstrand, K. Nybø, K. Skar, T.F. Thorsteinsen |
| 1972Gr23 | YAFIA | 15, | 625 | L.V. Groshev, L.I. Govor, A.M. Demidov |
| 1972Gr34 | IANFA | 36, | 833 | L.V. Groshev, L.I. Govor, A.M. Demidov |
| 1972Gr39 | PRVCA | 6, | 1756 | M.B. Greenfield, C.R. Bingham, E. Newman, M.J. Saltmars |
| 1972Ha74 | NUPAB | 198, | 353 | A. Hasselgren |
| 1972He23 | NUPAB | 193, | 357 | G. Heymann, P.M. Cronje |
| 1972He36 | ZEPYA | 255, | 385 | A. Helppi, A. Pakkanen |
| 1972He.A | AnRpt Grenoble | | | M. Hermen, A. Gizon also Thesis Grenoble 1971 |
| 1972Ho18 | NUPAB | 187, | 599 | P. Hornshøj, K. Wilsky, P.G. Hansen, B. Jonson, O.B. Nielsen |
| 1972Ho19 | NUPAB | 187, | 609 | P. Hornshøj, K. Wilsky, P.G. Hansen, B. Jonson, O.B. Nielsen |
| 1972Ho40 | NUPAB | 194, | 481 | G.A. Hokken, A.J.G. Hendricx, J. De Kogel |
| 1972Hs01 | NUPAB | 179, | 80 | T.H. Hsu, R. Fournier, B. Hird, J. Kroon, G.C. Ball, F. Ingebretsen |
| 1972Hu06 | NUPAB | 189, | 264 | F.R. Hudson, R.N. Glover |
| 1972Hu10 | NUPAB | 195, | 485 | P. Hubert, M.M. Aleonard, D. Castera, F. Leccia, P. Mennrath |
| 1972Ja28 | APOBB | 3, | 643 | M. Jaskola, K. Nybø, B. Elbek |
| 1972Ja.A | P-Teddington | | 236 | A.A. Jaffe, G.A. Bissinger, S.M. Shafroth, T.A. White, T.G. Dzubay, F. Everling, D.W. Miller, D.A. Outlaw |
| 1972Je02 | NUPAB | 185, | 209 | H.B. Jensen, H.B. Mak, C.A. Barnes |
| 1972Jo08 | ZEPYA | 251, | 425 | H.W. Jongsma, R. Kamermans, H. Verheul |
| 1972Ka57 | SHIBA | 20, | 255 | I. Kakatuse |
| 1972Ke21 | NUPAB | 195, | 177 | A. Kerek, G.B. Holm, S. Borg, L.-E. de Geer |
| 1972Ke28 | NUPAB | 198, | 466 | A. Kerek, P. Carle, J. McDonald |
| 1972Ki06 | ZEPYA | 251, | 93 | A. Kiuru |
| 1972Ki15 | CPHMA | 42, | 11 | A. Kiuru, P. Holmberg, L. Vanhanen |
| 1972Ko03 | PRVCA | 5, | 568 | J.J. Kolata, W.W. Daehnick |
| 1972Ko47 | PRVCA | 6, | 1713 | S.E. Koonin, B.I. Persson |
| 1972La14 | IJARA | 23, | 219 | F. Lagoutine, J. Legrand, C. Perrot, J.P. Brethon, J. Morel |
| 1972La20 | ZEPYA | 253, | 16 | R. Lasijo, R.K. Sheline, R.D. Griffioen, J.L. Dubbard |
| 1972Le17 | PRVCA | 6, | 517 | L. Lessard, S. Gales, J.L. Foster, Jr. |
| 1972Le37 | IJARA | 23, | 279 | V.E. Lewis, M.J. Woods, I.W. Goodier |
| 1972Lo26 | NUIMA | 105, | 453 | G.D. Lopez, G.E. Thomas |
| 1972Ly01 | NUPAB | 182, | 272 | L.L. Lynn, R.C. Schaller, D.A. Barbour, T.A. Belote, W.E. Dorenbusch |
| 1972Ma15 | PRVCA | 5, | 1380 | J.V. Maher, J.R. Erskine, A.M. Friedman, R.H. Siemsen, J.P. Schiffer |
| 1972Ma23 | NUPAB | 185, | 465 | P. Martin, M. Buenerd, Y. Dupont, M. Chabre |
| 1972Ma42 | PHSTB | 5, | 58 | C.G. Mattsson, S.E. Arnell, L. Jonsson |
| 1972Ma50 | PRVCA | 6, | 851 | J.C. Manthuruthil, F.W. Prosser, Jr. |
| 1972Ma.A | P-Budapest | | 90 | P. Matussek, H. Ottmar, C. Weitkamp, H. Woods |
| 1972Mc08 | PRVCA | 5, | 922 | D.A. McClure, J.W. Lewis, III |
| 1972Mc25 | ZEPYA | 255, | 335 | J.C. McGeorge, D.W. Nix, R.W. Fink, J.H. Landrum |
| 1972Me09 | NUPAB | 185, | 625 | M.A. Meyer, J.P.L. Reinecke, D. Reitmann |
| 1972Mi16 | HPACA | 45, | 93 | B. Michaud, J. Kern, L. Ribordy, L.A. Schaller |
| 1972Mi26 | JUPSA | 33, | 1505 | K. Miyano, H. Nakharr, G. Gil |
| 1972Mi27 | JUPSA | 33, | 1509 | K. Miyano, C. Gil |
| 1972Mo12 | PRVCA | 5, | 1678 | R.A. Moyer |
| 1972Mo33 | NUPAB | 195, | 192 | E. Monnard, R. Brissot, L.C. Carraz, J. Crançon, R. Ristori, F. Schussler, A. Moussa |
| 1972Mu02 | PRVCA | 5, | 95 | T. Mukoyama, S. Shimizu |
| 1972Mu09 | PRVCA | 6, | 1802 | T.J. Mulligan, E.R. Flynn, O. Hansen, R.F. Carsten, R.K. Sheline |
| 1972Mu.A | BAPSA | 17, | 557 | S.F. Mughabghab, G.W. Cole, R.E. Chrien, O.A. Wasson, M.R. Bhat |
| 1972Na04 | NCIAA | 8, | 305 | T. Nagarajan, M. Ravindranath, K.V. Reddy |
| 1972Ne05 | NUPAB | 185, | 213 | A.V. Nero |
| 1972Ne10 | PRVCA | 6, | 6793 | A.V. Nero, R.E. Pixley, E.G. Adelsberger |
| 1972Og03 | IJMPD | 8, | 365 | K. Ogata |
| 1972Op01 | NUPAB | 180, | 569 | A.M.F. Op den Kamp, A.M.J. Spits |
| 1972Pa02 | PRVCA | 5, | 485 | R.A. Paddock |
| 1972Pa06 | NUPAB | 184, | 157 | A. Pakkanen, T. Komppa, H. Helppi |
| 1972Pa24 | ZEPYA | 254, | 98 | A. Pakkanen, H. Helppi, T. Komppa, P. Puumalainen |

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| 1972Pe05 | PRVCA | 5, | 1443 | B.I. Persson, S.E. Koonin |
| 1972Pi07 | ZEPYA | 252, | 206 | M. Piiparinen |
| 1972Pu02 | ZEPYA | 252, | 283 | V. Pursiheimo, T. Tuurnala, T. Raunemaa |
| 1972Ra05 | PRVCA | 5, | 453 | J. Rapaport, J.B. Ball, R.L. Auble, T.A. Belote, W.E. Dorenbush |
| 1972Ra39 | NUPAB | 197, | 129 | D. Rabenstein, D. Harrach, H. Vonach, G.G. Dussel, R.P.I. Perazzo |
| 1972Ri08 | PRVCA | 5, | 2072 | F.A. Rickey, E.T. Journey, H.C. Britt |
| 1972Sc08 | ZEPYA | 249, | 286 | W.D. Schmidt-Ott, R.W. Fink |
| 1972Sh08 | NUPAB | 189, | 220 | R.E. Shamu, E.M. Bernstein, D. Blondin, J.J. Ramirez |
| 1972Sh13 | PRVCA | 6, | 537 | E.B. Shera, U. Gruber, B.P.K. Maier, H.R. Koch, O.W.B. Schult, R.G. Lanier, N. Onishi, R.K. Sheline |
| 1972Sh27 | NUPAB | 197, | 17 | J.R. Sheppard, R. Graetzer, J.J. Kraushaar |
| 1972Sh.A | PrvCom | NDG | Jan | E.B. Shera |
| 1972Si25 | PRVCA | 6, | 1001 | W.L. Sievers, D.A. Close, C.J. Umbarger, R.C. Bearse, F.W. Prosser, Jr. |
| 1972Si28 | NUPAB | 193, | 449 | M. Singh, J.W. Sunier, R.M. Devries, G.E. Johnson |
| 1972SI03 | NUPAB | 186, | 28 | W.F. Slot, G.H. Dulfer, H. Van der Molen, H. Verheul |
| 1972Sv02 | PHSTB | 5, | 23 | B. Svahn, C. Bergman, H. Petterson |
| 1972Sw01 | NUPAB | 185, | 561 | D.L. Swindle, N.A. Morcos, T.E. Ward, J.L. Meason |
| 1972Ta13 | ZEPYA | 251, | 87 | O. Tannila, J. Kantele |
| 1972To05 | NUPAB | 185, | 574 | J.P. Torres, P. Paris |
| 1972To06 | PRVCA | 5, | 2060 | K.S. Toth, R.L. Hahn, M.A. Ijaz, R.F. Walker, Jr. |
| 1972To07 | NUPAB | 189, | 609 | J.P. Torres, P. Paris, D. Lecouturier, P. Kilcher |
| 1972Vi11 | RAACA | 17, | 213 | J. Visser, L. Lindner |
| 1972Vo08 | PRVCA | 6, | 266 | T. von Egidy, O.W.B. Schult, D. Rabenstein, J.R. Erskine, O.A. Wasson, R.E. Chrien, D. Breitig, R.P. Sharma, H.A. Baader, H.R. Koch |
| 1972Wa04 | JINCA | 34, | 13 | T.E. Ward, N.A. Morcos, P.K. Kuroda |
| 1972Wa06 | NUPAB | 184, | 166 | G. Wallace, G.J. McCallum, N.G. Chapman |
| 1972Wa10 | NUPAB | 188, | 129 | E. Wallander, E. Selin |
| 1972Wa11 | JINCA | 34, | 1767 | A.C. Wahl |
| 1972We.A | P-Teddington | | 94 | L. Westgaard, J. Żylicz, O.B. Nielsen, ISOLDE |
| 1972Wh02 | PRVCA | 5, | 513 | D.H. White, R.E. Birkett |
| 1972Wh05 | NUPAB | 187, | 12 | D.H. White, R.E. Howe |
| 1972Wi07 | NUPAB | 183, | 439 | J.L. Wiza, J.D. Garrett, R. Middleton |
| 1972Wi18 | NUPAB | 191, | 166 | W. Wiesner, D. Flothman, H.J. Gils, R. Lohken, H. Rebel |
| 1972Za04 | PRVCA | 6, | 506 | J.I. Zaitz, R.K. Sheline |
| 1972Zi02 | NUPAB | 181, | 465 | J. Zioni, A.A. Jaffe, E. Friedman, N. Haik, R. Schreckman, D. Nir |
| 1973 | | | | |
| 1973Ab10 | IANFA | 37, | 1967 | S.N. Abramovich, B. Ya. Guzhkovskii, A.G. Zvenigorodskii, S.V. Trusillo |
| 1973Ad02 | PRVCA | 7, | 889 | E.G. Adelsberger, A.B. McDonald, C.L. Cocke, C.N. Davis, A.P. Shukla, H.B. Mak, D. Ashery |
| 1973Ah02 | PRVCA | 8, | 737 | I. Ahmad, J. Milsted, R.K. Sjoblom, J. Lerner, P.R. Fields |
| 1973Ah04 | NUPAB | 208, | 287 | I. Ahmad, H. Diamond, J.M. Isted, J. Lerner, R.K. Sjoblom |
| 1973Ai11 | PRVCA | 8, | 657 | D.E. Alburger, D.H. Wilkinson |
| 1973Ai13 | PRVCA | 8, | 1011 | D.E. Alburger, D.R. Goosman, C.N. Davids |
| 1973Ai20 | IANFA | 37, | 1035 | V.S. Aleksandrov, B.S. Dzelepov, A.I. Medvedev, V.E. Ter-Nersesyants, I.F. Uchevatkin, S.A. Shestopalova |
| 1973Ba20 | IANFA | 37, | 38 | L.M. Bak, V.G. Nedovesov, Y.V. Kholnov, G.E. Shchukin |
| 1973Ba22 | IANFA | 37, | 73 | K.A. Baskova, S.S. Vasilev, M.A. Mokhsen, T.V. Shugay, L.Y. Shavtalo |
| 1973Ba34 | PRLTA | 31, | 395 | G.C. Ball, J.G. Costa, W.G. Davies, J.S. Forster, J.C. Hardy, A.B. McDonald |
| 1973Ba35 | JPAGB | 6, | 1011 | D.G. Barnes, J.M. Calvert, T. Toy |
| 1973Ba40 | PRLTA | 31, | 728 | R.C. Barber, J.O. Meredith, F.C.G. Southon, P. Williams, J.W. Barnard, K. Sharma, H.E. Duckworth |
| 1973Ba56 | PRVCA | 8, | 1438 | J.B. Ball, J.J. Pinajian, J.S. Larsen, A.C. Rester |
| 1973Ba72 | NUPAB | 217, | 116 | B.B. Back, E.R. Flynn, O. Hansen, R.F. Casten, J.D. Garrett |
| 1973Be09 | PYLBB | 43, | 117 | W. Benenson, E. Kashy, I.D. Proctor, B.M. Freedom |
| 1973Be14 | PRVCA | 7, | 1143 | W. Benenson, E. Kashy, I.D. Proctor |
| 1973Be23 | PRVCA | 8, | 210 | W. Benenson, E. Kashy, I.D. Proctor |

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| 1973Be33 | PRLTA | 31, | 647 | C.E. Bemis,Jr., R.J. Silva, D.C. Hensley, O.L. Keller,Jr., J.R. Tarrant, L.D. Hunt, P.F. Dittner, R.L. Hahn, C.D. Goodman |
| 1973Bo13 | PRVCA | 7, | 1686 | W.W. Bowman, D.R. Haenni, T.T. Sugihara |
| 1973Bo20 | YAFIA | 17, | 457 | D.D. Bogdanov, V.A. Karnaukhov, L.A. Petrov |
| 1973Br06 | PRVCA | 7, | 1545 | R.A. Britten, W.H. Johnson |
| 1973Br12 | PRVCA | 7, | 2545 | E. Browne, F. Asaro |
| 1973Br27 | PRVCA | 8, | 1805 | C.P. Browne, V.D. Coss, A.A. Rollefson |
| 1973Br32 | NUPAB | 216, | 493 | R. Broda, A.Z. Hryniewicz, J. Styczen, W. Walus |
| 1973Bu02 | CJPHA | 51, | 455 | D.G. Burke, J.C. Waddington, D.E. Nelson, J. Buckley |
| 1973Bu17 | IANFA | 37, | 938 | V.S. Buttsev, K.Y. Gromov, V.G. Kalinnikov, V.A. Morozov, T.M. Muminov, A.B. Khalikulov |
| 1973Bu18 | IANFA | 37, | 953 | V.S. Buttsev, Ts. Vylov, K.Y. Gromov, V.G. Kalinnikov, I.I. Gromova, V.A. Morozov, T.M. Muminov, H. Fuia, A.B. Khalikulov |
| 1973Bu21 | IANFA | 37, | 1024 | V.S. Buttsev, K.Y. Gromov, V.G. Kalinnikov |
| 1973Ca10 | NUPAB | 205, | 121 | M.H. Cardoso, P.F.A. Goudsmit, J. Konijn |
| 1973Ch24 | JINCA | 35, | 3061 | K. Chayawattanangkur, G. Herrmann, N. Trautmann |
| 1973Ci12 | NUPAB | 215, | 429 | G.J. Clark, J.M. Freeman, D.C. Robinson, J.S. Ryder, W.E. Burcham, G.T.A. Squier |
| 1973Da01 | PRVCA | 7, | 122 | C.N. Davids, D.R. Goosman |
| 1973Da05 | CJPHA | 51, | 686 | J.M. D'Auria, R.D. Guy, S.C. Gujrathi |
| 1973Da22 | PRVCA | 8, | 1029 | C.N. Davids, D.R. Goosman |
| 1973De16 | PRVCA | 7, | 2131 | J.H. Degnan, G.R. Rao |
| 1973De22 | ZEPYA | 260, | 75 | F.W.N. De Boer, P.F.A. Goudsmit, B.J. Meyer, and PrvCom AHW |
| 1973De39 | IANFA | 37, | 998 | A.M. Demidov, M.R. Akhmed, M.A. Khalil, C. Al-Nadzar |
| 1973Ea01 | NUPAB | 208, | 119 | D.A. Eastham, I.S. Grant |
| 1973Ed01 | NUPAB | 199, | 463 | F.M. Edwards, J.J. Kraushaar, B.W. Ridley |
| 1973Es01 | PRVCA | 7, | 280 | P. Eskola |
| 1973Es02 | PHFEA | 8, | 357 | P. Eskola, K. Eskola, M. Nurmi, A. Ghiorso |
| 1973Fi06 | NUPAB | 208, | 269 | P.R. Fields, I. Ahmad, R.F. Barnes, R.K. Sjoblom, W.C. McHarris |
| 1973Fr01 | PRLTA | 30, | 102 | A. Friedman, K. Katori |
| 1973Ga01 | NUPAB | 202, | 535 | S. Gales, L. Lessard, J.L. Foster,Jr. |
| 1973Ga04 | CJPHA | 51, | 203 | R.D. Gadsby, D.G. Burke, J.C. Waddington |
| 1973Gh03 | PRVCA | 7, | 2032 | A. Ghiorso, K. Eskola, P. Eskola, M. Nurmi |
| 1973Go05 | NUPAB | 201, | 326 | S.C. Govere, J. Van Pelt, J. Vandenberg, J.C. Klein, J. Blok |
| 1973Go11 | PRVCA | 7, | 1133 | D.R. Goosman, D.E. Alburger, J.C. Hardy |
| 1973Go19 | PRLTA | 30, | 1255 | J.D. Goss, C.P. Browne, A.A. Rollefson |
| 1973Go22 | PRVCA | 7, | 2409 | D.R. Goosman, C.N. Davids, D.E. Alburger |
| 1973Go29 | CHDBA | 276, | 669 | D.J. Gorman, H.V. Michel, F. Asaro, A. Rytz |
| 1973Go33 | PRVCA | 8, | 1324 | D.R. Goosman, C.N. Davids, D.E. Alburger |
| 1973Go34 | PRVCA | 8, | 1331 | D.R. Goosman, C.N. Davids, D.E. Alburger |
| 1973Go39 | CHDBA | 277, | 29 | D.J. Gorman, A. Rytz |
| 1973Go40 | NUPAB | 217, | 159 | J. Godart, A. Gizon |
| 1973Gr26 | NUPAB | 211, | 541 | T. Grottdal, L. Loset, K. Nybø, T.F. Thorsteinsen |
| 1973Gu05 | NUPAB | 205, | 574 | H. Guratzsch, A.P. Kabachenko, I.V. Kuznetsov, K. Siewek-Wilczynska, N.I. Tarantin |
| 1973Ha02 | NUPAB | 199, | 560 | S.I. Hayakawa, S.K. Mark, J.K.P. Lee, J.E. Kitching, G.C. Ball, W.G. Davies |
| 1973Ha11 | NUPAB | 203, | 532 | J.K. Halbig, F.K. Wohn, W.L. Talbert,Jr., J.J. Eitter |
| 1973Ha32 | PRLTA | 31, | 323 | O. Hausser, W. Witthuhn, T.K. Alexander, A.B. McDonald, J.C.D. Milton, A. Olin |
| 1973Hi.A | HPACA | 47, | 93 | T. Hinderling, H.H. Staub |
| 1973Ho09 | NUPAB | 211, | 165 | R. Hochel, P.J. Daly, K.J. Hofstetter |
| 1973Hu07 | PYLBB | 46, | 361 | E. Huenges, H. Rosler, H. Vonach |
| 1973Ja06 | ZEPYA | 258, | 337 | U. Jäger, H. Münzel, G. Pfennig |
| 1973Ja10 | ZEPYA | 261, | 95 | J.F.W. Jansen, A. Faas, W.J.B. Winter |
| 1973Jo11 | PHSTB | 8, | 99 | A. Johansson, B. Nyman |
| 1973Ka03 | NUPAB | 203, | 97 | N. Kato |
| 1973Ka07 | JUPSA | 34, | 857 | K. Kawade, H. Yamamoto, K. Tsuchiya, T. Katoh |
| 1973Ka23 | PRVCA | 8, | 414 | N. Kaffrell |
| 1973Ki11 | NUPAB | 213, | 61 | K. Kimura |

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| 1973Ko03 | PRVCA | 7, | 404 | R.L. Kozub, D.H. Youngblood |
| 1973Ko06 | PRVCA | 8, | 285 | J.J. Kolata, J.V. Maher |
| 1973Ko10 | NUPAB | 204, | 185 | S. Kochan, B. Rosner, I. Tserruya, R. Kalish |
| 1973Ko13 | NUIMA | 109, | 83 | J. Konijn, P.F.A. Goudsmit, E.W.A. Lingeman |
| 1973Ku09 | JOPQA | 34, | 159 | W. Kurcewicz, K. Stryczniewicz, J. Żylicz, R. Broda, S. Chojnacki, W. Walus, I. Yutlandov |
| 1973La17 | PRVCA | 7, | 2600 | H. Lancman, A. Bond |
| 1973Le18 | MTRGA | 9, | 14 | V.E. Lewis, D. Smith, A. Williams |
| 1973Lo08 | CJPHA | 51, | 1369 | G. Løvghøiden, D.G. Burke, J.C. Waddington |
| 1973Mc04 | PRVCA | 7, | 2097 | J.R. McPherson, F. Gabbard |
| 1973Me09 | NUPAB | 204, | 636 | B.J. Meyer, F.W.N. De Boer, P.F.A. Goudsmit |
| 1973Me28 | IJMPD | 10, | 359 | J.O. Meredith, F.C.G. Southon, R.C. Barber, P. Williams, H.E. Duckworth |
| 1973Mo03 | NUPAB | 202, | 473 | M.A. Moinester, G. Finkel, J. Alster, P. Martin |
| 1973Mo18 | JINCA | 35, | 3659 | N.A. Morcos, W.D. James, D.E. Adams, P.K. Kuroda |
| 1973Mo23 | PRVCA | 8, | 1961 | A. Moalem, B.H. Wildenthal |
| 1973No09 | NUPAB | 217, | 253 | T. Nomura, K. Hiruta, T. Inamura, M. Odera |
| 1973Oe02 | ZEPYA | 259, | 263 | W. Oelert |
| 1973Ok.A | PrvCom | NDG | Aug | G.D. O'Kelley, C.F. Goeking, L.L. Collins, Sr. |
| 1973Oo01 | NUPAB | 213, | 221 | M.A. Oothoudt, N.M. Hintz |
| 1973Or03 | PRVCA | 8, | 718 | C.J. Orth, W.R. Daniels, D.C. Hoffman, F.O. Lawrence |
| 1973Pi01 | NUPAB | 203, | 369 | W.F. Piel, Jr. |
| 1973Po16 | RAACA | 19, | 148 | P. Polak |
| 1973Pr05 | JINCA | 35, | 1057 | I.L. Preiss, J.J. Labrecque |
| 1973Ra13 | PYLBB | 44, | 255 | S. Raman, H.J. Kim, T.A. Wakiewicz, M.J. Martin |
| 1973Re03 | PRVCA | 7, | 1663 | I. Rezanka, I.M. Ladenbauer-Bellis, T. Tamura, W.B. Jones, F.M. Bernthal |
| 1973Ry01 | PYLBB | 43, | 30 | J.S. Ryder, G.J. Clark, J.E. Draper, J.M. Freeman, W.E. Burcham, G.T.A. Squier |
| 1973Sc17 | PYLBB | 44, | 449 | H. Schmeing, J.C. Hardy, R.L. Graham, J.S. Geiger, K.P. Jackson |
| 1973Se03 | NUPAB | 199, | 241 | J.C. Sens, A. Pape, R. Armbruster |
| 1973Se08 | PRVCA | 8, | 258 | R.G. Sextro, R.A. Gough, J. Cerny |
| 1973Se12 | JUPSA | 34, | 1443 | T. Seo, T. Hayashi, T. Mitamura |
| 1973Sh.A | PrvCom | NDG | Jan | E.B. Shera in NDS974 |
| 1973Si40 | NUPAB | 216, | 97 | R.J. Silva, P.F. Dittner, M.L. Mallory, O.L. Keller, K. Eskola, P. Eskola, M. Nur-mia, A. Ghiorso |
| 1973Sp06 | NUPAB | 215, | 260 | A.M.J. Spits, J.A. Akkermans |
| 1973To08 | PRVCA | 8, | 161 | D.F. Torgerson, K. Wien, Y. Fares, N.S. Oakey, R.D. Macfarlane, W.A. Lanford |
| 1973Va11 | ZEPYA | 259, | 45 | S.Y. Van der Werf |
| 1973Ve06 | PRVCA | 8, | 178 | J. Vernotte, S. Galès, M. Langevin, J.M. Maison |
| 1973Ve08 | NUPAB | 212, | 493 | J. Vernotte, S. Galès, M. Langevin, J.M. Maison |
| 1973Vi09 | RPHAA | 8, | 231 | C. Vieu, A. Peghaire, J.S. Dionisio |
| 1973Vi10 | NUPAB | 217, | 372 | V.E. Viola, Jr., M.M. Minor, C.T. Roche |
| 1973Wa17 | PRVCA | 8, | 297 | O.A. Wasson, G.G. Slaughter |
| 1973Wa18 | PRVCA | 8, | 340 | T.E. Ward, Y.Y. Chu, J.B. Cunning |
| 1973Wi06 | PRLTA | 30, | 866 | K.H. Willcox, N.A. Jelley, G.J. Wozniak, R.B. Weisenmiller, H.L. Harney, J. Cerny |
| 1973Wo01 | PRVCA | 7, | 160 | F.K. Wohn, J.K. Halbig, W.L. Talbert, Jr., J.R. McConnel |
| 1973Ya02 | NUPAB | 204, | 33 | S.W. Yates, P.J. Daly, N.R. Johnson, N.K. Arras |
| 1973Za08 | ZEPYA | 264, | 227 | J.I. Zaitz, R.K. Sheline, R.D. Griffieon |
| 1974 | | | | |
| 1974Aj01 | NUPAB | 227, | 1 | F. Ajzenberg-Selove, T. Lauritsen |
| 1974Al03 | PRVCA | 9, | 991 | D.E. Alburger |
| 1974An05 | IANFA | 38, | 48 | N.M. Antoneva, A.V. Barkov, A.V. Zolotavin, P.P. Dmitriev, S.V. Kamynov, G.S. Katykhin, E.T. Kondrat, N.I. Krasnov, Y.N. Podkopayen, V.A. Sergienko, V.I. Fominikh |
| 1974An22 | IANFA | 38, | 1741 | N.M. Antoneva, A.V. Barkov, V.M. Vinogradov, A.V. Zolotavin, G.S. Katykhin, V.M. Makarov, A.G. Shablinskii |
| 1974An23 | IANFA | 38, | 1748 | N.M. Antoneva, A.V. Barkov, V.M. Vinogradov, A.V. Zolotavin, G.S. Katykhin, V.M. Makarov, A.G. Shablinskii |

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| 1974An24 | IANFA | 38, | 1757 | N.M. Antoneva, A.V. Barkov, A.V. Zolotavin, P.P. Zarubin, V.M. Makarov, V.Y. Padalko, Y.N. Podkopaev, V.A. Sergienko |
| 1974Ar27 | IANFA | 38, | 1569 | R. Arlt, K.Y. Gromov, A. Latuszynski, K.G. Ortlepp, A. Jasinski |
| 1974Ba15 | PYLBB | 49, | 33 | G.C. Ball, J.G. Costa, W.G. Davies, J.S. Forster, J.C. Hardy, A.B. McDonald |
| 1974Ba90 | CJPHA | 52, | 2386 | R.C. Barber, J.W. Barnard, D.A. Burrell, J.O. Meredith, F.C.G. Southon, P. Williams, H.E. Duckworth |
| 1974Be07 | PRVCA | 9, | 589 | R.R. Betts, H.T. Fortune, D.J. Pullen |
| 1974Be20 | PRVCA | 9, | 2130 | W. Benenson, E. Kashy, D.H. Kong, A. Siou, A. Moalem, H. Nann |
| 1974Be.A | ORNL-4967 | | 37 | C.E. Bemis, R.J. Silva, D.C. Hensley, O.L. Keller, Jr., O.L. Keller, J.R. Tarrant, L.D. Hunt, P.F. Dittner, R.L. Hahn, C.D. Goodman |
| 1974Bi08 | PRVCA | 10, | 729 | P.K. Bindal, D.H. Youngblood, L. Kozun |
| 1974Bo05 | PRVCA | 9, | 836 | J.D. Bowman, A.M. Poskanzer, R.G. Korteling, G.W. Butler, J.D. Bowman, A.M. Poska, J.D. Bowman, A.M. Poskanzer, R.G. Korteling, G.W. Butlernzer, R.G. Korteling, G.W. Butler |
| 1974Bo26 | NUIMA | 117, | 213 | H.E. Bosch, J. Davidson, M.A. Farioli, V. Silbergleit |
| 1974Bu21 | IANFA | 38, | 1566 | V.P. Burminkii, B.G. Kiselev, O.D. Kovrigin |
| 1974Bu22 | PRVCA | 10, | 2483 | D.L. Bushnell, D.J. Buss, R.K. Smither |
| 1974By01 | NUPAB | 223, | 125 | T. Byrski, F.A. Beck, P. Engelstein |
| 1974Ca.A | Th.-Amsterdam | | | M.H. Cardoso |
| 1974Ce05 | PRVCA | 10, | 2654 | J. Cerny, N.A. Jelley, D.L. Hendrie, C.F. Maguire, J. Mahoney, D.K. Scott, R.B. Weisenmiller |
| 1974Ch17 | JPSLB | 35, | 41 | A. Charvet, R. Chery, R. Duffait |
| 1974Ch18 | PRVCA | 9, | 1839 | R.E. Chrien, D.I. Garber, J.L. Holm, K. Rimawi |
| 1974Ch21 | ZEPYA | 267, | 355 | A. Charvet, R. Chery, D.P. Phuoc, R. Duffait |
| 1974Co21 | CJPHA | 52, | 1215 | A.H. Colenbrander, T.J. Kennett |
| 1974Co27 | PRVCA | 10, | 1236 | J.R. Comfort, R.W. Finlay, C.M. McKenna, P.T. Debevec |
| 1974Co35 | NUPAB | 233, | 185 | F. Corvi, M. Stefanon |
| 1974Da02 | PRVCA | 9, | 216 | C.N. Davids, D.R. Goosman, D.E. Alburger, A. Gallmann, G. Guillaume, D.H. Wilkinson, W.A. Lanford |
| 1974De09 | NUPAB | 225, | 317 | F.W.N. De Boer, P.F.A. Goudsmit, P. Koldewijn, B.J. Meyer |
| 1974De22 | YAFIA | 19, | 1161 | R.A. Demirkhanov, M.I. Dzkuya, V.V. Dorokhov, G.A. Dorokhova |
| 1974De31 | CJPHA | 52, | 1416 | P. Debenham, W.R. Falk, M. Canty |
| 1974De37 | NUPAB | 230, | 490 | E.O. Deneijs, M.A. Meyer, J.P.L. Reinecke, D. Reitman |
| 1974De47 | NUPAB | 236, | 349 | F.W.N. De Boer, P.F.A. Goudsmit, B.J. Meijer, P. Koldewijn, J. Konijn, R. Beetz |
| 1974Di03 | PRVCA | 10, | 1172 | M. Diksie, L. Yaffe, D.G. Sarantites |
| 1974Di.A | P-Amsterdam | | 114 | J.S. Dionisio, C. Vieu, V. Berg, C. Bourgeois |
| 1974Do09 | NUPAB | 229, | 47 | G. Doukellis, C. McKenna, R. Finlay, J. Rappaport, H.J. Kim |
| 1974Em01 | NUPAB | 231, | 437 | A. Emsallem, D.P. Huoc, R. Chery, M. Ashgar |
| 1974Er.A | AnRpt Julich | | | R. Ermer, W. Delang, P. Gottel, H.H. Guven, B. Hrastnik, O.W.B. Schult, H. Seyfarth |
| 1974Ev02 | NUPAB | 230, | 109 | D. Evers, W. Assmann, K. Rudolph, S.J. Skorka, P. Sperr |
| 1974Fi01 | PRVCA | 9, | 210 | E.R. Flynn, J.D. Garrett |
| 1974Fr01 | PRVCA | 9, | 760 | A.M. Friedman, K. Katori, D. Albroght, J.P. Schiffer |
| 1974Ge05 | PRVCA | 9, | 2363 | W. Gelletly, W.R. Kane, D.R. MacKenzie |
| 1974Gh04 | PRLTA | 33, | 1490 | A. Ghiorso, J.M. Nitschke, J.R. Alonso, C.T. Alonso, M. Nurmia, G.T. Seaborg, E.K. Hulet, R.W. Loughheed |
| 1974Gi09 | NUPAB | 233, | 81 | S. Gilad, S. Cochavi, M.A. Moinester, J. Alster, M. Buenard, P. Nartin |
| 1974Gl10 | AENGA | 37, | 78 | V.M. Glazov, R.I. Borisova, A.I. Shaviev |
| 1974Go17 | PRVCA | 10, | 756 | D.R. Goosman, D.E. Alburger |
| 1974Go20 | ZEPYA | 269, | 111 | S.C. Goverse, J. Kuiper, J. Blok |
| 1974Gr11 | NUPAB | 223, | 66 | R.C. Greenwood, C.W. Reich |
| 1974Gr22 | PRVCA | 10, | 624 | R.D. Griffioen, R.K. Sheline |
| 1974Gr37 | NUIMA | 121, | 385 | R.C. Greenwood, R.G. Helmer |
| 1974Gr41 | IANFA | 38, | 2499 | E.P. Grigorev, A.V. Zolotavin, S.V. Kaminov |
| 1974Gu10 | YAFIA | 19, | 1167 | K. Gurach, A.P. Kabachenko, I.V. Kuznetsov, N.I. Tarantin |
| 1974Ha02 | PRVCA | 9, | 252 | J.C. Hardy, H. Schmeing, W. Benenson, G.M. Crawley, E. Kashy, H. Nann |
| 1974Ha35 | PRLTA | 33, | 320 | J.C. Hardy, G.C. Ball, J.S. Geiger, R.L. Graham, J.A. Macdonald, H. Schmeing |
| 1974Ha55 | PRVCA | 10, | 1829 | G. Hardie, D. Gloeckner, L. Meyer-Schutzmeister, T.H. Braid |
| 1974Ho21 | PYLBB | 51, | 345 | S.D. Hoath, R.J. Petty, J.M. Freeman, G.T.A. Squier, W.E. Burcham |

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| 1974Ho27 | NUPAB | 230, | 380 | P. Hornshøj, P.G. Hansen, B. Jonson |
| 1974Hr01 | NUPAB | 219, | 381 | B. Hrastrnik, H. Seyfarth, A.M. Hassan, W. Delang, P. Gottel |
| 1974Hu15 | NUIMA | 121, | 307 | E. Huenges, H. Vonach, J. Labetzki |
| 1974Ia01 | CJPHA | 52, | 96 | R. Iafigliola, S.C. Gujrathi, B.L. Tracy, J.K.P. Lee |
| 1974Is01 | PRVCA | 9, | 1662 | H.A. Ismail, W.H. Moore, J.N. Hallock, H.A. Enge |
| 1974Ja10 | PYLBB | 49, | 341 | K.P. Jackson, J.C. Hardy, H. Schmeing, R.L. Graham, J.S. Geiger, K.W. Allen |
| 1974Je01 | PRVCA | 9, | 2067 | N.A. Jelley, K.H. Wilcox, R.B. Weisenmiller, G.J. Wozniak, J. Cerny |
| 1974Jo14 | PRVCA | 10, | 2449 | P.L. Jolivet, J.D. Goss, G.L. Marolt, A.A. Rollefson, C.P. Browne |
| 1974Ju.A | PrvCom | | 74AjLa | E.T. Jurney |
| 1974Ju.B | PrvCom | AHW | | E.T. Jurney |
| 1974Ka05 | ZEPYA | 266, | 21 | N. Kaffrell, N. Trautmann, R. Denig |
| 1974Ka15 | PRVCA | 9, | 2102 | E. Kashy, W. Benenson, J.A. Nolen, Jr. |
| 1974Ke01 | NUPAB | 221, | 333 | J. Kern, G. Mauron, B. Michaud, K. Schreckenbach, T. von Egidy, W. Mampe, H.R. Koch, H.A. Baader, D. Breitig, U. Gruber |
| 1974Ke13 | PRVCA | 10, | 1554 | J. Kern, D. Duc |
| 1974Ke14 | ZEPYA | 270, | 129 | J. Keinonen, A. Anttila, M. Bister |
| 1974Ki02 | PRVCA | 9, | 767 | J. Kim, R.L. Robinson |
| 1974Kn02 | PRVCA | 9, | 1467 | J.D. Knight, C.J. Orth, W.T. Leland, A.B. Tucker |
| 1974Ko08 | NUPAB | 221, | 45 | D.H. Kong-A-Siou, A.J. Cole, A. Giorni, J.P. Longequeue |
| 1974Ko20 | NUPAB | 231, | 266 | D.G. Kovar, N. Stein, C.K. Bockelman |
| 1974Ku01 | NUPAB | 218, | 201 | I. Kumabe, S. Matsuki, S. Nakamura, M. Hyakutake, M. Matoba, T. Sato |
| 1974Le02 | PRVCA | 9, | 1091 | Y. Le Beyec, M. Lefort, J. Livet, N.T. Porile, A. Siivola |
| 1974Ma09 | PRVCA | 9, | 1633 | R.G. Markham, H.W. Fulbright |
| 1974Me15 | YAFIA | 19, | 437 | R.J. Metskvarishvili, Z.N. Miminoshvili, M.A. Elizbarashvili |
| 1974Mu10 | NUPAB | 224, | 437 | F. Münnich, D. Lode, H. Schrader, A. Høglund, W. Pessara |
| 1974Na07 | PRVCA | 9, | 1848 | H. Nann, W. Benenson, E. Kashy, P. Turek |
| 1974Ne10 | PRVCA | 10, | 320 | K. Neubeck, H. Schober, H. Waffler |
| 1974No02 | PRVCA | 9, | 1168 | T. Nomura, K. Hiruta, M. Yoshie, O. Hashimoto |
| 1974No07 | NUIMA | 115, | 189 | J.A. Nolen, Jr., G. Hamilton, E. Kashy, D. Proctor |
| 1974Oe03 | NUPAB | 230, | 413 | W. Oelert, G. Lindstrom, V. Riech |
| 1974Pe15 | NUPAB | 235, | 205 | R.J. Peel, D.R. Dixon, M.W. Hill, G.L. Jensen, N.F. Mangelson, N. Nath, V.C. Rogers |
| 1974Po08 | PRVCA | 10, | 803 | F.T. Porter, I. Ahmad, M.S. Freedman, J. Milsted, A.M. Friedman |
| 1974Pr15 | IANFA | 38, | 2135 | P.T. Prokofev, L.I. Simonov |
| 1974Ra31 | PHFEA | 9, | 103 | V. Rahkonen, J. Kantele |
| 1974Ra.A | P-Bombay | | 10 | C.N. Rao, B.M. Rao, P.M. Rao, K.V. Reddy |
| 1974Ri03 | PRVCA | 9, | 1978 | K. Rimawi, J.B. Garg, R.E. Chrien, G.W. Cole, O.A. Wasson |
| 1974Ri08 | NUPAB | 228, | 461 | A. Riccato, P. David |
| 1974Ro11 | ZEPYA | 266, | 65 | E. Roeckl, D. Lode, K. Bächmann, B. Neidhart, G.K. Wolf, W. Lauppe, N. Kaffrell, P. Patzelt |
| 1974Ro12 | ZEPYA | 266, | 123 | E. Roeckl, D. Lode, W. Pessar |
| 1974Ro16 | PRVCA | 9, | 1801 | R.G.H. Robertson, S.M. Austin |
| 1974Ro17 | PRLTA | 32, | 1207 | R.G.H. Robertson, S. Martin, W.R. Falk, D. Ingham, A. Djalois |
| 1974Ro18 | PRVCA | 9, | 2272 | S.J. Rothman, N.L. Peterson, W.K. Chen, J.J. Hines, R. Bastar, L.C. Robinson, L.J. Nowicki, J.B. Anderson |
| 1974Ro44 | PRAMC | 3, | 186 | A. Roy, K.V.K. Iyengar, M.L. Jhingan, S.K. Bhattacharjee |
| 1974Ru08 | NUIMA | 120, | 333 | G. Rudstam, S. Shalev, O.C. Jonsson |
| 1974Sc02 | CJPHA | 52, | 131 | R.L. Schulte, J.D. King, W. Taylor |
| 1974Sc06 | ZEPYA | 266, | 129 | H.M. Schupferling, K.-W. Hoffmann |
| 1974Sc19 | PRVCA | 10, | 296 | W.D. Schmidt-Ott, K.S. Toth, E. Newman, C.R. Bingham |
| 1974Sc26 | PRLTA | 33, | 1343 | D.K. Scott, B.G. Harvey, D.L. Hendrie, L. Krauss, C.F. Maguire, J. Mahoney, Y. Terrien, K. Yagi |
| 1974Se05 | PRLTA | 33, | 233 | K.K. Seth, A. Saha, W. Benenson, W.A. Langford, H. Nann, B.H. Wildenthal |
| 1974Sp04 | NUPAB | 224, | 517 | A.M. Spits, J. de Boer |
| 1974To04 | ZEPYA | 268, | 289 | F. Tolea, K.R. Baker, W.D. Schmidt-Ott, R.W. Fink |
| 1974To07 | PRVCA | 10, | 2550 | K.S. Toth, C.R. Bingham, W.D. Schmidt-Ott |
| 1974Vi02 | ZEPYA | 269, | 173 | M. Viitasalo, I. Forsblom |
| 1974Vo08 | IANFA | 38, | 672 | I. Votsilka, K.U. Zibert, B. Kracik, J. Liptak, A.F. Novgorodov, K.G. Ortlepp, M. Toshev, V. Habenicht |

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| 1974Vy01 | IANFA | 38, | 701 | Ts. Vylov, N.A. Golovkov, K.Y. Gromov, I.I. Gromova, A. Kolachkovsky, M.Y. Kuznetsova, Y.V. Norseev, V.G. Chumin |
| 1974Wa08 | PRVCA | 9, | 1396 | C.W. Wang, Y.C. Liu, E.K. Lin, C.C. Hsu, G.C. Kiang |
| 1974Wa14 | PRVCA | 10, | 1983 | T.R. Ward, P.F. Haustein, J.B. Cumming, Y.Y. Chu |
| 1974Wi17 | PRVCA | 10, | 2184 | B.H. Wildenthal, J.A. Rice, B.M. Preedom |
| 1974Ya07 | JUPSA | 37, | 10 | H. Yamamoto, K. Kawade, H. Fukaya, T. Katoh |
| 1975 | | | | |
| 1975Ad08 | IANFA | 39, | 1681 | I. Adam, G. Baier, K.Y. Gromov, T.A. Islamov, K.G. Ortlepp, K. Tiroff, E. Herrmann, H. Strusnii |
| 1975Ad09 | NUPAB | 254, | 63 | I. Adam, K.Y. Gromov |
| 1975Ah01 | NUPAB | 239, | 1 | I. Ahmad, J. Milsted |
| 1975Ah05 | PRVCA | 12, | 541 | I. Ahmad, F.T. Porter, M.S. Freedman, R.K. Sjoblom, J. Lerner, R.F. Barnes, J. Milsted, P.R. Fields |
| 1975Aj03 | PRVCA | 12, | 1868 | F. Ajzenberg-Selove, R. Middleton, J.D. Garrett |
| 1975Al.A | P-Leningrad | | | A.A. Aleksandrov, et al |
| 1975An07 | NUPAB | 242, | 93 | R.E. Anderson, R.L. Bunting, J.D. Burch, S.R. Chinn, J.J. Kraushaar, R.J. Peterson, D.E. Prull, B.W. Ridley, R.A. Ristinen |
| 1975As04 | NUPAB | 247, | 359 | M. Asghar, J.P. Gautheron, G. Bailleul, J.P. Bocquet, J. Greif, H. Schrader, G. Siegert, C. Ristori, J. Crancon, G.I. Crawford |
| 1975Ba25 | YAFIA | 21, | 230 | S.A. Baranov, V.M. Shatinskii, L.V. Chistyakov, V.M. Shubko |
| 1975Ba27 | ZETFA | 68, | 8 | S.A. Baranov, V.M. Shatinskii |
| 1975Ba65 | YAFIA | 22, | 670 | S.A. Baranov, V.M. Shatinskii |
| 1975Ba.B | AnRpt CSNSM | | 35 | G. Bastin, C.F. Liang |
| 1975Be09 | ZENAA | 30, | 356 | M.J. Bechara, O. Dietsch |
| 1975Be21 | NUPAB | 245, | 515 | H. Behrens, M. Kobelt, L. Szybisz, W.G. Thies |
| 1975Be28 | NUPAB | 246, | 317 | H. Behrens, M. Kobelt, L. Szybisz, W.G. Thies |
| 1975Be38 | PYLB | 58, | 46 | W. Benenson, A. Guilchard, E. Kashy, D. Mueller, H. Nann, L.W. Robinson |
| 1975Be.B | P-Paris | | 54 | U. Bertsche, F. Rauch, K. Stelzer |
| 1975Bh01 | PRVCA | 12, | 1457 | M.R. Bhat, R.E. Chrien, G.W. Cole, O.A. Wasson |
| 1975Bl01 | PRVCA | 11, | 939 | J.N. Black, W.C. McHarris, W.H. Kelly, B.H. Wildenthal |
| 1975Bo11 | YAFIA | 21, | 233 | D.D. Bogdanov, A.V. Demyanov, V.A. Karnaukhov, L.A. Petrov |
| 1975Bo14 | NUPAB | 245, | 107 | W. Bohne, H. Fuchs, K. Grabisch, D. Hilscher, U. Jahnke, H. Kluge, T.G. Masterson, H. Morgenstern |
| 1975Bo29 | ZPAAD | 273, | 373 | H.E. Bosch, J. Davidson, V. Silbergleit, C.A. Heras, S.M. Abecassis |
| 1975Bo59 | RBFS | 5, | 215 | L.C.S. Boueres, O. Dietsch, T. Polga |
| 1975Br02 | PRVCA | 11, | 546 | D. Breitig, R.F. Casten, W.R. Kane, G.W. Cole, J.A. Cizewski |
| 1975Br16 | NUPAB | 245, | 243 | A.R. Brosi, B.H. Ketelle |
| 1975Br29 | NCIAA | 30, | 483 | A. Brondi, R. Moro, P. Pelter, F. Terassi |
| 1975Br.A | Th.-Mainz | | | W. Bruchle |
| 1975Bu01 | PRVCA | 11, | 1401 | D.L. Bushnell, J. Hawkins, R. Goebbert, R.K. Smither |
| 1975Bu02 | CJPHA | 53, | 948 | D.G. Burke, J.M. Balogh, and erratum CJPHA 63(1985)649 |
| 1975Bu.A | BAPSA | 20, | 625 | M.E. Bunker, B.S. Nielsen, J.W. Starnes, B.J. Dropesky, W.R. Daniels |
| 1975Ca06 | NUPAB | 241, | 341 | C. Cabot, C. Deprun, H. Gauvin, B. Lagarde, Y. Le Beyec, M. Lefort |
| 1975Ca07 | NUPAB | 242, | 221 | T. Caldwell, D.J. Pullen, O. Hansen |
| 1975Ch05 | NUPAB | 238, | 333 | A. Charvet, R. Chery, R. Duffait, M. Morgue |
| 1975Ch11 | PRVCA | 11, | 1237 | J. Chao, D.K. Olsen, C. Newson, P.J. Riley |
| 1975Ch21 | JPHGB | 1, | 657 | R. Chapman, G.D. Dracoulis |
| 1975Co.A | AnRpt CSNSM | | | Collaboration CSNSM-IPN-Marbourg-Stockholm-Varsovie |
| 1975Da14 | NUPAB | 250, | 221 | J.M. Davidson, T. Taylor, D.A. Hutcheon, D.M. Sheppard, W.C. Olsen |
| 1975De.A | P-Petten | | 609 | J. de Boer |
| 1975Em04 | ZPAAD | 275, | 157 | A. Emsallem, M. Ashgar |
| 1975Em.A | P-Petten | | 395 | A. Emsallem, M. Ashgar |
| 1975Er.A | PrvCom | NDG | Jul | J.R. Erskine |
| 1975Fl07 | ZPAAD | 272, | 219 | D. Flothman, H.J. Gils, W. Wiesner, R. Loehken |
| 1975Fr16 | PRVCA | 12, | 616 | E.M. Franz, S. Katcoff |
| 1975Fr.A | P-Paris | | 126 | J.M. Freeman, R.J. Petty, S.H. Hoath, J.S. Ryder, W.E. Burcham, G.T.A. Squier |
| 1975Fr.B | AnRpt AFI | | 146 | K. Fransson, M. af Ugglas, P. Carle |

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|----------|----------|------|------|--|
| 1975Gr32 | NUPAB | 252, | 260 | R.C. Greenwood, C.W. Reich, S.H. Vegors, Jr. |
| 1975Gu01 | JPHGB | 1, | 67 | S.C. Gujrathi, C. Weiffenbach, J.K.P. Lee |
| 1975Gu15 | PRVCA | 12, | 1109 | A. Guichard, H. Nann, B.H. Wildenthal |
| 1975Ha43 | ZPAAD | 274, | 335 | H.H. Hansen, D. Mouchet |
| 1975He.C | KFK-2223 | | | D. Heck, J.A. Pinston, H. Börner, F. Braumandl, P. Jeuch, H.R. Koch, W. Mampe, R. Rousille, K. Schreckenbach |
| 1975Ho09 | PYLBB | 57, | 147 | P. Hornshøj, P. Tidemand-Petersson, R. Bethoux, A.A. Caretto, J.W. Grüter, P.G. Hansen, B. Jonson, E. Hagberg, S. Mattsson |
| 1975Ho14 | NUPAB | 248, | 406 | P. Hornshøj, P. Tidemand-Petersson, R. Kaczarowski, B. Kotlinska |
| 1975Ij.A | BAPSA | 20, | 1154 | M.A. Ijaz, Vpi e su, E.L. Robinson, K.S. Toth, C.R. Bingham |
| 1975Is04 | PRVCA | 12, | 708 | H.A. Ismail, J.N. Hallock, W.H. Moore, H.A. Enge |
| 1975Ja10 | PRVCA | 11, | 2114 | J. Jänecke, F.D. Becchetti, L.T. Chua, A.M. Vandermolen |
| 1975Jo.A | BAPSA | 20, | 625 | O.P. Jolly, D.G. Burke |
| 1975Ka15 | JUPSA | 38, | 314 | K. Kawade, H. Yamamoto, Y. Ikeda, T. Katoh |
| 1975Ka18 | PRVCA | 11, | 1959 | E. Kashy, W. Benenson, D. Mueller, R.G.H. Robertson, D.R. Goosman |
| 1975Ka25 | PRVCA | 12, | 1054 | D. Kaiser, W.H. Johnson, Jr. |
| 1975Ka.A | P-Petten | | 544 | B. Kardon, H. Seyfarth, P. Gottel, H.H. Guven |
| 1975Ke08 | PRVCA | 12, | 553 | G.G. Kennedy, S.C. Gujrathi, S.K. Mark |
| 1975Ke09 | ZPAAD | 274, | 233 | G.G. Kennedy, S.C. Gujrathi, S.K. Mark |
| 1975Ke12 | NUPAB | 255, | 296 | J.J. Kent, S.L. Blatt |
| 1975Kl06 | NUPAB | 245, | 133 | H.V. Klapdor, M. Schrader, G. Bergdolt, A.M. Bergdolt |
| 1975Ko18 | PRVCA | 12, | 1511 | R. Kouzes, W.H. Moore, and erratum PRVCA 13,890 |
| 1975Ku14 | NUPAB | 247, | 152 | A.W. Kuhfeld, N.M. Hintz |
| 1975La02 | JINCA | 37, | 623 | J.J. Labreque, I.L. Preiss, H. Bakhru, R.I. Morse |
| 1975Li14 | JUPSA | 39, | 1 | C.Y. Liu, T.H. Hsue, K. Lin, P.K. Tseng, C.C. Hsu, C.W. Wang |
| 1975Li22 | NUPAB | 253, | 165 | J.R. Lien, J.S. Vaagen, A. Graue |
| 1975Lo03 | NUPAB | 243, | 413 | M.A. Lone, E.D. Earle, G.A. Bartholemew |
| 1975Lu02 | PRVCA | 11, | 1470 | D.H. Lueders, J.M. Daley, S.G. Buccino, F.E. Durham, C.E. Hollandsworth, W.P. Bucher, H.D. Jones |
| 1975Ma04 | NUPAB | 237, | 285 | M.R. MacPhail, R.G. Summers-Gill, see also thesis Winnipeg, and PrvCom AHW September 1980 |
| 1975Ma05 | PRVCA | 11, | 587 | G.J. Matthews, F.M. Bernthal, J.D. Immele |
| 1975Ma.A | P-Petten | | 655 | P. Matussek |
| 1975Me10 | PRVCA | 12, | 401 | L.R. Medsker, H.T. Fortune, S.C. Headley |
| 1975Me13 | PYLBB | 58, | 297 | L.R. Medsker, H.T. Fortune |
| 1975Me20 | ZPAAD | 275, | 67 | B.J. Meijer, J. Konijn |
| 1975Me23 | PRVCA | 12, | 2010 | R.A. Meyer, R.G. Lanier, J.T. Larsen |
| 1975Mo26 | PYLBB | 58, | 286 | A. Moallem, M.A.M. Shahabuddin, R.G. Markham, H. Nann |
| 1975Mo29 | NUPAB | 252, | 477 | P. Morgen, J.H. Onsgaard, B.S. Nielsen, C. Sondergaard |
| 1975Mu08 | PYLBB | 57, | 44 | L.G. Multhauf, K.G. Tirsell, S. Raman, J.B. McGrory |
| 1975Mu09 | PRVCA | 12, | 51 | D. Mueller, E. Kashy, W. Benenson, H. Nann |
| 1975Na.A | P-Petten | | 566 | M.R. Najam, A.F.M. Ishaq, M. Anwar, A.M. Khan, J.A. Mirza |
| 1975No.A | P-Paris | | 140 | J. Nolen |
| 1975PI06 | IJARA | 26, | 579 | J. Plch, J. Zderadicka, O. Dragoun |
| 1975Ra07 | NUPAB | 242, | 189 | D. Rabenstein, D. Harrach |
| 1975Ra08 | JPHGB | 1, | 461 | C.N. Rao, B.M. Rao, P.M. Rao, K.V. Reddy see 75Ra09 |
| 1975Ra09 | PRVCA | 11, | 1735 | C.N. Rao, B.M. Rao, K.V. Reddy |
| 1975Re09 | NUPAB | 249, | 166 | W. Reiter, W.H. Breunlich, P. Hille |
| 1975Ro01 | PRLTA | 34, | 33 | R.G.H. Robertson, W.S. Chien, D.R. Goosman |
| 1975Ro05 | NUPAB | 240, | 221 | C. Rolfs, W.S. Rodney, S. Durrance, H. Winkler |
| 1975Ro16 | NUPAB | 246, | 380 | R. Rousille, J.A. Pinston, H. Börner, H.R. Koch, D. Heck |
| 1975Ro25 | ZEPYA | 275, | 45 | S. Roodbergen, H. Visser, W. Molendijk, H.S. Bedet, H. Verheul |
| 1975Sc07 | NUPAB | 242, | 232 | H. Schmeing, J.C. Hardy, R.L. Graham, J.S. Geiger |
| 1975Se.A | BAPSA | 20, | 73 | F.J.D. Serduke, W. Henning |
| 1975Si03 | CJPHA | 53, | 391 | B. Singh, M.W. Johns |
| 1975Sl.A | BAPSA | 20, | 560 | G.G. Slaughter, S. Raman |
| 1975Sm02 | PRVCA | 11, | 1392 | L.G. Smith, A.H. Wapstra |
| 1975Sq01 | NUPAB | 242, | 62 | G.T.A. Squier, W.E. Burcham, J.M. Freedman, R.J. Petty, S.D. Hoath, J.S. Ryder |

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| 1975St07 | NUPAB | 242, | 30 | H. Strusny, H. Tyrroff, E. Herrmann, G. Musiol, M.I. Baznat, G. Beyer, K.Y. Gromov, M. Honusek, T.A. Islamov, V.V. Kuznetsov, H.-U. Siebert |
| 1975St08 | CJPHA | 53, | 922 | W.R. Stott, J.C. Waddington, D.G. Burke, G. Løyvhøiden |
| 1975St12 | CZYPA | 25, | 626 | H. Strusny, H. Tyrroff, E. Herrmann, G. Musiol |
| 1975Ta06 | ZPAAD | 272, | 301 | C.W. Tang, A. Pakkanen, Z.C. Mester, C.D. Coryell, G. Chilosi, A.H. Wapstra, K. Bos |
| 1975Ta12 | PRVCA | 12, | 108 | H. Taketani, H.L. Sharma, N.M. Hintz |
| 1975Th04 | NUPAB | 242, | 1 | R.C. Thompson, J.S. Boyno, J.R. Huizenga, D.G. Burke, T.W. Elze |
| 1975Th06 | NUPAB | 245, | 444 | R. Thompson, A. Ikeda, R.K. Sheline |
| 1975Th08 | PRVCA | 12, | 644 | C. Thibault, R. Klapisch, C. Rigaud, A.M. Poskanzer, R. Prieels, L. Lessard, W. Reisdorf |
| 1975To05 | PRVCA | 12, | 533 | K.S. Toth, W.D. Schmidt-Ott, C.R. Bingham, M.A. Ijaz |
| 1975Un.A | P-Paris | | 81 | UNISOR consortium |
| 1975Va24 | PHFEA | 10, | 133 | S. Vaisala, T. Raunemaa, A. Fontell, G. Graeffe, A. Siivola |
| 1975Va.A | P-Leningrad | | 156 | V.M. Vachte, N.A. Golovkov, B.S. Dzelepov, R.B. Ivanov, A. Lyushenski, M.A. Michailova, A.B. Mozhuchin, B.G. Shumin |
| 1975Vi01 | JINCA | 37, | 11 | V.E. Viola, Jr., C.T. Roche, M.M. Minor |
| 1975Vy02 | IANFA | 39, | 1671 | Ts. Vylov, I.I. Gromova, V.G. Kalinnikov, V. Kuznetsov, T.M. Muminov, V.A. Morozov, V.I. Fominikh, R.R. Uzmanov, E.R. Shavgulidze |
| 1975We03 | CJPHA | 53, | 101 | C. Weiffenbach, S.C. Gujrathi, J.K.P. Lee |
| 1975We10 | PHSTB | 11, | 10 | T. Westrom, B. Fant, I. Forsblom, M. Viitasalo |
| 1975We23 | ZPAAD | 275, | 127 | L. Westgaard, K. Aleklett, G. Nyman, E. Roeckl |
| 1975We24 | PHFEA | 10, | 167 | T. Weckstrom, I. Forsblom, P. Holmberg |
| 1975We.A | P-Petten | | 749 | C. Weitkamp, P. Matusek, H. Ottmar |
| 1975Wi06 | PRVCA | 11, | 1477 | W.M. Wilson, G.E. Thomas, H.E. Jackson |
| 1975Wi08 | ZPAAD | 272, | 291 | G. Wirth, N. Kaffrell, K. Chayawattanangkur, G. Herrmann, K.E. Seyb |
| 1975Wi26 | PYLBB | 59, | 142 | K.H. Wilcox, R.B. Weisenmiller, G.J. Wozniak, N.A. Jelley, D. Ashery, J. Cerny |
| 1975Yo01 | NUPAB | 243, | 143 | N. Yoshikawa |
| 1975Ze.A | JINR-P6-8929 | | | A. Zelinsky, K. Zuber, Y. Zuber, V.V. Kuznetsov, A. Kolachkovsky, A. Lyatshinsky, Y.V. Norseev, H.G. Ortlepp, I. Penev, A.V. Potempa |
| 1976 | | | | |
| 1976Aj03 | PRVCA | 14, | 767 | F. Ajzenberg-Selove, E.R. Flynn, O. Hansen, J.D. Sherman, N. Stern, J.W. Sunier |
| 1976Al01 | NUPAB | 257, | 490 | M.M. Aleonard, P. Hubert, L. Sarger, P. Mennrath |
| 1976Al16 | NUIMA | 136, | 323 | D.E. Alburger |
| 1976An05 | PYLBB | 61, | 234 | G. Andersson, M. Ashgar, A. Emsallem, E. Hagberg, B. Jonson |
| 1976Ba99 | AENGA | 41, | 342 | S.A. Baranov, et al |
| 1976Ba.A | P-Cargese | | 106 | T. Batsch, M. Nowicki, J. Żylicz |
| 1976Be02 | NUPAB | 256, | 87 | D. Berenyi, G. Hock, A. Menes, G. Szekely, Cs. Ujhelyi, B.A. Zon |
| 1976Be08 | PRVCA | 13, | 1479 | W. Benenson, A. Guichard, E. Kashy, D. Mueller, H. Nann |
| 1976Be11 | NUPAB | 260, | 269 | G. Beyer, A. Jasinski, O. Knotek, H.G. Ortlepp, H.U. Siebert, R. Aelt, E. Herrmann, G. Musiol, H. Tyrroff |
| 1976Be50 | PRVCA | 14, | 2095 | D. Benson, Jr., P. Kleinheinz, R.K. Sheline, R.B. Shera |
| 1976Be.A | AnRpt OakRidge | | 73 | C.E. Bemis, Jr., C.E. Bemis, D.C. Hensley, P.F. Dittner, R.L. Hahn, R.J. Silva, J.R. Tarrant, L.D. Hunt, and PrvCom AHW July 1981 |
| 1976Be.B | AnRpt MSUCL | | 11 | F.M. Bernthal |
| 1976Bi09 | PRVCA | 14, | 1586 | C.R. Bingham, L.L. Riedinger, F.E. Turner, B.D. Kern, J.L. Weil, K.J. Hofstetter, J. Lin, E.F. Zganjar, A.V. Ramayya, J.H. Hamilton, J.L. Wood, G.M. Gowdy, R.W. Fink, E.H. Spejewski, W.D. Schmidt-Ott, R.L. Mlekodaj, H.K. Carter, K.S.R. Sastry |
| 1976Ca10 | NUPAB | 261, | 445 | R.F. Casten, D. Burke, O. Hansen |
| 1976Ca24 | PRVCA | 14, | 1439 | R.F. Carlton, S. Raman, J.A. Harvey, G.G. Slaughter |
| 1976Ca25 | PRVCA | 14, | 912 | R.F. Casten, W.R. Kane, J.R. Erskine, A.M. Friedman, D.S. Gale |
| 1976Ch02 | PRVCA | 13, | 578 | R.E. Chrien, G.W. Cole, G.C. Slaughter, J.A. Harvey |
| 1976Cr03 | PYLBB | 64, | 143 | G.M. Crawley, W.F. Steele, J.N. Bishop, P.A. Smith, S. Maripuu |
| 1976Cr.B | JINR-P6-9711 | | | T. Cretzu, V.V. Kuznetsov, G. Luzurej, G. Macarie, M. Finger |
| 1976Da20 | PRVCA | 14, | 2011 | W.W. Daehnick, M.M. Spisak, R.M. Del Vecchio |

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|----------|----------------|------|------|---|
| 1976Da.C | P-Cargese | | 100 | J.M. D'Auria, J.W. Grüter, L. Westgaard, G. Nyman, P. Peuser, E. Roeckl, H. Otto, ISOLDE |
| 1976Da.D | P-Cargese | | 262 | J.M. D'Auria, L.C. Carraz, P.G. Hansen, B. Jonson, S. Mattsson, H.L. Ravn, M. Skarestad, L. Westgaard |
| 1976Di15 | NUIMA | 139, | 181 | J.S. Dionisio, C. Vieu, C.M. Truong, G. Leur |
| 1976Di.A | AnRpt OakRidge | | | P.F. Dittner, R.J. Silva, D.C. Hensley, R.L. Hahn, J.R. Tarrant, L.D. Hunt, and PrvCom AHW July 1981 |
| 1976Do05 | NUPAB | 263, | 210 | P. Doll, G.J. Wagner, K.T. Knopfle |
| 1976Ed.A | P-Cargese | | 258 | M.D. Edmiston, R.A. Warner, W.C. McHarris, W.H. Kelly |
| 1976El11 | PRVCA | 14, | 583 | D. Elmore, W.P. Alford |
| 1976El12 | CJPHA | 54, | 1493 | D. Elmore, W.P. Alford |
| 1976FI02 | PRVCA | 13, | 568 | E.R. Flynn, J.D. Sherman, N. Stein, D.K. Olsen, P.J. Riley |
| 1976Fo01 | PRVCA | 13, | 1049 | S. Fortier, H. Laurent, J.P. Schapira, M.S. Antony, A. Knipper |
| 1976Fr13 | NUIMA | 134, | 153 | J.M. Freeman |
| 1976Fr.A | USIP-76-09 | | | K. Fransson, M. af Ugglas, P. Carle, T. Erikson |
| 1976Ga19 | NUPAB | 268, | 257 | S. Galès, S. Fortier, H. Laurent, J.M. Maison, J.P. Schapira |
| 1976Ga.A | P-Baku | | | M. Gasior, B.G. Kalinnikov, T. Kretsu |
| 1976Ge02 | PRVCA | 13, | 1434 | W. Gelletly, W.R. Kane, R.F. Casten |
| 1976Ge06 | NUIMA | 134, | 309 | H. Genz, J. Reisberg, A. Richter, B.M. Schmitz, G. Schrieder, K. Werner |
| 1976Ge08 | NUPAB | 267, | 13 | H. Genz, A. Richter, B.M. Schmitz, H. Behrens |
| 1976Ge14 | PRVCA | 14, | 1896 | R.J. Gehrke, R.G. Helmer, C.W. Reich, R.A. Anderl |
| 1976Go02 | PRVCA | 13, | 1601 | G.M. Gowdy, A.C. Xenoulis, J.L. Wood, K.R. Baker, R.W. Fink, J.L. Weil, B.D. Kern, K.J. Hofstetter, E.H. Spejewski, R.L. Mlekodaj, H.K. Carter, W.D. Schmidt-Ott, J. Lin, C.B. Ringham, L.L. Riedinger, E.F. Zganjar, K.S. Sasstry, A.V. Ramayya, J.H. Hamilton |
| 1976Gr09 | NUPAB | 270, | 29 | R.C. Greenwood, R.J. Gehrke, R.G. Helmer, C.W. Reich, J.D. Baker |
| 1976Gr19 | PHSTB | 14, | 263 | T. Grottdal, L. Guldberg, K. Nybø, T.F. Thorsteinsen |
| 1976Gr20 | APOBB | 7, | 507 | K.Y. Gromov, D.T. Dzelev, K. Zuber, Y. Zuber, T.A. Islamov, V.V. Kuznetsov, H.G. Ortlepp, A.V. Potempa |
| 1976Gr.A | P-Cargese | | 428 | J.W. Grüter, B. Jonson, O.B. Nielsen |
| 1976Ha29 | PYLBB | 63, | 27 | J.C. Hardy, J.A. Macdonald, H. Schmeing, T. Faestermann, H.R. Andrews, J.S. Geiger, R.L. Graham, K.P. Jackson |
| 1976Ha36 | ZPAAD | 278, | 183 | W. Hartl, J.W. Hammer |
| 1976Ha39 | PRVCA | 14, | 645 | P.E. Haustein, E.M. Franz, S. Katcoff, N.A. Morcos, H.A. Smith, Jr., T.E. Ward |
| 1976He04 | NUPAB | 258, | 83 | R.G. Helmer, R.J. Gehrke, R.C. Greenwood, C.W. Reich, L.D. McIsaac |
| 1976He10 | ZPAAD | 276, | 393 | W. Herzog, N. Trautmann, R. Denig, G. Herrmann |
| 1976He.B | NDSBA | 17, | 287 | E.A. Henry |
| 1976Hi08 | CJPHA | 54, | 1360 | C.R. Hirning, D.G. Burke |
| 1976Hi09 | NUPAB | 263, | 460 | F. Hintenberger, P. von Rossen, B. Schuller, J. Bisping, R. Jahn |
| 1976Hi10 | PRLTA | 37, | 130 | G.T. Hickey, D.C. Weissner, J. Cerny, G.M. Crawley, A.F. Zeller, T.R. Ophel, D.F. Hebbard |
| 1976Hi14 | JPHGB | 2, | L143 | G.T. Hickey, G.M. Crawley, D.C. Weissner, N. Shikazono |
| 1976Hu01 | PRVCA | 13, | 1786 | A. Huck, G.J. Costa, G. Walter, M.M. Aleonard, J. Dalmas, P. Hubert, F. Leccia, P. Mennrath, J. Vernotte, M. Langevin, J.M. Maison |
| 1976In06 | PRVCA | 14, | 254 | P.D. Ingalls |
| 1976Jo01 | PRVCA | 13, | 439 | P.L. Jolivet, J.D. Goss, J.A. Bieszk, R.D. Hichwa, C.P. Browne |
| 1976Jo.A | P-Cargese | | 277 | B. Jonson, E. Hagberg, P.G. Hansen, P. Hornshøj, P. Tidemand-Petersson, ISOLDE |
| 1976Ka08 | NUPAB | 260, | 141 | E.J. Kaptein, H.P. Blok, L. Hulstman, J. Blok |
| 1976Ka19 | NUPAB | 266, | 346 | R. Kamermans, H.W. Jongsma, T.J. Ketel, R. van der Wey, H. Verheul |
| 1976Ka24 | PRVCA | 14, | 1773 | E. Kashy, W. Benenson, D. Mueller, H. Nann, L. Robinson |
| 1976Ka50 | SHIBA | 24, | 247 | I. Kakatuse, H. Nakabushi, K. Ogata |
| 1976Ki12 | NUPAB | 272, | 381 | K. Kimura, N. Takagi, M. Tanaka |
| 1976Lu02 | PRVCA | 13, | 1544 | E. Lund, G. Rudstam |
| 1976Lu04 | NUIMA | 134, | 173 | E. Lund, G. Rudstam |
| 1976Ma03 | PRVCA | 13, | 118 | J.F. Mateja, G.F. Neal, J.D. Goss, P.R. Chagnon, C.P. Browne |
| 1976Ma16 | PRVCA | 13, | 1117 | D.J. Martin, M.R. MacPhail |
| 1976Ma35 | PRVCA | 14, | 1141 | L.G. Mann, W.B. Walters, R.A. Meyer |
| 1976Ma40 | PRVCA | 14, | 1320 | D.J. Martin, H.C. Evans, J.A. Szucs |

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|----------|--------------|------|------|---|
| 1976Ma49 | ZPAAD | 278, | 327 | P. Maier-Komor, P. Glassel, E. Huengas, H. Rossler, H.K. Vonach, H. Baier |
| 1976Me08 | PRVCA | 13, | 1751 | L.R. Medsker |
| 1976Mi01 | PRVCA | 13, | 879 | G.F. Millington, R.M. Hutcheon, J.R. Leslie, W.M. McLatchie |
| 1976Mo32 | NUPAB | 272, | 82 | S. Mordechai, E. Friedman, A.A. Jaffe, D. Nir, M. Paul |
| 1976Na23 | PRVCA | 14, | 2338 | H. Nann, D. Mueller, A. Saha, E. Kashy |
| 1976No07 | PYLBB | 65, | 125 | J.W. Noé, D.F. Geesaman, P. Paul, M. Suffert |
| 1976Nu01 | PRVCA | 13, | 2017 | L.L. Nunnelley, W. Loveland |
| 1976Pa11 | PRVCA | 14, | 1573 | B.P. Pathak, L. Lesard, L. Nikkinen |
| 1976Pi04 | NUPAB | 264, | 1 | J.A. Pinston, R. Rousille, H. Börner, H.R. Koch |
| 1976Pi13 | NUPAB | 270, | 61 | J.A. Pinston, R. Rousille, H. Börner, W.F. Davidson, P. Jeuch, H.R. Koch, K. Schreckenbach |
| 1976Ra16 | JPGPE | 2, | 243 | B.M. Rao, C.N. Rao, P.M. Rao, R. Mathews, K.V. Reddy |
| 1976Ra33 | CUSCA | 45, | 606 | K.V. Ramanian, G.K. Raju, K.V. Reddy |
| 1976Ra37 | ZPAAD | 279, | 301 | D.G. Raich, H.R. Bowman, R.E. Eppley, J.O. Rasmussen, I. Rezanka |
| 1976Ro04 | PRVCA | 13, | 1018 | R.G.H. Robertson, W. Benenson, E. Kashy, D. Mueller |
| 1976Sc13 | NUPAB | 263, | 193 | M. Schrader, H. Reiss, G. Rosner, H.V. Klapdor |
| 1976Sh24 | NUIMA | 135, | 583 | J.F. Sharpey-Schafer, A.M. Al Naser, A.H. Behbehani, L.L. Green, A.N. James, C. Lister, P.J. Nolan |
| 1976SI06 | NUPAB | 274, | 93 | D.N. Slater, W. Booth |
| 1976Sp08 | NUPAB | 265, | 416 | R.J. Sparks |
| 1976Sq01 | PYLBB | 65, | 122 | G.T.A. Squier, W.E. Burcham, S.D. Hoath, J.M. Freeman, P.H. Barker, R.J. Petty |
| 1976St10 | NUPAB | 266, | 390 | O. Straume, G. Løvholden, D.G. Burke |
| 1976St11 | NUPAB | 266, | 424 | W.F. Steele, P.A. Smith, J.E. Finck, G.M. Crawley |
| 1976Su.A | BAPSA | 21, | 658 | E. Sugarbaker, W.S. Gray |
| 1976Su.B | BAPSA | 21, | 984 | E. Sugarbaker, W.S. Gray |
| 1976To06 | PYLBB | 63, | 150 | K.S. Toth, M.A. Ijaz, J. Lin, E.L. Robinson, B.O. Hannah, E.H. Spejewski, J.D. Cole, J.H. Hamilton, A.V. Ramayya |
| 1976Tr01 | PRVCA | 13, | 50 | R.E. Tribble, R.A. Kenefick, R.L. Spross |
| 1976Tr03 | PYLBB | 61, | 353 | R.E. Tribble, J.D. Cossairt, R.A. Kenefick |
| 1976Tr07 | IANFA | 40, | 2026 | E.F. Tretyakov, N.F. Myasoedov, A.M. Apalikov, V.F. Konyaev, V.A. Lyubimov, E.G. Novikov |
| 1976Tu.A | Th.-Berkeley | | | D.G. Tuggle |
| 1976Vi02 | PYLBB | 60, | 261 | D.J. Vieira, D.F. Sherman, M.S. Zisman, R.A. Gough, J. Cerny |
| 1976Vi.A | P-Cargese | | 462 | C. Vieu, J.S. Dionisio, V. Berg, C. Bourgeois |
| 1977 | | | | |
| 1977Aj01 | PRVCA | 15, | 1 | F. Ajzenberg-Selove, E.R. Flynn, S. Orbesen, J.W. Sunier |
| 1977Al09 | NUPAB | 281, | 213 | K. Aleklett, E. Lund, G. Nyman, G. Rudstam |
| 1977Al17 | NUPAB | 285, | 1 | K. Aleklett, E. Lund, G. Nyman, G. Rudstam |
| 1977Az01 | PRVCA | 15, | 1847 | G. Azuelos, J.E. Kitching, K. Ramavataram |
| 1977Ba10 | CJPHA | 55, | 200 | J.W. Barnard, P. Williams, R.C. Barber, S.S. Hague, K.S. Kozier, K.K. Sharma, H.E. Duckworth |
| 1977Ba16 | NUPAB | 279, | 199 | P.H. Barker, R.E. White, H. Naylor, N.S. Wyatt |
| 1977Ba33 | IANFA | 41, | 101 | I.F. Barchuk, G.V. Belykh, V.I. Golyshkin, A.F. Ogorodnik, M.M. Tuschinski |
| 1977Ba69 | YAFIA | 26, | 461 | S.A. Baranov, V.M. Shatinskii |
| 1977Be03 | PRVCA | 15, | 146 | M.J. Bennet, R.K. Sheline |
| 1977Be09 | PRVCA | 15, | 705 | C.E. Bemis, Jr., R.L. Ferguson, F. Plasil, R.J. Silva, F. Pleasanton, R.L. Hahn |
| 1977Be13 | PRVCA | 15, | 1187 | W. Benenson, D. Mueller, E. Kashy, H. Nann, L.W. Robinson |
| 1977Be15 | ZPAAD | 281, | 145 | D. Benson, Jr., P. Kleinheinz, R.K. Sheline |
| 1977Be36 | PRVCA | 16, | 1146 | C.E. Bemis, Jr., P.F. Dittner, R.J. Silva, R.L. Hahn, J.R. Tarrant, L.D. Hunt, D.C. Hensley |
| 1977Bh03 | ZPAAD | 281, | 65 | T.S. Bhatia, H. Hafner, R. Haupt, R. Maschuw, G.J. Wagner |
| 1977Bo02 | NUPAB | 275, | 229 | D.D. Bogdanov, A.V. Demyanov, V.A. Karnaukhov, L.A. Petrov, A. Płochocki, V.G. Subbotin, J. Voboril |
| 1977Bo28 | PYLBB | 71, | 67 | D.D. Bogdanov, J. Vobořil, A.V. Demyanov, L.A. Petrov |
| 1977Bo31 | IANFA | 41, | 1149 | N.A. Bonch-Osmolovskaya, V.M. Gorodzankin, K.Y. Gromov, T. Kretsus, V.V. Kuznetsov, G. Makarie, A.S. Khamidov, M. Yatiski |

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| 1977Bo32 | IANFA | 41, | 1189 | B. Bogdan, M. Gasior, T. Kretsu, V.V. Kuznetsov, N.A. Lebedev, G.I. Lizurei, G. Makarie, D.G. Popescu, A.S. Khamidov |
| 1977Bo.A | PrvCom | AHW | Oct | V.R. Bom, D. De Bruin |
| 1977Ca09 | PRVCA | 15, | 883 | R.F. Carlton, S. Raman, G.G. Slaughter |
| 1977Ca19 | NUPAB | 285, | 235 | R.F. Casten, R.C. Greenwood, M.R. MacPhail, R.E. Chrien, W.R. Kane, G.J. Smith, J.A. Cizewski BNL-22352 |
| 1977Ca23 | ZPAAD | 283, | 221 | C. Cabot, S. Della Negra, C. Deprun, H. Gauvin, Y. Le Beyec |
| 1977Ch06 | ZPAAD | 280, | 149 | H.C. Cheung, S.I. Hayakawa, J.E. Kitching, J.K.P. Lee, S.K. Mark, J.C. Waddington |
| 1977Co08 | PRVCA | 15, | 1685 | J.D. Cossairt, R.E. Tribble, R.A. Kenefick |
| 1977Cr05 | IANFA | 41, | 2032 | T. Cretsu, G. Makarie, A.V. Potempa, E. Senyavski |
| 1977De06 | PRVCA | 15, | 800 | J. Deslauriers, S.C. Gujrathi, S.K. Mark |
| 1977De25 | ZPAAD | 283, | 33 | J. Deslauriers, S.C. Gujrathi, S.K. Mark |
| 1977De32 | JPSLB | 38, | 393 | S. Della Negra, B. Lagarde, Y. Le Beyec |
| 1977Dr07 | AENGA | 42, | 314 | A.A. Druzhinin, V.K. Grigorev, A.A. Lbov, S.P. Vesnovskii, N.G. Krylov, V.N. Polynov |
| 1977Em02 | NUPAB | 293, | 379 | R.A. Emigh, R.E. Anderson |
| 1977Er02 | ZPAAD | 280, | 79 | B. Erlandson, J. Lyttkens |
| 1977Fi08 | NUPAB | 288, | 57 | L.K. Fifield, F.P. Calaprice, C.H. Zimmermann, M.J. Hurst, A. Pakkanen, T.J.M. Symons, F. Watt, K.W. Allen |
| 1977Fi03 | PRVCA | 15, | 879 | E.R. Flynn, J.W. Sunier, F. Ajzenberg-Selove |
| 1977Fo02 | ZPAAD | 281, | 89 | B. Fogelberg, W. Maup |
| 1977Fo09 | PYLBB | 70, | 408 | H.T. Fortune, R. Middleton, M.E. Coburn, G.E. Moore, S. Mordechai, R.V. Kolarits, H. Nann, W. Chung, B.H. Wildenthal |
| 1977Fr20 | ZPAAD | 281, | 211 | T. Freie, H. Lorenz-Wirba, B. Cleff, H.P. Trautvetter, C. Rolfs |
| 1977Ge03 | NUPAB | 283, | 45 | J. Genevey-Rivier, A. Charvet, G. Marguier, C. Richard-Serre, J. D'Auria, A. Huck, G. Klotz, A. Knipper, G. Walter |
| 1977Gu02 | PRVCA | 15, | 894 | P. Guilbault, D. Ardouin, R. Tamisier, P. Avignon, M. Vergnes, G. Rotbard, G. Berrier |
| 1977Ha31 | PRVCA | 16, | 1129 | D.R. Haenni, T.T. Sugihara |
| 1977Ha32 | PRVCA | 16, | 1559 | P.E. Hausteine, E.M. Franz, R.F. Petry, J.C. Hill |
| 1977Ha48 | NUPAB | 293, | 1 | E. Hagberg, P.G. Hansen, J.C. Hardy, P. Hornshøj, B. Jonson, S. Mattsson, P. Tidemand-Petersson |
| 1977He26 | NUIMA | 147, | 425 | J.C.P. Heggie, Z.E. Zwitkowski |
| 1977Ho02 | NUPAB | 276, | 1 | C.L. Hollas, K.A. Aniol, D.W. Gebbie, M. Borsaru, J. Nurzinski, L.O. Barbopoulos |
| 1977Ho09 | JUPSA | 42, | 1098 | M. Hoshi, M. Fujiwara, Y. Yoshisama |
| 1977Ho18 | PRLTA | 39, | 537 | P. Hornshøj, H.L. Nielsen, N. Rud |
| 1977Ho25 | NUPAB | 288, | 429 | P. Hornshøj, L. Hojsholt-Poulsen, N. Rud |
| 1977Ij01 | PRVCA | 15, | 2251 | M.A. Ijaz, C.R. Bingham, H.K. Carter, E.L. Robinson, K.S. Toth |
| 1977Is01 | ZPAAD | 281, | 365 | A.F.M. Ishaq, S. Robertson, W.V. Prestwich, T.J. Kennett |
| 1977Je03 | PRVCA | 15, | 1972 | C.M. Jensen, W.R.G. Lanier, G.L. Struble, L.G. Mann, S.G. Prussin |
| 1977Jo03 | PRVCA | 15, | 915 | C.H. Johnson, J.K. Bair, C.M. Jones |
| 1977Ka08 | NUPAB | 279, | 269 | K. Kawade, H. Yamamoto, Y. Ikeda, V.N. Bhoraskar, T. Katoh |
| 1977Ke03 | PRVCA | 15, | 792 | G. Kennedy, J. Deslauriers, S.C. Gujrathi, S.K. Mark |
| 1977Ko04 | PRVCA | 15, | 1947 | J.J. Kolata, M. Oothoudt |
| 1977Ko10 | PRVCA | 16, | 132 | R.L. Kozub, B.E. Cooke, J.R. Leslie, B.C. Robertson |
| 1977Ko15 | PRVCA | 16, | 588 | B.K.S. Koene, R.E. Chrien |
| 1977Ko.A | PrvCom | AHW | Feb | B.K. Koene, R.E. Chrien, M. Yachim |
| 1977Ko.B | P-Tashkent | | 65 | T. Kozłowski, T. Kormitski, Y. Lushtshnski, A. Yasinski |
| 1977Kr.A | JINR-P6-10748 | | | T. Kretsu, V.V. Kuznetsov, G. Luzurej, Chan Chen Mo, V.M. Gorodzankin, G. Makarie |
| 1977Li14 | NUPAB | 286, | 263 | J. Liptak, K. Kristiakova, J. Kristiak |
| 1977Li16 | PHSTB | 15, | 205 | E. Lingeman |
| 1977Lu06 | NUPAB | 286, | 403 | E. Lund, K. Aleklett, G. Rudstam |
| 1977Ma12 | PRVCA | 15, | 1708 | J.F. Mateja, C.P. Browne |
| 1977Ma24 | NUPAB | 288, | 1 | J.A. Macdonald, J.C. Hardy, H. Schmeing, T. Faestermann, H.R. Andrews, J.S. Geiger, R.L. Graham, K.P. Jackson |
| 1977Mc05 | NUPAB | 281, | 325 | A.B. McDonald, E.D. Earle, M.A. Lone, F.C. Khanna, H.C. Lee |

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| 1977Mc09 | PRVCA | 16, | 1278 | D.A. McClure, S. Raman, G.C. Slaughter |
| 1977Me04 | PRVCA | 15, | 649 | L.R. Medsker, L.H. Fry, Jr., J.L. Yntema |
| 1977Mi10 | PRVCA | 16, | 1605 | R.J. Mitchell, T.V. Ragland, R.P. Scharenberg, R.E. Holland, F.J. Lynch |
| 1977Mi.A | KFK-2438 | | | M. Mirkiditsian |
| 1977Mo13 | NUPAB | 289, | 36 | S. Mordechai, M.E. Coburn, G.E. Moore, H.T. Fortune |
| 1977Mu03 | PRVCA | 15, | 1282 | D. Mueller, E. Kashy, W. Benenson |
| 1977Na05 | PRVCA | 15, | 1448 | A.M. Nathan, D.E. Alburger |
| 1977Na17 | PRVCA | 16, | 1566 | A.M. Nathan, D.E. Alburger, J.W. Olness, E.K. Warburton |
| 1977Na24 | NUIMA | 144, | 331 | H. Naylor, R.E. White |
| 1977No08 | PYLBB | 71, | 314 | J.A. Nolen, T.S. Bhatia, H. Hafner, P. Doll, C.A. Wiedner, G.J. Wagner |
| 1977Nu01 | PRVCA | 15, | 444 | L.L. Nunnelley, W.D. Loveland |
| 1977Pa01 | PRVCA | 15, | 730 | L.A. Parks, C.N. Davids, R.C. Pardo |
| 1977Pa13 | PRVCA | 15, | 1811 | R.C. Pardo, C.N. Davids, M.J. Murphy, E.B. Norman, L.A. Parks |
| 1977Pa18 | PRVCA | 16, | 370 | R.C. Pardo, C.N. Davids, M.J. Murphy, E.B. Norman, L.A. Parks |
| 1977Pa24 | NUPAB | 289, | 94 | M. Paul, A. Murinov, J. Burde, C. Drory, J. Lichtenstadt, S. Mordechai, E. Navon |
| 1977Pe17 | PRVCA | 16, | 1878 | F. Pellegrini, P. Guazzoni, D. Sinclair, E. Garman |
| 1977Pr07 | PRVCA | 16, | 1001 | S.G. Prussin, R.G. Lanier, G.L. Struble, L.G. Mann, S.M. Schoenung |
| 1977Ra08 | IJOPA | 15, | 41 | K.V. Ramaniah, G.R. Raju, K.V. Reddy |
| 1977Ra17 | JPHGB | 3, | 637 | Venkata Ramaniahah, G. Kusa Raju, K. Venkata Reddy |
| 1977Ra18 | JPHGB | 3, | 633 | Venkata Ramaniahah, K. Venkata Reddy |
| 1977Re12 | CUSCA | 46, | 95 | T.S. Reddy, R. Matthews, K.V. Reddy |
| 1977Re.A | Th.-Montreal | | | D.M. Rehfield DABBB 38,4874(1978) |
| 1977Ri04 | PRVCA | 15, | 1271 | K. Rimawi, R.E. Chrien |
| 1977Ro03 | CJPHA | 55, | 206 | D.W.O. Rogers, N. Anyas-Weiss, S.P. Dolan, N.A. Jelley, T.K. Alexander |
| 1977Sc03 | PYLBB | 66, | 133 | A.G. Schmidt, R.L. Mlekodaj, E.L. Robinson, F.T. Avignone, J. Lin, G.M. Gowdy, J.L. Wood, R.W. Fink |
| 1977Sc21 | ZPAAD | 283, | 43 | F. Schussler, J. Blachot, E. Monnard, J.A. Pinston, B. Pfeiffer, K. Hawerkamp, R. Stippler |
| 1977Sh04 | CJPHA | 55, | 506 | S.H. Sharma, K.S. Kozier, J.W. Barnard, R.C. Barber, S.S. Haque, H.E. Duckworth |
| 1977Sh06 | PRVCA | 15, | 903 | J.D. Sherman, D.L. Hendrie, M.S. Zisman |
| 1977Sh08 | PYLBB | 67, | 275 | J.D. Sherman, E.R. Flynn, O. Hansen, N. Stein, J.W. Sunier |
| 1977Sh12 | CJPHA | 55, | 1360 | K.S. Sharma, J.O. Meredith, R.C. Barber, K.S. Kozier, S.S. Hague, J.W. Barnard, F.C.G. Southon, P. Williams, H.E. Duckworth |
| 1977So02 | CJPHA | 55, | 383 | F.C.G. Southon, J.O. Meredith, R.C. Barber, H.E. Duckworth |
| 1977St10 | NUPAB | 281, | 240 | M. Stefanon, F. Corvi |
| 1977St15 | PRVCA | 16, | 574 | M.L. Stelts, J.C. Browne |
| 1977St22 | CJPHA | 55, | 1687 | O. Straume, D.G. Burke |
| 1977Tr03 | PRVCA | 15, | 2028 | R.E. Tribble, J.D. Cossairt, R.A. Kenefick |
| 1977Tr05 | PRVCA | 16, | 917 | R.E. Tribble, J.D. Cossairt, D.P. May, R.A. Kenefick |
| 1977Tr07 | PRVCA | 16, | 1835 | R.E. Tribble, J.D. Cossairt, D.P. May, R.A. Kenefick |
| 1977Tu01 | ZPAAD | 280, | 309 | T. Tuurnala, K. Katajanheimo, E. Hammaren |
| 1977Vo02 | NUPAB | 278, | 189 | H. Vonach, P. Glässel, E. Huenges, P. Maier-Komor, H. Rösler, H.J. Scheerer, H. Paul, D. Semrad |
| 1977Vy02 | IANFA | 41, | 1634 | Ts. Vylov, N.A. Golovkov, B.S. Dzelepov, R.B. Ivanov, M.A. Mikhailova, Y.V. Norseev, V.G. Shumin |
| 1977Wh01 | NUPAB | 276, | 333 | R.E. White, H. Naylor |
| 1977Wh03 | AUJPA | 30, | 365 | R.E. White, H. Naylor |
| 1977Ya07 | JUPSA | 43, | 8 | H. Yamamoto, K. Kawade, K. Ikeda, T. Katoh |
| 1977Zo02 | PRVCA | 16, | 408 | D.R. Zolnowski, T.T. Sugihara |
| | | | | 1978 |
| 1978Aj01 | PRVCA | 17, | 960 | F. Ajzenberg-Selove, E.R. Flynn, J.W. Sunier, D.L. Hanson |
| 1978Al18 | PRVCA | 18, | 462 | K. Aleklett, E. Lund, G. Rudstam |
| 1978Al29 | PRVCA | 18, | 2727 | D.E. Alburger, S. Mordechai, H.T. Fortune, R. Middleton |
| 1978An10 | NUPAB | 303, | 154 | K.A. Aniol, D.W. Gebbie, C.L. Hollas, J. Nurzinski |
| 1978An14 | PHSTB | 18, | 165 | G. Andersson, M. Ashgar, A. Emsallem, E. Hagberg, B. Jonson, P. Tidemand-Petersson |

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| 1978Ar12 | PRVCA | 18, | 1201 | D. Ardouin, C. Lebrun, F. Guilbault, B. Remand, E.R. Flynn, D.L. Hanson, S.D. Orbesen, M.N. Vergnes, G. Rotbard, K. Kumar |
| 1978As06 | ZPAAD | 288, | 45 | M. Ashgar, A. Emsallem, E. Hagberg, B. Jonson, P. Tidemand-Petersson |
| 1978Az01 | PRVCA | 17, | 443 | G. Azuelos, G.R. Rao, P. Taras |
| 1978Ba30 | IANFA | 42, | 205 | Y.A. Badenko, K.I. Derebshova, V.N. Kushmin, Y.A. Nemilov, L.M. Solin, E.D. Teterin, V.S. Romanov |
| 1978Ba44 | PRLTA | 41, | 738 | P.A. Baisden, R.E. Leber, M. Nurmia, J.M. Nitschke, M. Michel, A. Ghiorso |
| 1978Ba.C | P-Alma Ata | | 123 | S.A. Baranov, V.M. Shatinskii, L.V. Chistyakov, N.I. Aleshin |
| 1978Be09 | PRVCA | 17, | 529 | G. Berrier-Ronsin, M. Vergnes, G. Rotbard, J. Vernotte, J. Kalifa, R. Seltz, H.L. Sharma |
| 1978Be22 | ZPAAD | 285, | 405 | D. Benson, Jr., P. Kleinheinz, R.K. Sheline, E.B. Shera |
| 1978Be26 | PRVCA | 17, | 1939 | W. Benenson, E. Kashy, A.G. Ledebuhr, R.C. Pardo, R.G.H. Robertson, L.W. Robinson |
| 1978Bh02 | PYLBB | 76, | 562 | T.S. Bhatia, H. Hafner, J.A. Nolen, Jr., W. Saathoff, R. Schuhmacher, R.E. Tribble, G.J. Wagner, C.A. Wiedner |
| 1978Bo20 | NUPAB | 303, | 145 | D.D. Bogdanov, A.V. Demyanov, V.A. Karnaukhov, L.A. Petrov, J. Voboril |
| 1978Bo32 | NUPAB | 307, | 421 | D.D. Bogdanov, A.V. Demyanov, V.A. Karnaukhov, M. Nowicki, L.A. Petrov, J. Voboril, A. Plochocki |
| 1978Bo.A | P-Alma Ata | | 54 | D.D. Bogdanov, I. Bobordzil, A.V. Demianov, L.A. Petrov |
| 1978Bu18 | PRVCA | 18, | 693 | D.G. Burke, G. Løvholden, E.R. Flynn, J.W. Sunier |
| 1978Ca11 | ZPAAD | 287, | 71 | C. Cabot, S. Della Negra, C. Deprun, H. Gauvin, Y. Le Beyec |
| 1978Ch22 | MTRGA | 14, | 157 | P. Christmas, P. Cross |
| 1978Co.A | AnRpt Texas AM | | | J.D. Cossairt, D.P. May |
| 1978Cr02 | IANFA | 42, | 56 | T. Cretzu, V.V. Kuznetsov, G. Luzurej, V.M. Gorodzankin, G. Macarie |
| 1978Cr03 | ZPAAD | 287, | 45 | J. Crançon, C. Ristori, H. Ohm, W. Rudolph, K.-L. Kratz, M. Asghar |
| 1978Da04 | PRVCA | 17, | 1815 | C.N. Davids, D.F. Geesaman, S.L. Tabor, M.J. Murphy, E.B. Norman, R.C. Pardo |
| 1978Da07 | NUPAB | 301, | 397 | J.M. D'Auria, J.W. Grüter, E. Hagberg, P.G. Hansen, J.C. Hardy, P. Hornshøj, B. Jonson, S. Mattsson, H.L. Ravn, P. Tidemand-Petersson |
| 1978De18 | NUPAB | 302, | 186 | P. Decowski, W. Benenson, B.A. Brown, A.A. Rollefson |
| 1978De.A | AnRpt Berkeley | | | R.J. De Meyer, D.P. Stahel, A.N. Bice, R. Jahn, J. Cerny |
| 1978Di09 | YAFIA | 28, | 273 | R.A. Demirkhanov, V.V. Dorokhov, M.I. Dzkuya, G.A. Dorokhova, see also report SFTII Suchumi |
| 1978Do06 | ZPAAD | 286, | 107 | P.H. Do, R. Chery, H.G. Börner, W.F. Davidson, J.A. Pinston, R. Rousille, K. Schreckenbach, H.R. Koch, H. Seyfarth, D. Heck |
| 1978Du06 | ZPAAD | 287, | 165 | F. Dubbers, L. Funke, P. Kemnitz, G. Winter, S. Elfstrom, T. Lindblad, C.G. Linden |
| 1978Ek02 | PHSTB | 18, | 51 | C. Ekstrom, S. Ingelman, G. Wannberg, M. Skarestad |
| 1978El11 | PRVCA | 18, | 2713 | Y.A. Ellis, K.S. Toth, H.K. Carter |
| 1978Fi02 | PRVCA | 17, | 718 | R.B. Firestone, R.A. Warner, W.C. McHarris, W.H. Kelly |
| 1978Ga07 | YAFIA | 27, | 894 | Yu. P. Gangrskii, G.M. Marinescu, M.B. Miller, V.N. Samosyuk, I.F. Kharisov |
| 1978Ge01 | NUPAB | 295, | 221 | C.P. Gerner, J. Van Pelt, O.W. De Ridder, J. Blok |
| 1978Go15 | NUPAB | 312, | 56 | G.M. Gowdy, J.L. Wood, R.C. Fink |
| 1978Gr10 | NUPAB | 303, | 265 | H.C. Griffin, I. Ahmad, A.M. Friedman, L.E. Glendenin |
| 1978Gr13 | YAFIA | 27, | 1421 | I.I. Gromova, T. Krets, V.V. Kuznetsov, G.I. Lizurei, N.A. Lebedev, V.M. Gorozhankin, G. Macarie |
| 1978Gu14 | ZPAAD | 287, | 271 | H.H. Guven, B. Kardon, H. Seyfarth |
| 1978Ha07 | PYLBB | 73, | 127 | O. Hausser, T.K. Alexander, T. Faestermann, D. Horn, D. Ward, H.R. Andrews, I.S. Towner |
| 1978Ha11 | NUPAB | 296, | 251 | S.I. Hayakama, I.R. Hyman, J.K.P. Lee |
| 1978Ha14 | PRVCA | 17, | 1414 | J.E. Halverson, W.H. Johnson, Jr. |
| 1978Ha52 | HYIND | 4, | 196 | O. Häusser, T. Faestermann, I.S. Towner, T.K. Alexander, H.R. Andrews, J.R. Beene, D. Horn, D. Ward, C. Broude |
| 1978Hi06 | NUPAB | 308, | 61 | F. Hintenberger, R. Schonhagen, P. von Rossesn, B. Schuller, F.E. Blumenberg, P.D. Eversheim, R. Gorgen |
| 1978Hu06 | CJPHA | 56, | 936 | H. Huang, B.P. Pathek, J.K.P. Lee |
| 1978Ik02 | PYLBB | 74, | 326 | H. Ikegami, T. Yamazaki, S. Morinobu, I. Katayama, M. Fujiwara, Y. Fujita, N. Koori |
| 1978Ik03 | JUPSA | 45, | 725 | Y. Ikeda, H. Yamamoto, K. Kawade, T. Katoh, K. Nagahara |

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| 1978Ja06 | JPHGB | 4, | 579 | A.N. James, J.F. Sharpey-Schafer, A.M. Al Naser, A.H. Behbehani, C.J. Lister, P.J. Nolan, P.H. Barker, W.E. Burcham |
| 1978Ka10 | JUPSA | 44, | 25 | M. Kanazawa, S. Ohya, T. Tamura, Z. Ishibashi, N. Mutsuro |
| 1978Ka12 | PRVCA | 17, | 1555 | R. Kamermans, J. Van Driel, H.P. Blok, P.J. Blankhorst |
| 1978Ke06 | PRVCA | 17, | 1929 | G.J. KeKelis, M.S. Zisman, D.K. Scott, R. Jahn, D.J. Vieira, J. Cerny, F. Ajzenberg-Selove |
| 1978Ke10 | PRVCA | 18, | 1938 | B.D. Kern, F. Gabbard, R.G. Kruzek, M.R. McPherson, K.K. Sekharan, F.D. Snyder |
| 1978Ko24 | NUPAB | 307, | 71 | R.T. Kouzes, D. Mueller |
| 1978Ko27 | NUPAB | 309, | 329 | R.T. Kouzes, P. Kutt, D. Mueller, R. Sherr |
| 1978Ko28 | PRVCA | 18, | 1587 | R.T. Kouzes, D. Mueller, C. Yu |
| 1978Ko29 | ZPAAD | 288, | 319 | E. Koglin, G. Jung, G. Siegert, R. Decker, K.D. Wunsch, H. Wollnik |
| 1978Le.A | Table of Isotopes | | | C.M. Lederer, V.S. Shirley, E. Browne, J.M. Dairiki, R.E. Doebler, A.A. Shihab-Eldin, L.J. Jardine, J.K. Tuli, A.B. Buyrn |
| 1978Lo07 | NUPAB | 302, | 51 | G. Løvghøiden, O. Straume, D.G. Burke |
| 1978Lo13 | JINCA | 40, | 1865 | R.W. Loughheed, J.F. Wild, E.K. Hulet, R.W. Hoff, J.H. Landrum |
| 1978Ma18 | JUPSA | 44, | 1070 | Z. Matumoto, T. Tamura |
| 1978Ma23 | NUPAB | 301, | 213 | J.W. Maas, E. Somorjai, H.D. Graber, C.A. Vandenwijngaard, C. Van der Leun, P.M. Endt |
| 1978Ma24 | NUPAB | 301, | 237 | J.W. Maas, A.J.C. Holvast, A. Baghus, H.J.M. Aarts, P.M. Endt |
| 1978Mo12 | NUPAB | 305, | 29 | L.A. Montestaque, M.C. Cobian Rozak, G. Szaloky, J.D. Zumbro, S.E. Darden |
| 1978Mu05 | PRVCA | 17, | 1574 | M.J. Murphy, C.N. Davids, E.B. Norman, R.C. Pardo |
| 1978Na02 | PRVCA | 17, | 830 | F. Naulin, C. Détraz, M. Bernas, E. Kashy, M. Langevin, F. Pougheon, P. Roussel |
| 1978Na11 | PRVCA | 18, | 1619 | H. Nann, A. Saha, S. Raman |
| 1978No03 | PRVCA | 17, | 2176 | E.B. Norman, C.N. Davids, M.J. Murphy, R.C. Pardo |
| 1978No05 | PRVCA | 18, | 102 | E.B. Norman, C.N. Davids |
| 1978Pa11 | PRVCA | 18, | 1249 | R.C. Pardo, E. Kashy, W. Benenson, L.W. Robinson |
| 1978Pa12 | PRVCA | 18, | 1277 | I. Paschopoulos, E. Müller, H.J. Körner, I.C. Oelrich, K.E. Rehm, H.J. Scheerer |
| 1978Pe08 | NUPAB | 302, | 1 | J.G. Pengra, H. Genz, R.W. Fink |
| 1978Pf01 | PRLTA | 41, | 63 | L.P. Pfeiffer, A.P. Mills, Jr., R.S. Raghavan, F. Achandros |
| 1978Ra15 | PRVCA | 18, | 1085 | G.R. Rao, G. Azuelos, J.C. Kim, J.P. Martin, P. Taras |
| 1978Ra16 | PRVCA | 18, | 1158 | S. Raman, R.F. Carlton, G.G. Slaughter, M.R. Meder |
| 1978Re01 | ZPAAD | 284, | 403 | T.S. Reddy, R. Matthews, K.V. Reddy |
| 1978Ro01 | PRVCA | 17, | 4 | R.G. HRobertson, E. Kashy, W. Benenson, A. Ledebuhr |
| 1978Ro03 | ZPAAD | 284, | 407 | A. Robertson, T.J. Kennett, W.V. Prestwich |
| 1978Ro08 | PRVCA | 17, | 1535 | R.G.H. Robertson, T.L. Khoo, G.M. Crawley, A.B. McDonald, E.G. Adelberger, S.J. Freedman |
| 1978Ro14 | PRVCA | 18, | 86 | G. Rotbard, L. Larana, M. Vergnes, G. Berrier, J. Kalifa, F. Guilbault, R. Tamisier |
| 1978Ro19 | PYLBB | 78, | 393 | E. Roeckl, R. Kirchner, O. Klepper, G. Nyman, W. Reisdorf, D. Schardt, K. Wien, R. Fass, S. Mattsson |
| 1978Sc26 | ZPAAD | 288, | 189 | U.J. Schrewe, W.D. Schmidt-Ott, R.-D. von Dincklage, E. Georg, P. Lemmertz, H. Jungclas, D. Hirdes |
| 1978Se04 | PRVCA | 17, | 1919 | R.R. Sercely, R.J. Peterson, E.R. Flynn |
| 1978Se07 | PRLTA | 41, | 1589 | K. Seth, H. Nann, S. Iversen, M. Kaletka |
| 1978Sh11 | NUPAB | 304, | 40 | S. Shastri, R.A. Emigh, R.J. Peterson, R.E. Anderson |
| 1978St02 | ZPAAD | 284, | 95 | R. Stippler, F. Münnich, H. Schrader, J.P. Bocquet, M. Asghar, G. Siegert, R. Decker, B. Pfeiffer, H. Wollnik, E. Monnand, F. Schussler |
| 1978St25 | NUIMA | 155, | 253 | H.L. Stelts, R.E. Chrien |
| 1978Su03 | ZPAAD | 287, | 287 | K. Sümmerner, N. Kaffrell, H. Otto, P. Peuser, N. Trautmann |
| 1978Sz04 | PRVCA | 17, | 2253 | A. Szanto De Toledo, H.V. Klapdor, H. Hafner, W. Saathoff, E.M. Szanto, M. Schrader |
| 1978Sz09 | JPHGB | 4, | L187 | A. Szanto De Toledo, H.V. Klapdor, H. Hafner, W. Saathoff, E.M. Szanto, M. Schrader, H. Dias |
| 1978Ta10 | PRVCA | 18, | 1064 | R.W. Tarara, J.P. Zumbro, C.P. Browne |
| 1978Tu04 | PHSTB | 18, | 31 | T. Tuurnala, R. Katajanheimo, O. Heinonen |
| 1978Va04 | NUPAB | 295, | 211 | J. Van Pelt, C.P. Gerner, O.W. De Ridder, J. Blok |
| 1978Ve10 | JPSLB | 39, | 291 | L. Vergnes, G. Rotbard, J. Kalifa, G. Berrier, J. Vernotte, Y. Deschamps, R. Selz |
| 1978We12 | PHSTB | 18, | 275 | T. Weckstrom |

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| 1978We14 | NUPAB | 308, | 222 | D.C. Weissner, A.F. Zeller, T.R. Ophel, D.F. Hebbard |
| 1978Wi04 | PRVCA | 18, | 401 | D.H. Wilkinson, A. Gallmann, D.E. Alburger |
| 1978Wo01 | PRVCA | 17, | 66 | C. Woods |
| 1978Wo15 | PRVCA | 18, | 2328 | F.K. Wohn, W.L. Talbert, Jr. |
| 1978Ya07 | PRVCA | 17, | 2061 | Y. Yamazaki, R.K. Sheline, E.B. Shera corr PRVCA 18,2450 |
| 1978Ze04 | PRVCA | 18, | 2122 | B. Zeidman, J.A. Nolen, Jr. |
| 1978Zg.A | PrvCom | AHW | Sep | E.F. Zganjar, W.R. Kane, G.J. Smith, J.A. Cizewski |
| 1979 | | | | |
| 1979Ad08 | IANFA | 43, | 1089 | I.A. Adam, A.V. Budzyak, M. Gonusek, V.M. Gorodzhankin, B.S. Dzelepov, V.G. Kalinnikov, A.V. Kudryavtseva, V.V. Kuznetsov, V.I. Stegaylov, A. Shshalek |
| 1979Ah03 | PRVCA | 20, | 290 | I. Ahmad, S.W. Yates, R.K. Sjoblom, A.M. Friedman |
| 1979Aj02 | PRVCA | 19, | 1742 | F. Ajzenberg-Selove, E.R. Flynn, D.L. Hanson, S. Orbesen |
| 1979Aj03 | PRVCA | 19, | 2068 | F. Ajzenberg-Selove, E.R. Flynn, D.L. Hansen, S. Orbesen |
| 1979Al04 | JPHGB | 5, | 423 | A.M. Al Naser, A.H. Behbehani, P.A. Butler, L.L. Green, A.N. James, C.J. Lister, P.J. Nolan, N.R.F. Ramsmo, J.F. Sharpey-Schafer, H.M. Sheppard, L.H. Zyber, R. Zyber |
| 1979Al05 | ZPAAD | 290, | 173 | K. Aleklett, E. Lund, G. Rudstam |
| 1979Al07 | NUPAB | 321, | 45 | W.P. Alford, R.E. Anderson, P.A. Batay-Csorba, R.A. Emigh, D.A. Lind, P.A. Smith, C.D. Zafiratos |
| 1979Al16 | ZPAAD | 291, | 397 | G.D. Alkhazov, L.K. Batist, E.Y. Berlovich, Y.S. Blinnikov, Y.V. Yelkin, K.A. Mezilev, Y.N. Novikov, V.N. Pantelejev, A.G. Poljakov, N.D. Schigolev, V.N. Tatasov, V.P. Afanasjev, K.Y. Gromov, M. Jachim, M. Janicki, V.G. Kalinnikov, J. Kormicki, A. Potempa, E. Rurarz, F. Tarkanyi, Y.V. Yushkievich |
| 1979Al19 | NUPAB | 330, | 77 | W.P. Alford, R.E. Anderson, P.A. Batay-Csorba, R.A. Emigh, D.A. Lind, P.A. Smith, C.D. Zafiratos |
| 1979An36 | IANFA | 43, | 1076 | N.M. Antoneva, V.M. Vinogradov, E.P. Grigorev, P.P. Dimitrev, A.V. Zolotavin, G.S. Katichin, N.N. Krasnov, V.M. Makarov |
| 1979Ay01 | PYLBB | 82, | 43 | J. Äystö, D.M. Moltz, M.D. Cable, R.D. Von Dincklage, R.F. Parry, J.M. Wouters, J. Cerny |
| 1979Ba06 | ZPAAD | 289, | 325 | J.N. Barkman, J.E. McFee, T.J. Kennett, W.V. Prestwich |
| 1979Ba31 | NUPAB | 325, | 305 | G.C. Ball, W.G. Davies, J.S. Forster, H.R. Andrews, D. Horn, W. McLatchie |
| 1979Ba67 | AENGA | 47, | 404 | S.A. Baranov, V.M. Shatinskii, L.V. Chistyakov |
| 1979Be.A | P-Brookhaven | | 561 | Z. Berant, Y. Birenbaum, R. Moreh, see NUIMA 166(1979)81, and PrvCom AHW February 1980 |
| 1979Bo37 | ZENAA | 34, | 1536 | T. Borello-Lewin, O. Dietsch |
| 1979Br05 | ZPAAD | 289, | 289 | P. Brodeur, B.P. Pathek, S.K. Mark |
| 1979Br19 | PRVCA | 20, | 1301 | R.E. Brown, J.A. Cizewski, E.R. Flynn, J.W. Sunier |
| 1979Br25 | NUIMA | 166, | 243 | F. Braumandl, K. Schreckenbach, T. von Egidy |
| 1979Br26 | ZPAAD | 292, | 397 | F. Braumandl, T. von Egidy, D.D. Warner |
| 1979Br.A | Th.-McMaster | | | P.M. Brewste |
| 1979Br.B | AnRpt NotrDame | | | C.P. Browne, et al |
| 1979Bu05 | NUPAB | 318, | 77 | D.G. Burke, G. Løvholden, E.R. Flynn, J.W. Sunier |
| 1979Ca02 | NUPAB | 316, | 61 | R.F. Casten, M.R. MacPhail, W.R. Kane, D. Breitig, K. Schreckenbach, J.A. Cizewski |
| 1979Da04 | PRVCA | 19, | 1463 | C.N. Davids, C.A. Gagliardi, M.J. Murphy, E.B. Norman |
| 1979Da.A | P-Lansing | | 419 | C.N. Davids |
| 1979De44 | NUPAB | 332, | 382 | K.R.S. Devan, C.E. Brient |
| 1979Do09 | PRVCA | 20, | 1112 | R.E. Doebler, W.M. McHarris, W.H. Kelly |
| 1979Du02 | NUPAB | 315, | 317 | F. Dubbers, L. Funke, P. Kemnitz, K.D. Schilling, H. Strusny, E. Will, G. Winter, M.K. Balodis |
| 1979El11 | ZPAAD | 293, | 261 | K. Elix, H.W. Becker, L. Buchmann, J. Görres, K.U. Kettner, M. Wiescher, C. Rolfs |
| 1979Fi07 | PYLBB | 89, | 36 | R.B. Firestone, R.C. Pardo, W.C. McHarris |
| 1979Fi02 | PRVCA | 19, | 355 | E.R. Flynn, D.L. Hansen, R.A. Hardekopf |
| 1979Fo09 | NUPAB | 321, | 137 | S. Fortier, S. Galès |
| 1979Fo10 | NUPAB | 323, | 205 | B. Fogelberg, P. Carlé |

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| 1979Ge02 | PRVCA | 19, | 1938 | D.F. Geesaman, R.L. McGrath, J.W. Noé, R.E. Malmin |
| 1979Ha09 | ZPAAD | 290, | 113 | H.H. Hansen, E. Cellen, G. Grosse, D. Mouchel, A. Larsen, R. Vaninbrouckx |
| 1979Ha10 | NUPAB | 318, | 29 | E. Hagberg, P.G. Hansen, P. Hornshøj, B. Jonson, S. Mattsson, P. Tidemand-Petersson, ISOLDE |
| 1979Ha26 | PRVCA | 19, | 2332 | P.E. Hausteine, H.-C. Hseuh, R.L. Klobuchar, E.M. Franz, S. Katcoff, L.K. Peker |
| 1979Ha32 | PRVCA | 20, | 345 | J.E. Halvarson, W.H. Johnson, Jr. |
| 1979Ho10 | ZPAAD | 291, | 53 | S. Hofmann, W. Faust, G. Münzenberg, W. Reisdorf, P. Armbruster, K. Güttner, H. Ewald |
| 1979Ho27 | NUPAB | 330, | 429 | J. Honkanen, M. Kortelahti, K. Valli, K. Eskola, A. Hautojärvi, K. Vierinen |
| 1979Ik04 | NUPAB | 329, | 84 | H. Ikegami, T. Yamazaki, S. Morinobu, I. Katayama, M. Fujiwara, Y. Fujita, H. Taketani, M. Adachi, T. Matsuzaki, N. Koori, M. Matoba |
| 1979Ik06 | JUPSA | 47, | 1039 | Y. Ikeda, H. Yamamoto, K. Kawade, T. Takeuchi, T. Katoh, T. Nagahara |
| 1979Ik07 | JUPSA | 47, | 1389 | Y. Ikeda, H. Yamamoto, K. Kawade, T. Katoh, T. Nagahara |
| 1979Io01 | NUPAB | 313, | 283 | V.A. Ionescu, J. Kern, R.F. Casten, W.R. Kane, I. Ahmad, J. Erskine, A.M. Friedman, K. Katori |
| 1979Ja21 | NUPAB | 325, | 337 | J. Jänecke, F.D. Becchetti, C.E. Thorn |
| 1979Ka.A | P-Lansing | | 39 | E. Kashy, W. Benenson, J.A. Nolen, Jr., R.G.H. Robertson |
| 1979Ka.B | PrvCom | NDG | Sep | N. Kaffrell |
| 1979Ke02 | ZPAAD | 289, | 407 | U. Keyser, H. Berg, F. Münnich, K. Hawerkamp, H. Schrader, B. Pfeiffer, E. Monnard |
| 1979Ke.D | P-Brookhaven | | 646 | M.J. Kenny, M.L. Stelts, R.E. Chrien |
| 1979Ko10 | CJPHA | 57, | 266 | K.S. Kozier, K.S. Sharma, R.C. Barber, J.W. Barnard, R.J. Ellis, V.P. Derenchuk |
| 1979Ko.B | P-Lansing | | 45 | R.T. Kouzes, R. Sherr |
| 1979Lu01 | NUPAB | 313, | 191 | J. Lukasiak, R. Kaczarowski, J. Jastrzebski, S. André, J. Treherne |
| 1979Me13 | NUPAB | 324, | 335 | T.C. Meyer |
| 1979Mo02 | PRLTA | 42, | 43 | D.M. Moltz, J. Äystö, M.D. Cable, R.D. von Dincklage, R.F. Parry, J.M. Wouters, J. Cerny |
| 1979Pa14 | NUPAB | 331, | 16 | V. Paar |
| 1979Pe17 | NUPAB | 332, | 95 | P. Peuser, H. Otto, N. Kaffrell, G. Nyman, E. Roeckl |
| 1979Pi08 | NUPAB | 321, | 25 | J.A. Pinston, W. Mampe, R. Rousille, K. Schreckenbach, D. Heck, H.G. Börner, H.R. Koch, S. Andre, D. Barnéoud |
| 1979PI06 | NUPAB | 332, | 29 | A. Plochocki, G.M. Gowdy, R. Kirchner, O. Klepper, W. Reisdorf, E. Roeckl, P. Tidemand-Petersson, J. Żylicz, U.J. Schrewe, R. Kantus, R.-D. von Dincklage, W.D. Schmidt-Ott |
| 1979Pr15 | ZENAA | 34, | 387 | H.-J. Probst, C. Alderliesten, P. Jahn |
| 1979Ry.A | P-Lansing | | 249 | A. Rytz |
| 1979Sa.A | AnRpt KVI | | | A. Saha, R.H. Siemsen, J.W. Smits, J. Van Popta, and PrvCom AHW |
| 1979Sc09 | NUPAB | 318, | 253 | K.-H. Schmidt, W. Faust, G. Münzenberg, H.-G. Clerc, W. Lang, K. Pielenz, D. Vermeulen, H. Wohlfarth, H. Ewald, K. Güttner |
| 1979Sc11 | ZPAAD | 290, | 359 | F. Schussler, J. Blachot, E. Monnard, B. Fogelberg, S.H. Feenstra, J. van Klinken, G. Jung, K.D. Wünsch |
| 1979Sc22 | NUPAB | 326, | 65 | D. Schardt, R. Kirchner, O. Klepper, W. Reisdorf, E. Roeckl, P. Tidemand-Petersson, G.T. Ewan, E. Hagberg, B. Jonson, S. Mattsson, G. Nyman |
| 1979Sc.A | NDSBA | 26, | 81 | M.R. Schmorak |
| 1979Sw01 | NUIMA | 159, | 407 | Z.E. Switkowski, R.J. Petty, J.C.P. Heggie, G.J. Clark |
| 1979Ta22 | JUPSA | 47, | 1735 | Y. Tagishi, K. Katori, Y. Toba, M. Sasagase, M. Sato, T. Mikumo |
| 1979Ta.B | BAPSA | 24, | 836 | R.W. Tarara, J.D. Zumbro, C.P. Browne |
| 1979To06 | PRVCA | 19, | 2399 | K.S. Toth, M.A. Ijaz, C.R. Bingham, L.L. Riedinger, H.K. Carter, D.C. Sousa |
| 1979To18 | PRVCA | 20, | 1902 | K.S. Toth, Y.A. Ellis, D.C. Sousa, H.K. Carter, D. Sen, E.F. Zganjar |
| 1979Ve.A | P-Lansing | | 431 | J. Verplancke, D. Vandeplasseche, M. Huyse, K. Cornelis, G. Lhersonneau |
| 1979Vi01 | PRVCA | 19, | 177 | D.J. Vieira, R.A. Gough, J. Cerny |
| 1979Vo05 | PRVCA | 20, | 944 | T. von Egidy, J.A. Cizewski, C.M. McCullagh, S.S. Malik, M.L. Stelts, R.E. Chrien, D. Breitig, R.F. Casten, W.R. Kane, G.J. Smith |
| 1979Wa04 | NUPAB | 316, | 13 | D.D. Warner, W.F. Davidson, H.G. Börner, R.F. Casten, A.I. Namenson |
| 1979Wa22 | JPHGB | 5, | 1723 | D.D. Warner, W.F. Davidson, W. Gelletly |
| 1979We02 | NUPAB | 313, | 385 | D. Weber, G.M. Crawley, W. Benenson, E. Kashy, H. Nann |
| 1979We07 | PRVCA | 20, | 115 | H. Weigmann, S. Raman, J.A. Harvey, R.L. Macklin, G.G. Slaughter |

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|----------|-------------|------|------|--|
| 1980Ad04 | ZPAAD | 295, | 251 | M. Adachi, A. Muroi, T. Matsuzaki, H. Taketani |
| 1980Al02 | PRVCA | 21, | 705 | D.E. Alburger, P. Richards, T.H. Ku |
| 1980Al14 | ZPAAD | 295, | 305 | G.D. Alkhazov, E.Y. Berlovich, K.A. Mezilev, Y.N. Novikov, V.N. Pantelejev, A.G. Poljakov, K.Y. Gromov, V.G. Kalinnikov, J. Kormicki, A. Potempa, E. Rurarz, F. Tarkanyi |
| 1980Al15 | ZPAAD | 295, | 331 | K. Aleklett, P. Hoff, E. Lund, G. Rudstam |
| 1980An.A | P-Berkeley | | 134 | M.S. Antony, A. Huck, G. Klotz, A. Knipper, C. Miehe, G. Walter |
| 1980Ba.A | Th.-Utrecht | | | J.R. Balder |
| 1980Bl.A | Th.-Giessen | | | A. Blönnigen Diplomarbeit |
| 1980Br23 | NUPAB | 349, | 61 | R.A. Braga, W.R. Western, J.L. Wood, R.W. Fink, R. Stone, C.R. Bingham, L.L. Riedinger |
| 1980Bu04 | IANFA | 44, | 79 | A.V. Budzyak, T. Kretsu, V.V. Kuznetsov, N.A. Lebedev, G.I. Lizurei, Y.V. Yushkvich, M. Yanitski |
| 1980Bu15 | PRVCA | 22, | 1180 | G.R. Burleson, G.S. Blanpied, G.H. Daw, A.J. Viescas, C.L. Morris, H.A. Thiessen, S.J. Greene, W.J. Braithwaite, W.B. Cottingham, D.B. Holtkamp, I.B. Moore, C.F. Moore |
| 1980Ca02 | PRVCA | 21, | 65 | R.F. Casten, G.J. Smith, M.R. MacPhail, D. Breitig, W.R. Kane, M.L. Stelts, S.F. Mughabghab, J.A. Cizewski, H.G. Börner, W.F. Davidson, K. Schreckenbach |
| 1980De02 | ZPAAD | 294, | 35 | R. Decker, K.D. Wunsch, H. Wollnik, E. Koglin, G. Siegert, G. Jung |
| 1980De35 | PRVCA | 22, | 2163 | E. De Geer, G.B. Holm |
| 1980Di07 | PRVCA | 21, | 2101 | A.C. Di Rienzo, H.A. Enge, D.B. Gazes, M.K. Salomaa, A. Sperduto, W. Schier, H.E. Wegner |
| 1980Du02 | ZPAAD | 294, | 107 | J.P. Dufour, A. Fleury, F. Hubert, Y. Llabador, M.B. Mahourat, R. Bimbert, D. Gardes |
| 1980Ew03 | ZPAAD | 296, | 223 | G.T. Ewan, E. Hagberg, B. Jonson, S. Mattsson, P. Tidemand-Petersson |
| 1980Ga07 | YAFIA | 31, | 306 | Yu. P. Gangrskii, M.B. Miller, L.V. Mikhailov, I.F. Kharisov |
| 1980Gi04 | PRVCA | 21, | 2041 | J. Gilat, S. Katcoff, L.K. Peker |
| 1980Go11 | NUPAB | 344, | 1 | H. Gokturk, N.K. Aras, P. Fettweis, P. Del Marmol, J. Vanhorenbeek, K. Cornelis |
| 1980Gr02 | PRVCA | 21, | 498 | R.C. Greenwood, R.E. Chrien |
| 1980Gr12 | NUIMA | 175, | 515 | R.C. Greenwood, R.E. Chrien |
| 1980Gr.A | DABBB | 40, | 3235 | S.A. Gronemeyer in Diss. Abst. Int. 40B, 3235 (1980) |
| 1980Ha20 | PRVCA | 22, | 247 | H.I. Hayakawa, I. Hyman, J.K.P. Lee |
| 1980Ha36 | PHSTB | 22, | 439 | R. Hanninen, G.U. Din |
| 1980Ho17 | IJARA | 31, | 153 | H. Houtermans, O. Milosevic, F. Reichel |
| 1980Ho29 | CZYPA | 30, | 763 | J. Hinzatko, K. Konesny, F. Becvar, E.A. Eissa |
| 1980Is02 | CJPHA | 58, | 168 | M.A. Islam, T.J. Kennett, S.A. Kerr, W.V. Prestwich |
| 1980Ja.A | AnRpt KVI | | 31 | J. Jänecke, E.H.L. Aarts, A.G. Drentje, C. Gaarde, M.H. Harakeh |
| 1980Ka19 | PRVCA | 22, | 997 | J. Kalifa, G. Berrier-Ronsin, M. Vergnes, G. Rotbard, J. Vernotte, Y. Deschamps, R. Seltz |
| 1980Ko01 | NUPAB | 334, | 35 | J. Kopecky, R.E. Chrien, H. Liou |
| 1980Ko25 | CJPHA | 58, | 1311 | K.S. Kozier, K.S. Sharma, R.C. Barber, J.W. Barnard, R.J. Ellis, V.P. Derenchuk, H.E. Duckworth |
| 1980Kr07 | ZPAAD | 295, | 199 | K.L. Kratz, H. Ohm |
| 1980Kr.A | P-Berkeley | | 135 | L. Krauss, I. Linck, A. Poves, J.C. Sens |
| 1980Le18 | PRVCA | 22, | 1976 | A.G. Ledebuhr, L.H. Harwood, R.G.H. Robertson, T.J. Bowles |
| 1980Li07 | NUPAB | 337, | 401 | H.I. Liou, R.E. Chrien, J. Kopecky, J.A. Konter |
| 1980Lo10 | PHSTB | 22, | 203 | G. Løvholden, D.G. Burke, E.R. Flynn, J.W. Sunier |
| 1980Lu04 | ZPAAD | 294, | 233 | E. Lund, P. Hoff, K. Aleklett, O. Glomset, G. Rudstam |
| 1980Ma40 | PRVCA | 22, | 2449 | W. Mayer, K.E. Rehm, H.J. Körner, W. Mayer, E. Müller, I. Oelrich, H.J. Scheerer, R.E. Segel, P. Sperr, W. Wagner |
| 1980Mu10 | NUPAB | 344, | 89 | M. Muller-Veggian, H. Beuscher, D.R. Haenni, R.M. Lieder, A. Neskakis, C. Mayer-Boricke |
| 1980Mu12 | PRVCA | 22, | 2204 | M.J. Murphy, C.N. Davids, E.B. Norman |
| 1980Na12 | PYLBB | 96, | 261 | H. Nann, K.K. Seth, S.G. Iversen, M.O. Kaletka, D.B. Barlow, D. Smith |
| 1980Na14 | JPSLB | 41, | 79 | F. Naulin, C. Détraz, M. Bernas, D. Guillemaud, E. Kashy, M. Langevin, F. Pougheon, P. Roussel, M. Roy-Stephan |
| 1980Ox01 | ZPAAD | 294, | 389 | K. Oxorn, B. Singh, S.K. Mark |

