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CROSS SECTIONS FOR RESONANT CHARGE TRANSFER BETWEEN ATOMS AND THEIR POSITIVE IONS: COLLISION VELOCITY $\leqslant$ 1 a.u.

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Calculated cross sections for resonant charge transfer between atoms and their positive ions are presented in tables and graphs for all nontransition elements in the range of low and intermediate collision velocities ($\leqslant$1 a.u.). Experimental data obtained since the 1930s are compiled. The cross sections have been calculated by the impact-parameter and close-coupling methods. To solve the one-electron, time-dependent, spinless electronic wave function in a two-atom system, the wave function was expanded in terms of a set of traveling atomic wave functions centered about either nucleus. As the eigenfunction of each atom, Hartree–Fock–Slater wave functions were used. The calculated results are in fairly good agreement with the compiled experimental results for the thoroughly studied elements and thus provide a useful interpolation/extrapolation of the experimental data.

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CONTENTS

INTRODUCTION

A knowledge of resonant charge transfer cross sections between atoms and their ions is of importance not only in atomic physics, but also in astrophysics and fusion research. A large amount of experimental work on this charge transfer process since the 1930s has done much to establish the curves for cross section versus impact energy. However, because of experimental difficulties, the studies have been limited mainly to noble gas and alkali elements (see Table A). It is useful to compile the experimental data as much as possible, because more data allow better judgement of the accuracy of a calculation model, and a reliable model may be applied to other elements and energy ranges for which cross sections have not been measured.

In this paper, the available experimental data for resonant charge transfer cross sections between neutral atoms and their singly charged positive ions for low and intermediate velocity ($\leqslant 1$ a.u.) have been compiled graphically as a function of the impact velocity. The calculations of the cross sections have been done using the impact-parameter and close-coupling methods, that is, solving for the one-electron, time-dependent, spinless electronic wave function, which is expanded in terms of a set of traveling atomic wave functions centered about either nucleus. After it was confirmed that the calculated results show fairly good agreement with the experimental results for the elements for which data are abundant, the calculations were extended to other elements. The calculated cross sections are presented in both tables and figures.

Our recent experimental results for gadolinium[1,2] and yttrium[3] and the results of Ref. 4 for uranium show

TABLE A

Elements for which Resonant Charge Transfer Cross Sections in the Low- and Intermediate-Velocity Ranges Have Been Studied

	I	II	III	IV	V	VI	VII	VIII	O
	alkali	al.-earth	aluminum	carbon	nitrogen	oxygen	halogen	iron, platinum	helium
	copper	zinc	rare-earth	titan	vanadium	chromium	mangan.		
I	H 7								He 39
II	Li 3			C 1	N 1	O 2			Ne 16
III	Na 4	Mg 2							Ar 26
IV	K 5	Ca 2							
									Kr 10
V	Rb 4	Sr 1							
									Xe 8
VI	Cs 10	Ba 1	Gd 1						
		Hg 2							
VII			U 1						

Note. The number of published papers is given as a subscript to each element.

larger cross sections and a different velocity dependence than those of nontransition elements. These results cannot be explained by resonant processes alone and are therefore not presented here. A more detailed discussion of the charge transfer process for transition elements (that is, elements with valence orbitals in *d*- and *f*-shells) will be required in the future.[5]

Inasmuch as the charge transfer process is characterized by the impact velocity, it is often divided into three ranges, corresponding to low, intermediate, and high velocities. Though these terms are not defined precisely, the ranges are approximately separated as follows by the relative comparison between the impact velocity of the nuclei and the orbital velocity of an electron to be transferred:

low velocity	$\leqslant \frac{1}{3}$ a.u.,
intermediate velocity	$\frac{1}{3}$–1 a.u.,
high velocity	$\geqslant 1$ a.u.

Here the compilation is limited to impact velocities of $\leqslant 1$ a.u., because the calculation model presented is not suitable for predicting the cross section in the high-velocity range. Some papers for the high-velocity range are given in Ref. 6. The reason why transition elements are excluded is discussed later.

Elements for which resonant charge transfer cross sections have been measured are shown in Table A. Table A also shows the scheme by which the tables of calculated cross sections for the individual elements are labeled, that is, by period and group. Table B provides a key to the reference sources, ordered by atomic number, for the nontransition elements for which experimental data are plotted in the cross section graphs. One notes that the *f*- and *d*-shell elements Hg (Ref. 7), Gd, and U appearing in Table A are not listed in Table B.

Cross Section Calculation

The transfer of charge in a resonant process can be represented by the equation

$$A + B^+ \rightarrow A^+ + B, \qquad (1)$$

TABLE B

Index to Source Papers for the Compiled Experimental Data for Nontransition Elements

Atomic No.	Element	Source paper (without prefix "S")
1	H	20, 27, 32, 46, 48, 55, 84
2	He	1, 2, 3, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 18, 22, 31, 33, 35, 36, 37, 38, 43, 51, 52, 53, 59, 62, 65, 69, 77, 78, 80, 81, 82, 83, 84, 85, 87
3	Li	41, 56, 60
6	C	52
7	N	52
8	O	39, 67
10	Ne	2, 3, 5, 11, 15, 17, 19, 22, 30, 33, 36, 47, 57, 58, 70, 78
11	Na	25, 56, 64, 73
12	Mg	68, 79
18	Ar	2, 3, 4, 5, 6, 8, 9, 10, 11, 13, 14, 15, 17, 19, 21, 22, 23, 36, 38, 40, 44, 47, 49, 53, 58, 78
19	K	22, 25, 26, 54, 64
20	Ca	74, 79
36	Kr	11, 19, 23, 30, 33, 36, 66, 75, 76, 78
37	Rb	24, 25, 42, 54
38	Sr	79
54	Xe	11, 19, 23, 33, 58, 66, 71, 78
55	Cs	23, 24, 25, 29, 34, 42, 45, 54, 63, 72
56	Ba	79

Note. Given with each element are the record numbers (with prefix "S" omitted) for the source paper for the data shown in graphs. The papers identified by the record numbers are listed under References for Compiled Experimental Data.

where A and B are the same atomic element symbolized by different labels for identification purposes. The present calculation assumes the linear trajectory approximation, which is valid above about 100 eV.[8] The cross sections are obtained by solving the time-dependent, nonrelativistic, spinless Schroedinger equation. In this, we used the method of Bates and McCarrol[9] coupled with expanding the electronic wave function in "traveling" atomic orbitals centered about each nucleus.[10]

In the impact-parameter treatment (linear trajectory approximation), the distance **R** from nucleus A to nucleus B at time t is given by (see Fig. 1)

$$\mathbf{R} = \mathbf{b} + \mathbf{v}t, \tag{2}$$

where **b** is the impact parameter, and **v** is the relative collision velocity. The electron position vector is **r** in the center of mass system of the nuclei. Relative to the positions of the nuclei, the electron position is then given by

$$\mathbf{r}_{A,B} = \mathbf{r} \pm \tfrac{1}{2}\mathbf{R}. \tag{3}$$

The electron wave function $\Psi(\mathbf{r}, t)$ satisfies the time-dependent Schroedinger equation

$$H\Psi(\mathbf{r}, t) = i\hbar \frac{\partial \Psi(\mathbf{r}, t)}{\partial t_{\mathbf{r}}}, \tag{4}$$

where H is the Hamiltonian and the partial differentiation is carried out with **r** constant. The Hamiltonian is

$$H(t) = -\frac{\hbar^2}{2m}\nabla^2 + V_A + V_B, \tag{5}$$

where the terms V_A and V_B are the potential energy for each atom, and the term representing the Coulomb interaction between the nuclei is ignored. In general, to solve Eq. (4) the electron wave function $\Psi(\mathbf{r}, t)$ is expanded in terms of traveling atomic wave functions about either nucleus:

$$\Psi(\mathbf{r}, t) = \sum_m a_m(t)\chi_m^A(\mathbf{r}_A, t)\exp\left(-\frac{iE_m}{\hbar}t\right) + \sum_n b_n(t)\chi_n^B(\mathbf{r}_B, t)\exp\left(-\frac{iE_n}{\hbar}t\right). \tag{6}$$

$\chi_m(\mathbf{r}_A)$ and $\chi_n(\mathbf{r}_B)$ are the wave functions modified by taking into account the translational motion of the separated atoms and related to the pure eigenfunctions $\psi_m(\mathbf{r}_A)$ and $\psi_n(\mathbf{r}_B)$ by

$$\chi_m^A(\mathbf{r}_A, t) = \psi_m^A(\mathbf{r}_A)\exp\left(i\frac{m}{2\hbar}\mathbf{v}\cdot\mathbf{r} - i\frac{m}{8\hbar}v^2 t\right) \quad (7a)$$

$$\chi_n^B(\mathbf{r}_B, t) = \psi_n^B(\mathbf{r}_B)\exp\left(-i\frac{m}{2\hbar}\mathbf{v}\cdot\mathbf{r} - i\frac{m}{8\hbar}v^2 t\right), \quad (7b)$$

and the eigenfunctions $\psi_m(\mathbf{r}_A)$ and $\psi_n(\mathbf{r}_B)$ satisfy

$$\left\{-\frac{\hbar^2}{2m}\nabla_{r_A}^2 + V_A(\mathbf{r}_A)\right\}\psi_A(\mathbf{r}_A) = E_m\psi_A(\mathbf{r}_A) \quad (8a)$$

$$\left\{-\frac{\hbar^2}{2m}\nabla_{r_B}^2 + V_B(\mathbf{r}_B)\right\}\psi_B(\mathbf{r}_B) = E_n\psi_B(\mathbf{r}_B), \quad (8b)$$

respectively. For nontransition elements, the energy of the first excited state E_1 is sufficiently higher than that of the ground state E_0 so that $a(E_1 - E_0)/\hbar v \gg 1$, where a is a dimension of the order of several angstroms. Therefore, the electron that is in the ground state initially would also be in the ground state after charge transfer interaction. In that case, it is possible that the expansion of the wave function in terms of atomic waves [Eq. (6)] can be truncated at $m = n = 0$. In a random collision process the directions of the atoms cannot be identified, and, therefore, the atomic wave functions that are averaged over (θ, ϕ) can be used; that is,

$$\psi(\mathbf{r}) = R(r)Y(\theta, \phi) = \frac{1}{\sqrt{4\pi}}R(r) \quad (9)$$

and $\psi(\mathbf{r})$ is expressed by $\psi(r)$ hereafter. By substituting the wave function [Eqs. (6), (7a), and (7b)] into Eq. (4), we obtain

$$\left\{-i\frac{\hbar}{2}v\cos\theta_A\frac{\partial\psi(r_A)}{\partial r_A} - \frac{m}{4}v^2\psi(r_A) + V_B\psi(r_A)\right\} \times \exp(i\mathbf{x}\cdot\mathbf{r})a_0(t) + \left\{i\frac{\hbar}{2}v\cos\theta_B\frac{\partial\psi(r_B)}{\partial r_B} - \frac{m}{4}v^2\psi(r_B) + V_A\psi(r_B)\right\}\exp(-i\mathbf{x}\cdot\mathbf{r})b_0(t) = i\hbar\left\{\frac{da_0}{dt}\psi(r_A)\exp(i\mathbf{x}\cdot\mathbf{r}) + \frac{db_0}{dt}\psi(r_B)\exp(-i\mathbf{x}\cdot\mathbf{r})\right\}, \quad (10)$$

where $\psi = \psi_0$, $\mathbf{x} = m\mathbf{v}/2\hbar$, and (r_A, θ_A) and (r_B, θ_B) are the coordinates with origins on the centers of nuclei A and B, respectively. By successively integrating over the electron coordinate $\mathbf{r}(r, \theta, \phi)$ after multiplying both sides by $\psi(r_A)\exp(-i\mathbf{x}\cdot\mathbf{r})$ and then by $\psi(r_B)\exp(i\mathbf{x}\cdot\mathbf{r})$, one obtains

$$V_{AA}a_0(t) + V_{AB}b_0(t) = i\hbar\left\{\frac{da_0}{dt} + S_{AB}\frac{db_0}{dt}\right\} \quad (11a)$$

and

$$V_{BA}a_0(t) + V_{BB}b_0(t) = i\hbar\left\{S_{BA}\frac{da_0}{dt} + \frac{db_0}{dt}\right\}, \quad (11b)$$

respectively, where

$$V_{AA} = \int\psi(r_A)\left\{-i\frac{\hbar}{2}v\cos\theta_A\frac{\partial\psi(r_A)}{\partial r_A} + V_B\psi(r_A)\right\}d\mathbf{r} - \frac{m}{4}v^2 \quad (12a)$$

$$V_{AB} = \int\psi(r_A)\left\{i\frac{\hbar}{2}v\cos\theta_B\frac{\partial\psi(r_B)}{\partial r_B} - \frac{m}{4}v^2\psi(r_B) + V_A\psi(r_B)\right\}\exp(-2i\mathbf{x}\cdot\mathbf{r})d\mathbf{r} \quad (12b)$$

$$V_{BA} = \int\psi(r_B)\left\{-i\frac{\hbar}{2}v\cos\theta_A\frac{\partial\psi(r_A)}{\partial r_A} - \frac{m}{4}v^2\psi(r_A) + V_B\psi(r_A)\right\}\exp(2i\mathbf{x}\cdot\mathbf{r})d\mathbf{r} \quad (12c)$$

$$V_{BB} = \int\psi(r_B)\left\{i\frac{\hbar}{2}v\cos\theta_B\frac{\partial\psi(r_B)}{\partial r_B} + V_A\psi(r_B)\right\}d\mathbf{r} - \frac{m}{4}v^2 \quad (12d)$$

$$S_{AB} = \int\psi(r_A)\psi(r_B)\exp(-2i\mathbf{x}\cdot\mathbf{r})d\mathbf{r} \quad (12e)$$

$$S_{BA} = \int\psi(r_B)\psi(r_A)\exp(2i\mathbf{x}\cdot\mathbf{r})d\mathbf{r}. \quad (12f)$$

It then follows that

$$i\hbar\frac{da_0}{dt} = \frac{V_{AA} - V_{BA}S_{AB}}{1 - S_{BA}S_{AB}}a_0 + \frac{V_{AB} - V_{BB}S_{AB}}{1 - S_{BA}S_{AB}}b_0, \quad (13a)$$

$$i\hbar\frac{db_0}{dt} = \frac{V_{BA} - V_{AA}S_{BA}}{1 - S_{AB}S_{BA}}a_0 + \frac{V_{BB} - V_{AB}S_{BA}}{1 - S_{AB}S_{BA}}b_0. \quad (13b)$$

From solving Eqs. (13a) and (13b) under the initial conditions $a_0(t = -\infty) = 1$ and $b_0(t = -\infty) = 0$, one obtains the probability of the electron transfer from nucleus A to B for impact parameter b as

$$P(b, v) = |b_0(\infty)|^2. \quad (14)$$

The cross section is then given by

$$\sigma(v) = \int P(b, v) b db. \qquad (15)$$

The integrations in Eqs. (12a)–(12f) were done using atomic wave functions calculated with the Hartree–Fock–Slater method by Herman and Skillman.[11]

The integrations were performed over an (r, θ, ϕ) square mesh around the center between the two nuclei as shown in Fig. 1, with

$$\Delta r = r_{max}/100$$

$$\Delta\theta = \pi/90$$

$$\Delta\phi = \pi/9$$

$$\Delta b = r_{max}/100$$

$$\Delta z = v\Delta t = (r_{max}^2 - b^2)^{1/2}/100$$

for 100 values of v at most, where r_{max} is the maximum r that gives $|\psi(r)| = 0.001$. The inherent numerical errors ensuing from the choice of these values were 10 and 5% in the ranges of 10^6–10^7 and 10^7–10^8 cm/s, respectively. The undulations at velocities less than 10^7 cm/s are due to such numerical errors. These errors are small in comparison with the scatter of experimental results. At velocities greater than 10^7 cm/s, oscillatory structures whose amplitudes increase as the velocities increase can be seen in some cross section curves. These are due to the fact that the difference between the gerade and ungerade potentials of the quasimolecule produced during the collisional processes does not fall monotonically, but passes through a maximum as the distance between the nuclei decreases.[12] The calculation was terminated at velocities at which the calculated results became dispersed. These velocities were around 1 a.u., and the calculation error at the termination point was estimated at about 50%.

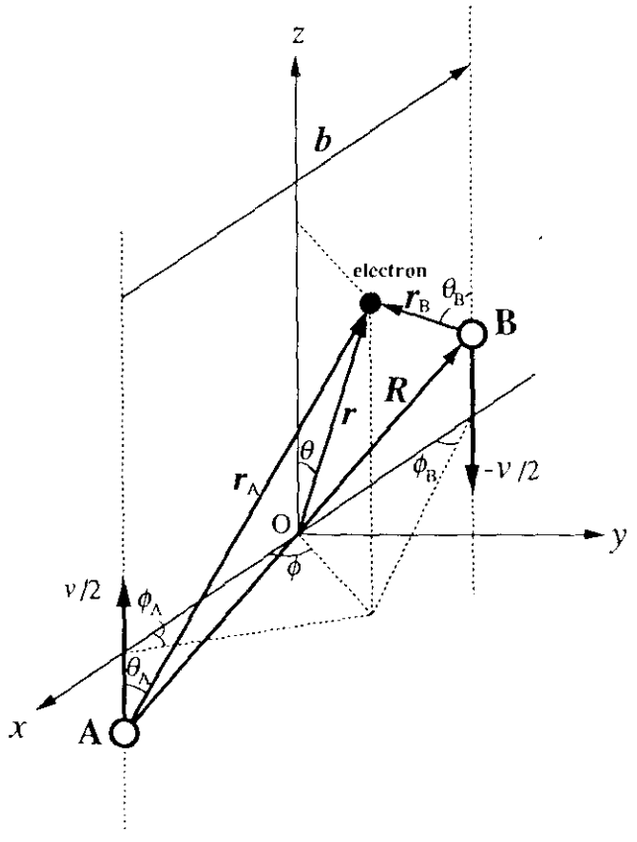

Figure 1. Frame of reference for the resonant charge transfer process between atoms A and B with impact parameter b and impact velocity v.

Comparison of the Calculated Values with Experimental Data

The calculational results given in the data tables can be compared with the experimental data shown in the accompanying graphs. The calculated results show fairly good agreement with the compiled experimental results for some of the elements for which data are abundant: hydrogen, alkali, alkaline earth, and noble gas elements. In order to ascertain the applicability of the present calculation to other elements that have not been studied, it is important to investigate the degree of agreement between experimental data and calculated values for each element. However, for the elements for which experimental data are less abundant, it is sometimes difficult to discuss the agreement with calculated results. Therefore, it is more useful to compare all data as a function of a parameter that is closely related to the charge transfer process and is commonly known for all elements. The cross section for resonant charge transfer at low velocities in the collision of an ion X^+ with the corresponding neutral atom X is determined mainly by the potential curves of the low-lying states of the molecule X_2^+ which is formed temporarily during the collision. These potential curves are closely related to the ionization potential of the neutral atom X. Figure 2 shows experimental cross sections as a function of the ionization potential for nontransition elements, at impact velocities of 5×10^5 and 3.5×10^6 cm/s. The calculated results also shown in this figure are seen to be in fairly good agreement with the experimental data. From these results, the cross section σ can be related to the ionization potential I by $\sigma = \sigma_0(I/I_0)^{-1.5}$, where $I_0 = 13.559$ eV, and if the experimental data that are ob-

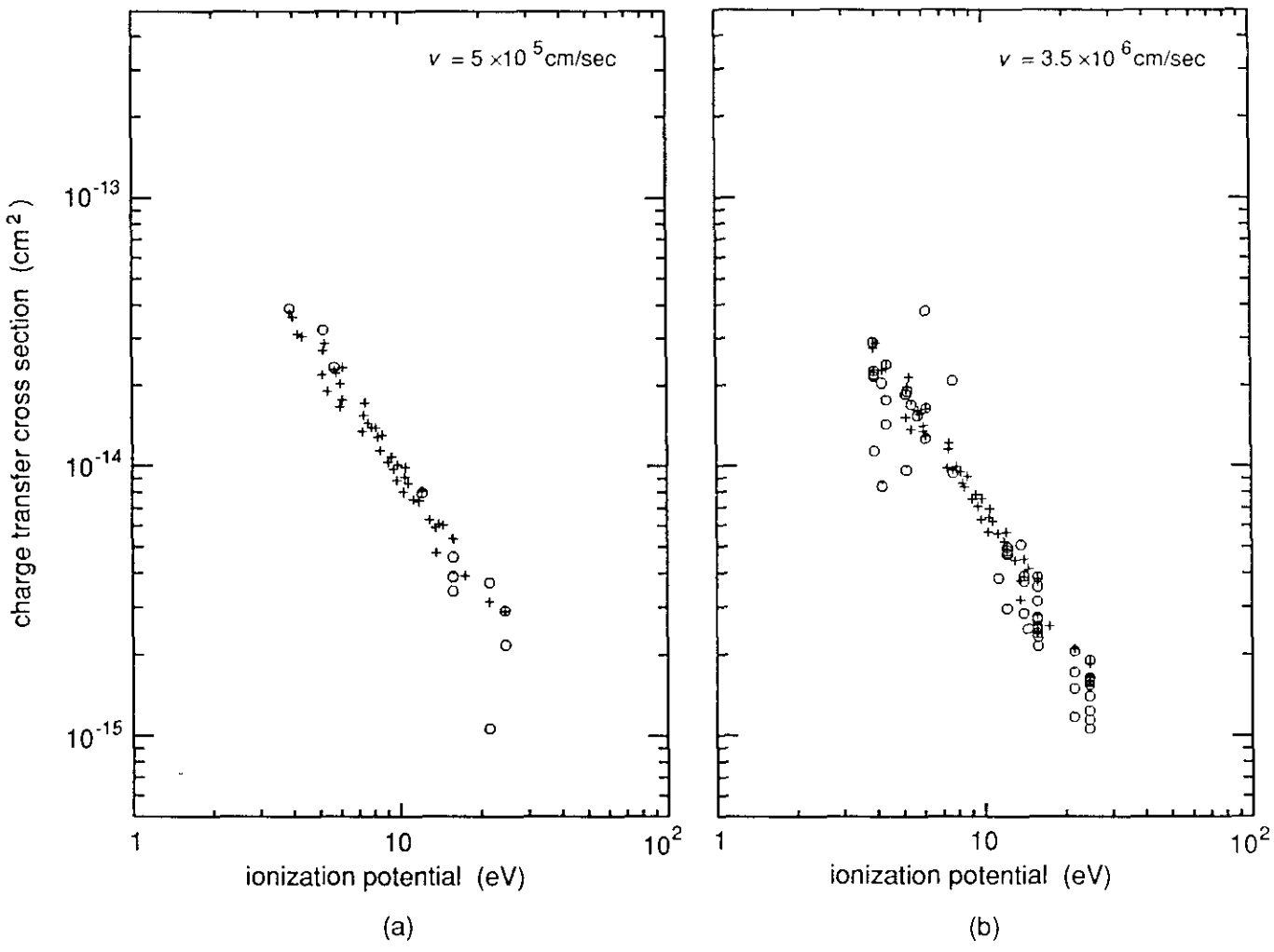

Figure 2. Resonant charge transfer cross section as a function of the ionization potential for nontransition elements, at impact velocities of (a) 5×10^5 and (b) 3.5×10^6 cm/s. Open circles correspond to experimental data and crosses to calculated results.

viously discrepant are eliminated, σ_0 has the following values:

at 5×10^5 cm/s

for experimental data $\sigma_0 = (4.2 \sim 7.2) \times 10^{-15}$ cm^2

for calculated results $\sigma_0 = (4.9 \sim 6.9) \times 10^{-15}$ cm^2

and at 3.5×10^6 cm/s

for experimental data $\sigma_0 = (2.1 \sim 5.1) \times 10^{-15}$ cm^2

for calculated results $\sigma_0 = (3.2 \sim 5.1) \times 10^{-15}$ cm^2.

From these values, it can be inferred that the calculated results are reliable to within 15 ~ 25% at these velocities.

As mentioned above, the present calculation can be applied only to an element for which the energy E_1 of the first excited state is sufficiently higher than E_0 of the ground state that $a\Delta E/\hbar v \gg 1$, where $\Delta E = E_1 - E_0$. The minimum ΔE for the measured elements in Table B is that for Ba: $\Delta E = 9034$ cm^{-1}. The agreement of the calculated values with the experimental data permits the present calculation to be applicable to elements with ΔE higher than this limiting value. Almost all nontransition elements have ΔE larger than or approximately equal to this value, whereas some transition elements have much lower ΔE. For example, $\Delta E = 205$ cm^{-1} for Ni, 229 cm^{-1} for Ce, and 620 cm^{-1} for U.[13] In this work, therefore, the calculation is limited to the nontransition elements.

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EXPLANATION OF TABLES AND GRAPHS

TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

Resonant charge transfer cross sections are given for all nontransition elements, that is, elements *not* having valence orbitals in *d*- or *f*-shells.

Individual tables and graphs are labeled according to the period and the group of the element in the periodic table (see Table A of text). The table in the upper half of each page lists the calculated resonant charge transfer cross section (in cm^2) as a function of the incident ion velocity (in cm/s) and energy (in eV).

The graph in the lower part of each page shows the calculated cross section as a function of the incident ion velocity together with the experimental data where available. Experimental data are given by symbols and lines. Data given by a line in a source paper are indicated by a thin line with two symbols at the ends. The source of each experimental datum in the graph is indicated in the legend next to the corresponding symbol. A shortened notation is used for the source papers as follows,

H. B. Gilbody and J. B. Hasted, Proc. Roy. Soc. **A238,** 334 (1956)

= GILBODY_PROYSOC56,

where the number at the end of the expression is the year of publication. The present calculated results are given by thick solid lines.

Note that the graphs for He and Ar are each followed by additional graphs in which the data are separated into parts in order to make it easier to identify the data symbols. Also, in the graphs for He, the data by Milner et al. [S77], Eisele et al. [S80], and Hegerberg et al. [S82], although originally published as plotted points, are given as lines to avoid excessive crowding.

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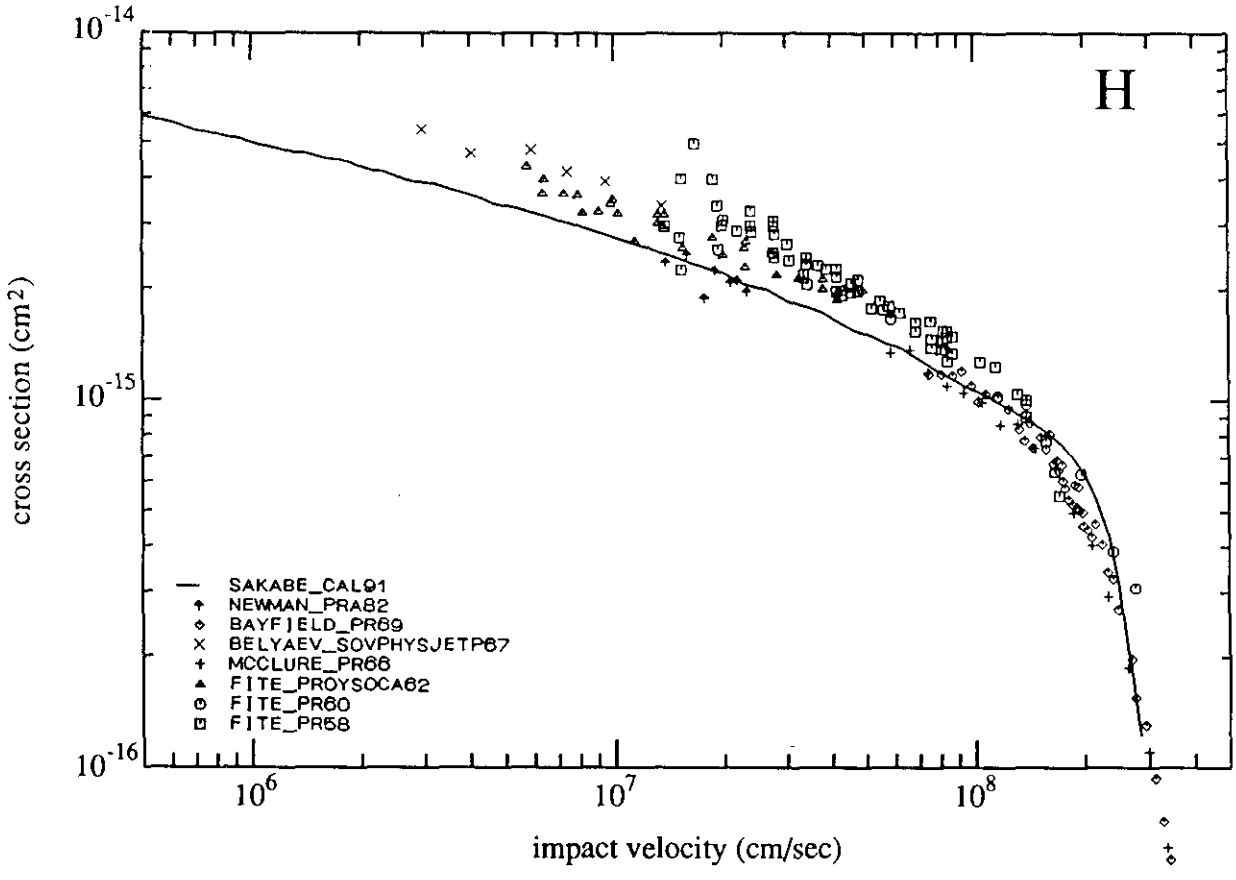
TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

I-I Hydrogen: H

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
5.00E+05	1.31E-01	5.94E-15	5.36E+06	1.51E+01	3.32E-15	5.75E+07	1.74E+03	1.43E-15
5.36E+05	1.51E-01	5.84E-15	5.75E+06	1.74E+01	3.27E-15	6.16E+07	2.00E+03	1.41E-15
5.75E+05	1.74E-01	5.76E-15	6.16E+06	2.00E+01	3.21E-15	6.61E+07	2.30E+03	1.35E-15
6.16E+05	2.00E-01	5.68E-15	6.61E+06	2.30E+01	3.14E-15	7.09E+07	2.64E+03	1.30E-15
6.61E+05	2.30E-01	5.53E-15	7.09E+06	2.64E+01	3.09E-15	7.60E+07	3.04E+03	1.25E-15
7.09E+05	2.64E-01	5.41E-15	7.60E+06	3.04E+01	3.03E-15	8.15E+07	3.49E+03	1.19E-15
7.60E+05	3.04E-01	5.38E-15	8.15E+06	3.49E+01	2.96E-15	8.74E+07	4.02E+03	1.15E-15
8.15E+05	3.49E-01	5.29E-15	8.74E+06	4.02E+01	2.90E-15	9.37E+07	4.62E+03	1.10E-15
8.74E+05	4.02E-01	5.19E-15	9.37E+06	4.62E+01	2.85E-15	1.00E+08	5.31E+03	1.07E-15
9.37E+05	4.62E-01	5.16E-15	1.00E+07	5.31E+01	2.78E-15	1.08E+08	6.10E+03	1.04E-15
1.00E+06	5.31E-01	5.05E-15	1.08E+07	6.10E+01	2.71E-15	1.16E+08	7.02E+03	9.96E-16
1.08E+06	6.10E-01	4.95E-15	1.16E+07	7.02E+01	2.66E-15	1.24E+08	8.07E+03	9.56E-16
1.16E+06	7.02E-01	4.89E-15	1.24E+07	8.07E+01	2.61E-15	1.33E+08	9.28E+03	9.17E-16
1.24E+06	8.07E-01	4.79E-15	1.33E+07	9.28E+01	2.54E-15	1.42E+08	1.07E+04	8.80E-16
1.33E+06	9.28E-01	4.71E-15	1.42E+07	1.07E+02	2.49E-15	1.53E+08	1.23E+04	8.43E-16
1.42E+06	1.07E+00	4.72E-15	1.53E+07	1.23E+02	2.43E-15	1.64E+08	1.41E+04	8.03E-16
1.53E+06	1.23E+00	4.62E-15	1.64E+07	1.41E+02	2.37E-15	1.76E+08	1.62E+04	7.55E-16
1.64E+06	1.41E+00	4.53E-15	1.76E+07	1.62E+02	2.32E-15	1.88E+08	1.86E+04	6.98E-16
1.76E+06	1.62E+00	4.52E-15	1.88E+07	1.86E+02	2.26E-15	2.02E+08	2.14E+04	6.29E-16
1.88E+06	1.86E+00	4.44E-15	2.02E+07	2.14E+02	2.22E-15	2.16E+08	2.46E+04	5.46E-16
2.02E+06	2.14E+00	4.30E-15	2.16E+07	2.46E+02	2.13E-15	2.32E+08	2.83E+04	4.44E-16
2.16E+06	2.46E+00	4.22E-15	2.32E+07	2.83E+02	2.07E-15	2.49E+08	3.26E+04	3.23E-16
2.32E+06	2.83E+00	4.19E-15	2.49E+07	3.26E+02	2.03E-15	2.67E+08	3.75E+04	1.94E-16
2.49E+06	3.26E+00	4.08E-15	2.67E+07	3.75E+02	2.01E-15	2.86E+08	4.31E+04	1.23E-16
2.67E+06	3.75E+00	3.98E-15	2.86E+07	4.31E+02	1.93E-15			
2.86E+06	4.31E+00	3.94E-15	3.07E+07	4.95E+02	1.86E-15			
3.07E+06	4.95E+00	3.91E-15	3.29E+07	5.69E+02	1.82E-15			
3.29E+06	5.69E+00	3.84E-15	3.53E+07	6.54E+02	1.78E-15			
3.53E+06	6.54E+00	3.76E-15	3.78E+07	7.52E+02	1.74E-15			
3.78E+06	7.52E+00	3.69E-15	4.06E+07	8.65E+02	1.68E-15			
4.06E+06	8.65E+00	3.63E-15	4.35E+07	9.95E+02	1.61E-15			
4.35E+06	9.95E+00	3.53E-15	4.66E+07	1.14E+03	1.56E-15			
4.66E+06	1.14E+01	3.44E-15	5.00E+07	1.31E+03	1.52E-15			
5.00E+06	1.31E+01	3.37E-15	5.36E+07	1.51E+03	1.47E-15			

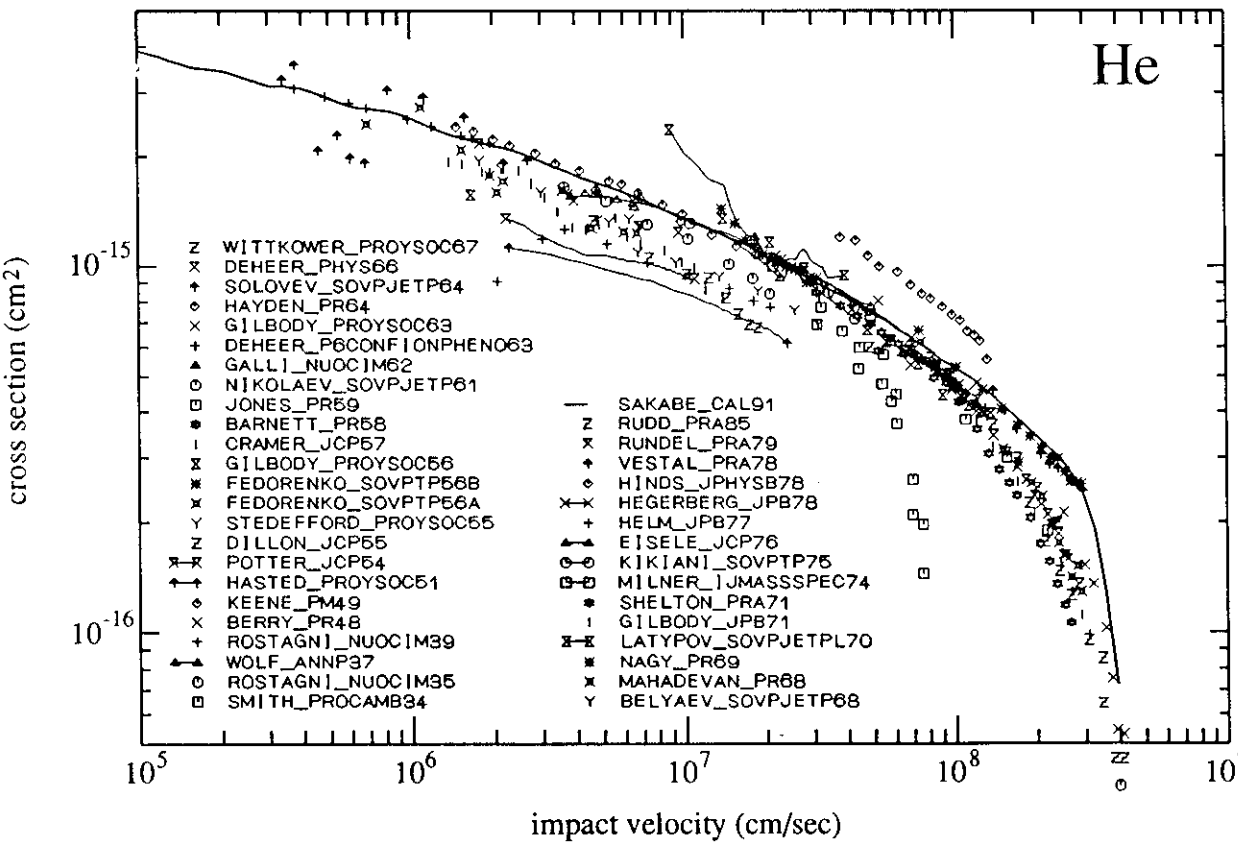


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

I-O Helium: He

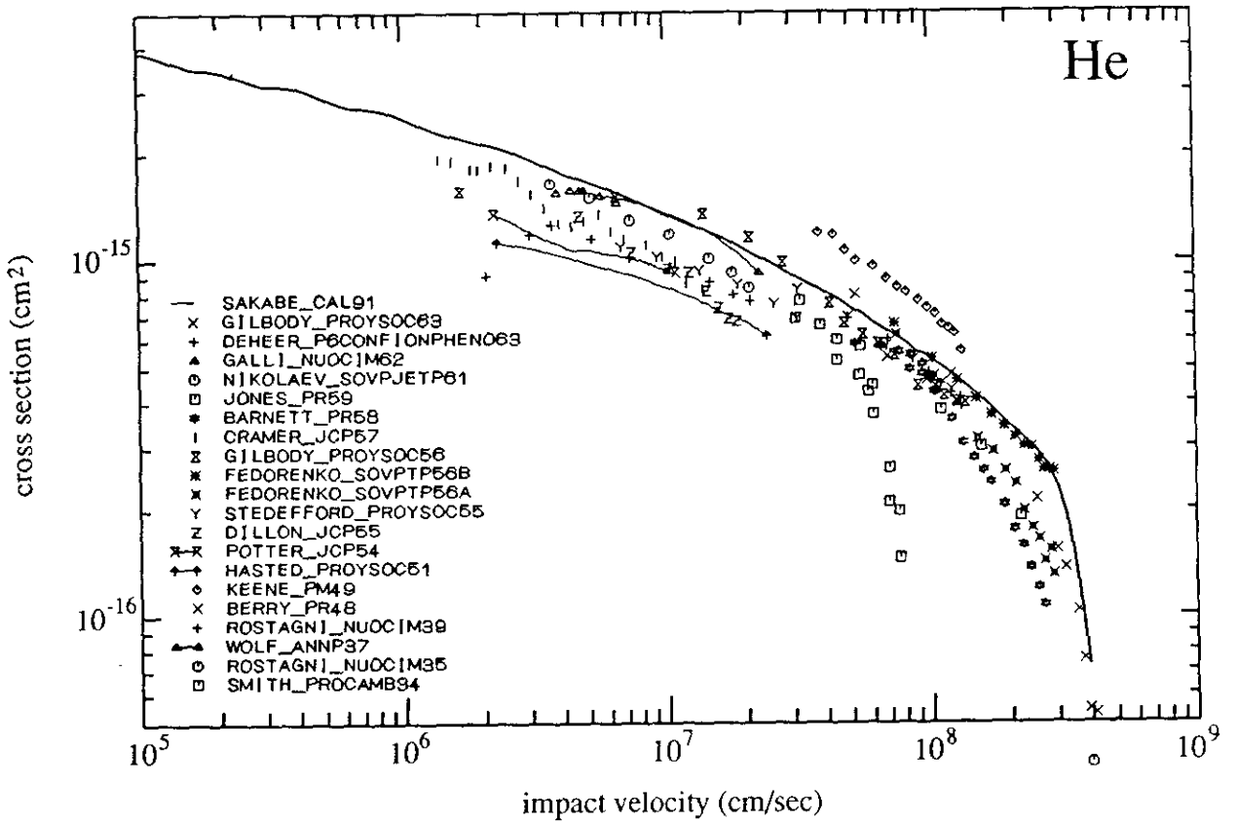
velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
1.00E+05	2.09E-02	3.91E-15	2.36E+06	1.17E+01	2.08E-15	5.59E+07	6.53E+03	7.10E-16
1.10E+05	2.52E-02	3.84E-15	2.60E+06	1.41E+01	2.03E-15	6.14E+07	7.86E+03	6.70E-16
1.20E+05	3.03E-02	3.76E-15	2.85E+06	1.69E+01	1.98E-15	6.73E+07	9.47E+03	6.47E-16
1.32E+05	3.65E-02	3.66E-15	3.13E+06	2.04E+01	1.92E-15	7.39E+07	1.14E+04	6.15E-16
1.45E+05	4.40E-02	3.60E-15	3.43E+06	2.46E+01	1.87E-15	8.11E+07	1.37E+04	5.91E-16
1.59E+05	5.30E-02	3.52E-15	3.76E+06	2.96E+01	1.81E-15	8.90E+07	1.66E+04	5.56E-16
1.75E+05	6.38E-02	3.49E-15	4.13E+06	3.57E+01	1.76E-15	9.77E+07	1.99E+04	5.35E-16
1.92E+05	7.68E-02	3.47E-15	4.53E+06	4.30E+01	1.72E-15	1.07E+08	2.40E+04	5.13E-16
2.10E+05	9.25E-02	3.43E-15	4.98E+06	5.17E+01	1.68E-15	1.18E+08	2.89E+04	4.90E-16
2.31E+05	1.11E-01	3.36E-15	5.46E+06	6.23E+01	1.64E-15	1.29E+08	3.48E+04	4.63E-16
2.54E+05	1.34E-01	3.28E-15	5.99E+06	7.51E+01	1.60E-15	1.42E+08	4.20E+04	4.35E-16
2.78E+05	1.62E-01	3.21E-15	6.58E+06	9.04E+01	1.56E-15	1.56E+08	5.06E+04	4.09E-16
3.05E+05	1.95E-01	3.14E-15	7.22E+06	1.09E+02	1.51E-15	1.71E+08	6.09E+04	3.85E-16
3.35E+05	2.35E-01	3.13E-15	7.92E+06	1.31E+02	1.46E-15	1.87E+08	7.33E+04	3.61E-16
3.68E+05	2.83E-01	3.11E-15	8.70E+06	1.58E+02	1.42E-15	2.06E+08	8.83E+04	3.38E-16
4.04E+05	3.40E-01	3.09E-15	9.55E+06	1.90E+02	1.37E-15	2.26E+08	1.06E+05	3.17E-16
4.43E+05	4.10E-01	3.02E-15	1.05E+07	2.29E+02	1.33E-15	2.48E+08	1.28E+05	2.96E-16
4.86E+05	4.94E-01	2.94E-15	1.15E+07	2.76E+02	1.30E-15	2.72E+08	1.54E+05	2.71E-16
5.34E+05	5.95E-01	2.85E-15	1.26E+07	3.33E+02	1.26E-15	2.98E+08	1.86E+05	2.38E-16
5.86E+05	7.17E-01	2.78E-15	1.38E+07	4.01E+02	1.23E-15	3.27E+08	2.24E+05	1.92E-16
6.43E+05	8.63E-01	2.72E-15	1.52E+07	4.83E+02	1.19E-15	3.59E+08	2.70E+05	1.31E-16
7.05E+05	1.04E+00	2.70E-15	1.67E+07	5.81E+02	1.15E-15	3.94E+08	3.25E+05	7.25E-17
7.74E+05	1.25E+00	2.69E-15	1.83E+07	7.00E+02	1.11E-15			
8.50E+05	1.51E+00	2.65E-15	2.01E+07	8.43E+02	1.07E-15			
9.33E+05	1.82E+00	2.59E-15	2.21E+07	1.02E+03	1.03E-15			
1.02E+06	2.19E+00	2.53E-15	2.42E+07	1.22E+03	1.00E-15			
1.12E+06	2.64E+00	2.46E-15	2.66E+07	1.47E+03	9.65E-16			
1.23E+06	3.17E+00	2.38E-15	2.92E+07	1.78E+03	9.29E-16			
1.35E+06	3.82E+00	2.32E-15	3.20E+07	2.14E+03	8.88E-16			
1.48E+06	4.61E+00	2.27E-15	3.51E+07	2.58E+03	8.62E-16			
1.63E+06	5.55E+00	2.24E-15	3.85E+07	3.10E+03	8.33E-16			
1.79E+06	6.68E+00	2.20E-15	4.23E+07	3.74E+03	7.98E-16			
1.96E+06	8.05E+00	2.16E-15	4.64E+07	4.50E+03	7.67E-16			
2.15E+06	9.70E+00	2.12E-15	5.09E+07	5.42E+03	7.33E-16			

