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Tsuneo NAKAGAWA, Satoshi CHIBA,
Toshiro OHSAKI* and Masayuki IGASHIRA*

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

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Maxwellian-Averaged Cross Sections Calculated from JENDL-3.2

Tsuneo NAKAGAWA, Satoshi CHIBA[+], Toshiro OHSAKI[*] and Masayuki IGASHIRA[*]

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

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Maxwellian-averaged cross sections of neutron capture, fission, (n,p) and (n,α) reactions are calculated from the Japanese Evaluated Nuclear Data Library, JENDL-3.2, for applications in the asptrophysics. The calculation was made in the temperature (kT) range from 1 keV to 1 MeV. Results are listed in tables. The Maxwellian-averaged capture cross sections were compared with recommendations of other authors and recent experimental data. Large discrepancies were found among them especially in the light mass nuclides. Since JENDL-3.2 reproduces relatively well the recent experimental data, we conclude that JENDL-3.2 is superior to the others in such a mass region.

Keywords: Maxwellian-Averaged Cross Sections, Neutron Capture Cross Sections, Fission Cross Sections, (n,p) Reaction Cross Sections, (n,α) Reaction Cross Sections, JENDL-3.2, kT=1 keV – 1 MeV

+ Advanced Science Research Center

* Research Laboratory for Nuclear Reactors, Tokyo Institute of Technology

JENDL-3.2から計算したマックスウェル平均断面積

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
中川　庸雄・千葉　敏[+]・大崎　敏郎[*]・井頭　政之[*]

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天体核物理の分野での応用のために、評価済み核データライブラリーJENDL-3.2を基に、中性子捕獲断面積、核分裂断面積、(n,p)反応断面積および(n,α)反応断面積のマックスウェル平均値を計算した。計算を行った温度（kT）の範囲は、1 keVから1 MeVである。結果を表で示す。特に中性子捕獲断面積については、他の著者による推奨値や最近の測定値との比較をし、軽い核種で大きな差が見つかった。JENDL-3.2は最近の測定データと比較的良く一致しており、軽い核種の領域では他の推奨値よりも優れている。

東海研究所：〒319-1195 茨城県那珂郡東海村白方白根2－4
+ 先端基礎研究センター
* 東京工業大学原子炉工学研究所

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1. Introduction

The neutron-induced reaction on nuclei, especially the capture reaction, is one of the important processes in the nuclear reaction network in stars and supernovae. The chemical elements heavier than iron are believed to be synthesized mainly by a succession of neutron capture on a seed nucleus, predominantly ^{56}Fe. Roughly speaking, there are 2 distinct types in the neutron capture in stars and supernovae: the slow or s-process where neutrons are added on a time-scale longer than that of most β-decays and nuclides are synthesized along the β-stability valley up to ^{209}Bi, and the rapid or r-process in which very neutron-rich nuclei are built up to the actinide region, followed by a series of β^--decays or fission of heavy elements which continue till freeze-out occurs leading to nuclides on the neutron-rich side of the stability valley. The s-process occurs at the helium and carbon burning stages in cool giant stars, whereas the r-process may occur during type-II supernovae or possibly in other high-energy events related to neutron stars. The heavy elements synthesized by the r-process then become the seed of s-process in stars at the later generation.

In order to perform the calculation of neutron-induced nucleosynthesis in stars or at the supernovae, the neutron reaction cross sections averaged with Maxwellian distributions of neutrons are required for the whole periodic table in the temperature range from 1 keV to 1 MeV. The Maxwellian-averaged neutron capture cross section data were compiled and evaluated by Bao and Käppelar[1] at the temperature (kT) of 30 keV, and by Beer et al.[2] in the range of kT about 5 to 100 keV. Bao and Käppelar recommended also the fission, (n,p) and (n,α) cross sections at 30 keV for some nuclides relevant to the s-process. The recommended data by Thielemann et al.[3] are also frequently used by astrophysicists. They produced tables of coefficients of temperature-dependent functions for various kinds of reaction rates. Holmes et al.[4] and Woosley et al.[5] recommended also the Maxwellian-averaged cross sections.

In the nuclear data community, the neutron-induced reaction cross section data have been actively measured and systematically compiled as an international database over the past several decades. Extensive neutron cross section data libraries have been generated as "evaluated nuclear data libraries" with the aid of experimental data, statistical inferences and theoretical model calculations aiming at applications for thermal reactors, fast breeder reactors, neutron shielding and fusion neutron technologies. Such data libraries contain the data in the neutron energy range from 10^{-5} eV to 20 MeV for a wide variety of nuclei important in those application fields. In the USA, ENDF has been maintained. Its latest version is ENDF/B-VI[6] release 6. In Europe, they have JEF-2.2[7]. The Japanese Evaluated Nuclear Data Library JENDL-3.2[8] is one

of the large evaluated nuclear data libraries, and was made by Nuclear Data Center of Japan Atomic Energy Research Institute in close cooperation with Japanese Nuclear Data Committee. JENDL-3.2 contains the data for 340 nuclides or elements.

In the present work, the Maxwellian-averaged neutron capture, fission, (n,p) and (n,α) cross sections are calculated from JENDL-3.2 at the neutron temperatures from 1 keV to 1 MeV. Results are listed in tables. They are compared with other recommended data[1,2,3] and recent experimental data for selected nuclides in Chapter 4.

2. Calculation of Maxwellian-Averaged Cross Sections

2.1 Evaluated Nuclear Data Library JENDL-3.2

The Japanese Evaluated Nuclear Data Library (JENDL) is a data file that contains recommended nuclear data of neutron-induced reactions. The latest file of JENDL-3.2[8] contains the data for 340 nuclides including 22 natural elements in the neutron energy range from 10^{-5} eV to 20 MeV. The 340 nuclides are listed in Table 2.1. The data are given in the ENDF-6[9] and ENDF/B-V[10] formats.

Types of data given in JENDL-3.2 are cross sections, angular and energy distributions of emitted neutrons for all the nuclides. The cross sections in the low energy region are represented with resonance parameters. The cross section data are given for almost all reactions such as total, elastic and inelastic scattering, neutron capture, fission, (n,2n), (n,3n), (n,p), (n,α), and so on. For fissionable nuclides, the number of neutrons per fission and fission yields are also given. Gamma-ray production data are given for selected nuclides.

The evaluation method applied to obtain the recommended data is described in the data file of JENDL-3.2, and in Ref. 11. Here the evaluation method is shortly described.

1) Neutron capture cross sections

For light mass nuclides, the evaluation was made mainly on the basis of experimental data. For example, the shape of 1/v was assumed and normalized to the experimental data at the thermal neutron energy of 0.0253 eV. Figure 2.1 shows the capture cross section of ^{10}B that is an example of such nuclides.

For the nuclides heavier than ^{19}F, resonance parameters were given in the low neutron energy region. The resonance parameters were taken from experimental data and/or the recommendation of Mughabghab et al.[12,13] The multi-level Breit-Wigner formula is frequently

adopted as the resonance formula which is used to reconstruct the resonance cross sections. Figure 2.2 is an example of resonance cross sections for light mass nuclides where the number of resonances is not so large and they are located at high energies. On the contrary, the nuclides with a large mass number have many narrow resonances from the low energy region as shown in Fig. 2.3.

In the higher part of the resonance region, we meet difficulties for determining the resonance parameters because of overlapping of resonances and finite energy resolution of experimental apparatus. However, even in such an energy region, the resonance structure is found in the experimental data, and the Doppler effect is important for the reactor application. Such an energy region is called the unresolved resonance region, and the average resonance parameters are given so as to reproduce the average cross sections. For many nuclides, the unresolved resonance region defined in JENDL-3.2 is from just above the resolved resonance region up to several tens or hundred keV.

Above the resonance region, the cross sections were calculated with optical and statistical models. For this purpose, the computer code CASTHY[14] based on the Hauser-Feshbach theory was often used in the JENDL-3.2 evaluation work. The compound formation cross section was calculated with the optical model. Potential parameters were determined to reproduce well the total and/or the angular distributions of elastically scattered neutrons. Sometimes the so-called global potential parameters reported in literature were adopted. The γ-ray strength function was normalized to well reproduce the available measured capture cross sections at the keV energies. As an example, the capture cross section of ^{150}Sm in the energy range from 1 keV to 10 MeV is shown in Fig. 2.4. JENDL-3.2 well reproduces the data of Wisshak et al.[15]

In the MeV region, the capture cross sections decrease with increasing neutron energy because the inelastic scattering cross sections increase. Above several MeV, the direct and semi-direct processes become important. For some nuclides, the evaluation for JENDL-3.2 did not take into account the direct and semi-direct processes. In such cases, the capture cross section given in JENDL-3.2 is too small above several MeV. However, this defect does not affect the Maxwellian-averaged cross sections because the maximum kT is 1 MeV in the present calculation.

2) Fission cross sections

The fission cross section was evaluated for the nuclides heavier than ^{223}Ra. If the experimental data were available, the evaluation was based on them. For the nuclides important for applications of nuclear energy such as ^{235}U, a lot of experimental data are available. Figure

2.5 shows the ^{235}U fission cross section in the energy range from 10 keV to 1 MeV. The experimental data shown in the figure were reported after 1970. The data of JENDL-3.2 for the ^{235}U, ^{238}U, ^{239}Pu, ^{240}Pu and ^{241}Pu fission cross sections were determined by a simultaneous fitting to experimental data. Figure 2.6 shows the fission cross section of ^{238}U. Since this reaction is a threshold reaction in practice, the cross section in the energy range below several hundreds keV is very small and ambiguous.

In the case of nuclides for which no experimental data were available, a trend of cross sections of neighboring nuclides was considered. The data of such nuclides have large uncertainties.

In the low energy region, the cross section is represented with resonance parameters like the capture cross section.

3) (n,p) reaction cross sections

For many nuclides, the (n,p) reaction cross section was calculated with nuclear model codes such as GNASH[16], EGNASH[17] or PEGASUS[18] which were based on the statistical model with preequilibrium effects. For nuclides whose experimental data existed, the calculated results were normalized to the experimental data or modified to reproduce them. As an example of the (n,p) reaction cross sections, the ^{56}Fe(n,p) cross section is shown in Fig. 2.7. Figure 2.8 shows the ^{14}N(n,p) cross section which was determined on the basis of experimental data.

4) (n,α) reaction cross sections

This reaction cross section was also calculated with the theoretical codes mentioned above for many nuclides. Typical examples are given in Figs. 2.9 and 2.10. Figure 2.11 shows the ^{10}B (n,α) cross section which was determined on the basis of experimental data and the R matrix theory.

As for the heavy nuclides, even if the (n,α) reaction is possible in terms of its Q value, the cross section is very small or almost 0.0 in the low energy region because of high Coulomb barrier. JENDL-3.2 gives cross sections of 0.0 below 100 keV for such nuclides.

2.2 Calculation of Maxwellian-Averaged Cross Sections from JENDL-3.2

Since the cross section data are represented with resonance parameters in the low neutron energy range, the data in JENDL-3.2 have to be processed to obtain the cross sections from the given resonance parameters. Such data files that contain the cross sections calculated from the resonance parameters are called "pointwise files". The JENDL-3.2 pointwise files were also

published at the same time of release of JENDL-3.2. They were made with the computer codes RESENDD[19] and RECENT[20] with the accuracy of 0.1 %. In the present work, the JENDL-3.2 pointwise files were used to obtain the Maxwellian-averaged cross sections.

The Maxwellian-averaged cross sections <σ(kT)> at the temperature T were calculated with the following formula:

$$\langle\sigma(kT)\rangle = \frac{2}{\sqrt{\pi}} \frac{\int \sigma(E) E \exp(-E/kT) dE}{\int E \exp(-E/kT) dE}, \tag{2.1}$$

where T is the temperature, k Boltzmann's constant, σ(E) the cross section given in the JENDL-3.2 pointwise files. Integration was performed in the neutron energy range from 10^{-5} eV to 20 MeV. Since the energy range is wide enough, the denominator can be replaced with $(kT)^2$:

$$\langle\sigma(kT)\rangle = \frac{2}{\sqrt{\pi}} (kT)^{-2} \int \sigma(E) E \exp(-E/kT) dE . \tag{2.2}$$

The present calculations were made at kT = 1, 2, 3, 5, 10, 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 100, 120, 150, 170, 200, 250, 300, 500, 700, 850 and 1000 keV. These temperatures cover the requirement from astrophysicists.[21]

3. Results

The present results are listed in Tables 3.1 to 3.4. The nuclides listed in the tables are only isotopes. The natural elements are excluded. Table 3.1 contains the Maxwellian-averaged capture cross sections of 317 nuclides. Excluded are 22 natural elements and ^{4}He which has no capture cross sections. Table 3.2 lists the fission cross sections for 55 nuclides.

The (n,p) and (n,α) reactions usually have threshold energies. Therefore the Maxwellian-averaged cross sections are very small. In the present work, the nuclides are excluded from the tables if their maximum Maxwelllian-averaged cross sections are smaller than 1.0 mb. The 39 (n,p) and 30 (n,α) cross sections are listed in Tables 3.3 and 3.4, respectively. In those tables, Maxwellian-averaged cross sections smaller than 10^{-10} b are replaced with 0.0. It should be noted that reliabilities of these very small Maxwellian-averaged cross sections are low because

only the small cross section parts around the threshold energy are contributing to the Maxwellian-averaged cross sections.

JENDL-3.2 has no information on uncertainties of given cross sections. Therefore we do not give any uncertainties to the Maxwellian-averaged cross sections listed in the present tables.