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| 1980Pa02 | PRVCA | 21, | 462 | R.C. Pardo, L.W. Robinson, W. Benenson, E. Kashy, R.M. Ronnigen |
| 1980Pa07 | PYLBB | 91, | 41 | R.C. Pardo, S. Gales, R.M. Ronningen, L.H. Harwood |
| 1980Ro04 | ZPAAD | 294, | 221 | E. Roeckl, G.M. Gowdy, R. Kirchner, O. Klepper, A. Piotrowski, A. Płochocki, W. Reisdorf, P. Tidemand-Petersson, J. Żylicz, D. Schardt, G. Nyman, W. Lindenzweig |
| 1980Sa11 | JPHGB | 6, | 525 | J. Sala-Lizarraga, J. Byrne |
| 1980Sc09 | PYLBB | 91, | 46 | U.J. Schrewe, P. Tidemand-Petersson, G.M. Gowdy, R. Kirchner, O. Klepper, A. Płochocki, W. Reisdorf, E. Roeckl, J.L. Wood, J. Żylicz, R. Fass, D. Schardt |
| 1980Sh06 | PYLBB | 91, | 211 | K.S. Sharma, R.J. Ellis, V.P. Derenchuk, R.C. Barber, H.E. Duckworth |
| 1980Sh14 | CJPHA | 58, | 837 | M.A.M. Shababuddin, D.G. Burke |
| 1980St10 | ZPAAD | 295, | 259 | O. Straume, G. Løvholden, D.G. Burke |
| 1980Ta07 | PRVCA | 21, | 1667 | E.M. Takagui, O. Dietzsch |
| 1980Tr04 | PRVCA | 22, | 17 | R.E. Tribble, D.M. Tanner, A.F. Zeller |
| 1980Ve01 | ZPAAD | 294, | 144 | D. Vermeulen, H.-G. Clerc, W. Lang, K.H. Schmidt, G. Münzenberg |
| 1980Ve05 | NUPAB | 344, | 421 | R. Vennink, J. Kopecky, P.M. Endt, P.W.W. Glaudemans |
| 1980Vi.A | PrvCom | AHW | | V.D. Vitman, F.V. Moroz, Yu. Ya. Sergeev, V.K. Tarasov |
| 1980Vy01 | IANFA | 44, | 67 | Ts. Vylov, S. Omanov, V. Csaleksandrov, N.B. Badalov, A. Budzyak, V.V. Kuznetsov, A.I. Muminov, Han Ken Mo |
| 1980Wa24 | PRVCA | 22, | 2330 | E.K. Warburton, D.E. Alburger, D.J. Millener |
| 1980Ya07 | JINCA | 42, | 1539 | H. Yamamoto, Y. Ikeda, K. Kawade, T. Katoh, T. Nagahara |
| 1980Ya.A | AnRpt Berkeley | | | S. Yashita, M. Leino, A. Ghiorso |
| 1981 | | | | |
| 1981Ad02 | NUPAB | 356, | 129 | I. Adam, M. Honusek, Z. Hons, V.V. Kuznetsov, T.M. Muminov, R.R. Usmanov, A. Budzyak |
| 1981Aj02 | PRVCA | 24, | 1762 | F. Ajzenberg-Selove, R.E. Brown, E.R. Flynn, J.W. Sunier |
| 1981Al03 | PRVCA | 23, | 473 | D.E. Alburger, D.J. Millener, D.H. Wilkinson |
| 1981Al07 | PRVCA | 23, | 2217 | D.E. Alburger, C.J. Lister, J.W. Olness, D.J. Millener |
| 1981Al20 | ZPAAD | 302, | 241 | K. Aleklett, P. Hoff, E. Lund, G. Rudstam |
| 1981Ar13 | PYLBB | 104, | 186 | Y. Arai, M. Fujioka, E. Tanaka, J. Shinozuka, H. Miyatake, M. Yoshii, T. Ishimatsu, see also NUPAB 420(84)193 |
| 1981Ar.A | JINR-P6-81-524 | | | K.P. Artamonova, A. Budzyak, E.P. Grigorev, A. Dzumamuratov, A.V. Zolotavin, A.I. Ivanov, V.G. Kalinnikov, V.V. Kuznetsov, V.O. Sergeev, R. Usmanov |
| 1981Ay01 | PRVCA | 23, | 879 | J. Äystö, M.D. Cable, R.F. Parry, J.M. Wouters, D.M. Moltz, J. Cerny |
| 1981Ba40 | ZPAAD | 302, | 329 | G.K. Bavaria, J.E. Crawford, S. Calamawy, J.E. Kitching |
| 1981Ba53 | IANFA | 45, | 727 | I.F. Barchuck, V.I. Goyshkin, E.N. Gorban, A.F. Ogorodnik |
| 1981Be03 | PRVCA | 23, | 555 | C.E. Bemis, Jr., P.F. Dittner, R.L. Ferguson, D.C. Hensley, F. Plasil, F. Pleasonton |
| 1981Be40 | PRVCA | 24, | 756 | M. Bernas, J.C. Peng, H. Doubre, M. Langevin, M.J. Le Vine, F. Pougheon, P. Roussel |
| 1981Bo30 | ZPAAD | 302, | 121 | J. Bonn, P. Hartmann, D. Weskott |
| 1981Bo.B | AnRpt Julich | | 76 | M. Bogdanovic, T.D. MacMahon, H. Seyfarth |
| 1981Bu.A | P-Samarkand | | 621 | M. Budzinski, K. Ya. Gromov, V.V. Kuznetsov, T.M. Muminov, P.R. Usmanov, T. Chazratov |
| 1981Ci01 | PRVCA | 23, | 1453 | J.A. Cizewski, E.R. Flynn, R.E. Brown, D.L. Hanson, S.D. Orbesen, J.W. Sunier |
| 1981Co17 | PRVCA | 24, | 911 | T. Cousins, T.J. Kennett, W.V. Prestwich |
| 1981Da06 | PRVCA | 23, | 1612 | E. Dafni, H.E. Mahnke, J.W. Noe, M.H. Rafailovich, G.D. Sprouse |
| 1981De22 | ZPAAD | 300, | 251 | S. Della Negra, C. Deprun, D. Jacquet, Y. Le Beyec |
| 1981De25 | ZPAAD | 301, | 165 | R. Decker, K.D. Wünsch, H. Wollnik, G. Jung, J. Münzel, G. Siegert, E. Koglin |
| 1981De38 | ZPAAD | 303, | 151 | J. Deslauriers, S.C. Gujrahi, S.K. Mark |
| 1981Dr07 | ZPAAD | 302, | 361 | S. Drissi, S. André, J. Genevey, V. Barci, A. Gizon, J. Gizon, J.A. Pinston, J. Jas-trzebski, R. Kossakowski, Z. Preibisz |
| 1981Eb01 | ZPAAD | 299, | 209 | I.D.U. Ebong, R.R. Roy |
| 1981El03 | PRVCA | 23, | 480 | Y.A. Ellis-Akovali, K.S. Toth, C.R. Bingham, H.K. Carter, D.C. Sousa |
| 1981En07 | NUPAB | 372, | 125 | G. Engler, R.E. Chrien, H.I. Liou |
| 1981Fe05 | NUPAB | 369, | 425 | M. Fernandez, G. Murillo, J. Ramirez, O. Avila, S.E. Darden, M.C. Rozak, J.L. Foster, B.P. Hichwa, P.L. Jolivet |

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|----------|-------------|------|------|--|
| 1981Fi02 | NUPAB | 363, | 311 | C.A. Fields, F.W.N. De Boer, J.J. Kraushaar, R.A. Ristinen, L.E. Samuelson, E. Sugarbaker |
| 1981FI02 | PRVCA | 24, | 902 | E.R. Flynn, F. Ajzenberg-Selove, R.E. Brown, J.A. Cizewski, J.W. Sunier, and erratum PRVCA 25(1982)2851 |
| 1981FI05 | PYLBB | 105, | 125 | E.R. Flynn, R.E. Brown, J.W. Sunier, J.M. Gurski, J.A. Cizewski, D.G. Burke |
| 1981FI.A | P-Helsingor | | 107 | E.R. Flynn, R.E. Brown, J.W. Sunier, D.G. Burke, F. Ajzenberg-Selove, J.A. Cizewski |
| 1981Ga36 | IANFA | 45, | 1861 | N. Ganbaatar, J. Kormicki, K.A. Mezilev, Y.N. Novikov, Y.P. Prokofiev, A. Potempa, F. Tarkani |
| 1981Gi01 | PYLBB | 98, | 29 | F. Girshik, K. Krien, R.A. Naumann, G.L. Struble, R.G. Lanier, L.G. Mann, J.A. Cizewski, E.R. Flynn, T. Nail, R.K. Sheline |
| 1981Ha08 | NUPAB | 357, | 356 | J.C. Hardy, G.C. Ball, W.G. Davies, J.S. Forster, H. Schmeing, E.T.H. Clifford |
| 1981Ha44 | NUPAB | 371, | 349 | J.C. Hardy, T. Faestermann, H. Schmeing, J.A. Macdonald, H.R. Andrews, J.S. Geiger, R.L. Graham, K.P. Jackson |
| 1981Hi01 | NUPAB | 352, | 93 | F. Hintenberger, P. von Rossen, S. Cierjacks, G. Schmalz, D. Erbe, B. Leugers |
| 1981Ho10 | ZPAAD | 299, | 281 | S. Hofmann, G. Münzenberg, F. Heßberger, W. Reisdorf, P. Armbruster, B. Thuma |
| 1981Ho17 | ZPAAD | 300, | 289 | P. Hoff, K. Aleklett, E. Lund, G. Rudstam |
| 1981Ho18 | NUIMA | 186, | 257 | P. Hornshøj, H.L. Nielsen, N. Rud, H.L. Ravn |
| 1981Ho.A | P-Helsingor | | 190 | S. Hofmann, G. Münzenberg, W. Faust, F. Heßberger, W. Reisdorf, J.R.H. Schneider, P. Armbruster, K. Güttner, B. Thuma |
| 1981Ho.B | PrvCom | AHW | Oct | C. Hofmeyr, D. Warner, H.G. Börner, G. Barreau, R.F. Casten, M. Stelts, J.S. Dionisio |
| 1981Hs02 | PRVCA | 23, | 1217 | H.-C. Hseuh, E.-M. Franz, P.E. Haustein, S. Katcoff, L.K. Peker |
| 1981Hu03 | NUPAB | 352, | 247 | M. Huyse, K. Cornelis, G. Lhersonneau, J. Verplancke, W.B. Wolters, K. Heyde, P. Van Isacker, M. Warnquier, G. Wenes, H. Vincx |
| 1981Jo.B | P-Helsingor | | 640 | B. Jonson, O.B. Nielsen, L. Westgaard, J. Żylicz |
| 1981Ka07 | PRVCA | 23, | 1274 | R. Kantus, U.J. Schrewe, W.D. Schmidt-Ott, R. Michaelsen |
| 1981Ke02 | CJPHA | 59, | 93 | T.J. Kennett, M.A. Islam, W.V. Prestwich |
| 1981Ke03 | ZPAAD | 299, | 323 | T.J. Kennett, W.V. Prestwich, M.A. Islam |
| 1981Ke11 | CJPHA | 59, | 1212 | T.J. Kennett, W.V. Prestwich, M.A. Islam |
| 1981Ko13 | PRVCA | 23, | 2743 | R.T. Kouzes, K. Krien |
| 1981Ko.A | PrvCom | NDG | Oct | B.K. Koene, R.E. Chrien, M.L. Stets, L.K. Peker |
| 1981Le23 | PRVCA | 24, | 2370 | M.E. Leino, S. Yashita, A. Ghiorso |
| 1981Li12 | PRVCA | 24, | 260 | C.J. Lister, P.E. Haustein, D.E. Alburger, J.W. Olness |
| 1981Lo.A | P-Grenoble | | 383 | M.A. Lone |
| 1981Lu07 | ZETFA | 81, | 1158 | V.A. Lyubimov, E.G. Novikov, V.Z. Nozik, E.F. Tretyakov, V.S. Kozik, N.F. Myasoedov |
| 1981Ma30 | NUPAB | 370, | 1 | S. Matsuki, N. Sakamoto, K. Ogino, Y. Kadota, T. Tanabe, Y. Okuma |
| 1981Mi12 | ZPAAD | 301, | 199 | P. Misaelides, P. Tidemand-Petersson, U.J. Schrewe, I.S. Grant, R. Kirchner, O. Klepper, I.C. Malcolm, P.J. Nolan, E. Roeckl, W.-D. Schmidt-Ott, J.L. Wood |
| 1981Mu06 | ZPAAD | 300, | 107 | G. Münzenberg, S. Hofmann, F.P. Heßberger, W. Reisdorf, K.H. Schmidt, J.R.H. Schneider, P. Armbruster, C.C. Sahn, B. Thuma |
| 1981Mu12 | ZPAAD | 302, | 7 | G. Münzenberg, S. Hofmann, W. Faust, F.P. Heßberger, W. Reisdorf, K.-H. Schmidt, T. Kitahara, P. Armbruster, K. Güttner, B. Thuma, D. Vermeulen |
| 1981Na.A | P-Helsingor | | 376 | F. Naulin, C. Détraz, M. Roy-Stephan, M. Bernas, J. de Boer, D. Guillemaud, M. Langevin, F. Pougheon, P. Roussel |
| 1981Ni08 | RAACA | 29, | 113 | K. Nishiizumi, R. Gensho, M. Honda |
| 1981Ox01 | ZPAAD | 303, | 63 | K. Oxorn, S.K. Mark |
| 1981Pa11 | PYLBB | 103, | 297 | A.D. Panagiotou, I. Paschopoulos, A. Huck, N. Schulz |
| 1981Pa17 | ZPAAD | 302, | 117 | A.D. Panagiotou, P.K. Kananis, E.N. Gazis, M. Bernas, C. Détraz, M. Langevin, D. Guillemaud, E. Plagnol |
| 1981Pr06 | PRVCA | 24, | 1346 | R.J. Prestwood, D.B. Curtis, J.H. Capps |
| 1981Ra07 | PRVCA | 23, | 1979 | S. Raman, O. Shahal, A.Z. Hussein, G.C. Slaughter, J.A. Harvey |
| 1981Ri04 | PRVCA | 23, | 2342 | B.G. Ritchie, K.S. Toth, H.K. Carter, R.L. Mlekodaj, E.H. Speje |
| 1981Ro02 | PRVCA | 23, | 973 | R.G.H. Robertson, J.A. Nolen, Jr., T. Chapuran, R. Vodhanel |
| 1981Sa09 | PRVCA | 23, | 1713 | T. Saito, T. Toriyama, M. Kanbe, K. Hisatake |
| 1981Sc17 | NUPAB | 368, | 153 | D. Schardt, T. Batsch, R. Kirchner, O. Klepper, W. Kurcewicz, E. Roeckl, P. Tidemand-Petersson |

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| 1981Sc21 | PRVCA | 24, | 2695 | W.D. Schmidt-Ott, R. Kantus, E. Runte, U.J. Schrewe, R. Michaelsen |
| 1981Se11 | PYLBB | 103, | 409 | U. Sennhauser, L. Felawka, T. Kozlowski, H.K. Walter, F.W. Schlepuetz, R. Engfer, E.A. Hermes, P. Heusi, H.P. Isaak, H.S. Pruys, A. Zglinski, W.H.A. Heselung |
| 1981Se.A | P-Helsingor | | 655 | K.T. Seth |
| 1981Sm02 | PYLBB | 102, | 114 | L.G. Smith, E. Koets, A.H. Wapstra |
| 1981So06 | PRVCA | 24, | 1615 | K. Sofia, B.N. Subba Rao, J.E. Cramfort |
| 1981Sp03 | ZPAAD | 299, | 112 | L. Spanier, S.Z. Gui, H. Hick, E. Nolte |
| 1981St18 | PRVCA | 24, | 1785 | P. Stephans, E. Mordechai, H.T. Fortune |
| 1981Su.A | Leninst-YF-644 | | | L.A. Sushkov, V.L. Alekseev, L.D. Kabina, I.A. Kondurov, D.D. Uorner |
| 1981Th04 | PRVCA | 23, | 2720 | C. Thibault, F. Touchard, S. Buttgenbach, R. Klapisch, M. de Saint Simon, H.T. Duong, P. Jacquinet, P. Juncar, S. Liberman, P. Pillet, J. Pinard, J.L. Vialle, A. Pesnelle, G. Huber |
| 1981To02 | NUPAB | 356, | 26 | K.S. Toth, Y.A. Ellis-Akovali, D.M. Moltz, C.R. Bingham, H.K. Carter, D.C. Sousa |
| 1981Va11 | IJARA | 32, | 589 | R. Vaninbroukx, G. Grosse, W. Zehner |
| 1981Va27 | IANFA | 45, | 1861 | V.M. Vakhtel, N.A. Golovkov, R.B. Ivanov, M.I. Mikhailova, A.F. Novgorodov, Y.V. Norseev, V.G. Chumin, Y.V. Yushkevich |
| 1981Va.B | P-Grenoble | | 548 | C. Van der Leun, P. De Wit, C. Alderliesten, and PrvCom AHW |
| 1981Vo03 | NUPAB | 365, | 26 | T. von Egidy, G. Barreau, H.G. Börner, W.F. Davidson, J. Larysz, D.D. Warner, P.H.M. Van Assche, K. Nybo, T.F. Thorsteinsen, G. Lovhoiden, E.R. Flynn, J.A. Cizewski, R.K. Sheline, D. Decman, D.G. Burke, G. Sletten, N. Kaffrell, W. Kurcewicz, T. Bjornstad, G. Nyman |
| 1981Wa11 | NUPAB | 362, | 1 | C. Wagemans, E. Allaert, A. De Clercq, P. D'Hondt, A. De Ruytter, G. Barreau, A. Emsallem |
| 1981Wa31 | NUIMA | 190, | 167 | C. Wagemans, E. Allaert, G. Barreau, A. Emsallem, P. D'Hondt |
| 1981We12 | NUPAB | 368, | 117 | H. Weigmann, C. Wagemans, A. Emsallem, M. Ashgar |
| 1981Wh03 | PYLBB | 105, | 116 | R.E. White, H. Naylor, P.H. Barker, D.M.J. Lovelock, R.M. Smythe |
| 1981Ya06 | JINCA | 43, | 855 | H. Yamamoto, Y. Ikeda, K. Kawade, T. Katoh, T. Nagahara |
| 1982 | | | | |
| 1982Ah01 | NUPAB | 373, | 434 | I. Ahmad, E.P. Horwitz |
| 1982Al19 | NUIMA | 197, | 383 | P.F. Aalkemade, C. Alderliesten, P. De Wit, C. Van der Leun |
| 1982Al29 | PRVCA | 26, | 1157 | K. Aleklett, P. Hoff, E. Lund, G. Rudstam |
| 1982Al.A | LNPI-820 | | | G.D. Alkhazov, N. Ganbaatar, K.Y. Gromov, V.G. Kalinnikov, K.A. Mezilev, Y.N. Novikov, A.M. Nurmukhamedov, A. Potempa, F. Tarkanyi |
| 1982Al.C | PrvCom | NDG | Dec | D.E. Alburger, J.W. Olness, T.W. Burrows |
| 1982An12 | JPHGB | 8, | 1659 | M.S. Antony |
| 1982An19 | PYLBB | 113, | 72 | J.U. Andersen, G.J. Beyer, G. Charpak, A. De Rújula, B. Elbek, H.A. Gustavson, P.G. Hansen, B. Jonson, P. Knudsen, E. Laegsgaard, J. Pedersen, H.L. Ravn |
| 1982Au01 | NUPAB | 378, | 443 | G. Audi, M. Epherre, C. Thibault, A.H. Wapstra, K. Bos |
| 1982Ba15 | IANFA | 46, | 63 | I.F. Barchuk, V.I. Golyshkin, E.N. Gorban |
| 1982Ba28 | NUPAB | 380, | 189 | A. Backlin, G. Hedin, B. Fogelberg, M. Saraceno, R.C. Greenwood, C.W. Reich, H.R. Koch, H.A. Baader, H.D. Breitig, O.W.B. Schult, K. Schreckenbach, T. von Egidy, W. Mampe |
| 1982Ba69 | IANFA | 46, | 2077 | I.F. Barchuk, V.I. Golyshkin, E.N. Gorbinj |
| 1982Be20 | NCLTA | 33, | 273 | E. Bellotti, E. Fiorini, C. Liguori, A. Pullia, A. Sarracino, L. Zanotti |
| 1982Be21 | PRVCA | 25, | 2848 | G. Berrier-Ronsin, M. Vergnes, G. Rotbard, J. Vernotte, S. Fortier, J.M. Maison, R. Tamisier |
| 1982Be38 | PRVCA | 26, | 914 | J.A. Becker, J.B. Carlson, R.G. Lanier, L.G. Mann, G.L. Struble, K.H. Maier, L. Ussery, W. Stoffl, T. Nail, R.K. Sheline, J.A. Cizewski |
| 1982Be.A | P-Kiev | | 127 | R.B. Begdzanov, K. Sh. Azimov |
| 1982Bo04 | PRVCA | 25, | 941 | J.D. Bowman, R.E. Eppley, E.K. Hyde |
| 1982Br10 | RAACA | 30, | 1 | W. Bröchle, G. Herrmann |
| 1982Br23 | PRVCA | 26, | 2166 | D.S. Brenner, M.K. Martel, A. Aprahamian, R.E. Chrien, R.L. Gill, H.I. Liou, M. Shmid, M.L. Stelts, A. Wolf, F.K. Wohn, D.M. Rehfield, H. Dejbakhsh, C. Chung |

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| 1982Ca04 | PYLBB | 109, | 419 | L.C. Carraz, P.G. Hansen, A. Huck, B. Jonson, G. Klotz, A. Knipper, K.L. Kratz, C. Miéché, S. Mattsson, G. Nyman, H. Ohm, A.M. Poskanzer, A. Poves, H.L. Ravn, C. Richard-Serre, A. Schröder, G. Walter, W. Ziegert |
| 1982Ca16 | PRVCA | 26, | 1778 | M.D. Cable, J. Honkanen, R.F. Parry, H.M. Thierens, J.M. Wouters, Z.Y. Zhou, J. Cerny |
| 1982Cr01 | PYLBB | 109, | 8 | G.M. Crawley, W. Benenson, G. Bertsch, S. Gales, D. Weber, B. Zwieglinsky |
| 1982De03 | PRVCA | 25, | 146 | P. De Gelder, D. De Frenne, E. Jacobs, K. Heyde, S. Fortier, J.M. Maison, M.N. Rao, C.P. Massolo |
| 1982De06 | PRVCA | 25, | 504 | J. Deslauriers, S.C. Gujrahi, S.K. Mark |
| 1982De11 | ANPHA | 7, | 149 | S. Della Negra, C. Deprun, D. Jacquet, Y. Le Beyec |
| 1982De36 | ZPAAD | 307, | 305 | S. Della Negra, H. Gauvin, D. Jacquet, Y. Le Beyec |
| 1982De43 | ZPAAD | 308, | 243 | S. Della Negra, D. Jacquet, Y. Le Beyec |
| 1982De.A | Th.-Orsay | | | Ph. Dessagne |
| 1982Di01 | PYLBB | 108, | 265 | W.R. Dixon, W.F. Davidson, R.S. Storey, D.M. Rehfield |
| 1982Di05 | NUPAB | 378, | 273 | W.R. Dixon, R.S. Storey, A.F. Bielajew |
| 1982En03 | PRVCA | 25, | 1830 | H.A. Enge, M. Salomaa, A. Sperduto, J. Ball, W. Schier, A. Graue, A. Graue |
| 1982Ew01 | NUPAB | 380, | 423 | G.T. Ewan, E. Hagberg, B. Jonson, S. Mattsson, P. Tidemand-Petersson |
| 1982Fi10 | NUPAB | 385, | 505 | L.K. Fifield, J.L. Durell, M.A.C. Hotchkis, J.R. Leigh, T.R. Ophel, D.C. Weisser |
| 1982Fi09 | PRVCA | 25, | 2851 | E.R. Flynn, F. Ajzenberg-Selove, R.E. Brown, J.A. Cizewski, J.W. Sunier |
| 1982Ga05 | PRLTA | 48, | 914 | C.A. Gagliardi, G.T. Garvey, J.R. Wrobel, S.J. Freedman |
| 1982Ga24 | ZPAAD | 308, | 359 | H. Gabelmann, J. Munzel, B. Pfeiffer, G.I. Crawford, H. Wollnik, K.-L. Kratz |
| 1982Gi.A | Th.-Mainz | | | H. Gietz |
| 1982Gr.A | P-Amsterdam | | | K.Y. Gromov, et al |
| 1982Hi14 | ZPAAD | 309, | 27 | R. Hingmann, H.-G. Clerc, C.C. Sahm, D. Vermeulen, K.H. Schmidt, J.G. Keller |
| 1982Ho04 | ZPAAD | 305, | 111 | S. Hofmann, W. Reisdorf, G. Münzenberg, F.P. Heßberger, J.R.H. Schneider, P. Armbruster |
| 1982Ho07 | PRVCA | 25, | 2232 | R.W. Hoff, W.F. Davidson, D.D. Warner, H.G. Börner, T. von Egidy |
| 1982Ho11 | PYLBB | 116, | 4 | P. Hornshøj, J. Kolind, N. Rud |
| 1982Hu02 | NUIMA | 192, | 609 | P. Hungerford, H.H. Schmidt |
| 1982Is05 | PRVCA | 25, | 3184 | M.A. Islam, T.J. Kennett, W.V. Prestwich |
| 1982Jo03 | JPHGB | 8, | 1405 | M.G. Johnson, I.S. Grant, P. Misealides, P.J. Nolan, P. Peuser, R. Kirchner, O. Klepper, E. Roeckl, P. Tidemand-Petersson |
| 1982Ka25 | ZPAAD | 308, | 33 | K. Kawade, K. Sistemich, G. Battistuzzi, H. Lawin, K. Shizuma, J. Blomqvist |
| 1982Ka.A | PrvCom | AHW | Jul | W. Kane, et al |
| 1982KI03 | ZPAAD | 305, | 125 | O. Klepper, T. Batsch, S. Hofmann, R. Kirchner, W. Kurcewicz, W. Reisdorf, E. Roeckl, D. Schardt, G. Nymann |
| 1982Ko06 | PRVCA | 25, | 1076 | R.T. Kouzes, M.M. Lowry, C.L. Bennett, and PrvCom AHW May 1988 |
| 1982Kr05 | ZPAAD | 304, | 307 | H. Kräwinkel, H.W. Becker, L. Buchmann, J. Görres, K.U. Kettner, W.E. Kieser, R. Santo, P. Schmalbrock, H.P. Trautvetter, A. Vlieks, C. Rolfs, J.W. Hammer, R.E. Azuma, W.S. Rodney |
| 1982Kr12 | NUPAB | 386, | 245 | B. Krusche, K.P. Lieb, H. Daniel, T. von Egidy, G. Barreau, H.G. Börner, R. Brissot, C. Hofmeyr, R. Rascher |
| 1982Ku15 | ZPAAD | 308, | 21 | W. Kurcewicz, E.F. Zganjar, R. Kirchner, O. Klepper, E. Roeckl, P. Komninos, E. Nolte, D. Schardt, P. Tidemand-Petersson |
| 1982La22 | NUIMA | 196, | 559 | R.G. Lanier, L.G. Mann, G.L. Stuble |
| 1982La25 | IJARA | 33, | 711 | F. Lagoutine, J. Legrand |
| 1982Mo04 | PRVCA | 25, | 1276 | S. Mordechai, S. Lafrance, H.T. Fortune |
| 1982Mo10 | PYLBB | 113, | 16 | D.M. Moltz, K.S. Toth, F.T. Avignone III, H. Noma, B.G. Ritchie, B.D. Kern |
| 1982Mo12 | PRVCA | 25, | 3218 | C.L. Morris, H.T. Fortune, L.C. Bland, R. Gilman, S.J. Greene, W.B. Cottingham, D.B. Holtkamp, G.R. Burleson, C.F. Moore |
| 1982Mo23 | PRVCA | 26, | 1914 | D.M. Moltz, K.S. Toth, R.E. Tribble, R.E. Neese, J.P. Sullivan |
| 1982Na04 | PRVCA | 25, | 1074 | F. Naulin, C. Détraz, M. Roy-Stéphan, M. Bernas, J. de Boer, D. Guillemaud, M. Langevin, F. Pougheon, P. Roussel |
| 1982No06 | ZPAAD | 305, | 289 | E. Nolte, H. Hick |
| 1982No08 | ZPAAD | 306, | 223 | E. Nolte, S.Z. Gui, G. Colombo, G. Korschinek, K. Eskola |
| 1982Oh04 | JUPSA | 51, | 43 | M. Ohshima, Z. Matumoto, T. Tamura |
| 1982OI01 | NUPAB | 373, | 13 | J.W. Olness, E.K. Warburton, D.E. Alburger, C.J. Lister, D.J. Millener |
| 1982Pa24 | ZPAAD | 308, | 345 | B. Pahlmann, U. Keyser, F. Münnich, B. Pfeiffer |

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| 1982PI05 | NUPAB | 388, | 93 | A. Plochocki, J. Żylicz, R. Kirchner, O. Klepper, E. Roeckl, P. Tidemand-Petersson, I.S. Grant, P. Misealides |
| 1982Ra13 | ZPAAD | 305, | 359 | M.S. Rapaport, G. Engler, A. Gayer, I. Yoresh |
| 1982Ra.A | PrvCom | AHW | Nov | A. Raemy, J.C. Dousse, J. Kern, W. Schwitz |
| 1982Sc03 | NUPAB | 376, | 144 | K. Schreckenbach, A.I. Namenson, W.F. Davidson, T. von Egidy, H.G. Börner, J.A. Pinston, R.K. Smither, D.D. Warner, R.F. Casten, M.L. White, W. Stofl |
| 1982Sc14 | PRVCA | 25, | 2888 | H.H. Schmidt, P. Hungerford, H. Daniel, T. von Egidy, S.A. Kerr, R. Brissot, G. Barreau, H.G. Börner, C. Hofmeyr, K.P. Lieb |
| 1982Sc15 | PRVCA | 25, | 3091 | U.J. Schrewe, E. Hagberg, H. Schmeing, J.C. Hardy, V.T. Koslowsky, K.S. Sharma, E.T.H. Clifford |
| 1982Sc25 | ZPAAD | 308, | 183 | H.J. Scheerer, D. Pereira, A. Chalupka, R. Gyufko |
| 1982So.A | P-Kiev | | 51 | L.M. Solin, V.A. Yakovlev, V.N. Kushmin, Yu. A. Nemilov |
| 1982So.B | AnRpt Julich | | 54 | F. Soramel-Stanco, R. Julin, B. Rubio, A. Ercan, P. Kleinheinz, J. Tain, G.P.A. Berg, W. Huerliman, I. Katayama, S.A. Martin, J. Messburger, J.G.M. Roemer, B. Styczen, H.J. Scheerer |
| 1982Ta18 | NUPAB | 388, | 498 | M. Tan, R.A. Braga, R.W. Fink, P.V. Rao |
| 1982Th01 | PRVCA | 25, | 331 | C.E. Thorn, W.F. Piel, Jr., M.J. LeVine, P.D. Bond, A. Gallmann |
| 1982Ti02 | NUPAB | 376, | 421 | T.A.A. Tielens, J. Kopecky, F. Stecher-Rasmussen, W. Ratinsky, K. Abrahams, P.M. Endt |
| 1982To14 | PYLBB | 117, | 11 | K.S. Toth, Y.A. Ellis-Akovi, D.M. Moltz, R.L. Mlekodaj |
| 1982Va13 | NUPAB | 380, | 261 | C. Van der Leun, C. Alderliesten |
| 1982Ve.A | P-Kiev | | 91 | G.V. Veselov, N. Ganbataar, K.A. Mezilev |
| 1982Vy02 | IANFA | 46, | 16 | Ts. Vylov, V.M. Gorodzhankin, K. Ya. Gromov, V.G. Kalinnikov, T. Kretsu, V.V. Kuznetsov |
| 1982Vy03 | IANFA | 46, | 834 | Ts. Vylov, V.M. Gorodzhankin, K. Ya. Gromov, V.V. Kuznetsov |
| 1982Vy06 | IANFA | 46, | 2066 | Ts. Vylov, V.G. Kalinnikov, V.V. Kuznetsov, Z.N. Li, A.A. Solnyshkin, Y.U. Yuskevich |
| 1982Vy07 | IANFA | 46, | 2239 | Ts. Vylov, V.M. Gorodzhankin, K.Y. Gromov, V.V. Kuznetsov, T. Kretsu, N.A. Lebedev, Yu. V. Yushkevich |
| 1982Vy10 | YAFIA | 36, | 812 | Ts. Vylov, V.M. Gorodzhankin, K. Ya. Gromov, A.I. Ivanov, I.F. Uchevatkin, V.G. Chumin |
| 1982Wi.A | Th.-Un.N.Caroln | | | J.F. Wilkerson |
| 1982Zu02 | PRVCA | 26, | 965 | J.D. Zumbro, C.P. Browne, J.F. Mateja, H.T. Fortune, R. Middleton |
| 1982Zu04 | PRVCA | 26, | 2668 | J.D. Zumbro, A.A. Rollefson, R.W. Tarara, C.P. Browne |
| 1982Zw02 | NUPAB | 389, | 301 | B. Zwiegliński, W. Benenson, G.M. Crawley, S. Galès, D. Weber |
| 1983 | | | | |
| 1983Ad05 | CZYPA | 33, | 465 | J. Adam, V. Hnatowicz, A. Kugler |
| 1983Al06 | ZPAAD | 310, | 247 | G.D. Alkhazov, K.A. Mezilev, Yu. N. Novikov, N. Ganbaatar, K. Ya. Gromov, V.G. Kalinnikov, A. Potempa, E. Sieniawski, F. Tarkanyi |
| 1983Al18 | PZETA | 38, | 144 | G.D. Alkhazov, A.A. Bykov, V.D. Vitman, Yu. V. Naukov, S. Yu. Orlov, V.K. Tarasov |
| 1983Al20 | YAFIA | 37, | 797 | D.V. Aleksandrov, E.A. Ganza, Yu. A. Glukhov, V.I. Dukhanov, I.B. Mazurov |
| 1983Al.A | PrvCom | AHW | Jan | G.D. Alkhazov |
| 1983Al.B | P-Moscow | | 87 | G.D. Alkhazov, A.A. Akhmonen, L. Kh. Batist, Yu. S. Blinnikov, N. Ganbataar, K. Ya. Gromov, Yu. V. Elkin, V.G. Kalinnikov, K.A. Mezilev, F.V. Moroz, Yu. N. Novikov, A.M. Nurmukhamedov, V.N. Panteleev, A.G. Polyakov, A. Potempa, E. Senyavski, V.K. Tarasov, F. Tarkani |
| 1983An15 | JPHGB | 9, | L245 | M.S. Antony, J. Britz, J.B. Buep, A. Papp |
| 1983Ay01 | NUPAB | 404, | 1 | J. Äystö, J. Honkanen, W. Trzaska, K. Eskola, K. Vierinen, S. Messelt |
| 1983Ba32 | PRVCA | 28, | 337 | P.A. Baisden, D.H. Sisson, S. Niemeyer, B. Hudson, C.L. Bennet, R.A. Naumann |
| 1983Be18 | NUPAB | 399, | 131 | H. Behrens, P. Christmas |
| 1983Be42 | NUPAB | 408, | 87 | G.J. Beyer, A. De Rújula, R.-D. von Dincklage, H. Å. Gustafsson, P.G. Hansen, P. Hoff, B. Jonson, H.L. Ravn, K. Riisager |
| 1983Be.C | PrvCom | GAu | Sep | M. Bernas, et al |
| 1983BI16 | ZPAAD | 314, | 199 | J. Blomqvist, A. Kerek, B. Fogelberg |
| 1983Bo29 | PYLBB | 130, | 167 | P.D. Bond, R.F. Casten, D.D. Warner, D. Horn |

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|----------|------------|------|------|---|
| 1983Bu03 | CJPHA | 61, | 460 | D.G. Burke, I. Nowikov, Y.K. Peng, J.C. Yanch |
| 1983Ca04 | PRVCA | 27, | 1310 | R.F. Casten, D.D. Warner, G.M. Gowdy, N. Rofail, K.P. Lieb |
| 1983Ca06 | PYLBB | 123, | 25 | M.D. Cable, J. Honkanen, R.F. Parry, S.H. Zhou, Z.Y. Zhou, J. Cerny for 26Sii |
| 1983Ch08 | ZPAAD | 310, | 135 | A. Chalupka, H. Vonach, E. Hueges, H.J. Scheerer |
| 1983Ch39 | PRVCA | 28, | 2099 | C. Chung, W.B. Walters, D.S. Brenner, A. Aprahamian, R.L. Gill, M. Shmid, R.E. Chrien, L.-J. Yuan, A. Wolf, Z. Berant |
| 1983Ch47 | NUIMA | 215, | 397 | P. Christmas, S.M. Judge, T.B. Ryves, D. Smith, G. Winkler |
| 1983Ci01 | PRVCA | 27, | 1040 | J.A. Cizewski, D.G. Burke, E.R. Flynn, R.E. Brown, J.W. Sunier |
| 1983De03 | PRVCA | 27, | 892 | R.A. Dewberry, R.T. Kouzes, R.A. Neumann |
| 1983De04 | NUPAB | 394, | 378 | C. Détraz, M. Langevin, M.C. Goffri-Kouassi, D. Guillemaud, M. Epherre, G. Audi, C. Thibault, F. Touchard |
| 1983De17 | ZPAAD | 312, | 209 | D.J. Decman, R.K. Sheline, Y. Tanaka, E.T. Jurney |
| 1983De20 | NUPAB | 401, | 397 | P. De Gelder, D. De Frenne, K. Heyde, N. Kaffrell, A.M. VanDenBerg, N. Blasi, M.N. Harakah, W. Sterrenburg |
| 1983De28 | NUPAB | 404, | 225 | M.G. Delfini, J. Kopecky, J.B.M. de Haas, H.I. Liou, R.E. Chrien, P.M. Endt |
| 1983De29 | NUPAB | 404, | 250 | M.G. Delfini, J. Kopecky, R.E. Chrien, H.I. Liou, P.M. Endt |
| 1983De47 | YAFIA | 38, | 1105 | A.V. Derbin, L.A. Popeko |
| 1983De51 | YAFIA | 38, | 1377 | R.A. Demirkhanov, V.V. Dorokhov, M.I. Dzkuya, G.A. Dorokhova, see also report SFTII Suchumi |
| 1983Do11 | ZPAAD | 313, | 207 | Zs. Dombrádi, A. Krasznahorkay, J. Gulyás |
| 1983En03 | NSENA | 85, | 139 | T.R. England, W.B. Wilson, R.E. Schenter, F.M. Mann |
| 1983Fe06 | ZPAAD | 314, | 159 | P. Fettweiss, J.C. Dehaes |
| 1983FI05 | PRVCA | 28, | 97 | E.R. Flynn, J. van der Plicht, J.B. Wilhelmy, L.G. Mann, G.L. Struble, R.G. Lanier |
| 1983FI06 | PRVCA | 28, | 575 | E.R. Flynn, R.E. Brown, F. Ajzenberg-Selove, J.A. Cizewski |
| 1983Fo.B | PrvCom | AHW | Jun | I. Förster |
| 1983Ga18 | PRVCA | 28, | 2423 | C.A. Gagliardi, G.T. Garvey, J.R. Wrobel, S.J. Freedman |
| 1983Ga.A | P-Moscow | | 90 | N. Ganbaatar, Ya. Kormitski, K.A. Mezilev, Yu. N. Novikov, A.M. Nur-mukhamedov, A. Potempa, E. Senyavski, F. Tarkani |
| 1983Ge08 | NUIMA | 211, | 89 | W. Gelletly |
| 1983Gn01 | NUPAB | 406, | 29 | B.E. Gnade, R.E. Fink, J.L. Wood |
| 1983Gr01 | PYLBB | 120, | 63 | H. Grawe, H. Haas |
| 1983Ha06 | NUPAB | 395, | 152 | E. Hagberg, J.C. Hardy, H. Schmeing, E.T.H. Clifford, V.T. Koslowsky |
| 1983Ha35 | IJARA | 34, | 1241 | H.H. Hansen |
| 1983He08 | PRVCA | 27, | 2248 | R.G. Helmer, C.W. Reich |
| 1983Hi05 | PRVCA | 27, | 2857 | J.C. Hill, H. Yamamoto, A. Wolf |
| 1983Hi08 | NUPAB | 404, | 51 | R. Hingmann, H.-G. Clerc, C.-C. Sahm, D. Vermeulen, K.-H. Schmidt, J.G. Kekeller |
| 1983Ho08 | NUPAB | 398, | 130 | M.A.C. Hotchkis, L.K. Fifield, J.R. Leigh, T.R. Ophel, G.D. Putt, D.C. Weiser |
| 1983Ho23 | PYLBB | 133, | 146 | J. Honkanen, M.D. Cable, R.F. Parry, S.H. Zhou, Z.Y. Zhou, J. Cerny |
| 1983Hu11 | ZPAAD | 313, | 325 | P. Hungerford, T. von Egidy, H.H. Schmidt, S.A. Kerr, H.G. Börner, E. Monnand |
| 1983Hu12 | ZPAAD | 313, | 337 | P. Hungerford, T. von Egidy, H.H. Schmidt, S.A. Kerr, H.G. Börner, E. Monnand |
| 1983Hu13 | ZPAAD | 313, | 349 | P. Hungerford, T. von Egidy, H.H. Schmidt, S.A. Kerr, H.G. Börner, E. Monnand |
| 1983Ia02 | CJCHA | 61, | 694 | R. Iafigliola, M. Chatterjee, H. Dautet, J.K.P. Lee |
| 1983Iw02 | IJARA | 34, | 1537 | Y. Iwata, M. Kawamoto, Y. Yoshizawa |
| 1983Jo04 | NUPAB | 396, | 479c | B. Jonson, J.U. Andersen, G.J. Beyer, G. Charpak, A. De Rújula, B. El-bek, H.A. Gustavson, P.G. Hansen, P. Knudsen, E. Laegsgaard, J. Pedersen, H.L. Ravn |
| 1983Ke.A | P-Florence | | B118 | S.A. Kerr, F. Hoyler, K. Schreckenbach, H.G. Börner, G.G. Colvin, see also P-Knoxville(1984)416 |
| 1983Kr11 | ZPAAD | 312, | 43 | K.-L. Kratz, H. Ohm, A. Schroder, H. Gabelmann, W. Ziegert, B. Pfeiffer, G. Jung, E. Monnand, J.A. Pinston, F. Schussler, G.I. Crawford, S.G. Prussin, Z.M. de Oliveira |
| 1983La12 | PYLBB | 125, | 116 | M. Langevin, C. Détraz, D. Guillemaud-Mueller, A.C. Mueller, C. Thibault, F. Touchard, M. Epherre |
| 1983La23 | PYLBB | 130, | 251 | M. Langevin, C. Détraz, D. Guillemaud-Mueller, A.C. Mueller, C. Thibault, F. Touchard, G. Klotz, C. Miehé, G. Walter, M. Epherre, C. Richard-Serre |
| 1983La.A | VDPEA | 18, | 1138 | P.O. Larsson, T. Batsch, R. Kirchner, O. Klepper, W. Kurciewicz, E. Roeckl, D. Schardt, G. Nymann, P. Tidemand-Petersson, and verbal report |

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|----------|----------------|------|------|---|
| 1983Le.A | Th.-Helsinki | | | M. Leino (Report HU-P-D37) |
| 1983Li11 | PRVCA | 28, | 2127 | C.J. Lister, B.J. Varley, D.E. Alburger, P.E. Haustein, S.K. Saha, J.W. Olness, H.G. Price, A.D. Irving |
| 1983Mi20 | PYLB | 130, | 1 | T. Minamisono, K. Takeyama, T. Ishigai, H. Takeshima, Y. Nojiri, K. Asahi |
| 1983Mo09 | PRVCA | 28, | 623 | S. Mordechai, S. LaFrance, H.T. Fortune |
| 1983Ni05 | ZPAAD | 312, | 265 | J.M. Nitschke, M.D. Cable, W.-D. Zeitz |
| 1983Ny01 | NUPAB | 408, | 127 | K. Nybø, T.F. Thorsteinsen, G. Løvholden, E.R. Flynn, J.A. Cizewski, R.K. Sheline, D. Decman, D.G. Burke, G. Sletten, P. Hill, N. Kaffrell, W. Kurcewicz, G. Nymann |
| 1983Og.A | JINR-D7-83-644 | | | Yu. Ts. Oganessian |
| 1983Pa.A | Th.-Berkeley | | | R.F. Parry DABBB 44,2472(1984) |
| 1983Pu01 | NUPAB | 399, | 190 | G.P. Putt, L.K. Field, M.A.C. Hotchkis, T.R. Ophel, D.C. Weissner |
| 1983Ra04 | PRVCA | 27, | 1188 | S. Raman, E.T. Journey, D.A. Outlaw, I.S. Towner |
| 1983Ra25 | PRLTA | 51, | 975 | R.S. Raghavan |
| 1983Ra.A | P-Florence | | I-1 | K.V. Ramaniah, S.B. Reddy, V.V. Rama Murthi, K.L. Narasimham |
| 1983Re05 | PRVCA | 27, | 3002 | P.L. Reeder, R.A. Warner, R.L. Gill |
| 1983Ro08 | NUPAB | 401, | 41 | M. Rotbard, M. Vergnes, J. Vernotte, G. Berrier-Ronsin, J. Kalifa, R. Tamisier |
| 1983Ru06 | NUPAB | 399, | 163 | E. Runte, W.-D. Schmidt-Ott, P. Tidemand-Petersson, R. Kirchner, O. Klepper, W. Kurcewicz, E. Roeckl, N. Kaffrell, P. Peuser, K. Rykaczewski, M. Bernas, P. Dessagne, M. Langevin |
| 1983Ru08 | NUPAB | 407, | 60 | J.F.G.A. Ruyl, P.M. Endt |
| 1983Sc18 | ZPAAD | 310, | 295 | U.J. Schrewe, E. Hagberg, H. Schmeing, J.C. Hardy, V.T. Koslowsky, K.S. Sharma |
| 1983Sc23 | PRVCA | 28, | 435 | N. Schulz, A. Chevallier, J. Chevallier, S. Khazrouni, L. Kraus, I. Linck |
| 1983Sc24 | ZPAAD | 312, | 21 | J.R.H. Schneider, S. Hofmann, F.P. Heßberger, G. Münzenberg, W. Reisdorf, P. Armbruster |
| 1983Sc28 | ZPAAD | 313, | 137 | U.J. Schrewe, W.D. Schmidt-Ott |
| 1983Se17 | IANFA | 47, | 885 | V.A. Sergienko, A.V. Borontsovskii, M.A. Nain |
| 1983Sh06 | ZPAAD | 311, | 71 | K. Shizuma, H. Lawin, K. Sistemich |
| 1983Sh31 | PRVCA | 28, | 1712 | B. Sherrill, K. Beard, W. Benenson, B.A. Brown, E. Kashy, W.E. Ormand, H. Nann, J.J. Kehayias, A.D. Bacher, T.E. Ward |
| 1983Ta.A | BAPSA | 28, | 658 | R.W. Tarara, C.P. Browne, see BAPSA 28,968 |
| 1983Ti02 | NUPAB | 403, | 13 | T.A.A. Tielens, J. Kopecky, K. Abrahams, P.M. Endt |
| 1983To01 | PRVCA | 27, | 889 | K.S. Toth |
| 1983To20 | NUPAB | 411, | 209 | Y. Tokunaga, H. Seyfarth, O.W.B. Schult, H.G. Börner, Ch. Hofmeyr, G. Barreau, R. Brissot, Ch. Monkemeyer, U. Kaup |
| 1983Ts01 | PRVCA | 27, | 2397 | J.S. Tsai, T.J. Kennett, W.V. Prestwich |
| 1983Ve06 | IANFA | 47, | 834 | G.V. Veselov, N. Ganbaatar, Ya. Kormitski, Yu. N. Novikov, A. Potempa, E. Senyavski, V.A. Sergienko, F. Tarkani |
| 1983Ve.A | P-Moscow | | 99 | G.V. Veselov, N. Ganbaatar, K.A. Mezilev, Yu. N. Novikov, A. Potempa, V.A. Sergienko, F. Tarkanyi, A.G. Teterin |
| 1983Vi.A | P-Moscow | | 575 | V.D. Vitman, F.V. Moroz, S. Yu. Orlov, V.K. Tarasov |
| 1983Vo10 | ZPAAD | 313, | 167 | E. Voth, W.D. Schmidt-Ott, H. Behrens |
| 1983Vo.A | PrvCom | AHW | Jul | H. Vonach |
| 1983Wa26 | IJARA | 34, | 1191 | K.F. Walz, K. Debertin, H. Schrader |
| 1983Wa27 | NUPAB | 411, | 81 | F.B. Waanders, J.P.L. Reinecke, H.N. Jacobs, J.J.A. Smit, M.A. Meyer, P.M. Endt |
| 1983We07 | ZPAAD | 313, | 173 | B. Weiss, C.F. Liang, P. Paris, A. Peghaire, A. Gizon, and Prv-Com GAU Oct 1983 |
| 1983Wi14 | NUPAB | 411, | 151 | C.A. Wiedner, R. Haupt, W. Saathoff, J. Haas, R. Gyufko, K.R. Cordell, S.T. Thornton, R.A. Cecil, R.L. Parks |
| 1983Wi.A | PrvCom | AHW | Jan | C.A. Wiedner, et al |
| 1983Wi.B | PrvCom | AHW | Jun | C.-A. Wiedner, et al |
| 1983Wo01 | PRVCA | 27, | 27 | C.J. Woodward, R.E. Tribble, D.M. Tanner |
| 1983Wo04 | PRVCA | 27, | 1745 | J.M. Wouters, H.M. Thierens, J. Äystö, M.D. Cable, P.E. Haustein, R.F. Parry, J. Cerny |
| 1983Wo10 | PRLTA | 51, | 873 | F.K. Wohn, J.C. Hill, R.F. Petry, H. Dejbakhsh, Z. Berant, R.L. Gill |
| 1983Zu01 | NUPAB | 393, | 15 | J.D. Zumbro, R.W. Tarara |

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|----------|-------------|------|--------|---|
| 1984Ah02 | NUPAB | 413, | 423 | I. Ahmad, J.L. Lerner |
| 1984Al08 | YAFIA | 39, | 513 | D.V. Aleksandrov, E.A. Ganza, Yu. A. Glukhov, B.G. Novatskiĭ, A.A. Ogloblin, D.N. Stepanov |
| 1984Al36 | IANFA | 48, | 834 | G.D. Alkhazov, N. Ganbaatar, K. Ya. Gromov, V.K. Kalinnikov, K.A. Mezilev, Yu. N. Novikov, A.M. Nurmukhamedov, A. Potempa, F. Tarkani |
| 1984An03 | NCIAA | 79, | 100 | M.S. Antony, J. Britz, J.B. Bueb, A. Pape |
| 1984An17 | NCIAA | 81, | 414 | M.S. Antony, J. Britz, J. Bueb, A. Pape |
| 1984Ay01 | PYLBB | 138, | 369 | J. Äystö, J. Arje, V. Koponen, P. Taskinen, H. Hyvonen, A. Hautajarvi, K. Vierinen |
| 1984Ba12 | PRVCA | 29, | 1530 | P.H. Barker, R.E. White |
| 1984Ba.B | P-Darmstadt | | 55 | P.H. Barker, R.E. White, D.M.J. Lovelock, R.M. Smythe |
| 1984Be10 | NUPAB | 413, | 363 | M. Bernas, Ph. Dessagne, M. Langevin, J. Payet, F. Pougheon, P. Roussel, W.-D. Schmidt-Ott, P. Tidemand-Petersson, M. Girod |
| 1984Be.A | PrvCom | | 84De33 | M. Bernas, Ph. Dessagne, M. Langevin, J. Payet, F. Pougheon, P. Roussel, I. Turkevich, M. Girod confirmed PrvCom GAu 1988 |
| 1984Bh02 | NCIAA | 79, | 471 | P. Bhattacharya |
| 1984Bl.A | P-Darmstadt | | 134 | F. Blönnigen, G. Bewersdorf, C. Geisse, W. Lippert, B. Pfeiffer, U. Stöhlker, H. Wollnik |
| 1984Bo.C | P-Knoxville | | 382 | M. Bogdanovic, H. Seyfarth, H.R. Börner, S. Kerr, F. Hoyler, K. Schreckenbach, G.G. Colvin |
| 1984Br.A | AnRpt IPN | | 13 | F. Bragança Gil, C. Bourgeois, P. Kilcher, M.G. Porquet, B. Roussière, J. Sauvage, ISOCELE |
| 1984Bu09 | NUPAB | 415, | 93 | L. Buchmann, M. Hilgemeier, A. Krauss, A. Redder, C. Rolfs, H.P. Trautvetter, T.R. Donoghue |
| 1984Bu14 | PRVCA | 29, | 2339 | D.G. Burke |
| 1984Bu23 | PRVCA | 30, | 742 | B.L. Burks, R.E. Anderson, Y. Aoki, B.C. Karp, E.J. Ludwig, W.J. Thompson, R.L. Varner |
| 1984Ca32 | PRVCA | 30, | 1671 | F. Calaprice, G.T. Ewan, R.-D. von Dincklage, B. Jonson, O.C. Jonsson, H.L. Ravn |
| 1984Ch02 | PRVCA | 29, | 592 | C. Chung, W.B. Walters, N.K. Aras, F.K. Wohn, D.S. Brenner, Y.Y. Chu, M. Schmid, R.L. Gill, R.E. Chrien, L.-J. Yuan |
| 1984Co19 | ZPAAD | 319, | 107 | M.D. Cohler, D.L. Watson, R. Wadsworth, S.M. Lane, M.J. Smithson, R.E. Brown, J.-C. Peng, N. Stein, J.W. Sunier, D.M. Drake |
| 1984Co.A | P-Darmstadt | | 272 | E. Coenen, K. Deneffe, M. Huyse, P. Van Duppen, and PrvCom AHW July 1984 |
| 1984Cr01 | JPGPE | 10, | 1133 | D.A. Craig, H.W. Taylor |
| 1984Da.A | P-Darmstadt | | 257 | H. Dautet, N. Campeau, J.K.P. Lee, C. Bourgeois, B. Roussière, A. Houdayer |
| 1984De15 | NUPAB | 419, | 101 | J.B.M. De Hass, K. Abrahams, T.A.A. Tielens, H. Postma, W.J. Huiskamp |
| 1984De16 | NUPAB | 419, | 165 | D.J. Decman, H. Grawe, H. Kluge, K.H. Maier, A. Maj, M. Menningen, N. Roy, W. Wiegner |
| 1984De33 | NUPAB | 426, | 399 | Ph. Dessagne, M. Bernas, M. Langevin, G.C. Morrison, J. Payet, F. Pougheon, P. Roussel |
| 1984El05 | PYLBB | 141, | 306 | R.J. Ellis, K.S. Sharma, R.C. Barber, S.R. Loewen, H.E. Duckworth |
| 1984Fa04 | PYLBB | 137, | 23 | T. Faestermann, A. Gillitzer, K. Hartel, P. Kienle, E. Nolte, and AMCO-7, p.177,184 |
| 1984Fi02 | NUPAB | 417, | 534 | L.K. Fifield, M.A.C. Hotchkis, P.V. Drumm, T.R. Ophel, G.D. Putt, D.C. Weisser |
| 1984Fi05 | PRVCA | 29, | 2118 | B.W. Filippone, C.N. Davids, R.C. Pardo, J. Äystö |
| 1984Fi.A | BAPSA | 29, | 1056 | S.A. Fisher, R.L. Hershberger, F. Gabbard |
| 1984Fo19 | NUPAB | 429, | 205 | B. Fogelberg, J. Blomqvist |
| 1984Fo.A | P-Knoxville | | 427 | I. Förster, H.G. Börner, P. von Brentano, G.G. Colvin, A.M.I. Haque, S.A. Kerr, R. Rascher, R. Richter, K. Schreckenbach |
| 1984Ga.B | BAPSA | 29, | 1041 | Z. Gacsi, Ya. Guyash, T. Kibedi, E. Koltai, A. Krasnakhorkai, T. Fenesh |
| 1984Gi09 | PRVCA | 30, | 958 | R. Gilman, H.T. Fortune, L.C. Bland, R.R. Kiziah, C.F. Moore, P.A. Seidl, C.L. Morris, W.B. Cottingham |
| 1984Ha20 | PYLBB | 138, | 260 | B.J. Hall, R.J. Ellis, G.R. Dyck, C.A. Lander, R. Beach, K.S. Sharma, R.C. Barber, H.E. Duckworth |
| 1984Ha27 | NUPAB | 420, | 351 | R. Hanninen |

- 1984Ha31 ZPAAD 317,
 1984Ha.A P-Darmstadt
 1984Ha.B P-Darmstadt
 1984He.A Th.-Montreal
 1984Ho02 PRVCA 29,
 1984Ho.A P-Darmstadt
 1984Ho.B Th.-Canberra
 1984Ia.A P-Darmstadt
 1984Is09 KURAA 17,
 1984Ka07 PYLBB 137,
 1984Ka22 PRVCA 30,
 1984Ka.A P-Alma Ata
 1984Ke11 CJPFA 62,
 1984Ke15 PRVCA 30,
 1984Ko10 PRVCA 29,
 1984Ko29 NUPAB 427,
 1984Kr05 NUPAB 417,
 1984Kr.B P-Darmstadt
 1984Ku28 NIMBE 5,
 1984La03 NUPAB 414,
 1984La06 NUPAB 413,
 1984La.A P-Darmstadt
 1984Li05 NUPAB 417,
 1984Li24 PZETA 39,
 1984Li.A AnRpt Berkeley
 1984Lu02 ZPAAD 315,
 1984Ma49 ZPAAD 319,
 1984Mi.A AnRpt Munich
 1984Mo22 NUPAB 427,
 1984Mu07 ZPAAD 315,
 1984Ni03 ZPAAD 316,
 1984Ni16 PZETA 39,
 1984No05 NUPAB 423,
 1984Ox01 ZPAAD 316,
 1984Pi03 NUPAB 414,
 1984Po09 RAACA 35,
 1984Ra09 PRVCA 30,
 1984Ro.A BAPSA 29,
 1984Ru06 NUPAB 419,
 1984Ru.A P-Darmstadt
 1984Ry02 NUIMA 223,
 1984Sc06 ZPAAD 315,
 193 R. Haupt, C.-A. Wiedner, G.J. Wagner, K. Wannebo, T.S. Bhatia, H. Hafner, R. Maschuw, W. Saathoff, S.T. Thornton
 89 W. Hampel, R. Schlotz
 244 W. Habenicht, L. Spanier, G. Korschinek, H. Ernst, E. Nolte
 D.W. Hetherington
 618 R.W. Hoff, T. von Egidy, R.W. Loughheed, D.H. White, H.G. Börner, K. Schreck-
 enbach, G. Barreau, D.D. Warner
 184 S. Hofmann, Y.K. Agarwal, P. Armbruster, F.P. Heßberger, P.O. Larsson, G. Münzenberg, K. Poppensieker, W. Reisdorf, J.R.H. Schneider, H.J. Schött
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 141 R. Iafigliola, H. Dautet, S.W. Xu, J.K.P. Lee, R. Chrien, R. Gill, M. Shmid
 132 T. Ishii, H. Yamamoto, M. Yoshida, K. Kawade, H. Miyade, Y. Iwata, T. Katoh, J.-Z. Ruan, Y. Fumakoshi, Y. Kawase, K. Okano
 150 I. Katayama, S. Morinobu, M. Fujiwara, Y. Fujita, T. Yamazaki, H. Ikegami
 807 S. Kahane, S. Raman, G.G. Slaughter, C. Coceva, M. Stefanon
 128 V.G. Kalinnikov, V.V. Kuznetsov, V.I. Stegailov, see also P-Yurmala(1987)p119
 861 T.J. Kennett, W.V. Prestwich, J.S. Tai
 1840 T.J. Kennett, M.A. Islam, W.V. Prestwich
 2343 R.T. Kouzes, M.M. Lowry, C.L. Bennett, and PrvCom AHW May 1988
 413 J. Kopecky, M.G. Delfini, R.E. Chrien
 231 B. Krusche, K.P. Lieb, L. Ziegler, H. Daniel, T. von Egidy, R. Rascher, H.G. Börner, G. Barreau, D.D. Warner
 127 K.-L. Kratz, A. Schröder, H. Ohm, H. Gabelmann, W. Ziegert, B. Steinmüller, B. Pfeiffer
 430 W. Kutschera, P.J. Billquist, D. Frekers, W. Henning, K.J. Jensen, Ma Xiuzeng, R. Pardo, M. Paul, K.E. Rehm, R.K. Smither, J.L. Yntema, L.F. Mausner
 151 M. Langevin, C. Détraz, D. Guillemaud-Mueller, A.C. Mueller, C. Thibault, F. Touchard, M. Epherre
 236 R.G. Lanier, R.K. Sheline, G.L. Struble, L.G. Mann, J.A. Cizewski, and erra-
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 652 E. Laegsgaard, J.U. Andersen, G.J. Beyer, A. De Rújula, P.G. Hansen, B. Jonson, H.L. Ravn
 365 Y.-F. Liu, K.J. Moody, D. Lee, Y. Morita, G.T. Seaborg, H.R. von Gunten
 529 É.T. Lippmaa, R. Ī. Pikver, É.R. Suurmaa, Ya. O. Past, Yu. Kh. Puskar, I.A. Kop-
 pel', A.A. Tammik
 W.X. Li, K.E. Gregorich, R.B. Welch, W. Kot, D. Lee, G.T. Seaborg
 295 E. Lund, B. Fogelberg
 287 W.A. Mayer, W. Henning, R. Holzwarth, H.J. Körner, G. Korschinek, W.U. Mayer, G. Rosner, H.J. Scheerer
 40 C. Mittag, H. Puchta, F. Riess, M. Stallknecht
 317 D.M. Moltz, K.S. Toth, F.T. Avignone III, H. Noma, B.D. Kern, R.E. Tribble, J.P. Sullivan
 145 G. Münzenberg, W. Reisdorf, S. Hofmann, Y.K. Agarwal, F.P. Heßberger, K. Poppensieker, J.R.H. Schneider, W.F.W. Schneider, K.-H. Schmidt, H.J. Schött, P. Armbruster, C.-C. Sahm, D. Vermeulen
 249 J.M. Nitschke, P.A. Wilmarth, P.K. Lemmertz, W.-D. Zeitz, J.A. Honkanen
 441 E.N. Nikolaev, Yu. I. Neronov, M.V. Gorshkov, V.L. Talroze
 197 G.J.L. Nooren, C. van der Leun
 97 K. Oxorn, S.K. Mark
 219 Š. Piskoř, P. Franc, J. Kremenek, W. Schäferlingová
 23 P. Polak, L. Lindner
 26 S. Raman, W. Ratynski, E.T. Jurney, M.E. Bunker, J.W. Starnier
 1041 G. Rothard, M. Vergnes, J. Vernotte, G. Berrier Ronsin, S. Gales, G.M. Crawley
 439 J.F.A.G. Ruyl, J.B.M. de Haas, P.M. Endt, L. Zybert
 196 B. Rubio, R. Julin, A. Ercan, K. Zuber, P. Kleinheinz, J.L. Tain, G.P.A. Berg, G. Hlawatsch, I. Katayama, J. Meissburger, D. Paul, J.G. Roemer, J. Blomqvist
 325 A. Rytz, R.A.P. Wiltshire
 49 U.J. Schrewe, E. Hagberg, H. Schmeing, J.C. Hardy, V.T. Koslowsky, K.S. Sharma

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| 1984Sc13 | ZPAAD | 316, | 19 | K.-H. Schmidt, C.-C. Sahm, K. Pielenz, H.-G. Clerc |
| 1984Sc18 | ZPAAD | 317, | 305 | U.J. Schrewe, E. Voth, U. Bosch, W.-D. Schmidt-Ott, H. Behrens |
| 1984Sc.A | GSI-84-3 | | | J. Schneider Thesis |
| 1984Sc.B | P-Darmstadt | | 203 | U.J. Schrewe, P. Tidemand-Petersson, H. Behrens, H. Dornhöfer, R. Michaelsen, E. Runte, W.-D. Schmidt-Ott, E. Voth |
| 1984Sc.C | P-Darmstadt | | 229 | D. Schardt, P.O. Larsson, R. Kirchner, O. Klepper, V.T. Koslowsky, E. Roeckl, K. Rykaczewski, P. Kleinheinz, K. Zuber |
| 1984Sh28 | PRVCA | 30, | 2111 | T. Shinozuka, M. Fujioka, H. Miyatake, M. Yoshii, H. Hama, T. Kamiya |
| 1984Sh31 | AENGA | 56, | 245 | V.M. Shatinsky |
| 1984Th08 | PRVCA | 30, | 1442 | C.E. Thorn, J.W. Olness, E.K. Warburton, S. Raman |
| 1984To09 | PRLTA | 53, | 1623 | K.S. Toth, Y.A. Ellis-Akovi, C.R. Bingham, D.M. Moltz, D.C. Sousa, H.K. Carter, R.L. Mlekodaj, E.H. Spejewski |
| 1984To11 | NUPAB | 430, | 269 | Y. Tokunaga, H. Seyfarth, O.W.B. Schult, S. Brant, V. Paar, D. Vretenar, H.G. Börner, G. Barreau, H. Faust, Ch. Hofmeyr, K. Schreckenbach, R.A. Meyer |
| 1984Vo01 | JPHGB | 10, | 221 | T. von Egidy, H. Daniel, P. Hungerford, H.H. Schmidt, K.P. Lieb, B. Krusche, S.A. Kerr, G. Barreau, H.G. Börner, R. Brissot, C. Hofmeyr, R. Rascher |
| 1984Vo07 | PRVCA | 29, | 1243 | T. von Egidy, R.W. Hoff, R.W. Loughheed, D.H. White, H.G. Börner, K. Schreckenbach, D.D. Warner, G. Barreau, E. Hungerford |
| 1984Ya.A | Th.-Berkeley | | | S. Yashita |
| 1985 | | | | |
| 1985Ad.A | P-Leningrad | | 93 | Dz. Adam, T. Dzelev, D. Zakoutski, B. Kratsik, I. Penev |
| 1985Af.A | P-Leningrad | | 1083 | V.P. Afanasiev, Yu. S. Blinnikov, N. Ganbaatar, V. Dzeleznyakov, V.G. Kalinikov, Ya. Kormitski, K.A. Mezilev, Yu. N. Novikov, A.M. Nur-mudzamedov, V.N. Panteleev, A.G. Polyakov, A. Potempa, F. Tarkani |
| 1985Ah.A | P-Bombay | | | S.A. Ahmad, et al, and 89Ot.1 |
| 1985Al02 | PRVCA | 31, | 360 | T. Altzitzoglou, R.T. Kouzes, F.W. Loeser, M.M. Lowry, R.A. Naumann, R.E. Chrien, and erratum PRVCA 32,665 |
| 1985Al08 | NUPAB | 438, | 482 | G.D. Alkhazov, A.A. Bykov, V.D. Wittmann, V.E. Starodubsky, S.Y. Orlov, V.N. Panteleyev, A.G. Polyakov, V.K. Tarasov |
| 1985Al11 | PRLTA | 55, | 799 | T. Altzitzoglou, F. Calaprice, M. Dewey, M. Lowry, L. Piilonen, J. Brorson, S. Hagen, F. Loeser |
| 1985Al13 | PYLBB | 157, | 350 | G.D. Alkhazov, A.A. Bykov, V.D. Wittmann, S. Yu. Orlov, V.K. Tarasov |
| 1985An17 | NCIAA | 88, | 265 | M.S. Antony, J. Britz, J.B. Bueb, V.B. Ndocko-Ndongué |
| 1985Ap01 | PZETA | 42, | 233 | A.M. Apalikov, S.D. Boris, A.I. Golutvin, L.P. Laptin, V.A. Lyubimov, N.F. Myasoedov, V.V. Nagovitsyn, E.G. Novikov, V.Z. Nozik, V.A. Soloshchenko, I.N. Tikhomirov, E.F. Tretyakov |
| 1985Au07 | ZPAAD | 321, | 533 | G. Audi, R.L. Graham, J.S. Geiger |
| 1985Ay01 | PRLTA | 55, | 1384 | J. Äystö, D.M. Moltz, X.J. Xu, J.E. Reiff, J. Cerny |
| 1985Ba57 | ZPAAD | 322, | 457 | A. Baas-May, J.V. Kratz, N. Trautmann |
| 1985Be17 | ZPAAD | 320, | 693 | F.J. Bergmeister, K.P. Lieb, K. Pampus, M. Uhrmacher |
| 1985Be20 | PYLBB | 156, | 159 | Z. Berant, R.L. Gill, M.H. Rafailovich, R.E. Chrien, J.C. Hill, F.K. Wohn, R.F. Petry, C. Chung, G. Peaslee, M. Mohsen |
| 1985Be24 | ZPAAD | 321, | 435 | M. Bernas, M. Langevin, G. Parrot, E. Pougheon, E. Quiniou, P. Roussel, Ph. Dessagne, W.D. Schmidt-Ott |
| 1985Be50 | PYLBB | 162, | 87 | W. Benenson, K. Beard, C. Bloch, B. Sherrill, B.A. Brown, A.D. Panagiotou, J. van der Plicht, J.S. Winsfield, C.E. Thorn |
| 1985Bj01 | NUPAB | 443, | 283 | T. Bjornstad, M.J.G. Borge, P. Dessagne, R.-D. von Dincklage, G.T. Ewan, P.G. Hansen, A. Huck, B. Jonson, G. Klotz, A. Knipper, P.O. Larsson, G. Nyman, H.L. Ravn, C. Richard-Serre, K. Riisager, D. Schardt, G. Walter |
| 1985Bo34 | PYLBB | 159, | 217 | S. Boris, A. Golutvin, L. Laptin, V. Lubimov, V. Nagovizin, E. Novikov, V. Nozik, V. Soloshenko, I. Tihomirov, E. Tretjakov |
| 1985Bo46 | PRLTA | 55, | 2269 | J.A. Bounds, C.R. Bingham, P. Juncar, H.K. Carter, G.A. Leander, R.L. Mlekodaj, E.H. Spejewski, W.M. Fairbank, Jr. |
| 1985Bo49 | PYLBB | 164, | 22 | U. Bosch, W.-D. Schmidt-Ott, P. Tidemand-Petersson, E. Runte, W. Hillebrandt, M. Lechle, F.-K. Thielemann, R. Kirchner, O. Klepper, E. Roeckl, K. Rykaczewski, D. Schardt, N. Kaffrell, M. Bernas, Ph. Dessagne, W. Kurcewicz |

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| 1985Bo58 | NUIMA | 228, | 387 | V.R. Bom, P.C. Coops |
| 1985Br03 | PYLBB | 150, | 75 | M. Brauner, D. Rychel, R. Gyufko, C.A. Wiedner, S.T. Thornton |
| 1985Br08 | NUIMA | 234, | 218 | M. Brugger, N. Hildebrand, T. Karlewski, N. Trautmann, A.K. Mazumdar, G. Herrmann |
| 1985Co06 | PRLTA | 54, | 1783 | E. Coenen, K. Deneffe, M. Huyse, P. Van Duppen, J.L. Wood |
| 1985Co24 | PYLBB | 163, | 66 | A. Coc, C. Thibault, F. Touchard, H.T. Duong, P. Juncar, S. Liberman, J. Pinard, J. Lermé, J.L. Vialle, S. Büttgenbach, A.C. Mueller, A. Pesnelle, and the ISOLDE Collaboration |
| 1985Co.B | PrvCom | AHW | Dec | G.G. Colvin |
| 1985Da15 | PRVCA | 32, | 713 | N.J. Davis, J.A. Kuehner, A.A. Pilt, A.J. Trudel, M.C. Vetterli, C. Bamber, E.K. Warburton, J.W. Olness, S. Raman |
| 1985De08 | JPHGB | 11, | L59 | K. Deneffe, E. Coenen, M. Huyse, P. Van Duppen, J. Vanhorenbeeck, P. del Mar-mol, P. Fettweis |
| 1985De14 | NUPAB | 436, | 311 | D.J. Decman, H. Grawe, H. Kluge, K.H. Maier, A. Maj, N. Roy, Y.K. Agarwal, K.P. Blume, M. Guttormsen, H. Hubel, J. Recht |
| 1985De40 | CJPHA | 63, | 966 | V.P. Derenchuk, R.J. Ellis, K.S. Sharma, R.C. Barber, H.E. Duckworth |
| 1985Dr06 | NUPAB | 441, | 95 | P.V. Drumm, L.K. Fifield, R.A. Bark, M.A.C. Hotchkis, C.L. Woods, P. Maier-Komor |
| 1985Dy04 | PYLBB | 157, | 139 | G.R. Dyck, R.J. Ellis, K.S. Sharma, C.A. Lander, M.H. Sidky, R.C. Barber, H.E. Duckworth |
| 1985EI01 | NUPAB | 435, | 34 | R.J. Ellis, R.C. Barber, G.R. Dyck, B.J. Hall, K.S. Sharma, C.A. Lander, H.E. Duckworth, and PrvCom AHW October 1991 |
| 1985Ev01 | PYLBB | 153, | 25 | P.D. Eversheim, F. Hinterberger, S. Kuhn, P. Von Rossen, J. Romer, R.P. Trelle |
| 1985Fi03 | NUPAB | 440, | 531 | L.K. Fifield, C.L. Woods, R.A. Bark, P.V. Drumm, M.A.C. Hotchkis |
| 1985Fi08 | NUPAB | 437, | 141 | L.K. Fifield, P.V. Drumm, M.A.C. Hotchkis, T.R. Ophel, C.L. Woods |
| 1985Fr01 | NUPAB | 433, | 351 | R. Franke, H. Kockskamper, B. Steinheuer, K. Wingender, W. von Witsch |
| 1985Fu03 | NUPAB | 435, | 7 | Y. Fujita, S. Morinobu, I. Katayama, M. Fujiwara, T. Yamazaki, H. Ikegami, H. Taketani, M. Adachi, T. Matsuzaki, M. Matoba, N. Koori |
| 1985Ge02 | JPHGB | 11, | 1055 | W. Gelletly, J.R. Larysz, H.G. Börner, R.F. Casten, W.F. Davidson, W. Mampe, K. Schreckenbach, D.D. Warner |
| 1985Gy01 | PYLBB | 150, | 335 | R. Gyufko, D. Rychel, M. Steck, C.-A. Wiedner, R.L. Parks, S.T. Thornton |
| 1985Ha12 | PRVCA | 31, | 1594 | F.X. Hartmann, R.A. Naumann |
| 1985He06 | ZPAAD | 321, | 317 | F.P. Heßberger, G. Münzenberg, S. Hofmann, W. Reisdorf, K.-H. Schmidt, H.J. Schött, P. Armbruster, R. Hingmann, B. Thuma, D. Vermeulen |
| 1985He22 | ZPAAD | 322, | 557 | F.P. Heßberger, G. Münzenberg, S. Hofmann, Y.K. Agarwal, K. Poppensieker, W. Reisdorf, K.-H. Schmidt, J.R.H. Schneider, W.F.W. Schneider, H.J. Schött, P. Armbruster, B. Thuma, C.-C. Sahm, D. Vermeulen |
| 1985He.A | GSI-85-11 | | | F.P. Heßberger |
| 1985Hi.A | AnRpt GSI | | 88 | R. Hingmann, W. Kuehn, V. Metag, R. Novotny, A. Ruckelshausen, H. Strocher, F.P. Heßberger, S. Hofmann, G. Münzenberg, W. Reisdorf |
| 1985Ho21 | PYLBB | 160, | 375 | E. Hourani, M. Hussonnois, L. Stab, L. Brillard, S. Gales, J.P. Schapira |
| 1985Ho.A | PrvCom | NDG | 876 | C. Hofmeyr, C. Franklyn, G. Barreau, H.G. Börner, R. Brissot, H. Faust, K. Schreckenbach |
| 1985Hu03 | PRVCA | 31, | 2226 | A. Huck, G. Klotz, A. Knipper, C. Miehé, C. Richard-Serre, G. Walter, A. Poves, H.L. Ravn, G. Marguier |
| 1985Ke08 | ZPAAD | 322, | 121 | T.J. Kennett, W.V. Prestwich, J.S. Tsai |
| 1985Ke11 | PRVCA | 32, | 2148 | T.J. Kennett, W.V. Prestwich, J.S. Tsai |
| 1985Ke.A | PrvCom | AHW | Jan | T.J. Kennett |
| 1985Kh04 | PYLBB | 156, | 155 | S. Khan, Th. Kihm, K.T. Knöpfle, G. Mairle, V. Bechtold, L. Friedrich |
| 1985Ko47 | NIMBE | 12, | 325 | P.J.J. Kok, K. Abrahams, H. Postma, W.J. Huiskamp |
| 1985Kr06 | NUPAB | 439, | 219 | B. Krusche, Ch. Winter, K.P. Lieb, P. Hungerford, H.H. Schmidt, T. von Egidy, H.J. Scheerer, S.A. Kerr, H.G. Börner |
| 1985La17 | IJARA | 36, | 443 | R.M. Lambrecht, S. Mirzadeh |
| 1985Le10 | PRVCA | 32, | 277 | R.S. Lee, J.H. Hamilton, A.V. Ramayya, A.P. de Lima, D.L. Sastry, K.S.R. Sas-try, E.H. Spejewski, R.L. Mlekodaj, H.K. Carter, W.-D. Schmidt-Ott, J. Lin, C.R. Bingham, L.L. Riedinger, E.F. Zganjar, J.L. Weil, B.D. Kern, A.C. Xe-noulis, R.W. Fink, Sun Xi-jun, Guo Jun-sheng, Cho Chi-cheng, Pan Zong-you, Guo Ying-xian |
| 1985Li02 | PRLTA | 54, | 285 | E. Lippmaa, R. Pikver, E. Suurmaa, J. Past, J. Puskar, I. Koppel, A. Tammik |

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| 1985Ma54 | JPHGB | 11, | 1231 | T.D. MacMahon, G.R. Massoumi, T. Mitsunari, M. Thein, O. Chalhoub, D. Breitag, H.A. Baader, U. Heim, H.R. Koch, L. Wimmwer, H. Seyfarth, K. Schreckenbach, G.B. Orr, G.J. Smith, W.R. Kane, I.A. Kondurov, P.A. Sushkov, Yu. E. Loginov, D. Rabenstein, M. Bogdanovic |
| 1985Ma59 | PRVCA | 32, | 2215 | J. Markey, F. Boehm |
| 1985Mu11 | ZPAAD | 322, | 227 | G. Münzenberg, S. Hofmann, H. Folger, F.P. Heßberger, J. Keller, K. Poppensieker, B. Quint, W. Reisdorf, K.-H. Schmidt, H.J. Schött, P. Armbruster, M.E. Leino, R. Hingmann |
| 1985No03 | PRVCA | 31, | 1937 | E.B. Norman |
| 1985Oh06 | PYLBB | 160, | 322 | T. Ohi, M. Nakajima, H. Tamura, T. Matsuzaki, T. Yamazaki, O. Hashimoto, R.S. Hayano |
| 1985Pf.A | P-Birmingham | | 75 | B. Pfeiffer, K.-L. Kratz, H. Gabelmann, W. Ziegert, V. Harms, B. Leist, and 93Ru01 |
| 1985Pi03 | PRVCA | 31, | 1032 | A.A. Pilt, J.A. Cameron, R.B. Schubank, E.E. Habib |
| 1985Re02 | NUPAB | 435, | 333 | J.P.L. Reinecke, F.B. Waanders, P. Oberholzer, P.J.C. Janse van Rensburg, J.A. Cilliers, J.J.A. Smit, M.A. Meyer, P.M. Endt |
| 1985Ry02 | ZPAAD | 322, | 263 | K. Rykaczewski, I.S. Grant, R. Kirchner, O. Klepper, V.T. Koslowsky, P.O. Larsson, E. Nolte, G. Nyman, E. Roeckl, D. Schardt, L. Spanier, P. Tidemand-Petersson, E.F. Zganjar, J. Żylicz |
| 1985Sa15 | ZPAAD | 321, | 255 | M. Samri, J.G. Costa, G. Klotz, D. Magnac, R. Selz, J.P. Zirnfeld |
| 1985Sc09 | ZPAAD | 320, | 595 | U.J. Schrewe, H. Dornhöfer, E. Runte, W.D. Schmidt-Ott, T. Tidemand-Petersson, R. Michaelsen |
| 1985Sc16 | NUIMA | 236, | 225 | H. Schölermann, B.R.L. Siebert |
| 1985Sh03 | PRVCA | 31, | 875 | B. Sherrill, K. Beard, W. Benenson, C. Bloch, B.A. Brown, E. Kashy, J.A. Nolen, Jr., A.D. Panagiotou, J. van der Plicht, J.S. Winfield, see P-Darmstadt p. 82 |
| 1985Si07 | PRVCA | 31, | 1891 | J.J. Simpson, W.R. Dixon, R.S. Storey |
| 1985Si25 | JPSLB | 46, | L1095 | C. Signarbieux, G. Simon, J. Trochon, F. Brisard and PrvCom GAu Jan 1988 |
| 1985So03 | PRVCA | 31, | 1801 | L.P. Somerville, M.J. Nurmia, J.M. Nitschke, A. Ghiorso, E.K. Hulet, R.W. Loughheed |
| 1985St02 | PRVCA | 32, | 582 | R.E. Stone, C.E. Bingham, L.L. Riedinger, R.W. Lide, H.K. Carter, R.L. Mlekosdaj, E.H. Spejewski |
| 1985St16 | ZPAAD | 322, | 83 | [190Pb]C. Stenzel, H. Grawe, H. Haas, H.-E. Mahnke, K.H. Maier |
| 1985Ta.A | P-Swansea | | 343 | V.L. Talrose, E.N. Nikolaev |
| 1985Ti01 | ZPAAD | 320, | 405 | P. Tidemand-Petersson, E. Runte, W.-D. Schmidt-Ott, U.J. Schrewe |
| 1985Ti02 | NUPAB | 437, | 342 | P. Tidemand-Petersson, R. Kirchner, O. Klepper, E. Roeckl, D. Schardt, A. Plochocki, J. Żylicz |
| 1985To10 | NUPAB | 439, | 427 | Y. Tokunaga, H. Seyfarth, R.A. Meyer, O.W.B. Schult, H.G. Börner, G. Barreau, H.R. Faust, K. Schreckenbach, S. Brant, V. Paar, M. Vouk, D. Vretenar |
| 1985Ts01 | ZPAAD | 322, | 295 | J.S. Tsai, T.J. Kennett, W.V. Prestwich |
| 1985Ts02 | ZPAAD | 322, | 597 | J.S. Tsai, W.V. Prestwich, T.J. Kennett |
| 1985Uh01 | NIMBE | 9, | 234 | M. Uhrmacher, K. Pampus, F.J. Bergmeister, D. Purschke, K.P. Lieb |
| 1985Va03 | PYLBB | 154, | 354 | P. Van Duppen, E. Coenen, K. Deneffe, M. Huyse, J.L. Wood |
| 1985Va.A | JINR-R6-85-22 | | | E.V. Vasileva, et al |
| 1985Vo03 | PRVCA | 31, | 1510 | R.-D. von Dincklage, J. Gerl, H.L. Ravn, G.J. Beyer |
| 1985Vo09 | ZPAAD | 321, | 375 | R.-D. von Dincklage, H.J. Hay |
| 1985Vo13 | NUPAB | 445, | 113 | R.-D. von Dincklage, H.J. Hay, H.L. Ravn |
| 1985Vo15 | ZPAAD | 322, | 669 | T. von Egidy, H.G. Börner, F. Hoyler |
| 1985Wh03 | MTRGA | 21, | 193 | R.E. White, P.H. Barker, D.M.J. Lovelock |
| 1985Wi07 | ZPAAD | 321, | 179 | P.A. Wilmarth, J.M. Nitschke, P.K. Lemmertz, R.B. Firestone |
| 1985Wi15 | NUPAB | 444, | 49 | K. Wick, U. Berghaus, H. Bruckmann, P. Lara, W. Schutte, B. Anders, Y. Koike |
| 1985Wo01 | PYLBB | 150, | 79 | P.J. Woods, R. Chapman, J.L. Durell, J.N. Mo, N.E. Sanderson, R.A. Cunningham, B.R. Fulton |
| 1985Wo04 | NUPAB | 437, | 454 | C.L. Woods, L.K. Fifield, R.A. Bark, P.V. Drumm, M.A.C. Hotchkis |
| 1985Wo07 | ZPAAD | 321, | 119 | P.J. Woods, R. Chapman, J.L. Durell, J.N. Mo, R.J. Smith, N.E. Sanderson, B.R. Fulton, R.A. Cunningham |
| 1985Wo.A | PrvCom | GAu | Feb | P.J. Woods |

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| 1986Ad07 | IANFA | 50, | 855 | J. Adam, V. Vagner, M. Gonusek, B. Kratick |
| 1986Ag.A | P-Charkov | | 98 | V.A. Ageev, V.S. Belyavenko, V.A. Dzeltonodzkii, A.A. Klyushnikov |
| 1986Au02 | NUPAB | 449, | 491 | G. Audi, A. Coc, M. Epherre, G. Le Scornet, C. Thibault, F. Touchard, ISOLDE |
| 1986Ba26 | PRVCA | 34, | 362 | S.W. Barwick, P.B. Price, H.L. Ravn, E. Hourani, M. Hussonnois |
| 1986Ba72 | IANFA | 50, | 1898 | K.A. Baskova, G.I. Borisov, A.B. Vovk, T.M. Gerus, L.I. Go |
| 1986Be35 | NUPAB | 460, | 352 | A.V. Belozyorov, C. Borcea, Z. Dlouhy, A.M. Kalinin, R. Kalpakchieva, Nguyen Hoai Chau, Yu. Ts. Oganessian, Yu. E. Penionzhkevich |
| 1986Be53 | UFZHA | 31, | 1773 | V.S. Belyavenko, G.P. Borozenets, I.N. Vishnevsky, V.A. Zheltonozhsky |
| 1986Bj01 | NUPAB | 453, | 463 | T. Björnstad, M.J.G. Borge, J. Blomqvist, R.D. von Dincklage, G.T. Ewan, P. Hoff, B. Jonson, K. Kawade, A. Kerek, O. Klepper, G. Løvholden, S. Mattsson, G. Nyman, H.L. Ravn, G. Rudstam, K. Sistemich, O. Tengblad, ISOLDE |
| 1986Bo28 | ZPAAD | 325, | 149 | V.R. Bom, P.C. Coops, R.W. Hollander, E. Coenen, K. Deneffe, P. Van Duppen, M. Huyse |
| 1986Bo46 | PHSTB | 34, | 591 | M.J.G. Borge, A. De Rújula, P.G. Hansen, B. Jonson, G. Nyman, H.L. Ravn, K. Riisager, ISOLDE |
| 1986Bu18 | PRVCA | 34, | 2316 | B.L. Burks, R.L. Varner, E.J. Ludwig |
| 1986Ch01 | PRVCA | 33, | 130 | T. Chapuran, K. Dybdal, D.B. Fossan, T. Lönnroth, W.F. Piel, Jr., D. Horn, E.K. Warburton |
| 1986Co12 | ZPAAD | 324, | 485 | E. Coenen, K. Deneffe, M. Huyse, P. Van Duppen, J.L. Wood |
| 1986Cu01 | PRLTA | 56, | 34 | M.S. Curtin, L.H. Harwood, J.A. Nolen, B. Sherrill, Z.Q. Xie, B.A. Brown |
| 1986Da.A | AnRpt McGill | | 29 | H. Dautet, R. Turcotte, S.K. Mark |
| 1986De13 | NUPAB | 454, | 1 | H.P.L. De Esch, C. van der Leun |
| 1986De14 | NUPAB | 454, | 48 | H.P.L. De Esch, J.B.J.M. Lanen, C. van der Leun |
| 1986Di01 | PRVCA | 33, | 103 | G.U. Din, A.M. Al Soraya, J.A. Cameron, V.P. Janzen, R.B. Schubank |
| 1986Ek01 | PHSTB | 34, | 614 | B. Ekström, B. Fogelberg, P. Hoff, E. Lund, A. Sangiyavanish |
| 1986Fi06 | NUPAB | 453, | 497 | L.K. Fifield, C.L. Woods, W.N. Catford, R.A. Bark, P.V. Drumm, K.T. Keoghane |
| 1986Fr09 | PYLBB | 173, | 485 | M. Fritsch, E. Holzschuh, W. Kündig, J.W. Petersen, R.E. Pixley, H. Stüssi, and PrvCom AHW |
| 1986Ga19 | PRVCA | 34, | 1663 | C.A. Gagliardi, D.R. Semon, R.E. Tribble, L.A. Van Ausdell |
| 1986Gi07 | PRLTA | 56, | 1874 | R.L. Gill, R.F. Casten, D.D. Warner, A. Piotrowski, H. Mach, J.C. Hill, K.K. Wohn, J.A. Winger, R. Moreh |
| 1986Gi08 | NUPAB | 453, | 1 | K.-L. Gippert, E. Runte, W.-D. Schmidt-Ott, P. Tidemand-Petersson, N. Kaffrell, P. Peuser, R. Kirchner, O. Klepper, W. Kurciewicz, P.O. Larsson, E. Roeckl, D. Schardt, K. Rykaczewski |
| 1986Go10 | ZPAAD | 324, | 117 | H. Göktürk, B. Ekstrom, E. Lund, B. Fogelberg |
| 1986Gr01 | PRLTA | 56, | 819 | G.L. Greene, E.G. Kessler, Jr., R.D. Deslattes, H. Börner |
| 1986Ha22 | NUPAB | 455, | 231 | A.M.I. Hague, R.F. Casten, I. Förster, A. Gelberg, R. Rascher, R. Richter, P. von Brentano, G. Barreau, H.G. Börner, S.A. Kerr, K. Schreckenbach, D.D. Warner |
| 1986Hi08 | PRVCA | 34, | 2312 | J.C. Hill, F.K. Wohn, K. Leininger, J.A. Winger, M.E. Nieland, R.L. Gill, A. Piotrowski, R.F. Petry, J.D. Goulden |
| 1986Hu01 | PRLTA | 56, | 313 | E.K. Hulet, J.F. Wild, R.J. Dougan, R.W. Loughheed, J.H. Landrum, A.D. Dougan, M. Schädel, R.L. Hahn, P.A. Baisden, C.M. Henderson, R.J. Dupzyk, K. Sümmner, G.R. Bethune |
| 1986Hu05 | PRVCA | 34, | 1394 | E.K. Hulet, R.W. Loughheed, J.F. Wild, R.J. Dougan, K.J. Moody, R.L. Hahn, C.M. Henderson, R.J. Dupzyk, G.R. Bethune |
| 1986Ka38 | JUPSA | 55, | 3014 | H. Kawakami, S. Shibita, J. Tanaka, T. Toriyama, S. Noguchi, M. Mushano, K. Hisatake |
| 1986Ka43 | NUPAB | 460, | 437 | N. Kaffrell, P. Hill, J. Rogowski, H. Tetzlaff, N. Trautmann, E. Jacobs, P. De Gelder, D. De Frenne, K. Heyde, G. Skarnemark, J. Alstad, N. Blasi, M.N. Harakeh, W.A. Sterrenburg, K. Wolfsberg |
| 1986Ke03 | NUPAB | 452, | 173 | J.G. Keller, K.-H. Schmidt, F.P. Heßberger, G. Münzenberg, W. Reisdorf, H.-G. Clerc, C.-C. Sahm, and PrvCom K.-H. Schmidt to AHW November 1992 |
| 1986Ke14 | NIMAE | 249, | 366 | T.J. Kennett, W.V. Prestwich, J.S. Tsai |
| 1986Ko01 | PRVCA | 33, | 392 | T. Kohno, M. Adachi, S. Fukuda, M. Taya, M. Fukuda, H. Taketani, Y. Gono, M. Sugawara, Y. Ishikawa |
| 1986Ko19 | ZPAAD | 324, | 271 | P.J.J. Kok, J.B.M. de Haas, K. Abrahams, H. Postma, W.J. Huiskamp |

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| 1986Lo16 | JCOMA | 122, | 461 | R.W. Loughheed, E.K. Hulet, R.J. Dougan, J.F. Wild, R.J. Dupzyk, C.M. Henderson, K.J. Moody, R.L. Hahn, K. Summerer, G. Bethune |
| 1986Ma12 | PRLTA | 56, | 1547 | H. Mach, A. Piotrowski, R.L. Gill, R.F. Casten, D.D. Warner |
| 1986Ma40 | PRVCA | 34, | 729 | L.G. Mann, R.G. Lanier, G.L. Struble, R.A. Naumann, R.T. Kouzes |
| 1986Mi08 | PRVCA | 33, | 1736 | C. Miehé, Ph. Dessagne, P. Baumann, A. Huck, G. Klotz, A. Knipper, G. Walter, C. Richard-Serre |
| 1986Mi14 | PRVCA | 33, | 2204 | D. Miljanic, S. Blagus, M. Zadro |
| 1986Pr03 | NUPAB | 455, | 1 | P.T. Prokofjev, V.A. Bondarenko, T.V. Guseva, N.D. Kramer, L.I. Simonova, J.J. Tambergs, K. Schreckenbach, W.F. Davidson, J.A. Pinston, D.D. Warner, P.H.M. van Assche, A.M.J. Spits |
| 1986Pr05 | ZPAAD | 325, | 321 | W.V. Prestwich, T.J. Kennett, J.S. Tsai |
| 1986Ru04 | ZPAAD | 324, | 27 | B. Rubio, A. Ercan, G. de Angelis, P. Kleinheinze, J.L. Tain, B. Brinkmoeller, D. Paul, J. Meissburger, L.G. Mann, D.J. Decman, T.N. Massey, G.L. Struble, H.J. Scheerer, J. Blomqvist |
| 1986Ru05 | ZPAAD | 324, | 119 | E. Runte, T. Hild, W.-D. Schmidt-Ott, U.J. Schrewe, P. Tidemand-Petersson, R. Michaelsen |
| 1986Ry04 | NIMAE | 253, | 47 | A. Rytz, R.A.P. Wiltshire, M. King |
| 1986Sc16 | NUPAB | 454, | 267 | H.H. Schmidt, T. von Egidy, H.J. Scheerer, P. Hungerford, H.G. Börner, S.A. Kerr, K. Schreckenbach, R.F. Casten, W.R. Kane, D.D. Warner, A. Chalupka, M.K. Balodis, T.V. Guseva, P.T. Prokofjev, J.J. Tambergs |
| 1986Sc21 | NUPAB | 457, | 182 | P. Schmalbrock, T.R. Donoghue, M. Wiescher, V. Wijekumar, C.P. Browne, A.A. Rollefson, C. Rolfs, A. Vlieks |
| 1986Sc25 | JPHGB | 12, | 411 | H.H. Schmidt, W. Stöfft, T. von Egidy, P. Hungerford, H.J. Scheerer, K. Schreckenbach, H.G. Börner, D.D. Warner, R.E. Chrien, R.C. Greenwood, C.W. Reich |
| 1986Se04 | PYLBB | 173, | 397 | K.K. Seth, S. Iversen, M. Kaletka, D. Barlow, A. Saha, R. Soundranayagam |
| 1986Si20 | ZPAAD | 325, | 139 | K. Sistemich, K. Kawade, H. Lawin, G. Lhersonneau, H. Ohm, U. Paffrath, V. Lopac, S. Brant, V. Paar |
| 1986Sm05 | ZPAAD | 324, | 283 | R.J. Smith, P.J. Woods, R. Chapman, J.L. Durell, J.N. Mo, B.R. Fulton, R.A. Cunningham |
| 1986To12 | PYLBB | 178, | 150 | K.S. Toth, Y.A. Ellis-Akovi, J.M. Nitschke, P.A. Wilmarth, P.K. Lemmertz, D.M. Moltz, F.T. Avignone III |
| 1986Ts04 | CJPHA | 64, | 1569 | J.S. Tsai, W.V. Prestwich, T.J. Kennett |
| 1986U102 | ZPAAD | 325, | 247 | G. Ulm, S.K. Bhattacharjee, P. Dabkiewicz, G. Huber, H.-J. Kluge, T. Kuhl, H. Lochmann, E.-W. Otten, K. Wendt, S.A. Ahmad, W. Klempt, R. Neugart, ISOLDE |
| 1986Va08 | PRVCA | 33, | 1141 | G. Vandenput, P.H.M. van Assche, L. Jacobs, J.M. van den Cruyce, R.K. Smither, K. Schreckenbach, T. von Egidy, D. Breitig, H.A. Baader, H.R. Koch |
| 1986Ve.A | P-Charkov | | 107 | G.V. Veselov, K.A. Mezilev, Yu. N. Novikov, A.V. Lopov, V.A. Sergienko |
| 1986Ve.B | P-Charkov | | 138 | G.V. Veselov, K.A. Mezilev, Yu. N. Novikov, A.V. Lopov, Yu. Ya. Sergeev, V.A. Sergienko, V.I. Tichonov |
| 1986Vi09 | PRLTA | 57, | 3253 | D.J. Vieira, J.M. Wouters, K. Vaziri, R.H. Krauss, Jr., H. Wollnik, G.W. Butler, F.K. Wohn, A.H. Wapstra |
| 1986Wa17 | RAEFB | 94, | 27 | R.A. Warner, P.L. Reeder |
| 1986Wi15 | ZPAAD | 325, | 485 | P.A. Wilmarth, J.M. Nitschke, R.B. Firestone, J. Gilat |
| 1986Wi16 | NUPAB | 460, | 501 | Ch. Winter, B. Krusche, K.P. Lieb, H.H. Schmidt, T. von Egidy, P. Hungerford, F. Hoyer, H.G. Börner |
| 1986Wo07 | PYLBB | 182, | 297 | P.J. Woods, R. Chapman, J.L. Durell, J.N. Mo, R.J. Smith, B.R. Fulton, R.A. Cunningham, P.V. Drumm, L.K. Fifield |
| 1986Ya17 | PYLBB | 181, | 169 | S. Yasumi, M. Ando, H. Maezawa, H. Kitamura, T. Ohta, F. Ochiai, A. Mikuni, M. Maruyama, M. Fujioka, K. Ishii, T. Shinozuka, K. Sera, T. Omori, G. Izawa, M. Yagi, K. Masumoto, K. Shima, T. Mukoyama, Y. Inagaki, I. Sugai, A. Masuda, O. Kawakami |
| | | | 1987 | |
| 1987Aj.A | PrvCom | AHW | Jul | F. Ajzenberg-Selove |

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|----------|--------------|------|-------|--|
| 1987Ba52 | NUPAB | 472, | 445 | M.K. Balodis, P.T. Prokofjev, N.D. Kramer, L.I. Simonova, K. Schreckenbach, W.F. Davidson, J.A. Pinston, P. Hungerford, H.H. Schmidt, H.J. Scheerer, T. von Egidy, P.H.M. van Assche, A.M.J. Spits, R.F. Casten, W.R. Kane, D.D. Warner, J. Kern |
| 1987Bo07 | PRLTA | 58, | 2019 | S. Boris, A. Golutvin, L. Laptin, V. Lubimov, V. Nagovizin, V. Nozik, E. Novikov, V. Soloshenko, I. Tihomirov, E. Tretjakov, N. Myasoedov |
| 1987Bo21 | PHSTB | 36, | 218 | M.J.G. Borge, P. Dessagne, G.T. Ewan, P.G. Hansen, A. Huck, B. Jonson, G. Klotz, A. Knipper, S. Mattsson, G. Nyman, C. Richard-Serre, K. Riisager, G. Walter, ISOLDE |
| 1987Bo24 | NUPAB | 470, | 13 | M. Bogdanović, R. Brissot, G. Barreau, K. Schreckenbach, S. Kerr, H.G. Börner, I.A. Kondurov, Yu. E. Loginov, V.V. Martynov, P.A. Sushkov, H. Seyfarth, T. von Egidy, P. Hungerford, H.H. Schmidt, H.J. Scheerer, A. Chalupka, W. Kane, G. Alaga |
| 1987Bo29 | HYIND | 34, | 25 | W. Borchers, R. Neugart, E.W. Otten, H.T. Duong, G. Ulm, K. Wendt, ISOLDE, and 89Ot.1 |
| 1987Bo59 | HYIND | 38, | 793 | G. Bollen, P. Dabkiewicz, P. Egelhof, T. Hilberath, H. Kalinowsky, F. Kern, H. Schnatz, L. Schweikhard, H. Stolzenberg, R.B. Moore, H.J. Kluge, G.M. Temmer, G. Ulm |
| 1987Br05 | NUPAB | 465, | 221 | A. Bruce, D. Hicks, D.D. Wagner |
| 1987Br33 | JPHGB | 13, | 1565 | V.B. Brudanin, T. Vylov, Ch. Briançon, V.M. Gorjankin, K.Y. Gromov, A. Marinov, A.P. Novgorodov, V.N. Pokrovski, N.I. Rukhadze |
| 1987Br.B | AnRpt Julich | | 9 | B. Brinkmoeller, H.P. Morsch, R. Siebert, P. Decowski, M. Rogge, P. Turek |
| 1987Bu.A | BAPSA | 32, | 1063 | B. Budick, Hong Lin |
| 1987Ch.A | AnRpt Daresb | | 7 | R. Chapman, J.L. Durell, J.N. Mo, P.J. Woods, B.R. Fulton, R.A. Cunningham, P.V. Drumm, L.K. Fifield |
| 1987Ci.A | P-Leuven | | S103 | J.A. Cizewski, G.G. Colvin, H.G. Börner, P. Geltenbort, F. Hoyler, S.A. Kerr, K. Schreckenbach, and PrvCom AHW |
| 1987Co08 | NUPAB | 465, | 240 | G.G. Colvin, H.G. Börner, P. Geltenbort, F. Hoyler, S.A. Kerr, K. Schreckenbach, J.A. Cizewski, and PrvCom AHW December 1988 |
| 1987De04 | ZPAAD | 326, | 155 | J. Deslauriers, S.C. Gujrahi, S.K. Mark |
| 1987De33 | JPHGB | 13, | 1283 | C.T.A.M. De Laat, P. Polak, A. Taal, J. Konijn, W. Lourens, A.H. Wapstra |
| 1987De.A | AnRpt Leuven | | 47 | P. Dendooven, M. Huyse, G. Reusen, J. Wouters, P. Van Duppen, I. Ahmad, R. Holzmann, R.V.F. Janssens |
| 1987Eb02 | NUPAB | 464, | 9 | J. Eberz, U. Dinger, G. Huber, H. Lochmann, R. Menges, R. Neugart, R. Kirchner, O. Klepper, T. Kuhl, D. Marx, G. Ulm, K. Wendt, ISOLDE |
| 1987El02 | JPHGB | 13, | 93 | A.M.Y. El-Lawindy, J.D. Burrows, P.A. Butler, J.R. Cresswell, V. Holliday, G.D. Jones, R. Tanner, R. Wadsworth, D.L. Watson, K.A. Connell, J. Simpsom, C. Lauterbach, J.R. Mines |
| 1987El09 | PRVCA | 36, | 1529 | Y.A. Ellis-Akovali, K.S. Toth, H.K. Carter, C.R. Bingham, I.C. Girit, M.O. Kortelahti |
| 1987Fa.A | P-Rosseau | | 675 | T. Faestermann, A. Gillitzer, K. Hartel, W. Henning, P. Kienle |
| 1987Fo20 | NUPAB | 475, | 301 | B. Fogelberg, A.M. Bruce, D.D. Warner |
| 1987Ga.A | P-Yurmala | | 86 | N. Ganbaatar, G.V. Veselov, K.A. Mezilev, V.G. Kalinnikov |
| 1987Ge01 | JPHGB | 13, | 69 | W. Gelletly, J.R. Larysz, H.G. Börner, R.F. Casten, W.F. Davidson, W. Mampe, K. Schreckenbach, D.D. Warner |
| 1987Gi05 | PYLBB | 192, | 39 | A. Gillibert, W. Mittag, L. Bianchi, A. Cunsolo, B. Fernandez, A. Foti, J. Gastebois, C. Gregoire, Y. Schutz, C. Stephan |
| 1987Gi07 | NUPAB | 473, | 717 | C. Giusti, F.D. Pacati |
| 1987Go25 | PZETA | 45, | 205 | M.G. Gornov, Y.B. Gurov, V.P. Koptev, P.V. Morokhov, K.O. Oganesyan, B.P. Osipenko, V.A. Pechkurov, V.I. Savel'ev, F.M. Sergeev, A.A. Khomutov, B.A. Chernyshev, R.R. Shafigullin, A.V. Shishkov |
| 1987Gr12 | PRVCA | 35, | 1965 | R.C. Greenwood, R.A. Anderl, J.D. Cole, H. Willmes |
| 1987Gr18 | ZPAAD | 327, | 383 | M. Graefenstedt, U. Keyser, F. Münnich, F. Schreiber, H.R. Faust, H. Weikard |
| 1987Gr.A | P-Rosseau | | 30 | M. Graefenstedt, U. Keyser, F. Münnich, F. Schreiber |
| 1987Gr.B | VHDPG | PG, | 81,89 | M. Graefenstedt, et al |
| 1987Ha.A | AnRpt Tohoku | | 43 | H. Hama, et al |
| 1987Ha.B | P-Rosseau | | 650 | H. Hama, M. Yoshii, K. Taguchi, T. Ishimatsu, T. Shinozuka, M. Fujioka |
| 1987He10 | EULEE | 3, | 895 | F.P. Heßberger, S. Hofmann, G. Münzenberg, A.B. Quint, K. Sümmerer, P. Armbruster |

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| 1987He14 | PRVCA | 36, | 1504 | D.W. Hetherington, R.L. Graham, M.A. Lone, J.S. Geiger, G.E. Lee-Whiting |
| 1987He21 | NUPAB | 474, | 484 | K. Heiguchi, S. Mitarai, B.J. Min, T. Kuroyanagi |
| 1987He28 | NUPAB | 474, | 77 | R.G. Helmer, M.A. Lee, C.W. Reich, I. Ahmad |
| 1987Ho06 | ARISE | 38, | 195 | D.D. Hoppes, B.M. Coursey, F.J. Schima, D. Yang |
| 1987Ho.A | AnRpt LBL | | 39 | M.A.C. Hotchkis, J.E. Reiff, D.J. Vieira, F. Blönnigen, T.F. Lang, D.M. Moltz, X. Xu, J. Cerny |
| 1987Ju02 | ARISE | 38, | 193 | S.M. Judge, A.M. Privitera, M.J. Woods |
| 1987Ju04 | ARISE | 38, | 839 | S.M. Judge, P. Christmas, P. Cross, D. Smith, W.D. Hamilton, and PrvCom AHW February 1989 |
| 1987Ka29 | NUPAB | 470, | 141 | N. Kaffrell, P. Hill, J. Rogowski, H. Tetzlaff, N. Trautmann, E. Jacobs, P. De Gelder, D. De Frenne, K. Heyde, S. Borjesson, G. Skarnemark, J. Alstad, N. Blasi, M.N. Harakeh, W.A. Sterrenburg, K. Wolfsberg |
| 1987Ka.A | AnRpt RCNP | | 86 | K. Katori, H. Miyatake, A. Higashi, A. Shinohara, N. Ikeda, I. Katayama, S. Morinobu |
| 1987Ke09 | CJPHA | 65, | 1111 | T.J. Kennett, W.V. Prestwich, J.S. Tsai |
| 1987Ke.A | P-Leuven | | S571 | J. Kern, H.G. Börner, G.G. Colvin, S. Drissi, T. von Egidy, M. Kalanga, J.-L. Salici |
| 1987Ko34 | NUPAB | 472, | 419 | V.T. Koslowsky, J.C. Hardy, E. Hagberg, R.E. Azuma, G.C. Ball, E.T.H. Clifford, W.G. Davies, H. Schmeing, U.J. Schrewe, K.S. Sharma |
| 1987Li.A | P-Rosseau | | 521 | C.F. Liang, P. Paris, Ch. Briançon |
| 1987Me08 | ZPAAD | 327, | 171 | F. Meissner, W.-D. Schmidt-ott, L. Ziegeler |
| 1987Mh.A | P-Leuven | | 199 | A.K. Mheemed, S.S. Kamoona, S.A. Abbas, T. Al-Janabi |
| 1987Mi10 | PRVCA | 36, | 420 | G.J. Miller, J.C. McGeorge, I. Anthony, R.O. Owens |
| 1987Mo06 | PRVCA | 35, | 1275 | D.M. Moltz, A.C. Betker, J.P. Sullivan, R.H. Burch, C.A. Gagliardi, R.E. Tribble, K.S. Toth, F.T. Avignone III |
| 1987Mu15 | ZPAAD | 328, | 49 | G. Münzenberg, P. Armbruster, G. Berthes, H. Folger, F.P. Heßberger, S. Hofmann, J. Keller, K. Poppensieker, A.B. Quint, W. Reisdorf, K.-H. Schmidt, H.-J. Schött, K. Sümmerner, I. Zychor, M.E. Leino, R. Hingmann, U. Gollerthan, E. Hanelt |
| 1987Ne.A | P-Rosseau | | 126 | R. Neugart, E. Arnold, W. Borchers, W. Neu, G. Ulm, K. Wendt |
| 1987Pe06 | PRVCA | 35, | 1617 | K.I. Pearce, N.M. Clarke, R.J. Griffiths, P.J. Simmonds, A.C. Dodd, D. Barker, J.B.A. England, M.C. Mannion, C.A. Ogilvie |
| 1987Ra04 | NUPAB | 464, | 349 | V. Rahkonen, T. Lonnroth |
| 1987Ra06 | PRVCA | 36, | 303 | M.S. Rapaport, C.F. Liang, P. Paris, and PrvCom GAU July 1988 |
| 1987Ru05 | ZPAAD | 328, | 373 | E. Runte, F. Meissner, V. Freystein, T. Hild, H. Salewski, W.-D. Schmidt-Ott, R. Michaelsen |
| 1987Sa53 | JUPSA | 56, | 3881 | H.S. Sahota, T. Iwashita, B.S. Grewal |
| 1987Sc.A | P-Rosseau | | 477 | D. Schardt, R. Barden, R. Kirchner, O. Klepper, A. Plochocki, E. Roeckl, P. Kleinheinz, M. Piiparinen, B. Rubio, K. Zuber, C.F. Liang, P. Paris, A. Huck, G. Walter, G. Marguier, H. Gabelmann, J. Blomqvist |
| 1987Se04 | NUPAB | 464, | 381 | P.B. Semmes, R.A. Braga, R.W. Fink, J.L. Wood, J.D. Cole |
| 1987Se05 | PRLTA | 58, | 1930 | K.K. Seth, M. Artuso, D. Barlow, S. Iversen, M. Kaletka, H. Nann, B. Parker, R. Soundranayagam |
| 1987Se.A | P-Rosseau | | 324 | K.K. Seth |
| 1987Sp02 | PRVAA | 35, | 679 | P.T. Springer, C.L. Bennett, P.A. Baisden |
| 1987Sp09 | NUPAB | 474, | 359 | L. Spanier, K. Aleklett, B. Ekström, B. Fogelberg |
| 1987Sp.A | P-Leuven | | S559 | A.M.J. Spits, S.J. Robinson |
| 1987St04 | ZPAAD | 326, | 139 | E. Stiliaris, H.G. Bohlen, X.S. Chen, B. Gebauer, A. Miczaika, W. von Oertzen, W. Weller, T. Wilpert |
| 1987St11 | PRVCA | 35, | 2033 | G.S.F. Stephans, H.T. Fortune, L.C. Bland, M. Carchidi, R. Gilman, G.P. Gilfoyle, J.W. Sweet |
| 1987St.A | P-Rosseau | | 489 | J. Styczen, P. Kleinheinz, W. Starzecki, B. Rubio, G. de Angelis, H.J. Hahn, C.F. Liang, P. Paris, R. Reinhardt, P. von Brentano, J. Blomqvist |
| 1987To02 | PRVCA | 35, | 310 | K.S. Toth, D.C. Sousa, J.M. Nitschke, P.A. Wilmarth |
| 1987To09 | PRVCA | 35, | 2330 | K.S. Toth, D.M. Moltz, F. Blönnigen, F.T. Avignone, III |
| 1987Va09 | PRVCA | 35, | 1861 | P. Van Duppen, E. Coenen, K. Deneffe, M. Huyse, J.L. Wood |
| 1987Va20 | NUPAB | 469, | 531 | L. Van Elmbt, J. Deutsch, R. Prieels, and NUPAB 493(1989)611 |
| 1987Ve.A | P-Yurmala | | 146 | G.V. Veselov, K.A. Mezilev, Yu. N. Novikov, A.V. Lopov, V.A. Sergienko |
| 1987Vi01 | NUPAB | 463, | 605 | K. Vierinen |

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| 1987Wh01 | PRVCA | 35, | 81 | D.H. White, H.G. Börner, R.W. Hoff, K. Schreckenbach, W.F. Davidson, T. von Egidy, D.D. Warner, P. Jeuch, G. Barreau, W.R. Kane, M.L. Stelts, R.E. Chrien, R.F. Casten, R.G. Lanier, R.W. Loughheed, R.T. Kouzes, R.A. Naumann, R. Dewberry |
| 1987Wi03 | NUPAB | 464, | 315 | A. Willis, M. Morlet, N. Marty, C. Djalali, G.M. Crawley, A. Galonsky, V. Rotberg, B.A. Brown |
| 1987Wi15 | NUPAB | 473, | 129 | Ch. Winter, B. Krusche, K.P. Lieb, T. Weber, G. Hlawatsch, T. von Egidy, F. Hoyler |
| 1987Zi02 | NUPAB | 466, | 280 | F. Zijderhand, R.C. Makkus, C. van der Leun |
| | | | 1988 | |
| 1988Ah02 | NUPAB | 483, | 244 | S.A. Ahmad, W. Klempt, R. Neugart, E.W. Otten, P.-G. Reinhard, G. Ulm, K. Wendt, ISOLDE |
| 1988Ax01 | PYLBB | 210, | 249 | H. Axelsson, M. Cronqvist, A. De Rújula, P.G. Hansen, L. Johannsen, B. Jonson, R.A. Naumann, G. Nyman, J.W. Petersen, H.L. Ravn, K. Riisager, J.A. Scircle, ISOLDE |
| 1988Ay01 | PYLBB | 201, | 211 | J. Äystö, P. Taskinen, M. Yoshii, J. Honkanen, P. Jauho, H. Penttilä, C.N. Davids |
| 1988Ay02 | NUPAB | 480, | 104 | J. Äystö, C.N. Davids, J. Hattula, J. Honkanen, P. Jauho, R. Julin, S. Juutinen, J. Kumpulainen, T. Loenroth, A. Pakkanen, A. Passoja, H. Penttilä, P. Taskinen, E. Verho, A. Virtanen, M. Yoshi |
| 1988Ba10 | ZPAAD | 329, | 319 | R. Barden, R. Kirchner, O. Klepper, A. Płochocki, G.-E. Rathke, E. Roeckl, K. Rykaczewski, D. Schardt, J. Żylicz |
| 1988Ba42 | ZPAAD | 330, | 341 | D. Barnéoud, J. Blachot, J. Genevey, A. Gizon, R. Béraud, R. Duffait, A. Emsallem, M. Meyer, N. Redon, D. Rolando-Eugio |
| 1988Be.A | P-StMalo | | A1 | R. Béraud, R. Duffait, A. Emsallem, M. Meyer, N. Redon, D. Rolando-Eugio, D. Barnéoud, J. Blachot, J. Genevey, A. Gizon |
| 1988Bo06 | NUPAB | 477, | 89 | U. Bosch, W.-D. Schmidt-Ott, E. Runte, P. Tidemand-Petersson, P. Koschel, F. Meissner, R. Kirchner, O. Klepper, E. Roeckl, K. Rykaczewski, D. Schardt |
| 1988Bo20 | ZPAAD | 330, | 227 | H.G. Bohlen, B. Gebauer, D. Kolbert, W. von Oertzen, E. Stiliaris, M. Wilpert, T. Wilpert |
| 1988Bo28 | ZPAAD | 331, | 21 | V.R. Bom, R.W. Hollander, E. Coenen, K. Deneffe, P. Van Duppen, M. Huyse |
| 1988Bo39 | NUPAB | 490, | 287 | M.J.G. Borge, H. Cronberg, M. Cronqvist, H. Gabelmann, P.G. Hansen, L. Johannsen, B. Jonson, S. Mattsson, G. Nyman, A. Richter, K. Riisager, O. Tengblad, M. Tomaselli |
| 1988Bu08 | NUPAB | 483, | 221 | D.G. Burke, G. Løvhøiden, T.F. Thorsteinsen |
| 1988Ca21 | NUPAB | 489, | 347 | W.N. Catford, L.K. Fifield, T.R. Ophel, N.A. Orr, D.C. Weisser, C.L. Woods |
| 1988Ci04 | JPHGB | 14, | 1399 | N.M. Clarke, P.R. Hayes, M.B. Becha, K.I. Pearce, R.J. Griffiths, J.B.A. England, L. Zybert, C.N. Pinder, G.M. Field, R.S. Mackintosh |
| 1988Co18 | JPHGB | 14, | 1411 | G.G. Colvin, S.J. Robinson, F. Hoyler |
| 1988CoTa | CODBA | 63, | 1 | E.R. Cohen, B.N. Taylor |
| 1988De03 | NUPAB | 476, | 316 | H.P.L. De Esch, C. van der Leun |
| 1988Du09 | PYLBB | 206, | 195 | J.P. Dufour, R. Del Moral, F. Hubert, D. Jean, M.S. Pravikoff, A. Fleury, A.C. Mueller, K.-H. Schmidt, K. Sümmerner, E. Hanelt, J. Frehaut, M. Beau, G. Giraudet |
| 1988Fi04 | NUPAB | 484, | 117 | L.K. Fifield, R. Chapman, J.L. Durell, J.N. Mo, R.J. Smith, P.J. Woods, B.R. Fulton, R.A. Cunningham, P.V. Drumm |
| 1988Fo05 | PYLBB | 209, | 173 | B. Fogelberg, Ye Zongyuan, L. Spanier |
| 1988Fu10 | JUPSA | 57, | 2976 | Y. Fukuchi, T. Komatsubara, H. Sakamoto, T. Aoki, K. Furuno |
| 1988Gi04 | PRVCA | 37, | 2600 | M. Girod, Ph. Dessagne, M. Bernas, M. Langevin, F. Pougheon, P. Roussel |
| 1988Gr30 | RAACA | 43, | 223 | K.E. Gregorich, R.A. Henderson, D.M. Lee, M.J. Nurmia, R.M. Chasteler, H.L. Hall, D.A. Bennett, C.M. Gannett, R.B. Chadwick, J.D. Leyba, D.C. Hoffman, G. Herrmann |
| 1988Ho.B | VHDPG | 6, | 67 | S. Hofmann, P. Armbruster, G. Berthes, F. Heßberger, G. Münzenberg, K. Poppensieker, T. Faestermann, A. Gillitzer, W. Kurcewicz, I. Zychor |
| 1988Hu07 | ZPAAD | 330, | 121 | M. Huyse, P. del Marmol, E. Coenen, K. Deneffe, P. Van Duppen, J. Vanhorenbeeck |
| 1988Ka14 | ZPAAD | 330, | 55 | T. Karlewski, N. Hildebrand, M. Brügger, N. Kaffrell, N. Trautmann, G. Herrmann |

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| 1988Ka32 | JUPSA | 57, | 2873 | H. Kawakami, S. Kato, F. Naito, K. Nisimura, T. Ohshima, S. Shibata, T. Suzuki, K. Ukai, N. Morikawa, N. Nogawa, T. Nagafuchi, H. Taketani, M. Iwahashi, K. Hisatake, Y. Fukushima, T. Matsuda, T. Taniguchi |
| 1988Ke03 | ZPAAD | 330, | 37 | B.D. Kern, R.L. Mlekodaj, M.O. Kortelahti, R.A. Braga, R.W. Fink |
| 1988Ke09 | CJPHA | 66, | 947 | T.J. Kennett, W.V. Prestwich, J.S. Tsai |
| 1988Ku14 | NUPAB | 484, | 264 | T. Kuroyanagi, S. Mitarai, B.J. Min, H. Tomura, Y. Haruta, K. Heiguchi, S. Sue-matsu, Y. Onizuka |
| 1988Ma.A | P-BadHonnet | | 391 | H. Mach, E.K. Warburton, R.L. Gill, R.F. Casten, A. Wolf, Z. Berant, J.A. Winger, K. Sistemich, G. Molnár, S.M. Yates |
| 1988Me.A | Th.-Mainz | | | R. Menges, et al, and 89Ot.1 |
| 1988Mi13 | PRVCA | 38, | 895 | L.W. Mitchell, P.H. Fisher |
| 1988Mo18 | PRVCA | 38, | 737 | M.F. Mohar, E. Adamides, W. Benenson, C. Bloch, B.A. Brown, J. Clayton, E. Kashy, M. Lowe, J.A. Nolen, Jr., W.E. Ormand, J. van der Plicht, B. Sherrill, J. Stevenson, J.S. Winfield |
| 1988Ni02 | PRVCA | 37, | 2694 | J.M. Nitschke, P.A. Wilmarth, J. Gilat, K.S. Toth, F.T. Avignone III |
| 1988No02 | PRVCA | 37, | 860 | E.B. Norman, K.T. Lesko, A.E. Champagne |
| 1988Or01 | NUPAB | 477, | 523 | N.A. Orr, W.N. Catford, L.K. Fifield, T.R. Ophel, D.C. Weissner, C.L. Woods and erratum Nucl. Phys. A485(1988)734. |
| 1988Or.A | Th.-Canberra | | | N.A. Orr |
| 1988Qu.A | AnRpt GSI | | 16 | A.B. Quint, W. Morawek, K.-H. Schmidt, P. Armbruster, F.P. Heßberger, S. Hofmann, G. Müntenberg, W. Reisdorf, H. Stelzer, H.-G. Clerc, C.-C. Sahn |
| 1988Sa06 | ZPAAD | 329, | 169 | H. Salewski, W.-D. Schmidt-Ott |
| 1988Sa18 | PRVCA | 37, | 2371 | J.-L. Salicio, S. Drissi, M. Gasser, J. Kern, H.G. Börner, G.G. Colvin, K. Schreckenbach, R.W. Hoff, R.W. Loughheed |
| 1988Sc.A | VHDPG | 6, | 113 | D. Schardt, R. Barden, R. Kirchner, O. Klepper, E. Roeckl, P. Kleinheinz, B. Rubio, A. Huck, G. Walter |
| 1988Si22 | JUPSA | 57, | 3762 | K. Singh, T.S. Gill, K. Singh |
| 1988St.A | P-BadHonnet | | 239 | M.L. Stolzenwald, S. Brant, H. Ohm, K. Sistemich, G. Lhersonneau |
| 1988Vi02 | PRVCA | 38, | 1509 | K.S. Vierinen, A.A. Shihab-Eldin, J.M. Nitschke, P.A. Wilmarth, R.M. Chasteler, R.B. Firestone, K.S. Toth |
| 1988Wi05 | ZPAAD | 329, | 503 | P.A. Wilmarth, J.M. Nitschke, K. Vierinen, K.S. Toth, M. Kortelahti |
| 1988Wo02 | NUPAB | 476, | 392 | C.L. Woods, W.N. Catford, L.K. Fifield, N.A. Orr, R.J. Sadleir |
| 1988Wo07 | NUPAB | 484, | 145 | C.L. Woods, W.N. Catford, L.K. Fifield, N.A. Orr |
| 1988Wo09 | ZPAAD | 331, | 229 | J.M. Wouters, R.H. Kraus, Jr., D.J. Vieira, G.W. Butler, K.E.G. Lobner |
| 1989 | | | | |
| 1989Al33 | IANFA | 53, | 2089 | G.D. Alkhazov, B.N. Belyayev, V.D. Domkin, Yu. G. Korobulin, V.V. Lukashevich, V.S. Mukhin |
| 1989An13 | YAFIA | 50, | 619 | A.N. Andreyev, D.D. Bogdanov, A.V. Yerimin, A.P. Kabachenko, O.A. Orlova, G.M. Ter-Akopian, V.I. Chepigin |
| 1989An.A | P-Dubna | | 508 | A.N. Andreyev, D.D. Bogdanov, V.I. Chepigin, A.P. Kabachenko, O.A. Orlova, S. Sharo, G.M. Ter-Akopian, A.V. Yeremin, and 89An13 |
| 1989Ay.A | P-Dubna | | 427 | J. Äystö, P. Dendooven, P. Jauho, A. Jokinen, J. Parmonen, H. Penttilä, P. Taskinen, M. Leino, K. Eskola |
| 1989Ba22 | PYLBB | 223, | 273 | A.S. Barabash, V.V. Kuzminov, V.M. Lobashev, V.M. Novikov, B.M. Ovchinnikov, A.A. Pomansky |
| 1989Ba28 | PRVCA | 40, | 940 | S.C. Baker, M.J. Brown, P.H. Barker |
| 1989Ba42 | NUPAB | 500, | 1 | E.L. Bakkum, C. van der Leun |
| 1989Bo.A | PrvCom | GAu | Dec | H.G. Bohlen |
| 1989Bu09 | ZPAAD | 333, | 131 | D.G. Burke, H. Folger, H. Gabelmann, E. Hagebø, P. Hill, P. Hoff, O. Jons-son, N. Kaffrell, W. Kurcewicz, G. Løvhøiden, K. Nybø, G. Nyman, H. Ravn, K. Riisager, J. Rogowski, K. Steffensen, T.F. Thorsteinsen, ISOLDE |
| 1989Bu.A | Th.-Bordeaux | | | J. Busto PrvCom of F. Leccia 1988 |
| 1989Ca25 | NUPAB | 503, | 263 | W.N. Catford, L.K. Fifield, N.A. Orr, C.L. Woods |
| 1989Ch01 | PRVCA | 39, | 248 | A.E. Champagne, R.T. Kouzes, A.B. McDonald, M.M. Lowry, D.R. Benton, K.P. Coulter, Z.Q. Mao |
| 1989CI02 | NUPAB | 493, | 293 | E.T.H. Clifford, E. Hagberg, J.C. Hardy, H. Schmeing, R.E. Azuma, H.C. Evans, V.T. Koslowsky, U.J. Schrewe, K.S. Sharma, I.S. Towner |

