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RESEARCH ESTABLISHMENT

LUCAS HEIGHTS

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RESONANCE PARAMETERS FOR MEASURED keV NEUTRON CAPTURE CROSS SECTIONS

by

A.R. de L. MUSGROVE

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ABSTRACT

All available neutron capture cross sections in the keV region (~ 5 to 100 keV) have been fitted with resonance parameters. Capture cross sections for nuclides with reasonably well known average s-wave parameters, but no measured cross section, have been calculated and tabulated using p- and d- wave strength functions interpolated between fitted values Several of these nuclides are of interest in the theory of slow nucleosynthesis of heavy elements in stars, and the product of cosmic abundance (due to the s-process) and capture cross section at 30 keV has been plotted versus mass number

CONTENTS

1. INTRODUCTION

In recent years much new data on radiative capture cross sections has become available, principally due to the pioneering work of R. L. Macklin, J. H. Gibbons and their associates at the Oak Ridge National Laboratory, (Macklin, Gibbons et al. 1961, 1962, 1965, 1967). It was discovered that the resonance parameters at present being used in the data libraries at the A.A.E.C. did not give good agreement with the experimental cross sections in a number of cases. It was therefore considered desirable to readjust the parameters to fit the latest measurements. Furthermore, the investigations in keV-averaged capture being performed at the A.A.E.C. require estimates of the s-, p- and d-wave contributions to the capture cross section to calculate the γ-ray intensities to low-lying states on the statistical model (Allen et al. 1969 – to be published). An attempt was therefore made to include d-wave partial cross sections and to give values for the d-wave strength function, S_2. The adjustable parameters are the radiative capture width $\langle \Gamma_\gamma \rangle$, the average level spacing $\langle D \rangle$ and the s-, p-, and d-wave neutron strength functions, S_0, S_1 and S_2. Of these, the first three are usually known to within some probable error from low energy cross section measurements. This helps to tie down the s-wave contribution to the cross section and allows estimates to be made for the p- and d-wave contributions and hence for S_1 and S_2.

The expected radiative capture (N,G) cross sections have also been calculated in this survey for a number of nuclides which still await the experimenter. Only nuclides having fairly well known s-wave parameters are dealt with and values for S_1 and S_2 are interpolated between fitted values. This is a better method of estimating unknown cross sections than direct interpolation (the usual method), especially where the relative cross sections of a number of isotopes of the same element are required. Several of these nuclidic capture cross sections are of importance to the theory of slow nucleosynthesis in Population II stars (Burbidge et al. 1957) where nuclides close to the line of β-stability are formed by neutron captures beginning with an original iron-group 'seed' nucleus.

2. AVERAGE RADIATIVE CAPTURE CROSS SECTIONS

In the energy range under discussion (5 to 100 keV), neutrons having angular momentum up to $\ell = 2$ contribute to the total capture cross section. The method of calculation of the ℓ-wave cross sections followed here is outlined by Gibbons et al. (1961) and based on the theory of Lane and Lynn (1957). Under the assumption that the average level spacing is greater than the average level widths such that resonances are not overlapping, the cross section for ℓ-wave neutron capture by a target nucleus of spin I into final states of spin J is given by:

$$\langle \sigma_{J\ell} \rangle = \frac{2\pi^2}{k^2} \langle \Gamma_\gamma \rangle S_\ell P_\ell \sqrt{E} \sum_J \frac{g_J \epsilon_{IJ}^{\ell} F(a_{\ell J})}{\langle \Gamma_J \rangle} , \qquad (1)$$

where E is the incident neutron energy,

k is the neutron wave number,

P_ℓ is the ℓ-wave penetrability factor,

S_ℓ is the ℓ-wave neutron strength function,

and $F(a_{\ell J})$ is a correction term which enters when the average of the ratio $\Gamma_n \Gamma_\gamma / \Gamma$ is replaced by the ratio of the separate averages.

The penetrabilities are given by:

$$P_0 = 1$$

$$P_1 = x^2/(1 + x^2) ,$$

and $P_2 = x^4/(9 + 3x^2 + x^4)$, where $x = kR$ and R is the channel radius,

while $S_\ell = \dfrac{\langle \Gamma_{nJ}^{\ell} \rangle}{\langle D_J \rangle}$ where $\langle \Gamma_{nJ}^{\ell} \rangle$ is the average reduced neutron width.

The following assumptions are made:

(i) The s-wave neutron strength function $S_0 = \langle \Gamma_{nJ}^{o} \rangle / \langle D_J \rangle$ is independent of J and is << 1.

(ii) The average resonance spacings are related by a 2J + 1 dependence. Therefore:

$$D_J = \frac{2(2I+1)}{2J+1} D_{obs} = \frac{D_{obs}}{g_J} ,$$

where D_{obs} is the observed level spacing of <u>s-wave</u> levels at the neutron binding energy.

(iii) The radiative width Γ_γ is independent of J .

(iv) The radiative strength function $S_\gamma = \Gamma_\gamma / \langle D \rangle$ is independent of energy. This assumption should be approximately valid up to 100 keV (Musgrove 1968).

(v) Inelastic scattering is negligible.

(vi) The average neutron width per channel spin projection is independent of the channel spin $j = I \pm \frac{1}{2}$. This assumption produces the factor ϵ_{IJ}^{ℓ} in Equation 1.

(vii) The channel radius is given by $R = 1.35\ A^{1/3}$ Fermis and is independent of J and ℓ.

(viii) The radiative width is independent of ℓ. This assumption is discussed in more detail below.

From these assumptions the following relations are obtained:

$$\langle \Gamma_J \rangle = \langle \Gamma_{nJ} \rangle + \langle \Gamma_\gamma \rangle = \sum_j \langle \Gamma_{nJj} \rangle + \langle \Gamma_\gamma \rangle$$

$$= \epsilon_{IJ}^{\ell} \langle \Gamma_{nJj} \rangle + \langle \Gamma_\gamma \rangle , \qquad (2)$$

$$\epsilon_{IJ}^{\ell} = 2 \text{ for } |J - \ell| \leqslant I \pm \tfrac{1}{2} \leqslant J + \ell$$

$$= 1 \text{ for } |J - \ell| \leqslant \text{either } (I + \tfrac{1}{2}) \text{ or } (I - \tfrac{1}{2}) \text{ but not both} \leqslant J + \ell$$

$$= 0 \text{ otherwise} , \qquad (3)$$

$$\langle \Gamma_{nJ} \rangle = \epsilon_{IJ}^{\ell} \langle \Gamma_{nJj}^{\ell} \rangle P_\ell \sqrt{E}$$

$$= \frac{D_{obs}}{g_J} S_\ell P_\ell \epsilon_{IJ}^{\ell} \sqrt{E} . \qquad (4)$$

The correction factor $F(\alpha_{\ell j})$ is given by Reichel and Wilkins (1964) as

$$F(\alpha_{\ell J}) = (1 - \alpha_{\ell J}) \left[1 - \frac{\pi \alpha_{\ell J}}{2} \operatorname{erf}\left(\frac{\alpha_{\ell J}}{2}\right) \exp\left(\frac{\alpha_{\ell J}}{2}\right) \right] , \qquad (5)$$

where $\alpha_{\ell J} = \Gamma_\gamma / \langle \epsilon_{IJ}^{\ell} \Gamma_{nJj} \rangle$,

and $\operatorname{erf}(Z) = \frac{2}{\sqrt{\pi}} \int_0^Z e^{-t^2} dt$.

3. ANALYSIS

All available keV capture cross sections for separated isotopes appearing in the compilation of Goldberg et al. (1966) were fitted with resonance parameters. Further cross section determinations are tabulated in Macklin and Gibbons (1965, 1967). Average level spacings and radiative widths were mostly estimated from Goldberg et al. (1966). Strength functions for s-wave neutrons were taken from Seth (1966) and the CINDA catalogue (1968) while initial estimates for S_1 were taken from Seth et al. (1964) where some values for S_2 are also to be found.

As a first guess it was assumed that the s- and d-wave strength functions were equal since, from the optical model, peaks in S_2 are expected in the same mass regions as those in S_0. No claim is made for the uniqueness of the parameters derived, since only the ratio $\Gamma_\gamma/\langle D\rangle$ is of importance in determining the cross sections. When adjustments to this ratio have been made the alterations to Γ_γ and $\langle D\rangle$ have necessarily been somewhat subjective. Nevertheless an attempt has been made to keep this adjustment within the probable uncertainty associated with the low energy data.

Furthermore, in some mass regions the d-wave contribution to the cross section is negligible, and the fitted value of S_2 is an order of magnitude estimate only. Table 1 gives the readjusted value for the parameters Γ_γ, $\langle D\rangle$, S_0, S_1 and S_2 as well as the radiative strength function, S_γ. Figure 1 shows a plot of S_γ and S_0 versus mass number, these parameters being the determining factors of the s-wave cross section, while Figures 2 and 3 show the fitted values of S_1 and S_2 along with the elemental values given by Seth et al. (1964).

In the mass region 90 to 100, which corresponds to a peak in the p-wave strength function, we obtain some rather large values for S_1. Seth et al. (1964) point out that such large values are inconsistent with their measurements of $\langle\sigma_t\rangle$, the average total cross section. However there is some evidence in this region for the non-equality of s- and p-wave radiative widths. Morgenstern et al. (1968) give $\ell = 0$ values for Γ_γ in Zr91+ n and Nb93+ n of 110 and 145 meV respectively and $\ell = 1$ values of 310 and 210 meV. If this trend is general in this region, the quoted values for S_1 would be considerably reduced. Assumption (viii) above is in fact rather weak but has been made to reduce the number of fitting parameters.

4. CALCULATIONS

With interpolated values of S_1 and S_2, s-wave parameters derived from low energy measurements (Goldberg et al. 1966) and parameters for germanium isotopes from Malecki et al. (1967), cross sections have been calculated for a number of nuclides for which measurements have not yet been carried out. The calculated cross sections and the parameters used in the calculation are shown in the Appendix. The cross sections are in millibarns and energy is in keV. This data will be transmitted to the I.A.E.A. Nuclear Data Unit at Vienna and copies may be obtained from that organisation.

Figures 4 and 5 show calculated and measured values for the cross section at 30 keV plotted against mass number for odd-A and even-A compound nuclei respectively. The effect of shell structure is clearly evident.

5. STELLAR NUCLEOSYNTHESIS

Burbidge et al. (1957) demonstrated that neutron capture processes in stars have played the principal role in the build-up of all the heavy elements beyond the iron-group abundance peak. Two different and independent processes were required to explain the observed abundances. The first of these, the so-called r-process occurs on a rapid time scale (about 100 neutron captures in 1 to 100 seconds) and since the intervening nuclei have no time to decay by β-decay, very neutron-rich nuclides are synthesised in this process and subsequently undergo β-decays to reach stability. This process may have occurred in rapid supernoval explosions or possibly in rapidly evolving massive stars (> 10^4 sun masses) associated with extended and quasi-stellar objects (Seeger et al. 1965).

The s-process, on the other hand, occurs on a slow time scale (1 neutron capture in 10^3 to 10^6 years) and consequently the path of this process lies along the β-stable valley of the nuclides. This process is thought to take place in red giant stars with an effective temperature for the reaction in the region of 3×10^8 °K (30 keV).

Most nuclides have been formed by both processes and the separation of the s- and r-process contributions is difficult. However certain nuclei have been formed either solely or predominantly by one or other process and it is these nuclides which serve as useful tests for the theory. The s-process is governed by the set of differential equations (one for each mass number):

$$\frac{dN_A}{dt} = -\phi_n (\sigma_A N_A - \sigma_{A-1} N_{A-1}) , \qquad (6)$$

where ϕ_n is the neutron flux, N_A is the abundance of the stable isobar at mass number A (on the s-process path) and σ_A is its neutron capture cross section at an appropriate temperature. A plot of $\sigma_A N_A$ versus A gives a characteristic ledge and precipice structure. $\sigma_A N_A$ is approximately constant when dN_A/dt is small compared with either of the terms of the right-hand side of the equation, that is, in regions of reasonably high cross section. However at magic numbers, where the cross section suddenly falls, dN_A/dt is comparable to $\sigma_{A-1} N_{A-1}$ (magic) and $\sigma_A N_A$ is then constant along a new and lower ledge.

A number of the nuclides for which we have calculated cross sections lie on the s-process path and accordingly we have computed the product σN_S, where N_S is the cosmic abundance due to the s-process, and plotted it versus mass number. Table 2 shows the nuclides and their cosmic abundances relative to a silicon abundance of 10^6. In the column labelled 'formation process', s-only indicates nuclides formed solely in the s-process, s indicates a nuclide for which s-process abundance $\gg$ r-process abundance, while fractions indicate the approximate contribution from the s-process. The fourth column gives the cross section at 30 keV, asterisks indicating measured values, while in the final column the product σN_S is given. This information is plotted in Figure 6 in two ways: dots indicate s or s-only nuclides with measured or calculated cross section, triangles indicate nuclides where the s-process contribution has been estimated (for example ½s), while nuclides for which the s-process contribution is uncertain are not plotted. The latter points have no direct bearing on the curve and are inserted merely to indicate how far above the σN_S curve they lie.

While no correction has been made in our points for the small r-process contributions to nuclides formed predominantly by the s-process, our calculated gallium and germanium cross sections indicate a ledge at mass number of about 70 and our values for the cadmium and indium σN_S fall closer to the observed trend than those estimated by other authors. The situation between mass numbers 140 to 200 is rather confused with some σN_S values around mass number 180 being about a factor of 2 too large. Further clarification of the s-process in this region must await better experimental cross section measurements.

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TABLE 1

AVERAGED RESONANCE PARAMETERS OBTAINED IN FITTING EXPERIMENTAL CROSS SECTIONS

Compound Nucleus	Target Spin	$\langle D \rangle$ (eV)	Γ_γ (meV)	S_0 x 10^4	S_1 x 10^4	S_2 x 10^4	S_γ x 10^4
Sc46	7/2	1.40K	650	4.5	0.01	3.0	4.7
Mn56	5/2	1.00K	600	4.2	0.01	1.0	6.0
Co60	7/2	1.00K	570	3.5	0.01	1.0	5.7
Cu64	3/2	1.00K	570	2.5	0.02	2.5	5.7
Cu66	3/2	950	500	1.7	0.02	1.0	5.26
As76	3/2	65	320	1.6	3.0	1.6	49.0
Br82	3/2	48	300	1.5	1.5	1.3	62.5
Rb86	5/2	110	240	0.5	2.5	0.75	21.8
Sr88	9/2	300	210	0.1	8.0	0.1	7.0
Y90	1/2	2.0K	95	0.5	8.5	0.1	0.475
Zr91	0	6.0K	120	0.8	2.0	0.2	2.0
Zr92	5/2	270	110	0.8	5.3	0.1	4.1
Zr95	0	3.5K	100	0.35	5.3	0.1	0.29
Zr97	0	1.2K	70	0.7	6.0	0.1	0.58
Nb94	9/2	110	190	0.8	10.0	0.1	17.3
Mo96	5/2	80	250	0.55	5.0	0.55	31.0
Mo97	0	1.25K	190	0.85	4.0	0.55	1.52
Mo98	5/2	115	260	0.65	15.0	0.6	22.6
Mo99	0	310	56	0.5	3.3	0.1	1.8
Mo101	0	400	95	0.5	3.1	0.1	2.4
Rh104	1/2	31	155	0.4	7.2	0.4	50
Ag108	1/2	12.4	160	0.42	1.85	0.1	129
Ag nat.	1/2	18	110	0.5	7.0	0.1	61
Sn117	0	375	110	0.3	0.8	0.1	2.9
Sn118	1/2	35	135	0.4	1.5	0.2	38
Sn119	0	790	80	0.4	3.5	0.1	1.0
Sn120	1/2	84	90	0.6	6.0	0.1	10.7
Sn121	0	360	110	0.2	0.03	0.03	3.05
Te126	1/2	60	120	0.3	6.0	0.3	200
I128	5/2	13.5	105	0.55	4.0	0.55	77.8
Ba139	0	8.6K	90	1.80	~0.3	~0.1	0.1
La140	7/2	250	60	2.4	2.0	0.1	2.4
Pr142	5/2	75	60	2.1	0.8	0.6	8.0
Sm145	0	60	50	3.0	0.1	0.1	8.3
Sm148	7/2	4	80	5.0	0.6	0.1	200
Sm149	0	27	50	3.5	0.08	0.2	18.5
Sm150	7/2	1.73	60	4.9	0.35	1.0	347
Sm151	0	19	55	4.5	0.1	0.5	29

(continued)

TABLE 1 (continued)

Compound Nucleus	Target Spin	$\langle D \rangle$ (eV)	Γ_γ (meV)	S_0 x 10^4	S_1 x 10^4	S_2 x 10^4	S_γ x 10^4
Sm153	0	18.5	55	4.7	0.15	0.1	30
Sm155	0	24	55	4.7	0.1	0.3	26
Eu152	5/2	0.70	100	4.0	0.4	1.5	1430
Eu154	5/2	0.94	110	2.7	0.25	2.2	1170
Tb160	3/2	2.0	150	2.0	0.2	2.0	750
Ho166	7/2	3.2	110	4.3	1.5	1.0	340
Tm170	1/2	5.0	100	4.0	0.5	1.5	200
Lu176	1/2	1.5	100	1.75	0.1	0.8	670
Ta182	7/2	4.1	65	2.0	0.2	0.2	159
W183	0	50	55	2.9	0.35	1.0	11.0
W184	1/2	115	90	2.8	0.1	1.0	7.8
W185	0	120	60	2.6	0.9	2.0	5.0
W187	0	100	46	2.0	1.5	1.0	4.6
Re186	5/2	2.5	72	2.8	2.0	2.8	288
Re188	5/2	3.6	95	2.8	1.2	0.1	264
Pt196	1/2	17.7	90	1.7	0.45	0.5	51
Au198	3/2	14.0	135	1.5	0.5	0.5	96.4

55 ISOTOPES

TABLE 2

STELLAR s-PROCESS DATA

Nuclide	Abundance	Formation Process	σ at 30 keV (mb)	σN_s
Cu63	179	s	48 *	8590
Cu65	81	s	45 *	3650
Zn64	127	s-only	42	5330
Zn66	71.8	s	22	1580
Zn67	10.7	s	55	588
Ga69	7.2	s	78	562
Ga71	4.7	s	140	658
Ge70	10.3	s-only	57	587
Ge72	13.6	s	51	694
Ge73	3.8	s	167	635
Ge74	18.5	s	30	555
As75	4.6	⅔ s	520 *	1590
Se76	4.1	s-only	88	361
Se77	3.4	<½ s	303	< 515
Se78	10.7	<½ s	68	< 364
Se80	22.5	<½ s	59	< 664
Br81	6.6	<½ s	570 *	<1880
Rb85	3.2	<½ s	250 *	< 400
Sr86	2.4	s-only	54	130
Sr87	1.7	s-only	108 *	184
Sr88	19.8	s-magic	7	139
Y89	4.7	s-magic	17 *	80
Zr90	8.2	s-magic	13 *	107
Zr91	1.8	s	69 *	124
Zr92	2.7	s	57	154
Zr94	2.8	s	20 *	56
Mo95	0.4	s	440 *	176
Mo96	0.42	s-only	100 *	42
Mo97	0.24	s	340 *	82
Mo98	0.60	½ s	100 *	30
Ru101	0.24	<½ s	785	< 94
Rh103	0.27	<½ s	820 *	<110
Pd105	0.21	<½ s	717	< 75
Ag109	0.06	<½ s	950 *	< 30
Cd111	0.26	½ s	385	50
Cd112	0.48	½ s	287	69
Cd113	0.25	½ s	470	59

(continued)

TABLE 2 (continued)

Nuclide	Abundance	Formation Process	σ at 30 keV (mb)	σN_s
In115	0.11	½ s	670	37
Sn116	0.21	s-only	104 *	22
Sn117	0.12	s	420 *	50
Sn118	0.36	s	64 *	23
Sn119	0.13	s	257 *	33
Sn120	0.49	s	40 *	20
Sb121	0.09	s	487	44
Te122	0.07	s-only	272	19
Te123	0.026	s-only	546	14
Te125	0.20	< ½ s	460 *	< 46
I127	0.31	< ½ s	730 *	<113
Xe131	0.68	< ½ s	353	<120
Cs133	0.22	< ½ s	436	< 48
Ba135	0.30	s	255	77
Ba138	3.22	s-magic	7.4	24
La139	0.39	s-magic	45 *	18
Ce140	1.04	s-magic	28	29
Pr141	0.14	s-magic	110 *	15
Nd143	0.077	s	276	21
Nd145	0.053	s	306	16
Sm148	0.026	s-only	257 *	6.7
Sm149	0.032	< ½ s	1617 *	< 26
Sm150	0.017	s-only	369 *	6.3
Sm152	0.061	< ½ s	410 *	< 12
Eu151	0.039	< ½ s	3600 *	< 70
Eu153	0.043	< ½ s	2700 *	< 58
Gd155	0.050	< ½ s	1866	< 47
Gd156	0.070	< ½ s	282	< 10
Gd157	0.053	< ½ s	800	< 21
Tb159	0.051	< ½ s	2200 *	< 56
Dy161	0.062	< ½ s	1495	< 46
Dy162	0.084	< ½ s	286	< 12
Dy163	0.083	< ½ s	632	< 26
Ho165	0.076	< ½ s	2000 *	< 76
Er166	0.076	< ½ s	396	< 15
Er167	0.056	< ½ s	1133	< 32
Er168	0.062	< ½ s	253	< 8
Tm169	0.031	< ½ s	1500 *	< 23

(continued)

TABLE 2 (continued)