The values between two temperature points can be obtained by interpolating adjacent two points. We recommend the linear interpolation on the log-log scale section paper. If one of two values are 0.0, the linear interpolation on the log-linear scale section paper should be adopted.

4. Discussion

4.1 Neutron Capture Cross Sections

The capture cross sections at kT=30 keV are compared with those of Beer et al.[2] and Bao and Käppeler[1] in Table 4.1. Cross sections are given in the unit of barns. At the right end of each line, "*" is written if the value of JENDL-3.2 differs more than 30 % from Beer et al., or from Bao and Käppeler in the case where Beer et al. do not give the value. If the discrepancies exceed 50 %, "**" is written.

Figure 4.1 shows the Maxwellian-averaged capture cross sections at kT=30 keV as a function of mass number A. The Maxwellian-averaged cross sections of light mass nuclides are small. They increase with mass numbers, and become small at magic numbers. The nuclides around the mass number of 150 have large cross sections. The comparisons of the present results with those of Beer et al. and those of Bao and Käppeler are given in Figs. 4.2 and 4.3, respectively. The number of nuclides in JENDL-3.2 is less than Bao and Beer in the mass number range from 160 to 200, because the importance of nuclides in this range is relatively low in the application field of reactors. On the contrary, JENDL-3.2 contains many nuclides with mass numbers above 210. Ratios of JENDL-3.2 to Beer et al. are shown in Fig. 4.4, and those to Bao and Käppeler are in Fig. 4.5. The data of ^{16}O is excluded from Figs. 4.4 and 4.5, because the ratio is too large. It is seen from these figures that the data of light mass nuclides important for the calculation of nucleosynthesis are discrepant very much.

Examples of temperature dependence of the Maxwellian-averaged capture cross section are shown in Fig. 4.6. Light mass nuclides with a small number of resonances have a shape due to the resonance structure, except for ^{1}H. The cross section of ^{208}Pb is very small because of a double magic nuclide. The cross section of ^{142}Nd, which is a neutron magic nuclide, is also small. The cross section of others monotonically decreases with increasing temperature.

Short comments are given in the following for nuclides with large discrepancies in Table 4.1 or important nuclides for astrophysics.

1) ^{7}Li

The Maxwellian-averaged cross sections are compared in Fig. 4.7. Beer et al. evaluated the value at 25 keV as 21μb±9.05 %. Thielemann et al. give almost the same value as JENDL-3.2. Nagai et al.[22] measured the capture cross section of 39.3±6.0 μb at 30 keV, and Heil et al.[23] 36.6 μb ±7.0% at 54 keV. JENDL-3.2 is in good agreement with those new experimental data. However, there is a resonance at 250 keV. JENDL-3.2 does not take the resonance into the evaluation. Therefore, the cross section around 250 keV might be too small although it coincides with the value of Beer et al.

2) ^{12}C

Figure 4.8 shows the Maxwellian-averaged capture cross section of ^{12}C. This nuclide is important as a neutron poison. However large discrepancies are existing among recommended data. The recent experimental data of Ohsaki et al.[24] agrees well with the recommendations of Beer et al. and JENDL-3.2 at 30 keV. The shape of JENDL-3.2 is different from that of Beer et al. which is in the shape of 1/v. The data of Thielemann et al. are the same as Bao et al. at kT=30 keV and in the shape of 1/v. The evaluation for JENDL-3.2 was based on the energy dependent data measured by Ohsaki et al.[24] as shown in Fig. 4.9. Therefore, we conclude that JENDL-3.2 is the most reliable.

3) ^{15}N

The JENDL-3.2 data were calculated from resonance parameters. However, the 30 keV value of 2.6 ± 10^{-8} b seems to be too small. Rauscher et al.[25] reported the capture cross section of about 10 μb at 30 keV calculated with a direct capture model, which is about 400 times larger than that of JENDL-3.2.

4) ^{16}O

As an abundant isotope in stellar environment, ^{16}O can form an important neutron poison in the s-process neutron capture nucleosynthesis. However, quite large discrepancies are found in the data of ^{16}O as shown in Fig. 4.10 and Table 4.1. The Maxwellian-averaged capture cross section measured by Igashira et al.[26] at kT=30 keV is 34±4 μb which is in fairly good agreement with JENDL-3.2. The data of JENDL-3.2 is based on the thermal cross section[12] and

the data of Igashira et al.[26, 27] Figure 4.11 shows the capture cross section of ^{16}O stored in JENDL-3.2 with the experimental data. From these figures, we conclude that the JENDL-3.2 data are more reliable than the other recommendations.[1,2,3]

5) ^{25}Mg

The Maxwellian-averaged capture cross sections are compared in Fig. 4.12. The temperature dependent shape of JENDL-3.2 comes from resonance structure. The data of Beer et al. have the same structure, but their cross section is about 20 – 30 % larger than JENDL-3.2.

6) S isotopes

Discrepancies are found on ^{33}S and ^{34}S. In the JENDL-3.2 evaluation, the resonance parameters were taken from the recommendation by Mughabghab et al.[12] The evaluations of Beer et al. and Bao and Käppeler were based on Auchampaugh et al.[28] for ^{33}S and Woosley et al.[5] for ^{34}S.

Auchampaugh et al. measured the capture cross sections of ^{33}S and obtained the resonance parameters. The Maxwellian-averaged neutron capture cross section was calculated from the resonance parameters. Comparison of the resonance parameters given in JENDL-3.2 and Auchampaugh et al. indicates that JENDL-3.2 ignored several resonances found by Auchampaugh et al. Therefore, JENDL-3.2 might be too small in the tens keV region.

As for ^{34}S, Woosley et al. gave tables of Maxwellian-averaged cross sections obtained from a semi-empirical formula. On the other hand, JENDL-3.2 gives the resonance parameters based on the recommendation by Mughabghab et al. This set of resonance parameters does not contain the levels below 100 keV, while some resonances have been found in this energy region.[29] Re-evaluation of the resonance parameters is required to improve the JENDL data.

7) Ca isotopes

Mohr et al.[30] reported the Maxwellian-averaged capture cross section of ^{46}Ca: 4.58±0.59 mb at kT=25 keV and 3.13±0.74 mb at kT=52 keV. They confirmed the existence of the resonance at 28 keV. JENDL-3.2 was obtained by the statistical model calculation ignoring such a resonance. Therefore JENDL-3.2 might be too small.

Mohr et al.[31] measured the Maxwellian-averaged capture cross section of ^{48}Ca. Their result is 0.623±0.047 mb at kT=52 keV. Since JENDL-3.2 is 0.064 mb at 50 keV, JENDL-3.2 is too small.

8) Ti isotopes

The energy range below 100 keV is the resonance region in JENDL-3.2. The resonance parameters were taken from the recommendation of Mughabghab et al.[12] that was based mainly on the analysis by Allen et al.[32,33] However, JENDL-3.2 did not adopt some small p-wave resonances. Therefore, the Maxwellian-averaged capture cross sections are smaller than those reported by Allen et al. Bao and Käppeler, and Beer et al. adopted the data of Allen et al.

9) Cr isotopes

The data of JENDL-3.2 are smaller than other two evaluations. The possibility of p-wave level missing should be investigated.

10) Fe isotopes

The data of Beer et al. for ^{54}Fe were derived from the resonance parameters of Brusegan et al.[34], while JENDL-3.2 mainly from those of Pandy and Garg.[35] The JENDL-3.2 evaluation assumed the average radiative width of 2.5 eV that is larger than that of Brusegan et al. Re-evaluation of the resonance parameters will be needed for JENDL-3.2.

Figure 4.13 shows the Maxwellian-averaged capture cross section of ^{56}Fe. JENDL-3.2 is in excellent agreement with Beer et al. and Bao and Käppeler. The temperature dependence of Thielemann et al. is different from the others.

The isotope of ^{58}Fe is a pure s-process nuclide. The data are shown in Fig. 4.14. At kT=30 keV, the recommended data are in good agreement with each other. The shape of temperature dependence of JENDL-3.2 is reasonable because it comes from the resolved resonances reported up to about 350 keV.

11) Ni isotopes

The Maxwellian-averaged capture cross sections of ^{62}Ni and ^{64}Ni at kT=30 keV obtained from JENDL-3.2 are discrepant from Beer et al. by more than 30 %. Figure 4.15 shows the Maxwellian-averaged cross section of ^{62}Ni. The energy range below 557 keV is the resolved resonance region in the evaluation for JENDL-3.2. In this region, contributions from small p-wave resonances are large in the case of ^{62}Ni. The smaller value of JENDL-3.2 might be due to the missing of small resonances. On the contrary, JENDL-3.2 is larger than Beer et al. for ^{64}Ni as shown in Fig. 4.16.

12) Ge isotopes

The nuclide of ^{70}Ge is a pure s-process one. The recommended data are in good agreement with each other as shown in Fig.4.17. The temperature dependence of JENDL-3.2 is different from the 1/v shape.

In the case of ^{74}Ge shown in Fig. 4.18, JENDL-3.2 has the resolved resonance region up to 62 keV. The resonance parameters were based on the recommendation of Mughabghab et al.[12] This recommendation was based on the data reported in 1968. The data in the compilation of Beer et al. and Bao and Käppeler were evaluated on the basis of the data of Walter.[36] It is possible that JENDL-3.2 is too small because of the missing of resonances. New experiments on the resonances are desired.

13) Se isotopes

The isotope of ^{76}Se whose data are shown in Fig. 4.19 is one of pure s-process nuclides. The large discrepancies are found among the data of ^{79}Se as shown in Table 4.1 and Fig. 4.20. Since no experimental data were available for both the nuclides, the evaluation for JENDL-3.2 was based on the statistical model calculation. The parameters for the model were determined from their systematics. The recommendations of Beer et al. and Bao and Käppeler employed also theoretical calculations. JENDL-3.2 is in very good agreement with the data of Thielemann et al. in the tens keV region.

14) ^{86}Kr

This isotope is a neutron magic nuclide. Therefore the capture cross section is relatively small. Among the recommended data, there exist large discrepancies as shown in Table 4.1 and Fig. 4.21. Käppeler et al.[37] and Beer[38] measured Maxwellian-averaged capture cross sections at 25 and 52 keV. Their data are also shown in Fig. 4.21. From this figure, JENDL-3.2 seems to be slightly too large, but better than the recommendation by Thielemann et al.

15) ^{89}Sr

There is a large discrepancy between JENDL-3.2 and Beer et al. for ^{89}Sr. Both of JENDL-3.2 and Beer et al. are based on theoretical calculations because no experimental data are available.

16) ^{95}Zr

Both of JENDL-3.2 and Beer et al. are based on theoretical calculations because no experimental data are available.

17) Xe isotopes

The data of ^{126}Xe and ^{130}Xe have large discrepancies. Evaluation for JENDL-3.2 were only based on theoretical calculations because no experimental data were available. Beer[38] measured Maxwellian-averaged cross section at kT=25 keV. Table 4.2 shows a comparison of their results and JENDL-3.2. The values of JENDL-3.2 for ^{124}Xe, ^{126}Xe and ^{130}Xe are larger than the measurement. Other data are rather consistent with the measurement.

For ^{136}Xe, Bao and Käppeler adopted the theoretical calculation by Holmes et al.[4], and Beer et al. adopted the data of Macklin.[39] However, Macklin reported the Maxwillian-averaged cross section of 0.72±0.11 mb at kT=30 keV which is closer to JENDL-3.2. The value of Bao and Käppeler is too large. JENDL-3.2 agrees with the experimental data of Beer[38] at kT=25 keV as shown in Table 4.2.

18) Nd

The data of Nd isotopes are scattered especially in the case of ^{144}Nd, ^{147}Nd and ^{148}Nd. Recently Toukan et al.[40] measured Maxwellian-averaged capture cross sections of ^{146}Nd, ^{148}Nd and ^{150}Nd, and calculated those of ^{147}Nd. Their results are listed in Table 4.3 comparing with JENDL-3.2 and the recommended data of Beer et al. or Bao and Käppeler. Toukan's results are remarkably smaller than previous recommendations. JENDL-3.2 is still too large for ^{147}Nd.

19) ^{209}Bi

Large discrepancies exist among Bao and Käppeler, Beer et al. and JENDL-3.2. Bao and Käppeler adopted the data of Macklin and Halperin.[41] The data of Beer et al. and JENDL-3.2 were calculated from the resonance parameters recommended by Mughabghab.[13] However, Mughabghab recommeded the Maxwellian-averaged capture cross section of 10.7±2.0 mb at 30 keV which is close to Bao and Käppeler.

Recently Mutti et al.[42] obtained the Maxwellian-averaged capture cross sections from their experimental data. Their results are shown in Fig. 4.22 together with those of Beer et al. and JENDL-3.2. Above 40 keV, the recommendation of Beer et al. is too small. JENDL-3.2 is in good agreement with Mutti et al. It is seen from Fig. 4.22 that the values of Bao and Käppeler, and Mughabghab are larger than the recent data.

4.2 Fission Cross Sections

The Maxwellian-averaged fission cross sections are compared with the recommendations

of Bao and Käppeler in Table 4.4. For those 15 nuclides, JENDL-3.2 is in good agreement with the recommended data.

The Maxwellian-averaged cross sections at kT=30 keV are depicted in Fig. 4.23 as a function of mass number. The fission of even-neutron nuclides is usually sub-threshold fission. Their cross sections are small and scattered in the wide range of values at kT=30 keV. On the other hand, the fission cross sections of odd-neutron nuclides are large and almost the same each other.

The Maxwellian-averaged fission cross sections are shown as a function of temperature for selected nuclei having odd number of neutrons in Figs. 4.24(a) and for those having even number of neutrons in 4.24(b). The cross section of odd-neutron nuclides monotonically decreases. On the other hand, that of even-neutron nuclides is small below about 100 keV, and increases rapidly above 100 keV.