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| 1989Dr03 | NUPAB | 496, | 530 | P.V. Drumm, L.K. Fifield, R.A. Bark, M.A.C. Hotchkis, C.L. Woods |
| 1989Fi01 | PRVCA | 39, | 219 | R.B. Firestone, J.M. Nitschke, P.A. Wilmarth, K. Vierinen, J. Gilat, K.S. Toth, Y.A. Akovali |
| 1989Gr03 | NUPAB | 491, | 373 | M. Graefenstedt, U. Keyser, F. Münnich, F. Schreiber, ISOLDE |
| 1989Gr23 | ZPAAD | 334, | 239 | M. Graefenstedt, P. Jürgens, U. Keyser, F. Münnich, F. Schreiber, K. Balog, T. Winkelmann, H.R. Faust |
| 1989Gu03 | ZPAAD | 332, | 189 | D. Guillemaud-Mueller, Y.E. Penionzhkevich, R. Anne, A.G. Artukh, D. Bazin, V. Borrel, C. Détraz, D. Guerreau, B.A. Gvozdev, J.C. Jacmart, D.X. Jiang, A.M. Kalinin, V.V. Kamanin, V.B. Kutner, M. Lewitowicz, S.M. Lukyanov, A.C. Mueller, N. Hoai Chau, F. Pougheon, A. Richard, M.G. Saint-Laurent, W.D. Schmidt-Ott (see also 93Po.A) |
| 1989Ha27 | NUPAB | 500, | 90 | Y. Hatsukawa, T. Ohtsuki, K. Sueki, H. Nakahara, I. Kohno, M. Magara, N. Shinohara, H.L. Hall, R.A. Henderson, C.M. Gannett, J.A. Leyba, R.B. Chadwick, K.E. Gregorich, D. Lee, M.J. Nurmia, D.C. Hoffman |
| 1989Ha.A | PENUC | III, | 99 | J.C. Hardy, E. Hagberg |
| 1989He03 | NIMAE | 274, | 522 | F.P. Heßberger, S. Hofmann, G. Münzenberg, K.-H. Schmidt, P. Armbruster, R. Hingmann |
| 1989He11 | NUPAB | 494, | 1 | D.W. Hetherington, A. Alousi, R.B. Moore |
| 1989He13 | ZPAAD | 333, | 111 | F.P. Heßberger, H. Gäggeler, P. Armbruster, W. Bröchle, H. Folger, S. Hofmann, D. Jost, J.V. Kratz, M.E. Leino, G. Münzenberg, V. Ninov, M. Schädel, U. Scherer, K. Sümmerer, A. Türler, D. Ackermann |
| 1989Hi04 | NUPAB | 492, | 237 | T. Hild, W.-D. Schmidt-Ott, V. Freystein, F. Meissner, E. Runte, H. Salewski, R. Michaelsen |
| 1989Ho08 | ZPAAD | 332, | 407 | P. Hoff, B. Ekström, B. Fogelberg PrvCom of L. Spanier et al to ref. |
| 1989Ho12 | ZPAAD | 333, | 107 | S. Hofmann, P. Armbruster, G. Berthes, T. Faestermann, A. Gillitzer, F.P. Heßberger, W. Kurcewicz, G. Münzenberg, K. Poppensieker, H.J. Schött, I. Zychor |
| 1989Ho13 | NUPAB | 496, | 462 | J. Honkanen, V. Koponen, P. Taskinen, J. Aysto, K. Eskola, S. Messelt, K. Ogawa |
| 1989Ho15 | NUPAB | 500, | 111 | C. Hofmeyr |
| 1989Hu03 | PRVCA | 39, | 997 | H. Huck, A. Jech, G. Marti, M.L. Perez, J.J. Rossi, H.M. Sofia |
| 1989Je07 | NUPAB | 503, | 77 | C. Jeanperrin, L.H. Rosier, B. Ramstein, E.I. Obiajunwa |
| 1989Jo.A | AnRpt JYFL | | 81 | A. Jokinen, J. Äystö, C.N. Davids, K. Eskola, P. Jauho, M. Leino, J.M. Parnonen, H. Penttilä, P. Taskinen |
| 1989Ka04 | PRVCA | 39, | 818 | S. Kato, S. Kubono, M.H. Tanaka, M. Yasue, T. Nomura, Y. Fuchi, S. Ohkawa, T. Miyachi, K. Iwata, T. Suehiro, Y. Yoshida |
| 1989Ki11 | NUPAB | 496, | 429 | S.W. Kikstra, C. van der Leun, S. Raman, E.T. Jurney, I.S. Towner |
| 1989Ko07 | ZPAAD | 332, | 229 | M.O. Kortelahti, H.K. Carter, R.A. Braga, R.W. Fink, B.D. Kern |
| 1989Ko22 | ZPAAD | 333, | 339 | V. Koponen, J. Äystö, J. Honkanen, P. Jauho, H. Penttilä, J. Suhonen, P. Taskinen, K. Rykaczewski, J. Żylicz, C.N. Davids |
| 1989Ku08 | NUPAB | 494, | 203 | H. Kudo, T. Nomura, K. Sueki, M. Magara, N. Yoshida |
| 1989Lo07 | NUPAB | 494, | 157 | G. Løvghøiden, T.F. Thorsteinsen, E. Andersen, M.F. Kiziltan, D.G. Burke |
| 1989Ma05 | JPGPE | 15, | 173 | A.M. Mandal, S.K. Saha, S.M. Sahakundu, A.P. Patro |
| 1989Me02 | ZPAAD | 332, | 153 | F. Meissner, W.-D. Schmidt-Ott, V. Freystein, T. Hild, E. Runte, H. Salewski, R. Michaelsen |
| 1989Mi03 | PRVCA | 39, | 992 | Ch. Miehé, Ph. Dessagne, P. Baumann, A. Huck, G. Klotz, A. Knipper, G. Walter, G. Marguier |
| 1989Mi16 | NUPAB | 501, | 437 | S. Michaelsen, Ch. Winter, K.P. Lieb, B. Krusche, S. Robinson, T. von Egidy |
| 1989Mi17 | NUPAB | 501, | 557 | H. Miyatake, T. Nomura, S. Kubono, J. Tanaka, M. Oyaizu, H. Okawa, N. Ikeda, K. Sueki, H. Kudo, K. Morita, T. Shinozuka |
| 1989Mi.A | P-Dubna | | 66 | V.L. Mikheev, et al |
| 1989Mu09 | ZPAAD | 333, | 163 | G. Münzenberg, P. Armbruster, S. Hofmann, F.P. Heßberger, H. Folger, J.G. Keller, V. Ninov, K. Poppensieker, A.B. Quint, W. Reisdorf, K.-H. Schmidt, J.R.H. Schneider, H.J. Schött, K. Sümmerer, I. Zychor, M.E. Leino, D. Ackermann, U. Gollerthan, E. Hanelt, W. Morawek, D. Vermeulen, Y. Fujita, T. Schwab |
| 1989Mu16 | NUPAB | 502, | 571 | G. Münzenberg |
| 1989Ok.A | NEANDC(J)-140/U | | | K. Okano, Y. Kawase |
| 1989Or03 | NUPAB | 491, | 443 | N.A. Orr, W.N. Catford, L.K. Fifield, M.A.C. Hotchkis, T.R. Ophel, D.C. Weissner, C.L. Woods |

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| 1989Or04 | NUPAB | 491, | 457 | N.A. Orr, L.K. Fifield, W.N. Catford, C.L. Woods |
| 1989Ot.A | THISc | 8, | 517 | E.W. Otten |
| 1989Po09 | NUPAB | 499, | 495[| 184Ir] M.G. Porquet, C. Bourgeois, P. Kilcher, B. Roussière, J. Sauvage, H. Dautet, J.K.P. Lee, ISOCELE |
| 1989Po10 | NUPAB | 500, | 287 | F. Pougheon, V. Borrel, J.C. Jacmart, R. Anne, C. Détraz, D. Guillemaud-Mueller, A.C. Mueller, D. Bazin, R. Del Moral, J.P. Dufour, F. Hubert, M.S. Pravikoff, G. Audi, E. Roeckl, B.A. Brown |
| 1989Pr.A | PENUC | II, | 205 | P.B. Price, S.W. Barwick |
| 1989Re04 | PRVCA | 40, | 368 | A. Redondo, R.G.H. Robertson |
| 1989Re.A | P-Miami | | | P.L. Reeder, et al |
| 1989Ri03 | NUPAB | 499, | 221 | R. Richter, I. Förster, A. Gelberg, A.M.I. Haque, P. von Brentano, R.F. Casten, H.G. Börner, G.G. Colvin, K. Schreckenbach, G. Barreau, S.A. Kerr, H.H. Schmidt, P. Hungerford, H.J. Scheerer, T. von Egidy, R. Rascher |
| 1989Ry02 | ZPAAD | 332, | 275 | K. Rykaczewski, A. Płochocki, I.S. Grant, H. Gabelmann, R. Barden, D. Schardt, J. Żylicz, G. Nyman, ISOLDE |
| 1989Sa01 | JPGPE | 15, | 73 | S.K. Saha, S.M. Sahakundu |
| 1989Sa11 | NUPAB | 494, | 36 | S.L. Sakharov, I.A. Kondurov, Yu. E. Loginov, V.V. Martynov, A.A. Radionov, P.A. Sushkov, Yu. L. Khazov, A.I. Egorov, V.K. Isupov, H.G. Börner, F. Hoyler, S. Kerr, K. Schreckenbach, G. Hlawatsch, T. von Egidy, H. Lindner |
| 1989Sc24 | NUPAB | 501, | 86 | H. Schölermann, R. Böttger |
| 1989Sc31 | NUPAB | 504, | 1 | H.H. Schmidt, P. Hungerford, T. von Egidy, H.J. Scheerer, H.G. Börner, S.A. Kerr, K. Schreckenbach, F. Hoyler, G.G. Colvin, A.M. Bruce, R.F. Casten, D.D. Warner, I.L. Kugava, V.A. Bondarenko, N.D. Kramer, P.T. Prokofjev, A. Chalupka |
| 1989Sc.A | NDSAA | 57, | 515 | M.R. Schmorak |
| 1989Sh10 | NIMAE | 275, | 123 | K.S. Sharma, H. Schmeing, H.C. Evans, E. Hagberg, J.C. Hardy, V.T. Koslowsky |
| 1989Si04 | PRVDA | 39, | 1825 | J.J. Simpson, A. Hime |
| 1989Sm06 | SAPHD | 12, | 74 | J.J.A. Smit, Z.H.J. Pretorius, F.B. Waanders, J.P.L. Reinecke, J. Keilonen |
| 1989St05 | PRVCA | 39, | 1503 | S.T. Staggs, R.G.H. Robertson, D.L. Wark, P.P. Nguyen, J.F. Wilkerson, T.J. Bowles |
| 1989St06 | PRVCA | 39, | 1963 | C.A. Stone, S.H. Faller, W.B. Walters |
| 1989Su.A | BAPSA | 34, | 1819 | B. Sur, E.B. Norman, K.T. Lesko, E. Browne, R.M. Larimer, H.L. Hall, J.D. Leyba, D.C. Hoffman |
| 1989Ta11 | ZPAAD | 333, | 29 | J.L. Tain, B. Rubio, P. Kleinheinz, D. Schardt, R. Barden, J. Blomqvist |
| 1989To01 | PRVCA | 39, | 1150 | K.S. Toth, D.M. Moltz, J.D. Robertson |
| 1989Vi02 | PRVCA | 39, | 1972 | K.S. Vierinen, J.M. Nitschke, P.A. Wilmarth, R.M. Chasteler, A.A. Shihab-Eldin, R.B. Firestone, K.S. Toth, Y.A. Akovali |
| 1989Vi04 | NUPAB | 499, | 1 | K.S. Vierinen, J.M. Nitschke, P.A. Wilmarth, R.B. Firestone, J. Gilat |
| 1989Wa10 | PRVCA | 39, | 1647 | S. Wang, D. Snowden-Ifft, P.B. Price, K.J. Moody, E.K. Hulet |
| 1989Wi01 | ZPAAD | 332, | 33 | G. Winter, J. Döring, L. Funke, L. Kaubler, R. Schwengner, H. Prade |
| 1989Wi05 | NUPAB | 491, | 395 | Ch. Winter, B. Krusche, K.P. Lieb, S. Michaelson, G. Hlawatsch, H. Linder, T. von Egidy, F. Hoyler, R.F. Casten |
| 1989Yu01 | PRVCA | 39, | 256 | S. Yuan, T. Zhang, S. Xu, W. Li, L. Zhang, M. Liu, X. Ou, W. Li |
| 1989Zh04 | PRVCA | 39, | 1985 | Z. Zhao, M. Gai, B.J. Lund, S.L. Rugari, D. Mikolas, B.A. Brown, J.A. Nolen, Jr., M. Samuel |
| 1989Zl.A | PrvCom | GAu | May | I. Žilimen |
| 1990 | | | | |
| 1990Aj01 | NUPAB | 506, | 1 | F. Ajzenberg-Selove, and PrvCom AHW |
| 1990Ak01 | PRVCA | 41, | 1126 | Y.A. Akovali, K.S. Toth, A.L. Goodman, J.M. Nitschke, P.A. Wilmarth, D.M. Moltz, M.N. Rao, D.C. Sousa |
| 1990Ak04 | PRVCA | 42, | 1130 | Y.A. Akovali, K.S. Toth, C.R. Bingham, M.B. Kassim, M. Zhang, H.K. Carter, W.D. Hamilton, J. Kormicki |
| 1990Am04 | PZETA | 51, | 607 | A.I. Amelin, M.G. Gornow, Yu. B. Gurov, A.I. Ilin, V.P. Koplev, P.V. Morokhov, K.O. Oganessian, V.A. Pechkurov, V.I. Saveliev, E.M. Sergeyev, B.A. Chern'yshev, R.R. Shafigulin, A.V. Shishkov |

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| 1990Am05 | YAFIA | 52, | 1231 | A.I. Amelin, M.G. Gornov, Y.B. Gurov, A.L. Il'in, P.V. Morokhov, V.A. Pechkurov, V.I. Savelev, F.M. Sergeev, S.A. Smirnov, B.A. Chernyshev, R.R. Shafigullin, A.V. Shishkov |
| 1990An19 | ZPAAD | 337, | 229 | A.N. Andreyev, D.D. Bogdanov, V.I. Chepigin, A.P. Kabachenko, S. Sharo, G.M. Ter-Akopian, A.V. Yeremin |
| 1990An22 | ZPAAD | 337, | 231 | A.N. Andreyev, D.D. Bogdanov, V.I. Chepigin, A.P. Kabachenko, S. Sharo, G.M. Ter-Akopian, A.V. Yeremin, O.N. Malyshev |
| 1990An31 | JRNCD | 142, | 203 | R.A. Anderl, R.C. Greenwood |
| 1990Be.A | PrvCom | AHW | Jun | C.E. Bemis |
| 1990Be.B | P-Leningrad | | 132 | E.A. Belomytseva, G.V. Veselov, K.A. Mezilev, Yu. N. Novikov, A.G. Polyakov, A.V. Popov, Yu. Ya. Sergeev, V.A. Sergienko, V.I. Tichonov |
| 1990Bo24 | NUPAB | 515, | 21 | M.J.G. Borge, H. Gabelmann, L. Johannsen, B. Jonson, G. Nyman, K. Riisager, O. Tengblad, ISOLDE |
| 1990Bo39 | YAFIA | 52, | 358 | D.D. Bogdanov, V.P. Bugrov, S.G. Kadmenskiĭ |
| 1990Bo52 | IANFA | 54, | 1787 | S.T. Boneva, E.V. Vasileva, V.D. Kulik, L.K. Khem, Yu. P. Popov, A.M. Sukhovi, V.A. Khitrov, Yu. V. Kholnov |
| 1990Bu17 | PRVCA | 42, | 499 | D.G. Burke, P.E. Garrett, Tao Qu, R.A. Naumann |
| 1990Bu28 | YAFIA | 52, | 305 | E. Bukhner, I.N. Vishnevsky, F.A. Danevich, Yu. G. Zdesenko, H.V. Klapdor, B.N. Kropivnyansky, V.N. Kuts, A. Piepke, V.I. Tretyak, G. Heusser, J. Schneider, H. Strecker |
| 1990Ch34 | PRVCA | 42, | 1171 | R.M. Chasteler, J.M. Nitschke, R.B. Firestone, K.S. Vierinen, P.A. Wilmarth |
| 1990Ch37 | PRVCA | 42, | 1796 | R.M. Chasteler, J.M. Nitschke, R.B. Firestone, K.S. Vierinen, P.A. Wilmarth |
| 1990De43 | NUPAB | 519, | 529 | C. Détraz, R. Anne, P. Bricault, D. Guillemaud-Mueller, M. Lewitowicz, A.C. Mueller, Yu Hu Zhang, V. Borrel, J.C. Jacmart, F. Pougheon, A. Richard, D. Bazin, J.P. Dufour, A. Fleury, F. Hubert, M.S. Pravikoff |
| 1990Dy04 | PYLBB | 245, | 343 | G.R. Dyck, M.H. Sidky, J.G. Hykawy, C.A. Lander, K.S. Sharma, R.C. Barber, H.E. Duckworth |
| 1990En02 | NUPAB | 510, | 209 | P.M. Endt, C. Alderliesten, F. Zijderhand, A.A. Wolters, A.G.M. van Hees |
| 1990En08 | NUPAB | 521, | 1 | P.M. Endt |
| 1990Fa03 | PHSTB | 41, | 652 | B. Fant, T. Weckstrom, A. Kallberg |
| 1990Fo07 | ZPAAD | 337, | 251 | B. Fogelberg, Y. Zongyuan, B. Ekström, E. Lund, K. Aleklett, L. Sihver |
| 1990Ge12 | ZDACE | 17, | 119 | Ch. Gerz, D. Wilsdorf, G. Werth |
| 1990Gr10 | ZPAAD | 336, | 247 | M. Graefenstedt, P. Jürgens, U. Keyser, F. Münnich, F. Schreiber, K. Balog, T. Winkelmann, H.R. Faust, B. Pfeiffer |
| 1990Ha02 | PRVCA | 41, | 618 | H.L. Hall, K.E. Gregorich, R.A. Henderson, C.M. Gannett, R.B. Chadwick, J.D. Leyba, K.R. Czerwinski, B. Kadkhodayan, S.A. Kreek, D.M. Lee, M.J. Nurmia, D.C. Hoffman, C.E.A. Palmer, P.A. Baisden |
| 1990He11 | PRVCA | 41, | 2325 | M. Hellström, B. Fogelberg, L. Spanier, H. Mach |
| 1990Ho02 | PRVCA | 41, | 484 | R.W. Hoff, S. Drissi, J. Kern, W. Strassmann, H.G. Börner, K. Schreckenbach, G. Barreau, W.D. Ruhter, L.G. Mann, D.H. White, J.H. Landrum, R.J. Dupzyk, R.F. Casten, W.R. Kane, D.D. Warner |
| 1990Ho03 | PRVCA | 41, | 631 | D.C. Hoffman, D.M. Lee, K.E. Gregorich, M.J. Nurmia, R.B. Chadwick, K.B. Chen, K.R. Czerwinski, C.M. Gannett, H.L. Hall, R.A. Henderson, B. Kadkhodayan, S.A. Kreek, J.D. Leyba |
| 1990Ho10 | NUPAB | 512, | 189 | F. Hoyler, J. Jolie, G.G. Colvin, H.G. Börner, K. Schreckenbach, P. Van Isacker, P. Fettweis, H. Göktürk, J.C. Dehaes, R.F. Casten, D.D. Warner, A.M. Bruce |
| 1990Is02 | PRVCA | 41, | 1272 | M.A. Islam, T.J. Kennett, W.V. Prestwich |
| 1990Is03 | ZPAAD | 335, | 173 | M.A. Islam, T.J. Kennett, W.V. Prestwich |
| 1990Is06 | ZPAAD | 335, | 243 | M.C.P. Isaac, V.R. Vanin, O.A.M. Helene |
| 1990Is07 | PRVCA | 42, | 207 | M.A. Islam, T.J. Kennett, W.V. Prestwich |
| 1990Is09 | CJPHA | 68, | 1237 | M.A. Islam, T.J. Kennett, W.V. Prestwich |
| 1990Ka01 | PRVCA | 41, | 1276 | S. Kato, S. Kubono, M.H. Tanaka, M. Yasue, T. Nomura, Y. Fuchi, Y. Funatsu, S. Ohkawa, T. Miyachi, K. Iwata, T. Suehiro, Y. Yoshida, O. Nitoh |
| 1990Ka10 | PRVCA | 41, | 2004 | S. Kato, S. Kubono, T. Nomura, Y. Fuchi, Y. Funatsu, S. Ohkawa, T. Miyachi, T. Suehiro, Y. Yoshida |
| 1990Ka19 | PRVCA | 42, | 563 | S. Kato, S. Kubono, M.H. Tanaka, T. Nomura, Y. Fuchi, Y. Funatsu, S. Ohkawa, T. Miyachi, T. Suehiro, Y. Yoshida |
| 1990Ka21 | NUPAB | 514, | 173 | A. Kaerts, P.H.M. van Assche, S.A. Kerr, F. Hoyler, H.G. Börner, R.F. Casten, D.D. Warner |

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|----------|---------------|------|-------|---|
| 1990Ka27 | PRVCA | 42, | 1918 | S. Kato, S. Kubono, M.H. Tanaka, M. Yasue, Y. Fuchi, Y. Funatsu, S. Ohkawa, T. Miyashi, T. Suehiro, Y. Yoshida |
| 1990Ki07 | NUPAB | 512, | 425 | S.W. Kikstra, C. van der Leun, P.M. Endt, J.G.L. Booten, A.G.M. van Hees, A.A. Wolters |
| 1990Ko25 | PRVCA | 42, | 1267 | M.O. Kortelahti, B.D. Kern, R.A. Braga, R.W. Fink, I.C. Girit, R.L. Mlekodaj |
| 1990Le03 | ZPAAD | 335, | 117 | M. Lewitowicz, R. Anne, A.G. Artukh, D. Bazin, A.V. Belozyorov, P. Bricault, C. Détraz, D. Guillemaud-Mueller, J.C. Jacmart, E. Kashy, A. Latimier, S.M. Lukyanov, A.C. Mueller, Yu. E. Penionzhkevich, F. Pougheon, A. Richard, W.D. Schmidt-Ott, Y. Zhang |
| 1990Li14 | NUCIA | 103, | 553 | Sr. Little Flower, B.R.S. Babu, P. Venkataramaiah, H. Sanjeeviah |
| 1990Li40 | NIMAE | 297, | 217 | H. Lindner, H. Trieb, T. von Egidy, H. Hiller, J. Klora, U. Mayerhofer, A. Walter, A.H. Wapstra |
| 1990Ma03 | PRVCA | 41, | 226 | H. Mach, E.K. Warburton, R.L. Gill, R.F. Casten, J.A. Becker, B.A. Brown, J.A. Winger |
| 1990Me08 | PRVCA | 41, | 2921 | J.T. Meek, W.G. Millen, G.W. Stockton, R.T. Kouzes |
| 1990Mu06 | NUPAB | 513, | 1 | A.C. Mueller, D. Guillemaud-Mueller, J.C. Jacmart, E. Kashy, F. Pougheon, A. Richard, A. Staudt, H.V. Klapdor-Kleingrothaus, M. Lewitowicz, R. Anne, P. Bricault, C. Détraz, Yu. E. Penionzhkevich, A.G. Artukh, A.V. Belozyorov, S.M. Lukyanov, D. Bazin, W.D. Schmidt-Ott |
| 1990Ne.A | PrvCom | | Gizon | R. Neugart |
| 1990Ne.B | P-Monterey | | | Zs. Netmeth, Karlsruhe |
| 1990Ni05 | ZPAAD | 336, | 473 | V. Ninov, F.P. Heßberger, P. Armbruster, S. Hofmann, G. Münzenberg, M. Leino, Y. Fujita, D. Ackermann, W. Morawek, A. Lüttgen |
| 1990Og01 | PYLBB | 235, | 35 | A.A. Ogloblin, N.I. Venikov, S.K. Lisin, S.V. Pirozhkov, V.A. Pchelin, Yu. F. Rodionov, V.M. Semochkin, V.A. Shabrov, I.K. Shvetsov, V.M. Shubko, S.P. Tretyakova, V.L. Mikheev |
| 1990Pi05 | NUPAB | 510, | 301 | Š. Piskoř, W. Schäferlingová |
| 1990Po13 | IANFA | 54, | 852 | A.V. Potempa, V.P. Afanasjev, Ya. Vavryshchuk, K. Ya. Gromov, V.G. Kalin-nikov, N. Yu. Kovotskii, V.V. Kuznetsov, M. Lewandowski, Ya. A. Saidimov, M. Yakhim, Zh. Sereter, V.I. Fominykh, V. Charnadski, Yu. V. Yushkevich, M. Yanistki, A. Yasinski |
| 1990Pr02 | CJPHA | 68, | 261 | W.V. Prestwich, T.J. Kennett, and erratum CJPHA 68,1352 |
| 1990Re08 | ZPAAD | 336, | 381 | G. Reusen, V.R. Bom, P. Decrock, P. Dendooven, M. Huyse, R.W. Hollander, P. Van Duppen, J. Vanhorenbeeck, J. Wauters |
| 1990Sa32 | ZPAAD | 337, | 161 | H. Salewski, K. Becker, W.-D. Schmidt-Ott, T. Hild, F. Meissner, E. Runte, R. Michaelsen |
| 1990Sa.A | Th.-Gottingen | | | H. Salewski |
| 1990Se17 | FZKAA | 22, | 183 | H. Seyfarth, H.H. Guven, B. Kardon, G. Lhersonneau, K. Sistemich, S. Brant, N. Kaffrell, P. Maier-Komor, H.K. Vonach, V. Paar, D. Vorkapic, R.A. Meyer |
| 1990Sh15 | IMPAE | 5, | 2821 | R.K. Sheline, C.F. Liang, P. Paris |
| 1990Sh.A | AnRpt LBL | | 114 | A.A. Shihab-Eldin, P.A. Wilmarth, K.S. Vierinen, J.M. Nitschke, R.M. Chasteler, R.B. Firestone |
| 1990So08 | PRAMC | 35, | 329 | P.C. Sood, R.K. Sheline |
| 1990St13 | ZPAAD | 336, | 369 | U. Stöhlker, A. Blönnigen, W. Lippert, H. Wollnik |
| 1990St25 | PRLTA | 65, | 3104 | H. Stolzenberg, St. Becker, G. Bollen, F. Kern, H.-J. Kluge, Th. Otto, G. Savard, L. Schweikhard, G. Audi, R.B. Moore |
| 1990Tu01 | ZPAAD | 337, | 361 | X.L. Tu, X.G. Zhou, D.J. Vieira, J.M. Wouters, Z.Y. Zhou, H.L. Seifert, V.G. Lind |
| 1990Wa22 | NIMAE | 292, | 671 | A.H. Wapstra |
| 1990We01 | PRVCA | 41, | 778 | D. Weselka, P. Hille, A. Chalupka |
| 1990Wi12 | PRVCA | 42, | 954 | J.A. Winger, J.C. Hill, F.K. Wohn, E.K. Warburton, R.L. Gill, A. Piotrowski, R.B. Schuhmann, D.S. Brenner |
| 1990Zh.A | GANIL-T-9002 | | | Y.H. Zhang |
| | | | 1991 | |
| 1991Aj01 | NUPAB | 523, | 1 | F. Ajzenberg-Selove |
| 1991An10 | ZPAAD | 338, | 363 | A.N. Andreyev, D.D. Bogdanov, V.I. Chepigin, A.P. Kabachenko, O.N. Maly-shev, G.M. Ter-Akopian, A.V. Yerebin |

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| 1991Ba06 | NUPAB | 523, | 261 | M.K. Balodis, N.D. Kramer, P.T. Prokofjev, A.V. Afanasjev, T.V. Guseva, J.J. Tambergs, K. Schreckenbach, W.F. Davidson, D.D. Warner, J.A. Pinston, P.H.M. van Assche, A.M.J. Spits |
| 1991Be25 | NUPAB | 533, | 113 | A. Ben Braham, C. Bourgeois, P. Kilcher, F. Le Blanc, B. Roussi re, J. Sauvage, A.J. Kreiner, M.G. Porquet, ISOCELE |
| 1991Bi04 | PRVCA | 44, | 1208 | C.R. Bingham, M.B. Kassim, M. Zhang, Y.A. Akovali, K.S. Toth, W.D. Hamilton, H.K. Carter, J. Kormicki, J. von Schwarzenberg, M.M. Jarrio |
| 1991BI05 | PRVCA | 44, | 325 | S. Blagus, D. Miljanic, M. Zadro, G. Calvi, M. Lattuada, F. Riggi, C. Spitaleri, C. Blyth, O. Karban |
| 1991Bo22 | ZPAAD | 339, | 311 | A. Bouldjedri, A. Astier, R. B raud, R. Duffait, A. Emsallem, H. Haas, ISOLDE |
| 1991Bo32 | NUPAB | 531, | 353 | V. Borrel, J.C. Jacmart, F. Pougheon, R. Anne, C. D traz, D. Guillemaud-Mueller, A.C. Mueller, D. Bazin, R. Del Moral, J.P. Dufour, F. Hubert, M.S. Pravikoff, E. Roeckl |
| 1991Bo35 | NUPAB | 534, | 255 | H.G. B rner, R.F. Casten, I. F rster, D. Lieberz, P. von Brentano, S.J. Robinson, T. von Egidy, G. Hlawatsch, H. Lindner, P. Geltenbort, F. Hoyler, H. Faust, G. Colvin, W.R. Kane, M. MacPhail |
| 1991Bo.B | P-Niigata | | 83 | H.G. Bohlen |
| 1991Br17 | ZPAAD | 339, | 495 | T. Brohm, H.-G. Clerc, U. Gollerthan, W. Schwab, K.-H. Schmidt, R.S. Simon |
| 1991Bu12 | PRLTA | 67, | 2626 | B. Budick, J. Chen, H. Lin |
| 1991Du07 | ZPAAD | 341, | 39 | S.B. Dutta, R. Kirchner, O. Klepper, T.U. Kuhl, D. Marx, G.D. Sprouse, R. Menges, U. Dinger, G. Huber, S. Schroder |
| 1991Fi03 | PRVCA | 43, | 1066 | R.B. Firestone, J. Gilat, J.M. Nitschke, P.A. Wilmarth, K.S. Vierinen |
| 1991Go19 | NUPAB | 531, | 613 | M.G. Gornov, Yu. B. Gurov, P.V. Morokhov, V.A. Pechkurov, V.I. Savelyev, F.M. Sergeev, B.A. Chernyshev, R.R. Shafigullin, A.V. Shishkov, V.P. Koptev, K.O. Oganessian, B.P. Osipenco |
| 1991Gr12 | NUPAB | 530, | 401 | J.C. Griffin, R.A. Braga, R.W. Fink, J.L. Wood, H.K. Carter, R.L. Mlekodaj, C.R. Bingham, E. Coenen, M. Huyse, P. Van Duppen |
| 1991Gr13 | PRVCA | 44, | 1728 | V. Grafen, B. Ackermann, H. Baltzer, T. Bihn, C. G nther, J. de Boer, N. Gollwitzer, G. Graw, R. Hertenberger, H. Kader, A. Levon, A. L sch |
| 1991Ha31 | EULEE | 15, | 491 | D. Hagen, G. Werth |
| 1991He04 | ZPAAD | 338, | 7 | K. Heiguchi, T. Hosoda, T. Komatsubara, T. Nomura, K. Furuno, R. Nakatani, S. Mitarai, T. Kuroyanagi |
| 1991He21 | ZPAAD | 340, | 225 | F. Heine, T. Faestermann, A. Gillitzer, J. Homolka, M. K pf, W. Wagner, see also 92He. A |
| 1991Hi11 | PRVCA | 44, | 1581 | Y. Hirabayashi |
| 1991Hi.A | AnRpt LBL | | 69 | M.M. Hindi, K.L. Wedding, E.B. Norman, K.T. Lesko, B. Sur, R.-M. Larimer, M.T.F. da Cruz, K.R. Czerwinski |
| 1991Ho05 | JPGPE | 17, | 145 | T.H. Hoare, P.A. Butler, G.D. Jones, M. Loiselet, O. Naviliat-Cuncic, J. Vervier, M. Dahlinger, A.M.Y. El-Lawindy, R. Wadsworth, D.L. Watson |
| 1991Ho08 | CZYPA | 41, | 525 | J. Honzatko, K. Konecny, Z. Kosina |
| 1991Hy01 | PRLTA | 67, | 1708 | J.G. Hykawy, J.N. Nxumalo, P.P. Unger, C.A. Lander, R.C. Barber, K.S. Sharma, R.D. Peters, H.E. Duckworth |
| 1991Io02 | NUPAB | 531, | 112 | M. Ionescu-Bujor, A. Iordachescu, G. Pascovici |
| 1991Is01 | PRVCA | 43, | 1086 | M.A. Islam, T.J. Kennett, W.V. Prestwich |
| 1991Is02 | CJPHA | 69, | 658 | M.A. Islam, T.J. Kennett, W.V. Prestwich |
| 1991Jo11 | ZPAAD | 340, | 21 | A. Jokinen, J.  yst , P. Dendooven, K. Eskola, Z. Janas, P.P. Jauho, M.E. Leino, J.M. Parmonen, H. Penttil , K. Rykaczewski, P. Taskinen |
| 1991Ka41 | PYLBB | 256, | 105 | H. Kawakami, S. Kato, T. Ohshima, S. Shibata, K. Ukai, N. Morikawa, N. Nogawa, K. Haga, T. Nagafuchi, M. Shigeta, Y. Fukushima, T. Taniguchi |
| 1991Ke06 | NIMAE | 300, | 67 | H. Keller, R. Kirchner, O. Klepper, E. Roeckl, D. Schardt, R.S. Simon, P. Kleinheinz, C.F. Liang, P. Paris |
| 1991Ke08 | ZPAAD | 339, | 355 | H. Keller, R. Barden, R. Kirchner, O. Klepper, E. Roeckl, D. Schardt, I.S. Grant, A. Plochocki, K. Rykaczewski, J. Szerypo, J.  ylicz, ISOLDE |
| 1991Ke10 | NUPAB | 534, | 77 | J. Kern, A. Raemy, W. Beer, J.-Cl. Dousse, W. Schwitz, M.K. Balodis, P.T. Prokofjev, N.D. Kramer, L.I. Simonova, R.W. Hoff, D.G. Gardner, M.A. Gardner, R.F. Casten, R.L. Gill, R. Eder, T. von Egidy, E. Hagn, P. Hungerford, H.J. Scheerer, H.H. Schmidt, E. Zech, A. Chalupka, A.V. Murzin, V.A. Libman, I.V. Kononenko, C. Coceva, P. Giacobbe, I.A. Kondurov, Yu. E. Loginov, P.A. Sushkov, S. Brant, V. Paar |

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|----------|------------|------|------|---|
| 1991Ke11 | ZPAAD | 340, | 363 | H. Keller, R. Kirchner, O. Klepper, E. Roeckl, D. Schardt, R.S. Simon, P. Kleinheinz, R. Menegazzo, C.F. Liang, P. Paris, K. Rykaczewski, J. Żylicz, and Thesis H. Keller THD report GSI-91-6 February 1991 |
| 1991Ki04 | NUPAB | 529, | 39 | S.W. Kikstra, Z. Guo, C. van der Leun, P.M. Endt, S. Raman, T.A. Walkiewicz, J.W. Starnier, E.T. Jurney, I.S. Towner |
| 1991Ki02 | PRVCA | 44, | 2801 | N. Klay, F. Kaeppler, H. Beer, G. Schatz, H. Börner, F. Hoyler, S.J. Robinson, K. Schreckenbach, B. Krusche, U. Mayerhofer, G. Hlawatsch, H. Lindner, T. von Egidy, W. Andrejtscheff, P. Petkov |
| 1991Ko.A | P-Minsk | | 117 | I.A. Kondurov, Yu. E. Loginov, P.A. Sushkov |
| 1991Ko.B | P-Niigata | | 187 | T. Kobayashi |
| 1991Kr15 | ZPAAD | 340, | 419 | K.-L. Kratz, H. Gabelmann, P. Möller, B. Pfeiffer, H.L. Ravn, A. Wöhr, ISOLDE |
| 1991Kr.A | AnRpt LBL | | 57 | S.A. Kreek, et al |
| 1991Le09 | PRVCA | 44, | 336 | M. Leino, P.P. Jauho, J. Aysto, P. Decrock, P. Dendooven, K. Eskola, M. Huyse, A. Jokinen, J.M. Parmonen, H. Penttilä, G. Reusen, P. Taskinen, P. Van Duppen, J. Wauters |
| 1991Le15 | ZPAAD | 340, | 107 | M. Lewandowski, A.W. Potempa, V.I. Fominikh, K.Y. Gromov, M. Janicki, J.V. Juschkevich, V.G. Kalinnikov, N.J. Kotovskij, V.V. Kuznetsov, N. Raschkova, J.A. Sajdimov, J. Wawryszczuk |
| 1991Ly01 | PRVCA | 44, | 764 | J.E. Lynn, E.T. Jurney, S. Raman |
| 1991Ma65 | ZPAAD | 341, | 1 | U. Mayerhofer, T. von Egidy, J. Jolie, H.G. Börner, G. Colvin, S. Judge, B. Kruschke, S.J. Robinson, K. Schreckenbach, S. Brant, V. Paar |
| 1991Me05 | ZPAAD | 339, | 315 | F. Meissner, W.-D. Schmidt-Ott, K. Becker, U. Bosch-Wicke, U. Ellmers, H. Salewski, R. Michaelsen |
| 1991Mi08 | ZPAAD | 338, | 371 | S. Michaelsen, K.P. Lieb, S.J. Robinson |
| 1991Mi15 | NUPAB | 530, | 211 | B.J. Min, S. Suematsu, S. Mitarai, T. Kuroyanagi, K. Heiguchi, M. Matsuzaki |
| 1991No07 | JPGPE | 17, | s291 | E.B. Norman, B. Sur, K.T. Lesko, M.M. Hindi, R.-M. Larimer, T.R. Ho, J.T. Witort, P.N. Luke, W.L. Hansen, E.E. Haller |
| 1991Or01 | PYLBB | 258, | 29 | N.A. Orr, W. Mittag, L.K. Fifield, M. Lewitowicz, E. Plagnol, Y. Schutz, W.L. Zhan, L. Bianchi, A. Gillibert, A.V. Belozorov, S.M. Lukyanov, Yu. E. Penionzhkevich, A.C.C. Villari, A. Cunsolo, A. Foti, G. Audi, C. Stephan, L. Tassan-Got, and PrvCom GAu December 1990, and erratum PYLBB 271(1991)468 |
| 1991Pa05 | ZPAAD | 338, | 295 | R.D. Page, P.J. Woods, S.J. Bennett, M. Freer, B.R. Fulton, R.A. Cunningham, J. Groves, M.A.C. Hotchkis, A.N. James |
| 1991Pe04 | ZPAAD | 338, | 291 | H. Penttilä, J. Äystö, K. Eskola, Z. Janas, P.P. Jauho, A. Jokinen, M.E. Leino, J.M. Parmonen, P. Taskinen |
| 1991Pe10 | PRVCA | 44, | 935 | H. Penttilä, P.P. Jauho, J. Äystö, P. Decrock, P. Dendooven, M. Huyse, G. Reusen, P. Van Duppen, J. Wauters |
| 1991Ra01 | PRVCA | 43, | 521 | S. Raman, T.A. Walkiewicz, S. Kahane, E.T. Jurney, J. Sa, Z. Gacsi, J.L. Weil, K. Allaart, G. Bonsignori, J.F. Shriner, Jr. |
| 1991Re02 | PRVCA | 44, | 1435 | P.L. Reeder, R.A. Warner, W.K. Hensley, D.J. Vieira, J.M. Wouters |
| 1991Re.A | PrvCom | GAu | Sep | G. Reusen, M. Huyse |
| 1991Ro07 | PRLTA | 67, | 957 | R.G.H. Robertson, T.J. Bowles, G.J. Stephenson, Jr., D.L. Wark, J.F. Wilkerson, D.A. Knapp |
| 1991Ro.A | P-PacGrove | | 440 | S.J. Robinson, H.G. Börner, S. Judge, J. Jolie, P. Schillebeeckx |
| 1991Ry01 | ADNDA | 47, | 205 | A. Rytz |
| 1991Sh19 | PRVCA | 44, | 2439 | K.S. Sharma, E. Hagberg, G.R. Dyck, J.C. Hardy, V.T. Koslowsky, H. Schmeing, R.C. Barber, S. Yuan, W. Perry, M. Watson |
| 1991Su09 | PRLTA | 66, | 2444 | B. Sur, E.B. Norman, K.T. Lesko, M.M. Hindi, R.-M. Larimer, P.N. Luke, W.L. Hansen, E.E. Haller |
| 1991To08 | PRVCA | 44, | 1868 | K.S. Toth, K.S. Vierinen, M.O. Kortelahti, D.C. Sousa, J.M. Nitschke, P.A. Wilmarth |
| 1991To09 | ZPAAD | 340, | 343 | K.S. Toth, K.S. Vierinen, J.M. Nitschke, P.A. Wilmarth, R.M. Chasteler |
| 1991Tu02 | PRLTA | 67, | 3211 | A.L. Turkevich, T.E. Economou, G.A. Cowan |
| 1991Va04 | NUPAB | 529, | 268 | P. Van Duppen, P. Decrock, P. Dendooven, M. Huyse, G. Reusen, J. Wauters |
| 1991Wa21 | ZPAAD | 339, | 533 | J. Wauters, P. Decrock, P. Dendooven, M. Huyse, G. Reusen, P. Van Duppen |
| 1991Wa.A | PrvCom | AHW | | A.H. Wapstra |
| 1991Zh24 | PYLBB | 260, | 285 | X.G. Zhou, X.L. Tu, J.M. Wouters, D.J. Vieira, K.E.G. Lobner, H.L. Seifert, Z.Y. Zhou, G.W. Butler |

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| 1991ZI01 | PRLTA | 67, | 560 | I. Žlimen, A. Ljubičić, S. Kaučić, B.A. Logan |
| | | | 1992 | |
| 1992A1.A | B-Bernkastel | | PC2 | D.V. Aleksandrov, Yu. A. Glukhov, E. Yu. Nikolskii, B.G. Novatskii, A.A. Ogloblin, D.N. Stepanov |
| 1992A1.B | B-Bernkastel | | PA6 | G.D. Alkhazov, B.N. Belyaev, V.D. Domkin, Yu. G. Korobulin, V.V. Lukashevich, V.S. Mukhin, Yu. A. Suchilin, V.G. Khlopin |
| 1992An04 | ZPAAD | 342, | 123 | A.N. Andreyev, D.D. Bogdanov, V.I. Chepigin, A.P. Kabachenko, O.N. Malyshev, R.N. Sagajdak, G.M. Ter-Akopian, A.V. Yeremin |
| 1992An13 | JRNCD | 164, | 303 | M.S. Antony, D. Oster, A. Hachem |
| 1992An.A | P-Bernkastel | | 759 | A.N. Andreyev, D.D. Bogdanov, V.I. Chepigin, M. Florek, A.P. Kabachenko, O.N. Malyshev, S. Saro, G.M. Ter-Akopian, M. Veselsky, A.V. Yeremin |
| 1992Ba01 | PRVCA | 45, | 69 | D. Bazin, R. Del Moral, J.P. Dufour, A. Fleury, F. Hubert, M.S. Pravikoff, R. Anne, P. Bricault, C. Détraz, M. Lewitowicz, Y. Zheng, D. Guillemaud-Mueller, J.C. Jacmart, A.C. Mueller, F. Pougheon, A. Richard |
| 1992Ba28 | ZPAAD | 342, | 125 | K. Balog, M. Graefenstedt, M. Groß, P. Jürgens, U. Keyser, F. Münnich, T. Otto, F. Schreiber, T. Winkelmann, J. Wulff, ISOLDE |
| 1992Ba.A | P-Bernkastel | | 777 | P.H. Barker, S.A. Brindhaban |
| 1992Be17 | ZPAAD | 341, | 155 | M.R. Beitins, S.T. Boneva, V.A. Khitrov, L.A. Malov, Y.P. Popov, P.T. Prokofjev, G.L. Rezvaya, L.I. Simonova, A.M. Sukhovoij, E.V. Vasilieva |
| 1992Bo02 | NUPAB | 536, | 260 | R. Böttger, H. Schölermann |
| 1992Bo05 | NUPAB | 539, | 249 | M.J.G. Borge, D.G. Burke, H. Gietz, P. Hill, N. Kaffrell, W. Kurcewicz, G. Løvholden, S. Mattsson, R.A. Naumann, K. Nybø, G. Nyman, T.F. Thorsteinsson, ISOLDE |
| 1992Bo28 | JMOPE | 39, | 257 | G. Bollen, H.-J. Kluge, Th. Otto, G. Savard, L. Schweikhard, H. Stolzenberg, G. Audi, R.B. Moore, G. Rouleau, ISOLDE, and PrvCom GAu November 1991 |
| 1992Bo37 | ZPAAD | 344, | 135 | V. Borrel, R. Anne, D. Bazin, C. Borcea, G.G. Chubarian, R. Del Moral, C. Détraz, S. Dogny, J.P. Dufour, L. Faux, A. Fleury, L.K. Fifield, D. Guillemaud-Mueller, F. Hubert, E. Kashy, M. Lewitowicz, C. Marchand, A.C. Mueller, F. Pougheon, M.S. Pravikoff, M.G. Saint-Laurent, O. Sorlin |
| 1992Bo.B | PrvCom | AHW | Apr | R. Böttger |
| 1992Bo.D | P-Bernkastel | | 743 | V.A. Bolshakov, A.G. Dernjatin, K.A. Mezilev, Yu. N. Novikov, A.V. Popov, Yu. Ya. Sergeev, V.I. Tikhonov, V.A. Sergienko, G.V. Veselov |
| 1992Br17 | NUPAB | 542, | 1 | A.M. Bruce, W. Gelletly, G.G. Colvin, P. Van Isacker, D.D. Warner |
| 1992Bu10 | ZPAAD | 342, | 403 | D. Bucurescu, M.S. Rapaport, C.F. Liang, P. Paris, G. Cata-Danil |
| 1992Bu12 | NUPAB | 550, | 179 | D.G. Burke, P.E. Garrett |
| 1992Bu13 | PRVCA | 46, | 1267 | B. Budick, J. Chen, H. Lin |
| 1992Ch09 | PRVCA | 45, | 1720 | W.-T. Chou, E.K. Warburton |
| 1992Ch27 | PRLTA | 69, | 3151 | M. Chen, D.A. Imel, T.J. Radcliffe, H. Henrikson, F. Boehm |
| 1992Co23 | PYLB | 295, | 143 | E. Cosulich, G. Gallinaro, F. Gatti, S. Vitale |
| 1992Cz.A | LBL-32 | | 233 | K.R. Czerwinski (thesis) |
| 1992Da03 | ARISE | 43, | 69 | J. Dalmasso, G. Barci-Funel, G.J. Ardisson |
| 1992Da14 | ZPAAD | 343, | 161 | B. Dasmahapatra, S. Bhattacharya |
| 1992Do10 | PRVCA | 46, | 2127 | J. Döring, G. Winter, L. Funke, B. Cederwall, F. Lidén, A. Johnson, A. Atac, J. Nyberg, G. Sletten, M. Sugawara |
| 1992Ga15 | NUPAB | 550, | 1 | P.E. Garret, D.G. Burke |
| 1992Ge08 | PRLTA | 68, | 3412 | H. Geissel, K. Beckert, F. Bosch, H. Eickhoff, B. Franczak, B. Franzke, M. Jung, O. Klepper, R. Moshhammer, G. Münzenberg, F. Nickel, F. Nolden, U. Schaaf, C. Scheidenberger, P. Spädtke, M. Steck, K. Sümmerer, A. Magel |
| 1992Go10 | PRVCA | 46, | 833 | J. Görres, M. Wiescher, K. Scheller, D.J. Morrissey, B.M. Sherrill, D. Bazin, J.A. Winger |
| 1992Gr02 | PRVCA | 45, | 1058 | K.E. Gregorich, H.L. Hall, R.A. Henderson, J.D. Leyba, K.R. Czerwinski, S.A. Kreek, B.A. Khadkodayan, M.J. Nurmia, D.M. Lee, D.C. Hoffman |
| 1992Gr06 | NIMAE | 311, | 512 | M. Groß, P. Jürgens, U. Keyser, S. Kluge, M. Mehrrens, S. Müller, F. Münnich, J. Wulff |
| 1992Gr09 | ZPAAD | 341, | 247 | H. Grawe, P. Hoff, J.P. Omtvedt, K. Steffensen, R. Eder, H. Haas, H. Ravn, ISOLDE |

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|----------|-----------------|------|------|---|
| 1992Gr.A | P-Bernkastel | | 77 | M. Groß, P. Jürgens, S. Kluge, M. Mehrstens, S. Müller, F. Münnich, J. Wulff, see also 87Gr18 |
| 1992Gu03 | NUPAB | 540, | 117 | Z. Guo, C. Alderliesten, C. van der Leun, P.M. Endt |
| 1992Ha03 | PRVCA | 45, | 900 | F.X. Hartmann |
| 1992Ha10 | PRVCA | 45, | 1609 | E. Hagberg, X.J. Sun, V.T. Koslowsky, H. Schmeing, J.C. Hardy |
| 1992Ha15 | NIMAE | 313, | 237 | F.X. Hartmann, R.A. Naumann |
| 1992Ha21 | ZPAAD | 343, | 7 | A. Harder, S. Michaelson, A. Jungclaus, K.P. Lieb, A.P. Williams, H.G. Börner, M. Trautmannsheimer |
| 1992Ha22 | PRVCA | 46, | 1873 | T.M. Hamilton, K.E. Gregorich, D.M. Lee, K.R. Czerwinski, N.J. Hannink, C.D. Kacher, B. Kadkhodayan, S.A. Kreek, M.J. Nurmia, M.R. Lane, M.P. Neu, A. Türler, D.C. Hoffman |
| 1992He.A | P-Bernkastel | | 331 | F. Heine, T. Faestermann, A. Gillitzer, H.J. Körner |
| 1992Ho09 | PYLBB | 287, | 381 | E. Holzschuh, M. Fritschi, W. Kündig |
| 1992Hu04 | PRVCA | 46, | 1209 | M. Huyse, P. Decrock, P. Dendooven, G. Reusen. P. Van Duppen, J. Wauters |
| 1992Id01 | ZPAAD | 341, | 427 | N. Idrissi, A. Gizon, J. Genevey, P. Paris, V. Barci, D. Barnéoud, J. Blachot, D. Bucurescu, R. Duffait, J. Gizon, C.F. Liang, B. Weiss |
| 1992Iv.A | Th-Pennsylvania | | | R.A. Ivie Master's Thesis |
| 1992Jo05 | NUPAB | 549, | 420 | A. Jokinen, J. Äystö, P.P. Jauho, M. Leino, J.M. Parmonen, H. Penttilä, K. Eskola, Z. Janas |
| 1992Ju01 | PRLTA | 69, | 2164 | M. Jung, F. Bosch, K. Beckert, H. Eickhoff, H. Folger, B. Franzke, A. Gruber, P. Kienle, O. Klepper, W. Koenig, C. Kozhuharov, R. Mann, R. Moshhammer, F. Nolden, U. Schaaf, G. Soff, P. Spädtke, M. Steck, T. Stöhlker, K. Sümmerer |
| 1992Ka29 | PYLBB | 287, | 45 | H. Kawakami, S. Kato, T. Ohshima, C. Rosenfeld, H. Sakamoto, T. Sato, S. Shibata, J. Shirai, Y. Sugaya, T. Suzuki, K. Takahashi, T. Tsukamoto, K. Ueno, K. Ukai, S. Wilson, Y. Yonezawa |
| 1992Ke06 | PHSTB | 46, | 575 | J. Kern, T. Engel, D. Hagen, G. Werth |
| 1992Kr01 | PRVCA | 45, | 1064 | J.V. Kratz, M.K. Gober, H.P. Zimmermann, M. Schädel, W. Bruchle, E. Schimpf, K.E. Gregorich, A. Türler, N.J. Hannink, K.R. Czerwinski, B. Kadkhodayan, D.M. Lee, M.J. Nurmia, D.C. Hoffman, H. Gäggeler, D. Jost, J. Kovacs, U.W. Scherer, A. Weber |
| 1992Kr.A | AnRpt LBL | | 58 | S.A. Kreek, et al |
| 1992Ku02 | NUPAB | 537, | 153 | S. Kubono, Y. Funatsu, N. Ikeda, M. Yasue, T. Nomura, Y. Fuchi, H. Kawashima, S. Kato, H. Miyatake, H. Orihara, T. Kajino |
| 1992Li09 | ZPAAD | 341, | 401 | C.F. Liang, P. Paris, A. Gizon, V. Barci, D. Barneou, R. Béraud, J. Blachot, Ch. Briançon, J. Genevey, R.K. Sheline, and PrvCom GAu September 1992 |
| 1992Lo.B | UCRL-JC-109951 | | | R.W. Loughheed, et al |
| 1992Me10 | ZPAAD | 343, | 283 | F. Meissner, H. Salewski, W.-D. Schmidt-Ott, U. Bosch-Wicke, R. Michaelson |
| 1992Mo03 | PRVCA | 45, | 1392 | K.J. Moody, E.K. Hulet, P.B. Price |
| 1992Mo15 | ZPAAD | 342, | 273 | D.M. Moltz, J.C. Batchelder, T.F. Lang, T.J. Ognibene, J. Cerny, P.E. Haustein, P.L. Reeder |
| 1992Mo25 | PRVCA | 46, | 2624 | K.J. Moody, R.W. Loughheed, E.K. Hulet |
| 1992Mu12 | ZPAAD | 342, | 393 | J. Mukai, A. Odahara, R. Nakatani, Y. Haruta, H. Tomura, B.J. Min, K. Heiguchi, S. Suematsu, S. Mitarai, T. Kuroyanagi |
| 1992Os04 | ZPAAD | 343, | 489 | A.N. Ostrowski, H.G. Bohlen, A.S. Demyanova, B. Gebauer, R. Kalpakchieva, Ch. Langner, H. Lenske, M. von Lucke-Petsch, W. von Oertzen, A.A. Ogloblin, Y.E. Penionzhkevich, M. Wilpert, Th. Wilpert |
| 1992Os07 | NIMBE | 70, | 551 | A. Osa, T. Ikuta, A. Taniguchi, H. Yamamoto, K. Kawade, S. Ichikawa, Y. Kawase |
| 1992Ot.A | PrvCom | GAu | Mar | E.W. Otten |
| 1992Pa05 | PRLTA | 68, | 1287 | R.D. Page, P.J. Woods, R.A. Cunningham, T. Davinson, N.J. Davis, S. Hofmann, A.N. James, K. Livingston, P.J. Sellin, A.C. Shotton |
| 1992PI01 | ZPAAD | 342, | 43 | A. Plochocki, K. Rykaczewski, T. Batsch, J. Szerypo, J. Żylicz, R. Barden, O. Klepper, E. Roeckl, D. Schardt, H. Gabelmann, P. Hill, H. Ravn, T. Thorsteinson, I.S. Grant, H. Grawe, P. Manakos, L.D. Skouras, ISOLDE |
| 1992Po14 | BRSPE | 56, | 666 | A.V. Potempa, K. Ya. Gromov, J. Wawryszczuk, V.G. Kalinnikov, V.V. Kuznetsov, M. Levandovsky, J. Saraatar, Ya. Saidimov, V.I. Fominykh, Yu. V. Yushkevich, M.B. Yuldashev |
| 1992Pr03 | ZPAAD | 342, | 23 | M. Przewłoka, A. Przewłoka, P. Wächter, H. Wollnik |
| 1992Pr04 | ZPAAD | 342, | 27 | M. Przewłoka, A. Przewłoka, P. Wächter, H. Wollnik |

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| 1992Ra18 | PRVCA | 46, | 2241 | S. Raman, J.L. Campbell, A. Prindle, R. Gunnink, J.C. Palathingal |
| 1992Ra19 | PRVCA | 46, | 972 | S. Raman, E.T. Jurney, J.W. Starnner, J.E. Lynn |
| 1992Sa03 | NUPAB | 540, | 83 | J. Sauvage, C. Bourgeois, P. Kilcher, F. Le Blanc, B. Roussière, M.I. Macias-Marques, F. Bragança Gil, M.G. Porquet, H. Dautet, ISOCELE |
| 1992Sc16 | NUPAB | 545, | 646 | W.-D. Schmidt-Ott, H. Salewski, F. Meissner, U. Bosch-Wicke, P. Koschel, V. Kunze, R. Michaelson |
| 1992Sh.A | P-Bernkastel | | 31 | K.S. Sharma, P. Unger, G.R. Dyck, R.C. Barber, E. Hagberg, J.G. Hykawy, V.T. Koslowsky, J.C. Hardy, H. Schmeing, G. Savard, W. Perry, M. Watson, and PrvCom AHW October 1992 |
| 1992Sp.A | PrvCom | | 92Ch09 | L. Spanier, B. Fogelberg, M. Hellström |
| 1992Th06 | NUPAB | 548, | 71 | K. Theine, A.P. Byrne, H. Hubel, M. Murzel, R. Chapman, D. Clarke, F. Khaz-aie, J.C. Lisle, J.N. Mo, J.D. Garrett, H. Ryde, R. Wyss |
| 1992To02 | PRVCA | 45, | 856 | K.S. Toth, H.J. Kim, J.W. McConnell, C.R. Bingham, D.C. Sousa |
| 1992Ul.A | PrvCom | AHW | Mar | S. Ulbig |
| 1992Un01 | NIMAE | 312, | 349 | M.P. Unterweger, D.D. Hoppes, F.J. Schima |
| 1992Va.A | P-Bernkastel | | 3 | R.S. Van Dyck, Jr., D.L. Farnham, P.B. Schwinberg |
| 1992Wa06 | PRVCA | 45, | 1597 | T.A. Walkiewicz, S. Raman, E.T. Jurney, J.W. Starnner, J.E. Lynn |
| 1992Wo03 | ARISE | 43, | 551 | D.H. Woods, S.A. Woods, M.J. Woods, J.L. Makepeace, C.W.A. Downey, D. Smith, A.S. Munster, S.E.M. Lucas, H. Sharma |
| 1992Wo06 | NIMAE | 312, | 346 | M.J. Woods, S.E.M. Lucas, D.F.G. Reher, G. Sibbens |
| 1992Wu09 | ZPAAD | 344, | 205 | S. Wüstenbecker, H.W. Becker, H. Ebbing, W.H. Schulte, M. Berheide, M. Buschmann, C. Rolfs, G.E. Mitchell, J.S. Schweitzer |
| 1992Xu04 | PRVCA | 46, | 510 | S.-W. Xu, J.-S. Guo, S.-G. Yuan, M.-Q. Liu, E. Hagberg, V.T. Koslowsky, J.C. Hardy, G. Dyck, H. Schmeing, and erratum PRVCA 46(1992)2644 |
| 1993 | | | | |
| 1993Ab11 | PYLBB | 316, | 26 | H. Abele, G. Helm, U. Kania, C. Schmidt, J. Last, D. Dubbers |
| 1993Al03 | ZPAAD | 344, | 425 | G.D. Alkhazov, L.H. Batist, A.A. Bykov, F.V. Moroz, S. Yu. Orlov, V.K. Tarasov, V.D. Wittmann |
| 1993An07 | ZPAAD | 345, | 247 | A.N. Andreyev, D.D. Bogdanov, V.I. Chepigin, A.P. Kabachenko, O.N. Malyshov, R.N. Sagaidak, G.M. Ter-Akopian, M. Veselsky, A.V. Yeremin |
| 1993An11 | PYLBB | 312, | 49 | A.N. Andreyev, D.D. Bogdanov, S. Saro, G.M. Ter-Akopian, M. Veselsky, A.V. Yeremin |
| 1993An19 | NIMAE | 330, | 125 | A.N. Andreyev, D.D. Bogdanov, V.I. Chepigin, V.A. Gorshkov, K.V. Mikhailov, A.P. Kabachenko, G.S. Popeko, S. Daro, G.M. Ter-Akopian, A.V. Yeremin |
| 1993As02 | PRVCA | 47, | 2954 | K. Ashktorab, J.W. Jänecke, F.D. Becchetti, D.A. Roberts |
| 1993Ba12 | PRVCA | 47, | 2038 | J.C. Batchelder, D.M. Moltz, T.J. Ognibene, M.W. Rowe, J. Cerny |
| 1993Ba61 | PRVCA | 48, | 2593 | J.C. Batchelder, D.M. Moltz, T.J. Ognibene, M.W. Rowe, R.J. Tighe, J. Cerny |
| 1993Be21 | PRVCA | 48, | R1 | G.E. Berman, M.L. Pitt, F.P. Calaprice, M.M. Lowry |
| 1993Be46 | ZPAAD | 346, | 325 | P. Bednarczyk, G. de Angelis, P. Spolaore, D. Ackermann, J. Rico, D. Bazzacco, S. Lunardi, L. Müller, C. Rossi Alvarez, F. Scarlassara, G.F. Segato, F. Soramel |
| 1993Bo01 | NUPAB | 551, | 54 | V.A. Bondarenko, I.L. Kuvaga, P.T. Prokofjev, V.A. Khitrov, Yu. V. Kholnov, Le Hong Khiem, Yu. P. Popov, A.M. Sukhovoij, S. Brant, V. Paar, V. Lopac |
| 1993Bo03 | ZPAAD | 344, | 381 | H.G. Bohlen, B. Gebauer, M. von Lucke-Petsch, W. von Oertzen, A.N. Ostrowski, M. Wilpert, Th. Wilpert, H. Lenske, D.V. Alexandrov, A.S. Demyanova, E. Nikolskii, A.A. Korshennikov, A.A. Ogloblin, R. Kalpakchieva, Y.E. Penionzhkevich, Š. Piskoř |
| 1993Bo20 | NUPAB | 556, | 115 | R. Bonetti, C. Chiesa, A. Guglielmetti, C. Migliorino, A. Cesana, M. Terrani |
| 1993Bo.A | AnRpt GSI | | 65 | F. Bosch, M. Jung |
| 1993Bu02 | PRVCA | 47, | 131 | D.G. Burke, P.C. Sood, P.E. Garrett, Tao Qu, R.K. Sheline, R.W. Hoff |
| 1993Ch21 | PRVCA | 48, | 109 | R.E. Chrien, B.K.S. Koene, M.L. Stelts, R.A. Meyer, S. Brant, V. Paar, V. Lopac |
| 1993Di03 | PRVCA | 47, | 2916 | D.E. DiGregorio, S. Gil, H. Huck, E.R. Batista, A.M.J. Ferrero, A.O. Gattone |
| 1993Dm02 | ARISE | 44, | 1097 | S.N. Dmitriev, Yu. Ts. Oganessian, G.V. Buklabov, Yu. P. Kharitonov, A.F. Novgorodov, L.I. Salamatin, G. Ya. Starodub, S.V. Shishkin, Yu. V. Yushkevich, D. Newton |
| 1993Do05 | PRVCA | 47, | 2560 | J. Döring, J.W. Holcomb, T.D. Johnson, M.A. Riley, S.L. Tabor, P.C. Womble, G. Winter |

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| 1993Dr.A | P-Fribourg | | 305 | S. Drissi, M. Deleze, P.E. Garrett, J. Jolie, J. Kern, S.J. Mannanal, P.A. Tercier, J.P. Vorlet, N. Warr, G. Mouze, C. Ythier, H.G. Borner, F. Hoyler, S. Judge, K. Schreckenbach, A. Williams |
| 1993Go37 | PRVAA | 47, | 3433 | M.V. Gorshkov, G.M. Alber, L. Schweikhard, A.G. Marshall |
| 1993Go38 | IJMPD | 128, | 47 | M.V. Gorshkov, S. Guan, A.G. Marshall |
| 1993Gr17 | NIMAE | 337, | 106 | R.C. Greenwood, M.H. Putnam |
| 1993Gr.C | AnRpt Berkeley | | 76 | K.E. Gregorich, C.D. Kacher, M.F. Mohar, D.M. Lee, M.R. Lane, E.R. Sylwester, D.C. Hoffman, M. Schädel, W. Brüche, J.V. Kratz, R. Günther and AnRpt GSI p.14 |
| 1993Ha05 | ZPAAD | 345, | 143 | A. Harder, S. Michaelson, K.P. Lieb, A.P. Williams |
| 1993Ho.A | AnRpt GSI | | 64 | S. Hofmann, V. Ninov, F.P. Heßberger, H. Folger, G. Münzenberg, H.J. Schött, P. Armbruster, A.N. Andreyev, A.G. Popeko, A.V. Yeremin, M.E. Leino, R. Janik, S. Saro, M. Veselsky, and PrvCom AHW September 1995 |
| 1993Ja03 | NUPAB | 552, | 340 | Z. Janas, J. Äystö, K. Eskola, P.P. Jauho, A. Jokinen, J. Kownacki, M. Leino, J.M. Parmonen, H. Penttilä, J. Szerypo, J. Żylicz |
| 1993Je06 | PHSTB | 48, | 399 | R. Jertz, D. Beck, G. Bollen, J. Emmes, H.-J. Kluge, E. Schark, S. Schwarz, T. Schwarz, L. Schweikhard, P. Senne C. Carlberg, I. Bergström, H. Borgenstrand, G. Rouleau, R. Schuch, F. Söderberg |
| 1993KI02 | PRVCA | 47, | 2502 | G. Klotz, P. Baumann, M. Bounajma, A. Huck, A. Knipper, G. Walter, G. Marguier, C. Richard-Serre, A. Poves, J. Retamosa |
| 1993Li10 | NUCIA | 106, | 163 | Sr. Little Flower, B.R.S. Babu, K. Neelakandan, R.N. Mukherjee, B.B. Baliga |
| 1993Li18 | PYLBB | 312, | 46 | K. Livingston, P.J. Woods, T. Davinson, N.J. Davis, S. Hofmann, A.N. James, R.D. Page, P.J. Sellin, A.C. Shotton |
| 1993Li34 | PRVCA | 48, | 2151 | K. Livingston, P.J. Woods, T. Davinson, N.J. Davis, S. Hofmann, A.N. James, R.D. Page, P.J. Sellin, A.C. Shotton |
| 1993Li40 | PRVCA | 48, | 3113 | K. Livingston, P.J. Woods, T. Davinson, N.J. Davis, A.N. James, R.D. Page, P.J. Sellin, A.C. Shotton |
| 1993Ma50 | NUPAB | 565, | 543 | G. Mairle, M. Seeger, H. Reinhardt, T. Kihm, K.T. Knöpfle, Chen Lin Wen |
| 1993Ma.A | PrvCom | GAu | Feb | A.G. Marshall |
| 1993Mi04 | NUPAB | 552, | 232 | S. Michaelson, A. Harder, K.P. Lieb, G. Graw, R. Hertenberger, D. Hofer, P. Schiemenz, E. Zanotti, H. Lenske, A. Weigel, H.H. Wolter, S.J. Robinson, A.P. Williams |
| 1993Mo01 | PRLTA | 70, | 394 | J.L. Mortara, I. Ahmad, K.P. Coulter, S.J. Freedman, B.K. Fujikawa, J.P. Greene, J.P. Schiffer, W.H. Trzaska, A.R. Zeuli |
| 1993Mo18 | NUPAB | 563, | 21 | K.J. Moody, R.W. Loughheed, J.F. Wild, R.J. Dougan, E.K. Hulet, R.W. Hoff, C.M. Henderson, R.J. Dupzyk, R.L. Hahn, K. Sümmerer, G.D. O'Kelley, G.R. Bethune |
| 1993Nx01 | PYLBB | 302, | 13 | J.N. Nxumalo, J.G. Hykawy, P. P Unger, C.A. Lander, R.C. Barber, K.S. Sharma, H.E. Duckworth |
| 1993Nx02 | PYLBB | 312, | 388 | J.N. Nxumalo, J.G. Hykawy, K.J. Aarts, R.C. Barber, K.S. Sharma, H.E. Duckworth |
| 1993Oh02 | PRVDA | 47, | 4840 | T. Ohshima, H. Sakamoto, T. Sato, J. Shirai, T. Tsukamoto, Y. Sugaya, K. Takahashi, T. Suzuki, C. Rosenfeld, S. Wilson, K. Ueno, Y. Yonezawa, H. Kawakami, S. Kato, S. Shibata, K. Ukai |
| 1993Os06 | NIMAE | 332, | 169 | A. Osa, T. Ikuta, M. Shibata, M. Miyachi, H. Yamamoto, K. Kawade, Y. Kawase, S. Ichikawa |
| 1993Pe11 | NUPAB | 561, | 416 | H. Penttilä, T. Enqvist, P.P. Jauho, A. Jokinen, M. Leino, J.M. Parmonen, J. Äystö, K. Eskola |
| 1993Po.A | PrvCom | GAu | Dec | F. Pougheon |
| 1993Pr.A | P-Fribourg | | 441 | P.T. Prokofjev, A.V. Afanasjev, M.R. Beitins, L.I. Simonova, M.K. Balodis, G.L. Rezvaja |
| 1993Qu03 | ZPAAD | 346, | 119 | A.B. Quint, W. Reisdorf, K.-H. Schmidt, P. Armbruster, F.P. Heßberger, S. Hofmann, J. Keller, G. Münzenberg, H. Stelzer, H.-G. Clerc, W. Morawek, C.-C. Sahn |
| 1993Ru01 | ADNDA | 53, | 1 | G. Rudstam, K. Aleklett, L. Sihver |
| 1993Ru03 | PRVCA | 47, | 2574 | D. Rudolph, C.J. Gross, M.K. Kabadiyski, K.P. Lieb, M. Weiszflog, H. Grawe, J. Heese, K.-H. Maier, J. Eberth |
| 1993Sc16 | ZPAAD | 345, | 265 | D. Schardt, K. Riisager |

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| 1993Se04 | PRVCA | 47, | 1933 | P.J. Sellin, P.J. Woods, T. Davinson, N.J. Davis, K. Livingston, R.D. Page, A.C. Shotton, S. Hofmann, A.N. James |
| 1993Se09 | ZPAAD | 346, | 323 | P.J. Sellin, P.J. Woods, T. Davinson, N.J. Davis, A.N. James, K. Livingston, R.D. Page, A.C. Shotton |
| 1993Sh07 | JPGPE | 19, | 617 | R.K. Sheline, J. Kvasil, C.F. Liang, P. Paris |
| 1993Sh23 | ARISE | 44, | 923 | M. Shibata, M. Asai, T. Ikuta, H. Yamamoto, J. Ruan, K. Okano, K. Aoki, K. Kawade |
| 1993Si05 | NIMAE | 330, | 195 | M.H. Sidky, J.G. Hyckawy, G.R. Dyck, R.C. Barber, K.S. Sharma, C.A. Lander, H.E. Duckworth |
| 1993Sp.A | AnRpt JYFL | | 95 | A.M. Spits, P.H.M. Van Assche, H.G. Borner, W.F. Davidson, D.D. Warner, K. Schreckenbach, G.G. Colvin, R.C. Greenwood, C.W. Reich, P.O. Lipas, J. Suhonen, P. Sinkko, A. Backlin |
| 1993To04 | PRVCA | 48, | 436 | K.S. Toth, D.C. Sousa, J.M. Nitschke, K.S. Vierinen, P.A. Wilmarth |
| 1993To05 | PRVCA | 48, | 445 | K.S. Toth, P.A. Wilmarth, J.M. Nitschke, D.C. Sousa |
| 1993Va04 | PRLTA | 70, | 2888 | R.S. Van Dyck, Jr., D.L. Farnham, P.B. Schwinberg |
| 1993Va.C | PrvCom | GAu | May | R.S. Van Dyck, Jr., D.L. Farnham, P.B. Schwinberg |
| 1993Wa03 | ZPAAD | 345, | 21 | J. Wauters, P. Dendooven, M. Huyse, G. Reusen, P. Van Duppen, R. Kirchner, O. Klepper, E. Roeckl |
| 1993Wa04 | PRVCA | 47, | 1447 | J. Wauters, P. Dendooven, M. Huyse, G. Reusen, P. Van Duppen, P. Lievens, ISOLDE |
| 1993We03 | PYLBB | 300, | 210 | Ch. Weinheimer, M. Przyrembel, H. Backe, H. Barth, J. Bonn, B. Degen, Th. Edling, H. Fischer, L. Fleischmann, J.U. Grooß, R. Haid, A. Hermann, G. Kube, P. Leiderer, Th. Loeken, A. Moltz, R.B. Moore, A. Osipowicz, E.W. Otten, A. Picard, M. Schrader, M. Steininger |
| 1993Wi03 | PYLBB | 299, | 214 | J.A. Winger, D. Bazin, W. Benenson, G.M. Crawley, D.J. Morrissey, N.A. Orr, R. Pfaff, B.M. Sherrill, M. Steiner, M. Thoennessen, S.J. Yennello, B.M. Young |
| 1993Wi05 | PRLTA | 70, | 1759 | F.E. Wietfeldt, Y.D. Chan, M.T.F. da Cruz, A. García, R.-M. Larimer, K.T. Lesko, E.B. Norman, R.G. Stokstad, I. Žilimen |
| 1993Wo04 | PRVCA | 47, | 2546 | P.C. Womble, J. Döring, T. Glasmacher, J.W. Holcomb, G.D. Johns, T.D. Johnson, T.J. Petters, M.A. Riley, V.A. Wood, S.L. Tabor, P. Semmes |
| 1993Yo07 | PRLTA | 71, | 4124 | B.M. Young, W. Benenson, M. Fauerbach, J.H. Kelley, R. Pfaff, B.M. Sherrill, M. Steiner, J.S. Winfield, T. Kubo, M. Hellström, N.A. Orr, J. Stetson, J.A. Winger, S.J. Yennello |
| | | | 1994 | |
| 1994Ah03 | NUPAB | 576, | 246 | I. Ahmad, J.E. Gindler, M.P. Carpenter, D.J. Henderson, E.F. Moore, R.V.F. Janssens, I.G. Bearden, C.C. Foster |
| 1994An01 | NUPAB | 568, | 323 | A.N. Andreyev, D.D. Bogdanov, V.I. Chepigin, A.P. Kabachenko, O.N. Malysh, Yu. A. Muzychka, B.I. Pustynnik, G.M. Ter-Akopian, A.V. Yeremin |
| 1994An02 | ZPAAD | 347, | 225 | A.N. Andreyev, D.D. Bogdanov, V.I. Chepigin, A.P. Kabachenko, O.N. Malysh, A.G. Popeko, R.N. Sagaidak, G.M. Ter-Akopian, M. Veselsky, A.V. Yeremin |
| 1994Ba06 | PRVCA | 49, | 1221 | V. Banerjee, A. Banerjee, G.S.N. Murthy, R.P. Sharma, S.K. Pardha Saradhi, A. Chakrabarti |
| 1994Ba50 | PRVCA | 50, | 1180 | P. Baumann, M. Bounajma, A. Huck, G. Klotz, A. Knipper, G. Walter, G. Marguier, C. Richard-Serre, H. Ravn, E. Hagebø, P. Hoff, K. Steffensen |
| 1994Be24 | PYLBB | 331, | 19 | M. Bernas, S. Czajkowski, P. Armbruster, H. Geissel, Ph. Dessagne, C. Donzau, H.-R. Faust, E. Hanelt, A. Heinz, M. Heese, C. Kozhuharov, Ch. Miché, G. Münzenberg, M. Pfützner, C. Röhl, K.-H. Schmidt, W. Schwab, C. Stéphan, K. Sümmerer, L. Tassan-Got, B. Voss |
| 1994B110 | PRVCA | 50, | 2398 | B. Blank, S. Andriamonje, R. Del Moral, J.P. Dufour, A. Fleury, T. Josso, M.S. Pravikoff, S. Czajkowski, Z. Janas, A. Piechaczek, E. Roeckl, K.-H. Schmidt, K. Sümmerer, W. Trinder, M. Weber, T. Brohm, A. Grewe, E. Hanelt, A. Heinz, A. Junghans, C. Rohl, S. Steinhauser, B. Voss, M. Pfützner |
| 1994Bo28 | NUPAB | 576, | 21 | R. Bonetti, C. Chiesa, A. Guglielmetti, C. Migliorino, P. Monti, A.L. Pasinetti, H.L. Ravn |
| 1994Br11 | PRVCA | 49, | 2401 | S.A. Brindhaban, P.H. Barker |
| 1994Br37 | NIMAE | 340, | 436 | S.A. Brindhaban, P.H. Barker, M.J. Keeling, W.B. Wood |

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| 1994Bu18 | ZPAAD | 349, | 3 | D. Bucurescu, D. Barnéoud, R. Béraud, G. Cata-Danil, T. von Egidy, A. Emsallem, J. Genevey, A. Gizon, J. Gizon, C.F. Liang, P. Paris, C.A. Ur, B. Weiss |
| 1994De04 | NUPAB | 568, | 141 | M.E. Debray, A.J. Kreiner, M. Davidson, J. Davidson, D. Hojman, D. Santos, V.R. Vanin, N. Schutz, M. Aiche, A. Chevallier, J. Chevallier, J.C. Sens |
| 1994Do08 | PRVCA | 49, | 1867 | M. Domsbky, L. Buchmann, J.M. D'Auria, U. Giesen, K.P. Jackson, J.D. King, E. Korkmaz, R.G. Korteling, P. McNeely, J. Powell, G. Roy, M. Trinczek, J. Vincent |
| 1994Fa06 | PRVCA | 49, | 2440 | L. Faux, M.S. Pravikoff, S. Andriamonje, B. Blank, R. Del Moral, J.-P. Dufour, A. Fleury, C. Marchand, K.-H. Schmidt, K. Sümmerer, T. Brohm, H.-G. Clerc, A. Grewe, E. Hanelt, B. Voss, C. Ziegler |
| 1994Fo08 | PRVCA | 50, | 1355 | H.T. Fortune, G.-B. Liu, D.E. Alburger |
| 1994Fo14 | PRLTA | 73, | 2413 | B. Fogelberg, M. Hellström, D. Jerrestam, H. Mach, J. Blomqvist, A. Kerek, L.O. Norlin, J.P. Omtvedt |
| 1994Gi07 | PRVCA | 50, | 2612 | R.L. Gill |
| 1994Go.A | PrvCom | AHW | Jul | M.V. Gorshkov |
| 1994Gr07 | PRVCA | 49, | 2971 | P. Grabmayer, A. Mondry, G.J. Wagner, P. Woldt, G.P.A. Berg, J. Lisantti, D.W. Miller, H. Nann, E.J. Stephenson |
| 1994Gr08 | PRLTA | 72, | 1423 | K.E. Gregorich, M.R. Lane, M.F. Mohar, D.M. Lee, C.D. Kacher, E.R. Sylwester, D.C. Hoffman |
| 1994Ha.A | Th.-Mainz | | | H. Hartmann |
| 1994He08 | PRVCA | 49, | 1845 | R.G. Helmer, C.W. Reich |
| 1994He28 | PRVCA | 50, | 2219 | M. Hencheck, R.N. Boyd, M. Hellström, D.J. Morrissey, M.J. Balbes, F.R. Chloupek, M. Fauerbach, C.A. Mitchell, R. Pfaff, C.F. Powell, G. Raimann, B.M. Sherrill, M. Steiner, J. Vandegriff, S.J. Yennello |
| 1994Hi04 | PRVCA | 49, | 3289 | M.M. Hindi, R.L. Kozub, S.J. Robinson |
| 1994Hi05 | PRVCA | 50, | 728 | M.M. Hindi, A.E. Champagne, M.T.F. da Cruz, R.-M. Larimer, K.T. Lesko, E.B. Norman, B. Sur |
| 1994Hy01 | PRVCA | 50, | 1249 | J.G. Hykawy, R.C. Barber, K.S. Sharma, K.J. Aarts, J.N. Nxumalo, H.E. Duckworth |
| 1994Ib01 | ZPAAD | 350, | 9 | F. Ibrahim, P. Kilcher, B. Roussière, J. Sauvage, J. Genevey, A. Gizon, A. Knipper, G. Marguier, D. Barnéoud, R. Béraud, G. Cata-Danil, J. Blachot, I. Deloncle, R. Duffait, A. Emsallem, D. Hojman, A.J. Kreiner, F. Le Blanc, J. Libert, J. Oms |
| 1994It.A | P-Tokai | | 185 | S. Itoh, M. Yasuda, H. Yamamoto, T. Iida, A. Takahashi, K. Kawade |
| 1994Jo.A | Th.-Jyvaskyla | | | A. Jokinen |
| 1994Ko16 | PYLBB | 326, | 31 | A.A. Korshennikov, K. Yoshida, D.V. Aleksandrov, N. Aoi, Y. Doki, N. Inabe, M. Fujimaki, T. Kobayashi, H. Kumagai, C.-B. Moon, E. Yu. Nikolskii, M.M. Obuti, A.A. Ogloblin, A. Ozawa, S. Shimoura, T. Suzuki, I. Tanihata, Y. Watanabe, M. Yanokura |
| 1994Ko.A | AnRpt AECL | | 3-1 | V.T. Koslowsky, E. Hagberg, G. Savard, M.J. Watson, J.C. Hardy |
| 1994Kr13 | PRVCA | 50, | 2288 | S.A. Kreek, H.L. Hall, K.E. Gregorich, R.A. Henderson, J.D. Leyba, K.R. Czerwinski, B. Kadkhodayan, M.P. Neu, C.D. Kacher, T.M. Hamilton, M.R. Lane, E.R. Sylwester, A. Türler, D.M. Lee, M.J. Nurmia, D.C. Hoffman |
| 1994La22 | PRLTA | 73, | 624 | Yu. A. Lazarev, Yu. V. Lobanov, Yu. Ts. Oganessian, V.K. Utyonkov, F. Sh. Abdullin, G.V. Buklanov, B.N. Gikal, S. Iliev, A.N. Mezentsev, A.N. Polyakov, I.M. Sedych, I.V. Shirokovsky, V.G. Subbotin, A.M. Sukhov, Yu. S. Tsyganov, V.E. Zhuchko, R.W. Loughheed, K.J. Moody, J.F. Wild, E.K. Hulet, J.H. McQuaid |
| 1994Le05 | ZPAAD | 348, | 151 | M. Leino, J. Uusitalo, T. Enqvist, K. Eskola, A. Jokinen, K. Loberg, W.H. Trzaska, J. Äystö |
| 1994Le22 | NUPAB | 576, | 267 | A.I. Levon, J. de Boer, G. Graw, R. Hertenberger, D. Hofer, J. Kvasil, A. Lösch, E. Müller-Zanotti, M. Würkner, H. Baltzer, V. Grafen, C. Günther |
| 1994Li12 | PRVCA | 49, | 2230 | C.F. Liang, R.K. Sheline, P. Paris, M. Hussonois, J.F. Ledu, D.B. Isabelle |
| 1994Li20 | PRVCA | 49, | 3098 | S. Lin, S.A. Brindhaban, P.H. Barker |
| 1994Ma14 | PRVCA | 49, | 1755 | P.V. Magnus, E.G. Adelberger, A. García |
| 1994Mu02 | NUPAB | 568, | 202 | J. Mukai, A. Odahara, H. Tomura, S. Suematsu, S. Mitarai, T. Kuroyanagi, D. Jerrestam, J. Nyberg, G. Sletten, A. Atac, S.E. Arnell, H.A. Roth, Ö. Skeppstedt |
| 1994Os04 | PYLBB | 338, | 13 | A.N. Ostrowski, H.G. Bohlen, B. Gebauer, S.M. Grimes, R. Kalpakchieva, Th. Kirchner, T.N. Massey, W. von Oertzen, Th. Stolla, M. Wilpert, Th. Wilpert |

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| 1994Ot01 | NUPAB | 567, | 281 | T. Otto, G. Bollen, G. Savard, L. Schweikhard, H. Stolzenberg, G. Audi, R.B. Moore, G. Rouleau, J. Szerypo, Z. Patyk, ISOLDE |
| 1994Pa11 | PRVCA | 49, | 3312 | R.D. Page, P.J. Woods, R.A. Cunningham, T. Davinson, N.J. Davis, A.N. James, K. Livingston, P.J. Sellin, A.C. Shotton |
| 1994Pa12 | PRLTA | 72, | 1798 | R.D. Page, P.J. Woods, R.A. Cunningham, T. Davinson, N.J. Davis, A.N. James, K. Livingston, P.J. Sellin, A.C. Shotton |
| 1994Pa37 | NUPAB | 580, | 173 | G. Passler, J. Rikowska, E. Arnold, H.-J. Kluge, L. Monz, R. Neugart, H. Ravn, K. Wendt, ISOLDE |
| 1994Po26 | IANFA | 58, | 41 | A.V. Potempa, G.V. Veselov, V.A. Sergienko, K. Ya. Gromov, S.V. Evtisov, V.G. Kalinnikov, V.V. Kuznetsov, Zh. Sereeter, V.I. Fominykh, M.B. Yuldashev |
| 1994Ru19 | PLSSA | 42, | 227 | W. Rühm, B. Schneck, K. Knie, G. Korschinek, L. Zerle, E. Nolte, D. Weselka, H. Vonach |
| 1994Sa31 | PRVCA | 50, | 1170 | C. Sáenz, E. Cerezo, E. Garcia, A. Morales, J. Morales, R. Nunez-Lagos, A. Ortiz de Solorzano, J. Puimedon, A. Salinas, M.L. Sarsa, J.A. Villar, A. Klimenko, V. Kuzminov, N. Metlinsky, V. Novikov, A. Pomansky, B. Pritychenko |
| 1994Sc01 | PRVCA | 49, | 46 | K.W. Scheller, J. Gorres, J.G. Ross, M. Wiescher, R. Harkewicz, D.J. Morrissey, B.M. Sherrill, M. Steiner, N.A. Orr, J.A. Winger |
| 1994Se12 | ZPAAD | 349, | 25 | H.L. Seifert, J.M. Wouters, D.J. Vieira, H. Wollnik, X.G. Zhou, X.L. Tu, Z.Y. Zhou, G.W. Butler |
| 1994Sh02 | PRVCA | 49, | 725 | R.K. Sheline, C.F. Liang, P. Paris, A. Gizon, V. Barci |
| 1994Sh07 | ZPAAD | 348, | 25 | T. Shizuma, M. Kidera, E. Ideguchi, A. Odahara, H. Tomura, S. Suematsu, T. Kuroyanagi, Y. Gono, S. Mitarai, J. Mukai, T. Komatsubara, K. Furuno, K. Heiguchi |
| 1994Si26 | ARISE | 45, | 669 | B.R.S. Simpson, B.R. Meyer |
| 1994St31 | ZPAAD | 347, | 287 | M.-L. Stolzenwald, G. Lhersonneau, M. Liang, G. Molnar, H. Ohm, K. Sistemich |
| 1994Ti03 | PRVCA | 49, | 2871 | R.J. Tighe, D.M. Moltz, J.C. Batchelder, T.J. Ognibene, M.W. Rowe, J. Cerny |
| 1994To10 | PRVCA | 50, | 518 | K.S. Toth |
| 1994Wa05 | NUPAB | 568, | 397 | P.M. Walker, G.D. Dracoulis, A.P. Byrne, B. Fabricius, T. Kibédi, A.E. Stuchbery, N. Rowley |
| 1994Wa17 | PRVCA | 50, | 487 | C. Wagemans, S. Druyts, P. Geltenbort |
| 1994Wa23 | PRVCA | 50, | 2768 | J. Wauters, N. Bijmens, H. Folger, M. Huyse, H.Y. Hwang, R. Kirchner, J. von Schwarzenberg, P. Van Duppen |
| 1994We02 | ZPAAD | 347, | 185 | C. Wennemann, W.-D. Schmidt-Ott, T. Hild, K. Krumbholz, V. Kunze, F. Meissner, H. Keller, R. Kirchner, E. Roeckl |
| 1994Ya07 | PYLBB | 334, | 229 | S. Yasumi, H. Maezawa, K. Shima, Y. Inagaki, T. Mukoyama, T. Mizogawa, K. Sera, S. Kishimoto, M. Fujioka, K. Ishii, T. Omori, G. Izawa, O. Kawakami |
| 1994Ye08 | NIMAE | 350, | 608 | A.V. Yeremin, A.N. Andreyev, D.D. Bogdanov, G.M. Ter-Akopian, V.I. Chepigin, V.A. Gorshkov, A.P. Kabachenko, O.N. Malyshev, A.G. Popeko, R.N. Sagaidak, S. Sharo, E.N. Voronkov, A.V. Taranenko, A. Yu. Lavrentjev |
| 1994Yo01 | PRVCA | 49, | 279 | B.M. Young, W. Benenson, J.H. Kelley, N.A. Orr, R. Pfaff, B.M. Sherrill, M. Steiner, M. Thoennessen, J.S. Winfield, J.A. Winger, S.J. Yennello, A. Zeller |
| 1995 | | | | |
| 1995Al31 | PZETA | 62, | 18 | D.V. Aleksandrov, E. Yu. Nikolsky, B.G. Novatsky, D.N. Stepanov, V. Buryan, V. Kroga, Ya. Novak |
| 1995Ap.A | PrvCom | GAu | May | A. Aprahamian, D.S. Brenner, R. Gill, A. Piotrowski, R.F. Casten |
| 1995Ba28 | PRLTA | 74, | 3569 | D. Bazin, B.A. Brown, J. Brown, M. Fauerbach, M. Hellström, S.E. Hirzebruch, J.H. Kelley, R.A. Kryger, D.J. Morrissey, R. Pfaff, C.F. Powell, B.M. Sherrill, M. Thoennessen |
| 1995Ba75 | PRVCA | 52, | 1807 | J.C. Batchelder, K.S. Toth, D.M. Moltz, T.J. Ognibene, M.W. Rowe, C.R. Bingham, E.F. Zganjar, B.E. Zimmerman |
| 1995Bi01 | PRVCA | 51, | 125 | C.R. Bingham, M.B. Kassim, M. Zhang, Y.A. Akovali, K.S. Toth, W.D. Hamilton, H.K. Carter, J. Kormicki, J. von Schwarzenberg, M.M. Jarrio |
| 1995Bi17 | PRLTA | 75, | 4571 | N. Bijmens, P. Decrock, S. Franchoo, M. Gaelens, M. Huyse, H.-Y. Hwang, I. Reusen, J. Szerypo, J. von Schwarzenberg, J. Wauters, J.G. Correia, A. Jokinen, P. Van Duppen, ISOLDE |

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| 1995Bi.A | P-Arles | | 545 | C.R. Bingham, J.D. Richards, B.E. Zimmerman, Y.A. Akovali, W.B. Walters, J. Rikowska, P. Joshi, E.F. Zganjar, M. Lindroos, O. Tengblad, P. Van Duppen, ISOLDE, and PrvCom GAU June 1995 |
| 1995BI05 | NUPAB | 588, | 171c | B. Blank, S. Andriamonje, T. Brohm, S. Czajkowski, F. Davi, R. Del Moral, C. Donzaud, J.P. Dufour, A. Fleury, A. Grewe, R. Grzywacz, E. Hanelt, A. Heinz, Z. Janas, T. Josso, A. Junghans, M. Lewitowicz, A. Musquere, A. Piechaczek, M.S. Pravikoff, M. Pfützner, E. Roeckl, C. Rohl, J.E. Sauvestre, K.-H. Schmidt, S. Steinhäuser, K. Summerer, W. Trinder, B. Voss, M. Weber |
| 1995BI06 | PRLTA | 74, | 4611 | B. Blank, S. Andriamonje, S. Czajkowski, F. Davi, R. Del Moral, J.P. Dufour, A. Fleury, A. Musquere, M.S. Pravikoff, R. Grzywacz, Z. Janas, M. Pfützner, A. Grewe, A. Heinz, A. Junghans, M. Lewitowicz, J.-E. Sauvestre, C. Donzaud |
| 1995BI23 | PYLBB | 364, | 8 | B. Blank, S. Andriamonje, S. Czajkowski, F. Davi, R. Del Moral, C. Donzaud, J.P. Dufour, A. Fleury, A. Grewe, R. Grzywacz, A. Heinz, Z. Janas, A. Junghans, M. Lewitowicz, A. Musquere, M.S. Pravikoff, M. Pfützner, J.-E. Sauvestre |
| 1995Bo03 | NUPAB | 582, | 1 | V.A. Bondarenko, I.L. Kuvaga, P.T. Prokofjev, A.M. Sukhovich, V.A. Khitrov, Yu. P. Popov, S. Brant, V. Paar |
| 1995Bo05 | NUPAB | 584, | 279 | V.A. Bondarenko, I.L. Kuvaga, P.T. Prokofjev, A.M. Sukhovich, V.A. Khitrov, Yu. P. Popov, S. Brant, V. Paar, Lj. Šimić |
| 1995Bo10 | NUPAB | 583, | 775c | H.G. Bohlen, B. Gebauer, Th. Kirchner, M. von Lucke-Petsch, W. von Oertzen, A.N. Ostrowski, Ch. Seyfert, Th. Stolla, M. Wilpert, Th. Wilpert, S.M. Grimes, T.N. Massey, R. Kalpakchieva, Y.E. Penionzhkevich, D.V. Alexandrov, I. Mukha, A.A. Ogloblin, C. Détraz |
| 1995Bo.B | P-StPetersbg | | | H.G. Bohlen, B. Gebauer, M. von Lucke-Petsch, W. von Oertzen, A.N. Ostrowski, Ch. Seyfert, Th. Stolla, M. Wilpert, Th. Wilpert, R. Kalpakchieva, Yu. E. Penionzhkevich, S.M. Grimes, T.N. Massey, I. Mukha, D.V. Alexandrov, A.A. Ogloblin, H. Lenske |
| 1995Br10 | PRLTA | 74, | 868 | R. Broda, B. Fornal, W. Królas, T. Pawlat, D. Bazzacco, S. Lunardi, C. Rossi-Alvarez, R. Menegazzo, G. de Angelis, P. Bednarczyk, J. Rico, D. De Acuña, P.J. Daly, R.H. Mayer, M. Sferrazza, H. Grawe, K.H. Maier, R. Schubart |
| 1995Br24 | NUPAB | 595, | 481 | J.B. Breitenbach, J.L. Wood, M. Jarrio, R.A. Braga, H.K. Carter, J. Kormicki, P.B. Semmes |
| 1995Bu11 | NUPAB | 587, | 475 | D. Bucurescu, D. Barnéoud, Gh. Cata-Danil, T. von Egidy, J. Genevey, A. Gizon, J. Gizon, C.F. Liang, P. Paris, B. Weiss, S. Brant, V. Paar, R. Pezer |
| 1995Ca27 | NUPAB | 592, | 89 | H. Carlsson, R.A. Bark, L.P. Ekstrom, A. Nordlund, H. Ryde, G.B. Hagemann, S.J. Freeman, H.J. Jensen, T. Lonnroth, M.J. Piiparinen, H. Schnack-Petersen, F. Ingebretsen, P.O. Tjøm |
| 1995Ch74 | BRSPE | 59, | 1854 | V.G. Chumin, S.S. Eliseev, K. Ya. Gromov, Yu. V. Norseev, V.I. Fominykh, V.V. Tsupko-Sitnikov |
| 1995Da14 | ZPAAD | 351, | 225 | M. Daszewski, Z. Janas, W. Kurcewicz, B. Szeweryn |
| 1995Da.A | P-Arles | | 263 | C.N. Davids, P.J. Woods, J.C. Batchelder, C.R. Bingham, D.J. Blumenthal, L.T. Brown, B.C. Busse, L.F. Conticchio, T. Davinson, S.J. Freeman, M. Freer, D.J. Henderson, R.J. Irvine, R.D. Page, H.T. Penttilä, A.V. Ramayya, D. Seweryniak, K.S. Toth, W.B. Walters, A.H. Wuosmaa, B.E. Zimmerman, and PrvCom GAU June 1995 |
| 1995Di08 | PHSTT | 59, | 144 | F. DiFilippo, V. Natarajan, M. Bradley, F. Palmer, D.E. Pritchard |
| 1995Fa.A | AnRpt GSI | | 21 | T. Faestermann, J. Friese, H. Geissel, R. Gernhäuser, H. Gilg, F. Heine, J. Homolka, P. Kienle, H.-J. Kerner, G. Munzenberg, J. Reinhold, R. Schneider, K. Summerer, K. Zeitelhack |
| 1995Fe12 | ZPAAD | 353, | 9 | V.N. Fedoseyev, Y. Jading, O.C. Jonsson, R. Kirchner, K.-L. Kratz, M. Krieg, E. Kugler, J. Lettry, T. Mehren, V.I. Mishin, H.L. Ravn, T. Rauscher, H.L. Ravn, F. Scheerer, O. Tengblad, P. Van Duppen, A. Wöhr, ISOLDE |
| 1995Ga04 | NUPAB | 581, | 267 | P.E. Garrett, D.G. Burke |
| 1995Ga16 | PRVCA | 51, | 3487 | A. García, E.G. Adelberger, P.V. Magnus, H.E. Swanson, F.E. Wietfeldt, O. Tengblad, ISOLDE |
| 1995Ga.A | P-Arles | | 595 | A. Gadea, B. Rubio, J.L. Tain, J. Bea, L. Garcia-Raffi, J. Rico, L. Batist, V. Wittmann, A. Bykov, F. Moroz, H. Keller, R. Kirchner, E. Roeckl |

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| 1995Ge06 | NUPAB | 592, | 307 | R. Georgii, T. von Egidy, J. Klora, H. Lindner, U. Mayerhofer, J. Ott, W. Schauer, P. von Neumann-Cosel, A. Richter, C. Schlegel, R. Schulz, V.A. Khitrov, A.M. Sukhovoij, A.V. Vojnov, J. Berzins, V. Bondarenko, P. Prokofjevs, L.J. Simonova, M. Grinberg, Ch. Stojanov |
| 1995Ge14 | YAFIA | 58, | 1170 | A. Sh. Georgadze, F.A. Danevich, Yu. G. Zdesenko, V.V. Kobychiev, B.N. Kropivnyansky, V.N. Kuts, A.S. Nikolaiko, V.I. Tretyak and 02Tr04 |
| 1995Gh04 | NUPAB | 583, | 861c | A. Ghiorso, D. Lee, L.P. Somerville, W. Loveland, J.M. Nitschke, W. Ghiorso, G.T. Seaborg, P. Wilmarth, R. Leres, A. Wydler, M. Nurmia, K. Gregorich, R. Gaylord, T. Hamilton, N.J. Hannink, D.C. Hoffman, C. Jarzynski, C. Kacher, B. Kadkhodayan, S. Kreek, M. Lane, A. Lyon, M.A. McMahan, M. Neu, T. Sikkeland, W.J. Swiatecki, A. Türler, J.T. Walton, S. Yashita |
| 1995Gj01 | NUPAB | 582, | 369 | N.L. Gjorup, P.M. Walker, G. Sletten, M.A. Bentley, B. Fabricius, J.F. Sharpey-Schafer |
| 1995Gu01 | NUPAB | 583, | 867c | A. Guglielmetti, B. Blank, R. Bonetti, Z. Janas, H. Keller, R. Kirchner, O. Klepper, A. Piechaczek, A. Płochocki, G. Poli, P.B. Price, E. Roeckl, K. Schmidt, J. Szerypo, A.J. Westphal |
| 1995Ha.B | P-Arles | | 487 | J.H. Hamilton, Q.H. Lu, S.J. Zhu, K. Butler-Moore, A.V. Ramayya, B.R.S. Babu, L.K. Peker, W.C. Ma, T.N. Ginter, J. Kormicki, D. Shi, J.K. Deng, J.O. Rasmussen, M.A. Stoyer, S.Y. Chu, K.E. Gregorich, M.F. Mohar, S. Prussin, J.D. Cole, R. Aryaeinejad, N.R. Johnson, I.Y. Lee, F.K. McGowan, G.M. Ter-Akopian, Yu. Ts. Oganessian |
| 1995Hi02 | PRVCA | 51, | 1736 | T. Hild, W.-D. Schmidt-Ott, V. Kunze, F. Meissner, C. Wennemann, H. Grawe |
| 1995Hi12 | PRVCA | 52, | 2236 | T. Hild, W.-D. Schmidt-Ott, V. Kunze, F. Meissner, H. Salewski, K.S. Toth, R. Michaelsen |
| 1995Hi14 | JPGPE | 21, | 639 | K.-H. Hiddemann, H. Daniel, O. Schwentker |
| 1995Ho03 | ZPAAD | 350, | 277 | S. Hofmann, V. Ninov, F.P. Heßberger, P. Armbruster, H. Folger, G. Münzenberg, H.J. Schött, A.G. Popeko, A.V. Yeremin, A.N. Andreyev, S. Saro, R. Janik, M. Leino |
| 1995Ho04 | ZPAAD | 350, | 281 | S. Hofmann, V. Ninov, F.P. Heßberger, P. Armbruster, H. Folger, G. Münzenberg, H.J. Schött, A.G. Popeko, A.V. Yeremin, A.N. Andreyev, S. Saro, R. Janik, M. Leino |
| 1995Ho26 | RAACA | 70, | 93 | S. Hofmann |
| 1995Ho.B | PrvCom | GAu | Mar | S. Hofmann, V. Ninov, F.P. Heßberger, and GSI Annual report 1995 |
| 1995Ho.C | P-Arles | | 571 | S. Hofmann, F.P. Heßberger, H. Folger, V. Ninov, A.N. Andreyev, D.D. Bogdanov, V.I. Chepigin, A.P. Kabachenko, O.N. Malyshev, A.G. Popeko, G.M. Ter-Akopian, A.V. Yeremin, S. Saro |
| 1995Ik03 | JUPSA | 64, | 3244 | T. Ikuta, A. Taniguchi, H. Yamamoto, K. Kawade, Y. Kawase |
| 1995Ir01 | PRLTA | 75, | 4182 | H. Irnich, H. Geissel, F. Nolden, K. Beckert, F. Bosch, H. Eickhoff, B. Franzke, Y. Fujita, M. Hausmann, H.C. Jung, O. Klepper, C. Kozhuharov, G. Kraus, A. Magel, G. Münzenberg, F. Nickel, T. Radon, H. Reich, B. Schlitt, W. Schwab, M. Steck, K. Sümmerer, T. Suzuki, H. Wollnik |
| 1995Jo02 | NUPAB | 584, | 489 | A. Jokinen, T. Enqvist, P.P. Jauho, M. Leino, J.M. Parmonen, H. Penttilä, J. Äystö, K. Eskola |
| 1995Jo.A | P-Arles | | 499 | A. Jokinen, et al |
| 1995Ka.A | B-Arles | | PD22 | V.G. Kalinnikov, B.P. Osipenko, F. Pražak, A.A. Solnyshkin, V.I. Stegailov, P. Čaloun, S.E. Zaporov |
| 1995Ke04 | NUPAB | 586, | 219 | M. Keim, E. Arnold, W. Borchers, U. Georg, A. Klein, R. Neugart, L. Vermeeren, R.E. Silverans, P. Lievens |
| 1995Ke05 | ZPAAD | 352, | 1 | H. Keller, R. Kirchner, B. Rubio, J.L. Tain, Th. Dörfler, W.-D. Schmidt-Ott, E. Roeckl |
| 1995Ko54 | RAACA | 68, | 155 | A. Koua Aka, V. Barci, G. Ardisson, R. Righetti, J.F. Le Du, D. Trubert |
| 1995Kr03 | PRLTA | 74, | 860 | R.A. Kryger, A. Azhari, M. Hellström, J.H. Kelley, T. Kubo, R. Pfaff, E. Ramakrishnan, B.M. Sherrill, M. Thoennessen, S. Yokoyama, R.J. Charity, J. Dempsey, A. Kirov, N. Robertson, D.G. Sarantites, L.G. Sobotka, J.A. Winger |
| 1995Kr04 | ZPAAD | 351, | 11 | K. Krumbholz, W.-D. Schmidt-Ott, T. Hild, V. Kunze, F. Meissner, C. Wennemann, H. Keller, R. Kirchner, O. Klepper, E. Roeckl, D. Schardt, K. Rykaczewski |
| 1995La09 | NUPAB | 588, | 501 | Yu. A. Lazarev, I.V. Shirokovsky, V.K. Utyonkov, S.P. Tretyakova, V.B. Kutner |

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| 1995La20 | PRLTA | 75, | 1903 | Yu. A. Lazarev, Yu. V. Lobanov, Yu. Ts. Oganessian, Yu. S. Tsyganov, V.K. Utyonkov, F. Sh. Abdullin, S. Iliev, A.N. Polyakov, J. Rigol, I.V. Shirokovsky, V.G. Subbotin, A.M. Sukhov, G.V. Buklanov, B.N. Gikal, V.B. Kutner, A.N. Mezentsev, I.M. Sedykh, D.V. Vakarov, R.W. Loughheed, J.F. Wild, K.J. Moody, E.K. Hulet |
| 1995Le04 | PRVCA | 51, | 1047 | M.J. Leddy, S.J. Freeman, J.L. Durell, A.G. Smith, S.J. Warburton, D.J. Blumenthal, C.N. Davids, C.J. Lister, H.T. Penttilä |
| 1995Le15 | APOBB | 26, | 309 | M. Leino, J. Äystö, T. Enqvist, A. Jokinen, M. Nurmia, A. Ostrowski, W.H. Trzaska, J. Uusitalo, K. Eskola, P. Armbruster, V. Ninov |
| 1995Le19 | PRVCA | 51, | 2770 | Y.S. Lee, M. Kobayashi, T. Hukotome, T. Horiguchi, H. Inoue |
| 1995Le.A | P-Arles | | 505 | M. Leino, T. Enqvist, W.H. Trzaska, J. Uusitalo, K. Eskola, P. Armbruster, V. Ninov, and PrvCom GAU June 1995 |
| 1995Lh04 | ZPAAD | 352, | 293 | G. Lhersonneau, H. Gabelmann, B. Pfeiffer, K.-L. Kratz, ISOLDE |
| 1995Me03 | PRVCA | 51, | 1558 | F. Meissner, T. Hild, V. Kunze, W.-D. Schmidt-Ott, C. Wennemann, P.C. Sood, R. Kirchner, E. Roeckl, K. Rykaczewski |
| 1995Me16 | PHSTT | 56, | 272 | K.A. Mezilev, Yu. N. Novikov, A.V. Popov, B. Fogelberg, L. Spanier |
| 1995Mo14 | ZPAAD | 352, | 7 | K. Morita, Y.H. Pu, J. Feng, M.G. Hies, K.O. Lee, A. Yoshida, S.C. Jeong, S. Kubono, T. Nomura, Y. Tagaya, M. Wada, M. Kurokawa, T. Motobayashi, H. Ogawa, T. Uchibori, K. Sueki, T. Ishizuka, K. Uchiyama, Y. Fujita, H. Miyatake, T. Shimoda, T. Shinozuka, H. Kudo, Y. Nagai, S.A. Shin |
| 1995Mo26 | NUPAB | 588, | 203c | D.J. Morrissey, and the A1200 Group |
| 1995Ni05 | ZPAAD | 351, | 125 | V. Ninov, F.P. Heßberger, S. Hofmann, H. Folger, A.V. Yeremin, A.G. Popeko, A.N. Andreyev, S. Saro |
| 1995Ni.A | P-Arles | | 571 | V. Ninov, F.P. Heßberger, H. Folger, S. Hofmann, A.G. Popeko, A.V. Yeremin, A.N. Andreyev, S. Saro, and Abstracts PD19 |
| 1995No.A | P-Arles | | 363 | T. Nomura |
| 1995Ok02 | ZPAAD | 351, | 243 | K. Okano, A. Taniguchi, S. Yamada, T. Sharshar, M. Shibata, K. Yamauchi |
| 1995Os03 | NUPAB | 588, | 185 | A. Osa, M. Asai, M. Koizumi, T. Sekine, S. Ichikawa, Y. Kojima, H. Yamamoto, K. Kawade |
| 1995Oz02 | NUPAB | 592, | 244 | A. Ozawa, G. Raimann, R.N. Boyd, F.R. Chloupek, M. Fujimaki, K. Kimura, H. Kitagawa, T. Kobayashi, J.J. Kolata, S. Kubono, I. Tanihata, Y. Watanabe, K. Yoshida |
| 1995Pe12 | NUPAB | 588, | 259c | Yu. E. Penionzhkevich |
| 1995Pf04 | ZPAAD | 353, | 1 | B. Pfeiffer, G. Lhersonneau, H. Gabelmann, K.-L. Kratz, ISOLDE |
| 1995Pi03 | NUPAB | 584, | 509 | A. Piechaczek, M.F. Mohar, R. Anne, V. Borrel, B.A. Brown, J.M. Corre, D. Guillemaud-Mueller, R. Hue, H. Keller, S. Kubono, V. Kunze, M. Lewitowicz, P. Magnus, A.C. Mueller, T. Nakamura, M. Pfützner, E. Roeckl, K. Rykaczewski, M.G. Saint-Laurent, W.-D. Schmidt-Ott, O. Sorlin |
| 1995Po01 | PRVCA | 51, | 519 | K.R. Pohl, D.F. Winchell, J.W. Arrison, D.P. Balamuth |
| 1995Re.A | P-Arles | | 587 | P.L. Reeder, Y. Kim, W.K. Hensley, H.S. Miley, R.A. Warner, Z.Y. Zhou, D.J. Vieira, J.M. Wouters, H.L. Seifert, and PrvCom GAU June 1995 |
| 1995Ry03 | PRVCA | 52, | 2310 | K. Rykaczewski, R. Anne, G. Auger, D. Bazin, C. Borcea, V. Borrel, J.M. Corre, T. Dörfler, A. Fomichev, R. Grzywacz, D. Guillemaud-Mueller, R. Hue, M. Huyse, Z. Janas, H. Keller, M. Lewitowicz, S. Lukyanov, A.C. Mueller, Yu. Penionzhkevich, M. Pfützner, F. Pougheon, M.G. Saint-Laurent, K. Schmidt, W.D. Schmidt-Ott, O. Sorlin, J. Szerypo, O. Tarasov, J. Wauters, J. Żylicz |
| 1995Sa42 | NUPAB | 592, | 221 | J. Sauvage, D. Hojman, F. Ibrahim, B. Roussière, P. Kilcher, F. Le Blanc, J. Oms, J. Libert, ISOCELE |
| 1995Sc03 | NUPAB | 582, | 109 | K. Scheller, J. Görres, S. Vouzoukas, M. Wiescher, B. Pfeiffer, K.-L. Kratz, D.J. Morrissey, B.M. Sherrill, M. Steiner, M. Hellström, J.A. Winger |
| 1995Sc28 | NUPAB | 588, | 191c | R. Schneider, T. Faestermann, J. Fries, R. Gernhauser, H. Geissel, H. Gilg, F. Heine, J. Homolka, P. Kienle, H.-J. Korner, G. Münzenberg, J. Reinhold, K. Sümmerer, K. Zeitelhack |
| 1995So03 | NUPAB | 583, | 763c | O. Sorlin, D. Guillemaud-Mueller, R. Anne, L. Axelsson, D. Bazin, W. Böhmer, V. Borrel, Y. Jading, H. Keller, K.-L. Kratz, M. Lewitowicz, S.M. Lukyanov, T. Mehren, A.C. Mueller, Yu. E. Penionzhkevich, F. Pougheon, M.G. Saint-Laurent, V.S. Salamatina, S. Shoedder, A. Wöhr |
| 1995So11 | PRVCA | 52, | 88 | P.C. Sood, A. Gizon, D.G. Burke, B. Singh, C.F. Liang, R.K. Sheline, M.J. Martin, R.W. Hoff |

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|----------|-------|------|------|--|
| 1995St26 | PRLTA | 75, | 3237 | W. Stoeffl, D.J. Decman |
| 1995Sy01 | PRVCA | 51, | 2765 | I. Sykora, K. Janko, P.P. Povinec |
| 1995Sz01 | NUPAB | 584, | 221 | J. Szerypo, M. Huyse, G. Reusen, P. Van Duppen, Z. Janas, H. Keller, R. Kirchner, O. Klepper, A. Piechaczek, E. Roeckl, D. Schardt, K. Schmidt, R. Grzywacz, M. Pfützner, A. Płochocki, K. Rykaczewski, J. Żylicz, G.D. Alk-hazov, L. Batist, A. Bykov, V. Wittmann, B.A. Brown |
| 1995Tr02 | PYLBB | 348, | 331 | W. Trinder, E.G. Adelberger, B.A. Brown, Z. Janas, H. Keller, K. Krumbholz, V. Kunze, P. Magnus, F. Meissner, A. Piechaczek, M. Pfützner, E. Roeckl, K. Rykaczewski, W.-D. Schmidt-Ott, M. Weber |
| 1995Tr03 | PYLBB | 349, | 267 | W. Trinder, E.G. Adelberger, Z. Janas, H. Keller, K. Krumbholz, V. Kunze, P. Magnus, F. Meissner, A. Piechaczek, M. Pfützner, E. Roeckl, K. Rykaczewski, W.-D. Schmidt-Ott, M. Weber |
| 1995Uu01 | PRVCA | 52, | 113 | J. Uusitalo, T. Enqvist, M. Leino, W.H. Trzaska, K. Eskola, P. Armbruster, V. Ni-nov |
| 1995Va38 | PHSTT | 59, | 134 | R.S. Van Dyck, Jr., D.L. Farnham, P.B. Schwinberg |
| 1995Ve08 | BRSPE | 59, | 1851 | G.V. Veselov, V.A. Sergienko, A.V. Potempa, K. Ya. Gromov, V.G. Kalinnikov, N. Yu. Kotovsky, V.I. Fominykh, M.B. Yuldashev |
| 1995Wi20 | PRVCA | 52, | 1028 | F.E. Wietfeldt, E.B. Norman, Y.D. Chan, M.T.F. da Cruz, A. García, E.E. Haller, W.L. Hansen, M.M. Hindi, R.-M. Larimer, K.T. Lesko, P.N. Luke, R.G. Stockstad, B. Sur, I. Žlimen |
| 1995Zh10 | NUPAB | 586, | 483 | K. Zhao, J.S. Lilley, P.V. Drumm, D.D. Warner, R.A. Cunningham, J.N. Mo |
| 1995Zh36 | ZPAAD | 353, | 3 | X. Zhou, Y. Guo, X. Sun, X. Lei, X. Chen, Z. Liu, Y. Zhang, H. Jin, Y. Luo, S.X. Wen, G.J. Yuan, G.S. Li, C.X. Yang |
| 1995Zi03 | PRLTA | 75, | 1719 | M. Zinser, F. Humbert, T. Nilsson, W. Schwab, T. Blaich, M.J.G. Borge, L.V. Chulkov, H. Eickhoff, T.W. Elze, H. Emling, B. Franzke, H. Freiesleben, H. Geissel, K. Grimm, D. Guillemaud-Mueller, P.G. Hansen, R. Holzmann, H. Irnich, B. Jonson, J.G. Keller, O. Klepper, H. Klingler, J.V. Kratz, R. Kulesa, D. Lambrecht, Y. Leifels, A. Magel, M. Mohar, A.C. Mueller, G. Münzenberg, F. Nickel, G. Nyman, A. Richter, K. Riisager, C. Scheidenberger, G. Schrieder, B.M. Sherrill, H. Simon, K. Stelzer, J. Stroth, O. Tengblad, W. Trautmann, E. Wajda, E. Zude, preprint GSI-95-03 |
| | | | | 1996 |
| 1996An21 | BRSPE | 60, | 119 | A.N. Andreyev, A.G. Popeko, A.V. Eremin, S. Hofmann, F. Heßberger, H. Folger, V. Ninov, S. Saro |
| 1996Ar36 | ZPCFD | 72, | 239 | R. Arnold, C. Augier, A. Barabash, D. Blum, V. Brudanin, J.E. Campagne, D. Dassié, V. Egorov, R. Eschbach, J.L. Guyonnet, F. Hubert, Ph. Hubert, S. Jullian, O. Kochetov, I. Kisel, V.N. Kornoukhov, V. Kovalenko, D. Lalanne, F. Laplanche, F. Leccia, I. Linck, C. Longuemare, F. Mauger, P. Mennrath, H.W. Nicholson, A. Nozdrin, F. Piquemal, O. Purtov, J.-L. Reyss, F. Scheibling, J. Suhonen, C.S. Sutton, G. Szklarz, V.I. Tretyak, V. Umatov, I. Vanushin, A. Vareille, Yu. Vasilyev, Ts. Vylov, V. Zerkov, NEMO |
| 1996Ax01 | PRVCA | 54, | 1511 | L. Axelsson, M.J.G. Borge, S. Fayans, V.Z. Goldberg, S. Grévy, D. Guillemaud-Mueller, B. Jonson, K.-M. Källman, T. Lönnroth, M. Lewitowicz, P. Manngård, K. Markenroth, I. Martel, A.C. Mueller, I. Mukha, T. Nilsson, G. Nyman, N.A. Orr, K. Riisager, G.V. Rogatchev, M.-G. Saint-Laurent, I.N. Serikov, O. Sorlin, O. Tengblad, F. Wenander, J.S. Winfield, R. Wolski |
| 1996Ba24 | YAFIA | 59, | 197 | A.S. Barabash, R.R. Saakyan and 02Tr04 |
| 1996Ba35 | PRVCA | 54, | 949 | J.C. Batchelder, K.S. Toth, E.F. Zganjar, D.M. Moltz, C.R. Bingham, T.J. Ognibene, J. Powell, M.W. Rowe |
| 1996Bi07 | PRVCA | 54, | R20 | C.R. Bingham, K.S. Toth, J.C. Batchelder, D.J. Blumenthal, L.T. Brown, B.C. Busse, L.F. Conticchio, C.N. Davids, T. Davinson, D.J. Henderson, R.J. Irvine, D. Seweryniak, W.B. Walters, P.J. Woods, B.E. Zimmerman |
| 1996Bi21 | PRLTA | 77, | 2893 | B. Blank, S. Czajkowski, F. Davi, R. Del Moral, J.P. Dufour, A. Fleury, C. Marchand, M.S. Pravikoff, J. Benlliure, F. Boue, R. Collatz, A. Heinz, M. Hellström, Z. Hu, E. Roeckl, M. Shibata, K. Sümmerer, Z. Janas, M. Karny, M. Pfützner, M. Lewitowicz |

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| 1996Bo37 | PRLTA | 77, | 5190 | F. Bosch, T. Faestermann, J. Friese, F. Heine, P. Kienle, E. Wefers, K. Zeitelhack, K. Beckert, B. Franzke, O. Klepper, C. Kozhuharov, G. Menzel, R. Moshhammer, F. Nolden, H. Reich, B. Schlitt, M. Steck, T. Stöhlker, T. Winkler, K. Takahashi |
| 1996Ca02 | NUPAB | 598, | 61 | P. Campbell, J.A. Behr, J. Billowes, G. Gwinner, G.D. Sprouse, F. Xu |
| 1996Ch32 | PRLTA | 77, | 2400 | M. Chartier, G. Auger, W. Mittig, A. Lepine-Szilley, L.K. Fifield, J.M. Casandjian, M. Chabert, J. Ferme, A. Gillibert, M. Lewitowicz, M. MacCormick, M.H. Moscatello, O.H. Odland, N.A. Orr, G. Politi, C. Spitaels, A.C.C. Villari |
| 1996Da06 | PRLTA | 76, | 592 | C.N. Davids, P.J. Woods, H.T. Penttilä, J.C. Batchelder, C.R. Bingham, D.J. Blumenthal, L.T. Brown, B.C. Busse, L.F. Conticchio, T. Davinson, D.J. Henderson, R.J. Irvine, D. Seweryniak, K.S. Toth, W.B. Walters, B.E. Zimmerman |
| 1996De60 | YAFIA | 59, | 2117 | A.V. Derbin, A.I. Egorov, V.N. Muratova, S.V. Baklanov and 02Tr04 |
| 1996Do23 | PRVCA | 54, | 2894 | T. Dörfler, W.-D. Schmidt-Ott, T. Hild, T. Mehren, W. Böhmer, P. Möller, B. Pfeiffer, T. Rauscher, K.-L. Kratz, O. Sorlin, V. Borrel, S. Grévy, D. Guillemaud-Mueller, A.C. Mueller, F. Pougheon, R. Anne, M. Lewitowicz, A. Ostrowsky, M. Robinson, M.G. Saint-Laurent |
| 1996Dr07 | NUPAB | 601, | 234 | S. Drissi, S. Andre, D. Barnéoud, C. Foin, J. Genevey, J. Kern |
| 1996Dr.A | PrvCom | JBl | Sep | S. Drissi |
| 1996En01 | ZPAAD | 354, | 1 | T. Enqvist, K. Eskola, A. Jokinen, M. Leino, W.H. Trzaska, J. Uusitalo, V. Ninov, P. Armbruster |
| 1996En02 | ZPAAD | 354, | 9 | T. Enqvist, P. Armbruster, K. Eskola, M. Leino, V. Ninov, W.H. Trzaska, J. Uusitalo |
| 1996Fa09 | NUPAB | 602, | 167 | L. Faux, S. Andriamonje, B. Blank, S. Czajkowski, R. Del Moral, J.P. Dufour, A. Fleury, T. Josso, M.S. Pravikoff, A. Piechaczek, E. Roeckl, K.-H. Schmidt, K. Sümmerer, W. Trinder, M. Weber, T. Brohm, A. Grewe, E. Hanelt, A. Heinz, A. Junghans, C. Rohl, S. Steinhäuser, B. Voss, Z. Janas, M. Pfützner |
| 1996Ga30 | NUPAB | 611, | 68 | P.E. Garrett, N. Warr, H. Baltzer, S. Boehmsdorff, D.G. Burke, M. Deleze, S. Drissi, J. Groger, C. Gunther, J. Kern, S.J. Mannanal, J. Manns, U. Muller, J.-P. Vorlet, T. Weber |
| 1996Gi08 | NUPAB | 605, | 301 | A. Gizon, J. Genevey, D. Bucurescu, Gh. Cata-Danil, J. Gizon, J. Inchaouh, D. Barnéoud, T. von Egidy, C.F. Liang, B.M. Nyako, P. Paris, I. Penev, A. Plochocki, E. Ruchowska, C.A. Ur, B. Weiss, L. Zolnai |
| 1996Go06 | JPGPE | 22, | 377 | V.M. Gorozhankin, V.G. Kalinnikov, A. Kovalik, A.A. Solnyshkin, A.F. Novgorodov, N.A. Lebedev, N. Yu. Kotovskij, E.A. Yakushev, M.A. Mahmoud, M. Rysavy |
| 1996Ho12 | PRVCA | 54, | 78 | R.W. Hoff, H.G. Borner, K. Schreckenbach, G.G. Colvin, F. Hoyler, W. Schauer, T. von Egidy, R. Georgii, J. Ott, S. Schrunder, R.F. Casten, R.L. Gill, M. Balodis, P. Prokofjevs, L. Simonova, J. Kern, V.A. Khitrov, A.M. Sukhovoij, O. Bersillon, S. Joly, G. Graw, D. Hofer, B. Valnion |
| 1996Ho13 | ZPAAD | 354, | 229 | S. Hofmann, V. Ninov, F.P. Heßberger, P. Armbruster, H. Folger, G. Münzenberg, H.J. Schött, A.G. Popeko, A.V. Yeremin, S. Saro, R. Janik, M. Leino |
| 1996Ho16 | PRLTA | 77, | 1020 | P. Hoff, P. Baumann, A. Huck, A. Knipper, G. Walter, G. Marguier, B. Fogelberg, A. Lindroth, H. Mach, M. Sanchez-Vega, R.B.E. Taylor, P. Van Duppen, A. Jokinen, M. Lindroos, M. Ramdane, W. Kurcewicz, B. Jonson, G. Nyman, Y. Jading, K.-L. Kratz, A. Wöhr, G. Løvhøiden, T.F. Thorsteinsen, J. Blomqvist, ISOLDE |
| 1996Hw03 | NIMAE | 383, | 447 | H.Y. Hwang, C.B. Lee, T.S. Park, H.J. Kim |
| 1996Ik01 | PRVCA | 54, | 2043 | H. Ikezoe, T. Ikuta, S. Hamada, Y. Nagame, I. Nishinaka, K. Tsukada, Y. Oura, T. Ohtsuki |
| 1996Ki23 | HYIND | 103, | 49 | P. Kienle |
| 1996Kl.A | AnRpt JYFL | | 30 | I. Klöckl, K.-L. Kratz, G. Lhersonneau, P. Pfeiffer, S. Schoedder, P. Dendooven, A. Honkanen, M. Huhta, M. Oinonen, J. Persson, K. Peräjärvi, J.C. Wang, J. Äystö |
| 1996Ko13 | PRVCA | 54, | R459 | F.G. Kondev, G.D. Dracoulis, A.P. Byrne, T. Kibédi, S. Bayer, G.J. Lane |
| 1996Ko17 | NUPAB | 601, | 195 | F.G. Kondev, G.D. Dracoulis, A.P. Byrne, M. Dasgupta, T. Kibédi, G.J. Lane |
| 1996La11 | PRVCA | 53, | 2893 | M.R. Lane, K.E. Gregorich, D.M. Lee, M.F. Mohar, M. Hsu, C.D. Kacher, B. Kadkhodayan, M.P. Neu, N.J. Stoyer, E.R. Sylwester, J.C. Yang, D.C. Hoffman |