Nuclide	Abundance	Formation Process	σ at 30 keV (mb)	σN_s
Yb170	0.005	s	624	3
Yb171	0.025	½ s	822	10
Yb172	0.038	⅔ s	283	7
Yb173	0.029	⅔ s	684	13
Yb174	0.054	⅔ s	139	5
Lu175	0.034	⅔ s	1623 *	37
Hf176	0.008	s-only	385	3
Hf 177	0.030	⅔ s	1195	24
Hf 178	0.044	s	273	12
Hf179	0.022	s	613	13
Hf180	0.060	s	290 *	17
Ta181	0.020	s	760 *	15
W182	0.032	s	250 *	8
W183	0.017	⅔ s	550 *	6
W184	0.037	s	180 *	7
Re185	0.020	½ s	1800 *	18
Os187	0.001	s-only	667	7
Os189	0.097	<½ s	1076	< 52
Ir191	0.119	< ½ s	1169	< 70
Ir193	0.191	< ½ s	703	< 67
Pt195	0.300	< ½ s	480 *	< 72
Au197	0.13	< ½ s	600 *	< 39
Hg198	0.015	s-only	308	5
Hg199	0.025	½ s	400	5
Hg200	0.035	⅔ s	145	3
Hg201	0.020	½ s	313	3

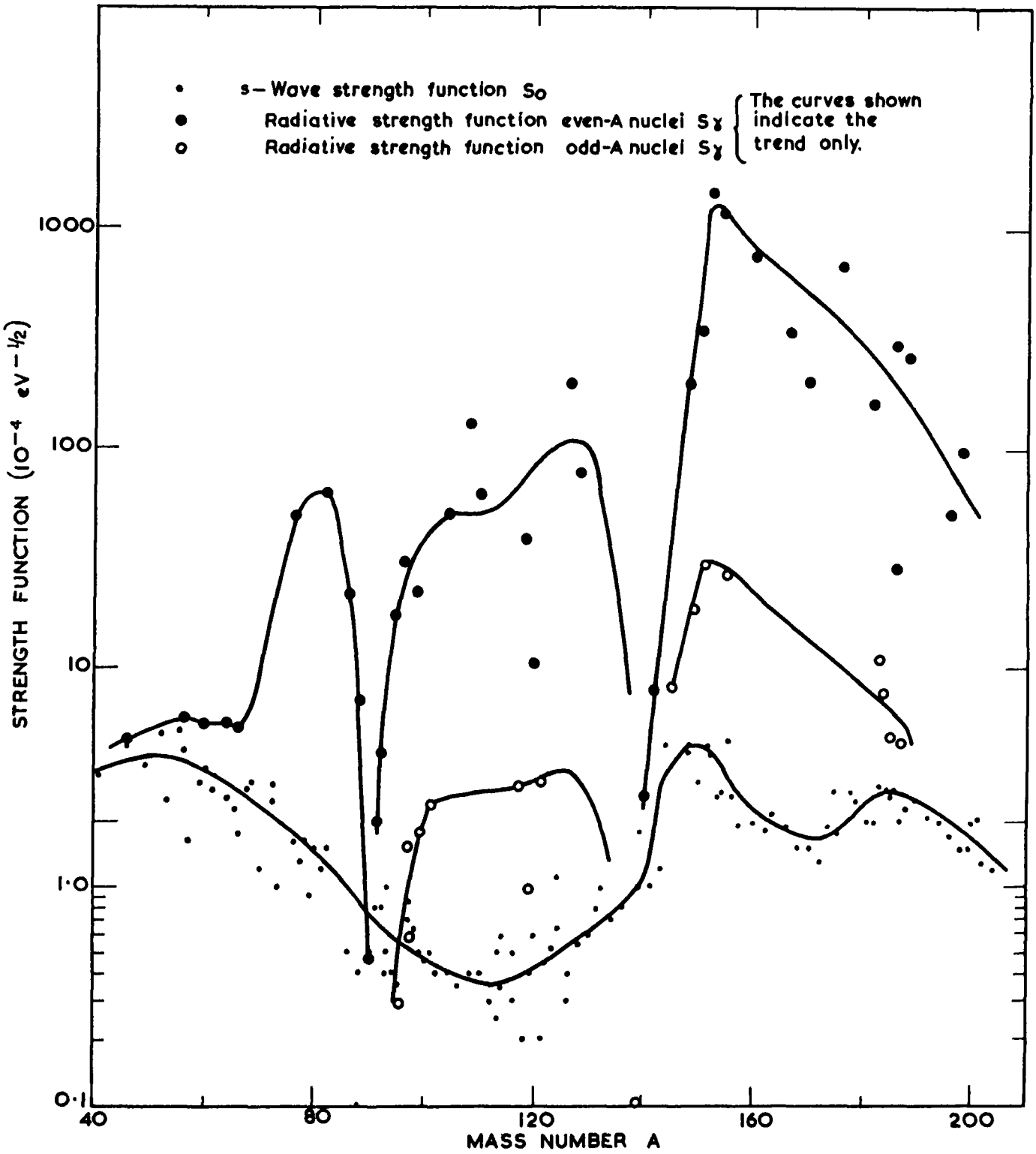

FIGURE 1. s-WAVE NEUTRON STRENGTH FUNCTION AND EVALUATED RADIATIVE STRENGTH FUNCTION VERSUS MASS NUMBER

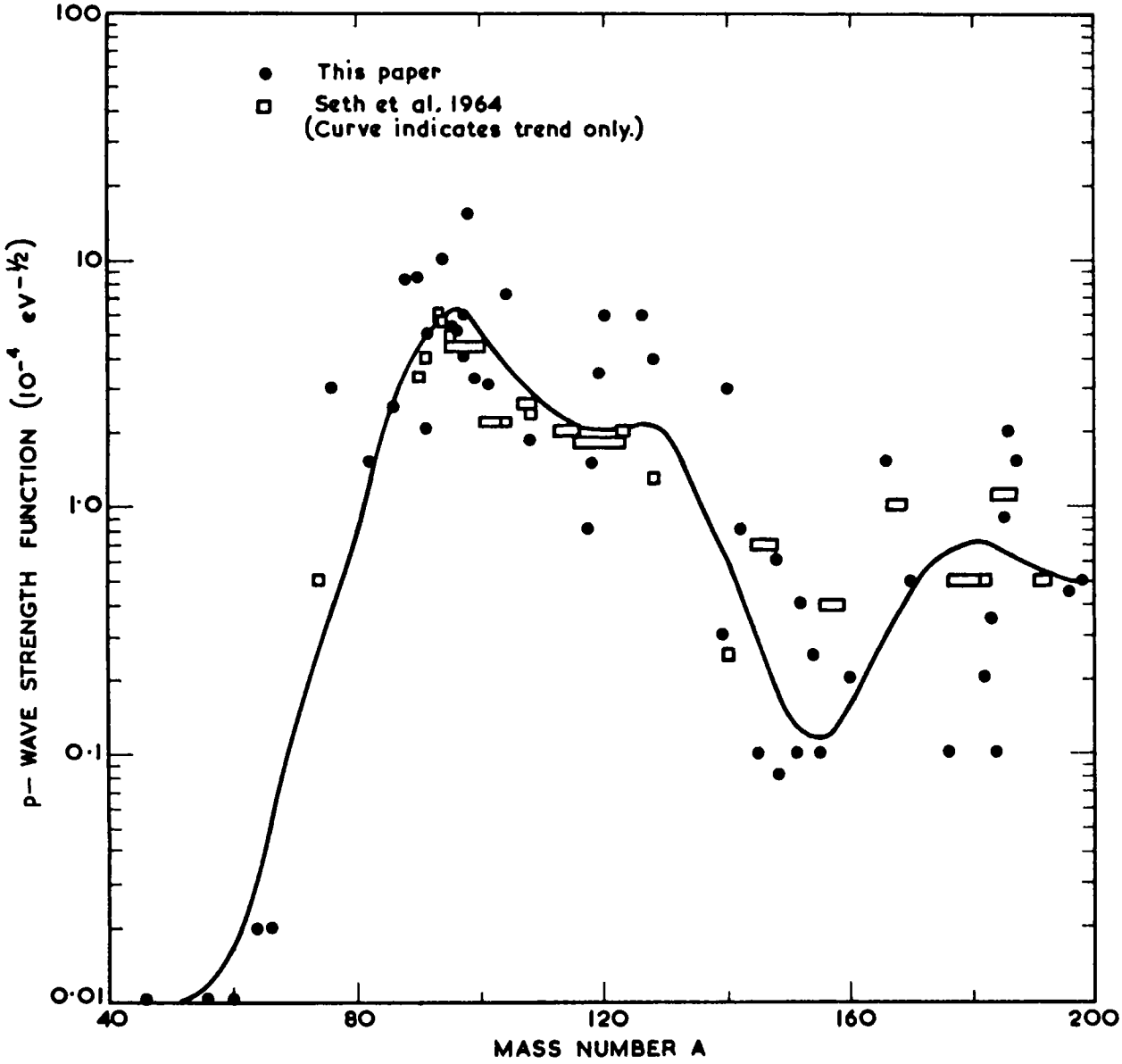

FIGURE 2. p-WAVE NEUTRON STRENGTH FUNCTION VALUES VERSUS MASS NUMBER

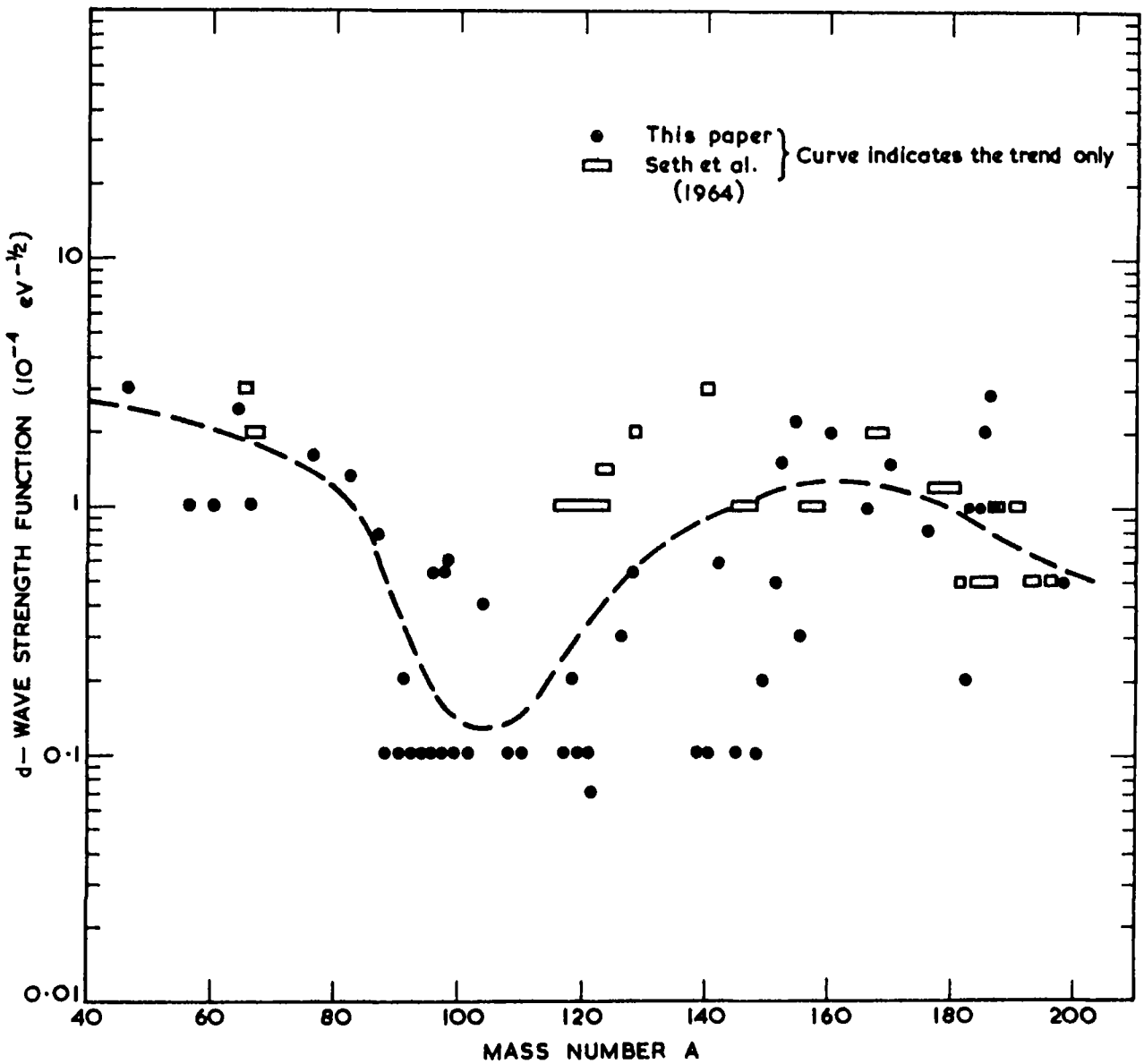

FIGURE 3. d-WAVE STRENGTH FUNCTION VERSUS MASS NUMBER

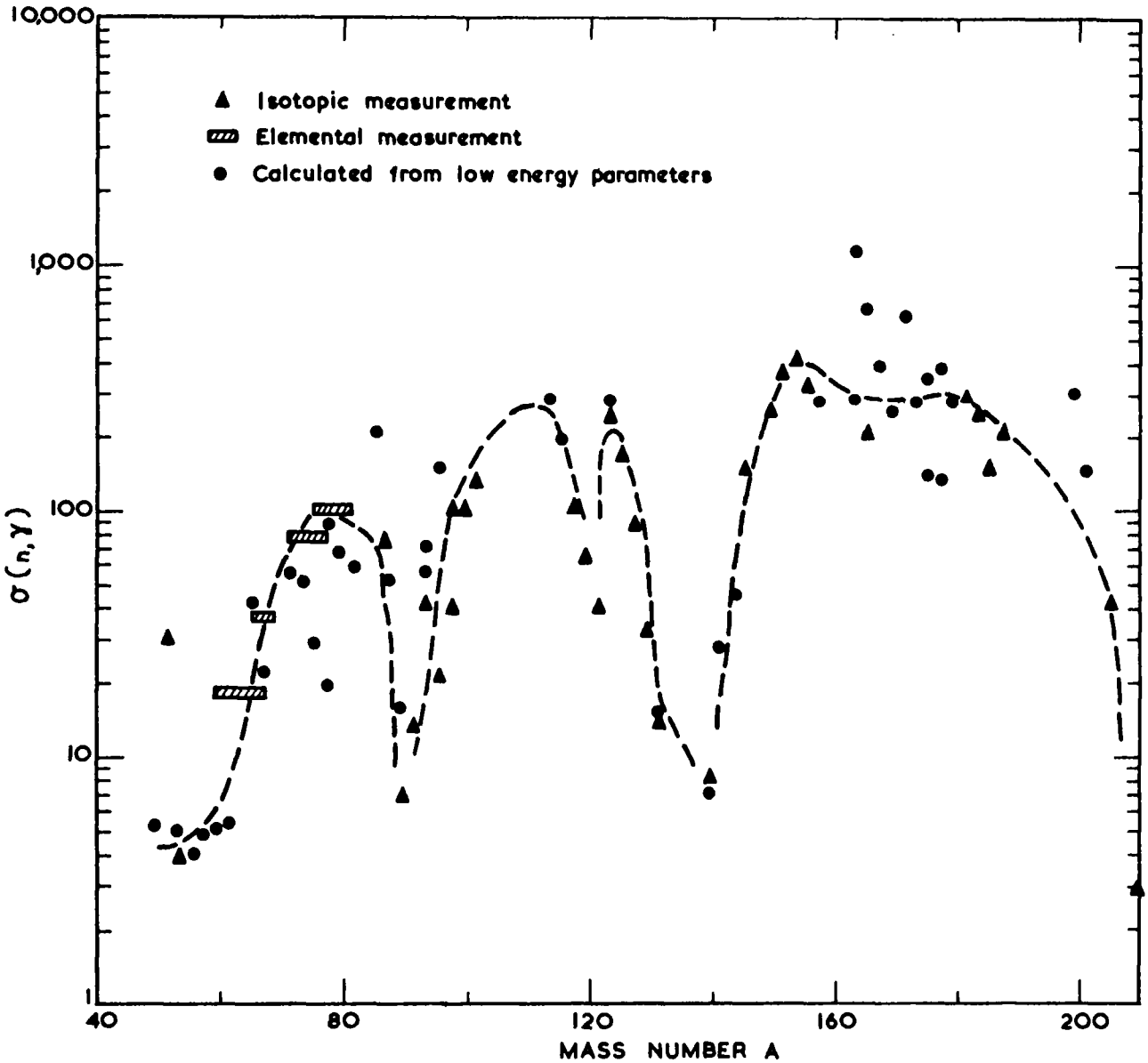

FIGURE 4. RADIATIVE CAPTURE CROSS SECTION AT 30 keV VERSUS MASS NUMBER FOR ODD-A COMPOUND NUCLEI

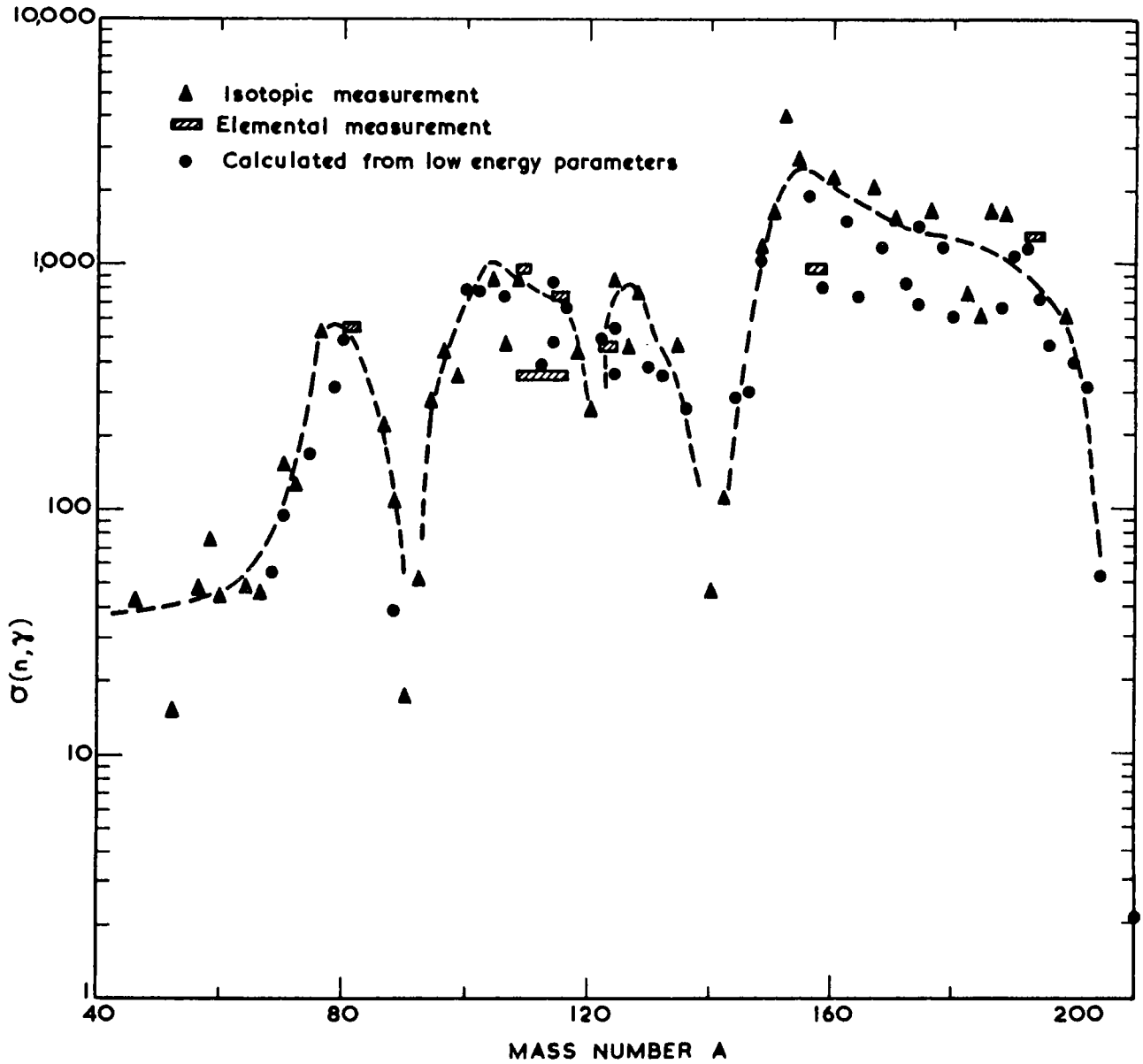

FIGURE 5. RADIATIVE CAPTURE CROSS SECTIONS AT 30 keV VERSUS MASS NUMBER FOR EVEN-A COMPOUND NUCLEI

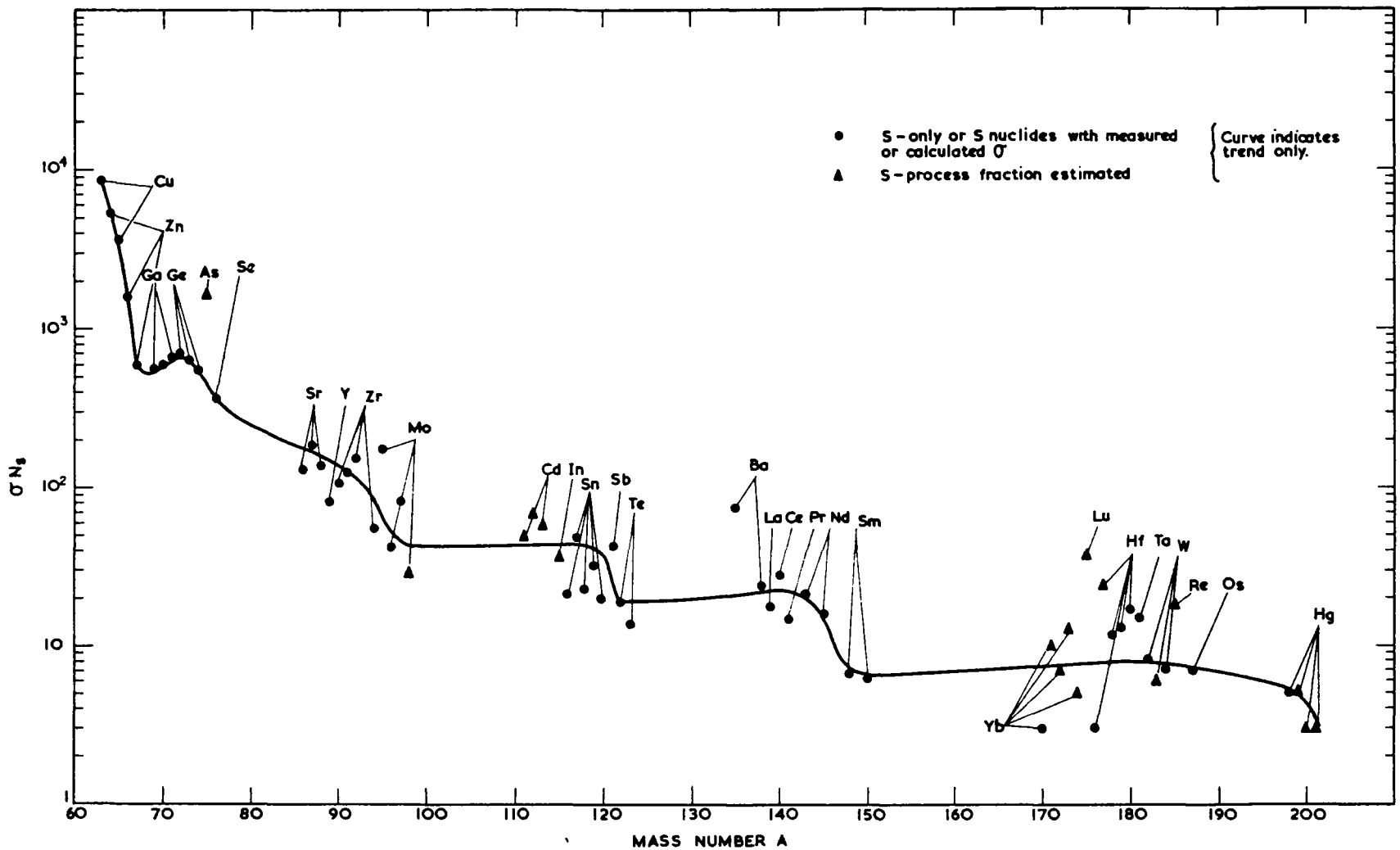

FIGURE 6. σN_s VERSUS MASS NUMBER FOR s-PROCESS

unit σ → millibarns
E → KeV

APPENDIX

SOME CALCULATED keV CAPTURE CROSS SECTIONS IN THE RANGE 5 TO 100 keV

NUCLIDE ZN 65 Compound?

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	2.00E+03	5	1.92E+02	1.22E+00	3.72E-01	1.94E+02
GG	5.50E-01	10	9.84E+01	1.71E+00	1.05E+00	1.01E+02
S0	2.30E-04	15	6.64E+01	2.08E+00	1.92E+00	7.04E+01
S1	1.00E-06	20	5.02E+01	2.38E+00	2.95E+00	5.56E+01
S2	2.30E-04	25	4.04E+01	2.63E+00	4.09E+00	4.72E+01
		30	3.39E+01	2.85E+00	5.35E+00	4.21E+01
		35	2.91E+01	3.04E+00	6.69E+00	3.89E+01
		40	2.56E+01	3.22E+00	8.10E+00	3.69E+01
		45	2.28E+01	3.37E+00	9.56E+00	3.57E+01
		50	2.06E+01	3.45E+00	1.10E+01	3.50E+01
		55	1.87E+01	3.55E+00	1.22E+01	3.44E+01
		60	1.72E+01	3.64E+00	1.31E+01	3.39E+01
		65	1.59E+01	3.74E+00	1.41E+01	3.37E+01
		70	1.48E+01	3.82E+00	1.52E+01	3.38E+01
		75	1.38E+01	3.88E+00	1.63E+01	3.40E+01
		80	1.30E+01	3.93E+00	1.73E+01	3.42E+01
		85	1.22E+01	3.89E+00	1.82E+01	3.44E+01
		90	1.16E+01	3.85E+00	1.91E+01	3.46E+01
		95	1.10E+01	3.87E+00	2.00E+01	3.48E+01
		100	1.04E+01	3.89E+00	2.08E+01	3.51E+01

NUCLIDE ZN 67

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	5.00E+03	5	7.50E+01	1.25E+00	4.72E-01	7.67E+01
GG	5.00E-01	10	3.80E+01	1.74E+00	1.33E+00	4.11E+01
S0	2.80E-04	15	2.55E+01	2.10E+00	2.42E+00	3.00E+01
S1	1.00E-06	20	1.92E+01	2.38E+00	3.70E+00	2.53E+01
S2	2.80E-04	25	1.54E+01	2.58E+00	5.10E+00	2.31E+01
		30	1.29E+01	2.73E+00	6.59E+00	2.22E+01
		35	1.11E+01	2.87E+00	7.80E+00	2.18E+01
		40	9.71E+00	2.90E+00	8.65E+00	2.13E+01
		45	8.64E+00	2.90E+00	9.75E+00	2.13E+01
		50	7.79E+00	2.96E+00	1.08E+01	2.15E+01
		55	7.09E+00	3.00E+00	1.17E+01	2.18E+01
		60	6.50E+00	3.03E+00	1.25E+01	2.20E+01
		65	6.01E+00	3.06E+00	1.32E+01	2.23E+01
		70	5.58E+00	3.07E+00	1.38E+01	2.25E+01
		75	5.22E+00	3.09E+00	1.44E+01	2.27E+01
		80	4.89E+00	3.09E+00	1.48E+01	2.28E+01
		85	4.61E+00	3.09E+00	1.52E+01	2.29E+01
		90	4.36E+00	3.09E+00	1.55E+01	2.29E+01
		95	4.13E+00	3.08E+00	1.57E+01	2.29E+01
		100	3.92E+00	3.08E+00	1.59E+01	2.29E+01

NUCLIDE ZN 68

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	6.70E+02	5	2.66E+02	1.26E+00	3.44E-01	2.67E+02
GG	5.00E-01	10	1.36E+02	1.76E+00	9.68E-01	1.39E+02
S0	3.00E-04	15	9.22E+01	2.13E+00	1.77E+00	9.61E+01
S1	1.00E-06	20	6.97E+01	2.43E+00	2.70E+00	7.48E+01
S2	2.00E-04	25	5.61E+01	2.68E+00	3.72E+00	6.25E+01
		30	4.70E+01	2.89E+00	4.72E+00	5.46E+01
		35	4.04E+01	3.02E+00	5.79E+00	4.93E+01
		40	3.55E+01	3.13E+00	6.64E+00	4.53E+01
		45	3.17E+01	3.13E+00	7.46E+00	4.22E+01
		50	2.86E+01	3.22E+00	8.33E+00	4.01E+01
		55	2.60E+01	3.30E+00	9.16E+00	3.85E+01
		60	2.39E+01	3.36E+00	9.76E+00	3.70E+01
		65	2.21E+01	3.41E+00	1.04E+01	3.59E+01
		70	2.06E+01	3.46E+00	1.10E+01	3.50E+01
		75	1.92E+01	3.50E+00	1.15E+01	3.42E+01
		80	1.80E+01	3.52E+00	1.20E+01	3.35E+01
		85	1.70E+01	3.49E+00	1.24E+01	3.29E+01
		90	1.61E+01	3.48E+00	1.28E+01	3.23E+01
		95	1.52E+01	3.49E+00	1.31E+01	3.18E+01
		100	1.45E+01	3.49E+00	1.34E+01	3.13E+01

NUCLIDE GA 70

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	3.00E+02	5	2.35E+02	2.82E+01	2.68E-01	2.64E+02
GG	2.10E-01	10	1.22E+02	3.25E+01	7.55E-01	1.56E+02
S0	1.20E-04	15	8.33E+01	3.34E+01	1.38E+00	1.18E+02
S1	2.50E-05	20	6.33E+01	3.30E+01	2.11E+00	9.84E+01
S2	1.50E-04	25	5.11E+01	3.21E+01	2.93E+00	8.62E+01
		30	4.29E+01	3.10E+01	3.80E+00	7.77E+01
		35	3.70E+01	2.98E+01	4.66E+00	7.15E+01
		40	3.26E+01	2.87E+01	5.47E+00	6.67E+01
		45	2.91E+01	2.76E+01	6.36E+00	6.30E+01
		50	2.63E+01	2.65E+01	6.99E+00	5.98E+01
		55	2.40E+01	2.55E+01	7.75E+00	5.72E+01
		60	2.20E+01	2.46E+01	8.50E+00	5.51E+01
		65	2.04E+01	2.37E+01	9.04E+00	5.31E+01
		70	1.90E+01	2.29E+01	9.67E+00	5.15E+01
		75	1.78E+01	2.21E+01	1.02E+01	5.00E+01
		80	1.67E+01	2.14E+01	1.07E+01	4.87E+01
		85	1.57E+01	2.07E+01	1.12E+01	4.76E+01
		90	1.49E+01	2.00E+01	1.16E+01	4.65E+01
		95	1.41E+01	1.94E+01	1.20E+01	4.56E+01
		100	1.34E+01	1.89E+01	1.24E+01	4.47E+01

NUCLIDE GA 72

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	2.00E+02	5	5.02E+02	3.14E+01	3.71E-01	5.34E+02
GG	3.00E-01	10	2.61E+02	3.87E+01	1.05E+00	3.01E+02
S0	2.50E-04	15	1.78E+02	4.17E+01	1.91E+00	2.22E+02
S1	2.50E-05	20	1.35E+02	4.29E+01	2.93E+00	1.81E+02
S2	2.00E-04	25	1.09E+02	4.31E+01	4.07E+00	1.57E+02
		30	9.18E+01	4.29E+01	5.31E+00	1.40E+02
		35	7.92E+01	4.23E+01	6.61E+00	1.28E+02
		40	6.96E+01	4.15E+01	7.89E+00	1.19E+02
		45	6.22E+01	4.07E+01	9.27E+00	1.12E+02
		50	5.62E+01	3.97E+01	1.04E+01	1.06E+02
		55	5.12E+01	3.88E+01	1.17E+01	1.02E+02
		60	4.71E+01	3.78E+01	1.26E+01	9.76E+01
		65	4.36E+01	3.69E+01	1.38E+01	9.43E+01