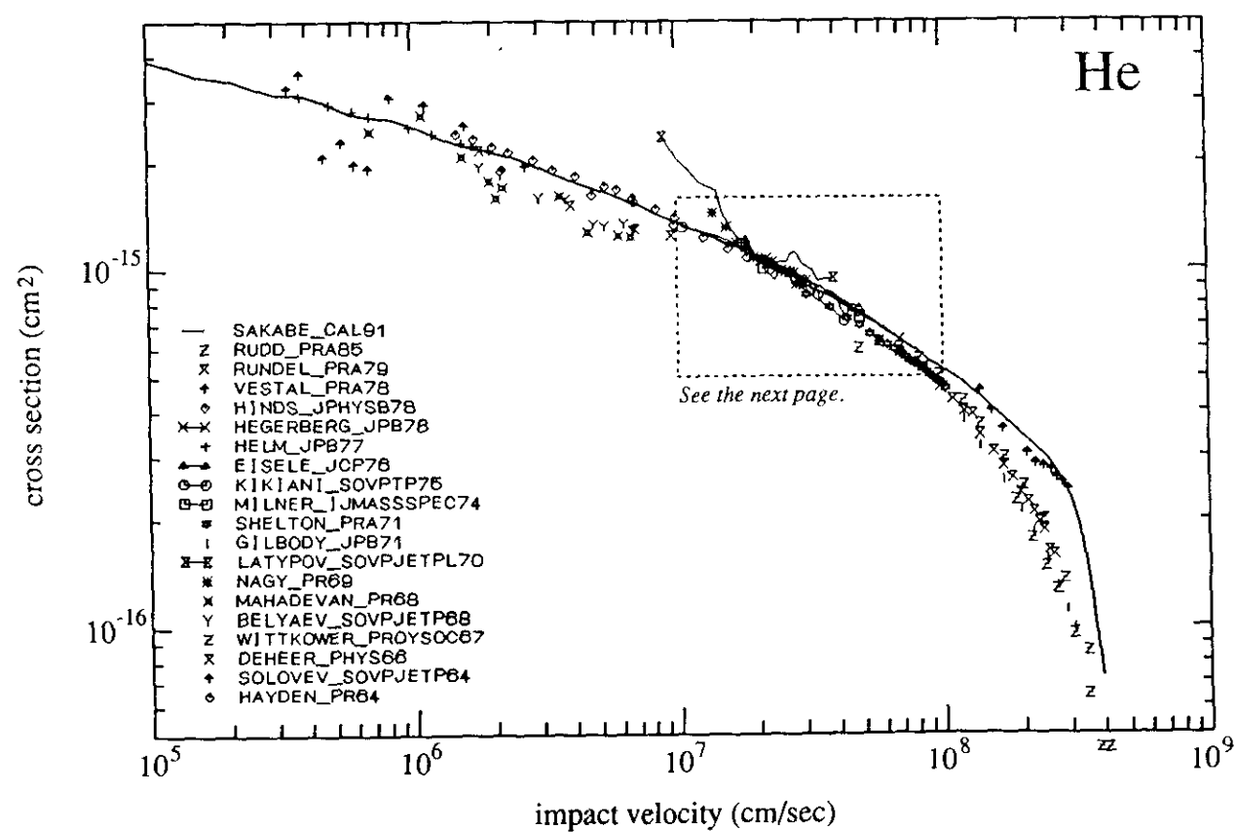


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

I-O Helium: He *(continued)*

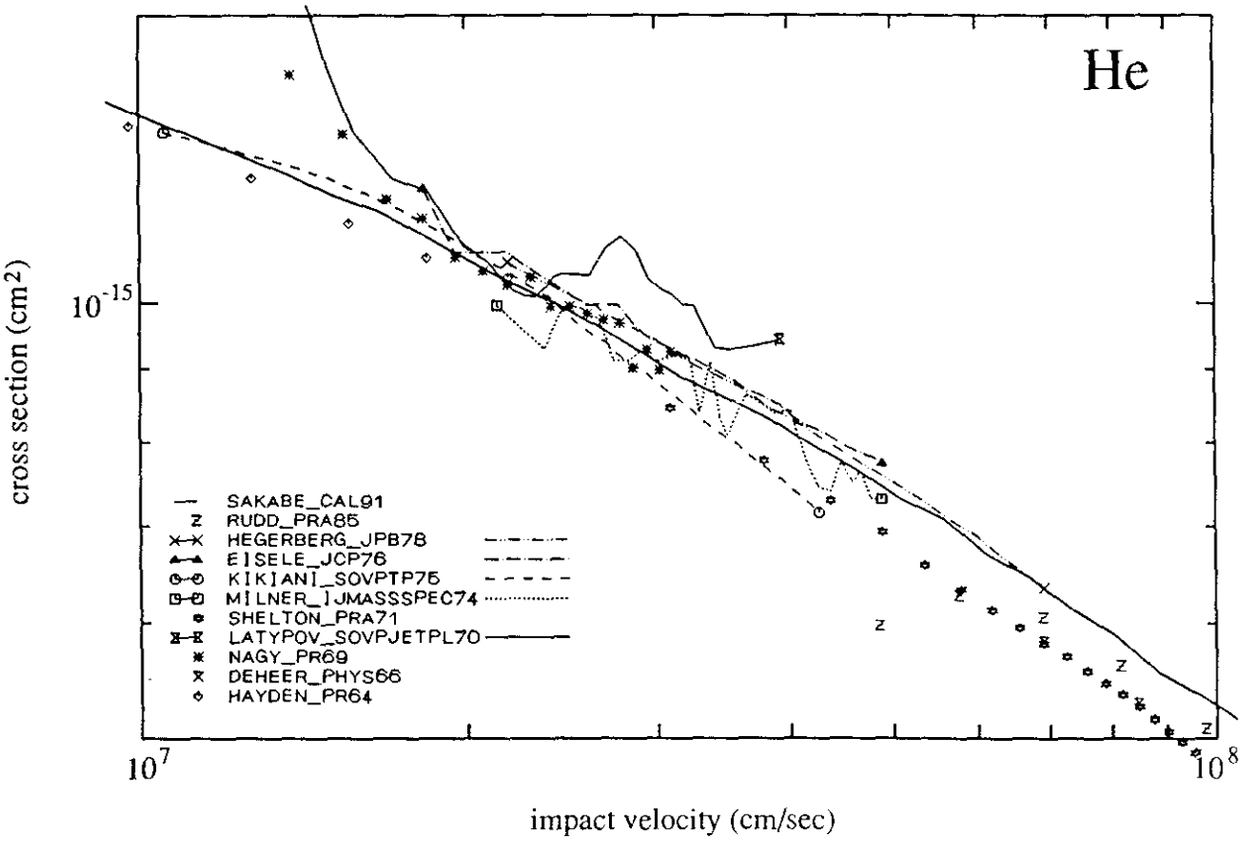




TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

I-O Helium: He (*continued*)

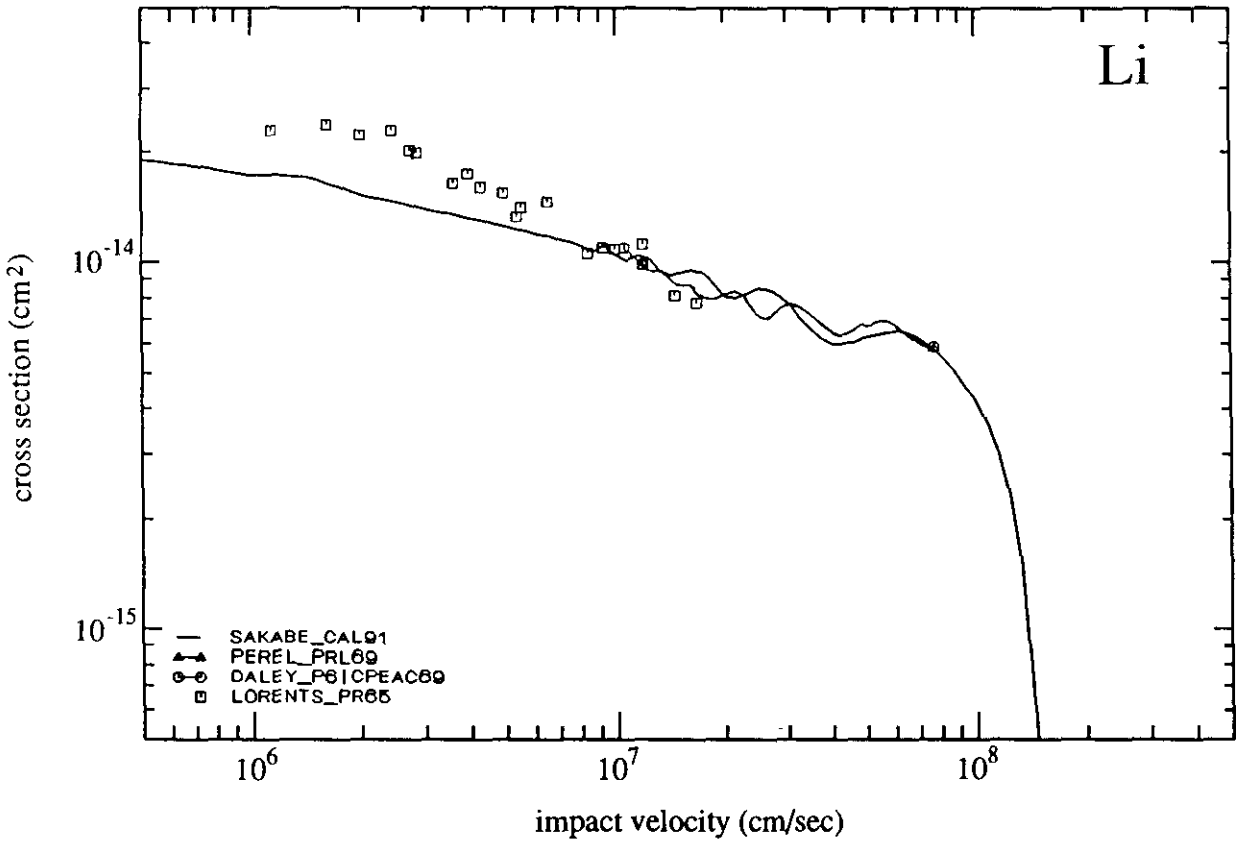


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

II-I Lithium: Li

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
5.00E+05	9.06E-01	1.91E-14	5.36E+06	1.04E+02	1.24E-14	5.75E+07	1.20E+04	6.48E-15
5.36E+05	1.04E+00	1.90E-14	5.75E+06	1.20E+02	1.22E-14	6.16E+07	1.38E+04	6.54E-15
5.75E+05	1.20E+00	1.87E-14	6.16E+06	1.38E+02	1.19E-14	6.61E+07	1.58E+04	6.44E-15
6.16E+05	1.38E+00	1.86E-14	6.61E+06	1.58E+02	1.18E-14	7.09E+07	1.82E+04	6.21E-15
6.61E+05	1.58E+00	1.85E-14	7.09E+06	1.82E+02	1.15E-14	7.60E+07	2.09E+04	5.90E-15
7.09E+05	1.82E+00	1.84E-14	7.60E+06	2.09E+02	1.13E-14	8.15E+07	2.41E+04	5.54E-15
7.60E+05	2.09E+00	1.81E-14	8.15E+06	2.41E+02	1.11E-14	8.74E+07	2.77E+04	5.12E-15
8.15E+05	2.41E+00	1.80E-14	8.74E+06	2.77E+02	1.07E-14	9.37E+07	3.18E+04	4.63E-15
8.74E+05	2.77E+00	1.77E-14	9.37E+06	3.18E+02	1.11E-14	1.00E+08	3.66E+04	4.28E-15
9.37E+05	3.18E+00	1.75E-14	1.00E+07	3.66E+02	1.06E-14	1.08E+08	4.20E+04	3.70E-15
1.00E+06	3.66E+00	1.73E-14	1.08E+07	4.20E+02	1.01E-14	1.16E+08	4.83E+04	3.06E-15
1.08E+06	4.20E+00	1.73E-14	1.16E+07	4.83E+02	1.04E-14	1.24E+08	5.56E+04	2.34E-15
1.16E+06	4.83E+00	1.73E-14	1.24E+07	5.56E+02	1.03E-14	1.33E+08	6.39E+04	1.55E-15
1.24E+06	5.56E+00	1.73E-14	1.33E+07	6.39E+02	9.54E-15	1.42E+08	7.35E+04	7.47E-16
1.33E+06	6.39E+00	1.72E-14	1.42E+07	7.35E+02	9.22E-15	1.47E+08	7.78E+04	5.00E-16
1.42E+06	7.35E+00	1.72E-14	1.53E+07	8.45E+02	9.39E-15			
1.53E+06	8.45E+00	1.69E-14	1.64E+07	9.71E+02	9.60E-15			
1.64E+06	9.71E+00	1.64E-14	1.76E+07	1.12E+03	9.38E-15			
1.76E+06	1.12E+01	1.61E-14	1.88E+07	1.28E+03	8.69E-15			
1.88E+06	1.28E+01	1.57E-14	2.02E+07	1.48E+03	8.08E-15			
2.02E+06	1.48E+01	1.53E-14	2.16E+07	1.70E+03	7.98E-15			
2.16E+06	1.70E+01	1.51E-14	2.32E+07	1.95E+03	8.22E-15			
2.32E+06	1.95E+01	1.50E-14	2.49E+07	2.24E+03	8.50E-15			
2.49E+06	2.24E+01	1.47E-14	2.67E+07	2.58E+03	8.45E-15			
2.67E+06	2.58E+01	1.45E-14	2.86E+07	2.97E+03	8.11E-15			
2.86E+06	2.97E+01	1.43E-14	3.07E+07	3.41E+03	7.67E-15			
3.07E+06	3.41E+01	1.40E-14	3.29E+07	3.92E+03	7.08E-15			
3.29E+06	3.92E+01	1.38E-14	3.53E+07	4.51E+03	6.59E-15			
3.53E+06	4.51E+01	1.36E-14	3.78E+07	5.18E+03	6.22E-15			
3.78E+06	5.18E+01	1.34E-14	4.06E+07	5.96E+03	6.02E-15			
4.06E+06	5.96E+01	1.32E-14	4.35E+07	6.85E+03	6.01E-15			
4.35E+06	6.85E+01	1.30E-14	4.66E+07	7.88E+03	6.07E-15			
4.66E+06	7.88E+01	1.27E-14	5.00E+07	9.06E+03	6.28E-15			
5.00E+06	9.06E+01	1.26E-14	5.36E+07	1.04E+04	6.37E-15			

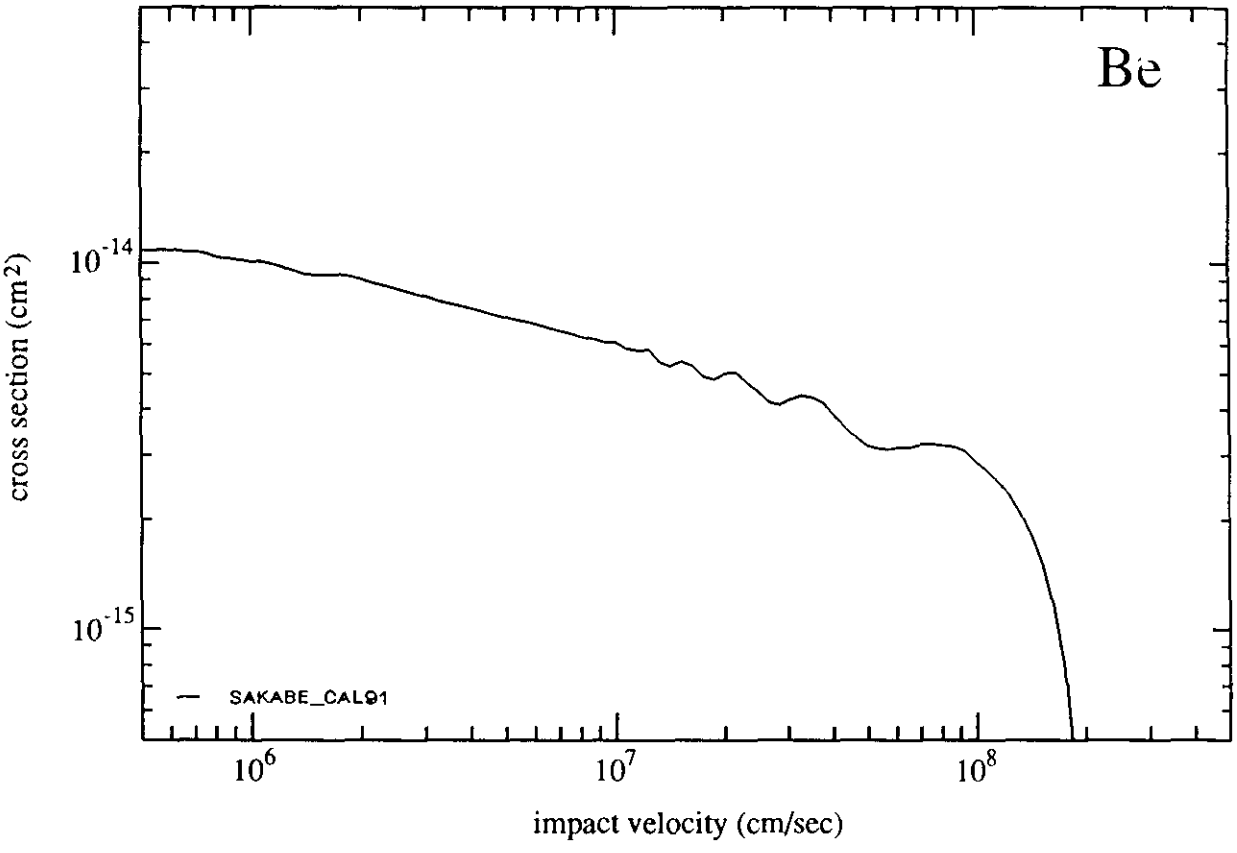


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

II-II Beryllium: Be

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
5.00E+05	1.18E+00	1.09E-14	5.36E+06	1.35E+02	7.04E-15	5.75E+07	1.55E+04	3.13E-15
5.36E+05	1.35E+00	1.09E-14	5.75E+06	1.55E+02	6.93E-15	6.16E+07	1.79E+04	3.15E-15
5.75E+05	1.55E+00	1.09E-14	6.16E+06	1.79E+02	6.81E-15	6.61E+07	2.05E+04	3.16E-15
6.16E+05	1.79E+00	1.08E-14	6.61E+06	2.05E+02	6.68E-15	7.09E+07	2.36E+04	3.21E-15
6.61E+05	2.05E+00	1.08E-14	7.09E+06	2.36E+02	6.56E-15	7.60E+07	2.72E+04	3.22E-15
7.09E+05	2.36E+00	1.08E-14	7.60E+06	2.72E+02	6.47E-15	8.15E+07	3.12E+04	3.19E-15
7.60E+05	2.72E+00	1.07E-14	8.15E+06	3.12E+02	6.32E-15	8.74E+07	3.59E+04	3.16E-15
8.15E+05	3.12E+00	1.04E-14	8.74E+06	3.59E+02	6.23E-15	9.37E+07	4.13E+04	3.08E-15
8.74E+05	3.59E+00	1.03E-14	9.37E+06	4.13E+02	6.11E-15	1.00E+08	4.75E+04	2.89E-15
9.37E+05	4.13E+00	1.03E-14	1.00E+07	4.75E+02	6.12E-15	1.08E+08	5.46E+04	2.73E-15
1.00E+06	4.75E+00	1.02E-14	1.08E+07	5.46E+02	5.87E-15	1.16E+08	6.27E+04	2.55E-15
1.08E+06	5.46E+00	1.01E-14	1.16E+07	6.27E+02	5.79E-15	1.24E+08	7.21E+04	2.34E-15
1.16E+06	6.27E+00	9.98E-15	1.24E+07	7.21E+02	5.82E-15	1.33E+08	8.30E+04	2.09E-15
1.24E+06	7.21E+00	9.77E-15	1.33E+07	8.30E+02	5.42E-15	1.42E+08	9.54E+04	1.82E-15
1.33E+06	8.30E+00	9.57E-15	1.42E+07	9.54E+02	5.29E-15	1.53E+08	1.10E+05	1.51E-15
1.42E+06	9.54E+00	9.38E-15	1.53E+07	1.10E+03	5.42E-15	1.64E+08	1.26E+05	1.17E-15
1.53E+06	1.10E+01	9.30E-15	1.64E+07	1.26E+03	5.29E-15	1.76E+08	1.45E+05	7.87E-16
1.64E+06	1.26E+01	9.30E-15	1.76E+07	1.45E+03	4.93E-15	1.84E+08	1.59E+05	5.00E-16
1.76E+06	1.45E+01	9.31E-15	1.88E+07	1.67E+03	4.85E-15			
1.88E+06	1.67E+01	9.22E-15	2.02E+07	1.92E+03	5.02E-15			
2.02E+06	1.92E+01	9.07E-15	2.16E+07	2.20E+03	5.06E-15			
2.16E+06	2.20E+01	8.86E-15	2.32E+07	2.53E+03	4.78E-15			
2.32E+06	2.53E+01	8.74E-15	2.49E+07	2.91E+03	4.47E-15			
2.49E+06	2.91E+01	8.57E-15	2.67E+07	3.35E+03	4.21E-15			
2.67E+06	3.35E+01	8.40E-15	2.86E+07	3.85E+03	4.14E-15			
2.86E+06	3.85E+01	8.27E-15	3.07E+07	4.43E+03	4.27E-15			
3.07E+06	4.43E+01	8.13E-15	3.29E+07	5.09E+03	4.37E-15			
3.29E+06	5.09E+01	7.94E-15	3.53E+07	5.85E+03	4.34E-15			
3.53E+06	5.85E+01	7.81E-15	3.78E+07	6.73E+03	4.19E-15			
3.78E+06	6.73E+01	7.69E-15	4.06E+07	7.74E+03	3.89E-15			
4.06E+06	7.74E+01	7.55E-15	4.35E+07	8.89E+03	3.59E-15			
4.35E+06	8.89E+01	7.42E-15	4.66E+07	1.02E+04	3.38E-15			
4.66E+06	1.02E+02	7.30E-15	5.00E+07	1.18E+04	3.19E-15			
5.00E+06	1.18E+02	7.18E-15	5.36E+07	1.35E+04	3.14E-15			

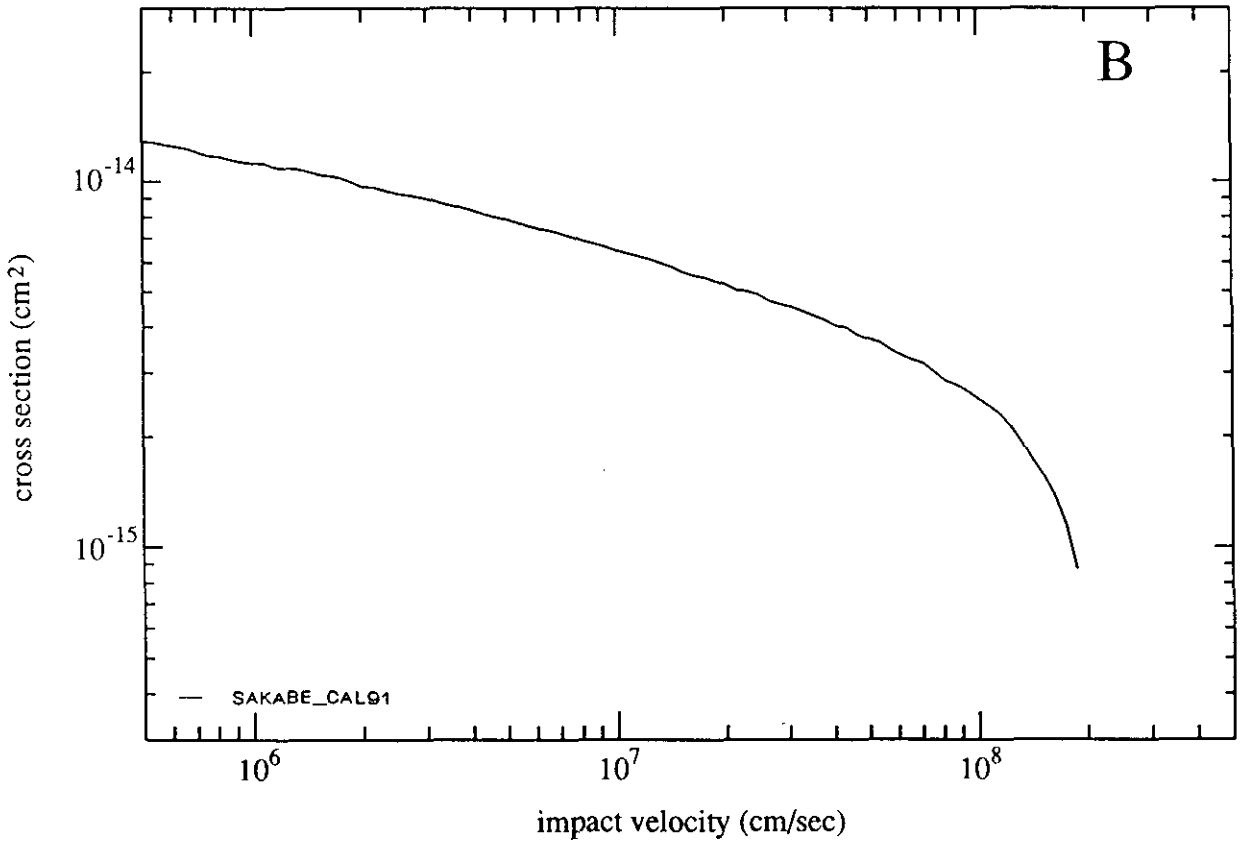


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

II-III Boron: B

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
5.00E+05	1.41E+00	1.29E-14	5.36E+06	1.62E+02	7.77E-15	5.75E+07	1.86E+04	3.48E-15
5.36E+05	1.62E+00	1.28E-14	5.75E+06	1.86E+02	7.61E-15	6.16E+07	2.14E+04	3.36E-15
5.75E+05	1.86E+00	1.27E-14	6.16E+06	2.14E+02	7.48E-15	6.61E+07	2.46E+04	3.26E-15
6.16E+05	2.14E+00	1.25E-14	6.61E+06	2.46E+02	7.37E-15	7.09E+07	2.83E+04	3.20E-15
6.61E+05	2.46E+00	1.24E-14	7.09E+06	2.83E+02	7.23E-15	7.60E+07	3.26E+04	3.03E-15
7.09E+05	2.83E+00	1.21E-14	7.60E+06	3.26E+02	7.08E-15	8.15E+07	3.75E+04	2.86E-15
7.60E+05	3.26E+00	1.18E-14	8.15E+06	3.75E+02	6.91E-15	8.74E+07	4.31E+04	2.78E-15
8.15E+05	3.75E+00	1.17E-14	8.74E+06	4.31E+02	6.78E-15	9.37E+07	4.95E+04	2.69E-15
8.74E+05	4.31E+00	1.15E-14	9.37E+06	4.95E+02	6.66E-15	1.00E+08	5.69E+04	2.57E-15
9.37E+05	4.95E+00	1.14E-14	1.00E+07	5.69E+02	6.51E-15	1.08E+08	6.55E+04	2.45E-15
1.00E+06	5.69E+00	1.13E-14	1.08E+07	6.55E+02	6.38E-15	1.16E+08	7.53E+04	2.32E-15
1.08E+06	6.55E+00	1.13E-14	1.16E+07	7.53E+02	6.28E-15	1.24E+08	8.65E+04	2.13E-15
1.16E+06	7.53E+00	1.10E-14	1.24E+07	8.65E+02	6.16E-15	1.33E+08	9.95E+04	1.93E-15
1.24E+06	8.65E+00	1.09E-14	1.33E+07	9.95E+02	6.02E-15	1.42E+08	1.14E+05	1.74E-15
1.33E+06	9.95E+00	1.09E-14	1.42E+07	1.14E+03	5.88E-15	1.53E+08	1.32E+05	1.56E-15
1.42E+06	1.14E+01	1.07E-14	1.53E+07	1.32E+03	5.68E-15	1.64E+08	1.51E+05	1.38E-15
1.53E+06	1.32E+01	1.05E-14	1.64E+07	1.51E+03	5.56E-15	1.76E+08	1.74E+05	1.15E-15
1.64E+06	1.51E+01	1.04E-14	1.76E+07	1.74E+03	5.48E-15	1.88E+08	2.00E+05	8.76E-16
1.76E+06	1.74E+01	1.03E-14	1.88E+07	2.00E+03	5.37E-15			
1.88E+06	2.00E+01	9.98E-15	2.02E+07	2.30E+03	5.24E-15			
2.02E+06	2.30E+01	9.74E-15	2.16E+07	2.64E+03	5.07E-15			
2.16E+06	2.64E+01	9.66E-15	2.32E+07	3.04E+03	5.02E-15			
2.32E+06	3.04E+01	9.51E-15	2.49E+07	3.49E+03	4.90E-15			
2.49E+06	3.49E+01	9.31E-15	2.67E+07	4.02E+03	4.72E-15			
2.67E+06	4.02E+01	9.18E-15	2.86E+07	4.62E+03	4.63E-15			
2.86E+06	4.62E+01	9.12E-15	3.07E+07	5.31E+03	4.54E-15			
3.07E+06	5.31E+01	8.98E-15	3.29E+07	6.11E+03	4.41E-15			
3.29E+06	6.11E+01	8.77E-15	3.53E+07	7.02E+03	4.33E-15			
3.53E+06	7.02E+01	8.60E-15	3.78E+07	8.07E+03	4.20E-15			
3.78E+06	8.07E+01	8.50E-15	4.06E+07	9.28E+03	4.04E-15			
4.06E+06	9.28E+01	8.37E-15	4.35E+07	1.07E+04	3.98E-15			
4.35E+06	1.07E+02	8.16E-15	4.66E+07	1.23E+04	3.82E-15			
4.66E+06	1.23E+02	8.00E-15	5.00E+07	1.41E+04	3.72E-15			
5.00E+06	1.41E+02	7.92E-15	5.36E+07	1.62E+04	3.63E-15			

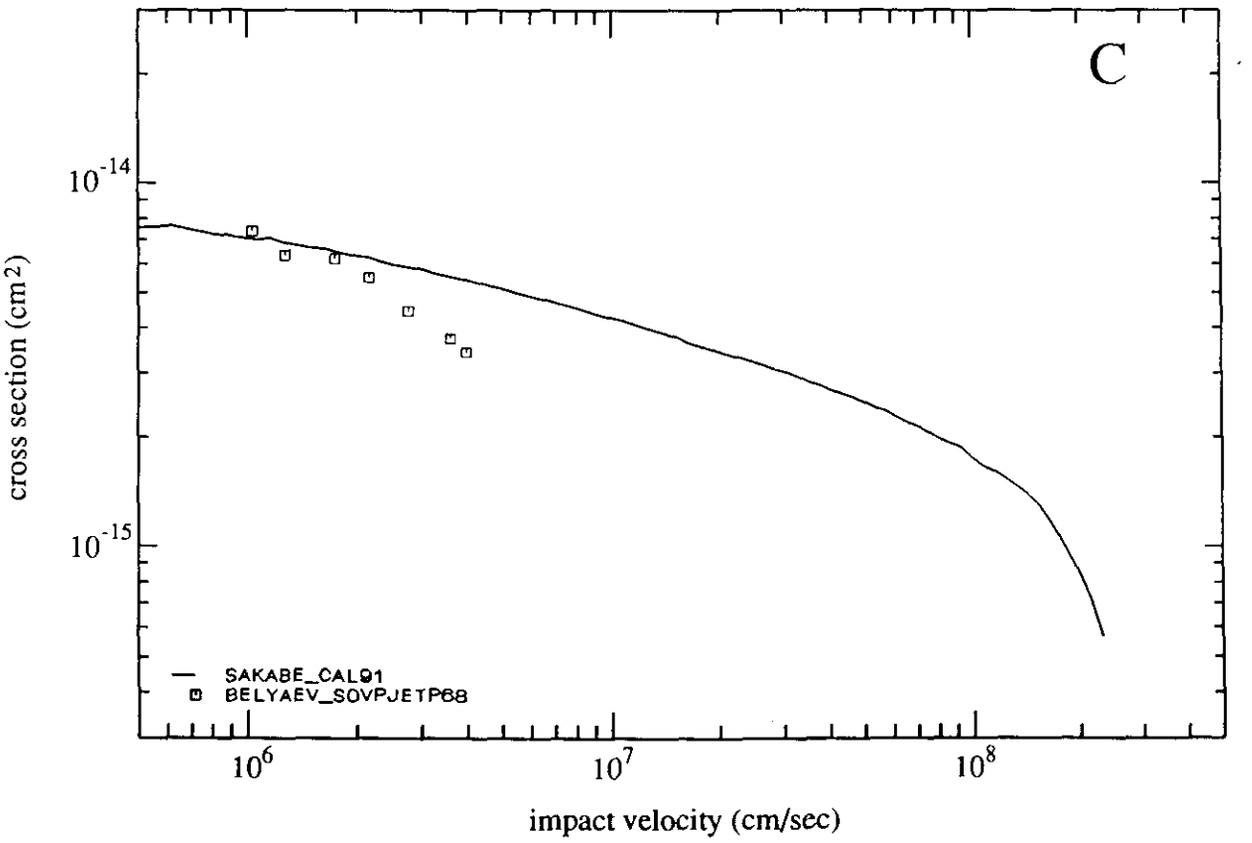


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

II-IV Carbon: C

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
5.00E+05	1.57E+00	7.58E-15	5.36E+06	1.80E+02	5.06E-15	5.75E+07	2.07E+04	2.37E-15
5.36E+05	1.80E+00	7.61E-15	5.75E+06	2.07E+02	4.98E-15	6.16E+07	2.38E+04	2.27E-15
5.75E+05	2.07E+00	7.60E-15	6.16E+06	2.38E+02	4.89E-15	6.61E+07	2.74E+04	2.21E-15
6.16E+05	2.38E+00	7.66E-15	6.61E+06	2.74E+02	4.80E-15	7.09E+07	3.15E+04	2.16E-15
6.61E+05	2.74E+00	7.57E-15	7.09E+06	3.15E+02	4.71E-15	7.60E+07	3.62E+04	2.06E-15
7.09E+05	3.15E+00	7.46E-15	7.60E+06	3.62E+02	4.63E-15	8.15E+07	4.16E+04	1.98E-15
7.60E+05	3.62E+00	7.38E-15	8.15E+06	4.16E+02	4.55E-15	8.74E+07	4.79E+04	1.93E-15
8.15E+05	4.16E+00	7.27E-15	8.74E+06	4.79E+02	4.45E-15	9.37E+07	5.50E+04	1.88E-15
8.74E+05	4.79E+00	7.24E-15	9.37E+06	5.50E+02	4.35E-15	1.00E+08	6.33E+04	1.77E-15
9.37E+05	5.50E+00	7.15E-15	1.00E+07	6.33E+02	4.29E-15	1.08E+08	7.27E+04	1.68E-15
1.00E+06	6.33E+00	7.07E-15	1.08E+07	7.27E+02	4.22E-15	1.16E+08	8.36E+04	1.62E-15
1.08E+06	7.27E+00	7.04E-15	1.16E+07	8.36E+02	4.13E-15	1.24E+08	9.62E+04	1.55E-15
1.16E+06	8.36E+00	7.10E-15	1.24E+07	9.62E+02	4.03E-15	1.33E+08	1.11E+05	1.48E-15
1.24E+06	9.62E+00	6.94E-15	1.33E+07	1.11E+03	3.96E-15	1.42E+08	1.27E+05	1.41E-15
1.33E+06	1.11E+01	6.81E-15	1.42E+07	1.27E+03	3.88E-15	1.53E+08	1.46E+05	1.32E-15
1.42E+06	1.27E+01	6.74E-15	1.53E+07	1.46E+03	3.79E-15	1.64E+08	1.68E+05	1.20E-15
1.53E+06	1.46E+01	6.66E-15	1.64E+07	1.68E+03	3.68E-15	1.76E+08	1.93E+05	1.07E-15
1.64E+06	1.68E+01	6.63E-15	1.76E+07	1.93E+03	3.60E-15	1.88E+08	2.22E+05	9.51E-16
1.76E+06	1.93E+01	6.50E-15	1.88E+07	2.22E+03	3.53E-15	2.02E+08	2.55E+05	8.39E-16
1.88E+06	2.22E+01	6.42E-15	2.02E+07	2.55E+03	3.47E-15	2.16E+08	2.94E+05	7.16E-16
2.02E+06	2.55E+01	6.34E-15	2.16E+07	2.94E+03	3.39E-15	2.32E+08	3.38E+05	5.70E-16
2.16E+06	2.94E+01	6.26E-15	2.32E+07	3.38E+03	3.32E-15			
2.32E+06	3.38E+01	6.12E-15	2.49E+07	3.88E+03	3.25E-15			
2.49E+06	3.88E+01	6.01E-15	2.67E+07	4.46E+03	3.17E-15			
2.67E+06	4.46E+01	5.95E-15	2.86E+07	5.13E+03	3.09E-15			
2.86E+06	5.13E+01	5.88E-15	3.07E+07	5.90E+03	3.03E-15			
3.07E+06	5.90E+01	5.80E-15	3.29E+07	6.78E+03	2.95E-15			
3.29E+06	6.78E+01	5.67E-15	3.53E+07	7.80E+03	2.84E-15			
3.53E+06	7.80E+01	5.59E-15	3.78E+07	8.97E+03	2.78E-15			
3.78E+06	8.97E+01	5.52E-15	4.06E+07	1.03E+04	2.72E-15			
4.06E+06	1.03E+02	5.43E-15	4.35E+07	1.19E+04	2.65E-15			
4.35E+06	1.19E+02	5.34E-15	4.66E+07	1.36E+04	2.59E-15			
4.66E+06	1.36E+02	5.23E-15	5.00E+07	1.57E+04	2.51E-15			
5.00E+06	1.57E+02	5.16E-15	5.36E+07	1.80E+04	2.42E-15			

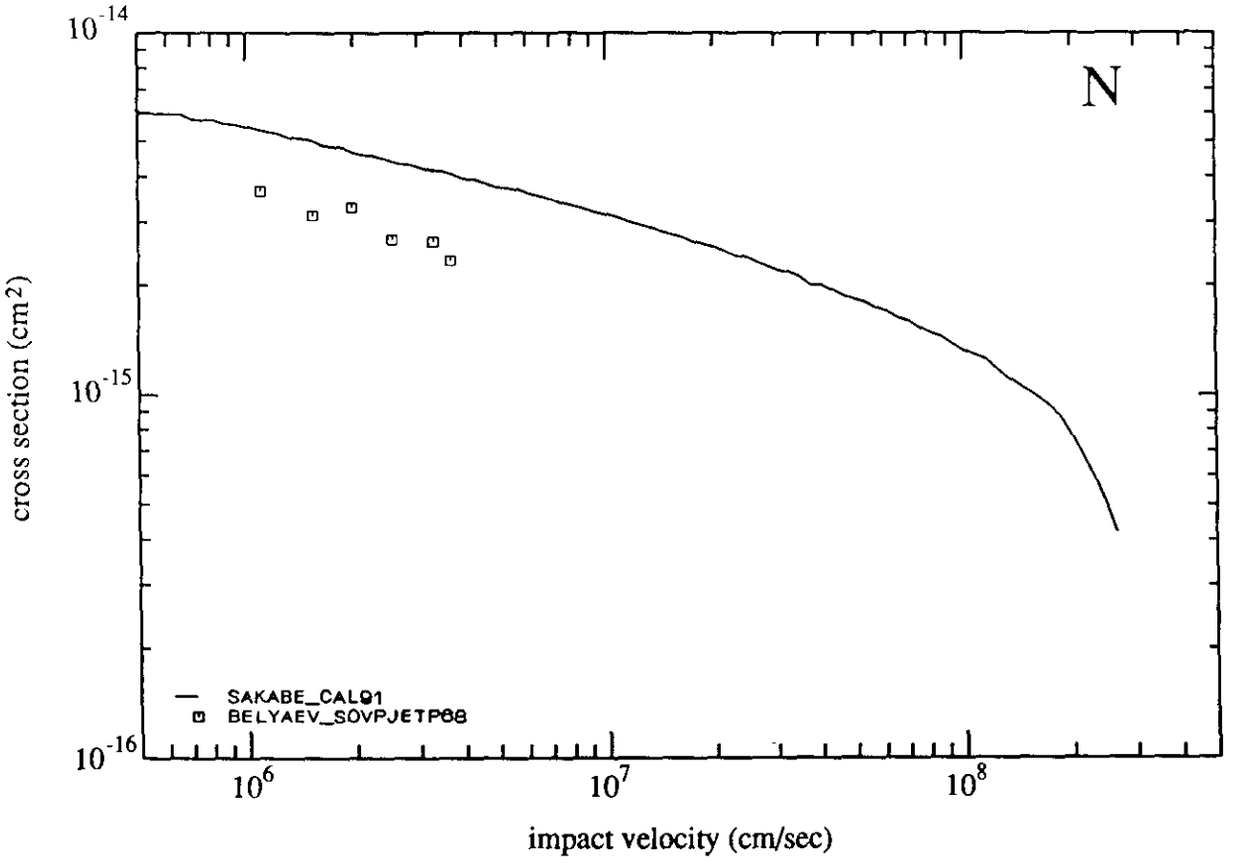


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

II-V Nitrogen: N

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
5.00E+05	1.83E+00	6.07E-15	5.36E+06	2.10E+02	3.73E-15	5.75E+07	2.42E+04	1.74E-15
5.36E+05	2.10E+00	6.04E-15	5.75E+06	2.42E+02	3.69E-15	6.16E+07	2.78E+04	1.69E-15
5.75E+05	2.42E+00	5.96E-15	6.16E+06	2.78E+02	3.59E-15	6.61E+07	3.19E+04	1.63E-15
6.16E+05	2.78E+00	5.97E-15	6.61E+06	3.19E+02	3.54E-15	7.09E+07	3.67E+04	1.60E-15
6.61E+05	3.19E+00	5.95E-15	7.09E+06	3.67E+02	3.48E-15	7.60E+07	4.22E+04	1.53E-15
7.09E+05	3.67E+00	5.79E-15	7.60E+06	4.22E+02	3.39E-15	8.15E+07	4.85E+04	1.48E-15
7.60E+05	4.22E+00	5.75E-15	8.15E+06	4.85E+02	3.33E-15	8.74E+07	5.58E+04	1.45E-15
8.15E+05	4.85E+00	5.74E-15	8.74E+06	5.58E+02	3.28E-15	9.37E+07	6.42E+04	1.38E-15
8.74E+05	5.58E+00	5.61E-15	9.37E+06	6.42E+02	3.20E-15	1.00E+08	7.38E+04	1.32E-15
9.37E+05	6.42E+00	5.58E-15	1.00E+07	7.38E+02	3.16E-15	1.08E+08	8.48E+04	1.29E-15
1.00E+06	7.38E+00	5.53E-15	1.08E+07	8.48E+02	3.10E-15	1.16E+08	9.75E+04	1.26E-15
1.08E+06	8.48E+00	5.41E-15	1.16E+07	9.75E+02	3.02E-15	1.24E+08	1.12E+05	1.18E-15
1.16E+06	9.75E+00	5.35E-15	1.24E+07	1.12E+03	2.96E-15	1.33E+08	1.29E+05	1.12E-15
1.24E+06	1.12E+01	5.27E-15	1.33E+07	1.29E+03	2.91E-15	1.42E+08	1.48E+05	1.07E-15
1.33E+06	1.29E+01	5.14E-15	1.42E+07	1.48E+03	2.83E-15	1.53E+08	1.70E+05	1.02E-15
1.42E+06	1.48E+01	5.10E-15	1.53E+07	1.70E+03	2.77E-15	1.64E+08	1.96E+05	9.78E-16
1.53E+06	1.70E+01	5.05E-15	1.64E+07	1.96E+03	2.73E-15	1.76E+08	2.25E+05	9.29E-16
1.64E+06	1.96E+01	4.90E-15	1.76E+07	2.25E+03	2.65E-15	1.88E+08	2.59E+05	8.60E-16
1.76E+06	2.25E+01	4.86E-15	1.88E+07	2.59E+03	2.60E-15	2.02E+08	2.98E+05	7.71E-16
1.88E+06	2.59E+01	4.82E-15	2.02E+07	2.98E+03	2.57E-15	2.16E+08	3.42E+05	6.76E-16
2.02E+06	2.98E+01	4.68E-15	2.16E+07	3.42E+03	2.50E-15	2.32E+08	3.94E+05	5.89E-16
2.16E+06	3.42E+01	4.60E-15	2.32E+07	3.94E+03	2.43E-15	2.49E+08	4.53E+05	5.06E-16
2.32E+06	3.94E+01	4.58E-15	2.49E+07	4.53E+03	2.39E-15	2.67E+08	5.20E+05	4.21E-16
2.49E+06	4.53E+01	4.46E-15	2.67E+07	5.20E+03	2.33E-15			
2.67E+06	5.20E+01	4.37E-15	2.86E+07	5.98E+03	2.26E-15			
2.86E+06	5.98E+01	4.35E-15	3.07E+07	6.88E+03	2.20E-15			
3.07E+06	6.88E+01	4.25E-15	3.29E+07	7.91E+03	2.18E-15			
3.29E+06	7.91E+01	4.16E-15	3.53E+07	9.10E+03	2.11E-15			
3.53E+06	9.10E+01	4.13E-15	3.78E+07	1.05E+04	2.02E-15			
3.78E+06	1.05E+02	4.06E-15	4.06E+07	1.20E+04	2.01E-15			
4.06E+06	1.20E+02	3.96E-15	4.35E+07	1.38E+04	1.94E-15			
4.35E+06	1.38E+02	3.93E-15	4.66E+07	1.59E+04	1.89E-15			
4.66E+06	1.59E+02	3.86E-15	5.00E+07	1.83E+04	1.84E-15			
5.00E+06	1.83E+02	3.77E-15	5.36E+07	2.10E+04	1.79E-15			

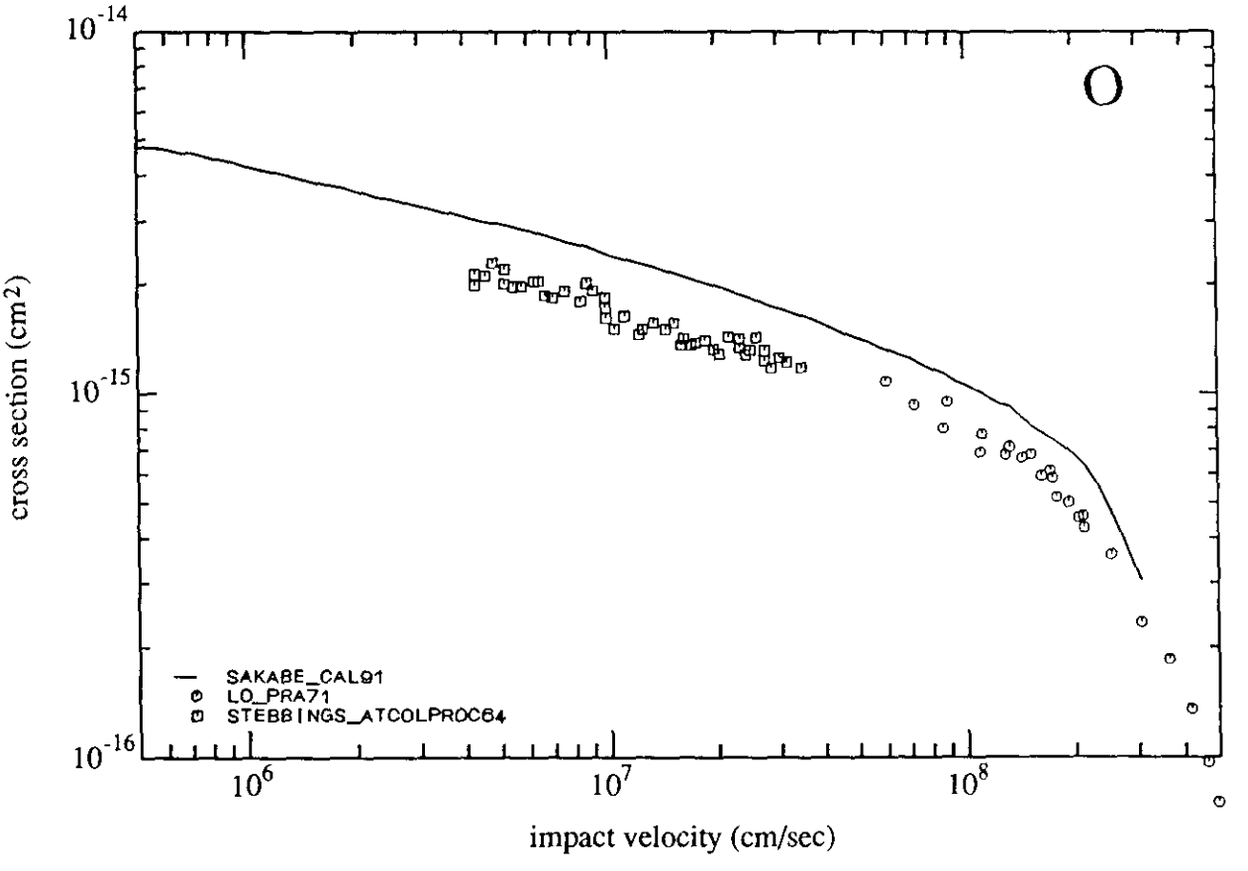


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

II-VI Oxygen: O

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
5.00E+05	2.09E+00	4.80E-15	5.36E+06	2.40E+02	2.90E-15	5.75E+07	2.76E+04	1.35E-15
5.36E+05	2.40E+00	4.78E-15	5.75E+06	2.76E+02	2.84E-15	6.16E+07	3.17E+04	1.32E-15
5.75E+05	2.76E+00	4.78E-15	6.16E+06	3.17E+02	2.80E-15	6.61E+07	3.65E+04	1.28E-15
6.16E+05	3.17E+00	4.70E-15	6.61E+06	3.65E+02	2.75E-15	7.09E+07	4.19E+04	1.25E-15
6.61E+05	3.65E+00	4.65E-15	7.09E+06	4.19E+02	2.69E-15	7.60E+07	4.82E+04	1.20E-15
7.09E+05	4.19E+00	4.61E-15	7.60E+06	4.82E+02	2.63E-15	8.15E+07	5.54E+04	1.17E-15
7.60E+05	4.82E+00	4.56E-15	8.15E+06	5.54E+02	2.59E-15	8.74E+07	6.37E+04	1.14E-15
8.15E+05	5.54E+00	4.47E-15	8.74E+06	6.37E+02	2.54E-15	9.37E+07	7.33E+04	1.09E-15
8.74E+05	6.37E+00	4.44E-15	9.37E+06	7.33E+02	2.49E-15	1.00E+08	8.43E+04	1.06E-15
9.37E+05	7.33E+00	4.36E-15	1.00E+07	8.43E+02	2.42E-15	1.08E+08	9.69E+04	1.02E-15
1.00E+06	8.43E+00	4.26E-15	1.08E+07	9.69E+02	2.37E-15	1.16E+08	1.11E+05	9.75E-16
1.08E+06	9.69E+00	4.19E-15	1.16E+07	1.11E+03	2.33E-15	1.24E+08	1.28E+05	9.41E-16
1.16E+06	1.11E+01	4.14E-15	1.24E+07	1.28E+03	2.29E-15	1.33E+08	1.47E+05	9.24E-16
1.24E+06	1.28E+01	4.07E-15	1.33E+07	1.47E+03	2.25E-15	1.42E+08	1.69E+05	8.70E-16
1.33E+06	1.47E+01	3.99E-15	1.42E+07	1.69E+03	2.20E-15	1.53E+08	1.95E+05	8.18E-16
1.42E+06	1.69E+01	3.93E-15	1.53E+07	1.95E+03	2.15E-15	1.64E+08	2.24E+05	7.83E-16
1.53E+06	1.95E+01	3.86E-15	1.64E+07	2.24E+03	2.11E-15	1.76E+08	2.57E+05	7.48E-16
1.64E+06	2.24E+01	3.80E-15	1.76E+07	2.57E+03	2.07E-15	1.88E+08	2.96E+05	7.13E-16
1.76E+06	2.57E+01	3.75E-15	1.88E+07	2.96E+03	2.02E-15	2.02E+08	3.40E+05	6.79E-16
1.88E+06	2.96E+01	3.72E-15	2.02E+07	3.40E+03	1.99E-15	2.16E+08	3.91E+05	6.33E-16
2.02E+06	3.40E+01	3.64E-15	2.16E+07	3.91E+03	1.94E-15	2.32E+08	4.50E+05	5.68E-16
2.16E+06	3.91E+01	3.57E-15	2.32E+07	4.50E+03	1.89E-15	2.49E+08	5.17E+05	4.95E-16
2.32E+06	4.50E+01	3.49E-15	2.49E+07	5.17E+03	1.84E-15	2.67E+08	5.95E+05	4.26E-16
2.49E+06	5.17E+01	3.45E-15	2.67E+07	5.95E+03	1.79E-15	2.86E+08	6.84E+05	3.62E-16
2.67E+06	5.95E+01	3.40E-15	2.86E+07	6.84E+03	1.75E-15	3.07E+08	7.86E+05	3.06E-16
2.86E+06	6.84E+01	3.33E-15	3.07E+07	7.86E+03	1.72E-15			
3.07E+06	7.86E+01	3.28E-15	3.29E+07	9.04E+03	1.68E-15			
3.29E+06	9.04E+01	3.24E-15	3.53E+07	1.04E+04	1.64E-15			
3.53E+06	1.04E+02	3.19E-15	3.78E+07	1.19E+04	1.60E-15			
3.78E+06	1.19E+02	3.13E-15	4.06E+07	1.37E+04	1.55E-15			
4.06E+06	1.37E+02	3.08E-15	4.35E+07	1.58E+04	1.51E-15			
4.35E+06	1.58E+02	3.03E-15	4.66E+07	1.82E+04	1.47E-15			
4.66E+06	1.82E+02	2.98E-15	5.00E+07	2.09E+04	1.43E-15			
5.00E+06	2.09E+02	2.94E-15	5.36E+07	2.40E+04	1.39E-15			