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| 1996La12 | PRVCA | 54, | 620 | Yu. A. Lazarev, Yu. V. Lobanov, Yu. Ts. Oganessian, V.K. Utyonkov, F. Sh. Abdullin, A.N. Polyakov, J. Rigol, I.V. Shirokovsky, Yu. S. Tsyganov, S. Iliev, V.G. Subbotin, A.M. Sukhov, G.V. Buklanov, B.N. Gikal, V.B. Kutner, A.N. Mezentsev, K. Subotic, J.F. Wild, R.W. Loughheed, K.J. Moody |
| 1996Le09 | ZPAAD | 355, | 157 | M. Leino, J. Uusitalo, R.G. Allatt, P. Armbruster, T. Enqvist, K. Eskola, S. Hofmann, S. Hurskanen, A. Jokinen, V. Ninov, R.D. Page, W.H. Trzaska |
| 1996Lh03 | PRVCA | 54, | 1117 | G. Lhersonneau, P. Dendooven, S. Hankonen, A. Honkanen, M. Huhta, R. Julin, S. Juutinen, M. Oinonen, H. Penttilä, A. Savelius, S. Tormanen, J. Aysto, P.A. Butler, J.F.C. Cocks, P.M. Jones, J.F. Smith |
| 1996Lh04 | PRVCA | 54, | 1592 | G. Lhersonneau, P. Dendooven, A. Honkanen, M. Huhta, M. Oinonen, H. Penttilä, J. Äystö, J. Kurpeta, J.R. Persson, A. Popov |
| 1996Li05 | ZPAAD | 354, | 153 | C.F. Liang, P. Paris, A. Płochocki, E. Ruchowska, A. Gizon, D. Barnéoud, J. Genevey, G. Cata, R.K. Sheline |
| 1996Li37 | PRVCA | 54, | 2304 | C.F. Liang, P. Paris, R.K. Sheline, P. Alexa, A. Gizon |
| 1996Ma72 | RAACA | 72, | 39 | M. Magara, N. Shinohara, Y. Hatsukawa, K. Tsukada, H. Imura, S. Utsuda, S.-I. Ichikawa, T. Suzuki, Y. Nagame, Y. Kobayashi, M. Oshima, T. Horichuchi |
| 1996Me09 | PRLTA | 77, | 458 | T. Mehren, B. Pfeiffer, S. Schoedder, K.-L. Kratz, M. Huhta, P. Dendooven, A. Honkanen, G. Lhersonneau, M. Oinonen, J.-M. Parmonen, H. Penttilä, A. Popov, V. Rubchenya, J. Äystö |
| 1996Ni09 | ZPAAD | 356, | 11 | V. Ninov, F.P. Heßberger, S. Hofmann, H. Folger, G. Münzenberg, P. Armbruster, A.V. Yeremin, A.G. Popeko, M. Leino, S. Saro |
| 1996Od01 | ZPAAD | 354, | 231 | A. Odahara, Y. Gono, S. Mitarai, T. Shizuma, E. Ideguchi, J. Mukai, H. Tomura, B.J. Min, S. Suematsu, T. Kuroyanagi, K. Heiguchi, T. Komatsubara, K. Furuno |
| 1996Os04 | JUPSA | 65, | 928 | A. Osa, T. Ikuta, K. Kawade, H. Yamamoto, S. Ichikawa |
| 1996Pa01 | PRVCA | 53, | 660 | R.D. Page, P.J. Woods, R.A. Cunningham, T. Davinson, N.J. Davis, A.N. James, K. Livingston, P.J. Sellin, A.C. Shotton, and PrvCom AHW August 1996 |
| 1996Pf01 | PRVCA | 53, | 1753 | R. Pfaff, D.J. Morrissey, W. Benenson, M. Fauerbach, M. Hellström, C.F. Powell, B.M. Sherrill, M. Steiner, J.A. Winger |
| 1996Ra04 | PRVCA | 53, | 616 | S. Raman, E.K. Warburton, J.W. Starner, E.T. Jurney, J.E. Lynn, P. Tikkanen, J. Keinonen |
| 1996Ra16 | PRVCA | 53, | 2732 | S. Raman, J.B. McGrory E.T. Jurney, J.W. Starner |
| 1996Ri12 | PRVCA | 54, | 2041 | J.D. Richards, C.R. Bingham, Y.A. Akovali, J.A. Becker, E.A. Henry, P. Joshi, J. Kormicki, P.F. Mantica, K.S. Toth, J. Wauters, E.F. Zganjar |
| 1996Ry.B | AnRpt JYFL | | 33 | K. Rykaczewski |
| 1996Sh27 | JUPSA | 65, | 3172 | M. Shibata, A. Odahara, S. Mitarai, Y. Gono, M. Kidera, K. Miyazaki, T. Kuroyanagi |
| 1996Ta18 | PRVCA | 54, | 2926 | R.B.E. Taylor, S.J. Freeman, J.L. Durell, M.J. Leddy, A.G. Smith, D.J. Blumenthal, M.P. Carpenter, C.N. Davids, C.J. Lister, R.V.F. Janssens, D. Seweryniak |
| 1996To01 | PRVCA | 53, | 2513 | K.S. Toth, J.C. Batchelder, C.R. Bingham, L.F. Conticchio, W.B. Walters, C.N. Davids, D.J. Henderson, R. Herman, H. Penttilä, J.D. Richards, A.H. Wuosmaa, B.E. Zimmerman |
| 1996To05 | ZPAAD | 355, | 345 | Y. Toh, K. Okano, A. Taniguchi, S. Yamada, Y. Kawase |
| 1996To08 | ZPAAD | 355, | 225 | K.S. Toth, J.C. Batchelder, D.M. Moltz, J.D. Robertson |
| 1996Ur02 | PRVCA | 54, | 945 | W. Urban, W.R. Phillips, J.L. Durell, M.A. Jones, M. Leddy, C.J. Pearson, A.G. Smith, B.J. Varley, I. Ahmad, L.R. Morss, M. Bentalb, E. Lubkiewicz, N. Schulz |
| 1996Wa33 | PRVCA | 54, | 2916 | P.M. Wallace, E.G. Bilpuch, C.R. Bybee, G.E. Mitchell, E.F. Moore, J.D. Shriner, J.F. Shriner, Jr., G.A. Vavrina, C.R. Westerfeldt |
| 1996WaZX | AnRpt Tohoku | | 25 | A. Watanabe, T. Shinozuka, M. Fujita, Y. Kanai, T. Kohda, M. Fujioka |
| 1996Wo.A | P-Amsterdam | | D14 | A. Wöhr, V. Fedoseyev, Y. Jading, A. Jokinen, T. Kautzsch, I. Klöckl, K.-L. Kratz, V.I. Mishin, H.-L. Ravn, P. Van Duppen, W.B. Walters, ISOLDE |
| 1996Ya12 | JUPSA | 65, | 3390 | S. Yamada, A. Taniguchi, Y. Toh, K. Okano |
| 1996Ya.A | P-Kyoto | | 51 | K. Yamauchi, Y. Kojima, H. Sakane, Y. Tsurita, H. Yamamoto, K. Kawade, A. Taniguchi, Y. Kawase, K. Okano, J.Z. Ruan and report KURRI-KR3 p. 51 |
| | | | 1997 | |
| 1997An09 | ZPAAD | 358, | 63 | A.N. Andreyev, N. Bijnens, T. Enqvist, M. Huyse, P. Kuusiniemi, M. Leino, W.H. Trzaska, J. Uusitalo, P. Van Duppen |

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| 1997As05 | PRVCA | 56, | 3045 | M. Asai, T. Sekine, A. Osa, M. Koizumi, Y. Kojima, M. Shibata, H. Yamamoto, K. Kawade |
| 1997Ba21 | ZPAAD | 357, | 121 | J.C. Batchelder, K.S. Toth, C.R. Bingham, L.T. Brown, L.F. Conticchio, C.N. Davids, T. Davinson, D.J. Henderson, R.J. Irvine, D. Seweryniak, W.B. Walters, P.J. Woods, J. Wauters, E.F. Zganjar |
| 1997Ba25 | PRVCA | 55, | 2142 | J.C. Batchelder, K.S. Toth, C.R. Bingham, L.T. Brown, L.F. Conticchio, C.N. Davids, D. Seweryniak, J. Wauters, J.L. Wood, E.F. Zganjar |
| 1997Ba35 | ZPAAD | 357, | 351 | A.S. Barabash, R. Gurriaran, F. Hubert, Ph. Hubert, V.I. Umatov |
| 1997Be70 | PYLBB | 415, | 111 | M. Bernas, C. Engelmann, P. Armbruster, S. Czajkowski, F. Ameil, C. Bockstiegel, Ph. Dessagne, C. Donzau, H. Geissel, A. Heinz, Z. Janas, C. Kozuharov, Ch. Miché, G. Münzenberg, M. Pfützner, W. Schwab, C. Stephan, K. Sümmerer, L. Tassan-Got, B. Voss |
| 1997BI03 | NUPAB | 615, | 52 | B. Blank, F. Boué, S. Andriamonje, S. Czajkowski, R. Del Moral, J.P. Dufour, A. Fleury, P. Pourre, M.S. Pravikoff, N.A. Orr, K.-H. Schmidt, E. Hanelt |
| 1997BI04 | ZPAAD | 357, | 247 | B. Blank, F. Boué, S. Andriamonje, S. Czajkowski, R. Del Moral, J.P. Dufour, A. Fleury, P. Pourre, M.S. Pravikoff, E. Hanelt, N.A. Orr, K.-H. Schmidt |
| 1997Bo10 | NUPAB | 616, | 254c | H.G. Bohlen, W. von Oertzen, Th. Stolla, R. Kalpakchieva, B. Gebauer, M. Wilpert, Th. Wilpert, A.N. Ostrowski, S.M. Grimes, T.N. Massey |
| 1997Ch53 | BRSPE | 61, | 1606 | V.G. Chumin, J.K. Jabber, K.V. Kalyapkin, S.A. Kudrya, V.V. Tsupko-Sitnikov, K. Ya. Gromov, V.I. Fominykh, T.A. Furyaev |
| 1997Da07 | PRVCA | 55, | 2255 | C.N. Davids, P.J. Woods, J.C. Batchelder, C.R. Bingham, D.J. Blumenthal, L.T. Brown, B.C. Busse, L.F. Conticchio, T. Davinson, S.J. Freeman, D.J. Henderson, R.J. Irvine, R.D. Page, H.T. Penttilä, D. Seweryniak, K.S. Toth, W.B. Walters, B.E. Zimmerman |
| 1997Ga12 | PYLBB | 398, | 415 | F. Gatti, P. Meunier, C. Salvo, S. Vitale |
| 1997Gi07 | ZPAAD | 358, | 369 | A. Gizon, J. Genevey, Gh. Cata-Danil, D. Barnéoud, R. Béraud, A. Emsallem, C. Foin, J. Gizon, C.F. Liang, P. Paris, I. Penev, A. Płochocki, B. Weiss |
| 1997Go18 | PRLTA | 79, | 2415 | M. Górská, M. Lipoglavšek, H. Grawe, J. Nyberg, A. Atac, A. Axelsson, R. Bark, J. Blomqvist, J. Cederkäll, B. Cederwall, G. de Angelis, C. Fahlander, A. Johnson, S. Leoni, A. Likar, M. Matiuzzi, S. Mitarai, L.-O. Norlin, M. Palacz, J. Persson, H.A. Roth, R. Schubart, D. Seweryniak, T. Shizuma, Ö. Skeppstedt, G. Sletten, W.B. Walters, M. Weiszflog |
| 1997Gr02 | PRVCA | 55, | 1126 | R. Grzywacz, R. Anne, G. Auger, C. Borcea, J.M. Corre, T. Dorfler, A. Fomichev, S. Grevy, H. Grawe, D. Guillemaud-Mueller, M. Huyse, Z. Janas, H. Keller, M. Lewitowicz, S. Lukyanov, A.C. Mueller, N. Orr, A. Ostrowski, Yu. Penionzhkevich, A. Piechaczek, F. Pougheon, K. Rykaczewski, M.G. Saint-Laurent, W.D. Schmidt-Ott, O. Sorlin, J. Szerypo, O. Tarasov, J. Wauters, J. Żylicz |
| 1997Gu32 | YTHLD | 19, | 180 | J. Guo, K. Zhao, X. Lu, Y. Cheng, T. Li, C. Fu, S. Li |
| 1997Ha04 | NUPAB | 613, | 183 | E. Hagberg, I.S. Towner, J.C. Hardy, V.T. Koslowsky, G. Savard, S. Sterbenz |
| 1997Ha30 | ZPAAD | 358, | 15 | T. Hayakawa, T. Komatsubara, J. Lu, J. Mukai, K. Furuno |
| 1997He29 | ZPAAD | 359, | 415 | F.P. Heßberger, S. Hofmann, V. Ninov, P. Armbruster, H. Folger, G. Münzenberg, H.J. Schött, A.G. Popeko, A.V. Yeremin, A.N. Andreyev, S. Saro |
| 1997Ho12 | NUPAB | 621, | 689 | A. Honkanen, P. Dendooven, M. Huhta, G. Lhersonneau, P.O. Lipas, M. Oinonen, J.-M. Parmonen, H. Penttilä, K. Peräjärvi, T. Siiskonen, J. Äystö |
| 1997Ho14 | ZPAAD | 358, | 377 | S. Hofmann, F.P. Heßberger, V. Ninov, P. Armbruster, G. Münzenberg, C. Stodel, A.G. Popeko, A.V. Yeremin, S. Saro, M. Leino |
| 1997Ir01 | PRVCA | 55, | 1621 | R.J. Irvine, C.N. Davids, P.J. Woods, D.J. Blumenthal, L.T. Brown, L.F. Conticchio, T. Davinson, D.J. Henderson, J.A. Mackenzie, H.T. Penttilä, D. Seweryniak, W.B. Walters |
| 1997Is13 | NIMAE | 395, | 210 | T. Ishii, M. Itoh, M. Ishii, A. Makishima, M. Ogawa, I. Hossain, T. Hayakawa, T. Kohno |
| 1997Ja12 | NUPAB | 627, | 119 | Z. Janas, A. Płochocki, J. Szerypo, R. Collatz, Z. Hu, H. Keller, R. Kirchner, O. Klepper, E. Roeckl, K. Schmidt, R. Bonetti, A. Guglielmetti, G. Poli, A. Piechaczek |
| 1997Ju02 | PRVCA | 56, | 118 | E.T. Jurney, J.W. Starnner, J.E. Lynn, S. Raman |
| 1997Ko13 | NUPAB | 617, | 91 | F.G. Kondev, G.D. Dracoulis, A.P. Byrne, T. Kibédi, S. Bayer |
| 1997Ko65 | NIMAE | 401, | 289 | V.T. Koslowsky, E. Hagberg, J.C. Hardy, G. Savard, H. Schmeing, K.S. Sharma, X.J. Sun |

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| 1997Li12 | PRVCA | 55, | 2768 | C.F. Liang, P. Paris, R.K. Sheline |
| 1997Li23 | PRVCA | 56, | 2324 | C.F. Liang, P. Paris, R.K. Sheline |
| 1997Li25 | ZPAAD | 359, | 1 | W. Liu, M. Hellström, R. Collatz, J. Benlliure, L. Chulkov, D. Cortina Gil, F. Farget, H. Grawe, Z. Hu, N. Iwasa, M. Pfützner, A. Piechaczek, R. Raabe, I. Reusen, E. Roeckl, G. Vancraeynest, A. Wöhr |
| 1997Lo.A | PrvCom | GAu | May | R.W. Loughheed |
| 1997Ma75 | NIMAE | 390, | 267 | R.H. Martin, K.I.W. Burns, J.G.V. Taylor |
| 1997Mi03 | PRVCA | 55, | 1555 | S. Mitsuoka, H. Ikezoe, T. Ikuta, Y. Nagame, K. Tsukada, I. Nishinaka, Y. Oura, Y.L. Zhao |
| 1997Mu02 | ZPAAD | 356, | 367 | J. Mukai, N. Hashimoto, T. Saitoh, M. Matsuda, T. Hayakawa, J. Lu, T. Komatsubara, K. Furuno |
| 1997Mu08 | PRVCA | 55, | 2267 | U. Müller, P. Sevenich, K. Freitag, C. Günther, P. Herzog, G.D. Jones, C. Kliem, J. Manns, T. Weber, B. Will, ISOLDE |
| 1997No.A | AnRpt Riken | | 74 | M. Notani, N. Aoi, N. Fukuda, E. Ideguchi, M. Ishihara, H. Iwasaki, H. Ogawa, T. Kubo, S.M. Lukyanov, T. Nakamura, Yu. E. Penionzhkevich, H. Sakurai, T. Teranishi, Y.X. Watanabe, K. Yoneda, A. Yoshida |
| 1997Oi01 | PRVCA | 56, | 745 | M. Oinonen, A. Jokinen, J. Äystö, P. Baumann, F. Didierjean, A. Honkanen, A. Huck, M. Huyse, A. Knipper, G. Marguier, Yu. Novikov, A. Popov, M. Ramdhané, D.M. Seliverstov, P. Van Duppen, G. Walter, ISOLDE |
| 1997Pu01 | ZPAAD | 357, | 3 | Y.H. Pu, K. Morita, M.G. Hies, K.O. Lee, A. Yoshida, T. Nomura, Y. Tagaya, T. Motobayashi, M. Kurokawa, H. Minemura, T. Uchibori, T. Ariga, K. Sueki, S.A. Shin |
| 1997Ro26 | IEIMA | 46, | 560 | S. Röttger, A. Paul, U. Keyser |
| 1997Sc30 | NUPAB | 624, | 185 | K. Schmidt, P.C. Divari, Th. W. Elze, R. Grzywacz, Z. Janas, I.P. Johnstone, M. Karny, H. Keller, R. Kirchner, O. Klepper, A. Płochocki, E. Roeckl, K. Rykaczewski, L.D. Skouras, J. Szerypo, J. Żylicz |
| 1997Sh09 | PRVCA | 55, | 1162 | R.K. Sheline, C.F. Liang, P. Paris, A. Gizon |
| 1997Su06 | NUPAB | 616, | 341c | K. Sümmerer, R. Schneider, T. Faestermann, J. Friese, H. Geissel, R. Gernhäuser, H. Gilg, F. Heine, J. Homolka, P. Kienle, H.-J. Korner, G. Münzenberg, J. Reinhold, K. Zeitelhack |
| 1997Sz04 | ZPAAD | 359, | 117 | J. Szerypo, R. Grzywacz, Z. Janas, M. Karny, M. Pfützner, A. Płochocki, K. Rykaczewski, J. Żylicz, M. Huyse, G. Reusen, J. Schwarzenberg, P. Van Duppen, A. Woehr, H. Keller, R. Kirchner, O. Klepper, A. Piechaczek, E. Roeckl, K. Schmidt, L. Batist, A. Bykov, V. Wittman, B.A. Brown |
| 1997Ta22 | PYLBB | 409, | 64 | O. Tarasov, R. Allatt, J.C. Angélique, R. Anne, C. Borcea, Z. Dlouhy, C. Donzaud, S. Grevy, D. Guillemaud-Mueller, M. Lewitowicz, S. Lukyanov, A.C. Mueller, F. Nowacki, Yu. Oganessian, N.A. Orr, A.N. Ostrowski, R.D. Page, Yu. Penionzhkevich, F. Pougheon, A. Reed, M.G. Saint-Laurent, W. Schwab, E. Sokol, O. Sorlin, W. Trinder, J.S. Winfield |
| 1997Te07 | PYLBB | 407, | 110 | T. Teranishi, S. Shimoura, Y. Ando, M. Hirai, N. Iwasa, T. Kikuchi, S. Moriya, T. Motobayashi, H. Murakami, T. Nakamura, T. Nishio, H. Sakurai, T. Uchibori, Y. Watanabe, Y. Yanagisawa, M. Ishihara |
| 1997Uu01 | ZPAAD | 358, | 375 | J. Uusitalo, M. Leino, R.G. Allatt, T. Enqvist, K. Eskola, P.T. Greenlees, S. Hurskanen, A. Keenan, H. Kettunen, P. Kuusiniemi, R.D. Page, W.H. Trzaska |
| 1997Wa05 | PRVCA | 55, | 1192 | J. Wauters, J.C. Batcher, C.R. Bingham, D.J. Blumenthal, L.T. Brown, L.F. Conticchio, C.N. Davids, T. Davinson, R.J. Irvine, D. Seweryniak, K.S. Toth, W.B. Walters, P.J. Woods, E.F. Zganjar |
| 1997Wo06 | NUPAB | 621, | 289c | A. Wöhr, A. Andreev, N. Bijmens, J. Breitenbach, S. Franchoo, M. Huyse, Y.A. Kudryavtsev, A. Piechaczek, R.R. Raabe, G. Reusen, L. Vermeeren, P. Van Duppen |
| 1997Xu01 | PRVCA | 55, | R553 | X.J. Xu, W.X. Huang, R.C. Ma, Z.D. Gu, Y.F. Yang, Y.Y. Wang, C.F. Dong, L.L. Xu |
| 1997Za07 | PRLTA | 79, | 4306 | K. Zaerpoor, Y.D. Chan, D.E. DiGregorio, M.R. Dragowsky, M.M. Hindi, M.C.P. Isaac, K.S. Krane, R.M. Larimer, A.O. Macchiavelli, R.W. Macleod, P. Mincinovic, E.B. Norman |

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| 1997Zi04 | NUPAB | 619, | 151 | M. Zinser, F. Humbert, T. Nilsson, W. Schwab, H. Simon, T. Aumann, M.J.G. Borge, L.V. Chulkov, J. Cub, Th. W. Elze, H. Emling, H. Geissel, D. Guillemaud-Mueller, P.G. Hansen, R. Holzmann, H. Irnich, B. Jonsson, J.V. Kratz, R. Kulessa, Y. Leifels, H. Lenske, A. Magel, A.C. Mueller, G. Münzenberg, F. Nickel, G. Nyman, A. Richter, K. Riisager, C. Scheidenberger, G. Schrieder, K. Stelzer, J. Stroth, A. Surowiec, O. Tengblad, E. Wajda, E. Zude |
| | | | 1998 | |
| 1998Ag.A | P-Bellaire | | 809 | J. Agramunt, A. Algora, L. Batist, R. Borcea, D. Cano-Ott, R. Collatz, A. Gadea, J. Gerl, M. Gierlik, M. Gorska, O. Guilbaud, H. Grawe, M. Hellström, Z. Hu, Z. Janas, M. Karny, R. Kirchner, P. Kleinheinz, W. Liu, T. Martinez, F. Moroz, A. Płochocki, M. Rejmund, E. Roeckl, B. Rubio, K. Ryckaczewski, M. Shibata, J. Szerypo, J.L. Tain, V. Wittmann, EUROBALL |
| 1998Am04 | EPJAA | 1, | 275 | F. Ameil, M. Bernas, P. Armbruster, S. Czajkowski, P. Dessagne, H. Geissel, E. Hanelt, C. Kozhuharov, C. Miché, C. Donzau, A. Grewe, A. Heinz, Z. Janas, M. de Jong, W. Schwab, S. Steinhäuser |
| 1998At04 | ARISE | 49, | 1175 | M.R.P. Attie, M.F. Koskinas, M.S. Dias, K.A. Fonseca |
| 1998Ax02 | NUPAB | 634, | 475 | L. Axelsson, J. Äystö, M.J.G. Borge, L.M. Fraile, H.O.U. Fynbo, A. Honkanen, P. Hornshøj, A. Jokinen, B. Jonson, P.O. Lipas, I. Martel, I. Mukha, T. Nilsson, G. Nyman, B. Petersen, K. Riisager, M.H. Smedberg, O. Tengblad, ISOLDE, and PrvCom GAU December 1997, and erratum NUPAB 641,529 |
| 1998Az01 | PRVCA | 57, | 628 | A. Azhari, T. Baumann, J.A. Brown, M. Hellström, J.H. Kelley, R.A. Kryger, D.J. Millener, H. Madani, E. Ramakrishnan, D.E. Russ, T. Suomijarvi, M. Thoennessen, S. Yokoyama |
| 1998Ba13 | PRVCA | 57, | 1042 | J.C. Batchelder, C.R. Bingham, K. Rykaczewski, K.S. Toth, T. Davinson, J.A. McKenzie, P.J. Woods, T.N. Ginter, C.J. Gross, J.W. McConnell, E.F. Zganjar, J.H. Hamilton, W.B. Walters, C. Baktash, J. Greene, J.F. Mas, W.T. Milner, S.D. Paul, D. Shapira, X.J. Xu, C.H. Yu |
| 1998Ba83 | PRVCA | 58, | 2571 | P.H. Barker, P.A. Amundsen |
| 1998Ba85 | NUPAB | 641, | 133 | M. Balodis, P. Prokofjevs, N. Krāmere, L. Simonova, J. Bērziņš, T. Krasta, J. Kern, A. Raemy, J.C. Dousse, W. Schwitz, J.A. Cizewski, G.G. Colvin, H.G. Börner, P. Geltenbort, F. Hoyler, S.A. Kerr, K. Schreckenbach, R. Georgii, T. von Egidy, J. Klora, H. Lindner, U. Mayerhofer, A. Walter, A.V. Murzin, V.A. Libman, I.A. Kondurov, Yu. E. Loginov, P.A. Sushkov, S. Brant, V. Paar, V. Lopac |
| 1998Ba.A | P-Bellaire | | 90 | Y. Bai, D.J. Vieira, H.L. Seifert, J.M. Wouters, and PrvCom AHW June 1998 |
| 1998Ba.B | P-Bellaire | | 264 | J.C. Batchelder, C.R. Bingham, K. Rykaczewski, K.S. Toth, T. Davinson, T.N. Ginter, C.J. Gross, R. Grzywacz, Z. Janas, M. Karny, S.H. Kim, B.D. MacDonald, J.F. Mas, J.W. McConnell, A. Piechaczek, J.J. Ressler, R.C. Slinger, J. Szerypo, W.B. Walters, W. Weintraub, P.J. Woods, C.-H. Yu, E.F. Zganjar |
| 1998Be19 | PRVCA | 57, | 2740 | T. Belgia, B. Fazekas, Zs. Kasztovszky, Zs. Revay, G. Molnar, M. Yeh, P.E. Garrett, S.W. Yates |
| 1998Be28 | NUPAB | 636, | 419 | A.V. Belozorov, R. Kalpakchieva, Yu. E. Penionzhkevich, Z. Dlouhy, S. Piskor, J. Vincour, H.G. Bohlen, M. von Lucke-Petsch, A.N. Ostrowski, D.V. Alexandrov, E. Yu. Nikolsky, B.G. Novatsky, D.N. Stepanov |
| 1998Bh04 | PRVCA | 58, | 1247 | M. Bhattacharya, A. García, M.M. Hindi, E.B. Norman, C.E. Ortiz, N.I. Kaloskakis, C.N. Davids, O. Civitarese, J. Suhonen |
| 1998Bh12 | PRVCA | 58, | 3677 | M. Bhattacharya, A. García, N.I. Kaloskakis, E.G. Adelberger, H.E. Swanson, R. Anne, M. Lewitowicz, M.G. Saint-Laurent, W. Trindler, C. Donzau, D. Guillemaud-Mueller, S. Leenhardt, A.C. Mueller, F. Pougheon, O. Sorlin |
| 1998Bi.A | P-Bellaire | | 474 | C.R. Bingham, J.C. Batchelder, J.A. Cizewski, C.N. Davids, R.J. Irvine, W. Reviol, D. Sewerniak, K.S. Toth, W.B. Walters, J. Wauters, J.L. Wood, X.J. Xu, J. Uusitalo, E.F. Zganjar |
| 1998Bo30 | NUPAB | 642, | 419 | R. Böttger, H. Schölermann |

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|----------|-------------|------|------|---|
| 1998Ch20 | NUPAB | 637, | 3 | M. Chartier, W. Mittig, N.A. Orr, J.-C. Angélique, G. Audi, J.-M. Casandjian, A. Cunsolo, C. Donzaud, A. Foti, A. Lépine-Szily, M. Lewitowicz, S. Lukyanov, M. McCormick, D.J. Morrissey, A.N. Ostrowski, B.M. Sherril, C. Stéphan, T. Suomijärvi, L. Tassan-Got, D.J. Vieira, A.C.C. Villari, J.M. Wouters |
| 1998Co27 | EPJAA | 3, | 17 | J.F.C. Cocks, M. Muikku, W. Korten, R. Wadsworth, S. Chmel, J. Domscheit, P.T. Greenlees, K. Helariutta, I. Hibbert, M. Houry, D. Jenkins, P. Jones, R. Julin, S. Juutinen, H. Kankaanpää, H. Kettunen, P. Kuusiniemi, M. Leino, Y. Le Coz, R. Lucas, E. Mergel, R.D. Page, A. Savelius, W. Trzaska |
| 1998Cz01 | NUPAB | 628, | 537 | C. Czajkowski, S. Andriamonje, B. Blank, F. Boué, R. Del Moral, J.P. Dufour, A. Fleury, P. Pourre, M.S. Pravikoff, E. Hanelt, K.-H. Schmidt, N.A. Orr |
| 1998Da03 | PRLTA | 80, | 1849 | C.N. Davids, P.J. Woods, D. Seweryniak, A.A. Sonzogni, J.C. Batchelder, C.R. Bingham, T. Davinson, D.J. Henderson, R.J. Irvine, G.L. Poli, J. Uusitalo, W.B. Walters |
| 1998Da23 | NUPAB | 643, | 317 | F.A. Danevich, A. Sh. Georgadze, V.V. Kobychiev, B.N. Kropivnyansky, A.S. Nikolaiko, O.A. Ponkratenko, V.I. Tretyak, Yu. G. Zdesenko |
| 1998Dr09 | PRVCA | 58, | 1837 | G.D. Dracoulis, A.P. Byrne, S.M. Mullins, T. Kibédi, F.G. Kondev, P.M. Davidson |
| 1998En.A | PrvCom | AHW | Aug | T. Enqvist, et al (PrvCom of H. Geissel) |
| 1998Es02 | PRVCA | 57, | 417 | K. Eskola, P. Kuusiniemi, M. Leino, J.F.C. Cocks, T. Enqvist, S. Hurskanen, H. Kettunen, W.H. Trzaska, J. Uusitalo, R.G. Allat, P.T. Greenlees, R.D. Page |
| 1998Fo06 | PRVCA | 58, | 749 | B.D. Foy, D.S. Brenner, C.N. Davids, D. Seweryniak, D. Blumenthal, R.L. Gill, N.V. Zamfir, D.D. Warner, C.J. Barton |
| 1998Ge13 | EPJAA | 3, | 225 | U. Georg, W. Borchers, M. Keim, A. Klein, P. Lievens, R. Neugart, M. Neuroth, P.M. Rao, Ch. Schulz, ISOLDE |
| 1998Gr12 | PYLBB | 429, | 247 | R. Grzywacz, S. Andriamonje, B. Blank, F. Boué, S. Czajkowski, F. Davi, R. Del Moral, C. Donzaud, J.P. Dufour, A. Fleury, H. Grawe, A. Grewe, A. Heinz, Z. Janas, A.R. Junghans, M. Karny, M. Lewitowicz, A. Musquère, M. Pfützner, M.-G. Porquet, M.S. Pravikoff, J.-E. Sauvestre, K. Sümmerer |
| 1998Gr14 | PRLTA | 81, | 766 | R. Grzywacz, R. Béraud, C. Borcea, A. Emsallem, M. Glogowski, H. Grawe, D. Guillemaud-Mueller, M. Hjorth-Jensen, M. Houry, M. Lewitowicz, A.C. Mueller, A. Nowak, A. Płochocki, M. Pfützner, K. Rykaczewski, M.G. Saint-Laurent, J.-E. Sauvestre, M. Schaefer, O. Sorlin, J. Szerypo, W. Trinder, S. Viteritti, J. Winfield |
| 1998Gr.A | B-Bellaire | | C7 | R. Grzywacz (and oral presentation) |
| 1998Gr.B | P-Bellaire | | 430 | R. Grzywacz |
| 1998Gu10 | PRVCA | 58, | 116 | V. Guimarães, S. Kubono, N. Ikeda, I. Katayama, T. Nomura, M.H. Tanaka, Y. Fuchi, H. Kawashima, S. Kato, H. Toyokawa, C.C. Yun, T. Niizeki, T. Kubo, M. Ohura, M. Hosaka |
| 1998Ha36 | PRVCA | 58, | 821 | P.D. Harty, N.S. Bowden, P.H. Barker, P.A. Amundsen |
| 1998He.B | Th.-Boulder | | | T.P. Heavner |
| 1998Ho13 | RPPHA | 61, | 639 | S. Hofmann |
| 1998Ic02 | PRVCA | 58, | 1329 | S. Ichikawa, K. Tsukada, I. Nishinaka, Y. Hatsukawa, H. Iimura, K. Hata, Y. Nagame, M. Asai, Y. Kojima, T. Hirose, M. Shibata, K. Kawade, Y. Oura |
| 1998Ik01 | PRVCA | 57, | 2804 | T. Ikuta, H. Ikezoe, S. Mitsuoka, I. Nishinaka, K. Tsukada, Y. Nagame, J. Lu, T. Kuzumaki |
| 1998Ik02 | EPJAA | 2, | 379 | H. Ikezoe, T. Ikuta, S. Mitsuoka, Y. Nagame, I. Nishinaka, K. Tsukada, T. Ohtsuki, T. Kuzumaki, J. Lu |
| 1998Is06 | EPJAA | 2, | 173 | S. Issmer, M. Fruneau, J.A. Pinston, M. Asghar, D. Barnéoud, J. Genevey, Th. Kerscher, K.E.G. Löbner |
| 1998Is11 | PRLTA | 81, | 4100 | T. Ishii, M. Asai, I. Hossain, P. Kleinheinz, M. Ogawa, A. Makishima, S. Ichikawa, M. Itoh, M. Ishii, J. Blomqvist |
| 1998Jo.A | PrvCom | AHW | Mar | T. Johansson, I. Bergström, et al |
| 1998Ka42 | NUPAB | 640, | 3 | M. Karny, L. Batist, B.A. Brown, D. Cano-Ott, R. Collatz, A. Gadea, R. Grzywacz, A. Guglielmetti, M. Hellström, Z. Hu, Z. Janas, R. Kirchner, F. Moroz, A. Piechaczek, A. Płochocki, E. Roeckl, B. Rubio, K. Rykaczewski, M. Shibata, J. Szerypo, J.L. Tain, V. Wittmann, A. Wöhr |

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| 1998Ka.A | AnRpt GSI | | 22 | M. Karny, L. Batist, D. Cano, R. Collatz, A. Gadea, M. Gierlik, R. Grzywacz, A. Guglielmetti, M. Hellström, Z. Hu, Z. Janas, R. Kirchner, F. Moroz, A. Piechaczek, A. Plochocki, E. Roeckl, B. Rubio, K. Rykaczewski, M. Shibata, J. Szerypo, J.L. Tain, V. Wittmann, A. Wöhr |
| 1998Ki20 | PYLBB | 443, | 82 | S.L. King, J. Simpson, R.D. Page, N. Amzal, T. Bäck, B. Cederwall, J.F.C. Cocks, D.M. Cullen, P.T. Greenlees, M.K. Harder, K. Helariutta, P. Jones, R. Julin, S. Juutinen, H. Kankaanpää, A. Keenan, H. Kettunen, P. Kuusiniemi, M. Leino, R. Lemmon, M. Muikku, A. Savelius, J. Uusitalo, P. Van Isacker |
| 1998Ko09 | NUPAB | 632, | 473 | F.G. Kondev, G.D. Dracoulis, A.P. Byrne, T. Kibédi |
| 1998Ko66 | JUPSA | 67, | 3405 | Y. Kojima, M. Asai, A. Osa, M. Koizumi, T. Sekine, M. Shibata, H. Yamamoto, K. Kawade, T. Tachibana |
| 1998Ku17 | EPJAA | 2, | 241 | J. Kurpeta, G. Lhersonneau, J.C. Wang, P. Dendooven, A. Honkanen, M. Huhta, M. Oinonen, H. Penttilä, K. Peräjärvi, J.R. Persson, A. Plochocki, J. Äystö |
| 1998Le15 | EPJAA | 2, | 9 | A.I. Levon, J. de Boer, M. Loewe, M. Würkner, T. Czosnyka, J. Iwanicki, P.J. Napiorkowski |
| 1998Li50 | PYLBB | 440, | 246 | M. Lipoglavšek, D. Seweryniak, C.N. Davids, C. Fahlander, M. Górski, R.V.F. Janssens, J. Nyberg, J. Uusitalo, W.B. Walters, I. Ahmad, J. Blomqvist, M.P. Carpenter, J.A. Cizewski, S.M. Fischer, H. Grawe, G. Hackman, M. Huhta, C.J. Lister, D. Nisius, G. Poli, P. Reiter, J. Ressler, J. Schwartz, A. Sonzogni |
| 1998Lu08 | EPJAA | 2, | 149 | X. Lu, J. Guo, K. Zhao, Y. Cheng, Y. Ma, Z. Li, S. Li, M. Ruan |
| 1998Mo30 | EPJAA | 3, | 99 | T. Morek, K. Starosta, Ch. Droste, D. Fossan, G. Lane, J. Sears, J. Smith, P. Vaska |
| 1998No.A | P-Bellaire | | 359 | M. Notani, N. Aoi, N. Fukuda, H. Iwasaki, K. Yoneda, H. Ogawa, T. Teranishi, S.M. Lukyanov, Yu. E. Penionzhkevich, T. Nakamura, H. Sakurai, E. Ideguchi, A. Yoshida, Y. Watanabe, T. Kubo, M. Ishihara |
| 1998Pf02 | PYLBB | 444, | 32 | M. Pfützner, P. Armbruster, T. Baumann, J. Benlliure, M. Bernas, W.N. Catford, D. Cortina-Gil, J.M. Daugas, H. Geissel, M. Górski, H. Grawe, R. Grzywacz, M. Hellström, N. Iwasa, Z. Janas, A.R. Junghans, M. Karny, S. Leenhardt, M. Lewitowicz, A.C. Mueller, F. de Oliveira, P.H. Regan, M. Rejmund, K. Rykaczewski, K. Sümmerer |
| 1998Po.A | PrvCom | GAu | Mar | F. Pougheon |
| 1998Ru04 | PRVCA | 58, | 771 | D. Rupnik, E.F. Zganjar, J.L. Wood, P.B. Semmes, P.F. Mantica |
| 1998Sh21 | ARISE | 49, | 1481 | M. Shibata, Y. Satoh, S. Itoh, H. Yamamoto, K. Kawade, Y. Kasugai, Y. Ikeda |
| 1998Si12 | ARISE | 49, | 1397 | H. Siegert, H. Schrader, U. Schötzgig |
| 1998So03 | NUPAB | 632, | 205 | O. Sorlin, V. Borrel, S. Grévy, D. Guillemaud-Mueller, A.C. Mueller, F. Pougheon, W. Böhmer, K.-L. Kratz, T. Mehren, P. Möller, B. Pfeiffer, T. Rauscher, M.G. Saint-Laurent, R. Anne, M. Lewitowicz, A. Ostrowski, T. Dörfler, W.-D. Schmidt-Ott |
| 1998St24 | NUPAB | 641, | 401 | A.E. Stuchbery, G.D. Dracoulis, T. Kibedi, A.P. Byrne, B. Fabricius, A.R. Plett, G.J. Lane, A.M. Baxter |
| 1998Su16 | EPJAA | 2, | 237 | M. Sugawara, H. Kusakari, T. Murakami, T. Kohno |
| 1998Ti06 | NUPAB | 636, | 249 | D.R. Tilley, C.M. Cheves, J.H. Kelley, S. Raman, H.R. Weller |
| 1998To14 | PRVCA | 58, | 1310 | K.S. Toth, X.-J. Xu, C.R. Bingham, J.C. Batchelder, L.F. Conticchio, W.B. Walters, L.T. Brown, C.N. Davids, R.J. Irvine, D. Seweryniak, J. Wauters, E.F. Zganjar |
| 1998Tu01 | PRVCA | 57, | 1648 | A. Türler, R. Dressler, B. Eichler, H.W. Gäggeler, D.T. Jost, M. Schädel, W. Brühle, K.E. Gregorich, N. Trautmann, S. Taut |
| 1998Ut02 | PRVCA | 57, | 2731 | S. Utku, J.G. Ross, N.P.T. Bateman, D.W. Bardayan, A.A. Chen, J. Görres, A.J. Howard, C. Iliadis, P.D. Parker, M.S. Smith, R.B. Vogelaar, M. Wiescher, K. Yildiz; erratum Phys. Rev. C58, 1354 (1998) |
| 1998Vi06 | PYLBB | 437, | 264 | S.M. Vincent, P.H. Regan, D.D. Warner, R.A. Bark, D. Blumenthal, M.P. Carpenter, C.N. Davids, W. Gelletly, R.V.F. Janssens, C.D. O'Leary, C.J. Lister, J. Simpson, D. Seweryniak, T. Saitoh, J. Schwartz, S. Törmänen, O. Juillet, F. Nowacki, P. Van Isacker |
| 1998Wa.A | PrvCom | AHW | Feb | A.H. Wapstra |
| 1998Wh01 | PRVCA | 57, | 1112 | D.H. White, R.W. Hoff, H.G. Börner, K. Schreckenbach, F. Hoyler, G. Colvin, I. Ahmad, A.M. Friedman, J.R. Erskine |

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|----------|------------|------|------|---|
| 1998Wh02 | PYLBB | 425, | 239 | C. Wheldon, R. D'Alarcao, P. Chowdhury, P.M. Walker, E. Seabury, I. Ahmad, M.P. Carpenter, D.M. Cullen, G. Hackman, R.V.F. Janssens, T.L. Khoo, D. Nisius, C.J. Pearson, P. Reiter |
| 1998Wi.A | P-Bellaire | | 606 | J.A. Winger, H.H. Yousif, W.C. Ma, V. Ravikumar, W. Lui, S.K. Phillips, R.B. Piercey, P.F. Mantica, B. Pritychenko, R.M. Ronningen, M. Steiner |
| 1998Wu01 | PRLTA | 80, | 2085 | A.H. Wuosmaa, I. Ahmad, S.M. Fischer, J.P. Greene, G. Hackman, V. Nanal, G. Savard, J.P. Schiffer, P. Wilt, S.M. Austin, B.A. Brown, S.J. Freedman, J.J. Connell |
| 1998Zh03 | EPJAA | 1, | 1 | Y.H. Zhang, Q.Z. Zhao, S.F. Zhu, H.S. Xu, X.H. Zhou, Y.X. Guo, X.G. Lei, J. Lu, Q.B. Gou, H.J. Jin, Z. Liu, Y.X. Luo, X.F. Sun, Y.T. Zhu |
| 1998Zh09 | NUPAB | 628, | 386 | C.T. Zhang, P. Bhattacharyya, P.J. Daly, Z.W. Grabowski, R.H. Mayer, M. Sferazza, R. Broda, B. Fornal, W. Królas, T. Pawlat, D. Bazzacco, S. Lunardi, C. Rossi Alvarez, G. de Angelis |
| 1998Zh22 | PRVCA | 58, | 156 | L. Zhang, J. Zhao, J. Zheng, J. Wang, Z. Qin, Y. Yang, C. Zhang, G. Jin, G. Guo, Y. Du, T. Guo, T. Wang, B. Guo, J. Tian, Y. Lou |
| | | | 1999 | |
| 1999Al20 | PYLBB | 457, | 253 | A. Alessandrello, J.W. Beeman, C. Brofferio, O. Cremonesi, E. Fiorini, A. Giuliani, E.E. Haller, B. Margesin, A. Monfardini, A. Nucciotti, M. Pavan, G. Pessina, G. Pignatel, E. Previtali, L. Zanotti, M. Zen |
| 1999Am05 | NUPAB | 651, | 3 | F. Ames, G. Audi, D. Beck, G. Bollen, M. de Saint Simon, R. Jertz, H.-J. Kluge, A. Kohl, M. König, D. Lunney, I. Martel, R.B. Moore, T. Otto, Z. Patyk, H. Raimbault-Hartmann, G. Rouleau, G. Savard, E. Scharck, S. Schwarz, L. Schweikhard, H. Stolzenberg, J. Szerypo, ISOLDE |
| 1999An10 | PRLTA | 82, | 1819 | A.N. Andreyev, M. Huyse, P. Van Duppen, J.F.C. Cocks, K. Helariutta, H. Kettunen, P. Kuusiniemi, M. Leino, W.H. Trzaska, K. Eskola, R. Wyss |
| 1999An36 | APOBB | 30, | 1255 | A.N. Andreyev, N. Bijnens, J.F. Cocks, K. Eskola, K. Helariutta, M. Huyse, H. Kettunen, P. Kuusiniemi, M. Leino, W.H. Trzaska, P. Van Duppen, R. Wyss |
| 1999An52 | EPJAA | 6, | 381 | A.N. Andreyev, D. Ackermann, P. Cagarda, J. Gerl, F. Heßberger, S. Hofmann, M. Huyse, A. Keenan, H. Kettunen, A. Kleinbohl, A. Lavrentiev, M. Leino, B. Lommel, M. Matos, G. Münzenberg, C. Moore, C.D. O'Leary, R.D. Page, S. Reshitko, S. Saro, C. Schlegel, H. Schaffner, M. Taylor, P. Van Duppen, L. Weissman, R. Wyss |
| 1999Ar25 | NUPAB | 658, | 299 | R. Arnold, C. Augier, J. Baker, A. Barabash, D. Blum, V. Brudanin, A.J. Caffrey, J.E. Campagne, E. Caurier, D. Dassié, V. Egorov, T. Filipova, R. Gurriaran, J.L. Guyonnet, F. Hubert, Ph. Hubert, S. Jullian, I. Kisel, O. Kochetov, V.N. Kornoukhov, V. Kovalenko, D. Lalanne, F. Laplanche, F. Leccia, I. Linck, C. Longuemare, Ch. Marquet, F. Mauger, H.W. Nicholson, I. Pilugin, F. Piquemal, J.-L. Reyss, X. Sarazin, F. Scheibling, J. Suhonen, C.S. Sutton, G. Szklarz, V. Timkin, R. Torres, V.I. Tretyak, V. Umatov, I. Vanyushin, A. Varelle, Yu. Vasilyev, Ts. Vylov |
| 1999As03 | PRVCA | 59, | 3060 | M. Asai, S. Ichikawa, K. Tsukada, M. Sakama, M. Shibata, Y. Kojima, A. Osa, I. Nishinaka, Y. Nagame, K. Kawade, T. Tachibana |
| 1999Ba45 | EPJAA | 5, | 49 | J.C. Batchelder, R.S. Toth, C.R. Bingham, L.T. Brown, L.F. Conticchio, C.N. Davids, R.J. Irvine, D. Sewerniak, W.B. Walters, J. Wauters, E.F. Zganjar, J.L. Wood, C. De Coster, B. Decroix, K. Heyde |
| 1999Be53 | NUPAB | 658, | 129 | U.C. Bergmann, L. Axelsson, M.J.G. Borge, V.N. Fedoseyev, C. Forssén, H.O.U. Fynbo, S. Grévy, P. Hornshøj, Y. Jading, B. Jonson, U. Köster, K. Markenroth, F.M. Marqués, V.I. Mishin, T. Nilsson, G. Nyman, A. Oberstedt, H.L. Ravn, K. Riisager, G. Schrieder, V. Sebastian, H. Simon, O. Tengblad, F. Wenander, K. Wilhelmsen Rolander, ISOLDE |
| 1999Be63 | NUPAB | 660, | 87 | J. Benlliure, K.-H. Schmidt, D. Cortina-Gil, T. Enqvist, F. Farget, A. Heinz, A.R. Junghans, J. Pereira, J. Taieb |
| 1999Be64 | NUPBB | 563, | 97 | P. Belli, R. Bernabei, C.J. Dai, F. Grianti, H.L. He, G. Ignesti, A. Incicchitti, H.H. Kuang, J.M. Ma, F. Montecchia, O.A. Ponkratenko, D. Prospero, V.I. Tretyak, Yu. G. Zdesenko |

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| 1999Bi14 | PRVCA | 59, | 2984 | C.R. Bingham, J. Batchelder, K. Rykaczewski, K.S. Toth, C.-H. Yu, T.N. Gin-ter, C.J. Gross, R. Grzywacz, M. Karny, S.H. Kim, B.D. MacDonald, J.F. Mas, J.W. McConnell, P.B. Semmes, J. Szerypo, W. Weintraub, E.F. Zganjar |
| 1999Bo26 | PPNPD | 42, | 17 | H.G. Bohlen, A. Blazevic, B. Gebauer, W. von Oertzen, S. Thummerer, R. Kalpakchieva, S.M. Grimes, T.N. Massey |
| 1999Br47 | PRLTA | 83, | 4510 | M.P. Bradley, J.V. Porto, S. Rainville, J.K. Thompson, D.E. Pritchard, and Prv-Com GAu Nov 1999 |
| 1999Ca21 | EPJAA | 5, | 1 | G. Canchell, R. Béraud, E. Chabanat, E. Emsallem, N. Redon, P. Dendooven, J. Huikari, A. Jokinen, V. Kolhinen, G. Lhersonneau, M. Oinonen, A. Nieminen, H. Penttilä, K. Peräjärvi, J.C. Wang |
| 1999Ca46 | PRLTA | 83, | 4506 | C. Carlberg, T. Fritioff, I. Bergström |
| 1999Co13 | JPGPE | 25, | 839 | J.F.C. Cocks, and the JUROSPHERE Collaboration |
| 1999Da.A | GANIL-T9905 | | | J.-M. Daugas Thesis |
| 1999DI01 | JPGPE | 25, | 859 | Z. Dlouhý, Yu. Penionzhkevich, R. Anne, D. Baiborodin, C. Borcea, A. Fomichev, D. Guillemaud-Mueller, R. Kalpakchieva, M. Lewitowicz, S. Lukyanov, A.C. Mueller, Yu. Oganessian, R.D. Page, A. Reed, M.G. Saint-Laurent, E. Sokol, N. Skobelev, O. Sorlin, O. Tarasov, V. Toneev, W. Trinder |
| 1999Dr09 | PRVCA | 59, | 3433 | R. Dressler, B. Eichler, D.T. Jost, D. Piguët, A. Tuerler, Ch. Duehlmann, R. Eich-ler, H.W. Gaeggeler, M. Gaertner, M. Schaedel, S. Taut, A.B. Yakushev |
| 1999Dr10 | PRVCA | 60, | 014303 | G.D. Dracoulis, A.P. Byrne, A.M. Baxter, P.M. Davidson, T. Kibedi, T.R. Mc-Goram, R.A. Bark, S.M. Mullins |
| 1999Dr13 | JPGPE | 25, | 1839 | O. Dragoun, A. Spalek, M. Rysavy, A. Kovalik, E.A. Yakushev, V. Brabec, A.F. Novgorodov, N. Dragounova, J. Rizek |
| 1999Fe10 | EPJAA | 6, | 235 | X.C. Feng, Y.X. Guo, X.H. Zhou, X.F. Sun, X.G. Lei, W.X. Huang, J.J. He, Z. Liu, Y.H. Zhang, S.F. Zhu, Y.X. Luo, S.X. Wen, G.J. Yuan, X.G. Wu |
| 1999Fo01 | PRLTA | 82, | 1823 | B. Fogelberg, K.A. Mezilev, H. Mach, V.I. Isakov, J. Slivova |
| 1999Fo.A | PrvCom | GAu | Oct | K. Foehl |
| 1999Ga41 | EPJAA | 6, | 59 | Z.G. Gan, Z. Qin, J.S. Guo, L.J. Shi, H.Y. Liu, T.R. Guo, X.G. Lei, R.C. Ma, W.X. Huang, S.G. Yuan, X.Q. Zhang, G.M. Jin |
| 1999Ga.A | B-Seeheim | | 034 | H.W. Gäggeler, R. Dressler, A. Türler, D.T. Jost, B. Eichler, H.R. von Gunten |
| 1999Ge01 | PRVCA | 59, | 82 | J. Genevey, F. Ibrahim, J.A. Pinston, H. Faust, T. Friedrichs, M. Gross, S. Oberstedt |
| 1999Gi14 | NUPAB | 658, | 97 | J. Gizon, A. Gizon, J. Timár, Gh. Cata-Danil, B.M. Nyakó, L. Zolnai, A.J. Boston, D.T. Joss, E.S. Paul, A.T. Semple, N.J. O'Brien, C.M. Parry, D. Bucurescu, S. Brant, V. Paar |
| 1999Gr28 | EPJAA | 6, | 269 | P.T. Greenlees, P. Kuusiniemi, N. Amzal, A. Andreyev, P.A. Butler, K.J. Cann, J.F.C. Cocks, O. Dorvaux, T. Enqvist, P. Fallon, B. Gall, M. Guttormsen, D. Hawcroft, K. Helariutta, F.P. Heßberger, F. Hoellinger, G.D. Jones, P. Jones, R. Julin, S. Juutinen, H. Kankaanpää, H. Kettunen, M. Leino, S. Messelt, M. Muikku, S. Ødegård, R.D. Page, A. Savelius, A. Schiller, S. Siem, W.H. Trza-ska, T. Tveter, J. Uusitalo |
| 1999Ha05 | PRLTA | 82, | 1391 | M. Hannawald, T. Kautsch, A. Wöhr, W.B. Walters, K.-L. Kratz, V.N. Fe-doseyev, V.L. Mishin, W. Böhmer, B. Pfeiffer, V. Sebastian, Y. Jading, U. Köster, J. Lettry, H.L. Ravn, ISOLDE |
| 1999He11 | JPGPE | 25, | 877 | F.P. Heßberger |
| 1999Ho01 | NUPAB | 645, | 331 | J. Honzátko, I. Tomandl, V. Bondarenko, D. Bucurescu, T. von Egidy, J. Ott, W. Schauer, H.-F. Wirth, C. Doll, A. Gollwitzer, G. Graw, R. Hertenberg-er, B.D. Valnion see also 98Ho16 |
| 1999Ho09 | PYLBB | 451, | 247 | E. Holzschuh, W. Kündig, L. Palermo, H. Stüssi, P. Wenk |
| 1999Ho28 | PRVCA | 60, | 057301 | F. Hoellinger, B.J.P. Gall, N. Schulz, N. Amzahl, P.A. Butler, P.T. Greenlees, D. Hawcroft, J.F.C. Cocks, K. Helariutta, P.M. Jones, R. Julin, S. Juutinen, H. Kankaanpää, H. Kettunen, P. Kuusiniemi, M. Leino, M. Muikku, D. Savelius |
| 1999Hu05 | PRVCA | 59, | 2402 | W.X. Huang, R.C. Ma, S.W. Xu, X.J. Xu, J.S. Guo, X.F. Sun, Y.X. Xie, Z.K. Li, Y.X. Ge, Y.Y. Wang, C.F. Wang, T.M. Zhang, G.M. Jin, Y.X. Luo |
| 1999Hu10 | PRVCA | 60, | 024315 | Z. Hu, L. Batist, J. Agramunt, A. Algora, B.A. Brown, D. Cano-Ott, R. Collatz, A. Gadea, M. Gierlik, M. Górska, H. Grawe, M. Hellström, Z. Janas, M. Karny, R. Kirchner, F. Moroz, A. Płochocki, M. Rejmund, E. Roeckl, B. Rubio, M. Shi-bata, T. Szerypo, J.L. Tain, V. Wittmann |

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| 1999Ja02 | PRLTA | 82, | 295 | Z. Janas, C. Chandler, B. Blank, P.H. Regan, A.M. Bruce, W.N. Catford, N. Curtis, S. Czajkowski, Ph. Dessagne, A. Fleury, W. Gelletly, J. Giov-inazzo, R. Grzywacz, M. Lewitowicz, C. Longour, C. Marchand, C. Miché, N.A. Orr, R.D. Page, C.J. Pearson, M.S. Pravikoff, A.T. Reed, M.G. Saint-Laurent, J.A. Sheikh, S.M. Vincent, R. Wadsworth, D.D. Warner, J.S. Winfield |
| 1999Ke05 | PYLAA | 255, | 221 | E.G. Kessler, Jr., M.S. Dewey, R.D. Deslattes, A. Henins, H.G. Börner, M. Jentschel, C. Doll, H. Lehmann |
| 1999La14 | PRVCA | 59, | 3086 | C.A. Laue, K.E. Gregorich, R. Sudowe, M.B. Hendricks, J.L. Adams, M.R. Lane, D.M. Lee, C.A. McGrath, D.A. Shaughnessy, D.A. Strellis, E.R. Syl-wester, P.A. Wilk, D.C. Hoffman |
| 1999Le68 | NUPAB | 654, | 687c | M. Lewitowicz, J.M. Daugas, R. Grzywacz, L. Achouri, J.C. Angélique, D. Bai-borodin, R. Bentida, R. Béraud, C. Bingham, C. Borcea, W. Catford, A. Em-sallem, G. de France, M. Glogowski, H. Grawe, D. Guillemaud-Mueller, M. Houry, S. Hurskanen, K.L. Jones, R.C. Lemmon, A.C. Mueller, A. Nowak, F. de Oliveira-Santos, A. Płochocki, M. Pfützner, P.H. Regan, K. Rykaczewski, M.G. Saint-Laurent, J.E. Sauvestre, M. Sawicka, M. Schaefer, G. Sletten, O. Sor-lin, M. Stanoiu, J. Szerypo, W. Trinder, S. Viteritti, J. Winfield |
| 1999Lh01 | PRVCA | 60, | 014315 | G. Lhersonneau, J.C. Wang, S. Hankonen, P. Dendooven, P. Jones, R. Julin, J. Äystö |
| 1999Mo30 | NUPAB | 657, | 251 | C.-B. Moon, S.J. Chae, T. Komatsubara, T. Shizuma, Y. Sasaki, H. Ishiyama, T. Jumatsu, K. Furuno |
| 1999Na27 | PRLTA | 83, | 1112 | T. Nakamura, N. Fukuda, T. Kobayashi, N. Aoi, H. Iwasaki, T. Kubo, A. Men-goni, M. Notani, H. Otsu, H. Sakurai, S. Shimoura, T. Teranishi, Y.X. Watanabe, K. Yoneda, M. Ishihara |
| 1999Ni03 | PRLTA | 83, | 1104 | V. Ninov, K.E. Gregorich, W. Loveland, A. Ghiorso, D.C. Hoffman, D.M. Lee, H. Nitsche, W.J. Swiatecki, U.W. Kirbach, C.A. Laue, J.L. Adams, J.B. Patin, D.A. Shaughnessy, D.A. Strellis, P.A. Wilk |
| 1999Og03 | PYLBB | 451, | 11 | H. Ogawa, K. Asahi, K. Sakai, A. Yoshimi, M. Tsuda, Y. Uchiyama, T. Suzuki, K. Suzuki, N. Kurokawa, M. Adachi, H. Izumi, H. Ueno, T. Shimoda, S. Tan-imoto, N. Takahashi, W.-D. Schmidt-Ott, M. Schäfer, S. Fukuda, A. Yoshida, M. Notani, T. Kubo, H. Okuno, H. Sato, N. Aoi, K. Yoneda, H. Iwasaki, N. Fukuda, N. Fukunishi, M. Ishihara, H. Miyatake |
| 1999Og05 | EPJAA | 5, | 63 | Yu. Ts. Oganessian, A.V. Yeremin, G.G. Gulbekian, S.L. Bogomolov, V.I. Chep-igin, B.N. Gikal, V.A. Gorshkov, M.G. Itkis, A.P. Kabachenko, V.B. Kutner, A. Yu. Lavrentev, O.N. Malyshev, A.G. Popeko, J. Roháč, R.N. Sagaidak, S. Hofmann, G. Münzenberg, M. Veselsky, S. Saro, N. Iwasa, K. Morita |
| 1999Og07 | NATUA | 400, | 242 | Yu. Ts. Oganessian, A.V. Yeremin, A.G. Popeko, S. L. Bogomolov, G.V. Buk-lanov, M.L. Chelnokov, V.I. Chepigin, B.N. Gikal, V.A. Gorshkov, G.G. Gul-bekian, M.G. Itkis, A.P. Kabachenko, A. Yu. Lavrentev, O.N. Malyshev, J. Ro-hac, R.N. Sagaidak, S. Hofmann, S. Saro, G. Giardina, K. Morita |
| 1999Og10 | PRLTA | 83, | 3154 | Yu. Ts. Oganessian, V.K. Utyonkov, Yu. V. Lobanov, F. Sh. Abdullin, A.N. Polyakov, I.V. Shirokovsky, Yu. S. Tsyganov, G.G. Gulbekian, S.L. Bo-gomolov, B.N. Gikal, A.N. Mezentsev, S. Iliev, V.G. Subbotin, A.M. Sukhov, G.V. Buklanov, K. Subotic, M.G. Itkis, K.J. Moody, J.F. Wild, N.J. Stoyer, M.A. Stoyer, R.W. Loughheed |
| 1999Og.B | B-Seeheim | | O5 | Yu. Ts. Oganessian, V.K. Utyonkov, Yu. V. Lobanov, F. Sh. Abdullin, A.N. Polyakov, I.V. Shirokovsky, Yu. S. Tsyganov, G.G. Gulbekian, S.L. Bo-gomolov, B.N. Gikal, A.N. Mezentsev, S. Iliev, V.G. Subbotin, A.M. Sukhov, G.V. Buklanov, K. Subotik, M.G. Itkis, K.J. Moody, J.F. Wild, N.J. Stoyer, R.W. Loughheed, and email |
| 1999Po09 | PRVCA | 59, | 2979 | G.L. Poli, C.N. Davids, P.J. Woods, D. Seweryniak, J.C. Batchelder, L.T. Brown, C.R. Bingham, M.P. Carpenter, L.F. Conticchio, T. Davinson, J. de Boer, S. Hamada, D.J. Henderson, R.J. Irvine, R.V.F. Janssens, H.J. Maier, L. Müller, F. Soramel, K.S. Toth, W.B. Walters, J. Wauters |
| 1999Pr10 | PRVCA | 60, | 054307 | J.I. Prisciandaro, P.F. Mantica, A.M. Oros-Peusquens, D.W. Anthony, M. Huhta, P.A. Lofy, R.M. Ronningen |
| 1999Re06 | PRVCA | 59, | 2416 | I. Reusen, I. Reusen, A. Andreyev, J. Andrzejewski, N. Bijmens, S. Franchoo, M. Huyse, Yu. Kudryavtsev, K. Kruglov, W.F. Mueller, A. Piechaczek, R. Raabe, K. Rykaczewski, J. Szerypo, P. Van Duppen, L. Vermeeren, J. Wauters, A. Wöhr |

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| 1999Re16 | PRVCA | 60, | 024311 | A.T. Reed, O. Tarasov, R.D. Page, D. Guillemaud-Mueller, Yu. E. Penionzhkevich, R.G. Allatt, J.C. Angélique, R. Anne, C. Borcea, V. Burjan, W.N. Catford, Z. Dlouhý, C. Donzaud, S. Grévy, M. Lewitowicz, S.M. Lukyanov, F.M. Marqués, G. Martinez, A.C. Mueller, P.J. Nolan, J. Novák, N.A. Orr, F. Pougheon, P.H. Regan, M.G. Saint-Laurent, T. Siiskonen, E. Sokol, O. Sorlin, J. Suhonen, W. Trinder, S.M. Vincent |
| 1999Ry04 | PRVCA | 60, | 011301 | K. Rykaczewski, J.C. Batchelder, C.R. Bingham, T. Davinson, T.N. Ginter, C.J. Gross, R. Grzywacz, M. Karny, B.D. MacDonald, J.F. Mas, J.W. McConnell, A. Piechaczek, R.C. Slinger, K.S. Toth, W.B. Walters, P.J. Woods, E.F. Zganjar, B. Barmore, L. Gr. Ixaru, A.T. Kruppa, W. Nazarewicz, M. Rizea, T. Vertse |
| 1999Sa06 | PYLBB | 448, | 180 | H. Sakurai, S.M. Lukyanov, M. Notani, N. Aoi, D. Beaumel, N. Fukuda, M. Hirai, E. Ideguchi, N. Imai, M. Ishihara, H. Iwasaki, T. Kubo, K. Kusaka, H. Kumagai, T. Nakamura, H. Ogawa, Yu. E. Penionzhkevich, T. Teranishi, Y.X. Watanabe, K. Yoneda, A. Yoshida |
| 1999Sa.A | P-Bormio | | | F. Sarazin, et al, and PrvCom to D. Lunney March 1999 |
| 1999Sa.D | B-Seeheim | | PW4 | M. Sakama, K. Tsukuda, M. Asai, S. Ichikawa, Y. Oura, A. Osa, M. Shibata, I. Nishinaka, Y. Nagame, M. Ebihara, K. Kawade, H. Nakahara and poster |
| 1999Se14 | PRVCA | 60, | 031304 | D. Seweryniak, J. Uusitalo, M.P. Carpenter, D. Nisius, C.N. Davids, C.R. Bingham, L.T. Brown, I. Conticchio, D.J. Henderson, R.V.F. Janssens, W.B. Walters, J. Wauters, P.J. Woods |
| 1999Sh03 | PRVCA | 59, | 101 | R.K. Sheline, P. Alexa, C.F. Liang, P. Paris |
| 1999Sm07 | EPJAA | 5, | 43 | M.B. Smith, R. Chapman, J.F.C. Cocks, O. Dorvaux, K. Helariutta, P.M. Jones, R. Julin, S. Juutinen, H. Kankaanpää, H. Kettunen, P. Kuusiniemi, Y. Le Coz, M. Leino, D.J. Middleton, M. Muikku, P. Nieminen, P. Rähkila, A. Savelius, K.-M. Spohr |
| 1999So08 | PRVCA | 59, | 1324 | D. Sohler, J. Cederkall, M. Lipoglavsek, Zs. Dombradi, M. Gorska, J. Persson, D. Seweryniak, I. Ahmad, A. Atac, R.A. Bark, J. Blomqvist, M.P. Carpenter, B. Cederwall, C.N. Davids, C. Fahlander, S.M. Fischer, H. Grawe, G. Hackman, R.V.F. Janssens, A. Johnson, A. Kerek, W. Klamra, J. Kownacki, C.J. Lister, S. Mitarai, D. Nisius, L.-O. Norlin, J. Nyberg, G. Poli, P. Reiter, J.J. Ressler, H.A. Roth, J. Schwartz, G. Sletten, J. Uusitalo, W.B. Walters, M. Weiszflog |
| 1999So17 | PRLTA | 83, | 1116 | A.A. Sonzogni, C.N. Davids, P.J. Woods, D. Seweryniak, M.P. Carpenter, J.J. Ressler, J. Schwartz, J. Uusitalo, W.B. Walters |
| 1999So20 | NUPAB | 660, | 3 | O. Sorlin, C. Donzaud, L. Axelsson, M. Belleguic, R. Béraud, C. Borcea, G. Canchel, E. Chabanat, J.M. Daugas, A. Emsallem, D. Guillemaud-Mueller, K.-L. Kratz, S. Leenhardt, M. Lewitowicz, C. Longour, M.J. Lopez, F. de Oliveira Santos, L. Petizon, B. Pfeiffer, F. Pougheon, M.G. Saint-Laurent, J.E. Sauvestre, and erratum Nucl. Phys. A669 (2000) 351 |
| 1999Ta20 | EPJAA | 5, | 123 | Y. Tagaya, S. Hashimoto, K. Morita, Y.H. Pu, T. Ariga, K. Ohta, T. Minemura, I. Hisinaga, T. Motobayashi, T. Nomura |
| 1999To04 | EPJAA | 4, | 233 | Y. Toh, S. Yamada, A. Taniguchi, Y. Kawase |
| 1999To11 | PRVCA | 60, | 011302 | K.S. Toth, C.R. Bingham, J.C. Batchelder, L.T. Brown, L.F. Contecchio, C.N. Davids, R.J. Irvine, D. Sewerniak, D.M. Moltz, W.B. Walters, J. Wauters, E.F. Zganjar |
| 1999Uu01 | PRVCA | 59, | 2975 | J. Uusitalo, C.N. Davids, P.J. Woods, D. Sewerniak, A.A. Sonzogni, J.C. Batchelder, C.R. Bingham, T. Davinson, J. de Boer, D.J. Henderson, H.J. Maier, J. Ressler, R. Slinger, W.B. Walters |
| 1999Wa09 | PYLBB | 454, | 1 | J.C. Wang, P. Dendooven, M. Hannawald, A. Honkanen, M. Huhta, A. Jokinen, K.-L. Kratz, G. Lhersonneau, M. Oinonen, H. Penttilä, K. Peräjärvi, B. Pfeiffer, J. Äystö |
| 1999Xi03 | EPJAA | 5, | 341 | Y. Xie, S. Xu, Z. Li, Y. Yu, Q. Pan, C. Wang, T. Zhang, G. Long, Y. Li |
| 1999Xi04 | EPJAA | 6, | 239 | Y. Xie, S. Xu, Z. Li, Y. Yu, Q. Pan, C. Wang, T. Zhang |
| 1999Ya.A | P-Dubna | | 118 | E.A. Yakushev, V.M. Gorozhankin, O. Dragoun, A. Kovalik, A.F. Novgorodov, M. Rysavy, A. Shpalek |
| | | | 2000 | |
| 2000Ah02 | PRVCA | 61, | 044301 | I. Ahmad, R.R. Chasman, P.R. Fields |

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| 2000An14 | NATUA | 405, | 430 | A.N. Andreyev, M. Huyse, P. Van Duppen, L. Weissman, D. Ackermann, J. Gerl, F.P. Heßberger, S. Hofmann, A. Kleinböhl, G. Münzenberg, S. Reshitko, C. Schlegel, H. Schaffner, P. Cagarda, M. Matos, S. Saro, A. Keenan, C. Moore, C.D. O'Leary, R.D. Page, M. Taylor, H. Kettunen, M. Leino, A. Lavrentiev, R. Wyss, K. Heyde |
| 2000As.A | AnRpt JAERI | | 13 | M. Asai, K. Tsukada, S. Ichikawa, H. Haba, A. Osa, Y. Nagame, S. Goto, M. Sakama, Y. Kojima, M. Shibata, K. Akiyama, A. Toyoshima |
| 2000Be42 | EPJAA | 8, | 307 | D. Beck, F. Ames, G. Audi, G. Bollen, F. Herfurth, H.-J. Kluge, A. Kohl, M. König, D. Lunney, I. Martel, R.B. Moore, H. Raimbault-Hartmann, E. Schark, S. Schwarz, M. de Saint Simon, J. Szerypo, ISOLDE |
| 2000Bo24 | NUPAB | 673, | 85 | V. Bondarenko, T. von Egidy, J. Honzátko, I. Tomandl, D. Bucurescu, N. Mărginean, J. Ott, W. Schauer, H.-F. Wirth, C. Doll |
| 2000Ca.A | Th.-Valencia | | | Cano-Ott |
| 2000Ch07 | PRVCA | 61, | 044309 | C. Chandler, P.H. Regan, B. Blank, C.J. Pearson, A.M. Bruce, W.N. Catford, N. Curtis, S. Czajkowski, Ph. Dessagne, A. Fleury, W. Gelletly, J. Giovinozzo, R. Grzywacz, Z. Janas, M. Lewitowicz, C. Marchand, Ch. Miehe, N.A. Orr, R.D. Page, M.S. Pravikoff, A.T. Reed, M.G. Saint-Laurent, S.M. Vincent, R. Wadsworth, D.D. Warner, J.S. Winfield, F. Xu |
| 2000Da07 | PYLBB | 476, | 213 | J.M. Daugas, R. Grzywacz, M. Lewitowicz, L. Achouri, J.C. Angélique, D. Baiborodin, K. Bennaceur, R. Bentida, R. Béraud, C. Borcea, C. Bingham, W.N. Catford, A. Emsallem, G. de France, H. Grawe, K.L. Jones, R.C. Lemmon, M.J. Lopez Jimenez, F. Nowacki, F. de Oliveira Santos, M. Pfützner, P.H. Regan, K. Rykaczewski, J.E. Sauvestre, M. Sawicka, G. Sletten, M. Stanoiu |
| 2000Do10 | JRNBA | 105, | 43 | J. Döring, A. Aprahamian, M. Wiescher |
| 2000Fy01 | NUPAB | 677, | 38 | H.O.U. Fynbo, M.J.G. Borge, L. Axelsson, J. Äystö, U.C. Bergmann, L.M. Fraile, A. Honkanen, P. Hornshøj, Y. Jading, A. Jokinen, B. Jonson, I. Martel, I. Mukha, T. Nilsson, G. Nyman, M. Oinonen, I. Piqueras, K. Riisager, T. Siiskonen, M.H. Smedberg, O. Tengblad, J. Thaysen, F. Wenander, ISOLDE |
| 2000Ge01 | NUPAB | 662, | 3 | L. Genilloud, H.G. Börner, F. Corminboeuf, Ch. Doll, S. Drissi, M. Jentschel, J. Jolie, J. Kern, H. Lehmann, N. Warr, and erratum NUPAB 669(2000)407 |
| 2000Ge07 | PYLBB | 480, | 77 | T. Gehrman |
| 2000Gi01 | PRVCA | 61, | 014308 | T.N. Ginter, J.C. Batchelder, C.R. Bingham, C.J. Gross, R. Grzywacz, J.H. Hamilton, Z. Janas, M. Karny, S.H. Kim, J.F. Mas, J.W. McConnell, A. Piechaczek, A.V. Ramayya, K. Rykaczewski, P.B. Semmes, J. Szerypo, K.S. Toth, R. Wadsworth, C.-H. Yu, E.F. Zganjar |
| 2000He17 | EPJAA | 8, | 521 | F.P. Heßberger, S. Hofmann, D. Ackermann, V. Ninov, M. Leino, S. Saro, A. Andreyev, A. Lavrentev, A.G. Popeko, A.V. Yeremin, and erratum EPJAA 9(2000)433 |
| 2000Hi08 | PRVCA | 61, | 055501 | M.M. Hindi, R.-M. Larimer, E.B. Norman, G.A. Rech |
| 2000Ho13 | PYLBB | 482, | 1 | E. Holzschuh, L. Palermo, H. Stussi, P. Wenk |
| 2000Ho19 | RAACA | 88, | 139 | A. Hohn, H.H. Coenen, S.M. Qaim |
| 2000Hu17 | PRVCA | 62, | 064315 | Z. Hu, L. Batist, J. Agramunt, A. Algora, B.A. Brown, D. Cano-Ott, R. Collatz, A. Gadea, M. Gierlik, M. Górski, H. Grawe, M. Hellström, Z. Janas, M. Karny, R. Kirchner, F. Moroz, A. Płochocki, M. Rejmund, E. Roeckl, B. Rubio, M. Shibata, J. Szerypo, J.L. Tain, V. Wittmann |
| 2000Io02 | PRVCA | 62, | 014306 | M. Ionescu-Bujor, A. Iordachescu, D. Bucurescu |
| 2000Je09 | PRVCA | 62, | 021302 | D.G. Jenkins, M. Muikku, P.T. Greenlees, K. Hauschild, K. Helariutta, P.M. Jones, R. Julin, S. Juutinen, H. Kankaanpää, N.S. Kelsall, H. Kettunen, P. Kuusiniemi, M. Leino, C.J. Moore, P. Nieminen, C.D. O'Leary, R.D. Page, P. Rakhila, W. Reviol, M.J. Taylor, J. Uusitalo, R. Wadsworth |
| 2000Jo18 | EPJAA | 9, | 9 | A. Jokinen, J.C. Wang, J. Äystö, P. Dendooven, S. Nummela, J. Huikari, V. Kolhinen, A. Nieminen, K. Peräjärvi, S. Rinta-Antila |
| 2000Ka21 | EPJAA | 7, | 451 | R. Kalpakchieva, H.G. Bohlen, W. von Oertzen, B. Gebauer, M. von Lucke-Petsch, T.N. Massey, A.N. Ostrowski, Th. Stolla, M. Wilpert, Th. Wilpert |
| 2000Ko15 | EPJAA | 7, | 167 | A. Korgul, W. Urban, T. Rzaca-Urban, M. Rejmund, J.L. Durell, M.J. Leddy, M.A. Jones, W.R. Phillips, A.G. Smith, B.J. Varley, N. Schulz, M. Bentalab, E. Lubkiewicz, I. Ahmad, L.R. Morss |

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| 2000Ko16 | PRVCA | 61, | 044323 | F.G. Kondev, M.P. Carpenter, R.V.F. Janssens, I. Wiedenhöver, M. Alcorta, L.T. Brown, C.N. Davids, T.L. Khoo, T. Lauritsen, C.J. Lister, D. Seweryniak, S. Siem, A.A. Sonzogni, J. Uusitalo, P. Bhattacharyya, S.M. Fischer, W. Reviol, L.L. Riedinger, R. Nouicer |
| 2000Ko48 | PRVCA | 62, | 044305 | F.G. Kondev, R.V.F. Janssens, M.P. Carpenter, K. Abu Saleem, I. Ahmad, M. Alcorta, H. Amro, P. Bhattacharyya, L.T. Brown, J. Caggiano, C.N. Davids, S.M. Fischer, A. Heinz, B. Herskind, R.A. Kaye, T.L. Khoo, T. Lauritsen, C.J. Lister, W.C. Ma, R. Nouicer, J. Ressler, W. Reviol, L.L. Riedinger, D.G. Sarantites, D. Seweryniak, S. Siem, A. Sonzogni, J. Uusitalo, P.G. Varmette, I. Wiedenhöver |
| 2000Kr18 | HYIND | 129, | 185 | K. Kratz, B. Pfeiffer, F. Thielemann, W.B. Walters |
| 2000Kr.A | PrvCom | GAu | Jun | K.-L. Kratz, B. Pfeiffer |
| 2000Ku25 | YAFIA | 63, | 1365 | V.V. Kuzminov, N. Ja. Osetrova |
| 2000La25 | PRVCA | 61, | 067603 | C.A. Laue, K.E. Gregorich, R. Sudowe, J.L. Adams, M.R. Lane, D.M. Lee, C.A. McGrath, D.A. Shaughnessy, D.A. Strellis, E.R. Sylwester, P.A. Wilk, D.C. Hoffman |
| 2000La34 | PRVCA | 62, | 064307 | Yu. A. Lazarev, Yu. V. Lobanov, Yu. Ts. Oganessian, V.K. Utyonkov, F. Sh. Abdullin, A.N. Polyakov, J. Rigol, I.V. Shirokovsky, Yu. S. Tsyganov, S. Iliev, V.G. Subbotin, A.M. Sukhov, G.V. Buklanov, A.N. Mezentssev, K. Subotic, K.J. Moody, N.J. Stoyer, J.F. Wild, R.W. Loughheed |
| 2000Li08 | EPJAA | 7, | 1 | Z. Li, S. Xu, Y. Xie, T. Zhang, R. Ma, J. Du, Y. Guo, Y. Ge, C. Wang, B. Guo, J. Xing |
| 2000Li37 | PRVCA | 62, | 047303 | C.F. Liang, P. Paris, R.K. Sheline |
| 2000Ma62 | PRVCA | 62, | 034308 | K. Markenroth, L. Axelsson, S. Baxter, M.J.G. Borge, C. Donzaud, S. Fayans, H.O.U. Fynbo, V.Z. Goldberg, S. Grévy, D. Guillemaud-Mueller, B. Jonson, K.-M. Källman, S. Leenhardt, M. Lewitowicz, T. Lönnroth, P. Manngård, I. Martel, A.C. Mueller, I. Mukha, T. Nilsson, G. Nyman, N.A. Orr, K. Riisager, G.V. Rogachev, M.-G. Saint-Laurent, I.N. Serikov, N.B. Shul'gina, O. Sorlin, M. Steiner, O. Tengblad, M. Thoennessen, E. Tryggestad, W.H. Trzaska, F. Wenzander, J.S. Winfield, R. Wolski |
| 2000Ma65 | EPJAA | 8, | 295 | O.N. Malyshev, A.V. Belozero, M.L. Chelnokov, V.I. Chepigin, V.A. Gorshkov, A.P. Kabachenko, A.G. Popeko, J. Rohach, R.N. Sagaidak, A.V. Yerebin, S.I. Mulgin, S.V. Zhdanov |
| 2000Ma95 | PRVCA | 62, | 057303 | H. Mahmud, C.N. Davids, P.J. Woods, T. Davinson, D.J. Henderson, R.J. Irvine, D. Seweryniak, W.B. Walters |
| 2000Me.A | PrvCom | AHW | Sep | K.A. Mezilev, B. Fogelberg, V.I. Isakov, H. Mach |
| 2000Ni02 | PRVCA | 61, | 034309 | K. Nishio, H. Ikezoe, S. Mitsuoka, J. Lu |
| 2000O101 | PRLTA | 84, | 4056 | J.M. Oliveira, Jr., A. Lépine-Szily, H.G. Bohlen, A.N. Ostrowski, R. Lichtenhäger, A. Di Pietro, A.M. Laird, G.F. Lima, L. Maunoury, F. de Oliveira Santos, P. Roussel-Chomaz, H. Savajols, W. Trinder, A.C.C. Villari, A. de Vismes |
| 2000Pe28 | PYLBB | 492, | 1 | K. Peräjärvi, T. Siiskonen, A. Honkanen, P. Dendooven, A. Jokinen, P.O. Lipas, M. Oinonen, H. Penttilä, J. Äystö |
| 2000Pi03 | PRVCA | 61, | 024312 | J.A. Pinston, C. Foin, J. Genevey, R. Béraud, E. Chabanan, H. Faust, S. Oberstedt, B. Weiss |
| 2000Po26 | PYLBB | 491, | 225 | Zs. Podolyák, P.H. Regan, M. Pfitzner, J. Gerl, M. Hellström, M. Caamano, P. Mayet, Ch. Schlegel, A. Aprahamian, J. Benlliure, A.M. Bruce, P.A. Butler, D. Cortina Gil, D.M. Cullen, J. Doring, T. Enqvist, F. Rejmund, C. Fox, J. Garces Narro, H. Geissel, W. Gelletly, J. Giovannazzo, M. Gorska, H. Grawe, R. Grzywacz, A. Kleinbohl, W. Korten, M. Lewitowicz, R. Lucas, H. Mach, M. Mineva, C.D. O'Leary, F. de Oliveira, C.J. Pearson, M. Rejmund, M. Sawicka, H. Schaffner, K. Schmidt, Ch. Theisen, P.M. Walker, D.D. Warner, C. Wheldon, H.J. Wollersheim, S.C. Wooding, F.R. Xu |
| 2000Ra23 | NUPAB | 677, | 75 | T. Radon, H. Geissel, G. Münzenberg, B. Franzke, Th. Kerscher, F. Nolden, Yu. N. Novikov, Z. Patyk, C. Scheidenberger, F. Attallah, K. Beckert, T. Beha, F. Bosch, H. Eickhoff, M. Falch, Y. Fujita, M. Hausmann, F. Herfurth, H. Irnich, H.C. Jung, O. Klepper, C. Kozuharov, Yu. A. Litvinov, K.E.G. Löbner, F. Nickel, H. Reich, W. Schwab, B. Schlitt, M. Steck, K. Sümmerner, T. Winkler, H. Wollnik |

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| 2000Re03 | PRLTA | 84, | 2104 | J.J. Ressler, A. Piechaczek, W.B. Walters, A. Aprahamian, M. Wiescher, J.C. Batchelder, C.R. Bingham, D.S. Brenner, T.N. Ginter, C.J. Gross, R. Grzywacz, D. Kulp, B. MacDonald, W. Reviol, J. Rikowska, K. Rykaczewski, J.A. Winger, E.F. Zganjar |
| 2000Ri14 | PRLTA | 85, | 1392 | J. Rikowska, T. Giles, N.J. Stone, K. van Esbroeck, G. White, A. Wöhr, M. Veskovíc, I.S. Towner, P.F. Mantica, J.I. Prisciandaro, D.J. Morrissey, V.N. Fedoseyev, V.I. Mishin, U. Köster, W.B. Walters, NICOLE, ISOLDE |
| 2000Sa21 | PRLTA | 84, | 5062 | F. Sarazin, H. Savajols, W. Mittig, F. Nowacki, N.A. Orr, Z. Ren, P. Roussel-Chomaz, G. Auger, D. Baiborodin, A.V. Belozyorov, C. Borcea, E. Caurier, Z. Dlouhý, A. Gillibert, A.S. Lalleman, M. Lewitowicz, S.M. Lukyanov, F. de Oliveira, Y.E. Penionzhkevich, D. Ridikas, H. Sakurai, O. Tarasov, A. de Vismes |
| 2000Sa52 | EPJAA | 9, | 303 | M. Sakama, K. Tsukada, M. Asai, S. Ichikawa, H. Haba, S. Goto, Y. Oura, I. Nishinaka, Y. Nagame, M. Shibata, Y. Kojima, K. Kawade, M. Ebihara, H. Nakahara |
| 2000Sh10 | PRVCA | 61, | 044609 | D.A. Shaughnessy, J.L. Adams, K.E. Gregorich, M.R. Lane, C.A. Laue, D.M. Lee, C.A. McGrath, J.B. Patin, D.A. Strellis, E.R. Sylwester, P.A. Wilk, D.C. Hoffman |
| 2000Si02 | ARISE | 52, | 467 | G. Sibbens, B. Denecke |
| 2000Sm06 | JPGPE | 26, | 787 | M.B. Smith, R. Chapman, J.F.C. Cocks, K.-M. Spohr, O. Dorvaux, K. Helariutta, P.M. Jones, R. Julin, S. Juutinen, H. Kankaanpää, H. Kettunen, P. Kuusiniemi, Y. Le Coz, M. Leino, D.J. Middleton, M. Muikku, P. Nieminen, P. Rähkila, A. Savelius |
| 2000So11 | PHSTT | 88, | 153 | G.A. Souliotis |
| 2000We.A | AnRpt GSI | | 10 | E. Wefers, T. Faestermann, R. Schneider, A. Stolz, K. Sümerrerr, J. Friese, H. Geissel, M. Hellström, P. Kienle, H.-J. Körner, M. Münch, G. Münzenberg, P. Thirolf, H. Weick |
| 2000Wh04 | PRVCA | 62, | 057301 | C. Wheldon, P.M. Walker, P. Chowdhury, I. Shestakova, R. D'Alarcao, I. Ahmad, M.P. Carpenter, D.M. Cullen, R.V.F. Janssens, T.L. Khoo, F.G. Kondev, C.J. Lister, C.J. Pearson, Zs. Podolyák, D. Seweryniak, I. Wiedenhoever |
| 2000Wi15 | PRLTA | 85, | 2697 | P.A. Wilk, K.E. Gregorich, A. Türler, C.A. Laue, R. Eichler, V. Ninov, J.L. Adams, U.W. Kirbach, M.R. Lane, D.M. Lee, J.B. Patin, D.A. Shaughnessy, D.A. Strellis, H. Nitsche, D.C. Hoffman |
| 2000Xu08 | EPJAA | 8, | 435 | S. Xu, Y. Xie, Y. Yu, Z. Li, Q. Pan, C. Wang, J. Xing, T. Zhang |
| 2000Ye02 | JPGPE | 26, | 839 | G. Yeandle, J. Billowes, P. Campbell, E.C.A. Cochrane, P. Dendooven, D.E. Evans, D.H. Forest, J.A.R. Griffith, J. Huikari, A. Jokinen, I.D. Moore, A. Nieminen, K. Peräjärvi, G. Tungate, J. Äystö |
| | | | 2001 | |
| 2001Ba06 | PRVCA | 63, | 024302 | P.H. Barker |
| 2001Be53 | EPJAA | 11, | 279 | U.C. Bergmann, M.J.G. Borge, J. Cederkäll, C. Forssén, E. Fumero, H.O.U. Fynbo, H. Gausemel, H. Jeppesen, B. Jonson, K. Markenroth, T. Nilsson, G. Nyman, K. Riisager, H. Simon, O. Tengblad, L. Weissman, F. Wenander, K. Wilhelmsen Rolander, ISOLDE |
| 2001Bo11 | NUPAB | 686, | 64 | R. Bonetti, C. Carbonini, A. Guglielmetti, M. Hussonnois, D. Trubert, C. Le Naour |
| 2001Bo54 | NUPAB | 695, | 69 | R. Borcea, J. Äystö, E. Caurier, P. Dendooven, J. Döring, M. Gierlik, M. Górská, H. Grawe, M. Hellström, Z. Janas, A. Jokinen, M. Karny, R. Kirchner, M. La Commara, K. Langanke, G. Martínez-Pinedo, P. Mayet, A. Nieminen, F. Nowacki, H. Penttilä, A. Płochocki, M. Rejmund, E. Roeckl, C. Schlegel, K. Schmidt, R. Schwengner, M. Sawicka, and erratum NUPAB 703(2002)889 |
| 2001Bo59 | HYIND | 132, | 215 | G. Bollen, F. Ames, G. Audi, D. Beck, J. Dilling, O. Engels, S. Henry, F. Herfurth, A. Kellerbauer, H.-J. Kluge, A. Kohl, E. Lamour, D. Lunney, R.B. Moore, M. Oinonen, C. Scheidenberger, S. Schwarz, G. Sikler, J. Szerypo, C. Weber, ISOLDE |
| 2001Br27 | EPJDD | 15, | 181 | S. Brunner, T. Engel, A. Schmitt, G. Werth |

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|----------|-----------|------|--------|--|
| 2001Ca37 | PRVCA | 64, | 025802 | J.A. Caggiano, D. Bazin, W. Benenson, B. Davids, R. Ibbotson, H. Scheit, B.M. Sherrill, M. Steiner, J. Yurkon, A.F. Zeller, B. Blank, M. Chartier, J. Greene, J.A. Nolen, Jr., A.H. Wuosmaa, M. Bhattacharya, A. García, M. Wiescher |
| 2001Ca60 | EPJAA | 12, | 377 | G. Canchel, L. Achouri, J. Äystö, R. Béraud, B. Blank, E. Chabanat, S. Czajkowski, P. Dendooven, A. Emsallem, J. Giovinazzo, J. Honkanen, A. Jokinen, M. Lewitowicz, C. Longour, F. de Oliveira-Santos, K. Peräjärvi, M. Staniou, J.C. Thomas |
| 2001Ca.B | AnRpt GSI | | 15 | P. Cagarda, S. Antalic, D. Ackermann, F.P. Heßberger, S. Hofmann, B. Kindler, J. Kojouharova, B. Lommel, R. Mann, A.G. Popeko, Š. Šáro, J. Uusitalo, A.V. Yeremin |
| 2001Ch31 | PYLBB | 505, | 21 | L. Chen, B. Blank, B.A. Brown, M. Chartier, A. Galonsky, P.G. Hansen, M. Thoennessen |
| 2001Da22 | NUPAB | 694, | 375 | F.A. Danevich, V.V. Kobychiev, O.A. Ponkratenko, V.I. Tretyak, Yu. G. Zdesenko |
| 2001Do08 | PRLTA | 86, | 4259 | G. Douysset, T. Fritioff, C. Carlberg, I. Bergström, M. Björkhage |
| 2001Dr05 | PRVCA | 63, | 061302 | G.D. Dracoulis, T. Kibédi, A.P. Byrne, A.M. Baxter, S.M. Mullins, R.A. Bark |
| 2001Fo08 | PRLTA | 87, | 212501 | B. Fornal, R. Broda, K.H. Maier, J. Wrzesinski, G.J. Lane, M. Cromaz, A.O. Macchiavelli, R.M. Clark, K. Vetter, A.P. Byrne, G.D. Dracoulis, M.P. Carpenter, R.V.F. Janssens, I. Wiedenhoever, M. Rejmund, J. Blomqvist |
| 2001Fr18 | EPJDD | 15, | 141 | T. Fritioff, C. Carlberg, G. Douysset, R. Schuch, I. Bergström |
| 2001Ga01 | PRVCA | 63, | 014302 | M. Galeazzi, F. Fontanelli, F. Gatti, S. Vitale |
| 2001Ga20 | EPJAA | 10, | 21 | Z.G. Gan, Z. Qin, H.M. Fan, X.G. Lei, Y.B. Xu, J.J. He, H.Y. Liu, X.L. Wu, J.S. Guo, X.H. Zhou, S.G. Yuan, G.M. Jin |
| 2001Ga24 | PRVCA | 63, | 044307 | J. Garcés Narro, C. Longour, P.H. Regan, B. Blank, C.J. Pearson, M. Lewitowicz, C. Miehe, W. Gelletly, D. Appelbe, L. Axelsson, A.M. Bruce, W.N. Catford, C. Chandler, R.M. Clark, D.M. Cullen, S. Czajkowski, J.M. Dugas, P. Dessagne, A. Fleury, L. Frankland, J. Giovinazzo, B. Greenhalgh, R. Grzywacz, M. Harder, K.L. Jones, N. Kelsall, T. Kszczot, R.D. Page, A.T. Reed, O. Sorlin, R. Wadsworth |
| 2001Ga59 | EPJAA | 11, | 413 | M. Gaelens, J. Andrzejewski, J. Camps, P. Decrock, M. Huyse, K. Kruglov, W.F. Mueller, A. Piechaczek, N. Severijns, J. Szerypo, G. Vancraeynest, P. Van Duppen, J. Wauters |
| 2001Gi01 | EPJAA | 10, | 73 | J. Giovinazzo, B. Blank, C. Borcea, M. Chartier, S. Czajkowski, G. de France, R. Grzywacz, Z. Janas, M. Lewitowicz, F. de Oliveira Santos, M. Pfützner, M.S. Pravikoff, J.C. Thomas |
| 2001Gi17 | EPJAA | 12, | 309 | A. Gizon, J. Genevey, C.F. Liang, P. Paris, D. Barnéoud, J. Inchaouh, I. Penev, A. Plochocki |
| 2001Gr07 | NUPAB | 682, | 41c | R. Grzywacz, C.H. Yu, Z. Janas, S.D. Paul, J.C. Batchelder, C.R. Bingham, T.N. Ginter, C.J. Gross, J. McConnell, M. Lipoglavsek, A. Piechaczek, D.C. Radford, J.J. Ressler, K. Rykaczewski, J. Shergur, W.B. Walters, E.F. Zganjar, C. Baktash, M.P. Carpenter, R.V.F. Janssens, C.E. Svensson, J.C. Waddington, D. Ward, E. Dragulescu |
| 2001Ha39 | NUPAB | 688, | 578c | M. Hannawald, V.N. Fedoseyev, U. Koster, K.-L. Kratz, V.I. Mishin, W.F. Mueller, H.L. Ravn, J. Van Roosbroeck, H. Schatz, V. Sebastian, W.B. Walters, ISOLDE |
| 2001Ha46 | PRLTA | 87, | 072501 | K. Hauschild, M. Rejmund, H. Grawe, E. Caurier, F. Nowacki, F. Becker, Y. Le Coz, W. Korten, J. Döring, M. Górska, K. Schmidt, O. Dorvaux, K. Helariutta, P. Jones, R. Julin, S. Juutinen, H. Kettunen, M. Leino, M. Muikku, P. Nieminen, P. Rakhila, J. Uusitalo, F. Azaiez, M. Belleguic |
| 2001Ha66 | HYIND | 132, | 291 | M. Hausmann, J. Stadlmann, F. Attallah, K. Beckert, P. Beller, F. Bosch, H. Eickhoff, M. Falch, B. Franczak, B. Franzke, H. Geissel, Th. Kerscher, O. Klepper, H.-J. Kluge, C. Kozhuharov, Yu. A. Litvinov, K.E.G. Lobner, G. Munzenberg, N. Nankov, F. Nolden, Yu. N. Novikov, T. Ohtsubo, T. Radon, H. Schatz, C. Scheidenberger, M. Steck, Z. Sun, H. Weick, H. Wollnik |
| 2001He29 | PRLTA | 87, | 142501 | F. Herfurth, J. Dilling, A. Kellerbauer, G. Audi, D. Beck, G. Bollen, H.-J. Kluge, D. Lunney, R.B. Moore, C. Scheidenberger, S. Schwarz, G. Sikler, J. Szerypo, ISOLDE |

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| 2001He35 | EPJAA | 12, | 57 | F.P. Heßberger, S. Hofmann, D. Ackermann, V. Ninov, M. Leino, G. Münzenberg, S. Saro, A. Lavrentev, A.G. Popeko, A.V. Yeremin, Ch. Stodel and PrvCom |
| 2001He36 | PRVAA | 64, | 062504 | T.P. Heavner, S.R. Jefferts, G.H. Dunn |
| 2001He.A | AnRpt GSI | | 3 | F.P. Heßberger, S. Hofmann, D. Ackermann |
| 2001Hi06 | PRVCA | 63, | 065502 | M.M. Hindi, B.O. Faircloth, R.L. Kozub, K.R. Czerwinski, R.-M. Larimer, E.B. Norman, B. Sur, I. Žilimen |
| 2001Ho06 | EPJAA | 10, | 5 | S. Hofmann, F.P. Heßberger, D. Ackermann, S. Antalic, P. Cagarda, S. Ćwiok, B. Kindler, J. Kojouharova, B. Lommel, R. Mann, G. Münzenberg, A.G. Popeko, S. Saro, H.J. Schött, A.V. Yeremin |
| 2001Ke05 | APOBB | 32, | 989 | H. Kettunen, P.T. Greenlees, K. Helariutta, P. Jones, R. Julin, S. Juutinen, P. Kuusiniemi, M. Leino, M. Muikku, P. Nieminen, J. Uusitalo |
| 2001Ke06 | PRVCA | 63, | 044315 | H. Kettunen, J. Uusitalo, M. Leino, P. Jones, K. Eskola, P.T. Greenlees, K. Helariutta, R. Julin, S. Juutinen, H. Kankaanpää, P. Kuusiniemi, M. Muikku, P. Nieminen, P. Rakhila |
| 2001Ke14 | PRAMC | 56, | 735 | S.L. Keshava, K. Gopala, P. Venkataramaiah |
| 2001Ki13 | PPNPD | 46, | 73 | P. Kienle, T. Faestermann, J. Friese, H.-J. Körner, M. Münch, R. Schneider, A. Stolz, E. Wefers, H. Geissel, G. Münzenberg, C. Schlegel, K. Sümmerer, H. Weick, M. Hellström, P. Thirolf |
| 2001K113 | MPLAE | 16, | 2409 | H.V. Klapdor-Kleingrothaus, A. Dietz, H.L. Harney, I.V. Krivosheina |
| 2001Ko07 | NIMAE | 458, | 656 | Y. Kojima, M. Shibata, H. Uno, K. Kawade, A. Taniguchi, Y. Kawase, K. Shizuma |
| 2001Ko44 | PYLBB | 512, | 268 | F.G. Kondev, M.P. Carpenter, R.V.F. Janssens, K. Abu Saleem, I. Ahmad, H. Amro, J.A. Cizewski, M. Danchev, C.N. Davids, D.J. Hartley, A. Heinz, T.L. Khoo, T. Lauritsen, C.J. Lister, W.C. Ma, G.L. Poli, J. Ressler, W. Reviol, L.L. Riedinger, D. Seweryniak, M.B. Smith, I. Wiedenhöver and PrvCom AHW August 2001 |
| 2001Ko52 | PRLTA | 87, | 092501 | A.A. Korshennikov, M.S. Golovkov, I. Tanihata, A.M. Rodin, A.S. Fomichev, S.I. Sidorchuk, S.V. Stepantsov, M.L. Chelnokov, V.A. Gorshkov, D.D. Bogdanov, R. Wolski, G.M. Ter-Akopian, Yu. Ts. Oganessian, W. Mittig, P. Roussel-Chomaz, H. Savajols, E.A. Kuzmin, E. Yu. Nikolsky, A.A. Ogloblin |
| 2001Ko.B | PrvCom | AHW | Aug | F.G. Kondev |
| 2001Ku07 | APOBB | 32, | 1009 | P. Kuusiniemi, J.F.C. Cocks, K. Eskola, P.T. Greenlees, K. Helariutta, P. Jones, R. Julin, S. Juutinen, H. Kankaanpää, A. Keenan, H. Kettunen, M. Leino, M. Muikku, P. Nieminen, P. Rakhila, J. Uusitalo |
| 2001La09 | NUPAB | 682, | 71c | G.J. Lane, R. Broda, B. Fornal, A.P. Byrne, G.D. Dracoulis, J. Blomqvist, R.M. Clark, M. Cromaz, M.A. Deleplanque, R.M. Diamond, P. Fallon, R.V.F. Janssens, I.Y. Lee, A.O. Macchiavelli, K.H. Maier, M. Rejmund, F.S. Stephens, C.E. Svensson, K. Vetter, D. Ward, I. Wiedenhover, J. Wrzesinski |
| 2001La31 | HYIND | 132, | 315 | A.S. Lalleman, G. Auger, W. Mittig, M. Chabert, M. Chartier, J. Ferme, A. Gillibert, A. Lepine-Szily, M. Lewitowicz, M.H. Moscatello, N.A. Orr, G. Politi, F. Sarazin, H. Savajols, P. Van Isacker, A.C.C. Villari |
| 2001Li17 | PRVCA | 63, | 047307 | K. Lindenberg, F. Neumann, D. Galaviz, T. Hartmann, P. Mohr, K. Vogt, S. Volz, A. Zilges |
| 2001Li44 | PRVCA | 64, | 034310 | C.F. Liang, P. Paris, R.K. Sheline |
| 2001Lu17 | PRVCA | 64, | 054311 | D. Lunney, G. Audi, H. Doubre, S. Henry, C. Monsanglant, M. de Saint Simon, C. Thibault, C. Toader, C. Borcea, G. Bollen, ISOLDE |
| 2001Lu20 | HYIND | 132, | 299 | D. Lunney, C. Monsanglant, G. Audi, G. Bollen, C. Borcea, H. Doubre, C. Gaulard, S. Henry, M. de Saint Simon, C. Thibault, C. Toader, N. Vieira, ISOLDE |
| 2001Ma08 | PRVCA | 63, | 024613 | V. Maddalena, T. Aumann, D. Bazin, B.A. Brown, J.A. Caggiano, B. Davids, T. Glasmacher, P.G. Hansen, R.W. Ibbotson, A. Navin, B.V. Pritychenko, H. Scheit, B.M. Sherrill, M. Steiner, J.A. Tostevin, J. Yurkon |
| 2001Ma69 | PRVCA | 64, | 031303 | H. Mahmud, C.N. Davids, P.J. Woods, T. Davinson, A. Heinz, G.L. Poli, J.J. Ressler, K. Schmidt, D. Seweryniak, M.B. Smith, A.A. Sonzogni, J. Uusitalo, W.B. Walters |

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| 2001Ma96 | EPJAA | 12, | 269 | C. Mazzocchi, Z. Janas, J. Döring, M. Axiotis, L. Batist, R. Borcea, D. Cano-Ott, E. Caurier, G. de Angelis, E. Farnea, A. Faßbender, A. Gadea, H. Grawe, A. Jungclaus, M. Kapica, R. Kirchner, J. Kurcewicz, S.M. Lenzi, T. Martínez, I. Mukha, E. Nácher, D.R. Napoli, E. Roeckl, B. Rubio, R. Schwengner, J.L. Tain, C.A. Ur |
| 2001Mi22 | EPJAA | 11, | 9 | M.N. Mineva, M. Hellström, M. Bernas, J. Gerl, H. Grawe, M. Pfützner, P.H. Regan, M. Rejmund, D. Rudolph, F. Becker, C.R. Bingham, T. Enqvist, B. Fogelberg, H. Gausemel, H. Geissel, J. Genevey, M. Górska, R. Grzywacz, K. Hauschild, Z. Janas, I. Kojouharov, Y. Kopatch, A. Korgul, W. Korten, J. Kurcewicz, M. Lewitowicz, R. Lucas, H. Mach, S. Mandal, P. Mayet, C. Mazzocchi, J.A. Pinston, Zs. Podolyák, H. Schaffner, Ch. Schlegel, K. Schmidt, K. Sümmerner, H.J. Wollersheim |
| 2001No07 | EPJAA | 11, | 257 | Yu. N. Novikov, H. Schatz, P. Dendooven, R. Béraud, Ch. Miehe, A.V. Popov, D.M. Seliverstov, G.K. Vorobjev, P. Baumann, M.J.G. Borge, G. Canchel, Ph. Dessagne, A. Emsallem, W. Huang, J. Huikari, A. Jokinen, A. Knipper, V. Kolhinen, A. Nieminen, M. Oinonen, H. Penttilä, K. Peräjärvi, I. Piqueras, S. Rinta-Antila, J. Szerypo, Y. Wang, J. Äystö |
| 2001Og01 | PRVCA | 63, | 011301 | Yu. Ts. Oganessian, V.K. Utyonkov, Yu. V. Lobanov, F. Sh. Abdullin, A.N. Polyakov, I.V. Shirokovsky, Yu. S. Tsyganov, G.G. Gulbekian, S.L. Bogomolov, B.N. Gikal, A.N. Mezentsev, S. Iliev, V.G. Subbotin, A.M. Sukhov, O.V. Ivanov, G.V. Buklanov, K. Subotic, M.G. Itkis, K.J. Moody, J.F. Wild, N.J. Stoyer, M.A. Stoyer, R.W. Loughheed, C.A. Laue, Ye. A. Karelin, A.N. Tatarinov |
| 2001Og08 | PRVCA | 64, | 054606 | Yu. Ts. Oganessian, V.K. Utyonkov, Yu. V. Lobanov, F. Sh. Abdullin, A.N. Polyakov, I.V. Shirokovsky, Yu. S. Tsyganov, A.N. Mezentsev, S. Iliev, V.G. Subbotin, A.M. Sukhov, K. Subotic, O.V. Ivanov, A.N. Voinov, V.I. Zagrebaev, K.J. Moody, J.F. Wild, N.J. Stoyer, M.A. Stoyer, R.W. Loughheed |
| 2001Pa52 | HYIND | 132, | 189 | A. Paul, S. Röttger, A. Zimbal, U. Keyser |
| 2001Pe14 | YAFIA | 64, | 1197 | Yu. E. Penionzhkevich |
| 2001Po05 | PRVCA | 63, | 044304 | G.L. Poli, C.N. Davids, P.J. Woods, D. Seweryniak, M.P. Carpenter, J.A. Cizewski, T. Davinson, A. Heinz, R.V.F. Janssens, C.J. Lister, J.J. Ressler, A.A. Sonzogni, J. Uusitalo, W.B. Walters |
| 2001Ro35 | HYIND | 132, | 153 | E. Roeckl |
| 2001Ro.B | B-Aulanko | | PH23 | M.W. Rowe, J.C. Batchelder, T.N. Ginter, K.E. Gregorich, F.Q. Guo, F.P. Heßberger, V. Ninov, J. Powell, K.S. Toth, X.J. Xu, J. Cerny |
| 2001Ry01 | NUPAB | 682, | 270c | K.P. Rykaczewski, R.K. Grzywacz, M. Karny, J.W. McConnell, M. Momayezi, J. Wahl, Z. Janas, J.C. Batchelder, C.R. Bingham, D. Hartley, M.N. Tantawy, C.J. Gross, T.N. Ginter, J.H. Hamilton, W.D. Kulp, M. Lipoglavsek, A. Piechaczek, E.F. Zganjar, W.B. Walters, J.A. Winger |
| 2001Sc23 | ARISE | 55, | 89 | U. Schotzig, H. Schrader, E. Schonfeld, E. Gunther, R. Klein |
| 2001Sc41 | NUPAB | 693, | 533 | S. Schwarz, F. Ames, G. Audi, D. Beck, G. Bollen, C. De Coster, J. Dilling, O. Engels, R. Fossion, J.-E. Garcia Ramos, S. Henry, F. Herfurth, K. Heyde, A. Kellerbauer, H.-J. Kluge, A. Kohl, E. Lamour, D. Lunney, I. Martel, R.B. Moore, M. Oinonen, H. Raimbault-Hartmann, C. Scheidenberger, G. Sikler, J. Szerypo, C. Weber, ISOLDE |
| 2001Sh36 | PRVCA | 64, | 054307 | I. Shestakova, G. Mukherjee, P. Chowdhury, R. D'Alarcao, C.J. Pearson, Zs. Podolyák, P.M. Walker, C. Wheldon, D.M. Cullen, I. Ahmad, M.P. Carpenter, M.P. Carpenter, R.V.F. Janssens, T.L. Khoo, F.G. Kondev, C.J. Lister, D. Seweryniak, I. Wiedenhoever |
| 2001So02 | PRVCA | 63, | 031304 | F. Soramel, A. Guglielmetti, L. Stroe, L. Müller, R. Bonetti, G.L. Poli, F. Malerba, E. Bianchi, A. Andrighetto, J.Y. Guo, Z.C. Li, E. Maglione, F. Scarlassara, C. Signorini, Z.H. Liu, M. Ruan, M. Ivascu, C. Broude, P. Bednarczyk, L.S. Ferreira |
| 2001St.A | AnRpt GSI | | 7 | A. Stolz, T. Faestermann, R. Schneider, K. Suemmerer, E. Wefers, J. Friese, H. Geissel, J. Gerl, M. Hellstroem, P. Kienle, H.-J. Koerner, M.N. Mineva, M. Muench, G. Muenzenberg, C. Schlegel, R.S. Simon, P. Thirolf, H. Weick, K. Zeitelhack |

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| 2001Ta23 | PYLBB | 515, | 255 | S. Takeuchi, S. Shimoura, T. Motobayashi, H. Akiyoshi, Y. Ando, N. Aoi, Zs. Fülöp, T. Gomi, Y. Higurashi, M. Hirai, N. Iwasa, H. Iwasaki, Y. Iwata, H. Kobayashi, M. Kurokawa, Z. Liu, T. Minemura, S. Ozawa, H. Sakurai, M. Serata, T. Teranishi, K. Yamada, Y. Yanagisawa, M. Ishihara |
| 2001Th01 | PRVCA | 63, | 014308 | M. Thoennessen, S. Yokoyama, P.G. Hansen |
| 2001To06 | PRVCA | 63, | 034314 | B.E. Tomlin, C.J. Barton, N.V. Zamfir, M.A. Caprio, R.L. Gill, R. Krücken, J.R. Novak, J.R. Cooper, K.E. Zyromski, G. Cata-Danil, C.W. Beausang, A. Wolf, N.A. Pietralla, H. Newman, J. Cederkall, B. Liu, Z. Wang, R.F. Casten, D.S. Brenner |
| 2001Va33 | HYIND | 132, | 163 | R.S. Van Dyck, Jr., S.L. Zafonte, P.B. Schwinberg |
| 2001Va.A | PrvCom | AHW | Oct | R.S. Van Dyck, Jr. |
| 2001Va.B | AnRpt GSI | | 14 | K. Van de Vel, A.N. Andreyev, D. Ackermann, S. Antalic, H.J. Boardman, P. Cargada, J. Gerl, F.P. Heßberger, S. Hofmann, M. Huyse, D. Karlgren, B. Kindstler, I. Kozhoukharov, M. Leino, B. Lommel, G. Muenzenberg, C. Moore, R.D. Page, C. Schlegel, P. Van Duppen |
| 2001Wa50 | HYIND | 132, | 323 | C. Wagemans, J. Wagemans, G. Goeminne |
| 2001Ze.A | Th.-Orsay | | | T. Zerguerras |
| | | | 2002 | |
| 2002Aa.A | MPLAE to be pd | | | C.E. Aalseth, F.T. Avignone III, A. Barabash, F. Boehm, R.L. Brodzinski, J.I. Collar, P.J. Doe, H. Ejiri, S.R. Elliott, E. Fiorini, R.J. Gaitskell, G. Gratta, R. Hazama, K. Kazkaz, G.S. King III, R.T. Kouzes, H.S. Miley, M.K. Moe, A. Morales, J. Morales, A. Piepke, R.G.H. Robertson, W. Tornow, P. Vogel, R.A. Warner, J.F. Wilkerson arXiv:hep-ex/0202018 v1 7 Feb 2002 |
| 2002An15 | EPJAA | 14, | 63 | A.N. Andreyev, K. Van de Vel, A. Barzakh, A. De Smet, H. De Witte, D.V. Fedorov, V.N. Fedoseyev, S. Franchoo, M. Górska, M. Huyse, Z. Janas, U. Köster, W. Kurcewicz, J. Kurpeta, V.I. Mishin, K. Partes, A. Plochocki, P. Van Duppen, L. Weissman |
| 2002An19 | PRVCA | 66, | 014313 | A.N. Andreyev, M. Huyse, K. Van de Vel, P. Van Duppen, O. Dorvaux, P. Greenlees, K. Helariutta, P. Jones, R. Julin, S. Juutinen, H. Kettunen, P. Kuusiniemi, M. Leino, M. Muikku, P. Nieminen, P. Rakhila, J. Uusitalo, R. Wyss, K. Hauschild, Y. Le Coz |
| 2002As08 | JNRSA | 3, | 187 | M. Asai, M. Sakama, K. Tsukada, S. Ichikawa, H. Haba, I. Nishinaka, Y. Nagame, S. Goto, K. Akiyama, A. Toyoshima, Y. Kojima, Y. Oura, H. Nakahara, M. Shibata, K. Kawade |
| 2002At01 | NUPAB | 701, | 561c | F. Attallah, M. Hausmann, Y.A. Litvinov, T. Radon, J. Stadlmann, K. Beckert, F. Bosch, M. Falch, B. Franzke, H. Geissel, Th. Kerscher, O. Klepper, H.-J. Kluge, C. Kozuharov, K.E.G. Löbner, G. Munzenberg, F. Nolden, Y.N. Novikov, Z. Patyk, W. Quint, H. Schatz, C. Scheidenberger, B. Schlitt, M. Steck, K. Sümmerner, H. Weick, H. Wollnik |
| 2002Be64 | PHSTB | 66, | 201 | I. Bergström, T. Fritioff, R. Schuch, J. Schönfelder |
| 2002Be74 | PYLBB | 546, | 23 | R. Bernabei, P. Belli, F. Cappella, R. Cerulli, F. Montecchia, A. Incicchitti, D. Prosperi, C.J. Dai |
| 2002Bf02 | NIMAE | 487, | 618 | I. Bergström, C. Carlberg, T. Fritioff, G. Douysset, J. Schönfelder, R. Schuch |
| 2002Bo11 | NIMAE | 480, | 696 | S.B. Borzakov, R.E. Chrien, H. Faikow-Stanczyk, Yu. V. Grigoriev, Ts. Ts. Panteleev, S. Pospisil, L.M. Smotrisky, S.A. Telezhnikov |
| 2002Bo41 | NUPAB | 709, | 3 | V. Bondarenko, J. Berzins, P. Prokofjevs, L. Simonova, T. von Egidy, J. Honzátko, I. Tomandl, P. Alexa, H.-F. Wirth, U. Köster, Y. Eisermann, A. Metz, G. Graw, R. Hertenberger, L. Rubacek |
| 2002Ca37 | PRLTA | 89, | 082501 | P. Campbell, H.L. Thayer, J. Billowes, P. Dendooven, K.T. Flanagan, D.H. Forrest, J.A.R. Griffith, J. Huikari, A. Jokinen, R. Moore, A. Nieminen, G. Tungate, S. Zemlyanoi, J. Äystö |
| 2002Cl.A | P-Aulanko | | 39 | J.A. Clark, R.C. Barber, C. Boudreau, F. Buchinger, J.A. Caggiano, J.E. Crawford, H. Fukutani, S. Gulick, J.C. Hardy, A. Heinz, J.K.P. Lee, M. Maier, R.B. Moore, G. Savard, J. Schwarz, D. Sewerniak, K.S. Sharma, G. Sprouse, J. Vaz, J.C. Wang |
| 2002Di12 | EPJAA | 13, | 281 | I. Dillmann, M. Hannawald, U. Köster, V.N. Fedoseyev, A. Wöhr, B. Pfeiffer, D. Fedorov, J. Shergur, L. Weissman, W.B. Walters, K.-L. Kratz |

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| 2002Do19 | PRVCA | 66, | 064321 | D.J. Dobson, S.J. Freeman, P.T. Greenlees, A.N. Qadir, S. Juutinen, J.L. Durell, T. Enqvist, P. Jones, R. Julin, A. Keenan, H. Kettunen, P. Kuusiniemi, M. Leino, P. Nieminen, P. Rakhila, S.D. Robinson, J. Uusitalo, B.J. Varley |
| 2002Fa13 | EPJAA | 15, | 185 | T. Faestermann, R. Schneider, A. Stolz, K. Sümmerer, E. Wefers, J. Friese, H. Geissel, M. Hellström, P. Kienle, H.-J. Körner, M. Mineva, M. Münch, G. Münzenberg, C. Schlegel, K. Schmidt, P. Thirolf, H. Weick, K. Zeitelhack |
| 2002Ga12 | NUPAB | 700, | 117 | E. Garrido, D.V. Fedorov, A.S. Jensen |
| 2002Ge07 | PRVCA | 65, | 034322 | J. Genevey, J.A. Pinston, C. Foin, M. Rejmund, H. Faust, B. Weiss |
| 2002Ge16 | JPGPE | 28, | 2993 | G. Georgiev, G. Neyens, M. Hass, D.L. Balabanski, C. Bingham, C. Borcea, N. Coulier, R. Coussement, J.M. Daugas, G. De France, F. de Oliveira Santos, M. Gorska, H. Grawe, R. Grzywacz, M. Lewitowicz, H. Mach, I. Matea, R.D. Page, M. Pfützner, Yu. E. Penionzhkevich, Z. Podolyák, P.H. Regan, K. Rykaczewski, M. Sawicka, N.A. Smirnova, Y.G. Sobolev, M. Stanoiu, S. Teughels, K. Vyvey |
| 2002Gi09 | PRLTA | 89, | 102501 | J. Giovino, B. Blank, M. Chartier, S. Czajkowski, A. Fleury, M.J. Lopez Jimenez, M.S. Pravikoff, J.-C. Thomas, F. de Oliveira Santos, M. Lewitowicz, V. Maslov, M. Stanoiu, R. Grzywacz, M. Pfützner, C. Borcea, B.A. Brown |
| 2002He23 | EPJAA | 15, | 17 | F. Herfurth, A. Kellerbauer, F. Ames, G. Audi, D. Beck, K. Blaum, G. Bollen, O. Engels, H.-J. Kluge, D. Lunney, R.B. Moore, M. Oinonen, E. Sauvan, C. Scheidenberger, S. Schwarz, G. Sikler, C. Weber, ISOLDE |
| 2002He29 | EPJAA | 15, | 335 | F.P. Heßberger, S. Hofmann, I. Kojouharov, D. Ackermann, S. Antalic, P. Cagarda, B. Kindler, B. Lommel, R. Mann, A.G. Popeko, S. Saro, J. Uusitalo, A.V. Yeremin |
| 2002He.A | P-Aulanko | | 337 | F.P. Heßberger, S. Hofmann, D. Ackermann |
| 2002Ho11 | EPJAA | 14, | 147 | S. Hofmann, F.P. Heßberger, D. Ackermann, G. Münzenberg, S. Antalic, P. Cagarda, B. Kindler, J. Kojouharova, M. Leino, B. Lommel, R. Mann, A.G. Popeko, S. Reshitko, S. Saro, J. Uusitalo, A.V. Yeremin |
| 2002Hu14 | EPJAA | 15, | 329 | A. Hürstel, M. Rejmund, E. Bouchez, P.T. Greenlees, K. Hauschild, S. Juutinen, H. Kettunen, W. Korten, Y. Le Coz, P. Nieminen, Ch. Theisen, A.N. Andreyev, F. Becker, T. Enqvist, P.M. Jones, R. Julin, H. Kankaanpää, A. Keenan, P. Kuusiniemi, M. Leino, A.-P. Leppänen, M. Muikku, J. Pakarinen, P. Rakhila, J. Uusitalo |
| 2002Iz01 | FECLA | 111, | 36 | I.N. Izosimov, A.A. Kazimov, A.A. Solnyshkin |
| 2002Je09 | PRVCA | 66, | 011301 | D.G. Jenkins, A.N. Andreyev, R.D. Page, M.P. Carpenter, R.V.F. Janssens, C.J. Lister, F.G. Kondev, T. Enqvist, P.T. Greenlees, P.M. Jones, R. Julin, S. Juutinen, H. Kettunen, P. Kuusiniemi, M. Leino, A.-P. Leppänen, P. Nieminen, J. Pakarinen, P. Rakhila, J. Uusitalo, C.D. O'Leary, P. Raddon, A. Simons, R. Wadsworth, D.T. Joss |
| 2002Je11 | NUPAB | 709, | 119 | H. Jeppesen, U.C. Bergmann, M.J.G. Borge, J. Cederkäll, V.N. Fedoseyev, H.O.U. Fynbo, V.Y. Hansper, B. Jonson, K. Markenroth, V.I. Mishin, T. Nilsson, G. Nyman, K. Riisager, O. Tengblad, K. Wilhelmsen Rolander, ISOLDE |
| 2002Jo09 | EPJDR | 4, | A3 | A. Jokinen, A. Nieminen, J. Äystö, R. Borcea, E. Caurier, P. Dendooven, M. Gierlik, M. Gorska, H. Grawe, M. Hellström, M. Karny, Z. Janas, R. Kirchner, M. La Commara, G. Martinez-Pinedo, P. Mayet, H. Penttilä, A. Plochocki, M. Rejmund, E. Roeckl, M. Sawicka, C. Schlegel, K. Schmidt, R. Schwengner |
| 2002Ke.A | Th.-Heidelberg | | | A. Kellerbauer |
| 2002Ke.C | PrvCom | NDG | May | H. Kettunen |
| 2002Ko09 | PYLBB | 528, | 221 | F.G. Kondev, M.P. Carpenter, R.V.F. Janssens, C.J. Lister, K. Abu Saleem, I. Ahmad, H. Amro, J. Caggiano, C.N. Davids, A. Heinz, B. Herskind, T.L. Khoo, T. Lauritsen, W.C. Ma, J.J. Ressler, W. Reviol, L.L. Riedinger, D.G. Sarantites, D. Seweryniak, S. Siem, A.A. Sonzogni, P.G. Varmette, I. Wiedenhöver |
| 2002La18 | NUPAB | 708, | 167 | M. La Commara, K. Schmidt, H. Grawe, J. Döring, R. Borcea, S. Galanopoulos, M. Gorska, S. Harissopulos, M. Hellström, Z. Janas, R. Kirchner, C. Mazzocchi, A.N. Ostrowski, C. Plettner, G. Rainovski, E. Roeckl |
| 2002Le16 | PRVCA | 65, | 054318 | A. Lépine-Szily, J.M. Oliveira, Jr., V.R. Vanin, A.N. Ostrowski, R. Lichtenthäler, A. Di Pietro, V. Guimarães, A.M. Laird, I. Mannoury, G.F. Lima, F. de Oliveira Santos, P. Roussel-Chomaz, H. Savajois, W. Trindler, A.C.C. Villari, A. de Vismes |