		70	4.06E+01	3.60E+01	1.49E+01	9.15E+01
		75	3.80E+01	3.51E+01	1.60E+01	8.91E+01
		80	3.57E+01	3.43E+01	1.67E+01	8.67E+01
		85	3.37E+01	3.35E+01	1.76E+01	8.47E+01
		90	3.18E+01	3.27E+01	1.83E+01	8.28E+01
		95	3.02E+01	3.19E+01	1.91E+01	8.12E+01
		100	2.88E+01	3.12E+01	1.98E+01	7.98E+01

NUCLIDE GE 71

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	1.33E+03	5	8.96E+01	4.80E+01	3.64E-01	1.38E+02
GG	1.62E-01	10	4.56E+01	4.92E+01	1.03E+00	9.58E+01
S0	2.30E-04	15	3.06E+01	4.61E+01	1.87E+00	7.86E+01
S1	5.00E-05	20	2.31E+01	4.25E+01	2.87E+00	6.85E+01
S2	2.00E-04	25	1.86E+01	3.91E+01	3.97E+00	6.16E+01
		30	1.55E+01	3.61E+01	5.16E+00	5.68E+01
		35	1.33E+01	3.35E+01	6.41E+00	5.32E+01
		40	1.17E+01	3.12E+01	7.22E+00	5.01E+01
		45	1.04E+01	2.91E+01	8.26E+00	4.78E+01
		50	9.38E+00	2.74E+01	9.12E+00	4.59E+01
		55	8.54E+00	2.58E+01	1.00E+01	4.44E+01
		60	7.84E+00	2.44E+01	1.09E+01	4.31E+01
		65	7.25E+00	2.31E+01	1.16E+01	4.20E+01
		70	6.74E+00	2.20E+01	1.24E+01	4.11E+01
		75	6.29E+00	2.10E+01	1.30E+01	4.02E+01
		80	5.90E+00	2.00E+01	1.35E+01	3.95E+01
		85	5.56E+00	1.92E+01	1.40E+01	3.88E+01
		90	5.26E+00	1.84E+01	1.45E+01	3.81E+01
		95	4.98E+00	1.77E+01	1.49E+01	3.75E+01
		100	4.74E+00	1.70E+01	1.52E+01	3.69E+01

NUCLIDE GE 73

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	1.55E+03	5	7.60E+01	4.68E+01	3.40E-01	1.23E+02
GG	1.60E-01	10	3.86E+01	4.66E+01	9.58E-01	8.62E+01
S0	2.00E-04	15	2.60E+01	4.29E+01	1.75E+00	7.06E+01
S1	5.00E-05	20	1.96E+01	3.90E+01	2.67E+00	6.13E+01
S2	1.80E-04	25	1.57E+01	3.56E+01	3.70E+00	5.50E+01
		30	1.32E+01	3.26E+01	4.80E+00	5.06E+01
		35	1.13E+01	3.01E+01	5 96E+00	4.73E+01
		40	9.92E+00	2.79E+01	6.87E+00	4.47E+01
		45	8.83E+00	2.60E+01	7.52E+00	4.23E+01
		50	7.96E+00	2.43E+01	8.35E+00	4.06E+01
		55	7.25E+00	2.29E+01	9.17E+00	3.93E+01
		60	6.65E+00	2.16E+01	9.92E+00	3.81E+01
		65	6.15E+00	2.04E+01	1.06E+01	3.72E+01
		70	5.71E+00	1.94E+01	1.12E+01	3.63E+01
		75	5.34E+00	1.85E+01	1.17E+01	3.55E+01
		80	5.01E+00	1.76E+01	1.22E+01	3.48E+01
		85	4.72E+00	1.68E+01	1.26E+01	3.42E+01
		90	4.46E+00	1.61E+01	1.30E+01	3.36E+01
		95	4.23E+00	1.55E+01	1.33E+01	3.30E+01
		100	4.02E+00	1.49E+01	1.36E+01	3.25E+01

NUCLIDE GE 74

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	1.24E+02	5	5.12E-02	5.91E+01	3.46E-01	5.72E+02
GG	1.97E-01	10	2.68E+02	6.98E+01	9.77E-01	3.39E+02
S0	2.00E-04	15	1.83E+02	7.12E+01	1.79E+00	2.56E+02
S1	5.00E-05	20	1.39E+02	7.08E+01	2.74E+00	2.13E+02
S2	1.80E-04	25	1.13E+02	6.92E+01	3.80E+00	1.86E+02
		30	9.48E+01	6.70E+01	4.96E+00	1.67E+02
		35	8.19E+01	6.47E+01	6.19E+00	1.53E+02
		40	7.21E+01	6.23E+01	7.47E+00	1.42E+02
		45	6.44E+01	6.00E+01	8.70E+00	1.33E+02
		50	5.82E+01	5.78E+01	9.99E+00	1.26E+02
		55	5.31E+01	5.57E+01	1.11E+01	1.20E+02
		60	4.89E+01	5.37E+01	1.21E+01	1.15E+02
		65	4.53E+01	5.19E+01	1.31E+01	1.10E+02
		70	4.21E+01	5.01E+01	1.42E+01	1.06E+02
		75	3.94E+01	4.85E+01	1.52E+01	1.03E+02
		80	3.71E+01	4.69E+01	1.63E+01	1.00E+02
		85	3.50E+01	4.55E+01	1.71E+01	9.75E+01
		90	3.31E+01	4.41E+01	1.77E+01	9.49E+01
		95	3.14E+01	4.28E+01	1.85E+01	9.27E+01
		100	2.99E+01	4.16E+01	1.92E+01	9.07E+01

NUCLIDE GE 75

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	3.90E+03	5	3.74E+01	3.78E+01	2.55E-01	7.54E+01
GG	1.95E-01	10	1.89E+01	3.33E+01	7.17E-01	5.30E+01
S0	1.30E-04	15	1.27E+01	2.86E+01	1.31E+00	4.27E+01
S1	5.00E-05	20	9.59E+00	2.49E+01	1.99E+00	3.65E+01
S2	1.30E-04	25	7.70E+00	2.20E+01	2.74E+00	3.24E+01
		30	6.43E+00	1.97E+01	3.43E+00	2.95E+01
		35	5.53E+00	1.78E+01	4.18E+00	2.75E+01
		40	4.84E+00	1.62E+01	4.59E+00	2.57E+01
		45	4.31E+00	1.49E+01	5.17E+00	2.44E+01
		50	3.89E+00	1.38E+01	5.70E+00	2.34E+01
		55	3.54E+00	1.29E+01	6.16E+00	2.26E+01
		60	3.25E+00	1.21E+01	6.58E+00	2.19E+01
		65	3.00E+00	1.13E+01	6.94E+00	2.13E+01
		70	2.79E+00	1.07E+01	7.24E+00	2.07E+01
		75	2.60E+00	1.01E+01	7.50E+00	2.02E+01
		80	2.44E+00	9.62E+00	7.72E+00	1.98E+01
		85	2.30E+00	9.15E+00	7.90E+00	1.94E+01
		90	2.17E+00	8.73E+00	8.05E+00	1.90E+01
		95	2.06E+00	8.35E+00	8.17E+00	1.86E+01
		100	1.96E+00	8.00E+00	8.25E+00	1.82E+01

NUCLIDE GE 77

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	4.20E+03	5	2.22E+01	3.03E+01	2.64E-01	5.28E+01
GG	1.20E-01	10	1.12E+01	2.43E+01	7.40E-01	3.63E+01
S0	2.30E-04	15	7.49E+00	1.99E+01	1.34E+00	2.87E+01
S1	5.00E-05	20	5.63E+00	1.68E+01	2.04E+00	2.45E+01
S2	1.30E-04	25	4.52E+00	1.45E+01	2.69E+00	2.17E+01
		30	3.77E+00	1.28E+01	3.18E+00	1.97E+01
		35	3.24E+00	1.14E+01	3.71E+00	1.84E+01
		40	2.83E+00	1.03E+01	4.20E+00	1.74E+01
		45	2.52E+00	9.44E+00	4.62E+00	1.66E+01
		50	2.27E+00	8.69E+00	4.97E+00	1.59E+01
		55	2.07E+00	8.05E+00	5.27E+00	1.54E+01
		60	1.89E+00	7.49E+00	5.50E+00	1.49E+01
		65	1.75E+00	7.01E+00	5.69E+00	1.45E+01
		70	1.63E+00	6.59E+00	5.84E+00	1.41E+01
		75	1.52E+00	6.22E+00	5.95E+00	1.37E+01
		80	1.42E+00	5.89E+00	6.03E+00	1.33E+01
		85	1.34E+00	5.59E+00	6.08E+00	1.30E+01
		90	1.27E+00	5.32E+00	6.11E+00	1.27E+01
		95	1.20E+00	5.08E+00	6.13E+00	1.24E+01
		100	1.14E+00	4.85E+00	6.12E+00	1.21E+01

NUCLIDE SE 77

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	1.50E+03	5	1.37E+02	8.05E+01	2.64E-01	2.17E+02
GG	3.00E-01	10	7.03E+01	8.22E+01	7.44E-01	1.53E+02
S0	1.30E-04	15	4.75E+01	7.68E+01	1.36E+00	1.26E+02
S1	8.00E-05	20	3.60E+01	7.06E+01	2.09E+00	1.09E+02
S2	1.30E-04	25	2.90E+01	6.49E+01	2.90E+00	9.68E+01
		30	2.43E+01	5.98E+01	3.78E+00	8.79E+01
		35	2.09E+01	5.54E+01	4.73E+00	8.10E+01
		40	1.84E+01	5.16E+01	5.73E+00	7.56E+01
		45	1.64E+01	4.82E+01	6.76E+00	7.13E+01
		50	1.48E+01	4.52E+01	7.66E+00	6.77E+01
		55	1.35E+01	4.26E+01	8.64E+00	6.47E+01
		60	1.24E+01	4.03E+01	9.35E+00	6.20E+01
		65	1.14E+01	3.82E+01	9.97E+00	5.96E+01
		70	1.06E+01	3.63E+01	1.08E+01	5.77E+01
		75	9.95E+00	3.46E+01	1.15E+01	5.61E+01
		80	9.34E+00	3.31E+01	1.23E+01	5.47E+01
		85	8.80E+00	3.16E+01	1.30E+01	5.34E+01
		90	8.32E+00	3.03E+01	1.36E+01	5.23E+01
		95	7.89E+00	2.91E+01	1.42E+01	5.12E+01
		100	7.51E+00	2.80E+01	1.48E+01	5.03E+01