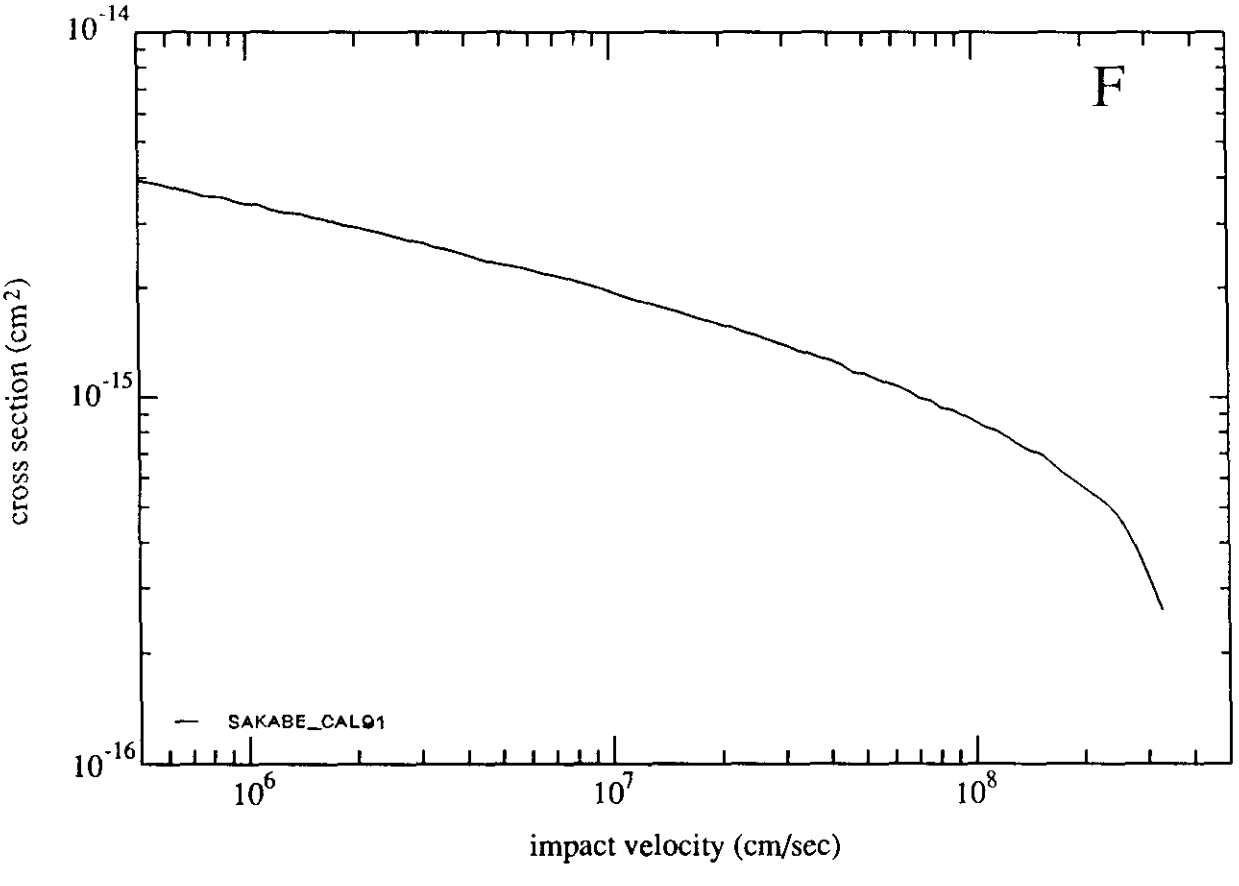


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

II-VII Fluorine: F

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
5.00E+05	2.48E+00	3.93E-15	5.36E+06	2.85E+02	2.31E-15	5.75E+07	3.28E+04	1.10E-15
5.36E+05	2.85E+00	3.89E-15	5.75E+06	3.28E+02	2.28E-15	6.16E+07	3.77E+04	1.07E-15
5.75E+05	3.28E+00	3.84E-15	6.16E+06	3.77E+02	2.24E-15	6.61E+07	4.33E+04	1.04E-15
6.16E+05	3.77E+00	3.77E-15	6.61E+06	4.33E+02	2.20E-15	7.09E+07	4.98E+04	1.00E-15
6.61E+05	4.33E+00	3.71E-15	7.09E+06	4.98E+02	2.17E-15	7.60E+07	5.73E+04	9.84E-16
7.09E+05	4.98E+00	3.67E-15	7.60E+06	5.73E+02	2.13E-15	8.15E+07	6.58E+04	9.44E-16
7.60E+05	5.73E+00	3.59E-15	8.15E+06	6.58E+02	2.08E-15	8.74E+07	7.57E+04	9.30E-16
8.15E+05	6.58E+00	3.56E-15	8.74E+06	7.57E+02	2.04E-15	9.37E+07	8.70E+04	8.93E-16
8.74E+05	7.57E+00	3.53E-15	9.37E+06	8.70E+02	2.00E-15	1.00E+08	1.00E+05	8.69E-16
9.37E+05	8.70E+00	3.46E-15	1.00E+07	1.00E+03	1.96E-15	1.08E+08	1.15E+05	8.31E-16
1.00E+06	1.00E+01	3.40E-15	1.08E+07	1.15E+03	1.91E-15	1.16E+08	1.32E+05	8.11E-16
1.08E+06	1.15E+01	3.39E-15	1.16E+07	1.32E+03	1.88E-15	1.24E+08	1.52E+05	7.81E-16
1.16E+06	1.32E+01	3.31E-15	1.24E+07	1.52E+03	1.84E-15	1.33E+08	1.75E+05	7.44E-16
1.24E+06	1.52E+01	3.25E-15	1.33E+07	1.75E+03	1.80E-15	1.42E+08	2.01E+05	7.18E-16
1.33E+06	1.75E+01	3.22E-15	1.42E+07	2.01E+03	1.76E-15	1.53E+08	2.31E+05	7.03E-16
1.42E+06	2.01E+01	3.20E-15	1.53E+07	2.31E+03	1.73E-15	1.64E+08	2.66E+05	6.62E-16
1.53E+06	2.31E+01	3.13E-15	1.64E+07	2.66E+03	1.69E-15	1.76E+08	3.06E+05	6.22E-16
1.64E+06	2.66E+01	3.09E-15	1.76E+07	3.06E+03	1.65E-15	1.88E+08	3.51E+05	5.95E-16
1.76E+06	3.06E+01	3.02E-15	1.88E+07	3.51E+03	1.63E-15	2.02E+08	4.04E+05	5.60E-16
1.88E+06	3.51E+01	2.97E-15	2.02E+07	4.04E+03	1.60E-15	2.16E+08	4.64E+05	5.39E-16
2.02E+06	4.04E+01	2.94E-15	2.16E+07	4.64E+03	1.56E-15	2.32E+08	5.34E+05	5.13E-16
2.16E+06	4.64E+01	2.89E-15	2.32E+07	5.34E+03	1.52E-15	2.49E+08	6.14E+05	4.76E-16
2.32E+06	5.34E+01	2.85E-15	2.49E+07	6.14E+03	1.49E-15	2.67E+08	7.06E+05	4.25E-16
2.49E+06	6.14E+01	2.80E-15	2.67E+07	7.06E+03	1.45E-15	2.86E+08	8.12E+05	3.67E-16
2.67E+06	7.06E+01	2.74E-15	2.86E+07	8.12E+03	1.42E-15	3.07E+08	9.33E+05	3.12E-16
2.86E+06	8.12E+01	2.69E-15	3.07E+07	9.33E+03	1.38E-15	3.29E+08	1.07E+06	2.63E-16
3.07E+06	9.33E+01	2.66E-15	3.29E+07	1.07E+04	1.35E-15			
3.29E+06	1.07E+02	2.60E-15	3.53E+07	1.23E+04	1.32E-15			
3.53E+06	1.23E+02	2.56E-15	3.78E+07	1.42E+04	1.29E-15			
3.78E+06	1.42E+02	2.51E-15	4.06E+07	1.63E+04	1.27E-15			
4.06E+06	1.63E+02	2.47E-15	4.35E+07	1.88E+04	1.23E-15			
4.35E+06	1.88E+02	2.41E-15	4.66E+07	2.16E+04	1.17E-15			
4.66E+06	2.16E+02	2.37E-15	5.00E+07	2.48E+04	1.17E-15			
5.00E+06	2.48E+02	2.34E-15	5.36E+07	2.85E+04	1.13E-15			

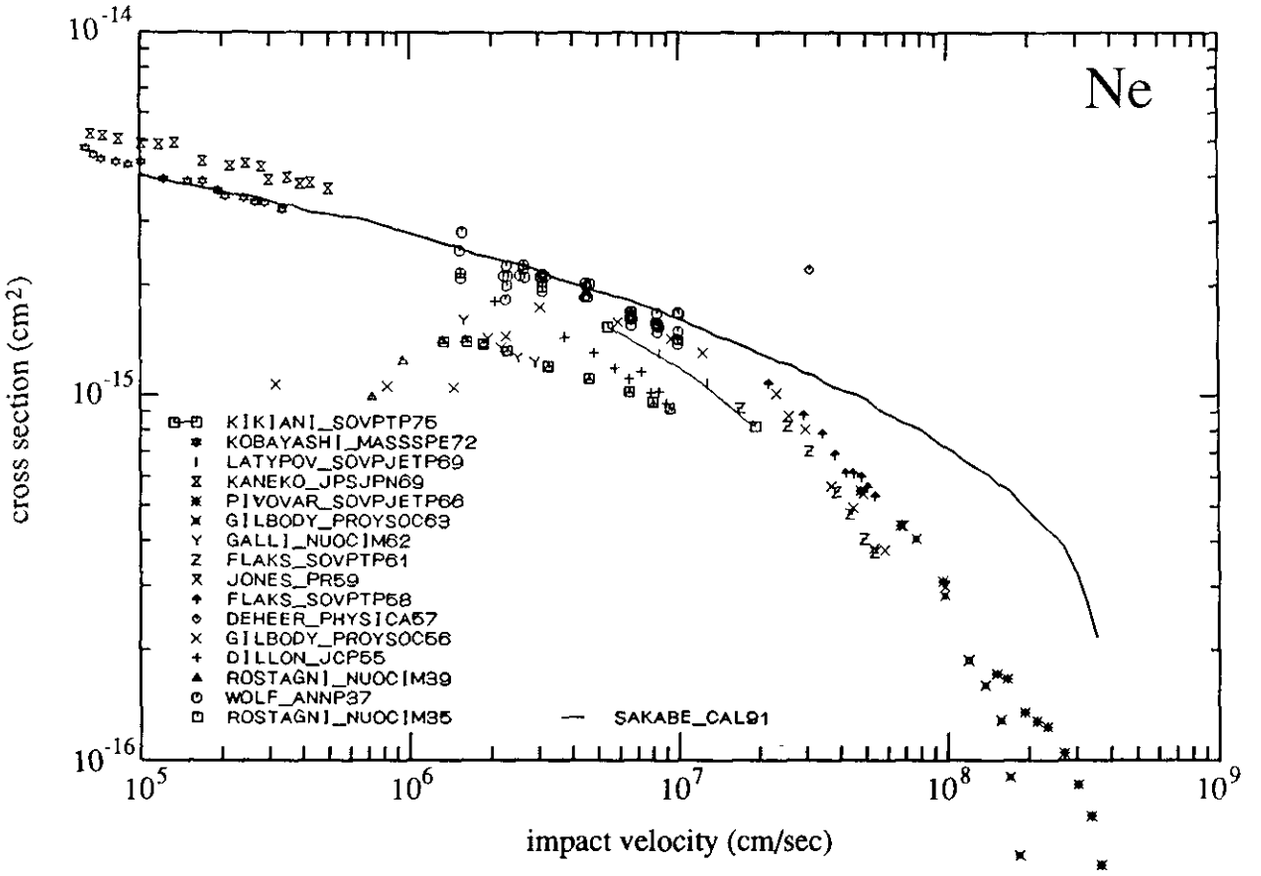


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

II-O Neon: Ne

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
1.00E+05	1.05E-01	4.06E-15	2.36E+06	5.89E+01	2.33E-15	5.59E+07	3.29E+04	9.16E-16
1.10E+05	1.27E-01	3.98E-15	2.60E+06	7.09E+01	2.28E-15	6.14E+07	3.96E+04	8.81E-16
1.20E+05	1.53E-01	3.92E-15	2.85E+06	8.54E+01	2.24E-15	6.73E+07	4.78E+04	8.52E-16
1.32E+05	1.84E-01	3.87E-15	3.13E+06	1.03E+02	2.18E-15	7.39E+07	5.75E+04	8.33E-16
1.45E+05	2.22E-01	3.81E-15	3.43E+06	1.24E+02	2.12E-15	8.11E+07	6.93E+04	8.04E-16
1.59E+05	2.67E-01	3.77E-15	3.76E+06	1.49E+02	2.06E-15	8.90E+07	8.35E+04	7.65E-16
1.75E+05	3.22E-01	3.72E-15	4.13E+06	1.80E+02	2.02E-15	9.77E+07	1.01E+05	7.29E-16
1.92E+05	3.87E-01	3.68E-15	4.53E+06	2.17E+02	1.99E-15	1.07E+08	1.21E+05	7.02E-16
2.10E+05	4.67E-01	3.61E-15	4.98E+06	2.61E+02	1.93E-15	1.18E+08	1.46E+05	6.66E-16
2.31E+05	5.62E-01	3.55E-15	5.46E+06	3.14E+02	1.91E-15	1.29E+08	1.76E+05	6.40E-16
2.54E+05	6.77E-01	3.54E-15	5.99E+06	3.78E+02	1.87E-15	1.42E+08	2.12E+05	6.10E-16
2.78E+05	8.15E-01	3.50E-15	6.58E+06	4.56E+02	1.83E-15	1.56E+08	2.55E+05	5.71E-16
3.05E+05	9.82E-01	3.43E-15	7.22E+06	5.49E+02	1.78E-15	1.71E+08	3.07E+05	5.55E-16
3.35E+05	1.18E+00	3.35E-15	7.92E+06	6.61E+02	1.74E-15	1.87E+08	3.70E+05	5.13E-16
3.68E+05	1.42E+00	3.33E-15	8.70E+06	7.97E+02	1.70E-15	2.06E+08	4.45E+05	4.77E-16
4.04E+05	1.72E+00	3.24E-15	9.55E+06	9.60E+02	1.65E-15	2.26E+08	5.36E+05	4.47E-16
4.43E+05	2.07E+00	3.19E-15	1.05E+07	1.16E+03	1.61E-15	2.48E+08	6.46E+05	4.19E-16
4.86E+05	2.49E+00	3.17E-15	1.15E+07	1.39E+03	1.55E-15	2.72E+08	7.78E+05	3.87E-16
5.34E+05	3.00E+00	3.13E-15	1.26E+07	1.68E+03	1.52E-15	2.98E+08	9.37E+05	3.36E-16
5.86E+05	3.61E+00	3.08E-15	1.38E+07	2.02E+03	1.47E-15	3.27E+08	1.13E+06	2.75E-16
6.43E+05	4.35E+00	3.06E-15	1.52E+07	2.43E+03	1.43E-15	3.59E+08	1.36E+06	2.19E-16
7.05E+05	5.24E+00	3.02E-15	1.67E+07	2.93E+03	1.39E-15			
7.74E+05	6.31E+00	2.95E-15	1.83E+07	3.53E+03	1.35E-15			
8.50E+05	7.60E+00	2.90E-15	2.01E+07	4.25E+03	1.31E-15			
9.33E+05	9.16E+00	2.82E-15	2.21E+07	5.12E+03	1.28E-15			
1.02E+06	1.10E+01	2.77E-15	2.42E+07	6.17E+03	1.23E-15			
1.12E+06	1.33E+01	2.72E-15	2.66E+07	7.43E+03	1.21E-15			
1.23E+06	1.60E+01	2.67E-15	2.92E+07	8.95E+03	1.16E-15			
1.35E+06	1.93E+01	2.61E-15	3.20E+07	1.08E+04	1.14E-15			
1.48E+06	2.32E+01	2.58E-15	3.51E+07	1.30E+04	1.09E-15			
1.63E+06	2.80E+01	2.50E-15	3.85E+07	1.56E+04	1.05E-15			
1.79E+06	3.37E+01	2.45E-15	4.23E+07	1.88E+04	1.02E-15			
1.96E+06	4.06E+01	2.41E-15	4.64E+07	2.27E+04	1.01E-15			
2.15E+06	4.89E+01	2.36E-15	5.09E+07	2.73E+04	9.75E-16			

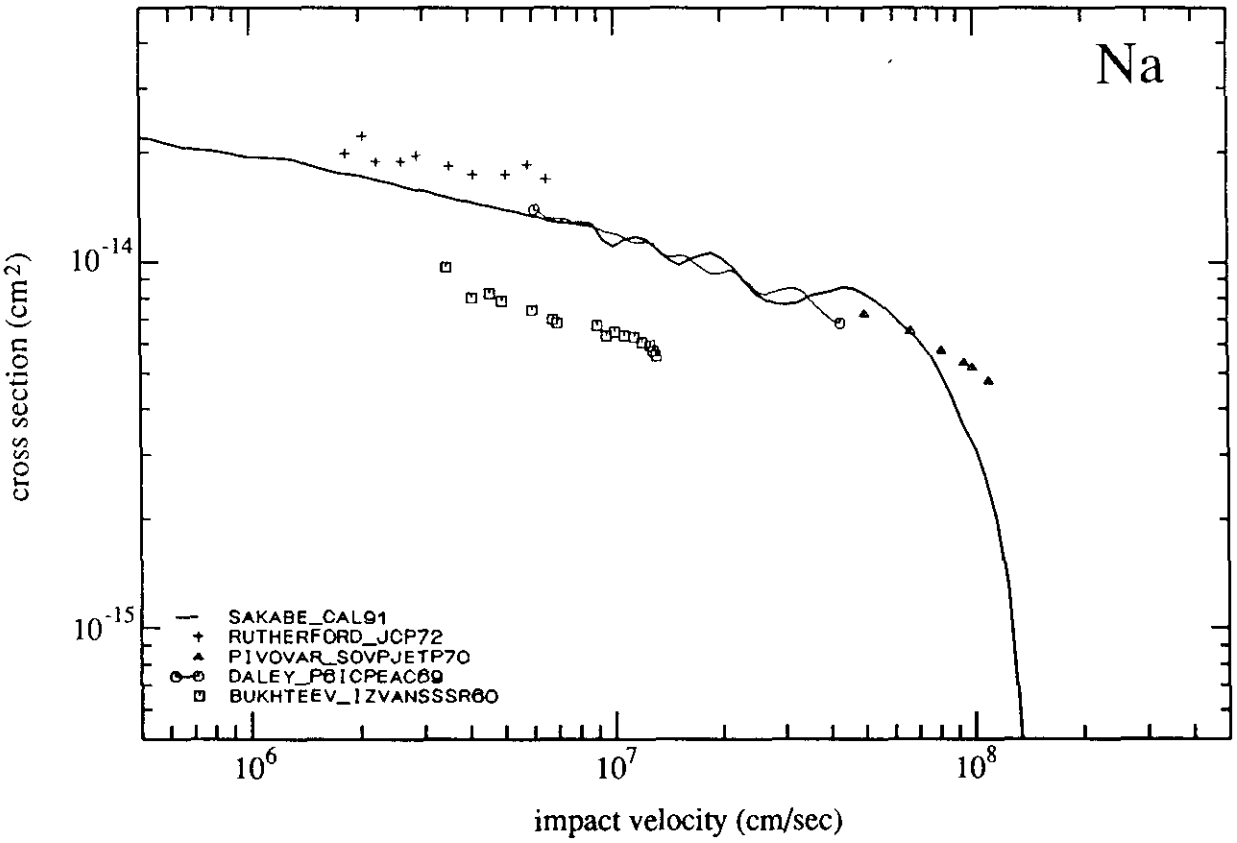


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

III-I Sodium: Na

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
5.00E+05	3.00E+00	2.20E-14	5.36E+06	3.45E+02	1.39E-14	5.75E+07	3.97E+04	7.50E-15
5.36E+05	3.45E+00	2.18E-14	5.75E+06	3.97E+02	1.36E-14	6.16E+07	4.56E+04	6.97E-15
5.75E+05	3.97E+00	2.13E-14	6.16E+06	4.56E+02	1.34E-14	6.61E+07	5.24E+04	6.55E-15
6.16E+05	4.56E+00	2.10E-14	6.61E+06	5.24E+02	1.30E-14	7.09E+07	6.03E+04	6.16E-15
6.61E+05	5.24E+00	2.07E-14	7.09E+06	6.03E+02	1.29E-14	7.60E+07	6.93E+04	5.63E-15
7.09E+05	6.03E+00	2.04E-14	7.60E+06	6.93E+02	1.28E-14	8.15E+07	7.97E+04	4.98E-15
7.60E+05	6.93E+00	2.03E-14	8.15E+06	7.97E+02	1.29E-14	8.74E+07	9.16E+04	4.30E-15
8.15E+05	7.97E+00	2.02E-14	8.74E+06	9.16E+02	1.28E-14	9.37E+07	1.05E+05	3.64E-15
8.74E+05	9.16E+00	2.00E-14	9.37E+06	1.05E+03	1.16E-14	1.00E+08	1.21E+05	3.21E-15
9.37E+05	1.05E+01	1.97E-14	1.00E+07	1.21E+03	1.11E-14	1.08E+08	1.39E+05	2.63E-15
1.00E+06	1.21E+01	1.95E-14	1.08E+07	1.39E+03	1.16E-14	1.16E+08	1.60E+05	2.00E-15
1.08E+06	1.39E+01	1.95E-14	1.16E+07	1.60E+03	1.18E-14	1.24E+08	1.84E+05	1.32E-15
1.16E+06	1.60E+01	1.94E-14	1.24E+07	1.84E+03	1.16E-14	1.33E+08	2.12E+05	6.28E-16
1.24E+06	1.84E+01	1.93E-14	1.33E+07	2.12E+03	1.08E-14	1.35E+08	2.18E+05	5.00E-16
1.33E+06	2.12E+01	1.91E-14	1.42E+07	2.43E+03	1.02E-14			
1.42E+06	2.43E+01	1.87E-14	1.53E+07	2.80E+03	9.90E-15			
1.53E+06	2.80E+01	1.83E-14	1.64E+07	3.22E+03	1.02E-14			
1.64E+06	3.22E+01	1.79E-14	1.76E+07	3.70E+03	1.05E-14			
1.76E+06	3.70E+01	1.76E-14	1.88E+07	4.25E+03	1.06E-14			
1.88E+06	4.25E+01	1.75E-14	2.02E+07	4.89E+03	1.03E-14			
2.02E+06	4.89E+01	1.72E-14	2.16E+07	5.62E+03	9.74E-15			
2.16E+06	5.62E+01	1.70E-14	2.32E+07	6.46E+03	8.97E-15			
2.32E+06	6.46E+01	1.67E-14	2.49E+07	7.43E+03	8.27E-15			
2.49E+06	7.43E+01	1.65E-14	2.67E+07	8.54E+03	7.93E-15			
2.67E+06	8.54E+01	1.61E-14	2.86E+07	9.82E+03	7.74E-15			
2.86E+06	9.82E+01	1.59E-14	3.07E+07	1.13E+04	7.75E-15			
3.07E+06	1.13E+02	1.57E-14	3.29E+07	1.30E+04	7.82E-15			
3.29E+06	1.30E+02	1.54E-14	3.53E+07	1.49E+04	8.13E-15			
3.53E+06	1.49E+02	1.51E-14	3.78E+07	1.72E+04	8.25E-15			
3.78E+06	1.72E+02	1.49E-14	4.06E+07	1.97E+04	8.39E-15			
4.06E+06	1.97E+02	1.47E-14	4.35E+07	2.27E+04	8.58E-15			
4.35E+06	2.27E+02	1.44E-14	4.66E+07	2.61E+04	8.54E-15			
4.66E+06	2.61E+02	1.43E-14	5.00E+07	3.00E+04	8.28E-15			
5.00E+06	3.00E+02	1.40E-14	5.36E+07	3.45E+04	7.89E-15			

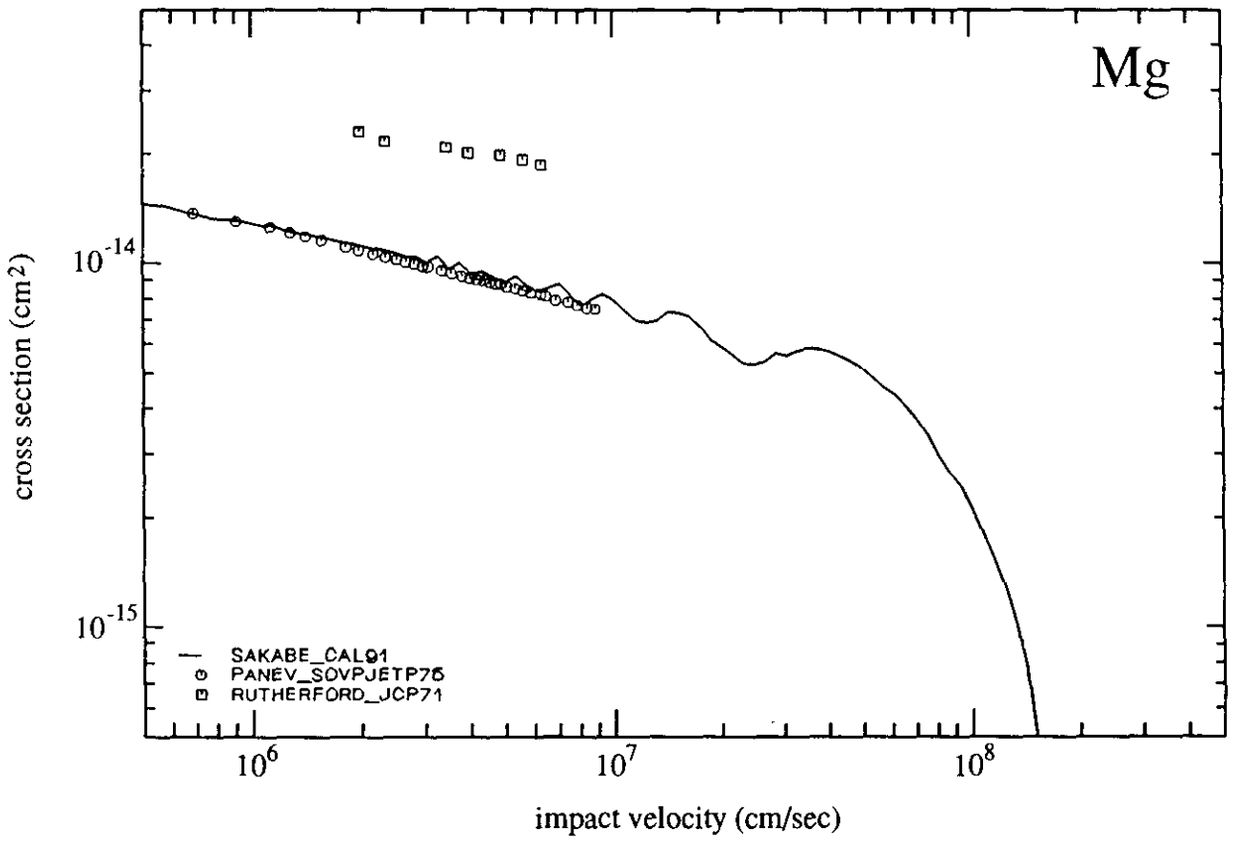


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

III-II Magnesium: Mg

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
5.00E+05	3.17E+00	1.45E-14	5.36E+06	3.65E+02	9.25E-15	5.75E+07	4.19E+04	4.55E-15
5.36E+05	3.65E+00	1.44E-14	5.75E+06	4.19E+02	8.72E-15	6.16E+07	4.82E+04	4.35E-15
5.75E+05	4.19E+00	1.43E-14	6.16E+06	4.82E+02	8.36E-15	6.61E+07	5.54E+04	4.06E-15
6.16E+05	4.82E+00	1.41E-14	6.61E+06	5.54E+02	8.59E-15	7.09E+07	6.37E+04	3.72E-15
6.61E+05	5.54E+00	1.38E-14	7.09E+06	6.37E+02	8.81E-15	7.60E+07	7.33E+04	3.36E-15
7.09E+05	6.37E+00	1.36E-14	7.60E+06	7.33E+02	8.18E-15	8.15E+07	8.42E+04	2.96E-15
7.60E+05	7.33E+00	1.33E-14	8.15E+06	8.42E+02	7.68E-15	8.74E+07	9.68E+04	2.66E-15
8.15E+05	8.42E+00	1.32E-14	8.74E+06	9.68E+02	7.95E-15	9.37E+07	1.11E+05	2.45E-15
8.74E+05	9.68E+00	1.32E-14	9.37E+06	1.11E+03	8.22E-15	1.00E+08	1.28E+05	2.14E-15
9.37E+05	1.11E+01	1.30E-14	1.00E+07	1.28E+03	7.96E-15	1.08E+08	1.47E+05	1.82E-15
1.00E+06	1.28E+01	1.28E-14	1.08E+07	1.47E+03	7.46E-15	1.16E+08	1.69E+05	1.54E-15
1.08E+06	1.47E+01	1.27E-14	1.16E+07	1.69E+03	7.00E-15	1.24E+08	1.95E+05	1.29E-15
1.16E+06	1.69E+01	1.26E-14	1.24E+07	1.95E+03	6.88E-15	1.33E+08	2.24E+05	1.04E-15
1.24E+06	1.95E+01	1.23E-14	1.33E+07	2.24E+03	6.97E-15	1.42E+08	2.57E+05	7.77E-16
1.33E+06	2.24E+01	1.21E-14	1.42E+07	2.57E+03	7.36E-15	1.52E+08	2.94E+05	5.00E-16
1.42E+06	2.57E+01	1.20E-14	1.53E+07	2.96E+03	7.32E-15			
1.53E+06	2.96E+01	1.18E-14	1.64E+07	3.40E+03	7.19E-15			
1.64E+06	3.40E+01	1.16E-14	1.76E+07	3.91E+03	6.67E-15			
1.75E+06	3.91E+01	1.15E-14	1.88E+07	4.49E+03	6.14E-15			
1.88E+06	4.49E+01	1.13E-14	2.02E+07	5.17E+03	5.90E-15			
2.02E+06	5.17E+01	1.12E-14	2.16E+07	5.94E+03	5.64E-15			
2.16E+06	5.94E+01	1.10E-14	2.32E+07	6.83E+03	5.33E-15			
2.32E+06	6.83E+01	1.09E-14	2.49E+07	7.85E+03	5.26E-15			
2.49E+06	7.85E+01	1.07E-14	2.67E+07	9.03E+03	5.37E-15			
2.67E+06	9.03E+01	1.05E-14	2.86E+07	1.04E+04	5.66E-15			
2.86E+06	1.04E+02	1.04E-14	3.07E+07	1.19E+04	5.58E-15			
3.07E+06	1.19E+02	1.01E-14	3.29E+07	1.37E+04	5.78E-15			
3.29E+06	1.37E+02	1.04E-14	3.53E+07	1.58E+04	5.85E-15			
3.53E+06	1.58E+02	9.64E-15	3.78E+07	1.81E+04	5.81E-15			
3.78E+06	1.81E+02	1.00E-14	4.06E+07	2.09E+04	5.74E-15			
4.06E+06	2.09E+02	9.39E-15	4.35E+07	2.40E+04	5.56E-15			
4.35E+06	2.40E+02	9.48E-15	4.66E+07	2.76E+04	5.40E-15			
4.66E+06	2.76E+02	9.19E-15	5.00E+07	3.17E+04	5.14E-15			
5.00E+06	3.17E+02	8.84E-15	5.36E+07	3.65E+04	4.82E-15			

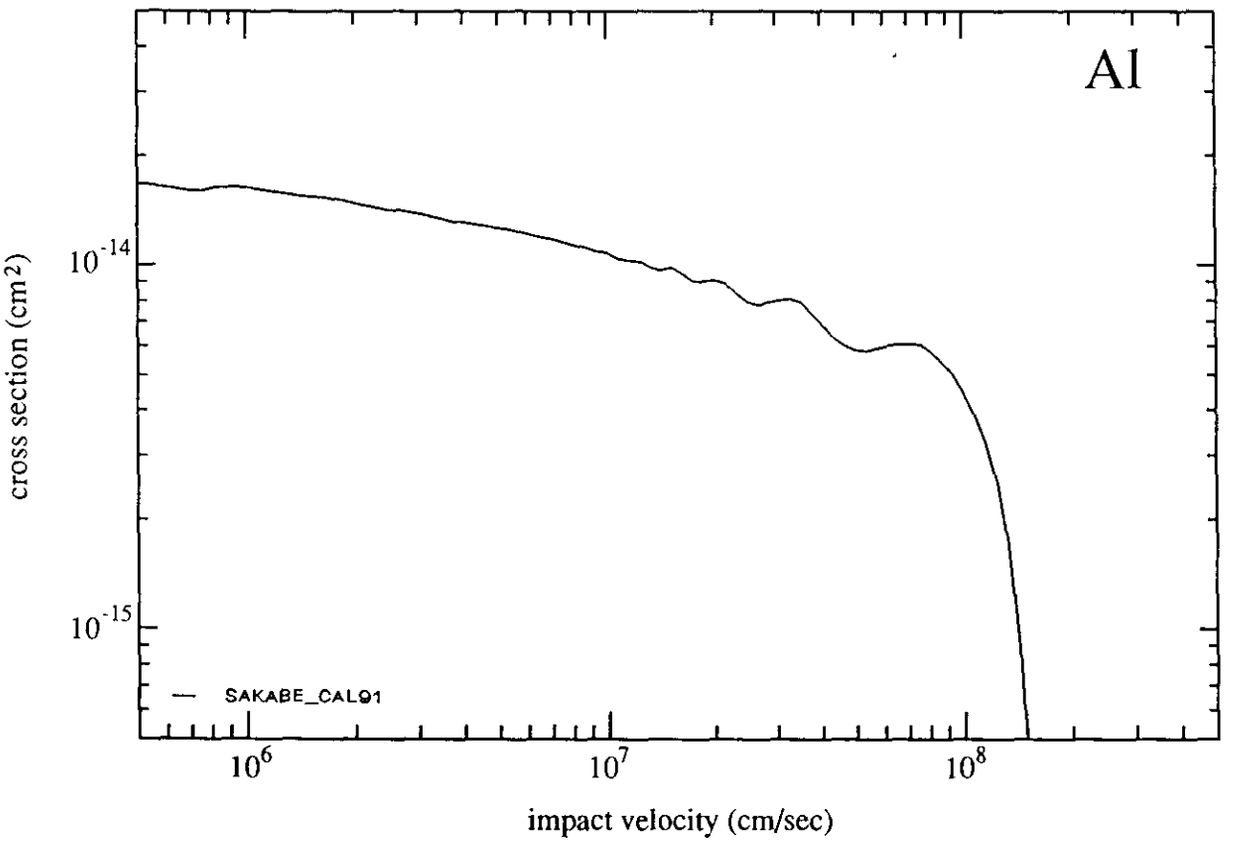


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

III-III Aluminum: Al

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
5.00E+05	3.52E+00	1.67E-14	5.36E+06	4.05E+02	1.26E-14	5.75E+07	4.65E+04	5.94E-15
5.36E+05	4.05E+00	1.67E-14	5.75E+06	4.65E+02	1.23E-14	6.16E+07	5.35E+04	6.02E-15
5.75E+05	4.65E+00	1.64E-14	6.16E+06	5.35E+02	1.21E-14	6.61E+07	6.15E+04	6.10E-15
6.16E+05	5.35E+00	1.63E-14	6.61E+06	6.15E+02	1.20E-14	7.09E+07	7.07E+04	6.11E-15
6.61E+05	6.15E+00	1.62E-14	7.09E+06	7.07E+02	1.18E-14	7.60E+07	8.13E+04	6.07E-15
7.09E+05	7.07E+00	1.60E-14	7.60E+06	8.13E+02	1.16E-14	8.15E+07	9.35E+04	5.80E-15
7.60E+05	8.13E+00	1.61E-14	8.15E+06	9.35E+02	1.14E-14	8.74E+07	1.08E+05	5.44E-15
8.15E+05	9.35E+00	1.63E-14	8.74E+06	1.08E+03	1.12E-14	9.37E+07	1.24E+05	5.03E-15
8.74E+05	1.08E+01	1.63E-14	9.37E+06	1.24E+03	1.10E-14	1.00E+08	1.42E+05	4.53E-15
9.37E+05	1.24E+01	1.64E-14	1.00E+07	1.42E+03	1.09E-14	1.08E+08	1.63E+05	3.90E-15
1.00E+06	1.42E+01	1.63E-14	1.08E+07	1.63E+03	1.05E-14	1.16E+08	1.88E+05	3.23E-15
1.08E+06	1.63E+01	1.62E-14	1.16E+07	1.88E+03	1.03E-14	1.24E+08	2.16E+05	2.51E-15
1.16E+06	1.88E+01	1.60E-14	1.24E+07	2.16E+03	1.03E-14	1.33E+08	2.48E+05	1.74E-15
1.24E+06	2.16E+01	1.59E-14	1.33E+07	2.48E+03	9.88E-15	1.42E+08	2.86E+05	9.47E-16
1.33E+06	2.48E+01	1.57E-14	1.42E+07	2.86E+03	9.72E-15	1.50E+08	3.16E+05	5.00E-16
1.42E+06	2.86E+01	1.56E-14	1.53E+07	3.28E+03	9.91E-15			
1.53E+06	3.28E+01	1.55E-14	1.64E+07	3.77E+03	9.52E-15			
1.64E+06	3.77E+01	1.54E-14	1.76E+07	4.34E+03	9.06E-15			
1.76E+06	4.34E+01	1.52E-14	1.88E+07	4.99E+03	9.01E-15			
1.88E+06	4.99E+01	1.51E-14	2.02E+07	5.74E+03	9.12E-15			
2.02E+06	5.74E+01	1.49E-14	2.16E+07	6.60E+03	8.99E-15			
2.16E+06	6.60E+01	1.46E-14	2.32E+07	7.58E+03	8.44E-15			
2.32E+06	7.58E+01	1.44E-14	2.49E+07	8.72E+03	7.98E-15			
2.49E+06	8.72E+01	1.43E-14	2.67E+07	1.00E+04	7.82E-15			
2.67E+06	1.00E+02	1.42E-14	2.86E+07	1.15E+04	7.93E-15			
2.86E+06	1.15E+02	1.40E-14	3.07E+07	1.33E+04	8.03E-15			
3.07E+06	1.33E+02	1.38E-14	3.29E+07	1.52E+04	8.10E-15			
3.29E+06	1.52E+02	1.36E-14	3.53E+07	1.75E+04	7.92E-15			
3.53E+06	1.75E+02	1.35E-14	3.78E+07	2.01E+04	7.38E-15			
3.78E+06	2.01E+02	1.32E-14	4.06E+07	2.32E+04	6.91E-15			
4.06E+06	2.32E+02	1.31E-14	4.35E+07	2.66E+04	6.33E-15			
4.35E+06	2.66E+02	1.30E-14	4.66E+07	3.06E+04	6.04E-15			
4.66E+06	3.06E+02	1.29E-14	5.00E+07	3.52E+04	5.88E-15			
5.00E+06	3.52E+02	1.27E-14	5.36E+07	4.05E+04	5.82E-15			

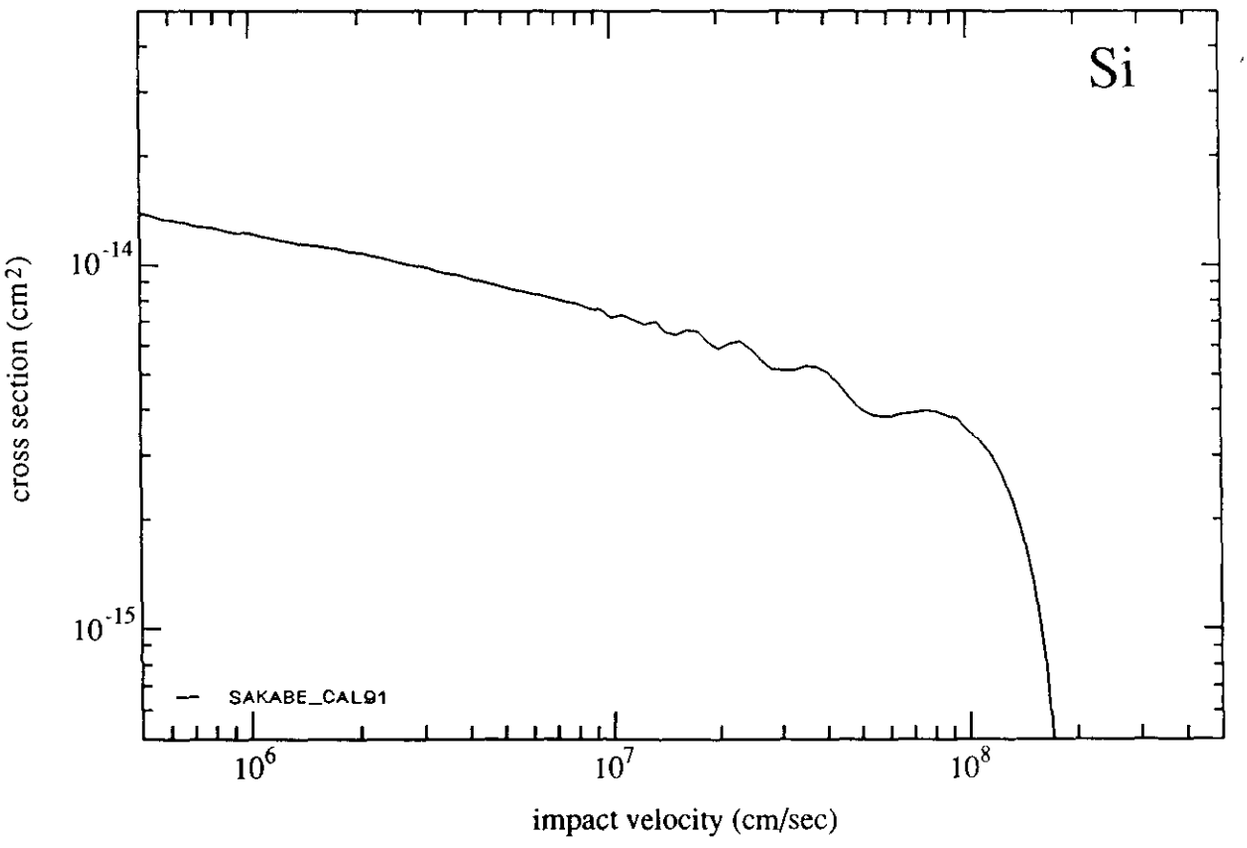


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

III-IV Silicon: Si

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
5.00E+05	3.66E+00	1.39E-14	5.36E+06	4.21E+02	8.63E-15	5.75E+07	4.84E+04	3.84E-15
5.36E+05	4.21E+00	1.37E-14	5.75E+06	4.84E+02	8.50E-15	6.16E+07	5.57E+04	3.84E-15
5.75E+05	4.84E+00	1.34E-14	6.16E+06	5.57E+02	8.40E-15	6.61E+07	6.40E+04	3.91E-15
6.16E+05	5.57E+00	1.33E-14	6.61E+06	6.40E+02	8.21E-15	7.09E+07	7.36E+04	3.94E-15
6.61E+05	6.40E+00	1.31E-14	7.09E+06	7.36E+02	8.10E-15	7.60E+07	8.46E+04	3.99E-15
7.09E+05	7.36E+00	1.29E-14	7.60E+06	8.46E+02	7.95E-15	8.15E+07	9.73E+04	3.98E-15
7.60E+05	8.46E+00	1.27E-14	8.15E+06	9.73E+02	7.85E-15	8.74E+07	1.12E+05	3.86E-15
8.15E+05	9.73E+00	1.27E-14	8.74E+06	1.12E+03	7.66E-15	9.37E+07	1.29E+05	3.77E-15
8.74E+05	1.12E+01	1.25E-14	9.37E+06	1.29E+03	7.56E-15	1.00E+08	1.48E+05	3.54E-15
9.37E+05	1.29E+01	1.23E-14	1.00E+07	1.48E+03	7.18E-15	1.08E+08	1.70E+05	3.32E-15
1.00E+06	1.48E+01	1.23E-14	1.08E+07	1.70E+03	7.34E-15	1.16E+08	1.96E+05	3.04E-15
1.08E+06	1.70E+01	1.20E-14	1.16E+07	1.96E+03	7.11E-15	1.24E+08	2.25E+05	2.67E-15
1.16E+06	1.96E+01	1.19E-14	1.24E+07	2.25E+03	6.91E-15	1.33E+08	2.59E+05	2.25E-15
1.24E+06	2.25E+01	1.17E-14	1.33E+07	2.59E+03	7.03E-15	1.42E+08	2.97E+05	1.80E-15
1.33E+06	2.59E+01	1.16E-14	1.42E+07	2.97E+03	6.53E-15	1.53E+08	3.42E+05	1.34E-15
1.42E+06	2.97E+01	1.14E-14	1.53E+07	3.42E+03	6.45E-15	1.64E+08	3.93E+05	8.57E-16
1.53E+06	3.42E+01	1.13E-14	1.64E+07	3.93E+03	6.64E-15	1.72E+08	4.35E+05	5.00E-16
1.64E+06	3.93E+01	1.12E-14	1.76E+07	4.52E+03	6.59E-15			
1.76E+06	4.52E+01	1.11E-14	1.88E+07	5.19E+03	6.15E-15			
1.88E+06	5.19E+01	1.09E-14	2.02E+07	5.97E+03	5.88E-15			
2.02E+06	5.97E+01	1.08E-14	2.16E+07	6.87E+03	6.10E-15			
2.16E+06	6.87E+01	1.06E-14	2.32E+07	7.89E+03	6.17E-15			
2.32E+06	7.89E+01	1.05E-14	2.49E+07	9.08E+03	5.88E-15			
2.49E+06	9.08E+01	1.04E-14	2.67E+07	1.04E+04	5.46E-15			
2.67E+06	1.04E+02	1.02E-14	2.86E+07	1.20E+04	5.20E-15			
2.86E+06	1.20E+02	1.00E-14	3.07E+07	1.38E+04	5.14E-15			
3.07E+06	1.38E+02	9.89E-15	3.29E+07	1.59E+04	5.15E-15			
3.29E+06	1.59E+02	9.67E-15	3.53E+07	1.82E+04	5.27E-15			
3.53E+06	1.82E+02	9.55E-15	3.78E+07	2.10E+04	5.26E-15			
3.78E+06	2.10E+02	9.43E-15	4.06E+07	2.41E+04	5.10E-15			
4.06E+06	2.41E+02	9.25E-15	4.35E+07	2.77E+04	4.73E-15			
4.35E+06	2.77E+02	9.05E-15	4.66E+07	3.19E+04	4.36E-15			
4.66E+06	3.19E+02	8.93E-15	5.00E+07	3.66E+04	4.05E-15			
5.00E+06	3.66E+02	8.78E-15	5.36E+07	4.21E+04	3.88E-15			

