

JAERI-Data/Code

99-039



JP9950515



TABLES AND GRAPHS OF CROSS SECTIONS FOR COMPOUND  
NUCLEUS FORMATION BY CHARGED PARTICLES

August 1999

Teruo SUGI\*, Tsuneo NAKAGAWA,  
Hiromitsu KAWASAKI\* and Shungo IJIMA\*

日本原子力研究所  
Japan Atomic Energy Research Institute

本レポートは、日本原子力研究所が不定期に公刊している研究報告書です。  
入手の間合わせは、日本原子力研究所研究情報部研究情報課（〒319-1195 茨城県那珂郡東海村）あて、お申し越しください。なお、このほかに財団法人原子力弘済会資料センター（〒319-1195 茨城県那珂郡東海村日本原子力研究所内）で複写による実費頒布をおこなっております。

This report is issued irregularly.

Inquiries about availability of the reports should be addressed to Research Information Division, Department of Intellectual Resources, Japan Atomic Energy Research Institute, Tokai-mura, Naka-gun, Ibaraki-ken, 319-1195, Japan.

© Japan Atomic Energy Research Institute, 1999

編集兼発行 日本原子力研究所

Tables and Graphs of Cross Sections for Compound  
Nucleus Formation by Charged Particles

Teruo SUGI\*<sup>1</sup>, Tsuneo NAKAGAWA, Hiromitsu KAWASAKI\*<sup>2</sup> and Shungo IIJIMA\*<sup>3</sup>

Department of Nuclear Energy System  
Tokai Research Establishment  
Japan Atomic Energy Research Institute  
Tokai-mura, Naka-gun, Ibaraki-ken

(Received July 6, 1999)

The cross sections for compound nucleus formation by charged particles, viz, p,  $\alpha$ , d, t and  $^3\text{He}$  were calculated using global optical model parameters. The target nuclei are the residuals of (n,p), (n, $\alpha$ ), (n,d), (n,t) and (n, $^3\text{He}$ ) reactions with the most abundant nuclei of elements from  $Z=5$  to 83. The incident energy ranges from 0 to 40 MeV. The results are presented in tables and graphs. The purposes of this calculation are to get an overall view of these compound nucleus formation cross sections and to use these cross sections as basic data for calculating the neutron induced charged particle emission cross sections.

Keywords: Compound Nucleus Formation Cross Sections, Charged Particle Incident Reaction, Optical Model Calculation, Optical Model Parameters

---

\*<sup>1</sup> Former address: Radioisotope and Nuclear Engineering School, Japan Atomic Energy Research Institute

\*<sup>2</sup> CRC Research Institute, Inc.

\*<sup>3</sup> Former address: Nuclear Engineering Laboratory, Toshiba Corporation (Deceased 1990)

荷電粒子による複合核形成断面積の表とグラフ

日本原子力研究所東海研究所エネルギーシステム研究部

杉 暉夫\*<sup>1</sup>・中川 庸雄・川崎 弘光\*<sup>2</sup>・飯島 俊吾\*<sup>3</sup>

(1999年7月6日受理)

荷電粒子、 $p$ 、 $\alpha$ 、 $d$ 、 $t$ 、 ${}^3\text{He}$ 、による複合核形成断面積を汎用光学模型パラメータを用いて計算した。標的核は、原子番号5から83の元素毎に最も天然存在比の大きい原子核の $(n,p)$ 、 $(n,\alpha)$ 、 $(n,d)$ 、 $(n,t)$ 、 $(n,{}^3\text{He})$ 反応で出来る残留核である。入射エネルギーの範囲は0から40 MeVとした。計算結果を表とグラフで示す。この計算の目的は、これらの複合核形成断面積の概要をつかむことと、中性子入射による荷電粒子放出反応断面積を計算するための基礎データとして使うことにある。

---

東海研究所：〒319-1195 茨城県那珂郡東海村白方白根2-4

\*<sup>1</sup> 元日本原子力研究所国際原子力総合研修センター東海研修センター

\*<sup>2</sup> (株)CRC 総合研究所

\*<sup>3</sup> 元(株)東芝原子力技術研究所(1990年死去)

Contents

1. Introduction .....	1
2. Optical Model Parameters .....	1
3. Tables of Compound Nucleus Formation Cross Sections .....	3
4. Graphs of Compound Nucleus Formation Cross Sections .....	3
Acknowledgements .....	4
References .....	5

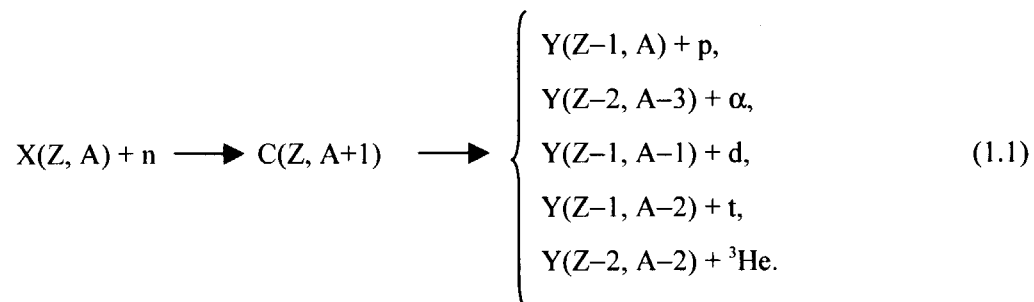
目次

1. はじめに .....	1
2. 光学モデルパラメータ .....	1
3. 複合核形成断面積の表 .....	3
4. 複合核形成断面積の図 .....	3
謝辞 .....	4
参考文献 .....	5

This is a blank page.

## 1. Introduction

The neutron induced charged particle emission process through compound or pre-compound nucleus formation proceeds as



For the calculation of these reaction cross sections with pre-compound and evaporation theory, the inverse cross sections to form the compound nucleus C are necessary. We calculated these cross sections, using spherical global optical potentials for the charged particles and the nuclei Y in Eq. (1.1). The results are presented in tabular and graphical forms. These cross sections are used as a database for the pre-equilibrium and multi-step evaporation theory code PEGASUS<sup>1)</sup>.

They are also useful in obtaining qualitative ideas of the magnitudes of the charged particle emission cross sections or the charged particle induced reaction cross sections.

## 2. Optical Model Parameters

Global optical model potentials were used for the calculation. The potential form is given by

$$U(r) = V_c - Vf(x_o) - i \left[ Wf(x_w) - 4W_D \frac{d}{dx_D} f(x_D) \right] + \left( \frac{\hbar}{m_\pi c} \right)^2 V_{so} (\sigma \cdot \ell) \frac{1}{r} \frac{d}{dr} f(x_{so}). \quad (2.1)$$

The same notations as in Perey's compilation<sup>2)</sup> are used:

$V_c$ : the Coulomb potential. The Hill-Ford<sup>3)</sup> charge distribution in nucleus is employed

for  $\alpha$ -particles. The uniform charge distribution in nucleus is assumed for the other particles.

$f(x_i)$ : the Woods-Saxon form factor given by

$$f(x_i) = (1 + e^{x_i})^{-1}, \quad (2.2)$$

$$\text{where } x_i = (r - R_i)/a_i, \quad (2.3)$$

$i$  is the index for the potential type in Eq. (2.1) and  $R_i = r_i A^{1/3}$ .

$V$ : the well depth of real potential [MeV] (Wood-Saxon type)

$r_o$ : the nuclear radius parameter of real potential [fm]

$a_o$ : the diffuseness parameter of real potential [fm]

$W$ : the well depth of imaginary volume type potential [MeV] (Woods-Saxon type)

$r_w$ : the nuclear radius parameter of imaginary volume type potential [fm]

$a_w$ : the diffuseness parameter of imaginary volume type potential [fm]

$W_D$ : the well depth of imaginary surface type potential [MeV] (derivative Wood-Saxon type)

$r_D$ : the nuclear radius parameter of imaginary surface type potential [fm]

$a_D$ : the diffuseness parameter of imaginary surface type potential [fm]

$V_{so}$ : the strength of spin-orbit potential [MeV] (Thomas-Fermi type)

$r_{so}$ : the nuclear radius parameter of spin-orbit potential [fm]

$a_{so}$ : the diffuseness parameter of spin-orbit potential [fm]

$$\left(\frac{\hbar}{m_\pi c}\right)^2: 2.0 \text{ [fm}^2\text{]}$$

$r_c$ : the Coulomb radius parameter [fm]

The adopted parameter values are summarized in Table 1.

The values of  $W$  for  $\alpha$  optical potential are given by Huizenga and Igo<sup>5)</sup> for several typical nuclides. For other nuclides the values were determined by linear interpolation, assuming  $W$  to be a function of neutron numbers  $N$ . Figure 1 shows the neutron number dependence of  $W$ .



### 3. Tables of Compound Nucleus Formation Cross Sections

The cross sections were calculated with the special version of ELIESE-3<sup>8)</sup> code, ELIESE-3I<sup>1)</sup> which can take into account the Hill-Ford charge distribution in the Coulomb potential for  $\alpha$ -particles.

For the calculation, the most abundant isotope of each element was selected as the target nucleus  $X(Z,A)$  in Eq. (1.1). Then, the compound nucleus  $C(Z,A+1)$  formation cross sections were calculated for the reactions of  $p+Y(Z-1, A)$ ,  $\alpha+Y(Z-2, A-3)$ ,  $d+Y(Z-1, A-1)$ ,  $t+Y(Z-1, A-2)$  and  ${}^3\text{He}+Y(Z-2, A-2)$ . For  $Z = 43$  (Tc) and  $Z = 61$  (Pm), the mass number  $A$  was set to 99 and 147, respectively, because they have no stable isotope.

For example, when  $Z=26$ , the most abundant mass number is 56 and Eq. (1.1) becomes

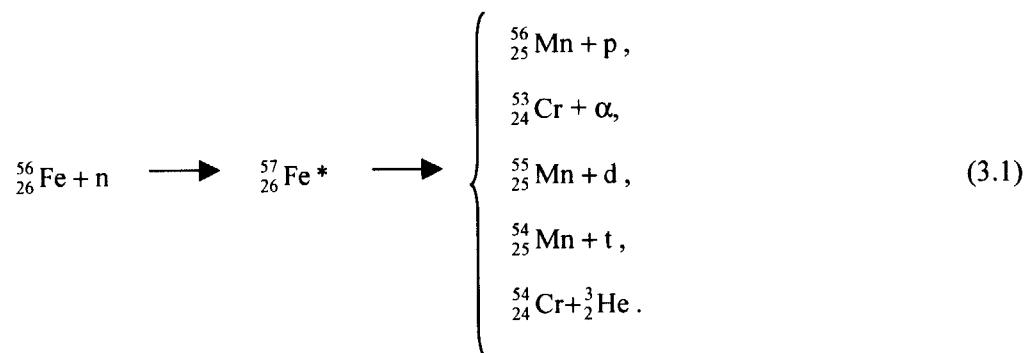


Table 2 shows all of the selected target nuclei  $X$  from  $Z=5$  to 83, the compound nuclei  $C$  and the residual nuclei  $Y$ .

The cross sections were calculated for 395 ( $=79 \times 5$ ) reactions at the incident charged particle energies from 0 to 40 MeV in the center-of-mass system. Results of the calculation are tabulated in Tables from 3-1 to 3-5 for  $p$ -,  $\alpha$ -,  $d$ -,  $t$ -,  ${}^3\text{He}$ -induced reaction, respectively. In each table, nuclei listed in the heading line are the nuclei  $Y$  in Eq. (1.1), namely the target nuclei of the charged particle induced reactions.

### 4. Graphs of Compound Nucleus Formation Cross Sections

A part of the calculated cross sections are also shown in Figs. 2 and 3 in the graphical form. In Figs. 2-1 to 2-5, the cross-section curves are given for every incident particle and several different targets.

In Fig.3, the compound nuclei are fixed and cross-section curves are given for different types of incident particles. The Coulomb barrier height  $E_B$  for each charged particle is indicated in Fig. 3-2.

$$E_B = \frac{CZ_1Z_2}{R_c} \text{ [MeV]}, \quad (4.1)$$

where  $Z_1$  is the charge of incident particle,  $Z_2$  the atomic number of the target,  $R_c$  the Coulomb radius of the target [fm] (see Table 1), and  $C$  is 1.4371 [MeV·fm]. It is seen from these graphs that there is always strong sub-Coulomb barrier penetration. The reason of this is explained from the fact that the Coulomb barrier height is lowered effectively by the superposition of the real part of the nuclear potential as shown in Fig.4.

## Acknowledgements

We used the special version of ELIESE-3 code, ELIESE-3I, which can take into account the Hill-Ford charge distribution in the Coulomb potential for  $\alpha$ -particles. The subroutines for the calculation of this potential were written by Drs. M. Kawai and H. Yamakoshi. The authors are much indebted to them. Also, we would like to thank Mr. I. Tasaki (CRC) for his contribution in calculation.

## References

- 1) T. Nakagawa, S. Iijima, T. Sugi and T. Nishigori: "PEGASUS: A Preequilibrium and Multi-Step Evaporation Code for Neutron Cross Section Calculation," *JAERI-Data/Code* 99-031 (1999).
- 2) C.M. Perey and F.G. Perey: *Atomic Data and Nuclear Data Tables* **17**, 1 (1976).
- 3) K.W. Ford and D.L. Hill: *Phys. Rev.* **94**, 1617 (1954).
- 4) F.G. Perey: *Phys. Rev.* **131**, 745 (1963).
- 5) J.R. Huizenga and G. Igo: *Nucl. Phys.* **29**, 462 (1962).
- 6) J.M. Lohr and W. Haeberli: *Nucl. Phys.* **A232**, 381 (1974).
- 7) F.D. Becchetti, Jr. and G.W. Greenlees: *Polarization Phenomena in Nuclear Reactions*, p.682, the Univ. of Wisconsin Press (1971).
- 8) S. Igarasi: "Program ELIESE-3; Program for Calculation of the Nuclear Cross Sections by Using Local and Non-Local Optical Models and Statistical Model," *JAERI* 1224 (1972).

Table 1 The adopted parameter values for the global optical model potentials

	proton	$\alpha$	deuteron	triton	He-3
	F.G. Perey <sup>4)</sup>	J.R. Huizenga and G. Igo <sup>5)</sup>	J.M. Lohr and W. Haebelri <sup>6)</sup>	F.D. Becchetti, Jr. and G.W. Greenlees <sup>7)</sup>	
Volume	$r_0$	$1.17+1.77/A^{1/3}$	1.05	1.20	1.20
Real	$a_0$	0.576	0.86	0.72	0.72
	$V$	50.0	$91.13+2.2 \frac{Z}{A^{1/3}}$	$165.0-0.17E-6.4 \frac{(N-Z)}{A}$	$151.9-0.17E+50 \frac{(N-Z)}{A}$
Volume		$1.17+1.77/A^{1/3}$		1.40	1.40
Imaginary		0.576		0.84	0.88
		see Fig. 1		$46.0-0.33E-110 \frac{(N-Z)}{A}$	$41.7-0.33E+44 \frac{(N-Z)}{A}$
Surface	$r_D$		1.43		
Imaginary	$a_D$		$0.50+0.013A^{2/3}$		
	$W_D$		$218/A^{2/3}$		
Spin-	$r_{s0}$		0.75	1.20	1.20
Orbit	$a_{s0}$		0.5	0.72	0.72
	$v_{s0}$		7.0	2.5	2.5
Coulomb	$r_c$	1.17	1.30	1.30	1.30
	$V_c$	Hill-Ford <sup>3)</sup> charge distribution	uniform charge distribution	uniform charge distribution	uniform charge distribution

Table 2 Selected target, compound and residual nuclides (see Eq.(1.1))

Z	Target X(Z,A)	Compound C(Z,A+1)	Residual nuclides					<sup>3</sup> He Y(Z-2,A-2)
			p Y(Z-1,A)	$\alpha$ Y(Z-2,A-3)	d Y(Z-1,A-1)	t Y(Z-1,A-2)		
5	B-11	B-12	Be-11	Li-8	Be-10	Be-9	Li-9	
6	C-12	C-13	B-12	Be-9	B-11	B-10	Be-10	
7	N-14	N-15	C-14	B-11	C-13	C-12	B-12	
8	O-16	O-17	N-16	C-13	N-15	N-14	C-14	
9	F-19	F-20	O-19	N-16	O-18	O-17	N-17	
10	Ne-20	Ne-21	F-20	O-17	F-19	F-18	O-18	
11	Na-23	Na-24	Ne-23	F-20	Ne-22	Ne-21	F-21	
12	Mg-24	Mg-25	Na-24	Ne-21	Na-23	Na-22	Ne-22	
13	Al-27	Al-28	Mg-27	Na-24	Mg-26	Mg-25	Na-25	
14	Si-28	Si-29	Al-28	Mg-25	Al-27	Al-26	Mg-26	
15	P-31	P-32	Si-31	Al-28	Si-30	Si-29	Al-29	
16	S-32	S-33	P-32	Si-29	P-31	P-30	Si-30	
17	Cl-35	Cl-36	S-35	P-32	S-34	S-33	P-33	
18	Ar-40	Ar-41	Cl-40	S-37	Cl-39	Cl-38	S-38	
19	K-39	K-40	Ar-39	Cl-36	Ar-38	Ar-37	Cl-37	
20	Ca-40	Ca-41	K-40	Ar-37	K-39	K-38	Ar-38	
21	Sc-45	Sc-46	Ca-45	K-42	Ca-44	Ca-43	K-43	
22	Ti-48	Ti-49	Sc-48	Ca-45	Sc-47	Sc-46	Ca-46	
23	V-51	V-52	Ti-51	Sc-48	Ti-50	Ti-49	Sc-49	
24	Cr-52	Cr-53	V-52	Ti-49	V-51	V-50	Ti-50	
25	Mn-55	Mn-56	Cr-55	V-52	Cr-54	Cr-53	V-53	
26	Fe-56	Fe-57	Mn-56	Cr-53	Mn-55	Mn-54	Cr-54	
27	Co-59	Co-60	Fe-59	Mn-56	Fe-58	Fe-57	Mn-57	
28	Ni-58	Ni-59	Co-58	Fe-55	Co-57	Co-56	Fe-56	
29	Cu-63	Cu-64	Ni-63	Co-60	Ni-62	Ni-61	Co-61	
30	Zn-64	Zn-65	Cu-64	Ni-61	Cu-63	Cu-62	Ni-62	
31	Ga-69	Ga-70	Zn-69	Cu-66	Zn-68	Zn-67	Cu-67	
32	Ge-74	Ge-75	Ga-74	Zn-71	Ga-73	Ga-72	Zn-72	
33	As-75	As-76	Ge-75	Ga-72	Ge-74	Ge-73	Ga-73	
34	Se-80	Se-81	As-80	Ge-77	As-79	As-78	Ge-78	
35	Br-79	Br-80	Se-79	As-76	Se-78	Se-77	As-77	
36	Kr-84	Kr-85	Br-84	Se-81	Br-83	Br-82	Se-82	
37	Rb-85	Rb-86	Kr-85	Br-82	Kr-84	Kr-83	Br-83	
38	Sr-88	Sr-89	Rb-88	Kr-85	Rb-87	Rb-86	Kr-86	
39	Y-89	Y-90	Sr-89	Rb-86	Sr-88	Sr-87	Rb-87	
40	Zr-90	Zr-91	Y-90	Sr-87	Y-89	Y-88	Sr-88	
41	Nb-93	Nb-94	Zr-93	Y-90	Zr-92	Zr-91	Y-91	
42	Mo-98	Mo-99	Nb-98	Zr-95	Nb-97	Nb-96	Zr-96	
43	Tc-99	Tc-100	Mo-99	Nb-96	Mo-98	Mo-97	Nb-97	
44	Ru-102	Ru-103	Tc-102	Mo-99	Tc-101	Tc-100	Mo-100	

Table 2 (continued)

Z	Target Compound		Residual nuclides					<sup>3</sup> He
	X(Z,A)	C(Z,A+1)	p Y(Z-1,A)	$\alpha$ Y(Z-2,A-3)	d Y(Z-1,A-1)	t Y(Z-1,A-2)	Y(Z-2,A-2)	
45	Rh-103	Rh-104	Ru-103	Tc-100	Ru-102	Ru-101	Tc-101	
46	Pd-106	Pd-107	Rh-106	Ru-103	Rh-105	Rh-104	Ru-104	
47	Ag-107	Ag-108	Pd-107	Rh-104	Pd-106	Pd-105	Rh-105	
48	Cd-114	Cd-115	Ag-114	Pd-111	Ag-113	Ag-112	Pd-112	
49	In-115	In-116	Cd-115	Ag-112	Cd-114	Cd-113	Ag-113	
50	Sn-120	Sn-121	In-120	Cd-117	In-119	In-118	Cd-118	
51	Sb-121	Sb-122	Sn-121	In-118	Sn-120	Sn-119	In-119	
52	Te-130	Te-131	Sb-130	Sn-127	Sb-129	Sb-128	Sn-128	
53	I-127	I-128	Te-127	Sb-124	Te-126	Te-125	Sb-125	
54	Xe-132	Xe-133	I-132	Te-129	I-131	I-130	Te-130	
55	Cs-133	Cs-134	Xe-133	I-130	Xe-132	Xe-131	I-131	
56	Ba-138	Ba-139	Cs-138	Xe-135	Cs-137	Cs-136	Xe-136	
57	La-139	La-140	Ba-139	Cs-136	Ba-138	Ba-137	Cs-137	
58	Ce-140	Ce-141	La-140	Ba-137	La-139	La-138	Ba-138	
59	Pr-141	Pr-142	Ce-141	La-138	Ce-140	Ce-139	La-139	
60	Nd-142	Nd-143	Pr-142	Ce-139	Pr-141	Pr-140	Ce-140	
61	Pm-147	Pm-148	Nd-147	Pr-144	Nd-146	Nd-145	Pr-145	
62	Sm-152	Sm-153	Pm-152	Nd-149	Pm-151	Pm-150	Nd-150	
63	Eu-153	Eu-154	Sm-153	Pm-150	Sm-152	Sm-151	Pm-151	
64	Gd-158	Gd-159	Eu-158	Sm-155	Eu-157	Eu-156	Sm-156	
65	Tb-159	Tb-160	Gd-159	Eu-156	Gd-158	Gd-157	Eu-157	
66	Dy-164	Dy-165	Tb-164	Gd-161	Tb-163	Tb-162	Gd-162	
67	Ho-165	Ho-166	Dy-165	Tb-162	Dy-164	Dy-163	Tb-163	
68	Er-166	Er-167	Ho-166	Dy-163	Ho-165	Ho-164	Dy-164	
69	Tm-169	Tm-170	Er-169	Ho-166	Er-168	Er-167	Ho-167	
70	Yb-174	Yb-175	Tm-174	Er-171	Tm-173	Tm-172	Er-172	
71	Lu-175	Lu-176	Yb-175	Tm-172	Yb-174	Yb-173	Tm-173	
72	Hf-180	Hf-181	Lu-180	Yb-177	Lu-179	Lu-178	Yb-178	
73	Ta-181	Ta-182	Hf-181	Lu-178	Hf-180	Hf-179	Lu-179	
74	W-184	W-185	Ta-184	Hf-181	Ta-183	Ta-182	Hf-182	
75	Re-187	Re-188	W-187	Ta-184	W-186	W-185	Ta-185	
76	Os-192	Os-193	Re-192	W-189	Re-191	Re-190	W-190	
77	Ir-193	Ir-194	Os-193	Re-190	Os-192	Os-191	Re-191	
78	Pt-195	Pt-196	Ir-195	Os-192	Ir-194	Ir-193	Os-193	
79	Au-197	Au-198	Pt-197	Ir-194	Pt-196	Pt-195	Ir-195	
80	Hg-202	Hg-203	Au-202	Pt-199	Au-201	Au-200	Pt-200	
81	Tl-205	Tl-206	Hg-205	Au-202	Hg-204	Hg-203	Au-203	
82	Pb-208	Pb-209	Tl-208	Hg-205	Tl-207	Tl-206	Hg-206	
83	Bi-209	Bi-210	Pb-209	Tl-206	Pb-208	Pb-207	Tl-207	

Table 3-1 Compound Nucleus Formation Cross Sections of p+Y(Z-1,A)

(unit: barns)

	ENERGY(MEV)	BE- 11	B - 12	C - 14	N - 16	O - 19	F - 20	NE- 23
1	5.0000E-02	5.7933E-05	1.4373E-06	2.6779E-08	4.7267E-10	7.0339E-12	1.3748E-13	2.4304E-15
2	1.0000E-01	4.0637E-03	3.6034E-04	2.4881E-05	1.6409E-06	9.7475E-08	6.9961E-09	4.7856E-10
3	2.0000E-01	6.3657E-02	1.4547E-02	2.5398E-03	4.2642E-04	6.5824E-05	1.2294E-05	2.1799E-06
4	4.0000E-01	2.9387E-01	1.3685E-01	4.7320E-02	1.5704E-02	4.9137E-03	1.7459E-03	6.1752E-04
5	6.0000E-01	4.5231E-01	2.8731E-01	1.3883E-01	6.4362E-02	2.8785E-02	1.3623E-02	6.6890E-03
6	8.0000E-01	5.3222E-01	3.9272E-01	2.3261E-01	1.3359E-01	7.6410E-02	4.2894E-02	2.6045E-02
7	1.0000E+00	5.7597E-01	4.5863E-01	3.1025E-01	2.0637E-01	1.4200E-01	8.9233E-02	6.3248E-02
8	1.2500E+00	6.1124E-01	5.1169E-01	3.8667E-01	2.9180E-01	2.3800E-01	1.6447E-01	1.3410E-01
9	1.5000E+00	6.3845E-01	5.5001E-01	4.4840E-01	3.6912E-01	3.3894E-01	2.5038E-01	2.2448E-01
10	1.7500E+00	6.6199E-01	5.8155E-01	5.0086E-01	4.3862E-01	4.3589E-01	3.3906E-01	3.2291E-01
11	2.0000E+00	6.8312E-01	6.0920E-01	5.4643E-01	5.0029E-01	5.2231E-01	4.2390E-01	4.1786E-01
12	2.5000E+00	7.1917E-01	6.5625E-01	6.2022E-01	5.9939E-01	6.5101E-01	5.6391E-01	5.6816E-01
13	3.0000E+00	7.4704E-01	6.9353E-01	6.7449E-01	6.6859E-01	7.2507E-01	6.5585E-01	6.5706E-01
14	3.5000E+00	7.6700E-01	7.2181E-01	7.1302E-01	7.1443E-01	7.6324E-01	7.0948E-01	7.0333E-01
15	4.0000E+00	7.7960E-01	7.4179E-01	7.3934E-01	7.4397E-01	7.8253E-01	7.3988E-01	7.2824E-01
16	5.0000E+00	7.8738E-01	7.6182E-01	7.6761E-01	7.7562E-01	8.0064E-01	7.7099E-01	7.5748E-01
17	6.0000E+00	7.8182E-01	7.6553E-01	7.7922E-01	7.9144E-01	8.1248E-01	7.8989E-01	7.8169E-01
18	7.0000E+00	7.7305E-01	7.6365E-01	7.8553E-01	8.0195E-01	8.2220E-01	8.0457E-01	8.0373E-01
19	9.0000E+00	7.5948E-01	7.5863E-01	7.8980E-01	8.0874E-01	8.2985E-01	8.1986E-01	8.3478E-01
20	1.2000E+01	7.3166E-01	7.3584E-01	7.6498E-01	7.8576E-01	8.2166E-01	8.1957E-01	8.5698E-01
21	1.5000E+01	6.8890E-01	6.9640E-01	7.2847E-01	7.5827E-01	8.1105E-01	8.1343E-01	8.5755E-01
22	1.8000E+01	6.4999E-01	6.6097E-01	6.9959E-01	7.3580E-01	7.9136E-01	7.9597E-01	8.3825E-01
23	2.2000E+01	6.1097E-01	6.2475E-01	6.6632E-01	7.0280E-01	7.5597E-01	7.6303E-01	8.0972E-01
24	3.0000E+01	5.5074E-01	5.6574E-01	6.0553E-01	6.4204E-01	6.9816E-01	7.0813E-01	7.5795E-01
25	4.0000E+01	4.9547E-01	5.1130E-01	5.5031E-01	5.8631E-01	6.4032E-01	6.5147E-01	7.0002E-01
	ENERGY(MEV)	NA- 24	MG- 27	AL- 28	SI- 31	P - 32	S - 35	CL- 40
1	5.0000E-02	4.3254E-17	7.2944E-19	1.1748E-20	1.7813E-22	1.0956E-24	3.3458E-26	3.0097E-28
2	1.0000E-01	3.2882E-11	2.3969E-12	1.5602E-13	1.1035E-14	4.3570E-16	4.5898E-17	2.9765E-18
3	2.0000E-01	3.8022E-07	7.1397E-08	1.1903E-08	2.1610E-09	2.5495E-10	5.9471E-11	9.8671E-12
4	4.0000E-01	2.0454E-04	7.4862E-05	2.3730E-05	8.2626E-06	2.1096E-06	8.3046E-07	2.6451E-07
5	6.0000E-01	2.9368E-03	1.4512E-03	6.1072E-04	2.8265E-04	1.0124E-04	5.0077E-05	2.1211E-05
6	8.0000E-01	1.3523E-02	8.0089E-03	3.9912E-03	2.1806E-03	9.5438E-04	5.3984E-04	2.7047E-04
7	1.0000E+00	3.6833E-02	2.4687E-02	1.3824E-02	8.4298E-03	4.2277E-03	2.6175E-03	1.4702E-03
8	1.2500E+00	8.6627E-02	6.4640E-02	4.0290E-02	2.6993E-02	1.5299E-02	1.0264E-02	6.3918E-03
9	1.5000E+00	1.5688E-01	1.2580E-01	8.5210E-02	6.0956E-02	3.7877E-02	2.6970E-02	1.8181E-02
10	1.7500E+00	2.4053E-01	2.0221E-01	1.4667E-01	1.1003E-01	7.3600E-02	5.4964E-02	3.9573E-02
11	2.0000E+00	3.2839E-01	2.8445E-01	2.1861E-01	1.7004E-01	1.2095E-01	9.4023E-02	7.1707E-02
12	2.5000E+00	4.8464E-01	4.3297E-01	3.6373E-01	2.9841E-01	2.3363E-01	1.9405E-01	1.6340E-01
13	3.0000E+00	5.9080E-01	5.3610E-01	4.7708E-01	4.0796E-01	3.4187E-01	2.9923E-01	2.7382E-01
14	3.5000E+00	6.5243E-01	5.9983E-01	5.5221E-01	4.8974E-01	4.3019E-01	3.9254E-01	3.8554E-01
15	4.0000E+00	6.8772E-01	6.4137E-01	6.0177E-01	5.5186E-01	5.0106E-01	4.7253E-01	4.9146E-01
16	5.0000E+00	7.2790E-01	6.9989E-01	6.6860E-01	6.4829E-01	6.1397E-01	6.0608E-01	6.7000E-01
17	6.0000E+00	7.5783E-01	7.4813E-01	7.2156E-01	7.2528E-01	7.0290E-01	7.1043E-01	7.8307E-01
18	7.0000E+00	7.8421E-01	7.8894E-01	7.6657E-01	7.8453E-01	7.6905E-01	7.8373E-01	8.4121E-01
19	9.0000E+00	8.2250E-01	8.4550E-01	8.3066E-01	8.5792E-01	8.4761E-01	8.6363E-01	8.9332E-01
20	1.2000E+01	8.5211E-01	8.8683E-01	8.7962E-01	9.0556E-01	8.9728E-01	9.1340E-01	9.4369E-01
21	1.5000E+01	8.5706E-01	8.9020E-01	8.8794E-01	9.1387E-01	9.1046E-01	9.3282E-01	9.8205E-01
22	1.8000E+01	8.4075E-01	8.7705E-01	8.7836E-01	9.1239E-01	9.1502E-01	9.4353E-01	9.9886E-01
23	2.2000E+01	8.1540E-01	8.5941E-01	8.6361E-01	9.0244E-01	9.0686E-01	9.3756E-01	9.9229E-01
24	3.0000E+01	7.6614E-01	8.1004E-01	8.1693E-01	8.5662E-01	8.6537E-01	8.9944E-01	9.6352E-01
25	4.0000E+01	7.0976E-01	7.5383E-01	7.6237E-01	8.0265E-01	8.1349E-01	8.4773E-01	9.1169E-01

Table 3-1 (continued)

	ENERGY(MEV)	AR- 39	K - 40	CA- 45	SC- 48							
1	1.0000E-01	1.7602E-19	1.0505E-20	6.6542E-22	4.1698E-23							
2	2.0000E-01	1.5327E-12	2.3984E-13	3.8913E-14	6.3619E-15							
3	4.0000E-01	7.8200E-08	2.3401E-08	7.3572E-09	2.3199E-09							
4	6.0000E-01	8.3402E-06	3.3254E-06	1.3981E-06	5.9073E-07							
5	8.0000E-01	1.2608E-04	5.9657E-05	2.9849E-05	1.5036E-05							
6	1.0000E+00	7.6949E-04	4.0940E-04	2.3089E-04	1.3135E-04							
7	1.2500E+00	3.7089E-03	2.1928E-03	1.3800E-03	8.7721E-04							
8	1.5000E+00	1.1379E-02	7.2799E-03	4.9866E-03	3.4481E-03							
9	1.7500E+00	2.6266E-02	1.7893E-02	1.3149E-02	9.7297E-03							
10	2.0000E+00	4.9914E-02	3.5828E-02	2.8000E-02	2.1920E-02							
11	2.5000E+00	1.2236E-01	9.5494E-02	8.2874E-02	7.0897E-02							
12	3.0000E+00	2.1544E-01	1.7897E-01	1.6882E-01	1.5345E-01							
13	3.5000E+00	3.1218E-01	2.7094E-01	2.7207E-01	2.5652E-01							
14	4.0000E+00	4.0419E-01	3.6108E-01	3.7918E-01	3.6463E-01							
15	5.0000E+00	5.6810E-01	5.2515E-01	5.7357E-01	5.5897E-01							
16	6.0000E+00	6.9477E-01	6.5747E-01	7.0763E-01	6.9038E-01							
17	7.0000E+00	7.7710E-01	7.4796E-01	7.8169E-01	7.6460E-01							
18	9.0000E+00	8.5815E-01	8.4039E-01	8.5526E-01	8.5023E-01							
19	1.2000E+01	9.1410E-01	9.0401E-01	9.3364E-01	9.4794E-01							
20	1.5000E+01	9.4892E-01	9.4323E-01	9.8984E-01	1.0086E+00							
21	1.8000E+01	9.6930E-01	9.6675E-01	1.0139E+00	1.0326E+00							
22	2.2000E+01	9.6685E-01	9.6741E-01	1.0188E+00	1.0440E+00							
23	3.0000E+01	9.3875E-01	9.4283E-01	1.0012E+00	1.0293E+00							
24	4.0000E+01	8.8980E-01	8.9589E-01	9.5533E-01	9.8583E-01							
<hr/>												
	ENERGY(MEV)	TI- 51	V - 52	CR- 55	MN- 56	FE- 59	CO- 58	NI- 63				
1	1.5000E+00	2.4268E-03	1.4595E-03	1.0161E-03	6.0261E-04	4.1189E-04	2.0994E-04	1.6163E-04				
2	1.7500E+00	7.3029E-03	4.6646E-03	3.4512E-03	2.1750E-03	1.5751E-03	8.5411E-04	6.9480E-04				
3	2.0000E+00	1.7336E-02	1.1642E-02	9.0396E-03	5.9903E-03	4.5385E-03	2.5945E-03	2.1984E-03				
4	2.2500E+00	3.4634E-02	2.4309E-02	1.9622E-02	1.3585E-02	1.0666E-02	6.3975E-03	5.5834E-03				
5	2.5000E+00	6.0607E-02	4.4303E-02	3.6896E-02	2.6590E-02	2.1478E-02	1.3495E-02	1.2015E-02				
6	2.7500E+00	9.5408E-02	7.2464E-02	6.1863E-02	4.6304E-02	3.8261E-02	2.5193E-02	2.2696E-02				
7	3.0000E+00	1.3780E-01	1.0848E-01	9.4422E-02	7.3261E-02	6.1652E-02	4.2593E-02	3.8571E-02				
8	3.5000E+00	2.3667E-01	1.9801E-01	1.7693E-01	1.4626E-01	1.2650E-01	9.6132E-02	8.6829E-02				
9	4.0000E+00	3.4119E-01	2.9812E-01	2.7072E-01	2.3456E-01	2.0711E-01	1.7048E-01	1.5316E-01				
10	4.5000E+00	4.4125E-01	3.9737E-01	3.6513E-01	3.2675E-01	2.9361E-01	2.5552E-01	2.3001E-01				
11	5.0000E+00	5.3011E-01	4.8824E-01	4.5324E-01	4.1514E-01	3.7899E-01	3.4211E-01	3.1071E-01				
12	5.5000E+00	6.0358E-01	5.6566E-01	5.3025E-01	4.9437E-01	4.5799E-01	4.2376E-01	3.8985E-01				
13	6.0000E+00	6.6133E-01	6.2797E-01	5.9444E-01	5.6174E-01	5.2771E-01	4.9623E-01	4.6359E-01				
14	7.0000E+00	7.4166E-01	7.1554E-01	6.9118E-01	6.6403E-01	6.4057E-01	6.0956E-01	5.9086E-01				
15	8.0000E+00	7.9893E-01	7.7652E-01	7.6521E-01	7.4098E-01	7.3176E-01	6.9301E-01	6.9834E-01				
16	9.0000E+00	8.4860E-01	8.2829E-01	8.2947E-01	8.0717E-01	8.1053E-01	7.6297E-01	7.9066E-01				
17	1.0000E+01	8.9333E-01	8.7497E-01	8.8489E-01	8.6487E-01	8.7570E-01	8.2469E-01	8.6429E-01				
18	1.2000E+01	9.6424E-01	9.5020E-01	9.6544E-01	9.5064E-01	9.6328E-01	9.2030E-01	9.5702E-01				
19	1.4000E+01	1.0098E+00	9.9975E-01	1.0130E+00	1.0026E+00	1.0122E+00	9.8086E-01	1.0081E+00				
20	1.7000E+01	1.0433E+00	1.0376E+00	1.0513E+00	1.0450E+00	1.0571E+00	1.0319E+00	1.0613E+00				
21	2.0000E+01	1.0601E+00	1.0572E+00	1.0766E+00	1.0730E+00	1.0908E+00	1.0651E+00	1.1028E+00				
22	3.0000E+01	1.0559E+00	1.0581E+00	1.0834E+00	1.0850E+00	1.1093E+00	1.0879E+00	1.1336E+00				
23	4.0000E+01	1.0150E+00	1.0194E+00	1.0472E+00	1.0511E+00	1.0778E+00	1.0587E+00	1.1068E+00				



Table 3-1 (continued)