NUCLIDE SE 78

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	1.40E+02	5	8.29E+02	1.03E+02	2.68E-01	9.32E+02
GG	3.60E-01	10	4.44E+02	1.29E+02	7.57E-01	5.74E+02
S0	1.60E-04	15	3.07E+02	1.35E+02	1.39E+00	4.43E+02
S1	8.00E-05	20	2.36E+02	1.38E+02	2.13E+00	3.76E+02
S2	1.30E-04	25	1.92E+02	1.38E+02	2.96E+00	3.33E+02
		30	1.62E+02	1.36E+02	3.88E+00	3.02E+02
		35	1.40E+02	1.34E+02	4.87E+00	2.79E+02
		40	1.24E+02	1.31E+02	5.93E+00	2.61E+02
		45	1.11E+02	1.27E+02	7.04E+00	2.46E+02
		50	1.01E+02	1.24E+02	8.21E+00	2.33E+02
		55	9.21E+01	1.21E+02	9.42E+00	2.22E+02
		60	8.48E+01	1.17E+02	1.07E+01	2.13E+02
		65	7.87E+01	1.14E+02	1.20E+01	2.05E+02
		70	7.34E+01	1.11E+02	1.33E+01	1.98E+02
		75	6.88E+01	1.08E+02	1.46E+01	1.92E+02
		80	6.47E+01	1.05E+02	1.60E+01	1.86E+02
		85	6.11E+01	1.03E+02	1.74E+01	1.81E+02
		90	5.79E+01	1.00E+02	1.86E+01	1.77E+02
		95	5.50E+01	9.76E+01	1.92E+01	1.72E+02
		100	5.24E+01	9.52E+01	2.04E+01	1.68E+02

NUCLIDE SE 79

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	3.30E+03	5	1.03E+02	6.13E+01	2.73E-01	1.64E+02
GG	5.00E-01	10	5.29E+01	6.25E+01	7.69E-01	1.16E+02
S0	9.00E-05	15	3.58E+01	5.84E+01	1.41E+00	9.56E+01
S1	6.00E-05	20	2.71E+01	5.36E+01	2.15E+00	8.29E+01
S2	1.30E-04	25	2.18E+01	4.93E+01	2.99E+00	7.41E+01
		30	1.83E+01	4.54E+01	3.90E+00	6.76E+01
		35	1.58E+01	4.21E+01	4.86E+00	6.27E+01
		40	1.38E+01	3.91E+01	5.88E+00	5.88E+01
		45	1.23E+01	3.66E+01	6.75E+00	5.57E+01
		50	1.11E+01	3.43E+01	7.69E+00	5.32E+01
		55	1.02E+01	3.23E+01	8.24E+00	5.07E+01
		60	9.33E+00	3.06E+01	9.00E+00	4.89E+01
		65	8.63E+00	2.90E+01	9.76E+00	4.74E+01
		70	8.03E+00	2.75E+01	1.05E+01	4.60E+01
		75	7.50E+00	2.62E+01	1.12E+01	4.49E+01
		80	7.05E+00	2.51E+01	1.18E+01	4.39E+01
		85	6.64E+00	2.40E+01	1.24E+01	4.30E+01
		90	6.28E+00	2.30E+01	1.29E+01	4.22E+01
		95	5.96E+00	2.21E+01	1.34E+01	4.14E+01
		100	5.67E+00	2.13E+01	1.38E+01	4.07E+01

NUCLIDE SE 81

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	3.30E+03	5	7.06E+01	5.54E+01	1.63E-01	1.26E+02
GG	3.25E-01	10	3.60E+01	5.25E+01	4.59E-01	8.90E+01
S0	1.20E-04	15	2.43E+01	4.70E+01	8.39E-01	7.21E+01
S1	6.00E-05	20	1.83E+01	4.19E+01	1.29E+00	6.16E+01
S2	7.50E-05	25	1.47E+01	3.77E+01	1.78E+00	5.43E+01
		30	1.23E+01	3.42E+01	2.33E+00	4.89E+01
		35	1.06E+01	3.13E+01	2.91E+00	4.48E+01
		40	9.31E+00	2.88E+01	3.51E+00	4.17E+01
		45	8.29E+00	2.67E+01	4.07E+00	3.91E+01
		50	7.48E+00	2.49E+01	4.62E+00	3.70E+01
		55	6.81E+00	2.33E+01	4.98E+00	3.51E+01
		60	6.25E+00	2.19E+01	5.46E+00	3.36E+01
		65	5.78E+00	2.07E+01	5.91E+00	3.24E+01
		70	5.37E+00	1.96E+01	6.36E+00	3.13E+01
		75	5.02E+00	1.86E+01	6.78E+00	3.04E+01
		80	4.71E+00	1.77E+01	7.18E+00	2.96E+01
		85	4.44E+00	1.69E+01	7.55E+00	2.89E+01
		90	4.20E+00	1.61E+01	7.88E+00	2.82E+01
		95	3.98E+00	1.55E+01	8.19E+00	2.76E+01
		100	3.78E+00	1.48E+01	8.48E+00	2.71E+01

NUCLIDE BR 80

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	5.50E+01	5	1.29E+03	1.90E+02	2.78E-01	1.48E+03
GG	3.00E-01	10	7.05E+02	2.23E+02	7.83E-01	9.29E+02
S0	1.50E-04	15	4.93E+02	2.30E+02	1.43E+00	7.25E+02
S1	1.50E-04	20	3.81E+02	2.30E+02	2.20E+00	6.14E+02
S2	1.30E-04	25	3.12E+02	2.26E+02	3.06E+00	5.41E+02
		30	2.64E+02	2.19E+02	4.01E+00	4.88E+02
		35	2.30E+02	2.12E+02	5.03E+00	4.47E+02
		40	2.04E+02	2.05E+02	6.12E+00	4.15E+02
		45	1.83E+02	1.98E+02	7.27E+00	3.88E+02
		50	1.66E+02	1.91E+02	8.47E+00	3.65E+02
		55	1.52E+02	1.84E+02	9.72E+00	3.46E+02
		60	1.40E+02	1.78E+02	1.10E+01	3.30E+02
		65	1.31E+02	1.72E+02	1.23E+01	3.15E+02
		70	1.22E+02	1.66E+02	1.37E+01	3.02E+02
		75	1.14E+02	1.61E+02	1.49E+01	2.90E+02
		80	1.08E+02	1.56E+02	1.62E+01	2.80E+02
		85	1.02E+02	1.51E+02	1.76E+01	2.71E+02
		90	9.67E+01	1.47E+02	1.90E+01	2.63E+02
		95	9.19E+01	1.43E+02	2.00E+01	2.55E+02
		100	8.77E+01	1.39E+02	2.12E+01	2.48E+02

NUCLIDE RB 88

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	1.25E+03	5	4.20E+01	5.61E+01	1.82E-01	9.83E+01
GG	1.45E-01	10	2.16E+01	3.76E+01	5.10E-01	5.97E+01
S0	4.00E-05	15	1.46E+01	2.83E+01	9.24E-01	4.38E+01
S1	2.00E-04	20	1.11E+01	2.27E+01	1.37E+00	3.52E+01
S2	7.50E-05	25	8.91E+00	1.90E+01	1.81E+00	2.98E+01
		30	7.47E+00	1.64E+01	2.17E+00	2.60E+01
		35	6.43E+00	1.44E+01	2.56E+00	2.34E+01
		40	5.65E+00	1.28E+01	2.84E+00	2.13E+01
		45	5.03E+00	1.16E+01	3.12E+00	1.97E+01
		50	4.54E+00	1.05E+01	3.37E+00	1.85E+01
		55	4.14E+00	9.69E+00	3.58E+00	1.74E+01
		60	3.80E+00	8.96E+00	3.75E+00	1.65E+01
		65	3.52E+00	8.34E+00	3.89E+00	1.58E+01
		70	3.27E+00	7.80E+00	4.01E+00	1.51E+01
		75	3.06E+00	7.32E+00	4.10E+00	1.45E+01
		80	2.87E+00	6.90E+00	4.18E+00	1.39E+01
		85	2.71E+00	6.53E+00	4.23E+00	1.35E+01
		90	2.56E+00	6.19E+00	4.27E+00	1.30E+01
		95	2.43E+00	5.89E+00	4.29E+00	1.26E+01
		100	2.31E+00	5.61E+00	4.31E+00	1.22E+01

NUCLIDE SR 85

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	4.00E+02	5	2.82E+02	2.13E+02	1.50E-01	4.95E+02
GG	2.05E-01	10	1.50E+02	2.16E+02	4.24E-01	3.66E+02
S0	6.50E-05	15	1.03E+02	2.01E+02	7.77E-01	3.05E+02
S1	2.00E-04	20	7.89E+01	1.84E+02	1.19E+00	2.64E+02
S2	6.50E-05	25	6.41E+01	1.69E+02	1.66E+00	2.35E+02
		30	5.40E+01	1.55E+02	2.17E+00	2.12E+02
		35	4.67E+01	1.44E+02	2.73E+00	1.93E+02
		40	4.12E+01	1.34E+02	3.32E+00	1.78E+02
		45	3.69E+01	1.25E+02	3.94E+00	1.66E+02
		50	3.34E+01	1.17E+02	4.60E+00	1.55E+02
		55	3.05E+01	1.10E+02	5.27E+00	1.46E+02
		60	2.81E+01	1.04E+02	5.98E+00	1.38E+02
		65	2.61E+01	9.86E+01	6.70E+00	1.31E+02
		70	2.43E+01	9.37E+01	7.44E+00	1.25E+02
		75	2.27E+01	8.93E+01	8.20E+00	1.20E+02
		80	2.14E+01	8.53E+01	8.97E+00	1.16E+02
		85	2.02E+01	8.16E+01	9.75E+00	1.12E+02
		90	1.91E+01	7.82E+01	1.05E+01	1.08E+02
		95	1.82E+01	7.51E+01	1.13E+01	1.05E+02
		100	1.73E+01	7.23E+01	1.18E+01	1.01E+02

NUCLIDE SR 87

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	2.50E+03	5	5.88E+01	1.28E+02	1.19E-01	1.87E+02
GG	2.05E-01	10	3.00E+01	9.12E+01	3.36E-01	1.22E+02
S0	1.00E-04	15	2.02E+01	7.04E+01	6.15E-01	9.13E+01
S1	3.00E-04	20	1.53E+01	5.74E+01	9.43E-01	7.36E+01
S2	5.00E-05	25	1.23E+01	4.85E+01	1.31E+00	6.21E+01
		30	1.03E+01	4.20E+01	1.71E+00	5.40E+01
		35	8.83E+00	3.71E+01	2.13E+00	4.80E+01
		40	7.75E+00	3.32E+01	2.58E+00	4.35E+01
		45	6.90E+00	3.00E+01	3.05E+00	4.00E+01
		50	6.23E+00	2.75E+01	3.46E+00	3.71E+01
		55	5.67E+00	2.53E+01	3.85E+00	3.48E+01
		60	5.21E+00	2.34E+01	4.11E+00	3.27E+01
		65	4.81E+00	2.18E+01	4.43E+00	3.11E+01
		70	4.47E+00	2.04E+01	4.78E+00	2.97E+01
		75	4.18E+00	1.92E+01	5.11E+00	2.85E+01
		80	3.92E+00	1.81E+01	5.42E+00	2.75E+01
		85	3.70E+00	1.72E+01	5.71E+00	2.66E+01
		90	3.49E+00	1.63E+01	5.98E+00	2.58E+01
		95	3.31E+00	1.55E+01	6.23E+00	2.51E+01
		100	3.15E+00	1.48E+01	6.46E+00	2.44E+01

NUCLIDE SR 89

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	1.00E+04	5	1.56E+01	6.06E+01	2.46E-02	7.63E+01
GG	2.05E-01	10	7.91E+00	3.44E+01	6.94E-02	4.24E+01
S0	9.00E-05	15	5.30E+00	2.41E+01	1.27E-01	2.96E+01
S1	8.00E-04	20	3.99E+00	1.86E+01	1.94E-01	2.28E+01
S2	1.00E-05	25	3.20E+00	1.51E+01	2.70E-01	1.86E+01
		30	2.67E+00	1.28E+01	3.53E-01	1.58E+01
		35	2.30E+00	1.11E+01	4.41E-01	1.38E+01
		40	2.01E+00	9.75E+00	5.34E-01	1.23E+01
		45	1.79E+00	8.72E+00	6.31E-01	1.11E+01
		50	1.61E+00	7.88E+00	7.31E-01	1.02E+01
		55	1.47E+00	7.19E+00	8.13E-01	9.47E+00
		60	1.35E+00	6.62E+00	8.59E-01	8.82E+00
		65	1.24E+00	6.13E+00	9.51E-01	8.32E+00
		70	1.16E+00	5.70E+00	1.02E+00	7.88E+00
		75	1.08E+00	5.34E+00	1.09E+00	7.51E+00
		80	1.01E+00	5.01E+00	1.16E+00	7.19E+00
		85	9.53E-01	4.73E+00	1.23E+00	6.91E+00
		90	9.01E-01	4.47E+00	1.29E+00	6.67E+00
		95	8.54E-01	4.24E+00	1.35E+00	6.45E+00
		100	8.11E-01	4.04E+00	1.41E+00	6.26E+00

NUCLIDE ZR 93

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	3.00E+03	5	6.09E+01	1.69E+02	2.61E-02	2.30E+02
GG	2.50E-01	10	3.10E+01	1.10E+02	7.36E-02	1.41E+02
S0	1.40E-04	15	2.09E+01	8.18E+01	1.35E-01	1.03E+02
S1	6.00E-04	20	1.57E+01	6.51E+01	2.07E-01	8.11E+01
S2	1.00E-05	25	1.26E+01	5.42E+01	2.88E-01	6.71E+01
		30	1.06E+01	4.64E+01	3.77E-01	5.74E+01
		35	9.09E+00	4.06E+01	4.73E-01	5.02E+01
		40	7.97E+00	3.61E+01	5.75E-01	4.47E+01
		45	7.10E+00	3.25E+01	6.83E-01	4.03E+01
		50	6.40E+00	2.96E+01	7.95E-01	3.68E+01
		55	5.82E+00	2.72E+01	9.12E-01	3.39E+01
		60	5.35E+00	2.51E+01	1.03E+00	3.15E+01
		65	4.94E+00	2.33E+01	1.16E+00	2.94E+01
		70	4.59E+00	2.18E+01	1.29E+00	2.77E+01
		75	4.29E+00	2.04E+01	1.42E+00	2.61E+01
		80	4.03E+00	1.92E+01	1.55E+00	2.48E+01
		85	3.79E+00	1.82E+01	1.68E+00	2.37E+01
		90	3.59E+00	1.72E+01	1.78E+00	2.26E+01
		95	3.40E+00	1.64E+01	1.90E+00	2.17E+01
		100	3.23E+00	1.56E+01	2.02E+00	2.09E+01

NUCLIDE MO 93

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	2.40E+03	5	7.62E+01	2.02E+02	2.61E-02	2.78E+02
GG	2.60E-01	10	3.90E+01	1.35E+02	7.36E-02	1.74E+02
S0	1.00E-04	15	2.63E+01	1.02E+02	1.35E-01	1.28E+02
S1	6.00E-04	20	1.99E+01	8.17E+01	2.07E-01	1.02E+02
S2	1.00E-05	25	1.60E+01	6.83E+01	2.88E-01	8.46E+01
		30	1.34E+01	5.87E+01	3.77E-01	7.25E+01
		35	1.15E+01	5.15E+01	4.73E-01	6.35E+01
		40	1.01E+01	4.59E+01	5.76E-01	5.66E+01
		45	9.02E+00	4.14E+01	6.84E-01	5.11E+01
		50	8.13E+00	3.77E+01	7.97E-01	4.67E+01
		55	7.41E+00	3.47E+01	9.15E-01	4.30E+01
		60	6.80E+00	3.21E+01	1.04E+00	3.99E+01
		65	6.29E+00	2.98E+01	1.16E+00	3.73E+01
		70	5.85E+00	2.79E+01	1.29E+00	3.50E+01
		75	5.47E+00	2.62E+01	1.42E+00	3.31E+01
		80	5.13E+00	2.47E+01	1.56E+00	3.13E+01
		85	4.84E+00	2.33E+01	1.70E+00	2.98E+01
		90	4.57E+00	2.21E+01	1.83E+00	2.85E+01
		95	4.34E+00	2.10E+01	1.97E+00	2.73E+01
		100	4.12E+00	2.00E+01	2.09E+00	2.63E+01

NUCLIDE MO 95

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	1.00E+03	5	1.54E+02	3.11E+02	2.68E-02	4.65E+02
GG	2.60E-01	10	8.08E+01	2.41E+02	7.57E-02	3.22E+02
S0	5.00E-05	15	5.53E+01	1.94E+02	1.39E-01	2.49E+02
S1	5.00E-04	20	4.22E+01	1.62E+02	2.13E-01	2.04E+02
S2	1.00E-05	25	3.41E+01	1.39E+02	2.96E-01	1.73E+02
		30	2.87E+01	1.21E+02	3.88E-01	1.51E+02
		35	2.48E+01	1.08E+02	4.87E-01	1.33E+02
		40	2.19E+01	9.75E+01	5.93E-01	1.20E+02
		45	1.95E+01	8.87E+01	7.05E-01	1.09E+02
		50	1.77E+01	8.15E+01	8.23E-01	1.00E+02
		55	1.61E+01	7.53E+01	9.46E-01	9.24E+01
		60	1.48E+01	7.00E+01	1.07E+00	8.59E+01
		65	1.37E+01	6.55E+01	1.20E+00	8.04E+01
		70	1.28E+01	6.14E+01	1.34E+00	7.56E+01
		75	1.20E+01	5.79E+01	1.48E+00	7.14E+01
		80	1.13E+01	5.47E+01	1.62E+00	6.76E+01
		85	1.06E+01	5.19E+01	1.77E+00	6.43E+01
		90	1.01E+01	4.94E+01	1.92E+00	6.14E+01
		95	9.55E+00	4.71E+01	2.07E+00	5.87E+01
		100	9.09E+00	4.50E+01	2.22E+00	5.63E+01

NUCLIDE TC100

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	2.40E+01	5	1.22E+03	4.35E+02	2.87E-02	1.65E+03
GG	2.80E-01	10	7.29E+02	4.95E+02	8.10E-02	1.22E+03
S0	4.50E-05	15	5.36E+02	5.06E+02	1.48E-01	1.04E+03
S1	3.00E-04	20	4.29E+02	4.98E+02	2.28E-01	9.27E+02
S2	1.00E-05	25	3.60E+02	4.81E+02	3.17E-01	8.41E+02
		30	3.12E+02	4.61E+02	4.16E-01	7.73E+02
		35	2.76E+02	4.42E+02	5.22E-01	7.18E+02
		40	2.47E+02	4.22E+02	6.36E-01	6.70E+02
		45	2.25E+02	4.04E+02	7.56E-01	6.30E+02
		50	2.07E+02	3.87E+02	8.82E-01	5.94E+02
		55	1.91E+02	3.71E+02	1.01E+00	5.63E+02
		60	1.78E+02	3.56E+02	1.15E+00	5.35E+02
		65	1.67E+02	3.42E+02	1.29E+00	5.10E+02
		70	1.57E+02	3.29E+02	1.44E+00	4.87E+02
		75	1.48E+02	3.17E+02	1.59E+00	4.67E+02
		80	1.40E+02	3.06E+02	1.75E+00	4.48E+02
		85	1.33E+02	2.95E+02	1.91E+00	4.31E+02
		90	1.27E+02	2.85E+02	2.07E+00	4.15E+02
		95	1.22E+02	2.76E+02	2.24E+00	4.00E+02
		100	1.17E+02	2.68E+02	2.41E+00	3.87E+02

NUCLIDE RU102

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	1.40E+01	5	1.22E+03	3.87E+02	8.85E-02	1.60E+03
GG	1.90E-01	10	7.42E+02	4.59E+02	2.50E-01	1.20E+03
S0	4.00E-05	15	5.50E+02	4.74E+02	4.57E-01	1.02E+03
S1	2.50E-04	20	4.43E+02	4.77E+02	7.01E-01	9.21E+02
S2	3.00E-05	25	3.74E+02	4.70E+02	9.77E-01	8.45E+02
		30	3.25E+02	4.58E+02	1.28E+00	7.85E+02
		35	2.88E+02	4.45E+02	1.61E+00	7.35E+02
		40	2.60E+02	4.30E+02	1.96E+00	6.92E+02
		45	2.37E+02	4.16E+02	2.33E+00	6.55E+02
		50	2.18E+02	4.02E+02	2.71E+00	6.22E+02
		55	2.02E+02	3.88E+02	3.12E+00	5.93E+02
		60	1.88E+02	3.75E+02	3.54E+00	5.67E+02
		65	1.77E+02	3.63E+02	3.98E+00	5.44E+02
		70	1.66E+02	3.51E+02	4.43E+00	5.22E+02
		75	1.57E+02	3.40E+02	4.89E+00	5.03E+02
		80	1.49E+02	3.30E+02	5.36E+00	4.85E+02
		85	1.42E+02	3.20E+02	5.85E+00	4.68E+02
		90	1.36E+02	3.11E+02	6.35E+00	4.53E+02
		95	1.30E+02	3.02E+02	6.85E+00	4.39E+02
		100	1.25E+02	2.94E+02	7.37E+00	4.26E+02

