CROSS SECTIONS FOR RADIATIVE RECOMBINATION AND THE PHOTOELECTRIC EFFECT IN THE *K*, *L*, AND *M* SHELLS OF ONE-ELECTRON SYSTEMS WITH $1 \leq Z \leq 112$ CALCULATED WITHIN AN EXACT RELATIVISTIC DESCRIPTION

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An extensive tabulation of total cross sections for radiative recombination and, consequently, for the photoelectric effect of hydrogenlike ions with charge numbers $1 \leq Z \leq 112$ is presented for the *K*, *L*, and *M* shells and electron energies ranging from closely above the threshold to the relativistic regime. The cross sections, accurate to three digits, are based on fully relativistic calculations including the effects of the finite nuclear size and all multipole orders of the photon field. The cross sections for radiative recombination are displayed as a function of the electron energy. By a simple scaling, the dependence on the projectile energy in MeV/u can be derived for accelerator experiments, and, by using elementary formulas, the cross section for the photoelectric effect is obtained as a function of the photon energy. Furthermore, it is pointed out how to scale the cross sections for the capture of heavy Dirac particles. In order to assess the accuracy of cross sections derived from the widely used nonrelativistic dipole approximation, we present a comparison with exact relativistic results for a few representative cases.   © 2000 Academic Press

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INTRODUCTION

Since the early days of quantum theory, the photoelectric effect has been a subject of continued interest. The first system to be treated theoretically was the hydrogen atom (see [1]). For atoms with $Z > 1$, multielectron effects play a role, so that in most cases one has to resort to approximate treatments. On the other hand, these complex systems are of great practical importance, for example, for the attenuation of radiation in matter. Specifically, for high-Z materials, the electrons, at least for the K shell, have to be treated relativistically (see, for example, [2–8]). Several systematic tabulations are available, partly for the K shell of a relativistic hydrogen-like system, but almost universally for multielectron systems [4, 9–14], where high precision has not always been the primary goal.

With the advent of heavy-ion accelerators and electron beam ion traps (EBIT) that are able to produce bare or hydrogen-like high-Z ions up to U^{92+}, new ways in which to study the photoeffect in single-electron systems have been found. While high-Z hydrogen-like ions cannot easily be used as targets for the photoelectric effect, it is possible to study the inverse reaction, namely radiative recombination (RR) of free electrons with bare ions, either in a trap or for projectiles. In radiative recombination, an electron is captured into an empty shell of the bare ion, and a photon is emitted simultaneously. This process plays an important role in plasma physics, in particular for the spectroscopic analysis of fusion plasmas. In accelerator experiments, because there are no free-electron targets available with high enough density, one observes radiative electron capture (REC) from low-Z target atoms, in which the loosely bound electrons can be considered as quasifree. Indeed, it has been shown recently [8, 15, 16] that for high-Z ions, the single-electron photoeffect is most efficiently studied by its inverse reaction, RR, which, to a very good approximation, is experimentally implemented as REC.

Motivation and Scope

The above-described method for investigating the photoelectric effect, as well as this method's importance for plasma physics, defines the need for providing RR cross sections over a wide range of nuclear charges and electron energies. Because, furthermore, RR or REC occurs as an omnipresent background in traps or in collisions involving bare high-Z ions, the need arises to subtract the RR or REC cross sections from measured cross sections in order to deduce the effects of physical interest. Existing tables for neutral multielectron atoms are often of limited value.

With this motivation in mind, we present tables of cross sections for RR into the K, L, and M shells of bare

ions ranging from $Z = 1$ to $Z = 112$. A dense mesh of Z values as in Refs. [11, 13] allows for comparison with all emerging data and facilitates accurate interpolation. Because we do not have to deal with many-electron effects, the emphasis of our tabulation is on accuracy. The tabulated cross sections are obtained from complete relativistic calculations using exact Coulomb–Dirac wave functions for the bound and for the continuum states modified for the finite nuclear size. They also include all multipole orders in the photon field. Our tabulated cross sections are accurate to three digits and should be considered to be the results of benchmark calculations. We here confine ourselves to total cross sections, deferring selected angular distributions to a future publication.

The RR cross sections presented in the Table are given as a function of the electron energy with respect to the ion, either for direct use in plasma physics or for the study of the photoelectric effect via radiative recombination. For accelerator experiments, the corresponding projectile energy per atomic mass unit is obtained by a simple scaling factor. As a means of orientation, the photon energy for RR into the K shell or, inversely, for the K shell photoeffect is also given. The corresponding energies for the L and M shells and the cross sections for the photoelectric effect can be derived from elementary formulas.

Theoretical Method

The differential cross section for ionizing a single electron from a shell n with angular momentum j_n by an unpolarized photon and using electron detectors insensitive to the spin of the emitted electron is given by [4–6]

$$\frac{d\sigma_{ph}}{d\Omega} = \frac{\alpha m_e c^2}{4\hbar\omega} \frac{\lambdabar_c^2}{2(2j_n + 1)} \sum_{\mu_n} \sum_{m_s} \sum_{\lambda} |M_{\mathbf{p},n}(m_s, \lambda, \mu_n)|^2. \tag{1}$$

Here $\lambdabar_c$ is the electron Compton wavelength, and we have averaged over the $(2j_n + 1)$ angular momentum projections μ_n in the bound state, over the circular polarizations $\lambda = \pm 1$ of the incoming photon and have summed over the spin components $m_s = \pm \frac{1}{2}$ of the emitted electron. The transition matrix element is

$$M_{\mathbf{p},n}(m_s, \lambda, \mu_n) = \int \psi_{\mathbf{p},m_s}^\dagger(\mathbf{r})\boldsymbol{\alpha}\cdot\hat{\mathbf{u}}_\lambda e^{i\mathbf{k}\cdot\mathbf{r}}\psi_{j_n,\mu_n}(\mathbf{r})d^3r, \tag{2}$$

where $\boldsymbol{\alpha}$ represents the set of Dirac matrices, $\hat{\mathbf{u}}_\lambda$ is the unit vector of photon polarization, and $\mathbf{k}$ is the photon wave vector. The initial bound state and the final state describing the relativistic electron emitted with asymptotic momentum $\mathbf{p}$ and spin projection m_s are represented by Dirac spinors. The bound-state wave function is characterized by a Dirac

quantum number $\kappa_n = \pm(j_n + \frac{1}{2})$ and the angular momentum projection μ_n. The radial wave functions $g_{\kappa_n}(r)$ and $f_{\kappa_n}(r)$ and the orbital angular momenta l_n and l'_n refer to the upper and lower components, respectively [6]. The continuum function is decomposed into partial waves, characterized by κ, with the corresponding radial functions $g_\kappa(r)$ and $f_\kappa(r)$.

After performing the spinor summations and the angular integrations for each partial wave, one is left with the quantities [5, 6]

$$F^\lambda_{\mu_n}(L, \kappa) = [A^\lambda_L(j_n\mu_n j; l'_n l)U_L(\kappa, \kappa_n)$$
$$- A^\lambda_L(j_n\mu_n j; l_n l')V_L(\kappa, \kappa_n)] \tag{3}$$

with

$$A^\lambda_L(j_n\mu_n j; l_1 l_2)$$
$$= (2L + 1)\sqrt{\frac{2l_1 + 1}{2l_2 + 1}}\langle l_1, \tfrac{1}{2}, \mu_n + \tfrac{\lambda}{2}, -\tfrac{\lambda}{2}|j_n, \mu_n\rangle$$
$$\times \langle l_2, \tfrac{1}{2}, \mu_n + \tfrac{\lambda}{2}, \tfrac{\lambda}{2}|j, \mu_n + \lambda\rangle$$
$$\times \langle l_1, L, \mu_n + \tfrac{\lambda}{2}, 0|l_2, \mu_n + \tfrac{\lambda}{2}\rangle\langle l_1, L, 0, 0|l_2, 0\rangle \tag{4}$$

and the radial integrals

$$U_L(\kappa, \kappa_n) = \int_0^\infty g_\kappa(r)j_L(kr)f_{\kappa_n}(r)r^2 dr$$

$$V_L(\kappa, \kappa_n) = \int_0^\infty f_\kappa(r)j_L(kr)g_{\kappa_n}(r)r^2 dr. \tag{5}$$

Here the quantities $\langle j_1, j_2, m_1, m_2|j, m\rangle$ are Clebsch–Gordan coefficients and the $j_L(kr)$ are spherical Bessel functions. With these definitions, the total photoelectric cross section per electron [5] is obtained by integrating Eq. (1) over the photon angles

$$\sigma_{ph} = \frac{8\alpha\pi^2 m_e c^2}{\hbar\omega}\frac{\lambdabar_c^2}{2j_n + 1}\sum_{\mu_n}\sum_\kappa|\sum_L i^L F^{\lambda=1}_{\mu_n}(L, \kappa)|^2. \tag{6}$$

This form is rather easy to evaluate numerically and is the basis of the tabulation of total photoelectric cross section for hydrogen-like ions presented here.

Transformation Formulas

In the Tables we present cross sections per vacancy for RR into an empty atomic shell containing $(2j_n + 1)$

vacancies as a function of the electron energy. These Tables have several additional uses. First, they can be used for obtaining the cross sections for RR of electrons at rest with bare projectiles of charge Z_P moving with the speed v_e or the corresponding energy given in MeV/u. For electrons bound in a low-Z target, where $Z_T \ll Z_P$, this cross section is a close approximation [5, 6] to that of REC. Second, the Tables can also be used for obtaining the cross section per electron for the photoelectric effect as a function of the photon energy. Third, if a negatively charged heavy Dirac particle of mass $M \neq m_e$ (for example, a muon) is captured, we observe that the photoelectric cross section of Eq. (6) scales as $\lambda_c^2 \propto 1/M^2$ with the first factor on the right unchanged since the photon energy and the particle rest mass both scale as M. For an antiproton, one has to additionally take into account the effect of the anomalous magnetic moment. However, magnetic effects will be extremely small compared to charge effects.

The kinetic energy T_e of the electron is related by energy conservation to the photon energy $\hbar\omega$ and the binding energy $|\epsilon_n|$ of the electron as

$$T_e = \hbar\omega - |\epsilon_n| = (\gamma - 1)m_e c^2, \qquad (7)$$

where $\gamma = (1 - v_e^2/c^2)^{-1/2}$ is the Lorentz factor of the electron moving with the speed v_e. The relevant reduced quantity is

$$\tilde{T}_e = \gamma - 1 = \frac{T_e}{m_e c^2} = \frac{T_e \text{ (keV)}}{510.99906}. \qquad (8)$$

Correspondingly, we also introduce the reduced binding energy

$$\tilde{\epsilon}_n = \frac{|\epsilon_n|}{m_e c^2} = \frac{|\epsilon_n| \text{ (keV)}}{510.99906}. \qquad (9)$$

In our calculations, we assume that the nucleus has an infinite mass and thus avoid a discussion of isotope effects. Indeed, even for hydrogen the effect of the finite nuclear mass is within the accuracy given in the Tables. For a heavy Dirac particle, m_e is replaced with M in Eqs. (8) and (9), and finite nuclear mass effects may become noticeable for light nuclei.

Radiative Recombination with a Projectile

For RR of a projectile with electrons at rest, the projectile energy is usually given in MeV/u. Because the Lorentz factor is the same as in Eq. (8), we have the specific projectile energy

$$T_P \text{ (MeV/u)} = 1.8228885 \times T_e \text{ (keV)}. \qquad (10)$$

The cross sections per vacancy can be taken directly from the Tables.

The Photoelectric Effect

The photon energies $\hbar\omega$ can be obtained from Eq. (7) with the quantities T_e and $|\epsilon_n|$ both being given in the Tables. The cross section per electron is derived from the principle of detailed balance as

$$\sigma_{ph} = f_n(T_e, |\epsilon_n|)\sigma_{RR}, \qquad (11)$$

where the transformation coefficient depends on the kinetic electron energy and on the binding energy $|\epsilon_n|$ for the subshell n considered in the form

$$f_n(T_e, |\epsilon_n|) = \frac{\tilde{T}_e^2 + 2\tilde{T}_e}{(\tilde{T}_e + \tilde{\epsilon}_n)^2}, \qquad (12)$$

with the reduced quantities $\tilde{T}_e$ and $\tilde{\epsilon}_n$ being given by Eqs. (8) and (9), respectively. For a heavy Dirac particle, σ_{ph} scales as $1/M^2$, as noted previously. Because the transformation coefficient (Eq. (12)) is the same at the scaled photon energy, σ_{RR} is similarly scaled as $1/M^2$.

Numerical Calculations

Numerical calculations have been performed for nuclear charges between $Z = 1$ and $Z = 112$ and for all subshells within the K, L, and M principal shells. In each case, two independent computer codes, KONT and RADIAL, have been used for the continuum wave functions. The lowest electron energy was chosen to be 1 eV. The highest energy was determined by the convergence of the calculations or by the drop in the cross section by 10 orders of magnitude compared to the maximum value. For $Z = 1$ and photon energies of $\hbar\omega = 30$, 100, and 1000 eV, the present calculations yield agreement within three digits with nonrelativistic results [17–19] (see also Table C).

Parameters for the Calculations

The calculations adopt finite nuclear radii using a table compiled and communicated by Beier [20]. This table is largely based on the work of Refs. [21–23] and makes use of the interpolation formula developed by Johnson and Soff [24]. Each root-mean-square radius given in these tables is multiplied by a factor of $\sqrt{5/3}$ in order to generate the radius R_{nucl} of a uniform charge distribution assumed in the calculations. From extended test calculations for all shells considered we conclude that possible uncertainties in the nuclear radius do not influence the tabulated cross sections, even for $Z = 92$.

For the code KONT we used 4000 mesh points in a Gauss–Legendre integration and for the code RADIAL we used 3200 mesh points. In test calculations for the

Minimum Values for $|\kappa_{max}|$ Needed for Obtaining Three-Digit Convergence of the Cross Sections
for Various Nuclear Charges Z and Electron Energies T_e in MeV

Z	T_e (MeV)	K	$L1$	$L2$	$L3$	$M1$	$M2$	$M3$	$M4$	$M5$
30	1.0	14	17	26	20	14	19	17	27	27
	2.0	28	28	34	26	30	34	33	46	36
	3.0	35	40	55	45	35	49	45		
	5.0	55	51	74	67					
60	1.0	15	15	20	20	16	18	22	24	23
	2.0	26	24	30	26	25	35	32	44	41
	3.0	38	29	46	56	33	52	51	63	50
	5.0	64	63	74	73	48	76	56	84	74
90	1.0	14	13	19	19	11	18	17	31	24
	2.0	28	19	36	30	21	27	31	42	40
	3.0	35	33	42	45	29	55	40	62	55
	5.0	53	49	63	63	63	82	72		

Note. Blanks indicate that the radial continuum functions can no longer be calculated reliably.

highest and the lowest nuclear charges, it was confirmed that this was sufficient to obtain converged wave functions. The most critical parameter for the accuracy is the maximum value $|\kappa_{max}|$ of the Dirac quantum number κ in the expansion of the continuum wave function. This dependence will be discussed in connection with the convergence of the partial-wave expansion used for calculating the cross section.

Accuracy of the Continuum Wave Functions

The accuracy of the cross section is mainly determined by the accuracy of the continuum wave functions. Therefore, for each single cross section calculation, we used two entirely independent computer programs, each employing a different code for the continuum wave functions, namely (i) the code KONT used in earlier calculations [5] and (ii) the code RADIAL based on a slightly modified version of the package published by Salvat et al. [25] and supplemented by Yerokhin [26]. The results obtained from both codes were compared and served as one of the criteria for the accuracy of the calculations. For the bound states, the code RADIAL has been used throughout, because it gives more reliable results for higher shells.

With the computer codes used, the rapid oscillations of the radial continuum wave functions do not allow one to extend calculations beyond a certain maximum value of $|\kappa|$, depending on the nuclear charge Z, the atomic shell, and the kinetic energy T_e. In all calculations, we have confined ourselves to the maximum range $|\kappa_{max}| \leq 100$. For $Z < 63$, the limit of convergence was determined by the oscillatory behavior of the continuum wave function, not by the applicability of the computer codes. For higher charges, the limits for $|\kappa|$ are

KONT

$$|\kappa_{max}| = 70 \quad \text{for } Z \geq 86 \text{ and } T_e \geq 15 \text{ MeV}$$

RADIAL, K shell

$$|\kappa_{max}| = 80 \quad \text{for } Z \geq 63 \text{ and } T_e \geq 5 \text{ MeV}$$

RADIAL, L shell

$$|\kappa_{max}| = 80 \quad \text{for } Z \geq 90 \text{ and } T_e \geq 4 \text{ MeV}$$

RADIAL, $M4$ and $M5$ shells

$$|\kappa_{max}| = 80 \quad \text{for } Z \geq 100 \text{ and } T_e \geq 3 \text{ MeV}. \quad (13)$$

TABLE B
Comparison between K-REC and K-RR Differential Cross Sections at
$90°$ Laboratory Angle for 2.0 GeV/u Au^{79+} Ions on Au Targets

Shell	$|\epsilon_n|$ (keV)	σ_{REC} (b/sr)	σ_{REC}/σ_{RR}
$1s_{1/2}$	73.7	0.112	0.63
$2s_{1/2}$	12.4	0.165	0.92
$3s_{1/2}$	2.97	0.175	0.98
$4s_{1/2}$	0.661	0.177	0.99
$5s_{1/2}$	0.103	0.178	0.99
$6s_{1/2}$	0.0586	0.179	1.00

For all occupied ns shells, the nonrelativistic HF binding energies $|\epsilon_n|$ and the REC cross section per target electron are given. The rightmost column gives the ratio to the RR cross section of 0.179 b/sr. Both σ_{REC} and σ_{RR} were calculated by summing over all partial waves of the continuum wave function in the range $-22 \leq \kappa \leq 19$.

TABLE C
Comparison of RR Cross Sections (σ_{RR}, in b) for Nonrelativistic Dipole (ND) and Relativistic (R) Calculations

	σ_{RR} (b)									
	1s		2s		2p		3s		3d	
T_e (eV)	ND	R	ND	R	ND	R	ND	R	ND	R
					Z = 1					
1.0E+1	7.59E+1	7.59E+1	1.09E+1	1.09E+1	2.64E+0	2.64E+0	3.38E+0	3.38E+0	8.70E−2	8.70E−2
1.0E+3	1.10E−2	1.10E−2	1.38E−3	1.38E−3	4.66E−6	4.67E−6	4.08E−4	4.08E−4	1.65E−9	1.66E−9
1.0E+4	4.44E−5	4.41E−5	5.55E−6	5.52E−6	1.89E−9	1.95E−9	1.64E−6	1.64E−6		
5.0E+4	8.46E−7	8.28E−7								
					Z = 10					
1.0E+1	1.14E+4	1.14E+4	1.67E+3	1.67E+3	1.49E+3	1.49E+3	5.62E+2	5.62E+2	3.69E+2	3.69E+2
1.0E+3	7.59E+1	7.59E+1	1.09E+1	1.09E+1	2.64E+0	2.66E+0	3.38E+0	3.39E+0	8.70E−2	8.77E−2
1.0E+4	1.65E+0	1.63E+0	2.12E−1	2.11E−1	6.90E−3	7.15E−3	6.32E−2	6.29E−2	2.44E−5	2.60E−5
1.0E+5	1.10E−2	1.05E−2	1.38E−3	1.32E−3	4.66E−6	6.24E−6	4.08E−4	3.91E−4	1.65E−9	3.00E−9
1.0E+6	4.44E−5	8.15E−5	5.55E−6	1.02E−5	1.89E−9	1.98E−8				
					Z = 30					
1.0E+1	1.03E+5	1.02E+5	1.51E+4	1.51E+4	1.38E+4	1.40E+4	5.07E+3	5.06E+3	3.60E+3	3.65E+3
1.0E+3	9.75E+2	9.68E+2	1.45E+2	1.46E+2	1.01E+2	1.04E+2	4.83E+1	4.85E+1	1.54E+1	1.57E+1
1.0E+4	6.58E+1	6.53E+1	9.41E+0	9.49E+0	2.10E+0	2.25E+0	2.91E+0	2.93E+0	6.30E−2	6.84E−2
1.0E+5	1.33E+0	1.28E+0	1.71E−1	1.67E−1	5.05E−3	7.02E−3	5.11E−2	4.96E−2	1.61E−5	2.90E−5
1.0E+6	8.58E−3	1.45E−2	1.08E−3	1.82E−3	3.28E−6	3.16E−5	3.19E−4	5.35E−4	1.05E−9	4.13E−8
					Z = 50					
1.0E+1	2.85E+5	2.79E+5	4.18E+4	4.21E+4	3.83E+4	4.06E+4	1.41E+4	1.40E+4	1.01E+4	1.04E+4
1.0E+3	2.80E+3	2.74E+3	4.14E+2	4.18E+2	3.40E+2	3.63E+2	1.39E+2	1.39E+2	7.13E+1	7.45E+1
1.0E+4	2.38E+2	2.34E+2	3.54E+1	3.61E+1	1.52E+1	1.71E+1	1.13E+1	1.16E+1	1.08E+0	1.21E+0
1.0E+5	9.05E+0	8.78E+0	1.21E+0	1.22E+0	9.25E−2	1.40E−1	3.62E−1	3.65E−1	8.11E−4	1.50E−3
1.0E+6	8.83E−2	1.46E−1	1.11E−2	1.85E−2	9.35E−5	8.94E−4	3.30E−3	5.42E−3	8.27E−8	2.90E−6
					Z = 92					
1.0E+1	9.66E+5	8.75E+5	1.42E+5	1.40E+5	1.30E+5	1.59E+5	4.77E+4	4.38E+4	3.42E+4	3.84E+4
1.0E+3	9.61E+3	8.71E+3	1.41E+3	1.40E+3	1.25E+3	1.55E+3	4.75E+2	4.41E+2	3.07E+2	3.48E+2
1.0E+4	9.13E+2	8.34E+2	1.36E+2	1.37E+2	9.32E+1	1.24E+2	4.52E+1	4.41E+1	1.39E+1	1.70E+1
1.0E+5	6.05E+1	5.87E+1	8.62E+0	9.35E+0	1.84E+0	3.72E+0	2.66E+0	2.83E+0	5.21E−2	1.07E−1
1.0E+6	1.18E+0	2.12E+0	1.51E−1	2.85E−1	4.20E−3	5.14E−2	4.51E−2	8.07E−2	1.26E−5	3.79E−4

The cross sections for capture into the 1s, 2s, 3s, and 3d shells are shown for various nuclear charges Z and electron energies T_e. In relativistic calculations for the 2p and 3d shells, weighted averages $\sigma_{RR}(2p) = [2\sigma_{RR}(2p_{1/2}) + 4\sigma_{RR}(2p_{3/2})]/6$ and $\sigma_{RR}(3d) = [4\sigma_{RR}(3d_{3/2}) + 6\sigma_{RR}(3d_{5/2})]/10$ are adopted.

On the low-energy side, at $T_e = 1.0$ (1.5) eV, for $\kappa = -1$ and $Z > 90$ (110), the code RADIAL is not able to evaluate the radial function.

Convergence of the Cross Section

The minimum value of $|\kappa_{max}|$ required to obtain three-digit converged cross sections is given in Table A for $Z = 30$, 60, and 90. In the actual calculations, $|\kappa_{max}|$ has been chosen to be at least 10 units larger than the minimum value,

of which examples are given in Table A, in order to confirm the stability of the cross section.

In general, a three-digit accuracy can be obtained for electron energies $T_e \le 4.0$ MeV for $Z \ge 40$, and a two-digit accuracy for a number of cases for $5.0 \le T_e \le 8.0$ MeV. For energies $T_e > 15$ MeV, not even a two-digit accuracy can be reached. This is due to the slow convergence of the partial-wave expansion and to numerical problems in handling the rapid oscillations of the wave functions.

Comparison of Radiative Recombination with Radiative Electron Capture

The cross section values given in the Tables refer to radiative recombination of a single electron with a bare nucleus. However, in actual experiments, RR is usually measured as REC of an electron from a light target atom into a high-Z bare projectile. In this case, the momentum distribution of the electrons initially bound in the target atom has to be taken into account. To demonstrate the effect of electron binding and momentum distribution in the target atom, we consider differential cross sections at 90° for recombination into the $1s_{1/2}$ state of 2.0 GeV/u Au^{79+} ions (corresponding to RR with a 1.1 MeV incident electron) impinging on an Au target. Certainly, distortion effects cannot be ignored in this case. Nevertheless, it is instructive to examine the deviations from radiative recombination for various shells of the target atom. For the purpose of demonstration, we confine ourselves to ns subshells. Table B shows that the deviation of REC from RR decreases for higher shells. It is 1% for the $4s_{1/2}$ and considerably less for the $5s_{1/2}$ and $6s_{1/2}$ shells. We may conclude that for high-projectile energies of a few hundred MeV/u and for $Z_P \gg Z_T$, it is a very good approximation to substitute RR for REC in differential and total cross sections.

Comparison of the Nonrelativistic Dipole Approximation with Exact Relativistic Calculations

Because exact cross sections for radiative recombination and for the photoelectric effect within a wide range of parameters have not been available, it has become customary to use the nonrelativistic dipole (ND) approximation for estimating cross sections. Indeed, for capture into the K shell, the nonrelativistic dipole cross section can be expressed by a simple analytical formula [6, 17] and for higher shells it can be expressed by a recursion relation [18].

Although differential cross sections are more sensitive to the ND approximation [7, 8], total cross sections are quite well represented [27], depending, of course, on the accuracy required. It is therefore meaningful to compare the results from the ND approximation with those of relativistic (R) calculations for a few representative charges and energies. This comparison is displayed in Table C for the $1s$, $2s$, $2p$, $3s$, and $3d$ shells.

We may summarize the results as follows: (a) For $Z = 1$ and $T_e \leq 1$ keV, the discrepancies between ND and R cross sections are within one unit in the third digit. (b) For $Z \leq 30$ and $T_e \leq 10$ keV, the discrepancy is less than 10%. For $Z \leq 50$ and $T_e \leq 10$ keV, the ND approximation is still a useful estimate, if we allow for uncertainties of about 10%. (c) However, for $Z = 92$, the discrepancy amounts to more than 10% for the $1s$, $2p$, and $3d$ shells even at the lowest electron energy. Hence, for high-Z ions, relativistic calculations are mandatory irrespective of the electron energy.

References

1. H. A. Bethe and E. E. Salpeter, *Quantum Mechanics of One- and Two-Electron Atoms* (Academic Press, New York, 1957)

2. W. R. Alling and W. R. Johnson, Phys. Rev. **139,** A1050 (1965)

3. S. Hultberg, B. Nagel, and P. Olsson, Ark. Fys. **38,** 1 (1967)

4. R. H. Pratt, A. Ron, and H. K. Tseng, Rev. Mod. Phys. **45,** 273 (1973)

5. A. Ichihara, T. Shirai, and J. Eichler, Phys. Rev. A **49,** 1875 (1994)

6. J. Eichler and W. E. Meyerhof, *Relativistic Atomic Collisions* (Academic Press, San Diego, 1995)

7. J. Eichler, A. Ichihara, and T. Shirai, Phys. Rev. A **51,** 3027 (1995)

8. A. Ichihara, T. Shirai, and J. Eichler, Phys. Rev. A **54,** 4954 (1996)

9. H. Brysk and C. D. Zerby, Phys. Rev. **171,** 292 (1968); Union Carbide Corporation, Report UCC/DSSD-299 (1967)

10. J. H. Hubbell, National Bureau of Standards Report NSRDS-NBS 29 (1969)

11. E. Storm and H. Israel, Nuclear Data Tables **A7,** 565 (1970)

12. J. H. Scofield, University of California Report UCLR-51326 (1973)

13. J. H. Hubbell, H. A. Gimm, and I. Øverbø, J. Phys. Chem. Ref. Data **9,** 1023 (1980)

14. J. J. Yeh and I. Lindau, Atomic Data and Nuclear Data Tables **32,** 1 (1985)

15. P. H. Mokler and Th. Stöhlker, Adv. At. Mol. Opt. Phys. **37,** 297 (1996)

16. Th. Stöhlker, F. Bosch, A. Gallus, C. Kozhuharov, G. Menzel, P. H. Mokler, H. T. Prinz, J. Eichler, A. Ichihara, T. Shirai, R. W. Dunford, T. Ludziejewski, P. Rymuza, Z. Stachura, P. Swiat, and A. Warczak, Phys. Rev. Lett. **79,** 3270 (1997)

17. M. Stobbe, Ann. Phys. (Leipzig) **7,** 661 (1930)

18. A. Burgess, Mem. R. Astron. Soc. **69,** 1 (1964)

19. Th. Stöhlker, private communication

20. Th. Beier, private communication

21. G. Fricke, C. Bernhardt, K. Heilig, L. A. Schaller, L. Schellenberg, E. B. Shera, and C. W. de Jäger, ATOMIC DATA AND NUCLEAR DATA TABLES **60,** 177 (1995)

22. C. G. Simon, Ch. Schmitt, F. Borkowski, and V. H. Walther, Nucl. Phys. A **333,** 381 (1987)

23. H. de Vries, C. W. de Jäger, and C. de Vries, ATOMIC DATA AND NUCLEAR DATA TABLES **36,** 495 (1987)

24. W. Johnson and G. Soff, ATOMIC DATA AND NUCLEAR DATA TABLES **33,** 405 (1985)

25. F. Salvat, J. M. Fernández-Varea, and W. Williamson Jr., Comput. Phys. Commun. **90,** 151 (1995)

26. V. A. Yerokhin, private communication.

27. Th. Stöhlker, C. Kozhuarov, P. H. Mokler, A. Warczak, F. Bosch, H. Geissel, R. Moshammer, C. Scheidenberger, J. Eichler, A. Ichihara, T. Shirai, Z. Stachura, P. Rymuza, Phys. Rev. A **51,** 2098 (1995)

EXPLANATION OF TABLE

TABLE. **Cross Sections for Radiative Recombination, $Z = 1$–112**

T_e Kinetic energy of the incident electron in electron volts. The Tables are truncated at energies for which a three-digit accuracy can no longer be achieved.

σ_{RR} Cross section per vacancy for radiative recombination with an empty atomic shell in barn (10^{-24} cm). The cross sections are accurate to all figures given, except when an asterisk (*) indicates a possible inaccuracy by *one unit in the last digit*. In these cases, the result of the computer code KONT deviates by this amount from the tabulated result using the code RADIAL. Cross sections with larger discrepancies than one unit in the last digit have not been accepted in the Tables.

$f_{1s_{1/2}}$ Conversion factor of Eq. (12) multiplying σ_{RR} for the $1s_{1/2}$ shell in order to obtain the cross section σ_{ph} for ionizing the $1s_{1/2}$ shell by a photon with energy $\hbar\omega = T_e + |\epsilon_{1s_{1/2}}|$. For other shells one has to go back to Eq. (12).

$|\epsilon_n|$ Binding energy in eV of the hydrogen-like levels $1s_{1/2}$, $2s_{1/2}$, $2p_{1/2}$, ...

R_{nucl} Nuclear radius in fm (10^{-13} cm) of a uniform charge distribution with total charge Ze corresponding to the nuclear root-mean-square radii of Refs. [20–24].

TABLE. Cross Sections for Radiative Recombination, $Z=1$–112

See page 9 for Explanation of Tables

Z= 1

T_e (eV)	σ_{RR} (b)									$f_{1s_{1/2}}$
	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 1.113$ fm

$|\epsilon_n|$ (eV)	1.361E+1	3.402E+0	3.402E+0	3.401E+0	1.512E+0	1.512E+0	1.512E+0	1.512E+0	1.512E+0	
1.00E+0	1.09E+3	1.62E+2	1.15E+2	1.15E+2	5.40E+1	4.40E+1	4.40E+1	1.84E+1	1.84E+1	4.791E+3
1.50E+0	7.09E+2	1.06E+2	6.79E+1	6.79E+1	3.50E+1	2.58E+1	2.58E+1	9.01E+0	9.01E+0	6.718E+3
2.00E+0	5.20E+2	7.76E+1	4.53E+1	4.53E+1	2.55E+1	1.72E+1	1.72E+1	5.14E+0	5.14E+0	8.393E+3
3.00E+0	3.32E+2	4.94E+1	2.45E+1	2.45E+1	1.60E+1	9.20E+0	9.20E+0	2.14E+0	2.14E+0	1.112E+4
4.00E+0	2.38E+2	3.54E+1	1.52E+1	1.52E+1	1.13E+1	5.68E+0	5.68E+0	1.08E+0	1.08E+0	1.319E+4
5.00E+0	1.83E+2	2.70E+1	1.03E+1	1.03E+1	8.59E+0	3.82E+0	3.82E+0	6.14E−1	6.14E−1	1.476E+4
6.00E+0	1.47E+2	2.15E+1	7.34E+0	7.34E+0	6.80E+0	2.71E+0	2.71E+0	3.78E−1	3.78E−1	1.595E+4
8.00E+0	1.02E+2	1.48E+1	4.19E+0	4.18E+0	4.62E+0	1.54E+0	1.54E+0	1.68E−1	1.68E−1	1.751E+4
1.00E+1	7.59E+1	1.09E+1	2.64E+0	2.64E+0	3.38E+0	9.62E−1	9.62E−1	8.70E−2	8.70E−2	1.834E+4
1.50E+1	4.31E+1	6.06E+0	1.08E+0	1.08E+0	1.86E+0	3.89E−1	3.89E−1	2.44E−2	2.44E−2	1.873E+4
2.00E+1	2.81E+1	3.88E+0	5.45E−1	5.45E−1	1.18E+0	1.96E−1	1.96E−1	9.40E−3	9.40E−3	1.810E+4
3.00E+1	1.47E+1	1.99E+0	1.98E−1	1.97E−1	6.01E−1	7.06E−2	7.05E−2	2.30E−3	2.30E−3	1.612E+4
4.00E+1	9.05E+0	1.21E+0	9.25E−2	9.25E−2	3.62E−1	3.29E−2	3.29E−2	8.11E−4	8.11E−4	1.423E+4
5.00E+1	6.10E+0	8.04E−1	5.03E−2	5.03E−2	2.41E−1	1.79E−2	1.79E−2	3.54E−4	3.54E−4	1.263E+4
6.00E+1	4.37E+0	5.73E−1	3.03E−2	3.03E−2	1.71E−1	1.07E−2	1.07E−2	1.78E−4	1.78E−4	1.132E+4
8.00E+1	2.54E+0	3.30E−1	1.33E−2	1.33E−2	9.84E−2	4.70E−3	4.70E−3	5.86E−5	5.86E−5	9.332E+3
1.00E+2	1.65E+0	2.12E−1	6.91E−3	6.91E−3	6.32E−2	2.44E−3	2.44E−3	2.44E−5	2.44E−5	7.919E+3
1.50E+2	7.26E−1	9.26E−2	2.04E−3	2.04E−3	2.76E−2	7.20E−4	7.19E−4	4.81E−6	4.81E−6	5.728E+3
2.00E+2	3.98E−1	5.05E−2	8.41E−4	8.41E−4	1.50E−2	2.96E−4	2.96E−4	1.49E−6	1.49E−6	4.480E+3
3.00E+2	1.66E−1	2.10E−2	2.35E−4	2.35E−4	6.24E−3	8.27E−5	8.27E−5	2.78E−7	2.77E−7	3.118E+3
4.00E+2	8.82E−2	1.11E−2	9.37E−5	9.36E−5	3.30E−3	3.30E−5	3.29E−5	8.30E−8	8.29E−8	2.391E+3
5.00E+2	5.36E−2	6.74E−3	4.56E−5	4.55E−5	2.00E−3	1.60E−5	1.60E−5	3.23E−8	3.23E−8	1.938E+3
6.00E+2	3.55E−2	4.46E−3	2.52E−5	2.51E−5	1.32E−3	8.84E−6	8.83E−6	1.49E−8	1.49E−8	1.630E+3
8.00E+2	1.84E−2	2.31E−3	9.78E−6	9.77E−6	6.84E−4	3.44E−6	3.43E−6	4.34E−9	4.34E−9	1.236E+3
1.00E+3	1.10E−2	1.38E−3	4.68E−6	4.67E−6	4.08E−4	1.64E−6	1.64E−6	1.66E−9	1.66E−9	9.957E+2
1.50E+3	4.25E−3	5.32E−4	1.21E−6	1.21E−6	1.58E−4	4.26E−7	4.25E−7	2.87E−10	2.87E−10	6.701E+2
2.00E+3	2.15E−3	2.69E−4	4.61E−7	4.60E−7	7.98E−5	1.62E−7	1.62E−7	8.22E−11	8.20E−11	5.051E+2
3.00E+3	8.17E−4	1.02E−4	1.17E−7	1.17E−7	3.03E−5	4.12E−8	4.11E−8	1.40E−11	1.39E−11	3.386E+2
4.00E+3	4.09E−4	5.12E−5	4.43E−8	4.41E−8	1.52E−5	1.56E−8	1.55E−8	3.97E−12	3.96E−12	2.548E+2
5.00E+3	2.39E−4	2.99E−5	2.07E−8	2.06E−8	8.85E−6	7.28E−9	7.24E−9	1.49E−12	1.49E−12	2.043E+2
6.00E+3	1.53E−4	1.92E−5	1.12E−8	1.11E−8	5.68E−6	3.92E−9	3.89E−9	6.72E−13	6.68E−13	1.706E+2
8.00E+3	7.61E−5	9.52E−6	4.19E−9	4.15E−9	2.82E−6	1.47E−9	1.46E−9			1.283E+2
1.00E+4	4.41E−5	5.52E−6	1.96E−9	1.94E−9	1.64E−6	6.88E−10	6.81E−10			1.029E+2
1.50E+4	1.63E−5	2.04E−6	4.93E−10	4.85E−10	6.04E−7					6.900E+1
2.00E+4	8.03E−6	1.00E−6								5.203E+1
3.00E+4	2.95E−6	3.68E−7								3.503E+1
4.00E+4	1.44E−6									2.653E+1
5.00E+4	8.28E−7									2.143E+1

$Z= 2$

T_e (eV)	σ_{RR} (b)									$f_{1s_{1/2}}$
	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 2.157$ fm

$\|\epsilon_n\|$ (eV)	5.443E+1	1.361E+1	1.361E+1	1.361E+1	6.047E+0	6.047E+0	6.047E+0	6.047E+0	6.047E+0	
1.00E+0	4.51E+3	6.65E+2	5.69E+2	5.69E+2	2.24E+2	2.17E+2	2.17E+2	1.29E+2	1.29E+2	3.327E+2
1.50E+0	2.99E+3	4.42E+2	3.66E+2	3.65E+2	1.48E+2	1.39E+2	1.39E+2	7.76E+1	7.76E+1	4.901E+2
2.00E+0	2.23E+3	3.30E+2	2.65E+2	2.64E+2	1.11E+2	1.01E+2	1.01E+2	5.27E+1	5.27E+1	6.420E+2
3.00E+0	1.47E+3	2.18E+2	1.65E+2	1.65E+2	7.29E+1	6.27E+1	6.27E+1	2.92E+1	2.92E+1	9.297E+2
4.00E+0	1.09E+3	1.62E+2	1.15E+2	1.15E+2	5.40E+1	4.40E+1	4.40E+1	1.84E+1	1.84E+1	1.198E+3
5.00E+0	8.61E+2	1.28E+2	8.66E+1	8.66E+1	4.26E+1	3.30E+1	3.30E+1	1.26E+1	1.26E+1	1.447E+3
6.00E+0	7.09E+2	1.06E+2	6.79E+1	6.79E+1	3.50E+1	2.58E+1	2.58E+1	9.01E+0	9.01E+0	1.679E+3
8.00E+0	5.20E+2	7.76E+1	4.53E+1	4.53E+1	2.55E+1	1.72E+1	1.72E+1	5.14E+0	5.14E+0	2.098E+3
1.00E+1	4.07E+2	6.07E+1	3.25E+1	3.25E+1	1.98E+1	1.23E+1	1.23E+1	3.21E+0	3.21E+0	2.462E+3
1.50E+1	2.57E+2	3.82E+1	1.70E+1	1.70E+1	1.23E+1	6.35E+0	6.35E+0	1.27E+0	1.27E+0	3.181E+3
2.00E+1	1.83E+2	2.70E+1	1.03E+1	1.03E+1	8.59E+0	3.82E+0	3.82E+0	6.14E-1	6.14E-1	3.690E+3
3.00E+1	1.11E+2	1.61E+1	4.76E+0	4.76E+0	5.05E+0	1.75E+0	1.75E+0	2.03E-1	2.03E-1	4.302E+3
4.00E+1	7.59E+1	1.09E+1	2.64E+0	2.64E+0	3.38E+0	9.63E-1	9.62E-1	8.70E-2	8.70E-2	4.585E+3
5.00E+1	5.59E+1	7.94E+0	1.63E+0	1.63E+0	2.45E+0	5.90E-1	5.90E-1	4.37E-2	4.37E-2	4.686E+3
6.00E+1	4.31E+1	6.06E+0	1.08E+0	1.08E+0	1.86E+0	3.89E-1	3.89E-1	2.44E-2	2.44E-2	4.683E+3
8.00E+1	2.81E+1	3.88E+0	5.46E-1	5.45E-1	1.18E+0	1.96E-1	1.96E-1	9.41E-3	9.40E-3	4.525E+3
1.00E+2	1.98E+1	2.70E+0	3.15E-1	3.14E-1	8.19E-1	1.13E-1	1.13E-1	4.37E-3	4.37E-3	4.286E+3
1.50E+2	1.01E+1	1.35E+0	1.10E-1	1.10E-1	4.07E-1	3.92E-2	3.92E-2	1.03E-3	1.03E-3	3.669E+3
2.00E+2	6.10E+0	8.04E-1	5.04E-2	5.04E-2	2.41E-1	1.79E-2	1.79E-2	3.55E-4	3.54E-4	3.158E+3
3.00E+2	2.88E+0	3.74E-1	1.60E-2	1.60E-2	1.12E-1	5.67E-3	5.67E-3	7.55E-5	7.54E-5	2.441E+3
4.00E+2	1.65E+0	2.12E-1	6.92E-3	6.91E-3	6.32E-2	2.44E-3	2.44E-3	2.45E-5	2.44E-5	1.980E+3
5.00E+2	1.05E+0	1.35E-1	3.56E-3	3.55E-3	4.02E-2	1.25E-3	1.25E-3	1.01E-5	1.01E-5	1.663E+3
6.00E+2	7.25E-1	9.26E-2	2.05E-3	2.04E-3	2.75E-2	7.21E-4	7.20E-4	4.83E-6	4.82E-6	1.433E+3
8.00E+2	3.98E-1	5.05E-2	8.44E-4	8.42E-4	1.50E-2	2.97E-4	2.97E-4	1.50E-6	1.49E-6	1.121E+3
1.00E+3	2.47E-1	3.13E-2	4.20E-4	4.19E-4	9.28E-3	1.48E-4	1.48E-4	5.96E-7	5.95E-7	9.202E+2
1.50E+3	1.02E-1	1.28E-2	1.16E-4	1.16E-4	3.81E-3	4.08E-5	4.06E-5	1.10E-7	1.10E-7	6.354E+2
2.00E+3	5.35E-2	6.73E-3	4.58E-5	4.57E-5	2.00E-3	1.61E-5	1.61E-5	3.27E-8	3.26E-8	4.852E+2
3.00E+3	2.13E-2	2.67E-3	1.22E-5	1.22E-5	7.92E-4	4.29E-6	4.27E-6	5.82E-9	5.80E-9	3.296E+2
4.00E+3	1.09E-2	1.37E-3	4.73E-6	4.71E-6	4.07E-4	1.66E-6	1.65E-6	1.70E-9	1.69E-9	2.497E+2
5.00E+3	6.50E-3	8.15E-4	2.26E-6	2.25E-6	2.42E-4	7.94E-7	7.89E-7	6.51E-10	6.47E-10	2.010E+2
6.00E+3	4.23E-3	5.31E-4	1.23E-6	1.22E-6	1.57E-4	4.33E-7	4.30E-7	2.97E-10	2.95E-10	1.683E+2
8.00E+3	2.14E-3	2.68E-4	4.72E-7	4.67E-7	7.95E-5	1.66E-7	1.64E-7	8.58E-11	8.51E-11	1.270E+2
1.00E+4	1.26E-3	1.58E-4	2.24E-7	2.21E-7	4.67E-5	7.86E-8	7.76E-8	3.28E-11	3.24E-11	1.021E+2
1.50E+4	4.75E-4	5.94E-5	5.75E-8	5.65E-8	1.76E-5	2.02E-8	1.99E-8	5.71E-12	5.62E-12	6.864E+1
2.00E+4	2.37E-4	2.96E-5	2.19E-8	2.15E-8	8.77E-6	7.71E-9	7.54E-9	1.66E-12	1.63E-12	5.182E+1
3.00E+4	8.81E-5	1.10E-5	5.67E-9	5.49E-9	3.27E-6	1.99E-9	1.93E-9	2.96E-13	2.88E-13	3.494E+1
4.00E+4	4.35E-5	5.44E-6	2.19E-9	2.10E-9	1.61E-6	7.67E-10	7.37E-10			2.648E+1
5.00E+4	2.51E-5	3.14E-6	1.05E-9	9.99E-10	9.31E-7					2.139E+1
6.00E+4	1.60E-5	2.00E-6	5.79E-10							1.800E+1
8.00E+4	7.88E-6	9.85E-7								1.376E+1
1.00E+5	4.54E-6									1.121E+1
1.50E+5	1.67E-6									7.808E+0
2.00E+5	8.29E-7									6.107E+0

TABLE. Cross Sections for Radiative Recombination, $Z=1-112$

See page 9 for Explanation of Tables

$Z= 3$

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 3.111$ fm

$|\epsilon_n|$ (eV)	1.225E+2	3.062E+1	3.062E+1	3.061E+1	1.361E+1	1.361E+1	1.361E+1	1.361E+1	1.361E+1	
1.00E+0	1.02E+4	1.50E+3	1.34E+3	1.33E+3	5.05E+2	5.08E+2	5.08E+2	3.29E+2	3.29E+2	6.704E+1
1.50E+0	6.80E+3	1.00E+3	8.75E+2	8.75E+2	3.36E+2	3.33E+2	3.33E+2	2.08E+2	2.08E+2	9.975E+1
2.00E+0	5.08E+3	7.49E+2	6.45E+2	6.45E+2	2.52E+2	2.46E+2	2.46E+2	1.49E+2	1.49E+2	1.319E+2
3.00E+0	3.37E+3	4.97E+2	4.16E+2	4.16E+2	1.67E+2	1.59E+2	1.59E+2	9.04E+1	9.04E+1	1.948E+2
4.00E+0	2.51E+3	3.72E+2	3.02E+2	3.02E+2	1.25E+2	1.15E+2	1.15E+2	6.20E+1	6.20E+1	2.556E+2
5.00E+0	2.00E+3	2.96E+2	2.34E+2	2.34E+2	9.93E+1	8.94E+1	8.94E+1	4.55E+1	4.55E+1	3.145E+2
6.00E+0	1.66E+3	2.46E+2	1.89E+2	1.89E+2	8.23E+1	7.22E+1	7.22E+1	3.49E+1	3.49E+1	3.715E+2
8.00E+0	1.23E+3	1.83E+2	1.34E+2	1.34E+2	6.11E+1	5.10E+1	5.10E+1	2.23E+1	2.23E+1	4.803E+2
1.00E+1	9.74E+2	1.45E+2	1.01E+2	1.01E+2	4.83E+1	3.85E+1	3.85E+1	1.54E+1	1.54E+1	5.824E+2
1.50E+1	6.33E+2	9.45E+1	5.88E+1	5.87E+1	3.12E+1	2.23E+1	2.23E+1	7.38E+0	7.37E+0	8.112E+2
2.00E+1	4.63E+2	6.92E+1	3.89E+1	3.88E+1	2.26E+1	1.47E+1	1.47E+1	4.13E+0	4.13E+0	1.007E+3
3.00E+1	2.94E+2	4.38E+1	2.07E+1	2.06E+1	1.41E+1	7.74E+0	7.74E+0	1.68E+0	1.68E+0	1.319E+3
4.00E+1	2.11E+2	3.12E+1	1.27E+1	1.27E+1	9.96E+0	4.72E+0	4.72E+0	8.31E-1	8.31E-1	1.549E+3
5.00E+1	1.61E+2	2.37E+1	8.48E+0	8.48E+0	7.51E+0	3.14E+0	3.14E+0	4.65E-1	4.65E-1	1.718E+3
6.00E+1	1.29E+2	1.88E+1	6.01E+0	6.00E+0	5.92E+0	2.21E+0	2.21E+0	2.83E-1	2.83E-1	1.842E+3
8.00E+1	8.88E+1	1.28E+1	3.38E+0	3.38E+0	4.00E+0	1.24E+0	1.24E+0	1.24E-1	1.24E-1	1.995E+3
1.00E+2	6.58E+1	9.41E+0	2.11E+0	2.11E+0	2.91E+0	7.67E-1	7.66E-1	6.31E-2	6.31E-2	2.065E+3
1.50E+2	3.69E+1	5.16E+0	8.44E-1	8.43E-1	1.58E+0	3.04E-1	3.04E-1	1.73E-2	1.73E-2	2.065E+3
2.00E+2	2.39E+1	3.28E+0	4.22E-1	4.22E-1	9.95E-1	1.52E-1	1.51E-1	6.58E-3	6.57E-3	1.966E+3
3.00E+2	1.24E+1	1.66E+0	1.50E-1	1.50E-1	5.01E-1	5.37E-2	5.36E-2	1.58E-3	1.58E-3	1.718E+3
4.00E+2	7.52E+0	9.97E-1	6.97E-2	6.96E-2	2.99E-1	2.48E-2	2.47E-2	5.51E-4	5.51E-4	1.498E+3
5.00E+2	5.04E+0	6.62E-1	3.77E-2	3.76E-2	1.98E-1	1.34E-2	1.33E-2	2.39E-4	2.39E-4	1.319E+3
6.00E+2	3.59E+0	4.69E-1	2.25E-2	2.25E-2	1.40E-1	7.98E-3	7.96E-3	1.19E-4	1.19E-4	1.175E+3
8.00E+2	2.07E+0	2.68E-1	9.81E-3	9.79E-3	7.99E-2	3.47E-3	3.46E-3	3.90E-5	3.90E-5	9.616E+2
1.00E+3	1.33E+0	1.71E-1	5.08E-3	5.06E-3	5.11E-2	1.79E-3	1.79E-3	1.62E-5	1.61E-5	8.119E+2
1.50E+3	5.83E-1	7.42E-2	1.49E-3	1.48E-3	2.21E-2	5.24E-4	5.22E-4	3.17E-6	3.16E-6	5.832E+2
2.00E+3	3.18E-1	4.03E-2	6.11E-4	6.08E-4	1.20E-2	2.15E-4	2.14E-4	9.78E-7	9.75E-7	4.546E+2
3.00E+3	1.32E-1	1.66E-2	1.70E-4	1.69E-4	4.94E-3	5.98E-5	5.95E-5	1.82E-7	1.81E-7	3.154E+2
4.00E+3	6.96E-2	8.76E-3	6.77E-5	6.73E-5	2.60E-3	2.38E-5	2.37E-5	5.46E-8	5.43E-8	2.415E+2
5.00E+3	4.21E-2	5.29E-3	3.29E-5	3.27E-5	1.57E-3	1.16E-5	1.15E-5	2.13E-8	2.12E-8	1.957E+2
6.00E+3	2.78E-2	3.49E-3	1.82E-5	1.80E-5	1.04E-3	6.40E-6	6.34E-6	9.86E-9	9.78E-9	1.645E+2
8.00E+3	1.43E-2	1.80E-3	7.11E-6	7.03E-6	5.33E-4	2.50E-6	2.47E-6	2.91E-9	2.88E-9	1.249E+2
1.00E+4	8.53E-3	1.07E-3	3.41E-6	3.37E-6	3.17E-4	1.20E-6	1.18E-6	1.12E-9	1.11E-9	1.007E+2
1.50E+4	3.28E-3	4.12E-4	8.96E-7	8.79E-7	1.22E-4	3.15E-7	3.09E-7	2.00E-10	1.97E-10	6.802E+1
2.00E+4	1.66E-3	2.07E-4	3.46E-7	3.38E-7	6.15E-5	1.22E-7	1.19E-7	5.90E-11	5.77E-11	5.147E+1
3.00E+4	6.26E-4	7.83E-5	9.08E-8	8.77E-8	2.32E-5	3.19E-8	3.08E-8	1.07E-11	1.03E-11	3.478E+1
4.00E+4	3.12E-4	3.90E-5	3.53E-8	3.38E-8	1.16E-5	1.24E-8	1.19E-8	3.21E-12	3.09E-12	2.639E+1
5.00E+4	1.81E-4	2.26E-5	1.70E-8	1.62E-8	6.71E-6	5.99E-9	5.69E-9	1.28E-12	1.22E-12	2.134E+1
6.00E+4	1.16E-4	1.45E-5	9.45E-9	8.90E-9	4.30E-6	3.32E-9	3.13E-9	6.07E-13	5.77E-13	1.796E+1
8.00E+4	5.73E-5	7.17E-6	3.76E-9	3.50E-9	2.12E-6	1.32E-9	1.23E-9			1.373E+1
1.00E+5	3.31E-5	4.14E-6	1.86E-9	1.71E-9	1.23E-6	6.54E-10	6.01E-10			1.119E+1
1.50E+5	1.23E-5	1.54E-6	5.38E-10	4.83E-10						7.801E+0
2.00E+5	6.12E-6	7.65E-7								6.103E+0
3.00E+5	2.35E-6									4.403E+0
4.00E+5	1.24E-6									3.553E+0
5.00E+5	7.75E-7									3.043E+0

TABLE. Cross Sections for Radiative Recombination, $Z=1$–112
See page 9 for Explanation of Tables

$Z=4$

T_e (eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	$f_{1s_{1/2}}$
				σ_{RR} (b)						
$R_{nucl}=3.086$ fm										
$\|\epsilon_n\|$ (eV)	2.177E+2	5.444E+1	5.444E+1	5.443E+1	2.419E+1	2.419E+1	2.419E+1	2.419E+1	2.419E+1	
1.00E+0	1.82E+4	2.67E+3	2.41E+3	2.41E+3	9.00E+2	9.15E+2	9.15E+2	6.11E+2	6.11E+2	2.136E+1
1.50E+0	1.21E+4	1.78E+3	1.59E+3	1.59E+3	5.99E+2	6.05E+2	6.05E+2	3.96E+2	3.96E+2	3.189E+1
2.00E+0	9.08E+3	1.33E+3	1.18E+3	1.18E+3	4.49E+2	4.49E+2	4.49E+2	2.89E+2	2.88E+2	4.233E+1
3.00E+0	6.03E+3	8.88E+2	7.73E+2	7.73E+2	2.99E+2	2.94E+2	2.94E+2	1.82E+2	1.82E+2	6.292E+1
4.00E+0	4.51E+3	6.65E+2	5.69E+2	5.69E+2	2.24E+2	2.17E+2	2.17E+2	1.29E+2	1.29E+2	8.314E+1
5.00E+0	3.60E+3	5.31E+2	4.47E+2	4.47E+2	1.79E+2	1.70E+2	1.70E+2	9.81E+1	9.81E+1	1.030E+2
6.00E+0	2.99E+3	4.42E+2	3.66E+2	3.65E+2	1.48E+2	1.39E+2	1.39E+2	7.77E+1	7.76E+1	1.225E+2
8.00E+0	2.23E+3	3.30E+2	2.65E+2	2.64E+2	1.11E+2	1.01E+2	1.01E+2	5.27E+1	5.27E+1	1.604E+2
1.00E+1	1.77E+3	2.63E+2	2.04E+2	2.04E+2	8.80E+1	7.80E+1	7.79E+1	3.84E+1	3.84E+1	1.970E+2
1.50E+1	1.16E+3	1.73E+2	1.25E+2	1.25E+2	5.77E+1	4.77E+1	4.77E+1	2.05E+1	2.05E+1	2.830E+2
2.00E+1	8.61E+2	1.28E+2	8.67E+1	8.66E+1	4.26E+1	3.30E+1	3.30E+1	1.26E+1	1.26E+1	3.616E+2
3.00E+1	5.58E+2	8.33E+1	4.98E+1	4.97E+1	2.74E+1	1.89E+1	1.89E+1	5.85E+0	5.85E+0	4.996E+2
4.00E+1	4.07E+2	6.07E+1	3.26E+1	3.25E+1	1.98E+1	1.23E+1	1.23E+1	3.22E+0	3.21E+0	6.154E+2
5.00E+1	3.17E+2	4.72E+1	2.30E+1	2.29E+1	1.53E+1	8.62E+0	8.61E+0	1.95E+0	1.95E+0	7.129E+2
6.00E+1	2.57E+2	3.82E+1	1.70E+1	1.70E+1	1.23E+1	6.36E+0	6.35E+0	1.27E+0	1.27E+0	7.950E+2
8.00E+1	1.83E+2	2.70E+1	1.03E+1	1.03E+1	8.59E+0	3.82E+0	3.82E+0	6.15E−1	6.14E−1	9.224E+2
1.00E+2	1.39E+2	2.04E+1	6.80E+0	6.79E+0	6.44E+0	2.51E+0	2.51E+0	3.38E−1	3.38E−1	1.012E+3
1.50E+2	8.28E+1	1.19E+1	3.03E+0	3.02E+0	3.71E+0	1.11E+0	1.11E+0	1.06E−1	1.06E−1	1.134E+3
2.00E+2	5.59E+1	7.94E+0	1.63E+0	1.63E+0	2.45E+0	5.91E−1	5.90E−1	4.38E−2	4.37E−2	1.172E+3
3.00E+2	3.10E+1	4.30E+0	6.39E−1	6.38E−1	1.31E+0	2.30E−1	2.30E−1	1.17E−2	1.17E−2	1.144E+3
4.00E+2	1.98E+1	2.70E+0	3.15E−1	3.15E−1	8.19E−1	1.13E−1	1.13E−1	4.38E−3	4.38E−3	1.072E+3
5.00E+2	1.38E+1	1.86E+0	1.78E−1	1.78E−1	5.60E−1	6.37E−2	6.35E−2	1.99E−3	1.99E−3	9.924E+2
6.00E+2	1.01E+1	1.35E+0	1.10E−1	1.10E−1	4.07E−1	3.93E−2	3.92E−2	1.03E−3	1.03E−3	9.175E+2
8.00E+2	6.10E+0	8.04E−1	5.06E−2	5.04E−2	2.41E−1	1.80E−2	1.79E−2	3.56E−4	3.56E−4	7.900E+2
1.00E+3	4.05E+0	5.30E−1	2.71E−2	2.70E−2	1.59E−1	9.61E−3	9.58E−3	1.53E−4	1.53E−4	6.899E+2
1.50E+3	1.87E+0	2.41E−1	8.42E−3	8.39E−3	7.19E−2	2.98E−3	2.96E−3	3.18E−5	3.17E−5	5.203E+2
2.00E+3	1.05E+0	1.35E−1	3.58E−3	3.56E−3	4.01E−2	1.26E−3	1.26E−3	1.02E−5	1.01E−5	4.164E+2
3.00E+3	4.55E−1	5.78E−2	1.04E−3	1.03E−3	1.72E−2	3.67E−4	3.65E−4	1.98E−6	1.97E−6	2.970E+2
4.00E+3	2.46E−1	3.12E−2	4.26E−4	4.22E−4	9.27E−3	1.50E−4	1.49E−4	6.10E−7	6.06E−7	2.307E+2
5.00E+3	1.52E−1	1.92E−2	2.11E−4	2.09E−4	5.69E−3	7.42E−5	7.35E−5	2.42E−7	2.41E−7	1.886E+2
6.00E+3	1.01E−1	1.28E−2	1.18E−4	1.17E−4	3.80E−3	4.16E−5	4.11E−5	1.14E−7	1.13E−7	1.595E+2
8.00E+3	5.33E−2	6.71E−3	4.70E−5	4.64E−5	1.99E−3	1.65E−5	1.63E−5	3.41E−8	3.38E−8	1.220E+2
1.00E+4	3.21E−2	4.04E−3	2.29E−5	2.25E−5	1.20E−3	8.04E−6	7.92E−6	1.34E−8	1.32E−8	9.884E+1
1.50E+4	1.26E−2	1.58E−3	6.13E−6	6.00E−6	4.69E−4	2.15E−6	2.11E−6	2.43E−9	2.39E−9	6.717E+1
2.00E+4	6.44E−3	8.07E−4	2.40E−6	2.33E−6	2.39E−4	8.42E−7	8.20E−7	7.24E−10	7.08E−10	5.098E+1
3.00E+4	2.47E−3	3.09E−4	6.38E−7	6.15E−7	9.16E−5	2.24E−7	2.16E−7	1.33E−10	1.29E−10	3.456E+1
4.00E+4	1.24E−3	1.55E−4	2.50E−7	2.39E−7	4.60E−5	8.78E−8	8.39E−8	4.03E−11	3.88E−11	2.626E+1
5.00E+4	7.24E−4	9.06E−5	1.22E−7	1.15E−7	2.69E−5	4.27E−8	4.04E−8	1.62E−11	1.54E−11	2.125E+1
6.00E+4	4.66E−4	5.83E−5	6.76E−8	6.35E−8	1.73E−5	2.38E−8	2.23E−8	7.71E−12	7.32E−12	1.790E+1
8.00E+4	2.32E−4	2.90E−5	2.71E−8	2.51E−8	8.58E−6	9.52E−9	8.81E−9			1.370E+1
1.00E+5	1.34E−4	1.68E−5	1.35E−8	1.23E−8	4.98E−6	4.74E−9	4.33E−9			1.117E+1
1.50E+5	5.01E−5	6.27E−6	3.92E−9	3.50E−9	1.86E−6	1.38E−9	1.23E−9			7.790E+0
2.00E+5	2.50E−5	3.13E−6	1.69E−9	1.49E−9						6.097E+0
3.00E+5	9.67E−6	1.21E−6								4.400E+0
4.00E+5	5.10E−6	6.38E−7								3.551E+0
5.00E+5	3.20E−6									3.041E+0
6.00E+5	2.24E−6									2.701E+0
8.00E+5	1.34E−6									2.276E+0
1.00E+6	9.37E−7									2.021E+0

TABLE. Cross Sections for Radiative Recombination, $Z=1$–112

$Z= 5$

T_e (eV)	σ_{RR} (b)									$f_{1s_{1/2}}$
	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 3.060$ fm

$|\epsilon_n|$ (eV)	3.403E+2	8.507E+1	8.507E+1	8.504E+1	3.781E+1	3.781E+1	3.780E+1	3.780E+1	3.780E+1	
1.00E+0	2.85E+4	4.18E+3	3.79E+3	3.79E+3	1.41E+3	1.44E+3	1.44E+3	9.75E+2	9.74E+2	8.776E+0
1.50E+0	1.90E+4	2.79E+3	2.51E+3	2.51E+3	9.37E+2	9.54E+2	9.54E+2	6.38E+2	6.38E+2	1.313E+1
2.00E+0	1.42E+4	2.09E+3	1.87E+3	1.87E+3	7.03E+2	7.12E+2	7.11E+2	4.70E+2	4.69E+2	1.745E+1
3.00E+0	9.46E+3	1.39E+3	1.23E+3	1.23E+3	4.68E+2	4.69E+2	4.69E+2	3.02E+2	3.02E+2	2.602E+1
4.00E+0	7.08E+3	1.04E+3	9.14E+2	9.13E+2	3.51E+2	3.48E+2	3.48E+2	2.19E+2	2.18E+2	3.449E+1
5.00E+0	5.65E+3	8.32E+2	7.22E+2	7.22E+2	2.80E+2	2.75E+2	2.75E+2	1.69E+2	1.69E+2	4.287E+1
6.00E+0	4.70E+3	6.93E+2	5.95E+2	5.94E+2	2.33E+2	2.27E+2	2.26E+2	1.36E+2	1.36E+2	5.114E+1
8.00E+0	3.51E+3	5.18E+2	4.36E+2	4.35E+2	1.74E+2	1.66E+2	1.66E+2	9.53E+1	9.52E+1	6.741E+1
1.00E+1	2.80E+3	4.14E+2	3.41E+2	3.40E+2	1.39E+2	1.30E+2	1.30E+2	7.14E+1	7.13E+1	8.331E+1
1.50E+1	1.85E+3	2.74E+2	2.15E+2	2.14E+2	9.18E+1	8.18E+1	8.18E+1	4.07E+1	4.07E+1	1.215E+2
2.00E+1	1.37E+3	2.04E+2	1.52E+2	1.52E+2	6.82E+1	5.81E+1	5.80E+1	2.64E+1	2.64E+1	1.575E+2
3.00E+1	8.98E+2	1.34E+2	9.15E+1	9.14E+1	4.45E+1	3.48E+1	3.48E+1	1.35E+1	1.35E+1	2.237E+2
4.00E+1	6.62E+2	9.87E+1	6.22E+1	6.22E+1	3.26E+1	2.36E+1	2.36E+1	7.98E+0	7.98E+0	2.827E+2
5.00E+1	5.20E+2	7.76E+1	4.54E+1	4.53E+1	2.55E+1	1.72E+1	1.72E+1	5.14E+0	5.14E+0	3.355E+2
6.00E+1	4.25E+2	6.35E+1	3.47E+1	3.46E+1	2.07E+1	1.31E+1	1.31E+1	3.51E+0	3.51E+0	3.828E+2
8.00E+1	3.08E+2	4.59E+1	2.21E+1	2.21E+1	1.48E+1	8.29E+0	8.28E+0	1.85E+0	1.85E+0	4.630E+2
1.00E+2	2.38E+2	3.54E+1	1.53E+1	1.52E+1	1.13E+1	5.69E+0	5.68E+0	1.08E+0	1.08E+0	5.273E+2
1.50E+2	1.47E+2	2.15E+1	7.36E+0	7.34E+0	6.80E+0	2.72E+0	2.71E+0	3.78E−1	3.78E−1	6.379E+2
2.00E+2	1.02E+2	1.48E+1	4.20E+0	4.19E+0	4.63E+0	1.54E+0	1.54E+0	1.69E−1	1.69E−1	7.004E+2
3.00E+2	5.92E+1	8.43E+0	1.79E+0	1.78E+0	2.60E+0	6.48E−1	6.47E−1	4.98E−2	4.97E−2	7.481E+2
4.00E+2	3.92E+1	5.50E+0	9.31E−1	9.28E−1	1.68E+0	3.36E−1	3.35E−1	1.98E−2	1.98E−2	7.463E+2
5.00E+2	2.81E+1	3.88E+0	5.48E−1	5.46E−1	1.18E+0	1.97E−1	1.96E−1	9.45E−3	9.43E−3	7.241E+2
6.00E+2	2.11E+1	2.89E+0	3.50E−1	3.49E−1	8.76E−1	1.25E−1	1.25E−1	5.06E−3	5.05E−3	6.940E+2
8.00E+2	1.32E+1	1.78E+0	1.68E−1	1.67E−1	5.37E−1	6.00E−2	5.97E−2	1.84E−3	1.83E−3	6.293E+2
1.00E+3	9.04E+0	1.21E+0	9.31E−2	9.27E−2	3.62E−1	3.31E−2	3.30E−2	8.18E−4	8.16E−4	5.695E+2
1.50E+3	4.37E+0	5.72E−1	3.05E−2	3.04E−2	1.71E−1	1.08E−2	1.08E−2	1.80E−4	1.79E−4	4.533E+2
2.00E+3	2.54E+0	3.29E−1	1.34E−2	1.34E−2	9.83E−2	4.75E−3	4.72E−3	5.95E−5	5.93E−5	3.739E+2
3.00E+3	1.14E+0	1.46E−1	4.07E−3	4.04E−3	4.36E−2	1.44E−3	1.43E−3	1.21E−5	1.20E−5	2.756E+2
4.00E+3	6.33E−1	8.08E−2	1.71E−3	1.69E−3	2.40E−2	6.02E−4	5.96E−4	3.81E−6	3.79E−6	2.179E+2
5.00E+3	3.96E−1	5.04E−2	8.60E−4	8.51E−4	1.50E−2	3.03E−4	3.00E−4	1.54E−6	1.53E−6	1.801E+2
6.00E+3	2.69E−1	3.40E−2	4.89E−4	4.83E−4	1.01E−2	1.72E−4	1.70E−4	7.33E−7	7.26E−7	1.534E+2
8.00E+3	1.44E−1	1.81E−2	1.98E−4	1.95E−4	5.39E−3	6.97E−5	6.86E−5	2.24E−7	2.22E−7	1.185E+2
1.00E+4	8.76E−2	1.11E−2	9.76E−5	9.59E−5	3.28E−3	3.43E−5	3.37E−5	8.91E−8	8.78E−8	9.652E+1
1.50E+4	3.51E−2	4.42E−3	2.67E−5	2.61E−5	1.31E−3	9.38E−6	9.16E−6	1.65E−8	1.62E−8	6.610E+1
2.00E+4	1.81E−2	2.28E−3	1.06E−5	1.03E−5	6.75E−4	3.71E−6	3.61E−6	4.98E−9	4.86E−9	5.037E+1
3.00E+4	7.04E−3	8.83E−4	2.85E−6	2.74E−6	2.62E−4	1.00E−6	9.63E−7	9.26E−10	8.96E−10	3.429E+1
4.00E+4	3.57E−3	4.47E−4	1.13E−6	1.08E−6	1.33E−4	3.96E−7	3.78E−7	2.84E−10	2.72E−10	2.610E+1
5.00E+4	2.10E−3	2.63E−4	5.52E−7	5.21E−7	7.79E−5	1.94E−7	1.83E−7	1.14E−10	1.09E−10	2.115E+1
6.00E+4	1.36E−3	1.70E−4	3.09E−7	2.89E−7	5.03E−5	1.08E−7	1.01E−7	5.48E−11	5.19E−11	1.783E+1
8.00E+4	6.77E−4	8.48E−5	1.24E−7	1.15E−7	2.51E−5	4.37E−8	4.03E−8	1.75E−11	1.64E−11	1.366E+1
1.00E+5	3.95E−4	4.94E−5	6.21E−8	5.66E−8	1.46E−5	2.18E−8	1.99E−8	7.38E−12	6.86E−12	1.114E+1
1.50E+5	1.48E−4	1.85E−5	1.82E−8	1.62E−8	5.49E−6	6.38E−9	5.67E−9			7.778E+0
2.00E+5	7.43E−5	9.29E−6	7.85E−9	6.88E−9	2.75E−6	2.76E−9	2.42E−9			6.089E+0
3.00E+5	2.88E−5	3.60E−6	2.56E−9	2.23E−9	1.07E−6	8.98E−10	7.82E−10			4.397E+0
4.00E+5	1.52E−5	1.90E−6	1.22E−9	1.08E−9						3.549E+0
5.00E+5	9.55E−6	1.19E−6								3.040E+0
6.00E+5	6.69E−6									2.700E+0
8.00E+5	4.00E−6									2.276E+0
1.00E+6	2.80E−6									2.021E+0
1.50E+6	1.59E−6									1.681E+0

$Z= 6$

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 3.186$ fm

$\vert\epsilon_n\vert$ (eV)	4.900E+2	1.225E+2	1.225E+2	1.225E+2	5.445E+1	5.445E+1	5.443E+1	5.443E+1	5.443E+1	
1.00E+0	4.10E+4	6.02E+3	5.48E+3	5.48E+3	2.03E+3	2.08E+3	2.08E+3	1.42E+3	1.42E+3	4.239E+0
1.50E+0	2.73E+4	4.01E+3	3.64E+3	3.64E+3	1.35E+3	1.38E+3	1.38E+3	9.34E+2	9.34E+2	6.345E+0
2.00E+0	2.05E+4	3.01E+3	2.72E+3	2.71E+3	1.01E+3	1.03E+3	1.03E+3	6.92E+2	6.91E+2	8.443E+0
3.00E+0	1.36E+4	2.00E+3	1.80E+3	1.79E+3	6.74E+2	6.83E+2	6.82E+2	4.50E+2	4.49E+2	1.261E+1
4.00E+0	1.02E+4	1.50E+3	1.34E+3	1.33E+3	5.05E+2	5.08E+2	5.08E+2	3.29E+2	3.29E+2	1.675E+1
5.00E+0	8.16E+3	1.20E+3	1.06E+3	1.06E+3	4.04E+2	4.03E+2	4.03E+2	2.57E+2	2.56E+2	2.085E+1
6.00E+0	6.79E+3	1.00E+3	8.76E+2	8.75E+2	3.36E+2	3.33E+2	3.33E+2	2.09E+2	2.08E+2	2.492E+1
8.00E+0	5.08E+3	7.49E+2	6.46E+2	6.45E+2	2.52E+2	2.46E+2	2.46E+2	1.49E+2	1.49E+2	3.296E+1
1.00E+1	4.06E+3	5.98E+2	5.09E+2	5.08E+2	2.01E+2	1.94E+2	1.94E+2	1.14E+2	1.14E+2	4.087E+1
1.50E+1	2.69E+3	3.97E+2	3.26E+2	3.25E+2	1.33E+2	1.24E+2	1.24E+2	6.76E+1	6.76E+1	6.010E+1
2.00E+1	2.00E+3	2.96E+2	2.35E+2	2.34E+2	9.94E+1	8.95E+1	8.94E+1	4.55E+1	4.55E+1	7.857E+1
3.00E+1	1.32E+3	1.96E+2	1.45E+2	1.45E+2	6.53E+1	5.53E+1	5.52E+1	2.48E+1	2.48E+1	1.134E+2
4.00E+1	9.74E+2	1.45E+2	1.01E+2	1.01E+2	4.83E+1	3.85E+1	3.85E+1	1.54E+1	1.54E+1	1.455E+2
5.00E+1	7.69E+2	1.15E+2	7.55E+1	7.54E+1	3.80E+1	2.87E+1	2.87E+1	1.04E+1	1.04E+1	1.752E+2
6.00E+1	6.33E+2	9.45E+1	5.89E+1	5.87E+1	3.12E+1	2.23E+1	2.23E+1	7.38E+0	7.38E+0	2.027E+2
8.00E+1	4.63E+2	6.92E+1	3.89E+1	3.89E+1	2.26E+1	1.47E+1	1.47E+1	4.14E+0	4.13E+0	2.516E+2
1.00E+2	3.61E+2	5.40E+1	2.77E+1	2.77E+1	1.75E+1	1.04E+1	1.04E+1	2.55E+0	2.55E+0	2.936E+2
1.50E+2	2.27E+2	3.37E+1	1.42E+1	1.42E+1	1.08E+1	5.31E+0	5.29E+0	9.79E-1	9.78E-1	3.743E+2
2.00E+2	1.61E+2	2.37E+1	8.51E+0	8.48E+0	7.51E+0	3.15E+0	3.14E+0	4.66E-1	4.65E-1	4.294E+2
3.00E+2	9.66E+1	1.40E+1	3.87E+0	3.86E+0	4.37E+0	1.42E+0	1.41E+0	1.50E-1	1.50E-1	4.914E+2
4.00E+2	6.58E+1	9.41E+0	2.12E+0	2.11E+0	2.91E+0	7.70E-1	7.67E-1	6.33E-2	6.32E-2	5.163E+2
5.00E+2	4.81E+1	6.80E+0	1.29E+0	1.29E+0	2.09E+0	4.67E-1	4.65E-1	3.14E-2	3.14E-2	5.216E+2
6.00E+2	3.69E+1	5.16E+0	8.48E-1	8.44E-1	1.58E+0	3.06E-1	3.05E-1	1.74E-2	1.74E-2	5.164E+2
8.00E+2	2.38E+1	3.28E+0	4.25E-1	4.22E-1	9.95E-1	1.52E-1	1.52E-1	6.61E-3	6.59E-3	4.917E+2
1.00E+3	1.67E+1	2.27E+0	2.43E-1	2.41E-1	6.85E-1	8.67E-2	8.63E-2	3.05E-3	3.04E-3	4.608E+2
1.50E+3	8.42E+0	1.12E+0	8.37E-2	8.32E-2	3.37E-1	2.98E-2	2.96E-2	7.07E-4	7.04E-4	3.877E+2
2.00E+3	5.03E+0	6.61E-1	3.80E-2	3.77E-2	1.98E-1	1.35E-2	1.34E-2	2.42E-4	2.41E-4	3.303E+2
3.00E+3	2.35E+0	3.04E-1	1.20E-2	1.19E-2	9.07E-2	4.24E-3	4.20E-3	5.12E-5	5.08E-5	2.525E+2
4.00E+3	1.33E+0	1.71E-1	5.16E-3	5.10E-3	5.10E-2	1.82E-3	1.80E-3	1.66E-5	1.64E-5	2.036E+2
5.00E+3	8.47E-1	1.08E-1	2.64E-3	2.61E-3	3.22E-2	9.32E-4	9.21E-4	6.82E-6	6.76E-6	1.704E+2
6.00E+3	5.81E-1	7.40E-2	1.52E-3	1.50E-3	2.20E-2	5.36E-4	5.28E-4	3.28E-6	3.25E-6	1.464E+2
8.00E+3	3.16E-1	4.01E-2	6.28E-4	6.17E-4	1.19E-2	2.21E-4	2.17E-4	1.02E-6	1.01E-6	1.143E+2
1.00E+4	1.95E-1	2.47E-2	3.13E-4	3.07E-4	7.34E-3	1.10E-4	1.08E-4	4.11E-7	4.05E-7	9.378E+1
1.50E+4	7.98E-2	1.01E-2	8.74E-5	8.52E-5	2.98E-3	3.07E-5	3.00E-5	7.77E-8	7.62E-8	6.483E+1
2.00E+4	4.17E-2	5.24E-3	3.50E-5	3.39E-5	1.56E-3	1.23E-5	1.19E-5	2.37E-8	2.32E-8	4.964E+1
3.00E+4	1.64E-2	2.06E-3	9.59E-6	9.20E-6	6.11E-4	3.37E-6	3.23E-6	4.48E-9	4.33E-9	3.395E+1
4.00E+4	8.39E-3	1.05E-3	3.83E-6	3.63E-6	3.12E-4	1.35E-6	1.28E-6	1.38E-9	1.33E-9	2.591E+1
5.00E+4	4.96E-3	6.21E-4	1.88E-6	1.77E-6	1.84E-4	6.61E-7	6.22E-7	5.61E-10	5.33E-10	2.103E+1
6.00E+4	3.21E-3	4.03E-4	1.06E-6	9.86E-7	1.19E-4	3.71E-7	3.46E-7	2.70E-10	2.55E-10	1.774E+1
8.00E+4	1.62E-3	2.03E-4	4.29E-7	3.94E-7	6.00E-5	1.51E-7	1.38E-7	8.69E-11	8.12E-11	1.361E+1
1.00E+5	9.46E-4	1.19E-4	2.15E-7	1.95E-7	3.51E-5	7.56E-8	6.85E-8	3.67E-11	3.40E-11	1.111E+1
1.50E+5	3.57E-4	4.47E-5	6.34E-8	5.60E-8	1.32E-5	2.23E-8	1.97E-8	8.10E-12	7.43E-12	7.763E+0
2.00E+5	1.80E-4	2.25E-5	2.75E-8	2.39E-8	6.66E-6	9.65E-9	8.41E-9	2.91E-12	2.68E-12	6.080E+0
3.00E+5	7.00E-5	8.75E-6	8.99E-9	7.78E-9	2.59E-6	3.16E-9	2.73E-9			4.392E+0
4.00E+5	3.70E-5	4.63E-6	4.29E-9	3.76E-9	1.38E-6					3.546E+0
5.00E+5	2.33E-5	2.91E-6	2.50E-9	2.25E-9						3.038E+0
6.00E+5	1.63E-5	2.04E-6	1.65E-9	1.53E-9						2.699E+0
8.00E+5	9.76E-6	1.22E-6								2.275E+0
1.00E+6	6.84E-6									2.020E+0
1.50E+6	3.88E-6									1.680E+0
2.00E+6	2.72E-6									1.510E+0
3.00E+6	1.73E-6									1.340E+0

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Z= 7

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

R_{nucl} = 3.305 fm

$\lvert\epsilon_n\rvert$ (eV)	6.671E+2	1.668E+2	1.668E+2	1.667E+2	7.412E+1	7.412E+1	7.409E+1	7.409E+1	7.408E+1	
1.00E+0	5.59E+4	8.20E+3	7.49E+3	7.47E+3	2.76E+3	2.84E+3	2.84E+3	1.95E+3	1.95E+3	2.290E+0
1.50E+0	3.72E+4	5.46E+3	4.98E+3	4.97E+3	1.84E+3	1.89E+3	1.89E+3	1.29E+3	1.28E+3	3.429E+0
2.00E+0	2.79E+4	4.10E+3	3.72E+3	3.71E+3	1.38E+3	1.41E+3	1.41E+3	9.55E+2	9.54E+2	4.565E+0
3.00E+0	1.86E+4	2.73E+3	2.46E+3	2.46E+3	9.19E+2	9.36E+2	9.35E+2	6.25E+2	6.24E+2	6.828E+0
4.00E+0	1.39E+4	2.05E+3	1.84E+3	1.83E+3	6.89E+2	6.98E+2	6.97E+2	4.60E+2	4.59E+2	9.077E+0
5.00E+0	1.11E+4	1.64E+3	1.46E+3	1.46E+3	5.51E+2	5.55E+2	5.54E+2	3.61E+2	3.61E+2	1.131E+1
6.00E+0	9.27E+3	1.36E+3	1.21E+3	1.21E+3	4.59E+2	4.60E+2	4.59E+2	2.95E+2	2.95E+2	1.353E+1
8.00E+0	6.94E+3	1.02E+3	8.96E+2	8.94E+2	3.43E+2	3.41E+2	3.40E+2	2.14E+2	2.14E+2	1.794E+1
1.00E+1	5.54E+3	8.16E+2	7.08E+2	7.06E+2	2.74E+2	2.69E+2	2.69E+2	1.65E+2	1.65E+2	2.229E+1
1.50E+1	3.67E+3	5.42E+2	4.58E+2	4.57E+2	1.82E+2	1.74E+2	1.74E+2	1.01E+2	1.01E+2	3.295E+1
2.00E+1	2.74E+3	4.05E+2	3.33E+2	3.33E+2	1.36E+2	1.27E+2	1.27E+2	6.95E+1	6.95E+1	4.329E+1
3.00E+1	1.81E+3	2.68E+2	2.10E+2	2.09E+2	8.99E+1	8.00E+1	7.99E+1	3.96E+1	3.95E+1	6.309E+1
4.00E+1	1.34E+3	2.00E+2	1.49E+2	1.49E+2	6.68E+1	5.67E+1	5.66E+1	2.56E+1	2.56E+1	8.176E+1
5.00E+1	1.07E+3	1.59E+2	1.13E+2	1.13E+2	5.28E+1	4.30E+1	4.29E+1	1.78E+1	1.78E+1	9.937E+1
6.00E+1	8.79E+2	1.31E+2	8.93E+1	8.90E+1	4.35E+1	3.40E+1	3.39E+1	1.30E+1	1.30E+1	1.160E+2
8.00E+1	6.47E+2	9.66E+1	6.06E+1	6.05E+1	3.19E+1	2.30E+1	2.30E+1	7.69E+0	7.68E+0	1.465E+2
1.00E+2	5.08E+2	7.59E+1	4.42E+1	4.40E+1	2.49E+1	1.67E+1	1.67E+1	4.94E+0	4.93E+0	1.737E+2
1.50E+2	3.24E+2	4.83E+1	2.38E+1	2.37E+1	1.56E+1	8.93E+0	8.91E+0	2.05E+0	2.05E+0	2.296E+2
2.00E+2	2.33E+2	3.46E+1	1.48E+1	1.47E+1	1.11E+1	5.51E+0	5.49E+0	1.03E+0	1.03E+0	2.719E+2
3.00E+2	1.43E+2	2.10E+1	7.10E+0	7.07E+0	6.62E+0	2.62E+0	2.61E+0	3.59E-1	3.58E-1	3.279E+2
4.00E+2	9.92E+1	1.44E+1	4.04E+0	4.02E+0	4.50E+0	1.48E+0	1.48E+0	1.60E-1	1.59E-1	3.591E+2
5.00E+2	7.39E+1	1.06E+1	2.54E+0	2.53E+0	3.29E+0	9.27E-1	9.23E-1	8.23E-2	8.21E-2	3.753E+2
6.00E+2	5.75E+1	8.19E+0	1.71E+0	1.70E+0	2.52E+0	6.22E-1	6.19E-1	4.69E-2	4.68E-2	3.822E+2
8.00E+2	3.81E+1	5.33E+0	8.92E-1	8.86E-1	1.63E+0	3.22E-1	3.20E-1	1.87E-2	1.86E-2	3.802E+2
1.00E+3	2.72E+1	3.76E+0	5.24E-1	5.21E-1	1.14E+0	1.88E-1	1.87E-1	8.86E-3	8.83E-3	3.681E+2
1.50E+3	1.42E+1	1.92E+0	1.90E-1	1.88E-1	5.80E-1	6.77E-2	6.72E-2	2.17E-3	2.16E-3	3.269E+2
2.00E+3	8.72E+0	1.16E+0	8.88E-2	8.80E-2	3.49E-1	3.16E-2	3.13E-2	7.66E-4	7.62E-4	2.879E+2
3.00E+3	4.20E+0	5.51E-1	2.91E-2	2.88E-2	1.65E-1	1.03E-2	1.02E-2	1.69E-4	1.67E-4	2.287E+2
4.00E+3	2.44E+0	3.16E-1	1.28E-2	1.27E-2	9.44E-2	4.53E-3	4.48E-3	5.59E-5	5.54E-5	1.884E+2
5.00E+3	1.58E+0	2.03E-1	6.68E-3	6.59E-3	6.05E-2	2.36E-3	2.33E-3	2.34E-5	2.32E-5	1.599E+2
6.00E+3	1.09E+0	1.40E-1	3.89E-3	3.83E-3	4.18E-2	1.37E-3	1.35E-3	1.14E-5	1.13E-5	1.388E+2
8.00E+3	6.05E-1	7.72E-2	1.64E-3	1.61E-3	2.30E-2	5.76E-4	5.66E-4	3.62E-6	3.57E-6	1.097E+2
1.00E+4	3.78E-1	4.81E-2	8.27E-4	8.09E-4	1.43E-2	2.91E-4	2.85E-4	1.47E-6	1.45E-6	9.070E+1
1.50E+4	1.58E-1	1.99E-2	2.35E-4	2.29E-4	5.91E-3	8.27E-5	8.04E-5	2.84E-7	2.78E-7	6.337E+1
2.00E+4	8.32E-2	1.05E-2	9.54E-5	9.21E-5	3.12E-3	3.35E-5	3.24E-5	8.79E-8	8.55E-8	4.879E+1
3.00E+4	3.32E-2	4.18E-3	2.65E-5	2.53E-5	1.24E-3	9.31E-6	8.90E-6	1.68E-8	1.62E-8	3.356E+1
4.00E+4	1.71E-2	2.15E-3	1.07E-5	1.01E-5	6.38E-4	3.75E-6	3.55E-6	5.23E-9	5.01E-9	2.569E+1
5.00E+4	1.02E-2	1.28E-3	5.28E-6	4.95E-6	3.79E-4	1.85E-6	1.74E-6	2.13E-9	2.03E-9	2.088E+1
6.00E+4	6.63E-3	8.31E-4	2.98E-6	2.77E-6	2.46E-4	1.05E-6	9.72E-7	1.03E-9	9.73E-10	1.764E+1
8.00E+4	3.35E-3	4.20E-4	1.22E-6	1.11E-6	1.25E-4	4.27E-7	3.91E-7	3.34E-10	3.11E-10	1.355E+1
1.00E+5	1.97E-3	2.47E-4	6.12E-7	5.53E-7	7.32E-5	2.15E-7	1.94E-7	1.42E-10	1.31E-10	1.107E+1
1.50E+5	7.48E-4	9.36E-5	1.82E-7	1.60E-7	2.77E-5	6.37E-8	5.61E-8	3.15E-11	2.88E-11	7.744E+0
2.00E+5	3.78E-4	4.73E-5	7.90E-8	6.84E-8	1.40E-5	2.77E-8	2.40E-8	1.14E-11	1.05E-11*	6.069E+0
3.00E+5	1.48E-4	1.85E-5	2.60E-8	2.23E-8	5.47E-6	9.11E-9	7.83E-9		2.77E-12*	4.387E+0
4.00E+5	7.83E-5	9.79E-6	1.24E-8	1.08E-8	2.90E-6		3.79E-9			3.543E+0
5.00E+5	4.93E-5	6.16E-6	7.24E-9	6.46E-9	1.83E-6					3.036E+0
6.00E+5	3.45E-5	4.32E-6	4.78E-9	4.39E-9						2.697E+0
8.00E+5	2.07E-5	2.59E-6								2.274E+0
1.00E+6	1.45E-5									2.019E+0
1.50E+6	8.22E-6									1.680E+0
2.00E+6	5.76E-6									1.510E+0
3.00E+6	3.64E-6									1.340E+0

TABLE. Cross Sections for Radiative Recombination, $Z=1$–112
See page 9 for Explanation of Tables

$Z=8$

T_e (eV)	σ_{RR} (b)									$f_{1s_{1/2}}$
	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 3.477$ fm

$|\epsilon_n|$ (eV)	8.715E+2	2.179E+2	2.179E+2	2.177E+2	9.683E+1	9.683E+1	9.678E+1	9.678E+1	9.676E+1	
1.00E+0	7.30E+4	1.07E+4	9.80E+3	9.77E+3	3.60E+3	3.72E+3	3.71E+3	2.56E+3	2.55E+3	1.342E+0
1.50E+0	4.86E+4	7.14E+3	6.52E+3	6.50E+3	2.40E+3	2.47E+3	2.47E+3	1.69E+3	1.69E+3	2.011E+0
2.00E+0	3.65E+4	5.35E+3	4.88E+3	4.86E+3	1.80E+3	1.85E+3	1.85E+3	1.26E+3	1.26E+3	2.679E+0
3.00E+0	2.43E+4	3.57E+3	3.24E+3	3.23E+3	1.20E+3	1.23E+3	1.23E+3	8.27E+2	8.26E+2	4.009E+0
4.00E+0	1.82E+4	2.67E+3	2.42E+3	2.41E+3	9.00E+2	9.17E+2	9.15E+2	6.11E+2	6.11E+2	5.333E+0
5.00E+0	1.46E+4	2.14E+3	1.92E+3	1.92E+3	7.20E+2	7.30E+2	7.29E+2	4.82E+2	4.82E+2	6.651E+0
6.00E+0	1.21E+4	1.78E+3	1.60E+3	1.59E+3	5.99E+2	6.06E+2	6.05E+2	3.96E+2	3.96E+2	7.963E+0
8.00E+0	9.08E+3	1.34E+3	1.19E+3	1.18E+3	4.49E+2	4.50E+2	4.50E+2	2.89E+2	2.89E+2	1.057E+1
1.00E+1	7.25E+3	1.07E+3	9.39E+2	9.36E+2	3.59E+2	3.57E+2	3.56E+2	2.25E+2	2.25E+2	1.315E+1
1.50E+1	4.81E+3	7.10E+2	6.11E+2	6.10E+2	2.39E+2	2.33E+2	2.32E+2	1.40E+2	1.40E+2	1.951E+1
2.00E+1	3.60E+3	5.31E+2	4.48E+2	4.47E+2	1.79E+2	1.71E+2	1.70E+2	9.83E+1	9.81E+1	2.572E+1
3.00E+1	2.38E+3	3.52E+2	2.86E+2	2.85E+2	1.18E+2	1.09E+2	1.09E+2	5.77E+1	5.77E+1	3.773E+1
4.00E+1	1.77E+3	2.63E+2	2.05E+2	2.04E+2	8.80E+1	7.81E+1	7.80E+1	3.84E+1	3.84E+1	4.920E+1
5.00E+1	1.41E+3	2.09E+2	1.57E+2	1.57E+2	6.99E+1	5.99E+1	5.98E+1	2.74E+1	2.74E+1	6.018E+1
6.00E+1	1.16E+3	1.73E+2	1.26E+2	1.25E+2	5.78E+1	4.79E+1	4.77E+1	2.05E+1	2.05E+1	7.067E+1
8.00E+1	8.60E+2	1.28E+2	8.70E+1	8.67E+1	4.26E+1	3.31E+1	3.30E+1	1.26E+1	1.26E+1	9.031E+1
1.00E+2	6.78E+2	1.01E+2	6.45E+1	6.43E+1	3.35E+1	2.45E+1	2.44E+1	8.36E+0	8.35E+0	1.083E+2
1.50E+2	4.37E+2	6.52E+1	3.61E+1	3.59E+1	2.13E+1	1.36E+1	1.36E+1	3.70E+0	3.70E+0	1.469E+2
2.00E+2	3.16E+2	4.72E+1	2.31E+1	2.30E+1	1.53E+1	8.65E+0	8.62E+0	1.96E+0	1.95E+0	1.781E+2
3.00E+2	1.98E+2	2.93E+1	1.16E+1	1.16E+1	9.33E+0	4.32E+0	4.30E+0	7.29E−1	7.27E−1	2.235E+2
4.00E+2	1.39E+2	2.05E+1	6.84E+0	6.80E+0	6.45E+0	2.52E+0	2.51E+0	3.40E−1	3.39E−1	2.530E+2
5.00E+2	1.05E+2	1.53E+1	4.42E+0	4.40E+0	4.78E+0	1.62E+0	1.61E+0	1.81E−1	1.81E−1	2.718E+2
6.00E+2	8.27E+1	1.19E+1	3.05E+0	3.03E+0	3.71E+0	1.11E+0	1.11E+0	1.06E−1	1.06E−1	2.834E+2
8.00E+2	5.59E+1	7.95E+0	1.64E+0	1.63E+0	2.45E+0	5.95E−1	5.91E−1	4.41E−2	4.39E−2	2.929E+2
1.00E+3	4.06E+1	5.70E+0	9.90E−1	9.82E−1	1.74E+0	3.57E−1	3.55E−1	2.16E−2	2.15E−2	2.921E+2
1.50E+3	2.19E+1	3.01E+0	3.74E−1	3.71E−1	9.12E−1	1.34E−1	1.33E−1	5.54E−3	5.51E−3	2.730E+2
2.00E+3	1.37E+1	1.86E+0	1.81E−1	1.79E−1	5.60E−1	6.44E−2	6.38E−2	2.02E−3	2.01E−3	2.484E+2
3.00E+3	6.83E+0	9.05E−1	6.14E−2	6.06E−2	2.71E−1	2.18E−2	2.15E−2	4.62E−4	4.59E−4	2.052E+2
4.00E+3	4.04E+0	5.29E−1	2.76E−2	2.72E−2	1.58E−1	9.79E−3	9.65E−3	1.57E−4	1.56E−4	1.729E+2
5.00E+3	2.65E+0	3.44E−1	1.46E−2	1.44E−2	1.03E−1	5.18E−3	5.10E−3	6.69E−5	6.61E−5	1.490E+2
6.00E+3	1.86E+0	2.40E−1	8.64E−3	8.48E−3	7.17E−2	3.05E−3	3.00E−3	3.30E−5	3.26E−5	1.306E+2
8.00E+3	1.05E+0	1.34E−1	3.69E−3	3.62E−3	4.00E−2	1.30E−3	1.28E−3	1.07E−5	1.05E−5	1.047E+2
1.00E+4	6.62E−1	8.46E−2	1.89E−3	1.85E−3	2.52E−2	6.66E−4	6.51E−4	4.39E−6	4.32E−6	8.731E+1
1.50E+4	2.81E−1	3.56E−2	5.48E−4	5.32E−4	1.06E−2	1.93E−4	1.87E−4	8.64E−7	8.44E−7	6.175E+1
2.00E+4	1.50E−1	1.90E−2	2.25E−4	2.17E−4	5.63E−3	7.91E−5	7.63E−5	2.70E−7	2.63E−7	4.784E+1
3.00E+4	6.07E−2	7.66E−3	6.34E−5	6.04E−5	2.27E−3	2.23E−5	2.12E−5	5.24E−8	5.05E−8	3.311E+1
4.00E+4	3.15E−2	3.97E−3	2.58E−5	2.43E−5	1.18E−3	9.05E−6	8.53E−6	1.65E−8	1.57E−8	2.543E+1
5.00E+4	1.89E−2	2.37E−3	1.28E−5	1.20E−5	7.02E−4	4.50E−6	4.20E−6	6.75E−9	6.39E−9	2.071E+1
6.00E+4	1.23E−2	1.55E−3	7.26E−6	6.72E−6	4.59E−4	2.55E−6	2.36E−6	3.28E−9	3.09E−9	1.752E+1
8.00E+4	6.27E−3	7.87E−4	2.98E−6	2.72E−6	2.33E−4	1.05E−6	9.54E−7	1.07E−9	9.93E−10	1.348E+1
1.00E+5	3.70E−3	4.64E−4	1.51E−6	1.36E−6	1.38E−4	5.30E−7	4.76E−7	4.55E−10	4.19E−10	1.103E+1
1.50E+5	1.41E−3	1.77E−4	4.50E−7	3.94E−7	5.25E−5	1.58E−7	1.38E−7	1.02E−10	9.26E−11	7.723E+0
2.00E+5	7.16E−4	8.97E−5	1.97E−7	1.69E−7	2.66E−5	6.90E−8	5.95E−8	3.68E−11	3.36E−11	6.057E+0
3.00E+5	2.81E−4	3.52E−5	6.49E−8	5.54E−8	1.04E−5	2.28E−8	1.95E−8	9.6E−12		4.381E+0
4.00E+5	1.49E−4	1.87E−5	3.11E−8	2.69E−8	5.54E−6	1.09E−8	9.43E−9			3.540E+0
5.00E+5	9.41E−5	1.18E−5	1.82E−8	1.61E−8	3.49E−6					3.033E+0
6.00E+5	6.60E−5	8.26E−6	1.20E−8	1.09E−8						2.696E+0
8.00E+5	3.96E−5	4.95E−6								2.273E+0
1.00E+6	2.77E−5	3.47E−6								2.018E+0
1.50E+6	1.57E−5									1.679E+0
2.00E+6	1.10E−5									1.510E+0
3.00E+6	6.94E−6									1.340E+0
4.00E+6	5.10E−6									1.255E+0

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TABLE. Cross Sections for Radiative Recombination, $Z=1$–112

See page 9 for Explanation of Tables

$Z=9$

T_e (eV)	σ_{RR} (b)									$f_{1s_{1/2}}$
	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 3.741$ fm

$\lvert\epsilon_n\rvert$ (eV)	1.103E+3	2.759E+2	2.759E+2	2.756E+2	1.226E+2	1.226E+2	1.225E+2	1.225E+2	1.225E+2	
1.00E+0	9.24E+4	1.36E+4	1.24E+4	1.24E+4	4.56E+3	4.71E+3	4.70E+3	3.25E+3	3.24E+3	8.381E−1
1.50E+0	6.16E+4	9.03E+3	8.27E+3	8.24E+3	3.04E+3	3.14E+3	3.13E+3	2.15E+3	2.15E+3	1.256E+0
2.00E+0	4.62E+4	6.78E+3	6.19E+3	6.17E+3	2.28E+3	2.35E+3	2.34E+3	1.60E+3	1.60E+3	1.673E+0
3.00E+0	3.08E+4	4.52E+3	4.11E+3	4.10E+3	1.52E+3	1.56E+3	1.56E+3	1.06E+3	1.06E+3	2.505E+0
4.00E+0	2.31E+4	3.39E+3	3.07E+3	3.06E+3	1.14E+3	1.17E+3	1.16E+3	7.84E+2	7.83E+2	3.334E+0
5.00E+0	1.84E+4	2.71E+3	2.45E+3	2.44E+3	9.11E+2	9.29E+2	9.27E+2	6.20E+2	6.19E+2	4.160E+0
6.00E+0	1.54E+4	2.26E+3	2.03E+3	2.03E+3	7.59E+2	7.71E+2	7.70E+2	5.11E+2	5.10E+2	4.983E+0
8.00E+0	1.15E+4	1.69E+3	1.51E+3	1.51E+3	5.69E+2	5.74E+2	5.73E+2	3.74E+2	3.74E+2	6.620E+0
1.00E+1	9.19E+3	1.35E+3	1.20E+3	1.20E+3	4.55E+2	4.56E+2	4.55E+2	2.93E+2	2.93E+2	8.246E+0
1.50E+1	6.11E+3	8.99E+2	7.86E+2	7.83E+2	3.03E+2	2.99E+2	2.98E+2	1.85E+2	1.85E+2	1.226E+1
2.00E+1	4.57E+3	6.73E+2	5.79E+2	5.77E+2	2.26E+2	2.20E+2	2.20E+2	1.32E+2	1.31E+2	1.620E+1
3.00E+1	3.03E+3	4.47E+2	3.72E+2	3.71E+2	1.50E+2	1.42E+2	1.41E+2	7.91E+1	7.90E+1	2.387E+1
4.00E+1	2.26E+3	3.34E+2	2.69E+2	2.68E+2	1.12E+2	1.03E+2	1.02E+2	5.38E+1	5.37E+1	3.128E+1
5.00E+1	1.79E+3	2.66E+2	2.08E+2	2.07E+2	8.92E+1	7.93E+1	7.91E+1	3.92E+1	3.91E+1	3.842E+1
6.00E+1	1.49E+3	2.21E+2	1.68E+2	1.67E+2	7.39E+1	6.39E+1	6.37E+1	2.98E+1	2.98E+1	4.532E+1
8.00E+1	1.10E+3	1.64E+2	1.18E+2	1.17E+2	5.47E+1	4.49E+1	4.47E+1	1.89E+1	1.88E+1	5.840E+1
1.00E+2	8.72E+2	1.30E+2	8.85E+1	8.81E+1	4.32E+1	3.37E+1	3.36E+1	1.29E+1	1.29E+1	7.059E+1
1.50E+2	5.65E+2	8.44E+1	5.09E+1	5.07E+1	2.78E+1	1.93E+1	1.92E+1	6.02E+0	6.01E+0	9.761E+1
2.00E+2	4.12E+2	6.16E+1	3.34E+1	3.32E+1	2.01E+1	1.26E+1	1.25E+1	3.31E+0	3.31E+0	1.204E+2
3.00E+2	2.60E+2	3.88E+1	1.75E+1	1.74E+1	1.25E+1	6.53E+0	6.49E+0	1.31E+0	1.31E+0	1.557E+2
4.00E+2	1.86E+2	2.75E+1	1.06E+1	1.05E+1	8.73E+0	3.93E+0	3.91E+0	6.38E−1	6.36E−1	1.810E+2
5.00E+2	1.41E+2	2.08E+1	7.02E+0	6.97E+0	6.55E+0	2.59E+0	2.57E+0	3.52E−1	3.51E−1	1.989E+2
6.00E+2	1.12E+2	1.64E+1	4.93E+0	4.89E+0	5.14E+0	1.81E+0	1.80E+0	2.12E−1	2.11E−1	2.115E+2
8.00E+2	7.72E+1	1.11E+1	2.74E+0	2.72E+0	3.45E+0	9.98E−1	9.91E−1	9.11E−2	9.08E−2	2.259E+2
1.00E+3	5.68E+1	8.09E+0	1.69E+0	1.68E+0	2.49E+0	6.14E−1	6.09E−1	4.59E−2	4.57E−2	2.312E+2
1.50E+3	3.15E+1	4.39E+0	6.66E−1	6.59E−1	1.34E+0	2.40E−1	2.37E−1	1.24E−2	1.23E−2	2.265E+2
2.00E+3	2.02E+1	2.76E+0	3.30E−1	3.26E−1	8.36E−1	1.18E−1	1.17E−1	4.65E−3	4.61E−3	2.127E+2
3.00E+3	1.03E+1	1.38E+0	1.16E−1	1.15E−1	4.15E−1	4.14E−2	4.08E−2	1.10E−3	1.09E−3	1.826E+2
4.00E+3	6.22E+0	8.22E−1	5.35E−2	5.26E−2	2.46E−1	1.90E−2	1.87E−2	3.83E−4	3.80E−4	1.576E+2
5.00E+3	4.14E+0	5.42E−1	2.88E−2	2.83E−2	1.62E−1	1.02E−2	1.00E−2	1.66E−4	1.64E−4	1.379E+2
6.00E+3	2.93E+0	3.82E−1	1.72E−2	1.69E−2	1.14E−1	6.08E−3	5.96E−3	8.29E−5	8.18E−5	1.222E+2
8.00E+3	1.68E+0	2.16E−1	7.48E−3	7.31E−3	6.45E−2	2.64E−3	2.58E−3	2.73E−5	2.68E−5	9.943E+1
1.00E+4	1.07E+0	1.38E−1	3.88E−3	3.77E−3	4.10E−2	1.37E−3	1.33E−3	1.14E−5	1.12E−5	8.371E+1
1.50E+4	4.63E−1	5.90E−2	1.15E−3	1.11E−3	1.75E−2	4.03E−4	3.90E−4	2.28E−6	2.22E−6	5.999E+1
2.00E+4	2.50E−1	3.17E−2	4.76E−4	4.57E−4	9.43E−3	1.67E−4	1.61E−4	7.21E−7	7.00E−7	4.680E+1
3.00E+4	1.03E−1	1.30E−2	1.36E−4	1.29E−4	3.85E−3	4.78E−5	4.54E−5	1.42E−7	1.36E−7	3.262E+1
4.00E+4	5.37E−2	6.77E−3	5.57E−5	5.23E−5	2.01E−3	1.96E−5	1.84E−5	4.49E−8	4.28E−8	2.514E+1
5.00E+4	3.23E−2	4.06E−3	2.79E−5	2.59E−5	1.21E−3	9.79E−6	9.11E−6	1.85E−8	1.75E−8	2.052E+1
6.00E+4	2.12E−2	2.67E−3	1.59E−5	1.46E−5	7.91E−4	5.57E−6	5.14E−6	9.04E−9	8.49E−9	1.739E+1
8.00E+4	1.09E−2	1.36E−3	6.56E−6	5.94E−6	4.04E−4	2.30E−6	2.09E−6	2.96E−9	2.75E−9	1.340E+1
1.00E+5	6.43E−3	8.07E−4	3.33E−6	2.98E−6	2.39E−4	1.17E−6	1.05E−6	1.27E−9	1.17E−9	1.098E+1
1.50E+5	2.47E−3	3.09E−4	1.00E−6	8.70E−7	9.17E−5	3.51E−7	3.06E−7	2.84E−10	2.59E−10	7.700E+0
2.00E+5	1.26E−3	1.57E−4	4.39E−7	3.75E−7	4.66E−5	1.54E−7	1.32E−7	1.03E−10	9.41E−11	6.043E+0
3.00E+5	4.95E−4	6.20E−5	1.45E−7	1.23E−7	1.84E−5	5.10E−8	4.33E−8	2.70E−11	2.52E−11	4.375E+0
4.00E+5	2.64E−4	3.30E−5	6.98E−8	5.98E−8	9.77E−6		2.11E−8*			3.536E+0
5.00E+5	1.66E−4	2.08E−5	4.09E−8	3.59E−8	6.16E−6					3.031E+0
6.00E+5	1.17E−4	1.46E−5	2.70E−8	2.44E−8	4.32E−6					2.693E+0
8.00E+5	7.00E−5	8.76E−6	1.47E−8	1.41E−8						2.271E+0
1.00E+6	4.90E−5	6.13E−6	9.57E−9	9.71E−9						2.018E+0
1.50E+6	2.78E−5									1.679E+0
2.00E+6	1.95E−5									1.509E+0
3.00E+6	1.22E−5									1.340E+0
4.00E+6	9.0E−6									1.255E+0

TABLE. Cross Sections for Radiative Recombination, $Z=1-112$
See page 9 for Explanation of Tables

$Z= 10$

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 3.881$ fm

$\lvert\epsilon_n\rvert$ (eV)	1.362E+3	3.407E+2	3.407E+2	3.403E+2	1.514E+2	1.514E+2	1.512E+2	1.512E+2	1.512E+2	
1.00E+0	1.14E+5	1.67E+4	1.54E+4	1.53E+4	5.63E+3	5.82E+3	5.81E+3	4.02E+3	4.01E+3	5.498E−1
1.50E+0	7.60E+4	1.12E+4	1.02E+4	1.02E+4	3.75E+3	3.88E+3	3.87E+3	2.67E+3	2.66E+3	8.241E−1
2.00E+0	5.70E+4	8.37E+3	7.66E+3	7.63E+3	2.81E+3	2.90E+3	2.90E+3	1.99E+3	1.99E+3	1.098E+0
3.00E+0	3.80E+4	5.58E+3	5.09E+3	5.07E+3	1.88E+3	1.93E+3	1.93E+3	1.31E+3	1.31E+3	1.645E+0
4.00E+0	2.85E+4	4.18E+3	3.81E+3	3.79E+3	1.41E+3	1.44E+3	1.44E+3	9.76E+2	9.75E+2	2.190E+0
5.00E+0	2.28E+4	3.34E+3	3.04E+3	3.02E+3	1.13E+3	1.15E+3	1.15E+3	7.74E+2	7.73E+2	2.733E+0
6.00E+0	1.90E+4	2.79E+3	2.52E+3	2.51E+3	9.37E+2	9.57E+2	9.55E+2	6.39E+2	6.38E+2	3.275E+0
8.00E+0	1.42E+4	2.09E+3	1.88E+3	1.87E+3	7.03E+2	7.13E+2	7.12E+2	4.71E+2	4.70E+2	4.354E+0
1.00E+1	1.14E+4	1.67E+3	1.50E+3	1.49E+3	5.62E+2	5.67E+2	5.66E+2	3.70E+2	3.69E+2	5.426E+0
1.50E+1	7.55E+3	1.11E+3	9.82E+2	9.77E+2	3.74E+2	3.73E+2	3.72E+2	2.36E+2	2.35E+2	8.080E+0
2.00E+1	5.65E+3	8.33E+2	7.25E+2	7.22E+2	2.80E+2	2.76E+2	2.75E+2	1.69E+2	1.69E+2	1.070E+1
3.00E+1	3.75E+3	5.53E+2	4.70E+2	4.67E+2	1.86E+2	1.79E+2	1.78E+2	1.04E+2	1.03E+2	1.581E+1
4.00E+1	2.80E+3	4.14E+2	3.42E+2	3.40E+2	1.39E+2	1.30E+2	1.30E+2	7.15E+1	7.14E+1	2.079E+1
5.00E+1	2.23E+3	3.30E+2	2.66E+2	2.65E+2	1.11E+2	1.01E+2	1.01E+2	5.29E+1	5.28E+1	2.562E+1
6.00E+1	1.85E+3	2.74E+2	2.16E+2	2.14E+2	9.18E+1	8.21E+1	8.18E+1	4.08E+1	4.07E+1	3.031E+1
8.00E+1	1.37E+3	2.04E+2	1.53E+2	1.52E+2	6.82E+1	5.83E+1	5.81E+1	2.65E+1	2.64E+1	3.930E+1
1.00E+2	1.09E+3	1.62E+2	1.16E+2	1.16E+2	5.40E+1	4.42E+1	4.40E+1	1.85E+1	1.84E+1	4.779E+1
1.50E+2	7.09E+2	1.06E+2	6.84E+1	6.80E+1	3.50E+1	2.59E+1	2.58E+1	9.04E+0	9.02E+0	6.703E+1
2.00E+2	5.19E+2	7.77E+1	4.57E+1	4.54E+1	2.55E+1	1.73E+1	1.72E+1	5.16E+0	5.15E+0	8.375E+1
3.00E+2	3.31E+2	4.95E+1	2.47E+1	2.45E+1	1.60E+1	9.26E+0	9.21E+0	2.15E+0	2.15E+0	1.110E+2
4.00E+2	2.38E+2	3.54E+1	1.54E+1	1.53E+1	1.14E+1	5.73E+0	5.69E+0	1.09E+0	1.08E+0	1.317E+2
5.00E+2	1.83E+2	2.71E+1	1.04E+1	1.03E+1	8.60E+0	3.85E+0	3.83E+0	6.18E−1	6.16E−1	1.474E+2
6.00E+2	1.46E+2	2.16E+1	7.42E+0	7.36E+0	6.80E+0	2.74E+0	2.72E+0	3.81E−1	3.79E−1	1.593E+2
8.00E+2	1.02E+2	1.48E+1	4.24E+0	4.20E+0	4.63E+0	1.55E+0	1.54E+0	1.70E−1	1.69E−1	1.750E+2
1.00E+3	7.59E+1	1.09E+1	2.67E+0	2.65E+0	3.39E+0	9.75E−1	9.66E−1	8.80E−2	8.75E−2	1.833E+2
1.50E+3	4.31E+1	6.07E+0	1.09E+0	1.08E+0	1.86E+0	3.95E−1	3.91E−1	2.48E−2	2.46E−2	1.874E+2
2.00E+3	2.80E+1	3.88E+0	5.56E−1	5.49E−1	1.18E+0	2.00E−1	1.97E−1	9.58E−3	9.51E−3	1.811E+2
3.00E+3	1.47E+1	1.99E+0	2.02E−1	1.99E−1	6.01E−1	7.22E−2	7.11E−2	2.36E−3	2.34E−3	1.616E+2
4.00E+3	9.02E+0	1.20E+0	9.52E−2	9.35E−2	3.62E−1	3.38E−2	3.33E−2	8.39E−4	8.30E−4	1.427E+2
5.00E+3	6.08E+0	8.03E−1	5.20E−2	5.10E−2	2.41E−1	1.85E−2	1.81E−2	3.69E−4	3.64E−4	1.269E+2
6.00E+3	4.36E+0	5.71E−1	3.14E−2	3.07E−2	1.71E−1	1.11E−2	1.09E−2	1.87E−4	1.84E−4	1.138E+2
8.00E+3	2.53E+0	3.28E−1	1.39E−2	1.36E−2	9.80E−2	4.91E−3	4.79E−3	6.24E−5	6.14E−5	9.401E+1
1.00E+4	1.63E+0	2.11E−1	7.29E−3	7.08E−3	6.29E−2	2.57E−3	2.50E−3	2.64E−5	2.58E−5	7.994E+1
1.50E+4	7.18E−1	9.18E−2	2.20E−3	2.12E−3	2.73E−2	7.73E−4	7.46E−4	5.38E−6	5.25E−6	5.810E+1
2.00E+4	3.92E−1	4.99E−2	9.22E−4	8.83E−4	1.48E−2	3.25E−4	3.11E−4	1.72E−6	1.67E−6	4.567E+1
3.00E+4	1.63E−1	2.06E−2	2.67E−4	2.53E−4	6.13E−3	9.40E−5	8.90E−5	3.44E−7	3.30E−7	3.209E+1
4.00E+4	8.61E−2	1.09E−2	1.10E−4	1.03E−4	3.22E−3	3.88E−5	3.63E−5	1.10E−7	1.04E−7	2.483E+1
5.00E+4	5.20E−2	6.56E−3	5.56E−5	5.15E−5	1.94E−3	1.95E−5	1.81E−5	4.55E−8	4.29E−8	2.032E+1
6.00E+4	3.43E−2	4.32E−3	3.18E−5	2.91E−5	1.28E−3	1.12E−5	1.03E−5	2.23E−8	2.09E−8	1.724E+1
8.00E+4	1.77E−2	2.22E−3	1.32E−5	1.19E−5	6.58E−4	4.64E−6	4.19E−6	7.34E−9	6.80E−9	1.332E+1
1.00E+5	1.05E−2	1.32E−3	6.74E−6	5.99E−6	3.91E−4	2.37E−6	2.11E−6	3.15E−9	2.89E−9	1.092E+1
1.50E+5	4.06E−3	5.09E−4	2.04E−6	1.76E−6	1.51E−4	7.15E−7	6.19E−7	7.13E−10	6.46E−10	7.674E+0
2.00E+5	2.07E−3	2.60E−4	8.97E−7	7.63E−7	7.69E−5	3.15E−7	2.68E−7	2.60E−10	2.36E−10	6.028E+0
3.00E+5	8.19E−4	1.03E−4	2.98E−7	2.51E−7	3.04E−5	1.05E−7	8.82E−8	6.81E−11	6.35E−11	4.367E+0
4.00E+5	4.37E−4	5.47E−5	1.44E−7	1.22E−7	1.62E−5	5.04E−8	4.29E−8	2.81E−11	2.75E−11	3.531E+0
5.00E+5	2.76E−4	3.45E−5	8.43E−8	7.33E−8	1.02E−5	2.96E−8	2.57E−8			3.028E+0
6.00E+5	1.94E−4	2.43E−5	5.58E−8	4.99E−8	7.19E−6					2.691E+0
8.00E+5	1.16E−4	1.46E−5	3.04E−8	2.89E−8	4.31E−6					2.270E+0
1.00E+6	8.15E−5	1.02E−5	1.98E−8	1.99E−8						2.016E+0
1.50E+6	4.62E−5									1.678E+0
2.00E+6	3.23E−5									1.509E+0
3.00E+6	2.03E−5									1.339E+0
4.00E+6	1.49E−5									1.255E+0

$Z= 11$

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 3.865$ fm

$\lvert\epsilon_n\rvert$ (eV)	1.649E+3	4.124E+2	4.124E+2	4.117E+2	1.832E+2	1.832E+2	1.830E+2	1.830E+2	1.830E+2	
1.00E+0	1.38E+5	2.03E+4	1.86E+4	1.85E+4	6.81E+3	7.05E+3	7.04E+3	4.87E+3	4.86E+3	3.754E−1
1.50E+0	9.20E+4	1.35E+4	1.24E+4	1.23E+4	4.54E+3	4.70E+3	4.69E+3	3.23E+3	3.23E+3	5.628E−1
2.00E+0	6.90E+4	1.01E+4	9.29E+3	9.24E+3	3.41E+3	3.52E+3	3.51E+3	2.42E+3	2.41E+3	7.500E−1
3.00E+0	4.60E+4	6.75E+3	6.18E+3	6.15E+3	2.27E+3	2.34E+3	2.33E+3	1.60E+3	1.60E+3	1.124E+0
4.00E+0	3.45E+4	5.06E+3	4.62E+3	4.60E+3	1.70E+3	1.75E+3	1.75E+3	1.19E+3	1.19E+3	1.496E+0
5.00E+0	2.76E+4	4.05E+3	3.69E+3	3.67E+3	1.36E+3	1.40E+3	1.39E+3	9.44E+2	9.43E+2	1.868E+0
6.00E+0	2.30E+4	3.37E+3	3.07E+3	3.05E+3	1.13E+3	1.16E+3	1.16E+3	7.81E+2	7.79E+2	2.239E+0
8.00E+0	1.72E+4	2.53E+3	2.29E+3	2.28E+3	8.50E+2	8.67E+2	8.65E+2	5.77E+2	5.76E+2	2.978E+0
1.00E+1	1.38E+4	2.02E+3	1.82E+3	1.81E+3	6.80E+2	6.90E+2	6.89E+2	4.55E+2	4.54E+2	3.714E+0
1.50E+1	9.15E+3	1.35E+3	1.20E+3	1.19E+3	4.53E+2	4.55E+2	4.54E+2	2.92E+2	2.91E+2	5.537E+0
2.00E+1	6.85E+3	1.01E+3	8.88E+2	8.83E+2	3.39E+2	3.37E+2	3.36E+2	2.11E+2	2.11E+2	7.339E+0
3.00E+1	4.55E+3	6.71E+2	5.78E+2	5.74E+2	2.26E+2	2.20E+2	2.19E+2	1.31E+2	1.31E+2	1.088E+1
4.00E+1	3.40E+3	5.02E+2	4.23E+2	4.20E+2	1.69E+2	1.61E+2	1.60E+2	9.16E+1	9.14E+1	1.433E+1
5.00E+1	2.71E+3	4.00E+2	3.30E+2	3.28E+2	1.34E+2	1.26E+2	1.25E+2	6.86E+1	6.84E+1	1.771E+1
6.00E+1	2.25E+3	3.33E+2	2.69E+2	2.67E+2	1.12E+2	1.02E+2	1.02E+2	5.35E+1	5.34E+1	2.100E+1
8.00E+1	1.67E+3	2.48E+2	1.93E+2	1.91E+2	8.31E+1	7.33E+1	7.30E+1	3.54E+1	3.53E+1	2.735E+1
1.00E+2	1.33E+3	1.97E+2	1.47E+2	1.46E+2	6.59E+1	5.61E+1	5.58E+1	2.52E+1	2.51E+1	3.342E+1
1.50E+2	8.68E+2	1.30E+2	8.83E+1	8.77E+1	4.30E+1	3.35E+1	3.34E+1	1.28E+1	1.28E+1	4.738E+1
2.00E+2	6.38E+2	9.54E+1	5.99E+1	5.95E+1	3.15E+1	2.27E+1	2.26E+1	7.53E+0	7.51E+0	5.981E+1
3.00E+2	4.10E+2	6.13E+1	3.33E+1	3.30E+1	2.00E+1	1.25E+1	1.25E+1	3.29E+0	3.28E+0	8.075E+1
4.00E+2	2.97E+2	4.43E+1	2.12E+1	2.10E+1	1.43E+1	7.92E+0	7.87E+0	1.72E+0	1.72E+0	9.742E+1
5.00E+2	2.29E+2	3.41E+1	1.46E+1	1.44E+1	1.09E+1	5.42E+0	5.38E+0	1.01E+0	1.00E+0	1.107E+2
6.00E+2	1.85E+2	2.73E+1	1.06E+1	1.05E+1	8.69E+0	3.92E+0	3.89E+0	6.33E−1	6.30E−1	1.213E+2
8.00E+2	1.30E+2	1.90E+1	6.18E+0	6.12E+0	5.99E+0	2.28E+0	2.26E+0	2.92E−1	2.91E−1	1.364E+2
1.00E+3	9.76E+1	1.42E+1	3.98E+0	3.93E+0	4.43E+0	1.46E+0	1.44E+0	1.55E−1	1.54E−1	1.458E+2
1.50E+3	5.65E+1	8.05E+0	1.69E+0	1.66E+0	2.48E+0	6.11E−1	6.04E−1	4.56E−2	4.53E−2	1.548E+2
2.00E+3	3.74E+1	5.23E+0	8.77E−1	8.64E−1	1.60E+0	3.16E−1	3.12E−1	1.81E−2	1.80E−2	1.538E+2
3.00E+3	2.00E+1	2.74E+0	3.30E−1	3.24E−1	8.30E−1	1.18E−1	1.16E−1	4.62E−3	4.58E−3	1.423E+2
4.00E+3	1.25E+1	1.68E+0	1.58E−1	1.55E−1	5.08E−1	5.64E−2	5.53E−2	1.66E−3	1.66E−3	1.286E+2
5.00E+3	8.52E+0	1.14E+0	8.78E−2	8.58E−2	3.41E−1	3.12E−2	3.06E−2	7.51E−4	7.41E−4	1.162E+2
6.00E+3	6.17E+0	8.15E−1	5.36E−2	5.23E−2	2.44E−1	1.90E−2	1.86E−2	3.84E−4	3.78E−4	1.054E+2
8.00E+3	3.63E+0	4.75E−1	2.41E−2	2.35E−2	1.42E−1	8.53E−3	8.31E−3	1.31E−4	1.28E−4	8.851E+1
1.00E+4	2.37E+0	3.08E−1	1.28E−2	1.24E−2	9.19E−2	4.52E−3	4.38E−3	5.58E−5	5.47E−5	7.605E+1
1.50E+4	1.06E+0	1.36E−1	3.93E−3	3.77E−3	4.05E−2	1.38E−3	1.33E−3	1.16E−5	1.13E−5	5.612E+1
2.00E+4	5.85E−1	7.47E−2	1.67E−3	1.59E−3	2.22E−2	5.87E−4	5.61E−4	3.76E−6	3.64E−6	4.447E+1
3.00E+4	2.46E−1	3.13E−2	4.90E−4	4.62E−4	9.29E−3	1.72E−4	1.63E−4	7.61E−7	7.28E−7	3.151E+1
4.00E+4	1.31E−1	1.66E−2	2.04E−4	1.90E−4	4.92E−3	7.18E−5	6.70E−5	2.45E−7	2.32E−7	2.449E+1
5.00E+4	7.97E−2	1.01E−2	1.03E−4	9.54E−5	2.98E−3	3.63E−5	3.35E−5	1.02E−7	9.62E−8	2.009E+1
6.00E+4	5.27E−2	6.65E−3	5.94E−5	5.42E−5	1.97E−3	2.09E−5	1.91E−5	5.03E−8	4.70E−8	1.708E+1
8.00E+4	2.73E−2	3.44E−3	2.48E−5	2.23E−5	1.02E−3	8.72E−6	7.84E−6	1.67E−8	1.54E−8	1.322E+1
1.00E+5	1.63E−2	2.05E−3	1.27E−5	1.13E−5	6.07E−4	4.47E−6	3.96E−6	7.18E−9	6.57E−9	1.086E+1
1.50E+5	6.34E−3	7.96E−4	3.87E−6	3.33E−6	2.36E−4	1.36E−6	1.17E−6	1.63E−9	1.47E−9	7.644E+0
2.00E+5	3.25E−3	4.07E−4	1.71E−6	1.45E−6	1.21E−4	6.00E−7	5.08E−7	5.97E−10	5.40E−10	6.010E+0
3.00E+5	1.29E−3	1.62E−4	5.72E−7	4.78E−7	4.78E−5	2.01E−7	1.68E−7	1.57E−10	1.46E−10	4.359E+0
4.00E+5	6.89E−4	8.63E−5	2.76E−7	2.33E−7	2.56E−5	9.68E−8	8.18E−8	6.50E−11	6.32E−11	3.526E+0
5.00E+5	4.36E−4	5.46E−5	1.62E−7	1.40E−7	1.62E−5	5.68E−8	4.91E−8			3.024E+0
6.00E+5	3.07E−4	3.84E−5	1.07E−7	9.51E−8	1.14E−5		3.34E−8			2.689E+0
8.00E+5	1.84E−4	2.30E−5	5.87E−8	5.51E−8	6.82E−6					2.268E+0
1.00E+6	1.29E−4	1.61E−5	3.81E−8	3.79E−8						2.016E+0
1.50E+6	7.30E−5	9.12E−6		2.1E−8						1.678E+0
2.00E+6	5.10E−5	6.39E−6*								1.509E+0
3.00E+6	3.21E−5									1.339E+0
4.00E+6	2.34E−5									1.254E+0

TABLE. Cross Sections for Radiative Recombination, $Z=1$–112
See page 9 for Explanation of Tables

Z= 12

T_e (eV)	σ_{RR} (b)									$f_{1s_{1/2}}$
	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 3.947$ fm

$|\epsilon_n|$ (eV)	1.963E+3	4.910E+2	4.910E+2	4.900E+2	2.181E+2	2.181E+2	2.178E+2	2.178E+2	2.177E+2	
1.00E+0	1.64E+5	2.41E+4	2.22E+4	2.21E+4	8.11E+3	8.40E+3	8.38E+3	5.81E+3	5.79E+3	2.650E−1
1.50E+0	1.09E+5	1.61E+4	1.48E+4	1.47E+4	5.41E+3	5.60E+3	5.58E+3	3.86E+3	3.85E+3	3.972E−1
2.00E+0	8.21E+4	1.21E+4	1.11E+4	1.10E+4	4.05E+3	4.19E+3	4.18E+3	2.88E+3	2.88E+3	5.294E−1
3.00E+0	5.47E+4	8.03E+3	7.37E+3	7.32E+3	2.70E+3	2.79E+3	2.78E+3	1.91E+3	1.91E+3	7.932E−1
4.00E+0	4.10E+4	6.02E+3	5.52E+3	5.48E+3	2.03E+3	2.09E+3	2.08E+3	1.42E+3	1.42E+3	1.057E+0
5.00E+0	3.28E+4	4.82E+3	4.40E+3	4.38E+3	1.62E+3	1.67E+3	1.66E+3	1.13E+3	1.13E+3	1.319E+0
6.00E+0	2.73E+4	4.01E+3	3.66E+3	3.64E+3	1.35E+3	1.39E+3	1.38E+3	9.37E+2	9.35E+2	1.582E+0
8.00E+0	2.05E+4	3.01E+3	2.73E+3	2.72E+3	1.01E+3	1.04E+3	1.03E+3	6.94E+2	6.92E+2	2.105E+0
1.00E+1	1.64E+4	2.41E+3	2.18E+3	2.16E+3	8.10E+2	8.25E+2	8.23E+2	5.48E+2	5.47E+2	2.625E+0
1.50E+1	1.09E+4	1.60E+3	1.44E+3	1.43E+3	5.39E+2	5.45E+2	5.43E+2	3.54E+2	3.53E+2	3.918E+0
2.00E+1	8.16E+3	1.20E+3	1.07E+3	1.06E+3	4.04E+2	4.05E+2	4.03E+2	2.57E+2	2.57E+2	5.198E+0
3.00E+1	5.42E+3	7.99E+2	6.96E+2	6.92E+2	2.69E+2	2.64E+2	2.64E+2	1.61E+2	1.61E+2	7.719E+0
4.00E+1	4.05E+3	5.98E+2	5.12E+2	5.08E+2	2.01E+2	1.94E+2	1.94E+2	1.14E+2	1.14E+2	1.019E+1
5.00E+1	3.23E+3	4.78E+2	4.01E+2	3.98E+2	1.60E+2	1.53E+2	1.52E+2	8.61E+1	8.59E+1	1.261E+1
6.00E+1	2.68E+3	3.97E+2	3.28E+2	3.25E+2	1.33E+2	1.25E+2	1.24E+2	6.78E+1	6.77E+1	1.498E+1
8.00E+1	2.00E+3	2.97E+2	2.36E+2	2.35E+2	9.94E+1	8.99E+1	8.95E+1	4.57E+1	4.55E+1	1.959E+1
1.00E+2	1.59E+3	2.36E+2	1.82E+2	1.81E+2	7.90E+1	6.92E+1	6.89E+1	3.29E+1	3.28E+1	2.402E+1
1.50E+2	1.04E+3	1.55E+2	1.11E+2	1.10E+2	5.17E+1	4.21E+1	4.18E+1	1.73E+1	1.72E+1	3.434E+1
2.00E+2	7.69E+2	1.15E+2	7.61E+1	7.55E+1	3.80E+1	2.89E+1	2.87E+1	1.05E+1	1.04E+1	4.370E+1
3.00E+2	4.97E+2	7.43E+1	4.32E+1	4.28E+1	2.44E+1	1.63E+1	1.62E+1	4.76E+0	4.74E+0	5.989E+1
4.00E+2	3.61E+2	5.40E+1	2.80E+1	2.77E+1	1.75E+1	1.05E+1	1.04E+1	2.57E+0	2.56E+0	7.324E+1
5.00E+2	2.80E+2	4.18E+1	1.96E+1	1.94E+1	1.35E+1	7.31E+0	7.25E+0	1.54E+0	1.53E+0	8.428E+1
6.00E+2	2.27E+2	3.38E+1	1.44E+1	1.42E+1	1.08E+1	5.36E+0	5.31E+0	9.87E−1	9.81E−1	9.340E+1
8.00E+2	1.61E+2	2.38E+1	8.61E+0	8.51E+0	7.52E+0	3.18E+0	3.15E+0	4.70E−1	4.67E−1	1.072E+2
1.00E+3	1.22E+2	1.79E+1	5.64E+0	5.57E+0	5.61E+0	2.07E+0	2.05E+0	2.55E−1	2.54E−1	1.165E+2
1.50E+3	7.18E+1	1.03E+1	2.47E+0	2.43E+0	3.20E+0	8.98E−1	8.86E−1	7.82E−2	7.76E−2	1.280E+2
2.00E+3	4.81E+1	6.81E+0	1.31E+0	1.29E+0	2.09E+0	4.75E−1	4.68E−1	3.19E−2	3.16E−2	1.304E+2
3.00E+3	2.63E+1	3.64E+0	5.08E−1	4.98E−1	1.11E+0	1.82E−1	1.79E−1	8.42E−3	8.33E−3	1.248E+2
4.00E+3	1.67E+1	2.27E+0	2.49E−1	2.43E−1	6.85E−1	8.89E−2	8.70E−2	3.13E−3	3.09E−3	1.154E+2
5.00E+3	1.15E+1	1.55E+0	1.40E−1	1.37E−1	4.66E−1	4.99E−2	4.87E−2	1.42E−3	1.40E−3	1.059E+2
6.00E+3	8.39E+0	1.12E+0	8.64E−2	8.42E−2	3.36E−1	3.07E−2	3.00E−2	7.34E−4	7.22E−4	9.727E+1
8.00E+3	5.01E+0	6.60E−1	3.95E−2	3.83E−2	1.98E−1	1.40E−2	1.36E−2	2.54E−4	2.49E−4	8.301E+1
1.00E+4	3.31E+0	4.32E−1	2.12E−2	2.05E−2	1.29E−1	7.50E−3	7.25E−3	1.10E−4	1.07E−4	7.211E+1
1.50E+4	1.50E+0	1.94E−1	6.63E−3	6.35E−3	5.78E−2	2.34E−3	2.24E−3	2.33E−5	2.26E−5	5.406E+1
2.00E+4	8.38E−1	1.07E−1	2.85E−3	2.71E−3	3.20E−2	1.00E−3	9.56E−4	7.62E−6	7.36E−6	4.320E+1
3.00E+4	3.58E−1	4.55E−2	8.49E−4	7.97E−4	1.35E−2	2.99E−4	2.81E−4	1.56E−6	1.49E−6	3.089E+1
4.00E+4	1.92E−1	2.43E−2	3.57E−4	3.31E−4	7.22E−3	1.25E−4	1.16E−4	5.07E−7	4.80E−7	2.412E+1
5.00E+4	1.17E−1	1.48E−2	1.82E−4	1.67E−4	4.40E−3	6.38E−5	5.86E−5	2.13E−7	2.00E−7	1.985E+1
6.00E+4	7.79E−2	9.84E−3	1.05E−4	9.51E−5	2.92E−3	3.68E−5	3.35E−5	1.05E−7	9.80E−8	1.691E+1
8.00E+4	4.05E−2	5.11E−3	4.41E−5	3.94E−5	1.52E−3	1.55E−5	1.38E−5	3.50E−8	3.23E−8	1.312E+1
1.00E+5	2.43E−2	3.06E−3	2.27E−5	1.99E−5	9.06E−4	7.96E−6	7.01E−6	1.52E−8	1.38E−8	1.079E+1
1.50E+5	9.50E−3	1.19E−3	6.94E−6	5.93E−6	3.54E−4	2.44E−6	2.08E−6	3.47E−9	3.12E−9	7.613E+0
2.00E+5	4.88E−3	6.13E−4	3.08E−6	2.58E−6	1.82E−4	1.08E−6	9.08E−7	1.27E−9	1.15E−9	5.992E+0
3.00E+5	1.95E−3	2.44E−4	1.03E−6	8.57E−7	7.23E−5	3.63E−7	3.01E−7	3.36E−10	3.11E−10	4.350E+0
4.00E+5	1.04E−3	1.31E−4	5.00E−7	4.18E−7	3.87E−5	1.75E−7	1.47E−7	1.40E−10	1.35E−10	3.520E+0
5.00E+5	6.61E−4	8.27E−5	2.94E−7	2.51E−7	2.45E−5	1.03E−7	8.82E−8			3.020E+0
6.00E+5	4.65E−4	5.82E−5	1.95E−7	1.71E−7	1.72E−5	6.84E−8	6.01E−8			2.686E+0
8.00E+5	2.79E−4	3.50E−5	1.07E−7	9.92E−8	1.04E−5					2.266E+0
1.00E+6	1.96E−4	2.45E−5	6.94E−8	6.81E−8	7.25E−6					2.014E+0
1.50E+6	1.11E−4	1.38E−5	3.45E−8							1.677E+0
2.00E+6	7.74E−5									1.508E+0
3.00E+6	4.85E−5									1.339E+0
4.00E+6	3.54E−5									1.254E+0
5.00E+6	2.80E−5*									1.203E+0

TABLE. Cross Sections for Radiative Recombination, $Z=1-112$

See page 9 for Explanation of Tables

Z= 13

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 3.954$ fm

$\|\epsilon_n\|$ (eV)	2.305E+3	5.765E+2	5.765E+2	5.752E+2	2.561E+2	2.561E+2	2.557E+2	2.557E+2	2.556E+2	
1.00E+0	1.93E+5	2.83E+4	2.61E+4	2.59E+4	9.52E+3	9.87E+3	9.84E+3	6.83E+3	6.81E+3	1.923E−1
1.50E+0	1.28E+5	1.89E+4	1.74E+4	1.73E+4	6.34E+3	6.58E+3	6.55E+3	4.54E+3	4.53E+3	2.883E−1
2.00E+0	9.63E+4	1.41E+4	1.30E+4	1.29E+4	4.76E+3	4.93E+3	4.91E+3	3.39E+3	3.38E+3	3.842E−1
3.00E+0	6.42E+4	9.43E+3	8.67E+3	8.61E+3	3.17E+3	3.28E+3	3.27E+3	2.25E+3	2.24E+3	5.758E−1
4.00E+0	4.81E+4	7.07E+3	6.49E+3	6.44E+3	2.38E+3	2.46E+3	2.45E+3	1.68E+3	1.67E+3	7.670E−1
5.00E+0	3.85E+4	5.66E+3	5.18E+3	5.14E+3	1.90E+3	1.96E+3	1.95E+3	1.34E+3	1.33E+3	9.580E−1
6.00E+0	3.21E+4	4.71E+3	4.31E+3	4.28E+3	1.59E+3	1.63E+3	1.63E+3	1.11E+3	1.10E+3	1.149E+0
8.00E+0	2.40E+4	3.53E+3	3.22E+3	3.20E+3	1.19E+3	1.22E+3	1.22E+3	8.21E+2	8.18E+2	1.529E+0
1.00E+1	1.92E+4	2.83E+3	2.57E+3	2.55E+3	9.50E+2	9.72E+2	9.69E+2	6.49E+2	6.48E+2	1.908E+0
1.50E+1	1.28E+4	1.88E+3	1.70E+3	1.68E+3	6.33E+2	6.43E+2	6.40E+2	4.21E+2	4.20E+2	2.849E+0
2.00E+1	9.58E+3	1.41E+3	1.26E+3	1.25E+3	4.75E+2	4.78E+2	4.76E+2	3.08E+2	3.07E+2	3.783E+0
3.00E+1	6.37E+3	9.39E+2	8.26E+2	8.20E+2	3.16E+2	3.13E+2	3.12E+2	1.95E+2	1.94E+2	5.625E+0
4.00E+1	4.76E+3	7.03E+2	6.09E+2	6.04E+2	2.36E+2	2.31E+2	2.30E+2	1.39E+2	1.38E+2	7.437E+0
5.00E+1	3.80E+3	5.61E+2	4.78E+2	4.75E+2	1.89E+2	1.82E+2	1.81E+2	1.06E+2	1.05E+2	9.217E+0
6.00E+1	3.16E+3	4.67E+2	3.92E+2	3.89E+2	1.57E+2	1.49E+2	1.48E+2	8.38E+1	8.35E+1	1.097E+1
8.00E+1	2.36E+3	3.49E+2	2.84E+2	2.82E+2	1.17E+2	1.08E+2	1.08E+2	5.71E+1	5.70E+1	1.438E+1
1.00E+2	1.87E+3	2.78E+2	2.20E+2	2.18E+2	9.32E+1	8.37E+1	8.32E+1	4.17E+1	4.16E+1	1.768E+1
1.50E+2	1.23E+3	1.83E+2	1.35E+2	1.34E+2	6.12E+1	5.15E+1	5.12E+1	2.25E+1	2.24E+1	2.545E+1
2.00E+2	9.11E+2	1.36E+2	9.41E+1	9.32E+1	4.52E+1	3.57E+1	3.55E+1	1.39E+1	1.39E+1	3.259E+1
3.00E+2	5.91E+2	8.84E+1	5.44E+1	5.39E+1	2.91E+1	2.06E+1	2.04E+1	6.57E+0	6.54E+0	4.521E+1
4.00E+2	4.32E+2	6.46E+1	3.58E+1	3.54E+1	2.11E+1	1.35E+1	1.34E+1	3.65E+0	3.63E+0	5.591E+1
5.00E+2	3.36E+2	5.03E+1	2.54E+1	2.51E+1	1.63E+1	9.52E+0	9.43E+0	2.23E+0	2.22E+0	6.500E+1
6.00E+2	2.73E+2	4.08E+1	1.89E+1	1.87E+1	1.31E+1	7.06E+0	6.99E+0	1.46E+0	1.45E+0	7.272E+1
8.00E+2	1.95E+2	2.90E+1	1.15E+1	1.14E+1	9.22E+0	4.28E+0	4.23E+0	7.16E−1	7.11E−1	8.489E+1
1.00E+3	1.49E+2	2.20E+1	7.68E+0	7.57E+0	6.93E+0	2.83E+0	2.80E+0	3.98E−1	3.95E−1	9.368E+1
1.50E+3	8.89E+1	1.29E+1	3.46E+0	3.40E+0	4.01E+0	1.26E+0	1.25E+0	1.27E−1	1.25E−1	1.061E+2
2.00E+3	6.02E+1	8.61E+0	1.88E+0	1.85E+0	2.66E+0	6.82E−1	6.71E−1	5.30E−2	5.25E−2	1.105E+2
3.00E+3	3.36E+1	4.69E+0	7.49E−1	7.33E−1	1.43E+0	2.69E−1	2.64E−1	1.45E−2	1.43E−2	1.093E+2
4.00E+3	2.16E+1	2.96E+0	3.74E−1	3.65E−1	8.97E−1	1.34E−1	1.31E−1	5.48E−3	5.41E−3	1.033E+2
5.00E+3	1.50E+1	2.04E+0	2.13E−1	2.08E−1	6.15E−1	7.60E−2	7.42E−2	2.52E−3	2.48E−3	9.624E+1
6.00E+3	1.11E+1	1.49E+0	1.33E−1	1.29E−1	4.48E−1	4.73E−2	4.61E−2	1.32E−3	1.30E−3	8.943E+1
8.00E+3	6.69E+0	8.88E−1	6.18E−2	5.98E−2	2.66E−1	2.19E−2	2.12E−2	4.64E−4	4.55E−4	7.759E+1
1.00E+4	4.46E+0	5.86E−1	3.35E−2	3.23E−2	1.75E−1	1.19E−2	1.15E−2	2.03E−4	1.98E−4	6.816E+1
1.50E+4	2.06E+0	2.67E−1	1.07E−2	1.02E−2	7.96E−2	3.76E−3	3.60E−3	4.38E−5	4.25E−5	5.194E+1
2.00E+4	1.16E+0	1.49E−1	4.63E−3	4.39E−3	4.45E−2	1.63E−3	1.55E−3	1.45E−5	1.40E−5	4.189E+1
3.00E+4	5.01E−1	6.40E−2	1.40E−3	1.31E−3	1.90E−2	4.93E−4	4.61E−4	3.02E−6	2.88E−6	3.024E+1
4.00E+4	2.71E−1	3.44E−2	5.93E−4	5.48E−4	1.02E−2	2.08E−4	1.93E−4	9.87E−7	9.33E−7	2.374E+1
5.00E+4	1.66E−1	2.11E−2	3.04E−4	2.78E−4	6.26E−3	1.07E−4	9.77E−5	4.16E−7	3.90E−7	1.959E+1
6.00E+4	1.11E−1	1.41E−2	1.76E−4	1.59E−4	4.17E−3	6.18E−5	5.60E−5	2.07E−7	1.92E−7	1.672E+1
8.00E+4	5.81E−2	7.34E−3	7.45E−5	6.62E−5	2.18E−3	2.62E−5	2.33E−5	6.92E−8	6.36E−8	1.301E+1
1.00E+5	3.50E−2	4.41E−3	3.85E−5	3.37E−5	1.31E−3	1.35E−5	1.18E−5	3.01E−8	2.74E−8	1.072E+1
1.50E+5	1.38E−2	1.73E−3	1.19E−5	1.01E−5	5.13E−4	4.16E−6	3.54E−6	6.92E−9	6.22E−9	7.579E+0
2.00E+5	7.09E−3	8.91E−4	5.28E−6	4.40E−6	2.64E−4	1.85E−6	1.55E−6	2.55E−9	2.29E−9	5.972E+0
3.00E+5	2.84E−3	3.56E−4	1.78E−6	1.47E−6	1.06E−4	6.24E−7	5.14E−7	6.76E−10	6.22E−10	4.340E+0
4.00E+5	1.53E−3	1.91E−4	8.63E−7	7.16E−7	5.66E−5	3.03E−7	2.52E−7	2.81E−10	2.71E−10	3.514E+0
5.00E+5	9.67E−4	1.21E−4	5.08E−7	4.31E−7	3.59E−5	1.78E−7	1.51E−7	1.48E−10	1.51E−10	3.016E+0
6.00E+5	6.81E−4	8.53E−5	3.38E−7	2.93E−7	2.53E−5	1.18E−7	1.03E−7			2.683E+0
8.00E+5	4.10E−4	5.12E−5	1.85E−7	1.70E−7	1.52E−5	6.49E−8	5.97E−8			2.264E+0
1.00E+6	2.87E−4	3.59E−5	1.20E−7	1.17E−7	1.06E−5					2.013E+0
1.50E+6	1.62E−4	2.03E−5	5.99E−8	6.42E−8						1.676E+0
2.00E+6	1.13E−4	1.42E−5								1.508E+0
3.00E+6	7.10E−5									1.339E+0
4.00E+6	5.18E−5									1.254E+0
5.00E+6	4.08E−5									1.203E+0
6.00E+6	3.37E−5									1.169E+0

Z= 14

T_e (eV)	σ_{RR} (b)									$f_{1s_{1/2}}$
	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 4.032$ fm