	ENERGY (MEV)	CU- 64	ZN- 69	GA- 74	GE- 75	AS- 80	SE- 79	BR- 84
1	1.5000E+00	9.4327E-05	6.6625E-05	4.1714E-05	2.4786E-05	1.4739E-05	8.7275E-06	5.1777E-06
2	1.7500E+00	4.3138E-04	3.1848E-04	2.0889E-04	1.3217E-04	8.3264E-05	5.2482E-05	3.3087E-05
3	2.0000E+00	1.4364E-03	1.0938E-03	7.4377E-04	4.9529E-04	3.2735E-04	2.1683E-04	1.4384E-04
4	2.2500E+00	3.8113E-03	2.9650E-03	2.0761E-03	1.4431E-03	9.9471E-04	6.8580E-04	4.7561E-04
5	2.5000E+00	8.5276E-03	6.7302E-03	4.8360E-03	3.4871E-03	2.4971E-03	1.7786E-03	1.2841E-03
6	2.7500E+00	1.6698E-02	1.3309E-02	9.7978E-03	7.2943E-03	5.4165E-03	3.9610E-03	2.9697E-03
7	3.0000E+00	2.9352E-02	2.3565E-02	1.7779E-02	1.3614E-02	1.0475E-02	7.8244E-03	6.0819E-03
8	3.5000E+00	7.0231E-02	5.7274E-02	4.5592E-02	3.6584E-02	3.0214E-02	2.3251E-02	1.9383E-02
9	4.0000E+00	1.3009E-01	1.0876E-01	9.1838E-02	7.6421E-02	6.7627E-02	5.2976E-02	4.7227E-02
10	4.5000E+00	2.0233E-01	1.7486E-01	1.5637E-01	1.3392E-01	1.2599E-01	1.0001E-01	9.4628E-02
11	5.0000E+00	2.8021E-01	2.5075E-01	2.3545E-01	2.0658E-01	2.0367E-01	1.6429E-01	1.6271E-01
12	5.5000E+00	3.5822E-01	3.3108E-01	3.2282E-01	2.8927E-01	2.9380E-01	2.4224E-01	2.4676E-01
13	6.0000E+00	4.3220E-01	4.1111E-01	4.1196E-01	3.7585E-01	3.8734E-01	3.2778E-01	3.3782E-01
14	7.0000E+00	5.6135E-01	5.6094E-01	5.7992E-01	5.4326E-01	5.6074E-01	4.9884E-01	5.1113E-01
15	8.0000E+00	6.7031E-01	6.9307E-01	7.2134E-01	6.8818E-01	7.0104E-01	6.4849E-01	6.5371E-01
16	9.0000E+00	7.6473E-01	8.0051E-01	8.2567E-01	7.9858E-01	8.0335E-01	7.6368E-01	7.6148E-01
17	1.0000E+01	8.4177E-01	8.7723E-01	8.9436E-01	8.7308E-01	8.7407E-01	8.4339E-01	8.3979E-01
18	1.2000E+01	9.4158E-01	9.6374E-01	9.7595E-01	9.6085E-01	9.7251E-01	9.4254E-01	9.5428E-01
19	1.4000E+01	9.9702E-01	1.0165E+00	1.0385E+00	1.0258E+00	1.0532E+00	1.0185E+00	1.0464E+00
20	1.7000E+01	1.0538E+00	1.0840E+00	1.1170E+00	1.1077E+00	1.1383E+00	1.1090E+00	1.1368E+00
21	2.0000E+01	1.0978E+00	1.1322E+00	1.1634E+00	1.1574E+00	1.1846E+00	1.1620E+00	1.1871E+00
22	3.0000E+01	1.1342E+00	1.1769E+00	1.2155E+00	1.2151E+00	1.2503E+00	1.2319E+00	1.2658E+00
23	4.0000E+01	1.1099E+00	1.1549E+00	1.1974E+00	1.1996E+00	1.2401E+00	1.2229E+00	1.2622E+00
	ENERGY (MEV)	KR- 85	RB- 88	SR- 89	Y - 90	ZR- 93	NB- 98	MO- 99
1	1.5000E+00	3.0476E-06	1.8045E-06	1.0539E-06	6.1388E-07	3.6191E-07	2.2376E-07	1.2814E-07
2	1.7500E+00	2.0684E-05	1.3045E-05	8.0885E-06	5.0031E-06	3.1414E-06	2.0804E-06	1.2635E-06
3	2.0000E+00	9.4385E-05	6.2705E-05	4.0793E-05	2.6479E-05	1.7505E-05	1.2279E-05	7.8185E-06
4	2.2500E+00	3.2480E-04	2.2552E-04	1.5263E-04	1.0309E-04	7.1205E-05	5.2479E-05	3.4741E-05
5	2.5000E+00	9.0689E-04	6.5447E-04	4.5789E-04	3.1976E-04	2.2944E-04	1.7662E-04	1.2081E-04
6	2.7500E+00	2.1584E-03	1.6122E-03	1.1604E-03	8.3374E-04	6.1878E-04	4.9521E-04	3.4836E-04
7	3.0000E+00	4.5319E-03	3.4927E-03	2.5762E-03	1.8973E-03	1.4515E-03	1.2032E-03	8.6732E-04
8	3.5000E+00	1.5052E-02	1.2265E-02	9.4216E-03	7.2276E-03	5.8322E-03	5.1389E-03	3.8588E-03
9	4.0000E+00	3.7929E-02	3.2434E-02	2.5756E-02	2.0420E-02	1.7251E-02	1.5979E-02	1.2417E-02
10	4.5000E+00	7.8275E-02	6.9752E-02	5.7041E-02	4.6532E-02	4.0895E-02	3.9339E-02	3.1546E-02
11	5.0000E+00	1.3844E-01	1.2750E-01	1.0728E-01	8.9906E-02	8.1635E-02	8.0377E-02	6.6522E-02
12	5.5000E+00	2.1585E-01	2.0352E-01	1.7624E-01	1.5177E-01	1.4126E-01	1.4017E-01	1.1986E-01
13	6.0000E+00	3.0316E-01	2.9001E-01	2.5816E-01	2.2835E-01	2.1611E-01	2.1347E-01	1.8842E-01
14	7.0000E+00	4.7654E-01	4.6085E-01	4.2804E-01	3.9561E-01	3.7986E-01	3.6812E-01	3.4085E-01
15	8.0000E+00	6.2335E-01	6.0474E-01	5.7547E-01	5.4604E-01	5.2687E-01	5.0771E-01	4.8173E-01
16	9.0000E+00	7.3620E-01	7.1759E-01	6.9255E-01	6.6725E-01	6.4761E-01	6.2920E-01	6.0469E-01
17	1.0000E+01	8.1865E-01	8.0366E-01	7.8211E-01	7.6043E-01	7.4412E-01	7.3414E-01	7.1094E-01
18	1.2000E+01	9.3685E-01	9.3483E-01	9.1647E-01	8.9821E-01	8.9477E-01	8.9104E-01	8.8924E-01
19	1.4000E+01	1.0316E+00	1.0381E+00	1.0227E+00	1.0071E+00	1.0121E+00	1.0352E+00	1.0189E+00
20	1.7000E+01	1.1268E+00	1.1333E+00	1.1231E+00	1.1128E+00	1.1177E+00	1.1346E+00	1.1240E+00
21	2.0000E+01	1.1804E+00	1.1884E+00	1.1813E+00	1.1740E+00	1.1811E+00	1.2034E+00	1.1952E+00
22	3.0000E+01	1.2646E+00	1.2805E+00	1.2790E+00	1.2773E+00	1.2926E+00	1.3247E+00	1.3224E+00
23	4.0000E+01	1.2637E+00	1.2833E+00	1.2846E+00	1.2858E+00	1.3045E+00	1.3397E+00	1.3403E+00

Table 3-1 (continued)

	ENERGY (MEV)	TC-102	RU-103	RH-106	PD-107	AG-114		
1	1.5000E+00	7.7021E-08	4.3789E-08	2.6313E-08	1.4863E-08	1.0426E-08		
2	1.7500E+00	8.0951E-07	4.8817E-07	3.1252E-07	1.8725E-07	1.4046E-07		
3	2.0000E+00	5.2767E-06	3.3362E-06	2.2490E-06	1.4128E-06	1.1189E-06		
4	2.2500E+00	2.4493E-05	1.6101E-05	1.1332E-05	7.4029E-06	6.1312E-06		
5	2.5000E+00	8.8416E-05	6.0064E-05	4.3854E-05	2.9610E-05	2.5452E-05		
6	2.7500E+00	2.6335E-04	1.8401E-04	1.3868E-04	9.6333E-05	8.5403E-05		
7	3.0000E+00	6.7458E-04	4.8308E-04	3.7429E-04	2.6651E-04	2.4238E-04		
8	3.5000E+00	3.1474E-03	2.3488E-03	1.9052E-03	1.4143E-03	1.3347E-03		
9	4.0000E+00	1.0516E-02	8.1232E-03	6.8289E-03	5.2492E-03	5.0543E-03		
10	4.5000E+00	2.7519E-02	2.1934E-02	1.8960E-02	1.5037E-02	1.4548E-02		
11	5.0000E+00	5.9359E-02	4.8806E-02	4.3099E-02	3.5243E-02	3.3806E-02		
12	5.5000E+00	1.0875E-01	9.2333E-02	8.2853E-02	6.9899E-02	6.5910E-02		
13	6.0000E+00	1.7307E-01	1.5167E-01	1.3782E-01	1.1995E-01	1.1111E-01		
14	7.0000E+00	3.1870E-01	2.9357E-01	2.7228E-01	2.4941E-01	2.2909E-01		
15	8.0000E+00	4.5744E-01	4.3253E-01	4.0877E-01	3.8499E-01	3.6478E-01		
16	9.0000E+00	5.8297E-01	5.5861E-01	5.3727E-01	5.1315E-01	5.0610E-01		
17	1.0000E+01	6.9515E-01	6.7146E-01	6.5584E-01	6.3176E-01	6.4328E-01		
18	1.2000E+01	8.8681E-01	8.6496E-01	8.6178E-01	8.3931E-01	8.7333E-01		
19	1.4000E+01	1.0204E+00	1.0038E+00	1.0040E+00	9.8716E-01	1.0140E+00		
20	1.7000E+01	1.1264E+00	1.1156E+00	1.1177E+00	1.1065E+00	1.1378E+00		
21	2.0000E+01	1.2027E+00	1.1940E+00	1.2015E+00	1.1925E+00	1.2338E+00		
22	3.0000E+01	1.3366E+00	1.3340E+00	1.3473E+00	1.3444E+00	1.3856E+00		
23	4.0000E+01	1.3574E+00	1.3578E+00	1.3742E+00	1.3744E+00	1.4210E+00		
<hr/>								
	ENERGY (MEV)	CD-115	IN-120	SN-121	SB-130	TE-127	I -132	XE-133
1	5.0000E+00	2.7881E-02	2.4062E-02	1.9880E-02	1.6810E-02	1.3803E-02	1.1476E-02	9.4452E-03
2	5.2500E+00	4.0357E-02	3.4909E-02	2.9275E-02	2.4924E-02	2.0736E-02	1.7424E-02	1.4516E-02
3	5.5000E+00	5.6104E-02	4.8675E-02	4.1404E-02	3.5603E-02	2.9926E-02	2.5442E-02	2.1437E-02
4	5.7500E+00	7.5163E-02	6.5481E-02	5.6453E-02	4.9193E-02	4.1657E-02	3.5874E-02	3.0544E-02
5	6.0000E+00	9.7360E-02	8.5300E-02	7.4463E-02	6.5979E-02	5.6131E-02	4.9024E-02	4.2147E-02
6	6.2500E+00	1.2235E-01	1.0798E-01	9.5342E-02	8.6165E-02	7.3462E-02	6.5139E-02	5.6504E-02
7	6.5000E+00	1.4967E-01	1.3329E-01	1.1889E-01	1.0987E-01	9.3673E-02	8.4397E-02	7.3813E-02
8	6.7500E+00	1.7886E-01	1.6097E-01	1.4487E-01	1.3709E-01	1.1672E-01	1.0690E-01	9.4203E-02
9	7.0000E+00	2.0950E-01	1.9074E-01	1.7300E-01	1.6775E-01	1.4249E-01	1.3266E-01	1.1773E-01
10	7.5000E+00	2.7391E-01	2.5561E-01	2.3476E-01	2.3838E-01	2.0161E-01	1.9357E-01	1.7402E-01
11	8.0000E+00	3.4121E-01	3.2615E-01	3.0246E-01	3.1857E-01	2.6951E-01	2.6540E-01	2.4151E-01
12	8.5000E+00	4.1020E-01	4.0038E-01	3.7432E-01	4.0343E-01	3.4388E-01	3.4470E-01	3.1743E-01
13	9.0000E+00	4.7978E-01	4.7608E-01	4.4839E-01	4.8773E-01	4.2172E-01	4.2690E-01	3.9774E-01
14	9.5000E+00	5.4874E-01	5.5100E-01	5.2251E-01	5.6734E-01	4.9976E-01	5.0748E-01	4.7800E-01
15	1.0000E+01	6.1605E-01	6.2324E-01	5.9474E-01	6.4014E-01	5.7514E-01	5.8319E-01	5.5461E-01
16	1.1000E+01	7.4208E-01	7.5414E-01	7.2757E-01	7.6425E-01	7.1069E-01	7.1490E-01	6.8974E-01
17	1.2000E+01	8.5002E-01	8.6092E-01	8.3791E-01	8.6361E-01	8.2105E-01	8.2102E-01	7.9933E-01
18	1.3000E+01	9.3451E-01	9.4262E-01	9.2329E-01	9.4478E-01	9.0755E-01	9.0697E-01	8.8790E-01
19	1.4000E+01	9.9751E-01	1.0052E+00	9.8858E-01	1.0147E+00	9.7662E-01	9.7968E-01	9.6220E-01
20	1.5000E+01	1.0463E+00	1.0565E+00	1.0416E+00	1.0778E+00	1.0355E+00	1.0446E+00	1.0281E+00
21	1.7000E+01	1.1255E+00	1.1448E+00	1.1317E+00	1.1832E+00	1.1373E+00	1.1550E+00	1.1408E+00
22	1.9000E+01	1.1945E+00	1.2178E+00	1.2068E+00	1.2543E+00	1.2161E+00	1.2326E+00	1.2215E+00
23	2.1000E+01	1.2499E+00	1.2713E+00	1.2626E+00	1.3035E+00	1.2713E+00	1.2859E+00	1.2770E+00
24	2.4000E+01	1.3079E+00	1.3283E+00	1.3219E+00	1.3660E+00	1.3337E+00	1.3517E+00	1.3445E+00
25	2.7000E+01	1.3514E+00	1.3743E+00	1.3694E+00	1.4174E+00	1.3855E+00	1.4064E+00	1.4008E+00
26	3.0000E+01	1.3824E+00	1.4062E+00	1.4027E+00	1.4530E+00	1.4219E+00	1.4449E+00	1.4407E+00
27	3.5000E+01	1.4099E+00	1.4378E+00	1.4360E+00	1.4928E+00	1.4614E+00	1.4882E+00	1.4859E+00
28	4.0000E+01	1.4208E+00	1.4508E+00	1.4503E+00	1.5083E+00	1.4786E+00	1.5066E+00	1.5056E+00

Table 3-1 (continued)

	ENERGY(MEV)	CS-138	BA-139	LA-140	CE-141	PR-142	ND-147	PM-152
1	5.0000E+00	7.8644E-03	6.4356E-03	5.2575E-03	4.2870E-03	3.4884E-03	2.8943E-03	2.4382E-03
2	5.2500E+00	1.2259E-02	1.0143E-02	8.3797E-03	6.9112E-03	5.6893E-03	4.7838E-03	4.0957E-03
3	5.5000E+00	1.8375E-02	1.5359E-02	1.2820E-02	1.0686E-02	8.8914E-03	7.5797E-03	6.5955E-03
4	5.7500E+00	2.6594E-02	2.2439E-02	1.8911E-02	1.5917E-02	1.3376E-02	1.1567E-02	1.0229E-02
5	6.0000E+00	3.7302E-02	3.1751E-02	2.6997E-02	2.2929E-02	1.9448E-02	1.7068E-02	1.5340E-02
6	6.2500E+00	5.0860E-02	4.3647E-02	3.7421E-02	3.2049E-02	2.7417E-02	2.4433E-02	2.2312E-02
7	6.5000E+00	6.7586E-02	5.8451E-02	5.0503E-02	4.3594E-02	3.7591E-02	3.4028E-02	3.1559E-02
8	6.7500E+00	8.7730E-02	7.6434E-02	6.6527E-02	5.7849E-02	5.0255E-02	4.6213E-02	4.3502E-02
9	7.0000E+00	1.1144E-01	9.7791E-02	8.5716E-02	7.5056E-02	6.5660E-02	6.1324E-02	5.8533E-02
10	7.5000E+00	1.6957E-01	1.5090E-01	1.3407E-01	1.1895E-01	1.0542E-01	1.0136E-01	9.9045E-02
11	8.0000E+00	2.4046E-01	2.1703E-01	1.9544E-01	1.7566E-01	1.5762E-01	1.5518E-01	1.5405E-01
12	8.5000E+00	3.2009E-01	2.9309E-01	2.6759E-01	2.4367E-01	2.2139E-01	2.2147E-01	2.2148E-01
13	9.0000E+00	4.0289E-01	3.7413E-01	3.4629E-01	3.1954E-01	2.9403E-01	2.9640E-01	2.9644E-01
14	9.5000E+00	4.8351E-01	4.5479E-01	4.2640E-01	3.9851E-01	3.7132E-01	3.7454E-01	3.7296E-01
15	1.0000E+01	5.5846E-01	5.3099E-01	5.0344E-01	4.7593E-01	4.4860E-01	4.5081E-01	4.4638E-01
16	1.1000E+01	6.8795E-01	6.6400E-01	6.3974E-01	6.1519E-01	5.9038E-01	5.8732E-01	5.7737E-01
17	1.2000E+01	7.9428E-01	7.7319E-01	7.5192E-01	7.3045E-01	7.0874E-01	7.0189E-01	6.9087E-01
18	1.3000E+01	8.8434E-01	8.6510E-01	8.4584E-01	8.2653E-01	8.0713E-01	8.0109E-01	7.9388E-01
19	1.4000E+01	9.6402E-01	9.4582E-01	9.2770E-01	9.0965E-01	8.9165E-01	8.9045E-01	8.8989E-01
20	1.5000E+01	1.0366E+00	1.0192E+00	1.0018E+00	9.8456E-01	9.6737E-01	9.7260E-01	9.7844E-01
21	1.7000E+01	1.1558E+00	1.1413E+00	1.1267E+00	1.1119E+00	1.0971E+00	1.1090E+00	1.1189E+00
22	1.9000E+01	1.2344E+00	1.2233E+00	1.2121E+00	1.2007E+00	1.1891E+00	1.2000E+00	1.2099E+00
23	2.1000E+01	1.2903E+00	1.2810E+00	1.2717E+00	1.2624E+00	1.2530E+00	1.2655E+00	1.2798E+00
24	2.4000E+01	1.3632E+00	1.3555E+00	1.3478E+00	1.3400E+00	1.3322E+00	1.3508E+00	1.3707E+00
25	2.7000E+01	1.4218E+00	1.4159E+00	1.4099E+00	1.4038E+00	1.3977E+00	1.4180E+00	1.4380E+00
26	3.0000E+01	1.4638E+00	1.4594E+00	1.4548E+00	1.4502E+00	1.4455E+00	1.4676E+00	1.4886E+00
27	3.5000E+01	1.5111E+00	1.5085E+00	1.5059E+00	1.5032E+00	1.5005E+00	1.5236E+00	1.5453E+00
28	4.0000E+01	1.5325E+00	1.5313E+00	1.5301E+00	1.5288E+00	1.5275E+00	1.5525E+00	1.5768E+00
	ENERGY(MEV)	SM-153	EU-158	GD-159	TB-164	DY-165	HO-166	ER-169
1	5.0000E+00	1.9629E-03	1.6779E-03	1.3406E-03	1.1621E-03	9.2179E-04	7.3126E-04	6.0551E-04
2	5.2500E+00	3.3302E-03	2.8948E-03	2.3354E-03	2.0577E-03	1.6481E-03	1.3201E-03	1.1071E-03
3	5.5000E+00	5.4121E-03	4.7820E-03	3.8926E-03	3.4834E-03	2.8154E-03	2.2755E-03	1.9312E-03
4	5.7500E+00	8.4655E-03	7.5999E-03	6.2385E-03	5.6652E-03	4.6181E-03	3.7640E-03	3.2305E-03
5	6.0000E+00	1.2796E-02	1.1665E-02	9.6520E-03	8.8863E-03	7.3035E-03	6.0008E-03	5.2046E-03
6	6.2500E+00	1.8753E-02	1.7349E-02	1.4465E-02	1.3488E-02	1.1174E-02	9.2525E-03	8.1046E-03
7	6.5000E+00	2.6720E-02	2.5064E-02	2.1055E-02	1.9860E-02	1.6585E-02	1.3838E-02	1.2233E-02
8	6.7500E+00	3.7098E-02	3.5244E-02	2.9832E-02	2.8426E-02	2.3930E-02	2.0120E-02	1.7940E-02
9	7.0000E+00	5.0280E-02	4.8315E-02	4.1214E-02	3.9612E-02	3.3626E-02	2.8493E-02	2.5609E-02
10	7.5000E+00	8.6378E-02	8.4500E-02	7.3280E-02	7.1280E-02	6.1599E-02	5.3075E-02	4.8375E-02
11	8.0000E+00	1.3658E-01	1.3493E-01	1.1916E-01	1.1645E-01	1.0262E-01	9.0068E-02	8.3044E-02
12	8.5000E+00	1.9982E-01	1.9785E-01	1.7812E-01	1.7383E-01	1.5634E-01	1.3993E-01	1.3022E-01
13	9.0000E+00	2.7214E-01	2.6860E-01	2.4638E-01	2.3934E-01	2.1945E-01	2.0026E-01	1.8778E-01
14	9.5000E+00	3.4789E-01	3.4151E-01	3.1848E-01	3.0797E-01	2.8710E-01	2.6554E-01	2.5156E-01
15	1.0000E+01	4.2191E-01	4.1223E-01	3.8959E-01	3.7582E-01	3.5495E-01	3.3416E-01	3.1729E-01
16	1.1000E+01	5.5535E-01	5.4133E-01	5.2030E-01	5.0387E-01	4.8353E-01	4.6335E-01	4.4510E-01
17	1.2000E+01	6.7040E-01	6.5762E-01	6.3721E-01	6.2421E-01	6.0355E-01	5.8327E-01	5.6646E-01
18	1.3000E+01	7.7402E-01	7.6690E-01	7.4642E-01	7.4049E-01	7.1921E-01	6.9833E-01	6.8468E-01
19	1.4000E+01	8.7034E-01	8.7048E-01	8.5006E-01	8.5131E-01	8.3008E-01	8.0908E-01	7.9887E-01
20	1.5000E+01	9.5960E-01	9.6532E-01	9.4583E-01	9.5139E-01	9.3143E-01	9.1146E-01	9.0382E-01
21	1.7000E+01	1.1038E+00	1.1119E+00	1.0966E+00	1.1035E+00	1.0879E+00	1.0722E+00	1.0674E+00
22	1.9000E+01	1.1980E+00	1.2081E+00	1.1958E+00	1.2065E+00	1.1937E+00	1.1808E+00	1.1795E+00
23	2.1000E+01	1.2694E+00	1.2853E+00	1.2743E+00	1.2912E+00	1.2797E+00	1.2682E+00	1.2706E+00
24	2.4000E+01	1.3621E+00	1.3817E+00	1.3729E+00	1.3912E+00	1.3824E+00	1.3734E+00	1.3773E+00
25	2.7000E+01	1.4315E+00	1.4501E+00	1.4435E+00	1.4603E+00	1.4535E+00	1.4467E+00	1.4509E+00
26	3.0000E+01	1.4835E+00	1.5029E+00	1.4977E+00	1.5154E+00	1.5100E+00	1.5046E+00	1.5101E+00
27	3.5000E+01	1.5422E+00	1.5627E+00	1.5595E+00	1.5794E+00	1.5759E+00	1.5724E+00	1.5803E+00
28	4.0000E+01	1.5751E+00	1.5986E+00	1.5967E+00	1.6175E+00	1.6175E+00	1.6154E+00	1.6254E+00

Table 3-1 (continued)

	ENERGY (MEV)	TM-174	YB-175	LU-180	HF-181	TA-184	W -187	RE-192
1	5.0000E+00	5.2957E-04	4.1625E-04	3.6603E-04	2.8637E-04	2.3736E-04	1.9654E-04	1.7240E-04
2	5.2500E+00	9.8258E-04	7.8006E-04	6.9500E-04	5.4940E-04	4.6052E-04	3.8551E-04	3.4148E-04
3	5.5000E+00	1.7374E-03	1.3923E-03	1.2552E-03	1.0021E-03	8.4862E-04	7.1753E-04	6.4090E-04
4	5.7500E+00	2.9427E-03	2.3794E-03	2.1677E-03	1.7468E-03	1.4934E-03	1.2742E-03	1.1461E-03
5	6.0000E+00	4.7945E-03	3.9102E-03	3.5952E-03	2.9237E-03	2.5211E-03	2.1689E-03	1.9622E-03
6	6.2500E+00	7.5407E-03	6.2020E-03	5.7472E-03	4.7157E-03	4.0983E-03	3.5526E-03	3.2285E-03
7	6.5000E+00	1.1481E-02	9.5222E-03	8.8813E-03	7.3523E-03	6.4355E-03	5.6169E-03	5.1217E-03
8	6.7500E+00	1.6960E-02	1.4186E-02	1.3299E-02	1.1108E-02	9.7864E-03	8.5950E-03	7.8554E-03
9	7.0000E+00	2.4351E-02	2.0545E-02	1.9331E-02	1.6294E-02	1.4441E-02	1.2756E-02	1.1674E-02
10	7.5000E+00	4.6323E-02	3.9803E-02	3.7582E-02	3.2286E-02	2.8917E-02	2.5802E-02	2.3627E-02
11	8.0000E+00	7.9619E-02	6.9781E-02	6.5830E-02	5.7700E-02	5.2157E-02	4.6968E-02	4.2973E-02
12	8.5000E+00	1.2450E-01	1.1137E-01	1.0475E-01	9.3687E-02	8.5428E-02	7.7616E-02	7.1036E-02
13	9.0000E+00	1.7882E-01	1.6308E-01	1.5304E-01	1.3946E-01	1.2829E-01	1.1763E-01	1.0804E-01
14	9.5000E+00	2.3901E-01	2.2163E-01	2.0813E-01	1.9267E-01	1.7886E-01	1.6560E-01	1.5326E-01
15	1.0000E+01	3.0175E-01	2.8348E-01	2.6742E-01	2.5060E-01	2.3482E-01	2.1962E-01	2.0558E-01
16	1.1000E+01	4.2810E-01	4.0876E-01	3.9255E-01	3.7349E-01	3.5651E-01	3.4005E-01	3.2759E-01
17	1.2000E+01	5.5438E-01	5.3352E-01	5.2338E-01	5.0195E-01	4.8680E-01	4.7209E-01	4.6654E-01
18	1.3000E+01	6.8036E-01	6.5825E-01	6.5603E-01	6.3311E-01	6.2102E-01	6.0920E-01	6.1039E-01
19	1.4000E+01	8.0092E-01	7.7888E-01	7.8190E-01	7.5935E-01	7.4970E-01	7.4006E-01	7.4367E-01
20	1.5000E+01	9.0862E-01	8.8815E-01	8.9255E-01	8.7193E-01	8.6358E-01	8.5503E-01	8.5778E-01
21	1.7000E+01	1.0730E+00	1.0570E+00	1.0619E+00	1.0456E+00	1.0395E+00	1.0332E+00	1.0362E+00
22	1.9000E+01	1.1903E+00	1.1766E+00	1.1872E+00	1.1731E+00	1.1709E+00	1.1684E+00	1.1772E+00
23	2.1000E+01	1.2868E+00	1.2747E+00	1.2895E+00	1.2773E+00	1.2778E+00	1.2778E+00	1.2885E+00
24	2.4000E+01	1.3924E+00	1.3835E+00	1.3960E+00	1.3871E+00	1.3882E+00	1.3889E+00	1.3986E+00
25	2.7000E+01	1.4652E+00	1.4582E+00	1.4716E+00	1.4643E+00	1.4673E+00	1.4702E+00	1.4840E+00
26	3.0000E+01	1.5262E+00	1.5205E+00	1.5364E+00	1.5304E+00	1.5353E+00	1.5403E+00	1.5568E+00
27	3.5000E+01	1.6001E+00	1.5961E+00	1.6159E+00	1.6117E+00	1.6193E+00	1.6268E+00	1.6456E+00
28	4.0000E+01	1.6475E+00	1.6450E+00	1.6664E+00	1.6637E+00	1.6727E+00	1.6814E+00	1.7010E+00
<hr/>								
	ENERGY (MEV)	OS-193	IR-195	PT-197	AU-202	HG-205	TL-208	PB-209
1	5.0000E+00	1.3416E-04	1.0739E-04	8.5865E-05	7.4553E-05	6.1008E-05	4.9799E-05	3.8651E-05
2	5.2500E+00	2.6875E-04	2.1744E-04	1.7572E-04	1.5385E-04	1.2711E-04	1.0474E-04	8.2270E-05
3	5.5000E+00	5.0984E-04	4.1662E-04	3.4006E-04	2.9985E-04	2.4989E-04	2.0770E-04	1.6500E-04
4	5.7500E+00	9.2124E-04	7.5984E-04	6.2601E-04	5.5524E-04	4.6641E-04	3.9070E-04	3.1378E-04
5	6.0000E+00	1.5930E-03	1.3255E-03	1.1016E-03	9.8176E-04	8.3067E-04	7.0085E-04	5.6878E-04
6	6.2500E+00	2.6469E-03	2.2207E-03	1.8610E-03	1.6647E-03	1.4178E-03	1.2042E-03	9.8719E-04
7	6.5000E+00	4.2397E-03	3.5854E-03	3.0284E-03	2.7165E-03	2.3279E-03	1.9893E-03	1.6468E-03
8	6.7500E+00	6.5653E-03	5.5944E-03	4.7612E-03	4.2792E-03	3.6881E-03	3.1700E-03	2.6493E-03
9	7.0000E+00	9.8508E-03	8.4561E-03	7.2496E-03	6.5244E-03	5.6536E-03	4.8867E-03	4.1219E-03
10	7.5000E+00	2.0325E-02	1.7700E-02	1.5391E-02	1.3870E-02	1.2144E-02	1.0607E-02	9.1073E-03
11	8.0000E+00	3.7686E-02	3.3286E-02	2.9351E-02	2.6479E-02	2.3424E-02	2.0679E-02	1.8055E-02
12	8.5000E+00	6.3450E-02	5.6829E-02	5.0806E-02	4.5967E-02	4.1113E-02	3.6711E-02	3.2546E-02
13	9.0000E+00	9.8089E-02	8.9043E-02	8.0677E-02	7.3458E-02	6.6488E-02	6.0104E-02	5.4002E-02
14	9.5000E+00	1.4103E-01	1.2964E-01	1.1894E-01	1.0944E-01	1.0032E-01	9.1877E-02	8.3471E-02
15	1.0000E+01	1.9117E-01	1.7771E-01	1.6489E-01	1.5388E-01	1.4290E-01	1.3263E-01	1.2159E-01
16	1.1000E+01	3.0885E-01	2.9242E-01	2.7645E-01	2.6658E-01	2.5367E-01	2.4131E-01	2.2432E-01
17	1.2000E+01	4.4398E-01	4.2620E-01	4.0865E-01	4.0477E-01	3.9235E-01	3.8018E-01	3.5791E-01
18	1.3000E+01	5.8625E-01	5.6865E-01	5.5110E-01	5.5278E-01	5.4166E-01	5.3045E-01	5.0625E-01
19	1.4000E+01	7.2070E-01	7.0431E-01	6.8787E-01	6.9065E-01	6.8016E-01	6.6935E-01	6.4677E-01
20	1.5000E+01	8.3727E-01	8.2236E-01	8.0738E-01	8.0846E-01	7.9814E-01	7.8744E-01	7.6748E-01
21	1.7000E+01	1.0195E+00	1.0075E+00	9.9538E-01	9.9648E-01	9.8810E-01	9.7938E-01	9.6234E-01
22	1.9000E+01	1.1623E+00	1.1530E+00	1.1436E+00	1.1501E+00	1.1452E+00	1.1400E+00	1.1245E+00
23	2.1000E+01	1.2761E+00	1.2691E+00	1.2620E+00	1.2698E+00	1.2669E+00	1.2637E+00	1.2510E+00
24	2.4000E+01	1.3894E+00	1.3848E+00	1.3801E+00	1.3895E+00	1.3896E+00	1.3897E+00	1.3797E+00
25	2.7000E+01	1.4761E+00	1.4737E+00	1.4712E+00	1.4858E+00	1.4892E+00	1.4925E+00	1.4838E+00
26	3.0000E+01	1.5502E+00	1.5494E+00	1.5485E+00	1.5648E+00	1.5693E+00	1.5736E+00	1.5666E+00
27	3.5000E+01	1.6411E+00	1.6421E+00	1.6431E+00	1.6603E+00	1.6660E+00	1.6715E+00	1.6666E+00
28	4.0000E+01	1.6981E+00	1.7006E+00	1.7031E+00	1.7214E+00	1.7288E+00	1.7361E+00	1.7327E+00

Table 3-2 Compound Nucleus Formation Cross Sections of  $\alpha+Y(Z-2,A-3)$

(unit: barns)

ENERGY(MEV)	Li- 8	BE- 9	B - 11	C - 13	N - 16	O - 17	F - 20
1	5.0000E-01	2.9734E-02	1.9282E-03	3.3817E-05	1.0174E-06	3.1923E-08	7.0716E-10
2	1.0000E+00	3.8125E-01	1.0370E-01	1.1515E-02	2.2414E-03	3.2090E-04	3.3507E-05
3	1.2000E+00	5.5204E-01	1.8245E-01	3.5354E-02	1.0605E-02	1.9694E-03	2.8727E-04
4	1.4000E+00	6.9223E-01	2.6286E-01	8.1436E-02	3.4097E-02	7.5911E-03	1.4469E-03
5	1.6000E+00	7.5832E-01	3.3500E-01	1.5319E-01	8.1933E-02	2.1266E-02	5.0841E-03
6	1.8000E+00	7.7262E-01	3.9416E-01	2.4439E-01	1.5385E-01	4.7205E-02	1.3796E-02
7	2.0000E+00	7.7007E-01	4.4094E-01	3.3965E-01	2.3615E-01	8.7825E-02	3.0820E-02
8	2.5000E+00	7.6932E-01	5.2719E-01	5.4819E-01	4.2378E-01	2.4545E-01	1.2569E-01
9	3.0000E+00	7.7858E-01	6.0704E-01	7.4762E-01	5.6760E-01	4.3585E-01	2.8796E-01
10	3.5000E+00	7.8482E-01	6.8728E-01	8.5323E-01	6.5529E-01	6.0058E-01	4.6234E-01
11	4.0000E+00	7.8426E-01	7.4463E-01	8.7832E-01	7.1676E-01	7.3902E-01	6.1008E-01
12	5.0000E+00	7.8188E-01	8.2059E-01	9.0089E-01	8.4408E-01	9.1887E-01	8.1731E-01
13	6.0000E+00	8.4651E-01	9.8538E-01	8.8121E-01	9.3483E-01	9.8621E-01	9.0485E-01
14	7.0000E+00	9.3012E-01	9.6281E-01	8.7723E-01	1.0341E+00	1.0343E+00	9.7527E-01
15	8.0000E+00	9.1065E-01	8.6395E-01	9.3255E-01	1.0732E+00	1.0695E+00	1.0323E+00
16	1.0000E+01	8.5824E-01	7.8683E-01	9.9101E-01	9.9199E-01	1.1707E+00	1.1413E+00
17	1.2000E+01	7.5228E-01	7.7823E-01	9.2930E-01	1.0150E+00	1.1403E+00	1.1184E+00
18	1.4000E+01	7.2900E-01	8.8816E-01	8.7496E-01	1.0454E+00	1.1383E+00	1.1397E+00
19	1.6000E+01	8.3135E-01	7.9036E-01	9.0104E-01	1.0009E+00	1.1551E+00	1.1568E+00
20	1.8000E+01	7.4943E-01	7.0374E-01	9.4439E-01	9.5152E-01	1.1472E+00	1.1309E+00
21	2.0000E+01	6.6342E-01	7.1885E-01	8.3965E-01	9.9598E-01	1.1045E+00	1.1145E+00
22	2.3000E+01	6.5869E-01	7.0681E-01	8.2520E-01	9.3826E-01	1.1333E+00	1.1368E+00
23	2.6000E+01	6.2216E-01	6.3280E-01	7.9865E-01	9.0225E-01	1.0684E+00	1.0799E+00
24	3.0000E+01	5.6462E-01	6.0813E-01	7.3517E-01	8.6333E-01	1.0522E+00	1.0645E+00
25	3.5000E+01	5.2443E-01	5.5252E-01	6.8786E-01	8.1169E-01	9.9130E-01	1.0144E+00
26	4.0000E+01	4.8571E-01	5.1687E-01	6.4482E-01	7.6211E-01	9.4585E-01	9.6529E-01
ENERGY(MEV)	NE- 21	NA- 24	MG- 25	AL- 28	SI- 29	P - 32	S - 37
1	5.0000E-01	2.2907E-13	3.8322E-15	6.1731E-17	9.5759E-19	1.4138E-20	2.0613E-22
2	1.0000E+00	2.7528E-07	2.4673E-08	1.9022E-09	1.5344E-10	1.0865E-11	8.1372E-13
3	1.2000E+00	4.7427E-06	6.0614E-07	6.5009E-08	7.3874E-09	7.2746E-10	7.6554E-11
4	1.4000E+00	4.1633E-05	7.0057E-06	9.7196E-07	1.4387E-07	1.8318E-08	2.5072E-09
5	1.6000E+00	2.3202E-04	4.8674E-05	8.3180E-06	1.5208E-06	2.3839E-07	4.0295E-08
6	1.8000E+00	9.3628E-04	2.3516E-04	4.7829E-05	1.0401E-05	1.9386E-06	3.9010E-07
7	2.0000E+00	2.9714E-03	8.6675E-04	2.0463E-04	5.1479E-05	1.1119E-05	2.5933E-06
8	2.5000E+00	2.5417E-02	9.8871E-03	3.1636E-03	1.0588E-03	3.0639E-04	9.5499E-05
9	3.0000E+00	1.0130E-01	4.9955E-02	2.0710E-02	8.7230E-03	3.1633E-03	1.2296E-03
10	3.5000E+00	2.3251E-01	1.4293E-01	7.5244E-02	3.9458E-02	1.7417E-02	8.1461E-03
11	4.0000E+00	3.7579E-01	2.7589E-01	1.7673E-01	1.1367E-01	6.0713E-02	3.3660E-02
12	5.0000E+00	6.1997E-01	5.5159E-01	4.4099E-01	3.6338E-01	2.6383E-01	1.9423E-01
13	6.0000E+00	8.0063E-01	7.6282E-01	6.6729E-01	5.9970E-01	5.0410E-01	4.3154E-01
14	7.0000E+00	9.3825E-01	9.0247E-01	8.2614E-01	7.7417E-01	6.9294E-01	6.3819E-01
15	8.0000E+00	1.0178E+00	9.9320E-01	9.3030E-01	9.0575E-01	8.3627E-01	8.0015E-01
16	1.0000E+01	1.1035E+00	1.1275E+00	1.0837E+00	1.0802E+00	1.0309E+00	1.0121E+00
17	1.2000E+01	1.1866E+00	1.2022E+00	1.1694E+00	1.1746E+00	1.1388E+00	1.1427E+00
18	1.4000E+01	1.1977E+00	1.2384E+00	1.2175E+00	1.2495E+00	1.2220E+00	1.2283E+00
19	1.6000E+01	1.2084E+00	1.2681E+00	1.2525E+00	1.2778E+00	1.2578E+00	1.2824E+00
20	1.8000E+01	1.2261E+00	1.2721E+00	1.2604E+00	1.3054E+00	1.2918E+00	1.3206E+00
21	2.0000E+01	1.2236E+00	1.2764E+00	1.2720E+00	1.3220E+00	1.3103E+00	1.3415E+00
22	2.3000E+01	1.2174E+00	1.2898E+00	1.2826E+00	1.3279E+00	1.3230E+00	1.3691E+00
23	2.6000E+01	1.2113E+00	1.2772E+00	1.2827E+00	1.3426E+00	1.3375E+00	1.3761E+00
24	3.0000E+01	1.1935E+00	1.2616E+00	1.2642E+00	1.3388E+00	1.3418E+00	1.3867E+00
25	3.5000E+01	1.1472E+00	1.2395E+00	1.2459E+00	1.3162E+00	1.3232E+00	1.3832E+00
26	4.0000E+01	1.1100E+00	1.2047E+00	1.2165E+00	1.2899E+00	1.2981E+00	1.3664E+00