4.3 (n,p) and (n,α) Cross Sections

For almost all nuclides, the (n,p) and (n,α) processes are threshold reactions. As described in Chapter 3, therefore, the uncertainties of Maxwellian-averaged cross sections are quite large. The Maxwellian-averaged cross sections at kT=30 keV are given in Figs. 4.25 and 4.26. It might be difficult to find systematics of the Maxwellian-averaged cross sections for these reactions. Examples of temperature dependence of the Maxwellian-averaged cross sections are given in Figs. 4.27 and 4.28.

5. Conclusion

The Maxwellian-averaged cross sections of neutron capture, fission, (n,p) and (n,α) reactions were calculated from the Japanese Evaluated Nuclear Data Library, JENDL-3.2. The calculation was made in the temperature range from 1 keV to 1 MeV for the use of astrophysical applications. The results are listed in tables, and compared with the evaluations made by Beer et al.[2], Bao and Käppeler[1] and Thielemann et al.[3] The tables contain the data of 317 nuclides for the neutron capture cross section, 55 nuclides for the fission cross section, 39 nuclides for the (n,p) reaction cross section and 30 nuclides for the (n,α) reaction cross section.

The comparison of JENDL-3.2 with the recommended data of Beer et al., Bao and Käppeler and Thielemann et al. indicated that discrepancies to be solved are existing among the Maxwellian-averaged capture cross sections. The data of JENDL-3.2 for S, Ca, Ti and Cr,

isotopes have tendency to be smaller than the other recommendations based on measured Maxwellian-averaged cross sections. This seems to be due to missing of small resonances in the resolved resonance region. There are large discrepancies among evaluated data for the nuclides such as ^{89}Sr and ^{95}Zr whose data had not been measured at the time of evaluation, and whose evaluations were made by means of theoretical calculations. However, in the many cases of light mass nuclides such as ^{7}Li, ^{12}C and ^{16}O, JENDL-3.2 is much better than the other recommendations because JENDL-3.2 was determined on the basis of the experimental data of cross sections. Concerning temperature dependence of the Maxwellian-averaged cross sections, we found large discrepancies of cross section shape among JENDL-3.2, Beer et al. and Thielemann et al. In many cases, JENDL-3.2 is superior to the others because the evaluation of differential cross sections for JENDL-3.2 was made in the wide neutron energy range from 10^{-5} eV to 20 MeV on the basis of available experimental data and suitable theoretical calculations.

As for the Maxwellian-averaged fission cross sections of heavy nuclides, JENDL-3.2 gives reliable data for the nuclides important for fission reactors. Their data have been evaluated very carefully and well tested by comparing calculated reactor performance parameters with measured ones.

In the case of (n,p) and (n,α) cross sections, the Maxwellian-averaged cross sections might have large uncertainties, because the cross sections are very small in the energy region concerned in the present work and not so important for the reactor application. Therefore, the evaluation in this energy range for JENDL-3.2 was not carefully performed in many cases, except for some large cross sections.

The authors are expecting that problems of JENDL-3.2 will be identified by investigating the Maxwellian-averaged cross sections presented in this report and such problems will be solved in the future versions of JENDL.

The Maxwellian-averaged cross sections given in Tables 3.1 to 3.4 are available via the World Wide Web of Nuclear Data Center, JAERI (http://wwwndc.tokai.jaeri.go.jp).

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Table 2.1 Nuclides whose data are given in JENDL-3.2

In this table nuclides are represented in the form of (Atomic number)-(Symbol)-(Mass number). A mass number of 0 means a natural element, and that with 'm' a meta-stable state.

1-H - 1	1-H - 2	2-He- 3	2-He- 4
3-Li- 6	3-Li- 7	4-Be- 9	5-B - 10
5-B - 11	6-C - 12	7-N - 14	7-N - 15
8-O - 16	9-F - 19	11-Na- 23	12-Mg- 0
12-Mg- 24	12-Mg- 25	12-Mg- 26	13-Al- 27
14-Si- 0	14-Si- 28	14-Si- 29	14-Si- 30
15-P - 31	16-S - 0	16-S - 32	16-S - 33
16-S - 34	16-S - 36	17-Cl- 0	17-Cl- 35
17-Cl- 37	18-Ar- 40	19-K - 0	19-K - 39
19-K - 40	19-K - 41	20-Ca- 0	20-Ca- 40
20-Ca- 42	20-Ca- 43	20-Ca- 44	20-Ca- 46
20-Ca- 48	21-Sc- 45	22-Ti- 0	22-Ti- 46
22-Ti- 47	22-TI- 48	22-Ti- 49	22-Ti- 50
23-V - 51	24-Cr- 0	24-Cr- 50	24-Cr- 52
24-Cr- 53	24-Cr- 54	25-Mn- 55	26-Fe- 0
26-Fe- 54	26-Fe- 56	26-Fe- 57	26-Fe- 58
27-Co- 59	28-Ni- 0	28-Ni- 58	28-Ni- 60
28-Ni- 61	28-Ni- 62	28-Ni- 64	29-Cu- 0
29-Cu- 63	29-Cu- 65	31-Ga- 0	31-Ga- 69
31-Ga- 71	32-Ge- 0	32-Ge- 70	32-Ge- 72
32-Ge- 73	32-Ge- 74	32-Ge- 76	33-As- 75
34-Se- 74	34-Se- 76	34-Se- 77	34-Se- 78
34-Se- 79	34-Se- 80	34-Se- 82	35-Br- 79
35-Br- 81	36-Kr- 78	36-Kr- 80	36-Kr- 82
36-Kr- 83	36-Kr- 84	36-Kr- 85	36-Kr- 86
37-Rb- 85	37-Rb- 87	38-Sr- 86	38-Sr- 87
38-Sr- 88	38-Sr- 89	38-Sr- 90	39-Y - 89
39-Y - 91	40-Zr- 0	40-ZR- 90	40-Zr- 91
40-Zr- 92	40-Zr- 93	40-Zr- 94	40-Zr- 95
40-Zr- 96	41-Nb- 93	41-Nb- 94	41-Nb- 95
42-Mo- 0	42-Mo- 92	42-Mo- 94	42-Mo- 95
42-Mo- 96	42-Mo- 97	42-Mo- 98	42-Mo- 99
42-Mo-100	43-Tc- 99	44-Ru- 96	44-Ru- 98
44-Ru- 99	44-Ru-100	44-Ru-101	44-Ru-102
44-Ru-103	44-Ru-104	44-Ru-106	45-Rh-103
45-Rh-105	46-Pd-102	46-Pd-104	46-Pd-105
46-Pd-106	46-Pd-107	46-Pd-108	46-Pd-110
47-Ag- 0	47-Ag-107	47-Ag-109	47-Ag-110m
48-Cd- 0	48-Cd-106	48-Cd-108	48-Cd-110
48-Cd-111	48-Cd-112	48-Cd-113	48-Cd-114
48-Cd-116	49-In-113	49-In-115	50-Sn-112
50-Sn-114	50-Sn-115	50-Sn-116	50-Sn-117
50-Sn-118	50-Sn-119	50-Sn-120	50-Sn-122
50-Sn-123	50-Sn-124	50-Sn-126	51-Sb- 0
51-Sb-121	51-Sb-123	51-Sb-124	51-Sb-125

Table 2.1 Nuclides whose data are given in JENDL-3.2 (continued)

52-Te-120	52-Te-122	52-Te-123	52-Te-124
52-Te-125	52-Te-126	52-Te-127m	52-Te-128
52-Te-129m	52-Te-130	53-I -127	53-I -129
53-I -131	54-Xe-124	54-Xe-126	54-Xe-128
54-Xe-129	54-Xe-130	54-Xe-131	54-Xe-132
54-Xe-133	54-Xe-134	54-Xe-135	54-Xe-136
55-Cs-133	55-Cs-134	55-Cs-135	55-Cs-136
55-Cs-137	56-Ba-130	56-Ba-132	56-Ba-134
56-Ba-135	56-Ba-136	56-Ba-137	56-Ba-138
56-Ba-140	57-La-138	57-La-139	58-Ce-140
58-Ce-141	58-Ce-142	58-Ce-144	59-Pr-141
59-Pr-143	60-Nd-142	60-Nd-143	60-Nd-144
60-Nd-145	60-Nd-146	60-Nd-147	60-Nd-148
60-Nd-150	61-Pm-147	61-Pm-148	61-Pm-148m
61-Pm-149	62-Sm-144	62-Sm-147	62-Sm-148
62-Sm-149	62-Sm-150	62-Sm-151	62-Sm-152
62-Sm-153	62-Sm-154	63-Eu- 0	63-Eu-151
63-Eu-152	63-Eu-153	63-Eu-154	63-Eu-155
63-Eu-156	64-Gd-152	64-Gd-154	64-Gd-155
64-Gd-156	64-Gd-157	64-Gd-158	64-Gd-160
65-Tb-159	72-Hf- 0	72-Hf-174	72-Hf-176
72-Hf-177	72-Hf-178	72-Hf-179	72-Hf-180
73-Ta-181	74-W - 0	74-W -182	74-W -183
74-W -184	74-W -186	82-Pb- 0	82-Pb-204
82-Pb-206	82-Pb-207	82-Pb-208	83-Bi-209
88-Ra-223	88-Ra-224	88-Ra-225	88-Ra-226
89-Ac-225	89-Ac-226	89-Ac-227	90-Th-227
90-Th-228	90-Th-229	90-Th-230	90-Th-232
90-Th-233	90-Th-234	91-Pa-231	91-Pa-232
91-Pa-233	92-U -232	92-U -233	92-U -234
92-U -235	92-U -236	92-U -237	92-U -238
93-Np-236	93-Np-237	93-Np-238	93-Np-239
94-Pu-236	94-Pu-238	94-Pu-239	94-Pu-240
94-Pu-241	94-Pu-242	95-Am-241	95-Am-242
95-Am-242m	95-Am-243	95-Am-244	95-Am-244m
96-Cm-241	96-Cm-242	96-Cm-243	96-Cm-244
96-Cm-245	96-Cm-246	96-Cm-247	96-Cm-248
96-Cm-249	96-Cm-250	97-Bk-249	97-Bk-250
98-Cf-249	98-Cf-250	98-Cf-251	98-Cf-252
98-Cf-254	99-Es-254	99-Es-255	100-Fm-255

Table 3.1 Maxwellian-averaged capture cross sections

unit: barns

kT(eV)	1-H - 1	1-H - 2	2-He- 3	3-Li- 6	3-Li- 7	4-Be- 9
1.000E+03	1.669E-03	3.060E-06	3.235E-06	1.935E-04	2.284E-04	3.823E-05
2.000E+03	1.174E-03	2.370E-06	4.330E-06	1.368E-04	1.615E-04	2.703E-05
3.000E+03	9.494E-04	2.104E-06	5.180E-06	1.117E-04	1.318E-04	2.207E-05
5.000E+03	7.187E-04	1.892E-06	6.521E-06	8.655E-05	1.021E-04	1.710E-05
1.000E+04	4.823E-04	1.799E-06	8.931E-06	6.120E-05	7.221E-05	1.209E-05
1.500E+04	3.773E-04	1.845E-06	1.072E-05	4.998E-05	5.896E-05	9.870E-06
2.000E+04	3.153E-04	1.923E-06	1.218E-05	4.334E-05	5.106E-05	8.548E-06
2.500E+04	2.734E-04	2.010E-06	1.342E-05	3.889E-05	4.567E-05	7.645E-06
3.000E+04	2.429E-04	2.100E-06	1.452E-05	3.571E-05	4.169E-05	6.979E-06
3.500E+04	2.194E-04	2.189E-06	1.551E-05	3.332E-05	3.860E-05	6.462E-06
4.000E+04	2.006E-04	2.277E-06	1.640E-05	3.147E-05	3.611E-05	6.044E-06
5.000E+04	1.725E-04	2.445E-06	1.800E-05	2.883E-05	3.229E-05	5.406E-06
6.000E+04	1.523E-04	2.604E-06	1.939E-05	2.705E-05	2.948E-05	4.935E-06
7.000E+04	1.369E-04	2.754E-06	2.063E-05	2.579E-05	2.729E-05	4.569E-06
8.000E+04	1.249E-04	2.897E-06	2.174E-05	2.485E-05	2.553E-05	4.274E-06
1.000E+05	1.071E-04	3.162E-06	2.370E-05	2.356E-05	2.284E-05	3.823E-06
1.200E+05	9.475E-05	3.405E-06	2.538E-05	2.271E-05	2.085E-05	3.490E-06
1.500E+05	8.197E-05	3.736E-06	2.752E-05	2.190E-05	1.864E-05	3.121E-06
1.700E+05	7.585E-05	3.939E-06	2.875E-05	2.153E-05	1.751E-05	2.932E-06
2.000E+05	6.894E-05	4.222E-06	3.038E-05	2.116E-05	1.615E-05	2.703E-06
2.500E+05	6.115E-05	4.646E-06	3.263E-05	2.086E-05	1.444E-05	2.418E-06
3.000E+05	5.609E-05	5.024E-06	3.447E-05	2.085E-05	1.318E-05	2.207E-06
5.000E+05	4.679E-05	6.230E-06	3.944E-05	2.246E-05	1.021E-05	1.709E-06
7.000E+05	4.355E-05	7.124E-06	4.242E-05	2.545E-05	8.631E-06	1.445E-06
8.500E+05	4.239E-05	7.662E-06	4.396E-05	2.810E-05	7.833E-06	1.311E-06
1.000E+06	4.171E-05	8.116E-06	4.511E-05	3.090E-05	7.221E-06	1.209E-06