NUCLIDE PD106

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	1.33E+01	5	1.06E+03	3.79E+02	9.32E-02	1.44E+03
GG	1.55E-01	10	5.43E+02	4.46E+02	2.63E-01	1.09E+03
S0	3.50E-05	15	4.77E+02	4.62E+02	4.81E-01	9.39E+02
S1	2.50E-04	20	3.84E+02	4.60E+02	7.38E-01	8.44E+02
S2	3.00E-05	25	3.24E+02	4.49E+02	1.03E+00	7.74E+02
		30	2.81E+02	4.35E+02	1.35E+00	7.17E+02
		35	2.50E+02	4.19E+02	1.69E+00	6.70E+02
		40	2.25E+02	4.03E+02	2.06E+00	6.30E+02
		45	2.05E+02	3.88E+02	2.45E+00	5.95E+02
		50	1.88E+02	3.73E+02	2.85E+00	5.65E+02
		55	1.75E+02	3.60E+02	3.28E+00	5.38E+02
		60	1.63E+02	3.47E+02	3.72E+00	5.13E+02
		65	1.53E+02	3.34E+02	4.18E+00	4.91E+02
		70	1.44E+02	3.23E+02	4.65E+00	4.71E+02
		75	1.36E+02	3.12E+02	5.13E+00	4.53E+02
		80	1.29E+02	3.02E+02	5.63E+00	4.37E+02
		85	1.23E+02	2.92E+02	6.14E+00	4.21E+02
		90	1.17E+02	2.83E+02	6.66E+00	4.07E+02
		95	1.12E+02	2.75E+02	7.19E+00	3.94E+02
		100	1.08E+02	2.67E+02	7.72E+00	3.82E+02

NUCLIDE CD112

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	3.40E+01	5	5.20E+02	2.90E+02	1.00E-01	8.10E+02
GG	9.50E-02	10	2.99E+02	3.10E+02	2.83E-01	6.09E+02
S0	3.00E-05	15	2.14E+02	3.06E+02	5.17E-01	5.21E+02
S1	2.00E-04	20	1.69E+02	2.93E+02	7.94E-01	4.63E+02
S2	3.00E-05	25	1.40E+02	2.78E+02	1.10E+00	4.20E+02
		30	1.20E+02	2.63E+02	1.45E+00	3.85E+02
		35	1.05E+02	2.49E+02	1.82E+00	3.57E+02
		40	9.41E+01	2.36E+02	2.21E+00	3.33E+02
		45	8.51E+01	2.24E+02	2.63E+00	3.12E+02
		50	7.77E+01	2.14E+02	3.06E+00	2.94E+02
		55	7.15E+01	2.04E+02	3.52E+00	2.79E+02
		60	6.64E+01	1.94E+02	3.99E+00	2.65E+02
		65	6.19E+01	1.86E+02	4.48E+00	2.52E+02
		70	5.80E+01	1.78E+02	4.98E+00	2.41E+02
		75	5.47E+01	1.71E+02	5.50E+00	2.31E+02
		80	5.17E+01	1.65E+02	6.03E+00	2.22E+02
		85	4.90E+01	1.59E+02	6.57E+00	2.14E+02
		90	4.66E+01	1.53E+02	7.12E+00	2.07E+02
		95	4.44E+01	1.48E+02	7.68E+00	2.00E+02
		100	4.25E+01	1.43E+02	8.24E+00	1.94E+02

NUCLIDE CD113

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	1.25E+02	5	3.08E+02	2.72E+02	8.45E-02	5.80E+02
GG	1.00E-01	10	1.72E+02	2.86E+02	2.38E-01	4.58E+02
S0	2.50E-05	15	1.21E+02	2.73E+02	4.36E-01	3.95E+02
S1	2.00E-04	20	9.44E+01	2.55E+02	6.69E-01	3.50E+02
S2	2.50E-05	25	7.76E+01	2.36E+02	9.32E-01	3.15E+02
		30	6.61E+01	2.20E+02	1.22E+00	2.87E+02
		35	5.77E+01	2.05E+02	1.53E+00	2.64E+02
		40	5.12E+01	1.91E+02	1.86E+00	2.44E+02
		45	4.61E+01	1.80E+02	2.21E+00	2.28E+02
		50	4.20E+01	1.69E+02	2.58E+00	2.14E+02
		55	3.85E+01	1.60E+02	2.97E+00	2.01E+02
		60	3.56E+01	1.52E+02	3.37E+00	1.91E+02
		65	3.31E+01	1.44E+02	3.78E+00	1.81E+02
		70	3.10E+01	1.37E+02	4.20E+00	1.72E+02
		75	2.91E+01	1.31E+02	4.64E+00	1.65E+02
		80	2.75E+01	1.25E+02	5.08E+00	1.58E+02
		85	2.60E+01	1.20E+02	5.54E+00	1.52E+02
		90	2.47E+01	1.15E+02	6.00E+00	1.46E+02
		95	2.35E+01	1.11E+02	6.47E+00	1.41E+02
		100	2.24E+01	1.07E+02	6.95E+00	1.36E+02

NUCLIDE CD114

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	2.27E+01	5	6.60E+02	3.05E+02	1.20E-01	9.65E+02
GG	8.60E-02	10	3.82E+02	3.40E+02	3.38E-01	7.23E+02
S0	3.50E-05	15	2.75E+02	3.44E+02	6.18E-01	6.20E+02
S1	2.00E-04	20	2.18E+02	3.36E+02	9.48E-01	5.55E+02
S2	3.50E-05	25	1.81E+02	3.24E+02	1.32E+00	5.06E+02
		30	1.55E+02	3.10E+02	1.73E+00	4.67E+02
		35	1.37E+02	2.96E+02	2.17E+00	4.35E+02
		40	1.22E+02	2.83E+02	2.64E+00	4.07E+02
		45	1.10E+02	2.70E+02	3.14E+00	3.84E+02
		50	1.01E+02	2.59E+02	3.66E+00	3.63E+02
		55	9.30E+01	2.48E+02	4.20E+00	3.45E+02
		60	8.63E+01	2.38E+02	4.77E+00	3.29E+02
		65	8.06E+01	2.29E+02	5.35E+00	3.14E+02
		70	7.56E+01	2.20E+02	5.95E+00	3.01E+02
		75	7.12E+01	2.12E+02	6.57E+00	2.90E+02
		80	6.74E+01	2.04E+02	7.20E+00	2.79E+02
		85	6.39E+01	1.97E+02	7.85E+00	2.69E+02
		90	6.08E+01	1.91E+02	8.51E+00	2.60E+02
		95	5.80E+01	1.85E+02	9.18E+00	2.52E+02
		100	5.55E+01	1.79E+02	9.86E+00	2.44E+02

NUCLIDE IN114

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	6.00E+00	5	1.56E+03	3.44E+02	2.05E-01	1.91E+03
GG	8.60E-02	10	9.33E+02	4.07E+02	5.79E-01	1.34E+03
S0	6.00E-05	15	6.83E+02	4.28E+02	1.06E+00	1.11E+03
S1	2.00E-04	20	5.46E+02	4.34E+02	1.62E+00	9.82E+02
S2	6.00E-05	25	4.58E+02	4.31E+02	2.26E+00	8.91E+02
		30	3.96E+02	4.23E+02	2.96E+00	8.21E+02
		35	3.50E+02	4.12E+02	3.72E+00	7.65E+02
		40	3.14E+02	4.00E+02	4.52E+00	7.18E+02
		45	2.85E+02	3.88E+02	5.37E+00	6.78E+02
		50	2.62E+02	3.76E+02	6.27E+00	6.43E+02
		55	2.42E+02	3.64E+02	7.20E+00	6.13E+02
		60	2.25E+02	3.52E+02	8.16E+00	5.85E+02
		65	2.11E+02	3.41E+02	9.16E+00	5.61E+02
		70	1.98E+02	3.31E+02	1.02E+01	5.39E+02
		75	1.87E+02	3.21E+02	1.12E+01	5.19E+02
		80	1.77E+02	3.11E+02	1.23E+01	5.01E+02
		85	1.69E+02	3.02E+02	1.34E+01	4.84E+02
		90	1.61E+02	2.94E+02	1.45E+01	4.69E+02
		95	1.53E+02	2.86E+02	1.57E+01	4.55E+02
		100	1.47E+02	2.78E+02	1.68E+01	4.42E+02

NUCLIDE IN116

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	6.50E+00	5	9.79E+02	3.45E+02	2.10E-01	1.32E+03
GG	8.00E-02	10	6.02E+02	3.93E+02	5.92E-01	9.96E+02
S0	3.00E-05	15	4.49E+02	4.15E+02	1.08E+00	8.65E+02
S1	2.00E-04	20	3.63E+02	4.17E+02	1.66E+00	7.82E+02
S2	6.00E-05	25	3.08E+02	4.10E+02	2.31E+00	7.20E+02
		30	2.68E+02	3.99E+02	3.03E+00	6.70E+02
		35	2.38E+02	3.87E+02	3.80E+00	6.29E+02
		40	2.15E+02	3.74E+02	4.63E+00	5.93E+02
		45	1.96E+02	3.61E+02	5.49E+00	5.63E+02
		50	1.81E+02	3.48E+02	6.41E+00	5.35E+02
		55	1.68E+02	3.36E+02	7.35E+00	5.11E+02
		60	1.57E+02	3.24E+02	8.34E+00	4.89E+02
		65	1.47E+02	3.13E+02	9.35E+00	4.70E+02
		70	1.39E+02	3.03E+02	1.04E+01	4.52E+02
		75	1.31E+02	2.93E+02	1.15E+01	4.36E+02
		80	1.25E+02	2.84E+02	1.26E+01	4.21E+02
		85	1.19E+02	2.75E+02	1.37E+01	4.08E+02
		90	1.14E+02	2.67E+02	1.48E+01	3.95E+02
		95	1.09E+02	2.59E+02	1.60E+01	3.84E+02
		100	1.04E+02	2.52E+02	1.71E+01	3.73E+02

NUCLIDE SN115

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	2.50E+02	5	2.52E+02	2.37E+02	1.73E-01	4.89E+02
GG	1.10E-01	10	1.33E+02	2.27E+02	4.88E-01	3.60E+02
S0	7.00E-05	15	9.13E+01	2.04E+02	8.93E-01	2.96E+02
S1	2.00E-04	20	6.98E+01	1.83E+02	1.37E+00	2.54E+02
S2	5.00E-05	25	5.66E+01	1.65E+02	1.90E+00	2.23E+02
		30	4.76E+01	1.50E+02	2.49E+00	2.00E+02
		35	4.12E+01	1.37E+02	3.12E+00	1.81E+02
		40	3.63E+01	1.26E+02	3.80E+00	1.66E+02
		45	3.25E+01	1.17E+02	4.50E+00	1.54E+02
		50	2.94E+01	1.09E+02	5.24E+00	1.44E+02
		55	2.68E+01	1.02E+02	6.01E+00	1.35E+02
		60	2.47E+01	9.63E+01	6.79E+00	1.28E+02
		65	2.29E+01	9.09E+01	7.60E+00	1.21E+02
		70	2.13E+01	8.61E+01	8.43E+00	1.16E+02
		75	2.00E+01	8.18E+01	9.27E+00	1.11E+02
		80	1.88E+01	7.78E+01	1.01E+01	1.07E+02
		85	1.77E+01	7.43E+01	1.06E+01	1.03E+02
		90	1.68E+01	7.11E+01	1.15E+01	9.93E+01
		95	1.59E+01	6.81E+01	1.20E+01	9.60E+01
		100	1.52E+01	6.54E+01	1.29E+01	9.35E+01

NUCLIDE SB122

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	1.40E+01	5	8.53E+02	3.08E+02	1.69E-01	1.16E+03
GG	8.00E-02	10	4.92E+02	3.36E+02	4.75E-01	8.29E+02
S0	4.50E-05	15	3.54E+02	3.32E+02	8.69E-01	6.87E+02
S1	2.00E-04	20	2.79E+02	3.18E+02	1.33E+00	5.99E+02
S2	4.50E-05	25	2.32E+02	3.02E+02	1.85E+00	5.35E+02
		30	1.99E+02	2.85E+02	2.43E+00	4.87E+02
		35	1.75E+02	2.70E+02	3.04E+00	4.47E+02
		40	1.56E+02	2.55E+02	3.70E+00	4.15E+02
		45	1.41E+02	2.42E+02	4.39E+00	3.88E+02
		50	1.29E+02	2.30E+02	5.12E+00	3.64E+02
		55	1.19E+02	2.19E+02	5.87E+00	3.44E+02
		60	1.10E+02	2.09E+02	6.64E+00	3.26E+02
		65	1.03E+02	2.00E+02	7.44E+00	3.10E+02
		70	9.64E+01	1.92E+02	8.25E+00	2.96E+02
		75	9.08E+01	1.84E+02	9.09E+00	2.84E+02
		80	8.58E+01	1.77E+02	9.90E+00	2.73E+02
		85	8.14E+01	1.70E+02	1.07E+01	2.62E+02
		90	7.75E+01	1.64E+02	1.15E+01	2.53E+02
		95	7.39E+01	1.59E+02	1.23E+01	2.45E+02
		100	7.06E+01	1.53E+02	1.31E+01	2.37E+02

NUCLIDE SB124

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	2.80E+01	5	7.03E+02	2.76E+02	2.30E-01	9.79E+02
GG	9.50E-02	10	3.89E+02	2.82E+02	6.47E-01	6.71E+02
S0	6.50E-05	15	2.73E+02	2.64E+02	1.18E+00	5.39E+02
S1	2.00E-04	20	2.12E+02	2.43E+02	1.81E+00	4.58E+02
S2	6.00E-05	25	1.74E+02	2.24E+02	2.52E+00	4.01E+02
		30	1.48E+02	2.07E+02	3.30E+00	3.59E+02
		35	1.29E+02	1.92E+02	4.13E+00	3.26E+02
		40	1.15E+02	1.79E+02	5.01E+00	2.99E+02
		45	1.03E+02	1.68E+02	5.94E+00	2.77E+02
		50	9.37E+01	1.58E+02	6.90E+00	2.59E+02
		55	8.59E+01	1.49E+02	7.89E+00	2.43E+02
		60	7.94E+01	1.41E+02	8.87E+00	2.29E+02
		65	7.38E+01	1.34E+02	9.84E+00	2.18E+02
		70	6.90E+01	1.27E+02	1.08E+01	2.07E+02
		75	6.48E+01	1.21E+02	1.17E+01	1.98E+02
		80	6.11E+01	1.16E+02	1.24E+01	1.90E+02
		85	5.78E+01	1.11E+02	1.31E+01	1.82E+02
		90	5.49E+01	1.07E+02	1.39E+01	1.76E+02
		95	5.22E+01	1.03E+02	1.47E+01	1.70E+02
		100	4.98E+01	9.88E+01	1.55E+01	1.64E+02

NUCLIDE TE123

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	1.50E+02	5	3.54E+02	2.73E+02	2.27E-01	6.27E+02
GG	1.00E-01	10	1.89E+02	2.77E+02	6.40E-01	4.67E+02
S0	7.00E-05	15	1.30E+02	2.58E+02	1.17E+00	3.90E+02
S1	2.00E-04	20	9.99E+01	2.37E+02	1.80E+00	3.38E+02
S2	6.00E-05	25	8.12E+01	2.17E+02	2.50E+00	3.01E+02
		30	6.86E+01	2.00E+02	3.27E+00	2.72E+02
		35	5.94E+01	1.85E+02	4.10E+00	2.48E+02
		40	5.24E+01	1.72E+02	4.98E+00	2.29E+02
		45	4.69E+01	1.61E+02	5.91E+00	2.13E+02
		50	4.25E+01	1.51E+02	6.88E+00	2.00E+02
		55	3.89E+01	1.42E+02	7.88E+00	1.89E+02
		60	3.58E+01	1.34E+02	8.92E+00	1.79E+02
		65	3.32E+01	1.27E+02	9.99E+00	1.70E+02
		70	3.10E+01	1.21E+02	1.11E+01	1.63E+02
		75	2.90E+01	1.15E+02	1.22E+01	1.56E+02
		80	2.73E+01	1.10E+02	1.33E+01	1.50E+02
		85	2.58E+01	1.05E+02	1.45E+01	1.45E+02
		90	2.44E+01	1.01E+02	1.53E+01	1.40E+02
		95	2.32E+01	9.67E+01	1.62E+01	1.36E+02
		100	2.21E+01	9.31E+01	1.72E+01	1.32E+02

NUCLIDE TE124

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	2.40E+01	5	9.54E+02	3.12E+02	2.30E-01	1.27E+03
GG	1.05E-01	10	5.38E+02	3.54E+02	6.47E-01	8.93E+02
S0	7.00E-05	15	3.82E+02	3.62E+02	1.18E+00	7.45E+02
S1	1.90E-04	20	2.99E+02	3.56E+02	1.82E+00	6.57E+02
S2	6.00E-05	25	2.47E+02	3.45E+02	2.53E+00	5.95E+02
		30	2.11E+02	3.32E+02	3.31E+00	5.46E+02
		35	1.84E+02	3.19E+02	4.15E+00	5.07E+02
		40	1.64E+02	3.06E+02	5.05E+00	4.75E+02
		45	1.48E+02	2.93E+02	6.00E+00	4.47E+02
		50	1.35E+02	2.81E+02	6.99E+00	4.23E+02
		55	1.24E+02	2.70E+02	8.02E+00	4.02E+02
		60	1.15E+02	2.60E+02	9.09E+00	3.84E+02
		65	1.07E+02	2.50E+02	1.02E+01	3.67E+02
		70	9.99E+01	2.41E+02	1.13E+01	3.52E+02
		75	9.40E+01	2.33E+02	1.25E+01	3.39E+02
		80	8.87E+01	2.25E+02	1.37E+01	3.27E+02
		85	8.40E+01	2.17E+02	1.49E+01	3.16E+02
		90	7.98E+01	2.10E+02	1.61E+01	3.06E+02
		95	7.60E+01	2.04E+02	1.74E+01	2.97E+02
		100	7.26E+01	1.98E+02	1.86E+01	2.89E+02

NUCLIDE TE131

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	5.50E+03	5	1.32E+01	3.71E+01	3.29E-01	5.07E+01
GG	9.50E-02	10	6.67E+00	2.37E+01	9.18E-01	3.13E+01
S0	8.00E-05	15	4.47E+00	1.74E+01	1.65E+00	2.36E+01
S1	1.20E-04	20	3.37E+00	1.38E+01	2.26E+00	1.94E+01
S2	8.00E-05	25	2.70E+00	1.15E+01	2.87E+00	1.70E+01
		30	2.25E+00	9.79E+00	3.40E+00	1.54E+01
		35	1.94E+00	8.55E+00	3.84E+00	1.43E+01
		40	1.70E+00	7.59E+00	4.18E+00	1.35E+01
		45	1.51E+00	6.83E+00	4.45E+00	1.28E+01
		50	1.36E+00	6.21E+00	4.64E+00	1.22E+01
		55	1.24E+00	5.69E+00	4.78E+00	1.17E+01
		60	1.14E+00	5.25E+00	4.87E+00	1.13E+01
		65	1.05E+00	4.88E+00	4.92E+00	1.08E+01
		70	9.74E-01	4.55E+00	4.94E+00	1.05E+01
		75	9.10E-01	4.27E+00	4.94E+00	1.01E+01
		80	8.54E-01	4.02E+00	4.92E+00	9.79E+00
		85	8.04E-01	3.80E+00	4.88E+00	9.48E+00
		90	7.60E-01	3.60E+00	4.84E+00	9.19E+00
		95	7.20E-01	3.42E+00	4.78E+00	8.92E+00
		100	6.84E-01	3.26E+00	4.72E+00	8.66E+00

NUCLIDE I130

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	2.10E+01	5	8.33E+02	1.71E+02	2.44E-01	1.00E+03
GG	9.50E-02	10	4.69E+02	1.96E+02	6.89E-01	6.65E+02
S0	6.00E-05	15	3.32E+02	2.01E+02	1.26E+00	5.34E+02
S1	1.00E-04	20	2.60E+02	1.97E+02	1.93E+00	4.59E+02
S2	6.00E-05	25	2.14E+02	1.91E+02	2.69E+00	4.08E+02
		30	1.83E+02	1.84E+02	3.51E+00	3.70E+02
		35	1.60E+02	1.76E+02	4.40E+00	3.40E+02
		40	1.42E+02	1.69E+02	5.34E+00	3.16E+02
		45	1.28E+02	1.61E+02	6.33E+00	2.96E+02
		50	1.17E+02	1.55E+02	7.36E+00	2.79E+02
		55	1.07E+02	1.49E+02	8.42E+00	2.64E+02
		60	9.91E+01	1.43E+02	9.51E+00	2.51E+02
		65	9.23E+01	1.37E+02	1.06E+01	2.40E+02
		70	8.64E+01	1.32E+02	1.17E+01	2.30E+02
		75	8.12E+01	1.27E+02	1.27E+01	2.21E+02
		80	7.66E+01	1.23E+02	1.37E+01	2.13E+02
		85	7.26E+01	1.19E+02	1.46E+01	2.06E+02
		90	6.90E+01	1.15E+02	1.57E+01	2.00E+02
		95	6.57E+01	1.11E+02	1.64E+01	1.94E+02
		100	6.27E+01	1.08E+02	1.72E+01	1.88E+02