Table 3-2 (continued)

	ENERGY (MEV)	CL- 36	AR- 37	K - 42	CA- 45
1	5.0000E-01	4.0587E-26	5.4697E-28	7.8297E-30	1.0632E-31
2	1.0000E+00	3.9258E-15	2.5384E-16	1.9571E-17	1.3488E-18
3	1.2000E+00	7.1973E-13	6.4574E-14	7.0465E-15	6.8029E-16
4	1.4000E+00	3.9532E-11	4.5712E-12	6.5176E-13	8.1613E-14
5	1.6000E+00	9.6322E-10	1.3660E-10	2.4111E-11	3.7181E-12
6	1.8000E+00	1.3159E-08	2.2098E-09	4.6476E-10	8.5067E-11
7	2.0000E+00	1.1709E-07	2.2685E-08	5.5270E-09	1.1685E-09
8	2.5000E+00	7.6354E-06	1.9570E-06	6.3312E-07	1.7694E-07
9	3.0000E+00	1.5065E-04	4.7563E-05	1.8910E-05	6.4846E-06
10	3.5000E+00	1.4045E-03	5.2306E-04	2.4351E-04	9.7902E-05
11	4.0000E+00	7.8359E-03	3.3576E-03	1.7734E-03	8.1162E-04
12	5.0000E+00	8.0892E-02	4.5426E-02	2.9606E-02	1.6876E-02
13	6.0000E+00	2.7353E-01	1.9750E-01	1.5684E-01	1.1118E-01
14	7.0000E+00	4.9429E-01	4.1078E-01	3.6889E-01	3.0672E-01
15	8.0000E+00	6.7969E-01	6.0408E-01	5.7302E-01	5.1608E-01
16	1.0000E+01	9.3433E-01	8.7766E-01	8.7312E-01	8.3661E-01
17	1.2000E+01	1.0954E+00	1.0522E+00	1.0643E+00	1.0436E+00
18	1.4000E+01	1.1981E+00	1.1647E+00	1.1918E+00	1.1828E+00
19	1.6000E+01	1.2736E+00	1.2467E+00	1.2810E+00	1.2797E+00
20	1.8000E+01	1.3197E+00	1.2989E+00	1.3453E+00	1.3514E+00
21	2.0000E+01	1.3558E+00	1.3396E+00	1.3906E+00	1.4017E+00
22	2.3000E+01	1.3888E+00	1.3773E+00	1.4379E+00	1.4558E+00
23	2.6000E+01	1.4125E+00	1.4048E+00	1.4684E+00	1.4910E+00
24	3.0000E+01	1.4255E+00	1.4222E+00	1.4962E+00	1.5216E+00
25	3.5000E+01	1.4300E+00	1.4303E+00	1.5127E+00	1.5427E+00
26	4.0000E+01	1.4233E+00	1.4261E+00	1.5155E+00	1.5504E+00

	ENERGY (MEV)	SC- 48	TI- 49	V - 52	CR- 53	MN- 56	FE- 55	CO- 60
1	4.0000E+00	3.6492E-04	1.4419E-04	6.2797E-05	2.4160E-05	1.0353E-05	3.4649E-06	1.6352E-06
2	4.5000E+00	2.1908E-03	9.6623E-04	4.6697E-04	1.9960E-04	9.4541E-05	3.5147E-05	1.8269E-05
3	5.0000E+00	9.3449E-03	4.5532E-03	2.4100E-03	1.1294E-03	5.8278E-04	2.3737E-04	1.3371E-04
4	5.5000E+00	3.0110E-02	1.6197E-02	9.3353E-03	4.7642E-03	2.6527E-03	1.1735E-03	7.0813E-04
5	6.0000E+00	7.5482E-02	4.5137E-02	2.8372E-02	1.5782E-02	9.4489E-03	4.5238E-03	2.9022E-03
6	6.5000E+00	1.5048E-01	1.0032E-01	6.9070E-02	4.2178E-02	2.7223E-02	1.4154E-02	9.6182E-03
7	7.0000E+00	2.4765E-01	1.8190E-01	1.3667E-01	9.2030E-02	6.4355E-02	3.6679E-02	2.6422E-02
8	7.5000E+00	3.5361E-01	2.7990E-01	2.2613E-01	1.6657E-01	1.2605E-01	7.9347E-02	6.0761E-02
9	8.0000E+00	4.5792E-01	3.8234E-01	3.2602E-01	2.5798E-01	2.0890E-01	1.4465E-01	1.1764E-01
10	9.0000E+00	6.4457E-01	5.7356E-01	5.2202E-01	4.5178E-01	3.9996E-01	3.1817E-01	2.8428E-01
11	1.0000E+01	7.9714E-01	7.3365E-01	6.9050E-01	6.2580E-01	5.8008E-01	4.9732E-01	4.6799E-01
12	1.1000E+01	9.2024E-01	8.6402E-01	8.2901E-01	7.7111E-01	7.3303E-01	6.5433E-01	6.3293E-01
13	1.2000E+01	1.0202E+00	9.7026E-01	9.4271E-01	8.9099E-01	8.6014E-01	7.8617E-01	7.7278E-01
14	1.4000E+01	1.1708E+00	1.1311E+00	1.1151E+00	1.0736E+00	1.0545E+00	9.8912E-01	9.8897E-01
15	1.6000E+01	1.2763E+00	1.2441E+00	1.2370E+00	1.2031E+00	1.1931E+00	1.1340E+00	1.1444E+00
16	1.8000E+01	1.3543E+00	1.3278E+00	1.3269E+00	1.2989E+00	1.2955E+00	1.2416E+00	1.2595E+00
17	2.0000E+01	1.4108E+00	1.3889E+00	1.3942E+00	1.3708E+00	1.3732E+00	1.3228E+00	1.3474E+00
18	2.3000E+01	1.4711E+00	1.4547E+00	1.4661E+00	1.4483E+00	1.4574E+00	1.4115E+00	1.4439E+00
19	2.6000E+01	1.5116E+00	1.4993E+00	1.5156E+00	1.5019E+00	1.5159E+00	1.4736E+00	1.5115E+00
20	2.9000E+01	1.5394E+00	1.5301E+00	1.5502E+00	1.5397E+00	1.5581E+00	1.5178E+00	1.5608E+00
21	3.2000E+01	1.5607E+00	1.5537E+00	1.5760E+00	1.5680E+00	1.5887E+00	1.5511E+00	1.5972E+00
22	3.6000E+01	1.5773E+00	1.5732E+00	1.5996E+00	1.5944E+00	1.6181E+00	1.5829E+00	1.6322E+00
23	4.0000E+01	1.5842E+00	1.5825E+00	1.6131E+00	1.6102E+00	1.6377E+00	1.6035E+00	1.6566E+00

	ENERGY (MEV)	NI- 61	CU- 66	ZN- 71	GA- 72	GE- 77	AS- 76	SE- 81
1	4.0000E+00	6.0912E-07	2.7954E-07	1.2709E-07	4.6644E-08	2.1039E-08	6.8829E-09	3.0665E-09
2	4.5000E+00	7.5218E-06	3.8067E-06	1.9086E-06	7.7424E-07	3.8531E-07	1.3959E-07	6.8747E-08
3	5.0000E+00	5.9937E-05	3.2889E-05	1.7874E-05	7.8832E-06	4.2512E-06	1.6772E-06	8.9618E-07
4	5.5000E+00	3.4193E-04	2.0095E-04	1.1690E-04	5.5395E-05	3.1945E-05	1.3559E-05	7.7512E-06
5	6.0000E+00	1.4992E-03	9.3530E-04	5.7712E-04	2.9138E-04	1.7795E-04	8.0527E-05	4.8737E-05

Table 3-2 (continued)

	ENERGY (MEV)	NI- 61	CU- 66	ZN- 71	GA- 72	GE- 77	AS- 76	SE- 81
6	6.5000E+00	5.3009E-03	3.4909E-03	2.2710E-03	1.2149E-03	7.8007E-04	3.7408E-04	2.3781E-04
7	7.0000E+00	1.5576E-02	1.0806E-02	7.3882E-03	4.1782E-03	2.8076E-03	1.4217E-03	9.4396E-04
8	7.5000E+00	3.8587E-02	2.8239E-02	2.0306E-02	1.2161E-02	8.5374E-03	4.5626E-03	3.1527E-03
9	8.0000E+00	8.0944E-02	6.2681E-02	4.7554E-02	3.0346E-02	2.2287E-02	1.2616E-02	9.0620E-03
10	9.0000E+00	2.2544E-01	1.9397E-01	1.6374E-01	1.2045E-01	9.7674E-02	6.3540E-02	4.9654E-02
11	1.0000E+01	4.0459E-01	3.7244E-01	3.3874E-01	2.7966E-01	2.4729E-01	1.8600E-01	1.5897E-01
12	1.1000E+01	5.7306E-01	5.4703E-01	5.1829E-01	4.5752E-01	4.2645E-01	3.5410E-01	3.2323E-01
13	1.2000E+01	7.1822E-01	6.9962E-01	6.7795E-01	6.2088E-01	5.9566E-01	5.2286E-01	4.9560E-01
14	1.4000E+01	9.4444E-01	9.3893E-01	9.3035E-01	8.8277E-01	8.7032E-01	8.0409E-01	7.8872E-01
15	1.6000E+01	1.1077E+00	1.1125E+00	1.1142E+00	1.0746E+00	1.0726E+00	1.0131E+00	1.0081E+00
16	1.8000E+01	1.2289E+00	1.2416E+00	1.2514E+00	1.2181E+00	1.2243E+00	1.1701E+00	1.1735E+00
17	2.0000E+01	1.3215E+00	1.3405E+00	1.3565E+00	1.3282E+00	1.3409E+00	1.2910E+00	1.3011E+00
18	2.3000E+01	1.4237E+00	1.4503E+00	1.4737E+00	1.4511E+00	1.4714E+00	1.4265E+00	1.4442E+00
19	2.6000E+01	1.4957E+00	1.5280E+00	1.5576E+00	1.5394E+00	1.5656E+00	1.5245E+00	1.5482E+00
20	2.9000E+01	1.5483E+00	1.5850E+00	1.6191E+00	1.6044E+00	1.6354E+00	1.5971E+00	1.6256E+00
21	3.2000E+01	1.5872E+00	1.6278E+00	1.6654E+00	1.6534E+00	1.6883E+00	1.6522E+00	1.6848E+00
22	3.6000E+01	1.6251E+00	1.6698E+00	1.7112E+00	1.7022E+00	1.7408E+00	1.7072E+00	1.7437E+00
23	4.0000E+01	1.6517E+00	1.6991E+00	1.7441E+00	1.7373E+00	1.7791E+00	1.7475E+00	1.7871E+00

	ENERGY (MEV)	BR- 82	KR- 85	RB- 86	SR- 87	Y - 90	ZR- 95	NB- 96
1	4.0000E+00	1.1026E-09	4.3465E-10	1.5443E-10	5.4523E-11	2.0973E-11	8.7309E-12	3.0231E-12
2	4.5000E+00	2.7390E-08	1.1971E-08	4.7216E-09	1.8523E-09	7.9221E-10	3.6691E-10	1.4148E-10
3	5.0000E+00	3.8868E-07	1.8488E-07	7.9485E-08	3.4012E-08	1.5875E-08	8.0277E-09	3.3849E-09
4	5.5000E+00	3.6098E-06	1.8427E-06	8.5149E-07	3.9186E-07	1.9674E-07	1.0704E-07	4.8654E-08
5	6.0000E+00	2.4130E-05	1.3077E-05	6.4255E-06	3.1454E-06	1.6794E-06	9.7177E-07	4.7071E-07
6	6.5000E+00	1.2425E-04	7.0902E-05	3.6744E-05	1.8970E-05	1.0674E-05	6.5083E-06	3.3289E-06
7	7.0000E+00	5.1772E-04	3.0922E-04	1.6799E-04	9.0881E-05	5.3518E-05	3.4128E-05	1.8300E-05
8	7.5000E+00	1.8095E-03	1.1266E-03	6.3888E-04	3.6048E-04	2.2100E-04	1.4655E-04	8.1906E-05
9	8.0000E+00	5.4406E-03	3.5231E-03	2.0811E-03	1.2211E-03	7.7627E-04	5.3294E-04	3.0918E-04
10	9.0000E+00	3.3007E-02	2.3218E-02	1.4924E-02	9.4659E-03	6.4409E-03	4.7037E-03	2.9210E-03
11	1.0000E+01	1.1943E-01	9.2795E-02	6.6296E-02	4.6240E-02	3.3946E-02	2.6398E-02	1.7629E-02
12	1.1000E+01	2.6907E-01	2.2923E-01	1.8303E-01	1.4252E-01	1.1455E-01	9.5843E-02	7.0275E-02
13	1.2000E+01	4.3900E-01	3.9679E-01	3.4273E-01	2.9115E-01	2.5315E-01	2.2650E-01	1.8331E-01
14	1.4000E+01	7.3888E-01	7.0456E-01	6.5415E-01	6.0380E-01	5.6783E-01	5.4477E-01	4.9410E-01
15	1.6000E+01	9.6610E-01	9.4077E-01	8.9776E-01	8.5460E-01	8.2695E-01	8.1345E-01	7.6876E-01
16	1.8000E+01	1.1379E+00	1.1199E+00	1.0834E+00	1.0466E+00	1.0263E+00	1.0212E+00	9.8276E-01
17	2.0000E+01	1.2705E+00	1.2585E+00	1.2272E+00	1.1956E+00	1.1813E+00	1.1829E+00	1.1498E+00
18	2.3000E+01	1.4196E+00	1.4145E+00	1.3892E+00	1.3636E+00	1.3563E+00	1.3658E+00	1.3389E+00
19	2.6000E+01	1.5282E+00	1.5283E+00	1.5075E+00	1.4866E+00	1.4846E+00	1.5001E+00	1.4779E+00
20	2.9000E+01	1.6092E+00	1.6134E+00	1.5963E+00	1.5790E+00	1.5812E+00	1.6015E+00	1.5830E+00
21	3.2000E+01	1.6712E+00	1.6788E+00	1.6646E+00	1.6502E+00	1.6558E+00	1.6800E+00	1.6644E+00
22	3.6000E+01	1.7331E+00	1.7443E+00	1.7331E+00	1.7218E+00	1.7309E+00	1.7594E+00	1.7470E+00
23	4.0000E+01	1.7789E+00	1.7928E+00	1.7841E+00	1.7751E+00	1.7872E+00	1.8187E+00	1.8087E+00

	ENERGY (MEV)	MO- 99	TC-100	RU-103	RH-104	PD-111
1	4.0000E+00	1.1340E-12	3.8730E-13	1.4397E-13	4.8504E-14	2.1572E-14
2	4.5000E+00	5.9131E-11	2.2521E-11	9.3384E-12	3.5120E-12	1.7424E-12
3	5.0000E+00	1.5476E-09	6.4547E-10	2.9312E-10	1.2087E-10	6.5656E-11
4	5.5000E+00	2.3984E-08	1.0799E-08	5.2942E-09	2.3600E-09	1.3833E-09
5	6.0000E+00	2.4729E-07	1.1883E-07	6.2164E-08	2.9615E-08	1.8511E-08
6	6.5000E+00	1.8464E-06	9.3800E-07	5.1870E-07	2.6162E-07	1.7269E-07
7	7.0000E+00	1.0635E-05	5.6686E-06	3.2869E-06	1.7413E-06	1.2039E-06
8	7.5000E+00	4.9572E-05	2.7549E-05	1.6643E-05	9.2011E-06	6.6171E-06
9	8.0000E+00	1.9396E-04	1.1185E-04	7.0033E-05	4.0191E-05	2.9890E-05
10	9.0000E+00	1.9513E-03	1.2005E-03	7.9854E-04	4.8824E-04	3.8301E-04
11	1.0000E+01	1.2520E-02	8.1985E-03	5.7571E-03	3.7242E-03	3.0445E-03
12	1.1000E+01	5.3762E-02	3.8010E-02	2.8360E-02	1.9535E-02	1.6576E-02
13	1.2000E+01	1.5246E-01	1.1851E-01	9.5399E-02	7.1363E-02	6.3139E-02

Table 3-2 (continued)

	ENERGY (MEV)	MO-99	TC-100	RU-103	RH-104	PD-111		
14	1.4000E+01	4.5669E-01	4.0718E-01	3.7048E-01	3.2334E-01	3.0943E-01		
15	1.6000E+01	7.3835E-01	6.9313E-01	6.6171E-01	6.1619E-01	6.1025E-01		
16	1.8000E+01	9.5962E-01	9.2052E-01	8.9612E-01	8.5637E-01	8.5976E-01		
17	2.0000E+01	1.1327E+00	1.0989E+00	1.0807E+00	1.0462E+00	1.0575E+00		
18	2.3000E+01	1.3289E+00	1.3013E+00	1.2904E+00	1.2621E+00	1.2829E+00		
19	2.6000E+01	1.4733E+00	1.4505E+00	1.4450E+00	1.4216E+00	1.4496E+00		
20	2.9000E+01	1.5827E+00	1.5636E+00	1.5625E+00	1.5429E+00	1.5766E+00		
21	3.2000E+01	1.6676E+00	1.6515E+00	1.6539E+00	1.6373E+00	1.6758E+00		
22	3.6000E+01	1.7538E+00	1.7409E+00	1.7471E+00	1.7337E+00	1.7772E+00		
23	4.0000E+01	1.8184E+00	1.8080E+00	1.8172E+00	1.8063E+00	1.8540E+00		

	ENERGY (MEV)	AG-112	CD-117	IN-118	SN-127	SB-124	TE-129	I-130
1	8.0000E+00	1.7094E-05	1.1551E-05	6.5747E-06	5.1039E-06	2.4746E-06	1.6313E-06	9.1734E-07
2	8.5000E+00	6.7814E-05	4.7286E-05	2.7863E-05	2.2309E-05	1.1233E-05	7.6618E-06	4.4697E-06
3	9.0000E+00	2.3352E-04	1.6736E-04	1.0168E-04	8.3592E-05	4.3531E-05	3.0588E-05	1.8431E-05
4	9.5000E+00	7.1282E-04	5.2325E-04	3.2681E-04	2.7485E-04	1.4755E-04	1.0641E-04	6.5978E-05
5	1.0000E+01	1.9595E-03	1.4700E-03	9.4182E-04	8.0782E-04	4.4600E-04	3.2910E-04	2.0934E-04
6	1.1000E+01	1.1273E-02	8.8087E-03	5.9301E-03	5.2559E-03	3.0619E-03	2.3503E-03	1.5640E-03
7	1.2000E+01	4.6074E-02	3.7701E-02	2.6914E-02	2.4560E-02	1.5223E-02	1.2125E-02	8.4326E-03
8	1.3000E+01	1.3122E-01	1.1351E-01	8.7535E-02	8.2310E-02	5.5613E-02	4.6263E-02	3.3992E-02
9	1.4000E+01	2.6480E-01	2.4104E-01	2.0107E-01	1.9456E-01	1.4567E-01	1.2758E-01	1.0070E-01
10	1.5000E+01	4.1671E-01	3.9269E-01	3.4683E-01	3.4256E-01	2.7941E-01	2.5615E-01	2.1693E-01
11	1.6000E+01	5.6407E-01	5.4291E-01	4.9679E-01	4.9695E-01	4.2863E-01	4.0529E-01	3.6108E-01
12	1.8000E+01	8.1893E-01	8.0546E-01	7.6390E-01	7.7401E-01	7.0612E-01	6.8878E-01	6.4619E-01
13	2.0000E+01	1.0219E+00	1.0155E+00	9.7909E-01	9.9795E-01	9.3325E-01	9.2274E-01	8.8492E-01
14	2.2000E+01	1.1843E+00	1.1838E+00	1.1519E+00	1.1780E+00	1.1164E+00	1.1118E+00	1.0784E+00
15	2.4000E+01	1.3163E+00	1.3208E+00	1.2925E+00	1.3249E+00	1.2657E+00	1.2661E+00	1.2365E+00
16	2.7000E+01	1.4726E+00	1.4830E+00	1.4594E+00	1.4992E+00	1.4432E+00	1.4496E+00	1.4247E+00
17	3.0000E+01	1.5929E+00	1.6081E+00	1.5881E+00	1.6336E+00	1.5803E+00	1.5915E+00	1.5703E+00
18	3.4000E+01	1.7145E+00	1.7348E+00	1.7185E+00	1.7703E+00	1.7195E+00	1.7359E+00	1.7185E+00
19	4.0000E+01	1.8424E+00	1.8684E+00	1.8563E+00	1.9152E+00	1.8672E+00	1.8893E+00	1.8762E+00

	ENERGY (MEV)	XE-135	CS-136	BA-137	LA-138	CE-139	PR-144	ND-149
1	8.0000E+00	5.9913E-07	3.3456E-07	1.8607E-07	1.0307E-07	5.6844E-08	3.6372E-08	2.3121E-08
2	8.5000E+00	3.0238E-06	1.7535E-06	1.0133E-06	5.8338E-07	3.3460E-07	2.2228E-07	1.4675E-07
3	9.0000E+00	1.2859E-05	7.7098E-06	4.6086E-06	2.7461E-06	1.6309E-06	1.1201E-06	7.6478E-07
4	9.5000E+00	4.7290E-05	2.9203E-05	1.7987E-05	1.1049E-05	6.7683E-06	4.7871E-06	3.3676E-06
5	1.0000E+01	1.5364E-04	9.7393E-05	6.1604E-05	3.8877E-05	2.4477E-05	1.7767E-05	1.2833E-05
6	1.1000E+01	1.1944E-03	7.9199E-04	5.2415E-04	3.4620E-04	2.2825E-04	1.7295E-04	1.3052E-04
7	1.2000E+01	6.6665E-03	4.6043E-03	3.1693E-03	2.1756E-03	1.4901E-03	1.1677E-03	9.1202E-04
8	1.3000E+01	2.7899E-02	2.0183E-02	1.4492E-02	1.0344E-02	7.3494E-03	5.9281E-03	4.7655E-03
9	1.4000E+01	8.6589E-02	6.6660E-02	5.0627E-02	3.8001E-02	2.8243E-02	2.3490E-02	1.9446E-02
10	1.5000E+01	1.9568E-01	1.6172E-01	1.3160E-01	1.0545E-01	8.3276E-02	7.1963E-02	6.1790E-02
11	1.6000E+01	3.3769E-01	2.9574E-01	2.5590E-01	2.1861E-01	1.8423E-01	1.6610E-01	1.4875E-01
12	1.8000E+01	6.2734E-01	5.8452E-01	5.4195E-01	4.9973E-01	4.5800E-01	4.3758E-01	4.1657E-01
13	2.0000E+01	8.7271E-01	8.3427E-01	7.9566E-01	7.5706E-01	7.1841E-01	7.0332E-01	6.8727E-01
14	2.2000E+01	1.0721E+00	1.0381E+00	1.0040E+00	9.6966E-01	9.3522E-01	9.2593E-01	9.1564E-01
15	2.4000E+01	1.2353E+00	1.2051E+00	1.1747E+00	1.1442E+00	1.1136E+00	1.1094E+00	1.1042E+00
16	2.7000E+01	1.4295E+00	1.4040E+00	1.3784E+00	1.3526E+00	1.3267E+00	1.3288E+00	1.3299E+00
17	3.0000E+01	1.5800E+00	1.5582E+00	1.5363E+00	1.5142E+00	1.4921E+00	1.4991E+00	1.5053E+00
18	3.4000E+01	1.7333E+00	1.7154E+00	1.6974E+00	1.6793E+00	1.6611E+00	1.6734E+00	1.6849E+00
19	4.0000E+01	1.8968E+00	1.8832E+00	1.8695E+00	1.8558E+00	1.8419E+00	1.8602E+00	1.8776E+00



Table 3-2 (continued)

	ENERGY (MEV)	PM-150	SM-155	EU-156	GD-161	TB-162	DY-163	HO-166
1	1.0000E+01	8.0250E-06	5.7553E-06	3.5794E-06	2.5478E-06	1.5752E-06	9.7052E-07	6.3840E-07
2	1.0500E+01	2.7708E-05	2.0358E-05	1.3002E-05	9.4894E-06	6.0296E-06	3.8196E-06	2.5815E-06
3	1.1000E+01	8.5675E-05	6.4308E-05	4.2056E-05	3.1384E-05	2.0437E-05	1.3273E-05	9.1920E-06
4	1.1500E+01	2.4076E-04	1.8416E-04	1.2301E-04	9.3621E-05	6.2316E-05	4.1386E-05	2.9293E-05
5	1.2000E+01	6.2250E-04	4.8418E-04	3.2961E-04	2.5526E-04	1.7327E-04	1.1740E-04	8.4726E-05
6	1.2500E+01	1.4957E-03	1.1809E-03	8.1795E-04	6.4333E-04	4.4448E-04	3.0659E-04	2.2513E-04
7	1.3000E+01	3.3652E-03	2.6939E-03	1.8964E-03	1.5125E-03	1.0621E-03	7.4460E-04	5.5537E-04
8	1.3500E+01	7.1267E-03	5.7820E-03	4.1358E-03	3.3416E-03	2.3827E-03	1.6959E-03	1.2828E-03
9	1.4000E+01	1.4241E-02	1.1711E-02	8.5181E-03	6.9695E-03	5.0461E-03	3.6448E-03	2.7935E-03
10	1.4500E+01	2.6830E-02	2.2391E-02	1.6595E-02	1.3756E-02	1.0123E-02	7.4239E-03	5.7642E-03
11	1.5000E+01	4.7502E-02	4.0311E-02	3.0540E-02	2.5684E-02	1.9253E-02	1.4358E-02	1.1301E-02
12	1.6000E+01	1.2158E-01	1.0729E-01	8.5871E-02	7.4768E-02	5.8757E-02	4.5722E-02	3.7190E-02
13	1.7000E+01	2.3786E-01	2.1814E-01	1.8523E-01	1.6763E-01	1.3951E-01	1.1467E-01	9.7361E-02
14	1.8000E+01	3.7587E-01	3.5475E-01	3.1575E-01	2.9510E-01	2.5858E-01	2.2421E-01	1.9906E-01
15	1.9000E+01	5.1570E-01	4.9595E-01	4.5553E-01	4.3521E-01	3.9564E-01	3.5703E-01	3.2829E-01
16	2.0000E+01	6.4788E-01	6.3063E-01	5.9106E-01	5.7278E-01	5.3324E-01	4.9406E-01	4.6514E-01
17	2.2000E+01	8.8020E-01	8.6854E-01	8.3251E-01	8.1956E-01	7.8318E-01	7.4676E-01	7.2132E-01
18	2.4000E+01	1.0726E+00	1.0660E+00	1.0338E+00	1.0260E+00	9.9326E-01	9.6046E-01	9.3929E-01
19	2.6000E+01	1.2327E+00	1.2305E+00	1.2017E+00	1.1982E+00	1.1689E+00	1.1394E+00	1.1221E+00
20	2.8000E+01	1.3676E+00	1.3692E+00	1.3432E+00	1.3435E+00	1.3170E+00	1.2903E+00	1.2764E+00
21	3.1000E+01	1.5331E+00	1.5395E+00	1.5170E+00	1.5222E+00	1.4993E+00	1.4763E+00	1.4666E+00
22	3.4000E+01	1.6658E+00	1.6760E+00	1.6565E+00	1.6655E+00	1.6456E+00	1.6256E+00	1.6193E+00
23	3.6000E+01	1.7401E+00	1.7525E+00	1.7347E+00	1.7460E+00	1.7277E+00	1.7094E+00	1.7051E+00
24	4.0000E+01	1.8629E+00	1.8791E+00	1.8641E+00	1.8792E+00	1.8638E+00	1.8483E+00	1.8474E+00

	ENERGY (MEV)	ER-171	TM-172	YB-177	LU-178	HF-181	TA-184	W-189
1	1.0000E+01	4.4778E-07	2.7319E-07	1.8866E-07	1.1431E-07	7.3531E-08	4.7122E-08	3.2028E-08
2	1.0500E+01	1.8592E-06	1.1674E-06	8.2823E-07	5.1676E-07	3.4201E-07	2.2557E-07	1.5765E-07
3	1.1000E+01	6.7792E-06	4.3689E-06	3.1764E-06	2.0354E-06	1.3825E-06	9.3603E-07	6.7108E-07
4	1.1500E+01	2.2068E-05	1.4559E-05	1.0822E-05	7.1039E-06	4.9405E-06	3.4256E-06	2.5135E-06
5	1.2000E+01	6.5047E-05	4.3831E-05	3.3232E-05	2.2296E-05	1.5840E-05	1.1223E-05	8.4093E-06
6	1.2500E+01	1.7577E-04	1.2070E-04	9.3152E-05	6.3736E-05	4.6157E-05	3.3347E-05	2.5466E-05
7	1.3000E+01	4.4011E-04	3.0741E-04	2.4103E-04	1.6785E-04	1.2367E-04	9.0925E-05	7.0632E-05
8	1.3500E+01	1.0302E-03	7.3073E-04	5.8113E-04	4.1115E-04	3.0763E-04	2.2977E-04	1.8124E-04
9	1.4000E+01	2.2708E-03	1.6339E-03	1.3161E-03	9.4472E-04	7.1675E-04	5.4296E-04	4.3419E-04
10	1.4500E+01	4.7395E-03	3.4575E-03	2.8182E-03	2.0504E-03	1.5755E-03	1.2089E-03	9.7870E-04
11	1.5000E+01	9.3981E-03	6.9531E-03	5.7321E-03	4.2256E-03	3.2862E-03	2.5518E-03	2.0892E-03
12	1.6000E+01	3.1735E-02	2.4269E-02	2.0491E-02	1.5548E-02	1.2390E-02	9.8505E-03	8.2354E-03
13	1.7000E+01	8.5819E-02	6.8676E-02	5.9729E-02	4.7103E-02	3.8694E-02	3.1642E-02	2.7064E-02
14	1.8000E+01	1.8173E-01	1.5340E-01	1.3815E-01	1.1451E-01	9.7858E-02	8.3058E-02	7.3113E-02
15	1.9000E+01	3.0847E-01	2.7282E-01	2.5362E-01	2.2087E-01	1.9673E-01	1.7402E-01	1.5826E-01
16	2.0000E+01	4.4578E-01	4.0752E-01	3.8767E-01	3.5060E-01	3.2278E-01	2.9563E-01	2.7664E-01
17	2.2000E+01	7.0631E-01	6.6943E-01	6.5311E-01	6.1606E-01	5.8903E-01	5.6182E-01	5.4393E-01
18	2.4000E+01	9.2922E-01	8.9572E-01	8.8418E-01	8.5019E-01	8.2693E-01	8.0333E-01	7.8974E-01
19	2.6000E+01	1.1164E+00	1.0862E+00	1.0791E+00	1.0484E+00	1.0290E+00	1.0092E+00	9.9991E-01
20	2.8000E+01	1.2746E+00	1.2473E+00	1.2440E+00	1.2163E+00	1.2002E+00	1.1837E+00	1.1783E+00
21	3.1000E+01	1.4697E+00	1.4461E+00	1.4475E+00	1.4235E+00	1.4117E+00	1.3996E+00	1.3991E+00
22	3.4000E+01	1.6264E+00	1.6058E+00	1.6112E+00	1.5902E+00	1.5819E+00	1.5733E+00	1.5768E+00
23	3.6000E+01	1.7145E+00	1.6956E+00	1.7033E+00	1.6840E+00	1.6777E+00	1.6711E+00	1.6769E+00
24	4.0000E+01	1.8606E+00	1.8446E+00	1.8561E+00	1.8398E+00	1.8369E+00	1.8336E+00	1.8434E+00

	ENERGY (MEV)	RE-190	OS-192	IR-194	PT-199	AU-202	HG-205	TL-206
1	1.0000E+01	1.9137E-08	1.1754E-08	7.1937E-09	4.8470E-09	3.0471E-09	1.9122E-09	1.1185E-09
2	1.0500E+01	9.7076E-08	6.1426E-08	3.8732E-08	2.6853E-08	1.7389E-08	1.1242E-08	6.7819E-09
3	1.1000E+01	4.2479E-07	2.7623E-07	1.7904E-07	1.2740E-07	8.4782E-08	5.6337E-08	3.4972E-08
4	1.1500E+01	1.6318E-06	1.0880E-06	7.2321E-07	5.2709E-07	3.5969E-07	2.4510E-07	1.5622E-07
5	1.2000E+01	5.5867E-06	3.8113E-06	2.5927E-06	1.9314E-06	1.3487E-06	9.4068E-07	6.1439E-07
6	1.2500E+01	1.7276E-05	1.2035E-05	8.3619E-06	6.3547E-06	4.5323E-06	3.2292E-06	2.1571E-06

Table 3-2 (continued)

	ENERGY (MEV)	RE-190	OS-192	IR-194	PT-199	AU-202	HG-205	TL-206
7	1.3000E+01	4.8834E-05	3.4664E-05	2.4550E-05	1.8997E-05	1.3813E-05	1.0035E-05	6.8435E-06
8	1.3500E+01	1.2746E-04	9.2029E-05	6.6317E-05	5.2163E-05	3.8595E-05	2.8541E-05	1.9835E-05
9	1.4000E+01	3.1008E-04	2.2733E-04	1.6640E-04	1.3282E-04	9.9831E-05	7.5017E-05	5.3039E-05
10	1.4500E+01	7.0874E-04	5.2683E-04	3.9106E-04	3.1626E-04	2.4111E-04	1.8381E-04	1.3200E-04
11	1.5000E+01	1.5324E-03	1.1535E-03	8.6717E-04	7.0955E-04	5.4789E-04	4.2313E-04	3.0816E-04
12	1.6000E+01	6.1900E-03	4.7679E-03	3.6673E-03	3.0618E-03	2.4172E-03	1.9089E-03	1.4246E-03
13	1.7000E+01	2.0921E-02	1.6516E-02	1.3001E-02	1.1055E-02	8.9081E-03	7.1763E-03	5.4733E-03
14	1.8000E+01	5.8732E-02	4.7891E-02	3.8834E-02	3.3715E-02	2.7819E-02	2.2909E-02	1.7896E-02
15	1.9000E+01	1.3334E-01	1.1335E-01	9.5604E-02	8.5239E-02	7.2591E-02	6.1547E-02	4.9657E-02
16	2.0000E+01	2.4379E-01	2.1614E-01	1.9015E-01	1.7460E-01	1.5431E-01	1.3561E-01	1.1408E-01
17	2.2000E+01	5.0706E-01	4.7510E-01	4.4342E-01	4.2518E-01	3.9822E-01	3.7160E-01	3.3744E-01
18	2.4000E+01	7.5515E-01	7.2560E-01	6.9592E-01	6.8103E-01	6.5587E-01	6.3060E-01	5.9567E-01
19	2.6000E+01	9.6844E-01	9.4224E-01	9.1584E-01	9.0517E-01	8.8341E-01	8.6153E-01	8.2913E-01
20	2.8000E+01	1.1498E+00	1.1267E+00	1.1035E+00	1.0967E+00	1.0784E+00	1.0599E+00	1.0303E+00
21	3.1000E+01	1.3742E+00	1.3552E+00	1.3360E+00	1.3342E+00	1.3203E+00	1.3063E+00	1.2805E+00
22	3.4000E+01	1.5551E+00	1.5394E+00	1.5235E+00	1.5259E+00	1.5156E+00	1.5052E+00	1.4825E+00
23	3.6000E+01	1.6569E+00	1.6431E+00	1.6291E+00	1.6339E+00	1.6257E+00	1.6174E+00	1.5965E+00
24	4.0000E+01	1.8263E+00	1.8157E+00	1.8049E+00	1.8137E+00	1.8091E+00	1.8043E+00	1.7864E+00

Table 3-3 Compound Nucleus Formation Cross Sections of D+Y(Z-1,A-1)

(unit: barns)

	ENERGY (MEV)	BE- 10	B - 11	C - 13	N - 15	O - 18	F - 19	NE- 22
1	5.0000E-02	5.8308E-07	3.9620E-09	2.1602E-11	1.0727E-13	4.6860E-16	2.1513E-18	8.5413E-21
2	1.0000E-01	2.3778E-04	9.4082E-06	3.1843E-07	9.9024E-09	2.8444E-10	7.9689E-12	2.0945E-13
3	2.0000E-01	1.2820E-02	1.7562E-03	2.1491E-04	2.4263E-05	2.6049E-06	2.5921E-07	2.5455E-08
4	4.0000E-01	1.5345E-01	5.2242E-02	1.6077E-02	4.5349E-03	1.2353E-03	3.0147E-04	7.4966E-05
5	6.0000E-01	3.6727E-01	1.8884E-01	8.9143E-02	3.8300E-02	1.5853E-02	5.7924E-03	2.1735E-03
6	8.0000E-01	5.5452E-01	3.5548E-01	2.1542E-01	1.1998E-01	6.4309E-02	3.0227E-02	1.4552E-02
7	1.0000E+00	6.9600E-01	5.0683E-01	3.5766E-01	2.3615E-01	1.5114E-01	8.5179E-02	4.8916E-02
8	1.2500E+00	8.2091E-01	6.5653E-01	5.1941E-01	3.9221E-01	2.9086E-01	1.9299E-01	1.3025E-01
9	1.5000E+00	9.0747E-01	7.6755E-01	6.5023E-01	5.3299E-01	4.3390E-01	3.2156E-01	2.4327E-01
10	1.7500E+00	9.6939E-01	8.5037E-01	7.5264E-01	6.5018E-01	5.6221E-01	4.4859E-01	3.6722E-01
11	2.0000E+00	1.0145E+00	9.1305E-01	8.3275E-01	7.4539E-01	6.7122E-01	5.6306E-01	4.8657E-01
12	2.5000E+00	1.0726E+00	9.9799E-01	9.4566E-01	8.8467E-01	8.3702E-01	7.4597E-01	6.8785E-01
13	3.0000E+00	1.1062E+00	1.0504E+00	1.0182E+00	9.7732E-01	9.5101E-01	8.7653E-01	8.3731E-01
14	3.5000E+00	1.1267E+00	1.0845E+00	1.0671E+00	1.0414E+00	1.0315E+00	9.7056E-01	9.4733E-01
15	4.0000E+00	1.1389E+00	1.1071E+00	1.1011E+00	1.0870E+00	1.0897E+00	1.0398E+00	1.0293E+00
16	5.0000E+00	1.1492E+00	1.1319E+00	1.1418E+00	1.1441E+00	1.1651E+00	1.1312E+00	1.1396E+00
17	6.0000E+00	1.1505E+00	1.1428E+00	1.1632E+00	1.1763E+00	1.2092E+00	1.1862E+00	1.2073E+00
18	7.0000E+00	1.1473E+00	1.1463E+00	1.1738E+00	1.1945E+00	1.2361E+00	1.2209E+00	1.2509E+00
19	9.0000E+00	1.1352E+00	1.1429E+00	1.1798E+00	1.2104E+00	1.2631E+00	1.2581E+00	1.2994E+00
20	1.2000E+01	1.1138E+00	1.1287E+00	1.1731E+00	1.2121E+00	1.2733E+00	1.2768E+00	1.3281E+00
21	1.5000E+01	1.0932E+00	1.1121E+00	1.1607E+00	1.2041E+00	1.2700E+00	1.2785E+00	1.3355E+00
22	1.8000E+01	1.0745E+00	1.0960E+00	1.1469E+00	1.1931E+00	1.2618E+00	1.2735E+00	1.3337E+00
23	2.2000E+01	1.0526E+00	1.0761E+00	1.1291E+00	1.1773E+00	1.2483E+00	1.2629E+00	1.3255E+00
24	3.0000E+01	1.0168E+00	1.0426E+00	1.0973E+00	1.1476E+00	1.2206E+00	1.2381E+00	1.3032E+00
25	4.0000E+01	9.8254E-01	1.0095E+00	1.0649E+00	1.1160E+00	1.1896E+00	1.2088E+00	1.2748E+00