kT(eV).	5-B - 10	5-B - 11	6-C - 12	7-N - 14	7-N - 15	8-0 - 16
1.000E+03	2.515E-03	2.835E-05	2.020E-05	3.772E-04	1.231E-07	7.151E-06
2.000E+03	1.778E-03	2.158E-05	1.593E-05	2.667E-04	8.752E-08	9.366E-06
3.000E+03	1.452E-03	2.830E-05	1.435E-05	2.178E-04	7.184E-08	1.115E-05
5.000E+03	1.125E-03	7.654E-05	1.319E-05	1.687E-04	5.623E-08	1.406E-05
1.000E+04	7.953E-04	1.356E-04	1.300E-05	1.193E-04	4.082E-08	1.956E-05
1.500E+04	6.493E-04	1.202E-04	1.360E-05	9.742E-05	3.422E-08	2.381E-05
2.000E+04	5.623E-04	9.661E-05	1.434E-05	8.447E-05	3.044E-08	2.741E-05
2.500E+04	5.030E-04	7.724E-05	1.509E-05	7.578E-05	2.797E-08	3.058E-05
3.000E+04	4.592E-04	6.269E-05	1.581E-05	6.953E-05	2.623E-08	3.346E-05
3.500E+04	4.251E-04	5.185E-05	1.649E-05	6.483E-05	2.496E-08	3.611E-05
4.000E+04	3.976E-04	4.367E-05	1.712E-05	6.118E-05	2.401E-08	3.857E-05
5.000E+04	3.557E-04	3.252E-05	1.821E-05	5.592E-05	2.273E-08	4.309E-05
6.000E+04	3.247E-04	2.558E-05	1.912E-05	5.234E-05	2.207E-08	4.716E-05
7.000E+04	3.006E-04	2.106E-05	1.987E-05	4.976E-05	2.209E-08	5.090E-05
8.000E+04	2.812E-04	1.800E-05	2.049E-05	4.781E-05	2.329E-08	5.434E-05
1.000E+05	2.515E-04	1.434E-05	2.144E-05	4.508E-05	3.308E-08	6.051E-05
1.200E+05	2.296E-04	1.235E-05	2.211E-05	4.324E-05	5.984E-08	6.584E-05
1.500E+05	2.053E-04	1.073E-05	2.281E-05	4.138E-05	1.413E-07	7.255E-05
1.700E+05	1.929E-04	1.007E-05	2.314E-05	4.049E-05	2.210E-07	7.631E-05
2.000E+05	1.778E-04	9.385E-06	2.350E-05	3.946E-05	3.662E-07	8.108E-05
2.500E+05	1.591E-04	8.669E-06	2.390E-05	3.826E-05	6.343E-07	8.727E-05
3.000E+05	1.452E-04	8.210E-06	2.415E-05	3.745E-05	8.912E-07	9.185E-05
5.000E+05	1.125E-04	7.213E-06	2.460E-05	3.616E-05	1.609E-06	1.019E-04
7.000E+05	9.506E-05	6.585E-06	2.482E-05	3.653E-05	1.966E-06	1.062E-04
8.500E+05	8.626E-05	6.195E-06	2.508E-05	3.736E-05	2.101E-06	1.079E-04
1.000E+06	7.953E-05	5.851E-06	2.554E-05	3.838E-05	2.167E-06	1.091E-04

Table 3.1 Maxwellian-averaged capture cross sections (continued)

unit: barns

kT(eV)	9-F - 19	11-Na- 23	12-Mg- 24	12-Mg- 25	12-Mg- 26	13-Al- 27
1.000E+03	6.426E-05	3.812E-02	2.611E-04	9.798E-04	1.813E-04	3.331E-03
2.000E+03	6.414E-05	3.651E-02	1.919E-04	7.702E-04	1.213E-04	1.187E-02
3.000E+03	1.852E-04	2.614E-02	1.643E-04	9.909E-04	9.407E-05	1.389E-02
5.000E+03	1.620E-03	1.407E-02	1.603E-04	2.161E-03	6.654E-05	1.125E-02
1.000E+04	6.210E-03	5.367E-03	6.805E-04	3.610E-03	4.281E-05	6.646E-03
1.500E+04	7.410E-03	3.371E-03	1.708E-03	4.210E-03	4.367E-05	5.061E-03
2.000E+04	7.159E-03	2.567E-03	2.680E-03	4.795E-03	5.104E-05	4.231E-03
2.500E+04	6.551E-03	2.108E-03	3.353E-03	5.162E-03	6.212E-05	3.724E-03
3.000E+04	5.911E-03	1.802E-03	3.733E-03	5.280E-03	8.075E-05	3.393E-03
3.500E+04	5.325E-03	1.583E-03	3.897E-03	5.215E-03	1.088E-04	3.161E-03
4.000E+04	4.810E-03	1.420E-03	3.921E-03	5.039E-03	1.450E-04	2.988E-03
5.000E+04	3.979E-03	1.199E-03	3.752E-03	4.550E-03	2.299E-04	2.734E-03
6.000E+04	3.357E-03	1.058E-03	3.475E-03	4.040E-03	3.145E-04	2.545E-03
7.000E+04	2.883E-03	9.609E-04	3.188E-03	3.583E-03	3.881E-04	2.389E-03
8.000E+04	2.516E-03	8.891E-04	2.924E-03	3.193E-03	4.479E-04	2.257E-03
1.000E+05	1.992E-03	7.871E-04	2.486E-03	2.592E-03	5.303E-04	2.039E-03
1.200E+05	1.641E-03	7.147E-04	2.155E-03	2.166E-03	5.760E-04	1.869E-03
1.500E+05	1.293E-03	6.341E-04	1.795E-03	1.733E-03	6.044E-04	1.674E-03
1.700E+05	1.131E-03	5.916E-04	1.616E-03	1.530E-03	6.083E-04	1.573E-03
2.000E+05	9.514E-04	5.388E-04	1.408E-03	1.303E-03	6.032E-04	1.452E-03
2.500E+05	7.503E-04	4.711E-04	1.162E-03	1.052E-03	5.828E-04	1.304E-03
3.000E+05	6.177E-04	4.208E-04	9.925E-04	8.874E-04	5.592E-04	1.197E-03
5.000E+05	3.573E-04	3.098E-04	6.344E-04	5.644E-04	4.798E-04	9.573E-04
7.000E+05	2.498E-04	2.610E-04	4.721E-04	4.246E-04	4.209E-04	8.305E-04
8.500E+05	2.041E-04	2.406E-04	4.004E-04	3.614E-04	3.851E-04	7.642E-04
1.000E+06	1.731E-04	2.273E-04	3.515E-04	3.164E-04	3.549E-04	7.118E-04

kT(eV)	14-Si- 28	14-Si- 29	14-Si- 30	15-P - 31	16-S - 32	16-S - 33
1.000E+03	8.863E-04	5.330E-04	3.548E-01	5.688E-04	2.262E-03	1.142E-03
2.000E+03	6.258E-04	6.985E-04	3.117E-01	3.098E-04	1.437E-03	9.753E-04
3.000E+03	5.140E-04	2.119E-03	2.216E-01	2.262E-04	1.109E-03	1.959E-03
5.000E+03	4.289E-04	5.445E-03	1.195E-01	3.764E-04	1.253E-03	3.901E-03
1.000E+04	7.029E-04	8.640E-03	4.136E-02	1.004E-03	3.694E-03	4.529E-03
1.500E+04	1.224E-03	8.821E-03	2.066E-02	1.182E-03	5.148E-03	3.839E-03
2.000E+04	1.551E-03	7.992E-03	1.239E-02	1.302E-03	5.646E-03	3.213E-03
2.500E+04	1.678E-03	6.965E-03	8.329E-03	1.452E-03	5.750E-03	2.722E-03
3.000E+04	1.690E-03	6.017E-03	6.078E-03	1.602E-03	5.682E-03	2.335E-03
3.500E+04	1.647E-03	5.213E-03	4.734E-03	1.726E-03	5.530E-03	2.027E-03
4.000E+04	1.581E-03	4.551E-03	3.890E-03	1.816E-03	5.335E-03	1.779E-03
5.000E+04	1.435E-03	3.563E-03	2.955E-03	1.903E-03	4.910E-03	1.412E-03
6.000E+04	1.299E-03	2.888E-03	2.482E-03	1.903E-03	4.505E-03	1.162E-03
7.000E+04	1.183E-03	2.412E-03	2.202E-03	1.856E-03	4.146E-03	9.876E-04
8.000E+04	1.085E-03	2.065E-03	2.010E-03	1.787E-03	3.836E-03	8.623E-04
1.000E+05	9.365E-04	1.603E-03	1.747E-03	1.642E-03	3.338E-03	7.011E-04
1.200E+05	8.351E-04	1.317E-03	1.562E-03	1.522E-03	2.961E-03	6.063E-04
1.500E+05	7.401E-04	1.054E-03	1.363E-03	1.407E-03	2.542E-03	5.230E-04
1.700E+05	7.010E-04	9.392E-04	1.265E-03	1.365E-03	2.330E-03	4.875E-04
2.000E+05	6.640E-04	8.176E-04	1.154E-03	1.334E-03	2.077E-03	4.496E-04
2.500E+05	6.333E-04	6.891E-04	1.030E-03	1.329E-03	1.770E-03	4.074E-04
3.000E+05	6.200E-04	6.080E-04	9.534E-04	1.341E-03	1.549E-03	3.782E-04
5.000E+05	6.104E-04	4.465E-04	8.208E-04	1.354E-03	1.034E-03	3.067E-04
7.000E+05	6.175E-04	3.669E-04	7.597E-04	1.289E-03	7.682E-04	2.614E-04
8.500E+05	6.264E-04	3.264E-04	7.225E-04	1.222E-03	6.407E-04	2.346E-04
1.000E+06	6.366E-04	2.955E-04	6.885E-04	1.154E-03	5.477E-04	2.118E-04

Table 3.1 Maxwellian-averaged capture cross sections (continued)

unit: barns

kT(eV)	16-S - 34	16-S - 36	17-Cl- 35	17-Cl- 37	18-Ar- 40	19-K - 39
1.000E+03	8.778E-04	2.472E-03	1.228E-01	8.867E-04	9.993E-04	2.779E-02
2.000E+03	5.143E-04	1.888E-03	5.058E-02	3.365E-03	7.040E-04	3.474E-02
3.000E+03	3.599E-04	1.612E-03	3.352E-02	5.952E-03	1.124E-03	4.785E-02
5.000E+03	2.178E-04	1.318E-03	2.603E-02	7.613E-03	1.853E-03	5.708E-02
1.000E+04	1.008E-04	9.996E-04	2.095E-02	6.273E-03	1.924E-03	4.482E-02
1.500E+04	7.612E-05	8.483E-04	1.619E-02	4.730E-03	1.835E-03	3.376E-02
2.000E+04	1.037E-04	7.546E-04	1.276E-02	3.704E-03	1.951E-03	2.677E-02
2.500E+04	1.604E-04	6.888E-04	1.039E-02	3.012E-03	2.107E-03	2.214E-02
3.000E+04	2.225E-04	6.393E-04	8.757E-03	2.528E-03	2.234E-03	1.890E-02
3.500E+04	2.772E-04	6.001E-04	7.593E-03	2.178E-03	2.324E-03	1.652E-02
4.000E+04	3.208E-04	5.682E-04	6.742E-03	1.919E-03	2.384E-03	1.471E-02
5.000E+04	3.786E-04	5.184E-04	5.608E-03	1.576E-03	2.449E-03	1.216E-02
6.000E+04	4.114E-04	4.810E-04	4.891E-03	1.372E-03	2.470E-03	1.046E-02
7.000E+04	4.322E-04	4.514E-04	4.394E-03	1.246E-03	2.464E-03	9.251E-03
8.000E+04	4.474E-04	4.273E-04	4.023E-03	1.165E-03	2.442E-03	8.351E-03
1.000E+05	4.692E-04	3.898E-04	3.490E-03	1.072E-03	2.364E-03	7.105E-03
1.200E+05	4.835E-04	3.617E-04	3.115E-03	1.022E-03	2.266E-03	6.287E-03
1.500E+05	4.929E-04	3.302E-04	2.718E-03	9.758E-04	2.112E-03	5.481E-03
1.700E+05	4.931E-04	3.141E-04	2.522E-03	9.523E-04	2.015E-03	5.107E-03
2.000E+05	4.874E-04	2.948E-04	2.294E-03	9.215E-04	1.887E-03	4.693E-03
2.500E+05	4.704E-04	2.725E-04	2.029E-03	8.764E-04	1.718E-03	4.234E-03
3.000E+05	4.515E-04	2.585E-04	1.852E-03	8.372E-04	1.595E-03	3.942E-03
5.000E+05	3.921E-04	2.477E-04	1.492E-03	7.297E-04	1.349E-03	3.414E-03
7.000E+05	3.526E-04	2.631E-04	1.317E-03	6.690E-04	1.241E-03	3.189E-03
8.500E+05	3.287E-04	2.749E-04	1.219E-03	6.349E-04	1.178E-03	3.050E-03
1.000E+06	3.077E-04	2.827E-04	1.134E-03	6.045E-04	1.119E-03	2.911E-03