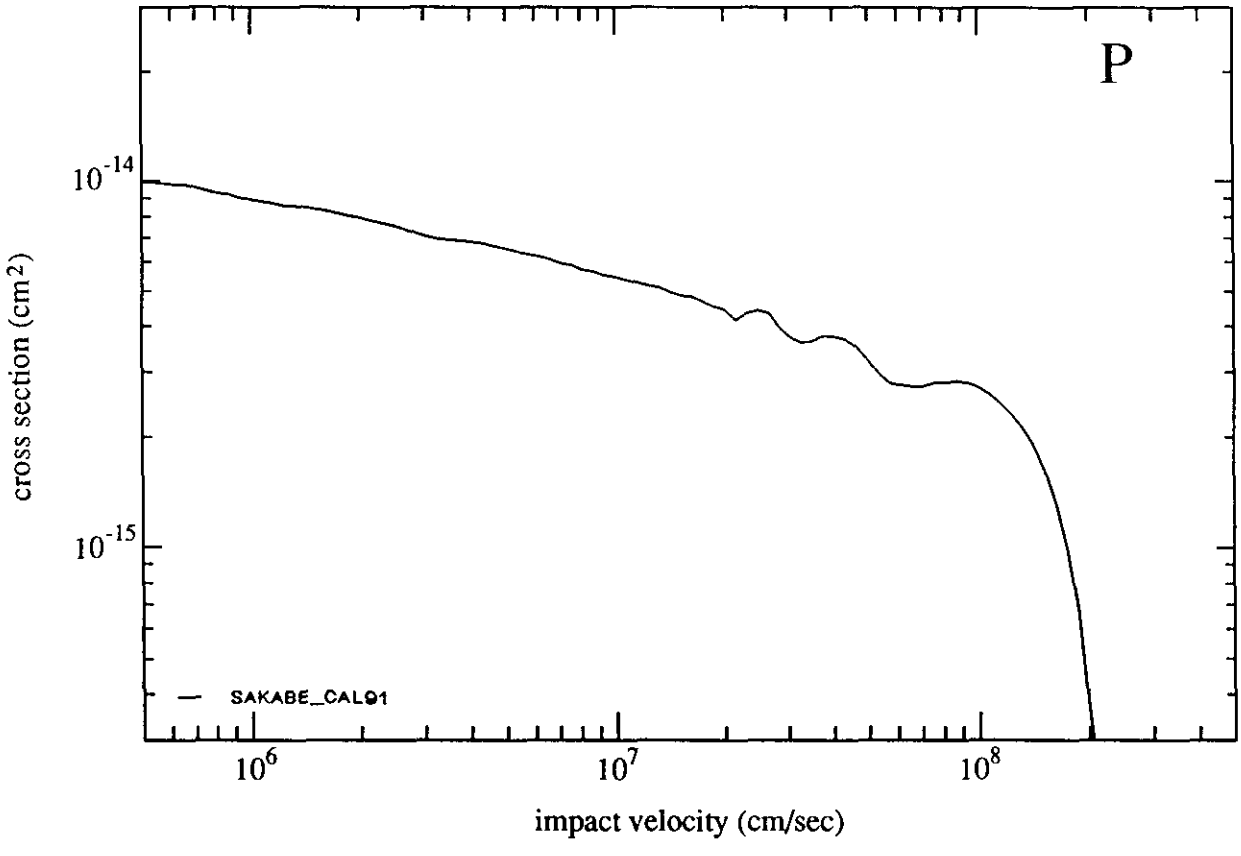


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

III-V Phosphorus: P

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
5.00E+05	4.04E+00	9.94E-15	5.36E+06	4.65E+02	6.48E-15	5.75E+07	5.34E+04	2.82E-15
5.36E+05	4.65E+00	9.96E-15	5.75E+06	5.34E+02	6.34E-15	6.16E+07	6.14E+04	2.78E-15
5.75E+05	5.34E+00	9.92E-15	6.16E+06	6.14E+02	6.24E-15	6.61E+07	7.06E+04	2.76E-15
6.16E+05	6.14E+00	9.83E-15	6.61E+06	7.06E+02	6.14E-15	7.09E+07	8.12E+04	2.77E-15
6.61E+05	7.06E+00	9.82E-15	7.09E+06	8.12E+02	5.98E-15	7.60E+07	9.34E+04	2.82E-15
7.09E+05	8.12E+00	9.61E-15	7.60E+06	9.34E+02	5.90E-15	8.15E+07	1.07E+05	2.82E-15
7.60E+05	9.34E+00	9.47E-15	8.15E+06	1.07E+03	5.75E-15	8.74E+07	1.23E+05	2.85E-15
8.15E+05	1.07E+01	9.32E-15	8.74E+06	1.23E+03	5.67E-15	9.37E+07	1.42E+05	2.83E-15
8.74E+05	1.23E+01	9.24E-15	9.37E+06	1.42E+03	5.55E-15	1.00E+08	1.63E+05	2.75E-15
9.37E+05	1.42E+01	9.02E-15	1.00E+07	1.63E+03	5.49E-15	1.08E+08	1.88E+05	2.64E-15
1.00E+06	1.63E+01	8.93E-15	1.08E+07	1.88E+03	5.38E-15	1.16E+08	2.16E+05	2.47E-15
1.08E+06	1.88E+01	8.82E-15	1.16E+07	2.16E+03	5.29E-15	1.24E+08	2.48E+05	2.31E-15
1.16E+06	2.16E+01	8.75E-15	1.24E+07	2.48E+03	5.20E-15	1.33E+08	2.85E+05	2.13E-15
1.24E+06	2.48E+01	8.63E-15	1.33E+07	2.85E+03	5.12E-15	1.42E+08	3.28E+05	1.90E-15
1.33E+06	2.85E+01	8.57E-15	1.42E+07	3.28E+03	4.98E-15	1.53E+08	3.77E+05	1.62E-15
1.42E+06	3.28E+01	8.50E-15	1.53E+07	3.77E+03	4.88E-15	1.64E+08	4.33E+05	1.31E-15
1.53E+06	3.77E+01	8.42E-15	1.64E+07	4.33E+03	4.83E-15	1.76E+08	4.98E+05	9.93E-16
1.64E+06	4.33E+01	8.31E-15	1.76E+07	4.98E+03	4.70E-15	1.88E+08	5.73E+05	6.69E-16
1.76E+06	4.98E+01	8.19E-15	1.88E+07	5.73E+03	4.54E-15	2.02E+08	6.59E+05	3.56E-16
1.88E+06	5.73E+01	8.08E-15	2.02E+07	6.59E+03	4.45E-15	2.05E+08	6.79E+05	3.00E-16
2.02E+06	6.59E+01	7.97E-15	2.16E+07	7.57E+03	4.17E-15			
2.16E+06	7.57E+01	7.84E-15	2.32E+07	8.71E+03	4.33E-15			
2.32E+06	8.71E+01	7.72E-15	2.49E+07	1.00E+04	4.42E-15			
2.49E+06	1.00E+02	7.60E-15	2.67E+07	1.15E+04	4.35E-15			
2.67E+06	1.15E+02	7.44E-15	2.86E+07	1.32E+04	3.97E-15			
2.86E+06	1.32E+02	7.26E-15	3.07E+07	1.52E+04	3.75E-15			
3.07E+06	1.52E+02	7.10E-15	3.29E+07	1.75E+04	3.63E-15			
3.29E+06	1.75E+02	7.02E-15	3.53E+07	2.01E+04	3.65E-15			
3.53E+06	2.01E+02	6.94E-15	3.78E+07	2.31E+04	3.78E-15			
3.78E+06	2.31E+02	6.90E-15	4.06E+07	2.66E+04	3.76E-15			
4.06E+06	2.66E+02	6.87E-15	4.35E+07	3.06E+04	3.72E-15			
4.35E+06	3.06E+02	6.81E-15	4.66E+07	3.51E+04	3.54E-15			
4.66E+06	3.51E+02	6.70E-15	5.00E+07	4.04E+04	3.27E-15			
5.00E+06	4.04E+02	6.60E-15	5.36E+07	4.65E+04	2.98E-15			

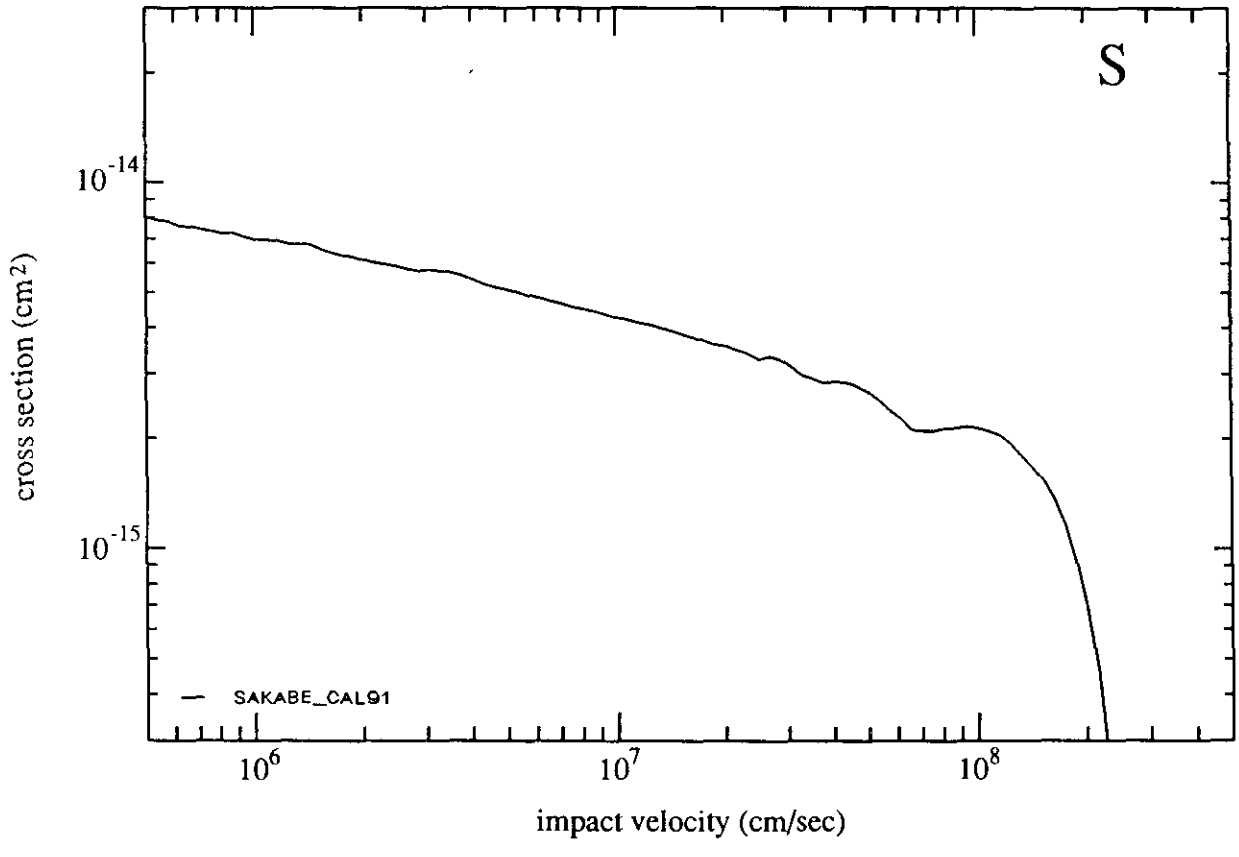


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

III-VI Sulfur: S

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
5.00E+05	4.18E+00	8.05E-15	5.36E+06	4.81E+02	5.02E-15	5.75E+07	5.53E+04	2.39E-15
5.36E+05	4.81E+00	7.91E-15	5.75E+06	5.53E+02	4.92E-15	6.16E+07	6.36E+04	2.28E-15
5.75E+05	5.53E+00	7.81E-15	6.16E+06	6.36E+02	4.84E-15	6.61E+07	7.31E+04	2.13E-15
6.16E+05	6.36E+00	7.60E-15	6.61E+06	7.31E+02	4.76E-15	7.09E+07	8.40E+04	2.10E-15
6.61E+05	7.31E+00	7.56E-15	7.09E+06	8.40E+02	4.68E-15	7.60E+07	9.66E+04	2.10E-15
7.09E+05	8.40E+00	7.48E-15	7.60E+06	9.66E+02	4.59E-15	8.15E+07	1.11E+05	2.14E-15
7.60E+05	9.66E+00	7.38E-15	8.15E+06	1.11E+03	4.53E-15	8.74E+07	1.28E+05	2.13E-15
8.15E+05	1.11E+01	7.27E-15	8.74E+06	1.28E+03	4.45E-15	9.37E+07	1.47E+05	2.16E-15
8.74E+05	1.28E+01	7.30E-15	9.37E+06	1.47E+03	4.38E-15	1.00E+08	1.69E+05	2.14E-15
9.37E+05	1.47E+01	7.14E-15	1.00E+07	1.69E+03	4.28E-15	1.08E+08	1.94E+05	2.11E-15
1.00E+06	1.69E+01	7.02E-15	1.08E+07	1.94E+03	4.22E-15	1.16E+08	2.23E+05	2.04E-15
1.08E+06	1.94E+01	7.01E-15	1.16E+07	2.23E+03	4.13E-15	1.24E+08	2.57E+05	1.95E-15
1.16E+06	2.23E+01	6.94E-15	1.24E+07	2.57E+03	4.08E-15	1.33E+08	2.95E+05	1.81E-15
1.24E+06	2.57E+01	6.80E-15	1.33E+07	2.95E+03	4.00E-15	1.42E+08	3.39E+05	1.68E-15
1.33E+06	2.95E+01	6.79E-15	1.42E+07	3.39E+03	3.93E-15	1.53E+08	3.90E+05	1.55E-15
1.42E+06	3.39E+01	6.78E-15	1.53E+07	3.90E+03	3.84E-15	1.64E+08	4.49E+05	1.37E-15
1.53E+06	3.90E+01	6.61E-15	1.64E+07	4.49E+03	3.78E-15	1.76E+08	5.16E+05	1.17E-15
1.64E+06	4.49E+01	6.45E-15	1.76E+07	5.16E+03	3.69E-15	1.88E+08	5.93E+05	9.36E-16
1.76E+06	5.16E+01	6.34E-15	1.88E+07	5.93E+03	3.61E-15	2.02E+08	6.82E+05	7.00E-16
1.88E+06	5.93E+01	6.26E-15	2.02E+07	6.82E+03	3.59E-15	2.16E+08	7.84E+05	4.61E-16
2.02E+06	6.82E+01	6.14E-15	2.16E+07	7.84E+03	3.50E-15	2.26E+08	8.57E+05	3.00E-16
2.16E+06	7.84E+01	6.05E-15	2.32E+07	9.01E+03	3.43E-15			
2.32E+06	9.01E+01	5.98E-15	2.49E+07	1.04E+04	3.29E-15			
2.49E+06	1.04E+02	5.90E-15	2.67E+07	1.19E+04	3.35E-15			
2.67E+06	1.19E+02	5.80E-15	2.86E+07	1.37E+04	3.29E-15			
2.86E+06	1.37E+02	5.76E-15	3.07E+07	1.57E+04	3.14E-15			
3.07E+06	1.57E+02	5.78E-15	3.29E+07	1.81E+04	2.98E-15			
3.29E+06	1.81E+02	5.75E-15	3.53E+07	2.08E+04	2.92E-15			
3.53E+06	2.08E+02	5.66E-15	3.78E+07	2.39E+04	2.84E-15			
3.78E+06	2.39E+02	5.56E-15	4.06E+07	2.75E+04	2.87E-15			
4.06E+06	2.75E+02	5.43E-15	4.35E+07	3.16E+04	2.85E-15			
4.35E+06	3.16E+02	5.29E-15	4.66E+07	3.64E+04	2.81E-15			
4.66E+06	3.64E+02	5.20E-15	5.00E+07	4.18E+04	2.70E-15			
5.00E+06	4.18E+02	5.11E-15	5.36E+07	4.81E+04	2.55E-15			

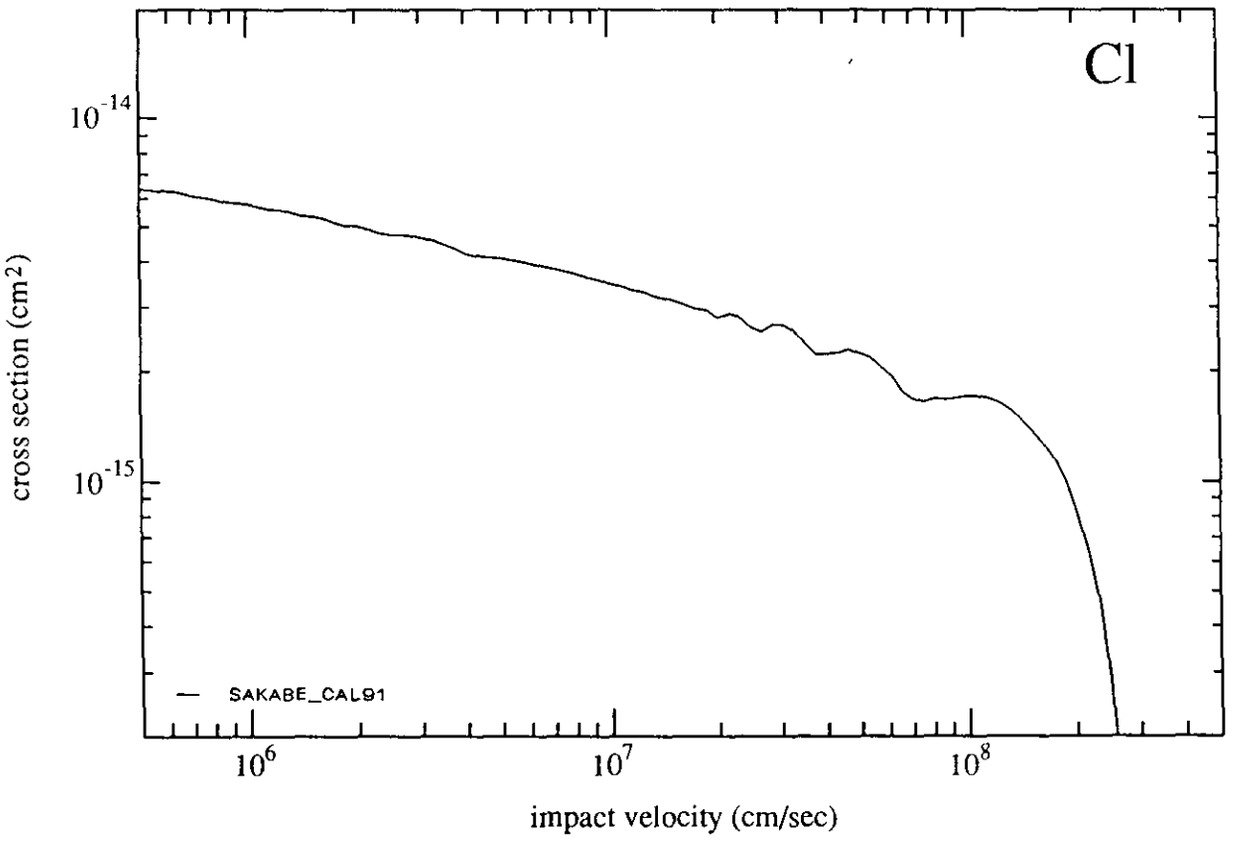


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

III-VII Chlorine: Cl

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
5.00E+05	4.63E+00	6.36E-15	5.36E+06	5.32E+02	4.05E-15	5.75E+07	6.11E+04	2.06E-15
5.36E+05	5.32E+00	6.33E-15	5.75E+06	6.11E+02	3.99E-15	6.16E+07	7.03E+04	1.94E-15
5.75E+05	6.11E+00	6.29E-15	6.16E+06	7.03E+02	3.94E-15	6.61E+07	8.08E+04	1.77E-15
6.16E+05	7.03E+00	6.26E-15	6.61E+06	8.08E+02	3.87E-15	7.09E+07	9.29E+04	1.69E-15
6.61E+05	8.08E+00	6.19E-15	7.09E+06	9.29E+02	3.83E-15	7.60E+07	1.07E+05	1.65E-15
7.09E+05	9.29E+00	6.08E-15	7.60E+06	1.07E+03	3.76E-15	8.15E+07	1.23E+05	1.68E-15
7.60E+05	1.07E+01	6.01E-15	8.15E+06	1.23E+03	3.71E-15	8.74E+07	1.41E+05	1.68E-15
8.15E+05	1.23E+01	5.95E-15	8.74E+06	1.41E+03	3.63E-15	9.37E+07	1.62E+05	1.70E-15
8.74E+05	1.41E+01	5.84E-15	9.37E+06	1.62E+03	3.57E-15	1.00E+08	1.87E+05	1.71E-15
9.37E+05	1.62E+01	5.81E-15	1.00E+07	1.87E+03	3.48E-15	1.08E+08	2.15E+05	1.71E-15
1.00E+06	1.87E+01	5.76E-15	1.08E+07	2.15E+03	3.44E-15	1.16E+08	2.47E+05	1.68E-15
1.08E+06	2.15E+01	5.67E-15	1.16E+07	2.47E+03	3.35E-15	1.24E+08	2.84E+05	1.64E-15
1.16E+06	2.47E+01	5.60E-15	1.24E+07	2.84E+03	3.32E-15	1.33E+08	3.26E+05	1.58E-15
1.24E+06	2.84E+01	5.57E-15	1.33E+07	3.26E+03	3.23E-15	1.42E+08	3.75E+05	1.48E-15
1.33E+06	3.26E+01	5.46E-15	1.42E+07	3.75E+03	3.19E-15	1.53E+08	4.31E+05	1.36E-15
1.42E+06	3.75E+01	5.36E-15	1.53E+07	4.31E+03	3.13E-15	1.64E+08	4.96E+05	1.26E-15
1.53E+06	4.31E+01	5.35E-15	1.64E+07	4.96E+03	3.06E-15	1.76E+08	5.70E+05	1.15E-15
1.64E+06	4.96E+01	5.26E-15	1.76E+07	5.70E+03	2.98E-15	1.88E+08	6.56E+05	1.00E-15
1.76E+06	5.70E+01	5.13E-15	1.88E+07	6.56E+03	2.94E-15	2.02E+08	7.54E+05	8.34E-16
1.88E+06	6.56E+01	5.03E-15	2.02E+07	7.54E+03	2.81E-15	2.16E+08	8.67E+05	6.53E-16
2.02E+06	7.54E+01	5.02E-15	2.16E+07	8.67E+03	2.88E-15	2.32E+08	9.97E+05	4.67E-16
2.16E+06	8.67E+01	4.91E-15	2.32E+07	9.97E+03	2.82E-15	2.49E+08	1.15E+06	2.84E-16
2.32E+06	9.97E+01	4.81E-15	2.49E+07	1.15E+04	2.65E-15	2.57E+08	1.22E+06	2.00E-16
2.49E+06	1.15E+02	4.75E-15	2.67E+07	1.32E+04	2.57E-15			
2.67E+06	1.32E+02	4.75E-15	2.86E+07	1.51E+04	2.69E-15			
2.86E+06	1.51E+02	4.72E-15	3.07E+07	1.74E+04	2.69E-15			
3.07E+06	1.74E+02	4.64E-15	3.29E+07	2.00E+04	2.58E-15			
3.29E+06	2.00E+02	4.58E-15	3.53E+07	2.30E+04	2.38E-15			
3.53E+06	2.30E+02	4.47E-15	3.78E+07	2.65E+04	2.23E-15			
3.78E+06	2.65E+02	4.33E-15	4.06E+07	3.04E+04	2.24E-15			
4.06E+06	3.04E+02	4.20E-15	4.35E+07	3.50E+04	2.26E-15			
4.35E+06	3.50E+02	4.14E-15	4.66E+07	4.02E+04	2.31E-15			
4.66E+06	4.02E+02	4.10E-15	5.00E+07	4.63E+04	2.25E-15			
5.00E+06	4.63E+02	4.08E-15	5.36E+07	5.32E+04	2.18E-15			

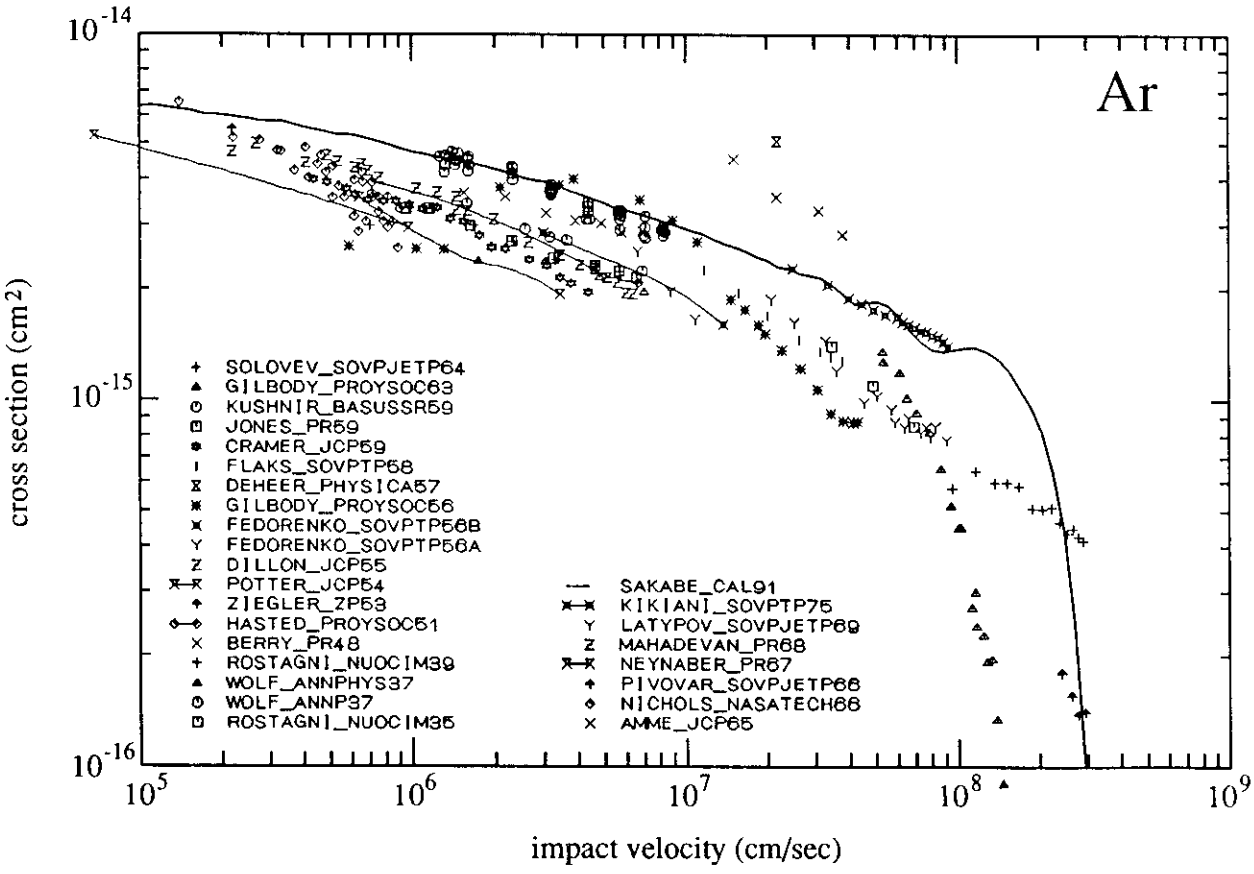


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

III-O Argon: Ar

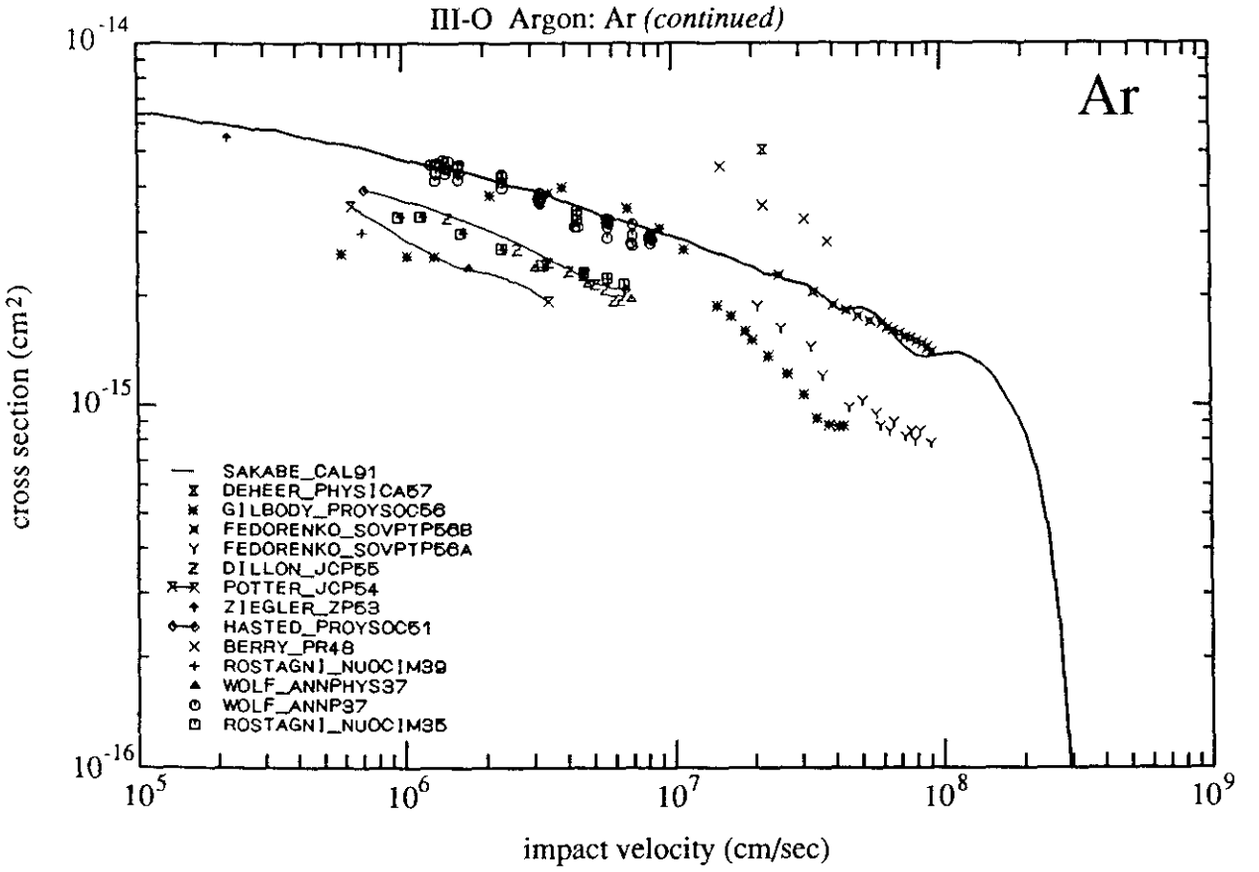
velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
1.00E+05	2.08E-01	6.36E-15	2.36E+06	1.17E+02	4.12E-15	5.59E+07	6.52E+04	1.81E-15
1.10E+05	2.51E-01	6.40E-15	2.60E+06	1.40E+02	4.03E-15	6.14E+07	7.85E+04	1.70E-15
1.20E+05	3.02E-01	6.36E-15	2.85E+06	1.69E+02	3.98E-15	6.73E+07	9.45E+04	1.55E-15
1.32E+05	3.64E-01	6.30E-15	3.13E+06	2.04E+02	3.93E-15	7.39E+07	1.14E+05	1.45E-15
1.45E+05	4.39E-01	6.23E-15	3.43E+06	2.45E+02	3.84E-15	8.11E+07	1.37E+05	1.38E-15
1.59E+05	5.29E-01	6.18E-15	3.76E+06	2.96E+02	3.73E-15	8.90E+07	1.65E+05	1.36E-15
1.75E+05	6.37E-01	6.08E-15	4.13E+06	3.56E+02	3.63E-15	9.77E+07	1.99E+05	1.38E-15
1.92E+05	7.67E-01	6.07E-15	4.53E+06	4.29E+02	3.54E-15	1.07E+08	2.40E+05	1.39E-15
2.10E+05	9.24E-01	6.01E-15	4.98E+06	5.16E+02	3.45E-15	1.18E+08	2.89E+05	1.40E-15
2.31E+05	1.11E+00	5.95E-15	5.46E+06	6.22E+02	3.36E-15	1.29E+08	3.48E+05	1.36E-15
2.54E+05	1.34E+00	5.89E-15	5.99E+06	7.49E+02	3.30E-15	1.42E+08	4.19E+05	1.30E-15
2.78E+05	1.61E+00	5.83E-15	6.58E+06	9.02E+02	3.24E-15	1.56E+08	5.05E+05	1.20E-15
3.05E+05	1.94E+00	5.80E-15	7.22E+06	1.09E+03	3.17E-15	1.71E+08	6.08E+05	1.07E-15
3.35E+05	2.34E+00	5.78E-15	7.92E+06	1.31E+03	3.10E-15	1.87E+08	7.32E+05	9.63E-16
3.68E+05	2.82E+00	5.70E-15	8.70E+06	1.58E+03	3.04E-15	2.06E+08	8.82E+05	8.22E-16
4.04E+05	3.40E+00	5.58E-15	9.55E+06	1.90E+03	2.97E-15	2.26E+08	1.06E+06	6.41E-16
4.43E+05	4.09E+00	5.50E-15	1.05E+07	2.29E+03	2.90E-15	2.48E+08	1.28E+06	4.44E-16
4.86E+05	4.93E+00	5.40E-15	1.15E+07	2.76E+03	2.84E-15	2.72E+08	1.54E+06	2.45E-16
5.34E+05	5.94E+00	5.31E-15	1.26E+07	3.32E+03	2.75E-15	2.95E+08	1.82E+06	1.00E-16
5.86E+05	7.15E+00	5.30E-15	1.38E+07	4.00E+03	2.68E-15			
6.43E+05	8.61E+00	5.26E-15	1.52E+07	4.82E+03	2.62E-15			
7.05E+05	1.04E+01	5.17E-15	1.67E+07	5.80E+03	2.55E-15			
7.74E+05	1.25E+01	5.06E-15	1.83E+07	6.99E+03	2.47E-15			
8.50E+05	1.51E+01	4.96E-15	2.01E+07	8.42E+03	2.41E-15			
9.33E+05	1.81E+01	4.83E-15	2.21E+07	1.01E+04	2.31E-15			
1.02E+06	2.18E+01	4.76E-15	2.42E+07	1.22E+04	2.29E-15			
1.12E+06	2.63E+01	4.68E-15	2.66E+07	1.47E+04	2.22E-15			
1.23E+06	3.17E+01	4.60E-15	2.92E+07	1.77E+04	2.19E-15			
1.35E+06	3.82E+01	4.56E-15	3.20E+07	2.13E+04	2.16E-15			
1.48E+06	4.60E+01	4.51E-15	3.51E+07	2.57E+04	2.06E-15			
1.63E+06	5.54E+01	4.44E-15	3.85E+07	3.10E+04	1.94E-15			
1.79E+06	6.67E+01	4.37E-15	4.23E+07	3.73E+04	1.84E-15			
1.96E+06	8.03E+01	4.28E-15	4.64E+07	4.49E+04	1.85E-15			
2.15E+06	9.68E+01	4.21E-15	5.09E+07	5.41E+04	1.87E-15			

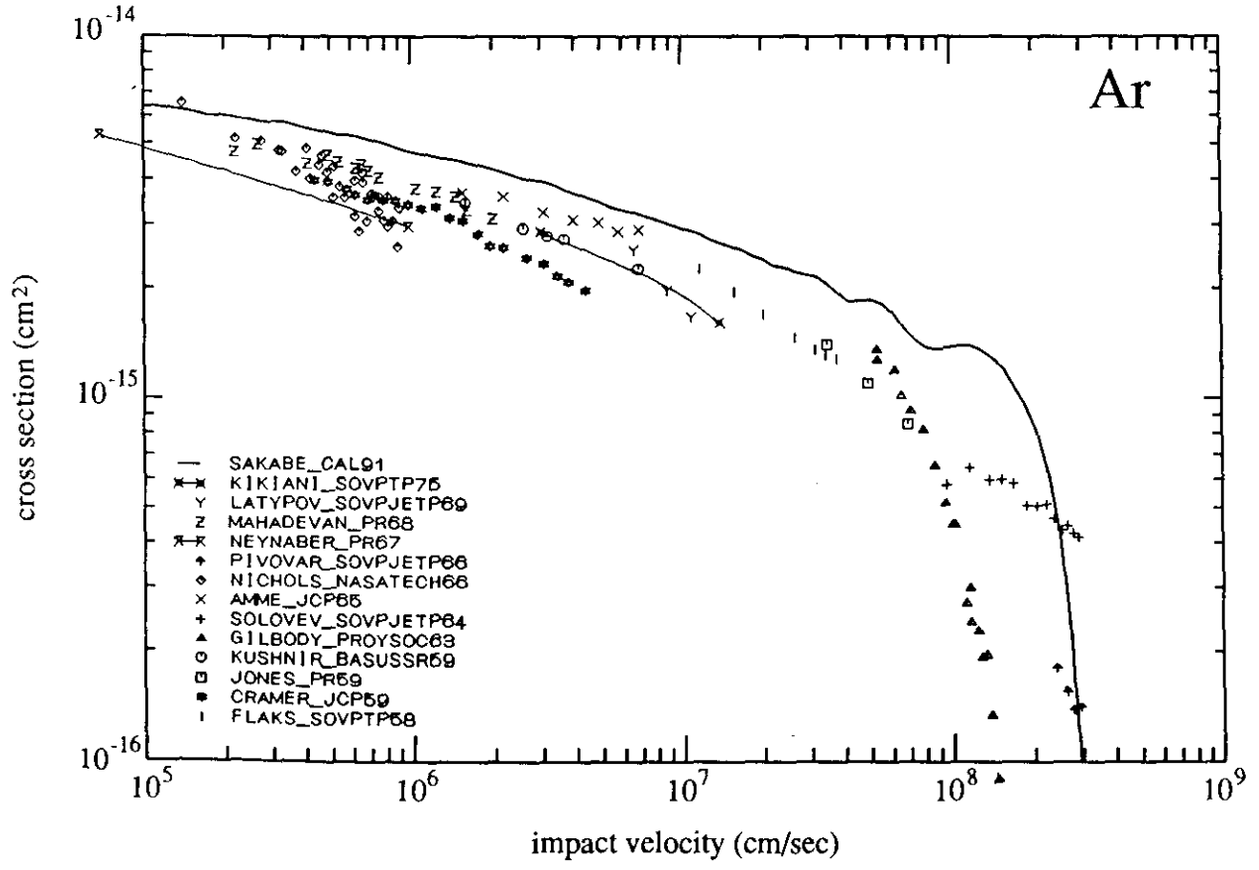


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

III-O Argon: Ar *(continued)*



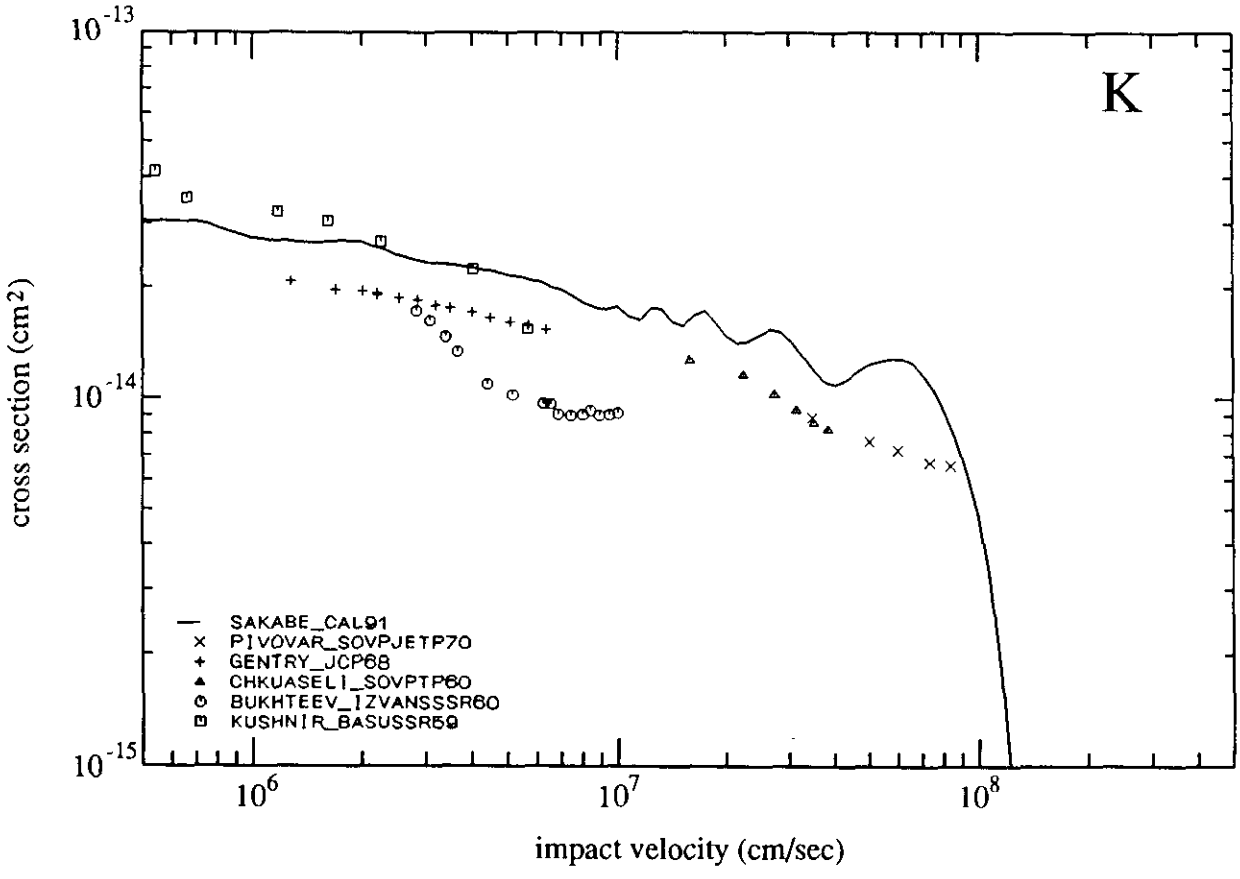


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

IV-I Potassium: K

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
5.00E+05	5.10E+00	3.05E-14	5.36E+06	5.87E+02	2.14E-14	5.75E+07	6.74E+04	1.29E-14
5.36E+05	5.87E+00	3.03E-14	5.75E+06	6.74E+02	2.10E-14	6.16E+07	7.75E+04	1.29E-14
5.75E+05	6.74E+00	3.05E-14	6.16E+06	7.75E+02	2.08E-14	6.61E+07	8.91E+04	1.25E-14
6.16E+05	7.75E+00	3.03E-14	6.61E+06	8.91E+02	2.00E-14	7.09E+07	1.02E+05	1.17E-14
6.61E+05	8.91E+00	3.03E-14	7.09E+06	1.02E+03	1.97E-14	7.60E+07	1.18E+05	1.05E-14
7.09E+05	1.02E+01	3.02E-14	7.60E+06	1.18E+03	1.90E-14	8.15E+07	1.35E+05	9.16E-15
7.60E+05	1.18E+01	3.00E-14	8.15E+06	1.35E+03	1.83E-14	8.74E+07	1.56E+05	7.73E-15
8.15E+05	1.35E+01	2.92E-14	8.74E+06	1.56E+03	1.78E-14	9.37E+07	1.79E+05	6.23E-15
8.74E+05	1.56E+01	2.85E-14	9.37E+06	1.79E+03	1.75E-14	1.00E+08	2.06E+05	4.90E-15
9.37E+05	1.79E+01	2.80E-14	1.00E+07	2.06E+03	1.79E-14	1.08E+08	2.37E+05	3.31E-15
1.00E+06	2.06E+01	2.74E-14	1.08E+07	2.37E+03	1.68E-14	1.16E+08	2.72E+05	1.80E-15
1.08E+06	2.37E+01	2.71E-14	1.16E+07	2.72E+03	1.64E-14	1.22E+08	3.04E+05	1.00E-15
1.16E+06	2.72E+01	2.69E-14	1.24E+07	3.13E+03	1.77E-14			
1.24E+06	3.13E+01	2.70E-14	1.33E+07	3.60E+03	1.76E-14			
1.33E+06	3.60E+01	2.67E-14	1.42E+07	4.14E+03	1.63E-14			
1.42E+06	4.14E+01	2.66E-14	1.53E+07	4.76E+03	1.59E-14			
1.53E+06	4.76E+01	2.65E-14	1.64E+07	5.47E+03	1.69E-14			
1.64E+06	5.47E+01	2.67E-14	1.76E+07	6.29E+03	1.74E-14			
1.76E+06	6.29E+01	2.69E-14	1.88E+07	7.23E+03	1.62E-14			
1.88E+06	7.23E+01	2.69E-14	2.02E+07	8.31E+03	1.49E-14			
2.02E+06	8.31E+01	2.65E-14	2.16E+07	9.56E+03	1.42E-14			
2.16E+06	9.56E+01	2.60E-14	2.32E+07	1.10E+04	1.43E-14			
2.32E+06	1.10E+02	2.55E-14	2.49E+07	1.26E+04	1.50E-14			
2.49E+06	1.26E+02	2.47E-14	2.67E+07	1.45E+04	1.54E-14			
2.67E+06	1.45E+02	2.42E-14	2.86E+07	1.67E+04	1.52E-14			
2.86E+06	1.67E+02	2.38E-14	3.07E+07	1.92E+04	1.43E-14			
3.07E+06	1.92E+02	2.35E-14	3.29E+07	2.21E+04	1.30E-14			
3.29E+06	2.21E+02	2.32E-14	3.53E+07	2.54E+04	1.19E-14			
3.53E+06	2.54E+02	2.31E-14	3.78E+07	2.92E+04	1.11E-14			
3.78E+06	2.92E+02	2.29E-14	4.06E+07	3.36E+04	1.09E-14			
4.06E+06	3.36E+02	2.27E-14	4.35E+07	3.86E+04	1.13E-14			
4.35E+06	3.86E+02	2.24E-14	4.66E+07	4.44E+04	1.19E-14			
4.66E+06	4.44E+02	2.22E-14	5.00E+07	5.10E+04	1.24E-14			
5.00E+06	5.10E+02	2.17E-14	5.36E+07	5.87E+04	1.27E-14			