NUCLIDE XE132

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	2.50E+01	5	8.37E+02	1.66E+02	4.16E-01	1.00E+03
GG	9.00E-02	10	4.57E+02	1.86E+02	1.17E+00	6.44E+02
S0	1.00E-04	15	3.19E+02	1.87E+02	2.14E+00	5.08E+02
S1	1.00E-04	20	2.46E+02	1.81E+02	3.28E+00	4.30E+02
S2	1.00E-04	25	2.01E+02	1.73E+02	4.55E+00	3.79E+02
		30	1.71E+02	1.65E+02	5.94E+00	3.41E+02
		35	1.48E+02	1.57E+02	7.43E+00	3.13E+02
		40	1.31E+02	1.49E+02	8.99E+00	2.89E+02
		45	1.18E+02	1.42E+02	1.05E+01	2.71E+02
		50	1.07E+02	1.35E+02	1.22E+01	2.55E+02
		55	9.81E+01	1.29E+02	1.37E+01	2.41E+02
		60	9.06E+01	1.24E+02	1.53E+01	2.30E+02
		65	8.41E+01	1.19E+02	1.67E+01	2.20E+02
		70	7.86E+01	1.14E+02	1.82E+01	2.11E+02
		75	7.37E+01	1.10E+02	1.91E+01	2.02E+02
		80	6.94E+01	1.06E+02	2.05E+01	1.96E+02
		85	6.57E+01	1.02E+02	2.18E+01	1.89E+02
		90	6.23E+01	9.83E+01	2.31E+01	1.84E+02
		95	5.92E+01	9.50E+01	2.43E+01	1.79E+02
		100	5.65E+01	9.19E+01	2.53E+01	1.74E+02

NUCLIDE CS134

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	1.85E+01	5	1.09E+03	1.52E+02	2.97E-01	1.24E+03
GG	1.18E-01	10	6.17E+02	1.81E+02	8.37E-01	7.99E+02
S0	7.00E-05	15	4.40E+02	1.90E+02	1.53E+00	6.32E+02
S1	8.00E-05	20	3.44E+02	1.93E+02	2.35E+00	5.40E+02
S2	7.00E-05	25	2.85E+02	1.92E+02	3.26E+00	4.80E+02
		30	2.43E+02	1.88E+02	4.27E+00	4.36E+02
		35	2.13E+02	1.84E+02	5.35E+00	4.02E+02
		40	1.90E+02	1.78E+02	6.49E+00	3.74E+02
		45	1.71E+02	1.73E+02	7.70E+00	3.52E+02
		50	1.56E+02	1.67E+02	8.96E+00	3.32E+02
		55	1.43E+02	1.62E+02	1.03E+01	3.16E+02
		60	1.33E+02	1.57E+02	1.16E+01	3.02E+02
		65	1.24E+02	1.52E+02	1.30E+01	2.89E+02
		70	1.16E+02	1.48E+02	1.43E+01	2.78E+02
		75	1.09E+02	1.43E+02	1.56E+01	2.68E+02
		80	1.03E+02	1.39E+02	1.69E+01	2.59E+02
		85	9.76E+01	1.35E+02	1.81E+01	2.51E+02
		90	9.27E+01	1.31E+02	1.94E+01	2.43E+02
		95	8.83E+01	1.28E+02	2.04E+01	2.36E+02
		100	8.44E+01	1.24E+02	2.11E+01	2.30E+02

NUCLIDE BA136

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	3.50E+01	5	7.03E+02	9.27E+01	2.16E-02	7.96E+02
GG	1.05E-01	10	3.85E+02	1.10E+02	6.10E-02	4.95E+02
S0	8.00E-05	15	2.69E+02	1.13E+02	1.12E-01	3.83E+02
S1	5.00E-05	20	2.08E+02	1.14E+02	1.71E-01	3.22E+02
S2	5.00E-06	25	1.70E+02	1.12E+02	2.38E-01	2.83E+02
		30	1.45E+02	1.10E+02	3.12E-01	2.55E+02
		35	1.26E+02	1.07E+02	3.91E-01	2.33E+02
		40	1.11E+02	1.03E+02	4.76E-01	2.15E+02
		45	1.00E+02	9.99E+01	5.65E-01	2.01E+02
		50	9.09E+01	9.67E+01	6.59E-01	1.88E+02
		55	8.33E+01	9.35E+01	7.57E-01	1.78E+02
		60	7.69E+01	9.05E+01	8.59E-01	1.68E+02
		65	7.14E+01	8.76E+01	9.64E-01	1.60E+02
		70	6.67E+01	8.49E+01	1.07E+00	1.53E+02
		75	6.26E+01	8.23E+01	1.18E+00	1.46E+02
		80	5.90E+01	7.98E+01	1.30E+00	1.40E+02
		85	5.58E+01	7.75E+01	1.41E+00	1.35E+02
		90	5.29E+01	7.53E+01	1.53E+00	1.30E+02
		95	5.03E+01	7.32E+01	1.66E+00	1.25E+02
		100	4.80E+01	7.12E+01	1.78E+00	1.21E+02

NUCLIDE BA139

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	8.60E+03	5	8.26E+00	1.68E+01	4.45E-02	2.51E+01
GG	9.00E-02	10	4.16E+00	1.18E+01	1.25E-01	1.61E+01
S0	1.80E-04	15	2.78E+00	9.10E+00	2.28E-01	1.21E+01
S1	3.00E-05	20	2.09E+00	7.40E+00	3.48E-01	9.84E+00
S2	1.00E-05	25	1.67E+00	6.24E+00	4.79E-01	8.39E+00
		30	1.40E+00	5.40E+00	6.20E-01	7.41E+00
		35	1.20E+00	4.76E+00	7.37E-01	6.69E+00
		40	1.05E+00	4.26E+00	8.23E-01	6.13E+00
		45	9.32E-01	3.85E+00	9.29E-01	5.71E+00
		50	8.39E-01	3.52E+00	1.03E+00	5.38E+00
		55	7.64E-01	3.24E+00	1.12E+00	5.12E+00
		60	7.00E-01	3.00E+00	1.20E+00	4.90E+00
		65	6.47E-01	2.79E+00	1.27E+00	4.71E+00
		70	6.01E-01	2.61E+00	1.33E+00	4.55E+00
		75	5.61E-01	2.46E+00	1.39E+00	4.41E+00
		80	5.26E-01	2.32E+00	1.44E+00	4.28E+00
		85	4.95E-01	2.19E+00	1.48E+00	4.16E+00
		90	4.68E-01	2.08E+00	1.51E+00	4.06E+00
		95	4.43E-01	1.98E+00	1.54E+00	3.96E+00
		100	4.21E-01	1.89E+00	1.56E+00	3.87E+00

NUCLIDE LA139

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	3.00E+01	5	5.96E+02	9.02E+01	2.23E-02	6.87E+02
GG	7.50E-02	10	3.23E+02	1.03E+02	6.27E-02	4.27E+02
S0	8.00E-05	15	2.25E+02	1.06E+02	1.15E-01	3.31E+02
S1	5.00E-05	20	1.73E+02	1.04E+02	1.76E-01	2.78E+02
S2	5.00E-06	25	1.42E+02	1.00E+02	2.45E-01	2.42E+02
		30	1.20E+02	9.64E+01	3.21E-01	2.17E+02
		35	1.04E+02	9.23E+01	4.02E-01	1.97E+02
		40	9.21E+01	8.83E+01	4.89E-01	1.81E+02
		45	8.26E+01	8.45E+01	5.81E-01	1.68E+02
		50	7.50E+01	8.09E+01	6.78E-01	1.57E+02
		55	6.87E+01	7.75E+01	7.78E-01	1.47E+02
		60	6.33E+01	7.44E+01	8.83E-01	1.39E+02
		65	5.88E+01	7.15E+01	9.90E-01	1.31E+02
		70	5.49E+01	6.88E+01	1.10E+00	1.25E+02
		75	5.15E+01	6.63E+01	1.21E+00	1.19E+02
		80	4.85E+01	6.40E+01	1.33E+00	1.14E+02
		85	4.58E+01	6.18E+01	1.45E+00	1.09E+02
		90	4.34E+01	5.97E+01	1.57E+00	1.05E+02
		95	4.13E+01	5.78E+01	1.69E+00	1.01E+02
		100	3.94E+01	5.60E+01	1.82E+00	9.72E+01

NUCLIDE CE141

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	3.00E+03	5	2.91E+01	4.34E+01	4.54E-01	7.29E+01
GG	1.17E-01	10	1.48E+01	3.43E+01	1.27E+00	5.03E+01
S0	1.00E-04	15	9.92E+00	2.78E+01	2.30E+00	4.00E+01
S1	5.00E-05	20	7.48E+00	2.34E+01	3.46E+00	3.43E+01
S2	1.00E-04	25	6.00E+00	2.01E+01	4.43E+00	3.06E+01
		30	5.02E+00	1.77E+01	5.21E+00	2.79E+01
		35	4.31E+00	1.58E+01	6.04E+00	2.61E+01
		40	3.78E+00	1.43E+01	6.75E+00	2.48E+01
		45	3.36E+00	1.30E+01	7.34E+00	2.37E+01
		50	3.03E+00	1.20E+01	7.83E+00	2.28E+01
		55	2.76E+00	1.11E+01	8.21E+00	2.20E+01
		60	2.53E+00	1.03E+01	8.51E+00	2.13E+01
		65	2.34E+00	9.63E+00	8.74E+00	2.07E+01
		70	2.17E+00	9.04E+00	8.90E+00	2.01E+01
		75	2.03E+00	8.53E+00	9.01E+00	1.96E+01
		80	1.90E+00	8.07E+00	9.07E+00	1.90E+01
		85	1.79E+00	7.66E+00	9.10E+00	1.86E+01
		90	1.70E+00	7.28E+00	9.10E+00	1.81E+01
		95	1.61E+00	6.95E+00	9.08E+00	1.76E+01
		100	1.53E+00	6.64E+00	9.03E+00	1.72E+01

NUCLIDE CE143

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	1.00E+03	5	5.47E+01	5.75E+01	5.55E-01	1.13E+02
GG	7.50E-02	10	2.78E+01	5.04E+01	1.56E+00	7.98E+01
S0	1.20E-04	15	1.87E+01	4.32E+01	2.83E+00	6.47E+01
S1	5.00E-05	20	1.41E+01	3.75E+01	4.29E+00	5.59E+01
S2	1.20E-04	25	1.14E+01	3.30E+01	5.71E+00	5.01E+01
		30	9.50E+00	2.95E+01	7.21E+00	4.62E+01
		35	8.16E+00	2.67E+01	8.11E+00	4.29E+01
		40	7.16E+00	2.43E+01	9.23E+00	4.07E+01
		45	6.38E+00	2.24E+01	1.02E+01	3.90E+01
		50	5.75E+00	2.07E+01	1.11E+01	3.76E+01
		55	5.23E+00	1.93E+01	1.19E+01	3.64E+01
		60	4.80E+00	1.80E+01	1.25E+01	3.53E+01
		65	4.44E+00	1.70E+01	1.30E+01	3.44E+01
		70	4.13E+00	1.60E+01	1.34E+01	3.36E+01
		75	3.86E+00	1.51E+01	1.38E+01	3.28E+01
		80	3.62E+00	1.44E+01	1.40E+01	3.20E+01
		85	3.41E+00	1.37E+01	1.42E+01	3.13E+01
		90	3.22E+00	1.30E+01	1.44E+01	3.06E+01
		95	3.05E+00	1.25E+01	1.45E+01	3.00E+01
		100	2.90E+00	1.19E+01	1.45E+01	2.93E+01

NUCLIDE ND144

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	2.80E+01	5	8.35E+02	1.23E+02	4.67E-01	9.58E+02
GG	7.20E-02	10	4.34E+02	1.36E+02	1.31E+00	5.71E+02
S0	4.50E-04	15	2.95E+02	1.35E+02	2.40E+00	4.33E+02
S1	7.00E-05	20	2.24E+02	1.30E+02	3.67E+00	3.58E+02
S2	1.00E-04	25	1.81E+02	1.24E+02	5.09E+00	3.10E+02
		30	1.52E+02	1.18E+02	6.63E+00	2.76E+02
		35	1.31E+02	1.12E+02	8.27E+00	2.51E+02
		40	1.15E+02	1.06E+02	9.99E+00	2.31E+02
		45	1.03E+02	1.01E+02	1.16E+01	2.15E+02
		50	9.28E+01	9.58E+01	1.31E+01	2.02E+02
		55	8.47E+01	9.13E+01	1.44E+01	1.90E+02
		60	7.78E+01	8.72E+01	1.57E+01	1.81E+02
		65	7.20E+01	8.35E+01	1.70E+01	1.73E+02
		70	6.71E+01	8.01E+01	1.84E+01	1.66E+02
		75	6.27E+01	7.69E+01	1.97E+01	1.59E+02
		80	5.89E+01	7.39E+01	2.09E+01	1.54E+02
		85	5.56E+01	7.12E+01	2.17E+01	1.48E+02
		90	5.26E+01	6.87E+01	2.27E+01	1.44E+02
		95	4.99E+01	6.63E+01	2.36E+01	1.40E+02
		100	4.75E+01	6.41E+01	2.45E+01	1.36E+02

NUCLIDE ND146

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	2.40E+01	5	9.24E+02	1.26E+02	4.76E-01	1.05E+03
GG	7.20E-02	10	4.84E+02	1.43E+02	1.34E+00	6.28E+02
S0	3.50E-04	15	3.30E+02	1.44E+02	2.45E+00	4.77E+02
S1	7.00E-05	20	2.52E+02	1.40E+02	3.74E+00	3.95E+02
S2	1.00E-04	25	2.04E+02	1.34E+02	5.19E+00	3.43E+02
		30	1.71E+02	1.28E+02	6.77E+00	3.06E+02
		35	1.48E+02	1.22E+02	8.44E+00	2.78E+02
		40	1.30E+02	1.16E+02	1.02E+01	2.56E+02
		45	1.16E+02	1.11E+02	1.19E+01	2.39E+02
		50	1.05E+02	1.06E+02	1.36E+01	2.24E+02
		55	9.59E+01	1.01E+02	1.50E+01	2.12E+02
		60	8.82E+01	9.68E+01	1.63E+01	2.01E+02
		65	8.17E+01	9.28E+01	1.77E+01	1.92E+02
		70	7.60E+01	8.91E+01	1.92E+01	1.84E+02
		75	7.12E+01	8.57E+01	2.06E+01	1.77E+02
		80	6.69E+01	8.26E+01	2.19E+01	1.71E+02
		85	6.31E+01	7.96E+01	2.29E+01	1.66E+02
		90	5.97E+01	7.69E+01	2.39E+01	1.61E+02
		95	5.67E+01	7.43E+01	2.50E+01	1.56E+02
		100	5.39E+01	7.20E+01	2.59E+01	1.52E+02

NUCLIDE PM148

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	3.70E+00	5	4.10E+03	8.39E+01	4.84E-01	4.18E+03
GG	7.00E-02	10	2.26E+03	1.16E+02	1.36E+00	2.37E+03
S0	4.20E-04	15	1.58E+03	1.38E+02	2.49E+00	1.72E+03
S1	4.00E-05	20	1.22E+03	1.52E+02	3.82E+00	1.38E+03
S2	1.00E-04	25	1.00E+03	1.56E+02	5.32E+00	1.16E+03
		30	8.52E+02	1.63E+02	6.96E+00	1.02E+03
		35	7.42E+02	1.68E+02	8.72E+00	9.18E+02
		40	6.57E+02	1.68E+02	1.06E+01	8.36E+02
		45	5.91E+02	1.70E+02	1.26E+01	7.73E+02
		50	5.37E+02	1.71E+02	1.46E+01	7.22E+02
		55	4.92E+02	1.71E+02	1.68E+01	6.80E+02
		60	4.55E+02	1.71E+02	1.90E+01	6.45E+02
		65	4.23E+02	1.70E+02	2.13E+01	6.14E+02
		70	3.95E+02	1.70E+02	2.36E+01	5.88E+02
		75	3.71E+02	1.69E+02	2.60E+01	5.65E+02
		80	3.49E+02	1.67E+02	2.85E+01	5.45E+02
		85	3.30E+02	1.66E+02	3.09E+01	5.27E+02
		90	3.13E+02	1.65E+02	3.35E+01	5.12E+02
		95	2.98E+02	1.63E+02	3.56E+01	4.97E+02
		100	2.84E+02	1.61E+02	3.80E+01	4.84E+02

NUCLIDE GD156

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	1.80E+00	5	6.81E+03	5.45E+01	5.19E-01	6.87E+03
GG	1.10E-01	10	4.07E+03	7.60E+01	1.46E+00	4.15E+03
S0	2.60E-04	15	2.99E+03	9.17E+01	2.68E+00	3.08E+03
S1	2.50E-05	20	2.39E+03	1.04E+02	4.10E+00	2.50E+03
S2	1.00E-04	25	2.01E+03	1.15E+02	5.71E+00	2.13E+03
		30	1.73E+03	1.24E+02	7.47E+00	1.87E+03
		35	1.53E+03	1.31E+02	9.37E+00	1.67E+03
		40	1.38E+03	1.38E+02	1.14E+01	1.53E+03
		45	1.25E+03	1.44E+02	1.35E+01	1.41E+03
		50	1.15E+03	1.48E+02	1.58E+01	1.31E+03
		55	1.06E+03	1.51E+02	1.81E+01	1.23E+03
		60	9.89E+02	1.55E+02	2.05E+01	1.16E+03
		65	9.26E+02	1.58E+02	2.30E+01	1.11E+03
		70	8.71E+02	1.58E+02	2.56E+01	1.05E+03
		75	8.23E+02	1.60E+02	2.82E+01	1.01E+03
		80	7.80E+02	1.60E+02	3.10E+01	9.70E+02
		85	7.41E+02	1.61E+02	3.37E+01	9.36E+02
		90	7.07E+02	1.63E+02	3.65E+01	9.06E+02
		95	6.76E+02	1.64E+02	3.94E+01	8.79E+02
		100	6.47E+02	1.65E+02	4.23E+01	8.54E+02

NUCLIDE GD157

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	7.00E+01	5	8.58E+02	6.50E+01	5.24E-01	9.24E+02
GG	1.10E-01	10	4.56E+02	8.76E+01	1.48E+00	5.45E+02
S0	1.90E-04	15	3.14E+02	1.01E+02	2.70E+00	4.18E+02
S1	3.00E-05	20	2.40E+02	1.04E+02	4.13E+00	3.48E+02
S2	1.00E-04	25	1.95E+02	1.08E+02	5.75E+00	3.09E+02
		30	1.65E+02	1.10E+02	7.51E+00	2.82E+02
		35	1.42E+02	1.11E+02	9.41E+00	2.63E+02
		40	1.26E+02	1.11E+02	1.14E+01	2.48E+02
		45	1.12E+02	1.11E+02	1.36E+01	2.37E+02
		50	1.02E+02	1.10E+02	1.58E+01	2.27E+02
		55	9.31E+01	1.09E+02	1.81E+01	2.20E+02
		60	8.57E+01	1.07E+02	2.04E+01	2.13E+02
		65	7.95E+01	1.06E+02	2.29E+01	2.08E+02
		70	7.41E+01	1.04E+02	2.53E+01	2.03E+02
		75	6.94E+01	1.02E+02	2.79E+01	2.00E+02
		80	6.53E+01	1.01E+02	3.04E+01	1.96E+02
		85	6.16E+01	9.90E+01	3.30E+01	1.94E+02
		90	5.84E+01	9.73E+01	3.56E+01	1.91E+02
		95	5.54E+01	9.56E+01	3.72E+01	1.88E+02
		100	5.28E+01	9.40E+01	3.94E+01	1.86E+02

NUCLIDE GD158

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	5.80E+00	5	2.80E+03	7.66E+01	5.28E-01	2.88E+03
GG	1.00E-01	10	1.61E+03	1.06E+02	1.49E+00	1.71E+03
S0	1.60E-04	15	1.15E+03	1.26E+02	2.72E+00	1.28E+03
S1	3.50E-05	20	9.06E+02	1.38E+02	4.17E+00	1.05E+03
S2	1.00E-04	25	7.51E+02	1.42E+02	5.80E+00	8.99E+02
		30	6.43E+02	1.49E+02	7.58E+00	8.00E+02
		35	5.64E+02	1.54E+02	9.51E+00	7.28E+02
		40	5.03E+02	1.58E+02	1.16E+01	6.73E+02
		45	4.55E+02	1.60E+02	1.37E+01	6.28E+02
		50	4.15E+02	1.58E+02	1.60E+01	5.89E+02
		55	3.82E+02	1.58E+02	1.83E+01	5.59E+02
		60	3.54E+02	1.59E+02	2.07E+01	5.34E+02
		65	3.30E+02	1.58E+02	2.32E+01	5.12E+02
		70	3.10E+02	1.58E+02	2.58E+01	4.93E+02
		75	2.92E+02	1.57E+02	2.84E+01	4.77E+02
		80	2.76E+02	1.56E+02	3.10E+01	4.63E+02
		85	2.61E+02	1.55E+02	3.36E+01	4.50E+02
		90	2.48E+02	1.54E+02	3.62E+01	4.39E+02
		95	2.37E+02	1.53E+02	3.87E+01	4.29E+02
		100	2.26E+02	1.52E+02	4.13E+01	4.19E+02

NUCLIDE DY162

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	2.20E+00	5	5.25E+03	4.47E+01	9.83E-01	5.29E+03
GG	1.21E-01	10	3.18E+03	6.23E+01	2.77E+00	3.24E+03
S0	1.80E-04	15	2.35E+03	7.52E+01	5.06E+00	2.43E+03
S1	2.00E-05	20	1.89E+03	8.55E+01	7.76E+00	1.98E+03
S2	1.80E-04	25	1.59E+03	9.41E+01	1.08E+01	1.69E+03
		30	1.38E+03	1.01E+02	1.41E+01	1.50E+03
		35	1.22E+03	1.08E+02	1.77E+01	1.35E+03
		40	1.10E+03	1.14E+02	2.15E+01	1.24E+03
		45	1.00E+03	1.19E+02	2.55E+01	1.15E+03
		50	9.21E+02	1.23E+02	2.97E+01	1.07E+03
		55	8.53E+02	1.27E+02	3.41E+01	1.01E+03
		60	7.95E+02	1.28E+02	3.86E+01	9.62E+02
		65	7.46E+02	1.30E+02	4.33E+01	9.19E+02
		70	7.02E+02	1.30E+02	4.81E+01	8.80E+02
		75	6.64E+02	1.30E+02	5.29E+01	8.47E+02
		80	6.30E+02	1.31E+02	5.79E+01	8.19E+02
		85	5.99E+02	1.33E+02	6.29E+01	7.95E+02
		90	5.72E+02	1.34E+02	6.81E+01	7.74E+02
		95	5.47E+02	1.35E+02	7.32E+01	7.55E+02
		100	5.24E+02	1.36E+02	7.79E+01	7.38E+02