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| 2002Le.A 2002Li24 | PrvCom PRVCA | GAu 65, | Jun 044618 | Lettre électronique de l'In2p3 G.F. Lima, A. Lépine-Szily, G. Audi, W. Mittig, M. Chartier, N.A. Orr, R. Lichtenhaler, J.-C. Angélique, J.-M. Casandjian, A. Cunsolo, C. Donzaud, A. Foti, A. Gillibert, M. Lewitowicz, S. Lukyanov, M. MacCormick, D.J. Morrissey, A.N. Ostrowski, B.M. Sherrill, C. Stéphan, T. Suomijärvi, L. Tassan-Got, D.J. Vieira, A.C.C. Villari, J.M. Wouters |
| 2002Lo13 | PRVCA | 66, | 025803 | M.J. López Jiménez, B. Blank, M. Chartier, S. Czajkowski, P. Dessagne, G. de France, J. Giovinazzo, D. Karamanis, M. Lewitowicz, V. Maslov, C. Miehé, P.H. Regan, M. Stanoiu, M. Wiescher |
| 2002Lu15 | EPJAA | 15, | 315 | R. Lucas, M.-G. Porquet, Ts. Venkova, I. Deloncle, M. Houry, Ch. Theisen, A. Astier, A. Bauchet, S. Lalkovski, G. Barreau, N. Buorn, T.P. Doan, L. Donadille, O. Dorvaux, J. Durell, Th. Ethvignot, B.P.J. Gall, D. Grimwood, W. Korten, Y. Le Coz, M. Meyer, A. Minkova, A. Prévost, N. Redon, A. Roach, N. Schulz, A.G. Smith, O. Stézowski, B.J. Varley |
| 2002Ma19 | PYLBB | 532, | 29 | C. Mazzocchi, Z. Janas, L. Batist, V. Belleguic, J. Döring, M. Gierlik, M. Kapica, R. Kirchner, G.A. Lalazissis, H. Mahmud, E. Roeckl, P. Ring, K. Schmidt, P.J. Woods, J. Żylicz |
| 2002Ma61 | EPJAA | 15, | 85 | H. Mahmud, C.N. Davids, P.J. Woods, T. Davinson, A. Heinz, J.J. Ressler, K. Schmidt, D. Seweryniak, J. Shergur, A.A. Sonzogni, W.B. Walters |
| 2002Me07 | PRLTA | 88, | 102501 | M. Meister, K. Markenroth, D. Aleksandrov, T. Aumann, L. Axelsson, T. Baumann, M.J.G. Borge, L.V. Chulkov, W. Dostal, B. Eberlein, Th. W. Elze, H. Emling, C. Forssén, H. Geissel, M. Hellström, R. Holzmann, B. Jonson, J.V. Kratz, R. Kulesa, Y. Leifels, A. Leistenschneider, I. Mukha, G. Münzenberg, F. Nickel, T. Nilsson, G. Nyman, A. Richter, K. Riisager, C. Scheidenberger, G. Schrieder, H. Simon, O. Tengblad, M.V. Zhukov |
| 2002Mo31 | PYLBB | 547, | 200 | R. Moore, A.M. Bruce, P. Dendooven, J. Billowes, P. Campbell, A. Ezwan, K.T. Flanagan, D.H. Forest, J. Huikari, A. Jokinen, A. Nieminen, H.L. Thayer, G. Tugate, S. Zemlyanoi, J. Äystö |
| 2002Mo.B 2002Mu.A 2002Ni10 | P-Aizu AnRpt ANL, PRLTA | 89, | 140 51 039901 | Morimoto G. Mukherjee et al V. Ninov, K.E. Gregorich, W. Loveland, A. Ghiorso, D.C. Hoffman, D.M. Lee, H. Nitsche, W.J. Swiatecki, U.W. Kirbach, C.A. Laue, J.L. Adams, J.B. Patin, D.A. Shaughnessy, D.A. Strellis, P.A. Wilk |
| 2002No11 | PYLBB | 542, | 49 | M. Notani, H. Sakurai, N. Aoi, Y. Yanagisawa, A. Saito, N. Imai, T. Gomi, M. Miura, S. Michimasa, H. Iwasaki, N. Fukuda, M. Ishihara, T. Kubo, S. Kubono, H. Kumagai, S.M. Lukyanov, T. Motobayashi, T.K. Onishi, Yu. E. Penionzhkevich, S. Shimoura, T. Teranishi, K. Ue, V. Ugryumov, A. Yoshida |
| 2002Pe15 | EPJAA | 14, | 439 | C.M. Petrache, G. Lo Bianco, P.G. Bizzeti, A.M. Bizzeti-Sona, D. Bazzacco, S. Lunardi, M. Nespolo, G. de Angelis, P. Spolaore, N. Blasi, S. Brant, V. Krstić, D. Vretenar |
| 2002Pf02 | EPJAA | 14, | 279 | M. Pfützner, E. Badura, C. Bingham, B. Blank, M. Chartier, H. Geissel, J. Giovinazzo, L.V. Grigorenko, R. Grzywacz, M. Hellström, Z. Janas, J. Kurciewicz, A.S. Lalleman, C. Mazzocchi, I. Mukha, G. Münzenberg, C. Plettner, E. Roeckl, K.P. Rykaczewski, K. Schmidt, R.S. Simon, M. Stanoiu, J.-C. Thomas |
| 2002PI03 | PRVCA | 66, | 044319 | Plettner, C. , L. Batisit, J. Doering, A. Blazhev, H. Grawe, V. Belleguic, C.R. Bingham, R. Borcea, M. Gierlik, M. Goerska, N. Harringyon, Z. Janas, M. Karny, R. Kirchner, C. Mazzocchi, P. Munro, E. Roeckl, K. Schmidt, R. Schwengner |
| 2002Py01 | PRLTA | 88, | 122501 | M.C. Pyle, A. García, E. Tatar, J. Cox, B.K. Nayak, S. Triambak, B. Laughman, A. Komives, L.O. Lamm, J.E. Rolon, T. Finnessy, L.D. Knutson, P.A. Voytas |
| 2002Py02 | NIMAE | 488, | 381 | Yu. V. Pyatkov, V.G. Tishchenko, V.V. Pashkevich, V.A. Maslov, D.V. Kamanin, I.V. Kljuev, W.H. Trzaska |
| 2002Ra23 | NUPAB | 706, | 3 | H. Raimbault-Hartmann, G. Audi, D. Beck, G. Bollen, M. de Saint Simon, H.-J. Kluge, M. König, R.B. Moore, S. Schwarz, G. Savard, J. Szerypo, ISOLDE |
| 2002Ro17 | PRVCA | 65, | 054310 | M.W. Rowe, J.C. Batchelder, T.N. Ginter, K.E. Gregorich, F.Q. Guo, F.P. Heßberger, V. Ninov, J. Powell, K.S. Toth, X.J. Xu, J. Cerny |

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| 2002Sh08 | PRVCA | 65, | 034313 | J. Shergur, B.A. Brown, V. Fedoseyev, U. Köster, K.-L. Kratz, D. Seweryniak, W.B. Walters, A. Wöhr, D. Fedorov, M. Hannawald, M. Hjorth-Jensen, V. Mishin, B. Pfeiffer, J.J. Ressler, H.O.U. Fynbo, P. Hoff, H. Mach, T. Nilsson, K. Wilhelmsen-Rolander, H. Simon, A. Bickley, ISOLDE |
| 2002Sh16 | JUPSA | 71, | 1401 | M. Shibata, T. Shindou, A. Taniguchi, Y. Kojima, K. Kawade, S.-I. Ichikawa, Y. Kawase |
| 2002Sh43 | PTPSA | 146, | 60 | B.-M. Sherrill |
| 2002Sh.A | AnRpt JAERI | | 26 | M. Shibata, T. Shindou, Y. Kojima, M. Asai, K. Tsukada, S. Ichikawa, H. Haba, Y. Nagame, K. Kawade |
| 2002Sh.B | P-Aulanko | | 479 | M. Shibata, T. Shindou, K. Kawade, V. Kojima, A. Taniguchi, Y. Kawase, S. Ichikawa |
| 2002Sh.C | AnRpt JAERI | | 45 | N. Shinohara, Yu. N. Novikov, G. Münzenberg, H. Wollnik, Y. Hatsukawa, M. Asai, K. Tsukada, A. Osa, M. Oshima, H. Haba, S. Ichikawa, Y. Nagame, A.V. Popov, D.M. Seliverstov and PrvCom to 2008Qi03 |
| 2002So.A | PrvCom | GAu | Oct | O. Sorlin |
| 2002Tr04 | ADNDA | 80, | 83 | V.I. Tretyak, Yu. G. Zdesenko |
| 2002Tu05 | EPJAA | 15, | 271 | A. Türler "Heavy-element chemistry - Status and perspectives" |
| 2002Un02 | ARISE | 56, | 125 | M.P. Unterweger |
| 2002Va13 | PRVCA | 65, | 064301 | K. Van de Vel, A.N. Andreyev, M. Huyse, P. Van Duppen, J.F.C. Cocks, O. Dorvaux, P.T. Greenlees, K. Helariutta, P. Jones, R. Julin, S. Juutinen, H. Kettunen, P. Kuusiniemi, M. Leino, M. Muikku, P. Nieminen, K. Eskola, R. Wyss |
| 2002We07 | PRVCA | 65, | 044321 | L. Weissman, J. Cederkall, J. Äystö, H. Fynbo, L. Fraile, V. Fedoseyev, S. Franchoo, A. Jokinen, U. Köster, G. Martinez-Pinedo, T. Nilsson, M. Oinonen, K. Peräjärvi, M.D. Seliverstov, ISOLDE |
| 2002Xu11 | PRVCA | 66, | 047302 | S.W. Xu, Z.K. Li, F.R. Xu, Y.X. Xie, X.D. Wang |
| 2002Zd02 | PYLBB | 546, | 206 | Yu. G. Zdesenko, F.A. Danevich, V.I. Tretyak |
| 2003 | | | | |
| 2003Ah07 | PRVCA | 68, | 044306 | I. Ahmad, R.R. Chasman, J.P. Greene, F.G. Kondev, E.F. Moore, E. Browne, C.E. Porter, L.K. Felker |
| 2003Al02 | PRVCA | 67, | 014323 | A. Alessandrello, C. Arnaboldi, C. Brofferio, S. Capelli, O. Cremonesi, E. Fiorini, A. Nucciotti, M. Pavan, G. Pessina, S. Pirro, E. Previtali, M. Sisti, M. Vanzini, L. Zanotti, A. Giuliani, M. Pedretti, C. Bucci, C. Pobes |
| 2003An26 | EPJAA | 18, | 39 | A.N. Andreyev, D. Ackermann, S. Antalic, H.J. Boardman, P. Cagarda, J. Gerl, F.P. Heßberger, S. Hofmann, M. Huyse, D. Karlgren, A. Keenan, H. Kettunen, A. Kleinböhl, B. Kindler, I. Kojouharov, A. Lavrentiev, C.D. O'Leary, M. Leino, B. Lommel, M. Matos, C.J. Moore, G. Münzenberg, R.D. Page, S. Reshitko, S. Saro, H. Schaffner, C. Schlegel, M.J. Taylor, K. Van de Vel, P. Van Duppen, L. Weissman, K. Heyde |
| 2003An27 | EPJAA | 18, | 55 | A.N. Andreyev, D. Ackermann, F.P. Heßberger, S. Hofmann, M. Huyse, I. Kojouharov, B. Kindler, B. Lommel, G. Münzenberg, R.D. Page, K. Van de Vel, P. Van Duppen, K. Heyde |
| 2003Ar36 | PRLTA | 91, | 161802 | C. Arnaboldi, C. Brofferio, O. Cremonesi, E. Fiorini, C. Lo Bianco, L. Martensson, A. Nucciotti, M. Pavan, G. Pessina, S. Pirro, E. Previtali, M. Sisti, A. Giuliani, B. Margesin, M. Zen |
| 2003Ba18 | PRVCA | 67, | 034310 | C.J. Barton, D.S. Brenner, N.V. Zamfir, M.A. Caprio, A. Aprahamian, M.C. Wiescher, C.W. Beausang, Z. Berant, R.F. Casten, J.R. Cooper, R.L. Gill, R. Krücken, J.R. Novak, N. Pietralla, M. Shawcross, A. Teymurazyan, A. Wolf |
| 2003Ba20 | EPJAA | 16, | 489 | T. Bäck, B. Cederwall, K. Lagergren, R. Wyss, A. Johnson, D. Karlgren, P. Greenlees, D. Jenkins, P. Jones, D.T. Joss, R. Julin, S. Juutinen, A. Keenan, H. Kettunen, P. Kuusiniemi, M. Leino, A.-P. Leppänen, M. Muikku, P. Nieminen, J. Pakarinen, P. Rakhila, J. Uusitalo |
| 2003Ba39 | NUPAB | 720, | 245 | L. Batist, J. Döring, I. Mukha, C. Plettner, C.R. Bingham, R. Borcea, M. Gierlik, H. Grawe, K. Hauschild, Z. Janas, I.P. Johnstone, M. Karny, M. Kavatsyuk, R. Kirchner, M. La Commara, C. Mazzocchi, F. Moroz, J. Pavan, A. Płochocki, E. Roeckl, B. Salvachúa, K. Schmidt, R. Schwengner, L.D. Skouras, S.L. Tabor, M. Wiedeking |
| 2003Ba49 | PRVCA | 67, | 064316 | D.K. Barillari, J.V. Vaz, R.C. Barber, K.S. Sharma |

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| 2003Ba.A | PrvCom | GAu | Apr | C. Bachelet |
| 2003Be02 | EPJDD | 22, | 41 | I. Bergström, M. Björkhage, K. Blaum, H. Bluhme, T. Fritioff, Sz. Nagy, R. Schuch |
| 2003Be05 | NUPAB | 714, | 21 | U.C. Bergmann, C.A. Diget, K. Riisager, L. Weissman, G. Auböck, J. Cederkäll, L.M. Fraile, H.O.U. Fynbo, H. Gausemel, H. Jeppesen, U. Köster, K.-L. Kratz, P. Möller, T. Nilsson, B. Pfeiffer, H. Simon, K. Van de Vel, J. Äystö, ISOLDE |
| 2003Be18 | EPJAA | 16, | 447 | A.V. Belozеров, M.L. Chelnokov, V.I. Chepigin, T.P. Drobina, V.A. Gorshkov, A.P. Kabachenko, O.N. Malyshev, I.M. Merkin, Yu. Ts. Oganessian, A.G. Popeko, R.N. Sagaidak, A.I. Svirikhin, A.V. Yeremin, G. Berek, I. Brida, Š. Šáro |
| 2003Bi05 | PRVCA | 67, | 065801 | I. Bikit, N. Zikić-Todorović, J. Slivka, M. Vesković, M. Krmar, Lj. Čonkić, J. Puzović, I.V. Aničhin |
| 2003Bi17 | PRLTA | 91, | 260801 | K. Blaum, G. Audi, D. Beck, G. Bollen, F. Herfurth, A. Kellerbauer, H.-J. Kluge, E. Sauvan, S. Schwarz |
| 2003Bo25 | NUPAB | 726, | 175 | V. Bondarenko, A.V. Afanasjev, F. Bečvář, J. Honzátko, M.-E. Montero-Cabrera, I. Kuvaga, S.J. Robinson, A.M.J. Spits, S.A. Telezhnikov |
| 2003Ce01 | PYLBB | 556, | 14 | S. Cebrián, N. Coron, G. Dambier, P. de Marcillac, E. García, I.G. Irastorza, J. Leblanc, A. Morales, J. Morales, A. Ortiz de Solórzano, J. Puimedón, M.L. Sarsa, J.A. Villar |
| 2003Da05 | PRVCA | 67, | 014310 | F.A. Danevich, A. Sh. Georgadze, V.V. Kobychyev, S.S. Nagorny, A.S. Nikolaiko, O.A. Ponkratenko, V.I. Tretyak, S. Yu. Zdesenko, Yu. G. Zdesenko, P.G. Bizzeti, T.F. Fazzini, P.R. Maurenzig |
| 2003Da09 | NUPAB | 717, | 129 | F.A. Danevich, A.S. Georgadze, V.V. Kobychyev, A.S. Nikolaiko, O.A. Ponkratenko, V.I. Tretyak, S.Y. Zdesenko, Y.G. Zdesenko, P.G. Bizzeti, T.F. Fazzini, P.R. Maurenzig |
| 2003De11 | NATUA | 422, | 876 | P. de Marcillac, N. Coron, G. Dambier, J. Leblanc, J.-P. Moalic |
| 2003Di06 | PRLTA | 91, | 162503 | I. Dillmann, K.-L. Kratz, A. Wöhr, O. Arndt, B.A. Brown, P. Hoff, M. Hjorth-Jensen, U. Köster, A.N. Ostrowski, B. Pfeiffer, D. Seweryniak, J. Shergur, W.B. Walters, ISOLDE |
| 2003Do09 | PRVCA | 68, | 034306 | J. Döring, H. Grawe, K. Schmidt, R. Borcea, S. Galanopoulos, M. Górska, S. Harissopulos, M. Hellström, Z. Janas, R. Kirchner, M. La Commara, C. Mazzocchi, E. Roeckl, R. Schwengner |
| 2003Fr08 | PHSTB | 67, | 276 | T. Fritioff, G. Douysset |
| 2003Fu10 | NUPAB | 718, | 688c | Zs. Fülöp, L. Bartha, Gy. Gyürky, E. Somorjai, S. Kubono, H. Kudo, D. Kaji |
| 2003Ge04 | PRVCA | 67, | 054312 | J. Genevey, J.A. Pinston, H.R. Faust, R. Orlandi, A. Scherillo, G.S. Simpson,, I.S. Tsekhanovich, A. Covello, A. Gargano, W. Urban |
| 2003Gi05 | PRVCA | 67, | 064609 | T.N. Ginter, K.E. Gregorich, W. Loveland, D.M. Lee, U.W. Kirbach, R. Sudowe, C.M. Folden III, J.B. Patin, N. Seward, P.A. Wilk, P.M. Zielinski, K. Aleklett, R. Eichler, H. Nitsche, D.C. Hoffman |
| 2003Gi06 | NUPAB | 724, | 313 | M. Gierlik, A. Plochocki, M. Karny, W. Urban, Z. Janas, L. Batist, F. Moroz, R. Collatz, M. Górska, H. Grawe, M. Hellström, Z. Hu, R. Kirchner, W. Liu, M. Rejmund, E. Roeckl, M. Shibata, J. Agramunt, A. Algora, A. Gadea, B. Rubio, J.L. Tain, D. Cano-Ott, S. Harissopulos |
| 2003Gi10 | PRVCA | 68, | 034330 | T.N. Ginter, J.C. Batchelder, C.R. Bingham, C.J. Gross, R. Grzywacz, J.H. Hamilton, Z. Janas, M. Karny, A. Piechaczek, A.V. Ramayya, K.P. Rykaczewski, W.B. Walters, E.F. Zganjar |
| 2003Go11 | PYLBB | 566, | 70 | M.S. Golovkov, Yu. Ts. Oganessian, D.D. Bogdanov, A.S. Fomichev, A.M. Rodin, S.I. Sidorchuk, R.S. Slepnev, S.V. Stepantsov, G.M. Ter-Akopian, R. Wolski, V.A. Gorshkov, M.L. Chelnokov, M.G. Itkis, E.M. Kozulin, A.A. Bogatchev, N.A. Kondratiev, I.V. Korzyukov, A.A. Yukhimchuk, V.V. Perevozchikov, Yu. I. Vinogradov, S.K. Grishechkin, A.M. Demin, S.V. Zlatoustovsky, A.V. Kuryakin, S.V. Fil'chagin, R.I. Il'yayev, F. Hanappe, T. Materna, L. Stuttge, A.H. Ninane, A.A. Korshennikov, E. Yu. Nikolskii, I. Tanihata, P. Roussel-Chomaz, W. Mittag, N. Alamanos, V. Lapoux, E.C. Pollacco, L. Nalpas |
| 2003Gr13 | NUPAB | 724, | 14 | C. Granja, S. Pospíšil, J. Kubašta, S.A. Telezhnikov |
| 2003Gr27 | NUPAB | 729, | 679 | C. Granja, S. Pospíšil, S.A. Telezhnikov, R.E. Chrien |

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| 2003Gu06 | PRVCA | 67, | 064601 | V. Guimarães, S. Kubono, F.C. Barker, M. Hosaka, S.C. Jeong, I. Katayama, T. Miyachi, T. Nomura, M.H. Tanaka, Y. Fuchi, H. Kawashima, S. Kato, C.C. Yun, K. Ito, H. Orihara, T. Terakawa, T. Kishida, Y. Pu, S. Hamada, M. Hirai, H. Miyatake |
| 2003He06 | EPJAA | 16, | 365 | F.P. Heßberger, S. Hofmann, D. Ackermann |
| 2003Hu01 | EPJAA | 16, | 359 | J. Huikari, M. Oinonen, A. Algora, J. Cederkäll, S. Courtin, P. Dessagne, L. Fraile, S. Franchoo, H. Fynbo, W.X. Huang, A. Jokinen, A. Knipper, F. Marechal, C. Miehe, E. Nacher, K. Peräjärvi, E. Poirier, L. Weissman, J. Äystö, ISOLDE |
| 2003Ke04 | EPJAA | 16, | 457 | H. Kettunen, T. Enqvist, M. Leino, K. Eskola, P.T. Greenlees, K. Helariutta, P. Jones, R. Julin, S. Juutinen, H. Kankaanpää, H. Koivisto, P. Kuusiniemi, M. Muikku, P. Nieminen, P. Rakkila, J. Uusitalo |
| 2003Ke08 | EPJAA | 17, | 537 | H. Kettunen, T. Enqvist, T. Grahn, P.T. Greenlees, P. Jones, R. Julin, S. Juutinen, A. Keenan, P. Kuusiniemi, M. Leino, A.-P. Leppänen, P. Nieminen, J. Pakarinen, P. Rakkila, J. Uusitalo |
| 2003Ki08 | NUPAB | 723, | 499 | H. Kiel, D. Münstermann, K. Zuber |
| 2003Ko.A | Th.-Jyvaskyla | | | V. Kolhinen |
| 2003Kr20 | RAACA | 91, | 59 | J.V. Kratz, A. Nähler, U. Rieth, A. Kronenberg, B. Kuczewski, E. Strub, W. Bruchle, M. Schädel, B. Schausten, A. Türler, H.W. Gäggeler, D.T. Jost, K.E. Gregorich, H. Nitsche, C. Laue, R. Sudowe, P.A. Wilk |
| 2003Ku25 | EPJAA | 18, | 5 | J. Kurpeta, A. Plochocki, A.N. Andreyev, J. Äystö, A. De Smet, H. De Witte, A.-H. Evensen, V. Fedoseyev, S. Franchoo, M. Górski, M. Huhta, M. Huyse, Z. Janas, A. Jokinen, M. Karny, E. Kugler, W. Kurcewicz, U. Köster, J. Lettry, A. Nieminen, K. Partes, M. Ramdhane, H.L. Ravn, K. Rykaczewski, J. Szerypo, K. Van de Vel, P. Van Duppen, L. Weissman, G. Walter, A. Wöhr, ISOLDE |
| 2003Le26 | NUPAB | 722, | 512 | A. Lepine-Szily, J.M. Oliveira, D. Galante, G. Amadio, V. Vanin, R. Lichtenhaler, V. Guimaraes, G.F. Lima, H.G. Bohlen, A.N. Ostrowski, A. Di Pietro, A.M. Laird, L. Maunoury, F. de Oliveira Santos, P. Roussel-Chomaz, H. Savajols, W. Trinder, A.C.C. Villari, A. de Vismes |
| 2003Li42 | PYLBB | 573, | 80 | Yu. A. Litvinov, F. Attallah, K. Beckert, F. Bosch, D. Boutin, M. Falch, B. Franzke, H. Geissel, M. Hausmann, Th. Kerscher, O. Klepper, H.-J. Kluge, C. Kozhuharov, K.E.G. Löbner, G. Münzenberg, F. Nolden, Yu. N. Novikov, Z. Patyk, T. Radon, C. Scheidenberger, J. Stadlmann, M. Steck, M.B. Trzhaskovskaya, H. Wollnik |
| 2003Li.A | PrvCom | GAu | Jul | Y. Litvinov, Ch. Scheidenberger |
| 2003Li.B | PrvCom | GAu | Aug | Y. Litvinov |
| 2003Ma02 | PRVCA | 67, | 014311 | P.F. Mantica, A.C. Morton, B.A. Brown, A.D. Davies, T. Glasmacher, D.E. Groh, S.N. Liddick, D.J. Morrissey, W.F. Mueller, H. Schatz, A. Stolz, S.L. Tabor, M. Honma, M. Horoi, T. Otsuka |
| 2003Ma34 | EPJAA | 17, | 519 | C. Mazzocchi, E. Badura, C. Bingham, B. Blank, M. Chartier, H. Geissel, J. Giovinazzo, E. Grodner, R. Grzywacz, M. Hellström, Z. Janas, J. Kurcewicz, A.S. Lalleman, I. Mukha, G. Münzenberg, M. Pfützner, C. Plettner, E. Roeckl, K.P. Rykaczewski, K. Schmidt, R.S. Simon, M. Stanoiu, J.-C. Thomas |
| 2003Me11 | NUPAB | 723, | 13 | M. Meister, L.V. Chulkov, H. Simon, T. Aumann, M.J.G. Borge, Th. W. Elze, H. Emling, H. Geissel, M. Hellström, B. Jonson, J.V. Kratz, R. Kulesa, Y. Leifels, K. Markenroth, G. Münzenberg, F. Nickel, T. Nilsson, G. Nyman, V. Pribora, A. Richter, K. Riisager, C. Scheidenberger, G. Schrieder, O. Tengblad |
| 2003Me20 | PRVCA | 68, | 041301 | A. Melerangi, D. Appelbe, R.D. Page, H.J. Boardman, P.T. Greenlees, P. Jones, D.T. Joss, R. Julin, S. Juutinen, H. Kettunen, P. Kuusiniemi, M. Leino, M.H. Muikku, P. Nieminen, J. Pakarinen, P. Rakkila, J. Simpson |
| 2003Mo36 | NUPAB | 728, | 350 | C.-B. Moon, T. Komatsubara, T. Shizuma, Y. Sasaki, K. Furuno, C.S. Lee |
| 2003Ni10 | PRVCA | 68, | 064305 | K. Nishio, H. Ikezoe, S. Mitsuoka, K. Satou, C.J. Lin |
| 2003Ni11 | PRVCA | 68, | 067301 | Y. Nir-El, G. Haquin |
| 2003Oz01 | PRVCA | 67, | 014610 | A. Ozawa, Y. Yamaguchi, M. Chiba, R. Kanungo, K. Kimura, S. Momota, T. Suda, T. Suzuki, I. Tanihata, T. Zheng, S. Watanabe, T. Yamaguchi, K. Yoshida |

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| 2003Pe23 | PRVCA | 68, | 034607 | W.A. Peters, T. Baumann, D. Bazin, B.A. Brown, R.R.C. Clement, N. Frank, P. Heckman, B.A. Luther, F. Nunes, J. Seitz, A. Stolz, M. Thoennessen, E. Tryggstad |
| 2003Pi03 | EPJAA | 16, | 313 | I. Piqueras, M.J.G. Borge, Ph. Dessagne, J. Giovinazzo, A. Huck, A. Jokinen, A. Knipper, C. Longour, G. Marguier, M. Ramdhane, V. Rauch, O. Tengblad, G. Walter, Ch. Miehé, ISOLDE |
| 2003Pi08 | PRVCA | 67, | 051305 | A. Piechaczek, E.F. Zganjar, G.C. Ball, P. Bricault, J.M. D'Auria, J.C. Hardy, D.F. Hodgson, V. Iacob, P. Klages, W.D. Kulp, J.R. Leslie, M. Lipoglavsek, J.A. Macdonald, H.-B. Mak, D.M. Moltz, G. Savard, J. von Schwarzenberg, C.E. Svensson, I.S. Towner, J.L. Wood |
| 2003Ro21 | PRVCA | 68, | 054301 | A.P. Robinson, C.N. Davids, G. Mukherjee, D. Seweryniak, S. Sinha, P. Wilt, P.J. Woods |
| 2003Sa02 | EPJAA | 16, | 51 | M. Sawicka, J.M. Daugas, H. Grawe, S. Ćwiok, D.L. Balabanski, R. Béraud, C. Bingham, C. Borcea, M. La Commara, G. de France, G. Georgiev, M. Górská, R. Grzywacz, M. Hass, M. Hellström, Z. Janas, M. Lewitowicz, H. Mach, I. Matea, G. Neyens, C. O'Leary, F. de Oliveira Santos, R.D. Page, M. Pfützner, Zs. Podolyák, K. Rykaczewski, M. Stanoiu, J. Żylicz |
| 2003So02 | EPJAA | 16, | 55 | O. Sorlin, C. Donzaud, F. Nowacki, J.C. Angélique, F. Azaiez, C. Bourgeois, V. Chiste, Z. Dlouhy, S. Grévy, D. Guillemaud-Mueller, F. Ibrahim, K.-L. Kratz, M. Lewitowicz, S.M. Lukyanov, J. Mrazek, Yu.-E. Penionzhkevich, F. de Oliveira Santos, B. Pfeiffer, F. Pougheon, A. Poves, M.G. Saint-Laurent, M. Stanoiu |
| 2003So21 | NUPAB | 719, | 193c | O. Sorlin, C. Donzaud, F. Azaiez, C. Bourgeois, L. Gaudefroy, F. Ibrahim, D. Guillemaud-Mueller, F. Pougheon, M. Lewitowicz, F. de Oliveira Santos, M.G. Saint-Laurent, M. Stanoiu, S.M. Lukyanov, Yu. E. Penionzhkevich, J.C. Angélique, S. Grévy, K.-L. Kratz, B. Pfeiffer, F. Nowacki, Z. Dlouhy, J. Mrasek |
| 2003To03 | PRVCA | 67, | 035503 | N.R. Tolich, P.H. Barker, P.D. Harty, P.A. Amundsen |
| 2003To08 | NUPAB | 717, | 149 | I. Tomandl, T. von Egidy, J. Honzátko, V. Bondarenko, H.-F. Wirth, D. Bucurescu, V.Y. Ponomarev, G. Graw, R. Hertenberger, Y. Eisermann, S. Raman |
| 2003Tu05 | EPJAA | 17, | 505 | A. Türler, Ch. E. Düllmann, H.W. Gäggeler, U.W. Kirbach, A.B. Yakushev, M. Schädel, W. Bruchle, R. Dressler, K. Eberhardt, B. Eichler, R. Eichler, T.N. Ginter, F. Glaus, K.E. Gregorich, D.C. Hoffman, E. Jäger, D.T. Jost, D.M. Lee, H. Nitsche, J.B. Patin, V. Pershina, D. Piguet, Z. Qin, B. Schausten, E. Schimpf, H.-J. Schött, S. Soverna, R. Sudowe, P. Thörle, S.N. Timokhin, N. Trautmann, A. Vahle, G. Wirth, P.M. Zielinski |
| 2003Va16 | PRVCA | 68, | 054311 | K. Van de Vel, A.N. Andreyev, D. Ackermann, H.J. Boardman, P. Cagarda, J. Gerl, F.P. Heßberger, S. Hofmann, M. Huyse, D. Karlgren, I. Kojouharov, M. Leino, B. Lommel, G. Münzenberg, C. Moore, R.D. Page, S. Saro, P. Van Duppen, R. Wyss |
| 2003Va.A | PrvCom | GAu | Aug | R.S. Van Dyck, Jr. |
| 2003Vo03 | NUPAB | 714, | 355 | T. von Egidy, C. Doll, J. Jolie, N.V. Warr, J. Kern, M. Crittin, L. Genilloud |
| 2003Wa13 | PRVCA | 67, | 064303 | Y. Wang, S. Rinta-Antila, P. Dendooven, J. Huikari, A. Jokinen, V.S. Kolhinen, G. Lhersonneau, A. Nieminen, S. Nummela, H. Penttilä, K. Peräjärvi, J. Szerypo, J.C. Wang, J. Äystö |
| 2003Wi02 | NUPAB | 716, | 3 | H.-F. Wirth, T. von Egidy, I. Tomandl, J. Honzátko, D. Bucurescu, N. Mrginean, V. Yu. Ponomarev, R. Hertenberger, Y. Eisermann, G. Graw |
| 2003Xu04 | EPJAA | 16, | 347 | S.W. Xu, Y.X. Xie, Z.K. Li, X.D. Wang, B. Guo, C.G. Leng, C.F. Wang, Y. Yu |
| 2003Ye02 | YAFIA | 66, | 1078 | A.V. Yeremin, A.V. Belozero, M.L. Chelnokov, V.I. Chepigin, V.A. Gorshkov, A.P. Kabachenko, O.N. Malyshev, Yu. Ts. Oganessian, A.G. Popeko, R.N. Sagaidak, A.I. Svirikhin, S. Hofmann, G. Berek, I. Brida, S. Saro |
| 2003Yo02 | PRVCA | 67, | 014316 | K. Yoneda, N. Aoi, H. Iwasaki, H. Sakurai, H. Ogawa, T. Nakamura, W.-D. Schmidt-Ott, M. Schäfer, M. Notani, N. Fukuda, E. Ideguchi, T. Kishida, S.S. Yamamoto, M. Ishihara |

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| 2004Al04 | PRVCA | 69, | 024320 | S.D. Al-Garni, P.H. Regan, P.M. Walker, E. Roeckl, R. Kirchner, F.R. Xu, L. Batist, A. Blazhev, R. Borcea, D.M. Cullen, J. Döring, H.M. El-Masri, J. Garces Narro, H. Grawe, M. La Commara, C. Mazzocchi, I. Mukha, C.J. Pearson, C. Plettner, K. Schmidt, W.D. Schmidt-Ott, Y. Shimbara, C. Wheldon, R. Wood, S.C. Wooding |
| 2004An07 | PRVCA | 69, | 054308 | A.N. Andreyev, D. Ackermann, F.P. Heßberger, K. Heyde, S. Hofmann, M. Huyse, D. Karlgren, I. Kojouharov, B. Kindler, B. Lommel, G. Münzenberg, R.D. Page, K. Van de Vel, P. Van Duppen, W.B. Walters, R. Wyss |
| 2004As12 | EPJAA | 22, | 411 | M. Asai, M. Sakama, K. Tsukada, S. Ichikawa, H. Haba, I. Nishinaka, Y. Nagame, S. Goto, Y. Kojima, Y. Oura, H. Nakahara, M. Shibata, K. Kawade |
| 2004Ba78 | PRVCA | 70, | 024302 | P.H. Barker, I.C. Barnett, G.J. Baxter, A.P. Byrne |
| 2004Ba.A | PrvCom | GAu | Jul | C. Bachelet |
| 2004BI10 | PRVCA | 69, | 064304 | A. Blazhev, M. Górska, H. Grawe, J. Nyberg, M. Palacz, E. Caurier, O. Dorvaux, A. Gadea, F. Nowacki, C. Andreoiu, G. de Angelis, D. Balabanski, Ch. Beck, B. Cederwall, D. Curien, J. Döring, J. Ekman, C. Fahlander, K. Lagergren, J. Ljungvall, M. Moszyński, L.-O. Norlin, C. Plettner, D. Rudolph, D. Sohler, K.M. Spohr, O. Thelen, M. Weiszflog, M. Wisell, M. Wolińska, W. Wolski |
| 2004BI16 | EULEE | 67, | 586 | K. Blaum, D. Beck, G. Bollen, P. Delahaye, C. Guenaut, F. Herfurth, A. Kellerbauer, H.-J. Kluge, D. Lunney, S. Schwarz, L. Schweikhard, C. Yazidjian |
| 2004BI20 | NUPAB | 746, | 305c | K. Blaum, G. Audi, D. Beck, G. Bollen, C. Guénaut, P. Delahaye, F. Herfurth, A. Kellerbauer, H.-J. Kluge, D. Lunney, D. Rodríguez, S. Schwarz, L. Schweikhard, C. Weber, C. Yazidjian |
| 2004Br14 | PRVCA | 69, | 034327 | S. Brant, G. Lhersonneau, K. Sistemich |
| 2004Br19 | EPJAA | 20, | 145 | R. Broda, B. Fornal, W. Krolas, T. Pawlat, J. Wrzesinski, D. Bazzacco, G. de Angelis, S. Lunardi, C. Rossi Alvarez |
| 2004CI03 | PRLTA | 92, | 192501 | J.A. Clark, G. Savard, K.S. Sharma, J. Vaz, J.C. Wang, Z. Zhou, A. Heinz, B. Blank, F. Buchinger, J.E. Crawford, S. Gulick, J.K.P. Lee, A.F. Levand, D. Seweryniak, G.D. Sprouse, W. Trimble |
| 2004Co26 | PRVCA | 70, | 064606 | C. Cozzini, G. Angloher, C. Bucci, F. von Feilitzsch, D. Hauff, S. Henry, Th. Jagemann, J. Jochum, H. Kraus, B. Majorovits, V. Mikhailik, J. Ninkovic, F. Petricca, W. Potzel, F. Pröbst, Y. Ramachers, W. Rau, M. Razeti, W. Seidel, M. Stark, L. Stodolsky, A.J.B. Tolhurst, W. Westphal, H. Wulandari |
| 2004Da04 | PRVCA | 69, | 011302 | C.N. Davids, P.J. Woods, H. Mahmud, T. Davinson, A. Heinz, J.J. Ressler, K. Schmidt, D. Seweryniak, J. Shergur, A.A. Sonzogni, W.B. Walters |
| 2004De16 | PRVCA | 69, | 044305 | H. De Witte, A.N. Andreyev, I.N. Borzov, E. Caurier, J. Cederkäll, A. De Smet, S. Eeckhaudt, D.V. Fedorov, V.N. Fedosseev, S. Franchoo, M. Górska, H. Grawe, G. Huber, M. Huyse, Z. Janas, U. Köster, W. Kurcewicz, J. Kurpeta, A. Plochocki, K. Van de Vel, P. Van Duppen, L. Weissman |
| 2004De40 | EPJAA | 21, | 243 | S. Dean, M. Gorska, F. Aksouh, H. de Witte, M. Facina, M. Huyse, O. Ivanov, K. Krouglov, Yu. Kudryavtsev, I. Mukha, D. Smirnov, J.-C. Thomas, K. Van de Vel, J. Van de Walle, P. Van Duppen, J. Van Roosbroeck |
| 2004Di18 | EPJAA | 22, | 163 | J. Dilling, F. Herfurth, A. Kellerbauer, G. Audi, G. Bollen, H.-J. Kluge, R.B. Moore, C. Scheidenberger, S. Schwarz, G. Sikler, ISOLDE |
| 2004Dr04 | PRVCA | 69, | 054318 | G.D. Dracoulis, G.J. Lane, A.P. Byrne, T. Kibédi, A.M. Baxter, A.O. Macchiavelli, P. Fallon, R.M. Clark |
| 2004Dr06 | PYLBB | 584, | 22 | G.D. Dracoulis, F.G. Kondev, G.J. Lane, A.P. Byrne, T. Kibedi, I. Ahmad, M.P. Carpenter, S.J. Freeman, R.V.F. Janssens, N.J. Hammond, T. Lauritsen, C.J. Lister, G. Mukherjee, D. Seweryniak, P. Chowdhury, S.K. Tandel, R. Gramer |
| 2004Fo06 | PRVCA | 70, | 34312 | B. Fogelberg, H. Gausemel, K.A. Mezilev, P. Hoff, H. Mach, M. Sanchez-Vega, A. Lindroth, E. Ramstrom, J. Genevey, J.A. Pinston, M. Rejmund |
| 2004Fo08 | PRLTA | 93, | 212702 | C.M. Folden III, K.E. Gregorich, Ch. E. Düllmann, H. Mahmud, G.K. Pang, J.M. Schwantes, R. Sudowe, P.M. Zielinski, H. Nitsche, D.C. Hoffman |
| 2004Fu.A | P-Santa Fe | | 1454 | K. Furutaka, H. Harada, S. Raman, AIP Conf. Proc. 769, 1454 (2005) |
| 2004Ga24 | PRVCA | 69, | 054307 | H. Gausemel, B. Fogelberg, T. Engeland, M. Hjorth-Jensen, P. Hoff, H. Mach, K.A. Mezilev, J.P. Omtvedt |
| 2004Ga29 | EPJAA | 20, | 385 | Z.G. Gan, J.S. Guo, X.L. Wu, Z. Qin, H.M. Fan, X.G. Lei, H.Y. Liu, B. Guo, H.G. Xu, R.F. Chen, C.F. Dong, F.M. Zhang, H.L. Wang, C.Y. Xie, Z.Q. Feng, Y. Zhen, L.T. Song, P. Luo, H.S. Xu, X.H. Zhou, G.M. Jin, Z. Ren |

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| 2004Ga44 | PRVCA | 70, | 037301 | H. Gausemel, K.A. Mezilev, B. Fogelberg, P. Hoff, H. Mach, E. Ramström |
| 2004GI04 | PRVCA | 69, | 024617 | K.A. Gladnishki, Zs. Podolyák, P.H. Regan, J. Gerl, M. Hellström, Y. Kopatch, S. Mandal, M. Górski, R.D. Page, H.J. Wollersheim, A. Banu, G. Benzoni, H. Boardman, M. La Commara, J. Ekman, C. Fahlander, H. Geissel, H. Grawe, E. Kaza, A. Korgul, M. Matos, M.N. Mineva, C.J. Pearson, C. Plettner, D. Rudolph, Ch. Scheidenberger, K.-H. Schmidt, V. Shishkin, D. Sohler, K. Sümmerner, J.J. Valiente-Dobón, P.M. Walker, H. Weick, M. Winkler, O. Yordanov |
| 2004Go15 | PRVCA | 69, | 031302 | V.Z. Goldberg, G.G. Chubarian, G. Tabacaru, L. Trache, R.E. Tribble, A. Aprahamian, G.V. Rogachev, B.B. Skorodumov, X.D. Tang |
| 2004Go38 | PRVCA | 70, | 014309 | J. TM. Goon, D.J. Hartley, L.L. Riedinger, M.P. Carpenter, F.G. Kondev, R.V.F. Janssens, K.H. Abu Saleem, I. Ahmad, H. Amro, J.A. Cizewski, C.N. Davids, M. Danchev, T.L. Khoo, A. Heinz, T. Lauritsen, W.C. Ma, G.L. Poli, J. Ressler, W. Reviol, D. Seweryniak, M.B. Smith, I. Wiedenhover, J. Zhang |
| 2004Gr20 | PYLBB | 594, | 252 | S. Gfey, J.C. Angélique, P. Baumann, C. Borcea, A. Buta, G. Canchel, W.N. Catford, S. Courtin, J.M. Daugas, F. de Oliveira, P. Dessagne, Z. Dlouhy, A. Knipper, K.L. Kratz, F.R. Lecolley, J.L. Lecouey, G. Lhersonneau, M. Lewitowicz, E. Liénard, S. Lukyanov, F. Maréchal, C. Miehe, J. Mrazek, F. Negroita, N.A. Orr, D. Pantelica, Y. Penionzhkevich, J. Péter, B. Pfeiffer, S. Pietri, E. Poirier, O. Sorlin, M. Stanoiu, I. Stefan, C. Stodel, C. Timis |
| 2004He25 | EPJAA | 22, | 253 | F.P. Heßberger, S. Hofmann, I. Kojouharov, D. Ackermann |
| 2004He28 | EPJAA | 22, | 417 | F.P. Heßberger, S. Hofmann, D. Ackermann, P. Cagarda, R.-D. Herzberg, I. Kojouharov, P. Kuusiniemi, M. Leino, R. Mann |
| 2004Io01 | PRVCA | 70, | 034305 | M. Ionescu-Bujor, A. Iordachescu, D.L. Balabanski, S. Chmel, G. Neyens, G. Baldsiefen, D. Bazzacco, F. Brandolini, D. Bucurescu, M. Danchev, M. De Poli, G. Georgiev, A. Görgen, H. Haas, H. Hubel, G. Ilie, N. Marginean, R. Menegazzo, P. Pavan, G. Rainovski, R.V. Ribas, C. Rossi Alvarez, C.A. Ur, K. Vyvey, S. Frauendorf |
| 2004Iz02 | YAFIA | 67, | 1901 | N. Izosimov, A.A. Kazimov, V.G. Kalinnikov, A.A. Solnyshkin, J. Suhonen |
| 2004Jo12 | PRVCA | 70, | 017302 | D.T. Joss, K. Lagergren, D.E. Appelbe, C.J. Barton, J. Simpson, B. Cederwall, B. Hadinia, R. Wyss, S. Eeckhaudt, T. Grahn, P.T. Greenlees, P.M. Jones, R. Julin, S. Juutinen, H. Kettunen, M. Leino, A.-P. Leppänen, P. Nieminen, J. Pakarinen, P. Rahkila, C. Scholey, J. Uusitalo, R.D. Page, E.S. Paul, D.R. Wiseman |
| 2004Ka38 | PRVCA | 70, | 014310 | M. Karny, L. Batist, D. Jenkins, M. Kavatsyuk, O. Kavatsyuk, R. Kirchner, A. Korgul, E. Roeckl, J. Zylicz |
| 2004Ke06 | PRVCA | 69, | 054323 | H. Kettunen, T. Enqvist, T. Grahn, P.T. Greenlees, P. Jones, R. Julin, S. Juutinen, A. Keenan, P. Kuusiniemi, M. Leino, A.-P. Leppanen, P. Nieminen, J. Pakarinen, P. Rahkila, J. Uusitalo |
| 2004Ke10 | PRLTA | 93, | 072502 | A. Kellerbauer, G. Audi, D. Beck, K. Blaum, G. Bollen, B.A. Brown, P. Delahaye, C. Guénaut, F. Herfurth, H.-J. Kluge, D. Lunney, S. Schwarz, L. Schweikhard, C. Yazidjian and PrvCom GAu September 2003 |
| 2004KI03 | PYLBB | 578, | 54 | H.V. Klapdor-Kleingrothaus, I.V. Krivosheina, A. Dietz, O. Chkvorets |
| 2004Ko.A | P-Santa Fe | | 225 | F.G. Kondev |
| 2004Ku24 | EPJAA | 22, | 429 | P. Kuusiniemi, F.P. Heßberger, D. Ackermann, S. Hofmann, I. Kojouharov |
| 2004Le12 | NUPAB | 734, | 331 | A. Lépine-Szily, J.M. Oliveira, D. Galante, G. Amadio, R. Lichtenthäler, H.G. Bohlen, A.N. Ostrowski, A. Blazevic, C. Borcea, V. Guimarães, V. Lapoux, G. Lima, F. de Oliveira Santos, N.A. Orr, P. Roussel-Chomaz, Th. Stolla, J.S. Winfield |
| 2004Li28 | CZYPA | 54, | 189 | C.F. Liang, P. Paris, R.K. Sheline, P. Alexa |
| 2004Li75 | PRVCA | 70, | 064303 | S.N. Liddick, P.F. Mantica, R. Broda, B.A. Brown, M.P. Carpenter, A.D. Davies, B. Fornal, T. Glasmacher, D.E. Groh, M. Honma, M. Horoi, R.V.F. Janssens, T. Mizusaki, D.J. Morrissey, A.C. Morton, W.F. Mueller, T. Otsuka, J. Pavan, H. Schatz, A. Stolz, S.L. Tabor, B.E. Tomlin, M. Wiedeking |
| 2004Ma.A | Th.-Giessen | | | M. Matoš |
| 2004Mo15 | NUPAB | 734, | 188 | K. Moody, for the Dubna-Livermore Collaboration |

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|----------|--------------|------|--------|--|
| 2004Mo26 | JUPSA | 73, | 1738 | K. Morita, K. Morimoto, D. Kaji, H. Haba, E. Ideguchi, J.C. Peter, R. Kanungo, K. Katori, H. Koura, H. Kudo, T. Ohnishi, A. Ozawa, T. Suda, K. Sueki, I. Tanihata, H. Xu, A.V. Yeremin, A. Yoneda, A. Yoshida, Y.L. Zhao, T. Zheng, S. Goto, F. Tokanai |
| 2004Mo40 | EPJAA | 21, | 257 | K. Morita, K. Morimoto, D. Kaji, H. Haba, E. Ideguchi, R. Kanungo, K. Katori, H. Koura, H. Kudo, T. Ohnishi, A. Ozawa, T. Suda, K. Sueki, I. Tanihata, H. Xu, A.V. Yeremin, A. Yoneda, A. Yoshida, Y.-L. Zhao, T. Zheng |
| 2004MoZU | PrvCom | NDG | | K. Morita (to be published in Proc. EXON 2004) |
| 2004Mu26 | PRLTA | 93, | 150801 | M. Mukherjee, A. Kellerbauer, D. Beck, K. Blaum, G. Bollen, F. Carrel, P. Delahaye, J. Dilling, S. George, C. Guénaut, F. Herfurth, A. Herlert, H.-J. Kluge, U. Köster, D. Lunney, S. Schwarz, L. Schweikhard, C. Yazidjian |
| 2004Mu30 | PRVCA | 70, | 044311 | I. Mukha, L. Batist, E. Roeckl, H. Grawe, J. Döring, A. Blazhev, C.R. Hoffman, Z. Janas, R. Kirchner, M. La Commara, S. Dean, C. Mazzocchi, C. Plettner, S.L. Tabor, M. Wiedeking |
| 2004Mu32 | NUPAB | 746, | 66 | I. Mukha, L. Batist, F. Becker, A. Blazhev, W. Brühle, J. Döring, M. Gorska, H. Grawe, T. Faestermann, C. Hoffman, Z. Janas, A. Jungclaus, M. Karny, M. Kavatsyuk, O. Kavatsyuk, R. Kirchner, M. La Commara, C. Mazzocchi, C. Plettner, A. Plochocki, E. Roeckl, M. Romoli, M. Schädel, R. Schwengner, S.L. Tabor, M. Wiedeking, and the GSI ISOL Collaboration |
| 2004Na.A | Th.-Valencia | | | E. Nacher |
| 2004Og03 | PRVCA | 69, | 021601 | Yu. Ts. Oganessian, V.K. Utyonkov, Yu. V. Lobanov, F. Sh. Abdullin, A.N. Polyakov, I.V. Shirokovsky, Yu. S. Tsyganov, G.G. Gulbekian, S.L. Bogomolov, A.N. Mezentsev, S. Iliev, V.G. Subbotin, A.M. Sukhov, A.A. Voinov, G.V. Buklanov, K. Subotic, V.I. Zagrebaev, M.G. Itkis, J.B. Patin, K.J. Moody, J.F. Wild, M.A. Stoyer, N.J. Stoyer, D.A. Shaughnessy, J.M. Kenneally, R.W. Loughheed |
| 2004Og05 | NUPAB | 734, | 109 | Yu. Ts. Oganessian, V.K. Utyonkov, Yu. V. Lobanov, F. Sh. Abdullin, A.N. Polyakov, I.V. Shirokovsky, Yu. S. Tsyganov, G.G. Gulbekian, S.L. Bogomolov, B.N. Gikal, A.N. Mezentsev, S. Iliev, V.G. Subbotin, A.M. Sukhov, A.A. Voinov, G.V. Buklanov, K. Subotic, V.I. Zagrebaev, M.G. Itkis, J.B. Patin, K.J. Moody, J.F. Wild, M.A. Stoyer, N.J. Stoyer, D.A. Shaughnessy, J.M. Kenneally, R.W. Loughheed |
| 2004Og07 | PRVCA | 69, | 054607 | Yu. Ts. Oganessian, V.K. Utyonkov, Yu. V. Lobanov, F. Sh. Abdullin, A.N. Polyakov, I.V. Shirokovsky, Yu. S. Tsyganov, G.G. Gulbekian, S.L. Bogomolov, B.N. Gikal, A.N. Mezentsev, S. Iliev, V.G. Subbotin, A.M. Sukhov, A.A. Voinov, G.V. Buklanov, K. Subotic, V.I. Zagrebaev, M.G. Itkis, J.B. Patin, K.J. Moody, J.F. Wild, M.A. Stoyer, N.J. Stoyer, D.A. Shaughnessy, J.M. Kenneally, R.W. Loughheed |
| 2004Og12 | PRVCA | 70, | 064609 | Yu. Ts. Oganessian, V.K. Utyonkov, Yu. V. Lobanov, F. Sh. Abdullin, A.N. Polyakov, I.V. Shirokovsky, Yu. S. Tsyganov, G.G. Gulbekian, S.L. Bogomolov, B.N. Gikal, A.N. Mezentsev, S. Iliev, V.G. Subbotin, A.M. Sukhov, A.A. Voinov, G.V. Buklanov, K. Subotic, V.I. Zagrebaev, M.G. Itkis, J.B. Patin, K.J. Moody, J.F. Wild, M.A. Stoyer, N.J. Stoyer, D.A. Shaughnessy, J.M. Kenneally, P.A. Wilk, R.W. Loughheed, R.I. Ilkaev, S.P. Vesnovskii, and erratum PRVCA 71(2005)029902 |
| 2004Ra23 | PRVCA | 70, | 044318 | S. Raman, X. Ouyang, M.A. Islam, J.W. Starnner, E.T. Jurney, J.E. Lynn, G. Martínez-Pinedo |
| 2004Ra28 | PRVCA | 70, | 064308 | P.M. Raddon, D.G. Jenkins, C.D. O'Leary, A.J. Simons, R. Wadsworth, A.N. Andreyev, R.D. Page, M.P. Carpenter, F.G. Kondev, T. Enqvist, P.T. Greenlees, P.M. Jones, R. Julin, S. Juutinen, H. Kettunen, M. Leino, A.-P. Leppänen, P. Nieminen, J. Pakarinen, P. Rahkila, J. Uusitalo, D.T. Joss |
| 2004Ra33 | SCIEA | 303, | 334 | S. Rainville, J.K. Thompson, D.E. Pritchard |
| 2004Re04 | PRVCA | 69, | 034331 | J.J. Ressler, C.W. Beausang, H. Ai, H. Amro, M.A. Caprio, R.F. Casten, A.A. Hecht, S.D. Langdown, E.A. McCutchan, D.A. Meyer, P.H. Regan, M.J.S. Sciacchitano, A. Yamamoto, N.V. Zamfir |
| 2004Ri12 | PRVCA | 70, | 11301 | S. Rinta-Antila, S. Kopecky, V.S. Kolhinen, J. Hakala, J. Huikari, A. Jokinen, A. Nieminen, J. Äystö, J. Szerypo |

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|----------|-------|------|--------|---|
| 2004Ro32 | PRLTA | 93, | 161104 | D. Rodríguez, V.S. Kolhinen, G. Audi, J. Äystö, D. Beck, K. Blaum, G. Bollen, F. Herfurth, A. Jokinen, A. Kellerbauer, H.-J. Kluge, M. Oinonen, H. Schatz, E. Sauvan, S. Schwarz |
| 2004Sa05 | PRVCA | 69, | 014308 | M. Sakama, M. Asai, K. Tsukada, S. Ichikawa, I. Nishinaka, Y. Nagame, H. Haba, S. Goto, M. Shibata, K. Kawade, Y. Kojima, Y. Oura, M. Ebihara, H. Nakahara |
| 2004Sa53 | PRVCA | 70, | 042501 | G. Savard, J.A. Clark, F. Buchinger, J.E. Crawford, S. Gulick, J.C. Hardy, A.A. Hecht, V.E. Jacob, J.K.P. Lee, A.F. Levand, B.F. Lundgren, N.D. Scielzo, K.S. Sharma, I. Tanihata, I.S. Towner, W. Trimble, J.C. Wang, Y. Wang, Z. Zhou |
| 2004Sc04 | ARISE | 60, | 317 | H. Schrader |
| 2004Sc42 | PRVCA | 70, | 054318 | A. Scherillo, J. Genevey, J.A. Pinston, A. Covello, H. Faust, A. Gargano, R. Orlandi, G.S. Simpson, I. Tsekhanovich, N. Warr |
| 2004Sh15 | EPJAA | 20, | 207 | T. Shizuma, Z.G. Gan, K. Ogawa, H. Nakada, M. Oshima, Y. Toh, T. Hayakawa, Y. Hatsukawa, M. Sugawara, Y. Utsuno, Z. Liu |
| 2004St05 | PYLBB | 586, | 27 | J. Stadlmann, M. Hausmann, F. Attallah, K. Beckert, P. Beller, F. Bosch, H. Eickhoff, M. Falch, B. Franczak, B. Franzke, H. Geissel, Th. Kerscher, O. Klepper, H.-J. Kluge, C. Kozhuharov, Yu. A. Litvinov, K.E.G. Löbner, M. Matoš, G. Münzenberg, N. Nankov, F. Nolden, Yu. N. Novikov, T. Ohtsubo, T. Radon, H. Schatz, C. Scheidenberger, M. Steck, H. Weick, H. Wollnik |
| 2004St18 | NUPAB | 738, | 43 | S.V. Stepantsov, M.S. Golovkov, A.S. Fomichev, A.M. Rodin, S.I. Sidorchuk, R.S. Slepnev, G.M. Ter-Akopian, M.L. Chelnokov, V.A. Gorshkov, Yu. Ts. Oganessian, R. Wolski, A.A. Korshennikov, E. Yu. Nikolskii, I. Tanihata |
| 2004Th09 | EPJAA | 21, | 419 | J.C. Thomas, L. Achouri, J. Äystö, R. Beraud, B. Blank, G. Canchel, S. Czajkowski, P. Dendooven, A. Ensalle, J. Giovino, N. Guillet, J. Honkanen, A. Jokinen, A. Laird, M. Lewitowicz, C. Longour, F. de Oliveira Santos, K. Peräjärvi, M. Stanoiu |
| 2004Th17 | NATUA | 430, | 58 | J.K. Thompson, S. Rainville, D.E. Pritchard |
| 2004Ti06 | NUPAB | 745, | 155 | D.R. Tilley, J.H. Kelley, J.L. Godwin, D.J. Millener, J.E. Purcell, C.G. Sheu, H.R. Weller |
| 2004To03 | PRVCA | 69, | 014312 | I. Tomandl, J. Novák, V. Burjan, S. Raman, T. von Egidy, H.-F. Wirth, U. Köster, W. Schauer, J.W. Starnier, E.T. Jurney, G. Graw, R. Hertenberg, A. Gollwitzer, B. Valnion, A. Metz |
| 2004Ur04 | EPJAA | 22, | 157 | W. Urban, A. Zolmanec, G. Simpson, J.A. Pinston, J. Kurpeta, T. Rzaca-Urban, J.L. Durell, A.G. Smith, B.J. Varley, N. Schulz, I. Ahmad |
| 2004Va03 | PRVCA | 69, | 024316 | J.J. Valiente-Dobón, P.H. Regan, C. Wheldon, C.Y. Wu, N. Yoshinaga, K. Higashiyama, J.F. Smith, D. Cline, R.S. Chakravarthy, R. Chapman, M. Cromaz, P. Fallon, S.J. Freeman, A. Görgen, W. Gelletly, A. Hayes, H. Hua, S.D. Langdown, I.Y. Lee, X. Liang, A.O. Macchiavelli, C.J. Pearson, Zs. Podolyák, G. Sletten, R. Teng, D. Ward, D.D. Warner, A.D. Yamamoto |
| 2004Va07 | PRLTA | 92, | 112501 | J. Van Roosbroeck, C. Guénaut, G. Audi, D. Beck, K. Blaum, G. Bollen, J. Cederkall, P. Delahaye, A. De Maesschalck, H. De Witte, D. Fedorov, V.N. Fedoseyev, S. Franchou, H.O.U. Fynbo, M. Górski, F. Herfurth, K. Heyde, M. Huyse, A. Kellerbauer, H.-J. Kluge, U. Köster, K. Kruglov, D. Lunney, V.I. Mishin, W.F. Mueller, Sz. Nagy, S. Schwarz, L. Schweikhard, N.A. Smirnova, K. Van de Vel, P. Van Duppen, A. Van Dyck, W.B. Walters, L. Weissman, C. Yazidjian |
| 2004Va14 | PRLTA | 92, | 220802 | R.S. Van Dyck, Jr., S.L. Zafonte, S. Van Liew, D.B. Pinegar, P.B. Schwinber |
| 2004Wa26 | PRVCA | 70, | 034314 | W.B. Walters, B.E. Tomlin, P.F. Mantica, B.A. Brown, J. Rikowska Stone, A.D. Davies, A. Estrade, P.T. Hosmer, N. Hoteling, S.N. Liddick, T.J. Mertzimekis, F. Montes, A.C. Morton, W.F. Mueller, M. Ouellette, E. Pellegrini, P. Santi, D. Seweryniak, H. Schatz, J. Shergur, A. Stolz |
| 2004Wo07 | PRVCA | 69, | 051302 | P.J. Woods, P. Munro, D. Seweryniak, C.N. Davids, T. Davinson, A. Heinz, H. Mahmud, F. Sarazin, J. Shergur, W.B. Walters, A. Woehr |
| 2004Wo16 | NUPAB | 742, | 349 | A. Wöhr, A. Aprahamian, P. Boutachkov, J.L. Galache, J. Gorres, M. Shawcross, A. Teymurazyan, M.C. Wiescher, D.S. Brenner, C.N. Davids, S.M. Fischer, A.M. Heinz, R.V.F. Janssens, D. Seweryniak |
| 2004Xu08 | JUPSA | 73, | 2588 | Y. Xu, W. Yang, S. Yuan, Y. Niu, H. Ding, X. Wang, L. Zhao, P. Wang, H. Li |

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|----------|-------------|------|--------|---|
| 2004Ze05 | EPJAA | 20, | 389 | T. Zerguerras, B. Blank, Y. Blumenfeld, T. Suomijärvi, D. Beaumel, B.A. Brown, M. Chartier, M. Fallot, J. Gio vinazzo, C. Jouanne, V. Lapoux, I. Lhenry-Yvon, W. Mittig, P. Roussel-Chomaz, H. Savajols, J.A. Scarpaci, A. Shrivastava, M. Thoennessen |
| | | | 2005 | |
| 2005Ah03 | PRVCA | 71, | 054305 | I. Ahmad, F.G. Kondev, E.F. Moore, M.P. Carpenter, R.R. Chasman, J.P. Greene, R.V.F. Janssens, T. Lauritsen, C.J. Lister, D. Seweryniak, R.W. Hoff, J.E. Evans, R.W. Loughheed, C.E. Porter, L.K. Felker |
| 2005As05 | PRLTA | 95, | 102502 | M. Asai, K. Tsukada, M. Sakama, S. Ichikawa, T. Ishii, Y. Nagame, I. Nishinaka, K. Akiyama, A. Osa, Y. Oura, K. Sueki, M. Shibata |
| 2005Ba51 | PRVCA | 71, | 054302 | A.M. Baxter, A.P. Byrne, G.D. Dracoulis, P.M. Davidson, T. Kibédi, R.V.F. Janssens, M.P. Carpenter, C.N. Davids, T.L. Khoo, T. Lauritsen |
| 2005Ba64 | PRVCA | 72, | 017301 | A.E. Barzakh, D.V. Fedorov, A.M. Ionan, V.S. Ivanov, F.V. Moroz, K.A. Mezilev, S. Yu. Orlov, V.N. Panteleev, Yu. M. Volkov |
| 2005Bb02 | EPJAA | 25, | s149 | J.C. Batchelder, M. Tantawy, C.R. Bingham, M. Danchev, D.J. Fong, T.N. Ginter, C.J. Gross, R. Grzywacz, K. Hagino, J.H. Hamilton, M. Karny, W. Krolas, C. Mazzocchi, A. Piechaczek, A.V. Ramayya, K.P. Rykaczewski, A. Stolz, J.A. Winger, C.-H. Yu, E.F. Zganjar |
| 2005Bh06 | NUPAB | 750, | 199 | T. Bhattacharjee, S. Chanda, S. Bhattacharyya, S.K. Basu, R.K. Bhowmik, S. Muralithar, R.P. Singh, N.S. Pattabiraman, S.S. Ghugre, U. Datta Pramanik, S. Bhattacharya |
| 2005BI15 | PRLTA | 94, | 232501 | B. Blank, A. Bey, G. Canchel, C. Dossat, A. Fleury, J. Giovinnazzo, I. Matea, N. Adimi, F. de Oliveira, I. Stefan, G. Georgiev, S. Grévy, J.C. Thomas, C. Borcea, D. Cortina, M. Caamano, M. Stanoiu, F. Aksouh, B.A. Brown, F.C. Barker, W.A. Richter |
| 2005Ca02 | EPJAA | 23, | 201 | M. Caamano, P.M. Walker, P.H. Regan, M. Pfutzner, Zs. Podolyák, J. Gerl, M. Hellstrom, P. Mayet, M.N. Mineva, A. Aprahamian, J. Benlliure, A.M. Bruce, P.A. Butler, D. Cortina Gil, D.M. Cullen, J. Doring, T. Enqvist, C. Fox, J. Garces Narro, H. Geissel, W. Gelletly, J. Giovinnazzo, M. Gorska, H. Grawe, R. Grzywacz, A. Kleinbohl, W. Korten, M. Lewitowicz, R. Lucas, H. Mach, C.D. O'Leary, F. de Oliveira, C.J. Pearson, F. Rejmund, M. Rejmund, M. Sawicka, H. Schaffner, C. Schlegel, K. Schmidt, K.-H. Schmidt, P.D. Stevenson, Ch. Theisen, F. Vives, D.D. Warner, C. Wheldon, H.J. Wollersheim, S. Wooding, F. Xu, O. Yordanov |
| 2005Ca03 | NUPAB | 748, | 333 | C.M. Cattadori, M. De Deo, M. Laubenstein, L. Pandola, V.I. Tretyak |
| 2005Ca43 | JPGPE | 31, | s1599 | M.P. Carpenter, F.G. Kondev, R.V.F. Janssens |
| 2005Ca.A | AnRpt ANL, | | 51 | M.P. Carpenter et al |
| 2005Ch65 | PRVCA | 72, | 054309 | A. Chakraborty, Krishichayan, S.S. Ghugre, R. Goswami, S. Mukhopadhyay, N.S. Pattabiraman, S. Ray, A.K. Sinha, S. Sarkar, P.V. Madhusudhana Rao, U. Garg, S.K. Basu, M.B. Chatterjee, M.S. Sarkar, L. Chaturvedi, A. Dhal, R.K. Sinha, I.M. Govil, R.K. Bhowmik, A. Jhingan, N. Madhavan, S. Muralithar, S. Nath, R.P. Singh, P. Sugathan |
| 2005De01 | EPJAA | 23, | 243 | H. De Witte, A.N. Andreyev, S. Dean, S. Franchoo, M. Huyse, O. Ivanov, U. Köster, W. Kurcewicz, J. Kurpeta, A. Płochocki, K. Van de Vel, J. Van de Walle, P. Van Duppen |
| 2005Do20 | PRVCA | 72, | 054315 | C. Dossat, A. Bey, B. Blank, G. Canchel, A. Fleury, J. Giovinnazzo, I. Matea, F. de Oliveira Santos, G. Georgiev, S. Grévy, I. Stefan, J.C. Thomas, N. Adimi, C. Borcea, D. Cortina Gil, M. Caamano, M. Stanoiu, F. Aksouh, B.A. Brown, L.V. Grigorenko |
| 2005Dr05 | PRVCA | 71, | 044326 | G.D. Dracoulis, G.J. Lane, F.G. Kondev, A.P. Byrne, T. Kibédi, H. Watanabe, I. Ahmad, M.P. Carpenter, S.J. Freeman, R.V.F. Janssens, N.J. Hammond, T. Lauritsen, C.J. Lister, G. Mukherjee, D. Seweryniak, P. Chowdhury, S.K. Tandel |
| 2005EI10 | PRVCA | 72, | 054306 | H.M. El-Masri, P.M. Walker, G.D. Dracoulis, T. Kibédi, A.P. Byrne, A.M. Bruce, J.N. Orce, A. Emmanouilidis, D.M. Cullen, C. Wheldon, F.R. Xu |
| 2005Fr.A | IPNO-DRE-NS | | 5 | S. Franchoo, N. Barre, B. Roussiere, J. Sauvage |

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|----------|----------------|------|--------|---|
| 2005Ga01 | EPJAA | 23, | 41 | L. Gaudefroy, O. Sorlin, C. Donzaud, J.C. Angelique, F. Azaiez, C. Bourgeois, V. Chiste, Z. Dlouhy, S. Grevy, D. Guillemaud-Mueller, F. Ibrahim, K.-L. Kratz, M. Lewitowicz, S.M. Lukyanov, I. Matea, J. Mrazek, F. Nowacki, F. de Oliveira Santos, Yu.-E. Penionzhkevich, B. Pfeiffer, F. Pougheon, M.G. Saint-Laurent, M. Stanoiu |
| 2005Ga.B | Th.-Orsay Sept | | | L. Gaudefroy |
| 2005Gi15 | JPGPE | 31, | s1509 | J. Giovinazzo |
| 2005Gr32 | EPJAA | 25, | s145 | R. Grzywacz, M. Karny, K.P. Rykaczewski, J.C. Batchelder, C.R. Bingham, D. Fong, C.J. Gross, W. Krolas, C. Mazzocchi, A. Piechaczek, M.N. Tantawy, J.A. Winger, E.F. Zganjar |
| 2005Gu25 | PRVCA | 72, | 034312 | F.Q. Guo, J. Powell, D.W. Lee, D. Leitner, M.A. McMahan, D.M. Moltz, J.P. O'Neil, K. Perajarvi, L. Phair, C.A. Ramsey, X.J. Xu, J. Cerny |
| 2005Gu27 | JPGPE | 31, | s1765 | C. Guénaut, G. Audi, D. Beck, K. Blaum, G. Bollen, P. Delahaye, F. Herfurth, A. Kellerbauer, H.-J. Kluge, D. Lunney, S. Schwarz, L. Schweikhard, C. Yazidjian |
| 2005Gu37 | EPJAA | 25, | s35 | C. Guénaut, G. Audi, D. Beck, K. Blaum, G. Bollen, P. Delahaye, F. Herfurth, A. Kellerbauer, H.-J. Kluge, D. Lunney, S. Schwarz, L. Schweikhard, C. Yazidjian |
| 2005Ha45 | PRVCA | 72, | 024303 | S. Harissopulos, J. Döring, M. La Commara, K. Schmidt, C. Mazzocchi, R. Borcea, S. Galanopoulos, M. Górska, H. Grawe, M. Hellström, Z. Janas, R. Kirchner, E. Roeckl, I.P. Johnstone, R. Schwengner, L.D. Skouras |
| 2005He26 | EPJAA | 25, | s17 | F. Herfurth, G. Audi, D. Beck, K. Blaum, G. Bollen, P. Delahaye, S. George, C. Guénaut, A. Herlert, A. Kellerbauer, H.-J. Kluge, D. Lunney, M. Mukherjee, S. Rahaman, S. Schwarz, L. Schweikhard, C. Weber, C. Yazidjian |
| 2005He27 | EPJAA | 26, | 233 | F.P. Heßberger, S. Antalic, B. Streicher, S. Hofmann, D. Ackermann, B. Kindler, I. Kojouharov, P. Kuusiniemi, M. Leino, B. Lommel, R. Mann, K. Nishio, S. Saro, B. Sulignano |
| 2005He.A | PrvCom | GAu | Aug | A. Herlert |
| 2005Ho15 | NUPAB | 756, | 249 | J. Honzátko, V. Bondarenko, I. Tomandl, T. von Egidy, H.-F. Wirth, D. Bucurescu, V. Yu. Ponomarev, N. Mărginean, R. Hertenberger, Y. Eisermann, G. Graw, L. Rubáček |
| 2005Hu.A | PrvCom | GAu | Jul | M. Huyse |
| 2005Ic02 | PRVCA | 71, | 067302 | S. Ichikawa, M. Asai, K. Tsukada, H. Haba, Y. Nagame, M. Shibata, M. Sakama, Y. Kojima |
| 2005Ja03 | EPJAA | 23, | 197 | Z. Janas, C. Mazzocchi, L. Batist, A. Blazhev, M. Górska, M. Kavatsyuk, O. Kavatsyuk, R. Kirchner, A. Korgul, M. La Commara, K. Miernik, I. Mukha, A. Plochocki, E. Roeckl, K. Schmid |
| 2005Ja06 | EPJAA | 23, | 401 | Z. Janas, L. Batist, J. Döring, M. Gierlik, R. Kirchner, J. Kurcewicz, H. Mahmud, C. Mazzocchi, A. Plochocki, E. Roeckl, K. Schmidt, P.J. Woods, J. Żylicz |
| 2005Ja10 | EPJAA | 24, | 205 | Z. Janas, L. Batist, R. Borcea, J. Döring, M. Gierlik, M. Karny, R. Kirchner, M. La Commara, S. Mandal, C. Mazzocchi, F. Moroz, S. Orlov, A. Plochocki, E. Roeckl, J. Żylicz |
| 2005Ka34 | EPJAA | 25, | 211 | O. Kavatsyuk, M. Kavatsyuk, L. Batist, A. Banu, F. Becker, A. Blazhev, W. Brühle, J. Döring, T. Faestermann, M. Górska, H. Grawe, Z. Janas, A. Jungclaus, M. Karny, R. Kirchner, M. La Commara, S. Mandal, C. Mazzocchi, I. Mukha, S. Muralithar, C. Plettner, A. Plochocki, E. Roeckl, M. Romoli, M. Schädel, R. Schwengner, J. Żylicz |
| 2005Ka39 | EPJAA | 25, | 355 | A. Kankainen, G.K. Vorobjev, S.A. Eliseev, W. Huang, J. Huikari, A. Jokinen, A. Nieminen, Yu. N. Novikov, H. Penttilä, A.V. Popov, S. Rinta-Antila, H. Schatz, D.M. Seliverstov, Yu. P. Suslov, J. Äystö |
| 2005Kr20 | EPJAA | 25, | s633 | K.-L. Kratz, B. Pfeiffer, O. Arndt, S. Hennrich, A. Wöhr, ISOLDE |
| 2005Ku06 | EPJAA | 23, | 417 | P. Kuusiniemi, F.P. Heßberger, D. Ackermann, S. Hofmann, I. Kojouharov |
| 2005Ku31 | EPJAA | 25, | 397 | P. Kuusiniemi, F.P. Heßberger, D. Ackermann, S. Hofmann, B. Sulignano, I. Kojouharov, R. Mann |
| 2005Ku.A | P-Debrecen | | 73 | T. Kurtukian Nieto, J. Benlliure, K.-H. Schmidt, E. Casarejos, D. Cortina-Gil, M. Fernandez-Ordóñez, J. Pereira, L. Audouin, B. Blank, F. Becker, J. Giovinazzo, D. Henzlova, B. Jurado, F. Rejmund, O. Yordanov |

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| 2005La01 | PYLBB | 606, | 34 | G.J. Lane, K.H. Maier, A.P. Byrne, G.D. Dracoulis, R. Broda, B. Fornal, M.P. Carpenter, R.M. Clark, M. Cromaz, R.V.F. Janssens, A.O. Macchiavelli, I. Wiedenhover, K. Vetter |
| 2005Le34 | PRVCA | 72, | 034305 | F. Le Blanc, L. Cabaret, E. Cottureau, J.E. Crawford, S. Essabaa, J. Genevey, R. Horn, G. Huber, J. Lassen, J.K.P. Lee, G. Le Scornet, J. Lettry, J. Obert, J. Oms, A. Ouchrif, J. Pinard, H. Ravn, B. Roussière, J. Sauvage, D. Verney |
| 2005Le42 | EPJAA | 25, | s183 | A.-P. Leppänen, J. Uusitalo, S. Eeckhaudt, T. Enqvist, K. Eskola, T. Grahn, F.P. Heßberger, P.T. Greenlees, P. Jones, R. Julin, S. Juutinen, H. Kettunen, P. Kuusiniemi, M. Leino, P. Nieminen, J. Pakarinen, J. Perkowski, P. Rakhila, C. Scholey, G. Sletten |
| 2005Li17 | NIMAE | 543, | 591 | Z. Liu, J. Kurcewicz, P.J. Woods, C. Mazzocchi, F. Attallah, E. Badura, C.N. Davids, T. Davinson, J. Döring, H. Geissel, M. Górski, R. Grzywacz, M. Hellström, Z. Janas, M. Karny, A. Korgul, I. Mukha, M. Pfützner, C. Plettner, A. Robinson, E. Roeckl, K. Rykaczewski, K. Schmidt, D. Seweryniak, H. Weick |
| 2005Li24 | NUPAB | 756, | 3 | Yu. A. Litvinov, H. Geissel, T. Radon, F. Attallah, G. Audi, K. Beckert, F. Bosch, M. Falch, B. Franzke, M. Hausmann, M. Hellström, Th. Kerscher, O. Klepper, H.-J. Kluge, C. Kozhuharov, K.E.G. Löbner, G. Münzenberg, F. Nolden, Yu. N. Novikov, W. Quint, Z. Patyk, H. Reich, C. Scheidenberger, B. Schlitt, M. Steck, K. Sümmerner, L. Vermeeren, M. Winkler, Th. Winkler, H. Wollnik |
| 2005Li47 | PRVCA | 72, | 047301 | Z. Liu, P.J. Woods, K. Schmidt, H. Mahmud, P.S.L. Munro, A. Blazhev, J. Döring, H. Grawe, M. Hellstrom, R. Kirchner, Z.K. Li, C. Mazzocchi, I. Mukha, C. Plettner, E. Roeckl, M. La Commara |
| 2005Li53 | PRVCA | 72, | 054321 | S.N. Liddick, P.F. Mantica, R. Broda, B.A. Brown, M.P. Carpenter, A.D. Davies, B. Fornal, M. Horoi, R.V.F. Janssens, A.C. Morton, W.F. Mueller, J. Pavan, H. Schatz, A. Stolz, S.L. Tabor, B.E. Tomlin, M. Wiedeking |
| 2005Li60 | PRVCA | 72, | 064327 | Z.H. Li, Y.L. Ye, H. Hua, D.X. Jiang, Y.M. Zhang, F.R. Xu, Q.Y. Hu, G.L. Zhang, Z.Q. Chen, T. Zheng, C.E. Wu, J.L. Lou, X.Q. Li, D.Y. Pang, S. Wang, C. Li, H.S. Xu, Z.Y. Sun, L.M. Duan, Z.G. Hu, R.J. Hu, H.G. Xu, R.S. Mao, Y. Wang, X.H. Yuan, H. Gao, L.J. Wu, H.R. Qi, T.H. Huang, F. Fu, F. Jia, Q. Gao, X.L. Ding, J.L. Han, X.Y. Zhang |
| 2005Ma59 | PYLBB | 622, | 45 | C. Mazzocchi, R. Grzywacz, J.C. Batchelder, C.R. Bingham, D. Fong, J.H. Hamilton, J.K. Hwang, M. Karny, W. Krolas, S.N. Liddick, A.F. Lisetskiy, A.C. Morton, P.F. Mantica, W.F. Mueller, K.P. Rykaczewski, M. Steiner, A. Stolz, J.A. Winger |
| 2005Ma95 | EPJAA | 25, | s93 | C. Mazzocchi, R. Grzywacz, J.C. Batchelder, C.R. Bingham, D. Fong, J.H. Hamilton, J.K. Hwang, M. Karny, W. Krolas, S.N. Liddick, A.C. Morton, P.F. Mantica, W.F. Mueller, K.P. Rykaczewski, M. Steiner, A. Stolz, J.A. Winger |
| 2005Ma.A | PrvCom | GAu | Oct | M. Martin |
| 2005Mu15 | PRLTA | 95, | 022501 | I. Mukha, E. Roeckl, J. Döring, L. Batist, A. Blazhev, H. Grawe, C.R. Hoffman, M. Huyse, Z. Janas, R. Kirchner, M. La Commara, C. Mazzocchi, C. Plettner, S.L. Tabor, P. Van Duppen, M. Wiedeking |
| 2005Og02 | PRVCA | 72, | 034611 | Yu. Ts. Oganessian, V.K. Utyonkov, S.N. Dmitriev, Yu. V. Lobanov, M.G. Itkis, A.N. Polyakov, Yu. S. Tsyganov, A.N. Mezentshev, A.V. Yerein, A.A. Voinov, E.A. Sokol, G.G. Gulbekian, S.L. Bogomolov, S. Iliev, V.G. Subbotin, A.M. Sukhov, G.V. Buklanov, S.V. Shishkin, V.I. Chepygin, G.K. Vostokin, N.V. Aksenov, M. Hussonnois, K. Subotic, V.I. Zagrebaev, K.J. Moody, J.B. Patin, J.F. Wild, M.A. Stoyer, N.J. Stoyer, D.A. Shaughnessy, J.M. Kenneally, P.A. Wilk, R.W. Lougheed, H.W. Gäggeler, D. Schumann, H. Bruchertseifer, R. Eichler |
| 2005Oh08 | PRLTA | 95, | 052501 | T. Ohtsubo, F. Bosch, H. Geissel, L. Maier, C. Scheidenberger, F. Attallah, K. Beckert, P. Beller, D. Boutin, T. Faestermann, B. Franczak, B. Franzke, M. Hausmann, M. Hellstrom, E. Kaza, P. Kienle, O. Klepper, H.-J. Kluge, C. Kozhuharov, Yu. A. Litvinov, M. Matos, G. Munzenberg, F. Nolden, Yu. N. Novikov, M. Portillo, T. Radon, J. Stadlmann, M. Steck, T. Stohlker, K. Summerer, K. Takahashi, H. Weick, M. Winkler, T. Yamaguchi |
| 2005Pa31 | PRVCA | 71, | 055804 | A. Parikh, J.A. Caggiano, C. Deibel, J.P. Greene, R. Lewis, P.D. Parker, C. Wrede |
| 2005Pi13 | PRVCA | 71, | 064327 | J.A. Pinston, J. Genevey, R. Orlandi, A. Scherillo, G.S. Simpson, I. Tsekhanovich, W. Urban, H. Faust, N. Warr |

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| 2005Po03 | EPJAA | 24, | 39 | M.-G. Porquet, Ts. Venkova, R. Lucas, A. Astier, A. Bauchet, I. Deloncle, A. Prevost, F. Azaiez, G. Barreau, A. Bogachev, N. Buforn, A. Buta, D. Curien, T.P. Doan, L. Donadille, O. Dorvaux, G. Duchene, J. Durell, Th. Ethvignot, B.P.J. Gall, D. Grimwood, M. Houry, F. Khalfallah, W. Kortten, S. Lalkovski, Y. Le Coz, M. Meyer, A. Minkova, I. Piqueras, N. Redon, A. Roach, M. Rousseau, N. Schulz, A.G. Smith, O. Stezowski, Ch. Theisen, B.J. Varley |
| 2005Ra34 | NATUA | 438, | 1096 | S. Rainville, J.K. Thompson, E.G. Myers, J.M. Brown, M.S. Dewey, E.G. Kessler, Jr., R.D. Deslattes, H.G. Börner, M. Jentschel, P. Mutti, D.E. Pritchard |
| 2005Re02 | PRVCA | 71, | 014302 | J.J. Ressler, C.W. Beausang, H. Ai, H. Amro, M. Babilon, J.A. Caggiano, R.F. Casten, G. Gurdal, A. Heinz, R.O. Hughes, E.A. McCutchan, D.A. Meyer, C. Plettner, J. Qian, M.J.S. Sciacchitano, N.J. Thomas, E. Williams, N.V. Zamfir |
| 2005Ri17 | JPHGB | 31, | s1949 | S. Rigby, D.M. Cullen, D.T. Scholes, C. Scholey, P. Rahkila, S. Eeckhaudt, T. Grahn, P. Greenlees, P.M. Jones, R. Julin, S. Juutinen, H. Kettunen, M. Leino, A. Leppänen, P. Nieminen, M. Nyman, J. Pakarinen, J. Uusitalo |
| 2005Ro19 | PRLTA | 95, | 032502 | A.P. Robinson, P.J. Woods, D. Seweryniak, C.N. Davids, M.P. Carpenter, A.A. Hecht, D. Peterson, S. Sinha, W.B. Walters, S. Zhu |
| 2005Ro40 | EPJAA | 25, | s155 | A.P. Robinson, C.N. Davids, D. Seweryniak, P.J. Woods, B. Blank, M.P. Carpenter, T. Davinson, S.J. Freeman, N. Hammond, N. Hoteling, R.V.F. Janssens, T.L. Khoo, Z. Liu, G. Mukherjee, C. Scholey, J. Shergur, S. Sinha, A.A. Sonzogni, W.B. Walters, A. Woehr |
| 2005Sa44 | PRLTA | 95, | 102501 | G. Savard, F. Buchinger, J.A. Clark, J.E. Crawford, S. Gulick, J.C. Hardy, A.A. Hecht, J.K.P. Lee, A.F. Levand, N.D. Scielzo, H. Sharma, K.S. Sharma, I. Tanihata, A.C.C. Villari, Y. Wang |
| 2005Sc22 | JPGPE | 31, | s1719 | C. Scholey, M. Sandzelius, S. Eeckhaudt, T. Grahn, P.T. Greenlees, P. Jones, R. Julin, S. Juutinen, M. Leino, A.-P. Leppanen, P. Nieminen, M. Nyman, J. Perkowski, J. Pakarinen, P. Rahkila, P.M. Rahkila, J. Uusitalo, K. Van de Vel, B. Cederwall, B. Hadinia, K. Lagergren, D.T. Joss, D.E. Appelbe, C.J. Barton, J. Simpson, D.D. Warner, I.G. Darby, R.D. Page, E.S. Paul, D. Wiseman |
| 2005Sh24 | PRVCA | 71, | 064323 | J. Shergur, D.J. Dean, D. Seweryniak, W.B. Walters, A. Wöhr, P. Boutachkov, C.N. Davids, I. Dillmann, A. Juodagalvis, G. Mukherjee, S. Sinha, A. Teymurazyan, I. Zartova |
| 2005Sh38 | PRVAA | 72, | 022510 | W. Shi, M. Redshaw, E.G. Myers, and PrvCom GAU February 2006 |
| 2005Sh52 | EPJAA | 25, | s45 | K.S. Sharma, J. Vaz, R.C. Barber, F. Buchinger, J.A. Clark, J.E. Crawford, H. Fukutani, J.P. Greene, S. Gulick, A. Heinz, J.K.P. Lee, G. Savard, Z. Zhou, J.C. Wang |
| 2005Si34 | NUPAB | 763, | 45 | G. Sikler, G. Audi, D. Beck, K. Blaum, G. Bollen, F. Herfurth, A. Kellerbauer, H.-J. Kluge, D. Lunney, M. Oinonen, C. Scheidenberger, S. Schwarz, J. Szerypo, C. Weber, and erratum NUPAB 768(2006)160 |
| 2005Th03 | PRVCA | 71, | 021302 | J.S. Thomas, D.W. Bardayan, J.C. Blackmon, J.A. Cizewski, U. Greife, C.J. Gross, M.S. Johnson, K.L. Jones, R.L. Kozub, J.F. Liang, R.J. Livesay, Z. Ma, B.H. Moazen, C.D. Nesaraja, D. Shapira, M.S. Smith |
| 2005Th.A | P-Cadarache | | 131 | J.-C. Thomas, et al |
| 2005Tr13 | EPJAA | 25, | s101 | V. Tripathi, S.L. Tabor, P.F. Mantica, C.R. Hoffman, M. Wiedeking, A.D. Davies, S.N. Liddick, W.F. Mueller, A. Stolz, B.E. Tomlin, A. Volya |
| 2005Uu02 | PRVCA | 71, | 024306 | J. Uusitalo, M. Leino, T. Enqvist, K. Eskola, T. Grahn, P.T. Greenlees, P. Jones, R. Julin, S. Juutinen, A. Keenan, H. Kettunen, H. Koivisto, P. Kuusiniemi, A.-P. Leppänen, P. Nieminen, J. Pakarinen, P. Rahkila, C. Scholey |
| 2005Va04 | EPJAA | 24, | 57 | K. Van de Vel, A.N. Andreyev, D. Ackermann, H.J. Boardman, P. Cagarda, J. Gerl, F.P. Heßberger, S. Hofmann, M. Huyse, D. Karlgrén, I. Kojouharov, M. Leino, B. Lommel, G. Münzenberg, C. Moore, R.D. Page, S. Saro, P. Van Duppen, R. Wyss |
| 2005Va19 | PRVCA | 71, | 054307 | J. Van Roosbroeck, H. De Witte, M. Gorska, M. Huyse, K. Kruglov, D. Pauwels, J.-Ch. Thomas, K. Van de Vel, P. Van Duppen, S. Franchoo, J. Cederkall, V.N. Fedoseyev, H. Fynbo, U. Georg, O. Jonsson, U. Koster, L. Weissman, W.F. Mueller, V.I. Mishin, D. Fedorov, A. De Maesschalck, N.A. Smirnova, K. Heyde |

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| 2005We11 | PYLAA | 347, | 81 | C. Weber, G. Audi, D. Beck, K. Blaum, G. Bollen, F. Herfurth, A. Kellerbauer, H.-J. Kluge, D. Lunney, S. Schwarz |
| 2005Xu04 | PRVCA | 71, | 054318 | S.W. Xu, Z.K. Li, Y.X. Xie, Q.Y. Pan, W.X. Huang, X.D. Wang, Y. Yu, Y.B. Xing, N.C. Shu, Y.S. Chen, F.R. Xu, K. Wang |
| | | | 2006 | |
| 2006Ac04 | EPJAA | 27, | 287 | N.L. Achouri, F. de Oliveira Santos, M. Lewitowicz, B. Blank, J. Aystö, G. Canchel, S. Czajkowski, P. Dendooven, A. Emsallem, J. Giovinazzo, N. Guillet, A. Jokinen, A.M. Laird, C. Longour, K. Peräjärvi, N. Smirnova, M. Stanoiu, J.-C. Thomas |
| 2006An04 | PRVCA | 73, | 024317 | A.N. Andreyev, S. Antalic, D. Ackermann, S. Franchoo, F.P. Heßberger, S. Hofmann, M. Huyse, I. Kojouharov, B. Kindler, P. Kuusiniemi, S.R. Leshner, B. Lommel, R. Mann, G. Münzenberg, K. Nishio, R.D. Page, J.J. Ressler, B. Streicher, S. Saro, B. Sulignano, P. Van Duppen, D.R. Wiseman |
| 2006An11 | PRVCA | 73, | 044324 | A.N. Andreyev, S. Antalic, D. Ackermann, S. Franchoo, F.P. Heßberger, S. Hofmann, M. Huyse, I. Kojouharov, B. Kindler, P. Kuusiniemi, S.R. Leshner, B. Lommel, R. Mann, G. Münzenberg, K. Nishio, R.D. Page, J.J. Ressler, B. Streicher, S. Saro, B. Sulignano, P. Van Duppen, D. Wiseman, R. Wyss |
| 2006An36 | PRVCA | 74, | 064303 | A.N. Andreyev, S. Antalic, M. Huyse, P. Van Duppen, D. Ackermann, L. Bianco, D.M. Cullen, I.G. Darby, S. Franchoo, S. Heinz, F.P. Heßberger, S. Hofmann, I. Kojouharov, B. Kindler, A.-P. Leppänen, B. Lommel, R. Mann, G. Münzenberg, J. Pakarinen, R.D. Page, J.J. Ressler, S. Saro, B. Streicher, B. Sulignano, J. Thomson, R. Wyss |
| 2006As03 | PRVCA | 73, | 067301 | M. Asai, K. Tsukada, S. Ichikawa, M. Sakama, H. Haba, I. Nishinaka, Y. Nagame, S. Goto, Y. Kojima, Y. Oura, M. Shibata |
| 2006Ba09 | PRVCA | 73, | 024308 | J.E. Bastin, R.-D. Herzberg, P.A. Butler, G.D. Jones, R.D. Page, D.G. Jenkins, N. Amzal, P.M.T. Brew, N.J. Hammond, R.D. Humphreys, P.J.C. Ikin, T. Page, P.T. Greenlees, P.M. Jones, R. Julin, S. Juutinen, H. Kankaanpää, A. Keenan, H. Kettunen, P. Kuusiniemi, M. Leino, A.P. Leppänen, M. Muikku, P. Nieminen, P. Rahkila, C. Scholey, J. Uusitalo, E. Bouchez, A. Chatillon, A. Hürstel, W. Korten, Y. Le Coz, Ch. Theisen, D. Ackermann, J. Gerl, K. Helariutta, F.P. Heßberger, Ch. Schlegel, H.J. Wollersheim, M. Lach, A. Maj, W. Meczynski, J. Styczen, T.L. Khoo, C.J. Lister, A.V. Afanasjev, H.J. Maier, P. Reiter, P. Bednarczyk, K. Eskola, C.J. Hauschild |
| 2006Ba55 | EPJAA | 29, | 175 | L. Batist, A. Blazhev, J. Doring, H. Grawe, M. Kavatsyuk, O. Kavatsyuk, R. Kirchner, M. La Commara, C. Mazzocchi, I. Mukha, C. Plettner, E. Roeckl, M. Romoli |
| 2006Be33 | PRVCA | 74, | 024603 | T. Belgia |
| 2006Bo11 | PRLTA | 96, | 152501 | G. Bollen, D. Davies, M. Facina, J. Huikari, E. Kwan, P.A. Lofy, D.J. Morrissey, A. Prinke, R. Ringle, J. Savory, P. Schury, S. Schwarz, C. Sumithrarachchi, T. Sun, L. Weissman |
| 2006Bo33 | PHSTT | 125, | 180 | M.J.T. Borge, R. Boutami, L.M. Fraile, K. Gulda, W. Kurcewicz, H. Mach, T. Martinez, B. Rubio, O. Tengblad |
| 2006Bu12 | PRVCA | 74, | 025501 | J.T. Burke, P.A. Vetter, S.J. Freedman, B.K. Fujikawa, W.T. Winter |
| 2006Ca05 | PRVCA | 73, | 014319 | E. Casarejos, C. Angulo, P.J. Woods, F.C. Barker, P. Descouvemont, M. Aliotta, T. Davinson, P. Demaret, M. Gaelels, P. Leleux, Z. Liu, M. Loiselet, A.S. Murphy, A. Ninane, I.A. Roberts, G. Ryckewaert, J.S. Schweitzer, F. Vanderbist |
| 2006Ch10 | PRVCA | 73, | 024306 | R.S. Chakravarthy, P.M. Walker, J.J. Ressler, E.F. Zganjar, G.C. Ball, M.B. Smith, A.N. Andreyev, S.F. Ashley, R.A.E. Austin, D. Bandyopadhyay, J.A. Becker, J.J. Carroll, D.S. Cross, D. Gohlke, J.J. Daoud, P.E. Garrett, G.F. Grinyer, G. Hackman, G.A. Jones, R. Kanungo, W.D. Kulp, Y. Litvinov, A.C. Morton, W.J. Mills, C.J. Pearson, R. Propri, C.E. Svensson, R. Wheeler, S.J. Williams |

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| 2006Ch52 | EPJAA | 30, | 397 | A. Chatillon, Ch. Theisen, P.T. Greenlees, G. Auger, J.E. Bastin, E. Bouchez, B. Bouriquet, J.M. Casandjian, R. Cee, E. Clément, R. Dayras, G. de France, R. de Turreil, S. Eeckhaudt, A. Görgen, T. Grahn, S. Grévy, K. Hauschild, R.-D. Herzberg, P.J.C. Ikin, G.D. Jones, P. Jones, R. Julin, S. Juutinen, H. Kettunen, A. Korichi, W. Korten, Y. Le Coz, M. Leino, A. Lopez-Martens, S.M. Lukyanov, Yu. E. Penionzhkevich, J. Perkowski, A. Pritchard, P. Rahkila, M. Rejmund, J. Saren, C. Scholey, S. Siem, M.G. Saint-Laurent, C. Simenel, Yu. G. Sobolev, Ch. Stodel, J. Uusitalo, A. Villari, M. Bender, P. Bonche, P.-H. Heenen |
| 2006De21 | PRVCA | 73, | 044303 | M.S. Dewey, E.G. Kessler Jr., R.D. Deslattes, H.G. Börner, M. Jentschel, C. Doll, P. Mutti |
| 2006De36 | PRVCA | 74, | 034331 | P. Delahaye, G. Audi, K. Blaum, F. Carrel, S. George, F. Herfurth, A. Herlert, A. Kellerbauer, H.-J. Kluge, D. Lunney, L. Schweikhard, C. Yazidjian |
| 2006Dr04 | PYLBB | 635, | 200 | G.D. Dracoulis, G.J. Lane, F.G. Kondev, A.P. Byrne, R.O. Hughes, P. Niemi-nen, H. Watanabe, M.P. Carpenter, R.V.F. Janssens, T. Lauritsen, D. Seweryniak, S. Zhu, P. Chowdhury, F.R. Xu |
| 2006Dv01 | PRLTA | 97, | 242501 | J. Dvorak, W. Brühle, M. Chelnokov, R. Dressler, Ch. E. Düllmann, K. Eberhardt, V. Gorshkov, E. Jäger, R. Krücken, A. Kuznetsov, Y. Nagame, F. Nebel, Z. Novackova, Z. Qin, M. Schädel, B. Schausten, E. Schimpf, A. Semchenkov, P. Thörle, A. Türler, M. Wegrzecki, B. Wierczinski, A. Yakushev, A. Yere-min |
| 2006Er03 | PYLBB | 636, | 191 | T. Eronen, V. Elomaa, U. Hager, J. Hakala, A. Jokinen, A. Kankainen, I. Moore, H. Penttilä, S. Rahaman, S. Rinta-Antila, A. Saastamoinen, T. Sonoda, J. Äystö, A. Bey, B. Blank, G. Cachel, C. Dossat, J. Giovannazzo, I. Matea, N. Adimi |
| 2006Er08 | PRLTA | 97, | 232501 | T. Eronen, V. Elomaa, U. Hager, J. Hakala, A. Jokinen, A. Kankainen, I. Moore, H. Penttilä, S. Rahaman, J. Rissanen, A. Saastamoinen, T. Sonoda, J. Äystö, J.C. Hardy, V.S. Kolhinen |
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| 2006Fo02 | PRVCA | 73, | 014611 | C.M. Folden III, S.L. Nelson, Ch. E. Düllmann, J.M. Schwantes, R. Sudowe, P.M. Zielinski, K.E. Gregorich, H. Nitsche, D.C. Hoffman |
| 2006Ga04 | NUPAB | 766, | 52 | C. Gaulard, G. Audi, C. Bachelet, D. Lunney, M. de Saint Simon, C. Thibault, N. Vieira |
| 2006Ga28 | PRLTA | 97, | 092501 | L. Gaudefroy, O. Sorlin, D. Beaumel, Y. Blumenfeld, Z. Dombrádi, S. Fortier, S. Franchoo, M. Gélin, J. Gibelin, S. Grévy, F. Hammache, F. Ibrahim, K.W. Kemper, K.-L. Kratz, S.M. Lukyanov, C. Monrozeau, L. Nalpas, F. Nowacki, A.N. Ostrowski, T. Otsuka, Yu.-E. Penionzhkevich, J. Piekarewicz, E.C. Pollacco, P. Roussel-Chomaz, E. Rich, J.A. Scarpaci, M.G. Saint-Laurent, D. Sohler, M. Stanoiu, T. Suzuki, E. Tryggestad, D. Verney |
| 2006Ge05 | PRVCA | 73, | 037308 | J. Genevey, R. Guglielmini, R. Orlandi, J.A. Pinston, A. Scherillo, G. Simpson, I. Tsekhanovich, N. Warr, J. Jolie |
| 2006Gr24 | PRVCA | 74, | 044611 | K.E. Gregorich, J.M. Gates, Ch. E. Düllmann, R. Sudowe, S.L. Nelson, M.A. Garcia, I. Dragojević, C.M. Folden III, S.H. Neumann, D.C. Hoffman, H. Nitsche |
| 2006Ha03 | PRLTA | 96, | 042504 | U. Hager, T. Eronen, J. Hakala, A. Jokinen, V.S. Kolhinen, S. Kopecky, I. Moore, A. Nieminen, M. Oinonen, S. Rinta-Antila, J. Szerypo, J. Äystö |
| 2006Ha17 | NIMAE | 560, | 388 | K. Hauschild, A.V. Yere-min, O. Dorvaux, A. Lopez-Martens, A.V. Beloze-rov, Ch. Briançon, M.L. Chelnokov, V.I. Chepigin, S.A. Garcia-Santamaria, V.A. Gorshkov, F. Hanappe, A.P. Kabachenko, A. Korichi, O.N. Malyshev, Yu. Ts. Oganessian, A.G. Popeko, N. Rowley, A.V. Shutov, L. Stuttgē, A.I. Svirikhin |
| 2006Ha62 | IJMPD | 251, | 119 | P.A. Hausladen, J.R. Beene, A. Galindo-Uribarri, Y. Larochele, J.F. Liang, P.E. Mueller, D. Shapira, D.W. Stracener, J. Thomas, R.L. Varner, H. Wollnik |
| 2006He19 | NATUA | 442, | 896 | R.D. Herzberg, P.T. Greenlees, P.A. Butler, G.D. Jones, M. Venhart, I.G. Darby, S. Eeckhaudt, K. Eskola, T. Grahn, C. Gray-Jones, F.P. Heßberger, P. Jones, R. Julin, S. Juutinen, S. Ketelhut, W. Korten, M. Leino, A.-P. Leppänen, S. Moon, M. Nyman, R.D. Page, J. Pakarinen, A. Pritchard, P. Rahkila, J. Sarén, C. Scholey, A. Steer, Y. Sun, Ch. Theisen, J. Uusitalo |

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| 2006He20 | EPJAA | 29, | 165 | F.P. Heßberger, S. Hofmann, D. Ackermann, S. Antalic, B. Kindler, I. Kojouharov, P. Kuusiniemi, M. Leino, B. Lommel, R. Mann, K. Nishio, A.G. Popeko, B. Sulignano, S. Saro, B. Streicher, M. Venhart, A.V. Yeremin |
| 2006He27 | EPJAA | 30, | 561 | F.P. Heßberger, S. Hofmann, D. Ackermann, S. Antalic, B. Kindler, I. Kojouharov, P. Kuusiniemi, M. Leino, B. Lommel, R. Mann, K. Nishio, A.G. Popeko, B. Sulignano, S. Saro, B. Streicher, M. Venhart, A.V. Yeremin |
| 2006He29 | IJMPD | 251, | 131 | A. Herlert, S. Baruah, K. Blaum, P. Delahaye, M. Dworschak, S. George, C. Guenaut, U. Hager, F. Herfurth, A. Kellerbauer, M. Marie-Jeanne, S. Schwarz, L. Schweikhard, C. Yazidjian |
| 2006Hi18 | PYLBB | 643, | 257 | P. Himpe, G. Neyens, D.L. Balabanski, G. Belier, D. Borremans, J.M. Daugas, F. de Oliveira Santos, M. De Rydt, K. Flanagan, G. Georgiev, M. Kowalska, S. Mallion, I. Matea, P. Morel, Yu. E. Penionzhkevich, N.A. Smirnova, C. Stodel, K. Turzó, N. Vermeulen, D. Yordanov |
| 2006Hw01 | PRVCA | 73, | 044316 | J.K. Hwang, A.V. Ramayya, J.H. Hamilton, Y.X. Luo, A.V. Daniel, G.M. Ter-Akopian, J.D. Cole, S.J. Zhu |
| 2006Jo10 | PYLBB | 641, | 34 | D.T. Joss, I.G. Darby, R.D. Page, J. Uusitalo, S. Eeckhaudt, T. Grahm, P.T. Greenlees, P.M. Jones, R. Julin, S. Juutinen, S. Ketelhut, M. Leino, A.-P. Leppänen, M. Nyman, J. Pakarinen, P. Rahkila, J. Sarén, C. Scholey, A. Steer, A.J. Cannon, P.D. Stevenson, J.S. Al-Khalili, S. Ertürk, M. Venhart, B. Gall, B. Hadinia, J. Simpson |
| 2006Ka48 | EPJAA | 29, | 271 | A. Kankainen, L. Batist, S.A. Eliseev, V.-V. Elomaa, T. Eronen, U. Hager, J. Hakala, A. Jokinen, I. Moore, Yu. N. Novikov, H. Penttilä, K. Peräjärvi, A.V. Popov, S. Rahaman, S. Rinta-Antila, P. Ronkanen, A. Saastamoinen, D.M. Seliverstov, T. Sonoda, G.K. Vorobjev, J. Äystö |
| 2006Ka74 | IJMPD | 251, | 138 | M. Kavatsyuk, L. Batist, M. Karny, E. Roeckl |
| 2006Ko25 | NIMAE | 564, | 275 | Y. Kojima, M. Shibata, A. Taniguchi, Y. Kawase, R. Doi, A. Nagao, K. Shizuma |
| 2006Ku26 | EPJAA | 30, | 551 | P. Kuusiniemi, F.P. Heßberger, D. Ackermann, S. Antalic, S. Hofmann, K. Nishio, B. Sulignano, I. Kojouharov, R. Mann |
| 2006La16 | PRVCA | 74, | 024316 | K. Lagergren, D.T. Joss, R. Wyss, B. Cederwall, C.J. Barton, S. Eeckhaudt, T. Grahm, P.T. Greenlees, B. Hadinia, P.M. Jones, R. Julin, S. Juutinen, D. Karlgren, H. Kettunen, M. Leino, A.-P. Leppänen, P. Nieminen, M. Nyman, R.D. Page, J. Pakarinen, E.S. Paul, P. Rahkila, C. Scholey, J. Simpson, J. Uusitalo, D.R. Wiseman |
| 2006Li41 | PRLTA | 97, | 082501 | S.N. Liddick, R. Grzywacz, C. Mazzocchi, R.D. Page, K.P. Rykaczewski, J.C. Batchelder, C.R. Bingham, I.G. Darby, G. Drafta, C. Goodin, C.J. Gross, J.H. Hamilton, A.A. Hecht, J.K. Hwang, S. Ilyushkin, D.T. Joss, A. Korgul, W. Królas, K. Lagergren, K. Li, M.N. Tantawy, J. Thomson, J.A. Winger |
| 2006Lo12 | PRVCA | 74, | 044303 | A. Lopez-Martens, K. Hauschild, A.V. Yeremin, A.V. Belozarov, Ch. Briançon, M.L. Chelnokov, V.I. Chepigin, D. Curien, O. Dorvaux, B. Gall, V.A. Gorskikh, M. Guttormsen, F. Hanappe, A.P. Kabachenko, F. Khalfallah, A. Korichi, A.C. Larsen, O.N. Malyshev, A. Minkova, Yu. Ts. Oganessian, A.G. Popeko, M. Rousseau, N. Rowley, R.N. Sagaidak, S. Sharov, A.V. Shutov, S. Siem, A.I. Svirikhin, N.U.H. Syed, Ch. Theisen |
| 2006Lu03 | ARISE | 64, | 588 | J. Luo, X. Kong |
| 2006Lu19 | IJMPD | 251, | 286 | D. Lunney, N. Vieira, G. Audi, C. Gaulard, M. de Saint Simon, C. Thibault |
| 2006Ma.A | PrvCom | GAu | Jul | M. Martin |
| 2006Me03 | PRVCA | 73, | 024307 | D.A. Meyer, C.W. Beausang, J.J. Ressler, H. Ai, H. Amro, M. Babilon, R.F. Casten, C.R. Fitzpatrick, G. Gurdal, A. Heinz, E.A. McCutchan, C. Plettner, J. Qian, N.J. Thomas, V. Werner, E. Williams, N.V. Zamfir, J. Zhang |
| 2006Me04 | PRVCA | 73, | 024318 | T.J. Mertzimekis, P.F. Mantica, A.D. Davies, S.N. Liddick, B.E. Tomlin |
| 2006Mo07 | PRVCA | 73, | 035801 | F. Montes, A. Estrade, P.T. Hosmer, S.N. Liddick, P.F. Mantica, A.C. Morton, W.F. Mueller, M. Ouellette, E. Pellegrini, P. Santi, H. Schatz, A. Stolz, B.E. Tomlin, O. Arndt, K.-L. Kratz, B. Pfeiffer, P. Reeder, W.B. Walters, A. Aprahamian, A. Wohr |
| 2006Mu03 | NATUA | 439, | 298 | I. Mukha, E. Roeckl, L. Batist, A. Blazhev, J. Döring, H. Grawe, L. Grigorenko, M. Huyse, Z. Janas, R. Kirchner, M. La Commara, C. Mazzocchi, S.L. Tabor, P. Van Duppen |
| 2006Na13 | PRLTA | 96, | 163004 | Sz. Nagy, T. Fritioff, M. Suhonen, R. Schuch, K. Blaum, M. Björkhage, I. Bergström also arXiv:1209.5281v1 24 Sep 2012 |

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| 2006Na18 | EPJDD | 39, | 1 | Sz. Nagy, T. Fritioff, A. Solders, R. Schuch, M. Björkhage, I. Bergström |
| 2006Na49 | EULEE | 74, | 404 | Sz. Nagy, T. Fritioff, M. Björkhage, I. Bergström, R. Schuch |
| 2006Og05 | PRVCA | 74, | 044602 | Yu. Ts. Oganessian, V.K. Utyonkov, Yu. V. Lobanov, F. Sh. Abdullin, A.N. Polyakov, R.N. Sagaidak, I.V. Shirokovsky, Yu. S. Tsyganov, A.A. Voinov, G.G. Gulbekian, S.L. Bogomolov, B.N. Gikal, A.N. Mezentssev, S. Iliev, V.G. Subbotin, A.M. Sukhov, K. Subotic, V.I. Zagrebaev, G.K. Vostokin, M.G. Itkis, K.J. Moody, J.B. Patin, D.A. Shaughnessy, M.A. Stoyer, N.J. Stoyer, P.A. Wilk, J.M. Kenneally, J.H. Landrum, J.F. Wild, R.W. Loughheed |
| 2006PaDG | JPGPE | 33, | 1 | Particle Data Group |
| 2006Pe16 | PRVCA | 74, | 014313 | F. Perrot, F. Maréchal, C. Jollet, Ph. Dessagne, J.-C. Angélique, G. Ban, P. Baumann, F. Benrachi, U. Bergmann, C. Borcea, A. Buta, J. Cederkall, S. Courtin, J.-M. Daugas, L.M. Fraile, S. Grévy, A. Jokinen, F.R. Lecolley, E. Liénard, G. Le Scornet, V. Méot, Ch. Miehé, F. Negoita, N.A. Orr, S. Pietri, E. Poirier, M. Ramdhane, O. Roig, I. Stefan, W. Wang |
| 2006Pe17 | PRVCA | 74, | 014316 | D. Peterson, B.B. Back, R.V.F. Janssens, T.L. Khoo, C.J. Lister, D. Seweryniak, I. Ahmad, M.P. Carpenter, C.N. Davids, A.A. Hecht, C.L. Jiang, T. Lauritsen, X. Wang, S. Zhu, F.G. Kondev, A. Heinz, J. Qian, R. Winkler, P. Chowdhury, S.K. Tandel, U.S. Tandel |
| 2006Ph01 | PRVCA | 74, | 027302 | A.A. Phillips, C. Andreoiu, G.C. Ball, D. Bandyopadhyay, J.A. Behr, T.E. Chupp, P. Finlay, P.E. Garrett, G.F. Grinyer, G. Hackman, M.E. Hayden, B. Hyland, S.R. Nuss-Warren, M.R. Pearson, M.A. Schumaker, M.B. Smith, C.E. Svensson, E.R. Tardiff, J.J. Valiente-Dobón, T. Warner |
| 2006Qi03 | YWPIF | 23, | 400 | Z. Qin, X.L. Wu, H.J. Ding, W. Wu, W.X. Huang, X.G. Lei, Y.B. Xu, X.H. Yuan, B. Guo, W.F. Yang, Z.G. Gan, H.M. Fan, J.S. Guo, H.S. Xu, G.Q. Xiao |
| 2006Re19 | IJMPD | 251, | 125 | M. Redshaw, J. McDaniel, W. Shi, E.G. Myers, and PrvCom GAu February 2006 |
| 2006Ri15 | IJMPD | 251, | 300 | R. Ringle, P. Schury, T. Sun, G. Bollen, D. Davies, J. Huikari, E. Kwan, D.J. Morrissey, A. Prinke, J. Savory, S. Schwarz, C. Sumithrarachchi |
| 2006Ro11 | NUPAB | 769, | 1 | D. Rodríguez, G. Audi, J. Äystö, D. Beck, K. Blaum, G. Bollen, F. Herfurth, A. Jokinen, A. Kellerbauer, H.-J. Kluge, V.S. Kolhinen, M. Oinonen, E. Sauvan, S. Schwarz |
| 2006Sa56 | IJMPD | 251, | 252 | G. Savard, J.C. Wang, K.S. Sharma, H. Sharma, J.A. Clark, C. Boudreau, F. Buchinger, J.E. Crawford, J.P. Greene, S. Gulick, A.A. Hecht, J.K.P. Lee, A.F. Levand, N.D. Scielzo, W. Trimble, J. Vaz, B.J. Zabransky |
| 2006Se08 | PRVCA | 73, | 061301 | D. Seweryniak, K. Starosta, C.N. Davids, S. Gros, A.A. Hecht, N. Hoteling, T.L. Khoo, K. Lagergren, G. Lotay, D. Peterson, A. Robinson, C. Vaman, W.B. Walters, P.J. Woods, S. Zhu |
| 2006Si36 | PRVCA | 74, | 064308 | G.S. Simpson, J.A. Pinston, D. Balabanski, J. Genevey, G. Georgiev, J. Jolie, D.S. Judson, R. Orlandi, A. Scherillo, I. Tsekhanovich, W. Urban, N. Warr |
| 2006Sk03 | PRVCA | 73, | 044301 | F. Skaza, V. Lapoux, N. Keeley, N. Alamanos, E.C. Pollacco, F. Auger, A. Drouart, A. Gillibert, D. Beaumel, E. Becheva, Y. Blumenfeld, F. Delaunay, L. Giot, K.W. Kemper, L. Nalpas, A. Obertelli, A. Pakou, R. Raabe, P. Roussel-Chomaz, J.-L. Sida, J.-A. Scarpaci, S. Stepantsov, R. Wolski |
| 2006Su12 | PRVCA | 74, | 024322 | C.S. Sumithrarachchi, D.W. Anthony, P.A. Lofy, D.J. Morrissey |
| 2006Ta08 | PRVCA | 73, | 024316 | M.N. Tantawy, C.R. Bingham, K.P. Rykaczewski, J.C. Batchelder, W. Królas, M. Danchev, D. Fong, T.N. Ginter, C.J. Gross, R. Grzywacz, K. Hagino, J.H. Hamilton, D.J. Hartley, M. Karny, K. Li, C. Mazzocchi, A. Piechaczek, A.V. Ramayya, K. Rykaczewski, D. Shapira, A. Stolz, J.A. Winger, C.-H. Yu, E.F. Zganjar |
| 2006Ta13 | PRVCA | 73, | 044306 | S.K. Tandel, P. Chowdhury, E.H. Seabury, I. Ahmad, M.P. Carpenter, S.M. Fischer, R.V.F. Janssens, T.L. Khoo, T. Lauritsen, C.J. Lister, D. Seweryniak, Y.R. Shimizu |
| 2006Ta19 | PRLTA | 97, | 082502 | S.K. Tandel, T.L. Khoo, D. Seweryniak, G. Mukherjee, I. Ahmad, B. Back, R. Blinstrup, M.P. Carpenter, J. Chapman, P. Chowdhury, C.N. Davids, A.A. Hecht, A. Heinz, P. Ikin, R.V.F. Janssens, F.G. Kondev, T. Lauritsen, C.J. Lister, E.F. Moore, D. Peterson, P. Reiter, U.S. Tandel, X. Wang, S. Zhu |
| 2006Th07 | PRVCA | 74, | 034329 | P. Thakur, V. Kumar, A.K. Bhati, S.C. Bedi, R.P. Singh, R.K. Bhowmik, A.E. Stuchbery |

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| 2006Tr02 | PRVCA | 73, | 054303 | V. Tripathi, S.L. Tabor, C.R. Hoffman, M. Wiedeking, A. Volya, P.F. Mantica, A.D. Davies, S.N. Liddick, W.F. Mueller, A. Stolz, B.E. Tomlin, T. Otsuka, Y. Utsuno |
| 2006Tr10 | PRVCA | 74, | 054306 | S. Triambak, A. Garcia, D. Melconian, M. Mella, O. Biesel |
| 2006Va22 | IJMPD | 251, | 231 | R.S. Van Dyck, Jr., D.B. Pinegar, S. Van Liew, S.L. Zafonte |
| 2006Vo09 | PRVCA | 74, | 034319 | T. von Egidy, H.-F. Wirth, I. Tomandl, J. Honzátko |
| 2006Wh02 | PRVCA | 74, | 027303 | C. Wheldon, J.J. Valiente-Dobón, P.H. Regan, C.J. Pearson, C.Y. Wu, J.F. Smith, A.O. Macchiavelli, D. Cline, R.S. Chakrawarthy, R. Chapman, M. Cromaz, P. Fallon, S.J. Freeman, W. Gelletly, A. Görgen, A.B. Hayes, H. Hua, S.D. Langdown, I.Y. Lee, X. Liang, Zs. Podolyák, G. Sletten, R. Teng, D. Ward, D.D. Warner, A.D. Yamamoto |
| 2006Wi10 | PRVCA | 73, | 044318 | J.A. Winger, P.F. Mantica, R.M. Ronningen |
| 2006Xu03 | EPJAA | 28, | 37 | S.-W. Xu, Y.-X. Xie, F.-R. Xu, H.-L. Liu, Z.-K. Li |
| 2006Xu07 | EPJAA | 29, | 161 | S.W. Xu, Y.X. Xie, Z.K. Li, F.R. Xu, H.L. Liu, Y.B. Xing, B. Guo, J.P. Xing, C.F. Wang |
| 2007 | | | | |
| 2007Be16 | PRLTA | 98, | 142501 | B.R. Beck, J.A. Becker, P. Beiersdorfer, G.V. Brown, K.J. Moody, J.B. Wilhelmy, F.S. Porter, C.A. Kilbourne, R.L. Kelley |
| 2007Be48 | NUPAB | 789, | 15 | P. Belli, R. Bernabei, F. Cappella, R. Cerulli, C.J. Dai, F.A. Danevich, A. d'Angelo, A. Incicchitti, V.V. Kobychiev, S.S. Nagorny, S. Nisi, F. Nozzoli, D. Prosperi, V.I. Tretyak, S.S. Yurchenko |
| 2007Be61 | PRVCA | 76, | 064603 | P. Belli, R. Bernabei, N. Bukilic, F. Cappella, R. Cerulli, C.J. Dai, F.A. Danevich, J.R. de Laeter, A. Incicchitti, V.V. Kobychiev, S.S. Nagorny, S. Nisi, F. Nozzoli, D.V. Poda, D. Prosperi, V.I. Tretyak, S.S. Yurchenko |
| 2007Bo50 | EPJST | 150, | 337 | G. Bollen, C. Bachelet, M. Block, D.A. Davies, M. Facina, C.M. Folden III, C. Guénaut, J. Huikari, E. Kwan, A. Kwiatowski, D.J. Morrissey, G. Pang, A. Prinke, R. Ringle, J. Savory, P. Schury, S. Schwarz, C. Sumithrarachchi, T. Sun |
| 2007Ch07 | PYLBB | 645, | 133 | B. Cheal, M.D. Gardner, M. Avgoulea, J. Billowes, M.L. Bissell, P. Campbell, T. Eronen, K.T. Flanagan, D.H. Forest, J. Huikari, A. Jokinen, B.A. Marsh, I.D. Moore, A. Nieminen, H. Penttilä, S. Rinta-Antila, B. Tordoff, G. Tungate, J. Äystö |
| 2007CI01 | PRVCA | 75, | 032801 | J.A. Clark, K.S. Sharma, G. Savard, A.F. Levand, J.C. Wang, Z. Zhou, B. Blank, F. Buchinger, J.E. Crawford, S. Gulick, J.K.P. Lee, D. Seweryniak, W. Trimble |
| 2007DaZU | P-Lisbon | | 3 | C.N. Davids |
| 2007Do17 | NUPAB | 792, | 18 | C. Dossat, N. Adimi, F. Aksouh, F. Becker, A. Bey, B. Blank, C. Borcea, R. Borcea, A. Boston, M. Caamano, G. Cachel, M. Chartier, D. Cortina, S. Czajkowski, G. de France, F. de Oliveira Santos, A. Fleury, G. Georgiev, J. Giovannazzo, S. Grévy, R. Grzywacz, M. Hellström, M. Honma, Z. Janas, D. Karamanis, J. Kurcewicz, M. Lewitowicz, M.J. López Jiménez, C. Mazzocchi, I. Matea, V. Maslov, P. Mayet, C. Moore, M. Pfützner, M.S. Pravikoff, M. Stanoiu, I. Stefan, J.C. Thomas |
| 2007Ei02 | NUPAB | 787, | 373c | R. Eichler, N.V. Aksenov, A.V. Belozarov, G.A. Bozhikov, V.I. Chepigin, R. Dressler, S.N. Dmitriev, H.W. Gäggeler, V.A. Gorshkov, F. Haenssler, M.G. Itkis, V. Ya. Lebedev, A. Laube, O.N. Malyshev, Yu. Ts. Oganessian, O.V. Petruschkin, D. Piguët, P. Rasmussen, S.V. Shishkin, A.V. Shutov, A.I. Svirikhin, E.E. Tereshatov, G.K. Vostokin, M. Wegrzecki, A.V. Yereimin |
| 2007Fo02 | PRVCA | 75, | 054308 | B. Fogelberg, K.A. Mezilev, V.I. Isakov, K.I. Erokhina, H. Mach, E. Ramström, H. Gausemel |
| 2007Ge07 | PRLTA | 98, | 162501 | S. George, S. Baruah, B. Blank, K. Blaum, M. Breitenfeldt, U. Hager, F. Herfurth, A. Herlert, A. Kellerbauer, H.-J. Kluge, M. Kretzschmar, D. Lunney, R. Savreux, S. Schwarz, L. Schweikhard, C. Yazidjian |
| 2007Go24 | PRVCA | 76, | 021605 | M.S. Golovkov, L.V. Grigorenko, A.S. Fomichev, A.V. Gorshkov, V.A. Gorshkov, S.A. Krupko, Yu. Ts. Oganessian, A.M. Rodin, S.I. Sidorchuk, R.S. Slepnev, S.V. Stepantsov, G.M. Ter-Akopian, R. Wolski, A.A. Korshennikov, E. Yu. Nikolskii, V.A. Kuzmin, B.G. Novatskii, D.N. Stepanov, P. Roussel-Chomaz, W. Mittig |

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| 2007Gr18 | PRVCA | 76, | 025503 | G.F. Grinyer, M.B. Smith, C. Andreoiu, A.N. Andreyev, G.C. Ball, P. Bricault, R.S. Chakrawarthy, J.J. Daoud, P. Finlay, P.E. Garrett, G. Hackman, B. Hyland, J.R. Leslie, A.C. Morton, C.J. Pearson, A.A. Phillips, M.A. Schumaker, C.E. Svensson, J.J. Valiente-Dobon, S.J. Williams, E.F. Zganjar |
| 2007Gu09 | PRVCA | 75, | 044303 | C. Guénaut, G. Audi, D. Beck, K. Blaum, G. Bollen, P. Delahaye, F. Herfurth, A. Kellerbauer, H.-J. Kluge, J. Libert, D. Lunney, S. Schwarz, L. Schweikhard, C. Yazidjian |
| 2007Ha20 | PRVCA | 75, | 064302 | U. Hager, V.-V. Elomaa, T. Eronen, J. Hakala, A. Jokinen, A. Kankainen, S. Rahaman, S. Rinta-Antila, A. Saastamoinen, T. Sonoda, J. Äystö |
| 2007Ha32 | NUPAB | 793, | 20 | U. Hager, A. Jokinen, V.-V. Elomaa, T. Eronen, J. Hakala, A. Kankainen, S. Rahaman, J. Rissanen, I.D. Moore, S. Rinta-Antila, A. Saastamoinen, T. Sonoda, J. Äystö |
| 2007Ha45 | PRVCA | 76, | 044312 | B. Hadinia, B. Cederwall, D.T. Joss, R. Wyss, R.D. Page, C. Scholey, A. Johnson, K. Lagergren, E. Ganioglu, K. Andgren, T. Bäck, D.E. Appelbe, C.J. Barton, S. Eeckhaudt, T. Grahn, P. Greenlees, P. Jones, R. Julin, S. Juutinen, H. Kettunen, M. Leino, A.-P. Lepänen, R.J. Liotta, P. Nieminen, J. Pakarinen, J. Perkowski, P. Rahkila, M. Sandzelius, J. Simpson, J. Uusitalo, K. Van de Vel, D.D. Warner, D.R. Wiseman |
| 2007Ha57 | EPJAA | 34, | 363 | H. Hayashi, Y. Akita, O. Suematsu, M. Shibata, M. Asai, T.K. Sato, S. Ichikawa, I. Nishinaka, Y. Nagame, A. Osa, K. Tsukada, T. Ishii, Y. Kojima, A. Taniguchi |
| 2007Ho18 | EPJAA | 32, | 251 | S. Hofmann, D. Ackermann, S. Antalic, H.G. Burkhard, V.F. Comas, R. Dressler, Z. Gan, S. Heinz, J.A. Heredia, F.P. Heßberger, J. Khuyagbaatar, B. Kindler, I. Kojouharov, P. Kuusiniemi, M. Leino, B. Lommel, R. Mann, G. Münzenberg, K. Nishio, A.G. Popeko, S. Saro, H.J. Schott, B. Streicher, B. Sulignano, J. Uusitalo, M. Venhart, A.V. Yeremin |
| 2007Io03 | PYLBB | 650, | 141 | M. Ionescu-Bujor, A. Iordachescu, N. Marginean, C.A. Ur, D. Bucurescu, G. Suliman, D.L. Balabanski, F. Brandolini, S. Chmel, P. Detistov, K.A. Gladnishki, H. Hubel, S. Mallion, R. Marginean, N.H. Medina, D.R. Napoli, G. Neyens, P. Pavan, R.V. Ribas, C. Rusu, K. Turzo, N. Vermeulen |
| 2007Je07 | EPJAA | 32, | 31 | H.B. Jeppesen, J. Byskov-Nielsen, P. Wright, J.G. Correia, L.M. Fraile, H.O.U. Fynbo, K. Johnston, K. Riisager |
| 2007Ju03 | PYLBB | 649, | 43 | B. Jurado, H. Savajols, W. Mittig, N.A. Orr, P. Roussel-Chomaz, D. Baiborodin, W.N. Catford, M. Chartier, C.E. Demonchy, Z. Dlouhý, A. Gillibert, L. Giot, A. Khouaja, A. Lépine-Szily, S. Lukyanov, J. Mrazek, Y.E. Penionzhkevich, S. Pita, M. Rousseau, A.C. Villari |
| 2007Ju05 | PRLTA | 99, | 132501 | A. Jungclaus, L. Cáceres, M. Górski, M. Pfützner, S. Pietri, E. Werner-Malento, H. Grawe, K. Langanke, G. Martinez-Pinedo, F. Nowacki, A. Poves, J.J. Cuenca-Garcia, D. Rudolph, Z. Podolyák, P.H. Regan, P. Detistov, S. Lalkovski, V. Modamio, J. Walker, P. Bednarczyk, P. Doornenbal, H. Geissel, J. Gerl, J. Gregosz, I. Kojouharov, N. Kurz, W. Prokopowicz, H. Schaffner, H.J. Wollersheim, K. Andgren, J. Benlliure, G. Benzoni, A.M. Bruce, E. Casarejos, B. Cederwall, F.C.L. Crespi, B. Hadinia, M. Hellström, R. Hoischen, G. Ilie, J. Jolie, A. Kharplanov, M. Kmiecik, R. Kumar, A. Maj, S. Mandal, F. Montes, S. Myalski, G.S. Simpson, S.J. Steer, S. Tashenov, O. Wieland |
| 2007Ju06 | PRVCA | 76, | 054306 | D.S. Judson, A.M. Bruce, T. Kibedi, G.D. Dracoulis, A.P. Byrne, G.J. Lane, K.H. Maier, C.-B. Moon, P. Nieminen, J.N. Orce, M.J. Taylor |
| 2007Ka15 | EPJAA | 31, | 319 | O. Kavatsyuk, C. Mazzocchi, Z. Janas, A. Banu, L. Batist, F. Becker, A. Blazhev, W. Brühle, J. Döring, T. Faestermann, M. Górski, H. Grawe, A. Jungclaus, M. Karny, M. Kavatsyuk, O. Klepper, R. Kirchner, M. La Commara, K. Miernik, I. Mukha, C. Plettner, A. Plochocki, E. Roeckl, M. Romoli, K. Rykaczewski, M. Schadel, K. Schmidt, R. Schwengner, J. Zylicz |
| 2007Ke09 | PRVCA | 76, | 045504 | A. Kellerbauer, G. Audi, D. Beck, K. Blaum, G. Bollen, C. Guénaut, F. Herfurth, A. Herlert, H.-J. Kluge, D. Lunney, S. Schwarz, L. Schweikhard, C. Weber, C. Yazidjian |
| 2007Kh22 | EPJAA | 34, | 355 | J. Khuyagbaatar, S. Hofmann, F.P. Heßberger, D. Ackermann, S. Antalic, H.G. Burkhard, S. Heinz, B. Kindler, A.F. Lisetskiy, B. Lommel, R. Mann, K. Nishio, H.J. Schött, B. Sulignano |