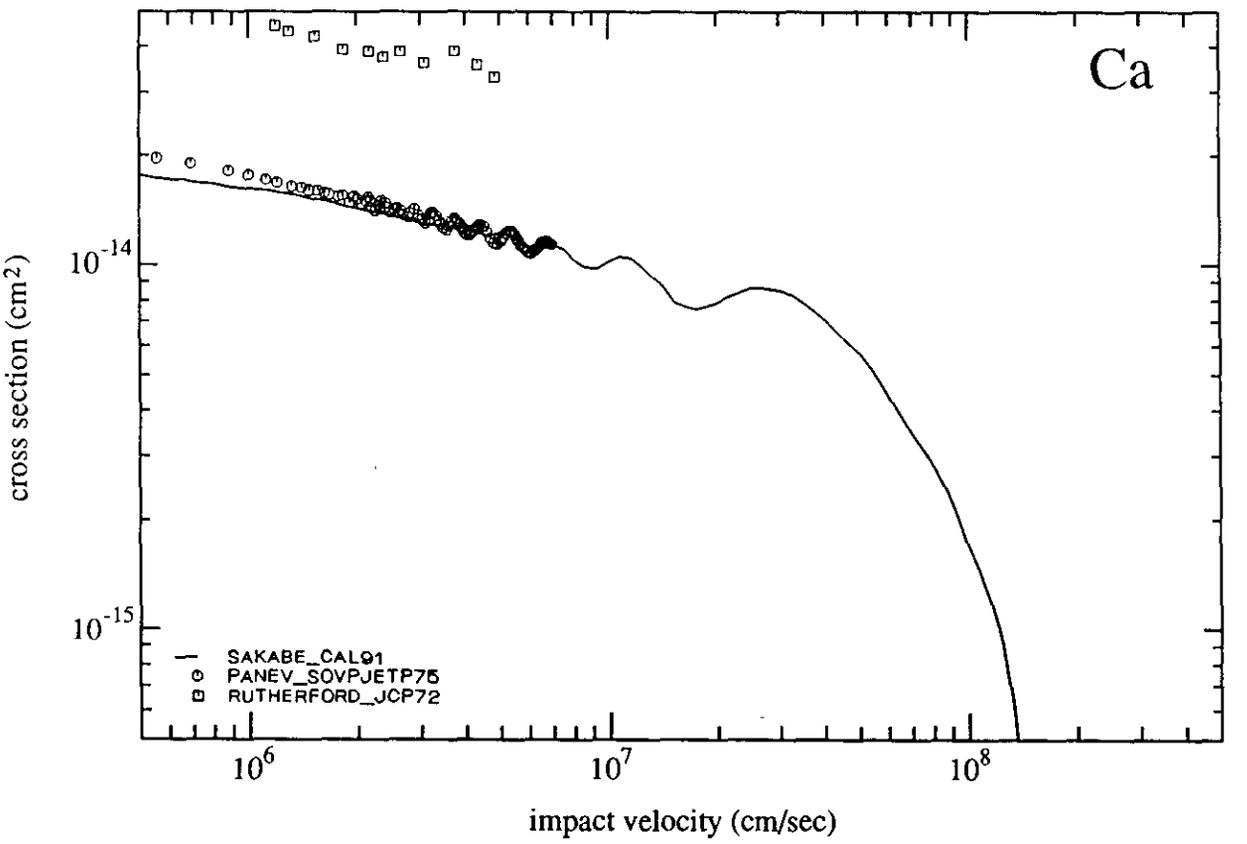


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

IV-II Calcium: Ca

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
5.00E+05	5.23E+00	1.76E-14	5.36E+06	6.01E+02	1.21E-14	5.75E+07	6.91E+04	4.77E-15
5.36E+05	6.01E+00	1.74E-14	5.75E+06	6.91E+02	1.15E-14	6.16E+07	7.95E+04	4.26E-15
5.75E+05	6.91E+00	1.73E-14	6.16E+06	7.95E+02	1.11E-14	6.61E+07	9.14E+04	3.81E-15
6.16E+05	7.95E+00	1.72E-14	6.61E+06	9.14E+02	1.15E-14	7.09E+07	1.05E+05	3.44E-15
6.61E+05	9.14E+00	1.71E-14	7.09E+06	1.05E+03	1.14E-14	7.60E+07	1.21E+05	3.12E-15
7.09E+05	1.05E+01	1.69E-14	7.60E+06	1.21E+03	1.10E-14	8.15E+07	1.39E+05	2.79E-15
7.60E+05	1.21E+01	1.68E-14	8.15E+06	1.39E+03	1.03E-14	8.74E+07	1.60E+05	2.43E-15
8.15E+05	1.39E+01	1.67E-14	8.74E+06	1.60E+03	9.90E-15	9.37E+07	1.84E+05	2.07E-15
8.74E+05	1.60E+01	1.65E-14	9.37E+06	1.84E+03	9.79E-15	1.00E+08	2.11E+05	1.72E-15
9.37E+05	1.84E+01	1.63E-14	1.00E+07	2.11E+03	1.02E-14	1.08E+08	2.43E+05	1.46E-15
1.00E+06	2.11E+01	1.62E-14	1.08E+07	2.43E+03	1.06E-14	1.16E+08	2.79E+05	1.20E-15
1.08E+06	2.43E+01	1.61E-14	1.16E+07	2.79E+03	1.05E-14	1.24E+08	3.21E+05	9.28E-16
1.16E+06	2.79E+01	1.60E-14	1.24E+07	3.21E+03	9.96E-15	1.33E+08	3.69E+05	6.35E-16
1.24E+06	3.21E+01	1.58E-14	1.33E+07	3.69E+03	9.30E-15	1.36E+08	3.89E+05	5.00E-16
1.33E+06	3.69E+01	1.57E-14	1.42E+07	4.24E+03	8.72E-15			
1.42E+06	4.24E+01	1.54E-14	1.53E+07	4.88E+03	7.96E-15			
1.53E+06	4.88E+01	1.52E-14	1.64E+07	5.61E+03	7.74E-15			
1.64E+06	5.61E+01	1.50E-14	1.76E+07	6.45E+03	7.60E-15			
1.76E+06	6.45E+01	1.48E-14	1.88E+07	7.41E+03	7.74E-15			
1.88E+06	7.41E+01	1.45E-14	2.02E+07	8.52E+03	7.92E-15			
2.02E+06	8.52E+01	1.44E-14	2.16E+07	9.80E+03	8.24E-15			
2.16E+06	9.80E+01	1.41E-14	2.32E+07	1.13E+04	8.46E-15			
2.32E+06	1.13E+02	1.40E-14	2.49E+07	1.30E+04	8.68E-15			
2.49E+06	1.30E+02	1.37E-14	2.67E+07	1.49E+04	8.69E-15			
2.67E+06	1.49E+02	1.35E-14	2.86E+07	1.71E+04	8.66E-15			
2.86E+06	1.71E+02	1.33E-14	3.07E+07	1.97E+04	8.55E-15			
3.07E+06	1.97E+02	1.30E-14	3.29E+07	2.26E+04	8.30E-15			
3.29E+06	2.26E+02	1.30E-14	3.53E+07	2.60E+04	7.91E-15			
3.53E+06	2.60E+02	1.29E-14	3.78E+07	2.99E+04	7.51E-15			
3.78E+06	2.99E+02	1.26E-14	4.06E+07	3.44E+04	7.09E-15			
4.06E+06	3.44E+02	1.30E-14	4.35E+07	3.96E+04	6.62E-15			
4.35E+06	3.96E+02	1.23E-14	4.66E+07	4.55E+04	6.18E-15			
4.66E+06	4.55E+02	1.21E-14	5.00E+07	5.23E+04	5.78E-15			
5.00E+06	5.23E+02	1.23E-14	5.36E+07	6.01E+04	5.29E-15			

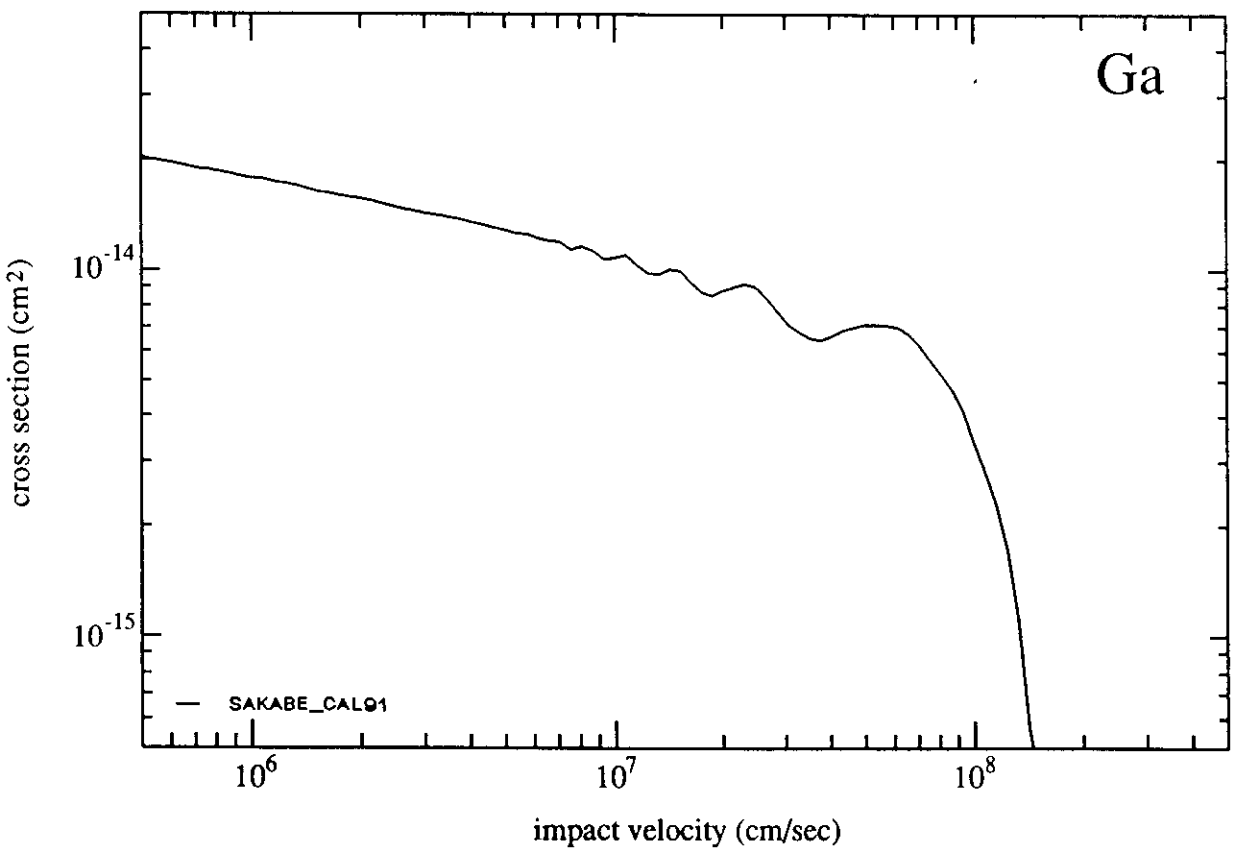


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

IV-III Gallium: Ga

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
5.00E+05	9.10E+00	2.03E-14	5.36E+06	1.05E+03	1.27E-14	5.75E+07	1.20E+05	7.14E-15
5.36E+05	1.05E+01	2.00E-14	5.75E+06	1.20E+03	1.26E-14	6.16E+07	1.38E+05	7.07E-15
5.75E+05	1.20E+01	1.98E-14	6.16E+06	1.38E+03	1.23E-14	6.61E+07	1.59E+05	6.78E-15
6.16E+05	1.38E+01	1.96E-14	6.61E+06	1.59E+03	1.21E-14	7.09E+07	1.83E+05	6.30E-15
6.61E+05	1.59E+01	1.93E-14	7.09E+06	1.83E+03	1.20E-14	7.60E+07	2.10E+05	5.75E-15
7.09E+05	1.83E+01	1.90E-14	7.60E+06	2.10E+03	1.15E-14	8.15E+07	2.42E+05	5.27E-15
7.60E+05	2.10E+01	1.88E-14	8.15E+06	2.42E+03	1.17E-14	8.74E+07	2.78E+05	4.77E-15
8.15E+05	2.42E+01	1.87E-14	8.74E+06	2.78E+03	1.14E-14	9.37E+07	3.19E+05	4.17E-15
8.74E+05	2.78E+01	1.84E-14	9.37E+06	3.19E+03	1.08E-14	1.00E+08	3.67E+05	3.45E-15
9.37E+05	3.19E+01	1.81E-14	1.00E+07	3.67E+03	1.08E-14	1.08E+08	4.22E+05	2.86E-15
1.00E+06	3.67E+01	1.80E-14	1.08E+07	4.22E+03	1.11E-14	1.16E+08	4.85E+05	2.30E-15
1.08E+06	4.22E+01	1.78E-14	1.16E+07	4.85E+03	1.04E-14	1.24E+08	5.58E+05	1.73E-15
1.16E+06	4.85E+01	1.75E-14	1.24E+07	5.58E+03	9.85E-15	1.33E+08	6.42E+05	1.13E-15
1.24E+06	5.58E+01	1.73E-14	1.33E+07	6.42E+03	9.81E-15	1.42E+08	7.38E+05	5.68E-16
1.33E+06	6.42E+01	1.71E-14	1.42E+07	7.38E+03	1.01E-14	1.46E+08	7.72E+05	5.00E-16
1.42E+06	7.38E+01	1.68E-14	1.53E+07	8.48E+03	1.00E-14			
1.53E+06	8.48E+01	1.65E-14	1.64E+07	9.75E+03	9.38E-15			
1.64E+06	9.75E+01	1.63E-14	1.76E+07	1.12E+04	8.76E-15			
1.76E+06	1.12E+02	1.61E-14	1.88E+07	1.29E+04	8.57E-15			
1.88E+06	1.29E+02	1.59E-14	2.02E+07	1.48E+04	8.88E-15			
2.02E+06	1.48E+02	1.57E-14	2.16E+07	1.70E+04	9.08E-15			
2.16E+06	1.70E+02	1.55E-14	2.32E+07	1.96E+04	9.22E-15			
2.32E+06	1.96E+02	1.53E-14	2.49E+07	2.25E+04	9.07E-15			
2.49E+06	2.25E+02	1.50E-14	2.67E+07	2.59E+04	8.40E-15			
2.67E+06	2.59E+02	1.47E-14	2.86E+07	2.98E+04	7.79E-15			
2.86E+06	2.98E+02	1.46E-14	3.07E+07	3.42E+04	7.17E-15			
3.07E+06	3.42E+02	1.44E-14	3.29E+07	3.94E+04	6.84E-15			
3.29E+06	3.94E+02	1.42E-14	3.53E+07	4.53E+04	6.57E-15			
3.53E+06	4.53E+02	1.40E-14	3.78E+07	5.21E+04	6.51E-15			
3.78E+06	5.21E+02	1.38E-14	4.06E+07	5.98E+04	6.65E-15			
4.06E+06	5.98E+02	1.36E-14	4.35E+07	6.88E+04	6.92E-15			
4.35E+06	6.88E+02	1.34E-14	4.66E+07	7.91E+04	7.04E-15			
4.66E+06	7.91E+02	1.32E-14	5.00E+07	9.10E+04	7.16E-15			
5.00E+06	9.10E+02	1.30E-14	5.36E+07	1.05E+05	7.17E-15			

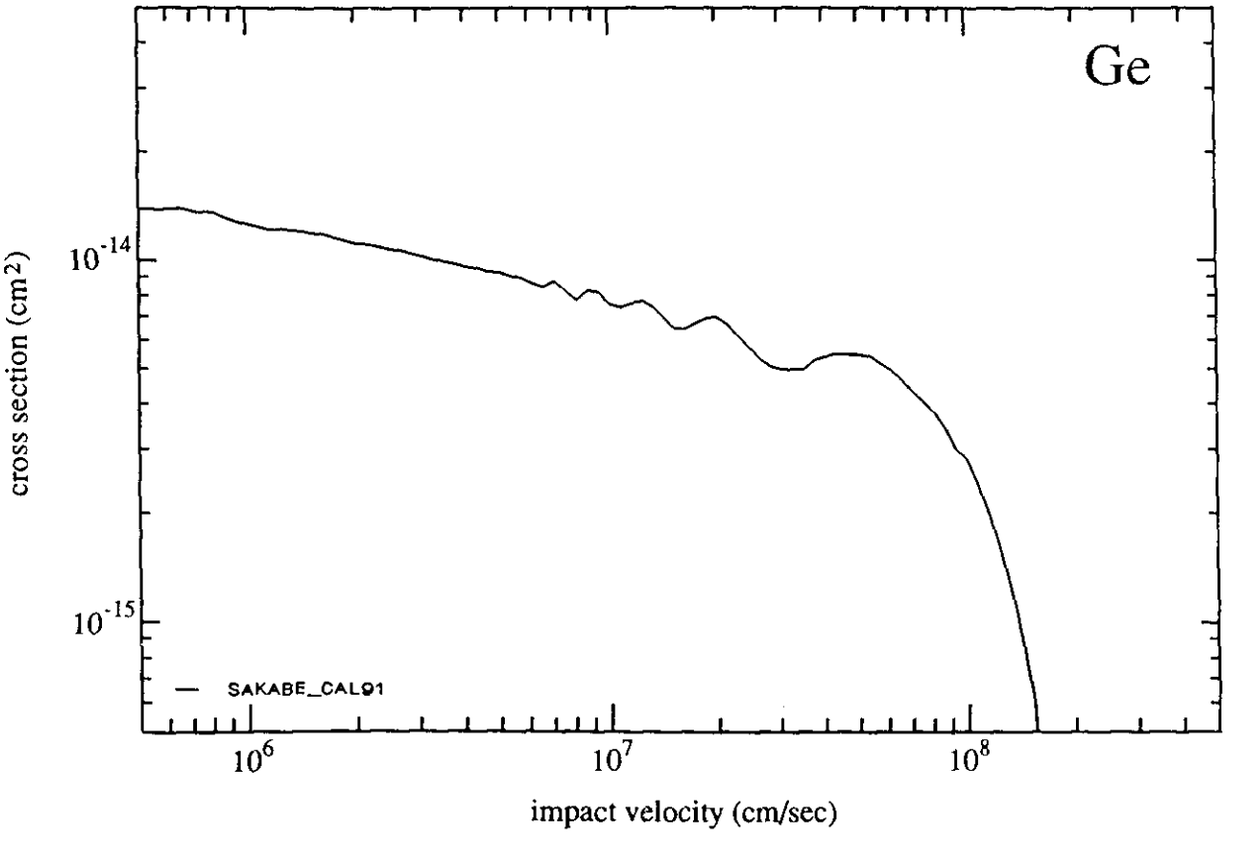


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

IV-IV Germanium: Ge

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
5.00E+05	9.47E+00	1.39E-14	5.36E+06	1.09E+03	9.08E-15	5.75E+07	1.25E+05	5.20E-15
5.36E+05	1.09E+01	1.39E-14	5.75E+06	1.25E+03	8.92E-15	6.16E+07	1.44E+05	4.97E-15
5.75E+05	1.25E+01	1.38E-14	6.16E+06	1.44E+03	8.66E-15	6.61E+07	1.65E+05	4.67E-15
6.16E+05	1.44E+01	1.39E-14	6.61E+06	1.65E+03	8.45E-15	7.09E+07	1.90E+05	4.34E-15
6.61E+05	1.65E+01	1.40E-14	7.09E+06	1.90E+03	8.77E-15	7.60E+07	2.19E+05	4.07E-15
7.09E+05	1.90E+01	1.37E-14	7.60E+06	2.19E+03	8.18E-15	8.15E+07	2.52E+05	3.80E-15
7.60E+05	2.19E+01	1.36E-14	8.15E+06	2.52E+03	7.79E-15	8.74E+07	2.89E+05	3.43E-15
8.15E+05	2.52E+01	1.35E-14	8.74E+06	2.89E+03	8.32E-15	9.37E+07	3.32E+05	3.01E-15
8.74E+05	2.89E+01	1.32E-14	9.37E+06	3.32E+03	8.16E-15	1.00E+08	3.82E+05	2.82E-15
9.37E+05	3.32E+01	1.29E-14	1.00E+07	3.82E+03	7.55E-15	1.08E+08	4.40E+05	2.41E-15
1.00E+06	3.82E+01	1.27E-14	1.08E+07	4.40E+03	7.44E-15	1.16E+08	5.05E+05	1.98E-15
1.08E+06	4.40E+01	1.24E-14	1.16E+07	5.05E+03	7.63E-15	1.24E+08	5.81E+05	1.58E-15
1.16E+06	5.05E+01	1.22E-14	1.24E+07	5.81E+03	7.70E-15	1.33E+08	6.68E+05	1.22E-15
1.24E+06	5.81E+01	1.22E-14	1.33E+07	6.68E+03	7.43E-15	1.42E+08	7.68E+05	9.10E-16
1.33E+06	6.68E+01	1.21E-14	1.42E+07	7.68E+03	6.96E-15	1.53E+08	8.83E+05	6.11E-16
1.42E+06	7.68E+01	1.21E-14	1.53E+07	8.83E+03	6.46E-15	1.56E+08	9.24E+05	5.00E-16
1.53E+06	8.83E+01	1.19E-14	1.64E+07	1.02E+04	6.48E-15			
1.64E+06	1.02E+02	1.18E-14	1.76E+07	1.17E+04	6.76E-15			
1.76E+06	1.17E+02	1.15E-14	1.88E+07	1.34E+04	6.94E-15			
1.88E+06	1.34E+02	1.14E-14	2.02E+07	1.54E+04	6.95E-15			
2.02E+06	1.54E+02	1.12E-14	2.16E+07	1.77E+04	6.66E-15			
2.16E+06	1.77E+02	1.10E-14	2.32E+07	2.04E+04	6.16E-15			
2.32E+06	2.04E+02	1.09E-14	2.49E+07	2.35E+04	5.70E-15			
2.49E+06	2.35E+02	1.08E-14	2.67E+07	2.70E+04	5.27E-15			
2.67E+06	2.70E+02	1.06E-14	2.86E+07	3.10E+04	5.07E-15			
2.86E+06	3.10E+02	1.05E-14	3.07E+07	3.57E+04	5.00E-15			
3.07E+06	3.57E+02	1.03E-14	3.29E+07	4.10E+04	4.97E-15			
3.29E+06	4.10E+02	1.01E-14	3.53E+07	4.71E+04	4.99E-15			
3.53E+06	4.71E+02	9.92E-15	3.78E+07	5.42E+04	5.31E-15			
3.78E+06	5.42E+02	9.79E-15	4.06E+07	6.23E+04	5.44E-15			
4.06E+06	6.23E+02	9.62E-15	4.35E+07	7.16E+04	5.48E-15			
4.35E+06	7.16E+02	9.52E-15	4.66E+07	8.24E+04	5.49E-15			
4.66E+06	8.24E+02	9.31E-15	5.00E+07	9.47E+04	5.48E-15			
5.00E+06	9.47E+02	9.27E-15	5.36E+07	1.09E+05	5.43E-15			

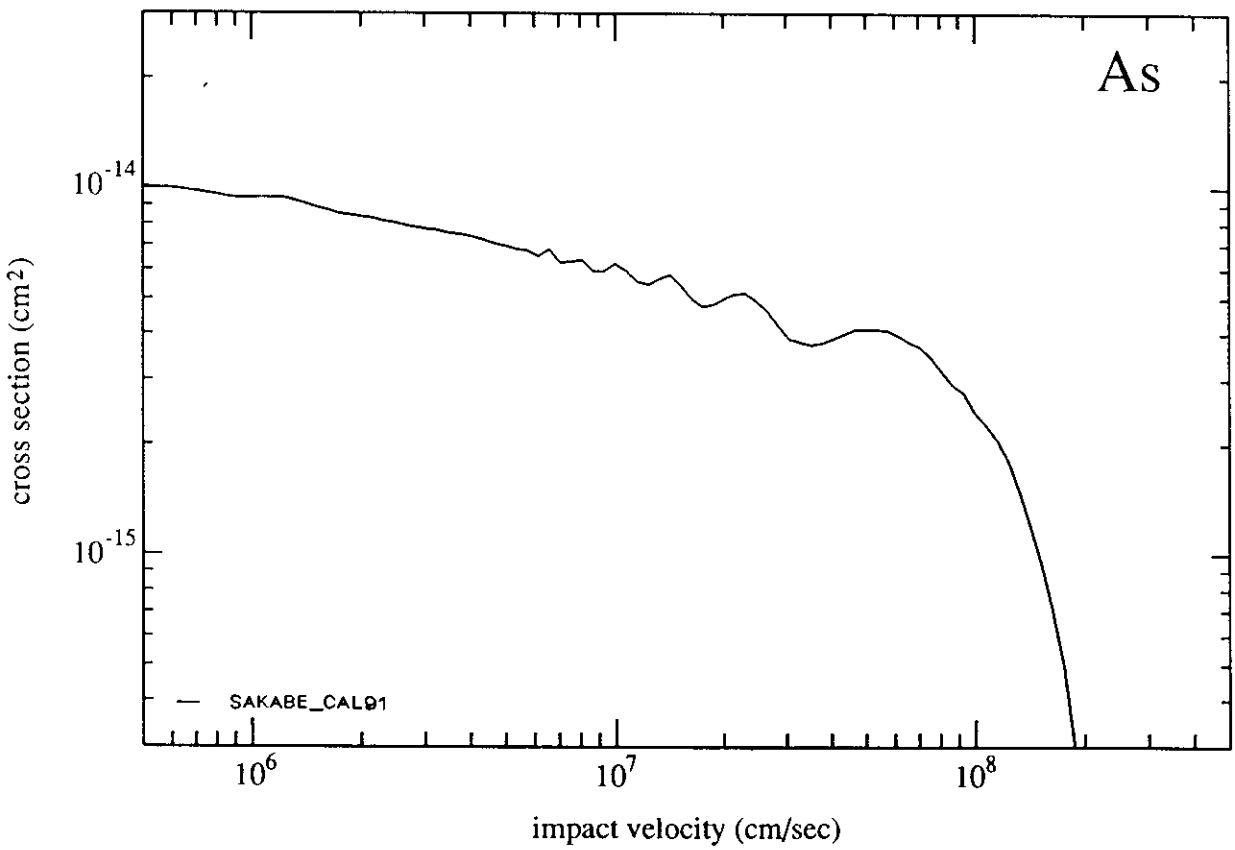


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

IV-V Arsenic: As

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
5.00E+05	9.77E+00	1.01E-14	5.36E+06	1.12E+03	6.84E-15	5.75E+07	1.29E+05	4.11E-15
5.36E+05	1.12E+01	1.01E-14	5.75E+06	1.29E+03	6.79E-15	6.16E+07	1.49E+05	3.98E-15
5.75E+05	1.29E+01	1.00E-14	6.16E+06	1.49E+03	6.53E-15	6.61E+07	1.71E+05	3.81E-15
6.16E+05	1.49E+01	9.97E-15	6.61E+06	1.71E+03	6.86E-15	7.09E+07	1.96E+05	3.70E-15
6.61E+05	1.71E+01	9.92E-15	7.09E+06	1.96E+03	6.30E-15	7.60E+07	2.26E+05	3.46E-15
7.09E+05	1.96E+01	9.81E-15	7.60E+06	2.26E+03	6.34E-15	8.15E+07	2.60E+05	3.17E-15
7.60E+05	2.26E+01	9.71E-15	8.15E+06	2.60E+03	6.40E-15	8.74E+07	2.99E+05	2.91E-15
8.15E+05	2.60E+01	9.60E-15	8.74E+06	2.99E+03	5.95E-15	9.37E+07	3.43E+05	2.77E-15
8.74E+05	2.99E+01	9.47E-15	9.37E+06	3.43E+03	5.96E-15	1.00E+08	3.95E+05	2.46E-15
9.37E+05	3.43E+01	9.41E-15	1.00E+07	3.95E+03	6.23E-15	1.08E+08	4.54E+05	2.27E-15
1.00E+06	3.95E+01	9.42E-15	1.08E+07	4.54E+03	6.00E-15	1.16E+08	5.22E+05	2.07E-15
1.08E+06	4.54E+01	9.45E-15	1.16E+07	5.22E+03	5.57E-15	1.24E+08	6.00E+05	1.81E-15
1.16E+06	5.22E+01	9.40E-15	1.24E+07	6.00E+03	5.48E-15	1.33E+08	6.90E+05	1.50E-15
1.24E+06	6.00E+01	9.42E-15	1.33E+07	6.90E+03	5.68E-15	1.42E+08	7.93E+05	1.21E-15
1.33E+06	6.90E+01	9.24E-15	1.42E+07	7.93E+03	5.83E-15	1.53E+08	9.12E+05	9.46E-16
1.42E+06	7.93E+01	9.06E-15	1.53E+07	9.12E+03	5.44E-15	1.64E+08	1.05E+06	7.16E-16
1.53E+06	9.12E+01	8.85E-15	1.64E+07	1.05E+04	5.00E-15	1.76E+08	1.21E+06	5.01E-16
1.64E+06	1.05E+02	8.75E-15	1.76E+07	1.21E+04	4.79E-15	1.88E+08	1.38E+06	3.00E-16
1.76E+06	1.21E+02	8.55E-15	1.88E+07	1.39E+04	4.83E-15			
1.88E+06	1.39E+02	8.48E-15	2.02E+07	1.59E+04	5.00E-15			
2.02E+06	1.59E+02	8.39E-15	2.16E+07	1.83E+04	5.17E-15			
2.16E+06	1.83E+02	8.29E-15	2.32E+07	2.11E+04	5.18E-15			
2.32E+06	2.11E+02	8.16E-15	2.49E+07	2.42E+04	4.93E-15			
2.49E+06	2.42E+02	8.07E-15	2.67E+07	2.78E+04	4.62E-15			
2.67E+06	2.78E+02	7.95E-15	2.86E+07	3.20E+04	4.24E-15			
2.86E+06	3.20E+02	7.83E-15	3.07E+07	3.68E+04	3.88E-15			
3.07E+06	3.68E+02	7.77E-15	3.29E+07	4.23E+04	3.81E-15			
3.29E+06	4.23E+02	7.67E-15	3.53E+07	4.87E+04	3.74E-15			
3.53E+06	4.87E+02	7.55E-15	3.78E+07	5.59E+04	3.77E-15			
3.78E+06	5.59E+02	7.49E-15	4.06E+07	6.43E+04	3.88E-15			
4.06E+06	6.43E+02	7.40E-15	4.35E+07	7.39E+04	3.98E-15			
4.35E+06	7.39E+02	7.26E-15	4.66E+07	8.50E+04	4.12E-15			
4.66E+06	8.50E+02	7.11E-15	5.00E+07	9.77E+04	4.14E-15			
5.00E+06	9.77E+02	7.02E-15	5.36E+07	1.12E+05	4.14E-15			

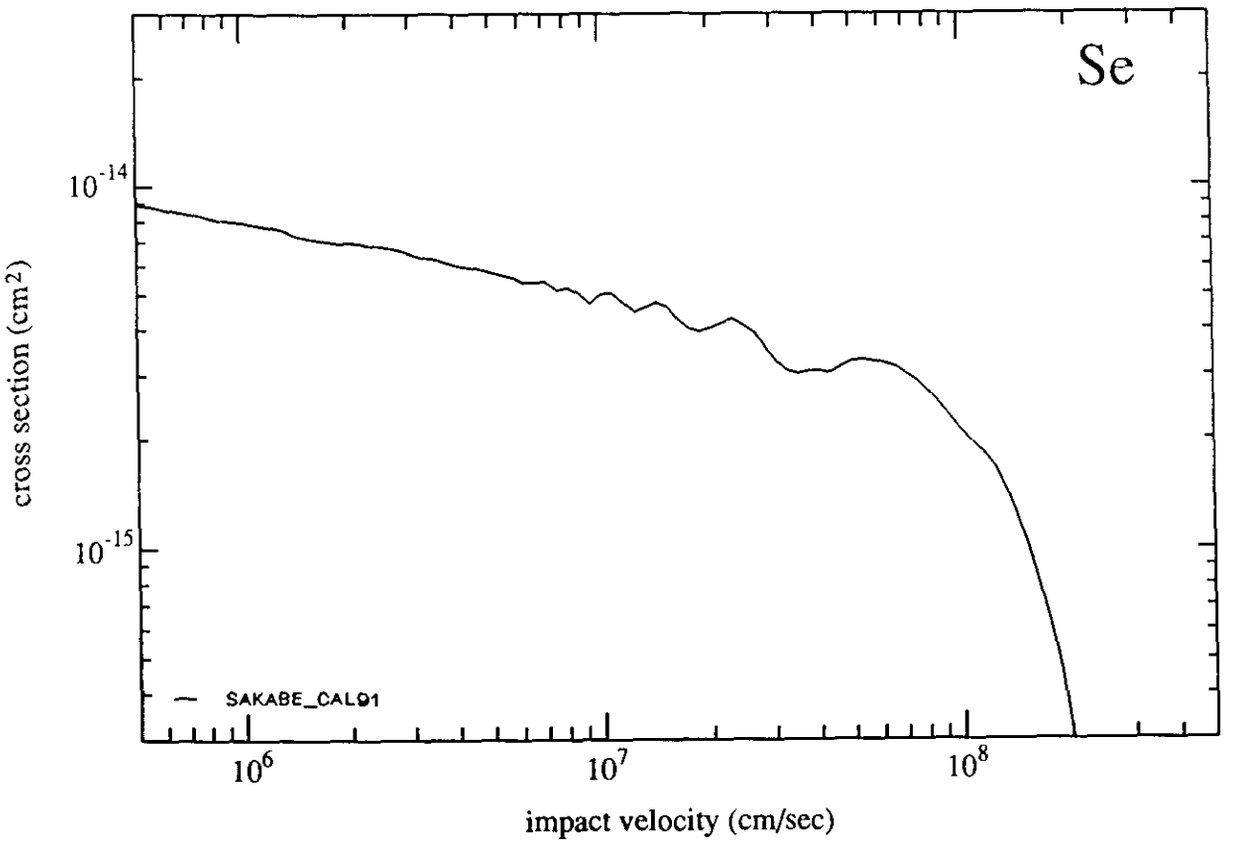


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

IV-VI Selenium: Se

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
5.00E+05	1.03E+01	8.91E-15	5.36E+06	1.18E+03	5.68E-15	5.75E+07	1.36E+05	3.29E-15
5.36E+05	1.18E+01	8.83E-15	5.75E+06	1.36E+03	5.61E-15	6.16E+07	1.57E+05	3.24E-15
5.75E+05	1.36E+01	8.75E-15	6.16E+06	1.57E+03	5.42E-15	6.61E+07	1.80E+05	3.17E-15
6.16E+05	1.57E+01	8.60E-15	6.61E+06	1.80E+03	5.41E-15	7.09E+07	2.07E+05	3.03E-15
6.61E+05	1.80E+01	8.49E-15	7.09E+06	2.07E+03	5.44E-15	7.60E+07	2.38E+05	2.89E-15
7.09E+05	2.07E+01	8.42E-15	7.60E+06	2.38E+03	5.17E-15	8.15E+07	2.74E+05	2.71E-15
7.60E+05	2.38E+01	8.36E-15	8.15E+06	2.74E+03	5.24E-15	8.74E+07	3.15E+05	2.50E-15
8.15E+05	2.74E+01	8.21E-15	8.74E+06	3.15E+03	5.05E-15	9.37E+07	3.62E+05	2.31E-15
8.74E+05	3.15E+01	8.10E-15	9.37E+06	3.62E+03	4.74E-15	1.00E+08	4.16E+05	2.13E-15
9.37E+05	3.62E+01	8.01E-15	1.00E+07	4.16E+03	5.02E-15	1.08E+08	4.78E+05	1.96E-15
1.00E+06	4.16E+01	7.96E-15	1.08E+07	4.78E+03	5.07E-15	1.16E+08	5.50E+05	1.82E-15
1.08E+06	4.78E+01	7.86E-15	1.16E+07	5.50E+03	4.76E-15	1.24E+08	6.32E+05	1.67E-15
1.16E+06	5.50E+01	7.79E-15	1.24E+07	6.32E+03	4.49E-15	1.33E+08	7.27E+05	1.47E-15
1.24E+06	6.32E+01	7.70E-15	1.33E+07	7.27E+03	4.62E-15	1.42E+08	8.36E+05	1.24E-15
1.33E+06	7.27E+01	7.56E-15	1.42E+07	8.36E+03	4.79E-15	1.53E+08	9.61E+05	1.01E-15
1.42E+06	8.36E+01	7.33E-15	1.53E+07	9.61E+03	4.64E-15	1.64E+08	1.10E+06	8.01E-16
1.53E+06	9.61E+01	7.19E-15	1.64E+07	1.10E+04	4.27E-15	1.76E+08	1.27E+06	6.22E-16
1.64E+06	1.10E+02	7.13E-15	1.76E+07	1.27E+04	4.04E-15	1.88E+08	1.46E+06	4.61E-16
1.76E+06	1.27E+02	7.05E-15	1.88E+07	1.46E+04	3.98E-15	2.02E+08	1.68E+06	3.05E-16
1.88E+06	1.46E+02	6.98E-15	2.02E+07	1.68E+04	4.06E-15	2.02E+08	1.68E+06	3.00E-16
2.02E+06	1.68E+02	7.01E-15	2.16E+07	1.93E+04	4.17E-15			
2.16E+06	1.93E+02	6.97E-15	2.32E+07	2.22E+04	4.31E-15			
2.32E+06	2.22E+02	6.86E-15	2.49E+07	2.55E+04	4.12E-15			
2.49E+06	2.55E+02	6.80E-15	2.67E+07	2.93E+04	3.94E-15			
2.67E+06	2.93E+02	6.74E-15	2.86E+07	3.37E+04	3.57E-15			
2.86E+06	3.37E+02	6.63E-15	3.07E+07	3.88E+04	3.26E-15			
3.07E+06	3.88E+02	6.49E-15	3.29E+07	4.46E+04	3.08E-15			
3.29E+06	4.46E+02	6.35E-15	3.53E+07	5.13E+04	3.04E-15			
3.53E+06	5.13E+02	6.29E-15	3.78E+07	5.90E+04	3.08E-15			
3.78E+06	5.90E+02	6.17E-15	4.06E+07	6.78E+04	3.09E-15			
4.06E+06	6.78E+02	6.05E-15	4.35E+07	7.79E+04	3.06E-15			
4.35E+06	7.79E+02	6.00E-15	4.66E+07	8.96E+04	3.18E-15			
4.66E+06	8.96E+02	5.90E-15	5.00E+07	1.03E+05	3.31E-15			
5.00E+06	1.03E+03	5.80E-15	5.36E+07	1.18E+05	3.32E-15			

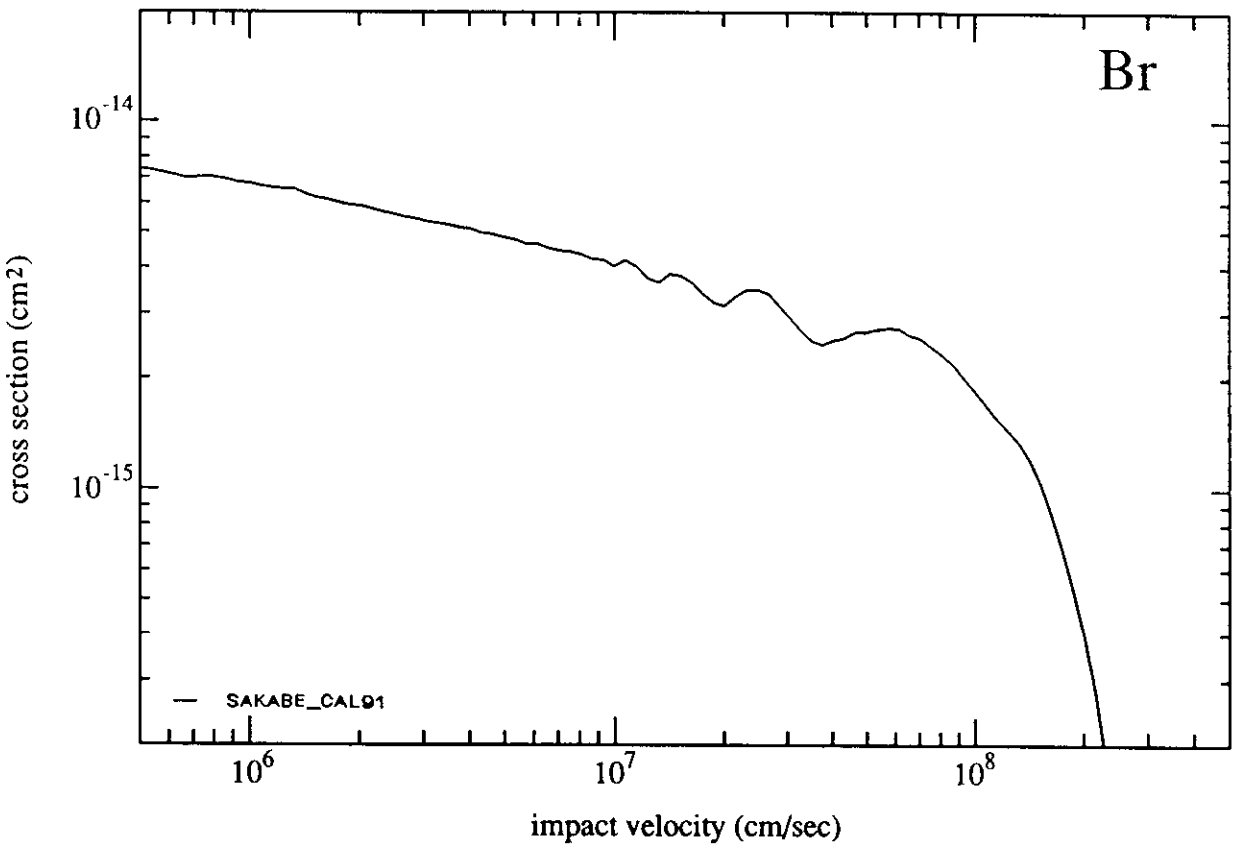


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

IV-VII Bromine: Br

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
5.00E+05	1.04E+01	7.43E-15	5.36E+06	1.20E+03	4.77E-15	5.75E+07	1.38E+05	2.75E-15
5.36E+05	1.20E+01	7.36E-15	5.75E+06	1.38E+03	4.65E-15	6.16E+07	1.58E+05	2.73E-15
5.75E+05	1.38E+01	7.27E-15	6.16E+06	1.58E+03	4.66E-15	6.61E+07	1.82E+05	2.63E-15
6.16E+05	1.58E+01	7.17E-15	6.61E+06	1.82E+03	4.53E-15	7.09E+07	2.09E+05	2.57E-15
6.61E+05	1.82E+01	7.05E-15	7.09E+06	2.09E+03	4.45E-15	7.60E+07	2.41E+05	2.45E-15
7.09E+05	2.09E+01	7.05E-15	7.60E+06	2.41E+03	4.41E-15	8.15E+07	2.77E+05	2.33E-15
7.60E+05	2.41E+01	7.09E-15	8.15E+06	2.77E+03	4.36E-15	8.74E+07	3.18E+05	2.19E-15
8.15E+05	2.77E+01	7.04E-15	8.74E+06	3.18E+03	4.23E-15	9.37E+07	3.66E+05	2.02E-15
8.74E+05	3.18E+01	6.94E-15	9.37E+06	3.66E+03	4.22E-15	1.00E+08	4.21E+05	1.87E-15
9.37E+05	3.66E+01	6.82E-15	1.00E+07	4.21E+03	4.06E-15	1.08E+08	4.84E+05	1.71E-15
1.00E+06	4.21E+01	6.78E-15	1.08E+07	4.84E+03	4.21E-15	1.16E+08	5.56E+05	1.56E-15
1.08E+06	4.84E+01	6.66E-15	1.16E+07	5.56E+03	4.03E-15	1.24E+08	6.40E+05	1.45E-15
1.16E+06	5.56E+01	6.59E-15	1.24E+07	6.40E+03	3.74E-15	1.33E+08	7.35E+05	1.34E-15
1.24E+06	6.40E+01	6.54E-15	1.33E+07	7.35E+03	3.67E-15	1.42E+08	8.46E+05	1.21E-15
1.33E+06	7.35E+01	6.53E-15	1.42E+07	8.46E+03	3.84E-15	1.53E+08	9.72E+05	1.04E-15
1.42E+06	8.46E+01	6.35E-15	1.53E+07	9.72E+03	3.81E-15	1.64E+08	1.12E+06	8.57E-16
1.53E+06	9.72E+01	6.23E-15	1.64E+07	1.12E+04	3.67E-15	1.76E+08	1.29E+06	6.83E-16
1.64E+06	1.12E+02	6.12E-15	1.76E+07	1.29E+04	3.40E-15	1.88E+08	1.48E+06	5.33E-16
1.76E+06	1.29E+02	6.02E-15	1.88E+07	1.48E+04	3.22E-15	2.02E+08	1.70E+06	4.02E-16
1.88E+06	1.48E+02	5.95E-15	2.02E+07	1.70E+04	3.15E-15	2.16E+08	1.95E+06	2.79E-16
2.02E+06	1.70E+02	5.90E-15	2.16E+07	1.95E+04	3.33E-15	2.26E+08	2.13E+06	2.00E-16
2.16E+06	1.95E+02	5.80E-15	2.32E+07	2.25E+04	3.48E-15			
2.32E+06	2.25E+02	5.71E-15	2.49E+07	2.58E+04	3.49E-15			
2.49E+06	2.58E+02	5.63E-15	2.67E+07	2.97E+04	3.40E-15			
2.67E+06	2.97E+02	5.52E-15	2.86E+07	3.41E+04	3.15E-15			
2.86E+06	3.41E+02	5.43E-15	3.07E+07	3.92E+04	2.91E-15			
3.07E+06	3.92E+02	5.33E-15	3.29E+07	4.51E+04	2.70E-15			
3.29E+06	4.51E+02	5.28E-15	3.53E+07	5.19E+04	2.53E-15			
3.53E+06	5.19E+02	5.21E-15	3.78E+07	5.97E+04	2.47E-15			
3.78E+06	5.97E+02	5.14E-15	4.06E+07	6.86E+04	2.54E-15			
4.06E+06	6.86E+02	5.09E-15	4.35E+07	7.89E+04	2.57E-15			
4.35E+06	7.89E+02	4.99E-15	4.66E+07	9.07E+04	2.68E-15			
4.66E+06	9.07E+02	4.93E-15	5.00E+07	1.04E+05	2.67E-15			
5.00E+06	1.04E+03	4.84E-15	5.36E+07	1.20E+05	2.73E-15			