NUCLIDE DY163

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	1.50E+02	5	6.88E+02	1.10E+02	8.26E-01	7.98E+02
GG	1.75E-01	10	3.62E+02	1.36E+02	2.33E+00	5.00E+02
S0	2.20E-04	15	2.47E+02	1.43E+02	4.25E+00	3.95E+02
S1	5.00E-05	20	1.89E+02	1.47E+02	6.51E+00	3.42E+02
S2	1.50E-04	25	1.53E+02	1.48E+02	9.04E+00	3.09E+02
		30	1.29E+02	1.46E+02	1.18E+01	2.86E+02
		35	1.11E+02	1.43E+02	1.48E+01	2.69E+02
		40	9.79E+01	1.40E+02	1.79E+01	2.56E+02
		45	8.75E+01	1.36E+02	2.12E+01	2.45E+02
		50	7.91E+01	1.33E+02	2.46E+01	2.36E+02
		55	7.22E+01	1.29E+02	2.81E+01	2.29E+02
		60	6.65E+01	1.25E+02	3.16E+01	2.23E+02
		65	6.16E+01	1.22E+02	3.47E+01	2.18E+02
		70	5.74E+01	1.18E+02	3.78E+01	2.13E+02
		75	5.37E+01	1.15E+02	4.10E+01	2.09E+02
		80	5.05E+01	1.12E+02	4.25E+01	2.05E+02
		85	4.76E+01	1.09E+02	4.50E+01	2.01E+02
		90	4.51E+01	1.06E+02	4.75E+01	1.98E+02
		95	4.28E+01	1.03E+02	5.00E+01	1.96E+02
		100	4.07E+01	1.00E+02	5.25E+01	1.94E+02

NUCLIDE DY164

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	1.00E+01	5	2.11E+03	1.11E+02	8.33E-01	2.23E+03
GG	1.00E-01	10	1.17E+03	1.47E+02	2.34E+00	1.32E+03
S0	2.00E-04	15	8.21E+02	1.61E+02	4.28E+00	9.86E+02
S1	5.00E-05	20	6.37E+02	1.72E+02	6.56E+00	8.16E+02
S2	1.50E-04	25	5.23E+02	1.73E+02	9.11E+00	7.05E+02
		30	4.44E+02	1.75E+02	1.19E+01	6.31E+02
		35	3.87E+02	1.75E+02	1.49E+01	5.77E+02
		40	3.43E+02	1.75E+02	1.80E+01	5.36E+02
		45	3.09E+02	1.73E+02	2.13E+01	5.03E+02
		50	2.81E+02	1.71E+02	2.47E+01	4.76E+02
		55	2.57E+02	1.68E+02	2.80E+01	4.53E+02
		60	2.38E+02	1.65E+02	3.15E+01	4.35E+02
		65	2.21E+02	1.62E+02	3.45E+01	4.18E+02
		70	2.07E+02	1.59E+02	3.79E+01	4.04E+02
		75	1.94E+02	1.56E+02	4.07E+01	3.91E+02
		80	1.83E+02	1.53E+02	4.38E+01	3.80E+02
		85	1.73E+02	1.50E+02	4.58E+01	3.69E+02
		90	1.64E+02	1.47E+02	4.85E+01	3.60E+02
		95	1.56E+02	1.45E+02	5.12E+01	3.52E+02
		100	1.49E+02	1.42E+02	5.39E+01	3.45E+02

NUCLIDE ER163

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	6.50E+00	5	3.89E+03	1.12E+02	8.26E-01	4.00E+03
GG	8.80E-02	10	2.25E+03	1.56E+02	2.33E+00	2.41E+03
S0	2.00E-04	15	1.62E+03	1.88E+02	4.25E+00	1.81E+03
S1	5.00E-05	20	1.28E+03	2.13E+02	6.52E+00	1.50E+03
S2	1.50E-04	25	1.06E+03	2.33E+02	9.07E+00	1.30E+03
		30	9.11E+02	2.51E+02	1.19E+01	1.17E+03
		35	8.00E+02	2.60E+02	1.49E+01	1.08E+03
		40	7.14E+02	2.70E+02	1.81E+01	1.00E+03
		45	6.46E+02	2.79E+02	2.15E+01	9.47E+02
		50	5.91E+02	2.87E+02	2.50E+01	9.03E+02
		55	5.44E+02	2.78E+02	2.87E+01	8.51E+02
		60	5.05E+02	2.82E+02	3.26E+01	8.19E+02
		65	4.71E+02	2.85E+02	3.66E+01	7.93E+02
		70	4.42E+02	2.87E+02	4.06E+01	7.69E+02
		75	4.16E+02	2.88E+02	4.48E+01	7.49E+02
		80	3.94E+02	2.89E+02	4.91E+01	7.32E+02
		85	3.73E+02	2.90E+02	5.35E+01	7.17E+02
		90	3.55E+02	2.90E+02	5.80E+01	7.04E+02
		95	3.39E+02	2.91E+02	6.25E+01	6.92E+02
		100	3.24E+02	2.90E+02	6.71E+01	6.81E+02

NUCLIDE ER165

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	1.70E+01	5	2.13E+03	1.13E+02	8.39E-01	2.25E+03
GG	8.80E-02	10	1.18E+03	1.56E+02	2.36E+00	1.34E+03
S0	2.00E-04	15	8.28E+02	1.86E+02	4.32E+00	1.02E+03
S1	5.00E-05	20	6.43E+02	2.02E+02	6.62E+00	8.52E+02
S2	1.50E-04	25	5.28E+02	2.17E+02	9.21E+00	7.54E+02
		30	4.48E+02	2.16E+02	1.20E+01	6.76E+02
		35	3.91E+02	2.21E+02	1.51E+01	6.27E+02
		40	3.46E+02	2.25E+02	1.84E+01	5.90E+02
		45	3.12E+02	2.27E+02	2.18E+01	5.61E+02
		50	2.83E+02	2.29E+02	2.54E+01	5.37E+02
		55	2.60E+02	2.29E+02	2.91E+01	5.18E+02
		60	2.40E+02	2.29E+02	3.30E+01	5.02E+02
		65	2.23E+02	2.28E+02	3.69E+01	4.88E+02
		70	2.09E+02	2.27E+02	4.10E+01	4.77E+02
		75	1.96E+02	2.25E+02	4.52E+01	4.67E+02
		80	1.85E+02	2.24E+02	4.94E+01	4.58E+02
		85	1.75E+02	2.22E+02	5.38E+01	4.50E+02
		90	1.66E+02	2.20E+02	5.81E+01	4.44E+02
		95	1.58E+02	2.18E+02	6.26E+01	4.38E+02
		100	1.51E+02	2.15E+02	6.71E+01	4.33E+02

NUCLIDE ER167

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	4.30E+01	5	1.06E+03	1.12E+02	8.53E-01	1.17E+03
GG	8.80E-02	10	5.67E+02	1.48E+02	2.40E+00	7.18E+02
S0	1.90E-04	15	3.92E+02	1.62E+02	4.39E+00	5.59E+02
S1	5.00E-05	20	3.01E+02	1.70E+02	6.72E+00	4.78E+02
S2	1.50E-04	25	2.45E+02	1.75E+02	9.35E+00	4.29E+02
		30	2.07E+02	1.77E+02	1.22E+01	3.96E+02
		35	1.79E+02	1.77E+02	1.53E+01	3.71E+02
		40	1.58E+02	1.75E+02	1.86E+01	3.52E+02
		45	1.42E+02	1.73E+02	2.20E+01	3.37E+02
		50	1.29E+02	1.71E+02	2.56E+01	3.25E+02
		55	1.18E+02	1.68E+02	2.93E+01	3.15E+02
		60	1.08E+02	1.65E+02	3.31E+01	3.06E+02
		65	1.00E+02	1.62E+02	3.70E+01	2.99E+02
		70	9.37E+01	1.58E+02	4.10E+01	2.93E+02
		75	8.78E+01	1.55E+02	4.50E+01	2.88E+02
		80	8.26E+01	1.52E+02	4.91E+01	2.84E+02
		85	7.80E+01	1.49E+02	5.15E+01	2.78E+02
		90	7.39E+01	1.46E+02	5.53E+01	2.75E+02
		95	7.03E+01	1.43E+02	5.90E+01	2.72E+02
		100	6.69E+01	1.40E+02	6.08E+01	2.68E+02

NUCLIDE ER168

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	3.10E+00	5	3.72E+03	1.14E+02	8.60E-01	3.84E+03
GG	8.80E-02	10	2.18E+03	1.58E+02	2.42E+00	2.34E+03
S0	1.70E-04	15	1.58E+03	1.88E+02	4.43E+00	1.77E+03
S1	5.00E-05	20	1.25E+03	2.08E+02	6.78E+00	1.47E+03
S2	1.50E-04	25	1.04E+03	2.14E+02	9.43E+00	1.27E+03
		30	8.98E+02	2.23E+02	1.23E+01	1.13E+03
		35	7.90E+02	2.31E+02	1.54E+01	1.04E+03
		40	7.07E+02	2.33E+02	1.88E+01	9.58E+02
		45	6.40E+02	2.35E+02	2.22E+01	8.98E+02
		50	5.86E+02	2.36E+02	2.59E+01	8.48E+02
		55	5.41E+02	2.37E+02	2.97E+01	8.08E+02
		60	5.02E+02	2.37E+02	3.36E+01	7.73E+02
		65	4.69E+02	2.37E+02	3.76E+01	7.44E+02
		70	4.41E+02	2.36E+02	4.17E+01	7.18E+02
		75	4.15E+02	2.35E+02	4.58E+01	6.96E+02
		80	3.93E+02	2.33E+02	5.01E+01	6.76E+02
		85	3.73E+02	2.31E+02	5.42E+01	6.59E+02
		90	3.55E+02	2.30E+02	5.80E+01	6.43E+02
		95	3.39E+02	2.28E+02	6.22E+01	6.29E+02
		100	3.24E+02	2.26E+02	6.58E+01	6.16E+02

NUCLIDE ER169

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	1.10E+02	5	4.66E+02	1.47E+02	8.67E-01	6.14E+02
GG	8.80E-02	10	2.46E+02	1.64E+02	2.44E+00	4.12E+02
S0	1.40E-04	15	1.68E+02	1.68E+02	4.46E+00	3.41E+02
S1	7.00E-05	20	1.28E+02	1.65E+02	6.82E+00	3.00E+02
S2	1.50E-04	25	1.04E+02	1.59E+02	9.46E+00	2.73E+02
		30	8.75E+01	1.53E+02	1.23E+01	2.53E+02
		35	7.56E+01	1.46E+02	1.54E+01	2.37E+02
		40	6.66E+01	1.40E+02	1.86E+01	2.25E+02
		45	5.96E+01	1.33E+02	2.20E+01	2.15E+02
		50	5.39E+01	1.28E+02	2.55E+01	2.07E+02
		55	4.92E+01	1.22E+02	2.83E+01	2.00E+02
		60	4.53E+01	1.17E+02	3.12E+01	1.94E+02
		65	4.19E+01	1.12E+02	3.44E+01	1.89E+02
		70	3.91E+01	1.08E+02	3.58E+01	1.83E+02
		75	3.66E+01	1.04E+02	3.85E+01	1.79E+02
		80	3.44E+01	1.00E+02	4.10E+01	1.76E+02
		85	3.25E+01	9.68E+01	4.34E+01	1.73E+02
		90	3.07E+01	9.35E+01	4.57E+01	1.70E+02
		95	2.92E+01	9.04E+01	4.78E+01	1.67E+02
		100	2.78E+01	8.76E+01	4.98E+01	1.65E+02

NUCLIDE YB171

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	1.70E+01	5	1.80E+03	1.15E+02	7.04E-01	1.92E+03
GG	8.50E-02	10	1.01E+03	1.59E+02	1.98E+00	1.18E+03
S0	1.30E-04	15	7.19E+02	1.90E+02	3.63E+00	9.13E+02
S1	5.00E-05	20	5.62E+02	2.06E+02	5.56E+00	7.73E+02
S2	1.20E-04	25	4.63E+02	2.21E+02	7.73E+00	6.92E+02
		30	3.95E+02	2.19E+02	1.01E+01	6.24E+02
		35	3.45E+02	2.23E+02	1.27E+01	5.81E+02
		40	3.07E+02	2.27E+02	1.54E+01	5.49E+02
		45	2.77E+02	2.29E+02	1.83E+01	5.24E+02
		50	2.52E+02	2.30E+02	2.13E+01	5.03E+02
		55	2.32E+02	2.30E+02	2.44E+01	4.86E+02
		60	2.14E+02	2.30E+02	2.76E+01	4.72E+02
		65	2.00E+02	2.29E+02	3.10E+01	4.59E+02
		70	1.87E+02	2.28E+02	3.44E+01	4.49E+02
		75	1.76E+02	2.26E+02	3.79E+01	4.39E+02
		80	1.66E+02	2.24E+02	4.15E+01	4.31E+02
		85	1.57E+02	2.22E+02	4.51E+01	4.24E+02
		90	1.49E+02	2.20E+02	4.88E+01	4.17E+02
		95	1.42E+02	2.17E+02	5.26E+01	4.12E+02
		100	1.35E+02	2.15E+02	5.63E+01	4.07E+02

NUCLIDE YB172

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	5.20E+00	5	2.48E+03	1.16E+02	7.10E-01	2.60E+03
GG	7.50E-02	10	1.44E+03	1.59E+02	2.00E+00	1.60E+03
S0	1.30E-04	15	1.04E+03	1.89E+02	3.65E+00	1.23E+03
S1	5.00E-05	20	8.21E+02	2.01E+02	5.60E+00	1.03E+03
S2	1.20E-04	25	6.83E+02	2.15E+02	7.78E+00	9.05E+02
		30	5.87E+02	2.25E+02	1.02E+01	8.22E+02
		35	5.16E+02	2.33E+02	1.28E+01	7.61E+02
		40	4.61E+02	2.31E+02	1.55E+01	7.08E+02
		45	4.17E+02	2.32E+02	1.84E+01	6.67E+02
		50	3.81E+02	2.33E+02	2.14E+01	6.36E+02
		55	3.52E+02	2.33E+02	2.46E+01	6.10E+02
		60	3.26E+02	2.34E+02	2.78E+01	5.88E+02
		65	3.05E+02	2.33E+02	3.12E+01	5.69E+02
		70	2.86E+02	2.32E+02	3.46E+01	5.53E+02
		75	2.69E+02	2.31E+02	3.82E+01	5.38E+02
		80	2.55E+02	2.29E+02	4.18E+01	5.26E+02
		85	2.42E+02	2.28E+02	4.54E+01	5.15E+02
		90	2.30E+02	2.26E+02	4.91E+01	5.05E+02
		95	2.19E+02	2.24E+02	5.29E+01	4.96E+02
		100	2.10E+02	2.22E+02	5.67E+01	4.88E+02

NUCLIDE YB173

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	6.00E+01	5	6.45E+02	1.14E+02	7.15E-01	7.59E+02
GG	7.00E-02	10	3.42E+02	1.39E+02	2.01E+00	4.83E+02
S0	1.50E-04	15	2.35E+02	1.47E+02	3.68E+00	3.86E+02
S1	5.00E-05	20	1.80E+02	1.51E+02	5.63E+00	3.37E+02
S2	1.20E-04	25	1.46E+02	1.51E+02	7.82E+00	3.05E+02
		30	1.23E+02	1.49E+02	1.02E+01	2.83E+02
		35	1.07E+02	1.46E+02	1.28E+01	2.66E+02
		40	9.40E+01	1.43E+02	1.55E+01	2.52E+02
		45	8.41E+01	1.39E+02	1.83E+01	2.41E+02
		50	7.61E+01	1.35E+02	2.13E+01	2.32E+02
		55	6.96E+01	1.31E+02	2.43E+01	2.25E+02
		60	6.41E+01	1.27E+02	2.75E+01	2.19E+02
		65	5.94E+01	1.23E+02	3.06E+01	2.13E+02
		70	5.54E+01	1.20E+02	3.36E+01	2.09E+02
		75	5.18E+01	1.16E+02	3.59E+01	2.04E+02
		80	4.88E+01	1.13E+02	3.87E+01	2.01E+02
		85	4.60E+01	1.10E+02	3.98E+01	1.96E+02
		90	4.36E+01	1.07E+02	4.20E+01	1.93E+02
		95	4.14E+01	1.04E+02	4.44E+01	1.90E+02
		100	3.94E+01	1.02E+02	4.66E+01	1.88E+02

NUCLIDE YB174

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	7.00E+00	5	2.28E+03	1.16E+02	7.21E-01	2.39E+03
GG	8.00E-02	10	1.27E+03	1.55E+02	2.03E+00	1.42E+03
S0	1.90E-04	15	8.94E+02	1.69E+02	3.71E+00	1.07E+03
S1	5.00E-05	20	6.96E+02	1.82E+02	5.68E+00	8.83E+02
S2	1.20E-04	25	5.72E+02	1.84E+02	7.89E+00	7.65E+02
		30	4.87E+02	1.87E+02	1.03E+01	6.84E+02
		35	4.25E+02	1.87E+02	1.29E+01	6.25E+02
		40	3.78E+02	1.87E+02	1.56E+01	5.80E+02
		45	3.40E+02	1.85E+02	1.85E+01	5.44E+02
		50	3.09E+02	1.83E+02	2.15E+01	5.14E+02
		55	2.84E+02	1.81E+02	2.44E+01	4.89E+02
		60	2.63E+02	1.78E+02	2.75E+01	4.68E+02
		65	2.44E+02	1.75E+02	3.06E+01	4.50E+02
		70	2.28E+02	1.72E+02	3.35E+01	4.34E+02
		75	2.15E+02	1.69E+02	3.64E+01	4.20E+02
		80	2.02E+02	1.66E+02	3.90E+01	4.08E+02
		85	1.92E+02	1.63E+02	4.11E+01	3.96E+02
		90	1.82E+02	1.60E+02	4.43E+01	3.86E+02
		95	1.73E+02	1.57E+02	4.62E+01	3.77E+02
		100	1.65E+02	1.54E+02	4.87E+01	3.68E+02

NUCLIDE YB175

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	2.10E+02	5	2.40E+02	9.57E+01	7.26E-01	3.36E+02
GG	7.50E-02	10	1.24E+02	1.05E+02	2.04E+00	2.31E+02
S0	1.90E-04	15	8.37E+01	1.03E+02	3.73E+00	1.90E+02
S1	5.00E-05	20	6.34E+01	9.76E+01	5.69E+00	1.67E+02
S2	1.20E-04	25	5.11E+01	9.18E+01	7.88E+00	1.51E+02
		30	4.29E+01	8.62E+01	1.03E+01	1.39E+02
		35	3.69E+01	8.11E+01	1.28E+01	1.31E+02
		40	3.24E+01	7.64E+01	1.54E+01	1.24E+02
		45	2.89E+01	7.21E+01	1.76E+01	1.19E+02
		50	2.61E+01	6.83E+01	1.99E+01	1.14E+02
		55	2.38E+01	6.48E+01	2.12E+01	1.10E+02
		60	2.19E+01	6.17E+01	2.30E+01	1.07E+02
		65	2.02E+01	5.88E+01	2.49E+01	1.04E+02
		70	1.88E+01	5.62E+01	2.66E+01	1.02E+02
		75	1.76E+01	5.38E+01	2.82E+01	9.96E+01
		80	1.65E+01	5.16E+01	2.97E+01	9.78E+01
		85	1.56E+01	4.95E+01	3.10E+01	9.62E+01
		90	1.47E+01	4.77E+01	3.23E+01	9.47E+01
		95	1.40E+01	4.59E+01	3.34E+01	9.33E+01
		100	1.33E+01	4.43E+01	3.44E+01	9.20E+01

NUCLIDE YB177

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	2.30E+02	5	2.25E+02	9.49E+01	7.37E-01	3.21E+02
GG	7.50E-02	10	1.16E+02	1.03E+02	2.07E+00	2.20E+02
S0	2.40E-04	15	7.81E+01	9.94E+01	3.78E+00	1.81E+02
S1	5.00E-05	20	5.91E+01	9.38E+01	5.78E+00	1.59E+02
S2	1.20E-04	25	4.76E+01	8.78E+01	7.99E+00	1.43E+02
		30	3.99E+01	8.21E+01	1.04E+01	1.32E+02
		35	3.43E+01	7.70E+01	1.29E+01	1.24E+02
		40	3.01E+01	7.23E+01	1.55E+01	1.18E+02
		45	2.69E+01	6.81E+01	1.76E+01	1.13E+02
		50	2.42E+01	6.44E+01	1.90E+01	1.08E+02
		55	2.21E+01	6.10E+01	2.10E+01	1.04E+02
		60	2.03E+01	5.80E+01	2.29E+01	1.01E+02
		65	1.88E+01	5.52E+01	2.47E+01	9.86E+01
		70	1.74E+01	5.27E+01	2.63E+01	9.65E+01
		75	1.63E+01	5.04E+01	2.79E+01	9.46E+01
		80	1.53E+01	4.83E+01	2.93E+01	9.28E+01
		85	1.44E+01	4.63E+01	3.05E+01	9.13E+01
		90	1.36E+01	4.46E+01	3.16E+01	8.98E+01
		95	1.29E+01	4.29E+01	3.26E+01	8.85E+01
		100	1.23E+01	4.14E+01	3.35E+01	8.72E+01