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- 2007Le14 PRVCA 75, 054307 A.-P. Lepp  nen, J. Uusitalo, M. Leino, S. Eeckhaudt, T. Grahn, P.T. Greenlees, P. Jones, R. Julin, S. Juutinen, H. Kettunen, P. Kuusiniemi, P. Nieminen, J. Pakarinen, P. Rahkila, C. Scholey, G. Sletten
- 2007Li71 PRLTA 99, 262501 Yu. A. Litvinov, F. Bosch, H. Geissel, J. Kurcewicz, Z. Patyk, N. Winckler, L. Batist, K. Beckert, D. Boutin, C. Brandau, L. Chen, C. Dimopoulou, B. Fabian, T. Faestermann, A. Fragner, L. Grigorenko, E. Haettner, S. Hess, P. Kienle, R. Kn  bel, C. Kozhuharov, S.A. Litvinov, L. Maier, M. Mazzocco, F. Montes, G. M  nzenberg, A. Musumarra, C. Nociforo, F. Nolden, M. Pf  tzner, W.R. Plass, A. Prochazka, R. Reda, R. Reuschl, C. Scheidenberger, M. Steck, T. Stohlker, S. Torilov, M. Trassinelli, B. Sun, H. Weick, M. Winkler
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- 2007Ma35 PRLTA 98, 212501 C. Mazzocchi, R. Grzywacz, S.N. Liddick, K.P. Rykaczewski, H. Schatz, J.C. Batchelder, C.R. Bingham, C.J. Gross, J.H. Hamilton, J.K. Hwang, S. Ilyushkin, A. Korgul, W. Krolas, K. Li, R.D. Page, D. Simpson, J.A. Winger
- 2007Ma92 EPJAA 34, 341 A. Mart  n, D. Ackermann, G. Audi, K. Blaum, M. Block, A. Chaudhuri, Z. Di, S. Eliseev, R. Ferrer, D. Habs, F. Herfurth, F.P. He  berger, S. Hofmann, H.-J. Kluge, M. Mazzocco, M. Mukherjee, J.B. Neumayr, Yu. Novikov, W. Pla  , S. Rahaman, C. Rauth, D. Rodr  guez, C. Scheidenberger, L. Schweikhard, P.G. Thirolf, G. Vorobjev, C. Weber
- 2007Mu15 PRLTA 99, 182501 I. Mukha, K. S  mmerer, L. Acosta, M.A.G. Alvarez, E. Casarejos, A. Chatillon, D. Cortina-Gil, J. Espino, A. Fomichev, J.E. Garc  a-Ramos, H. Geissel, J. G  mez-Camacho, L. Grigorenko, J. Hoffmann, O. Kiselev, A. Korshenin-nikov, N. Kurz, Yu. Litvinov, I. Martel, C. Nociforo, W. Ott, M. Pf  tzner, C. Rodr  guez-Tajes, E. Roeckl, M. Stanoiu, H. Weick, P.J. Woods
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- 2007Og01 JPHGB 34, R165 Y. Oganessian
- 2007Og02 PRVCA 76, 011601 Yu. Ts. Oganessian, V.K. Utyonkov, Yu. V. Lobanov, F. Sh. Abdullin, A.N. Polyakov, R.N. Sagaidak, I.V. Shirokovsky, Yu. S. Tsyganov, A.A. Voinov, G.G. Gulbekian, S.L. Bogomolov, B.N. Gikal, A.N. Mezentsev, V.G. Subbotin, A.M. Sukhov, K. Subotic, V.I. Zagrebaev, G.K. Vostokin, M.G. Itkis, R.A. Henderson, J.M. Kenneally, J.H. Landrum, K.J. Moody, D.A. Shaughnessy, M.A. Stoyer, N.J. Stoyer, P.A. Wilk
- 2007Ok05 PRVCA 76, 044315 Y. Oktem, D.L. Balabanski, B. Akkus, C.W. Beausang, M. Bostan, R.B. Cakirli, R.F. Casten, M. Danchev, M. Djongolov, M.N. Erduran, S. Erturk, K.A. Glad-niski, G. Gurdal, J. Tm. Goon, D.J. Hartley, A.A. Hecht, R. Krucken, N. Nikolov, J.R. Novak, G. Rainovski, L.L. Riedinger, I. Yigitoglu, N.V. Zamfir, O. Zeidan

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| 2007Pa27 | PRVCA | 75, | 061302 | R.D. Page, L. Bianco, I.G. Darby, J. Uusitalo, D.T. Joss, T. Grahm, R.-D. Herzberg, J. Pakarinen, J. Thomson, S. Eeckhaudt, P.T. Greenlees, P.M. Jones, R. Julin, S. Juutinen, S. Ketelhut, M. Leino, A.-P. Leppänen, M. Nyman, P. Rahkila, J. Sarén, C. Scholey, A. Steer, M.B. Gómez Hornillos, J.S. Al-Khalili, A.J. Cannon, P.D. Stevenson, S. Ertürk, B. Gall, B. Hadinia, M. Venhart, J. Simpson |
| 2007Ra23 | EPJAA | 32, | 87 | S. Rahaman, U. Hager, V.-V. Elomaa, T. Eronen, J. Hakala, A. Jokinen, A. Kankainen, P. Karvonen, I.D. Moore, H. Penttilä, S. Rinta-Antila, J. Rissanen, A. Saastamoinen, T. Sonoda, J. Äystö |
| 2007Ra27 | EPJAA | 34, | 5 | S. Rahaman, J. Hakala, V.-V. Elomaa, T. Eronen, U. Hager, A. Jokinen, A. Kankainen, I.D. Moore, H. Penttilä, S. Rinta-Antila, J. Rissanen, A. Saastamoinen, C. Weber, J. Äystö |
| 2007Ra37 | EPJST | 150, | 329 | C. Rauth, D. Ackermann, G. Audi, M. Block, A. Chaudhuri, S. Eliseev, F. Herfurth, F.P. Heßberger, S. Hofmann, H.-J. Kluge, A. Martín, G. Marx, M. Mukherjee, J.B. Neumayr, W.R. Plaß, S. Rahaman, D. Rodríguez, L. Schweikhard, P.G. Thirolf, G. Vorobjev, C. Weber, and the SHIPTRAP Collaboration |
| 2007Re03 | PRLTA | 98, | 053003 | M. Redshaw, E. Wingfield, J. McDaniel, E.G. Myers |
| 2007Ri01 | EPJAA | 31, | 1 | S. Rinta-Antila, T. Eronen, V.-V. Elomaa, U. Hager, J. Hakala, A. Jokinen, P. Karvonen, H. Penttilä, J. Rissanen, T. Sonoda, A. Saastamoinen, J. Äystö |
| 2007Ri08 | PRVCA | 75, | 055503 | R. Ringle, T. Sun, G. Bollen, D. Davies, M. Facina, J. Huikari, E. Kwan, D.J. Morrissey, A. Prinke, J. Savory, P. Schury, S. Schwarz, C.S. Sumithrarachchi and Prvcom GAU Nov 2009 |
| 2007Sa36 | PRLTA | 99, | 022501 | M. Sandzelius, B. Hadinia, B. Cederwall, K. Andgren, E. Ganioglu, I.G. Darby, M.R. Dimmock, S. Eeckhaudt, T. Grahm, P.T. Greenlees, E. Ideguchi, P.M. Jones, D.T. Joss, R. Julin, S. Juutinen, A. Khaplanov, M. Leino, L. Nelson, M. Niikura, M. Nyman, R.D. Page, J. Pakarinen, E.S. Paul, M. Petri, P. Rahkila, J. Saren, C. Scholey, J. Sorri, J. Uusitalo, R. Wadsworth, R. Wyss |
| 2007Sc24 | PRVCA | 75, | 055801 | P. Schury, C. Bachelet, M. Block, G. Bollen, D.A. Davies, M. Facina, C.M. Folden III, C. Guénaut, J. Huikari, E. Kwan, A. Kwiatkowski, D.J. Morrissey, R. Ringle, G.K. Pang, A. Prinke, J. Savory, H. Schatz, S. Schwarz, C.S. Sumithrarachchi, T. Sun, and erratum PRVCA 80(2009)029905 |
| 2007Se04 | PRLTA | 99, | 022504 | D. Seweryniak, M.P. Carpenter, S. Gros, A.A. Hecht, N. Hoteling, R.V.F. Janssens, T.L. Khoo, T. Lauritsen, C.J. Lister, G. Lotay, D. Peterson, A.P. Robinson, W.B. Walters, X. Wang, P.J. Woods, S. Zhu |
| 2007Se06 | PRLTA | 99, | 082502 | D. Seweryniak, B. Blank, M.P. Carpenter, C.N. Davids, T. Davinson, S.J. Freeman, N. Hammond, N. Hoteling, R.V.F. Janssens, T.L. Khoo, Z. Liu, G. Mukherjee, A. Robinson, C. Scholey, S. Sinha, J. Shergur, K. Starosta, W.B. Walters, A. Woehr, P.J. Woods |
| 2007Sh05 | EPJAA | 31, | 171 | M. Shibata, O. Suematsu, Y. Kojima, K. Kawade, A. Taniguchi, Y. Kawase |
| 2007Sh34 | PYLBB | 654, | 87 | S. Shimoura, S. Ota, K. Demichi, N. Aoi, H. Baba, Z. Elekes, T. Fukuchi, T. Gomi, K. Hasegawa, E. Ideguchi, M. Ishihara, N. Iwasa, H. Iwasaki, S. Kanno, S. Kubono, K. Kurita, M. Kurokawa, Y.U. Matsuyama, S. Michimasa, K. Miller, T. Minemura, T. Motobayashi, T. Murakami, M. Notani, A. Odahara, A. Saito, H. Sakurai, E. Takeshita, S. Takeuchi, M. Tamaki, T. Teranishi, K. Yamada, Y. Yanagisawa, I. Hamamoto |
| 2007Sh42 | EPJAA | 34, | 1 | T. Shizuma, T. Ishii, H. Makii, T. Hayakawa, S. Shigematsu, M. Matsuda, E. Ideguchi, Y. Zheng, M. Liu, T. Morikawa |
| 2007Si24 | NUPAB | 791, | 267 | H. Simon, M. Meister, T. Aumann, M.J.G. Borge, L.V. Chulkov, U. Datta Pramanik, Th. W. Elze, H. Emling, C. Forssen, H. Geissel, M. Hellstrom, B. Jonson, J.V. Kratz, R. Kulesa, Y. Leifels, K. Markenroth, G. Munzenberg, F. Nickel, T. Nilsson, G. Nyman, A. Richter, K. Riisager, C. Scheidenberger, G. Schrieder, O. Tengblad, M.V. Zhukov |
| 2007Si27 | PRVCA | 76, | 041303 | G.S. Simpson, J.C. Angelique, J. Genevey, J.A. Pinston, A. Covello, A. Gargano, U. Köster, R. Orlandi, A. Scherillo |
| 2007St12 | APOBB | 38, | 1561 | B. Streicher, S. Antalic, S. Saro, M. Venhart, F.P. Heßberger, S. Hofmann, D. Ackermann, B. Kindler, I. Kojouharov, B. Lommel, R. Mann, B. Sulignano, P. Kuusiniemi |

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| 2007St18 | NUPAB | 787, | 388c | N.J. Stoyer, J.H. Landrum, P.A. Wilk, K.J. Moody, J.M. Kenneally, D.A. Shaughnessy, M.A. Stoyer, J.F. Wild, R.W. Loughheed, S.N. Dmitriev, Yu. Ts. Oganessian, S.V. Shishkin, N.V. Aksenov, E.E. Tereshatov, G.A. Bozhikov, G.K. Vostokin, V.K. Utyonkov, A.A. Yerein |
| 2007Su05 | PRVCA | 75, | 024305 | C.S. Sumithrarachchi, D.J. Morrissey, B.A. Brown, A.D. Davies, D.A. Davies, M. Fancina, E. Kwan, P.F. Mantica, M. Portillo, Y. Shimbara, J. Stoker, R.R. Weerasiri |
| 2007Su07 | EPJAA | 31, | 393 | B. Sun, Yu. A. Litvinov, P.M. Walker, K. Beckert, P. Beller, F. Bosch, D. Boutin, C. Brandau, L. Chen, C. Dimopoulou, H. Geissel, R. Knöbel, C. Kozhuharov, J. Kurcewicz, S.A. Litvinov, M. Mazzocco, J. Meng, C. Nociforo, F. Nolden, W.R. Plass, C. Scheidenberger, M. Steck, H. Weick, M. Winkler |
| 2007Su19 | EPJAA | 33, | 327 | B. Sulignano, S. Heinz, F.P. Heßberger, S. Hofmann, D. Ackermann, S. Antalic, B. Kindler, I. Kojouharov, P. Kuusiniemi, B. Lommel, R. Mann, K. Nishio, A.G. Popeko, S. Saro, B. Streicher, M. Venhart, A.V. Yerein |
| 2007To23 | EPJST | 150, | 183 | B.E. Tomlin, P.F. Mantica, W.B. Walters |
| 2007Tr08 | PRVCA | 76, | 021301 | V. Tripathi, S.L. Tabor, P.F. Mantica, Y. Utsuno, P. Bender, J. Cook, C.R. Hoffman, S. Lee, T. Otsuka, J. Pereira, M. Perry, K. Pepper, J.S. Pinter, J. Stoker, A. Volya, D. Weisshaar |
| 2007Ya08 | PRVCA | 76, | 024308 | C. Yazidjian, G. Audi, D. Beck, K. Blaum, S. George, C. Guénaut, F. Herfurth, A. Herlert, A. Kellerbauer, H.-J. Kluge, D. Lunney, L. Schweikhard |
| 2008 | | | | |
| 2008Ah02 | PRVCA | 77, | 054302 | I. Ahmad, F.G. Kondev, Z.M. Koenig, Wm. C. McHarris, S.W. Yates |
| 2008Ak03 | PYLBB | 666, | 430 | Yu. Aksytina, H.T. Johansson, P. Adrich, F. Aksouh, T. Aumann, K. Boretzky, M.J.G. Borge, A. Chatillon, L.V. Chulkov, D. Cortina-Gil, U. Datta Pramanik, H. Emling, C. Forssén, H.O.U. Fynbo, H. Geissel, M. Hellström, G. Ickert, K.L. Jones, B. Jonson, A. Kliemkiewicz, J.V. Kratz, R. Kulesa, M. Lantz, T. LeBlais, A.O. Lindahl, K. Mahata, M. Matos, M. Meister, G. Münzenberg, T. Nilsson, G. Nyman, R. Palit, M. Pantea, S. Paschalis, W. Prokopowicz, R. Reifarth, A. Richter, K. Riisager, G. Schrieder, H. Simon, K. Sümmerer, O. Tengblad, W. Walus, H. Weick, M.V. Zhukov |
| 2008An05 | PRVCA | 77, | 054303 | K. Andgren, B. Cederwall, J. Uusitalo, A.N. Andreyev, S.J. Freeman, P.T. Greenlees, B. Hadinia, U. Jakobsson, A. Johnson, P.M. Jones, D.T. Joss, S. Juutinen, R. Julin, S. Ketelhut, A. Khaplanov, M. Leino, M. Nyman, R.D. Page, P. Rahkila, M. Sandzelius, P. Sapple, J. Sarén, C. Scholey, J. Simpson, J. Sorri, J. Thomson, R. Wyss |
| 2008An11 | PRVCA | 78, | 044328 | K. Andgren, U. Jakobsson, B. Cederwall, J. Uusitalo, T. Bäck, S.J. Freeman, P.T. Greenlees, B. Hadinia, A. Hugues, A. Johnson, P.M. Jones, D.T. Joss, S. Juutinen, R. Julin, S. Ketelhut, A. Khaplanov, M. Leino, M. Nyman, R.D. Page, P. Rahkila, M. Sandzelius, P. Sapple, J. Sarén, C. Scholey, J. Simpson, J. Sorri, J. Thomson, R. Wyss |
| 2008An16 | EPJAA | 38, | 219 | S. Antalic, F.P. Heßberger, S. Hofmann, D. Ackermann, S. Heinz, B. Kindler, I. Kojouharov, P. Kuusiniemi, M. Leino, B. Lommel, R. Mann, K. Nishio, Š. Šáro, B. Streicher, B. Sulignano, M. Venhart |
| 2008Ba53 | PRLTA | 101, | 252501 | D. Bazin, F. Montes, A. Becerril, G. Lorusso, A. Amthor, T. Baumann, H. Crawford, A. Estrade, A. Gade, T. Ginter, C.J. Guess, M. Hausmann, G.W. Hitt, P. Mantica, M. Matos, R. Meharchand, K. Minamisono, G. Perdikakis, J. Pereira, J. Pinter, M. Portillo, H. Schatz, K. Smith, J. Stoker, A. Stolz, R.G.T. Zegers |
| 2008Ba54 | PRLTA | 101, | 262501 | S. Baruah, G. Audi, K. Blaum, M. Dworschak, S. George, C. Guénaut, U. Hager, F. Herfurth, A. Herlert, A. Kellerbauer, H.-J. Kluge, D. Lunney, H. Schatz, L. Schweikhard, C. Yazidjian |
| 2008Bh08 | PRVCA | 77, | 065503 | M. Bhattacharya, D. Melconian, A. Komives, S. Triambak, A. García, E.G. Adelberger, B.A. Brown, M.W. Cooper, T. Glasmacher, V. Guimaraes, P.F. Mantica, A.M. Oros-Peusquens, J.I. Prisciandaro, M. Steiner, H.E. Swanson, S.L. Tabor, M. Wiedeking |
| 2008BI05 | PRLTA | 100, | 132501 | M. Block, C. Bachelet, G. Bollen, M. Facina, C.M. Folden III, C. Guénaut, A.A. Kwiatkowski, D.J. Morrissey, G.K. Pang, A. Prinke, R. Ringle, J. Savory, P. Schury, S. Schwarz |

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| 2008Bo26 | NUPAB | 811, | 28 | V. Bondarenko, I. Tomandl, H.-F. Wirth, J. Honzato, A.M. Sukhovo, L.A. Malov, L.I. Simonova, R. Hertenberg, T. von Egidy, J. Berzins |
| 2008Br.A | PrvCom | GAu | Dec | M. Breitenfeldt |
| 2008Br.C | PrvCom | GAu | Mar | M. Brodeur |
| 2008Br.D | PrvCom | GAu | Aug | M. Brodeur |
| 2008Ca22 | PRVCA | 78, | 044001 | M. Caamano, D. Cortina-Gil, W. Mittig, H. Savajols, M. Chartier, C.E. Demonchy, B. Fernandez, M.B. Gomez Hornillos, A. Gillibert, B. Jurado, O. Kiselev, R. Lemmon, A. Obertelli, F. Rejmund, M. Rejmund, P. Roussel-Chomaz, R. Wolski |
| 2008Ch07 | NUPAB | 801, | 101 | G. Christian, W.A. Peters, D. Absalon, D. Albertson, T. Baumann, D. Bazin, E. Breitbach, J. Brown, P.L. Cole, D. Denby, P.A. DeYoung, J.E. Finck, N. Frank, A. Fritsch, C. Hall, A.M. Hayes, J. Hinnefeld, C.R. Hoffman, R. Howes, B. Luther, E. Mosby, S. Mosby, D. Padilla, P.V. Pancella, G. Peaslee, W.F. Rogers, A. Schiller, M.J. Strongman, M. Thoennessen, L.O. Wagner |
| 2008Ch28 | PRVCA | 78, | 054307 | R.J. Charity, S.A. Komarov, L.G. Sobotka, J. Clifford, D. Bazin, A. Gade, J. Lee, S.M. Lukyanov, W.G. Lynch, M. Mocko, S.P. Lobastov, A.M. Rogers, A. Sanetullaev, M.B. Tsang, M.S. Wallace, R.G.T. Zegers, S. Hudan, C. Metelko, M.A. Famiano, A.H. Wuosmaa, M.J. van Goethem |
| 2008Ch.A | Th.-Giessen | | | Lixin Chen |
| 2008De29 | PRVCA | 78, | 044303 | D.H. Denby, P.A. DeYoung, T. Baumann, D. Bazin, E. Breitbach, J. Brown, N. Frank, A. Gade, C.C. Hall, J. Hinnefeld, C.R. Hoffman, R. Howes, R.A. Jenson, B. Luther, S.M. Mosby, C.W. Olson, W.A. Peters, A. Schiller, A. Spyrou, M. Thoennessen |
| 2008Dr05 | PRVCA | 78, | 024605 | I. Dragojevic, K.E. Gregorich, Ch. E. Düllmann, M.A. Garcia, J.M. Gates, S.L. Nelson, L. Stavsetra, R. Sudowe, H. Nitsche |
| 2008Du09 | PRVCA | 77, | 064320 | Ch. E. Düllmann, A. Türler and erratum PRVCA 78(2008)029901 |
| 2008Dv02 | PRLTA | 100, | 132503 | J. Dvorak, W. Brühl, M. Chelnokov, Ch. E. Düllmann, Z. Dvorakova, K. Eberhardt, E. Jäger, R. Krücken, A. Kuznetsov, Y. Nagame, F. Nebel, K. Nishio, R. Perego, Z. Qin, M. Schädel, B. Schausten, E. Schimpf, R. Schuber, A. Semchenkov, P. Thörle, A. Türler, M. Wegrzecki, B. Wierczinski, A. Yakushev, A. Yerein |
| 2008Dw01 | PRLTA | 100, | 072501 | M. Dworschak, G. Audi, K. Blaum, P. Delahaye, S. George, U. Hager, F. Herfurth, A. Herlert, A. Kellerbauer, H.-J. Kluge, D. Lunney, L. Schweikhard, C. Yazidjian and PrvCom GAU May 2007 |
| 2008Ea01 | PRVCA | 77, | 024303 | M.C. Eastman, K.S. Krane |
| 2008Er04 | PRLTA | 100, | 132502 | T. Eronen, V.-V. Elomaa, U. Hager, J. Hakala, J.C. Hardy, A. Jokinen, A. Kankainen, I.D. Moore, H. Penttilä, S. Rahaman, S. Rinta-Antila, J. Rissanen, A. Saastamoinen, T. Sonoda, C. Weber, J. Äystö |
| 2008Fa11 | PRVCA | 78, | 022801 | J. Fallis, J.A. Clark, K.S. Sharma, G. Savard, F. Buchinger, S. Caldwell, J.E. Crawford, C.M. Deibel, J.L. Fisker, S. Gulick, A.A. Hecht, D. Lascar, J.K.P. Lee, A.F. Levand, G. Li, B.F. Lundgren, A. Parikh, S. Russell, M. Scholtevan de Vorst, N.D. Scielzo, R.E. Segel, H. Sharma, S. Sinha, M. Sternberg, T. Sun, I. Tanihata, J. Van Schelt, J.C. Wang, Y. Wang, C. Wrede, Z. Zhou |
| 2008Fe02 | EPJAA | 35, | 167 | M. Ferraton, R. Bourgain, C.M. Petrache, D. Verney, F. Ibrahim, N. de Séville, S. Franchoo, M. Lebois, C. Phan Viet, L. Sagui, I. Stefan, J.F. Clavelin, M. Vilmay |
| 2008Fi.A | PrvCom | BPf | Oct | R.B. Firestone |
| 2008Ga04 | PYLBB | 660, | 326 | A.B. Garnsworthy, P.H. Regan, L. Cáceres, S. Pietri, Y. Sun, D. Rudolph, M. Górski, Zs. Podolyák, S.J. Steer, R. Hoischen, A. Heinz, F. Becker, P. Bednarczyk, P. Doornenbal, H. Geissel, J. Gerl, H. Grawe, J. Grebosz, A. Kelic, I. Kojouharov, N. Kurz, F. Montes, W. Prokopowicz, T. Saito, H. Schaffner, S. Tachenov, E. Werner-Malento, H.J. Wollersheim, G. Benzoni, B.B. Blank, C. Brandau, A.M. Bruce, F. Camera, W.N. Catford, I.J. Cullen, Zs. Dombrádi, E. Estevez, W. Gelletly, G. Ilie, J. Jolie, G.A. Jones, A. Jungclaus, M. Kmiecik, F.G. Kondev, T. Kurtukian-Nieto, S. Lalkovski, Z. Liu, A. Maj, S. Myalski, M. Pfützner, S. Schwertel, T. Shizuma, A.J. Simons, P.M. Walker, O. Wieland, F.R. Xu |

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| 2008Ga08 | PRVCA | 77, | 034603 | J.M. Gates, M.A. Garcia, K.E. Gregorich, Ch. E. Düllmann, I. Dragojević, J. Dvorak, R. Eichler, C.M. Folden III, W. Loveland, S.L. Nelson, G.K. Pang, L. Stavsetra, R. Sudowe, A. Türler, H. Nitsche |
| 2008Ga.A | PrvCom | | 08Bh08 | A. Garcia et al at ISOLDE |
| 2008Ge07 | PRLTA | 101, | 252502 | W. Geithner, T. Neff, G. Audi, K. Blaum, P. Delahaye, H. Feldmeier, S. George, C. Guenaut, F. Herfurth, A. Herlert, S. Kappertz, M. Keim, A. Kellerbauer, H.-J. Kluge, M. Kowalska, P. Lievens, D. Lunney, K. Marinova, R. Neugart, L. Schweikhard, S. Wilbert, C. Yazidjian and PrvCom from A. Herlert February 2005 |
| 2008Ge08 | EULEE | 82, | 50005 | S. George, G. Audi, B. Blank, K. Blaum, M. Breitenfeldt, U. Hager, F. Herfurth, A. Herlert, A. Kellerbauer, H.-J. Kluge, M. Kretzschmar, D. Lunney, R. Savreux, S. Schwarz, L. Schweikhard, C. Yazidjian |
| 2008Go23 | PRVCA | 78, | 014311 | M.B. Gómez Hornillos, M. Chartier, W. Mittig, A. Lépine-Szily, L. Caballero, C.E. Demonchy, G. Georgiev, N.A. Orr, G. Politi, M. Rousseau, P. Roussel-Chomaz, A.C.C. Villari |
| 2008Go.A | AnRpt GSI | | 140 | A. Gorshkov et al |
| 2008Gr17 | PRVCA | 78, | 021303 | P.T. Greenlees, R.-D. Herzberg, S. Ketelhut, P.A. Butler, P. Chowdhury, T. Grahm, C. Gray-Jones, G.D. Jones, P. Jones, R. Julin, S. Juutinen, T.-L. Khoo, M. Leino, S. Moon, M. Nyman, J. Pakarinen, P. Rakhila, D. Rostron, J. Sarén, C. Scholey, J. Sorri, S.K. Tandel, J. Uusitalo, M. Venhart |
| 2008Ha12 | PRVCA | 77, | 047305 | K. Hauschild, A. Lopez-Martens, A.V. Yeremin, O. Dorvaux, A.V. Belozerov, M.L. Chelnokov, V.I. Chepigin, B. Gall, V.A. Gorshkov, M. Guttormsen, P. Jones, A.P. Kabachenko, A. Khouaja, A.C. Larsen, O.N. Malyshev, A. Minkova, H.T. Nyhus, Yu. Ts. Oganessian, D. Pantelica, A.G. Popeko, F. Rotaru, S. Saro, A.V. Shutov, S. Siem, A.I. Svirikhin, N.U.H. Syed |
| 2008Ha21 | PRVCA | 77, | 068801 | T. Hayakawa, T. Shizuma, S. Miyamoto, S. Amano, K. Horikawa, K. Ishihara, M. Mori, K. Kawase, M. Kando, N. Kikuzawa, S. Chiba, T. Mochizuki, T. Kajino, M. Fujiwara |
| 2008Ha23 | PRLTA | 101, | 052502 | J. Hakala, S. Rahaman, V.-V. Elomaa, T. Eronen, U. Hager, A. Jokinen, A. Kankainen, I.D. Moore, H. Penttilä, S. Rinta-Antila, J. Rissanen, A. Saastamoinen, T. Sonoda, C. Weber, J. Äystö |
| 2008Ha31 | PRVCA | 78, | 021302 | K. Hauschild, A. Lopez-Martens, A.V. Yeremin, O. Dorvaux, S. Antalic, A.V. Belozerov, Ch. Briançon, M.L. Chelnokov, V.I. Chepigin, D. Curien, B. Gall, A. Görgen, V.A. Gorshkov, M. Guttormsen, F. Hanappe, A.P. Kabachenko, F. Khalfallah, A.C. Larsen, O.N. Malyshev, A. Minkova, A.G. Popeko, M. Rousseau, N. Rowley, S. Saro, A.V. Shutov, S. Siem, L. Stuttgè, A.I. Svirikhin, N.U.H. Syed, Ch. Theisen, M. Venhart |
| 2008Ha.A | PrvCom | BPf | Sep | P.A. Hausladen |
| 2008Hi05 | PRVCA | 77, | 034305 | T.A. Hinnens, V. Tripathi, S.L. Tabor, A. Volya, P.C. Bender, C.R. Hoffman, S. Lee, M. Perry, P.F. Mantica, A.D. Davies, S.N. Liddick, W.F. Mueller, A. Stolz, B.E. Tomlin |
| 2008Ho03 | PRLTA | 100, | 152502 | C.R. Hoffman, T. Baumann, D. Bazin, J. Brown, G. Christian, P.A. DeYoung, J.E. Finck, N. Frank, J. Hinnfeld, R. Howes, P. Mears, E. Mosby, S. Mosby, J. Reith, B. Rizzo, W.F. Rogers, G. Peaslee, W.A. Peters, A. Schiller, M.J. Scott, S.L. Tabor, M. Thoennessen, P.J. Voss, T. Williams |
| 2008Ia01 | PRVCA | 77, | 045501 | V.E. Jacob, J.C. Hardy, V. Golovko, J. Goodwin, N. Nica, H.I. Park, L. Trache, R.E. Tribble |
| 2008Jo03 | PRVCA | 77, | 034311 | G.A. Jones, S.J. Williams, P.M. Walker, Zs. Podolyák, S. Zhu, M.P. Carpenter, J.J. Carroll, R.S. Chakrawarthy, P. Chowdhury, I.J. Cullen, G.D. Dracoulis, A.B. Garnsworthy, G. Hackman, R.V.F. Janssens, T.L. Khoo, F.G. Kondev, G.J. Lane, Z. Liu, D. Seweryniak, N.J. Thompson |
| 2008Jo04 | PRVCA | 77, | 064316 | E.K. Johansson, D. Rudolph, L.-L. Andersson, D.A. Torres, I. Ragnarsson, C. Andreoiu, C. Baktash, M.P. Carpenter, R.J. Charity, C.J. Chiara, J. Ekman, C. Fahlander, C. Hoel, O.L. Pechenaya, W. Reviol, R. du Rietz, D.G. Sarantites, D. Seweryniak, L.G. Sobotka, C.H. Yu, S. Zhu |
| 2008Kh10 | EPJAA | 37, | 177 | J. Khuyagbaatar, S. Hofmann, F.P. Heßberger, D. Ackermann, H.G. Burkhard, S. Heinz, B. Kindler, I. Kojouharov, B. Lommel, R. Mann, J. Maurer, K. Nishio, Yu. Novikov |
| 2008Kn.A | Th.-GSI | | | Knöbel |

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| 2008Lo07 | PRVCA | 77, | 064313 | R.L. Lozeva, G.S. Simpson, H. Grawe, G. Neyens, L.A. Atanasova, D.L. Balabanski, D. Bazzacco, F. Becker, P. Bednarczyk, G. Benzoni, N. Blasi, A. Blazhev, A. Bracco, C. Brandau, L. Cáceres, F. Camera, S.K. Chamoli, F.C.L. Crespi, J.-M. Daugas, P. Detistov, M. De Rydt, P. Doornenbal, C. Fahlander, E. Farnea, G. Georgiev, J. Gerl, K.A. Gladnishki, M. Górska, J. Grebosz, M. Hass, R. Hoischen, G. Ilie, M. Ionescu-Bujor, A. Iordachescu, J. Jolie, A. Jungclaus, M. Kmiecik, I. Kojouharov, N. Kurz, S.P. Lakshmi, G. Lo Bianco, S. Mallion, A. Maj, D. Montanari, O. Perru, M. Pfützner, S. Pietri, J.A. Pinston, Zs. Podolyák, W. Prokopowicz, D. Rudolph, G. Rusev, T.R. Saitoh, A. Saltarelli, H. Schaffner, R. Schwengner, S. Tashenov, K. Turzó, J.J. Valiente-Dobón, N. Vermeulen, J. Walker, E. Werner-Malento, O. Wieland, H.-J. Wollersheim |
| 2008Ma01 | PRVCA | 77, | 014313 | P.F. Mantica, R. Broda, H.L. Crawford, A. Damaske, B. Fornal, A.A. Hecht, C. Hoffman, M. Horoi, N. Hoteling, R.V.F. Janssens, J. Pereira, J.S. Pinter, J.B. Stoker, S.L. Tabor, T. Sumikama, W.B. Walters, X. Wang, S. Zhu |
| 2008Mo09 | NUPAB | 805 | 172c | K. Morita |
| 2008Mu05 | EPJAA | 35, | 31 | M. Mukherjee, D. Beck, K. Blaum, G. Bollen, P. Delahaye, J. Dilling, S. George, C. Guénaut, F. Herfurth, A. Herlert, A. Kellerbauer, H.-J. Kluge, U. Köster, D. Lunney, S. Schwarz, L. Schweikhard, C. Yazidjian |
| 2008Mu13 | PRVCA | 77, | 061303 | I. Mukha, L. Grigorenko, K. Sümmerer, L. Acosta, M.A.G. Alvarez, E. Casarejos, A. Chatillon, D. Cortina-Gil, J.M. Espino, A. Fomichev, J.E. García-Ramos, H. Geissel, J. Gómez-Camacho, J. Hofmann, O. Kiselev, A. Korshennikov, N. Kurz, Yu. Litvinov, I. Martel, C. Nociforo, W. Ott, M. Pfützner, C. Rodríguez-Tajes, E. Roeckl, M. Stanoiu, H. Weick, P.J. Woods |
| 2008Ne01 | PRLTA | 100, | 022501 | S.L. Nelson, K.E. Gregorich, I. Dragojević, M.A. Garcia, J.M. Gates, R. Sudowe, H. Nitsche |
| 2008Ne08 | PRVCA | 78, | 024606 | S.L. Nelson, C.M. Folden III, K.E. Gregorich, I. Dragojević, Ch. E. Düllmann, R. Eichler, M.A. Garcia, J.M. Gates, R. Sudowe, H. Nitsche |
| 2008Os02 | NIMBE | 266, | 4394 | A. Osa, S.-i. Ichikawa, M. Matsuda, T.K. Sato, S.-C. Jeong |
| 2008Pa33 | PRVCA | 78, | 041307 | D. Pauwels, O. Ivanov, N. Bree, J. Büscher, T.E. Cocolios, J. Gentens, M. Huyse, A. Korgul, Yu. Kudryavtsev, R. Raabe, M. Sawicka, I. Stefanescu, J. Van de Walle, P. Van den Bergh, P. Van Duppen, W.B. Walters |
| 2008Qi03 | RAACA | 96, | 455 | Z. Qin, W. Brüchle, D. Ackermann, K. Eberhardt, F.P. Heßberger, E. Jäger, J.V. Kratz, P. Kuusiniemi, D. Liebe, G. Münzenberg, D. Nayak, Yu. N. Novikov, M. Schädel, B. Schausten, E. Schimpf, A. Semchenkov, B. Sulignano, P. Thörle, X.L. Wu and PrvCom from 2002Sh. C |
| 2008Ra09 | PYLBB | 662, | 111 | S. Rahaman, V.-V. Elomaa, T. Eronen, J. Hakala, A. Jokinen, J. Julin, A. Kankainen, A. Saastamoinen, J. Suhonen, C. Weber, J. Äystö |
| 2008Re16 | PRLTA | 100, | 093002 | M. Redshaw, J. McDaniel, E.G. Myers |
| 2008Ri05 | PRVCA | 78, | 034304 | S.V. Rigby, D.M. Cullen, P.J.R. Mason, D.T. Scholes, C. Scholey, P. Rakhila, S. Eeckhaudt, T. Grahn, P. Greenlees, P.M. Jones, R. Julin, S. Juutinen, H. Ketunen, M. Leino, A.-P. Leppänen, P. Nieminen, M. Nyman, J. Pakarinen, J. Uusitalo |
| 2008Ro21 | PRVCA | 78, | 034308 | A.P. Robinson, T.L. Khoo, I. Ahmad, S.K. Tandel, F.G. Kondev, T. Nakatsukasa, D. Seweryniak, M. Asai, B.B. Back, M.P. Carpenter, P. Chowdhury, C.N. Davids, S. Eeckhaudt, J.P. Greene, P.T. Greenlees, S. Gros, A. Heinz, R.-D. Herzberg, R.V.F. Janssens, G.D. Jones, T. Lauritsen, C.J. Lister, D. Peterson, J. Qian, U.S. Tandel, X. Wang, S. Zhu |
| 2008Ru09 | PRVCA | 78, | 021301 | D. Rudolph, R. Hoischen, M. Hellström, S. Pietri, Zs. Podolyák, P.H. Regan, A.B. Garnsworthy, S.J. Steer, F. Becker, P. Bednarczyk, L. Cáceres, P. Doornenbal, J. Gerl, M. Górska, J. Grebosz, I. Kojouharov, N. Kurz, W. Prokopowicz, H. Schaffner, H.J. Wollersheim, L.-L. Andersson, L. Atanasova, D.L. Balabanski, M.A. Bentley, A. Blazhev, C. Brandau, J.R. Brown, C. Fahlander, E.K. Johansson, A. Jungclaus, S.M. Lenzi |
| 2008Ry03 | PRLTA | 101, | 012501 | V.L. Ryjkov, M. Brodeur, T. Brunner, M. Smith, R. Ringle, A. Lapierre, F. Ames, P. Bricault, M. Domsbys, P. Delheij, D. Lunney, M.R. Pearson, J. Dilling |
| 2008Sm03 | PRLTA | 101, | 202501 | M. Smith, M. Brodeur, T. Brunner, S. Ettenauer, A. Lapierre, R. Ringle, V.L. Ryjkov, F. Ames, P. Bricault, G.W.F. Drake, P. Delheij, D. Lunney, F. Sarazin, J. Dilling |

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| 2008Sm.A | Th.-Vancouver | | | M.J. Smith |
| 2008So20 | PRVAA | 78, | 012514 | A. Solders, I. Bergström, Sz. Nagy, M. Suhonen, R. Schuch |
| 2008Su14 | EPJAA | 36, | 243 | G. Suliman, D. Bucurescu, R. Hertenberger, H.-F. Wirth, T. Faestermann, R. Krücken, T. Behrens, V. Bildstein, K. Eppinger, C. Hinke, M. Mahgoub, P. Meierbeck, M. Reithner, S. Schwertel, N. Chauvin |
| 2008Su19 | NUPAB | 812, | 1 | B. Sun, R. Knöbel, Yu. A. Litvinov, H. Geissel, J. Meng, K. Beckert, F. Bosch, D. Boutin, C. Brandau, L. Chen, I.J. Cullen, C. Dimopoulou, B. Fabian, M. Hausmann, C. Kozhuharov, S.A. Litvinov, M. Mazzocco, F. Montes, G. Münzenberg, A. Musumarra, S. Nakajima, C. Nociforo, F. Nolden, T. Ohtsubo, A. Ozawa, Z. Patyk, W.R. Plaß, C. Scheidenberger, M. Steck, T. Suzuki, P.M. Walker, H. Weick, N. Winckler, M. Winkler, T. Yamaguchi |
| 2008Tr04 | PRVCA | 77, | 034310 | V. Tripathi, S.L. Tabor, P. Bender, C.R. Hoffman, S. Lee, K. Pepper, M. Perry, P.F. Mantica, J.M. Cook, J. Pereira, J.S. Pinter, J.B. Stoker, D. Weisshaar, Y. Utsumo, T. Otsuka |
| 2008We02 | NUPAB | 803, | 1 | C. Weber, G. Audi, D. Beck, K. Blaum, G. Bollen, F. Herfurth, A. Kellerbauer, H.-J. Kluge, D. Lunney, S. Schwarz |
| 2008We10 | PRVCA | 78, | 054310 | C. Weber, V.-V. Elomaa, R. Ferrer, C. Fröhlich, D. Ackermann, J. Äystö, G. Audi, L. Batist, K. Blaum, M. Block, A. Chaudhuri, M. Dworschak, S. Eliseev, T. Eronen, U. Hager, J. Hakala, F. Herfurth, F.P. Heßberger, S. Hofmann, A. Jokinen, A. Kankainen, H.-J. Kluge, K. Langanke, A. Martín, G. Martínez-Pinedo, M. Mazzocco, I.D. Moore, J.B. Neumayr, Yu. N. Novikov, H. Penttilä, W.R. Plaß, A.V. Popov, S. Rahaman, T. Rauscher, C. Rauth, J. Rissanen, D. Rodríguez, A. Saastamoinen, C. Scheidenberger, L. Schweikhard, D.M. Seliverstov, T. Sonoda, F.-K. Thielemann, P.G. Thirolf, G.K. Vorobjev |
| 2009 | | | | |
| 2009Ak03 | PYLBB | 679, | 191 | Yu. Aksyutina, H.T. Johansson, T. Aumann, K. Boretzky, M.J.G. Borge, A. Chatillon, L.V. Chulkov, D. Cortina-Gil, U. Datta Pramanik, H. Emling, C. Forssén, H.O.U. Fynbo, H. Geissel, G. Ickert, B. Jonson, R. Kulesa, C. Langer, M. Lantz, T. LeBleis, A.O. Lindahl, K. Mahata, M. Meister, G. Münzenberg, T. Nilsson, G. Nyman, R. Palit, S. Paschalis, W. Prokopowicz, R. Reifarth, A. Richter, K. Riisager, G. Schrieder, H. Simon, K. Summerer, O. Tengblad, H. Weick, M.V. Zhukov |
| 2009Al29 | PRVCA | 80, | 061302 | N. Al-Dahan, Zs. Podolyák, P.H. Regan, M. Górski, H. Grawe, K.H. Maier, J. Gerl, S.B. Pietri, H.J. Wollersheim, N. Alkhomashi, A.Y. Deo, A.M.D. Bacellar, G. Farrelly, S.J. Steer, A.M. Bruce, P. Boutachkov, C. Domingo-Pardo, A. Algora, J. Benlliure, A. Bracco, E. Calore, E. Casarejos, I.J. Cullen, P. Detistov, Zs. Dombrádi, M. Doncel, F. Farinon, W. Gelletly, H. Geissel, N. Goel, J. Grebosz, R. Hoischen, I. Kojouharov, N. Kurz, S. Lalkovski, S. Leoni, F. Molina, D. Montanari, A.I. Morales, A. Musumarra, D.R. Napoli, R. Nicolini, C. Nociforo, A. Prochazka, W. Prokopowicz, B. Rubio, D. Rudolph, H. Schaffner, P. Strmen, I. Szarka, T. Swan, J.S. Thomas, J.J. Valiente-Dobón, S. Verma, P.M. Walker, H. Weick |
| 2009Al30 | PRVCA | 80, | 064308 | N. Alkhomashi, P.H. Regan, Zs. Podolyák, S. Pietri, A.B. Garnsworthy, S.J. Steer, J. Benlliure, E. Casarejos, R.F. Casten, J. Gerl, H.J. Wollersheim, J. Grebosz, G. Farrelly, M. Górski, I. Kojouharov, H. Schaffner, A. Algora, G. Benzoni, A. Blazhev, P. Boutachkov, A.M. Bruce, A.M. Denis Bacelar, I.J. Cullen, L. Cáceres, P. Doornenbal, M.E. Estevez, Y. Fujita, W. Gelletly, R. Hoischen, R. Kumar, N. Kurz, S. Lalkovski, Z. Liu, C. Mihai, F. Molina, A.I. Morales, D. Mücher, W. Prokopowicz, B. Rubio, Y. Shi, A. Tamii, S. Tashenov, J.J. Valiente-Dobón, P.M. Walker, P.J. Woods, F.R. Xu |
| 2009An11 | PRVCA | 79, | 064320 | A.N. Andreyev, S. Antalic, D. Ackermann, L. Bianco, S. Franchoo, S. Heinz, F.P. Heßberger, S. Hofmann, M. Huyse, I. Kojouharov, B. Kindler, B. Lommel, R. Mann, K. Nishio, R.D. Page, J.J. Ressler, P. Sappale, B. Streicher, S. Saro, B. Sulignano, J. Thomson, P. Van Duppen, M. Venhart |

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| 2009An14 | PRVCA | 80, | 024302 | A.N. Andreyev, S. Antalic, D. Ackermann, T.E. Cocolios, V.F. Comas, J. El-seviers, S. Franchoo, S. Heinz, J.A. Heredia, F.P. Heßberger, S. Hofmann, M. Huyse, J. Khuyagbaatar, I. Kojouharov, B. Kindler, B. Lommel, R. Mann, R.D. Page, S. Rinta-Antila, P.J. Sapple, Š. Šáro, P. Van Duppen, M. Venhart, H.V. Watkins |
| 2009An17 | PRVCA | 80, | 044334 | A.N. Andreyev, S. Antalic, D. Ackermann, T.E. Cocolios, V.F. Comas, J. El-seviers, S. Franchoo, S. Heinz, J.A. Heredia, F.P. Hessberger, S. Hofmann, M. Huyse, J. Khuyagbaatar, I. Kojouharov, B. Kindler, B. Lommel, R. Mann, R.D. Page, S. Rinta-Antila, P.J. Sapple, S. Saro, P. Van Duppen, M. Venhart, H.V. Watkins |
| 2009An20 | PRVCA | 80, | 054322 | A.N. Andreyev, S. Antalic, D. Ackermann, T.E. Cocolios, V.F. Comas, J. El-seviers, S. Franchoo, S. Heinz, J.A. Heredia, F.P. Heßberger, S. Hofmann, M. Huyse, J. Khuyagbaatar, I. Kojouharov, B. Kindler, B. Lommel, R. Mann, R.D. Page, S. Rinta-Antilla, P.J. Sapple, S. Saro, P. Van Duppen, M. Venhart, H.V. Watkins |
| 2009Ba04 | PRVCA | 79, | 017302 | F.C. Barker |
| 2009Ba52 | PRVCA | 80, | 054318 | J.C. Batchelder, J.L. Wood, P.E. Garrett, K.L. Green, K.P. Rykaczewski, J.-C. Bilheux, C.R. Bingham, H.K. Carter, D. Fong, R. Grzywacz, J.H. Hamilton, D.J. Hartley, J.K. Hwang, W. Krolas, W.D. Kulp, Y. Larochelle, A. Piechaczek, A.V. Ramayya, E.H. Spejewski, D.W. Stracener, M.N. Tantawy, J.A. Winger, E.F. Zganjar |
| 2009Bo.A | PrvCom | GAu | Aug | C. Borgmann |
| 2009Br09 | PRVCA | 80, | 035805 | M. Breitenfeldt, G. Audi, D. Beck, K. Blaum, S. George, F. Herfurth, A. Herlert, A. Kellerbauer, H.-J. Kluge, M. Kowalska, D. Lunney, S. Naimi, D. Neidherr, H. Schatz, S. Schwarz, L. Schweikhard |
| 2009Br10 | PRVCA | 80, | 044318 | M. Brodeur, T. Brunner, C. Champagne, S. Etternauer, M. Smith, A. Lapierre, R. Ringle, V.L. Ryjkov, G. Audi, P. Delheij, D. Lunney, J. Dilling |
| 2009Br.A | PrvCom | GAu | Jun | M. Brodeur |
| 2009Bu.A | PrvCom | GAu | Mar | D. Bucurescu |
| 2009Ce04 | PRLTA | 103, | 152502 | J. Cerny, D.M. Moltz, D.W. Lee, K. Peräjärvi, B.R. Barquest, L.E. Grossman, W. Jeong, C.C. Jewett |
| 2009Ch08 | PRLTA | 102, | 122503 | L. Chen, Yu. A. Litvinov, W.R. Plaß, K. Beckert, P. Beller, F. Bosch, D. Boutin, L. Caceres, R.B. Cakirli, J.J. Carroll, R.F. Casten, R.S. Chakravarthy, D.M. Cullen, I.J. Cullen, B. Franzke, H. Geissel, J. Gerl, M. Górski, G.A. Jones, A. Kishada, R. Knöbel, C. Kozhuharov, S.A. Litvinov, Z. Liu, S. Mandal, F. Montes, G. Münzenberg, F. Nolden, T. Ohtsubo, Z. Patyk, Zs. Podolyák, R. Propri, S. Rigby, N. Saito, T. Saito, C. Scheidenberger, M. Shindo, M. Steck, P. Ugorowski, P.M. Walker, S. Williams, H. Weick, M. Winkler, H.-J. Wollersheim, T. Yamaguchi |
| 2009Ch09 | PYLBB | 674, | 23 | F.C. Charlwood, K. Baczyńska, J. Billowes, P. Campbell, B. Cheal, T. Eronen, D.H. Forest, A. Jokinen, T. Kessler, I.D. Moore, H. Penttilä, R. Powis, M. Rüffer, A. Saastamoinen, G. Tungate, J. Äystö |
| 2009Cr02 | PRVCA | 79, | 054320 | H.L. Crawford, P.F. Mantica, J.S. Berryman, R. Broda, B. Fornal, C.R. Hoffman, N. Hotelling, R.V.F. Janssens, S.M. Lenzi, J. Pereira, J.B. Stoker, S.L. Tabor, W.B. Walters, X. Wang, S. Zhu |
| 2009Cr03 | APOBB | 40, | 481 | H.L. Crawford, R.V.F. Janssens, P.F. Mantica, J.S. Berryman, R. Broda, M.P. Carpenter, B. Fornal, G.F. Grinyer, N. Hotelling, B. Kay, T. Lauritsen, K. Minamisono, I. Stefanescu, J.B. Stoker, W.B. Walters, S. Zhu |
| 2009Cu02 | PRVCA | 80, | 024303 | D.M. Cullen, P.J.R. Mason, S.V. Rigby, C. Scholey, S. Eeckhaudt, T. Grahn, P.T. Greenlees, U. Jakobsson, P.M. Jones, R. Julin, S. Juutinen, S. Ketelhut, A.M. Kishada, M. Leino, A.-P. Leppanen, K. Mäntyniemi, P. Nieminen, M. Nyman, J. Pakarinen, P. Peura, P. Rahkila, J. Sarén, J. Sorri, J. Uusitalo, B.J. Varley, M. Venhart |
| 2009Da03 | NUPAB | 818, | 264 | J.V. Dawson, C. Reeve, J.R. Wilson, K. Zuber, M. Junker, C. Gössling, T. Köttig, D. Münstermann, S. Rajek, O. Schulz |
| 2009Dr02 | PRVCA | 79, | 011602 | I. Dragojević, K.E. Gregorich, Ch. E. Düllmann, J. Dvorak, P.A. Ellison, J.M. Gates, S.L. Nelson, L. Stavsetra, H. Nitsche |
| 2009Dr04 | PRVCA | 79, | 054313 | G.D. Dracoulis, P.M. Davidson, G.J. Lane, A.P. Byrne, T. Kibédi, P. Nieminen, H. Watanabe, A.N. Wilson |

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| 2009Dr06 | PRVCA | 79, | 061303 | G.D. Dracoulis, G.J. Lane, F.G. Kondev, H. Watanabe, D. Seweryniak, S. Zhu, M.P. Carpenter, C.J. Chiara, R.V.F. Janssens, T. Lauritsen, C.J. Lister, E.A. McCutchan, I. Stefanescu |
| 2009Dr08 | EPJAA | 40, | 127 | G.D. Dracoulis, P.M. Davidson, G.J. Lane, A.P. Byrne, T. Kibédi, P. Nieminen, A.N. Wilson, H. Watanabe |
| 2009Dr12 | PRVCA | 80, | 054320 | G.D. Dracoulis, G.J. Lane, A.P. Byrne, P.M. Davidson, T. Kibédi, P.H. Nieminen, H. Watanabe, A.N. Wilson, H.L. Liu, F.R. Xu |
| 2009EI07 | PRLTA | 102, | 252501 | V.-V. Elomaa, G.K. Vorobjev, A. Kankainen, L. Batist, S. Eliseev, T. Eronen, J. Hakala, A. Jokinen, I.D. Moore, Yu. N. Novikov, H. Penttilä, A. Popov, S. Rahaman, J. Rissanen, A. Saastamoinen, H. Schatz, D.M. Seliverstov, C. Weber, J. Äystö |
| 2009EI08 | EPJAA | 40, | 1 | V.-V. Elomaa, T. Eronen, U. Hager, J. Hakala, A. Jokinen, A. Kankainen, I.D. Moore, S. Rahaman, J. Rissanen, V. Rubchenya, C. Weber, J. Äystö |
| 2009Er02 | PRVCA | 79, | 032802 | T. Eronen, V.-V. Elomaa, U. Hager, J. Hakala, A. Jokinen, A. Kankainen, T. Kessler, I.D. Moore, S. Rahaman, J. Rissanen, C. Weber, J. Äystö |
| 2009Er07 | PRLTA | 103, | 252501 | T. Eronen, V.-V. Elomaa, J. Hakala, J.C. Hardy, A. Jokinen, I.D. Moore, M. Reponen, J. Rissanen, A. Saastamoinen, C. Weber, J. Äystö |
| 2009Fa15 | EPJAA | 42, | 339 | T. Faestermann, R. Hertenberger, H.-F. Wirth, R. Krücken, M. Mahgoub, P. Maier-Komor |
| 2009Fa.A | PrvCom | GAu | Mar | T. Faestermann |
| 2009Fo02 | PRVCA | 79, | 027602 | C.M. Folden III, I. Dragojevic, Ch. E. Düllmann, R. Eichler, M.A. Garcia, J.M. Gates, S.L. Nelson, R. Sudowe, K.E. Gregorich, D.C. Hoffman, H. Nitsche |
| 2009Fo05 | PRVCA | 79, | 064318 | C.M. Folden III, A.S. Nettleton, A.M. Amthor, T.N. Ginter, M. Hausmann, T. Kubo, W. Loveland, S.L. Manikonda, D.J. Morrissey, T. Nakao, M. Portillo, B.M. Sherrill, G.A. Souliotis, B.F. Strong, H. Takeda, O.B. Tarasov |
| 2009Fu05 | EPJAA | 39, | 49 | T. Fukuchi, T. Hori, T. Masue, K. Tajiri, A. Sato, T. Furukawa, A. Odahara, T. Shimoda, Y. Wakabayashi, Y. Gono, T. Suzuki, M. Ukai, T. Wakui, A. Yamazaki, Y. Miyashita, N. Sato, M. Tateoka, M. Ohguma, T. Shinozuka, T. Koike, K. Shirotori, Y. Miura, S. Kinoshita, Y. Ma, Y.Y. Fu, H. Tamura |
| 2009Ga05 | PRLTA | 102, | 092501 | L. Gaudefroy, J.M. Daugas, M. Hass, S. Grevy, Ch. Stodel, J.C. Thomas, L. Perrot, M. Girod, B. Rosse, J.C. Angelique, D.L. Balabanski, E. Fiori, C. Force, G. Georgiev, D. Kameda, V. Kumar, R.L. Lozeva, I. Matea, V. Meot, P. Morel, B.S. Nara Singh, F. Nowacki, G. Simpson |
| 2009Ga24 | NUPAB | 826, | 1 | C. Gaulard, C. Bachelet, G. Audi, C. Guénaut, D. Lunney, M. de Saint Simon, M. Sewtz, C. Thibault |
| 2009Ga40 | PRVCA | 80, | 064303 | A.B. Garnsworthy, P.H. Regan, S. Pietri, Y. Sun, F.R. Xu, D. Rudolph, M. Górska, L. Cáceres, Zs. Podolyák, S.J. Steer, R. Hoischen, A. Heinz, F. Becker, P. Bednarczyk, P. Doornenbal, H. Geissel, J. Gerl, H. Grawe, J. Grebosz, A. Kelic, I. Kojouharov, N. Kurz, F. Montes, W. Prokopowicz, T. Saito, H. Schaffner, S. Tachenov, E. Werner-Malento, H.J. Wollersheim, G. Benzoni, B. Blank, C. Brandau, A.M. Bruce, F. Camera, W.N. Catford, I.J. Cullen, Zs. Dombrádi, E. Estevez, W. Gelletly, G. Ilie, J. Jolie, G.A. Jones, A. Jungclaus, M. Kmiecik, F.G. Kondev, T. Kurtukian-Nieto, S. Lalkovski, Z. Liu, A. Maj, S. Myalski, M. Pfützner, S. Schwertel, T. Shizuma, A.J. Simons, P.M. Walker, O. Wieland |
| 2009Go16 | PRVCA | 79, | 064314 | M.B. Gomez Hornillos, D. O'Donnell, J. Simpson, D.T. Joss, L. Bianco, B. Cedervall, T. Grahn, P.T. Greenlees, B. Hadinia, P. Jones, R. Julin, S. Juutinen, S. Ketelhut, M. Labiche, M. Leino, M. Nyman, R.D. Page, E.S. Paul, M. Petri, P. Peura, P. Rakhila, P. Ruotsalainen, M. Sandzelius, P.J. Sapple, J. Saren, C. Scholey, J. Sorri, J. Thomson, J. Uusitalo |
| 2009Go29 | PRVCA | 80, | 045501 | J.R. Goodwin, V.V. Golovko, V.E. Iacob, J.C. Hardy |

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| 2009Go40 | PYLBB | 672, | 313 | M. Górski, L. Cáceres, H. Grawe, M. Pfützner, A. Jungclaus, S. Pietri, E. Werner-Malento, Z. Podolyák, P.H. Regan, D. Rudolph, P. Detistov, S. Lalkovski, V. Modamio, J. Walker, T. Beck, P. Bednarczyk, P. Doornenbal, H. Geissel, J. Gerl, J. Grebosz, R. Hoischen, I. Kojouharov, N. Kurz, W. Prokopowicz, H. Schaffner, H. Weick, H.-J. Wollersheim, K. Andgren, J. Benlliure, G. Benzoni, A.M. Bruce, E. Casarejos, B. Cederwall, F.C.L. Crespi, B. Hadinia, M. Hellstrom, G. Ilie, A. Khaplanov, M. Kmiecik, R. Kumar, A. Maj, S. Mandal, F. Montes, S. Myalski, G.S. Simpson, S.J. Steer, S. Tashenov, O. Wieland, Zs. Dombrádi, P. Reiter, D. Sohler |
| 2009Gu11 | PRVCA | 79, | 054317 | L. Gu, S.J. Zhu, J.H. Hamilton, A.V. Ramayya, J.K. Hwang, S.H. Liu, J.G. Wang, Y.X. Luo, J.O. Rasmussen, I.Y. Lee, X.L. Che, H.B. Ding, K. Li, Q. Xu, Y.Y. Yang, W.C. Ma |
| 2009Gu17 | PPNUE | 40, | 558 | Yu. B. Gurov, S.V. Lapushkin, B.A. Chernyshev, V.G. Sandukovsky |
| 2009Gy01 | NUPAB | 828, | 1 | Gy. Gyürky, G. Rastrepina, Z. Elekes, J. Farkas, Zs. Fülöp, G.G. Kiss, E. Somorjai, T. Szücs |
| 2009Ha42 | PRVCA | 80, | 064310 | B. Hadinia, B. Cederwall, R.D. Page, M. Sandzelius, C. Scholey, K. Andgren, T. Bäck, E. Ganioglu, M.B. Gómez Hornillos, T. Grahn, P.T. Greenlees, E. Ideguchi, U. Jakobsson, A. Johnson, P.M. Jones, R. Julin, J. Juutinen, S. Ketelhut, A. Khaplanov, M. Leino, M. Niikura, M. Nyman, I. Özgür, E.S. Paul, P. Peura, P. Rakhila, J. Sarén, J. Sorri, J. Uusitalo, R. Wyss |
| 2009Ha.B | NIMAE | 606, | 484 | H. Hayashi, M. Shibata, I. Miyazaki, O. Suematsu, Y. Kojima, K. Kawade, A. Taniguchi |
| 2009He20 | EPJAA | 41, | 145 | F.P. Heßberger, S. Hofmann, B. Streicher, B. Sulignano, S. Antalic, D. Ackermann, S. Heinz, B. Kindler, I. Kojouharov, P. Kuusiniemi, M. Leino, B. Lommel, R. Mann, A.G. Popeko, Š. Šáro, J. Uusitalo, A.V. Yeremin |
| 2009He23 | EPJAA | 42, | 333 | R.-D. Herzberg, S. Moon, S. Eeckhaudt, P.T. Greenlees, P.A. Butler, T. Page, A.V. Afanasjev, N. Amzal, J.E. Bastin, F. Becker, M. Bender, B. Bruyneel, J.F.C. Cocks, I.G. Darby, O. Dorvaux, K. Eskola, J. Gerl, T. Grahn, C. Gray-Jones, N.J. Hammond, K. Hauschild, P.-H. Heenen, K. Helariutta, A. Herzberg, F. Hessberger, M. Houry, A. Hurstel, R.D. Humphreys, G.D. Jones, P.M. Jones, R. Julin, S. Juutinen, H. Kankaanpää, H. Kettunen, T.L. Khoo, W. Korten, P. Kuusiniemi, Y. LeCoz, M. Leino, A.-P. Leppänen, C.J. Lister, R. Lucas, M. Muikku, P. Nieminen, M. Nyman, R.D. Page, T. Page, J. Pakarinen, A. Pritchard, P. Rakhila, P. Reiter, M. Sandzelius, J. Saren, Ch. Schlegel, C. Scholey, Ch. Theisen, W.H. Trzaska, J. Uusitalo, A. Wiens, H.J. Wollersheim |
| 2009In01 | PRVCA | 79, | 034313 | T.T. Inamura, H. Haba |
| 2009Je05 | PRVCA | 80, | 054303 | D.G. Jenkins |
| 2009Ka30 | PRVCA | 80, | 045809 | L.W. Kastens, S.B. Cahn, A. Manzur, D.N. McKinsey |
| 2009Ke.A | PrvCom | GAu | Nov | J. Ketelaer |
| 2009Ki14 | PRVCA | 80, | 034315 | H. Kikunaga, Y. Kasamatsu, H. Haba, T. Mitsugashira, M. Hara, K. Takamiya, T. Ohtsuki, A. Yokoyama, T. Nakanishi, A. Shinohara |
| 2009Ko15 | ARISE | 67, | 1702 | K. Kossert, G. Jörg, O. Nähle, C. Lierse v Gostomski |
| 2009Ko19 | PRVCA | 80, | 014304 | F.G. Kondev, G.D. Dracoulis, G.J. Lane, I. Ahmad, A.P. Byrne, M.P. Carpenter, P. Chowdhury, R.V.F. Janssens, T. Kibédi, T. Lauritsen, C.J. Lister, D. Seweryniak, S.K. Tandel, S. Zhu |
| 2009Ko35 | EPJAA | 42, | 351 | M. Kowalska, S. Naimi, J. Agramunt, A. Algora, G. Audi, D. Beck, B. Blank, K. Blaum, Ch. Böhm, M. Breitenfeldt, E. Estevez, L.M. Fraile, S. George, F. Herfurth, A. Herlert, A. Kellerbauer, D. Lunney, E. Minaya-Ramirez, D. Neidherr, B. Olaizola, K. Riisager, M. Rosenbusch, B. Rubio, S. Schwarz, L. Schweikhard, U. Warring |
| 2009Ku19 | PRVCA | 80, | 035502 | T. Kurtukian Nieto, J. Souin, T. Eronen, L. Audirac, J. Äystö, B. Blank, V.-V. Elomaa, J. Giovinazzo, U. Hager, J. Hakala, A. Jokinen, A. Kankainen, P. Karvonen, T. Kessler, I.D. Moore, H. Penttilä, S. Rahaman, M. Reponen, S. Rinta-Antila, J. Rissanen, A. Saastamoinen, T. Sonoda, C. Weber |
| 2009Ku28 | NUPAB | 827, | 587c | T. Kurtukian-Nieto, J. Benlliure, K.-H. Schmidt, L. Audouin, F. Becker, B. Blank, I.N. Borzov, E. Casarejos, M. Fernández-Ordóñez, J. Giovinazzo, D. Henzlova, B. Jurado, K. Langanke, G. Martínez-Pinedo, J. Pereira, F. Rejmund, O. Yordanov |

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| 2009Kw02 | PRVCA | 80, | 051302 | A.A. Kwiatkowski, B.R. Barquest, G. Bollen, C.M. Campbell, D.L. Lincoln, D.J. Morrissey, G.K. Pang, A.M. Prinke, J. Savory, S. Schwarz, C.M. Folden III, D. Melconian, S.K.L. Sjøe, M. Block |
| 2009La17 | PRVCA | 80, | 024321 | G.J. Lane, G.D. Dracoulis, A.P. Byrne, R.O. Hughes, H. Watanabe, F.G. Kondev, C.J. Chiara, M.P. Carpenter, R.V.F. Janssens, T. Lauritsen, C.J. Lister, E.A. McCutchan, D. Seweryniak, S. Zhu, P. Chowdhury, I. Stefanescu |
| 2009Le02 | PYLBB | 672, | 6 | J.-L. Lecouey, N.A. Orr, F.M. Marqués, N.L. Achouri, J.-C. Angélique, B.A. Brown, F. Carstoiu, W.N. Catford, N.M. Clarke, M. Freer, B.R. Fulton, S. Grévy, F. Hanappe, K.L. Jones, M. Labiche, R.C. Lemmon, A. Ninane, E. Sauvan, K.M. Spohr, L. Stuttgé |
| 2009Le03 | PRVCA | 79, | 014318 | A.I. Levon, G. Graw, Y. Eisermann, R. Hertenberger, J. Jolie, N. Yu. Shirikova, A.E. Stuchbery, A.V. Sushkov, P.G. Thirolf, H.-F. Wirth, N.V. Zamfir |
| 2009Le26 | PRVCA | 80, | 044308 | M. Lebois, D. Verney, F. Ibrahim, S. Essabaa, F. Azaiez, M.C. Mhamed, E. Cottereau, P.V. Cuong, M. Ferraton, K. Flanagan, S. Franchoo, D. Guillemaud-Mueller, F. Hammache, C. Lau, F. Le Blanc, J.-F. Le Du, J. Libert, B. Mouginot, C. Petrache, B. Roussiere, L. Sagui, N. de Sereville, I. Stefan, B. Tastet |
| 2009Le.A | PrvCom | GAu | May | A.I. Levon |
| 2009Mo12 | JUPSA | 78, | 064201 | K. Morita, K. Morimoto, D. Kaji, H. Haba, K. Ozeki, Y. Kudou, N. Sato, T. Sumita, A. Yoneda, T. Ichikawa, Y. Fujimori, S. Goto, E. Ideguchi, Y. Kasamatsu, K. Katori, Y. Komori, H. Koura, H. Kudo, K. Ooe, A. Ozawa, F. Tokanai, K. Tsukada, T. Yamaguchi, A. Yoshida |
| 2009Mo23 | PRLTA | 103, | 122502 | B.J. Mount, M. Redshaw, E.G. Myers |
| 2009Mu17 | EPJAA | 42, | 421 | I. Mukha, For the S271 Collaboration |
| 2009Na.A | PrvCom | GAu | Nov | S. Naimi |
| 2009Ne03 | PRLTA | 102, | 112501 | D. Neidherr, G. Audi, D. Beck, K. Blaum, Ch. Böhm, M. Breitenfeldt, R.B. Cakirli, R.F. Casten, S. George, F. Herfurth, A. Herlert, A. Kellerbauer, M. Kowalska, D. Lunney, E. Minaya-Ramirez, S. Naimi, E. Noah, L. Penescu, M. Rosenbusch, S. Schwarz, L. Schweikhard, T. Stora |
| 2009Ne11 | PRVCA | 80, | 044323 | D. Neidherr, R.B. Cakirli, G. Audi, D. Beck, K. Blaum, Ch. Böhm, M. Breitenfeldt, R.F. Casten, S. George, F. Herfurth, A. Herlert, A. Kellerbauer, M. Kowalska, D. Lunney, E. Minaya-Ramirez, S. Naimi, M. Rosenbusch, S. Schwarz, L. Schweikhard |
| 2009Od01 | PRVCA | 79, | 051304 | D. O'Donnell, J. Simpson, C. Scholey, T. Back, P.T. Greenlees, U. Jakobsson, P. Jones, D.T. Joss, D.S. Judson, R. Julin, S. Juutinen, S. Ketelhut, M. Labiche, M. Leino, M. Nyman, R.D. Page, P. Peura, P. Rakhila, P. Ruotsalainen, M. Sandelius, P.J. Sappale, J. Saren, J. Thomson, J. Uusitalo, H.V. Watkins |
| 2009Pa16 | PRVCA | 79, | 044309 | D. Pauwels, O. Ivanov, N. Bree, J. Buscher, T.E. Cocolios, M. Huyse, Yu. Kudryavtsev, R. Raabe, M. Sawicka, J. Van de Walle, P. Van Duppen, A. Korgul, I. Stefanescu, A.A. Hecht, N. Hoteling, A. Wöhr, W.B. Walters, R. Broda, B. Fornal, W. Krolas, T. Pawlat, J. Wrzesinski, M.P. Carpenter, R.V.F. Janssens, T. Lauritsen, D. Seweryniak, S. Zhu, J.R. Stone, X. Wang |
| 2009Pa25 | PRVCA | 79, | 064323 | S. Pascu, Gh. Cata-Danil, D. Bucurescu, N. Marginean, N.V. Zamfir, G. Graw, A. Gollwitzer, D. Hofer, B.D. Valnion |
| 2009Pa35 | PRVCA | 80, | 034307 | N. Patronis, H. De Witte, M. Gorska, M. Huyse, K. Kruglov, D. Pauwels, K. Van de Vel, P. Van Duppen, J. Van Roosbroeck, J.-C. Thomas, S. Franchoo, J. Cederkall, V.N. Fedoseyev, H. Fynbo, U. Georg, O. Jonsson, U. Köster, T. Materna, L. Mathieu, O. Serot, L. Weissman, W.F. Mueller, V.I. Mishin, D. Fedorov |
| 2009Pe06 | PRVCA | 79, | 035806 | J. Pereira, S. Hennrich, A. Aprahamian, O. Arndt, A. Becerril, T. Elliot, A. Estrade, D. Galaviz, R. Kessler, K.-L. Kratz, G. Lorusso, P.F. Mantica, M. Matos, P. Möller, F. Montes, B. Pfeiffer, H. Schatz, F. Schertz, L. Schnorrenberger, E. Smith, A. Stolz, M. Quinn, W.B. Walters, A. Wöhr |
| 2009Pe31 | EPJAA | 42, | 379 | J. Perkowski, J. Andrzejewski, J. Srebrny, A.M. Bruce, Ch. Droste, E. Grodner, M. Kisielinski, A. Korman, M. Kowalczyk, J. Kownacki, A. Król, J. Marganec, J. Mierzejewski, T. Morek, K. Sobczak, W.H. Trzaska, M. Zielińska |

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| 2009Po01 | PYLBB | 672, | 116 | Zs. Podolyák, G.F. Farrelly, P.H. Regan, A.B. Garnsworthy, S.J. Steer, M. Gorska, J. Benlliure, E. Casarejos, S. Pietri, J. Gerl, H.J. Wollersheim, R. Kumar, F. Molina, A. Algora, N. Alkhomashi, G. Benzoni, A. Blazhev, P. Boutachkov, A.M. Bruce, L. Caceres, I.J. Cullen, A.M.D. Bacelar, P. Doornenbal, M.E. Estevez, Y. Fujita, W. Gelletly, H. Geissel, H. Grawe, J. Grebosz, R. Hoischen, I. Kojouharov, S. Lalkovski, Z. Liu, K.H. Maier, C. Mihai, D. Mucher, B. Rubio, H. Schaffner, A. Tamii, S. Tashenov, J.J. Valiente-Dobon, P.M. Walker, P.J. Woods |
| 2009Po02 | PRVCA | 79, | 031305 | Zs. Podolyák, S.J. Steer, S. Pietri, F.R. Xu, H.L. Liu, P.H. Regan, D. Rudolph, A.B. Garnsworthy, R. Hoischen, M. Gorska, J. Gerl, H.J. Wollersheim, T. Kurtukian-Nieto, G. Benzoni, T. Shizuma, F. Becker, P. Bednarczyk, L. Caceres, P. Doornenbal, H. Geissel, J. Grebosz, A. Kelic, I. Kojouharov, N. Kurz, F. Montes, W. Prokopowicz, T. Saito, H. Schaffner, S. Tashenov, A. Heinz, M. Pfutzner, A. Jungclaus, D.L. Balabanski, C. Brandau, A.M. Bruce, W.N. Catford, I.J. Cullen, Zs. Dombradi, E. Estevez, W. Gelletly, G. Ilie, J. Jolie, G.A. Jones, M. Kmiecik, F.G. Kondev, R. Krucken, S. Lalkovski, Z. Liu, A. Maj, S. Myalski, S. Schwertel, P.M. Walker, E. Werner-Malento, O. Wieland |
| 2009Qi04 | PRVCA | 79, | 064319 | J. Qian, A. Heinz, T.L. Khoo, R.V.F. Janssens, D. Peterson, D. Seweryniak, I. Ahmad, M. Asai, B.B. Back, M.P. Carpenter, A.B. Garnsworthy, J.P. Greene, A.A. Hecht, C.L. Jiang, F.G. Kondev, T. Lauritsen, C.J. Lister, A. Robinson, G. Savard, R. Scott, R. Vondrasek, X. Wang, R. Winkler, S. Zhu |
| 2009Ra11 | PRLTA | 103, | 042501 | S. Rahaman, V.-V. Elomaa, T. Eronen, J. Hakala, A. Jokinen, A. Kankainen, J. Rissanen, J. Suhonen, C. Weber, J. Äystö |
| 2009Ra33 | PRVCA | 80, | 054307 | R. Raabe, J. Buscher, J. Ponsaers, F. Aksouh, M. Huyse, O. Ivanov, S.R. Leshner, I. Mukha, D. Pauwels, M. Sawicka, D. Smirnov, I. Stefanescu, J. Van de Walle, P. Van Duppen, C. Angulo, J. Cabrera, N. de Sereville, I. Martel, A.M. Sanchez-Benitez, C. Aa. Diget |
| 2009Re03 | PRVAA | 79, | 012506 | M. Redshaw, B.J. Mount, E.G. Myers |
| 2009Re07 | PRLTA | 102, | 212502 | M. Redshaw, B.J. Mount, E.G. Myers, F.T. Avignone III |
| 2009Re15 | PRVAA | 79, | 012507 | M. Redshaw, B.J. Mount, E.G. Myers |
| 2009Ri03 | PYLBB | 675, | 170 | R. Ringle, M. Brodeur, T. Brunner, S. Ettenauer, M. Smith, A. Lapierre, V.L. Ryjkov, P. Delheij, G.W.F. Drake, J. Lassen, D. Lunney, J. Dilling |
| 2009Ri12 | PRVCA | 80, | 064321 | R. Ringle, C. Bachelet, M. Block, G. Bollen, M. Facina, C.M. Folden III, C. Guénaut, A.A. Kwiatkowski, D.J. Morrissey, G.K. Pang, A.M. Prinke, J. Savory, P. Schury, S. Schwarz, C.S. Sumithrarachchi |
| 2009Ru08 | PRLTA | 103, | 072502 | G. Rugel, T. Faestermann, K. Knie, G. Korschinek, M. Poutivtsev, D. Schumann, N. Kivel, I. Günther-Leopold, R. Weinreich, M. Wohlmuther |
| 2009Sa09 | EPJAA | 39, | 33 | J. Sauvage, J. Genevey, B. Roussière, S. Franchoo, A.N. Andreyev, N. Barré, J.-F. Clavelin, H. De Witte, D.V. Fedorov, V.N. Fedoseyev, L.M. Fraile, X. Grave, G. Huber, M. Huyse, H.B. Jeppesen, U. Köster, P. Kunz, S.R. Leshner, B.A. Marsh, I. Mukha, J. Oms, M. Seliverstov, I. Stefanescu, K. Van de Vel, J. Van de Walle, P. Van Duppen, Yu. M. Volkov |
| 2009Sa12 | PRLTA | 102, | 132501 | J. Savory, P. Schury, C. Bachelet, M. Block, G. Bollen, M. Facina, C.M. Folden III, C. Guénaut, E. Kwan, A.A. Kwiatkowski, D.J. Morrissey, G.K. Pang, A. Prinke, R. Ringle, H. Schatz, S. Schwarz, C.S. Sumithrarachchi |
| 2009Sa27 | PRVCA | 79, | 064315 | M. Sandzelius, E. Ganioglu, B. Cederwall, B. Hadinia, K. Andgren, T. Back, T. Grahm, P. Greenlees, U. Jakobsson, A. Johnson, P.M. Jones, R. Julin, S. Juutinen, S. Ketelhut, A. Khaplanov, M. Leino, M. Nyman, P. Peura, P. Rakhila, J. Saren, C. Scholey, J. Uusitalo, R. Wyss |
| 2009Sa38 | PRVCA | 80, | 044330 | A. Saastamoinen, T. Eronen, A. Jokinen, V.-V. Elomaa, J. Hakala, A. Kankainen, I.D. Moore, S. Rahaman, J. Rissanen, C. Weber, J. Äystö, L. Trache |
| 2009Sc19 | PRVCA | 80, | 025501 | N.D. Scielzo, S. Caldwell, G. Savard, J.A. Clark, C.M. Deibel, J. Fallis, S. Gulick, D. Lascar, A.F. Levand, G. Li, J. Mintz, E.B. Norman, K.S. Sharma, M. Sternberg, T. Sun, J. Van Schelt |
| 2009Se13 | EPJAA | 41, | 315 | M.D. Seliverstov, A.N. Andreyev, N. Barre, A.E. Barzakh, S. Dean, H. De Witte, D.V. Fedorov, V.N. Fedoseyev, L.M. Fraile, S. Franchoo, J. Genevey, G. Huber, M. Huyse, U. Koster, P. Kunz, S.R. Leshner, B.A. Marsh, I. Mukha, B. Roussiere, J. Sauvage, I. Stefanescu, K. Van de Vel, P. Van Duppen, Yu. M. Volkov |
| 2009Sh17 | EPJAA | 39, | 263 | T. Shizuma, T. Ishii, H. Makii, T. Hayakawa, M. Matsuda |

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| 2009Si21 | PRVCA | 80, | 024304 | G.S. Simpson, W. Urban, J. Genevey, R. Orlandi, J.A. Pinston, A. Scherillo, A.G. Smith, J.F. Smith, I. Ahmad, J.P. Greene |
| 2009Si35 | PRVCA | 80, | 064608 | E.C. Simpson, J.A. Tostevin, Zs. Podolyák, P.H. Regan, S.J. Steer |
| 2009St04 | PRVCA | 79, | 015803 | J.B. Stoker, P.F. Mantica, D. Bazin, A. Becerril, J.S. Berryman, H.L. Crawford, A. Estrade, C.J. Guess, G.W. Hitt, G. Lorusso, M. Matos, K. Minamisono, F. Montes, J. Pereira, G. Perdikakis, H. Schatz, K. Smith, R.G.T. Zegers |
| 2009St16 | IMPEE | 18, | 1002 | S.J. Steer, Zs. Podolyák, S. Pietri, M. Górska, G.F. Farrelly, P.H. Regan, D. Rudolph, A.B. Garnsworthy, R. Hoischen, J. Gerl, H.J. Wollersheim, H. Grawe, K.H. Maier, F. Becker, P. Bednarczyk, L. Cáceres, P. Doornenbal, H. Geissel, J. Grebosz, A. Kelic, I. Kojouharov, N. Kurz, F. Montes, W. Prokopowicz, T. Saito, H. Schaffner, S. Tashenov, A. Heinz, T. Kurtukian-nieto, G. Benzoni, M. Pfützner, A. Jungclaus, D.L. Balabanski, C. Brandau, A. Brown, A.M. Bruce, W.N. Catford, I.J. Cullen, Zs. Dombrádi, M.E. Estevez, W. Gelletly, G. Ilie, J. Jolie, G.A. Jones, M. Kmiecik, F.G. Kondev, R. Krücken, S. Lalkovski, Z. Liu, A. Maj, S. Myalski, S. Schwertel, T. Shizuma, P.M. Walker, E. Werner-Malento, O. Wieland |
| 2009St21 | PRLTA | 103, | 132502 | L. Stavsetra, K.E. Gregorich, J. Dvorak, P.A. Ellison, I. Dragojević, M.A. Garcia, H. Nitsche |
| 2009St28 | EPJAA | 42, | 407 | I. Stefanescu, W.B. Walters, P.F. Mantica, B.A. Brown, A.D. Davies, A. Estrade, P.T. Hosmer, N. Hoteling, S.N. Liddick, W.D.M. Rae, T.J. Mertzimekis, F. Montes, A.C. Morton, W.F. Mueller, M. Ouellette, E. Pellegrini, P. Santi, D. Seweryniak, H. Schatz, J. Shergur, A. Stolz, J.R. Stone, B.E. Tomlin |
| 2009Su14 | PRLTA | 103, | 152503 | D. Suzuki, H. Iwasaki, D. Beaumel, L. Nalpas, E. Pollacco, M. Assie, H. Baba, Y. Blumenfeld, N. De Sereville, A. Drouart, S. Franchoo, A. Gillibert, J. Guillot, F. Hammache, N. Keeley, V. Lapoux, F. Marechal, S. Michimasa, X. Mougeot, I. Mukha, H. Okamura, H. Otsu, A. Ramus, P. Roussel-Chomaz, H. Sakurai, J.-A. Scarpaci, O. Sorlin, I. Stefan, M. Takechi |
| 2009Ta24 | PRVCA | 80, | 034609 | O.B. Tarasov, M. Portillo, A.M. Amthor, T. Baumann, D. Bazin, A. Gade, T.N. Ginter, M. Hausmann, N. Inabe, T. Kubo, D.J. Morrissey, A. Nettleton, J. Pereira, B.M. Sherrill, A. Stolz, M. Thoennessen |
| 2009Ur04 | PRVCA | 80, | 037301 | W. Urban, J.A. Pinston, G.S. Simpson, A.G. Smith, J.F. Smith, T. Rzaça-Urban, I. Ahmad |
| 2009Wa02 | PRVCA | 79, | 024306 | H. Watanabe, G.J. Lane, G.D. Dracoulis, T. Kibédi, A.P. Byrne, P. Nieminen, R.O. Hughes, F.G. Kondev, M.P. Carpenter, R.V.F. Janssens, T. Lauritsen, D. Seweryniak, S. Zhu, P. Chowdhury, C.-B. Moon |
| 2009Wa06 | PRVCA | 79, | 044321 | P.M. Walker, R.J. Wood, G.D. Dracoulis, T. Kibédi, R.A. Bark, A.M. Bruce, A.P. Byrne, P.M. Davidson, H.M. El-Masri, G.J. Lane, C. Moon, J.N. Orce, F.M. Prados Estevez, C. Wheldon, A.N. Wilson |
| 2009Wa11 | PRVCA | 79, | 064311 | H. Watanabe, G.J. Lane, G.D. Dracoulis, A.P. Byrne, P. Nieminen, F.G. Kondev, K. Ogawa, M.P. Carpenter, R.V.F. Janssens, T. Lauritsen, D. Seweryniak, S. Zhu, P. Chowdhury |
| 2009Wa24 | EPJAA | 42, | 163 | H. Watanabe, G.J. Lane, G.D. Dracoulis, A.P. Byrne, P. Nieminen, F.G. Kondev, K. Ogawa, M.P. Carpenter, R.V.F. Janssens, T. Lauritsen, D. Seweryniak, S. Zhu, P. Chowdhury |
| 2009Wi03 | PRLTA | 102, | 142502 | J.A. Winger, S.V. Ilyushkin, K.P. Rykaczewski, C.J. Gross, J.C. Batchelder, C. Goodin, R. Grzywacz, J.H. Hamilton, A. Korgul, W. Krolas, S.N. Liddick, C. Mazzocchi, S. Padgett, A. Piechaczek, M.M. Rajabali, D. Shapira, E.F. Zganjar, I.N. Borzov |
| 2009Wi09 | PYLBB | 679, | 36 | N. Winckler, H. Geissel, Yu. A. Litvinov, K. Beckert, F. Bosch, D. Boutin, C. Brandau, L. Chen, C. Dimopoulou, H.G. Essel, B. Fabian, T. Faestermann, A. Fragner, E. Haettner, S. Hess, P. Kienle, R. Knöbel, C. Kozuharov, S.A. Litvinov, M. Mazzocco, F. Montes, G. Münzenberg, C. Nociforo, F. Nolden, Z. Patyk, W.R. Plass, A. Prochazka, R. Reda, R. Reuschl, C. Scheidenberger, M. Steck, T. Stohlker, S. Yu. Torilov, M. Trassinelli, B. Sun, H. Weick, M. Winkler |
| 2009Wi10 | PRLTA | 103, | 122501 | J.S.E. Wieslander, J. Suhonen, T. Eronen, M. Hult, V.-V. Elomaa, A. Jokinen, G. Marissens, M. Misiaszek, M.T. Mustonen, S. Rahaman, C. Weber, J. Äystö |

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| 2010Ac.A | AnRpt GSI | | | D. Ackermann et al |
| 2010Al24 | PRVCA | 82, | 041602 | H. Alvarez-Pol, J. Benlliure, E. Casarejos, L. Audouin, D. Cortina-Gil, T. Enqvist, B. Fernandez-Dominguez, A.R. Junghans, B. Jurado, P. Napolitani, J. Pereira, F. Rejmund, K.-H. Schmidt, O. Yordanov |
| 2010An01 | JPGPE | 37, | 035102 | A.N. Andreyev, S. Antalic, D. Ackermann, T.E. Cocolios, V.F. Comas, J. Elseviers, S. Franchoo, S. Heinz, J.A. Heredia, F.P. Heßberger, S. Hofmann, M. Huyse, J. Khuyagbaatar, I. Kojouharov, B. Kindler, B. Lommel, R. Mann, R.D. Page, S. Rinta-Antila, P.J. Sapple, Š. Šáro, P. Van Duppen, M. Venhart, H.V. Watkins |
| 2010An02 | PRVCA | 81, | 011901 | N.G. Antoniou, F.K. Diakonos, A.S. Kapoyannis |
| 2010An08 | EPJAA | 43, | 35 | S. Antalic, F.P. Heßberger, S. Hofmann, D. Ackermann, S. Heinz, B. Kindler, I. Kojouharov, P. Kuusiniemi, M. Leino, B. Lommel, R. Mann, Š. Šáro |
| 2010As.A | AnRpt JAEA | | 21 | M. Asai, K. Tsukada, N. Sato, T.K. Sato, A. Toyoshima, T. Ishii, Y. Nagame (JAEA-Review 2010-056) |
| 2010Ba43 | PRVCA | 82, | 045501 | G.C. Ball, G. Boisvert, P. Bricault, R. Churchman, M. Domsbys, T. Lindner, J.A. Macdonald, E. Vandervoort, S. Bishop, J.M. D'Auria, J.C. Hardy, V.E. Iacob, J.R. Leslie, H.-B. Mak |
| 2010Ba48 | NUPAB | 847, | 121 | M. Balodis, I. Tomandl, V. Bondarenko, L. Simonova, T. Krasta, J. Bērziņš |
| 2010Be16 | PRVCA | 81, | 064325 | J.S. Berryman, R.M. Clark, K.E. Gregorich, J.M. Allmond, D.L. Bleuel, M. Cromaz, I. Dragojević, J. Dvorak, P.A. Ellison, P. Fallon, M.A. Garcia, S. Gros, I.Y. Lee, A.O. Macchiavelli, H. Nitsche, S. Paschalis, M. Petri, J. Qian, M.A. Stoyer, M. Wiedeking |
| 2010Bi03 | PYLBB | 690, | 15 | L. Bianco, R.D. Page, I.G. Darby, D.T. Joss, J. Simpson, J.S. Al-Khalili, A.J. Cannon, B. Cederwall, S. Eeckhaudt, S. Ertürk, B. Gall, M.B. Gómez Hornillos, T. Grahn, P.T. Greenlees, B. Hadinia, K. Heyde, U. Jakobsson, P.M. Jones, R. Julin, S. Juutinen, S. Ketelhut, M. Labiche, M. Leino, A.-P. Leppänen, M. Nyman, D. O'Donnell, E.S. Paul, M. Petri, P. Peura, A. Puurunen, P. Rahkila, P. Ruotsalainen, M. Sandzelius, P.J. Sapple, J. Sarén, C. Scholey, N.A. Smirnova, A.N. Steer, P.D. Stevenson, E.B. Suckling, J. Thomson, J. Uusitalo, M. Venhart |
| 2010BI09 | EPJAA | 44, | 363 | B. Blank, C. Borcea, G. Canchel, C.-E. Demonchy, F. de Oliveira Santos, C. Dossat, J. Giovannazzo, S. Grevy, L. Hay, P. Hellmuth, S. Leblanc, I. Matea, J.-L. Pedroza, L. Perrot, J. Pibernat, A. Rebii, L. Serani, J.C. Thomas |
| 2010Bo.A | PrvCom | WgM | Sep | C. Boehm |
| 2010Br02 | PRVCA | 81, | 034313 | M. Breitenfeldt, Ch. Borgmann, G. Audi, S. Baruah, D. Beck, K. Blaum, Ch. Böhm, R.B. Cakirli, R.F. Casten, P. Delahaye, M. Dworschak, S. George, F. Herfurth, A. Herlert, A. Kellerbauer, M. Kowalska, D. Lunney, E. Minaya-Ramirez, S. Naimi, D. Neidherr, M. Rosenbusch, R. Savreux, S. Schwarz, L. Schweikhard, C. Yazidjian |
| 2010Ch19 | PYLBB | 691, | 234 | L. Chen, W.R. Plaß, H. Geissel, R. Knöbel, C. Kozhuharov, Yu. A. Litvinov, Z. Patyk, C. Scheidenberger, K. Siegień-Iwaniuk, B. Sun, H. Weick, K. Beckert, P. Beller, F. Bosch, D. Boutin, L. Caceres, J.J. Carroll, D.M. Cullen, I.J. Cullen, B. Franzke, J. Gerl, M. Górka, G.A. Jones, A. Kishada, J. Kurcewicz, S.A. Litvinov, Z. Liu, S. Mandal, F. Montes, G. Münzenberg, F. Nolden, T. Ohtsubo, Zs. Podolyák, R. Propri, S. Rigby, N. Saito, T. Saito, M. Shindo, M. Steck, P. Ugorowski, P.M. Walker, S. Williams, M. Winkler, H.-J. Wollersheim, T. Yamaguchi |
| 2010CI01 | PYLBB | 690, | 19 | R.M. Clark, K.E. Gregorich, J.S. Berryman, M.N. Ali, J.M. Allmond, C.W. Beausang, M. Cromaz, M.A. Deleplanque, I. Dragojevic, J. Dvorak, P.A. Ellison, P. Fallon, M.A. Garcia, J.M. Gates, S. Gros, H.B. Jeppesen, D. Kaji, I.Y. Lee, A.O. Macchiavelli, K. Morimoto, H. Nitsche, S. Paschalis, M. Petri, L. Stavsetra, F.S. Stephens, H. Watanabe, M. Wiedeking |
| 2010Co13 | JPGPE | 37, | 125130 | T.E. Cocolios, A.N. Andreyev, S. Antalic, A. Barzakh, B. Bastin, J. Büscher, I.G. Darby, W. Dexters, D.V. Fedorov, V.N. Fedosseev, K.T. Flanagan, S. Franchoo, G. Huber, M. Huyse, M. Keupers, U. Köster, Yu. Kudryavtsev, E. Mane, B.A. Marsh, P. Molkanov, R.D. Page, M.D. Seliverstov, A.M. Sjoedin, I. Stefan, J. Van de Walle, P. Van Duppen, M. Venhart, S. Zemlyanov |

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| 2010Cr02 | PRVCA | 82, | 014311 | H.L. Crawford, R.V.F. Janssens, P.F. Mantica, J.S. Berryman, R. Broda, M.P. Carpenter, N. Cieplicka, B. Fornal, G.F. Grinyer, N. Hoteling, B.P. Kay, T. Lauritsen, K. Minamisono, I. Stefanescu, J.B. Stoker, W.B. Walters, S. Zhu |
| 2010Da06 | PRVCA | 81, | 034304 | J.M. Daugas, T. Faul, H. Grawe, M. Pfützner, R. Grzywacz, M. Lewitowicz, N.L. Achouri, J.C. Angélique, D. Baiborodin, R. Béntida, R. Béraud, C. Borcea, C.R. Bingham, W.N. Catford, A. Emsallem, G. de France, K.L. Grzywacz, R.C. Lemmon, M.J. Lopez Jimenez, F. de Oliveira Santos, P.H. Regan, K. Rykaczewski, J.E. Sauvestre, M. Sawicka, M. Stanoiu |
| 2010Da17 | PRLTA | 105, | 162502 | I.G. Darby, R.K. Grzywacz, J.C. Batchelder, C.R. Bingham, L. Cartegni, C.J. Gross, M. Hjorth-Jensen, D.T. Joss, S.N. Liddick, W. Nazarewicz, S. Padgett, R.D. Page, T. Papenbrock, M.M. Rajabali, J. Rotureau, K.P. Rykaczewski |
| 2010De04 | PRVCA | 81, | 024322 | A.Y. Deo, Zs. Podolyák, P.M. Walker, A. Algora, B. Rubio, J. Agramunt, L.M. Fraile, N. Al-Dahan, N. Alkhomashi, J.A. Briz, E. Estevez, G. Farrelly, W. Gelletly, A. Herlert, U. Köster, A. Maira, S. Singla |
| 2010Dr02 | PRVCA | 81, | 054313 | G.D. Dracoulis, G.J. Lane, F.G. Kondev, H. Watanabe, D. Seweryniak, S. Zhu, M.P. Carpenter, C.J. Chiara, R.V.F. Janssens, T. Lauritsen, C.J. Lister, E.A. McCutchan, I. Stefanescu |
| 2010Dr05 | PRVCA | 82, | 034317 | G.D. Dracoulis, G.J. Lane, R.O. Hughes, F.G. Kondev, H. Watanabe, D. Seweryniak, S. Zhu, M.P. Carpenter, C.J. Chiara, R.V.F. Janssens, T. Lauritsen, C.J. Lister, E.A. McCutchan, I. Stefanescu, P. Chowdhury |
| 2010Du06 | PRLTA | 104, | 252701 | Ch. E. Düllmann, M. Schädel, A. Yakushev, A. Türler, K. Eberhardt, J.V. Kratz, D. Ackermann, L.-L. Andersson, M. Block, W. Brüche, J. Dvorak, H.G. Essel, P.A. Ellison, J. Even, J.M. Gates, A. Gorshkov, R. Graeger, K.E. Gregorich, W. Hartmann, R.-D. Herzberg, F.P. Heßberger, D. Hild, A. Hübner, E. Jäger, J. Khuyagbaatar, B. Kindler, J. Krier, N. Kurz, S. Lahiri, D. Liebe, B. Lommel, M. Maiti, H. Nitsche, J.P. Omtvedt, E. Parr, D. Rudolph, J. Runke, B. Schausten, E. Schimpf, A. Semchenkov, J. Steiner, P. Thörle-Pospiech, J. Uusitalo, M. Wegrzecki, N. Wiehl |
| 2010Dw01 | PRVCA | 81, | 064312 | M. Dworschak, M. Block, D. Ackermann, G. Audi, K. Blaum, C. Droese, S. Eliseev, T. Fleckenstein, E. Haettner, F. Herfurth, F.P. Heßberger, S. Hofmann, J. Ketelaer, J. Ketter, H.-J. Kluge, G. Marx, M. Mazzocco, Yu. N. Novikov, W.R. Plaß, A. Popeko, S. Rahaman, D. Rodríguez, C. Scheidenberger, L. Schweikhard, P.G. Thirolf, G.K. Vorobyev, M. Wang, C. Weber |
| 2010EI06 | PRLTA | 105, | 182701 | P.A. Ellison, K.E. Gregorich, J.S. Berryman, D.L. Bleuel, R.M. Clark, I. Dragojević, J. Dvorak, P. Fallon, C. Fineman-Sotomayor, J.M. Gates, O.R. Gothe, I.Y. Lee, W.D. Loveland, J.P. McLaughlin, S. Paschalis, M. Petri, J. Qian, L. Stavsetra, M. Wiedeking, H. Nitsche |
| 2010EI11 | PYLBB | 693, | 426 | S. Eliseev, Ch. Böhm, D. Beck, K. Blaum, M. Breitenfeldt, V.N. Fedosseev, S. George, F. Herfurth, A. Herlert, H.-J. Kluge, M. Kowalska, D. Lunney, S. Naimi, D. Neidherr, Yu. N. Novikov, M. Rosenbusch, L. Schweikhard, S. Schwarz, M. Seliverstov, K. Zuber |
| 2010Et01 | PRVCA | 81, | 024314 | S. Ettenauer, M. Brodeur, T. Brunner, A.T. Gallant, A. Lapierre, R. Ringle, M.R. Pearson, P. Delheij, J. Lassen, D. Lunney, J. Dilling |
| 2010Fe01 | PRVCA | 81, | 044318 | R. Ferrer, M. Block, C. Bachelet, B.R. Barquest, G. Bollen, C.M. Campbell, M. Facina, C.M. Folden III, C.M. Folden, C. Guénaut, A.A. Kwiatkowski, D.L. Lincoln, D.J. Morrissey, G.K. Pang, A.M. Prinke, R. Ringle, J. Savory, P. Schury, S. Schwarz |
| 2010FI01 | PRVCA | 82, | 027309 | X. Flechard, E. Lienard, O. Naviliat-Cuncic, D. Rodriguez, M.A.G. Alvarez, G. Ban, B. Carniol, D. Etasse, J.M. Fontbonne, A.M. Lallena, J. Praena |
| 2010Ga04 | ARISE | 68, | 1561 | E. García-Torano, V. Peyrés Medina, M. Roteta Ibarra |
| 2010Go16 | PYLBB | 692, | 307 | V.Z. Goldberg, B.T. Roeder, G.V. Rogachev, G.G. Chubarian, E.D. Johnson, C. Fu, A.A. Alharbi, M.L. Avila, A. Banu, M. McCleskey, J.P. Mitchell, E. Simmons, G. Tabacaru, L. Trache, R.E. Tribble |
| 2010Gr04 | PRVCA | 81, | 061601 | R. Graeger, D. Ackermann, M. Chelnokov, V. Chepigin, Ch. E. Düllmann, J. Dvorak, J. Even, A. Gorshkov, F.P. Heßberger, D. Hild, A. Hübner, E. Jäger, J. Khuyagbaatar, B. Kindler, J.V. Kratz, J. Krier, A. Kuznetsov, B. Lommel, K. Nishio, H. Nitsche, J.P. Omtvedt, O. Petrushkin, D. Rudolph, J. Runke, F. Samadani, M. Schädel, B. Schausten, A. Türler, A. Yakushev, Q. Zhi |

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| 2010Ha04 | PRVCA | 81, | 021302 | C.C. Hall, E.M. Lunderberg, P.A. DeYoung, T. Baumann, D. Bazin, G. Blanchon, A. Bonaccorso, B.A. Brown, J. Brown, G. Christian, D.H. Denby, J. Finck, N. Frank, A. Gade, J. Hinnefeld, C.R. Hoffman, B. Luther, S. Mosby, W.A. Peters, A. Spyrou, M. Thoennessen |
| 2010Ha.A | NIMAE | 613, | 79 | H. Hayashi et al |
| 2010He10 | EPJAA | 43, | 55 | F.P. Heßberger, S. Antalic, B. Sulignano, D. Ackermann, S. Heinz, S. Hofmann, B. Kindler, J. Khuyagbaatar, I. Kojouharov, P. Kuusiniemi, M. Leino, B. Lommel, R. Mann, K. Nishio, A.G. Popeko, Š. Šáro, B. Streicher, J. Uusitalo, M. Venhart, A.V. Yeremin |
| 2010He11 | EPJAA | 43, | 175 | F.P. Heßberger, S. Antalic, D. Ackermann, S. Heinz, S. Hofmann, J. Khuyagbaatar, B. Kindler, I. Kojouharov, B. Lommel, R. Mann |
| 2010He25 | EPJAA | 46, | 337 | J.A. Heredia, A.N. Andreyev, S. Antalic, S. Hofmann, D. Ackermann, V.F. Comas, S. Heinz, F.P. Heßberger, B. Kindler, J. Khuyagbaatar, B. Lommel, R. Mann |
| 2010Ho12 | PRVCA | 82, | 025806 | P. Hosmer, H. Schatz, A. Aprahamian, O. Arndt, R.R.C. Clement, A. Estrade, K. Farouqi, K.-L. Kratz, S.N. Liddick, A.F. Lisetskiy, P.F. Mantica, P. Möller, W.F. Mueller, F. Montes, A.C. Morton, M. Ouellette, E. Pellegrini, J. Pereira, B. Pfeiffer, P. Reeder, P. Santi, M. Steiner, A. Stolz, B.E. Tomlin, W.B. Walters, A. Wohr |
| 2010II01 | PYLBB | 687, | 305 | G. Ilie, G. Neyens, G.S. Simpson, J. Jolie, A. Blazhev, H. Grawe, R.L. Lozeva, N. Vermeulen, L. Atanasova, D.L. Balabanski, F. Becker, P. Bednarczyk, C. Brandau, L. Caceres, S.K. Chamoli, J.M. Daugas, P. Doornenbal, J. Gerl, M. Górská, J. Grebosz, M. Hass, M. Ionescu-Bujor, A. Jungclaus, M. Kmiecik, I. Kojouharov, N. Kurz, A. Maj, S. Mallion, O. Perru, M. Pfützner, Zs. Podolyák, W. Prokopowicz, M. De Rydt, T.R. Saito, H. Schaffner, K. Turzó, J. Walker, E. Werner-Malento, H.J. Wollersheim |
| 2010Ja05 | PRVCA | 82, | 044302 | U. Jakobsson, J. Uusitalo, S. Juutinen, M. Leino, P. Nieminen, K. Andgren, B. Cederwall, P.T. Greenlees, B. Hadinia, P. Jones, R. Julin, S. Ketelhut, A. Khaplanov, M. Nyman, P. Peura, P. Rahkila, P. Ruotsalainen, M. Sandzelius, J. Sarén, C. Scholey, J. Sorri |
| 2010Jo06 | NUPAB | 842, | 15 | H.T. Johansson, Yu. Aksyutina, T. Aumann, K. Boretzky, M.J.G. Borge, A. Chatillon, L.V. Chulkov, D. Cortina-Gil, U. Datta Pramanik, H. Emling, C. Forssén, H.O.U. Fynbo, H. Geissel, G. Ickert, B. Jonson, R. Kulesa, C. Langer, M. Lantz, T. LeBlais, K. Mahata, M. Meister, G. Münzenberg, T. Nilsson, G. Nyman, R. Palit, S. Paschalis, W. Prokopowicz, R. Reifarth, A. Richter, K. Riisager, G. Schrieder, H. Simon, K. Sümmerer, O. Tengblad, H. Weick, M.V. Zhukov |
| 2010Jo07 | NUPAB | 847, | 66 | H.T. Johansson, Yu. Aksyutina, T. Aumann, K. Boretzky, M.J.G. Borge, A. Chatillon, L.V. Chulkov, D. Cortina-Gil, U. Datta Pramanik, H. Emling, C. Forssén, H.O.U. Fynbo, H. Geissel, G. Ickert, B. Jonson, R. Kulesa, C. Langer, M. Lantz, T. LeBlais, K. Mahata, M. Meister, G. Münzenberg, T. Nilsson, G. Nyman, R. Palit, S. Paschalis, W. Prokopowicz, R. Reifarth, A. Richter, K. Riisager, G. Schrieder, N.B. Shulgina, H. Simon, K. Sümmerer, O. Tengblad, H. Weick, M.V. Zhukov |
| 2010Ka26 | PRVCA | 82, | 034311 | A. Kankainen, V.-V. Elomaa, T. Eronen, D. Gorelov, J. Hakala, A. Jokinen, T. Kessler, V.S. Kolhinen, I.D. Moore, S. Rahaman, M. Reponen, J. Rissanen, A. Saastamoinen, C. Weber, J. Äystö |
| 2010Ka29 | NUPAB | 842, | 1 | D. Kanjilal, S. Bhattacharya, A. Goswami, R. Kshetri, R. Raut, S. Saha, R.K. Bhowmik, J. Gehlot, S. Muralithar, R.P. Singh, G. Jnaneswari, G. Mukherjee, B. Mukherjee |
| 2010Ka30 | PRVCA | 82, | 052501 | A. Kankainen, T. Eronen, D. Gorelov, J. Hakala, A. Jokinen, V.S. Kolhinen, M. Reponen, J. Rissanen, A. Saastamoinen, V. Sonnenschein, J. Äystö |
| 2010Ke09 | EPJDD | 58, | 47 | J. Ketelaer, T. Beyer, K. Blaum, M. Block, K. Eberhardt, F. Herfurth, C. Smorra, Sz. Nagy |
| 2010Kh06 | EPJAA | 46, | 59 | J. Khuyagbaatar, F.P. Heßberger, S. Hofmann, D. Ackermann, V.S. Comas, S. Heinz, J.A. Heredia, B. Kindler, I. Kojouharov, B. Lommel, R. Mann, K. Nishio, A. Yakushev |
| 2010Ko15 | PYLBB | 684, | 17 | V.S. Kolhinen, V.-V. Elomaa, T. Eronen, J. Hakala, A. Jokinen, M. Kortelainen, J. Suhonen, J. Äystö |

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|----------|--------|------|--------|---|
| 2010Ko17 | PYLBB | 690, | 245 | Y. Kondo, T. Nakamura, Y. Satou, T. Matsumoto, N. Aoi, N. Endo, N. Fukuda, T. Gomi, Y. Hashimoto, M. Ishihara, S. Kawai, M. Kitayama, T. Kobayashi, Y. Matsuda, N. Matsui, T. Motobayashi, T. Nakabayashi, T. Okumura, H.J. Ong, T.K. Onishi, K. Ogata, H. Otsu, H. Sakurai, S. Shimoura, M. Shinohara, T. Sugimoto, S. Takeuchi, M. Tamaki, Y. Togano, Y. Yanagisawa |
| 2010Ko28 | PRVCA | 82, | 022501 | V.S. Kolhinen, T. Eronen, D. Gorelov, J. Hakala, A. Jokinen, A. Kankainen, I.D. Moore, J. Rissanen, A. Saastamoinen, J. Suhonen, J. Äystö |
| 2010Ku02 | APOBB | 41, | 525 | J. Kurcewicz, F. Bosch, H. Geissel, Yu. A. Litvinov, N. Winckler, K. Beckett, P. Beller, D. Boutin, C. Brandau, L. Chen, C. Dimopoulou, H.G. Essel, B. Fabian, T. Faestermann, A. Fragner, B. Franzke, E. Haettner, M. Hausmann, S. Hess, P. Kienle, R. Knöbel, C. Kozhuharov, S.A. Litvinov, L. Maier, M. Mazocco, F. Montes, A. Musumarra, C. Nociforo, F. Nolden, Z. Patyk, W.R. Plass, A. Prochazka, R. Reda, R. Reuschl, C. Scheidenberger, M. Steck, T. Stohler, B. Sun, K. Takahashi, S. Torilov, M. Trassinelli, H. Weick, M. Winkler |
| 2010Kw02 | PRVCA | 81, | 058501 | A.A. Kwiatkowski, B.R. Barquest, G. Bollen, C.M. Campbell, R. Ferrer, A.E. Gehring, D.L. Lincoln, D.J. Morrissey, G.K. Pang, J. Savory, S. Schwarz |
| 2010La16 | PRVCA | 82, | 051304 | G.J. Lane, G.D. Dracoulis, F.G. Kondev, R.O. Hughes, H. Watanabe, A.P. Byrne, M.P. Carpenter, C.J. Chiara, P. Chowdhury, R.V.F. Janssens, T. Lauritsen, C.J. Lister, E.A. McCutchan, D. Seweryniak, I. Stefanescu, S. Zhu |
| 2010La.A | PrvCom | GAu | Mar | Alain Lapiere |
| 2010Li13 | PRVCA | 81, | 045803 | W.H. Lippincott, S.B. Cahn, D. Gastler, L.W. Kastens, E. Kearns, D.N. McKinsey, J.A. Nikkel |
| 2010Lo14 | ARISE | 68, | 1454 | M. Loidl, M. Rodrigues, B. Censier, S. Kowalski, X. Mougeot, P. Cassette, T. Branger, D. Lacour |
| 2010Ma08 | PRVCA | 81, | 024302 | P.J.R. Mason, D.M. Cullen, C. Scholey, P.T. Greenlees, U. Jakobsson, P.M. Jones, R. Julin, S. Juutinen, S. Ketelhut, M. Leino, M. Nyman, P. Peura, A. Puurunen, P. Rahkila, P. Ruotsalainen, J. Sorri, J. Saren, J. Uusitalo, F.R. Xu |
| 2010Ma20 | PRVCA | 81, | 047301 | F. Ma, X.H. Zhou, Y. Zheng, S.W. Xu, Y.X. Xie, L. Chen, X.G. Lei, Y.X. Guo, Y.H. Zhang, Z.K. Li, Y.H. Qiang, S. Guo, H.X. Wang, H.B. Zhou, B. Ding, G.S. Li, N.T. Zhang |
| 2010Ma27 | CPLEE | 27, | 062104 | F. Ma, X.H. Zhou, Y. Zheng, S.W. Xu, Y.X. Xie, L. Chen, Y.H. Zhang, Z.K. Li, Y.H. Qiang, X.G. Lei, Y.X. Guo, S. Guo, B. Ding, H.X. Wang, G.S. Li, H.B. Zhou |
| 2010Ma37 | CPCHC | 34, | 1082 | F. Ma, X.H. Zhou, Y. Zheng, S.W. Xu, Y.X. Xie, L. Chen, X.G. Lei, Y.X. Guo, Y.H. Zhang, Z.K. Li, S. Guo, B. Ding, H.B. Zhou, G.S. Li, H.X. Wang |
| 2010Mc04 | PRVCA | 82, | 024603 | P.M. McCowan, R.C. Barber |
| 2010Mi.A | PrvCom | WgM | Sep | E. Minaya |
| 2010Mo03 | PRVCA | 81, | 032501 | B.J. Mount, M. Redshaw, E.G. Myers |
| 2010Mo09 | PRVCA | 81, | 054304 | V. Modamio, A. Jungclaus, A. Algora, D. Bazzacco, D. Escrig, L.M. Fraile, S. Lenzi, N. Marginean, T. Martinez, D.R. Napoli, R. Schwengner, C.A. Ur |
| 2010Mo29 | PRVAA | 81, | 064501 | B.J. Mount, H.S.P. Müller, M. Redshaw, E.G. Myers |
| 2010Mo30 | PRVAA | 82, | 042513 | B.J. Mount, M. Redshaw, E.G. Myers |
| 2010Mu12 | PRVCA | 82, | 054315 | I. Mukha, K. Sümmerer, L. Acosta, M.A.G. Alvarez, E. Casarejos, A. Chatillon, D. Cortina-Gil, I.A. Egorova, J.M. Espino, A. Fomichev, J.E. García-Ramos, H. Geissel, J. Gómez-Camacho, L. Grigorenko, J. Hofmann, O. Kiselev, A. Korshennikov, N. Kurz, Yu. A. Litvinov, E. Litvinova, I. Martel, C. Nociforo, W. Ott, M. Pfützner, C. Rodríguez-Tajes, E. Roeckl, M. Stanoiu, N.K. Timofeyuk, H. Weick, P.J. Woods |
| 2010Mu13 | PRVCA | 82, | 054316 | G. Mukherjee, P. Chowdhury, F.G. Kondev, P.M. Walker, G.D. Dracoulis, R. D'Alarcao, I. Shestakova, K. Abu Saleem, I. Ahmad, M.P. Carpenter, A. Heinz, R.V.F. Janssens, T.L. Khoo, T. Lauritsen, C.J. Lister, D. Seweryniak, I. Wiedenhoever, D.M. Cullen, C. Wheldon, D.L. Balabanski, M. Danchev, T.M. Goon, D.J. Hartley, L.L. Riedinger, O. Zeidan, M.A. Riley, R.A. Kaye, G. Sletten |
| 2010Na13 | PRLTA | 105, | 032502 | S. Naimi, G. Audi, D. Beck, K. Blaum, Ch. Böhm, Ch. Borgmann, M. Breitenfeldt, S. George, F. Herfurth, A. Herlert, M. Kowalska, S. Kreim, D. Lunney, D. Neidherr, M. Rosenbusch, S. Schwarz, L. Schweikhard, K. Zuber |

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| 2010Na17 | PRVCA | 82, | 034323 | F. Naqvi, M. Górská, L. Cáceres, A. Jungclaus, M. Pfützner, H. Grawe, F. Nowacki, K. Sieja, S. Pietri, E. Werner-Malento, P.H. Regan, D. Rudolf, Z. Podolyák, J. Jolie, K. Andgren, T. Beck, P. Bednarczyk, J. Benlliure, G. Benzoni, A.M. Bruce, E. Casarejos, B. Cederwall, F.C.L. Crespi, P. Detistov, Zs. Dombrádi, P. Doornenbal, H. Geissel, J. Gerl, J. Grebosz, B. Hadinia, M. Hellström, R. Hoischen, G. Ilie, A. Khaplanov, I. Kojouharov, M. Kmiecik, N. Kurz, S. Lalkovski, A. Maj, S. Mandal, V. Modamio, F. Montes, S. Myalski, W. Prokopowicz, P. Reiter, H. Schaffner, G. Simpson, D. Sohler, S.J. Steer, S. Tashenov, J. Walker, O. Wieland, H.J. Wollersheim |
| 2010Ni10 | PRVCA | 81, | 064606 | E. Yu. Nikolskii, A.A. Korshennikov, H. Otsu, H. Suzuki, K. Yoneda, H. Baba, K. Yamada, Y. Kondo, N. Aoi, A.S. Denikin, M.S. Golovkov, A.S. Fomichev, S.A. Krupko, M. Kurokawa, E.A. Kuzmin, I. Martel, W. Mittag, T. Motobayashi, T. Nakamura, M. Niikura, S. Nishimura, A.A. Ogloblin, P. Roussel-Chomaz, A. Sanchez-Benitez, Y. Satou, S.I. Sidorchuk, T. Suda, S. Takeuchi, K. Tanaka, G.M. Ter-Akopian, Y. Togano, M. Yamaguchi |
| 2010Ni14 | PRVCA | 82, | 024611 | K. Nishio, S. Hofmann, F.P. Heßberger, D. Ackermann, S. Antalic, Y. Aritomo, V.F. Comas, Ch. E. Düllmann, A. Gorshkov, R. Graeger, K. Hagino, S. Heinz, J.A. Heredia, K. Hirose, H. Ikezoe, J. Khuyagbaatar, B. Kindler, I. Kojouharov, B. Lommel, R. Mann, S. Mitsuoka, Y. Nagame, I. Nishinaka, T. Ohtsuki, A.G. Popeko, S. Saro, M. Schädel, A. Türler, Y. Watanabe, A. Yakushev, A.V. Yeremin |
| 2010Og01 | PRLTA | 104, | 142502 | Yu. Ts. Oganessian, F. Sh. Abdullin, P.D. Bailey, D.E. Benker, M.E. Bennett, S.N. Dmitriev, J.G. Ezold, J.H. Hamilton, R.A. Henderson, M.G. Itkis, Yu. V. Lobanov, A.N. Mezentssev, K.J. Moody, S.L. Nelson, A.N. Polyakov, C.E. Porter, A.V. Ramayya, F.D. Riley, J.B. Roberto, M.A. Ryabinin, K.P. Rykaczewski, R.N. Sagaidak, D.A. Shaughnessy, I.V. Shirokovsky, M.A. Stoyer, V.G. Subbotin, R. Sudowe, A.M. Sukhov, Yu. S. Tsyganov, V.K. Utyonkov, A.A. Voinov, G.K. Vostokin, P.A. Wilk |
| 2010Oh02 | JUPSA | 79, | 073201 | T. Ohnishi, T. Kubo, K. Kusaka, A. Yoshida, K. Yoshida, M. Ohtake, N. Fukuda, H. Takeda, D. Kameda, K. Tanaka, N. Inabe, Y. Yanagisawa, Y. Gono, H. Watanabe, H. Otsu, H. Baba, T. Ichihara, Y. Yamaguchi, M. Takechi, S. Nishimura, H. Ueno, A. Yoshimi, H. Sakurai, T. Motobayashi, T. Nakao, Y. Mizoi, M. Matsushita, K. Ieki, N. Kobayashi, K. Tanaka, Y. Kawada, N. Tanaka, S. Deguchi, Y. Satou, Y. Kondo, T. Nakamura, K. Yoshinaga, C. Ishii, H. Yoshii, Y. Miyashita, N. Uematsu, Y. Shiraki, T. Sumikama, J. Chiba, E. Ideguchi, A. Saito, T. Yamaguchi, I. Hachiuma, T. Suzuki, T. Moriguchi, A. Ozawa, T. Ohtsubo, M.A. Famiano, H. Geissel, A.S. Nettleton, O.B. Tarasov, D.P. Bazin, B.M. Sherrill, S.L. Manikonda, J.A. Nolen |
| 2010Ra12 | PRVCA | 82, | 011303 | P. Rahkila, D.G. Jenkins, J. Pakarinen, C. Gray-Jones, P.T. Greenlees, U. Jakobsson, P. Jones, R. Julin, S. Juutinen, S. Ketelhut, H. Koivisto, M. Leino, P. Nieminen, M. Nyman, P. Papadakis, S. Paschalis, M. Petri, P. Peura, O.J. Roberts, T. Ropponen, P. Ruotsalainen, J. Saren, C. Scholey, J. Sorri, A.G. Tuff, J. Uusitalo, R. Wadsworth, M. Bender, P.-H. Heenen |
| 2010Re01 | PRVCA | 81, | 014301 | J.J. Ressler, J.A. Caggiano, C.J. Francy, P.N. Peplowski, J.M. Allmond, C.W. Beausang, L.A. Bernstein, D.L. Bleuel, J.T. Burke, P. Fallon, A.A. Hecht, D.V. Jordan, S.R. Leshner, M.A. McMahan, T.S. Palmer, L. Phair, N.D. Scielzo, P.G. Swearingen, G.A. Warren, M. Wiedeking |
| 2010Re07 | PRLTA | 105, | 172501 | M.W. Reed, I.J. Cullen, P.M. Walker, Yu. A. Litvinov, K. Blaum, F. Bosch, C. Brandau, J.J. Carroll, D.M. Cullen, A.Y. Deo, B. Detwiler, C. Dimopoulou, G.D. Dracoulis, F. Farinon, H. Geissel, E. Haettner, M. Heil, R.S. Kempley, R. Knöbel, C. Kozhuharov, J. Kurcewicz, N. Kuzminchuk, S. Litvinov, Z. Liu, R. Mao, C. Nociforo, F. Nolden, W.R. Plass, A. Prochazka, C. Scheidenberger, M. Steck, Th. Stöhlker, B. Sun, T.P.D. Swan, G. Trees, H. Weick, N. Winckler, M. Winkler, P.J. Woods, T. Yamaguchi |
| 2010Ru07 | EPJAA | 44, | 31 | C. Rusu, D. Bucurescu, N. Marginean, M. Ionescu-Bujor, A. Iordachescu, G. Cata-Danil, I. Cata-Danil, D. Deleanu, D. Filipescu, D. Ghita, T. Glodariu, M. Ivascu, C. Mihai, R. Marginean, S. Pascu, T. Sava, L. Stroe, G. Suliman, N.V. Zamfir |