$|\epsilon_n|$ (eV)	2.674E+3	6.689E+2	6.689E+2	6.671E+2	2.971E+2	2.971E+2	2.966E+2	2.966E+2	2.964E+2	
1.00E+0	2.23E+5	3.28E+4	3.03E+4	3.01E+4	1.10E+4	1.15E+4	1.14E+4	7.93E+3	7.90E+3	1.429E−1
1.50E+0	1.49E+5	2.19E+4	2.02E+4	2.00E+4	7.36E+3	7.63E+3	7.61E+3	5.27E+3	5.26E+3	2.142E−1
2.00E+0	1.12E+5	1.64E+4	1.51E+4	1.50E+4	5.52E+3	5.72E+3	5.70E+3	3.94E+3	3.93E+3	2.855E−1
3.00E+0	7.44E+4	1.09E+4	1.01E+4	9.99E+3	3.68E+3	3.81E+3	3.79E+3	2.62E+3	2.61E+3	4.279E−1
4.00E+0	5.58E+4	8.20E+3	7.54E+3	7.48E+3	2.76E+3	2.85E+3	2.84E+3	1.95E+3	1.95E+3	5.701E−1
5.00E+0	4.46E+4	6.56E+3	6.03E+3	5.98E+3	2.21E+3	2.28E+3	2.27E+3	1.56E+3	1.55E+3	7.122E−1
6.00E+0	3.72E+4	5.47E+3	5.01E+3	4.97E+3	1.84E+3	1.90E+3	1.89E+3	1.29E+3	1.29E+3	8.539E−1
8.00E+0	2.79E+4	4.10E+3	3.75E+3	3.72E+3	1.38E+3	1.42E+3	1.41E+3	9.58E+2	9.55E+2	1.137E+0
1.00E+1	2.23E+4	3.28E+3	2.99E+3	2.96E+3	1.10E+3	1.13E+3	1.13E+3	7.59E+2	7.57E+2	1.419E+0
1.50E+1	1.48E+4	2.18E+3	1.98E+3	1.96E+3	7.35E+2	7.49E+2	7.46E+2	4.95E+2	4.93E+2	2.121E+0
2.00E+1	1.11E+4	1.64E+3	1.47E+3	1.46E+3	5.51E+2	5.57E+2	5.55E+2	3.62E+2	3.61E+2	2.817E+0
3.00E+1	7.39E+3	1.09E+3	9.66E+2	9.58E+2	3.67E+2	3.66E+2	3.65E+2	2.31E+2	2.30E+2	4.194E+0
4.00E+1	5.53E+3	8.16E+2	7.14E+2	7.07E+2	2.74E+2	2.71E+2	2.69E+2	1.66E+2	1.65E+2	5.551E+0
5.00E+1	4.41E+3	6.52E+2	5.62E+2	5.57E+2	2.19E+2	2.13E+2	2.12E+2	1.27E+2	1.26E+2	6.888E+0
6.00E+1	3.67E+3	5.43E+2	4.62E+2	4.58E+2	1.82E+2	1.75E+2	1.74E+2	1.01E+2	1.01E+2	8.206E+0
8.00E+1	2.74E+3	4.06E+2	3.36E+2	3.33E+2	1.36E+2	1.28E+2	1.27E+2	6.98E+1	6.96E+1	1.078E+1
1.00E+2	2.18E+3	3.23E+2	2.61E+2	2.59E+2	1.09E+2	9.93E+1	9.88E+1	5.16E+1	5.14E+1	1.329E+1
1.50E+2	1.44E+3	2.14E+2	1.63E+2	1.61E+2	7.14E+1	6.18E+1	6.14E+1	2.85E+1	2.83E+1	1.923E+1
2.00E+2	1.06E+3	1.59E+2	1.14E+2	1.13E+2	5.29E+1	4.33E+1	4.30E+1	1.79E+1	1.79E+1	2.476E+1
3.00E+2	6.93E+2	1.04E+2	6.70E+1	6.62E+1	3.42E+1	2.54E+1	2.52E+1	8.74E+0	8.70E+0	3.468E+1
4.00E+2	5.08E+2	7.60E+1	4.47E+1	4.41E+1	2.49E+1	1.69E+1	1.67E+1	4.98E+0	4.95E+0	4.329E+1
5.00E+2	3.97E+2	5.94E+1	3.21E+1	3.16E+1	1.94E+1	1.21E+1	1.19E+1	3.11E+0	3.09E+0	5.076E+1
6.00E+2	3.24E+2	4.84E+1	2.41E+1	2.38E+1	1.57E+1	9.03E+0	8.93E+0	2.07E+0	2.05E+0	5.725E+1
8.00E+2	2.32E+2	3.46E+1	1.50E+1	1.48E+1	1.11E+1	5.58E+0	5.51E+0	1.04E+0	1.04E+0	6.781E+1
1.00E+3	1.78E+2	2.64E+1	1.01E+1	9.95E+0	8.39E+0	3.74E+0	3.70E+0	5.91E−1	5.86E−1	7.580E+1
1.50E+3	1.08E+2	1.57E+1	4.69E+0	4.60E+0	4.92E+0	1.72E+0	1.69E+0	1.95E−1	1.93E−1	8.813E+1
2.00E+3	7.38E+1	1.06E+1	2.60E+0	2.55E+0	3.29E+0	9.45E−1	9.28E−1	8.37E−2	8.28E−2	9.376E+1
3.00E+3	4.18E+1	5.89E+0	1.06E+0	1.04E+0	1.80E+0	3.83E−1	3.75E−1	2.36E−2	2.33E−2	9.552E+1
4.00E+3	2.72E+1	3.76E+0	5.40E−1	5.25E−1	1.14E+0	1.94E−1	1.89E−1	9.12E−3	8.99E−3	9.215E+1
5.00E+3	1.91E+1	2.62E+0	3.12E−1	3.03E−1	7.92E−1	1.12E−1	1.09E−1	4.26E−3	4.19E−3	8.720E+1
6.00E+3	1.42E+1	1.92E+0	1.97E−1	1.91E−1	5.80E−1	7.01E−2	6.81E−2	2.25E−3	2.21E−3	8.199E+1
8.00E+3	8.69E+0	1.16E+0	9.27E−2	8.95E−2	3.49E−1	3.29E−2	3.18E−2	8.06E−4	7.88E−4	7.232E+1
1.00E+4	5.84E+0	7.73E−1	5.08E−2	4.88E−2	2.32E−1	1.80E−2	1.73E−2	3.56E−4	3.48E−4	6.425E+1
1.50E+4	2.74E+0	3.57E−1	1.65E−2	1.57E−2	1.07E−1	5.82E−3	5.55E−3	7.83E−5	7.59E−5	4.980E+1
2.00E+4	1.56E+0	2.02E−1	7.23E−3	6.84E−3	6.01E−2	2.55E−3	2.42E−3	2.62E−5	2.53E−5	4.054E+1
3.00E+4	6.82E−1	8.74E−2	2.22E−3	2.06E−3	2.60E−2	7.80E−4	7.28E−4	5.52E−6	5.26E−6	2.956E+1
4.00E+4	3.72E−1	4.73E−2	9.46E−4	8.71E−4	1.41E−2	3.33E−4	3.07E−4	1.82E−6	1.72E−6	2.333E+1
5.00E+4	2.29E−1	2.91E−2	4.88E−4	4.44E−4	8.65E−3	1.71E−4	1.56E−4	7.73E−7	7.23E−7	1.932E+1
6.00E+4	1.54E−1	1.95E−2	2.83E−4	2.55E−4	5.78E−3	9.96E−5	8.98E−5	3.85E−7	3.57E−7	1.653E+1
8.00E+4	8.09E−2	1.02E−2	1.21E−4	1.07E−4	3.04E−3	4.24E−5	3.76E−5	1.30E−7	1.19E−7	1.290E+1
1.00E+5	4.89E−2	6.17E−3	6.26E−5	5.45E−5	1.83E−3	2.20E−5	1.92E−5	5.66E−8	5.14E−8	1.064E+1
1.50E+5	1.93E−2	2.44E−3	1.94E−5	1.64E−5	7.22E−4	6.82E−6	5.76E−6	1.31E−8	1.17E−8	7.542E+0
2.00E+5	1.00E−2	1.26E−3	8.68E−6	7.19E−6	3.73E−4	3.05E−6	2.53E−6	4.85E−9	4.34E−9	5.950E+0
3.00E+5	4.02E−3	5.05E−4	2.94E−6	2.40E−6	1.50E−4	1.03E−6	8.44E−7	1.29E−9	1.18E−9	4.329E+0
4.00E+5	2.17E−3	2.72E−4	1.43E−6	1.18E−6	8.04E−5	5.01E−7	4.13E−7	5.37E−10	5.15E−10	3.508E+0
5.00E+5	1.38E−3	1.72E−4	8.43E−7	7.08E−7	5.10E−5	2.96E−7	2.49E−7	2.84E−10	2.87E−10	3.012E+0
6.00E+5	9.69E−4	1.21E−4	5.61E−7	4.83E−7	3.59E−5	1.97E−7	1.69E−7	1.73E−10	1.85E−10	2.679E+0
8.00E+5	5.83E−4	7.30E−5	3.08E−7	2.80E−7	2.16E−5	1.08E−7	9.83E−8*			2.262E+0
1.00E+6	4.09E−4	5.11E−5	2.00E−7	1.92E−7	1.51E−5					2.011E+0
1.50E+6	2.31E−4	2.89E−5	9.97E−8	1.05E−7						1.675E+0
2.00E+6	1.61E−4	2.01E−5	6.42E−8*							1.507E+0
3.00E+6	1.01E−4	1.27E−5								1.338E+0
4.00E+6	7.35E−5									1.254E+0
5.00E+6	5.79E−5									1.203E+0
6.00E+6	4.78E−5*									1.169E+0

TABLE. Cross Sections for Radiative Recombination, $Z=1–112$
See page 9 for Explanation of Tables

Z= 15

T_e (eV)	σ_{RR} (b)									$f_{1s_{1/2}}$
	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl}=4.118$ fm

$\mid\epsilon_n\mid$ (eV)	3.071E+3	7.682E+2	7.682E+2	7.659E+2	3.412E+2	3.412E+2	3.405E+2	3.405E+2	3.403E+2	
1.00E+0	2.56E+5	3.77E+4	3.49E+4	3.45E+4	1.27E+4	1.32E+4	1.31E+4	9.11E+3	9.08E+3	1.083E−1
1.50E+0	1.71E+5	2.51E+4	2.32E+4	2.30E+4	8.45E+3	8.77E+3	8.73E+3	6.06E+3	6.04E+3	1.624E−1
2.00E+0	1.28E+5	1.88E+4	1.74E+4	1.72E+4	6.33E+3	6.58E+3	6.55E+3	4.54E+3	4.52E+3	2.165E−1
3.00E+0	8.54E+4	1.26E+4	1.16E+4	1.15E+4	4.22E+3	4.38E+3	4.36E+3	3.01E+3	3.00E+3	3.246E−1
4.00E+0	6.41E+4	9.42E+3	8.68E+3	8.60E+3	3.17E+3	3.28E+3	3.27E+3	2.25E+3	2.24E+3	4.325E−1
5.00E+0	5.12E+4	7.53E+3	6.93E+3	6.87E+3	2.53E+3	2.62E+3	2.61E+3	1.79E+3	1.79E+3	5.402E−1
6.00E+0	4.27E+4	6.28E+3	5.77E+3	5.72E+3	2.11E+3	2.18E+3	2.17E+3	1.49E+3	1.48E+3	6.479E−1
8.00E+0	3.20E+4	4.71E+3	4.32E+3	4.28E+3	1.58E+3	1.63E+3	1.62E+3	1.11E+3	1.10E+3	8.627E−1
1.00E+1	2.56E+4	3.76E+3	3.44E+3	3.41E+3	1.27E+3	1.30E+3	1.30E+3	8.78E+2	8.74E+2	1.077E+0
1.50E+1	1.70E+4	2.51E+3	2.28E+3	2.26E+3	8.43E+2	8.62E+2	8.58E+2	5.73E+2	5.71E+2	1.610E+0
2.00E+1	1.28E+4	1.88E+3	1.70E+3	1.68E+3	6.32E+2	6.43E+2	6.40E+2	4.21E+2	4.20E+2	2.140E+0
3.00E+1	8.49E+3	1.25E+3	1.12E+3	1.11E+3	4.21E+2	4.23E+2	4.21E+2	2.70E+2	2.69E+2	3.189E+0
4.00E+1	6.36E+3	9.38E+2	8.27E+2	8.19E+2	3.15E+2	3.13E+2	3.12E+2	1.95E+2	1.94E+2	4.225E+0
5.00E+1	5.08E+3	7.49E+2	6.53E+2	6.46E+2	2.52E+2	2.48E+2	2.46E+2	1.50E+2	1.49E+2	5.248E+0
6.00E+1	4.22E+3	6.24E+2	5.37E+2	5.32E+2	2.10E+2	2.04E+2	2.03E+2	1.20E+2	1.20E+2	6.257E+0
8.00E+1	3.15E+3	4.66E+2	3.93E+2	3.88E+2	1.57E+2	1.49E+2	1.48E+2	8.37E+1	8.34E+1	8.238E+0
1.00E+2	2.51E+3	3.72E+2	3.06E+2	3.03E+2	1.25E+2	1.16E+2	1.16E+2	6.24E+1	6.21E+1	1.017E+1
1.50E+2	1.66E+3	2.46E+2	1.92E+2	1.90E+2	8.24E+1	7.29E+1	7.24E+1	3.51E+1	3.50E+1	1.478E+1
2.00E+2	1.23E+3	1.83E+2	1.36E+2	1.34E+2	6.11E+1	5.15E+1	5.11E+1	2.25E+1	2.24E+1	1.911E+1
3.00E+2	8.02E+2	1.20E+2	8.08E+1	7.98E+1	3.98E+1	3.06E+1	3.04E+1	1.13E+1	1.12E+1	2.700E+1
4.00E+2	5.90E+2	8.83E+1	5.46E+1	5.38E+1	2.91E+1	2.06E+1	2.04E+1	6.57E+0	6.53E+0	3.395E+1
5.00E+2	4.62E+2	6.93E+1	3.95E+1	3.90E+1	2.27E+1	1.49E+1	1.47E+1	4.18E+0	4.15E+0	4.010E+1
6.00E+2	3.78E+2	5.66E+1	3.00E+1	2.96E+1	1.84E+1	1.13E+1	1.11E+1	2.82E+0	2.80E+0	4.554E+1
8.00E+2	2.73E+2	4.07E+1	1.90E+1	1.86E+1	1.31E+1	7.07E+0	6.98E+0	1.46E+0	1.45E+0	5.462E+1
1.00E+3	2.10E+2	3.13E+1	1.30E+1	1.27E+1	9.98E+0	4.81E+0	4.75E+0	8.44E−1	8.37E−1	6.174E+1
1.50E+3	1.28E+2	1.89E+1	6.16E+0	6.04E+0	5.93E+0	2.26E+0	2.23E+0	2.88E−1	2.85E−1	7.349E+1
2.00E+3	8.87E+1	1.29E+1	3.48E+0	3.40E+0	4.01E+0	1.27E+0	1.24E+0	1.27E−1	1.25E−1	7.966E+1
3.00E+3	5.09E+1	7.24E+0	1.46E+0	1.42E+0	2.23E+0	5.27E−1	5.15E−1	3.68E−2	3.63E−2	8.344E+1
4.00E+3	3.35E+1	4.68E+0	7.54E−1	7.32E−1	1.43E+0	2.71E−1	2.64E−1	1.45E−2	1.42E−2	8.209E+1
5.00E+3	2.38E+1	3.28E+0	4.41E−1	4.28E−1	9.96E−1	1.58E−1	1.54E−1	6.88E−3	6.76E−3	7.884E+1
6.00E+3	1.78E+1	2.43E+0	2.81E−1	2.72E−1	7.35E−1	1.00E−1	9.72E−2	3.68E−3	3.61E−3	7.497E+1
8.00E+3	1.10E+1	1.48E+0	1.35E−1	1.29E−1	4.46E−1	4.78E−2	4.61E−2	1.34E−3	1.31E−3	6.723E+1
1.00E+4	7.47E+0	9.95E−1	7.45E−2	7.14E−2	2.99E−1	2.64E−2	2.54E−2	5.97E−4	5.82E−4	6.040E+1
1.50E+4	3.56E+0	4.66E−1	2.46E−2	2.33E−2	1.39E−1	8.68E−3	8.26E−3	1.34E−4	1.29E−4	4.763E+1
2.00E+4	2.05E+0	2.66E−1	1.09E−2	1.03E−2	7.92E−2	3.85E−3	3.63E−3	4.52E−5	4.35E−5	3.915E+1
3.00E+4	9.06E−1	1.16E−1	3.39E−3	3.14E−3	3.46E−2	1.19E−3	1.11E−3	9.66E−6	9.18E−6	2.886E+1
4.00E+4	4.97E−1	6.35E−2	1.46E−3	1.34E−3	1.89E−2	5.13E−4	4.71E−4	3.21E−6	3.02E−6	2.290E+1
5.00E+4	3.08E−1	3.93E−2	7.55E−4	6.84E−4	1.17E−2	2.65E−4	2.41E−4	1.37E−6	1.28E−6	1.903E+1
6.00E+4	2.08E−1	2.64E−2	4.41E−4	3.95E−4	7.82E−3	1.55E−4	1.39E−4	6.85E−7	6.34E−7	1.632E+1
8.00E+4	1.10E−1	1.39E−2	1.89E−4	1.66E−4	4.13E−3	6.64E−5	5.85E−5	2.32E−7	2.12E−7	1.278E+1
1.00E+5	6.66E−2	8.42E−3	9.85E−5	8.52E−5	2.50E−3	3.46E−5	3.00E−5	1.02E−7	9.21E−8	1.056E+1
1.50E+5	2.65E−2	3.34E−3	3.07E−5	2.58E−5	9.90E−4	1.08E−5	9.06E−6	2.37E−8	2.11E−8	7.503E+0
2.00E+5	1.38E−2	1.73E−3	1.38E−5	1.13E−5	5.14E−4	4.84E−6	3.99E−6	8.79E−9	7.84E−9	5.927E+0
3.00E+5	5.56E−3	6.98E−4	4.69E−6	3.80E−6	2.07E−4	1.64E−6	1.34E−6	2.35E−9	2.14E−9	4.318E+0
4.00E+5	3.00E−3	3.76E−4	2.28E−6	1.86E−6	1.11E−4	8.01E−7	6.55E−7	9.80E−10	9.35E−10	3.501E+0
5.00E+5	1.91E−3	2.39E−4	1.35E−6	1.12E−6	7.07E−5	4.73E−7	3.94E−7	5.18E−10	5.21E−10	3.007E+0
6.00E+5	1.34E−3	1.68E−4	8.98E−7	7.66E−7	4.98E−5	3.15E−7	2.69E−7	3.17E−10	3.36E−10	2.676E+0
8.00E+5	8.09E−4	1.01E−4	4.94E−7	4.44E−7	3.00E−5	1.73E−7	1.56E−7	1.54E−10	1.81E−10	2.260E+0
1.00E+6	5.67E−4	7.09E−5	3.22E−7	3.05E−7	2.10E−5	1.13E−7	1.07E−7			2.010E+0
1.50E+6	3.20E−4	4.00E−5	1.60E−7	1.67E−7						1.674E+0
2.00E+6	2.23E−4	2.79E−5	1.03E−7	1.15E−7						1.506E+0
3.00E+6	1.40E−4	1.75E−5								1.338E+0
4.00E+6	1.02E−4									1.254E+0
5.00E+6	8.01E−5									1.203E+0
6.00E+6	6.60E−5									1.169E+0

TABLE. Cross Sections for Radiative Recombination, $Z=1-112$

See page 9 for Explanation of Tables

$Z = 16$

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 4.213$ fm

$\lvert\epsilon_n\rvert$ (eV)	3.495E+3	8.745E+2	8.745E+2	8.715E+2	3.883E+2	3.883E+2	3.875E+2	3.875E+2	3.872E+2	
1.00E+0	2.92E+5	4.29E+4	3.97E+4	3.93E+4	1.44E+4	1.50E+4	1.49E+4	1.04E+4	1.03E+4	8.362E−2
1.50E+0	1.94E+5	2.86E+4	2.65E+4	2.62E+4	9.61E+3	9.99E+3	9.94E+3	6.91E+3	6.88E+3	1.254E−1
2.00E+0	1.46E+5	2.14E+4	1.98E+4	1.96E+4	7.21E+3	7.49E+3	7.45E+3	5.17E+3	5.15E+3	1.671E−1
3.00E+0	9.72E+4	1.43E+4	1.32E+4	1.31E+4	4.80E+3	4.99E+3	4.96E+3	3.43E+3	3.42E+3	2.506E−1
4.00E+0	7.29E+4	1.07E+4	9.90E+3	9.79E+3	3.60E+3	3.74E+3	3.72E+3	2.57E+3	2.56E+3	3.339E−1
5.00E+0	5.83E+4	8.57E+3	7.91E+3	7.82E+3	2.88E+3	2.99E+3	2.97E+3	2.05E+3	2.04E+3	4.171E−1
6.00E+0	4.86E+4	7.14E+3	6.58E+3	6.51E+3	2.40E+3	2.49E+3	2.47E+3	1.70E+3	1.69E+3	5.003E−1
8.00E+0	3.64E+4	5.36E+3	4.93E+3	4.87E+3	1.80E+3	1.86E+3	1.85E+3	1.27E+3	1.26E+3	6.663E−1
1.00E+1	2.91E+4	4.28E+3	3.93E+3	3.89E+3	1.44E+3	1.49E+3	1.48E+3	1.00E+3	1.00E+3	8.319E−1
1.50E+1	1.94E+4	2.85E+3	2.61E+3	2.58E+3	9.60E+2	9.84E+2	9.79E+2	6.58E+2	6.55E+2	1.244E+0
2.00E+1	1.45E+4	2.14E+3	1.94E+3	1.92E+3	7.20E+2	7.34E+2	7.30E+2	4.84E+2	4.82E+2	1.654E+0
3.00E+1	9.67E+3	1.43E+3	1.28E+3	1.27E+3	4.79E+2	4.84E+2	4.81E+2	3.12E+2	3.10E+2	2.468E+0
4.00E+1	7.24E+3	1.07E+3	9.49E+2	9.38E+2	3.59E+2	3.59E+2	3.57E+2	2.26E+2	2.25E+2	3.272E+0
5.00E+1	5.78E+3	8.53E+2	7.50E+2	7.42E+2	2.87E+2	2.84E+2	2.82E+2	1.75E+2	1.74E+2	4.066E+0
6.00E+1	4.81E+3	7.10E+2	6.18E+2	6.11E+2	2.39E+2	2.34E+2	2.33E+2	1.41E+2	1.40E+2	4.852E+0
8.00E+1	3.59E+3	5.31E+2	4.53E+2	4.48E+2	1.79E+2	1.72E+2	1.71E+2	9.88E+1	9.83E+1	6.398E+0
1.00E+2	2.86E+3	4.24E+2	3.54E+2	3.50E+2	1.42E+2	1.34E+2	1.34E+2	7.41E+1	7.38E+1	7.909E+0
1.50E+2	1.89E+3	2.81E+2	2.24E+2	2.21E+2	9.41E+1	8.49E+1	8.43E+1	4.25E+1	4.22E+1	1.154E+1
2.00E+2	1.41E+3	2.09E+2	1.59E+2	1.57E+2	6.99E+1	6.04E+1	5.99E+1	2.76E+1	2.75E+1	1.497E+1
3.00E+2	9.20E+2	1.37E+2	9.59E+1	9.45E+1	4.57E+1	3.64E+1	3.60E+1	1.42E+1	1.41E+1	2.129E+1
4.00E+2	6.77E+2	1.01E+2	6.54E+1	6.44E+1	3.35E+1	2.47E+1	2.45E+1	8.43E+0	8.38E+0	2.696E+1
5.00E+2	5.32E+2	7.98E+1	4.78E+1	4.71E+1	2.62E+1	1.80E+1	1.78E+1	5.45E+0	5.42E+0	3.203E+1
6.00E+2	4.36E+2	6.53E+1	3.66E+1	3.60E+1	2.13E+1	1.38E+1	1.36E+1	3.74E+0	3.71E+0	3.659E+1
8.00E+2	3.16E+2	4.73E+1	2.35E+1	2.30E+1	1.53E+1	8.77E+0	8.65E+0	1.98E+0	1.96E+0	4.436E+1
1.00E+3	2.45E+2	3.65E+1	1.62E+1	1.59E+1	1.17E+1	6.04E+0	5.95E+0	1.17E+0	1.16E+0	5.063E+1
1.50E+3	1.51E+2	2.22E+1	7.90E+0	7.73E+0	7.03E+0	2.91E+0	2.86E+0	4.11E−1	4.07E−1	6.153E+1
2.00E+3	1.05E+2	1.53E+1	4.53E+0	4.42E+0	4.79E+0	1.66E+0	1.63E+0	1.85E−1	1.83E−1	6.783E+1
3.00E+3	6.10E+1	8.74E+0	1.95E+0	1.89E+0	2.70E+0	7.06E−1	6.88E−1	5.53E−2	5.45E−2	7.289E+1
4.00E+3	4.05E+1	5.71E+0	1.02E+0	9.92E−1	1.75E+0	3.69E−1	3.58E−1	2.23E−2	2.19E−2	7.306E+1
5.00E+3	2.90E+1	4.04E+0	6.07E−1	5.86E−1	1.23E+0	2.18E−1	2.11E−1	1.07E−2	1.05E−2	7.116E+1
6.00E+3	2.19E+1	3.01E+0	3.90E−1	3.76E−1	9.12E−1	1.39E−1	1.35E−1	5.78E−3	5.66E−3	6.842E+1
8.00E+3	1.37E+1	1.86E+0	1.89E−1	1.82E−1	5.60E−1	6.74E−2	6.49E−2	2.13E−3	2.08E−3	6.236E+1
1.00E+4	9.37E+0	1.26E+0	1.06E−1	1.01E−1	3.77E−1	3.76E−2	3.60E−2	9.63E−4	9.37E−4	5.667E+1
1.50E+4	4.52E+0	5.96E−1	3.55E−2	3.36E−2	1.78E−1	1.26E−2	1.19E−2	2.19E−4	2.12E−4	4.547E+1
2.00E+4	2.63E+0	3.42E−1	1.60E−2	1.50E−2	1.02E−1	5.63E−3	5.29E−3	7.50E−5	7.20E−5	3.775E+1
3.00E+4	1.18E+0	1.52E−1	5.02E−3	4.64E−3	4.52E−2	1.77E−3	1.64E−3	1.62E−5	1.54E−5	2.813E+1
4.00E+4	6.50E−1	8.33E−2	2.18E−3	1.99E−3	2.48E−2	7.66E−4	7.00E−4	5.44E−6	5.11E−6	2.245E+1
5.00E+4	4.06E−1	5.18E−2	1.14E−3	1.02E−3	1.54E−2	3.99E−4	3.60E−4	2.33E−6	2.17E−6	1.873E+1
6.00E+4	2.74E−1	3.49E−2	6.65E−4	5.93E−4	1.04E−2	2.34E−4	2.09E−4	1.17E−6	1.08E−6	1.610E+1
8.00E+4	1.46E−1	1.85E−2	2.87E−4	2.51E−4	5.49E−3	1.01E−4	8.83E−5	4.00E−7	3.64E−7	1.265E+1
1.00E+5	8.87E−2	1.12E−2	1.50E−4	1.29E−4	3.33E−3	5.27E−5	4.54E−5	1.76E−7	1.59E−7	1.047E+1
1.50E+5	3.55E−2	4.49E−3	4.71E−5	3.93E−5	1.33E−3	1.65E−5	1.38E−5	4.12E−8	3.66E−8	7.461E+0
2.00E+5	1.85E−2	2.33E−3	2.12E−5	1.73E−5	6.92E−4	7.44E−6	6.09E−6	1.53E−8	1.36E−8	5.902E+0
3.00E+5	7.51E−3	9.44E−4	7.25E−6	5.83E−6	2.80E−4	2.54E−6	2.05E−6	4.11E−9	3.73E−9	4.306E+0
4.00E+5	4.06E−3	5.10E−4	3.54E−6	2.86E−6	1.51E−4	1.24E−6	1.01E−6	1.72E−9	1.63E−9	3.494E+0
5.00E+5	2.58E−3	3.24E−4	2.10E−6	1.73E−6	9.59E−5	7.35E−7	6.06E−7	9.10E−10	9.10E−10	3.002E+0
6.00E+5	1.82E−3	2.29E−4	1.40E−6	1.18E−6	6.76E−5	4.90E−7	4.14E−7	5.57E−10	5.88E−10	2.672E+0
8.00E+5	1.10E−3	1.38E−4	7.68E−7	6.83E−7	4.07E−5	2.69E−7	2.40E−7	2.70E−10	3.17E−10	2.258E+0
1.00E+6	7.70E−4	9.64E−5	5.01E−7	4.69E−7	2.85E−5	1.76E−7	1.65E−7			2.008E+0
1.50E+6	4.35E−4	5.44E−5	2.50E−7	2.57E−7	1.61E−5		9.04E−8			1.674E+0
2.00E+6	3.03E−4	3.79E−5	1.61E−7	1.76E−7	1.17E−5*					1.506E+0
3.00E+6	1.89E−4									1.338E+0
4.00E+6	1.38E−4									1.253E+0
5.00E+6	1.08E−4									1.203E+0
6.00E+6	8.92E−5*									1.169E+0

TABLE. Cross Sections for Radiative Recombination, $Z=1–112$
See page 9 for Explanation of Tables

$$Z= 17$$

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

R_{nucl} = 4.374 fm

$|\epsilon_n|$ (eV)	3.947E+3	9.878E+2	9.878E+2	9.840E+2	4.386E+2	4.386E+2	4.375E+2	4.375E+2	4.371E+2	
1.00E+0	3.29E+5	4.84E+4	4.49E+4	4.44E+4	1.63E+4	1.70E+4	1.69E+4	1.17E+4	1.17E+4	6.556E−2
1.50E+0	2.20E+5	3.23E+4	2.99E+4	2.96E+4	1.09E+4	1.13E+4	1.12E+4	7.81E+3	7.77E+3	9.831E−2
2.00E+0	1.65E+5	2.42E+4	2.24E+4	2.22E+4	8.14E+3	8.47E+3	8.42E+3	5.85E+3	5.82E+3	1.311E−1
3.00E+0	1.10E+5	1.61E+4	1.50E+4	1.48E+4	5.42E+3	5.64E+3	5.61E+3	3.89E+3	3.87E+3	1.965E−1
4.00E+0	8.23E+4	1.21E+4	1.12E+4	1.11E+4	4.07E+3	4.23E+3	4.20E+3	2.90E+3	2.89E+3	2.618E−1
5.00E+0	6.58E+4	9.68E+3	8.95E+3	8.84E+3	3.25E+3	3.38E+3	3.36E+3	2.32E+3	2.31E+3	3.271E−1
6.00E+0	5.48E+4	8.07E+3	7.45E+3	7.36E+3	2.71E+3	2.81E+3	2.80E+3	1.92E+3	1.92E+3	3.924E−1
8.00E+0	4.11E+4	6.05E+3	5.58E+3	5.51E+3	2.03E+3	2.10E+3	2.09E+3	1.43E+3	1.43E+3	5.226E−1
1.00E+1	3.29E+4	4.84E+3	4.45E+3	4.40E+3	1.63E+3	1.68E+3	1.67E+3	1.14E+3	1.13E+3	6.526E−1
1.50E+1	2.19E+4	3.22E+3	2.95E+3	2.92E+3	1.08E+3	1.11E+3	1.11E+3	7.48E+2	7.44E+2	9.765E−1
2.00E+1	1.64E+4	2.42E+3	2.20E+3	2.18E+3	8.12E+2	8.32E+2	8.27E+2	5.52E+2	5.49E+2	1.299E+0
3.00E+1	1.09E+4	1.61E+3	1.45E+3	1.44E+3	5.41E+2	5.49E+2	5.46E+2	3.57E+2	3.55E+2	1.938E+0
4.00E+1	8.18E+3	1.21E+3	1.08E+3	1.07E+3	4.06E+2	4.08E+2	4.05E+2	2.59E+2	2.58E+2	2.571E+0
5.00E+1	6.53E+3	9.64E+2	8.54E+2	8.43E+2	3.24E+2	3.23E+2	3.21E+2	2.01E+2	2.00E+2	3.198E+0
6.00E+1	5.43E+3	8.03E+2	7.04E+2	6.95E+2	2.70E+2	2.67E+2	2.65E+2	1.63E+2	1.62E+2	3.819E+0
8.00E+1	4.06E+3	6.01E+2	5.18E+2	5.11E+2	2.02E+2	1.96E+2	1.95E+2	1.15E+2	1.14E+2	5.041E+0
1.00E+2	3.24E+3	4.80E+2	4.06E+2	4.01E+2	1.61E+2	1.54E+2	1.53E+2	8.69E+1	8.64E+1	6.240E+0
1.50E+2	2.14E+3	3.18E+2	2.58E+2	2.54E+2	1.07E+2	9.78E+1	9.70E+1	5.05E+1	5.02E+1	9.133E+0
2.00E+2	1.59E+3	2.37E+2	1.84E+2	1.82E+2	7.93E+1	6.99E+1	6.93E+1	3.33E+1	3.31E+1	1.189E+1
3.00E+2	1.04E+3	1.56E+2	1.12E+2	1.11E+2	5.19E+1	4.25E+1	4.21E+1	1.75E+1	1.74E+1	1.700E+1
4.00E+2	7.71E+2	1.15E+2	7.72E+1	7.60E+1	3.82E+1	2.92E+1	2.89E+1	1.06E+1	1.05E+1	2.164E+1
5.00E+2	6.07E+2	9.10E+1	5.69E+1	5.60E+1	3.00E+1	2.15E+1	2.12E+1	6.95E+0	6.89E+0	2.585E+1
6.00E+2	4.98E+2	7.47E+1	4.39E+1	4.31E+1	2.45E+1	1.65E+1	1.63E+1	4.83E+0	4.79E+0	2.967E+1
8.00E+2	3.62E+2	5.43E+1	2.85E+1	2.79E+1	1.76E+1	1.07E+1	1.05E+1	2.61E+0	2.59E+0	3.631E+1
1.00E+3	2.81E+2	4.21E+1	1.99E+1	1.95E+1	1.36E+1	7.44E+0	7.32E+0	1.56E+0	1.55E+0	4.180E+1
1.50E+3	1.75E+2	2.59E+1	9.90E+0	9.67E+0	8.22E+0	3.66E+0	3.59E+0	5.69E−1	5.63E−1	5.174E+1
2.00E+3	1.22E+2	1.80E+1	5.78E+0	5.63E+0	5.64E+0	2.12E+0	2.07E+0	2.61E−1	2.58E−1	5.790E+1
3.00E+3	7.20E+1	1.04E+1	2.54E+0	2.46E+0	3.22E+0	9.22E−1	8.98E−1	8.04E−2	7.91E−2	6.371E+1
4.00E+3	4.83E+1	6.85E+0	1.36E+0	1.31E+0	2.10E+0	4.89E−1	4.75E−1	3.30E−2	3.24E−2	6.498E+1
5.00E+3	3.48E+1	4.88E+0	8.13E−1	7.83E−1	1.49E+0	2.92E−1	2.83E−1	1.61E−2	1.57E−2	6.414E+1
6.00E+3	2.64E+1	3.66E+0	5.27E−1	5.07E−1	1.11E+0	1.89E−1	1.82E−1	8.77E−3	8.58E−3	6.234E+1
8.00E+3	1.67E+1	2.28E+0	2.60E−1	2.48E−1	6.90E−1	9.26E−2	8.88E−2	3.28E−3	3.20E−3	5.773E+1
1.00E+4	1.15E+1	1.56E+0	1.47E−1	1.40E−1	4.68E−1	5.22E−2	4.99E−2	1.50E−3	1.46E−3	5.305E+1
1.50E+4	5.65E+0	7.48E−1	5.00E−2	4.72E−2	2.24E−1	1.77E−2	1.68E−2	3.48E−4	3.35E−4	4.333E+1
2.00E+4	3.31E+0	4.33E−1	2.27E−2	2.12E−2	1.29E−1	8.02E−3	7.51E−3	1.20E−4	1.15E−4	3.634E+1
3.00E+4	1.50E+0	1.94E−1	7.24E−3	6.66E−3	5.78E−2	2.55E−3	2.35E−3	2.63E−5	2.49E−5	2.739E+1
4.00E+4	8.35E−1	1.07E−1	3.17E−3	2.87E−3	3.19E−2	1.11E−3	1.01E−3	8.90E−6	8.34E−6	2.200E+1
5.00E+4	5.23E−1	6.70E−2	1.66E−3	1.49E−3	1.99E−2	5.83E−4	5.24E−4	3.84E−6	3.56E−6	1.842E+1
6.00E+4	3.55E−1	4.53E−2	9.77E−4	8.66E−4	1.35E−2	3.43E−4	3.05E−4	1.94E−6	1.78E−6	1.588E+1
8.00E+4	1.90E−1	2.42E−2	4.24E−4	3.68E−4	7.17E−3	1.49E−4	1.30E−4	6.64E−7	6.03E−7	1.251E+1
1.00E+5	1.16E−1	1.47E−2	2.23E−4	1.90E−4	4.36E−3	7.81E−5	6.70E−5	2.93E−7	2.64E−7	1.038E+1
1.50E+5	4.67E−2	5.91E−3	7.03E−5	5.82E−5	1.75E−3	2.47E−5	2.05E−5	6.90E−8	6.12E−8	7.418E+0
2.00E+5	2.45E−2	3.08E−3	3.18E−5	2.58E−5	9.14E−4	1.12E−5	9.07E−6	2.58E−8	2.28E−8	5.876E+0
3.00E+5	9.95E−3	1.25E−3	1.09E−5	8.70E−6	3.71E−4	3.82E−6	3.06E−6	6.94E−9	6.28E−9	4.293E+0
4.00E+5	5.39E−3	6.77E−4	5.34E−6	4.28E−6	2.01E−4	1.87E−6	1.50E−6	2.91E−9	2.75E−9	3.486E+0
5.00E+5	3.44E−3	4.31E−4	3.17E−6	2.58E−6	1.28E−4	1.11E−6	9.07E−7	1.54E−9	1.53E−9	2.996E+0
6.00E+5	2.43E−3	3.04E−4	2.11E−6	1.76E−6	9.00E−5	7.40E−7	6.19E−7	9.45E−10	9.91E−10	2.668E+0
8.00E+5	1.46E−3	1.83E−4	1.16E−6	1.02E−6	5.42E−5	4.08E−7	3.59E−7	4.59E−10	5.34E−10	2.255E+0
1.00E+6	1.03E−3	1.28E−4	7.60E−7	7.02E−7	3.80E−5	2.66E−7	2.47E−7			2.006E+0
1.50E+6	5.79E−4	7.24E−5	3.79E−7	3.85E−7	2.14E−5	1.33E−7				1.673E+0
2.00E+6	4.03E−4	5.04E−5	2.45E−7	2.64E−7						1.505E+0
3.00E+6	2.52E−4			1.6E−7						1.337E+0
4.00E+6	1.83E−4									1.253E+0
5.00E+6	1.44E−4									1.203E+0
6.00E+6	1.18E−4									1.169E+0

$Z= 18$

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

R_{nucl} = 4.424 fm

$|\epsilon_n|$ (eV)	4.427E+3	1.108E+3	1.108E+3	1.103E+3	4.919E+2	4.919E+2	4.905E+2	4.905E+2	4.900E+2	
1.00E+0	3.69E+5	5.43E+4	5.05E+4	4.98E+4	1.82E+4	1.90E+4	1.89E+4	1.32E+4	1.31E+4	5.211E−2
1.50E+0	2.46E+5	3.62E+4	3.36E+4	3.32E+4	1.22E+4	1.27E+4	1.26E+4	8.77E+3	8.72E+3	7.815E−2
2.00E+0	1.85E+5	2.71E+4	2.52E+4	2.49E+4	9.12E+3	9.50E+3	9.44E+3	6.56E+3	6.53E+3	1.042E−1
3.00E+0	1.23E+5	1.81E+4	1.68E+4	1.66E+4	6.08E+3	6.33E+3	6.29E+3	4.36E+3	4.34E+3	1.562E−1
4.00E+0	9.22E+4	1.36E+4	1.26E+4	1.24E+4	4.56E+3	4.74E+3	4.71E+3	3.26E+3	3.25E+3	2.082E−1
5.00E+0	7.38E+4	1.09E+4	1.01E+4	9.92E+3	3.65E+3	3.79E+3	3.77E+3	2.60E+3	2.59E+3	2.601E−1
6.00E+0	6.15E+4	9.04E+3	8.37E+3	8.26E+3	3.04E+3	3.16E+3	3.14E+3	2.16E+3	2.15E+3	3.120E−1
8.00E+0	4.61E+4	6.78E+3	6.27E+3	6.18E+3	2.28E+3	2.36E+3	2.35E+3	1.61E+3	1.60E+3	4.156E−1
1.00E+1	3.69E+4	5.42E+3	5.01E+3	4.94E+3	1.82E+3	1.89E+3	1.88E+3	1.28E+3	1.28E+3	5.190E−1
1.50E+1	2.46E+4	3.62E+3	3.32E+3	3.28E+3	1.22E+3	1.25E+3	1.25E+3	8.43E+2	8.39E+2	7.768E−1
2.00E+1	1.84E+4	2.71E+3	2.48E+3	2.44E+3	9.11E+2	9.35E+2	9.29E+2	6.23E+2	6.20E+2	1.033E+0
3.00E+1	1.23E+4	1.81E+3	1.64E+3	1.61E+3	6.07E+2	6.18E+2	6.14E+2	4.04E+2	4.02E+2	1.543E+0
4.00E+1	9.17E+3	1.35E+3	1.22E+3	1.20E+3	4.55E+2	4.60E+2	4.56E+2	2.95E+2	2.93E+2	2.048E+0
5.00E+1	7.33E+3	1.08E+3	9.64E+2	9.51E+2	3.64E+2	3.65E+2	3.62E+2	2.29E+2	2.28E+2	2.549E+0
6.00E+1	6.10E+3	9.00E+2	7.96E+2	7.85E+2	3.03E+2	3.01E+2	2.99E+2	1.86E+2	1.85E+2	3.045E+0
8.00E+1	4.56E+3	6.74E+2	5.87E+2	5.78E+2	2.27E+2	2.22E+2	2.20E+2	1.32E+2	1.32E+2	4.025E+0
1.00E+2	3.64E+3	5.38E+2	4.61E+2	4.54E+2	1.81E+2	1.75E+2	1.73E+2	1.01E+2	9.99E+1	4.986E+0
1.50E+2	2.41E+3	3.57E+2	2.94E+2	2.90E+2	1.20E+2	1.12E+2	1.11E+2	5.92E+1	5.88E+1	7.318E+0
2.00E+2	1.79E+3	2.67E+2	2.11E+2	2.08E+2	8.92E+1	8.01E+1	7.94E+1	3.95E+1	3.92E+1	9.548E+0
3.00E+2	1.18E+3	1.76E+2	1.30E+2	1.28E+2	5.86E+1	4.92E+1	4.87E+1	2.12E+1	2.10E+1	1.372E+1
4.00E+2	8.70E+2	1.30E+2	9.00E+1	8.84E+1	4.32E+1	3.41E+1	3.37E+1	1.30E+1	1.29E+1	1.755E+1
5.00E+2	6.86E+2	1.03E+2	6.68E+1	6.56E+1	3.40E+1	2.53E+1	2.49E+1	8.66E+0	8.58E+0	2.106E+1
6.00E+2	5.64E+2	8.46E+1	5.19E+1	5.09E+1	2.78E+1	1.96E+1	1.93E+1	6.09E+0	6.03E+0	2.428E+1
8.00E+2	4.11E+2	6.17E+1	3.40E+1	3.33E+1	2.01E+1	1.28E+1	1.26E+1	3.36E+0	3.32E+0	2.994E+1
1.00E+3	3.20E+2	4.80E+1	2.41E+1	2.35E+1	1.55E+1	9.00E+0	8.84E+0	2.04E+0	2.02E+0	3.473E+1
1.50E+3	2.00E+2	2.98E+1	1.22E+1	1.19E+1	9.49E+0	4.52E+0	4.42E+0	7.66E−1	7.57E−1	4.370E+1
2.00E+3	1.41E+2	2.08E+1	7.22E+0	7.02E+0	6.57E+0	2.65E+0	2.59E+0	3.59E−1	3.54E−1	4.957E+1
3.00E+3	8.39E+1	1.22E+1	3.24E+0	3.14E+0	3.79E+0	1.18E+0	1.15E+0	1.14E−1	1.12E−1	5.574E+1
4.00E+3	5.67E+1	8.11E+0	1.76E+0	1.69E+0	2.50E+0	6.35E−1	6.15E−1	4.74E−2	4.65E−2	5.779E+1
5.00E+3	4.12E+1	5.82E+0	1.07E+0	1.02E+0	1.78E+0	3.84E−1	3.70E−1	2.34E−2	2.29E−2	5.778E+1
6.00E+3	3.14E+1	4.39E+0	6.97E−1	6.68E−1	1.34E+0	2.50E−1	2.41E−1	1.29E−2	1.26E−2	5.673E+1
8.00E+3	2.01E+1	2.76E+0	3.48E−1	3.32E−1	8.37E−1	1.24E−1	1.19E−1	4.91E−3	4.78E−3	5.336E+1
1.00E+4	1.40E+1	1.90E+0	1.99E−1	1.89E−1	5.72E−1	7.07E−2	6.74E−2	2.27E−3	2.20E−3	4.958E+1
1.50E+4	6.93E+0	9.23E−1	6.89E−2	6.47E−2	2.77E−1	2.44E−2	2.30E−2	5.34E−4	5.14E−4	4.122E+1
2.00E+4	4.10E+0	5.39E−1	3.16E−2	2.94E−2	1.61E−1	1.12E−2	1.04E−2	1.87E−4	1.79E−4	3.493E+1
3.00E+4	1.88E+0	2.44E−1	1.02E−2	9.34E−3	7.27E−2	3.59E−3	3.30E−3	4.15E−5	3.92E−5	2.663E+1
4.00E+4	1.05E+0	1.36E−1	4.50E−3	4.06E−3	4.04E−2	1.58E−3	1.43E−3	1.41E−5	1.32E−5	2.152E+1
5.00E+4	6.64E−1	8.52E−2	2.37E−3	2.11E−3	2.53E−2	8.33E−4	7.45E−4	6.12E−6	5.67E−6	1.809E+1
6.00E+4	4.52E−1	5.78E−2	1.40E−3	1.24E−3	1.72E−2	4.92E−4	4.35E−4	3.10E−6	2.85E−6	1.564E+1
8.00E+4	2.43E−1	3.10E−2	6.11E−4	5.28E−4	9.19E−3	2.15E−4	1.86E−4	1.07E−6	9.69E−7	1.237E+1
1.00E+5	1.49E−1	1.89E−2	3.22E−4	2.74E−4	5.62E−3	1.13E−4	9.64E−5	4.74E−7	4.25E−7	1.029E+1
1.50E+5	6.04E−2	7.65E−3	1.03E−4	8.43E−5	2.27E−3	3.59E−5	2.97E−5	1.12E−7	9.92E−8	7.371E+0
2.00E+5	3.17E−2	4.01E−3	4.65E−5	3.75E−5	1.19E−3	1.63E−5	1.32E−5	4.21E−8	3.71E−8	5.848E+0
3.00E+5	1.30E−2	1.63E−3	1.60E−5	1.27E−5	4.83E−4	5.62E−6	4.46E−6	1.14E−8	1.02E−8	4.279E+0
4.00E+5	7.04E−3	8.85E−4	7.87E−6	6.25E−6	2.62E−4	2.76E−6	2.20E−6	4.78E−9	4.49E−9	3.478E+0
5.00E+5	4.49E−3	5.64E−4	4.67E−6	3.77E−6	1.67E−4	1.64E−6	1.33E−6	2.54E−9	2.51E−9	2.991E+0
6.00E+5	3.18E−3	3.98E−4	3.12E−6	2.58E−6	1.18E−4	1.09E−6	9.05E−7	1.55E−9	1.62E−9	2.664E+0
8.00E+5	1.92E−3	2.40E−4	1.72E−6	1.50E−6	7.10E−5	6.03E−7	5.25E−7	7.56E−10	8.73E−10	2.252E+0
1.00E+6	1.34E−3	1.68E−4	1.13E−6	1.03E−6	4.97E−5	3.94E−7	3.60E−7	4.53E−10		2.004E+0
1.50E+6	7.58E−4	9.47E−5	5.62E−7	5.62E−7	2.80E−5	1.97E−7				1.672E+0
2.00E+6	5.27E−4	6.59E−5	3.63E−7	3.85E−7						1.504E+0
3.00E+6	3.29E−4	4.10E−5	2.08E−7	2.36E−7						1.337E+0
4.00E+6	2.39E−4									1.253E+0
5.00E+6	1.88E−4									1.202E+0
6.00E+6	1.54E−4									1.169E+0
8.00E+6	1.14E−4									1.127E+0

Z= 19

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 4.435$ fm

$|\epsilon_n|$ (eV)	4.936E+3	1.235E+3	1.235E+3	1.229E+3	5.484E+2	5.484E+2	5.466E+2	5.466E+2	5.460E+2	
1.00E+0	4.11E+5	6.05E+4	5.64E+4	5.55E+4	2.03E+4	2.12E+4	2.11E+4	1.47E+4	1.46E+4	4.194E−2
1.50E+0	2.74E+5	4.03E+4	3.76E+4	3.70E+4	1.36E+4	1.41E+4	1.40E+4	9.78E+3	9.72E+3	6.289E−2
2.00E+0	2.06E+5	3.02E+4	2.82E+4	2.77E+4	1.02E+4	1.06E+4	1.05E+4	7.32E+3	7.28E+3	8.384E−2
3.00E+0	1.37E+5	2.02E+4	1.88E+4	1.85E+4	6.77E+3	7.06E+3	7.01E+3	4.87E+3	4.84E+3	1.257E−1
4.00E+0	1.03E+5	1.51E+4	1.41E+4	1.38E+4	5.08E+3	5.29E+3	5.26E+3	3.64E+3	3.62E+3	1.676E−1
5.00E+0	8.22E+4	1.21E+4	1.12E+4	1.11E+4	4.06E+3	4.23E+3	4.20E+3	2.91E+3	2.89E+3	2.094E−1
6.00E+0	6.85E+4	1.01E+4	9.35E+3	9.21E+3	3.39E+3	3.52E+3	3.50E+3	2.42E+3	2.40E+3	2.511E−1
8.00E+0	5.13E+4	7.56E+3	7.00E+3	6.90E+3	2.54E+3	2.64E+3	2.62E+3	1.80E+3	1.79E+3	3.346E−1
1.00E+1	4.11E+4	6.05E+3	5.59E+3	5.51E+3	2.03E+3	2.11E+3	2.09E+3	1.44E+3	1.43E+3	4.179E−1
1.50E+1	2.74E+4	4.03E+3	3.71E+3	3.66E+3	1.35E+3	1.40E+3	1.39E+3	9.44E+2	9.39E+2	6.255E−1
2.00E+1	2.05E+4	3.02E+3	2.77E+3	2.73E+3	1.02E+3	1.05E+3	1.04E+3	6.99E+2	6.95E+2	8.324E−1
3.00E+1	1.37E+4	2.01E+3	1.83E+3	1.80E+3	6.76E+2	6.91E+2	6.86E+2	4.55E+2	4.52E+2	1.244E+0
4.00E+1	1.02E+4	1.51E+3	1.36E+3	1.34E+3	5.07E+2	5.15E+2	5.11E+2	3.32E+2	3.30E+2	1.651E+0
5.00E+1	8.17E+3	1.21E+3	1.08E+3	1.07E+3	4.05E+2	4.08E+2	4.05E+2	2.60E+2	2.58E+2	2.056E+0
6.00E+1	6.80E+3	1.00E+3	8.94E+2	8.80E+2	3.37E+2	3.38E+2	3.35E+2	2.11E+2	2.10E+2	2.457E+0
8.00E+1	5.08E+3	7.52E+2	6.60E+2	6.49E+2	2.53E+2	2.49E+2	2.47E+2	1.51E+2	1.50E+2	3.250E+0
1.00E+2	4.06E+3	6.01E+2	5.19E+2	5.11E+2	2.02E+2	1.96E+2	1.95E+2	1.15E+2	1.14E+2	4.031E+0
1.50E+2	2.69E+3	3.99E+2	3.33E+2	3.27E+2	1.34E+2	1.26E+2	1.25E+2	6.85E+1	6.81E+1	5.928E+0
2.00E+2	2.00E+3	2.98E+2	2.40E+2	2.36E+2	9.97E+1	9.10E+1	9.00E+1	4.62E+1	4.58E+1	7.752E+0
3.00E+2	1.32E+3	1.97E+2	1.49E+2	1.46E+2	6.56E+1	5.63E+1	5.56E+1	2.52E+1	2.50E+1	1.119E+1
4.00E+2	9.75E+2	1.46E+2	1.04E+2	1.02E+2	4.85E+1	3.93E+1	3.88E+1	1.57E+1	1.56E+1	1.437E+1
5.00E+2	7.70E+2	1.15E+2	7.75E+1	7.60E+1	3.82E+1	2.93E+1	2.89E+1	1.06E+1	1.05E+1	1.730E+1
6.00E+2	6.34E+2	9.50E+1	6.05E+1	5.93E+1	3.13E+1	2.28E+1	2.25E+1	7.53E+0	7.46E+0	2.002E+1
8.00E+2	4.63E+2	6.96E+1	4.01E+1	3.92E+1	2.28E+1	1.51E+1	1.48E+1	4.23E+0	4.19E+0	2.487E+1
1.00E+3	3.62E+2	5.43E+1	2.86E+1	2.79E+1	1.76E+1	1.07E+1	1.05E+1	2.61E+0	2.59E+0	2.904E+1
1.50E+3	2.27E+2	3.39E+1	1.48E+1	1.44E+1	1.09E+1	5.48E+0	5.36E+0	1.01E+0	9.95E−1	3.707E+1
2.00E+3	1.61E+2	2.39E+1	8.86E+0	8.60E+0	7.56E+0	3.27E+0	3.19E+0	4.82E−1	4.75E−1	4.258E+1
3.00E+3	9.67E+1	1.41E+1	4.06E+0	3.92E+0	4.40E+0	1.48E+0	1.44E+0	1.56E−1	1.54E−1	4.883E+1
4.00E+3	6.59E+1	9.48E+0	2.23E+0	2.15E+0	2.93E+0	8.09E−1	7.82E−1	6.65E−2	6.52E−2	5.140E+1
5.00E+3	4.82E+1	6.85E+0	1.37E+0	1.31E+0	2.10E+0	4.94E−1	4.76E−1	3.32E−2	3.25E−2	5.202E+1
6.00E+3	3.70E+1	5.20E+0	9.04E−1	8.64E−1	1.59E+0	3.25E−1	3.12E−1	1.85E−2	1.81E−2	5.158E+1
8.00E+3	2.38E+1	3.30E+0	4.57E−1	4.34E−1	1.00E+0	1.63E−1	1.56E−1	7.14E−3	6.94E−3	4.925E+1
1.00E+4	1.67E+1	2.28E+0	2.63E−1	2.49E−1	6.89E−1	9.39E−2	8.92E−2	3.33E−3	3.23E−3	4.627E+1
1.50E+4	8.39E+0	1.12E+0	9.28E−2	8.68E−2	3.37E−1	3.29E−2	3.09E−2	7.99E−4	7.68E−4	3.914E+1
2.00E+4	5.00E+0	6.61E−1	4.30E−2	3.98E−2	1.98E−1	1.52E−2	1.41E−2	2.82E−4	2.69E−4	3.352E+1
3.00E+4	2.32E+0	3.02E−1	1.41E−2	1.28E−2	9.02E−2	4.95E−3	4.53E−3	6.35E−5	5.98E−5	2.586E+1
4.00E+4	1.31E+0	1.69E−1	6.25E−3	5.62E−3	5.04E−2	2.20E−3	1.98E−3	2.18E−5	2.03E−5	2.104E+1
5.00E+4	8.29E−1	1.07E−1	3.31E−3	2.94E−3	3.18E−2	1.16E−3	1.04E−3	9.50E−6	8.78E−6	1.776E+1
6.00E+4	5.67E−1	7.27E−2	1.97E−3	1.72E−3	2.16E−2	6.90E−4	6.08E−4	4.83E−6	4.43E−6	1.540E+1
8.00E+4	3.07E−1	3.91E−2	8.63E−4	7.42E−4	1.16E−2	3.03E−4	2.61E−4	1.68E−6	1.51E−6	1.222E+1
1.00E+5	1.89E−1	2.40E−2	4.57E−4	3.86E−4	7.12E−3	1.60E−4	1.36E−4	7.45E−7	6.66E−7	1.019E+1
1.50E+5	7.69E−2	9.75E−3	1.46E−4	1.19E−4	2.89E−3	5.13E−5	4.20E−5	1.78E−7	1.56E−7	7.323E+0
2.00E+5	4.05E−2	5.12E−3	6.66E−5	5.32E−5	1.52E−3	2.33E−5	1.87E−5	6.68E−8	5.87E−8	5.819E+0
3.00E+5	1.66E−2	2.09E−3	2.30E−5	1.81E−5	6.20E−4	8.08E−6	6.35E−6	1.81E−8	1.63E−8	4.265E+0
4.00E+5	9.05E−3	1.14E−3	1.13E−5	8.93E−6	3.37E−4	3.97E−6	3.14E−6	7.63E−9	7.13E−9	3.469E+0
5.00E+5	5.78E−3	7.26E−4	6.74E−6	5.39E−6	2.15E−4	2.36E−6	1.89E−6	4.05E−9	3.99E−9	2.985E+0
6.00E+5	4.09E−3	5.13E−4	4.51E−6	3.69E−6	1.52E−4	1.58E−6	1.29E−6	2.49E−9	2.58E−9	2.659E+0
8.00E+5	2.47E−3	3.10E−4	2.49E−6	2.14E−6	9.15E−5	8.72E−7	7.51E−7	1.21E−9	1.39E−9	2.250E+0
1.00E+6	1.73E−3	2.17E−4	1.63E−6	1.47E−6	6.41E−5	5.71E−7	5.15E−7	7.26E−10*	9.08E−10*	2.002E+0
1.50E+6	9.77E−4	1.22E−4	8.15E−7	8.03E−7	3.61E−5	2.85E−7				1.670E+0
2.00E+6	6.79E−4	8.49E−5	5.26E−7	5.49E−7						1.504E+0
3.00E+6	4.23E−4	5.28E−5	3.02E−7	3.37E−7*						1.336E+0
4.00E+6	3.07E−4	3.85E−5*								1.252E+0
5.00E+6	2.41E−4									1.202E+0
6.00E+6	1.98E−4									1.168E+0
8.00E+6	1.46E−4*									1.126E+0

TABLE. Cross Sections for Radiative Recombination, $Z=1\text{–}112$
See page 9 for Explanation of Tables

Z= 20

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 4.490$ fm

$\|\epsilon_n\|$ (eV)	5.472E+3	1.370E+3	1.370E+3	1.362E+3	6.080E+2	6.080E+2	6.058E+2	6.058E+2	6.051E+2	
1.00E+0	4.55E+5	6.70E+4	6.26E+4	6.15E+4	2.25E+4	2.35E+4	2.34E+4	1.63E+4	1.62E+4	3.412E−2
1.50E+0	3.04E+5	4.47E+4	4.17E+4	4.10E+4	1.50E+4	1.57E+4	1.56E+4	1.09E+4	1.08E+4	5.118E−2
2.00E+0	2.28E+5	3.35E+4	3.13E+4	3.07E+4	1.13E+4	1.18E+4	1.17E+4	8.13E+3	8.08E+3	6.822E−2
3.00E+0	1.52E+5	2.23E+4	2.08E+4	2.05E+4	7.51E+3	7.84E+3	7.77E+3	5.41E+3	5.37E+3	1.023E−1
4.00E+0	1.14E+5	1.68E+4	1.56E+4	1.53E+4	5.63E+3	5.87E+3	5.83E+3	4.04E+3	4.02E+3	1.363E−1
5.00E+0	9.10E+4	1.34E+4	1.25E+4	1.23E+4	4.50E+3	4.69E+3	4.66E+3	3.23E+3	3.21E+3	1.704E−1
6.00E+0	7.58E+4	1.12E+4	1.04E+4	1.02E+4	3.75E+3	3.91E+3	3.88E+3	2.68E+3	2.67E+3	2.044E−1
8.00E+0	5.69E+4	8.38E+3	7.78E+3	7.65E+3	2.81E+3	2.93E+3	2.91E+3	2.00E+3	1.99E+3	2.723E−1
1.00E+1	4.55E+4	6.70E+3	6.21E+3	6.11E+3	2.25E+3	2.34E+3	2.32E+3	1.60E+3	1.59E+3	3.401E−1
1.50E+1	3.03E+4	4.47E+3	4.13E+3	4.06E+3	1.50E+3	1.55E+3	1.54E+3	1.05E+3	1.04E+3	5.093E−1
2.00E+1	2.27E+4	3.35E+3	3.08E+3	3.03E+3	1.13E+3	1.16E+3	1.15E+3	7.79E+2	7.74E+2	6.778E−1
3.00E+1	1.51E+4	2.23E+3	2.04E+3	2.01E+3	7.50E+2	7.69E+2	7.62E+2	5.08E+2	5.05E+2	1.013E+0
4.00E+1	1.13E+4	1.67E+3	1.52E+3	1.49E+3	5.62E+2	5.73E+2	5.68E+2	3.72E+2	3.70E+2	1.346E+0
5.00E+1	9.05E+3	1.34E+3	1.21E+3	1.19E+3	4.49E+2	4.55E+2	4.51E+2	2.91E+2	2.89E+2	1.676E+0
6.00E+1	7.53E+3	1.11E+3	9.98E+2	9.80E+2	3.74E+2	3.76E+2	3.73E+2	2.37E+2	2.36E+2	2.004E+0
8.00E+1	5.64E+3	8.34E+2	7.37E+2	7.24E+2	2.80E+2	2.78E+2	2.76E+2	1.70E+2	1.69E+2	2.653E+0
1.00E+2	4.50E+3	6.66E+2	5.81E+2	5.71E+2	2.24E+2	2.20E+2	2.18E+2	1.31E+2	1.30E+2	3.293E+0
1.50E+2	2.98E+3	4.42E+2	3.74E+2	3.67E+2	1.49E+2	1.41E+2	1.40E+2	7.85E+1	7.79E+1	4.852E+0
2.00E+2	2.22E+3	3.30E+2	2.71E+2	2.66E+2	1.11E+2	1.03E+2	1.01E+2	5.34E+1	5.29E+1	6.356E+0
3.00E+2	1.46E+3	2.18E+2	1.69E+2	1.65E+2	7.30E+1	6.38E+1	6.30E+1	2.96E+1	2.93E+1	9.207E+0
4.00E+2	1.09E+3	1.62E+2	1.19E+2	1.16E+2	5.40E+1	4.48E+1	4.42E+1	1.87E+1	1.85E+1	1.186E+1
5.00E+2	8.58E+2	1.29E+2	8.90E+1	8.71E+1	4.27E+1	3.37E+1	3.32E+1	1.28E+1	1.26E+1	1.434E+1
6.00E+2	7.07E+2	1.06E+2	6.99E+1	6.83E+1	3.51E+1	2.64E+1	2.59E+1	9.16E+0	9.07E+0	1.664E+1
8.00E+2	5.18E+2	7.78E+1	4.67E+1	4.56E+1	2.55E+1	1.76E+1	1.73E+1	5.24E+0	5.18E+0	2.080E+1
1.00E+3	4.06E+2	6.09E+1	3.36E+1	3.27E+1	1.98E+1	1.26E+1	1.24E+1	3.28E+0	3.24E+0	2.443E+1
1.50E+3	2.56E+2	3.83E+1	1.76E+1	1.71E+1	1.23E+1	6.56E+0	6.40E+0	1.30E+0	1.28E+0	3.159E+1
2.00E+3	1.82E+2	2.71E+1	1.07E+1	1.04E+1	8.62E+0	3.96E+0	3.85E+0	6.33E−1	6.23E−1	3.669E+1
3.00E+3	1.10E+2	1.62E+1	5.00E+0	4.82E+0	5.07E+0	1.83E+0	1.77E+0	2.11E−1	2.07E−1	4.285E+1
4.00E+3	7.57E+1	1.10E+1	2.79E+0	2.68E+0	3.40E+0	1.01E+0	9.77E−1	9.11E−2	8.92E−2	4.575E+1
5.00E+3	5.57E+1	7.97E+0	1.73E+0	1.65E+0	2.45E+0	6.25E−1	6.00E−1	4.61E−2	4.50E−2	4.683E+1
6.00E+3	4.29E+1	6.08E+0	1.15E+0	1.10E+0	1.86E+0	4.14E−1	3.97E−1	2.59E−2	2.53E−2	4.687E+1
8.00E+3	2.79E+1	3.89E+0	5.89E−1	5.59E−1	1.18E+0	2.11E−1	2.01E−1	1.02E−2	9.85E−3	4.540E+1
1.00E+4	1.97E+1	2.71E+0	3.43E−1	3.23E−1	8.20E−1	1.22E−1	1.16E−1	4.78E−3	4.63E−3	4.311E+1
1.50E+4	1.00E+1	1.35E+0	1.23E−1	1.14E−1	4.06E−1	4.35E−2	4.08E−2	1.17E−3	1.12E−3	3.711E+1
2.00E+4	6.02E+0	8.01E−1	5.74E−2	5.30E−2	2.40E−1	2.03E−2	1.88E−2	3.97E−4	3.97E−4	3.212E+1
3.00E+4	2.82E+0	3.70E−1	1.90E−2	1.73E−2	1.10E−1	6.70E−3	6.11E−3	9.48E−5	8.92E−5	2.508E+1
4.00E+4	1.61E+0	2.08E−1	8.52E−3	7.62E−3	6.21E−2	3.00E−3	2.69E−3	3.28E−5	3.05E−5	2.054E+1
5.00E+4	1.02E+0	1.32E−1	4.54E−3	4.01E−3	3.93E−2	1.60E−3	1.42E−3	1.44E−5	1.33E−5	1.742E+1
6.00E+4	7.01E−1	9.01E−2	2.71E−3	2.36E−3	2.68E−2	9.51E−4	8.33E−4	7.34E−6	6.71E−6	1.514E+1
8.00E+4	3.81E−1	4.88E−2	1.20E−3	1.02E−3	1.45E−2	4.19E−4	3.60E−4	2.56E−6	2.31E−6	1.207E+1
1.00E+5	2.36E−1	3.00E−2	6.35E−4	5.33E−4	8.91E−3	2.23E−4	1.88E−4	1.14E−6	1.02E−6	1.009E+1
1.50E+5	9.66E−2	1.23E−2	2.05E−4	1.66E−4	3.63E−3	7.17E−5	5.84E−5	2.74E−7	2.40E−7	7.273E+0
2.00E+5	5.11E−2	6.46E−3	9.35E−5	7.42E−5	1.92E−3	3.28E−5	2.61E−5	1.03E−7	9.05E−8	5.789E+0
3.00E+5	2.10E−2	2.65E−3	3.25E−5	2.53E−5	7.85E−4	1.14E−5	8.89E−6	2.82E−8	2.51E−8	4.250E+0
4.00E+5	1.15E−2	1.44E−3	1.60E−5	1.25E−5	4.27E−4	5.62E−6	4.39E−6	1.19E−8	1.11E−8	3.460E+0
5.00E+5	7.34E−3	9.23E−4	9.55E−6	7.56E−6	2.73E−4	3.35E−6	2.66E−6	6.32E−9	6.18E−9	2.978E+0
6.00E+5	5.20E−3	6.52E−4	6.39E−6	5.17E−6	1.93E−4	2.24E−6	1.82E−6	3.88E−9	4.00E−9	2.655E+0
8.00E+5	3.14E−3	3.94E−4	3.54E−6	3.00E−6	1.16E−4	1.24E−6	1.05E−6	1.89E−9	2.16E−9	2.247E+0
1.00E+6	2.20E−3	2.76E−4	2.32E−6	2.06E−6	8.16E−5	8.11E−7	7.23E−7	1.13E−9	1.41E−9	2.000E+0
1.50E+6	1.24E−3	1.55E−4	1.16E−6	1.13E−6	4.59E−5		3.97E−7*			1.669E+0
2.00E+6	8.63E−4	1.08E−4	7.49E−7	7.70E−7						1.503E+0
3.00E+6	5.37E−4	6.70E−5	4.3E−7	4.71E−7						1.336E+0
4.00E+6	3.89E−4	4.9E−5								1.252E+0
5.00E+6	3.06E−4									1.202E+0
6.00E+6	2.51E−4									1.168E+0
8.00E+6	1.85E−4*									1.126E+0
1.00E+7	1.5E−4									1.101E+0

Z= 21

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

R_{nucl} = 4.578 fm

$|\epsilon_n|$ (eV)	6.036E+3	1.511E+3	1.511E+3	1.502E+3	6.706E+2	6.706E+2	6.680E+2	6.680E+2	6.671E+2	
1.00E+0	5.02E+5	7.39E+4	6.91E+4	6.78E+4	2.48E+4	2.60E+4	2.58E+4	1.80E+4	1.79E+4	2.804E−2
1.50E+0	3.35E+5	4.93E+4	4.61E+4	4.52E+4	1.66E+4	1.73E+4	1.72E+4	1.20E+4	1.19E+4	4.206E−2
2.00E+0	2.51E+5	3.70E+4	3.45E+4	3.39E+4	1.24E+4	1.30E+4	1.29E+4	8.97E+3	8.91E+3	5.607E−2
3.00E+0	1.67E+5	2.46E+4	2.30E+4	2.26E+4	8.28E+3	8.65E+3	8.58E+3	5.97E+3	5.93E+3	8.408E−2
4.00E+0	1.25E+5	1.85E+4	1.73E+4	1.69E+4	6.21E+3	6.48E+3	6.43E+3	4.47E+3	4.44E+3	1.121E−1
5.00E+0	1.00E+5	1.48E+4	1.38E+4	1.35E+4	4.97E+3	5.18E+3	5.14E+3	3.57E+3	3.54E+3	1.400E−1
6.00E+0	8.36E+4	1.23E+4	1.15E+4	1.13E+4	4.14E+3	4.32E+3	4.28E+3	2.97E+3	2.95E+3	1.680E−1
8.00E+0	6.27E+4	9.24E+3	8.60E+3	8.44E+3	3.10E+3	3.23E+3	3.21E+3	2.22E+3	2.20E+3	2.238E−1
1.00E+1	5.01E+4	7.39E+3	6.87E+3	6.74E+3	2.48E+3	2.58E+3	2.56E+3	1.76E+3	1.75E+3	2.796E−1
1.50E+1	3.34E+4	4.92E+3	4.56E+3	4.48E+3	1.65E+3	1.72E+3	1.70E+3	1.16E+3	1.16E+3	4.187E−1
2.00E+1	2.50E+4	3.69E+3	3.41E+3	3.35E+3	1.24E+3	1.28E+3	1.27E+3	8.58E+2	8.58E+2	5.574E−1
3.00E+1	1.67E+4	2.46E+3	2.26E+3	2.22E+3	8.27E+2	8.50E+2	8.43E+2	5.64E+2	5.60E+2	8.333E−1
4.00E+1	1.25E+4	1.84E+3	1.68E+3	1.65E+3	6.20E+2	6.34E+2	6.28E+2	4.14E+2	4.11E+2	1.107E+0
5.00E+1	9.98E+3	1.47E+3	1.34E+3	1.31E+3	4.95E+2	5.04E+2	4.99E+2	3.25E+2	3.22E+2	1.380E+0
6.00E+1	8.31E+3	1.23E+3	1.11E+3	1.09E+3	4.13E+2	4.17E+2	4.13E+2	2.65E+2	2.63E+2	1.650E+0
8.00E+1	6.22E+3	9.20E+2	8.19E+2	8.03E+2	3.09E+2	3.09E+2	3.06E+2	1.91E+2	1.90E+2	2.186E+0
1.00E+2	4.96E+3	7.35E+2	6.47E+2	6.34E+2	2.47E+2	2.44E+2	2.42E+2	1.47E+2	1.46E+2	2.715E+0
1.50E+2	3.29E+3	4.88E+2	4.17E+2	4.09E+2	1.64E+2	1.58E+2	1.56E+2	8.92E+1	8.84E+1	4.007E+0
2.00E+2	2.46E+3	3.65E+2	3.03E+2	2.97E+2	1.22E+2	1.15E+2	1.13E+2	6.11E+1	6.06E+1	5.258E+0
3.00E+2	1.62E+3	2.41E+2	1.90E+2	1.86E+2	8.08E+1	7.18E+1	7.09E+1	3.43E+1	3.40E+1	7.640E+0
4.00E+2	1.20E+3	1.80E+2	1.34E+2	1.31E+2	5.99E+1	5.07E+1	5.00E+1	2.20E+1	2.17E+1	9.874E+0
5.00E+2	9.51E+2	1.42E+2	1.01E+2	9.89E+1	4.73E+1	3.83E+1	3.77E+1	1.51E+1	1.50E+1	1.197E+1
6.00E+2	7.84E+2	1.18E+2	7.99E+1	7.79E+1	3.90E+1	3.02E+1	2.96E+1	1.10E+1	1.09E+1	1.393E+1
8.00E+2	5.76E+2	8.65E+1	5.39E+1	5.25E+1	2.85E+1	2.03E+1	1.99E+1	6.37E+0	6.30E+0	1.751E+1
1.00E+3	4.52E+2	6.79E+1	3.90E+1	3.80E+1	2.22E+1	1.47E+1	1.43E+1	4.05E+0	4.00E+0	2.067E+1
1.50E+3	2.87E+2	4.30E+1	2.08E+1	2.01E+1	1.39E+1	7.74E+0	7.55E+0	1.64E+0	1.62E+0	2.704E+1
2.00E+3	2.05E+2	3.06E+1	1.28E+1	1.24E+1	9.75E+0	4.73E+0	4.60E+0	8.14E−1	8.01E−1	3.172E+1
3.00E+3	1.25E+2	1.84E+1	6.08E+0	5.84E+0	5.78E+0	2.23E+0	2.15E+0	2.78E−1	2.73E−1	3.766E+1
4.00E+3	8.62E+1	1.26E+1	3.43E+0	3.29E+0	3.90E+0	1.25E+0	1.20E+0	1.22E−1	1.20E−1	4.075E+1
5.00E+3	6.38E+1	9.18E+0	2.15E+0	2.05E+0	2.83E+0	7.78E−1	7.46E−1	6.26E−2	6.11E−2	4.216E+1
6.00E+3	4.94E+1	7.04E+0	1.44E+0	1.37E+0	2.16E+0	5.20E−1	4.97E−1	3.56E−2	3.46E−2	4.258E+1
8.00E+3	3.24E+1	4.54E+0	7.48E−1	7.06E−1	1.38E+0	2.68E−1	2.55E−1	1.41E−2	1.37E−2	4.183E+1
1.00E+4	2.30E+1	3.18E+0	4.39E−1	4.13E−1	9.64E−1	1.57E−1	1.48E−1	6.72E−3	6.49E−3	4.013E+1
1.50E+4	1.18E+1	1.60E+0	1.60E−1	1.48E−1	4.82E−1	5.67E−2	5.29E−2	1.67E−3	1.60E−3	3.515E+1
2.00E+4	7.17E+0	9.58E−1	7.54E−2	6.93E−2	2.87E−1	2.67E−2	2.47E−2	6.01E−4	5.71E−4	3.074E+1
3.00E+4	3.40E+0	4.47E−1	2.53E−2	2.28E−2	1.33E−1	8.91E−3	8.10E−3	1.39E−4	1.30E−4	2.430E+1
4.00E+4	1.95E+0	2.53E−1	1.14E−2	1.02E−2	7.55E−2	4.02E−3	3.59E−3	4.83E−5	4.48E−5	2.004E+1
5.00E+4	1.25E+0	1.61E−1	6.12E−3	5.37E−3	4.80E−2	2.15E−3	1.90E−3	2.13E−5	1.96E−5	1.707E+1
6.00E+4	8.57E−1	1.11E−1	3.66E−3	3.18E−3	3.28E−2	1.29E−3	1.12E−3	1.09E−5	9.94E−6	1.489E+1
8.00E+4	4.69E−1	6.01E−2	1.63E−3	1.38E−3	1.78E−2	5.71E−4	4.87E−4	3.82E−6	3.44E−6	1.191E+1
1.00E+5	2.90E−1	3.71E−2	8.68E−4	7.24E−4	1.10E−2	3.05E−4	2.55E−4	1.71E−6	1.52E−6	9.978E+0
1.50E+5	1.20E−1	1.52E−2	2.81E−4	2.27E−4	4.52E−3	9.86E−5	7.98E−5	4.13E−7	3.62E−7	7.220E+0
2.00E+5	6.36E−2	8.06E−3	1.29E−4	1.02E−4	2.39E−3	4.53E−5	3.58E−5	1.57E−7	1.37E−7	5.757E+0
3.00E+5	2.63E−2	3.32E−3	4.51E−5	3.48E−5	9.82E−4	1.58E−5	1.22E−5	4.28E−8	3.80E−8	4.234E+0
4.00E+5	1.44E−2	1.81E−3	2.23E−5	1.72E−5	5.36E−4	7.81E−6	6.05E−6	1.81E−8	1.67E−8	3.450E+0
5.00E+5	9.21E−3	1.16E−3	1.33E−5	1.04E−5	3.43E−4	4.66E−6	3.66E−6	9.64E−9	9.38E−9	2.972E+0
6.00E+5	6.53E−3	8.20E−4	8.91E−6	7.13E−6	2.42E−4	3.12E−6	2.50E−6	5.92E−9	6.07E−9	2.650E+0
8.00E+5	3.95E−3	4.95E−4	4.93E−6	4.14E−6	1.46E−4	1.73E−6	1.45E−6	2.89E−9	3.27E−9	2.243E+0
1.00E+6	2.77E−3	3.47E−4	3.23E−6	2.84E−6	1.03E−4	1.13E−6	9.96E−7	1.74E−9	2.14E−9	1.998E+0
1.50E+6	1.56E−3	1.95E−4	1.62E−6	1.55E−6	5.76E−5	5.67E−7	5.45E−7			1.668E+0
2.00E+6	1.08E−3	1.35E−4	1.05E−6	1.06E−6	4.00E−5		3.76E−7*			1.502E+0
3.00E+6	6.73E−4	8.40E−5	6.01E−7	6.48E−7						1.335E+0
4.00E+6	4.88E−4	6.10E−5*	4.2E−7							1.252E+0
5.00E+6	3.83E−4									1.202E+0
6.00E+6	3.14E−4									1.168E+0
8.00E+6	2.32E−4									1.126E+0

TABLE. Cross Sections for Radiative Recombination, $Z=1$–112

See page 9 for Explanation of Tables

$Z=22$

T_e (eV)	σ_{RR} (b)									$f_{1s_{1/2}}$
	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 4.637$ fm

$\lvert\epsilon_n\rvert$ (eV)	6.628E+3	1.660E+3	1.660E+3	1.649E+3	7.365E+2	7.365E+2	7.333E+2	7.333E+2	7.322E+2	
1.00E+0	5.51E+5	8.11E+4	7.60E+4	7.45E+4	2.73E+4	2.86E+4	2.83E+4	1.98E+4	1.96E+4	2.326E−2
1.50E+0	3.67E+5	5.41E+4	5.07E+4	4.96E+4	1.82E+4	1.90E+4	1.89E+4	1.32E+4	1.31E+4	3.488E−2
2.00E+0	2.75E+5	4.06E+4	3.80E+4	3.72E+4	1.36E+4	1.43E+4	1.41E+4	9.86E+3	9.79E+3	4.650E−2
3.00E+0	1.84E+5	2.70E+4	2.53E+4	2.48E+4	9.08E+3	9.51E+3	9.42E+3	6.56E+3	6.51E+3	6.973E−2
4.00E+0	1.38E+5	2.03E+4	1.90E+4	1.86E+4	6.81E+3	7.13E+3	7.06E+3	4.91E+3	4.87E+3	9.294E−2
5.00E+0	1.10E+5	1.62E+4	1.52E+4	1.49E+4	5.45E+3	5.70E+3	5.64E+3	3.92E+3	3.89E+3	1.161E−1
6.00E+0	9.17E+4	1.35E+4	1.26E+4	1.24E+4	4.54E+3	4.75E+3	4.70E+3	3.26E+3	3.24E+3	1.393E−1
8.00E+0	6.88E+4	1.01E+4	9.46E+3	9.27E+3	3.41E+3	3.55E+3	3.52E+3	2.44E+3	2.42E+3	1.857E−1
1.00E+1	5.50E+4	8.11E+3	7.56E+3	7.41E+3	2.72E+3	2.84E+3	2.81E+3	1.94E+3	1.93E+3	2.319E−1
1.50E+1	3.67E+4	5.41E+3	5.03E+3	4.92E+3	1.82E+3	1.89E+3	1.87E+3	1.28E+3	1.27E+3	3.474E−1
2.00E+1	2.75E+4	4.05E+3	3.76E+3	3.68E+3	1.36E+3	1.41E+3	1.40E+3	9.53E+2	9.45E+2	4.625E−1
3.00E+1	1.83E+4	2.70E+3	2.49E+3	2.44E+3	9.07E+2	9.36E+2	9.27E+2	6.23E+2	6.18E+2	6.916E−1
4.00E+1	1.37E+4	2.02E+3	1.86E+3	1.82E+3	6.80E+2	6.98E+2	6.91E+2	4.59E+2	4.55E+2	9.194E−1
5.00E+1	1.10E+4	1.62E+3	1.48E+3	1.44E+3	5.44E+2	5.55E+2	5.50E+2	3.60E+2	3.57E+2	1.146E+0
6.00E+1	9.12E+3	1.35E+3	1.22E+3	1.20E+3	4.53E+2	4.60E+2	4.55E+2	2.95E+2	2.92E+2	1.371E+0
8.00E+1	6.83E+3	1.01E+3	9.05E+2	8.86E+2	3.39E+2	3.41E+2	3.37E+2	2.13E+2	2.11E+2	1.817E+0
1.00E+2	5.45E+3	8.07E+2	7.16E+2	7.00E+2	2.71E+2	2.70E+2	2.67E+2	1.64E+2	1.63E+2	2.258E+0
1.50E+2	3.62E+3	5.37E+2	4.63E+2	4.53E+2	1.80E+2	1.75E+2	1.73E+2	1.00E+2	9.96E+1	3.337E+0
2.00E+2	2.70E+3	4.01E+2	3.37E+2	3.30E+2	1.35E+2	1.27E+2	1.26E+2	6.93E+1	6.86E+1	4.385E+0
3.00E+2	1.78E+3	2.66E+2	2.12E+2	2.07E+2	8.89E+1	8.03E+1	7.91E+1	3.94E+1	3.90E+1	6.390E+0
4.00E+2	1.32E+3	1.98E+2	1.51E+2	1.47E+2	6.60E+1	5.70E+1	5.61E+1	2.55E+1	2.52E+1	8.280E+0
5.00E+2	1.05E+3	1.57E+2	1.14E+2	1.11E+2	5.22E+1	4.32E+1	4.25E+1	1.78E+1	1.76E+1	1.006E+1
6.00E+2	8.65E+2	1.30E+2	9.05E+1	8.81E+1	4.31E+1	3.42E+1	3.36E+1	1.30E+1	1.28E+1	1.174E+1
8.00E+2	6.37E+2	9.57E+1	6.16E+1	5.98E+1	3.15E+1	2.32E+1	2.27E+1	7.65E+0	7.55E+0	1.483E+1
1.00E+3	5.00E+2	7.52E+1	4.49E+1	4.36E+1	2.46E+1	1.69E+1	1.65E+1	4.92E+0	4.85E+0	1.758E+1
1.50E+3	3.19E+2	4.78E+1	2.42E+1	2.34E+1	1.55E+1	9.04E+0	8.81E+0	2.04E+0	2.01E+0	2.324E+1
2.00E+3	2.29E+2	3.42E+1	1.51E+1	1.45E+1	1.10E+1	5.59E+0	5.43E+0	1.03E+0	1.01E+0	2.751E+1
3.00E+3	1.40E+2	2.08E+1	7.29E+0	6.99E+0	6.54E+0	2.68E+0	2.58E+0	3.60E−1	3.53E−1	3.317E+1
4.00E+3	9.73E+1	1.42E+1	4.17E+0	3.98E+0	4.44E+0	1.52E+0	1.46E+0	1.61E−1	1.57E−1	3.633E+1
5.00E+3	7.24E+1	1.05E+1	2.64E+0	2.51E+0	3.25E+0	9.55E−1	9.14E−1	8.34E−2	8.13E−2	3.798E+1
6.00E+3	5.63E+1	8.08E+0	1.78E+0	1.69E+0	2.49E+0	6.44E−1	6.14E−1	4.78E−2	4.65E−2	3.868E+1
8.00E+3	3.72E+1	5.25E+0	9.35E−1	8.81E−1	1.60E+0	3.36E−1	3.18E−1	1.92E−2	1.86E−2	3.851E+1
1.00E+4	2.65E+1	3.70E+0	5.54E−1	5.19E−1	1.12E+0	1.98E−1	1.87E−1	9.26E−3	8.92E−3	3.732E+1
1.50E+4	1.38E+1	1.88E+0	2.04E−1	1.89E−1	5.68E−1	7.26E−2	6.76E−2	2.33E−3	2.23E−3	3.325E+1
2.00E+4	8.44E+0	1.13E+0	9.75E−2	8.93E−2	3.40E−1	3.45E−2	3.18E−2	8.49E−4	8.06E−4	2.939E+1
3.00E+4	4.04E+0	5.34E−1	3.31E−2	2.98E−2	1.60E−1	1.17E−2	1.06E−2	1.98E−4	1.86E−4	2.352E+1
4.00E+4	2.33E+0	3.05E−1	1.51E−2	1.33E−2	9.09E−2	5.30E−3	4.72E−3	6.97E−5	6.45E−5	1.954E+1
5.00E+4	1.50E+0	1.95E−1	8.12E−3	7.09E−3	5.80E−2	2.85E−3	2.51E−3	3.09E−5	2.83E−5	1.671E+1
6.00E+4	1.04E+0	1.34E−1	4.88E−3	4.21E−3	3.98E−2	1.71E−3	1.49E−3	1.59E−5	1.44E−5	1.462E+1
8.00E+4	5.69E−1	7.32E−2	2.18E−3	1.84E−3	2.17E−2	7.65E−4	6.49E−4	5.60E−6	5.02E−6	1.175E+1
1.00E+5	3.54E−1	4.54E−2	1.17E−3	9.68E−4	1.35E−2	4.10E−4	3.41E−4	2.52E−6	2.23E−6	9.868E+0
1.50E+5	1.47E−1	1.87E−2	3.81E−4	3.05E−4	5.55E−3	1.34E−4	1.07E−4	6.11E−7	5.33E−7	7.166E+0
2.00E+5	7.83E−2	9.93E−3	1.76E−4	1.37E−4	2.94E−3	6.15E−5	4.82E−5	2.32E−7	2.02E−7	5.724E+0
3.00E+5	3.25E−2	4.11E−3	6.15E−5	4.71E−5	1.22E−3	2.16E−5	1.65E−5	6.37E−8	5.64E−8	4.218E+0
4.00E+5	1.78E−2	2.24E−3	3.05E−5	2.34E−5	6.64E−4	1.07E−5	8.20E−6	2.70E−8	2.49E−8	3.440E+0
5.00E+5	1.14E−2	1.44E−3	1.82E−5	1.41E−5	4.25E−4	6.38E−6	4.97E−6	1.44E−8	1.39E−8	2.965E+0
6.00E+5	8.10E−3	1.02E−3	1.22E−5	9.67E−6	3.01E−4	4.28E−6	3.40E−6	8.86E−9	9.02E−9	2.645E+0
8.00E+5	4.91E−3	6.15E−4	6.78E−6	5.62E−6	1.82E−4	2.37E−6	1.97E−6	4.33E−9	4.86E−9	2.240E+0
1.00E+6	3.44E−3	4.31E−4	4.45E−6	3.85E−6	1.27E−4	1.56E−6	1.35E−6	2.60E−9	3.17E−9	1.996E+0
1.50E+6	1.94E−3	2.42E−4	2.23E−6	2.10E−6	7.16E−5	7.81E−7	7.39E−7			1.667E+0
2.00E+6	1.35E−3	1.68E−4	1.44E−6	1.44E−6	4.96E−5					1.501E+0
3.00E+6	8.34E−4	1.04E−4	8.28E−7	8.77E−7						1.335E+0
4.00E+6	6.05E−4									1.251E+0
5.00E+6	4.74E−4									1.201E+0
6.00E+6	3.89E−4									1.168E+0
8.00E+6	2.87E−4									1.126E+0

TABLE. Cross Sections for Radiative Recombination, $Z=1$–112
See page 9 for Explanation of Tables

Z= 23

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

R_{nucl} = 4.648 fm

$|\epsilon_n|$ (eV)	7.249E+3	1.815E+3	1.815E+3	1.803E+3	8.054E+2	8.054E+2	8.016E+2	8.016E+2	8.003E+2	
1.00E+0	6.02E+5	8.87E+4	8.33E+4	8.15E+4	2.98E+4	3.12E+4	3.09E+4	2.16E+4	2.14E+4	1.944E−2
1.50E+0	4.01E+5	5.91E+4	5.55E+4	5.43E+4	1.99E+4	2.08E+4	2.06E+4	1.44E+4	1.43E+4	2.916E−2
2.00E+0	3.01E+5	4.43E+4	4.16E+4	4.07E+4	1.49E+4	1.56E+4	1.55E+4	1.08E+4	1.07E+4	3.888E−2
3.00E+0	2.01E+5	2.96E+4	2.77E+4	2.71E+4	9.93E+3	1.04E+4	1.03E+4	7.18E+3	7.12E+3	5.830E−2
4.00E+0	1.50E+5	2.22E+4	2.08E+4	2.03E+4	7.45E+3	7.80E+3	7.72E+3	5.38E+3	5.33E+3	7.771E−2
5.00E+0	1.20E+5	1.77E+4	1.66E+4	1.63E+4	5.96E+3	6.24E+3	6.17E+3	4.29E+3	4.26E+3	9.712E−2
6.00E+0	1.00E+5	1.48E+4	1.38E+4	1.35E+4	4.96E+3	5.19E+3	5.14E+3	3.57E+3	3.54E+3	1.165E−1
8.00E+0	7.51E+4	1.11E+4	1.04E+4	1.01E+4	3.72E+3	3.89E+3	3.85E+3	2.67E+3	2.65E+3	1.553E−1
1.00E+1	6.01E+4	8.87E+3	8.29E+3	8.10E+3	2.98E+3	3.11E+3	3.08E+3	2.13E+3	2.11E+3	1.940E−1
1.50E+1	4.01E+4	5.91E+3	5.51E+3	5.39E+3	1.98E+3	2.07E+3	2.05E+3	1.41E+3	1.39E+3	2.905E−1
2.00E+1	3.00E+4	4.43E+3	4.12E+3	4.03E+3	1.49E+3	1.55E+3	1.53E+3	1.05E+3	1.04E+3	3.869E−1
3.00E+1	2.00E+4	2.95E+3	2.73E+3	2.67E+3	9.92E+2	1.03E+3	1.02E+3	6.85E+2	6.79E+2	5.787E−1
4.00E+1	1.50E+4	2.21E+3	2.04E+3	1.99E+3	7.43E+2	7.65E+2	7.57E+2	5.05E+2	5.01E+2	7.695E−1
5.00E+1	1.20E+4	1.77E+3	1.62E+3	1.58E+3	5.95E+2	6.09E+2	6.02E+2	3.97E+2	3.94E+2	9.593E−1
6.00E+1	9.97E+3	1.47E+3	1.34E+3	1.31E+3	4.95E+2	5.05E+2	4.99E+2	3.25E+2	3.23E+2	1.148E+0
8.00E+1	7.47E+3	1.11E+3	9.96E+2	9.73E+2	3.71E+2	3.75E+2	3.70E+2	2.36E+2	2.34E+2	1.522E+0
1.00E+2	5.96E+3	8.83E+2	7.88E+2	7.70E+2	2.97E+2	2.97E+2	2.93E+2	1.83E+2	1.81E+2	1.893E+0
1.50E+2	3.96E+3	5.87E+2	5.11E+2	4.99E+2	1.97E+2	1.93E+2	1.90E+2	1.12E+2	1.11E+2	2.801E+0
2.00E+2	2.95E+3	4.39E+2	3.73E+2	3.64E+2	1.47E+2	1.41E+2	1.39E+2	7.80E+1	7.72E+1	3.685E+0
3.00E+2	1.95E+3	2.91E+2	2.36E+2	2.30E+2	9.74E+1	8.92E+1	8.78E+1	4.49E+1	4.44E+1	5.382E+0
4.00E+2	1.45E+3	2.17E+2	1.68E+2	1.64E+2	7.24E+1	6.36E+1	6.25E+1	2.93E+1	2.90E+1	6.990E+0
5.00E+2	1.15E+3	1.72E+2	1.28E+2	1.25E+2	5.74E+1	4.84E+1	4.75E+1	2.06E+1	2.04E+1	8.515E+0
6.00E+2	9.50E+2	1.42E+2	1.02E+2	9.90E+1	4.73E+1	3.84E+1	3.77E+1	1.52E+1	1.50E+1	9.960E+0
8.00E+2	7.00E+2	1.05E+2	6.97E+1	6.76E+1	3.48E+1	2.63E+1	2.57E+1	9.07E+0	8.95E+0	1.263E+1
1.00E+3	5.51E+2	8.28E+1	5.12E+1	4.96E+1	2.72E+1	1.92E+1	1.88E+1	5.90E+0	5.81E+0	1.503E+1
1.50E+3	3.52E+2	5.29E+1	2.80E+1	2.70E+1	1.72E+1	1.05E+1	1.02E+1	2.51E+0	2.46E+0	2.006E+1
2.00E+3	2.54E+2	3.80E+1	1.76E+1	1.69E+1	1.22E+1	6.53E+0	6.33E+0	1.28E+0	1.26E+0	2.394E+1
3.00E+3	1.56E+2	2.32E+1	8.65E+0	8.27E+0	7.35E+0	3.18E+0	3.06E+0	4.59E−1	4.49E−1	2.927E+1
4.00E+3	1.09E+2	1.60E+1	5.00E+0	4.76E+0	5.02E+0	1.83E+0	1.75E+0	2.08E−1	2.03E−1	3.243E+1
5.00E+3	8.15E+1	1.19E+1	3.19E+0	3.03E+0	3.69E+0	1.16E+0	1.11E+0	1.09E−1	1.06E−1	3.422E+1
6.00E+3	6.37E+1	9.18E+0	2.18E+0	2.06E+0	2.84E+0	7.87E−1	7.48E−1	6.32E−2	6.14E−2	3.514E+1
8.00E+3	4.24E+1	6.01E+0	1.15E+0	1.08E+0	1.84E+0	4.15E−1	3.92E−1	2.58E−2	2.49E−2	3.544E+1
1.00E+4	3.04E+1	4.26E+0	6.90E−1	6.44E−1	1.30E+0	2.47E−1	2.32E−1	1.25E−2	1.21E−2	3.469E+1
1.50E+4	1.60E+1	2.19E+0	2.58E−1	2.38E−1	6.62E−1	9.19E−2	8.52E−2	3.20E−3	3.06E−3	3.142E+1
2.00E+4	9.85E+0	1.33E+0	1.33E−1	1.13E−1	4.00E−1	4.41E−2	4.04E−2	1.18E−3	1.12E−3	2.807E+1
3.00E+4	4.76E+0	6.32E−1	4.27E−2	3.83E−2	1.89E−1	1.51E−2	1.36E−2	2.79E−4	2.61E−4	2.275E+1
4.00E+4	2.77E+0	3.63E−1	1.96E−2	1.73E−2	1.08E−1	6.90E−3	6.12E−3	9.87E−5	9.12E−5	1.903E+1
5.00E+4	1.79E+0	2.33E−1	1.06E−2	9.22E−3	6.93E−2	3.73E−3	3.26E−3	4.40E−5	4.02E−5	1.635E+1
6.00E+4	1.24E+0	1.61E−1	6.41E−3	5.50E−3	4.78E−2	2.25E−3	1.94E−3	2.27E−5	2.06E−5	1.436E+1
8.00E+4	6.85E−1	8.82E−2	2.88E−3	2.42E−3	2.62E−2	1.01E−3	8.52E−4	8.05E−6	7.19E−6	1.158E+1
1.00E+5	4.28E−1	5.49E−2	1.55E−3	1.28E−3	1.63E−2	5.43E−4	4.50E−4	3.64E−6	3.21E−6	9.754E+0
1.50E+5	1.79E−1	2.28E−2	5.09E−4	4.04E−4	6.75E−3	1.78E−4	1.42E−4	8.87E−7	7.70E−7	7.109E+0
2.00E+5	9.53E−2	1.21E−2	2.35E−4	1.82E−4	3.59E−3	8.24E−5	6.41E−5	3.38E−7	2.93E−7	5.690E+0
3.00E+5	3.97E−2	5.03E−3	8.28E−5	6.28E−5	1.49E−3	2.90E−5	2.21E−5	9.31E−8	8.21E−8	4.201E+0
4.00E+5	2.18E−2	2.75E−3	4.12E−5	3.12E−5	8.15E−4	1.44E−5	1.10E−5	3.95E−8	3.62E−8	3.430E+0
5.00E+5	1.40E−2	1.77E−3	2.46E−5	1.89E−5	5.22E−4	8.62E−6	6.64E−6	2.11E−8	2.03E−8	2.958E+0
6.00E+5	9.96E−3	1.25E−3	1.65E−5	1.29E−5	3.70E−4	5.78E−6	4.55E−6	1.30E−8	1.32E−8	2.639E+0
8.00E+5	6.03E−3	7.57E−4	9.18E−6	7.52E−6	2.24E−4	3.21E−6	2.64E−6	6.37E−9	7.09E−9	2.237E+0
1.00E+6	4.24E−3	5.30E−4	6.03E−6	5.15E−6	1.57E−4	2.11E−6	1.81E−6	3.82E−9	4.63E−9	1.993E+0
1.50E+6	2.38E−3	2.98E−4	3.03E−6	2.81E−6	8.80E−5	1.06E−6	9.88E−7			1.665E+0
2.00E+6	1.65E−3	2.07E−4	1.96E−6	1.92E−6	6.10E−5					1.500E+0
3.00E+6	1.02E−3	1.28E−4	1.13E−6	1.17E−6						1.334E+0
4.00E+6	7.42E−4	9.26E−5								1.251E+0
5.00E+6	5.81E−4									1.201E+0
6.00E+6	4.77E−4									1.168E+0
8.00E+6	3.51E−4*									1.126E+0

TABLE. Cross Sections for Radiative Recombination, $Z=1$–112

See page 9 for Explanation of Tables

$Z= 24$

T_e (eV)	σ_{RR} (b)									$f_{1s_{1/2}}$
	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 4.706$ fm

$|\epsilon_n|$ (eV)	7.898E+3	1.978E+3	1.978E+3	1.963E+3	8.775E+2	8.775E+2	8.730E+2	8.730E+2	8.715E+2	
1.00E+0	6.55E+5	9.66E+4	9.09E+4	8.87E+4	3.24E+4	3.41E+4	3.37E+4	2.36E+4	2.34E+4	1.638E−2
1.50E+0	4.37E+5	6.44E+4	6.06E+4	5.91E+4	2.16E+4	2.27E+4	2.25E+4	1.57E+4	1.56E+4	2.457E−2
2.00E+0	3.27E+5	4.83E+4	4.54E+4	4.43E+4	1.62E+4	1.70E+4	1.68E+4	1.18E+4	1.17E+4	3.275E−2
3.00E+0	2.18E+5	3.22E+4	3.03E+4	2.95E+4	1.08E+4	1.13E+4	1.12E+4	7.83E+3	7.76E+3	4.912E−2
4.00E+0	1.64E+5	2.41E+4	2.27E+4	2.22E+4	8.11E+3	8.50E+3	8.41E+3	5.87E+3	5.81E+3	6.547E−2
5.00E+0	1.31E+5	1.93E+4	1.82E+4	1.77E+4	6.48E+3	6.80E+3	6.73E+3	4.68E+3	4.64E+3	8.182E−2
6.00E+0	1.09E+5	1.61E+4	1.51E+4	1.48E+4	5.40E+3	5.66E+3	5.60E+3	3.90E+3	3.86E+3	9.816E−2
8.00E+0	8.18E+4	1.21E+4	1.13E+4	1.11E+4	4.05E+3	4.24E+3	4.20E+3	2.91E+3	2.89E+3	1.308E−1
1.00E+1	6.54E+4	9.66E+3	9.05E+3	8.83E+3	3.24E+3	3.39E+3	3.35E+3	2.32E+3	2.30E+3	1.634E−1
1.50E+1	4.36E+4	6.44E+3	6.02E+3	5.87E+3	2.16E+3	2.26E+3	2.23E+3	1.54E+3	1.52E+3	2.448E−1
2.00E+1	3.27E+4	4.83E+3	4.50E+3	4.39E+3	1.62E+3	1.69E+3	1.67E+3	1.14E+3	1.13E+3	3.260E−1
3.00E+1	2.18E+4	3.22E+3	2.99E+3	2.91E+3	1.08E+3	1.12E+3	1.11E+3	7.50E+2	7.43E+2	4.878E−1
4.00E+1	1.63E+4	2.41E+3	2.23E+3	2.17E+3	8.10E+2	8.36E+2	8.26E+2	5.54E+2	5.48E+2	6.488E−1
5.00E+1	1.30E+4	1.93E+3	1.77E+3	1.73E+3	6.47E+2	6.66E+2	6.58E+2	4.36E+2	4.32E+2	8.090E−1
6.00E+1	1.09E+4	1.61E+3	1.47E+3	1.43E+3	5.39E+2	5.52E+2	5.45E+2	3.58E+2	3.54E+2	9.683E−1
8.00E+1	8.13E+3	1.20E+3	1.09E+3	1.06E+3	4.04E+2	4.10E+2	4.05E+2	2.60E+2	2.58E+2	1.285E+0
1.00E+2	6.49E+3	9.62E+2	8.64E+2	8.42E+2	3.23E+2	3.25E+2	3.21E+2	2.02E+2	2.00E+2	1.598E+0
1.50E+2	4.31E+3	6.40E+2	5.62E+2	5.47E+2	2.15E+2	2.12E+2	2.09E+2	1.25E+2	1.24E+2	2.367E+0
2.00E+2	3.22E+3	4.79E+2	4.11E+2	4.00E+2	1.61E+2	1.55E+2	1.53E+2	8.72E+1	8.62E+1	3.118E+0
3.00E+2	2.13E+3	3.17E+2	2.61E+2	2.54E+2	1.06E+2	9.85E+1	9.69E+1	5.07E+1	5.01E+1	4.563E+0
4.00E+2	1.58E+3	2.37E+2	1.87E+2	1.82E+2	7.91E+1	7.05E+1	6.93E+1	3.34E+1	3.30E+1	5.939E+0
5.00E+2	1.26E+3	1.88E+2	1.43E+2	1.39E+2	6.27E+1	5.39E+1	5.29E+1	2.37E+1	2.34E+1	7.249E+0
6.00E+2	1.04E+3	1.56E+2	1.14E+2	1.10E+2	5.18E+1	4.29E+1	4.21E+1	1.76E+1	1.73E+1	8.496E+0
8.00E+2	7.66E+2	1.15E+2	7.84E+1	7.59E+1	3.81E+1	2.95E+1	2.89E+1	1.06E+1	1.05E+1	1.082E+1
1.00E+3	6.04E+2	9.08E+1	5.79E+1	5.59E+1	2.99E+1	2.18E+1	2.12E+1	6.99E+0	6.88E+0	1.292E+1
1.50E+3	3.87E+2	5.83E+1	3.21E+1	3.09E+1	1.90E+1	1.20E+1	1.16E+1	3.03E+0	2.98E+0	1.738E+1
2.00E+3	2.80E+2	4.20E+1	2.04E+1	1.95E+1	1.35E+1	7.56E+0	7.32E+0	1.58E+0	1.55E+0	2.090E+1
3.00E+3	1.74E+2	2.59E+1	1.02E+1	9.68E+0	8.20E+0	3.74E+0	3.59E+0	5.77E−1	5.63E−1	2.589E+1
4.00E+3	1.22E+2	1.80E+1	5.94E+0	5.64E+0	5.63E+0	2.17E+0	2.08E+0	2.66E−1	2.59E−1	2.899E+1
5.00E+3	9.12E+1	1.33E+1	3.82E+0	3.61E+0	4.15E+0	1.39E+0	1.32E+0	1.41E−1	1.37E−1	3.087E+1
6.00E+3	7.15E+1	1.04E+1	2.62E+0	2.47E+0	3.21E+0	9.50E−1	9.01E−1	8.23E−2	7.98E−2	3.193E+1
8.00E+3	4.79E+1	6.84E+0	1.41E+0	1.32E+0	2.10E+0	5.07E−1	4.77E−1	3.40E−2	3.28E−2	3.260E+1
1.00E+4	3.46E+1	4.87E+0	8.49E−1	7.89E−1	1.49E+0	3.04E−1	2.85E−1	1.67E−2	1.60E−2	3.222E+1
1.50E+4	1.84E+1	2.53E+0	3.22E−1	2.96E−1	7.65E−1	1.15E−1	1.06E−1	4.33E−3	4.13E−3	2.967E+1
2.00E+4	1.14E+1	1.55E+0	1.57E−1	1.42E−1	4.65E−1	5.56E−2	5.08E−2	1.61E−3	1.52E−3	2.678E+1
3.00E+4	5.57E+0	7.41E−1	5.45E−2	4.85E−2	2.22E−1	1.92E−2	1.72E−2	3.85E−4	3.59E−4	2.197E+1
4.00E+4	3.25E+0	4.28E−1	2.52E−2	2.21E−2	1.28E−1	8.87E−3	7.82E−3	1.38E−4	1.27E−4	1.852E+1
5.00E+4	2.11E+0	2.76E−1	1.37E−2	1.19E−2	8.22E−2	4.82E−3	4.19E−3	6.15E−5	5.61E−5	1.599E+1
6.00E+4	1.47E+0	1.91E−1	8.31E−3	7.09E−3	5.68E−2	2.92E−3	2.50E−3	3.19E−5	2.89E−5	1.408E+1
8.00E+4	8.16E−1	1.05E−1	3.76E−3	3.13E−3	3.13E−2	1.32E−3	1.11E−3	1.14E−5	1.01E−5	1.141E+1
1.00E+5	5.11E−1	6.58E−2	2.03E−3	1.66E−3	1.95E−2	7.11E−4	5.85E−4	5.16E−6	4.54E−6	9.637E+0
1.50E+5	2.15E−1	2.74E−2	6.70E−4	5.28E−4	8.13E−3	2.35E−4	1.86E−4	1.27E−6	1.10E−6	7.051E+0
2.00E+5	1.15E−1	1.46E−2	3.11E−4	2.39E−4	4.34E−3	1.09E−4	8.42E−5	4.85E−7	4.18E−7	5.654E+0
3.00E+5	4.82E−2	6.10E−3	1.10E−4	8.27E−5	1.81E−3	3.85E−5	2.91E−5	1.34E−7	1.18E−7	4.183E+0
4.00E+5	2.65E−2	3.35E−3	5.48E−5	4.12E−5	9.91E−4	1.92E−5	1.45E−5	5.69E−8	5.19E−8	3.419E+0
5.00E+5	1.71E−2	2.15E−3	3.28E−5	2.50E−5	6.36E−4	1.15E−5	8.77E−6	3.05E−8	2.91E−8	2.950E+0
6.00E+5	1.21E−2	1.53E−3	2.21E−5	1.71E−5	4.51E−4	7.72E−6	6.00E−6	1.88E−8	1.89E−8	2.634E+0
8.00E+5	7.35E−3	9.22E−4	1.23E−5	9.93E−6	2.73E−4	4.29E−6	3.49E−6	9.20E−9	1.02E−8	2.233E+0
1.00E+6	5.16E−3	6.47E−4	8.07E−6	6.81E−6	1.91E−4	2.82E−6	2.39E−6	5.53E−9	6.65E−9	1.990E+0
1.50E+6	2.91E−3	3.63E−4	4.06E−6	3.71E−6	1.07E−4	1.42E−6	1.30E−6	2.4E−9	3.4E−9	1.664E+0
2.00E+6	2.01E−3	2.51E−4	2.63E−6	2.53E−6	7.42E−5	9.18E−7	8.9E−7			1.499E+0
3.00E+6	1.25E−3	1.56E−4	1.51E−6	1.54E−6						1.334E+0
4.00E+6	9.01E−4	1.13E−4	1.05E−6	1.11E−6						1.251E+0
5.00E+6	7.05E−4	8.80E−5								1.201E+0
6.00E+6	5.79E−4									1.167E+0
8.00E+6	4.26E−4*									1.126E+0

TABLE. Cross Sections for Radiative Recombination, $Z=1–112$

See page 9 for Explanation of Tables

$Z= 25$

T_e (eV)	σ_{RR} (b)									$f_{1s_{1/2}}$
	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 4.784$ fm

$\lvert\epsilon_n\rvert$ (eV)	8.576E+3	2.148E+3	2.148E+3	2.130E+3	9.528E+2	9.528E+2	9.475E+2	9.475E+2	9.457E+2	
1.00E+0	7.10E+5	1.05E+5	9.89E+4	9.63E+4	3.52E+4	3.70E+4	3.66E+4	2.56E+4	2.54E+4	1.389E−2
1.50E+0	4.73E+5	6.99E+4	6.59E+4	6.42E+4	2.35E+4	2.47E+4	2.44E+4	1.71E+4	1.69E+4	2.084E−2
2.00E+0	3.55E+5	5.24E+4	4.94E+4	4.81E+4	1.76E+4	1.85E+4	1.83E+4	1.28E+4	1.27E+4	2.778E−2
3.00E+0	2.37E+5	3.49E+4	3.29E+4	3.21E+4	1.17E+4	1.23E+4	1.22E+4	8.51E+3	8.43E+3	4.166E−2
4.00E+0	1.78E+5	2.62E+4	2.47E+4	2.40E+4	8.80E+3	9.24E+3	9.13E+3	6.37E+3	6.31E+3	5.554E−2
5.00E+0	1.42E+5	2.10E+4	1.97E+4	1.92E+4	7.04E+3	7.39E+3	7.30E+3	5.09E+3	5.04E+3	6.941E−2
6.00E+0	1.18E+5	1.75E+4	1.65E+4	1.60E+4	5.86E+3	6.16E+3	6.08E+3	4.24E+3	4.20E+3	8.327E−2
8.00E+0	8.87E+4	1.31E+4	1.23E+4	1.20E+4	4.40E+3	4.61E+3	4.56E+3	3.17E+3	3.14E+3	1.110E−1
1.00E+1	7.10E+4	1.05E+4	9.85E+3	9.59E+3	3.52E+3	3.69E+3	3.64E+3	2.53E+3	2.50E+3	1.387E−1
1.50E+1	4.73E+4	6.99E+3	6.55E+3	6.38E+3	2.35E+3	2.45E+3	2.42E+3	1.67E+3	1.66E+3	2.077E−1
2.00E+1	3.55E+4	5.24E+3	4.90E+3	4.77E+3	1.76E+3	1.84E+3	1.81E+3	1.25E+3	1.23E+3	2.767E−1
3.00E+1	2.36E+4	3.49E+3	3.25E+3	3.17E+3	1.17E+3	1.22E+3	1.20E+3	8.18E+2	8.09E+2	4.140E−1
4.00E+1	1.77E+4	2.62E+3	2.43E+3	2.36E+3	8.79E+2	9.10E+2	8.98E+2	6.04E+2	5.98E+2	5.508E−1
5.00E+1	1.42E+4	2.09E+3	1.93E+3	1.88E+3	7.03E+2	7.25E+2	7.15E+2	4.77E+2	4.72E+2	6.869E−1
6.00E+1	1.18E+4	1.74E+3	1.60E+3	1.56E+3	5.85E+2	6.01E+2	5.93E+2	3.91E+2	3.87E+2	8.223E−1
8.00E+1	8.82E+3	1.31E+3	1.19E+3	1.16E+3	4.39E+2	4.47E+2	4.41E+2	2.85E+2	2.82E+2	1.091E+0
1.00E+2	7.05E+3	1.04E+3	9.44E+2	9.18E+2	3.51E+2	3.54E+2	3.50E+2	2.22E+2	2.20E+2	1.358E+0
1.50E+2	4.68E+3	6.95E+2	6.15E+2	5.98E+2	2.33E+2	2.31E+2	2.28E+2	1.38E+2	1.37E+2	2.014E+0
2.00E+2	3.50E+3	5.20E+2	4.51E+2	4.38E+2	1.74E+2	1.70E+2	1.67E+2	9.69E+1	9.57E+1	2.655E+0
3.00E+2	2.31E+3	3.45E+2	2.87E+2	2.79E+2	1.16E+2	1.08E+2	1.06E+2	5.68E+1	5.61E+1	3.893E+0
4.00E+2	1.72E+3	2.57E+2	2.06E+2	2.00E+2	8.61E+1	7.78E+1	7.63E+1	3.78E+1	3.73E+1	5.076E+0
5.00E+2	1.37E+3	2.05E+2	1.58E+2	1.53E+2	6.83E+1	5.97E+1	5.85E+1	2.70E+1	2.66E+1	6.207E+0
6.00E+2	1.13E+3	1.70E+2	1.27E+2	1.22E+2	5.65E+1	4.77E+1	4.67E+1	2.02E+1	1.99E+1	7.288E+0
8.00E+2	8.36E+2	1.26E+2	8.77E+1	8.47E+1	4.16E+1	3.30E+1	3.22E+1	1.23E+1	1.22E+1	9.309E+0
1.00E+3	6.59E+2	9.91E+1	6.50E+1	6.27E+1	3.27E+1	2.44E+1	2.38E+1	8.19E+0	8.06E+0	1.116E+1
1.50E+3	4.24E+2	6.38E+1	3.64E+1	3.50E+1	2.08E+1	1.36E+1	1.32E+1	3.62E+0	3.56E+0	1.512E+1
2.00E+3	3.07E+2	4.62E+1	2.33E+1	2.23E+1	1.49E+1	8.68E+0	8.38E+0	1.91E+0	1.88E+0	1.831E+1
3.00E+3	1.91E+2	2.86E+1	1.18E+1	1.12E+1	9.10E+0	4.35E+0	4.17E+0	7.14E−1	6.97E−1	2.295E+1
4.00E+3	1.35E+2	2.00E+1	6.98E+0	6.60E+0	6.28E+0	2.55E+0	2.44E+0	3.34E−1	3.25E−1	2.595E+1
5.00E+3	1.01E+2	1.49E+1	4.53E+0	4.27E+0	4.65E+0	1.65E+0	1.57E+0	1.79E−1	1.74E−1	2.787E+1
6.00E+3	7.98E+1	1.16E+1	3.13E+0	2.94E+0	3.61E+0	1.14E+0	1.07E+0	1.06E−1	1.02E−1	2.904E+1
8.00E+3	5.38E+1	7.72E+0	1.70E+0	1.58E+0	2.37E+0	6.12E−1	5.75E−1	4.42E−2	4.26E−2	2.999E+1
1.00E+4	3.90E+1	5.53E+0	1.03E+0	9.56E−1	1.69E+0	3.70E−1	3.46E−1	2.19E−2	2.10E−2	2.991E+1
1.50E+4	2.09E+1	2.90E+0	3.98E−1	3.64E−1	8.78E−1	1.42E−1	1.30E−1	5.77E−3	5.49E−3	2.799E+1
2.00E+4	1.31E+1	1.78E+0	1.95E−1	1.76E−1	5.37E−1	6.92E−2	6.30E−2	2.17E−3	2.04E−3	2.552E+1
3.00E+4	6.45E+0	8.62E−1	6.87E−2	6.09E−2	2.58E−1	2.42E−2	2.16E−2	5.25E−4	4.88E−4	2.121E+1
4.00E+4	3.79E+0	5.01E−1	3.20E−2	2.79E−2	1.50E−1	1.13E−2	9.88E−3	1.89E−4	1.73E−4	1.800E+1
5.00E+4	2.47E+0	3.24E−1	1.75E−2	1.50E−2	9.67E−2	6.15E−3	5.32E−3	8.49E−5	7.72E−5	1.562E+1
6.00E+4	1.73E+0	2.25E−1	1.07E−2	9.03E−3	6.70E−2	3.74E−3	3.19E−3	4.42E−5	3.98E−5	1.381E+1
8.00E+4	9.64E−1	1.25E−1	4.84E−3	4.01E−3	3.71E−2	1.70E−3	1.42E−3	1.58E−5	1.41E−5	1.124E+1
1.00E+5	6.06E−1	7.81E−2	2.63E−3	2.13E−3	2.32E−2	9.20E−4	7.52E−4	7.21E−6	6.33E−6	9.517E+0
1.50E+5	2.56E−1	3.28E−2	8.73E−4	6.83E−4	9.71E−3	3.06E−4	2.40E−4	1.78E−6	1.53E−6	6.991E+0
2.00E+5	1.38E−1	1.76E−2	4.07E−4	3.10E−4	5.20E−3	1.42E−4	1.09E−4	6.83E−7	5.86E−7	5.618E+0
3.00E+5	5.79E−2	7.34E−3	1.44E−4	1.08E−4	2.17E−3	5.05E−5	3.78E−5	1.90E−7	1.66E−7	4.165E+0
4.00E+5	3.20E−2	4.04E−3	7.21E−5	5.36E−5	1.19E−3	2.52E−5	1.88E−5	8.08E−8	7.33E−8	3.407E+0
5.00E+5	2.06E−2	2.60E−3	4.33E−5	3.26E−5	7.67E−4	1.51E−5	1.14E−5	4.33E−8	4.11E−8	2.942E+0
6.00E+5	1.46E−2	1.84E−3	2.91E−5	2.23E−5	5.44E−4	1.02E−5	7.83E−6	2.67E−8	2.67E−8	2.628E+0
8.00E+5	8.88E−3	1.12E−3	1.62E−5	1.30E−5	3.29E−4	5.67E−6	4.55E−6	1.31E−8	1.44E−8	2.229E+0
1.00E+6	6.24E−3	7.82E−4	1.07E−5	8.88E−6	2.31E−4	3.73E−6	3.12E−6	7.88E−9	9.39E−9	1.988E+0
1.50E+6	3.51E−3	4.39E−4	5.37E−6	4.84E−6	1.30E−4	1.88E−6	1.70E−6		4.78E−9*	1.662E+0
2.00E+6	2.43E−3	3.04E−4	3.48E−6	3.30E−6	8.96E−5	1.22E−6	1.16E−6			1.498E+0
3.00E+6	1.50E−3	1.88E−4	2.00E−6	2.01E−6						1.333E+0
4.00E+6	1.09E−3	1.36E−4	1.40E−6	1.44E−6						1.250E+0
5.00E+6	8.49E−4	1.06E−4								1.200E+0
6.00E+6	6.97E−4	8.72E−5								1.167E+0
8.00E+6	5.1E−4									1.125E+0

TABLE. Cross Sections for Radiative Recombination, Z=1–112
See page 9 for Explanation of Tables

Z= 26

T_e (eV)	σ_{RR} (b)									$f_{1s_{1/2}}$
	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	
R_{nucl} = 4.826 fm										
$\|\epsilon_n\|$ (eV)	9.282E+3	2.326E+3	2.326E+3	2.305E+3	1.031E+3	1.031E+3	1.025E+3	1.025E+3	1.023E+3	
1.00E+0	7.68E+5	1.13E+5	1.07E+5	1.04E+5	3.81E+4	4.01E+4	3.96E+4	2.77E+4	2.74E+4	1.186E−2
1.50E+0	5.12E+5	7.56E+4	7.15E+4	6.95E+4	2.54E+4	2.67E+4	2.64E+4	1.85E+4	1.83E+4	1.779E−2
2.00E+0	3.84E+5	5.67E+4	5.36E+4	5.21E+4	1.90E+4	2.00E+4	1.98E+4	1.39E+4	1.37E+4	2.372E−2
3.00E+0	2.56E+5	3.78E+4	3.57E+4	3.47E+4	1.27E+4	1.34E+4	1.32E+4	9.22E+3	9.12E+3	3.557E−2
4.00E+0	1.92E+5	2.84E+4	2.68E+4	2.60E+4	9.51E+3	1.00E+4	9.88E+3	6.91E+3	6.83E+3	4.741E−2
5.00E+0	1.54E+5	2.27E+4	2.14E+4	2.08E+4	7.61E+3	8.01E+3	7.90E+3	5.52E+3	5.46E+3	5.925E−2
6.00E+0	1.28E+5	1.89E+4	1.78E+4	1.73E+4	6.34E+3	6.67E+3	6.58E+3	4.59E+3	4.54E+3	7.109E−2
8.00E+0	9.59E+4	1.42E+4	1.34E+4	1.30E+4	4.76E+3	5.00E+3	4.93E+3	3.43E+3	3.40E+3	9.474E−2
1.00E+1	7.67E+4	1.13E+4	1.07E+4	1.04E+4	3.80E+3	4.00E+3	3.94E+3	2.74E+3	2.71E+3	1.184E−1
1.50E+1	5.11E+4	7.56E+3	7.11E+3	6.90E+3	2.54E+3	2.66E+3	2.62E+3	1.81E+3	1.79E+3	1.774E−1
2.00E+1	3.83E+4	5.67E+3	5.32E+3	5.17E+3	1.90E+3	1.99E+3	1.96E+3	1.35E+3	1.34E+3	2.362E−1
3.00E+1	2.55E+4	3.78E+3	3.53E+3	3.43E+3	1.27E+3	1.32E+3	1.30E+3	8.89E+2	8.79E+2	3.536E−1
4.00E+1	1.91E+4	2.83E+3	2.64E+3	2.56E+3	9.50E+2	9.87E+2	9.73E+2	6.57E+2	6.50E+2	4.705E−1
5.00E+1	1.53E+4	2.26E+3	2.10E+3	2.04E+3	7.60E+2	7.86E+2	7.75E+2	5.19E+2	5.13E+2	5.868E−1
6.00E+1	1.27E+4	1.89E+3	1.74E+3	1.69E+3	6.33E+2	6.53E+2	6.43E+2	4.27E+2	4.22E+2	7.027E−1
8.00E+1	9.54E+3	1.41E+3	1.30E+3	1.26E+3	4.75E+2	4.85E+2	4.78E+2	3.12E+2	3.08E+2	9.330E−1
1.00E+2	7.62E+3	1.13E+3	1.03E+3	9.97E+2	3.79E+2	3.85E+2	3.80E+2	2.43E+2	2.40E+2	1.161E+0
1.50E+2	5.06E+3	7.52E+2	6.70E+2	6.50E+2	2.52E+2	2.52E+2	2.48E+2	1.52E+2	1.50E+2	1.724E+0
2.00E+2	3.79E+3	5.63E+2	4.92E+2	4.77E+2	1.89E+2	1.85E+2	1.82E+2	1.07E+2	1.06E+2	2.274E+0
3.00E+2	2.51E+3	3.73E+2	3.15E+2	3.05E+2	1.25E+2	1.19E+2	1.16E+2	6.33E+1	6.25E+1	3.341E+0
4.00E+2	1.87E+3	2.79E+2	2.27E+2	2.19E+2	9.33E+1	8.54E+1	8.37E+1	4.24E+1	4.18E+1	4.363E+0
5.00E+2	1.48E+3	2.22E+2	1.74E+2	1.69E+2	7.41E+1	6.57E+1	6.43E+1	3.05E+1	3.00E+1	5.343E+0
6.00E+2	1.23E+3	1.84E+2	1.40E+2	1.35E+2	6.13E+1	5.27E+1	5.15E+1	2.29E+1	2.26E+1	6.283E+0
8.00E+2	9.07E+2	1.36E+2	9.74E+1	9.38E+1	4.53E+1	3.67E+1	3.58E+1	1.42E+1	1.40E+1	8.050E+0
1.00E+3	7.16E+2	1.08E+2	7.26E+1	6.98E+1	3.56E+1	2.73E+1	2.66E+1	9.51E+0	9.35E+0	9.677E+0
1.50E+3	4.62E+2	6.96E+1	4.11E+1	3.93E+1	2.28E+1	1.54E+1	1.49E+1	4.29E+0	4.20E+0	1.321E+1
2.00E+3	3.35E+2	5.05E+1	2.65E+1	2.53E+1	1.64E+1	9.88E+0	9.53E+0	2.30E+0	2.25E+0	1.609E+1
3.00E+3	2.10E+2	3.15E+1	1.36E+1	1.29E+1	1.00E+1	5.02E+0	4.81E+0	8.74E−1	8.53E−1	2.038E+1
4.00E+3	1.48E+2	2.21E+1	8.12E+0	7.67E+0	6.97E+0	2.98E+0	2.84E+0	4.15E−1	4.03E−1	2.326E+1
5.00E+3	1.12E+2	1.65E+1	5.32E+0	5.00E+0	5.18E+0	1.94E+0	1.84E+0	2.25E−1	2.18E−1	2.517E+1
6.00E+3	8.85E+1	1.30E+1	3.70E+0	3.46E+0	4.03E+0	1.34E+0	1.27E+0	1.34E−1	1.29E−1	2.641E+1
8.00E+3	6.00E+1	8.65E+0	2.03E+0	1.89E+0	2.67E+0	7.32E−1	6.86E−1	5.66E−2	5.45E−2	2.759E+1
1.00E+4	4.37E+1	6.23E+0	1.24E+0	1.15E+0	1.91E+0	4.46E−1	4.15E−1	2.83E−2	2.71E−2	2.776E+1
1.50E+4	2.37E+1	3.30E+0	4.85E−1	4.42E−1	1.00E+0	1.73E−1	1.59E−1	7.58E−3	7.20E−3	2.638E+1
2.00E+4	1.49E+1	2.04E+0	2.40E−1	2.16E−1	6.16E−1	8.53E−2	7.74E−2	2.87E−3	2.71E−3	2.430E+1
3.00E+4	7.41E+0	9.96E−1	8.56E−2	7.55E−2	2.99E−1	3.02E−2	2.69E−2	7.04E−4	6.54E−4	2.045E+1
4.00E+4	4.39E+0	5.82E−1	4.02E−2	3.48E−2	1.74E−1	1.41E−2	1.24E−2	2.55E−4	2.34E−4	1.749E+1
5.00E+4	2.87E+0	3.78E−1	2.21E−2	1.89E−2	1.13E−1	7.77E−3	6.68E−3	1.15E−4	1.05E−4	1.525E+1
6.00E+4	2.01E+0	2.64E−1	1.35E−2	1.14E−2	7.85E−2	4.74E−3	4.02E−3	6.03E−5	5.42E−5	1.352E+1
8.00E+4	1.13E+0	1.47E−1	6.17E−3	5.08E−3	4.36E−2	2.16E−3	1.79E−3	2.17E−5	1.92E−5	1.106E+1
1.00E+5	7.13E−1	9.22E−2	3.36E−3	2.71E−3	2.74E−2	1.18E−3	9.56E−4	9.93E−6	8.68E−6	9.395E+0
1.50E+5	3.03E−1	3.88E−2	1.12E−3	8.72E−4	1.15E−2	3.94E−4	3.07E−4	2.47E−6	2.12E−6	6.929E+0
2.00E+5	1.64E−1	2.09E−2	5.26E−4	3.98E−4	6.19E−3	1.84E−4	1.40E−4	9.50E−7	8.12E−7	5.580E+0
3.00E+5	6.90E−2	8.76E−3	1.88E−4	1.38E−4	2.59E−3	6.56E−5	4.86E−5	2.64E−7	2.30E−7	4.146E+0
4.00E+5	3.82E−2	4.83E−3	9.39E−5	6.91E−5	1.43E−3	3.28E−5	2.43E−5	1.13E−7	1.02E−7	3.396E+0
5.00E+5	2.46E−2	3.11E−3	5.64E−5	4.20E−5	9.19E−4	1.97E−5	1.48E−5	6.06E−8	5.73E−8	2.934E+0
6.00E+5	1.75E−2	2.21E−3	3.80E−5	2.88E−5	6.52E−4	1.33E−5	1.01E−5	3.74E−8	3.71E−8	2.622E+0
8.00E+5	1.07E−2	1.34E−3	2.12E−5	1.67E−5	3.95E−4	7.41E−6	5.87E−6	1.84E−8	2.00E−8	2.226E+0
1.00E+6	7.48E−3	9.37E−4	1.40E−5	1.15E−5	2.77E−4	4.88E−6	4.02E−6	1.11E−8	1.31E−8	1.985E+0
1.50E+6	4.21E−3	5.26E−4	7.03E−6	6.24E−6	1.55E−4	2.46E−6	2.19E−6	4.84E−9		1.661E+0
2.00E+6	2.91E−3	3.64E−4	4.55E−6	4.25E−6	1.07E−4	1.59E−6	1.49E−6			1.497E+0
3.00E+6	1.80E−3	2.24E−4	2.62E−6	2.59E−6						1.332E+0
4.00E+6	1.30E−3	1.62E−4	1.82E−6*							1.250E+0
5.00E+6	1.02E−3	1.27E−4								1.200E+0
6.00E+6	8.32E−4*	1.04E−4								1.167E+0
8.00E+6	6.1E−4									1.125E+0

$Z= 27$

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 4.890$ fm

$\lvert\epsilon_n\rvert$ (eV)	1.002E+4	2.510E+3	2.510E+3	2.486E+3	1.113E+3	1.113E+3	1.106E+3	1.106E+3	1.103E+3	
1.00E+0	8.28E+5	1.22E+5	1.16E+5	1.13E+5	4.10E+4	4.33E+4	4.27E+4	3.00E+4	2.96E+4	1.018E−2
1.50E+0	5.52E+5	8.15E+4	7.73E+4	7.50E+4	2.74E+4	2.89E+4	2.85E+4	2.00E+4	1.97E+4	1.527E−2
2.00E+0	4.14E+5	6.12E+4	5.80E+4	5.62E+4	2.05E+4	2.16E+4	2.13E+4	1.50E+4	1.48E+4	2.036E−2
3.00E+0	2.76E+5	4.08E+4	3.86E+4	3.75E+4	1.37E+4	1.44E+4	1.42E+4	9.96E+3	9.84E+3	3.054E−2
4.00E+0	2.07E+5	3.06E+4	2.90E+4	2.81E+4	1.03E+4	1.08E+4	1.07E+4	7.46E+3	7.37E+3	4.071E−2
5.00E+0	1.66E+5	2.45E+4	2.32E+4	2.25E+4	8.21E+3	8.65E+3	8.53E+3	5.96E+3	5.89E+3	5.088E−2
6.00E+0	1.38E+5	2.04E+4	1.93E+4	1.87E+4	6.84E+3	7.20E+3	7.10E+3	4.96E+3	4.90E+3	6.104E−2
8.00E+0	1.03E+5	1.53E+4	1.45E+4	1.40E+4	5.13E+3	5.40E+3	5.32E+3	3.71E+3	3.67E+3	8.135E−2
1.00E+1	8.27E+4	1.22E+4	1.16E+4	1.12E+4	4.10E+3	4.32E+3	4.26E+3	2.96E+3	2.93E+3	1.017E−1
1.50E+1	5.51E+4	8.15E+3	7.69E+3	7.45E+3	2.74E+3	2.87E+3	2.83E+3	1.96E+3	1.94E+3	1.523E−1
2.00E+1	4.13E+4	6.11E+3	5.76E+3	5.58E+3	2.05E+3	2.15E+3	2.12E+3	1.46E+3	1.45E+3	2.029E−1
3.00E+1	2.75E+4	4.07E+3	3.82E+3	3.70E+3	1.37E+3	1.43E+3	1.41E+3	9.62E+2	9.51E+2	3.037E−1
4.00E+1	2.06E+4	3.05E+3	2.85E+3	2.77E+3	1.03E+3	1.07E+3	1.05E+3	7.13E+2	7.04E+2	4.042E−1
5.00E+1	1.65E+4	2.44E+3	2.27E+3	2.20E+3	8.20E+2	8.50E+2	8.38E+2	5.63E+2	5.56E+2	5.042E−1
6.00E+1	1.37E+4	2.04E+3	1.89E+3	1.83E+3	6.83E+2	7.06E+2	6.95E+2	4.63E+2	4.58E+2	6.039E−1
8.00E+1	1.03E+4	1.53E+3	1.40E+3	1.36E+3	5.12E+2	5.26E+2	5.18E+2	3.39E+2	3.35E+2	8.020E−1
1.00E+2	8.22E+3	1.22E+3	1.11E+3	1.08E+3	4.09E+2	4.17E+2	4.11E+2	2.65E+2	2.62E+2	9.986E−1
1.50E+2	5.46E+3	8.11E+2	7.28E+2	7.05E+2	2.72E+2	2.73E+2	2.69E+2	1.66E+2	1.64E+2	1.483E+0
2.00E+2	4.08E+3	6.07E+2	5.36E+2	5.18E+2	2.04E+2	2.01E+2	1.98E+2	1.18E+2	1.16E+2	1.958E+0
3.00E+2	2.71E+3	4.03E+2	3.44E+2	3.32E+2	1.35E+2	1.29E+2	1.27E+2	7.02E+1	6.92E+1	2.881E+0
4.00E+2	2.02E+3	3.01E+2	2.48E+2	2.40E+2	1.01E+2	9.33E+1	9.14E+1	4.73E+1	4.66E+1	3.769E+0
5.00E+2	1.60E+3	2.40E+2	1.91E+2	1.85E+2	8.01E+1	7.20E+1	7.04E+1	3.42E+1	3.37E+1	4.622E+0
6.00E+2	1.33E+3	1.99E+2	1.54E+2	1.48E+2	6.64E+1	5.79E+1	5.65E+1	2.59E+1	2.55E+1	5.443E+0
8.00E+2	9.82E+2	1.48E+2	1.08E+2	1.04E+2	4.91E+1	4.05E+1	3.94E+1	1.62E+1	1.59E+1	6.993E+0
1.00E+3	7.76E+2	1.17E+2	8.06E+1	7.73E+1	3.87E+1	3.03E+1	2.94E+1	1.09E+1	1.07E+1	8.428E+0
1.50E+3	5.01E+2	7.56E+1	4.60E+1	4.40E+1	2.48E+1	1.72E+1	1.67E+1	5.02E+0	4.92E+0	1.157E+1
2.00E+3	3.65E+2	5.50E+1	3.00E+1	2.85E+1	1.79E+1	1.12E+1	1.08E+1	2.73E+0	2.66E+0	1.418E+1
3.00E+3	2.29E+2	3.44E+1	1.56E+1	1.47E+1	1.10E+1	5.75E+0	5.50E+0	1.06E+0	1.03E+0	1.815E+1
4.00E+3	1.63E+2	2.43E+1	9.39E+0	8.83E+0	7.68E+0	3.45E+0	3.28E+0	5.09E−1	4.94E−1	2.089E+1
5.00E+3	1.23E+2	1.83E+1	6.19E+0	5.80E+0	5.74E+0	2.26E+0	2.14E+0	2.79E−1	2.70E−1	2.277E+1
6.00E+3	9.77E+1	1.44E+1	4.34E+0	4.04E+0	4.48E+0	1.58E+0	1.48E+0	1.67E−1	1.61E−1	2.404E+1
8.00E+3	6.65E+1	9.65E+0	2.40E+0	2.22E+0	2.98E+0	8.67E−1	8.10E−1	7.16E−2	6.88E−2	2.538E+1
1.00E+4	4.87E+1	6.98E+0	1.48E+0	1.36E+0	2.14E+0	5.33E−1	4.94E−1	3.61E−2	3.45E−2	2.576E+1
1.50E+4	2.66E+1	3.73E+0	5.87E−1	5.32E−1	1.13E+0	2.09E−1	1.91E−1	9.83E−3	9.31E−3	2.485E+1
2.00E+4	1.69E+1	2.32E+0	2.93E−1	2.63E−1	7.01E−1	1.04E−1	9.41E−2	3.76E−3	3.53E−3	2.313E+1
3.00E+4	8.46E+0	1.14E+0	1.06E−1	9.27E−2	3.43E−1	3.73E−2	3.30E−2	9.33E−4	8.64E−4	1.971E+1
4.00E+4	5.04E+0	6.71E−1	4.99E−2	4.30E−2	2.01E−1	1.76E−2	1.53E−2	3.41E−4	3.11E−4	1.698E+1
5.00E+4	3.32E+0	4.38E−1	2.76E−2	2.34E−2	1.31E−1	9.71E−3	8.31E−3	1.55E−4	1.40E−4	1.488E+1
6.00E+4	2.33E+0	3.06E−1	1.69E−2	1.42E−2	9.12E−2	5.95E−3	5.02E−3	8.12E−5	7.28E−5	1.324E+1
8.00E+4	1.32E+0	1.71E−1	7.79E−3	6.36E−3	5.09E−2	2.73E−3	2.25E−3	2.95E−5	2.60E−5	1.088E+1
1.00E+5	8.33E−1	1.08E−1	4.26E−3	3.41E−3	3.21E−2	1.49E−3	1.20E−3	1.35E−5	1.18E−5	9.269E+0
1.50E+5	3.56E−1	4.57E−2	1.43E−3	1.10E−3	1.36E−2	5.02E−4	3.89E−4	3.37E−6	2.89E−6	6.865E+0
2.00E+5	1.93E−1	2.47E−2	6.73E−4	5.05E−4	7.30E−3	2.35E−4	1.78E−4	1.30E−6	1.11E−6	5.541E+0
3.00E+5	8.17E−2	1.04E−2	2.41E−4	1.76E−4	3.07E−3	8.43E−5	6.19E−5	3.64E−7	3.15E−7	4.126E+0
4.00E+5	4.53E−2	5.74E−3	1.21E−4	8.81E−5	1.70E−3	4.23E−5	3.10E−5	1.56E−7	1.40E−7	3.383E+0
5.00E+5	2.93E−2	3.70E−3	7.28E−5	5.36E−5	1.09E−3	2.55E−5	1.88E−5	8.37E−8	7.87E−8	2.926E+0
6.00E+5	2.09E−2	2.63E−3	4.91E−5	3.67E−5	7.76E−4	1.72E−5	1.29E−5	5.17E−8	5.10E−8	2.615E+0
8.00E+5	1.27E−2	1.59E−3	2.74E−5	2.14E−5	4.70E−4	9.58E−6	7.50E−6	2.54E−8	2.75E−8	2.222E+0
1.00E+6	8.91E−3	1.12E−3	1.81E−5	1.46E−5	3.30E−4	6.31E−6	5.14E−6	1.53E−8	1.80E−8	1.982E+0
1.50E+6	5.01E−3	6.26E−4	9.11E−6	7.97E−6	1.85E−4	3.18E−6	2.80E−6	6.70E−9	9.13E−9	1.659E+0
2.00E+6	3.46E−3	4.33E−4	5.90E−6	5.42E−6	1.28E−4	2.06E−6	1.90E−6	4.01E−9*		1.496E+0
3.00E+6	2.14E−3	2.67E−4	3.40E−6	3.29E−6						1.332E+0
4.00E+6	1.54E−3	1.92E−4	2.37E−6							1.249E+0
5.00E+6	1.20E−3	1.50E−4								1.200E+0
6.00E+6	9.87E−4*	1.23E−4								1.166E+0

$Z= 28$

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 4.875$ fm

$|\epsilon_n|$ (eV)	1.078E+4	2.702E+3	2.702E+3	2.674E+3	1.198E+3	1.198E+3	1.189E+3	1.189E+3	1.187E+3	
1.00E+0	8.90E+5	1.32E+5	1.25E+5	1.21E+5	4.41E+4	4.66E+4	4.60E+4	3.23E+4	3.19E+4	8.791E−3
1.50E+0	5.93E+5	8.77E+4	8.34E+4	8.07E+4	2.94E+4	3.11E+4	3.06E+4	2.15E+4	2.12E+4	1.319E−2
2.00E+0	4.45E+5	6.58E+4	6.25E+4	6.05E+4	2.21E+4	2.33E+4	2.30E+4	1.61E+4	1.59E+4	1.758E−2
3.00E+0	2.97E+5	4.39E+4	4.17E+4	4.03E+4	1.47E+4	1.55E+4	1.53E+4	1.07E+4	1.06E+4	2.636E−2
4.00E+0	2.22E+5	3.29E+4	3.12E+4	3.02E+4	1.10E+4	1.17E+4	1.15E+4	8.04E+3	7.94E+3	3.515E−2
5.00E+0	1.78E+5	2.63E+4	2.50E+4	2.42E+4	8.83E+3	9.32E+3	9.18E+3	6.42E+3	6.34E+3	4.392E−2
6.00E+0	1.48E+5	2.19E+4	2.08E+4	2.01E+4	7.35E+3	7.76E+3	7.65E+3	5.34E+3	5.28E+3	5.270E−2
8.00E+0	1.11E+5	1.64E+4	1.56E+4	1.51E+4	5.52E+3	5.82E+3	5.73E+3	4.00E+3	3.95E+3	7.024E−2
1.00E+1	8.89E+4	1.32E+4	1.25E+4	1.21E+4	4.41E+3	4.65E+3	4.58E+3	3.19E+3	3.15E+3	8.777E−2
1.50E+1	5.93E+4	8.77E+3	8.30E+3	8.02E+3	2.94E+3	3.09E+3	3.05E+3	2.12E+3	2.09E+3	1.315E−1
2.00E+1	4.44E+4	6.58E+3	6.21E+3	6.01E+3	2.21E+3	2.32E+3	2.28E+3	1.58E+3	1.56E+3	1.752E−1
3.00E+1	2.96E+4	4.38E+3	4.12E+3	3.99E+3	1.47E+3	1.54E+3	1.52E+3	1.04E+3	1.03E+3	2.623E−1
4.00E+1	2.22E+4	3.29E+3	3.08E+3	2.98E+3	1.10E+3	1.15E+3	1.13E+3	7.70E+2	7.60E+2	3.491E−1
5.00E+1	1.77E+4	2.63E+3	2.46E+3	2.37E+3	8.82E+2	9.17E+2	9.03E+2	6.09E+2	6.01E+2	4.356E−1
6.00E+1	1.48E+4	2.19E+3	2.04E+3	1.97E+3	7.34E+2	7.62E+2	7.50E+2	5.02E+2	4.95E+2	5.218E−1
8.00E+1	1.11E+4	1.64E+3	1.52E+3	1.47E+3	5.51E+2	5.67E+2	5.58E+2	3.68E+2	3.63E+2	6.932E−1
1.00E+2	8.84E+3	1.31E+3	1.21E+3	1.16E+3	4.40E+2	4.51E+2	4.43E+2	2.88E+2	2.84E+2	8.633E−1
1.50E+2	5.88E+3	8.73E+2	7.89E+2	7.62E+2	2.93E+2	2.95E+2	2.90E+2	1.81E+2	1.79E+2	1.283E+0
2.00E+2	4.39E+3	6.54E+2	5.81E+2	5.61E+2	2.19E+2	2.18E+2	2.14E+2	1.29E+2	1.27E+2	1.695E+0
3.00E+2	2.91E+3	4.34E+2	3.74E+2	3.60E+2	1.46E+2	1.40E+2	1.37E+2	7.73E+1	7.62E+1	2.498E+0
4.00E+2	2.17E+3	3.24E+2	2.71E+2	2.61E+2	1.09E+2	1.02E+2	9.94E+1	5.25E+1	5.17E+1	3.271E+0
5.00E+2	1.73E+3	2.58E+2	2.09E+2	2.01E+2	8.64E+1	7.86E+1	7.68E+1	3.82E+1	3.76E+1	4.017E+0
6.00E+2	1.43E+3	2.14E+2	1.69E+2	1.62E+2	7.16E+1	6.34E+1	6.18E+1	2.90E+1	2.85E+1	4.737E+0
8.00E+2	1.06E+3	1.59E+2	1.19E+2	1.14E+2	5.30E+1	4.45E+1	4.33E+1	1.83E+1	1.80E+1	6.101E+0
1.00E+3	8.38E+2	1.26E+2	8.90E+1	8.52E+1	4.18E+1	3.34E+1	3.25E+1	1.25E+1	1.23E+1	7.371E+0
1.50E+3	5.42E+2	8.19E+1	5.13E+1	4.89E+1	2.69E+1	1.92E+1	1.85E+1	5.83E+0	5.70E+0	1.018E+1
2.00E+3	3.95E+2	5.97E+1	3.37E+1	3.20E+1	1.94E+1	1.25E+1	1.21E+1	3.21E+0	3.13E+0	1.254E+1
3.00E+3	2.50E+2	3.76E+1	1.77E+1	1.67E+1	1.21E+1	6.54E+0	6.24E+0	1.27E+0	1.23E+0	1.619E+1
4.00E+3	1.78E+2	2.66E+1	1.08E+1	1.01E+1	8.44E+0	3.95E+0	3.75E+0	6.18E−1	5.99E−1	1.878E+1
5.00E+3	1.35E+2	2.01E+1	7.15E+0	6.68E+0	6.32E+0	2.61E+0	2.47E+0	3.42E−1	3.31E−1	2.062E+1
6.00E+3	1.07E+2	1.58E+1	5.04E+0	4.69E+0	4.95E+0	1.83E+0	1.72E+0	2.06E−1	1.99E−1	2.190E+1
8.00E+3	7.34E+1	1.07E+1	2.82E+0	2.60E+0	3.31E+0	1.02E+0	9.49E−1	8.97E−2	8.60E−2	2.336E+1
1.00E+4	5.40E+1	7.77E+0	1.75E+0	1.61E+0	2.39E+0	6.31E−1	5.84E−1	4.56E−2	4.35E−2	2.390E+1
1.50E+4	2.98E+1	4.19E+0	7.03E−1	6.35E−1	1.27E+0	2.51E−1	2.29E−1	1.26E−2	1.19E−2	2.340E+1
2.00E+4	1.90E+1	2.62E+0	3.55E−1	3.16E−1	7.93E−1	1.26E−1	1.13E−1	4.87E−3	4.56E−3	2.200E+1
3.00E+4	9.60E+0	1.30E+0	1.29E−1	1.13E−1	3.91E−1	4.56E−2	4.02E−2	1.22E−3	1.13E−3	1.898E+1
4.00E+4	5.75E+0	7.69E−1	6.15E−2	5.27E−2	2.30E−1	2.17E−2	1.87E−2	4.49E−4	4.10E−4	1.647E+1
5.00E+4	3.80E+0	5.04E−1	3.42E−2	2.89E−2	1.50E−1	1.20E−2	1.02E−2	2.05E−4	1.85E−4	1.451E+1
6.00E+4	2.68E+0	3.53E−1	2.11E−2	1.75E−2	1.05E−1	7.39E−3	6.20E−3	1.08E−4	9.66E−5	1.296E+1
8.00E+4	1.52E+0	1.99E−1	9.73E−3	7.90E−3	5.91E−2	3.41E−3	2.79E−3	3.94E−5	3.47E−5	1.070E+1
1.00E+5	9.67E−1	1.26E−1	5.34E−3	4.25E−3	3.73E−2	1.87E−3	1.50E−3	1.81E−5	1.58E−5	9.143E+0
1.50E+5	4.15E−1	5.35E−2	1.81E−3	1.38E−3	1.59E−2	6.33E−4	4.88E−4	4.55E−6	3.88E−6	6.801E+0
2.00E+5	2.26E−1	2.89E−2	8.53E−4	6.34E−4	8.57E−3	2.98E−4	2.23E−4	1.77E−6	1.50E−6	5.501E+0
3.00E+5	9.61E−2	1.22E−2	3.07E−4	2.22E−4	3.62E−3	1.07E−4	7.81E−5	4.95E−7	4.27E−7	4.106E+0
4.00E+5	5.34E−2	6.77E−3	1.54E−4	1.11E−4	2.00E−3	5.39E−5	3.91E−5	2.12E−7	1.90E−7	3.371E+0
5.00E+5	3.46E−2	4.36E−3	9.31E−5	6.78E−5	1.29E−3	3.25E−5	2.38E−5	1.14E−7	1.07E−7	2.917E+0
6.00E+5	2.46E−2	3.11E−3	6.28E−5	4.65E−5	9.17E−4	2.20E−5	1.63E−5	7.07E−8	6.92E−8	2.609E+0
8.00E+5	1.50E−2	1.88E−3	3.51E−5	2.70E−5	5.56E−4	1.23E−5	9.49E−6	3.48E−8	3.74E−8	2.217E+0
1.00E+6	1.05E−2	1.32E−3	2.32E−5	1.85E−5	3.90E−4	8.09E−6	6.50E−6	2.10E−8	2.44E−8	1.979E+0
1.50E+6	5.92E−3	7.40E−4	1.17E−5	1.01E−5	2.18E−4	4.09E−6	3.53E−6	9.20E−9	1.24E−8	1.657E+0
2.00E+6	4.09E−3	5.11E−4	7.59E−6	6.85E−6	1.51E−4	2.65E−6	2.40E−6			1.495E+0
3.00E+6	2.52E−3	3.15E−4	4.37E−6	4.16E−6	9.29E−5*					1.331E+0
4.00E+6	1.82E−3	2.27E−4	3.05E−6							1.249E+0
5.00E+6	1.42E−3	1.77E−4								1.199E+0
6.00E+6	1.16E−3	1.45E−4								1.166E+0