kT(eV)	19-K - 40	19-K - 41	20-Ca- 40	20-Ca- 42	20-Ca- 43	20-Ca- 44
1.000E+03	1.461E-01	4.583E-01	2.655E-03	2.615E-03	3.204E-01	3.547E-03
2.000E+03	1.010E-01	3.686E-01	4.247E-03	1.171E-02	2.746E-01	2.839E-03
3.000E+03	8.133E-02	2.642E-01	7.194E-03	2.282E-02	2.243E-01	4.749E-03
5.000E+03	6.182E-02	1.642E-01	1.065E-02	2.919E-02	1.578E-01	9.505E-03
1.000E+04	4.193E-02	9.117E-02	1.042E-02	2.413E-02	9.011E-02	1.259E-02
1.500E+04	3.252E-02	6.357E-02	8.417E-03	1.956E-02	6.359E-02	1.136E-02
2.000E+04	2.669E-02	4.808E-02	6.910E-03	1.646E-02	4.949E-02	9.898E-03
2.500E+04	2.268E-02	3.843E-02	5.895E-03	1.424E-02	4.079E-02	8.732E-03
3.000E+04	1.975E-02	3.210E-02	5.223E-03	1.260E-02	3.491E-02	7.844E-03
3.500E+04	1.753E-02	2.777E-02	4.775E-03	1.134E-02	3.066E-02	7.151E-03
4.000E+04	1.578E-02	2.472E-02	4.471E-03	1.034E-02	2.745E-02	6.589E-03
5.000E+04	1.321E-02	2.087E-02	4.099E-03	8.863E-03	2.292E-02	5.704E-03
6.000E+04	1.143E-02	1.864E-02	3.873E-03	7.816E-03	1.984E-02	5.010E-03
7.000E+04	1.011E-02	1.723E-02	3.699E-03	7.045E-03	1.760E-02	4.444E-03
8.000E+04	9.098E-03	1.626E-02	3.543E-03	6.464E-03	1.589E-02	3.975E-03
1.000E+05	7.647E-03	1.499E-02	3.253E-03	5.671E-03	1.339E-02	3.264E-03
1.200E+05	6.655E-03	1.417E-02	2.989E-03	5.177E-03	1.163E-02	2.777E-03
1.500E+05	5.637E-03	1.331E-02	2.652E-03	4.731E-03	9.738E-03	2.319E-03
1.700E+05	5.147E-03	1.288E-02	2.468E-03	4.543E-03	8.793E-03	2.129E-03
2.000E+05	4.582E-03	1.235E-02	2.245E-03	4.349E-03	7.676E-03	1.947E-03
2.500E+05	3.917E-03	1.167E-02	1.979E-03	4.147E-03	6.331E-03	1.786E-03
3.000E+05	3.451E-03	1.111E-02	1.802E-03	4.012E-03	5.387E-03	1.703E-03
5.000E+05	2.426E-03	9.355E-03	1.491E-03	3.607E-03	3.413E-03	1.510E-03
7.000E+05	1.927E-03	7.944E-03	1.388E-03	3.242E-03	2.575E-03	1.342E-03
8.500E+05	1.688E-03	7.064E-03	1.340E-03	3.006E-03	2.223E-03	1.228E-03
1.000E+06	1.508E-03	6.316E-03	1.296E-03	2.807E-03	1.984E-03	1.125E-03

Table 3.1 Maxwellian-averaged capture cross sections (continued)

unit: barns

kT(eV)	20-Ca- 46	20-Ca- 48	21-Sc- 45	22-Ti- 46	22-Ti- 47	22-Ti- 48
1.000E+03	6.287E-03	4.279E-03	1.449E-01	3.195E-03	1.875E-01	4.786E-02
2.000E+03	4.607E-03	2.500E-03	2.082E-01	5.384E-03	2.479E-01	4.585E-02
3.000E+03	3.620E-03	1.746E-03	2.107E-01	1.065E-02	2.347E-01	5.424E-02
5.000E+03	2.639E-03	1.051E-03	1.864E-01	1.752E-02	1.955E-01	7.253E-02
1.000E+04	1.781E-03	4.757E-04	1.326E-01	2.076E-02	1.260E-01	7.667E-02
1.500E+04	1.426E-03	2.833E-04	1.035E-01	2.149E-02	8.903E-02	6.275E-02
2.000E+04	1.211E-03	1.921E-04	8.626E-02	2.157E-02	6.774E-02	5.010E-02
2.500E+04	1.063E-03	1.414E-04	7.475E-02	2.127E-02	5.462E-02	4.062E-02
3.000E+04	9.525E-04	1.108E-04	6.644E-02	2.079E-02	4.609E-02	3.368E-02
3.500E+04	8.678E-04	9.121E-05	6.011E-02	2.025E-02	4.027E-02	2.854E-02
4.000E+04	8.007E-04	7.828E-05	5.510E-02	1.969E-02	3.612E-02	2.465E-02
5.000E+04	7.011E-04	6.410E-05	4.761E-02	1.863E-02	3.064E-02	1.927E-02
6.000E+04	6.307E-04	5.922E-05	4.225E-02	1.769E-02	2.716E-02	1.582E-02
7.000E+04	5.780E-04	6.004E-05	3.819E-02	1.687E-02	2.467E-02	1.345E-02
8.000E+04	5.371E-04	6.449E-05	3.500E-02	1.616E-02	2.276E-02	1.176E-02
1.000E+05	4.773E-04	7.888E-05	3.027E-02	1.501E-02	1.991E-02	9.532E-03
1.200E+05	4.356E-04	9.518E-05	2.691E-02	1.412E-02	1.783E-02	8.157E-03
1.500E+05	3.927E-04	1.169E-04	2.334E-02	1.309E-02	1.555E-02	6.886E-03
1.700E+05	3.722E-04	1.284E-04	2.156E-02	1.255E-02	1.439E-02	6.326E-03
2.000E+05	3.490E-04	1.416E-04	1.946E-02	1.185E-02	1.302E-02	5.723E-03
2.500E+05	3.227E-04	1.556E-04	1.691E-02	1.090E-02	1.139E-02	5.056E-03
3.000E+05	3.043E-04	1.639E-04	1.506E-02	1.010E-02	1.029E-02	4.600E-03
5.000E+05	2.565E-04	1.814E-04	1.065E-02	7.862E-03	8.163E-03	3.501E-03
7.000E+05	2.225E-04	1.976E-04	8.222E-03	6.508E-03	7.362E-03	2.854E-03
8.500E+05	2.022E-04	2.090E-04	6.992E-03	5.801E-03	6.995E-03	2.511E-03
1.000E+06	1.854E-04	2.180E-04	6.060E-03	5.251E-03	6.686E-03	2.242E-03

kT(eV)	22-Ti- 49	22-Ti- 50	23-V - 51	24-Cr- 50	24-Cr- 52	24-Cr- 53
1.000E+03	3.176E-02	7.740E-04	9.024E-02	1.262E-01	5.791E-02	1.956E-01
2.000E+03	4.992E-02	4.848E-04	1.605E-01	2.574E-01	3.363E-02	3.049E-01
3.000E+03	4.477E-02	3.574E-04	1.647E-01	2.688E-01	2.051E-02	3.060E-01
5.000E+03	3.282E-02	2.381E-04	1.356E-01	2.046E-01	1.134E-02	2.355E-01
1.000E+04	2.279E-02	3.722E-04	8.207E-02	1.066E-01	9.295E-03	1.211E-01
1.500E+04	1.894E-02	1.003E-03	5.805E-02	7.162E-02	9.333E-03	7.519E-02
2.000E+04	1.628E-02	1.676E-03	4.523E-02	5.481E-02	9.128E-03	5.271E-02
2.500E+04	1.433E-02	2.161E-03	3.727E-02	4.492E-02	8.911E-03	3.992E-02
3.000E+04	1.290E-02	2.445E-03	3.181E-02	3.835E-02	8.723E-03	3.187E-02
3.500E+04	1.184E-02	2.578E-03	2.781E-02	3.367E-02	8.550E-03	2.643E-02
4.000E+04	1.104E-02	2.612E-03	2.474E-02	3.015E-02	8.376E-03	2.256E-02
5.000E+04	9.889E-03	2.521E-03	2.033E-02	2.524E-02	8.015E-03	1.750E-02
6.000E+04	9.106E-03	2.345E-03	1.731E-02	2.201E-02	7.641E-03	1.438E-02
7.000E+04	8.521E-03	2.157E-03	1.512E-02	1.979E-02	7.273E-03	1.229E-02
8.000E+04	8.058E-03	1.980E-03	1.345E-02	1.821E-02	6.926E-03	1.080E-02
1.000E+05	7.347E-03	1.685E-03	1.107E-02	1.620E-02	6.317E-03	8.825E-03
1.200E+05	6.812E-03	1.465E-03	9.466E-03	1.506E-02	5.825E-03	7.584E-03
1.500E+05	6.211E-03	1.235E-03	7.845E-03	1.407E-02	5.270E-03	6.401E-03
1.700E+05	5.899E-03	1.127E-03	7.078E-03	1.364E-02	4.994E-03	5.862E-03
2.000E+05	5.526E-03	1.009E-03	6.214E-03	1.312E-02	4.679E-03	5.265E-03
2.500E+05	5.075E-03	8.831E-04	5.238E-03	1.240E-02	4.327E-03	4.589E-03
3.000E+05	4.763E-03	8.052E-04	4.590E-03	1.174E-02	4.094E-03	4.122E-03
5.000E+05	4.169E-03	6.501E-04	3.279E-03	9.607E-03	3.535E-03	3.026E-03
7.000E+05	4.003E-03	5.616E-04	2.654E-03	8.190E-03	3.119E-03	2.398E-03
8.500E+05	3.975E-03	5.106E-04	2.334E-03	7.412E-03	2.847E-03	2.065E-03
1.000E+06	3.969E-03	4.683E-04	2.079E-03	6.779E-03	2.607E-03	1.807E-03

Table 3.1 Maxwellian-averaged capture cross sections (continued)

unit: barns

kT(eV)	24-Cr- 54	25-Mn- 55	26-Fe- 54	26-Fe- 56	26-Fe- 57	26-Fe- 58
1.000E+03	1.490E-03	8.969E-01	2.417E-02	9.091E-02	8.526E-02	7.103E-02
2.000E+03	1.898E-03	4.077E-01	9.001E-02	4.067E-02	1.199E-01	3.867E-02
3.000E+03	3.793E-03	2.569E-01	1.476E-01	2.239E-02	1.245E-01	4.151E-02
5.000E+03	6.740E-03	1.484E-01	1.697E-01	1.145E-02	1.047E-01	4.289E-02
1.000E+04	7.075E-03	7.651E-02	1.151E-01	1.071E-02	6.976E-02	3.061E-02
1.500E+04	5.675E-03	5.403E-02	7.948E-02	1.229E-02	5.368E-02	2.286E-02
2.000E+04	4.701E-03	4.281E-02	6.002E-02	1.303E-02	4.348E-02	1.859E-02
2.500E+04	4.109E-03	3.602E-02	4.831E-02	1.326E-02	3.617E-02	1.597E-02
3.000E+04	3.744E-03	3.141E-02	4.066E-02	1.324E-02	3.068E-02	1.420E-02
3.500E+04	3.509E-03	2.804E-02	3.531E-02	1.307E-02	2.644E-02	1.291E-02
4.000E+04	3.349E-03	2.544E-02	3.137E-02	1.283E-02	2.308E-02	1.192E-02
5.000E+04	3.155E-03	2.163E-02	2.598E-02	1.228E-02	1.818E-02	1.046E-02
6.000E+04	3.051E-03	1.894E-02	2.245E-02	1.171E-02	1.483E-02	9.404E-03
7.000E+04	2.994E-03	1.691E-02	1.996E-02	1.120E-02	1.242E-02	8.600E-03
8.000E+04	2.963E-03	1.534E-02	1.812E-02	1.072E-02	1.064E-02	7.961E-03
1.000E+05	2.943E-03	1.303E-02	1.559E-02	9.934E-03	8.193E-03	7.007E-03
1.200E+05	2.944E-03	1.142E-02	1.396E-02	9.306E-03	6.627E-03	6.329E-03
1.500E+05	2.949E-03	9.758E-03	1.241E-02	8.580E-03	5.137E-03	5.613E-03
1.700E+05	2.945E-03	8.948E-03	1.172E-02	8.193E-03	4.470E-03	5.258E-03
2.000E+05	2.924E-03	8.010E-03	1.100E-02	7.705E-03	3.749E-03	4.834E-03
2.500E+05	2.852E-03	6.900E-03	1.025E-02	7.050E-03	2.976E-03	4.303E-03
3.000E+05	2.754E-03	6.120E-03	9.784E-03	6.520E-03	2.490E-03	3.900E-03
5.000E+05	2.339E-03	4.398E-03	8.660E-03	5.109E-03	1.592E-03	2.892E-03
7.000E+05	2.026E-03	3.557E-03	7.763E-03	4.321E-03	1.238E-03	2.341E-03
8.500E+05	1.846E-03	3.153E-03	7.153E-03	3.926E-03	1.083E-03	2.068E-03
1.000E+06	1.698E-03	2.853E-03	6.600E-03	3.623E-03	9.726E-04	1.864E-03