	ENERGY (MEV)	NA- 23	MG- 26	AL- 27
1	5.0000E-02	3.5247E-23	1.3018E-25	4.9538E-28
2	1.0000E-01	5.3740E-15	1.3246E-16	3.1892E-18
3	2.0000E-01	2.3375E-09	2.1508E-10	1.8636E-11
4	4.0000E-01	1.6939E-05	3.9461E-06	8.4368E-07
5	6.0000E-01	7.3349E-04	2.5749E-04	8.2246E-05
6	8.0000E-01	6.2668E-03	2.8109E-03	1.1426E-03
7	1.0000E+00	2.5066E-02	1.3330E-02	6.4100E-03
8	1.2500E+00	7.8745E-02	4.9083E-02	2.7633E-02
9	1.5000E+00	1.6662E-01	1.1726E-01	7.4750E-02
10	1.7500E+00	2.7566E-01	2.1267E-01	1.4977E-01
11	2.0000E+00	3.8994E-01	3.2182E-01	2.4485E-01
12	2.5000E+00	5.9722E-01	5.3560E-01	4.5078E-01
13	3.0000E+00	7.5930E-01	7.1185E-01	6.3333E-01
14	3.5000E+00	8.8157E-01	8.4823E-01	7.7945E-01
15	4.0000E+00	9.7413E-01	9.5299E-01	8.9378E-01
16	5.0000E+00	1.1004E+00	1.0981E+00	1.0546E+00
17	6.0000E+00	1.1793E+00	1.1902E+00	1.1582E+00
18	7.0000E+00	1.2309E+00	1.2515E+00	1.2280E+00
19	9.0000E+00	1.2902E+00	1.3238E+00	1.3115E+00
20	1.2000E+01	1.3282E+00	1.3725E+00	1.3697E+00
21	1.5000E+01	1.3409E+00	1.3905E+00	1.3932E+00
22	1.8000E+01	1.3424E+00	1.3957E+00	1.4020E+00
23	2.2000E+01	1.3371E+00	1.3935E+00	1.4030E+00
24	3.0000E+01	1.3181E+00	1.3773E+00	1.3902E+00
25	4.0000E+01	1.2918E+00	1.3522E+00	1.3672E+00

Table 3-3 (continued)

	ENERGY(MEV)	SI- 30	P - 31	S - 34	CL- 39	AR- 38	K - 39	CA- 44
1	1.0000E-01	7.5232E-20	1.7343E-21	3.9604E-23	9.2132E-25	1.9697E-26	4.2394E-28	9.5897E-30
2	2.0000E-01	1.6414E-12	1.3638E-13	1.1658E-14	1.0373E-15	7.8188E-17	6.1243E-18	5.2925E-19
3	4.0000E-01	1.8800E-07	3.8624E-08	8.3443E-09	1.9050E-09	3.4976E-10	6.7897E-11	1.5032E-11
4	6.0000E-01	2.7609E-05	8.4753E-06	2.7564E-06	9.5180E-07	2.5972E-07	7.5352E-08	2.5204E-08
5	8.0000E-01	4.8951E-04	1.9109E-04	7.9242E-05	3.4937E-05	1.2093E-05	4.4584E-06	1.9027E-06
6	1.0000E+00	3.2461E-03	1.4953E-03	7.3172E-04	3.8046E-04	1.5517E-04	6.7390E-05	3.3902E-05
7	1.2500E+00	1.6306E-02	8.7407E-03	4.9642E-03	2.9880E-03	1.4149E-03	7.1210E-04	4.1426E-04
8	1.5000E+00	4.9631E-02	2.9940E-02	1.9032E-02	1.2764E-02	6.7771E-03	3.8095E-03	2.4643E-03
9	1.7500E+00	1.0931E-01	7.2724E-02	5.0641E-02	3.6993E-02	2.1598E-02	1.3271E-02	9.3213E-03
10	2.0000E+00	1.9261E-01	1.3904E-01	1.0444E-01	8.1826E-02	5.1920E-02	3.4423E-02	2.5860E-02
11	2.5000E+00	3.9182E-01	3.1815E-01	2.6710E-01	2.3213E-01	1.6908E-01	1.2715E-01	1.0609E-01
12	3.0000E+00	5.8172E-01	5.0615E-01	4.5454E-01	4.2138E-01	3.3770E-01	2.7829E-01	2.5008E-01
13	3.5000E+00	7.3923E-01	6.6973E-01	6.2596E-01	6.0313E-01	5.1306E-01	4.4860E-01	4.2297E-01
14	4.0000E+00	8.6494E-01	8.0349E-01	7.6979E-01	7.5916E-01	6.7024E-01	6.0819E-01	5.9051E-01
15	5.0000E+00	1.0449E+00	9.9840E-01	9.8304E-01	9.9331E-01	9.1328E-01	8.6229E-01	8.6279E-01
16	6.0000E+00	1.1626E+00	1.1275E+00	1.1257E+00	1.1512E+00	1.0801E+00	1.0397E+00	1.0559E+00
17	7.0000E+00	1.2423E+00	1.2158E+00	1.2238E+00	1.2608E+00	1.1967E+00	1.1650E+00	1.1938E+00
18	9.0000E+00	1.3388E+00	1.3236E+00	1.3448E+00	1.3985E+00	1.3442E+00	1.3246E+00	1.3701E+00
19	1.2000E+01	1.4074E+00	1.4022E+00	1.4353E+00	1.5024E+00	1.4572E+00	1.4482E+00	1.5070E+00
20	1.5000E+01	1.4375E+00	1.4382E+00	1.4779E+00	1.5516E+00	1.5121E+00	1.5092E+00	1.5767E+00
21	1.8000E+01	1.4503E+00	1.4547E+00	1.4982E+00	1.5767E+00	1.5406E+00	1.5419E+00	1.6144E+00
22	2.2000E+01	1.4542E+00	1.4617E+00	1.5087E+00	1.5913E+00	1.5587E+00	1.5634E+00	1.6389E+00
23	3.0000E+01	1.4446E+00	1.4559E+00	1.5064E+00	1.5918E+00	1.5633E+00	1.5720E+00	1.6520E+00
24	4.0000E+01	1.4231E+00	1.4366E+00	1.4887E+00	1.5755E+00	1.5499E+00	1.5610E+00	1.6421E+00

	ENERGY(MEV)	SC- 47
1	1.0000E-01	2.0903E-31
2	2.0000E-01	4.3060E-20
3	4.0000E-01	3.0761E-12
4	6.0000E-01	7.7454E-09
5	8.0000E-01	7.4415E-07
6	1.0000E+00	1.5618E-05
7	1.2500E+00	2.2081E-04
8	1.5000E+00	1.4626E-03
9	1.7500E+00	6.0189E-03
10	2.0000E+00	1.7904E-02
11	2.5000E+00	8.2249E-02
12	3.0000E+00	2.1119E-01
13	3.5000E+00	3.7868E-01
14	4.0000E+00	5.4868E-01
15	5.0000E+00	8.3390E-01
16	6.0000E+00	1.0401E+00
17	7.0000E+00	1.1885E+00
18	9.0000E+00	1.3791E+00
19	1.2000E+01	1.5294E+00
20	1.5000E+01	1.6063E+00
21	1.8000E+01	1.6478E+00
22	2.2000E+01	1.6764E+00
23	3.0000E+01	1.6933E+00
24	4.0000E+01	1.6859E+00

	ENERGY(MEV)	TI- 50	V - 51	CR- 54	MN- 55	FE- 58	CO- 57	NI- 62
1	1.5000E+00	8.5938E-04	4.6470E-04	2.6838E-04	1.4288E-04	8.1409E-05	3.9661E-05	2.4138E-05
2	1.7500E+00	3.8450E-03	2.2646E-03	1.4203E-03	8.2281E-04	5.0893E-04	2.7013E-04	1.7808E-04
3	2.0000E+00	1.2249E-02	7.7429E-03	5.1935E-03	3.2241E-03	2.1309E-03	1.2134E-03	8.5249E-04
4	2.2500E+00	3.0498E-02	2.0500E-02	1.4556E-02	9.5864E-03	6.6984E-03	4.0497E-03	2.9980E-03
5	2.5000E+00	6.2889E-02	4.4674E-02	3.3352E-02	2.3151E-02	1.6978E-02	1.0823E-02	8.3755E-03
6	2.7500E+00	1.1170E-01	8.3442E-02	6.5174E-02	4.7463E-02	3.6353E-02	2.4328E-02	1.9567E-02

Table 3-3 (continued)

	ENERGY (MEV)	Tl- 50	V - 51	CR- 54	MN- 55	FE- 58	CO- 57	NI- 62
7	3.0000E+00	1.7605E-01	1.3758E-01	1.1191E-01	8.5195E-02	6.7883E-02	4.7552E-02	3.9584E-02
8	3.5000E+00	3.3571E-01	2.8210E-01	2.4515E-01	2.0125E-01	1.7156E-01	1.3059E-01	1.1525E-01
9	4.0000E+00	5.0632E-01	4.4714E-01	4.0680E-01	3.5309E-01	3.1650E-01	2.5789E-01	2.3794E-01
10	4.5000E+00	6.6474E-01	6.0642E-01	5.6857E-01	5.1251E-01	4.7544E-01	4.0714E-01	3.8760E-01
11	5.0000E+00	8.0313E-01	7.4854E-01	7.1595E-01	6.6176E-01	6.2816E-01	5.5651E-01	5.4121E-01
12	5.5000E+00	9.2152E-01	8.7158E-01	8.4505E-01	7.9455E-01	7.6608E-01	6.9452E-01	6.8538E-01
13	6.0000E+00	1.0221E+00	9.7692E-01	9.5634E-01	9.1010E-01	8.8711E-01	8.1748E-01	8.1476E-01
14	7.0000E+00	1.1811E+00	1.1443E+00	1.1342E+00	1.0961E+00	1.0831E+00	1.0189E+00	1.0278E+00
15	8.0000E+00	1.2981E+00	1.2683E+00	1.2665E+00	1.2353E+00	1.2304E+00	1.1715E+00	1.1896E+00
16	9.0000E+00	1.3864E+00	1.3622E+00	1.3670E+00	1.3413E+00	1.3428E+00	1.2885E+00	1.3139E+00
17	1.0000E+01	1.4544E+00	1.4347E+00	1.4448E+00	1.4236E+00	1.4301E+00	1.3797E+00	1.4110E+00
18	1.2000E+01	1.5500E+00	1.5370E+00	1.5543E+00	1.5397E+00	1.5538E+00	1.5094E+00	1.5506E+00
19	1.4000E+01	1.6113E+00	1.6029E+00	1.6250E+00	1.6154E+00	1.6356E+00	1.5951E+00	1.6443E+00
20	1.7000E+01	1.6668E+00	1.6633E+00	1.6915E+00	1.6871E+00	1.7139E+00	1.6777E+00	1.7335E+00
21	2.0000E+01	1.6988E+00	1.6989E+00	1.7312E+00	1.7304E+00	1.7606E+00	1.7278E+00	1.7864E+00
22	3.0000E+01	1.7331E+00	1.7390E+00	1.7773E+00	1.7825E+00	1.8189E+00	1.7924E+00	1.8575E+00
23	4.0000E+01	1.7279E+00	1.7364E+00	1.7764E+00	1.7843E+00	1.8230E+00	1.7996E+00	1.8675E+00

	ENERGY (MEV)	CU- 63	ZN- 68	GA- 73	GE- 74	AS- 79	SE- 78	BR- 83
1	1.5000E+00	1.2560E-05	7.5726E-06	4.5328E-06	2.3329E-06	1.3837E-06	6.5760E-07	3.8792E-07
2	1.7500E+00	1.0072E-04	6.5751E-05	4.2605E-05	2.3821E-05	1.5293E-05	7.9066E-06	5.0480E-06
3	2.0000E+00	5.1581E-04	3.5871E-04	2.4754E-04	1.4797E-04	1.0116E-04	5.6003E-05	3.8071E-05
4	2.2500E+00	1.9194E-03	1.4057E-03	1.0213E-03	6.4544E-04	4.6450E-04	2.7232E-04	1.9486E-04
5	2.5000E+00	5.6305E-03	4.3069E-03	3.2678E-03	2.1658E-03	1.6272E-03	1.0019E-03	7.4823E-04
6	2.7500E+00	1.3740E-02	1.0913E-02	8.5927E-03	5.9385E-03	4.6291E-03	2.9761E-03	2.3052E-03
7	3.0000E+00	2.8932E-02	2.3749E-02	1.9323E-02	1.3870E-02	1.1166E-02	7.4655E-03	5.9688E-03
8	3.5000E+00	9.0583E-02	7.8683E-02	6.7728E-02	5.2071E-02	4.4307E-02	3.1805E-02	2.6830E-02
9	4.0000E+00	1.9892E-01	1.8080E-01	1.6302E-01	1.3325E-01	1.1881E-01	9.1081E-02	8.0388E-02
10	4.5000E+00	3.3966E-01	3.1947E-01	2.9864E-01	2.5682E-01	2.3776E-01	1.9326E-01	1.7714E-01
11	5.0000E+00	4.9029E-01	4.7243E-01	4.5315E-01	4.0480E-01	3.8531E-01	3.2831E-01	3.0984E-01
12	5.5000E+00	6.3524E-01	6.2233E-01	6.0740E-01	5.5739E-01	5.4072E-01	4.7713E-01	4.5979E-01
13	6.0000E+00	7.6728E-01	7.6015E-01	7.5058E-01	7.0186E-01	6.8971E-01	6.2397E-01	6.1007E-01
14	7.0000E+00	9.8723E-01	9.9108E-01	9.9254E-01	9.4968E-01	9.4837E-01	8.8428E-01	8.8026E-01
15	8.0000E+00	1.1555E+00	1.1689E+00	1.1808E+00	1.1444E+00	1.1534E+00	1.0933E+00	1.0990E+00
16	9.0000E+00	1.2853E+00	1.3069E+00	1.3278E+00	1.2972E+00	1.3141E+00	1.2585E+00	1.2715E+00
17	1.0000E+01	1.3871E+00	1.4160E+00	1.4439E+00	1.4180E+00	1.4404E+00	1.3890E+00	1.4074E+00
18	1.2000E+01	1.5342E+00	1.5741E+00	1.6102E+00	1.5911E+00	1.6211E+00	1.5764E+00	1.6045E+00
19	1.4000E+01	1.6332E+00	1.6788E+00	1.7194E+00	1.7054E+00	1.7433E+00	1.7026E+00	1.7405E+00
20	1.7000E+01	1.7273E+00	1.7776E+00	1.8257E+00	1.8177E+00	1.8649E+00	1.8288E+00	1.8736E+00
21	2.0000E+01	1.7836E+00	1.8388E+00	1.8926E+00	1.8884E+00	1.9386E+00	1.9065E+00	1.9540E+00
22	3.0000E+01	1.8612E+00	1.9232E+00	1.9836E+00	1.9860E+00	2.0430E+00	2.0175E+00	2.0722E+00
23	4.0000E+01	1.8742E+00	1.9380E+00	1.9998E+00	2.0054E+00	2.0652E+00	2.0432E+00	2.1006E+00

	ENERGY (MEV)	KR- 84	RB- 87	SR- 88	Y - 89	ZR- 92	NB- 97	MO- 98
1	1.5000E+00	1.9714E-07	1.0750E-07	5.4321E-08	2.7370E-08	1.4813E-08	8.5955E-09	4.3020E-09
2	1.7500E+00	2.7855E-06	1.6464E-06	9.0325E-07	4.9408E-07	2.8980E-07	1.8193E-07	9.8841E-08
3	2.0000E+00	2.2450E-05	1.4152E-05	8.2946E-06	4.8462E-06	3.0309E-06	2.0252E-06	1.1752E-06
4	2.2500E+00	1.2139E-04	8.0676E-05	4.9940E-05	3.0814E-05	2.0313E-05	1.4280E-05	8.7493E-06
5	2.5000E+00	4.8833E-04	3.3933E-04	2.1999E-04	1.4214E-04	9.7926E-05	7.1810E-05	4.6065E-05
6	2.7500E+00	1.5665E-03	1.1308E-03	7.6305E-04	5.1303E-04	3.6700E-04	2.7890E-04	1.8611E-04
7	3.0000E+00	4.2044E-03	3.1379E-03	2.1932E-03	1.5270E-03	1.1287E-03	8.8446E-04	6.1094E-04
8	3.5000E+00	2.0127E-02	1.5903E-02	1.1812E-02	8.7318E-03	6.8180E-03	5.6203E-03	4.1158E-03
9	4.0000E+00	6.3808E-02	5.2958E-02	4.1505E-02	3.2330E-02	2.6438E-02	2.2706E-02	1.7476E-02
10	4.5000E+00	1.4798E-01	1.2832E-01	1.0568E-01	8.6393E-02	7.3636E-02	6.5536E-02	5.2786E-02
11	5.0000E+00	2.7018E-01	2.4308E-01	2.0914E-01	1.7862E-01	1.5800E-01	1.4508E-01	1.2194E-01
12	5.5000E+00	4.1430E-01	3.8350E-01	3.4181E-01	3.0274E-01	2.7626E-01	2.6032E-01	2.2722E-01
13	6.0000E+00	5.6291E-01	5.3198E-01	4.8684E-01	4.4334E-01	4.1442E-01	3.9839E-01	3.5855E-01
14	7.0000E+00	8.3608E-01	8.1060E-01	7.6648E-01	7.2280E-01	6.9656E-01	6.8650E-01	6.4315E-01

Table 3-3 (continued)

	ENERGY(MEV)	KR- 84	RB- 87	SR- 88	Y - 89	ZR- 92	NB- 97	MO- 98
15	8.0000E+00	1.0603E+00	1.0420E+00	1.0027E+00	9.6339E-01	9.4334E-01	9.4148E-01	9.0131E-01
16	9.0000E+00	1.2382E+00	1.2260E+00	1.1920E+00	1.1578E+00	1.1441E+00	1.1503E+00	1.1150E+00
17	1.0000E+01	1.3788E+00	1.3722E+00	1.3430E+00	1.3136E+00	1.3060E+00	1.3200E+00	1.2893E+00
18	1.2000E+01	1.5837E+00	1.5874E+00	1.5662E+00	1.5448E+00	1.5475E+00	1.5721E+00	1.5488E+00
19	1.4000E+01	1.7256E+00	1.7364E+00	1.7206E+00	1.7046E+00	1.7125E+00	1.7413E+00	1.7234E+00
20	1.7000E+01	1.8639E+00	1.8791E+00	1.8686E+00	1.8578E+00	1.8709E+00	1.9081E+00	1.8966E+00
21	2.0000E+01	1.9480E+00	1.9679E+00	1.9615E+00	1.9550E+00	1.9739E+00	2.0177E+00	2.0103E+00
22	3.0000E+01	2.0733E+00	2.1006E+00	2.1014E+00	2.1021E+00	2.1284E+00	2.1791E+00	2.1789E+00
23	4.0000E+01	2.1048E+00	2.1344E+00	2.1382E+00	2.1420E+00	2.1712E+00	2.2248E+00	2.2280E+00

	ENERGY(MEV)	TC-101	RU-102	RH-105	PD-106	AG-113
1	1.5000E+00	2.3085E-09	1.1501E-09	6.1477E-10	3.0557E-10	1.9062E-10
2	1.7500E+00	5.7485E-08	3.1088E-08	1.8027E-08	9.7262E-09	6.5482E-09
3	2.0000E+00	7.2880E-07	4.2098E-07	2.6047E-07	1.5008E-07	1.0728E-07
4	2.2500E+00	5.7191E-06	3.4881E-06	2.2757E-06	1.3843E-06	1.0385E-06
5	2.5000E+00	3.1469E-05	2.0093E-05	1.3703E-05	8.7251E-06	6.8112E-06
6	2.7500E+00	1.3202E-04	8.7679E-05	6.2092E-05	4.1113E-05	3.3180E-05
7	3.0000E+00	4.4772E-04	3.0774E-04	2.2513E-04	1.5424E-04	1.2805E-04
8	3.5000E+00	3.1846E-03	2.3192E-03	1.7902E-03	1.2984E-03	1.1274E-03
9	4.0000E+00	1.4142E-02	1.0810E-02	8.7143E-03	6.6244E-03	5.9537E-03
10	4.5000E+00	4.4446E-02	3.5482E-02	2.9705E-02	2.3537E-02	2.1743E-02
11	5.0000E+00	1.0648E-01	8.8547E-02	7.6747E-02	6.3223E-02	5.9757E-02
12	5.5000E+00	2.0489E-01	1.7691E-01	1.5823E-01	1.3522E-01	1.3030E-01
13	6.0000E+00	3.3189E-01	2.9590E-01	2.7184E-01	2.4003E-01	2.3499E-01
14	7.0000E+00	6.1614E-01	5.7396E-01	5.4719E-01	5.0655E-01	5.0665E-01
15	8.0000E+00	8.7943E-01	8.3918E-01	8.1640E-01	7.7622E-01	7.8544E-01
16	9.0000E+00	1.0995E+00	1.0635E+00	1.0467E+00	1.0101E+00	1.0287E+00
17	1.0000E+01	1.2796E+00	1.2481E+00	1.2368E+00	1.2046E+00	1.2306E+00
18	1.2000E+01	1.5471E+00	1.5230E+00	1.5197E+00	1.4949E+00	1.5324E+00
19	1.4000E+01	1.7275E+00	1.7090E+00	1.7128E+00	1.6941E+00	1.7434E+00
20	1.7000E+01	1.9095E+00	1.8977E+00	1.9099E+00	1.8976E+00	1.9537E+00
21	2.0000E+01	2.0270E+00	2.0190E+00	2.0342E+00	2.0256E+00	2.0856E+00
22	3.0000E+01	2.2030E+00	2.2023E+00	2.2255E+00	2.2246E+00	2.2944E+00
23	4.0000E+01	2.2553E+00	2.2581E+00	2.2844E+00	2.2870E+00	2.3591E+00

	ENERGY(MEV)	CD-114	IN-119	SN-120	SB-129	TE-126	I -131	XE-132
1	5.0000E+00	4.8927E-02	4.3822E-02	3.5656E-02	3.4855E-02	2.5729E-02	2.2865E-02	1.8438E-02
2	5.2500E+00	7.5521E-02	6.8494E-02	5.6705E-02	5.5875E-02	4.2119E-02	3.7886E-02	3.1040E-02
3	5.5000E+00	1.1056E-01	1.0148E-01	8.5453E-02	8.4818E-02	6.5288E-02	5.9411E-02	4.9441E-02
4	5.7500E+00	1.5423E-01	1.4319E-01	1.2259E-01	1.2248E-01	9.6259E-02	8.8571E-02	7.4850E-02
5	6.0000E+00	2.0602E-01	1.9330E-01	1.6813E-01	1.6896E-01	1.3554E-01	1.2604E-01	1.0813E-01
6	6.2500E+00	2.6474E-01	2.5084E-01	2.2144E-01	2.2368E-01	1.8302E-01	1.7188E-01	1.4963E-01
7	6.5000E+00	3.2889E-01	3.1433E-01	2.8130E-01	2.8539E-01	2.3790E-01	2.2547E-01	1.9904E-01
8	6.7500E+00	3.9675E-01	3.8212E-01	3.4620E-01	3.5252E-01	2.9895E-01	2.8567E-01	2.5548E-01
9	7.0000E+00	4.6675E-01	4.5258E-01	4.1452E-01	4.2334E-01	3.6466E-01	3.5101E-01	3.1766E-01
10	7.5000E+00	6.0793E-01	5.9587E-01	5.5558E-01	5.6993E-01	5.0395E-01	4.9088E-01	4.5327E-01
11	8.0000E+00	7.4474E-01	7.3575E-01	6.9526E-01	7.1516E-01	6.4516E-01	6.3402E-01	5.9462E-01
12	8.5000E+00	8.7301E-01	8.6748E-01	8.2799E-01	8.5334E-01	7.8153E-01	7.7313E-01	7.3365E-01
13	9.0000E+00	9.9134E-01	9.8930E-01	9.5145E-01	9.8200E-01	9.0967E-01	9.0445E-01	8.6594E-01
14	9.5000E+00	1.0993E+00	1.1006E+00	1.0647E+00	1.1001E+00	1.0281E+00	1.0261E+00	9.8918E-01
15	1.0000E+01	1.1974E+00	1.2019E+00	1.1680E+00	1.2081E+00	1.1366E+00	1.1380E+00	1.1029E+00
16	1.1000E+01	1.3670E+00	1.3775E+00	1.3478E+00	1.3958E+00	1.3264E+00	1.3335E+00	1.3021E+00
17	1.2000E+01	1.5070E+00	1.5234E+00	1.4973E+00	1.5516E+00	1.4846E+00	1.4964E+00	1.4686E+00
18	1.3000E+01	1.6244E+00	1.6457E+00	1.6227E+00	1.6813E+00	1.6169E+00	1.6324E+00	1.6077E+00
19	1.4000E+01	1.7241E+00	1.7484E+00	1.7279E+00	1.7894E+00	1.7274E+00	1.7461E+00	1.7243E+00
20	1.5000E+01	1.8085E+00	1.8347E+00	1.8164E+00	1.8809E+00	1.8206E+00	1.8428E+00	1.8236E+00
21	1.7000E+01	1.9400E+00	1.9694E+00	1.9550E+00	2.0279E+00	1.9693E+00	1.9983E+00	1.9833E+00

Table 3-3 (continued)

	ENERGY (MEV)	CD-114	IN-119	SN-120	SB-129	TE-126	I-131	XE-132
22	1.9000E+01	2.0366E+00	2.0710E+00	2.0601E+00	2.1393E+00	2.0832E+00	2.1156E+00	2.1035E+00
23	2.1000E+01	2.1121E+00	2.1507E+00	2.1423E+00	2.2223E+00	2.1694E+00	2.2032E+00	2.1935E+00
24	2.4000E+01	2.1956E+00	2.2357E+00	2.2298E+00	2.3130E+00	2.2621E+00	2.3002E+00	2.2936E+00
25	2.7000E+01	2.2521E+00	2.2950E+00	2.2914E+00	2.3789E+00	2.3296E+00	2.3704E+00	2.3660E+00
26	3.0000E+01	2.2932E+00	2.3382E+00	2.3364E+00	2.4237E+00	2.3771E+00	2.4185E+00	2.4157E+00
27	3.5000E+01	2.3371E+00	2.3831E+00	2.3834E+00	2.4730E+00	2.4283E+00	2.4723E+00	2.4718E+00
28	4.0000E+01	2.3612E+00	2.4089E+00	2.4106E+00	2.5008E+00	2.4583E+00	2.5027E+00	2.5036E+00

	ENERGY (MEV)	CS-137	BA-138	LA-139	CE-140	PR-141	ND-146	PM-151
1	5.0000E+00	1.6352E-02	1.3142E-02	1.0538E-02	8.4327E-03	6.7351E-03	5.9459E-03	5.2367E-03
2	5.2500E+00	2.7850E-02	2.2726E-02	1.8497E-02	1.5020E-02	1.2171E-02	1.0858E-02	9.6615E-03
3	5.5000E+00	4.4851E-02	3.7149E-02	3.0679E-02	2.5268E-02	2.0760E-02	1.8701E-02	1.6802E-02
4	5.7500E+00	6.8620E-02	5.7677E-02	4.8317E-02	4.0353E-02	3.3607E-02	3.0556E-02	2.7704E-02
5	6.0000E+00	1.0015E-01	8.5402E-02	7.2560E-02	6.1438E-02	5.1856E-02	4.7561E-02	4.3499E-02
6	6.2500E+00	1.3989E-01	1.2101E-01	1.0425E-01	8.9478E-02	7.6530E-02	7.0789E-02	6.5294E-02
7	6.5000E+00	1.8774E-01	1.6464E-01	1.4378E-01	1.2506E-01	1.0837E-01	1.0107E-01	9.3998E-02
8	6.7500E+00	2.4295E-01	2.1585E-01	1.9097E-01	1.6827E-01	1.4768E-01	1.3882E-01	1.3016E-01
9	7.0000E+00	3.0432E-01	2.7368E-01	2.4512E-01	2.1864E-01	1.9426E-01	1.8399E-01	1.7386E-01
10	7.5000E+00	4.3967E-01	4.0381E-01	3.6955E-01	3.3696E-01	3.0612E-01	2.9396E-01	2.8177E-01
11	8.0000E+00	5.8232E-01	5.4379E-01	5.0633E-01	4.7002E-01	4.3496E-01	4.2253E-01	4.0990E-01
12	8.5000E+00	7.2376E-01	6.8453E-01	6.4593E-01	6.0805E-01	5.7096E-01	5.5976E-01	5.4822E-01
13	9.0000E+00	8.5903E-01	8.2037E-01	7.8204E-01	7.4411E-01	7.0664E-01	6.9768E-01	6.8822E-01
14	9.5000E+00	9.8546E-01	9.4810E-01	9.1089E-01	8.7387E-01	8.3707E-01	8.3083E-01	8.2396E-01
15	1.0000E+01	1.1023E+00	1.0666E+00	1.0310E+00	9.9535E-01	9.5984E-01	9.5646E-01	9.5233E-01
16	1.1000E+01	1.3072E+00	1.2752E+00	1.2431E+00	1.2110E+00	1.1788E+00	1.1809E+00	1.1823E+00
17	1.2000E+01	1.4785E+00	1.4500E+00	1.4214E+00	1.3927E+00	1.3639E+00	1.3713E+00	1.3780E+00
18	1.3000E+01	1.6218E+00	1.5966E+00	1.5713E+00	1.5458E+00	1.5202E+00	1.5323E+00	1.5437E+00
19	1.4000E+01	1.7425E+00	1.7202E+00	1.6978E+00	1.6753E+00	1.6527E+00	1.6689E+00	1.6840E+00
20	1.5000E+01	1.8456E+00	1.8260E+00	1.8061E+00	1.7862E+00	1.7660E+00	1.7854E+00	1.8031E+00
21	1.7000E+01	2.0109E+00	1.9951E+00	1.9793E+00	1.9632E+00	1.9470E+00	1.9703E+00	1.9925E+00
22	1.9000E+01	2.1332E+00	2.1205E+00	2.1076E+00	2.0946E+00	2.0814E+00	2.1086E+00	2.1366E+00
23	2.1000E+01	2.2258E+00	2.2157E+00	2.2055E+00	2.1953E+00	2.1850E+00	2.2174E+00	2.2487E+00
24	2.4000E+01	2.3315E+00	2.3246E+00	2.3176E+00	2.3105E+00	2.3032E+00	2.3376E+00	2.3705E+00
25	2.7000E+01	2.4045E+00	2.3996E+00	2.3946E+00	2.3895E+00	2.3843E+00	2.4205E+00	2.4567E+00
26	3.0000E+01	2.4562E+00	2.4531E+00	2.4499E+00	2.4467E+00	2.4434E+00	2.4832E+00	2.5220E+00
27	3.5000E+01	2.5146E+00	2.5137E+00	2.5127E+00	2.5115E+00	2.5104E+00	2.5513E+00	2.5913E+00
28	4.0000E+01	2.5477E+00	2.5484E+00	2.5491E+00	2.5496E+00	2.5501E+00	2.5922E+00	2.6340E+00

	ENERGY (MEV)	SM-152	EU-157	GD-158	TB-163	DY-164	HO-165	ER-168
1	5.0000E+00	4.1711E-03	3.6643E-03	2.9135E-03	2.5553E-03	2.0289E-03	1.6089E-03	1.3407E-03
2	5.2500E+00	7.8037E-03	6.9259E-03	5.5832E-03	4.9474E-03	3.9822E-03	3.2011E-03	2.6999E-03
3	5.5000E+00	1.3753E-02	1.2324E-02	1.0065E-02	9.0047E-03	7.3415E-03	5.9772E-03	5.0972E-03
4	5.7500E+00	2.2970E-02	2.0767E-02	1.7174E-02	1.5504E-02	1.2796E-02	1.0545E-02	9.0867E-03
5	6.0000E+00	3.6525E-02	3.3309E-02	2.7884E-02	2.5391E-02	2.1205E-02	1.7678E-02	1.5385E-02
6	6.2500E+00	5.5515E-02	5.1056E-02	4.3257E-02	3.9719E-02	3.3556E-02	2.8294E-02	2.4860E-02
7	6.5000E+00	8.0918E-02	7.5035E-02	6.4335E-02	5.9555E-02	5.0893E-02	4.3393E-02	3.8480E-02
8	6.7500E+00	1.1343E-01	1.0604E-01	9.2000E-02	8.5841E-02	7.4193E-02	6.3962E-02	5.7238E-02
9	7.0000E+00	1.5335E-01	1.4448E-01	1.2682E-01	1.1925E-01	1.0423E-01	9.0852E-02	8.2036E-02
10	7.5000E+00	2.5418E-01	2.4299E-01	2.1811E-01	2.0803E-01	1.8585E-01	1.6552E-01	1.5204E-01
11	8.0000E+00	3.7702E-01	3.6491E-01	3.3411E-01	3.2259E-01	2.9401E-01	2.6713E-01	2.4929E-01
12	8.5000E+00	5.1226E-01	5.0074E-01	4.6606E-01	4.5446E-01	4.2132E-01	3.8950E-01	3.6851E-01
13	9.0000E+00	6.5107E-01	6.4110E-01	6.0463E-01	5.9397E-01	5.5830E-01	5.2353E-01	5.0097E-01
14	9.5000E+00	7.8694E-01	7.7915E-01	7.4232E-01	7.3344E-01	6.9690E-01	6.6092E-01	6.3820E-01
15	1.0000E+01	9.1624E-01	9.1094E-01	8.7472E-01	8.6814E-01	8.3186E-01	7.9589E-01	7.7407E-01
16	1.1000E+01	1.1492E+00	1.1492E+00	1.1157E+00	1.1146E+00	1.0806E+00	1.0465E+00	1.0282E+00
17	1.2000E+01	1.3482E+00	1.3535E+00	1.3232E+00	1.3270E+00	1.2961E+00	1.2651E+00	1.2506E+00
18	1.3000E+01	1.5171E+00	1.5267E+00	1.4994E+00	1.5074E+00	1.4796E+00	1.4517E+00	1.4409E+00
19	1.4000E+01	1.6602E+00	1.6732E+00	1.6487E+00	1.6603E+00	1.6354E+00	1.6104E+00	1.6031E+00

Table 3-3 (continued)

	ENERGY (MEV)	SM-152	EU-157	GD-158	TB-163	DY-164	HO-165	ER-168
20	1.5000E+01	1.7817E+00	1.7976E+00	1.7757E+00	1.7910E+00	1.7687E+00	1.7464E+00	1.7423E+00
21	1.7000E+01	1.9754E+00	1.9977E+00	1.9804E+00	2.0021E+00	1.9843E+00	1.9663E+00	1.9673E+00
22	1.9000E+01	2.1230E+00	2.1502E+00	2.1361E+00	2.1614E+00	2.1468E+00	2.1320E+00	2.1360E+00
23	2.1000E+01	2.2377E+00	2.2668E+00	2.2552E+00	2.2822E+00	2.2701E+00	2.2578E+00	2.2645E+00
24	2.4000E+01	2.3622E+00	2.3938E+00	2.3852E+00	2.4172E+00	2.4087E+00	2.4001E+00	2.4118E+00
25	2.7000E+01	2.4511E+00	2.4876E+00	2.4818E+00	2.5169E+00	2.5106E+00	2.5041E+00	2.5173E+00
26	3.0000E+01	2.5182E+00	2.5549E+00	2.5507E+00	2.5862E+00	2.5816E+00	2.5769E+00	2.5916E+00
27	3.5000E+01	2.5897E+00	2.6288E+00	2.6269E+00	2.6658E+00	2.6637E+00	2.6615E+00	2.6790E+00
28	4.0000E+01	2.6339E+00	2.6739E+00	2.6736E+00	2.7134E+00	2.7130E+00	2.7124E+00	2.7315E+00