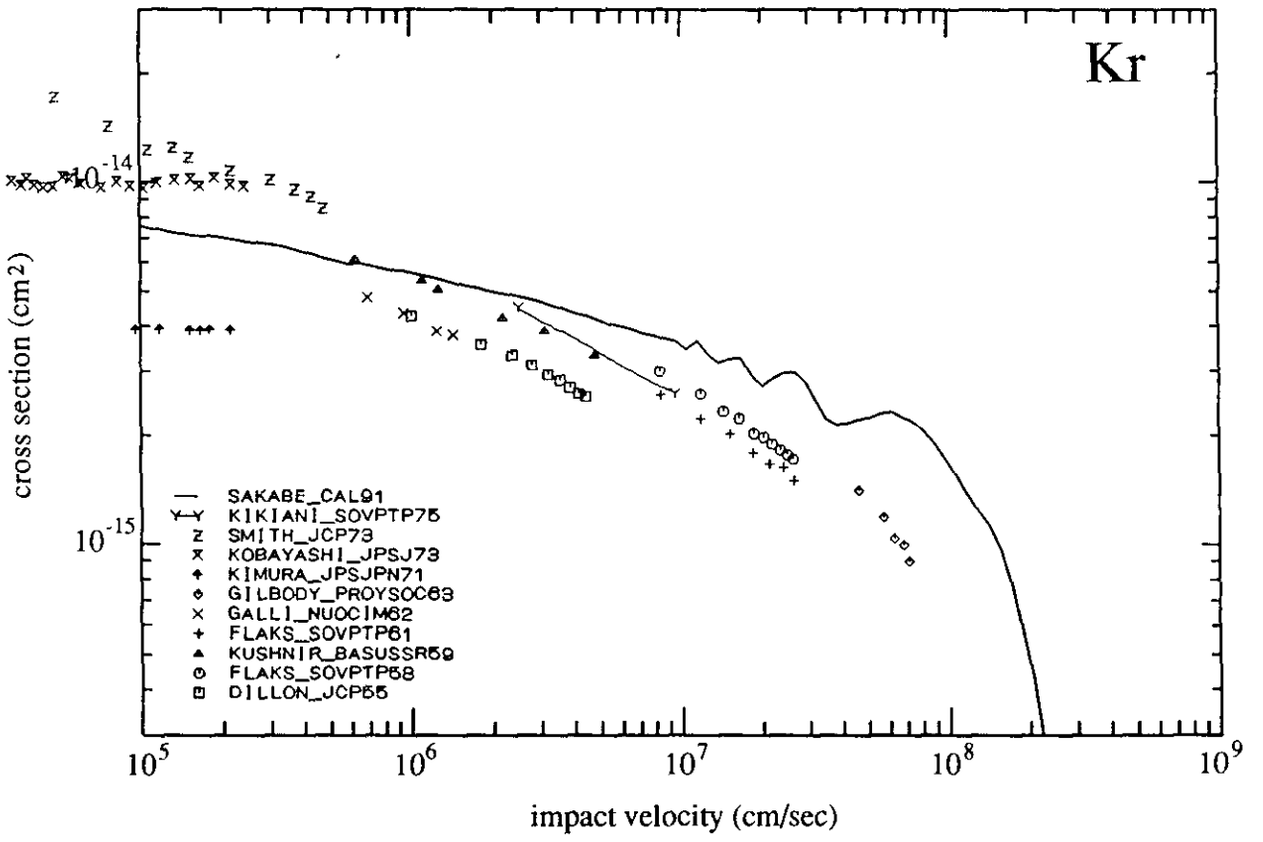


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

IV-O Krypton: Kr

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
1.00E+05	4.37E-01	7.58E-15	2.36E+06	2.45E+02	4.89E-15	5.59E+07	1.37E+05	2.29E-15
1.10E+05	5.27E-01	7.49E-15	2.60E+06	2.95E+02	4.81E-15	6.14E+07	1.65E+05	2.32E-15
1.20E+05	6.34E-01	7.38E-15	2.85E+06	3.55E+02	4.73E-15	6.73E+07	1.98E+05	2.24E-15
1.32E+05	7.64E-01	7.27E-15	3.13E+06	4.27E+02	4.64E-15	7.39E+07	2.39E+05	2.18E-15
1.45E+05	9.21E-01	7.21E-15	3.43E+06	5.15E+02	4.54E-15	8.11E+07	2.88E+05	2.05E-15
1.59E+05	1.11E+00	7.15E-15	3.76E+06	6.20E+02	4.44E-15	8.90E+07	3.47E+05	1.90E-15
1.75E+05	1.34E+00	7.11E-15	4.13E+06	7.47E+02	4.33E-15	9.77E+07	4.17E+05	1.72E-15
1.92E+05	1.61E+00	7.06E-15	4.53E+06	8.99E+02	4.27E-15	1.07E+08	5.03E+05	1.55E-15
2.10E+05	1.94E+00	7.00E-15	4.98E+06	1.08E+03	4.16E-15	1.18E+08	6.06E+05	1.38E-15
2.31E+05	2.33E+00	6.92E-15	5.46E+06	1.30E+03	4.07E-15	1.29E+08	7.30E+05	1.24E-15
2.54E+05	2.81E+00	6.86E-15	5.99E+06	1.57E+03	3.99E-15	1.42E+08	8.79E+05	1.13E-15
2.78E+05	3.39E+00	6.80E-15	6.58E+06	1.89E+03	3.93E-15	1.56E+08	1.06E+06	9.80E-16
3.05E+05	4.08E+00	6.74E-15	7.22E+06	2.28E+03	3.83E-15	1.71E+08	1.27E+06	7.87E-16
3.35E+05	4.91E+00	6.65E-15	7.92E+06	2.75E+03	3.77E-15	1.87E+08	1.54E+06	5.92E-16
3.68E+05	5.92E+00	6.55E-15	8.70E+06	3.31E+03	3.69E-15	2.06E+08	1.85E+06	4.28E-16
4.04E+05	7.13E+00	6.42E-15	9.55E+06	3.98E+03	3.64E-15	2.24E+08	2.19E+06	3.00E-16
4.43E+05	8.58E+00	6.30E-15	1.05E+07	4.80E+03	3.46E-15			
4.86E+05	1.03E+01	6.17E-15	1.15E+07	5.78E+03	3.64E-15			
5.34E+05	1.25E+01	6.08E-15	1.26E+07	6.96E+03	3.35E-15			
5.86E+05	1.50E+01	5.96E-15	1.38E+07	8.39E+03	3.16E-15			
6.43E+05	1.81E+01	5.98E-15	1.52E+07	1.01E+04	3.25E-15			
7.05E+05	2.18E+01	5.88E-15	1.67E+07	1.22E+04	3.26E-15			
7.74E+05	2.62E+01	5.81E-15	1.83E+07	1.47E+04	2.92E-15			
8.50E+05	3.16E+01	5.73E-15	2.01E+07	1.77E+04	2.72E-15			
9.33E+05	3.80E+01	5.72E-15	2.21E+07	2.13E+04	2.87E-15			
1.02E+06	4.58E+01	5.58E-15	2.42E+07	2.56E+04	2.97E-15			
1.12E+06	5.52E+01	5.50E-15	2.66E+07	3.09E+04	2.98E-15			
1.23E+06	6.65E+01	5.43E-15	2.92E+07	3.72E+04	2.80E-15			
1.35E+06	8.01E+01	5.34E-15	3.20E+07	4.48E+04	2.48E-15			
1.48E+06	9.64E+01	5.24E-15	3.51E+07	5.39E+04	2.21E-15			
1.63E+06	1.16E+02	5.17E-15	3.85E+07	6.49E+04	2.13E-15			
1.79E+06	1.40E+02	5.10E-15	4.23E+07	7.82E+04	2.15E-15			
1.96E+06	1.69E+02	5.01E-15	4.64E+07	9.42E+04	2.21E-15			
2.15E+06	2.03E+02	4.96E-15	5.09E+07	1.13E+05	2.22E-15			

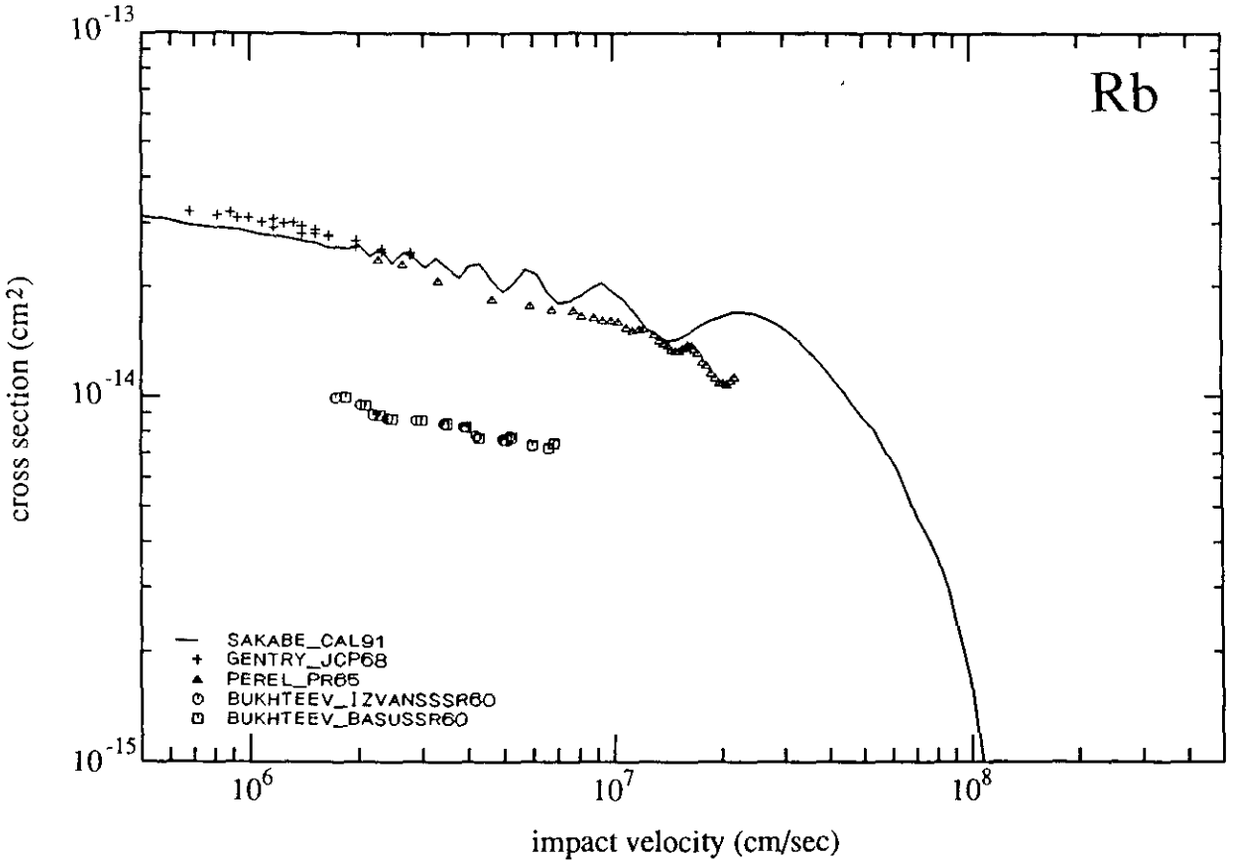


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

V-I Rubidium: Rb

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
5.00E+05	1.12E+01	3.12E-14	5.36E+06	1.28E+03	2.06E-14	5.75E+07	1.47E+05	7.18E-15
5.36E+05	1.28E+01	3.11E-14	5.75E+06	1.47E+03	2.24E-14	6.16E+07	1.69E+05	6.42E-15
5.75E+05	1.47E+01	3.07E-14	6.16E+06	1.69E+03	2.17E-14	6.61E+07	1.95E+05	5.51E-15
6.16E+05	1.69E+01	3.04E-14	6.61E+06	1.95E+03	1.94E-14	7.09E+07	2.24E+05	4.70E-15
6.61E+05	1.95E+01	3.00E-14	7.09E+06	2.24E+03	1.80E-14	7.60E+07	2.58E+05	4.15E-15
7.09E+05	2.24E+01	2.96E-14	7.60E+06	2.58E+03	1.83E-14	8.15E+07	2.96E+05	3.60E-15
7.60E+05	2.58E+01	2.94E-14	8.15E+06	2.96E+03	1.88E-14	8.74E+07	3.41E+05	2.92E-15
8.15E+05	2.96E+01	2.92E-14	8.74E+06	3.41E+03	1.98E-14	9.37E+07	3.92E+05	2.20E-15
8.74E+05	3.41E+01	2.90E-14	9.37E+06	3.92E+03	2.05E-14	1.00E+08	4.50E+05	1.69E-15
9.37E+05	3.92E+01	2.88E-14	1.00E+07	4.50E+03	1.94E-14	1.08E+08	5.18E+05	1.04E-15
1.00E+06	4.50E+01	2.84E-14	1.08E+07	5.18E+03	1.84E-14	1.08E+08	5.24E+05	1.00E-15
1.08E+06	5.18E+01	2.81E-14	1.16E+07	5.95E+03	1.69E-14			
1.16E+06	5.95E+01	2.78E-14	1.24E+07	6.84E+03	1.54E-14			
1.24E+06	6.84E+01	2.75E-14	1.33E+07	7.87E+03	1.49E-14			
1.33E+06	7.87E+01	2.72E-14	1.42E+07	9.04E+03	1.42E-14			
1.42E+06	9.04E+01	2.68E-14	1.53E+07	1.04E+04	1.44E-14			
1.53E+06	1.04E+02	2.66E-14	1.64E+07	1.20E+04	1.48E-14			
1.64E+06	1.20E+02	2.60E-14	1.76E+07	1.37E+04	1.56E-14			
1.76E+06	1.37E+02	2.58E-14	1.88E+07	1.58E+04	1.62E-14			
1.88E+06	1.58E+02	2.54E-14	2.02E+07	1.82E+04	1.66E-14			
2.02E+06	1.82E+02	2.62E-14	2.16E+07	2.09E+04	1.70E-14			
2.16E+06	2.09E+02	2.44E-14	2.32E+07	2.40E+04	1.70E-14			
2.32E+06	2.40E+02	2.55E-14	2.49E+07	2.76E+04	1.69E-14			
2.49E+06	2.76E+02	2.32E-14	2.67E+07	3.18E+04	1.64E-14			
2.67E+06	3.18E+02	2.49E-14	2.86E+07	3.65E+04	1.59E-14			
2.86E+06	3.65E+02	2.40E-14	3.07E+07	4.20E+04	1.52E-14			
3.07E+06	4.20E+02	2.26E-14	3.29E+07	4.83E+04	1.44E-14			
3.29E+06	4.83E+02	2.40E-14	3.53E+07	5.55E+04	1.33E-14			
3.53E+06	5.55E+02	2.26E-14	3.78E+07	6.38E+04	1.24E-14			
3.78E+06	6.38E+02	2.12E-14	4.06E+07	7.34E+04	1.15E-14			
4.06E+06	7.34E+02	2.29E-14	4.35E+07	8.44E+04	1.06E-14			
4.35E+06	8.44E+02	2.31E-14	4.66E+07	9.70E+04	9.58E-15			
4.66E+06	9.70E+02	2.08E-14	5.00E+07	1.12E+05	8.79E-15			
5.00E+06	1.12E+03	1.95E-14	5.36E+07	1.28E+05	8.12E-15			

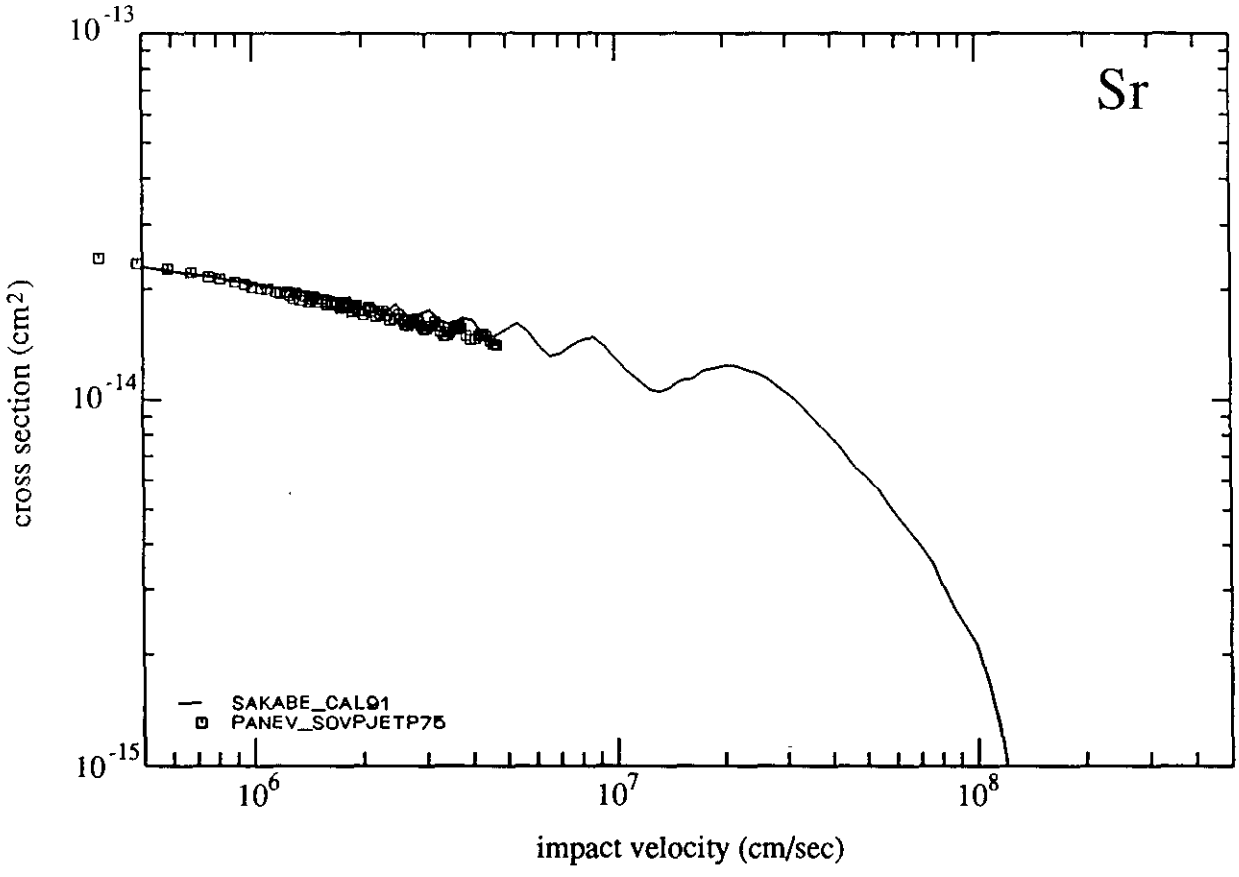


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

V-II Strontium: Sr

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
5.00E+05	1.14E+01	2.30E-14	5.36E+06	1.31E+03	1.63E-14	5.75E+07	1.51E+05	5.14E-15
5.36E+05	1.31E+01	2.28E-14	5.75E+06	1.51E+03	1.54E-14	6.16E+07	1.74E+05	4.70E-15
5.75E+05	1.51E+01	2.26E-14	6.16E+06	1.74E+03	1.41E-14	6.61E+07	2.00E+05	4.33E-15
6.16E+05	1.74E+01	2.24E-14	6.61E+06	2.00E+03	1.32E-14	7.09E+07	2.30E+05	3.95E-15
6.61E+05	2.00E+01	2.21E-14	7.09E+06	2.30E+03	1.34E-14	7.60E+07	2.64E+05	3.57E-15
7.09E+05	2.30E+01	2.19E-14	7.60E+06	2.64E+03	1.41E-14	8.15E+07	3.04E+05	3.08E-15
7.60E+05	2.64E+01	2.17E-14	8.15E+06	3.04E+03	1.47E-14	8.74E+07	3.49E+05	2.68E-15
8.15E+05	3.04E+01	2.15E-14	8.74E+06	3.49E+03	1.48E-14	9.37E+07	4.01E+05	2.40E-15
8.74E+05	3.49E+01	2.12E-14	9.37E+06	4.01E+03	1.41E-14	1.00E+08	4.61E+05	2.15E-15
9.37E+05	4.01E+01	2.10E-14	1.00E+07	4.61E+03	1.30E-14	1.08E+08	5.31E+05	1.71E-15
1.00E+06	4.61E+01	2.08E-14	1.08E+07	5.31E+03	1.20E-14	1.16E+08	6.10E+05	1.29E-15
1.08E+06	5.31E+01	2.05E-14	1.16E+07	6.10E+03	1.13E-14	1.21E+08	6.69E+05	1.00E-15
1.16E+06	6.10E+01	2.02E-14	1.24E+07	7.01E+03	1.07E-14			
1.24E+06	7.01E+01	2.00E-14	1.33E+07	8.06E+03	1.06E-14			
1.33E+06	8.06E+01	1.98E-14	1.42E+07	9.27E+03	1.09E-14			
1.42E+06	9.27E+01	1.96E-14	1.53E+07	1.07E+04	1.13E-14			
1.53E+06	1.07E+02	1.93E-14	1.64E+07	1.23E+04	1.14E-14			
1.64E+06	1.23E+02	1.92E-14	1.76E+07	1.41E+04	1.20E-14			
1.76E+06	1.41E+02	1.89E-14	1.88E+07	1.62E+04	1.22E-14			
1.88E+06	1.62E+02	1.88E-14	2.02E+07	1.86E+04	1.24E-14			
2.02E+06	1.86E+02	1.80E-14	2.16E+07	2.14E+04	1.24E-14			
2.16E+06	2.14E+02	1.84E-14	2.32E+07	2.46E+04	1.21E-14			
2.32E+06	2.46E+02	1.73E-14	2.49E+07	2.83E+04	1.18E-14			
2.49E+06	2.83E+02	1.83E-14	2.67E+07	3.26E+04	1.14E-14			
2.67E+06	3.26E+02	1.70E-14	2.86E+07	3.74E+04	1.09E-14			
2.86E+06	3.74E+02	1.71E-14	3.07E+07	4.30E+04	1.03E-14			
3.07E+06	4.30E+02	1.76E-14	3.29E+07	4.95E+04	9.71E-15			
3.29E+06	4.95E+02	1.66E-14	3.53E+07	5.69E+04	9.05E-15			
3.53E+06	5.69E+02	1.60E-14	3.78E+07	6.54E+04	8.40E-15			
3.78E+06	6.54E+02	1.68E-14	4.06E+07	7.52E+04	7.85E-15			
4.06E+06	7.52E+02	1.66E-14	4.35E+07	8.65E+04	7.18E-15			
4.35E+06	8.65E+02	1.50E-14	4.66E+07	9.94E+04	6.55E-15			
4.66E+06	9.94E+02	1.50E-14	5.00E+07	1.14E+05	6.16E-15			
5.00E+06	1.14E+03	1.57E-14	5.36E+07	1.31E+05	5.69E-15			

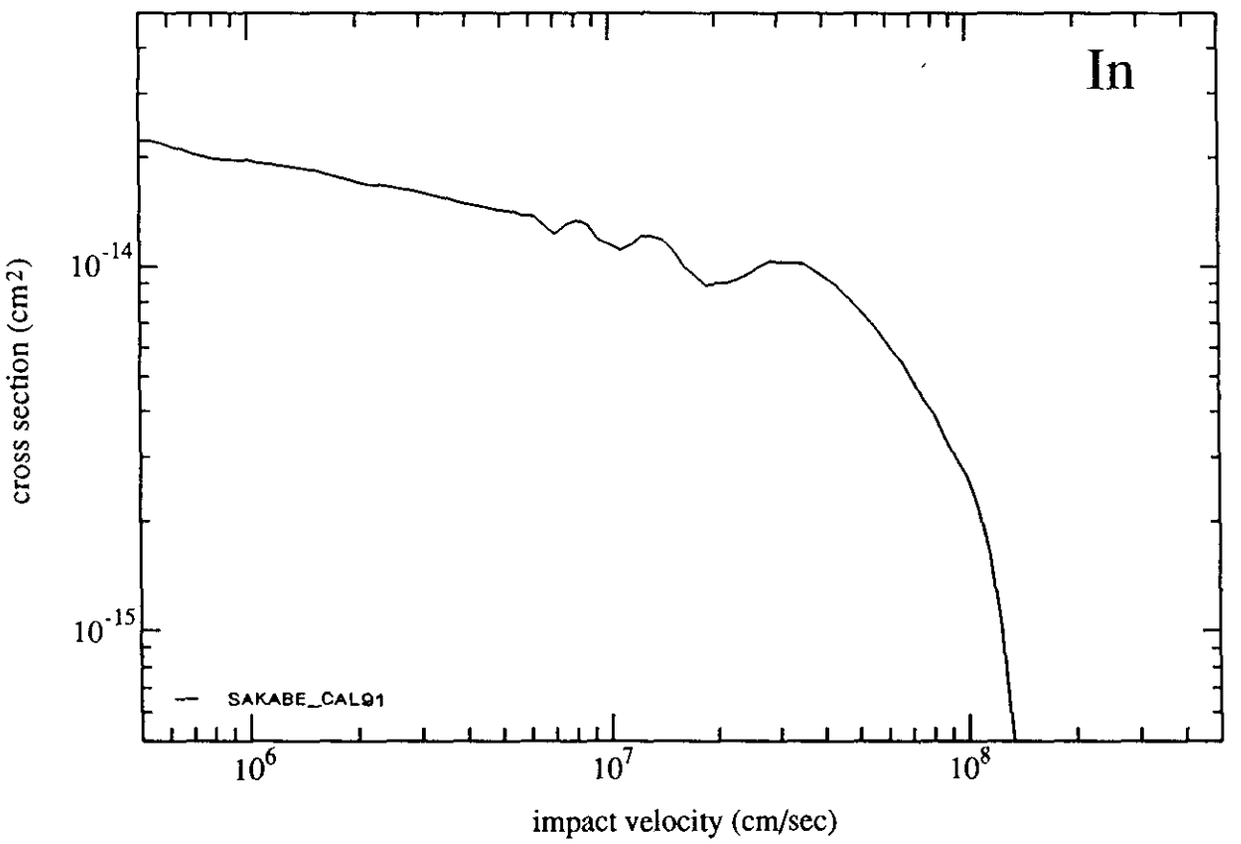


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

V-III Indium: In

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
5.00E+05	1.50E+01	2.23E-14	5.36E+06	1.72E+03	1.42E-14	5.75E+07	1.98E+05	6.57E-15
5.36E+05	1.72E+01	2.22E-14	5.75E+06	1.98E+03	1.39E-14	6.16E+07	2.28E+05	5.96E-15
5.75E+05	1.98E+01	2.19E-14	6.16E+06	2.28E+03	1.39E-14	6.61E+07	2.62E+05	5.53E-15
6.16E+05	2.28E+01	2.14E-14	6.61E+06	2.62E+03	1.30E-14	7.09E+07	3.01E+05	4.91E-15
6.61E+05	2.62E+01	2.09E-14	7.09E+06	3.01E+03	1.23E-14	7.60E+07	3.46E+05	4.29E-15
7.09E+05	3.01E+01	2.04E-14	7.60E+06	3.46E+03	1.31E-14	8.15E+07	3.98E+05	3.94E-15
7.60E+05	3.46E+01	2.01E-14	8.15E+06	3.98E+03	1.35E-14	8.74E+07	4.57E+05	3.38E-15
8.15E+05	3.98E+01	1.98E-14	8.74E+06	4.57E+03	1.30E-14	9.37E+07	5.26E+05	2.97E-15
8.74E+05	4.57E+01	1.98E-14	9.37E+06	5.26E+03	1.20E-14	1.00E+08	6.05E+05	2.68E-15
9.37E+05	5.26E+01	1.96E-14	1.00E+07	6.05E+03	1.16E-14	1.08E+08	6.95E+05	2.21E-15
1.00E+06	6.05E+01	1.96E-14	1.08E+07	6.95E+03	1.12E-14	1.16E+08	7.99E+05	1.63E-15
1.08E+06	6.95E+01	1.93E-14	1.16E+07	7.99E+03	1.16E-14	1.24E+08	9.19E+05	1.03E-15
1.16E+06	7.99E+01	1.92E-14	1.24E+07	9.19E+03	1.22E-14	1.33E+08	1.06E+06	5.26E-16
1.24E+06	9.19E+01	1.90E-14	1.33E+07	1.06E+04	1.21E-14	1.34E+08	1.07E+06	5.00E-16
1.33E+06	1.06E+02	1.89E-14	1.42E+07	1.22E+04	1.19E-14			
1.42E+06	1.22E+02	1.87E-14	1.53E+07	1.40E+04	1.11E-14			
1.53E+06	1.40E+02	1.85E-14	1.64E+07	1.61E+04	1.00E-14			
1.64E+06	1.61E+02	1.81E-14	1.76E+07	1.85E+04	9.47E-15			
1.76E+06	1.85E+02	1.78E-14	1.88E+07	2.12E+04	8.94E-15			
1.88E+06	2.12E+02	1.75E-14	2.02E+07	2.44E+04	9.03E-15			
2.02E+06	2.44E+02	1.72E-14	2.16E+07	2.81E+04	9.04E-15			
2.16E+06	2.81E+02	1.68E-14	2.32E+07	3.23E+04	9.27E-15			
2.32E+06	3.23E+02	1.68E-14	2.49E+07	3.71E+04	9.62E-15			
2.49E+06	3.71E+02	1.66E-14	2.67E+07	4.27E+04	1.01E-14			
2.67E+06	4.27E+02	1.64E-14	2.86E+07	4.91E+04	1.04E-14			
2.86E+06	4.91E+02	1.62E-14	3.07E+07	5.64E+04	1.03E-14			
3.07E+06	5.64E+02	1.61E-14	3.29E+07	6.48E+04	1.03E-14			
3.29E+06	6.48E+02	1.58E-14	3.53E+07	7.46E+04	1.03E-14			
3.53E+06	7.46E+02	1.55E-14	3.78E+07	8.57E+04	9.79E-15			
3.78E+06	8.57E+02	1.52E-14	4.06E+07	9.86E+04	9.40E-15			
4.06E+06	9.86E+02	1.50E-14	4.35E+07	1.13E+05	9.00E-15			
4.35E+06	1.13E+03	1.48E-14	4.66E+07	1.30E+05	8.36E-15			
4.66E+06	1.30E+03	1.45E-14	5.00E+07	1.50E+05	7.78E-15			
5.00E+06	1.50E+03	1.44E-14	5.36E+07	1.72E+05	7.18E-15			

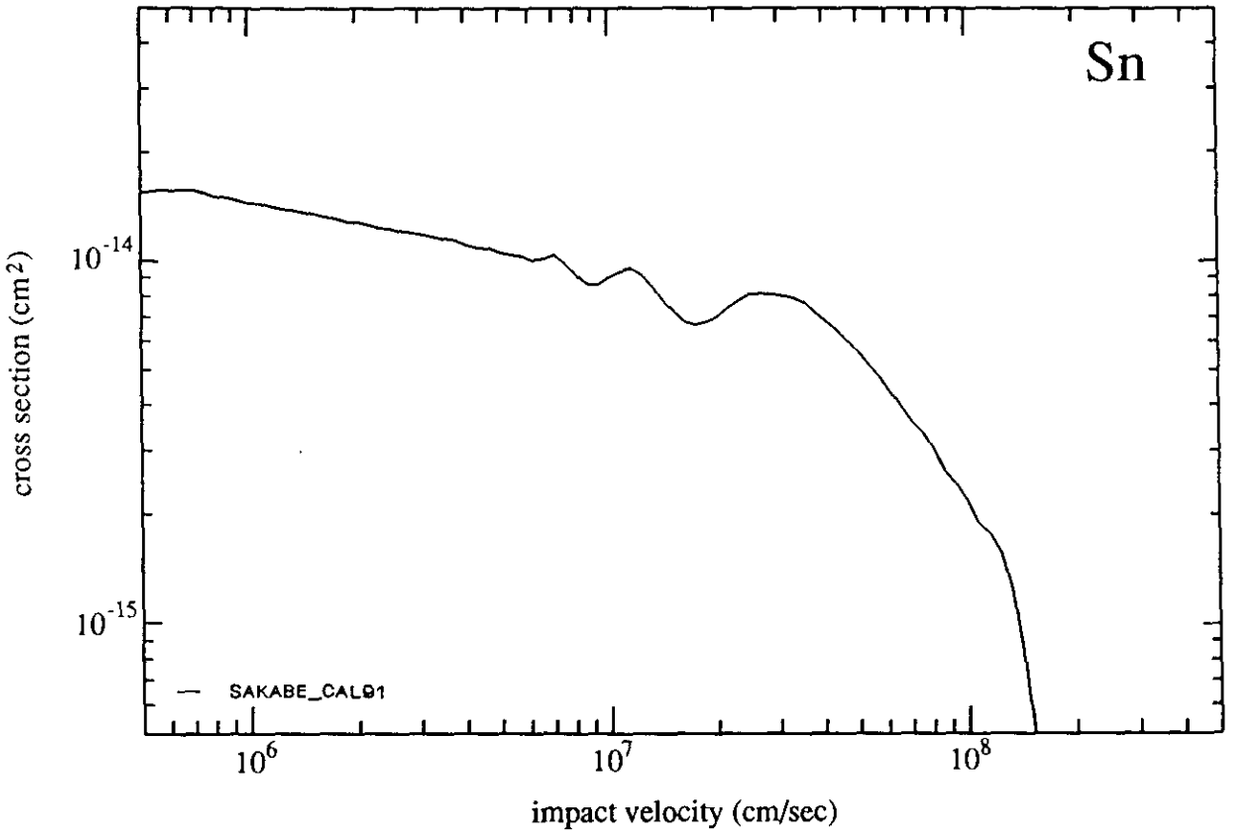


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

V-IV Tin: Sn

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
5.00E+05	1.55E+01	1.56E-14	5.36E+06	1.78E+03	1.04E-14	5.75E+07	2.05E+05	4.80E-15
5.36E+05	1.78E+01	1.56E-14	5.75E+06	2.05E+03	1.04E-14	6.16E+07	2.35E+05	4.32E-15
5.75E+05	2.05E+01	1.59E-14	6.16E+06	2.35E+03	1.00E-14	6.61E+07	2.71E+05	3.93E-15
6.16E+05	2.35E+01	1.58E-14	6.61E+06	2.71E+03	1.01E-14	7.09E+07	3.11E+05	3.61E-15
6.61E+05	2.71E+01	1.58E-14	7.09E+06	3.11E+03	1.04E-14	7.60E+07	3.58E+05	3.35E-15
7.09E+05	3.11E+01	1.57E-14	7.60E+06	3.58E+03	9.84E-15	8.15E+07	4.11E+05	3.02E-15
7.60E+05	3.58E+01	1.55E-14	8.15E+06	4.11E+03	9.13E-15	8.74E+07	4.73E+05	2.63E-15
8.15E+05	4.11E+01	1.52E-14	8.74E+06	4.73E+03	8.66E-15	9.37E+07	5.44E+05	2.43E-15
8.74E+05	4.73E+01	1.51E-14	9.37E+06	5.44E+03	8.62E-15	1.00E+08	6.25E+05	2.20E-15
9.37E+05	5.44E+01	1.48E-14	1.00E+07	6.25E+03	9.04E-15	1.08E+08	7.19E+05	1.91E-15
1.00E+06	6.25E+01	1.46E-14	1.08E+07	7.19E+03	9.36E-15	1.16E+08	8.26E+05	1.77E-15
1.08E+06	7.19E+01	1.45E-14	1.16E+07	8.26E+03	9.56E-15	1.24E+08	9.50E+05	1.57E-15
1.16E+06	8.26E+01	1.43E-14	1.24E+07	9.50E+03	9.13E-15	1.33E+08	1.09E+06	1.24E-15
1.24E+06	9.50E+01	1.41E-14	1.33E+07	1.09E+04	8.48E-15	1.42E+08	1.26E+06	8.50E-16
1.33E+06	1.09E+02	1.39E-14	1.42E+07	1.26E+04	7.75E-15	1.52E+08	1.44E+06	5.00E-16
1.42E+06	1.26E+02	1.38E-14	1.53E+07	1.44E+04	7.23E-15			
1.53E+06	1.44E+02	1.35E-14	1.64E+07	1.66E+04	6.81E-15			
1.64E+06	1.66E+02	1.33E-14	1.76E+07	1.91E+04	6.69E-15			
1.76E+06	1.91E+02	1.32E-14	1.88E+07	2.20E+04	6.82E-15			
1.88E+06	2.20E+02	1.30E-14	2.02E+07	2.52E+04	7.00E-15			
2.02E+06	2.52E+02	1.29E-14	2.16E+07	2.90E+04	7.42E-15			
2.16E+06	2.90E+02	1.27E-14	2.32E+07	3.34E+04	7.78E-15			
2.32E+06	3.34E+02	1.25E-14	2.49E+07	3.84E+04	8.16E-15			
2.49E+06	3.84E+02	1.23E-14	2.67E+07	4.41E+04	8.12E-15			
2.67E+06	4.41E+02	1.21E-14	2.86E+07	5.07E+04	8.10E-15			
2.86E+06	5.07E+02	1.20E-14	3.07E+07	5.83E+04	8.01E-15			
3.07E+06	5.83E+02	1.19E-14	3.29E+07	6.70E+04	7.92E-15			
3.29E+06	6.70E+02	1.17E-14	3.53E+07	7.71E+04	7.69E-15			
3.53E+06	7.71E+02	1.15E-14	3.78E+07	8.86E+04	7.23E-15			
3.78E+06	8.86E+02	1.14E-14	4.06E+07	1.02E+05	6.87E-15			
4.06E+06	1.02E+03	1.11E-14	4.35E+07	1.17E+05	6.50E-15			
4.35E+06	1.17E+03	1.09E-14	4.66E+07	1.35E+05	6.07E-15			
4.66E+06	1.35E+03	1.08E-14	5.00E+07	1.55E+05	5.63E-15			
5.00E+06	1.55E+03	1.06E-14	5.36E+07	1.78E+05	5.15E-15			

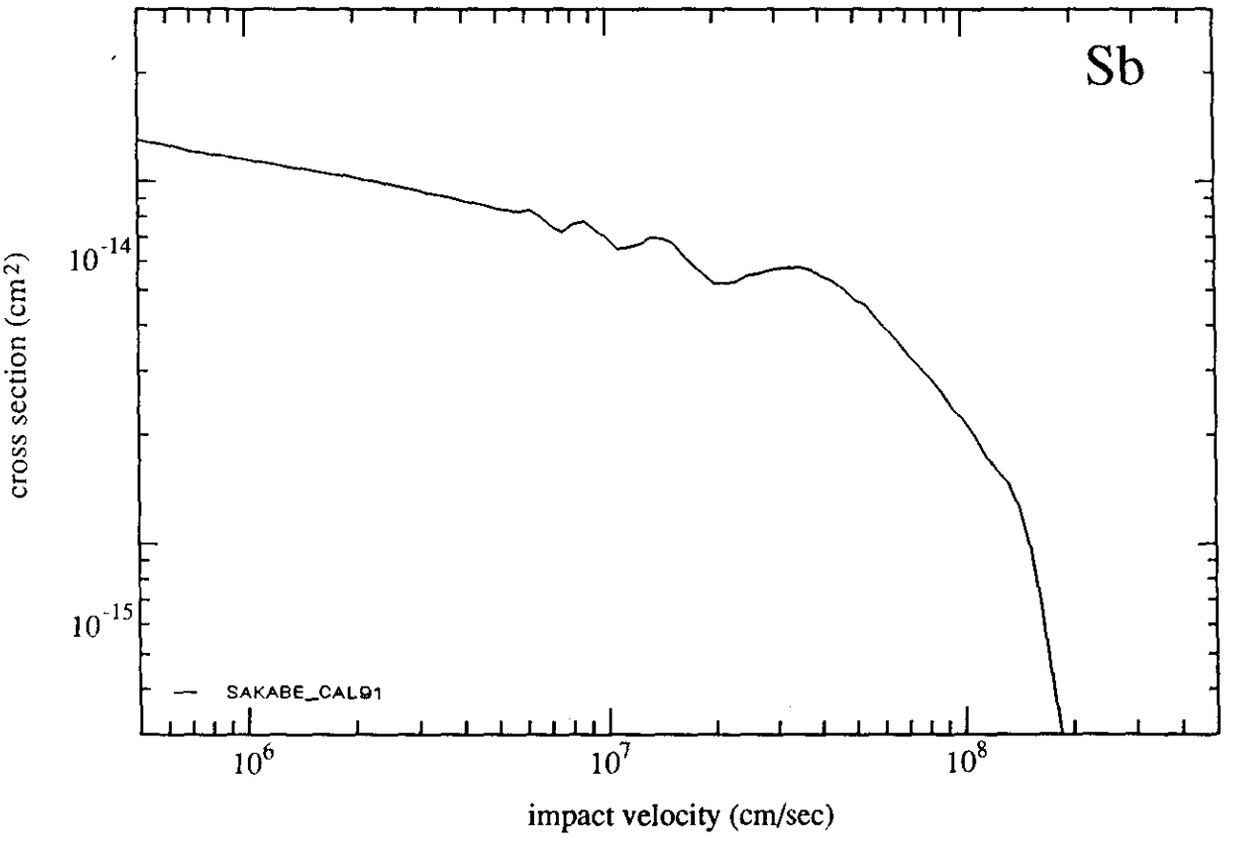


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

V-V Antimony: Sb

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
5.00E+05	1.59E+01	1.30E-14	5.36E+06	1.83E+03	8.34E-15	5.75E+07	2.10E+05	4.20E-15
5.36E+05	1.83E+01	1.29E-14	5.75E+06	2.10E+03	8.24E-15	6.16E+07	2.41E+05	3.88E-15
5.75E+05	2.10E+01	1.28E-14	6.16E+06	2.41E+03	8.36E-15	6.61E+07	2.78E+05	3.61E-15
6.16E+05	2.41E+01	1.26E-14	6.61E+06	2.78E+03	8.00E-15	7.09E+07	3.19E+05	3.30E-15
6.61E+05	2.78E+01	1.24E-14	7.09E+06	3.19E+03	7.57E-15	7.60E+07	3.67E+05	3.07E-15
7.09E+05	3.19E+01	1.21E-14	7.60E+06	3.67E+03	7.24E-15	8.15E+07	4.22E+05	2.85E-15
7.60E+05	3.67E+01	1.21E-14	8.15E+06	4.22E+03	7.66E-15	8.74E+07	4.85E+05	2.63E-15
8.15E+05	4.22E+01	1.19E-14	8.74E+06	4.85E+03	7.79E-15	9.37E+07	5.58E+05	2.36E-15
8.74E+05	4.85E+01	1.18E-14	9.37E+06	5.58E+03	7.36E-15	1.00E+08	6.41E+05	2.20E-15
9.37E+05	5.58E+01	1.17E-14	1.00E+07	6.41E+03	7.01E-15	1.08E+08	7.37E+05	2.00E-15
1.00E+06	6.41E+01	1.16E-14	1.08E+07	7.37E+03	6.52E-15	1.16E+08	8.48E+05	1.75E-15
1.08E+06	7.37E+01	1.14E-14	1.16E+07	8.48E+03	6.61E-15	1.24E+08	9.75E+05	1.59E-15
1.16E+06	8.48E+01	1.13E-14	1.24E+07	9.75E+03	6.77E-15	1.33E+08	1.12E+06	1.48E-15
1.24E+06	9.75E+01	1.11E-14	1.33E+07	1.12E+04	7.01E-15	1.42E+08	1.29E+06	1.28E-15
1.33E+06	1.12E+02	1.10E-14	1.42E+07	1.29E+04	6.98E-15	1.53E+08	1.48E+06	9.91E-16
1.42E+06	1.29E+02	1.09E-14	1.53E+07	1.48E+04	6.78E-15	1.64E+08	1.70E+06	6.86E-16
1.53E+06	1.48E+02	1.08E-14	1.64E+07	1.70E+04	6.30E-15	1.76E+08	1.96E+06	4.19E-16
1.64E+06	1.70E+02	1.06E-14	1.76E+07	1.96E+04	5.84E-15	1.85E+08	2.18E+06	3.00E-16
1.76E+06	1.96E+02	1.05E-14	1.88E+07	2.25E+04	5.55E-15			
1.88E+06	2.25E+02	1.04E-14	2.02E+07	2.59E+04	5.25E-15			
2.02E+06	2.59E+02	1.03E-14	2.16E+07	2.98E+04	5.26E-15			
2.16E+06	2.98E+02	1.01E-14	2.32E+07	3.42E+04	5.28E-15			
2.32E+06	3.42E+02	1.00E-14	2.49E+07	3.93E+04	5.51E-15			
2.49E+06	3.93E+02	9.86E-15	2.67E+07	4.52E+04	5.58E-15			
2.67E+06	4.52E+02	9.73E-15	2.86E+07	5.20E+04	5.69E-15			
2.86E+06	5.20E+02	9.57E-15	3.07E+07	5.98E+04	5.74E-15			
3.07E+06	5.98E+02	9.47E-15	3.29E+07	6.88E+04	5.78E-15			
3.29E+06	6.88E+02	9.26E-15	3.53E+07	7.91E+04	5.81E-15			
3.53E+06	7.91E+02	9.17E-15	3.78E+07	9.09E+04	5.71E-15			
3.78E+06	9.09E+02	9.01E-15	4.06E+07	1.05E+05	5.47E-15			
4.06E+06	1.05E+03	8.87E-15	4.35E+07	1.20E+05	5.30E-15			
4.35E+06	1.20E+03	8.72E-15	4.66E+07	1.38E+05	5.07E-15			
4.66E+06	1.38E+03	8.60E-15	5.00E+07	1.59E+05	4.74E-15			
5.00E+06	1.59E+03	8.42E-15	5.36E+07	1.83E+05	4.54E-15			