kT(eV)	27-Co- 59	28-Ni- 58	28-Ni- 60	28-Ni- 61	28-Ni- 62	28-Ni- 64
1.000E+03	1.064E+00	1.722E-02	3.844E-02	3.927E-01	2.278E-01	9.741E-03
2.000E+03	3.790E-01	1.455E-02	4.086E-02	4.165E-01	2.864E-01	2.820E-02
3.000E+03	2.410E-01	2.412E-02	4.940E-02	4.115E-01	2.509E-01	5.531E-02
5.000E+03	1.505E-01	4.555E-02	6.094E-02	3.598E-01	1.669E-01	7.693E-02
1.000E+04	8.591E-02	5.708E-02	5.453E-02	2.415E-01	7.451E-02	6.221E-02
1.500E+04	6.353E-02	5.179E-02	4.392E-02	1.770E-01	4.455E-02	4.451E-02
2.000E+04	5.167E-02	4.598E-02	3.659E-02	1.393E-01	3.116E-02	3.298E-02
2.500E+04	4.413E-02	4.145E-02	3.165E-02	1.148E-01	2.394E-02	2.548E-02
3.000E+04	3.886E-02	3.806E-02	2.819E-02	9.762E-02	1.956E-02	2.043E-02
3.500E+04	3.495E-02	3.549E-02	2.568E-02	8.495E-02	1.670E-02	1.691E-02
4.000E+04	3.191E-02	3.349E-02	2.376E-02	7.522E-02	1.472E-02	1.438E-02
5.000E+04	2.750E-02	3.051E-02	2.104E-02	6.127E-02	1.220E-02	1.107E-02
6.000E+04	2.442E-02	2.828E-02	1.920E-02	5.176E-02	1.069E-02	9.086E-03
7.000E+04	2.214E-02	2.646E-02	1.786E-02	4.489E-02	9.693E-03	7.805E-03
8.000E+04	2.037E-02	2.490E-02	1.683E-02	3.970E-02	8.987E-03	6.934E-03
1.000E+05	1.780E-02	2.237E-02	1.534E-02	3.239E-02	8.051E-03	5.865E-03
1.200E+05	1.601E-02	2.042E-02	1.430E-02	2.752E-02	7.456E-03	5.265E-03
1.500E+05	1.416E-02	1.830E-02	1.321E-02	2.265E-02	6.884E-03	4.767E-03
1.700E+05	1.328E-02	1.727E-02	1.267E-02	2.038E-02	6.624E-03	4.570E-03
2.000E+05	1.228E-02	1.613E-02	1.206E-02	1.782E-02	6.335E-03	4.377E-03
2.500E+05	1.113E-02	1.490E-02	1.135E-02	1.491E-02	6.002E-03	4.192E-03
3.000E+05	1.035E-02	1.412E-02	1.084E-02	1.294E-02	5.754E-03	4.080E-03
5.000E+05	8.463E-03	1.234E-02	9.434E-03	8.773E-03	5.015E-03	3.777E-03
7.000E+05	7.252E-03	1.102E-02	8.327E-03	6.765E-03	4.432E-03	3.489E-03
8.500E+05	6.557E-03	1.013E-02	7.608E-03	5.800E-03	4.062E-03	3.271E-03
1.000E+06	5.990E-03	9.311E-03	6.974E-03	5.084E-03	3.737E-03	3.058E-03

Table 3.1 Maxwellian-averaged capture cross sections (continued)

unit: barns

kT(eV)	29-Cu- 63	29-Cu- 65	31-Ga- 69	31-Ga- 71	32-Ge- 70	32-Ge- 72
1.000E+03	7.491E-01	1.770E-01	1.339E+00	1.528E+00	4.331E-01	1.382E-01
2.000E+03	4.963E-01	1.855E-01	7.452E-01	7.713E-01	2.870E-01	1.584E-01
3.000E+03	3.948E-01	1.630E-01	5.401E-01	5.435E-01	2.155E-01	1.292E-01
5.000E+03	2.859E-01	1.218E-01	3.720E-01	3.606E-01	1.558E-01	8.354E-02
1.000E+04	1.713E-01	7.540E-02	2.349E-01	2.156E-01	1.199E-01	4.363E-02
1.500E+04	1.253E-01	5.773E-02	1.823E-01	1.627E-01	1.075E-01	3.937E-02
2.000E+04	1.014E-01	4.817E-02	1.530E-01	1.343E-01	9.892E-02	4.190E-02
2.500E+04	8.686E-02	4.197E-02	1.339E-01	1.163E-01	9.226E-02	4.490E-02
3.000E+04	7.705E-02	3.752E-02	1.204E-01	1.036E-01	8.690E-02	4.722E-02
3.500E+04	6.991E-02	3.414E-02	1.102E-01	9.423E-02	8.251E-02	4.881E-02
4.000E+04	6.442E-02	3.147E-02	1.023E-01	8.694E-02	7.885E-02	4.982E-02
5.000E+04	5.640E-02	2.750E-02	9.050E-02	7.632E-02	7.311E-02	5.074E-02
6.000E+04	5.071E-02	2.466E-02	8.219E-02	6.890E-02	6.884E-02	5.084E-02
7.000E+04	4.642E-02	2.254E-02	7.594E-02	6.338E-02	6.554E-02	5.057E-02
8.000E+04	4.304E-02	2.088E-02	7.105E-02	5.909E-02	6.293E-02	5.016E-02
1.000E+05	3.801E-02	1.846E-02	6.376E-02	5.274E-02	5.911E-02	4.922E-02
1.200E+05	3.444E-02	1.679E-02	5.849E-02	4.815E-02	5.651E-02	4.834E-02
1.500E+05	3.068E-02	1.508E-02	5.266E-02	4.302E-02	5.394E-02	4.717E-02
1.700E+05	2.884E-02	1.426E-02	4.961E-02	4.032E-02	5.276E-02	4.644E-02
2.000E+05	2.668E-02	1.333E-02	4.586E-02	3.695E-02	5.144E-02	4.537E-02
2.500E+05	2.408E-02	1.226E-02	4.101E-02	3.254E-02	4.981E-02	4.355E-02
3.000E+05	2.216E-02	1.152E-02	3.727E-02	2.912E-02	4.845E-02	4.174E-02
5.000E+05	1.721E-02	9.727E-03	2.784E-02	2.061E-02	4.327E-02	3.529E-02
7.000E+05	1.412E-02	8.553E-03	2.242E-02	1.603E-02	3.844E-02	3.050E-02
8.500E+05	1.244E-02	7.839E-03	1.959E-02	1.375E-02	3.520E-02	2.768E-02
1.000E+06	1.112E-02	7.222E-03	1.737E-02	1.202E-02	3.229E-02	2.531E-02

kT(eV)	32-Ge- 73	32-Ge- 74	32-Ge- 76	33-As- 75	34-Se- 74	34-Se- 76
1.000E+03	3.321E+00	9.700E-02	2.416E-01	4.046E+00	2.795E+00	1.244E+00
2.000E+03	1.378E+00	1.205E-01	9.070E-02	2.436E+00	1.384E+00	6.534E-01
3.000E+03	8.462E-01	9.583E-02	5.132E-02	1.877E+00	9.606E-01	4.545E-01
5.000E+03	5.311E-01	5.855E-02	2.608E-02	1.367E+00	6.446E-01	3.020E-01
1.000E+04	3.545E-01	2.562E-02	1.186E-02	8.890E-01	4.071E-01	1.892E-01
1.500E+04	2.875E-01	1.664E-02	8.810E-03	6.914E-01	3.175E-01	1.468E-01
2.000E+04	2.454E-01	1.409E-02	8.164E-03	5.790E-01	2.669E-01	1.230E-01
2.500E+04	2.151E-01	1.373E-02	8.191E-03	5.050E-01	2.335E-01	1.074E-01
3.000E+04	1.921E-01	1.409E-02	8.383E-03	4.521E-01	2.096E-01	9.639E-02
3.500E+04	1.740E-01	1.464E-02	8.583E-03	4.119E-01	1.916E-01	8.817E-02
4.000E+04	1.593E-01	1.520E-02	8.750E-03	3.801E-01	1.776E-01	8.183E-02
5.000E+04	1.370E-01	1.609E-02	8.966E-03	3.325E-01	1.570E-01	7.275E-02
6.000E+04	1.208E-01	1.667E-02	9.062E-03	2.977E-01	1.429E-01	6.662E-02
7.000E+04	1.085E-01	1.703E-02	9.082E-03	2.706E-01	1.326E-01	6.227E-02
8.000E+04	9.891E-02	1.724E-02	9.056E-03	2.485E-01	1.249E-01	5.904E-02
1.000E+05	8.478E-02	1.735E-02	8.916E-03	2.140E-01	1.143E-01	5.456E-02
1.200E+05	7.486E-02	1.722E-02	8.704E-03	1.879E-01	1.072E-01	5.149E-02
1.500E+05	6.440E-02	1.677E-02	8.311E-03	1.585E-01	9.991E-02	4.809E-02
1.700E+05	5.919E-02	1.636E-02	8.024E-03	1.433E-01	9.618E-02	4.621E-02
2.000E+05	5.300E-02	1.569E-02	7.588E-03	1.250E-01	9.145E-02	4.371E-02
2.500E+05	4.533E-02	1.453E-02	6.896E-03	1.028E-01	8.488E-02	4.011E-02
3.000E+05	3.962E-02	1.343E-02	6.284E-03	8.716E-02	7.928E-02	3.706E-02
5.000E+05	2.584E-02	1.014E-02	4.592E-03	5.409E-02	6.266E-02	2.851E-02
7.000E+05	1.859E-02	8.129E-03	3.644E-03	3.939E-02	5.167E-02	2.330E-02
8.500E+05	1.511E-02	7.087E-03	3.174E-03	3.280E-02	4.560E-02	2.051E-02
1.000E+06	1.257E-02	6.284E-03	2.818E-03	2.814E-02	4.073E-02	1.831E-02

Table 3.1 Maxwellian-averaged capture cross sections (continued)

unit: barns

kT(eV)	34-Se- 77	34-Se- 78	34-Se- 79	34-Se- 80	34-Se- 82	35-Br- 79
1.000E+03	3.021E+00	6.481E-01	2.971E+00	2.367E-01	1.671E-01	6.069E+00
2.000E+03	1.990E+00	3.640E-01	1.926E+00	2.629E-01	6.985E-02	3.713E+00
3.000E+03	1.547E+00	2.674E-01	1.518E+00	2.318E-01	4.165E-02	2.756E+00
5.000E+03	1.147E+00	1.950E-01	1.141E+00	1.684E-01	2.724E-02	1.923E+00
1.000E+04	7.927E-01	1.465E-01	7.831E-01	9.510E-02	2.928E-02	1.250E+00
1.500E+04	6.439E-01	1.249E-01	6.257E-01	6.744E-02	3.170E-02	9.977E-01
2.000E+04	5.548E-01	1.103E-01	5.309E-01	5.345E-02	3.191E-02	8.555E-01
2.500E+04	4.933E-01	9.941E-02	4.657E-01	4.512E-02	3.126E-02	7.602E-01
3.000E+04	4.475E-01	9.113E-02	4.171E-01	3.964E-02	3.035E-02	6.902E-01
3.500E+04	4.115E-01	8.463E-02	3.791E-01	3.578E-02	2.941E-02	6.357E-01
4.000E+04	3.823E-01	7.942E-02	3.482E-01	3.294E-02	2.853E-02	5.916E-01
5.000E+04	3.367E-01	7.168E-02	3.007E-01	2.907E-02	2.705E-02	5.233E-01
6.000E+04	3.021E-01	6.628E-02	2.656E-01	2.659E-02	2.589E-02	4.716E-01
7.000E+04	2.744E-01	6.237E-02	2.383E-01	2.489E-02	2.501E-02	4.303E-01
8.000E+04	2.514E-01	5.943E-02	2.165E-01	2.366E-02	2.431E-02	3.959E-01
1.000E+05	2.149E-01	5.533E-02	1.836E-01	2.201E-02	2.328E-02	3.415E-01
1.200E+05	1.870E-01	5.254E-02	1.601E-01	2.092E-02	2.252E-02	2.999E-01
1.500E+05	1.556E-01	4.949E-02	1.351E-01	1.973E-02	2.159E-02	2.527E-01
1.700E+05	1.395E-01	4.782E-02	1.227E-01	1.908E-02	2.101E-02	2.284E-01
2.000E+05	1.202E-01	4.559E-02	1.083E-01	1.819E-02	2.018E-02	1.992E-01
2.500E+05	9.688E-02	4.234E-02	9.118E-02	1.687E-02	1.889E-02	1.637E-01
3.000E+05	8.061E-02	3.953E-02	7.912E-02	1.572E-02	1.776E-02	1.389E-01
5.000E+05	4.710E-02	3.136E-02	5.256E-02	1.242E-02	1.469E-02	8.681E-02
7.000E+05	3.285E-02	2.608E-02	3.935E-02	1.035E-02	1.303E-02	6.397E-02
8.500E+05	2.668E-02	2.313E-02	3.289E-02	9.213E-03	1.216E-02	5.374E-02
1.000E+06	2.241E-02	2.073E-02	2.807E-02	8.295E-03	1.143E-02	4.643E-02