	ENERGY (MEV)	TM-173	YB-174	LU-179	HF-180	TA-183	W -186	RE-191
1	5.0000E+00	1.1746E-03	9.2985E-04	8.1417E-04	6.4375E-04	5.3516E-04	4.4460E-04	3.8829E-04
2	5.2500E+00	2.3902E-03	1.9179E-03	1.6967E-03	1.3598E-03	1.1439E-03	9.6176E-04	8.4865E-04
3	5.5000E+00	4.5559E-03	3.7018E-03	3.3060E-03	2.6828E-03	2.2818E-03	1.9394E-03	1.7272E-03
4	5.7500E+00	8.1939E-03	6.7369E-03	6.0689E-03	4.9827E-03	4.2807E-03	3.6749E-03	3.3004E-03
5	6.0000E+00	1.3989E-02	1.1631E-02	1.0562E-02	8.7673E-03	7.6028E-03	6.5878E-03	5.9617E-03
6	6.2500E+00	2.2780E-02	1.9146E-02	1.7515E-02	1.4693E-02	1.2854E-02	1.1235E-02	1.0238E-02
7	6.5000E+00	3.5522E-02	3.0170E-02	2.7793E-02	2.3554E-02	2.0778E-02	1.8311E-02	1.6798E-02
8	6.7500E+00	5.3212E-02	4.5666E-02	4.2352E-02	3.6251E-02	3.2237E-02	2.8636E-02	2.6430E-02
9	7.0000E+00	7.6786E-02	6.6579E-02	6.2134E-02	5.3710E-02	4.8140E-02	4.3094E-02	4.0013E-02
10	7.5000E+00	1.4414E-01	1.2755E-01	1.2048E-01	1.0621E-01	9.6675E-02	8.7866E-02	8.2543E-02
11	8.0000E+00	2.3907E-01	2.1575E-01	2.0612E-01	1.8522E-01	1.7116E-01	1.5791E-01	1.5007E-01
12	8.5000E+00	3.5697E-01	3.2792E-01	3.1657E-01	2.8959E-01	2.7145E-01	2.5405E-01	2.4412E-01
13	9.0000E+00	4.8939E-01	4.5640E-01	4.4462E-01	4.1313E-01	3.9219E-01	3.7181E-01	3.6086E-01
14	9.5000E+00	6.2774E-01	5.9268E-01	5.8175E-01	5.4758E-01	5.2539E-01	5.0353E-01	4.9282E-01
15	1.0000E+01	7.6560E-01	7.2991E-01	7.2076E-01	6.8548E-01	6.6335E-01	6.4135E-01	6.3174E-01
16	1.1000E+01	1.0248E+00	9.9039E-01	9.8601E-01	9.5151E-01	9.3178E-01	9.1187E-01	9.0593E-01
17	1.2000E+01	1.2521E+00	1.2205E+00	1.2209E+00	1.1890E+00	1.1727E+00	1.1561E+00	1.1544E+00
18	1.3000E+01	1.4468E+00	1.4182E+00	1.4231E+00	1.3941E+00	1.3815E+00	1.3684E+00	1.3712E+00
19	1.4000E+01	1.6132E+00	1.5875E+00	1.5966E+00	1.5705E+00	1.5613E+00	1.5519E+00	1.5587E+00
20	1.5000E+01	1.7564E+00	1.7333E+00	1.7461E+00	1.7225E+00	1.7164E+00	1.7097E+00	1.7195E+00
21	1.7000E+01	1.9864E+00	1.9675E+00	1.9846E+00	1.9652E+00	1.9632E+00	1.9610E+00	1.9766E+00
22	1.9000E+01	2.1577E+00	2.1421E+00	2.1633E+00	2.1476E+00	2.1505E+00	2.1536E+00	2.1754E+00
23	2.1000E+01	2.2906E+00	2.2781E+00	2.3050E+00	2.2923E+00	2.2990E+00	2.3052E+00	2.3295E+00
24	2.4000E+01	2.4432E+00	2.4340E+00	2.4632E+00	2.4535E+00	2.4622E+00	2.4704E+00	2.4962E+00
25	2.7000E+01	2.5492E+00	2.5421E+00	2.5726E+00	2.5652E+00	2.5766E+00	2.5885E+00	2.6201E+00
26	3.0000E+01	2.6259E+00	2.6210E+00	2.6558E+00	2.6508E+00	2.6653E+00	2.6793E+00	2.7117E+00
27	3.5000E+01	2.7158E+00	2.7132E+00	2.7490E+00	2.7461E+00	2.7620E+00	2.7776E+00	2.8121E+00
28	4.0000E+01	2.7698E+00	2.7689E+00	2.8067E+00	2.8057E+00	2.8234E+00	2.8406E+00	2.8765E+00

	ENERGY (MEV)	OS-192	IR-194	PT-196	AU-201	HG-204	TL-207	PB-208
1	5.0000E+00	3.0626E-04	2.4754E-04	1.9994E-04	1.7422E-04	1.4418E-04	1.1925E-04	9.3669E-05
2	5.2500E+00	6.7847E-04	5.5545E-04	4.5441E-04	4.0010E-04	3.3514E-04	2.8057E-04	2.2345E-04
3	5.5000E+00	1.3982E-03	1.1581E-03	9.5864E-04	8.5202E-04	7.2159E-04	6.1084E-04	4.9270E-04
4	5.7500E+00	2.7028E-03	2.2630E-03	1.8935E-03	1.6973E-03	1.4520E-03	1.2418E-03	1.0134E-03
5	6.0000E+00	4.9354E-03	4.1738E-03	3.5275E-03	3.1863E-03	2.7514E-03	2.3751E-03	1.9595E-03
6	6.2500E+00	8.5628E-03	7.3097E-03	6.2358E-03	5.6727E-03	4.9416E-03	4.3031E-03	3.5863E-03
7	6.5000E+00	1.4187E-02	1.2219E-02	1.0516E-02	9.6297E-03	8.4564E-03	7.4238E-03	6.2464E-03
8	6.7500E+00	2.2533E-02	1.9573E-02	1.6988E-02	1.5654E-02	1.3853E-02	1.2255E-02	1.0405E-02
9	7.0000E+00	3.4428E-02	3.0154E-02	2.6388E-02	2.4460E-02	2.1806E-02	1.9434E-02	1.6642E-02
10	7.5000E+00	7.2327E-02	6.4386E-02	5.7251E-02	5.3679E-02	4.8541E-02	4.3870E-02	3.8192E-02
11	8.0000E+00	1.3389E-01	1.2112E-01	1.0942E-01	1.0375E-01	9.5124E-02	8.7137E-02	7.7086E-02
12	8.5000E+00	2.2165E-01	2.0370E-01	1.8689E-01	1.7907E-01	1.6640E-01	1.5443E-01	1.3880E-01
13	9.0000E+00	3.3295E-01	3.1047E-01	2.8900E-01	2.7958E-01	2.6306E-01	2.4714E-01	2.2561E-01
14	9.5000E+00	4.6102E-01	4.3537E-01	4.1047E-01	4.0033E-01	3.8086E-01	3.6178E-01	3.3504E-01
15	1.0000E+01	5.9783E-01	5.7048E-01	5.4360E-01	5.3353E-01	5.1234E-01	4.9130E-01	4.6075E-01
16	1.1000E+01	8.7139E-01	8.4395E-01	8.1654E-01	8.0875E-01	7.8746E-01	7.6603E-01	7.3228E-01



Table 3-3 (continued)

	ENERGY (MEV)	OS-192	IR-194	PT-196	AU-201	HG-204	TL-207	PB-208
17	1.2000E+01	1.1217E+00	1.0965E+00	1.0712E+00	1.0677E+00	1.0490E+00	1.0302E+00	9.9703E-01
18	1.3000E+01	1.3413E+00	1.3192E+00	1.2970E+00	1.2979E+00	1.2827E+00	1.2671E+00	1.2362E+00
19	1.4000E+01	1.5315E+00	1.5125E+00	1.4932E+00	1.4979E+00	1.4860E+00	1.4738E+00	1.4456E+00
20	1.5000E+01	1.6949E+00	1.6785E+00	1.6620E+00	1.6701E+00	1.6614E+00	1.6524E+00	1.6268E+00
21	1.7000E+01	1.9566E+00	1.9455E+00	1.9342E+00	1.9493E+00	1.9462E+00	1.9428E+00	1.9217E+00
22	1.9000E+01	2.1591E+00	2.1520E+00	2.1446E+00	2.1638E+00	2.1646E+00	2.1644E+00	2.1468E+00
23	2.1000E+01	2.3158E+00	2.3111E+00	2.3060E+00	2.3265E+00	2.3291E+00	2.3315E+00	2.3167E+00
24	2.4000E+01	2.4857E+00	2.4841E+00	2.4827E+00	2.5095E+00	2.5179E+00	2.5262E+00	2.5154E+00
25	2.7000E+01	2.6126E+00	2.6147E+00	2.6166E+00	2.6463E+00	2.6565E+00	2.6660E+00	2.6574E+00
26	3.0000E+01	2.7060E+00	2.7094E+00	2.7126E+00	2.7425E+00	2.7539E+00	2.7652E+00	2.7586E+00
27	3.5000E+01	2.8089E+00	2.8152E+00	2.8213E+00	2.8551E+00	2.8701E+00	2.8846E+00	2.8808E+00
28	4.0000E+01	2.8750E+00	2.8827E+00	2.8902E+00	2.9248E+00	2.9412E+00	2.9573E+00	2.9553E+00

Table 3-4 Compound Nucleus Formation Cross Sections of t+Y(Z-1,A-2)

(unit: barns)

ENERGY (MEV)	BE- 9	B - 10	C - 12	N - 14	O - 17	F - 18	NE- 21
1	5.0000E-02	5.6660E-08	1.6817E-10	3.2116E-13	5.4335E-16	6.7977E-19	1.1923E-21
2	1.0000E-01	6.6770E-05	1.5817E-06	2.7699E-08	4.3380E-10	5.4887E-12	8.4027E-14
3	2.0000E-01	7.5255E-03	7.7211E-04	6.4348E-05	4.8295E-06	3.1093E-07	2.1751E-08
4	4.0000E-01	1.4509E-01	4.3313E-02	1.1003E-02	2.5048E-03	5.0906E-04	1.0367E-04
5	6.0000E-01	4.0230E-01	1.9651E-01	8.4021E-02	3.1829E-02	1.0861E-02	3.5554E-03
6	8.0000E-01	6.3731E-01	4.0476E-01	2.3491E-01	1.2229E-01	5.7806E-02	2.5373E-02
7	1.0000E+00	8.1480E-01	5.9855E-01	4.1609E-01	2.6653E-01	1.5819E-01	8.5918E-02
8	1.2500E+00	9.7253E-01	7.9035E-01	6.2442E-01	4.6797E-01	3.3462E-01	2.2024E-01
9	1.5000E+00	1.0816E+00	9.3179E-01	7.9171E-01	6.4981E-01	5.1952E-01	3.8804E-01
10	1.7500E+00	1.1571E+00	1.0353E+00	9.2066E-01	7.9915E-01	6.8383E-01	5.5379E-01
11	2.0000E+00	1.2100E+00	1.1119E+00	1.0197E+00	9.1832E-01	8.2053E-01	7.0060E-01
12	2.5000E+00	1.2748E+00	1.2144E+00	1.1572E+00	1.0888E+00	1.0220E+00	9.2808E-01
13	3.0000E+00	1.3073E+00	1.2757E+00	1.2434E+00	1.1991E+00	1.1559E+00	1.0855E+00
14	3.5000E+00	1.3229E+00	1.3134E+00	1.2990E+00	1.2727E+00	1.2472E+00	1.1955E+00
15	4.0000E+00	1.3303E+00	1.3371E+00	1.3360E+00	1.3235E+00	1.3114E+00	1.2745E+00
16	5.0000E+00	1.3329E+00	1.3600E+00	1.3769E+00	1.3841E+00	1.3899E+00	1.3747E+00
17	6.0000E+00	1.3243E+00	1.3648E+00	1.3943E+00	1.4144E+00	1.4313E+00	1.4313E+00
18	7.0000E+00	1.3103E+00	1.3614E+00	1.3998E+00	1.4283E+00	1.4528E+00	1.4640E+00
19	9.0000E+00	1.2747E+00	1.3434E+00	1.3928E+00	1.4329E+00	1.4672E+00	1.4926E+00
20	1.2000E+01	1.2257E+00	1.3082E+00	1.3662E+00	1.4158E+00	1.4566E+00	1.4954E+00
21	1.5000E+01	1.1810E+00	1.2720E+00	1.3351E+00	1.3897E+00	1.4338E+00	1.4806E+00
22	1.8000E+01	1.1390E+00	1.2378E+00	1.3039E+00	1.3618E+00	1.4069E+00	1.4595E+00
23	2.2000E+01	1.0887E+00	1.1962E+00	1.2644E+00	1.3249E+00	1.3702E+00	1.4284E+00
24	3.0000E+01	1.0024E+00	1.1231E+00	1.1935E+00	1.2565E+00	1.2993E+00	1.3657E+00
25	4.0000E+01	9.0278E-01	1.0445E+00	1.1161E+00	1.1800E+00	1.2174E+00	1.2920E+00
1	5.0000E-02	2.0545E-27	2.1497E-30				
2	1.0000E-01	1.3134E-17	1.3941E-19				
3	2.0000E-01	7.9732E-11	4.2808E-12				
4	4.0000E-01	3.5029E-06	5.8870E-07				
5	6.0000E-01	3.2058E-04	8.9176E-05				
6	8.0000E-01	4.1399E-03	1.5567E-03				
7	1.0000E+00	2.1401E-02	9.9310E-03				
8	1.2500E+00	8.1815E-02	4.6331E-02				
9	1.5000E+00	1.9279E-01	1.2748E-01				
10	1.7500E+00	3.3608E-01	2.4969E-01				
11	2.0000E+00	4.8601E-01	3.9202E-01				
12	2.5000E+00	7.5006E-01	6.6530E-01				
13	3.0000E+00	9.4875E-01	8.8200E-01				
14	3.5000E+00	1.0938E+00	1.0437E+00				
15	4.0000E+00	1.2007E+00	1.1643E+00				
16	5.0000E+00	1.3419E+00	1.3254E+00				
17	6.0000E+00	1.4260E+00	1.4226E+00				
18	7.0000E+00	1.4781E+00	1.4838E+00				
19	9.0000E+00	1.5320E+00	1.5492E+00				
20	1.2000E+01	1.5561E+00	1.5823E+00				
21	1.5000E+01	1.5534E+00	1.5842E+00				
22	1.8000E+01	1.5398E+00	1.5730E+00				
23	2.2000E+01	1.5151E+00	1.5499E+00				
24	3.0000E+01	1.4589E+00	1.4939E+00				
25	4.0000E+01	1.3887E+00	1.4211E+00				

Table 3-4 (continued)

	ENERGY (MEV)	AL- 26	SI- 29	P - 30	S - 33	CL- 38	AR- 37
1	1.0000E-01	1.7718E-21	1.7934E-23	2.1533E-25	2.1042E-27	1.7402E-29	2.2943E-31
2	2.0000E-01	2.5411E-13	1.2967E-14	7.3081E-16	3.5934E-17	1.5735E-18	9.2845E-20
3	4.0000E-01	1.0301E-07	1.6409E-08	2.7374E-09	4.1890E-10	5.9256E-11	9.9841E-12
4	6.0000E-01	2.5094E-05	6.6002E-06	1.7731E-06	4.4731E-07	1.0620E-07	2.8303E-08
5	8.0000E-01	5.8063E-04	2.0580E-04	7.3279E-05	2.4872E-05	8.0393E-06	2.8047E-06
6	1.0000E+00	4.4956E-03	1.9552E-03	8.4326E-04	3.5034E-04	1.3982E-04	5.8460E-05
7	1.2500E+00	2.5118E-02	1.3186E-02	6.7621E-03	3.3712E-03	1.6276E-03	7.9837E-04
8	1.5000E+00	7.9771E-02	4.8557E-02	2.8479E-02	1.6322E-02	9.1072E-03	5.0256E-03
9	1.7500E+00	1.7538E-01	1.2054E-01	7.9109E-02	5.0899E-02	3.1992E-02	1.9410E-02
10	2.0000E+00	3.0071E-01	2.2750E-01	1.6408E-01	1.1648E-01	8.1099E-02	5.3428E-02
11	2.5000E+00	5.6912E-01	4.8663E-01	4.0038E-01	3.2795E-01	2.6661E-01	2.0189E-01
12	3.0000E+00	7.9810E-01	7.2628E-01	6.4231E-01	5.6996E-01	5.0670E-01	4.2251E-01
13	3.5000E+00	9.7485E-01	9.1747E-01	8.4454E-01	7.8256E-01	7.2942E-01	6.4447E-01
14	4.0000E+00	1.1091E+00	1.0649E+00	1.0040E+00	9.5391E-01	9.1288E-01	8.3513E-01
15	5.0000E+00	1.2914E+00	1.2673E+00	1.2270E+00	1.1967E+00	1.1754E+00	1.1160E+00
16	6.0000E+00	1.4037E+00	1.3933E+00	1.3681E+00	1.3519E+00	1.3440E+00	1.3003E+00
17	7.0000E+00	1.4761E+00	1.4752E+00	1.4612E+00	1.4550E+00	1.4561E+00	1.4249E+00
18	9.0000E+00	1.5564E+00	1.5680E+00	1.5691E+00	1.5757E+00	1.5878E+00	1.5744E+00
19	1.2000E+01	1.6028E+00	1.6240E+00	1.6387E+00	1.6558E+00	1.6755E+00	1.6791E+00
20	1.5000E+01	1.6128E+00	1.6391E+00	1.6619E+00	1.6844E+00	1.7072E+00	1.7221E+00
21	1.8000E+01	1.6072E+00	1.6366E+00	1.6649E+00	1.6907E+00	1.7145E+00	1.7373E+00
22	2.2000E+01	1.5894E+00	1.6205E+00	1.6542E+00	1.6825E+00	1.7056E+00	1.7370E+00
23	3.0000E+01	1.5406E+00	1.5727E+00	1.6133E+00	1.6431E+00	1.6620E+00	1.7065E+00
24	4.0000E+01	1.4744E+00	1.5048E+00	1.5514E+00	1.5802E+00	1.5901E+00	1.6490E+00

	ENERGY (MEV)	K - 38	CA- 43	SC- 46	TI- 49	V - 50	CR- 53	MN- 54
1	2.0000E-01	4.8517E-21	2.0577E-22	9.5599E-24				
2	4.0000E-01	1.5547E-12	2.1202E-13	3.0404E-14				
3	6.0000E-01	7.1158E-09	1.6239E-09	3.8223E-10				
4	8.0000E-01	9.3561E-07	2.8989E-07	9.1509E-08				
5	1.0000E+00	2.3613E-05	9.0110E-06	3.4708E-06				
6	1.2500E+00	3.8215E-04	1.7572E-04	8.0800E-05				
7	1.5000E+00	2.7269E-03	1.4404E-03	7.5469E-04	3.9060E-04	2.0252E-04	1.0278E-04	5.2405E-05
8	1.7500E+00	1.1637E-02	6.8643E-03	3.9848E-03	2.2825E-03	1.3016E-03	7.3021E-04	4.0945E-04
9	2.0000E+00	3.4882E-02	2.2589E-02	1.4285E-02	8.8971E-03	5.4815E-03	3.3363E-03	2.0190E-03
10	2.2500E+00	7.2832E-02*	5.0966E-02*	3.4635E-02*	2.5882E-02	1.7040E-02	1.1118E-02	7.1723E-03
11	2.5000E+00	1.5207E-01	1.1499E-01	8.3974E-02	6.0134E-02	4.2043E-02	2.9188E-02	1.9921E-02
12	2.7500E+00	2.3149E-01*	1.8508E-01*	1.4298E-01*	1.1665E-01	8.6244E-02	6.3407E-02	4.5585E-02
13	3.0000E+00	3.5240E-01	2.9789E-01	2.4345E-01	1.9532E-01	1.5201E-01	1.1782E-01	8.8953E-02
14	3.5000E+00	5.7197E-01	5.1699E-01	4.5498E-01	3.9528E-01	3.3410E-01	2.8241E-01	2.3226E-01
15	4.0000E+00	7.6885E-01	7.2172E-01	6.6356E-01	6.0513E-01	5.3984E-01	4.8342E-01	4.2296E-01
16	4.5000E+00	9.0570E-01*	8.6557E-01*	8.1296E-01*	7.9323E-01	7.3170E-01	6.7881E-01	6.1811E-01
17	5.0000E+00	1.0669E+00	1.0381E+00	9.9599E-01	9.5209E-01	8.9709E-01	8.5069E-01	7.9453E-01
18	5.5000E+00	1.1621E+00*	1.1395E+00*	1.1037E+00*	1.0840E+00	1.0360E+00	9.9651E-01	9.4641E-01
19	6.0000E+00	1.2657E+00	1.2509E+00	1.2230E+00	1.1932E+00	1.1518E+00	1.1188E+00	1.0749E+00
20	7.0000E+00	1.4015E+00	1.3966E+00	1.3794E+00	1.3605E+00	1.3304E+00	1.3082E+00	1.2753E+00
21	8.0000E+00	1.4817E+00*	1.4826E+00*	1.4720E+00*	1.4794E+00	1.4583E+00	1.4444E+00	1.4204E+00
22	9.0000E+00	1.5665E+00	1.5738E+00	1.5708E+00	1.5663E+00	1.5522E+00	1.5448E+00	1.5280E+00
23	1.0000E+01	1.6050E+00*	1.6152E+00*	1.6159E+00*	1.6310E+00	1.6228E+00	1.6204E+00	1.6093E+00
24	1.2000E+01	1.6849E+00	1.7012E+00	1.7100E+00	1.7175E+00	1.7180E+00	1.7229E+00	1.7207E+00
25	1.4000E+01	1.7190E+00*	1.7380E+00*	1.7511E+00*	1.7688E+00	1.7756E+00	1.7855E+00	1.7896E+00
26	1.5000E+01	1.7363E+00	1.7567E+00	1.7720E+00	1.7822E+00*	1.7913E+00*	1.8028E+00*	1.8092E+00*
27	1.7000E+01	1.7502E+00*	1.7718E+00*	1.7897E+00*	1.8094E+00	1.8230E+00	1.8379E+00	1.8489E+00
28	1.8000E+01	1.7572E+00	1.7794E+00	1.7986E+00	1.8148E+00*	1.8300E+00*	1.8460E+00*	1.8586E+00*
29	2.0000E+01	1.7597E+00*	1.7821E+00*	1.8028E+00*	1.8256E+00	1.8441E+00	1.8623E+00	1.8781E+00
30	2.2000E+01	1.7622E+00	1.7848E+00	1.8071E+00	1.8220E+00*	1.8426E+00*	1.8616E+00*	1.8795E+00*
31	3.0000E+01	1.7385E+00	1.7587E+00	1.7835E+00	1.8075E+00	1.8365E+00	1.8590E+00	1.8849E+00
32	4.0000E+01	1.6866E+00	1.7007E+00	1.7255E+00	1.7494E+00	1.7852E+00	1.8081E+00	1.8405E+00

Table 3-4 (continued)

	ENERGY (MEV)	FE- 57	CO- 56	NI- 61	CU- 62	ZN- 67	GA- 72	GE- 73
1	1.5000E+00	2.6157E-05	1.3305E-05	6.4639E-06	3.2031E-06	1.5316E-06	7.2476E-07	3.5374E-07
2	1.7500E+00	2.2579E-04	1.2583E-04	6.7798E-05	3.6972E-05	1.9598E-05	1.0279E-05	5.5215E-06
3	2.0000E+00	1.2065E-03	7.2274E-04	4.2335E-04	2.4913E-04	1.4348E-04	8.1741E-05	4.7376E-05
4	2.2500E+00	4.5846E-03	2.9141E-03	1.8302E-03	1.1465E-03	7.0739E-04	4.3164E-04	2.6616E-04
5	2.5000E+00	1.3508E-02	9.0326E-03	6.0251E-03	3.9795E-03	2.6040E-03	1.6847E-03	1.0940E-03
6	2.7500E+00	3.2609E-02	2.2822E-02	1.6066E-02	1.1117E-02	7.6623E-03	5.2183E-03	3.5426E-03
7	3.0000E+00	6.6901E-02	4.8869E-02	3.6158E-02	2.6112E-02	1.8868E-02	1.3461E-02	9.5060E-03
8	3.5000E+00	1.9084E-01	1.5099E-01	1.2219E-01	9.5509E-02	7.5222E-02	5.8407E-02	4.4289E-02
9	4.0000E+00	3.7102E-01	3.1367E-01	2.7257E-01	2.2831E-01	1.9362E-01	1.6203E-01	1.3131E-01
10	4.5000E+00	5.6560E-01	5.0129E-01	4.5722E-01	4.0350E-01	3.6161E-01	3.2084E-01	2.7550E-01
11	5.0000E+00	7.4659E-01	6.8267E-01	6.4197E-01	5.8689E-01	5.4538E-01	5.0340E-01	4.5134E-01
12	5.5000E+00	9.0454E-01	8.4453E-01	8.0949E-01	7.5743E-01	7.2019E-01	6.8160E-01	6.2933E-01
13	6.0000E+00	1.0392E+00	9.8430E-01	9.5527E-01	9.0790E-01	8.7612E-01	8.4273E-01	7.9357E-01
14	7.0000E+00	1.2503E+00	1.2059E+00	1.1874E+00	1.1500E+00	1.1287E+00	1.1056E+00	1.0654E+00
15	8.0000E+00	1.4038E+00	1.3686E+00	1.3583E+00	1.3296E+00	1.3165E+00	1.3018E+00	1.2702E+00
16	9.0000E+00	1.5180E+00	1.4903E+00	1.4862E+00	1.4647E+00	1.4580E+00	1.4497E+00	1.4254E+00
17	1.0000E+01	1.6045E+00	1.5832E+00	1.5839E+00	1.5682E+00	1.5665E+00	1.5631E+00	1.5449E+00
18	1.2000E+01	1.7234E+00	1.7120E+00	1.7195E+00	1.7127E+00	1.7178E+00	1.7215E+00	1.7125E+00
19	1.4000E+01	1.7975E+00	1.7938E+00	1.8054E+00	1.8051E+00	1.8147E+00	1.8229E+00	1.8206E+00
20	1.7000E+01	1.8619E+00	1.8663E+00	1.8818E+00	1.8883E+00	1.9020E+00	1.9142E+00	1.9190E+00
21	2.0000E+01	1.8944E+00	1.9053E+00	1.9227E+00	1.9342E+00	1.9500E+00	1.9642E+00	1.9743E+00
22	3.0000E+01	1.9061E+00	1.9315E+00	1.9495E+00	1.9709E+00	1.9875E+00	2.0022E+00	2.0231E+00
23	4.0000E+01	1.8624E+00	1.8989E+00	1.9130E+00	1.9407E+00	1.9534E+00	1.9632E+00	1.9915E+00

	ENERGY (MEV)	AS- 78	SE- 77	BR- 82	KR- 83	RB- 86	SR- 87	Y - 88
1	1.5000E+00	1.6512E-07	8.1285E-08	3.7597E-08	1.7967E-08	8.3821E-09	3.9623E-09	1.8613E-09
2	1.7500E+00	2.8561E-06	1.5437E-06	7.9107E-07	4.1662E-07	2.1483E-07	1.1199E-07	5.8046E-08
3	2.0000E+00	2.6612E-05	1.5483E-05	8.6143E-06	4.9002E-06	2.7363E-06	1.5418E-06	8.6413E-07
4	2.2500E+00	1.6006E-04	9.8808E-05	5.8835E-05	3.5634E-05	2.1243E-05	1.2752E-05	7.6175E-06
5	2.5000E+00	6.9706E-04	4.5190E-04	2.8496E-04	1.8182E-04	1.1449E-04	7.2441E-05	4.5629E-05
6	2.7500E+00	2.3736E-03	1.6036E-03	1.0625E-03	7.0851E-04	4.6744E-04	3.0923E-04	2.0371E-04
7	3.0000E+00	6.6618E-03	4.6638E-03	3.2283E-03	2.2364E-03	1.5366E-03	1.0561E-03	7.2300E-04
8	3.5000E+00	3.3635E-02	2.5044E-02	1.8714E-02	1.3830E-02	1.0181E-02	7.4571E-03	5.4403E-03
9	4.0000E+00	1.0728E-01	8.4628E-02	6.7762E-02	5.3062E-02	4.1507E-02	3.2107E-02	2.4711E-02
10	4.5000E+00	2.3951E-01	1.9972E-01	1.7020E-01	1.4090E-01	1.1673E-01	9.5125E-02	7.7000E-02
11	5.0000E+00	4.1060E-01	3.5877E-01	3.2131E-01	2.7939E-01	2.4351E-01	2.0843E-01	1.7706E-01
12	5.5000E+00	5.8989E-01	5.3345E-01	4.9455E-01	4.4651E-01	4.0470E-01	3.6072E-01	3.1937E-01
13	6.0000E+00	7.5823E-01	7.0223E-01	6.6595E-01	6.1727E-01	5.7493E-01	5.2790E-01	4.8223E-01
14	7.0000E+00	1.0398E+00	9.9069E-01	9.6321E-01	9.2052E-01	8.8436E-01	8.4102E-01	7.9759E-01
15	8.0000E+00	1.2530E+00	1.2122E+00	1.1931E+00	1.1583E+00	1.1300E+00	1.0939E+00	1.0573E+00
16	9.0000E+00	1.4148E+00	1.3815E+00	1.3691E+00	1.3414E+00	1.3201E+00	1.2909E+00	1.2611E+00
17	1.0000E+01	1.5394E+00	1.5126E+00	1.5054E+00	1.4838E+00	1.4681E+00	1.4450E+00	1.4212E+00
18	1.2000E+01	1.7142E+00	1.6977E+00	1.6980E+00	1.6858E+00	1.6787E+00	1.6649E+00	1.6504E+00
19	1.4000E+01	1.8269E+00	1.8182E+00	1.8234E+00	1.8180E+00	1.8168E+00	1.8099E+00	1.8022E+00
20	1.7000E+01	1.9297E+00	1.9297E+00	1.9393E+00	1.9415E+00	1.9463E+00	1.9468E+00	1.9465E+00
21	2.0000E+01	1.9872E+00	1.9939E+00	2.0060E+00	2.0133E+00	2.0221E+00	2.0279E+00	2.0328E+00
22	3.0000E+01	2.0366E+00	2.0594E+00	2.0729E+00	2.0911E+00	2.1062E+00	2.1229E+00	2.1385E+00
23	4.0000E+01	1.9993E+00	2.0359E+00	2.0449E+00	2.0707E+00	2.0874E+00	2.1112E+00	2.1336E+00

	ENERGY (MEV)	ZR- 91	NB- 96	MO- 97	TC-100	RU-101	RH-104	PD-105
1	1.5000E+00	8.5646E-10	3.8567E-10	1.7885E-10	8.1176E-11	3.7268E-11	1.6773E-11	7.6261E-12
2	1.7500E+00	2.9538E-08	1.4737E-08	7.5459E-09	3.7891E-09	1.9217E-09	9.5721E-10	4.8100E-10
3	2.0000E+00	4.7651E-07	2.5813E-07	1.4301E-07	7.7852E-08	4.2748E-08	2.3091E-08	1.2569E-08
4	2.2500E+00	4.4865E-06	2.6006E-06	1.5366E-06	8.9375E-07	5.2369E-07	3.0235E-07	1.7571E-07
5	2.5000E+00	2.8396E-05	1.7423E-05	1.0861E-05	6.6772E-06	4.1301E-06	2.5211E-06	1.5474E-06
6	2.7500E+00	1.3286E-04	8.5586E-05	5.5822E-05	3.5972E-05	2.3292E-05	1.4908E-05	9.5834E-06
7	3.0000E+00	4.9103E-04	3.3000E-04	2.2376E-04	1.5017E-04	1.0112E-04	6.7415E-05	4.5092E-05
8	3.5000E+00	3.9525E-03	2.8518E-03	2.0593E-03	1.4776E-03	1.0603E-03	7.5589E-04	5.3919E-04

Table 3-4 (continued)

	ENERGY (MEV)	ZR- 91	NB- 96	MO- 97	TC-100	RU-101	RH-104	PD-105
9	4.0000E+00	1.8998E-02	1.4551E-02	1.1055E-02	8.3746E-03	6.3200E-03	4.7534E-03	3.5658E-03
10	4.5000E+00	6.2379E-02	5.0462E-02	4.0127E-02	3.1902E-02	2.5146E-02	1.9808E-02	1.5500E-02
11	5.0000E+00	1.5072E-01	1.2837E-01	1.0675E-01	8.8883E-02	7.3050E-02	6.0107E-02	4.8918E-02
12	5.5000E+00	2.8372E-01	2.5268E-01	2.1921E-01	1.9065E-01	1.6325E-01	1.4012E-01	1.1857E-01
13	6.0000E+00	4.4248E-01	4.0767E-01	3.6639E-01	3.3049E-01	2.9358E-01	2.6168E-01	2.2974E-01
14	7.0000E+00	7.6040E-01	7.2875E-01	6.8521E-01	6.4743E-01	6.0465E-01	5.6741E-01	5.2600E-01
15	8.0000E+00	1.0270E+00	1.0026E+00	9.6449E-01	9.3232E-01	8.9352E-01	8.6056E-01	8.2139E-01
16	9.0000E+00	1.2376E+00	1.2200E+00	1.1883E+00	1.1626E+00	1.1299E+00	1.1031E+00	1.0694E+00
17	1.0000E+01	1.4034E+00	1.3913E+00	1.3656E+00	1.3456E+00	1.3187E+00	1.2975E+00	1.2695E+00
18	1.2000E+01	1.6413E+00	1.6374E+00	1.6211E+00	1.6100E+00	1.5925E+00	1.5803E+00	1.5616E+00
19	1.4000E+01	1.7992E+00	1.8007E+00	1.7914E+00	1.7866E+00	1.7760E+00	1.7701E+00	1.7585E+00
20	1.7000E+01	1.9497E+00	1.9563E+00	1.9544E+00	1.9560E+00	1.9530E+00	1.9536E+00	1.9495E+00
21	2.0000E+01	2.0401E+00	2.0496E+00	2.0532E+00	2.0590E+00	2.0613E+00	2.0665E+00	2.0678E+00
22	3.0000E+01	2.1524E+00	2.1645E+00	2.1791E+00	2.1918E+00	2.2051E+00	2.2172E+00	2.2293E+00
23	4.0000E+01	2.1495E+00	2.1586E+00	2.1803E+00	2.1952E+00	2.2153E+00	2.2297E+00	2.2485E+00

	ENERGY (MEV)	AG-112
1	1.5000E+00	3.3007E-12
2	1.7500E+00	2.3110E-10
3	2.0000E+00	6.5671E-09
4	2.2500E+00	9.8383E-08
5	2.5000E+00	9.1847E-07
6	2.7500E+00	5.9807E-06
7	3.0000E+00	2.9389E-05
8	3.5000E+00	3.7791E-04
9	4.0000E+00	2.6521E-03
10	4.5000E+00	1.2139E-02
11	5.0000E+00	4.0187E-02
12	5.5000E+00	1.0195E-01
13	6.0000E+00	2.0579E-01
14	7.0000E+00	4.9819E-01
15	8.0000E+00	7.9896E-01
16	9.0000E+00	1.0536E+00
17	1.0000E+01	1.2592E+00
18	1.2000E+01	1.5596E+00
19	1.4000E+01	1.7616E+00
20	1.7000E+01	1.9572E+00
21	2.0000E+01	2.0775E+00
22	3.0000E+01	2.2390E+00
23	4.0000E+01	2.2510E+00

	ENERGY (MEV)	CD-113	IN-118	SN-119	SB-128	TE-125	I -130	XE-131
1	5.0000E+00	3.2430E-02	2.6212E-02	2.1013E-02	1.6792E-02	1.3414E-02	1.0651E-02	8.4544E-03
2	5.2500E+00	5.4245E-02	4.4765E-02	3.6499E-02	2.9862E-02	2.4148E-02	1.9541E-02	1.5750E-02
3	5.5000E+00	8.5331E-02	7.1880E-02	5.9614E-02	4.9918E-02	4.0865E-02	3.3690E-02	2.7562E-02
4	5.7500E+00	1.2676E-01	1.0895E-01	9.1941E-02	7.8744E-02	6.5302E-02	5.4844E-02	4.5543E-02
5	6.0000E+00	1.7859E-01	1.5650E-01	1.3436E-01	1.1761E-01	9.8862E-02	8.4573E-02	7.1305E-02
6	6.2500E+00	2.3972E-01	2.1390E-01	1.8676E-01	1.6684E-01	1.4226E-01	1.2392E-01	1.0610E-01
7	6.5000E+00	3.0824E-01	2.7956E-01	2.4801E-01	2.2566E-01	1.9525E-01	1.7305E-01	1.5048E-01
8	6.7500E+00	3.8183E-01	3.5128E-01	3.1623E-01	2.9239E-01	2.5666E-01	2.3116E-01	2.0408E-01
9	7.0000E+00	4.5827E-01	4.2677E-01	3.8923E-01	3.6479E-01	3.2464E-01	2.9664E-01	2.6565E-01
10	7.5000E+00	6.1210E-01	5.8093E-01	5.4114E-01	5.1782E-01	4.7185E-01	4.4151E-01	4.0529E-01
11	8.0000E+00	7.5944E-01	7.3032E-01	6.9090E-01	6.7026E-01	6.2213E-01	5.9214E-01	5.5401E-01
12	8.5000E+00	8.9549E-01	8.6916E-01	8.3152E-01	8.1424E-01	7.6635E-01	7.3822E-01	7.0046E-01
13	9.0000E+00	1.0191E+00	9.9559E-01	9.6038E-01	9.4639E-01	9.0007E-01	8.7447E-01	8.3835E-01
14	9.5000E+00	1.1303E+00	1.1098E+00	1.0773E+00	1.0663E+00	1.0222E+00	9.9932E-01	9.6541E-01
15	1.0000E+01	1.2302E+00	1.2125E+00	1.1826E+00	1.1743E+00	1.1328E+00	1.1125E+00	1.0810E+00

Table 3-4 (continued)

	ENERGY(MEV)	CD-113	IN-118	SN-119	SB-128	TE-125	I -130	XE-131
16	1.1000E+01	1.4010E+00	1.3880E+00	1.3631E+00	1.3593E+00	1.3230E+00	1.3075E+00	1.2809E+00
17	1.2000E+01	1.5401E+00	1.5309E+00	1.5105E+00	1.5101E+00	1.4788E+00	1.4673E+00	1.4450E+00
18	1.3000E+01	1.6543E+00	1.6484E+00	1.6318E+00	1.6341E+00	1.6072E+00	1.5991E+00	1.5807E+00
19	1.4000E+01	1.7492E+00	1.7460E+00	1.7327E+00	1.7370E+00	1.7142E+00	1.7088E+00	1.6938E+00
20	1.5000E+01	1.8285E+00	1.8275E+00	1.8171E+00	1.8230E+00	1.8038E+00	1.8007E+00	1.7888E+00
21	1.7000E+01	1.9525E+00	1.9549E+00	1.9494E+00	1.9573E+00	1.9446E+00	1.9451E+00	1.9381E+00
22	1.9000E+01	2.0427E+00	2.0476E+00	2.0460E+00	2.0548E+00	2.0476E+00	2.0507E+00	2.0477E+00
23	2.1000E+01	2.1094E+00	2.1160E+00	2.1176E+00	2.1266E+00	2.1243E+00	2.1292E+00	2.1295E+00
24	2.4000E+01	2.1791E+00	2.1874E+00	2.1930E+00	2.2010E+00	2.2054E+00	2.2120E+00	2.2165E+00
25	2.7000E+01	2.2237E+00	2.2328E+00	2.2416E+00	2.2477E+00	2.2582E+00	2.2657E+00	2.2734E+00
26	3.0000E+01	2.2511E+00	2.2604E+00	2.2720E+00	2.2751E+00	2.2919E+00	2.2994E+00	2.3103E+00
27	3.5000E+01	2.2715E+00	2.2800E+00	2.2957E+00	2.2908E+00	2.3186E+00	2.3252E+00	2.3405E+00
28	4.0000E+01	2.2706E+00	2.2768E+00	2.2963E+00	2.2786E+00	2.3208E+00	2.3247E+00	2.3441E+00