$Z= 29$

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 5.013$ fm

$|\epsilon_n|$ (eV)	1.157E+4	2.902E+3	2.902E+3	2.869E+3	1.286E+3	1.286E+3	1.276E+3	1.276E+3	1.273E+3	
1.00E+0	9.54E+5	1.41E+5	1.35E+5	1.30E+5	4.73E+4	5.01E+4	4.93E+4	3.47E+4	3.42E+4	7.629E−3
1.50E+0	6.36E+5	9.41E+4	8.97E+4	8.66E+4	3.16E+4	3.34E+4	3.29E+4	2.31E+4	2.28E+4	1.144E−2
2.00E+0	4.77E+5	7.06E+4	6.73E+4	6.49E+4	2.37E+4	2.51E+4	2.47E+4	1.73E+4	1.71E+4	1.526E−2
3.00E+0	3.18E+5	4.71E+4	4.48E+4	4.33E+4	1.58E+4	1.67E+4	1.64E+4	1.15E+4	1.14E+4	2.288E−2
4.00E+0	2.38E+5	3.53E+4	3.36E+4	3.24E+4	1.18E+4	1.25E+4	1.23E+4	8.63E+3	8.52E+3	3.050E−2
5.00E+0	1.91E+5	2.82E+4	2.69E+4	2.59E+4	9.47E+3	1.00E+4	9.85E+3	6.90E+3	6.81E+3	3.812E−2
6.00E+0	1.59E+5	2.35E+4	2.24E+4	2.16E+4	7.89E+3	8.34E+3	8.21E+3	5.74E+3	5.67E+3	4.574E−2
8.00E+0	1.19E+5	1.76E+4	1.68E+4	1.62E+4	5.92E+3	6.25E+3	6.15E+3	4.30E+3	4.24E+3	6.096E−2
1.00E+1	9.53E+4	1.41E+4	1.34E+4	1.29E+4	4.73E+3	5.00E+3	4.92E+3	3.43E+3	3.39E+3	7.617E−2
1.50E+1	6.35E+4	9.41E+3	8.93E+3	8.61E+3	3.16E+3	3.33E+3	3.27E+3	2.27E+3	2.24E+3	1.142E−1
2.00E+1	4.76E+4	7.05E+3	6.68E+3	6.45E+3	2.37E+3	2.49E+3	2.45E+3	1.70E+3	1.67E+3	1.521E−1
3.00E+1	3.17E+4	4.70E+3	4.44E+3	4.28E+3	1.58E+3	1.66E+3	1.63E+3	1.12E+3	1.10E+3	2.277E−1
4.00E+1	2.38E+4	3.53E+3	3.32E+3	3.20E+3	1.18E+3	1.24E+3	1.22E+3	8.30E+2	8.19E+2	3.031E−1
5.00E+1	1.90E+4	2.82E+3	2.65E+3	2.55E+3	9.46E+2	9.87E+2	9.70E+2	6.57E+2	6.48E+2	3.783E−1
6.00E+1	1.58E+4	2.35E+3	2.20E+3	2.12E+3	7.88E+2	8.20E+2	8.06E+2	5.41E+2	5.34E+2	4.532E−1
8.00E+1	1.19E+4	1.76E+3	1.64E+3	1.58E+3	5.91E+2	6.11E+2	6.00E+2	3.97E+2	3.92E+2	6.021E−1
1.00E+2	9.49E+3	1.41E+3	1.30E+3	1.25E+3	4.72E+2	4.85E+2	4.77E+2	3.11E+2	3.07E+2	7.501E−1
1.50E+2	6.31E+3	9.37E+2	8.52E+2	8.21E+2	3.14E+2	3.19E+2	3.13E+2	1.97E+2	1.94E+2	1.116E+0
2.00E+2	4.72E+3	7.02E+2	6.28E+2	6.05E+2	2.35E+2	2.35E+2	2.31E+2	1.40E+2	1.38E+2	1.475E+0
3.00E+2	3.13E+3	4.66E+2	4.05E+2	3.89E+2	1.56E+2	1.52E+2	1.49E+2	8.48E+1	8.35E+1	2.176E+0
4.00E+2	2.33E+3	3.48E+2	2.94E+2	2.82E+2	1.17E+2	1.10E+2	1.08E+2	5.79E+1	5.70E+1	2.853E+0
5.00E+2	1.85E+3	2.78E+2	2.28E+2	2.19E+2	9.29E+1	8.55E+1	8.34E+1	4.24E+1	4.16E+1	3.508E+0
6.00E+2	1.54E+3	2.30E+2	1.84E+2	1.76E+2	7.70E+1	6.91E+1	6.73E+1	3.24E+1	3.18E+1	4.141E+0
8.00E+2	1.14E+3	1.71E+2	1.30E+2	1.24E+2	5.71E+1	4.87E+1	4.74E+1	2.06E+1	2.02E+1	5.345E+0
1.00E+3	9.02E+2	1.36E+2	9.79E+1	9.35E+1	4.51E+1	3.67E+1	3.56E+1	1.42E+1	1.39E+1	6.471E+0
1.50E+3	5.85E+2	8.84E+1	5.69E+1	5.41E+1	2.91E+1	2.13E+1	2.05E+1	6.71E+0	6.56E+0	8.983E+0
2.00E+3	4.27E+2	6.46E+1	3.76E+1	3.56E+1	2.11E+1	1.40E+1	1.34E+1	3.74E+0	3.64E+0	1.112E+1
3.00E+3	2.71E+2	4.08E+1	2.00E+1	1.88E+1	1.31E+1	7.38E+0	7.03E+0	1.51E+0	1.46E+0	1.448E+1
4.00E+3	1.93E+2	2.90E+1	1.23E+1	1.15E+1	9.22E+0	4.51E+0	4.27E+0	7.43E−1	7.19E−1	1.692E+1
5.00E+3	1.47E+2	2.20E+1	8.20E+0	7.63E+0	6.93E+0	3.00E+0	2.83E+0	4.15E−1	4.01E−1	1.870E+1
6.00E+3	1.17E+2	1.74E+1	5.82E+0	5.39E+0	5.45E+0	2.12E+0	1.99E+0	2.53E−1	2.43E−1	1.997E+1
8.00E+3	8.07E+1	1.18E+1	3.28E+0	3.02E+0	3.66E+0	1.19E+0	1.10E+0	1.11E−1	1.06E−1	2.151E+1
1.00E+4	5.95E+1	8.61E+0	2.06E+0	1.88E+0	2.65E+0	7.41E−1	6.83E−1	5.70E−2	5.43E−2	2.217E+1
1.50E+4	3.31E+1	4.68E+0	8.36E−1	7.51E−1	1.43E+0	2.99E−1	2.71E−1	1.60E−2	1.51E−2	2.203E+1
2.00E+4	2.12E+1	2.95E+0	4.25E−1	3.77E−1	8.93E−1	1.51E−1	1.35E−1	6.23E−3	5.83E−3	2.091E+1
3.00E+4	1.08E+1	1.48E+0	1.57E−1	1.36E−1	4.43E−1	5.54E−2	4.85E−2	1.58E−3	1.46E−3	1.826E+1
4.00E+4	6.52E+0	8.76E−1	7.51E−2	6.40E−2	2.62E−1	2.65E−2	2.28E−2	5.86E−4	5.33E−4	1.597E+1
5.00E+4	4.33E+0	5.76E−1	4.20E−2	3.52E−2	1.72E−1	1.48E−2	1.25E−2	2.69E−4	2.42E−4	1.414E+1
6.00E+4	3.07E+0	4.05E−1	2.59E−2	2.15E−2	1.21E−1	9.11E−3	7.60E−3	1.42E−4	1.27E−4	1.267E+1
8.00E+4	1.75E+0	2.29E−1	1.21E−2	9.73E−3	6.81E−2	4.23E−3	3.44E−3	5.21E−5	4.57E−5	1.051E+1
1.00E+5	1.12E+0	1.45E−1	6.65E−3	5.25E−3	4.31E−2	2.33E−3	1.85E−3	2.41E−5	2.08E−5	9.014E+0
1.50E+5	4.82E−1	6.21E−2	2.27E−3	1.72E−3	1.84E−2	7.93E−4	6.06E−4	6.08E−6	5.16E−6	6.734E+0
2.00E+5	2.63E−1	3.37E−2	1.07E−3	7.90E−4	9.99E−3	3.75E−4	2.78E−4	2.37E−6	2.00E−6	5.460E+0
3.00E+5	1.12E−1	1.43E−2	3.87E−4	2.78E−4	4.23E−3	1.35E−4	9.77E−5	6.66E−7	5.71E−7	4.085E+0
4.00E+5	6.25E−2	7.93E−3	1.95E−4	1.39E−4	2.35E−3	6.82E−5	4.90E−5	2.86E−7	2.54E−7	3.358E+0
5.00E+5	4.05E−2	5.12E−3	1.18E−4	8.49E−5	1.51E−3	4.12E−5	2.98E−5	1.54E−7	1.43E−7	2.908E+0
6.00E+5	2.89E−2	3.65E−3	7.97E−5	5.83E−5	1.08E−3	2.78E−5	2.05E−5	9.54E−8	9.29E−8	2.602E+0
8.00E+5	1.76E−2	2.21E−3	4.46E−5	3.39E−5	6.53E−4	1.56E−5	1.19E−5	4.70E−8	5.02E−8	2.213E+0
1.00E+6	1.24E−2	1.55E−3	2.95E−5	2.32E−5	4.58E−4	1.03E−5	8.15E−6	2.84E−8	3.27E−8	1.976E+0
1.50E+6	6.95E−3	8.70E−4	1.49E−5	1.26E−5	2.57E−4	5.20E−6	4.43E−6	1.25E−8	1.66E−8	1.656E+0
2.00E+6	4.80E−3	6.00E−4	9.66E−6	8.58E−6	1.77E−4	3.37E−6	3.01E−6			1.494E+0
3.00E+6	2.96E−3	3.69E−4	5.56E−6	5.20E−6	1.09E−4					1.330E+0
4.00E+6	2.13E−3	2.66E−4	3.88E−6							1.248E+0
5.00E+6	1.66E−3	2.07E−4	2.98E−6							1.199E+0
6.00E+6	1.36E−3	1.70E−4								1.166E+0
8.00E+6	1.0E−3	1.27E−4								1.124E+0

Z= 30

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

R_{nucl} = 5.071 fm

$|\epsilon_n|$ (eV)	1.240E+4	3.108E+3	3.108E+3	3.071E+3	1.377E+3	1.377E+3	1.366E+3	1.366E+3	1.362E+3	
1.00E+0	1.02E+6	1.51E+5	1.45E+5	1.39E+5	5.07E+4	5.37E+4	5.28E+4	3.71E+4	3.66E+4	6.651E−3
1.50E+0	6.80E+5	1.01E+5	9.63E+4	9.27E+4	3.38E+4	3.58E+4	3.52E+4	2.47E+4	2.44E+4	9.975E−3
2.00E+0	5.10E+5	7.56E+4	7.22E+4	6.95E+4	2.53E+4	2.69E+4	2.64E+4	1.86E+4	1.83E+4	1.330E−2
3.00E+0	3.40E+5	5.04E+4	4.81E+4	4.63E+4	1.69E+4	1.79E+4	1.76E+4	1.24E+4	1.22E+4	1.995E−2
4.00E+0	2.55E+5	3.78E+4	3.61E+4	3.47E+4	1.27E+4	1.34E+4	1.32E+4	9.25E+3	9.12E+3	2.659E−2
5.00E+0	2.04E+5	3.02E+4	2.89E+4	2.78E+4	1.01E+4	1.07E+4	1.06E+4	7.40E+3	7.29E+3	3.323E−2
6.00E+0	1.70E+5	2.52E+4	2.40E+4	2.31E+4	8.44E+3	8.94E+3	8.79E+3	6.16E+3	6.07E+3	3.987E−2
8.00E+0	1.28E+5	1.89E+4	1.80E+4	1.73E+4	6.33E+3	6.70E+3	6.59E+3	4.61E+3	4.54E+3	5.315E−2
1.00E+1	1.02E+5	1.51E+4	1.44E+4	1.39E+4	5.06E+3	5.36E+3	5.27E+3	3.68E+3	3.63E+3	6.641E−2
1.50E+1	6.80E+4	1.01E+4	9.59E+3	9.23E+3	3.38E+3	3.57E+3	3.51E+3	2.44E+3	2.41E+3	9.954E−2
2.00E+1	5.10E+4	7.55E+3	7.18E+3	6.91E+3	2.53E+3	2.67E+3	2.62E+3	1.82E+3	1.79E+3	1.326E−1
3.00E+1	3.40E+4	5.03E+3	4.77E+3	4.59E+3	1.69E+3	1.78E+3	1.74E+3	1.20E+3	1.18E+3	1.986E−1
4.00E+1	2.55E+4	3.77E+3	3.57E+3	3.43E+3	1.27E+3	1.33E+3	1.30E+3	8.92E+2	8.79E+2	2.644E−1
5.00E+1	2.04E+4	3.02E+3	2.84E+3	2.74E+3	1.01E+3	1.06E+3	1.04E+3	7.06E+2	6.96E+2	3.300E−1
6.00E+1	1.70E+4	2.51E+3	2.36E+3	2.27E+3	8.43E+2	8.80E+2	8.64E+2	5.83E+2	5.74E+2	3.953E−1
8.00E+1	1.27E+4	1.89E+3	1.76E+3	1.69E+3	6.32E+2	6.56E+2	6.44E+2	4.28E+2	4.22E+2	5.254E−1
1.00E+2	1.02E+4	1.51E+3	1.40E+3	1.35E+3	5.05E+2	5.22E+2	5.12E+2	3.36E+2	3.31E+2	6.547E−1
1.50E+2	6.75E+3	1.00E+3	9.18E+2	8.82E+2	3.37E+2	3.43E+2	3.36E+2	2.13E+2	2.10E+2	9.742E−1
2.00E+2	5.05E+3	7.51E+2	6.77E+2	6.50E+2	2.52E+2	2.53E+2	2.48E+2	1.53E+2	1.50E+2	1.289E+0
3.00E+2	3.35E+3	4.99E+2	4.38E+2	4.20E+2	1.67E+2	1.64E+2	1.60E+2	9.27E+1	9.11E+1	1.903E+0
4.00E+2	2.50E+3	3.73E+2	3.18E+2	3.05E+2	1.25E+2	1.19E+2	1.16E+2	6.36E+1	6.25E+1	2.498E+0
5.00E+2	1.99E+3	2.98E+2	2.47E+2	2.37E+2	9.96E+1	9.26E+1	9.03E+1	4.67E+1	4.59E+1	3.075E+0
6.00E+2	1.65E+3	2.47E+2	2.00E+2	1.91E+2	8.26E+1	7.50E+1	7.30E+1	3.59E+1	3.52E+1	3.633E+0
8.00E+2	1.22E+3	1.84E+2	1.42E+2	1.35E+2	6.13E+1	5.31E+1	5.16E+1	2.31E+1	2.26E+1	4.700E+0
1.00E+3	9.68E+2	1.46E+2	1.07E+2	1.02E+2	4.85E+1	4.02E+1	3.89E+1	1.60E+1	1.56E+1	5.702E+0
1.50E+3	6.29E+2	9.51E+1	6.27E+1	5.95E+1	3.13E+1	2.35E+1	2.26E+1	7.67E+0	7.49E+0	7.952E+0
2.00E+3	4.60E+2	6.96E+1	4.17E+1	3.94E+1	2.28E+1	1.56E+1	1.49E+1	4.32E+0	4.21E+0	9.883E+0
3.00E+3	2.92E+2	4.41E+1	2.24E+1	2.10E+1	1.42E+1	8.29E+0	7.88E+0	1.77E+0	1.72E+0	1.297E+1
4.00E+3	2.09E+2	3.15E+1	1.39E+1	1.29E+1	1.00E+1	5.11E+0	4.82E+0	8.85E−1	8.56E−1	1.527E+1
5.00E+3	1.60E+2	2.39E+1	9.35E+0	8.67E+0	7.57E+0	3.42E+0	3.21E+0	4.99E−1	4.81E−1	1.697E+1
6.00E+3	1.28E+2	1.90E+1	6.67E+0	6.15E+0	5.97E+0	2.43E+0	2.27E+0	3.06E−1	2.94E−1	1.823E+1
8.00E+3	8.82E+1	1.30E+1	3.80E+0	3.48E+0	4.03E+0	1.38E+0	1.27E+0	1.36E−1	1.30E−1	1.981E+1
1.00E+4	6.53E+1	9.49E+0	2.40E+0	2.18E+0	2.93E+0	8.64E−1	7.94E−1	7.05E−2	6.70E−2	2.058E+1
1.50E+4	3.66E+1	5.20E+0	9.87E−1	8.83E−1	1.59E+0	3.53E−1	3.19E−1	2.00E−2	1.89E−2	2.073E+1
2.00E+4	2.36E+1	3.30E+0	5.06E−1	4.47E−1	9.99E−1	1.80E−1	1.61E−1	7.89E−3	7.36E−3	1.986E+1
3.00E+4	1.22E+1	1.66E+0	1.88E−1	1.63E−1	5.00E−1	6.66E−2	5.81E−2	2.03E−3	1.86E−3	1.756E+1
4.00E+4	7.36E+0	9.93E−1	9.10E−2	7.71E−2	2.98E−1	3.21E−2	2.75E−2	7.56E−4	6.86E−4	1.547E+1
5.00E+4	4.91E+0	6.55E−1	5.11E−2	4.26E−2	1.96E−1	1.80E−2	1.51E−2	3.49E−4	3.13E−4	1.377E+1
6.00E+4	3.49E+0	4.62E−1	3.17E−2	2.61E−2	1.38E−1	1.11E−2	9.24E−3	1.85E−4	1.65E−4	1.239E+1
8.00E+4	2.00E+0	2.62E−1	1.48E−2	1.19E−2	7.80E−2	5.20E−3	4.20E−3	6.82E−5	5.96E−5	1.033E+1
1.00E+5	1.28E+0	1.67E−1	8.21E−3	6.43E−3	4.96E−2	2.87E−3	2.27E−3	3.16E−5	2.73E−5	8.881E+0
1.50E+5	5.55E−1	7.18E−2	2.82E−3	2.12E−3	2.13E−2	9.84E−4	7.47E−4	8.03E−6	6.80E−6	6.666E+0
2.00E+5	3.04E−1	3.91E−2	1.34E−3	9.77E−4	1.16E−2	4.67E−4	3.44E−4	3.14E−6	2.64E−6	5.417E+0
3.00E+5	1.30E−1	1.66E−2	4.85E−4	3.45E−4	4.92E−3	1.69E−4	1.21E−4	8.86E−7	7.56E−7	4.064E+0
4.00E+5	7.28E−2	9.25E−3	2.45E−4	1.73E−4	2.73E−3	8.56E−5	6.09E−5	3.82E−7	3.37E−7	3.344E+0
5.00E+5	4.73E−2	5.98E−3	1.48E−4	1.06E−4	1.77E−3	5.18E−5	3.71E−5	2.06E−7	1.90E−7	2.898E+0
6.00E+5	3.38E−2	4.26E−3	1.00E−4	7.25E−5	1.26E−3	3.50E−5	2.55E−5	1.28E−7	1.23E−7	2.595E+0
8.00E+5	2.06E−2	2.59E−3	5.63E−5	4.22E−5	7.64E−4	1.96E−5	1.48E−5	6.29E−8	6.66E−8	2.209E+0
1.00E+6	1.45E−2	1.82E−3	3.72E−5	2.89E−5	5.35E−4	1.30E−5	1.01E−5	3.80E−8	4.35E−8	1.973E+0
1.50E+6	8.12E−3	1.02E−3	1.88E−5	1.57E−5	3.00E−4	6.56E−6	5.50E−6	1.67E−8	2.21E−8	1.654E+0
2.00E+6	5.61E−3	7.01E−4	1.22E−5	1.07E−5	2.07E−4	4.26E−6	3.74E−6	9.99E−9	1.45E−8	1.492E+0
3.00E+6	3.45E−3	4.30E−4	7.03E−6	6.45E−6	1.27E−4					1.330E+0
4.00E+6	2.48E−3	3.10E−4	4.91E−6	4.62E−6						1.248E+0
5.00E+6	1.94E−3	2.41E−4	3.76E−6*	3.59E−6						1.198E+0
6.00E+6	1.59E−3	1.98E−4								1.166E+0
8.00E+6	1.16E−3									1.124E+0

Z= 31

T_e (eV)	σ_{RR} (b)									$f_{1s_{1/2}}$
	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 5.159$ fm

$|\epsilon_n|$ (eV)	1.325E+4	3.323E+3	3.323E+3	3.279E+3	1.472E+3	1.472E+3	1.459E+3	1.459E+3	1.455E+3	
1.00E+0	1.09E+6	1.61E+5	1.55E+5	1.49E+5	5.41E+4	5.75E+4	5.64E+4	3.97E+4	3.91E+4	5.823E−3
1.50E+0	7.26E+5	1.08E+5	1.03E+5	9.90E+4	3.61E+4	3.83E+4	3.76E+4	2.65E+4	2.61E+4	8.735E−3
2.00E+0	5.44E+5	8.07E+4	7.74E+4	7.43E+4	2.70E+4	2.87E+4	2.82E+4	1.98E+4	1.95E+4	1.164E−2
3.00E+0	3.63E+5	5.38E+4	5.16E+4	4.95E+4	1.80E+4	1.91E+4	1.88E+4	1.32E+4	1.30E+4	1.746E−2
4.00E+0	2.72E+5	4.03E+4	3.87E+4	3.71E+4	1.35E+4	1.44E+4	1.41E+4	9.90E+3	9.75E+3	2.328E−2
5.00E+0	2.18E+5	3.23E+4	3.09E+4	2.97E+4	1.08E+4	1.15E+4	1.13E+4	7.91E+3	7.79E+3	2.910E−2
6.00E+0	1.81E+5	2.69E+4	2.58E+4	2.47E+4	9.01E+3	9.56E+3	9.39E+3	6.59E+3	6.49E+3	3.491E−2
8.00E+0	1.36E+5	2.02E+4	1.93E+4	1.85E+4	6.76E+3	7.17E+3	7.04E+3	4.93E+3	4.86E+3	4.654E−2
1.00E+1	1.09E+5	1.61E+4	1.54E+4	1.48E+4	5.41E+3	5.73E+3	5.63E+3	3.94E+3	3.88E+3	5.815E−2
1.50E+1	7.25E+4	1.08E+4	1.03E+4	9.86E+3	3.60E+3	3.82E+3	3.75E+3	2.61E+3	2.57E+3	8.716E−2
2.00E+1	5.44E+4	8.07E+3	7.69E+3	7.38E+3	2.70E+3	2.86E+3	2.81E+3	1.95E+3	1.92E+3	1.161E−1
3.00E+1	3.62E+4	5.38E+3	5.11E+3	4.91E+3	1.80E+3	1.90E+3	1.86E+3	1.29E+3	1.27E+3	1.739E−1
4.00E+1	2.72E+4	4.03E+3	3.82E+3	3.67E+3	1.35E+3	1.42E+3	1.39E+3	9.56E+2	9.41E+2	2.316E−1
5.00E+1	2.17E+4	3.22E+3	3.05E+3	2.93E+3	1.08E+3	1.13E+3	1.11E+3	7.58E+2	7.46E+2	2.890E−1
6.00E+1	1.81E+4	2.69E+3	2.53E+3	2.43E+3	9.00E+2	9.42E+2	9.24E+2	6.25E+2	6.16E+2	3.463E−1
8.00E+1	1.36E+4	2.01E+3	1.89E+3	1.81E+3	6.75E+2	7.03E+2	6.89E+2	4.60E+2	4.53E+2	4.604E−1
1.00E+2	1.08E+4	1.61E+3	1.50E+3	1.44E+3	5.40E+2	5.59E+2	5.48E+2	3.62E+2	3.56E+2	5.738E−1
1.50E+2	7.21E+3	1.07E+3	9.86E+2	9.45E+2	3.59E+2	3.68E+2	3.60E+2	2.30E+2	2.26E+2	8.543E−1
2.00E+2	5.39E+3	8.03E+2	7.29E+2	6.98E+2	2.69E+2	2.72E+2	2.66E+2	1.65E+2	1.62E+2	1.131E+0
3.00E+2	3.58E+3	5.34E+2	4.72E+2	4.51E+2	1.79E+2	1.76E+2	1.72E+2	1.01E+2	9.91E+1	1.671E+0
4.00E+2	2.67E+3	3.99E+2	3.44E+2	3.29E+2	1.34E+2	1.29E+2	1.25E+2	6.96E+1	6.83E+1	2.196E+0
5.00E+2	2.12E+3	3.18E+2	2.67E+2	2.55E+2	1.07E+2	1.00E+2	9.74E+1	5.14E+1	5.04E+1	2.705E+0
6.00E+2	1.76E+3	2.64E+2	2.17E+2	2.07E+2	8.83E+1	8.12E+1	7.89E+1	3.96E+1	3.88E+1	3.200E+0
8.00E+2	1.31E+3	1.97E+2	1.54E+2	1.47E+2	6.56E+1	5.77E+1	5.59E+1	2.56E+1	2.51E+1	4.147E+0
1.00E+3	1.04E+3	1.56E+2	1.17E+2	1.11E+2	5.19E+1	4.38E+1	4.23E+1	1.79E+1	1.75E+1	5.040E+0
1.50E+3	6.75E+2	1.02E+2	6.89E+1	6.52E+1	3.37E+1	2.58E+1	2.48E+1	8.71E+0	8.49E+0	7.059E+0
2.00E+3	4.94E+2	7.48E+1	4.61E+1	4.34E+1	2.45E+1	1.72E+1	1.64E+1	4.96E+0	4.83E+0	8.810E+0
3.00E+3	3.15E+2	4.76E+1	2.50E+1	2.34E+1	1.54E+1	9.26E+0	8.79E+0	2.07E+0	2.00E+0	1.165E+1
4.00E+3	2.26E+2	3.41E+1	1.56E+1	1.45E+1	1.09E+1	5.75E+0	5.42E+0	1.05E+0	1.01E+0	1.380E+1
5.00E+3	1.73E+2	2.60E+1	1.06E+1	9.79E+0	8.24E+0	3.88E+0	3.64E+0	5.95E−1	5.73E−1	1.542E+1
6.00E+3	1.39E+2	2.07E+1	7.59E+0	6.99E+0	6.51E+0	2.77E+0	2.58E+0	3.68E−1	3.53E−1	1.665E+1
8.00E+3	9.61E+1	1.42E+1	4.37E+0	3.98E+0	4.42E+0	1.58E+0	1.46E+0	1.65E−1	1.58E−1	1.825E+1
1.00E+4	7.14E+1	1.04E+1	2.78E+0	2.51E+0	3.23E+0	1.00E+0	9.17E−1	8.63E−2	8.20E−2	1.910E+1
1.50E+4	4.03E+1	5.76E+0	1.16E+0	1.03E+0	1.76E+0	4.13E−1	3.72E−1	2.49E−2	2.34E−2	1.950E+1
2.00E+4	2.61E+1	3.67E+0	5.98E−1	5.25E−1	1.11E+0	2.13E−1	1.89E−1	9.90E−3	9.22E−3	1.885E+1
3.00E+4	1.36E+1	1.86E+0	2.25E−1	1.93E−1	5.61E−1	7.96E−2	6.91E−2	2.57E−3	2.36E−3	1.687E+1
4.00E+4	8.26E+0	1.12E+0	1.09E−1	9.22E−2	3.36E−1	3.86E−2	3.29E−2	9.66E−4	8.74E−4	1.498E+1
5.00E+4	5.53E+0	7.41E−1	6.18E−2	5.12E−2	2.22E−1	2.17E−2	1.82E−2	4.48E−4	4.01E−4	1.340E+1
6.00E+4	3.94E+0	5.25E−1	3.85E−2	3.14E−2	1.57E−1	1.35E−2	1.12E−2	2.39E−4	2.12E−4	1.210E+1
8.00E+4	2.27E+0	2.99E−1	1.81E−2	1.44E−2	8.90E−2	6.34E−3	5.10E−3	8.84E−5	7.70E−5	1.014E+1
1.00E+5	1.46E+0	1.91E−1	1.01E−2	7.82E−3	5.67E−2	3.52E−3	2.77E−3	4.12E−5	3.54E−5	8.748E+0
1.50E+5	6.37E−1	8.25E−2	3.47E−3	2.59E−3	2.45E−2	1.21E−3	9.13E−4	1.05E−5	8.86E−6	6.596E+0
2.00E+5	3.50E−1	4.50E−2	1.65E−3	1.20E−3	1.33E−2	5.77E−4	4.22E−4	4.12E−6	3.45E−6	5.374E+0
3.00E+5	1.51E−1	1.93E−2	6.02E−4	4.24E−4	5.69E−3	2.10E−4	1.49E−4	1.17E−6	9.92E−7	4.042E+0
4.00E+5	8.43E−2	1.07E−2	3.05E−4	2.14E−4	3.17E−3	1.07E−4	7.51E−5	5.04E−7	4.43E−7	3.331E+0
5.00E+5	5.48E−2	6.94E−3	1.85E−4	1.30E−4	2.05E−3	6.46E−5	4.58E−5	2.72E−7	2.50E−7	2.889E+0
6.00E+5	3.92E−2	4.95E−3	1.25E−4	8.94E−5	1.46E−3	4.37E−5	3.14E−5	1.69E−7	1.62E−7	2.588E+0
8.00E+5	2.39E−2	3.01E−3	7.04E−5	5.20E−5	8.87E−4	2.46E−5	1.83E−5	8.34E−8	8.76E−8	2.204E+0
1.00E+6	1.68E−2	2.11E−3	4.65E−5	3.56E−5	6.22E−4	1.62E−5	1.25E−5	5.04E−8	5.72E−8	1.970E+0
1.50E+6	9.44E−3	1.18E−3	2.36E−5	1.93E−5	3.48E−4	8.22E−6	6.79E−6	2.22E−8	2.90E−8	1.652E+0
2.00E+6	6.51E−3	8.14E−4	1.53E−5	1.31E−5	2.40E−4	5.34E−6	4.61E−6	1.33E−8	1.90E−8	1.491E+0
3.00E+6	4.00E−3	4.99E−4	8.82E−6	7.94E−6	1.47E−4					1.329E+0
4.00E+6	2.88E−3	3.59E−4	6.16E−6							1.247E+0
5.00E+6	2.24E−3	2.80E−4	4.73E−6							1.198E+0
6.00E+6	1.84E−3	2.29E−4								1.165E+0
8.00E+6	1.34E−3*	1.68E−4								1.124E+0
1.00E+7	1.06E−3*									1.099E+0

$Z= 32$

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 5.257$ fm

$\lvert\epsilon_n\rvert$ (eV)	1.413E+4	3.544E+3	3.544E+3	3.495E+3	1.570E+3	1.570E+3	1.555E+3	1.555E+3	1.550E+3	
1.00E+0	1.16E+6	1.72E+5	1.65E+5	1.58E+5	5.76E+4	6.13E+4	6.02E+4	4.24E+4	4.17E+4	5.120E−3
1.50E+0	7.73E+5	1.15E+5	1.10E+5	1.06E+5	3.84E+4	4.09E+4	4.01E+4	2.82E+4	2.78E+4	7.679E−3
2.00E+0	5.80E+5	8.60E+4	8.27E+4	7.92E+4	2.88E+4	3.07E+4	3.01E+4	2.12E+4	2.08E+4	1.024E−2
3.00E+0	3.87E+5	5.73E+4	5.51E+4	5.28E+4	1.92E+4	2.04E+4	2.00E+4	1.41E+4	1.39E+4	1.536E−2
4.00E+0	2.90E+5	4.30E+4	4.13E+4	3.96E+4	1.44E+4	1.53E+4	1.50E+4	1.06E+4	1.04E+4	2.047E−2
5.00E+0	2.32E+5	3.44E+4	3.31E+4	3.16E+4	1.15E+4	1.23E+4	1.20E+4	8.44E+3	8.31E+3	2.559E−2
6.00E+0	1.93E+5	2.87E+4	2.75E+4	2.64E+4	9.60E+3	1.02E+4	1.00E+4	7.03E+3	6.92E+3	3.070E−2
8.00E+0	1.45E+5	2.15E+4	2.06E+4	1.98E+4	7.20E+3	7.65E+3	7.50E+3	5.26E+3	5.18E+3	4.092E−2
1.00E+1	1.16E+5	1.72E+4	1.65E+4	1.58E+4	5.76E+3	6.12E+3	6.00E+3	4.20E+3	4.14E+3	5.114E−2
1.50E+1	7.73E+4	1.15E+4	1.10E+4	1.05E+4	3.84E+3	4.07E+3	3.99E+3	2.79E+3	2.74E+3	7.665E−2
2.00E+1	5.79E+4	8.60E+3	8.23E+3	7.87E+3	2.88E+3	3.05E+3	2.99E+3	2.08E+3	2.05E+3	1.021E−1
3.00E+1	3.86E+4	5.73E+3	5.47E+3	5.23E+3	1.92E+3	2.03E+3	1.99E+3	1.38E+3	1.35E+3	1.530E−1
4.00E+1	2.89E+4	4.30E+3	4.09E+3	3.91E+3	1.44E+3	1.52E+3	1.49E+3	1.02E+3	1.01E+3	2.037E−1
5.00E+1	2.31E+4	3.44E+3	3.26E+3	3.12E+3	1.15E+3	1.21E+3	1.19E+3	8.11E+2	7.98E+2	2.543E−1
6.00E+1	1.93E+4	2.86E+3	2.71E+3	2.59E+3	9.59E+2	1.01E+3	9.86E+2	6.70E+2	6.59E+2	3.047E−1
8.00E+1	1.44E+4	2.15E+3	2.02E+3	1.93E+3	7.19E+2	7.51E+2	7.36E+2	4.94E+2	4.85E+2	4.051E−1
1.00E+2	1.15E+4	1.72E+3	1.61E+3	1.54E+3	5.75E+2	5.98E+2	5.85E+2	3.88E+2	3.81E+2	5.050E−1
1.50E+2	7.68E+3	1.14E+3	1.06E+3	1.01E+3	3.83E+2	3.93E+2	3.85E+2	2.48E+2	2.43E+2	7.522E−1
2.00E+2	5.74E+3	8.56E+2	7.82E+2	7.47E+2	2.87E+2	2.91E+2	2.85E+2	1.78E+2	1.75E+2	9.960E−1
3.00E+2	3.81E+3	5.69E+2	5.07E+2	4.84E+2	1.91E+2	1.89E+2	1.85E+2	1.09E+2	1.07E+2	1.473E+0
4.00E+2	2.85E+3	4.26E+2	3.70E+2	3.53E+2	1.43E+2	1.38E+2	1.35E+2	7.58E+1	7.43E+1	1.938E+0
5.00E+2	2.27E+3	3.40E+2	2.88E+2	2.75E+2	1.14E+2	1.08E+2	1.05E+2	5.62E+1	5.51E+1	2.390E+0
6.00E+2	1.88E+3	2.82E+2	2.34E+2	2.23E+2	9.43E+1	8.76E+1	8.50E+1	4.35E+1	4.26E+1	2.829E+0
8.00E+2	1.40E+3	2.10E+2	1.67E+2	1.58E+2	7.01E+1	6.25E+1	6.05E+1	2.84E+1	2.77E+1	3.672E+0
1.00E+3	1.11E+3	1.67E+2	1.27E+2	1.20E+2	5.55E+1	4.76E+1	4.59E+1	1.99E+1	1.94E+1	4.471E+0
1.50E+3	7.22E+2	1.09E+2	7.54E+1	7.11E+1	3.61E+1	2.82E+1	2.70E+1	9.83E+0	9.57E+0	6.287E+0
2.00E+3	5.29E+2	8.02E+1	5.07E+1	4.76E+1	2.63E+1	1.89E+1	1.81E+1	5.66E+0	5.50E+0	7.874E+0
3.00E+3	3.38E+2	5.12E+1	2.78E+1	2.59E+1	1.66E+1	1.03E+1	9.74E+0	2.39E+0	2.32E+0	1.048E+1
4.00E+3	2.43E+2	3.67E+1	1.75E+1	1.62E+1	1.18E+1	6.44E+0	6.05E+0	1.23E+0	1.18E+0	1.249E+1
5.00E+3	1.87E+2	2.81E+1	1.19E+1	1.10E+1	8.94E+0	4.37E+0	4.09E+0	7.04E−1	6.77E−1	1.404E+1
6.00E+3	1.50E+2	2.24E+1	8.60E+0	7.88E+0	7.08E+0	3.14E+0	2.92E+0	4.38E−1	4.20E−1	1.523E+1
8.00E+3	1.04E+2	1.54E+1	4.99E+0	4.53E+0	4.82E+0	1.81E+0	1.67E+0	1.99E−1	1.90E−1	1.683E+1
1.00E+4	7.78E+1	1.14E+1	3.19E+0	2.88E+0	3.53E+0	1.15E+0	1.05E+0	1.05E−1	9.94E−2	1.773E+1
1.50E+4	4.42E+1	6.34E+0	1.35E+0	1.19E+0	1.94E+0	4.81E−1	4.32E−1	3.07E−2	2.88E−2	1.833E+1
2.00E+4	2.88E+1	4.06E+0	7.01E−1	6.13E−1	1.24E+0	2.50E−1	2.21E−1	1.23E−2	1.14E−2	1.789E+1
3.00E+4	1.51E+1	2.08E+0	2.67E−1	2.28E−1	6.27E−1	9.44E−2	8.16E−2	3.23E−3	2.96E−3	1.621E+1
4.00E+4	9.23E+0	1.26E+0	1.31E−1	1.10E−1	3.77E−1	4.61E−2	3.90E−2	1.22E−3	1.10E−3	1.450E+1
5.00E+4	6.20E+0	8.35E−1	7.42E−2	6.11E−2	2.50E−1	2.61E−2	2.17E−2	5.71E−4	5.09E−4	1.303E+1
6.00E+4	4.43E+0	5.92E−1	4.64E−2	3.76E−2	1.77E−1	1.63E−2	1.34E−2	3.05E−4	2.69E−4	1.181E+1
8.00E+4	2.56E+0	3.39E−1	2.19E−2	1.73E−2	1.01E−1	7.69E−3	6.13E−3	1.14E−4	9.86E−5	9.950E+0
1.00E+5	1.65E+0	2.17E−1	1.22E−2	9.44E−3	6.45E−2	4.28E−3	3.34E−3	5.31E−5	4.55E−5	8.614E+0
1.50E+5	7.26E−1	9.43E−2	4.25E−3	3.14E−3	2.80E−2	1.48E−3	1.11E−3	1.36E−5	1.14E−5	6.526E+0
2.00E+5	4.00E−1	5.16E−2	2.03E−3	1.46E−3	1.53E−2	7.09E−4	5.14E−4	5.36E−6	4.47E−6	5.330E+0
3.00E+5	1.73E−1	2.22E−2	7.43E−4	5.18E−4	6.55E−3	2.59E−4	1.82E−4	1.52E−6	1.29E−6	4.019E+0
4.00E+5	9.72E−2	1.24E−2	3.78E−4	2.61E−4	3.65E−3	1.32E−4	9.19E−5	6.59E−7	5.76E−7	3.317E+0
5.00E+5	6.32E−2	8.02E−3	2.29E−4	1.60E−4	2.37E−3	7.99E−5	5.61E−5	3.57E−7	3.25E−7	2.879E+0
6.00E+5	4.53E−2	5.72E−3	1.55E−4	1.10E−4	1.69E−3	5.42E−5	3.85E−5	2.21E−7	2.11E−7	2.580E+0
8.00E+5	2.76E−2	3.48E−3	8.74E−5	6.38E−5	1.03E−3	3.05E−5	2.24E−5	1.09E−7	1.14E−7	2.199E+0
1.00E+6	1.94E−2	2.44E−3	5.78E−5	4.37E−5	7.20E−4	2.02E−5	1.53E−5	6.62E−8	7.45E−8	1.966E+0
1.50E+6	1.09E−2	1.37E−3	2.93E−5	2.37E−5	4.02E−4	1.02E−5	8.31E−6	2.92E−8	3.77E−8	1.650E+0
2.00E+6	7.52E−3	9.41E−4	1.91E−5	1.61E−5	2.77E−4	6.64E−6	5.64E−6	1.75E−8	2.47E−8	1.490E+0
3.00E+6	4.62E−3	5.76E−4	1.10E−5	9.71E−6	1.70E−4					1.328E+0
4.00E+6	3.32E−3	4.14E−4	7.67E−6							1.247E+0
5.00E+6	2.58E−3	3.22E−4	5.9E−6							1.198E+0
6.00E+6	2.11E−3	2.64E−4								1.165E+0
8.00E+6	1.55E−3	1.93E−4*								1.124E+0
1.00E+7	1.2E−3									1.099E+0

TABLE. Cross Sections for Radiative Recombination, Z=1–112

Z= 33

T_e (eV)	σ_{RR} (b)									$f_{1s_{1/2}}$
	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 5.288$ fm

$\|\epsilon_n\|$ (eV)	1.504E+4	3.773E+3	3.773E+3	3.718E+3	1.671E+3	1.671E+3	1.654E+3	1.654E+3	1.649E+3	
1.00E+0	1.23E+6	1.83E+5	1.77E+5	1.69E+5	6.13E+4	6.53E+4	6.40E+4	4.51E+4	4.44E+4	4.519E−3
1.50E+0	8.22E+5	1.22E+5	1.18E+5	1.12E+5	4.08E+4	4.36E+4	4.27E+4	3.01E+4	2.96E+4	6.778E−3
2.00E+0	6.16E+5	9.15E+4	8.82E+4	8.42E+4	3.06E+4	3.27E+4	3.20E+4	2.26E+4	2.22E+4	9.036E−3
3.00E+0	4.11E+5	6.10E+4	5.88E+4	5.61E+4	2.04E+4	2.18E+4	2.13E+4	1.50E+4	1.48E+4	1.355E−2
4.00E+0	3.08E+5	4.57E+4	4.41E+4	4.21E+4	1.53E+4	1.63E+4	1.60E+4	1.13E+4	1.11E+4	1.807E−2
5.00E+0	2.47E+5	3.66E+4	3.53E+4	3.37E+4	1.23E+4	1.31E+4	1.28E+4	9.00E+3	8.84E+3	2.258E−2
6.00E+0	2.05E+5	3.05E+4	2.94E+4	2.81E+4	1.02E+4	1.09E+4	1.07E+4	7.49E+3	7.36E+3	2.709E−2
8.00E+0	1.54E+5	2.29E+4	2.20E+4	2.10E+4	7.66E+3	8.15E+3	7.99E+3	5.61E+3	5.51E+3	3.612E−2
1.00E+1	1.23E+5	1.83E+4	1.76E+4	1.68E+4	6.13E+3	6.52E+3	6.39E+3	4.48E+3	4.40E+3	4.513E−2
1.50E+1	8.21E+4	1.22E+4	1.17E+4	1.12E+4	4.08E+3	4.34E+3	4.25E+3	2.97E+3	2.92E+3	6.766E−2
2.00E+1	6.16E+4	9.14E+3	8.78E+3	8.38E+3	3.06E+3	3.25E+3	3.19E+3	2.22E+3	2.18E+3	9.015E−2
3.00E+1	4.10E+4	6.09E+3	5.84E+3	5.57E+3	2.04E+3	2.16E+3	2.12E+3	1.47E+3	1.44E+3	1.350E−1
4.00E+1	3.08E+4	4.57E+3	4.37E+3	4.17E+3	1.53E+3	1.62E+3	1.58E+3	1.09E+3	1.07E+3	1.798E−1
5.00E+1	2.46E+4	3.66E+3	3.48E+3	3.32E+3	1.22E+3	1.29E+3	1.26E+3	8.66E+2	8.51E+2	2.245E−1
6.00E+1	2.05E+4	3.05E+3	2.90E+3	2.76E+3	1.02E+3	1.07E+3	1.05E+3	7.16E+2	7.03E+2	2.690E−1
8.00E+1	1.54E+4	2.28E+3	2.16E+3	2.06E+3	7.65E+2	8.01E+2	7.84E+2	5.28E+2	5.19E+2	3.578E−1
1.00E+2	1.23E+4	1.83E+3	1.72E+3	1.64E+3	6.12E+2	6.38E+2	6.24E+2	4.15E+2	4.08E+2	4.460E−1
1.50E+2	8.16E+3	1.22E+3	1.13E+3	1.08E+3	4.07E+2	4.20E+2	4.10E+2	2.66E+2	2.61E+2	6.647E−1
2.00E+2	6.11E+3	9.11E+2	8.37E+2	7.97E+2	3.05E+2	3.11E+2	3.04E+2	1.92E+2	1.88E+2	8.805E−1
3.00E+2	4.06E+3	6.06E+2	5.44E+2	5.17E+2	2.03E+2	2.03E+2	1.97E+2	1.18E+2	1.16E+2	1.304E+0
4.00E+2	3.03E+3	4.53E+2	3.98E+2	3.78E+2	1.52E+2	1.48E+2	1.44E+2	8.23E+1	8.06E+1	1.716E+0
5.00E+2	2.41E+3	3.61E+2	3.10E+2	2.95E+2	1.21E+2	1.16E+2	1.12E+2	6.12E+1	5.99E+1	2.118E+0
6.00E+2	2.00E+3	3.00E+2	2.52E+2	2.39E+2	1.00E+2	9.42E+1	9.13E+1	4.76E+1	4.65E+1	2.509E+0
8.00E+2	1.49E+3	2.24E+2	1.80E+2	1.71E+2	7.47E+1	6.74E+1	6.52E+1	3.12E+1	3.05E+1	3.262E+0
1.00E+3	1.18E+3	1.78E+2	1.38E+2	1.30E+2	5.93E+1	5.15E+1	4.96E+1	2.20E+1	2.15E+1	3.977E+0
1.50E+3	7.70E+2	1.17E+2	8.22E+1	7.73E+1	3.86E+1	3.07E+1	2.94E+1	1.10E+1	1.07E+1	5.613E+0
2.00E+3	5.66E+2	8.58E+1	5.56E+1	5.21E+1	2.82E+1	2.07E+1	1.98E+1	6.41E+0	6.22E+0	7.055E+0
3.00E+3	3.62E+2	5.49E+1	3.07E+1	2.85E+1	1.78E+1	1.14E+1	1.08E+1	2.75E+0	2.66E+0	9.451E+0
4.00E+3	2.61E+2	3.95E+1	1.95E+1	1.80E+1	1.27E+1	7.17E+0	6.73E+0	1.43E+0	1.37E+0	1.132E+1
5.00E+3	2.01E+2	3.03E+1	1.34E+1	1.23E+1	9.66E+0	4.90E+0	4.57E+0	8.27E−1	7.93E−1	1.279E+1
6.00E+3	1.61E+2	2.42E+1	9.69E+0	8.85E+0	7.67E+0	3.54E+0	3.28E+0	5.18E−1	4.95E−1	1.394E+1
8.00E+3	1.13E+2	1.68E+1	5.66E+0	5.13E+0	5.25E+0	2.06E+0	1.89E+0	2.38E−1	2.27E−1	1.553E+1
1.00E+4	8.44E+1	1.24E+1	3.65E+0	3.27E+0	3.86E+0	1.32E+0	1.20E+0	1.26E−1	1.20E−1	1.646E+1
1.50E+4	4.83E+1	6.96E+0	1.56E+0	1.37E+0	2.13E+0	5.57E−1	4.98E−1	3.75E−2	3.51E−2	1.724E+1
2.00E+4	3.16E+1	4.48E+0	8.18E−1	7.11E−1	1.36E+0	2.91E−1	2.57E−1	1.52E−2	1.41E−2	1.698E+1
3.00E+4	1.67E+1	2.31E+0	3.15E−1	2.67E−1	6.97E−1	1.11E−1	9.57E−2	4.03E−3	3.68E−3	1.556E+1
4.00E+4	1.03E+1	1.40E+0	1.55E−1	1.29E−1	4.21E−1	5.47E−2	4.61E−2	1.54E−3	1.38E−3	1.402E+1
5.00E+4	6.92E+0	9.36E−1	8.84E−2	7.24E−2	2.80E−1	3.11E−2	2.58E−2	7.20E−4	6.40E−4	1.267E+1
6.00E+4	4.97E+0	6.66E−1	5.55E−2	4.47E−2	1.99E−1	1.95E−2	1.59E−2	3.86E−4	3.40E−4	1.153E+1
8.00E+4	2.89E+0	3.83E−1	2.64E−2	2.07E−2	1.14E−1	9.25E−3	7.33E−3	1.45E−4	1.25E−4	9.761E+0
1.00E+5	1.87E+0	2.46E−1	1.48E−2	1.13E−2	7.31E−2	5.17E−3	4.01E−3	6.78E−5	5.79E−5	8.478E+0
1.50E+5	8.25E−1	1.07E−1	5.16E−3	3.79E−3	3.18E−2	1.80E−3	1.34E−3	1.75E−5	1.47E−5	6.454E+0
2.00E+5	4.56E−1	5.90E−2	2.48E−3	1.76E−3	1.75E−2	8.65E−4	6.22E−4	6.90E−6	5.74E−6	5.285E+0
3.00E+5	1.98E−1	2.54E−2	9.11E−4	6.29E−4	7.51E−3	3.18E−4	2.21E−4	1.97E−6	1.66E−6	3.996E+0
4.00E+5	1.11E−1	1.42E−2	4.64E−4	3.18E−4	4.19E−3	1.62E−4	1.12E−4	8.55E−7	7.43E−7	3.302E+0
5.00E+5	7.26E−2	9.22E−3	2.82E−4	1.94E−4	2.72E−3	9.83E−5	6.82E−5	4.63E−7	4.20E−7	2.869E+0
6.00E+5	5.20E−2	6.58E−3	1.91E−4	1.33E−4	1.94E−3	6.67E−5	4.69E−5	2.88E−7	2.73E−7	2.573E+0
8.00E+5	3.18E−2	4.01E−3	1.08E−4	7.76E−5	1.18E−3	3.76E−5	2.73E−5	1.42E−7	1.47E−7	2.194E+0
1.00E+6	2.24E−2	2.81E−3	7.14E−5	5.31E−5	8.28E−4	2.49E−5	1.86E−5	8.62E−8	9.62E−8	1.963E+0
1.50E+6	1.26E−2	1.57E−3	3.62E−5	2.88E−5	4.63E−4	1.26E−5	1.01E−5	3.80E−8	4.87E−8	1.648E+0
2.00E+6	8.65E−3	1.08E−3	2.36E−5	1.95E−5	3.18E−4	8.21E−6	6.85E−6	2.28E−8	3.19E−8	1.489E+0
3.00E+6	5.30E−3	6.62E−4	1.36E−5	1.18E−5	1.95E−4	4.76E−6				1.327E+0
4.00E+6	3.81E−3	4.75E−4	9.50E−6	8.42E−6						1.246E+0
5.00E+6	2.96E−3	3.70E−4	7.29E−6*	6.54E−6						1.197E+0
6.00E+6	2.42E−3	3.02E−4	5.93E−6*	5.34E−6*						1.165E+0
8.00E+6	1.77E−3*	2.21E−4*								1.124E+0
1.00E+7	1.39E−3*									1.099E+0

Z= 34

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

R_{nucl} = 5.345 fm

$|\epsilon_n|$ (eV)	1.598E+4	4.010E+3	4.010E+3	3.947E+3	1.775E+3	1.775E+3	1.757E+3	1.757E+3	1.751E+3	
1.00E+0	1.31E+6	1.94E+5	1.88E+5	1.79E+5	6.50E+4	6.95E+4	6.80E+4	4.80E+4	4.71E+4	4.003E−3
1.50E+0	8.72E+5	1.30E+5	1.25E+5	1.19E+5	4.34E+4	4.63E+4	4.53E+4	3.20E+4	3.14E+4	6.004E−3
2.00E+0	6.54E+5	9.71E+4	9.40E+4	8.95E+4	3.25E+4	3.47E+4	3.40E+4	2.40E+4	2.35E+4	8.004E−3
3.00E+0	4.36E+5	6.47E+4	6.26E+4	5.96E+4	2.17E+4	2.32E+4	2.27E+4	1.60E+4	1.57E+4	1.201E−2
4.00E+0	3.27E+5	4.86E+4	4.70E+4	4.47E+4	1.63E+4	1.74E+4	1.70E+4	1.20E+4	1.18E+4	1.600E−2
5.00E+0	2.62E+5	3.88E+4	3.76E+4	3.58E+4	1.30E+4	1.39E+4	1.36E+4	9.57E+3	9.39E+3	2.000E−2
6.00E+0	2.18E+5	3.24E+4	3.13E+4	2.98E+4	1.08E+4	1.16E+4	1.13E+4	7.97E+3	7.82E+3	2.400E−2
8.00E+0	1.63E+5	2.43E+4	2.35E+4	2.23E+4	8.13E+3	8.67E+3	8.48E+3	5.97E+3	5.86E+3	3.199E−2
1.00E+1	1.31E+5	1.94E+4	1.88E+4	1.79E+4	6.50E+3	6.93E+3	6.78E+3	4.76E+3	4.68E+3	3.998E−2
1.50E+1	8.71E+4	1.30E+4	1.25E+4	1.19E+4	4.33E+3	4.62E+3	4.52E+3	3.16E+3	3.11E+3	5.994E−2
2.00E+1	6.53E+4	9.71E+3	9.36E+3	8.91E+3	3.25E+3	3.46E+3	3.38E+3	2.36E+3	2.32E+3	7.987E−2
3.00E+1	4.35E+4	6.47E+3	6.22E+3	5.92E+3	2.17E+3	2.30E+3	2.25E+3	1.56E+3	1.53E+3	1.196E−1
4.00E+1	3.26E+4	4.85E+3	4.65E+3	4.43E+3	1.63E+3	1.72E+3	1.68E+3	1.16E+3	1.14E+3	1.593E−1
5.00E+1	2.61E+4	3.88E+3	3.71E+3	3.53E+3	1.30E+3	1.37E+3	1.34E+3	9.23E+2	9.06E+2	1.989E−1
6.00E+1	2.17E+4	3.23E+3	3.09E+3	2.94E+3	1.08E+3	1.14E+3	1.12E+3	7.63E+2	7.49E+2	2.384E−1
8.00E+1	1.63E+4	2.42E+3	2.30E+3	2.19E+3	8.12E+2	8.53E+2	8.33E+2	5.64E+2	5.53E+2	3.171E−1
1.00E+2	1.30E+4	1.94E+3	1.83E+3	1.74E+3	6.49E+2	6.79E+2	6.64E+2	4.44E+2	4.35E+2	3.954E−1
1.50E+2	8.66E+3	1.29E+3	1.21E+3	1.15E+3	4.33E+2	4.48E+2	4.37E+2	2.85E+2	2.79E+2	5.894E−1
2.00E+2	6.49E+3	9.67E+2	8.95E+2	8.50E+2	3.24E+2	3.32E+2	3.24E+2	2.06E+2	2.02E+2	7.811E−1
3.00E+2	4.31E+3	6.43E+2	5.82E+2	5.52E+2	2.16E+2	2.16E+2	2.11E+2	1.27E+2	1.25E+2	1.157E+0
4.00E+2	3.22E+3	4.81E+2	4.26E+2	4.04E+2	1.61E+2	1.59E+2	1.54E+2	8.90E+1	8.71E+1	1.525E+0
5.00E+2	2.56E+3	3.84E+2	3.33E+2	3.15E+2	1.29E+2	1.24E+2	1.20E+2	6.65E+1	6.50E+1	1.883E+0
6.00E+2	2.13E+3	3.19E+2	2.71E+2	2.56E+2	1.07E+2	1.01E+2	9.79E+1	5.18E+1	5.07E+1	2.233E+0
8.00E+2	1.58E+3	2.38E+2	1.94E+2	1.83E+2	7.95E+1	7.25E+1	7.00E+1	3.42E+1	3.34E+1	2.907E+0
1.00E+3	1.26E+3	1.89E+2	1.49E+2	1.40E+2	6.31E+1	5.56E+1	5.35E+1	2.43E+1	2.37E+1	3.549E+0
1.50E+3	8.20E+2	1.24E+2	8.93E+1	8.37E+1	4.11E+1	3.33E+1	3.19E+1	1.23E+1	1.20E+1	5.026E+0
2.00E+3	6.03E+2	9.15E+1	6.07E+1	5.67E+1	3.01E+1	2.26E+1	2.15E+1	7.22E+0	7.00E+0	6.336E+0
3.00E+3	3.87E+2	5.87E+1	3.38E+1	3.13E+1	1.91E+1	1.25E+1	1.18E+1	3.15E+0	3.04E+0	8.538E+0
4.00E+3	2.80E+2	4.24E+1	2.16E+1	1.99E+1	1.37E+1	7.96E+0	7.45E+0	1.65E+0	1.58E+0	1.028E+1
5.00E+3	2.16E+2	3.26E+1	1.49E+1	1.36E+1	1.04E+1	5.47E+0	5.09E+0	9.64E−1	9.23E−1	1.167E+1
6.00E+3	1.74E+2	2.61E+1	1.09E+1	9.88E+0	8.28E+0	3.97E+0	3.67E+0	6.08E−1	5.81E−1	1.277E+1
8.00E+3	1.22E+2	1.81E+1	6.40E+0	5.77E+0	5.69E+0	2.32E+0	2.13E+0	2.83E−1	2.68E−1	1.433E+1
1.00E+4	9.12E+1	1.35E+1	4.15E+0	3.71E+0	4.20E+0	1.50E+0	1.36E+0	1.51E−1	1.43E−1	1.529E+1
1.50E+4	5.25E+1	7.60E+0	1.79E+0	1.57E+0	2.34E+0	6.41E−1	5.71E−1	4.55E−2	4.25E−2	1.621E+1
2.00E+4	3.45E+1	4.92E+0	9.48E−1	8.20E−1	1.50E+0	3.38E−1	2.96E−1	1.86E−2	1.72E−2	1.610E+1
3.00E+4	1.84E+1	2.56E+0	3.68E−1	3.11E−1	7.72E−1	1.30E−1	1.12E−1	4.99E−3	4.54E−3	1.493E+1
4.00E+4	1.14E+1	1.56E+0	1.83E−1	1.51E−1	4.68E−1	6.45E−2	5.41E−2	1.91E−3	1.72E−3	1.356E+1
5.00E+4	7.70E+0	1.04E+0	1.05E−1	8.52E−2	3.13E−1	3.69E−2	3.04E−2	9.01E−4	7.99E−4	1.231E+1
6.00E+4	5.54E+0	7.45E−1	6.60E−2	5.28E−2	2.23E−1	2.32E−2	1.88E−2	4.85E−4	4.26E−4	1.125E+1
8.00E+4	3.23E+0	4.30E−1	3.16E−2	2.46E−2	1.28E−1	1.11E−2	8.71E−3	1.83E−4	1.58E−4	9.570E+0
1.00E+5	2.10E+0	2.77E−1	1.77E−2	1.35E−2	8.24E−2	6.21E−3	4.78E−3	8.59E−5	7.31E−5	8.341E+0
1.50E+5	9.32E−1	1.22E−1	6.24E−3	4.54E−3	3.61E−2	2.18E−3	1.60E−3	2.23E−5	1.86E−5	6.381E+0
2.00E+5	5.18E−1	6.70E−2	3.01E−3	2.12E−3	1.99E−2	1.05E−3	7.48E−4	8.83E−6	7.30E−6	5.239E+0
3.00E+5	2.26E−1	2.90E−2	1.11E−3	7.58E−4	8.56E−3	3.87E−4	2.67E−4	2.53E−6	2.12E−6	3.972E+0
4.00E+5	1.27E−1	1.62E−2	5.67E−4	3.84E−4	4.79E−3	1.98E−4	1.35E−4	1.10E−6	9.51E−7	3.287E+0
5.00E+5	8.31E−2	1.06E−2	3.45E−4	2.35E−4	3.11E−3	1.20E−4	8.25E−5	5.96E−7	5.38E−7	2.858E+0
6.00E+5	5.95E−2	7.54E−3	2.34E−4	1.61E−4	2.22E−3	8.17E−5	5.67E−5	3.71E−7	3.49E−7	2.565E+0
8.00E+5	3.64E−2	4.59E−3	1.32E−4	9.39E−5	1.35E−3	4.61E−5	3.30E−5	1.84E−7	1.89E−7	2.189E+0
1.00E+6	2.56E−2	3.22E−3	8.76E−5	6.43E−5	9.49E−4	3.05E−5	2.26E−5	1.11E−7	1.23E−7	1.959E+0
1.50E+6	1.44E−2	1.80E−3	4.45E−5	3.48E−5	5.30E−4	1.55E−5	1.22E−5	4.91E−8	6.24E−8	1.646E+0
2.00E+6	9.91E−3	1.24E−3	2.90E−5	2.36E−5	3.65E−4	1.01E−5	8.27E−6	2.95E−8	4.08E−8	1.487E+0
3.00E+6	6.06E−3	7.57E−4	1.67E−5	1.42E−5	2.23E−4	5.82E−6	4.99E−6			1.326E+0
4.00E+6	4.35E−3	5.43E−4	1.17E−5	1.02E−5	1.61E−4*					1.246E+0
5.00E+6	3.38E−3	4.22E−4	9.0E−6	7.88E−6						1.197E+0
6.00E+6	2.77E−3	3.45E−4		6.45E−6						1.164E+0
8.00E+6	2.02E−3*	2.52E−4*								1.123E+0
1.00E+7	1.6E−3									1.099E+0

Z= 35

T_e (eV)	σ_{RR} (b)									$f_{1s_{1/2}}$
	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{\mathrm{nucl}} = 5.374$ fm

$\lvert\epsilon_n\rvert$ (eV)	1.695E+4	4.255E+3	4.255E+3	4.184E+3	1.883E+3	1.883E+3	1.862E+3	1.862E+3	1.855E+3	
1.00E+0	1.39E+6	2.06E+5	2.00E+5	1.90E+5	6.89E+4	7.38E+4	7.21E+4	5.09E+4	5.00E+4	3.558E−3
1.50E+0	9.23E+5	1.37E+5	1.33E+5	1.27E+5	4.59E+4	4.92E+4	4.81E+4	3.39E+4	3.33E+4	5.336E−3
2.00E+0	6.93E+5	1.03E+5	9.99E+4	9.49E+4	3.45E+4	3.69E+4	3.60E+4	2.55E+4	2.50E+4	7.114E−3
3.00E+0	4.62E+5	6.86E+4	6.66E+4	6.32E+4	2.30E+4	2.46E+4	2.40E+4	1.70E+4	1.66E+4	1.067E−2
4.00E+0	3.46E+5	5.15E+4	5.00E+4	4.74E+4	1.72E+4	1.84E+4	1.80E+4	1.27E+4	1.25E+4	1.423E−2
5.00E+0	2.77E+5	4.12E+4	4.00E+4	3.79E+4	1.38E+4	1.47E+4	1.44E+4	1.02E+4	9.96E+3	1.778E−2
6.00E+0	2.31E+5	3.43E+4	3.33E+4	3.16E+4	1.15E+4	1.23E+4	1.20E+4	8.46E+3	8.29E+3	2.133E−2
8.00E+0	1.73E+5	2.57E+4	2.50E+4	2.37E+4	8.61E+3	9.21E+3	9.00E+3	6.33E+3	6.21E+3	2.844E−2
1.00E+1	1.38E+5	2.06E+4	2.00E+4	1.89E+4	6.89E+3	7.36E+3	7.19E+3	5.06E+3	4.96E+3	3.554E−2
1.50E+1	9.23E+4	1.37E+4	1.33E+4	1.26E+4	4.59E+3	4.90E+3	4.79E+3	3.36E+3	3.30E+3	5.328E−2
2.00E+1	6.92E+4	1.03E+4	9.95E+3	9.44E+3	3.44E+3	3.67E+3	3.59E+3	2.51E+3	2.46E+3	7.099E−2
3.00E+1	4.61E+4	6.86E+3	6.62E+3	6.28E+3	2.30E+3	2.44E+3	2.39E+3	1.66E+3	1.63E+3	1.064E−1
4.00E+1	3.46E+4	5.14E+3	4.95E+3	4.70E+3	1.72E+3	1.83E+3	1.79E+3	1.24E+3	1.21E+3	1.417E−1
5.00E+1	2.77E+4	4.11E+3	3.95E+3	3.75E+3	1.38E+3	1.46E+3	1.43E+3	9.82E+2	9.63E+2	1.769E−1
6.00E+1	2.30E+4	3.43E+3	3.29E+3	3.12E+3	1.15E+3	1.21E+3	1.19E+3	8.12E+2	7.96E+2	2.120E−1
8.00E+1	1.73E+4	2.57E+3	2.45E+3	2.33E+3	8.60E+2	9.07E+2	8.85E+2	6.00E+2	5.88E+2	2.820E−1
1.00E+2	1.38E+4	2.06E+3	1.95E+3	1.85E+3	6.88E+2	7.22E+2	7.05E+2	4.73E+2	4.64E+2	3.517E−1
1.50E+2	9.18E+3	1.37E+3	1.29E+3	1.22E+3	4.58E+2	4.76E+2	4.64E+2	3.04E+2	2.98E+2	5.245E−1
2.00E+2	6.87E+3	1.03E+3	9.54E+2	9.04E+2	3.44E+2	3.54E+2	3.44E+2	2.20E+2	2.16E+2	6.952E−1
3.00E+2	4.56E+3	6.82E+2	6.22E+2	5.88E+2	2.29E+2	2.31E+2	2.24E+2	1.37E+2	1.34E+2	1.031E+0
4.00E+2	3.41E+3	5.11E+2	4.56E+2	4.31E+2	1.71E+2	1.69E+2	1.64E+2	9.60E+1	9.39E+1	1.359E+0
5.00E+2	2.72E+3	4.07E+2	3.57E+2	3.37E+2	1.36E+2	1.33E+2	1.29E+2	7.20E+1	7.03E+1	1.679E+0
6.00E+2	2.26E+3	3.39E+2	2.91E+2	2.74E+2	1.13E+2	1.08E+2	1.05E+2	5.63E+1	5.49E+1	1.993E+0
8.00E+2	1.68E+3	2.53E+2	2.09E+2	1.97E+2	8.44E+1	7.79E+1	7.51E+1	3.74E+1	3.65E+1	2.598E+0
1.00E+3	1.33E+3	2.01E+2	1.60E+2	1.51E+2	6.70E+1	5.98E+1	5.75E+1	2.67E+1	2.60E+1	3.176E+0
1.50E+3	8.72E+2	1.32E+2	9.68E+1	9.04E+1	4.38E+1	3.61E+1	3.45E+1	1.37E+1	1.33E+1	4.511E+0
2.00E+3	6.42E+2	9.74E+1	6.61E+1	6.15E+1	3.21E+1	2.46E+1	2.34E+1	8.09E+0	7.83E+0	5.704E+0
3.00E+3	4.12E+2	6.27E+1	3.71E+1	3.43E+1	2.04E+1	1.37E+1	1.29E+1	3.58E+0	3.45E+0	7.728E+0
4.00E+3	2.99E+2	4.53E+1	2.38E+1	2.19E+1	1.46E+1	8.79E+0	8.21E+0	1.89E+0	1.82E+0	9.352E+0
5.00E+3	2.31E+2	3.49E+1	1.66E+1	1.51E+1	1.12E+1	6.08E+0	5.64E+0	1.12E+0	1.07E+0	1.066E+1
6.00E+3	1.86E+2	2.80E+1	1.21E+1	1.10E+1	8.92E+0	4.43E+0	4.08E+0	7.09E−1	6.76E−1	1.171E+1
8.00E+3	1.31E+2	1.96E+1	7.20E+0	6.46E+0	6.15E+0	2.61E+0	2.39E+0	3.33E−1	3.16E−1	1.324E+1
1.00E+4	9.84E+1	1.46E+1	4.69E+0	4.18E+0	4.55E+0	1.70E+0	1.53E+0	1.80E−1	1.69E−1	1.421E+1
1.50E+4	5.70E+1	8.28E+0	2.05E+0	1.79E+0	2.55E+0	7.33E−1	6.51E−1	5.47E−2	5.10E−2	1.524E+1
2.00E+4	3.76E+1	5.39E+0	1.09E+0	9.41E−1	1.64E+0	3.89E−1	3.40E−1	2.25E−2	2.08E−2	1.527E+1
3.00E+4	2.01E+1	2.82E+0	4.29E−1	3.60E−1	8.52E−1	1.52E−1	1.29E−1	6.12E−3	5.56E−3	1.432E+1
4.00E+4	1.25E+1	1.73E+0	2.15E−1	1.76E−1	5.19E−1	7.56E−2	6.31E−2	2.37E−3	2.12E−3	1.310E+1
5.00E+4	8.52E+0	1.16E+0	1.24E−1	9.98E−2	3.48E−1	4.34E−2	3.56E−2	1.12E−3	9.90E−4	1.196E+1
6.00E+4	6.15E+0	8.30E−1	7.81E−2	6.21E−2	2.48E−1	2.74E−2	2.21E−2	6.05E−4	5.30E−4	1.096E+1
8.00E+4	3.61E+0	4.81E−1	3.76E−2	2.90E−2	1.44E−1	1.32E−2	1.03E−2	2.29E−4	1.97E−4	9.380E+0
1.00E+5	2.35E+0	3.11E−1	2.12E−2	1.60E−2	9.25E−2	7.41E−3	5.66E−3	1.08E−4	9.17E−5	8.203E+0
1.50E+5	1.05E+0	1.37E−1	7.49E−3	5.41E−3	4.07E−2	2.62E−3	1.91E−3	2.83E−5	2.34E−5	6.307E+0
2.00E+5	5.85E−1	7.58E−2	3.62E−3	2.53E−3	2.25E−2	1.26E−3	8.94E−4	1.12E−5	9.23E−6	5.193E+0
3.00E+5	2.56E−1	3.29E−2	1.34E−3	9.09E−4	9.73E−3	4.68E−4	3.20E−4	3.23E−6	2.69E−6	3.948E+0
4.00E+5	1.45E−1	1.85E−2	6.88E−4	4.61E−4	5.46E−3	2.40E−4	1.62E−4	1.40E−6	1.21E−6	3.272E+0
5.00E+5	9.46E−2	1.20E−2	4.20E−4	2.82E−4	3.55E−3	1.46E−4	9.91E−5	7.62E−7	6.83E−7	2.848E+0
6.00E+5	6.79E−2	8.60E−3	2.85E−4	1.94E−4	2.54E−3	9.93E−5	6.81E−5	4.74E−7	4.44E−7	2.557E+0
8.00E+5	4.16E−2	5.24E−3	1.61E−4	1.13E−4	1.54E−3	5.61E−5	3.96E−5	2.36E−7	2.40E−7	2.184E+0
1.00E+6	2.93E−2	3.68E−3	1.07E−4	7.73E−5	1.08E−3	3.72E−5	2.71E−5	1.43E−7	1.57E−7	1.955E+0
1.50E+6	1.64E−2	2.06E−3	5.44E−5	4.18E−5	6.05E−4	1.89E−5	1.47E−5	6.31E−8	7.92E−8	1.644E+0
2.00E+6	1.13E−2	1.41E−3	3.54E−5	2.83E−5	4.16E−4	1.23E−5	9.93E−6	3.78E−8	5.18E−8	1.486E+0
3.00E+6	6.91E−3	8.62E−4	2.04E−5	1.71E−5	2.54E−4	7.10E−6*	5.99E−6*			1.326E+0
4.00E+6	4.95E−3	6.18E−4	1.43E−5	1.22E−5						1.245E+0
5.00E+6	3.85E−3	4.80E−4	1.10E−5	9.44E−6*						1.196E+0
6.00E+6	3.15E−3	3.93E−4								1.164E+0
8.00E+6	2.30E−3	2.86E−4*								1.123E+0

TABLE. Cross Sections for Radiative Recombination, $Z=1$–112

See page 9 for Explanation of Tables

$Z= 36$

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

R_{nucl} = 5.407 fm

$\|\epsilon_n\|$ (eV)	1.795E+4	4.507E+3	4.507E+3	4.427E+3	1.994E+3	1.994E+3	1.971E+3	1.971E+3	1.963E+3	
1.00E+0	1.46E+6	2.18E+5	2.12E+5	2.01E+5	7.29E+4	7.82E+4	7.63E+4	5.40E+4	5.29E+4	3.172E−3
1.50E+0	9.76E+5	1.45E+5	1.42E+5	1.34E+5	4.86E+4	5.21E+4	5.09E+4	3.60E+4	3.52E+4	4.758E−3
2.00E+0	7.32E+5	1.09E+5	1.06E+5	1.00E+5	3.64E+4	3.91E+4	3.82E+4	2.70E+4	2.64E+4	6.344E−3
3.00E+0	4.88E+5	7.26E+4	7.07E+4	6.69E+4	2.43E+4	2.61E+4	2.54E+4	1.80E+4	1.76E+4	9.515E−3
4.00E+0	3.66E+5	5.45E+4	5.30E+4	5.02E+4	1.82E+4	1.95E+4	1.91E+4	1.35E+4	1.32E+4	1.268E−2
5.00E+0	2.93E+5	4.36E+4	4.24E+4	4.01E+4	1.46E+4	1.56E+4	1.53E+4	1.08E+4	1.06E+4	1.585E−2
6.00E+0	2.44E+5	3.63E+4	3.53E+4	3.35E+4	1.22E+4	1.30E+4	1.27E+4	8.96E+3	8.78E+3	1.902E−2
8.00E+0	1.83E+5	2.72E+4	2.65E+4	2.51E+4	9.11E+3	9.76E+3	9.53E+3	6.71E+3	6.58E+3	2.536E−2
1.00E+1	1.46E+5	2.18E+4	2.12E+4	2.01E+4	7.29E+3	7.81E+3	7.62E+3	5.36E+3	5.25E+3	3.169E−2
1.50E+1	9.76E+4	1.45E+4	1.41E+4	1.34E+4	4.86E+3	5.20E+3	5.07E+3	3.56E+3	3.49E+3	4.751E−2
2.00E+1	7.32E+4	1.09E+4	1.06E+4	1.00E+4	3.64E+3	3.90E+3	3.80E+3	2.66E+3	2.61E+3	6.331E−2
3.00E+1	4.88E+4	7.26E+3	7.03E+3	6.65E+3	2.43E+3	2.59E+3	2.53E+3	1.76E+3	1.73E+3	9.486E−2
4.00E+1	3.66E+4	5.44E+3	5.26E+3	4.98E+3	1.82E+3	1.94E+3	1.89E+3	1.31E+3	1.29E+3	1.263E−1
5.00E+1	2.92E+4	4.35E+3	4.20E+3	3.97E+3	1.46E+3	1.55E+3	1.51E+3	1.04E+3	1.02E+3	1.578E−1
6.00E+1	2.44E+4	3.63E+3	3.49E+3	3.30E+3	1.21E+3	1.29E+3	1.26E+3	8.63E+2	8.45E+2	1.891E−1
8.00E+1	1.83E+4	2.72E+3	2.61E+3	2.47E+3	9.10E+2	9.62E+2	9.38E+2	6.38E+2	6.25E+2	2.516E−1
1.00E+2	1.46E+4	2.18E+3	2.08E+3	1.96E+3	7.28E+2	7.67E+2	7.47E+2	5.04E+2	4.93E+2	3.138E−1
1.50E+2	9.71E+3	1.45E+3	1.37E+3	1.29E+3	4.85E+2	5.06E+2	4.92E+2	3.24E+2	3.17E+2	4.681E−1
2.00E+2	7.27E+3	1.09E+3	1.02E+3	9.59E+2	3.63E+2	3.76E+2	3.65E+2	2.35E+2	2.30E+2	6.207E−1
3.00E+2	4.83E+3	7.22E+2	6.63E+2	6.25E+2	2.42E+2	2.46E+2	2.38E+2	1.47E+2	1.43E+2	9.210E−1
4.00E+2	3.61E+3	5.41E+2	4.87E+2	4.58E+2	1.81E+2	1.81E+2	1.75E+2	1.03E+2	1.01E+2	1.215E+0
5.00E+2	2.88E+3	4.31E+2	3.81E+2	3.59E+2	1.44E+2	1.42E+2	1.37E+2	7.76E+1	7.58E+1	1.502E+0
6.00E+2	2.39E+3	3.59E+2	3.11E+2	2.92E+2	1.20E+2	1.16E+2	1.12E+2	6.09E+1	5.94E+1	1.783E+0
8.00E+2	1.78E+3	2.68E+2	2.24E+2	2.10E+2	8.94E+1	8.34E+1	8.03E+1	4.07E+1	3.96E+1	2.328E+0
1.00E+3	1.41E+3	2.13E+2	1.72E+2	1.61E+2	7.11E+1	6.41E+1	6.16E+1	2.92E+1	2.84E+1	2.849E+0
1.50E+3	9.24E+2	1.40E+2	1.05E+2	9.74E+1	4.65E+1	3.89E+1	3.71E+1	1.51E+1	1.46E+1	4.059E+0
2.00E+3	6.81E+2	1.04E+2	7.17E+1	6.65E+1	3.41E+1	2.67E+1	2.53E+1	9.02E+0	8.73E+0	5.147E+0
3.00E+3	4.39E+2	6.67E+1	4.06E+1	3.73E+1	2.18E+1	1.50E+1	1.41E+1	4.05E+0	3.90E+0	7.007E+0
4.00E+3	3.18E+2	4.84E+1	2.62E+1	2.40E+1	1.56E+1	9.67E+0	9.01E+0	2.16E+0	2.07E+0	8.520E+0
5.00E+3	2.46E+2	3.74E+1	1.83E+1	1.66E+1	1.20E+1	6.72E+0	6.22E+0	1.29E+0	1.23E+0	9.751E+0
6.00E+3	1.99E+2	3.01E+1	1.35E+1	1.22E+1	9.58E+0	4.92E+0	4.53E+0	8.22E−1	7.82E−1	1.075E+1
8.00E+3	1.40E+2	2.10E+1	8.05E+0	7.20E+0	6.63E+0	2.93E+0	2.66E+0	3.90E−1	3.69E−1	1.224E+1
1.00E+4	1.06E+2	1.57E+1	5.28E+0	4.68E+0	4.92E+0	1.91E+0	1.72E+0	2.12E−1	1.99E−1	1.321E+1
1.50E+4	6.16E+1	8.99E+0	2.33E+0	2.03E+0	2.77E+0	8.35E−1	7.38E−1	6.54E−2	6.09E−2	1.433E+1
2.00E+4	4.09E+1	5.88E+0	1.25E+0	1.07E+0	1.80E+0	4.47E−1	3.89E−1	2.72E−2	2.50E−2	1.447E+1
3.00E+4	2.20E+1	3.09E+0	4.97E−1	4.15E−1	9.36E−1	1.76E−1	1.49E−1	7.47E−3	6.76E−3	1.373E+1
4.00E+4	1.38E+1	1.90E+0	2.50E−1	2.05E−1	5.73E−1	8.82E−2	7.32E−2	2.90E−3	2.59E−3	1.265E+1
5.00E+4	9.40E+0	1.29E+0	1.45E−1	1.16E−1	3.85E−1	5.09E−2	4.14E−2	1.38E−3	1.22E−3	1.161E+1
6.00E+4	6.80E+0	9.22E−1	9.19E−2	7.25E−2	2.76E−1	3.23E−2	2.58E−2	7.49E−4	6.54E−4	1.068E+1
8.00E+4	4.01E+0	5.37E−1	4.44E−2	3.41E−2	1.60E−1	1.56E−2	1.21E−2	2.85E−4	2.44E−4	9.189E+0
1.00E+5	2.62E+0	3.48E−1	2.52E−2	1.88E−2	1.04E−1	8.80E−3	6.67E−3	1.35E−4	1.14E−4	8.065E+0
1.50E+5	1.18E+0	1.54E−1	8.95E−3	6.40E−3	4.57E−2	3.13E−3	2.26E−3	3.55E−5	2.93E−5	6.232E+0
2.00E+5	6.58E−1	8.55E−2	4.35E−3	3.01E−3	2.53E−2	1.52E−3	1.06E−3	1.41E−5	1.16E−5	5.145E+0
3.00E+5	2.89E−1	3.72E−2	1.62E−3	1.08E−3	1.10E−2	5.64E−4	3.81E−4	4.08E−6	3.38E−6	3.923E+0
4.00E+5	1.64E−1	2.10E−2	8.30E−4	5.50E−4	6.19E−3	2.89E−4	1.93E−4	1.78E−6	1.52E−6	3.256E+0
5.00E+5	1.07E−1	1.37E−2	5.07E−4	3.37E−4	4.03E−3	1.77E−4	1.18E−4	9.67E−7	8.61E−7	2.837E+0
6.00E+5	7.70E−2	9.77E−3	3.45E−4	2.32E−4	2.88E−3	1.20E−4	8.14E−5	6.02E−7	5.60E−7	2.549E+0
8.00E+5	4.72E−2	5.96E−3	1.95E−4	1.35E−4	1.76E−3	6.80E−5	4.74E−5	2.99E−7	3.03E−7	2.179E+0
1.00E+6	3.33E−2	4.19E−3	1.30E−4	9.24E−5	1.23E−3	4.51E−5	3.24E−5	1.82E−7	1.98E−7	1.952E+0
1.50E+6	1.87E−2	2.34E−3	6.60E−5	4.99E−5	6.87E−4	2.30E−5	1.75E−5	8.03E−8	9.99E−8	1.642E+0
2.00E+6	1.28E−2	1.61E−3	4.30E−5	3.38E−5	4.72E−4	1.50E−5	1.19E−5	4.82E−8	6.53E−8	1.484E+0
3.00E+6	7.83E−3	9.78E−4	2.49E−5	2.03E−5	2.88E−4	8.65E−6	7.14E−6*			1.325E+0
4.00E+6	5.61E−3	7.01E−4	1.74E−5	1.45E−5	2.06E−4					1.244E+0
5.00E+6	4.36E−3	5.44E−4	1.33E−5	1.13E−5						1.196E+0
6.00E+6	3.56E−3	4.44E−4*	1.08E−5*	9.18E−6*						1.163E+0
8.00E+6	2.60E−3*	3.24E−4*								1.123E+0

TABLE. Cross Sections for Radiative Recombination, $Z=1–112$

See page 9 for Explanation of Tables

Z= 37

T_e (eV)	σ_{RR} (b)									$f_{1s_{1/2}}$
	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

					R_{nucl} = 5.427 fm					
$\|\epsilon_n\|$ (eV)	1.898E+4	4.767E+3	4.767E+3	4.678E+3	2.109E+3	2.109E+3	2.082E+3	2.082E+3	2.074E+3	
1.00E+0	1.55E+6	2.30E+5	2.25E+5	2.12E+5	7.70E+4	8.28E+4	8.07E+4	5.71E+4	5.59E+4	2.837E−3
1.50E+0	1.03E+6	1.53E+5	1.50E+5	1.42E+5	5.13E+4	5.52E+4	5.38E+4	3.81E+4	3.73E+4	4.255E−3
2.00E+0	7.73E+5	1.15E+5	1.13E+5	1.06E+5	3.85E+4	4.14E+4	4.03E+4	2.85E+4	2.79E+4	5.674E−3
3.00E+0	5.15E+5	7.67E+4	7.50E+4	7.08E+4	2.57E+4	2.76E+4	2.69E+4	1.90E+4	1.86E+4	8.510E−3
4.00E+0	3.86E+5	5.75E+4	5.62E+4	5.31E+4	1.92E+4	2.07E+4	2.02E+4	1.43E+4	1.39E+4	1.135E−2
5.00E+0	3.09E+5	4.60E+4	4.50E+4	4.24E+4	1.54E+4	1.65E+4	1.61E+4	1.14E+4	1.12E+4	1.418E−2
6.00E+0	2.58E+5	3.84E+4	3.75E+4	3.54E+4	1.28E+4	1.38E+4	1.34E+4	9.49E+3	9.28E+3	1.701E−2
8.00E+0	1.93E+5	2.88E+4	2.81E+4	2.65E+4	9.62E+3	1.03E+4	1.01E+4	7.11E+3	6.95E+3	2.268E−2
1.00E+1	1.55E+5	2.30E+4	2.25E+4	2.12E+4	7.70E+3	8.26E+3	8.05E+3	5.68E+3	5.55E+3	2.835E−2
1.50E+1	1.03E+5	1.53E+4	1.50E+4	1.41E+4	5.13E+3	5.50E+3	5.36E+3	3.77E+3	3.69E+3	4.250E−2
2.00E+1	7.72E+4	1.15E+4	1.12E+4	1.06E+4	3.85E+3	4.12E+3	4.02E+3	2.82E+3	2.76E+3	5.663E−2
3.00E+1	5.15E+4	7.67E+3	7.46E+3	7.03E+3	2.57E+3	2.74E+3	2.67E+3	1.87E+3	1.83E+3	8.486E−2
4.00E+1	3.86E+4	5.75E+3	5.58E+3	5.26E+3	1.92E+3	2.05E+3	2.00E+3	1.39E+3	1.36E+3	1.130E−1
5.00E+1	3.09E+4	4.60E+3	4.46E+3	4.20E+3	1.54E+3	1.64E+3	1.60E+3	1.11E+3	1.08E+3	1.411E−1
6.00E+1	2.57E+4	3.83E+3	3.71E+3	3.49E+3	1.28E+3	1.36E+3	1.33E+3	9.15E+2	8.95E+2	1.692E−1
8.00E+1	1.93E+4	2.87E+3	2.77E+3	2.61E+3	9.62E+2	1.02E+3	9.92E+2	6.77E+2	6.62E+2	2.251E−1
1.00E+2	1.54E+4	2.30E+3	2.21E+3	2.08E+3	7.69E+2	8.12E+2	7.90E+2	5.35E+2	5.23E+2	2.808E−1
1.50E+2	1.03E+4	1.53E+3	1.46E+3	1.37E+3	5.12E+2	5.37E+2	5.21E+2	3.45E+2	3.37E+2	4.191E−1
2.00E+2	7.68E+3	1.15E+3	1.08E+3	1.02E+3	3.84E+2	3.99E+2	3.87E+2	2.51E+2	2.45E+2	5.559E−1
3.00E+2	5.10E+3	7.63E+2	7.05E+2	6.63E+2	2.56E+2	2.61E+2	2.53E+2	1.57E+2	1.53E+2	8.252E−1
4.00E+2	3.81E+3	5.71E+2	5.19E+2	4.87E+2	1.91E+2	1.92E+2	1.86E+2	1.11E+2	1.08E+2	1.089E+0
5.00E+2	3.04E+3	4.56E+2	4.07E+2	3.81E+2	1.53E+2	1.51E+2	1.46E+2	8.35E+1	8.14E+1	1.348E+0
6.00E+2	2.52E+3	3.79E+2	3.32E+2	3.11E+2	1.27E+2	1.23E+2	1.19E+2	6.57E+1	6.40E+1	1.601E+0
8.00E+2	1.88E+3	2.83E+2	2.40E+2	2.24E+2	9.46E+1	8.91E+1	8.56E+1	4.41E+1	4.29E+1	2.092E+0
1.00E+3	1.49E+3	2.26E+2	1.85E+2	1.72E+2	7.52E+1	6.87E+1	6.58E+1	3.18E+1	3.09E+1	2.563E+0
1.50E+3	9.79E+2	1.48E+2	1.13E+2	1.05E+2	4.93E+1	4.19E+1	3.99E+1	1.66E+1	1.61E+1	3.661E+0
2.00E+3	7.22E+2	1.10E+2	7.76E+1	7.17E+1	3.62E+1	2.88E+1	2.73E+1	1.00E+1	9.67E+0	4.654E+0
3.00E+3	4.66E+2	7.09E+1	4.42E+1	4.05E+1	2.32E+1	1.64E+1	1.53E+1	4.55E+0	4.37E+0	6.366E+0
4.00E+3	3.38E+2	5.15E+1	2.87E+1	2.62E+1	1.67E+1	1.06E+1	9.85E+0	2.46E+0	2.35E+0	7.773E+0
5.00E+3	2.62E+2	3.99E+1	2.02E+1	1.82E+1	1.28E+1	7.40E+0	6.84E+0	1.47E+0	1.40E+0	8.931E+0
6.00E+3	2.12E+2	3.21E+1	1.49E+1	1.34E+1	1.03E+1	5.45E+0	5.00E+0	9.46E−1	8.99E−1	9.886E+0
8.00E+3	1.50E+2	2.26E+1	8.98E+0	7.99E+0	7.12E+0	3.26E+0	2.96E+0	4.54E−1	4.29E−1	1.132E+1
1.00E+4	1.13E+2	1.69E+1	5.92E+0	5.23E+0	5.30E+0	2.14E+0	1.93E+0	2.48E−1	2.33E−1	1.229E+1
1.50E+4	6.64E+1	9.73E+0	2.64E+0	2.29E+0	3.01E+0	9.47E−1	8.34E−1	7.77E−2	7.21E−2	1.347E+1
2.00E+4	4.42E+1	6.39E+0	1.43E+0	1.22E+0	1.96E+0	5.10E−1	4.42E−1	3.25E−2	2.99E−2	1.372E+1
3.00E+4	2.40E+1	3.39E+0	5.73E−1	4.76E−1	1.03E+0	2.03E−1	1.71E−1	9.04E−3	8.16E−3	1.316E+1
4.00E+4	1.51E+1	2.09E+0	2.90E−1	2.36E−1	6.31E−1	1.02E−1	8.44E−2	3.54E−3	3.15E−3	1.221E+1
5.00E+4	1.03E+1	1.42E+0	1.69E−1	1.35E−1	4.26E−1	5.94E−2	4.80E−2	1.69E−3	1.49E−3	1.127E+1
6.00E+4	7.50E+0	1.02E+0	1.08E−1	8.43E−2	3.05E−1	3.78E−2	3.00E−2	9.22E−4	8.01E−4	1.041E+1
8.00E+4	4.44E+0	5.96E−1	5.23E−2	3.98E−2	1.78E−1	1.83E−2	1.41E−2	3.52E−4	3.01E−4	8.999E+0
1.00E+5	2.91E+0	3.87E−1	2.97E−2	2.21E−2	1.15E−1	1.04E−2	7.82E−3	1.68E−4	1.41E−4	7.926E+0
1.50E+5	1.31E+0	1.73E−1	1.06E−2	7.54E−3	5.12E−2	3.71E−3	2.67E−3	4.43E−5	3.64E−5	6.157E+0
2.00E+5	7.37E−1	9.60E−2	5.18E−3	3.56E−3	2.84E−2	1.81E−3	1.26E−3	1.77E−5	1.44E−5	5.097E+0
3.00E+5	3.26E−1	4.20E−2	1.94E−3	1.28E−3	1.24E−2	6.75E−4	4.52E−4	5.13E−6	4.23E−6	3.898E+0
4.00E+5	1.85E−1	2.37E−2	9.97E−4	6.53E−4	6.99E−3	3.47E−4	2.30E−4	2.24E−6	1.91E−6	3.240E+0
5.00E+5	1.21E−1	1.54E−2	6.10E−4	4.01E−4	4.55E−3	2.12E−4	1.41E−4	1.22E−6	1.08E−6	2.825E+0
6.00E+5	8.71E−2	1.11E−2	4.16E−4	2.76E−4	3.26E−3	1.45E−4	9.69E−5	7.60E−7	7.02E−7	2.540E+0
8.00E+5	5.35E−2	6.75E−3	2.36E−4	1.61E−4	1.99E−3	8.19E−5	5.64E−5	3.78E−7	3.80E−7	2.173E+0
1.00E+6	3.77E−2	4.74E−3	1.57E−4	1.10E−4	1.40E−3	5.44E−5	3.85E−5	2.30E−7	2.48E−7	1.947E+0
1.50E+6	2.11E−2	2.65E−3	7.98E−5	5.93E−5	7.78E−4	2.77E−5	2.08E−5	1.02E−7	1.25E−7	1.640E+0
2.00E+6	1.45E−2	1.82E−3	5.20E−5	4.01E−5	5.34E−4	1.81E−5	1.41E−5	6.10E−8	8.17E−8	1.483E+0
3.00E+6	8.85E−3	1.11E−3	3.01E−5	2.41E−5	3.25E−4	1.05E−5	8.46E−6			1.324E+0
4.00E+6	6.34E−3	7.91E−4	2.10E−5	1.72E−5	2.33E−4					1.244E+0
5.00E+6	4.92E−3	6.14E−4	1.61E−5	1.33E−5						1.195E+0
6.00E+6	4.02E−3	5.01E−4*	1.31E−5*	1.09E−5						1.163E+0
8.00E+6	2.93E−3*	3.66E−4*								1.122E+0

Z= 38

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

R_{nucl} = 5.453 fm

$\|\epsilon_n\|$ (eV)	2.004E+4	5.035E+3	5.035E+3	4.936E+3	2.227E+3	2.227E+3	2.197E+3	2.197E+3	2.188E+3	
1.00E+0	1.63E+6	2.43E+5	2.38E+5	2.24E+5	8.12E+4	8.75E+4	8.52E+4	6.04E+4	5.90E+4	2.545E−3
1.50E+0	1.09E+6	1.62E+5	1.59E+5	1.49E+5	5.41E+4	5.83E+4	5.68E+4	4.02E+4	3.93E+4	3.817E−3
2.00E+0	8.15E+5	1.21E+5	1.19E+5	1.12E+5	4.06E+4	4.37E+4	4.26E+4	3.02E+4	2.95E+4	5.089E−3
3.00E+0	5.43E+5	8.09E+4	7.94E+4	7.47E+4	2.71E+4	2.92E+4	2.84E+4	2.01E+4	1.96E+4	7.633E−3
4.00E+0	4.07E+5	6.07E+4	5.96E+4	5.60E+4	2.03E+4	2.19E+4	2.13E+4	1.51E+4	1.47E+4	1.018E−2
5.00E+0	3.26E+5	4.86E+4	4.76E+4	4.48E+4	1.62E+4	1.75E+4	1.70E+4	1.20E+4	1.18E+4	1.272E−2
6.00E+0	2.72E+5	4.05E+4	3.97E+4	3.73E+4	1.35E+4	1.46E+4	1.42E+4	1.00E+4	9.80E+3	1.526E−2
8.00E+0	2.04E+5	3.04E+4	2.98E+4	2.80E+4	1.02E+4	1.09E+4	1.06E+4	7.51E+3	7.34E+3	2.034E−2
1.00E+1	1.63E+5	2.43E+4	2.38E+4	2.24E+4	8.12E+3	8.73E+3	8.50E+3	6.00E+3	5.86E+3	2.543E−2
1.50E+1	1.09E+5	1.62E+4	1.58E+4	1.49E+4	5.41E+3	5.82E+3	5.66E+3	3.99E+3	3.90E+3	3.812E−2
2.00E+1	8.14E+4	1.21E+4	1.19E+4	1.12E+4	4.06E+3	4.36E+3	4.24E+3	2.98E+3	2.91E+3	5.080E−2
3.00E+1	5.43E+4	8.09E+3	7.90E+3	7.43E+3	2.71E+3	2.90E+3	2.82E+3	1.98E+3	1.93E+3	7.613E−2
4.00E+1	4.07E+4	6.07E+3	5.91E+3	5.56E+3	2.03E+3	2.17E+3	2.11E+3	1.47E+3	1.44E+3	1.014E−1
5.00E+1	3.25E+4	4.85E+3	4.72E+3	4.44E+3	1.62E+3	1.73E+3	1.69E+3	1.17E+3	1.14E+3	1.266E−1
6.00E+1	2.71E+4	4.04E+3	3.93E+3	3.69E+3	1.35E+3	1.44E+3	1.40E+3	9.69E+2	9.46E+2	1.518E−1
8.00E+1	2.03E+4	3.03E+3	2.93E+3	2.76E+3	1.01E+3	1.08E+3	1.05E+3	7.18E+2	7.01E+2	2.020E−1
1.00E+2	1.62E+4	2.43E+3	2.34E+3	2.20E+3	8.11E+2	8.60E+2	8.35E+2	5.67E+2	5.54E+2	2.520E−1
1.50E+2	1.08E+4	1.62E+3	1.54E+3	1.45E+3	5.40E+2	5.68E+2	5.51E+2	3.67E+2	3.58E+2	3.762E−1
2.00E+2	8.09E+3	1.21E+3	1.15E+3	1.08E+3	4.05E+2	4.22E+2	4.09E+2	2.67E+2	2.60E+2	4.991E−1
3.00E+2	5.38E+3	8.06E+2	7.49E+2	7.02E+2	2.70E+2	2.77E+2	2.68E+2	1.68E+2	1.63E+2	7.414E−1
4.00E+2	4.02E+3	6.03E+2	5.51E+2	5.16E+2	2.02E+2	2.04E+2	1.97E+2	1.19E+2	1.16E+2	9.790E−1
5.00E+2	3.21E+3	4.82E+2	4.33E+2	4.05E+2	1.61E+2	1.60E+2	1.54E+2	8.97E+1	8.73E+1	1.212E+0
6.00E+2	2.66E+3	4.00E+2	3.54E+2	3.31E+2	1.34E+2	1.31E+2	1.26E+2	7.07E+1	6.88E+1	1.440E+0
8.00E+2	1.98E+3	2.99E+2	2.56E+2	2.39E+2	9.99E+1	9.49E+1	9.11E+1	4.77E+1	4.64E+1	1.884E+0
1.00E+3	1.58E+3	2.38E+2	1.98E+2	1.84E+2	7.95E+1	7.34E+1	7.02E+1	3.45E+1	3.35E+1	2.311E+0
1.50E+3	1.03E+3	1.57E+2	1.21E+2	1.12E+2	5.21E+1	4.49E+1	4.27E+1	1.82E+1	1.76E+1	3.309E+0
2.00E+3	7.64E+2	1.16E+2	8.37E+1	7.71E+1	3.84E+1	3.11E+1	2.93E+1	1.11E+1	1.07E+1	4.216E+0
3.00E+3	4.93E+2	7.52E+1	4.80E+1	4.39E+1	2.46E+1	1.78E+1	1.66E+1	5.09E+0	4.89E+0	5.793E+0
4.00E+3	3.59E+2	5.47E+1	3.14E+1	2.85E+1	1.78E+1	1.16E+1	1.07E+1	2.77E+0	2.65E+0	7.102E+0
5.00E+3	2.79E+2	4.24E+1	2.21E+1	2.00E+1	1.37E+1	8.13E+0	7.48E+0	1.67E+0	1.59E+0	8.190E+0
6.00E+3	2.26E+2	3.43E+1	1.64E+1	1.47E+1	1.10E+1	6.00E+0	5.49E+0	1.08E+0	1.03E+0	9.097E+0
8.00E+3	1.60E+2	2.41E+1	9.96E+0	8.84E+0	7.64E+0	3.62E+0	3.28E+0	5.25E−1	4.95E−1	1.048E+1
1.00E+4	1.21E+2	1.82E+1	6.61E+0	5.81E+0	5.70E+0	2.39E+0	2.14E+0	2.89E−1	2.71E−1	1.144E+1
1.50E+4	7.13E+1	1.05E+1	2.98E+0	2.57E+0	3.25E+0	1.07E+0	9.37E−1	9.17E−2	8.50E−2	1.267E+1
2.00E+4	4.77E+1	6.92E+0	1.63E+0	1.38E+0	2.12E+0	5.80E−1	5.00E−1	3.87E−2	3.55E−2	1.300E+1
3.00E+4	2.61E+1	3.69E+0	6.58E−1	5.43E−1	1.12E+0	2.33E−1	1.95E−1	1.09E−2	9.80E−3	1.260E+1
4.00E+4	1.65E+1	2.29E+0	3.35E−1	2.71E−1	6.92E−1	1.18E−1	9.70E−2	4.29E−3	3.81E−3	1.178E+1
5.00E+4	1.13E+1	1.56E+0	1.96E−1	1.55E−1	4.68E−1	6.89E−2	5.54E−2	2.06E−3	1.81E−3	1.093E+1
6.00E+4	8.24E+0	1.13E+0	1.25E−1	9.75E−2	3.37E−1	4.40E−2	3.48E−2	1.13E−3	9.76E−4	1.013E+1
8.00E+4	4.90E+0	6.60E−1	6.12E−2	4.62E−2	1.97E−1	2.14E−2	1.64E−2	4.33E−4	3.68E−4	8.809E+0
1.00E+5	3.22E+0	4.30E−1	3.49E−2	2.57E−2	1.28E−1	1.22E−2	9.13E−3	2.07E−4	1.73E−4	7.786E+0
1.50E+5	1.46E+0	1.93E−1	1.26E−2	8.84E−3	5.72E−2	4.39E−3	3.13E−3	5.49E−5	4.50E−5	6.080E+0
2.00E+5	8.23E−1	1.07E−1	6.15E−3	4.18E−3	3.18E−2	2.14E−3	1.48E−3	2.20E−5	1.79E−5	5.048E+0
3.00E+5	3.65E−1	4.71E−2	2.31E−3	1.52E−3	1.39E−2	8.04E−4	5.34E−4	6.40E−6	5.25E−6	3.872E+0
4.00E+5	2.08E−1	2.66E−2	1.19E−3	7.72E−4	7.86E−3	4.15E−4	2.72E−4	2.80E−6	2.37E−6	3.224E+0
5.00E+5	1.36E−1	1.74E−2	7.30E−4	4.74E−4	5.13E−3	2.54E−4	1.67E−4	1.53E−6	1.34E−6	2.814E+0
6.00E+5	9.82E−2	1.25E−2	4.98E−4	3.26E−4	3.68E−3	1.73E−4	1.15E−4	9.52E−7	8.74E−7	2.531E+0
8.00E+5	6.03E−2	7.62E−3	2.83E−4	1.90E−4	2.24E−3	9.83E−5	6.67E−5	4.75E−7	4.73E−7	2.168E+0
1.00E+6	4.25E−2	5.35E−3	1.88E−4	1.30E−4	1.58E−3	6.53E−5	4.56E−5	2.88E−7	3.08E−7	1.943E+0
1.50E+6	2.38E−2	2.99E−3	9.60E−5	7.02E−5	8.78E−4	3.33E−5	2.46E−5	1.28E−7	1.56E−7	1.637E+0
2.00E+6	1.64E−2	2.05E−3	6.25E−5	4.74E−5	6.02E−4	2.17E−5	1.66E−5	7.68E−8	1.02E−7	1.481E+0
3.00E+6	9.97E−3	1.25E−3	3.62E−5	2.85E−5	3.66E−4	1.26E−5	9.99E−6	4.05E−8*		1.323E+0
4.00E+6	7.13E−3	8.91E−4	2.53E−5	2.03E−5	2.61E−4					1.243E+0
5.00E+6	5.54E−3	6.91E−4	1.94E−5*	1.57E−5						1.195E+0
6.00E+6	4.52E−3	5.64E−4	1.58E−5*	1.28E−5						1.163E+0
8.00E+6	3.29E−3*	4.12E−4								1.122E+0

Z= 39

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

R_{nucl} = 5.478 fm

$\vert\epsilon_n\vert$ (eV)	2.113E+4	5.310E+3	5.310E+3	5.200E+3	2.348E+3	2.348E+3	2.315E+3	2.315E+3	2.305E+3	
1.00E+0	1.72E+6	2.56E+5	2.52E+5	2.36E+5	8.55E+4	9.23E+4	8.98E+4	6.37E+4	6.22E+4	2.289E−3
1.50E+0	1.14E+6	1.71E+5	1.68E+5	1.58E+5	5.70E+4	6.15E+4	5.98E+4	4.25E+4	4.14E+4	3.433E−3
2.00E+0	8.58E+5	1.28E+5	1.26E+5	1.18E+5	4.27E+4	4.62E+4	4.49E+4	3.18E+4	3.11E+4	4.577E−3
3.00E+0	5.72E+5	8.53E+4	8.40E+4	7.87E+4	2.85E+4	3.08E+4	2.99E+4	2.12E+4	2.07E+4	6.865E−3
4.00E+0	4.29E+5	6.40E+4	6.30E+4	5.90E+4	2.14E+4	2.31E+4	2.24E+4	1.59E+4	1.55E+4	9.152E−3
5.00E+0	3.43E+5	5.12E+4	5.04E+4	4.72E+4	1.71E+4	1.85E+4	1.79E+4	1.27E+4	1.24E+4	1.144E−2
6.00E+0	2.86E+5	4.26E+4	4.20E+4	3.93E+4	1.43E+4	1.54E+4	1.49E+4	1.06E+4	1.03E+4	1.373E−2
8.00E+0	2.14E+5	3.20E+4	3.15E+4	2.95E+4	1.07E+4	1.15E+4	1.12E+4	7.93E+3	7.74E+3	1.830E−2
1.00E+1	1.72E+5	2.56E+4	2.52E+4	2.36E+4	8.55E+3	9.22E+3	8.96E+3	6.33E+3	6.18E+3	2.287E−2
1.50E+1	1.14E+5	1.71E+4	1.68E+4	1.57E+4	5.70E+3	6.14E+3	5.97E+3	4.21E+3	4.11E+3	3.428E−2
2.00E+1	8.57E+4	1.28E+4	1.26E+4	1.18E+4	4.27E+3	4.60E+3	4.47E+3	3.15E+3	3.07E+3	4.569E−2
3.00E+1	5.71E+4	8.52E+3	8.36E+3	7.83E+3	2.85E+3	3.06E+3	2.98E+3	2.09E+3	2.04E+3	6.847E−2
4.00E+1	4.28E+4	6.39E+3	6.26E+3	5.86E+3	2.14E+3	2.29E+3	2.23E+3	1.56E+3	1.52E+3	9.121E−2
5.00E+1	3.43E+4	5.11E+3	5.00E+3	4.68E+3	1.71E+3	1.83E+3	1.78E+3	1.24E+3	1.21E+3	1.139E−1
6.00E+1	2.85E+4	4.26E+3	4.15E+3	3.89E+3	1.42E+3	1.52E+3	1.48E+3	1.02E+3	9.99E+2	1.366E−1
8.00E+1	2.14E+4	3.19E+3	3.10E+3	2.91E+3	1.07E+3	1.14E+3	1.11E+3	7.59E+2	7.41E+2	1.817E−1
1.00E+2	1.71E+4	2.56E+3	2.47E+3	2.32E+3	8.54E+2	9.08E+2	8.81E+2	6.00E+2	5.85E+2	2.268E−1
1.50E+2	1.14E+4	1.70E+3	1.63E+3	1.53E+3	5.69E+2	6.00E+2	5.82E+2	3.89E+2	3.79E+2	3.385E−1
2.00E+2	8.52E+3	1.28E+3	1.21E+3	1.14E+3	4.27E+2	4.47E+2	4.32E+2	2.83E+2	2.76E+2	4.493E−1
3.00E+2	5.66E+3	8.49E+2	7.95E+2	7.43E+2	2.84E+2	2.93E+2	2.83E+2	1.78E+2	1.74E+2	6.678E−1
4.00E+2	4.23E+3	6.36E+2	5.86E+2	5.46E+2	2.13E+2	2.16E+2	2.08E+2	1.27E+2	1.23E+2	8.822E−1
5.00E+2	3.38E+3	5.08E+2	4.60E+2	4.29E+2	1.70E+2	1.70E+2	1.64E+2	9.60E+1	9.33E+1	1.093E+0
6.00E+2	2.81E+3	4.22E+2	3.77E+2	3.51E+2	1.41E+2	1.39E+2	1.34E+2	7.59E+1	7.37E+1	1.299E+0
8.00E+2	2.09E+3	3.15E+2	2.73E+2	2.54E+2	1.05E+2	1.01E+2	9.68E+1	5.15E+1	4.99E+1	1.701E+0
1.00E+3	1.66E+3	2.51E+2	2.11E+2	1.96E+2	8.39E+1	7.82E+1	7.47E+1	3.74E+1	3.62E+1	2.089E+0
1.50E+3	1.09E+3	1.66E+2	1.30E+2	1.20E+2	5.51E+1	4.81E+1	4.57E+1	1.99E+1	1.92E+1	2.998E+0
2.00E+3	8.06E+2	1.23E+2	9.01E+1	8.27E+1	4.06E+1	3.34E+1	3.15E+1	1.22E+1	1.17E+1	3.828E+0
3.00E+3	5.22E+2	7.96E+1	5.20E+1	4.73E+1	2.61E+1	1.92E+1	1.80E+1	5.68E+0	5.44E+0	5.281E+0
4.00E+3	3.80E+2	5.80E+1	3.42E+1	3.09E+1	1.89E+1	1.26E+1	1.17E+1	3.12E+0	2.98E+0	6.498E+0
5.00E+3	2.96E+2	4.51E+1	2.42E+1	2.17E+1	1.45E+1	8.89E+0	8.17E+0	1.90E+0	1.80E+0	7.520E+0
6.00E+3	2.40E+2	3.65E+1	1.80E+1	1.61E+1	1.17E+1	6.59E+0	6.02E+0	1.24E+0	1.17E+0	8.379E+0
8.00E+3	1.70E+2	2.58E+1	1.10E+1	9.73E+0	8.17E+0	4.01E+0	3.61E+0	6.04E−1	5.68E−1	9.710E+0
1.00E+4	1.29E+2	1.94E+1	7.35E+0	6.43E+0	6.11E+0	2.66E+0	2.38E+0	3.36E−1	3.14E−1	1.065E+1
1.50E+4	7.65E+1	1.13E+1	3.35E+0	2.87E+0	3.50E+0	1.20E+0	1.05E+0	1.08E−1	9.95E−2	1.192E+1
2.00E+4	5.14E+1	7.48E+0	1.84E+0	1.55E+0	2.30E+0	6.56E−1	5.63E−1	4.58E−2	4.19E−2	1.232E+1
3.00E+4	2.82E+1	4.02E+0	7.52E−1	6.16E−1	1.22E+0	2.66E−1	2.22E−1	1.30E−2	1.17E−2	1.207E+1
4.00E+4	1.79E+1	2.51E+0	3.86E−1	3.09E−1	7.56E−1	1.36E−1	1.11E−1	5.17E−3	4.57E−3	1.137E+1
5.00E+4	1.24E+1	1.71E+0	2.26E−1	1.78E−1	5.14E−1	7.96E−2	6.36E−2	2.49E−3	2.18E−3	1.059E+1
6.00E+4	9.02E+0	1.24E+0	1.45E−1	1.12E−1	3.71E−1	5.10E−2	4.00E−2	1.37E−3	1.18E−3	9.863E+0
8.00E+4	5.38E+0	7.28E−1	7.14E−2	5.35E−2	2.17E−1	2.50E−2	1.90E−2	5.28E−4	4.48E−4	8.620E+0
1.00E+5	3.55E+0	4.76E−1	4.09E−2	2.99E−2	1.42E−1	1.43E−2	1.06E−2	2.53E−4	2.11E−4	7.647E+0
1.50E+5	1.62E+0	2.14E−1	1.48E−2	1.03E−2	6.36E−2	5.16E−3	3.65E−3	6.76E−5	5.52E−5	6.003E+0
2.00E+5	9.16E−1	1.20E−1	7.27E−3	4.90E−3	3.55E−2	2.53E−3	1.73E−3	2.72E−5	2.20E−5	4.998E+0
3.00E+5	4.08E−1	5.28E−2	2.74E−3	1.78E−3	1.56E−2	9.54E−4	6.27E−4	7.93E−6	6.48E−6	3.846E+0
4.00E+5	2.33E−1	2.99E−2	1.42E−3	9.08E−4	8.82E−3	4.93E−4	3.19E−4	3.48E−6	2.93E−6	3.207E+0
5.00E+5	1.53E−1	1.96E−2	8.70E−4	5.58E−4	5.76E−3	3.02E−4	1.96E−4	1.90E−6	1.66E−6	2.802E+0
6.00E+5	1.10E−1	1.40E−2	5.95E−4	3.84E−4	4.13E−3	2.07E−4	1.35E−4	1.19E−6	1.08E−6	2.523E+0
8.00E+5	6.78E−2	8.58E−3	3.38E−4	2.24E−4	2.52E−3	1.17E−4	7.86E−5	5.92E−7	5.85E−7	2.162E+0
1.00E+6	4.78E−2	6.03E−3	2.25E−4	1.53E−4	1.77E−3	7.81E−5	5.37E−5	3.60E−7	3.81E−7	1.939E+0
1.50E+6	2.68E−2	3.36E−3	1.15E−4	8.26E−5	9.87E−4	3.99E−5	2.90E−5	1.60E−7	1.93E−7	1.635E+0
2.00E+6	1.84E−2	2.30E−3	7.49E−5	5.57E−5	6.76E−4	2.60E−5	1.95E−5	9.60E−8	1.26E−7	1.480E+0
3.00E+6	1.12E−2	1.40E−3	4.33E−5	3.35E−5	4.11E−4	1.51E−5	1.17E−5			1.322E+0
4.00E+6	8.00E−3	9.99E−4	3.03E−5	2.38E−5	2.93E−4					1.242E+0
5.00E+6	6.21E−3	7.75E−4	2.33E−5	1.84E−5						1.194E+0
6.00E+6	5.06E−3*	6.32E−4	1.89E−5*	1.50E−5						1.162E+0
8.00E+6	3.69E−3*	4.6E−4								1.122E+0

TABLE. Cross Sections for Radiative Recombination, $Z=1–112$
See page 9 for Explanation of Tables

Z= 40

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 5.513$ fm

$\|\epsilon_n\|$ (eV)	2.225E+4	5.594E+3	5.594E+3	5.472E+3	2.473E+3	2.473E+3	2.436E+3	2.436E+3	2.425E+3	
1.00E+0	1.80E+6	2.69E+5	2.66E+5	2.49E+5	8.99E+4	9.73E+4	9.45E+4	6.71E+4	6.54E+4	2.064E−3
1.50E+0	1.20E+6	1.79E+5	1.78E+5	1.66E+5	5.99E+4	6.49E+4	6.30E+4	4.47E+4	4.36E+4	3.095E−3
2.00E+0	9.02E+5	1.35E+5	1.33E+5	1.24E+5	4.50E+4	4.87E+4	4.72E+4	3.35E+4	3.27E+4	4.127E−3
3.00E+0	6.01E+5	8.97E+4	8.87E+4	8.29E+4	3.00E+4	3.24E+4	3.15E+4	2.24E+4	2.18E+4	6.190E−3
4.00E+0	4.51E+5	6.73E+4	6.65E+4	6.21E+4	2.25E+4	2.43E+4	2.36E+4	1.68E+4	1.63E+4	8.252E−3
5.00E+0	3.61E+5	5.38E+4	5.32E+4	4.97E+4	1.80E+4	1.95E+4	1.89E+4	1.34E+4	1.31E+4	1.031E−2
6.00E+0	3.01E+5	4.49E+4	4.43E+4	4.14E+4	1.50E+4	1.62E+4	1.57E+4	1.12E+4	1.09E+4	1.238E−2
8.00E+0	2.25E+5	3.36E+4	3.32E+4	3.10E+4	1.12E+4	1.22E+4	1.18E+4	8.36E+3	8.15E+3	1.650E−2
1.00E+1	1.80E+5	2.69E+4	2.66E+4	2.48E+4	8.99E+3	9.72E+3	9.43E+3	6.68E+3	6.51E+3	2.062E−2
1.50E+1	1.20E+5	1.79E+4	1.77E+4	1.65E+4	5.99E+3	6.47E+3	6.28E+3	4.44E+3	4.33E+3	3.092E−2
2.00E+1	9.01E+4	1.35E+4	1.33E+4	1.24E+4	4.50E+3	4.85E+3	4.71E+3	3.32E+3	3.24E+3	4.120E−2
3.00E+1	6.01E+4	8.97E+3	8.83E+3	8.24E+3	3.00E+3	3.23E+3	3.13E+3	2.20E+3	2.15E+3	6.175E−2
4.00E+1	4.50E+4	6.73E+3	6.61E+3	6.17E+3	2.25E+3	2.42E+3	2.35E+3	1.64E+3	1.60E+3	8.226E−2
5.00E+1	3.60E+4	5.38E+3	5.28E+3	4.93E+3	1.80E+3	1.93E+3	1.87E+3	1.31E+3	1.27E+3	1.027E−1
6.00E+1	3.00E+4	4.48E+3	4.39E+3	4.10E+3	1.50E+3	1.61E+3	1.56E+3	1.08E+3	1.05E+3	1.232E−1
8.00E+1	2.25E+4	3.36E+3	3.28E+3	3.06E+3	1.12E+3	1.20E+3	1.17E+3	8.02E+2	7.81E+2	1.639E−1
1.00E+2	1.80E+4	2.69E+3	2.62E+3	2.44E+3	8.99E+2	9.58E+2	9.28E+2	6.34E+2	6.18E+2	2.046E−1
1.50E+2	1.20E+4	1.79E+3	1.73E+3	1.61E+3	5.99E+2	6.34E+2	6.14E+2	4.11E+2	4.01E+2	3.055E−1
2.00E+2	8.96E+3	1.34E+3	1.29E+3	1.20E+3	4.49E+2	4.72E+2	4.56E+2	3.00E+2	2.92E+2	4.055E−1
3.00E+2	5.96E+3	8.93E+2	8.42E+2	7.84E+2	2.99E+2	3.10E+2	2.99E+2	1.90E+2	1.84E+2	6.030E−1
4.00E+2	4.45E+3	6.69E+2	6.21E+2	5.77E+2	2.24E+2	2.29E+2	2.20E+2	1.35E+2	1.31E+2	7.969E−1
5.00E+2	3.55E+3	5.34E+2	4.88E+2	4.54E+2	1.79E+2	1.80E+2	1.73E+2	1.03E+2	9.96E+1	9.875E−1
6.00E+2	2.95E+3	4.45E+2	4.00E+2	3.71E+2	1.49E+2	1.48E+2	1.42E+2	8.13E+1	7.89E+1	1.175E+0
8.00E+2	2.20E+3	3.32E+2	2.90E+2	2.69E+2	1.11E+2	1.07E+2	1.03E+2	5.53E+1	5.36E+1	1.540E+0
1.00E+3	1.75E+3	2.65E+2	2.25E+2	2.08E+2	8.83E+1	8.32E+1	7.94E+1	4.04E+1	3.90E+1	1.892E+0
1.50E+3	1.15E+3	1.75E+2	1.39E+2	1.28E+2	5.81E+1	5.14E+1	4.87E+1	2.17E+1	2.09E+1	2.721E+0
2.00E+3	8.50E+2	1.29E+2	9.67E+1	8.84E+1	4.29E+1	3.58E+1	3.37E+1	1.34E+1	1.29E+1	3.482E+0
3.00E+3	5.51E+2	8.41E+1	5.62E+1	5.09E+1	2.76E+1	2.07E+1	1.93E+1	6.30E+0	6.03E+0	4.822E+0
4.00E+3	4.02E+2	6.14E+1	3.71E+1	3.34E+1	2.00E+1	1.37E+1	1.26E+1	3.49E+0	3.33E+0	5.955E+0
5.00E+3	3.13E+2	4.78E+1	2.64E+1	2.36E+1	1.55E+1	9.69E+0	8.88E+0	2.14E+0	2.03E+0	6.914E+0
6.00E+3	2.54E+2	3.87E+1	1.97E+1	1.75E+1	1.24E+1	7.22E+0	6.57E+0	1.40E+0	1.33E+0	7.727E+0
8.00E+3	1.81E+2	2.74E+1	1.21E+1	1.07E+1	8.72E+0	4.42E+0	3.97E+0	6.92E−1	6.50E−1	9.003E+0
1.00E+4	1.38E+2	2.08E+1	8.15E+0	7.09E+0	6.54E+0	2.95E+0	2.62E+0	3.87E−1	3.61E−1	9.921E+0
1.50E+4	8.18E+1	1.21E+1	3.74E+0	3.19E+0	3.77E+0	1.34E+0	1.17E+0	1.26E−1	1.16E−1	1.121E+1
2.00E+4	5.52E+1	8.07E+0	2.07E+0	1.74E+0	2.48E+0	7.39E−1	6.32E−1	5.40E−2	4.92E−2	1.167E+1
3.00E+4	3.05E+1	4.36E+0	8.55E−1	6.97E−1	1.32E+0	3.03E−1	2.51E−1	1.55E−2	1.39E−2	1.156E+1
4.00E+4	1.94E+1	2.73E+0	4.42E−1	3.52E−1	8.25E−1	1.56E−1	1.26E−1	6.19E−3	5.46E−3	1.096E+1
5.00E+4	1.34E+1	1.87E+0	2.60E−1	2.03E−1	5.62E−1	9.15E−2	7.27E−2	3.00E−3	2.61E−3	1.027E+1
6.00E+4	9.85E+0	1.36E+0	1.68E−1	1.29E−1	4.06E−1	5.88E−2	4.59E−2	1.65E−3	1.42E−3	9.596E+0
8.00E+4	5.90E+0	8.01E−1	8.28E−2	6.16E−2	2.39E−1	2.90E−2	2.19E−2	6.41E−4	5.42E−4	8.432E+0
1.00E+5	3.91E+0	5.25E−1	4.76E−2	3.45E−2	1.57E−1	1.66E−2	1.23E−2	3.08E−4	2.57E−4	7.507E+0
1.50E+5	1.79E+0	2.38E−1	1.74E−2	1.20E−2	7.05E−2	6.05E−3	4.24E−3	8.28E−5	6.73E−5	5.925E+0
2.00E+5	1.02E+0	1.33E−1	8.55E−3	5.70E−3	3.95E−2	2.98E−3	2.01E−3	3.34E−5	2.69E−5	4.948E+0
3.00E+5	4.55E−1	5.89E−2	3.24E−3	2.08E−3	1.74E−2	1.13E−3	7.33E−4	9.78E−6	7.95E−6	3.819E+0
4.00E+5	2.60E−1	3.34E−2	1.68E−3	1.06E−3	9.86E−3	5.83E−4	3.74E−4	4.30E−6	3.60E−6	3.190E+0
5.00E+5	1.71E−1	2.19E−2	1.03E−3	6.54E−4	6.45E−3	3.59E−4	2.30E−4	2.35E−6	2.04E−6	2.790E+0
6.00E+5	1.24E−1	1.57E−2	7.06E−4	4.50E−4	4.63E−3	2.45E−4	1.58E−4	1.47E−6	1.33E−6	2.513E+0
8.00E+5	7.60E−2	9.62E−3	4.02E−4	2.62E−4	2.83E−3	1.39E−4	9.21E−5	7.34E−7	7.19E−7	2.156E+0
1.00E+6	5.36E−2	6.76E−3	2.68E−4	1.79E−4	1.99E−3	9.29E−5	6.29E−5	4.46E−7	4.69E−7	1.935E+0
1.50E+6	3.00E−2	3.77E−3	1.37E−4	9.67E−5	1.11E−3	4.75E−5	3.39E−5	1.98E−7	2.37E−7	1.632E+0
2.00E+6	2.06E−2	2.58E−3	8.93E−5	6.52E−5	7.58E−4	3.10E−5	2.29E−5	1.19E−7	1.54E−7	1.478E+0
3.00E+6	1.25E−2	1.57E−3	5.17E−5	3.91E−5	4.60E−4	1.80E−5	1.37E−5	6.31E−8	8.95E−8	1.321E+0
4.00E+6	8.95E−3	1.12E−3	3.62E−5	2.78E−5	3.28E−4					1.242E+0
5.00E+6	6.94E−3	8.66E−4	2.78E−5	2.15E−5						1.194E+0
6.00E+6	5.66E−3	7.06E−4	2.3E−5	1.76E−5						1.162E+0
8.00E+6	4.12E−3*	5.14E−4*		1.29E−5*						1.121E+0

TABLE. Cross Sections for Radiative Recombination, $Z=1–112$
See page 9 for Explanation of Tables

$Z= 41$

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 5.582$ fm

$\|\epsilon_n\|$ (eV)	2.341E+4	5.886E+3	5.886E+3	5.750E+3	2.601E+3	2.601E+3	2.560E+3	2.560E+3	2.548E+3	
1.00E+0	1.89E+6	2.83E+5	2.81E+5	2.62E+5	9.44E+4	1.03E+5	9.93E+4	7.07E+4	6.88E+4	1.865E−3
1.50E+0	1.26E+6	1.89E+5	1.87E+5	1.74E+5	6.30E+4	6.83E+4	6.62E+4	4.71E+4	4.59E+4	2.798E−3
2.00E+0	9.46E+5	1.41E+5	1.40E+5	1.31E+5	4.72E+4	5.12E+4	4.97E+4	3.53E+4	3.44E+4	3.730E−3
3.00E+0	6.31E+5	9.43E+4	9.36E+4	8.71E+4	3.15E+4	3.42E+4	3.31E+4	2.35E+4	2.29E+4	5.595E−3
4.00E+0	4.73E+5	7.07E+4	7.02E+4	6.53E+4	2.36E+4	2.56E+4	2.48E+4	1.76E+4	1.72E+4	7.459E−3
5.00E+0	3.79E+5	5.66E+4	5.61E+4	5.23E+4	1.89E+4	2.05E+4	1.99E+4	1.41E+4	1.37E+4	9.323E−3
6.00E+0	3.15E+5	4.71E+4	4.68E+4	4.35E+4	1.57E+4	1.71E+4	1.65E+4	1.17E+4	1.14E+4	1.119E−2
8.00E+0	2.37E+5	3.54E+4	3.51E+4	3.26E+4	1.18E+4	1.28E+4	1.24E+4	8.80E+3	8.57E+3	1.491E−2
1.00E+1	1.89E+5	2.83E+4	2.80E+4	2.61E+4	9.44E+3	1.02E+4	9.92E+3	7.03E+3	6.84E+3	1.864E−2
1.50E+1	1.26E+5	1.89E+4	1.87E+4	1.74E+4	6.30E+3	6.82E+3	6.61E+3	4.67E+3	4.55E+3	2.794E−2
2.00E+1	9.46E+4	1.41E+4	1.40E+4	1.30E+4	4.72E+3	5.11E+3	4.95E+3	3.50E+3	3.40E+3	3.724E−2
3.00E+1	6.31E+4	9.43E+3	9.32E+3	8.67E+3	3.15E+3	3.40E+3	3.30E+3	2.32E+3	2.26E+3	5.582E−2
4.00E+1	4.73E+4	7.07E+3	6.98E+3	6.49E+3	2.36E+3	2.55E+3	2.47E+3	1.73E+3	1.68E+3	7.436E−2
5.00E+1	3.78E+4	5.65E+3	5.57E+3	5.18E+3	1.89E+3	2.04E+3	1.97E+3	1.38E+3	1.34E+3	9.287E−2
6.00E+1	3.15E+4	4.71E+3	4.63E+3	4.31E+3	1.57E+3	1.69E+3	1.64E+3	1.14E+3	1.11E+3	1.114E−1
8.00E+1	2.36E+4	3.53E+3	3.46E+3	3.22E+3	1.18E+3	1.27E+3	1.23E+3	8.46E+2	8.23E+2	1.482E−1
1.00E+2	1.89E+4	2.83E+3	2.76E+3	2.57E+3	9.44E+2	1.01E+3	9.77E+2	6.70E+2	6.51E+2	1.850E−1
1.50E+2	1.26E+4	1.88E+3	1.83E+3	1.70E+3	6.29E+2	6.68E+2	6.46E+2	4.35E+2	4.23E+2	2.763E−1
2.00E+2	9.41E+3	1.41E+3	1.36E+3	1.26E+3	4.72E+2	4.98E+2	4.80E+2	3.18E+2	3.09E+2	3.668E−1
3.00E+2	6.26E+3	9.39E+2	8.91E+2	8.26E+2	3.14E+2	3.27E+2	3.15E+2	2.01E+2	1.95E+2	5.457E−1
4.00E+2	4.68E+3	7.03E+2	6.57E+2	6.09E+2	2.35E+2	2.41E+2	2.32E+2	1.44E+2	1.39E+2	7.216E−1
5.00E+2	3.73E+3	5.62E+2	5.18E+2	4.79E+2	1.88E+2	1.90E+2	1.83E+2	1.09E+2	1.06E+2	8.945E−1
6.00E+2	3.10E+3	4.67E+2	4.24E+2	3.92E+2	1.56E+2	1.56E+2	1.50E+2	8.68E+1	8.41E+1	1.065E+0
8.00E+2	2.31E+3	3.49E+2	3.09E+2	2.85E+2	1.17E+2	1.14E+2	1.09E+2	5.94E+1	5.74E+1	1.396E+0
1.00E+3	1.84E+3	2.78E+2	2.39E+2	2.20E+2	9.29E+1	8.83E+1	8.42E+1	4.35E+1	4.20E+1	1.717E+0
1.50E+3	1.21E+3	1.84E+2	1.48E+2	1.36E+2	6.11E+1	5.48E+1	5.18E+1	2.36E+1	2.27E+1	2.475E+0
2.00E+3	8.95E+2	1.36E+2	1.04E+2	9.44E+1	4.52E+1	3.83E+1	3.60E+1	1.46E+1	1.40E+1	3.173E+0
3.00E+3	5.81E+2	8.88E+1	6.05E+1	5.47E+1	2.92E+1	2.23E+1	2.08E+1	6.96E+0	6.65E+0	4.410E+0
4.00E+3	4.24E+2	6.49E+1	4.02E+1	3.60E+1	2.12E+1	1.48E+1	1.36E+1	3.89E+0	3.70E+0	5.464E+0
5.00E+3	3.31E+2	5.06E+1	2.87E+1	2.56E+1	1.64E+1	1.05E+1	9.63E+0	2.40E+0	2.28E+0	6.363E+0
6.00E+3	2.69E+2	4.10E+1	2.15E+1	1.91E+1	1.32E+1	7.88E+0	7.15E+0	1.58E+0	1.49E+0	7.133E+0
8.00E+3	1.92E+2	2.92E+1	1.33E+1	1.17E+1	9.28E+0	4.85E+0	4.35E+0	7.88E−1	7.39E−1	8.354E+0
1.00E+4	1.46E+2	2.21E+1	9.00E+0	7.79E+0	6.98E+0	3.26E+0	2.89E+0	4.44E−1	4.14E−1	9.247E+0
1.50E+4	8.73E+1	1.30E+1	4.17E+0	3.54E+0	4.04E+0	1.50E+0	1.30E+0	1.46E−1	1.34E−1	1.055E+1
2.00E+4	5.91E+1	8.68E+0	2.33E+0	1.94E+0	2.67E+0	8.30E−1	7.07E−1	6.32E−2	5.75E−2	1.106E+1
3.00E+4	3.28E+1	4.71E+0	9.69E−1	7.85E−1	1.43E+0	3.43E−1	2.84E−1	1.83E−2	1.64E−2	1.106E+1
4.00E+4	2.10E+1	2.97E+0	5.04E−1	3.98E−1	8.97E−1	1.77E−1	1.43E−1	7.37E−3	6.48E−3	1.057E+1
5.00E+4	1.46E+1	2.04E+0	2.98E−1	2.31E−1	6.13E−1	1.05E−1	8.28E−2	3.59E−3	3.12E−3	9.947E+0
6.00E+4	1.07E+1	1.48E+0	1.93E−1	1.47E−1	4.44E−1	6.76E−2	5.24E−2	1.98E−3	1.70E−3	9.332E+0
8.00E+4	6.45E+0	8.79E−1	9.57E−2	7.06E−2	2.63E−1	3.35E−2	2.51E−2	7.74E−4	6.52E−4	8.244E+0
1.00E+5	4.29E+0	5.78E−1	5.53E−2	3.97E−2	1.72E−1	1.93E−2	1.41E−2	3.73E−4	3.10E−4	7.367E+0
1.50E+5	1.98E+0	2.63E−1	2.03E−2	1.39E−2	7.79E−2	7.06E−3	4.91E−3	1.01E−4	8.16E−5	5.846E+0
2.00E+5	1.12E+0	1.48E−1	1.00E−2	6.62E−3	4.38E−2	3.49E−3	2.34E−3	4.08E−5	3.27E−5	4.897E+0
3.00E+5	5.05E−1	6.56E−2	3.81E−3	2.42E−3	1.94E−2	1.33E−3	8.53E−4	1.20E−5	9.70E−6	3.792E+0
4.00E+5	2.90E−1	3.73E−2	1.98E−3	1.24E−3	1.10E−2	6.88E−4	4.36E−4	5.28E−6	4.40E−6	3.173E+0
5.00E+5	1.91E−1	2.44E−2	1.22E−3	7.63E−4	7.20E−3	4.23E−4	2.68E−4	2.89E−6	2.50E−6	2.778E+0
6.00E+5	1.38E−1	1.76E−2	8.35E−4	5.26E−4	5.17E−3	2.90E−4	1.85E−4	1.81E−6	1.63E−6	2.504E+0
8.00E+5	8.50E−2	1.08E−2	4.76E−4	3.06E−4	3.16E−3	1.65E−4	1.08E−4	9.05E−7	8.80E−7	2.150E+0
1.00E+6	5.99E−2	7.56E−3	3.17E−4	2.09E−4	2.22E−3	1.10E−4	7.35E−5	5.51E−7	5.74E−7	1.931E+0
1.50E+6	3.36E−2	4.21E−3	1.62E−4	1.13E−4	1.24E−3	5.63E−5	3.96E−5	2.45E−7	2.89E−7	1.630E+0
2.00E+6	2.30E−2	2.88E−3	1.06E−4	7.60E−5	8.46E−4	3.68E−5	2.67E−5	1.47E−7	1.89E−7	1.476E+0
3.00E+6	1.40E−2	1.75E−3	6.14E−5	4.55E−5	5.13E−4	2.13E−5	1.60E−5	7.80E−8*	1.09E−7	1.320E+0
4.00E+6	9.98E−3	1.25E−3	4.30E−5	3.24E−5	3.65E−4	1.49E−5	1.14E−5			1.241E+0
5.00E+6	7.73E−3	9.65E−4*	3.30E−5*	2.50E−5						1.193E+0
6.00E+6	6.30E−3	7.86E−4*	2.68E−5*	2.04E−5						1.161E+0
8.00E+6	4.59E−3*	5.73E−4*								1.121E+0

TABLE. Cross Sections for Radiative Recombination, $Z=1$–112

See page 9 for Explanation of Tables

$Z= 42$

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 5.689$ fm

$\|\epsilon_n\|$ (eV)	2.459E+4	6.185E+3	6.186E+3	6.036E+3	2.732E+3	2.732E+3	2.688E+3	2.688E+3	2.674E+3	
1.00E+0	1.99E+6	2.97E+5	2.96E+5	2.75E+5	9.91E+4	1.08E+5	1.04E+5	7.43E+4	7.22E+4	1.690E−3
1.50E+0	1.32E+6	1.98E+5	1.97E+5	1.83E+5	6.61E+4	7.18E+4	6.95E+4	4.95E+4	4.81E+4	2.535E−3
2.00E+0	9.92E+5	1.48E+5	1.48E+5	1.37E+5	4.95E+4	5.39E+4	5.22E+4	3.71E+4	3.61E+4	3.379E−3
3.00E+0	6.62E+5	9.90E+4	9.86E+4	9.15E+4	3.30E+4	3.59E+4	3.48E+4	2.47E+4	2.41E+4	5.068E−3
4.00E+0	4.96E+5	7.42E+4	7.40E+4	6.86E+4	2.48E+4	2.69E+4	2.61E+4	1.85E+4	1.80E+4	6.757E−3
5.00E+0	3.97E+5	5.94E+4	5.92E+4	5.49E+4	1.98E+4	2.15E+4	2.09E+4	1.48E+4	1.44E+4	8.446E−3
6.00E+0	3.31E+5	4.95E+4	4.93E+4	4.57E+4	1.65E+4	1.80E+4	1.74E+4	1.24E+4	1.20E+4	1.013E−2
8.00E+0	2.48E+5	3.71E+4	3.70E+4	3.43E+4	1.24E+4	1.35E+4	1.30E+4	9.25E+3	9.00E+3	1.351E−2
1.00E+1	1.98E+5	2.97E+4	2.96E+4	2.74E+4	9.91E+3	1.08E+4	1.04E+4	7.39E+3	7.19E+3	1.689E−2
1.50E+1	1.32E+5	1.98E+4	1.97E+4	1.83E+4	6.61E+3	7.17E+3	6.94E+3	4.92E+3	4.78E+3	2.532E−2
2.00E+1	9.92E+4	1.48E+4	1.48E+4	1.37E+4	4.95E+3	5.37E+3	5.20E+3	3.68E+3	3.58E+3	3.374E−2
3.00E+1	6.61E+4	9.89E+3	9.82E+3	9.11E+3	3.30E+3	3.58E+3	3.46E+3	2.44E+3	2.37E+3	5.058E−2
4.00E+1	4.96E+4	7.42E+3	7.35E+3	6.82E+3	2.48E+3	2.68E+3	2.59E+3	1.82E+3	1.77E+3	6.738E−2
5.00E+1	3.97E+4	5.93E+3	5.87E+3	5.45E+3	1.98E+3	2.14E+3	2.07E+3	1.45E+3	1.41E+3	8.416E−2
6.00E+1	3.30E+4	4.95E+3	4.89E+3	4.53E+3	1.65E+3	1.78E+3	1.72E+3	1.20E+3	1.17E+3	1.009E−1
8.00E+1	2.48E+4	3.71E+3	3.65E+3	3.39E+3	1.24E+3	1.33E+3	1.29E+3	8.91E+2	8.66E+2	1.343E−1
1.00E+2	1.98E+4	2.97E+3	2.91E+3	2.70E+3	9.90E+2	1.06E+3	1.03E+3	7.06E+2	6.86E+2	1.676E−1
1.50E+2	1.32E+4	1.98E+3	1.93E+3	1.78E+3	6.60E+2	7.04E+2	6.79E+2	4.59E+2	4.46E+2	2.505E−1
2.00E+2	9.87E+3	1.48E+3	1.43E+3	1.33E+3	4.95E+2	5.24E+2	5.05E+2	3.36E+2	3.26E+2	3.326E−1
3.00E+2	6.56E+3	9.86E+2	9.41E+2	8.70E+2	3.30E+2	3.45E+2	3.32E+2	2.13E+2	2.07E+2	4.950E−1
4.00E+2	4.91E+3	7.38E+2	6.95E+2	6.42E+2	2.47E+2	2.55E+2	2.45E+2	1.52E+2	1.48E+2	6.548E−1
5.00E+2	3.92E+3	5.90E+2	5.48E+2	5.05E+2	1.97E+2	2.01E+2	1.93E+2	1.16E+2	1.13E+2	8.120E−1
6.00E+2	3.26E+3	4.91E+2	4.50E+2	4.14E+2	1.64E+2	1.65E+2	1.58E+2	9.26E+1	8.96E+1	9.668E−1
8.00E+2	2.43E+3	3.67E+2	3.27E+2	3.01E+2	1.23E+2	1.20E+2	1.15E+2	6.35E+1	6.14E+1	1.269E+0
1.00E+3	1.93E+3	2.93E+2	2.54E+2	2.33E+2	9.76E+1	9.36E+1	8.91E+1	4.67E+1	4.50E+1	1.562E+0
1.50E+3	1.27E+3	1.93E+2	1.58E+2	1.44E+2	6.43E+1	5.83E+1	5.50E+1	2.55E+1	2.45E+1	2.255E+0
2.00E+3	9.41E+2	1.43E+2	1.11E+2	1.01E+2	4.76E+1	4.09E+1	3.84E+1	1.59E+1	1.53E+1	2.896E+0
3.00E+3	6.11E+2	9.35E+1	6.50E+1	5.86E+1	3.08E+1	2.40E+1	2.23E+1	7.67E+0	7.31E+0	4.039E+0
4.00E+3	4.47E+2	6.85E+1	4.34E+1	3.88E+1	2.24E+1	1.60E+1	1.47E+1	4.32E+0	4.11E+0	5.020E+0
5.00E+3	3.49E+2	5.34E+1	3.11E+1	2.76E+1	1.73E+1	1.14E+1	1.04E+1	2.68E+0	2.54E+0	5.864E+0
6.00E+3	2.84E+2	4.34E+1	2.35E+1	2.07E+1	1.40E+1	8.57E+0	7.76E+0	1.78E+0	1.68E+0	6.591E+0
8.00E+3	2.03E+2	3.09E+1	1.46E+1	1.27E+1	9.86E+0	5.31E+0	4.75E+0	8.94E−1	8.36E−1	7.757E+0
1.00E+4	1.55E+2	2.35E+1	9.90E+0	8.54E+0	7.44E+0	3.58E+0	3.17E+0	5.07E−1	4.72E−1	8.624E+0
1.50E+4	9.29E+1	1.39E+1	4.64E+0	3.92E+0	4.32E+0	1.66E+0	1.44E+0	1.69E−1	1.55E−1	9.923E+0
2.00E+4	6.31E+1	9.31E+0	2.60E+0	2.16E+0	2.87E+0	9.28E−1	7.87E−1	7.36E−2	6.68E−2	1.048E+1
3.00E+4	3.53E+1	5.08E+0	1.09E+0	8.81E−1	1.55E+0	3.87E−1	3.18E−1	2.16E−2	1.92E−2	1.059E+1
4.00E+4	2.27E+1	3.21E+0	5.72E−1	4.50E−1	9.72E−1	2.02E−1	1.62E−1	8.73E−3	7.66E−3	1.018E+1
5.00E+4	1.58E+1	2.21E+0	3.41E−1	2.62E−1	6.66E−1	1.20E−1	9.39E−2	4.27E−3	3.70E−3	9.633E+0
6.00E+4	1.16E+1	1.61E+0	2.21E−1	1.67E−1	4.84E−1	7.74E−2	5.96E−2	2.37E−3	2.03E−3	9.072E+0
8.00E+4	7.03E+0	9.61E−1	1.10E−1	8.07E−2	2.87E−1	3.85E−2	2.87E−2	9.29E−4	7.80E−4	8.059E+0
1.00E+5	4.69E+0	6.34E−1	6.38E−2	4.55E−2	1.89E−1	2.23E−2	1.62E−2	4.50E−4	3.72E−4	7.228E+0
1.50E+5	2.17E+0	2.89E−1	2.36E−2	1.60E−2	8.59E−2	8.20E−3	5.65E−3	1.22E−4	9.85E−5	5.767E+0
2.00E+5	1.24E+0	1.63E−1	1.17E−2	7.64E−3	4.84E−2	4.06E−3	2.70E−3	4.96E−5	3.96E−5	4.845E+0
3.00E+5	5.59E−1	7.27E−2	4.47E−3	2.81E−3	2.15E−2	1.55E−3	9.89E−4	1.46E−5	1.18E−5	3.764E+0
4.00E+5	3.22E−1	4.15E−2	2.33E−3	1.44E−3	1.22E−2	8.07E−4	5.07E−4	6.46E−6	5.34E−6	3.155E+0
5.00E+5	2.12E−1	2.72E−2	1.44E−3	8.86E−4	8.02E−3	4.98E−4	3.12E−4	3.54E−6	3.04E−6	2.765E+0
6.00E+5	1.54E−1	1.96E−2	9.84E−4	6.11E−4	5.76E−3	3.41E−4	2.15E−4	2.22E−6	1.98E−6	2.495E+0
8.00E+5	9.47E−2	1.20E−2	5.61E−4	3.56E−4	3.53E−3	1.95E−4	1.25E−4	1.11E−6	1.07E−6	2.144E+0
1.00E+6	6.68E−2	8.43E−3	3.74E−4	2.43E−4	2.48E−3	1.30E−4	8.54E−5	6.76E−7	6.98E−7	1.926E+0
1.50E+6	3.74E−2	4.70E−3	1.92E−4	1.31E−4	1.38E−3	6.65E−5	4.59E−5	3.01E−7	3.52E−7	1.628E+0
2.00E+6	2.57E−2	3.21E−3	1.25E−4	8.82E−5	9.42E−4	4.35E−5	3.09E−5	1.81E−7	2.29E−7	1.475E+0
3.00E+6	1.56E−2	1.95E−3	7.27E−5	5.28E−5	5.70E−4	2.52E−5	1.85E−5	9.60E−8*	1.33E−7	1.319E+0
4.00E+6	1.11E−2	1.39E−3	5.09E−5	3.75E−5	4.06E−4	1.76E−5	1.32E−5*			1.240E+0
5.00E+6	8.59E−3	1.07E−3	3.91E−5	2.90E−5						1.193E+0
6.00E+6	7.00E−3	8.74E−4	3.2E−5	2.36E−5						1.161E+0
8.00E+6	5.1E−3	6.4E−4		1.72E−5*						1.121E+0