NUCLIDE HF175

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	2.50E+01	5	1.30E+03	1.16E+02	7.26E-01	1.42E+03
GG	6.00E-02	10	6.93E+02	1.56E+02	2.04E+00	8.51E+02
S0	2.80E-04	15	4.77E+02	1.76E+02	3.74E+00	6.57E+02
S1	5.00E-05	20	3.65E+02	1.80E+02	5.72E+00	5.51E+02
S2	1.20E-04	25	2.97E+02	1.86E+02	7.96E+00	4.90E+02
		30	2.50E+02	1.88E+02	1.04E+01	4.49E+02
		35	2.17E+02	1.89E+02	1.30E+01	4.19E+02
		40	1.91E+02	1.88E+02	1.58E+01	3.95E+02
		45	1.71E+02	1.87E+02	1.88E+01	3.77E+02
		50	1.55E+02	1.85E+02	2.18E+01	3.61E+02
		55	1.42E+02	1.82E+02	2.50E+01	3.49E+02
		60	1.30E+02	1.79E+02	2.83E+01	3.38E+02
		65	1.21E+02	1.76E+02	3.16E+01	3.29E+02
		70	1.13E+02	1.73E+02	3.51E+01	3.21E+02
		75	1.06E+02	1.70E+02	3.86E+01	3.14E+02
		80	9.93E+01	1.66E+02	4.21E+01	3.08E+02
		85	9.38E+01	1.63E+02	4.57E+01	3.03E+02
		90	8.88E+01	1.60E+02	4.93E+01	2.98E+02
		95	8.44E+01	1.57E+02	5.22E+01	2.94E+02
		100	8.04E+01	1.54E+02	5.50E+01	2.89E+02

NUCLIDE HF177

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	3.00E+01	5	9.77E+02	1.17E+02	7.37E-01	1.09E+03
GG	6.00E-02	10	5.28E+02	1.53E+02	2.08E+00	6.83E+02
S0	1.44E-04	15	3.66E+02	1.66E+02	3.79E+00	5.36E+02
S1	5.00E-05	20	2.82E+02	1.74E+02	5.81E+00	4.62E+02
S2	1.20E-04	25	2.30E+02	1.79E+02	8.07E+00	4.17E+02
		30	1.95E+02	1.80E+02	1.06E+01	3.85E+02
		35	1.69E+02	1.80E+02	1.32E+01	3.62E+02
		40	1.49E+02	1.78E+02	1.60E+01	3.43E+02
		45	1.34E+02	1.76E+02	1.90E+01	3.28E+02
		50	1.21E+02	1.73E+02	2.21E+01	3.16E+02
		55	1.11E+02	1.70E+02	2.53E+01	3.06E+02
		60	1.02E+02	1.66E+02	2.86E+01	2.97E+02
		65	9.51E+01	1.63E+02	3.20E+01	2.90E+02
		70	8.87E+01	1.59E+02	3.54E+01	2.84E+02
		75	8.32E+01	1.56E+02	3.89E+01	2.78E+02
		80	7.83E+01	1.53E+02	4.25E+01	2.73E+02
		85	7.40E+01	1.49E+02	4.53E+01	2.69E+02
		90	7.01E+01	1.46E+02	4.86E+01	2.65E+02
		95	6.67E+01	1.43E+02	5.13E+01	2.61E+02
		100	6.35E+01	1.40E+02	5.44E+01	2.58E+02

NUCLIDE HF178

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	2.40E+00	5	4.30E+03	1.18E+02	7.43E-01	4.42E+03
GG	6.00E-02	10	2.43E+03	1.63E+02	2.09E+00	2.60E+03
S0	2.00E-04	15	1.73E+03	1.94E+02	3.82E+00	1.93E+03
S1	5.00E-05	20	1.36E+03	2.12E+02	5.86E+00	1.58E+03
S2	1.20E-04	25	1.12E+03	2.17E+02	8.14E+00	1.35E+03
		30	9.59E+02	2.26E+02	1.06E+01	1.20E+03
		35	8.39E+02	2.33E+02	1.33E+01	1.08E+03
		40	7.47E+02	2.32E+02	1.62E+01	9.95E+02
		45	6.74E+02	2.34E+02	1.92E+01	9.27E+02
		50	6.14E+02	2.35E+02	2.23E+01	8.71E+02
		55	5.65E+02	2.35E+02	2.56E+01	8.25E+02
		60	5.23E+02	2.34E+02	2.89E+01	7.86E+02
		65	4.87E+02	2.33E+02	3.24E+01	7.53E+02
		70	4.56E+02	2.32E+02	3.59E+01	7.24E+02
		75	4.29E+02	2.30E+02	3.95E+01	6.99E+02
		80	4.05E+02	2.28E+02	4.32E+01	6.77E+02
		85	3.84E+02	2.26E+02	4.66E+01	6.57E+02
		90	3.65E+02	2.24E+02	5.00E+01	6.39E+02
		95	3.48E+02	2.21E+02	5.37E+01	6.23E+02
		100	3.32E+02	2.19E+02	5.69E+01	6.08E+02

NUCLIDE HF179

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	5.70E+01	5	6.26E+02	1.16E+02	7.48E-01	7.43E+02
GG	6.00E-02	10	3.29E+02	1.37E+02	2.11E+00	4.68E+02
S0	2.10E-04	15	2.25E+02	1.46E+02	3.85E+00	3.75E+02
S1	5.00E-05	20	1.71E+02	1.49E+02	5.89E+00	3.26E+02
S2	1.20E-04	25	1.39E+02	1.48E+02	8.18E+00	2.95E+02
		30	1.17E+02	1.45E+02	1.07E+01	2.73E+02
		35	1.01E+02	1.42E+02	1.34E+01	2.56E+02
		40	8.88E+01	1.38E+02	1.62E+01	2.43E+02
		45	7.93E+01	1.34E+02	1.91E+01	2.32E+02
		50	7.18E+01	1.30E+02	2.22E+01	2.23E+02
		55	6.55E+01	1.25E+02	2.54E+01	2.16E+02
		60	6.03E+01	1.21E+02	2.86E+01	2.10E+02
		65	5.58E+01	1.18E+02	3.13E+01	2.05E+02
		70	5.20E+01	1.14E+02	3.40E+01	2.00E+02
		75	4.87E+01	1.11E+02	3.69E+01	1.96E+02
		80	4.57E+01	1.07E+02	3.87E+01	1.92E+02
		85	4.32E+01	1.04E+02	4.03E+01	1.88E+02
		90	4.08E+01	1.01E+02	4.28E+01	1.85E+02
		95	3.88E+01	9.84E+01	4.51E+01	1.82E+02
		100	3.69E+01	9.57E+01	4.73E+01	1.80E+02

NUCLIDE HF180

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	6.50E+00	5	1.92E+03	1.41E+02	6.28E-01	2.06E+03
GG	6.00E-02	10	1.06E+03	1.77E+02	1.77E+00	1.24E+03
S0	1.80E-04	15	7.45E+02	1.95E+02	3.23E+00	9.43E+02
S1	6.00E-05	20	5.78E+02	1.99E+02	4.95E+00	7.82E+02
S2	1.00E-04	25	4.74E+02	2.01E+02	6.87E+00	6.83E+02
		30	4.03E+02	2.01E+02	8.97E+00	6.13E+02
		35	3.51E+02	1.99E+02	1.12E+01	5.61E+02
		40	3.12E+02	1.95E+02	1.36E+01	5.20E+02
		45	2.80E+02	1.91E+02	1.61E+01	4.88E+02
		50	2.55E+02	1.87E+02	1.87E+01	4.61E+02
		55	2.34E+02	1.83E+02	2.14E+01	4.38E+02
		60	2.16E+02	1.78E+02	2.41E+01	4.18E+02
		65	2.01E+02	1.74E+02	2.67E+01	4.02E+02
		70	1.88E+02	1.70E+02	2.93E+01	3.87E+02
		75	1.76E+02	1.66E+02	3.11E+01	3.73E+02
		80	1.66E+02	1.62E+02	3.30E+01	3.61E+02
		85	1.57E+02	1.58E+02	3.51E+01	3.50E+02
		90	1.49E+02	1.54E+02	3.73E+01	3.40E+02
		95	1.42E+02	1.50E+02	3.94E+01	3.32E+02
		100	1.35E+02	1.47E+02	4.15E+01	3.24E+02

NUCLIDE OS188

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	1.30E+01	5	1.84E+03	1.93E+02	6.66E-01	2.03E+03
GG	9.00E-02	10	1.01E+03	2.41E+02	1.87E+00	1.25E+03
S0	2.00E-04	15	7.09E+02	2.64E+02	3.42E+00	9.75E+02
S1	8.00E-05	20	5.49E+02	2.72E+02	5.24E+00	8.26E+02
S2	1.00E-04	25	4.50E+02	2.75E+02	7.29E+00	7.33E+02
		30	3.82E+02	2.75E+02	9.53E+00	6.67E+02
		35	3.33E+02	2.73E+02	1.19E+01	6.18E+02
		40	2.95E+02	2.69E+02	1.45E+01	5.79E+02
		45	2.65E+02	2.65E+02	1.72E+01	5.47E+02
		50	2.41E+02	2.60E+02	2.00E+01	5.21E+02
		55	2.21E+02	2.54E+02	2.29E+01	4.98E+02
		60	2.04E+02	2.49E+02	2.59E+01	4.79E+02
		65	1.90E+02	2.43E+02	2.89E+01	4.62E+02
		70	1.77E+02	2.38E+02	3.21E+01	4.47E+02
		75	1.66E+02	2.33E+02	3.53E+01	4.34E+02
		80	1.57E+02	2.27E+02	3.85E+01	4.23E+02
		85	1.48E+02	2.22E+02	4.18E+01	4.12E+02
		90	1.41E+02	2.17E+02	4.51E+01	4.03E+02
		95	1.34E+02	2.13E+02	4.67E+01	3.93E+02
		100	1.28E+02	2.08E+02	4.95E+01	3.85E+02

NUCLIDE OS190

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	4.90E+00	5	3.29E+03	1.96E+02	6.75E-01	3.49E+03
GG	9.50E-02	10	1.88E+03	2.60E+02	1.90E+00	2.14E+03
S0	2.00E-04	15	1.34E+03	2.88E+02	3.47E+00	1.63E+03
S1	8.00E-05	20	1.05E+03	3.10E+02	5.32E+00	1.37E+03
S2	1.00E-04	25	8.72E+02	3.23E+02	7.39E+00	1.20E+03
		30	7.46E+02	3.20E+02	9.66E+00	1.08E+03
		35	6.54E+02	3.22E+02	1.21E+01	9.88E+02
		40	5.82E+02	3.22E+02	1.47E+01	9.19E+02
		45	5.26E+02	3.20E+02	1.74E+01	8.63E+02
		50	4.80E+02	3.17E+02	2.03E+01	8.17E+02
		55	4.42E+02	3.14E+02	2.32E+01	7.78E+02
		60	4.09E+02	3.09E+02	2.63E+01	7.45E+02
		65	3.82E+02	3.05E+02	2.94E+01	7.16E+02
		70	3.58E+02	3.00E+02	3.26E+01	6.91E+02
		75	3.36E+02	2.96E+02	3.58E+01	6.68E+02
		80	3.18E+02	2.91E+02	3.91E+01	6.48E+02
		85	3.01E+02	2.86E+02	4.21E+01	6.29E+02
		90	2.86E+02	2.81E+02	4.54E+01	6.13E+02
		95	2.73E+02	2.77E+02	4.86E+01	5.98E+02
		100	2.61E+02	2.72E+02	5.19E+01	5.85E+02

NUCLIDE IR192

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	2.90E+00	5	3.96E+03	1.24E+02	3.42E-01	4.09E+03
GG	7.50E-02	10	2.29E+03	1.71E+02	9.63E-01	2.46E+03
S0	2.10E-04	15	1.65E+03	2.03E+02	1.76E+00	1.85E+03
S1	5.00E-05	20	1.30E+03	2.19E+02	2.70E+00	1.52E+03
S2	5.00E-05	25	1.08E+03	2.28E+02	3.75E+00	1.31E+03
		30	9.26E+02	2.38E+02	4.90E+00	1.17E+03
		35	8.13E+02	2.45E+02	6.15E+00	1.06E+03
		40	7.26E+02	2.51E+02	7.47E+00	9.84E+02
		45	6.56E+02	2.48E+02	8.86E+00	9.13E+02
		50	6.00E+02	2.50E+02	1.03E+01	8.60E+02
		55	5.53E+02	2.49E+02	1.18E+01	8.14E+02
		60	5.13E+02	2.49E+02	1.34E+01	7.75E+02
		65	4.79E+02	2.48E+02	1.50E+01	7.42E+02
		70	4.49E+02	2.47E+02	1.67E+01	7.13E+02
		75	4.23E+02	2.46E+02	1.84E+01	6.87E+02
		80	4.00E+02	2.44E+02	2.01E+01	6.64E+02
		85	3.79E+02	2.42E+02	2.19E+01	6.43E+02
		90	3.61E+02	2.40E+02	2.37E+01	6.24E+02
		95	3.44E+02	2.38E+02	2.55E+01	6.07E+02
		100	3.29E+02	2.35E+02	2.74E+01	5.92E+02

NUCLIDE IR194

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	7.70E+00	5	2.34E+03	1.24E+02	3.47E-01	2.46E+03
GG	8.70E-02	10	1.30E+03	1.64E+02	9.77E-01	1.47E+03
S0	2.00E-04	15	9.17E+02	1.81E+02	1.79E+00	1.10E+03
S1	5.00E-05	20	7.14E+02	1.93E+02	2.73E+00	9.10E+02
S2	5.00E-05	25	5.87E+02	1.96E+02	3.80E+00	7.87E+02
		30	5.00E+02	1.98E+02	4.97E+00	7.03E+02
		35	4.36E+02	1.99E+02	6.22E+00	6.41E+02
		40	3.87E+02	1.98E+02	7.55E+00	5.93E+02
		45	3.48E+02	1.97E+02	8.96E+00	5.54E+02
		50	3.17E+02	1.95E+02	1.04E+01	5.22E+02
		55	2.91E+02	1.92E+02	1.19E+01	4.95E+02
		60	2.69E+02	1.90E+02	1.35E+01	4.72E+02
		65	2.50E+02	1.87E+02	1.51E+01	4.52E+02
		70	2.34E+02	1.84E+02	1.68E+01	4.34E+02
		75	2.20E+02	1.80E+02	1.85E+01	4.19E+02
		80	2.07E+02	1.77E+02	2.01E+01	4.05E+02
		85	1.96E+02	1.74E+02	2.19E+01	3.92E+02
		90	1.86E+02	1.71E+02	2.36E+01	3.81E+02
		95	1.77E+02	1.68E+02	2.52E+01	3.71E+02
		100	1.69E+02	1.65E+02	2.68E+01	3.61E+02

NUCLIDE HG199

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	9.80E+01	5	7.15E+02	1.25E+02	3.59E-01	8.40E+02
GG	1.30E-01	10	3.81E+02	1.55E+02	1.01E+00	5.37E+02
S0	1.50E-04	15	2.62E+02	1.62E+02	1.85E+00	4.27E+02
S1	5.00E-05	20	2.01E+02	1.67E+02	2.83E+00	3.71E+02
S2	5.00E-05	25	1.63E+02	1.67E+02	3.93E+00	3.35E+02
		30	1.38E+02	1.65E+02	5.13E+00	3.08E+02
		35	1.19E+02	1.62E+02	6.43E+00	2.88E+02
		40	1.05E+02	1.58E+02	7.80E+00	2.71E+02
		45	9.42E+01	1.54E+02	9.25E+00	2.58E+02
		50	8.53E+01	1.50E+02	1.08E+01	2.46E+02
		55	7.80E+01	1.45E+02	1.23E+01	2.36E+02
		60	7.18E+01	1.41E+02	1.39E+01	2.27E+02
		65	6.66E+01	1.37E+02	1.56E+01	2.19E+02
		70	6.21E+01	1.33E+02	1.73E+01	2.13E+02
		75	5.82E+01	1.30E+02	1.90E+01	2.07E+02
		80	5.47E+01	1.26E+02	2.07E+01	2.01E+02
		85	5.17E+01	1.22E+02	2.25E+01	1.97E+02
		90	4.89E+01	1.19E+02	2.43E+01	1.92E+02
		95	4.65E+01	1.16E+02	2.61E+01	1.89E+02
		100	4.43E+01	1.13E+02	2.76E+01	1.85E+02

NUCLIDE HG200

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	8.20E+01	5	1.16E+03	1.24E+02	3.61E-01	1.28E+03
GG	3.00E-01	10	6.23E+02	1.53E+02	1.02E+00	7.77E+02
S0	2.10E-04	15	4.31E+02	1.63E+02	1.86E+00	5.96E+02
S1	5.00E-05	20	3.31E+02	1.67E+02	2.85E+00	5.01E+02
S2	5.00E-05	25	2.70E+02	1.68E+02	3.95E+00	4.42E+02
		30	2.28E+02	1.67E+02	5.17E+00	4.00E+02
		35	1.97E+02	1.65E+02	6.47E+00	3.68E+02
		40	1.74E+02	1.61E+02	7.85E+00	3.44E+02
		45	1.56E+02	1.58E+02	9.30E+00	3.23E+02
		50	1.42E+02	1.54E+02	1.08E+01	3.07E+02
		55	1.30E+02	1.50E+02	1.24E+01	2.92E+02
		60	1.20E+02	1.46E+02	1.40E+01	2.80E+02
		65	1.11E+02	1.43E+02	1.57E+01	2.69E+02
		70	1.03E+02	1.39E+02	1.74E+01	2.60E+02
		75	9.69E+01	1.36E+02	1.91E+01	2.52E+02
		80	9.12E+01	1.32E+02	2.08E+01	2.44E+02
		85	8.62E+01	1.29E+02	2.26E+01	2.38E+02
		90	8.17E+01	1.26E+02	2.44E+01	2.32E+02
		95	7.76E+01	1.23E+02	2.55E+01	2.26E+02
		100	7.39E+01	1.20E+02	2.69E+01	2.21E+02

NUCLIDE HG201

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	1.30E+03	5	2.59E+02	1.05E+02	3.64E-01	3.64E+02
GG	5.00E-01	10	1.33E+02	1.14E+02	1.02E+00	2.49E+02
S0	2.10E-04	15	9.03E+01	1.12E+02	1.87E+00	2.04E+02
S1	5.00E-05	20	6.84E+01	1.06E+02	2.86E+00	1.77E+02
S2	5.00E-05	25	5.52E+01	9.95E+01	3.97E+00	1.59E+02
		30	4.62E+01	9.33E+01	5.17E+00	1.45E+02
		35	3.98E+01	8.77E+01	6.46E+00	1.34E+02
		40	3.50E+01	8.25E+01	7.82E+00	1.25E+02
		45	3.12E+01	7.79E+01	9.23E+00	1.18E+02
		50	2.82E+01	7.37E+01	1.07E+01	1.13E+02
		55	2.57E+01	6.99E+01	1.22E+01	1.08E+02
		60	2.36E+01	6.65E+01	1.34E+01	1.03E+02
		65	2.18E+01	6.34E+01	1.47E+01	9.99E+01
		70	2.03E+01	6.05E+01	1.60E+01	9.68E+01
		75	1.90E+01	5.79E+01	1.64E+01	9.33E+01
		80	1.78E+01	5.56E+01	1.75E+01	9.09E+01
		85	1.68E+01	5.34E+01	1.86E+01	8.87E+01
		90	1.59E+01	5.13E+01	1.96E+01	8.68E+01
		95	1.51E+01	4.94E+01	2.06E+01	8.51E+01
		100	1.43E+01	4.77E+01	2.15E+01	8.35E+01

NUCLIDE HG202

PARAMETERS		E	S-WAVE	P-WAVE	D-WAVE	TOTAL
D	1.05E+02	5	8.92E+02	1.19E+02	3.66E-01	1.01E+03
GG	3.50E-01	10	4.80E+02	1.39E+02	1.03E+00	6.19E+02
S0	1.50E-04	15	3.32E+02	1.40E+02	1.88E+00	4.74E+02
S1	5.00E-05	20	2.55E+02	1.39E+02	2.88E+00	3.97E+02
S2	5.00E-05	25	2.08E+02	1.36E+02	4.00E+00	3.48E+02
		30	1.76E+02	1.32E+02	5.21E+00	3.13E+02
		35	1.52E+02	1.27E+02	6.52E+00	2.86E+02
		40	1.35E+02	1.23E+02	7.89E+00	2.65E+02
		45	1.21E+02	1.18E+02	9.31E+00	2.48E+02
		50	1.09E+02	1.14E+02	1.08E+01	2.34E+02
		55	1.00E+02	1.10E+02	1.22E+01	2.22E+02
		60	9.22E+01	1.06E+02	1.37E+01	2.12E+02
		65	8.56E+01	1.02E+02	1.50E+01	2.03E+02
		70	7.98E+01	9.88E+01	1.64E+01	1.95E+02
		75	7.48E+01	9.56E+01	1.73E+01	1.88E+02
		80	7.04E+01	9.25E+01	1.86E+01	1.82E+02
		85	6.65E+01	8.96E+01	1.99E+01	1.76E+02
		90	6.30E+01	8.69E+01	2.11E+01	1.71E+02
		95	5.99E+01	8.44E+01	2.22E+01	1.67E+02
		100	5.71E+01	8.20E+01	2.34E+01	1.62E+02