	ENERGY(MEV)	CS-136	BA-137	LA-138	CE-139	PR-140	ND-145	PM-150
1	5.0000E+00	6.6640E-03	5.2694E-03	4.1580E-03	3.2741E-03	2.5727E-03	2.0068E-03	1.5587E-03
2	5.2500E+00	1.2644E-02	1.0147E-02	8.1270E-03	6.4957E-03	5.1812E-03	4.1118E-03	3.2489E-03
3	5.5000E+00	2.2524E-02	1.8336E-02	1.4894E-02	1.2072E-02	9.7652E-03	7.8769E-03	6.3261E-03
4	5.7500E+00	3.7880E-02	3.1270E-02	2.5751E-02	2.1157E-02	1.7344E-02	1.4211E-02	1.1591E-02
5	6.0000E+00	6.0359E-02	5.0534E-02	4.2189E-02	3.5129E-02	2.9178E-02	2.4276E-02	2.0101E-02
6	6.2500E+00	9.1402E-02	7.7635E-02	6.5722E-02	5.5467E-02	4.6679E-02	3.9432E-02	3.3142E-02
7	6.5000E+00	1.3188E-01	1.1367E-01	9.7605E-02	8.3515E-02	7.1225E-02	6.1087E-02	5.2116E-02
8	6.7500E+00	1.8180E-01	1.5903E-01	1.3852E-01	1.2019E-01	1.0390E-01	9.0472E-02	7.8351E-02
9	7.0000E+00	2.4029E-01	2.1322E-01	1.8837E-01	1.6573E-01	1.4523E-01	1.2836E-01	1.1283E-01
10	7.5000E+00	3.7616E-01	3.4255E-01	3.1065E-01	2.8057E-01	2.5236E-01	2.2935E-01	2.0739E-01
11	8.0000E+00	5.2414E-01	4.8731E-01	4.5151E-01	4.1687E-01	3.8351E-01	3.5676E-01	3.3050E-01
12	8.5000E+00	6.7180E-01	6.3442E-01	5.9751E-01	5.6118E-01	5.2555E-01	4.9767E-01	4.6979E-01
13	9.0000E+00	8.1186E-01	7.7556E-01	7.3936E-01	7.0333E-01	6.6757E-01	6.4044E-01	6.1297E-01
14	9.5000E+00	9.4144E-01	9.0705E-01	8.7252E-01	8.3793E-01	8.0331E-01	7.7792E-01	7.5202E-01
15	1.0000E+01	1.0596E+00	1.0275E+00	9.9513E-01	9.6251E-01	9.2971E-01	9.0650E-01	8.8269E-01
16	1.1000E+01	1.2642E+00	1.2368E+00	1.2090E+00	1.1808E+00	1.1523E+00	1.1336E+00	1.1143E+00
17	1.2000E+01	1.4324E+00	1.4094E+00	1.3859E+00	1.3620E+00	1.3377E+00	1.3231E+00	1.3078E+00
18	1.3000E+01	1.5715E+00	1.5523E+00	1.5327E+00	1.5126E+00	1.4921E+00	1.4810E+00	1.4693E+00
19	1.4000E+01	1.6874E+00	1.6717E+00	1.6555E+00	1.6388E+00	1.6216E+00	1.6135E+00	1.6047E+00
20	1.5000E+01	1.7847E+00	1.7720E+00	1.7588E+00	1.7450E+00	1.7309E+00	1.7252E+00	1.7189E+00
21	1.7000E+01	1.9377E+00	1.9300E+00	1.9218E+00	1.9131E+00	1.9039E+00	1.9021E+00	1.8997E+00
22	1.9000E+01	2.0499E+00	2.0462E+00	2.0420E+00	2.0373E+00	2.0321E+00	2.0332E+00	2.0337E+00
23	2.1000E+01	2.1336E+00	2.1333E+00	2.1325E+00	2.1310E+00	2.1291E+00	2.1323E+00	2.1348E+00
24	2.4000E+01	2.2223E+00	2.2262E+00	2.2294E+00	2.2320E+00	2.2341E+00	2.2394E+00	2.2440E+00
25	2.7000E+01	2.2802E+00	2.2874E+00	2.2940E+00	2.2999E+00	2.3052E+00	2.3117E+00	2.3175E+00
26	3.0000E+01	2.3172E+00	2.3274E+00	2.3368E+00	2.3455E+00	2.3535E+00	2.3607E+00	2.3669E+00
27	3.5000E+01	2.3461E+00	2.3611E+00	2.3747E+00	2.3874E+00	2.3993E+00	2.4063E+00	2.4120E+00
28	4.0000E+01	2.3465E+00	2.3660E+00	2.3841E+00	2.4006E+00	2.4160E+00	2.4214E+00	2.4250E+00

	ENERGY(MEV)	SM-151	EU-156	GD-157	TB-162	DY-163	HO-164	ER-167
1	5.0000E+00	1.2193E-03	9.4211E-04	7.3474E-04	5.6487E-04	4.3920E-04	3.4071E-04	2.6224E-04
2	5.2500E+00	2.5798E-03	2.0275E-03	1.6052E-03	1.2553E-03	9.9093E-04	7.8064E-04	6.1072E-04
3	5.5000E+00	5.0924E-03	4.0668E-03	3.2640E-03	2.5934E-03	2.0757E-03	1.6582E-03	1.3168E-03
4	5.7500E+00	9.4502E-03	7.6623E-03	6.2281E-03	5.0229E-03	4.0714E-03	3.2944E-03	2.6525E-03
5	6.0000E+00	1.6590E-02	1.3650E-02	1.1227E-02	9.1849E-03	7.5328E-03	6.1677E-03	5.0303E-03
6	6.2500E+00	2.7682E-02	2.3104E-02	1.9223E-02	1.5945E-02	1.3223E-02	1.0948E-02	9.0383E-03
7	6.5000E+00	4.4055E-02	3.7298E-02	3.1385E-02	2.6391E-02	2.2123E-02	1.8513E-02	1.5464E-02
8	6.7500E+00	6.7047E-02	5.7582E-02	4.9008E-02	4.1776E-02	3.5398E-02	2.9935E-02	2.5295E-02
9	7.0000E+00	9.7770E-02	8.5182E-02	7.3352E-02	6.3392E-02	5.4302E-02	4.6417E-02	3.9674E-02
10	7.5000E+00	1.8432E-01	1.6517E-01	1.4571E-01	1.2943E-01	1.1342E-01	9.9103E-02	8.6715E-02
11	8.0000E+00	3.0078E-01	2.7642E-01	2.4972E-01	2.2761E-01	2.0414E-01	1.8248E-01	1.6350E-01
12	8.5000E+00	4.3613E-01	4.0909E-01	3.7738E-01	3.5156E-01	3.2218E-01	2.9427E-01	2.6959E-01
13	9.0000E+00	5.7793E-01	5.5050E-01	5.1643E-01	4.8933E-01	4.5658E-01	4.2478E-01	3.9657E-01

Table 3-4 (continued)

	ENERGY(MEV)	SM-151	EU-156	GD-157	TB-162	DY-163	HO-164	ER-167
14	9.5000E+00	7.1734E-01	6.9098E-01	6.5659E-01	6.2998E-01	5.9606E-01	5.6270E-01	5.3318E-01
15	1.0000E+01	8.4936E-01	8.2483E-01	7.9136E-01	7.6624E-01	7.3281E-01	6.9954E-01	6.7030E-01
16	1.1000E+01	1.0848E+00	1.0646E+00	1.0346E+00	1.0135E+00	9.8311E-01	9.5253E-01	9.2618E-01
17	1.2000E+01	1.2825E+00	1.2663E+00	1.2404E+00	1.2233E+00	1.1968E+00	1.1699E+00	1.1473E+00
18	1.3000E+01	1.4478E+00	1.4351E+00	1.4130E+00	1.3994E+00	1.3766E+00	1.3535E+00	1.3345E+00
19	1.4000E+01	1.5866E+00	1.5769E+00	1.5582E+00	1.5475E+00	1.5282E+00	1.5084E+00	1.4927E+00
20	1.5000E+01	1.7039E+00	1.6967E+00	1.6811E+00	1.6731E+00	1.6568E+00	1.6401E+00	1.6271E+00
21	1.7000E+01	1.8897E+00	1.8866E+00	1.8760E+00	1.8720E+00	1.8609E+00	1.8493E+00	1.8410E+00
22	1.9000E+01	2.0278E+00	2.0275E+00	2.0210E+00	2.0200E+00	2.0130E+00	2.0056E+00	2.0009E+00
23	2.1000E+01	2.1323E+00	2.1341E+00	2.1311E+00	2.1322E+00	2.1286E+00	2.1246E+00	2.1227E+00
24	2.4000E+01	2.2456E+00	2.2495E+00	2.2506E+00	2.2539E+00	2.2546E+00	2.2547E+00	2.2561E+00
25	2.7000E+01	2.3225E+00	2.3276E+00	2.3324E+00	2.3367E+00	2.3410E+00	2.3446E+00	2.3483E+00
26	3.0000E+01	2.3748E+00	2.3804E+00	2.3879E+00	2.3929E+00	2.4000E+00	2.4065E+00	2.4120E+00
27	3.5000E+01	2.4242E+00	2.4292E+00	2.4411E+00	2.4455E+00	2.4571E+00	2.4678E+00	2.4754E+00
28	4.0000E+01	2.4414E+00	2.4437E+00	2.4602E+00	2.4613E+00	2.4779E+00	2.4930E+00	2.5016E+00

	ENERGY(MEV)	TM-172	YB-173	LU-178	HF-179	TA-182	W-185	RE-190
1	5.0000E+00	2.0004E-04	1.5446E-04	1.1730E-04	9.0292E-05	6.8839E-05	5.2386E-05	3.9444E-05
2	5.2500E+00	4.7390E-04	3.7175E-04	2.8720E-04	2.2462E-04	1.7413E-04	1.3475E-04	1.0323E-04
3	5.5000E+00	1.0381E-03	8.2591E-04	6.4826E-04	5.1437E-04	4.0488E-04	3.1814E-04	2.4765E-04
4	5.7500E+00	2.1220E-03	1.7103E-03	1.3623E-03	1.0952E-03	8.7424E-04	6.9668E-04	5.5040E-04
5	6.0000E+00	4.0803E-03	3.3280E-03	2.6875E-03	2.1867E-03	1.7681E-03	1.4274E-03	1.1433E-03
6	6.2500E+00	7.4286E-03	6.1258E-03	5.0117E-03	4.1229E-03	3.3739E-03	2.7566E-03	2.2366E-03
7	6.5000E+00	1.2873E-02	1.0725E-02	8.8845E-03	7.3841E-03	6.1112E-03	5.0495E-03	4.1469E-03
8	6.7500E+00	2.1320E-02	1.7940E-02	1.5042E-02	1.2623E-02	1.0560E-02	8.8187E-03	7.3267E-03
9	7.0000E+00	3.3857E-02	2.8770E-02	2.4411E-02	2.0679E-02	1.7479E-02	1.4748E-02	1.2391E-02
10	7.5000E+00	7.5879E-02	6.5776E-02	5.7162E-02	4.9338E-02	4.2570E-02	3.6647E-02	3.1476E-02
11	8.0000E+00	1.4670E-01	1.2988E-01	1.1564E-01	1.0181E-01	8.9721E-02	7.8845E-02	6.9247E-02
12	8.5000E+00	2.4760E-01	2.2392E-01	2.0412E-01	1.8344E-01	1.6520E-01	1.4829E-01	1.3322E-01
13	9.0000E+00	3.7143E-01	3.4253E-01	3.1876E-01	2.9219E-01	2.6858E-01	2.4609E-01	2.2592E-01
14	9.5000E+00	5.0704E-01	4.7526E-01	4.4966E-01	4.1931E-01	3.9228E-01	3.6597E-01	3.4236E-01
15	1.0000E+01	6.4470E-01	6.1202E-01	5.8637E-01	5.5438E-01	5.2595E-01	4.9787E-01	4.7280E-01
16	1.1000E+01	9.0377E-01	8.7277E-01	8.4975E-01	8.1861E-01	7.9131E-01	7.6391E-01	7.3998E-01
17	1.2000E+01	1.1287E+00	1.1011E+00	1.0818E+00	1.0537E+00	1.0296E+00	1.0053E+00	9.8454E-01
18	1.3000E+01	1.3195E+00	1.2955E+00	1.2797E+00	1.2551E+00	1.2344E+00	1.2134E+00	1.1962E+00
19	1.4000E+01	1.4807E+00	1.4601E+00	1.4474E+00	1.4262E+00	1.4088E+00	1.3911E+00	1.3769E+00
20	1.5000E+01	1.6178E+00	1.6003E+00	1.5902E+00	1.5721E+00	1.5575E+00	1.5427E+00	1.5312E+00
21	1.7000E+01	1.8359E+00	1.8235E+00	1.8176E+00	1.8047E+00	1.7949E+00	1.7848E+00	1.7776E+00
22	1.9000E+01	1.9988E+00	1.9906E+00	1.9878E+00	1.9791E+00	1.9730E+00	1.9666E+00	1.9626E+00
23	2.1000E+01	2.1229E+00	2.1181E+00	2.1177E+00	2.1125E+00	2.1092E+00	2.1058E+00	2.1041E+00
24	2.4000E+01	2.2585E+00	2.2580E+00	2.2599E+00	2.2590E+00	2.2591E+00	2.2590E+00	2.2597E+00
25	2.7000E+01	2.3521E+00	2.3551E+00	2.3583E+00	2.3609E+00	2.3635E+00	2.3658E+00	2.3680E+00
26	3.0000E+01	2.4164E+00	2.4224E+00	2.4262E+00	2.4319E+00	2.4363E+00	2.4405E+00	2.4432E+00
27	3.5000E+01	2.4793E+00	2.4897E+00	2.4930E+00	2.5033E+00	2.5097E+00	2.5160E+00	2.5180E+00
28	4.0000E+01	2.5031E+00	2.5182E+00	2.5186E+00	2.5338E+00	2.5412E+00	2.5484E+00	2.5465E+00

	ENERGY(MEV)	OS-191	IR-193	PT-195	AU-200	HG-203	TL-206	PB-207
1	5.0000E+00	3.0169E-05	2.2927E-05	1.7390E-05	1.3005E-05	9.7892E-06	7.3548E-06	5.5658E-06
2	5.2500E+00	8.0260E-05	6.2025E-05	4.7846E-05	3.6412E-05	2.7881E-05	2.1312E-05	1.6405E-05
3	5.5000E+00	1.9543E-04	1.5336E-04	1.2014E-04	9.2916E-05	7.2277E-05	5.6129E-05	4.3882E-05
4	5.7500E+00	4.4026E-04	3.5033E-04	2.7834E-04	2.1851E-04	1.7245E-04	1.3588E-04	1.0775E-04
5	6.0000E+00	9.2585E-04	7.4623E-04	6.0058E-04	4.7804E-04	3.8234E-04	3.0533E-04	2.4528E-04
6	6.2500E+00	1.8316E-03	1.4938E-03	1.2165E-03	9.8088E-04	7.9419E-04	6.4210E-04	5.2199E-04
7	6.5000E+00	3.4313E-03	2.8289E-03	2.3292E-03	1.9008E-03	1.5566E-03	1.2729E-03	1.0461E-03
8	6.7500E+00	6.1207E-03	5.0973E-03	4.2397E-03	3.4995E-03	2.8962E-03	2.3939E-03	1.9870E-03
9	7.0000E+00	1.0445E-02	8.7815E-03	7.3740E-03	6.1527E-03	5.1428E-03	4.2927E-03	3.5958E-03
10	7.5000E+00	2.6989E-02	2.3104E-02	1.9750E-02	1.6823E-02	1.4323E-02	1.2177E-02	1.0369E-02

Table 3-4 (continued)

	ENERGY (MEV)	OS-191	IR-193	PT-195	AU-200	HG-203	TL-206	PB-207
11	8.0000E+00	6.0409E-02	5.2648E-02	4.5800E-02	3.9811E-02	3.4504E-02	2.9849E-02	2.5806E-02
12	8.5000E+00	1.1838E-01	1.0513E-01	9.3147E-02	8.2664E-02	7.2964E-02	6.4253E-02	5.6401E-02
13	9.0000E+00	2.0464E-01	1.8531E-01	1.6734E-01	1.5165E-01	1.3643E-01	1.2240E-01	1.0921E-01
14	9.5000E+00	3.1581E-01	2.9131E-01	2.6796E-01	2.4769E-01	2.2709E-01	2.0760E-01	1.8844E-01
15	1.0000E+01	4.4301E-01	4.1522E-01	3.8821E-01	3.6500E-01	3.4042E-01	3.1664E-01	2.9229E-01
16	1.1000E+01	7.0894E-01	6.7978E-01	6.5078E-01	6.2657E-01	5.9933E-01	5.7228E-01	5.4277E-01
17	1.2000E+01	9.5570E-01	9.2875E-01	9.0168E-01	8.8000E-01	8.5443E-01	8.2873E-01	7.9954E-01
18	1.3000E+01	1.1707E+00	1.1469E+00	1.1229E+00	1.1045E+00	1.0819E+00	1.0591E+00	1.0324E+00
19	1.4000E+01	1.3547E+00	1.3342E+00	1.3133E+00	1.2980E+00	1.2785E+00	1.2588E+00	1.2351E+00
20	1.5000E+01	1.5121E+00	1.4945E+00	1.4766E+00	1.4640E+00	1.4474E+00	1.4305E+00	1.4099E+00
21	1.7000E+01	1.7637E+00	1.7511E+00	1.7383E+00	1.7301E+00	1.7183E+00	1.7061E+00	1.6909E+00
22	1.9000E+01	1.9530E+00	1.9444E+00	1.9356E+00	1.9306E+00	1.9227E+00	1.9145E+00	1.9034E+00
23	2.1000E+01	2.0981E+00	2.0927E+00	2.0872E+00	2.0847E+00	2.0797E+00	2.0746E+00	2.0671E+00
24	2.4000E+01	2.2580E+00	2.2566E+00	2.2549E+00	2.2549E+00	2.2534E+00	2.2517E+00	2.2487E+00
25	2.7000E+01	2.3699E+00	2.3715E+00	2.3728E+00	2.3744E+00	2.3754E+00	2.3763E+00	2.3769E+00
26	3.0000E+01	2.4482E+00	2.4523E+00	2.4561E+00	2.4584E+00	2.4614E+00	2.4642E+00	2.4679E+00
27	3.5000E+01	2.5279E+00	2.5354E+00	2.5425E+00	2.5443E+00	2.5493E+00	2.5542E+00	2.5630E+00
28	4.0000E+01	2.5623E+00	2.5730E+00	2.5832E+00	2.5818E+00	2.5877E+00	2.5933E+00	2.6078E+00



Table 3-5 Compound Nucleus Formation Cross Sections of  ${}^3\text{He}+Y(Z-2,A-2)$ 

(unit: barns)

ENERGY (MEV)	LI- 9	BE- 10	B - 12	C - 14	N - 17	O - 18	F - 21	
1	5.0000E-01	3.9683E-02	3.2031E-03	2.0572E-04	1.1153E-05	5.6342E-07	2.3657E-08	1.0235E-09
2	1.0000E+00	4.0997E-01	1.3786E-01	3.6341E-02	7.7970E-03	1.5822E-03	2.5204E-04	4.3686E-05
3	1.2000E+00	5.7237E-01	2.5515E-01	9.2538E-02	2.7024E-02	7.3660E-03	1.5568E-03	3.5911E-04
4	1.4000E+00	7.1053E-01	3.8289E-01	1.7666E-01	6.6271E-02	2.2890E-02	6.0627E-03	1.7447E-03
5	1.6000E+00	8.2412E-01	5.0548E-01	2.7825E-01	1.2789E-01	5.3865E-02	1.7269E-02	5.9484E-03
6	1.8000E+00	9.1655E-01	6.1558E-01	3.8510E-01	2.0779E-01	1.0343E-01	3.9226E-02	1.5740E-02
7	2.0000E+00	9.9176E-01	7.1139E-01	4.8844E-01	2.9815E-01	1.7033E-01	7.5014E-02	3.4417E-02
8	2.5000E+00	1.1264E+00	8.9485E-01	6.9485E-01	7.0813E-01	5.2479E-01	3.7865E-01	2.2287E-01
9	3.0000E+00	1.2117E+00	1.0190E+00	8.6965E-01	7.1342E-01	5.8395E-01	4.1068E-01	2.9819E-01
10	3.5000E+00	1.2674E+00	1.1046E+00	9.8648E-01	8.5803E-01	7.5396E-01	5.8788E-01	4.7829E-01
11	4.0000E+00	1.3048E+00	1.1650E+00	1.0719E+00	9.6741E-01	8.8782E-01	7.3651E-01	6.4168E-01
12	5.0000E+00	1.3476E+00	1.2404E+00	1.1833E+00	1.1149E+00	1.0744E+00	9.5261E-01	8.9163E-01
13	6.0000E+00	1.3663E+00	1.2809E+00	1.2479E+00	1.2045E+00	1.1916E+00	1.0927E+00	1.0590E+00
14	7.0000E+00	1.3729E+00	1.3027E+00	1.2868E+00	1.2611E+00	1.2682E+00	1.1860E+00	1.1730E+00
15	8.0000E+00	1.3726E+00	1.3135E+00	1.3104E+00	1.2978E+00	1.3196E+00	1.2502E+00	1.2527E+00
16	1.0000E+01	1.3615E+00	1.3177E+00	1.3319E+00	1.3372E+00	1.3795E+00	1.3276E+00	1.3518E+00
17	1.2000E+01	1.3445E+00	1.3104E+00	1.3354E+00	1.3523E+00	1.4079E+00	1.3673E+00	1.4056E+00
18	1.4000E+01	1.3253E+00	1.2977E+00	1.3303E+00	1.3553E+00	1.4200E+00	1.3872E+00	1.4353E+00
19	1.6000E+01	1.3057E+00	1.2828E+00	1.3208E+00	1.3515E+00	1.4228E+00	1.3957E+00	1.4511E+00
20	1.8000E+01	1.2861E+00	1.2666E+00	1.3089E+00	1.3438E+00	1.4202E+00	1.3973E+00	1.4581E+00
21	2.0000E+01	1.2673E+00	1.2504E+00	1.2956E+00	1.3339E+00	1.4141E+00	1.3945E+00	1.4596E+00
22	2.3000E+01	1.2402E+00	1.2260E+00	1.2745E+00	1.3165E+00	1.4011E+00	1.3851E+00	1.4551E+00
23	2.6000E+01	1.2145E+00	1.2021E+00	1.2530E+00	1.2975E+00	1.3855E+00	1.3720E+00	1.4456E+00
24	3.0000E+01	1.1823E+00	1.1714E+00	1.2245E+00	1.2714E+00	1.3624E+00	1.3514E+00	1.4287E+00
25	3.5000E+01	1.1450E+00	1.1350E+00	1.1895E+00	1.2385E+00	1.3323E+00	1.3230E+00	1.4033E+00
26	4.0000E+01	1.1102E+00	1.1002E+00	1.1558E+00	1.2057E+00	1.3015E+00	1.2932E+00	1.3759E+00
ENERGY (MEV)	NE- 22	NA- 25	MG- 26	AL- 29	SI- 30	P - 33	S - 38	
1	5.0000E-01	3.7999E-11	1.4830E-12	5.0393E-14	1.8113E-15	5.7274E-17	1.9190E-18	6.7574E-20
2	1.0000E+00	6.1803E-06	9.7052E-07	1.2687E-07	1.8483E-08	2.2717E-09	3.1062E-10	4.6303E-11
3	1.2000E+00	6.7125E-05	1.4028E-05	2.4256E-06	4.7128E-07	7.6807E-08	1.4040E-08	2.8169E-09
4	1.4000E+00	4.0490E-04	1.0537E-04	2.2610E-05	5.4793E-06	1.1100E-06	2.5363E-07	6.3904E-08
5	1.6000E+00	1.6455E-03	5.1014E-04	1.3014E-04	3.7590E-05	9.0624E-06	2.4733E-06	7.4671E-07
6	1.8000E+00	5.0514E-03	1.8087E-03	5.3236E-04	1.7750E-04	4.9373E-05	1.5579E-05	5.4501E-06
7	2.0000E+00	1.2585E-02	5.0927E-03	1.6926E-03	6.3633E-04	1.9960E-04	7.1089E-05	2.8107E-05
8	2.5000E+00	6.4973E-02	3.3713E-02	1.4336E-02	6.8028E-03	2.6970E-03	1.2102E-03	6.0304E-04
9	3.0000E+00	1.8006E-01	1.1393E-01	5.9465E-02	3.3762E-02	1.6033E-02	8.5117E-03	4.9950E-03
10	3.5000E+00	3.3701E-01	2.4767E-01	1.5390E-01	1.0161E-01	5.6483E-02	3.4365E-02	2.2864E-02
11	4.0000E+00	4.9862E-01	4.0530E-01	2.8755E-01	2.1447E-01	1.3717E-01	9.3995E-02	6.9398E-02
12	5.0000E+00	7.6725E-01	6.9380E-01	5.7234E-01	4.9527E-01	3.8564E-01	3.1576E-01	2.7253E-01
13	6.0000E+00	9.5561E-01	9.0697E-01	8.0106E-01	7.4214E-01	6.3679E-01	5.7267E-01	5.3812E-01
14	7.0000E+00	1.0864E+00	1.0583E+00	9.6807E-01	9.2840E-01	8.3592E-01	7.8754E-01	7.7181E-01
15	8.0000E+00	1.1792E+00	1.1670E+00	1.0900E+00	1.0662E+00	9.8623E-01	9.5313E-01	9.5539E-01
16	1.0000E+01	1.2965E+00	1.3069E+00	1.2486E+00	1.2481E+00	1.1871E+00	1.1774E+00	1.2075E+00
17	1.2000E+01	1.3622E+00	1.3875E+00	1.3416E+00	1.3565E+00	1.3083E+00	1.3146E+00	1.3637E+00
18	1.4000E+01	1.4002E+00	1.4359E+00	1.3986E+00	1.4244E+00	1.3852E+00	1.4029E+00	1.4654E+00
19	1.6000E+01	1.4219E+00	1.4653E+00	1.4343E+00	1.4682E+00	1.4356E+00	1.4615E+00	1.5339E+00
20	1.8000E+01	1.4335E+00	1.4827E+00	1.4565E+00	1.4965E+00	1.4688E+00	1.5012E+00	1.5813E+00
21	2.0000E+01	1.4385E+00	1.4922E+00	1.4697E+00	1.5146E+00	1.4907E+00	1.5281E+00	1.6142E+00
22	2.3000E+01	1.4379E+00	1.4970E+00	1.4786E+00	1.5289E+00	1.5095E+00	1.5526E+00	1.6459E+00
23	2.6000E+01	1.4313E+00	1.4943E+00	1.4790E+00	1.5334E+00	1.5172E+00	1.5646E+00	1.6633E+00
24	3.0000E+01	1.4169E+00	1.4837E+00	1.4713E+00	1.5299E+00	1.5168E+00	1.5687E+00	1.6725E+00
25	3.5000E+01	1.3937E+00	1.4641E+00	1.4541E+00	1.5163E+00	1.5058E+00	1.5617E+00	1.6706E+00
26	4.0000E+01	1.3676E+00	1.4403E+00	1.4317E+00	1.4969E+00	1.4880E+00	1.5466E+00	1.6595E+00

Table 3-5 (continued)

	ENERGY (MEV)	CL- 37	AR- 38	K - 43	CA- 46			
1	5.0000E-01	1.7929E-21	5.0268E-23	1.6282E-24	4.7132E-26			
2	1.0000E+00	4.6721E-12	5.1793E-13	7.1496E-14	8.5017E-15			
3	1.2000E+00	3.7625E-10	5.5588E-11	1.0358E-11	1.6535E-12			
4	1.4000E+00	1.0610E-08	1.9577E-09	4.5953E-10	9.2088E-11			
5	1.6000E+00	1.4769E-07	3.2561E-08	9.1867E-09	2.2087E-09			
6	1.8000E+00	1.2455E-06	3.1795E-07	1.0427E-07	2.9118E-08			
7	2.0000E+00	7.2550E-06	2.0945E-06	7.7874E-07	2.4651E-07			
8	2.5000E+00	1.9713E-04	7.2097E-05	3.4005E-05	1.3688E-05			
9	3.0000E+00	1.9441E-03	8.4333E-04	4.7023E-04	2.2470E-04			
10	3.5000E+00	1.0254E-02	5.0752E-03	3.2028E-03	1.7409E-03			
11	4.0000E+00	3.5402E-02	1.9583E-02	1.3606E-02	8.1902E-03			
12	5.0000E+00	1.7631E-01	1.1897E-01	9.5946E-02	6.8157E-02			
13	6.0000E+00	4.0970E-01	3.2214E-01	2.8894E-01	2.3482E-01			
14	7.0000E+00	6.4079E-01	5.5021E-01	5.2487E-01	4.6533E-01			
15	8.0000E+00	8.3070E-01	7.4769E-01	7.3706E-01	6.8542E-01			
16	1.0000E+01	1.0968E+00	1.0314E+00	1.0480E+00	1.0175E+00			
17	1.2000E+01	1.2634E+00	1.2112E+00	1.2475E+00	1.2335E+00			
18	1.4000E+01	1.3726E+00	1.3299E+00	1.3803E+00	1.3784E+00			
19	1.6000E+01	1.4466E+00	1.4109E+00	1.4719E+00	1.4789E+00			
20	1.8000E+01	1.4980E+00	1.4677E+00	1.5368E+00	1.5507E+00			
21	2.0000E+01	1.5342E+00	1.5080E+00	1.5836E+00	1.6029E+00			
22	2.3000E+01	1.5693E+00	1.5478E+00	1.6311E+00	1.6566E+00			
23	2.6000E+01	1.5894E+00	1.5713E+00	1.6603E+00	1.6905E+00			
24	3.0000E+01	1.6010E+00	1.5865E+00	1.6813E+00	1.7163E+00			
25	3.5000E+01	1.6009E+00	1.5893E+00	1.6895E+00	1.7288E+00			
26	4.0000E+01	1.5907E+00	1.5810E+00	1.6855E+00	1.7279E+00			
	ENERGY (MEV)	SC- 49	TI- 50	V - 53	CR- 54	MN- 57	FE- 56	CO- 61
1	4.0000E+00	4.8491E-03	2.5360E-03	1.4631E-03	7.4755E-04	4.2123E-04	1.8830E-04	1.1599E-04
2	4.5000E+00	1.7428E-02	9.9545E-03	6.2417E-03	3.4789E-03	2.1328E-03	1.0444E-03	6.9922E-04
3	5.0000E+00	4.7398E-02	2.9303E-02	1.9723E-02	1.1839E-02	7.7794E-03	4.1117E-03	2.9435E-03
4	5.5000E+00	1.0313E-01	6.8772E-02	4.9362E-02	3.1703E-02	2.2124E-02	1.2508E-02	9.4613E-03
5	6.0000E+00	1.8672E-01	1.3387E-01	1.0206E-01	6.9976E-02	5.1610E-02	3.1091E-02	2.4649E-02
6	6.5000E+00	2.9151E-01	2.2309E-01	1.7972E-01	1.3127E-01	1.0200E-01	6.5489E-02	5.4113E-02
7	7.0000E+00	4.0643E-01	3.2824E-01	2.7716E-01	2.1451E-01	1.7493E-01	1.1972E-01	1.0272E-01
8	7.5000E+00	5.2181E-01	4.3942E-01	3.8526E-01	3.1313E-01	2.6633E-01	1.9363E-01	1.7188E-01
9	8.0000E+00	6.3159E-01	5.4888E-01	4.9527E-01	4.1854E-01	3.6844E-01	2.8256E-01	2.5821E-01
10	9.0000E+00	8.2529E-01	7.4762E-01	7.0079E-01	6.2431E-01	5.7628E-01	4.7804E-01	4.5590E-01
11	1.0000E+01	9.8356E-01	9.1312E-01	8.7528E-01	8.0428E-01	7.6344E-01	6.6419E-01	6.5000E-01
12	1.1000E+01	1.1118E+00	1.0484E+00	1.0192E+00	9.5461E-01	9.2179E-01	8.2555E-01	8.2067E-01
13	1.2000E+01	1.2162E+00	1.1589E+00	1.1373E+00	1.0789E+00	1.0536E+00	9.6141E-01	9.6540E-01
14	1.4000E+01	1.3731E+00	1.3260E+00	1.3167E+00	1.2683E+00	1.2553E+00	1.1707E+00	1.1895E+00
15	1.6000E+01	1.4827E+00	1.4430E+00	1.4430E+00	1.4022E+00	1.3987E+00	1.3200E+00	1.3502E+00
16	1.8000E+01	1.5614E+00	1.5275E+00	1.5346E+00	1.4997E+00	1.5035E+00	1.4293E+00	1.4684E+00
17	2.0000E+01	1.6191E+00	1.5897E+00	1.6024E+00	1.5722E+00	1.5817E+00	1.5111E+00	1.5572E+00
18	2.3000E+01	1.6792E+00	1.6550E+00	1.6742E+00	1.6493E+00	1.6655E+00	1.5989E+00	1.6533E+00
19	2.6000E+01	1.7178E+00	1.6976E+00	1.7217E+00	1.7007E+00	1.7220E+00	1.6584E+00	1.7190E+00
20	2.9000E+01	1.7426E+00	1.7251E+00	1.7532E+00	1.7353E+00	1.7605E+00	1.6989E+00	1.7647E+00
21	3.2000E+01	1.7574E+00	1.7424E+00	1.7735E+00	1.7579E+00	1.7863E+00	1.7265E+00	1.7961E+00
22	3.6000E+01	1.7666E+00	1.7540E+00	1.7882E+00	1.7752E+00	1.8068E+00	1.7487E+00	1.8228E+00
23	4.0000E+01	1.7674E+00	1.7566E+00	1.7935E+00	1.7823E+00	1.8166E+00	1.7596E+00	1.8370E+00
	ENERGY (MEV)	NI- 62	CU- 67	ZN- 72	GA- 73	GE- 78	AS- 77	SE- 82
1	4.0000E+00	5.6767E-05	3.3879E-05	1.9799E-05	9.4269E-06	5.3629E-06	2.2792E-06	1.2697E-06
2	4.5000E+00	3.7450E-04	2.4350E-04	1.5521E-04	8.1112E-05	5.0421E-05	2.3618E-05	1.4400E-05
3	5.0000E+00	1.6978E-03	1.1830E-03	8.0906E-04	4.5652E-04	3.0507E-04	1.5496E-04	1.0173E-04
4	5.5000E+00	5.8089E-03	4.2837E-03	3.1041E-03	1.8675E-03	1.3246E-03	7.2034E-04	5.0275E-04
5	6.0000E+00	1.5990E-02	1.2366E-02	9.4051E-03	5.9767E-03	4.4549E-03	2.5680E-03	1.8861E-03

Table 3-5 (continued)

	ENERGY(MEV)	NI- 62	CU- 67	ZN- 72	GA- 73	GE- 78	AS- 77	SE- 82
6	6.5000E+00	3.6957E-02	2.9782E-02	2.3618E-02	1.5756E-02	1.2250E-02	7.4303E-03	5.6973E-03
7	7.0000E+00	7.3778E-02	6.1698E-02	5.0797E-02	3.5462E-02	2.8613E-02	1.8180E-02	1.4465E-02
8	7.5000E+00	1.2972E-01	1.1223E-01	9.5650E-02	6.9814E-02	5.8258E-02	3.8716E-02	3.1827E-02
9	8.0000E+00	2.0415E-01	1.8213E-01	1.6022E-01	1.2222E-01	1.0522E-01	7.3168E-02	6.1975E-02
10	9.0000E+00	3.8834E-01	3.6370E-01	3.3686E-01	2.7835E-01	2.5302E-01	1.9260E-01	1.7212E-01
11	1.0000E+01	5.8080E-01	5.6119E-01	5.3770E-01	4.7087E-01	4.4507E-01	3.6541E-01	3.4077E-01
12	1.1000E+01	7.5521E-01	7.4362E-01	7.2744E-01	6.6101E-01	6.4047E-01	5.5399E-01	5.3185E-01
13	1.2000E+01	9.0503E-01	9.0185E-01	8.9377E-01	8.3118E-01	8.1790E-01	7.3133E-01	7.1516E-01
14	1.4000E+01	1.1389E+00	1.1504E+00	1.1568E+00	1.1035E+00	1.1044E+00	1.0235E+00	1.0208E+00
15	1.6000E+01	1.3074E+00	1.3304E+00	1.3482E+00	1.3029E+00	1.3152E+00	1.2404E+00	1.2492E+00
16	1.8000E+01	1.4317E+00	1.4636E+00	1.4905E+00	1.4513E+00	1.4728E+00	1.4029E+00	1.4209E+00
17	2.0000E+01	1.5253E+00	1.5645E+00	1.5984E+00	1.5644E+00	1.5930E+00	1.5272E+00	1.5525E+00
18	2.3000E+01	1.6269E+00	1.6743E+00	1.7164E+00	1.6882E+00	1.7253E+00	1.6641E+00	1.6979E+00
19	2.6000E+01	1.6967E+00	1.7506E+00	1.7991E+00	1.7753E+00	1.8186E+00	1.7609E+00	1.8013E+00
20	2.9000E+01	1.7456E+00	1.8043E+00	1.8577E+00	1.8373E+00	1.8856E+00	1.8306E+00	1.8761E+00
21	3.2000E+01	1.7796E+00	1.8423E+00	1.8999E+00	1.8821E+00	1.9345E+00	1.8816E+00	1.9312E+00
22	3.6000E+01	1.8089E+00	1.8759E+00	1.9376E+00	1.9226E+00	1.9793E+00	1.9285E+00	1.9825E+00
23	4.0000E+01	1.8250E+00	1.8955E+00	1.9608E+00	1.9479E+00	2.0081E+00	1.9588E+00	2.0163E+00

	ENERGY(MEV)	BR- 83	KR- 86	RB- 87	SR- 88	Y - 91	ZR- 96	NB- 97
1	4.0000E+00	5.8120E-07	2.8882E-07	1.2965E-07	5.7614E-08	2.7848E-08	1.4587E-08	6.3208E-09
2	4.5000E+00	7.2552E-06	3.9607E-06	1.9590E-06	9.5954E-07	5.1015E-07	2.9335E-07	1.4024E-07
3	5.0000E+00	5.5521E-05	3.2767E-05	1.7576E-05	9.3417E-06	5.3775E-06	3.3411E-06	1.7351E-06
4	5.5000E+00	2.9344E-04	1.8486E-04	1.0620E-04	6.0487E-05	3.7240E-05	2.4693E-05	1.3762E-05
5	6.0000E+00	1.1653E-03	7.7570E-04	4.7238E-04	2.8540E-04	1.8601E-04	1.3032E-04	7.7174E-05
6	6.5000E+00	3.6959E-03	2.5780E-03	1.6502E-03	1.0487E-03	7.1760E-04	5.2685E-04	3.2877E-04
7	7.0000E+00	9.7927E-03	7.1115E-03	4.7531E-03	3.1553E-03	2.2510E-03	1.7200E-03	1.1231E-03
8	7.5000E+00	2.2402E-02	1.6858E-02	1.1705E-02	8.0734E-03	5.9713E-03	4.7218E-03	3.2071E-03
9	8.0000E+00	4.5274E-02	3.5198E-02	2.5314E-02	1.8071E-02	1.3798E-02	1.1240E-02	7.9034E-03
10	9.0000E+00	1.3533E-01	1.1186E-01	8.6049E-02	6.5513E-02	5.2900E-02	4.5302E-02	3.3849E-02
11	1.0000E+01	2.8647E-01	2.5032E-01	2.0562E-01	1.6679E-01	1.4186E-01	1.2682E-01	1.0036E-01
12	1.1000E+01	4.7000E-01	4.2866E-01	3.7198E-01	3.1922E-01	2.8440E-01	2.6381E-01	2.2082E-01
13	1.2000E+01	6.5313E-01	6.1305E-01	5.5297E-01	4.9478E-01	4.5666E-01	4.3561E-01	3.8225E-01
14	1.4000E+01	9.6574E-01	9.3486E-01	8.7942E-01	8.2428E-01	7.9171E-01	7.7940E-01	7.2396E-01
15	1.6000E+01	1.2019E+00	1.1805E+00	1.1325E+00	1.0844E+00	1.0607E+00	1.0593E+00	1.0099E+00
16	1.8000E+01	1.3800E+00	1.3664E+00	1.3249E+00	1.2831E+00	1.2673E+00	1.2751E+00	1.2320E+00
17	2.0000E+01	1.5168E+00	1.5096E+00	1.4732E+00	1.4366E+00	1.4271E+00	1.4428E+00	1.4048E+00
18	2.3000E+01	1.6682E+00	1.6683E+00	1.6381E+00	1.6077E+00	1.6058E+00	1.6302E+00	1.5986E+00
19	2.6000E+01	1.7761E+00	1.7818E+00	1.7562E+00	1.7304E+00	1.7342E+00	1.7654E+00	1.7386E+00
20	2.9000E+01	1.8545E+00	1.8645E+00	1.8425E+00	1.8203E+00	1.8286E+00	1.8653E+00	1.8422E+00
21	3.2000E+01	1.9123E+00	1.9259E+00	1.9067E+00	1.8873E+00	1.8992E+00	1.9402E+00	1.9200E+00
22	3.6000E+01	1.9665E+00	1.9840E+00	1.9676E+00	1.9512E+00	1.9671E+00	2.0126E+00	1.9955E+00
23	4.0000E+01	2.0026E+00	2.0228E+00	2.0088E+00	1.9947E+00	2.0134E+00	2.0627E+00	2.0479E+00