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$Z= 43$

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

R_{nucl} = 5.711 fm

$\lvert\epsilon_n\rvert$ (eV)	2.581E+4	6.493E+3	6.493E+3	6.328E+3	2.867E+3	2.867E+3	2.819E+3	2.819E+3	2.803E+3	
1.00E+0	2.08E+6	3.11E+5	3.12E+5	2.88E+5	1.04E+5	1.13E+5	1.09E+5	7.80E+4	7.58E+4	1.534E−3
1.50E+0	1.39E+6	2.08E+5	2.08E+5	1.92E+5	6.92E+4	7.55E+4	7.30E+4	5.20E+4	5.05E+4	2.301E−3
2.00E+0	1.04E+6	1.56E+5	1.56E+5	1.44E+5	5.19E+4	5.66E+4	5.47E+4	3.90E+4	3.79E+4	3.068E−3
3.00E+0	6.93E+5	1.04E+5	1.04E+5	9.60E+4	3.46E+4	3.77E+4	3.65E+4	2.60E+4	2.52E+4	4.602E−3
4.00E+0	5.20E+5	7.78E+4	7.79E+4	7.20E+4	2.60E+4	2.83E+4	2.74E+4	1.95E+4	1.89E+4	6.136E−3
5.00E+0	4.16E+5	6.23E+4	6.23E+4	5.76E+4	2.08E+4	2.26E+4	2.19E+4	1.56E+4	1.51E+4	7.669E−3
6.00E+0	3.47E+5	5.19E+4	5.19E+4	4.80E+4	1.73E+4	1.89E+4	1.82E+4	1.30E+4	1.26E+4	9.202E−3
8.00E+0	2.60E+5	3.89E+4	3.89E+4	3.60E+4	1.30E+4	1.41E+4	1.37E+4	9.72E+3	9.44E+3	1.227E−2
1.00E+1	2.08E+5	3.11E+4	3.11E+4	2.88E+4	1.04E+4	1.13E+4	1.09E+4	7.77E+3	7.54E+3	1.533E−2
1.50E+1	1.39E+5	2.08E+4	2.07E+4	1.92E+4	6.92E+3	7.53E+3	7.28E+3	5.17E+3	5.02E+3	2.299E−2
2.00E+1	1.04E+5	1.56E+4	1.55E+4	1.44E+4	5.19E+3	5.65E+3	5.46E+3	3.86E+3	3.75E+3	3.064E−2
3.00E+1	6.93E+4	1.04E+4	1.03E+4	9.55E+3	3.46E+3	3.76E+3	3.63E+3	2.56E+3	2.49E+3	4.593E−2
4.00E+1	5.19E+4	7.78E+3	7.74E+3	7.15E+3	2.60E+3	2.82E+3	2.72E+3	1.91E+3	1.86E+3	6.119E−2
5.00E+1	4.15E+4	6.22E+3	6.19E+3	5.71E+3	2.08E+3	2.25E+3	2.17E+3	1.52E+3	1.48E+3	7.643E−2
6.00E+1	3.46E+4	5.18E+3	5.15E+3	4.75E+3	1.73E+3	1.87E+3	1.81E+3	1.26E+3	1.23E+3	9.164E−2
8.00E+1	2.59E+4	3.89E+3	3.85E+3	3.55E+3	1.30E+3	1.40E+3	1.35E+3	9.38E+2	9.10E+2	1.220E−1
1.00E+2	2.07E+4	3.11E+3	3.07E+3	2.83E+3	1.04E+3	1.12E+3	1.08E+3	7.43E+2	7.21E+2	1.523E−1
1.50E+2	1.38E+4	2.07E+3	2.03E+3	1.87E+3	6.92E+2	7.40E+2	7.13E+2	4.84E+2	4.69E+2	2.275E−1
2.00E+2	1.03E+4	1.55E+3	1.51E+3	1.39E+3	5.19E+2	5.51E+2	5.31E+2	3.54E+2	3.43E+2	3.022E−1
3.00E+2	6.88E+3	1.03E+3	9.93E+2	9.15E+2	3.45E+2	3.63E+2	3.49E+2	2.25E+2	2.18E+2	4.499E−1
4.00E+2	5.14E+3	7.74E+2	7.34E+2	6.75E+2	2.59E+2	2.68E+2	2.57E+2	1.61E+2	1.56E+2	5.954E−1
5.00E+2	4.11E+3	6.19E+2	5.79E+2	5.32E+2	2.07E+2	2.12E+2	2.03E+2	1.24E+2	1.19E+2	7.387E−1
6.00E+2	3.41E+3	5.15E+2	4.75E+2	4.36E+2	1.72E+2	1.74E+2	1.67E+2	9.85E+1	9.52E+1	8.798E−1
8.00E+2	2.55E+3	3.85E+2	3.47E+2	3.17E+2	1.29E+2	1.27E+2	1.21E+2	6.78E+1	6.54E+1	1.156E+0
1.00E+3	2.03E+3	3.07E+2	2.70E+2	2.46E+2	1.02E+2	9.91E+1	9.41E+1	5.00E+1	4.82E+1	1.423E+0
1.50E+3	1.33E+3	2.03E+2	1.68E+2	1.53E+2	6.75E+1	6.19E+1	5.83E+1	2.75E+1	2.64E+1	2.059E+0
2.00E+3	9.88E+2	1.51E+2	1.18E+2	1.07E+2	5.00E+1	4.35E+1	4.08E+1	1.73E+1	1.66E+1	2.648E+0
3.00E+3	6.43E+2	9.84E+1	6.98E+1	6.26E+1	3.24E+1	2.57E+1	2.38E+1	8.41E+0	8.01E+0	3.705E+0
4.00E+3	4.70E+2	7.21E+1	4.68E+1	4.16E+1	2.36E+1	1.72E+1	1.58E+1	4.78E+0	4.54E+0	4.619E+0
5.00E+3	3.68E+2	5.64E+1	3.37E+1	2.98E+1	1.83E+1	1.23E+1	1.12E+1	2.99E+0	2.82E+0	5.410E+0
6.00E+3	2.99E+2	4.59E+1	2.55E+1	2.23E+1	1.48E+1	9.30E+0	8.40E+0	1.99E+0	1.87E+0	6.096E+0
8.00E+3	2.15E+2	3.28E+1	1.60E+1	1.38E+1	1.05E+1	5.80E+0	5.17E+0	1.01E+0	9.43E−1	7.209E+0
1.00E+4	1.64E+2	2.50E+1	1.09E+1	9.33E+0	7.90E+0	3.93E+0	3.46E+0	5.76E−1	5.35E−1	8.049E+0
1.50E+4	9.87E+1	1.48E+1	5.14E+0	4.31E+0	4.62E+0	1.84E+0	1.59E+0	1.94E−1	1.78E−1	9.341E+0
2.00E+4	6.73E+1	9.96E+0	2.90E+0	2.39E+0	3.08E+0	1.04E+0	8.73E−1	8.54E−2	7.73E−2	9.931E+0
3.00E+4	3.78E+1	5.47E+0	1.23E+0	9.85E−1	1.67E+0	4.36E−1	3.56E−1	2.53E−2	2.24E−2	1.013E+1
4.00E+4	2.44E+1	3.47E+0	6.48E−1	5.05E−1	1.05E+0	2.28E−1	1.82E−1	1.03E−2	9.01E−3	9.809E+0
5.00E+4	1.71E+1	2.40E+0	3.87E−1	2.96E−1	7.23E−1	1.36E−1	1.06E−1	5.06E−3	4.37E−3	9.327E+0
6.00E+4	1.26E+1	1.75E+0	2.52E−1	1.89E−1	5.27E−1	8.83E−2	6.76E−2	2.82E−3	2.40E−3	8.817E+0
8.00E+4	7.65E+0	1.05E+0	1.26E−1	9.18E−2	3.14E−1	4.42E−2	3.27E−2	1.11E−3	9.28E−4	7.874E+0
1.00E+5	5.11E+0	6.94E−1	7.35E−2	5.19E−2	2.07E−1	2.56E−2	1.85E−2	5.39E−4	4.44E−4	7.089E+0
1.50E+5	2.38E+0	3.18E−1	2.73E−2	1.83E−2	9.44E−2	9.49E−3	6.49E−3	1.47E−4	1.18E−4	5.688E+0
2.00E+5	1.36E+0	1.80E−1	1.36E−2	8.80E−3	5.34E−2	4.72E−3	3.11E−3	6.00E−5	4.77E−5	4.793E+0
3.00E+5	6.18E−1	8.05E−2	5.22E−3	3.24E−3	2.38E−2	1.81E−3	1.14E−3	1.78E−5	1.42E−5	3.736E+0
4.00E+5	3.56E−1	4.60E−2	2.72E−3	1.66E−3	1.36E−2	9.44E−4	5.86E−4	7.86E−6	6.46E−6	3.137E+0
5.00E+5	2.36E−1	3.02E−2	1.68E−3	1.03E−3	8.90E−3	5.83E−4	3.61E−4	4.31E−6	3.68E−6	2.752E+0
6.00E+5	1.70E−1	2.18E−2	1.16E−3	7.08E−4	6.40E−3	4.00E−4	2.49E−4	2.70E−6	2.40E−6	2.485E+0
8.00E+5	1.05E−1	1.33E−2	6.60E−4	4.13E−4	3.92E−3	2.29E−4	1.45E−4	1.35E−6	1.30E−6	2.137E+0
1.00E+6	7.43E−2	9.38E−3	4.40E−4	2.82E−4	2.75E−3	1.53E−4	9.89E−5	8.26E−7	8.45E−7	1.922E+0
1.50E+6	4.16E−2	5.23E−3	2.26E−4	1.52E−4	1.53E−3	7.83E−5	5.32E−5	3.68E−7	4.26E−7	1.625E+0
2.00E+6	2.85E−2	3.57E−3	1.48E−4	1.02E−4	1.05E−3	5.12E−5	3.58E−5	2.22E−7	2.77E−7	1.473E+0
3.00E+6	1.73E−2	2.16E−3	8.57E−5	6.10E−5	6.33E−4	2.97E−5	2.14E−5	1.18E−7	1.61E−7	1.318E+0
4.00E+6	1.23E−2	1.54E−3	6.00E−5	4.33E−5	4.50E−4	2.08E−5	1.52E−5			1.239E+0
5.00E+6	9.52E−3	1.19E−3	4.61E−5*	3.35E−5	3.49E−4*					1.192E+0
6.00E+6	7.75E−3*	9.68E−4*	3.7E−5	2.73E−5						1.160E+0
8.00E+6	5.6E−3	7.0E−4		1.98E−5*						1.121E+0

TABLE. Cross Sections for Radiative Recombination, $Z=1-112$
See page 9 for Explanation of Tables

$Z= 44$

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 5.785$ fm

$\|\epsilon_n\|$ (eV)	2.706E+4	6.810E+3	6.810E+3	6.628E+3	3.006E+3	3.006E+3	2.952E+3	2.952E+3	2.935E+3	
1.00E+0	2.18E+6	3.26E+5	3.28E+5	3.02E+5	1.09E+5	1.19E+5	1.15E+5	8.19E+4	7.94E+4	1.396E−3
1.50E+0	1.45E+6	2.17E+5	2.18E+5	2.01E+5	7.25E+4	7.92E+4	7.64E+4	5.46E+4	5.29E+4	2.094E−3
2.00E+0	1.09E+6	1.63E+5	1.64E+5	1.51E+5	5.43E+4	5.94E+4	5.73E+4	4.09E+4	3.97E+4	2.792E−3
3.00E+0	7.25E+5	1.09E+5	1.09E+5	1.01E+5	3.62E+4	3.96E+4	3.82E+4	2.73E+4	2.64E+4	4.187E−3
4.00E+0	5.44E+5	8.15E+4	8.19E+4	7.54E+4	2.72E+4	2.97E+4	2.87E+4	2.04E+4	1.98E+4	5.583E−3
5.00E+0	4.35E+5	6.52E+4	6.55E+4	6.03E+4	2.17E+4	2.38E+4	2.29E+4	1.63E+4	1.58E+4	6.978E−3
6.00E+0	3.63E+5	5.43E+4	5.46E+4	5.03E+4	1.81E+4	1.98E+4	1.91E+4	1.36E+4	1.32E+4	8.373E−3
8.00E+0	2.72E+5	4.07E+4	4.09E+4	3.77E+4	1.36E+4	1.48E+4	1.43E+4	1.02E+4	9.89E+3	1.116E−2
1.00E+1	2.18E+5	3.26E+4	3.27E+4	3.01E+4	1.09E+4	1.19E+4	1.15E+4	8.15E+3	7.90E+3	1.395E−2
1.50E+1	1.45E+5	2.17E+4	2.18E+4	2.01E+4	7.25E+3	7.91E+3	7.63E+3	5.42E+3	5.26E+3	2.092E−2
2.00E+1	1.09E+5	1.63E+4	1.63E+4	1.50E+4	5.43E+3	5.93E+3	5.72E+3	4.06E+3	3.93E+3	2.788E−2
3.00E+1	7.25E+4	1.09E+4	1.09E+4	1.00E+4	3.62E+3	3.95E+3	3.81E+3	2.69E+3	2.61E+3	4.179E−2
4.00E+1	5.43E+4	8.15E+3	8.15E+3	7.50E+3	2.72E+3	2.96E+3	2.85E+3	2.01E+3	1.95E+3	5.568E−2
5.00E+1	4.35E+4	6.52E+3	6.51E+3	5.99E+3	2.17E+3	2.36E+3	2.28E+3	1.60E+3	1.55E+3	6.955E−2
6.00E+1	3.62E+4	5.43E+3	5.42E+3	4.98E+3	1.81E+3	1.97E+3	1.90E+3	1.33E+3	1.29E+3	8.340E−2
8.00E+1	2.71E+4	4.07E+3	4.05E+3	3.73E+3	1.36E+3	1.47E+3	1.42E+3	9.86E+2	9.55E+2	1.110E−1
1.00E+2	2.17E+4	3.26E+3	3.23E+3	2.97E+3	1.09E+3	1.17E+3	1.13E+3	7.82E+2	7.57E+2	1.386E−1
1.50E+2	1.45E+4	2.17E+3	2.14E+3	1.97E+3	7.24E+2	7.77E+2	7.48E+2	5.09E+2	4.93E+2	2.071E−1
2.00E+2	1.08E+4	1.63E+3	1.59E+3	1.46E+3	5.43E+2	5.79E+2	5.57E+2	3.73E+2	3.61E+2	2.752E−1
3.00E+2	7.20E+3	1.08E+3	1.05E+3	9.61E+2	3.62E+2	3.81E+2	3.66E+2	2.38E+2	2.30E+2	4.098E−1
4.00E+2	5.38E+3	8.11E+2	7.74E+2	7.10E+2	2.71E+2	2.83E+2	2.71E+2	1.71E+2	1.65E+2	5.425E−1
5.00E+2	4.30E+3	6.48E+2	6.11E+2	5.59E+2	2.17E+2	2.23E+2	2.13E+2	1.31E+2	1.26E+2	6.733E−1
6.00E+2	3.57E+3	5.39E+2	5.02E+2	4.59E+2	1.80E+2	1.84E+2	1.75E+2	1.05E+2	1.01E+2	8.022E−1
8.00E+2	2.67E+3	4.03E+2	3.67E+2	3.34E+2	1.35E+2	1.34E+2	1.28E+2	7.23E+1	6.96E+1	1.054E+0
1.00E+3	2.12E+3	3.22E+2	2.86E+2	2.60E+2	1.07E+2	1.05E+2	9.93E+1	5.34E+1	5.14E+1	1.300E+0
1.50E+3	1.40E+3	2.13E+2	1.79E+2	1.62E+2	7.08E+1	6.56E+1	6.17E+1	2.96E+1	2.84E+1	1.883E+0
2.00E+3	1.04E+3	1.58E+2	1.26E+2	1.13E+2	5.25E+1	4.63E+1	4.33E+1	1.87E+1	1.79E+1	2.426E+0
3.00E+3	6.75E+2	1.03E+2	7.47E+1	6.67E+1	3.41E+1	2.75E+1	2.54E+1	9.20E+0	8.75E+0	3.404E+0
4.00E+3	4.94E+2	7.59E+1	5.03E+1	4.46E+1	2.48E+1	1.85E+1	1.69E+1	5.27E+0	4.99E+0	4.255E+0
5.00E+3	3.87E+2	5.94E+1	3.64E+1	3.20E+1	1.93E+1	1.33E+1	1.21E+1	3.32E+0	3.13E+0	4.997E+0
6.00E+3	3.15E+2	4.84E+1	2.76E+1	2.41E+1	1.56E+1	1.01E+1	9.06E+0	2.22E+0	2.09E+0	5.645E+0
8.00E+3	2.26E+2	3.46E+1	1.74E+1	1.50E+1	1.11E+1	6.31E+0	5.61E+0	1.14E+0	1.06E+0	6.705E+0
1.00E+4	1.74E+2	2.64E+1	1.19E+1	1.02E+1	8.39E+0	4.30E+0	3.78E+0	6.53E−1	6.05E−1	7.516E+0
1.50E+4	1.05E+2	1.58E+1	5.67E+0	4.74E+0	4.92E+0	2.03E+0	1.74E+0	2.22E−1	2.03E−1	8.795E+0
2.00E+4	7.16E+1	1.06E+1	3.22E+0	2.64E+0	3.29E+0	1.15E+0	9.66E−1	9.85E−2	8.90E−2	9.412E+0
3.00E+4	4.04E+1	5.88E+0	1.38E+0	1.10E+0	1.79E+0	4.88E−1	3.97E−1	2.95E−2	2.61E−2	9.695E+0
4.00E+4	2.62E+1	3.74E+0	7.30E−1	5.66E−1	1.14E+0	2.57E−1	2.04E−1	1.21E−2	1.05E−2	9.447E+0
5.00E+4	1.84E+1	2.59E+0	4.39E−1	3.33E−1	7.82E−1	1.54E−1	1.19E−1	5.97E−3	5.13E−3	9.027E+0
6.00E+4	1.36E+1	1.90E+0	2.87E−1	2.13E−1	5.71E−1	1.00E−1	7.63E−2	3.33E−3	2.83E−3	8.566E+0
8.00E+4	8.29E+0	1.14E+0	1.45E−1	1.04E−1	3.42E−1	5.05E−2	3.71E−2	1.32E−3	1.10E−3	7.692E+0
1.00E+5	5.56E+0	7.57E−1	8.43E−2	5.91E−2	2.26E−1	2.94E−2	2.10E−2	6.44E−4	5.28E−4	6.950E+0
1.50E+5	2.61E+0	3.49E−1	3.15E−2	2.09E−2	1.04E−1	1.10E−2	7.42E−3	1.77E−4	1.41E−4	5.608E+0
2.00E+5	1.50E+0	1.98E−1	1.57E−2	1.01E−2	5.87E−2	5.47E−3	3.57E−3	7.22E−5	5.71E−5	4.740E+0
3.00E+5	6.81E−1	8.88E−2	6.07E−3	3.73E−3	2.62E−2	2.10E−3	1.32E−3	2.15E−5	1.71E−5	3.708E+0
4.00E+5	3.93E−1	5.08E−2	3.18E−3	1.92E−3	1.50E−2	1.10E−3	6.75E−4	9.51E−6	7.78E−6	3.119E+0
5.00E+5	2.61E−1	3.35E−2	1.97E−3	1.18E−3	9.85E−3	6.81E−4	4.16E−4	5.23E−6	4.43E−6	2.739E+0
6.00E+5	1.89E−1	2.41E−2	1.35E−3	8.16E−4	7.09E−3	4.68E−4	2.87E−4	3.28E−6	2.89E−6	2.475E+0
8.00E+5	1.17E−1	1.48E−2	7.72E−4	4.76E−4	4.35E−3	2.67E−4	1.67E−4	1.65E−6	1.56E−6	2.131E+0
1.00E+6	8.24E−2	1.04E−2	5.16E−4	3.25E−4	3.06E−3	1.79E−4	1.14E−4	1.00E−6	1.02E−6	1.917E+0
1.50E+6	4.61E−2	5.80E−3	2.65E−4	1.75E−4	1.70E−3	9.18E−5	6.13E−5	4.48E−7	5.13E−7	1.622E+0
2.00E+6	3.16E−2	3.96E−3	1.73E−4	1.18E−4	1.16E−3	6.00E−5	4.12E−5	2.70E−7	3.34E−7	1.471E+0
3.00E+6	1.91E−2	2.39E−3	1.01E−4	7.02E−5	7.00E−4	3.48E−5	2.46E−5	1.43E−7	1.93E−7	1.317E+0
4.00E+6	1.36E−2	1.70E−3	7.05E−5	4.97E−5	4.98E−4	2.43E−5*	1.75E−5			1.239E+0
5.00E+6	1.05E−2	1.32E−3	5.42E−5*	3.85E−5						1.191E+0
6.00E+6	8.56E−3*	1.07E−3		3.13E−5*						1.160E+0
8.00E+6	6.2E−3	7.8E−4		2.28E−5*						1.120E+0

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TABLE. Cross Sections for Radiative Recombination, Z=1–112

See page 9 for Explanation of Tables

Z= 45

T_e (eV)	σ_{RR} (b)									$f_{1s_{1/2}}$
	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

R_{nucl} = 5.802 fm

$|\epsilon_n|$ (eV)	2.834E+4	7.134E+3	7.134E+3	6.935E+3	3.148E+3	3.148E+3	3.089E+3	3.089E+3	3.071E+3	
1.00E+0	2.27E+6	3.41E+5	3.44E+5	3.16E+5	1.14E+5	1.25E+5	1.20E+5	8.58E+4	8.31E+4	1.273E−3
1.50E+0	1.52E+6	2.27E+5	2.30E+5	2.11E+5	7.58E+4	8.30E+4	8.00E+4	5.72E+4	5.54E+4	1.909E−3
2.00E+0	1.14E+6	1.71E+5	1.72E+5	1.58E+5	5.68E+4	6.23E+4	6.00E+4	4.29E+4	4.15E+4	2.545E−3
3.00E+0	7.58E+5	1.14E+5	1.15E+5	1.05E+5	3.79E+4	4.15E+4	4.00E+4	2.86E+4	2.77E+4	3.818E−3
4.00E+0	5.68E+5	8.53E+4	8.61E+4	7.89E+4	2.84E+4	3.11E+4	3.00E+4	2.14E+4	2.07E+4	5.090E−3
5.00E+0	4.55E+5	6.82E+4	6.88E+4	6.31E+4	2.27E+4	2.49E+4	2.40E+4	1.71E+4	1.66E+4	6.362E−3
6.00E+0	3.79E+5	5.68E+4	5.74E+4	5.26E+4	1.89E+4	2.08E+4	2.00E+4	1.43E+4	1.38E+4	7.634E−3
8.00E+0	2.84E+5	4.26E+4	4.30E+4	3.94E+4	1.42E+4	1.56E+4	1.50E+4	1.07E+4	1.04E+4	1.018E−2
1.00E+1	2.27E+5	3.41E+4	3.44E+4	3.16E+4	1.14E+4	1.24E+4	1.20E+4	8.55E+3	8.27E+3	1.272E−2
1.50E+1	1.52E+5	2.27E+4	2.29E+4	2.10E+4	7.58E+3	8.29E+3	7.99E+3	5.68E+3	5.50E+3	1.907E−2
2.00E+1	1.14E+5	1.71E+4	1.72E+4	1.58E+4	5.68E+3	6.21E+3	5.99E+3	4.25E+3	4.12E+3	2.542E−2
3.00E+1	7.57E+4	1.14E+4	1.14E+4	1.05E+4	3.79E+3	4.14E+3	3.99E+3	2.82E+3	2.73E+3	3.811E−2
4.00E+1	5.68E+4	8.52E+3	8.56E+3	7.85E+3	2.84E+3	3.10E+3	2.99E+3	2.11E+3	2.04E+3	5.077E−2
5.00E+1	4.54E+4	6.82E+3	6.84E+3	6.27E+3	2.27E+3	2.48E+3	2.39E+3	1.68E+3	1.63E+3	6.342E−2
6.00E+1	3.78E+4	5.68E+3	5.69E+3	5.22E+3	1.89E+3	2.06E+3	1.98E+3	1.39E+3	1.35E+3	7.605E−2
8.00E+1	2.84E+4	4.26E+3	4.26E+3	3.90E+3	1.42E+3	1.54E+3	1.48E+3	1.04E+3	1.00E+3	1.013E−1
1.00E+2	2.27E+4	3.41E+3	3.40E+3	3.11E+3	1.14E+3	1.23E+3	1.18E+3	8.21E+2	7.94E+2	1.264E−1
1.50E+2	1.51E+4	2.27E+3	2.25E+3	2.06E+3	7.57E+2	8.16E+2	7.84E+2	5.35E+2	5.18E+2	1.889E−1
2.00E+2	1.13E+4	1.70E+3	1.68E+3	1.53E+3	5.68E+2	6.08E+2	5.84E+2	3.93E+2	3.80E+2	2.511E−1
3.00E+2	7.52E+3	1.13E+3	1.10E+3	1.01E+3	3.78E+2	4.01E+2	3.84E+2	2.51E+2	2.42E+2	3.740E−1
4.00E+2	5.63E+3	8.49E+2	8.16E+2	7.45E+2	2.83E+2	2.97E+2	2.84E+2	1.80E+2	1.74E+2	4.953E−1
5.00E+2	4.49E+3	6.78E+2	6.44E+2	5.87E+2	2.26E+2	2.35E+2	2.24E+2	1.39E+2	1.34E+2	6.148E−1
6.00E+2	3.74E+3	5.65E+2	5.30E+2	4.83E+2	1.89E+2	1.93E+2	1.84E+2	1.11E+2	1.07E+2	7.328E−1
8.00E+2	2.79E+3	4.22E+2	3.87E+2	3.52E+2	1.41E+2	1.42E+2	1.34E+2	7.69E+1	7.40E+1	9.639E−1
1.00E+3	2.22E+3	3.37E+2	3.02E+2	2.74E+2	1.12E+2	1.11E+2	1.05E+2	5.70E+1	5.48E+1	1.189E+0
1.50E+3	1.46E+3	2.23E+2	1.89E+2	1.71E+2	7.42E+1	6.94E+1	6.52E+1	3.18E+1	3.05E+1	1.725E+0
2.00E+3	1.09E+3	1.66E+2	1.34E+2	1.20E+2	5.50E+1	4.91E+1	4.59E+1	2.02E+1	1.93E+1	2.225E+0
3.00E+3	7.07E+2	1.09E+2	7.98E+1	7.10E+1	3.58E+1	2.93E+1	2.70E+1	1.00E+1	9.53E+0	3.132E+0
4.00E+3	5.19E+2	7.97E+1	5.39E+1	4.76E+1	2.61E+1	1.98E+1	1.81E+1	5.79E+0	5.48E+0	3.925E+0
5.00E+3	4.06E+2	6.25E+1	3.91E+1	3.43E+1	2.03E+1	1.43E+1	1.30E+1	3.67E+0	3.45E+0	4.621E+0
6.00E+3	3.31E+2	5.09E+1	2.98E+1	2.59E+1	1.65E+1	1.09E+1	9.75E+0	2.47E+0	2.31E+0	5.232E+0
8.00E+3	2.38E+2	3.65E+1	1.89E+1	1.62E+1	1.17E+1	6.85E+0	6.07E+0	1.27E+0	1.18E+0	6.241E+0
1.00E+4	1.83E+2	2.80E+1	1.30E+1	1.10E+1	8.88E+0	4.69E+0	4.10E+0	7.36E−1	6.80E−1	7.022E+0
1.50E+4	1.11E+2	1.67E+1	6.24E+0	5.19E+0	5.23E+0	2.24E+0	1.91E+0	2.54E−1	2.31E−1	8.283E+0
2.00E+4	7.60E+1	1.13E+1	3.57E+0	2.91E+0	3.51E+0	1.27E+0	1.07E+0	1.13E−1	1.02E−1	8.920E+0
3.00E+4	4.31E+1	6.30E+0	1.54E+0	1.22E+0	1.93E+0	5.45E−1	4.42E−1	3.42E−2	3.02E−2	9.274E+0
4.00E+4	2.81E+1	4.03E+0	8.21E−1	6.32E−1	1.22E+0	2.89E−1	2.28E−1	1.41E−2	1.23E−2	9.097E+0
5.00E+4	1.98E+1	2.80E+0	4.95E−1	3.73E−1	8.45E−1	1.74E−1	1.34E−1	7.01E−3	6.01E−3	8.735E+0
6.00E+4	1.47E+1	2.06E+0	3.25E−1	2.40E−1	6.18E−1	1.14E−1	8.59E−2	3.93E−3	3.33E−3	8.320E+0
8.00E+4	8.97E+0	1.24E+0	1.65E−1	1.18E−1	3.71E−1	5.75E−2	4.20E−2	1.56E−3	1.30E−3	7.511E+0
1.00E+5	6.03E+0	8.24E−1	9.64E−2	6.70E−2	2.46E−1	3.36E−2	2.38E−2	7.65E−4	6.25E−4	6.812E+0
1.50E+5	2.84E+0	3.82E−1	3.62E−2	2.39E−2	1.13E−1	1.26E−2	8.46E−3	2.11E−4	1.68E−4	5.527E+0
2.00E+5	1.64E+0	2.17E−1	1.82E−2	1.15E−2	6.44E−2	6.31E−3	4.08E−3	8.65E−5	6.81E−5	4.687E+0
3.00E+5	7.48E−1	9.78E−2	7.04E−3	4.27E−3	2.89E−2	2.44E−3	1.51E−3	2.58E−5	2.05E−5	3.679E+0
4.00E+5	4.33E−1	5.61E−2	3.69E−3	2.20E−3	1.65E−2	1.28E−3	7.75E−4	1.15E−5	9.32E−6	3.100E+0
5.00E+5	2.88E−1	3.70E−2	2.29E−3	1.36E−3	1.09E−2	7.92E−4	4.78E−4	6.31E−6	5.31E−6	2.726E+0
6.00E+5	2.08E−1	2.67E−2	1.57E−3	9.39E−4	7.84E−3	5.45E−4	3.30E−4	3.96E−6	3.46E−6	2.465E+0
8.00E+5	1.29E−1	1.64E−2	9.01E−4	5.47E−4	4.81E−3	3.12E−4	1.92E−4	1.99E−6	1.88E−6	2.124E+0
1.00E+6	9.11E−2	1.15E−2	6.03E−4	3.74E−4	3.38E−3	2.09E−4	1.31E−4	1.22E−6	1.22E−6	1.912E+0
1.50E+6	5.10E−2	6.41E−3	3.10E−4	2.01E−4	1.88E−3	1.07E−4	7.04E−5	5.43E−7	6.15E−7	1.620E+0
2.00E+6	3.49E−2	4.38E−3	2.03E−4	1.35E−4	1.28E−3	7.02E−5	4.73E−5	3.27E−7	4.00E−7	1.469E+0
3.00E+6	2.11E−2	2.64E−3	1.18E−4	8.04E−5	7.73E−4	4.07E−5	2.82E−5	1.74E−7	2.31E−7	1.316E+0
4.00E+6	1.50E−2	1.88E−3	8.25E−5	5.70E−5	5.49E−4	2.85E−5	2.00E−5	1.2E−7	1.6E−7	1.238E+0
5.00E+6	1.16E−2	1.45E−3	6.34E−5*	4.40E−5	4.3E−4					1.191E+0
6.00E+6	9.44E−3*	1.18E−3		3.58E−5*						1.159E+0
8.00E+6	6.9E−3			2.61E−5*						1.120E+0

TABLE. Cross Sections for Radiative Recombination, $Z=1-112$

See page 9 for Explanation of Tables

$Z=46$

T_e (eV)	σ_{RR} (b)									$f_{1s_{1/2}}$
	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	
$R_{nucl}=5.851$ fm										
$\lvert\epsilon_n\rvert$ (eV)	2.965E+4	7.467E+3	7.467E+3	7.249E+3	3.294E+3	3.294E+3	3.229E+3	3.229E+3	3.209E+3	
1.00E+0	2.37E+6	3.56E+5	3.62E+5	3.30E+5	1.19E+5	1.31E+5	1.26E+5	8.98E+4	8.69E+4	1.163E−3
1.50E+0	1.58E+6	2.38E+5	2.41E+5	2.20E+5	7.91E+4	8.70E+4	8.37E+4	5.99E+4	5.79E+4	1.744E−3
2.00E+0	1.19E+6	1.78E+5	1.81E+5	1.65E+5	5.94E+4	6.52E+4	6.28E+4	4.49E+4	4.34E+4	2.325E−3
3.00E+0	7.91E+5	1.19E+5	1.21E+5	1.10E+5	3.96E+4	4.35E+4	4.18E+4	2.99E+4	2.89E+4	3.487E−3
4.00E+0	5.93E+5	8.91E+4	9.03E+4	8.26E+4	2.97E+4	3.26E+4	3.14E+4	2.24E+4	2.17E+4	4.649E−3
5.00E+0	4.75E+5	7.13E+4	7.23E+4	6.60E+4	2.37E+4	2.61E+4	2.51E+4	1.79E+4	1.73E+4	5.811E−3
6.00E+0	3.96E+5	5.94E+4	6.02E+4	5.50E+4	1.98E+4	2.17E+4	2.09E+4	1.49E+4	1.45E+4	6.973E−3
8.00E+0	2.97E+5	4.46E+4	4.51E+4	4.13E+4	1.48E+4	1.63E+4	1.57E+4	1.12E+4	1.08E+4	9.296E−3
1.00E+1	2.37E+5	3.56E+4	3.61E+4	3.30E+4	1.19E+4	1.30E+4	1.25E+4	8.95E+3	8.65E+3	1.162E−2
1.50E+1	1.58E+5	2.38E+4	2.41E+4	2.20E+4	7.91E+3	8.68E+3	8.35E+3	5.95E+3	5.76E+3	1.742E−2
2.00E+1	1.19E+5	1.78E+4	1.80E+4	1.65E+4	5.94E+3	6.51E+3	6.26E+3	4.46E+3	4.31E+3	2.322E−2
3.00E+1	7.91E+4	1.19E+4	1.20E+4	1.10E+4	3.96E+3	4.34E+3	4.17E+3	2.96E+3	2.86E+3	3.481E−2
4.00E+1	5.93E+4	8.91E+3	8.99E+3	8.21E+3	2.97E+3	3.25E+3	3.12E+3	2.21E+3	2.14E+3	4.638E−2
5.00E+1	4.74E+4	7.13E+3	7.18E+3	6.56E+3	2.37E+3	2.60E+3	2.49E+3	1.76E+3	1.70E+3	5.794E−2
6.00E+1	3.95E+4	5.94E+3	5.98E+3	5.46E+3	1.98E+3	2.16E+3	2.08E+3	1.46E+3	1.41E+3	6.948E−2
8.00E+1	2.96E+4	4.45E+3	4.47E+3	4.08E+3	1.48E+3	1.62E+3	1.55E+3	1.09E+3	1.05E+3	9.252E−2
1.00E+2	2.37E+4	3.56E+3	3.57E+3	3.26E+3	1.19E+3	1.29E+3	1.24E+3	8.61E+2	8.32E+2	1.155E−1
1.50E+2	1.58E+4	2.37E+3	2.36E+3	2.16E+3	7.91E+2	8.55E+2	8.21E+2	5.62E+2	5.43E+2	1.727E−1
2.00E+2	1.18E+4	1.78E+3	1.76E+3	1.61E+3	5.93E+2	6.38E+2	6.11E+2	4.13E+2	3.99E+2	2.295E−1
3.00E+2	7.86E+3	1.18E+3	1.16E+3	1.06E+3	3.95E+2	4.21E+2	4.02E+2	2.64E+2	2.55E+2	3.419E−1
4.00E+2	5.88E+3	8.87E+2	8.59E+2	7.81E+2	2.96E+2	3.12E+2	2.98E+2	1.90E+2	1.83E+2	4.529E−1
5.00E+2	4.69E+3	7.09E+2	6.78E+2	6.16E+2	2.37E+2	2.47E+2	2.35E+2	1.46E+2	1.41E+2	5.625E−1
6.00E+2	3.90E+3	5.90E+2	5.58E+2	5.07E+2	1.97E+2	2.03E+2	1.93E+2	1.17E+2	1.13E+2	6.706E−1
8.00E+2	2.91E+3	4.42E+2	4.09E+2	3.70E+2	1.47E+2	1.49E+2	1.41E+2	8.16E+1	7.84E+1	8.825E−1
1.00E+3	2.32E+3	3.52E+2	3.19E+2	2.88E+2	1.18E+2	1.17E+2	1.10E+2	6.07E+1	5.82E+1	1.089E+0
1.50E+3	1.53E+3	2.33E+2	2.01E+2	1.80E+2	7.76E+1	7.34E+1	6.88E+1	3.41E+1	3.26E+1	1.582E+0
2.00E+3	1.14E+3	1.74E+2	1.42E+2	1.27E+2	5.76E+1	5.21E+1	4.85E+1	2.18E+1	2.08E+1	2.045E+0
3.00E+3	7.41E+2	1.14E+2	8.51E+1	7.54E+1	3.75E+1	3.12E+1	2.87E+1	1.09E+1	1.03E+1	2.885E+0
4.00E+3	5.44E+2	8.36E+1	5.77E+1	5.08E+1	2.74E+1	2.11E+1	1.93E+1	6.35E+0	5.99E+0	3.625E+0
5.00E+3	4.26E+2	6.56E+1	4.21E+1	3.67E+1	2.14E+1	1.54E+1	1.39E+1	4.04E+0	3.79E+0	4.277E+0
6.00E+3	3.48E+2	5.35E+1	3.21E+1	2.78E+1	1.74E+1	1.17E+1	1.05E+1	2.73E+0	2.56E+0	4.853E+0
8.00E+3	2.51E+2	3.85E+1	2.04E+1	1.75E+1	1.24E+1	7.42E+0	6.55E+0	1.42E+0	1.32E+0	5.813E+0
1.00E+4	1.93E+2	2.95E+1	1.41E+1	1.19E+1	9.39E+0	5.10E+0	4.45E+0	8.27E−1	7.63E−1	6.565E+0
1.50E+4	1.17E+2	1.77E+1	6.85E+0	5.66E+0	5.56E+0	2.46E+0	2.09E+0	2.88E−1	2.62E−1	7.803E+0
2.00E+4	8.06E+1	1.21E+1	3.94E+0	3.20E+0	3.74E+0	1.41E+0	1.17E+0	1.30E−1	1.17E−1	8.454E+0
3.00E+4	4.60E+1	6.73E+0	1.72E+0	1.35E+0	2.06E+0	6.08E−1	4.89E−1	3.96E−2	3.49E−2	8.870E+0
4.00E+4	3.00E+1	4.32E+0	9.20E−1	7.04E−1	1.31E+0	3.24E−1	2.54E−1	1.64E−2	1.42E−2	8.757E+0
5.00E+4	2.12E+1	3.01E+0	5.58E−1	4.17E−1	9.10E−1	1.96E−1	1.50E−1	8.19E−3	7.00E−3	8.449E+0
6.00E+4	1.58E+1	2.22E+0	3.67E−1	2.69E−1	6.68E−1	1.28E−1	9.64E−2	4.61E−3	3.89E−3	8.078E+0
8.00E+4	9.68E+0	1.34E+0	1.87E−1	1.32E−1	4.02E−1	6.52E−2	4.73E−2	1.84E−3	1.52E−3	7.333E+0
1.00E+5	6.53E+0	8.95E−1	1.10E−1	7.56E−2	2.67E−1	3.83E−2	2.69E−2	9.05E−4	7.36E−4	6.675E+0
1.50E+5	3.09E+0	4.16E−1	4.15E−2	2.71E−2	1.24E−1	1.44E−2	9.61E−3	2.51E−4	1.99E−4	5.447E+0
2.00E+5	1.79E+0	2.38E−1	2.09E−2	1.31E−2	7.05E−2	7.25E−3	4.65E−3	1.03E−4	8.09E−5	4.634E+0
3.00E+5	8.20E−1	1.08E−1	8.13E−3	4.88E−3	3.17E−2	2.82E−3	1.72E−3	3.09E−5	2.44E−5	3.650E+0
4.00E+5	4.76E−1	6.18E−2	4.28E−3	2.52E−3	1.82E−2	1.48E−3	8.88E−4	1.38E−5	1.11E−5	3.081E+0
5.00E+5	3.17E−1	4.08E−2	2.65E−3	1.56E−3	1.20E−2	9.18E−4	5.48E−4	7.58E−6	6.34E−6	2.713E+0
6.00E+5	2.30E−1	2.94E−2	1.83E−3	1.08E−3	8.65E−3	6.32E−4	3.78E−4	4.76E−6	4.14E−6	2.455E+0
8.00E+5	1.42E−1	1.81E−2	1.05E−3	6.27E−4	5.31E−3	3.63E−4	2.20E−4	2.40E−6	2.24E−6	2.118E+0
1.00E+6	1.01E−1	1.27E−2	7.02E−4	4.28E−4	3.73E−3	2.43E−4	1.50E−4	1.46E−6	1.46E−6	1.907E+0
1.50E+6	5.63E−2	7.08E−3	3.62E−4	2.30E−4	2.07E−3	1.25E−4	8.06E−5	6.55E−7	7.34E−7	1.617E+0
2.00E+6	3.85E−2	4.83E−3	2.37E−4	1.54E−4	1.41E−3	8.18E−5	5.41E−5	3.95E−7	4.77E−7	1.467E+0
3.00E+6	2.33E−2	2.91E−3	1.37E−4	9.19E−5	8.51E−4	4.75E−5	3.22E−5	2.10E−7	2.75E−7	1.315E+0
4.00E+6	1.65E−2	2.07E−3	9.63E−5	6.51E−5	6.04E−4	3.33E−5	2.28E−5	1.40E−7*	1.9E−7	1.237E+0
5.00E+6	1.28E−2	1.60E−3	7.40E−5*	5.03E−5	4.67E−4	2.6E−5	1.8E−5			1.190E+0
6.00E+6	1.04E−2	1.30E−3		4.09E−5*						1.159E+0

TABLE. Cross Sections for Radiative Recombination, $Z=1$–112
See page 9 for Explanation of Tables

Z= 47

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl}=5.866$ fm

$\lvert\epsilon_n\rvert$ (eV)	3.099E+4	7.808E+3	7.808E+3	7.570E+3	3.444E+3	3.444E+3	3.373E+3	3.373E+3	3.350E+3	
1.00E+0	2.48E+6	3.72E+5	3.79E+5	3.45E+5	1.24E+5	1.37E+5	1.31E+5	9.40E+4	9.08E+4	1.064E−3
1.50E+0	1.65E+6	2.48E+5	2.53E+5	2.30E+5	8.26E+4	9.10E+4	8.74E+4	6.27E+4	6.05E+4	1.596E−3
2.00E+0	1.24E+6	1.86E+5	1.90E+5	1.73E+5	6.19E+4	6.83E+4	6.56E+4	4.70E+4	4.54E+4	2.128E−3
3.00E+0	8.25E+5	1.24E+5	1.26E+5	1.15E+5	4.13E+4	4.55E+4	4.37E+4	3.13E+4	3.02E+4	3.191E−3
4.00E+0	6.19E+5	9.30E+4	9.48E+4	8.63E+4	3.10E+4	3.41E+4	3.28E+4	2.35E+4	2.27E+4	4.254E−3
5.00E+0	4.95E+5	7.44E+4	7.58E+4	6.90E+4	2.48E+4	2.73E+4	2.62E+4	1.88E+4	1.81E+4	5.318E−3
6.00E+0	4.13E+5	6.20E+4	6.32E+4	5.75E+4	2.07E+4	2.27E+4	2.19E+4	1.56E+4	1.51E+4	6.381E−3
8.00E+0	3.09E+5	4.65E+4	4.74E+4	4.31E+4	1.55E+4	1.71E+4	1.64E+4	1.17E+4	1.13E+4	8.507E−3
1.00E+1	2.48E+5	3.72E+4	3.79E+4	3.45E+4	1.24E+4	1.36E+4	1.31E+4	9.37E+3	9.04E+3	1.063E−2
1.50E+1	1.65E+5	2.48E+4	2.52E+4	2.30E+4	8.26E+3	9.09E+3	8.73E+3	6.23E+3	6.01E+3	1.594E−2
2.00E+1	1.24E+5	1.86E+4	1.89E+4	1.72E+4	6.19E+3	6.81E+3	6.54E+3	4.66E+3	4.50E+3	2.125E−2
3.00E+1	8.25E+4	1.24E+4	1.26E+4	1.15E+4	4.13E+3	4.54E+3	4.36E+3	3.10E+3	2.99E+3	3.186E−2
4.00E+1	6.18E+4	9.30E+3	9.43E+3	8.58E+3	3.10E+3	3.40E+3	3.26E+3	2.31E+3	2.23E+3	4.245E−2
5.00E+1	4.95E+4	7.44E+3	7.54E+3	6.86E+3	2.48E+3	2.72E+3	2.61E+3	1.84E+3	1.78E+3	5.303E−2
6.00E+1	4.12E+4	6.20E+3	6.27E+3	5.71E+3	2.06E+3	2.26E+3	2.17E+3	1.53E+3	1.48E+3	6.359E−2
8.00E+1	3.09E+4	4.65E+3	4.69E+3	4.27E+3	1.55E+3	1.69E+3	1.62E+3	1.14E+3	1.10E+3	8.468E−2
1.00E+2	2.47E+4	3.72E+3	3.75E+3	3.41E+3	1.24E+3	1.35E+3	1.30E+3	9.03E+2	8.71E+2	1.057E−1
1.50E+2	1.65E+4	2.48E+3	2.48E+3	2.26E+3	8.26E+2	8.96E+2	8.58E+2	5.90E+2	5.69E+2	1.581E−1
2.00E+2	1.23E+4	1.86E+3	1.85E+3	1.68E+3	6.19E+2	6.68E+2	6.40E+2	4.34E+2	4.18E+2	2.101E−1
3.00E+2	8.20E+3	1.24E+3	1.22E+3	1.11E+3	4.12E+2	4.41E+2	4.21E+2	2.78E+2	2.68E+2	3.132E−1
4.00E+2	6.14E+3	9.27E+2	9.03E+2	8.18E+2	3.09E+2	3.27E+2	3.12E+2	2.01E+2	1.93E+2	4.149E−1
5.00E+2	4.90E+3	7.41E+2	7.14E+2	6.46E+2	2.47E+2	2.59E+2	2.46E+2	1.54E+2	1.49E+2	5.154E−1
6.00E+2	4.07E+3	6.16E+2	5.88E+2	5.31E+2	2.06E+2	2.13E+2	2.03E+2	1.24E+2	1.19E+2	6.147E−1
8.00E+2	3.04E+3	4.61E+2	4.30E+2	3.88E+2	1.54E+2	1.57E+2	1.48E+2	8.65E+1	8.30E+1	8.094E−1
1.00E+3	2.42E+3	3.68E+2	3.37E+2	3.03E+2	1.23E+2	1.23E+2	1.16E+2	6.45E+1	6.18E+1	9.994E−1
1.50E+3	1.60E+3	2.44E+2	2.12E+2	1.90E+2	8.12E+1	7.75E+1	7.25E+1	3.64E+1	3.48E+1	1.454E+0
2.00E+3	1.19E+3	1.81E+2	1.51E+2	1.34E+2	6.03E+1	5.51E+1	5.12E+1	2.34E+1	2.23E+1	1.881E+0
3.00E+3	7.75E+2	1.19E+2	9.06E+1	7.99E+1	3.93E+1	3.32E+1	3.05E+1	1.18E+1	1.12E+1	2.661E+0
4.00E+3	5.69E+2	8.77E+1	6.17E+1	5.40E+1	2.88E+1	2.26E+1	2.05E+1	6.93E+0	6.53E+0	3.351E+0
5.00E+3	4.46E+2	6.88E+1	4.51E+1	3.92E+1	2.25E+1	1.65E+1	1.48E+1	4.44E+0	4.16E+0	3.964E+0
6.00E+3	3.65E+2	5.62E+1	3.45E+1	2.98E+1	1.83E+1	1.26E+1	1.12E+1	3.02E+0	2.82E+0	4.507E+0
8.00E+3	2.63E+2	4.05E+1	2.21E+1	1.88E+1	1.30E+1	8.02E+0	7.06E+0	1.58E+0	1.47E+0	5.419E+0
1.00E+4	2.03E+2	3.11E+1	1.53E+1	1.29E+1	9.92E+0	5.54E+0	4.81E+0	9.26E−1	8.52E−1	6.141E+0
1.50E+4	1.24E+2	1.88E+1	7.50E+0	6.16E+0	5.89E+0	2.69E+0	2.28E+0	3.26E−1	2.96E−1	7.353E+0
2.00E+4	8.53E+1	1.28E+1	4.34E+0	3.50E+0	3.98E+0	1.55E+0	1.28E+0	1.48E−1	1.33E−1	8.014E+0
3.00E+4	4.89E+1	7.19E+0	1.91E+0	1.49E+0	2.20E+0	6.75E−1	5.41E−1	4.55E−2	4.00E−2	8.483E+0
4.00E+4	3.20E+1	4.63E+0	1.03E+0	7.81E−1	1.41E+0	3.62E−1	2.82E−1	1.91E−2	1.65E−2	8.428E+0
5.00E+4	2.27E+1	3.24E+0	6.26E−1	4.64E−1	9.79E−1	2.20E−1	1.67E−1	9.54E−3	8.12E−3	8.171E+0
6.00E+4	1.69E+1	2.39E+0	4.13E−1	3.00E−1	7.20E−1	1.45E−1	1.08E−1	5.38E−3	4.53E−3	7.841E+0
8.00E+4	1.04E+1	1.45E+0	2.12E−1	1.49E−1	4.35E−1	7.38E−2	5.31E−2	2.16E−3	1.78E−3	7.157E+0
1.00E+5	7.05E+0	9.70E−1	1.25E−1	8.52E−2	2.90E−1	4.34E−2	3.04E−2	1.07E−3	8.64E−4	6.539E+0
1.50E+5	3.36E+0	4.53E−1	4.75E−2	3.07E−2	1.35E−1	1.65E−2	1.09E−2	2.97E−4	2.35E−4	5.367E+0
2.00E+5	1.95E+0	2.60E−1	2.40E−2	1.49E−2	7.70E−2	8.31E−3	5.27E−3	1.23E−4	9.57E−5	4.581E+0
3.00E+5	8.97E−1	1.18E−1	9.37E−3	5.56E−3	3.48E−2	3.24E−3	1.96E−3	3.69E−5	2.89E−5	3.620E+0
4.00E+5	5.22E−1	6.78E−2	4.94E−3	2.87E−3	2.00E−2	1.71E−3	1.01E−3	1.64E−5	1.32E−5	3.062E+0
5.00E+5	3.48E−1	4.48E−2	3.07E−3	1.78E−3	1.32E−2	1.06E−3	6.25E−4	9.06E−6	7.53E−6	2.699E+0
6.00E+5	2.52E−1	3.24E−2	2.12E−3	1.23E−3	9.51E−3	7.31E−4	4.32E−4	5.70E−6	4.92E−6	2.444E+0
8.00E+5	1.57E−1	1.99E−2	1.22E−3	7.17E−4	5.85E−3	4.20E−4	2.52E−4	2.87E−6	2.66E−6	2.111E+0
1.00E+6	1.11E−1	1.40E−2	8.15E−4	4.89E−4	4.11E−3	2.81E−4	1.72E−4	1.76E−6	1.74E−6	1.902E+0
1.50E+6	6.20E−2	7.80E−3	4.20E−4	2.62E−4	2.28E−3	1.45E−4	9.19E−5	7.86E−7	8.72E−7	1.614E+0
2.00E+6	4.24E−2	5.32E−3	2.75E−4	1.76E−4	1.56E−3	9.50E−5	6.17E−5	4.75E−7	5.67E−7	1.465E+0
3.00E+6	2.56E−2	3.20E−3	1.60E−4	1.05E−4	9.36E−4	5.52E−5	3.67E−5	2.53E−7	3.27E−7	1.313E+0
4.00E+6	1.81E−2	2.27E−3	1.12E−4	7.41E−5	6.64E−4	3.87E−5	2.60E−5	1.7E−7	2.29E−7*	1.236E+0
5.00E+6	1.40E−2	1.75E−3	8.6E−5	5.72E−5	5.12E−4	2.98E−5	2.01E−5			1.190E+0
6.00E+6	1.14E−2	1.42E−3		4.65E−5*						1.158E+0
8.00E+6		1.03E−3								

TABLE. Cross Sections for Radiative Recombination, $Z=1$–112

Z= 48

T_e (eV)	σ_{RR} (b)									$f_{1s_{1/2}}$
	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	
R_{nucl} = 5.952 fm										
$\lvert\epsilon_n\rvert$ (eV)	3.237E+4	8.158E+3	8.158E+3	7.898E+3	3.597E+3	3.597E+3	3.519E+3	3.519E+3	3.495E+3	
1.00E+0	2.58E+6	3.88E+5	3.97E+5	3.60E+5	1.29E+5	1.43E+5	1.37E+5	9.83E+4	9.47E+4	9.752E−4
1.50E+0	1.72E+6	2.59E+5	2.65E+5	2.40E+5	8.61E+4	9.52E+4	9.13E+4	6.55E+4	6.31E+4	1.463E−3
2.00E+0	1.29E+6	1.94E+5	1.99E+5	1.80E+5	6.46E+4	7.14E+4	6.85E+4	4.91E+4	4.73E+4	1.950E−3
3.00E+0	8.60E+5	1.29E+5	1.32E+5	1.20E+5	4.31E+4	4.76E+4	4.56E+4	3.27E+4	3.16E+4	2.925E−3
4.00E+0	6.45E+5	9.71E+4	9.93E+4	9.00E+4	3.23E+4	3.57E+4	3.42E+4	2.45E+4	2.37E+4	3.900E−3
5.00E+0	5.16E+5	7.76E+4	7.94E+4	7.20E+4	2.58E+4	2.85E+4	2.74E+4	1.96E+4	1.89E+4	4.875E−3
6.00E+0	4.30E+5	6.47E+4	6.62E+4	6.00E+4	2.15E+4	2.38E+4	2.28E+4	1.63E+4	1.58E+4	5.850E−3
8.00E+0	3.22E+5	4.85E+4	4.96E+4	4.50E+4	1.62E+4	1.78E+4	1.71E+4	1.23E+4	1.18E+4	7.799E−3
1.00E+1	2.58E+5	3.88E+4	3.97E+4	3.60E+4	1.29E+4	1.43E+4	1.37E+4	9.79E+3	9.44E+3	9.747E−3
1.50E+1	1.72E+5	2.59E+4	2.65E+4	2.40E+4	8.61E+3	9.50E+3	9.11E+3	6.51E+3	6.28E+3	1.462E−2
2.00E+1	1.29E+5	1.94E+4	1.98E+4	1.80E+4	6.46E+3	7.12E+3	6.83E+3	4.88E+3	4.70E+3	1.948E−2
3.00E+1	8.59E+4	1.29E+4	1.32E+4	1.20E+4	4.31E+3	4.74E+3	4.55E+3	3.24E+3	3.12E+3	2.921E−2
4.00E+1	6.44E+4	9.70E+3	9.89E+3	8.96E+3	3.23E+3	3.56E+3	3.41E+3	2.42E+3	2.33E+3	3.892E−2
5.00E+1	5.15E+4	7.76E+3	7.90E+3	7.16E+3	2.58E+3	2.84E+3	2.72E+3	1.93E+3	1.86E+3	4.862E−2
6.00E+1	4.29E+4	6.47E+3	6.58E+3	5.96E+3	2.15E+3	2.37E+3	2.27E+3	1.60E+3	1.54E+3	5.831E−2
8.00E+1	3.22E+4	4.85E+3	4.92E+3	4.46E+3	1.61E+3	1.77E+3	1.70E+3	1.19E+3	1.15E+3	7.765E−2
1.00E+2	2.57E+4	3.88E+3	3.93E+3	3.56E+3	1.29E+3	1.41E+3	1.35E+3	9.45E+2	9.10E+2	9.694E−2
1.50E+2	1.71E+4	2.59E+3	2.60E+3	2.36E+3	8.61E+2	9.37E+2	8.96E+2	6.18E+2	5.95E+2	1.450E−1
2.00E+2	1.29E+4	1.94E+3	1.94E+3	1.76E+3	6.45E+2	7.00E+2	6.68E+2	4.55E+2	4.38E+2	1.927E−1
3.00E+2	8.55E+3	1.29E+3	1.28E+3	1.16E+3	4.30E+2	4.62E+2	4.40E+2	2.92E+2	2.81E+2	2.873E−1
4.00E+2	6.40E+3	9.67E+2	9.48E+2	8.56E+2	3.22E+2	3.43E+2	3.26E+2	2.11E+2	2.03E+2	3.808E−1
5.00E+2	5.11E+3	7.73E+2	7.50E+2	6.76E+2	2.58E+2	2.71E+2	2.58E+2	1.63E+2	1.56E+2	4.732E−1
6.00E+2	4.25E+3	6.43E+2	6.18E+2	5.56E+2	2.15E+2	2.24E+2	2.12E+2	1.31E+2	1.26E+2	5.644E−1
8.00E+2	3.17E+3	4.81E+2	4.53E+2	4.07E+2	1.61E+2	1.64E+2	1.55E+2	9.15E+1	8.77E+1	7.436E−1
1.00E+3	2.53E+3	3.84E+2	3.55E+2	3.18E+2	1.28E+2	1.29E+2	1.21E+2	6.85E+1	6.55E+1	9.186E−1
1.50E+3	1.67E+3	2.55E+2	2.24E+2	2.00E+2	8.47E+1	8.16E+1	7.63E+1	3.89E+1	3.71E+1	1.338E+0
2.00E+3	1.24E+3	1.90E+2	1.60E+2	1.41E+2	6.30E+1	5.82E+1	5.40E+1	2.51E+1	2.39E+1	1.734E+0
3.00E+3	8.09E+2	1.24E+2	9.63E+1	8.46E+1	4.11E+1	3.52E+1	3.23E+1	1.28E+1	1.21E+1	2.458E+0
4.00E+3	5.95E+2	9.17E+1	6.58E+1	5.74E+1	3.02E+1	2.40E+1	2.18E+1	7.55E+0	7.10E+0	3.102E+0
5.00E+3	4.67E+2	7.21E+1	4.83E+1	4.17E+1	2.36E+1	1.76E+1	1.58E+1	4.86E+0	4.55E+0	3.677E+0
6.00E+3	3.82E+2	5.90E+1	3.70E+1	3.18E+1	1.92E+1	1.35E+1	1.20E+1	3.32E+0	3.10E+0	4.189E+0
8.00E+3	2.76E+2	4.26E+1	2.38E+1	2.02E+1	1.37E+1	8.64E+0	7.58E+0	1.75E+0	1.62E+0	5.056E+0
1.00E+4	2.13E+2	3.28E+1	1.66E+1	1.39E+1	1.05E+1	6.00E+0	5.19E+0	1.03E+0	9.49E−1	5.748E+0
1.50E+4	1.30E+2	1.98E+1	8.19E+0	6.69E+0	6.23E+0	2.94E+0	2.48E+0	3.68E−1	3.33E−1	6.932E+0
2.00E+4	9.01E+1	1.36E+1	4.77E+0	3.82E+0	4.22E+0	1.70E+0	1.40E+0	1.68E−1	1.50E−1	7.598E+0
3.00E+4	5.18E+1	7.66E+0	2.11E+0	1.64E+0	2.35E+0	7.47E−1	5.96E−1	5.23E−2	4.58E−2	8.113E+0
4.00E+4	3.41E+1	4.95E+0	1.15E+0	8.64E−1	1.51E+0	4.03E−1	3.12E−1	2.20E−2	1.89E−2	8.111E+0
5.00E+4	2.42E+1	3.47E+0	7.01E−1	5.16E−1	1.05E+0	2.46E−1	1.86E−1	1.11E−2	9.39E−3	7.900E+0
6.00E+4	1.81E+1	2.57E+0	4.64E−1	3.35E−1	7.74E−1	1.62E−1	1.20E−1	6.26E−3	5.25E−3	7.609E+0
8.00E+4	1.12E+1	1.57E+0	2.39E−1	1.66E−1	4.69E−1	8.32E−2	5.94E−2	2.53E−3	2.08E−3	6.982E+0
1.00E+5	7.60E+0	1.05E+0	1.41E−1	9.56E−2	3.13E−1	4.92E−2	3.41E−2	1.25E−3	1.01E−3	6.403E+0
1.50E+5	3.64E+0	4.93E−1	5.41E−2	3.46E−2	1.46E−1	1.88E−2	1.23E−2	3.51E−4	2.76E−4	5.286E+0
2.00E+5	2.12E+0	2.83E−1	2.74E−2	1.69E−2	8.39E−2	9.50E−3	5.97E−3	1.45E−4	1.13E−4	4.526E+0
3.00E+5	9.79E−1	1.29E−1	1.19E−2	6.31E−3	3.80E−2	3.72E−3	2.23E−3	4.38E−5	3.42E−5	3.590E+0
4.00E+5	5.71E−1	7.43E−2	5.69E−3	3.27E−3	2.19E−2	1.96E−3	1.15E−3	1.96E−5	1.56E−5	3.043E+0
5.00E+5	3.81E−1	4.92E−2	3.54E−3	2.02E−3	1.45E−2	1.22E−3	7.12E−4	1.08E−5	8.92E−6	2.685E+0
6.00E+5	2.77E−1	3.56E−2	2.44E−3	1.40E−3	1.05E−2	8.44E−4	4.92E−4	6.80E−6	5.83E−6	2.434E+0
8.00E+5	1.72E−1	2.19E−2	1.41E−3	8.16E−4	6.42E−3	4.85E−4	2.87E−4	3.43E−6	3.15E−6	2.104E+0
1.00E+6	1.22E−1	1.54E−2	9.43E−4	5.57E−4	4.52E−3	3.25E−4	1.95E−4	2.10E−6	2.06E−6	1.897E+0
1.50E+6	6.81E−2	8.57E−3	4.87E−4	2.98E−4	2.51E−3	1.68E−4	1.05E−4	9.41E−7	1.03E−6	1.611E+0
2.00E+6	4.65E−2	5.84E−3	3.19E−4	2.00E−4	1.71E−3	1.10E−4	7.01E−5	5.69E−7	6.70E−7	1.463E+0
3.00E+6	2.80E−2	3.51E−3	1.85E−4	1.19E−4	1.03E−3	6.40E−5	4.17E−5	3.02E−7	3.86E−7	1.312E+0
4.00E+6	1.99E−2	2.49E−3	1.30E−4	8.41E−5	7.27E−4	4.49E−5	2.95E−5	2.04E−7*	2.69E−7	1.235E+0
5.00E+6	1.54E−2	1.92E−3	9.99E−5*	6.49E−5	5.61E−4	3.45E−5*	2.28E−5*			1.189E+0
6.00E+6	1.25E−2	1.56E−3		5.27E−5*						1.158E+0
8.00E+6		1.13E−3								

$Z= 49$

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 5.957$ fm

$|\epsilon_n|$ (eV)	3.378E+4	8.517E+3	8.517E+3	8.233E+3	3.753E+3	3.753E+3	3.669E+3	3.669E+3	3.643E+3	
1.00E+0	2.69E+6	4.05E+5	4.16E+5	3.76E+5	1.35E+5	1.49E+5	1.43E+5	1.03E+5	9.88E+4	8.955E−4
1.50E+0	1.79E+6	2.70E+5	2.77E+5	2.51E+5	8.97E+4	9.94E+4	9.52E+4	6.84E+4	6.58E+4	1.343E−3
2.00E+0	1.34E+6	2.02E+5	2.08E+5	1.88E+5	6.73E+4	7.46E+4	7.14E+4	5.13E+4	4.94E+4	1.791E−3
3.00E+0	8.95E+5	1.35E+5	1.39E+5	1.25E+5	4.49E+4	4.97E+4	4.76E+4	3.42E+4	3.29E+4	2.686E−3
4.00E+0	6.71E+5	1.01E+5	1.04E+5	9.39E+4	3.36E+4	3.73E+4	3.57E+4	2.56E+4	2.47E+4	3.581E−3
5.00E+0	5.37E+5	8.09E+4	8.32E+4	7.51E+4	2.69E+4	2.98E+4	2.86E+4	2.05E+4	1.97E+4	4.476E−3
6.00E+0	4.48E+5	6.74E+4	6.93E+4	6.26E+4	2.24E+4	2.48E+4	2.38E+4	1.71E+4	1.64E+4	5.371E−3
8.00E+0	3.36E+5	5.06E+4	5.20E+4	4.69E+4	1.68E+4	1.86E+4	1.78E+4	1.28E+4	1.23E+4	7.161E−3
1.00E+1	2.69E+5	4.05E+4	4.16E+4	3.75E+4	1.35E+4	1.49E+4	1.43E+4	1.02E+4	9.84E+3	8.950E−3
1.50E+1	1.79E+5	2.70E+4	2.77E+4	2.50E+4	8.97E+3	9.93E+3	9.51E+3	6.81E+3	6.55E+3	1.342E−2
2.00E+1	1.34E+5	2.02E+4	2.08E+4	1.87E+4	6.73E+3	7.44E+3	7.13E+3	5.09E+3	4.90E+3	1.789E−2
3.00E+1	8.95E+4	1.35E+4	1.38E+4	1.25E+4	4.49E+3	4.96E+3	4.74E+3	3.38E+3	3.26E+3	2.682E−2
4.00E+1	6.71E+4	1.01E+4	1.04E+4	9.35E+3	3.36E+3	3.71E+3	3.55E+3	2.53E+3	2.43E+3	3.574E−2
5.00E+1	5.37E+4	8.09E+3	8.28E+3	7.47E+3	2.69E+3	2.97E+3	2.84E+3	2.02E+3	1.94E+3	4.465E−2
6.00E+1	4.47E+4	6.74E+3	6.89E+3	6.22E+3	2.24E+3	2.47E+3	2.36E+3	1.67E+3	1.61E+3	5.354E−2
8.00E+1	3.35E+4	5.05E+3	5.16E+3	4.65E+3	1.68E+3	1.85E+3	1.77E+3	1.25E+3	1.20E+3	7.131E−2
1.00E+2	2.68E+4	4.04E+3	4.12E+3	3.71E+3	1.35E+3	1.48E+3	1.41E+3	9.89E+2	9.51E+2	8.903E−2
1.50E+2	1.79E+4	2.69E+3	2.73E+3	2.46E+3	8.97E+2	9.80E+2	9.36E+2	6.47E+2	6.22E+2	1.332E−1
2.00E+2	1.34E+4	2.02E+3	2.04E+3	1.83E+3	6.72E+2	7.32E+2	6.98E+2	4.77E+2	4.58E+2	1.770E−1
3.00E+2	8.90E+3	1.35E+3	1.34E+3	1.21E+3	4.48E+2	4.83E+2	4.60E+2	3.06E+2	2.94E+2	2.640E−1
4.00E+2	6.66E+3	1.01E+3	9.95E+2	8.94E+2	3.36E+2	3.59E+2	3.41E+2	2.22E+2	2.13E+2	3.500E−1
5.00E+2	5.32E+3	8.06E+2	7.88E+2	7.07E+2	2.69E+2	2.84E+2	2.70E+2	1.71E+2	1.64E+2	4.350E−1
6.00E+2	4.42E+3	6.71E+2	6.49E+2	5.82E+2	2.24E+2	2.35E+2	2.22E+2	1.38E+2	1.32E+2	5.190E−1
8.00E+2	3.31E+3	5.02E+2	4.77E+2	4.26E+2	1.67E+2	1.73E+2	1.63E+2	9.67E+1	9.25E+1	6.842E−1
1.00E+3	2.63E+3	4.01E+2	3.73E+2	3.33E+2	1.34E+2	1.35E+2	1.27E+2	7.25E+1	6.92E+1	8.456E−1
1.50E+3	1.74E+3	2.66E+2	2.36E+2	2.10E+2	8.84E+1	8.59E+1	8.01E+1	4.14E+1	3.94E+1	1.233E+0
2.00E+3	1.29E+3	1.98E+2	1.69E+2	1.49E+2	6.57E+1	6.14E+1	5.69E+1	2.69E+1	2.55E+1	1.600E+0
3.00E+3	8.45E+2	1.30E+2	1.02E+2	8.94E+1	4.30E+1	3.73E+1	3.41E+1	1.38E+1	1.30E+1	2.273E+0
4.00E+3	6.22E+2	9.59E+1	7.01E+1	6.08E+1	3.16E+1	2.56E+1	2.31E+1	8.20E+0	7.69E+0	2.875E+0
5.00E+3	4.88E+2	7.54E+1	5.16E+1	4.44E+1	2.47E+1	1.88E+1	1.68E+1	5.31E+0	4.96E+0	3.414E+0
6.00E+3	4.00E+2	6.18E+1	3.97E+1	3.39E+1	2.01E+1	1.44E+1	1.28E+1	3.64E+0	3.39E+0	3.897E+0
8.00E+3	2.89E+2	4.47E+1	2.57E+1	2.16E+1	1.44E+1	9.30E+0	8.13E+0	1.94E+0	1.79E+0	4.720E+0
1.00E+4	2.23E+2	3.44E+1	1.79E+1	1.50E+1	1.10E+1	6.48E+0	5.59E+0	1.15E+0	1.05E+0	5.384E+0
1.50E+4	1.37E+2	2.09E+1	8.92E+0	7.25E+0	6.59E+0	3.20E+0	2.68E+0	4.14E−1	3.74E−1	6.537E+0
2.00E+4	9.50E+1	1.44E+1	5.23E+0	4.16E+0	4.47E+0	1.86E+0	1.53E+0	1.90E−1	1.70E−1	7.205E+0
3.00E+4	5.49E+1	8.14E+0	2.34E+0	1.80E+0	2.50E+0	8.26E−1	6.54E−1	5.97E−2	5.22E−2	7.758E+0
4.00E+4	3.62E+1	5.29E+0	1.27E+0	9.53E−1	1.61E+0	4.48E−1	3.45E−1	2.53E−2	2.17E−2	7.803E+0
5.00E+4	2.58E+1	3.72E+0	7.82E−1	5.71E−1	1.13E+0	2.74E−1	2.06E−1	1.28E−2	1.08E−2	7.636E+0
6.00E+4	1.93E+1	2.76E+0	5.20E−1	3.72E−1	8.31E−1	1.82E−1	1.34E−1	7.26E−3	6.06E−3	7.381E+0
8.00E+4	1.20E+1	1.69E+0	2.69E−1	1.86E−1	5.05E−1	9.36E−2	6.64E−2	2.95E−3	2.41E−3	6.810E+0
1.00E+5	8.18E+0	1.13E+0	1.60E−1	1.07E−1	3.38E−1	5.55E−2	3.82E−2	1.46E−3	1.18E−3	6.269E+0
1.50E+5	3.93E+0	5.34E−1	6.15E−2	3.89E−2	1.59E−1	2.13E−2	1.38E−2	4.12E−4	3.23E−4	5.205E+0
2.00E+5	2.30E+0	3.08E−1	3.13E−2	1.90E−2	9.12E−2	1.08E−2	6.74E−3	1.71E−4	1.32E−4	4.472E+0
3.00E+5	1.07E+0	1.41E−1	1.23E−2	7.15E−3	4.15E−2	4.26E−3	2.52E−3	5.18E−5	4.02E−5	3.560E+0
4.00E+5	6.24E−1	8.13E−2	6.53E−3	3.71E−3	2.39E−2	2.25E−3	1.31E−3	2.32E−5	1.84E−5	3.023E+0
5.00E+5	4.17E−1	5.39E−2	4.07E−3	2.30E−3	1.58E−2	1.41E−3	8.08E−4	1.28E−5	1.05E−5	2.671E+0
6.00E+5	3.03E−1	3.90E−2	2.81E−3	1.59E−3	1.15E−2	9.70E−4	5.58E−4	8.08E−6	6.87E−6	2.423E+0
8.00E+5	1.89E−1	2.40E−2	1.62E−3	9.26E−4	7.05E−3	5.59E−4	3.25E−4	4.08E−6	3.72E−6	2.097E+0
1.00E+6	1.33E−1	1.69E−2	1.09E−3	6.32E−4	4.96E−3	3.75E−4	2.22E−4	2.50E−6	2.42E−6	1.892E+0
1.50E+6	7.46E−2	9.41E−3	5.62E−4	3.38E−4	2.75E−3	1.94E−4	1.19E−4	1.12E−6	1.22E−6	1.608E+0
2.00E+6	5.10E−2	6.40E−3	3.69E−4	2.27E−4	1.87E−3	1.27E−4	7.94E−5	6.78E−7	7.90E−7	1.461E+0
3.00E+6	3.07E−2	3.85E−3	2.14E−4	1.35E−4	1.12E−3	7.39E−5	4.72E−5	3.61E−7	4.55E−7	1.311E+0
4.00E+6	2.18E−2	2.72E−3	1.50E−4	9.51E−5	7.95E−4	5.18E−5*	3.33E−5	2.42E−7	3.17E−7	1.235E+0
5.00E+6	1.68E−2	2.10E−3	1.16E−4	7.33E−5*	6.13E−4	4.0E−5	2.57E−5			1.188E+0
6.00E+6	1.36E−2	1.71E−3		5.96E−5*	4.98E−4					1.157E+0
8.00E+6		1.24E−3								

TABLE. Cross Sections for Radiative Recombination, Z=1–112
See page 9 for Explanation of Tables

Z= 50

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 6.010$ fm

$|\epsilon_n|$ (eV)	3.523E+4	8.884E+3	8.884E+3	8.576E+3	3.914E+3	3.914E+3	3.822E+3	3.822E+3	3.793E+3	
1.00E+0	2.79E+6	4.21E+5	4.36E+5	3.92E+5	1.40E+5	1.56E+5	1.49E+5	1.07E+5	1.03E+5	8.235E−4
1.50E+0	1.86E+6	2.81E+5	2.90E+5	2.61E+5	9.34E+4	1.04E+5	9.92E+4	7.14E+4	6.86E+4	1.235E−3
2.00E+0	1.40E+6	2.11E+5	2.18E+5	1.96E+5	7.00E+4	7.78E+4	7.44E+4	5.35E+4	5.14E+4	1.647E−3
3.00E+0	9.31E+5	1.40E+5	1.45E+5	1.31E+5	4.67E+4	5.19E+4	4.96E+4	3.57E+4	3.43E+4	2.470E−3
4.00E+0	6.98E+5	1.05E+5	1.09E+5	9.79E+4	3.50E+4	3.89E+4	3.72E+4	2.68E+4	2.57E+4	3.294E−3
5.00E+0	5.59E+5	8.43E+4	8.71E+4	7.83E+4	2.80E+4	3.11E+4	2.98E+4	2.14E+4	2.06E+4	4.117E−3
6.00E+0	4.66E+5	7.02E+4	7.26E+4	6.52E+4	2.33E+4	2.59E+4	2.48E+4	1.78E+4	1.71E+4	4.940E−3
8.00E+0	3.49E+5	5.27E+4	5.44E+4	4.89E+4	1.75E+4	1.95E+4	1.86E+4	1.34E+4	1.28E+4	6.586E−3
1.00E+1	2.79E+5	4.21E+4	4.35E+4	3.91E+4	1.40E+4	1.56E+4	1.49E+4	1.07E+4	1.03E+4	8.231E−3
1.50E+1	1.86E+5	2.81E+4	2.90E+4	2.61E+4	9.34E+3	1.04E+4	9.91E+3	7.10E+3	6.83E+3	1.234E−2
2.00E+1	1.40E+5	2.11E+4	2.17E+4	1.95E+4	7.00E+3	7.77E+3	7.43E+3	5.32E+3	5.11E+3	1.645E−2
3.00E+1	9.31E+4	1.40E+4	1.45E+4	1.30E+4	4.67E+3	5.18E+3	4.95E+3	3.53E+3	3.39E+3	2.467E−2
4.00E+1	6.98E+4	1.05E+4	1.08E+4	9.74E+3	3.50E+3	3.88E+3	3.71E+3	2.64E+3	2.54E+3	3.287E−2
5.00E+1	5.58E+4	8.42E+3	8.67E+3	7.79E+3	2.80E+3	3.10E+3	2.96E+3	2.10E+3	2.02E+3	4.106E−2
6.00E+1	4.65E+4	7.02E+3	7.21E+3	6.48E+3	2.33E+3	2.58E+3	2.46E+3	1.75E+3	1.68E+3	4.925E−2
8.00E+1	3.49E+4	5.26E+3	5.40E+3	4.85E+3	1.75E+3	1.93E+3	1.84E+3	1.30E+3	1.25E+3	6.559E−2
1.00E+2	2.79E+4	4.21E+3	4.31E+3	3.87E+3	1.40E+3	1.54E+3	1.47E+3	1.03E+3	9.92E+2	8.190E−2
1.50E+2	1.86E+4	2.81E+3	2.86E+3	2.56E+3	9.33E+2	1.02E+3	9.76E+2	6.77E+2	6.50E+2	1.225E−1
2.00E+2	1.39E+4	2.10E+3	2.13E+3	1.91E+3	7.00E+2	7.64E+2	7.28E+2	4.99E+2	4.79E+2	1.629E−1
3.00E+2	9.26E+3	1.40E+3	1.41E+3	1.26E+3	4.66E+2	5.05E+2	4.80E+2	3.21E+2	3.08E+2	2.430E−1
4.00E+2	6.93E+3	1.05E+3	1.04E+3	9.34E+2	3.50E+2	3.75E+2	3.56E+2	2.33E+2	2.23E+2	3.222E−1
5.00E+2	5.54E+3	8.39E+2	8.26E+2	7.38E+2	2.80E+2	2.97E+2	2.82E+2	1.80E+2	1.72E+2	4.005E−1
6.00E+2	4.60E+3	6.99E+2	6.81E+2	6.08E+2	2.33E+2	2.46E+2	2.32E+2	1.45E+2	1.39E+2	4.780E−1
8.00E+2	3.44E+3	5.23E+2	5.01E+2	4.46E+2	1.74E+2	1.81E+2	1.70E+2	1.02E+2	9.74E+1	6.304E−1
1.00E+3	2.74E+3	4.18E+2	3.93E+2	3.49E+2	1.39E+2	1.42E+2	1.33E+2	7.67E+1	7.31E+1	7.795E−1
1.50E+3	1.81E+3	2.77E+2	2.49E+2	2.20E+2	9.21E+1	9.03E+1	8.41E+1	4.40E+1	4.18E+1	1.138E+0
2.00E+3	1.35E+3	2.06E+2	1.78E+2	1.57E+2	6.86E+1	6.47E+1	5.98E+1	2.87E+1	2.72E+1	1.478E+0
3.00E+3	8.81E+2	1.36E+2	1.08E+2	9.44E+1	4.49E+1	3.94E+1	3.60E+1	1.49E+1	1.40E+1	2.104E+0
4.00E+3	6.49E+2	1.00E+2	7.45E+1	6.44E+1	3.30E+1	2.71E+1	2.45E+1	8.88E+0	8.32E+0	2.667E+0
5.00E+3	5.10E+2	7.89E+1	5.50E+1	4.71E+1	2.58E+1	2.00E+1	1.79E+1	5.78E+0	5.39E+0	3.173E+0
6.00E+3	4.17E+2	6.46E+1	4.24E+1	3.61E+1	2.11E+1	1.54E+1	1.36E+1	3.99E+0	3.70E+0	3.629E+0
8.00E+3	3.03E+2	4.68E+1	2.76E+1	2.31E+1	1.51E+1	9.98E+0	8.70E+0	2.14E+0	1.97E+0	4.410E+0
1.00E+4	2.34E+2	3.61E+1	1.94E+1	1.60E+1	1.16E+1	6.98E+0	6.00E+0	1.27E+0	1.17E+0	5.045E+0
1.50E+4	1.44E+2	2.20E+1	9.70E+0	7.84E+0	6.95E+0	3.47E+0	2.90E+0	4.64E−1	4.18E−1	6.166E+0
2.00E+4	1.00E+2	1.52E+1	5.72E+0	4.52E+0	4.73E+0	2.04E+0	1.66E+0	2.15E−1	1.91E−1	6.833E+0
3.00E+4	5.81E+1	8.64E+0	2.58E+0	1.97E+0	2.66E+0	9.10E−1	7.17E−1	6.81E−2	5.93E−2	7.418E+0
4.00E+4	3.84E+1	5.63E+0	1.41E+0	1.05E+0	1.72E+0	4.96E−1	3.80E−1	2.90E−2	2.48E−2	7.506E+0
5.00E+4	2.75E+1	3.97E+0	8.70E−1	6.31E−1	1.20E+0	3.05E−1	2.28E−1	1.47E−2	1.24E−2	7.379E+0
6.00E+4	2.06E+1	2.95E+0	5.80E−1	4.12E−1	8.90E−1	2.03E−1	1.48E−1	8.39E−3	6.98E−3	7.159E+0
8.00E+4	1.29E+1	1.81E+0	3.02E−1	2.07E−1	5.43E−1	1.05E−1	7.39E−2	3.42E−3	2.79E−3	6.640E+0
1.00E+5	8.78E+0	1.22E+0	1.80E−1	1.20E−1	3.65E−1	6.25E−2	4.26E−2	1.70E−3	1.36E−3	6.135E+0
1.50E+5	4.24E+0	5.78E−1	6.96E−2	4.36E−2	1.72E−1	2.41E−2	1.55E−2	4.83E−4	3.76E−4	5.124E+0
2.00E+5	2.49E+0	3.34E−1	3.56E−2	2.14E−2	9.90E−2	1.23E−2	7.59E−3	2.01E−4	1.55E−4	4.417E+0
3.00E+5	1.16E+0	1.53E−1	1.41E−2	8.07E−3	4.52E−2	4.86E−3	2.85E−3	6.11E−5	4.71E−5	3.529E+0
4.00E+5	6.80E−1	8.88E−2	7.47E−3	4.19E−3	2.61E−2	2.58E−3	1.48E−3	2.74E−5	2.16E−5	3.003E+0
5.00E+5	4.55E−1	5.89E−2	4.67E−3	2.60E−3	1.73E−2	1.61E−3	9.14E−4	1.52E−5	1.24E−5	2.656E+0
6.00E+5	3.31E−1	4.27E−2	3.23E−3	1.80E−3	1.25E−2	1.11E−3	6.32E−4	9.57E−6	8.08E−6	2.412E+0
8.00E+5	2.06E−1	2.63E−2	1.86E−3	1.05E−3	7.71E−3	6.42E−4	3.68E−4	4.84E−6	4.38E−6	2.089E+0
1.00E+6	1.46E−1	1.85E−2	1.25E−3	7.16E−4	5.42E−3	4.31E−4	2.51E−4	2.96E−6	2.85E−6	1.887E+0
1.50E+6	8.17E−2	1.03E−2	6.48E−4	3.83E−4	3.01E−3	2.23E−4	1.34E−4	1.33E−6	1.43E−6	1.605E+0
2.00E+6	5.57E−2	7.01E−3	4.25E−4	2.56E−4	2.05E−3	1.46E−4	8.98E−5	8.06E−7	9.28E−7	1.459E+0
3.00E+6	3.35E−2	4.20E−3	2.47E−4	1.52E−4	1.23E−3	8.52E−5	5.32E−5	4.29E−7	5.34E−7	1.310E+0
4.00E+6	2.38E−2	2.97E−3	1.74E−4	1.07E−4	8.68E−4	5.98E−5	3.76E−5	2.87E−7*	3.72E−7	1.234E+0
5.00E+6	1.83E−2	2.29E−3	1.33E−4	8.27E−5	6.68E−4*	4.61E−5	2.9E−5			1.188E+0
6.00E+6	1.49E−2	1.86E−3	1.08E−4*	6.72E−5*	5.44E−4*					1.157E+0
8.00E+6	1.08E−2	1.35E−3								1.118E+0
1.00E+7		1.1E−3								

TABLE. Cross Sections for Radiative Recombination, $Z=1$–112
See page 9 for Explanation of Tables

$Z= 51$

T_e (eV)	σ_{RR} (b)									$f_{1s_{1/2}}$
	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 6.043$ fm

$|\epsilon_n|$ (eV)	3.671E+4	9.260E+3	9.261E+3	8.925E+3	4.078E+3	4.078E+3	3.978E+3	3.978E+3	3.947E+3	
1.00E+0	2.90E+6	4.38E+5	4.56E+5	4.08E+5	1.46E+5	1.62E+5	1.55E+5	1.12E+5	1.07E+5	7.585E−4
1.50E+0	1.94E+6	2.92E+5	3.04E+5	2.72E+5	9.71E+4	1.08E+5	1.03E+5	7.45E+4	7.14E+4	1.138E−3
2.00E+0	1.45E+6	2.19E+5	2.28E+5	2.04E+5	7.28E+4	8.12E+4	7.75E+4	5.58E+4	5.36E+4	1.517E−3
3.00E+0	9.68E+5	1.46E+5	1.52E+5	1.36E+5	4.85E+4	5.41E+4	5.17E+4	3.72E+4	3.57E+4	2.275E−3
4.00E+0	7.26E+5	1.10E+5	1.14E+5	1.02E+5	3.64E+4	4.06E+4	3.87E+4	2.79E+4	2.68E+4	3.034E−3
5.00E+0	5.81E+5	8.77E+4	9.11E+4	8.15E+4	2.91E+4	3.25E+4	3.10E+4	2.23E+4	2.14E+4	3.792E−3
6.00E+0	4.84E+5	7.31E+4	7.59E+4	6.79E+4	2.43E+4	2.71E+4	2.58E+4	1.86E+4	1.78E+4	4.550E−3
8.00E+0	3.63E+5	5.48E+4	5.69E+4	5.09E+4	1.82E+4	2.03E+4	1.94E+4	1.39E+4	1.34E+4	6.066E−3
1.00E+1	2.90E+5	4.38E+4	4.55E+4	4.07E+4	1.46E+4	1.62E+4	1.55E+4	1.11E+4	1.07E+4	7.582E−3
1.50E+1	1.94E+5	2.92E+4	3.03E+4	2.71E+4	9.71E+3	1.08E+4	1.03E+4	7.41E+3	7.11E+3	1.137E−2
2.00E+1	1.45E+5	2.19E+4	2.27E+4	2.03E+4	7.28E+3	8.11E+3	7.73E+3	5.55E+3	5.32E+3	1.516E−2
3.00E+1	9.67E+4	1.46E+4	1.51E+4	1.36E+4	4.85E+3	5.40E+3	5.15E+3	3.69E+3	3.54E+3	2.272E−2
4.00E+1	7.25E+4	1.10E+4	1.13E+4	1.02E+4	3.64E+3	4.05E+3	3.86E+3	2.76E+3	2.64E+3	3.028E−2
5.00E+1	5.80E+4	8.77E+3	9.06E+3	8.11E+3	2.91E+3	3.23E+3	3.08E+3	2.20E+3	2.11E+3	3.783E−2
6.00E+1	4.84E+4	7.30E+3	7.55E+3	6.75E+3	2.43E+3	2.69E+3	2.57E+3	1.82E+3	1.75E+3	4.537E−2
8.00E+1	3.63E+4	5.48E+3	5.65E+3	5.05E+3	1.82E+3	2.02E+3	1.92E+3	1.36E+3	1.30E+3	6.043E−2
1.00E+2	2.90E+4	4.38E+3	4.51E+3	4.03E+3	1.46E+3	1.61E+3	1.53E+3	1.08E+3	1.04E+3	7.545E−2
1.50E+2	1.93E+4	2.92E+3	2.99E+3	2.67E+3	9.71E+2	1.07E+3	1.02E+3	7.07E+2	6.78E+2	1.129E−1
2.00E+2	1.45E+4	2.19E+3	2.23E+3	1.99E+3	7.28E+2	7.98E+2	7.59E+2	5.22E+2	5.00E+2	1.501E−1
3.00E+2	9.63E+3	1.46E+3	1.47E+3	1.31E+3	4.85E+2	5.27E+2	5.00E+2	3.36E+2	3.22E+2	2.240E−1
4.00E+2	7.21E+3	1.09E+3	1.09E+3	9.74E+2	3.64E+2	3.92E+2	3.71E+2	2.44E+2	2.33E+2	2.970E−1
5.00E+2	5.76E+3	8.73E+2	8.66E+2	7.71E+2	2.91E+2	3.11E+2	2.94E+2	1.89E+2	1.81E+2	3.693E−1
6.00E+2	4.79E+3	7.27E+2	7.15E+2	6.35E+2	2.42E+2	2.57E+2	2.42E+2	1.53E+2	1.46E+2	4.409E−1
8.00E+2	3.58E+3	5.44E+2	5.26E+2	4.66E+2	1.81E+2	1.89E+2	1.78E+2	1.08E+2	1.03E+2	5.817E−1
1.00E+3	2.85E+3	4.35E+2	4.12E+2	3.65E+2	1.45E+2	1.49E+2	1.39E+2	8.10E+1	7.71E+1	7.196E−1
1.50E+3	1.88E+3	2.88E+2	2.62E+2	2.31E+2	9.59E+1	9.49E+1	8.81E+1	4.67E+1	4.43E+1	1.052E+0
2.00E+3	1.40E+3	2.15E+2	1.88E+2	1.64E+2	7.14E+1	6.81E+1	6.28E+1	3.06E+1	2.90E+1	1.367E+0
3.00E+3	9.17E+2	1.41E+2	1.15E+2	9.94E+1	4.68E+1	4.17E+1	3.79E+1	1.60E+1	1.50E+1	1.951E+0
4.00E+3	6.76E+2	1.05E+2	7.92E+1	6.80E+1	3.44E+1	2.88E+1	2.59E+1	9.60E+0	8.97E+0	2.477E+0
5.00E+3	5.32E+2	8.24E+1	5.85E+1	4.99E+1	2.70E+1	2.13E+1	1.90E+1	6.28E+0	5.84E+0	2.952E+0
6.00E+3	4.36E+2	6.75E+1	4.53E+1	3.83E+1	2.20E+1	1.64E+1	1.45E+1	4.35E+0	4.03E+0	3.382E+0
8.00E+3	3.16E+2	4.90E+1	2.96E+1	2.47E+1	1.58E+1	1.07E+1	9.29E+0	2.35E+0	2.16E+0	4.123E+0
1.00E+4	2.45E+2	3.79E+1	2.08E+1	1.72E+1	1.22E+1	7.51E+0	6.44E+0	1.41E+0	1.29E+0	4.731E+0
1.50E+4	1.51E+2	2.32E+1	1.05E+1	8.45E+0	7.32E+0	3.76E+0	3.14E+0	5.18E−1	4.65E−1	5.818E+0
2.00E+4	1.05E+2	1.60E+1	6.24E+0	4.90E+0	5.00E+0	2.22E+0	1.81E+0	2.42E−1	2.14E−1	6.481E+0
3.00E+4	6.13E+1	9.16E+0	2.83E+0	2.15E+0	2.82E+0	1.00E+0	7.84E−1	7.73E−2	6.71E−2	7.093E+0
4.00E+4	4.07E+1	5.99E+0	1.56E+0	1.15E+0	1.83E+0	5.48E−1	4.17E−1	3.31E−2	2.83E−2	7.220E+0
5.00E+4	2.92E+1	4.23E+0	9.67E−1	6.95E−1	1.28E+0	3.38E−1	2.51E−1	1.69E−2	1.42E−2	7.130E+0
6.00E+4	2.20E+1	3.15E+0	6.47E−1	4.55E−1	9.52E−1	2.26E−1	1.64E−1	9.66E−3	8.01E−3	6.942E+0
8.00E+4	1.38E+1	1.94E+0	3.38E−1	2.29E−1	5.83E−1	1.18E−1	8.21E−2	3.96E−3	3.21E−3	6.473E+0
1.00E+5	9.41E+0	1.31E+0	2.02E−1	1.33E−1	3.92E−1	7.02E−2	4.75E−2	1.98E−3	1.58E−3	6.004E+0
1.50E+5	4.57E+0	6.24E−1	7.87E−2	4.88E−2	1.86E−1	2.72E−2	1.74E−2	5.63E−4	4.37E−4	5.043E+0
2.00E+5	2.69E+0	3.62E−1	4.03E−2	2.40E−2	1.07E−1	1.39E−2	8.51E−3	2.35E−4	1.80E−4	4.362E+0
3.00E+5	1.26E+0	1.67E−1	1.60E−2	9.08E−3	4.91E−2	5.53E−3	3.21E−3	7.17E−5	5.51E−5	3.498E+0
4.00E+5	7.39E−1	9.67E−2	8.54E−3	4.72E−3	2.85E−2	2.94E−3	1.67E−3	3.22E−5	2.53E−5	2.983E+0
5.00E+5	4.95E−1	6.43E−2	5.34E−3	2.93E−3	1.89E−2	1.84E−3	1.03E−3	1.79E−5	1.45E−5	2.642E+0
6.00E+5	3.61E−1	4.66E−2	3.70E−3	2.03E−3	1.37E−2	1.27E−3	7.13E−4	1.13E−5	9.46E−6	2.401E+0
8.00E+5	2.25E−1	2.88E−2	2.14E−3	1.18E−3	8.42E−3	7.36E−4	4.16E−4	5.71E−6	5.13E−6	2.082E+0
1.00E+6	1.59E−1	2.03E−2	1.44E−3	8.08E−4	5.93E−3	4.95E−4	2.83E−4	3.50E−6	3.34E−6	1.881E+0
1.50E+6	8.92E−2	1.13E−2	7.45E−4	4.31E−4	3.29E−3	2.56E−4	1.51E−4	1.67E−6	1.67E−6	1.602E+0
2.00E+6	6.08E−2	7.65E−3	4.89E−4	2.89E−4	2.23E−3	1.68E−4	1.01E−4	9.54E−7	1.09E−6	1.457E+0
3.00E+6	3.66E−2	4.59E−3	2.85E−4	1.71E−4	1.34E−3	9.80E−5	5.99E−5	5.09E−7	6.24E−7	1.308E+0
4.00E+6	2.59E−2	3.24E−3	2.00E−4	1.21E−4	9.46E−4	6.87E−5	4.23E−5	3.41E−7	4.35E−7	1.233E+0
5.00E+6	1.99E−2	2.50E−3	1.54E−4	9.30E−5	7.28E−4	5.29E−5	3.26E−5			1.187E+0
6.00E+6	1.62E−2	2.03E−3	1.25E−4	7.6E−5	5.91E−4	4.3E−5				1.156E+0
8.00E+6	1.17E−2	1.47E−3								1.117E+0
1.00E+7		1.1E−3								

Z= 52

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 6.122$ fm

$|\epsilon_n|$ (eV)	3.822E+4	9.645E+3	9.646E+3	9.282E+3	4.246E+3	4.246E+3	4.138E+3	4.138E+3	4.104E+3	
1.00E+0	3.02E+6	4.56E+5	4.76E+5	4.24E+5	1.51E+5	1.69E+5	1.61E+5	1.16E+5	1.12E+5	6.997E−4
1.50E+0	2.01E+6	3.04E+5	3.17E+5	2.83E+5	1.01E+5	1.13E+5	1.08E+5	7.76E+4	7.43E+4	1.050E−3
2.00E+0	1.51E+6	2.28E+5	2.38E+5	2.12E+5	7.57E+4	8.46E+4	8.06E+4	5.82E+4	5.57E+4	1.399E−3
3.00E+0	1.01E+6	1.52E+5	1.59E+5	1.41E+5	5.04E+4	5.64E+4	5.38E+4	3.88E+4	3.71E+4	2.099E−3
4.00E+0	7.54E+5	1.14E+5	1.19E+5	1.06E+5	3.78E+4	4.23E+4	4.03E+4	2.91E+4	2.78E+4	2.798E−3
5.00E+0	6.03E+5	9.12E+4	9.52E+4	8.48E+4	3.03E+4	3.38E+4	3.22E+4	2.33E+4	2.23E+4	3.498E−3
6.00E+0	5.03E+5	7.60E+4	7.93E+4	7.07E+4	2.52E+4	2.82E+4	2.69E+4	1.94E+4	1.86E+4	4.197E−3
8.00E+0	3.77E+5	5.70E+4	5.95E+4	5.30E+4	1.89E+4	2.11E+4	2.02E+4	1.45E+4	1.39E+4	5.596E−3
1.00E+1	3.02E+5	4.56E+4	4.76E+4	4.24E+4	1.51E+4	1.69E+4	1.61E+4	1.16E+4	1.11E+4	6.994E−3
1.50E+1	2.01E+5	3.04E+4	3.17E+4	2.82E+4	1.01E+4	1.13E+4	1.07E+4	7.72E+3	7.40E+3	1.049E−2
2.00E+1	1.51E+5	2.28E+4	2.38E+4	2.12E+4	7.57E+3	8.45E+3	8.05E+3	5.78E+3	5.54E+3	1.398E−2
3.00E+1	1.01E+5	1.52E+4	1.58E+4	1.41E+4	5.04E+3	5.63E+3	5.36E+3	3.84E+3	3.68E+3	2.096E−2
4.00E+1	7.53E+4	1.14E+4	1.19E+4	1.06E+4	3.78E+3	4.22E+3	4.02E+3	2.87E+3	2.75E+3	2.793E−2
5.00E+1	6.03E+4	9.11E+3	9.48E+3	8.44E+3	3.03E+3	3.37E+3	3.21E+3	2.29E+3	2.19E+3	3.490E−2
6.00E+1	5.02E+4	7.60E+3	7.89E+3	7.03E+3	2.52E+3	2.81E+3	2.67E+3	1.90E+3	1.82E+3	4.186E−2
8.00E+1	3.77E+4	5.70E+3	5.90E+3	5.26E+3	1.89E+3	2.10E+3	2.00E+3	1.42E+3	1.36E+3	5.575E−2
1.00E+2	3.01E+4	4.56E+3	4.71E+3	4.20E+3	1.51E+3	1.68E+3	1.60E+3	1.13E+3	1.08E+3	6.962E−2
1.50E+2	2.01E+4	3.04E+3	3.13E+3	2.78E+3	1.01E+3	1.12E+3	1.06E+3	7.39E+2	7.07E+2	1.042E−1
2.00E+2	1.50E+4	2.28E+3	2.33E+3	2.08E+3	7.56E+2	8.33E+2	7.90E+2	5.45E+2	5.21E+2	1.385E−1
3.00E+2	1.00E+4	1.52E+3	1.54E+3	1.37E+3	5.04E+2	5.50E+2	5.21E+2	3.52E+2	3.36E+2	2.067E−1
4.00E+2	7.49E+3	1.14E+3	1.15E+3	1.02E+3	3.78E+2	4.09E+2	3.87E+2	2.56E+2	2.44E+2	2.742E−1
5.00E+2	5.98E+3	9.08E+2	9.07E+2	8.04E+2	3.02E+2	3.25E+2	3.06E+2	1.98E+2	1.89E+2	3.411E−1
6.00E+2	4.97E+3	7.56E+2	7.49E+2	6.63E+2	2.52E+2	2.68E+2	2.53E+2	1.60E+2	1.53E+2	4.072E−1
8.00E+2	3.72E+3	5.66E+2	5.51E+2	4.86E+2	1.89E+2	1.98E+2	1.86E+2	1.13E+2	1.08E+2	5.375E−1
1.00E+3	2.96E+3	4.52E+2	4.33E+2	3.81E+2	1.51E+2	1.56E+2	1.46E+2	8.54E+1	8.11E+1	6.652E−1
1.50E+3	1.96E+3	3.00E+2	2.76E+2	2.42E+2	9.98E+1	9.95E+1	9.23E+1	4.95E+1	4.69E+1	9.733E−1
2.00E+3	1.46E+3	2.24E+2	1.98E+2	1.72E+2	7.43E+1	7.16E+1	6.59E+1	3.26E+1	3.08E+1	1.266E+0
3.00E+3	9.55E+2	1.47E+2	1.21E+2	1.05E+2	4.88E+1	4.39E+1	3.99E+1	1.71E+1	1.61E+1	1.810E+0
4.00E+3	7.04E+2	1.09E+2	8.39E+1	7.18E+1	3.59E+1	3.04E+1	2.73E+1	1.04E+1	9.66E+0	2.303E+0
5.00E+3	5.54E+2	8.59E+1	6.22E+1	5.28E+1	2.82E+1	2.26E+1	2.01E+1	6.80E+0	6.32E+0	2.749E+0
6.00E+3	4.54E+2	7.05E+1	4.83E+1	4.06E+1	2.30E+1	1.75E+1	1.54E+1	4.74E+0	4.38E+0	3.155E+0
8.00E+3	3.30E+2	5.12E+1	3.16E+1	2.63E+1	1.66E+1	1.14E+1	9.90E+0	2.57E+0	2.36E+0	3.858E+0
1.00E+4	2.56E+2	3.97E+1	2.24E+1	1.84E+1	1.27E+1	8.06E+0	6.89E+0	1.55E+0	1.41E+0	4.439E+0
1.50E+4	1.58E+2	2.44E+1	1.14E+1	9.09E+0	7.70E+0	4.07E+0	3.38E+0	5.76E−1	5.17E−1	5.492E+0
2.00E+4	1.11E+2	1.69E+1	6.79E+0	5.30E+0	5.27E+0	2.41E+0	1.96E+0	2.71E−1	2.40E−1	6.149E+0
3.00E+4	6.47E+1	9.69E+0	3.11E+0	2.34E+0	2.99E+0	1.10E+0	8.55E−1	8.75E−2	7.57E−2	6.782E+0
4.00E+4	4.31E+1	6.36E+0	1.72E+0	1.26E+0	1.94E+0	6.05E−1	4.57E−1	3.77E−2	3.21E−2	6.944E+0
5.00E+4	3.09E+1	4.51E+0	1.07E+0	7.64E−1	1.37E+0	3.75E−1	2.76E−1	1.93E−2	1.62E−2	6.887E+0
6.00E+4	2.33E+1	3.36E+0	7.19E−1	5.02E−1	1.02E+0	2.51E−1	1.81E−1	1.11E−2	9.16E−3	6.730E+0
8.00E+4	1.47E+1	2.08E+0	3.77E−1	2.54E−1	6.24E−1	1.31E−1	9.09E−2	4.57E−3	3.69E−3	6.308E+0
1.00E+5	1.01E+1	1.41E+0	2.27E−1	1.48E−1	4.21E−1	7.86E−2	5.28E−2	2.29E−3	1.82E−3	5.873E+0
1.50E+5	4.91E+0	6.73E−1	8.87E−2	5.45E−2	2.00E−1	3.07E−2	1.94E−2	6.55E−4	5.06E−4	4.962E+0
2.00E+5	2.90E+0	3.91E−1	4.56E−2	2.69E−2	1.16E−1	1.58E−2	9.53E−3	2.74E−4	2.09E−4	4.307E+0
3.00E+5	1.36E+0	1.81E−1	1.82E−2	1.02E−2	5.33E−2	6.28E−3	3.60E−3	8.40E−5	6.41E−5	3.467E+0
4.00E+5	8.03E−1	1.05E−1	9.72E−3	5.31E−3	3.09E−2	3.35E−3	1.87E−3	3.78E−5	2.95E−5	2.962E+0
5.00E+5	5.39E−1	7.00E−2	6.09E−3	3.30E−3	2.06E−2	2.10E−3	1.16E−3	2.10E−5	1.69E−5	2.627E+0
6.00E+5	3.93E−1	5.08E−2	4.23E−3	2.28E−3	1.49E−2	1.45E−3	8.03E−4	1.33E−5	1.11E−5	2.389E+0
8.00E+5	2.45E−1	3.14E−2	2.45E−3	1.33E−3	9.19E−3	8.41E−4	4.68E−4	6.72E−6	5.99E−6	2.075E+0
1.00E+6	1.74E−1	2.21E−2	1.65E−3	9.09E−4	6.47E−3	5.66E−4	3.19E−4	4.13E−6	3.90E−6	1.876E+0
1.50E+6	9.73E−2	1.23E−2	8.54E−4	4.85E−4	3.59E−3	2.94E−4	1.70E−4	1.86E−6	1.95E−6	1.599E+0
2.00E+6	6.63E−2	8.34E−3	5.61E−4	3.24E−4	2.43E−3	1.93E−4	1.14E−4	1.13E−6	1.27E−6	1.455E+0
3.00E+6	3.98E−2	4.99E−3	3.27E−4	1.92E−4	1.46E−3	1.12E−4	6.73E−5	6.01E−7	7.27E−7	1.307E+0
4.00E+6	2.81E−2	3.53E−3	2.29E−4	1.35E−4	1.03E−3	7.88E−5	4.74E−5	4.03E−7	5.06E−7	1.232E+0
5.00E+6	2.17E−2	2.72E−3	1.76E−4*	1.04E−4	7.92E−4	6.07E−5	3.66E−5	3.0E−7		1.186E+0
6.00E+6	1.76E−2	2.20E−3	1.43E−4*	8.47E−5*	6.42E−4		3.0E−5			1.156E+0
8.00E+6	1.27E−2*	1.59E−3*								1.117E+0
1.00E+7		1.24E−3*								

TABLE. Cross Sections for Radiative Recombination, $Z=1-112$
See page 9 for Explanation of Tables

$Z= 53$

T_e (eV)	σ_{RR} (b)									$f_{1s_{1/2}}$
	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	
$\|\epsilon_n\|$ (eV)	3.976E+4	1.004E+4	1.004E+4	9.646E+3	4.418E+3	4.418E+3	4.301E+3	4.301E+3	4.264E+3	

$R_{nucl} = 6.131$ fm

T_e (eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	$f_{1s_{1/2}}$
1.00E+0	3.13E+6	4.74E+5	4.97E+5	4.41E+5	1.57E+5	1.76E+5	1.68E+5	1.21E+5	1.16E+5	6.464E−4
1.50E+0	2.09E+6	3.16E+5	3.32E+5	2.94E+5	1.05E+5	1.18E+5	1.12E+5	8.08E+4	7.73E+4	9.695E−4
2.00E+0	1.57E+6	2.37E+5	2.49E+5	2.21E+5	7.86E+4	8.81E+4	8.38E+4	6.06E+4	5.79E+4	1.293E−3
3.00E+0	1.04E+6	1.58E+5	1.66E+5	1.47E+5	5.24E+4	5.88E+4	5.59E+4	4.04E+4	3.86E+4	1.939E−3
4.00E+0	7.82E+5	1.18E+5	1.24E+5	1.10E+5	3.93E+4	4.41E+4	4.19E+4	3.03E+4	2.90E+4	2.585E−3
5.00E+0	6.26E+5	9.47E+4	9.94E+4	8.82E+4	3.14E+4	3.52E+4	3.35E+4	2.42E+4	2.32E+4	3.231E−3
6.00E+0	5.22E+5	7.89E+4	8.28E+4	7.35E+4	2.62E+4	2.94E+4	2.79E+4	2.02E+4	1.93E+4	3.877E−3
8.00E+0	3.91E+5	5.92E+4	6.21E+4	5.51E+4	1.96E+4	2.20E+4	2.10E+4	1.51E+4	1.45E+4	5.169E−3
1.00E+1	3.13E+5	4.74E+4	4.97E+4	4.41E+4	1.57E+4	1.76E+4	1.68E+4	1.21E+4	1.16E+4	6.461E−3
1.50E+1	2.09E+5	3.16E+4	3.31E+4	2.94E+4	1.05E+4	1.17E+4	1.12E+4	8.04E+3	7.69E+3	9.689E−3
2.00E+1	1.56E+5	2.37E+4	2.48E+4	2.20E+4	7.86E+3	8.80E+3	8.37E+3	6.02E+3	5.76E+3	1.291E−2
3.00E+1	1.04E+5	1.58E+4	1.65E+4	1.47E+4	5.24E+3	5.86E+3	5.57E+3	4.00E+3	3.83E+3	1.936E−2
4.00E+1	7.82E+4	1.18E+4	1.24E+4	1.10E+4	3.93E+3	4.39E+3	4.18E+3	2.99E+3	2.86E+3	2.580E−2
5.00E+1	6.25E+4	9.47E+3	9.90E+3	8.78E+3	3.14E+3	3.51E+3	3.34E+3	2.39E+3	2.28E+3	3.224E−2
6.00E+1	5.21E+4	7.89E+3	8.24E+3	7.31E+3	2.62E+3	2.92E+3	2.78E+3	1.98E+3	1.90E+3	3.867E−2
8.00E+1	3.91E+4	5.92E+3	6.17E+3	5.47E+3	1.96E+3	2.19E+3	2.08E+3	1.48E+3	1.41E+3	5.151E−2
1.00E+2	3.12E+4	4.73E+3	4.93E+3	4.37E+3	1.57E+3	1.75E+3	1.66E+3	1.17E+3	1.12E+3	6.432E−2
1.50E+2	2.08E+4	3.15E+3	3.27E+3	2.89E+3	1.05E+3	1.16E+3	1.10E+3	7.71E+2	7.36E+2	9.624E−2
2.00E+2	1.56E+4	2.37E+3	2.44E+3	2.16E+3	7.85E+2	8.68E+2	8.22E+2	5.69E+2	5.43E+2	1.280E−1
3.00E+2	1.04E+4	1.58E+3	1.61E+3	1.43E+3	5.24E+2	5.74E+2	5.43E+2	3.68E+2	3.51E+2	1.911E−1
4.00E+2	7.77E+3	1.18E+3	1.20E+3	1.06E+3	3.93E+2	4.27E+2	4.03E+2	2.68E+2	2.55E+2	2.535E−1
5.00E+2	6.21E+3	9.44E+2	9.49E+2	8.37E+2	3.14E+2	3.39E+2	3.19E+2	2.08E+2	1.98E+2	3.154E−1
6.00E+2	5.16E+3	7.86E+2	7.84E+2	6.91E+2	2.61E+2	2.80E+2	2.63E+2	1.68E+2	1.60E+2	3.766E−1
8.00E+2	3.86E+3	5.89E+2	5.77E+2	5.07E+2	1.96E+2	2.07E+2	1.94E+2	1.19E+2	1.13E+2	4.973E−1
1.00E+3	3.08E+3	4.70E+2	4.54E+2	3.98E+2	1.56E+2	1.63E+2	1.52E+2	8.99E+1	8.53E+1	6.157E−1
1.50E+3	2.04E+3	3.12E+2	2.90E+2	2.53E+2	1.04E+2	1.04E+2	9.65E+1	5.24E+1	4.95E+1	9.017E−1
2.00E+3	1.51E+3	2.33E+2	2.08E+2	1.81E+2	7.73E+1	7.51E+1	6.90E+1	3.46E+1	3.26E+1	1.174E+0
3.00E+3	9.93E+2	1.53E+2	1.28E+2	1.10E+2	5.08E+1	4.63E+1	4.20E+1	1.83E+1	1.72E+1	1.682E+0
4.00E+3	7.33E+2	1.14E+2	8.89E+1	7.57E+1	3.74E+1	3.22E+1	2.88E+1	1.11E+1	1.04E+1	2.143E+0
5.00E+3	5.77E+2	8.95E+1	6.61E+1	5.58E+1	2.94E+1	2.39E+1	2.12E+1	7.36E+0	6.82E+0	2.563E+0
6.00E+3	4.73E+2	7.35E+1	5.14E+1	4.30E+1	2.40E+1	1.86E+1	1.63E+1	5.14E+0	4.75E+0	2.945E+0
8.00E+3	3.44E+2	5.35E+1	3.38E+1	2.79E+1	1.73E+1	1.22E+1	1.05E+1	2.81E+0	2.58E+0	3.612E+0
1.00E+4	2.67E+2	4.15E+1	2.40E+1	1.96E+1	1.33E+1	8.63E+0	7.35E+0	1.71E+0	1.55E+0	4.167E+0
1.50E+4	1.66E+2	2.56E+1	1.23E+1	9.77E+0	8.09E+0	4.40E+0	3.63E+0	6.40E−1	5.73E−1	5.187E+0
2.00E+4	1.16E+2	1.78E+1	7.37E+0	5.72E+0	5.56E+0	2.62E+0	2.11E+0	3.03E−1	2.67E−1	5.835E+0
3.00E+4	6.81E+1	1.02E+1	3.40E+0	2.55E+0	3.16E+0	1.20E+0	9.30E−1	9.87E−2	8.52E−2	6.485E+0
4.00E+4	4.55E+1	6.74E+0	1.90E+0	1.38E+0	2.06E+0	6.65E−1	5.00E−1	4.28E−2	3.63E−2	6.677E+0
5.00E+4	3.27E+1	4.79E+0	1.18E+0	8.38E−1	1.46E+0	4.14E−1	3.03E−1	2.20E−2	1.84E−2	6.652E+0
6.00E+4	2.48E+1	3.58E+0	7.97E−1	5.52E−1	1.08E+0	2.78E−1	1.99E−1	1.27E−2	1.04E−2	6.523E+0
8.00E+4	1.56E+1	2.22E+0	4.20E−1	2.80E−1	6.68E−1	1.46E−1	1.01E−1	5.25E−3	4.23E−3	6.147E+0
1.00E+5	1.07E+1	1.51E+0	2.53E−1	1.64E−1	4.52E−1	8.78E−2	5.85E−2	2.64E−3	2.09E−3	5.744E+0
1.50E+5	5.27E+0	7.25E−1	9.98E−2	6.07E−2	2.15E−1	3.45E−2	2.16E−2	7.60E−4	5.84E−4	4.882E+0
2.00E+5	3.12E+0	4.23E−1	5.15E−2	3.00E−2	1.25E−1	1.78E−2	1.06E−2	3.19E−4	2.42E−4	4.252E+0
3.00E+5	1.47E+0	1.96E−1	2.07E−2	1.14E−2	5.77E−2	7.11E−3	4.04E−3	9.80E−5	7.45E−5	3.436E+0
4.00E+5	8.70E−1	1.14E−1	1.11E−2	5.96E−3	3.36E−2	3.80E−3	2.10E−3	4.42E−5	3.43E−5	2.941E+0
5.00E+5	5.85E−1	7.61E−2	6.94E−3	3.70E−3	2.23E−2	2.39E−3	1.30E−3	2.46E−5	1.97E−5	2.612E+0
6.00E+5	4.27E−1	5.52E−2	4.81E−3	2.57E−3	1.62E−2	1.66E−3	9.02E−4	1.56E−5	1.29E−5	2.378E+0
8.00E+5	2.67E−1	3.42E−2	2.79E−3	1.50E−3	1.00E−2	9.59E−4	5.26E−4	7.89E−6	6.97E−6	2.067E+0
1.00E+6	1.89E−1	2.41E−2	1.88E−3	1.02E−3	7.04E−3	6.46E−4	3.58E−4	4.85E−6	4.53E−6	1.870E+0
1.50E+6	1.06E−1	1.34E−2	9.76E−4	5.45E−4	3.90E−3	3.35E−4	1.91E−4	2.19E−6	2.27E−6	1.596E+0
2.00E+6	7.21E−2	9.08E−3	6.41E−4	3.64E−4	2.65E−3	2.20E−4	1.27E−4	1.33E−6	1.47E−6	1.453E+0
3.00E+6	4.32E−2	5.43E−3	3.74E−4	2.15E−4	1.58E−3	1.28E−4	7.53E−5	7.07E−7	8.45E−7	1.306E+0
4.00E+6	3.06E−2	3.83E−3	2.62E−4	1.52E−4	1.12E−3	9.02E−5	5.31E−5		5.88E−7	1.231E+0
5.00E+6	2.35E−2	2.95E−3	2.02E−4	1.17E−4	8.59E−4	6.94E−5*	4.09E−5		4.49E−7*	1.185E+0
6.00E+6	1.91E−2	2.39E−3	1.64E−4*	9.47E−5*	6.96E−4		3.33E−5*			1.155E+0
8.00E+6	1.38E−2*	1.73E−3								1.117E+0
1.00E+7	1.1E−2	1.4E−3								1.093E+0

$Z= 54$

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 6.180$ fm

$|\epsilon_n|$ (eV)	4.134E+4	1.044E+4	1.044E+4	1.002E+4	4.593E+3	4.593E+3	4.467E+3	4.467E+3	4.427E+3	
1.00E+0	3.25E+6	4.92E+5	5.19E+5	4.58E+5	1.63E+5	1.84E+5	1.74E+5	1.26E+5	1.20E+5	5.979E−4
1.50E+0	2.16E+6	3.28E+5	3.46E+5	3.06E+5	1.09E+5	1.22E+5	1.16E+5	8.41E+4	8.03E+4	8.968E−4
2.00E+0	1.62E+6	2.46E+5	2.60E+5	2.29E+5	8.15E+4	9.17E+4	8.71E+4	6.31E+4	6.02E+4	1.196E−3
3.00E+0	1.08E+6	1.64E+5	1.73E+5	1.53E+5	5.43E+4	6.12E+4	5.81E+4	4.20E+4	4.01E+4	1.793E−3
4.00E+0	8.11E+5	1.23E+5	1.30E+5	1.15E+5	4.08E+4	4.59E+4	4.36E+4	3.15E+4	3.01E+4	2.391E−3
5.00E+0	6.49E+5	9.83E+4	1.04E+5	9.16E+4	3.26E+4	3.67E+4	3.48E+4	2.52E+4	2.41E+4	2.989E−3
6.00E+0	5.41E+5	8.20E+4	8.65E+4	7.64E+4	2.72E+4	3.06E+4	2.90E+4	2.10E+4	2.00E+4	3.586E−3
8.00E+0	4.06E+5	6.15E+4	6.48E+4	5.73E+4	2.04E+4	2.29E+4	2.18E+4	1.57E+4	1.50E+4	4.781E−3
1.00E+1	3.25E+5	4.92E+4	5.19E+4	4.58E+4	1.63E+4	1.83E+4	1.74E+4	1.26E+4	1.20E+4	5.976E−3
1.50E+1	2.16E+5	3.28E+4	3.46E+4	3.05E+4	1.09E+4	1.22E+4	1.16E+4	8.37E+3	7.99E+3	8.962E−3
2.00E+1	1.62E+5	2.46E+4	2.59E+4	2.29E+4	8.15E+3	9.16E+3	8.70E+3	6.27E+3	5.98E+3	1.195E−2
3.00E+1	1.08E+5	1.64E+4	1.73E+4	1.52E+4	5.43E+3	6.10E+3	5.79E+3	4.17E+3	3.98E+3	1.791E−2
4.00E+1	8.11E+4	1.23E+4	1.29E+4	1.14E+4	4.08E+3	4.57E+3	4.34E+3	3.12E+3	2.97E+3	2.387E−2
5.00E+1	6.49E+4	9.83E+3	1.03E+4	9.12E+3	3.26E+3	3.66E+3	3.47E+3	2.49E+3	2.37E+3	2.982E−2
6.00E+1	5.40E+4	8.19E+3	8.60E+3	7.59E+3	2.72E+3	3.05E+3	2.89E+3	2.06E+3	1.97E+3	3.577E−2
8.00E+1	4.05E+4	6.14E+3	6.44E+3	5.68E+3	2.04E+3	2.28E+3	2.16E+3	1.54E+3	1.47E+3	4.765E−2
1.00E+2	3.24E+4	4.91E+3	5.14E+3	4.54E+3	1.63E+3	1.82E+3	1.73E+3	1.22E+3	1.17E+3	5.951E−2
1.50E+2	2.16E+4	3.28E+3	3.41E+3	3.01E+3	1.09E+3	1.21E+3	1.15E+3	8.04E+2	7.66E+2	8.905E−2
2.00E+2	1.62E+4	2.46E+3	2.55E+3	2.25E+3	8.15E+2	9.04E+2	8.55E+2	5.94E+2	5.66E+2	1.185E−1
3.00E+2	1.08E+4	1.64E+3	1.68E+3	1.48E+3	5.43E+2	5.98E+2	5.65E+2	3.84E+2	3.66E+2	1.768E−1
4.00E+2	8.06E+3	1.23E+3	1.25E+3	1.10E+3	4.07E+2	4.45E+2	4.19E+2	2.80E+2	2.66E+2	2.347E−1
5.00E+2	6.44E+3	9.80E+2	9.93E+2	8.72E+2	3.26E+2	3.54E+2	3.32E+2	2.17E+2	2.07E+2	2.920E−1
6.00E+2	5.36E+3	8.16E+2	8.20E+2	7.19E+2	2.71E+2	2.92E+2	2.74E+2	1.76E+2	1.67E+2	3.488E−1
8.00E+2	4.01E+3	6.11E+2	6.05E+2	5.29E+2	2.03E+2	2.16E+2	2.02E+2	1.25E+2	1.18E+2	4.607E−1
1.00E+3	3.19E+3	4.88E+2	4.76E+2	4.15E+2	1.62E+2	1.70E+2	1.59E+2	9.46E+1	8.96E+1	5.705E−1
1.50E+3	2.11E+3	3.24E+2	3.04E+2	2.64E+2	1.08E+2	1.09E+2	1.01E+2	5.54E+1	5.23E+1	8.364E−1
2.00E+3	1.57E+3	2.42E+2	2.19E+2	1.89E+2	8.03E+1	7.88E+1	7.22E+1	3.68E+1	3.46E+1	1.090E+0
3.00E+3	1.03E+3	1.59E+2	1.35E+2	1.15E+2	5.28E+1	4.87E+1	4.41E+1	1.96E+1	1.83E+1	1.564E+0
4.00E+3	7.62E+2	1.18E+2	9.40E+1	7.96E+1	3.90E+1	3.40E+1	3.04E+1	1.20E+1	1.11E+1	1.996E+0
5.00E+3	6.00E+2	9.32E+1	7.01E+1	5.89E+1	3.06E+1	2.53E+1	2.24E+1	7.94E+0	7.34E+0	2.391E+0
6.00E+3	4.93E+2	7.66E+1	5.46E+1	4.55E+1	2.51E+1	1.97E+1	1.73E+1	5.57E+0	5.13E+0	2.752E+0
8.00E+3	3.59E+2	5.58E+1	3.61E+1	2.97E+1	1.81E+1	1.30E+1	1.12E+1	3.07E+0	2.80E+0	3.384E+0
1.00E+4	2.79E+2	4.34E+1	2.57E+1	2.09E+1	1.40E+1	9.23E+0	7.84E+0	1.87E+0	1.70E+0	3.915E+0
1.50E+4	1.73E+2	2.68E+1	1.33E+1	1.05E+1	8.49E+0	4.74E+0	3.90E+0	7.09E−1	6.32E−1	4.900E+0
2.00E+4	1.22E+2	1.87E+1	7.99E+0	6.17E+0	5.85E+0	2.84E+0	2.28E+0	3.38E−1	2.97E−1	5.538E+0
3.00E+4	7.16E+1	1.08E+1	3.71E+0	2.76E+0	3.34E+0	1.31E+0	1.01E+0	1.11E−1	9.56E−2	6.200E+0
4.00E+4	4.80E+1	7.14E+0	2.08E+0	1.50E+0	2.18E+0	7.30E−1	5.46E−1	4.85E−2	4.10E−2	6.420E+0
5.00E+4	3.46E+1	5.08E+0	1.31E+0	9.16E−1	1.55E+0	4.56E−1	3.32E−1	2.50E−2	2.08E−2	6.424E+0
6.00E+4	2.62E+1	3.81E+0	8.82E−1	6.05E−1	1.15E+0	3.07E−1	2.18E−1	1.45E−2	1.19E−2	6.321E+0
8.00E+4	1.66E+1	2.37E+0	4.67E−1	3.09E−1	7.13E−1	1.62E−1	1.11E−1	6.01E−3	4.82E−3	5.988E+0
1.00E+5	1.15E+1	1.62E+0	2.83E−1	1.81E−1	4.83E−1	9.79E−2	6.47E−2	3.03E−3	2.39E−3	5.616E+0
1.50E+5	5.65E+0	7.79E−1	1.12E−1	6.73E−2	2.31E−1	3.87E−2	2.40E−2	8.78E−4	6.72E−4	4.802E+0
2.00E+5	3.35E+0	4.55E−1	5.80E−2	3.34E−2	1.35E−1	2.00E−2	1.19E−2	3.70E−4	2.80E−4	4.196E+0
3.00E+5	1.59E+0	2.12E−1	2.34E−2	1.28E−2	6.24E−2	8.04E−3	4.51E−3	1.14E−4	8.62E−5	3.404E+0
4.00E+5	9.41E−1	1.24E−1	1.25E−2	6.67E−3	3.64E−2	4.31E−3	2.35E−3	5.16E−5	3.98E−5	2.920E+0
5.00E+5	6.34E−1	8.26E−2	7.88E−3	4.15E−3	2.42E−2	2.71E−3	1.46E−3	2.87E−5	2.28E−5	2.597E+0
6.00E+5	4.64E−1	6.00E−2	5.47E−3	2.87E−3	1.76E−2	1.88E−3	1.01E−3	1.82E−5	1.49E−5	2.366E+0
8.00E+5	2.90E−1	3.72E−2	3.18E−3	1.68E−3	1.09E−2	1.09E−3	5.90E−4	9.23E−6	8.08E−6	2.059E+0
1.00E+6	2.06E−1	2.62E−2	2.14E−3	1.14E−3	7.65E−3	7.35E−4	4.02E−4	5.67E−6	5.26E−6	1.865E+0
1.50E+6	1.15E−1	1.45E−2	1.11E−3	6.09E−4	4.24E−3	3.82E−4	2.14E−4	2.56E−6	2.63E−6	1.592E+0
2.00E+6	7.83E−2	9.87E−3	7.32E−4	4.07E−4	2.88E−3	2.51E−4	1.43E−4	1.55E−6	1.70E−6	1.450E+0
3.00E+6	4.69E−2	5.89E−3	4.27E−4	2.40E−4	1.72E−3	1.47E−4	8.41E−5	8.30E−7	9.78E−7	1.305E+0
4.00E+6	3.31E−2	4.16E−3	3.00E−4	1.69E−4	1.21E−3	1.03E−4	5.93E−5	5.57E−7	6.80E−7	1.230E+0
5.00E+6	2.55E−2	3.20E−3	2.31E−4	1.30E−4	9.30E−4*	7.92E−5*	4.56E−5		5.21E−7*	1.185E+0
6.00E+6	2.07E−2	2.59E−3	1.87E−4*	1.06E−4	7.54E−4*		3.71E−5			1.154E+0
8.00E+6	1.49E−2*	1.87E−3*								1.116E+0
1.00E+7	1.2E−2	1.5E−3								1.093E+0

TABLE. Cross Sections for Radiative Recombination, Z=1–112
See page 9 for Explanation of Tables

Z= 55

T_e (eV)	σ_{RR} (b)									$f_{1s_{1/2}}$
	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

R_{nucl} = 6.202 fm

$|\epsilon_n|$ (eV)	4.296E+4	1.086E+4	1.086E+4	1.040E+4	4.773E+3	4.773E+3	4.636E+3	4.636E+3	4.594E+3	
1.00E+0	3.36E+6	5.10E+5	5.41E+5	4.76E+5	1.69E+5	1.91E+5	1.81E+5	1.31E+5	1.25E+5	5.537E−4
1.50E+0	2.24E+6	3.40E+5	3.61E+5	3.17E+5	1.13E+5	1.27E+5	1.21E+5	8.74E+4	8.33E+4	8.306E−4
2.00E+0	1.68E+6	2.55E+5	2.71E+5	2.38E+5	8.45E+4	9.54E+4	9.05E+4	6.56E+4	6.25E+4	1.107E−3
3.00E+0	1.12E+6	1.70E+5	1.80E+5	1.59E+5	5.63E+4	6.36E+4	6.03E+4	4.37E+4	4.16E+4	1.661E−3
4.00E+0	8.41E+5	1.28E+5	1.35E+5	1.19E+5	4.23E+4	4.77E+4	4.52E+4	3.28E+4	3.12E+4	2.215E−3
5.00E+0	6.73E+5	1.02E+5	1.08E+5	9.51E+4	3.38E+4	3.82E+4	3.62E+4	2.62E+4	2.50E+4	2.768E−3
6.00E+0	5.61E+5	8.50E+4	9.02E+4	7.93E+4	2.82E+4	3.18E+4	3.01E+4	2.18E+4	2.08E+4	3.322E−3
8.00E+0	4.20E+5	6.38E+4	6.76E+4	5.94E+4	2.11E+4	2.38E+4	2.26E+4	1.64E+4	1.56E+4	4.428E−3
1.00E+1	3.36E+5	5.10E+4	5.41E+4	4.76E+4	1.69E+4	1.91E+4	1.81E+4	1.31E+4	1.25E+4	5.535E−3
1.50E+1	2.24E+5	3.40E+4	3.61E+4	3.17E+4	1.13E+4	1.27E+4	1.21E+4	8.71E+3	8.30E+3	8.301E−3
2.00E+1	1.68E+5	2.55E+4	2.70E+4	2.38E+4	8.45E+3	9.53E+3	9.03E+3	6.52E+3	6.21E+3	1.107E−2
3.00E+1	1.12E+5	1.70E+4	1.80E+4	1.58E+4	5.63E+3	6.35E+3	6.02E+3	4.34E+3	4.13E+3	1.659E−2
4.00E+1	8.40E+4	1.28E+4	1.35E+4	1.19E+4	4.23E+3	4.76E+3	4.51E+3	3.24E+3	3.09E+3	2.211E−2
5.00E+1	6.72E+4	1.02E+4	1.08E+4	9.47E+3	3.38E+3	3.80E+3	3.60E+3	2.59E+3	2.46E+3	2.763E−2
6.00E+1	5.60E+4	8.50E+3	8.98E+3	7.89E+3	2.82E+3	3.17E+3	3.00E+3	2.15E+3	2.05E+3	3.313E−2
8.00E+1	4.20E+4	6.37E+3	6.72E+3	5.90E+3	2.11E+3	2.37E+3	2.25E+3	1.60E+3	1.53E+3	4.414E−2
1.00E+2	3.36E+4	5.10E+3	5.37E+3	4.71E+3	1.69E+3	1.90E+3	1.79E+3	1.27E+3	1.21E+3	5.512E−2
1.50E+2	2.24E+4	3.40E+3	3.56E+3	3.13E+3	1.13E+3	1.26E+3	1.19E+3	8.37E+2	7.97E+2	8.250E−2
2.00E+2	1.68E+4	2.55E+3	2.66E+3	2.33E+3	8.45E+2	9.41E+2	8.88E+2	6.19E+2	5.89E+2	1.097E−1
3.00E+2	1.12E+4	1.70E+3	1.76E+3	1.54E+3	5.63E+2	6.23E+2	5.87E+2	4.01E+2	3.81E+2	1.639E−1
4.00E+2	8.36E+3	1.27E+3	1.31E+3	1.14E+3	4.22E+2	4.64E+2	4.36E+2	2.92E+2	2.78E+2	2.175E−1
5.00E+2	6.67E+3	1.02E+3	1.04E+3	9.07E+2	3.38E+2	3.68E+2	3.46E+2	2.27E+2	2.16E+2	2.707E−1
6.00E+2	5.55E+3	8.47E+2	8.58E+2	7.48E+2	2.81E+2	3.05E+2	2.86E+2	1.84E+2	1.75E+2	3.234E−1
8.00E+2	4.15E+3	6.34E+2	6.33E+2	5.51E+2	2.11E+2	2.25E+2	2.10E+2	1.31E+2	1.24E+2	4.273E−1
1.00E+3	3.31E+3	5.07E+2	4.98E+2	4.32E+2	1.68E+2	1.78E+2	1.65E+2	9.94E+1	9.40E+1	5.294E−1
1.50E+3	2.19E+3	3.36E+2	3.19E+2	2.75E+2	1.12E+2	1.14E+2	1.05E+2	5.84E+1	5.50E+1	7.767E−1
2.00E+3	1.63E+3	2.51E+2	2.30E+2	1.98E+2	8.34E+1	8.25E+1	7.55E+1	3.89E+1	3.65E+1	1.013E+0
3.00E+3	1.07E+3	1.66E+2	1.42E+2	1.21E+2	5.49E+1	5.12E+1	4.62E+1	2.08E+1	1.95E+1	1.456E+0
4.00E+3	7.91E+2	1.23E+2	9.93E+1	8.37E+1	4.05E+1	3.58E+1	3.19E+1	1.28E+1	1.19E+1	1.861E+0
5.00E+3	6.24E+2	9.70E+1	7.42E+1	6.20E+1	3.19E+1	2.67E+1	2.36E+1	8.55E+0	7.89E+0	2.232E+0
6.00E+3	5.12E+2	7.98E+1	5.79E+1	4.80E+1	2.61E+1	2.09E+1	1.82E+1	6.02E+0	5.53E+0	2.573E+0
8.00E+3	3.73E+2	5.82E+1	3.84E+1	3.14E+1	1.89E+1	1.38E+1	1.19E+1	3.34E+0	3.04E+0	3.173E+0
1.00E+4	2.90E+2	4.52E+1	2.75E+1	2.22E+1	1.46E+1	9.86E+0	8.34E+0	2.05E+0	1.85E+0	3.679E+0
1.50E+4	1.81E+2	2.80E+1	1.43E+1	1.12E+1	8.90E+0	5.09E+0	4.17E+0	7.83E−1	6.97E−1	4.630E+0
2.00E+4	1.27E+2	1.96E+1	8.65E+0	6.63E+0	6.14E+0	3.07E+0	2.45E+0	3.75E−1	3.30E−1	5.257E+0
3.00E+4	7.52E+1	1.14E+1	4.05E+0	2.99E+0	3.52E+0	1.43E+0	1.09E+0	1.25E−1	1.07E−1	5.929E+0
4.00E+4	5.05E+1	7.54E+0	2.28E+0	1.63E+0	2.31E+0	8.00E−1	5.94E−1	5.47E−2	4.61E−2	6.172E+0
5.00E+4	3.65E+1	5.39E+0	1.44E+0	1.00E+0	1.64E+0	5.01E−1	3.62E−1	2.84E−2	2.35E−2	6.203E+0
6.00E+4	2.78E+1	4.05E+0	9.73E−1	6.62E−1	1.23E+0	3.39E−1	2.39E−1	1.64E−2	1.34E−2	6.124E+0
8.00E+4	1.76E+1	2.53E+0	5.18E−1	3.39E−1	7.60E−1	1.80E−1	1.22E−1	6.87E−3	5.49E−3	5.831E+0
1.00E+5	1.22E+1	1.73E+0	3.15E−1	1.99E−1	5.16E−1	1.09E−1	7.13E−2	3.48E−3	2.73E−3	5.490E+0
1.50E+5	6.04E+0	8.35E−1	1.25E−1	7.46E−2	2.48E−1	4.33E−2	2.66E−2	1.01E−3	7.71E−4	4.722E+0
2.00E+5	3.60E+0	4.90E−1	6.52E−2	3.71E−2	1.45E−1	2.25E−2	1.32E−2	4.28E−4	3.22E−4	4.140E+0
3.00E+5	1.71E+0	2.29E−1	2.64E−2	1.42E−2	6.74E−2	9.06E−3	5.03E−3	1.32E−4	9.94E−5	3.372E+0
4.00E+5	1.02E+0	1.34E−1	1.42E−2	7.45E−3	3.94E−2	4.87E−3	2.63E−3	5.99E−5	4.59E−5	2.899E+0
5.00E+5	6.86E−1	8.95E−2	8.93E−3	4.63E−3	2.63E−2	3.06E−3	1.63E−3	3.34E−5	2.63E−5	2.581E+0
6.00E+5	5.02E−1	6.51E−2	6.21E−3	3.21E−3	1.91E−2	2.13E−3	1.13E−3	2.12E−5	1.72E−5	2.354E+0
8.00E+5	3.14E−1	4.03E−2	3.61E−3	1.88E−3	1.18E−2	1.24E−3	6.59E−4	1.08E−5	9.34E−6	2.051E+0
1.00E+6	2.23E−1	2.85E−2	2.44E−3	1.28E−3	8.31E−3	8.35E−4	4.49E−4	6.62E−6	6.08E−6	1.859E+0
1.50E+6	1.25E−1	1.58E−2	1.27E−3	6.81E−4	4.60E−3	4.35E−4	2.39E−4	2.99E−6	3.04E−6	1.589E+0
2.00E+6	8.49E−2	1.07E−2	8.34E−4	4.54E−4	3.12E−3	2.86E−4	1.59E−4	1.82E−6	1.97E−6	1.448E+0
3.00E+6	5.08E−2	6.39E−3	4.87E−4	2.68E−4	1.86E−3	1.67E−4	9.38E−5	9.70E−7*	1.13E−6	1.303E+0
4.00E+6	3.59E−2	4.50E−3	3.42E−4	1.88E−4	1.31E−3	1.17E−4	6.60E−5		7.84E−7*	1.229E+0
5.00E+6	2.76E−2	3.46E−3	2.63E−4*	1.45E−4	1.01E−3	9.03E−5*	5.08E−5		6.02E−7*	1.184E+0
6.00E+6	2.23E−2	2.80E−3	2.14E−4*	1.18E−4	8.15E−4*		4.13E−5			1.154E+0
8.00E+6	1.61E−2*	2.02E−3*								1.116E+0
1.00E+7	1.3E−2	1.6E−3								1.093E+0

Z= 56

T_e (eV)	σ_{RR} (b)									$f_{1s_{1/2}}$
	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 6.247$ fm

$|\epsilon_n|$ (eV)	4.461E+4	1.128E+4	1.128E+4	1.078E+4	4.956E+3	4.956E+3	4.808E+3	4.808E+3	4.763E+3	
1.00E+0	3.48E+6	5.29E+5	5.65E+5	4.94E+5	1.75E+5	1.98E+5	1.88E+5	1.36E+5	1.30E+5	5.135E−4
1.50E+0	2.32E+6	3.53E+5	3.76E+5	3.29E+5	1.17E+5	1.32E+5	1.25E+5	9.09E+4	8.65E+4	7.702E−4
2.00E+0	1.74E+6	2.65E+5	2.82E+5	2.47E+5	8.75E+4	9.92E+4	9.39E+4	6.82E+4	6.48E+4	1.027E−3
3.00E+0	1.16E+6	1.76E+5	1.88E+5	1.65E+5	5.84E+4	6.61E+4	6.26E+4	4.54E+4	4.32E+4	1.540E−3
4.00E+0	8.71E+5	1.32E+5	1.41E+5	1.23E+5	4.38E+4	4.96E+4	4.69E+4	3.41E+4	3.24E+4	2.054E−3
5.00E+0	6.96E+5	1.06E+5	1.13E+5	9.87E+4	3.50E+4	3.97E+4	3.75E+4	2.72E+4	2.59E+4	2.567E−3
6.00E+0	5.80E+5	8.82E+4	9.40E+4	8.23E+4	2.92E+4	3.31E+4	3.13E+4	2.27E+4	2.16E+4	3.080E−3
8.00E+0	4.35E+5	6.61E+4	7.05E+4	6.17E+4	2.19E+4	2.48E+4	2.35E+4	1.70E+4	1.62E+4	4.107E−3
1.00E+1	3.48E+5	5.29E+4	5.64E+4	4.93E+4	1.75E+4	1.98E+4	1.88E+4	1.36E+4	1.29E+4	5.133E−3
1.50E+1	2.32E+5	3.53E+4	3.76E+4	3.29E+4	1.17E+4	1.32E+4	1.25E+4	9.05E+3	8.61E+3	7.698E−3
2.00E+1	1.74E+5	2.64E+4	2.82E+4	2.47E+4	8.75E+3	9.91E+3	9.37E+3	6.78E+3	6.45E+3	1.026E−2
3.00E+1	1.16E+5	1.76E+4	1.88E+4	1.64E+4	5.84E+3	6.60E+3	6.24E+3	4.51E+3	4.29E+3	1.539E−2
4.00E+1	8.70E+4	1.32E+4	1.41E+4	1.23E+4	4.38E+3	4.95E+3	4.68E+3	3.37E+3	3.21E+3	2.051E−2
5.00E+1	6.96E+4	1.06E+4	1.12E+4	9.83E+3	3.50E+3	3.96E+3	3.74E+3	2.69E+3	2.56E+3	2.562E−2
6.00E+1	5.80E+4	8.81E+3	9.36E+3	8.18E+3	2.92E+3	3.29E+3	3.11E+3	2.24E+3	2.12E+3	3.073E−2
8.00E+1	4.35E+4	6.61E+3	7.01E+3	6.13E+3	2.19E+3	2.47E+3	2.33E+3	1.67E+3	1.58E+3	4.094E−2
1.00E+2	3.48E+4	5.29E+3	5.60E+3	4.89E+3	1.75E+3	1.97E+3	1.86E+3	1.33E+3	1.26E+3	5.113E−2
1.50E+2	2.32E+4	3.52E+3	3.72E+3	3.25E+3	1.17E+3	1.31E+3	1.24E+3	8.71E+2	8.28E+2	7.653E−2
2.00E+2	1.74E+4	2.64E+3	2.78E+3	2.42E+3	8.75E+2	9.79E+2	9.23E+2	6.45E+2	6.12E+2	1.018E−1
3.00E+2	1.16E+4	1.76E+3	1.84E+3	1.60E+3	5.84E+2	6.48E+2	6.10E+2	4.18E+2	3.97E+2	1.521E−1
4.00E+2	8.65E+3	1.32E+3	1.37E+3	1.19E+3	4.38E+2	4.83E+2	4.53E+2	3.05E+2	2.89E+2	2.019E−1
5.00E+2	6.91E+3	1.06E+3	1.08E+3	9.42E+2	3.50E+2	3.84E+2	3.59E+2	2.38E+2	2.25E+2	2.512E−1
6.00E+2	5.75E+3	8.78E+2	8.96E+2	7.78E+2	2.92E+2	3.17E+2	2.97E+2	1.93E+2	1.82E+2	3.002E−1
8.00E+2	4.30E+3	6.58E+2	6.61E+2	5.73E+2	2.18E+2	2.35E+2	2.19E+2	1.37E+2	1.30E+2	3.968E−1
1.00E+3	3.43E+3	5.25E+2	5.21E+2	4.50E+2	1.75E+2	1.85E+2	1.72E+2	1.04E+2	9.84E+1	4.917E−1
1.50E+3	2.27E+3	3.49E+2	3.34E+2	2.87E+2	1.16E+2	1.19E+2	1.10E+2	6.16E+1	5.79E+1	7.221E−1
2.00E+3	1.69E+3	2.61E+2	2.41E+2	2.06E+2	8.65E+1	8.64E+1	7.89E+1	4.12E+1	3.86E+1	9.427E−1
3.00E+3	1.11E+3	1.72E+2	1.50E+2	1.27E+2	5.69E+1	5.37E+1	4.84E+1	2.22E+1	2.07E+1	1.357E+0
4.00E+3	8.21E+2	1.28E+2	1.05E+2	8.79E+1	4.21E+1	3.77E+1	3.35E+1	1.37E+1	1.27E+1	1.737E+0
5.00E+3	6.48E+2	1.01E+2	7.84E+1	6.53E+1	3.32E+1	2.82E+1	2.48E+1	9.18E+0	8.46E+0	2.086E+0
6.00E+3	5.32E+2	8.30E+1	6.14E+1	5.07E+1	2.72E+1	2.21E+1	1.92E+1	6.49E+0	5.96E+0	2.408E+0
8.00E+3	3.88E+2	6.06E+1	4.09E+1	3.33E+1	1.97E+1	1.47E+1	1.26E+1	3.62E+0	3.30E+0	2.977E+0
1.00E+4	3.02E+2	4.72E+1	2.93E+1	2.35E+1	1.52E+1	1.05E+1	8.86E+0	2.23E+0	2.02E+0	3.460E+0
1.50E+4	1.89E+2	2.93E+1	1.53E+1	1.20E+1	9.32E+0	5.47E+0	4.46E+0	8.62E−1	7.66E−1	4.377E+0
2.00E+4	1.33E+2	2.05E+1	9.34E+0	7.11E+0	6.45E+0	3.31E+0	2.63E+0	4.16E−1	3.64E−1	4.992E+0
3.00E+4	7.88E+1	1.20E+1	4.41E+0	3.23E+0	3.71E+0	1.55E+0	1.18E+0	1.39E−1	1.19E−1	5.669E+0
4.00E+4	5.31E+1	7.96E+0	2.50E+0	1.77E+0	2.44E+0	8.74E−1	6.45E−1	6.15E−2	5.17E−2	5.934E+0
5.00E+4	3.85E+1	5.70E+0	1.58E+0	1.09E+0	1.74E+0	5.50E−1	3.95E−1	3.21E−2	2.65E−2	5.988E+0
6.00E+4	2.93E+1	4.29E+0	1.07E+0	7.24E−1	1.30E+0	3.73E−1	2.61E−1	1.86E−2	1.52E−2	5.932E+0
8.00E+4	1.87E+1	2.69E+0	5.74E−1	3.72E−1	8.09E−1	1.99E−1	1.34E−1	7.83E−3	6.23E−3	5.678E+0
1.00E+5	1.30E+1	1.84E+0	3.50E−1	2.19E−1	5.51E−1	1.21E−1	7.85E−2	3.97E−3	3.11E−3	5.365E+0
1.50E+5	6.45E+0	8.95E−1	1.40E−1	8.25E−2	2.66E−1	4.83E−2	2.94E−2	1.16E−3	8.82E−4	4.642E+0
2.00E+5	3.85E+0	5.26E−1	7.31E−2	4.12E−2	1.56E−1	2.52E−2	1.46E−2	4.93E−4	3.69E−4	4.085E+0
3.00E+5	1.84E+0	2.47E−1	2.97E−2	1.58E−2	7.27E−2	1.02E−2	5.59E−3	1.53E−4	1.14E−4	3.340E+0
4.00E+5	1.10E+0	1.45E−1	1.60E−2	8.29E−3	4.25E−2	5.49E−3	2.93E−3	6.95E−5	5.29E−5	2.877E+0
5.00E+5	7.41E−1	9.68E−2	1.01E−2	5.17E−3	2.84E−2	3.46E−3	1.82E−3	3.88E−5	3.04E−5	2.566E+0
6.00E+5	5.43E−1	7.05E−2	7.03E−3	3.58E−3	2.06E−2	2.41E−3	1.26E−3	2.46E−5	1.99E−5	2.342E+0
8.00E+5	3.40E−1	4.37E−2	4.09E−3	2.09E−3	1.28E−2	1.40E−3	7.35E−4	1.25E−5	1.08E−5	2.043E+0
1.00E+6	2.42E−1	3.09E−2	2.76E−3	1.43E−3	9.00E−3	9.47E−4	5.00E−4	7.71E−6	7.01E−6	1.853E+0
1.50E+6	1.35E−1	1.71E−2	1.44E−3	7.58E−4	4.99E−3	4.93E−4	2.66E−4	3.49E−6	3.51E−6	1.586E+0
2.00E+6	9.19E−2	1.16E−2	9.48E−4	5.05E−4	3.38E−3	3.25E−4	1.77E−4	2.12E−6	2.27E−6	1.446E+0
3.00E+6	5.49E−2	6.91E−3	5.54E−4	2.98E−4	2.01E−3	1.90E−4	1.04E−4	1.13E−6	1.30E−6	1.302E+0
4.00E+6	3.88E−2	4.87E−3	3.89E−4	2.09E−4	1.42E−3	1.33E−4	7.33E−5		9.02E−7*	1.228E+0
5.00E+6	2.98E−2	3.74E−3	2.99E−4*	1.61E−4	1.09E−3	1.03E−4	5.64E−5		6.91E−7*	1.183E+0
6.00E+6	2.41E−2	3.03E−3	2.43E−4*	1.31E−4	8.81E−4		4.59E−5*			1.153E+0
8.00E+6	1.74E−2*	2.19E−3		9.5E−5						1.115E+0
1.00E+7	1.4E−2	1.7E−3								1.092E+0