kT(eV)	35-Br- 81	36-Kr- 78	36-Kr- 80	36-Kr- 82	36-Kr- 83	36-Kr- 84
1.000E+03	2.554E+00	2.304E+00	2.182E+00	9.423E-01	2.419E+00	4.413E-01
2.000E+03	1.455E+00	1.480E+00	1.286E+00	5.405E-01	1.559E+00	2.308E-01
3.000E+03	1.075E+00	1.174E+00	9.926E-01	4.158E-01	1.217E+00	1.736E-01
5.000E+03	7.610E-01	9.036E-01	7.462E-01	3.065E-01	8.927E-01	1.264E-01
1.000E+04	4.940E-01	6.520E-01	5.242E-01	2.029E-01	5.750E-01	8.184E-02
1.500E+04	3.845E-01	5.385E-01	4.265E-01	1.581E-01	4.376E-01	6.291E-02
2.000E+04	3.210E-01	4.682E-01	3.671E-01	1.322E-01	3.580E-01	5.226E-02
2.500E+04	2.787E-01	4.189E-01	3.261E-01	1.153E-01	3.054E-01	4.543E-02
3.000E+04	2.482E-01	3.818E-01	2.958E-01	1.033E-01	2.677E-01	4.069E-02
3.500E+04	2.250E-01	3.529E-01	2.724E-01	9.437E-02	2.394E-01	3.722E-02
4.000E+04	2.067E-01	3.296E-01	2.538E-01	8.754E-02	2.173E-01	3.458E-02
5.000E+04	1.796E-01	2.944E-01	2.260E-01	7.780E-02	1.849E-01	3.086E-02
6.000E+04	1.604E-01	2.690E-01	2.065E-01	7.130E-02	1.623E-01	2.839E-02
7.000E+04	1.459E-01	2.499E-01	1.921E-01	6.676E-02	1.456E-01	2.665E-02
8.000E+04	1.345E-01	2.349E-01	1.812E-01	6.347E-02	1.328E-01	2.536E-02
1.000E+05	1.173E-01	2.128E-01	1.660E-01	5.922E-02	1.143E-01	2.363E-02
1.200E+05	1.047E-01	1.969E-01	1.558E-01	5.670E-02	1.017E-01	2.252E-02
1.500E+05	9.082E-02	1.793E-01	1.455E-01	5.447E-02	8.881E-02	2.141E-02
1.700E+05	8.360E-02	1.702E-01	1.405E-01	5.347E-02	8.256E-02	2.086E-02
2.000E+05	7.478E-02	1.589E-01	1.343E-01	5.226E-02	7.530E-02	2.017E-02
2.500E+05	6.367E-02	1.444E-01	1.262E-01	5.052E-02	6.653E-02	1.917E-02
3.000E+05	5.548E-02	1.333E-01	1.199E-01	4.886E-02	6.006E-02	1.826E-02
5.000E+05	3.702E-02	1.051E-01	1.037E-01	4.276E-02	4.349E-02	1.529E-02
7.000E+05	2.827E-02	8.811E-02	9.563E-02	3.786E-02	3.343E-02	1.317E-02
8.500E+05	2.417E-02	7.878E-02	9.235E-02	3.484E-02	2.807E-02	1.192E-02
1.000E+06	2.115E-02	7.121E-02	9.018E-02	3.223E-02	2.393E-02	1.088E-02

Table 3.1 Maxwellian-averaged capture cross sections (continued)

unit: barns

kT(eV)	36-Kr- 85	36-Kr- 86	37-Rb- 85	37-Rb- 87	38-Sr- 86	38-Sr- 87
1.000E+03	3.769E-01	4.593E-04	2.223E+00	2.645E-01	9.626E-01	5.534E-01
2.000E+03	3.529E-01	1.950E-03	1.415E+00	1.002E-01	5.094E-01	3.901E-01
3.000E+03	3.037E-01	2.559E-03	1.076E+00	6.564E-02	3.595E-01	3.230E-01
5.000E+03	2.342E-01	3.239E-03	7.895E-01	4.803E-02	2.360E-01	2.505E-01
1.000E+04	1.515E-01	4.748E-03	5.394E-01	3.806E-02	1.384E-01	1.692E-01
1.500E+04	1.142E-01	5.402E-03	4.297E-01	3.266E-02	1.046E-01	1.308E-01
2.000E+04	9.278E-02	5.495E-03	3.631E-01	2.870E-02	8.715E-02	1.077E-01
2.500E+04	7.884E-02	5.351E-03	3.173E-01	2.570E-02	7.629E-02	9.221E-02
3.000E+04	6.902E-02	5.129E-03	2.835E-01	2.339E-02	6.880E-02	8.111E-02
3.500E+04	6.172E-02	4.891E-03	2.573E-01	2.155E-02	6.331E-02	7.275E-02
4.000E+04	5.607E-02	4.662E-03	2.364E-01	2.006E-02	5.912E-02	6.623E-02
5.000E+04	4.790E-02	4.258E-03	2.049E-01	1.778E-02	5.319E-02	5.674E-02
6.000E+04	4.225E-02	3.926E-03	1.820E-01	1.612E-02	4.925E-02	5.015E-02
7.000E+04	3.810E-02	3.653E-03	1.647E-01	1.485E-02	4.651E-02	4.530E-02
8.000E+04	3.492E-02	3.429E-03	1.511E-01	1.383E-02	4.452E-02	4.158E-02
1.000E+05	3.034E-02	3.084E-03	1.309E-01	1.227E-02	4.195E-02	3.624E-02
1.200E+05	2.718E-02	2.838E-03	1.167E-01	1.111E-02	4.045E-02	3.257E-02
1.500E+05	2.393E-02	2.587E-03	1.014E-01	9.798E-03	3.921E-02	2.878E-02
1.700E+05	2.236E-02	2.474E-03	9.377E-02	9.112E-03	3.873E-02	2.695E-02
2.000E+05	2.056E-02	2.357E-03	8.466E-02	8.274E-03	3.824E-02	2.485E-02
2.500E+05	1.848E-02	2.253E-03	7.342E-02	7.231E-03	3.765E-02	2.241E-02
3.000E+05	1.708E-02	2.209E-03	6.516E-02	6.474E-03	3.706E-02	2.071E-02
5.000E+05	1.422E-02	2.157E-03	4.558E-02	4.777E-03	3.405E-02	1.679E-02
7.000E+05	1.274E-02	2.056E-03	3.509E-02	3.914E-03	3.068E-02	1.431E-02
8.500E+05	1.181E-02	1.948E-03	2.980E-02	3.471E-03	2.824E-02	1.280E-02
1.000E+06	1.095E-02	1.832E-03	2.578E-02	3.121E-03	2.597E-02	1.151E-02

kT(eV)	38-Sr- 88	38-Sr- 89	38-Sr- 90	39-Y - 89	39-Y - 91	40-Zr- 90
1.000E+03	1.447E-02	7.946E-02	9.931E-04	1.388E-01	6.390E-01	2.082E-02
2.000E+03	1.581E-02	8.352E-02	9.455E-03	1.411E-01	4.879E-01	4.937E-02
3.000E+03	1.500E-02	7.262E-02	1.737E-02	1.097E-01	3.989E-01	5.440E-02
5.000E+03	1.523E-02	5.488E-02	2.384E-02	7.349E-02	2.986E-01	4.795E-02
1.000E+04	1.297E-02	3.375E-02	2.310E-02	4.302E-02	1.911E-01	3.445E-02
1.500E+04	1.039E-02	2.474E-02	1.998E-02	3.212E-02	1.442E-01	2.863E-02
2.000E+04	8.562E-03	1.981E-02	1.761E-02	2.646E-02	1.175E-01	2.516E-02
2.500E+04	7.295E-03	1.672E-02	1.592E-02	2.303E-02	1.003E-01	2.274E-02
3.000E+04	6.398E-03	1.460E-02	1.469E-02	2.076E-02	8.837E-02	2.092E-02
3.500E+04	5.745E-03	1.305E-02	1.377E-02	1.916E-02	7.960E-02	1.948E-02
4.000E+04	5.257E-03	1.188E-02	1.306E-02	1.797E-02	7.294E-02	1.830E-02
5.000E+04	4.590E-03	1.020E-02	1.205E-02	1.633E-02	6.356E-02	1.645E-02
6.000E+04	4.165E-03	9.062E-03	1.137E-02	1.525E-02	5.737E-02	1.506E-02
7.000E+04	3.873E-03	8.229E-03	1.089E-02	1.449E-02	5.304E-02	1.396E-02
8.000E+04	3.658E-03	7.591E-03	1.052E-02	1.392E-02	4.987E-02	1.309E-02
1.000E+05	3.358E-03	6.675E-03	1.001E-02	1.312E-02	4.556E-02	1.178E-02
1.200E+05	3.154E-03	6.044E-03	9.649E-03	1.259E-02	4.270E-02	1.086E-02
1.500E+05	2.943E-03	5.397E-03	9.252E-03	1.203E-02	3.963E-02	9.945E-03
1.700E+05	2.845E-03	5.088E-03	9.033E-03	1.175E-02	3.797E-02	9.536E-03
2.000E+05	2.742E-03	4.739E-03	8.732E-03	1.141E-02	3.577E-02	9.124E-03
2.500E+05	2.650E-03	4.349E-03	8.268E-03	1.095E-02	3.256E-02	8.788E-03
3.000E+05	2.623E-03	4.095E-03	7.835E-03	1.056E-02	2.974E-02	8.717E-03
5.000E+05	2.720E-03	3.546E-03	6.449E-03	9.223E-03	2.153E-02	9.239E-03
7.000E+05	2.793E-03	3.167E-03	5.515E-03	8.148E-03	1.664E-02	9.542E-03
8.500E+05	2.776E-03	2.906E-03	4.995E-03	7.478E-03	1.419E-02	9.448E-03
1.000E+06	2.711E-03	2.665E-03	4.570E-03	6.897E-03	1.236E-02	9.173E-03

Table 3.1 Maxwellian-averaged capture cross sections (continued)

unit: barns

kT(eV)	40-Zr- 91	40-Zr- 92	40-Zr- 93	40-Zr- 94	40-Zr- 95	40-Zr- 96
1.000E+03	8.980E-01	1.422E-01	9.178E-01	5.464E-02	1.181E+00	4.606E-01
2.000E+03	5.647E-01	2.271E-01	6.111E-01	8.100E-02	8.179E-01	1.841E-01
3.000E+03	4.234E-01	2.179E-01	4.847E-01	8.510E-02	6.523E-01	1.178E-01
5.000E+03	2.895E-01	1.668E-01	3.557E-01	7.774E-02	4.818E-01	6.944E-02
1.000E+04	1.668E-01	9.765E-02	2.237E-01	5.620E-02	3.073E-01	3.514E-02
1.500E+04	1.193E-01	7.112E-02	1.671E-01	4.382E-02	2.316E-01	2.368E-02
2.000E+04	9.391E-02	5.806E-02	1.351E-01	3.696E-02	1.883E-01	1.785E-02
2.500E+04	7.813E-02	5.062E-02	1.143E-01	3.284E-02	1.601E-01	1.446E-02
3.000E+04	6.740E-02	4.596E-02	9.982E-02	3.017E-02	1.401E-01	1.236E-02
3.500E+04	5.963E-02	4.283E-02	8.909E-02	2.833E-02	1.253E-01	1.100E-02
4.000E+04	5.376E-02	4.063E-02	8.084E-02	2.699E-02	1.138E-01	1.010E-02
5.000E+04	4.550E-02	3.780E-02	6.899E-02	2.522E-02	9.734E-02	9.035E-03
6.000E+04	3.997E-02	3.611E-02	6.089E-02	2.413E-02	8.605E-02	8.491E-03
7.000E+04	3.602E-02	3.505E-02	5.499E-02	2.343E-02	7.788E-02	8.191E-03
8.000E+04	3.307E-02	3.435E-02	5.051E-02	2.295E-02	7.171E-02	8.015E-03
1.000E+05	2.895E-02	3.358E-02	4.413E-02	2.239E-02	6.308E-02	7.841E-03
1.200E+05	2.622E-02	3.325E-02	3.980E-02	2.213E-02	5.739E-02	7.779E-03
1.500E+05	2.353E-02	3.311E-02	3.540E-02	2.197E-02	5.185E-02	7.784E-03
1.700E+05	2.229E-02	3.308E-02	3.332E-02	2.191E-02	4.933E-02	7.829E-03
2.000E+05	2.093E-02	3.303E-02	3.098E-02	2.182E-02	4.661E-02	7.943E-03
2.500E+05	1.948E-02	3.275E-02	2.835E-02	2.155E-02	4.374E-02	8.215E-03
3.000E+05	1.858E-02	3.223E-02	2.661E-02	2.114E-02	4.198E-02	8.532E-03
5.000E+05	1.674E-02	2.903E-02	2.260E-02	1.880E-02	3.824E-02	9.455E-03
7.000E+05	1.520E-02	2.572E-02	1.969E-02	1.650E-02	3.514E-02	9.506E-03
8.500E+05	1.400E-02	2.352E-02	1.773E-02	1.503E-02	3.269E-02	9.184E-03
1.000E+06	1.283E-02	2.159E-02	1.596E-02	1.374E-02	3.023E-02	8.716E-03

kT(eV)	41-Nb- 93	41-Nb- 94	41-Nb- 95	42-Mo- 92	42-Mo- 94	42-Mo- 95
1.000E+03	1.785E+00	2.230E+00	2.485E+00	1.690E-01	3.746E-01	2.303E+00
2.000E+03	1.383E+00	1.548E+00	1.745E+00	2.247E-01	4.080E-01	1.654E+00
3.000E+03	1.147E+00	1.261E+00	1.435E+00	2.185E-01	3.688E-01	1.373E+00
5.000E+03	8.719E-01	9.708E-01	1.120E+00	1.808E-01	2.986E-01	1.080E+00
1.000E+04	5.685E-01	6.621E-01	7.811E-01	1.258E-01	2.111E-01	7.582E-01
1.500E+04	4.338E-01	5.171E-01	6.205E-01	1.006E-01	1.700E-01	6.027E-01
2.000E+04	3.557E-01	4.278E-01	5.220E-01	8.524E-02	1.450E-01	5.068E-01
2.500E+04	3.041E-01	3.656E-01	4.544E-01	7.469E-02	1.278E-01	4.408E-01
3.000E+04	2.672E-01	3.192E-01	4.048E-01	6.701E-02	1.152E-01	3.922E-01
3.500E+04	2.395E-01	2.830E-01	3.667E-01	6.122E-02	1.057E-01	3.549E-01
4.000E+04	2.179E-01	2.539E-01	3.364E-01	5.674E-02	9.824E-02	3.252E-01
5.000E+04	1.863E-01	2.102E-01	2.914E-01	5.035E-02	8.746E-02	2.809E-01
6.000E+04	1.644E-01	1.789E-01	2.596E-01	4.611E-02	8.019E-02	2.492E-01
7.000E+04	1.484E-01	1.555E-01	2.358E-01	4.316E-02	7.509E-02	2.255E-01
8.000E+04	1.361E-01	1.375E-01	2.175E-01	4.105E-02	7.141E-02	2.070E-01
1.000E+05	1.188E-01	1.118E-01	1.913E-01	3.833E-02	6.670E-02	1.802E-01
1.200E+05	1.071E-01	9.436E-02	1.735E-01	3.676E-02	6.402E-02	1.617E-01
1.500E+05	9.538E-02	7.699E-02	1.554E-01	3.552E-02	6.184E-02	1.428E-01
1.700E+05	8.975E-02	6.889E-02	1.468E-01	3.512E-02	6.097E-02	1.336E-01
2.000E+05	8.318E-02	5.988E-02	1.370E-01	3.487E-02	6.002E-02	1.229E-01
2.500E+05	7.502E-02	4.983E-02	1.256E-01	3.496E-02	5.870E-02	1.099E-01
3.000E+05	6.868E-02	4.319E-02	1.177E-01	3.530E-02	5.738E-02	1.003E-01
5.000E+05	5.101E-02	2.936E-02	9.956E-02	3.625E-02	5.181E-02	7.564E-02
7.000E+05	3.957E-02	2.239E-02	8.800E-02	3.542E-02	4.652E-02	6.083E-02
8.500E+05	3.339E-02	1.884E-02	8.046E-02	3.400E-02	4.287E-02	5.285E-02
1.000E+06	2.859E-02	1.613E-02	7.352E-02	3.225E-02	3.952E-02	4.653E-02