	ENERGY(MEV)	MO-100	TC-101	RU-104	RH-105	PD-112
1	4.0000E+00	2.9697E-09	1.2650E-09	5.8455E-10	2.4498E-10	1.3266E-10
2	4.5000E+00	7.2541E-08	3.4104E-08	1.7358E-08	8.0312E-09	4.7719E-09
3	5.0000E+00	9.7295E-07	4.9718E-07	2.7445E-07	1.3808E-07	8.8612E-08
4	5.5000E+00	8.2638E-06	4.5351E-06	2.6827E-06	1.4502E-06	9.9311E-07
5	6.0000E+00	4.9138E-05	2.8680E-05	1.8004E-05	1.0358E-05	7.4954E-06
6	6.5000E+00	2.2016E-04	1.3555E-04	8.9574E-05	5.4408E-05	4.1277E-05
7	7.0000E+00	7.8551E-04	5.0660E-04	3.5002E-04	2.2294E-04	1.7614E-04
8	7.5000E+00	2.3291E-03	1.5641E-03	1.1233E-03	7.4576E-04	6.1021E-04
9	8.0000E+00	5.9309E-03	4.1265E-03	3.0649E-03	2.1102E-03	1.7796E-03
10	9.0000E+00	2.6844E-02	1.9831E-02	1.5574E-02	1.1393E-02	1.0087E-02
11	1.0000E+01	8.3557E-02	6.5118E-02	5.3581E-02	4.1249E-02	3.7901E-02
12	1.1000E+01	1.9248E-01	1.5818E-01	1.3595E-01	1.0994E-01	1.0403E-01

Table 3-5 (continued)

	ENERGY (MEV)	MO-100	TC-101	RU-104	RH-105	PD-112		
13	1.2000E+01	3.4657E-01	2.9910E-01	2.6757E-01	2.2708E-01	2.2001E-01		
14	1.4000E+01	6.8904E-01	6.3456E-01	5.9956E-01	5.4675E-01	5.4593E-01		
15	1.6000E+01	9.8284E-01	9.3309E-01	9.0478E-01	8.5481E-01	8.6553E-01		
16	1.8000E+01	1.2127E+00	1.1690E+00	1.1482E+00	1.1040E+00	1.1254E+00		
17	2.0000E+01	1.3921E+00	1.3536E+00	1.3393E+00	1.3004E+00	1.3306E+00		
18	2.3000E+01	1.5934E+00	1.5613E+00	1.5548E+00	1.5222E+00	1.5631E+00		
19	2.6000E+01	1.7393E+00	1.7120E+00	1.7114E+00	1.6837E+00	1.7327E+00		
20	2.9000E+01	1.8474E+00	1.8237E+00	1.8279E+00	1.8038E+00	1.8595E+00		
21	3.2000E+01	1.9289E+00	1.9083E+00	1.9161E+00	1.8951E+00	1.9559E+00		
22	3.6000E+01	2.0083E+00	1.9909E+00	2.0026E+00	1.9848E+00	2.0511E+00		
23	4.0000E+01	2.0638E+00	2.0488E+00	2.0636E+00	2.0483E+00	2.1193E+00		

	ENERGY (MEV)	AG-113	CD-118	IN-119	SN-128	SB-125	TE-130	I -131
1	8.0000E+00	1.2147E-03	9.4329E-04	6.3758E-04	5.5557E-04	3.2737E-04	2.4824E-04	1.6447E-04
2	8.5000E+00	3.1730E-03	2.5367E-03	1.7733E-03	1.5857E-03	9.7113E-04	7.5935E-04	5.2113E-04
3	9.0000E+00	7.3255E-03	6.0075E-03	4.3268E-03	3.9567E-03	2.5081E-03	2.0149E-03	1.4268E-03
4	9.5000E+00	1.5232E-02	1.2775E-02	9.4496E-03	8.8105E-03	5.7602E-03	4.7389E-03	3.4509E-03
5	1.0000E+01	2.8955E-02	2.4777E-02	1.8777E-02	1.7803E-02	1.1972E-02	1.0059E-02	7.5100E-03
6	1.1000E+01	8.3298E-02	7.3856E-02	5.8541E-02	5.7026E-02	4.0407E-02	3.5189E-02	2.7441E-02
7	1.2000E+01	1.8463E-01	1.6899E-01	1.4004E-01	1.3916E-01	1.0401E-01	9.3421E-02	7.5811E-02
8	1.3000E+01	3.2873E-01	3.0923E-01	2.6746E-01	2.6952E-01	2.1301E-01	1.9676E-01	1.6620E-01
9	1.4000E+01	4.9419E-01	4.7469E-01	4.2547E-01	4.3270E-01	3.5979E-01	3.4039E-01	2.9863E-01
10	1.5000E+01	6.6004E-01	6.4337E-01	5.9193E-01	6.0551E-01	5.2375E-01	5.0465E-01	4.5673E-01
11	1.6000E+01	8.1495E-01	8.0237E-01	7.5169E-01	7.7191E-01	6.8669E-01	6.7024E-01	6.2065E-01
12	1.8000E+01	1.0802E+00	1.0763E+00	1.0305E+00	1.0627E+00	9.7773E-01	9.6899E-01	9.2226E-01
13	2.0000E+01	1.2907E+00	1.2945E+00	1.2539E+00	1.2963E+00	1.2138E+00	1.2126E+00	1.1707E+00
14	2.2000E+01	1.4586E+00	1.4688E+00	1.4327E+00	1.4834E+00	1.4036E+00	1.4089E+00	1.3715E+00
15	2.4000E+01	1.5938E+00	1.6095E+00	1.5771E+00	1.6348E+00	1.5573E+00	1.5681E+00	1.5346E+00
16	2.7000E+01	1.7519E+00	1.7741E+00	1.7464E+00	1.8126E+00	1.7379E+00	1.7553E+00	1.7265E+00
17	3.0000E+01	1.8709E+00	1.8983E+00	1.8742E+00	1.9474E+00	1.8746E+00	1.8974E+00	1.8724E+00
18	3.4000E+01	1.9877E+00	2.0205E+00	2.0002E+00	2.0806E+00	2.0100E+00	2.0384E+00	2.0172E+00
19	4.0000E+01	2.1034E+00	2.1424E+00	2.1262E+00	2.2146E+00	2.1463E+00	2.1809E+00	2.1640E+00

	ENERGY (MEV)	XE-136	CS-137	BA-138	LA-139	CE-140	PR-145	ND-150
1	8.0000E+00	1.2328E-04	8.0858E-05	5.2722E-05	3.4175E-05	2.2024E-05	1.6126E-05	1.1727E-05
2	8.5000E+00	4.0310E-04	2.7405E-04	1.8527E-04	1.2456E-04	8.3274E-05	6.3000E-05	4.7346E-05
3	9.0000E+00	1.1347E-03	7.9659E-04	5.5630E-04	3.8646E-04	2.6705E-04	2.0802E-04	1.6100E-04
4	9.5000E+00	2.8124E-03	2.0317E-03	1.4606E-03	1.0450E-03	7.4390E-04	5.9472E-04	4.7259E-04
5	1.0000E+01	6.2547E-03	4.6355E-03	3.4201E-03	2.5120E-03	1.8366E-03	1.5028E-03	1.2226E-03
6	1.1000E+01	2.3706E-02	1.8358E-02	1.4159E-02	1.0876E-02	8.3213E-03	7.0795E-03	5.9922E-03
7	1.2000E+01	6.7539E-02	5.4355E-02	4.3543E-02	3.4731E-02	2.7592E-02	2.4218E-02	2.1159E-02
8	1.3000E+01	1.5221E-01	1.2724E-01	1.0572E-01	8.7349E-02	7.1808E-02	6.4697E-02	5.8038E-02
9	1.4000E+01	2.8031E-01	2.4327E-01	2.0966E-01	1.7949E-01	1.5269E-01	1.4084E-01	1.2937E-01
10	1.5000E+01	4.3729E-01	3.9215E-01	3.4940E-01	3.0934E-01	2.7211E-01	2.5638E-01	2.4065E-01
11	1.6000E+01	6.0288E-01	5.5446E-01	5.0738E-01	4.6186E-01	4.1813E-01	4.0101E-01	3.8335E-01
12	1.8000E+01	9.1144E-01	8.6447E-01	8.1776E-01	7.7138E-01	7.2535E-01	7.1190E-01	6.9723E-01
13	2.0000E+01	1.1673E+00	1.1249E+00	1.0824E+00	1.0399E+00	9.9743E-01	9.9063E-01	9.8241E-01
14	2.2000E+01	1.3746E+00	1.3366E+00	1.2984E+00	1.2603E+00	1.2221E+00	1.2217E+00	1.2199E+00
15	2.4000E+01	1.5432E+00	1.5091E+00	1.4749E+00	1.4406E+00	1.4062E+00	1.4114E+00	1.4152E+00
16	2.7000E+01	1.7419E+00	1.7126E+00	1.6832E+00	1.6537E+00	1.6239E+00	1.6362E+00	1.6469E+00
17	3.0000E+01	1.8930E+00	1.8675E+00	1.8419E+00	1.8163E+00	1.7905E+00	1.8081E+00	1.8243E+00
18	3.4000E+01	2.0435E+00	2.0219E+00	2.0003E+00	1.9786E+00	1.9568E+00	1.9802E+00	2.0022E+00
19	4.0000E+01	2.1966E+00	2.1793E+00	2.1620E+00	2.1446E+00	2.1271E+00	2.1570E+00	2.1855E+00

Table 3-5 (continued)

	ENERGY (MEV)	PM-151	SM-156	EU-157	GD-162	TB-163	DY-164	HO-167
1	1.0000E+01	8.8428E-04	7.1315E-04	5.1179E-04	4.0920E-04	2.9134E-04	2.0645E-04	1.5420E-04
2	1.0500E+01	2.1033E-03	1.7333E-03	1.2758E-03	1.0429E-03	7.6192E-04	5.5423E-04	4.2423E-04
3	1.1000E+01	4.5433E-03	3.8165E-03	2.8744E-03	2.3963E-03	1.7925E-03	1.3352E-03	1.0450E-03
4	1.1500E+01	9.0260E-03	7.7134E-03	5.9305E-03	5.0324E-03	3.8449E-03	2.9263E-03	2.3368E-03
5	1.2000E+01	1.6672E-02	1.4469E-02	1.1334E-02	9.7716E-03	7.6102E-03	5.9057E-03	4.8022E-03
6	1.2500E+01	2.8889E-02	2.5423E-02	2.0260E-02	1.7718E-02	1.4041E-02	1.1090E-02	9.1666E-03
7	1.3000E+01	4.7280E-02	4.2143E-02	3.4128E-02	3.0235E-02	2.4350E-02	1.9545E-02	1.6397E-02
8	1.3500E+01	7.3471E-02	6.6279E-02	5.4510E-02	4.8876E-02	3.9963E-02	3.2565E-02	2.7694E-02
9	1.4000E+01	1.0883E-01	9.9308E-02	8.2935E-02	7.5210E-02	6.2409E-02	5.1594E-02	4.4440E-02
10	1.4500E+01	1.5409E-01	1.4216E-01	1.2057E-01	1.1053E-01	9.3080E-02	7.8055E-02	6.8059E-02
11	1.5000E+01	2.0910E-01	1.9495E-01	1.6794E-01	1.5558E-01	1.3297E-01	1.1312E-01	9.9821E-02
12	1.6000E+01	3.4324E-01	3.2616E-01	2.8956E-01	2.7349E-01	2.4077E-01	2.1083E-01	1.9049E-01
13	1.7000E+01	4.9591E-01	4.7846E-01	4.3592E-01	4.1845E-01	3.7841E-01	3.4042E-01	3.1445E-01
14	1.8000E+01	6.5158E-01	6.3579E-01	5.9098E-01	5.7438E-01	5.3078E-01	4.8844E-01	4.5963E-01
15	1.9000E+01	8.0078E-01	7.8773E-01	7.4302E-01	7.2869E-01	6.8436E-01	6.4068E-01	6.1156E-01
16	2.0000E+01	9.3921E-01	9.2931E-01	8.8590E-01	8.7448E-01	8.3101E-01	7.8783E-01	7.5997E-01
17	2.2000E+01	1.1807E+00	1.1771E+00	1.1374E+00	1.1321E+00	1.0921E+00	1.0521E+00	1.0285E+00
18	2.4000E+01	1.3799E+00	1.3818E+00	1.3460E+00	1.3463E+00	1.3100E+00	1.2736E+00	1.2546E+00
19	2.6000E+01	1.5446E+00	1.5514E+00	1.5190E+00	1.5241E+00	1.4912E+00	1.4582E+00	1.4433E+00
20	2.8000E+01	1.6821E+00	1.6930E+00	1.6635E+00	1.6727E+00	1.6428E+00	1.6128E+00	1.6015E+00
21	3.1000E+01	1.8489E+00	1.8650E+00	1.8392E+00	1.8536E+00	1.8274E+00	1.8011E+00	1.7943E+00
22	3.4000E+01	1.9797E+00	2.0000E+00	1.9772E+00	1.9959E+00	1.9727E+00	1.9494E+00	1.9463E+00
23	3.6000E+01	2.0517E+00	2.0744E+00	2.0533E+00	2.0744E+00	2.0529E+00	2.0314E+00	2.0304E+00
24	4.0000E+01	2.1675E+00	2.1943E+00	2.1760E+00	2.2013E+00	2.1826E+00	2.1639E+00	2.1664E+00

	ENERGY (MEV)	ER-172	TM-173	YB-178	LU-179	HF-182	TA-185	W -190
1	1.0000E+01	1.2134E-04	8.4969E-05	6.6309E-05	4.6072E-05	3.3723E-05	2.4586E-05	1.8879E-05
2	1.0500E+01	3.4157E-04	2.4568E-04	1.9624E-04	1.4009E-04	1.0518E-04	7.8672E-05	6.1871E-05
3	1.1000E+01	8.5898E-04	6.3313E-04	5.1651E-04	3.7800E-04	2.9048E-04	2.2241E-04	1.7877E-04
4	1.1500E+01	1.9570E-03	1.4749E-03	1.2264E-03	9.1817E-04	7.2070E-04	5.6374E-04	4.6222E-04
5	1.2000E+01	4.0898E-03	3.1452E-03	2.6609E-03	2.0337E-03	1.6274E-03	1.2980E-03	1.0837E-03
6	1.2500E+01	7.9254E-03	6.2075E-03	5.3338E-03	4.1539E-03	3.3827E-03	2.7464E-03	2.3307E-03
7	1.3000E+01	1.4370E-02	1.1444E-02	9.9721E-03	7.8998E-03	6.5360E-03	5.3924E-03	4.6445E-03
8	1.3500E+01	2.4572E-02	1.9870E-02	1.7534E-02	1.4108E-02	1.1842E-02	9.9130E-03	8.6532E-03
9	1.4000E+01	3.9880E-02	3.2708E-02	2.9197E-02	2.3831E-02	2.0267E-02	1.7193E-02	1.5190E-02
10	1.4500E+01	6.1724E-02	5.1323E-02	4.6304E-02	3.8308E-02	3.2975E-02	2.8316E-02	2.5296E-02
11	1.5000E+01	9.1446E-02	7.7064E-02	7.0227E-02	5.8861E-02	5.1249E-02	4.4515E-02	4.0172E-02
12	1.6000E+01	1.7786E-01	1.5401E-01	1.4301E-01	1.2302E-01	1.0948E-01	9.7172E-02	8.9331E-02
13	1.7000E+01	2.9871E-01	2.6571E-01	2.5107E-01	2.2170E-01	2.0158E-01	1.8275E-01	1.7091E-01
14	1.8000E+01	4.4293E-01	4.0362E-01	3.8715E-01	3.5039E-01	3.2505E-01	3.0067E-01	2.8566E-01
15	1.9000E+01	5.9585E-01	5.5358E-01	5.3736E-01	4.9647E-01	4.6845E-01	4.4091E-01	4.2458E-01
16	2.0000E+01	7.4643E-01	7.0365E-01	6.8913E-01	6.4683E-01	6.1844E-01	5.9013E-01	5.7430E-01
17	2.2000E+01	1.0206E+00	9.8013E-01	9.7079E-01	9.3015E-01	9.0463E-01	8.7881E-01	8.6706E-01
18	2.4000E+01	1.2521E+00	1.2152E+00	1.2112E+00	1.1739E+00	1.1526E+00	1.1309E+00	1.1243E+00
19	2.6000E+01	1.4457E+00	1.4121E+00	1.4131E+00	1.3791E+00	1.3618E+00	1.3442E+00	1.3424E+00
20	2.8000E+01	1.6081E+00	1.5775E+00	1.5827E+00	1.5516E+00	1.5380E+00	1.5240E+00	1.5265E+00
21	3.1000E+01	1.8062E+00	1.7793E+00	1.7899E+00	1.7626E+00	1.7536E+00	1.7442E+00	1.7521E+00
22	3.4000E+01	1.9626E+00	1.9388E+00	1.9537E+00	1.9295E+00	1.9243E+00	1.9186E+00	1.9310E+00
23	3.6000E+01	2.0491E+00	2.0270E+00	2.0444E+00	2.0220E+00	2.0189E+00	2.0155E+00	2.0303E+00
24	4.0000E+01	2.1894E+00	2.1702E+00	2.1919E+00	2.1724E+00	2.1729E+00	2.1731E+00	2.1922E+00

	ENERGY (MEV)	RE-191	OS-193	IR-195	PT-200	AU-203	HG-206	TL-207
1	1.0000E+01	1.2917E-05	9.0513E-06	6.3176E-06	4.7803E-06	3.4065E-06	2.4186E-06	1.6178E-06
2	1.0500E+01	4.3516E-05	3.1320E-05	2.2456E-05	1.7410E-05	1.2736E-05	9.2827E-06	6.3852E-06
3	1.1000E+01	1.2897E-04	9.5148E-05	6.9933E-05	5.5443E-05	4.1548E-05	3.1026E-05	2.1904E-05
4	1.1500E+01	3.4138E-04	2.5764E-04	1.9374E-04	1.5677E-04	1.2013E-04	9.1740E-05	6.6352E-05
5	1.2000E+01	8.1778E-04	6.3020E-04	4.8400E-04	3.9904E-04	3.1211E-04	2.4332E-04	1.7998E-04
6	1.2500E+01	1.7938E-03	1.4090E-03	1.1031E-03	9.2528E-04	7.3741E-04	5.8593E-04	4.4248E-04

Table 3-5 (continued)

	ENERGY (MEV)	RE-191	OS-193	IR-195	PT-200	AU-203	HG-206	TL-207
7	1.3000E+01	3.6394E-03	2.9091E-03	2.3184E-03	1.9749E-03	1.6015E-03	1.2949E-03	9.9680E-04
8	1.3500E+01	6.8924E-03	5.5975E-03	4.5333E-03	3.9167E-03	3.2266E-03	2.6509E-03	2.0769E-03
9	1.4000E+01	1.2281E-02	1.0119E-02	8.3163E-03	7.2777E-03	6.0822E-03	5.0702E-03	4.0369E-03
10	1.4500E+01	2.0734E-02	1.7311E-02	1.4418E-02	1.2765E-02	1.0808E-02	9.1300E-03	7.3772E-03
11	1.5000E+01	3.3351E-02	2.8186E-02	2.3767E-02	2.1265E-02	1.8222E-02	1.5579E-02	1.2759E-02
12	1.6000E+01	7.5981E-02	6.5679E-02	5.6636E-02	5.1629E-02	4.5193E-02	3.9476E-02	3.3111E-02
13	1.7000E+01	1.4893E-01	1.3158E-01	1.1591E-01	1.0744E-01	9.5897E-02	8.5404E-02	7.3215E-02
14	1.8000E+01	2.5504E-01	2.3029E-01	2.0726E-01	1.9512E-01	1.7751E-01	1.6108E-01	1.4111E-01
15	1.9000E+01	3.8760E-01	3.5718E-01	3.2805E-01	3.1324E-01	2.9026E-01	2.6826E-01	2.4019E-01
16	2.0000E+01	5.3402E-01	5.0059E-01	4.6795E-01	4.5223E-01	4.2590E-01	4.0017E-01	3.6574E-01
17	2.2000E+01	8.2634E-01	7.9284E-01	7.5944E-01	7.4612E-01	7.1913E-01	6.9208E-01	6.5256E-01
18	2.4000E+01	1.0863E+00	1.0559E+00	1.0254E+00	1.0167E+00	9.9286E-01	9.6870E-01	9.3032E-01
19	2.6000E+01	1.3076E+00	1.2807E+00	1.2536E+00	1.2497E+00	1.2297E+00	1.2093E+00	1.1737E+00
20	2.8000E+01	1.4947E+00	1.4712E+00	1.4474E+00	1.4478E+00	1.4313E+00	1.4145E+00	1.3818E+00
21	3.1000E+01	1.7241E+00	1.7048E+00	1.6853E+00	1.6911E+00	1.6794E+00	1.6673E+00	1.6383E+00
22	3.4000E+01	1.9062E+00	1.8904E+00	1.8744E+00	1.8847E+00	1.8768E+00	1.8686E+00	1.8429E+00
23	3.6000E+01	2.0073E+00	1.9935E+00	1.9795E+00	1.9924E+00	1.9867E+00	1.9807E+00	1.9569E+00
24	4.0000E+01	2.1722E+00	2.1618E+00	2.1511E+00	2.1684E+00	2.1664E+00	2.1641E+00	2.1434E+00

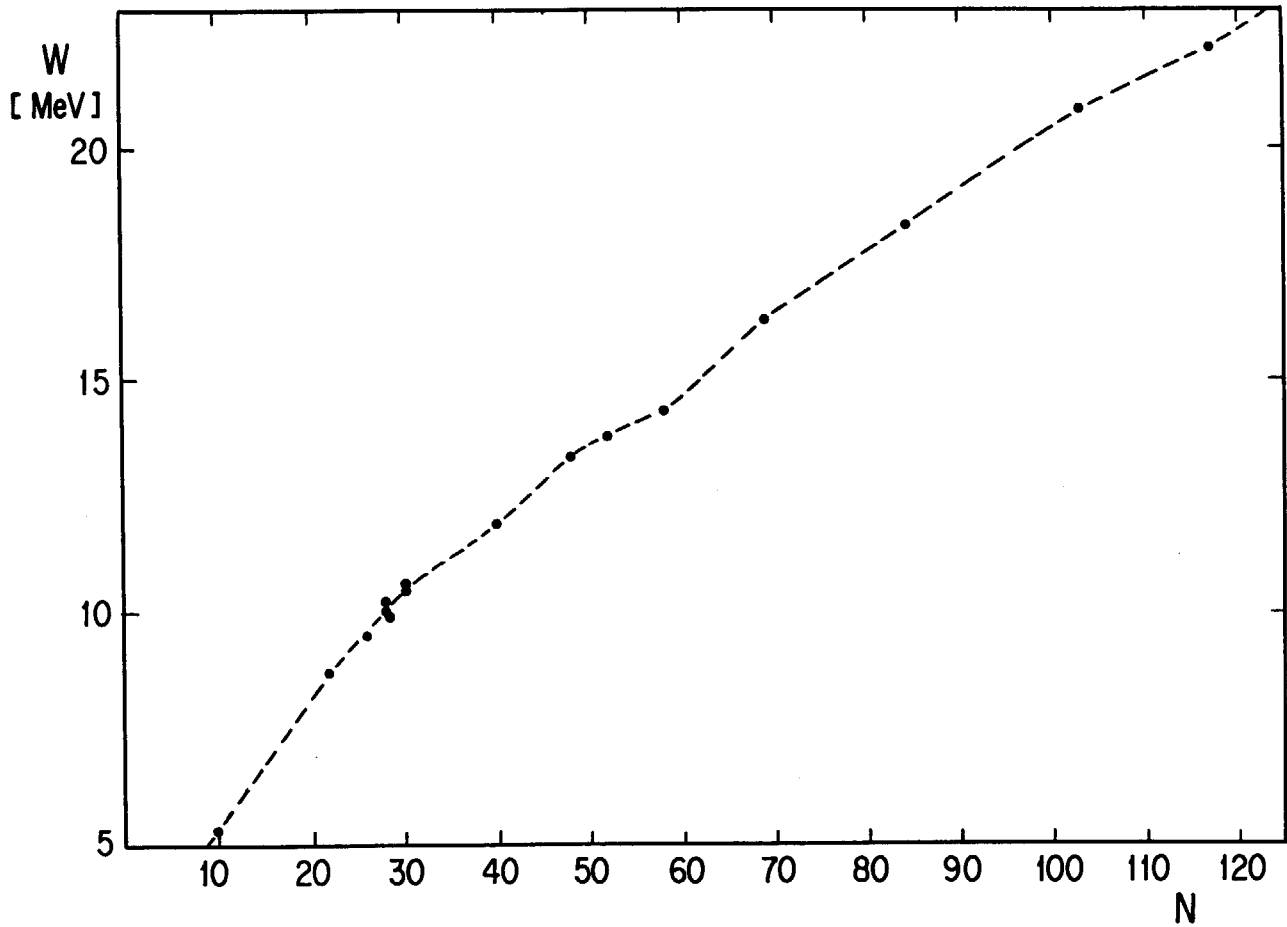


Fig.1 The well depth of the imaginary volume type potential,  $W$ , for  $\alpha$  particles. The values of  $W$  were determined by linear interpolation assuming  $W$  to be a function of neutron number  $N$ . The solid points in this figure represent the values given in Ref. 5 for typical nuclides.

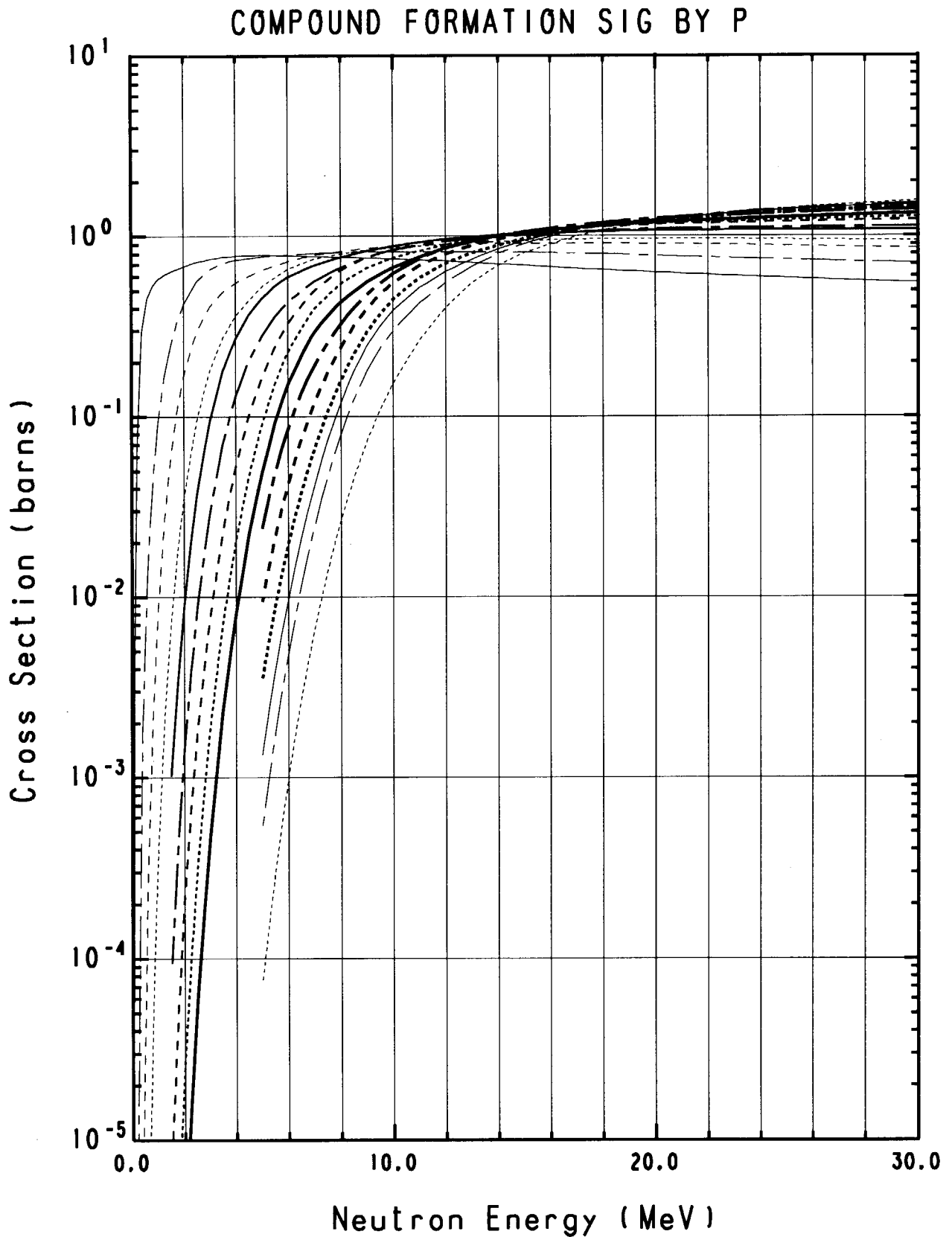


Fig. 2-1 Compound nucleus formation cross sections by protons. Lines are corresponding to the targets of  $^{11}\text{Be}$ ,  $^{20}\text{F}$ ,  $^{31}\text{Si}$ ,  $^{40}\text{K}$ ,  $^{55}\text{Cr}$ ,  $^{64}\text{Cu}$ ,  $^{79}\text{Se}$ ,  $^{90}\text{Y}$ ,  $^{103}\text{Ru}$ ,  $^{120}\text{In}$ ,  $^{133}\text{Xe}$ ,  $^{142}\text{Pr}$ ,  $^{159}\text{Gd}$ ,  $^{174}\text{Tm}$ ,  $^{189}\text{W}$  and  $^{202}\text{Au}$ , from the left.



### COMPOUND FORMATION SIG BY ALPHA

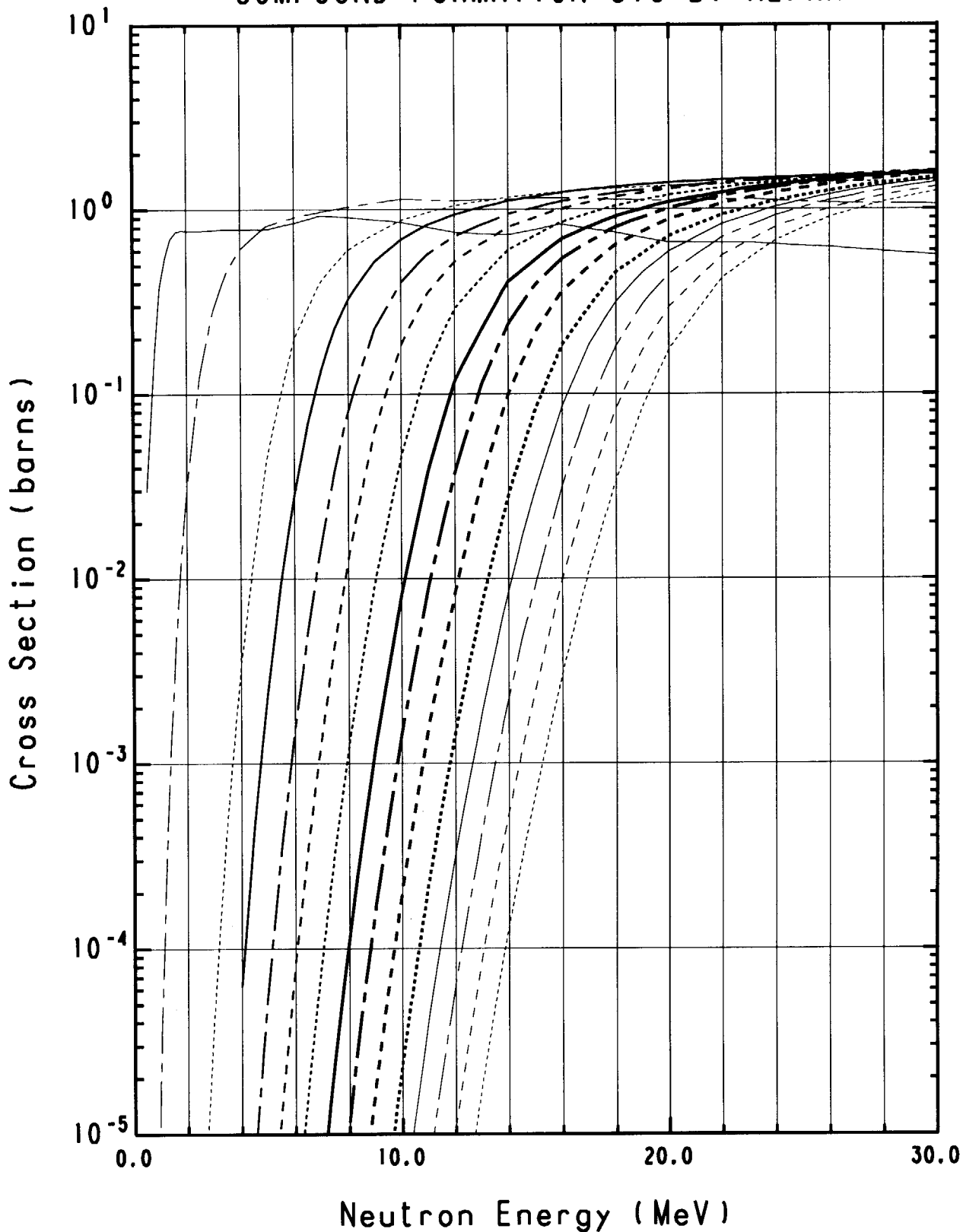


Fig. 2-2 Compound nucleus formation cross sections by  $\alpha$  particles. Lines are corresponding to the targets of  ${}^8\text{Li}$ ,  ${}^{17}\text{O}$ ,  ${}^{18}\text{Al}$ ,  ${}^{52}\text{V}$ ,  ${}^{61}\text{Ni}$ ,  ${}^{76}\text{As}$ ,  ${}^{87}\text{Sr}$ ,  ${}^{100}\text{Tc}$ ,  ${}^{117}\text{Cd}$ ,  ${}^{130}\text{I}$ ,  ${}^{139}\text{Ce}$ ,  ${}^{156}\text{Eu}$ ,  ${}^{171}\text{Er}$ ,  ${}^{184}\text{Ta}$  and  ${}^{199}\text{Pt}$ , from the left.

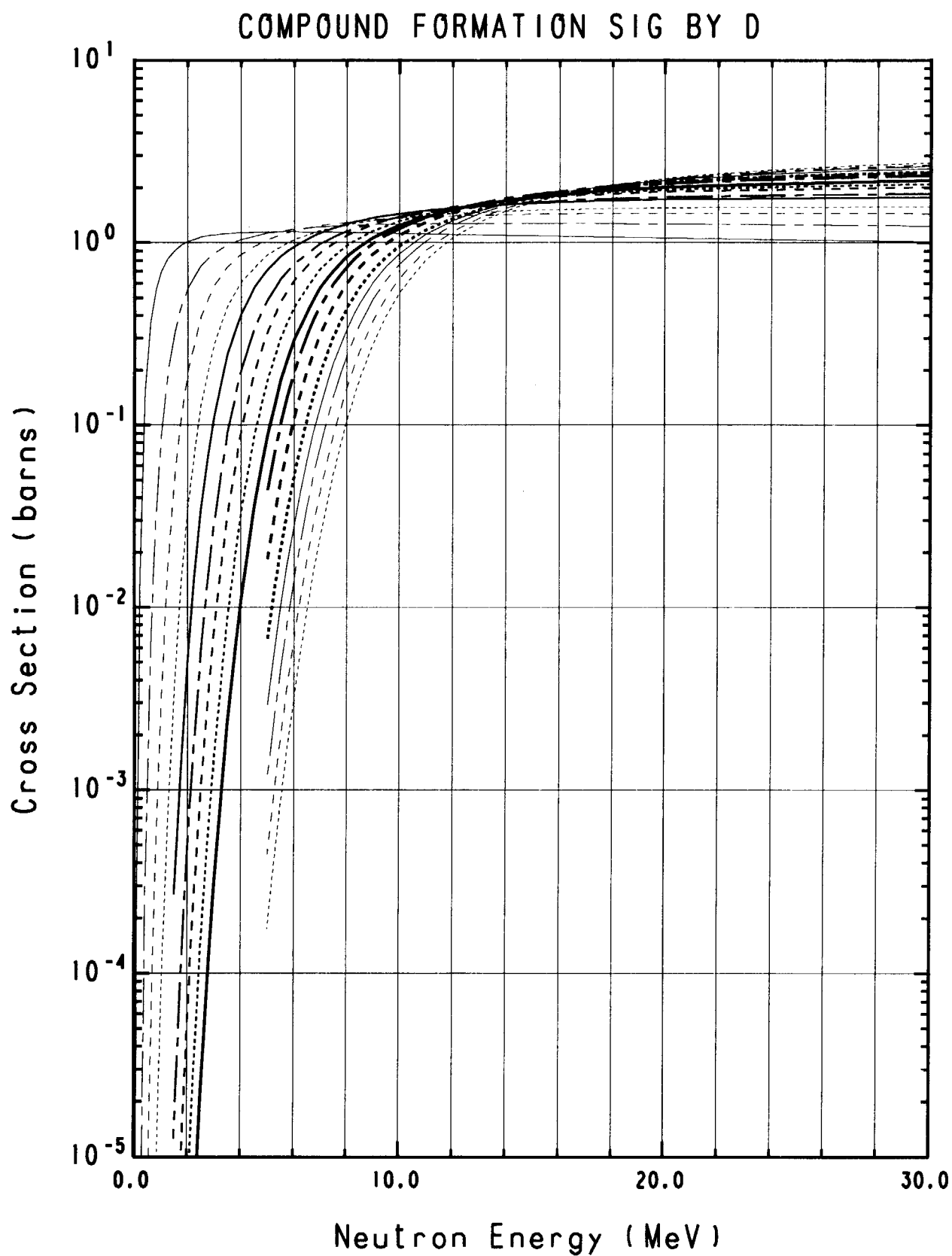


Fig. 2-3 Compound nucleus formation cross sections by deuterons. Lines are corresponding to the targets of  $^{10}\text{Be}$ ,  $^{19}\text{F}$ ,  $^{30}\text{Si}$ ,  $^{39}\text{K}$ ,  $^{54}\text{Cr}$ ,  $^{63}\text{Cu}$ ,  $^{78}\text{Se}$ ,  $^{89}\text{Y}$ ,  $^{102}\text{Ru}$ ,  $^{119}\text{In}$ ,  $^{132}\text{Xe}$ ,  $^{141}\text{Pr}$ ,  $^{158}\text{Gd}$ ,  $^{173}\text{Tm}$ ,  $^{188}\text{W}$  and  $^{201}\text{Au}$ , from the left.