$Z= 57$

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{\mathrm{nucl}} = 6.268$ fm

$\lvert\epsilon_n\rvert$ (eV)	4.630E+4	1.171E+4	1.171E+4	1.117E+4	5.144E+3	5.144E+3	4.984E+3	4.984E+3	4.936E+3	
1.00E+0	3.60E+6	5.48E+5	5.88E+5	5.12E+5	1.81E+5	2.06E+5	1.95E+5	1.42E+5	1.35E+5	4.768E−4
1.50E+0	2.40E+6	3.65E+5	3.92E+5	3.41E+5	1.21E+5	1.37E+5	1.30E+5	9.44E+4	8.96E+4	7.151E−4
2.00E+0	1.80E+6	2.74E+5	2.94E+5	2.56E+5	9.06E+4	1.03E+5	9.74E+4	7.08E+4	6.72E+4	9.535E−4
3.00E+0	1.20E+6	1.83E+5	1.96E+5	1.71E+5	6.04E+4	6.87E+4	6.49E+4	4.72E+4	4.48E+4	1.430E−3
4.00E+0	9.01E+5	1.37E+5	1.47E+5	1.28E+5	4.53E+4	5.15E+4	4.87E+4	3.54E+4	3.36E+4	1.907E−3
5.00E+0	7.21E+5	1.10E+5	1.18E+5	1.02E+5	3.63E+4	4.12E+4	3.89E+4	2.83E+4	2.69E+4	2.383E−3
6.00E+0	6.01E+5	9.13E+4	9.80E+4	8.53E+4	3.02E+4	3.43E+4	3.24E+4	2.36E+4	2.24E+4	2.860E−3
8.00E+0	4.50E+5	6.85E+4	7.35E+4	6.40E+4	2.27E+4	2.58E+4	2.43E+4	1.77E+4	1.68E+4	3.813E−3
1.00E+1	3.60E+5	5.48E+4	5.88E+4	5.12E+4	1.81E+4	2.06E+4	1.95E+4	1.41E+4	1.34E+4	4.766E−3
1.50E+1	2.40E+5	3.65E+4	3.92E+4	3.41E+4	1.21E+4	1.37E+4	1.30E+4	9.41E+3	8.93E+3	7.147E−3
2.00E+1	1.80E+5	2.74E+4	2.94E+4	2.56E+4	9.06E+3	1.03E+4	9.72E+3	7.05E+3	6.69E+3	9.528E−3
3.00E+1	1.20E+5	1.83E+4	1.96E+4	1.70E+4	6.04E+3	6.86E+3	6.48E+3	4.68E+3	4.45E+3	1.429E−2
4.00E+1	9.00E+4	1.37E+4	1.47E+4	1.28E+4	4.53E+3	5.14E+3	4.85E+3	3.50E+3	3.33E+3	1.904E−2
5.00E+1	7.20E+4	1.10E+4	1.17E+4	1.02E+4	3.63E+3	4.11E+3	3.88E+3	2.80E+3	2.65E+3	2.379E−2
6.00E+1	6.00E+4	9.13E+3	9.76E+3	8.49E+3	3.02E+3	3.42E+3	3.23E+3	2.32E+3	2.20E+3	2.853E−2
8.00E+1	4.50E+4	6.85E+3	7.31E+3	6.36E+3	2.27E+3	2.56E+3	2.42E+3	1.73E+3	1.64E+3	3.801E−2
1.00E+2	3.60E+4	5.48E+3	5.84E+3	5.08E+3	1.81E+3	2.05E+3	1.93E+3	1.38E+3	1.31E+3	4.748E−2
1.50E+2	2.40E+4	3.65E+3	3.88E+3	3.37E+3	1.21E+3	1.36E+3	1.28E+3	9.07E+2	8.60E+2	7.107E−2
2.00E+2	1.80E+4	2.74E+3	2.90E+3	2.51E+3	9.06E+2	1.02E+3	9.57E+2	6.71E+2	6.36E+2	9.456E−2
3.00E+2	1.20E+4	1.82E+3	1.92E+3	1.66E+3	6.04E+2	6.74E+2	6.33E+2	4.35E+2	4.12E+2	1.412E−1
4.00E+2	8.96E+3	1.37E+3	1.43E+3	1.24E+3	4.53E+2	5.02E+2	4.71E+2	3.18E+2	3.01E+2	1.875E−1
5.00E+2	7.16E+3	1.09E+3	1.13E+3	9.79E+2	3.62E+2	3.99E+2	3.73E+2	2.48E+2	2.34E+2	2.334E−1
6.00E+2	5.96E+3	9.10E+2	9.36E+2	8.09E+2	3.02E+2	3.30E+2	3.08E+2	2.01E+2	1.90E+2	2.790E−1
8.00E+2	4.45E+3	6.82E+2	6.91E+2	5.96E+2	2.26E+2	2.45E+2	2.27E+2	1.44E+2	1.36E+2	3.689E−1
1.00E+3	3.55E+3	5.45E+2	5.45E+2	4.69E+2	1.81E+2	1.93E+2	1.79E+2	1.09E+2	1.03E+2	4.573E−1
1.50E+3	2.35E+3	3.62E+2	3.50E+2	2.99E+2	1.20E+2	1.25E+2	1.14E+2	6.48E+1	6.08E+1	6.720E−1
2.00E+3	1.75E+3	2.70E+2	2.53E+2	2.15E+2	8.97E+1	9.03E+1	8.23E+1	4.35E+1	4.07E+1	8.780E−1
3.00E+3	1.15E+3	1.78E+2	1.57E+2	1.33E+2	5.91E+1	5.63E+1	5.07E+1	2.36E+1	2.19E+1	1.265E+0
4.00E+3	8.51E+2	1.32E+2	1.10E+2	9.22E+1	4.37E+1	3.96E+1	3.52E+1	1.46E+1	1.35E+1	1.622E+0
5.00E+3	6.72E+2	1.05E+2	8.29E+1	6.86E+1	3.44E+1	2.98E+1	2.61E+1	9.85E+0	9.06E+0	1.951E+0
6.00E+3	5.52E+2	8.62E+1	6.50E+1	5.33E+1	2.83E+1	2.33E+1	2.03E+1	6.99E+0	6.40E+0	2.255E+0
8.00E+3	4.03E+2	6.31E+1	4.35E+1	3.51E+1	2.05E+1	1.56E+1	1.33E+1	3.93E+0	3.56E+0	2.795E+0
1.00E+4	3.14E+2	4.91E+1	3.13E+1	2.49E+1	1.59E+1	1.12E+1	9.40E+0	2.43E+0	2.19E+0	3.256E+0
1.50E+4	1.97E+2	3.06E+1	1.65E+1	1.28E+1	9.75E+0	5.86E+0	4.76E+0	9.48E−1	8.39E−1	4.140E+0
2.00E+4	1.39E+2	2.15E+1	1.01E+1	7.62E+0	6.76E+0	3.57E+0	2.82E+0	4.60E−1	4.02E−1	4.741E+0
3.00E+4	8.26E+1	1.26E+1	4.79E+0	3.48E+0	3.90E+0	1.68E+0	1.28E+0	1.56E−1	1.33E−1	5.421E+0
4.00E+4	5.58E+1	8.39E+0	2.73E+0	1.92E+0	2.58E+0	9.54E−1	7.00E−1	6.91E−2	5.78E−2	5.704E+0
5.00E+4	4.06E+1	6.03E+0	1.73E+0	1.18E+0	1.84E+0	6.03E−1	4.30E−1	3.61E−2	2.98E−2	5.780E+0
6.00E+4	3.09E+1	4.55E+0	1.18E+0	7.89E−1	1.38E+0	4.10E−1	2.85E−1	2.11E−2	1.71E−2	5.745E+0
8.00E+4	1.98E+1	2.86E+0	6.34E−1	4.07E−1	8.60E−1	2.20E−1	1.47E−1	8.89E−3	7.05E−3	5.527E+0
1.00E+5	1.38E+1	1.96E+0	3.88E−1	2.41E−1	5.87E−1	1.34E−1	8.63E−2	4.53E−3	3.53E−3	5.242E+0
1.50E+5	6.88E+0	9.57E−1	1.56E−1	9.10E−2	2.85E−1	5.38E−2	3.24E−2	1.33E−3	1.01E−3	4.562E+0
2.00E+5	4.12E+0	5.65E−1	8.18E−2	4.55E−2	1.67E−1	2.81E−2	1.62E−2	5.66E−4	4.22E−4	4.029E+0
3.00E+5	1.98E+0	2.65E−1	3.34E−2	1.76E−2	7.82E−2	1.14E−2	6.21E−3	1.77E−4	1.31E−4	3.307E+0
4.00E+5	1.18E+0	1.56E−1	1.80E−2	9.22E−3	4.59E−2	6.18E−3	3.25E−3	8.03E−5	6.08E−5	2.856E+0
5.00E+5	7.99E−1	1.05E−1	1.14E−2	5.75E−3	3.07E−2	3.90E−3	2.02E−3	4.48E−5	3.49E−5	2.550E+0
6.00E+5	5.87E−1	7.62E−2	7.94E−3	3.99E−3	2.23E−2	2.72E−3	1.40E−3	2.85E−5	2.29E−5	2.330E+0
8.00E+5	3.68E−1	4.73E−2	4.63E−3	2.33E−3	1.38E−2	1.59E−3	8.18E−4	1.45E−5	1.24E−5	2.035E+0
1.00E+6	2.61E−1	3.34E−2	3.13E−3	1.59E−3	9.74E−3	1.07E−3	5.57E−4	8.94E−6	8.06E−6	1.847E+0
1.50E+6	1.46E−1	1.85E−2	1.63E−3	8.43E−4	5.39E−3	5.59E−4	2.96E−4	4.05E−6	4.03E−6	1.582E+0
2.00E+6	9.94E−2	1.26E−2	1.08E−3	5.61E−4	3.65E−3	3.68E−4	1.97E−4	2.46E−6	2.60E−6	1.443E+0
3.00E+6	5.93E−2	7.47E−3	6.28E−4	3.30E−4	2.17E−3	2.15E−4	1.16E−4	1.32E−6	1.49E−6	1.300E+0
4.00E+6	4.18E−2	5.26E−3	4.41E−4	2.32E−4	1.53E−3	1.51E−4	8.13E−5		1.04E−6	1.227E+0
5.00E+6	3.21E−2	4.04E−3	3.40E−4*	1.78E−4	1.17E−3	1.16E−4	6.25E−5		7.93E−7*	1.182E+0
6.00E+6	2.60E−2	3.27E−3	2.76E−4*	1.45E−4	9.50E−4*		5.08E−5*			1.152E+0
8.00E+6	1.88E−2	2.36E−3		1.05E−4						1.115E+0

TABLE. Cross Sections for Radiative Recombination, Z=1–112

See page 9 for Explanation of Tables

Z= 58

T_e (eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	$f_{1s_{1/2}}$
				σ_{RR} (b)						

$R_{\rm nucl}$ = 6.296 fm

$\lvert\epsilon_n\rvert$ (eV)	4.802E+4	1.215E+4	1.215E+4	1.157E+4	5.335E+3	5.335E+3	5.163E+3	5.163E+3	5.111E+3	
1.00E+0	3.73E+6	5.67E+5	6.13E+5	5.31E+5	1.88E+5	2.14E+5	2.02E+5	1.47E+5	1.39E+5	4.432E−4
1.50E+0	2.49E+6	3.78E+5	4.08E+5	3.54E+5	1.25E+5	1.43E+5	1.35E+5	9.80E+4	9.29E+4	6.647E−4
2.00E+0	1.86E+6	2.84E+5	3.06E+5	2.65E+5	9.38E+4	1.07E+5	1.01E+5	7.35E+4	6.97E+4	8.863E−4
3.00E+0	1.24E+6	1.89E+5	2.04E+5	1.77E+5	6.25E+4	7.13E+4	6.73E+4	4.90E+4	4.64E+4	1.329E−3
4.00E+0	9.32E+5	1.42E+5	1.53E+5	1.33E+5	4.69E+4	5.35E+4	5.05E+4	3.67E+4	3.48E+4	1.772E−3
5.00E+0	7.45E+5	1.14E+5	1.23E+5	1.06E+5	3.75E+4	4.28E+4	4.04E+4	2.94E+4	2.78E+4	2.215E−3
6.00E+0	6.21E+5	9.46E+4	1.02E+5	8.84E+4	3.13E+4	3.57E+4	3.36E+4	2.45E+4	2.32E+4	2.658E−3
8.00E+0	4.66E+5	7.09E+4	7.65E+4	6.63E+4	2.34E+4	2.67E+4	2.52E+4	1.84E+4	1.74E+4	3.544E−3
1.00E+1	3.73E+5	5.67E+4	6.12E+4	5.30E+4	1.88E+4	2.14E+4	2.02E+4	1.47E+4	1.39E+4	4.430E−3
1.50E+1	2.48E+5	3.78E+4	4.08E+4	3.53E+4	1.25E+4	1.43E+4	1.34E+4	9.77E+3	9.26E+3	6.644E−3
2.00E+1	1.86E+5	2.84E+4	3.06E+4	2.65E+4	9.38E+3	1.07E+4	1.01E+4	7.32E+3	6.93E+3	8.857E−3
3.00E+1	1.24E+5	1.89E+4	2.04E+4	1.77E+4	6.25E+3	7.12E+3	6.71E+3	4.86E+3	4.61E+3	1.328E−2
4.00E+1	9.31E+4	1.42E+4	1.53E+4	1.32E+4	4.69E+3	5.34E+3	5.03E+3	3.64E+3	3.45E+3	1.770E−2
5.00E+1	7.45E+4	1.14E+4	1.22E+4	1.06E+4	3.75E+3	4.27E+3	4.02E+3	2.90E+3	2.75E+3	2.211E−2
6.00E+1	6.21E+4	9.45E+3	1.02E+4	8.80E+3	3.13E+3	3.55E+3	3.35E+3	2.41E+3	2.29E+3	2.653E−2
8.00E+1	4.65E+4	7.09E+3	7.61E+3	6.59E+3	2.34E+3	2.66E+3	2.51E+3	1.80E+3	1.71E+3	3.534E−2
1.00E+2	3.72E+4	5.67E+3	6.08E+3	5.26E+3	1.88E+3	2.13E+3	2.00E+3	1.43E+3	1.36E+3	4.414E−2
1.50E+2	2.48E+4	3.78E+3	4.04E+3	3.49E+3	1.25E+3	1.41E+3	1.33E+3	9.43E+2	8.92E+2	6.607E−2
2.00E+2	1.86E+4	2.83E+3	3.02E+3	2.61E+3	9.38E+2	1.06E+3	9.93E+2	6.98E+2	6.60E+2	8.792E−2
3.00E+2	1.24E+4	1.89E+3	2.00E+3	1.72E+3	6.25E+2	7.00E+2	6.57E+2	4.53E+2	4.29E+2	1.313E−1
4.00E+2	9.27E+3	1.42E+3	1.49E+3	1.28E+3	4.69E+2	5.22E+2	4.88E+2	3.32E+2	3.13E+2	1.744E−1
5.00E+2	7.40E+3	1.13E+3	1.18E+3	1.02E+3	3.75E+2	4.15E+2	3.88E+2	2.59E+2	2.44E+2	2.172E−1
6.00E+2	6.16E+3	9.43E+2	9.76E+2	8.40E+2	3.12E+2	3.44E+2	3.20E+2	2.10E+2	1.98E+2	2.595E−1
8.00E+2	4.61E+3	7.06E+2	7.22E+2	6.19E+2	2.34E+2	2.55E+2	2.36E+2	1.50E+2	1.41E+2	3.433E−1
1.00E+3	3.68E+3	5.64E+2	5.69E+2	4.87E+2	1.87E+2	2.01E+2	1.86E+2	1.15E+2	1.08E+2	4.257E−1
1.50E+3	2.43E+3	3.75E+2	3.66E+2	3.12E+2	1.24E+2	1.30E+2	1.19E+2	6.81E+1	6.38E+1	6.260E−1
2.00E+3	1.81E+3	2.80E+2	2.65E+2	2.25E+2	9.29E+1	9.43E+1	8.58E+1	4.59E+1	4.28E+1	8.185E−1
3.00E+3	1.19E+3	1.85E+2	1.65E+2	1.39E+2	6.12E+1	5.90E+1	5.29E+1	2.50E+1	2.32E+1	1.181E+0
4.00E+3	8.82E+2	1.37E+2	1.16E+2	9.65E+1	4.53E+1	4.16E+1	3.68E+1	1.56E+1	1.44E+1	1.517E+0
5.00E+3	6.96E+2	1.09E+2	8.74E+1	7.20E+1	3.58E+1	3.13E+1	2.74E+1	1.05E+1	9.68E+0	1.827E+0
6.00E+3	5.73E+2	8.95E+1	6.87E+1	5.61E+1	2.94E+1	2.46E+1	2.13E+1	7.51E+0	6.86E+0	2.114E+0
8.00E+3	4.19E+2	6.56E+1	4.61E+1	3.71E+1	2.13E+1	1.65E+1	1.40E+1	4.24E+0	3.84E+0	2.626E+0
1.00E+4	3.26E+2	5.11E+1	3.33E+1	2.64E+1	1.65E+1	1.19E+1	9.95E+0	2.64E+0	2.37E+0	3.066E+0
1.50E+4	2.05E+2	3.20E+1	1.76E+1	1.36E+1	1.02E+1	6.27E+0	5.08E+0	1.04E+0	9.18E−1	3.917E+0
2.00E+4	1.45E+2	2.25E+1	1.08E+1	8.15E+0	7.08E+0	3.84E+0	3.02E+0	5.08E−1	4.42E−1	4.504E+0
3.00E+4	8.64E+1	1.32E+1	5.19E+0	3.75E+0	4.10E+0	1.82E+0	1.38E+0	1.73E−1	1.47E−1	5.185E+0
4.00E+4	5.85E+1	8.84E+0	2.97E+0	2.08E+0	2.71E+0	1.04E+0	7.57E−1	7.73E−2	6.45E−2	5.483E+0
5.00E+4	4.27E+1	6.36E+0	1.89E+0	1.29E+0	1.94E+0	6.59E−1	4.67E−1	4.06E−2	3.33E−2	5.579E+0
6.00E+4	3.26E+1	4.81E+0	1.29E+0	8.58E−1	1.46E+0	4.50E−1	3.10E−1	2.38E−2	1.92E−2	5.564E+0
8.00E+4	2.09E+1	3.03E+0	6.99E−1	4.45E−1	9.13E−1	2.42E−1	1.60E−1	1.01E−2	7.96E−3	5.379E+0
1.00E+5	1.46E+1	2.08E+0	4.29E−1	2.64E−1	6.25E−1	1.48E−1	9.46E−2	5.15E−3	3.99E−3	5.121E+0
1.50E+5	7.32E+0	1.02E+0	1.74E−1	1.00E−1	3.04E−1	5.98E−2	3.57E−2	1.52E−3	1.14E−3	4.483E+0
2.00E+5	4.40E+0	6.05E−1	9.14E−2	5.03E−2	1.79E−1	3.14E−2	1.79E−2	6.49E−4	4.81E−4	3.973E+0
3.00E+5	2.12E+0	2.85E−1	3.74E−2	1.94E−2	8.40E−2	1.28E−2	6.88E−3	2.03E−4	1.50E−4	3.274E+0
4.00E+5	1.27E+0	1.68E−1	2.03E−2	1.02E−2	4.94E−2	6.94E−3	3.61E−3	9.25E−5	6.96E−5	2.834E+0
5.00E+5	8.61E−1	1.13E−1	1.28E−2	6.38E−3	3.31E−2	4.39E−3	2.25E−3	5.17E−5	4.00E−5	2.534E+0
6.00E+5	6.32E−1	8.23E−2	8.95E−3	4.43E−3	2.41E−2	3.06E−3	1.56E−3	3.29E−5	2.62E−5	2.318E+0
8.00E+5	3.97E−1	5.12E−2	5.23E−3	2.59E−3	1.49E−2	1.79E−3	9.09E−4	1.68E−5	1.42E−5	2.027E+0
1.00E+6	2.82E−1	3.61E−2	3.54E−3	1.76E−3	1.05E−2	1.21E−3	6.18E−4	1.04E−5	9.24E−6	1.841E+0
1.50E+6	1.58E−1	2.00E−2	1.85E−3	9.35E−4	5.83E−3	6.32E−4	3.28E−4	4.69E−6	4.61E−6	1.579E+0
2.00E+6	1.07E−1	1.36E−2	1.22E−3	6.22E−4	3.94E−3	4.16E−4	2.18E−4	2.85E−6	2.98E−6	1.441E+0
3.00E+6	6.40E−2	8.06E−3	7.12E−4	3.66E−4	2.34E−3	2.43E−4	1.28E−4	1.53E−6	1.71E−6	1.299E+0
4.00E+6	4.51E−2	5.67E−3	5.00E−4	2.57E−4	1.65E−3	1.71E−4	9.00E−5	1.03E−6	1.18E−6	1.226E+0
5.00E+6	3.46E−2	4.35E−3	3.85E−4*	1.97E−4	1.26E−3	1.32E−4	6.91E−5*			1.182E+0
6.00E+6	2.80E−2	3.52E−3	3.1E−4	1.60E−4	1.02E−3	1.07E−4	5.61E−5*			1.152E+0
8.00E+6	2.02E−2*	2.54E−3		1.16E−4						1.114E+0

TABLE. Cross Sections for Radiative Recombination, $Z=1$–112
See page 9 for Explanation of Tables

Z= 59

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 6.316$ fm

$\|\epsilon_n\|$ (eV)	4.978E+4	1.260E+4	1.260E+4	1.198E+4	5.530E+3	5.531E+3	5.346E+3	5.346E+3	5.290E+3	
1.00E+0	3.85E+6	5.87E+5	6.38E+5	5.50E+5	1.94E+5	2.22E+5	2.09E+5	1.53E+5	1.44E+5	4.124E−4
1.50E+0	2.57E+6	3.92E+5	4.25E+5	3.67E+5	1.29E+5	1.48E+5	1.39E+5	1.02E+5	9.62E+4	6.186E−4
2.00E+0	1.93E+6	2.94E+5	3.19E+5	2.75E+5	9.70E+4	1.11E+5	1.05E+5	7.63E+4	7.21E+4	8.247E−4
3.00E+0	1.28E+6	1.96E+5	2.13E+5	1.83E+5	6.46E+4	7.40E+4	6.97E+4	5.08E+4	4.81E+4	1.237E−3
4.00E+0	9.63E+5	1.47E+5	1.59E+5	1.37E+5	4.85E+4	5.55E+4	5.23E+4	3.81E+4	3.61E+4	1.649E−3
5.00E+0	7.70E+5	1.17E+5	1.28E+5	1.10E+5	3.88E+4	4.44E+4	4.18E+4	3.05E+4	2.88E+4	2.062E−3
6.00E+0	6.42E+5	9.79E+4	1.06E+5	9.16E+4	3.23E+4	3.70E+4	3.48E+4	2.54E+4	2.40E+4	2.474E−3
8.00E+0	4.81E+5	7.34E+4	7.97E+4	6.87E+4	2.42E+4	2.78E+4	2.61E+4	1.90E+4	1.80E+4	3.298E−3
1.00E+1	3.85E+5	5.87E+4	6.37E+4	5.49E+4	1.94E+4	2.22E+4	2.09E+4	1.52E+4	1.44E+4	4.122E−3
1.50E+1	2.57E+5	3.91E+4	4.25E+4	3.66E+4	1.29E+4	1.48E+4	1.39E+4	1.01E+4	9.59E+3	6.182E−3
2.00E+1	1.93E+5	2.94E+4	3.18E+4	2.74E+4	9.70E+3	1.11E+4	1.04E+4	7.59E+3	7.18E+3	8.242E−3
3.00E+1	1.28E+5	1.96E+4	2.12E+4	1.83E+4	6.46E+3	7.39E+3	6.95E+3	5.05E+3	4.77E+3	1.236E−2
4.00E+1	9.62E+4	1.47E+4	1.59E+4	1.37E+4	4.85E+3	5.54E+3	5.21E+3	3.78E+3	3.57E+3	1.647E−2
5.00E+1	7.70E+4	1.17E+4	1.27E+4	1.10E+4	3.88E+3	4.43E+3	4.17E+3	3.01E+3	2.85E+3	2.058E−2
6.00E+1	6.41E+4	9.78E+3	1.06E+4	9.12E+3	3.23E+3	3.69E+3	3.47E+3	2.51E+3	2.37E+3	2.469E−2
8.00E+1	4.81E+4	7.34E+3	7.93E+3	6.83E+3	2.42E+3	2.76E+3	2.60E+3	1.87E+3	1.77E+3	3.289E−2
1.00E+2	3.85E+4	5.87E+3	6.33E+3	5.45E+3	1.94E+3	2.21E+3	2.07E+3	1.49E+3	1.41E+3	4.108E−2
1.50E+2	2.56E+4	3.91E+3	4.21E+3	3.62E+3	1.29E+3	1.47E+3	1.38E+3	9.79E+2	9.25E+2	6.150E−2
2.00E+2	1.92E+4	2.93E+3	3.14E+3	2.70E+3	9.70E+2	1.10E+3	1.03E+3	7.25E+2	6.85E+2	8.184E−2
3.00E+2	1.28E+4	1.95E+3	2.08E+3	1.79E+3	6.47E+2	7.27E+2	6.81E+2	4.72E+2	4.45E+2	1.223E−1
4.00E+2	9.58E+3	1.47E+3	1.55E+3	1.33E+3	4.85E+2	5.42E+2	5.06E+2	3.45E+2	3.25E+2	1.624E−1
5.00E+2	7.65E+3	1.17E+3	1.23E+3	1.05E+3	3.88E+2	4.31E+2	4.02E+2	2.70E+2	2.54E+2	2.022E−1
6.00E+2	6.37E+3	9.76E+2	1.02E+3	8.71E+2	3.23E+2	3.57E+2	3.32E+2	2.19E+2	2.06E+2	2.417E−1
8.00E+2	4.76E+3	7.31E+2	7.53E+2	6.43E+2	2.42E+2	2.65E+2	2.45E+2	1.57E+2	1.47E+2	3.198E−1
1.00E+3	3.80E+3	5.84E+2	5.94E+2	5.06E+2	1.94E+2	2.09E+2	1.93E+2	1.20E+2	1.13E+2	3.967E−1
1.50E+3	2.52E+3	3.88E+2	3.83E+2	3.24E+2	1.29E+2	1.35E+2	1.24E+2	7.15E+1	6.69E+1	5.838E−1
2.00E+3	1.88E+3	2.90E+2	2.78E+2	2.34E+2	9.61E+1	9.85E+1	8.94E+1	4.83E+1	4.50E+1	7.638E−1
3.00E+3	1.23E+3	1.92E+2	1.73E+2	1.45E+2	6.34E+1	6.18E+1	5.53E+1	2.65E+1	2.45E+1	1.104E+0
4.00E+3	9.14E+2	1.42E+2	1.22E+2	1.01E+2	4.70E+1	4.36E+1	3.86E+1	1.66E+1	1.53E+1	1.419E+0
5.00E+3	7.21E+2	1.13E+2	9.22E+1	7.55E+1	3.71E+1	3.29E+1	2.88E+1	1.13E+1	1.03E+1	1.711E+0
6.00E+3	5.94E+2	9.29E+1	7.25E+1	5.89E+1	3.05E+1	2.59E+1	2.24E+1	8.06E+0	7.34E+0	1.982E+0
8.00E+3	4.34E+2	6.81E+1	4.89E+1	3.91E+1	2.22E+1	1.75E+1	1.48E+1	4.58E+0	4.14E+0	2.468E+0
1.00E+4	3.39E+2	5.32E+1	3.54E+1	2.79E+1	1.72E+1	1.26E+1	1.05E+1	2.86E+0	2.57E+0	2.888E+0
1.50E+4	2.13E+2	3.33E+1	1.89E+1	1.44E+1	1.06E+1	6.70E+0	5.40E+0	1.14E+0	1.00E+0	3.707E+0
2.00E+4	1.51E+2	2.35E+1	1.17E+1	8.70E+0	7.40E+0	4.12E+0	3.23E+0	5.59E−1	4.86E−1	4.280E+0
3.00E+4	9.03E+1	1.39E+1	5.61E+0	4.02E+0	4.31E+0	1.97E+0	1.48E+0	1.92E−1	1.63E−1	4.958E+0
4.00E+4	6.13E+1	9.29E+0	3.23E+0	2.24E+0	2.86E+0	1.13E+0	8.18E−1	8.64E−2	7.18E−2	5.270E+0
5.00E+4	4.48E+1	6.70E+0	2.07E+0	1.39E+0	2.05E+0	7.19E−1	5.06E−1	4.56E−2	3.72E−2	5.384E+0
6.00E+4	3.43E+1	5.08E+0	1.42E+0	9.32E−1	1.54E+0	4.92E−1	3.37E−1	2.67E−2	2.16E−2	5.387E+0
8.00E+4	2.21E+1	3.21E+0	7.69E−1	4.85E−1	9.67E−1	2.66E−1	1.75E−1	1.14E−2	8.96E−3	5.234E+0
1.00E+5	1.54E+1	2.21E+0	4.74E−1	2.88E−1	6.64E−1	1.63E−1	1.04E−1	5.84E−3	4.51E−3	5.001E+0
1.50E+5	7.78E+0	1.09E+0	1.93E−1	1.10E−1	3.24E−1	6.64E−2	3.93E−2	1.73E−3	1.30E−3	4.405E+0
2.00E+5	4.70E+0	6.47E−1	1.02E−1	5.54E−2	1.92E−1	3.49E−2	1.97E−2	7.42E−4	5.47E−4	3.917E+0
3.00E+5	2.27E+0	3.06E−1	4.19E−2	2.15E−2	9.02E−2	1.43E−2	7.60E−3	2.33E−4	1.71E−4	3.242E+0
4.00E+5	1.36E+0	1.81E−1	2.28E−2	1.13E−2	5.31E−2	7.78E−3	4.00E−3	1.06E−4	7.95E−5	2.812E+0
5.00E+5	9.26E−1	1.22E−1	1.44E−2	7.07E−3	3.56E−2	4.93E−3	2.49E−3	5.96E−5	4.57E−5	2.518E+0
6.00E+5	6.81E−1	8.87E−2	1.01E−2	4.91E−3	2.59E−2	3.44E−3	1.73E−3	3.79E−5	3.00E−5	2.305E+0
8.00E+5	4.28E−1	5.52E−2	5.89E−3	2.87E−3	1.61E−2	2.01E−3	1.01E−3	1.94E−5	1.63E−5	2.018E+0
1.00E+6	3.04E−1	3.90E−2	3.99E−3	1.95E−3	1.14E−2	1.36E−3	6.85E−4	1.20E−5	1.06E−5	1.835E+0
1.50E+6	1.70E−1	2.16E−2	2.09E−3	1.04E−3	6.29E−3	7.13E−4	3.63E−4	5.42E−6	5.27E−6	1.575E+0
2.00E+6	1.16E−1	1.46E−2	1.38E−3	6.88E−4	4.25E−3	4.70E−4	2.41E−4	3.30E−6	3.40E−6	1.438E+0
3.00E+6	6.89E−2	8.69E−3	8.05E−4	4.04E−4	2.52E−3	2.75E−4	1.42E−4	1.77E−6	1.95E−6	1.297E+0
4.00E+6	4.85E−2	6.10E−3	5.66E−4	2.84E−4	1.77E−3	1.93E−4	9.94E−5	1.19E−6	1.35E−6	1.225E+0
5.00E+6	3.72E−2	4.68E−3	4.36E−4*	2.18E−4	1.36E−3	1.49E−4	7.63E−5		1.03E−6	1.181E+0
6.00E+6	3.01E−2*	3.79E−3		1.77E−4	1.10E−3	1.21E−4*	6.19E−5			1.151E+0
8.00E+6	2.17E−2*	2.73E−3*		1.28E−4						1.114E+0

TABLE. Cross Sections for Radiative Recombination, $Z=1-112$
See page 9 for Explanation of Tables

Z= 60

T_e (eV)	σ_{RR} (b)									$f_{1s_{1/2}}$
	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

R_{nucl} = 6.344 fm

$|\epsilon_n|$ (eV)	5.158E+4	1.306E+4	1.306E+4	1.240E+4	5.730E+3	5.730E+3	5.532E+3	5.532E+3	5.472E+3	
1.00E+0	3.98E+6	6.07E+5	6.64E+5	5.69E+5	2.00E+5	2.30E+5	2.17E+5	1.58E+5	1.49E+5	3.842E−4
1.50E+0	2.65E+6	4.05E+5	4.42E+5	3.79E+5	1.34E+5	1.54E+5	1.44E+5	1.06E+5	9.96E+4	5.762E−4
2.00E+0	1.99E+6	3.04E+5	3.32E+5	2.85E+5	1.00E+5	1.15E+5	1.08E+5	7.91E+4	7.47E+4	7.683E−4
3.00E+0	1.33E+6	2.02E+5	2.21E+5	1.90E+5	6.68E+4	7.68E+4	7.21E+4	5.27E+4	4.98E+4	1.152E−3
4.00E+0	9.95E+5	1.52E+5	1.66E+5	1.42E+5	5.01E+4	5.76E+4	5.41E+4	3.95E+4	3.73E+4	1.536E−3
5.00E+0	7.96E+5	1.21E+5	1.33E+5	1.14E+5	4.01E+4	4.61E+4	4.33E+4	3.16E+4	2.99E+4	1.920E−3
6.00E+0	6.63E+5	1.01E+5	1.11E+5	9.48E+4	3.34E+4	3.84E+4	3.61E+4	2.63E+4	2.49E+4	2.304E−3
8.00E+0	4.97E+5	7.59E+4	8.29E+4	7.11E+4	2.51E+4	2.88E+4	2.70E+4	1.97E+4	1.86E+4	3.072E−3
1.00E+1	3.98E+5	6.07E+4	6.63E+4	5.69E+4	2.00E+4	2.30E+4	2.16E+4	1.58E+4	1.49E+4	3.840E−3
1.50E+1	2.65E+5	4.05E+4	4.42E+4	3.79E+4	1.34E+4	1.53E+4	1.44E+4	1.05E+4	9.92E+3	5.759E−3
2.00E+1	1.99E+5	3.04E+4	3.31E+4	2.84E+4	1.00E+4	1.15E+4	1.08E+4	7.87E+3	7.43E+3	7.678E−3
3.00E+1	1.33E+5	2.02E+4	2.21E+4	1.89E+4	6.68E+3	7.67E+3	7.20E+3	5.24E+3	4.94E+3	1.151E−2
4.00E+1	9.94E+4	1.52E+4	1.65E+4	1.42E+4	5.01E+3	5.75E+3	5.40E+3	3.92E+3	3.70E+3	1.534E−2
5.00E+1	7.95E+4	1.21E+4	1.32E+4	1.13E+4	4.01E+3	4.59E+3	4.31E+3	3.13E+3	2.95E+3	1.917E−2
6.00E+1	6.63E+4	1.01E+4	1.10E+4	9.44E+3	3.34E+3	3.83E+3	3.59E+3	2.60E+3	2.45E+3	2.300E−2
8.00E+1	4.97E+4	7.59E+3	8.25E+3	7.07E+3	2.51E+3	2.87E+3	2.69E+3	1.94E+3	1.83E+3	3.064E−2
1.00E+2	3.97E+4	6.07E+3	6.59E+3	5.65E+3	2.00E+3	2.29E+3	2.15E+3	1.54E+3	1.46E+3	3.827E−2
1.50E+2	2.65E+4	4.05E+3	4.38E+3	3.75E+3	1.34E+3	1.52E+3	1.43E+3	1.02E+3	9.59E+2	5.730E−2
2.00E+2	1.98E+4	3.03E+3	3.27E+3	2.80E+3	1.00E+3	1.14E+3	1.07E+3	7.54E+2	7.10E+2	7.626E−2
3.00E+2	1.32E+4	2.02E+3	2.17E+3	1.85E+3	6.68E+2	7.55E+2	7.05E+2	4.90E+2	4.62E+2	1.140E−1
4.00E+2	9.89E+3	1.52E+3	1.61E+3	1.38E+3	5.01E+2	5.63E+2	5.25E+2	3.59E+2	3.38E+2	1.514E−1
5.00E+2	7.91E+3	1.21E+3	1.28E+3	1.09E+3	4.01E+2	4.48E+2	4.17E+2	2.81E+2	2.64E+2	1.885E−1
6.00E+2	6.58E+3	1.01E+3	1.06E+3	9.04E+2	3.34E+2	3.71E+2	3.45E+2	2.29E+2	2.15E+2	2.254E−1
8.00E+2	4.92E+3	7.56E+2	7.85E+2	6.67E+2	2.50E+2	2.75E+2	2.55E+2	1.64E+2	1.54E+2	2.983E−1
1.00E+3	3.93E+3	6.04E+2	6.20E+2	5.25E+2	2.00E+2	2.18E+2	2.01E+2	1.25E+2	1.17E+2	3.701E−1
1.50E+3	2.60E+3	4.01E+2	4.00E+2	3.37E+2	1.33E+2	1.41E+2	1.29E+2	7.50E+1	7.00E+1	5.449E−1
2.00E+3	1.94E+3	3.00E+2	2.90E+2	2.43E+2	9.94E+1	1.03E+2	9.31E+1	5.08E+1	4.73E+1	7.134E−1
3.00E+3	1.28E+3	1.98E+2	1.82E+2	1.51E+2	6.57E+1	6.46E+1	5.77E+1	2.80E+1	2.59E+1	1.032E+0
4.00E+3	9.45E+2	1.47E+2	1.29E+2	1.06E+2	4.87E+1	4.57E+1	4.03E+1	1.77E+1	1.62E+1	1.329E+0
5.00E+3	7.47E+2	1.17E+2	9.70E+1	7.90E+1	3.85E+1	3.46E+1	3.01E+1	1.20E+1	1.10E+1	1.604E+0
6.00E+3	6.15E+2	9.63E+1	7.65E+1	6.18E+1	3.16E+1	2.73E+1	2.35E+1	8.63E+0	7.85E+0	1.861E+0
8.00E+3	4.50E+2	7.07E+1	5.17E+1	4.11E+1	2.30E+1	1.84E+1	1.56E+1	4.93E+0	4.44E+0	2.321E+0
1.00E+4	3.52E+2	5.53E+1	3.75E+1	2.94E+1	1.79E+1	1.34E+1	1.11E+1	3.10E+0	2.77E+0	2.722E+0
1.50E+4	2.21E+2	3.47E+1	2.01E+1	1.53E+1	1.11E+1	7.14E+0	5.74E+0	1.24E+0	1.09E+0	3.509E+0
2.00E+4	1.57E+2	2.45E+1	1.25E+1	9.27E+0	7.73E+0	4.42E+0	3.45E+0	6.14E−1	5.32E−1	4.068E+0
3.00E+4	9.43E+1	1.45E+1	6.07E+0	4.32E+0	4.51E+0	2.13E+0	1.59E+0	2.13E−1	1.80E−1	4.742E+0
4.00E+4	6.42E+1	9.76E+0	3.51E+0	2.41E+0	3.00E+0	1.23E+0	8.82E−1	9.62E−2	7.97E−2	5.065E+0
5.00E+4	4.70E+1	7.06E+0	2.25E+0	1.50E+0	2.16E+0	7.83E−1	5.47E−1	5.10E−2	4.15E−2	5.195E+0
6.00E+4	3.60E+1	5.36E+0	1.55E+0	1.01E+0	1.63E+0	5.38E−1	3.66E−1	3.00E−2	2.41E−2	5.214E+0
8.00E+4	2.33E+1	3.40E+0	8.45E−1	5.28E−1	1.02E+0	2.92E−1	1.90E−1	1.28E−2	1.01E−2	5.092E+0
1.00E+5	1.63E+1	2.35E+0	5.22E−1	3.15E−1	7.04E−1	1.80E−1	1.13E−1	6.60E−3	5.08E−3	4.883E+0
1.50E+5	8.27E+0	1.16E+0	2.14E−1	1.21E−1	3.46E−1	7.35E−2	4.31E−2	1.97E−3	1.47E−3	4.326E+0
2.00E+5	5.00E+0	6.91E−1	1.13E−1	6.09E−2	2.05E−1	3.88E−2	2.17E−2	8.47E−4	6.21E−4	3.861E+0
3.00E+5	2.43E+0	3.28E−1	4.68E−2	2.37E−2	9.67E−2	1.60E−2	8.39E−3	2.67E−4	1.95E−4	3.209E+0
4.00E+5	1.46E+0	1.94E−1	2.55E−2	1.25E−2	5.71E−2	8.71E−3	4.42E−3	1.22E−4	9.06E−5	2.789E+0
5.00E+5	9.94E−1	1.31E−1	1.62E−2	7.81E−3	3.83E−2	5.53E−3	2.75E−3	6.84E−5	5.22E−5	2.501E+0
6.00E+5	7.32E−1	9.56E−2	1.13E−2	5.43E−3	2.79E−2	3.86E−3	1.91E−3	4.35E−5	3.42E−5	2.292E+0
8.00E+5	4.61E−1	5.95E−2	6.63E−3	3.17E−3	1.74E−2	2.26E−3	1.11E−3	2.23E−5	1.85E−5	2.010E+0
1.00E+6	3.28E−1	4.20E−2	4.49E−3	2.16E−3	1.22E−2	1.53E−3	7.58E−4	1.38E−5	1.21E−5	1.828E+0
1.50E+6	1.83E−1	2.33E−2	2.35E−3	1.14E−3	6.77E−3	8.02E−4	4.01E−4	6.25E−6	6.01E−6	1.571E+0
2.00E+6	1.25E−1	1.58E−2	1.55E−3	7.60E−4	4.58E−3	5.29E−4	2.66E−4	3.81E−6	3.88E−6	1.436E+0
3.00E+6	7.41E−2	9.35E−3	9.08E−4	4.46E−4	2.71E−3	3.10E−4	1.56E−4	2.04E−6	2.22E−6	1.296E+0
4.00E+6	5.21E−2	6.56E−3	6.39E−4	3.13E−4	1.90E−3	2.18E−4	1.10E−4	1.37E−6*	1.54E−6	1.224E+0
5.00E+6	4.00E−2	5.03E−3	4.92E−4*	2.40E−4	1.46E−3	1.68E−4	8.41E−5	1.0E−6	1.17E−6*	1.180E+0
6.00E+6	3.23E−2*	4.07E−3	4.0E−4	1.95E−4	1.18E−3	1.36E−4*	6.81E−5*			1.150E+0
8.00E+6	2.33E−2*	2.93E−3*		1.41E−4						1.113E+0

$Z= 61$

T_e (eV)	σ_{RR} (b)									$f_{1s_{1/2}}$
	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

R_{nucl} = 6.406 fm

$\|\epsilon_n\|$ (eV)	5.341E+4	1.353E+4	1.353E+4	1.282E+4	5.933E+3	5.934E+3	5.721E+3	5.721E+3	5.657E+3	
1.00E+0	4.11E+6	6.28E+5	6.90E+5	5.89E+5	2.07E+5	2.39E+5	2.24E+5	1.64E+5	1.55E+5	3.582E−4
1.50E+0	2.74E+6	4.18E+5	4.60E+5	3.93E+5	1.38E+5	1.59E+5	1.49E+5	1.09E+5	1.03E+5	5.373E−4
2.00E+0	2.05E+6	3.14E+5	3.45E+5	2.94E+5	1.04E+5	1.19E+5	1.12E+5	8.20E+4	7.73E+4	7.164E−4
3.00E+0	1.37E+6	2.09E+5	2.30E+5	1.96E+5	6.90E+4	7.96E+4	7.47E+4	5.46E+4	5.15E+4	1.075E−3
4.00E+0	1.03E+6	1.57E+5	1.73E+5	1.47E+5	5.17E+4	5.97E+4	5.60E+4	4.10E+4	3.86E+4	1.433E−3
5.00E+0	8.21E+5	1.26E+5	1.38E+5	1.18E+5	4.14E+4	4.77E+4	4.48E+4	3.28E+4	3.09E+4	1.791E−3
6.00E+0	6.84E+5	1.05E+5	1.15E+5	9.81E+4	3.45E+4	3.98E+4	3.73E+4	2.73E+4	2.57E+4	2.149E−3
8.00E+0	5.13E+5	7.85E+4	8.62E+4	7.36E+4	2.59E+4	2.98E+4	2.80E+4	2.05E+4	1.93E+4	2.865E−3
1.00E+1	4.11E+5	6.28E+4	6.90E+4	5.88E+4	2.07E+4	2.39E+4	2.24E+4	1.64E+4	1.54E+4	3.581E−3
1.50E+1	2.74E+5	4.18E+4	4.60E+4	3.92E+4	1.38E+4	1.59E+4	1.49E+4	1.09E+4	1.03E+4	5.371E−3
2.00E+1	2.05E+5	3.14E+4	3.45E+4	2.94E+4	1.04E+4	1.19E+4	1.12E+4	8.16E+3	7.69E+3	7.160E−3
3.00E+1	1.37E+5	2.09E+4	2.30E+4	1.96E+4	6.90E+3	7.95E+3	7.45E+3	5.43E+3	5.11E+3	1.074E−2
4.00E+1	1.03E+5	1.57E+4	1.72E+4	1.47E+4	5.17E+3	5.96E+3	5.58E+3	4.06E+3	3.83E+3	1.431E−2
5.00E+1	8.21E+4	1.26E+4	1.38E+4	1.17E+4	4.14E+3	4.76E+3	4.46E+3	3.24E+3	3.05E+3	1.788E−2
6.00E+1	6.84E+4	1.05E+4	1.15E+4	9.77E+3	3.45E+3	3.97E+3	3.72E+3	2.70E+3	2.54E+3	2.145E−2
8.00E+1	5.13E+4	7.84E+3	8.58E+3	7.31E+3	2.59E+3	2.97E+3	2.78E+3	2.01E+3	1.89E+3	2.858E−2
1.00E+2	4.10E+4	6.27E+3	6.86E+3	5.84E+3	2.07E+3	2.38E+3	2.22E+3	1.60E+3	1.51E+3	3.569E−2
1.50E+2	2.73E+4	4.18E+3	4.56E+3	3.88E+3	1.38E+3	1.58E+3	1.48E+3	1.06E+3	9.93E+2	5.344E−2
2.00E+2	2.05E+4	3.14E+3	3.41E+3	2.90E+3	1.04E+3	1.18E+3	1.10E+3	7.82E+2	7.36E+2	7.113E−2
3.00E+2	1.36E+4	2.09E+3	2.26E+3	1.92E+3	6.90E+2	7.83E+2	7.30E+2	5.10E+2	4.79E+2	1.063E−1
4.00E+2	1.02E+4	1.57E+3	1.68E+3	1.43E+3	5.18E+2	5.84E+2	5.44E+2	3.74E+2	3.51E+2	1.412E−1
5.00E+2	8.16E+3	1.25E+3	1.34E+3	1.13E+3	4.14E+2	4.65E+2	4.32E+2	2.92E+2	2.74E+2	1.759E−1
6.00E+2	6.79E+3	1.04E+3	1.11E+3	9.36E+2	3.45E+2	3.85E+2	3.57E+2	2.38E+2	2.23E+2	2.103E−1
8.00E+2	5.08E+3	7.82E+2	8.18E+2	6.92E+2	2.59E+2	2.86E+2	2.64E+2	1.71E+2	1.60E+2	2.784E−1
1.00E+3	4.06E+3	6.24E+2	6.46E+2	5.45E+2	2.07E+2	2.26E+2	2.08E+2	1.31E+2	1.22E+2	3.455E−1
1.50E+3	2.69E+3	4.15E+2	4.17E+2	3.50E+2	1.38E+2	1.47E+2	1.34E+2	7.86E+1	7.32E+1	5.091E−1
2.00E+3	2.00E+3	3.10E+2	3.04E+2	2.53E+2	1.03E+2	1.07E+2	9.68E+1	5.34E+1	4.96E+1	6.670E−1
3.00E+3	1.32E+3	2.05E+2	1.91E+2	1.57E+2	6.79E+1	6.75E+1	6.01E+1	2.96E+1	2.73E+1	9.663E−1
4.00E+3	9.77E+2	1.53E+2	1.35E+2	1.10E+2	5.04E+1	4.79E+1	4.21E+1	1.87E+1	1.72E+1	1.245E+0
5.00E+3	7.73E+2	1.21E+2	1.02E+2	8.27E+1	3.98E+1	3.63E+1	3.16E+1	1.28E+1	1.17E+1	1.505E+0
6.00E+3	6.36E+2	9.98E+1	8.07E+1	6.48E+1	3.28E+1	2.87E+1	2.47E+1	9.22E+0	8.37E+0	1.747E+0
8.00E+3	4.66E+2	7.33E+1	5.47E+1	4.32E+1	2.39E+1	1.95E+1	1.64E+1	5.30E+0	4.77E+0	2.185E+0
1.00E+4	3.64E+2	5.74E+1	3.98E+1	3.10E+1	1.86E+1	1.42E+1	1.17E+1	3.35E+0	2.98E+0	2.566E+0
1.50E+4	2.30E+2	3.61E+1	2.15E+1	1.62E+1	1.15E+1	7.61E+0	6.08E+0	1.35E+0	1.19E+0	3.324E+0
2.00E+4	1.63E+2	2.55E+1	1.34E+1	9.87E+0	8.07E+0	4.73E+0	3.67E+0	6.74E−1	5.82E−1	3.867E+0
3.00E+4	9.83E+1	1.52E+1	6.55E+0	4.62E+0	4.73E+0	2.29E+0	1.70E+0	2.35E−1	1.98E−1	4.536E+0
4.00E+4	6.71E+1	1.02E+1	3.80E+0	2.59E+0	3.15E+0	1.33E+0	9.49E−1	1.07E−1	8.83E−2	4.868E+0
5.00E+4	4.92E+1	7.42E+0	2.45E+0	1.62E+0	2.27E+0	8.52E−1	5.91E−1	5.69E−2	4.62E−2	5.012E+0
6.00E+4	3.78E+1	5.64E+0	1.69E+0	1.09E+0	1.72E+0	5.86E−1	3.96E−1	3.36E−2	2.69E−2	5.047E+0
8.00E+4	2.45E+1	3.59E+0	9.27E−1	5.73E−1	1.08E+0	3.20E−1	2.07E−1	1.44E−2	1.13E−2	4.953E+0
1.00E+5	1.72E+1	2.49E+0	5.75E−1	3.43E−1	7.46E−1	1.98E−1	1.23E−1	7.45E−3	5.71E−3	4.767E+0
1.50E+5	8.77E+0	1.24E+0	2.37E−1	1.32E−1	3.68E−1	8.13E−2	4.72E−2	2.24E−3	1.66E−3	4.249E+0
2.00E+5	5.32E+0	7.37E−1	1.26E−1	6.68E−2	2.18E−1	4.31E−2	2.38E−2	9.63E−4	7.03E−4	3.806E+0
3.00E+5	2.60E+0	3.52E−1	5.22E−2	2.61E−2	1.04E−1	1.78E−2	9.24E−3	3.04E−4	2.21E−4	3.175E+0
4.00E+5	1.57E+0	2.09E−1	2.85E−2	1.38E−2	6.12E−2	9.73E−3	4.87E−3	1.40E−4	1.03E−4	2.767E+0
5.00E+5	1.07E+0	1.41E−1	1.81E−2	8.62E−3	4.11E−2	6.18E−3	3.04E−3	7.83E−5	5.93E−5	2.485E+0
6.00E+5	7.86E−1	1.03E−1	1.27E−2	5.99E−3	3.00E−2	4.33E−3	2.11E−3	4.99E−5	3.89E−5	2.279E+0
8.00E+5	4.96E−1	6.41E−2	7.45E−3	3.50E−3	1.87E−2	2.54E−3	1.23E−3	2.56E−5	2.11E−5	2.001E+0
1.00E+6	3.53E−1	4.53E−2	5.05E−3	2.38E−3	1.32E−2	1.72E−3	8.37E−4	1.58E−5	1.37E−5	1.822E+0
1.50E+6	1.97E−1	2.51E−2	2.65E−3	1.26E−3	7.29E−3	9.02E−4	4.42E−4	7.19E−6	6.84E−6	1.568E+0
2.00E+6	1.34E−1	1.70E−2	1.75E−3	8.37E−4	4.92E−3	5.95E−4	2.93E−4	4.38E−6	4.41E−6	1.433E+0
3.00E+6	7.96E−2	1.01E−2	1.02E−3	4.91E−4	2.91E−3	3.49E−4	1.72E−4	2.35E−6	2.52E−6	1.294E+0
4.00E+6	5.59E−2	7.05E−3	7.20E−4	3.44E−4	2.04E−3	2.45E−4	1.20E−4	1.58E−6*	1.75E−6	1.223E+0
5.00E+6	4.29E−2	5.40E−3	5.55E−4*	2.64E−4	1.57E−3	1.89E−4	9.24E−5*	1.2E−6	1.33E−6	1.179E+0
6.00E+6	3.47E−2	4.36E−3*	4.5E−4	2.14E−4	1.26E−3	1.54E−4	7.49E−5*		1.08E−6	1.150E+0
8.00E+6	2.50E−2*	3.14E−3*		1.55E−4	9.13E−4					1.113E+0

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Z= 62

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 6.574$ fm

$|\epsilon_n|$ (eV)	5.528E+4	1.401E+4	1.402E+4	1.325E+4	6.141E+3	6.142E+3	5.913E+3	5.913E+3	5.845E+3	
1.00E+0	4.24E+6	6.48E+5	7.18E+5	6.09E+5	2.14E+5	2.47E+5	2.32E+5	1.70E+5	1.60E+5	3.344E−4
1.50E+0	2.82E+6	4.32E+5	4.78E+5	4.06E+5	1.42E+5	1.65E+5	1.54E+5	1.13E+5	1.07E+5	5.016E−4
2.00E+0	2.12E+6	3.24E+5	3.59E+5	3.04E+5	1.07E+5	1.24E+5	1.16E+5	8.49E+4	7.99E+4	6.688E−4
3.00E+0	1.41E+6	2.16E+5	2.39E+5	2.03E+5	7.12E+4	8.24E+4	7.72E+4	5.66E+4	5.32E+4	1.003E−3
4.00E+0	1.06E+6	1.62E+5	1.79E+5	1.52E+5	5.34E+4	6.18E+4	5.79E+4	4.25E+4	3.99E+4	1.337E−3
5.00E+0	8.47E+5	1.30E+5	1.44E+5	1.22E+5	4.27E+4	4.95E+4	4.63E+4	3.40E+4	3.19E+4	1.672E−3
6.00E+0	7.06E+5	1.08E+5	1.20E+5	1.01E+5	3.56E+4	4.12E+4	3.86E+4	2.83E+4	2.66E+4	2.006E−3
8.00E+0	5.30E+5	8.11E+4	8.97E+4	7.61E+4	2.67E+4	3.09E+4	2.89E+4	2.12E+4	1.99E+4	2.674E−3
1.00E+1	4.24E+5	6.48E+4	7.17E+4	6.09E+4	2.14E+4	2.47E+4	2.32E+4	1.70E+4	1.59E+4	3.343E−3
1.50E+1	2.82E+5	4.32E+4	4.78E+4	4.06E+4	1.42E+4	1.65E+4	1.54E+4	1.13E+4	1.06E+4	5.013E−3
2.00E+1	2.12E+5	3.24E+4	3.58E+4	3.04E+4	1.07E+4	1.24E+4	1.16E+4	8.46E+3	7.95E+3	6.683E−3
3.00E+1	1.41E+5	2.16E+4	2.39E+4	2.03E+4	7.12E+3	8.23E+3	7.71E+3	5.63E+3	5.29E+3	1.002E−2
4.00E+1	1.06E+5	1.62E+4	1.79E+4	1.52E+4	5.34E+3	6.17E+3	5.78E+3	4.21E+3	3.96E+3	1.336E−2
5.00E+1	8.47E+4	1.30E+4	1.43E+4	1.21E+4	4.27E+3	4.93E+3	4.62E+3	3.36E+3	3.16E+3	1.669E−2
6.00E+1	7.06E+4	1.08E+4	1.19E+4	1.01E+4	3.56E+3	4.11E+3	3.84E+3	2.79E+3	2.63E+3	2.002E−2
8.00E+1	5.29E+4	8.10E+3	8.92E+3	7.57E+3	2.67E+3	3.08E+3	2.88E+3	2.09E+3	1.96E+3	2.668E−2
1.00E+2	4.23E+4	6.48E+3	7.13E+3	6.04E+3	2.14E+3	2.46E+3	2.30E+3	1.66E+3	1.56E+3	3.332E−2
1.50E+2	2.82E+4	4.32E+3	4.74E+3	4.01E+3	1.42E+3	1.64E+3	1.53E+3	1.10E+3	1.03E+3	4.990E−2
2.00E+2	2.11E+4	3.24E+3	3.54E+3	3.00E+3	1.07E+3	1.22E+3	1.14E+3	8.12E+2	7.62E+2	6.641E−2
3.00E+2	1.41E+4	2.16E+3	2.35E+3	1.98E+3	7.12E+2	8.12E+2	7.56E+2	5.29E+2	4.96E+2	9.927E−2
4.00E+2	1.05E+4	1.62E+3	1.75E+3	1.48E+3	5.34E+2	6.06E+2	5.63E+2	3.88E+2	3.64E+2	1.319E−1
5.00E+2	8.42E+3	1.29E+3	1.39E+3	1.17E+3	4.27E+2	4.82E+2	4.47E+2	3.04E+2	2.85E+2	1.643E−1
6.00E+2	7.01E+3	1.08E+3	1.15E+3	9.70E+2	3.56E+2	4.00E+2	3.70E+2	2.48E+2	2.32E+2	1.965E−1
8.00E+2	5.25E+3	8.07E+2	8.53E+2	7.17E+2	2.67E+2	2.97E+2	2.74E+2	1.78E+2	1.66E+2	2.601E−1
1.00E+3	4.19E+3	6.45E+2	6.74E+2	5.65E+2	2.14E+2	2.35E+2	2.16E+2	1.37E+2	1.27E+2	3.229E−1
1.50E+3	2.77E+3	4.29E+2	4.36E+2	3.63E+2	1.42E+2	1.53E+2	1.39E+2	8.23E+1	7.65E+1	4.761E−1
2.00E+3	2.07E+3	3.21E+2	3.17E+2	2.63E+2	1.06E+2	1.11E+2	1.01E+2	5.61E+1	5.19E+1	6.241E−1
3.00E+3	1.36E+3	2.12E+2	2.00E+2	1.64E+2	7.02E+1	7.04E+1	6.26E+1	3.12E+1	2.87E+1	9.052E−1
4.00E+3	1.01E+3	1.58E+2	1.42E+2	1.15E+2	5.21E+1	5.01E+1	4.40E+1	1.99E+1	1.82E+1	1.168E+0
5.00E+3	7.99E+2	1.25E+2	1.07E+2	8.64E+1	4.12E+1	3.81E+1	3.30E+1	1.36E+1	1.24E+1	1.413E+0
6.00E+3	6.58E+2	1.03E+2	8.49E+1	6.78E+1	3.39E+1	3.02E+1	2.58E+1	9.84E+0	8.91E+0	1.642E+0
8.00E+3	4.82E+2	7.60E+1	5.78E+1	4.54E+1	2.48E+1	2.05E+1	1.72E+1	5.69E+0	5.10E+0	2.058E+0
1.00E+4	3.77E+2	5.95E+1	4.22E+1	3.27E+1	1.93E+1	1.50E+1	1.24E+1	3.61E+0	3.21E+0	2.421E+0
1.50E+4	2.38E+2	3.75E+1	2.29E+1	1.72E+1	1.20E+1	8.09E+0	6.44E+0	1.47E+0	1.29E+0	3.149E+0
2.00E+4	1.70E+2	2.66E+1	1.43E+1	1.05E+1	8.42E+0	5.05E+0	3.91E+0	7.37E−1	6.34E−1	3.677E+0
3.00E+4	1.02E+2	1.59E+1	7.05E+0	4.94E+0	4.95E+0	2.47E+0	1.82E+0	2.60E−1	2.18E−1	4.339E+0
4.00E+4	7.01E+1	1.07E+1	4.12E+0	2.79E+0	3.31E+0	1.44E+0	1.02E+0	1.19E−1	9.77E−2	4.679E+0
5.00E+4	5.15E+1	7.80E+0	2.66E+0	1.75E+0	2.39E+0	9.24E−1	6.37E−1	6.34E−2	5.12E−2	4.836E+0
6.00E+4	3.97E+1	5.94E+0	1.84E+0	1.18E+0	1.81E+0	6.39E−1	4.28E−1	3.75E−2	2.99E−2	4.885E+0
8.00E+4	2.58E+1	3.79E+0	1.02E+0	6.22E−1	1.14E+0	3.50E−1	2.24E−1	1.62E−2	1.26E−2	4.817E+0
1.00E+5	1.81E+1	2.63E+0	6.31E−1	3.73E−1	7.90E−1	2.17E−1	1.34E−1	8.39E−3	6.40E−3	4.653E+0
1.50E+5	9.28E+0	1.31E+0	2.62E−1	1.44E−1	3.91E−1	8.97E−2	5.15E−2	2.53E−3	1.87E−3	4.172E+0
2.00E+5	5.65E+0	7.85E−1	1.40E−1	7.32E−2	2.33E−1	4.77E−2	2.61E−2	1.09E−3	7.94E−4	3.750E+0
3.00E+5	2.77E+0	3.76E−1	5.81E−2	2.87E−2	1.11E−1	1.98E−2	1.02E−2	3.47E−4	2.51E−4	3.142E+0
4.00E+5	1.67E+0	2.24E−1	3.18E−2	1.52E−2	6.56E−2	1.09E−2	5.36E−3	1.59E−4	1.17E−4	2.744E+0
5.00E+5	1.14E+0	1.51E−1	2.03E−2	9.50E−3	4.41E−2	6.91E−3	3.35E−3	8.95E−5	6.74E−5	2.468E+0
6.00E+5	8.43E−1	1.10E−1	1.42E−2	6.60E−3	3.22E−2	4.84E−3	2.32E−3	5.71E−5	4.42E−5	2.266E+0
8.00E+5	5.32E−1	6.89E−2	8.35E−3	3.86E−3	2.01E−2	2.84E−3	1.36E−3	2.93E−5	2.40E−5	1.993E+0
1.00E+6	3.79E−1	4.87E−2	5.67E−3	2.63E−3	1.42E−2	1.93E−3	9.22E−4	1.81E−5	1.56E−5	1.816E+0
1.50E+6	2.12E−1	2.70E−2	2.98E−3	1.39E−3	7.83E−3	1.01E−3	4.87E−4	8.25E−6	7.76E−6	1.564E+0
2.00E+6	1.44E−1	1.82E−2	1.97E−3	9.21E−4	5.28E−3	6.68E−4	3.23E−4	5.03E−6	5.00E−6	1.431E+0
3.00E+6	8.54E−2	1.08E−2	1.15E−3	5.39E−4	3.13E−3	3.92E−4	1.89E−4	2.70E−6	2.85E−6	1.293E+0
4.00E+6	6.00E−2	7.56E−3	8.10E−4	3.78E−4	2.19E−3	2.76E−4	1.32E−4	1.81E−6*	1.98E−6	1.221E+0
5.00E+6	4.60E−2	5.79E−3		2.90E−4	1.68E−3	2.12E−4*	1.01E−4	1.36E−6*	1.51E−6	1.178E+0
6.00E+6	3.72E−2	4.68E−3		2.35E−4	1.36E−3	1.73E−4*	8.2E−5		1.23E−6*	1.149E+0
8.00E+6	2.68E−2	3.37E−3*		1.69E−4*						1.112E+0

Z= 63

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 6.607$ fm

$|\epsilon_n|$ (eV)	5.719E+4	1.451E+4	1.451E+4	1.368E+4	6.353E+3	6.354E+3	6.109E+3	6.109E+3	6.036E+3	
1.00E+0	4.37E+6	6.69E+5	7.46E+5	6.29E+5	2.20E+5	2.56E+5	2.39E+5	1.76E+5	1.65E+5	3.124E−4
1.50E+0	2.91E+6	4.46E+5	4.97E+5	4.20E+5	1.47E+5	1.71E+5	1.60E+5	1.17E+5	1.10E+5	4.686E−4
2.00E+0	2.18E+6	3.35E+5	3.73E+5	3.15E+5	1.10E+5	1.28E+5	1.20E+5	8.80E+4	8.26E+4	6.248E−4
3.00E+0	1.46E+6	2.23E+5	2.49E+5	2.10E+5	7.34E+4	8.54E+4	7.98E+4	5.86E+4	5.50E+4	9.372E−4
4.00E+0	1.09E+6	1.67E+5	1.86E+5	1.57E+5	5.51E+4	6.40E+4	5.99E+4	4.40E+4	4.13E+4	1.250E−3
5.00E+0	8.74E+5	1.34E+5	1.49E+5	1.26E+5	4.41E+4	5.12E+4	4.79E+4	3.52E+4	3.30E+4	1.562E−3
6.00E+0	7.28E+5	1.12E+5	1.24E+5	1.05E+5	3.67E+4	4.27E+4	3.99E+4	2.93E+4	2.75E+4	1.874E−3
8.00E+0	5.46E+5	8.37E+4	9.32E+4	7.86E+4	2.75E+4	3.20E+4	2.99E+4	2.20E+4	2.06E+4	2.499E−3
1.00E+1	4.37E+5	6.69E+4	7.45E+4	6.29E+4	2.20E+4	2.56E+4	2.39E+4	1.76E+4	1.65E+4	3.123E−3
1.50E+1	2.91E+5	4.46E+4	4.97E+4	4.19E+4	1.47E+4	1.71E+4	1.60E+4	1.17E+4	1.10E+4	4.684E−3
2.00E+1	2.18E+5	3.35E+4	3.72E+4	3.14E+4	1.10E+4	1.28E+4	1.20E+4	8.76E+3	8.22E+3	6.244E−3
3.00E+1	1.46E+5	2.23E+4	2.48E+4	2.09E+4	7.34E+3	8.53E+3	7.97E+3	5.83E+3	5.47E+3	9.363E−3
4.00E+1	1.09E+5	1.67E+4	1.86E+4	1.57E+4	5.51E+3	6.39E+3	5.97E+3	4.36E+3	4.09E+3	1.248E−2
5.00E+1	8.73E+4	1.34E+4	1.49E+4	1.25E+4	4.41E+3	5.11E+3	4.77E+3	3.48E+3	3.27E+3	1.559E−2
6.00E+1	7.28E+4	1.12E+4	1.24E+4	1.04E+4	3.67E+3	4.26E+3	3.97E+3	2.89E+3	2.72E+3	1.871E−2
8.00E+1	5.46E+4	8.37E+3	9.28E+3	7.82E+3	2.75E+3	3.19E+3	2.98E+3	2.16E+3	2.03E+3	2.493E−2
1.00E+2	4.36E+4	6.69E+3	7.41E+3	6.25E+3	2.20E+3	2.55E+3	2.38E+3	1.72E+3	1.61E+3	3.114E−2
1.50E+2	2.91E+4	4.46E+3	4.93E+3	4.15E+3	1.47E+3	1.70E+3	1.58E+3	1.14E+3	1.06E+3	4.663E−2
2.00E+2	2.18E+4	3.34E+3	3.68E+3	3.10E+3	1.10E+3	1.27E+3	1.18E+3	8.42E+2	7.89E+2	6.206E−2
3.00E+2	1.45E+4	2.23E+3	2.44E+3	2.05E+3	7.35E+2	8.42E+2	7.82E+2	5.49E+2	5.14E+2	9.278E−2
4.00E+2	1.09E+4	1.67E+3	1.82E+3	1.53E+3	5.51E+2	6.28E+2	5.82E+2	4.03E+2	3.77E+2	1.233E−1
5.00E+2	8.69E+3	1.34E+3	1.45E+3	1.21E+3	4.41E+2	5.00E+2	4.63E+2	3.16E+2	2.95E+2	1.536E−1
6.00E+2	7.23E+3	1.11E+3	1.20E+3	1.00E+3	3.67E+2	4.15E+2	3.83E+2	2.58E+2	2.41E+2	1.837E−1
8.00E+2	5.41E+3	8.34E+2	8.88E+2	7.42E+2	2.76E+2	3.08E+2	2.83E+2	1.85E+2	1.73E+2	2.433E−1
1.00E+3	4.32E+3	6.66E+2	7.02E+2	5.85E+2	2.20E+2	2.44E+2	2.24E+2	1.42E+2	1.33E+2	3.021E−1
1.50E+3	2.86E+3	4.43E+2	4.54E+2	3.77E+2	1.47E+2	1.59E+2	1.44E+2	8.61E+1	7.99E+1	4.456E−1
2.00E+3	2.13E+3	3.31E+2	3.31E+2	2.73E+2	1.10E+2	1.16E+2	1.04E+2	5.88E+1	5.44E+1	5.845E−1
3.00E+3	1.41E+3	2.19E+2	2.09E+2	1.70E+2	7.25E+1	7.34E+1	6.52E+1	3.29E+1	3.02E+1	8.487E−1
4.00E+3	1.04E+3	1.63E+2	1.48E+2	1.20E+2	5.39E+1	5.24E+1	4.58E+1	2.10E+1	1.92E+1	1.096E+0
5.00E+3	8.25E+2	1.30E+2	1.13E+2	9.03E+1	4.27E+1	3.99E+1	3.45E+1	1.45E+1	1.31E+1	1.328E+0
6.00E+3	6.80E+2	1.07E+2	8.93E+1	7.09E+1	3.51E+1	3.16E+1	2.70E+1	1.05E+1	9.47E+0	1.545E+0
8.00E+3	4.99E+2	7.87E+1	6.09E+1	4.76E+1	2.57E+1	2.16E+1	1.81E+1	6.09E+0	5.45E+0	1.939E+0
1.00E+4	3.91E+2	6.17E+1	4.46E+1	3.44E+1	2.00E+1	1.58E+1	1.30E+1	3.88E+0	3.45E+0	2.286E+0
1.50E+4	2.47E+2	3.90E+1	2.43E+1	1.82E+1	1.25E+1	8.59E+0	6.82E+0	1.60E+0	1.39E+0	2.984E+0
2.00E+4	1.76E+2	2.77E+1	1.53E+1	1.11E+1	8.77E+0	5.39E+0	4.15E+0	8.04E−1	6.91E−1	3.497E+0
3.00E+4	1.07E+2	1.66E+1	7.59E+0	5.28E+0	5.17E+0	2.65E+0	1.95E+0	2.86E−1	2.39E−1	4.151E+0
4.00E+4	7.32E+1	1.12E+1	4.45E+0	2.99E+0	3.47E+0	1.55E+0	1.10E+0	1.31E−1	1.08E−1	4.497E+0
5.00E+4	5.39E+1	8.18E+0	2.89E+0	1.88E+0	2.50E+0	1.00E+0	6.86E−1	7.04E−2	5.67E−2	4.665E+0
6.00E+4	4.15E+1	6.24E+0	2.01E+0	1.27E+0	1.90E+0	6.94E−1	4.62E−1	4.18E−2	3.32E−2	4.727E+0
8.00E+4	2.71E+1	4.00E+0	1.11E+0	6.73E−1	1.21E+0	3.82E−1	2.43E−1	1.82E−2	1.41E−2	4.684E+0
1.00E+5	1.91E+1	2.78E+0	6.92E−1	4.05E−1	8.35E−1	2.38E−1	1.46E−1	9.42E−3	7.16E−3	4.541E+0
1.50E+5	9.82E+0	1.39E+0	2.89E−1	1.57E−1	4.15E−1	9.89E−2	5.62E−2	2.86E−3	2.10E−3	4.095E+0
2.00E+5	6.00E+0	8.36E−1	1.55E−1	8.01E−2	2.47E−1	5.28E−2	2.85E−2	1.24E−3	8.95E−4	3.695E+0
3.00E+5	2.95E+0	4.01E−1	6.46E−2	3.15E−2	1.18E−1	2.20E−2	1.12E−2	3.94E−4	2.83E−4	3.109E+0
4.00E+5	1.79E+0	2.39E−1	3.55E−2	1.67E−2	7.01E−2	1.21E−2	5.89E−3	1.81E−4	1.32E−4	2.721E+0
5.00E+5	1.22E+0	1.62E−1	2.26E−2	1.04E−2	4.73E−2	7.70E−3	3.68E−3	1.02E−4	7.63E−5	2.451E+0
6.00E+5	9.03E−1	1.18E−1	1.59E−2	7.26E−3	3.46E−2	5.40E−3	2.56E−3	6.52E−5	5.00E−5	2.253E+0
8.00E+5	5.71E−1	7.40E−2	9.34E−3	4.25E−3	2.15E−2	3.18E−3	1.49E−3	3.35E−5	2.71E−5	1.984E+0
1.00E+6	4.07E−1	5.23E−2	6.35E−3	2.89E−3	1.52E−2	2.16E−3	1.01E−3	2.07E−5	1.76E−5	1.809E+0
1.50E+6	2.27E−1	2.90E−2	3.34E−3	1.53E−3	8.40E−3	1.13E−3	5.35E−4	9.45E−6	8.78E−6	1.560E+0
2.00E+6	1.54E−1	1.96E−2	2.21E−3	1.01E−3	5.67E−3	7.49E−4	3.54E−4	5.76E−6	5.65E−6	1.428E+0
3.00E+6	9.15E−2	1.16E−2	1.29E−3	5.91E−4	3.35E−3	4.39E−4	2.07E−4	3.10E−6	3.23E−6	1.291E+0
4.00E+6	6.42E−2	8.11E−3	9.10E−4	4.14E−4	2.35E−3	3.09E−4	1.45E−4	2.08E−6*	2.23E−6	1.220E+0
5.00E+6	4.92E−2	6.20E−3*	7.0E−4	3.17E−4	1.80E−3	2.38E−4*	1.11E−4	1.56E−6*	1.70E−6*	1.177E+0
6.00E+6	3.97E−2*	5.01E−3*		2.57E−4	1.45E−3	1.94E−4*	9.00E−5*		1.37E−6*	1.148E+0
8.00E+6	2.86E−2*	3.60E−3*		1.86E−4	1.04E−3					1.112E+0

$Z= 64$

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 6.660$ fm

$\|\epsilon_n\|$ (eV)	5.914E+4	1.501E+4	1.501E+4	1.413E+4	6.570E+3	6.570E+3	6.308E+3	6.308E+3	6.230E+3	
1.00E+0	4.50E+6	6.91E+5	7.75E+5	6.50E+5	2.27E+5	2.65E+5	2.47E+5	1.82E+5	1.71E+5	2.922E−4
1.50E+0	3.00E+6	4.61E+5	5.16E+5	4.33E+5	1.51E+5	1.77E+5	1.65E+5	1.21E+5	1.14E+5	4.382E−4
2.00E+0	2.25E+6	3.45E+5	3.87E+5	3.25E+5	1.14E+5	1.33E+5	1.24E+5	9.10E+4	8.53E+4	5.843E−4
3.00E+0	1.50E+6	2.30E+5	2.58E+5	2.17E+5	7.57E+4	8.84E+4	8.25E+4	6.07E+4	5.68E+4	8.765E−4
4.00E+0	1.13E+6	1.73E+5	1.94E+5	1.63E+5	5.68E+4	6.63E+4	6.18E+4	4.55E+4	4.26E+4	1.169E−3
5.00E+0	9.00E+5	1.38E+5	1.55E+5	1.30E+5	4.54E+4	5.30E+4	4.95E+4	3.64E+4	3.41E+4	1.461E−3
6.00E+0	7.50E+5	1.15E+5	1.29E+5	1.08E+5	3.79E+4	4.42E+4	4.12E+4	3.03E+4	2.84E+4	1.753E−3
8.00E+0	5.63E+5	8.64E+4	9.68E+4	8.12E+4	2.84E+4	3.31E+4	3.09E+4	2.27E+4	2.13E+4	2.337E−3
1.00E+1	4.50E+5	6.91E+4	7.74E+4	6.50E+4	2.27E+4	2.65E+4	2.47E+4	1.82E+4	1.70E+4	2.921E−3
1.50E+1	3.00E+5	4.61E+4	5.16E+4	4.33E+4	1.51E+4	1.77E+4	1.65E+4	1.21E+4	1.13E+4	4.381E−3
2.00E+1	2.25E+5	3.45E+4	3.87E+4	3.25E+4	1.14E+4	1.32E+4	1.24E+4	9.07E+3	8.49E+3	5.840E−3
3.00E+1	1.50E+5	2.30E+4	2.58E+4	2.16E+4	7.57E+3	8.82E+3	8.23E+3	6.03E+3	5.65E+3	8.757E−3
4.00E+1	1.13E+5	1.73E+4	1.93E+4	1.62E+4	5.68E+3	6.62E+3	6.17E+3	4.51E+3	4.23E+3	1.167E−2
5.00E+1	9.00E+4	1.38E+4	1.55E+4	1.30E+4	4.54E+3	5.29E+3	4.93E+3	3.60E+3	3.37E+3	1.459E−2
6.00E+1	7.50E+4	1.15E+4	1.29E+4	1.08E+4	3.79E+3	4.41E+3	4.11E+3	3.00E+3	2.81E+3	1.750E−2
8.00E+1	5.62E+4	8.63E+3	9.64E+3	8.08E+3	2.84E+3	3.30E+3	3.08E+3	2.24E+3	2.10E+3	2.331E−2
1.00E+2	4.50E+4	6.91E+3	7.70E+3	6.46E+3	2.27E+3	2.64E+3	2.46E+3	1.78E+3	1.67E+3	2.912E−2
1.50E+2	3.00E+4	4.60E+3	5.12E+3	4.29E+3	1.52E+3	1.76E+3	1.63E+3	1.18E+3	1.10E+3	4.361E−2
2.00E+2	2.25E+4	3.45E+3	3.83E+3	3.21E+3	1.14E+3	1.31E+3	1.22E+3	8.73E+2	8.16E+2	5.806E−2
3.00E+2	1.50E+4	2.30E+3	2.54E+3	2.12E+3	7.58E+2	8.72E+2	8.08E+2	5.70E+2	5.32E+2	8.680E−2
4.00E+2	1.12E+4	1.72E+3	1.89E+3	1.58E+3	5.68E+2	6.51E+2	6.02E+2	4.19E+2	3.91E+2	1.154E−1
5.00E+2	8.95E+3	1.38E+3	1.50E+3	1.26E+3	4.55E+2	5.18E+2	4.79E+2	3.28E+2	3.06E+2	1.437E−1
6.00E+2	7.45E+3	1.15E+3	1.25E+3	1.04E+3	3.79E+2	4.30E+2	3.96E+2	2.68E+2	2.50E+2	1.719E−1
8.00E+2	5.58E+3	8.61E+2	9.24E+2	7.68E+2	2.84E+2	3.19E+2	2.93E+2	1.93E+2	1.80E+2	2.277E−1
1.00E+3	4.45E+3	6.88E+2	7.31E+2	6.06E+2	2.27E+2	2.53E+2	2.32E+2	1.48E+2	1.38E+2	2.828E−1
1.50E+3	2.95E+3	4.57E+2	4.74E+2	3.91E+2	1.51E+2	1.65E+2	1.49E+2	9.00E+1	8.33E+1	4.175E−1
2.00E+3	2.20E+3	3.42E+2	3.45E+2	2.83E+2	1.13E+2	1.21E+2	1.08E+2	6.16E+1	5.68E+1	5.478E−1
3.00E+3	1.45E+3	2.27E+2	2.18E+2	1.77E+2	7.49E+1	7.65E+1	6.78E+1	3.47E+1	3.18E+1	7.963E−1
4.00E+3	1.08E+3	1.69E+2	1.55E+2	1.25E+2	5.57E+1	5.47E+1	4.77E+1	2.22E+1	2.02E+1	1.029E+0
5.00E+3	8.52E+2	1.34E+2	1.18E+2	9.42E+1	4.41E+1	4.17E+1	3.60E+1	1.54E+1	1.39E+1	1.248E+0
6.00E+3	7.02E+2	1.11E+2	9.39E+1	7.41E+1	3.63E+1	3.32E+1	2.83E+1	1.12E+1	1.01E+1	1.454E+0
8.00E+3	5.16E+2	8.14E+1	6.42E+1	4.99E+1	2.66E+1	2.27E+1	1.90E+1	6.52E+0	5.82E+0	1.828E+0
1.00E+4	4.04E+2	6.39E+1	4.71E+1	3.61E+1	2.08E+1	1.67E+1	1.37E+1	4.17E+0	3.69E+0	2.159E+0
1.50E+4	2.56E+2	4.05E+1	2.59E+1	1.92E+1	1.30E+1	9.12E+0	7.20E+0	1.73E+0	1.50E+0	2.830E+0
2.00E+4	1.83E+2	2.88E+1	1.63E+1	1.18E+1	9.13E+0	5.74E+0	4.40E+0	8.77E−1	7.50E−1	3.327E+0
3.00E+4	1.11E+2	1.73E+1	8.15E+0	5.62E+0	5.40E+0	2.85E+0	2.08E+0	3.14E−1	2.62E−1	3.972E+0
4.00E+4	7.63E+1	1.18E+1	4.80E+0	3.20E+0	3.63E+0	1.67E+0	1.17E+0	1.45E−1	1.19E−1	4.322E+0
5.00E+4	5.63E+1	8.57E+0	3.13E+0	2.02E+0	2.63E+0	1.08E+0	7.37E−1	7.81E−2	6.27E−2	4.500E+0
6.00E+4	4.35E+1	6.56E+0	2.18E+0	1.37E+0	2.00E+0	7.53E−1	4.98E−1	4.65E−2	3.68E−2	4.574E+0
8.00E+4	2.84E+1	4.21E+0	1.21E+0	7.27E−1	1.27E+0	4.17E−1	2.63E−1	2.03E−2	1.56E−2	4.554E+0
1.00E+5	2.01E+1	2.94E+0	7.58E−1	4.39E−1	8.82E−1	2.60E−1	1.58E−1	1.06E−2	7.99E−3	4.430E+0
1.50E+5	1.04E+1	1.48E+0	3.18E−1	1.71E−1	4.39E−1	1.09E−1	6.13E−2	3.22E−3	2.36E−3	4.019E+0
2.00E+5	6.36E+0	8.89E−1	1.71E−1	8.74E−2	2.63E−1	5.83E−2	3.12E−2	1.40E−3	1.01E−3	3.639E+0
3.00E+5	3.14E+0	4.28E−1	7.17E−2	3.45E−2	1.26E−1	2.44E−2	1.22E−2	4.47E−4	3.19E−4	3.075E+0
4.00E+5	1.91E+0	2.56E−1	3.95E−2	1.83E−2	7.50E−2	1.34E−2	6.47E−3	2.06E−4	1.49E−4	2.698E+0
5.00E+5	1.31E+0	1.73E−1	2.52E−2	1.15E−2	5.06E−2	8.57E−3	4.04E−3	1.16E−4	8.62E−5	2.434E+0
6.00E+5	9.66E−1	1.27E−1	1.77E−2	7.97E−3	3.70E−2	6.02E−3	2.81E−3	7.42E−5	5.66E−5	2.240E+0
8.00E+5	6.11E−1	7.93E−2	1.04E−2	4.66E−3	2.31E−2	3.55E−3	1.64E−3	3.81E−5	3.07E−5	1.975E+0
1.00E+6	4.36E−1	5.61E−2	7.11E−3	3.17E−3	1.63E−2	2.41E−3	1.11E−3	2.36E−5	1.99E−5	1.803E+0
1.50E+6	2.44E−1	3.11E−2	3.74E−3	1.67E−3	9.01E−3	1.27E−3	5.87E−4	1.08E−5	9.91E−6	1.556E+0
2.00E+6	1.65E−1	2.10E−2	2.47E−3	1.11E−3	6.07E−3	8.39E−4	3.88E−4	6.59E−6	6.38E−6	1.426E+0
3.00E+6	9.79E−2	1.24E−2	1.45E−3	6.47E−4	3.59E−3	4.92E−4	2.27E−4	3.54E−6	3.64E−6	1.289E+0
4.00E+6	6.87E−2	8.68E−3	1.02E−3	4.53E−4	2.51E−3	3.46E−4	1.59E−4	2.4E−6	2.52E−6	1.219E+0
5.00E+6	5.26E−2	6.64E−3	7.9E−4	3.47E−4*	1.92E−3	2.67E−4*	1.22E−4		1.92E−6*	1.176E+0
6.00E+6	4.25E−2	5.36E−3		2.81E−4*	1.55E−3	2.2E−4			1.55E−6*	1.148E+0
8.00E+6	3.06E−2*	3.85E−3*		2.03E−4*						1.111E+0

TABLE. Cross Sections for Radiative Recombination, Z=1–112
See page 9 for Explanation of Tables

Z= 65

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 6.583$ fm

$\lvert\epsilon_n\rvert$ (eV)	6.113E+4	1.552E+4	1.552E+4	1.458E+4	6.791E+3	6.791E+3	6.511E+3	6.511E+3	6.428E+3	
1.00E+0	4.64E+6	7.13E+5	8.04E+5	6.71E+5	2.34E+5	2.74E+5	2.56E+5	1.88E+5	1.76E+5	2.735E−4
1.50E+0	3.09E+6	4.75E+5	5.36E+5	4.48E+5	1.56E+5	1.83E+5	1.70E+5	1.26E+5	1.17E+5	4.102E−4
2.00E+0	2.32E+6	3.56E+5	4.02E+5	3.36E+5	1.17E+5	1.37E+5	1.28E+5	9.42E+4	8.80E+4	5.469E−4
3.00E+0	1.55E+6	2.38E+5	2.68E+5	2.24E+5	7.80E+4	9.14E+4	8.51E+4	6.28E+4	5.87E+4	8.204E−4
4.00E+0	1.16E+6	1.78E+5	2.01E+5	1.68E+5	5.85E+4	6.86E+4	6.39E+4	4.71E+4	4.40E+4	1.094E−3
5.00E+0	9.27E+5	1.43E+5	1.61E+5	1.34E+5	4.68E+4	5.48E+4	5.11E+4	3.77E+4	3.52E+4	1.367E−3
6.00E+0	7.73E+5	1.19E+5	1.34E+5	1.12E+5	3.90E+4	4.57E+4	4.26E+4	3.14E+4	2.93E+4	1.641E−3
8.00E+0	5.80E+5	8.91E+4	1.01E+5	8.39E+4	2.93E+4	3.43E+4	3.19E+4	2.35E+4	2.20E+4	2.187E−3
1.00E+1	4.64E+5	7.12E+4	8.04E+4	6.71E+4	2.34E+4	2.74E+4	2.55E+4	1.88E+4	1.76E+4	2.734E−3
1.50E+1	3.09E+5	4.75E+4	5.36E+4	4.47E+4	1.56E+4	1.83E+4	1.70E+4	1.25E+4	1.17E+4	4.100E−3
2.00E+1	2.32E+5	3.56E+4	4.02E+4	3.35E+4	1.17E+4	1.37E+4	1.28E+4	9.38E+3	8.77E+3	5.466E−3
3.00E+1	1.55E+5	2.38E+4	2.68E+4	2.23E+4	7.80E+3	9.13E+3	8.50E+3	6.24E+3	5.83E+3	8.197E−3
4.00E+1	1.16E+5	1.78E+4	2.01E+4	1.67E+4	5.85E+3	6.84E+3	6.37E+3	4.67E+3	4.37E+3	1.093E−2
5.00E+1	9.27E+4	1.43E+4	1.60E+4	1.34E+4	4.68E+3	5.47E+3	5.09E+3	3.73E+3	3.49E+3	1.365E−2
6.00E+1	7.72E+4	1.19E+4	1.34E+4	1.11E+4	3.90E+3	4.56E+3	4.24E+3	3.10E+3	2.90E+3	1.638E−2
8.00E+1	5.79E+4	8.90E+3	1.00E+4	8.35E+3	2.93E+3	3.42E+3	3.18E+3	2.32E+3	2.16E+3	2.182E−2
1.00E+2	4.63E+4	7.12E+3	8.00E+3	6.67E+3	2.34E+3	2.73E+3	2.54E+3	1.85E+3	1.72E+3	2.726E−2
1.50E+2	3.09E+4	4.75E+3	5.32E+3	4.43E+3	1.56E+3	1.82E+3	1.69E+3	1.22E+3	1.14E+3	4.083E−2
2.00E+2	2.31E+4	3.56E+3	3.98E+3	3.31E+3	1.17E+3	1.36E+3	1.26E+3	9.04E+2	8.44E+2	5.435E−2
3.00E+2	1.54E+4	2.37E+3	2.64E+3	2.19E+3	7.81E+2	9.02E+2	8.35E+2	5.91E+2	5.51E+2	8.127E−2
4.00E+2	1.15E+4	1.78E+3	1.97E+3	1.63E+3	5.86E+2	6.74E+2	6.22E+2	4.34E+2	4.04E+2	1.080E−1
5.00E+2	9.22E+3	1.42E+3	1.56E+3	1.30E+3	4.68E+2	5.37E+2	4.95E+2	3.40E+2	3.17E+2	1.346E−1
6.00E+2	7.68E+3	1.19E+3	1.30E+3	1.07E+3	3.90E+2	4.45E+2	4.10E+2	2.78E+2	2.59E+2	1.610E−1
8.00E+2	5.75E+3	8.88E+2	9.61E+2	7.95E+2	2.93E+2	3.31E+2	3.03E+2	2.01E+2	1.86E+2	2.133E−1
1.00E+3	4.59E+3	7.10E+2	7.60E+2	6.27E+2	2.34E+2	2.62E+2	2.40E+2	1.55E+2	1.43E+2	2.650E−1
1.50E+3	3.04E+3	4.72E+2	4.93E+2	4.05E+2	1.56E+2	1.71E+2	1.55E+2	9.39E+1	8.68E+1	3.914E−1
2.00E+3	2.27E+3	3.53E+2	3.60E+2	2.94E+2	1.17E+2	1.25E+2	1.12E+2	6.45E+1	5.94E+1	5.139E−1
3.00E+3	1.50E+3	2.34E+2	2.28E+2	1.84E+2	7.73E+1	7.97E+1	7.04E+1	3.64E+1	3.33E+1	7.477E−1
4.00E+3	1.11E+3	1.74E+2	1.63E+2	1.30E+2	5.75E+1	5.71E+1	4.97E+1	2.34E+1	2.13E+1	9.675E−1
5.00E+3	8.79E+2	1.38E+2	1.24E+2	9.82E+1	4.55E+1	4.36E+1	3.75E+1	1.63E+1	1.47E+1	1.174E+0
6.00E+3	7.25E+2	1.14E+2	9.86E+1	7.74E+1	3.76E+1	3.47E+1	2.95E+1	1.19E+1	1.07E+1	1.369E+0
8.00E+3	5.33E+2	8.42E+1	6.76E+1	5.22E+1	2.75E+1	2.39E+1	1.99E+1	6.96E+0	6.20E+0	1.724E+0
1.00E+4	4.17E+2	6.61E+1	4.98E+1	3.79E+1	2.15E+1	1.76E+1	1.44E+1	4.47E+0	3.95E+0	2.040E+0
1.50E+4	2.65E+2	4.20E+1	2.75E+1	2.02E+1	1.35E+1	9.66E+0	7.60E+0	1.87E+0	1.62E+0	2.684E+0
2.00E+4	1.89E+2	2.99E+1	1.74E+1	1.25E+1	9.50E+0	6.11E+0	4.66E+0	9.53E−1	8.14E−1	3.166E+0
3.00E+4	1.15E+2	1.80E+1	8.74E+0	5.99E+0	5.63E+0	3.05E+0	2.21E+0	3.44E−1	2.86E−1	3.800E+0
4.00E+4	7.94E+1	1.23E+1	5.18E+0	3.42E+0	3.80E+0	1.80E+0	1.26E+0	1.60E−1	1.30E−1	4.154E+0
5.00E+4	5.87E+1	8.98E+0	3.39E+0	2.17E+0	2.75E+0	1.17E+0	7.91E−1	8.64E−2	6.91E−2	4.340E+0
6.00E+4	4.54E+1	6.88E+0	2.37E+0	1.47E+0	2.10E+0	8.17E−1	5.36E−1	5.17E−2	4.07E−2	4.425E+0
8.00E+4	2.98E+1	4.43E+0	1.32E+0	7.85E−1	1.34E+0	4.54E−1	2.84E−1	2.26E−2	1.74E−2	4.426E+0
1.00E+5	2.11E+1	3.10E+0	8.29E−1	4.75E−1	9.30E−1	2.84E−1	1.71E−1	1.18E−2	8.90E−3	4.322E+0
1.50E+5	1.10E+1	1.56E+0	3.50E−1	1.86E−1	4.65E−1	1.20E−1	6.66E−2	3.62E−3	2.64E−3	3.944E+0
2.00E+5	6.73E+0	9.43E−1	1.88E−1	9.53E−2	2.79E−1	6.42E−2	3.40E−2	1.58E−3	1.13E−3	3.584E+0
3.00E+5	3.34E+0	4.56E−1	7.95E−2	3.77E−2	1.34E−1	2.70E−2	1.34E−2	5.05E−4	3.59E−4	3.041E+0
4.00E+5	2.03E+0	2.73E−1	4.38E−2	2.00E−2	8.00E−2	1.49E−2	7.08E−3	2.34E−4	1.68E−4	2.675E+0
5.00E+5	1.40E+0	1.85E−1	2.81E−2	1.26E−2	5.41E−2	9.53E−3	4.43E−3	1.32E−4	9.72E−5	2.417E+0
6.00E+5	1.03E+0	1.36E−1	1.98E−2	8.74E−3	3.96E−2	6.70E−3	3.08E−3	8.43E−5	6.38E−5	2.227E+0
8.00E+5	6.54E−1	8.50E−2	1.17E−2	5.11E−3	2.47E−2	3.95E−3	1.80E−3	4.34E−5	3.46E−5	1.966E+0
1.00E+6	4.66E−1	6.02E−2	7.94E−3	3.48E−3	1.75E−2	2.69E−3	1.22E−3	2.69E−5	2.25E−5	1.796E+0
1.50E+6	2.61E−1	3.33E−2	4.18E−3	1.83E−3	9.65E−3	1.42E−3	6.43E−4	1.23E−5	1.12E−5	1.552E+0
2.00E+6	1.77E−1	2.25E−2	2.77E−3	1.21E−3	6.50E−3	9.37E−4	4.25E−4	7.52E−6	7.19E−6	1.423E+0
3.00E+6	1.05E−1	1.33E−2	1.62E−3	7.08E−4	3.83E−3	5.50E−4	2.48E−4	4.04E−6	4.09E−6	1.288E+0
4.00E+6	7.34E−2	9.28E−3	1.14E−3	4.95E−4	2.68E−3	3.87E−4	1.73E−4	2.72E−6*	2.83E−6*	1.218E+0
5.00E+6	5.62E−2	7.09E−3*	8.8E−4	3.79E−4	2.05E−3	2.99E−4	1.33E−4		2.16E−6*	1.175E+0
6.00E+6	4.53E−2*	5.72E−3*		3.07E−4	1.65E−3	2.43E−4*	1.07E−4		1.74E−6*	1.147E+0
8.00E+6	3.26E−2*	4.1E−3			1.19E−3					1.111E+0

$Z= 66$

T_e (eV)	σ_{RR} (b)									$f_{1s_{1/2}}$
	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 6.744$ fm

$|\epsilon_n|$ (eV)	6.316E+4	1.604E+4	1.605E+4	1.504E+4	7.016E+3	7.016E+3	6.717E+3	6.717E+3	6.628E+3	
1.00E+0	4.77E+6	7.34E+5	8.35E+5	6.93E+5	2.41E+5	2.84E+5	2.64E+5	1.95E+5	1.82E+5	2.562E−4
1.50E+0	3.18E+6	4.90E+5	5.57E+5	4.62E+5	1.61E+5	1.89E+5	1.76E+5	1.30E+5	1.21E+5	3.843E−4
2.00E+0	2.39E+6	3.67E+5	4.17E+5	3.46E+5	1.21E+5	1.42E+5	1.32E+5	9.74E+4	9.09E+4	5.124E−4
3.00E+0	1.59E+6	2.45E+5	2.78E+5	2.31E+5	8.03E+4	9.45E+4	8.79E+4	6.49E+4	6.06E+4	7.686E−4
4.00E+0	1.19E+6	1.84E+5	2.09E+5	1.73E+5	6.02E+4	7.09E+4	6.59E+4	4.87E+4	4.54E+4	1.025E−3
5.00E+0	9.55E+5	1.47E+5	1.67E+5	1.39E+5	4.82E+4	5.67E+4	5.27E+4	3.89E+4	3.63E+4	1.281E−3
6.00E+0	7.96E+5	1.22E+5	1.39E+5	1.15E+5	4.02E+4	4.73E+4	4.39E+4	3.24E+4	3.03E+4	1.537E−3
8.00E+0	5.97E+5	9.18E+4	1.04E+5	8.66E+4	3.01E+4	3.54E+4	3.30E+4	2.43E+4	2.27E+4	2.049E−3
1.00E+1	4.77E+5	7.34E+4	8.34E+4	6.93E+4	2.41E+4	2.83E+4	2.64E+4	1.95E+4	1.81E+4	2.561E−3
1.50E+1	3.18E+5	4.90E+4	5.56E+4	4.62E+4	1.61E+4	1.89E+4	1.76E+4	1.30E+4	1.21E+4	3.841E−3
2.00E+1	2.39E+5	3.67E+4	4.17E+4	3.46E+4	1.21E+4	1.42E+4	1.32E+4	9.70E+3	9.05E+3	5.121E−3
3.00E+1	1.59E+5	2.45E+4	2.78E+4	2.31E+4	8.03E+3	9.44E+3	8.77E+3	6.46E+3	6.02E+3	7.679E−3
4.00E+1	1.19E+5	1.84E+4	2.08E+4	1.73E+4	6.03E+3	7.08E+3	6.58E+3	4.83E+3	4.51E+3	1.024E−2
5.00E+1	9.54E+4	1.47E+4	1.67E+4	1.38E+4	4.82E+3	5.66E+3	5.26E+3	3.86E+3	3.60E+3	1.279E−2
6.00E+1	7.95E+4	1.22E+4	1.39E+4	1.15E+4	4.02E+3	4.71E+3	4.38E+3	3.21E+3	2.99E+3	1.534E−2
8.00E+1	5.96E+4	9.18E+3	1.04E+4	8.62E+3	3.01E+3	3.53E+3	3.28E+3	2.40E+3	2.23E+3	2.045E−2
1.00E+2	4.77E+4	7.34E+3	8.30E+3	6.88E+3	2.41E+3	2.82E+3	2.62E+3	1.91E+3	1.78E+3	2.554E−2
1.50E+2	3.18E+4	4.89E+3	5.52E+3	4.57E+3	1.61E+3	1.88E+3	1.74E+3	1.26E+3	1.17E+3	3.825E−2
2.00E+2	2.38E+4	3.67E+3	4.13E+3	3.42E+3	1.21E+3	1.41E+3	1.30E+3	9.36E+2	8.72E+2	5.093E−2
3.00E+2	1.59E+4	2.45E+3	2.74E+3	2.26E+3	8.04E+2	9.34E+2	8.63E+2	6.12E+2	5.69E+2	7.616E−2
4.00E+2	1.19E+4	1.83E+3	2.04E+3	1.69E+3	6.03E+2	6.97E+2	6.43E+2	4.50E+2	4.18E+2	1.012E−1
5.00E+2	9.50E+3	1.47E+3	1.63E+3	1.34E+3	4.83E+2	5.56E+2	5.11E+2	3.53E+2	3.28E+2	1.262E−1
6.00E+2	7.91E+3	1.22E+3	1.35E+3	1.11E+3	4.02E+2	4.61E+2	4.23E+2	2.89E+2	2.68E+2	1.509E−1
8.00E+2	5.92E+3	9.15E+2	9.99E+2	8.22E+2	3.02E+2	3.43E+2	3.14E+2	2.09E+2	1.93E+2	2.000E−1
1.00E+3	4.72E+3	7.32E+2	7.91E+2	6.49E+2	2.41E+2	2.72E+2	2.48E+2	1.61E+2	1.49E+2	2.485E−1
1.50E+3	3.13E+3	4.87E+2	5.14E+2	4.19E+2	1.61E+2	1.77E+2	1.60E+2	9.80E+1	9.03E+1	3.672E−1
2.00E+3	2.34E+3	3.64E+2	3.75E+2	3.05E+2	1.20E+2	1.30E+2	1.17E+2	6.75E+1	6.20E+1	4.824E−1
3.00E+3	1.54E+3	2.41E+2	2.38E+2	1.91E+2	7.97E+1	8.29E+1	7.31E+1	3.83E+1	3.49E+1	7.026E−1
4.00E+3	1.15E+3	1.80E+2	1.70E+2	1.35E+2	5.93E+1	5.95E+1	5.17E+1	2.47E+1	2.24E+1	9.099E−1
5.00E+3	9.06E+2	1.43E+2	1.30E+2	1.02E+2	4.70E+1	4.55E+1	3.91E+1	1.72E+1	1.55E+1	1.105E+0
6.00E+3	7.48E+2	1.18E+2	1.03E+2	8.07E+1	3.88E+1	3.63E+1	3.08E+1	1.26E+1	1.13E+1	1.290E+0
8.00E+3	5.50E+2	8.70E+1	7.12E+1	5.46E+1	2.85E+1	2.50E+1	2.08E+1	7.42E+0	6.60E+0	1.627E+0
1.00E+4	4.31E+2	6.84E+1	5.25E+1	3.97E+1	2.23E+1	1.85E+1	1.51E+1	4.79E+0	4.22E+0	1.928E+0
1.50E+4	2.74E+2	4.35E+1	2.91E+1	2.13E+1	1.40E+1	1.02E+1	8.01E+0	2.02E+0	1.74E+0	2.546E+0
2.00E+4	1.96E+2	3.10E+1	1.85E+1	1.32E+1	9.87E+0	6.50E+0	4.93E+0	1.04E+0	8.81E−1	3.014E+0
3.00E+4	1.20E+2	1.88E+1	9.37E+0	6.36E+0	5.87E+0	3.26E+0	2.36E+0	3.77E−1	3.12E−1	3.637E+0
4.00E+4	8.26E+1	1.28E+1	5.57E+0	3.65E+0	3.97E+0	1.93E+0	1.34E+0	1.76E−1	1.43E−1	3.992E+0
5.00E+4	6.12E+1	9.39E+0	3.66E+0	2.32E+0	2.88E+0	1.26E+0	8.48E−1	9.54E−2	7.61E−2	4.186E+0
6.00E+4	4.74E+1	7.21E+0	2.56E+0	1.58E+0	2.20E+0	8.84E−1	5.75E−1	5.73E−2	4.49E−2	4.280E+0
8.00E+4	3.12E+1	4.65E+0	1.44E+0	8.45E−1	1.41E+0	4.93E−1	3.06E−1	2.52E−2	1.93E−2	4.302E+0
1.00E+5	2.22E+1	3.26E+0	9.06E−1	5.13E−1	9.80E−1	3.10E−1	1.85E−1	1.32E−2	9.89E−3	4.215E+0
1.50E+5	1.15E+1	1.65E+0	3.84E−1	2.02E−1	4.92E−1	1.31E−1	7.23E−2	4.06E−3	2.94E−3	3.869E+0
2.00E+5	7.12E+0	1.00E+0	2.08E−1	1.04E−1	2.96E−1	7.07E−2	3.70E−2	1.78E−3	1.26E−3	3.529E+0
3.00E+5	3.55E+0	4.86E−1	8.80E−2	4.11E−2	1.43E−1	2.99E−2	1.46E−2	5.71E−4	4.03E−4	3.007E+0
4.00E+5	2.17E+0	2.91E−1	4.86E−2	2.19E−2	8.53E−2	1.65E−2	7.74E−3	2.64E−4	1.89E−4	2.652E+0
5.00E+5	1.49E+0	1.98E−1	3.12E−2	1.38E−2	5.77E−2	1.06E−2	4.85E−3	1.49E−4	1.09E−4	2.399E+0
6.00E+5	1.10E+0	1.45E−1	2.20E−2	9.57E−3	4.23E−2	7.45E−3	3.37E−3	9.56E−5	7.18E−5	2.213E+0
8.00E+5	6.99E−1	9.10E−2	1.30E−2	5.60E−3	2.64E−2	4.40E−3	1.97E−3	4.93E−5	3.89E−5	1.956E+0
1.00E+6	4.99E−1	6.44E−2	8.85E−3	3.80E−3	1.87E−2	3.00E−3	1.34E−3	3.06E−5	2.53E−5	1.789E+0
1.50E+6	2.79E−1	3.57E−2	4.67E−3	2.00E−3	1.03E−2	1.58E−3	7.03E−4	1.40E−5	1.26E−5	1.548E+0
2.00E+6	1.89E−1	2.40E−2	3.09E−3	1.32E−3	6.95E−3	1.05E−3	4.64E−4	8.56E−6	8.08E−6	1.420E+0
3.00E+6	1.12E−1	1.42E−2	1.81E−3	7.72E−4	4.10E−3	6.14E−4	2.70E−4	4.61E−6	4.60E−6	1.286E+0
4.00E+6	7.83E−2	9.91E−3	1.28E−3	5.40E−4	2.86E−3	4.33E−4	1.89E−4	3.10E−6*	3.18E−6	1.217E+0
5.00E+6	5.99E−2	7.57E−3*		4.13E−4*	2.19E−3	3.34E−4	1.45E−4		2.42E−6*	1.175E+0
6.00E+6	4.84E−2	6.11E−3*		3.34E−4*	1.76E−3	2.7E−4	1.17E−4		1.95E−6*	1.146E+0
8.00E+6	3.5E−2	4.39E−3*		2.41E−4*	1.27E−3					1.110E+0

TABLE. Cross Sections for Radiative Recombination, $Z=1–112$

See page 9 for Explanation of Tables

$Z= 67$

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 6.655$ fm

$|\epsilon_n|$ (eV)	6.523E+4	1.658E+4	1.658E+4	1.550E+4	7.245E+3	7.246E+3	6.926E+3	6.926E+3	6.832E+3	
1.00E+0	4.91E+6	7.57E+5	8.66E+5	7.15E+5	2.48E+5	2.93E+5	2.72E+5	2.01E+5	1.88E+5	2.402E−4
1.50E+0	3.27E+6	5.05E+5	5.77E+5	4.77E+5	1.65E+5	1.95E+5	1.81E+5	1.34E+5	1.25E+5	3.603E−4
2.00E+0	2.46E+6	3.78E+5	4.33E+5	3.57E+5	1.24E+5	1.47E+5	1.36E+5	1.01E+5	9.37E+4	4.804E−4
3.00E+0	1.64E+6	2.52E+5	2.89E+5	2.38E+5	8.27E+4	9.77E+4	9.07E+4	6.71E+4	6.25E+4	7.206E−4
4.00E+0	1.23E+6	1.89E+5	2.17E+5	1.79E+5	6.20E+4	7.33E+4	6.80E+4	5.03E+4	4.68E+4	9.607E−4
5.00E+0	9.82E+5	1.51E+5	1.73E+5	1.43E+5	4.96E+4	5.86E+4	5.44E+4	4.03E+4	3.75E+4	1.201E−3
6.00E+0	8.19E+5	1.26E+5	1.44E+5	1.19E+5	4.13E+4	4.88E+4	4.53E+4	3.35E+4	3.12E+4	1.441E−3
8.00E+0	6.14E+5	9.46E+4	1.08E+5	8.93E+4	3.10E+4	3.66E+4	3.40E+4	2.51E+4	2.34E+4	1.921E−3
1.00E+1	4.91E+5	7.57E+4	8.66E+4	7.14E+4	2.48E+4	2.93E+4	2.72E+4	2.01E+4	1.87E+4	2.401E−3
1.50E+1	3.27E+5	5.05E+4	5.77E+4	4.76E+4	1.65E+4	1.95E+4	1.81E+4	1.34E+4	1.25E+4	3.602E−3
2.00E+1	2.46E+5	3.78E+4	4.33E+4	3.57E+4	1.24E+4	1.46E+4	1.36E+4	1.00E+4	9.34E+3	4.801E−3
3.00E+1	1.64E+5	2.52E+4	2.88E+4	2.38E+4	8.27E+3	9.76E+3	9.05E+3	6.68E+3	6.21E+3	7.200E−3
4.00E+1	1.23E+5	1.89E+4	2.16E+4	1.78E+4	6.20E+3	7.32E+3	6.79E+3	5.00E+3	4.65E+3	9.597E−3
5.00E+1	9.82E+4	1.51E+4	1.73E+4	1.43E+4	4.96E+3	5.85E+3	5.43E+3	3.99E+3	3.71E+3	1.199E−2
6.00E+1	8.18E+4	1.26E+4	1.44E+4	1.19E+4	4.14E+3	4.87E+3	4.52E+3	3.32E+3	3.09E+3	1.439E−2
8.00E+1	6.13E+4	9.46E+3	1.08E+4	8.89E+3	3.10E+3	3.65E+3	3.38E+3	2.48E+3	2.31E+3	1.917E−2
1.00E+2	4.91E+4	7.57E+3	8.62E+3	7.10E+3	2.48E+3	2.92E+3	2.70E+3	1.98E+3	1.84E+3	2.395E−2
1.50E+2	3.27E+4	5.04E+3	5.73E+3	4.72E+3	1.65E+3	1.94E+3	1.80E+3	1.30E+3	1.21E+3	3.587E−2
2.00E+2	2.45E+4	3.78E+3	4.29E+3	3.53E+3	1.24E+3	1.45E+3	1.34E+3	9.69E+2	9.00E+2	4.776E−2
3.00E+2	1.63E+4	2.52E+3	2.84E+3	2.34E+3	8.28E+2	9.66E+2	8.91E+2	6.34E+2	5.88E+2	7.143E−2
4.00E+2	1.22E+4	1.89E+3	2.12E+3	1.74E+3	6.21E+2	7.21E+2	6.64E+2	4.66E+2	4.33E+2	9.495E−2
5.00E+2	9.77E+3	1.51E+3	1.69E+3	1.38E+3	4.97E+2	5.75E+2	5.28E+2	3.66E+2	3.39E+2	1.183E−1
6.00E+2	8.14E+3	1.26E+3	1.40E+3	1.15E+3	4.14E+2	4.77E+2	4.37E+2	3.00E+2	2.77E+2	1.416E−1
8.00E+2	6.09E+3	9.43E+2	1.04E+3	8.49E+2	3.10E+2	3.55E+2	3.24E+2	2.17E+2	2.00E+2	1.877E−1
1.00E+3	4.86E+3	7.54E+2	8.22E+2	6.71E+2	2.48E+2	2.82E+2	2.56E+2	1.67E+2	1.54E+2	2.332E−1
1.50E+3	3.23E+3	5.01E+2	5.35E+2	4.33E+2	1.65E+2	1.84E+2	1.66E+2	1.02E+2	9.40E+1	3.448E−1
2.00E+3	2.41E+3	3.75E+2	3.91E+2	3.15E+2	1.24E+2	1.35E+2	1.21E+2	7.05E+1	6.46E+1	4.531E−1
3.00E+3	1.59E+3	2.49E+2	2.48E+2	1.98E+2	8.21E+1	8.62E+1	7.58E+1	4.02E+1	3.66E+1	6.606E−1
4.00E+3	1.18E+3	1.85E+2	1.78E+2	1.41E+2	6.11E+1	6.20E+1	5.37E+1	2.60E+1	2.36E+1	8.564E−1
5.00E+3	9.34E+2	1.47E+2	1.36E+2	1.06E+2	4.85E+1	4.75E+1	4.07E+1	1.82E+1	1.64E+1	1.041E+0
6.00E+3	7.71E+2	1.22E+2	1.09E+2	8.41E+1	4.00E+1	3.80E+1	3.21E+1	1.33E+1	1.19E+1	1.216E+0
8.00E+3	5.67E+2	8.99E+1	7.48E+1	5.71E+1	2.94E+1	2.62E+1	2.17E+1	7.91E+0	7.01E+0	1.537E+0
1.00E+4	4.45E+2	7.07E+1	5.53E+1	4.16E+1	2.30E+1	1.94E+1	1.58E+1	5.12E+0	4.50E+0	1.824E+0
1.50E+4	2.83E+2	4.50E+1	3.08E+1	2.24E+1	1.45E+1	1.08E+1	8.43E+0	2.17E+0	1.87E+0	2.417E+0
2.00E+4	2.03E+2	3.22E+1	1.97E+1	1.39E+1	1.03E+1	6.90E+0	5.21E+0	1.12E+0	9.52E−1	2.869E+0
3.00E+4	1.24E+2	1.95E+1	1.00E+1	6.76E+0	6.12E+0	3.49E+0	2.50E+0	4.12E−1	3.40E−1	3.480E+0
4.00E+4	8.59E+1	1.34E+1	5.99E+0	3.89E+0	4.14E+0	2.08E+0	1.43E+0	1.93E−1	1.56E−1	3.836E+0
5.00E+4	6.38E+1	9.81E+0	3.95E+0	2.48E+0	3.02E+0	1.36E+0	9.07E−1	1.05E−1	8.36E−2	4.037E+0
6.00E+4	4.95E+1	7.54E+0	2.77E+0	1.69E+0	2.30E+0	9.55E−1	6.17E−1	6.33E−2	4.95E−2	4.140E+0
8.00E+4	3.26E+1	4.89E+0	1.56E+0	9.10E−1	1.48E+0	5.36E−1	3.29E−1	2.80E−2	2.13E−2	4.180E+0
1.00E+5	2.32E+1	3.43E+0	9.87E−1	5.53E−1	1.03E+0	3.38E−1	1.99E−1	1.47E−2	1.10E−2	4.110E+0
1.50E+5	1.22E+1	1.75E+0	4.21E−1	2.19E−1	5.20E−1	1.44E−1	7.84E−2	4.55E−3	3.28E−3	3.795E+0
2.00E+5	7.52E+0	1.06E+0	2.29E−1	1.13E−1	3.14E−1	7.77E−2	4.02E−2	1.99E−3	1.41E−3	3.474E+0
3.00E+5	3.76E+0	5.16E−1	9.72E−2	4.48E−2	1.52E−1	3.30E−2	1.59E−2	6.43E−4	4.52E−4	2.973E+0
4.00E+5	2.30E+0	3.11E−1	5.39E−2	2.39E−2	9.09E−2	1.83E−2	8.46E−3	2.98E−4	2.12E−4	2.628E+0
5.00E+5	1.58E+0	2.11E−1	3.46E−2	1.50E−2	6.16E−2	1.17E−2	5.30E−3	1.69E−4	1.23E−4	2.382E+0
6.00E+5	1.18E+0	1.55E−1	2.44E−2	1.05E−2	4.52E−2	8.26E−3	3.69E−3	1.08E−4	8.06E−5	2.199E+0
8.00E+5	7.47E−1	9.73E−2	1.45E−2	6.12E−3	2.83E−2	4.89E−3	2.15E−3	5.58E−5	4.37E−5	1.947E+0
1.00E+6	5.33E−1	6.89E−2	9.86E−3	4.16E−3	2.00E−2	3.33E−3	1.46E−3	3.47E−5	2.84E−5	1.782E+0
1.50E+6	2.98E−1	3.82E−2	5.20E−3	2.19E−3	1.10E−2	1.76E−3	7.67E−4	1.59E−5	1.41E−5	1.544E+0
2.00E+6	2.02E−1	2.57E−2	3.45E−3	1.45E−3	7.43E−3	1.17E−3	5.06E−4	9.72E−6	9.06E−6	1.417E+0
3.00E+6	1.19E−1	1.51E−2	2.03E−3	8.41E−4	4.37E−3	6.85E−4	2.95E−4	5.24E−6	5.15E−6	1.284E+0
4.00E+6	8.35E−2	1.06E−2	1.43E−3	5.88E−4	3.05E−3	4.82E−4	2.06E−4	3.5E−6	3.56E−6*	1.216E+0
5.00E+6	6.38E−2*	8.08E−3	1.10E−3	4.50E−4	2.33E−3	3.72E−4*	1.58E−4		2.71E−6*	1.174E+0
6.00E+6	5.15E−2*	6.51E−3*		3.64E−4*	1.88E−3	3.03E−4*	1.27E−4*		2.19E−6*	1.145E+0
8.00E+6	3.7E−2	4.68E−3*			1.35E−3					1.110E+0
1.00E+7					1.06E−3*					

$Z= 68$

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 6.778$ fm

$|\epsilon_n|$ (eV)	6.734E+4	1.712E+4	1.713E+4	1.598E+4	7.479E+3	7.480E+3	7.139E+3	7.139E+3	7.039E+3	
1.00E+0	5.05E+6	7.79E+5	8.98E+5	7.37E+5	2.55E+5	3.03E+5	2.81E+5	2.08E+5	1.93E+5	2.254E−4
1.50E+0	3.37E+6	5.20E+5	5.99E+5	4.91E+5	1.70E+5	2.02E+5	1.87E+5	1.39E+5	1.29E+5	3.381E−4
2.00E+0	2.53E+6	3.90E+5	4.49E+5	3.69E+5	1.28E+5	1.51E+5	1.40E+5	1.04E+5	9.66E+4	4.508E−4
3.00E+0	1.68E+6	2.60E+5	2.99E+5	2.46E+5	8.51E+4	1.01E+5	9.35E+4	6.93E+4	6.44E+4	6.761E−4
4.00E+0	1.26E+6	1.95E+5	2.25E+5	1.84E+5	6.38E+4	7.57E+4	7.01E+4	5.20E+4	4.83E+4	9.015E−4
5.00E+0	1.01E+6	1.56E+5	1.80E+5	1.47E+5	5.10E+4	6.06E+4	5.61E+4	4.16E+4	3.86E+4	1.127E−3
6.00E+0	8.42E+5	1.30E+5	1.50E+5	1.23E+5	4.25E+4	5.05E+4	4.68E+4	3.47E+4	3.22E+4	1.352E−3
8.00E+0	6.31E+5	9.74E+4	1.12E+5	9.21E+4	3.19E+4	3.78E+4	3.51E+4	2.60E+4	2.41E+4	1.803E−3
1.00E+1	5.05E+5	7.79E+4	8.98E+4	7.37E+4	2.55E+4	3.03E+4	2.80E+4	2.08E+4	1.93E+4	2.253E−3
1.50E+1	3.37E+5	5.20E+4	5.99E+4	4.91E+4	1.70E+4	2.02E+4	1.87E+4	1.38E+4	1.29E+4	3.380E−3
2.00E+1	2.53E+5	3.90E+4	4.49E+4	3.68E+4	1.28E+4	1.51E+4	1.40E+4	1.04E+4	9.63E+3	4.505E−3
3.00E+1	1.68E+5	2.60E+4	2.99E+4	2.45E+4	8.51E+3	1.01E+4	9.34E+3	6.90E+3	6.41E+3	6.756E−3
4.00E+1	1.26E+5	1.95E+4	2.24E+4	1.84E+4	6.38E+3	7.56E+3	7.00E+3	5.16E+3	4.80E+3	9.006E−3
5.00E+1	1.01E+5	1.56E+4	1.79E+4	1.47E+4	5.10E+3	6.05E+3	5.60E+3	4.12E+3	3.83E+3	1.125E−2
6.00E+1	8.41E+4	1.30E+4	1.49E+4	1.22E+4	4.25E+3	5.04E+3	4.66E+3	3.43E+3	3.18E+3	1.350E−2
8.00E+1	6.31E+4	9.74E+3	1.12E+4	9.17E+3	3.19E+3	3.77E+3	3.49E+3	2.56E+3	2.38E+3	1.799E−2
1.00E+2	5.05E+4	7.79E+3	8.94E+3	7.33E+3	2.55E+3	3.02E+3	2.79E+3	2.04E+3	1.90E+3	2.248E−2
1.50E+2	3.36E+4	5.19E+3	5.94E+3	4.87E+3	1.70E+3	2.01E+3	1.85E+3	1.35E+3	1.25E+3	3.366E−2
2.00E+2	2.52E+4	3.89E+3	4.45E+3	3.64E+3	1.28E+3	1.50E+3	1.39E+3	1.00E+3	9.29E+2	4.482E−2
3.00E+2	1.68E+4	2.60E+3	2.95E+3	2.41E+3	8.51E+2	9.98E+2	9.19E+2	6.56E+2	6.08E+2	6.704E−2
4.00E+2	1.26E+4	1.95E+3	2.20E+3	1.80E+3	6.39E+2	7.46E+2	6.85E+2	4.83E+2	4.47E+2	8.913E−2
5.00E+2	1.01E+4	1.56E+3	1.75E+3	1.43E+3	5.11E+2	5.94E+2	5.45E+2	3.80E+2	3.51E+2	1.111E−1
6.00E+2	8.37E+3	1.30E+3	1.45E+3	1.18E+3	4.26E+2	4.93E+2	4.52E+2	3.11E+2	2.87E+2	1.329E−1
8.00E+2	6.26E+3	9.72E+2	1.08E+3	8.77E+2	3.19E+2	3.67E+2	3.35E+2	2.25E+2	2.08E+2	1.762E−1
1.00E+3	5.00E+3	7.77E+2	8.55E+2	6.93E+2	2.56E+2	2.91E+2	2.65E+2	1.74E+2	1.60E+2	2.191E−1
1.50E+3	3.32E+3	5.17E+2	5.56E+2	4.48E+2	1.70E+2	1.91E+2	1.71E+2	1.06E+2	9.77E+1	3.240E−1
2.00E+3	2.48E+3	3.87E+2	4.07E+2	3.26E+2	1.28E+2	1.40E+2	1.25E+2	7.36E+1	6.73E+1	4.260E−1
3.00E+3	1.64E+3	2.56E+2	2.59E+2	2.06E+2	8.46E+1	8.96E+1	7.86E+1	4.21E+1	3.83E+1	6.216E−1
4.00E+3	1.21E+3	1.91E+2	1.86E+2	1.46E+2	6.30E+1	6.45E+1	5.58E+1	2.74E+1	2.47E+1	8.065E−1
5.00E+3	9.62E+2	1.52E+2	1.42E+2	1.11E+2	5.00E+1	4.95E+1	4.23E+1	1.92E+1	1.72E+1	9.814E−1
6.00E+3	7.94E+2	1.26E+2	1.14E+2	8.76E+1	4.13E+1	3.97E+1	3.34E+1	1.41E+1	1.26E+1	1.147E+0
8.00E+3	5.85E+2	9.28E+1	7.86E+1	5.96E+1	3.04E+1	2.75E+1	2.27E+1	8.41E+0	7.44E+0	1.452E+0
1.00E+4	4.59E+2	7.30E+1	5.82E+1	4.35E+1	2.38E+1	2.04E+1	1.65E+1	5.47E+0	4.79E+0	1.726E+0
1.50E+4	2.92E+2	4.66E+1	3.26E+1	2.35E+1	1.50E+1	1.14E+1	8.87E+0	2.34E+0	2.01E+0	2.295E+0
2.00E+4	2.10E+2	3.34E+1	2.10E+1	1.47E+1	1.06E+1	7.31E+0	5.50E+0	1.21E+0	1.03E+0	2.732E+0
3.00E+4	1.29E+2	2.03E+1	1.07E+1	7.16E+0	6.36E+0	3.72E+0	2.66E+0	4.49E−1	3.70E−1	3.331E+0
4.00E+4	8.93E+1	1.39E+1	6.43E+0	4.14E+0	4.32E+0	2.23E+0	1.52E+0	2.12E−1	1.71E−1	3.687E+0
5.00E+4	6.63E+1	1.03E+1	4.25E+0	2.65E+0	3.15E+0	1.47E+0	9.69E−1	1.16E−1	9.16E−2	3.893E+0
6.00E+4	5.16E+1	7.89E+0	3.00E+0	1.81E+0	2.41E+0	1.03E+0	6.61E−1	6.99E−2	5.44E−2	4.004E+0
8.00E+4	3.41E+1	5.12E+0	1.70E+0	9.77E−1	1.55E+0	5.81E−1	3.54E−1	3.10E−2	2.35E−2	4.061E+0
1.00E+5	2.43E+1	3.61E+0	1.08E+0	5.96E−1	1.09E+0	3.67E−1	2.15E−1	1.64E−2	1.22E−2	4.007E+0
1.50E+5	1.28E+1	1.84E+0	4.61E−1	2.37E−1	5.49E−1	1.57E−1	8.49E−2	5.08E−3	3.65E−3	3.722E+0
2.00E+5	7.93E+0	1.12E+0	2.51E−1	1.22E−1	3.32E−1	8.53E−2	4.36E−2	2.24E−3	1.58E−3	3.420E+0
3.00E+5	3.99E+0	5.48E−1	1.07E−1	4.88E−2	1.61E−1	3.64E−2	1.73E−2	7.24E−4	5.06E−4	2.939E+0
4.00E+5	2.45E+0	3.31E−1	5.96E−2	2.61E−2	9.67E−2	2.02E−2	9.22E−3	3.36E−4	2.38E−4	2.604E+0
5.00E+5	1.69E+0	2.25E−1	3.84E−2	1.64E−2	6.56E−2	1.30E−2	5.78E−3	1.91E−4	1.38E−4	2.364E+0
6.00E+5	1.25E+0	1.66E−1	2.71E−2	1.14E−2	4.82E−2	9.16E−3	4.02E−3	1.22E−4	9.04E−5	2.185E+0
8.00E+5	7.96E−1	1.04E−1	1.61E−2	6.68E−3	3.02E−2	5.42E−3	2.35E−3	6.31E−5	4.90E−5	1.938E+0
1.00E+6	5.69E−1	7.36E−2	1.10E−2	4.53E−3	2.13E−2	3.70E−3	1.59E−3	3.93E−5	3.18E−5	1.775E+0
1.50E+6	3.18E−1	4.08E−2	5.80E−3	2.39E−3	1.18E−2	1.96E−3	8.36E−4	1.80E−5	1.58E−5	1.540E+0
2.00E+6	2.15E−1	2.74E−2	3.84E−3	1.57E−3	7.92E−3	1.30E−3	5.51E−4	1.10E−5	1.01E−5	1.414E+0
3.00E+6	1.27E−1	1.62E−2	2.26E−3	9.15E−4	4.66E−3	7.62E−4	3.21E−4	5.94E−6	5.77E−6	1.282E+0
4.00E+6	8.89E−2*	1.13E−2	1.59E−3	6.39E−4	3.25E−3	5.37E−4	2.24E−4	4.0E−6	3.98E−6*	1.214E+0
5.00E+6	6.80E−2*	8.61E−3	1.23E−3	4.89E−4	2.48E−3	4.14E−4*	1.71E−4		3.03E−6*	1.173E+0
6.00E+6	5.48E−2*	6.94E−3		3.95E−4*	2.00E−3	3.4E−4	1.38E−4		2.44E−6*	1.145E+0
8.00E+6	3.94E−2*	4.98E−3*			1.44E−3		1.0E−4			1.109E+0

$Z= 69$

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 6.703$ fm

$|\epsilon_n|$ (eV)	6.949E+4	1.768E+4	1.768E+4	1.646E+4	7.718E+3	7.719E+3	7.355E+3	7.355E+3	7.249E+3	
1.00E+0	5.19E+6	8.02E+5	9.32E+5	7.60E+5	2.62E+5	3.13E+5	2.89E+5	2.15E+5	1.99E+5	2.117E−4
1.50E+0	3.46E+6	5.35E+5	6.21E+5	5.07E+5	1.75E+5	2.08E+5	1.93E+5	1.43E+5	1.33E+5	3.175E−4
2.00E+0	2.60E+6	4.01E+5	4.66E+5	3.80E+5	1.31E+5	1.56E+5	1.45E+5	1.08E+5	9.96E+4	4.233E−4
3.00E+0	1.73E+6	2.67E+5	3.11E+5	2.53E+5	8.75E+4	1.04E+5	9.64E+4	7.16E+4	6.64E+4	6.350E−4
4.00E+0	1.30E+6	2.01E+5	2.33E+5	1.90E+5	6.56E+4	7.82E+4	7.23E+4	5.37E+4	4.98E+4	8.466E−4
5.00E+0	1.04E+6	1.60E+5	1.86E+5	1.52E+5	5.25E+4	6.25E+4	5.78E+4	4.30E+4	3.98E+4	1.058E−3
6.00E+0	8.65E+5	1.34E+5	1.55E+5	1.27E+5	4.37E+4	5.21E+4	4.82E+4	3.58E+4	3.32E+4	1.270E−3
8.00E+0	6.49E+5	1.00E+5	1.16E+5	9.49E+4	3.28E+4	3.91E+4	3.61E+4	2.68E+4	2.49E+4	1.693E−3
1.00E+1	5.19E+5	8.02E+4	9.31E+4	7.59E+4	2.62E+4	3.13E+4	2.89E+4	2.15E+4	1.99E+4	2.116E−3
1.50E+1	3.46E+5	5.35E+4	6.21E+4	5.06E+4	1.75E+4	2.08E+4	1.93E+4	1.43E+4	1.32E+4	3.174E−3
2.00E+1	2.60E+5	4.01E+4	4.65E+4	3.80E+4	1.31E+4	1.56E+4	1.45E+4	1.07E+4	9.92E+3	4.231E−3
3.00E+1	1.73E+5	2.67E+4	3.10E+4	2.53E+4	8.75E+3	1.04E+4	9.63E+3	7.13E+3	6.60E+3	6.345E−3
4.00E+1	1.30E+5	2.01E+4	2.33E+4	1.90E+4	6.56E+3	7.81E+3	7.22E+3	5.34E+3	4.94E+3	8.457E−3
5.00E+1	1.04E+5	1.60E+4	1.86E+4	1.52E+4	5.25E+3	6.24E+3	5.77E+3	4.26E+3	3.95E+3	1.057E−2
6.00E+1	8.65E+4	1.34E+4	1.55E+4	1.26E+4	4.37E+3	5.20E+3	4.80E+3	3.54E+3	3.28E+3	1.268E−2
8.00E+1	6.49E+4	1.00E+4	1.16E+4	9.45E+3	3.28E+3	3.90E+3	3.60E+3	2.65E+3	2.45E+3	1.690E−2
1.00E+2	5.19E+4	8.02E+3	9.27E+3	7.55E+3	2.62E+3	3.12E+3	2.88E+3	2.11E+3	1.96E+3	2.111E−2
1.50E+2	3.46E+4	5.35E+3	6.17E+3	5.02E+3	1.75E+3	2.07E+3	1.91E+3	1.40E+3	1.29E+3	3.162E−2
2.00E+2	2.59E+4	4.01E+3	4.61E+3	3.75E+3	1.31E+3	1.55E+3	1.43E+3	1.04E+3	9.59E+2	4.210E−2
3.00E+2	1.73E+4	2.67E+3	3.06E+3	2.49E+3	8.75E+2	1.03E+3	9.48E+2	6.79E+2	6.27E+2	6.297E−2
4.00E+2	1.29E+4	2.00E+3	2.28E+3	1.85E+3	6.57E+2	7.71E+2	7.07E+2	5.00E+2	4.62E+2	8.373E−2
5.00E+2	1.03E+4	1.60E+3	1.82E+3	1.47E+3	5.25E+2	6.14E+2	5.62E+2	3.93E+2	3.63E+2	1.044E−1
6.00E+2	8.60E+3	1.33E+3	1.51E+3	1.22E+3	4.38E+2	5.10E+2	4.66E+2	3.22E+2	2.97E+2	1.249E−1
8.00E+2	6.44E+3	1.00E+3	1.12E+3	9.05E+2	3.29E+2	3.80E+2	3.46E+2	2.33E+2	2.15E+2	1.656E−1
1.00E+3	5.14E+3	8.00E+2	8.88E+2	7.16E+2	2.63E+2	3.02E+2	2.73E+2	1.80E+2	1.66E+2	2.059E−1
1.50E+3	3.41E+3	5.32E+2	5.78E+2	4.63E+2	1.75E+2	1.97E+2	1.77E+2	1.11E+2	1.01E+2	3.047E−1
2.00E+3	2.55E+3	3.98E+2	4.24E+2	3.38E+2	1.31E+2	1.45E+2	1.29E+2	7.68E+1	7.01E+1	4.008E−1
3.00E+3	1.68E+3	2.64E+2	2.70E+2	2.13E+2	8.71E+1	9.30E+1	8.15E+1	4.41E+1	4.00E+1	5.852E−1
4.00E+3	1.25E+3	1.97E+2	1.94E+2	1.51E+2	6.49E+1	6.71E+1	5.79E+1	2.88E+1	2.59E+1	7.600E−1
5.00E+3	9.91E+2	1.57E+2	1.49E+2	1.15E+2	5.15E+1	5.16E+1	4.40E+1	2.02E+1	1.81E+1	9.255E−1
6.00E+3	8.18E+2	1.30E+2	1.19E+2	9.11E+1	4.26E+1	4.14E+1	3.48E+1	1.49E+1	1.33E+1	1.082E+0
8.00E+3	6.02E+2	9.58E+1	8.25E+1	6.21E+1	3.13E+1	2.88E+1	2.37E+1	8.93E+0	7.88E+0	1.372E+0
1.00E+4	4.73E+2	7.54E+1	6.13E+1	4.54E+1	2.46E+1	2.14E+1	1.73E+1	5.83E+0	5.10E+0	1.633E+0
1.50E+4	3.02E+2	4.82E+1	3.45E+1	2.47E+1	1.55E+1	1.20E+1	9.32E+0	2.51E+0	2.16E+0	2.179E+0
2.00E+4	2.17E+2	3.46E+1	2.22E+1	1.55E+1	1.10E+1	7.75E+0	5.80E+0	1.31E+0	1.11E+0	2.602E+0
3.00E+4	1.33E+2	2.11E+1	1.14E+1	7.59E+0	6.62E+0	3.97E+0	2.82E+0	4.89E−1	4.01E−1	3.189E+0
4.00E+4	9.26E+1	1.45E+1	6.90E+0	4.40E+0	4.50E+0	2.38E+0	1.62E+0	2.32E−1	1.86E−1	3.544E+0
5.00E+4	6.90E+1	1.07E+1	4.58E+0	2.82E+0	3.29E+0	1.58E+0	1.03E+0	1.27E−1	1.00E−1	3.754E+0
6.00E+4	5.37E+1	8.25E+0	3.24E+0	1.94E+0	2.52E+0	1.11E+0	7.07E−1	7.70E−2	5.97E−2	3.872E+0
8.00E+4	3.56E+1	5.37E+0	1.84E+0	1.05E+0	1.63E+0	6.29E−1	3.80E−1	3.43E−2	2.59E−2	3.945E+0
1.00E+5	2.55E+1	3.79E+0	1.17E+0	6.41E−1	1.14E+0	3.99E−1	2.31E−1	1.81E−2	1.34E−2	3.906E+0
1.50E+5	1.34E+1	1.94E+0	5.04E−1	2.56E−1	5.79E−1	1.71E−1	9.18E−2	5.67E−3	4.05E−3	3.649E+0
2.00E+5	8.36E+0	1.19E+0	2.76E−1	1.33E−1	3.51E−1	9.35E−2	4.73E−2	2.50E−3	1.75E−3	3.365E+0
3.00E+5	4.22E+0	5.82E−1	1.18E−1	5.30E−2	1.71E−1	4.00E−2	1.88E−2	8.12E−4	5.64E−4	2.905E+0
4.00E+5	2.60E+0	3.52E−1	6.59E−2	2.84E−2	1.03E−1	2.23E−2	1.00E−2	3.78E−4	2.66E−4	2.581E+0
5.00E+5	1.79E+0	2.40E−1	4.25E−2	1.78E−2	6.98E−2	1.43E−2	6.30E−3	2.15E−4	1.54E−4	2.346E+0
6.00E+5	1.33E+0	1.77E−1	3.00E−2	1.24E−2	5.13E−2	1.01E−2	4.38E−3	1.38E−4	1.01E−4	2.171E+0
8.00E+5	8.48E−1	1.11E−1	1.78E−2	7.27E−3	3.22E−2	6.01E−3	2.56E−3	7.13E−5	5.49E−5	1.928E+0
1.00E+6	6.06E−1	7.86E−2	1.22E−2	4.94E−3	2.28E−2	4.11E−3	1.74E−3	4.44E−5	3.56E−5	1.768E+0
1.50E+6	3.39E−1	4.35E−2	6.45E−3	2.60E−3	1.26E−2	2.17E−3	9.10E−4	2.04E−5	1.77E−5	1.536E+0
2.00E+6	2.29E−1	2.93E−2	4.27E−3	1.71E−3	8.45E−3	1.44E−3	6.00E−4	1.25E−5	1.13E−5	1.411E+0
3.00E+6	1.35E−1	1.72E−2	2.51E−3	9.94E−4	4.96E−3	8.47E−4	3.48E−4	6.73E−6	6.44E−6	1.281E+0
4.00E+6	9.46E−2*	1.20E−2	1.77E−3	6.94E−4	3.46E−3	5.97E−4*	2.43E−4		4.45E−6	1.213E+0
5.00E+6	7.23E−2*	9.16E−3*	1.37E−3	5.31E−4	2.64E−3	4.61E−4*	1.86E−4		3.38E−6*	1.172E+0
6.00E+6	5.83E−2*	7.38E−3*	1.11E−3*	4.29E−4*	2.13E−3	3.8E−4	1.50E−4		2.72E−6*	1.144E+0
8.00E+6	4.19E−2*	5.30E−3*			1.53E−3		1.09E−4			1.108E+0
1.00E+7					1.19E−3					

$Z= 70$

T_e (eV)	σ_{RR} (b)									$f_{1s_{1/2}}$
	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 6.864$ fm

$|\epsilon_n|$ (eV)	7.168E+4	1.825E+4	1.825E+4	1.695E+4	7.961E+3	7.962E+3	7.575E+3	7.575E+3	7.462E+3	
1.00E+0	5.34E+6	8.25E+5	9.66E+5	7.83E+5	2.70E+5	3.23E+5	2.98E+5	2.22E+5	2.05E+5	1.989E−4
1.50E+0	3.56E+6	5.50E+5	6.44E+5	5.22E+5	1.80E+5	2.15E+5	1.99E+5	1.48E+5	1.37E+5	2.984E−4
2.00E+0	2.67E+6	4.13E+5	4.83E+5	3.91E+5	1.35E+5	1.61E+5	1.49E+5	1.11E+5	1.03E+5	3.978E−4
3.00E+0	1.78E+6	2.75E+5	3.22E+5	2.61E+5	8.99E+4	1.08E+5	9.93E+4	7.40E+4	6.84E+4	5.967E−4
4.00E+0	1.33E+6	2.06E+5	2.41E+5	1.96E+5	6.74E+4	8.07E+4	7.45E+4	5.55E+4	5.13E+4	7.956E−4
5.00E+0	1.07E+6	1.65E+5	1.93E+5	1.57E+5	5.39E+4	6.45E+4	5.96E+4	4.44E+4	4.10E+4	9.945E−4
6.00E+0	8.89E+5	1.38E+5	1.61E+5	1.31E+5	4.49E+4	5.38E+4	4.97E+4	3.70E+4	3.42E+4	1.193E−3
8.00E+0	6.67E+5	1.03E+5	1.21E+5	9.78E+4	3.37E+4	4.03E+4	3.72E+4	2.77E+4	2.56E+4	1.591E−3
1.00E+1	5.33E+5	8.25E+4	9.65E+4	7.83E+4	2.70E+4	3.23E+4	2.98E+4	2.22E+4	2.05E+4	1.989E−3
1.50E+1	3.56E+5	5.50E+4	6.43E+4	5.22E+4	1.80E+4	2.15E+4	1.99E+4	1.48E+4	1.37E+4	2.983E−3
2.00E+1	2.67E+5	4.13E+4	4.82E+4	3.91E+4	1.35E+4	1.61E+4	1.49E+4	1.11E+4	1.02E+4	3.976E−3
3.00E+1	1.78E+5	2.75E+4	3.21E+4	2.61E+4	8.99E+3	1.08E+4	9.92E+3	7.36E+3	6.80E+3	5.963E−3
4.00E+1	1.33E+5	2.06E+4	2.41E+4	1.95E+4	6.74E+3	8.06E+3	7.44E+3	5.51E+3	5.09E+3	7.948E−3
5.00E+1	1.07E+5	1.65E+4	1.93E+4	1.56E+4	5.39E+3	6.45E+3	5.95E+3	4.40E+3	4.07E+3	9.933E−3
6.00E+1	8.89E+4	1.38E+4	1.61E+4	1.30E+4	4.50E+3	5.37E+3	4.95E+3	3.66E+3	3.38E+3	1.192E−2
8.00E+1	6.66E+4	1.03E+4	1.20E+4	9.74E+3	3.37E+3	4.02E+3	3.71E+3	2.74E+3	2.53E+3	1.588E−2
1.00E+2	5.33E+4	8.25E+3	9.61E+3	7.78E+3	2.70E+3	3.22E+3	2.96E+3	2.18E+3	2.02E+3	1.984E−2
1.50E+2	3.55E+4	5.50E+3	6.39E+3	5.17E+3	1.80E+3	2.14E+3	1.97E+3	1.44E+3	1.33E+3	2.972E−2
2.00E+2	2.66E+4	4.13E+3	4.78E+3	3.87E+3	1.35E+3	1.60E+3	1.47E+3	1.07E+3	9.89E+2	3.957E−2
3.00E+2	1.77E+4	2.75E+3	3.17E+3	2.56E+3	9.00E+2	1.07E+3	9.77E+2	7.02E+2	6.47E+2	5.920E−2
4.00E+2	1.33E+4	2.06E+3	2.37E+3	1.91E+3	6.75E+2	7.96E+2	7.29E+2	5.18E+2	4.77E+2	7.872E−2
5.00E+2	1.06E+4	1.65E+3	1.89E+3	1.52E+3	5.40E+2	6.35E+2	5.80E+2	4.07E+2	3.75E+2	9.813E−2
6.00E+2	8.84E+3	1.37E+3	1.57E+3	1.26E+3	4.50E+2	5.27E+2	4.81E+2	3.33E+2	3.07E+2	1.174E−1
8.00E+2	6.62E+3	1.03E+3	1.16E+3	9.34E+2	3.38E+2	3.93E+2	3.57E+2	2.42E+2	2.22E+2	1.558E−1
1.00E+3	5.29E+3	8.23E+2	9.22E+2	7.39E+2	2.70E+2	3.12E+2	2.82E+2	1.87E+2	1.72E+2	1.937E−1
1.50E+3	3.51E+3	5.47E+2	6.01E+2	4.79E+2	1.80E+2	2.04E+2	1.83E+2	1.15E+2	1.05E+2	2.867E−1
2.00E+3	2.62E+3	4.10E+2	4.41E+2	3.49E+2	1.35E+2	1.50E+2	1.34E+2	8.00E+1	7.29E+1	3.773E−1
3.00E+3	1.73E+3	2.72E+2	2.81E+2	2.21E+2	8.96E+1	9.66E+1	8.44E+1	4.61E+1	4.17E+1	5.514E−1
4.00E+3	1.29E+3	2.03E+2	2.02E+2	1.57E+2	6.68E+1	6.97E+1	6.01E+1	3.02E+1	2.72E+1	7.166E−1
5.00E+3	1.02E+3	1.61E+2	1.55E+2	1.19E+2	5.31E+1	5.37E+1	4.57E+1	2.13E+1	1.90E+1	8.734E−1
6.00E+3	8.42E+2	1.34E+2	1.25E+2	9.47E+1	4.39E+1	4.31E+1	3.62E+1	1.57E+1	1.40E+1	1.022E+0
8.00E+3	6.20E+2	9.87E+1	8.65E+1	6.47E+1	3.23E+1	3.01E+1	2.47E+1	9.47E+0	8.34E+0	1.298E+0
1.00E+4	4.88E+2	7.78E+1	6.44E+1	4.74E+1	2.54E+1	2.24E+1	1.80E+1	6.21E+0	5.41E+0	1.547E+0
1.50E+4	3.11E+2	4.98E+1	3.64E+1	2.59E+1	1.61E+1	1.27E+1	9.78E+0	2.70E+0	2.31E+0	2.070E+0
2.00E+4	2.24E+2	3.58E+1	2.36E+1	1.63E+1	1.14E+1	8.20E+0	6.11E+0	1.41E+0	1.19E+0	2.480E+0
3.00E+4	1.38E+2	2.19E+1	1.22E+1	8.02E+0	6.87E+0	4.22E+0	2.98E+0	5.31E−1	4.35E−1	3.053E+0
4.00E+4	9.61E+1	1.51E+1	7.39E+0	4.67E+0	4.68E+0	2.55E+0	1.72E+0	2.53E−1	2.03E−1	3.406E+0
5.00E+4	7.17E+1	1.11E+1	4.92E+0	3.01E+0	3.43E+0	1.69E+0	1.10E+0	1.40E−1	1.10E−1	3.620E+0
6.00E+4	5.59E+1	8.61E+0	3.49E+0	2.07E+0	2.63E+0	1.20E+0	7.56E−1	8.47E−2	6.55E−2	3.744E+0
8.00E+4	3.71E+1	5.62E+0	1.99E+0	1.12E+0	1.70E+0	6.80E−1	4.08E−1	3.79E−2	2.85E−2	3.832E+0
1.00E+5	2.66E+1	3.97E+0	1.27E+0	6.88E−1	1.20E+0	4.33E−1	2.49E−1	2.01E−2	1.48E−2	3.807E+0
1.50E+5	1.41E+1	2.05E+0	5.51E−1	2.76E−1	6.10E−1	1.87E−1	9.91E−2	6.31E−3	4.49E−3	3.577E+0
2.00E+5	8.81E+0	1.25E+0	3.02E−1	1.43E−1	3.71E−1	1.02E−1	5.12E−2	2.79E−3	1.95E−3	3.311E+0
3.00E+5	4.46E+0	6.17E−1	1.30E−1	5.75E−2	1.81E−1	4.40E−2	2.04E−2	9.10E−4	6.29E−4	2.871E+0
4.00E+5	2.75E+0	3.73E−1	7.27E−2	3.08E−2	1.09E−1	2.45E−2	1.09E−2	4.25E−4	2.97E−4	2.557E+0
5.00E+5	1.90E+0	2.55E−1	4.69E−2	1.94E−2	7.43E−2	1.58E−2	6.85E−3	2.41E−4	1.72E−4	2.329E+0
6.00E+5	1.42E+0	1.88E−1	3.32E−2	1.35E−2	5.46E−2	1.12E−2	4.77E−3	1.55E−4	1.13E−4	2.157E+0
8.00E+5	9.03E−1	1.18E−1	1.98E−2	7.91E−3	3.43E−2	6.65E−3	2.78E−3	8.03E−5	6.13E−5	1.918E+0
1.00E+6	6.46E−1	8.38E−2	1.35E−2	5.37E−3	2.43E−2	4.55E−3	1.89E−3	5.00E−5	3.98E−5	1.760E+0
1.50E+6	3.61E−1	4.64E−2	7.16E−3	2.82E−3	1.34E−2	2.41E−3	9.89E−4	2.30E−5	1.97E−5	1.531E+0
2.00E+6	2.44E−1	3.12E−2	4.75E−3	1.86E−3	9.00E−3	1.60E−3	6.51E−4	1.41E−5	1.26E−5	1.408E+0
3.00E+6	1.44E−1	1.83E−2	2.80E−3	1.08E−3	5.28E−3	9.41E−4	3.78E−4	7.61E−6	7.17E−6	1.279E+0
4.00E+6	1.01E−1	1.28E−2	1.97E−3	7.52E−4	3.68E−3	6.64E−4	2.63E−4		4.95E−6*	1.212E+0
5.00E+6	7.68E−2*	9.74E−3*	1.52E−3*	5.75E−4*	2.80E−3	5.12E−4*	2.01E−4		3.77E−6*	1.171E+0
6.00E+6	6.19E−2*	7.85E−3*	1.24E−3*	4.65E−4*	2.26E−3	4.2E−4	1.63E−4		3.04E−6*	1.143E+0
8.00E+6	4.45E−2*	5.6E−3			1.62E−3		1.18E−4*			1.108E+0
1.00E+7					1.26E−3					