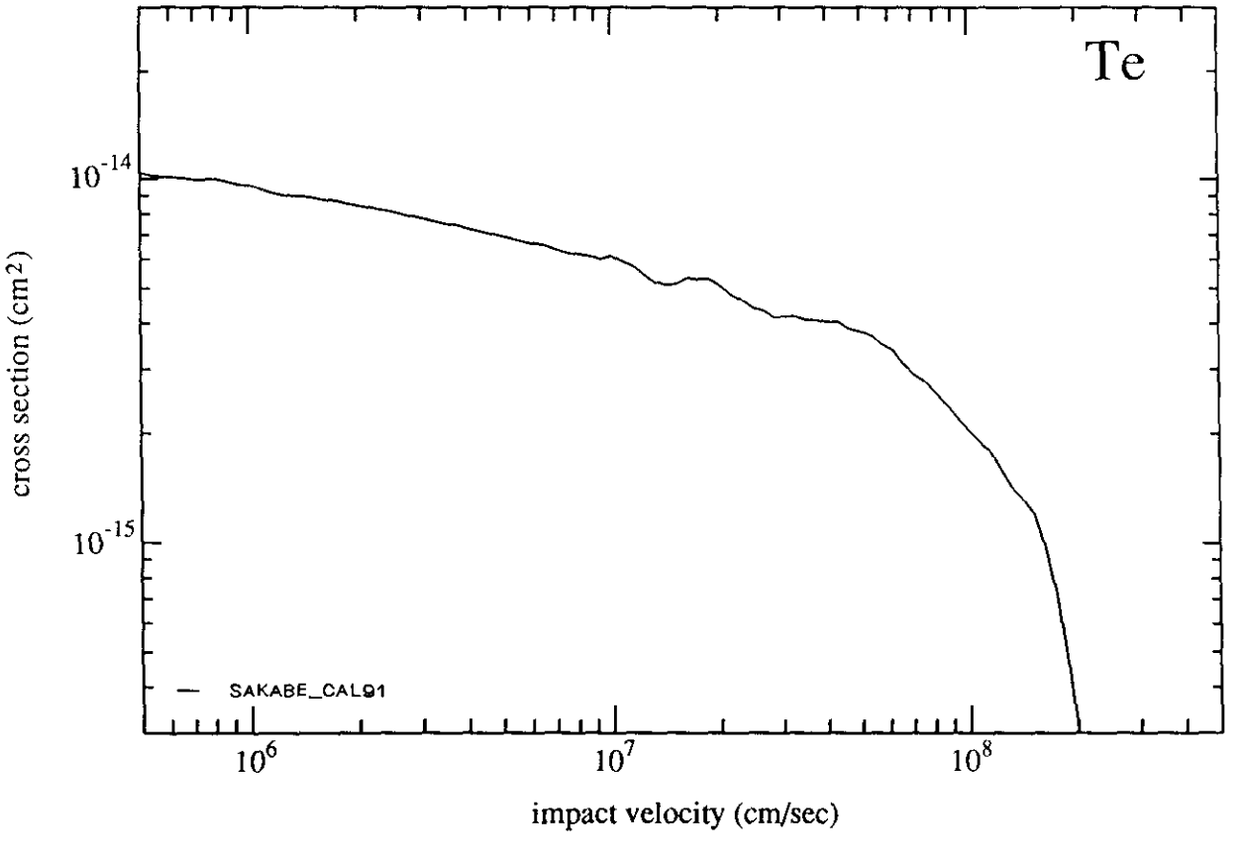


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

V-VI Tellurium: Te

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
5.00E+05	1.66E+01	1.04E-14	5.36E+06	1.91E+03	6.89E-15	5.75E+07	2.20E+05	3.53E-15
5.36E+05	1.91E+01	1.03E-14	5.75E+06	2.20E+03	6.75E-15	6.16E+07	2.53E+05	3.39E-15
5.75E+05	2.20E+01	1.02E-14	6.16E+06	2.53E+03	6.62E-15	6.61E+07	2.91E+05	3.13E-15
6.16E+05	2.53E+01	1.01E-14	6.61E+06	2.91E+03	6.56E-15	7.09E+07	3.34E+05	2.92E-15
6.61E+05	2.91E+01	1.01E-14	7.09E+06	3.34E+03	6.43E-15	7.60E+07	3.85E+05	2.79E-15
7.09E+05	3.34E+01	1.00E-14	7.60E+06	3.85E+03	6.27E-15	8.15E+07	4.42E+05	2.61E-15
7.60E+05	3.85E+01	9.99E-15	8.15E+06	4.42E+03	6.21E-15	8.74E+07	5.08E+05	2.40E-15
8.15E+05	4.42E+01	1.00E-14	8.74E+06	5.08E+03	6.16E-15	9.37E+07	5.85E+05	2.22E-15
8.74E+05	5.08E+01	9.84E-15	9.37E+06	5.85E+03	6.06E-15	1.00E+08	6.72E+05	2.06E-15
9.37E+05	5.85E+01	9.71E-15	1.00E+07	6.72E+03	6.17E-15	1.08E+08	7.73E+05	1.92E-15
1.00E+06	6.72E+01	9.57E-15	1.08E+07	7.73E+03	5.97E-15	1.16E+08	8.88E+05	1.78E-15
1.08E+06	7.73E+01	9.42E-15	1.16E+07	8.88E+03	5.78E-15	1.24E+08	1.02E+06	1.58E-15
1.16E+06	8.88E+01	9.21E-15	1.24E+07	1.02E+04	5.47E-15	1.33E+08	1.17E+06	1.42E-15
1.24E+06	1.02E+02	9.09E-15	1.33E+07	1.17E+04	5.21E-15	1.42E+08	1.35E+06	1.33E-15
1.33E+06	1.17E+02	9.00E-15	1.42E+07	1.35E+04	5.12E-15	1.53E+08	1.55E+06	1.20E-15
1.42E+06	1.35E+02	8.97E-15	1.53E+07	1.55E+04	5.18E-15	1.64E+08	1.79E+06	9.83E-16
1.53E+06	1.55E+02	8.90E-15	1.64E+07	1.79E+04	5.37E-15	1.76E+08	2.05E+06	7.27E-16
1.64E+06	1.79E+02	8.79E-15	1.76E+07	2.05E+04	5.32E-15	1.88E+08	2.36E+06	4.89E-16
1.76E+06	2.05E+02	8.69E-15	1.88E+07	2.36E+04	5.32E-15	2.02E+08	2.71E+06	3.03E-16
1.88E+06	2.36E+02	8.57E-15	2.02E+07	2.71E+04	5.12E-15	2.04E+08	2.78E+06	3.00E-16
2.02E+06	2.71E+02	8.46E-15	2.16E+07	3.12E+04	4.84E-15			
2.16E+06	3.12E+02	8.38E-15	2.32E+07	3.59E+04	4.67E-15			
2.32E+06	3.59E+02	8.26E-15	2.49E+07	4.12E+04	4.45E-15			
2.49E+06	4.12E+02	8.17E-15	2.67E+07	4.74E+04	4.36E-15			
2.67E+06	4.74E+02	8.02E-15	2.86E+07	5.45E+04	4.18E-15			
2.86E+06	5.45E+02	7.89E-15	3.07E+07	6.27E+04	4.18E-15			
3.07E+06	6.27E+02	7.78E-15	3.29E+07	7.21E+04	4.19E-15			
3.29E+06	7.21E+02	7.66E-15	3.53E+07	8.29E+04	4.10E-15			
3.53E+06	8.29E+02	7.55E-15	3.78E+07	9.53E+04	4.11E-15			
3.78E+06	9.53E+02	7.47E-15	4.06E+07	1.10E+05	4.05E-15			
4.06E+06	1.10E+03	7.34E-15	4.35E+07	1.26E+05	4.07E-15			
4.35E+06	1.26E+03	7.21E-15	4.66E+07	1.45E+05	3.90E-15			
4.66E+06	1.45E+03	7.09E-15	5.00E+07	1.66E+05	3.83E-15			
5.00E+06	1.66E+03	6.99E-15	5.36E+07	1.91E+05	3.70E-15			

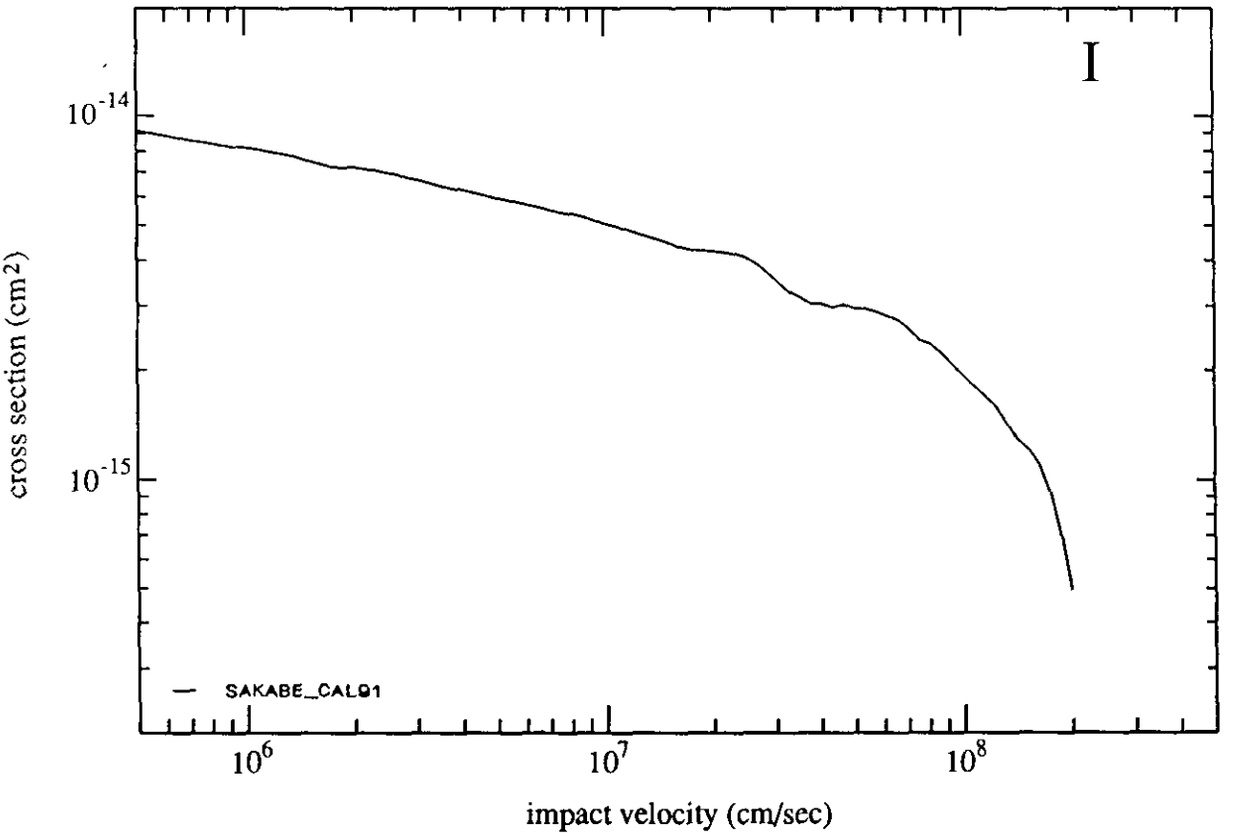


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

V-VII Iodine: I

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
5.00E+05	1.66E+01	9.14E-15	5.36E+06	1.90E+03	5.89E-15	5.75E+07	2.19E+05	2.89E-15
5.36E+05	1.90E+01	9.03E-15	5.75E+06	2.19E+03	5.78E-15	6.16E+07	2.52E+05	2.82E-15
5.75E+05	2.19E+01	8.95E-15	6.16E+06	2.52E+03	5.69E-15	6.61E+07	2.89E+05	2.77E-15
6.16E+05	2.52E+01	8.83E-15	6.61E+06	2.89E+03	5.61E-15	7.09E+07	3.33E+05	2.60E-15
6.61E+05	2.89E+01	8.69E-15	7.09E+06	3.33E+03	5.52E-15	7.60E+07	3.82E+05	2.43E-15
7.09E+05	3.33E+01	8.59E-15	7.60E+06	3.82E+03	5.41E-15	8.15E+07	4.40E+05	2.37E-15
7.60E+05	3.82E+01	8.50E-15	8.15E+06	4.40E+03	5.35E-15	8.74E+07	5.06E+05	2.24E-15
8.15E+05	4.40E+01	8.41E-15	8.74E+06	5.06E+03	5.28E-15	9.37E+07	5.81E+05	2.09E-15
8.74E+05	5.06E+01	8.31E-15	9.37E+06	5.81E+03	5.16E-15	1.00E+08	6.68E+05	1.95E-15
9.37E+05	5.81E+01	8.23E-15	1.00E+07	6.68E+03	5.08E-15	1.08E+08	7.69E+05	1.81E-15
1.00E+06	6.68E+01	8.19E-15	1.08E+07	7.69E+03	4.98E-15	1.16E+08	8.84E+05	1.70E-15
1.08E+06	7.69E+01	8.13E-15	1.16E+07	8.84E+03	4.87E-15	1.24E+08	1.02E+06	1.59E-15
1.16E+06	8.84E+01	8.02E-15	1.24E+07	1.02E+04	4.77E-15	1.33E+08	1.17E+06	1.43E-15
1.24E+06	1.02E+02	7.95E-15	1.33E+07	1.17E+04	4.66E-15	1.42E+08	1.34E+06	1.29E-15
1.33E+06	1.17E+02	7.83E-15	1.42E+07	1.34E+04	4.58E-15	1.53E+08	1.54E+06	1.21E-15
1.42E+06	1.34E+02	7.66E-15	1.53E+07	1.54E+04	4.47E-15	1.64E+08	1.78E+06	1.10E-15
1.53E+06	1.54E+02	7.52E-15	1.64E+07	1.78E+04	4.36E-15	1.76E+08	2.04E+06	9.20E-16
1.64E+06	1.78E+02	7.41E-15	1.76E+07	2.04E+04	4.30E-15	1.88E+08	2.35E+06	7.02E-16
1.76E+06	2.04E+02	7.28E-15	1.88E+07	2.35E+04	4.28E-15	2.02E+08	2.70E+06	4.95E-16
1.88E+06	2.35E+02	7.24E-15	2.02E+07	2.70E+04	4.26E-15			
2.02E+06	2.70E+02	7.23E-15	2.16E+07	3.10E+04	4.25E-15			
2.16E+06	3.10E+02	7.19E-15	2.32E+07	3.57E+04	4.19E-15			
2.32E+06	3.57E+02	7.10E-15	2.49E+07	4.10E+04	4.08E-15			
2.49E+06	4.10E+02	7.02E-15	2.67E+07	4.72E+04	3.91E-15			
2.67E+06	4.72E+02	6.90E-15	2.86E+07	5.42E+04	3.71E-15			
2.86E+06	5.42E+02	6.76E-15	3.07E+07	6.23E+04	3.49E-15			
3.07E+06	6.23E+02	6.65E-15	3.29E+07	7.17E+04	3.29E-15			
3.29E+06	7.17E+02	6.55E-15	3.53E+07	8.24E+04	3.19E-15			
3.53E+06	8.24E+02	6.43E-15	3.78E+07	9.47E+04	3.06E-15			
3.78E+06	9.47E+02	6.34E-15	4.06E+07	1.09E+05	3.05E-15			
4.06E+06	1.09E+03	6.26E-15	4.35E+07	1.25E+05	2.99E-15			
4.35E+06	1.25E+03	6.15E-15	4.66E+07	1.44E+05	3.05E-15			
4.66E+06	1.44E+03	6.07E-15	5.00E+07	1.66E+05	2.96E-15			
5.00E+06	1.66E+03	5.97E-15	5.36E+07	1.90E+05	2.95E-15			

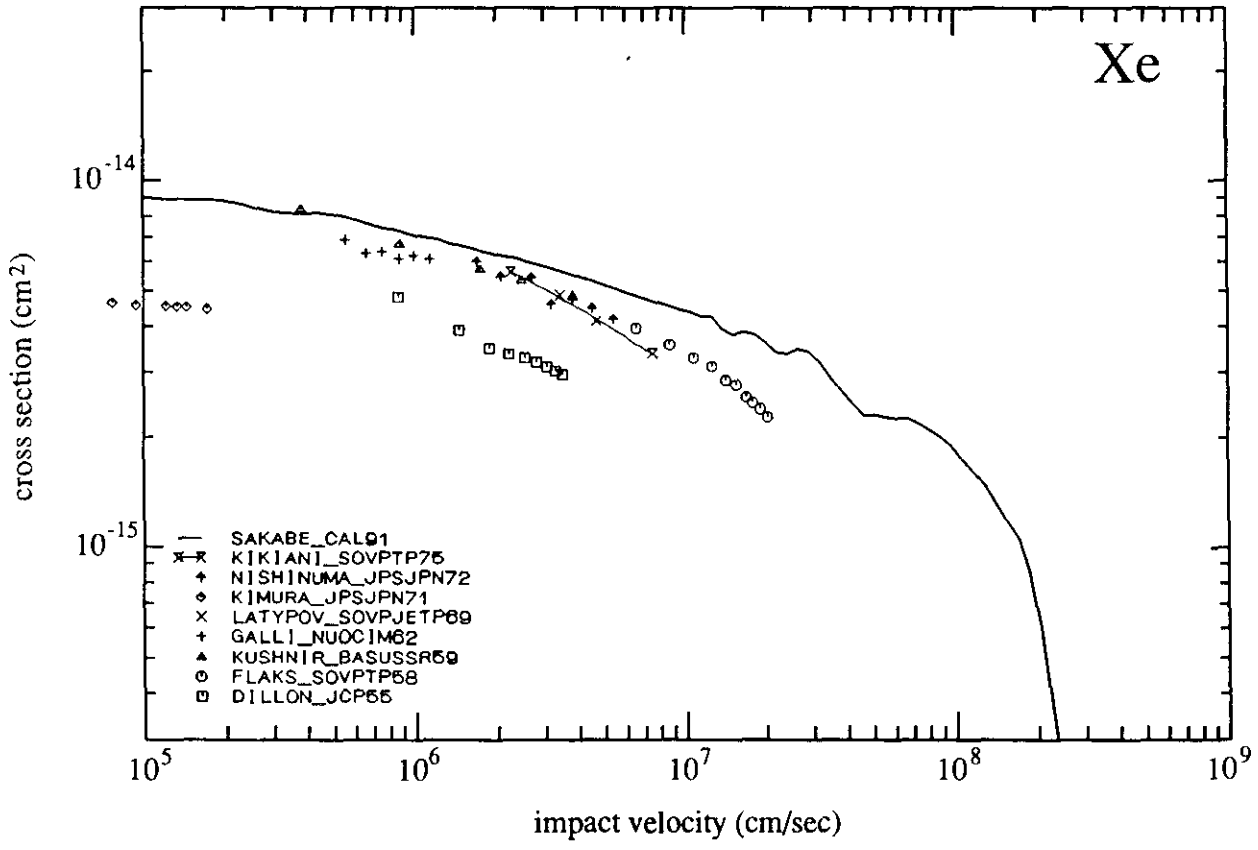


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

V-O Xenon: Xe

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
1.00E+05	6.85E-01	9.01E-15	2.36E+06	3.83E+02	6.15E-15	5.59E+07	2.14E+05	2.27E-15
1.10E+05	8.25E-01	8.98E-15	2.60E+06	4.61E+02	6.01E-15	6.14E+07	2.58E+05	2.25E-15
1.20E+05	9.94E-01	8.93E-15	2.85E+06	5.56E+02	5.91E-15	6.73E+07	3.11E+05	2.25E-15
1.32E+05	1.20E+00	8.89E-15	3.13E+06	6.69E+02	5.81E-15	7.39E+07	3.74E+05	2.18E-15
1.45E+05	1.44E+00	8.88E-15	3.43E+06	8.06E+02	5.69E-15	8.11E+07	4.51E+05	2.09E-15
1.59E+05	1.74E+00	8.90E-15	3.76E+06	9.71E+02	5.56E-15	8.90E+07	5.43E+05	2.01E-15
1.75E+05	2.09E+00	8.89E-15	4.13E+06	1.17E+03	5.45E-15	9.77E+07	6.54E+05	1.89E-15
1.92E+05	2.52E+00	8.86E-15	4.53E+06	1.41E+03	5.33E-15	1.07E+08	7.88E+05	1.74E-15
2.10E+05	3.04E+00	8.78E-15	4.98E+06	1.70E+03	5.21E-15	1.18E+08	9.49E+05	1.60E-15
2.31E+05	3.66E+00	8.65E-15	5.46E+06	2.04E+03	5.10E-15	1.29E+08	1.14E+06	1.48E-15
2.54E+05	4.40E+00	8.49E-15	5.99E+06	2.46E+03	4.97E-15	1.42E+08	1.38E+06	1.31E-15
2.78E+05	5.31E+00	8.34E-15	6.58E+06	2.97E+03	4.86E-15	1.56E+08	1.66E+06	1.17E-15
3.05E+05	6.39E+00	8.23E-15	7.22E+06	3.57E+03	4.75E-15	1.71E+08	2.00E+06	1.06E-15
3.35E+05	7.70E+00	8.18E-15	7.92E+06	4.30E+03	4.65E-15	1.87E+08	2.41E+06	8.55E-16
3.68E+05	9.27E+00	8.17E-15	8.70E+06	5.18E+03	4.56E-15	2.06E+08	2.90E+06	6.03E-16
4.04E+05	1.12E+01	8.17E-15	9.55E+06	6.24E+03	4.46E-15	2.26E+08	3.49E+06	3.77E-16
4.43E+05	1.35E+01	8.18E-15	1.05E+07	7.52E+03	4.39E-15	2.36E+08	3.82E+06	3.00E-16
4.86E+05	1.62E+01	8.13E-15	1.15E+07	9.06E+03	4.28E-15			
5.34E+05	1.95E+01	8.03E-15	1.26E+07	1.09E+04	4.27E-15			
5.86E+05	2.35E+01	7.90E-15	1.38E+07	1.31E+04	3.95E-15			
6.43E+05	2.83E+01	7.75E-15	1.52E+07	1.58E+04	3.83E-15			
7.05E+05	3.41E+01	7.56E-15	1.67E+07	1.91E+04	3.88E-15			
7.74E+05	4.11E+01	7.45E-15	1.83E+07	2.30E+04	3.84E-15			
8.50E+05	4.95E+01	7.37E-15	2.01E+07	2.77E+04	3.62E-15			
9.33E+05	5.96E+01	7.20E-15	2.21E+07	3.33E+04	3.39E-15			
1.02E+06	7.18E+01	7.09E-15	2.42E+07	4.01E+04	3.38E-15			
1.12E+06	8.65E+01	7.02E-15	2.66E+07	4.83E+04	3.47E-15			
1.23E+06	1.04E+02	6.90E-15	2.92E+07	5.82E+04	3.42E-15			
1.35E+06	1.25E+02	6.75E-15	3.20E+07	7.01E+04	3.19E-15			
1.48E+06	1.51E+02	6.67E-15	3.51E+07	8.45E+04	2.91E-15			
1.63E+06	1.82E+02	6.55E-15	3.85E+07	1.02E+05	2.68E-15			
1.79E+06	2.19E+02	6.42E-15	4.23E+07	1.23E+05	2.47E-15			
1.96E+06	2.64E+02	6.32E-15	4.64E+07	1.48E+05	2.30E-15			
2.15E+06	3.18E+02	6.22E-15	5.09E+07	1.78E+05	2.31E-15			

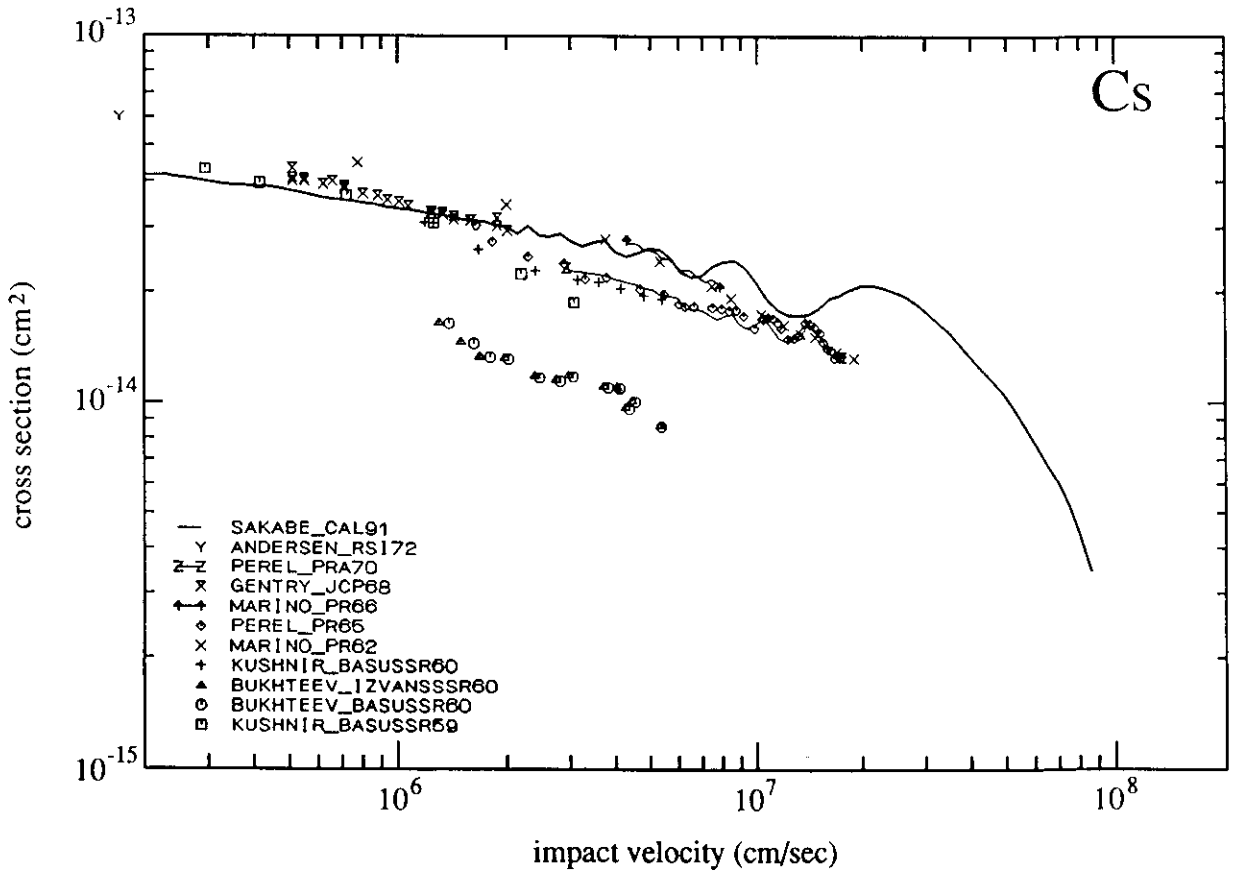


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

VI-I Cesium: Cs

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
2.00E+05	2.77E+00	4.16E-14	2.14E+06	3.19E+02	2.89E-14	2.30E+07	3.67E+04	2.07E-14
2.14E+05	3.19E+00	4.16E-14	2.30E+06	3.67E+02	3.03E-14	2.47E+07	4.22E+04	2.01E-14
2.30E+05	3.67E+00	4.15E-14	2.47E+06	4.22E+02	2.86E-14	2.64E+07	4.85E+04	1.96E-14
2.47E+05	4.22E+00	4.13E-14	2.64E+06	4.85E+02	2.85E-14	2.83E+07	5.57E+04	1.88E-14
2.64E+05	4.85E+00	4.08E-14	2.83E+06	5.57E+02	2.88E-14	3.04E+07	6.41E+04	1.77E-14
2.83E+05	5.57E+00	4.04E-14	3.04E+06	6.41E+02	2.76E-14	3.26E+07	7.37E+04	1.67E-14
3.04E+05	6.41E+00	3.99E-14	3.26E+06	7.37E+02	2.69E-14	3.50E+07	8.47E+04	1.57E-14
3.26E+05	7.37E+00	3.94E-14	3.50E+06	8.47E+02	2.75E-14	3.75E+07	9.74E+04	1.45E-14
3.50E+05	8.47E+00	3.92E-14	3.75E+06	9.74E+02	2.78E-14	4.02E+07	1.12E+05	1.34E-14
3.75E+05	9.74E+00	3.91E-14	4.02E+06	1.12E+03	2.60E-14	4.31E+07	1.29E+05	1.24E-14
4.02E+05	1.12E+01	3.90E-14	4.31E+06	1.29E+03	2.52E-14	4.62E+07	1.48E+05	1.15E-14
4.31E+05	1.29E+01	3.89E-14	4.62E+06	1.48E+03	2.57E-14	4.95E+07	1.70E+05	1.06E-14
4.62E+05	1.48E+01	3.87E-14	4.95E+06	1.70E+03	2.64E-14	5.31E+07	1.96E+05	9.55E-15
4.95E+05	1.70E+01	3.81E-14	5.31E+06	1.96E+03	2.64E-14	5.70E+07	2.25E+05	8.54E-15
5.31E+05	1.96E+01	3.75E-14	5.70E+06	2.25E+03	2.50E-14	6.11E+07	2.59E+05	7.62E-15
5.70E+05	2.25E+01	3.70E-14	6.11E+06	2.59E+03	2.28E-14	6.55E+07	2.97E+05	6.76E-15
6.11E+05	2.59E+01	3.65E-14	6.55E+06	2.97E+03	2.21E-14	7.02E+07	3.42E+05	6.04E-15
6.55E+05	2.97E+01	3.61E-14	7.02E+06	3.42E+03	2.23E-14	7.53E+07	3.93E+05	5.25E-15
7.02E+05	3.42E+01	3.59E-14	7.53E+06	3.93E+03	2.37E-14	8.07E+07	4.52E+05	4.37E-15
7.53E+05	3.93E+01	3.55E-14	8.07E+06	4.52E+03	2.44E-14	8.66E+07	5.20E+05	3.49E-15
8.07E+05	4.52E+01	3.52E-14	8.66E+06	5.20E+03	2.46E-14			
8.66E+05	5.20E+01	3.49E-14	9.28E+06	5.98E+03	2.36E-14			
9.28E+05	5.98E+01	3.43E-14	9.95E+06	6.87E+03	2.16E-14			
9.95E+05	6.87E+01	3.39E-14	1.07E+07	7.90E+03	1.94E-14			
1.07E+06	7.90E+01	3.37E-14	1.14E+07	9.08E+03	1.81E-14			
1.14E+06	9.08E+01	3.32E-14	1.23E+07	1.04E+04	1.75E-14			
1.23E+06	1.04E+02	3.28E-14	1.32E+07	1.20E+04	1.74E-14			
1.32E+06	1.20E+02	3.26E-14	1.41E+07	1.38E+04	1.76E-14			
1.41E+06	1.38E+02	3.21E-14	1.51E+07	1.59E+04	1.82E-14			
1.51E+06	1.59E+02	3.17E-14	1.62E+07	1.83E+04	1.93E-14			
1.62E+06	1.83E+02	3.14E-14	1.74E+07	2.10E+04	1.98E-14			
1.74E+06	2.10E+02	3.12E-14	1.87E+07	2.41E+04	2.05E-14			
1.87E+06	2.41E+02	3.05E-14	2.00E+07	2.77E+04	2.10E-14			
2.00E+06	2.77E+02	3.04E-14	2.14E+07	3.19E+04	2.10E-14			

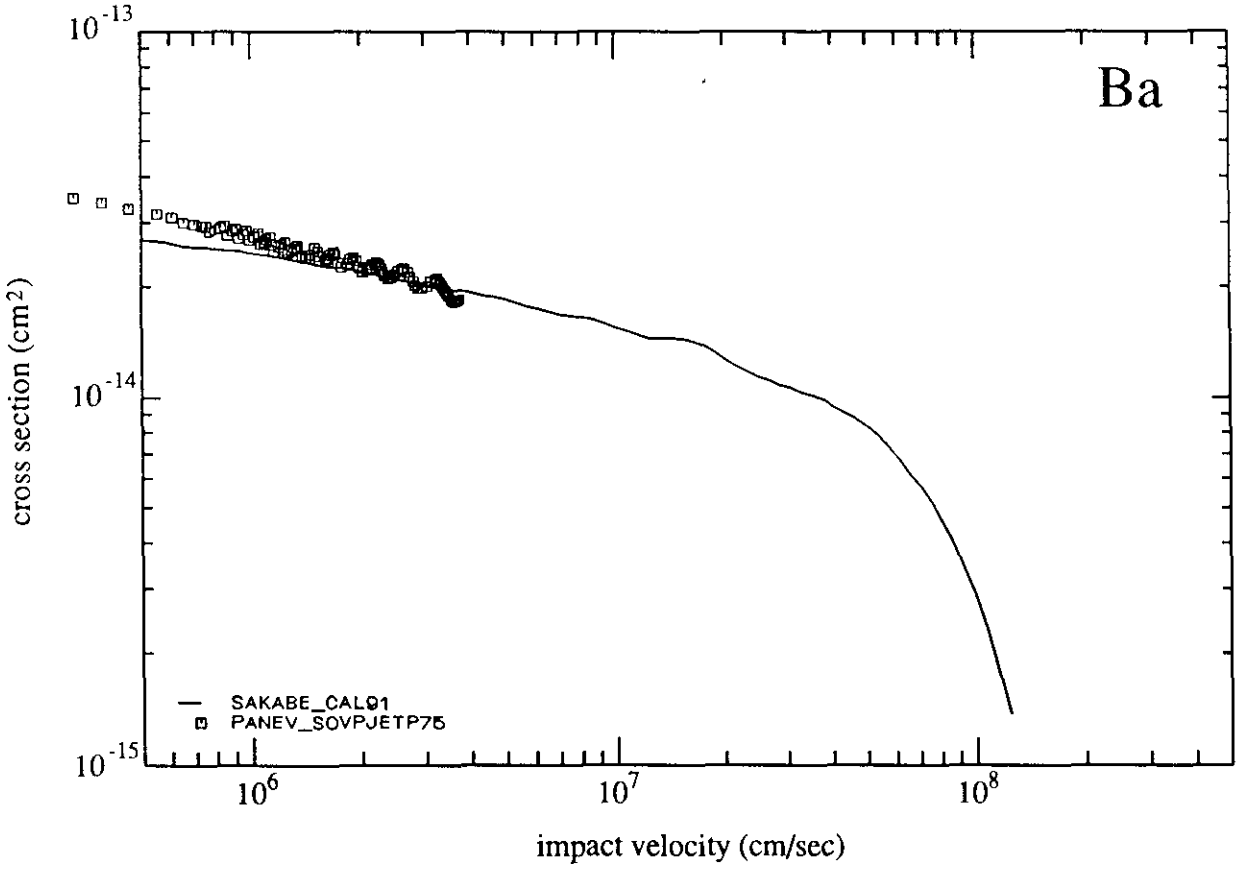


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

VI-II Barium: Ba

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
5.00E+05	1.79E+01	2.69E-14	5.36E+06	2.06E+03	1.82E-14	5.75E+07	2.37E+05	7.30E-15
5.36E+05	2.06E+01	2.67E-14	5.75E+06	2.37E+03	1.78E-14	6.16E+07	2.72E+05	6.73E-15
5.75E+05	2.37E+01	2.66E-14	6.16E+06	2.72E+03	1.76E-14	6.61E+07	3.13E+05	6.14E-15
6.16E+05	2.72E+01	2.62E-14	6.61E+06	3.13E+03	1.72E-14	7.09E+07	3.60E+05	5.70E-15
6.61E+05	3.13E+01	2.59E-14	7.09E+06	3.60E+03	1.69E-14	7.60E+07	4.14E+05	5.15E-15
7.09E+05	3.60E+01	2.57E-14	7.60E+06	4.14E+03	1.68E-14	8.15E+07	4.76E+05	4.55E-15
7.60E+05	4.14E+01	2.57E-14	8.15E+06	4.76E+03	1.66E-14	8.74E+07	5.47E+05	3.97E-15
8.15E+05	4.76E+01	2.54E-14	8.74E+06	5.47E+03	1.63E-14	9.37E+07	6.29E+05	3.36E-15
8.74E+05	5.47E+01	2.53E-14	9.37E+06	6.29E+03	1.60E-14	1.00E+08	7.23E+05	2.89E-15
9.37E+05	6.29E+01	2.52E-14	1.00E+07	7.23E+03	1.56E-14	1.08E+08	8.32E+05	2.36E-15
1.00E+06	7.23E+01	2.48E-14	1.08E+07	8.32E+03	1.53E-14	1.16E+08	9.56E+05	1.81E-15
1.08E+06	8.32E+01	2.45E-14	1.16E+07	9.56E+03	1.48E-14	1.24E+08	1.10E+06	1.38E-15
1.16E+06	9.56E+01	2.43E-14	1.24E+07	1.10E+04	1.45E-14			
1.24E+06	1.10E+02	2.40E-14	1.33E+07	1.26E+04	1.45E-14			
1.33E+06	1.26E+02	2.36E-14	1.42E+07	1.45E+04	1.45E-14			
1.42E+06	1.45E+02	2.34E-14	1.53E+07	1.67E+04	1.44E-14			
1.53E+06	1.67E+02	2.31E-14	1.64E+07	1.92E+04	1.42E-14			
1.64E+06	1.92E+02	2.28E-14	1.76E+07	2.21E+04	1.39E-14			
1.76E+06	2.21E+02	2.26E-14	1.88E+07	2.54E+04	1.33E-14			
1.88E+06	2.54E+02	2.25E-14	2.02E+07	2.92E+04	1.28E-14			
2.02E+06	2.92E+02	2.21E-14	2.16E+07	3.36E+04	1.22E-14			
2.16E+06	3.36E+02	2.18E-14	2.32E+07	3.86E+04	1.18E-14			
2.32E+06	3.86E+02	2.15E-14	2.49E+07	4.44E+04	1.15E-14			
2.49E+06	4.44E+02	2.12E-14	2.67E+07	5.10E+04	1.12E-14			
2.67E+06	5.10E+02	2.08E-14	2.86E+07	5.87E+04	1.09E-14			
2.86E+06	5.87E+02	2.06E-14	3.07E+07	6.75E+04	1.07E-14			
3.07E+06	6.75E+02	2.03E-14	3.29E+07	7.76E+04	1.04E-14			
3.29E+06	7.76E+02	2.00E-14	3.53E+07	8.92E+04	1.02E-14			
3.53E+06	8.92E+02	1.97E-14	3.78E+07	1.03E+05	9.95E-15			
3.78E+06	1.03E+03	1.96E-14	4.06E+07	1.18E+05	9.47E-15			
4.06E+06	1.18E+03	1.94E-14	4.35E+07	1.36E+05	9.12E-15			
4.35E+06	1.36E+03	1.91E-14	4.66E+07	1.56E+05	8.82E-15			
4.66E+06	1.56E+03	1.89E-14	5.00E+07	1.79E+05	8.40E-15			
5.00E+06	1.79E+03	1.86E-14	5.36E+07	2.06E+05	7.86E-15			

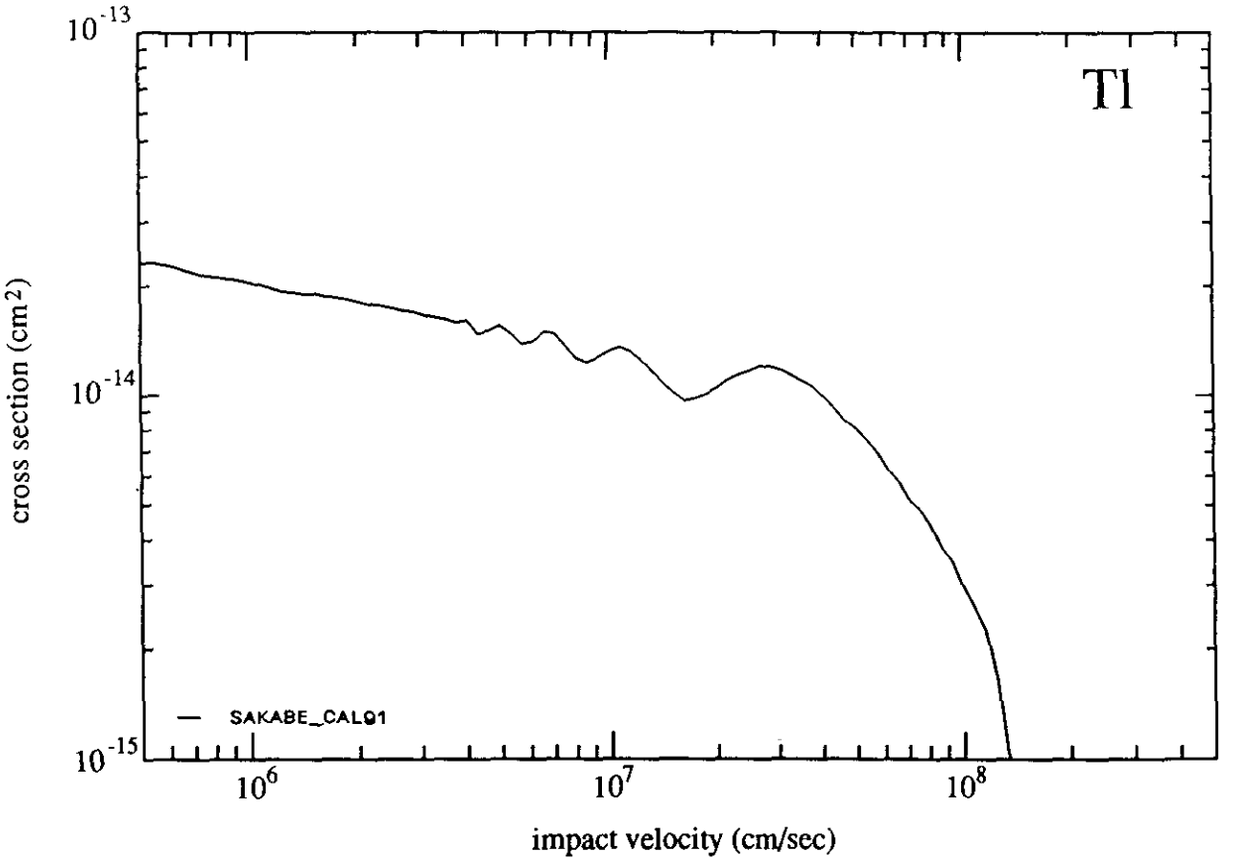


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

VI-III Thallium: Tl

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
5.00E+05	2.67E+01	2.34E-14	5.36E+06	3.07E+03	1.49E-14	5.75E+07	3.52E+05	7.01E-15
5.36E+05	3.07E+01	2.34E-14	5.75E+06	3.52E+03	1.39E-14	6.16E+07	4.05E+05	6.28E-15
5.75E+05	3.52E+01	2.30E-14	6.16E+06	4.05E+03	1.41E-14	6.61E+07	4.66E+05	5.80E-15
6.16E+05	4.05E+01	2.28E-14	6.61E+06	4.66E+03	1.50E-14	7.09E+07	5.36E+05	5.20E-15
6.61E+05	4.66E+01	2.23E-14	7.09E+06	5.36E+03	1.49E-14	7.60E+07	6.16E+05	4.87E-15
7.09E+05	5.36E+01	2.19E-14	7.60E+06	6.16E+03	1.37E-14	8.15E+07	7.08E+05	4.42E-15
7.60E+05	6.16E+01	2.14E-14	8.15E+06	7.08E+03	1.26E-14	8.74E+07	8.14E+05	3.80E-15
8.15E+05	7.08E+01	2.13E-14	8.74E+06	8.14E+03	1.23E-14	9.37E+07	9.36E+05	3.51E-15
8.74E+05	8.14E+01	2.11E-14	9.37E+06	9.36E+03	1.27E-14	1.00E+08	1.08E+06	3.00E-15
9.37E+05	9.36E+01	2.09E-14	1.00E+07	1.08E+04	1.32E-14	1.08E+08	1.24E+06	2.63E-15
1.00E+06	1.08E+02	2.06E-14	1.08E+07	1.24E+04	1.36E-14	1.16E+08	1.42E+06	2.27E-15
1.08E+06	1.24E+02	2.03E-14	1.16E+07	1.42E+04	1.33E-14	1.24E+08	1.64E+06	1.68E-15
1.16E+06	1.42E+02	1.99E-14	1.24E+07	1.64E+04	1.25E-14	1.33E+08	1.88E+06	1.05E-15
1.24E+06	1.64E+02	1.94E-14	1.33E+07	1.88E+04	1.16E-14	1.35E+08	1.94E+06	1.00E-15
1.33E+06	1.88E+02	1.93E-14	1.42E+07	2.16E+04	1.08E-14			
1.42E+06	2.16E+02	1.91E-14	1.53E+07	2.49E+04	1.02E-14			
1.53E+06	2.49E+02	1.91E-14	1.64E+07	2.86E+04	9.68E-15			
1.64E+06	2.86E+02	1.88E-14	1.76E+07	3.29E+04	9.80E-15			
1.76E+06	3.29E+02	1.87E-14	1.88E+07	3.78E+04	1.01E-14			
1.88E+06	3.78E+02	1.84E-14	2.02E+07	4.35E+04	1.05E-14			
2.02E+06	4.35E+02	1.82E-14	2.16E+07	5.00E+04	1.10E-14			
2.16E+06	5.00E+02	1.78E-14	2.32E+07	5.74E+04	1.14E-14			
2.32E+06	5.74E+02	1.77E-14	2.49E+07	6.60E+04	1.17E-14			
2.49E+06	6.60E+02	1.75E-14	2.67E+07	7.59E+04	1.20E-14			
2.67E+06	7.59E+02	1.72E-14	2.86E+07	8.73E+04	1.20E-14			
2.86E+06	8.73E+02	1.71E-14	3.07E+07	1.00E+05	1.18E-14			
3.07E+06	1.00E+03	1.67E-14	3.29E+07	1.15E+05	1.14E-14			
3.29E+06	1.15E+03	1.65E-14	3.53E+07	1.33E+05	1.09E-14			
3.53E+06	1.33E+03	1.63E-14	3.78E+07	1.53E+05	1.06E-14			
3.78E+06	1.53E+03	1.59E-14	4.06E+07	1.75E+05	9.93E-15			
4.06E+06	1.75E+03	1.61E-14	4.35E+07	2.02E+05	9.25E-15			
4.35E+06	2.02E+03	1.48E-14	4.66E+07	2.32E+05	8.56E-15			
4.66E+06	2.32E+03	1.51E-14	5.00E+07	2.67E+05	8.16E-15			
5.00E+06	2.67E+03	1.56E-14	5.36E+07	3.07E+05	7.54E-15			