COMPOUND FORMATION SIG BY T

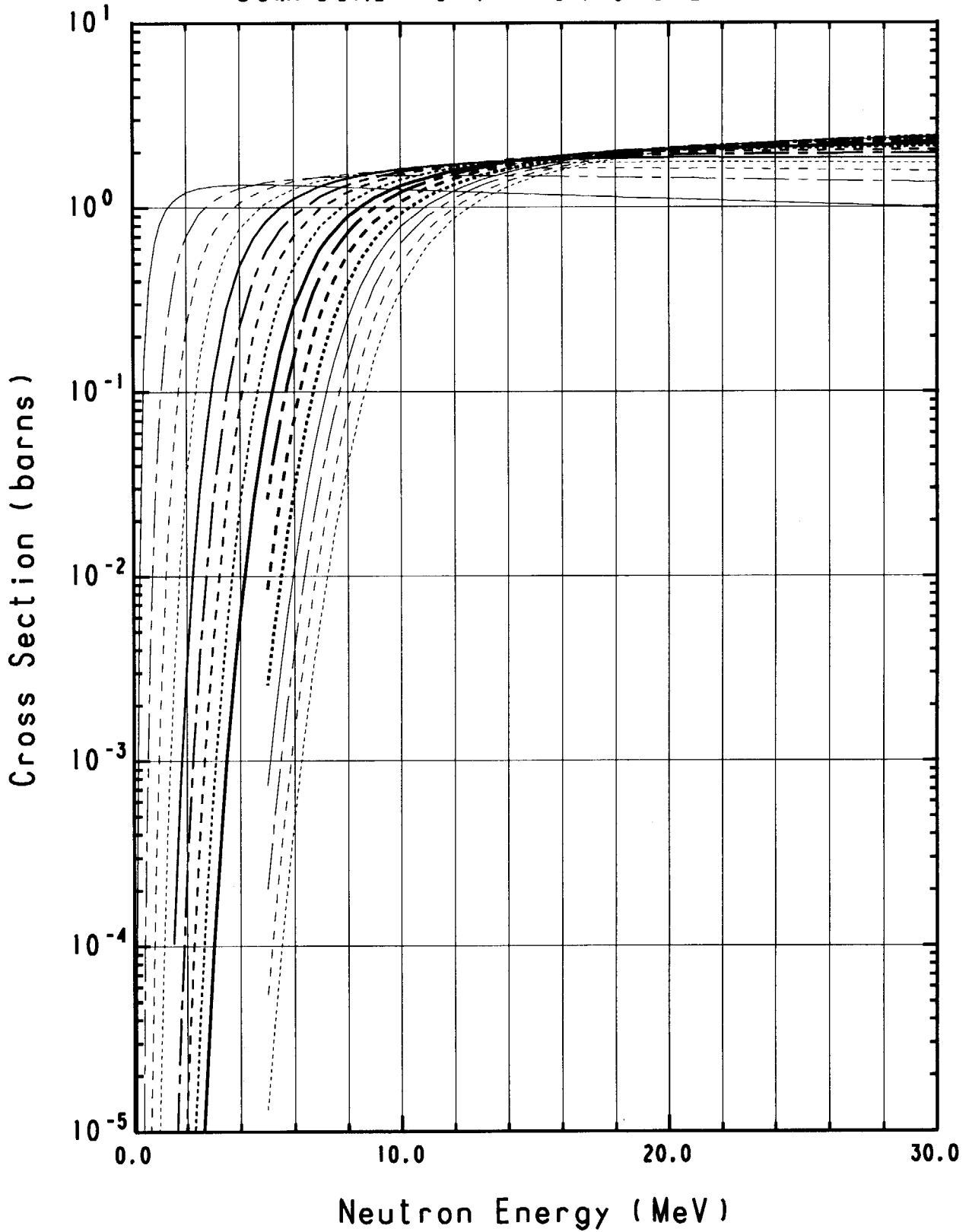


Fig. 2-4 Compound nucleus formation cross sections by tritons. Lines are corresponding to the targets of  ${}^9\text{e}$ ,  ${}^{18}\text{F}$ ,  ${}^{29}\text{Si}$ ,  ${}^{38}\text{K}$ ,  ${}^{53}\text{Cr}$ ,  ${}^{62}\text{Cu}$ ,  ${}^{77}\text{Se}$ ,  ${}^{88}\text{Y}$ ,  ${}^{101}\text{Ru}$ ,  ${}^{118}\text{In}$ ,  ${}^{131}\text{Xe}$ ,  ${}^{140}\text{Pr}$ ,  ${}^{157}\text{Gd}$ ,  ${}^{172}\text{Tm}$ ,  ${}^{187}\text{W}$  and  ${}^{200}\text{Au}$ , from the left.

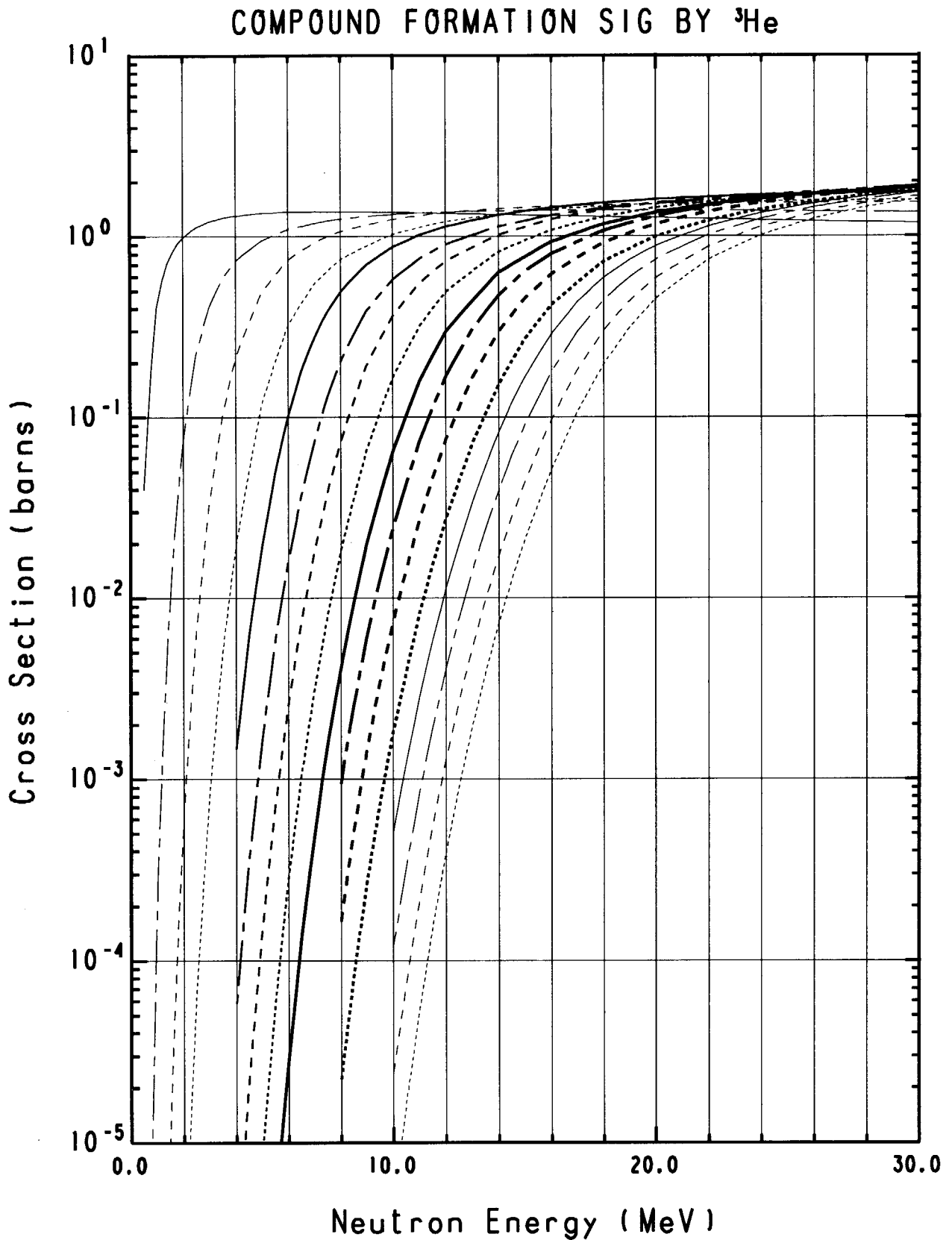


Fig. 2-5 Compound nucleus formation cross sections by  $^3\text{He}$ . Lines are corresponding to the targets of  $^9\text{Li}$ ,  $^{16}\text{O}$ ,  $^{17}\text{Al}$ ,  $^{51}\text{V}$ ,  $^{60}\text{Ni}$ ,  $^{75}\text{As}$ ,  $^{86}\text{Sr}$ ,  $^{99}\text{Tc}$ ,  $^{116}\text{Cd}$ ,  $^{129}\text{I}$ ,  $^{138}\text{Ce}$ ,  $^{155}\text{Eu}$ ,  $^{170}\text{Er}$ ,  $^{183}\text{Ta}$  and  $^{198}\text{Pt}$ , from the left.

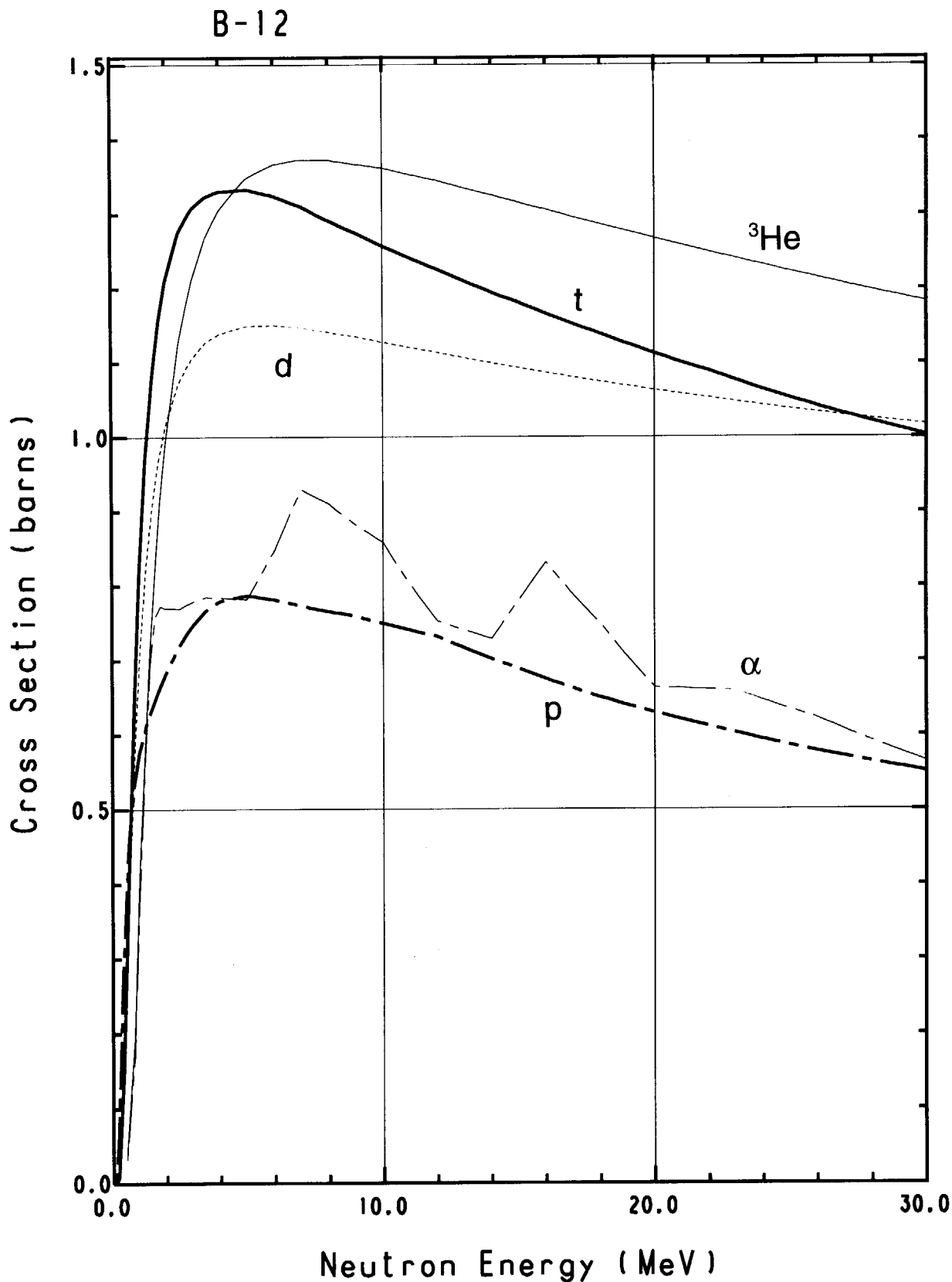


Fig. 3-1 Compound nucleus ( $^{12}\text{B}$ ) formation cross sections by the charged particles.

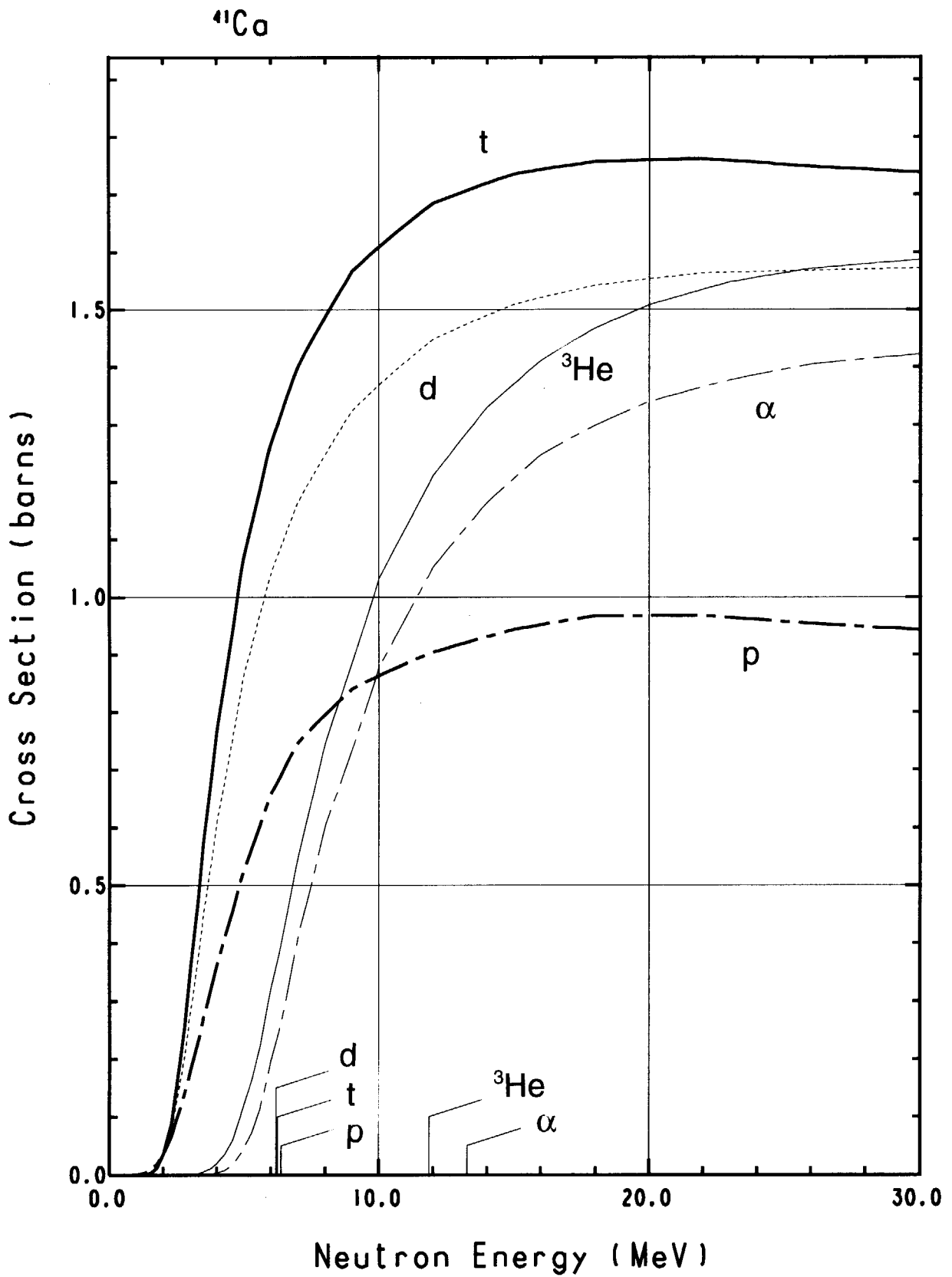


Fig. 3-2 Compound nucleus ( $^{41}\text{Ca}$ ) formation cross sections by the charged particles. On the horizontal axis, Coulomb barrier heights are indicated for the charged particles.

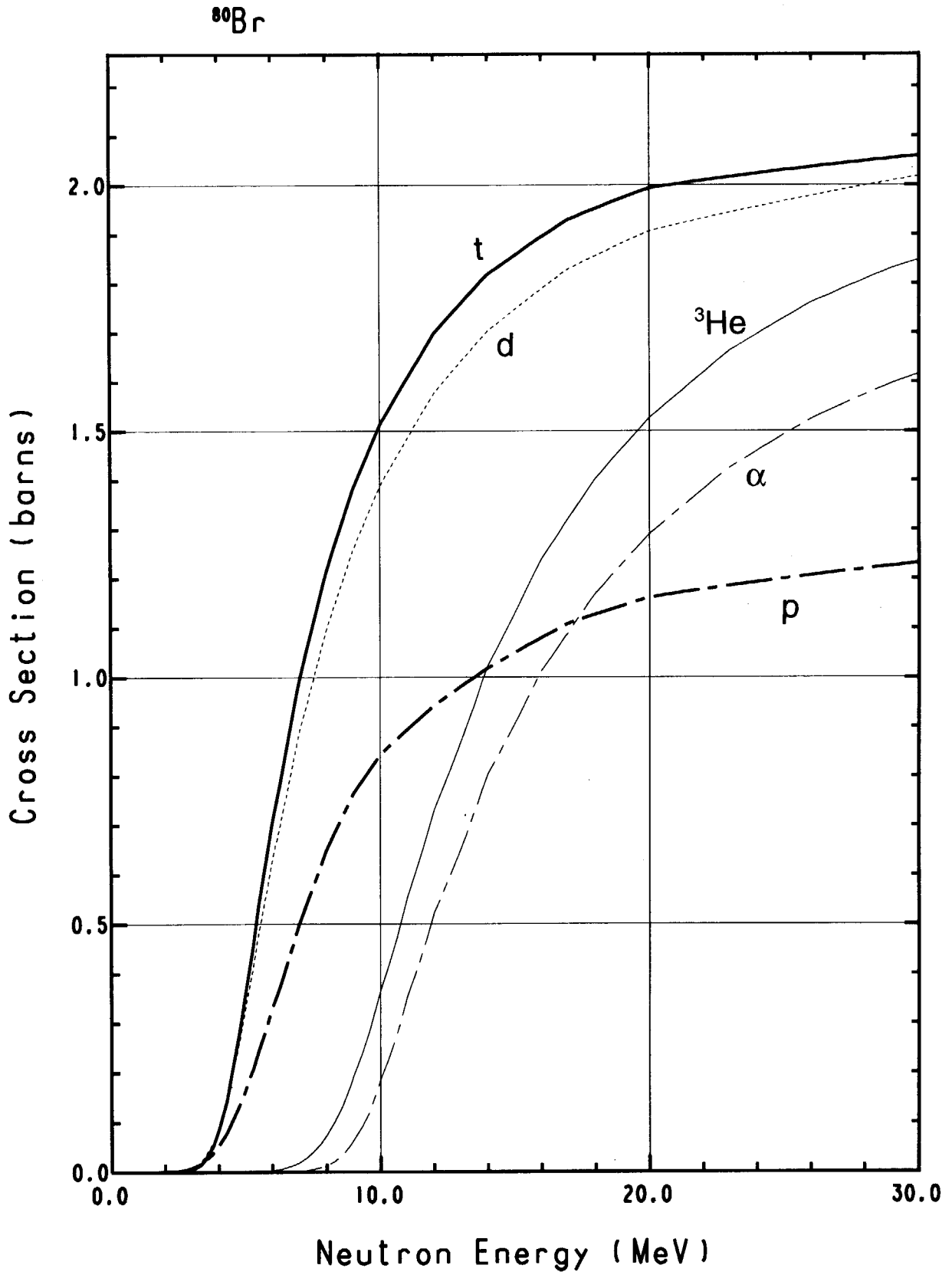


Fig. 3-3 Compound nucleus ( $^{80}\text{Br}$ ) formation cross sections by the charged particles.

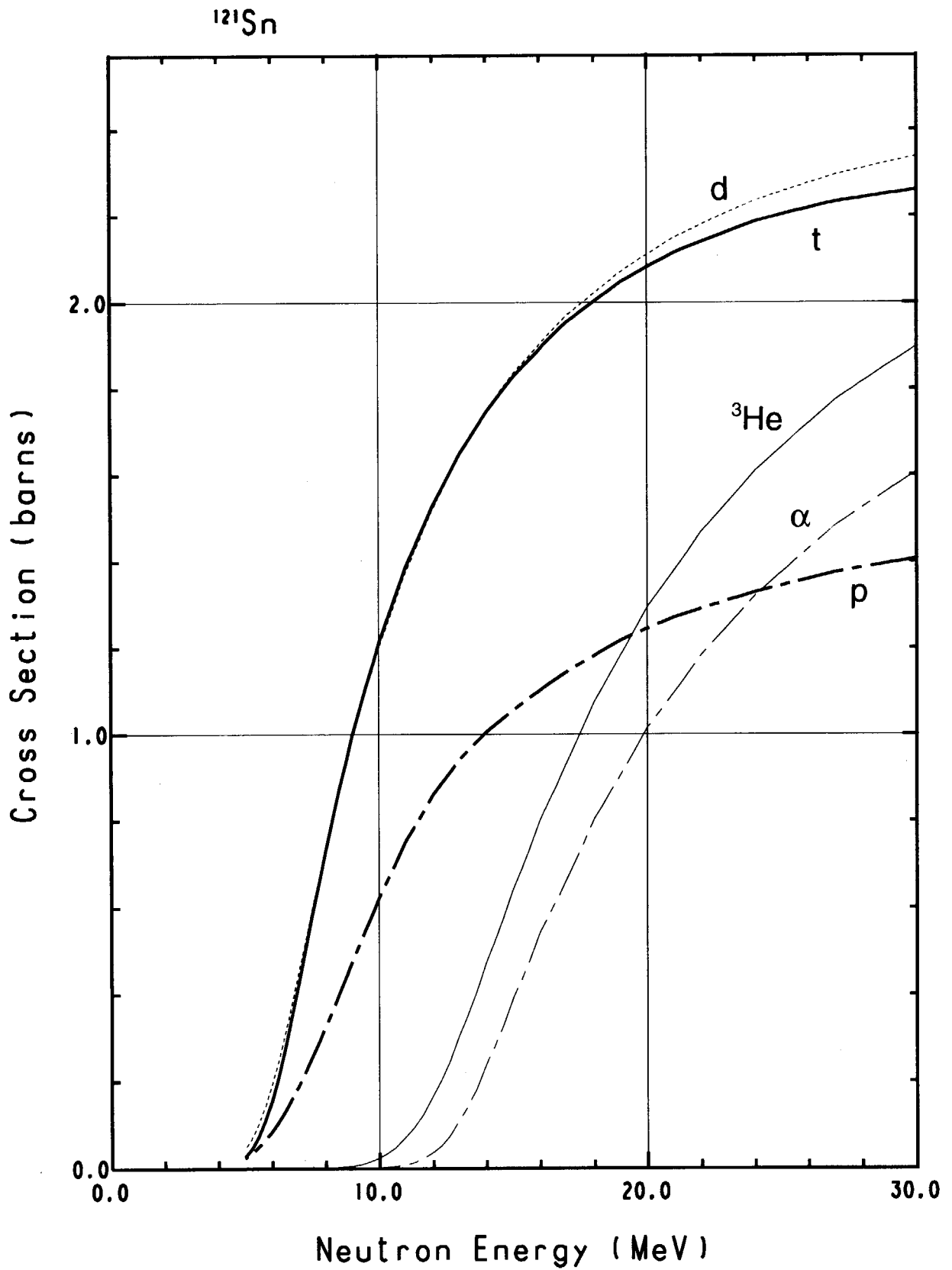


Fig. 3-4 Compound nucleus ( $^{121}\text{Sn}$ ) formation cross sections by the charged particles.



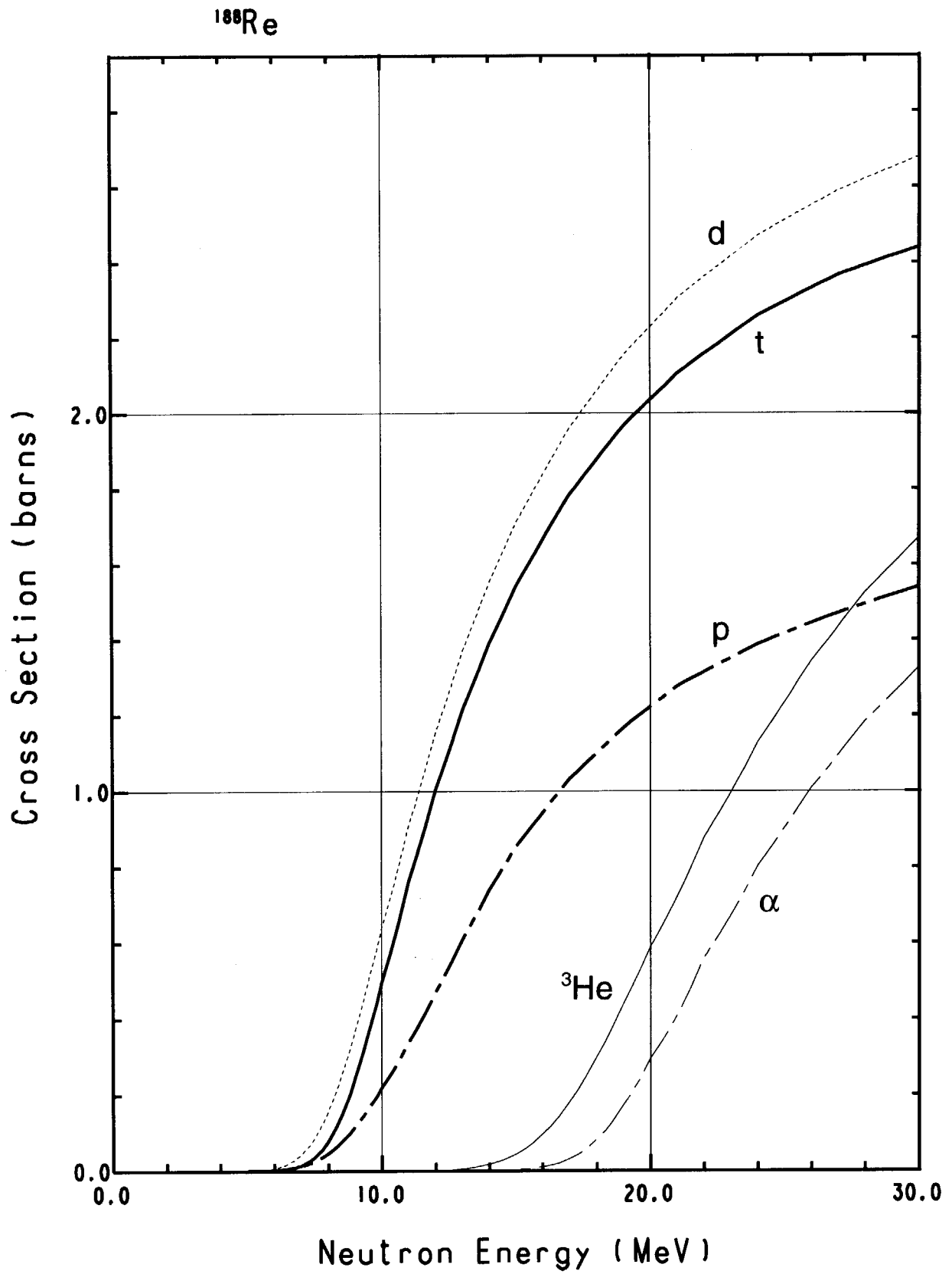


Fig. 3-5 Compound nucleus ( $^{188}\text{Re}$ ) formation cross sections by the charged particles.

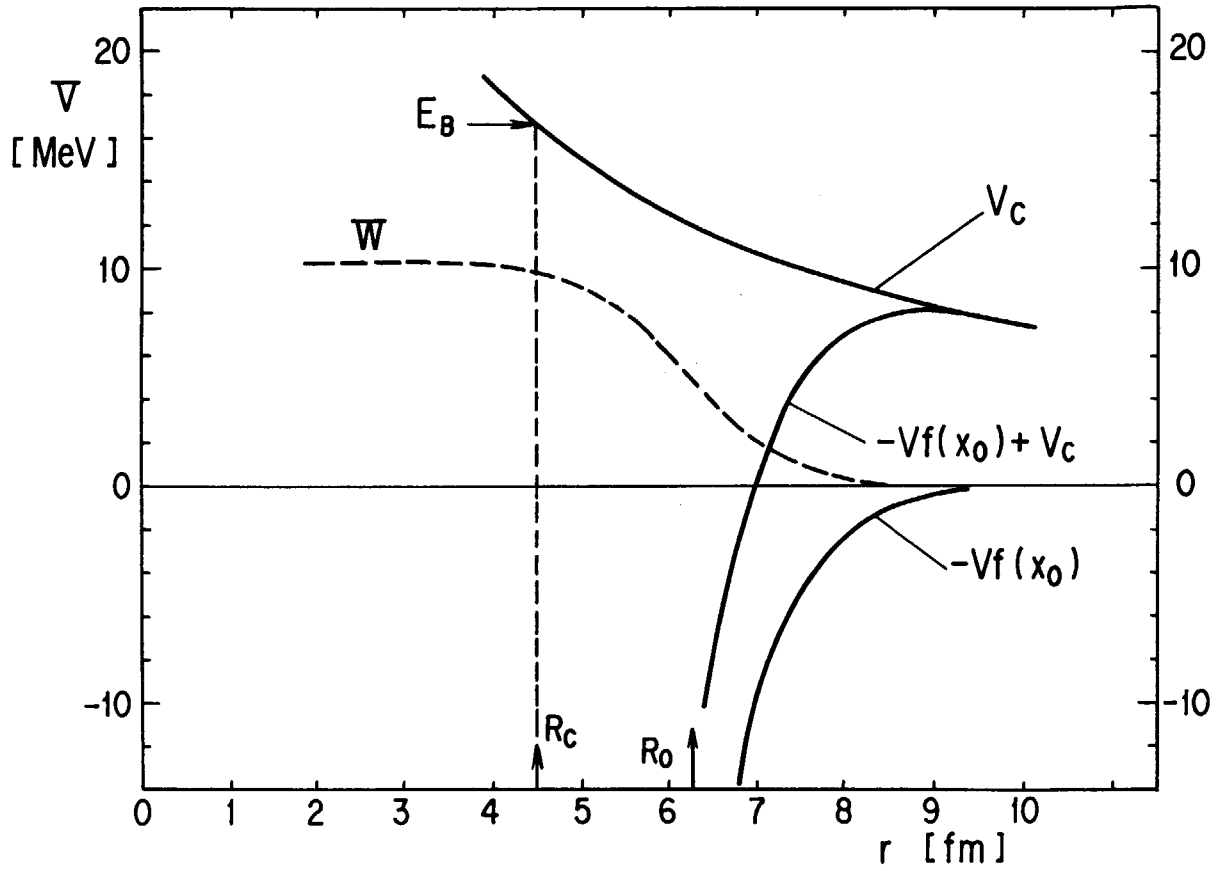


Fig. 4 The effective  $\alpha$  optical potential shape near the nuclear surface. The potential is Hizenga-Igo's<sup>5)</sup> (See Table 1). The Coulomb potential  $V_c$  is lowered to  $-Vf(x_0)+V_c$  by the real potential  $Vf(x_0)$ .

# 国際単位系 (SI) と換算表

表1 SI基本単位および補助単位

量	名称	記号
長さ	メートル	m
質量	キログラム	kg
時間	秒	s
電流	アンペア	A
熱力学温度	ケルビン	K
物質質量	モル	mol
光度	カンデラ	cd
平面角	ラジアン	rad
立体角	ステラジアン	sr

表3 固有の名称をもつSI組立単位

量	名称	記号	他のSI単位による表現
周波数	ヘルツ	Hz	s <sup>-1</sup>
力	ニュートン	N	m·kg/s <sup>2</sup>
圧力, 応力	パスカル	Pa	N/m <sup>2</sup>
エネルギー, 仕事, 熱量	ジュール	J	N·m
工率, 放射束	ワット	W	J/s
電気量, 電荷	クーロン	C	A·s
電位, 電圧, 起電力	ボルト	V	W/A
静電容量	ファラド	F	C/V
電気抵抗	オーム	Ω	V/A
コンダクタンス	ジーメンズ	S	A/V
磁束	ウェーバ	Wb	V·s
磁束密度	テスラ	T	Wb/m <sup>2</sup>
インダクタンス	ヘンリー	H	Wb/A
セルシウス温度	セルシウス度	°C	
光度	ルーメン	lm	cd·sr
照射度	ルクス	lx	lm/m <sup>2</sup>
放射能	ベクレル	Bq	s <sup>-1</sup>
吸収線量	グレイ	Gy	J/kg
線量等量	シーベルト	Sv	J/kg

表2 SIと併用される単位

名称	記号
分, 時, 日	min, h, d
度, 分, 秒	°, ', "
リットル	l, L
トン	t
電子ボルト	eV
原子質量単位	u

1 eV=1.60218×10<sup>-19</sup>J  
1 u=1.66054×10<sup>-27</sup>kg

表4 SIと共に暫定的に維持される単位

名称	記号
オングストローム	Å
バーン	b
バル	bar
ガリ	Gal
キュリー	Ci
レントゲン	R
ラド	rad
レム	rem

1 Å=0.1nm=10<sup>-10</sup>m  
1 b=100fm<sup>2</sup>=10<sup>-28</sup>m<sup>2</sup>  
1 bar=0.1MPa=10<sup>5</sup>Pa  
1 Gal=1cm/s<sup>2</sup>=10<sup>-2</sup>m/s<sup>2</sup>  
1 Ci=3.7×10<sup>10</sup>Bq  
1 R=2.58×10<sup>-4</sup>C/kg  
1 rad=1cGy=10<sup>-2</sup>Gy  
1 rem=1cSv=10<sup>-2</sup>Sv

表5 SI接頭語

倍数	接頭語	記号
10 <sup>18</sup>	エクサ	E
10 <sup>15</sup>	ペタ	P
10 <sup>12</sup>	テラ	T
10 <sup>9</sup>	ギガ	G
10 <sup>6</sup>	メガ	M
10 <sup>3</sup>	キロ	k
10 <sup>2</sup>	ヘクト	h
10 <sup>1</sup>	デカ	da
10 <sup>-1</sup>	デシ	d
10 <sup>-2</sup>	センチ	c
10 <sup>-3</sup>	ミリ	m
10 <sup>-6</sup>	マイクロ	μ
10 <sup>-9</sup>	ナノ	n
10 <sup>-12</sup>	ピコ	p
10 <sup>-15</sup>	フェムト	f
10 <sup>-18</sup>	アト	a

(注)

- 表1-5は「国際単位系」第5版, 国際度量衡局1985年刊行による。ただし, 1 eV および 1 uの値はCODATAの1986年推奨値によった。
- 表4には海里, ノット, アール, ヘクターも含まれているが日常の単位なのでここでは省略した。
- bar は, JISでは流体の圧力を表わす場合に限り表2のカテゴリーに分類されている。
- E C閣僚理事会指令では bar, barnおよび「血圧の単位」mmHgを表2のカテゴリーに入れている。

## 換算表

力	N (=10 <sup>5</sup> dyn)	kgf	lbf
	1	0.101972	0.224809
	9.80665	1	2.20462
	4.44822	0.453592	1

粘度 1 Pa·s(N·s/m<sup>2</sup>)=10 P(ポアズ)(g/(cm·s))

動粘度 1 m<sup>2</sup>/s=10<sup>4</sup>St(ストークス)(cm<sup>2</sup>/s)

圧	MPa (=10bar)	kgf/cm <sup>2</sup>	atm	mmHg(Torr)	lbf/in <sup>2</sup> (psi)
	1	10.1972	9.86923	7.50062×10 <sup>3</sup>	145.038
力	0.0980665	1	0.967841	735.559	14.2233
	0.101325	1.03323	1	760	14.6959
	1.33322×10 <sup>-4</sup>	1.35951×10 <sup>-3</sup>	1.31579×10 <sup>-3</sup>	1	1.93368×10 <sup>-2</sup>
	6.89476×10 <sup>-3</sup>	7.03070×10 <sup>-2</sup>	6.80460×10 <sup>-2</sup>	51.7149	1

エネルギー・仕事・熱量	J (=10 <sup>7</sup> erg)	kgf·m	kW·h	cal(計量法)	Btu	ft·lbf	eV
	1	0.101972	2.77778×10 <sup>-7</sup>	0.238889	9.47813×10 <sup>-3</sup>	0.737562	6.24150×10 <sup>18</sup>
	9.80665	1	2.72407×10 <sup>-6</sup>	2.34270	9.29487×10 <sup>-3</sup>	7.23301	6.12082×10 <sup>19</sup>
	3.6×10 <sup>6</sup>	3.67098×10 <sup>5</sup>	1	8.59999×10 <sup>5</sup>	3412.13	2.65522×10 <sup>6</sup>	2.24694×10 <sup>25</sup>
	4.18605	0.426858	1.16279×10 <sup>-6</sup>	1	3.96759×10 <sup>-3</sup>	3.08747	2.61272×10 <sup>19</sup>
	1055.06	107.586	2.93072×10 <sup>-4</sup>	252.042	1	778.172	6.58515×10 <sup>21</sup>
	1.35582	0.138255	3.76616×10 <sup>-7</sup>	0.323890	1.28506×10 <sup>-3</sup>	1	8.46233×10 <sup>18</sup>
	1.60218×10 <sup>19</sup>	1.63377×10 <sup>20</sup>	4.45050×10 <sup>26</sup>	3.82743×10 <sup>-20</sup>	1.51857×10 <sup>22</sup>	1.18171×10 <sup>19</sup>	1

1 cal= 4.18605J (計量法)  
- 4.184J (熱化学)  
- 4.1855J (15°C)  
= 4.1868J (国際蒸気表)  
仕事率 1 PS(仏馬力)  
= 75 kgf·m/s  
= 735.499W

放射能	Bq	Ci
	1	2.70270×10 <sup>-11</sup>
	3.7×10 <sup>10</sup>	1

吸収線量	Gy	rad
	1	100
	0.01	1

照射線量	C/kg	R
	1	3876
	2.58×10 <sup>-4</sup>	1

線量当量	Sv	rem
	1	100
	0.01	1

**TABLES AND GRAPHS OF CROSS SECTIONS FOR COMPOUND NUCLEUS FORMATION BY CHARGED PARTICLES**