TABLE. Cross Sections for Radiative Recombination, $Z=1–112$

See page 9 for Explanation of Tables

$Z= 71$

T_e (eV)	σ_{RR} (b)									$f_{1s_{1/2}}$
	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 6.773$ fm

$\lvert\epsilon_n\rvert$ (eV)	7.391E+4	1.883E+4	1.883E+4	1.744E+4	8.209E+3	8.210E+3	7.798E+3	7.798E+3	7.678E+3	
1.00E+0	5.48E+6	8.49E+5	1.00E+6	8.06E+5	2.77E+5	3.33E+5	3.07E+5	2.29E+5	2.11E+5	1.871E−4
1.50E+0	3.65E+6	5.66E+5	6.67E+5	5.38E+5	1.85E+5	2.22E+5	2.05E+5	1.53E+5	1.41E+5	2.806E−4
2.00E+0	2.74E+6	4.25E+5	5.00E+5	4.03E+5	1.39E+5	1.67E+5	1.54E+5	1.15E+5	1.06E+5	3.741E−4
3.00E+0	1.83E+6	2.83E+5	3.34E+5	2.69E+5	9.23E+4	1.11E+5	1.02E+5	7.63E+4	7.04E+4	5.612E−4
4.00E+0	1.37E+6	2.12E+5	2.50E+5	2.02E+5	6.92E+4	8.33E+4	7.67E+4	5.72E+4	5.28E+4	7.482E−4
5.00E+0	1.10E+6	1.70E+5	2.00E+5	1.61E+5	5.54E+4	6.66E+4	6.14E+4	4.58E+4	4.22E+4	9.352E−4
6.00E+0	9.13E+5	1.42E+5	1.67E+5	1.34E+5	4.62E+4	5.55E+4	5.12E+4	3.81E+4	3.52E+4	1.122E−3
8.00E+0	6.85E+5	1.06E+5	1.25E+5	1.01E+5	3.46E+4	4.16E+4	3.84E+4	2.86E+4	2.64E+4	1.496E−3
1.00E+1	5.48E+5	8.49E+4	1.00E+5	8.06E+4	2.77E+4	3.33E+4	3.07E+4	2.29E+4	2.11E+4	1.870E−3
1.50E+1	3.65E+5	5.66E+4	6.67E+4	5.37E+4	1.85E+4	2.22E+4	2.05E+4	1.52E+4	1.41E+4	2.805E−3
2.00E+1	2.74E+5	4.24E+4	5.00E+4	4.03E+4	1.39E+4	1.66E+4	1.53E+4	1.14E+4	1.05E+4	3.739E−3
3.00E+1	1.83E+5	2.83E+4	3.33E+4	2.68E+4	9.23E+3	1.11E+4	1.02E+4	7.60E+3	7.01E+3	5.608E−3
4.00E+1	1.37E+5	2.12E+4	2.50E+4	2.01E+4	6.93E+3	8.32E+3	7.66E+3	5.69E+3	5.25E+3	7.475E−3
5.00E+1	1.10E+5	1.70E+4	2.00E+4	1.61E+4	5.54E+3	6.65E+3	6.12E+3	4.54E+3	4.19E+3	9.341E−3
6.00E+1	9.13E+4	1.42E+4	1.66E+4	1.34E+4	4.62E+3	5.54E+3	5.10E+3	3.78E+3	3.49E+3	1.121E−2
8.00E+1	6.84E+4	1.06E+4	1.25E+4	1.00E+4	3.46E+3	4.15E+3	3.82E+3	2.83E+3	2.60E+3	1.493E−2
1.00E+2	5.47E+4	8.49E+3	9.96E+3	8.02E+3	2.77E+3	3.32E+3	3.05E+3	2.25E+3	2.08E+3	1.866E−2
1.50E+2	3.65E+4	5.66E+3	6.63E+3	5.33E+3	1.85E+3	2.21E+3	2.03E+3	1.49E+3	1.37E+3	2.795E−2
2.00E+2	2.74E+4	4.24E+3	4.96E+3	3.99E+3	1.39E+3	1.66E+3	1.52E+3	1.11E+3	1.02E+3	3.722E−2
3.00E+2	1.82E+4	2.83E+3	3.29E+3	2.64E+3	9.24E+2	1.10E+3	1.01E+3	7.26E+2	6.68E+2	5.568E−2
4.00E+2	1.37E+4	2.12E+3	2.46E+3	1.97E+3	6.93E+2	8.22E+2	7.51E+2	5.35E+2	4.92E+2	7.405E−2
5.00E+2	1.09E+4	1.70E+3	1.96E+3	1.57E+3	5.55E+2	6.56E+2	5.98E+2	4.21E+2	3.87E+2	9.233E−2
6.00E+2	9.08E+3	1.41E+3	1.62E+3	1.30E+3	4.62E+2	5.44E+2	4.96E+2	3.45E+2	3.17E+2	1.105E−1
8.00E+2	6.80E+3	1.06E+3	1.21E+3	9.63E+2	3.47E+2	4.06E+2	3.68E+2	2.51E+2	2.30E+2	1.466E−1
1.00E+3	5.43E+3	8.46E+2	9.57E+2	7.62E+2	2.78E+2	3.22E+2	2.91E+2	1.94E+2	1.78E+2	1.823E−1
1.50E+3	3.60E+3	5.63E+2	6.24E+2	4.94E+2	1.85E+2	2.11E+2	1.89E+2	1.20E+2	1.09E+2	2.699E−1
2.00E+3	2.69E+3	4.22E+2	4.58E+2	3.61E+2	1.39E+2	1.56E+2	1.38E+2	8.34E+1	7.57E+1	3.554E−1
3.00E+3	1.78E+3	2.80E+2	2.93E+2	2.28E+2	9.21E+1	1.00E+2	8.73E+1	4.83E+1	4.35E+1	5.198E−1
4.00E+3	1.32E+3	2.09E+2	2.11E+2	1.63E+2	6.87E+1	7.25E+1	6.23E+1	3.17E+1	2.84E+1	6.760E−1
5.00E+3	1.05E+3	1.66E+2	1.62E+2	1.24E+2	5.46E+1	5.59E+1	4.74E+1	2.24E+1	2.00E+1	8.246E−1
6.00E+3	8.66E+2	1.38E+2	1.30E+2	9.84E+1	4.52E+1	4.50E+1	3.76E+1	1.66E+1	1.47E+1	9.658E−1
8.00E+3	6.38E+2	1.02E+2	9.07E+1	6.74E+1	3.33E+1	3.14E+1	2.57E+1	1.00E+1	8.81E+0	1.228E+0
1.00E+4	5.02E+2	8.02E+1	6.76E+1	4.95E+1	2.62E+1	2.35E+1	1.88E+1	6.60E+0	5.74E+0	1.466E+0
1.50E+4	3.21E+2	5.14E+1	3.84E+1	2.71E+1	1.66E+1	1.34E+1	1.03E+1	2.89E+0	2.46E+0	1.968E+0
2.00E+4	2.31E+2	3.70E+1	2.50E+1	1.71E+1	1.18E+1	8.66E+0	6.43E+0	1.52E+0	1.28E+0	2.363E+0
3.00E+4	1.43E+2	2.27E+1	1.30E+1	8.48E+0	7.13E+0	4.49E+0	3.15E+0	5.76E−1	4.70E−1	2.923E+0
4.00E+4	9.96E+1	1.57E+1	7.91E+0	4.95E+0	4.87E+0	2.72E+0	1.83E+0	2.76E−1	2.20E−1	3.274E+0
5.00E+4	7.44E+1	1.16E+1	5.28E+0	3.20E+0	3.58E+0	1.81E+0	1.17E+0	1.53E−1	1.20E−1	3.491E+0
6.00E+4	5.81E+1	8.98E+0	3.75E+0	2.21E+0	2.75E+0	1.29E+0	8.06E−1	9.30E−2	7.16E−2	3.620E+0
8.00E+4	3.87E+1	5.88E+0	2.15E+0	1.20E+0	1.78E+0	7.34E−1	4.36E−1	4.18E−2	3.13E−2	3.722E+0
1.00E+5	2.78E+1	4.17E+0	1.38E+0	7.39E−1	1.25E+0	4.69E−1	2.67E−1	2.22E−2	1.63E−2	3.710E+0
1.50E+5	1.48E+1	2.16E+0	6.01E−1	2.98E−1	6.42E−1	2.04E−1	1.07E−1	7.02E−3	4.97E−3	3.506E+0
2.00E+5	9.27E+0	1.32E+0	3.31E−1	1.55E−1	3.91E−1	1.12E−1	5.53E−2	3.11E−3	2.16E−3	3.258E+0
3.00E+5	4.71E+0	6.53E−1	1.43E−1	6.23E−2	1.92E−1	4.83E−2	2.21E−2	1.02E−3	6.99E−4	2.837E+0
4.00E+5	2.91E+0	3.96E−1	8.01E−2	3.34E−2	1.16E−1	2.70E−2	1.18E−2	4.76E−4	3.30E−4	2.533E+0
5.00E+5	2.02E+0	2.71E−1	5.18E−2	2.11E−2	7.89E−2	1.75E−2	7.45E−3	2.71E−4	1.91E−4	2.310E+0
6.00E+5	1.51E+0	2.00E−1	3.67E−2	1.47E−2	5.81E−2	1.24E−2	5.18E−3	1.74E−4	1.26E−4	2.143E+0
8.00E+5	9.61E−1	1.26E−1	2.19E−2	8.60E−3	3.65E−2	7.35E−3	3.03E−3	9.03E−5	6.83E−5	1.909E+0
1.00E+6	6.87E−1	8.93E−2	1.50E−2	5.84E−3	2.58E−2	5.03E−3	2.05E−3	5.63E−5	4.43E−5	1.753E+0
1.50E+6	3.84E−1	4.94E−2	7.94E−3	3.06E−3	1.43E−2	2.67E−3	1.07E−3	2.59E−5	2.20E−5	1.527E+0
2.00E+6	2.60E−1	3.32E−2	5.27E−3	2.02E−3	9.57E−3	1.77E−3	7.06E−4	1.59E−5	1.41E−5	1.405E+0
3.00E+6	1.53E−1	1.95E−2	3.11E−3	1.17E−3	5.61E−3	1.04E−3	4.09E−4	8.59E−6	7.98E−6	1.277E+0
4.00E+6	1.07E−1	1.36E−2	2.19E−3	8.14E−4	3.91E−3	7.36E−4	2.85E−4		5.51E−6*	1.210E+0
5.00E+6	8.16E−2	1.04E−2	1.69E−3	6.23E−4	2.98E−3	5.68E−4*	2.18E−4		4.19E−6*	1.170E+0
6.00E+6	6.57E−2*	8.34E−3*	1.38E−3	5.03E−4*	2.40E−3		1.76E−4		3.4E−6	1.142E+0
8.00E+6	4.72E−2*	6.0E−3			1.72E−3*		1.27E−4			1.107E+0
1.00E+7					1.34E−3*					

TABLE. Cross Sections for Radiative Recombination, $Z=1$–112
See page 9 for Explanation of Tables

Z= 72

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 6.905$ fm

$\|\epsilon_n\|$ (eV)	7.619E+4	1.942E+4	1.942E+4	1.795E+4	8.462E+3	8.463E+3	8.024E+3	8.024E+3	7.898E+3	
1.00E+0	5.62E+6	8.73E+5	1.04E+6	8.30E+5	2.84E+5	3.44E+5	3.16E+5	2.36E+5	2.18E+5	1.760E−4
1.50E+0	3.75E+6	5.82E+5	6.91E+5	5.54E+5	1.90E+5	2.29E+5	2.11E+5	1.58E+5	1.45E+5	2.641E−4
2.00E+0	2.81E+6	4.36E+5	5.18E+5	4.15E+5	1.42E+5	1.72E+5	1.58E+5	1.18E+5	1.09E+5	3.521E−4
3.00E+0	1.88E+6	2.91E+5	3.46E+5	2.77E+5	9.48E+4	1.15E+5	1.05E+5	7.88E+4	7.25E+4	5.281E−4
4.00E+0	1.41E+6	2.18E+5	2.59E+5	2.08E+5	7.11E+4	8.59E+4	7.90E+4	5.91E+4	5.44E+4	7.041E−4
5.00E+0	1.13E+6	1.75E+5	2.07E+5	1.66E+5	5.69E+4	6.87E+4	6.32E+4	4.72E+4	4.35E+4	8.801E−4
6.00E+0	9.37E+5	1.45E+5	1.73E+5	1.38E+5	4.74E+4	5.72E+4	5.27E+4	3.94E+4	3.62E+4	1.056E−3
8.00E+0	7.03E+5	1.09E+5	1.30E+5	1.04E+5	3.55E+4	4.29E+4	3.95E+4	2.95E+4	2.72E+4	1.408E−3
1.00E+1	5.62E+5	8.73E+4	1.04E+5	8.30E+4	2.84E+4	3.43E+4	3.16E+4	2.36E+4	2.17E+4	1.760E−3
1.50E+1	3.75E+5	5.82E+4	6.91E+4	5.53E+4	1.90E+4	2.29E+4	2.11E+4	1.57E+4	1.45E+4	2.640E−3
2.00E+1	2.81E+5	4.36E+4	5.18E+4	4.15E+4	1.42E+4	1.72E+4	1.58E+4	1.18E+4	1.08E+4	3.519E−3
3.00E+1	1.87E+5	2.91E+4	3.45E+4	2.76E+4	9.48E+3	1.14E+4	1.05E+4	7.84E+3	7.22E+3	5.277E−3
4.00E+1	1.41E+5	2.18E+4	2.59E+4	2.07E+4	7.11E+3	8.58E+3	7.89E+3	5.87E+3	5.40E+3	7.035E−3
5.00E+1	1.12E+5	1.75E+4	2.07E+4	1.66E+4	5.69E+3	6.86E+3	6.31E+3	4.69E+3	4.31E+3	8.791E−3
6.00E+1	9.37E+4	1.45E+4	1.72E+4	1.38E+4	4.74E+3	5.72E+3	5.25E+3	3.90E+3	3.59E+3	1.055E−2
8.00E+1	7.03E+4	1.09E+4	1.29E+4	1.03E+4	3.56E+3	4.28E+3	3.94E+3	2.92E+3	2.68E+3	1.406E−2
1.00E+2	5.62E+4	8.73E+3	1.03E+4	8.26E+3	2.85E+3	3.43E+3	3.15E+3	2.33E+3	2.14E+3	1.756E−2
1.50E+2	3.75E+4	5.82E+3	6.87E+3	5.49E+3	1.90E+3	2.28E+3	2.09E+3	1.54E+3	1.41E+3	2.631E−2
2.00E+2	2.81E+4	4.36E+3	5.14E+3	4.11E+3	1.42E+3	1.71E+3	1.56E+3	1.14E+3	1.05E+3	3.503E−2
3.00E+2	1.87E+4	2.91E+3	3.41E+3	2.72E+3	9.49E+2	1.14E+3	1.04E+3	7.50E+2	6.89E+2	5.242E−2
4.00E+2	1.40E+4	2.18E+3	2.55E+3	2.03E+3	7.12E+2	8.48E+2	7.74E+2	5.53E+2	5.08E+2	6.971E−2
5.00E+2	1.12E+4	1.74E+3	2.03E+3	1.62E+3	5.70E+2	6.77E+2	6.16E+2	4.36E+2	3.99E+2	8.692E−2
6.00E+2	9.33E+3	1.45E+3	1.68E+3	1.34E+3	4.75E+2	5.62E+2	5.11E+2	3.57E+2	3.27E+2	1.040E−1
8.00E+2	6.98E+3	1.09E+3	1.25E+3	9.93E+2	3.56E+2	4.19E+2	3.79E+2	2.60E+2	2.37E+2	1.380E−1
1.00E+3	5.58E+3	8.70E+2	9.93E+2	7.86E+2	2.85E+2	3.33E+2	3.00E+2	2.01E+2	1.84E+2	1.717E−1
1.50E+3	3.70E+3	5.79E+2	6.48E+2	5.10E+2	1.90E+2	2.18E+2	1.95E+2	1.25E+2	1.13E+2	2.543E−1
2.00E+3	2.76E+3	4.34E+2	4.76E+2	3.73E+2	1.42E+2	1.61E+2	1.43E+2	8.68E+1	7.87E+1	3.350E−1
3.00E+3	1.83E+3	2.88E+2	3.05E+2	2.36E+2	9.46E+1	1.04E+2	9.03E+1	5.04E+1	4.54E+1	4.903E−1
4.00E+3	1.36E+3	2.15E+2	2.20E+2	1.68E+2	7.06E+1	7.52E+1	6.45E+1	3.32E+1	2.97E+1	6.382E−1
5.00E+3	1.08E+3	1.71E+2	1.69E+2	1.28E+2	5.62E+1	5.81E+1	4.91E+1	2.35E+1	2.09E+1	7.790E−1
6.00E+3	8.90E+2	1.42E+2	1.36E+2	1.02E+2	4.65E+1	4.68E+1	3.91E+1	1.75E+1	1.55E+1	9.130E−1
8.00E+3	6.57E+2	1.05E+2	9.50E+1	7.01E+1	3.43E+1	3.28E+1	2.68E+1	1.06E+1	9.30E+0	1.162E+0
1.00E+4	5.17E+2	8.27E+1	7.10E+1	5.16E+1	2.70E+1	2.46E+1	1.96E+1	7.01E+0	6.08E+0	1.389E+0
1.50E+4	3.31E+2	5.31E+1	4.05E+1	2.84E+1	1.71E+1	1.40E+1	1.07E+1	3.09E+0	2.63E+0	1.870E+0
2.00E+4	2.39E+2	3.83E+1	2.64E+1	1.80E+1	1.22E+1	9.15E+0	6.75E+0	1.64E+0	1.37E+0	2.252E+0
3.00E+4	1.48E+2	2.35E+1	1.38E+1	8.95E+0	7.40E+0	4.77E+0	3.33E+0	6.24E−1	5.08E−1	2.799E+0
4.00E+4	1.03E+2	1.63E+1	8.45E+0	5.25E+0	5.07E+0	2.91E+0	1.94E+0	3.01E−1	2.39E−1	3.147E+0
5.00E+4	7.72E+1	1.21E+1	5.66E+0	3.40E+0	3.72E+0	1.94E+0	1.25E+0	1.67E−1	1.30E−1	3.366E+0
6.00E+4	6.04E+1	9.36E+0	4.04E+0	2.35E+0	2.87E+0	1.38E+0	8.59E−1	1.02E−1	7.82E−2	3.500E+0
8.00E+4	4.03E+1	6.14E+0	2.32E+0	1.28E+0	1.86E+0	7.92E−1	4.67E−1	4.60E−2	3.43E−2	3.614E+0
1.00E+5	2.90E+1	4.36E+0	1.49E+0	7.91E−1	1.31E+0	5.08E−1	2.86E−1	2.46E−2	1.79E−2	3.614E+0
1.50E+5	1.55E+1	2.27E+0	6.55E−1	3.20E−1	6.75E−1	2.22E−1	1.15E−1	7.79E−3	5.49E−3	3.436E+0
2.00E+5	9.74E+0	1.39E+0	3.62E−1	1.67E−1	4.12E−1	1.22E−1	5.97E−2	3.47E−3	2.39E−3	3.204E+0
3.00E+5	4.97E+0	6.91E−1	1.57E−1	6.75E−2	2.03E−1	5.29E−2	2.40E−2	1.14E−3	7.77E−4	2.802E+0
4.00E+5	3.08E+0	4.20E−1	8.82E−2	3.63E−2	1.23E−1	2.97E−2	1.28E−2	5.33E−4	3.67E−4	2.508E+0
5.00E+5	2.14E+0	2.88E−1	5.71E−2	2.29E−2	8.37E−2	1.92E−2	8.08E−3	3.03E−4	2.13E−4	2.292E+0
6.00E+5	1.60E+0	2.13E−1	4.05E−2	1.59E−2	6.17E−2	1.36E−2	5.62E−3	1.95E−4	1.40E−4	2.128E+0
8.00E+5	1.02E+0	1.34E−1	2.42E−2	9.33E−3	3.88E−2	8.12E−3	3.28E−3	1.01E−4	7.60E−5	1.899E+0
1.00E+6	7.30E−1	9.51E−2	1.66E−2	6.33E−3	2.75E−2	5.56E−3	2.23E−3	6.33E−5	4.93E−5	1.746E+0
1.50E+6	4.09E−1	5.26E−2	8.80E−3	3.32E−3	1.52E−2	2.95E−3	1.16E−3	2.92E−5	2.44E−5	1.523E+0
2.00E+6	2.76E−1	3.54E−2	5.85E−3	2.18E−3	1.02E−2	1.96E−3	7.65E−4	1.79E−5	1.56E−5	1.402E+0
3.00E+6	1.63E−1	2.07E−2	3.45E−3	1.26E−3	5.96E−3	1.16E−3	4.43E−4	9.68E−6	8.86E−6	1.275E+0
4.00E+6	1.13E−1	1.44E−2	2.43E−3	8.81E−4	4.15E−3	8.16E−4	3.08E−4		6.12E−6	1.209E+0
5.00E+6	8.65E−2*	1.10E−2	1.88E−3	6.73E−4*	3.16E−3	6.30E−4*	2.35E−4		4.65E−6*	1.169E+0
6.00E+6	6.97E−2*	8.85E−3*	1.53E−3*	5.44E−4*	2.54E−3*		1.90E−4*		3.75E−6*	1.141E+0
8.00E+6					1.82E−3*		1.37E−4*			
1.00E+7					1.42E−3*					

TABLE. Cross Sections for Radiative Recombination, $Z=1-112$
See page 9 for Explanation of Tables

Z= 73

T_e (eV)	σ_{RR} (b)									$f_{1s_{1/2}}$
	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	
$\|\epsilon_n\|$ (eV)	7.851E+4	2.002E+4	2.003E+4	1.846E+4	8.720E+3	8.721E+3	8.254E+3	8.254E+3	8.121E+3	

R_{nucl} = 6.912 fm

T_e (eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	$f_{1s_{1/2}}$
1.00E+0	5.77E+6	8.97E+5	1.07E+6	8.55E+5	2.92E+5	3.54E+5	3.25E+5	2.44E+5	2.24E+5	1.658E−4
1.50E+0	3.85E+6	5.98E+5	7.16E+5	5.70E+5	1.95E+5	2.36E+5	2.17E+5	1.63E+5	1.49E+5	2.487E−4
2.00E+0	2.89E+6	4.48E+5	5.37E+5	4.27E+5	1.46E+5	1.77E+5	1.63E+5	1.22E+5	1.12E+5	3.316E−4
3.00E+0	1.92E+6	2.99E+5	3.58E+5	2.85E+5	9.73E+4	1.18E+5	1.08E+5	8.12E+4	7.46E+4	4.973E−4
4.00E+0	1.44E+6	2.24E+5	2.68E+5	2.14E+5	7.30E+4	8.85E+4	8.13E+4	6.09E+4	5.59E+4	6.631E−4
5.00E+0	1.15E+6	1.79E+5	2.15E+5	1.71E+5	5.84E+4	7.08E+4	6.51E+4	4.87E+4	4.47E+4	8.288E−4
6.00E+0	9.62E+5	1.50E+5	1.79E+5	1.42E+5	4.86E+4	5.90E+4	5.42E+4	4.06E+4	3.73E+4	9.946E−4
8.00E+0	7.21E+5	1.12E+5	1.34E+5	1.07E+5	3.65E+4	4.43E+4	4.07E+4	3.04E+4	2.80E+4	1.326E−3
1.00E+1	5.77E+5	8.97E+4	1.07E+5	8.54E+4	2.92E+4	3.54E+4	3.25E+4	2.43E+4	2.24E+4	1.657E−3
1.50E+1	3.85E+5	5.98E+4	7.15E+4	5.69E+4	1.95E+4	2.36E+4	2.17E+4	1.62E+4	1.49E+4	2.486E−3
2.00E+1	2.89E+5	4.48E+4	5.36E+4	4.27E+4	1.46E+4	1.77E+4	1.63E+4	1.22E+4	1.12E+4	3.314E−3
3.00E+1	1.92E+5	2.99E+4	3.58E+4	2.84E+4	9.73E+3	1.18E+4	1.08E+4	8.09E+3	7.43E+3	4.970E−3
4.00E+1	1.44E+5	2.24E+4	2.68E+4	2.13E+4	7.30E+3	8.84E+3	8.12E+3	6.06E+3	5.56E+3	6.625E−3
5.00E+1	1.15E+5	1.79E+4	2.14E+4	1.70E+4	5.84E+3	7.07E+3	6.49E+3	4.84E+3	4.44E+3	8.279E−3
6.00E+1	9.61E+4	1.49E+4	1.79E+4	1.42E+4	4.87E+3	5.89E+3	5.41E+3	4.02E+3	3.69E+3	9.933E−3
8.00E+1	7.21E+4	1.12E+4	1.34E+4	1.06E+4	3.65E+3	4.42E+3	4.05E+3	3.01E+3	2.76E+3	1.324E−2
1.00E+2	5.77E+4	8.97E+3	1.07E+4	8.50E+3	2.92E+3	3.53E+3	3.24E+3	2.40E+3	2.20E+3	1.654E−2
1.50E+2	3.84E+4	5.98E+3	7.11E+3	5.65E+3	1.95E+3	2.35E+3	2.15E+3	1.59E+3	1.46E+3	2.478E−2
2.00E+2	2.88E+4	4.48E+3	5.32E+3	4.23E+3	1.46E+3	1.76E+3	1.61E+3	1.18E+3	1.08E+3	3.300E−2
3.00E+2	1.92E+4	2.99E+3	3.53E+3	2.80E+3	9.74E+2	1.17E+3	1.07E+3	7.75E+2	7.10E+2	4.937E−2
4.00E+2	1.44E+4	2.24E+3	2.64E+3	2.09E+3	7.31E+2	8.75E+2	7.97E+2	5.72E+2	5.23E+2	6.567E−2
5.00E+2	1.15E+4	1.79E+3	2.10E+3	1.66E+3	5.85E+2	6.98E+2	6.35E+2	4.50E+2	4.12E+2	8.189E−2
6.00E+2	9.57E+3	1.49E+3	1.75E+3	1.38E+3	4.87E+2	5.80E+2	5.26E+2	3.70E+2	3.38E+2	9.803E−2
8.00E+2	7.17E+3	1.12E+3	1.30E+3	1.02E+3	3.66E+2	4.32E+2	3.91E+2	2.69E+2	2.45E+2	1.301E−1
1.00E+3	5.72E+3	8.94E+2	1.03E+3	8.10E+2	2.93E+2	3.44E+2	3.09E+2	2.09E+2	1.90E+2	1.618E−1
1.50E+3	3.80E+3	5.95E+2	6.73E+2	5.26E+2	1.95E+2	2.26E+2	2.01E+2	1.29E+2	1.17E+2	2.398E−1
2.00E+3	2.84E+3	4.46E+2	4.95E+2	3.85E+2	1.46E+2	1.67E+2	1.47E+2	9.03E+1	8.16E+1	3.159E−1
3.00E+3	1.88E+3	2.96E+2	3.17E+2	2.44E+2	9.72E+1	1.08E+2	9.34E+1	5.26E+1	4.72E+1	4.628E−1
4.00E+3	1.40E+3	2.21E+2	2.29E+2	1.74E+2	7.26E+1	7.80E+1	6.67E+1	3.48E+1	3.10E+1	6.028E−1
5.00E+3	1.11E+3	1.76E+2	1.77E+2	1.33E+2	5.78E+1	6.04E+1	5.09E+1	2.47E+1	2.19E+1	7.362E−1
6.00E+3	9.15E+2	1.46E+2	1.42E+2	1.06E+2	4.78E+1	4.87E+1	4.05E+1	1.84E+1	1.63E+1	8.635E−1
8.00E+3	6.75E+2	1.08E+2	9.94E+1	7.29E+1	3.53E+1	3.42E+1	2.78E+1	1.12E+1	9.80E+0	1.101E+0
1.00E+4	5.32E+2	8.52E+1	7.45E+1	5.37E+1	2.78E+1	2.57E+1	2.05E+1	7.44E+0	6.44E+0	1.317E+0
1.50E+4	3.41E+2	5.48E+1	4.27E+1	2.97E+1	1.77E+1	1.47E+1	1.12E+1	3.30E+0	2.80E+0	1.779E+0
2.00E+4	2.46E+2	3.95E+1	2.79E+1	1.89E+1	1.26E+1	9.65E+0	7.09E+0	1.76E+0	1.47E+0	2.147E+0
3.00E+4	1.52E+2	2.44E+1	1.47E+1	9.43E+0	7.67E+0	5.06E+0	3.51E+0	6.75E−1	5.47E−1	2.680E+0
4.00E+4	1.07E+2	1.69E+1	9.02E+0	5.55E+0	5.26E+0	3.10E+0	2.05E+0	3.27E−1	2.59E−1	3.025E+0
5.00E+4	8.00E+1	1.26E+1	6.07E+0	3.60E+0	3.87E+0	2.08E+0	1.33E+0	1.82E−1	1.42E−1	3.246E+0
6.00E+4	6.27E+1	9.74E+0	4.34E+0	2.50E+0	2.99E+0	1.48E+0	9.14E−1	1.12E−1	8.52E−2	3.384E+0
8.00E+4	4.19E+1	6.41E+0	2.51E+0	1.37E+0	1.95E+0	8.53E−1	4.99E−1	5.06E−2	3.76E−2	3.509E+0
1.00E+5	3.03E+1	4.56E+0	1.62E+0	8.47E−1	1.38E+0	5.49E−1	3.07E−1	2.71E−2	1.97E−2	3.521E+0
1.50E+5	1.62E+1	2.38E+0	7.12E−1	3.44E−1	7.09E−1	2.41E−1	1.24E−1	8.63E−3	6.05E−3	3.367E+0
2.00E+5	1.02E+1	1.47E+0	3.95E−1	1.80E−1	4.34E−1	1.33E−1	6.44E−2	3.85E−3	2.65E−3	3.151E+0
3.00E+5	5.24E+0	7.31E−1	1.72E−1	7.29E−2	2.14E−1	5.80E−2	2.59E−2	1.27E−3	8.61E−4	2.768E+0
4.00E+5	3.26E+0	4.45E−1	9.70E−2	3.92E−2	1.30E−1	3.26E−2	1.39E−2	5.95E−4	4.07E−4	2.484E+0
5.00E+5	2.27E+0	3.05E−1	6.29E−2	2.48E−2	8.88E−2	2.11E−2	8.75E−3	3.39E−4	2.36E−4	2.274E+0
6.00E+5	1.69E+0	2.26E−1	4.47E−2	1.73E−2	6.55E−2	1.50E−2	6.10E−3	2.19E−4	1.56E−4	2.114E+0
8.00E+5	1.08E+0	1.43E−1	2.67E−2	1.01E−2	4.12E−2	8.95E−3	3.56E−3	1.14E−4	8.45E−5	1.889E+0
1.00E+6	7.76E−1	1.01E−1	1.83E−2	6.86E−3	2.92E−2	6.14E−3	2.41E−3	7.10E−5	5.48E−5	1.738E+0
1.50E+6	4.34E−1	5.60E−2	9.74E−3	3.59E−3	1.61E−2	3.26E−3	1.26E−3	3.28E−5	2.71E−5	1.518E+0
2.00E+6	2.93E−1	3.76E−2	6.48E−3	2.36E−3	1.08E−2	2.17E−3	8.27E−4	2.01E−5	1.74E−5	1.399E+0
3.00E+6	1.72E−1	2.20E−2	3.82E−3	1.37E−3	6.32E−3	1.28E−3	4.78E−4	1.09E−5	9.83E−6	1.273E+0
4.00E+6	1.20E−1	1.53E−2	2.69E−3	9.51E−4	4.40E−3	9.03E−4	3.33E−4		6.78E−6*	1.208E+0
5.00E+6	9.17E−2	1.17E−2	2.08E−3*	7.27E−4	3.35E−3	7.0E−4	2.54E−4		5.2E−6	1.167E+0
6.00E+6	7.39E−2*	9.39E−3*	1.69E−3*	5.87E−4*	2.70E−3		2.05E−4*			1.140E+0
8.00E+6	5.3E−2				1.93E−3*		1.48E−4*			1.106E+0
1.00E+7					1.50E−3*					

Z= 74

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 6.936$ fm

$|\epsilon_n|$ (eV)	8.088E+4	2.064E+4	2.064E+4	1.898E+4	8.983E+3	8.984E+3	8.488E+3	8.488E+3	8.347E+3	
1.00E+0	5.92E+6	9.21E+5	1.11E+6	8.79E+5	2.99E+5	3.65E+5	3.35E+5	2.51E+5	2.30E+5	1.562E−4
1.50E+0	3.95E+6	6.14E+5	7.41E+5	5.86E+5	2.00E+5	2.43E+5	2.23E+5	1.68E+5	1.54E+5	2.343E−4
2.00E+0	2.96E+6	4.61E+5	5.56E+5	4.40E+5	1.50E+5	1.83E+5	1.67E+5	1.26E+5	1.15E+5	3.124E−4
3.00E+0	1.97E+6	3.07E+5	3.71E+5	2.93E+5	9.98E+4	1.22E+5	1.12E+5	8.38E+4	7.67E+4	4.686E−4
4.00E+0	1.48E+6	2.30E+5	2.78E+5	2.20E+5	7.48E+4	9.12E+4	8.37E+4	6.28E+4	5.75E+4	6.249E−4
5.00E+0	1.18E+6	1.84E+5	2.22E+5	1.76E+5	5.99E+4	7.30E+4	6.69E+4	5.02E+4	4.60E+4	7.810E−4
6.00E+0	9.87E+5	1.54E+5	1.85E+5	1.47E+5	4.99E+4	6.08E+4	5.58E+4	4.19E+4	3.84E+4	9.372E−4
8.00E+0	7.40E+5	1.15E+5	1.39E+5	1.10E+5	3.74E+4	4.56E+4	4.18E+4	3.14E+4	2.88E+4	1.250E−3
1.00E+1	5.92E+5	9.21E+4	1.11E+5	8.79E+4	2.99E+4	3.65E+4	3.35E+4	2.51E+4	2.30E+4	1.562E−3
1.50E+1	3.95E+5	6.14E+4	7.41E+4	5.86E+4	2.00E+4	2.43E+4	2.23E+4	1.67E+4	1.53E+4	2.343E−3
2.00E+1	2.96E+5	4.61E+4	5.55E+4	4.39E+4	1.50E+4	1.82E+4	1.67E+4	1.25E+4	1.15E+4	3.123E−3
3.00E+1	1.97E+5	3.07E+4	3.70E+4	2.93E+4	9.98E+3	1.22E+4	1.11E+4	8.34E+3	7.64E+3	4.683E−3
4.00E+1	1.48E+5	2.30E+4	2.78E+4	2.19E+4	7.48E+3	9.12E+3	8.35E+3	6.25E+3	5.72E+3	6.243E−3
5.00E+1	1.18E+5	1.84E+4	2.22E+4	1.75E+4	5.99E+3	7.29E+3	6.68E+3	4.99E+3	4.57E+3	7.802E−3
6.00E+1	9.86E+4	1.54E+4	1.85E+4	1.46E+4	4.99E+3	6.07E+3	5.56E+3	4.15E+3	3.80E+3	9.360E−3
8.00E+1	7.39E+4	1.15E+4	1.39E+4	1.09E+4	3.74E+3	4.55E+3	4.17E+3	3.10E+3	2.84E+3	1.247E−2
1.00E+2	5.91E+4	9.21E+3	1.11E+4	8.75E+3	2.99E+3	3.64E+3	3.33E+3	2.48E+3	2.27E+3	1.559E−2
1.50E+2	3.94E+4	6.14E+3	7.37E+3	5.82E+3	2.00E+3	2.42E+3	2.22E+3	1.64E+3	1.50E+3	2.335E−2
2.00E+2	2.96E+4	4.60E+3	5.51E+3	4.35E+3	1.50E+3	1.82E+3	1.66E+3	1.22E+3	1.11E+3	3.110E−2
3.00E+2	1.97E+4	3.07E+3	3.66E+3	2.88E+3	9.99E+2	1.21E+3	1.10E+3	8.00E+2	7.31E+2	4.654E−2
4.00E+2	1.48E+4	2.30E+3	2.74E+3	2.15E+3	7.50E+2	9.03E+2	8.21E+2	5.91E+2	5.39E+2	6.190E−2
5.00E+2	1.18E+4	1.84E+3	2.18E+3	1.71E+3	6.00E+2	7.20E+2	6.53E+2	4.65E+2	4.25E+2	7.719E−2
6.00E+2	9.82E+3	1.53E+3	1.81E+3	1.42E+3	5.00E+2	5.98E+2	5.42E+2	3.82E+2	3.48E+2	9.242E−2
8.00E+2	7.35E+3	1.15E+3	1.35E+3	1.05E+3	3.75E+2	4.46E+2	4.02E+2	2.78E+2	2.53E+2	1.226E−1
1.00E+3	5.87E+3	9.19E+2	1.07E+3	8.35E+2	3.00E+2	3.55E+2	3.19E+2	2.16E+2	1.96E+2	1.526E−1
1.50E+3	3.90E+3	6.12E+2	6.99E+2	5.43E+2	2.00E+2	2.33E+2	2.07E+2	1.34E+2	1.21E+2	2.262E−1
2.00E+3	2.91E+3	4.58E+2	5.14E+2	3.97E+2	1.50E+2	1.72E+2	1.52E+2	9.39E+1	8.47E+1	2.981E−1
3.00E+3	1.93E+3	3.04E+2	3.30E+2	2.52E+2	9.98E+1	1.11E+2	9.65E+1	5.49E+1	4.92E+1	4.370E−1
4.00E+3	1.43E+3	2.27E+2	2.39E+2	1.80E+2	7.46E+1	8.09E+1	6.91E+1	3.64E+1	3.24E+1	5.696E−1
5.00E+3	1.14E+3	1.81E+2	1.84E+2	1.38E+2	5.93E+1	6.27E+1	5.28E+1	2.59E+1	2.29E+1	6.962E−1
6.00E+3	9.40E+2	1.50E+2	1.48E+2	1.10E+2	4.91E+1	5.06E+1	4.20E+1	1.94E+1	1.70E+1	8.171E−1
8.00E+3	6.94E+2	1.11E+2	1.04E+2	7.57E+1	3.63E+1	3.57E+1	2.89E+1	1.19E+1	1.03E+1	1.043E+0
1.00E+4	5.47E+2	8.77E+1	7.80E+1	5.59E+1	2.86E+1	2.68E+1	2.13E+1	7.89E+0	6.80E+0	1.249E+0
1.50E+4	3.51E+2	5.65E+1	4.49E+1	3.10E+1	1.82E+1	1.55E+1	1.17E+1	3.52E+0	2.98E+0	1.692E+0
2.00E+4	2.53E+2	4.08E+1	2.95E+1	1.98E+1	1.31E+1	1.02E+1	7.44E+0	1.89E+0	1.57E+0	2.048E+0
3.00E+4	1.57E+2	2.52E+1	1.56E+1	9.93E+0	7.94E+0	5.37E+0	3.70E+0	7.30E−1	5.89E−1	2.567E+0
4.00E+4	1.10E+2	1.75E+1	9.63E+0	5.87E+0	5.46E+0	3.30E+0	2.17E+0	3.55E−1	2.80E−1	2.907E+0
5.00E+4	8.28E+1	1.30E+1	6.49E+0	3.82E+0	4.03E+0	2.22E+0	1.41E+0	1.99E−1	1.54E−1	3.129E+0
6.00E+4	6.50E+1	1.01E+1	4.66E+0	2.65E+0	3.11E+0	1.59E+0	9.72E−1	1.22E−1	9.28E−2	3.271E+0
8.00E+4	4.36E+1	6.69E+0	2.70E+0	1.46E+0	2.03E+0	9.18E−1	5.32E−1	5.55E−2	4.11E−2	3.406E+0
1.00E+5	3.16E+1	4.77E+0	1.75E+0	9.05E−1	1.44E+0	5.92E−1	3.28E−1	2.98E−2	2.16E−2	3.429E+0
1.50E+5	1.70E+1	2.50E+0	7.75E−1	3.69E−1	7.44E−1	2.61E−1	1.33E−1	9.55E−3	6.66E−3	3.298E+0
2.00E+5	1.07E+1	1.54E+0	4.31E−1	1.94E−1	4.57E−1	1.45E−1	6.93E−2	4.27E−3	2.92E−3	3.098E+0
3.00E+5	5.53E+0	7.72E−1	1.89E−1	7.87E−2	2.26E−1	6.34E−2	2.80E−2	1.41E−3	9.53E−4	2.734E+0
4.00E+5	3.44E+0	4.71E−1	1.07E−1	4.24E−2	1.38E−1	3.57E−2	1.50E−2	6.64E−4	4.52E−4	2.460E+0
5.00E+5	2.40E+0	3.24E−1	6.92E−2	2.68E−2	9.41E−2	2.32E−2	9.47E−3	3.79E−4	2.62E−4	2.255E+0
6.00E+5	1.79E+0	2.40E−1	4.92E−2	1.87E−2	6.95E−2	1.65E−2	6.60E−3	2.44E−4	1.73E−4	2.099E+0
8.00E+5	1.15E+0	1.51E−1	2.95E−2	1.09E−2	4.37E−2	9.86E−3	3.85E−3	1.27E−4	9.37E−5	1.878E+0
1.00E+6	8.23E−1	1.08E−1	2.02E−2	7.42E−3	3.10E−2	6.77E−3	2.61E−3	7.95E−5	6.07E−5	1.731E+0
1.50E+6	4.61E−1	5.95E−2	1.08E−2	3.88E−3	1.71E−2	3.60E−3	1.36E−3	3.67E−5	3.00E−5	1.514E+0
2.00E+6	3.11E−1	3.99E−2	7.16E−3	2.55E−3	1.15E−2	2.40E−3	8.93E−4	2.26E−5	1.92E−5	1.396E+0
3.00E+6	1.83E−1	2.34E−2	4.23E−3	1.47E−3	6.70E−3	1.41E−3	5.16E−4	1.22E−5	1.09E−5	1.271E+0
4.00E+6	1.27E−1	1.62E−2	2.98E−3	1.03E−3	4.66E−3	9.98E−4	3.59E−4		7.50E−6*	1.206E+0
5.00E+6	9.71E−2*	1.24E−2	2.30E−3*	7.83E−4*	3.55E−3	7.7E−4	2.74E−4		5.7E−6	1.166E+0
6.00E+6	7.82E−2*	9.95E−3*	1.88E−3*	6.3E−4	2.85E−3*		2.21E−4*			1.139E+0
8.00E+6	5.6E−2				2.04E−3*		1.59E−4*			1.105E+0
1.00E+7					1.59E−3*					

$Z= 75$

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 6.908$ fm

$\lvert\epsilon_n\rvert$ (eV)	8.329E+4	2.127E+4	2.127E+4	1.951E+4	9.250E+3	9.252E+3	8.725E+3	8.725E+3	8.576E+3	
1.00E+0	6.07E+6	9.46E+5	1.15E+6	9.04E+5	3.07E+5	3.76E+5	3.44E+5	2.59E+5	2.37E+5	1.473E−4
1.50E+0	4.05E+6	6.30E+5	7.67E+5	6.03E+5	2.05E+5	2.51E+5	2.30E+5	1.73E+5	1.58E+5	2.210E−4
2.00E+0	3.03E+6	4.73E+5	5.75E+5	4.52E+5	1.53E+5	1.88E+5	1.72E+5	1.30E+5	1.18E+5	2.946E−4
3.00E+0	2.02E+6	3.15E+5	3.84E+5	3.01E+5	1.02E+5	1.25E+5	1.15E+5	8.63E+4	7.89E+4	4.419E−4
4.00E+0	1.52E+6	2.36E+5	2.88E+5	2.26E+5	7.67E+4	9.40E+4	8.61E+4	6.47E+4	5.92E+4	5.892E−4
5.00E+0	1.21E+6	1.89E+5	2.30E+5	1.81E+5	6.14E+4	7.52E+4	6.89E+4	5.18E+4	4.73E+4	7.365E−4
6.00E+0	1.01E+6	1.58E+5	1.92E+5	1.51E+5	5.12E+4	6.27E+4	5.74E+4	4.31E+4	3.94E+4	8.837E−4
8.00E+0	7.59E+5	1.18E+5	1.44E+5	1.13E+5	3.84E+4	4.70E+4	4.30E+4	3.24E+4	2.96E+4	1.178E−3
1.00E+1	6.07E+5	9.46E+4	1.15E+5	9.04E+4	3.07E+4	3.76E+4	3.44E+4	2.59E+4	2.36E+4	1.473E−3
1.50E+1	4.05E+5	6.30E+4	7.67E+4	6.02E+4	2.05E+4	2.51E+4	2.29E+4	1.72E+4	1.58E+4	2.209E−3
2.00E+1	3.03E+5	4.73E+4	5.75E+4	4.52E+4	1.54E+4	1.88E+4	1.72E+4	1.29E+4	1.18E+4	2.945E−3
3.00E+1	2.02E+5	3.15E+4	3.83E+4	3.01E+4	1.02E+4	1.25E+4	1.15E+4	8.60E+3	7.86E+3	4.416E−3
4.00E+1	1.52E+5	2.36E+4	2.87E+4	2.26E+4	7.67E+3	9.39E+3	8.59E+3	6.44E+3	5.88E+3	5.887E−3
5.00E+1	1.21E+5	1.89E+4	2.30E+4	1.80E+4	6.14E+3	7.51E+3	6.87E+3	5.14E+3	4.70E+3	7.357E−3
6.00E+1	1.01E+5	1.58E+4	1.91E+4	1.50E+4	5.12E+3	6.26E+3	5.72E+3	4.28E+3	3.91E+3	8.826E−3
8.00E+1	7.58E+4	1.18E+4	1.43E+4	1.13E+4	3.84E+3	4.69E+3	4.29E+3	3.20E+3	2.92E+3	1.176E−2
1.00E+2	6.06E+4	9.45E+3	1.15E+4	9.00E+3	3.07E+3	3.75E+3	3.43E+3	2.55E+3	2.33E+3	1.470E−2
1.50E+2	4.04E+4	6.30E+3	7.63E+3	5.98E+3	2.05E+3	2.50E+3	2.28E+3	1.69E+3	1.54E+3	2.202E−2
2.00E+2	3.03E+4	4.73E+3	5.71E+3	4.47E+3	1.54E+3	1.87E+3	1.71E+3	1.26E+3	1.15E+3	2.933E−2
3.00E+2	2.02E+4	3.15E+3	3.79E+3	2.97E+3	1.02E+3	1.24E+3	1.13E+3	8.25E+2	7.53E+2	4.389E−2
4.00E+2	1.51E+4	2.36E+3	2.83E+3	2.22E+3	7.69E+2	9.30E+2	8.45E+2	6.10E+2	5.56E+2	5.839E−2
5.00E+2	1.21E+4	1.89E+3	2.26E+3	1.76E+3	6.15E+2	7.42E+2	6.73E+2	4.81E+2	4.38E+2	7.281E−2
6.00E+2	1.01E+4	1.57E+3	1.87E+3	1.46E+3	5.13E+2	6.17E+2	5.58E+2	3.95E+2	3.59E+2	8.718E−2
8.00E+2	7.54E+3	1.18E+3	1.40E+3	1.09E+3	3.85E+2	4.60E+2	4.14E+2	2.88E+2	2.61E+2	1.157E−1
1.00E+3	6.02E+3	9.43E+2	1.11E+3	8.60E+2	3.08E+2	3.66E+2	3.28E+2	2.24E+2	2.03E+2	1.440E−1
1.50E+3	4.00E+3	6.28E+2	7.25E+2	5.59E+2	2.05E+2	2.41E+2	2.14E+2	1.39E+2	1.26E+2	2.135E−1
2.00E+3	2.99E+3	4.70E+2	5.34E+2	4.09E+2	1.54E+2	1.78E+2	1.57E+2	9.75E+1	8.77E+1	2.815E−1
3.00E+3	1.98E+3	3.12E+2	3.43E+2	2.60E+2	1.02E+2	1.15E+2	9.97E+1	5.72E+1	5.11E+1	4.129E−1
4.00E+3	1.47E+3	2.33E+2	2.48E+2	1.87E+2	7.65E+1	8.39E+1	7.14E+1	3.81E+1	3.38E+1	5.386E−1
5.00E+3	1.17E+3	1.86E+2	1.92E+2	1.43E+2	6.09E+1	6.51E+1	5.46E+1	2.72E+1	2.40E+1	6.587E−1
6.00E+3	9.65E+2	1.54E+2	1.55E+2	1.14E+2	5.05E+1	5.26E+1	4.36E+1	2.03E+1	1.79E+1	7.736E−1
8.00E+3	7.13E+2	1.14E+2	1.09E+2	7.86E+1	3.74E+1	3.72E+1	3.00E+1	1.25E+1	1.09E+1	9.887E−1
1.00E+4	5.62E+2	9.02E+1	8.17E+1	5.82E+1	2.94E+1	2.80E+1	2.22E+1	8.35E+0	7.18E+0	1.186E+0
1.50E+4	3.61E+2	5.82E+1	4.72E+1	3.24E+1	1.88E+1	1.62E+1	1.23E+1	3.75E+0	3.16E+0	1.610E+0
2.00E+4	2.61E+2	4.21E+1	3.11E+1	2.07E+1	1.35E+1	1.07E+1	7.79E+0	2.02E+0	1.67E+0	1.953E+0
3.00E+4	1.62E+2	2.61E+1	1.66E+1	1.05E+1	8.22E+0	5.68E+0	3.90E+0	7.87E−1	6.34E−1	2.459E+0
4.00E+4	1.14E+2	1.82E+1	1.03E+1	6.20E+0	5.66E+0	3.51E+0	2.30E+0	3.85E−1	3.03E−1	2.795E+0
5.00E+4	8.57E+1	1.35E+1	6.94E+0	4.04E+0	4.18E+0	2.37E+0	1.49E+0	2.16E−1	1.67E−1	3.017E+0
6.00E+4	6.74E+1	1.05E+1	4.99E+0	2.82E+0	3.24E+0	1.70E+0	1.03E+0	1.33E−1	1.01E−1	3.162E+0
8.00E+4	4.53E+1	6.98E+0	2.91E+0	1.56E+0	2.12E+0	9.86E−1	5.67E−1	6.08E−2	4.48E−2	3.306E+0
1.00E+5	3.28E+1	4.98E+0	1.89E+0	9.66E−1	1.50E+0	6.39E−1	3.50E−1	3.28E−2	2.36E−2	3.340E+0
1.50E+5	1.78E+1	2.62E+0	8.41E−1	3.96E−1	7.80E−1	2.83E−1	1.43E−1	1.05E−2	7.32E−3	3.230E+0
2.00E+5	1.13E+1	1.62E+0	4.69E−1	2.08E−1	4.80E−1	1.58E−1	7.46E−2	4.73E−3	3.22E−3	3.045E+0
3.00E+5	5.82E+0	8.14E−1	2.07E−1	8.48E−2	2.39E−1	6.93E−2	3.02E−2	1.57E−3	1.05E−3	2.700E+0
4.00E+5	3.63E+0	4.98E−1	1.17E−1	4.58E−2	1.45E−1	3.91E−2	1.62E−2	7.39E−4	5.00E−4	2.435E+0
5.00E+5	2.54E+0	3.43E−1	7.61E−2	2.90E−2	9.96E−2	2.55E−2	1.02E−2	4.23E−4	2.90E−4	2.237E+0
6.00E+5	1.90E+0	2.54E−1	5.42E−2	2.02E−2	7.36E−2	1.81E−2	7.13E−3	2.73E−4	1.91E−4	2.084E+0
8.00E+5	1.22E+0	1.61E−1	3.25E−2	1.18E−2	4.64E−2	1.08E−2	4.16E−3	1.42E−4	1.04E−4	1.868E+0
1.00E+6	8.73E−1	1.14E−1	2.23E−2	8.02E−3	3.29E−2	7.45E−3	2.82E−3	8.89E−5	6.73E−5	1.723E+0
1.50E+6	4.89E−1	6.32E−2	1.19E−2	4.19E−3	1.82E−2	3.97E−3	1.47E−3	4.11E−5	3.32E−5	1.509E+0
2.00E+6	3.29E−1	4.24E−2	7.92E−3	2.75E−3	1.22E−2	2.64E−3	9.64E−4	2.53E−5	2.13E−5	1.393E+0
3.00E+6	1.94E−1	2.48E−2	4.67E−3	1.59E−3	7.10E−3	1.56E−3	5.56E−4	1.37E−5	1.20E−5	1.269E+0
4.00E+6	1.35E−1	1.72E−2	3.30E−3	1.11E−3	4.93E−3	1.10E−3	3.87E−4		8.28E−6*	1.205E+0
5.00E+6	1.03E−1	1.31E−2	2.55E−3	8.43E−4*	3.75E−3	8.51E−4*	2.95E−4		6.29E−6*	1.165E+0
6.00E+6	8.3E−2	1.05E−2	2.08E−3*	6.81E−4*	3.02E−3		2.38E−4*			1.139E+0
8.00E+6	5.9E−2				2.16E−3*		1.71E−4*			1.105E+0

Z= 76

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 6.979$ fm

$|\epsilon_n|$ (eV)	8.575E+4	2.191E+4	2.192E+4	2.004E+4	9.523E+3	9.525E+3	8.965E+3	8.965E+3	8.808E+3	
1.00E+0	6.22E+6	9.71E+5	1.19E+6	9.30E+5	3.15E+5	3.87E+5	3.54E+5	2.67E+5	2.43E+5	1.390E−4
1.50E+0	4.15E+6	6.47E+5	7.94E+5	6.20E+5	2.10E+5	2.58E+5	2.36E+5	1.78E+5	1.62E+5	2.085E−4
2.00E+0	3.11E+6	4.85E+5	5.95E+5	4.65E+5	1.57E+5	1.94E+5	1.77E+5	1.34E+5	1.22E+5	2.780E−4
3.00E+0	2.07E+6	3.24E+5	3.97E+5	3.10E+5	1.05E+5	1.29E+5	1.18E+5	8.90E+4	8.11E+4	4.169E−4
4.00E+0	1.56E+6	2.43E+5	2.98E+5	2.32E+5	7.86E+4	9.68E+4	8.85E+4	6.67E+4	6.08E+4	5.559E−4
5.00E+0	1.24E+6	1.94E+5	2.38E+5	1.86E+5	6.29E+4	7.74E+4	7.08E+4	5.34E+4	4.87E+4	6.949E−4
6.00E+0	1.04E+6	1.62E+5	1.98E+5	1.55E+5	5.24E+4	6.45E+4	5.90E+4	4.45E+4	4.05E+4	8.338E−4
8.00E+0	7.77E+5	1.21E+5	1.49E+5	1.16E+5	3.93E+4	4.84E+4	4.42E+4	3.33E+4	3.04E+4	1.112E−3
1.00E+1	6.22E+5	9.71E+4	1.19E+5	9.29E+4	3.15E+4	3.87E+4	3.54E+4	2.67E+4	2.43E+4	1.390E−3
1.50E+1	4.15E+5	6.47E+4	7.94E+4	6.19E+4	2.10E+4	2.58E+4	2.36E+4	1.78E+4	1.62E+4	2.084E−3
2.00E+1	3.11E+5	4.85E+4	5.95E+4	4.64E+4	1.57E+4	1.94E+4	1.77E+4	1.33E+4	1.21E+4	2.778E−3
3.00E+1	2.07E+5	3.24E+4	3.97E+4	3.09E+4	1.05E+4	1.29E+4	1.18E+4	8.86E+3	8.08E+3	4.167E−3
4.00E+1	1.55E+5	2.43E+4	2.97E+4	2.32E+4	7.86E+3	9.67E+3	8.83E+3	6.64E+3	6.05E+3	5.554E−3
5.00E+1	1.24E+5	1.94E+4	2.38E+4	1.85E+4	6.29E+3	7.74E+3	7.06E+3	5.30E+3	4.83E+3	6.942E−3
6.00E+1	1.04E+5	1.62E+4	1.98E+4	1.55E+4	5.24E+3	6.44E+3	5.88E+3	4.41E+3	4.02E+3	8.328E−3
8.00E+1	7.77E+4	1.21E+4	1.48E+4	1.16E+4	3.93E+3	4.83E+3	4.41E+3	3.30E+3	3.01E+3	1.110E−2
1.00E+2	6.21E+4	9.70E+3	1.19E+4	9.25E+3	3.15E+3	3.86E+3	3.52E+3	2.63E+3	2.40E+3	1.387E−2
1.50E+2	4.14E+4	6.47E+3	7.90E+3	6.15E+3	2.10E+3	2.57E+3	2.34E+3	1.74E+3	1.59E+3	2.078E−2
2.00E+2	3.11E+4	4.85E+3	5.91E+3	4.60E+3	1.57E+3	1.93E+3	1.75E+3	1.30E+3	1.18E+3	2.767E−2
3.00E+2	2.07E+4	3.23E+3	3.93E+3	3.05E+3	1.05E+3	1.28E+3	1.16E+3	8.52E+2	7.75E+2	4.142E−2
4.00E+2	1.55E+4	2.42E+3	2.93E+3	2.28E+3	7.88E+2	9.59E+2	8.69E+2	6.30E+2	5.72E+2	5.510E−2
5.00E+2	1.24E+4	1.94E+3	2.34E+3	1.81E+3	6.30E+2	7.65E+2	6.92E+2	4.96E+2	4.51E+2	6.872E−2
6.00E+2	1.03E+4	1.62E+3	1.94E+3	1.50E+3	5.25E+2	6.36E+2	5.74E+2	4.08E+2	3.70E+2	8.229E−2
8.00E+2	7.73E+3	1.21E+3	1.45E+3	1.12E+3	3.94E+2	4.75E+2	4.27E+2	2.97E+2	2.69E+2	1.092E−1
1.00E+3	6.17E+3	9.68E+2	1.15E+3	8.85E+2	3.16E+2	3.78E+2	3.38E+2	2.31E+2	2.09E+2	1.359E−1
1.50E+3	4.10E+3	6.45E+2	7.51E+2	5.76E+2	2.11E+2	2.49E+2	2.20E+2	1.44E+2	1.30E+2	2.017E−1
2.00E+3	3.06E+3	4.83E+2	5.54E+2	4.22E+2	1.58E+2	1.84E+2	1.61E+2	1.01E+2	9.09E+1	2.660E−1
3.00E+3	2.03E+3	3.21E+2	3.56E+2	2.69E+2	1.05E+2	1.19E+2	1.03E+2	5.96E+1	5.31E+1	3.904E−1
4.00E+3	1.51E+3	2.40E+2	2.58E+2	1.93E+2	7.85E+1	8.68E+1	7.38E+1	3.97E+1	3.52E+1	5.095E−1
5.00E+3	1.20E+3	1.91E+2	2.00E+2	1.48E+2	6.26E+1	6.75E+1	5.65E+1	2.85E+1	2.51E+1	6.235E−1
6.00E+3	9.90E+2	1.58E+2	1.61E+2	1.18E+2	5.19E+1	5.46E+1	4.51E+1	2.14E+1	1.87E+1	7.327E−1
8.00E+3	7.32E+2	1.17E+2	1.14E+2	8.16E+1	3.84E+1	3.87E+1	3.12E+1	1.32E+1	1.14E+1	9.375E−1
1.00E+4	5.77E+2	9.28E+1	8.56E+1	6.05E+1	3.03E+1	2.92E+1	2.30E+1	8.82E+0	7.57E+0	1.126E+0
1.50E+4	3.71E+2	5.99E+1	4.96E+1	3.38E+1	1.94E+1	1.70E+1	1.28E+1	3.99E+0	3.36E+0	1.532E+0
2.00E+4	2.69E+2	4.34E+1	3.28E+1	2.17E+1	1.39E+1	1.13E+1	8.16E+0	2.16E+0	1.79E+0	1.864E+0
3.00E+4	1.67E+2	2.69E+1	1.76E+1	1.10E+1	8.50E+0	6.01E+0	4.10E+0	8.48E−1	6.80E−1	2.356E+0
4.00E+4	1.18E+2	1.88E+1	1.09E+1	6.54E+0	5.87E+0	3.73E+0	2.42E+0	4.17E−1	3.26E−1	2.686E+0
5.00E+4	8.87E+1	1.40E+1	7.42E+0	4.28E+0	4.34E+0	2.52E+0	1.58E+0	2.35E−1	1.80E−1	2.909E+0
6.00E+4	6.98E+1	1.10E+1	5.35E+0	2.99E+0	3.36E+0	1.82E+0	1.10E+0	1.45E−1	1.09E−1	3.056E+0
8.00E+4	4.70E+1	7.27E+0	3.13E+0	1.66E+0	2.21E+0	1.06E+0	6.03E−1	6.65E−2	4.88E−2	3.209E+0
1.00E+5	3.42E+1	5.20E+0	2.04E+0	1.03E+0	1.57E+0	6.88E−1	3.74E−1	3.60E−2	2.58E−2	3.252E+0
1.50E+5	1.86E+1	2.74E+0	9.12E−1	4.24E−1	8.17E−1	3.07E−1	1.53E−1	1.16E−2	8.03E−3	3.163E+0
2.00E+5	1.18E+1	1.71E+0	5.11E−1	2.24E−1	5.04E−1	1.72E−1	8.01E−2	5.23E−3	3.54E−3	2.993E+0
3.00E+5	6.12E+0	8.58E−1	2.26E−1	9.14E−2	2.52E−1	7.56E−2	3.25E−2	1.74E−3	1.16E−3	2.665E+0
4.00E+5	3.83E+0	5.27E−1	1.28E−1	4.94E−2	1.54E−1	4.28E−2	1.75E−2	8.22E−4	5.52E−4	2.411E+0
5.00E+5	2.68E+0	3.63E−1	8.35E−2	3.12E−2	1.05E−1	2.79E−2	1.11E−2	4.71E−4	3.21E−4	2.218E+0
6.00E+5	2.01E+0	2.69E−1	5.95E−2	2.18E−2	7.79E−2	1.99E−2	7.70E−3	3.04E−4	2.11E−4	2.070E+0
8.00E+5	1.29E+0	1.70E−1	3.57E−2	1.28E−2	4.92E−2	1.19E−2	4.50E−3	1.59E−4	1.15E−4	1.858E+0
1.00E+6	9.25E−1	1.21E−1	2.46E−2	8.66E−3	3.49E−2	8.19E−3	3.04E−3	9.93E−5	7.44E−5	1.715E+0
1.50E+6	5.18E−1	6.70E−2	1.31E−2	4.52E−3	1.93E−2	4.37E−3	1.59E−3	4.60E−5	3.67E−5	1.504E+0
2.00E+6	3.49E−1	4.49E−2	8.74E−3	2.96E−3	1.29E−2	2.91E−3	1.04E−3	2.83E−5	2.35E−5	1.389E+0
3.00E+6	2.05E−1	2.62E−2	5.16E−3	1.71E−3	7.52E−3	1.72E−3	5.99E−4	1.53E−5	1.33E−5	1.267E+0
4.00E+6	1.43E−1	1.82E−2	3.65E−3	1.19E−3	5.22E−3	1.22E−3	4.16E−4	1.04E−5	9.14E−6*	1.203E+0
5.00E+6	1.09E−1	1.39E−2	2.82E−3	9.07E−4*	3.97E−3	9.4E−4	3.17E−4			1.164E+0
6.00E+6	8.7E−2	1.12E−2	2.29E−3*	7.32E−4*	3.19E−3*		2.56E−4*			1.138E+0
8.00E+6	6.3E−2	7.99E−3*			2.29E−3*		1.84E−4*			1.104E+0
1.00E+7					1.77E−3*					

$Z= 77$

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 6.973$ fm

$|\epsilon_n|$ (eV)	8.826E+4	2.257E+4	2.257E+4	2.058E+4	9.801E+3	9.803E+3	9.210E+3	9.210E+3	9.043E+3	
1.00E+0	6.37E+6	9.96E+5	1.23E+6	9.55E+5	3.22E+5	3.99E+5	3.64E+5	2.75E+5	2.50E+5	1.312E−4
1.50E+0	4.25E+6	6.64E+5	8.21E+5	6.37E+5	2.15E+5	2.66E+5	2.43E+5	1.83E+5	1.67E+5	1.968E−4
2.00E+0	3.19E+6	4.98E+5	6.16E+5	4.78E+5	1.61E+5	1.99E+5	1.82E+5	1.38E+5	1.25E+5	2.624E−4
3.00E+0	2.12E+6	3.32E+5	4.11E+5	3.18E+5	1.07E+5	1.33E+5	1.21E+5	9.16E+4	8.34E+4	3.936E−4
4.00E+0	1.59E+6	2.49E+5	3.08E+5	2.39E+5	8.05E+4	9.97E+4	9.10E+4	6.87E+4	6.25E+4	5.248E−4
5.00E+0	1.27E+6	1.99E+5	2.46E+5	1.91E+5	6.44E+4	7.97E+4	7.28E+4	5.50E+4	5.00E+4	6.560E−4
6.00E+0	1.06E+6	1.66E+5	2.05E+5	1.59E+5	5.37E+4	6.64E+4	6.06E+4	4.58E+4	4.17E+4	7.871E−4
8.00E+0	7.96E+5	1.24E+5	1.54E+5	1.19E+5	4.03E+4	4.98E+4	4.55E+4	3.43E+4	3.12E+4	1.049E−3
1.00E+1	6.37E+5	9.96E+4	1.23E+5	9.55E+4	3.22E+4	3.99E+4	3.64E+4	2.75E+4	2.50E+4	1.312E−3
1.50E+1	4.25E+5	6.64E+4	8.21E+4	6.36E+4	2.15E+4	2.66E+4	2.42E+4	1.83E+4	1.66E+4	1.967E−3
2.00E+1	3.19E+5	4.98E+4	6.16E+4	4.77E+4	1.61E+4	1.99E+4	1.82E+4	1.37E+4	1.25E+4	2.623E−3
3.00E+1	2.12E+5	3.32E+4	4.10E+4	3.18E+4	1.07E+4	1.33E+4	1.21E+4	9.13E+3	8.30E+3	3.934E−3
4.00E+1	1.59E+5	2.49E+4	3.08E+4	2.38E+4	8.06E+3	9.96E+3	9.08E+3	6.84E+3	6.22E+3	5.244E−3
5.00E+1	1.27E+5	1.99E+4	2.46E+4	1.91E+4	6.44E+3	7.96E+3	7.26E+3	5.46E+3	4.97E+3	6.553E−3
6.00E+1	1.06E+5	1.66E+4	2.05E+4	1.59E+4	5.37E+3	6.64E+3	6.05E+3	4.54E+3	4.13E+3	7.862E−3
8.00E+1	7.96E+4	1.24E+4	1.54E+4	1.19E+4	4.03E+3	4.97E+3	4.53E+3	3.40E+3	3.09E+3	1.048E−2
1.00E+2	6.37E+4	9.95E+3	1.23E+4	9.51E+3	3.22E+3	3.98E+3	3.62E+3	2.71E+3	2.46E+3	1.309E−2
1.50E+2	4.24E+4	6.64E+3	8.17E+3	6.32E+3	2.15E+3	2.65E+3	2.41E+3	1.79E+3	1.63E+3	1.962E−2
2.00E+2	3.18E+4	4.98E+3	6.12E+3	4.73E+3	1.61E+3	1.98E+3	1.80E+3	1.34E+3	1.21E+3	2.613E−2
3.00E+2	2.12E+4	3.32E+3	4.06E+3	3.14E+3	1.08E+3	1.32E+3	1.20E+3	8.78E+2	7.97E+2	3.911E−2
4.00E+2	1.59E+4	2.49E+3	3.04E+3	2.34E+3	8.07E+2	9.87E+2	8.94E+2	6.50E+2	5.89E+2	5.203E−2
5.00E+2	1.27E+4	1.99E+3	2.42E+3	1.87E+3	6.46E+2	7.88E+2	7.12E+2	5.12E+2	4.64E+2	6.490E−2
6.00E+2	1.06E+4	1.66E+3	2.01E+3	1.55E+3	5.38E+2	6.55E+2	5.90E+2	4.21E+2	3.81E+2	7.771E−2
8.00E+2	7.92E+3	1.24E+3	1.50E+3	1.15E+3	4.04E+2	4.89E+2	4.39E+2	3.07E+2	2.78E+2	1.032E−1
1.00E+3	6.32E+3	9.93E+2	1.19E+3	9.11E+2	3.23E+2	3.89E+2	3.48E+2	2.39E+2	2.16E+2	1.284E−1
1.50E+3	4.20E+3	6.61E+2	7.79E+2	5.93E+2	2.16E+2	2.56E+2	2.27E+2	1.49E+2	1.34E+2	1.906E−1
2.00E+3	3.14E+3	4.95E+2	5.74E+2	4.35E+2	1.62E+2	1.90E+2	1.66E+2	1.05E+2	9.41E+1	2.514E−1
3.00E+3	2.08E+3	3.29E+2	3.70E+2	2.77E+2	1.08E+2	1.23E+2	1.06E+2	6.20E+1	5.52E+1	3.692E−1
4.00E+3	1.55E+3	2.46E+2	2.69E+2	1.99E+2	8.05E+1	8.99E+1	7.62E+1	4.15E+1	3.67E+1	4.822E−1
5.00E+3	1.23E+3	1.96E+2	2.08E+2	1.53E+2	6.42E+1	6.99E+1	5.84E+1	2.98E+1	2.62E+1	5.904E−1
6.00E+3	1.02E+3	1.62E+2	1.68E+2	1.22E+2	5.32E+1	5.67E+1	4.67E+1	2.24E+1	1.96E+1	6.943E−1
8.00E+3	7.51E+2	1.21E+2	1.19E+2	8.46E+1	3.94E+1	4.02E+1	3.23E+1	1.39E+1	1.20E+1	8.893E−1
1.00E+4	5.92E+2	9.54E+1	8.95E+1	6.28E+1	3.11E+1	3.05E+1	2.39E+1	9.32E+0	7.98E+0	1.069E+0
1.50E+4	3.81E+2	6.17E+1	5.21E+1	3.52E+1	1.99E+1	1.78E+1	1.34E+1	4.25E+0	3.56E+0	1.459E+0
2.00E+4	2.76E+2	4.47E+1	3.46E+1	2.26E+1	1.43E+1	1.18E+1	8.53E+0	2.31E+0	1.90E+0	1.778E+0
3.00E+4	1.72E+2	2.78E+1	1.86E+1	1.15E+1	8.79E+0	6.35E+0	4.31E+0	9.12E−1	7.29E−1	2.257E+0
4.00E+4	1.22E+2	1.95E+1	1.16E+1	6.89E+0	6.08E+0	3.96E+0	2.56E+0	4.50E−1	3.52E−1	2.582E+0
5.00E+4	9.16E+1	1.46E+1	7.91E+0	4.52E+0	4.51E+0	2.69E+0	1.67E+0	2.55E−1	1.95E−1	2.804E+0
6.00E+4	7.22E+1	1.14E+1	5.72E+0	3.16E+0	3.49E+0	1.94E+0	1.16E+0	1.58E−1	1.19E−1	2.953E+0
8.00E+4	4.88E+1	7.56E+0	3.36E+0	1.76E+0	2.30E+0	1.14E+0	6.41E−1	7.27E−2	5.31E−2	3.114E+0
1.00E+5	3.55E+1	5.43E+0	2.20E+0	1.10E+0	1.64E+0	7.40E−1	3.98E−1	3.94E−2	2.82E−2	3.166E+0
1.50E+5	1.94E+1	2.87E+0	9.89E−1	4.54E−1	8.55E−1	3.32E−1	1.63E−1	1.28E−2	8.80E−3	3.097E+0
2.00E+5	1.23E+1	1.79E+0	5.56E−1	2.40E−1	5.29E−1	1.86E−1	8.59E−2	5.78E−3	3.89E−3	2.941E+0
3.00E+5	6.43E+0	9.04E−1	2.47E−1	9.83E−2	2.65E−1	8.25E−2	3.50E−2	1.93E−3	1.28E−3	2.631E+0
4.00E+5	4.04E+0	5.56E−1	1.40E−1	5.32E−2	1.62E−1	4.68E−2	1.89E−2	9.12E−4	6.09E−4	2.386E+0
5.00E+5	2.83E+0	3.84E−1	9.16E−2	3.37E−2	1.11E−1	3.06E−2	1.19E−2	5.23E−4	3.54E−4	2.199E+0
6.00E+5	2.12E+0	2.85E−1	6.54E−2	2.35E−2	8.24E−2	2.18E−2	8.31E−3	3.38E−4	2.33E−4	2.054E+0
8.00E+5	1.36E+0	1.81E−1	3.93E−2	1.38E−2	5.21E−2	1.31E−2	4.85E−3	1.77E−4	1.27E−4	1.847E+0
1.00E+6	9.79E−1	1.28E−1	2.71E−2	9.33E−3	3.69E−2	9.00E−3	3.28E−3	1.11E−4	8.21E−5	1.707E+0
1.50E+6	5.48E−1	7.11E−2	1.45E−2	4.87E−3	2.04E−2	4.81E−3	1.71E−3	5.13E−5	4.05E−5	1.500E+0
2.00E+6	3.69E−1	4.76E−2	9.64E−3	3.19E−3	1.37E−2	3.21E−3	1.12E−3	3.16E−5	2.59E−5	1.386E+0
3.00E+6	2.17E−1	2.78E−2	5.70E−3	1.84E−3	7.95E−3*	1.89E−3	6.44E−4	1.72E−5	1.46E−5	1.265E+0
4.00E+6	1.51E−1	1.93E−2	4.03E−3	1.28E−3	5.52E−3*	1.34E−3	4.47E−4	1.16E−5	1.01E−5	1.202E+0
5.00E+6	1.15E−1	1.47E−2	3.11E−3*	9.75E−4	4.19E−3*	1.03E−3	3.41E−4			1.163E+0
6.00E+6	9.24E−2*	1.18E−2	2.53E−3*	7.87E−4*	3.37E−3*		2.75E−4			1.137E+0
8.00E+6					2.41E−3*		1.98E−4			
1.00E+7					1.88E−3*					

TABLE. Cross Sections for Radiative Recombination, $Z=1-112$
See page 9 for Explanation of Tables

Z= 78

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 7.006$ fm

$|\epsilon_n|$ (eV)	9.081E+4	2.324E+4	2.324E+4	2.113E+4	1.008E+4	1.009E+4	9.457E+3	9.457E+3	9.282E+3	
1.00E+0	6.52E+6	1.02E+6	1.27E+6	9.81E+5	3.30E+5	4.10E+5	3.74E+5	2.83E+5	2.57E+5	1.239E−4
1.50E+0	4.35E+6	6.81E+5	8.50E+5	6.54E+5	2.20E+5	2.74E+5	2.49E+5	1.89E+5	1.71E+5	1.859E−4
2.00E+0	3.26E+6	5.11E+5	6.37E+5	4.91E+5	1.65E+5	2.05E+5	1.87E+5	1.42E+5	1.28E+5	2.479E−4
3.00E+0	2.18E+6	3.40E+5	4.25E+5	3.27E+5	1.10E+5	1.37E+5	1.25E+5	9.44E+4	8.56E+4	3.718E−4
4.00E+0	1.63E+6	2.55E+5	3.19E+5	2.45E+5	8.25E+4	1.03E+5	9.35E+4	7.08E+4	6.42E+4	4.957E−4
5.00E+0	1.31E+6	2.04E+5	2.55E+5	1.96E+5	6.60E+4	8.20E+4	7.48E+4	5.66E+4	5.14E+4	6.196E−4
6.00E+0	1.09E+6	1.70E+5	2.12E+5	1.64E+5	5.50E+4	6.84E+4	6.23E+4	4.72E+4	4.28E+4	7.435E−4
8.00E+0	8.15E+5	1.28E+5	1.59E+5	1.23E+5	4.12E+4	5.13E+4	4.67E+4	3.54E+4	3.21E+4	9.913E−4
1.00E+1	6.52E+5	1.02E+5	1.27E+5	9.81E+4	3.30E+4	4.10E+4	3.74E+4	2.83E+4	2.57E+4	1.239E−3
1.50E+1	4.35E+5	6.81E+4	8.49E+4	6.54E+4	2.20E+4	2.73E+4	2.49E+4	1.88E+4	1.71E+4	1.858E−3
2.00E+1	3.26E+5	5.11E+4	6.37E+4	4.90E+4	1.65E+4	2.05E+4	1.87E+4	1.41E+4	1.28E+4	2.478E−3
3.00E+1	2.17E+5	3.40E+4	4.24E+4	3.27E+4	1.10E+4	1.37E+4	1.25E+4	9.40E+3	8.53E+3	3.716E−3
4.00E+1	1.63E+5	2.55E+4	3.18E+4	2.45E+4	8.25E+3	1.03E+4	9.33E+3	7.04E+3	6.39E+3	4.953E−3
5.00E+1	1.30E+5	2.04E+4	2.55E+4	1.96E+4	6.60E+3	8.20E+3	7.46E+3	5.63E+3	5.10E+3	6.190E−3
6.00E+1	1.09E+5	1.70E+4	2.12E+4	1.63E+4	5.50E+3	6.83E+3	6.22E+3	4.68E+3	4.25E+3	7.427E−3
8.00E+1	8.15E+4	1.28E+4	1.59E+4	1.22E+4	4.12E+3	5.12E+3	4.66E+3	3.50E+3	3.17E+3	9.898E−3
1.00E+2	6.52E+4	1.02E+4	1.27E+4	9.77E+3	3.30E+3	4.09E+3	3.72E+3	2.79E+3	2.53E+3	1.237E−2
1.50E+2	4.34E+4	6.80E+3	8.45E+3	6.50E+3	2.20E+3	2.73E+3	2.48E+3	1.85E+3	1.68E+3	1.853E−2
2.00E+2	3.26E+4	5.10E+3	6.33E+3	4.86E+3	1.65E+3	2.04E+3	1.85E+3	1.38E+3	1.25E+3	2.468E−2
3.00E+2	2.17E+4	3.40E+3	4.21E+3	3.23E+3	1.10E+3	1.36E+3	1.23E+3	9.06E+2	8.20E+2	3.695E−2
4.00E+2	1.63E+4	2.55E+3	3.14E+3	2.41E+3	8.26E+2	1.02E+3	9.19E+2	6.70E+2	6.06E+2	4.916E−2
5.00E+2	1.30E+4	2.04E+3	2.51E+3	1.92E+3	6.61E+2	8.12E+2	7.32E+2	5.29E+2	4.78E+2	6.132E−2
6.00E+2	1.08E+4	1.70E+3	2.08E+3	1.59E+3	5.51E+2	6.75E+2	6.07E+2	4.35E+2	3.92E+2	7.343E−2
8.00E+2	8.11E+3	1.27E+3	1.55E+3	1.18E+3	4.14E+2	5.04E+2	4.51E+2	3.17E+2	2.86E+2	9.750E−2
1.00E+3	6.48E+3	1.02E+3	1.23E+3	9.37E+2	3.31E+2	4.01E+2	3.58E+2	2.47E+2	2.23E+2	1.214E−1
1.50E+3	4.30E+3	6.78E+2	8.07E+2	6.11E+2	2.21E+2	2.64E+2	2.34E+2	1.55E+2	1.39E+2	1.802E−1
2.00E+3	3.22E+3	5.08E+2	5.96E+2	4.48E+2	1.66E+2	1.96E+2	1.71E+2	1.09E+2	9.73E+1	2.378E−1
3.00E+3	2.13E+3	3.38E+2	3.84E+2	2.86E+2	1.10E+2	1.27E+2	1.09E+2	6.45E+1	5.72E+1	3.494E−1
4.00E+3	1.59E+3	2.52E+2	2.79E+2	2.05E+2	8.26E+1	9.30E+1	7.87E+1	4.33E+1	3.81E+1	4.566E−1
5.00E+3	1.26E+3	2.01E+2	2.17E+2	1.58E+2	6.58E+1	7.25E+1	6.04E+1	3.11E+1	2.73E+1	5.594E−1
6.00E+3	1.04E+3	1.67E+2	1.75E+2	1.26E+2	5.46E+1	5.88E+1	4.83E+1	2.35E+1	2.04E+1	6.581E−1
8.00E+3	7.70E+2	1.24E+2	1.24E+2	8.77E+1	4.05E+1	4.18E+1	3.35E+1	1.46E+1	1.26E+1	8.440E−1
1.00E+4	6.08E+2	9.80E+1	9.36E+1	6.52E+1	3.20E+1	3.17E+1	2.49E+1	9.84E+0	8.39E+0	1.015E+0
1.50E+4	3.92E+2	6.34E+1	5.47E+1	3.67E+1	2.05E+1	1.86E+1	1.39E+1	4.51E+0	3.77E+0	1.389E+0
2.00E+4	2.84E+2	4.61E+1	3.64E+1	2.37E+1	1.48E+1	1.24E+1	8.92E+0	2.47E+0	2.02E+0	1.697E+0
3.00E+4	1.78E+2	2.87E+1	1.97E+1	1.21E+1	9.08E+0	6.71E+0	4.53E+0	9.80E−1	7.81E−1	2.162E+0
4.00E+4	1.25E+2	2.01E+1	1.24E+1	7.25E+0	6.29E+0	4.19E+0	2.69E+0	4.86E−1	3.78E−1	2.483E+0
5.00E+4	9.47E+1	1.51E+1	8.44E+0	4.77E+0	4.67E+0	2.86E+0	1.76E+0	2.76E−1	2.10E−1	2.703E+0
6.00E+4	7.47E+1	1.18E+1	6.11E+0	3.34E+0	3.63E+0	2.07E+0	1.23E+0	1.71E−1	1.28E−1	2.854E+0
8.00E+4	5.06E+1	7.86E+0	3.61E+0	1.87E+0	2.39E+0	1.22E+0	6.81E−1	7.93E−2	5.77E−2	3.022E+0
1.00E+5	3.69E+1	5.65E+0	2.36E+0	1.17E+0	1.71E+0	7.96E−1	4.24E−1	4.31E−2	3.07E−2	3.082E+0
1.50E+5	2.02E+1	3.00E+0	1.07E+0	4.85E−1	8.95E−1	3.59E−1	1.75E−1	1.41E−2	9.63E−3	3.032E+0
2.00E+5	1.29E+1	1.88E+0	6.04E−1	2.57E−1	5.55E−1	2.02E−1	9.21E−2	6.37E−3	4.27E−3	2.890E+0
3.00E+5	6.75E+0	9.52E−1	2.69E−1	1.06E−1	2.79E−1	8.98E−2	3.76E−2	2.13E−3	1.41E−3	2.597E+0
4.00E+5	4.25E+0	5.87E−1	1.53E−1	5.72E−2	1.71E−1	5.11E−2	2.03E−2	1.01E−3	6.70E−4	2.361E+0
5.00E+5	2.98E+0	4.05E−1	1.00E−1	3.63E−2	1.18E−1	3.34E−2	1.28E−2	5.81E−4	3.90E−4	2.180E+0
6.00E+5	2.24E+0	3.01E−1	7.17E−2	2.53E−2	8.71E−2	2.39E−2	8.95E−3	3.76E−4	2.57E−4	2.039E+0
8.00E+5	1.44E+0	1.91E−1	4.32E−2	1.48E−2	5.51E−2	1.44E−2	5.22E−3	1.97E−4	1.40E−4	1.837E+0
1.00E+6	1.04E+0	1.36E−1	2.98E−2	1.01E−2	3.91E−2	9.88E−3	3.53E−3	1.23E−4	9.04E−5	1.699E+0
1.50E+6	5.80E−1	7.53E−2	1.59E−2	5.24E−3	2.16E−2	5.29E−3	1.84E−3	5.72E−5	4.46E−5	1.495E+0
2.00E+6	3.90E−1	5.04E−2	1.06E−2	3.43E−3	1.44E−2	3.53E−3	1.20E−3	3.53E−5	2.85E−5	1.383E+0
3.00E+6	2.29E−1	2.94E−2	6.28E−3	1.98E−3	8.41E−3	2.08E−3	6.91E−4	1.92E−5	1.61E−5	1.263E+0
4.00E+6	1.59E−1	2.04E−2	4.44E−3	1.37E−3	5.83E−3	1.47E−3	4.80E−4	1.29E−5*	1.11E−5	1.200E+0
5.00E+6	1.21E−1	1.55E−2	3.43E−3*	1.05E−3	4.43E−3	1.14E−3	3.66E−4			1.162E+0
6.00E+6	9.8E−2	1.25E−2	2.8E−3		3.56E−3		2.95E−4*			1.136E+0
8.00E+6					2.55E−3					
1.00E+7					1.98E−3					

$Z= 79$

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

R_{nucl} = 7.019 fm

$\vert\epsilon_n\vert$ (eV)	9.341E+4	2.392E+4	2.392E+4	2.169E+4	1.037E+4	1.038E+4	9.708E+3	9.708E+3	9.524E+3	
1.00E+0	6.68E+6	1.05E+6	1.32E+6	1.01E+6	3.38E+5	4.22E+5	3.84E+5	2.92E+5	2.64E+5	1.171E−4
1.50E+0	4.45E+6	6.98E+5	8.79E+5	6.72E+5	2.25E+5	2.81E+5	2.56E+5	1.94E+5	1.76E+5	1.757E−4
2.00E+0	3.34E+6	5.23E+5	6.59E+5	5.04E+5	1.69E+5	2.11E+5	1.92E+5	1.46E+5	1.32E+5	2.342E−4
3.00E+0	2.23E+6	3.49E+5	4.39E+5	3.36E+5	1.13E+5	1.41E+5	1.28E+5	9.72E+4	8.79E+4	3.514E−4
4.00E+0	1.67E+6	2.62E+5	3.30E+5	2.52E+5	8.44E+4	1.06E+5	9.60E+4	7.29E+4	6.59E+4	4.685E−4
5.00E+0	1.34E+6	2.09E+5	2.64E+5	2.02E+5	6.75E+4	8.44E+4	7.68E+4	5.83E+4	5.27E+4	5.856E−4
6.00E+0	1.11E+6	1.74E+5	2.20E+5	1.68E+5	5.63E+4	7.03E+4	6.40E+4	4.86E+4	4.39E+4	7.027E−4
8.00E+0	8.35E+5	1.31E+5	1.65E+5	1.26E+5	4.22E+4	5.27E+4	4.80E+4	3.64E+4	3.30E+4	9.369E−4
1.00E+1	6.68E+5	1.05E+5	1.32E+5	1.01E+5	3.38E+4	4.22E+4	3.84E+4	2.91E+4	2.64E+4	1.171E−3
1.50E+1	4.45E+5	6.98E+4	8.78E+4	6.72E+4	2.25E+4	2.81E+4	2.56E+4	1.94E+4	1.76E+4	1.756E−3
2.00E+1	3.34E+5	5.23E+4	6.59E+4	5.04E+4	1.69E+4	2.11E+4	1.92E+4	1.45E+4	1.32E+4	2.342E−3
3.00E+1	2.23E+5	3.49E+4	4.39E+4	3.36E+4	1.13E+4	1.41E+4	1.28E+4	9.68E+3	8.76E+3	3.512E−3
4.00E+1	1.67E+5	2.62E+4	3.29E+4	2.52E+4	8.44E+3	1.05E+4	9.59E+3	7.25E+3	6.56E+3	4.681E−3
5.00E+1	1.34E+5	2.09E+4	2.63E+4	2.01E+4	6.75E+3	8.43E+3	7.66E+3	5.79E+3	5.24E+3	5.850E−3
6.00E+1	1.11E+5	1.74E+4	2.19E+4	1.68E+4	5.63E+3	7.03E+3	6.38E+3	4.82E+3	4.36E+3	7.019E−3
8.00E+1	8.34E+4	1.31E+4	1.64E+4	1.26E+4	4.22E+3	5.27E+3	4.78E+3	3.61E+3	3.26E+3	9.355E−3
1.00E+2	6.67E+4	1.05E+4	1.31E+4	1.00E+4	3.38E+3	4.21E+3	3.82E+3	2.88E+3	2.60E+3	1.169E−2
1.50E+2	4.45E+4	6.98E+3	8.74E+3	6.67E+3	2.25E+3	2.81E+3	2.54E+3	1.91E+3	1.72E+3	1.752E−2
2.00E+2	3.33E+4	5.23E+3	6.55E+3	4.99E+3	1.69E+3	2.10E+3	1.90E+3	1.42E+3	1.28E+3	2.333E−2
3.00E+2	2.22E+4	3.49E+3	4.35E+3	3.31E+3	1.13E+3	1.40E+3	1.26E+3	9.33E+2	8.43E+2	3.492E−2
4.00E+2	1.67E+4	2.61E+3	3.25E+3	2.47E+3	8.46E+2	1.05E+3	9.44E+2	6.91E+2	6.23E+2	4.647E−2
5.00E+2	1.33E+4	2.09E+3	2.59E+3	1.97E+3	6.77E+2	8.35E+2	7.52E+2	5.45E+2	4.92E+2	5.797E−2
6.00E+2	1.11E+4	1.74E+3	2.15E+3	1.64E+3	5.64E+2	6.95E+2	6.24E+2	4.49E+2	4.04E+2	6.942E−2
8.00E+2	8.30E+3	1.31E+3	1.61E+3	1.22E+3	4.23E+2	5.19E+2	4.64E+2	3.28E+2	2.95E+2	9.219E−2
1.00E+3	6.63E+3	1.04E+3	1.28E+3	9.63E+2	3.39E+2	4.13E+2	3.68E+2	2.56E+2	2.29E+2	1.148E−1
1.50E+3	4.41E+3	6.96E+2	8.37E+2	6.28E+2	2.26E+2	2.72E+2	2.40E+2	1.60E+2	1.43E+2	1.704E−1
2.00E+3	3.29E+3	5.21E+2	6.17E+2	4.61E+2	1.70E+2	2.02E+2	1.76E+2	1.13E+2	1.01E+2	2.250E−1
3.00E+3	2.18E+3	3.46E+2	3.99E+2	2.95E+2	1.13E+2	1.31E+2	1.13E+2	6.71E+1	5.93E+1	3.308E−1
4.00E+3	1.62E+3	2.59E+2	2.90E+2	2.12E+2	8.46E+1	9.62E+1	8.12E+1	4.51E+1	3.96E+1	4.325E−1
5.00E+3	1.29E+3	2.06E+2	2.25E+2	1.63E+2	6.75E+1	7.50E+1	6.24E+1	3.25E+1	2.84E+1	5.302E−1
6.00E+3	1.07E+3	1.71E+2	1.82E+2	1.31E+2	5.60E+1	6.09E+1	5.00E+1	2.46E+1	2.13E+1	6.241E−1
8.00E+3	7.90E+2	1.27E+2	1.29E+2	9.08E+1	4.15E+1	4.34E+1	3.47E+1	1.53E+1	1.32E+1	8.012E−1
1.00E+4	6.23E+2	1.01E+2	9.78E+1	6.76E+1	3.28E+1	3.30E+1	2.58E+1	1.04E+1	8.82E+0	9.651E−1
1.50E+4	4.02E+2	6.52E+1	5.74E+1	3.82E+1	2.11E+1	1.95E+1	1.45E+1	4.78E+0	3.99E+0	1.324E+0
2.00E+4	2.92E+2	4.74E+1	3.83E+1	2.47E+1	1.52E+1	1.30E+1	9.32E+0	2.63E+0	2.15E+0	1.620E+0
3.00E+4	1.83E+2	2.96E+1	2.08E+1	1.27E+1	9.37E+0	7.08E+0	4.75E+0	1.05E+0	8.35E−1	2.072E+0
4.00E+4	1.29E+2	2.08E+1	1.31E+1	7.63E+0	6.51E+0	4.44E+0	2.83E+0	5.24E−1	4.06E−1	2.387E+0
5.00E+4	9.77E+1	1.56E+1	8.99E+0	5.03E+0	4.84E+0	3.04E+0	1.86E+0	2.99E−1	2.27E−1	2.606E+0
6.00E+4	7.72E+1	1.22E+1	6.53E+0	3.53E+0	3.76E+0	2.21E+0	1.30E+0	1.86E−1	1.39E−1	2.758E+0
8.00E+4	5.24E+1	8.17E+0	3.87E+0	1.98E+0	2.49E+0	1.30E+0	7.23E−1	8.64E−2	6.26E−2	2.932E+0
1.00E+5	3.83E+1	5.89E+0	2.54E+0	1.24E+0	1.78E+0	8.54E−1	4.51E−1	4.71E−2	3.34E−2	2.999E+0
1.50E+5	2.10E+1	3.14E+0	1.16E+0	5.17E−1	9.35E−1	3.87E−1	1.87E−1	1.55E−2	1.05E−2	2.967E+0
2.00E+5	1.35E+1	1.97E+0	6.55E−1	2.75E−1	5.82E−1	2.19E−1	9.86E−2	7.02E−3	4.67E−3	2.839E+0
3.00E+5	7.08E+0	1.00E+0	2.93E−1	1.13E−1	2.93E−1	9.77E−2	4.04E−2	2.36E−3	1.55E−3	2.562E+0
4.00E+5	4.47E+0	6.19E−1	1.68E−1	6.15E−2	1.80E−1	5.58E−2	2.18E−2	1.12E−3	7.37E−4	2.336E+0
5.00E+5	3.14E+0	4.28E−1	1.10E−1	3.90E−2	1.24E−1	3.65E−2	1.38E−2	6.44E−4	4.29E−4	2.161E+0
6.00E+5	2.36E+0	3.18E−1	7.86E−2	2.73E−2	9.20E−2	2.61E−2	9.63E−3	4.17E−4	2.83E−4	2.024E+0
8.00E+5	1.52E+0	2.02E−1	4.74E−2	1.60E−2	5.82E−2	1.57E−2	5.62E−3	2.18E−4	1.54E−4	1.826E+0
1.00E+6	1.09E+0	1.44E−1	3.27E−2	1.08E−2	4.14E−2	1.08E−2	3.80E−3	1.37E−4	9.95E−5	1.691E+0
1.50E+6	6.13E−1	7.97E−2	1.75E−2	5.63E−3	2.28E−2	5.81E−3	1.97E−3	6.37E−5	4.90E−5	1.490E+0
2.00E+6	4.13E−1	5.34E−2	1.17E−2	3.68E−3	1.53E−2	3.87E−3	1.29E−3	3.93E−5	3.13E−5	1.379E+0
3.00E+6	2.42E−1	3.11E−2	6.92E−3	2.12E−3	8.88E−3	2.29E−3	7.41E−4	2.14E−5	1.77E−5	1.261E+0
4.00E+6	1.68E−1	2.16E−2	4.89E−3	1.47E−3	6.15E−3*	1.62E−3	5.14E−4	1.44E−5*	1.22E−5	1.199E+0
5.00E+6	1.28E−1	1.64E−2	3.78E−3*	1.12E−3	4.67E−3*	1.25E−3*	3.92E−4	1.1E−5	9.2E−6	1.161E+0
6.00E+6	1.03E−1	1.32E−2	3.08E−3*		3.76E−3*		3.16E−4*			1.135E+0
8.00E+6					2.69E−3*		2.27E−4*			
1.00E+7					2.09E−3*					

TABLE. Cross Sections for Radiative Recombination, $Z=1–112$
See page 9 for Explanation of Tables

$Z = 80$

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$$R_{nucl} = 7.058 \text{ fm}$$

$|\epsilon_n|$ (eV)	9.606E+4	2.461E+4	2.462E+4	2.225E+4	1.067E+4	1.067E+4	9.963E+3	9.963E+3	9.769E+3	
1.00E+0	6.83E+6	1.07E+6	1.36E+6	1.04E+6	3.45E+5	4.34E+5	3.94E+5	3.00E+5	2.71E+5	1.108E−4
1.50E+0	4.56E+6	7.15E+5	9.09E+5	6.90E+5	2.30E+5	2.89E+5	2.63E+5	2.00E+5	1.81E+5	1.661E−4
2.00E+0	3.42E+6	5.36E+5	6.81E+5	5.17E+5	1.73E+5	2.17E+5	1.97E+5	1.50E+5	1.35E+5	2.215E−4
3.00E+0	2.28E+6	3.57E+5	4.54E+5	3.45E+5	1.15E+5	1.45E+5	1.31E+5	1.00E+5	9.03E+4	3.322E−4
4.00E+0	1.71E+6	2.68E+5	3.41E+5	2.59E+5	8.63E+4	1.09E+5	9.86E+4	7.50E+4	6.77E+4	4.430E−4
5.00E+0	1.37E+6	2.15E+5	2.73E+5	2.07E+5	6.91E+4	8.68E+4	7.89E+4	6.00E+4	5.41E+4	5.537E−4
6.00E+0	1.14E+6	1.79E+5	2.27E+5	1.73E+5	5.76E+4	7.23E+4	6.57E+4	5.00E+4	4.51E+4	6.644E−4
8.00E+0	8.54E+5	1.34E+5	1.70E+5	1.29E+5	4.32E+4	5.42E+4	4.93E+4	3.75E+4	3.38E+4	8.859E−4
1.00E+1	6.83E+5	1.07E+5	1.36E+5	1.04E+5	3.45E+4	4.34E+4	3.94E+4	3.00E+4	2.71E+4	1.107E−3
1.50E+1	4.56E+5	7.15E+4	9.08E+4	6.90E+4	2.30E+4	2.89E+4	2.63E+4	2.00E+4	1.80E+4	1.661E−3
2.00E+1	3.42E+5	5.36E+4	6.81E+4	5.17E+4	1.73E+4	2.17E+4	1.97E+4	1.50E+4	1.35E+4	2.214E−3
3.00E+1	2.28E+5	3.57E+4	4.54E+4	3.45E+4	1.15E+4	1.45E+4	1.31E+4	9.96E+3	8.99E+3	3.321E−3
4.00E+1	1.71E+5	2.68E+4	3.40E+4	2.58E+4	8.63E+3	1.08E+4	9.84E+3	7.46E+3	6.74E+3	4.427E−3
5.00E+1	1.37E+5	2.15E+4	2.72E+4	2.07E+4	6.91E+3	8.67E+3	7.87E+3	5.96E+3	5.38E+3	5.532E−3
6.00E+1	1.14E+5	1.79E+4	2.27E+4	1.72E+4	5.76E+3	7.22E+3	6.56E+3	4.96E+3	4.48E+3	6.637E−3
8.00E+1	8.54E+4	1.34E+4	1.70E+4	1.29E+4	4.32E+3	5.42E+3	4.91E+3	3.71E+3	3.35E+3	8.846E−3
1.00E+2	6.83E+4	1.07E+4	1.36E+4	1.03E+4	3.46E+3	4.33E+3	3.93E+3	2.96E+3	2.67E+3	1.105E−2
1.50E+2	4.55E+4	7.15E+3	9.04E+3	6.85E+3	2.30E+3	2.89E+3	2.61E+3	1.96E+3	1.77E+3	1.656E−2
2.00E+2	3.41E+4	5.36E+3	6.77E+3	5.13E+3	1.73E+3	2.16E+3	1.96E+3	1.46E+3	1.32E+3	2.206E−2
3.00E+2	2.27E+4	3.57E+3	4.50E+3	3.40E+3	1.15E+3	1.44E+3	1.30E+3	9.62E+2	8.66E+2	3.303E−2
4.00E+2	1.70E+4	2.68E+3	3.36E+3	2.54E+3	8.65E+2	1.08E+3	9.70E+2	7.12E+2	6.41E+2	4.395E−2
5.00E+2	1.36E+4	2.14E+3	2.68E+3	2.03E+3	6.92E+2	8.60E+2	7.73E+2	5.62E+2	5.06E+2	5.483E−2
6.00E+2	1.13E+4	1.79E+3	2.23E+3	1.68E+3	5.77E+2	7.15E+2	6.41E+2	4.63E+2	4.16E+2	6.567E−2
8.00E+2	8.49E+3	1.34E+3	1.66E+3	1.25E+3	4.33E+2	5.34E+2	4.77E+2	3.38E+2	3.03E+2	8.721E−2
1.00E+3	6.79E+3	1.07E+3	1.32E+3	9.90E+2	3.47E+2	4.25E+2	3.78E+2	2.64E+2	2.36E+2	1.086E−1
1.50E+3	4.51E+3	7.13E+2	8.66E+2	6.46E+2	2.31E+2	2.81E+2	2.47E+2	1.66E+2	1.48E+2	1.613E−1
2.00E+3	3.37E+3	5.34E+2	6.40E+2	4.75E+2	1.74E+2	2.08E+2	1.82E+2	1.17E+2	1.04E+2	2.130E−1
3.00E+3	2.23E+3	3.55E+2	4.14E+2	3.03E+2	1.16E+2	1.36E+2	1.16E+2	6.97E+1	6.15E+1	3.134E−1
4.00E+3	1.66E+3	2.65E+2	3.01E+2	2.19E+2	8.66E+1	9.94E+1	8.37E+1	4.70E+1	4.12E+1	4.099E−1
5.00E+3	1.32E+3	2.11E+2	2.34E+2	1.68E+2	6.91E+1	7.76E+1	6.44E+1	3.40E+1	2.96E+1	5.028E−1
6.00E+3	1.09E+3	1.76E+2	1.90E+2	1.35E+2	5.74E+1	6.31E+1	5.16E+1	2.57E+1	2.23E+1	5.922E−1
8.00E+3	8.09E+2	1.30E+2	1.35E+2	9.39E+1	4.26E+1	4.51E+1	3.59E+1	1.61E+1	1.38E+1	7.610E−1
1.00E+4	6.39E+2	1.03E+2	1.02E+2	7.01E+1	3.37E+1	3.43E+1	2.67E+1	1.09E+1	9.27E+0	9.174E−1
1.50E+4	4.12E+2	6.70E+1	6.02E+1	3.97E+1	2.17E+1	2.03E+1	1.51E+1	5.07E+0	4.21E+0	1.261E+0
2.00E+4	3.00E+2	4.88E+1	4.03E+1	2.57E+1	1.57E+1	1.37E+1	9.72E+0	2.80E+0	2.28E+0	1.547E+0
3.00E+4	1.88E+2	3.05E+1	2.20E+1	1.33E+1	9.67E+0	7.46E+0	4.98E+0	1.13E+0	8.92E−1	1.986E+0
4.00E+4	1.33E+2	2.15E+1	1.39E+1	8.01E+0	6.72E+0	4.70E+0	2.98E+0	5.65E−1	4.36E−1	2.295E+0
5.00E+4	1.01E+2	1.61E+1	9.57E+0	5.30E+0	5.01E+0	3.23E+0	1.96E+0	3.23E−1	2.44E−1	2.512E+0
6.00E+4	7.97E+1	1.27E+1	6.97E+0	3.73E+0	3.90E+0	2.35E+0	1.37E+0	2.02E−1	1.50E−1	2.666E+0
8.00E+4	5.43E+1	8.49E+0	4.15E+0	2.10E+0	2.58E+0	1.39E+0	7.66E−1	9.40E−2	6.78E−2	2.844E+0
1.00E+5	3.97E+1	6.13E+0	2.73E+0	1.32E+0	1.85E+0	9.16E−1	4.79E−1	5.14E−2	3.62E−2	2.919E+0
1.50E+5	2.19E+1	3.28E+0	1.25E+0	5.52E−1	9.77E−1	4.18E−1	1.99E−1	1.70E−2	1.15E−2	2.904E+0
2.00E+5	1.41E+1	2.06E+0	7.11E−1	2.94E−1	6.09E−1	2.37E−1	1.05E−1	7.72E−3	5.11E−3	2.788E+0
3.00E+5	7.43E+0	1.05E+0	3.20E−1	1.21E−1	3.08E−1	1.06E−1	4.33E−2	2.60E−3	1.70E−3	2.528E+0
4.00E+5	4.70E+0	6.52E−1	1.83E−1	6.60E−2	1.89E−1	6.08E−2	2.34E−2	1.24E−3	8.09E−4	2.311E+0
5.00E+5	3.31E+0	4.51E−1	1.20E−1	4.19E−2	1.31E−1	3.99E−2	1.48E−2	7.12E−4	4.72E−4	2.142E+0
6.00E+5	2.49E+0	3.36E−1	8.61E−2	2.93E−2	9.71E−2	2.85E−2	1.04E−2	4.62E−4	3.11E−4	2.009E+0
8.00E+5	1.61E+0	2.14E−1	5.20E−2	1.72E−2	6.15E−2	1.72E−2	6.04E−3	2.42E−4	1.69E−4	1.815E+0
1.00E+6	1.16E+0	1.52E−1	3.59E−2	1.16E−2	4.37E−2	1.19E−2	4.08E−3	1.52E−4	1.09E−4	1.683E+0
1.50E+6	6.47E−1	8.43E−2	1.93E−2	6.04E−3	2.41E−2	6.37E−3	2.12E−3	7.08E−5	5.39E−5	1.485E+0
2.00E+6	4.36E−1	5.64E−2	1.29E−2	3.95E−3	1.61E−2	4.25E−3	1.38E−3	4.37E−5	3.44E−5	1.376E+0
3.00E+6	2.55E−1	3.28E−2	7.61E−3	2.27E−3	9.37E−3*	2.52E−3	7.95E−4	2.38E−5	1.94E−5	1.259E+0
4.00E+6	1.77E−1	2.28E−2	5.38E−3*	1.58E−3	6.49E−3*	1.78E−3	5.51E−4	1.61E−5	1.33E−5	1.197E+0
5.00E+6	1.35E−1	1.73E−2	4.16E−3*	1.20E−3	4.93E−3*	1.38E−3	4.20E−4	1.21E−5*	1.01E−5	1.159E+0
6.00E+6	1.08E−1	1.39E−2			3.96E−3*	1.12E−3*	3.39E−4			1.134E+0

$Z= 81$

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 7.079$ fm

$|\epsilon_n|$ (eV)	9.876E+4	2.532E+4	2.533E+4	2.283E+4	1.097E+4	1.097E+4	1.022E+4	1.022E+4	1.002E+4	
1.00E+0	6.99E+6	1.10E+6	1.41E+6	1.06E+6	3.53E+5	4.46E+5	4.05E+5	3.09E+5	2.78E+5	1.048E−4
1.50E+0	4.66E+6	7.32E+5	9.39E+5	7.08E+5	2.35E+5	2.97E+5	2.70E+5	2.06E+5	1.85E+5	1.572E−4
2.00E+0	3.49E+6	5.49E+5	7.04E+5	5.31E+5	1.77E+5	2.23E+5	2.02E+5	1.54E+5	1.39E+5	2.095E−4
3.00E+0	2.33E+6	3.66E+5	4.70E+5	3.54E+5	1.18E+5	1.49E+5	1.35E+5	1.03E+5	9.26E+4	3.143E−4
4.00E+0	1.75E+6	2.75E+5	3.52E+5	2.66E+5	8.83E+4	1.12E+5	1.01E+5	7.72E+4	6.95E+4	4.191E−4
5.00E+0	1.40E+6	2.20E+5	2.82E+5	2.12E+5	7.06E+4	8.92E+4	8.10E+4	6.17E+4	5.56E+4	5.238E−4
6.00E+0	1.17E+6	1.83E+5	2.35E+5	1.77E+5	5.89E+4	7.43E+4	6.75E+4	5.14E+4	4.63E+4	6.286E−4
8.00E+0	8.74E+5	1.37E+5	1.76E+5	1.33E+5	4.41E+4	5.58E+4	5.06E+4	3.86E+4	3.47E+4	8.381E−4
1.00E+1	6.99E+5	1.10E+5	1.41E+5	1.06E+5	3.53E+4	4.46E+4	4.05E+4	3.08E+4	2.78E+4	1.048E−3
1.50E+1	4.66E+5	7.32E+4	9.39E+4	7.08E+4	2.35E+4	2.97E+4	2.70E+4	2.06E+4	1.85E+4	1.571E−3
2.00E+1	3.49E+5	5.49E+4	7.04E+4	5.31E+4	1.77E+4	2.23E+4	2.02E+4	1.54E+4	1.39E+4	2.095E−3
3.00E+1	2.33E+5	3.66E+4	4.69E+4	3.54E+4	1.18E+4	1.49E+4	1.35E+4	1.03E+4	9.23E+3	3.142E−3
4.00E+1	1.75E+5	2.75E+4	3.52E+4	2.65E+4	8.83E+3	1.11E+4	1.01E+4	7.68E+3	6.91E+3	4.188E−3
5.00E+1	1.40E+5	2.20E+4	2.81E+4	2.12E+4	7.06E+3	8.91E+3	8.08E+3	6.14E+3	5.52E+3	5.234E−3
6.00E+1	1.16E+5	1.83E+4	2.34E+4	1.77E+4	5.89E+3	7.43E+3	6.73E+3	5.11E+3	4.60E+3	6.279E−3
8.00E+1	8.73E+4	1.37E+4	1.76E+4	1.32E+4	4.42E+3	5.57E+3	5.04E+3	3.82E+3	3.44E+3	8.369E−3
1.00E+2	6.98E+4	1.10E+4	1.40E+4	1.06E+4	3.53E+3	4.45E+3	4.03E+3	3.05E+3	2.74E+3	1.046E−2
1.50E+2	4.65E+4	7.32E+3	9.35E+3	7.04E+3	2.36E+3	2.97E+3	2.68E+3	2.02E+3	1.82E+3	1.567E−2
2.00E+2	3.49E+4	5.49E+3	7.00E+3	5.27E+3	1.77E+3	2.22E+3	2.01E+3	1.51E+3	1.35E+3	2.088E−2
3.00E+2	2.33E+4	3.66E+3	4.65E+3	3.50E+3	1.18E+3	1.48E+3	1.33E+3	9.91E+2	8.90E+2	3.125E−2
4.00E+2	1.74E+4	2.74E+3	3.48E+3	2.61E+3	8.85E+2	1.11E+3	9.96E+2	7.34E+2	6.58E+2	4.159E−2
5.00E+2	1.39E+4	2.20E+3	2.77E+3	2.08E+3	7.08E+2	8.84E+2	7.94E+2	5.80E+2	5.20E+2	5.189E−2
6.00E+2	1.16E+4	1.83E+3	2.31E+3	1.73E+3	5.90E+2	7.35E+2	6.59E+2	4.77E+2	4.27E+2	6.215E−2
8.00E+2	8.69E+3	1.37E+3	1.72E+3	1.28E+3	4.43E+2	5.50E+2	4.90E+2	3.49E+2	3.12E+2	8.255E−2
1.00E+3	6.94E+3	1.10E+3	1.37E+3	1.02E+3	3.55E+2	4.38E+2	3.89E+2	2.73E+2	2.43E+2	1.028E−1
1.50E+3	4.61E+3	7.30E+2	8.97E+2	6.64E+2	2.37E+2	2.89E+2	2.54E+2	1.71E+2	1.52E+2	1.527E−1
2.00E+3	3.45E+3	5.47E+2	6.63E+2	4.88E+2	1.78E+2	2.15E+2	1.87E+2	1.21E+2	1.07E+2	2.017E−1
3.00E+3	2.28E+3	3.64E+2	4.29E+2	3.13E+2	1.18E+2	1.40E+2	1.20E+2	7.24E+1	6.37E+1	2.970E−1
4.00E+3	1.70E+3	2.72E+2	3.13E+2	2.25E+2	8.87E+1	1.03E+2	8.63E+1	4.89E+1	4.27E+1	3.886E−1
5.00E+3	1.35E+3	2.17E+2	2.43E+2	1.74E+2	7.08E+1	8.03E+1	6.65E+1	3.54E+1	3.08E+1	4.770E−1
6.00E+3	1.12E+3	1.80E+2	1.97E+2	1.39E+2	5.88E+1	6.53E+1	5.33E+1	2.69E+1	2.32E+1	5.620E−1
8.00E+3	8.29E+2	1.34E+2	1.40E+2	9.72E+1	4.37E+1	4.68E+1	3.72E+1	1.69E+1	1.44E+1	7.230E−1
1.00E+4	6.55E+2	1.06E+2	1.07E+2	7.26E+1	3.45E+1	3.57E+1	2.77E+1	1.15E+1	9.72E+0	8.724E−1
1.50E+4	4.23E+2	6.88E+1	6.30E+1	4.13E+1	2.23E+1	2.12E+1	1.57E+1	5.37E+0	4.45E+0	1.202E+0
2.00E+4	3.08E+2	5.02E+1	4.24E+1	2.68E+1	1.61E+1	1.43E+1	1.01E+1	2.98E+0	2.42E+0	1.478E+0
3.00E+4	1.93E+2	3.15E+1	2.33E+1	1.39E+1	9.96E+0	7.86E+0	5.21E+0	1.21E+0	9.52E−1	1.904E+0
4.00E+4	1.37E+2	2.22E+1	1.47E+1	8.41E+0	6.94E+0	4.97E+0	3.13E+0	6.07E−1	4.67E−1	2.206E+0
5.00E+4	1.04E+2	1.67E+1	1.02E+1	5.58E+0	5.18E+0	3.43E+0	2.06E+0	3.48E−1	2.62E−1	2.422E+0
6.00E+4	8.23E+1	1.31E+1	7.43E+0	3.94E+0	4.04E+0	2.50E+0	1.45E+0	2.18E−1	1.61E−1	2.576E+0
8.00E+4	5.61E+1	8.81E+0	4.44E+0	2.22E+0	2.68E+0	1.49E+0	8.11E−1	1.02E−1	7.34E−2	2.759E+0
1.00E+5	4.12E+1	6.37E+0	2.94E+0	1.40E+0	1.92E+0	9.82E−1	5.09E−1	5.61E−2	3.93E−2	2.840E+0
1.50E+5	2.28E+1	3.42E+0	1.35E+0	5.87E−1	1.02E+0	4.50E−1	2.12E−1	1.86E−2	1.25E−2	2.841E+0
2.00E+5	1.47E+1	2.16E+0	7.70E−1	3.14E−1	6.37E−1	2.56E−1	1.13E−1	8.47E−3	5.58E−3	2.738E+0
3.00E+5	7.78E+0	1.11E+0	3.48E−1	1.30E−1	3.23E−1	1.15E−1	4.64E−2	2.87E−3	1.86E−3	2.494E+0
4.00E+5	4.94E+0	6.86E−1	2.00E−1	7.08E−2	1.99E−1	6.62E−2	2.51E−2	1.37E−3	8.88E−4	2.287E+0
5.00E+5	3.48E+0	4.76E−1	1.31E−1	4.49E−2	1.38E−1	4.35E−2	1.59E−2	7.87E−4	5.18E−4	2.123E+0
6.00E+5	2.62E+0	3.55E−1	9.42E−2	3.14E−2	1.02E−1	3.12E−2	1.11E−2	5.11E−4	3.41E−4	1.993E+0
8.00E+5	1.70E+0	2.26E−1	5.70E−2	1.84E−2	6.50E−2	1.88E−2	6.49E−3	2.68E−4	1.85E−4	1.804E+0
1.00E+6	1.22E+0	1.61E−1	3.94E−2	1.25E−2	4.62E−2	1.30E−2	4.38E−3	1.69E−4	1.20E−4	1.675E+0
1.50E+6	6.83E−1	8.91E−2	2.12E−2	6.48E−3	2.55E−2	6.98E−3	2.27E−3	7.86E−5	5.91E−5	1.480E+0
2.00E+6	4.60E−1	5.96E−2	1.41E−2	4.23E−3	1.70E−2	4.66E−3	1.48E−3	4.86E−5	3.77E−5	1.372E+0
3.00E+6	2.69E−1	3.47E−2	8.37E−3	2.43E−3	9.89E−3	2.76E−3	8.51E−4	2.64E−5	2.12E−5	1.257E+0
4.00E+6	1.87E−1	2.40E−2	5.92E−3	1.69E−3	6.84E−3	1.95E−3	5.89E−4	1.79E−5*	1.46E−5	1.196E+0
5.00E+6	1.42E−1	1.82E−2	4.58E−3*	1.28E−3	5.19E−3*	1.51E−3	4.49E−4*		1.11E−5	1.158E+0
6.00E+6	1.14E−1	1.47E−2	3.73E−3*	1.04E−3	4.17E−3*		3.62E−4*			1.133E+0
8.00E+6		1.05E−2			2.98E−3*					
1.00E+7					2.31E−3*					

TABLE. Cross Sections for Radiative Recombination, Z=1–112

See page 9 for Explanation of Tables

$Z= 82$

T_e (eV)	σ_{RR} (b)									$f_{1s_{1/2}}$
	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 7.106$ fm

$|\epsilon_n|$ (eV)	1.015E+5	2.605E+4	2.606E+4	2.341E+4	1.127E+4	1.127E+4	1.048E+4	1.048E+4	1.027E+4	
1.00E+0	7.15E+6	1.13E+6	1.46E+6	1.09E+6	3.61E+5	4.58E+5	4.15E+5	3.18E+5	2.85E+5	9.916E−5
1.50E+0	4.76E+6	7.50E+5	9.71E+5	7.27E+5	2.41E+5	3.06E+5	2.77E+5	2.12E+5	1.90E+5	1.487E−4
2.00E+0	3.57E+6	5.62E+5	7.28E+5	5.45E+5	1.80E+5	2.29E+5	2.08E+5	1.59E+5	1.43E+5	1.983E−4
3.00E+0	2.38E+6	3.75E+5	4.85E+5	3.63E+5	1.20E+5	1.53E+5	1.39E+5	1.06E+5	9.51E+4	2.975E−4
4.00E+0	1.79E+6	2.81E+5	3.64E+5	2.73E+5	9.02E+4	1.15E+5	1.04E+5	7.94E+4	7.13E+4	3.967E−4
5.00E+0	1.43E+6	2.25E+5	2.91E+5	2.18E+5	7.22E+4	9.17E+4	8.31E+4	6.35E+4	5.70E+4	4.958E−4
6.00E+0	1.19E+6	1.87E+5	2.43E+5	1.82E+5	6.02E+4	7.64E+4	6.92E+4	5.29E+4	4.75E+4	5.950E−4
8.00E+0	8.93E+5	1.41E+5	1.82E+5	1.36E+5	4.51E+4	5.73E+4	5.19E+4	3.97E+4	3.56E+4	7.933E−4
1.00E+1	7.15E+5	1.13E+5	1.46E+5	1.09E+5	3.61E+4	4.58E+4	4.15E+4	3.17E+4	2.85E+4	9.916E−4
1.50E+1	4.76E+5	7.50E+4	9.70E+4	7.26E+4	2.41E+4	3.06E+4	2.77E+4	2.11E+4	1.90E+4	1.487E−3
2.00E+1	3.57E+5	5.62E+4	7.28E+4	5.45E+4	1.81E+4	2.29E+4	2.08E+4	1.58E+4	1.42E+4	1.983E−3
3.00E+1	2.38E+5	3.75E+4	4.85E+4	3.63E+4	1.20E+4	1.53E+4	1.38E+4	1.06E+4	9.47E+3	2.974E−3
4.00E+1	1.79E+5	2.81E+4	3.64E+4	2.72E+4	9.02E+3	1.15E+4	1.04E+4	7.90E+3	7.09E+3	3.964E−3
5.00E+1	1.43E+5	2.25E+4	2.91E+4	2.18E+4	7.22E+3	9.16E+3	8.29E+3	6.31E+3	5.67E+3	4.954E−3
6.00E+1	1.19E+5	1.87E+4	2.42E+4	1.81E+4	6.02E+3	7.63E+3	6.91E+3	5.26E+3	4.72E+3	5.944E−3
8.00E+1	8.93E+4	1.41E+4	1.82E+4	1.36E+4	4.51E+3	5.72E+3	5.18E+3	3.93E+3	3.53E+3	7.923E−3
1.00E+2	7.14E+4	1.12E+4	1.45E+4	1.09E+4	3.61E+3	4.58E+3	4.14E+3	3.14E+3	2.82E+3	9.900E−3
1.50E+2	4.76E+4	7.50E+3	9.66E+3	7.22E+3	2.41E+3	3.05E+3	2.75E+3	2.08E+3	1.86E+3	1.484E−2
2.00E+2	3.57E+4	5.62E+3	7.24E+3	5.41E+3	1.81E+3	2.28E+3	2.06E+3	1.55E+3	1.39E+3	1.976E−2
3.00E+2	2.38E+4	3.75E+3	4.81E+3	3.59E+3	1.21E+3	1.52E+3	1.37E+3	1.02E+3	9.14E+2	2.959E−2
4.00E+2	1.78E+4	2.81E+3	3.60E+3	2.68E+3	9.04E+2	1.14E+3	1.02E+3	7.56E+2	6.76E+2	3.938E−2
5.00E+2	1.42E+4	2.25E+3	2.87E+3	2.14E+3	7.24E+2	9.09E+2	8.15E+2	5.97E+2	5.34E+2	4.913E−2
6.00E+2	1.19E+4	1.87E+3	2.38E+3	1.77E+3	6.03E+2	7.56E+2	6.76E+2	4.92E+2	4.39E+2	5.885E−2
8.00E+2	8.89E+3	1.40E+3	1.78E+3	1.32E+3	4.53E+2	5.65E+2	5.03E+2	3.60E+2	3.21E+2	7.817E−2
1.00E+3	7.10E+3	1.12E+3	1.41E+3	1.05E+3	3.63E+2	4.51E+2	4.00E+2	2.81E+2	2.51E+2	9.735E−2
1.50E+3	4.72E+3	7.48E+2	9.29E+2	6.83E+2	2.42E+2	2.98E+2	2.61E+2	1.77E+2	1.57E+2	1.447E−1
2.00E+3	3.53E+3	5.60E+2	6.87E+2	5.02E+2	1.82E+2	2.21E+2	1.92E+2	1.26E+2	1.11E+2	1.911E−1
3.00E+3	2.34E+3	3.73E+2	4.45E+2	3.22E+2	1.21E+2	1.44E+2	1.23E+2	7.51E+1	6.59E+1	2.815E−1
4.00E+3	1.74E+3	2.79E+2	3.25E+2	2.32E+2	9.07E+1	1.06E+2	8.90E+1	5.09E+1	4.43E+1	3.687E−1
5.00E+3	1.38E+3	2.22E+2	2.53E+2	1.79E+2	7.24E+1	8.29E+1	6.85E+1	3.69E+1	3.20E+1	4.526E−1
6.00E+3	1.15E+3	1.84E+2	2.05E+2	1.44E+2	6.01E+1	6.76E+1	5.51E+1	2.81E+1	2.42E+1	5.336E−1
8.00E+3	8.49E+2	1.37E+2	1.46E+2	1.01E+2	4.47E+1	4.85E+1	3.84E+1	1.77E+1	1.51E+1	6.871E−1
1.00E+4	6.71E+2	1.09E+2	1.11E+2	7.51E+1	3.54E+1	3.71E+1	2.87E+1	1.21E+1	1.02E+1	8.299E−1
1.50E+4	4.34E+2	7.07E+1	6.60E+1	4.29E+1	2.29E+1	2.22E+1	1.63E+1	5.68E+0	4.69E+0	1.146E+0
2.00E+4	3.16E+2	5.16E+1	4.45E+1	2.79E+1	1.66E+1	1.50E+1	1.06E+1	3.16E+0	2.56E+0	1.411E+0
3.00E+4	1.99E+2	3.24E+1	2.46E+1	1.45E+1	1.03E+1	8.27E+0	5.45E+0	1.29E+0	1.01E+0	1.825E+0
4.00E+4	1.41E+2	2.29E+1	1.56E+1	8.83E+0	7.17E+0	5.26E+0	3.29E+0	6.53E−1	5.00E−1	2.121E+0
5.00E+4	1.07E+2	1.72E+1	1.08E+1	5.87E+0	5.35E+0	3.63E+0	2.17E+0	3.75E−1	2.82E−1	2.335E+0
6.00E+4	8.49E+1	1.36E+1	7.92E+0	4.15E+0	4.18E+0	2.66E+0	1.53E+0	2.36E−1	1.74E−1	2.489E+0
8.00E+4	5.80E+1	9.13E+0	4.75E+0	2.35E+0	2.78E+0	1.59E+0	8.58E−1	1.11E−1	7.93E−2	2.676E+0
1.00E+5	4.27E+1	6.62E+0	3.15E+0	1.48E+0	2.00E+0	1.05E+0	5.39E−1	6.10E−2	4.26E−2	2.763E+0
1.50E+5	2.37E+1	3.57E+0	1.46E+0	6.25E−1	1.06E+0	4.85E−1	2.26E−1	2.03E−2	1.36E−2	2.779E+0
2.00E+5	1.53E+1	2.26E+0	8.33E−1	3.35E−1	6.66E−1	2.77E−1	1.20E−1	9.29E−3	6.09E−3	2.688E+0
3.00E+5	8.15E+0	1.16E+0	3.78E−1	1.39E−1	3.39E−1	1.25E−1	4.96E−2	3.15E−3	2.03E−3	2.460E+0
4.00E+5	5.18E+0	7.21E−1	2.18E−1	7.58E−2	2.10E−1	7.20E−2	2.69E−2	1.51E−3	9.72E−4	2.262E+0
5.00E+5	3.66E+0	5.01E−1	1.43E−1	4.82E−2	1.45E−1	4.74E−2	1.71E−2	8.69E−4	5.67E−4	2.103E+0
6.00E+5	2.76E+0	3.74E−1	1.03E−1	3.37E−2	1.08E−1	3.40E−2	1.19E−2	5.65E−4	3.74E−4	1.978E+0
8.00E+5	1.79E+0	2.39E−1	6.24E−2	1.97E−2	6.85E−2	2.06E−2	6.96E−3	2.97E−4	2.03E−4	1.793E+0
1.00E+6	1.29E+0	1.70E−1	4.32E−2	1.34E−2	4.87E−2	1.42E−2	4.70E−3	1.87E−4	1.32E−4	1.667E+0
1.50E+6	7.21E−1	9.42E−2	2.32E−2	6.94E−3	2.69E−2	7.64E−3	2.43E−3	8.72E−5	6.47E−5	1.475E+0
2.00E+6	4.85E−1	6.30E−2	1.55E−2	4.53E−3	1.80E−2	5.11E−3	1.59E−3	5.39E−5	4.13E−5	1.369E+0
3.00E+6	2.83E−1	3.66E−2	9.20E−3	2.60E−3	1.04E−2	3.03E−3	9.10E−4	2.93E−5	2.32E−5	1.254E+0
4.00E+6	1.97E−1	2.53E−2	6.51E−3	1.80E−3	7.21E−3	2.14E−3	6.30E−4	1.98E−5*	1.60E−5	1.194E+0
5.00E+6	1.50E−1	1.92E−2	5.03E−3*	1.37E−3	5.47E−3	1.66E−3	4.80E−4	1.5E−5	1.21E−5	1.157E+0
6.00E+6	1.20E−1	1.54E−2	4.1E−3	1.11E−3	4.39E−3*	1.35E−3*	3.87E−4*			1.132E+0
8.00E+6		1.10E−2*			3.14E−3*					
1.00E+7					2.43E−3*					

TABLE. Cross Sections for Radiative Recombination, $Z=1–112$
See page 9 for Explanation of Tables

$Z= 83$

T_e (eV)	σ_{RR} (b)									$f_{1s_{1/2}}$
	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 7.143$ fm

$\lvert\epsilon_n\rvert$ (eV)	1.043E+5	2.679E+4	2.680E+4	2.400E+4	1.158E+4	1.159E+4	1.075E+4	1.075E+4	1.052E+4	
1.00E+0	7.30E+6	1.15E+6	1.50E+6	1.12E+6	3.69E+5	4.71E+5	4.26E+5	3.27E+5	2.93E+5	9.391E−5
1.50E+0	4.87E+6	7.67E+5	1.00E+6	7.46E+5	2.46E+5	3.14E+5	2.84E+5	2.18E+5	1.95E+5	1.409E−4
2.00E+0	3.65E+6	5.76E+5	7.52E+5	5.59E+5	1.84E+5	2.35E+5	2.13E+5	1.63E+5	1.46E+5	1.878E−4
3.00E+0	2.43E+6	3.84E+5	5.01E+5	3.73E+5	1.23E+5	1.57E+5	1.42E+5	1.09E+5	9.75E+4	2.817E−4
4.00E+0	1.83E+6	2.88E+5	3.76E+5	2.80E+5	9.22E+4	1.18E+5	1.07E+5	8.16E+4	7.31E+4	3.756E−4
5.00E+0	1.46E+6	2.30E+5	3.01E+5	2.24E+5	7.37E+4	9.42E+4	8.52E+4	6.53E+4	5.85E+4	4.696E−4
6.00E+0	1.22E+6	1.92E+5	2.51E+5	1.86E+5	6.15E+4	7.85E+4	7.10E+4	5.44E+4	4.87E+4	5.635E−4
8.00E+0	9.13E+5	1.44E+5	1.88E+5	1.40E+5	4.61E+4	5.89E+4	5.33E+4	4.08E+4	3.65E+4	7.511E−4
1.00E+1	7.30E+5	1.15E+5	1.50E+5	1.12E+5	3.69E+4	4.71E+4	4.26E+4	3.26E+4	2.92E+4	9.389E−4
1.50E+1	4.87E+5	7.67E+4	1.00E+5	7.45E+4	2.46E+4	3.14E+4	2.84E+4	2.17E+4	1.95E+4	1.408E−3
2.00E+1	3.65E+5	5.76E+4	7.52E+4	5.59E+4	1.84E+4	2.35E+4	2.13E+4	1.63E+4	1.46E+4	1.878E−3
3.00E+1	2.43E+5	3.84E+4	5.01E+4	3.72E+4	1.23E+4	1.57E+4	1.42E+4	1.09E+4	9.72E+3	2.816E−3
4.00E+1	1.83E+5	2.88E+4	3.76E+4	2.79E+4	9.22E+3	1.18E+4	1.06E+4	8.13E+3	7.28E+3	3.754E−3
5.00E+1	1.46E+5	2.30E+4	3.00E+4	2.23E+4	7.38E+3	9.41E+3	8.51E+3	6.49E+3	5.81E+3	4.691E−3
6.00E+1	1.22E+5	1.92E+4	2.50E+4	1.86E+4	6.15E+3	7.84E+3	7.09E+3	5.41E+3	4.84E+3	5.628E−3
8.00E+1	9.12E+4	1.44E+4	1.88E+4	1.39E+4	4.61E+3	5.88E+3	5.31E+3	4.04E+3	3.62E+3	7.502E−3
1.00E+2	7.30E+4	1.15E+4	1.50E+4	1.11E+4	3.69E+3	4.70E+3	4.25E+3	3.23E+3	2.89E+3	9.374E−3
1.50E+2	4.86E+4	7.67E+3	9.99E+3	7.41E+3	2.46E+3	3.13E+3	2.83E+3	2.14E+3	1.91E+3	1.405E−2
2.00E+2	3.65E+4	5.75E+3	7.48E+3	5.55E+3	1.85E+3	2.35E+3	2.12E+3	1.59E+3	1.43E+3	1.871E−2
3.00E+2	2.43E+4	3.84E+3	4.97E+3	3.68E+3	1.23E+3	1.56E+3	1.40E+3	1.05E+3	9.38E+2	2.802E−2
4.00E+2	1.82E+4	2.88E+3	3.72E+3	2.75E+3	9.24E+2	1.17E+3	1.05E+3	7.78E+2	6.95E+2	3.729E−2
5.00E+2	1.46E+4	2.30E+3	2.97E+3	2.19E+3	7.39E+2	9.34E+2	8.36E+2	6.15E+2	5.49E+2	4.653E−2
6.00E+2	1.21E+4	1.92E+3	2.47E+3	1.82E+3	6.16E+2	7.77E+2	6.94E+2	5.07E+2	4.52E+2	5.574E−2
8.00E+2	9.08E+3	1.44E+3	1.84E+3	1.35E+3	4.63E+2	5.81E+2	5.17E+2	3.71E+2	3.30E+2	7.405E−2
1.00E+3	7.26E+3	1.15E+3	1.46E+3	1.07E+3	3.70E+2	4.63E+2	4.10E+2	2.90E+2	2.58E+2	9.223E−2
1.50E+3	4.82E+3	7.65E+2	9.61E+2	7.02E+2	2.47E+2	3.06E+2	2.68E+2	1.83E+2	1.62E+2	1.371E−1
2.00E+3	3.61E+3	5.74E+2	7.11E+2	5.16E+2	1.86E+2	2.28E+2	1.98E+2	1.30E+2	1.14E+2	1.812E−1
3.00E+3	2.39E+3	3.81E+2	4.61E+2	3.31E+2	1.24E+2	1.49E+2	1.27E+2	7.79E+1	6.82E+1	2.670E−1
4.00E+3	1.78E+3	2.85E+2	3.37E+2	2.39E+2	9.28E+1	1.09E+2	9.16E+1	5.29E+1	4.60E+1	3.498E−1
5.00E+3	1.42E+3	2.27E+2	2.63E+2	1.84E+2	7.41E+1	8.57E+1	7.07E+1	3.85E+1	3.32E+1	4.297E−1
6.00E+3	1.17E+3	1.89E+2	2.13E+2	1.48E+2	6.15E+1	6.99E+1	5.68E+1	2.93E+1	2.52E+1	5.068E−1
8.00E+3	8.69E+2	1.41E+2	1.52E+2	1.04E+2	4.58E+1	5.02E+1	3.97E+1	1.85E+1	1.58E+1	6.531E−1
1.00E+4	6.87E+2	1.12E+2	1.16E+2	7.78E+1	3.63E+1	3.85E+1	2.97E+1	1.27E+1	1.07E+1	7.896E−1
1.50E+4	4.44E+2	7.25E+1	6.91E+1	4.45E+1	2.35E+1	2.31E+1	1.69E+1	6.00E+0	4.94E+0	1.093E+0
2.00E+4	3.24E+2	5.30E+1	4.67E+1	2.91E+1	1.70E+1	1.57E+1	1.10E+1	3.35E+0	2.71E+0	1.348E+0
3.00E+4	2.04E+2	3.33E+1	2.59E+1	1.52E+1	1.06E+1	8.69E+0	5.70E+0	1.38E+0	1.08E+0	1.749E+0
4.00E+4	1.45E+2	2.36E+1	1.65E+1	9.25E+0	7.39E+0	5.55E+0	3.45E+0	7.00E−1	5.35E−1	2.040E+0
5.00E+4	1.10E+2	1.78E+1	1.15E+1	6.16E+0	5.53E+0	3.85E+0	2.28E+0	4.04E−1	3.02E−1	2.251E+0
6.00E+4	8.76E+1	1.40E+1	8.43E+0	4.37E+0	4.33E+0	2.82E+0	1.61E+0	2.55E−1	1.87E−1	2.404E+0
8.00E+4	6.00E+1	9.46E+0	5.08E+0	2.48E+0	2.88E+0	1.69E+0	9.07E−1	1.20E−1	8.56E−2	2.595E+0
1.00E+5	4.42E+1	6.87E+0	3.38E+0	1.57E+0	2.08E+0	1.13E+0	5.72E−1	6.63E−2	4.61E−2	2.688E+0
1.50E+5	2.46E+1	3.72E+0	1.57E+0	6.64E−1	1.11E+0	5.22E−1	2.40E−1	2.22E−2	1.48E−2	2.718E+0
2.00E+5	1.60E+1	2.36E+0	9.01E−1	3.57E−1	6.96E−1	2.99E−1	1.28E−1	1.02E−2	6.64E−3	2.639E+0
3.00E+5	8.53E+0	1.22E+0	4.11E−1	1.49E−1	3.55E−1	1.36E−1	5.30E−2	3.47E−3	2.22E−3	2.426E+0
4.00E+5	5.44E+0	7.58E−1	2.37E−1	8.12E−2	2.20E−1	7.82E−2	2.88E−2	1.66E−3	1.06E−3	2.236E+0
5.00E+5	3.85E+0	5.28E−1	1.56E−1	5.16E−2	1.53E−1	5.16E−2	1.83E−2	9.58E−4	6.21E−4	2.084E+0
6.00E+5	2.91E+0	3.94E−1	1.12E−1	3.61E−2	1.14E−1	3.70E−2	1.28E−2	6.23E−4	4.10E−4	1.962E+0
8.00E+5	1.88E+0	2.52E−1	6.82E−2	2.12E−2	7.22E−2	2.24E−2	7.45E−3	3.28E−4	2.23E−4	1.782E+0
1.00E+6	1.36E+0	1.80E−1	4.73E−2	1.43E−2	5.14E−2	1.55E−2	5.03E−3	2.07E−4	1.44E−4	1.658E+0
1.50E+6	7.60E−1	9.94E−2	2.55E−2	7.43E−3	2.84E−2	8.36E−3	2.61E−3	9.65E−5	7.08E−5	1.470E+0
2.00E+6	5.11E−1	6.65E−2	1.70E−2	4.84E−3	1.89E−2	5.59E−3	1.70E−3	5.97E−5	4.51E−5	1.365E+0
3.00E+6	2.98E−1	3.86E−2	1.01E−2	2.78E−3	1.10E−2	3.32E−3	9.72E−4	3.25E−5	2.54E−5	1.252E+0
4.00E+6	2.07E−1	2.67E−2	7.15E−3	1.92E−3	7.59E−3	2.35E−3	6.73E−4	2.20E−5*	1.74E−5	1.192E+0
5.00E+6	1.57E−1	2.02E−2	5.53E−3*	1.47E−3	5.75E−3*	1.82E−3	5.12E−4*	1.7E−5	1.32E−5*	1.156E+0
6.00E+6	1.26E−1	1.63E−2	4.5E−3	1.18E−3	4.62E−3*	1.48E−3*	4.13E−4*		1.06E−5*	1.131E+0
8.00E+6		1.16E−2*			3.30E−3*					

TABLE. Cross Sections for Radiative Recombination, $Z=1$–112
See page 9 for Explanation of Tables

Z= 84

T_e (eV)	σ_{RR} (b)									$f_{1s_{1/2}}$
	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 7.141$ fm

$\|\epsilon_n\|$ (eV)	1.072E+5	2.754E+4	2.756E+4	2.459E+4	1.190E+4	1.190E+4	1.102E+4	1.102E+4	1.078E+4	
1.00E+0	7.46E+6	1.18E+6	1.55E+6	1.15E+6	3.77E+5	4.84E+5	4.37E+5	3.36E+5	3.00E+5	8.897E−5
1.50E+0	4.97E+6	7.85E+5	1.04E+6	7.65E+5	2.51E+5	3.22E+5	2.91E+5	2.24E+5	2.00E+5	1.334E−4
2.00E+0	3.73E+6	5.89E+5	7.77E+5	5.73E+5	1.88E+5	2.42E+5	2.19E+5	1.68E+5	1.50E+5	1.779E−4
3.00E+0	2.49E+6	3.93E+5	5.18E+5	3.82E+5	1.26E+5	1.61E+5	1.46E+5	1.12E+5	1.00E+5	2.669E−4
4.00E+0	1.87E+6	2.94E+5	3.89E+5	2.87E+5	9.41E+4	1.21E+5	1.09E+5	8.39E+4	7.50E+4	3.559E−4
5.00E+0	1.49E+6	2.36E+5	3.11E+5	2.29E+5	7.53E+4	9.67E+4	8.74E+4	6.71E+4	6.00E+4	4.448E−4
6.00E+0	1.24E+6	1.96E+5	2.59E+5	1.91E+5	6.28E+4	8.06E+4	7.28E+4	5.59E+4	5.00E+4	5.338E−4
8.00E+0	9.33E+5	1.47E+5	1.94E+5	1.43E+5	4.71E+4	6.04E+4	5.46E+4	4.19E+4	3.75E+4	7.117E−4
1.00E+1	7.46E+5	1.18E+5	1.55E+5	1.15E+5	3.77E+4	4.84E+4	4.37E+4	3.36E+4	3.00E+4	8.895E−4
1.50E+1	4.97E+5	7.85E+4	1.04E+5	7.64E+4	2.51E+4	3.22E+4	2.91E+4	2.24E+4	2.00E+4	1.334E−3
2.00E+1	3.73E+5	5.89E+4	7.77E+4	5.73E+4	1.88E+4	2.42E+4	2.18E+4	1.68E+4	1.50E+4	1.779E−3
3.00E+1	2.49E+5	3.93E+4	5.18E+4	3.82E+4	1.26E+4	1.61E+4	1.46E+4	1.12E+4	9.96E+3	2.668E−3
4.00E+1	1.87E+5	2.94E+4	3.88E+4	2.86E+4	9.41E+3	1.21E+4	1.09E+4	8.36E+3	7.46E+3	3.556E−3
5.00E+1	1.49E+5	2.36E+4	3.10E+4	2.29E+4	7.53E+3	9.66E+3	8.73E+3	6.68E+3	5.96E+3	4.444E−3
6.00E+1	1.24E+5	1.96E+4	2.59E+4	1.91E+4	6.28E+3	8.05E+3	7.27E+3	5.56E+3	4.96E+3	5.332E−3
8.00E+1	9.32E+4	1.47E+4	1.94E+4	1.43E+4	4.71E+3	6.04E+3	5.45E+3	4.16E+3	3.71E+3	7.107E−3
1.00E+2	7.46E+4	1.18E+4	1.55E+4	1.14E+4	3.77E+3	4.83E+3	4.36E+3	3.32E+3	2.96E+3	8.881E−3
1.50E+2	4.97E+4	7.85E+3	1.03E+4	7.60E+3	2.51E+3	3.22E+3	2.90E+3	2.20E+3	1.96E+3	1.331E−2
2.00E+2	3.73E+4	5.89E+3	7.73E+3	5.69E+3	1.89E+3	2.41E+3	2.17E+3	1.64E+3	1.46E+3	1.773E−2
3.00E+2	2.48E+4	3.92E+3	5.14E+3	3.78E+3	1.26E+3	1.61E+3	1.44E+3	1.08E+3	9.63E+2	2.655E−2
4.00E+2	1.86E+4	2.94E+3	3.84E+3	2.82E+3	9.43E+2	1.20E+3	1.08E+3	8.01E+2	7.13E+2	3.534E−2
5.00E+2	1.49E+4	2.35E+3	3.07E+3	2.25E+3	7.55E+2	9.60E+2	8.58E+2	6.34E+2	5.64E+2	4.409E−2
6.00E+2	1.24E+4	1.96E+3	2.55E+3	1.87E+3	6.29E+2	7.99E+2	7.13E+2	5.22E+2	4.64E+2	5.282E−2
8.00E+2	9.28E+3	1.47E+3	1.90E+3	1.39E+3	4.73E+2	5.97E+2	5.30E+2	3.83E+2	3.40E+2	7.018E−2
1.00E+3	7.42E+3	1.18E+3	1.51E+3	1.10E+3	3.78E+2	4.76E+2	4.21E+2	2.99E+2	2.65E+2	8.741E−2
1.50E+3	4.93E+3	7.83E+2	9.95E+2	7.21E+2	2.53E+2	3.15E+2	2.76E+2	1.89E+2	1.67E+2	1.300E−1
2.00E+3	3.69E+3	5.87E+2	7.36E+2	5.30E+2	1.90E+2	2.34E+2	2.03E+2	1.34E+2	1.18E+2	1.718E−1
3.00E+3	2.44E+3	3.90E+2	4.78E+2	3.40E+2	1.27E+2	1.53E+2	1.30E+2	8.08E+1	7.05E+1	2.533E−1
4.00E+3	1.82E+3	2.92E+2	3.49E+2	2.46E+2	9.48E+1	1.13E+2	9.43E+1	5.49E+1	4.76E+1	3.320E−1
5.00E+3	1.45E+3	2.33E+2	2.73E+2	1.90E+2	7.57E+1	8.85E+1	7.28E+1	4.01E+1	3.45E+1	4.080E−1
6.00E+3	1.20E+3	1.93E+2	2.22E+2	1.53E+2	6.30E+1	7.23E+1	5.86E+1	3.05E+1	2.62E+1	4.815E−1
8.00E+3	8.89E+2	1.44E+2	1.58E+2	1.07E+2	4.69E+1	5.20E+1	4.10E+1	1.94E+1	1.64E+1	6.211E−1
1.00E+4	7.03E+2	1.14E+2	1.21E+2	8.04E+1	3.72E+1	3.99E+1	3.07E+1	1.33E+1	1.12E+1	7.516E−1
1.50E+4	4.55E+2	7.44E+1	7.22E+1	4.62E+1	2.41E+1	2.40E+1	1.76E+1	6.33E+0	5.20E+0	1.042E+0
2.00E+4	3.32E+2	5.44E+1	4.90E+1	3.02E+1	1.75E+1	1.64E+1	1.14E+1	3.56E+0	2.86E+0	1.288E+0
3.00E+4	2.10E+2	3.43E+1	2.73E+1	1.59E+1	1.09E+1	9.13E+0	5.96E+0	1.47E+0	1.15E+0	1.677E+0
4.00E+4	1.49E+2	2.43E+1	1.75E+1	9.69E+0	7.62E+0	5.85E+0	3.61E+0	7.51E−1	5.71E−1	1.961E+0
5.00E+4	1.14E+2	1.84E+1	1.22E+1	6.47E+0	5.71E+0	4.07E+0	2.40E+0	4.35E−1	3.24E−1	2.170E+0
6.00E+4	9.02E+1	1.45E+1	8.96E+0	4.59E+0	4.47E+0	2.99E+0	1.70E+0	2.75E−1	2.01E−1	2.323E+0
8.00E+4	6.19E+1	9.80E+0	5.42E+0	2.61E+0	2.99E+0	1.81E+0	9.58E−1	1.30E−1	9.23E−2	2.516E+0
1.00E+5	4.57E+1	7.13E+0	3.62E+0	1.66E+0	2.15E+0	1.20E+0	6.05E−1	7.20E−2	4.99E−2	2.614E+0
1.50E+5	2.56E+1	3.87E+0	1.69E+0	7.06E−1	1.15E+0	5.60E−1	2.55E−1	2.42E−2	1.61E−2	2.658E+0
2.00E+5	1.66E+1	2.46E+0	9.74E−1	3.80E−1	7.26E−1	3.22E−1	1.37E−1	1.11E−2	7.22E−3	2.590E+0
3.00E+5	8.92E+0	1.27E+0	4.46E−1	1.59E−1	3.72E−1	1.47E−1	5.66E−2	3.81E−3	2.42E−3	2.392E+0
4.00E+5	5.70E+0	7.97E−1	2.58E−1	8.68E−2	2.31E−1	8.49E−2	3.08E−2	1.83E−3	1.16E−3	2.211E+0
5.00E+5	4.04E+0	5.55E−1	1.71E−1	5.52E−2	1.60E−1	5.61E−2	1.96E−2	1.06E−3	6.79E−4	2.064E+0
6.00E+5	3.06E+0	4.15E−1	1.23E−1	3.87E−2	1.20E−1	4.03E−2	1.37E−2	6.87E−4	4.48E−4	1.946E+0
8.00E+5	1.98E+0	2.66E−1	7.46E−2	2.26E−2	7.61E−2	2.45E−2	7.98E−3	3.62E−4	2.43E−4	1.771E+0
1.00E+6	1.43E+0	1.90E−1	5.17E−2	1.53E−2	5.42E−2	1.70E−2	5.39E−3	2.28E−4	1.58E−4	1.649E+0
1.50E+6	8.00E−1	1.05E−1	2.79E−2	7.94E−3	2.99E−2	9.14E−3	2.79E−3	1.07E−4	7.73E−5	1.465E+0
2.00E+6	5.38E−1	7.01E−2	1.87E−2	5.17E−3	2.00E−2	6.12E−3	1.81E−3	6.61E−5	4.93E−5	1.361E+0
3.00E+6	3.14E−1	4.07E−2	1.11E−2	2.97E−3	1.16E−2	3.63E−3	1.04E−3	3.60E−5*	2.77E−5	1.250E+0
4.00E+6	2.18E−1	2.81E−2	7.84E−3	2.05E−3	7.98E−3*	2.57E−3	7.18E−4		1.90E−5*	1.191E+0
5.00E+6	1.65E−1	2.13E−2	6.1E−3	1.56E−3	6.05E−3*	1.99E−3	5.46E−4*		1.44E−5*	1.154E+0
6.00E+6	1.33E−1	1.71E−2		1.26E−3	4.86E−3*	1.62E−3*	4.40E−4*		1.16E−5*	1.130E+0
8.00E+6		1.22E−2*		9.04E−4*	3.47E−3*	1.18E−3*				
1.00E+7		9.5E−3			2.69E−3*					