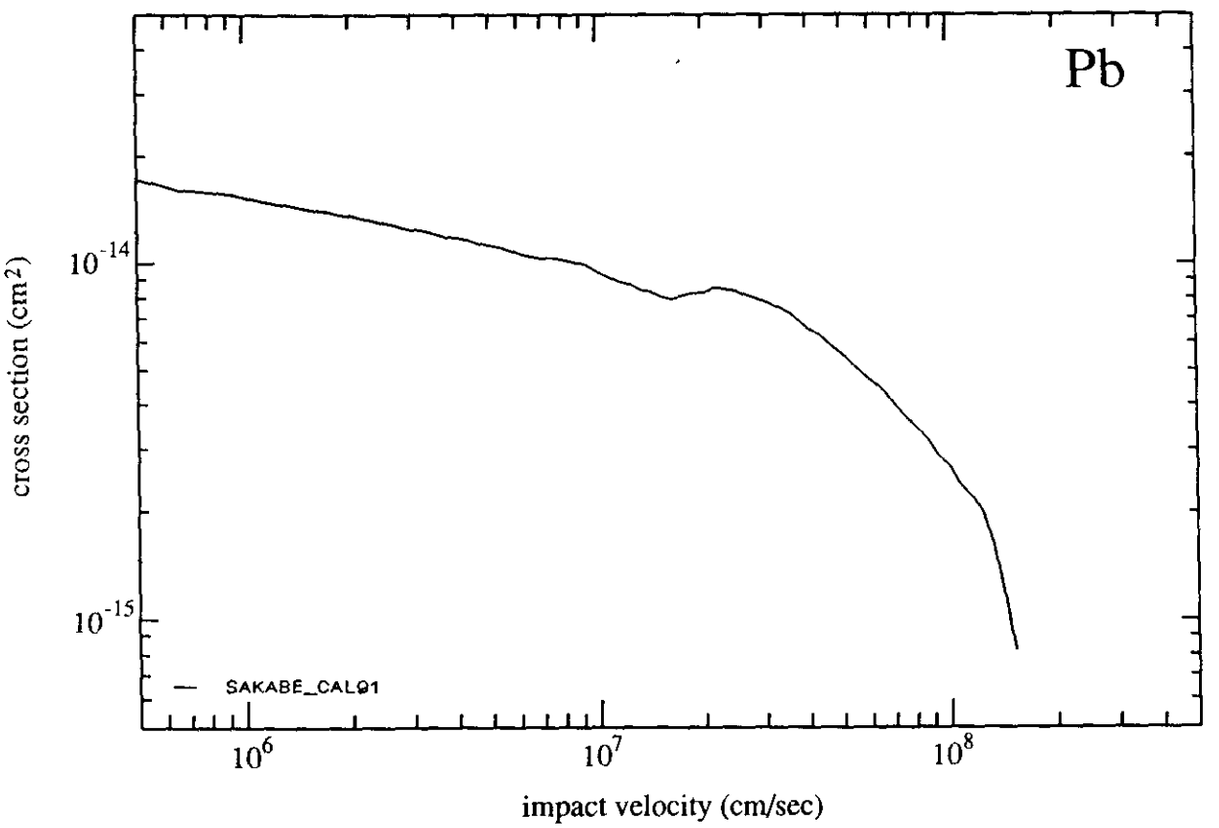


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

VI-IV Lead: Pb

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
5.00E+05	2.70E+01	1.72E-14	5.36E+06	3.11E+03	1.11E-14	5.75E+07	3.57E+05	4.85E-15
5.36E+05	3.11E+01	1.70E-14	5.75E+06	3.57E+03	1.08E-14	6.16E+07	4.11E+05	4.61E-15
5.75E+05	3.57E+01	1.67E-14	6.16E+06	4.11E+03	1.06E-14	6.61E+07	4.72E+05	4.33E-15
6.16E+05	4.11E+01	1.64E-14	6.61E+06	4.72E+03	1.04E-14	7.09E+07	5.43E+05	3.97E-15
6.61E+05	4.72E+01	1.61E-14	7.09E+06	5.43E+03	1.04E-14	7.60E+07	6.25E+05	3.69E-15
7.09E+05	5.43E+01	1.61E-14	7.60E+06	6.25E+03	1.04E-14	8.15E+07	7.18E+05	3.44E-15
7.60E+05	6.25E+01	1.60E-14	8.15E+06	7.18E+03	1.02E-14	8.74E+07	8.26E+05	3.20E-15
8.15E+05	7.18E+01	1.59E-14	8.74E+06	8.26E+03	1.01E-14	9.37E+07	9.49E+05	2.88E-15
8.74E+05	8.26E+01	1.57E-14	9.37E+06	9.49E+03	9.87E-15	1.00E+08	1.09E+06	2.69E-15
9.37E+05	9.49E+01	1.56E-14	1.00E+07	1.09E+04	9.54E-15	1.08E+08	1.25E+06	2.40E-15
1.00E+06	1.09E+02	1.54E-14	1.08E+07	1.25E+04	9.19E-15	1.16E+08	1.44E+06	2.23E-15
1.08E+06	1.25E+02	1.51E-14	1.16E+07	1.44E+04	8.87E-15	1.24E+08	1.66E+06	2.00E-15
1.16E+06	1.44E+02	1.49E-14	1.24E+07	1.66E+04	8.73E-15	1.33E+08	1.91E+06	1.63E-15
1.24E+06	1.66E+02	1.47E-14	1.33E+07	1.91E+04	8.46E-15	1.42E+08	2.19E+06	1.19E-15
1.33E+06	1.91E+02	1.45E-14	1.42E+07	2.19E+04	8.29E-15	1.53E+08	2.52E+06	8.22E-16
1.42E+06	2.19E+02	1.43E-14	1.53E+07	2.52E+04	8.05E-15			
1.53E+06	2.52E+02	1.42E-14	1.64E+07	2.90E+04	7.93E-15			
1.64E+06	2.90E+02	1.40E-14	1.76E+07	3.33E+04	8.07E-15			
1.76E+06	3.33E+02	1.39E-14	1.88E+07	3.83E+04	8.24E-15			
1.88E+06	3.83E+02	1.37E-14	2.02E+07	4.41E+04	8.27E-15			
2.02E+06	4.41E+02	1.36E-14	2.16E+07	5.07E+04	8.51E-15			
2.16E+06	5.07E+02	1.34E-14	2.32E+07	5.82E+04	8.45E-15			
2.32E+06	5.82E+02	1.32E-14	2.49E+07	6.70E+04	8.36E-15			
2.49E+06	6.70E+02	1.30E-14	2.67E+07	7.70E+04	8.12E-15			
2.67E+06	7.70E+02	1.28E-14	2.86E+07	8.85E+04	7.93E-15			
2.86E+06	8.85E+02	1.25E-14	3.07E+07	1.02E+05	7.73E-15			
3.07E+06	1.02E+03	1.24E-14	3.29E+07	1.17E+05	7.51E-15			
3.29E+06	1.17E+03	1.23E-14	3.53E+07	1.35E+05	7.24E-15			
3.53E+06	1.35E+03	1.21E-14	3.78E+07	1.55E+05	6.86E-15			
3.78E+06	1.55E+03	1.18E-14	4.06E+07	1.78E+05	6.50E-15			
4.06E+06	1.78E+03	1.18E-14	4.35E+07	2.04E+05	6.25E-15			
4.35E+06	2.04E+03	1.17E-14	4.66E+07	2.35E+05	5.86E-15			
4.66E+06	2.35E+03	1.14E-14	5.00E+07	2.70E+05	5.55E-15			
5.00E+06	2.70E+03	1.12E-14	5.36E+07	3.11E+05	5.18E-15			

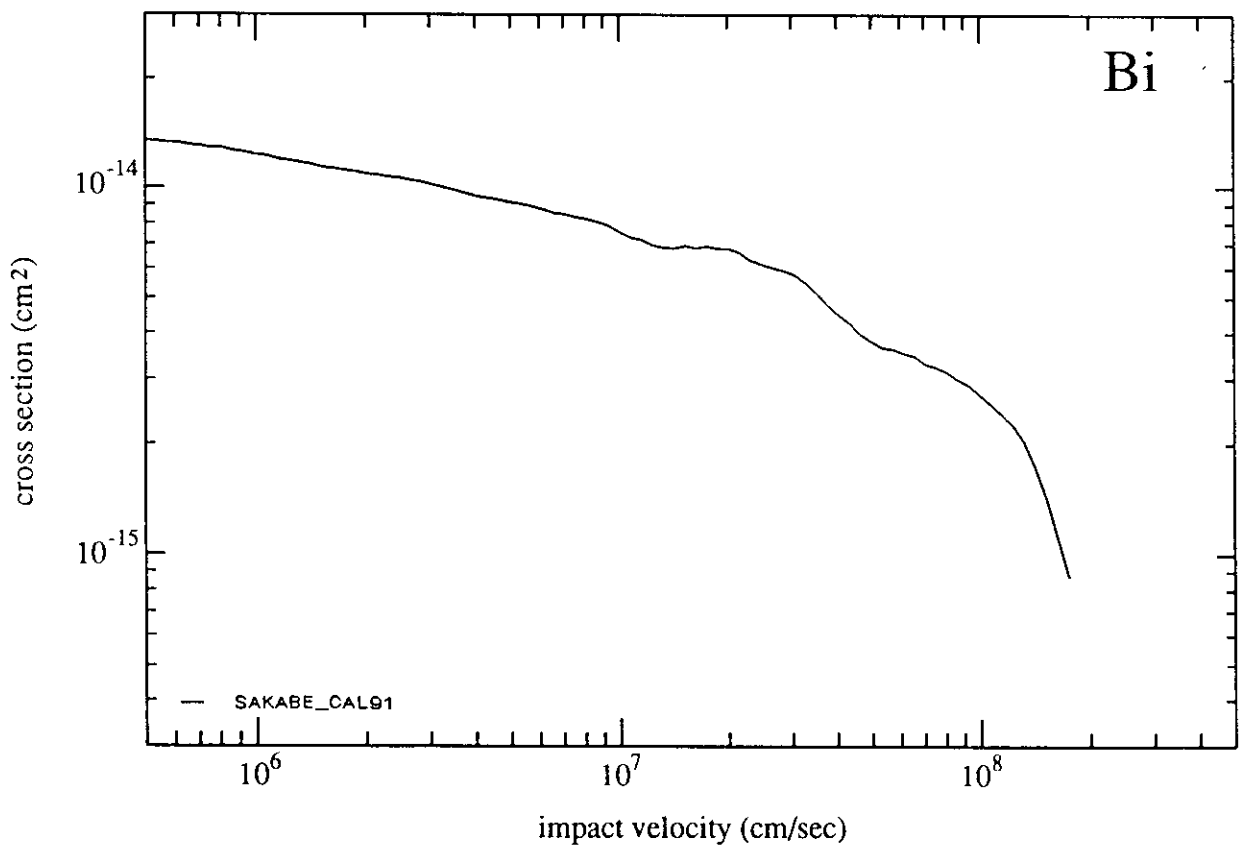


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

VI-V Bismuth: Bi

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
5.00E+05	2.73E+01	1.35E-14	5.36E+06	3.13E+03	9.05E-15	5.75E+07	3.60E+05	3.65E-15
5.36E+05	3.13E+01	1.34E-14	5.75E+06	3.60E+03	8.89E-15	6.16E+07	4.14E+05	3.55E-15
5.75E+05	3.60E+01	1.33E-14	6.16E+06	4.14E+03	8.74E-15	6.61E+07	4.76E+05	3.48E-15
6.16E+05	4.14E+01	1.32E-14	6.61E+06	4.76E+03	8.54E-15	7.09E+07	5.48E+05	3.32E-15
6.61E+05	4.76E+01	1.31E-14	7.09E+06	5.48E+03	8.46E-15	7.60E+07	6.30E+05	3.24E-15
7.09E+05	5.48E+01	1.30E-14	7.60E+06	6.30E+03	8.32E-15	8.15E+07	7.24E+05	3.14E-15
7.60E+05	6.30E+01	1.29E-14	8.15E+06	7.24E+03	8.24E-15	8.74E+07	8.33E+05	3.00E-15
8.15E+05	7.24E+01	1.29E-14	8.74E+06	8.33E+03	8.08E-15	9.37E+07	9.57E+05	2.89E-15
8.74E+05	8.33E+01	1.26E-14	9.37E+06	9.57E+03	7.90E-15	1.00E+08	1.10E+06	2.74E-15
9.37E+05	9.57E+01	1.25E-14	1.00E+07	1.10E+04	7.63E-15	1.08E+08	1.27E+06	2.57E-15
1.00E+06	1.10E+02	1.24E-14	1.08E+07	1.27E+04	7.34E-15	1.16E+08	1.46E+06	2.41E-15
1.08E+06	1.27E+02	1.22E-14	1.16E+07	1.46E+04	7.20E-15	1.24E+08	1.67E+06	2.25E-15
1.16E+06	1.46E+02	1.20E-14	1.24E+07	1.67E+04	6.98E-15	1.33E+08	1.92E+06	2.04E-15
1.24E+06	1.67E+02	1.19E-14	1.33E+07	1.92E+04	6.87E-15	1.42E+08	2.21E+06	1.74E-15
1.33E+06	1.92E+02	1.17E-14	1.42E+07	2.21E+04	6.85E-15	1.53E+08	2.54E+06	1.43E-15
1.42E+06	2.21E+02	1.16E-14	1.53E+07	2.54E+04	6.95E-15	1.64E+08	2.92E+06	1.13E-15
1.53E+06	2.54E+02	1.14E-14	1.64E+07	2.92E+04	6.85E-15	1.76E+08	3.36E+06	8.73E-16
1.64E+06	2.92E+02	1.13E-14	1.76E+07	3.36E+04	6.92E-15			
1.76E+06	3.36E+02	1.12E-14	1.88E+07	3.86E+04	6.81E-15			
1.88E+06	3.86E+02	1.11E-14	2.02E+07	4.44E+04	6.81E-15			
2.02E+06	4.44E+02	1.10E-14	2.16E+07	5.11E+04	6.65E-15			
2.16E+06	5.11E+02	1.09E-14	2.32E+07	5.87E+04	6.35E-15			
2.32E+06	5.87E+02	1.08E-14	2.49E+07	6.75E+04	6.20E-15			
2.49E+06	6.75E+02	1.07E-14	2.67E+07	7.77E+04	6.06E-15			
2.67E+06	7.77E+02	1.05E-14	2.86E+07	8.93E+04	5.92E-15			
2.86E+06	8.93E+02	1.04E-14	3.07E+07	1.03E+05	5.76E-15			
3.07E+06	1.03E+03	1.02E-14	3.29E+07	1.18E+05	5.51E-15			
3.29E+06	1.18E+03	1.00E-14	3.53E+07	1.36E+05	5.17E-15			
3.53E+06	1.36E+03	9.85E-15	3.78E+07	1.56E+05	4.79E-15			
3.78E+06	1.56E+03	9.65E-15	4.06E+07	1.79E+05	4.52E-15			
4.06E+06	1.79E+03	9.49E-15	4.35E+07	2.06E+05	4.29E-15			
4.35E+06	2.06E+03	9.38E-15	4.66E+07	2.37E+05	4.00E-15			
4.66E+06	2.37E+03	9.29E-15	5.00E+07	2.73E+05	3.83E-15			
5.00E+06	2.73E+03	9.14E-15	5.36E+07	3.13E+05	3.68E-15			

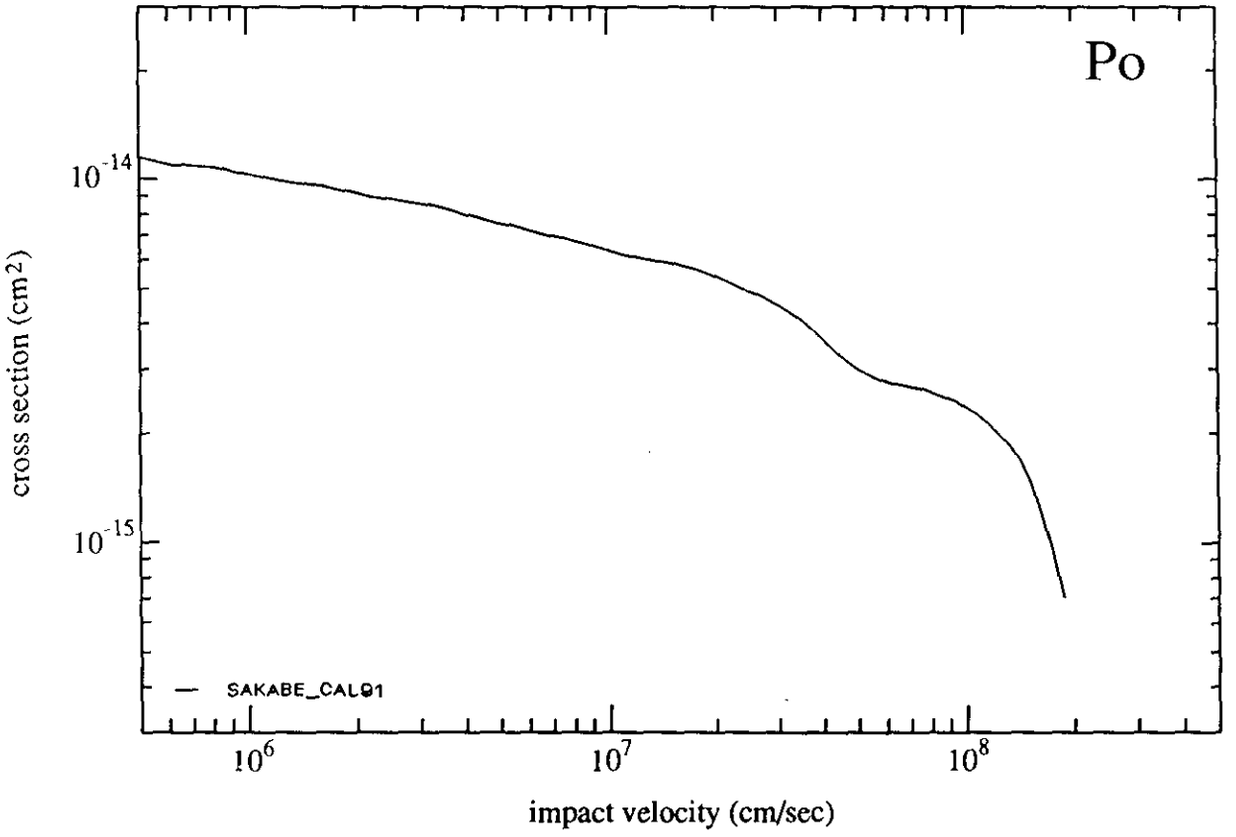


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

VI-VI Polonium: Po

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
5.00E+05	2.73E+01	1.15E-14	5.36E+06	3.14E+03	7.50E-15	5.75E+07	3.60E+05	2.82E-15
5.36E+05	3.14E+01	1.13E-14	5.75E+06	3.60E+03	7.38E-15	6.16E+07	4.14E+05	2.77E-15
5.75E+05	3.60E+01	1.12E-14	6.16E+06	4.14E+03	7.22E-15	6.61E+07	4.77E+05	2.74E-15
6.16E+05	4.14E+01	1.10E-14	6.61E+06	4.77E+03	7.11E-15	7.09E+07	5.48E+05	2.70E-15
6.61E+05	4.77E+01	1.10E-14	7.09E+06	5.48E+03	7.02E-15	7.60E+07	6.30E+05	2.66E-15
7.09E+05	5.48E+01	1.09E-14	7.60E+06	6.30E+03	6.91E-15	8.15E+07	7.24E+05	2.60E-15
7.60E+05	6.30E+01	1.09E-14	8.15E+06	7.24E+03	6.79E-15	8.74E+07	8.33E+05	2.53E-15
8.15E+05	7.24E+01	1.08E-14	8.74E+06	8.33E+03	6.70E-15	9.37E+07	9.57E+05	2.48E-15
8.74E+05	8.33E+01	1.07E-14	9.37E+06	9.57E+03	6.54E-15	1.00E+08	1.10E+06	2.38E-15
9.37E+05	9.57E+01	1.04E-14	1.00E+07	1.10E+04	6.41E-15	1.08E+08	1.27E+06	2.27E-15
1.00E+06	1.10E+02	1.04E-14	1.08E+07	1.27E+04	6.27E-15	1.16E+08	1.46E+06	2.14E-15
1.08E+06	1.27E+02	1.02E-14	1.16E+07	1.46E+04	6.19E-15	1.24E+08	1.67E+06	2.00E-15
1.16E+06	1.46E+02	1.01E-14	1.24E+07	1.67E+04	6.10E-15	1.33E+08	1.92E+06	1.87E-15
1.24E+06	1.67E+02	9.96E-15	1.33E+07	1.92E+04	6.03E-15	1.42E+08	2.21E+06	1.70E-15
1.33E+06	1.92E+02	9.86E-15	1.42E+07	2.21E+04	5.99E-15	1.53E+08	2.54E+06	1.47E-15
1.42E+06	2.21E+02	9.78E-15	1.53E+07	2.54E+04	5.92E-15	1.64E+08	2.92E+06	1.20E-15
1.53E+06	2.54E+02	9.67E-15	1.64E+07	2.92E+04	5.81E-15	1.76E+08	3.36E+06	9.41E-16
1.64E+06	2.92E+02	9.61E-15	1.76E+07	3.36E+04	5.71E-15	1.88E+08	3.87E+06	7.10E-16
1.76E+06	3.36E+02	9.46E-15	1.88E+07	3.87E+04	5.59E-15			
1.88E+06	3.87E+02	9.34E-15	2.02E+07	4.44E+04	5.44E-15			
2.02E+06	4.44E+02	9.20E-15	2.16E+07	5.11E+04	5.28E-15			
2.16E+06	5.11E+02	9.04E-15	2.32E+07	5.87E+04	5.12E-15			
2.32E+06	5.87E+02	8.93E-15	2.49E+07	6.75E+04	4.96E-15			
2.49E+06	6.75E+02	8.86E-15	2.67E+07	7.77E+04	4.82E-15			
2.67E+06	7.77E+02	8.73E-15	2.86E+07	8.93E+04	4.66E-15			
2.86E+06	8.93E+02	8.66E-15	3.07E+07	1.03E+05	4.49E-15			
3.07E+06	1.03E+03	8.57E-15	3.29E+07	1.18E+05	4.30E-15			
3.29E+06	1.18E+03	8.46E-15	3.53E+07	1.36E+05	4.09E-15			
3.53E+06	1.36E+03	8.33E-15	3.78E+07	1.56E+05	3.85E-15			
3.78E+06	1.56E+03	8.19E-15	4.06E+07	1.79E+05	3.61E-15			
4.06E+06	1.79E+03	8.02E-15	4.35E+07	2.06E+05	3.39E-15			
4.35E+06	2.06E+03	7.91E-15	4.66E+07	2.37E+05	3.18E-15			
4.66E+06	2.37E+03	7.74E-15	5.00E+07	2.73E+05	3.03E-15			
5.00E+06	2.73E+03	7.60E-15	5.36E+07	3.14E+05	2.91E-15			

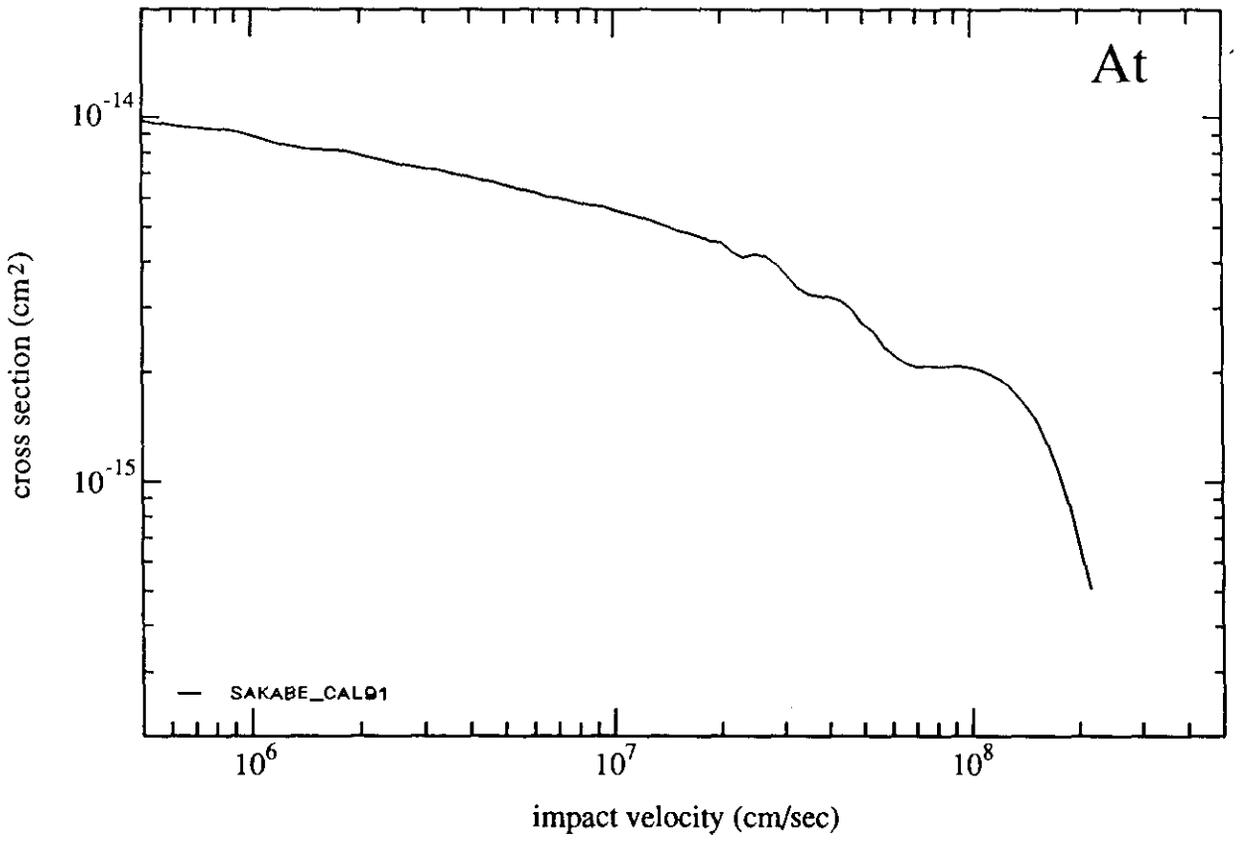


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

VI-VII Astatine: At

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
5.00E+05	2.74E+01	9.80E-15	5.36E+06	3.15E+03	6.42E-15	5.75E+07	3.62E+05	2.34E-15
5.36E+05	3.15E+01	9.68E-15	5.75E+06	3.62E+03	6.30E-15	6.16E+07	4.16E+05	2.22E-15
5.75E+05	3.62E+01	9.59E-15	6.16E+06	4.16E+03	6.21E-15	6.61E+07	4.79E+05	2.13E-15
6.16E+05	4.16E+01	9.49E-15	6.61E+06	4.79E+03	6.04E-15	7.09E+07	5.50E+05	2.08E-15
6.61E+05	4.79E+01	9.43E-15	7.09E+06	5.50E+03	6.01E-15	7.60E+07	6.33E+05	2.08E-15
7.09E+05	5.50E+01	9.37E-15	7.60E+06	6.33E+03	5.94E-15	8.15E+07	7.28E+05	2.08E-15
7.60E+05	6.33E+01	9.34E-15	8.15E+06	7.28E+03	5.83E-15	8.74E+07	8.37E+05	2.07E-15
8.15E+05	7.28E+01	9.28E-15	8.74E+06	8.37E+03	5.76E-15	9.37E+07	9.62E+05	2.08E-15
8.74E+05	8.37E+01	9.20E-15	9.37E+06	9.62E+03	5.71E-15	1.00E+08	1.11E+06	2.06E-15
9.37E+05	9.62E+01	9.10E-15	1.00E+07	1.11E+04	5.58E-15	1.08E+08	1.27E+06	2.02E-15
1.00E+06	1.11E+02	8.95E-15	1.08E+07	1.27E+04	5.50E-15	1.16E+08	1.46E+06	1.97E-15
1.08E+06	1.27E+02	8.78E-15	1.16E+07	1.46E+04	5.38E-15	1.24E+08	1.68E+06	1.89E-15
1.16E+06	1.46E+02	8.59E-15	1.24E+07	1.68E+04	5.27E-15	1.33E+08	1.93E+06	1.77E-15
1.24E+06	1.68E+02	8.42E-15	1.33E+07	1.93E+04	5.14E-15	1.42E+08	2.22E+06	1.64E-15
1.33E+06	1.93E+02	8.29E-15	1.42E+07	2.22E+04	5.03E-15	1.53E+08	2.56E+06	1.48E-15
1.42E+06	2.22E+02	8.23E-15	1.53E+07	2.56E+04	4.89E-15	1.64E+08	2.94E+06	1.29E-15
1.53E+06	2.56E+02	8.21E-15	1.64E+07	2.94E+04	4.82E-15	1.76E+08	3.38E+06	1.08E-15
1.64E+06	2.94E+02	8.18E-15	1.76E+07	3.38E+04	4.72E-15	1.88E+08	3.88E+06	8.72E-16
1.76E+06	3.38E+02	8.17E-15	1.88E+07	3.88E+04	4.59E-15	2.02E+08	4.47E+06	6.74E-16
1.88E+06	3.88E+02	8.04E-15	2.02E+07	4.47E+04	4.57E-15	2.16E+08	5.13E+06	5.09E-16
2.02E+06	4.47E+02	7.93E-15	2.16E+07	5.13E+04	4.30E-15			
2.16E+06	5.13E+02	7.81E-15	2.32E+07	5.90E+04	4.15E-15			
2.32E+06	5.90E+02	7.65E-15	2.49E+07	6.79E+04	4.25E-15			
2.49E+06	6.79E+02	7.53E-15	2.67E+07	7.80E+04	4.16E-15			
2.67E+06	7.80E+02	7.39E-15	2.86E+07	8.97E+04	3.96E-15			
2.86E+06	8.97E+02	7.35E-15	3.07E+07	1.03E+05	3.68E-15			
3.07E+06	1.03E+03	7.23E-15	3.29E+07	1.19E+05	3.42E-15			
3.29E+06	1.19E+03	7.20E-15	3.53E+07	1.36E+05	3.28E-15			
3.53E+06	1.36E+03	7.07E-15	3.78E+07	1.57E+05	3.25E-15			
3.78E+06	1.57E+03	6.99E-15	4.06E+07	1.80E+05	3.21E-15			
4.06E+06	1.80E+03	6.87E-15	4.35E+07	2.07E+05	3.14E-15			
4.35E+06	2.07E+03	6.76E-15	4.66E+07	2.38E+05	3.00E-15			
4.66E+06	2.38E+03	6.69E-15	5.00E+07	2.74E+05	2.72E-15			
5.00E+06	2.74E+03	6.53E-15	5.36E+07	3.15E+05	2.57E-15			

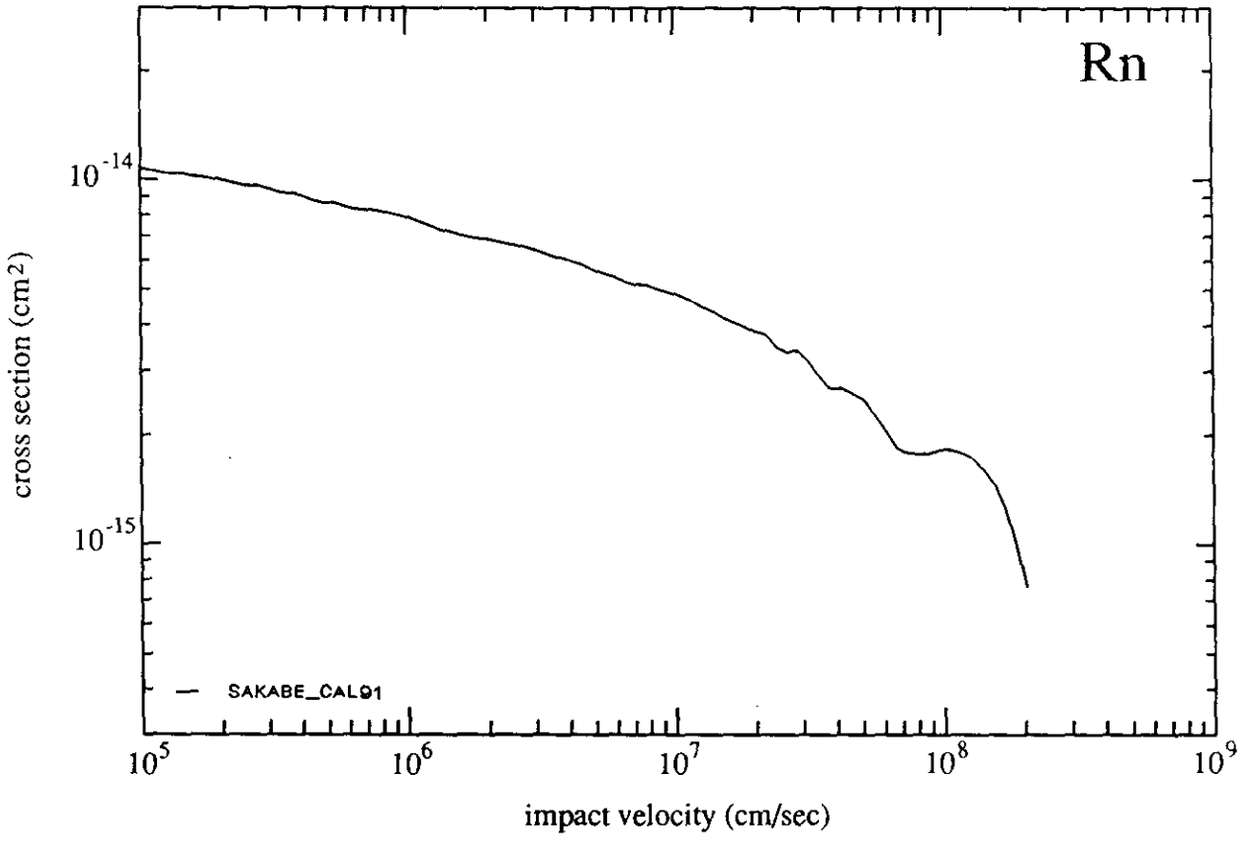


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

VI-O Radon: Rn

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
1.00E+05	1.16E+00	1.08E-14	2.36E+06	6.48E+02	6.75E-15	5.59E+07	3.62E+05	2.28E-15
1.10E+05	1.40E+00	1.06E-14	2.60E+06	7.80E+02	6.65E-15	6.14E+07	4.36E+05	2.07E-15
1.20E+05	1.68E+00	1.05E-14	2.85E+06	9.40E+02	6.53E-15	6.73E+07	5.25E+05	1.87E-15
1.32E+05	2.02E+00	1.04E-14	3.13E+06	1.13E+03	6.42E-15	7.39E+07	6.33E+05	1.80E-15
1.45E+05	2.44E+00	1.03E-14	3.43E+06	1.36E+03	6.27E-15	8.11E+07	7.62E+05	1.78E-15
1.59E+05	2.94E+00	1.03E-14	3.76E+06	1.64E+03	6.13E-15	8.90E+07	9.18E+05	1.79E-15
1.75E+05	3.54E+00	1.02E-14	4.13E+06	1.98E+03	6.02E-15	9.77E+07	1.11E+06	1.83E-15
1.92E+05	4.26E+00	1.01E-14	4.53E+06	2.38E+03	5.88E-15	1.07E+08	1.33E+06	1.83E-15
2.10E+05	5.13E+00	9.97E-15	4.98E+06	2.87E+03	5.69E-15	1.18E+08	1.60E+06	1.81E-15
2.31E+05	6.18E+00	9.80E-15	5.46E+06	3.46E+03	5.56E-15	1.29E+08	1.93E+06	1.75E-15
2.54E+05	7.45E+00	9.71E-15	5.99E+06	4.16E+03	5.45E-15	1.42E+08	2.33E+06	1.62E-15
2.78E+05	8.97E+00	9.67E-15	6.58E+06	5.02E+03	5.30E-15	1.56E+08	2.80E+06	1.47E-15
3.05E+05	1.08E+01	9.49E-15	7.22E+06	6.04E+03	5.18E-15	1.71E+08	3.38E+06	1.26E-15
3.35E+05	1.30E+01	9.27E-15	7.92E+06	7.28E+03	5.16E-15	1.87E+08	4.07E+06	1.01E-15
3.68E+05	1.57E+01	9.23E-15	8.70E+06	8.76E+03	5.05E-15	2.06E+08	4.90E+06	7.61E-16
4.04E+05	1.89E+01	9.07E-15	9.55E+06	1.06E+04	4.95E-15			
4.43E+05	2.27E+01	8.81E-15	1.05E+07	1.27E+04	4.84E-15			
4.86E+05	2.74E+01	8.70E-15	1.15E+07	1.53E+04	4.72E-15			
5.34E+05	3.30E+01	8.68E-15	1.26E+07	1.84E+04	4.53E-15			
5.86E+05	3.97E+01	8.49E-15	1.38E+07	2.22E+04	4.42E-15			
6.43E+05	4.79E+01	8.35E-15	1.52E+07	2.68E+04	4.23E-15			
7.05E+05	5.77E+01	8.31E-15	1.67E+07	3.22E+04	4.10E-15			
7.74E+05	6.95E+01	8.27E-15	1.83E+07	3.88E+04	3.99E-15			
8.50E+05	8.37E+01	8.17E-15	2.01E+07	4.68E+04	3.87E-15			
9.33E+05	1.01E+02	8.03E-15	2.21E+07	5.63E+04	3.82E-15			
1.02E+06	1.21E+02	7.89E-15	2.42E+07	6.79E+04	3.51E-15			
1.12E+06	1.46E+02	7.69E-15	2.66E+07	8.17E+04	3.40E-15			
1.23E+06	1.76E+02	7.49E-15	2.92E+07	9.84E+04	3.42E-15			
1.35E+06	2.12E+02	7.33E-15	3.20E+07	1.19E+05	3.19E-15			
1.48E+06	2.55E+02	7.19E-15	3.51E+07	1.43E+05	2.91E-15			
1.63E+06	3.08E+02	7.08E-15	3.85E+07	1.72E+05	2.69E-15			
1.79E+06	3.71E+02	7.00E-15	4.23E+07	2.07E+05	2.71E-15			
1.96E+06	4.46E+02	6.92E-15	4.64E+07	2.50E+05	2.62E-15			
2.15E+06	5.38E+02	6.83E-15	5.09E+07	3.01E+05	2.51E-15			

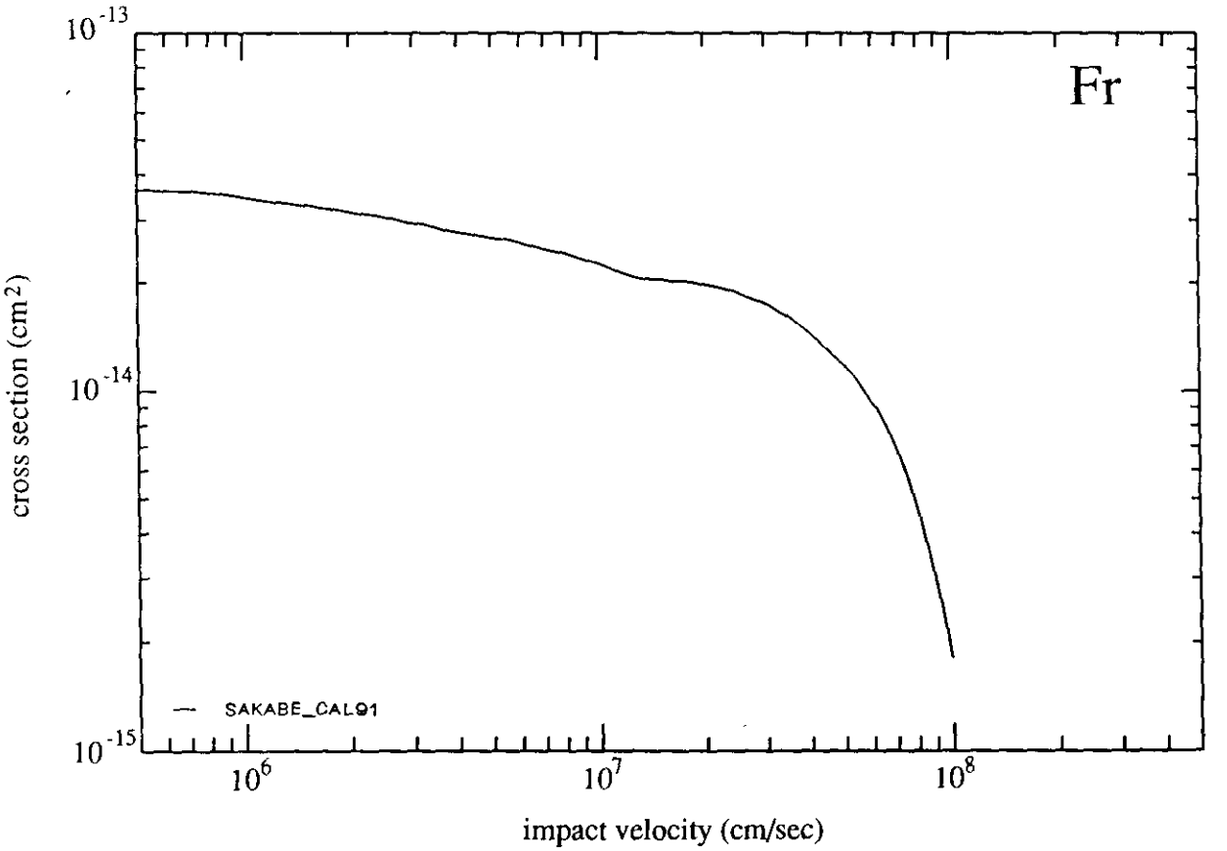


TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

VII-I Francium: Fr

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
5.00E+05	2.91E+01	3.62E-14	5.36E+06	3.35E+03	2.66E-14	5.75E+07	3.85E+05	9.90E-15
5.36E+05	3.35E+01	3.63E-14	5.75E+06	3.85E+03	2.63E-14	6.16E+07	4.42E+05	8.97E-15
5.75E+05	3.85E+01	3.62E-14	6.16E+06	4.42E+03	2.59E-14	6.61E+07	5.08E+05	7.93E-15
6.16E+05	4.42E+01	3.61E-14	6.61E+06	5.08E+03	2.54E-14	7.09E+07	5.85E+05	6.77E-15
6.61E+05	5.08E+01	3.61E-14	7.09E+06	5.85E+03	2.49E-14	7.60E+07	6.72E+05	5.61E-15
7.09E+05	5.85E+01	3.60E-14	7.60E+06	6.72E+03	2.46E-14	8.15E+07	7.73E+05	4.48E-15
7.60E+05	6.72E+01	3.58E-14	8.15E+06	7.73E+03	2.42E-14	8.74E+07	8.89E+05	3.41E-15
8.15E+05	7.73E+01	3.57E-14	8.74E+06	8.89E+03	2.37E-14	9.37E+07	1.02E+06	2.54E-15
8.74E+05	8.89E+01	3.54E-14	9.37E+06	1.02E+04	2.33E-14	1.00E+08	1.17E+06	1.82E-15
9.37E+05	1.02E+02	3.52E-14	1.00E+07	1.17E+04	2.28E-14			
1.00E+06	1.17E+02	3.48E-14	1.08E+07	1.35E+04	2.22E-14			
1.08E+06	1.35E+02	3.43E-14	1.16E+07	1.55E+04	2.15E-14			
1.16E+06	1.55E+02	3.40E-14	1.24E+07	1.79E+04	2.10E-14			
1.24E+06	1.79E+02	3.37E-14	1.33E+07	2.05E+04	2.07E-14			
1.33E+06	2.05E+02	3.34E-14	1.42E+07	2.36E+04	2.06E-14			
1.42E+06	2.36E+02	3.32E-14	1.53E+07	2.71E+04	2.05E-14			
1.53E+06	2.71E+02	3.30E-14	1.64E+07	3.12E+04	2.04E-14			
1.64E+06	3.12E+02	3.25E-14	1.76E+07	3.59E+04	2.03E-14			
1.76E+06	3.59E+02	3.24E-14	1.88E+07	4.12E+04	2.02E-14			
1.88E+06	4.12E+02	3.20E-14	2.02E+07	4.74E+04	1.98E-14			
2.02E+06	4.74E+02	3.17E-14	2.16E+07	5.45E+04	1.96E-14			
2.16E+06	5.45E+02	3.12E-14	2.32E+07	6.27E+04	1.93E-14			
2.32E+06	6.27E+02	3.11E-14	2.49E+07	7.21E+04	1.89E-14			
2.49E+06	7.21E+02	3.06E-14	2.67E+07	8.29E+04	1.84E-14			
2.67E+06	8.29E+02	3.03E-14	2.86E+07	9.53E+04	1.79E-14			
2.86E+06	9.53E+02	2.97E-14	3.07E+07	1.10E+05	1.74E-14			
3.07E+06	1.10E+03	2.95E-14	3.29E+07	1.26E+05	1.66E-14			
3.29E+06	1.26E+03	2.91E-14	3.53E+07	1.45E+05	1.61E-14			
3.53E+06	1.45E+03	2.85E-14	3.78E+07	1.66E+05	1.53E-14			
3.78E+06	1.66E+03	2.81E-14	4.06E+07	1.91E+05	1.45E-14			
4.06E+06	1.91E+03	2.77E-14	4.35E+07	2.20E+05	1.35E-14			
4.35E+06	2.20E+03	2.75E-14	4.66E+07	2.53E+05	1.27E-14			
4.66E+06	2.53E+03	2.71E-14	5.00E+07	2.91E+05	1.19E-14			
5.00E+06	2.91E+03	2.68E-14	5.36E+07	3.35E+05	1.09E-14			



TABLES AND GRAPHS. Resonant Charge Transfer Cross Sections for Nontransition Elements

See page 265 for Explanation of Tables and Graphs

VII-II Radium: Ra

velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)	velocity (cm/sec)	energy (eV)	cross section (cm^2)
5.00E+05	2.95E+01	2.87E-14	5.36E+06	3.39E+03	1.95E-14	5.75E+07	3.90E+05	7.88E-15
5.36E+05	3.39E+01	2.87E-14	5.75E+06	3.90E+03	1.92E-14	6.16E+07	4.48E+05	7.61E-15
5.75E+05	3.90E+01	2.85E-14	6.16E+06	4.48E+03	1.89E-14	6.61E+07	5.15E+05	7.30E-15
6.16E+05	4.48E+01	2.85E-14	6.61E+06	5.15E+03	1.85E-14	7.09E+07	5.93E+05	6.74E-15
6.61E+05	5.15E+01	2.84E-14	7.09E+06	5.93E+03	1.83E-14	7.60E+07	6.81E+05	6.18E-15
7.09E+05	5.93E+01	2.82E-14	7.60E+06	6.81E+03	1.80E-14	8.15E+07	7.83E+05	5.55E-15
7.60E+05	6.81E+01	2.79E-14	8.15E+06	7.83E+03	1.77E-14	8.74E+07	9.01E+05	4.77E-15
8.15E+05	7.83E+01	2.78E-14	8.74E+06	9.01E+03	1.75E-14	9.37E+07	1.04E+06	3.91E-15
8.74E+05	9.01E+01	2.73E-14	9.37E+06	1.04E+04	1.73E-14	1.00E+08	1.19E+06	3.13E-15
9.37E+05	1.04E+02	2.70E-14	1.00E+07	1.19E+04	1.70E-14	1.08E+08	1.37E+06	2.43E-15
1.00E+06	1.19E+02	2.67E-14	1.08E+07	1.37E+04	1.66E-14	1.16E+08	1.57E+06	1.81E-15
1.08E+06	1.37E+02	2.65E-14	1.16E+07	1.57E+04	1.63E-14			
1.16E+06	1.57E+02	2.60E-14	1.24E+07	1.81E+04	1.59E-14			
1.24E+06	1.81E+02	2.57E-14	1.33E+07	2.08E+04	1.56E-14			
1.33E+06	2.08E+02	2.54E-14	1.42E+07	2.39E+04	1.52E-14			
1.42E+06	2.39E+02	2.51E-14	1.53E+07	2.75E+04	1.49E-14			
1.53E+06	2.75E+02	2.47E-14	1.64E+07	3.16E+04	1.46E-14			
1.64E+06	3.16E+02	2.45E-14	1.76E+07	3.64E+04	1.41E-14			
1.76E+06	3.64E+02	2.43E-14	1.88E+07	4.18E+04	1.37E-14			
1.88E+06	4.18E+02	2.40E-14	2.02E+07	4.81E+04	1.33E-14			
2.02E+06	4.81E+02	2.36E-14	2.16E+07	5.53E+04	1.30E-14			
2.16E+06	5.53E+02	2.33E-14	2.32E+07	6.35E+04	1.26E-14			
2.32E+06	6.35E+02	2.31E-14	2.49E+07	7.30E+04	1.22E-14			
2.49E+06	7.30E+02	2.28E-14	2.67E+07	8.40E+04	1.17E-14			
2.67E+06	8.40E+02	2.24E-14	2.86E+07	9.66E+04	1.12E-14			
2.86E+06	9.66E+02	2.22E-14	3.07E+07	1.11E+05	1.06E-14			
3.07E+06	1.11E+03	2.19E-14	3.29E+07	1.28E+05	1.00E-14			
3.29E+06	1.28E+03	2.16E-14	3.53E+07	1.47E+05	9.48E-15			
3.53E+06	1.47E+03	2.14E-14	3.78E+07	1.69E+05	9.17E-15			
3.78E+06	1.69E+03	2.11E-14	4.06E+07	1.94E+05	8.82E-15			
4.06E+06	1.94E+03	2.09E-14	4.35E+07	2.23E+05	8.68E-15			
4.35E+06	2.23E+03	2.06E-14	4.66E+07	2.56E+05	8.46E-15			
4.66E+06	2.56E+03	2.03E-14	5.00E+07	2.95E+05	8.39E-15			
5.00E+06	2.95E+03	1.99E-14	5.36E+07	3.39E+05	8.17E-15