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| 2010Sc02 | PRVCA | 81, | 014306 | C. Scholey, K. Andgren, L. Bianco, B. Cederwall, I.G. Darby, S. Eeckhaudt, S. Ertürk, M.B. Gomez Hornillos, T. Grahm, P.T. Greenlees, B. Hadinia, E. Ideguchi, P. Jones, D.T. Joss, R. Julin, S. Juutinen, S. Ketelhut, M. Leino, A.-P. Leppänen, P. Nieminen, M. Niikura, M. Nyman, D. O'Donnell, R.D. Page, J. Pakarinen, P. Rahkila, J. Sarén, M. Sandzelius, J. Simpson, J. Sorri, J. Thomson, J. Uusitalo, M. Venhart |
| 2010Se16 | PRVCA | 82, | 067301 | G.W. Severin, L.D. Knutson, P.A. Voytas, E.A. George |
| 2010Si03 | PRVCA | 81, | 024313 | G.S. Simpson, W. Urban, J.A. Pinston, J.C. Angelique, I. Deloncle, H.R. Faust, J. Genevey, U. Köster, T. Materna, R. Orlandi, A. Scherillo, A.G. Smith, J.F. Smith, T. Rzaca-Urban, I. Ahmad, J.P. Greene |
| 2010Sp02 | PYLBB | 683, | 129 | A. Spyrou, T. Baumann, D. Bazin, G. Blanchon, A. Bonaccorso, E. Breitbach, J. Brown, G. Christian, A. DeLine, P.A. DeYoung, J.E. Finck, N. Frank, S. Mosby, W.A. Peters, A. Russel, A. Schiller, M.J. Strongman, M. Thoennessen |
| 2010St14 | EPJAA | 45, | 275 | B. Streicher, F.P. Heßberger, S. Antalic, S. Hofmann, D. Ackermann, S. Heinz, B. Kindler, J. Khuyagbaatar, I. Kojouharov, P. Kuusiniemi, M. Leino, B. Lommel, R. Mann, Š. Šáro, B. Sulignano, J. Uusitalo, M. Venhart |
| 2010St.A | AnRpt GSI | | 151 | K. Straub et al |
| 2010Ta04 | PRLTA | 104, | 062701 | K. Tanaka, T. Yamaguchi, T. Suzuki, T. Ohtsubo, M. Fukuda, D. Nishimura, M. Takechi, K. Ogata, A. Ozawa, T. Izumikawa, T. Aiba, N. Aoi, H. Baba, Y. Hashizume, K. Inafuku, N. Iwasa, K. Kobayashi, M. Komuro, Y. Kondo, T. Kubo, M. Kurokawa, T. Matsuyama, S. Michimasa, T. Motobayashi, T. Nakabayashi, S. Nakajima, T. Nakamura, H. Sakurai, R. Shinoda, M. Shinohara, H. Suzuki, E. Takeshita, S. Takeuchi, Y. Togano, K. Yamada, T. Yasuno, M. Yoshitake |
| 2010Vi07 | PRVCA | 82, | 064311 | P. Vingerhoets, K.T. Flanagan, M. Avgoulea, J. Billowes, M.L. Bissell, K. Blaum, B.A. Brown, B. Cheal, M. De Rydt, D.H. Forest, Ch. Geppert, M. Honma, M. Kowalska, J. Krämer, A. Krieger, E. Mané, R. Neugart, G. Neyens, W. Nörtershäuser, T. Otsuka, M. Schug, H.H. Stroke, G. Tungate, D.T. Yordanov |
| 2010Wa42 | PRVCA | 82, | 064317 | F. Wauters, B. Verstichel, M. Breitenfeldt, V. De Leebeeck, V. Yu. Kozlov, I. Kraev, S. Roccia, G. Soti, M. Tandecki, E. Traykov, S. Van Gorp, D. Zakoucky, N. Severijns |
| 2010Wi03 | PRVCA | 81, | 044303 | J.A. Winger, K.P. Rykaczewski, C.J. Gross, R. Grzywacz, J.C. Batchelder, C. Goodin, J.H. Hamilton, S.V. Ilyushkin, A. Korgul, W. Królas, S.N. Liddick, C. Mazzocchi, S. Padgett, A. Piechaczek, M.M. Rajabali, D. Shapira, E.F. Zganjar, J. Dobaczewski |
| 2010Wr01 | PRVCA | 81, | 055503 | C. Wrede, J.A. Clark, C.M. Deibel, T. Faestermann, R. Hertenberger, A. Parikh, H.-F. Wirth, S. Bishop, A.A. Chen, K. Eppinger, A. García, R. Krücken, O. Lepyoshkina, G. Rugel, K. Setoodehnia and PrvCom WgM April 2011 |
| 2010Xu12 | EPJAA | 46, | 55 | S.W. Xu, Y.X. Xie, F. Ma, X.H. Zhou, Z.K. Li, Y. Zheng, L. Chen, X.G. Lei, Y.H. Zhang, H.L. Lui, F.R. Xu |
| | | | | 2011 |
| 2011Ac.A | AnRpt GSI | | 208 | D. Ackermann, F.P. Heßberger, S. Antalic, M. Block, H.-G. Burkhard, V.F. Comas, P. Greenlees, S. Heinz, S. Hofmann, S. Ketelhut, J. Khuyagbaatar, B. Kindler, I. Kojouharov, M. Mazzocco, M. Leino, B. Lommel, R. Mann, J. Maurer, A.G. Popeko, J. Sorri, J. Uusitalo, A.V. Yeremin |
| 2011An13 | EPJAA | 47, | 62 | S. Antalic, F.P. Heßberger, D. Ackermann, S. Heinz, S. Hofmann, Z. Kalaninova, B. Kindler, J. Khuyagbaatar, I. Kojouharov, P. Kuusiniemi, M. Leino, B. Lommel, R. Mann, K. Nishio, Š. Šáro, B. Streicher, B. Sulignano, M. Venhart |
| 2011Ar18 | PRVCA | 84, | 061307 | O. Arndt, K.-L. Kratz, W.B. Walters, K. Farouqi, U. Köster, V. Fedosseev, S. Hennrich, C.J. Jost, A. Wöhr, A.A. Hecht, B. Pfeiffer, J. Shergur, N. Hoteling |
| 2011As03 | PRVCA | 83, | 014315 | M. Asai, K. Tsukada, H. Haba, Y. Ishii, T. Ichikawa, A. Toyoshima, T. Ishii, Y. Nagame, I. Nishinaka, Y. Kojima, K. Sueki |
| 2011As08 | PRLTA | 107, | 102502 | P. Ascher, L. Audirac, N. Adimi, B. Blank, C. Borcea, B.A. Brown, I. Compagnis, F. Delalee, C.E. Demonchy, F. de Oliveira Santos, J. Giovinozzo, S. Grevy, L.V. Grigorenko, T. Kurtukian-Nieto, S. Leblanc, J.-L. Pedroza, L. Perrot, J. Pibernat, L. Serani, P.C. Srivastava, J.-C. Thomas |

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| 2011As.A | AnRpt RIKEN 44 | -22 | M. Asai, H. Haba, N. Sato, Y. Kasamatsu, D. Kaji, K. Morimoto, K. Morita |
| 2011Ba14 | PRVCA | 83, | 045503 A.S. Barabash, Ph. Hubert, Ch. Marquet, A. Nachab, S.I. Kononov, F. Perrot, F. Piquemal, V. Umatov |
| 2011Be02 | JPGPE | 38, | 015103 P. Belli, R. Bernabei, F. Cappella, R. Cerulli, F.A. Danevich, A. d'Angelo, A. Di Marco, A. Incicchitti, F. Nozzoli, V.I. Tretyak |
| 2011Be34 | PRVCA | 84, | 041303 A.D. Becerril, G. Lorusso, A.M. Amthor, T. Baumann, D. Bazin, J.S. Berryman, B.A. Brown, H.L. Crawford, A. Estrade, A. Gade, T. Ginter, C.J. Guess, M. Hausmann, G.W. Hitt, P.F. Mantica, M. Matos, R. Meharchand, K. Minamisono, F. Montes, G. Perdikakis, J. Pereira, M. Portillo, H. Schatz, K. Smith, J. Stoker, A. Stolz, R.G.T. Zegers |
| 2011Be53 | PACHA | 83, | 397 M. Berglund, M.E. Wieser |
| 2011Bo09 | NUPAB | 856, | 1 V. Bondarenko, I. Tomandl, J. Honzato, H.-F. Wirth, T. von Egidy |
| 2011Bo23 | PRVCA | 84, | 044311 P. Boutachkov, M. Górska, H. Grawe, A. Blazhev, N. Braun, T.S. Brock, Z. Liu, B.S. Nara Singh, R. Wadsworth, S. Pietri, C. Domingo-Pardo, I. Kojouharov, L. Cáceres, T. Engert, F. Farinon, J. Gerl, N. Goel, J. Grbosz, R. Hoischen, N. Kurz, C. Nociforo, A. Prochazka, H. Schaffner, S.J. Steer, H. Weick, H.-J. Wollersheim, T. Faestermann, Zs. Podolyák, D. Rudolph, A. Atac, L. Betermann, K. Eppinger, F. Finke, K. Geibel, A. Gottardo, C. Hinke, G. Ilie, H. Iwasaki, J. Jolie, R. Krücken, E. Merchán, J. Nyberg, M. Pfützner, P.H. Regan, P. Reiter, S. Rinta-Antila, C. Scholl, P.-A. Söderström, N. Warr, P.J. Woods, F. Nowacki, K. Sieja |
| 2011Br01 | PRVCA | 82, | 061309 T.S. Brock, for the RISING Collaboration |
| 2011Br12 | PRVCA | 84, | 014330 R. Broda, K.H. Maier, B. Fornal, J. Wrzesiński, B. Szpak, M.P. Carpenter, R.V.F. Janssens, W. Królas, T. Pawlat, S. Zhu |
| 2011Ch16 | CPLEE | 28, | 042101 F.-Q. Chen, X.-R. Zhou |
| 2011Ch32 | PRVCA | 84, | 014320 R.J. Charity, J.M. Elson, J. Manfredi, R. Shane, L.G. Sobotka, B.A. Brown, Z. Chajecski, D. Coupland, H. Iwasaki, M. Kilburn, J. Lee, W.G. Lynch, A. Sanetullaev, M.B. Tsang, J. Winkelbauer, M. Youngs, S.T. Marley, D.V. Shetty, A.H. Wuosmaa, T.K. Ghosh, M.E. Howard |
| 2011Ch.A | PrvCom | FGK | P. Chowdhury |
| 2011Cu01 | PRVCA | 83, | 014316 D.M. Cullen, P.J.R. Mason, C. Scholey, S. Eeckhaudt, T. Grahm, P.T. Greenlees, U. Jakobsson, P.M. Jones, R. Julin, S. Juutinen, S. Ketelhut, A.M. Kishada, M. Leino, A.-P. Leppänen, K. Mäntyniemi, P. Nieminen, M. Nyman, J. Pakarinen, P. Peura, M.G. Procter, P. Rakhila, S.V. Rigby, J. Sarén, J. Sorri, J. Uusitalo, B.J. Varley, M. Venhart |
| 2011Da01 | PYLBB | 695, | 78 I.G. Darby, R.D. Page, D.T. Joss, J. Simpson, L. Bianco, R.J. Cooper, S. Eeckhaudt, S. Ertürk, B. Gall, T. Grahm, P.T. Greenlees, B. Hadinia, P.M. Jones, D.S. Judson, R. Julin, S. Juutinen, S. Ketelhut, M. Leino, A.-P. Leppanen, M. Nyman, P. Rakhila, J. Saren, C. Scholey, A.N. Steer, J. Uusitalo, M. Venhart |
| 2011Da08 | PRVCA | 83, | 054312 J.M. Daugas, I. Matea, J.-P. Delaroche, M. Pfutzner, M. Sawicka, F. Becker, G. Belier, C.R. Bingham, R. Borcea, E. Bouchez, A. Buta, E. Dragulescu, G. Georgiev, J. Giovannazzo, M. Girod, H. Grawe, R. Grzywacz, F. Hammache, F. Ibrahim, M. Lewitowicz, J. Libert, P. Mayet, V. Meot, F. Negoita, F. de Oliveira Santos, O. Perru, O. Roig, K. Rykaczewski, M.G. Saint-Laurent, J.E. Sauvestre, O. Sorlin, M. Stanoiu, I. Stefan, Ch. Stodel, Ch. Theisen, D. Verney, J. Zylicz |
| 2011Da12 | PRVCA | 83, | 064320 I.G. Darby, R.D. Page, D.T. Joss, L. Bianco, T. Grahm, D.S. Judson, J. Simpson, S. Eeckhaudt, P.T. Greenlees, P.M. Jones, R. Julin, S. Juutinen, S. Ketelhut, M. Leino, A.-P. Leppänen, M. Nyman, P. Rakhila, J. Sarén, C. Scholey, A.N. Steer, J. Uusitalo, M. Venhart, S. Ertürk, B. Gall, B. Hadinia |
| 2011El02 | PRLTA | 106, | 052504 S. Eliseev, C. Roux, K. Blaum, M. Block, C. Droese, F. Herfurth, H.-J. Kluge, M.I. Krivoruchenko, Yu. N. Novikov, E. Minaya-Ramirez, L. Schweikhard, V.M. Shabaev, F. Simkovic, I.I. Tupitsyn, K. Zuber, N.A. Zubova |
| 2011El04 | PRVCA | 83, | 038501 S. Eliseev, D. Nesterenko, K. Blaum, M. Block, C. Droese, F. Herfurth, E. Minaya-Ramirez, Yu. N. Novikov, L. Schweikhard, K. Zuber |
| 2011El05 | PRVCA | 84, | 012501 S. Eliseev, M. Goncharov, K. Blaum, M. Block, C. Droese, F. Herfurth, E. Minaya-Ramirez, Yu. N. Novikov, L. Schweikhard, V.M. Shabaev, I.I. Tupitsyn, K. Zuber, N.A. Zubova |

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| 2011El08 | PRLTA | 107, | 152501 | S. Eliseev, C. Roux, K. Blaum, M. Block, C. Droese, F. Herfurth, M. Kretzschmar, M.I. Krivoruchenko, E. Minaya-Ramirez, Yu. N. Novikov, L. Schweikhard, V.M. Shabaev, F. Simkovic, I.I. Tupitsyn, K. Zuber, N.A. Zubova |
| 2011Er02 | PRVCA | 83, | 055501 | T. Eronen, D. Gorelov, J. Hakala, J.C. Hardy, A. Jokinen, A. Kankainen, V.S. Kolhinen, I.D. Moore, H. Penttilä, M. Reponen, J. Rissanen, A. Saastamoinen, J. Äystö two errata Phys. Rev. C 83(2011)069901 and Phys. Rev. C 84(2011)059905 |
| 2011Es03 | PRVCA | 84, | 034304 | M.E. Estevez Aguado, A. Algora, B. Rubio, J. Bernabeu, E. Nacher, J.L. Tain, A. Gadea, J. Agramunt, K. Burkard, W. Huller, J. Doring, R. Kirchner, I. Mukha, C. Plettner, E. Roeckl, H. Grawe, R. Collatz, M. Hellstrom, D. Cano-Ott, M. Karny, Z. Janas, M. Gierlik, A. Plochocki, K. Rykaczewski, L. Batist, F. Moroz, V. Wittman, A. Blazhev, J.J. Valiente, C. Espinoza |
| 2011Es06 | PRLTA | 107, | 172503 | A. Estradé, M. Matoš, H. Schatz, A.M. Amthor, D. Bazin, M. Beard, A. Becerril, E.F. Brown, R. Cyburt, T. Elliot, A. Gade, D. Galaviz, S. George, S.S. Gupta, W.R. Hix, R. Lau, G. Lorusso, P. Möller, J. Pereira, M. Portillo, A.M. Rogers, D. Shapira, E. Smith, A. Stolz, M. Wallace, M. Wiescher |
| 2011Fa10 | PRVCA | 84, | 045807 | J. Fallis, J.A. Clark, K.S. Sharma, G. Savard, F. Buchinger, S. Caldwell, A. Chaudhuri, J.E. Crawford, C.M. Deibel, S. Gulick, A.A. Hecht, D. Lascar, J.K.P. Lee, A.F. Levand, G. Li, B.F. Lundgren, A. Parikh, S. Russell, M. Scholte-van de Vorst, N.D. Scielzo, R.E. Segel, H. Sharma, S. Sinha, M.G. Sternberg, T. Sun, I. Tanihata, J. Van Schelt, J.C. Wang, Y. Wang, C. Wrede, Z. Zhou |
| 2011Fo15 | PRVCA | 84, | 054310 | N. Fotiades, M. Devlin, R.O. Nelson, J.A. Cizewski, R. Krucken, R.M. Clark, P. Fallon, I.Y. Lee, A.O. Macchiavelli, W. Younes |
| 2011Ga19 | PRVCA | 83, | 054618 | J.M. Gates, Ch. E. Düllmann, M. Schädel, A. Yakushev, A. Türler, K. Eberhardt, J.V. Kratz, D. Ackermann, L.-L. Andersson, M. Block, W. Brühle, J. Dvorak, H.G. Essel, P.A. Ellison, J. Even, U. Forsberg, J. Gellanki, A. Gorshkov, R. Graeger, K.E. Gregorich, W. Hartmann, R.-D. Herzberg, F.P. Heßberger, D. Hild, A. Hübner, E. Jäger, J. Khuyagbaatar, B. Kindler, J. Krier, N. Kurz, S. Lahiri, D. Liebe, B. Lommel, M. Maiti, H. Nitsche, J.P. Omtvedt, E. Parr, D. Rudolph, J. Runke, H. Schaffner, B. Schausten, E. Schimpf, A. Semchenkov, J. Steiner, P. Thörle-Pospiech, J. Uusitalo, M. Wegrzecki, N. Wiehl |
| 2011Go23 | PRVCA | 84, | 028501 | M. Goncharov, K. Blaum, M. Block, C. Droese, S. Eliseev, F. Herfurth, E. Minaya Ramirez, Yu. N. Novikov, L. Schweikhard, K. Zuber |
| 2011Gr01 | JPGPE | 38, | 015101 | P. Granholm, T. Lönnroth, J. Suhonen, J. Bergman, K.-M. Källman, J.-O. Lill, M. Norrby, E. Ydrefors, P. Tikkanen |
| 2011Ha08 | PRLTA | 106, | 122501 | E. Haettner, D. Ackermann, G. Audi, K. Blaum, M. Block, S. Eliseev, T. Fleckenstein, F. Herfurth, F.P. Heßberger, S. Hofmann, J. Ketelaer, J. Ketter, H.-J. Kluge, G. Marx, M. Mazzocco, Yu. N. Novikov, W.R. Plaß, S. Rahaman, T. Rauscher, D. Rodríguez, H. Schatz, C. Scheidenberger, L. Schweikhard, B. Sun, P.G. Thirolf, G. Vorobjev, M. Wang, C. Weber |
| 2011Ha13 | PRVCA | 83, | 034602 | H. Haba, D. Kaji, H. Kikunaga, Y. Kudou, K. Morimoto, K. Morita, K. Ozeki, T. Sumita, A. Yoneda, Y. Kasamatsu, Y. Komori, K. Ooe, A. Shinohara |
| 2011Ha48 | EPJAA | 47, | 129 | J. Hakala, R. Rodríguez-Guzmán, V.-V. Elomaa, T. Eronen, A. Jokinen, V.S. Kolhinen, I.D. Moore, H. Penttilä, M. Reponen, J. Rissanen, A. Saastamoinen, J. Äystö |
| 2011He10 | EPJAA | 47, | 75 | F. Herfurth, G. Audi, D. Beck, K. Blaum, G. Bollen, P. Delahaye, M. Dworschak, S. George, C. Guénaut, A. Kellerbauer, D. Lunney, M. Mukherjee, S. Rahaman, S. Schwarz, L. Schweikhard, C. Weber, C. Yazidjian |
| 2011Hi.A | P-Leuven | | 200 | C. Hinke |
| 2011Ho02 | JPGPE | 38, | 035104 | R. Hoischen, D. Rudolph, H.L. Ma, P. Montuenga, M. Hellström, S. Pietri, Zs. Podolyák, P.H. Regan, A.B. Garnsworthy, S.J. Steer, F. Becker, P. Bednarczyk, L. Cáceres, P. Doornenbal, J. Gerl, M. Górská, J. Grebosz, I. Kojouharov, N. Kurz, W. Prokopowicz, H. Schaffner, H.J. Wollersheim, L.-L. Andersson, L. Atanasova, D.L. Balabanski, M.A. Bentley, A. Blazhev, C. Brandau, J.R. Brown, C. Fahlander, E.K. Johansson, A. Jungclaus |
| 2011Ke03 | PRVCA | 84, | 014311 | J. Ketelaer, G. Audi, T. Beyer, K. Blaum, M. Block, R.B. Cakirli, R.F. Casten, C. Droese, M. Dworschak, K. Eberhardt, M. Eibach, F. Herfurth, E. Minaya-Ramirez, Sz. Nagy, D. Neidherr, W. Nörtershäuser, C. Smorra, M. Wang |

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| 2011Ko01 | ARISE | 69, | 500 | K. Kossert, O. Nahle, P.E. Warwick, H. Wershofen, I.W. Croudace |
| 2011Ko03 | PYLBB | 697, | 116 | V.S. Kolhinen, T. Eronen, D. Gorelov, J. Hakala, A. Jokinen, A. Kankainen, J. Rissanen, J. Suhonen, J. Äystö |
| 2011Ko36 | PRVCA | 84, | 034320 | U. Köster, N.J. Stone, K.T. Flanagan, J. Rikowska Stone, V.N. Fedosseev, K.L. Kratz, B.A. Marsh, T. Materna, L. Mathieu, P.L. Molkanov, M.D. Seliverstov, O. Serot, A.M. Sjödin, Yu. M. Volkov |
| 2011Ko.A | PrvCom | GAu | May | F.G. Kondev |
| 2011Ko.B | PrvCom | GAu | Nov | F.G. Kondev |
| 2011Kr.A | PrvCom | GAu | May | S. Kreim preliminary |
| 2011Ku16 | PRVCA | 84, | 044304 | J. Kurpeta, W. Urban, A. Płochocki, J. Rissanen, J.A. Pinston, V.-V. Elomaa, T. Eronen, J. Hakala, A. Jokinen, A. Kankainen, P. Karvonen, I.D. Moore, H. Penttilä, A. Saastamoinen, C. Weber, J. Äystö |
| 2011Li28 | PYLBB | 702, | 24 | Z. Liu, D. Seweryniak, P.J. Woods, C.N. Davids, M.P. Carpenter, T. Davinson, R.V.F. Janssens, R.D. Page, A.P. Robinson, J. Shergur, S. Sinha, X.D. Tang, F.R. Xu, S. Zhu |
| 2011Li50 | PRVCA | 84, | 061305 | S.N. Liddick, S. Suchyta, B. Abromeit, A. Ayres, A. Bey, C.R. Bingham, M. Bolla, M.P. Carpenter, L. Cartegni, C.J. Chiara, H.L. Crawford, I.G. Darby, R. Grzywacz, G. Gurdal, S. Ilyushkin, N. Larson, M. Madurga, E.A. McCutchan, D. Miller, S. Padgett, S.V. Paulauskas, J. Pereira, M.M. Rajabali, K. Rykaczewski, S. Vinnikova, W.B. Walters, S. Zhu |
| 2011Lo01 | PYLBB | 694, | 316 | R.L. Lozeva, D.L. Balabanski, G. Georgiev, J.-M. Daugas, S. Péru, G. Audi, S. Cabaret, T. Faul, M. Ferraton, E. Fiori, C. Gaulard, F. Ibrahim, P. Morel, L. Risegari, D. Verney, D.T. Yordanov |
| 2011Lo06 | NUPAB | 852, | 15 | A. Lopez-Martens, T. Wiborg-Hagen, K. Hauschild, M.L. Chelnokov, V.I. Chepigin, D. Curien, O. Dorvaux, G. Drafta, B. Gall, A. Görgen, M. Guttormsen, A.V. Isaev, I.N. Izosimov, A.P. Kabachenko, D.E. Katrsev, T. Kutsarova, A.N. Kuznetsov, A.C. Larsen, O.N. Malyshev, A. Minkova, S. Mullins, H.T. Nyhus, D. Pantelica, J. Piot, A.G. Popeko, S. Saro, N. Scintee, S. Siem, N.U.H. Syed, E.A. Sokol, A.I. Svirikhin, A.V. Yereimin |
| 2011Lo09 | PYLBB | 699, | 141 | G. Lorusso, A. Becerril, A. Amthor, T. Baumann, D. Bazin, J.S. Berryman, B.A. Brown, R.H. Cyburt, H.L. Crawford, A. Estrade, A. Gade, T. Ginter, C.J. Guess, M. Hausmann, G.W. Hitt, P.F. Mantica, M. Matos, R. Meharchand, K. Minamisono, F. Montes, G. Perdikakis, J. Pereira, M. Portillo, H. Schatz, K. Smith, J. Stoker, A. Stolz, R.G.T. Zegers |
| 2011Lo.A | PrvCom | GAu | dec | A. Lopez-Martens |
| 2011Ma45 | PRVCA | 84, | 024303 | E. Mané, B. Cheal, J. Billowes, M.L. Bissell, K. Blaum, F.C. Charlwood, K.T. Flanagan, D.H. Forest, Ch. Geppert, M. Kowalska, A. Krieger, J. Krämer, I.D. Moore, R. Neugart, G. Neyens, W. Nörtershäuser, M.M. Rajabali, R. Sánchez, M. Schug, H.H. Stroke, P. Vingerhoets, D.T. Yordanov, M. Žáková |
| 2011Mo27 | KPSJA | 59, | 1525 | C.-B. Moon, G.D. Dracoulis, R.A. Bark, A.P. Byrne, P.A. Davidson, T. Kibédi, G.J. Lane, A.N. Wilson |
| 2011Na34 | PRLTA | 107, | 172502 | B.S. Nara Singh, Z. Liu, R. Wadsworth, H. Grawe, T.S. Brock, P. Boutachkov, N. Braun, A. Blazhev, M. Górska, S. Pietri, D. Rudolph, C. Domingo-Pardo, S.J. Steer, A. Atac, L. Bettermann, L. Cáceres, K. Eppinger, T. Engert, T. Faestermann, F. Farinon, F. Finke, K. Geibel, J. Gerl, R. Gernhäuser, N. Goel, A. Gottardo, J. Grebosz, C. Hinke, R. Hoischen, G. Ilie, H. Iwasaki, J. Jolie, A. Kaskas, I. Kojouharov, R. Krücken, N. Kurz, E. Méchan, C. Nociforo, J. Nyberg, M. Pfützner, A. Prochazka, Zs. Podolyák, P.H. Regan, P. Reiter, S. Rinta-Antila, C. Scholl, H. Schaffner, P.-A. Söderström, N. Warr, H. Weick, H.-J. Wollersheim, P.J. Woods, F. Nowacki, K. Sieja |
| 2011Ni01 | PRLTA | 106, | 052502 | S. Nishimura, Z. Li, H. Watanabe, K. Yoshinaga, T. Sumikama, T. Tachibana, K. Yamaguchi, M. Kurata-Nishimura, G. Lorusso, Y. Miyashita, A. Odahara, H. Baba, J.S. Berryman, N. Blasi, A. Bracco, F. Camera, J. Chiba, P. Doornenbal, S. Go, T. Hashimoto, S. Hayakawa, C. Hinke, E. Ideguchi, T. Isobe, Y. Ito, D.G. Jenkins, Y. Kawada, N. Kobayashi, Y. Kondo, R. Krücken, S. Kubono, T. Nakano, H.J. Ong, S. Ota, Zs. Podolyák, H. Sakurai, H. Scheit, K. Steiger, D. Steppenbeck, K. Sugimoto, S. Takano, A. Takashima, K. Tajiri, T. Teranishi, Y. Wakabayashi, P.M. Walker, O. Wieland, H. Yamaguchi |

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| 2011Og04 | PRVCA | 83, | 054315 | Yu. Ts. Oganessian, F. Sh. Abdullin, P.D. Bailey, D.E. Benker, M.E. Bennett, S.N. Dmitriev, J.G. Ezold, J.H. Hamilton, R.A. Henderson, M.G. Itkis, Yu. V. Lobanov, A.N. Mezentsev, K.J. Moody, S.L. Nelson, A.N. Polyakov, C.E. Porter, A.V. Ramayya, F.D. Riley, J.B. Roberto, M.A. Ryabinin, K.P. Rykaczewski, R.N. Sagaidak, D.A. Shaughnessy, I.V. Shirokovsky, M.A. Stoyer, V.G. Subbotin, R. Sudowe, A.M. Sukhov, R. Taylor, Yu. S. Tsyganov, V.K. Utyonkov, A.A. Voinov, G.K. Vostokin, P.A. Wilk |
| 2011Pa38 | PRVCA | 84, | 065502 | H.I. Park, J.C. Hardy, V.E. Iacob, A. Banu, L. Chen, V.V. Golovko, J. Goodwin, V. Horvat, N. Nica, E. Simmons, L. Trache, R.E. Tribble |
| 2011Pa.A | P-Leuven | | 158 | D. Pauwels, D. Radulov, I.G. Darby, H. De Witte, J. Diriken, D.V. Fedorov, V.N. Fedosseev, L.M. Fraile, M. Huyse, U. Köster, B.A. Marsh, L.-A. Popescu, M.D. Seliverstov, A.M. Sjoedin, P. Van den Bergh, J. Van de Walle, P. Van Duppen, M. Venhart, W.B. Walters, K. Wimmer |
| 2011Pe29 | PRVCA | 84, | 054311 | A.B. Pérez-Cerdán, B. Rubio, W. Gelletly, A. Algora, J. Agramunt, K. Burkard, W. Hüller, E. Nácher, P. Sarriguren, L. Caballero, F. Molina, L.M. Fraile, E. Reillo, M.J.G. Borge, Ph. Dessagne, A. Jungclaus, M.-D. Salsac |
| 2011Pi05 | PRVCA | 83, | 044328 | S. Pietri, A. Jungclaus, M. Górski, H. Grawe, M. Pfützner, L. Cáceres, P. Detistov, S. Lalkovski, V. Modamio, Z. Podolyák, P.H. Regan, D. Rudolph, J. Walker, E. Werner-Malento, P. Bednarczyk, P. Doornenbal, H. Geissel, J. Gerl, J. Gregosz, I. Kojouharov, N. Kurz, W. Prokopowicz, H. Schaffner, H.J. Wollersheim, K. Andgren, J. Benlliure, G. Benzoni, A.M. Bruce, E. Casarejos, B. Cederwall, F.C.L. Crespi, B. Hadinia, M. Hellström, R. Hoischen, G. Ilie, A. Khaplanov, M. Kmiecik, R. Kumar, A. Maj, S. Mandal, F. Montes, S. Myalski, G. Simpson, S.J. Steer, S. Tashenov, O. Wieland |
| 2011Po01 | PRVCA | 83, | 014306 | M. Pomorski, K. Miernik, W. Dominik, Z. Janas, M. Pfützner, C.R. Bingham, H. Czyrkowski, M. Cwiok, I.G. Darby, R. Dabrowski, T. Ginter, R. Grzywacz, M. Karny, A. Korgul, W. Kuśmierz, S.N. Liddick, M. Rajabali, K. Rykaczewski, A. Stolz |
| 2011Po07 | ARISE | 69, | 1267 | S. Pommé, J. Paepen, T. Altzitzoglou, R. Van Ammel, E. Yeltepe |
| 2011Po09 | PRVCA | 83, | 061306 | M. Pomorski, M. Pfützner, W. Dominik, R. Grzywacz, T. Baumann, J.S. Berryman, H. Czyrkowski, R. Dabrowski, T. Ginter, J. Johnson, G. Kamiński, A. Kuźniak, N. Larson, S.N. Liddick, M. Madurga, C. Mazzocchi, S. Mi-anowski, K. Miernik, D. Miller, S. Paulauskas, J. Pereira, K.P. Rykaczewski, A. Stolz, S. Suchyta |
| 2011Pr02 | PRVCA | 83, | 034311 | M.G. Procter, D.M. Cullen, C. Scholey, P.T. Greenlees, J. Hirvonen, U. Jakobsson, P. Jones, R. Julin, S. Juutinen, S. Ketelhut, M. Leino, N.M. Lumley, P.J.R. Mason, P. Nieminen, M. Nyman, P. Peura, P. Rakhila, J.-M. Regis, P. Ruot-salainen, J. Sarén, Y. Shi, J. Sorri, S. Stolze, J. Uusitalo, F.R. Xu |
| 2011Ra24 | PYLBB | 703, | 412 | S. Rahaman, V.-V. Elomaa, T. Eronen, J. Hakala, A. Jokinen, A. Kankainen, J. Rissanen, J. Suhonen, C. Weber, J. Äystö |
| 2011Ri01 | PRVCA | 83, | 011301 | J. Rissanen, J. Kurpeta, V.-V. Elomaa, T. Eronen, J. Hakala, A. Jokinen, I.D. Moore, P. Karvonen, A. Płochocki, L. Próchniak, H. Penttilä, S. Rahaman, M. Reponen, A. Saastamoinen, J. Szerypo, W. Urban, C. Weber, J. Äystö |
| 2011Ri07 | EPJAA | 47, | 97 | J. Rissanen, J. Kurpeta, A. Plochocki, V.-V. Elomaa, T. Eronen, J. Hakala, A. Jokinen, A. Kankainen, P. Karvonen, I.D. Moore, H. Penttilä, S. Rahaman, A. Saastamoinen, W. Urban, C. Weber, J. Aysto |
| 2011Ro18 | PRLTA | 106, | 252503 | A.M. Rogers, M.A. Famiano, W.G. Lynch, M.S. Wallace, F. Amorini, D. Bazin, R.J. Charity, F. Delaunay, R.T. de Souza, J. Elson, A. Gade, D. Galaviz, M.-J. van Goethem, S. Hudan, J. Lee, S. Lobastov, S. Lukyanov, M. Matoš, M. Mocko, H. Schatz, D. Shapira, L.G. Sobotka, M.B. Tsang, G. Verde |
| 2011Ro47 | PRVCA | 84, | 051306 | A.M. Rogers, J. Giovannazzo, C.J. Lister, B. Blank, G. Cachel, J.A. Clark, G. de France, S. Grevy, S. Gros, E.A. McCutchan, F. de Oliveira Santos, G. Savard, D. Seweryniak, I. Stefan, J.-C. Thomas |
| 2011Ru.A | P-Leuven | | 367 | M. Rudigier, A. Blazhev, J. Jolie, J.M. Regis, N. Warr, C. Fransen, T. Materna, U. Köster, G. Simpson, M. Hackstein, M. Pfeiffer, T. Thomas |
| 2011Sa41 | JUPSA | 80, | 094201 | N. Sato, H. Haba, T. Ichikawa, D. Kaji, Y. Kudou, K. Morimoto, K. Morita, K. Ozeki, T. Sumita, A. Yoneda, E. Ideguchi, H. Koura, A. Ozawa, T. Shinozuka, T. Yamaguchi, A. Yoshida |

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| 2011Sa59 | PRVCA | 84, | 054303 | P.J. Sapple, R.D. Page, D.T. Joss, L. Bianco, T. Grahn, J. Pakarinen, J. Thomson, J. Simpson, D. O'Donnell, S. Ertürk, P.T. Greenlees, U. Jakobsson, P.M. Jones, R. Julin, S. Juutinen, S. Ketelhut, M. Leino, M. Nyman, P. Peura, A. Puurunen, P. Rahkila, P. Ruotsalainen, J. Saren, C. Scholey, J. Uusitalo |
| 2011Si32 | JPCSD | 267, | 012031 | G.S. Simpson, A. Scherillo, J. Genevey, R. Orlandi, J.A. Pinston, I.S. Tsekhanovich, N. Warr, A. Covello, A. Gargano |
| 2011So11 | EPJAA | 47, | 40 | J. Souin, T. Eronen, P. Ascher, L. Audirac, J. Äystö, B. Blank, V.-V. Elomaa, J. Giovinazzo, J. Hakala, A. Jokinen, V.S. Kolhinen, P. Karvonen, I.D. Moore, S. Rahaman, J. Rissanen, A. Saastamoinen, J.C. Thomas |
| 2011St21 | PRVCA | 84, | 044313 | S.J. Steer, Zs. Podolyák, S. Pietri, M. Górski, H. Grawe, K.H. Maier, P.H. Regan, D. Rudolph, A.B. Garnsworthy, R. Hoischen, J. Gerl, H.J. Wollersheim, F. Becker, P. Bednarczyk, L. Cáceres, P. Doornenbal, H. Geissel, J. Gregorosz, A. Kelic, I. Kojouharov, N. Kurz, F. Montes, W. Prokopwicz, T. Saito, H. Schaffner, S. Tashenov, A. Heinz, M. Pfützner, T. Kurtukian-Nieto, G. Benzoni, A. Jungclaus, D.L. Balabanski, M. Bowry, C. Brandau, A. Brown, A.M. Bruce, W.N. Catford, I.J. Cullen, Zs. Dombrádi, M.E. Estevez, W. Gelletly, G. Ilie, J. Jolie, G.A. Jones, M. Kmiecik, F.G. Kondev, R. Krücken, S. Lalkovski, Z. Liu, A. Maj, S. Myalski, S. Schwertel, T. Shizuma, P.M. Walker, E. Werner-Malento, O. Wieland |
| 2011Su11 | PRLTA | 106, | 202501 | T. Sumikama, K. Yoshinaga, H. Watanabe, S. Nishimura, Y. Miyashita, K. Yamaguchi, K. Sugimoto, J. Chiba, Z. Li, H. Baba, J.S. Berryman, N. Blasi, A. Bracco, F. Camera, P. Doornenbal, S. Go, T. Hashimoto, S. Hayakawa, C. Hinke, E. Ideguchi, T. Isobe, Y. Ito, D.G. Jenkins, Y. Kawada, N. Kobayashi, Y. Kondo, R. Krucken, S. Kubono, G. Lorusso, T. Nakano, M. Kurata-Nishimura, A. Odahara, H.J. Ong, S. Ota, Zs. Podolyák, H. Sakurai, H. Scheit, K. Steiger, D. Steppenbeck, S. Takano, A. Takashima, K. Tajiri, T. Teranishi, Y. Wakabayashi, P.M. Walker, O. Wieland, H. Yamaguchi |
| 2011Sw02 | PRVCA | 83, | 034322 | T.P.D. Swan, P.M. Walker, Zs. Podolyák, M.W. Reed, G.D. Dracoulis, G.J. Lane, T. Kibédi, M.L. Smith |
| 2011Sz01 | PRVCA | 83, | 064315 | B. Szpak, K.H. Maier, A.S. Smolkowska, B. Fornal, R. Broda, M.P. Carpenter, N. Cieplicka, R.V.F. Janssens, W. Królas, T. Pawlat, J. Wrzesinski, S. Zhu |
| 2011Ti10 | PRVCA | 84, | 044302 | J. Timar, K. Starosta, I. Kuti, D. Sohler, D.B. Fossan, T. Koike, E.S. Paul, A.J. Boston, H.J. Chantler, M. Descovich, R.M. Clark, M. Cromaz, P. Fallon, I.Y. Lee, A.O. Macchiavelli, C.J. Chiara, R. Wadsworth, A.A. Hecht, D. Almedhed, S. Frauendorf |
| 2011To04 | PRVCA | 83, | 044326 | I. Tomandl, J. Honzato, T. von Egidy, H.-F. Wirth, T. Faestermann, V. Yu. Ponomarev, S. Pasic, R. Hertenberger, Y. Eisermann, G. Graw |
| 2011To.A | PrvCom | GAu | Aug | I. Towner, S. Ettenauer |
| 2011Tu02 | PRLTA | 106, | 112501 | X.L. Tu, H.S. Xu, M. Wang, Y.H. Zhang, Yu. A. Litvinov, Y. Sun, H. Schatz, X.H. Zhou, Y.J. Yuan, J.W. Xia, G. Audi, K. Blaum, C.M. Du, P. Geng, Z.G. Hu, W.X. Huang, S.L. Jin, L.X. Liu, Y. Liu, X. Ma, R.S. Mao, B. Mei, P. Shuai, Z.Y. Sun, H. Suzuki, S.W. Tang, J.S. Wang, S.T. Wang, G.Q. Xiao, X. Xu, T. Yamaguchi, Y. Yamaguchi, X.L. Yan, J.C. Yang, R.P. Ye, Y.D. Zang, H.W. Zhao, T.C. Zhao, X.Y. Zhang, W.L. Zhan |
| 2011Tu09 | NIMAE | 654, | 213 | X.L. Tu, M. Wang, Yu. A. Litvinov, Y.H. Zhang, H.S. Xu, Z.Y. Sun, G. Audi, K. Blaum, C.M. Du, W.X. Huang, Z.G. Hu, P. Geng, S.L. Jin, L.X. Liu, Y. Liu, B. Mei, R.S. Mao, X.W. Ma, H. Suzuki, P. Shuai, Y. Sun, S.W. Tang, J.S. Wang, S.T. Wang, G.Q. Xiao, X. Xu, J.W. Xia, J.C. Yang, R.P. Ye, T. Yamaguchi, X.L. Yan, Y.J. Yuan, Y. Yamaguchi, Y.D. Zang, H.W. Zhao, T.C. Zhao, X.Y. Zhang, X.H. Zhou, W.L. Zhan |
| 2011Va02 | ARISE | 69, | 785 | R. Van Ammel, S. Pomme, J. Paepen, G. Sibbens |
| 2011Ve01 | PYLBB | 695, | 82 | M. Venhart, A.N. Andreyev, J.L. Wood, S. Antalic, L. Bianco, P.T. Greenlees, U. Jakobsson, P. Jones, R. Julin, S. Juutinen, S. Ketelhut, M. Leino, M. Nyman, R.D. Page, P. Peura, P. Rahkila, J. Sarén, C. Scholey, J. Sorri, J. Thomson, J. Uusitalo |
| 2011Ve.A | PrvCom | FGK | Jan | Martin Venhart |

- 2011Wa03 PYLBB 696, 186 H. Watanabe, T. Sumikama, S. Nishimura, K. Yoshinaga, Z. Li, Y. Miyashita, K. Yamaguchi, H. Baba, J.S. Berryman, N. Blasi, A. Bracco, F. Camera, J. Chiba, P. Doornenbal, S. Go, T. Hashimoto, S. Hayakawa, C. Hinke, E. Ideguchi, T. Isobe, Y. Ito, D.G. Jenkins, Y. Kawada, N. Kobayashi, Y. Kondo, R. Krucken, S. Kubono, G. Lorusso, T. Nakano, M. Kurata-Nishimura, A. Odahara, H.J. Ong, S. Ota, Zs. Podolyák, H. Sakurai, H. Scheit, Y. Shi, K. Steiger, D. Steppenbeck, K. Sugimoto, K. Tajiri, S. Takano, A. Takashima, T. Teranishi, Y. Wakabayashi, P.M. Walker, O. Wieland, F.R. Xu, H. Yamaguchi
- 2011Wi09 PRVCA 84, 014329 K. Wimmer, U. Köster, P. Hoff, Th. Kröll, R. Krücken, R. Lutter, H. Mach, Th. Morgan, S. Sarkar, M. Saha Sarkar, W. Schwerdtfeger, P.C. Srivastava, P.G. Thirolf, P. Van Isacker
- 2011Ya25 PYLBB 697, 90 M.T. Yamashita, R.S. Marques de Carvalho, T. Frederico, L. Tomio
- 2012
- 2012Al05 PRVCA 85, 034301 N. Al-Dahan, P.H. Regan, Zs. Podolyák, P.M. Walker, N. Alkhomashi, G.D. Dracoulis, G. Farrelly, J. Benlliure, S.B. Pietri, R.F. Casten, P.D. Stevenson, W. Gelletly, S.J. Steer, A.B. Garnsworthy, E. Casarejos, J. Gerl, H.J. Wollersheim, J. Grebosz, M. Górska, I. Kojouharov, H. Schaffner, A. Algora, G. Benzoni, A. Blazhev, P. Boutachkov, A.M. Bruce, I.J. Cullen, A.M.D. Bacelar, A.Y. Deo, M.E. Estevez, Y. Fujita, R. Hoischen, R. Kumar, S. Lalkovski, Z. Liu, P.J. Mason, C. Mihai, F. Molina, D. Mücher, B. Rubio, A. Tamii, S. Tashenov, J.J. Valiente-Dobón, P.J. Woods and Pub. Note PRVCA 85, 039904
- 2012An08 ARISE 70, 1985 E. Andreotti, M. Hult, G. Marissens, R. Gonzalez de Orduna, P. Vermaercke
- 2012Ar05 ZETFA 95, 224 S.S. Arzumanov, L.N. Bondarenko, V.I. Morozov, Yu. N. Panin and S.M. Chernyavsky
- 2012As05 PRVCA 85, 054316 A. Astier, M.-G. Porquet, Ch. Theisen, D. Verney, I. Deloncle, M. Houry, R. Lucas, F. Azaiez, G. Barreau, D. Curien, O. Dorvaux, G. Duchene, B.J.P. Gall, N. Redon, M. Rousseau, O. Stezowski
- 2012As06 PRVCA 85, 064316 A. Astier, M.-G. Porquet, Ts. Venkova, D. Verney, Ch. Theisen, G. Duchêne, F. Azaiez, G. Barreau, D. Curien, I. Deloncle, O. Dorvaux, B.J.P. Gall, M. Houry, R. Lucas, N. Redon, M. Rousseau, O. Stézowski
- 2012At01 EPJAA 48, 22 D.R. Atanasov, N. Winckler, D. Balabanski, L. Batist, F. Bosch, D. Boutin, C. Brandau, C. Dimopoulou, H.G. Essel, T. Faestermann, H. Geissel, I. Hachiuma, S. Hess, T. Izumikawa, P. Kienle, R. Knöbel, C. Kozhuharov, J. Kurcewicz, N. Kuzminchuk, S.A. Litvinov, Yu. A. Litvinov, R.S. Mao, R. Märtin, M. Mazocco, G. Münzenberg, K. Namihira, F. Nolden, T. Ohtsubo, Z. Patyk, R. Reuschl, M.S. Sanjari, C. Scheidenberger, D. Shubina, U. Spillmann, M. Steck, Th. Stöhlker, B. Sun, T. Suzuki, M. Trassinelli, I.I. Tupitsyn, H. Weick, M. Winkler, D.F.A. Winters, T. Yamaguchi
- 2012Au03 PRLTA 109, 032505 M. Auger, for the EXO Collaboration
- 2012Au08 EPJAA 48, 179 L. Audirac, P. Ascher, B. Blank, C. Borcea, B.A. Brown, G. Canchel, C.E. Demonchy, F. de Oliveira Santos, C. Dossat, J. Giovinnazzo, S. Grévy, L. Hay, J. Huikari, S. Leblanc, I. Matea, J.-L. Pedroza, L. Perrot, J. Pibernat, L. Serani, C. Stodel, J.-C. Thomas
- 2012Ba58 PRVCA 86, 064311 J.C. Batchelder, N.T. Brewer, R.E. Goans, R. Grzywacz, B.O. Griffith, C. Jost, A. Korgul, S.H. Liu, S.V. Paulauskas, E.H. Spejewski, D.W. Stracener
- 2012Be04 ARISE 70, 1849 M.-M. Bé, P. Cassette, M.C. Lépy, M.-N. Amiot, K. Kossert, O.J. Nähle, O. Ott, C. Wanke, P. Dryak, G. Ratel, M. Sahagia, A. Luca, A. Antohe, L. Johansson, J. Keightley, A. Pearce
- 2012Be14 PRVCA 85, 044610 P. Belli, R. Bernabei, R.S. Boiko, V.B. Brudanin, F. Cappella, V. Caracciolo, R. Cerulli, D.M. Chernyak, F.A. Danevich, S. d'Angelo, E.N. Galashov, A. Incicchitti, V.V. Kobychiev, M. Laubenstein, V.M. Mokina, D.V. Poda, R.B. Podviyanuk, O.G. Polischuk, V.N. Shlegel, Yu. G. Stenin, J. Suhonen, V.I. Tretyak, Ya. V. Vasiliev

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| 2012Be28 | PYLBB | 715, | 293 | G. Benzoni, A.I. Morales, J.J. Valiente-Dobón, A. Gottardo, A. Bracco, F. Cam-era, F.C.L. Crespi, A.M. Corsi, S. Leoni, B. Million, R. Nicolini, O. Wieland, A. Gadea, S. Lunardi, P. Boutachkov, A.M. Bruce, M. Górski, J. Grebosz, S. Pietri, Zs. Podolyák, M. Pfützner, P.H. Regan, H. Weick, J. Alcántara Núñez, A. Algora, N. Al-Dahan, G. de Angelis, Y. Ayyad, N. Alkhomashi, P.R.P. Alle-gro, D. Bazzacco, J. Benlliure, M. Bowry, M. Bunce, E. Casarejos, M.L. Cortes, A.M.D. Bacelar, A.Y. Deo, C. Domingo-Pardo, M. Doncel, Zs. Dombradi, T. En-gert, K. Eppinger, G.F. Farrelly, F. Farinon, E. Farnea, H. Geissel, J. Gerl, N. Goel, E. Gregor, T. Habermann, R. Hoischen, R. Janik, S. Klupp, I. Ko-jouharov, N. Kurz, S. Mandal, R. Menegazzo, D. Mengoni, D.R. Napoli, F. Naqvi, C. Nociforo, A. Prochazka, W. Prokopowicz, F. Recchia, R.V. Ribas, M.W. Reed, D. Rudolph, E. Sahin, H. Schaffner, A. Sharma, B. Sitar, D. Siwal, K. Steiger, P. Strmen, T.P.D. Swan, I. Szarka, C.A. Ur, P.M. Walker, H.-J. Woller-sheim |
| 2012Bi.A | P-Argonne | | | J. Billowes |
| 2012Bo.A | PrvCom | May | Lunney | Ch. Borgmann |
| 2012Br03 | PRLTA | 108, | 052504 | M. Brodeur, T. Brunner, C. Champagne, S. Ettenauer, M.J. Smith, A. Lapierre, R. Ringle, V.L. Ryjkov, S. Bacca, P. Delheij, G.W.F. Drake, D. Lunney, A. Schwenk, J. Dilling |
| 2012Ca03 | PRVCA | 85, | 014312 | L. Cartegni, C. Mazzocchi, R. Grzywacz, I.G. Darby, S.N. Liddick, K.P. Rykaczewski, J.C. Batchelder, L. Bianco, C.R. Bingham, E. Freeman, C. Goodin, C.J. Gross, A. Guglielmetti, D.T. Joss, S.H. Liu, M. Mazzocco, S. Padgett, R.D. Page, M.M. Rajabali, M. Romoli, P.J. Sapple, J. Thomson, H.V. Watkins |
| 2012Ca05 | PYLBB | 707, | 46 | Z.X. Cao, Y.L. Ye, J. Xiao, L.H. Lv, D.X. Jiang, T. Zheng, H. Hua, Z.H. Li, X.Q. Li, Y.C. Ge, J.L. Lou, R. Qiao, Q.T. Li, H.B. You, R.J. Chen, D.Y. Pang, H. Sakurai, H. Otsu, M. Nishimura, S. Sakaguchi, H. Baba, Y. Togano, K. Yoneda, C. Li, S. Wang, H. Wang, K.A. Li, T. Nakamura, Y. Nakayama, Y. Kondo, S. Deguchi, Y. Satou, K. Tshoo |
| 2012Ch02 | PRLTA | 108, | 032501 | G. Christian, N. Frank, S. Ash, T. Baumann, D. Bazin, J. Brown, P.A. DeYoung, J.E. Finck, A. Gade, G.F. Grinyer, A. Grovom, J.D. Hinnefeld, E.M. Lunderberg, B. Luther, M. Mosby, S. Mosby, T. Nagi, G.F. Peaslee, W.F. Rogers, J.K. Smith, J. Snyder, A. Spyrou, M.J. Strongman, M. Thoennessen, M. Warren, D. Weis-shaar, A. Wersal |
| 2012Ch16 | PRLTA | 108, | 162501 | R. Chevrier, J.M. Daugas, L. Gaudefroy, Y. Ichikawa, H. Ueno, M. Hass, H. Haas, S. Cottenier, N. Aoi, K. Asahi, D.L. Balabanski, N. Fukuda, T. Fu-rukawa, G. Georgiev, H. Hayashi, H. Iijima, N. Inabe, T. Inoue, M. Ishihara, Y. Ishii, D. Kameda, T. Kubo, T. Nanao, G. Neyens, T. Ohnishi, M.M. Rajabali, K. Suzuki, H. Takeda, M. Tsuchiya, N. Vermeulen, H. Watanabe, A. Yoshimi |
| 2012Ch19 | NUPAB | 882, | 71 | L. Chen, W.R. Plass, H. Geissel, R. Knöbel, C. Kozhuharov, Yu. A. Litvinov, Z. Patyk, C. Scheidenberger, K. Siegien-Iwaniuk, B. Sun, H. Weick, K. Beckert, P. Beller, F. Bosch, D. Boutin, L. Caceres, J.J. Carroll, D.M. Cullen, I.J. Cullen, B. Franzke, J. Gerl, M. Gorska, G.A. Jones, A. Kishada, J. Kurcewicz, S.A. Litvinov, Z. Liu, S. Mandal, F. Montes, G. Munzenberg, F. Nolden, T. Oht-subo, Zs. Podolyák, R. Propri, S. Rigby, N. Saito, T. Saito, M. Shindo, M. Steck, P.M. Walker, S. Williams, M. Winkler, H.-J. Wollersheim, T. Yamaguchi |
| 2012Ch30 | ARISE | 70, | 1871 | V.P. Chechev |
| 2012Ch40 | PRVCA | 86, | 041307 | R.J. Charity, L.G. Sobotka, K. Hagino, D. Bazin, M.A. Famiano, A. Gade, S. Hu-dan, S.A. Komarov, Jenny Lee, S.P. Lobastov, S.M. Lukyanov, W.G. Lynch, C. Metelko, M. Mocko, A.M. Rogers, H. Sagawa, A. Sanetullaev, M.B. Tsang, M.S. Wallace, M.J. van Goethem, A.H. Wuosmaa |
| 2012Ch51 | JPCSD | 381, | 012071 | B. Cheal, J. Billowes, M.L. Bissell, K. Blaum, F.C. Charlwood, K.T. Flana-gan, D.H. Forest, Ch. Geppert, M. Kowalska, K. Kreim, A. Krieger, J. Krämer, K.M. Lynch, E. Mané, I.D. Moore, R. Neugart, G. Neyens, W. Nörthershäuser, J. Papuga, T.J. Procter, M.M. Rajabali, H.H. Stroke, P. Vingerhoets, D.T. Yor-danov, M. Žáková |
| 2012Ch.A | PrvCom | May | Lunney | Ankur Chaudhuri |
| 2012Da04 | PRVCA | 85, | 064301 | A.Y. Dauenhauer, K.S. Krane |
| 2012Da06 | ARISE | 70, | 1924 | C.J. da Silva, A. Iwahara, D.S. Moreira, J.U. Delgado, R.S. Gomes |

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| 2012Da16 | EPJAA | 48, | 157 | F.A. Danevich, E. Andreotti, M. Hult, G. Marissens, V.I. Tretyak, A. Yuksel |
| 2012Da17 | EPJAA | 48, | 867 | L.S. Danu, P.K. Joshi, D.C. Biswas, S. Mukhopadhyay, A. Goswami, P.N. Prashanth, L.A. Kinage, R.K. Choudhury, B. Singh |
| 2012Dr01 | NUPAB | 875, | 1 | C. Droese, K. Blaum, M. Block, S. Eliseev, F. Herfurth, E. Minaya-Ramirez, Yu. N. Novikov, L. Schweikhard, V.M. Shabaev, I.I. Tupitsyn, S. Wycech, K. Zuber, N.A. Zubova |
| 2012Dr02 | PYLBB | 709, | 59 | G.D. Dracoulis, G.J. Lane, A.P. Byrne, H. Watanabe, R.O. Hughes, N. Palalani, F.G. Kondev, M. Carpenter, R.V.F. Janssens, T. Lauritsen, C.J. Lister, D. Seweryniak, S. Zhu, P. Chowdhury, Y. Shi, F.R. Xu |
| 2012Dr.A | PrvCom | FGK | | G.D. Dracoulis |
| 2012Fa07 | ARISE | 70, | 2328 | Fang Kaihong, Wang Dawei, Yang Shaobo, Zhao Jiangtao, Peng Haibo, Wang Qiang, Wang Tieshan |
| 2012Fi01 | PRLTA | 108, | 062502 | D. Fink, J. Barea, D. Beck, K. Blaum, Ch. Bohm, Ch. Borgmann, M. Breitenfeldt, F. Herfurth, A. Herlert, J. Kotila, M. Kowalska, S. Kreim, D. Lunney, S. Naimi, M. Rosenbusch, S. Schwarz, L. Schweikhard, F. Simkovic, J. Stanja, K. Zuber and PrvCom WgM March 2012 |
| 2012Fi05 | JPGPE | 39, | 125101 | K.T. Flanagan, J. Billowes, P. Campbell, B. Cheal, G.D. Dracoulis, D.H. Forest, M.D. Gardner, J. Huikari, A. Jokinen, B.A. Marsh, R. Moore, A. Nieminen, H. Penttilä, H.L. Thayer, G. Tungate, J. Äystö |
| 2012Fo04 | PRVCA | 85, | 027303 | H.T. Fortune, R. Sherr |
| 2012Fo09 | NIMAE | 687, | 1 | C.M. Folden III, M.C. Alfonso, D.A. Mayorov, K.R. Lawrence, A.A. Alharbi, E. Berdugo, P.J. Cammarata, A.C. Raphelt, B.T. Roeder, T.A. Werke |
| 2012Ga15 | PRVCA | 85, | 044311 | A.T. Gallant, M. Brodeur, T. Brunner, U. Chowdhury, S. Ettenauer, V.V. Simon, E. Mané, M.C. Simon, C. Andreoiu, P. Delheij, G. Gwinner, M.R. Pearson, R. Ringle, J. Dilling |
| 2012Ga17 | PRVCA | 85, | 045504 | A. Gando, Y. Gando, H. Hanakago, H. Ikeda, K. Inoue, R. Kato, M. Koga, S. Matsuda, T. Mitsui, T. Nakada, K. Nakamura, A. Obata, A. Oki, Y. Ono, I. Shimizu, J. Shirai, A. Suzuki, Y. Takemoto, K. Tamae, K. Ueshima, H. Watanabe, B.D. Xu, S. Yamada, H. Yoshida, A. Kozlov, S. Yoshida, T.I. Banks, J.A. Detwiler, S.J. Freedman, B.K. Fujikawa, K. Han, T. O'Donnell, B.E. Berger, Y. Efremenko, H.J. Karwowski, D.M. Markoff, W. Tornow, S. Enomoto, M.P. Decowski (KamLAND-Zen Collaboration) |
| 2012Ga29 | PRLTA | 109, | 032506 | A.T. Gallant, J.C. Bale, T. Brunner, U. Chowdhury, S. Ettenauer, A. Lennarz, D. Robertson, V.V. Simon, A. Chaudhuri, J.D. Holt, A.A. Kwiatkowski, E. Mané, J. Menéndez, B.E. Schultz, M.C. Simon, C. Andreoiu, P. Delheij, M.R. Pearson, H. Savajols, A. Schwenk, J. Dilling |
| 2012Ga45 | PRLTA | 109, | 202503 | L. Gaudefroy, W. Mittig, N.A. Orr, S. Varet, M. Chartier, P. Roussel-Chomaz, J.P. Ebran, B. Fernández-Domínguez, G. Frémont, P. Gangnant, A. Gillibert, S. Grévy, J.F. Libin, V.A. Maslov, S. Paschalis, B. Pietras, Yu.-E. Penionzhkevich, C. Spitaels, A.C.C. Villari |
| 2012Go19 | PRLTA | 109, | 162502 | A. Gottardo, J.J. Valiente-Dobón, G. Benzoni, R. Nicolini, A. Gadea, S. Lunardi, P. Boutachkov, A.M. Bruce, M. Górska, J. Grebosz, S. Pietri, Zs. Podolyák, M. Pfützner, P.H. Regan, H. Weick, J. Alcántara Núñez, A. Algora, N. Al-Dahan, G. de Angelis, Y. Ayyad, N. Alkhomashi, P.R.P. Allegro, D. Bazzacco, J. Benlliure, M. Bowry, A. Bracco, M. Bunce, F. Camera, E. Casarejos, M.L. Cortes, F.C.L. Crespi, A. Corsi, A.M.D. Bacelar, A.Y. Deo, C. Domingo-Pardo, M. Doncel, Zs. Dombradi, T. Engert, K. Eppinger, G.F. Farrelly, F. Farinon, E. Farnea, H. Geissel, J. Gerl, N. Goel, E. Gregor, T. Habermann, R. Hoischen, R. Janik, S. Klupp, I. Kojouharov, N. Kurz, S.M. Lenzi, S. Leoni, Mandal, R. Menegazzo, D. Mengoni, B. Million, A.I. Morales, D.R. Napoli, F. Naqvi, C. Nociforo, A. Prochazka, W. Prokopowicz, F. Recchia, R.V. Ribas, M.W. Reed, D. Rudolph, E. Sahin, H. Schaffner, A. Sharma, B. Sitar, D. Siwal, K. Steiger, P. Strmen, T.P.D. Swan, I. Szarka, C.A. Ur, P.M. Walker, O. Wieland, H.-J. Wollersheim, F. Nowacki, E. Maglione, A.P. Zuker |
| 2012Gu14 | PRVCA | 86, | 014323 | S. Guo, Y.H. Zhang, X.H. Zhou, M.L. Liu, Y.X. Guo, Y.H. Qiang, Y.D. Fang, X.G. Lei, F. Ma, M. Oshima, Y. Toh, M. Koizumi, A. Osa, A. Kimura, Y. Hatsukawa, M. Sugawara, H. Kusakari |
| 2012Gy01 | ARISE | 70, | 278 | Gy. Gyurky, J. Farkas, Z. Halasz, T. Szucs |

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|----------|-------|------|--------|---|
| 2012Ha05 | PRVCA | 85, | 024611 | H. Haba, D. Kaji, Y. Kudou, K. Morimoto, K. Morita, K. Ozeki, R. Sakai, T. Sumita, A. Yoneda, Y. Kasamatsu, Y. Komori, A. Shinohara, H. Kikunaga, H. Kudo, K. Nishio, K. Ooe, N. Sato, K. Tsukada |
| 2012Ha25 | PRLTA | 109, | 032501 | J. Hakala, J. Dobaczewski, D. Gorelov, T. Eronen, A. Jokinen, A. Kankainen, V.S. Kolhinen, M. Kortelainen, I.D. Moore, H. Penttilä, S. Rinta-Antila, J. Rissanen, A. Saastamoinen, V. Sonnenschein, J. Äystö |
| 2012He09 | EPJAA | 48, | 75 | F.P. Heßberger, S. Antalic, D. Ackermann, Z. Kalaninova, S. Heinz, S. Hofmann, B. Streicher, B. Kindler, I. Kojouharov, P. Kuusiniemi, M. Leino, B. Lommel, R. Mann, K. Nishio, Š. Šáro, B. Sulignano, M. Venhart |
| 2012He11 | PRVCA | 86, | 014605 | G.Z. He, S. Jiang, Z.Y. Zhou, M. He, W.Z. Tian, J.L. Zhang, L.J. Diao, H. Li |
| 2012Hi07 | NATUA | 486, | 342 | C.B. Hinke, M. Böhmer, P. Boutachkov, T. Faestermann, H. Geissel, J. Gerl, R. Gernhäuser, M. Górski, A. Gottardo, H. Grawe, J.L. Grębosz, R. Krücken, N. Kurz, Z. Liu, L. Maier, F. Nowacki, S. Pietri, Zs. Podolyák, K. Sieja, K. Steiger, K. Straub, H. Weick, H.-J. Wollersheim, P.J. Woods, N. Al-Dahan, N. Alkhomashi, A. Ataç, A. Blazhev, N.F. Braun, I.T. Čeliković, T. Davinson, I. Dillmann, C. Domingo-Pardo, P.C. Doornenbal, G. de France, G.F. Farrelly, F. Farinon, N. Goel, T.C. Habermann, R. Hoischen, R. Janik, M. Karny, A. Kaşkaş, I.M. Kojouharov, Th. Kröll, Y. Litvinov, S. Myalski, F. Nebel, S. Nishimura, C. Nociforo, J. Nyberg, A.R. Parikh, A. Procházka, P.H. Regan, C. Rigollet, H. Schaffner, C. Scheidenberger, S. Schwertel, P.-A. Söderström, S.J. Steer, A. Stolz, P. Strmeň |
| 2012Ho12 | EPJAA | 48, | 62 | S. Hofmann, S. Heinz, R. Mann, J. Maurer, J. Khuyagbaatar, D. Ackermann, S. Antalic, W. Barth, M. Block, H.G. Burkhard, V.F. Comas, L. Dahl, K. Eberhardt, J. Gostic, R.A. Henderson, J.A. Heredia, F.P. Heßberger, J.M. Kennelly, B. Kindler, I. Kojouharov, J.V. Kratz, R. Lang, M. Leino, B. Lommel, K.J. Moody, G. Münzenberg, S.L. Nelson, K. Nishio, A.G. Popeko, J. Runke, Š. Šáro, D.A. Shaughnessy, M.A. Stoyer, P. Thörle-Pospiech, K. Tinschert, N. Trautmann, J. Uusitalo, P.A. Wilk, A.V. Yeremin |
| 2012Hu10 | PRVCA | 86, | 054314 | R.O. Hughes, G.J. Lane, G.D. Dracoulis, A.P. Byrne, P.H. Nieminen, H. Watanabe, M.P. Carpenter, P. Chowdhury, R.V.F. Janssens, F.G. Kondev, T. Lauritsen, D. Seweryniak, S. Zhu |
| 2012Ja01 | PRVCA | 85, | 014309 | U. Jakobsson, J. Uusitalo, S. Juutinen, M. Leino, T. Enqvist, P.T. Greenlees, K. Hauschild, P. Jones, R. Julin, S. Ketelhut, P. Kuusiniemi, M. Nyman, P. Peura, P. Rahkila, P. Ruotsalainen, J. Sarén, C. Scholey, J. Sorri |
| 2012Ja11 | PRVCA | 86, | 011304 | M.F. Jager, R.J. Charity, J.M. Elson, J. Manfredi, H. Mohammad, L.G. Sobotka, M. McCleskey, R.G. Pizzone, B.T. Roeder, A. Spiridon, E. Simmons, L. Trache, M. Kurokawa |
| 2012Ka12 | EPJAA | 48, | 49 | A. Kankainen, Yu. N. Novikov, M. Oinonen, L. Batist, V.-V. Elomaa, T. Eronen, J. Hakala, A. Jokinen, P. Karvonen, M. Reponen, J. Rissanen, A. Saastamoinen, G. Vorobjev, C. Weber, J. Äystö |
| 2012Ka13 | EPJAA | 48, | 47 | A. Kankainen, V.S. Kolhinen, V.-V. Elomaa, T. Eronen, J. Hakala, A. Jokinen, A. Saastamoinen, J. Äystö |
| 2012Ka36 | PRVCA | 86, | 054319 | D. Kameda, T. Kubo, T. Ohnishi, K. Kusaka, A. Yoshida, K. Yoshida, M. Ohtake, N. Fukuda, H. Takeda, K. Tanaka, N. Inabe, Y. Yanagisawa, Y. Gono, H. Watanabe, H. Otsu, H. Baba, T. Ichihara, Y. Yamaguchi, M. Takechi, S. Nishimura, H. Ueno, A. Yoshimi, H. Sakurai, T. Motobayashi, T. Nakao, Y. Mizoi, M. Matsushita, K. Ieki, N. Kobayashi, K. Tanaka, Y. Kawada, N. Tanaka, S. Deguchi, Y. Satou, Y. Kondo, T. Nakamura, K. Yoshinaga, C. Ishii, H. Yoshii, Y. Miyashita, N. Uematsu, Y. Shiraki, T. Sumikama, J. Chiba, E. Ideguchi, A. Saito, T. Yamaguchi, I. Hachiuma, T. Suzuki, T. Moriguchi, A. Ozawa, T. Ohtsubo, M.A. Famiano, H. Geissel, A.S. Nettleton, O.B. Tarasov, D. Bazin, B.M. Sherrill, S.L. Manikonda, J.A. Nolen |
| 2012Ke01 | NUPAB | 880, | 88 | J.H. Kelley, E. Kwan, J.E. Purcell, C.G. Sheu, H.R. Weller |
| 2012Ki16 | SCIEA | 335, | 1614 | N. Kinoshita, M. Paul, Y. Kashiv, P. Collon, C.M. Deibel, B. DiGiovine, J.P. Greene, D.J. Henderson, C.L. Jiang, S.T. Marley, T. Nakanishi, R.C. Pardo, K.E. Rehm, D. Robertson, R. Scott, C. Schmitt, X.D. Tang, R. Vondrasek, A. Yokoyama |
| 2012Kn01 | PRLTA | 108, | 122502 | A. Knecht, R. Hong, D.W. Zumwalt, B.G. Delbridge, A. García, P. Müller, H.E. Swanson, I.S. Towner, S. Utsuno, W. Williams, C. Wrede |

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| 2012Ko24 | ARISE | 70, | 2215 | K. Kossert, O.J. Nöhle, O. Ott, R. Dersch |
| 2012Ko29 | PRVCA | 86, | 024307 | A. Korgul, K.P. Rykaczewski, J.A. Winger, S.V. Ilyushkin, C.J. Gross, J.C. Batchelder, C.R. Bingham, I.N. Borzov, C. Goodin, R. Grzywacz, J.H. Hamilton, W. Królas, S.N. Liddick, C. Mazzocchi, C. Nelson, F. Nowacki, S. Padgett, A. Piechaczek, M.M. Rajabali, D. Shapira, K. Sieja, E.F. Zganjar |
| 2012Ko43 | PRLTA | 109, | 232501 | Z. Kohley, J. Snyder, T. Baumann, G. Christian, P.A. DeYoung, J.E. Finck, R.A. Haring-Kaye, M. Jones, E. Lunderberg, B. Luther, S. Mosby, A. Simon, J.K. Smith, A. Spyrou, S.L. Stephenson, M. Thoennessen |
| 2012Kr05 | PRVCA | 85, | 044319 | K.S. Krane |
| 2012Kr07 | ARISE | 70, | 1649 | K.S. Krane |
| 2012Ku06 | PRVCA | 85, | 027302 | J. Kurpeta, W. Urban, T. Materna, H. Faust, U. Köster, J. Rissanen, T. Rzaca-Urban, C. Mazzocchi, A.G. Smith, J.F. Smith, J.P. Greene, I. Ahmad |
| 2012Ku26 | PYLBB | 717, | 371 | J. Kurcewicz, F. Farinon, H. Geissel, S. Pietri, C. Nociforo, A. Prochazka, H. Weick, J.S. Winfield, A. Estradé, P.R.P. Allegro, A. Bail, G. Bélier, J. Benlliure, G. Benzoni, M. Bunce, M. Bowry, R. Caballero-Folch, I. Dillmann, A. Evdokimov, J. Gerl, A. Gottardo, E. Gregor, R. Janik, A. Kelić-Heil, R. Knöbel, T. Kubo, Yu. A. Litvinov, E. Merchan, I. Mukha, F. Naqvi, M. Pfützner, M. Pomorski, Zs. Podolyák, P.H. Regan, B. Riese, M.V. Ricciardi, C. Scheidenberger, B. Sitar, P. Spiller, J. Stadlmann, P. Strmen, B. Sun, I. Szarka, J. Taieb, S. Terashima, J.J. Valiente-Dobon, M. Winkler, Ph. Woods |
| 2012Ku28 | PRVCA | 86, | 044306 | J. Kurpeta, W. Urban, A. Plochocki, J. Rissanen, J.A. Pinston, V.-V. Elomaa, T. Eronen, J. Hakala, A. Jokinen, A. Kankainen, I.D. Moore, H. Penttilä, A. Saastamoinen, C. Weber, J. Äystö |
| 2012La05 | PRVCA | 85, | 024317 | A. Lapierre, M. Brodeur, T. Brunner, S. Ettenauer, P. Finlay, A.T. Gallant, V.V. Simon, P. Delheij, D. Lunney, R. Ringle, H. Savajols, J. Dilling |
| 2012La.A | P-Argonne | | | G.J. Lane |
| 2012Li02 | PRVCA | 85, | 014328 | S.N. Liddick, B. Abromeit, A. Ayres, A. Bey, C.R. Bingham, M. Bolla, L. Cartegni, H.L. Crawford, I.G. Darby, R. Grzywacz, S. Ilyushkin, N. Larson, M. Madurga, D. Miller, S. Padgett, S. Paulauskas, M.M. Rajabali, K. Rykaczewski, S. Suchyta |
| 2012Lo08 | PRVCA | 86, | 014313 | G. Lorusso, A. Becerril, A. Amthor, T. Baumann, D. Bazin, J.S. Berryman, B.A. Brown, R.H. Cyburt, H.L. Crawford, A. Estrade, A. Gade, T. Ginter, C.J. Guess, M. Hausmann, G.W. Hitt, P.F. Mantica, M. Matos, R. Meharchand, K. Minamisono, F. Montes, G. Perdikakis, J. Pereira, M. Portillo, H. Schatz, K. Smith, J. Stoker, A. Stolz, R.G.T. Zegers |
| 2012Lu07 | PRLTA | 108, | 142503 | E. Lunderberg, P.A. DeYoung, Z. Kohley, H. Attanayake, T. Baumann, D. Bazin, G. Christian, D. Divaratne, S.M. Grimes, A. Haagsma, J.E. Finck, N. Frank, B. Luther, S. Mosby, T. Nagi, G.F. Peaslee, A. Schiller, J. Snyder, A. Spyrou, M.J. Strongman, M. Thoennessen |
| 2012Lu14 | ARISE | 70, | 1876 | A. Luca, M. Sahagia, A. Antohe |
| 2012Ma03 | APOBB | 43, | 247 | T. Malkiewicz, G.S. Simpson, W. Urban, J. Genevey, J.A. Pinston, I. Ahmad, J.P. Greene, U. Koster, T. Materna, M. Ramdhane, T. Rzaca-Urban, A.G. Smith, G. Thiamova |
| 2012Ma30 | ARISE | 70, | 2270 | M. Marouli, S. Pommé, J. Paepen, R. Van Ammel, V. Jobbágy, A. Dirican, G. Suliman, H. Stroh, C. Apostolidis, K. Abbas, A. Morgenstern |
| 2012Ma37 | PRLTA | 109, | 112501 | M. Madurga, R. Surman, I.N. Borzov, R. Grzywacz, K.P. Rykaczewski, C.J. Gross, D. Miller, D.W. Stracener, J.C. Batchelder, N.T. Brewer, L. Cartegni, J.H. Hamilton, J.K. Hwang, S.H. Liu, S.V. Ilyushkin, C. Jost, M. Karny, A. Korgul, W. Królas, A. Kuźniak, C. Mazzocchi, A.J. Mendez II, K. Miernik, W. Padgett, S.V. Paulauskas, A.V. Ramayya, J.A. Winger, M. Wolińska-Cichocka, E.F. Zganjar |
| 2012Me04 | EPJAA | 48, | 20 | G. Meierhofer, P. Grabmayr, L. Canella, P. Kudejova, J. Jolie, N. Warr |
| 2012Mo25 | JUPSA | 81, | 103201 | K. Morita, K. Morimoto, D. Kaji, H. Haba, K. Ozeki, Y. Kudou, T. Sumita, Y. Wakabayashi, A. Yoneda, K. Tanaka, S. Yamaki, R. Sakai, T. Akiyama, S.-i. Goto, H. Hasebe, M. Huang, T. Huang, E. Ideguchi, Y. Kasamatsu, K. Katori, Y. Kariya, H. Kikunaga, H. Koura, H. Kudo, A. Mashiko, K. Mayama, S.-ic. Mit-suoka, T. Moriya, M. Murakami, H. Murayama, S. Namai, A. Ozawa, N. Sato, K. Sueki, M. Takeyama, F. Tokanai, T. Yamaguchi, A. Yoshida |

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| 2012Mo.A | PrvCom | | Moon | C.B. Moon, G.D. Dracoulis, R.A. Bark, A.P. Byrne, P.A. Davidson, T. Kibédi, G.J. Lane, A.N. Wilson |
| 2012Mu05 | PRVCA | 85, | 044325 | I. Mukha, L. Grigorenko, L. Acosta, M.A.G. Alvarez, E. Casarejos, A. Chatillon, D. Cortina-Gil, J.M. Espino, A. Fomichev, J.E. García-Ramos, H. Geissel, J. Gómez-Camacho, J. Hofmann, O. Kiselev, A. Korshennikov, N. Kurz, Yu. A. Litvinov, I. Martel, C. Nociforo, W. Ott, M. Pfützner, C. Rodríguez-Tajes, E. Roeckl, C. Scheidenberger, M. Stanoiu, K. Sümmerner, H. Weick, P.J. Woods |
| 2012Na15 | PRVCA | 86, | 014325 | S. Naimi, G. Audi, D. Beck, K. Blaum, Ch. Böhm, Ch. Borgmann, M. Breitenfeldt, S. George, F. Herfurth, A. Herlert, A. Kellerbauer, M. Kowalska, D. Lunney, E. Minaya Ramirez, D. Neidherr, M. Rosenbusch, L. Schweikhard, R.N. Wolf, K. Zuber |
| 2012Ne05 | ARISE | 70, | 1990 | Y. Nedjadi, C. Bailat, Y. Caffari, P. Froidevaux, C. Wastiel, N. Kivel, I. Guenther-Leopold, G. Triscione, F. Jaquenod, F. Bochud |
| 2012No08 | PHSTT | 150, | 014028 | C. Nociforo, F. Farinon, A. Musumarra, F. Bosch, D. Boutin, A. Del Zoppo, P. Figuera, M. Fisichella, H. Geissel, R. Knöbel, I. Kojouharov, C. Kozhuharov, T. Kuboki, J. Kurcewicz, Yu. A. Litvinov, M. Mazzocco, Y. Motizuki, F. Nolden, T. Ohstubo, Y. Ohkuma, Z. Patyk, M.G. Pellegriti, S. Pietri, Z. Podolyák, A. Prochazka, M.S. Sanjari, C. Scheidenberger, V. Scuderi, B. Sun, T. Suzuki, D. Torresi, H. Weick, J.S. Winfield, N. Winckler, M. Winkler, H.J. Wollersheim, T. Yamaguchi |
| 2012Od01 | PRVCA | 85, | 054315 | D. O'Donnell, R.D. Page, C. Scholey, L. Bianco, L. Capponi, R.J. Carroll, I.G. Darby, L. Donosa, M. Drummond, F. Ertugral, T. Grahn, P.T. Greenlees, K. Hauschild, A. Herzan, U. Jakobsson, P. Jones, D.T. Joss, R. Julin, S. Juutinen, S. Ketelhut, M. Labiche, M. Leino, A. Lopez-Martens, K. Mulholland, P. Nieminen, P. Peura, P. Rahkila, S. Rinta-Antila, P. Ruotsalainen, M. Sandzelius, J. Saren, B. Saygi, J. Simpson, J. Sorri, A. Thornthwaite, J. Uusitalo |
| 2012Og02 | PRLTA | 108, | 022502 | Yu. Ts. Oganessian, F. Sh. Abdullin, S.N. Dmitriev, J.M. Gostic, J.H. Hamilton, R.A. Henderson, M.G. Itkis, K.J. Moody, A.N. Polyakov, A.V. Ramayya, J.B. Roberto, K.P. Rykaczewski, R.N. Sagaidak, D.A. Shaughnessy, I.V. Shirokovsky, M.A. Stoyer, V.G. Subbotin, A.M. Sukhov, Yu. S. Tsyganov, V.K. Utyonkov, A.A. Voinov, G.K. Vostokin |
| 2012Og06 | PRLTA | 109, | 162501 | Yu. Ts. Oganessian, F. Sh. Abdullin, C. Alexander, J. Binder, R.A. Boll, S.N. Dmitriev, J. Ezold, K. Felker, J.M. Gostic, R.K. Grzywacz, J.H. Hamilton, R.A. Henderson, M.G. Itkis, K. Miernik, D. Miller, K.J. Moody, A.N. Polyakov, A.V. Ramayya, J.B. Roberto, M.A. Ryabinin, K.P. Rykaczewski, R.N. Sagaidak, D.A. Shaughnessy, I.V. Shirokovsky, M.V. Shumeiko, M.A. Stoyer, N.J. Stoyer, V.G. Subbotin, A.M. Sukhov, Yu. S. Tsyganov, V.K. Utyonkov, A.A. Voinov, G.K. Vostokin |
| 2012Os04 | JUPSA | 81, | 084201 | M. Oshima, T. Kin, S. Nakamura, M. Honma, F. Minato, T. Hayakawa, K.Y. Hara, A. Kimura, M. Koizumi, H. Harada, J. Goto, Y. Murakami |
| 2012Pa07 | PRVCA | 85, | 035501 | H.I. Park, J.C. Hardy, V.E. Iacob, L. Chen, J. Goodwin, N. Nica, E. Simmons, L. Trache, R.E. Tribble |
| 2012Po03 | APOBB | 43, | 267 | M. Pomorski, M. Pfützner, W. Dominik, R. Grzywacz, T. Baumann, J. Berryman, H. Czyrkowski, R. Dabrowski, T. Ginter, L. Grigorenko, J. Johnson, G. Kamiński, A. Kuźniak, N. Larson, S.N. Liddick, M. Madurga, C. Mazzocchi, S. Mianowski, K. Miernik, D. Miller, S. Palauskas, J. Pereira, K.P. Rykaczewski, A. Stolz, S. Suchyta |
| 2012Po12 | ARISE | 70, | 1900 | S. Pommé, T. Altitzoglou, R. Van Ammel, G. Suliman, M. Marouli, V. Jobbagy, J. Paepen, H. Stroh, C. Apostolidis, K. Abbas, A. Morgenstern |
| 2012Po13 | ARISE | 70, | 1913 | S. Pommé, G. Suliman, M. Marouli, R. Van Ammel, V. Jobbagy, J. Paepen, H. Stroh, C. Apostolidis, K. Abbas, A. Morgenstern |
| 2012Po14 | ARISE | 70, | 2608 | S. Pomme, M. Marouli, G. Suliman, H. Dikmen, R. Van Ammel, V. Jobbagy, A. Dirican, H. Stroh, J. Paepen, F. Bruchertseifer, C. Apostolidis, A. Morgenstern |
| 2012Pr11 | PRVCA | 86 | 034329 | T.J. Procter, J. Billowes, M.L. Bissell, K. Blaum, F.C. Charlwood, B. Cheal, K.T. Flanagan, D.H. Forest, S. Fritzsche, Ch. Geppert, H. Heylen, M. Kowalska, K. Kreim, A. Krieger, J. Krämer, K.M. Lynch, E. Mané, I.D. Moore, R. Neugart, G. Neyens, W. Nörtershäuser, J. Papuga, M.M. Rajabali, H.H. Stroke, P. Vingerhoets, D.T. Yordanov, M. Žáková |

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| 2012Qu01 | PRVCA | 85, | 035807 | M. Quinn, A. Aprahamian, J. Pereira, R. Surman, O. Arndt, T. Baumann, A. Becerril, T. Elliot, A. Estrade, D. Galaviz, T. Ginter, M. Hausmann, S. Hennrich, R. Kessler, K.-L. Kratz, G. Lorusso, P.F. Mantica, M. Matos, F. Montes, B. Pfeiffer, M. Portillo, H. Schatz, F. Schertz, L. Schnorrenberger, E. Smith, A. Stolz, W.B. Walters, A. Wöhr |
| 2012Ra10 | PRVCA | 85, | 034326 | M.M. Rajabali, R. Grzywacz, S.N. Liddick, C. Mazzocchi, J.C. Batchelder, T. Baumann, C.R. Bingham, I.G. Darby, T.N. Ginter, S.V. Ilyushkin, M. Karny, W. Królas, P.F. Mantica, K. Miernik, M. Pfützner, K.P. Rykaczewski, D. Weishaar, J.A. Winger |
| 2012Ra34 | PRVAA | 86, | 050502 | R. Rana, M. Höcker, E.G. Myers |
| 2012Re05 | PRVCA | 85, | 035802 | R. Reifarh, S. Dababneh, M. Heil, F. Kappeler, R. Plag, K. Sonnabend, E. Uberseder |
| 2012Re17 | PRVCA | 86, | 041306 | M. Redshaw, G. Bollen, M. Brodeur, S. Bustabad, D.L. Lincoln, S.J. Novario, R. Ringle, S. Schwarz |
| 2012Re19 | PRVCA | 86, | 054321 | M.W. Reed, P.M. Walker, I.J. Cullen, Yu. A. Litvinov, D. Shubina, G.D. Dracoulis, K. Blaum, F. Bosch, C. Brandau, J.J. Carroll, D.M. Cullen, A.Y. Deo, B. Detwiler, C. Dimopoulou, G.X. Dong, F. Farinon, H. Geissel, E. Haetner, M. Heil, R.S. Kempley, R. Knöbel, C. Kozhuharov, J. Kurcewicz, N. Kuzminchuk, S. Litvinov, Z. Liu, R. Mao, C. Nociforo, F. Nolden, W.R. Plaß, Zs. Podolyák, A. Prochazka, C. Scheidenberger, M. Steck, Th. Stöhlker, B. Sun, T.P.D. Swan, G. Trees, H. Weick, N. Winckler, M. Winkler, P.J. Woods, F.R. Xu, T. Yamaguchi |
| 2012Re.A | PrvCom | GAu | May | M. Reed |
| 2012Re.B | PrvCom | FGK | Jun | P.H. Regan |
| 2012Ri08 | PRVCA | 86, | 047301 | L.A. Riley, P. Adrich, N. Ahsan, T.R. Baugher, D. Bazin, B.A. Brown, J.M. Cook, P.D. Cottle, C. Aa. Diget, A. Gade, T. Glasmacher, K.E. Hosier, K.W. Kemper, A. Ratkiewicz, K.P. Siwek, J.A. Tostevin, A. Volya, D. Weisshaar |
| 2012Ro25 | PRLTA | 109, | 092503 | F. Rotaru, F. Negoita, S. Grévy, J. Mrazek, S. Lukyanov, F. Nowacki, A. Poves, O. Sorlin, C. Borcea, R. Borcea, A. Buta, L. Cáceres, S. Calinescu, R. Chevrier, Zs. Dombrádi, J.M. Daugas, D. Lebhertz, Y. Penionzhkevich, C. Petrone, D. Sohler, M. Stanoiu, J.C. Thomas |
| 2012Sc.A | PrvCom | GAu | May | S. Schwarz |
| 2012Si07 | PRLTA | 108, | 202502 | S.I. Sidorchuk, A.A. Bezbakh, V. Chudoba, I.A. Egorova, A.S. Fomichev, M.S. Golovkov, A.V. Gorshkov, V.A. Gorshkov, L.V. Grigorenko, P. Jalšovková, G. Kaminski, S.A. Krupko, E.A. Kuzmin, E. Yu. Nikolskii, Yu. Ts. Oganessian, Yu. L. Parfenova, P.G. Sharov, R.S. Slepnev, S.V. Stepantsov, G.M. Ter-Akopian, R. Wolski, A.A. Yukhimchuk, S.V. Filchagin, A.A. Kiryashkin, I.P. Maksimkin, O.P. Vikhlyantsev |
| 2012Si10 | PRVCA | 85, | 064308 | V.V. Simon, T. Brunner, U. Chowdhury, B. Eberhardt, S. Ettenauer, A.T. Galant, E. Mane, M.C. Simon, P. Delheij, M.R. Pearson, G. Audi, G. Gwinner, D. Lunney, H. Schatz, J. Dilling |
| 2012Sm01 | PRVCA | 85, | 027601 | C. Smorra, T. Beyer, K. Blaum, M. Block, Ch. E. Düllmann, K. Eberhardt, M. Eibach, S. Eliseev, Sz. Nagy, W. Nörtershäuser, D. Renisch |
| 2012Sm07 | PRVCA | 86, | 044604 | C. Smorra, T.R. Rodríguez, T. Beyer, K. Blaum, M. Block, Ch. E. Düllmann, K. Eberhardt, M. Eibach, S. Eliseev, K. Langanke, G. Martínez-Pinedo, Sz. Nagy, W. Nörtershäuser, D. Renisch, V.M. Shabaev, I.I. Tupitsyn, N.A. Zubova |
| 2012So10 | JPGPE | 39, | 095107 | P.C. Sood, R. Gowrishankar, K. Vijay Sai |
| 2012Sp02 | PRLTA | 108, | 102501 | A. Spyrou, Z. Kohley, T. Baumann, D. Bazin, B.A. Brown, G. Christian, P.A. DeYoung, J.E. Finck, N. Frank, E. Lunderberg, S. Mosby, W.A. Peters, A. Schiller, J.K. Smith, J. Snyder, M.J. Strongman, M. Thoennessen, A. Volya |
| 2012St.A | P-Argonne | | | M.A. Stoyer |
| 2012Su11 | ARISE | 70, | 1907 | G. Suliman, S. Pommé, M. Marouli, R. Van Ammel, V. Jobbágy, J. Paepen, H. Stroh, C. Apostolidis, K. Abbas, A. Morgenstern |
| 2012Sv02 | EPJAA | 48, | 121 | A.I. Svirikhin, A.V. Andreev, V.N. Dushin, M.L. Chelnokov, V.I. Chepigin, M. Gupta, A.V. Isaev, I.N. Izosimov, D.E. Katrasev, A.N. Kuznetsov, O.N. Malyshov, S. Mullins, A.G. Popeko, E.A. Sokol, A.V. Yerein |
| 2012Sw01 | PRVCA | 85, | 024313 | T.P.D. Swan, P.M. Walker, Zs. Podolyák, M.W. Reed, G.D. Dracoulis, G.J. Lane, T. Kibédi, M.L. Smith |

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| 2012Sw02 | PRVCA | 86, | 044307 | T.P.D. Swan, P.M. Walker, Zs. Podolyák, M.W. Reed, G.D. Dracoulis, G.J. Lane, T. Kibédi, M.L. Smith |
| 2012Ta18 | PRVCA | 86, | 044310 | M.J. Taylor, G.A. Alharshan, D.M. Cullen, M.G. Procter, N.M. Lumley, T. Grahn, P.T. Greenlees, K. Hauschild, A. Herzan, U. Jakobsson, P. Jones, R. Julin, S. Juutinen, S. Ketelhut, M. Leino, A. Lopez-Martens, P. Nieminen, J. Partanen, P. Peura, P. Rahkila, S. Rinta-Antila, P. Ruotsalainen, M. Sandzelius, J. Sarén, C. Scholey, J. Sorri, S. Stolze, J. Uusitalo, F.R. Xu, Z.J. Bai |
| 2012Ta.A | P-New-Dehli | | 157 | S.K. Tandel |
| 2012Th13 | PRVCA | 86, | 064315 | A. Thornthwaite, D. O'Donnell, R.D. Page, D.T. Joss, C. Scholey, L. Bianco, L. Capponi, R.J. Carroll, I.G. Darby, L. Donosa, M.C. Drummond, F. Ertuğral, T. Grahn, P.T. Greenlees, K. Hauschild, A. Herzan, U. Jakobsson, P. Jones, R. Julin, S. Juutinen, S. Ketelhut, M. Labiche, M. Leino, A. Lopez-Martens, K. Mullholland, P. Nieminen, P. Peura, P. Rahkila, S. Rinta-Antila, P. Ruotsalainen, M. Sandzelius, J. Sarén, B. Saygi, J. Simpson, J. Sorri, J. Uusitalo |
| 2012Tr06 | PRLTA | 109, | 042301 | S. Triambak, P. Finlay, C.S. Sumithrarachchi, G. Hackman, G.C. Ball, P.E. Garrett, C.E. Svensson, D.S. Cross, A.B. Garnsworthy, R. Kshetri, J.N. Orce, M.R. Pearson, E.R. Tardiff, H. Al-Falou, R.A.E. Austin, R. Churchman, M.K. Djongolov, R. D'Entremont, C. Kierans, L. Milovanovic, S. O'Hagan, S. Reeve, S.K.L. Sjue, S.J. Williams |
| 2012Va02 | PRVCA | 85, | 045805 | J. Van Schelt, D. Lascar, G. Savard, J.A. Clark, S. Caldwell, A. Chaudhuri, J. Fallis, J.P. Greene, A.F. Levand, G. Li, K.S. Sharma, M.G. Sternberg, T. Sun, B.J. Zabransky |
| 2012Ve04 | EPJAA | 48, | 101 | M. Venhart, A.N. Andreyev, S. Antalic, L. Bianco, P.T. Greenlees, U. Jakobsson, P. Jones, D.T. Joss, R. Julin, S. Juutinen, S. Ketelhut, M. Leino, M. Nyman, R.D. Page, P. Peura, P. Rahkila, J. Sarén, C. Scholey, J. Sorri, J. Thomson, J. Uusitalo |
| 2012Vi10 | NATUA | 488, | 357 | R. Vincent, S. Klyatskaya, M. Ruben, W. Wernsdorfer, F. Balestro |
| 2012Wa10 | PRVCA | 85, | 034329 | P.T. Wady, J.F. Smith, E.S. Paul, B. Hadinia, C.J. Chiara, M.P. Carpenter, C.N. Davids, A.N. Deacon, S.J. Freeman, A.N. Grint, R.V.F. Janssens, B.P. Kay, T. Lauritsen, C.J. Lister, B.M. McGuirk, M. Petri, A.P. Robinson, D. Seweryniak, D. Steppenbeck, S. Zhu |
| 2012Wa21 | ARISE | 70, | 1927 | S.-l. Wang, T. Bai, Q. Li, Z.-y. Chen, Q.-l. Shi, X.-s. Li, X.-l. Zhang, F. Xie, Y.-f. Chang |
| 2012We08 | JPCSD | 337, | 012018 | L. Weissman, U. Bergmann, J. Cederkall, L. Fraile, S. Franchoo, H.O.U. Fynbo, T. Fritioff, U. Koster, O. Arnd, I. Dillman, O. Hallmann, K.-L. Kratz, B. Pfeiffer, A. Wöhr, L. Gaudefroy, O. Sorlin |
| 2012Zh04 | CPLEE | 29, | 012502 | Z.Y. Zhang, Z.G. Gan, L. Ma, M.H. Huang, T.H. Huang, X.L. Wu, G.B. Jia, G.S. Li, L. Yu, Z.Z. Ren, S.G. Zhou, Y.H. Zhang, X.H. Zhou, H.S. Xu, H.Q. Zhang, G.Q. Xiao, W.L. Zhang |
| 2012Zh34 | PRLTA | 109, | 102501 | Y.H. Zhang, H.S. Xu, Yu. A. Litvinov, X.L. Tu, X.L. Yan, S. Typel, K. Blaum, M. Wang, X.H. Zhou, Y. Sun, B.A. Brown, Y.J. Yuan, J.W. Xia, J.C. Yang, G. Audi, X.C. Chen, G.B. Jia, Z.G. Hu, X.W. Ma, R.S. Mao, B. Mei, P. Shuai, Z.Y. Sun, S.T. Wang, G.Q. Xiao, X. Xu, T. Yamaguchi, Y. Yamaguchi, Y.D. Zang, H.W. Zhao, T.C. Zhao, W. Zhang, W.L. Zhan |
| 2013 | | | | |
| 2013Ag11 | PRLTA | 111, | 122503 | M. Agostini, for the GERDA Collaboration |
| 2013Ah03 | PRVCA | 87, | 054328 | I. Ahmad, J.P. Greene, F.G. Kondev, S. Zhu, M.P. Carpenter, R.V.F. Janssens, R.A. Boll, J.G. Ezold, S.M. Van Cleve, E. Browne |
| 2013Al14 | PRVCA | 88, | 034301 | T. Al Kalanee, J. Gibelin, P. Roussel-Chomaz, N. Keeley, D. Beaumel, Y. Blumenfeld, B. Fernández-Domínguez, C. Force, L. Gaudefroy, A. Gillibert, J. Guillot, H. Iwasaki, S. Krupko, V. Lapoux, W. Mittig, X. Mougeot, L. Nalpas, E. Pollacco, K. Rusek, T. Roger, H. Savajols, N. de Séréville, S. Sidorchuk, D. Suzuki, I. Strojek, N.A. Orr |
| 2013An03 | PRVCA | 87, | 014317 | A.N. Andreyev, S. Antalic, D. Ackermann, L. Bianco, S. Franchoo, S. Heinz, F.P. Heßberger, S. Hofmann, M. Huyse, Z. Kalaninová, I. Kojouharov, B. Kindler, B. Lommel, R. Mann, K. Nishio, R.D. Page, J.J. Ressler, B. Streicher, S. Saro, B. Sulignano, P. Van Duppen |

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| 2013An10 | PRVCA | 87, | 054311 | A.N. Andreyev, V. Liberati, S. Antalic, D. Ackermann, A. Barzakh, N. Bree, T.E. Cocolios, J. Diriken, J. Elseviers, D. Fedorov, V.N. Fedosseev, D. Fink, S. Franchoo, S. Heinz, F.P. Hessberger, S. Hofmann, M. Huyse, O. Ivanov, J. Khuyagbaatar, B. Kindler, U. Koster, J.F.W. Lane, B. Lommel, R. Mann, B. Marsh, P. Molkanov, K. Nishio, R.D. Page, N. Patronis, D. Pauwels, D. Radulov, S. Saro, M. Seliverstov, M. Sjodin, I. Tsekhanovich, P. Van den Bergh, P. Van Duppen, M. Venhart, M. Veselsky |
| 2013An13 | PRLTA | 110, | 242502 | A.N. Andreyev, M. Huyse, P. Van Duppen, C. Qi, R.J. Liotta, S. Antalic, D. Ackermann, S. Franchoo, F.P. Heßberger, S. Hofmann, I. Kojouharov, B. Kindler, P. Kuusiniemi, S.R. Leshner, B. Lommel, R. Mann, K. Nishio, R.D. Page, B. Streicher, Š. Šáro, B. Sulignano, D. Wiseman, R.A. Wyss |
| 2013As01 | PRVCA | 87, | 014309 | A. Astier, M.-G. Porquet |
| 2013As02 | PRVCA | 87, | 014332 | M. Asai, K. Tsukada, M. Sakama, H. Haba, T. Ichikawa, Y. Ishii, A. Toyoshima, T. Ishii, I. Nishinaka, Y. Nagame, Y. Kasamatsu, M. Shibata, Y. Kojima, H. Hayashi |
| 2013Ba29 | PYLBB | 723, | 302 | A.M.D. Bacelar, A.M. Bruce, Zs. Podolyák, N. Al-Dahan, M. Górka, S. Lalkovski, S. Pietri, M.V. Ricciardi, A. Algora, N. Alkhomashi, J. Benlliure, P. Boutachkov, A. Bracco, E. Calore, E. Casarejos, I.J. Cullen, A.Y. Deo, P. Detistov, Zs. Dombradi, C. Domingo-Pardo, M. Doncel, F. Farinon, G.F. Farrelly, H. Geissel, W. Gelletly, J. Gerl, N. Goel, J. Grebosz, R. Hoischen, I. Kojouharov, N. Kurz, S. Leoni, F. Molina, D. Montanari, A.I. Morales, A. Musumarra, D.R. Napoli, R. Nicolini, C. Nociforo, A. Prochazka, W. Prokopowicz, P.H. Regan, B. Rubio, D. Rudolph, K.-H. Schmidt, H. Schaffner, S.J. Steer, K. Steiger, P. Strmen, T.P.D. Swan, I. Szarka, J.J. Valiente-Dobón, S. Verma, P.M. Walker, H. Weick, H.J. Wollersheim |
| 2013Ba41 | PRVCA | 88, | 024315 | A.E. Barzakh, L. Kh. Batist, D.V. Fedorov, V.S. Ivanov, K.A. Mezilev, P.L. Molkanov, F.V. Moroz, S. Yu. Orlov, V.N. Pantelev, Yu. M. Volkov |
| 2013Be07 | EPJAA | 49, | 24 | P. Belli, R. Bernabei, F. Cappella, R. Cerulli, F.A. Danevich, S. d'Angelo, A. Di Marco, A. Incicchitti, G.P. Kovtun, N.G. Kovtun, M. Laubenstein, D.V. Poda, O.G. Polischuk, A.P. Shcherban, V.I. Tretyak |
| 2013Be09 | PRVCA | 87, | 034607 | P. Belli, R. Bernabei, F. Cappella, R. Cerulli, F.A. Danevich, S. d'Angelo, A. Incicchitti, G.P. Kovtun, N.G. Kovtun, M. Laubenstein, D.V. Poda, O.G. Polischuk, A.P. Shcherban, D.A. Solopikhin, J. Suhonen, V.I. Tretyak |
| 2013Be16 | EPJAA | 49, | 50 | J.W. Beeman, F. Bellini, L. Cardani, N. Casali, S. Di Domizio, E. Fiorini, L. Gironi, S.S. Nagorny, S. Nisi, F. Orio, L. Pattavina, G. Pessina, G. Piperno, S. Pirro, E. Previtali, C. Rusconi, C. Tomei, M. Vignati |
| 2013Be31 | EPJAA | 49, | 92 | G. Bellini, for the Borexino Collaboration |
| 2013Bu12 | PRVCA | 88, | 022501 | S. Bustabad, G. Bollen, M. Brodeur, D.L. Lincoln, S.J. Novario, M. Redshaw, R. Ringle, S. Schwarz, A.A. Valverde |
| 2013Bu17 | PRVCA | 88, | 035502 | S. Bustabad, G. Bollen, M. Brodeur, D.L. Lincoln, S.J. Novario, M. Redshaw, R. Ringle, S. Schwarz |
| 2013Ca18 | PRVCA | 88, | 034313 | C. Caesar, for the R3B Collaboration |
| 2013Ch12 | PRLTA | 110, | 122502 | L. Chen, P.M. Walker, H. Geissel, Yu. A. Litvinov, K. Beckert, P. Beller, F. Bosch, D. Boutin, L. Caceres, J.J. Carroll, D.M. Cullen, I.J. Cullen, B. Franzke, J. Gerl, M. Górka, G.A. Jones, A. Kishada, R. Knöbel, C. Kozhuharov, J. Kurcewicz, S.A. Litvinov, Z. Liu, S. Mandal, F. Montes, G. Münzenberg, F. Nolden, T. Ohtsubo, Z. Patyk, W.R. Plaß, Zs. Podolyák, S. Rigby, N. Saito, T. Saito, C. Scheidenberger, E.C. Simpson, M. Shindo, M. Steck, B. Sun, S.J. Williams, H. Weick, M. Winkler, H.-J. Wollersheim, T. Yamaguchi |
| 2013Ch49 | PRVCA | 88, | 054317 | A. Chaudhuri, C. Andreoiu, T. Brunner, U. Chowdhury, S. Ettenauer, A.T. Galant, G. Gwinner, A.A. Kwiatkowski, A. Lennarz, D. Lunney, T.D. Macdonald, B.E. Schultz, M.C. Simon, V.V. Simon, J. Dilling |
| 2013Da16 | PYLBB | 726, | 665 | H.M. David, P.J. Woods, G. Lotay, D. Seweryniak, M. Albers, M. Al-corta, M.P. Carpenter, C.J. Chiara, T. Davinson, D.T. Doherty, C.R. Hoffman, R.V.F. Janssens, T. Lauritsen, A.M. Rogers, S. Zhu |

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| 2013De20 | PRVCA | 87, | 067303 | H. De Witte, S. Eeckhaudt, A.N. Andreyev, I.N. Borzov, J. Cederkäll, A. De Smet, D.V. Fedorov, V.N. Fedoseyev, S. Franchoo, M. Górska, H. Grawe, G. Huber, M. Huyse, Z. Janas, U. Köster, W. Kurcewicz, J. Kurpeta, A. Płochocki, K. Van de Vel, P. Van Duppen, L. Weissman |
| 2013Dr01 | PRVCA | 87, | 014326 | G.D. Dracoulis, G.J. Lane, H. Watanabe, R.O. Hughes, N. Palalani, F.G. Kondev, M.P. Carpenter, R.V.F. Janssens, T. Lauritsen, C.J. Lister, D. Seweryniak, S. Zhu, P. Chowdhury, W.Y. Liang, Y. Shi, F.R. Xu |
| 2013Dr04 | EPJAA | 49, | 13 | C. Droese, D. Ackermann, L.-L. Andersson, K. Blaum, M. Block, M. Dworschak, M. Eibach, S. Eliseev, U. Forsberg, E. Haettner, F. Herfurth, F.P. Heßberger, S. Hofmann, J. Ketelaer, G. Marx, E. Minaya Ramirez, D. Nesterenko, Yu. N. Novikov, W.R. Plaß, D. Rodríguez, D. Rudolph, C. Scheidenberger, L. Schweikhard, S. Stolze, P.G. Thirolf, C. Weber |
| 2013Dr05 | PYLBB | 720, | 330 | G.D. Dracoulis, G.J. Lane, A.P. Byrne, H. Watanabe, R.O. Hughes, F.G. Kondev, M. Carpenter, R.V.F. Janssens, T. Lauritsen, C.J. Lister, D. Seweryniak, S. Zhu, P. Chowdhury, Y. Shi, F.R. Xu |
| 2013Dr06 | PRVCA | 87, | 054309 | M.C. Drummond, D.T. Joss, R.D. Page, J. Simpson, D. O'Donnell, K. Andgren, L. Bianco, B. Cederwall, I.G. Darby, S. Eeckhaudt, M.B. Gomez-Hornillos, T. Grahm, P.T. Greenlees, B. Hadinia, P.M. Jones, R. Julin, S. Juutinen, S. Ketelhut, A.-P. Leppänen, M. Leino, M. Nyman, J. Pakarinen, P. Rakhila, M. Sandzelius, P.J. Sapple, J. Sarén, B. Saygi, C. Scholey, J. Sorri, J. Thomson, J. Uusitalo, M. Venhart |
| 2013EI01 | PRLTA | 110, | 082501 | S. Eliseev, K. Blaum, M. Block, C. Droese, M. Goncharov, E. Minaya Ramirez, D.A. Nesterenko, Yu. N. Novikov, L. Schweikhard |
| 2013Fi08 | PRVCA | 88, | 011303 | M. Fisichella, A. Musumarra, F. Farinon, C. Nociforo, A. Del oppo, P. Figuera, M. La Cognata, M.G. Pellegriti, V. Scuderi, D. Torresi, E. Strano |
| 2013Fi09 | PRLTA | 111, | 212501 | K.T. Flanagan, K.M. Lynch, J. Billowes, M.L. Bissell, I. Budincevic, T.E. Cocolios, R.P. de Groote, S. De Schepper, V.N. Fedosseev, S. Franchoo, R.F. Garcia Ruiz, H. Heylen, B.A. Marsh, G. Neyens, T.J. Procter, R.E. Rossel, S. Rothe, I. Strashnov, H.H. Stroke, K.D.A. Wendt |
| 2013Fr13 | PYLBB | 722, | 233 | D. Frekers, M.C. Simon, C. Andreoiu, J.C. Bale, M. Brodeur, T. Brunner, A. Chaudhuri, U. Chowdhury, J.R.C. López-Urrutia, P. Delheij, H. Ejiri, S. Ettenauer, A.T. Gallant, V. Gavrinn, A. Grossheim, M.N. Harakeh, F. Jang, A.A. Kwiatkowski, J. Lassen, A. Lennarz, M. Luichtl, T. Ma, T.D. Macdonald, E. Mané, D. Robertson, B.E. Schultz, V.V. Simon, A. Teigelhöfer, J. Dilling |
| 2013Ga07 | PRLTA | 110, | 062502 | A. Gando, for the KamLAND-Zen Collaboration |
| 2013Go10 | PYLBB | 725, | 292 | A. Gottardo, J.J. Valiente-Dobón, G. Benzoni, A. Gadea, S. Lunardi, P. Boutachkov, A.M. Bruce, M. Górska, J. Grebosz, S. Pietri, Zs. Podolyák, M. Pfützner, P.H. Regan, H. Weick, J. Alcántara Núñez, A. Algora, N. Al-Dahan, G. de Angelis, Y. Ayyad, N. Alkhomashi, P.R.P. Allegro, D. Bazzacco, J. Benlliure, M. Bowry, A. Bracco, M. Bunce, F. Camera, E. Casarejos, M.L. Cortes, F.C.L. Crespi, A. Corsi, A.M.D. Bacelar, A.Y. Deo, C. Domingo-Pardo, M. Doncel, Zs. Dombradi, T. Engert, K. Eppinger, G.F. Farrelly, F. Farinon, E. Farnea, H. Geissel, J. Gerl, N. Goel, E. Gregor, T. Habermann, R. Hoischen, R. Janik, P.R. John, S. Klupp, I. Kojouharov, N. Kurz, S.M. Lenzi, S. Leoni, S. Mandal, R. Menegazzo, D. Mengoni, B. Million, V. Modamio, A.I. Morales, D.R. Napoli, F. Naqvi, R. Nicolini, C. Nociforo, A. Prochazka, W. Prokopowicz, F. Recchia, R.V. Ribas, M.W. Reed, D. Rudolph, E. Sahin, H. Schaffner, A. Sharma, B. Sitar, D. Siwal, K. Steiger, P. Strmen, T.P.D. Swan, I. Szarka, C.A. Ur, P.M. Walker, O. Wieland, H.-J. Wollersheim |
| 2013Gr03 | PRVCA | 87, | 045502 | G.F. Grinyer, G.C. Ball, H. Bouzomita, S. Ettenauer, P. Finlay, A.B. Garnsworthy, P.E. Garrett, K.L. Green, G. Hackman, J.R. Leslie, C.J. Pearson, E.T. Rand, C.S. Sumithrarachchi, C.E. Svensson, J.C. Thomas, S. Triambak, S.J. Williams |
| 2013Ho22 | PRVAA | 88, | 052502 | M. Höcker, R. Rana, E.G. Myers |
| 2013It01 | PRVCA | 88, | 011306 | Y. Ito, P. Schury, M. Wada, S. Naimi, T. Sonoda, H. Mita, F. Arai, A. Takamine, K. Okada, A. Ozawa, H. Wollnik |
| 2013Ja06 | PRVCA | 87, | 054320 | U. Jakobsson, S. Juutinen, J. Uusitalo, M. Leino, K. Auranen, T. Enqvist, P.T. Greenlees, K. Hauschild, P. Jones, R. Julin, S. Ketelhut, P. Kuusiniemi, M. Nyman, P. Peura, P. Rakhila, P. Ruotsalainen, J. Sarén, C. Scholey, J. Sorri |

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| 2013Ka08 | PRVCA | 87, | 024307 | A. Kankainen, J. Hakala, T. Eronen, D. Gorelov, A. Jokinen, V.S. Kolhinen, I.D. Moore, H. Penttilä, S. Rinta-Antila, J. Rissanen, A. Saastamoinen, V. Sonnenschein, J. Äystö |
| 2013Ka16 | PRVCA | 87, | 044335 | Z. Kalaninová, A.N. Andreyev, S. Antalic, F.P. Heßberger, D. Ackermann, B. Andel, M.C. Drummond, S. Hofmann, M. Huyse, B. Kindler, J.F.W. Lane, V. Liberati, B. Lommel, R.D. Page, E. Rapisarda, K. Sandhu, Š. Šáro, A. Thornthwaite, P. Van Duppen |
| 2013Ko03 | PRVCA | 87, | 011304 | Z. Kohley, E. Lunderberg, P.A. DeYoung, A. Volya, T. Baumann, D. Bazin, G. Christian, N.L. Cooper, N. Frank, A. Gade, C. Hall, J. Hinnefeld, B. Luther, S. Mosby, W.A. Peters, J.K. Smith, J. Snyder, A. Spyrou, M. Thoennessen |
| 2013Ko10 | PRLTA | 110, | 152501 | Z. Kohley, T. Baumann, D. Bazin, G. Christian, P.A. DeYoung, J.E. Finck, N. Frank, M. Jones, E. Lunderberg, B. Luther, S. Mosby, T. Nagi, J.K. Smith, J. Snyder, A. Spyrou, M. Thoennessen |
| 2013Ko20 | ARISE | 81, | 140 | K. Kossert, G. Jörg, C. Lierse v. Gostomski |
| 2013Ko31 | PRVCA | 88, | 044330 | A. Korgul, K.P. Rykaczewski, R. Grzywacz, H. Sliwiska, J.C. Batchelder, C. Bingham, I.N. Borzov, N. Brewer, L. Cartegni, A. Fijalkowska, C.J. Gross, J.H. Hamilton, C. Jost, M. Karny, W. Królas, S. Liu, C. Mazzocchi, M. Madurga, A.J. Mendez II, K. Miernik, D. Miller, S. Padgett, S. Paulauskas, D. Shapira, D. Stracener, K. Sieja, J.A. Winger, M. Wolinska-Cichocka, E.F. Zganjar |
| 2013Kr15 | NIMBE | 317, | 492 | S. Kreim, D. Atanasov, D. Beck, K. Blaum, Ch. Böhm, Ch. Borgmann, M. Breitenfeldt, T.E. Cocolios, D. Fink, S. George, A. Herlert, A. Kellerbauer, U. Köster, M. Kowalska, D. Lunney, V. Manea, E. Minaya Ramirez, S. Naimi, D. Neidherr, T. Nicol, R.E. Rossel, M. Rosenbusch, L. Schweikhard, J. Stanja, F. Wienholtz, R.N. Wolf, K. Zuber |
| 2013La02 | PRVCA | 87, | 014318 | J.F.W. Lane, A.N. Andreyev, S. Antalic, D. Ackermann, J. Gerl, F.P. Heßberger, S. Hofmann, M. Huyse, H. Kettunen, A. Kleinböhl, B. Kindler, I. Kojouharov, M. Leino, B. Lommel, G. Münzenberg, K. Nishio, R.D. Page, Š. Šáro, H. Schaffner, M.J. Taylor, P. Van Duppen |
| 2013La11 | PRVCA | 87, | 034308 | S. Lalkowski, A.M. Bruce, A. Jungclaus, M. Górka, M. Pfützner, L. Cáceres, F. Naqvi, S. Pietri, Zs. Podolyák, G.S. Simpson, K. Andgren, P. Bednarczyk, T. Beck, J. Benlliure, G. Benzoni, E. Casarejos, B. Cederwall, F.C.L. Crespi, J.J. Cuenca-García, I.J. Cullen, A.M.D. Bacelar, P. Detistov, P. Doornenbal, G.F. Farrelly, A.B. Garnsworthy, H. Geissel, W. Gelletly, J. Gerl, J. Grebosz, B. Hadinia, M. Hellström, C. Hinke, R. Hoischen, G. Ilie, G. Jaworski, J. Jolie, A. Khaplanov, S. Kisiov, M. Kmiecik, I. Kojouharov, R. Kumar, N. Kurz, A. Maj, S. Mandal, V. Modamio, F. Montes, S. Myalski, M. Palacz, W. Prokopowicz, P. Reiter, P.H. Regan, D. Rudolph, H. Schaffner, D. Sohler, S.J. Steer, S. Tashenov, J. Walker, P.M. Walker, H. Weick, E. Werner-Malento, O. Wieland, H.J. Wollersheim, M. Zhekova |
| 2013La23 | PRVCA | 88, | 015501 | A.T. Laffoley, C.E. Svensson, C. Andreoiu, R.A.E. Austin, G.C. Ball, B. Blank, H. Bouzomita, D.S. Cross, A. Diaz Varela, R. Dunlop, P. Finlay, A.B. Garnsworthy, P.E. Garrett, J. Giovinazzo, G.F. Grinyer, G. Hackman, B. Hadinia, D.S. Jamieson, S. Ketelhut, K.G. Leach, J.R. Leslie, E. Tardiff, J.C. Thomas, C. Unsworth |
| 2013Le10 | PRVCA | 87, | 034312 | B. Lehnert, K. Zuber, E. Andreotti, M. Hult |
| 2013Li01 | PRLTA | 110, | 012501 | D.L. Lincoln, J.D. Holt, G. Bollen, M. Brodeur, S. Bustabad, J. Engel, S.J. Novario, M. Redshaw, R. Ringle, S. Schwarz |
| 2013Li49 | PRVCA | 88, | 044322 | V. Liberati, A.N. Andreyev, S. Antalic, A. Barzakh, T.E. Cocolios, J. Elseviers, D. Fedorov, V.N. Fedoseev, M. Huyse, D.T. Joss, Z. Kalaninová, U. Köster, J.F.W. Lane, B. Marsh, D. Mengoni, P. Molkanov, K. Nishio, R.D. Page, N. Patronis, D. Pauwels, D. Radulov, M. Seliverstov, M. Sjödin, I. Tsekhanovich, P. Van den Bergh, P. Van Duppen, M. Venhart, M. Veselsky |
| 2013Ma13 | ARISE | 74, | 123 | M. Marouli, G. Suliman, S. Pommé, R. Van Ammel, V. Jobbágy, H. Stroh, H. Dikmen, J. Paepen, A. Dirican, F. Bruchertseifer, C. Apostolidis, A. Morgenstern |
| 2013Ma15 | NDSBA | 114, | 397 | A. MacDonald, B. Karamy, K. Setoodehnia, B. Singh |

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| 2013Ma22 | PRVCA | 87, | 034315 | C. Mazzocchi, K.P. Rykaczewski, A. Korgul, R. Grzywacz, P. Baczyk, C. Bingham, N.T. Brewer, C.J. Gross, C. Jost, M. Karny, M. Madurga, A.J. Mendez II, K. Miernik, D. Miller, S. Padgett, S.V. Paulauskas, D.W. Stracener, M. Wolińska-Cichocka, I.N. Borzov |
| 2013Ma81 | PRVCA | 88, | 054322 | V. Manea, D. Atanasov, D. Beck, K. Blaum, C. Borgmann, R.B. Cakirli, T. Eronen, S. George, F. Herfurth, A. Herlert, M. Kowalska, S. Kreim, Yu. A. Litvinov, D. Lunney, D. Neidherr, M. Rosenbusch, L. Schweikhard, F. Wienholtz, R.N. Wolf, K. Zuber |
| 2013Ma87 | PRVCA | 88, | 064320 | C. Mazzocchi, R. Surman, R. Grzywacz, J.C. Batchelder, C.R. Bingham, D. Fong, J.H. Hamilton, J.K. Hwang, M. Karny, W. Królas, S.N. Liddick, P.F. Mantica, A.C. Morton, W.F. Mueller, K.P. Rykaczewski, M. Steiner, A. Stolz, J.A. Winger, I.N. Borzov |
| 2013Ma.A | PrvCom | Apr | Lunney | Vladimir Manea |
| 2013Mi13 | PRVCA | 88, | 014309 | K. Miernik, K.P. Rykaczewski, R. Grzywacz, C.J. Gross, D.W. Stracener, J.C. Batchelder, N.T. Brewer, L. Cartegni, A. Fijalkowska, J.H. Hamilton, J.K. Hwang, S.V. Ilyushkin, C. Jost, M. Karny, A. Korgul, W. Królas, S.H. Liu, M. Madurga, C. Mazzocchi, A.J. Mendez II, D. Miller, S.W. Padgett, S.V. Paulauskas, A.V. Ramayya, R. Surman, J.A. Winger, M. Wolinska-Cichocka, E.F. Zganjar |
| 2013Mi19 | PRLTA | 111, | 132502 | K. Miernik, K.P. Rykaczewski, C.J. Gross, R. Grzywacz, M. Madurga, D. Miller, J.C. Batchelder, I.N. Borzov, N.T. Brewer, C. Jost, A. Korgul, C. Mazzocchi, A.J. Mendez II, Y. Liu, S.V. Paulauskas, D.W. Stracener, J.A. Winger, M. Wolinska-Cichocka, E.F. Zganjar |
| 2013Mo12 | NUPAB | 909, | 69 | S. Mosby, N.S. Badger, T. Baumann, D. Bazin, M. Bennett, J. Brown, G. Christian, P.A. DeYoung, J.E. Finck, M. Gardner, J.D. Hinnefeld, E.A. Hook, E.M. Lunderberg, B. Luther, D.A. Meyer, M. Mosby, G.F. Peaslee, W.F. Rogers, J.K. Smith, J. Snyder, A. Spyrou, M.J. Strongman, M. Thoennessen |
| 2013Mo20 | PRVCA | 88, | 014319 | A.I. Morales, J. Benlliure, M. Górska, H. Grawe, S. Verma, P.H. Regan, Zs. Podolyák, S. Pietri, R. Kumar, E. Casarejos, A. Algora, N. Alkhomashi, H. Álvarez-Pol, G. Benzoni, A. Blazhev, P. Boutachkov, A.M. Bruce, L.S. Cáceres, I.J. Cullen, A.M.D. Bacelar, P. Doornenbal, M.E. Estévez Aguado, G. Farrelly, Y. Fujita, A.B. Garnsworthy, W. Gelletly, J. Gerl, J. Grebosz, R. Hoischen, I. Kojouharov, N. Kurz, S. Lalkovski, Z. Liu, C. Mihai, F. Molina, D. Mücher, W. Prokopowicz, B. Rubio, H. Schaffner, S.J. Steer, A. Tamii, S. Tashenov, J.J. Valiente-Dobón, P.M. Walker, H.J. Wollersheim, P.J. Woods |
| 2013Mu08 | PRVCA | 88, | 024618 | M. Murakami, S. Goto, H. Murayama, T. Kojima, H. Kudo, D. Kaji, K. Morimoto, H. Haba, Y. Kudou, T. Sumita, R. Sakai, A. Yoneda, K. Morita, Y. Kasamatsu, H. Kikunaga, T.K. Sato |
| 2013Ny01 | PRVCA | 88, | 054320 | M. Nyman, S. Juutinen, I. Darby, S. Eeckhaudt, T. Grahn, P.T. Greenlees, U. Jakobsson, P. Jones, R. Julin, S. Ketelhut, H. Kettunen, M. Leino, P. Nieminen, P. Peura, P. Rahkila, J. Sarén, C. Scholey, J. Sorri, J. Uusitalo, T. Enqvist |
| 2013Og01 | PRVCA | 87, | 014302 | Yu. Ts. Oganessian, F. Sh. Abdullin, S.N. Dmitriev, J.M. Gostic, J.H. Hamilton, R.A. Henderson, M.G. Itkis, K.J. Moody, A.N. Polyakov, A.V. Ramayya, J.B. Roberto, K.P. Rykaczewski, R.N. Sagaidak, D.A. Shaughnessy, I.V. Shirokovsky, M.A. Stoyer, N.J. Stoyer, V.G. Subbotin, A.M. Sukhov, Yu. S. Tsyganov, V.K. Utyonkov, A.A. Voinov, G.K. Vostokin |
| 2013Og03 | PRVCA | 87, | 034605 | Yu. Ts. Oganessian, V.K. Utyonkov, F. Sh. Abdullin, S.N. Dmitriev, R. Graeger, R.A. Henderson, M.G. Itkis, Yu. V. Lobanov, A.N. Mezentssev, K.J. Moody, S.L. Nelson, A.N. Polyakov, M.A. Ryabinin, R.N. Sagaidak, D.A. Shaughnessy, I.V. Shirokovsky, M.A. Stoyer, N.J. Stoyer, V.G. Subbotin, K. Subotic, A.M. Sukhov, Yu. S. Tsyganov, A. Türler, A.A. Voinov, G.K. Vostokin, P.A. Wilk, A. Yakushev |
| 2013Og04 | PRVCA | 87, | 054621 | Yu. Ts. Oganessian, F. Sh. Abdullin, C. Alexander, J. Binder, R.A. Boll, S.N. Dmitriev, J. Ezold, K. Felker, J.M. Gostic, R.K. Grzywacz, J.H. Hamilton, R.A. Henderson, M.G. Itkis, K. Miernik, D. Miller, K.J. Moody, A.N. Polyakov, A.V. Ramayya, J.B. Roberto, M.A. Ryabinin, K.P. Rykaczewski, R.N. Sagaidak, D.A. Shaughnessy, I.V. Shirokovsky, M.V. Shumeiko, M.A. Stoyer, N.J. Stoyer, V.G. Subbotin, A.M. Sukhov, Yu. S. Tsyganov, V.K. Utyonkov, A.A. Voinov, G.K. Vostokin |

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| 2013OI06 | PRVCA | 88, | 044306 | B. Olaizola, L.M. Fraile, H. Mach, A. Aprahamian, J.A. Briz, J. Cal-González, D. Ghita, U. Köster, W. Kurcewicz, S.R. Leshner, D. Pauwels, E. Picado, A. Poves, D. Radulov, G.S. Simpson, J.M. Udías |
| 2013Pr01 | PRVCA | 87, | 014308 | M.G. Procter, D.M. Cullen, M.J. Taylor, J. Pakarinen, K. Auranen, T. Bäck, T. Braunroth, B. Cederwall, A. Dewald, T. Grahm, P.T. Greenlees, U. Jakobsson, R. Julin, S. Juutinen, A. Herzán, J. Konki, M. Leino, R. Liotta, J. Partanen, P. Peura, P. Rakhila, P. Ruotsalainen, M. Sandelius, J. Sarén, C. Scholey, J. Sorri, S. Stolze, J. Uusitalo, C. Qi |
| 2013Ra17 | PRVCA | 88, | 014307 | D. Radulov, C.J. Chiara, I.G. Darby, H. De Witte, J. Diriken, D.V. Fedorov, V.N. Fedosseev, L.M. Fraile, M. Huyse, U. Köster, B.A. Marsh, D. Pauwels, L. Popescu, M.D. Seliverstov, A.M. Sjödin, P. Van den Bergh, P. Van Duppen, M. Venhart, W.B. Walters, K. Wimmer |
| 2013Re18 | PRVCA | 88, | 041302 | F. Recchia, C.J. Chiara, R.V.F. Janssens, D. Weisshaar, A. Gade, W.B. Walters, M. Albers, M. Alcorta, V.M. Bader, T. Baugher, D. Bazin, J.S. Berryman, P.F. Bertone, B.A. Brown, C.M. Campbell, M.P. Carpenter, J. Chen, H.L. Crawford, H.M. David, D.T. Doherty, C.R. Hoffman, F.G. Kondev, A. Korichi, C. Langer, N. Larson, T. Lauritsen, S.N. Liddick, E. Lunderberg, A.O. Macchiavelli, S. Noji, C. Prokop, A.M. Rogers, D. Seweryniak, S.R. Stroberg, S. Suchyta, S. Williams, K. Wimmer, S. Zhu |
| 2013Ri07 | PRVCA | 88, | 044313 | J. Rissanen, R.M. Clark, K.E. Gregorich, J.M. Gates, C.M. Campbell, H.L. Crawford, M. Cromaz, N.E. Esker, P. Fallon, U. Forsberg, O. Gothe, I.-Y. Lee, H.L. Liu, A.O. Machiavelli, P. Mudder, H. Nitsche, G. Pang, A. Rice, D. Rudolph, M.A. Stoyer, A. Wiens, F.R. Xu |
| 2013Ro.A | PrvCom | GAu | May | Marco Rosenbusch |
| 2013Ru07 | PRVCA | 87, | 064317 | M. Rudigier, G.S. Simpson, J.M. Daugas, A. Blazhev, C. Fransen, G. Gey, M. Hackstein, J. Jolie, U. Köster, T. Malkiewicz, T. Materna, M. Pfeiffer, M. Ramdhane, J.-M. Régis, W. Rother, T. Thomas, N. Warr, D. Wilmsen, J. Le Bloas, N. Pillet |
| 2013Ru10 | PRVCA | 88, | 024320 | P. Ruotsalainen, C. Scholey, R. Julin, K. Hauschild, K. Kaneko, B.S. Nara Singh, R. Wadsworth, D.G. Jenkins, T.S. Brock, P.T. Greenlees, J. Henderson, U. Jakobsson, P. Jones, S. Juutinen, S. Ketelhut, M. Leino, N.M. Lumley, P.J.R. Mason, P. Nieminen, M. Nyman, I. Paterson, P. Peura, M.G. Procter, P. Rakhila, J. Sarén, J. Sorri, J. Uusitalo |
| 2013Ru11 | PRLTA | 111, | 112502 | D. Rudolph, U. Forsberg, P. Golubev, L.G. Sarmiento, A. Yakushev, L.-L. Andersson, A. Di Nitto, Ch. E. Düllmann, J.M. Gates, K.E. Gregorich, C.J. Gross, F.P. Heßberger, R.-D. Herzberg, J. Khuyagbaatar, J.V. Kratz, K. Rykaczewski, M. Schädel, S. øAberg, D. Ackermann, M. Block, H. Brand, B.G. Carlsson, D. Cox, X. Derkx, K. Eberhardt, J. Even, C. Fahlander, J. Gerl, E. Jäger, B. Kindler, J. Krier, I. Kojouharov, N. Kurz, B. Lommel, A. Mistry, C. Mokry, H. Nitsche, J.P. Omtvedt, P. Papadakis, I. Ragnarsson, J. Runke, H. Schaffner, B. Schausten, P. Thörle-Pospiech, T. Torres, T. Traut, N. Trautmann, A. Türler, A. Ward, D.E. Ward, N. Wiehl |
| 2013Rz01 | PRVCA | 87, | 031305 | T. Rzaca-Urban, W. Urban, A.G. Smith, I. Ahmad, A. Syntfeld-Kazuch |
| 2013Sa43 | EPJAA | 49, | 109 | J. Sauvage, B. Roussi re, J. Genevey, S. Franchoo, A.N. Andreyev, N. Barr , A. Ben Braham, C. Bourgeois, J.-F. Clavelin, H. De Witte, D.V. Fedorov, V.N. Fedoseyev, L.M. Fraile, X. Grave, G. Huber, M. Huyse, P. Kilcher, U. K ster, P. Kunz, S.R. Leshner, B.A. Marsh, I. Mukha, J. Oms, M.G. Porquet, M. Seliverstov, I. Stefanescu, K. Van de Vel, P. Van Duppen, YU.M. Volkov, A. Wojtasiewicz |
| 2013Sa65 | PRVCA | 88, | 064611 | P. Salvador-Castineira, T. Brys, R. Eykens, F.-J. Hambsch, A. Moens, S. Oberstedt, G. Sibbens, D. Vanleeuw, M. Vidali, C. Pretel |
| 2013Se03 | PYLBB | 719, | 362 | M.D. Seliverstov, T.E. Cocolios, W. Dexters, A.N. Andreyev, S. Antalic, A.E. Barzakh, B. Bastin, J. B scher, I.G. Darby, D.V. Fedorov, V.N. Fedoseyev, K.T. Flanagan, S. Franchoo, S. Fritzsche, G. Huber, M. Huyse, M. Keupers, U. K ster, Yu. Kudryavtsev, B.A. Marsh, P.L. Molkanov, R.D. Page, A.M. S jodin, I. Stefan, J. Van de Walle, P. Van Duppen, M. Venhart, S.G. Zemlyanoy |