TABLE. Cross Sections for Radiative Recombination, $Z=1$–112

Z= 85

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

R_{nucl} = 7.151 fm

$\lvert\epsilon_n\rvert$ (eV)	1.101E+5	2.831E+4	2.833E+4	2.520E+4	1.222E+4	1.223E+4	1.129E+4	1.129E+4	1.104E+4	
1.00E+0	7.62E+6	1.21E+6	1.61E+6	1.18E+6	3.84E+5	4.96E+5	4.48E+5	3.45E+5	3.08E+5	8.432E−5
1.50E+0	5.08E+6	8.03E+5	1.07E+6	7.84E+5	2.56E+5	3.31E+5	2.99E+5	2.30E+5	2.05E+5	1.265E−4
2.00E+0	3.81E+6	6.02E+5	8.03E+5	5.88E+5	1.92E+5	2.48E+5	2.24E+5	1.73E+5	1.54E+5	1.686E−4
3.00E+0	2.54E+6	4.02E+5	5.35E+5	3.92E+5	1.28E+5	1.65E+5	1.49E+5	1.15E+5	1.03E+5	2.530E−4
4.00E+0	1.91E+6	3.01E+5	4.01E+5	2.94E+5	9.61E+4	1.24E+5	1.12E+5	8.63E+4	7.69E+4	3.373E−4
5.00E+0	1.52E+6	2.41E+5	3.21E+5	2.35E+5	7.69E+4	9.93E+4	8.96E+4	6.90E+4	6.15E+4	4.216E−4
6.00E+0	1.27E+6	2.01E+5	2.68E+5	1.96E+5	6.41E+4	8.27E+4	7.47E+4	5.75E+4	5.12E+4	5.060E−4
8.00E+0	9.53E+5	1.51E+5	2.01E+5	1.47E+5	4.80E+4	6.20E+4	5.60E+4	4.31E+4	3.84E+4	6.745E−4
1.00E+1	7.62E+5	1.21E+5	1.61E+5	1.18E+5	3.84E+4	4.96E+4	4.48E+4	3.45E+4	3.07E+4	8.431E−4
1.50E+1	5.08E+5	8.03E+4	1.07E+5	7.83E+4	2.56E+4	3.31E+4	2.99E+4	2.30E+4	2.05E+4	1.265E−3
2.00E+1	3.81E+5	6.02E+4	8.02E+4	5.87E+4	1.92E+4	2.48E+4	2.24E+4	1.72E+4	1.53E+4	1.686E−3
3.00E+1	2.54E+5	4.02E+4	5.35E+4	3.92E+4	1.28E+4	1.65E+4	1.49E+4	1.15E+4	1.02E+4	2.528E−3
4.00E+1	1.91E+5	3.01E+4	4.01E+4	2.94E+4	9.61E+3	1.24E+4	1.12E+4	8.59E+3	7.65E+3	3.371E−3
5.00E+1	1.52E+5	2.41E+4	3.21E+4	2.35E+4	7.69E+3	9.92E+3	8.95E+3	6.87E+3	6.11E+3	4.213E−3
6.00E+1	1.27E+5	2.01E+4	2.67E+4	1.96E+4	6.41E+3	8.27E+3	7.45E+3	5.71E+3	5.09E+3	5.054E−3
8.00E+1	9.52E+4	1.51E+4	2.00E+4	1.47E+4	4.81E+3	6.20E+3	5.59E+3	4.28E+3	3.81E+3	6.737E−3
1.00E+2	7.62E+4	1.20E+4	1.60E+4	1.17E+4	3.85E+3	4.96E+3	4.47E+3	3.41E+3	3.04E+3	8.418E−3
1.50E+2	5.08E+4	8.03E+3	1.07E+4	7.79E+3	2.56E+3	3.30E+3	2.97E+3	2.26E+3	2.01E+3	1.262E−2
2.00E+2	3.81E+4	6.02E+3	7.98E+3	5.83E+3	1.92E+3	2.48E+3	2.23E+3	1.69E+3	1.50E+3	1.681E−2
3.00E+2	2.54E+4	4.01E+3	5.31E+3	3.87E+3	1.28E+3	1.65E+3	1.48E+3	1.11E+3	9.88E+2	2.517E−2
4.00E+2	1.90E+4	3.01E+3	3.97E+3	2.89E+3	9.63E+2	1.23E+3	1.10E+3	8.25E+2	7.32E+2	3.350E−2
5.00E+2	1.52E+4	2.41E+3	3.17E+3	2.31E+3	7.71E+2	9.86E+2	8.80E+2	6.52E+2	5.79E+2	4.180E−2
6.00E+2	1.27E+4	2.01E+3	2.63E+3	1.91E+3	6.43E+2	8.21E+2	7.31E+2	5.38E+2	4.76E+2	5.008E−2
8.00E+2	9.48E+3	1.50E+3	1.97E+3	1.43E+3	4.82E+2	6.14E+2	5.44E+2	3.94E+2	3.49E+2	6.654E−2
1.00E+3	7.58E+3	1.20E+3	1.56E+3	1.13E+3	3.86E+2	4.89E+2	4.32E+2	3.09E+2	2.73E+2	8.289E−2
1.50E+3	5.04E+3	8.01E+2	1.03E+3	7.40E+2	2.58E+2	3.24E+2	2.83E+2	1.95E+2	1.72E+2	1.233E−1
2.00E+3	3.77E+3	6.00E+2	7.62E+2	5.45E+2	1.94E+2	2.41E+2	2.09E+2	1.39E+2	1.22E+2	1.630E−1
3.00E+3	2.50E+3	3.99E+2	4.95E+2	3.50E+2	1.29E+2	1.58E+2	1.34E+2	8.37E+1	7.29E+1	2.404E−1
4.00E+3	1.86E+3	2.99E+2	3.62E+2	2.53E+2	9.69E+1	1.16E+2	9.71E+1	5.70E+1	4.93E+1	3.153E−1
5.00E+3	1.48E+3	2.38E+2	2.83E+2	1.96E+2	7.74E+1	9.13E+1	7.50E+1	4.17E+1	3.58E+1	3.877E−1
6.00E+3	1.23E+3	1.98E+2	2.30E+2	1.58E+2	6.44E+1	7.46E+1	6.04E+1	3.18E+1	2.72E+1	4.577E−1
8.00E+3	9.09E+2	1.47E+2	1.65E+2	1.11E+2	4.79E+1	5.38E+1	4.24E+1	2.03E+1	1.71E+1	5.909E−1
1.00E+4	7.19E+2	1.17E+2	1.26E+2	8.31E+1	3.80E+1	4.14E+1	3.18E+1	1.40E+1	1.17E+1	7.156E−1
1.50E+4	4.66E+2	7.63E+1	7.55E+1	4.79E+1	2.47E+1	2.50E+1	1.82E+1	6.68E+0	5.46E+0	9.941E−1
2.00E+4	3.40E+2	5.58E+1	5.14E+1	3.14E+1	1.79E+1	1.71E+1	1.19E+1	3.77E+0	3.02E+0	1.231E+0
3.00E+4	2.15E+2	3.52E+1	2.87E+1	1.66E+1	1.12E+1	9.59E+0	6.22E+0	1.57E+0	1.22E+0	1.608E+0
4.00E+4	1.53E+2	2.50E+1	1.85E+1	1.01E+1	7.85E+0	6.17E+0	3.78E+0	8.04E−1	6.09E−1	1.886E+0
5.00E+4	1.17E+2	1.89E+1	1.29E+1	6.79E+0	5.89E+0	4.30E+0	2.52E+0	4.67E−1	3.46E−1	2.091E+0
6.00E+4	9.29E+1	1.50E+1	9.53E+0	4.83E+0	4.62E+0	3.17E+0	1.78E+0	2.96E−1	2.15E−1	2.244E+0
8.00E+4	6.39E+1	1.01E+1	5.79E+0	2.76E+0	3.09E+0	1.92E+0	1.01E+0	1.41E−1	9.94E−2	2.440E+0
1.00E+5	4.72E+1	7.39E+0	3.87E+0	1.75E+0	2.23E+0	1.28E+0	6.40E−1	7.81E−2	5.38E−2	2.542E+0
1.50E+5	2.66E+1	4.03E+0	1.82E+0	7.49E−1	1.20E+0	6.02E−1	2.71E−1	2.64E−2	1.74E−2	2.599E+0
2.00E+5	1.73E+1	2.57E+0	1.05E+0	4.04E−1	7.57E−1	3.47E−1	1.45E−1	1.22E−2	7.85E−3	2.542E+0
3.00E+5	9.32E+0	1.33E+0	4.83E−1	1.69E−1	3.89E−1	1.59E−1	6.04E−2	4.17E−3	2.64E−3	2.358E+0
4.00E+5	5.97E+0	8.36E−1	2.81E−1	9.27E−2	2.42E−1	9.22E−2	3.29E−2	2.00E−3	1.27E−3	2.186E+0
5.00E+5	4.24E+0	5.84E−1	1.86E−1	5.90E−2	1.68E−1	6.10E−2	2.09E−2	1.16E−3	7.41E−4	2.045E+0
6.00E+5	3.21E+0	4.37E−1	1.34E−1	4.13E−2	1.26E−1	4.39E−2	1.46E−2	7.56E−4	4.89E−4	1.930E+0
8.00E+5	2.09E+0	2.80E−1	8.14E−2	2.42E−2	8.01E−2	2.67E−2	8.53E−3	3.99E−4	2.66E−4	1.760E+0
1.00E+6	1.50E+0	2.00E−1	5.65E−2	1.64E−2	5.71E−2	1.85E−2	5.76E−3	2.52E−4	1.72E−4	1.641E+0
1.50E+6	8.42E−1	1.11E−1	3.05E−2	8.48E−3	3.15E−2	9.98E−3	2.97E−3	1.18E−4	8.44E−5	1.459E+0
2.00E+6	5.66E−1	7.39E−2	2.04E−2	5.52E−3	2.10E−2	6.68E−3	1.93E−3	7.30E−5	5.37E−5	1.357E+0
3.00E+6	3.30E−1	4.28E−2	1.21E−2	3.16E−3	1.22E−2	3.97E−3	1.11E−3	3.99E−5	3.02E−5	1.247E+0
4.00E+6	2.29E−1	2.96E−2	8.60E−3	2.19E−3	8.39E−3*	2.81E−3	7.65E−4	2.70E−5*	2.07E−5	1.189E+0
5.00E+6	1.74E−1	2.24E−2	6.65E−3*	1.67E−3	6.36E−3*	2.18E−3	5.82E−4*		1.57E−5*	1.153E+0
6.00E+6	1.40E−1	1.80E−2	5.4E−3	1.34E−3*	5.11E−3*	1.77E−3*	4.69E−4*		1.26E−5*	1.129E+0
8.00E+6		1.29E−2		9.63E−4*	3.65E−3*					
1.00E+7		1.0E−2			2.83E−3*					

$Z=86$

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 7.271$ fm

$|\epsilon_n|$ (eV)	1.131E+5	2.910E+4	2.912E+4	2.581E+4	1.255E+4	1.256E+4	1.157E+4	1.157E+4	1.131E+4	
1.00E+0	7.78E+6	1.23E+6	1.66E+6	1.21E+6	3.92E+5	5.09E+5	4.59E+5	3.55E+5	3.15E+5	7.997E−5
1.50E+0	5.19E+6	8.21E+5	1.11E+6	8.03E+5	2.61E+5	3.40E+5	3.06E+5	2.37E+5	2.10E+5	1.200E−4
2.00E+0	3.89E+6	6.16E+5	8.29E+5	6.03E+5	1.96E+5	2.55E+5	2.30E+5	1.77E+5	1.58E+5	1.599E−4
3.00E+0	2.59E+6	4.11E+5	5.53E+5	4.02E+5	1.31E+5	1.70E+5	1.53E+5	1.18E+5	1.05E+5	2.399E−4
4.00E+0	1.95E+6	3.08E+5	4.14E+5	3.01E+5	9.80E+4	1.27E+5	1.15E+5	8.87E+4	7.88E+4	3.198E−4
5.00E+0	1.56E+6	2.46E+5	3.32E+5	2.41E+5	7.84E+4	1.02E+5	9.19E+4	7.09E+4	6.30E+4	3.998E−4
6.00E+0	1.30E+6	2.05E+5	2.76E+5	2.01E+5	6.54E+4	8.49E+4	7.66E+4	5.91E+4	5.25E+4	4.797E−4
8.00E+0	9.73E+5	1.54E+5	2.07E+5	1.51E+5	4.90E+4	6.37E+4	5.74E+4	4.43E+4	3.94E+4	6.396E−4
1.00E+1	7.78E+5	1.23E+5	1.66E+5	1.21E+5	3.92E+4	5.09E+4	4.59E+4	3.54E+4	3.15E+4	7.995E−4
1.50E+1	5.19E+5	8.21E+4	1.11E+5	8.03E+4	2.61E+4	3.40E+4	3.06E+4	2.36E+4	2.10E+4	1.199E−3
2.00E+1	3.89E+5	6.16E+4	8.29E+4	6.02E+4	1.96E+4	2.55E+4	2.30E+4	1.77E+4	1.57E+4	1.599E−3
3.00E+1	2.59E+5	4.11E+4	5.52E+4	4.01E+4	1.31E+4	1.70E+4	1.53E+4	1.18E+4	1.05E+4	2.398E−3
4.00E+1	1.95E+5	3.08E+4	4.14E+4	3.01E+4	9.80E+3	1.27E+4	1.15E+4	8.83E+3	7.84E+3	3.197E−3
5.00E+1	1.56E+5	2.46E+4	3.31E+4	2.41E+4	7.84E+3	1.02E+4	9.17E+3	7.06E+3	6.27E+3	3.995E−3
6.00E+1	1.30E+5	2.05E+4	2.76E+4	2.00E+4	6.54E+3	8.48E+3	7.64E+3	5.87E+3	5.22E+3	4.793E−3
8.00E+1	9.72E+4	1.54E+4	2.07E+4	1.50E+4	4.90E+3	6.36E+3	5.73E+3	4.40E+3	3.90E+3	6.389E−3
1.00E+2	7.78E+4	1.23E+4	1.65E+4	1.20E+4	3.92E+3	5.09E+3	4.58E+3	3.51E+3	3.11E+3	7.983E−3
1.50E+2	5.18E+4	8.21E+3	1.10E+4	7.99E+3	2.62E+3	3.39E+3	3.05E+3	2.33E+3	2.06E+3	1.196E−2
2.00E+2	3.89E+4	6.16E+3	8.25E+3	5.98E+3	1.96E+3	2.54E+3	2.28E+3	1.74E+3	1.54E+3	1.594E−2
3.00E+2	2.59E+4	4.10E+3	5.48E+3	3.97E+3	1.31E+3	1.69E+3	1.52E+3	1.14E+3	1.01E+3	2.387E−2
4.00E+2	1.94E+4	3.08E+3	4.10E+3	2.97E+3	9.83E+2	1.27E+3	1.13E+3	8.48E+2	7.51E+2	3.177E−2
5.00E+2	1.55E+4	2.46E+3	3.27E+3	2.37E+3	7.86E+2	1.01E+3	9.03E+2	6.71E+2	5.94E+2	3.965E−2
6.00E+2	1.29E+4	2.05E+3	2.72E+3	1.96E+3	6.56E+2	8.43E+2	7.50E+2	5.53E+2	4.89E+2	4.750E−2
8.00E+2	9.68E+3	1.54E+3	2.03E+3	1.46E+3	4.92E+2	6.30E+2	5.58E+2	4.06E+2	3.58E+2	6.313E−2
1.00E+3	7.74E+3	1.23E+3	1.62E+3	1.16E+3	3.94E+2	5.03E+2	4.44E+2	3.18E+2	2.80E+2	7.865E−2
1.50E+3	5.14E+3	8.19E+2	1.06E+3	7.60E+2	2.63E+2	3.33E+2	2.91E+2	2.01E+2	1.77E+2	1.170E−1
2.00E+3	3.85E+3	6.14E+2	7.88E+2	5.59E+2	1.98E+2	2.48E+2	2.14E+2	1.43E+2	1.25E+2	1.547E−1
3.00E+3	2.55E+3	4.08E+2	5.13E+2	3.60E+2	1.32E+2	1.63E+2	1.38E+2	8.67E+1	7.52E+1	2.283E−1
4.00E+3	1.90E+3	3.06E+2	3.76E+2	2.61E+2	9.89E+1	1.20E+2	9.99E+1	5.92E+1	5.11E+1	2.995E−1
5.00E+3	1.51E+3	2.44E+2	2.93E+2	2.01E+2	7.91E+1	9.42E+1	7.72E+1	4.33E+1	3.71E+1	3.685E−1
6.00E+3	1.25E+3	2.03E+2	2.39E+2	1.62E+2	6.58E+1	7.71E+1	6.22E+1	3.32E+1	2.83E+1	4.352E−1
8.00E+3	9.29E+2	1.51E+2	1.71E+2	1.14E+2	4.90E+1	5.57E+1	4.37E+1	2.12E+1	1.79E+1	5.623E−1
1.00E+4	7.35E+2	1.20E+2	1.31E+2	8.59E+1	3.89E+1	4.29E+1	3.28E+1	1.46E+1	1.22E+1	6.816E−1
1.50E+4	4.77E+2	7.82E+1	7.89E+1	4.96E+1	2.53E+1	2.60E+1	1.89E+1	7.04E+0	5.74E+0	9.487E−1
2.00E+4	3.48E+2	5.72E+1	5.38E+1	3.26E+1	1.84E+1	1.78E+1	1.24E+1	3.99E+0	3.19E+0	1.177E+0
3.00E+4	2.21E+2	3.62E+1	3.02E+1	1.73E+1	1.15E+1	1.01E+1	6.49E+0	1.67E+0	1.29E+0	1.542E+0
4.00E+4	1.57E+2	2.57E+1	1.95E+1	1.06E+1	8.08E+0	6.50E+0	3.96E+0	8.60E−1	6.49E−1	1.813E+0
5.00E+4	1.20E+2	1.95E+1	1.37E+1	7.12E+0	6.08E+0	4.55E+0	2.64E+0	5.01E−1	3.70E−1	2.016E+0
6.00E+4	9.57E+1	1.54E+1	1.01E+1	5.07E+0	4.77E+0	3.36E+0	1.87E+0	3.18E−1	2.31E−1	2.168E+0
8.00E+4	6.59E+1	1.05E+1	6.17E+0	2.90E+0	3.20E+0	2.04E+0	1.07E+0	1.52E−1	1.07E−1	2.366E+0
1.00E+5	4.88E+1	7.66E+0	4.14E+0	1.85E+0	2.32E+0	1.37E+0	6.76E−1	8.47E−2	5.81E−2	2.472E+0
1.50E+5	2.75E+1	4.19E+0	1.96E+0	7.94E−1	1.25E+0	6.46E−1	2.87E−1	2.87E−2	1.89E−2	2.541E+0
2.00E+5	1.80E+1	2.68E+0	1.14E+0	4.29E−1	7.89E−1	3.74E−1	1.54E−1	1.33E−2	8.52E−3	2.494E+0
3.00E+5	9.73E+0	1.40E+0	5.24E−1	1.80E−1	4.07E−1	1.72E−1	6.44E−2	4.57E−3	2.87E−3	2.325E+0
4.00E+5	6.25E+0	8.77E−1	3.05E−1	9.89E−2	2.54E−1	9.99E−2	3.52E−2	2.20E−3	1.38E−3	2.161E+0
5.00E+5	4.44E+0	6.13E−1	2.02E−1	6.30E−2	1.77E−1	6.62E−2	2.23E−2	1.28E−3	8.08E−4	2.025E+0
6.00E+5	3.37E+0	4.60E−1	1.46E−1	4.41E−2	1.32E−1	4.77E−2	1.56E−2	8.31E−4	5.33E−4	1.914E+0
8.00E+5	2.19E+0	2.95E−1	8.89E−2	2.59E−2	8.43E−2	2.91E−2	9.11E−3	4.40E−4	2.90E−4	1.748E+0
1.00E+6	1.58E+0	2.11E−1	6.17E−2	1.75E−2	6.01E−2	2.02E−2	6.15E−3	2.77E−4	1.88E−4	1.632E+0
1.50E+6	8.86E−1	1.17E−1	3.34E−2	9.04E−3	3.32E−2	1.09E−2	3.17E−3	1.30E−4	9.20E−5	1.454E+0
2.00E+6	5.95E−1	7.78E−2*	2.24E−2	5.89E−3	2.21E−2	7.30E−3	2.06E−3	8.06E−5	5.85E−5	1.354E+0
3.00E+6	3.47E−1	4.51E−2*	1.33E−2	3.37E−3	1.28E−2	4.34E−3	1.18E−3	4.41E−5	3.29E−5	1.245E+0
4.00E+6	2.40E−1	3.11E−2*	9.42E−3	2.33E−3	8.82E−3	3.07E−3	8.15E−4	3.0E−5	2.26E−5	1.187E+0
5.00E+6	1.83E−1	2.36E−2*	7.3E−3	1.77E−3	6.68E−3*	2.38E−3	6.20E−4		1.71E−5	1.152E+0
6.00E+6	1.47E−1	1.89E−2*		1.43E−3	5.36E−3*	1.94E−3*	5.0E−4		1.37E−5	1.127E+0
8.00E+6	1.05E−1	1.35E−2*		1.03E−3*	3.83E−3*					1.097E+0
1.00E+7		1.05E−2*			2.97E−3*					

TABLE. Cross Sections for Radiative Recombination, $Z=1$–112
See page 9 for Explanation of Tables

Z= 87

T_e (eV)	σ_{RR} (b)									$f_{1s_{1/2}}$
	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{\mathrm{nucl}} = 7.281$ fm

$|\epsilon_n|$ (eV)	1.161E+5	2.990E+4	2.992E+4	2.643E+4	1.289E+4	1.289E+4	1.185E+4	1.185E+4	1.157E+4	
1.00E+0	7.94E+6	1.26E+6	1.71E+6	1.24E+6	4.00E+5	5.23E+5	4.71E+5	3.65E+5	3.23E+5	7.585E−5
1.50E+0	5.29E+6	8.39E+5	1.14E+6	8.23E+5	2.67E+5	3.48E+5	3.14E+5	2.43E+5	2.15E+5	1.138E−4
2.00E+0	3.97E+6	6.29E+5	8.56E+5	6.17E+5	2.00E+5	2.61E+5	2.35E+5	1.82E+5	1.62E+5	1.517E−4
3.00E+0	2.65E+6	4.20E+5	5.71E+5	4.12E+5	1.33E+5	1.74E+5	1.57E+5	1.22E+5	1.08E+5	2.275E−4
4.00E+0	1.99E+6	3.15E+5	4.28E+5	3.09E+5	1.00E+5	1.31E+5	1.18E+5	9.11E+4	8.07E+4	3.034E−4
5.00E+0	1.59E+6	2.52E+5	3.42E+5	2.47E+5	8.00E+4	1.05E+5	9.42E+4	7.29E+4	6.46E+4	3.792E−4
6.00E+0	1.32E+6	2.10E+5	2.85E+5	2.06E+5	6.67E+4	8.71E+4	7.85E+4	6.07E+4	5.38E+4	4.551E−4
8.00E+0	9.93E+5	1.57E+5	2.14E+5	1.54E+5	5.00E+4	6.53E+4	5.88E+4	4.55E+4	4.03E+4	6.068E−4
1.00E+1	7.94E+5	1.26E+5	1.71E+5	1.23E+5	4.00E+4	5.22E+4	4.71E+4	3.64E+4	3.23E+4	7.583E−4
1.50E+1	5.29E+5	8.39E+4	1.14E+5	8.23E+4	2.67E+4	3.48E+4	3.14E+4	2.43E+4	2.15E+4	1.138E−3
2.00E+1	3.97E+5	6.29E+4	8.56E+4	6.17E+4	2.00E+4	2.61E+4	2.35E+4	1.82E+4	1.61E+4	1.516E−3
3.00E+1	2.65E+5	4.20E+4	5.70E+4	4.11E+4	1.33E+4	1.74E+4	1.57E+4	1.21E+4	1.07E+4	2.274E−3
4.00E+1	1.99E+5	3.15E+4	4.28E+4	3.08E+4	1.00E+4	1.31E+4	1.18E+4	9.07E+3	8.04E+3	3.032E−3
5.00E+1	1.59E+5	2.52E+4	3.42E+4	2.47E+4	8.00E+3	1.04E+4	9.40E+3	7.25E+3	6.42E+3	3.789E−3
6.00E+1	1.32E+5	2.10E+4	2.85E+4	2.05E+4	6.67E+3	8.70E+3	7.83E+3	6.04E+3	5.35E+3	4.546E−3
8.00E+1	9.92E+4	1.57E+4	2.14E+4	1.54E+4	5.00E+3	6.53E+3	5.87E+3	4.52E+3	4.00E+3	6.060E−3
1.00E+2	7.94E+4	1.26E+4	1.71E+4	1.23E+4	4.00E+3	5.22E+3	4.69E+3	3.61E+3	3.19E+3	7.572E−3
1.50E+2	5.29E+4	8.39E+3	1.14E+4	8.19E+3	2.67E+3	3.48E+3	3.12E+3	2.39E+3	2.12E+3	1.135E−2
2.00E+2	3.97E+4	6.29E+3	8.52E+3	6.13E+3	2.00E+3	2.61E+3	2.34E+3	1.78E+3	1.58E+3	1.512E−2
3.00E+2	2.64E+4	4.19E+3	5.67E+3	4.07E+3	1.34E+3	1.74E+3	1.55E+3	1.18E+3	1.04E+3	2.264E−2
4.00E+2	1.98E+4	3.15E+3	4.24E+3	3.04E+3	1.00E+3	1.30E+3	1.16E+3	8.73E+2	7.71E+2	3.014E−2
5.00E+2	1.58E+4	2.52E+3	3.38E+3	2.43E+3	8.02E+2	1.04E+3	9.26E+2	6.91E+2	6.09E+2	3.762E−2
6.00E+2	1.32E+4	2.10E+3	2.81E+3	2.01E+3	6.69E+2	8.65E+2	7.69E+2	5.70E+2	5.02E+2	4.507E−2
8.00E+2	9.88E+3	1.57E+3	2.10E+3	1.50E+3	5.02E+2	6.47E+2	5.73E+2	4.18E+2	3.68E+2	5.990E−2
1.00E+3	7.90E+3	1.26E+3	1.67E+3	1.19E+3	4.02E+2	5.16E+2	4.55E+2	3.28E+2	2.88E+2	7.463E−2
1.50E+3	5.25E+3	8.37E+2	1.10E+3	7.79E+2	2.69E+2	3.42E+2	2.98E+2	2.08E+2	1.82E+2	1.110E−1
2.00E+3	3.93E+3	6.28E+2	8.16E+2	5.74E+2	2.02E+2	2.55E+2	2.20E+2	1.48E+2	1.29E+2	1.469E−1
3.00E+3	2.60E+3	4.18E+2	5.31E+2	3.70E+2	1.35E+2	1.67E+2	1.42E+2	8.97E+1	7.77E+1	2.169E−1
4.00E+3	1.94E+3	3.12E+2	3.89E+2	2.68E+2	1.01E+2	1.23E+2	1.03E+2	6.14E+1	5.28E+1	2.846E−1
5.00E+3	1.55E+3	2.49E+2	3.04E+2	2.07E+2	8.07E+1	9.71E+1	7.95E+1	4.50E+1	3.85E+1	3.503E−1
6.00E+3	1.28E+3	2.07E+2	2.48E+2	1.67E+2	6.72E+1	7.95E+1	6.41E+1	3.45E+1	2.93E+1	4.139E−1
8.00E+3	9.50E+2	1.54E+2	1.78E+2	1.18E+2	5.01E+1	5.76E+1	4.51E+1	2.21E+1	1.86E+1	5.352E−1
1.00E+4	7.52E+2	1.23E+2	1.37E+2	8.87E+1	3.98E+1	4.44E+1	3.39E+1	1.53E+1	1.27E+1	6.492E−1
1.50E+4	4.88E+2	8.00E+1	8.24E+1	5.13E+1	2.59E+1	2.71E+1	1.96E+1	7.41E+0	6.02E+0	9.053E−1
2.00E+4	3.57E+2	5.87E+1	5.63E+1	3.39E+1	1.89E+1	1.86E+1	1.28E+1	4.22E+0	3.36E+0	1.125E+0
3.00E+4	2.26E+2	3.72E+1	3.18E+1	1.80E+1	1.18E+1	1.05E+1	6.76E+0	1.78E+0	1.37E+0	1.479E+0
4.00E+4	1.62E+2	2.65E+1	2.06E+1	1.11E+1	8.32E+0	6.84E+0	4.14E+0	9.19E−1	6.91E−1	1.744E+0
5.00E+4	1.23E+2	2.01E+1	1.45E+1	7.45E+0	6.26E+0	4.80E+0	2.77E+0	5.38E−1	3.95E−1	1.943E+0
6.00E+4	9.84E+1	1.59E+1	1.07E+1	5.32E+0	4.92E+0	3.56E+0	1.97E+0	3.42E−1	2.47E−1	2.094E+0
8.00E+4	6.80E+1	1.08E+1	6.57E+0	3.06E+0	3.31E+0	2.17E+0	1.12E+0	1.64E−1	1.15E−1	2.293E+0
1.00E+5	5.04E+1	7.93E+0	4.43E+0	1.95E+0	2.40E+0	1.46E+0	7.13E−1	9.16E−2	6.25E−2	2.403E+0
1.50E+5	2.85E+1	4.36E+0	2.10E+0	8.40E−1	1.30E+0	6.92E−1	3.04E−1	3.12E−2	2.04E−2	2.483E+0
2.00E+5	1.87E+1	2.79E+0	1.22E+0	4.55E−1	8.22E−1	4.02E−1	1.64E−1	1.45E−2	9.24E−3	2.446E+0
3.00E+5	1.02E+1	1.46E+0	5.67E−1	1.92E−1	4.26E−1	1.86E−1	6.86E−2	5.00E−3	3.12E−3	2.291E+0
4.00E+5	6.54E+0	9.19E−1	3.31E−1	1.05E−1	2.66E−1	1.08E−1	3.75E−2	2.41E−3	1.50E−3	2.136E+0
5.00E+5	4.66E+0	6.44E−1	2.20E−1	6.72E−2	1.86E−1	7.18E−2	2.38E−2	1.40E−3	8.80E−4	2.005E+0
6.00E+5	3.54E+0	4.83E−1	1.59E−1	4.71E−2	1.39E−1	5.18E−2	1.67E−2	9.13E−4	5.81E−4	1.898E+0
8.00E+5	2.30E+0	3.10E−1	9.70E−2	2.76E−2	8.86E−2	3.16E−2	9.73E−3	4.83E−4	3.16E−4	1.737E+0
1.00E+6	1.66E+0	2.22E−1	6.74E−2	1.86E−2	6.32E−2	2.20E−2	6.56E−3	3.05E−4	2.04E−4	1.623E+0
1.50E+6	9.32E−1	1.23E−1	3.65E−2	9.64E−3	3.49E−2	1.19E−2	3.38E−3	1.43E−4	1.00E−4	1.448E+0
2.00E+6	6.26E−1	8.19E−2*	2.45E−2	6.27E−3	2.33E−2	7.96E−3	2.20E−3	8.89E−5	6.37E−5	1.350E+0
3.00E+6	3.64E−1	4.74E−2*	1.46E−2	3.59E−3	1.34E−2	4.73E−3	1.25E−3	4.86E−5	3.57E−5	1.243E+0
4.00E+6	2.52E−1	3.27E−2*	1.03E−2	2.48E−3	9.26E−3*	3.36E−3	8.67E−4	3.30E−5*	2.45E−5*	1.186E+0
5.00E+6	1.92E−1	2.48E−2*	7.98E−3*	1.89E−3	7.02E−3*	2.60E−3	6.59E−4*	2.5E−5	1.86E−5*	1.150E+0
6.00E+6	1.54E−1	1.99E−2*	6.5E−3	1.52E−3	5.63E−3*	2.12E−3*	5.31E−4*		1.49E−5*	1.126E+0
8.00E+6	1.10E−1	1.42E−2*		1.09E−3	4.02E−3*					1.096E+0
1.00E+7		1.10E−2*								

$Z = 88$

T_e					σ_{RR} (b)					$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 7.310$ fm

$|\epsilon_n|$ (eV)	1.192E+5	3.072E+4	3.074E+4	2.706E+4	1.323E+4	1.323E+4	1.213E+4	1.213E+4	1.184E+4	
1.00E+0	8.10E+6	1.29E+6	1.77E+6	1.27E+6	4.08E+5	5.36E+5	4.82E+5	3.74E+5	3.31E+5	7.198E−5
1.50E+0	5.40E+6	8.57E+5	1.18E+6	8.43E+5	2.72E+5	3.57E+5	3.22E+5	2.50E+5	2.21E+5	1.080E−4
2.00E+0	4.05E+6	6.43E+5	8.84E+5	6.33E+5	2.04E+5	2.68E+5	2.41E+5	1.87E+5	1.65E+5	1.440E−4
3.00E+0	2.70E+6	4.29E+5	5.89E+5	4.22E+5	1.36E+5	1.79E+5	1.61E+5	1.25E+5	1.10E+5	2.159E−4
4.00E+0	2.03E+6	3.22E+5	4.42E+5	3.16E+5	1.02E+5	1.34E+5	1.21E+5	9.36E+4	8.27E+4	2.879E−4
5.00E+0	1.62E+6	2.57E+5	3.53E+5	2.53E+5	8.15E+4	1.07E+5	9.65E+4	7.49E+4	6.61E+4	3.599E−4
6.00E+0	1.35E+6	2.14E+5	2.95E+5	2.11E+5	6.79E+4	8.93E+4	8.04E+4	6.24E+4	5.51E+4	4.319E−4
8.00E+0	1.01E+6	1.61E+5	2.21E+5	1.58E+5	5.10E+4	6.70E+4	6.03E+4	4.68E+4	4.13E+4	5.757E−4
1.00E+1	8.10E+5	1.29E+5	1.77E+5	1.27E+5	4.08E+4	5.36E+4	4.82E+4	3.74E+4	3.31E+4	7.196E−4
1.50E+1	5.40E+5	8.57E+4	1.18E+5	8.43E+4	2.72E+4	3.57E+4	3.21E+4	2.49E+4	2.20E+4	1.079E−3
2.00E+1	4.05E+5	6.43E+4	8.83E+4	6.32E+4	2.04E+4	2.68E+4	2.41E+4	1.87E+4	1.65E+4	1.439E−3
3.00E+1	2.70E+5	4.29E+4	5.89E+4	4.21E+4	1.36E+4	1.79E+4	1.61E+4	1.24E+4	1.10E+4	2.158E−3
4.00E+1	2.03E+5	3.22E+4	4.41E+4	3.16E+4	1.02E+4	1.34E+4	1.20E+4	9.32E+3	8.23E+3	2.877E−3
5.00E+1	1.62E+5	2.57E+4	3.53E+4	2.53E+4	8.16E+3	1.07E+4	9.63E+3	7.45E+3	6.58E+3	3.596E−3
6.00E+1	1.35E+5	2.14E+4	2.94E+4	2.10E+4	6.80E+3	8.92E+3	8.02E+3	6.20E+3	5.48E+3	4.314E−3
8.00E+1	1.01E+5	1.61E+4	2.21E+4	1.58E+4	5.10E+3	6.69E+3	6.01E+3	4.64E+3	4.10E+3	5.751E−3
1.00E+2	8.10E+4	1.29E+4	1.76E+4	1.26E+4	4.08E+3	5.35E+3	4.81E+3	3.71E+3	3.27E+3	7.186E−3
1.50E+2	5.40E+4	8.57E+3	1.17E+4	8.39E+3	2.72E+3	3.57E+3	3.20E+3	2.46E+3	2.17E+3	1.077E−2
2.00E+2	4.05E+4	6.43E+3	8.80E+3	6.28E+3	2.04E+3	2.67E+3	2.40E+3	1.83E+3	1.62E+3	1.435E−2
3.00E+2	2.70E+4	4.29E+3	5.85E+3	4.17E+3	1.36E+3	1.78E+3	1.59E+3	1.21E+3	1.07E+3	2.149E−2
4.00E+2	2.02E+4	3.21E+3	4.38E+3	3.12E+3	1.02E+3	1.33E+3	1.19E+3	8.97E+2	7.90E+2	2.861E−2
5.00E+2	1.62E+4	2.57E+3	3.49E+3	2.49E+3	8.18E+2	1.07E+3	9.49E+2	7.10E+2	6.25E+2	3.571E−2
6.00E+2	1.35E+4	2.14E+3	2.90E+3	2.06E+3	6.82E+2	8.87E+2	7.88E+2	5.86E+2	5.15E+2	4.278E−2
8.00E+2	1.01E+4	1.61E+3	2.17E+3	1.54E+3	5.12E+2	6.64E+2	5.87E+2	4.31E+2	3.78E+2	5.686E−2
1.00E+3	8.06E+3	1.28E+3	1.73E+3	1.22E+3	4.10E+2	5.30E+2	4.66E+2	3.37E+2	2.96E+2	7.085E−2
1.50E+3	5.36E+3	8.56E+2	1.14E+3	8.00E+2	2.74E+2	3.51E+2	3.06E+2	2.14E+2	1.87E+2	1.055E−1
2.00E+3	4.01E+3	6.41E+2	8.44E+2	5.89E+2	2.06E+2	2.62E+2	2.26E+2	1.53E+2	1.33E+2	1.395E−1
3.00E+3	2.66E+3	4.27E+2	5.50E+2	3.80E+2	1.37E+2	1.72E+2	1.45E+2	9.28E+1	8.01E+1	2.061E−1
4.00E+3	1.98E+3	3.19E+2	4.03E+2	2.75E+2	1.03E+2	1.27E+2	1.06E+2	6.37E+1	5.46E+1	2.706E−1
5.00E+3	1.58E+3	2.55E+2	3.16E+2	2.13E+2	8.24E+1	1.00E+2	8.18E+1	4.68E+1	3.99E+1	3.331E−1
6.00E+3	1.31E+3	2.12E+2	2.57E+2	1.72E+2	6.86E+1	8.20E+1	6.60E+1	3.59E+1	3.04E+1	3.937E−1
8.00E+3	9.70E+2	1.58E+2	1.85E+2	1.21E+2	5.12E+1	5.95E+1	4.65E+1	2.31E+1	1.94E+1	5.096E−1
1.00E+4	7.68E+2	1.25E+2	1.42E+2	9.15E+1	4.07E+1	4.60E+1	3.50E+1	1.60E+1	1.33E+1	6.186E−1
1.50E+4	4.99E+2	8.20E+1	8.60E+1	5.31E+1	2.65E+1	2.81E+1	2.02E+1	7.79E+0	6.32E+0	8.642E−1
2.00E+4	3.65E+2	6.01E+1	5.90E+1	3.51E+1	1.93E+1	1.94E+1	1.33E+1	4.45E+0	3.54E+0	1.076E+0
3.00E+4	2.32E+2	3.82E+1	3.35E+1	1.87E+1	1.21E+1	1.10E+1	7.05E+0	1.89E+0	1.45E+0	1.419E+0
4.00E+4	1.66E+2	2.72E+1	2.18E+1	1.16E+1	8.55E+0	7.19E+0	4.32E+0	9.81E−1	7.35E−1	1.677E+0
5.00E+4	1.27E+2	2.07E+1	1.53E+1	7.80E+0	6.45E+0	5.06E+0	2.90E+0	5.76E−1	4.22E−1	1.873E+0
6.00E+4	1.01E+2	1.64E+1	1.14E+1	5.58E+0	5.07E+0	3.76E+0	2.06E+0	3.67E−1	2.64E−1	2.023E+0
8.00E+4	7.00E+1	1.12E+1	7.00E+0	3.21E+0	3.42E+0	2.31E+0	1.18E+0	1.77E−1	1.23E−1	2.223E+0
1.00E+5	5.20E+1	8.21E+0	4.73E+0	2.06E+0	2.48E+0	1.56E+0	7.52E−1	9.90E−2	6.73E−2	2.336E+0
1.50E+5	2.96E+1	4.52E+0	2.26E+0	8.89E−1	1.35E+0	7.41E−1	3.22E−1	3.39E−2	2.20E−2	2.427E+0
2.00E+5	1.95E+1	2.90E+0	1.32E+0	4.83E−1	8.56E−1	4.32E−1	1.74E−1	1.58E−2	1.00E−2	2.399E+0
3.00E+5	1.06E+1	1.53E+0	6.14E−1	2.04E−1	4.44E−1	2.01E−1	7.30E−2	5.46E−3	3.39E−3	2.257E+0
4.00E+5	6.84E+0	9.63E−1	3.59E−1	1.12E−1	2.79E−1	1.17E−1	4.00E−2	2.64E−3	1.63E−3	2.110E+0
5.00E+5	4.88E+0	6.76E−1	2.39E−1	7.16E−2	1.94E−1	7.79E−2	2.54E−2	1.53E−3	9.57E−4	1.985E+0
6.00E+5	3.71E+0	5.08E−1	1.73E−1	5.02E−2	1.46E−1	5.63E−2	1.78E−2	1.00E−3	6.32E−4	1.882E+0
8.00E+5	2.42E+0	3.26E−1	1.06E−1	2.94E−2	9.31E−2	3.44E−2	1.04E−2	5.31E−4	3.44E−4	1.725E+0
1.00E+6	1.75E+0	2.33E−1	7.36E−2	1.99E−2	6.64E−2	2.39E−2	6.99E−3	3.36E−4	2.22E−4	1.614E+0
1.50E+6	9.79E−1	1.29E−1	3.99E−2	1.03E−2	3.67E−2	1.29E−2	3.60E−3	1.58E−4	1.09E−4	1.443E+0
2.00E+6	6.57E−1	8.62E−2	2.68E−2	6.68E−3	2.44E−2	8.68E−3	2.34E−3	9.80E−5	6.92E−5	1.346E+0
3.00E+6	3.82E−1	4.98E−2*	1.59E−2	3.81E−3	1.41E−2	5.16E−3	1.33E−3	5.36E−5	3.88E−5	1.240E+0
4.00E+6	2.65E−1	3.44E−2*	1.13E−2	2.64E−3	9.72E−3*	3.66E−3	9.21E−4	3.6E−5	2.66E−5*	1.184E+0
5.00E+6	2.01E−1	2.60E−2*	8.7E−3	2.01E−3	7.36E−3*	2.83E−3*	7.01E−4		2.02E−5*	1.149E+0
6.00E+6	1.62E−1	2.09E−2*		1.62E−3	5.90E−3*	2.31E−3*	5.64E−4*		1.62E−5*	1.125E+0
8.00E+6	1.15E−1*	1.49E−2*		1.16E−3	4.22E−3*					1.095E+0
1.00E+7		1.16E−2*								

TABLE. Cross Sections for Radiative Recombination, $Z=1–112$
See page 9 for Explanation of Tables

$$Z= 89$$

T_e (eV)	σ_{RR} (b)									$f_{1s_{1/2}}$
	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 7.320$ fm

$|\epsilon_n|$ (eV)	1.223E+5	3.156E+4	3.158E+4	2.769E+4	1.357E+4	1.358E+4	1.242E+4	1.242E+4	1.212E+4	
1.00E+0	8.26E+6	1.31E+6	1.82E+6	1.30E+6	4.15E+5	5.49E+5	4.94E+5	3.85E+5	3.39E+5	6.833E−5
1.50E+0	5.51E+6	8.76E+5	1.22E+6	8.64E+5	2.77E+5	3.66E+5	3.29E+5	2.56E+5	2.26E+5	1.025E−4
2.00E+0	4.13E+6	6.57E+5	9.12E+5	6.48E+5	2.08E+5	2.75E+5	2.47E+5	1.92E+5	1.69E+5	1.367E−4
3.00E+0	2.75E+6	4.38E+5	6.08E+5	4.32E+5	1.38E+5	1.83E+5	1.65E+5	1.28E+5	1.13E+5	2.050E−4
4.00E+0	2.07E+6	3.28E+5	4.56E+5	3.24E+5	1.04E+5	1.37E+5	1.24E+5	9.61E+4	8.47E+4	2.733E−4
5.00E+0	1.65E+6	2.63E+5	3.65E+5	2.59E+5	8.31E+4	1.10E+5	9.88E+4	7.69E+4	6.77E+4	3.416E−4
6.00E+0	1.38E+6	2.19E+5	3.04E+5	2.16E+5	6.92E+4	9.15E+4	8.23E+4	6.41E+4	5.64E+4	4.100E−4
8.00E+0	1.03E+6	1.64E+5	2.28E+5	1.62E+5	5.19E+4	6.86E+4	6.17E+4	4.80E+4	4.23E+4	5.465E−4
1.00E+1	8.26E+5	1.31E+5	1.82E+5	1.30E+5	4.15E+4	5.49E+4	4.94E+4	3.84E+4	3.39E+4	6.832E−4
1.50E+1	5.51E+5	8.76E+4	1.22E+5	8.63E+4	2.77E+4	3.66E+4	3.29E+4	2.56E+4	2.26E+4	1.025E−3
2.00E+1	4.13E+5	6.57E+4	9.12E+4	6.47E+4	2.08E+4	2.75E+4	2.47E+4	1.92E+4	1.69E+4	1.366E−3
3.00E+1	2.75E+5	4.38E+4	6.08E+4	4.31E+4	1.39E+4	1.83E+4	1.65E+4	1.28E+4	1.13E+4	2.049E−3
4.00E+1	2.07E+5	3.28E+4	4.56E+4	3.24E+4	1.04E+4	1.37E+4	1.23E+4	9.57E+3	8.43E+3	2.731E−3
5.00E+1	1.65E+5	2.63E+4	3.65E+4	2.59E+4	8.31E+3	1.10E+4	9.87E+3	7.65E+3	6.74E+3	3.414E−3
6.00E+1	1.38E+5	2.19E+4	3.04E+4	2.16E+4	6.93E+3	9.15E+3	8.22E+3	6.37E+3	5.61E+3	4.096E−3
8.00E+1	1.03E+5	1.64E+4	2.28E+4	1.62E+4	5.19E+3	6.86E+3	6.16E+3	4.77E+3	4.20E+3	5.460E−3
1.00E+2	8.26E+4	1.31E+4	1.82E+4	1.29E+4	4.16E+3	5.49E+3	4.92E+3	3.81E+3	3.35E+3	6.822E−3
1.50E+2	5.50E+4	8.75E+3	1.21E+4	8.59E+3	2.77E+3	3.66E+3	3.28E+3	2.52E+3	2.22E+3	1.023E−2
2.00E+2	4.13E+4	6.57E+3	9.08E+3	6.43E+3	2.08E+3	2.74E+3	2.45E+3	1.88E+3	1.66E+3	1.362E−2
3.00E+2	2.75E+4	4.38E+3	6.04E+3	4.27E+3	1.39E+3	1.83E+3	1.63E+3	1.24E+3	1.09E+3	2.040E−2
4.00E+2	2.06E+4	3.28E+3	4.52E+3	3.19E+3	1.04E+3	1.37E+3	1.22E+3	9.23E+2	8.10E+2	2.716E−2
5.00E+2	1.65E+4	2.63E+3	3.61E+3	2.55E+3	8.33E+2	1.09E+3	9.72E+2	7.31E+2	6.41E+2	3.390E−2
6.00E+2	1.37E+4	2.19E+3	3.00E+3	2.11E+3	6.95E+2	9.10E+2	8.07E+2	6.03E+2	5.28E+2	4.062E−2
8.00E+2	1.03E+4	1.64E+3	2.24E+3	1.58E+3	5.22E+2	6.81E+2	6.02E+2	4.43E+2	3.88E+2	5.400E−2
1.00E+3	8.22E+3	1.31E+3	1.78E+3	1.25E+3	4.18E+2	5.44E+2	4.78E+2	3.48E+2	3.04E+2	6.729E−2
1.50E+3	5.47E+3	8.74E+2	1.18E+3	8.20E+2	2.79E+2	3.60E+2	3.14E+2	2.21E+2	1.92E+2	1.002E−1
2.00E+3	4.09E+3	6.55E+2	8.72E+2	6.05E+2	2.10E+2	2.69E+2	2.31E+2	1.58E+2	1.37E+2	1.326E−1
3.00E+3	2.71E+3	4.36E+2	5.69E+2	3.90E+2	1.40E+2	1.77E+2	1.49E+2	9.60E+1	8.27E+1	1.959E−1
4.00E+3	2.02E+3	3.26E+2	4.18E+2	2.83E+2	1.05E+2	1.31E+2	1.09E+2	6.60E+1	5.64E+1	2.573E−1
5.00E+3	1.61E+3	2.60E+2	3.27E+2	2.19E+2	8.40E+1	1.03E+2	8.41E+1	4.86E+1	4.13E+1	3.169E−1
6.00E+3	1.34E+3	2.16E+2	2.67E+2	1.77E+2	7.00E+1	8.46E+1	6.79E+1	3.74E+1	3.16E+1	3.747E−1
8.00E+3	9.91E+2	1.61E+2	1.92E+2	1.25E+2	5.22E+1	6.14E+1	4.79E+1	2.41E+1	2.01E+1	4.853E−1
1.00E+4	7.85E+2	1.28E+2	1.48E+2	9.44E+1	4.15E+1	4.76E+1	3.61E+1	1.68E+1	1.39E+1	5.896E−1
1.50E+4	5.10E+2	8.39E+1	8.97E+1	5.50E+1	2.71E+1	2.92E+1	2.09E+1	8.19E+0	6.62E+0	8.251E−1
2.00E+4	3.73E+2	6.16E+1	6.17E+1	3.64E+1	1.98E+1	2.02E+1	1.38E+1	4.70E+0	3.72E+0	1.029E+0
3.00E+4	2.37E+2	3.92E+1	3.51E+1	1.95E+1	1.24E+1	1.16E+1	7.33E+0	2.01E+0	1.54E+0	1.361E+0
4.00E+4	1.70E+2	2.80E+1	2.29E+1	1.21E+1	8.79E+0	7.55E+0	4.51E+0	1.05E+0	7.81E−1	1.613E+0
5.00E+4	1.30E+2	2.13E+1	1.62E+1	8.16E+0	6.64E+0	5.34E+0	3.03E+0	6.16E−1	4.50E−1	1.805E+0
6.00E+4	1.04E+2	1.69E+1	1.21E+1	5.84E+0	5.23E+0	3.98E+0	2.16E+0	3.94E−1	2.82E−1	1.953E+0
8.00E+4	7.21E+1	1.16E+1	7.45E+0	3.38E+0	3.53E+0	2.45E+0	1.24E+0	1.91E−1	1.32E−1	2.154E+0
1.00E+5	5.37E+1	8.49E+0	5.05E+0	2.17E+0	2.57E+0	1.66E+0	7.93E−1	1.07E−1	7.23E−2	2.270E+0
1.50E+5	3.06E+1	4.69E+0	2.42E+0	9.40E−1	1.40E+0	7.93E−1	3.41E−1	3.67E−2	2.38E−2	2.371E+0
2.00E+5	2.02E+1	3.02E+0	1.42E+0	5.12E−1	8.90E−1	4.64E−1	1.84E−1	1.72E−2	1.08E−2	2.353E+0
3.00E+5	1.10E+1	1.59E+0	6.64E−1	2.17E−1	4.64E−1	2.16E−1	7.76E−2	5.96E−3	3.68E−3	2.224E+0
4.00E+5	7.15E+0	1.01E+0	3.89E−1	1.19E−1	2.91E−1	1.27E−1	4.25E−2	2.88E−3	1.78E−3	2.085E+0
5.00E+5	5.11E+0	7.09E−1	2.60E−1	7.63E−2	2.04E−1	8.44E−2	2.71E−2	1.68E−3	1.04E−3	1.965E+0
6.00E+5	3.89E+0	5.33E−1	1.88E−1	5.35E−2	1.53E−1	6.10E−2	1.89E−2	1.10E−3	6.87E−4	1.865E+0
8.00E+5	2.54E+0	3.43E−1	1.15E−1	3.13E−2	9.78E−2	3.73E−2	1.11E−2	5.83E−4	3.73E−4	1.714E+0
1.00E+6	1.83E+0	2.45E−1	8.02E−2	2.12E−2	6.98E−2	2.60E−2	7.45E−3	3.69E−4	2.42E−4	1.605E+0
1.50E+6	1.03E+0	1.36E−1	4.35E−2	1.09E−2	3.85E−2	1.41E−2	3.83E−3	1.74E−4	1.18E−4	1.437E+0
2.00E+6	6.90E−1	9.07E−2	2.92E−2	7.10E−3	2.57E−2	9.46E−3	2.49E−3	1.08E−4	7.51E−5	1.342E+0
3.00E+6	4.01E−1	5.24E−2	1.74E−2	4.05E−3	1.48E−2	5.63E−3	1.42E−3	5.90E−5*	4.21E−5	1.238E+0
4.00E+6	2.78E−1	3.61E−2	1.23E−2	2.80E−3	1.02E−2	3.99E−3	9.79E−4	4.0E−5	2.89E−5	1.182E+0
5.00E+6	2.11E−1	2.73E−2*		2.13E−3	7.72E−3*	3.09E−3*	7.44E−4*		2.19E−5	1.148E+0
6.00E+6	1.69E−1*	2.19E−2*		1.72E−3	6.19E−3*	2.52E−3*	5.99E−4*		1.76E−5	1.124E+0
8.00E+6	1.21E−1*	1.57E−2*		1.23E−3	4.42E−3*					1.094E+0
1.00E+7		1.22E−2*								

TABLE. Cross Sections for Radiative Recombination, $Z=1–112$

Z= 90

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 7.490$ fm

$\|\epsilon_n\|$ (eV)	1.255E+5	3.241E+4	3.244E+4	2.834E+4	1.393E+4	1.394E+4	1.271E+4	1.271E+4	1.240E+4	
1.00E+0	8.42E+6	1.34E+6	1.88E+6	1.33E+6	4.23E+5	5.63E+5	5.06E+5	3.95E+5	3.47E+5	6.489E−5
1.50E+0	5.62E+6	8.94E+5	1.26E+6	8.84E+5	2.82E+5	3.75E+5	3.37E+5	2.63E+5	2.31E+5	9.733E−5
2.00E+0	4.21E+6	6.70E+5	9.41E+5	6.63E+5	2.12E+5	2.81E+5	2.53E+5	1.97E+5	1.73E+5	1.298E−4
3.00E+0	2.81E+6	4.47E+5	6.28E+5	4.42E+5	1.41E+5	1.88E+5	1.69E+5	1.32E+5	1.16E+5	1.947E−4
4.00E+0	2.11E+6	3.35E+5	4.71E+5	3.32E+5	1.06E+5	1.41E+5	1.27E+5	9.87E+4	8.67E+4	2.596E−4
5.00E+0	1.69E+6	2.68E+5	3.77E+5	2.65E+5	8.46E+4	1.13E+5	1.01E+5	7.89E+4	6.94E+4	3.244E−4
6.00E+0	1.40E+6	2.24E+5	3.14E+5	2.21E+5	7.05E+4	9.38E+4	8.43E+4	6.58E+4	5.78E+4	3.893E−4
8.00E+0	1.05E+6	1.68E+5	2.35E+5	1.66E+5	5.29E+4	7.03E+4	6.32E+4	4.93E+4	4.33E+4	5.191E−4
1.00E+1	8.42E+5	1.34E+5	1.88E+5	1.33E+5	4.23E+4	5.63E+4	5.06E+4	3.94E+4	3.47E+4	6.489E−4
1.50E+1	5.62E+5	8.94E+4	1.26E+5	8.84E+4	2.82E+4	3.75E+4	3.37E+4	2.63E+4	2.31E+4	9.732E−4
2.00E+1	4.21E+5	6.70E+4	9.41E+4	6.63E+4	2.12E+4	2.81E+4	2.53E+4	1.97E+4	1.73E+4	1.298E−3
3.00E+1	2.81E+5	4.47E+4	6.27E+4	4.42E+4	1.41E+4	1.88E+4	1.69E+4	1.31E+4	1.15E+4	1.946E−3
4.00E+1	2.11E+5	3.35E+4	4.70E+4	3.31E+4	1.06E+4	1.41E+4	1.26E+4	9.83E+3	8.64E+3	2.594E−3
5.00E+1	1.68E+5	2.68E+4	3.76E+4	2.65E+4	8.46E+3	1.13E+4	1.01E+4	7.86E+3	6.90E+3	3.242E−3
6.00E+1	1.40E+5	2.24E+4	3.13E+4	2.21E+4	7.05E+3	9.37E+3	8.42E+3	6.54E+3	5.74E+3	3.890E−3
8.00E+1	1.05E+5	1.68E+4	2.35E+4	1.65E+4	5.29E+3	7.03E+3	6.31E+3	4.90E+3	4.30E+3	5.186E−3
1.00E+2	8.42E+4	1.34E+4	1.88E+4	1.32E+4	4.23E+3	5.62E+3	5.04E+3	3.91E+3	3.43E+3	6.480E−3
1.50E+2	5.61E+4	8.94E+3	1.25E+4	8.80E+3	2.82E+3	3.75E+3	3.36E+3	2.59E+3	2.28E+3	9.713E−3
2.00E+2	4.21E+4	6.70E+3	9.37E+3	6.59E+3	2.12E+3	2.81E+3	2.51E+3	1.94E+3	1.70E+3	1.294E−2
3.00E+2	2.80E+4	4.47E+3	6.24E+3	4.38E+3	1.41E+3	1.87E+3	1.67E+3	1.28E+3	1.12E+3	1.938E−2
4.00E+2	2.10E+4	3.35E+3	4.67E+3	3.27E+3	1.06E+3	1.40E+3	1.25E+3	9.48E+2	8.30E+2	2.580E−2
5.00E+2	1.68E+4	2.68E+3	3.73E+3	2.61E+3	8.49E+2	1.12E+3	9.96E+2	7.51E+2	6.57E+2	3.221E−2
6.00E+2	1.40E+4	2.23E+3	3.10E+3	2.17E+3	7.08E+2	9.33E+2	8.27E+2	6.20E+2	5.42E+2	3.859E−2
8.00E+2	1.05E+4	1.68E+3	2.31E+3	1.61E+3	5.31E+2	6.98E+2	6.16E+2	4.56E+2	3.98E+2	5.130E−2
1.00E+3	8.38E+3	1.34E+3	1.84E+3	1.28E+3	4.25E+2	5.58E+2	4.90E+2	3.58E+2	3.12E+2	6.394E−2
1.50E+3	5.57E+3	8.92E+2	1.22E+3	8.41E+2	2.84E+2	3.70E+2	3.22E+2	2.27E+2	1.97E+2	9.520E−2
2.00E+3	4.17E+3	6.69E+2	9.02E+2	6.20E+2	2.14E+2	2.76E+2	2.37E+2	1.63E+2	1.41E+2	1.260E−1
3.00E+3	2.77E+3	4.45E+2	5.89E+2	4.00E+2	1.43E+2	1.82E+2	1.53E+2	9.92E+1	8.52E+1	1.863E−1
4.00E+3	2.06E+3	3.33E+2	4.32E+2	2.91E+2	1.07E+2	1.34E+2	1.11E+2	6.83E+1	5.83E+1	2.448E−1
5.00E+3	1.64E+3	2.66E+2	3.39E+2	2.25E+2	8.57E+1	1.06E+2	8.64E+1	5.04E+1	4.27E+1	3.016E−1
6.00E+3	1.36E+3	2.21E+2	2.77E+2	1.82E+2	7.13E+1	8.71E+1	6.98E+1	3.88E+1	3.27E+1	3.567E−1
8.00E+3	1.01E+3	1.65E+2	2.00E+2	1.29E+2	5.33E+1	6.34E+1	4.93E+1	2.51E+1	2.09E+1	4.624E−1
1.00E+4	8.01E+2	1.31E+2	1.54E+2	9.73E+1	4.24E+1	4.92E+1	3.73E+1	1.75E+1	1.44E+1	5.622E−1
1.50E+4	5.21E+2	8.58E+1	9.36E+1	5.68E+1	2.77E+1	3.03E+1	2.17E+1	8.61E+0	6.93E+0	7.881E−1
2.00E+4	3.82E+2	6.30E+1	6.45E+1	3.77E+1	2.02E+1	2.10E+1	1.43E+1	4.96E+0	3.91E+0	9.845E−1
3.00E+4	2.43E+2	4.01E+1	3.69E+1	2.03E+1	1.28E+1	1.21E+1	7.63E+0	2.13E+0	1.63E+0	1.305E+0
4.00E+4	1.74E+2	2.87E+1	2.42E+1	1.26E+1	9.03E+0	7.93E+0	4.71E+0	1.11E+0	8.29E−1	1.551E+0
5.00E+4	1.34E+2	2.19E+1	1.71E+1	8.52E+0	6.83E+0	5.62E+0	3.17E+0	6.58E−1	4.79E−1	1.740E+0
6.00E+4	1.07E+2	1.74E+1	1.28E+1	6.12E+0	5.38E+0	4.20E+0	2.27E+0	4.22E−1	3.01E−1	1.887E+0
8.00E+4	7.42E+1	1.19E+1	7.92E+0	3.55E+0	3.64E+0	2.60E+0	1.30E+0	2.05E−1	1.42E−1	2.088E+0
1.00E+5	5.53E+1	8.77E+0	5.38E+0	2.28E+0	2.65E+0	1.76E+0	8.35E−1	1.15E−1	7.77E−2	2.207E+0
1.50E+5	3.17E+1	4.87E+0	2.60E+0	9.93E−1	1.45E+0	8.48E−1	3.60E−1	3.98E−2	2.56E−2	2.316E+0
2.00E+5	2.10E+1	3.14E+0	1.53E+0	5.42E−1	9.26E−1	4.98E−1	1.95E−1	1.86E−2	1.17E−2	2.307E+0
3.00E+5	1.15E+1	1.66E+0	7.17E−1	2.30E−1	4.84E−1	2.33E−1	8.24E−2	6.49E−3	3.98E−3	2.191E+0
4.00E+5	7.47E+0	1.06E+0	4.22E−1	1.27E−1	3.05E−1	1.37E−1	4.52E−2	3.15E−3	1.93E−3	2.060E+0
5.00E+5	5.34E+0	7.43E−1	2.82E−1	8.11E−2	2.13E−1	9.13E−2	2.88E−2	1.84E−3	1.13E−3	1.945E+0
6.00E+5	4.07E+0	5.59E−1	2.04E−1	5.69E−2	1.60E−1	6.62E−2	2.01E−2	1.20E−3	7.46E−4	1.849E+0
8.00E+5	2.66E+0	3.60E−1	1.25E−1	3.33E−2	1.03E−1	4.05E−2	1.18E−2	6.39E−4	4.05E−4	1.702E+0
1.00E+6	1.92E+0	2.58E−1	8.74E−2	2.25E−2	7.33E−2	2.82E−2	7.93E−3	4.05E−4	2.62E−4	1.596E+0
1.50E+6	1.08E+0	1.43E−1	4.75E−2	1.16E−2	4.05E−2	1.53E−2	4.08E−3	1.91E−4	1.28E−4	1.432E+0
2.00E+6	7.24E−1	9.53E−2	3.19E−2	7.54E−3	2.69E−2	1.03E−2	2.64E−3	1.19E−4	8.15E−5	1.338E+0
3.00E+6	4.20E−1*	5.50E−2	1.90E−2	4.30E−3	1.55E−2	6.13E−3	1.51E−3	6.49E−5*	4.57E−5	1.235E+0
4.00E+6	2.91E−1*	3.79E−2	1.35E−2	2.97E−3	1.07E−2	4.35E−3	1.04E−3		3.13E−5	1.180E+0
5.00E+6	2.21E−1*	2.87E−2	1.04E−2	2.26E−3	8.09E−3*	3.37E−3*	7.90E−4*		2.37E−5*	1.146E+0
6.00E+6	1.77E−1*	2.30E−2		1.82E−3	6.49E−3*	2.75E−3*	6.36E−4*		1.90E−5*	1.123E+0
8.00E+6		1.64E−2*		1.31E−3*	4.63E−3*					
1.00E+7		1.28E−2*								

TABLE. Cross Sections for Radiative Recombination, $Z=1$–112
See page 9 for Explanation of Tables

Z= 91

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

R_{nucl} = 7.359 fm

$\vert\epsilon_n\vert$ (eV)	1.288E+5	3.329E+4	3.332E+4	2.899E+4	1.429E+4	1.430E+4	1.301E+4	1.301E+4	1.268E+4	
1.50E+0	5.72E+6	9.12E+5	1.30E+6	9.05E+5	2.87E+5	3.84E+5	3.45E+5	2.70E+5	2.37E+5	9.247E−5
2.00E+0	4.29E+6	6.84E+5	9.72E+5	6.79E+5	2.15E+5	2.88E+5	2.59E+5	2.03E+5	1.78E+5	1.233E−4
3.00E+0	2.86E+6	4.56E+5	6.48E+5	4.53E+5	1.44E+5	1.92E+5	1.73E+5	1.35E+5	1.18E+5	1.849E−4
4.00E+0	2.15E+6	3.42E+5	4.86E+5	3.40E+5	1.08E+5	1.44E+5	1.30E+5	1.01E+5	8.87E+4	2.465E−4
5.00E+0	1.72E+6	2.74E+5	3.89E+5	2.72E+5	8.61E+4	1.15E+5	1.04E+5	8.10E+4	7.10E+4	3.082E−4
6.00E+0	1.43E+6	2.28E+5	3.24E+5	2.26E+5	7.18E+4	9.61E+4	8.63E+4	6.75E+4	5.92E+4	3.698E−4
8.00E+0	1.07E+6	1.71E+5	2.43E+5	1.70E+5	5.38E+4	7.21E+4	6.47E+4	5.06E+4	4.44E+4	4.931E−4
1.00E+1	8.59E+5	1.37E+5	1.94E+5	1.36E+5	4.31E+4	5.76E+4	5.18E+4	4.05E+4	3.55E+4	6.163E−4
1.50E+1	5.72E+5	9.12E+4	1.30E+5	9.05E+4	2.87E+4	3.84E+4	3.45E+4	2.70E+4	2.36E+4	9.244E−4
2.00E+1	4.29E+5	6.84E+4	9.71E+4	6.79E+4	2.15E+4	2.88E+4	2.59E+4	2.02E+4	1.77E+4	1.233E−3
3.00E+1	2.86E+5	4.56E+4	6.47E+4	4.52E+4	1.44E+4	1.92E+4	1.73E+4	1.35E+4	1.18E+4	1.849E−3
4.00E+1	2.15E+5	3.42E+4	4.85E+4	3.39E+4	1.08E+4	1.44E+4	1.29E+4	1.01E+4	8.84E+3	2.464E−3
5.00E+1	1.72E+5	2.74E+4	3.88E+4	2.71E+4	8.62E+3	1.15E+4	1.03E+4	8.07E+3	7.06E+3	3.080E−3
6.00E+1	1.43E+5	2.28E+4	3.23E+4	2.26E+4	7.18E+3	9.60E+3	8.62E+3	6.72E+3	5.88E+3	3.695E−3
8.00E+1	1.07E+5	1.71E+4	2.43E+4	1.69E+4	5.39E+3	7.20E+3	6.46E+3	5.03E+3	4.40E+3	4.926E−3
1.00E+2	8.58E+4	1.37E+4	1.94E+4	1.35E+4	4.31E+3	5.76E+3	5.16E+3	4.01E+3	3.51E+3	6.155E−3
1.50E+2	5.72E+4	9.12E+3	1.29E+4	9.01E+3	2.87E+3	3.84E+3	3.44E+3	2.66E+3	2.33E+3	9.226E−3
2.00E+2	4.29E+4	6.84E+3	9.68E+3	6.75E+3	2.16E+3	2.88E+3	2.57E+3	1.99E+3	1.74E+3	1.229E−2
3.00E+2	2.86E+4	4.56E+3	6.44E+3	4.48E+3	1.44E+3	1.92E+3	1.71E+3	1.31E+3	1.15E+3	1.841E−2
4.00E+2	2.14E+4	3.42E+3	4.82E+3	3.35E+3	1.08E+3	1.44E+3	1.28E+3	9.74E+2	8.51E+2	2.451E−2
5.00E+2	1.71E+4	2.74E+3	3.85E+3	2.67E+3	8.64E+2	1.15E+3	1.02E+3	7.72E+2	6.74E+2	3.060E−2
6.00E+2	1.43E+4	2.28E+3	3.20E+3	2.22E+3	7.20E+2	9.56E+2	8.47E+2	6.37E+2	5.55E+2	3.667E−2
8.00E+2	1.07E+4	1.71E+3	2.39E+3	1.65E+3	5.41E+2	7.16E+2	6.31E+2	4.69E+2	4.08E+2	4.875E−2
1.00E+3	8.54E+3	1.37E+3	1.90E+3	1.31E+3	4.33E+2	5.72E+2	5.02E+2	3.68E+2	3.20E+2	6.076E−2
1.50E+3	5.68E+3	9.11E+2	1.26E+3	8.61E+2	2.89E+2	3.79E+2	3.30E+2	2.34E+2	2.03E+2	9.048E−2
2.00E+3	4.25E+3	6.83E+2	9.32E+2	6.36E+2	2.17E+2	2.83E+2	2.43E+2	1.68E+2	1.45E+2	1.198E−1
3.00E+3	2.82E+3	4.54E+2	6.09E+2	4.11E+2	1.45E+2	1.87E+2	1.57E+2	1.03E+2	8.78E+1	1.771E−1
4.00E+3	2.10E+3	3.40E+2	4.48E+2	2.98E+2	1.09E+2	1.38E+2	1.14E+2	7.07E+1	6.02E+1	2.328E−1
5.00E+3	1.68E+3	2.72E+2	3.51E+2	2.32E+2	8.73E+1	1.09E+2	8.88E+1	5.22E+1	4.41E+1	2.870E−1
6.00E+3	1.39E+3	2.26E+2	2.87E+2	1.87E+2	7.27E+1	8.97E+1	7.18E+1	4.03E+1	3.39E+1	3.396E−1
8.00E+3	1.03E+3	1.68E+2	2.07E+2	1.33E+2	5.44E+1	6.54E+1	5.08E+1	2.62E+1	2.17E+1	4.406E−1
1.00E+4	8.18E+2	1.34E+2	1.60E+2	1.00E+2	4.33E+1	5.08E+1	3.84E+1	1.83E+1	1.50E+1	5.360E−1
1.50E+4	5.32E+2	8.77E+1	9.76E+1	5.87E+1	2.83E+1	3.14E+1	2.24E+1	9.03E+0	7.25E+0	7.527E−1
2.00E+4	3.90E+2	6.45E+1	6.74E+1	3.91E+1	2.07E+1	2.18E+1	1.48E+1	5.22E+0	4.11E+0	9.417E−1
3.00E+4	2.49E+2	4.11E+1	3.87E+1	2.10E+1	1.31E+1	1.26E+1	7.93E+0	2.26E+0	1.72E+0	1.252E+0
4.00E+4	1.79E+2	2.95E+1	2.55E+1	1.31E+1	9.27E+0	8.32E+0	4.91E+0	1.19E+0	8.79E−1	1.492E+0
5.00E+4	1.37E+2	2.25E+1	1.81E+1	8.90E+0	7.02E+0	5.92E+0	3.32E+0	7.03E−1	5.09E−1	1.677E+0
6.00E+4	1.10E+2	1.79E+1	1.35E+1	6.40E+0	5.54E+0	4.43E+0	2.37E+0	4.52E−1	3.21E−1	1.822E+0
8.00E+4	7.64E+1	1.23E+1	8.42E+0	3.72E+0	3.76E+0	2.75E+0	1.37E+0	2.20E−1	1.51E−1	2.023E+0
1.00E+5	5.70E+1	9.06E+0	5.74E+0	2.40E+0	2.74E+0	1.87E+0	8.78E−1	1.24E−1	8.33E−2	2.144E+0
1.50E+5	3.28E+1	5.05E+0	2.79E+0	1.05E+0	1.50E+0	9.07E−1	3.80E−1	4.31E−2	2.76E−2	2.262E+0
2.00E+5	2.17E+1	3.27E+0	1.64E+0	5.73E−1	9.62E−1	5.34E−1	2.07E−1	2.02E−2	1.26E−2	2.261E+0
3.00E+5	1.20E+1	1.74E+0	7.75E−1	2.44E−1	5.04E−1	2.51E−1	8.75E−2	7.07E−3	4.31E−3	2.157E+0
4.00E+5	7.79E+0	1.10E+0	4.57E−1	1.35E−1	3.18E−1	1.48E−1	4.81E−2	3.44E−3	2.09E−3	2.034E+0
5.00E+5	5.59E+0	7.78E−1	3.06E−1	8.62E−2	2.23E−1	9.88E−2	3.06E−2	2.01E−3	1.22E−3	1.925E+0
6.00E+5	4.26E+0	5.87E−1	2.22E−1	6.05E−2	1.68E−1	7.17E−2	2.14E−2	1.31E−3	8.09E−4	1.832E+0
8.00E+5	2.79E+0	3.78E−1	1.36E−1	3.54E−2	1.08E−1	4.40E−2	1.25E−2	6.99E−4	4.40E−4	1.690E+0
1.00E+6	2.02E+0	2.71E−1	9.52E−2	2.39E−2	7.69E−2	3.07E−2	8.43E−3	4.43E−4	2.84E−4	1.587E+0
1.50E+6	1.13E+0	1.50E−1	5.18E−2	1.23E−2	4.25E−2	1.67E−2	4.33E−3	2.09E−4	1.39E−4	1.426E+0
2.00E+6	7.59E−1	1.00E−1	3.48E−2	8.01E−3	2.83E−2	1.12E−2	2.80E−3	1.30E−4	8.83E−5	1.334E+0
3.00E+6	4.41E−1	5.77E−2*	2.07E−2	4.56E−3	1.63E−2	6.68E−3	1.60E−3	7.14E−5	4.94E−5	1.233E+0
4.00E+6	3.05E−1	3.98E−2*	1.47E−2	3.15E−3	1.12E−2	4.74E−3	1.10E−3		3.39E−5	1.178E+0
5.00E+6	2.31E−1	3.01E−2*	1.14E−2	2.40E−3	8.47E−3*	3.67E−3*	8.37E−4*		2.6E−5	1.145E+0
6.00E+6	1.86E−1	2.41E−2*		1.93E−3	6.79E−3*	3.0E−3			2.1E−5	1.122E+0
8.00E+6		1.72E−2*		1.38E−3						
1.00E+7		1.34E−2*								

Z= 92

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

R_{nucl} = 7.566 fm

$|\epsilon_n|$ (eV)	1.321E+5	3.418E+4	3.421E+4	2.965E+4	1.466E+4	1.467E+4	1.331E+4	1.331E+4	1.296E+4	
1.50E+0	5.83E+6	9.31E+5	1.34E+6	9.27E+5	2.92E+5	3.94E+5	3.53E+5	2.77E+5	2.42E+5	8.788E−5
2.00E+0	4.37E+6	6.98E+5	1.00E+6	6.95E+5	2.19E+5	2.95E+5	2.65E+5	2.08E+5	1.82E+5	1.172E−4
3.00E+0	2.92E+6	4.65E+5	6.68E+5	4.63E+5	1.46E+5	1.97E+5	1.77E+5	1.39E+5	1.21E+5	1.758E−4
4.00E+0	2.19E+6	3.49E+5	5.01E+5	3.47E+5	1.10E+5	1.48E+5	1.33E+5	1.04E+5	9.08E+4	2.343E−4
5.00E+0	1.75E+6	2.79E+5	4.01E+5	2.78E+5	8.77E+4	1.18E+5	1.06E+5	8.32E+4	7.27E+4	2.929E−4
6.00E+0	1.46E+6	2.33E+5	3.34E+5	2.32E+5	7.31E+4	9.84E+4	8.83E+4	6.93E+4	6.05E+4	3.515E−4
8.00E+0	1.09E+6	1.75E+5	2.51E+5	1.74E+5	5.48E+4	7.38E+4	6.62E+4	5.20E+4	4.54E+4	4.686E−4
1.00E+1	8.75E+5	1.40E+5	2.00E+5	1.39E+5	4.38E+4	5.90E+4	5.30E+4	4.16E+4	3.63E+4	5.858E−4
1.50E+1	5.83E+5	9.31E+4	1.34E+5	9.26E+4	2.92E+4	3.94E+4	3.53E+4	2.77E+4	2.42E+4	8.785E−4
2.00E+1	4.37E+5	6.98E+4	1.00E+5	6.95E+4	2.19E+4	2.95E+4	2.65E+4	2.08E+4	1.81E+4	1.171E−3
3.00E+1	2.92E+5	4.65E+4	6.68E+4	4.63E+4	1.46E+4	1.97E+4	1.77E+4	1.38E+4	1.21E+4	1.757E−3
4.00E+1	2.19E+5	3.49E+4	5.01E+4	3.47E+4	1.10E+4	1.48E+4	1.32E+4	1.04E+4	9.05E+3	2.342E−3
5.00E+1	1.75E+5	2.79E+4	4.01E+4	2.78E+4	8.77E+3	1.18E+4	1.06E+4	8.28E+3	7.23E+3	2.927E−3
6.00E+1	1.46E+5	2.33E+4	3.34E+4	2.31E+4	7.31E+3	9.83E+3	8.82E+3	6.89E+3	6.02E+3	3.512E−3
8.00E+1	1.09E+5	1.75E+4	2.50E+4	1.73E+4	5.48E+3	7.37E+3	6.61E+3	5.16E+3	4.51E+3	4.681E−3
1.00E+2	8.74E+4	1.40E+4	2.00E+4	1.39E+4	4.39E+3	5.90E+3	5.29E+3	4.12E+3	3.60E+3	5.850E−3
1.50E+2	5.83E+4	9.31E+3	1.33E+4	9.22E+3	2.93E+3	3.93E+3	3.52E+3	2.73E+3	2.39E+3	8.769E−3
2.00E+2	4.37E+4	6.98E+3	9.98E+3	6.90E+3	2.19E+3	2.95E+3	2.63E+3	2.04E+3	1.78E+3	1.168E−2
3.00E+2	2.91E+4	4.65E+3	6.64E+3	4.59E+3	1.46E+3	1.96E+3	1.75E+3	1.35E+3	1.17E+3	1.750E−2
4.00E+2	2.18E+4	3.49E+3	4.97E+3	3.43E+3	1.10E+3	1.47E+3	1.31E+3	1.00E+3	8.72E+2	2.330E−2
5.00E+2	1.75E+4	2.79E+3	3.97E+3	2.74E+3	8.79E+2	1.18E+3	1.04E+3	7.93E+2	6.90E+2	2.909E−2
6.00E+2	1.45E+4	2.33E+3	3.30E+3	2.27E+3	7.33E+2	9.80E+2	8.68E+2	6.55E+2	5.69E+2	3.485E−2
8.00E+2	1.09E+4	1.74E+3	2.47E+3	1.69E+3	5.51E+2	7.34E+2	6.47E+2	4.82E+2	4.18E+2	4.634E−2
1.00E+3	8.71E+3	1.40E+3	1.97E+3	1.35E+3	4.41E+2	5.86E+2	5.14E+2	3.79E+2	3.28E+2	5.776E−2
1.50E+3	5.79E+3	9.29E+2	1.30E+3	8.83E+2	2.95E+2	3.89E+2	3.38E+2	2.41E+2	2.08E+2	8.604E−2
2.00E+3	4.33E+3	6.97E+2	9.63E+2	6.52E+2	2.21E+2	2.90E+2	2.49E+2	1.73E+2	1.49E+2	1.139E−1
3.00E+3	2.87E+3	4.64E+2	6.30E+2	4.21E+2	1.48E+2	1.92E+2	1.61E+2	1.06E+2	9.04E+1	1.685E−1
4.00E+3	2.15E+3	3.47E+2	4.63E+2	3.06E+2	1.11E+2	1.42E+2	1.17E+2	7.32E+1	6.21E+1	2.216E−1
5.00E+3	1.71E+3	2.77E+2	3.64E+2	2.38E+2	8.90E+1	1.12E+2	9.12E+1	5.42E+1	4.56E+1	2.733E−1
6.00E+3	1.42E+3	2.30E+2	2.98E+2	1.93E+2	7.41E+1	9.24E+1	7.38E+1	4.19E+1	3.50E+1	3.235E−1
8.00E+3	1.05E+3	1.72E+2	2.15E+2	1.36E+2	5.54E+1	6.74E+1	5.23E+1	2.72E+1	2.25E+1	4.199E−1
1.00E+4	8.34E+2	1.37E+2	1.66E+2	1.03E+2	4.41E+1	5.25E+1	3.96E+1	1.91E+1	1.56E+1	5.112E−1
1.50E+4	5.43E+2	8.97E+1	1.02E+2	6.06E+1	2.89E+1	3.25E+1	2.31E+1	9.47E+0	7.58E+0	7.191E−1
2.00E+4	3.98E+2	6.60E+1	7.04E+1	4.04E+1	2.12E+1	2.27E+1	1.54E+1	5.50E+0	4.31E+0	9.011E−1
3.00E+4	2.54E+2	4.21E+1	4.06E+1	2.19E+1	1.34E+1	1.32E+1	8.24E+0	2.39E+0	1.81E+0	1.201E+0
4.00E+4	1.83E+2	3.02E+1	2.68E+1	1.37E+1	9.51E+0	8.72E+0	5.12E+0	1.26E+0	9.31E−1	1.435E+0
5.00E+4	1.40E+2	2.31E+1	1.91E+1	9.29E+0	7.21E+0	6.22E+0	3.46E+0	7.50E−1	5.41E−1	1.617E+0
6.00E+4	1.13E+2	1.84E+1	1.43E+1	6.69E+0	5.70E+0	4.67E+0	2.48E+0	4.83E−1	3.42E−1	1.760E+0
8.00E+4	7.85E+1	1.27E+1	8.94E+0	3.90E+0	3.87E+0	2.91E+0	1.44E+0	2.37E−1	1.62E−1	1.960E+0
1.00E+5	5.87E+1	9.35E+0	6.11E+0	2.52E+0	2.83E+0	1.99E+0	9.23E−1	1.34E−1	8.93E−2	2.083E+0
1.50E+5	3.39E+1	5.23E+0	2.98E+0	1.11E+0	1.56E+0	9.68E−1	4.01E−1	4.66E−2	2.97E−2	2.209E+0
2.00E+5	2.25E+1	3.39E+0	1.77E+0	6.06E−1	9.98E−1	5.72E−1	2.19E−1	2.19E−2	1.36E−2	2.216E+0
3.00E+5	1.25E+1	1.81E+0	8.36E−1	2.59E−1	5.25E−1	2.71E−1	9.27E−2	7.69E−3	4.66E−3	2.124E+0
4.00E+5	8.13E+0	1.15E+0	4.94E−1	1.43E−1	3.32E−1	1.60E−1	5.10E−2	3.75E−3	2.26E−3	2.009E+0
5.00E+5	5.84E+0	8.14E−1	3.31E−1	9.16E−2	2.33E−1	1.07E−1	3.25E−2	2.19E−3	1.33E−3	1.905E+0
6.00E+5	4.46E+0	6.15E−1	2.41E−1	6.43E−2	1.76E−1	7.76E−2	2.28E−2	1.44E−3	8.77E−4	1.816E+0
8.00E+5	2.92E+0	3.97E−1	1.48E−1	3.77E−2	1.13E−1	4.77E−2	1.33E−2	7.65E−4	4.77E−4	1.678E+0
1.00E+6	2.12E+0	2.85E−1	1.04E−1	2.54E−2	8.07E−2	3.33E−2	8.95E−3	4.85E−4	3.08E−4	1.578E+0
1.50E+6	1.19E+0	1.58E−1	5.64E−2	1.31E−2	4.46E−2	1.81E−2	4.59E−3	2.30E−4	1.51E−4	1.420E+0
2.00E+6	7.95E−1	1.05E−1	3.80E−2	8.49E−3	2.96E−2	1.22E−2	2.98E−3	1.43E−4	9.55E−5	1.330E+0
3.00E+6	4.61E−1*	6.05E−2*	2.26E−2	4.84E−3	1.70E−2	7.26E−3	1.69E−3	7.84E−5	5.35E−5	1.230E+0
4.00E+6	3.19E−1*	4.17E−2*	1.61E−2	3.34E−3	1.17E−2	5.16E−3	1.17E−3		3.66E−5*	1.177E+0
5.00E+6	2.42E−1*	3.15E−2*	1.24E−2*	2.54E−3	8.87E−3*	3.99E−3*	8.87E−4*		2.77E−5*	1.143E+0
6.00E+6	1.95E−1*	2.53E−2*	1.02E−2*	2.05E−3	7.11E−3*	3.26E−3*			2.22E−5*	1.120E+0
8.00E+6		1.81E−2*		1.47E−3*	5.1E−3					
1.00E+7		1.40E−2*								

TABLE. Cross Sections for Radiative Recombination, $Z=1$–112

See page 9 for Explanation of Tables

$Z= 93$

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{\mathrm{nucl}} = 7.415$ fm

$|\epsilon_n|$ (eV)	1.355E+5	3.509E+4	3.513E+4	3.032E+4	1.503E+4	1.504E+4	1.361E+4	1.361E+4	1.325E+4	
1.50E+0	5.94E+6	9.49E+5	1.38E+6	9.48E+5	2.97E+5	4.03E+5	3.62E+5	2.85E+5	2.48E+5	8.352E−5
2.00E+0	4.46E+6	7.12E+5	1.03E+6	7.11E+5	2.23E+5	3.02E+5	2.71E+5	2.13E+5	1.86E+5	1.114E−4
3.00E+0	2.97E+6	4.75E+5	6.89E+5	4.74E+5	1.49E+5	2.01E+5	1.81E+5	1.42E+5	1.24E+5	1.670E−4
4.00E+0	2.23E+6	3.56E+5	5.17E+5	3.56E+5	1.11E+5	1.51E+5	1.36E+5	1.07E+5	9.29E+4	2.227E−4
5.00E+0	1.78E+6	2.85E+5	4.14E+5	2.84E+5	8.92E+4	1.21E+5	1.09E+5	8.53E+4	7.43E+4	2.784E−4
6.00E+0	1.49E+6	2.37E+5	3.45E+5	2.37E+5	7.43E+4	1.01E+5	9.04E+4	7.11E+4	6.19E+4	3.341E−4
8.00E+0	1.11E+6	1.78E+5	2.59E+5	1.78E+5	5.57E+4	7.55E+4	6.78E+4	5.33E+4	4.64E+4	4.454E−4
1.00E+1	8.91E+5	1.42E+5	2.07E+5	1.42E+5	4.46E+4	6.04E+4	5.42E+4	4.27E+4	3.71E+4	5.567E−4
1.50E+1	5.94E+5	9.49E+4	1.38E+5	9.48E+4	2.97E+4	4.03E+4	3.61E+4	2.84E+4	2.48E+4	8.351E−4
2.00E+1	4.46E+5	7.12E+4	1.03E+5	7.11E+4	2.23E+4	3.02E+4	2.71E+4	2.13E+4	1.86E+4	1.113E−3
3.00E+1	2.97E+5	4.75E+4	6.89E+4	4.74E+4	1.49E+4	2.01E+4	1.81E+4	1.42E+4	1.24E+4	1.670E−3
4.00E+1	2.23E+5	3.56E+4	5.17E+4	3.55E+4	1.12E+4	1.51E+4	1.35E+4	1.06E+4	9.26E+3	2.226E−3
5.00E+1	1.78E+5	2.85E+4	4.13E+4	2.84E+4	8.92E+3	1.21E+4	1.08E+4	8.50E+3	7.40E+3	2.782E−3
6.00E+1	1.49E+5	2.37E+4	3.44E+4	2.37E+4	7.43E+3	1.01E+4	9.02E+3	7.08E+3	6.16E+3	3.338E−3
8.00E+1	1.11E+5	1.78E+4	2.58E+4	1.77E+4	5.58E+3	7.55E+3	6.76E+3	5.30E+3	4.61E+3	4.449E−3
1.00E+2	8.91E+4	1.42E+4	2.06E+4	1.42E+4	4.46E+3	6.04E+3	5.41E+3	4.23E+3	3.68E+3	5.560E−3
1.50E+2	5.94E+4	9.49E+3	1.38E+4	9.44E+3	2.98E+3	4.02E+3	3.60E+3	2.81E+3	2.44E+3	8.335E−3
2.00E+2	4.45E+4	7.12E+3	1.03E+4	7.07E+3	2.23E+3	3.02E+3	2.70E+3	2.10E+3	1.82E+3	1.111E−2
3.00E+2	2.97E+4	4.75E+3	6.86E+3	4.70E+3	1.49E+3	2.01E+3	1.79E+3	1.38E+3	1.20E+3	1.664E−2
4.00E+2	2.22E+4	3.56E+3	5.13E+3	3.51E+3	1.12E+3	1.51E+3	1.34E+3	1.03E+3	8.93E+2	2.215E−2
5.00E+2	1.78E+4	2.85E+3	4.10E+3	2.80E+3	8.94E+2	1.21E+3	1.07E+3	8.15E+2	7.07E+2	2.765E−2
6.00E+2	1.48E+4	2.37E+3	3.41E+3	2.33E+3	7.46E+2	1.00E+3	8.88E+2	6.73E+2	5.83E+2	3.313E−2
8.00E+2	1.11E+4	1.78E+3	2.55E+3	1.73E+3	5.60E+2	7.51E+2	6.62E+2	4.96E+2	4.29E+2	4.406E−2
1.00E+3	8.87E+3	1.42E+3	2.03E+3	1.38E+3	4.48E+2	6.00E+2	5.27E+2	3.89E+2	3.36E+2	5.492E−2
1.50E+3	5.90E+3	9.48E+2	1.34E+3	9.04E+2	3.00E+2	3.99E+2	3.46E+2	2.48E+2	2.14E+2	8.182E−2
2.00E+3	4.41E+3	7.10E+2	9.95E+2	6.68E+2	2.25E+2	2.98E+2	2.56E+2	1.78E+2	1.53E+2	1.084E−1
3.00E+3	2.93E+3	4.73E+2	6.51E+2	4.32E+2	1.51E+2	1.97E+2	1.65E+2	1.09E+2	9.31E+1	1.604E−1
4.00E+3	2.19E+3	3.54E+2	4.79E+2	3.14E+2	1.13E+2	1.46E+2	1.21E+2	7.57E+1	6.40E+1	2.110E−1
5.00E+3	1.74E+3	2.83E+2	3.77E+2	2.44E+2	9.06E+1	1.15E+2	9.36E+1	5.61E+1	4.71E+1	2.602E−1
6.00E+3	1.44E+3	2.35E+2	3.08E+2	1.98E+2	7.55E+1	9.50E+1	7.58E+1	4.34E+1	3.63E+1	3.081E−1
8.00E+3	1.07E+3	1.76E+2	2.23E+2	1.40E+2	5.65E+1	6.95E+1	5.38E+1	2.83E+1	2.34E+1	4.003E−1
1.00E+4	8.51E+2	1.40E+2	1.73E+2	1.06E+2	4.50E+1	5.41E+1	4.08E+1	1.99E+1	1.63E+1	4.876E−1
1.50E+4	5.55E+2	9.16E+1	1.06E+2	6.26E+1	2.95E+1	3.37E+1	2.39E+1	9.93E+0	7.92E+0	6.869E−1
2.00E+4	4.07E+2	6.74E+1	7.36E+1	4.18E+1	2.16E+1	2.36E+1	1.59E+1	5.79E+0	4.52E+0	8.621E−1
3.00E+4	2.60E+2	4.32E+1	4.26E+1	2.27E+1	1.37E+1	1.38E+1	8.56E+0	2.53E+0	1.91E+0	1.153E+0
4.00E+4	1.87E+2	3.10E+1	2.82E+1	1.42E+1	9.75E+0	9.14E+0	5.33E+0	1.34E+0	9.85E−1	1.380E+0
5.00E+4	1.44E+2	2.37E+1	2.02E+1	9.69E+0	7.40E+0	6.54E+0	3.61E+0	7.99E−1	5.74E−1	1.558E+0
6.00E+4	1.16E+2	1.89E+1	1.52E+1	6.99E+0	5.86E+0	4.92E+0	2.60E+0	5.17E−1	3.64E−1	1.699E+0
8.00E+4	8.07E+1	1.30E+1	9.49E+0	4.09E+0	3.99E+0	3.08E+0	1.51E+0	2.54E−1	1.73E−1	1.899E+0
1.00E+5	6.05E+1	9.65E+0	6.51E+0	2.65E+0	2.92E+0	2.11E+0	9.70E−1	1.44E−1	9.55E−2	2.023E+0
1.50E+5	3.50E+1	5.41E+0	3.19E+0	1.17E+0	1.61E+0	1.03E+0	4.23E−1	5.03E−2	3.19E−2	2.157E+0
2.00E+5	2.33E+1	3.52E+0	1.90E+0	6.40E−1	1.04E+0	6.13E−1	2.31E−1	2.38E−2	1.47E−2	2.172E+0
3.00E+5	1.30E+1	1.88E+0	9.02E−1	2.74E−1	5.47E−1	2.91E−1	9.82E−2	8.36E−3	5.03E−3	2.091E+0
4.00E+5	8.48E+0	1.20E+0	5.35E−1	1.52E−1	3.47E−1	1.72E−1	5.41E−2	4.08E−3	2.44E−3	1.984E+0
5.00E+5	6.10E+0	8.52E−1	3.59E−1	9.72E−2	2.44E−1	1.15E−1	3.45E−2	2.39E−3	1.44E−3	1.884E+0
6.00E+5	4.66E+0	6.44E−1	2.61E−1	6.82E−2	1.84E−1	8.39E−2	2.42E−2	1.57E−3	9.49E−4	1.799E+0
8.00E+5	3.06E+0	4.16E−1	1.61E−1	4.00E−2	1.18E−1	5.17E−2	1.41E−2	8.36E−4	5.16E−4	1.666E+0
1.00E+6	2.22E+0	2.99E−1	1.13E−1	2.70E−2	8.46E−2	3.61E−2	9.50E−3	5.31E−4	3.33E−4	1.568E+0
1.50E+6	1.24E+0	1.66E−1	6.15E−2	1.39E−2	4.67E−2	1.97E−2	4.87E−3	2.51E−4	1.63E−4	1.414E+0
2.00E+6	8.33E−1	1.10E−1	4.14E−2	9.00E−3	3.11E−2	1.32E−2	3.15E−3	1.57E−4	1.03E−4	1.325E+0
3.00E+6	4.83E−1*	6.35E−2	2.47E−2	5.13E−3	1.79E−2	7.90E−3	1.79E−3	8.59E−5*	5.78E−5	1.227E+0
4.00E+6	3.34E−1*	4.37E−2	1.75E−2	3.54E−3	1.23E−2	5.61E−3	1.24E−3		3.96E−5	1.175E+0
5.00E+6	2.53E−1*	3.31E−2	1.36E−2	2.69E−3	9.28E−3*	4.35E−3	9.39E−4*		2.99E−5*	1.142E+0
6.00E+6	2.04E−1*	2.65E−2	1.11E−2	2.17E−3	7.44E−3*	3.55E−3*	7.56E−4*		2.40E−5*	1.119E+0
8.00E+6		1.89E−2*		1.55E−3	5.31E−3*					
1.00E+7		1.47E−2*			4.12E−3*					

TABLE. Cross Sections for Radiative Recombination, $Z=1-112$
See page 9 for Explanation of Tables

$Z= 94$

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 7.480$ fm

$|\epsilon_n|$ (eV)	1.389E+5	3.602E+4	3.606E+4	3.100E+4	1.542E+4	1.543E+4	1.392E+4	1.392E+4	1.354E+4	
1.50E+0	6.05E+6	9.68E+5	1.42E+6	9.70E+5	3.02E+5	4.12E+5	3.70E+5	2.92E+5	2.54E+5	7.942E−5
2.00E+0	4.54E+6	7.26E+5	1.07E+6	7.27E+5	2.27E+5	3.09E+5	2.77E+5	2.19E+5	1.90E+5	1.059E−4
3.00E+0	3.02E+6	4.84E+5	7.11E+5	4.85E+5	1.51E+5	2.06E+5	1.85E+5	1.46E+5	1.27E+5	1.588E−4
4.00E+0	2.27E+6	3.63E+5	5.33E+5	3.64E+5	1.13E+5	1.55E+5	1.39E+5	1.09E+5	9.51E+4	2.118E−4
5.00E+0	1.82E+6	2.90E+5	4.27E+5	2.91E+5	9.06E+4	1.24E+5	1.11E+5	8.76E+4	7.60E+4	2.647E−4
6.00E+0	1.51E+6	2.42E+5	3.56E+5	2.42E+5	7.55E+4	1.03E+5	9.25E+4	7.30E+4	6.34E+4	3.177E−4
8.00E+0	1.13E+6	1.81E+5	2.67E+5	1.82E+5	5.67E+4	7.73E+4	6.93E+4	5.47E+4	4.75E+4	4.235E−4
1.00E+1	9.07E+5	1.45E+5	2.13E+5	1.45E+5	4.53E+4	6.18E+4	5.55E+4	4.38E+4	3.80E+4	5.294E−4
1.50E+1	6.05E+5	9.68E+4	1.42E+5	9.69E+4	3.02E+4	4.12E+4	3.70E+4	2.92E+4	2.53E+4	7.940E−4
2.00E+1	4.54E+5	7.26E+4	1.07E+5	7.27E+4	2.27E+4	3.09E+4	2.77E+4	2.19E+4	1.90E+4	1.059E−3
3.00E+1	3.02E+5	4.84E+4	7.11E+4	4.84E+4	1.51E+4	2.06E+4	1.85E+4	1.46E+4	1.26E+4	1.588E−3
4.00E+1	2.27E+5	3.63E+4	5.33E+4	3.63E+4	1.13E+4	1.55E+4	1.39E+4	1.09E+4	9.47E+3	2.117E−3
5.00E+1	1.81E+5	2.90E+4	4.26E+4	2.91E+4	9.07E+3	1.24E+4	1.11E+4	8.72E+3	7.57E+3	2.646E−3
6.00E+1	1.51E+5	2.42E+4	3.55E+4	2.42E+4	7.56E+3	1.03E+4	9.23E+3	7.26E+3	6.30E+3	3.174E−3
8.00E+1	1.13E+5	1.81E+4	2.66E+4	1.81E+4	5.67E+3	7.72E+3	6.92E+3	5.43E+3	4.72E+3	4.231E−3
1.00E+2	9.07E+4	1.45E+4	2.13E+4	1.45E+4	4.54E+3	6.18E+3	5.53E+3	4.34E+3	3.77E+3	5.288E−3
1.50E+2	6.04E+4	9.68E+3	1.42E+4	9.65E+3	3.02E+3	4.12E+3	3.68E+3	2.88E+3	2.50E+3	7.926E−3
2.00E+2	4.53E+4	7.26E+3	1.06E+4	7.23E+3	2.27E+3	3.09E+3	2.76E+3	2.15E+3	1.86E+3	1.056E−2
3.00E+2	3.02E+4	4.84E+3	7.07E+3	4.80E+3	1.51E+3	2.06E+3	1.83E+3	1.42E+3	1.23E+3	1.582E−2
4.00E+2	2.26E+4	3.63E+3	5.29E+3	3.59E+3	1.14E+3	1.54E+3	1.37E+3	1.06E+3	9.14E+2	2.107E−2
5.00E+2	1.81E+4	2.90E+3	4.23E+3	2.86E+3	9.09E+2	1.23E+3	1.09E+3	8.37E+2	7.24E+2	2.630E−2
6.00E+2	1.51E+4	2.42E+3	3.52E+3	2.38E+3	7.58E+2	1.03E+3	9.09E+2	6.91E+2	5.97E+2	3.152E−2
8.00E+2	1.13E+4	1.81E+3	2.63E+3	1.77E+3	5.69E+2	7.69E+2	6.78E+2	5.09E+2	4.39E+2	4.191E−2
1.00E+3	9.03E+3	1.45E+3	2.09E+3	1.41E+3	4.56E+2	6.15E+2	5.39E+2	4.00E+2	3.45E+2	5.225E−2
1.50E+3	6.01E+3	9.66E+2	1.38E+3	9.26E+2	3.05E+2	4.08E+2	3.54E+2	2.56E+2	2.19E+2	7.785E−2
2.00E+3	4.50E+3	7.24E+2	1.03E+3	6.84E+2	2.29E+2	3.05E+2	2.62E+2	1.84E+2	1.57E+2	1.031E−1
3.00E+3	2.98E+3	4.82E+2	6.73E+2	4.43E+2	1.53E+2	2.02E+2	1.70E+2	1.13E+2	9.58E+1	1.526E−1
4.00E+3	2.23E+3	3.61E+2	4.96E+2	3.22E+2	1.15E+2	1.50E+2	1.24E+2	7.83E+1	6.60E+1	2.009E−1
5.00E+3	1.77E+3	2.88E+2	3.90E+2	2.51E+2	9.22E+1	1.19E+2	9.61E+1	5.81E+1	4.87E+1	2.479E−1
6.00E+3	1.47E+3	2.40E+2	3.19E+2	2.03E+2	7.68E+1	9.77E+1	7.79E+1	4.50E+1	3.75E+1	2.936E−1
8.00E+3	1.09E+3	1.79E+2	2.31E+2	1.44E+2	5.75E+1	7.16E+1	5.53E+1	2.95E+1	2.42E+1	3.817E−1
1.00E+4	8.67E+2	1.43E+2	1.79E+2	1.10E+2	4.58E+1	5.58E+1	4.20E+1	2.08E+1	1.69E+1	4.653E−1
1.50E+4	5.66E+2	9.35E+1	1.10E+2	6.46E+1	3.01E+1	3.49E+1	2.46E+1	1.04E+1	8.26E+0	6.565E−1
2.00E+4	4.15E+2	6.89E+1	7.68E+1	4.32E+1	2.21E+1	2.45E+1	1.64E+1	6.08E+0	4.74E+0	8.251E−1
3.00E+4	2.66E+2	4.42E+1	4.47E+1	2.35E+1	1.40E+1	1.44E+1	8.88E+0	2.67E+0	2.01E+0	1.106E+0
4.00E+4	1.91E+2	3.17E+1	2.97E+1	1.48E+1	9.99E+0	9.57E+0	5.54E+0	1.42E+0	1.04E+0	1.327E+0
5.00E+4	1.47E+2	2.43E+1	2.12E+1	1.01E+1	7.59E+0	6.87E+0	3.77E+0	8.51E−1	6.09E−1	1.502E+0
6.00E+4	1.18E+2	1.94E+1	1.60E+1	7.30E+0	6.02E+0	5.18E+0	2.71E+0	5.51E−1	3.87E−1	1.641E+0
8.00E+4	8.29E+1	1.34E+1	1.01E+1	4.28E+0	4.11E+0	3.26E+0	1.58E+0	2.72E−1	1.84E−1	1.839E+0
1.00E+5	6.22E+1	9.94E+0	6.93E+0	2.78E+0	3.01E+0	2.24E+0	1.02E+0	1.55E−1	1.02E−1	1.965E+0
1.50E+5	3.61E+1	5.60E+0	3.41E+0	1.23E+0	1.67E+0	1.10E+0	4.46E−1	5.43E−2	3.43E−2	2.106E+0
2.00E+5	2.42E+1	3.65E+0	2.04E+0	6.76E−1	1.07E+0	6.56E−1	2.44E−1	2.57E−2	1.58E−2	2.128E+0
3.00E+5	1.35E+1	1.96E+0	9.73E−1	2.90E−1	5.69E−1	3.13E−1	1.04E−1	9.08E−3	5.43E−3	2.059E+0
4.00E+5	8.83E+0	1.26E+0	5.78E−1	1.61E−1	3.61E−1	1.86E−1	5.74E−2	4.44E−3	2.64E−3	1.958E+0
5.00E+5	6.36E+0	8.91E−1	3.89E−1	1.03E−1	2.55E−1	1.25E−1	3.66E−2	2.60E−3	1.55E−3	1.864E+0
6.00E+5	4.87E+0	6.74E−1	2.83E−1	7.24E−2	1.92E−1	9.07E−2	2.56E−2	1.71E−3	1.03E−3	1.782E+0
8.00E+5	3.20E+0	4.36E−1	1.75E−1	4.24E−2	1.24E−1	5.59E−2	1.50E−2	9.13E−4	5.58E−4	1.653E+0
1.00E+6	2.32E+0	3.13E−1	1.22E−1	2.86E−2	8.86E−2	3.91E−2	1.01E−2	5.80E−4	3.60E−4	1.559E+0
1.50E+6	1.30E+0	1.74E−1	6.69E−2	1.47E−2	4.90E−2	2.14E−2	5.16E−3	2.75E−4	1.76E−4	1.408E+0
2.00E+6	8.72E−1	1.16E−1	4.51E−2	9.53E−3	3.25E−2	1.44E−2	3.34E−3	1.71E−4	1.12E−4	1.321E+0
3.00E+6	5.06E−1	6.65E−2*	2.69E−2	5.43E−3	1.87E−2	8.58E−3	1.90E−3	9.42E−5	6.24E−5	1.225E+0
4.00E+6	3.49E−1*	4.58E−2*	1.91E−2	3.74E−3	1.28E−2	6.09E−3*	1.31E−3		4.27E−5*	1.173E+0
5.00E+6	2.65E−1*	3.46E−2*	1.48E−2	2.85E−3	9.71E−3*	4.72E−3*	9.93E−4*		3.23E−5*	1.140E+0
6.00E+6	2.13E−1*	2.78E−2*	1.21E−2	2.29E−3	7.78E−3*	3.86E−3*	8.0E−4		2.59E−5*	1.118E+0
8.00E+6		1.98E−2*		1.64E−3*						
1.00E+7		1.54E−2*								

$Z= 95$

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 7.471$ fm

$|\epsilon_n|$ (eV)	1.425E+5	3.697E+4	3.702E+4	3.168E+4	1.581E+4	1.582E+4	1.423E+4	1.423E+4	1.383E+4	
1.50E+0	6.16E+6	9.86E+5	1.47E+6	9.92E+5	3.07E+5	4.22E+5	3.78E+5	2.99E+5	2.59E+5	7.554E−5
2.00E+0	4.62E+6	7.40E+5	1.10E+6	7.44E+5	2.30E+5	3.16E+5	2.84E+5	2.25E+5	1.95E+5	1.007E−4
3.00E+0	3.08E+6	4.93E+5	7.34E+5	4.96E+5	1.54E+5	2.11E+5	1.89E+5	1.50E+5	1.30E+5	1.511E−4
4.00E+0	2.31E+6	3.70E+5	5.50E+5	3.72E+5	1.15E+5	1.58E+5	1.42E+5	1.12E+5	9.72E+4	2.014E−4
5.00E+0	1.85E+6	2.96E+5	4.40E+5	2.98E+5	9.21E+4	1.26E+5	1.14E+5	8.98E+4	7.78E+4	2.518E−4
6.00E+0	1.54E+6	2.47E+5	3.67E+5	2.48E+5	7.68E+4	1.05E+5	9.46E+4	7.48E+4	6.48E+4	3.021E−4
8.00E+0	1.15E+6	1.85E+5	2.75E+5	1.86E+5	5.76E+4	7.90E+4	7.09E+4	5.61E+4	4.86E+4	4.028E−4
1.00E+1	9.24E+5	1.48E+5	2.20E+5	1.49E+5	4.61E+4	6.32E+4	5.67E+4	4.49E+4	3.89E+4	5.035E−4
1.50E+1	6.16E+5	9.86E+4	1.47E+5	9.91E+4	3.07E+4	4.21E+4	3.78E+4	2.99E+4	2.59E+4	7.553E−4
2.00E+1	4.62E+5	7.40E+4	1.10E+5	7.43E+4	2.30E+4	3.16E+4	2.84E+4	2.24E+4	1.94E+4	1.007E−3
3.00E+1	3.08E+5	4.93E+4	7.33E+4	4.95E+4	1.54E+4	2.11E+4	1.89E+4	1.49E+4	1.29E+4	1.510E−3
4.00E+1	2.31E+5	3.70E+4	5.50E+4	3.71E+4	1.15E+4	1.58E+4	1.42E+4	1.12E+4	9.69E+3	2.013E−3
5.00E+1	1.85E+5	2.96E+4	4.40E+4	2.97E+4	9.21E+3	1.26E+4	1.13E+4	8.94E+3	7.74E+3	2.516E−3
6.00E+1	1.54E+5	2.47E+4	3.66E+4	2.48E+4	7.68E+3	1.05E+4	9.44E+3	7.45E+3	6.45E+3	3.019E−3
8.00E+1	1.15E+5	1.85E+4	2.75E+4	1.86E+4	5.76E+3	7.90E+3	7.08E+3	5.58E+3	4.82E+3	4.024E−3
1.00E+2	9.23E+4	1.48E+4	2.20E+4	1.48E+4	4.61E+3	6.32E+3	5.66E+3	4.45E+3	3.85E+3	5.029E−3
1.50E+2	6.15E+4	9.86E+3	1.46E+4	9.87E+3	3.07E+3	4.21E+3	3.77E+3	2.96E+3	2.56E+3	7.539E−3
2.00E+2	4.61E+4	7.40E+3	1.10E+4	7.39E+3	2.31E+3	3.16E+3	2.82E+3	2.21E+3	1.91E+3	1.005E−2
3.00E+2	3.07E+4	4.93E+3	7.30E+3	4.91E+3	1.54E+3	2.11E+3	1.88E+3	1.46E+3	1.26E+3	1.505E−2
4.00E+2	2.31E+4	3.70E+3	5.46E+3	3.67E+3	1.15E+3	1.58E+3	1.40E+3	1.08E+3	9.35E+2	2.004E−2
5.00E+2	1.84E+4	2.96E+3	4.36E+3	2.93E+3	9.24E+2	1.26E+3	1.12E+3	8.60E+2	7.41E+2	2.502E−2
6.00E+2	1.54E+4	2.46E+3	3.63E+3	2.43E+3	7.71E+2	1.05E+3	9.30E+2	7.10E+2	6.12E+2	2.998E−2
8.00E+2	1.15E+4	1.85E+3	2.71E+3	1.82E+3	5.79E+2	7.87E+2	6.93E+2	5.23E+2	4.50E+2	3.987E−2
1.00E+3	9.19E+3	1.48E+3	2.16E+3	1.44E+3	4.63E+2	6.29E+2	5.52E+2	4.12E+2	3.54E+2	4.971E−2
1.50E+3	6.12E+3	9.85E+2	1.43E+3	9.48E+2	3.10E+2	4.18E+2	3.63E+2	2.63E+2	2.25E+2	7.408E−2
2.00E+3	4.58E+3	7.38E+2	1.06E+3	7.00E+2	2.33E+2	3.13E+2	2.68E+2	1.89E+2	1.61E+2	9.814E−2
3.00E+3	3.04E+3	4.92E+2	6.96E+2	4.54E+2	1.56E+2	2.07E+2	1.74E+2	1.17E+2	9.86E+1	1.453E−1
4.00E+3	2.27E+3	3.68E+2	5.13E+2	3.31E+2	1.17E+2	1.54E+2	1.27E+2	8.09E+1	6.80E+1	1.913E−1
5.00E+3	1.81E+3	2.94E+2	4.04E+2	2.57E+2	9.37E+1	1.22E+2	9.86E+1	6.01E+1	5.02E+1	2.362E−1
6.00E+3	1.50E+3	2.45E+2	3.31E+2	2.09E+2	7.81E+1	1.00E+2	8.00E+1	4.67E+1	3.87E+1	2.798E−1
8.00E+3	1.12E+3	1.83E+2	2.40E+2	1.48E+2	5.85E+1	7.37E+1	5.68E+1	3.06E+1	2.51E+1	3.640E−1
1.00E+4	8.84E+2	1.45E+2	1.86E+2	1.13E+2	4.67E+1	5.76E+1	4.32E+1	2.16E+1	1.75E+1	4.440E−1
1.50E+4	5.77E+2	9.55E+1	1.15E+2	6.66E+1	3.07E+1	3.61E+1	2.54E+1	1.09E+1	8.62E+0	6.274E−1
2.00E+4	4.24E+2	7.04E+1	8.01E+1	4.47E+1	2.26E+1	2.54E+1	1.70E+1	6.39E+0	4.96E+0	7.896E−1
3.00E+4	2.71E+2	4.52E+1	4.68E+1	2.44E+1	1.44E+1	1.50E+1	9.21E+0	2.82E+0	2.12E+0	1.061E+0
4.00E+4	1.96E+2	3.25E+1	3.12E+1	1.54E+1	1.02E+1	1.00E+1	5.76E+0	1.51E+0	1.10E+0	1.276E+0
5.00E+4	1.51E+2	2.50E+1	2.24E+1	1.05E+1	7.79E+0	7.21E+0	3.93E+0	9.05E−1	6.45E−1	1.447E+0
6.00E+4	1.21E+2	2.00E+1	1.69E+1	7.61E+0	6.18E+0	5.45E+0	2.83E+0	5.88E−1	4.11E−1	1.584E+0
8.00E+4	8.51E+1	1.38E+1	1.07E+1	4.48E+0	4.22E+0	3.44E+0	1.65E+0	2.91E−1	1.97E−1	1.781E+0
1.00E+5	6.40E+1	1.02E+1	7.37E+0	2.91E+0	3.10E+0	2.37E+0	1.07E+0	1.66E−1	1.09E−1	1.909E+0
1.50E+5	3.73E+1	5.79E+0	3.65E+0	1.29E+0	1.72E+0	1.17E+0	4.69E−1	5.86E−2	3.68E−2	2.055E+0
2.00E+5	2.50E+1	3.78E+0	2.18E+0	7.13E−1	1.11E+0	7.02E−1	2.58E−1	2.78E−2	1.70E−2	2.084E+0
3.00E+5	1.40E+1	2.04E+0	1.05E+0	3.07E−1	5.92E−1	3.36E−1	1.10E−1	9.84E−3	5.86E−3	2.026E+0
4.00E+5	9.20E+0	1.31E+0	6.24E−1	1.70E−1	3.77E−1	2.00E−1	6.07E−2	4.82E−3	2.85E−3	1.933E+0
5.00E+5	6.64E+0	9.31E−1	4.21E−1	1.09E−1	2.66E−1	1.35E−1	3.88E−2	2.83E−3	1.68E−3	1.844E+0
6.00E+5	5.09E+0	7.05E−1	3.07E−1	7.67E−2	2.01E−1	9.80E−2	2.72E−2	1.86E−3	1.11E−3	1.765E+0
8.00E+5	3.35E+0	4.57E−1	1.90E−1	4.49E−2	1.30E−1	6.05E−2	1.59E−2	9.95E−4	6.02E−4	1.641E+0
1.00E+6	2.43E+0	3.28E−1	1.33E−1	3.03E−2	9.28E−2	4.24E−2	1.07E−2	6.33E−4	3.89E−4	1.549E+0
1.50E+6	1.36E+0	1.82E−1	7.28E−2	1.56E−2	5.13E−2	2.32E−2	5.47E−3	3.01E−4	1.90E−4	1.402E+0
2.00E+6	9.12E−1*	1.21E−1	4.91E−2	1.01E−2	3.41E−2	1.56E−2	3.53E−3	1.87E−4	1.20E−4	1.317E+0
3.00E+6	5.29E−1*	6.97E−2*	2.93E−2	5.74E−3	1.95E−2	9.32E−3	2.01E−3	1.03E−4	6.73E−5	1.222E+0
4.00E+6	3.65E−1*	4.79E−2*	2.08E−2	3.96E−3	1.34E−2	6.62E−3	1.38E−3		4.60E−5*	1.171E+0
5.00E+6	2.77E−1*	3.63E−2*	1.61E−2*	3.01E−3	1.02E−2	5.13E−3*	1.05E−3		3.48E−5*	1.139E+0
6.00E+6	2.23E−1*	2.91E−2*	1.32E−2*	2.42E−3*	8.13E−3*	4.2E−3			2.79E−5*	1.117E+0
8.00E+6		2.07E−2*		1.73E−3*	5.8E−3					
1.00E+7		1.61E−2*			4.5E−3					

TABLE. Cross Sections for Radiative Recombination, $Z=1-112$
See page 9 for Explanation of Tables

Z= 96

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

R_{nucl} = 7.507 fm

$|\epsilon_n|$ (eV)	1.461E+5	3.794E+4	3.799E+4	3.237E+4	1.620E+4	1.622E+4	1.454E+4	1.454E+4	1.413E+4	
1.50E+0	6.26E+6	1.01E+6	1.51E+6	1.01E+6	3.12E+5	4.31E+5	3.87E+5	3.07E+5	2.65E+5	7.187E−5
2.00E+0	4.70E+6	7.53E+5	1.14E+6	7.61E+5	2.34E+5	3.23E+5	2.90E+5	2.30E+5	1.99E+5	9.582E−5
3.00E+0	3.13E+6	5.02E+5	7.56E+5	5.07E+5	1.56E+5	2.15E+5	1.93E+5	1.54E+5	1.33E+5	1.437E−4
4.00E+0	2.35E+6	3.77E+5	5.67E+5	3.80E+5	1.17E+5	1.62E+5	1.45E+5	1.15E+5	9.94E+4	1.916E−4
5.00E+0	1.88E+6	3.01E+5	4.54E+5	3.04E+5	9.36E+4	1.29E+5	1.16E+5	9.21E+4	7.95E+4	2.395E−4
6.00E+0	1.57E+6	2.51E+5	3.78E+5	2.54E+5	7.80E+4	1.08E+5	9.67E+4	7.67E+4	6.63E+4	2.874E−4
8.00E+0	1.18E+6	1.88E+5	2.84E+5	1.90E+5	5.85E+4	8.08E+4	7.25E+4	5.76E+4	4.97E+4	3.832E−4
1.00E+1	9.40E+5	1.51E+5	2.27E+5	1.52E+5	4.68E+4	6.46E+4	5.80E+4	4.60E+4	3.97E+4	4.791E−4
1.50E+1	6.26E+5	1.01E+5	1.51E+5	1.01E+5	3.12E+4	4.31E+4	3.87E+4	3.07E+4	2.65E+4	7.185E−4
2.00E+1	4.70E+5	7.53E+4	1.13E+5	7.60E+4	2.34E+4	3.23E+4	2.90E+4	2.30E+4	1.99E+4	9.580E−4
3.00E+1	3.13E+5	5.02E+4	7.56E+4	5.07E+4	1.56E+4	2.15E+4	1.93E+4	1.53E+4	1.32E+4	1.437E−3
4.00E+1	2.35E+5	3.77E+4	5.67E+4	3.80E+4	1.17E+4	1.62E+4	1.45E+4	1.15E+4	9.91E+3	1.916E−3
5.00E+1	1.88E+5	3.01E+4	4.54E+4	3.04E+4	9.36E+3	1.29E+4	1.16E+4	9.17E+3	7.92E+3	2.394E−3
6.00E+1	1.57E+5	2.51E+4	3.78E+4	2.53E+4	7.80E+3	1.08E+4	9.65E+3	7.64E+3	6.59E+3	2.873E−3
8.00E+1	1.17E+5	1.88E+4	2.83E+4	1.90E+4	5.85E+3	8.08E+3	7.24E+3	5.72E+3	4.93E+3	3.829E−3
1.00E+2	9.39E+4	1.51E+4	2.27E+4	1.52E+4	4.68E+3	6.46E+3	5.79E+3	4.57E+3	3.94E+3	4.785E−3
1.50E+2	6.26E+4	1.00E+4	1.51E+4	1.01E+4	3.12E+3	4.31E+3	3.85E+3	3.03E+3	2.61E+3	7.173E−3
2.00E+2	4.69E+4	7.53E+3	1.13E+4	7.56E+3	2.34E+3	3.23E+3	2.89E+3	2.26E+3	1.95E+3	9.558E−3
3.00E+2	3.13E+4	5.02E+3	7.53E+3	5.03E+3	1.56E+3	2.15E+3	1.92E+3	1.50E+3	1.29E+3	1.432E−2
4.00E+2	2.35E+4	3.77E+3	5.64E+3	3.76E+3	1.17E+3	1.61E+3	1.44E+3	1.11E+3	9.57E+2	1.907E−2
5.00E+2	1.88E+4	3.01E+3	4.50E+3	3.00E+3	9.39E+2	1.29E+3	1.14E+3	8.82E+2	7.59E+2	2.380E−2
6.00E+2	1.56E+4	2.51E+3	3.74E+3	2.49E+3	7.83E+2	1.08E+3	9.51E+2	7.29E+2	6.26E+2	2.853E−2
8.00E+2	1.17E+4	1.88E+3	2.80E+3	1.86E+3	5.88E+2	8.05E+2	7.09E+2	5.38E+2	4.61E+2	3.794E−2
1.00E+3	9.36E+3	1.51E+3	2.23E+3	1.48E+3	4.71E+2	6.44E+2	5.64E+2	4.23E+2	3.62E+2	4.731E−2
1.50E+3	6.22E+3	1.00E+3	1.48E+3	9.70E+2	3.15E+2	4.28E+2	3.71E+2	2.71E+2	2.31E+2	7.052E−2
2.00E+3	4.66E+3	7.52E+2	1.10E+3	7.17E+2	2.37E+2	3.20E+2	2.75E+2	1.95E+2	1.66E+2	9.344E−2
3.00E+3	3.09E+3	5.01E+2	7.19E+2	4.65E+2	1.58E+2	2.12E+2	1.78E+2	1.20E+2	1.01E+2	1.384E−1
4.00E+3	2.31E+3	3.75E+2	5.31E+2	3.39E+2	1.19E+2	1.58E+2	1.30E+2	8.36E+1	7.00E+1	1.823E−1
5.00E+3	1.84E+3	3.00E+2	4.18E+2	2.64E+2	9.53E+1	1.25E+2	1.01E+2	6.22E+1	5.18E+1	2.251E−1
6.00E+3	1.53E+3	2.49E+2	3.42E+2	2.14E+2	7.95E+1	1.03E+2	8.21E+1	4.84E+1	4.00E+1	2.668E−1
8.00E+3	1.14E+3	1.86E+2	2.49E+2	1.52E+2	5.96E+1	7.58E+1	5.84E+1	3.18E+1	2.60E+1	3.472E−1
1.00E+4	9.01E+2	1.48E+2	1.93E+2	1.16E+2	4.75E+1	5.93E+1	4.44E+1	2.25E+1	1.82E+1	4.238E−1
1.50E+4	5.88E+2	9.74E+1	1.20E+2	6.86E+1	3.13E+1	3.73E+1	2.62E+1	1.14E+1	8.99E+0	5.997E−1
2.00E+4	4.32E+2	7.19E+1	8.36E+1	4.61E+1	2.30E+1	2.63E+1	1.76E+1	6.71E+0	5.19E+0	7.558E−1
3.00E+4	2.77E+2	4.62E+1	4.90E+1	2.53E+1	1.47E+1	1.56E+1	9.55E+0	2.98E+0	2.23E+0	1.018E+0
4.00E+4	2.00E+2	3.33E+1	3.27E+1	1.60E+1	1.05E+1	1.05E+1	5.99E+0	1.60E+0	1.16E+0	1.227E+0
5.00E+4	1.54E+2	2.56E+1	2.36E+1	1.09E+1	7.98E+0	7.56E+0	4.09E+0	9.62E−1	6.83E−1	1.395E+0
6.00E+4	1.24E+2	2.05E+1	1.79E+1	7.94E+0	6.34E+0	5.73E+0	2.95E+0	6.27E−1	4.36E−1	1.529E+0
8.00E+4	8.73E+1	1.42E+1	1.13E+1	4.68E+0	4.34E+0	3.64E+0	1.73E+0	3.11E−1	2.09E−1	1.725E+0
1.00E+5	6.58E+1	1.06E+1	7.83E+0	3.05E+0	3.19E+0	2.51E+0	1.12E+0	1.78E−1	1.17E−1	1.853E+0
1.50E+5	3.84E+1	5.98E+0	3.90E+0	1.36E+0	1.78E+0	1.25E+0	4.94E−1	6.31E−2	3.94E−2	2.006E+0
2.00E+5	2.58E+1	3.92E+0	2.34E+0	7.51E−1	1.15E+0	7.50E−1	2.72E−1	3.00E−2	1.82E−2	2.041E+0
3.00E+5	1.45E+1	2.12E+0	1.13E+0	3.24E−1	6.15E−1	3.61E−1	1.16E−1	1.07E−2	6.31E−3	1.993E+0
4.00E+5	9.58E+0	1.37E+0	6.74E−1	1.80E−1	3.92E−1	2.15E−1	6.43E−2	5.23E−3	3.07E−3	1.908E+0
5.00E+5	6.92E+0	9.72E−1	4.55E−1	1.16E−1	2.77E−1	1.45E−1	4.11E−2	3.08E−3	1.81E−3	1.823E+0
6.00E+5	5.31E+0	7.37E−1	3.33E−1	8.12E−2	2.10E−1	1.06E−1	2.88E−2	2.02E−3	1.20E−3	1.749E+0
8.00E+5	3.50E+0	4.79E−1	2.06E−1	4.76E−2	1.36E−1	6.55E−2	1.68E−2	1.08E−3	6.50E−4	1.629E+0
1.00E+6	2.54E+0	3.44E−1	1.45E−1	3.21E−2	9.71E−2	4.59E−2	1.13E−2	6.91E−4	4.20E−4	1.539E+0
1.50E+6	1.43E+0	1.91E−1	7.92E−2	1.65E−2	5.37E−2	2.51E−2	5.78E−3	3.28E−4	2.05E−4	1.396E+0
2.00E+6	9.54E−1*	1.27E−1	5.34E−2	1.07E−2	3.56E−2*	1.69E−2	3.74E−3	2.05E−4	1.30E−4	1.312E+0
3.00E+6	5.53E−1*	7.30E−2	3.19E−2	6.07E−3	2.04E−2*	1.01E−2	2.12E−3	1.13E−4	7.25E−5	1.219E+0
4.00E+6	3.82E−1*	5.02E−2	2.27E−2	4.18E−3	1.40E−2*	7.19E−3	1.46E−3		4.96E−5	1.169E+0
5.00E+6	2.90E−1*	3.79E−2*	1.76E−2	3.18E−3	1.06E−2*	5.57E−3*	1.11E−3		3.75E−5*	1.137E+0
6.00E+6	2.32E−1*	3.04E−2*	1.43E−2*	2.56E−3	8.49E−3*	4.55E−3*	8.9E−4		3.01E−5*	1.115E+0
8.00E+6		2.17E−2*	1.05E−2*		6.06E−3*					
1.00E+7		1.68E−2*			4.70E−3*					

TABLE. Cross Sections for Radiative Recombination, $Z=1$–112
See page 9 for Explanation of Tables

Z= 97

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 7.507$ fm

$|\epsilon_n|$ (eV)	1.497E+5	3.893E+4	3.899E+4	3.307E+4	1.661E+4	1.663E+4	1.486E+4	1.486E+4	1.443E+4	
1.50E+0	6.37E+6	1.02E+6	1.56E+6	1.04E+6	3.17E+5	4.40E+5	3.95E+5	3.15E+5	2.71E+5	6.839E−5
2.00E+0	4.78E+6	7.67E+5	1.17E+6	7.77E+5	2.37E+5	3.30E+5	2.97E+5	2.36E+5	2.03E+5	9.118E−5
3.00E+0	3.19E+6	5.12E+5	7.80E+5	5.18E+5	1.58E+5	2.20E+5	1.98E+5	1.57E+5	1.36E+5	1.368E−4
4.00E+0	2.39E+6	3.84E+5	5.85E+5	3.89E+5	1.19E+5	1.65E+5	1.48E+5	1.18E+5	1.02E+5	1.824E−4
5.00E+0	1.91E+6	3.07E+5	4.68E+5	3.11E+5	9.50E+4	1.32E+5	1.19E+5	9.44E+4	8.13E+4	2.280E−4
6.00E+0	1.59E+6	2.56E+5	3.90E+5	2.59E+5	7.92E+4	1.10E+5	9.88E+4	7.87E+4	6.77E+4	2.736E−4
8.00E+0	1.20E+6	1.92E+5	2.93E+5	1.94E+5	5.94E+4	8.26E+4	7.41E+4	5.90E+4	5.08E+4	3.647E−4
1.00E+1	9.56E+5	1.53E+5	2.34E+5	1.55E+5	4.75E+4	6.61E+4	5.93E+4	4.72E+4	4.06E+4	4.559E−4
1.50E+1	6.37E+5	1.02E+5	1.56E+5	1.04E+5	3.17E+4	4.40E+4	3.95E+4	3.15E+4	2.71E+4	6.838E−4
2.00E+1	4.78E+5	7.67E+4	1.17E+5	7.77E+4	2.38E+4	3.30E+4	2.96E+4	2.36E+4	2.03E+4	9.116E−4
3.00E+1	3.19E+5	5.12E+4	7.80E+4	5.18E+4	1.58E+4	2.20E+4	1.98E+4	1.57E+4	1.35E+4	1.367E−3
4.00E+1	2.39E+5	3.84E+4	5.85E+4	3.88E+4	1.19E+4	1.65E+4	1.48E+4	1.18E+4	1.01E+4	1.823E−3
5.00E+1	1.91E+5	3.07E+4	4.68E+4	3.11E+4	9.50E+3	1.32E+4	1.19E+4	9.41E+3	8.09E+3	2.278E−3
6.00E+1	1.59E+5	2.56E+4	3.90E+4	2.59E+4	7.92E+3	1.10E+4	9.87E+3	7.83E+3	6.74E+3	2.734E−3
8.00E+1	1.19E+5	1.92E+4	2.92E+4	1.94E+4	5.94E+3	8.25E+3	7.40E+3	5.87E+3	5.05E+3	3.644E−3
1.00E+2	9.55E+4	1.53E+4	2.34E+4	1.55E+4	4.75E+3	6.60E+3	5.92E+3	4.68E+3	4.03E+3	4.554E−3
1.50E+2	6.37E+4	1.02E+4	1.56E+4	1.03E+4	3.17E+3	4.40E+3	3.94E+3	3.11E+3	2.67E+3	6.826E−3
2.00E+2	4.78E+4	7.67E+3	1.17E+4	7.73E+3	2.38E+3	3.30E+3	2.95E+3	2.32E+3	2.00E+3	9.096E−3
3.00E+2	3.18E+4	5.11E+3	7.76E+3	5.14E+3	1.59E+3	2.20E+3	1.96E+3	1.54E+3	1.32E+3	1.363E−2
4.00E+2	2.39E+4	3.84E+3	5.81E+3	3.84E+3	1.19E+3	1.65E+3	1.47E+3	1.14E+3	9.79E+2	1.815E−2
5.00E+2	1.91E+4	3.07E+3	4.64E+3	3.07E+3	9.53E+2	1.32E+3	1.17E+3	9.06E+2	7.76E+2	2.266E−2
6.00E+2	1.59E+4	2.56E+3	3.86E+3	2.55E+3	7.95E+2	1.10E+3	9.73E+2	7.49E+2	6.41E+2	2.715E−2
8.00E+2	1.19E+4	1.92E+3	2.89E+3	1.90E+3	5.97E+2	8.24E+2	7.26E+2	5.52E+2	4.72E+2	3.612E−2
1.00E+3	9.52E+3	1.53E+3	2.30E+3	1.51E+3	4.78E+2	6.58E+2	5.77E+2	4.35E+2	3.71E+2	4.503E−2
1.50E+3	6.33E+3	1.02E+3	1.52E+3	9.93E+2	3.20E+2	4.38E+2	3.80E+2	2.78E+2	2.37E+2	6.714E−2
2.00E+3	4.74E+3	7.66E+2	1.13E+3	7.34E+2	2.40E+2	3.28E+2	2.81E+2	2.01E+2	1.70E+2	8.897E−2
3.00E+3	3.15E+3	5.10E+2	7.43E+2	4.76E+2	1.61E+2	2.17E+2	1.82E+2	1.24E+2	1.04E+2	1.318E−1
4.00E+3	2.35E+3	3.82E+2	5.49E+2	3.47E+2	1.21E+2	1.62E+2	1.33E+2	8.63E+1	7.21E+1	1.737E−1
5.00E+3	1.87E+3	3.05E+2	4.32E+2	2.71E+2	9.68E+1	1.28E+2	1.04E+2	6.43E+1	5.34E+1	2.145E−1
6.00E+3	1.55E+3	2.54E+2	3.54E+2	2.20E+2	8.08E+1	1.06E+2	8.42E+1	5.01E+1	4.13E+1	2.544E−1
8.00E+3	1.16E+3	1.90E+2	2.58E+2	1.57E+2	6.06E+1	7.80E+1	6.00E+1	3.30E+1	2.69E+1	3.312E−1
1.00E+4	9.17E+2	1.51E+2	2.00E+2	1.19E+2	4.83E+1	6.11E+1	4.57E+1	2.34E+1	1.89E+1	4.045E−1
1.50E+4	5.99E+2	9.93E+1	1.24E+2	7.07E+1	3.18E+1	3.85E+1	2.70E+1	1.19E+1	9.36E+0	5.733E−1
2.00E+4	4.41E+2	7.33E+1	8.71E+1	4.76E+1	2.35E+1	2.73E+1	1.81E+1	7.04E+0	5.43E+0	7.235E−1
3.00E+4	2.83E+2	4.72E+1	5.13E+1	2.62E+1	1.50E+1	1.62E+1	9.89E+0	3.14E+0	2.34E+0	9.771E−1
4.00E+4	2.05E+2	3.40E+1	3.44E+1	1.66E+1	1.07E+1	1.09E+1	6.22E+0	1.69E+0	1.23E+0	1.180E+0
5.00E+4	1.58E+2	2.62E+1	2.48E+1	1.14E+1	8.18E+0	7.93E+0	4.25E+0	1.02E+0	7.23E−1	1.344E+0
6.00E+4	1.27E+2	2.10E+1	1.89E+1	8.27E+0	6.50E+0	6.03E+0	3.08E+0	6.67E−1	4.62E−1	1.476E+0
8.00E+4	8.96E+1	1.46E+1	1.20E+1	4.89E+0	4.46E+0	3.84E+0	1.81E+0	3.33E−1	2.23E−1	1.671E+0
1.00E+5	6.76E+1	1.09E+1	8.32E+0	3.19E+0	3.29E+0	2.66E+0	1.17E+0	1.91E−1	1.24E−1	1.799E+0
1.50E+5	3.96E+1	6.17E+0	4.17E+0	1.43E+0	1.84E+0	1.33E+0	5.19E−1	6.79E−2	4.22E−2	1.957E+0
2.00E+5	2.67E+1	4.06E+0	2.51E+0	7.91E−1	1.19E+0	8.01E−1	2.86E−1	3.24E−2	1.96E−2	1.998E+0
3.00E+5	1.51E+1	2.21E+0	1.22E+0	3.42E−1	6.38E−1	3.87E−1	1.23E−1	1.16E−2	6.79E−3	1.961E+0
4.00E+5	9.96E+0	1.42E+0	7.28E−1	1.91E−1	4.08E−1	2.32E−1	6.80E−2	5.68E−3	3.31E−3	1.882E+0
5.00E+5	7.22E+0	1.02E+0	4.92E−1	1.22E−1	2.89E−1	1.56E−1	4.35E−2	3.34E−3	1.95E−3	1.803E+0
6.00E+5	5.54E+0	7.71E−1	3.60E−1	8.59E−2	2.19E−1	1.14E−1	3.05E−2	2.20E−3	1.29E−3	1.731E+0
8.00E+5	3.66E+0	5.01E−1	2.23E−1	5.03E−2	1.42E−1	7.08E−2	1.78E−2	1.18E−3	7.01E−4	1.616E+0
1.00E+6	2.65E+0	3.60E−1	1.57E−1	3.39E−2	1.02E−1	4.97E−2	1.20E−2	7.52E−4	4.53E−4	1.530E+0
1.50E+6	1.49E+0	2.00E−1	8.60E−2	1.74E−2	5.61E−2*	2.72E−2	6.12E−3	3.58E−4	2.21E−4	1.390E+0
2.00E+6	9.97E−1*	1.33E−1	5.81E−2	1.13E−2	3.73E−2*	1.83E−2	3.95E−3	2.24E−4	1.40E−4	1.308E+0
3.00E+6	5.77E−1*	7.64E−2	3.47E−2	6.41E−3	2.14E−2*	1.10E−2	2.24E−3	1.23E−4	7.80E−5	1.216E+0
4.00E+6	3.99E−1*	5.25E−2	2.47E−2	4.42E−3	1.47E−2*	7.79E−3*	1.54E−3		5.34E−5	1.167E+0
5.00E+6	3.02E−1*	3.97E−2	1.91E−2*	3.36E−3	1.11E−2*	6.04E−3*	1.17E−3		4.03E−5*	1.135E+0
6.00E+6	2.43E−1*	3.18E−2	1.56E−2*	2.70E−3*	8.87E−3*	4.94E−3*	9.4E−4			1.114E+0
8.00E+6		2.27E−2			6.3E−3					
1.00E+7		1.76E−2*			4.9E−3					

TABLE. Cross Sections for Radiative Recombination, $Z=1–112$
See page 9 for Explanation of Tables

$Z= 98$

T_e (eV)	σ_{RR} (b)									$f_{1s_{1/2}}$
	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 7.543$ fm

$|\epsilon_n|$ (eV)	1.535E+5	3.995E+4	4.001E+4	3.378E+4	1.702E+4	1.704E+4	1.518E+4	1.518E+4	1.473E+4	
1.50E+0	6.48E+6	1.04E+6	1.61E+6	1.06E+6	3.21E+5	4.50E+5	4.04E+5	3.23E+5	2.77E+5	6.510E−5
2.00E+0	4.86E+6	7.81E+5	1.21E+6	7.94E+5	2.41E+5	3.37E+5	3.03E+5	2.42E+5	2.08E+5	8.679E−5
3.00E+0	3.24E+6	5.21E+5	8.04E+5	5.30E+5	1.61E+5	2.25E+5	2.02E+5	1.61E+5	1.39E+5	1.302E−4
4.00E+0	2.43E+6	3.91E+5	6.03E+5	3.97E+5	1.21E+5	1.69E+5	1.52E+5	1.21E+5	1.04E+5	1.736E−4
5.00E+0	1.94E+6	3.12E+5	4.83E+5	3.18E+5	9.64E+4	1.35E+5	1.21E+5	9.68E+4	8.31E+4	2.170E−4
6.00E+0	1.62E+6	2.60E+5	4.02E+5	2.65E+5	8.03E+4	1.12E+5	1.01E+5	8.07E+4	6.92E+4	2.604E−4
8.00E+0	1.22E+6	1.95E+5	3.02E+5	1.99E+5	6.02E+4	8.43E+4	7.58E+4	6.05E+4	5.19E+4	3.472E−4
1.00E+1	9.72E+5	1.56E+5	2.41E+5	1.59E+5	4.82E+4	6.75E+4	6.06E+4	4.84E+4	4.15E+4	4.339E−4
1.50E+1	6.48E+5	1.04E+5	1.61E+5	1.06E+5	3.21E+4	4.50E+4	4.04E+4	3.22E+4	2.77E+4	6.509E−4
2.00E+1	4.86E+5	7.81E+4	1.21E+5	7.94E+4	2.41E+4	3.37E+4	3.03E+4	2.42E+4	2.07E+4	8.677E−4
3.00E+1	3.24E+5	5.21E+4	8.04E+4	5.29E+4	1.61E+4	2.25E+4	2.02E+4	1.61E+4	1.38E+4	1.301E−3
4.00E+1	2.43E+5	3.91E+4	6.03E+4	3.97E+4	1.21E+4	1.69E+4	1.51E+4	1.21E+4	1.04E+4	1.735E−3
5.00E+1	1.94E+5	3.12E+4	4.82E+4	3.17E+4	9.64E+3	1.35E+4	1.21E+4	9.65E+3	8.27E+3	2.169E−3
6.00E+1	1.62E+5	2.60E+4	4.02E+4	2.64E+4	8.04E+3	1.12E+4	1.01E+4	8.03E+3	6.89E+3	2.602E−3
8.00E+1	1.22E+5	1.95E+4	3.01E+4	1.98E+4	6.03E+3	8.43E+3	7.56E+3	6.01E+3	5.16E+3	3.468E−3
1.00E+2	9.72E+4	1.56E+4	2.41E+4	1.58E+4	4.82E+3	6.75E+3	6.05E+3	4.80E+3	4.12E+3	4.334E−3
1.50E+2	6.48E+4	1.04E+4	1.61E+4	1.06E+4	3.22E+3	4.50E+3	4.03E+3	3.19E+3	2.73E+3	6.498E−3
2.00E+2	4.86E+4	7.81E+3	1.20E+4	7.90E+3	2.41E+3	3.37E+3	3.02E+3	2.38E+3	2.04E+3	8.659E−3
3.00E+2	3.24E+4	5.21E+3	8.00E+3	5.25E+3	1.61E+3	2.25E+3	2.01E+3	1.58E+3	1.35E+3	1.297E−2
4.00E+2	2.43E+4	3.90E+3	5.99E+3	3.93E+3	1.21E+3	1.69E+3	1.50E+3	1.17E+3	1.00E+3	1.728E−2
5.00E+2	1.94E+4	3.12E+3	4.79E+3	3.13E+3	9.67E+2	1.35E+3	1.20E+3	9.29E+2	7.94E+2	2.157E−2
6.00E+2	1.62E+4	2.60E+3	3.98E+3	2.60E+3	8.07E+2	1.12E+3	9.94E+2	7.68E+2	6.56E+2	2.585E−2
8.00E+2	1.21E+4	1.95E+3	2.98E+3	1.94E+3	6.06E+2	8.42E+2	7.42E+2	5.67E+2	4.83E+2	3.439E−2
1.00E+3	9.68E+3	1.56E+3	2.38E+3	1.55E+3	4.85E+2	6.73E+2	5.90E+2	4.46E+2	3.80E+2	4.288E−2
1.50E+3	6.44E+3	1.04E+3	1.57E+3	1.02E+3	3.24E+2	4.48E+2	3.88E+2	2.86E+2	2.43E+2	6.394E−2
2.00E+3	4.82E+3	7.80E+2	1.17E+3	7.51E+2	2.44E+2	3.35E+2	2.88E+2	2.06E+2	1.74E+2	8.474E−2
3.00E+3	3.20E+3	5.19E+2	7.68E+2	4.87E+2	1.63E+2	2.22E+2	1.87E+2	1.28E+2	1.07E+2	1.256E−1
4.00E+3	2.39E+3	3.89E+2	5.67E+2	3.56E+2	1.23E+2	1.66E+2	1.36E+2	8.91E+1	7.42E+1	1.655E−1
5.00E+3	1.91E+3	3.11E+2	4.47E+2	2.77E+2	9.84E+1	1.32E+2	1.06E+2	6.65E+1	5.50E+1	2.045E−1
6.00E+3	1.58E+3	2.59E+2	3.67E+2	2.25E+2	8.20E+1	1.09E+2	8.64E+1	5.19E+1	4.26E+1	2.426E−1
8.00E+3	1.18E+3	1.93E+2	2.67E+2	1.61E+2	6.15E+1	8.01E+1	6.16E+1	3.43E+1	2.78E+1	3.161E−1
1.00E+4	9.34E+2	1.54E+2	2.08E+2	1.22E+2	4.91E+1	6.29E+1	4.69E+1	2.44E+1	1.96E+1	3.862E−1
1.50E+4	6.11E+2	1.01E+2	1.29E+2	7.28E+1	3.24E+1	3.98E+1	2.78E+1	1.24E+1	9.75E+0	5.481E−1
2.00E+4	4.49E+2	7.48E+1	9.08E+1	4.91E+1	2.39E+1	2.83E+1	1.87E+1	7.38E+0	5.67E+0	6.926E−1
3.00E+4	2.89E+2	4.82E+1	5.36E+1	2.71E+1	1.53E+1	1.69E+1	1.02E+1	3.31E+0	2.46E+0	9.377E−1
4.00E+4	2.09E+2	3.48E+1	3.61E+1	1.72E+1	1.10E+1	1.14E+1	6.46E+0	1.79E+0	1.29E+0	1.135E+0
5.00E+4	1.62E+2	2.68E+1	2.61E+1	1.18E+1	8.37E+0	8.30E+0	4.43E+0	1.09E+0	7.64E−1	1.295E+0
6.00E+4	1.30E+2	2.15E+1	1.99E+1	8.61E+0	6.66E+0	6.33E+0	3.21E+0	7.10E−1	4.90E−1	1.425E+0
8.00E+4	9.18E+1	1.50E+1	1.27E+1	5.10E+0	4.58E+0	4.04E+0	1.89E+0	3.55E−1	2.37E−1	1.618E+0
1.00E+5	6.94E+1	1.12E+1	8.83E+0	3.34E+0	3.38E+0	2.82E+0	1.23E+0	2.04E−1	1.33E−1	1.747E+0
1.50E+5	4.08E+1	6.37E+0	4.45E+0	1.50E+0	1.89E+0	1.42E+0	5.45E−1	7.30E−2	4.52E−2	1.909E+0
2.00E+5	2.76E+1	4.20E+0	2.69E+0	8.32E−1	1.23E+0	8.55E−1	3.01E−1	3.49E−2	2.10E−2	1.956E+0
3.00E+5	1.56E+1	2.29E+0	1.31E+0	3.61E−1	6.62E−1	4.15E−1	1.30E−1	1.25E−2	7.29E−3	1.929E+0
4.00E+5	1.04E+1	1.48E+0	7.85E−1	2.01E−1	4.25E−1	2.49E−1	7.18E−2	6.15E−3	3.56E−3	1.857E+0
5.00E+5	7.52E+0	1.06E+0	5.32E−1	1.29E−1	3.01E−1	1.68E−1	4.59E−2	3.62E−3	2.10E−3	1.782E+0
6.00E+5	5.78E+0	8.05E−1	3.90E−1	9.08E−2	2.28E−1	1.23E−1	3.22E−2	2.39E−3	1.39E−3	1.714E+0
8.00E+5	3.82E+0	5.24E−1	2.42E−1	5.32E−2	1.48E−1	7.65E−2	1.88E−2	1.28E−3	7.55E−4	1.603E+0
1.00E+6	2.77E+0	3.77E−1	1.70E−1	3.59E−2	1.06E−1	5.37E−2	1.26E−2	8.19E−4	4.88E−4	1.520E+0
1.50E+6	1.56E+0	2.09E−1	9.35E−2	1.84E−2	5.87E−2	2.94E−2	6.46E−3	3.90E−4	2.38E−4	1.384E+0
2.00E+6	1.04E+0	1.39E−1	6.31E−2	1.19E−2	3.89E−2	1.99E−2	4.17E−3	2.44E−4	1.50E−4	1.303E+0
3.00E+6	6.03E−1	7.99E−2	3.78E−2	6.76E−3	2.23E−2	1.19E−2	2.36E−3	1.35E−4	8.39E−5	1.213E+0
4.00E+6	4.16E−1*	5.49E−2	2.69E−2	4.66E−3	1.53E−2	8.45E−3*	1.63E−3		5.74E−5	1.164E+0
5.00E+6	3.16E−1*	4.15E−2	2.08E−2*	3.54E−3*	1.16E−2	6.55E−3*	1.24E−3		4.34E−5	1.134E+0
6.00E+6	2.53E−1*	3.32E−2*	1.70E−2*	2.85E−3*	9.3E−3	5.35E−3*	9.94E−4			1.113E+0
8.00E+6		2.37E−2*	1.24E−2*	2.04E−3*	6.6E−3					
1.00E+7		1.84E−2*			5.1E−3					