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| 2013Sh30 | PRVCA | 88, | 024310 | D. Shubina, R.B. Cakirli, Yu. A. Litvinov, K. Blaum, C. Brandau, F. Bosch, J.J. Carroll, R.F. Casten, D.M. Cullen, I.J. Cullen, A.Y. Deo, B. Detwiler, C. Dimopoulou, F. Farinon, H. Geissel, E. Haettner, M. Heil, R.S. Kempley, C. Kozhuharov, R. Knöbel, J. Kurcewicz, N. Kuzminchuk, S.A. Litvinov, Z. Liu, R. Mao, C. Nociforo, F. Nolden, Z. Patyk, W.R. Plass, A. Prochazka, M.W. Reed, M.S. Sanjari, C. Scheidenberger, M. Steck, Th. Stöhlker, B. Sun, T.P.D. Swan, G. Trees, P.M. Walker, H. Weick, N. Winckler, M. Winkler, P.J. Woods, T. Yamaguchi, C. Zhou |
| 2013Sn02 | PRVCA | 88, | 031303 | J. Snyder, T. Baumann, G. Christian, R.A. Haring-Kaye, P.A. DeYoung, Z. Kohley, B. Luther, M. Mosby, S. Mosby, A. Simon, J.K. Smith, A. Spyrou, S. Stephenson, M. Thoennessen |
| 2013St25 | PRVCA | 88, | 054304 | J. Stanja, Ch. Borgmann, J. Agramunt, A. Algora, D. Beck, K. Blaum, Ch. Böhm, M. Breitenfeldt, T.E. Cocolios, L.M. Fraile, F. Herfurth, A. Herlert, M. Kowalska, S. Kreim, D. Lunney, V. Manea, E. Minaya Ramirez, S. Naimi, D. Neidherr, M. Rosenbusch, L. Schweikhard, G. Simpson, F. Wienholtz, R.N. Wolf, K. Zuber |
| 2013Su04 | JUPSA | 82, | 024202 | T. Sumita, K. Morimoto, D. Kaji, H. Haba, K. Ozeki, R. Sakai, A. Yoneda, A. Yoshida, H. Hasebe, K. Katori, N. Sato, Y. Wakabayashi, S.-i. Mitsuoka, S.-i. Goto, M. Murakami, Y. Kariya, F. Tokanai, K. Mayama, M. Takeyama, T. Moriya, E. Ideguchi, T. Yamaguchi, H. Kikunaga, J. Chiba, K. Morita |
| 2013Su07 | PRVCA | 87, | 024312 | J. Su, W.P. Liu, N.C. Shu, S.Q. Yan, Z.H. Li, B. Guo, W.Z. Huang, S. Zeng, E.T. Li, S.J. Jin, X. Liu, Y.B. Wang, G. Lian, Y.J. Li, Y.S. Chen, X.X. Bai, J.S. Wang, Y.Y. Yang, R.F. Chen, S.W. Xu, J. Hu, S.Z. Chen, S.B. Ma, J.L. Han, P. Ma, Q. Hu, J.B. Ma, X.G. Cao, S.L. Jin, Z. Bai, K. Yang, F.D. Shi, W. Zhang, Z. Chen, L.X. Liu, Q.Y. Lin, X.S. Yan, X.H. Zhang, F. Fu, J.J. He, X.Q. Li, C. He, M.S. Smith |
| 2013Su13 | ARISE | 77, | 32 | G. Suliman, S. Pommé, M. Marouli, R. Van Ammel, H. Stroh, V. Jobbágy, J. Paepen, A. Dirican, F. Bruchertseifer, C. Apostolidis, A. Morgenstern |
| 2013Su23 | NIMBE | 317, | 756 | H. Suzuki, T. Kubo, N. Fukuda, N. Inabe, D. Kameda, H. Takeda, K. Yoshida, K. Kusaka, Y. Yanagisawa, M. Ohtake, H. Sato, Y. Shimizu, H. Baba, M. Kurokawa, T. Ohnishi, K. Tanaka, O.B. Tarasov, D. Bazin, D.J. Morrissey, B.M. Sherrill, K. Ieki, D. Murai, N. Iwasa, A. Chiba, Y. Ohkoda, E. Ideguchi, S. Go, R. Yokoyama, T. Fujii, D. Nishimura, H. Nishibata, S. Momota, M. Lewitowicz, G. DeFrance, I. Celikovic, K. Steiger |
| 2013Tr09 | PRLTA | 111, | 262501 | V. Tripathi, S.L. Tabor, A. Volya, S.N. Liddick, P.C. Bender, N. Larson, C. Prokop, S. Suchyta, P.-L. Tai, J.M. VonMoss |
| 2013Uj01 | PRLTA | 110, | 032501 | P. Ujjic, F. de Oliveira Santos, M. Lewitowicz, N.L. Achouri, M. Assié, B. Bastin, C. Borcea, R. Borcea, A. Buta, A. Coc, G. de France, O. Kamalou, J. Kiener, A. Lepailleur, V. Meot, A. Pautrat, M.G. Saint Laurent, O. Sorlin, M. Stanoiu, V. Tatischeff |
| 2013Uu01 | PRVCA | 87, | 064304 | J. Uusitalo, J. Sarén, S. Juutinen, M. Leino, S. Eeckhaudt, T. Grahm, P.T. Greenlees, U. Jakobsson, P. Jones, R. Julin, S. Ketelhut, A.-P. Leppänen, M. Nyman, J. Pakarinen, P. Rahkila, C. Scholey, A. Semchenkov, J. Sorri, A. Steer, M. Venhart |
| 2013Va10 | PRVCA | 87, | 064303 | A. Vancraeynest, C.M. Petrache, D. Guinet, P.T. Greenlees, U. Jakobsson, R. Julin, S. Juutinen, S. Ketelhut, M. Leino, M. Nyman, P. Peura, P. Rahkila, P. Ruotsalainen, J. Saren, C. Scholey, J. Sorri, J. Uusitalo, P. Jones, C. Ducoin, P. Loutesse, C. Mancuso, N. Redon, O. Stezowski, P. Désesquelles, R. Leguillon, A. Korichi, T. Zerrouki, D. Curien, A. Takashima |
| 2013Va12 | PRLTA | 111, | 061102 | J. Van Schelt, D. Lascar, G. Savard, J.A. Clark, P.F. Bertone, S. Caldwell, A. Chaudhuri, A.F. Levand, G. Li, G.E. Morgan, R. Orford, R.E. Segel, K.S. Sharma, M.G. Sternberg |
| 2013Ve03 | PRVCA | 87, | 054307 | D. Verney, B. Tastet, K. Kolos, F. Le Blanc, F. Ibrahim, M.C. Mhamed, E. Cottereau, P.V. Cuong, F. Didierjean, G. Duchêne, S. Essabaa, M. Ferraton, S. Franchoo, L.H. Khiem, C. Lau, J.-F. Le Du, I. Matea, B. Mouginot, M. Niikura, B. Roussière, I. Stefan, D. Testov, J.-C. Thomas |
| 2013Vo10 | PRLTA | 111, | 122501 | A. Voss, M.R. Pearson, J. Billowes, F. Buchinger, B. Cheal, J.E. Crawford, A.A. Kwiatkowski, C.D.P. Levy, O. Shelbaya |

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| 2013Wi06 | NATUA | 498, | 346 | F. Wienholtz, D. Beck, K. Blaum, Ch. Borgmann, M. Breitenfeldt, R.B. Cakirli, S. George, F. Herfurth, J.D. Holt, M. Kowalska, S. Kreim, D. Lunney, V. Manea, J. Menendez, D. Neidherr, M. Rosenbusch, L. Schweikhard, A. Schwenk, J. Simonis, J. Stanja, K. Zuber |
| 2013Wo05 | IJMPD | 349, | 123 | R.N. Wolf, F. Wienholtz, D. Atanasov, D. Beck, K. Blaum, Ch. Borgmann, F. Herfurth, M. Kowalska, S. Kreim, Yu. A. Litvinov, D. Lunney, V. Manea, D. Neidherr, M. Rosenbusch, L. Schweikhard, J. Stanja, K. Zuber and Prv-Com GAU January 2015 |
| 2013Wo06 | PRLTA | 110, | 041101 | R.N. Wolf, D. Beck, K. Blaum, Ch. Böhm, Ch. Borgmann, M. Breitenfeldt, N. Chamel, S. Goriely, F. Herfurth, M. Kowalska, S. Kreim, D. Lunney, V. Manea, E. Minaya Ramirez, S. Naimi, D. Neidherr, M. Rosenbusch, L. Schweikhard, J. Stanja, F. Wienholtz, K. Zuber |
| 2013Wr01 | PRVCA | 87, | 031303 | C. Wrede, S.K.L. Sjøe, A. García, H.E. Swanson, I. Ahmad, A. Algora, V.-V. Elomaa, T. Eronen, J. Hakala, A. Jokinen, V.S. Kolhinen, I.D. Moore, H. Penttilä, M. Reponen, J. Rissanen, A. Saastamoinen, J. Äystö |
| 2013Ya03 | APJLA | 766, | 8 | X.L. Yan, H.S. Xu, Yu. A. Litvinov, Y.H. Zhang, H. Schatz, X.L. Tu, K. Blaum, X.H. Zhou, B.H. Sun, J.J. He, Y. Sun, M. Wang, Y.J. Yuan, J.W. Xia, J.C. Yang, G. Audi, G.B. Jia, Z.G. Hu, X.W. Ma, R.S. Mao, B. Mei, P. Shuai, Z.Y. Sun, S.T. Wang, G.Q. Xiao, X. XU, T. Yamaguchi, Y. Yamaguchi, Y.D. Zang, H.W. Zhao, T.C. Zhao, W. Zhang, W.L. Zhan |
| 2013Yo02 | PRLTA | 110, | 192501 | D.T. Yordanov, D.L. Balabanski, J. Bieroń, M.L. Bissell, K. Blaum, I. Budincevic, S. Fritzsche, N. Frömmgen, G. Georgiev, Ch. Geppert, M. Hammen, M. Kowalska, K. Kreim, A. Krieger, R. Neugart, W. Nörtershäuser, J. Papuga, S. Schmidt |
| 2013Yu07 | PRLTA | 111, | 222501 | A.T. Yue, M.S. Dewey, D.M. Gilliam, G.L. Greene, A.B. Laptev, J.S. Nico, W.M. Snow, F.E. Wietfeldt |
| | | | | 2014 |
| 2014Ai03 | PRVCA | 89, | 015502 | J.B. Albert, and The EXO Collaboration |
| 2014An10 | PRVCA | 90, | 044312 | A.N. Andreyev, S. Antalic, D. Ackermann, T.E. Cocolios, J. Elseviers, S. Franchoo, S. Heinz, F.P. Heßberger, S. Hofmann, M. Huyse, J. Khuyagbaatar, B. Kindler, B. Lommel, R. Mann, R.D. Page, P. Van Duppen, M. Venhart |
| 2014Ar08 | NUPAB | 925, | 25 | R. Arnold, and The NEMO-3 Collaboration |
| 2014As02 | PRVCA | 89, | 034310 | A. Astier, T. Konstantinopoulos, M.-G. Porquet, M. Houry, R. Lucas, Ch. Theisen |
| 2014Au03 | PRVCA | 90, | 024310 | K. Auranen, J. Uusitalo, S. Juutinen, U. Jakobsson, T. Grahn, P.T. Greenlees, K. Hauschild, A. Herzan, R. Julin, J. Konki, M. Leino, J. Pakarinen, J. Partanen, P. Peura, P. Rahkila, P. Ruotsalainen, M. Sandzelius, J. Sarén, C. Scholey, J. Sorri, S. Stolze |
| 2014Ba18 | PRVCA | 89, | 054321 | J.C. Batchelder, N.T. Brewer, C.J. Gross, R. Grzywacz, J.H. Hamilton, M. Karny, A. Fijalkowska, S.H. Liu, K. Miernik, S.W. Padgett, S.V. Paulauskas, K.P. Rykaczewski, A.V. Ramayya, D.W. Stracener, M. Wolinska-Cichocka |
| 2014Bo26 | PRVCA | 90, | 044307 | Ch. Böhm, Ch. Borgmann, G. Audi, D. Beck, K. Blaum, M. Breitenfeldt, R.B. Cakirli, T.E. Cocolios, S. Eliseev, S. George, F. Herfurth, A. Herlert, M. Kowalska, S. Kreim, D. Lunney, V. Manea, E. Minaya Ramirez, S. Naimi, D. Neidherr, M. Rosenbusch, L. Schweikhard, J. Stanja, M. Wang, R.N. Wolf, K. Zuber |
| 2014Br06 | PRLTA | 112, | 212301 | L.J. Broussard, H.O. Back, M.S. Boswell, A.S. Crowell, P. Dendooven, G.S. Giri, C.R. Howell, M.F. Kidd, K. Jungmann, W.L. Kruithof, A. Mol, C.J.G. Onderwater, R.W. Pattie, Jr., P.D. Shidling, M. Sohani, D.J. van der Hoek, A. Rogachevskiy, E. Traykov, O.O. Versolato, L. Willmann, H.W. Wilschut, A.R. Young |
| 2014Br15 | PRVCA | 90, | 027304 | K.W. Brown, W.W. Buhro, R.J. Charity, J.M. Elson, W. Reviol, L.G. Sobotka, Z. Chajecski, W.G. Lynch, J. Manfredi, R. Shane, R.H. Showalter, M.B. Tsang, D. Weisshaar, J.R. Winkelbauer, S. Bedoor, A.H. Wuosmaa |

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| 2014Br19 | PRLTA | 113, | 232501 | K.W. Brown, R.J. Charity, L.G. Sobotka, Z. Chajecski, L.V. Grigorenko, I.A. Egorova, Yu. L. Parfenova, M.V. Zhukov, S. Bedoor, W.W. Buhro, J.M. Elson, W.G. Lynch, J. Manfredi, D.G. McNeel, W. Reviol, R. Shane, R.H. Showalter, M.B. Tsang, J.R. Winkelbauer, A.H. Wuosmaa |
| 2014Bu06 | PRVCA | 90, | 014317 | I. Budincevic, J. Billowes, M.L. Bissell, T.E. Cocolios, R.P. de Groote, S. De Schepper, V.N. Fedosseev, K.T. Flanagan, S. Franchoo, R.F. Garcia Ruiz, H. Heylen, K.M. Lynch, B.A. Marsh, G. Neyens, T.J. Procter, R.E. Rossel, S. Rothe, I. Strashnov, H.H. Stroke, K.D.A. Wendt |
| 2014Ca03 | PRLTA | 112, | 092501 | R.J. Carroll, R.D. Page, D.T. Joss, J. Uusitalo, I.G. Darby, K. Andgren, B. Ced- erwall, S. Eeckhaudt, T. Grahn, C. Gray-Jones, P.T. Greenlees, B. Hadinia, P.M. Jones, R. Julin, S. Juutinen, M. Leino, A.-P. Leppänen, M. Nyman, D. O'Donnell, J. Pakarinen, P. Rakhila, M. Sandzelius, J. Sarén, C. Scholey, D. Seweryniak, J. Simpson |
| 2014Ca13 | JPGPE | 40, | 075101 | N. Casali, S.S. Nagorny, F. Orio, L. Pattavina, J.W. Beeman, F. Bellini, L. Cardani, I. Dafinei, S. Di Domizio, M.L. Di Vacri, L. Gironi, M.B. Kos- myna, B.P. Nazarenko, S. Nisi, G. Pessina, G. Piperno, S. Pirro, C. Rusconi, A.N. Shekhovtsov, C. Tomei, M. Vignati |
| 2014Ca46 | JPGPE | 41, | 075204 | L. Cardani, L. Gironi, N. Ferreiro Iachellini, L. Pattavina, J.W. Beeman, F. Bellini, N. Casali, O. Cremonesi, I. Dafinei, S. Di Domizio, F. Ferroni, E. Galashov, C. Gotti, S. Nagorny, F. Orio, G. Pessina, G. Piperno, S. Pirro, E. Previtali, C. Rusconi, C. Tomei, M. Vignati |
| 2014Ch47 | PRVCA | 90, | 044302 | J. Chen, I. Ahmad, J.P. Greene, F.G. Kondev |
| 2014Cr02 | PRVCA | 89, | 041303 | H.L. Crawford, P. Fallon, A.O. Macchiavelli, R.M. Clark, B.A. Brown, J.A. Tostevin, D. Bazin, N. Aoi, P. Doornenbal, M. Matsushita, H. Scheit, D. Steppenbeck, S. Takeuchi, H. Baba, C.M. Campbell, M. Cromaz, E. Ideguchi, N. Kobayashi, Y. Kondo, G. Lee, I.Y. Lee, J. Lee, K. Li, S. Michimasa, T. Mo- tobayashi, T. Nakamura, S. Ota, S. Paschalis, M. Petri, T. Sako, H. Sakurai, S. Shimoura, M. Takechi, Y. Togano, H. Wang, K. Yoneda |
| 2014De41 | PYLBB | 738, | 453 | M. Del Santo, Z. Meisel, D. Bazin, A. Becerril, B.A. Brown, H. Crawford, R. Cyburt, S. George, G.F. Grinyer, G. Lorusso, P.F. Mantica, F. Montes, J. Pereira, H. Schatz, K. Smith, M. Wiescher |
| 2014Di08 | PYLBB | 736, | 533 | J. Diriken, N. Patronis, A.N. Andreyev, S. Antalic, V. Bildstein, A. Blazhev, I.G. Darby, H. De Witte, J. Eberth, J. Elseviers, V.N. Fedosseev, F. Flavigny, Ch. Fransen, G. Georgiev, R. Gernhauser, H. Hess, M. Huyse, J. Jolie, Th. Kröll, R. Krücken, R. Lutter, B.A. Marsh, T. Mertzimekis, D. Muecher, F. Nowacki, R. Orlandi, A. Pakou, R. Raabe, G. Randisi, P. Reiter, T. Roger, M. Seidlitz, M. Seliverstov, K. Sieja, C. Sotty, H. Tornqvist, J. Van De Walle, P. Van Duppen, D. Voulot, N. Warr, F. Wenander, K. Wimmer |
| 2014Dr02 | PRVCA | 89, | 064309 | M.C. Drummond, D. O'Donnell, R.D. Page, D.T. Joss, L. Capponi, D.M. Cox, I.G. Darby, L. Donosa, F. Filmer, T. Grahn, P.T. Greenlees, K. Hauschild, A. Herzan, U. Jakobsson, P.M. Jones, R. Julin, S. Juutinen, S. Ketelhut, M. Leino, A. Lopez-Martens, A.K. Mistry, P. Nieminen, P. Peura, P. Rakhila, S. Rinta-Antila, P. Ruotsalainen, M. Sandzelius, J. Sarén, B. Saygi, C. Scholey, J. Simpson, J. Sorri, A. Thornthwaite, J. Uusitalo |
| 2014Ei01 | PRVCA | 89, | 064318 | M. Eibach, T. Beyer, K. Blaum, M. Block, Ch. E. Düllmann, K. Eber- hardt, J. Grund, Sz. Nagy, H. Nitsche, W. Nörtershäuser, D. Renisch, K.P. Rykaczewski, F. Schneider, C. Smorra, J. Vieten, M. Wang, K. Wendt |
| 2014Fe01 | PYLBB | 728, | 191 | R. Ferrer, N. Bree, T.E. Cocolios, I.G. Darby, H. De Witte, W. Dexters, J. Diriken, J. Elseviers, S. Franchoo, M. Huyse, N. Kesteloot, Yu. Kudryavtsev, D. Pauwels, D. Radulov, T. Roger, H. Savajols, P. Van Duppen, M. Venhart |
| 2014Fi01 | PRVCA | 89, | 014617 | R.B. Firestone, Zs. Revay, T. Belgia |
| 2014Ga09 | ARISE | 87, | 122 | E. Garcia-Torano, V. Peyres Medina, E. Romero, M. Roteta |
| 2014Ga20 | PRLTA | 113, | 082501 | A.T. Gallant, M. Brodeur, C. Andreoiu, A. Bader, A. Chaudhuri, U. Chowd- hury, A. Grossheim, R. Klawitter, A.A. Kwiatkowski, K.G. Leach, A. Lennarz, T.D. Macdonald, B.E. Schultz, J. Lassen, H. Heggen, S. Raeder, A. Teigelhöfer, B.A. Brown, A. Magilligan, J.D. Holt, J. Menéndez, J. Simonis, A. Schwenk, J. Dilling |

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| 2014Ha04 | PRVCA | 89, | 024618 | H. Haba, M. Huang, D. Kaji, J. Kanaya, Y. Kudou, K. Morimoto, K. Morita, M. Murakami, K. Ozeki, R. Sakai, T. Sumita, Y. Wakabayashi, A. Yoneda, Y. Kasamatsu, Y. Kikutani, Y. Komori, K. Nakamura, A. Shinohara, H. Kikunaga, H. Kudo, K. Nishio, A. Toyoshima, K. Tsukada |
| 2014Ha38 | NIMAE | 747, | 41 | H. Hayashi, M. Shibata, M. Asai, A. Osa, T.K. Sato, M. Koizumi, A. Kimura, M. Oshima |
| 2014Hu02 | PRVCA | 89, | 014606 | A.M. Hurst, R.B. Firestone, B.W. Sleaford, N.C. Summers, Zs. Révay, L. Szentmiklósi, M.S. Basunia, T. Belgia, J.E. Escher, M. Krucka |
| 2014Hu07 | ARISE | 87, | 112 | M. Hult, T. Vidmar, U. Rosengard, G. Marissens, G. Lutter, N. Sahin |
| 2014Io01 | PRVCA | 90, | 014323 | M. Ionescu-Bujor, A. Iordachescu, N. Marginean, R. Lica, D. Bucurescu, F. Brandolini, D. Deleanu, D. Filipescu, I. Gheorghe, D. Ghita, T. Glodariu, R. Marginean, N.H. Medina, C. Mihai, A. Negret, L. Stroe, C.A. Ur |
| 2014Ka22 | PRVCA | 89, | 051302 | A. Kankainen, T. Eronen, D. Gorelov, J. Hakala, A. Jokinen, V.S. Kolhinen, M. Reponen, J. Rissanen, A. Saastamoinen, V. Sonnenschein, J. Äystö |
| 2014Ka23 | PRVCA | 89, | 054312 | Z. Kalaninová, S. Antalic, A.N. Andreyev, F.P. Heßberger, D. Ackermann, B. Andel, L. Bianco, S. Hofmann, M. Huyse, B. Kindler, B. Lommel, R. Mann, R.D. Page, P.J. Sapple, J. Thomson, P. Van Duppen, M. Venhart |
| 2014Kh04 | PRLTA | 112, | 172501 | J. Khuyagbaatar, A. Yakushev, C.E. Düllmann, D. Ackermann, L.-L. Andersson, M. Asai, M. Block, R.A. Boll, H. Brand, D.M. Cox, M. Dasgupta, X. Derkx, A. Di Nitto, K. Eberhardt, J. Even, M. Evers, C. Fahlander, U. Forsberg, J.M. Gates, N. Gharibyan, P. Golubev, K.E. Gregorich, J.H. Hamilton, W. Hartmann, R.-D. Herzberg, F.P. Heßberger, D.J. Hinde, J. Hoffmann, R. Hollinger, A. Hübner, E. Jäger, B. Kindler, J.V. Kratz, J. Krier, N. Kurz, M. Laatiaoui, S. Lahiri, R. Lang, B. Lommel, M. Maiti, K. Miernik, S. Minami, A. Mistry, C. Mokry, H. Nitsche, J.P. Omtvedt, G.K. Pang, P. Papadakis, D. Renisch, J. Roberto, D. Rudolph, J. Runke, K.P. Rykaczewski, L.G. Sarmiento, M. Schädel, B. Schausten, A. Semchenkov, D.A. Shaughnessy, P. Steinegger, J. Steiner, E.E. Tereshatov, P. Thörle-Pospiech, K. Tinschert, T. Torres De Heidenreich, N. Trautmann, A. Türler, J. Uusitalo, D.E. Ward, M. Wegrzecki, N. Wiehl, S.M. Van Cleve, V. Yakusheva |
| 2014Ko14 | PRLTA | 112, | 242501 | N. Kobayashi, T. Nakamura, Y. Kondo, J.A. Tostevin, Y. Utsuno, N. Aoi, H. Baba, R. Barthelemy, M.A. Famiano, N. Fukuda, N. Inabe, M. Ishihara, R. Kanungo, S. Kim, T. Kubo, G.S. Lee, H.S. Lee, M. Matsushita, T. Motoyayashi, T. Ohnishi, N.A. Orr, H. Otsu, T. Otsuka, T. Sako, H. Sakurai, Y. Satou, T. Sumikama, H. Takeda, S. Takeuchi, R. Tanaka, Y. Togano, K. Yoneda |
| 2014Ko17 | PRVCA | 89, | 064315 | G.T. Koldste, B. Blank, M.J.G. Borge, J.A. Briz, M. Carmona-Gallardo, L.M. Fraile, H.O.U. Fynbo, J. Giovinazzo, B.D. Grann, J.G. Johansen, A. Jokinen, B. Jonson, T. Kurturkian-Nieto, J.H. Kusk, T. Nilsson, A. Perea, V. Pseudo, E. Picado, K. Riisager, A. Saastamoinen, O. Tengblad, J.-C. Thomas, J. Van de Walle |
| 2014Kr04 | PYLBB | 731, | 97 | K. Kreim, M.L. Bissell, J. Papuga, K. Blaum, M. De Rydt, R.F. Garcia Ruiz, S. Goriely, H. Heylen, M. Kowalska, R. Neugart, G. Neyens, W. Nortershauser, M.M. Rajabali, R. Sanchez Alarcon, H.H. Stroke, D.T. Yordanov |
| 2014Kr09 | PRVCA | 90, | 024301 | S. Kreim, D. Beck, K. Blaum, Ch. Borgmann, M. Breitenfeldt, T.E. Cocolios, A. Gottberg, F. Herfurth, M. Kowalska, Yu. A. Litvinov, D. Lunney, V. Manea, T.M. Mendonca, S. Naimi, D. Neidherr, M. Rosenbusch, L. Schweikhard, Th. Stora, F. Wienholtz, R.N. Wolf, K. Zuber and PrvCom GAu February 2015 |
| 2014Ku23 | EPJAA | 50, | 135 | T. Kurturkian-Nieto, J. Benlliure, K.-H. Schmidt, L. Audouin, F. Becker, B. Blank, I.N. Borzov, E. Casarejos, F. Farget, M. Fernández-Ordóñez, J. Giovinazzo, D. Henzlova, B. Jurado, K. Langanke, G. Martínez-Pinedo, J. Pereira, O. Yordanov |
| 2014Kw04 | PRVCA | 89, | 045502 | A.A. Kwiatkowski, T. Brunner, J.D. Holt, A. Chaudhuri, U. Chowdhury, M. Eibach, J. Engel, A.T. Gallant, A. Grossheim, M. Horoi, A. Lennarz, T.D. Macdonald, M.R. Pearson, B.E. Schultz, M.C. Simon, R.A. Senkov, V.V. Simon, K. Zuber, J. Dilling |
| 2014Lo10 | EPJAA | 50, | 132 | A. Lopez-Martens, K. Hauschild, K. Rezyunkina, O. Dorvaux, B. Gall, F. Déchery, H. Faure, A.V. Yeremin, M.L. Chelnokov, V.I. Chepigin, A.V. Isaev, I.N. Izosimov, D.E. Katrsev, A.N. Kuznetsov, A.A. Kuznetsova, O.N. Malyshev, A.G. Popeko, E.A. Sokol, A.I. Svirikhin, J. Piot, J. Rubert |

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| 2014Lu07 | PRVCA | 89, | 044326 | Y.X. Luo, J.O. Rasmussen, J.H. Hamilton, A.V. Ramayya, E. Wang, Y.X. Liu, C.F. Jiao, W.Y. Liang, F.R. Xu, Y. Sun, S. Frauendorf, J.K. Hwang, S.H. Liu, S.J. Zhu, N.T. Brewer, I.Y. Lee, G.M. Ter-Akopian, Yu. Oganessian, R. Donangelo, W.C. Ma |
| 2014Ly01 | PRXHA | 4, | 011055 | K.M. Lynch, J. Billowes, M.L. Bissell, I. Budincevic, T.E. Cocolios, R.P. De Groote, S. De Schepper, V.N. Fedosseev, K.T. Flanagan, S. Franchoo, R.F. Garcia Ruiz, H. Heylen, B.A. Marsh, G. Neyens, T.J. Procter, R.E. Rossel, S. Rothe, I. Strashnov, H.H. Stroke, K.D.A. Wendt |
| 2014Ma21 | PRVCA | 89, | 044318 | T.D. Macdonald, B.E. Schultz, J.C. Bale, A. Chaudhuri, U. Chowdhury, D. Frekers, A.T. Gallant, A. Grossheim, A.A. Kwiatkowski, A. Lennarz, M.C. Simon, V.V. Simon, J. Dilling |
| 2014Mi12 | NDSBA | 120, | 56 | K. Miernik, C.J. Gross, R. Grzywacz, M. Madurga, A.J. Mendez II, K.P. Rykaczewski, D.W. Stracener, E.F. Zganjar |
| 2014Mi16 | PRVCA | 90, | 034311 | K. Miernik, K.P. Rykaczewski, C.J. Gross, R. Grzywacz, M. Madurga, D. Miller, J.C. Batchelder, N.T. Brewer, C.U. Jost, K. Kolos, A. Korgul, C. Mazzocchi, A.J. Mendez II, Y. Liu, S.V. Paulauskas, D.W. Stracener, J.A. Winger, M. Wolinska-Cichocka, E.F. Zganjar |
| 2014Mo02 | PRVCA | 89, | 014324 | A.I. Morales, G. Benzoni, A. Gottardo, J.J. Valiente-Dobón, N. Blasi, A. Bracco, F. Camera, F.C.L. Crespi, A. Corsi, S. Leoni, B. Million, R. Nicolini, O. Wieland, A. Gadea, S. Lunardi, M. Górska, P.H. Regan, Zs. Podolyák, M. Pfützner, S. Pietri, P. Boutachkov, H. Weick, J. Grebosz, A.M. Bruce, J. Alcántara Núñez, A. Algora, N. Al-Dahan, Y. Ayyad, N. Alkhomashi, P.R.P. Allegro, D. Bazzacco, J. Benlliure, M. Bowry, M. Bunce, E. Casarejos, M.L. Cortes, A.M.D. Bacelar, A.Y. Deo, G. de Angelis, C. Domingo-Pardo, M. Doncel, Zs. Dombradi, T. Engert, K. Eppinger, G.F. Farrelly, F. Farinon, E. Farnea, H. Geissel, J. Gerl, N. Goel, E. Gregor, T. Habermann, R. Hoischen, R. Janik, S. Klupp, I. Kojouharov, N. Kurz, S. Mandal, R. Menegazzo, D. Mengoni, D.R. Napoli, F. Naqvi, C. Nociforo, A. Prochazka, W. Prokopowicz, F. Recchia, R.V. Ribas, M.W. Reed, D. Rudolph, E. Sahin, H. Schaffner, A. Sharma, B. Sitar, D. Siwal, K. Steiger, P. Strmen, T.P.D. Swan, I. Szarka, C.A. Ur, P.M. Walker, H.-J. Wollersheim |
| 2014Mo15 | PRLTA | 113, | 022702 | A.I. Morales, J. Benlliure, T. Kurtukián-Nieto, K.-H. Schmidt, S. Verma, P.H. Regan, Z. Podolyák, M. Górska, S. Pietri, R. Kumar, E. Casarejos, N. Al-Dahan, A. Algora, N. Alkhomashi, H. Álvarez-Pol, G. Benzoni, A. Blazhev, P. Boutachkov, A.M. Bruce, L.S. Cáceres, I.J. Cullen, A.M.D. Bacelar, P. Doornenbal, M.E. Estévez Aguado, G. Farrelly, Y. Fujita, A.B. Garnsworthy, W. Gelletly, J. Gerl, J. Grebosz, R. Hoischen, I. Kojouharov, N. Kurz, S. Lalkowski, Z. Liu, C. Mihai, F. Molina, D. Mücher, B. Rubio, H. Shaffner, S.J. Steer, A. Tamii, S. Tashenov, J.J. Valiente-Dobón, P.M. Walker, H.J. Wollersheim, P.J. Woods |
| 2014Na10 | PRLTA | 112, | 142501 | T. Nakamura, N. Kobayashi, Y. Kondo, Y. Satou, J.A. Tostevin, Y. Utsuno, N. Aoi, H. Baba, N. Fukuda, J. Gibelin, N. Inabe, M. Ishihara, D. Kameda, T. Kubo, T. Motobayashi, T. Ohnishi, N.A. Orr, H. Otsu, T. Otsuka, H. Sakurai, T. Sumikama, H. Takeda, E. Takeshita, M. Takechi, S. Takeuchi, Y. Togano, K. Yoneda |
| 2014Ne15 | PRVCA | 90, | 042501 | D.A. Nesterenko, S. Eliseev, K. Blaum, M. Block, S. Chenmarev, A. Dörr, C. Droese, P.E. Filianin, M. Goncharov, E. Minaya Ramirez, Yu. N. Novikov, L. Schweikhard, V.V. Simon |
| 2014Or04 | PRLTA | 112, | 222501 | S.E.A. Orrigo, B. Rubio, Y. Fujita, B. Blank, W. Gelletly, J. Agramunt, A. Algora, P. Ascher, B. Bilgier, L. Cáceres, R.B. Cakirli, H. Fujita, E. Ganioglu, M. Gerbaux, J. Giovannazzo, S. Grévy, O. Kamalou, H.C. Kozler, L. Kucuk, T. Kurtukian-Nieto, F. Molina, L. Popescu, A.M. Rogers, G. Susoy, C. Stodel, T. Suzuki, A. Tamii, J.C. Thomas |
| 2014Pa45 | PRVCA | 90, | 034321 | J. Papuga, M.L. Bissell, K. Kreim, C. Barbieri, K. Blaum, M. De Rydt, T. Duguet, R.F. Garcia Ruiz, H. Heylen, M. Kowalska, R. Neugart, G. Neyens, W. Nörtershäuser, M.M. Rajabali, R. Sánchez, N. Smirnova, V. Somà, D.T. Yordanov |

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| 2014Pe02 | PRVCA | 89, | 024316 | P. Peura, C. Scholey, D.T. Joss, S. Juutinen, R. Julin, T. Bäck, B. Cederwall, P.T. Greenlees, U. Jakobsson, P. Jones, D.S. Judson, S. Ketelhut, M. Labiche, M. Leino, M. Nyman, D. O'Donnell, R.D. Page, P. Rakhila, P. Ruotsalainen, M. Sandzelius, P.J. Sapple, J. Sarén, J. Simpson, J. Thomson, J. Uusitalo, H.V. Watkins |
| 2014Po02 | ARISE | 87, | 315 | S. Pommé, E. García-Torano, M. Marouli, M.T. Crespo, V. Jobbagy, R. Van Ammel, J. Paepen, H. Stroh |
| 2014Po05 | PRVCA | 90, | 014311 | M. Pomorski, M. Pfützner, W. Dominik, R. Grzywacz, A. Stolz, T. Baumann, J.S. Berryman, H. Czyrkowski, R. Dabrowski, A. Fijalkowska, T. Ginter, J. Johnson, G. Kaminski, N. Larson, S.N. Liddick, M. Madurga, C. Mazzocchi, S. Mi-anowski, K. Miernik, D. Miller, S. Paulauskas, J. Pereira, K.P. Rykaczewski, S. Suchyta |
| 2014Ra07 | PRVCA | 89, | 034320 | G. Randisi, A. Leprince, H. Al Falou, N.A. Orr, F.M. Marqués, N.L. Achouri, J.-C. Angélique, N. Ashwood, B. Bastin, T. Bloxham, B.A. Brown, W.N. Catford, N. Curtis, F. Delaunay, M. Freer, E. de Góes Brennand, P. Haigh, F. Hanappe, C. Harlin, B. Laurent, J.-L. Lecouey, A. Ninane, N. Patterson, D. Price, L. Stuttgé, J.S. Thomas |
| 2014Ra20 | JPGPE | 41, | 115104 | M.M. Rajabali, R. Grzywacz, S.N. Liddick, C. Mazzocchi, J.C. Batchelder, T. Baumann, C.R. Bingham, I.G. Darby, T.N. Ginter, S.V. Ilyushkin, M. Karny, W. Królas, P.F. Mantica, K. Miernik, M. Pfützner, K.P. Rykaczewski, D. Weisshaar, J.A. Winger |
| 2014Ra.1 | JLTPA to be pd | | | P.C.-O. Ranitzsch, C. Hassel, M. Wegner, S. Kempf, A. Fleischmann, C. Enss, L. Gastaldo, A. Herlert, K. Johnston and arXiv 1409.0071v1 |
| 2014Ri01 | PYLBB | 732, | 305 | K. Riisager, O. Forstner, M.J.G. Borge, J.A. Briz, M. Carmona-Gallardo, L.M. Fraile, H.O.U. Fynbo, T. Giles, A. Gottberg, A. Heinz, J.G. Johansen, B. Jonson, J. Kurcewicz, M.V. Lund, T. Nilsson, G. Nyman, E. Rapisarda, P. Steier, O. Tengblad, R. Thies, S.R. Winkler |
| 2014Sa46 | PYLBB | 736, | 137 | A. Sanetullaev, M.B. Tsang, W.G. Lynch, Jenny Lee, D. Bazin, K.P. Chan, D. Coupland, V. Henzl, D. Henzlova, M. Kilburn, A.M. Rogers, Z.Y. Sun, M. Youngs, R.J. Charity, L.G. Sobotka, M. Famiano, S. Hudan, D. Shapira, W.A. Peters, C. Barbieri, M. Hjorth-Jensen, M. Horoi, T. Otsuka, T. Suzuki, Y. Utsuno |
| 2014Sc09 | PRVCA | 90, | 012501 | B.E. Schultz, M. Brodeur, C. Andreoiu, A. Bader, A. Chaudhuri, U. Chowdhury, A.T. Gallant, A. Grossheim, R. Klawitter, A.A. Kwiatkowski, K.G. Leach, A. Lennarz, T.D. Macdonald, J. Lassen, H. Heggen, S. Raeder, A. Teigelhöfer, J. Dilling |
| 2014Se12 | PRVCA | 89, | 057302 | G.W. Severin, L.D. Knutson, P.A. Voytas, E.A. George |
| 2014Sh14 | PYLBB | 735, | 327 | P. Shuai, H.S. Xu, X.L. Tu, Y.H. Zhang, B.H. Sun, M. Wang, Yu. A. Litvinov, K. Blaum, X.H. Zhou, J.J. He, Y. Sun, K. Kaneko, Y.J. Yuan, J.W. Xia, J.C. Yang, G. Audi, X.L. Yan, X.C. Chen, G.B. Jia, Z.G. Hu, X.W. Ma, R.S. Mao, B. Mei, Z.Y. Sun, S.T. Wang, G.Q. Xiao, X. Xu, T. Yamaguchi, Y. Yamaguchi, Y.D. Zang, H.W. Zhao, T.C. Zhao, W. Zhang, W.L. Zhan |
| 2014Sh25 | PRVCA | 90, | 032501 | P.D. Shidling, D. Melconian, S. Behling, B. Fenker, J.C. Hardy, V.E. Jacob, E. McCleskey, M. McCleskey, M. Mehlman, H.I. Park, B.T. Roeder |
| 2014Si.A | PrvCom | GAu | Jul | B. Singh |
| 2014So17 | JPGPE | 41, | 125103 | S. Sodaye, R. Tripathi, K. Sudarshan, S.K. Sharma, P.K. Pujari, R. Palit, S. Mukhopadhyay |
| 2014Su07 | PRVCA | 89, | 034317 | S. Suchyta, S.N. Liddick, C.J. Chiara, W.B. Walters, M.P. Carpenter, H.L. Crawford, G.F. Grinyer, G. Gürdal, A. Klose, E.A. McCutchan, J. Pereira, S. Zhu |
| 2014Ta29 | PYLBB | 738, | 223 | J. Taprogge, A. Jungclaus, H. Grawe, S. Nishimura, Z.Y. Xu, P. Doornenbal, G. Lorusso, E. Nácher, G.S. Simpson, P.-A. Söderström, T. Sumikama, H. Baba, F. Browne, N. Fukuda, R. Gernhäuser, G. Gey, N. Inabe, T. Isobe, H.S. Jung, D. Kameda, G.D. Kim, Y.-K. Kim, I. Kojouharov, T. Kubo, N. Kurz, Y.K. Kwon, Z. Li, H. Sakurai, H. Schaffner, K. Steiger, H. Suzuki, H. Takeda, Zs. Vajta, H. Watanabe, J. Wu, A. Yagi, K. Yoshinaga, G. Benzoni, S. Bönig, K.Y. Chae, L. Coraggio, A. Covello, J.-M. Daugas, F. Drouet, A. Gadea, A. Gargano, S. Ilieva, F.G. Kondev, T. Kröll, G.J. Lane, A. Montaner-Pizá, K. Moschner, D. Mücher, F. Naqvi, M. Niikura, H. Nishibata, A. Odahara, R. Orlandi, Z. Patel, Zs. Podolyák, A. Wendt |

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| 2014Ta.A | JPCSD | 533, | 012043 | J. Taprogge, A. Jungclaus, G. Simpson |
| 2014Un01 | ARISE | 87, | 92 | M.P. Unterweger, R. Fitzgerald |
| 2014Va04 | PRVCA | 89, | 064310 | Z. Varga, A. Nicholl, K. Mayer |
| 2014Wa09 | PRLTA | 112, | 132502 | F. Wamers, J. Marganec, F. Aksouh, Yu. Aksyutina, H. Alvarez-Pol, T. Aumann, S. Beceiro Novo, K. Boretzky, M.J.G. Borge, M. Chartier, A. Chatillon, L.V. Chulkov, D. Cortina-Gil, H. Emling, O. Ershova, L.M. Fraile, H.O.U. Fynbo, D. Galaviz, H. Geissel, M. Heil, D.H.H. Hoffmann, H.T. Johansson, B. Jonson, C. Karagiannis, O.A. Kiselev, J.V. Kratz, R. Kulesa, N. Kurz, C. Langer, M. Lantz, T. Le Bleis, R. Lemmon, Yu. A. Litvinov, K. Mahata, C. Muntz, T. Nilsson, C. Nociforo, G. Nyman, W. Ott, V. Panin, S. Paschalis, A. Perea, R. Plag, R. Reifarh, A. Richter, C. Rodriguez-Tajes, D. Rossi, K. Rissager, D. Savran, G. Schrieder, H. Simon, J. Stroth, K. Summerer, O. Tengblad, H. Weick, C. Wimmer, M.V. Zhukov |
| 2014Xu07 | PRLTA | 113, | 032505 | Z.Y. Xu, S. Nishimura, G. Lorusso, F. Browne, P. Doornenbal, G. Gey, H.-S. Jung, Z. Li, M. Niikura, P.-A. Söderström, T. Sumikama, J. Taprogge, Zs. Vajta, H. Watanabe, J. Wu, A. Yagi, K. Yoshinaga, H. Baba, S. Franchoo, T. Isobe, P.R. John, I. Kojouharov, S. Kubono, N. Kurz, I. Matea, K. Matsui, D. Mengoni, P. Morfouace, D.R. Napoli, F. Naqvi, H. Nishibata, A. Odahara, E. Sahin, H. Sakurai, H. Schaffner, I.G. Stefan, D. Suzuki, R. Taniuchi, V. Werner |
| 2014Ya19 | JPGPE | 41, | 105104 | H. Yang, L. Ma, Z. Zhang, L. Yu, G. Jia, M. Huang, Z. Gan, T. Huang, G. Li, X. Wu, Y. Fang, Z. Wang, B. Gao, W. Hua |
| 2014Ya.A | PrvCom | Hwj | Jul | XinLiang Yan |
| 2014Zh03 | PRVCA | 89, | 014308 | Z.Y. Zhang, Z.G. Gan, L. Ma, L. Yu, H.B. Yang, T.H. Huang, G.S. Li, Y.L. Tian, Y.S. Wang, X.X. Xu, X.L. Wu, M.H. Huang, C. Luo, Z.Z. Ren, S.G. Zhou, X.H. Zhou, H.S. Xu, G.Q. Xiao |
| 2015 | | | | |
| 2015Ah03 | PRVCA | 91, | 044310 | I. Ahmad, J.P. Greene, F.G. Kondev, S. Zhu |
| 2015Ah04 | PRVCA | 92, | 024313 | I. Ahmad, R.R. Chasman, J.P. Greene, F.G. Kondev, S. Zhu |
| 2015Ak02 | PRVCA | 91, | 031301 | A. Akber, M.W. Reed, P.M. Walker, Yu. A. Litvinov, G.J. Lane, T. Kibédi, K. Blaum, F. Bosch, C. Brandau, J.J. Carroll, D.M. Cullen, I.J. Cullen, A.Y. Deo, B. Detwiler, C. Dimopoulou, G.D. Dracoulis, F. Farinon, H. Geissel, E. Haettner, M. Heil, R.S. Kempley, R. Knöbel, C. Kozhuharov, J. Kurcewicz, N. Kuzminchuk, S. Litvinov, Z. Liu, R. Mao, C. Nociforo, F. Nolden, W.R. Plaß, Zs. Podolyák, A. Prochazka, C. Scheidenberger, D. Shubina, M. Steck, Th. Stöhlker, B. Sun, T.P.D. Swan, G. Trees, H. Weick, N. Winckler, M. Winkler, P.J. Woods, T. Yamaguchi |
| 2015Al20 | PRLTA | 115, | 102502 | K. Alfonso, for the CUORE Collaboration |
| 2015An05 | EPJAA | 51, | 41 | S. Antalic, F.P. Heßberger, D. Ackermann, S. Heinz, S. Hofmann, B. Kindler, J. Khuyagbaatar, B. Lommel, R. Mann |
| 2015Ar07 | PYLBB | 745, | 79 | S. Arzumanov, L. Bondarenko, S. Chernyavsky, P. Geltenbort, V. Morozov, V.V. Nesvizhevsky, Yu. Panin, A. Strepetov |
| 2015At03 | PRLTA | 115, | 232501 | D. Atanasov, P. Ascher, K. Blaum, R.B. Cakirli, T.E. Cocolios, S. George, S. Goriely, F. Herfurth, H.-T. Janka, O. Just, M. Kowalska, S. Kreim, D. Kisler, Y.A. Litvinov, D. Lunney, V. Manea, D. Neidherr, M. Rosenbusch, L. Schweikhard, A. Welker, F. Wienholtz, R.N. Wolf, K. Zuber |
| 2015At.A | PrvCom | GAu | Apr | D. Atanasov |
| 2015Au01 | PRVCA | 91, | 024324 | K. Auranen, J. Uusitalo, S. Juutinen, U. Jakobsson, T. Grahn, P.T. Greenlees, K. Hauschild, A. Herzán, R. Julin, J. Konki, M. Leino, J. Pakarinen, J. Partanen, P. Peura, P. Rahkila, P. Ruotsalainen, M. Sandzelius, J. Sarén, C. Scholey, J. Sorri, S. Stolze |
| 2015Ba11 | NUPAB | 935, | 52 | A.S. Barabash |
| 2015Ba49 | PYLBB | 750, | 176 | C. Babcock, H. Heylen, J. Billowes, M.L. Bissell, K. Blaum, P. Campbell, B. Cheal, R.F. Garcia Ruiz, C. Geppert, W. Gins, M. Kowalska, K. Kreim, S.M. Lenzi, I.D. Moore, R. Neugart, G. Neyens, W. Nörtershäuser, J. Papuga, D.T. Yordanov |
| 2015Be07 | PYLBB | 743, | 526 | E. Bellotti, C. Brogini, G. Di Carlo, M. Laubenstein, R. Menegazzo |
| 2015Be13 | ARISE | 102, | 74 | D.E. Bergeron, R. Fitzgerald |

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|----------|-------|------|--------|---|
| 2015Be32 | PYLBB | 751, | 107 | G. Benzoni, A.I. Morales, H. Watanabe, S. Nishimura, L. Coraggio, N. Itaco, A. Gargano, F. Browne, R. Daido, P. Doornenbal, Y. Fang, G. Lorusso, Z. Patel, S. Rice, L. Sinclair, P.-A. Söderström, T. Sumikama, J. Wu, Z.Y. Xu, R. Yokoyama, H. Baba, R. Avigo, F.L. Bello Garrote, N. Blasi, A. Bracco, F. Camera, S. Ceruti, F.C.L. Crespi, G. de Angelis, M.-C. Delattre, Zs. Dombradi, A. Gottardo, T. Isobe, I. Kuti, K. Matsui, B. Melon, D. Mengoni, T. Miyazaki, V. Modamio-Hoybjor, S. Momiyama, D.R. Napoli, M. Niikura, R. Orlandi, H. Sakurai, E. Sahin, D. Sohler, R. Taniuchi, J. Taprogge, Zs. Vajta, J.J. Valiente-Dobón, O. Wieland, M. Yalcinkaya |
| 2015BI02 | EPJAA | 51, | 8 | B. Blank, J.-C. Thomas, P. Ascher, L. Audirac, A. Bacquias, L. Cáceres, G. Canchel, L. Daudin, F. de Oliveira Santos, F. Didierjean, M. Gerbaux, J. Giovannazzo, S. Grévy, T. Kurtukian Nieto, I. Matea, F. Munoz, M. Roche, L. Serani, N. Smirnova, J. Souin |
| 2015Ca09 | PRVCA | 92, | 014327 | L. Cáceres, A. Lepailleur, O. Sorlin, M. Stanoiu, D. Sohler, Zs. Dombrádi, S.K. Bogner, B.A. Brown, H. Hergert, J.D. Holt, A. Schwenk, F. Azaiez, B. Bastin, C. Borcea, R. Borcea, C. Bourgeois, Z. Elekes, Zs. Fülöp, S. Grévy, L. Gaudefroy, G.F. Grinyer, D. Guillemaud-Mueller, F. Ibrahim, A. Kerek, A. Krasznahorkay, M. Lewitowicz, S.M. Lukyanov, J. Mrázek, F. Negoita, F. de Oliveira, Yu.-E. Penionzhkevich, Zs. Podolyák, M.G. Porquet, F. Rotaru, P. Roussel-Chomaz, M.G. Saint-Laurent, H. Savajols, G. Sletten, J.C. Thomas, J. Timár, C. Timis, Zs. Vajta |
| 2015Ch56 | PRVCA | 92, | 044308 | R. Chapman, A. Hodsdon, M. Bouhelal, F. Haas, X. Liang, F. Azaiez, Z.M. Wang, B.R. Behera, M. Burns, E. Caurier, L. Corradi, D. Curien, A.N. Deacon, Zs. Dombrádi, E. Farnea, E. Fioretto, A. Gadea, F. Ibrahim, A. Jungclaus, K. Keyes, V. Kumar, S. Lunardi, N. Marginean, G. Montagnoli, D.R. Napoli, F. Nowacki, J. Ollier, D. O'Donnell, A. Papenberg, G. Pollarolo, M.-D. Salsac, F. Scarlassara, J.F. Smith, K.M. Spohr, M. Stanoiu, A.M. Stefanini, S. Szilner, M. Trotta, D. Verney |
| 2015Ch57 | PRVCA | 92, | 044330 | J. Chen, F.G. Kondev, I. Ahmad, M.P. Carpenter, J.P. Greene, R.V.F. Janssens, S. Zhu, D. Ehst, V. Makarashvili, D. Rotsch, N.A. Smith |
| 2015Ch58 | PRVCA | 92, | 045803 | U. Chowdhury, K.G. Leach, C. Andreoiu, A. Bader, M. Brodeur, A. Chaudhuri, A.T. Gallant, A. Grossheim, G. Gwinner, R. Klawitter, A.A. Kwiatkowski, A. Lennarz, T.D. Macdonald, J. Pearkes, B.E. Schultz, J. Dilling |
| 2015Ci06 | PRVCA | 92, | 014622 | A.A. Ciemny, W. Dominik, T. Ginter, R. Grzywacz, Z. Janas, M. Kuich, C. Mazzocchi, M. Pfützner, M. Pomorski, F. Zarzynski, D. Bazin, T. Baumann, A. Bezbakh, B.P. Crider, M. Cwiok, S. Go, G. Kaminski, K. Kolos, A. Korgul, E. Kwan, S. Liddick, K. Miernik, S.V. Paulauskas, J. Pereira, K. Rykaczewski, C. Sumithrarachchi, Y. Xiao |
| 2015Co02 | ARISE | 99, | 46 | S.M. Collins, A.K. Pearce, K.M. Ferreira, A.J. Fenwick, P.H. Regan, J.D. Keightley |
| 2015Cz01 | PRVCA | 92, | 014328 | M. Czerwinski, T. Rzaca-Urban, W. Urban, P. Baczyk, K. Sieja, B.M. Nyakó, J. Timár, I. Kuti, T.G. Tornyi, L. Atanasova, A. Blanc, M. Jentschel, P. Mutti, U. Köster, T. Soldner, G. de France, G.S. Simpson, C.A. Ur |
| 2015Da12 | PRLTA | 115, | 132502 | H.M. David, J. Chen, D. Seweryniak, F.G. Kondev, J.M. Gates, K.E. Gregorich, I. Ahmad, M. Albers, M. Alcorta, B.B. Back, B. Baartman, P.F. Bertone, L.A. Bernstein, C.M. Campbell, M.P. Carpenter, C.J. Chiara, R.M. Clark, M. Cromaz, D.T. Doherty, G.D. Dracoulis, N.E. Esker, P. Fallon, O.R. Gothe, J.P. Greene, P.T. Greenlees, D.J. Hartley, K. Hauschild, C.R. Hoffman, S.S. Hota, R.V.F. Janssens, T.L. Khoo, J. Konki, J.T. Kwasnick, T. Lauritsen, A.O. Macchiavelli, P.R. Mudder, C. Nair, Y. Qiu, J. Rissanen, A.M. Rogers, P. Ruotsalainen, G. Savard, S. Stolze, A. Wiens, S. Zhu |
| 2015De22 | PYLBB | 748, | 199 | H.M. Devaraja, S. Heinz, O. Beliuskina, V. Comas, S. Hofmann, C. Hönung, G. Münzenberg, K. Nishio, D. Ackermann, Y.K. Gambhir, M. Gupta, R.A. Henderson, F.P. Heßberger, J. Khuyagbaatar, B. Kindler, B. Lommel, K.J. Moody, J. Maurer, R. Mann, A.G. Popeko, D.A. Shaughnessy, M.A. Stoyer, A.V. Yeremin |

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|----------|-------|------|--------|--|
| 2015Di03 | PYLBB | 744, | 137 | T. Dickel, W.R. Plaß, S. Ayet San Andres, J. Ebert, H. Geissel, E. Haettner, C. Hornung, I. Miskun, S. Pietri, S. Purushothaman, M.P. Reiter, A.-K. Rink, C. Scheidenberger, H. Weick, P. Dendooven, M. Diwisch, F. Greiner, F. Heiße, R. Knöbel, W. Lippert, I.D. Moore, I. Pohjalainen, A. Prochazka, M. Ranjan, M. Takechi, J.S. Winfield, X. Xu |
| 2015Do01 | ARISE | 96, | 83 | S.F. Dorsett, K.S. Krane |
| 2015Ei01 | PRVCA | 92, | 045502 | M. Eibach, G. Bollen, M. Brodeur, K. Cooper, K. Gulyuz, C. Izzo, D.J. Morrissey, M. Redshaw, R. Ringle, R. Sandler, S. Schwarz, C.S. Sumithrarachchi, A.A. Valverde, A.C.C. Villari |
| 2015Ei03 | PRLTA | 115, | 062501 | S. Eliseev, K. Blaum, M. Block, S. Chenmarev, H. Dorrer, Ch. E. Düllmann, C. Enss, P.E. Filianin, L. Gastaldo, M. Goncharov, U. Köster, F. Lautenschläger, Yu. N. Novikov, A. Rischka, R.X. Schüssler, L. Schweikhard, A. Türler |
| 2015Ei01 | PRVCA | 91, | 064317 | A. Étilé, D. Verney, N.N. Arsenyev, J. Bettane, I.N. Borzov, M.C. Mhamed, P.V. Cuong, C. Delafosse, F. Didierjean, C. Gaulard, N. Van Giai, A. Goasduff, F. Ibrahim, K. Kolos, C. Lau, M. Niikura, S. Roccia, A.P. Severyukhin, D. Testov, S. Tusseau-Nenez, V.V. Voronov |
| 2015Fi07 | PRXHA | 5, | 011018 | D.A. Fink, T.E. Cocolios, A.N. Andreyev, S. Antalic, A.E. Barzakh, B. Bastin, D.V. Fedorov, V.N. Fedosseev, K.T. Flanagan, L. Ghys, A. Gottberg, M. Huyse, N. Imai, T. Kron, N. Lecesne, K.M. Lynch, B.A. Marsh, D. Pauwels, E. Rapisarda, S.D. Richter, R.E. Rossel, S. Rothe, M.D. Seliverstov, A.M. Sjödin, C. Van Beveren, P. Van Duppen, K.D.A. Wendt |
| 2015Fi01 | PRVCA | 91, | 034310 | F. Flavigny, D. Pauwels, D. Radulov, I.J. Darby, H. De Witte, J. Diriken, D.V. Fedorov, V.N. Fedosseev, L.M. Fraile, M. Huyse, V.S. Ivanov, U. Köster, B.A. Marsh, T. Otsuka, L. Popescu, R. Raabe, M.D. Seliverstov, N. Shimizu, A.M. Sjödin, Y. Tsunoda, P. Van den Bergh, P. Van Duppen, J. Van de Walle, M. Venhart, W.B. Walters, K. Wimmer |
| 2015Ga24 | PRVCA | 92, | 021301 | J.M. Gates, K.E. Gregorich, O.R. Gothe, E.C. Uribe, G.K. Pang, D.L. Bleuel, M. Block, R.M. Clark, C.M. Campbell, H.L. Crawford, M. Cromaz, A. Di Nitto, Ch. E. Düllmann, N.E. Esker, C. Fahlander, P. Fallon, R.M. Farjadi, U. Forsberg, J. Khuyagbaatar, W. Loveland, A.O. Macchiavelli, E.M. May, P.R. Mudder, D.T. Olive, A.C. Rice, J. Rissanen, D. Rudolph, L.G. Sarmiento, J.A. Shusterman, M.A. Stoyer, A. Wiens, A. Yakushev, H. Nitsche |
| 2015Ga38 | EPJAA | 51, | 136 | L.P. Gaffney, J. Van de Walle, B. Bastin, V. Bildstein, A. Blazhev, N. Bree, J. Cederkäll, I. Darby, H. De Witte, D. DiJulio, J. Diriken, V.N. Fedosseev, Ch. Fansen, R. Gernhäuser, A. Gustafsson, H. Hess, M. Huyse, N. Kesteloot, Th. Kröll, R. Lutter, B.A. Marsh, P. Reiter, M. Seidlitz, P. Van Duppen, D. Voulot, N. Warr, F. Wenander, K. Wimmer, K. Wrzosek-Lipska |
| 2015GI03 | PRVCA | 92, | 042501 | B.E. Glassman, D. Pérez-Loureiro, C. Wrede, J. Allen, D.W. Bardayan, M.B. Bennett, B.A. Brown, K.A. Chipps, M. Febraro, C. Fry, M.R. Hall, O. Hall, S.N. Liddick, P. O'Malley, W. Ong, S.D. Pain, S.B. Schwartz, P. Shidling, H. Sims, P. Thompson, H. Zhang |
| 2015Gr05 | PRVCA | 91, | 032501 | J. Grinyer, G.F. Grinyer, M. Babo, H. Bouzomita, P. Chauveau, P. Delahaye, M. Dubois, R. Frigot, P. Jardin, C. Leboucher, L. Maunoury, C. Seiffert, J.C. Thomas, E. Traykov |
| 2015Gr14 | PRVCA | 92, | 045503 | J. Grinyer, G.F. Grinyer, M. Babo, H. Bouzomita, P. Chauveau, P. Delahaye, M. Dubois, R. Frigot, P. Jardin, C. Leboucher, L. Maunoury, C. Seiffert, J.C. Thomas, E. Traykov |
| 2015Gu09 | PRVCA | 91, | 055501 | K. Gulyuz, J. Ariche, G. Bollen, S. Bustabad, M. Eibach, C. Izzo, S.J. Novario, M. Redshaw, R. Ringle, R. Sandler, S. Schwarz, A.A. Valverde |
| 2015He27 | PRVCA | 92, | 044310 | A. Herzán, S. Juutinen, K. Auranen, T. Grahm, P.T. Greenlees, K. Hauschild, U. Jakobsson, P. Jones, R. Julin, S. Ketelhut, M. Leino, A. Lopez-Martens, P. Nieminen, M. Nyman, P. Peura, P. Rahkila, S. Rinta-Antila, P. Ruotsalainen, M. Sandzelius, J. Sarén, C. Scholey, J. Sorri, J. Uusitalo |
| 2015He28 | PRVCA | 92, | 044311 | H. Heylen, C. Babcock, J. Billowes, M.L. Bissell, K. Blaum, P. Campbell, B. Cheal, R.F. Garcia Ruiz, Ch. Geppert, W. Gins, M. Kowalska, K. Kreim, S.M. Lenzi, I.D. Moore, R. Neugart, G. Neyens, W. Nörtershäuser, J. Papuga, D.T. Yordanov |

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| 2015Hu02 | PRVCA | 91, | 024322 | P. Humby, A. Simon, C.W. Beausang, T.J. Ross, R.O. Hughes, J.T. Burke, R.J. Casperson, J. Koglin, S. Ota, J.M. Allmond, M. McCleskey, E. McCleskey, A. Saastamoinen, R. Chyzh, M. Dag, K. Gell, T. Tarlow, G. Vyas |
| 2015Hu07 | PRVCA | 92, | 034615 | A.M. Hurst, R.B. Firestone, L. Szentmiklósi, B.W. Sleford, M.S. Basunia, T. Belgia, J.E. Escher, M. Krticka, Zs. Révay, N.C. Summers |
| 2015Je02 | NIMAE | 795, | 268 | M. Jeskovský, D. Frekers, A. Kováčik, P.P. Povinec, P. Puppe, J. Staníček, I. Sýkora, F. Simkovic, J.H. Thies |
| 2015Ka24 | PRVCA | 92, | 014321 | Z. Kalaninová, S. Antalic, F.P. Heßberger, D. Ackermann, B. Andel, B. Kindler, M. Laatiaoui, B. Lommel, J. Maurer |
| 2015KaZX | JUPSC | 6, | 030106 | D. Kaji, K. Morimoto, Y. Wakabayashi, M. Takeyama, M. Asai |
| 2015Kh09 | PRLTA | 115, | 242502 | J. Khuyagbaatar, A. Yakushev, Ch. E. Düllmann, D. Ackermann, L.-L. Andersson, M. Block, H. Brand, D.M. Cox, J. Even, U. Forsberg, P. Golubev, W. Hartmann, R.-D. Herzberg, F.P. Heßberger, J. Hoffmann, A. Hübner, E. Jäger, J. Jeppsson, b. Kindler, J.V. Kratz, J. Krier, N. Kurz, B. Lommel, M. Maiti, S. Minami, A.K. Mistry, C.M. Mrosek, I. Pysmenetska, D. Rudolph, L.G. Sarmiento, H. Schaffner, M. Schädel, B. Schausten, J. Steiner, T. Torres De Heidenreich, J. Uusitalo, M. Wegrzecki, N. Wiehl, V. Yakusheva |
| 2015Ko06 | ARISE | 95, | 143 | K. Kossert, K. Bokeloh, R. Dersch, O. Nahle |
| 2015Ko09 | ARISE | 99, | 59 | K. Kossert |
| 2015Ko19 | PRVCA | 92, | 054318 | A. Korgul, K.P. Rykaczewski, R. Grzywacz, C.R. Bingham, N.T. Brewer, A.A. Ciemny, C.J. Gross, C. Jost, M. Karny, M. Madurga, C. Mazzocchi, A.J. Mendez II, K. Miernik, D. Miller, S. Padgett, S.V. Paulauskas, D.W. Stracener, M. Wolinska-Cichocka |
| 2015Ko23 | JUPSA | 84, | 054201 | Y. Kojima, K. Kosuga, Y. Shima, A. Taniguchi, H. Hayashi, M. Shibata and Prv-Com SNa March 2016 |
| 2015Kr02 | ARISE | 97, | 12 | K.S. Krane |
| 2015La19 | PRVCA | 92, | 025502 | A.T. Laffoley, C.E. Svensson, C. Andreoiu, G.C. Ball, P.C. Bender, H. Bidaman, V. Bildstein, B. Blank, D.S. Cross, G. Deng, A. Diaz Varela, M.R. Dunlop, R. Dunlop, A.B. Garnsworthy, P.E. Garrett, J. Giovino, G.F. Grinyer, J. Grinyer, G. Hackman, B. Hadinia, D.S. Jamieson, B. Jigmeddorj, D. Kisliuk, K.G. Leach, J.R. Leslie, A.D. MacLean, D. Miller, B. Mills, M. Moukaddam, A.J. Radich, M.M. Rajabali, E.T. Rand, J.C. Thomas, J. Turko, C. Unsworth, P. Voss |
| 2015Li20 | PRVCA | 91, | 064309 | A.A. Lis, C. Mazzocchi, W. Dominik, Z. Janas, M. Pfützner, M. Pomorski, L. Acosta, S. Baraeva, E. Casarejos, J. Duénas-Díaz, V. Dunin, J.M. Espino, A. Estrade, F. Farinon, A. Fomichev, H. Geissel, A. Gorshkov, G. Kaminski, O. Kiselev, R. Knöbel, S. Krupko, M. Kuich, Yu. A. Litvinov, G. Marquez-Durán, I. Martel, I. Mukha, C. Nociforo, A.K. Ordúz, S. Pietri, A. Prochazka, A.M. Sánchez-Benítez, H. Simon, B. Sitar, R. Slepnev, M. Stanoiu, P. Strmen, I. Szarka, M. Takechi, Y. Tanaka, H. Weick, J.S. Winfield |
| 2015Li24 | PRVCA | 92, | 014326 | H.J. Li, B. Cederwall, T. Bäck, C. Qi, M. Doncel, U. Jakobsson, K. Auranen, S. Bönig, M.C. Drummond, T. Grahn, P. Greenlees, A. Herzán, R. Julin, S. Juutinen, J. Konki, T. Kröll, M. Leino, C. McPeake, D. O'Donnell, R.D. Page, J. Pakarinen, J. Partanen, P. Peura, P. Rahkila, P. Ruotsalainen, M. Sandzelius, J. Sarén, B. Saygi, C. Scholey, J. Sorri, S. Stolze, M.J. Taylor, A. Thornthwaite, J. Uusitalo, Z.G. Xiao |
| 2015Li33 | PRVCA | 92, | 024319 | S.N. Liddick, W.B. Walters, C.J. Chiara, R.V.F. Janssens, B. Abromeit, A. Ayres, A. Bey, C.R. Bingham, M.P. Carpenter, L. Cartegni, J. Chen, H.L. Crawford, I.G. Darby, R. Grzywacz, J. Harker, C.R. Hoffman, S. Ilyushkin, F.G. Kondev, N. Larson, M. Madurga, D. Miller, S. Padgett, S.V. Paulauskas, M.M. Rajabali, K. Rykaczewski, D. Seweryniak, S. Suchyta, S. Zhu |

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| 2015Lo04 | PRLTA | 114, | 192501 | G. Lorusso, S. Nishimura, Z.Y. Xu, A. Jungclaus, Y. Shimizu, G.S. Simpson, P.-A. Söderström, H. Watanabe, F. Browne, P. Doornenbal, G. Gey, H.S. Jung, B. Meyer, T. Sumikama, J. Taprogge, Zs. Vajta, J. Wu, H. Baba, G. Benzoni, K.Y. Chae, F.C.L. Crespi, N. Fukuda, R. Gernhäuser, N. Inabe, T. Isobe, T. Kajino, D. Kameda, G.D. Kim, Y.-K. Kim, I. Kojouharov, F.G. Kondev, T. Kubo, N. Kurz, Y.K. Kwon, G.J. Lane, Z. Li, A. Montaner-Pizá, K. Moschner, F. Naqvi, M. Niikura, H. Nishibata, A. Odahara, R. Orlandi, Z. Patel, Zs. Podolyák, H. Sakurai, H. Schaffner, P. Schury, S. Shibagaki, K. Steiger, H. Suzuki, H. Takeda, A. Wendt, A. Yagi, K. Yoshinaga |
| 2015Lo08 | PRVCA | 92, | 024304 | R. Lozeva, A. Odahara, C.-B. Moon, S. Nishimura, P. Doornenbal, H. Naïdja, F. Nowacki, P.-A. Söderström, T. Sumikama, G. Lorusso, J. Wu, Z.Y. Xu, H. Baba, F. Browne, R. Daido, J.-M. Daugas, F. Didierjean, Y. Fang, T. Isobe, I. Kojouharov, N. Kurz, Z. Patel, S. Rice, H. Sakurai, H. Schaffner, L. Sinclair, H. Watanabe, A. Yagi, R. Yokoyama, T. Kubo, N. Inabe, H. Suzuki, N. Fukuda, D. Kameda, H. Takeda, D.S. Ahn, D. Murai, F.L. Bello Garrote, E. Ideguchi, T. Ishigaki, H.S. Jung, T. Komatsubara, Y.K. Kwon, S. Morimoto, M. Niikura, H. Nishibata, I. Nishizuka, T. Shimoda, K. Tshoo |
| 2015Lu13 | PYLBB | 750, | 356 | M.V. Lund, M.J.G. Borge, J.A. Briz, J. Cederkäll, H.O.U. Fynbo, J.H. Jensen, B. Jonson, K.L. Laursen, T. Nilsson, A. Perea, V. Pesudo, K. Riisager, O. Tengblad |
| 2015Ma30 | PRVCA | 91, | 045504 | S. Malbrunot-Ettenauer, T. Brunner, U. Chowdhury, A.T. Gallant, V.V. Simon, M. Brodeur, A. Chaudhuri, E. Mané, M.C. Simon, C. Andreoiu, G. Audi, J.R.C. López-Urrutia, P. Delheij, G. Gwinner, A. Lapierre, D. Lunney, M.R. Pearson, R. Ringle, J. Ullrich, J. Dilling |
| 2015Ma37 | PRVCA | 91, | 051302 | L. Ma, Z.Y. Zhang, Z.G. Gan, H.B. Yang, L. Yu, J. Jiang, J.G. Wang, Y.L. Tian, Y.S. Wang, S. Guo, B. Ding, Z.Z. Ren, S.G. Zhou, X.H. Zhou, H.S. Xu, G.Q. Xiao |
| 2015Ma54 | PRVCA | 92, | 041302 | A. Matta, D. Beaumel, H. Otsu, V. Lapoux, N.K. Timofeyuk, N. Aoi, M. Assié, H. Baba, S. Boissinot, R.J. Chen, F. Delaunay, N. de Sereville, S. Franchoo, P. Gangnant, J. Gibelin, F. Hammache, Ch. Houarner, N. Imai, N. Kobayashi, T. Kubo, Y. Kondo, Y. Kawada, L.H. Khiem, M. Kurata-Nishimura, E.A. Kuzmin, J. Lee, J.F. Libin, T. Motobayashi, T. Nakamura, L. Nalpas, E. Yu. Nikolskii, A. Obertelli, E.C. Pollacco, E. Rindel, Ph. Rosier, F. Saillant, T. Sako, H. Sakurai, A.M. Sánchez-Benitez, J.-A. Scarpaci, I. Stefan, D. Suzuki, K. Takahashi, M. Takechi, S. Takeuchi, H. Wang, R. Wolski, K. Yoneda |
| 2015Ma60 | PRVCA | 92, | 054304 | D.A. Matterns, N. Fotiades, J.J. Carroll, C.J. Chiara, J.W. McClory, T. Kawano, R.O. Nelson, M. Devlin |
| 2015Ma61 | PRVCA | 92, | 054317 | C. Mazzocchi, K.P. Rykaczewski, R. Grzywacz, P. Baczyk, C.R. Bingham, N.T. Brewer, C.J. Gross, C. Jost, M. Karny, A. Korgul, M. Madurga, A.J. Mendez II, K. Miernik, D. Miller, S. Padgett, S.V. Paulauskas, A.A. Sonzogni, D.W. Stracener, M. Wolinska-Cichocka |
| 2015Ma.A | PrvCom | GAu | Jan | V. Manea |
| 2015Me01 | PRLTA | 114, | 022501 | Z. Meisel, S. George, S. Ahn, J. Browne, D. Bazin, B.A. Brown, J.F. Carpino, H. Chung, R.H. Cyburt, A. Estradé, M. Famiano, A. Gade, C. Langer, M. Matos, W. Mittig, F. Montes, D.J. Morrissey, J. Pereira, H. Schatz, J. Schatz, M. Scott, D. Shapira, K. Smith, J. Stevens, W. Tan, O. Tarasov, S. Towers, K. Wimmer, J.R. Winkelbauer, J. Yurkon, R.G.T. Zegers |
| 2015Me08 | PRLTA | 115, | 162501 | Z. Meisel, S. George, S. Ahn, D. Bazin, B.A. Brown, J. Browne, J.F. Carpino, H. Chung, A.L. Cole, R.H. Cyburt, A. Estradé, M. Famiano, A. Gade, C. Langer, M. Matos, W. Mittig, F. Montes, D.J. Morrissey, J. Pereira, H. Schatz, J. Schatz, M. Scott, D. Shapira, K. Smith, J. Stevens, W. Tan, O. Tarasov, S. Towers, K. Wimmer, J.R. Winkelbauer, J. Yurkon, R.G.T. Zegers |
| 2015Me.A | Th.-Michigan | | | Z. Meisel |

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| 2015Mo01 | PRVCA | 91, | 014301 | F. Molina, B. Rubio, Y. Fujita, W. Gelletly, J. Agramunt, A. Algora, J. Benlliure, P. Boutachkov, L. Cáceres, R.B. Cakirli, E. Casarejos, C. Domingo-Pardo, P. Doornenbal, A. Gadea, E. Ganioglu, M. Gascón, H. Geissel, J. Gerl, M. Górská, J. Grebosz, R. Hoischen, R. Kumar, N. Kurz, I. Kojouharov, L. Amon Susam, H. Matsubara, A.I. Morales, Y. Oktem, D. Pauwels, D. Pérez-Loureiro, S. Pietri, Zs. Podolyák, W. Prokopowicz, D. Rudolph, H. Schaffner, S.J. Steer, J.L. Tain, A. Tamii, S. Tashenov, J.J. Valiente-Dobón, S. Verma, H.-J. Wollersheim |
| 2015Mo20 | EULEE | 111, | 52001 | A.I. Morales, G. Benzoni, N. Al-Dahan, S. Vergani, Zs. Podolyák, P.H. Regan, T.P.D. Swan, J.J. Valiente-Dobón, A. Bracco, P. Boutachkov, F.C.L. Crespi, J. Gerl, M. Górská, S. Pietri, P.M. Walker, H.-J. Wollersheim |
| 2015Mo.A | PrvCom | Hwj | Nov | M. Mougeot |
| 2015Mu13 | PRLTA | 115, | 202501 | I. Mukha, L.V. Grigorenko, X. Xu, L. Acosta, E. Casarejos, A.A. Ciemny, W. Dominik, J. Duènas-Díaz, V. Dunin, J.M. Espino, A. Estradè, F. Farinon, A. Fomichev, H. Geissel, T.A. Golubkova, A. Gorshkov, Z. Janas, G. Kaminski, O. Kiselev, R. Knöbel, S. Krupko, M. Kuich, Yu. A. Litvinov, G. Marquez-Durán, I. Martel, C. Mazzocchi, C. Nociforo, A.K. Ordúz, M. Pfützner, S. Pietri, M. Pomorski, A. Prochazka, S. Rymzhanova, A.M. Sánchez-Benítez, C. Scheidenberger, P. Sharov, H. Simon, B. Sitar, R. Slepnev, M. Stanoiu, P. Strmen, I. Szarka, M. Takechi, Y.K. Tanaka, H. Weick, M. Winkler, J.S. Winfield, M.V. Zhukov |
| 2015My03 | PRLTA | 114, | 013003 | E.G. Myers, A. Wagner, H. Kracke, B.A. Wesson |
| 2015NiZZ | JUPSC | 6, | 030062 | I. Nishizuka, T. Sumikama, F. Browne, A.M. Bruce, S. Nishimura, P. Doornenbal, G. Lorusso, Z. Patel, S. Rice, L. Sinclair, P.-A. Söderström, H. Watanabe, J. Wu, Z.Y. Xu, A. Yagi, H. Baba, N. Chiga, R. Carrol, R. Daido, F. Didierjean, Y. Fang, N. Fukuda, G. Gey, E. Ideguchi, N. Inabe, T. Isobe, D. Kameda, I. Kojouharov, N. Kurz, T. Kubo, S. Lalkovski, Z. Li, R. Lozeva, H. Nishibata, A. Odahara, Zs. Podolyák, P.H. Regan, O.J. Roberts, H. Sakurai, H. Schaffner, G.S. Simpson, H. Suzuki, H. Takeda, M. Tanaka, J. Taprogge, V. Werner, O. Wieland |
| 2015Pf01 | PRVCA | 92, | 014316 | M. Pfützner, W. Dominik, Z. Janas, C. Mazzocchi, M. Pomorski, A.A. Bezbakh, M.J.G. Borge, K. Chrapkiewicz, V. Chudoba, R. Frederickx, G. Kaminski, M. Kowalska, S. Krupko, M. Kuich, J. Kurcewicz, A.A. Lis, M.V. Lund, K. Miernik, J. Perkowski, R. Raabe, G. Randisi, K. Riisager, S. Sambi, O. Tengblad, F. Wenander |
| 2015Ro10 | PRLTA | 114, | 202501 | M. Rosenbusch, P. Ascher, D. Atanasov, C. Barbieri, D. Beck, K. Blaum, Ch. Borgmann, M. Breitenfeldt, R.B. Cakirli, A. Cipollone, S. George, F. Herfurth, M. Kowalska, S. Kreim, D. Lunney, V. Manea, P. Navrátil, D. Neidherr, L. Schweikhard, V. Somà, J. Stanja, F. Wienholtz, R.N. Wolf, K. Zuber |
| 2015Ro20 | EPJAA | 51, | 153 | T. Roy, G. Mukherjee, N. Madhavan, T.K. Rana, S. Bhattacharya, Md. A. Asgar, I. Bala, K. Basu, S.S. Bhattacharjee, C. Bhattacharya, S. Bhattacharya, S. Bhattacharyya, J. Gehlot, S.S. Ghugre, R.K. Gurjar, A. Jhingan, R. Kumar, S. Muralithar, S. Nath, H. Pai, R. Palit, R. Raut, R.P. Singh, A.K. Sinha, T. Varughese |
| 2015Sc13 | EPJAA | 51, | 89 | F. Schneider, T. Beyer, K. Blaum, M. Block, S. Chenmarev, H. Dorrer, Ch. E. Düllmann, K. Eberhardt, M. Eibach, S. Eliseev, J. Grund, U. Köster, Sz. Nagy, Yu. N. Novikov, D. Renisch, A. Türler, K. Wendt |
| 2015Sh16 | PRVCA | 91, | 047304 | Y.P. Shen, W.P. Liu, J. Su, N.T. Zhang, L. Jing, Z.H. Li, Y.B. Wang, B. Guo, S.Q. Yan, Y.J. Li, S. Zeng, G. Lian, X.C. Du, L. Gan, X.X. Bai, J.S. Wang, Y.H. Zhang, X.H. Zhou, X.D. Tang, J.J. He, Y.Y. Yang, S.L. Jin, P. Ma, J.B. Ma, M.R. Huang, Z. Bai, Y.J. Zhou, W.H. Ma, J. Hu, S.W. Xu, S.B. Ma, S.Z. Chen, L.Y. Zhang, B. Ding, Z.H. Li |
| 2015So23 | PRVCA | 92, | 051305 | P.-A. Söderström, S. Nishimura, Z.Y. Xu, K. Sieja, V. Werner, P. Doornenbal, G. Lorusso, F. Browne, G. Gey, H.S. Jung, T. Sumikama, J. Taprogge, Zs. Vajta, H. Watanabe, J. Wu, H. Baba, Zs. Dombradi, S. Franchoo, T. Isobe, P.R. John, Y.-K. Kim, I. Kojouharov, N. Kurz, Y.K. Kwon, Z. Li, I. Matea, K. Matsui, G. Martínez-Pinedo, D. Mengoni, P. Morfouace, D.R. Napoli, M. Niiikura, H. Nishibata, A. Odahara, K. Ogawa, N. Pietralla, E. Sahin, H. Sakurai, H. Schaffner, D. Soehler, I.G. Stefan, D. Suzuki, R. Taniuchi, A. Yagi, K. Yoshinaga |

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| 2015St14 | EPJAA | 51, | 117 | K. Steiger, S. Nishimura, Z. Li, R. Gernhäuser, Y. Utsuno, R. Chen, T. Faestermann, C. Hinke, R. Krücken, M. Kurata-Nishimura, G. Lorusso, Y. Miyashita, N. Shimizu, K. Sugimoto, T. Sumikama, H. Watanabe, K. Yoshinaga |
| 2015Ta12 | PRVCA | 91, | 044322 | M.J. Taylor, D.M. Cullen, M.G. Procter, A.J. Smith, A. McFarlane, V. Twist, G.A. Alharshan, L.S. Ferreira, E. Maglione, K. Auranen, T. Grahm, P.T. Greenlees, K. Hauschild, A. Herzan, U. Jakobsson, R. Julin, S. Juutinen, S. Ketelhut, J. Konki, M. Leino, A. Lopez-Martens, J. Pakarinen, J. Partanen, P. Peura, P. Rahkila, S. Rinta-Antila, P. Ruotsalainen, M. Sandzelius, J. Saren, C. Scholey, J. Sorri, S. Stolze, J. Uusitalo, M. Doncel |
| 2015Ta13 | PRVCA | 91, | 054324 | J. Taprogge, A. Jungclaus, H. Grawe, S. Nishimura, P. Doornenbal, G. Lorusso, G.S. Simpson, P.-A. Söderström, T. Sumikama, Z.Y. Xu, H. Baba, F. Browne, N. Fukuda, R. Gernhäuser, G. Gey, N. Inabe, T. Isobe, H.S. Jung, D. Kameda, G.D. Kim, Y.-K. Kim, I. Kojouharov, T. Kubo, N. Kurz, Y.K. Kwon, Z. Li, H. Sakurai, H. Schaffner, K. Steiger, H. Suzuki, H. Takeda, Zs. Vajta, H. Watanabe, J. Wu, A. Yagi, K. Yoshinaga, G. Benzoni, S. Böni, K.Y. Chae, L. Coraggio, A. Covello, J.-M. Daugas, F. Drouet, A. Gadea, A. Gargano, S. Ilieva, F.G. Kondev, T. Kröll, G.J. Lane, A. Montaner-Pizá, K. Moschner, D. Muecher, F. Naqvi, M. Niikura, H. Nishibata, A. Odahara, R. Orlandi, Z. Patel, Zs. Podolyák, A. Wendt |
| 2015Ut02 | PRVCA | 92, | 034609 | V.K. Utyonkov, N.T. Brewer, Yu. Ts. Oganessian, K.P. Rykaczewski, F. Sh. Abdullin, S.N. Dmitriev, R.K. Grzywacz, M.G. Itkis, K. Miernik, A.N. Polyakov, J.B. Roberto, R.N. Sagaidak, I.V. Shirokovsky, M.V. Shumeiko, Yu. S. Tsyganov, A.A. Voinov, V.G. Subbotin, A.M. Sukhov, A.V. Sabelnikov, G.K. Vostokin, J.H. Hamilton, M.A. Stoyer, S.Y. Strauss |
| 2015Va05 | PRVCA | 91, | 037301 | A.A. Valverde, G. Bollen, K. Cooper, M. Eibach, K. Gulyuz, C. Izzo, D.J. Morrissey, R. Ringle, R. Sandler, S. Schwarz, C.S. Sumithrarachchi, A.C.C. Villari |
| 2015Va08 | PRLTA | 114, | 232502 | A.A. Valverde, G. Bollen, M. Brodeur, R.A. Bryce, K. Cooper, M. Eibach, K. Gulyuz, C. Izzo, D.J. Morrissey, M. Redshaw, R. Ringle, R. Sandler, S. Schwarz, C.S. Sumithrarachchi, A.C.C. Villari |
| 2015Va10 | PRVCA | 92, | 014325 | C. Van Beveren, A.N. Andreyev, A.E. Barzakh, T.E. Cocolios, D. Fedorov, V.N. Fedosseev, R. Ferrer, M. Huyse, U. Köster, J. Lane, V. Liberati, K.M. Lynch, B.A. Marsh, T.J. Procter, D. Radulov, E. Rapisarda, K. Sandhu, M.D. Seliverstov, P. Van Duppen, M. Venhart, M. Veselsky |
| 2015Vo05 | PRVCA | 91, | 044307 | A. Voss, F. Buchinger, B. Cheal, J.E. Crawford, J. Dilling, M. Kortelainen, A.A. Kwiatkowski, A. Leary, C.D.P. Levy, F. Mooshammer, M.L. Ojeda, M.R. Pearson, T.J. Procter, W. Al Tamimi |
| 2015Wa06 | PRLTA | 114, | 041101 | A. Wallner, M. Bichler, K. Buczak, R. Dressler, L.K. Fifield, D. Schumann, J.H. Sterba, S.G. Tims, G. Wallner, W. Kutschera |
| 2015Wa28 | PRVCA | 92, | 034317 | E.H. Wang, A. Lemasson, J.H. Hamilton, A.V. Ramayya, J.K. Hwang, J.M. Eldridge, A. Navin, M. Rejmund, S. Bhattacharyya, S.H. Liu, N.T. Brewer, Y.X. Luo, J.O. Rasmussen, H.L. Liu, H. Zhou, Y.X. Liu, H.J. Li, Y. Sun, F.R. Xu, S.J. Zhu, G.M. Ter-Akopian, Yu. Ts. Oganessian, M. Caamano, E. Clément, O. Delaune, F. Farget, G. de France, B. Jacquot |
| 2015Wi02 | NIMAE | 769, | 65 | K. Wimmer, D. Barofsky, D. Bazin, L.M. Fraile, J. Lloyd, J.R. Tompkins, S.J. Williams |
| 2015Wi.A | PrvCom | GAu | Jan | F. Wienholtz |
| 2015Wr02 | PRVCA | 92, | 044327 | J. Wrzesinski, G.J. Lane, K.H. Maier, R.V.F. Janssens, G.D. Dracoulis, R. Broda, A.P. Byrne, M.P. Carpenter, R.M. Clark, M. Cromaz, B. Fornal, T. Lauritsen, A.O. Macchiavelli, M. Rejmund, B. Szpak, K. Vetter, S. Zhu |
| 2015Xu14 | CPCHC | 39, | 104001 | X. Xu, M. Wang, Y.-H. Zhang, H.-S. Xu, P. Shuai, X.-L. Tu, Y.A. Litvinov, X.-H. Zhou, B.-H. Sun, Y.-J. Yuan, J.-W. Xia, J.-C. Yang, K. Blaum, R.-J. Chen, X.-C. Chen, C.-Y. Fu, Z. Ge, Z.-G. Hu, W.-J. Huang, D.-W. Liu, Y.-H. Lam, X.-W. Ma, R.-S. Mao, T. Uesaka, G.-Q. Xiao, Y.-M. Xing, T. Yamaguchi, Y. Yamaguchi, Q. Zeng, X.-L. Yan, H.-W. Zhao, T.-C. Zhao, W. Zhang, W.-L. Zhan |
| 2015Ya13 | EPJAA | 51, | 88 | H.B. Yang, Z.Y. Zhang, J.G. Wang, Z.G. Gan, L. Ma, L. Yu, J. Jiang, Y.L. Tian, B. Ding, S. Guo, Y.S. Wang, T.H. Huang, M.D. Sun, K.L. Wang, S.G. Zhou, Z.Z. Ren, X.H. Zhou, H.S. Xu, G.Q. Xiao |

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| 2015YaZW | JUPSC | 6, | 030019 | A. Yagi, A. Odahara, R. Daido, Y. Fang, H. Nishibata, R. Lozeva, C.-B. Moon, S. Nishimura, P. Doornenbal, G. Lorusso, P.-A. Söderström, T. Sumikama, H. Watanabe, T. Isobe, H. Baba, H. Sakurai, F. Browne, Z. Patel, S. Rice, L. Sinclair, J. Wu, Z.Y. Xu, R. Yokoyama, T. Kubo, N. Inabe, H. Suzuki, N. Fukuda, D. Kameda, H. Takeda, D.S. Ahn, D. Murai, F.L. Bello Garrote, J.M. Daugas, F. Didierjean, E. Ideguchi, T. Ishigaki, H.S. Jung, T. Komatsubara, Y.K. Kwon, C.S. Lee, P.S. Lee, S. Morimoto, M. Niikura, I. Nishizuka, T. Shimoda, K. Tshoo |
| 2015YoZX | JUPSC | 6, | 030021 | R. Yokoyama, E. Ideguchi, G. Simpson, M. Tanaka, S. Nishimura, P. Doornenbal, P.-A. Söderström, G. Lorusso, Z. Xu, J. Wu, T. Sumikama, N. Aoi, H. Baba, F. Bello, F. Browne, R. Daido, Y. Fang, N. Fukuda, G. Gey, S. Go, N. Inabe, T. Isobe, D. Kameda, K. Kobayashi, M. Kobayashi, T. Komatsubara, T. Kubo, I. Kuti, Z. Li, M. Matsushita, S. Michimasa, C.-B. Moon, H. Nishibata, I. Nishizuka, A. Odahara, Z. Patel, S. Rice, E. Sahin, L. Sinclair, H. Suzuki, H. Takeda, J. Taprogge, Z. Vajta, H. Watanabe, A. Yagi |
| 2015Za13 | MTRGA | 52, | 280 | S.L. Zafonte, R.S. Van Dyck Jr |
| 2015ZaZY | JPCSD | 630, | 012011 | G.S. Zahn, F.A. Genezini |
| 2016 | | | | |
| 2016Ab03 | PYLBB | 759, | 64 | K. Abe, for the XMASS Collaboration |
| 2016Ag03 | NIMAE | 807, | 69 | J. Agramunt, J.L. Tain, M.B. Gómez Hornillos, A.R. Garcia, F. Albiol, A. Algora, R. Caballero-Folch, F. Calvino, D. Cano-Ott, G. Cortés, C. Domingo-Pardo, T. Eronen, W. Gelletly, D. Gorelov, V. Gorlychev, H. Hakala, A. Jokinen, M.D. Jordan, A. Kankainen, V. Kolhinen, L. Kucuk, T. Martinez, P.J.R. Mason, I. Moore, H. Penttilä, Zs. Podolyák, C. Pretel, M. Reponen, A. Riego, J. Rissanen, B. Rubio, A. Saastamoinen, A. Tarifeno-Saldivia, E. Valencia |
| 2016Ai01 | ARISE | 110, | 59 | P.M. Aitken-Smith, S.M. Collins |
| 2016Al03 | PRLTA | 116, | 072501 | M. Alanssari, D. Frekers, T. Eronen, L. Canete, J. Dilling, M. Haaranen, J. Hakala, M. Holl, M. Jeskovský, A. Jokinen, A. Kankainen, J. Koponen, A.J. Mayer, I.D. Moore, D.A. Nesterenko, I. Pohjalainen, P. Povinec, J. Reinikainen, S. Rinta-Antila, P.C. Srivastava, J. Suhonen, R.I. Thompson, A. Voss, M.E. Wieser |
| 2016Al10 | PRVCA | 93, | 044325 | M.F. Alshudifat, R. Grzywacz, M. Madurga, C.J. Gross, K.P. Rykaczewski, J.C. Batchelder, C. Bingham, I.N. Borzov, N.T. Brewer, L. Cartegni, A. Fijalkowska, J.H. Hamilton, J.K. Hwang, S.V. Ilyushkin, C. Jost, M. Karny, A. Korgul, W. Krolas, S.H. Liu, C. Mazzocchi, A.J. Mendez, K. Miernik, D. Miller, S.W. Padgett, S.V. Paulauskas, A.V. Ramayya, D.W. Stracener, R. Surman, J.A. Winger, M. Wolinska-Cichocka, E.F. Zganjar |
| 2016As01 | NUPAB | 946, | 171 | K. Asakura, A. Gando, Y. Gando, T. Hachiya, S. Hayashida, H. Ikeda, K. Inoue, K. Ishidoshiro, T. Ishikawa, S. Ishio, M. Koga, S. Matsuda, T. Mitsui, D. Motoki, K. Nakamura, S. Obara, M. Otani, T. Oura, I. Shimizu, Y. Shirahata, J. Shirai, A. Suzuki, H. Tachibana, K. Tamae, K. Ueshima, H. Watanabe, B.D. Xu, H. Yoshida, A. Kozlov, Y. Takemoto, S. Yoshida, K. Fushimi, T.I. Banks, B.E. Berger, B.K. Fujikawa, T. O'Donnell, L.A. Winslow, Y. Efremenko, H.J. Karwowski, D.M. Markoff, W. Tornow, J.A. Detwiler, S. Enomoto, M.P. Decowski |
| 2016Be11 | PRVCA | 93, | 045502 | P. Belli, R. Bernabei, V.B. Brudanin, F. Cappella, V. Caracciolo, R. Cerulli, D.M. Chernyak, F.A. Danevich, S. d'Angelo, A. Di Marco, A. Incicchitti, M. Laubenstein, V.M. Mokina, D.V. Poda, O.G. Polischuk, V.I. Tretyak, I.A. Tupitsyna |
| 2016Br01 | PRVCA | 93, | 025503 | M. Brodeur, C. Nicoloff, T. Ahn, J. Allen, D.W. Bardayan, F.D. Becchetti, Y.K. Gupta, M.R. Hall, O. Hall, J. Hu, J.M. Kelly, J.J. Kolata, J. Long, P. O'Malley, B.E. Schultz |

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|----------|--------------|------|--------|---|
| 2016Ca15 | PRVCA | 93, | 034307 | R.J. Carroll, R.D. Page, D.T. Joss, D. O'Donnell, J. Uusitalo, I.G. Darby, K. Andgren, K. Auranen, S. Bonig, B. Cederwall, M. Doncel, M.C. Drummond, S. Eeckhaudt, T. Grahm, C. Gray-Jones, P.T. Greenlees, B. Hadinia, A. Herzan, U. Jakobsson, P.M. Jones, R. Julin, S. Juutinen, J. Konki, T. Kroll, M. Leino, A.-P. Leppanen, C. McPeake, M. Nyman, J. Pakarinen, J. Partanen, P. Peura, P. Rahkila, J. Revill, P. Ruotsalainen, M. Sandzelius, J. Saren, B. Saygi, C. Scholey, D. Seweryniak, J. Simpson, J. Sorri, S. Stolze, M.J. Taylor, A. Thornthwaite |
| 2016Ca22 | EPJAA | 52, | 124 | L. Canete, A. Kankainen, T. Eronen, D. Gorelov, J. Hakala, A. Jokinen, V.S. Kolhinen, J. Koponen, I.D. Moore, J. Reinikainen, S. Rinta-Antila |
| 2016Ca25 | PRLTA | 117, | 012501 | R. Caballero-Folch, C. Domingo-Pardo, J. Agramunt, A. Algora, F. Ameil, A. Arcones, Y. Ayyad, J. Benlliure, I.N. Borzov, M. Bowry, F. Calvino, D. Cano-Ott, G. Cortes, T. Davinson, I. Dillmann, A. Estrade, A. Evdokimov, T. Faestermann, F. Farinon, D. Galaviz, A.R. Garcia, H. Geissel, W. Gellert, R. Gernhauser, M.B. Gomez Hornillos, C. Guerrero, M. Heil, C. Hinke, R. Knöbel, I. Kojouharov, J. Kurcewicz, N. Kurz, Yu. A. Litvinov, L. Maier, J. Marganec, T. Marketin, M. Marta, T. Martinez, G. Martinez-Pinedo, F. Montes, I. Mukha, D.R. Napoli, C. Nociforo, C. Paradela, S. Pietri, Zs. Podolyák, A. Prochazka, S. Rice, A. Riego, B. Rubio, H. Schaffner, Ch. Scheidenberger, K. Smith, E. Sokol, K. Steiger, B. Sun, J.L. Tain, M. Takechi, D. Testov, H. Weick, E. Wilson, J.S. Winfield, R. Wood, P. Woods, A. Yeremin |
| 2016Ca33 | PRVCA | 94, | 024314 | L. Capponi, J.F. Smith, P. Ruotsalainen, C. Scholey, P. Rahkila, K. Auranen, L. Bianco, A.J. Boston, H.C. Boston, D.M. Cullen, X. Derkx, M.C. Drummond, T. Grahm, P.T. Greenlees, L. Grocutt, B. Hadinia, U. Jakobsson, D.T. Joss, R. Julin, S. Juutinen, M. Labiche, M. Leino, K.G. Leach, C. McPeake, K.F. Mulholland, P. Nieminen, D. O'Donnell, E.S. Paul, P. Peura, M. Sandzelius, J. Saren, B. Saygi, J. Sorri, S. Stolze, A. Thornthwaite, M.J. Taylor, J. Uusitalo |
| 2016Ca.1 | JLTPA | 184, | 952 | N. Casali, A. Dubovik, S. Nagorny, S. Nisi, F. Orio, L. Pattavina, S. Pirro, K. Schöffner, I. Tupitsyna, A. Yakubovskaya |
| 2016Ce02 | PRLTA | 116, | 162501 | I. Celikovic, M. Lewitowicz, R. Gernhäuser, R. Krücken, S. Nishimura, H. Sakurai, D.S. Ahn, H. Baba, B. Blank, A. Blazhev, P. Boutachkov, F. Browne, G. de France, P. Doornenbal, T. Faestermann, Y. Fang, N. Fukuda, J. Giovannozzo, N. Goel, M. Górski, S. Ilieva, N. Inabe, T. Isobe, A. Jungclaus, D. Kameda, Y.-K. Kim, Y.K. Kwon, I. Kojouharov, T. Kubo, N. Kurz, G. Lorusso, D. Lubos, K. Moschner, D. Murai, I. Nishizuka, J. Park, Z. Patel, M. Rajabali, S. Rice, H. Schaffner, Y. Shimizu, L. Sinclair, P.-A. Söderström, K. Steiger, T. Sumikama, H. Suzuki, H. Takeda, Z. Wang, H. Watanabe, J. Wu, Z. Xu |
| 2016Ch11 | PRVCA | 93, | 034610 | P.A. Chodash, J.T. Burke, E.B. Norman, S.C. Wilks, R.J. Casperson, S.E. Fisher, K.S. Holliday, J.R. Jeffries, M.A. Wakeling |
| 2016Co01 | ARISE | 108, | 143 | S.M. Collins, A.V. Harms, P.H. Regan |
| 2016De15 | PYLBB | 758, | 26 | F. de Grancey, A. Mercenne, F. de Oliveira Santos, T. Davinson, O. Sorlin, J.C. Angeique, M. Assie, E. Berthoumieux, R. Borcea, A. Buta, I. Celikovic, V. Chudoba, J.M. Daugas, G. Dumitru, M. Fadil, S. Grevy, J. Kiener, A. Lefebvre-Schuhl, N. Michel, J. Mrazek, F. Negoita, J. Okolowicz, D. Pantelica, M.G. Pellegriti, L. Perrot, M. Ploszajczak, G. Randisi, I. Ray, O. Roig, F. Rotaru, M.G. Saint Laurent, N. Smirnova, M. Stanoiu, I. Stefan, C. Stodel, K. Subotic |
| 2016De.A | Th.-Bordeaux | | | A. de Roubin, updates provisional values given in 2015Ma. A |
| 2016Du10 | PRLTA | 116, | 172501 | M.R. Dunlop, C.E. Svensson, G.C. Ball, G.F. Grinyer, J.R. Leslie, C. Andreoiu, R.A.E. Austin, T. Ballast, P.C. Bender, V. Bildstein, A. Diaz Varela, R. Dunlop, A.B. Garnsworthy, P.E. Garrett, G. Hackman, B. Hadinia, D.S. Jamieson, A.T. Laffoley, A.D. MacLean, D.M. Miller, W.J. Mills, J. Park, A.J. Radich, M.M. Rajabali, E.T. Rand, C. Unsworth, A. Valencik, Z.M. Wang, E.F. Zganjar |

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| 2016Du13 | PRVCA | 93, | 062801 | R. Dunlop, V. Bildstein, I. Dillmann, A. Jungclaus, C.E. Svensson, C. Andreoiu, G.C. Ball, N. Bernier, H. Bidaman, P. Boubel, C. Burbadge, R. Caballero-Folch, M.R. Dunlop, L.J. Evitts, F. Garcia, A.B. Garnsworthy, P.E. Garrett, G. Hackman, S. Hallam, J. Henderson, S. Ilyushkin, D. Kisliuk, R. Krucken, J. Lassen, R. Li, E. MacConnachie, A.D. MacLean, E. McGee, M. Moukaddam, B. Olaizola, E. Padilla-Rodal, J. Park, O. Paetkau, C.M. Petrache, J.L. Pore, A.J. Radich, P. Ruotsalainen, J. Smallcombe, J.K. Smith, S.L. Tabor, A. Teigelhofer, J. Turko, T. Zidar |
| 2016Dz01 | ARISE | 109, | 345 | T. Dziel, A. Listkowska, Z. Tyminski |
| 2016Ei01 | PRVCA | 94, | 015502 | M. Eibach, G. Bollen, K. Gulyuz, C. Izzo, M. Redshaw, R. Ringle, R. Sandler, A.A. Valverde |
| 2016Fe04 | ARISE | 109, | 151 | A.J. Fenwick, K.M. Ferreira, S.M. Collins |
| 2016Fi07 | PYLBB | 758, | 407 | P. Filianin, S. Schmidt, K. Blaum, M. Block, S. Eliseev, F. Giacoppo, M. Goncharov, F. Lautenschlaeger, Yu. Novikov, K. Takahashi |
| 2016Fo16 | PYLBB | 760, | 293 | U. Forsberg, D. Rudolph, C. Fahlander, P. Golubev, L.G. Sarmiento, S. Aberg, M. Block, Ch. E. Düllmann, F.P. Hessberger, J.V. Kratz, A. Yakushev |
| 2016Ga24 | ARISE | 109, | 314 | E. García-Torano, V. Peyrés, M. Roteta, A.I. Sánchez-Cabezudo, E. Romero, A. Martínez Ortega |
| 2016Ga.1 | PRVCA to be pd | | | A.T. Gallant et al |
| 2016Gu02 | PRLTA | 116, | 012501 | K. Gulyuz, G. Bollen, M. Brodeur, R.A. Bryce, K. Cooper, M. Eibach, C. Izzo, E. Kwan, K. Manukyan, D.J. Morrissey, O. Naviliat-Cuncic, M. Redshaw, R. Ringle, R. Sandler, S. Schwarz, C.S. Sumithrarachchi, A.A. Valverde, A.C.C. Villari |
| 2016Gu.A | PrvCom | FGK | Sep | L.A. Gurgi et al. |
| 2016Ha.A | PrvCom | FGK | Aug | D.J. Hartley |
| 2016Ho13 | PRVCA | 94, | 021303 | S.S. Hota, S.K. Tandel, P. Chowdhury, I. Ahmad, M.P. Carpenter, C.J. Chiara, J.P. Greene, C.R. Hoffman, E.G. Jackson, R.V.F. Janssens, B.P. Kay, T.L. Khoo, F.G. Kondev, S. Lakshmi, S. Lalkovski, T. Lauritsen, C.J. Lister, E.A. McCutchan, K. Moran, D. Peterson, U. Shirwadkar, D. Seweryniak, I. Stefanescu, Y. Toh, S. Zhu |
| 2016Ho.A | Th-Heidelberg | | | M.J. Höcker |
| 2016Hu.A | B-Bruges | | | W.J. Huang |
| 2016Is03 | PRVCA | 93, | 014303 | L.W. Iskra, R. Broda, R.V.F. Janssens, C.J. Chiara, M.P. Carpenter, B. Fornal, N. Hoteling, F.G. Kondev, W. Krolas, T. Lauritsen, T. Pawlat, D. Seweryniak, I. Stefanescu, W.B. Walters, J. Wrzesinski, S. Zhu |
| 2016Ju.A | PrvCom | FGK | Sep | A. Jungclaus et al. |
| 2016Ka13 | JUPSA | 85, | 015002 | D. Kaji, K. Morimoto, H. Haba, E. Ideguchi, H. Koura, K. Morita |
| 2016Ka15 | PRVCA | 93, | 041304 | A. Kankainen, L. Canete, T. Eronen, J. Hakala, A. Jokinen, J. Koponen, I.D. Moore, D. Nesterenko, J. Reinikainen, S. Rinta-Antila, A. Voss, J. Aysto |
| 2016Kl04 | PRVCA | 93, | 045807 | R. Klawitter, A. Bader, M. Brodeur, U. Chowdhury, A. Chaudhuri, J. Fallis, A.T. Gallant, A. Grossheim, A.A. Kwiatkowski, D. Lascar, K.G. Leach, A. Lennarz, T.D. Macdonald, J. Pearkes, S. Seeraji, M.C. Simon, V.V. Simon, B.E. Schultz, J. Dilling |
| 2016Kn02 | PYLBB | 754, | 288 | R. Knöbel, M. Diwisch, F. Bosch, D. Boutin, L. Chen, C. Dimopoulou, A. Dolinskii, B. Franczak, B. Franzke, H. Geissel, M. Hausmann, C. Kozhuharov, J. Kurciewicz, S.A. Litvinov, G. Martinez-Pinedo, M. Matos, M. Mazzocco, G. Münzenberg, S. Nakajima, C. Nociforo, F. Nolden, T. Ohtsubo, A. Ozawa, Z. Patyk, W.R. Plaß, C. Scheidenberger, J. Stadlmann, M. Steck, B. Sun, T. Suzuki, P.M. Walker, H. Weick, M.-R. Wu, M. Winkler, T. Yamaguchi |
| 2016Kn03 | EPJAA | 52, | 138 | R. Knöbel, M. Diwisch, H. Geissel, Yu. A. Litvinov, Z. Patyk, W.R. Plaß, C. Scheidenberger, B. Sun, H. Weick, F. Bosch, D. Boutin, L. Chen, C. Dimopoulou, A. Dolinskii, B. Franczak, B. Franzke, M. Hausmann, C. Kozhuharov, J. Kurciewicz, S.A. Litvinov, M. Matos, M. Mazzocco, G. Münzenberg, S. Nakajima, C. Nociforo, F. Nolden, T. Ohtsubo, A. Ozawa, J. Stadlmann, M. Steck, T. Suzuki, P.M. Walker, M. Winkler, T. Yamaguchi |

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| 2016Ko05 | PRVCA | 93, | 014613 | N. Kobayashi, T. Nakamura, Y. Kondo, J.A. Tostevin, N. Aoi, H. Baba, R. Barthelemy, M.A. Famiano, N. Fukuda, N. Inabe, M. Ishihara, R. Kanungo, S. Kim, T. Kubo, G.S. Lee, H.S. Lee, M. Matsushita, T. Motobayashi, T. Ohnishi, N.A. Orr, H. Otsu, T. Sako, H. Sakurai, Y. Satou, T. Sumikama, H. Takeda, S. Takeuchi, R. Tanaka, Y. Togano, K. Yoneda |
| 2016Ko11 | PRLTA | 116, | 102503 | Y. Kondo, T. Nakamura, R. Tanaka, R. Minakata, S. Ogoshi, N.A. Orr, N.L. Achouri, T. Aumann, H. Baba, F. Delaunay, P. Doornenbal, N. Fukuda, J. Gibelin, J.W. Hwang, N. Inabe, T. Isobe, D. Kameda, D. Kanno, S. Kim, N. Kobayashi, T. Kobayashi, T. Kubo, S. Leblond, J. Lee, F.M. Marqués, T. Motobayashi, D. Murai, T. Murakami, K. Muto, T. Nakashima, N. Nakatsuka, A. Navin, S. Nishi, H. Otsu, H. Sato, Y. Satou, Y. Shimizu, H. Suzuki, K. Takahashi, H. Takeda, S. Takeuchi, Y. Togano, A.G. Tuff, M. Vandebrout, K. Yoneda |
| 2016Ko24 | PRVCA | 93, | 064324 | A. Korgul, K.P. Rykaczewski, R.K. Grzywacz, C.R. Bingham, N.T. Brewer, C.J. Gross, A.A. Ciemny, C. Jost, M. Karny, M. Madurga, C. Mazzocchi, A.J. Mendez, K. Miernik, D. Miller, S. Padgett, S.V. Paulauskas, M. Piersa, D.W. Stracener, M. Stryczyk, M. Wolinska-Cichocka, E.F. Zganjar |
| 2016Ko.A | P-Adelaide | | Sept | F.G. Kondev |
| 2016Ko.B | PrvCom | FGK | Oct | F.G. Kondev |
| 2016Kw.A | PrvCom | GAu | Apr | A.A. Kwiakowski |
| 2016La.A | PrvCom | Hwj | Aug | D. Lascar |
| 2016Li01 | NIMAE | 808, | 117 | L.L. Liu, X.L. Huang, M.X. Kang, G.C. Chen, J.M. Wang, L.Y. Jiang |
| 2016Lo01 | PRVCA | 93, | 014316 | R. Lozeva, H. Naïdja, F. Nowacki, J. Dudek, A. Odahara, C.-B. Moon, S. Nishimura, P. Doornenbal, J.-M. Daugas, P.-A. Söderström, T. Sumikama, G. Lorusso, J. Wu, Z.Y. Xu, H. Baba, F. Browne, R. Daido, Y. Fang, T. Isobe, I. Kojouharov, N. Kurz, Z. Patel, S. Rice, H. Sakurai, H. Schaffner, L. Sinclair, H. Watanabe, A. Yagi, R. Yokoyama, T. Kubo, N. Inabe, H. Suzuki, N. Fukuda, D. Kameda, H. Takeda, D.S. Ahn, D. Murai, F.L. Bello Garrote, F. Didierjean, E. Ideguchi, T. Ishigaki, H.S. Jung, T. Komatsubara, Y.K. Kwon, P. Lee, C.S. Lee, S. Morimoto, M. Niikura, H. Nishibata, I. Nishizuka |
| 2016Ly01 | PRVCA | 93, | 014319 | K.M. Lynch, T.E. Cocolios, J. Billowes, M.L. Bissell, I. Budincevic, T. Day Goodacre, R.P. de Groote, G.J. Farooq-Smith, V.N. Fedosseev, K.T. Flanagan, S. Franchoo, R.F. Garcia Ruiz, H. Heylen, R. Li, B.A. Marsh, G. Neyens, R.E. Rossel, S. Rothe, H.H. Stroke, K.D.A. Wendt, S.G. Wilkins, X. Yang |
| 2016Ma05 | PRVCA | 93, | 014310 | C.M. MacDonald, R.J. Cornett, C.R.J. Charles, X.L. Zhao, W.E. Kieser |
| 2016Ma50 | PRLTA | 117, | 092502 | M. Madurga, S.V. Paulauskas, R. Grzywacz, D. Miller, D.W. Bardayan, J.C. Batchelder, N.T. Brewer, J.A. Cizewski, A. Fijalkowska, C.J. Gross, M.E. Howard, S.V. Ilyushkin, B. Manning, M. Matos, A.J. Mendez, II, K. Miernik, S.W. Padgett, W.A. Peters, B.C. Rasco, A. Ratkiewicz, K.P. Rykaczewski, D.W. Stracener, E.H. Wang, M. Wolinska-Cichocka, E.F. Zganjar |
| 2016Ma.1 | PRVCA to be pd | | | V. Manea et al |
| 2016Ma.A | PrvCom | GAu | Feb | M. MacCormick |
| 2016Me07 | PRVCA | 93, | 035805 | Z. Meisel, R. George, S. Ahn, D. Bazin, B.A. Brown, J. Browne, J.F. Carpino, H. Chung, R.H. Cyburt, A. Estradé, M. Famiano, A. Gade, C. Langer, M. Matos, W. Mittig, F. Montes, D.J. Morrissey, J. Pereira, H. Schatz, J. Schatz, M. Scott, D. Shapira, K. Sieja, K. Smith, J. Stevens, W. Tan, O. Tarasov, S. Towers, K. Wimmer, J.R. Winkelbauer, J. Yurkon, R.G.T. Zegers |
| 2016Mo07 | PRVCA | 93, | 034328 | A.I. Morales, G. Benzoni, H. Watanabe, S. Nishimura, F. Browne, R. Daido, P. Doornenbal, Y. Fang, G. Lorusso, Z. Patel, S. Rice, L. Sinclair, P.-A. Soderstrom, T. Sumikama, J. Wu, Z.Y. Xu, A. Yagi, R. Yokoyama, H. Baba, R. Avigo, F.L. Bello Garrote, N. Blasi, A. Bracco, F. Camera, S. Ceruti, F.C.L. Crespi, G. de Angelis, M.-C. Delattre, Zs. Dombradi, A. Gottardo, T. Isobe, I. Kojouharov, N. Kurz, I. Kuti, K. Matsui, B. Melon, D. Mengoni, T. Miyazaki, V. Modamio-Hoyborg, S. Momiyama, D.R. Napoli, M. Niikura, R. Orlandi, H. Sakurai, E. Sahin, D. Sohler, H. Shaffner, R. Taniuchi, J. Taprogge, Zs. Vajta, J.J. Valiente-Dobon, O. Wieland, M. Yalcinkaya |

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| 2016Na02 | PRVCA | 93, | 014308 | E. Nacher, B. Rubio, A. Algora, D. Cano-Ott, J.L. Tain, A. Gadea, J. Agramunt, M. Gierlik, M. Karny, Z. Janas, E. Roeckl, A. Blazhev, R. Collatz, J. Doring, M. Hellstrom, Z. Hu, R. Kirchner, I. Mukha, C. Plettner, M. Shibata, K. Rykaczewski, L. Batist, F. Moroz, V. Wittmann, J.J. Valiente-Dobon |
| 2016Or03 | PRVCA | 93, | 044336 | S.E.A. Orrigo, B. Rubio, Y. Fujita, W. Gelletly, J. Agramunt, A. Algora, P. Ascher, B. Bilgier, B. Blank, L. Caceres, R.B. Cakirli, E. Ganioglu, M. Gerbaux, J. Giovinazzo, S. Grevy, O. Kamalou, H.C. Kozor, L. Kucuk, T. Kurtukian-Nieto, F. Molina, L. Popescu, A.M. Rogers, G. Susoy, C. Stodel, T. Suzuki, A. Tamii, J.C. Thomas |
| 2016Or08 | PRVCA | 94, | 044315 | S.E.A. Orrigo, B. Rubio, W. Gelletly, B. Blank, Y. Fujita, J. Giovinazzo, J. Agramunt, A. Algora, P. Ascher, B. Bilgier, L. Caceres, R.B. Cakirli, G. de France, E. Ganioglu, M. Gerbaux, S. Grevy, O. Kamalou, H.C. Kozor, Y. Kucuk, T. Kurtukian-Nieto, F. Molina, L. Popescu, A.M. Rogers, G. Susoy, C. Stodel, T. Suzuki, A. Tamii, J.C. Thomas |
| 2016Pa01 | PYLBB | 753, | 182 | Z. Patel, Zs. Podolyák, P.M. Walker, P.H. Regan, P.-A. Söderström, H. Watanabe, E. Ideguchi, G.S. Simpson, S. Nishimura, F. Browne, P. Doornenbal, G. Lorusso, S. Rice, L. Sinclair, T. Sumikama, J. Wu, Z.Y. Xu, N. Aoi, H. Baba, F.L. Bello Garrote, G. Benzoni, R. Daido, Zs. Dombrádi, Y. Fang, N. Fukuda, G. Gey, S. Go, A. Gottardo, N. Inabe, T. Isobe, D. Kameda, K. Kobayashi, M. Kobayashi, T. Komatsubara, I. Kojouharov, T. Kubo, N. Kurz, I. Kuti, Z. Li, H.L. Liu, M. Matsushita, S. Michimasa, C.-B. Moon, H. Nishibata, I. Nishizuka, A. Odahara, E. Sahin, H. Sakurai, H. Schaffner, H. Suzuki, H. Takeda, M. Tanaka, J. Taprogge, Zs. Vajta, F.R. Xu, A. Yagi, R. Yokoyama |
| 2016Pe14 | PRVCA | 94, | 024319 | C. Petrone, J.M. Daugas, G.S. Simpson, M. Stanoiu, C. Plaisir, T. Faul, C. Borcea, R. Borcea, L. Caceres, S. Calinescu, R. Chevrier, L. Gaudefroy, G. Georgiev, G. Gey, O. Kamalou, F. Negoita, F. Rotaru, O. Sorlin, J.C. Thomas |
| 2016Qu01 | ARISE | 109, | 172 | F.G.A. Quarati, P. Dorenbos, X. Mougeot |
| 2016Re01 | PYLBB | 752, | 296 | J. Refsgaard, O.S. Kirsebom, E.A. Dijk, H.O.U. Fynbo, M.V. Lund, M.N. Portela, R. Raabe, G. Randisi, F. Renzi, S. Sami, A. Sytema, L. Willmann, H.W. Wilschut |
| 2016Re02 | PYLBB | 752, | 311 | M.W. Reed, G.J. Lane, G.D. Dracoulis, F.G. Kondev, M.P. Carpenter, P. Chowdhury, S.S. Hota, R.O. Hughes, R.V.F. Janssens, T. Lauritsen, C.J. Lister, N. Palalani, D. Seweryniak, H. Watanabe, S. Zhu, W.G. Jiang, F.R. Xu |
| 2016Re14 | PRVCA | 94, | 024619 | F. Renzi, R. Raabe, G. Randisi, D. Smirnov, C. Angulo, J. Cabrera, E. Casarejos, Th. Keutgen, A. Ninane, J.L. Charvet, A. Gillibert, V. Lapoux, L. Nalpas, A. Obertelli, F. Skaza, J.L. Sida, N.A. Orr, S.I. Sidorchuk, R. Wolski, M.J.G. Borge, D. Escrig |
| 2016Sc.A | PrvCom | SNa | Feb | P. Schury et al very preliminary |
| 2016So.A | PrvCom | FGK | Apr | P.-A. Söderström et al |
| 2016Su10 | PYLBB | 756, | 323 | J. Su, W.P. Liu, N.T. Zhang, Y.P. Shen, Y.H. Lam, N.A. Smirnova, M. MacCormick, J.S. Wang, L. Jing, Z.H. Li, Y.B. Wang, B. Guo, S.Q. Yan, Y.J. Li, S. Zeng, G. Lian, X.C. Du, L. Gan, X.X. Bai, Z.C. Gao, Y.H. Zhang, X.H. Zhou, X.D. Tang, J.J. He, Y.Y. Yang, S.L. Jin, P. Ma, J.B. Ma, M.R. Huang, Z. Bai, Y.J. Zhou, W.H. Ma, J. Hu, S.W. Xu, S.B. Ma, S.Z. Chen, L.Y. Zhang, B. Ding, Z.H. Li, G. Audi |
| 2016Ub01 | PYLBB | 754, | 323 | E. Uberseder, G.V. Rogachev, V.Z. Goldberg, E. Koshchiy, B.T. Roeder, M. Alcorta, G. Chubarian, B. Davids, C. Fu, J. Hooker, H. Jayatissa, D. Melconian, R.E. Tribble |
| 2016Ur03 | PRVCA | 94, | 011302 | W. Urban, U. Koster, M. Jentschel, P. Mutti, B. Markisch, T. Rzaca-Urban, Ch. Bernards, Ch. Fransen, J. Jolie, T. Thomas, G.S. Simpson |
| 2016Va01 | JPGPE | 43, | 025102 | C. Van Beveren, A.N. Andreyev, A.E. Barzakh, T.E. Cocolios, R.P. de Groote, D. Fedorov, V.N. Fedosseev, R. Ferrer, L. Ghys, M. Huyse, U. Köster, J. Lane, V. Liberati, K.M. Lynch, B.A. Marsh, P.L. Molkanov, T.J. Procter, E. Rapisarda, K. Sandhu, M.D. Seliverstov, P. Van Duppen, M. Venhart, M. Veselský |
| 2016Wa16 | PRVCA | 93, | 054301 | Z.M. Wang, A.B. Garnsworthy, C. Andreoiu, G.C. Ball, P.C. Bender, V. Bildstein, D.S. Cross, G. Demand, R. Dunlop, L.J. Evit ts, P.E. Garrett, G. Hackman, B. Hadinia, S. Ketelhut, R. Krucken, K.G. Leach, A.T. Laffoley, D. Miller, M. Moukaddam, J. Pore, A.J. Radich, M.M. Rajabali, C.E. Svensson, A. Tan, E. Tardiff, C. Unsworth, A. Voss, P. Voss |

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|----------|--------|------|--------|---|
| 2016Wa19 | PYLBB | 760, | 641 | H. Watanabe, G.X. Zhang, K. Yoshida, P.M. Walker, J.J. Liu, J. Wu, P.H. Regan, P.-A. Soderstrom, H. Kanaoka, Z. Korkulu, P.S. Lee, S. Nishimura, A. Yagi, D.S. Ahn, T. Alharbi, H. Baba, F. Browne, A.M. Bruce, R.J. Carroll, K.Y. Chae, Zs. Dombradi, P. Doornenbal, A. Estrade, N. Fukuda, C. Griffin, E. Ideguchi, N. Inabe, T. Isobe, S. Kanaya, I. Kojouharov, F.G. Kondev, T. Kubo, S. Kubono, N. Kurz, I. Kuti, S. Lalkovski, G.J. Lane, C.S. Lee, E.J. Lee, G. Lorusso, G. Lotay, C.-B. Moon, I. Nishizuka, C.R. Nita, A. Odahara, Z. Patel, V.H. Phong, Zs. Podolyak, O.J. Roberts, H. Sakurai, H. Schaffner, C.M. Shand, Y. Shimizu, T. Sumikama, H. Suzuki, H. Takeda, S. Terashima, Zs. Vajta, J.J. Valiente-Dobon, Z.Y. Xu |
| 2016We07 | NATUA | 533, | 47 | L. v. d. Wense, B. Seiferle, M. Laatiaoui, J.B. Neumayr, H.-J. Maier, H.-F. Wirth, C. Mokry, J. Runke, Kl. Eberhardt, C.E. Dullmann, N.G. Trautmann, P.G. Thirolf |
| 2016We.A | PrvCom | HWJ | Nov | A. Welker et al |
| 2016Wu.A | PrvCom | FGK | Sep | J. Wu et al |
| 2016Xi.A | PrvCom | WgM | Jul | Y.M. Xing |
| 2016Xu10 | PRLTA | 117, | 182503 | X. Xu, P. Zhang, P. Shuai, R.J. Chen, X.L. Yan, Y.H. Zhang, M. Wang, Yu. A. Litvinov, H.S. Xu, T. Bao, X.C. Chen, H. Chen, C.Y. Fu, S. Kubono, Y.H. Lam, D.W. Liu, R.S. Mao, X.W. Ma, M.Z. Sun, X.L. Tu, Y.M. Xing, J.C. Yang, Y.J. Yuan, Q. Zeng, X. Zhou, X.H. Zhou, W.L. Zhan, S. Litvinov, K. Blaum, G. Audi, T. Uesaka, Y. Yamaguchi, T. Yamaguchi, A. Ozawa, B.H. Sun, Y. Sun, A.C. Dai, F.R. Xu |
| 2016Ya.A | PrvCom | SNa | Apr | A. Yagi updates 2015Ya.1 |
| 2016Zh.A | PrvCom | WgM | May | P. Zhang et al |
| 2017 | | | | |
| 2017Ma.A | PrvCom | GAu | Feb | V. Manea, updates provisional values given in 2015Ma. A |
| 2017Mo.A | PrvCom | GAu | Feb | M. Mougeot, updates provisional values given in 2015Ma. A |