TABLE. Cross Sections for Radiative Recombination, $Z=1-112$
See page 9 for Explanation of Tables

Z= 99

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 7.552$ fm

$|\epsilon_n|$ (eV)	1.573E+5	4.099E+4	4.106E+4	3.450E+4	1.745E+4	1.747E+4	1.551E+4	1.551E+4	1.504E+4	
1.50E+0	6.59E+6	1.06E+6	1.66E+6	1.08E+6	3.26E+5	4.59E+5	4.13E+5	3.31E+5	2.83E+5	6.198E−5
2.00E+0	4.94E+6	7.95E+5	1.24E+6	8.12E+5	2.44E+5	3.44E+5	3.10E+5	2.48E+5	2.12E+5	8.264E−5
3.00E+0	3.29E+6	5.30E+5	8.29E+5	5.41E+5	1.63E+5	2.30E+5	2.06E+5	1.65E+5	1.42E+5	1.240E−4
4.00E+0	2.47E+6	3.97E+5	6.22E+5	4.06E+5	1.22E+5	1.72E+5	1.55E+5	1.24E+5	1.06E+5	1.653E−4
5.00E+0	1.98E+6	3.18E+5	4.97E+5	3.25E+5	9.78E+4	1.38E+5	1.24E+5	9.92E+4	8.49E+4	2.066E−4
6.00E+0	1.65E+6	2.65E+5	4.15E+5	2.71E+5	8.15E+4	1.15E+5	1.03E+5	8.27E+4	7.07E+4	2.479E−4
8.00E+0	1.24E+6	1.99E+5	3.11E+5	2.03E+5	6.11E+4	8.61E+4	7.74E+4	6.20E+4	5.31E+4	3.305E−4
1.00E+1	9.88E+5	1.59E+5	2.49E+5	1.62E+5	4.89E+4	6.89E+4	6.19E+4	4.96E+4	4.24E+4	4.131E−4
1.50E+1	6.59E+5	1.06E+5	1.66E+5	1.08E+5	3.26E+4	4.59E+4	4.13E+4	3.31E+4	2.83E+4	6.196E−4
2.00E+1	4.94E+5	7.95E+4	1.24E+5	8.11E+4	2.44E+4	3.44E+4	3.10E+4	2.48E+4	2.12E+4	8.262E−4
3.00E+1	3.29E+5	5.30E+4	8.29E+4	5.41E+4	1.63E+4	2.30E+4	2.06E+4	1.65E+4	1.41E+4	1.239E−3
4.00E+1	2.47E+5	3.97E+4	6.21E+4	4.05E+4	1.22E+4	1.72E+4	1.55E+4	1.24E+4	1.06E+4	1.652E−3
5.00E+1	1.98E+5	3.18E+4	4.97E+4	3.24E+4	9.78E+3	1.38E+4	1.24E+4	9.89E+3	8.46E+3	2.065E−3
6.00E+1	1.65E+5	2.65E+4	4.14E+4	2.70E+4	8.15E+3	1.15E+4	1.03E+4	8.23E+3	7.04E+3	2.477E−3
8.00E+1	1.24E+5	1.99E+4	3.11E+4	2.03E+4	6.11E+3	8.61E+3	7.73E+3	6.17E+3	5.27E+3	3.302E−3
1.00E+2	9.88E+4	1.59E+4	2.48E+4	1.62E+4	4.89E+3	6.89E+3	6.18E+3	4.92E+3	4.21E+3	4.127E−3
1.50E+2	6.58E+4	1.06E+4	1.65E+4	1.08E+4	3.26E+3	4.59E+3	4.11E+3	3.27E+3	2.79E+3	6.187E−3
2.00E+2	4.94E+4	7.95E+3	1.24E+4	8.07E+3	2.45E+3	3.44E+3	3.08E+3	2.44E+3	2.09E+3	8.245E−3
3.00E+2	3.29E+4	5.30E+3	8.25E+3	5.37E+3	1.63E+3	2.30E+3	2.05E+3	1.62E+3	1.38E+3	1.235E−2
4.00E+2	2.47E+4	3.97E+3	6.18E+3	4.01E+3	1.23E+3	1.72E+3	1.53E+3	1.20E+3	1.03E+3	1.645E−2
5.00E+2	1.97E+4	3.18E+3	4.94E+3	3.20E+3	9.81E+2	1.38E+3	1.22E+3	9.54E+2	8.12E+2	2.054E−2
6.00E+2	1.64E+4	2.65E+3	4.11E+3	2.66E+3	8.18E+2	1.15E+3	1.02E+3	7.88E+2	6.71E+2	2.462E−2
8.00E+2	1.23E+4	1.99E+3	3.07E+3	1.99E+3	6.14E+2	8.60E+2	7.58E+2	5.82E+2	4.95E+2	3.275E−2
1.00E+3	9.84E+3	1.59E+3	2.45E+3	1.58E+3	4.92E+2	6.88E+2	6.04E+2	4.58E+2	3.89E+2	4.084E−2
1.50E+3	6.55E+3	1.06E+3	1.62E+3	1.04E+3	3.29E+2	4.58E+2	3.97E+2	2.94E+2	2.49E+2	6.090E−2
2.00E+3	4.90E+3	7.94E+2	1.21E+3	7.68E+2	2.47E+2	3.43E+2	2.94E+2	2.12E+2	1.79E+2	8.073E−2
3.00E+3	3.26E+3	5.29E+2	7.93E+2	4.99E+2	1.66E+2	2.27E+2	1.91E+2	1.32E+2	1.10E+2	1.197E−1
4.00E+3	2.43E+3	3.96E+2	5.86E+2	3.64E+2	1.25E+2	1.70E+2	1.40E+2	9.20E+1	7.63E+1	1.578E−1
5.00E+3	1.94E+3	3.16E+2	4.62E+2	2.84E+2	9.98E+1	1.35E+2	1.09E+2	6.87E+1	5.67E+1	1.950E−1
6.00E+3	1.61E+3	2.63E+2	3.80E+2	2.31E+2	8.33E+1	1.12E+2	8.86E+1	5.37E+1	4.40E+1	2.314E−1
8.00E+3	1.20E+3	1.97E+2	2.77E+2	1.65E+2	6.25E+1	8.23E+1	6.32E+1	3.55E+1	2.88E+1	3.017E−1
1.00E+4	9.50E+2	1.57E+2	2.15E+2	1.26E+2	4.99E+1	6.47E+1	4.82E+1	2.53E+1	2.03E+1	3.688E−1
1.50E+4	6.22E+2	1.03E+2	1.34E+2	7.50E+1	3.30E+1	4.11E+1	2.87E+1	1.30E+1	1.01E+1	5.241E−1
2.00E+4	4.58E+2	7.63E+1	9.46E+1	5.07E+1	2.43E+1	2.92E+1	1.93E+1	7.73E+0	5.92E+0	6.632E−1
3.00E+4	2.94E+2	4.92E+1	5.61E+1	2.80E+1	1.56E+1	1.76E+1	1.06E+1	3.49E+0	2.58E+0	8.999E−1
4.00E+4	2.13E+2	3.56E+1	3.78E+1	1.78E+1	1.12E+1	1.19E+1	6.70E+0	1.89E+0	1.36E+0	1.092E+0
5.00E+4	1.65E+2	2.74E+1	2.75E+1	1.23E+1	8.56E+0	8.69E+0	4.60E+0	1.15E+0	8.07E−1	1.248E+0
6.00E+4	1.33E+2	2.20E+1	2.10E+1	8.96E+0	6.82E+0	6.64E+0	3.34E+0	7.54E−1	5.18E−1	1.375E+0
8.00E+4	9.41E+1	1.54E+1	1.34E+1	5.32E+0	4.70E+0	4.26E+0	1.97E+0	3.79E−1	2.51E−1	1.566E+0
1.00E+5	7.12E+1	1.15E+1	9.37E+0	3.49E+0	3.47E+0	2.98E+0	1.28E+0	2.18E−1	1.41E−1	1.695E+0
1.50E+5	4.21E+1	6.57E+0	4.74E+0	1.57E+0	1.95E+0	1.51E+0	5.72E−1	7.84E−2	4.83E−2	1.862E+0
2.00E+5	2.85E+1	4.34E+0	2.88E+0	8.75E−1	1.27E+0	9.12E−1	3.17E−1	3.76E−2	2.25E−2	1.915E+0
3.00E+5	1.62E+1	2.38E+0	1.41E+0	3.81E−1	6.87E−1	4.45E−1	1.37E−1	1.35E−2	7.83E−3	1.897E+0
4.00E+5	1.08E+1	1.54E+0	8.47E−1	2.12E−1	4.42E−1	2.67E−1	7.58E−2	6.66E−3	3.83E−3	1.832E+0
5.00E+5	7.83E+0	1.10E+0	5.75E−1	1.36E−1	3.14E−1	1.81E−1	4.85E−2	3.93E−3	2.26E−3	1.762E+0
6.00E+5	6.03E+0	8.40E−1	4.21E−1	9.59E−2	2.38E−1	1.33E−1	3.40E−2	2.59E−3	1.49E−3	1.697E+0
8.00E+5	3.99E+0	5.48E−1	2.62E−1	5.62E−2	1.54E−1	8.25E−2	1.99E−2	1.40E−3	8.13E−4	1.591E+0
1.00E+6	2.90E+0	3.95E−1	1.85E−1	3.79E−2	1.11E−1	5.80E−2	1.34E−2	8.91E−4	5.25E−4	1.510E+0
1.50E+6	1.63E+0	2.19E−1	1.02E−1	1.94E−2	6.13E−2*	3.19E−2	6.82E−3	4.25E−4	2.56E−4	1.377E+0
2.00E+6	1.09E+0	1.46E−1	6.86E−2	1.26E−2	4.07E−2*	2.15E−2	4.40E−3	2.66E−4	1.62E−4	1.299E+0
3.00E+6	6.29E−1*	8.35E−2*	4.11E−2	7.14E−3	2.33E−2*	1.29E−2	2.49E−3	1.47E−4	9.02E−5	1.210E+0
4.00E+6	4.34E−1*	5.73E−2*	2.92E−2	4.92E−3	1.60E−2*	9.16E−3	1.72E−3	9.99E−5*	6.16E−5*	1.162E+0
5.00E+6	3.29E−1*	4.33E−2*	2.26E−2*	3.73E−3*	1.21E−2*	7.1E−3	1.30E−3		4.7E−5	1.132E+0
6.00E+6	2.64E−1*	3.47E−2*			9.7E−3	5.8E−3	1.05E−3			1.111E+0
8.00E+6		2.48E−2*			6.9E−3					

$Z=100$

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 7.561$ fm

$|\epsilon_n|$ (eV)	1.612E+5	4.205E+4	4.213E+4	3.523E+4	1.788E+4	1.790E+4	1.584E+4	1.584E+4	1.535E+4	
1.50E+0	6.69E+6	1.08E+6	1.71E+6	1.11E+6	3.30E+5	4.69E+5	4.22E+5	3.39E+5	2.89E+5	5.902E−5
2.00E+0	5.02E+6	8.09E+5	1.28E+6	8.29E+5	2.48E+5	3.52E+5	3.16E+5	2.54E+5	2.17E+5	7.869E−5
3.00E+0	3.35E+6	5.39E+5	8.55E+5	5.53E+5	1.65E+5	2.34E+5	2.11E+5	1.70E+5	1.45E+5	1.180E−4
4.00E+0	2.51E+6	4.04E+5	6.41E+5	4.15E+5	1.24E+5	1.76E+5	1.58E+5	1.27E+5	1.08E+5	1.574E−4
5.00E+0	2.01E+6	3.23E+5	5.13E+5	3.32E+5	9.91E+4	1.41E+5	1.27E+5	1.02E+5	8.67E+4	1.967E−4
6.00E+0	1.67E+6	2.70E+5	4.27E+5	2.76E+5	8.26E+4	1.17E+5	1.05E+5	8.47E+4	7.23E+4	2.361E−4
8.00E+0	1.26E+6	2.02E+5	3.20E+5	2.07E+5	6.19E+4	8.79E+4	7.91E+4	6.36E+4	5.42E+4	3.148E−4
1.00E+1	1.00E+6	1.62E+5	2.56E+5	1.66E+5	4.96E+4	7.03E+4	6.33E+4	5.08E+4	4.34E+4	3.934E−4
1.50E+1	6.69E+5	1.08E+5	1.71E+5	1.11E+5	3.30E+4	4.69E+4	4.22E+4	3.39E+4	2.89E+4	5.901E−4
2.00E+1	5.02E+5	8.09E+4	1.28E+5	8.29E+4	2.48E+4	3.52E+4	3.16E+4	2.54E+4	2.17E+4	7.868E−4
3.00E+1	3.35E+5	5.39E+4	8.54E+4	5.52E+4	1.65E+4	2.34E+4	2.11E+4	1.69E+4	1.44E+4	1.180E−3
4.00E+1	2.51E+5	4.04E+4	6.41E+4	4.14E+4	1.24E+4	1.76E+4	1.58E+4	1.27E+4	1.08E+4	1.573E−3
5.00E+1	2.01E+5	3.23E+4	5.12E+4	3.31E+4	9.91E+3	1.41E+4	1.26E+4	1.01E+4	8.64E+3	1.966E−3
6.00E+1	1.67E+5	2.70E+4	4.27E+4	2.76E+4	8.26E+3	1.17E+4	1.05E+4	8.44E+3	7.19E+3	2.359E−3
8.00E+1	1.26E+5	2.02E+4	3.20E+4	2.07E+4	6.20E+3	8.79E+3	7.89E+3	6.32E+3	5.39E+3	3.145E−3
1.00E+2	1.00E+5	1.62E+4	2.56E+4	1.65E+4	4.96E+3	7.03E+3	6.31E+3	5.05E+3	4.30E+3	3.930E−3
1.50E+2	6.69E+4	1.08E+4	1.71E+4	1.10E+4	3.31E+3	4.69E+3	4.20E+3	3.35E+3	2.86E+3	5.892E−3
2.00E+2	5.02E+4	8.08E+3	1.28E+4	8.25E+3	2.48E+3	3.52E+3	3.15E+3	2.50E+3	2.13E+3	7.852E−3
3.00E+2	3.34E+4	5.39E+3	8.51E+3	5.48E+3	1.66E+3	2.34E+3	2.09E+3	1.66E+3	1.41E+3	1.176E−2
4.00E+2	2.51E+4	4.04E+3	6.37E+3	4.10E+3	1.24E+3	1.76E+3	1.57E+3	1.23E+3	1.05E+3	1.567E−2
5.00E+2	2.00E+4	3.23E+3	5.09E+3	3.27E+3	9.95E+2	1.41E+3	1.25E+3	9.78E+2	8.31E+2	1.956E−2
6.00E+2	1.67E+4	2.69E+3	4.24E+3	2.72E+3	8.29E+2	1.17E+3	1.04E+3	8.09E+2	6.86E+2	2.345E−2
8.00E+2	1.25E+4	2.02E+3	3.17E+3	2.03E+3	6.23E+2	8.78E+2	7.75E+2	5.97E+2	5.06E+2	3.119E−2
1.00E+3	1.00E+4	1.62E+3	2.53E+3	1.61E+3	4.99E+2	7.02E+2	6.17E+2	4.71E+2	3.98E+2	3.890E−2
1.50E+3	6.66E+3	1.08E+3	1.67E+3	1.06E+3	3.34E+2	4.68E+2	4.06E+2	3.02E+2	2.55E+2	5.803E−2
2.00E+3	4.98E+3	8.08E+2	1.25E+3	7.86E+2	2.51E+2	3.50E+2	3.01E+2	2.18E+2	1.83E+2	7.693E−2
3.00E+3	3.31E+3	5.38E+2	8.19E+2	5.10E+2	1.68E+2	2.33E+2	1.96E+2	1.36E+2	1.13E+2	1.141E−1
4.00E+3	2.47E+3	4.03E+2	6.06E+2	3.73E+2	1.26E+2	1.74E+2	1.43E+2	9.49E+1	7.85E+1	1.505E−1
5.00E+3	1.97E+3	3.22E+2	4.78E+2	2.91E+2	1.01E+2	1.38E+2	1.12E+2	7.10E+1	5.84E+1	1.860E−1
6.00E+3	1.64E+3	2.68E+2	3.93E+2	2.37E+2	8.45E+1	1.14E+2	9.08E+1	5.55E+1	4.53E+1	2.207E−1
8.00E+3	1.22E+3	2.00E+2	2.87E+2	1.69E+2	6.35E+1	8.45E+1	6.49E+1	3.68E+1	2.98E+1	2.880E−1
1.00E+4	9.67E+2	1.60E+2	2.23E+2	1.29E+2	5.07E+1	6.65E+1	4.95E+1	2.63E+1	2.10E+1	3.523E−1
1.50E+4	6.33E+2	1.05E+2	1.40E+2	7.71E+1	3.35E+1	4.23E+1	2.95E+1	1.35E+1	1.06E+1	5.013E−1
2.00E+4	4.66E+2	7.77E+1	9.85E+1	5.22E+1	2.48E+1	3.02E+1	1.99E+1	8.09E+0	6.17E+0	6.350E−1
3.00E+4	3.00E+2	5.02E+1	5.86E+1	2.90E+1	1.59E+1	1.83E+1	1.10E+1	3.67E+0	2.70E+0	8.637E−1
4.00E+4	2.18E+2	3.63E+1	3.97E+1	1.85E+1	1.14E+1	1.24E+1	6.95E+0	2.00E+0	1.43E+0	1.050E+0
5.00E+4	1.69E+2	2.80E+1	2.89E+1	1.28E+1	8.75E+0	9.09E+0	4.78E+0	1.22E+0	8.51E−1	1.202E+0
6.00E+4	1.36E+2	2.25E+1	2.21E+1	9.32E+0	6.98E+0	6.96E+0	3.47E+0	8.01E−1	5.48E−1	1.327E+0
8.00E+4	9.64E+1	1.58E+1	1.42E+1	5.55E+0	4.82E+0	4.49E+0	2.05E+0	4.04E−1	2.67E−1	1.516E+0
1.00E+5	7.31E+1	1.18E+1	9.94E+0	3.65E+0	3.57E+0	3.14E+0	1.34E+0	2.33E−1	1.50E−1	1.645E+0
1.50E+5	4.33E+1	6.77E+0	5.06E+0	1.65E+0	2.01E+0	1.60E+0	6.00E−1	8.41E−2	5.16E−2	1.816E+0
2.00E+5	2.94E+1	4.49E+0	3.08E+0	9.20E−1	1.32E+0	9.72E−1	3.33E−1	4.05E−2	2.41E−2	1.874E+0
3.00E+5	1.68E+1	2.47E+0	1.51E+0	4.01E−1	7.12E−1	4.76E−1	1.44E−1	1.46E−2	8.41E−3	1.865E+0
4.00E+5	1.12E+1	1.61E+0	9.12E−1	2.24E−1	4.59E−1	2.87E−1	8.00E−2	7.21E−3	4.11E−3	1.806E+0
5.00E+5	8.15E+0	1.15E+0	6.20E−1	1.44E−1	3.27E−1	1.95E−1	5.12E−2	4.26E−3	2.43E−3	1.741E+0
6.00E+5	6.28E+0	8.77E−1	4.56E−1	1.01E−1	2.48E−1	1.43E−1	3.59E−2	2.81E−3	1.61E−3	1.680E+0
8.00E+5	4.16E+0	5.73E−1	2.84E−1	5.94E−2	1.61E−1	8.91E−2	2.10E−2	1.52E−3	8.74E−4	1.578E+0
1.00E+6	3.02E+0	4.13E−1	2.00E−1	4.00E−2	1.16E−1	6.27E−2	1.41E−2	9.68E−4	5.64E−4	1.500E+0
1.50E+6	1.70E+0	2.29E−1	1.10E−1	2.05E−2	6.41E−2	3.45E−2	7.20E−3	4.63E−4	2.75E−4	1.371E+0
2.00E+6	1.14E+0	1.52E−1	7.45E−2	1.33E−2	4.25E−2	2.33E−2	4.64E−3	2.90E−4	1.74E−4	1.294E+0
3.00E+6	6.57E−1	8.73E−2*	4.46E−2	7.52E−3	2.43E−2	1.39E−2	2.63E−3	1.60E−4	9.68E−5	1.207E+0
4.00E+6	4.53E−1*	5.99E−2*	3.18E−2	5.18E−3	1.67E−2	9.92E−3	1.81E−3	1.09E−4*	6.61E−5*	1.160E+0
5.00E+6	3.44E−1*	4.53E−2*	2.46E−2*	3.94E−3	1.26E−2	7.70E−3*	1.37E−3		5.00E−5*	1.130E+0
6.00E+6	2.76E−1*	3.63E−2*			1.01E−2	6.3E−3	1.10E−3			1.110E+0
8.00E+6		2.58E−2*			7.2E−3					

$Z=101$

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 7.606$ fm

$\lvert\epsilon_n\rvert$ (eV)	1.651E+5	4.313E+4	4.322E+4	3.596E+4	1.832E+4	1.834E+4	1.618E+4	1.618E+4	1.566E+4	
1.50E+0	6.80E+6	1.10E+6	1.76E+6	1.13E+6	3.35E+5	4.78E+5	4.31E+5	3.47E+5	2.95E+5	5.621E−5
2.00E+0	5.10E+6	8.22E+5	1.32E+6	8.47E+5	2.51E+5	3.59E+5	3.23E+5	2.61E+5	2.22E+5	7.495E−5
3.00E+0	3.40E+6	5.48E+5	8.81E+5	5.65E+5	1.67E+5	2.39E+5	2.15E+5	1.74E+5	1.48E+5	1.124E−4
4.00E+0	2.55E+6	4.11E+5	6.61E+5	4.23E+5	1.26E+5	1.79E+5	1.62E+5	1.30E+5	1.11E+5	1.499E−4
5.00E+0	2.04E+6	3.29E+5	5.28E+5	3.39E+5	1.00E+5	1.43E+5	1.29E+5	1.04E+5	8.86E+4	1.874E−4
6.00E+0	1.70E+6	2.74E+5	4.40E+5	2.82E+5	8.37E+4	1.20E+5	1.08E+5	8.68E+4	7.38E+4	2.249E−4
8.00E+0	1.28E+6	2.06E+5	3.30E+5	2.12E+5	6.28E+4	8.96E+4	8.08E+4	6.51E+4	5.54E+4	2.998E−4
1.00E+1	1.02E+6	1.64E+5	2.64E+5	1.69E+5	5.02E+4	7.17E+4	6.46E+4	5.21E+4	4.43E+4	3.748E−4
1.50E+1	6.80E+5	1.10E+5	1.76E+5	1.13E+5	3.35E+4	4.78E+4	4.31E+4	3.47E+4	2.95E+4	5.621E−4
2.00E+1	5.10E+5	8.22E+4	1.32E+5	8.47E+4	2.51E+4	3.59E+4	3.23E+4	2.60E+4	2.21E+4	7.494E−4
3.00E+1	3.40E+5	5.48E+4	8.80E+4	5.64E+4	1.67E+4	2.39E+4	2.15E+4	1.73E+4	1.47E+4	1.124E−3
4.00E+1	2.55E+5	4.11E+4	6.60E+4	4.23E+4	1.26E+4	1.79E+4	1.61E+4	1.30E+4	1.10E+4	1.499E−3
5.00E+1	2.04E+5	3.29E+4	5.28E+4	3.38E+4	1.01E+4	1.43E+4	1.29E+4	1.04E+4	8.83E+3	1.873E−3
6.00E+1	1.70E+5	2.74E+4	4.40E+4	2.82E+4	8.37E+3	1.20E+4	1.08E+4	8.65E+3	7.35E+3	2.247E−3
8.00E+1	1.27E+5	2.06E+4	3.30E+4	2.11E+4	6.28E+3	8.96E+3	8.06E+3	6.48E+3	5.50E+3	2.996E−3
1.00E+2	1.02E+5	1.64E+4	2.64E+4	1.69E+4	5.03E+3	7.17E+3	6.45E+3	5.17E+3	4.39E+3	3.744E−3
1.50E+2	6.80E+4	1.10E+4	1.76E+4	1.13E+4	3.35E+3	4.78E+3	4.29E+3	3.44E+3	2.92E+3	5.613E−3
2.00E+2	5.10E+4	8.22E+3	1.32E+4	8.42E+3	2.51E+3	3.59E+3	3.22E+3	2.57E+3	2.18E+3	7.479E−3
3.00E+2	3.40E+4	5.48E+3	8.77E+3	5.60E+3	1.68E+3	2.39E+3	2.14E+3	1.70E+3	1.44E+3	1.121E−2
4.00E+2	2.55E+4	4.11E+3	6.57E+3	4.19E+3	1.26E+3	1.79E+3	1.60E+3	1.26E+3	1.07E+3	1.493E−2
5.00E+2	2.04E+4	3.29E+3	5.25E+3	3.34E+3	1.01E+3	1.43E+3	1.28E+3	1.00E+3	8.49E+2	1.864E−2
6.00E+2	1.70E+4	2.74E+3	4.37E+3	2.78E+3	8.41E+2	1.20E+3	1.06E+3	8.30E+2	7.02E+2	2.234E−2
8.00E+2	1.27E+4	2.06E+3	3.27E+3	2.07E+3	6.31E+2	8.96E+2	7.92E+2	6.13E+2	5.18E+2	2.972E−2
1.00E+3	1.02E+4	1.64E+3	2.61E+3	1.65E+3	5.06E+2	7.17E+2	6.30E+2	4.83E+2	4.07E+2	3.707E−2
1.50E+3	6.76E+3	1.10E+3	1.73E+3	1.09E+3	3.38E+2	4.78E+2	4.15E+2	3.10E+2	2.61E+2	5.529E−2
2.00E+3	5.06E+3	8.21E+2	1.29E+3	8.04E+2	2.54E+2	3.58E+2	3.08E+2	2.25E+2	1.88E+2	7.332E−2
3.00E+3	3.36E+3	5.47E+2	8.45E+2	5.22E+2	1.70E+2	2.38E+2	2.00E+2	1.40E+2	1.16E+2	1.088E−1
4.00E+3	2.51E+3	4.10E+2	6.26E+2	3.82E+2	1.28E+2	1.78E+2	1.46E+2	9.78E+1	8.07E+1	1.435E−1
5.00E+3	2.00E+3	3.27E+2	4.94E+2	2.98E+2	1.03E+2	1.41E+2	1.14E+2	7.33E+1	6.01E+1	1.774E−1
6.00E+3	1.66E+3	2.73E+2	4.06E+2	2.43E+2	8.57E+1	1.17E+2	9.30E+1	5.74E+1	4.67E+1	2.106E−1
8.00E+3	1.24E+3	2.04E+2	2.97E+2	1.74E+2	6.44E+1	8.67E+1	6.65E+1	3.82E+1	3.07E+1	2.749E−1
1.00E+4	9.83E+2	1.62E+2	2.31E+2	1.33E+2	5.15E+1	6.83E+1	5.08E+1	2.73E+1	2.17E+1	3.365E−1
1.50E+4	6.44E+2	1.07E+2	1.45E+2	7.93E+1	3.41E+1	4.36E+1	3.03E+1	1.41E+1	1.10E+1	4.794E−1
2.00E+4	4.75E+2	7.92E+1	1.03E+2	5.38E+1	2.52E+1	3.13E+1	2.05E+1	8.46E+0	6.44E+0	6.081E−1
3.00E+4	3.06E+2	5.12E+1	6.13E+1	2.99E+1	1.62E+1	1.90E+1	1.13E+1	3.86E+0	2.83E+0	8.289E−1
4.00E+4	2.22E+2	3.71E+1	4.16E+1	1.91E+1	1.17E+1	1.30E+1	7.20E+0	2.11E+0	1.51E+0	1.010E+0
5.00E+4	1.72E+2	2.87E+1	3.04E+1	1.32E+1	8.94E+0	9.50E+0	4.96E+0	1.29E+0	8.98E−1	1.158E+0
6.00E+4	1.39E+2	2.31E+1	2.33E+1	9.69E+0	7.14E+0	7.30E+0	3.61E+0	8.50E−1	5.79E−1	1.281E+0
8.00E+4	9.87E+1	1.61E+1	1.50E+1	5.79E+0	4.94E+0	4.72E+0	2.14E+0	4.30E−1	2.83E−1	1.467E+0
1.00E+5	7.50E+1	1.21E+1	1.05E+1	3.81E+0	3.66E+0	3.32E+0	1.40E+0	2.49E−1	1.60E−1	1.596E+0
1.50E+5	4.46E+1	6.98E+0	5.39E+0	1.73E+0	2.07E+0	1.70E+0	6.29E−1	9.02E−2	5.50E−2	1.770E+0
2.00E+5	3.04E+1	4.63E+0	3.29E+0	9.66E−1	1.36E+0	1.04E+0	3.50E−1	4.35E−2	2.58E−2	1.833E+0
3.00E+5	1.74E+1	2.56E+0	1.62E+0	4.22E−1	7.37E−1	5.10E−1	1.52E−1	1.57E−2	9.01E−3	1.833E+0
4.00E+5	1.16E+1	1.67E+0	9.83E−1	2.36E−1	4.76E−1	3.08E−1	8.43E−2	7.79E−3	4.41E−3	1.781E+0
5.00E+5	8.47E+0	1.20E+0	6.70E−1	1.52E−1	3.40E−1	2.10E−1	5.40E−2	4.61E−3	2.60E−3	1.720E+0
6.00E+5	6.54E+0	9.14E−1	4.92E−1	1.07E−1	2.58E−1	1.54E−1	3.79E−2	3.05E−3	1.73E−3	1.662E+0
8.00E+5	4.34E+0	5.98E−1	3.08E−1	6.26E−2	1.68E−1	9.61E−2	2.21E−2	1.64E−3	9.39E−4	1.565E+0
1.00E+6	3.15E+0	4.31E−1	2.17E−1	4.22E−2	1.21E−1	6.77E−2	1.49E−2	1.05E−3	6.06E−4	1.490E+0
1.50E+6	1.77E+0	2.40E−1	1.20E−1	2.16E−2	6.69E−2	3.72E−2	7.59E−3	5.03E−4	2.95E−4	1.364E+0
2.00E+6	1.19E+0	1.59E−1	8.09E−2	1.40E−2	4.43E−2*	2.52E−2	4.89E−3	3.15E−4	1.87E−4	1.289E+0
3.00E+6	6.85E−1	9.12E−2	4.85E−2	7.93E−3	2.53E−2*	1.51E−2	2.77E−3	1.74E−4	1.04E−4	1.204E+0
4.00E+6	4.72E−1*	6.25E−2*	3.45E−2	5.46E−3	1.74E−2*	1.07E−2	1.91E−3	1.19E−4	7.1E−5	1.158E+0
5.00E+6	3.58E−1*	4.72E−2*	2.68E−2	4.14E−3*	1.31E−2*	8.3E−3	1.45E−3		5.4E−5	1.129E+0
6.00E+6	2.88E−1*	3.78E−2*			1.05E−2*	6.8E−3	1.16E−3*			1.108E+0
8.00E+6		2.70E−2*			7.48E−3*					

Z=102

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

R_{nucl} = 7.616 fm

$|\epsilon_n|$ (eV)	1.692E+5	4.425E+4	4.434E+4	3.671E+4	1.876E+4	1.879E+4	1.651E+4	1.651E+4	1.598E+4	
1.50E+0	6.90E+6	1.11E+6	1.82E+6	1.15E+6	3.39E+5	4.87E+5	4.40E+5	3.56E+5	3.02E+5	5.355E−5
2.00E+0	5.18E+6	8.36E+5	1.36E+6	8.65E+5	2.54E+5	3.66E+5	3.30E+5	2.67E+5	2.26E+5	7.141E−5
3.00E+0	3.45E+6	5.57E+5	9.08E+5	5.77E+5	1.70E+5	2.44E+5	2.20E+5	1.78E+5	1.51E+5	1.071E−4
4.00E+0	2.59E+6	4.18E+5	6.81E+5	4.32E+5	1.27E+5	1.83E+5	1.65E+5	1.34E+5	1.13E+5	1.428E−4
5.00E+0	2.07E+6	3.34E+5	5.45E+5	3.46E+5	1.02E+5	1.46E+5	1.32E+5	1.07E+5	9.05E+4	1.785E−4
6.00E+0	1.73E+6	2.79E+5	4.54E+5	2.88E+5	8.48E+4	1.22E+5	1.10E+5	8.90E+4	7.54E+4	2.142E−4
8.00E+0	1.30E+6	2.09E+5	3.40E+5	2.16E+5	6.36E+4	9.14E+4	8.25E+4	6.67E+4	5.65E+4	2.856E−4
1.00E+1	1.04E+6	1.67E+5	2.72E+5	1.73E+5	5.09E+4	7.31E+4	6.60E+4	5.34E+4	4.52E+4	3.570E−4
1.50E+1	6.90E+5	1.11E+5	1.82E+5	1.15E+5	3.39E+4	4.87E+4	4.40E+4	3.56E+4	3.01E+4	5.355E−4
2.00E+1	5.18E+5	8.36E+4	1.36E+5	8.64E+4	2.54E+4	3.66E+4	3.30E+4	2.67E+4	2.26E+4	7.139E−4
3.00E+1	3.45E+5	5.57E+4	9.07E+4	5.76E+4	1.70E+4	2.44E+4	2.20E+4	1.78E+4	1.51E+4	1.071E−3
4.00E+1	2.59E+5	4.18E+4	6.80E+4	4.32E+4	1.27E+4	1.83E+4	1.65E+4	1.33E+4	1.13E+4	1.427E−3
5.00E+1	2.07E+5	3.34E+4	5.44E+4	3.46E+4	1.02E+4	1.46E+4	1.32E+4	1.06E+4	9.02E+3	1.784E−3
6.00E+1	1.73E+5	2.79E+4	4.53E+4	2.88E+4	8.48E+3	1.22E+4	1.10E+4	8.86E+3	7.51E+3	2.141E−3
8.00E+1	1.29E+5	2.09E+4	3.40E+4	2.16E+4	6.36E+3	9.14E+3	8.23E+3	6.63E+3	5.62E+3	2.854E−3
1.00E+2	1.04E+5	1.67E+4	2.72E+4	1.73E+4	5.09E+3	7.31E+3	6.58E+3	5.30E+3	4.49E+3	3.566E−3
1.50E+2	6.90E+4	1.11E+4	1.81E+4	1.15E+4	3.39E+3	4.88E+3	4.38E+3	3.52E+3	2.98E+3	5.347E−3
2.00E+2	5.18E+4	8.36E+3	1.36E+4	8.60E+3	2.55E+3	3.66E+3	3.28E+3	2.63E+3	2.23E+3	7.125E−3
3.00E+2	3.45E+4	5.57E+3	9.04E+3	5.72E+3	1.70E+3	2.44E+3	2.18E+3	1.74E+3	1.47E+3	1.068E−2
4.00E+2	2.59E+4	4.18E+3	6.77E+3	4.28E+3	1.28E+3	1.83E+3	1.63E+3	1.30E+3	1.09E+3	1.422E−2
5.00E+2	2.07E+4	3.34E+3	5.41E+3	3.41E+3	1.02E+3	1.46E+3	1.30E+3	1.03E+3	8.68E+2	1.775E−2
6.00E+2	1.72E+4	2.79E+3	4.50E+3	2.84E+3	8.51E+2	1.22E+3	1.08E+3	8.51E+2	7.18E+2	2.128E−2
8.00E+2	1.29E+4	2.09E+3	3.37E+3	2.12E+3	6.39E+2	9.14E+2	8.09E+2	6.29E+2	5.30E+2	2.832E−2
1.00E+3	1.03E+4	1.67E+3	2.69E+3	1.69E+3	5.12E+2	7.32E+2	6.44E+2	4.96E+2	4.17E+2	3.532E−2
1.50E+3	6.87E+3	1.11E+3	1.78E+3	1.11E+3	3.42E+2	4.88E+2	4.24E+2	3.19E+2	2.67E+2	5.269E−2
2.00E+3	5.14E+3	8.35E+2	1.33E+3	8.21E+2	2.58E+2	3.65E+2	3.14E+2	2.31E+2	1.93E+2	6.988E−2
3.00E+3	3.42E+3	5.56E+2	8.73E+2	5.34E+2	1.72E+2	2.43E+2	2.05E+2	1.44E+2	1.19E+2	1.037E−1
4.00E+3	2.55E+3	4.17E+2	6.46E+2	3.91E+2	1.30E+2	1.82E+2	1.50E+2	1.01E+2	8.29E+1	1.368E−1
5.00E+3	2.04E+3	3.33E+2	5.10E+2	3.05E+2	1.04E+2	1.45E+2	1.17E+2	7.57E+1	6.18E+1	1.692E−1
6.00E+3	1.69E+3	2.77E+2	4.20E+2	2.48E+2	8.69E+1	1.20E+2	9.52E+1	5.93E+1	4.81E+1	2.010E−1
8.00E+3	1.26E+3	2.07E+2	3.07E+2	1.78E+2	6.53E+1	8.89E+1	6.82E+1	3.95E+1	3.17E+1	2.625E−1
1.00E+4	1.00E+3	1.65E+2	2.40E+2	1.36E+2	5.22E+1	7.02E+1	5.21E+1	2.83E+1	2.25E+1	3.214E−1
1.50E+4	6.55E+2	1.09E+2	1.51E+2	8.16E+1	3.46E+1	4.50E+1	3.12E+1	1.47E+1	1.14E+1	4.585E−1
2.00E+4	4.83E+2	8.06E+1	1.07E+2	5.54E+1	2.56E+1	3.23E+1	2.11E+1	8.85E+0	6.71E+0	5.822E−1
3.00E+4	3.12E+2	5.21E+1	6.40E+1	3.09E+1	1.65E+1	1.97E+1	1.17E+1	4.06E+0	2.97E+0	7.954E−1
4.00E+4	2.27E+2	3.79E+1	4.36E+1	1.98E+1	1.19E+1	1.35E+1	7.45E+0	2.23E+0	1.58E+0	9.707E−1
5.00E+4	1.76E+2	2.93E+1	3.19E+1	1.37E+1	9.13E+0	9.93E+0	5.15E+0	1.37E+0	9.46E−1	1.116E+0
6.00E+4	1.42E+2	2.36E+1	2.45E+1	1.01E+1	7.30E+0	7.64E+0	3.76E+0	9.02E−1	6.12E−1	1.236E+0
8.00E+4	1.01E+2	1.65E+1	1.59E+1	6.03E+0	5.06E+0	4.97E+0	2.23E+0	4.58E−1	3.00E−1	1.420E+0
1.00E+5	7.68E+1	1.24E+1	1.12E+1	3.98E+0	3.76E+0	3.50E+0	1.46E+0	2.66E−1	1.69E−1	1.548E+0
1.50E+5	4.58E+1	7.18E+0	5.74E+0	1.81E+0	2.13E+0	1.80E+0	6.59E−1	9.67E−2	5.87E−2	1.726E+0
2.00E+5	3.13E+1	4.78E+0	3.52E+0	1.01E+0	1.40E+0	1.10E+0	3.67E−1	4.68E−2	2.75E−2	1.793E+0
3.00E+5	1.80E+1	2.65E+0	1.74E+0	4.44E−1	7.63E−1	5.46E−1	1.60E−1	1.69E−2	9.65E−3	1.802E+0
4.00E+5	1.21E+1	1.73E+0	1.06E+0	2.49E−1	4.94E−1	3.31E−1	8.89E−2	8.41E−3	4.73E−3	1.756E+0
5.00E+5	8.81E+0	1.25E+0	7.22E−1	1.60E−1	3.53E−1	2.25E−1	5.70E−2	4.98E−3	2.79E−3	1.699E+0
6.00E+5	6.81E+0	9.53E−1	5.32E−1	1.13E−1	2.69E−1	1.66E−1	4.00E−2	3.30E−3	1.85E−3	1.645E+0
8.00E+5	4.52E+0	6.25E−1	3.33E−1	6.60E−2	1.75E−1	1.04E−1	2.33E−2	1.78E−3	1.01E−3	1.552E+0
1.00E+6	3.29E+0	4.51E−1	2.35E−1	4.45E−2	1.26E−1	7.30E−2	1.57E−2	1.14E−3	6.50E−4	1.479E+0
1.50E+6	1.85E+0	2.50E−1	1.30E−1	2.28E−2	6.98E−2	4.02E−2	7.99E−3	5.47E−4	3.16E−4	1.358E+0
2.00E+6	1.24E+0	1.66E−1	8.78E−2	1.47E−2	4.62E−2*	2.72E−2	5.15E−3	3.43E−4	2.00E−4	1.284E+0
3.00E+6	7.14E−1	9.52E−2*	5.27E−2	8.34E−3	2.64E−2*	1.63E−2	2.92E−3	1.89E−4	1.11E−4	1.201E+0
4.00E+6	4.92E−1*	6.53E−2*	3.75E−2	5.75E−3	1.81E−2*	1.16E−2	2.01E−3	1.29E−4*	7.60E−5*	1.156E+0
5.00E+6	3.73E−1*	4.93E−2*	2.91E−2*	4.36E−3*	1.36E−2*	9.02E−3*	1.52E−3		5.74E−5*	1.127E+0
6.00E+6	3.00E−1*	3.95E−2*			1.09E−2*	7.37E−3*	1.22E−3			1.107E+0
8.00E+6		2.82E−2*			7.8E−3					
1.00E+7					6.0E−3					

TABLE. Cross Sections for Radiative Recombination, $Z=1$–112
See page 9 for Explanation of Tables

Z=103

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 7.641$ fm

$\lvert\epsilon_n\rvert$ (eV)	1.733E+5	4.538E+4	4.549E+4	3.746E+4	1.922E+4	1.925E+4	1.686E+4	1.686E+4	1.630E+4	
1.50E+0	7.01E+6	1.13E+6	1.87E+6	1.18E+6	3.43E+5	4.97E+5	4.49E+5	3.65E+5	3.08E+5	5.103E−5
2.00E+0	5.26E+6	8.49E+5	1.40E+6	8.83E+5	2.57E+5	3.73E+5	3.37E+5	2.73E+5	2.31E+5	6.804E−5
3.00E+0	3.51E+6	5.66E+5	9.35E+5	5.89E+5	1.72E+5	2.48E+5	2.25E+5	1.82E+5	1.54E+5	1.021E−4
4.00E+0	2.63E+6	4.25E+5	7.01E+5	4.41E+5	1.29E+5	1.86E+5	1.68E+5	1.37E+5	1.16E+5	1.361E−4
5.00E+0	2.10E+6	3.40E+5	5.61E+5	3.53E+5	1.03E+5	1.49E+5	1.35E+5	1.09E+5	9.24E+4	1.701E−4
6.00E+0	1.75E+6	2.83E+5	4.68E+5	2.94E+5	8.58E+4	1.24E+5	1.12E+5	9.11E+4	7.70E+4	2.041E−4
8.00E+0	1.31E+6	2.12E+5	3.51E+5	2.21E+5	6.43E+4	9.31E+4	8.42E+4	6.83E+4	5.77E+4	2.721E−4
1.00E+1	1.05E+6	1.70E+5	2.81E+5	1.77E+5	5.15E+4	7.45E+4	6.73E+4	5.47E+4	4.62E+4	3.401E−4
1.50E+1	7.01E+5	1.13E+5	1.87E+5	1.18E+5	3.43E+4	4.97E+4	4.49E+4	3.64E+4	3.08E+4	5.102E−4
2.00E+1	5.26E+5	8.49E+4	1.40E+5	8.82E+4	2.57E+4	3.73E+4	3.37E+4	2.73E+4	2.31E+4	6.802E−4
3.00E+1	3.50E+5	5.66E+4	9.35E+4	5.88E+4	1.72E+4	2.48E+4	2.24E+4	1.82E+4	1.54E+4	1.020E−3
4.00E+1	2.63E+5	4.25E+4	7.01E+4	4.41E+4	1.29E+4	1.86E+4	1.68E+4	1.36E+4	1.15E+4	1.360E−3
5.00E+1	2.10E+5	3.40E+4	5.61E+4	3.53E+4	1.03E+4	1.49E+4	1.35E+4	1.09E+4	9.21E+3	1.700E−3
6.00E+1	1.75E+5	2.83E+4	4.67E+4	2.94E+4	8.58E+3	1.24E+4	1.12E+4	9.08E+3	7.67E+3	2.040E−3
8.00E+1	1.31E+5	2.12E+4	3.50E+4	2.20E+4	6.44E+3	9.31E+3	8.40E+3	6.80E+3	5.74E+3	2.719E−3
1.00E+2	1.05E+5	1.70E+4	2.80E+4	1.76E+4	5.15E+3	7.45E+3	6.72E+3	5.43E+3	4.58E+3	3.398E−3
1.50E+2	7.01E+4	1.13E+4	1.87E+4	1.17E+4	3.44E+3	4.97E+3	4.47E+3	3.61E+3	3.04E+3	5.095E−3
2.00E+2	5.25E+4	8.49E+3	1.40E+4	8.78E+3	2.58E+3	3.73E+3	3.35E+3	2.70E+3	2.27E+3	6.789E−3
3.00E+2	3.50E+4	5.66E+3	9.32E+3	5.84E+3	1.72E+3	2.49E+3	2.23E+3	1.78E+3	1.50E+3	1.017E−2
4.00E+2	2.63E+4	4.25E+3	6.98E+3	4.37E+3	1.29E+3	1.86E+3	1.67E+3	1.33E+3	1.12E+3	1.355E−2
5.00E+2	2.10E+4	3.40E+3	5.58E+3	3.49E+3	1.03E+3	1.49E+3	1.33E+3	1.05E+3	8.87E+2	1.692E−2
6.00E+2	1.75E+4	2.83E+3	4.64E+3	2.90E+3	8.62E+2	1.24E+3	1.11E+3	8.72E+2	7.34E+2	2.028E−2
8.00E+2	1.31E+4	2.12E+3	3.47E+3	2.16E+3	6.47E+2	9.32E+2	8.26E+2	6.45E+2	5.41E+2	2.699E−2
1.00E+3	1.05E+4	1.70E+3	2.77E+3	1.72E+3	5.18E+2	7.46E+2	6.58E+2	5.09E+2	4.26E+2	3.366E−2
1.50E+3	6.97E+3	1.13E+3	1.84E+3	1.13E+3	3.47E+2	4.97E+2	4.33E+2	3.27E+2	2.73E+2	5.023E−2
2.00E+3	5.22E+3	8.48E+2	1.37E+3	8.40E+2	2.61E+2	3.73E+2	3.21E+2	2.37E+2	1.97E+2	6.662E−2
3.00E+3	3.47E+3	5.65E+2	9.01E+2	5.46E+2	1.75E+2	2.48E+2	2.09E+2	1.48E+2	1.22E+2	9.890E−2
4.00E+3	2.59E+3	4.23E+2	6.67E+2	4.00E+2	1.31E+2	1.86E+2	1.53E+2	1.04E+2	8.52E+1	1.305E−1
5.00E+3	2.07E+3	3.38E+2	5.27E+2	3.12E+2	1.06E+2	1.48E+2	1.20E+2	7.81E+1	6.36E+1	1.615E−1
6.00E+3	1.72E+3	2.82E+2	4.34E+2	2.54E+2	8.81E+1	1.23E+2	9.75E+1	6.12E+1	4.96E+1	1.918E−1
8.00E+3	1.28E+3	2.11E+2	3.18E+2	1.82E+2	6.62E+1	9.11E+1	6.99E+1	4.09E+1	3.27E+1	2.506E−1
1.00E+4	1.02E+3	1.68E+2	2.48E+2	1.40E+2	5.30E+1	7.20E+1	5.35E+1	2.94E+1	2.32E+1	3.071E−1
1.50E+4	6.66E+2	1.11E+2	1.56E+2	8.38E+1	3.51E+1	4.63E+1	3.21E+1	1.53E+1	1.18E+1	4.386E−1
2.00E+4	4.92E+2	8.20E+1	1.11E+2	5.71E+1	2.60E+1	3.33E+1	2.18E+1	9.25E+0	6.99E+0	5.576E−1
3.00E+4	3.18E+2	5.31E+1	6.68E+1	3.19E+1	1.68E+1	2.04E+1	1.21E+1	4.26E+0	3.11E+0	7.634E−1
4.00E+4	2.31E+2	3.86E+1	4.56E+1	2.05E+1	1.21E+1	1.41E+1	7.71E+0	2.35E+0	1.66E+0	9.334E−1
5.00E+4	1.79E+2	2.99E+1	3.35E+1	1.42E+1	9.32E+0	1.04E+1	5.34E+0	1.44E+0	9.96E−1	1.075E+0
6.00E+4	1.45E+2	2.41E+1	2.58E+1	1.05E+1	7.46E+0	8.00E+0	3.90E+0	9.55E−1	6.46E−1	1.192E+0
8.00E+4	1.03E+2	1.69E+1	1.68E+1	6.27E+0	5.18E+0	5.22E+0	2.32E+0	4.87E−1	3.17E−1	1.374E+0
1.00E+5	7.87E+1	1.27E+1	1.18E+1	4.15E+0	3.85E+0	3.69E+0	1.53E+0	2.83E−1	1.80E−1	1.502E+0
1.50E+5	4.71E+1	7.39E+0	6.11E+0	1.89E+0	2.19E+0	1.91E+0	6.90E−1	1.04E−1	6.25E−2	1.682E+0
2.00E+5	3.23E+1	4.93E+0	3.76E+0	1.06E+0	1.44E+0	1.17E+0	3.85E−1	5.02E−2	2.94E−2	1.754E+0
3.00E+5	1.86E+1	2.75E+0	1.87E+0	4.67E−1	7.89E−1	5.83E−1	1.68E−1	1.82E−2	1.03E−2	1.770E+0
4.00E+5	1.25E+1	1.80E+0	1.14E+0	2.62E−1	5.13E−1	3.55E−1	9.35E−2	9.08E−3	5.07E−3	1.730E+0
5.00E+5	9.16E+0	1.30E+0	7.79E−1	1.69E−1	3.67E−1	2.42E−1	6.00E−2	5.38E−3	3.00E−3	1.679E+0
6.00E+5	7.08E+0	9.93E−1	5.74E−1	1.19E−1	2.80E−1	1.78E−1	4.21E−2	3.57E−3	1.99E−3	1.627E+0
8.00E+5	4.71E+0	6.52E−1	3.60E−1	6.96E−2	1.83E−1	1.12E−1	2.46E−2	1.93E−3	1.08E−3	1.539E+0
1.00E+6	3.43E+0	4.71E−1	2.54E−1	4.69E−2	1.31E−1	7.87E−2	1.65E−2	1.24E−3	6.98E−4	1.469E+0
1.50E+6	1.93E+0	2.62E−1	1.41E−1	2.40E−2	7.28E−2	4.35E−2	8.42E−3	5.93E−4	3.39E−4	1.351E+0
2.00E+6	1.29E+0	1.74E−1	9.53E−2	1.55E−2	4.82E−2	2.94E−2	5.42E−3	3.72E−4	2.14E−4	1.280E+0
3.00E+6	7.44E−1	9.93E−2*	5.72E−2	8.78E−3	2.75E−2	1.76E−2	3.07E−3	2.06E−4	1.19E−4	1.198E+0
4.00E+6	5.13E−1*	6.81E−2*	4.07E−2	6.05E−3	1.88E−2*	1.26E−2	2.11E−3	1.40E−4*	8.14E−5*	1.153E+0
5.00E+6	3.89E−1*	5.14E−2*	3.16E−2*	4.59E−3*	1.42E−2*	9.75E−3*	1.60E−3	1.06E−4*	6.15E−5*	1.125E+0
6.00E+6	3.12E−1*	4.12E−2*			1.14E−2*	8.0E−3	1.29E−3			1.106E+0
8.00E+6					8.1E−3					
1.00E+7					6.3E−3					

$Z=104$

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 7.634$ fm

$|\epsilon_n|$ (eV)	1.776E+5	4.655E+4	4.667E+4	3.822E+4	1.969E+4	1.972E+4	1.720E+4	1.720E+4	1.662E+4	
1.50E+0	7.11E+6	1.15E+6	1.93E+6	1.20E+6	3.47E+5	5.06E+5	4.58E+5	3.73E+5	3.15E+5	4.862E−5
2.00E+0	5.34E+6	8.62E+5	1.45E+6	9.01E+5	2.60E+5	3.79E+5	3.44E+5	2.80E+5	2.36E+5	6.483E−5
3.00E+0	3.56E+6	5.75E+5	9.64E+5	6.01E+5	1.74E+5	2.53E+5	2.29E+5	1.87E+5	1.57E+5	9.725E−5
4.00E+0	2.67E+6	4.31E+5	7.23E+5	4.51E+5	1.30E+5	1.90E+5	1.72E+5	1.40E+5	1.18E+5	1.297E−4
5.00E+0	2.13E+6	3.45E+5	5.78E+5	3.60E+5	1.04E+5	1.52E+5	1.37E+5	1.12E+5	9.43E+4	1.621E−4
6.00E+0	1.78E+6	2.88E+5	4.82E+5	3.00E+5	8.68E+4	1.27E+5	1.15E+5	9.33E+4	7.86E+4	1.945E−4
8.00E+0	1.33E+6	2.16E+5	3.61E+5	2.25E+5	6.51E+4	9.49E+4	8.59E+4	7.00E+4	5.90E+4	2.593E−4
1.00E+1	1.07E+6	1.73E+5	2.89E+5	1.80E+5	5.21E+4	7.59E+4	6.87E+4	5.60E+4	4.72E+4	3.241E−4
1.50E+1	7.11E+5	1.15E+5	1.93E+5	1.20E+5	3.47E+4	5.06E+4	4.58E+4	3.73E+4	3.14E+4	4.862E−4
2.00E+1	5.33E+5	8.62E+4	1.45E+5	9.01E+4	2.60E+4	3.79E+4	3.44E+4	2.80E+4	2.36E+4	6.482E−4
3.00E+1	3.56E+5	5.75E+4	9.63E+4	6.00E+4	1.74E+4	2.53E+4	2.29E+4	1.86E+4	1.57E+4	9.722E−4
4.00E+1	2.67E+5	4.31E+4	7.22E+4	4.50E+4	1.30E+4	1.90E+4	1.72E+4	1.40E+4	1.18E+4	1.296E−3
5.00E+1	2.13E+5	3.45E+4	5.78E+4	3.60E+4	1.04E+4	1.52E+4	1.37E+4	1.12E+4	9.40E+3	1.620E−3
6.00E+1	1.78E+5	2.88E+4	4.81E+4	3.00E+4	8.68E+3	1.27E+4	1.14E+4	9.30E+3	7.83E+3	1.944E−3
8.00E+1	1.33E+5	2.16E+4	3.61E+4	2.25E+4	6.51E+3	9.49E+3	8.58E+3	6.96E+3	5.86E+3	2.591E−3
1.00E+2	1.07E+5	1.73E+4	2.89E+4	1.80E+4	5.21E+3	7.59E+3	6.86E+3	5.56E+3	4.68E+3	3.238E−3
1.50E+2	7.11E+4	1.15E+4	1.92E+4	1.20E+4	3.48E+3	5.06E+3	4.57E+3	3.69E+3	3.11E+3	4.855E−3
2.00E+2	5.33E+4	8.62E+3	1.44E+4	8.97E+3	2.61E+3	3.80E+3	3.42E+3	2.76E+3	2.32E+3	6.470E−3
3.00E+2	3.55E+4	5.75E+3	9.60E+3	5.96E+3	1.74E+3	2.53E+3	2.28E+3	1.83E+3	1.54E+3	9.695E−3
4.00E+2	2.66E+4	4.31E+3	7.19E+3	4.46E+3	1.31E+3	1.90E+3	1.70E+3	1.36E+3	1.14E+3	1.291E−2
5.00E+2	2.13E+4	3.45E+3	5.75E+3	3.56E+3	1.05E+3	1.52E+3	1.36E+3	1.08E+3	9.07E+2	1.613E−2
6.00E+2	1.78E+4	2.87E+3	4.78E+3	2.96E+3	8.72E+2	1.27E+3	1.13E+3	8.94E+2	7.50E+2	1.933E−2
8.00E+2	1.33E+4	2.16E+3	3.58E+3	2.21E+3	6.55E+2	9.50E+2	8.43E+2	6.61E+2	5.54E+2	2.572E−2
1.00E+3	1.06E+4	1.72E+3	2.86E+3	1.76E+3	5.25E+2	7.60E+2	6.72E+2	5.22E+2	4.36E+2	3.209E−2
1.50E+3	7.08E+3	1.15E+3	1.89E+3	1.16E+3	3.51E+2	5.07E+2	4.43E+2	3.36E+2	2.80E+2	4.788E−2
2.00E+3	5.30E+3	8.62E+2	1.41E+3	8.58E+2	2.64E+2	3.80E+2	3.28E+2	2.44E+2	2.02E+2	6.352E−2
3.00E+3	3.52E+3	5.74E+2	9.30E+2	5.58E+2	1.77E+2	2.53E+2	2.14E+2	1.52E+2	1.25E+2	9.432E−2
4.00E+3	2.63E+3	4.30E+2	6.89E+2	4.09E+2	1.33E+2	1.90E+2	1.57E+2	1.07E+2	8.75E+1	1.245E−1
5.00E+3	2.10E+3	3.44E+2	5.45E+2	3.20E+2	1.07E+2	1.51E+2	1.23E+2	8.05E+1	6.54E+1	1.541E−1
6.00E+3	1.74E+3	2.86E+2	4.49E+2	2.60E+2	8.92E+1	1.26E+2	9.98E+1	6.32E+1	5.10E+1	1.831E−1
8.00E+3	1.30E+3	2.14E+2	3.29E+2	1.87E+2	6.71E+1	9.34E+1	7.16E+1	4.24E+1	3.38E+1	2.393E−1
1.00E+4	1.03E+3	1.71E+2	2.57E+2	1.43E+2	5.37E+1	7.39E+1	5.48E+1	3.05E+1	2.40E+1	2.934E−1
1.50E+4	6.77E+2	1.13E+2	1.62E+2	8.61E+1	3.56E+1	4.76E+1	3.29E+1	1.59E+1	1.23E+1	4.195E−1
2.00E+4	5.00E+2	8.34E+1	1.16E+2	5.87E+1	2.64E+1	3.44E+1	2.24E+1	9.66E+0	7.27E+0	5.339E−1
3.00E+4	3.23E+2	5.41E+1	6.98E+1	3.29E+1	1.71E+1	2.11E+1	1.25E+1	4.47E+0	3.25E+0	7.326E−1
4.00E+4	2.35E+2	3.93E+1	4.78E+1	2.12E+1	1.24E+1	1.46E+1	7.98E+0	2.47E+0	1.74E+0	8.975E−1
5.00E+4	1.83E+2	3.05E+1	3.52E+1	1.48E+1	9.50E+0	1.08E+1	5.53E+0	1.53E+0	1.05E+0	1.035E+0
6.00E+4	1.48E+2	2.46E+1	2.71E+1	1.08E+1	7.61E+0	8.37E+0	4.05E+0	1.01E+0	6.81E−1	1.150E+0
8.00E+4	1.06E+2	1.73E+1	1.77E+1	6.52E+0	5.29E+0	5.48E+0	2.42E+0	5.17E−1	3.36E−1	1.329E+0
1.00E+5	8.06E+1	1.30E+1	1.25E+1	4.32E+0	3.94E+0	3.89E+0	1.59E+0	3.02E−1	1.91E−1	1.456E+0
1.50E+5	4.84E+1	7.59E+0	6.51E+0	1.98E+0	2.25E+0	2.02E+0	7.22E−1	1.11E−1	6.65E−2	1.638E+0
2.00E+5	3.33E+1	5.09E+0	4.02E+0	1.11E+0	1.49E+0	1.25E+0	4.04E−1	5.38E−2	3.13E−2	1.714E+0
3.00E+5	1.93E+1	2.84E+0	2.01E+0	4.90E−1	8.16E−1	6.23E−1	1.76E−1	1.96E−2	1.11E−2	1.739E+0
4.00E+5	1.30E+1	1.87E+0	1.23E+0	2.75E−1	5.31E−1	3.80E−1	9.84E−2	9.78E−3	5.43E−3	1.705E+0
5.00E+5	9.51E+0	1.35E+0	8.40E−1	1.77E−1	3.81E−1	2.60E−1	6.32E−2	5.81E−3	3.21E−3	1.658E+0
6.00E+5	7.37E+0	1.03E+0	6.20E−1	1.25E−1	2.91E−1	1.92E−1	4.44E−2	3.85E−3	2.13E−3	1.610E+0
8.00E+5	4.90E+0	6.80E−1	3.89E−1	7.32E−2	1.90E−1	1.20E−1	2.59E−2	2.09E−3	1.16E−3	1.525E+0
1.00E+6	3.57E+0	4.91E−1	2.75E−1	4.93E−2	1.37E−1	8.49E−2	1.74E−2	1.34E−3	7.48E−4	1.458E+0
1.50E+6	2.01E+0	2.73E−1	1.53E−1	2.52E−2	7.58E−2*	4.69E−2	8.85E−3	6.44E−4	3.63E−4	1.344E+0
2.00E+6	1.34E+0	1.81E−1	1.03E−1	1.63E−2	5.02E−2*	3.18E−2	5.70E−3	4.04E−4	2.30E−4	1.275E+0
3.00E+6	7.75E−1	1.04E−1	6.21E−2	9.24E−3	2.86E−2*	1.91E−2	3.23E−3	2.24E−4	1.28E−4	1.195E+0
4.00E+6	5.34E−1*	7.10E−2*	4.42E−2	6.36E−3	1.96E−2*	1.36E−2	2.22E−3	1.53E−4	8.71E−5*	1.151E+0
5.00E+6	4.05E−1*	5.36E−2*	3.43E−2*	4.83E−3	1.48E−2*	1.05E−2	1.68E−3	1.15E−4*	6.6E−5	1.123E+0
6.00E+6	3.25E−1*	4.29E−2*			1.18E−2*	8.6E−3	1.35E−3			1.104E+0
8.00E+6		3.06E−2*								

TABLE. Cross Sections for Radiative Recombination, $Z=1$–112
See page 9 for Explanation of Tables

$Z=105$

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 7.641$ fm

$\lvert\epsilon_n\rvert$ (eV)	1.819E+5	4.774E+4	4.788E+4	3.899E+4	2.016E+4	2.020E+4	1.755E+4	1.755E+4	1.695E+4	
1.50E+0	7.22E+6	1.17E+6	1.99E+6	1.23E+6	3.51E+5	5.15E+5	4.68E+5	3.82E+5	3.21E+5	4.635E−5
2.00E+0	5.41E+6	8.76E+5	1.49E+6	9.19E+5	2.63E+5	3.86E+5	3.51E+5	2.87E+5	2.41E+5	6.180E−5
3.00E+0	3.61E+6	5.84E+5	9.93E+5	6.13E+5	1.76E+5	2.58E+5	2.34E+5	1.91E+5	1.61E+5	9.269E−5
4.00E+0	2.71E+6	4.38E+5	7.44E+5	4.60E+5	1.32E+5	1.93E+5	1.75E+5	1.43E+5	1.20E+5	1.236E−4
5.00E+0	2.17E+6	3.50E+5	5.96E+5	3.68E+5	1.05E+5	1.55E+5	1.40E+5	1.15E+5	9.63E+4	1.545E−4
6.00E+0	1.80E+6	2.92E+5	4.96E+5	3.06E+5	8.78E+4	1.29E+5	1.17E+5	9.56E+4	8.02E+4	1.854E−4
8.00E+0	1.35E+6	2.19E+5	3.72E+5	2.30E+5	6.58E+4	9.66E+4	8.77E+4	7.17E+4	6.02E+4	2.472E−4
1.00E+1	1.08E+6	1.75E+5	2.98E+5	1.84E+5	5.27E+4	7.72E+4	7.01E+4	5.73E+4	4.81E+4	3.089E−4
1.50E+1	7.22E+5	1.17E+5	1.99E+5	1.23E+5	3.51E+4	5.15E+4	4.67E+4	3.82E+4	3.21E+4	4.634E−4
2.00E+1	5.41E+5	8.76E+4	1.49E+5	9.19E+4	2.63E+4	3.86E+4	3.51E+4	2.86E+4	2.40E+4	6.178E−4
3.00E+1	3.61E+5	5.84E+4	9.92E+4	6.13E+4	1.76E+4	2.58E+4	2.34E+4	1.91E+4	1.60E+4	9.267E−4
4.00E+1	2.71E+5	4.38E+4	7.44E+4	4.59E+4	1.32E+4	1.93E+4	1.75E+4	1.43E+4	1.20E+4	1.235E−3
5.00E+1	2.16E+5	3.50E+4	5.95E+4	3.67E+4	1.05E+4	1.55E+4	1.40E+4	1.14E+4	9.60E+3	1.544E−3
6.00E+1	1.80E+5	2.92E+4	4.96E+4	3.06E+4	8.78E+3	1.29E+4	1.17E+4	9.52E+3	7.99E+3	1.853E−3
8.00E+1	1.35E+5	2.19E+4	3.72E+4	2.29E+4	6.59E+3	9.66E+3	8.75E+3	7.13E+3	5.98E+3	2.470E−3
1.00E+2	1.08E+5	1.75E+4	2.98E+4	1.83E+4	5.27E+3	7.73E+3	7.00E+3	5.70E+3	4.78E+3	3.087E−3
1.50E+2	7.21E+4	1.17E+4	1.98E+4	1.22E+4	3.52E+3	5.15E+3	4.66E+3	3.78E+3	3.17E+3	4.628E−3
2.00E+2	5.41E+4	8.76E+3	1.49E+4	9.15E+3	2.64E+3	3.86E+3	3.49E+3	2.83E+3	2.37E+3	6.167E−3
3.00E+2	3.60E+4	5.84E+3	9.89E+3	6.09E+3	1.76E+3	2.58E+3	2.32E+3	1.87E+3	1.57E+3	9.242E−3
4.00E+2	2.70E+4	4.38E+3	7.41E+3	4.55E+3	1.32E+3	1.93E+3	1.74E+3	1.39E+3	1.17E+3	1.231E−2
5.00E+2	2.16E+4	3.50E+3	5.92E+3	3.63E+3	1.06E+3	1.55E+3	1.39E+3	1.11E+3	9.26E+2	1.537E−2
6.00E+2	1.80E+4	2.92E+3	4.93E+3	3.02E+3	8.82E+2	1.29E+3	1.15E+3	9.17E+2	7.66E+2	1.843E−2
8.00E+2	1.35E+4	2.19E+3	3.69E+3	2.25E+3	6.62E+2	9.68E+2	8.61E+2	6.78E+2	5.66E+2	2.452E−2
1.00E+3	1.08E+4	1.75E+3	2.94E+3	1.80E+3	5.30E+2	7.74E+2	6.86E+2	5.35E+2	4.46E+2	3.059E−2
1.50E+3	7.18E+3	1.17E+3	1.95E+3	1.18E+3	3.55E+2	5.17E+2	4.52E+2	3.45E+2	2.86E+2	4.566E−2
2.00E+3	5.38E+3	8.75E+2	1.46E+3	8.76E+2	2.67E+2	3.88E+2	3.35E+2	2.50E+2	2.07E+2	6.058E−2
3.00E+3	3.57E+3	5.83E+2	9.59E+2	5.71E+2	1.79E+2	2.58E+2	2.18E+2	1.56E+2	1.28E+2	8.997E−2
4.00E+3	2.67E+3	4.37E+2	7.12E+2	4.18E+2	1.35E+2	1.94E+2	1.60E+2	1.10E+2	8.98E+1	1.188E−1
5.00E+3	2.13E+3	3.49E+2	5.63E+2	3.27E+2	1.08E+2	1.55E+2	1.25E+2	8.30E+1	6.72E+1	1.470E−1
6.00E+3	1.77E+3	2.91E+2	4.64E+2	2.67E+2	9.02E+1	1.28E+2	1.02E+2	6.53E+1	5.25E+1	1.748E−1
8.00E+3	1.32E+3	2.17E+2	3.40E+2	1.91E+2	6.79E+1	9.56E+1	7.33E+1	4.38E+1	3.48E+1	2.286E−1
1.00E+4	1.05E+3	1.73E+2	2.67E+2	1.47E+2	5.44E+1	7.57E+1	5.62E+1	3.16E+1	2.48E+1	2.803E−1
1.50E+4	6.88E+2	1.14E+2	1.69E+2	8.84E+1	3.61E+1	4.90E+1	3.38E+1	1.66E+1	1.27E+1	4.013E−1
2.00E+4	5.08E+2	8.48E+1	1.20E+2	6.04E+1	2.68E+1	3.54E+1	2.30E+1	1.01E+1	7.56E+0	5.114E−1
3.00E+4	3.29E+2	5.50E+1	7.28E+1	3.40E+1	1.74E+1	2.19E+1	1.29E+1	4.69E+0	3.39E+0	7.031E−1
4.00E+4	2.40E+2	4.01E+1	5.00E+1	2.19E+1	1.26E+1	1.52E+1	8.25E+0	2.60E+0	1.83E+0	8.630E−1
5.00E+4	1.87E+2	3.11E+1	3.69E+1	1.53E+1	9.68E+0	1.13E+1	5.73E+0	1.61E+0	1.10E+0	9.970E−1
6.00E+4	1.51E+2	2.51E+1	2.85E+1	1.13E+1	7.77E+0	8.75E+0	4.20E+0	1.07E+0	7.17E−1	1.110E+0
8.00E+4	1.08E+2	1.77E+1	1.87E+1	6.78E+0	5.41E+0	5.75E+0	2.52E+0	5.49E−1	3.55E−1	1.286E+0
1.00E+5	8.26E+1	1.34E+1	1.33E+1	4.50E+0	4.04E+0	4.10E+0	1.66E+0	3.21E−1	2.02E−1	1.412E+0
1.50E+5	4.97E+1	7.80E+0	6.93E+0	2.07E+0	2.31E+0	2.14E+0	7.54E−1	1.18E−1	7.08E−2	1.596E+0
2.00E+5	3.43E+1	5.24E+0	4.29E+0	1.17E+0	1.53E+0	1.33E+0	4.23E−1	5.77E−2	3.34E−2	1.676E+0
3.00E+5	1.99E+1	2.94E+0	2.16E+0	5.15E−1	8.43E−1	6.66E−1	1.85E−1	2.11E−2	1.18E−2	1.708E+0
4.00E+5	1.35E+1	1.94E+0	1.32E+0	2.89E−1	5.50E−1	4.07E−1	1.04E−1	1.05E−2	5.81E−3	1.680E+0
5.00E+5	9.88E+0	1.40E+0	9.05E−1	1.87E−1	3.95E−1	2.79E−1	6.64E−2	6.27E−3	3.44E−3	1.637E+0
6.00E+5	7.66E+0	1.08E+0	6.69E−1	1.31E−1	3.02E−1	2.06E−1	4.67E−2	4.16E−3	2.28E−3	1.592E+0
8.00E+5	5.10E+0	7.09E−1	4.21E−1	7.70E−2	1.98E−1	1.29E−1	2.72E−2	2.26E−3	1.24E−3	1.512E+0
1.00E+6	3.72E+0	5.13E−1	2.98E−1	5.19E−2	1.43E−1	9.15E−2	1.83E−2	1.45E−3	8.00E−4	1.448E+0
1.50E+6	2.09E+0	2.85E−1	1.65E−1	2.65E−2	7.90E−2*	5.06E−2	9.31E−3	6.98E−4	3.89E−4	1.337E+0
2.00E+6	1.40E+0	1.89E−1	1.12E−1	1.71E−2	5.23E−2*	3.43E−2	5.99E−3	4.38E−4	2.46E−4	1.270E+0
3.00E+6	8.07E−1	1.08E−1	6.74E−2	9.71E−3	2.98E−2*	2.06E−2	3.39E−3	2.43E−4	1.37E−4	1.192E+0
4.00E+6	5.56E−1*	7.40E−2*	4.80E−2	6.68E−3	2.04E−2*	1.47E−2	2.33E−3	1.66E−4*	9.3E−5	1.149E+0
5.00E+6	4.22E−1*	5.59E−2*	3.72E−2*	5.07E−3*	1.54E−2*	1.14E−2	1.77E−3	1.3E−4	7.0E−5	1.121E+0
6.00E+6	3.39E−1*	4.47E−2*			1.23E−2*		1.42E−3*			1.102E+0
8.00E+6		3.19E−2*					1.02E−3*			

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$Z=106$

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 7.678$ fm

$|\epsilon_n|$ (eV)	1.863E+5	4.896E+4	4.912E+4	3.977E+4	2.065E+4	2.070E+4	1.791E+4	1.791E+4	1.728E+4	
1.50E+0	7.32E+6	1.19E+6	2.05E+6	1.25E+6	3.55E+5	5.24E+5	4.77E+5	3.91E+5	3.28E+5	4.418E−5
2.00E+0	5.49E+6	8.89E+5	1.53E+6	9.38E+5	2.66E+5	3.93E+5	3.58E+5	2.94E+5	2.46E+5	5.890E−5
3.00E+0	3.66E+6	5.92E+5	1.02E+6	6.25E+5	1.77E+5	2.62E+5	2.39E+5	1.96E+5	1.64E+5	8.836E−5
4.00E+0	2.74E+6	4.44E+5	7.67E+5	4.69E+5	1.33E+5	1.96E+5	1.79E+5	1.47E+5	1.23E+5	1.178E−4
5.00E+0	2.20E+6	3.55E+5	6.14E+5	3.75E+5	1.06E+5	1.57E+5	1.43E+5	1.17E+5	9.83E+4	1.473E−4
6.00E+0	1.83E+6	2.96E+5	5.11E+5	3.13E+5	8.87E+4	1.31E+5	1.19E+5	9.78E+4	8.19E+4	1.767E−4
8.00E+0	1.37E+6	2.22E+5	3.83E+5	2.35E+5	6.65E+4	9.82E+4	8.94E+4	7.34E+4	6.14E+4	2.356E−4
1.00E+1	1.10E+6	1.78E+5	3.07E+5	1.88E+5	5.32E+4	7.86E+4	7.15E+4	5.87E+4	4.91E+4	2.945E−4
1.50E+1	7.32E+5	1.19E+5	2.05E+5	1.25E+5	3.55E+4	5.24E+4	4.77E+4	3.91E+4	3.27E+4	4.417E−4
2.00E+1	5.49E+5	8.89E+4	1.53E+5	9.38E+4	2.66E+4	3.93E+4	3.58E+4	2.93E+4	2.45E+4	5.889E−4
3.00E+1	3.66E+5	5.92E+4	1.02E+5	6.25E+4	1.77E+4	2.62E+4	2.38E+4	1.95E+4	1.64E+4	8.833E−4
4.00E+1	2.74E+5	4.44E+4	7.67E+4	4.69E+4	1.33E+4	1.97E+4	1.79E+4	1.46E+4	1.23E+4	1.178E−3
5.00E+1	2.20E+5	3.55E+4	6.13E+4	3.75E+4	1.07E+4	1.57E+4	1.43E+4	1.17E+4	9.79E+3	1.472E−3
6.00E+1	1.83E+5	2.96E+4	5.11E+4	3.12E+4	8.87E+3	1.31E+4	1.19E+4	9.75E+3	8.16E+3	1.766E−3
8.00E+1	1.37E+5	2.22E+4	3.83E+4	2.34E+4	6.66E+3	9.83E+3	8.93E+3	7.30E+3	6.11E+3	2.354E−3
1.00E+2	1.10E+5	1.78E+4	3.06E+4	1.87E+4	5.33E+3	7.86E+3	7.14E+3	5.83E+3	4.88E+3	2.942E−3
1.50E+2	7.31E+4	1.19E+4	2.04E+4	1.25E+4	3.55E+3	5.24E+3	4.75E+3	3.88E+3	3.24E+3	4.411E−3
2.00E+2	5.49E+4	8.89E+3	1.53E+4	9.34E+3	2.67E+3	3.93E+3	3.56E+3	2.90E+3	2.42E+3	5.879E−3
3.00E+2	3.66E+4	5.92E+3	1.02E+4	6.21E+3	1.78E+3	2.62E+3	2.37E+3	1.92E+3	1.60E+3	8.810E−3
4.00E+2	2.74E+4	4.44E+3	7.64E+3	4.65E+3	1.34E+3	1.97E+3	1.77E+3	1.43E+3	1.19E+3	1.174E−2
5.00E+2	2.19E+4	3.55E+3	6.10E+3	3.71E+3	1.07E+3	1.57E+3	1.42E+3	1.14E+3	9.46E+2	1.465E−2
6.00E+2	1.83E+4	2.96E+3	5.08E+3	3.08E+3	8.91E+2	1.31E+3	1.18E+3	9.39E+2	7.83E+2	1.757E−2
8.00E+2	1.37E+4	2.22E+3	3.80E+3	2.30E+3	6.69E+2	9.85E+2	8.79E+2	6.95E+2	5.78E+2	2.338E−2
1.00E+3	1.09E+4	1.78E+3	3.03E+3	1.83E+3	5.36E+2	7.88E+2	7.00E+2	5.49E+2	4.56E+2	2.917E−2
1.50E+3	7.28E+3	1.18E+3	2.01E+3	1.21E+3	3.59E+2	5.26E+2	4.61E+2	3.54E+2	2.93E+2	4.354E−2
2.00E+3	5.45E+3	8.88E+2	1.50E+3	8.95E+2	2.70E+2	3.95E+2	3.42E+2	2.57E+2	2.12E+2	5.777E−2
3.00E+3	3.62E+3	5.92E+2	9.90E+2	5.83E+2	1.81E+2	2.63E+2	2.23E+2	1.61E+2	1.32E+2	8.583E−2
4.00E+3	2.71E+3	4.43E+2	7.35E+2	4.27E+2	1.36E+2	1.98E+2	1.64E+2	1.14E+2	9.22E+1	1.133E−1
5.00E+3	2.16E+3	3.54E+2	5.81E+2	3.34E+2	1.09E+2	1.58E+2	1.28E+2	8.56E+1	6.91E+1	1.403E−1
6.00E+3	1.80E+3	2.95E+2	4.79E+2	2.73E+2	9.13E+1	1.31E+2	1.05E+2	6.74E+1	5.40E+1	1.668E−1
8.00E+3	1.34E+3	2.21E+2	3.52E+2	1.96E+2	6.87E+1	9.78E+1	7.51E+1	4.53E+1	3.59E+1	2.183E−1
1.00E+4	1.06E+3	1.76E+2	2.76E+2	1.50E+2	5.50E+1	7.75E+1	5.76E+1	3.27E+1	2.56E+1	2.679E−1
1.50E+4	6.99E+2	1.16E+2	1.75E+2	9.08E+1	3.66E+1	5.03E+1	3.47E+1	1.73E+1	1.32E+1	3.839E−1
2.00E+4	5.16E+2	8.62E+1	1.25E+2	6.21E+1	2.72E+1	3.65E+1	2.37E+1	1.05E+1	7.86E+0	4.898E−1
3.00E+4	3.35E+2	5.60E+1	7.60E+1	3.50E+1	1.76E+1	2.26E+1	1.33E+1	4.92E+0	3.54E+0	6.747E−1
4.00E+4	2.44E+2	4.08E+1	5.23E+1	2.26E+1	1.28E+1	1.58E+1	8.53E+0	2.74E+0	1.92E+0	8.296E−1
5.00E+4	1.90E+2	3.17E+1	3.87E+1	1.58E+1	9.86E+0	1.17E+1	5.93E+0	1.70E+0	1.16E+0	9.601E−1
6.00E+4	1.55E+2	2.56E+1	3.00E+1	1.17E+1	7.92E+0	9.14E+0	4.36E+0	1.13E+0	7.55E−1	1.070E+0
8.00E+4	1.10E+2	1.81E+1	1.97E+1	7.05E+0	5.53E+0	6.04E+0	2.62E+0	5.82E−1	3.75E−1	1.243E+0
1.00E+5	8.45E+1	1.37E+1	1.40E+1	4.69E+0	4.13E+0	4.31E+0	1.73E+0	3.42E−1	2.14E−1	1.369E+0
1.50E+5	5.11E+1	8.01E+0	7.37E+0	2.16E+0	2.37E+0	2.27E+0	7.88E−1	1.26E−1	7.52E−2	1.555E+0
2.00E+5	3.53E+1	5.39E+0	4.58E+0	1.22E+0	1.57E+0	1.41E+0	4.43E−1	6.18E−2	3.56E−2	1.638E+0
3.00E+5	2.06E+1	3.04E+0	2.31E+0	5.40E−1	8.70E−1	7.11E−1	1.94E−1	2.27E−2	1.26E−2	1.677E+0
4.00E+5	1.39E+1	2.01E+0	1.42E+0	3.04E−1	5.69E−1	4.36E−1	1.09E−1	1.14E−2	6.21E−3	1.655E+0
5.00E+5	1.03E+1	1.46E+0	9.75E−1	1.96E−1	4.10E−1	2.99E−1	6.98E−2	6.75E−3	3.68E−3	1.616E+0
6.00E+5	7.95E+0	1.12E+0	7.22E−1	1.38E−1	3.14E−1	2.21E−1	4.91E−2	4.49E−3	2.44E−3	1.574E+0
8.00E+5	5.31E+0	7.38E−1	4.55E−1	8.10E−2	2.06E−1	1.39E−1	2.86E−2	2.44E−3	1.33E−3	1.498E+0
1.00E+6	3.87E+0	5.34E−1	3.22E−1	5.46E−2	1.48E−1	9.85E−2	1.92E−2	1.57E−3	8.56E−4	1.437E+0
1.50E+6	2.18E+0	2.97E−1*	1.79E−1	2.79E−2	8.23E−2	5.46E−2	9.79E−3	7.56E−4	4.16E−4	1.330E+0
2.00E+6	1.45E+0	1.97E−1*	1.22E−1	1.80E−2	5.44E−2*	3.70E−2	6.30E−3	4.75E−4	2.63E−4	1.264E+0
3.00E+6	8.39E−1*	1.13E−1*	7.31E−2	1.02E−2	3.10E−2*	2.22E−2	3.56E−3	2.64E−4	1.46E−4	1.188E+0
4.00E+6	5.79E−1*	7.71E−2*	5.21E−2	7.02E−3	2.12E−2*	1.58E−2	2.45E−3	1.80E−4*	9.95E−5*	1.146E+0
5.00E+6	4.39E−1*	5.82E−2*	4.04E−2*	5.33E−3	1.60E−2*	1.23E−2	1.86E−3	1.36E−4*	7.5E−5	1.119E+0
6.00E+6	3.52E−1*	4.66E−2*			1.28E−2*	1.01E−2	1.49E−3*			1.101E+0
8.00E+6		3.32E−2*					1.07E−3*			

$Z=107$

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 7.660$ fm

$\|\epsilon_n\|$ (eV)	1.908E+5	5.021E+4	5.039E+4	4.055E+4	2.115E+4	2.120E+4	1.827E+4	1.827E+4	1.761E+4	
1.50E+0	7.42E+6	1.20E+6	2.11E+6	1.28E+6	3.58E+5	5.33E+5	4.86E+5	4.01E+5	3.34E+5	4.211E−5
2.00E+0	5.56E+6	9.01E+5	1.58E+6	9.57E+5	2.69E+5	3.99E+5	3.65E+5	3.01E+5	2.51E+5	5.615E−5
3.00E+0	3.71E+6	6.01E+5	1.05E+6	6.38E+5	1.79E+5	2.66E+5	2.43E+5	2.00E+5	1.67E+5	8.423E−5
4.00E+0	2.78E+6	4.51E+5	7.90E+5	4.78E+5	1.34E+5	2.00E+5	1.82E+5	1.50E+5	1.25E+5	1.123E−4
5.00E+0	2.23E+6	3.61E+5	6.32E+5	3.83E+5	1.08E+5	1.60E+5	1.46E+5	1.20E+5	1.00E+5	1.404E−4
6.00E+0	1.86E+6	3.01E+5	5.27E+5	3.19E+5	8.96E+4	1.33E+5	1.22E+5	1.00E+5	8.36E+4	1.685E−4
8.00E+0	1.39E+6	2.25E+5	3.95E+5	2.39E+5	6.72E+4	9.99E+4	9.12E+4	7.51E+4	6.27E+4	2.246E−4
1.00E+1	1.11E+6	1.80E+5	3.16E+5	1.91E+5	5.38E+4	7.99E+4	7.30E+4	6.01E+4	5.01E+4	2.807E−4
1.50E+1	7.42E+5	1.20E+5	2.11E+5	1.28E+5	3.58E+4	5.33E+4	4.86E+4	4.00E+4	3.34E+4	4.211E−4
2.00E+1	5.56E+5	9.01E+4	1.58E+5	9.56E+4	2.69E+4	3.99E+4	3.65E+4	3.00E+4	2.50E+4	5.614E−4
3.00E+1	3.71E+5	6.01E+4	1.05E+5	6.37E+4	1.79E+4	2.66E+4	2.43E+4	2.00E+4	1.67E+4	8.420E−4
4.00E+1	2.78E+5	4.51E+4	7.90E+4	4.78E+4	1.34E+4	2.00E+4	1.82E+4	1.50E+4	1.25E+4	1.123E−3
5.00E+1	2.23E+5	3.61E+4	6.32E+4	3.82E+4	1.08E+4	1.60E+4	1.46E+4	1.20E+4	9.99E+3	1.403E−3
6.00E+1	1.85E+5	3.01E+4	5.26E+4	3.19E+4	8.96E+3	1.33E+4	1.21E+4	9.98E+3	8.32E+3	1.684E−3
8.00E+1	1.39E+5	2.25E+4	3.95E+4	2.39E+4	6.72E+3	9.99E+3	9.10E+3	7.47E+3	6.23E+3	2.244E−3
1.00E+2	1.11E+5	1.80E+4	3.16E+4	1.91E+4	5.38E+3	7.99E+3	7.28E+3	5.97E+3	4.98E+3	2.805E−3
1.50E+2	7.42E+4	1.20E+4	2.10E+4	1.27E+4	3.59E+3	5.33E+3	4.85E+3	3.97E+3	3.31E+3	4.205E−3
2.00E+2	5.56E+4	9.01E+3	1.58E+4	9.52E+3	2.69E+3	4.00E+3	3.63E+3	2.97E+3	2.47E+3	5.605E−3
3.00E+2	3.71E+4	6.01E+3	1.05E+4	6.33E+3	1.80E+3	2.67E+3	2.42E+3	1.96E+3	1.64E+3	8.399E−3
4.00E+2	2.78E+4	4.51E+3	7.87E+3	4.74E+3	1.35E+3	2.00E+3	1.81E+3	1.46E+3	1.22E+3	1.119E−2
5.00E+2	2.22E+4	3.61E+3	6.29E+3	3.78E+3	1.08E+3	1.60E+3	1.44E+3	1.16E+3	9.66E+2	1.397E−2
6.00E+2	1.85E+4	3.00E+3	5.23E+3	3.15E+3	9.00E+2	1.34E+3	1.20E+3	9.62E+2	7.99E+2	1.675E−2
8.00E+2	1.39E+4	2.25E+3	3.92E+3	2.35E+3	6.76E+2	1.00E+3	8.96E+2	7.12E+2	5.91E+2	2.229E−2
1.00E+3	1.11E+4	1.80E+3	3.13E+3	1.87E+3	5.42E+2	8.02E+2	7.14E+2	5.62E+2	4.66E+2	2.781E−2
1.50E+3	7.39E+3	1.20E+3	2.07E+3	1.23E+3	3.62E+2	5.35E+2	4.71E+2	3.63E+2	2.99E+2	4.152E−2
2.00E+3	5.53E+3	9.01E+2	1.55E+3	9.14E+2	2.72E+2	4.02E+2	3.49E+2	2.64E+2	2.17E+2	5.510E−2
3.00E+3	3.68E+3	6.00E+2	1.02E+3	5.96E+2	1.83E+2	2.68E+2	2.28E+2	1.65E+2	1.35E+2	8.188E−2
4.00E+3	2.75E+3	4.50E+2	7.58E+2	4.37E+2	1.38E+2	2.01E+2	1.67E+2	1.17E+2	9.46E+1	1.082E−1
5.00E+3	2.19E+3	3.59E+2	6.00E+2	3.42E+2	1.10E+2	1.61E+2	1.31E+2	8.82E+1	7.09E+1	1.340E−1
6.00E+3	1.82E+3	2.99E+2	4.95E+2	2.79E+2	9.23E+1	1.34E+2	1.07E+2	6.95E+1	5.55E+1	1.593E−1
8.00E+3	1.36E+3	2.24E+2	3.64E+2	2.01E+2	6.95E+1	9.99E+1	7.69E+1	4.68E+1	3.70E+1	2.085E−1
1.00E+4	1.08E+3	1.79E+2	2.86E+2	1.54E+2	5.57E+1	7.94E+1	5.90E+1	3.39E+1	2.64E+1	2.560E−1
1.50E+4	7.10E+2	1.18E+2	1.81E+2	9.32E+1	3.70E+1	5.16E+1	3.56E+1	1.79E+1	1.37E+1	3.673E−1
2.00E+4	5.25E+2	8.75E+1	1.30E+2	6.38E+1	2.76E+1	3.76E+1	2.44E+1	1.10E+1	8.17E+0	4.690E−1
3.00E+4	3.40E+2	5.69E+1	7.92E+1	3.61E+1	1.79E+1	2.34E+1	1.37E+1	5.15E+0	3.70E+0	6.474E−1
4.00E+4	2.49E+2	4.15E+1	5.47E+1	2.34E+1	1.30E+1	1.64E+1	8.81E+0	2.88E+0	2.01E+0	7.975E−1
5.00E+4	1.94E+2	3.23E+1	4.06E+1	1.64E+1	1.00E+1	1.22E+1	6.14E+0	1.79E+0	1.22E+0	9.245E−1
6.00E+4	1.58E+2	2.61E+1	3.15E+1	1.21E+1	8.07E+0	9.54E+0	4.51E+0	1.20E+0	7.95E−1	1.032E+0
8.00E+4	1.13E+2	1.85E+1	2.08E+1	7.32E+0	5.64E+0	6.33E+0	2.72E+0	6.17E−1	3.96E−1	1.202E+0
1.00E+5	8.64E+1	1.40E+1	1.48E+1	4.88E+0	4.22E+0	4.53E+0	1.80E+0	3.63E−1	2.26E−1	1.327E+0
1.50E+5	5.24E+1	8.22E+0	7.83E+0	2.25E+0	2.43E+0	2.40E+0	8.23E−1	1.35E−1	7.99E−2	1.514E+0
2.00E+5	3.63E+1	5.55E+0	4.89E+0	1.28E+0	1.62E+0	1.50E+0	4.63E−1	6.61E−2	3.79E−2	1.600E+0
3.00E+5	2.13E+1	3.14E+0	2.48E+0	5.66E−1	8.98E−1	7.58E−1	2.04E−1	2.43E−2	1.35E−2	1.646E+0
4.00E+5	1.44E+1	2.08E+0	1.53E+0	3.19E−1	5.89E−1	4.66E−1	1.14E−1	1.22E−2	6.64E−3	1.630E+0
5.00E+5	1.06E+1	1.51E+0	1.05E+0	2.06E−1	4.25E−1	3.21E−1	7.34E−2	7.28E−3	3.93E−3	1.595E+0
6.00E+5	8.26E+0	1.16E+0	7.79E−1	1.45E−1	3.25E−1	2.38E−1	5.16E−2	4.84E−3	2.61E−3	1.556E+0
8.00E+5	5.52E+0	7.69E−1	4.91E−1	8.51E−2	2.14E−1	1.50E−1	3.01E−2	2.63E−3	1.42E−3	1.485E+0
1.00E+6	4.03E+0	5.57E−1	3.49E−1	5.73E−2	1.54E−1	1.06E−1	2.02E−2	1.70E−3	9.16E−4	1.426E+0
1.50E+6	2.27E+0	3.10E−1	1.94E−1	2.93E−2	8.56E−2*	5.88E−2	1.03E−2	8.18E−4	4.45E−4	1.323E+0
2.00E+6	1.51E+0	2.06E−1	1.32E−1	1.89E−2	5.67E−2*	3.99E−2	6.61E−3	5.15E−4	2.81E−4	1.259E+0
3.00E+6	8.73E−1*	1.17E−1	7.92E−2	1.07E−2	3.22E−2*	2.40E−2	3.74E−3	2.86E−4	1.56E−4	1.185E+0
4.00E+6	6.02E−1*	8.03E−2*	5.65E−2	7.37E−3*	2.20E−2*	1.71E−2	2.57E−3	2.0E−4	1.06E−4	1.144E+0
5.00E+6	4.56E−1*	6.06E−2*	4.38E−2*		1.66E−2*	1.33E−2	1.95E−3	1.5E−4	8.0E−5	1.117E+0
6.00E+6	3.66E−1*	4.85E−2*			1.33E−2*	1.09E−2	1.57E−3			1.099E+0
8.00E+6		3.46E−2*					1.12E−3			

$Z=108$

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 7.703$ fm

$|\epsilon_n|$ (eV)	1.954E+5	5.149E+4	5.169E+4	4.135E+4	2.166E+4	2.171E+4	1.863E+4	1.863E+4	1.795E+4	
1.50E+0	7.52E+6	1.22E+6	2.17E+6	1.30E+6	3.62E+5	5.41E+5	4.96E+5	4.10E+5	3.41E+5	4.015E−5
2.00E+0	5.64E+6	9.14E+5	1.63E+6	9.76E+5	2.71E+5	4.06E+5	3.72E+5	3.08E+5	2.56E+5	5.354E−5
3.00E+0	3.76E+6	6.09E+5	1.09E+6	6.51E+5	1.81E+5	2.71E+5	2.48E+5	2.05E+5	1.71E+5	8.031E−5
4.00E+0	2.82E+6	4.57E+5	8.13E+5	4.88E+5	1.36E+5	2.03E+5	1.86E+5	1.54E+5	1.28E+5	1.071E−4
5.00E+0	2.26E+6	3.66E+5	6.51E+5	3.90E+5	1.09E+5	1.62E+5	1.49E+5	1.23E+5	1.02E+5	1.338E−4
6.00E+0	1.88E+6	3.05E+5	5.42E+5	3.25E+5	9.05E+4	1.35E+5	1.24E+5	1.03E+5	8.53E+4	1.606E−4
8.00E+0	1.41E+6	2.29E+5	4.07E+5	2.44E+5	6.78E+4	1.01E+5	9.30E+4	7.69E+4	6.39E+4	2.142E−4
1.00E+1	1.13E+6	1.83E+5	3.25E+5	1.95E+5	5.43E+4	8.12E+4	7.44E+4	6.15E+4	5.11E+4	2.677E−4
1.50E+1	7.52E+5	1.22E+5	2.17E+5	1.30E+5	3.62E+4	5.41E+4	4.96E+4	4.10E+4	3.41E+4	4.015E−4
2.00E+1	5.64E+5	9.14E+4	1.63E+5	9.75E+4	2.71E+4	4.06E+4	3.72E+4	3.07E+4	2.56E+4	5.353E−4
3.00E+1	3.76E+5	6.09E+4	1.08E+5	6.50E+4	1.81E+4	2.71E+4	2.48E+4	2.05E+4	1.70E+4	8.029E−4
4.00E+1	2.82E+5	4.57E+4	8.13E+4	4.87E+4	1.36E+4	2.03E+4	1.86E+4	1.53E+4	1.28E+4	1.070E−3
5.00E+1	2.26E+5	3.66E+4	6.50E+4	3.90E+4	1.09E+4	1.62E+4	1.49E+4	1.23E+4	1.02E+4	1.338E−3
6.00E+1	1.88E+5	3.05E+4	5.42E+4	3.25E+4	9.05E+3	1.35E+4	1.24E+4	1.02E+4	8.49E+3	1.605E−3
8.00E+1	1.41E+5	2.29E+4	4.06E+4	2.44E+4	6.79E+3	1.02E+4	9.28E+3	7.65E+3	6.36E+3	2.140E−3
1.00E+2	1.13E+5	1.83E+4	3.25E+4	1.95E+4	5.43E+3	8.12E+3	7.42E+3	6.11E+3	5.08E+3	2.675E−3
1.50E+2	7.51E+4	1.22E+4	2.17E+4	1.30E+4	3.62E+3	5.42E+3	4.94E+3	4.06E+3	3.37E+3	4.010E−3
2.00E+2	5.64E+4	9.14E+3	1.62E+4	9.71E+3	2.72E+3	4.06E+3	3.70E+3	3.04E+3	2.52E+3	5.344E−3
3.00E+2	3.76E+4	6.09E+3	1.08E+4	6.46E+3	1.81E+3	2.71E+3	2.46E+3	2.01E+3	1.67E+3	8.009E−3
4.00E+2	2.82E+4	4.57E+3	8.10E+3	4.83E+3	1.36E+3	2.03E+3	1.84E+3	1.50E+3	1.24E+3	1.067E−2
5.00E+2	2.25E+4	3.66E+3	6.48E+3	3.86E+3	1.09E+3	1.63E+3	1.47E+3	1.19E+3	9.86E+2	1.332E−2
6.00E+2	1.88E+4	3.05E+3	5.39E+3	3.21E+3	9.09E+2	1.36E+3	1.22E+3	9.86E+2	8.16E+2	1.597E−2
8.00E+2	1.41E+4	2.29E+3	4.04E+3	2.40E+3	6.83E+2	1.02E+3	9.14E+2	7.30E+2	6.03E+2	2.126E−2
1.00E+3	1.12E+4	1.83E+3	3.22E+3	1.91E+3	5.47E+2	8.15E+2	7.28E+2	5.77E+2	4.76E+2	2.652E−2
1.50E+3	7.49E+3	1.22E+3	2.14E+3	1.26E+3	3.66E+2	5.45E+2	4.80E+2	3.72E+2	3.06E+2	3.960E−2
2.00E+3	5.61E+3	9.13E+2	1.60E+3	9.33E+2	2.75E+2	4.09E+2	3.57E+2	2.71E+2	2.22E+2	5.256E−2
3.00E+3	3.73E+3	6.09E+2	1.05E+3	6.08E+2	1.84E+2	2.73E+2	2.33E+2	1.70E+2	1.38E+2	7.813E−2
4.00E+3	2.79E+3	4.56E+2	7.82E+2	4.46E+2	1.39E+2	2.05E+2	1.71E+2	1.20E+2	9.70E+1	1.032E−1
5.00E+3	2.22E+3	3.65E+2	6.20E+2	3.49E+2	1.12E+2	1.64E+2	1.34E+2	9.08E+1	7.28E+1	1.279E−1
6.00E+3	1.85E+3	3.03E+2	5.12E+2	2.85E+2	9.32E+1	1.37E+2	1.09E+2	7.16E+1	5.71E+1	1.521E−1
8.00E+3	1.38E+3	2.27E+2	3.76E+2	2.05E+2	7.02E+1	1.02E+2	7.86E+1	4.84E+1	3.81E+1	1.992E−1
1.00E+4	1.10E+3	1.81E+2	2.96E+2	1.58E+2	5.63E+1	8.12E+1	6.04E+1	3.50E+1	2.73E+1	2.446E−1
1.50E+4	7.20E+2	1.20E+2	1.88E+2	9.56E+1	3.75E+1	5.30E+1	3.66E+1	1.86E+1	1.41E+1	3.514E−1
2.00E+4	5.33E+2	8.88E+1	1.35E+2	6.56E+1	2.79E+1	3.87E+1	2.50E+1	1.14E+1	8.49E+0	4.492E−1
3.00E+4	3.46E+2	5.78E+1	8.26E+1	3.72E+1	1.82E+1	2.42E+1	1.41E+1	5.39E+0	3.86E+0	6.213E−1
4.00E+4	2.53E+2	4.22E+1	5.72E+1	2.41E+1	1.32E+1	1.70E+1	9.09E+0	3.03E+0	2.10E+0	7.667E−1
5.00E+4	1.97E+2	3.28E+1	4.25E+1	1.69E+1	1.02E+1	1.27E+1	6.35E+0	1.89E+0	1.28E+0	8.901E−1
6.00E+4	1.61E+2	2.66E+1	3.31E+1	1.25E+1	8.21E+0	9.95E+0	4.68E+0	1.26E+0	8.36E−1	9.953E−1
8.00E+4	1.15E+2	1.88E+1	2.19E+1	7.60E+0	5.75E+0	6.63E+0	2.82E+0	6.54E−1	4.18E−1	1.162E+0
1.00E+5	8.84E+1	1.43E+1	1.57E+1	5.07E+0	4.31E+0	4.76E+0	1.87E+0	3.86E−1	2.39E−1	1.286E+0
1.50E+5	5.38E+1	8.43E+0	8.32E+0	2.35E+0	2.49E+0	2.54E+0	8.59E−1	1.44E−1	8.48E−2	1.474E+0
2.00E+5	3.73E+1	5.70E+0	5.21E+0	1.33E+0	1.66E+0	1.59E+0	4.84E−1	7.07E−2	4.03E−2	1.563E+0
3.00E+5	2.20E+1	3.24E+0	2.65E+0	5.93E−1	9.25E−1	8.09E−1	2.14E−1	2.61E−2	1.44E−2	1.616E+0
4.00E+5	1.49E+1	2.16E+0	1.64E+0	3.35E−1	6.09E−1	4.99E−1	1.20E−1	1.31E−2	7.08E−3	1.605E+0
5.00E+5	1.10E+1	1.57E+0	1.13E+0	2.16E−1	4.40E−1	3.44E−1	7.70E−2	7.83E−3	4.20E−3	1.574E+0
6.00E+5	8.58E+0	1.21E+0	8.40E−1	1.52E−1	3.38E−1	2.55E−1	5.41E−2	5.22E−3	2.79E−3	1.538E+0
8.00E+5	5.74E+0	8.00E−1	5.31E−1	8.94E−2	2.22E−1	1.61E−1	3.16E−2	2.84E−3	1.52E−3	1.471E+0
1.00E+6	4.19E+0	5.80E−1	3.77E−1	6.02E−2	1.61E−1	1.14E−1	2.12E−2	1.83E−3	9.78E−4	1.415E+0
1.50E+6	2.36E+0	3.23E−1	2.10E−1	3.08E−2	8.91E−2	6.34E−2	1.08E−2	8.85E−4	4.75E−4	1.316E+0
2.00E+6	1.57E+0	2.14E−1	1.43E−1	1.98E−2	5.89E−2*	4.30E−2	6.94E−3	5.57E−4	3.00E−4	1.254E+0
3.00E+6	9.08E−1*	1.22E−1	8.59E−2	1.12E−2	3.35E−2*	2.59E−2	3.92E−3	3.09E−4	1.66E−4	1.182E+0
4.00E+6	6.26E−1*	8.36E−2*	6.12E−2*	7.74E−3	2.29E−2*	1.84E−2	2.70E−3	2.1E−4	1.1E−4	1.141E+0
5.00E+6	4.75E−1*	6.31E−2*	4.76E−2*	5.87E−3*	1.72E−2*	1.43E−2	2.05E−3	1.6E−4	8.5E−5	1.116E+0
6.00E+6	3.81E−1*	5.05E−2*			1.38E−2*	1.17E−2	1.64E−3*			1.098E+0
8.00E+6		3.60E−2*					1.17E−3*			

$Z=109$

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$$R_{nucl} = 7.694 \text{ fm}$$

$|\epsilon_n|$ (eV)	2.001E+5	5.281E+4	5.303E+4	4.215E+4	2.218E+4	2.224E+4	1.900E+4	1.900E+4	1.829E+4	
1.50E+0	7.62E+6	1.24E+6	2.23E+6	1.33E+6	3.65E+5	5.49E+5	5.06E+5	4.20E+5	3.48E+5	3.829E−5
2.00E+0	5.71E+6	9.27E+5	1.68E+6	9.95E+5	2.74E+5	4.12E+5	3.79E+5	3.15E+5	2.61E+5	5.105E−5
3.00E+0	3.81E+6	6.18E+5	1.12E+6	6.63E+5	1.83E+5	2.75E+5	2.53E+5	2.10E+5	1.74E+5	7.657E−5
4.00E+0	2.86E+6	4.63E+5	8.38E+5	4.97E+5	1.37E+5	2.06E+5	1.90E+5	1.57E+5	1.31E+5	1.021E−4
5.00E+0	2.29E+6	3.71E+5	6.70E+5	3.98E+5	1.10E+5	1.65E+5	1.52E+5	1.26E+5	1.04E+5	1.276E−4
6.00E+0	1.90E+6	3.09E+5	5.58E+5	3.32E+5	9.13E+4	1.37E+5	1.26E+5	1.05E+5	8.70E+4	1.531E−4
8.00E+0	1.43E+6	2.32E+5	4.19E+5	2.49E+5	6.85E+4	1.03E+5	9.48E+4	7.87E+4	6.52E+4	2.042E−4
1.00E+1	1.14E+6	1.85E+5	3.35E+5	1.99E+5	5.48E+4	8.24E+4	7.58E+4	6.29E+4	5.22E+4	2.552E−4
1.50E+1	7.62E+5	1.24E+5	2.23E+5	1.33E+5	3.65E+4	5.49E+4	5.05E+4	4.19E+4	3.48E+4	3.828E−4
2.00E+1	5.71E+5	9.27E+4	1.68E+5	9.94E+4	2.74E+4	4.12E+4	3.79E+4	3.14E+4	2.61E+4	5.104E−4
3.00E+1	3.81E+5	6.18E+4	1.12E+5	6.63E+4	1.83E+4	2.75E+4	2.53E+4	2.09E+4	1.74E+4	7.655E−4
4.00E+1	2.86E+5	4.63E+4	8.37E+4	4.97E+4	1.37E+4	2.06E+4	1.89E+4	1.57E+4	1.30E+4	1.021E−3
5.00E+1	2.28E+5	3.71E+4	6.70E+4	3.98E+4	1.10E+4	1.65E+4	1.52E+4	1.26E+4	1.04E+4	1.276E−3
6.00E+1	1.90E+5	3.09E+4	5.58E+4	3.31E+4	9.13E+3	1.37E+4	1.26E+4	1.05E+4	8.66E+3	1.531E−3
8.00E+1	1.43E+5	2.32E+4	4.19E+4	2.48E+4	6.85E+3	1.03E+4	9.46E+3	7.83E+3	6.49E+3	2.040E−3
1.00E+2	1.14E+5	1.85E+4	3.35E+4	1.99E+4	5.48E+3	8.24E+3	7.57E+3	6.26E+3	5.18E+3	2.550E−3
1.50E+2	7.61E+4	1.24E+4	2.23E+4	1.32E+4	3.66E+3	5.50E+3	5.04E+3	4.16E+3	3.44E+3	3.823E−3
2.00E+2	5.71E+4	9.27E+3	1.67E+4	9.90E+3	2.74E+3	4.13E+3	3.78E+3	3.11E+3	2.57E+3	5.096E−3
3.00E+2	3.81E+4	6.18E+3	1.11E+4	6.59E+3	1.83E+3	2.75E+3	2.51E+3	2.06E+3	1.70E+3	7.637E−3
4.00E+2	2.85E+4	4.63E+3	8.35E+3	4.93E+3	1.37E+3	2.07E+3	1.88E+3	1.53E+3	1.27E+3	1.017E−2
5.00E+2	2.28E+4	3.71E+3	6.67E+3	3.94E+3	1.10E+3	1.65E+3	1.50E+3	1.22E+3	1.01E+3	1.270E−2
6.00E+2	1.90E+4	3.09E+3	5.55E+3	3.27E+3	9.17E+2	1.38E+3	1.25E+3	1.01E+3	8.33E+2	1.523E−2
8.00E+2	1.43E+4	2.32E+3	4.16E+3	2.44E+3	6.89E+2	1.03E+3	9.32E+2	7.48E+2	6.16E+2	2.027E−2
1.00E+3	1.14E+4	1.85E+3	3.32E+3	1.95E+3	5.52E+2	8.28E+2	7.43E+2	5.91E+2	4.86E+2	2.530E−2
1.50E+3	7.58E+3	1.24E+3	2.20E+3	1.28E+3	3.69E+2	5.53E+2	4.90E+2	3.82E+2	3.13E+2	3.777E−2
2.00E+3	5.68E+3	9.26E+2	1.64E+3	9.52E+2	2.78E+2	4.16E+2	3.64E+2	2.78E+2	2.27E+2	5.014E−2
3.00E+3	3.78E+3	6.17E+2	1.09E+3	6.21E+2	1.86E+2	2.78E+2	2.38E+2	1.75E+2	1.41E+2	7.455E−2
4.00E+3	2.82E+3	4.62E+2	8.07E+2	4.56E+2	1.40E+2	2.09E+2	1.75E+2	1.24E+2	9.95E+1	9.852E−2
5.00E+3	2.25E+3	3.70E+2	6.40E+2	3.57E+2	1.13E+2	1.67E+2	1.37E+2	9.35E+1	7.48E+1	1.221E−1
6.00E+3	1.87E+3	3.08E+2	5.28E+2	2.91E+2	9.41E+1	1.39E+2	1.12E+2	7.38E+1	5.87E+1	1.452E−1
8.00E+3	1.40E+3	2.30E+2	3.89E+2	2.10E+2	7.09E+1	1.04E+2	8.04E+1	5.00E+1	3.92E+1	1.903E−1
1.00E+4	1.11E+3	1.84E+2	3.06E+2	1.61E+2	5.69E+1	8.30E+1	6.18E+1	3.63E+1	2.81E+1	2.338E−1
1.50E+4	7.31E+2	1.21E+2	1.95E+2	9.80E+1	3.79E+1	5.43E+1	3.75E+1	1.93E+1	1.46E+1	3.362E−1
2.00E+4	5.41E+2	9.01E+1	1.40E+2	6.73E+1	2.82E+1	3.97E+1	2.57E+1	1.19E+1	8.81E+0	4.302E−1
3.00E+4	3.51E+2	5.87E+1	8.60E+1	3.83E+1	1.84E+1	2.50E+1	1.45E+1	5.64E+0	4.02E+0	5.961E−1
4.00E+4	2.57E+2	4.29E+1	5.98E+1	2.49E+1	1.34E+1	1.76E+1	9.38E+0	3.18E+0	2.20E+0	7.369E−1
5.00E+4	2.01E+2	3.34E+1	4.45E+1	1.75E+1	1.04E+1	1.32E+1	6.56E+0	1.99E+0	1.34E+0	8.569E−1
6.00E+4	1.64E+2	2.71E+1	3.47E+1	1.29E+1	8.35E+0	1.04E+1	4.84E+0	1.33E+0	8.78E−1	9.596E−1
8.00E+4	1.18E+2	1.92E+1	2.31E+1	7.88E+0	5.86E+0	6.94E+0	2.93E+0	6.92E−1	4.40E−1	1.124E+0
1.00E+5	9.03E+1	1.46E+1	1.66E+1	5.27E+0	4.40E+0	5.00E+0	1.95E+0	4.10E−1	2.53E−1	1.246E+0
1.50E+5	5.51E+1	8.63E+0	8.84E+0	2.45E+0	2.55E+0	2.68E+0	8.95E−1	1.53E−1	8.99E−2	1.434E+0
2.00E+5	3.84E+1	5.86E+0	5.56E+0	1.39E+0	1.70E+0	1.69E+0	5.06E−1	7.56E−2	4.28E−2	1.527E+0
3.00E+5	2.27E+1	3.34E+0	2.84E+0	6.21E−1	9.53E−1	8.62E−1	2.24E−1	2.80E−2	1.53E−2	1.586E+0
4.00E+5	1.55E+1	2.23E+0	1.76E+0	3.51E−1	6.29E−1	5.33E−1	1.26E−1	1.41E−2	7.56E−3	1.579E+0
5.00E+5	1.14E+1	1.63E+0	1.22E+0	2.27E−1	4.55E−1	3.68E−1	8.08E−2	8.42E−3	4.48E−3	1.553E+0
6.00E+5	8.90E+0	1.26E+0	9.05E−1	1.60E−1	3.50E−1	2.73E−1	5.68E−2	5.62E−3	2.97E−3	1.520E+0
8.00E+5	5.96E+0	8.32E−1	5.73E−1	9.38E−2	2.31E−1	1.73E−1	3.32E−2	3.06E−3	1.62E−3	1.457E+0
1.00E+6	4.35E+0	6.04E−1	4.08E−1	6.32E−2	1.67E−1	1.23E−1	2.23E−2	1.98E−3	1.04E−3	1.404E+0
1.50E+6	2.45E+0	3.37E−1	2.27E−1	3.23E−2	9.26E−2*	6.82E−2	1.13E−2	9.56E−4	5.07E−4	1.309E+0
2.00E+6	1.64E+0	2.23E−1	1.55E−1	2.08E−2	6.12E−2*	4.63E−2	7.28E−3	6.03E−4	3.20E−4	1.249E+0
3.00E+6	9.44E−1*	1.27E−1	9.31E−2	1.18E−2	3.48E−2*	2.79E−2	4.11E−3	3.35E−4	1.77E−4	1.178E+0
4.00E+6	6.51E−1*	8.70E−2*	6.64E−2	8.11E−3*	2.38E−2*	1.99E−2	2.83E−3		1.21E−4	1.139E+0
5.00E+6	4.93E−1*	6.56E−2*	5.16E−2*		1.79E−2*	1.55E−2	2.14E−3*			1.113E+0
6.00E+6	3.96E−1*	5.25E−2*			1.43E−2*	1.26E−2*	1.72E−3*			1.096E+0
8.00E+6					1.02E−2*	9.25E−3*	1.23E−3*			

TABLE. Cross Sections for Radiative Recombination, $Z=1$–112
See page 9 for Explanation of Tables

$Z=110$

T_e (eV)	σ_{RR} (b)									$f_{1s_{1/2}}$
	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl} = 7.737$ fm

$|\epsilon_n|$ (eV)	2.049E+5	5.415E+4	5.440E+4	4.296E+4	2.271E+4	2.278E+4	1.937E+4	1.937E+4	1.863E+4	
1.50E+0	7.71E+6	1.25E+6	2.30E+6	1.35E+6	3.68E+5	5.57E+5	5.15E+5	4.29E+5	3.55E+5	3.651E−5
2.00E+0	5.78E+6	9.39E+5	1.73E+6	1.01E+6	2.76E+5	4.18E+5	3.86E+5	3.22E+5	2.66E+5	4.869E−5
3.00E+0	3.86E+6	6.26E+5	1.15E+6	6.76E+5	1.84E+5	2.79E+5	2.58E+5	2.15E+5	1.77E+5	7.303E−5
4.00E+0	2.89E+6	4.69E+5	8.62E+5	5.07E+5	1.38E+5	2.09E+5	1.93E+5	1.61E+5	1.33E+5	9.736E−5
5.00E+0	2.31E+6	3.76E+5	6.90E+5	4.06E+5	1.10E+5	1.67E+5	1.55E+5	1.29E+5	1.06E+5	1.217E−4
6.00E+0	1.93E+6	3.13E+5	5.75E+5	3.38E+5	9.20E+4	1.39E+5	1.29E+5	1.07E+5	8.87E+4	1.460E−4
8.00E+0	1.45E+6	2.35E+5	4.31E+5	2.54E+5	6.90E+4	1.05E+5	9.66E+4	8.05E+4	6.65E+4	1.947E−4
1.00E+1	1.16E+6	1.88E+5	3.45E+5	2.03E+5	5.52E+4	8.36E+4	7.73E+4	6.44E+4	5.32E+4	2.434E−4
1.50E+1	7.71E+5	1.25E+5	2.30E+5	1.35E+5	3.68E+4	5.57E+4	5.15E+4	4.29E+4	3.55E+4	3.651E−4
2.00E+1	5.78E+5	9.39E+4	1.72E+5	1.01E+5	2.76E+4	4.18E+4	3.86E+4	3.22E+4	2.66E+4	4.868E−4
3.00E+1	3.86E+5	6.26E+4	1.15E+5	6.76E+4	1.84E+4	2.79E+4	2.58E+4	2.14E+4	1.77E+4	7.301E−4
4.00E+1	2.89E+5	4.69E+4	8.62E+4	5.07E+4	1.38E+4	2.09E+4	1.93E+4	1.61E+4	1.33E+4	9.734E−4
5.00E+1	2.31E+5	3.76E+4	6.90E+4	4.05E+4	1.11E+4	1.67E+4	1.54E+4	1.28E+4	1.06E+4	1.217E−3
6.00E+1	1.93E+5	3.13E+4	5.75E+4	3.38E+4	9.21E+3	1.39E+4	1.29E+4	1.07E+4	8.84E+3	1.460E−3
8.00E+1	1.45E+5	2.35E+4	4.31E+4	2.53E+4	6.91E+3	1.05E+4	9.65E+3	8.01E+3	6.62E+3	1.946E−3
1.00E+2	1.16E+5	1.88E+4	3.45E+4	2.02E+4	5.53E+3	8.36E+3	7.71E+3	6.40E+3	5.29E+3	2.432E−3
1.50E+2	7.71E+4	1.25E+4	2.30E+4	1.35E+4	3.69E+3	5.58E+3	5.14E+3	4.25E+3	3.51E+3	3.647E−3
2.00E+2	5.78E+4	9.39E+3	1.72E+4	1.01E+4	2.77E+3	4.19E+3	3.85E+3	3.18E+3	2.62E+3	4.860E−3
3.00E+2	3.85E+4	6.26E+3	1.15E+4	6.72E+3	1.85E+3	2.79E+3	2.56E+3	2.11E+3	1.74E+3	7.284E−3
4.00E+2	2.89E+4	4.69E+3	8.59E+3	5.03E+3	1.39E+3	2.10E+3	1.92E+3	1.57E+3	1.29E+3	9.703E−3
5.00E+2	2.31E+4	3.75E+3	6.87E+3	4.01E+3	1.11E+3	1.68E+3	1.53E+3	1.25E+3	1.03E+3	1.212E−2
6.00E+2	1.93E+4	3.13E+3	5.72E+3	3.34E+3	9.25E+2	1.40E+3	1.27E+3	1.03E+3	8.51E+2	1.453E−2
8.00E+2	1.44E+4	2.35E+3	4.28E+3	2.49E+3	6.94E+2	1.05E+3	9.50E+2	7.66E+2	6.29E+2	1.934E−2
1.00E+3	1.15E+4	1.88E+3	3.42E+3	1.98E+3	5.56E+2	8.41E+2	7.57E+2	6.05E+2	4.96E+2	2.413E−2
1.50E+3	7.68E+3	1.25E+3	2.27E+3	1.31E+3	3.72E+2	5.62E+2	5.00E+2	3.92E+2	3.20E+2	3.604E−2
2.00E+3	5.75E+3	9.38E+2	1.70E+3	9.71E+2	2.80E+2	4.22E+2	3.71E+2	2.85E+2	2.32E+2	4.784E−2
3.00E+3	3.83E+3	6.25E+2	1.12E+3	6.34E+2	1.88E+2	2.83E+2	2.42E+2	1.79E+2	1.45E+2	7.114E−2
4.00E+3	2.86E+3	4.68E+2	8.33E+2	4.65E+2	1.41E+2	2.12E+2	1.78E+2	1.27E+2	1.02E+2	9.404E−2
5.00E+3	2.28E+3	3.74E+2	6.60E+2	3.65E+2	1.14E+2	1.70E+2	1.40E+2	9.63E+1	7.67E+1	1.166E−1
6.00E+3	1.90E+3	3.12E+2	5.46E+2	2.98E+2	9.50E+1	1.42E+2	1.14E+2	7.61E+1	6.03E+1	1.387E−1
8.00E+3	1.42E+3	2.33E+2	4.02E+2	2.15E+2	7.16E+1	1.06E+2	8.22E+1	5.16E+1	4.03E+1	1.818E−1
1.00E+4	1.13E+3	1.86E+2	3.16E+2	1.65E+2	5.74E+1	8.48E+1	6.33E+1	3.75E+1	2.90E+1	2.235E−1
1.50E+4	7.41E+2	1.23E+2	2.02E+2	1.01E+2	3.83E+1	5.56E+1	3.84E+1	2.01E+1	1.51E+1	3.217E−1
2.00E+4	5.49E+2	9.14E+1	1.45E+2	6.91E+1	2.86E+1	4.08E+1	2.64E+1	1.24E+1	9.14E+0	4.120E−1
3.00E+4	3.57E+2	5.96E+1	8.96E+1	3.94E+1	1.86E+1	2.58E+1	1.49E+1	5.90E+0	4.19E+0	5.720E−1
4.00E+4	2.61E+2	4.36E+1	6.25E+1	2.56E+1	1.36E+1	1.82E+1	9.68E+0	3.33E+0	2.30E+0	7.083E−1
5.00E+4	2.04E+2	3.40E+1	4.66E+1	1.81E+1	1.05E+1	1.37E+1	6.78E+0	2.09E+0	1.40E+0	8.249E−1
6.00E+4	1.67E+2	2.75E+1	3.64E+1	1.34E+1	8.49E+0	1.08E+1	5.01E+0	1.40E+0	9.23E−1	9.252E−1
8.00E+4	1.20E+2	1.96E+1	2.43E+1	8.17E+0	5.97E+0	7.26E+0	3.04E+0	7.32E−1	4.64E−1	1.086E+0
1.00E+5	9.23E+1	1.49E+1	1.75E+1	5.47E+0	4.49E+0	5.25E+0	2.02E+0	4.34E−1	2.67E−1	1.207E+0
1.50E+5	5.65E+1	8.84E+0	9.39E+0	2.55E+0	2.61E+0	2.83E+0	9.33E−1	1.63E−1	9.53E−2	1.396E+0
2.00E+5	3.95E+1	6.02E+0	5.93E+0	1.46E+0	1.75E+0	1.79E+0	5.29E−1	8.07E−2	4.55E−2	1.491E+0
3.00E+5	2.34E+1	3.45E+0	3.05E+0	6.50E−1	9.81E−1	9.18E−1	2.34E−1	3.00E−2	1.63E−2	1.556E+0
4.00E+5	1.60E+1	2.31E+0	1.89E+0	3.67E−1	6.49E−1	5.70E−1	1.32E−1	1.51E−2	8.05E−3	1.555E+0
5.00E+5	1.18E+1	1.69E+0	1.31E+0	2.38E−1	4.71E−1	3.94E−1	8.47E−2	9.05E−3	4.78E−3	1.532E+0
6.00E+5	9.23E+0	1.30E+0	9.75E−1	1.68E−1	3.62E−1	2.93E−1	5.96E−2	6.04E−3	3.17E−3	1.502E+0
8.00E+5	6.19E+0	8.65E−1*	6.19E−1	9.83E−2	2.39E−1	1.86E−1	3.48E−2	3.30E−3	1.73E−3	1.443E+0
1.00E+6	4.52E+0*	6.29E−1*	4.41E−1	6.62E−2	1.73E−1	1.32E−1	2.34E−2	2.13E−3	1.11E−3	1.393E+0
1.50E+6	2.55E+0*	3.50E−1*	2.46E−1	3.38E−2	9.62E−2*	7.35E−2	1.19E−2	1.03E−3	5.40E−4	1.301E+0
2.00E+6	1.70E+0*	2.32E−1*	1.67E−1	2.18E−2	6.36E−2*	4.99E−2	7.63E−3	6.51E−4	3.41E−4	1.243E+0
3.00E+6	9.80E−1*	1.32E−1*	1.01E−1	1.24E−2	3.61E−2*	3.01E−2	4.31E−3	3.62E−4	1.89E−4	1.175E+0
4.00E+6	6.76E−1*	9.04E−2*	7.20E−2	8.51E−3	2.47E−2*	2.14E−2	2.97E−3		1.29E−4	1.136E+0
5.00E+6	5.13E−1*	6.82E−2*	5.59E−2*	6.45E−3*	1.86E−2*	1.67E−2	2.25E−3			1.111E+0
6.00E+6	4.12E−1*	5.46E−2*			1.49E−2*	1.36E−2	1.81E−3			1.094E+0
8.00E+6		3.89E−2*			1.06E−2*		1.29E−3*			

TABLE. Cross Sections for Radiative Recombination, $Z=1$–112

See page 9 for Explanation of Tables

$Z=111$

T_e	σ_{RR} (b)									$f_{1s_{1/2}}$
(eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	

$R_{nucl}=7.729$ fm

$|\epsilon_n|$ (eV)	2.098E+5	5.554E+4	5.582E+4	4.379E+4	2.325E+4	2.333E+4	1.975E+4	1.975E+4	1.898E+4	
2.00E+0	5.86E+6	9.51E+5	1.78E+6	1.03E+6	2.78E+5	4.24E+5	3.94E+5	3.29E+5	2.71E+5	4.642E−5
3.00E+0	3.90E+6	6.34E+5	1.18E+6	6.89E+5	1.86E+5	2.82E+5	2.63E+5	2.20E+5	1.81E+5	6.964E−5
4.00E+0	2.93E+6	4.75E+5	8.88E+5	5.17E+5	1.39E+5	2.12E+5	1.97E+5	1.65E+5	1.36E+5	9.285E−5
5.00E+0	2.34E+6	3.80E+5	7.10E+5	4.13E+5	1.11E+5	1.70E+5	1.58E+5	1.32E+5	1.09E+5	1.161E−4
6.00E+0	1.95E+6	3.17E+5	5.92E+5	3.45E+5	9.28E+4	1.41E+5	1.31E+5	1.10E+5	9.05E+4	1.393E−4
8.00E+0	1.46E+6	2.38E+5	4.44E+5	2.58E+5	6.96E+4	1.06E+5	9.84E+4	8.23E+4	6.78E+4	1.857E−4
1.00E+1	1.17E+6	1.90E+5	3.55E+5	2.07E+5	5.57E+4	8.47E+4	7.87E+4	6.59E+4	5.43E+4	2.321E−4
1.50E+1	7.81E+5	1.27E+5	2.37E+5	1.38E+5	3.71E+4	5.65E+4	5.25E+4	4.39E+4	3.62E+4	3.482E−4
2.00E+1	5.86E+5	9.51E+4	1.78E+5	1.03E+5	2.78E+4	4.24E+4	3.94E+4	3.29E+4	2.71E+4	4.642E−4
3.00E+1	3.90E+5	6.34E+4	1.18E+5	6.89E+4	1.86E+4	2.83E+4	2.62E+4	2.19E+4	1.81E+4	6.962E−4
4.00E+1	2.93E+5	4.75E+4	8.88E+4	5.16E+4	1.39E+4	2.12E+4	1.97E+4	1.64E+4	1.35E+4	9.282E−4
5.00E+1	2.34E+5	3.80E+4	7.10E+4	4.13E+4	1.11E+4	1.70E+4	1.57E+4	1.31E+4	1.08E+4	1.160E−3
6.00E+1	1.95E+5	3.17E+4	5.92E+4	3.44E+4	9.28E+3	1.41E+4	1.31E+4	1.09E+4	9.01E+3	1.392E−3
8.00E+1	1.46E+5	2.38E+4	4.44E+4	2.58E+4	6.96E+3	1.06E+4	9.83E+3	8.20E+3	6.75E+3	1.856E−3
1.00E+2	1.17E+5	1.90E+4	3.55E+4	2.06E+4	5.57E+3	8.48E+3	7.86E+3	6.55E+3	5.39E+3	2.319E−3
1.50E+2	7.80E+4	1.27E+4	2.36E+4	1.37E+4	3.71E+3	5.66E+3	5.23E+3	4.35E+3	3.58E+3	3.477E−3
2.00E+2	5.85E+4	9.51E+3	1.77E+4	1.03E+4	2.79E+3	4.24E+3	3.92E+3	3.25E+3	2.68E+3	4.634E−3
3.00E+2	3.90E+4	6.34E+3	1.18E+4	6.85E+3	1.86E+3	2.83E+3	2.61E+3	2.16E+3	1.77E+3	6.946E−3
4.00E+2	2.92E+4	4.75E+3	8.85E+3	5.12E+3	1.40E+3	2.12E+3	1.95E+3	1.61E+3	1.32E+3	9.253E−3
5.00E+2	2.34E+4	3.80E+3	7.07E+3	4.09E+3	1.12E+3	1.70E+3	1.56E+3	1.28E+3	1.05E+3	1.156E−2
6.00E+2	1.95E+4	3.17E+3	5.89E+3	3.40E+3	9.32E+2	1.42E+3	1.30E+3	1.06E+3	8.68E+2	1.386E−2
8.00E+2	1.46E+4	2.38E+3	4.41E+3	2.54E+3	7.00E+2	1.07E+3	9.69E+2	7.84E+2	6.42E+2	1.844E−2
1.00E+3	1.17E+4	1.90E+3	3.52E+3	2.02E+3	5.61E+2	8.53E+2	7.72E+2	6.20E+2	5.07E+2	2.301E−2
1.50E+3	7.78E+3	1.27E+3	2.34E+3	1.33E+3	3.75E+2	5.70E+2	5.09E+2	4.01E+2	3.27E+2	3.438E−2
2.00E+3	5.82E+3	9.50E+2	1.75E+3	9.90E+2	2.82E+2	4.29E+2	3.78E+2	2.92E+2	2.37E+2	4.564E−2
3.00E+3	3.87E+3	6.33E+2	1.16E+3	6.47E+2	1.89E+2	2.87E+2	2.47E+2	1.84E+2	1.48E+2	6.789E−2
4.00E+3	2.90E+3	4.74E+2	8.59E+2	4.75E+2	1.43E+2	2.16E+2	1.82E+2	1.31E+2	1.05E+2	8.976E−2
5.00E+3	2.31E+3	3.79E+2	6.81E+2	3.73E+2	1.15E+2	1.73E+2	1.43E+2	9.91E+1	7.87E+1	1.113E−1
6.00E+3	1.92E+3	3.16E+2	5.63E+2	3.04E+2	9.57E+1	1.44E+2	1.17E+2	7.84E+1	6.19E+1	1.324E−1
8.00E+3	1.43E+3	2.36E+2	4.16E+2	2.20E+2	7.22E+1	1.08E+2	8.41E+1	5.32E+1	4.15E+1	1.737E−1
1.00E+4	1.14E+3	1.89E+2	3.27E+2	1.69E+2	5.79E+1	8.65E+1	6.47E+1	3.88E+1	2.99E+1	2.136E−1
1.50E+4	7.51E+2	1.25E+2	2.09E+2	1.03E+2	3.87E+1	5.69E+1	3.94E+1	2.08E+1	1.57E+1	3.077E−1
2.00E+4	5.57E+2	9.26E+1	1.51E+2	7.09E+1	2.89E+1	4.19E+1	2.71E+1	1.29E+1	9.47E+0	3.945E−1
3.00E+4	3.62E+2	6.04E+1	9.34E+1	4.05E+1	1.89E+1	2.66E+1	1.54E+1	6.16E+0	4.37E+0	5.487E−1
4.00E+4	2.66E+2	4.42E+1	6.52E+1	2.64E+1	1.38E+1	1.89E+1	9.97E+0	3.50E+0	2.40E+0	6.806E−1
5.00E+4	2.08E+2	3.45E+1	4.88E+1	1.86E+1	1.07E+1	1.43E+1	7.00E+0	2.20E+0	1.47E+0	7.939E−1
6.00E+4	1.70E+2	2.80E+1	3.82E+1	1.38E+1	8.62E+0	1.12E+1	5.18E+0	1.48E+0	9.68E−1	8.917E−1
8.00E+4	1.22E+2	1.99E+1	2.56E+1	8.46E+0	6.07E+0	7.59E+0	3.15E+0	7.74E−1	4.88E−1	1.050E+0
1.00E+5	9.43E+1	1.52E+1	1.85E+1	5.68E+0	4.57E+0	5.51E+0	2.10E+0	4.60E−1	2.82E−1	1.169E+0
1.50E+5	5.79E+1	9.04E+0	9.97E+0	2.66E+0	2.67E+0	2.98E+0	9.72E−1	1.74E−1	1.01E−1	1.358E+0
2.00E+5	4.05E+1	6.17E+0	6.31E+0	1.52E+0	1.79E+0	1.89E+0	5.52E−1	8.61E−2	4.83E−2	1.455E+0
3.00E+5	2.41E+1	3.55E+0	3.26E+0	6.80E−1	1.01E+0	9.78E−1	2.45E−1	3.21E−2	1.73E−2	1.526E+0
4.00E+5	1.65E+1	2.38E+0	2.03E+0	3.85E−1	6.70E−1	6.08E−1	1.38E−1	1.62E−2	8.58E−3	1.529E+0
5.00E+5	1.23E+1	1.75E+0	1.41E+0	2.49E−1	4.87E−1	4.22E−1	8.88E−2	9.72E−3	5.09E−3	1.510E+0
6.00E+5	9.57E+0	1.35E+0	1.05E+0	1.76E−1	3.75E−1	3.14E−1	6.24E−2	6.50E−3	3.38E−3	1.484E+0
8.00E+5	6.43E+0	9.00E−1	6.68E−1	1.03E−1	2.48E−1	1.99E−1	3.65E−2	3.55E−3	1.84E−3	1.429E+0
1.00E+6	4.70E+0	6.54E−1	4.76E−1	6.94E−2	1.80E−1	1.42E−1	2.45E−2	2.30E−3	1.19E−3	1.382E+0
1.50E+6	2.65E+0	3.65E−1	2.66E−1	3.55E−2	9.99E−2*	7.90E−2	1.24E−2	1.11E−3	5.76E−4	1.294E+0
2.00E+6	1.77E+0	2.42E−1	1.81E−1	2.29E−2	6.60E−2*	5.37E−2	8.00E−3	7.03E−4	3.63E−4	1.238E+0
3.00E+6	1.02E+0	1.38E−1	1.09E−1	1.30E−2	3.75E−2*	3.24E−2	4.52E−3	3.92E−4	2.01E−4	1.171E+0
4.00E+6	7.02E−1*	9.4E−2	7.80E−2	8.92E−3	2.56E−2*	2.31E−2	3.11E−3		1.37E−4	1.133E+0
5.00E+6	5.32E−1*	7.1E−2	6.06E−2*	6.76E−3*	1.93E−2*	1.79E−2	2.35E−3*		1.03E−4*	1.109E+0
6.00E+6	4.28E−1*	5.7E−2			1.54E−2*	1.47E−2	1.89E−3*			1.093E+0
8.00E+6		4.1E−2			1.10E−2*	1.08E−2	1.35E−3*			
1.00E+7					8.51E−3*					

TABLE. Cross Sections for Radiative Recombination, $Z=1$–112

See page 9 for Explanation of Tables

Z=112

T_e (eV)	$1s_{1/2}$	$2s_{1/2}$	$2p_{1/2}$	$2p_{3/2}$	$3s_{1/2}$	$3p_{1/2}$	$3p_{3/2}$	$3d_{3/2}$	$3d_{5/2}$	$f_{1s_{1/2}}$
				σ_{RR} (b)						

$R_{nucl} = 7.772$ fm

$|\epsilon_n|$ (eV)	2.149E+5	5.696E+4	5.727E+4	4.462E+4	2.380E+4	2.389E+4	2.013E+4	2.013E+4	1.933E+4	
2.00E+0	5.93E+6	9.62E+5	1.83E+6	1.05E+6	2.80E+5	4.29E+5	4.01E+5	3.37E+5	2.77E+5	4.428E−5
3.00E+0	3.95E+6	6.42E+5	1.22E+6	7.02E+5	1.87E+5	2.86E+5	2.67E+5	2.25E+5	1.85E+5	6.641E−5
4.00E+0	2.96E+6	4.81E+5	9.14E+5	5.27E+5	1.40E+5	2.15E+5	2.01E+5	1.69E+5	1.38E+5	8.855E−5
5.00E+0	2.37E+6	3.85E+5	7.31E+5	4.21E+5	1.12E+5	1.72E+5	1.60E+5	1.35E+5	1.11E+5	1.107E−4
6.00E+0	1.98E+6	3.21E+5	6.09E+5	3.51E+5	9.34E+4	1.43E+5	1.34E+5	1.12E+5	9.22E+4	1.328E−4
8.00E+0	1.48E+6	2.41E+5	4.57E+5	2.63E+5	7.01E+4	1.07E+5	1.00E+5	8.42E+4	6.92E+4	1.771E−4
1.00E+1	1.19E+6	1.93E+5	3.66E+5	2.11E+5	5.61E+4	8.58E+4	8.02E+4	6.74E+4	5.53E+4	2.214E−4
1.50E+1	7.90E+5	1.28E+5	2.44E+5	1.40E+5	3.74E+4	5.72E+4	5.35E+4	4.49E+4	3.69E+4	3.320E−4
2.00E+1	5.92E+5	9.62E+4	1.83E+5	1.05E+5	2.80E+4	4.29E+4	4.01E+4	3.37E+4	2.76E+4	4.427E−4
3.00E+1	3.95E+5	6.42E+4	1.22E+5	7.02E+4	1.87E+4	2.86E+4	2.67E+4	2.24E+4	1.84E+4	6.640E−4
4.00E+1	2.96E+5	4.81E+4	9.14E+4	5.26E+4	1.40E+4	2.15E+4	2.00E+4	1.68E+4	1.38E+4	8.852E−4
5.00E+1	2.37E+5	3.85E+4	7.31E+4	4.21E+4	1.12E+4	1.72E+4	1.60E+4	1.34E+4	1.10E+4	1.106E−3
6.00E+1	1.98E+5	3.21E+4	6.09E+4	3.51E+4	9.35E+3	1.43E+4	1.34E+4	1.12E+4	9.19E+3	1.328E−3
8.00E+1	1.48E+5	2.41E+4	4.57E+4	2.63E+4	7.01E+3	1.07E+4	1.00E+4	8.38E+3	6.88E+3	1.770E−3
1.00E+2	1.19E+5	1.93E+4	3.65E+4	2.10E+4	5.61E+3	8.59E+3	8.01E+3	6.70E+3	5.50E+3	2.212E−3
1.50E+2	7.90E+4	1.28E+4	2.43E+4	1.40E+4	3.74E+3	5.73E+3	5.33E+3	4.45E+3	3.65E+3	3.317E−3
2.00E+2	5.92E+4	9.62E+3	1.83E+4	1.05E+4	2.81E+3	4.30E+3	4.00E+3	3.33E+3	2.73E+3	4.420E−3
3.00E+2	3.95E+4	6.42E+3	1.22E+4	6.98E+3	1.87E+3	2.87E+3	2.66E+3	2.21E+3	1.81E+3	6.625E−3
4.00E+2	2.96E+4	4.81E+3	9.11E+3	5.22E+3	1.41E+3	2.15E+3	1.99E+3	1.65E+3	1.35E+3	8.826E−3
5.00E+2	2.37E+4	3.85E+3	7.28E+3	4.17E+3	1.13E+3	1.72E+3	1.59E+3	1.31E+3	1.07E+3	1.102E−2
6.00E+2	1.97E+4	3.21E+3	6.06E+3	3.47E+3	9.39E+2	1.44E+3	1.32E+3	1.08E+3	8.86E+2	1.322E−2
8.00E+2	1.48E+4	2.41E+3	4.54E+3	2.59E+3	7.05E+2	1.08E+3	9.87E+2	8.03E+2	6.55E+2	1.759E−2
1.00E+3	1.18E+4	1.92E+3	3.63E+3	2.06E+3	5.65E+2	8.65E+2	7.87E+2	6.35E+2	5.17E+2	2.195E−2
1.50E+3	7.87E+3	1.28E+3	2.41E+3	1.36E+3	3.78E+2	5.78E+2	5.19E+2	4.11E+2	3.34E+2	3.280E−2
2.00E+3	5.90E+3	9.62E+2	1.80E+3	1.01E+3	2.84E+2	4.35E+2	3.86E+2	3.00E+2	2.42E+2	4.355E−2
3.00E+3	3.92E+3	6.41E+2	1.19E+3	6.60E+2	1.91E+2	2.91E+2	2.52E+2	1.89E+2	1.52E+2	6.479E−2
4.00E+3	2.93E+3	4.80E+2	8.86E+2	4.85E+2	1.44E+2	2.19E+2	1.85E+2	1.34E+2	1.07E+2	8.568E−2
5.00E+3	2.34E+3	3.84E+2	7.03E+2	3.80E+2	1.15E+2	1.76E+2	1.46E+2	1.02E+2	8.07E+1	1.062E−1
6.00E+3	1.95E+3	3.20E+2	5.81E+2	3.11E+2	9.65E+1	1.47E+2	1.19E+2	8.07E+1	6.35E+1	1.264E−1
8.00E+3	1.45E+3	2.39E+2	4.29E+2	2.24E+2	7.27E+1	1.10E+2	8.59E+1	5.49E+1	4.27E+1	1.659E−1
1.00E+4	1.16E+3	1.91E+2	3.38E+2	1.73E+2	5.84E+1	8.82E+1	6.62E+1	4.00E+1	3.08E+1	2.041E−1
1.50E+4	7.61E+2	1.26E+2	2.17E+2	1.06E+2	3.90E+1	5.82E+1	4.03E+1	2.16E+1	1.62E+1	2.944E−1
2.00E+4	5.64E+2	9.38E+1	1.57E+2	7.28E+1	2.92E+1	4.29E+1	2.78E+1	1.34E+1	9.82E+0	3.778E−1
3.00E+4	3.68E+2	6.12E+1	9.72E+1	4.16E+1	1.91E+1	2.74E+1	1.58E+1	6.44E+0	4.55E+0	5.264E−1
4.00E+4	2.70E+2	4.49E+1	6.81E+1	2.72E+1	1.39E+1	1.95E+1	1.03E+1	3.66E+0	2.51E+0	6.540E−1
5.00E+4	2.11E+2	3.50E+1	5.11E+1	1.92E+1	1.08E+1	1.48E+1	7.23E+0	2.31E+0	1.54E+0	7.641E−1
6.00E+4	1.73E+2	2.84E+1	4.01E+1	1.43E+1	8.75E+0	1.17E+1	5.35E+0	1.56E+0	1.02E+0	8.593E−1
8.00E+4	1.25E+2	2.03E+1	2.69E+1	8.77E+0	6.17E+0	7.92E+0	3.26E+0	8.18E−1	5.14E−1	1.014E+0
1.00E+5	9.62E+1	1.55E+1	1.95E+1	5.89E+0	4.65E+0	5.77E+0	2.18E+0	4.87E−1	2.97E−1	1.132E+0
1.50E+5	5.93E+1	9.25E+0	1.06E+1	2.76E+0	2.72E+0	3.15E+0	1.01E+0	1.85E−1	1.07E−1	1.321E+0
2.00E+5	4.16E+1	6.33E+0	6.73E+0	1.58E+0	1.83E+0	2.00E+0	5.75E−1	9.18E−2	5.12E−2	1.420E+0
3.00E+5	2.49E+1	3.66E+0	3.49E+0	7.10E−1	1.04E+0	1.04E+0	2.56E−1	3.43E−2	1.84E−2	1.496E+0
4.00E+5	1.71E+1	2.46E+0	2.18E+0	4.02E−1	6.90E−1	6.50E−1	1.44E−1	1.74E−2	9.13E−3	1.505E+0
5.00E+5	1.27E+1	1.81E+0	1.52E+0	2.61E−1	5.03E−1	4.51E−1	9.29E−2	1.04E−2	5.42E−3	1.489E+0
6.00E+5	9.92E+0	1.40E+0	1.13E+0	1.84E−1	3.88E−1	3.36E−1	6.54E−2	6.98E−3	3.60E−3	1.466E+0
8.00E+5	6.67E+0	9.34E−1*	7.21E−1	1.08E−1	2.57E−1	2.14E−1	3.82E−2	3.82E−3	1.96E−3	1.415E+0
1.00E+6	4.88E+0	6.80E−1*	5.14E−1	7.27E−2	1.87E−1	1.52E−1	2.56E−2	2.47E−3	1.27E−3	1.370E+0
1.50E+6	2.75E+0	3.79E−1*	2.88E−1	3.72E−2	1.04E−1	8.50E−2	1.30E−2	1.20E−3	6.14E−4	1.286E+0
2.00E+6	1.83E+0	2.51E−1*	1.96E−1	2.40E−2	6.85E−2*	5.78E−2	8.38E−3	7.59E−4	3.87E−4	1.232E+0
3.00E+6	1.06E+0	1.43E−1*	1.18E−1	1.36E−2	3.89E−2*	3.48E−2	4.73E−3	4.23E−4	2.14E−4	1.167E+0
4.00E+6	7.29E−1*	9.8E−2	8.45E−2	9.34E−3	2.65E−2*	2.49E−2	3.25E−3		1.46E−4	1.131E+0
5.00E+6	5.53E−1*	7.4E−2	6.57E−2*		2.00E−2*	1.93E−2	2.47E−3		1.10E−4	1.107E+0
6.00E+6	4.44E−1*	5.9E−2			1.60E−2*	1.58E−2	1.98E−3			1.091E+0
8.00E+6		4.2E−2			1.14E−2*	1.16E−2*	1.41E−3*			