Table 3.1 Maxwellian-averaged capture cross sections (continued)

unit: barns

kT(eV)	42-Mo- 96	42-Mo- 97	42-Mo- 98	42-Mo- 99	42-Mo-100	43-Tc- 99
1.000E+03	4.915E-01	2.325E+00	9.792E-01	2.397E+00	7.835E-01	3.057E+00
2.000E+03	3.691E-01	1.675E+00	5.653E-01	1.728E+00	5.038E-01	2.430E+00
3.000E+03	3.316E-01	1.383E+00	4.229E-01	1.453E+00	3.774E-01	2.135E+00
5.000E+03	2.785E-01	1.081E+00	2.952E-01	1.174E+00	2.613E-01	1.788E+00
1.000E+04	2.009E-01	7.539E-01	1.843E-01	8.648E-01	1.655E-01	1.357E+00
1.500E+04	1.596E-01	5.987E-01	1.430E-01	7.092E-01	1.304E-01	1.126E+00
2.000E+04	1.340E-01	5.037E-01	1.205E-01	6.091E-01	1.108E-01	9.747E-01
2.500E+04	1.167E-01	4.384E-01	1.061E-01	5.371E-01	9.789E-02	8.654E-01
3.000E+04	1.043E-01	3.905E-01	9.584E-02	4.818E-01	8.862E-02	7.820E-01
3.500E+04	9.501E-02	3.537E-01	8.820E-02	4.375E-01	8.166E-02	7.158E-01
4.000E+04	8.787E-02	3.245E-01	8.231E-02	4.011E-01	7.627E-02	6.616E-01
5.000E+04	7.772E-02	2.811E-01	7.387E-02	3.444E-01	6.855E-02	5.780E-01
6.000E+04	7.102E-02	2.504E-01	6.825E-02	3.022E-01	6.344E-02	5.161E-01
7.000E+04	6.640E-02	2.277E-01	6.436E-02	2.695E-01	5.989E-02	4.683E-01
8.000E+04	6.311E-02	2.101E-01	6.159E-02	2.436E-01	5.734E-02	4.304E-01
1.000E+05	5.895E-02	1.849E-01	5.810E-02	2.049E-01	5.397E-02	3.740E-01
1.200E+05	5.658E-02	1.675E-01	5.613E-02	1.775E-01	5.175E-02	3.342E-01
1.500E+05	5.454E-02	1.495E-01	5.445E-02	1.487E-01	4.926E-02	2.923E-01
1.700E+05	5.363E-02	1.405E-01	5.369E-02	1.346E-01	4.782E-02	2.717E-01
2.000E+05	5.250E-02	1.297E-01	5.271E-02	1.182E-01	4.581E-02	2.475E-01
2.500E+05	5.077E-02	1.158E-01	5.108E-02	9.902E-02	4.275E-02	2.180E-01
3.000E+05	4.904E-02	1.049E-01	4.935E-02	8.572E-02	4.003E-02	1.964E-01
5.000E+05	4.230E-02	7.541E-02	4.231E-02	5.736E-02	3.226E-02	1.445E-01
7.000E+05	3.664E-02	5.749E-02	3.621E-02	4.388E-02	2.748E-02	1.155E-01
8.500E+05	3.312E-02	4.818E-02	3.238E-02	3.740E-02	2.483E-02	1.003E-01
1.000E+06	3.011E-02	4.111E-02	2.910E-02	3.255E-02	2.262E-02	8.829E-02

kT(eV)	44-Ru- 96	44-Ru- 98	44-Ru- 99	44-Ru-100	44-Ru-101	44-Ru-102
1.000E+03	1.390E+00	1.321E+00	4.300E+00	1.317E+00	4.808E+00	8.530E-01
2.000E+03	1.027E+00	9.553E-01	2.766E+00	9.030E-01	3.137E+00	7.338E-01
3.000E+03	8.609E-01	7.942E-01	2.207E+00	7.429E-01	2.530E+00	6.356E-01
5.000E+03	6.852E-01	6.263E-01	1.713E+00	5.780E-01	1.995E+00	5.114E-01
1.000E+04	4.891E-01	4.420E-01	1.243E+00	3.973E-01	1.490E+00	3.607E-01
1.500E+04	3.940E-01	3.540E-01	1.025E+00	3.138E-01	1.256E+00	2.868E-01
2.000E+04	3.355E-01	3.004E-01	8.879E-01	2.642E-01	1.106E+00	2.421E-01
2.500E+04	2.955E-01	2.641E-01	7.897E-01	2.310E-01	9.978E-01	2.120E-01
3.000E+04	2.664E-01	2.377E-01	7.147E-01	2.073E-01	9.142E-01	1.904E-01
3.500E+04	2.442E-01	2.178E-01	6.549E-01	1.895E-01	8.468E-01	1.741E-01
4.000E+04	2.269E-01	2.022E-01	6.060E-01	1.757E-01	7.909E-01	1.615E-01
5.000E+04	2.016E-01	1.797E-01	5.302E-01	1.559E-01	7.027E-01	1.434E-01
6.000E+04	1.842E-01	1.644E-01	4.740E-01	1.425E-01	6.357E-01	1.312E-01
7.000E+04	1.719E-01	1.536E-01	4.304E-01	1.331E-01	5.824E-01	1.225E-01
8.000E+04	1.629E-01	1.457E-01	3.954E-01	1.262E-01	5.387E-01	1.159E-01
1.000E+05	1.509E-01	1.352E-01	3.425E-01	1.168E-01	4.706E-01	1.068E-01
1.200E+05	1.439E-01	1.288E-01	3.038E-01	1.108E-01	4.192E-01	1.004E-01
1.500E+05	1.382E-01	1.228E-01	2.616E-01	1.045E-01	3.612E-01	9.340E-02
1.700E+05	1.359E-01	1.200E-01	2.401E-01	1.012E-01	3.310E-01	8.963E-02
2.000E+05	1.338E-01	1.167E-01	2.146E-01	9.719E-02	2.943E-01	8.482E-02
2.500E+05	1.316E-01	1.125E-01	1.835E-01	9.179E-02	2.486E-01	7.831E-02
3.000E+05	1.302E-01	1.091E-01	1.613E-01	8.751E-02	2.153E-01	7.311E-02
5.000E+05	1.258E-01	9.983E-02	1.126E-01	7.653E-02	1.416E-01	5.947E-02
7.000E+05	1.208E-01	9.363E-02	8.841E-02	6.975E-02	1.068E-01	5.125E-02
8.500E+05	1.163E-01	8.960E-02	7.629E-02	6.558E-02	9.059E-02	4.663E-02
1.000E+06	1.111E-01	8.574E-02	6.689E-02	6.176E-02	7.866E-02	4.273E-02

Table 3.1 Maxwellian-averaged capture cross sections (continued)

unit: barns

kT(eV)	44-Ru-103	44-Ru-104	44-Ru-106	45-Rh-103	45-Rh-105	46-Pd-102
1.000E+03	3.723E+00	1.166E+00	5.902E-01	3.813E+00	4.305E+00	2.363E+00
2.000E+03	2.593E+00	8.004E-01	4.797E-01	2.775E+00	2.853E+00	1.533E+00
3.000E+03	2.116E+00	6.419E-01	4.013E-01	2.314E+00	2.328E+00	1.222E+00
5.000E+03	1.636E+00	4.854E-01	3.072E-01	1.860E+00	1.849E+00	9.391E-01
1.000E+04	1.129E+00	3.256E-01	2.027E-01	1.407E+00	1.375E+00	6.683E-01
1.500E+04	8.925E-01	2.545E-01	1.564E-01	1.193E+00	1.150E+00	5.467E-01
2.000E+04	7.489E-01	2.130E-01	1.299E-01	1.055E+00	1.007E+00	4.728E-01
2.500E+04	6.506E-01	1.856E-01	1.128E-01	9.553E-01	9.034E-01	4.222E-01
3.000E+04	5.782E-01	1.662E-01	1.008E-01	8.780E-01	8.244E-01	3.851E-01
3.500E+04	5.223E-01	1.518E-01	9.205E-02	8.158E-01	7.610E-01	3.566E-01
4.000E+04	4.774E-01	1.407E-01	8.534E-02	7.644E-01	7.086E-01	3.341E-01
5.000E+04	4.092E-01	1.249E-01	7.568E-02	6.835E-01	6.262E-01	3.010E-01
6.000E+04	3.592E-01	1.142E-01	6.894E-02	6.219E-01	5.637E-01	2.779E-01
7.000E+04	3.206E-01	1.064E-01	6.381E-02	5.729E-01	5.143E-01	2.610E-01
8.000E+04	2.897E-01	1.004E-01	5.967E-02	5.325E-01	4.742E-01	2.483E-01
1.000E+05	2.431E-01	9.152E-02	5.320E-02	4.689E-01	4.126E-01	2.305E-01
1.200E+05	2.094E-01	8.493E-02	4.825E-02	4.203E-01	3.674E-01	2.184E-01
1.500E+05	1.731E-01	7.733E-02	4.259E-02	3.650E-01	3.180E-01	2.058E-01
1.700E+05	1.551E-01	7.324E-02	3.962E-02	3.360E-01	2.929E-01	1.993E-01
2.000E+05	1.340E-01	6.810E-02	3.602E-02	3.007E-01	2.629E-01	1.913E-01
2.500E+05	1.091E-01	6.145E-02	3.157E-02	2.567E-01	2.260E-01	1.811E-01
3.000E+05	9.195E-02	5.645E-02	2.838E-02	2.247E-01	1.990E-01	1.734E-01
5.000E+05	5.645E-02	4.499E-02	2.143E-02	1.528E-01	1.364E-01	1.538E-01
7.000E+05	4.078E-02	3.935E-02	1.803E-02	1.172E-01	1.038E-01	1.399E-01
8.500E+05	3.371E-02	3.649E-02	1.628E-02	9.979E-02	8.769E-02	1.303E-01
1.000E+06	2.866E-02	3.415E-02	1.487E-02	8.668E-02	7.559E-02	1.211E-01

kT(eV)	46-Pd-104	46-Pd-105	46-Pd-106	46-Pd-107	46-Pd-108	46-Pd-110
1.000E+03	2.071E+00	5.544E+00	1.677E+00	6.434E+00	1.859E+00	5.888E-01
2.000E+03	1.276E+00	4.048E+00	1.156E+00	4.517E+00	1.051E+00	5.690E-01
3.000E+03	1.001E+00	3.360E+00	9.394E-01	3.686E+00	8.124E-01	5.205E-01
5.000E+03	7.581E-01	2.659E+00	7.294E-01	2.877E+00	6.166E-01	4.272E-01
1.000E+04	5.290E-01	1.952E+00	5.170E-01	2.099E+00	4.346E-01	2.964E-01
1.500E+04	4.272E-01	1.635E+00	4.198E-01	1.760E+00	3.521E-01	2.337E-01
2.000E+04	3.663E-01	1.440E+00	3.610E-01	1.554E+00	3.023E-01	1.972E-01
2.500E+04	3.252E-01	1.303E+00	3.211E-01	1.410E+00	2.686E-01	1.733E-01
3.000E+04	2.954E-01	1.199E+00	2.920E-01	1.300E+00	2.442E-01	1.565E-01
3.500E+04	2.728E-01	1.118E+00	2.699E-01	1.213E+00	2.257E-01	1.441E-01
4.000E+04	2.551E-01	1.051E+00	2.526E-01	1.141E+00	2.113E-01	1.345E-01
5.000E+04	2.293E-01	9.464E-01	2.273E-01	1.028E+00	1.903E-01	1.210E-01
6.000E+04	2.116E-01	8.676E-01	2.099E-01	9.408E-01	1.759E-01	1.118E-01
7.000E+04	1.988E-01	8.048E-01	1.973E-01	8.709E-01	1.654E-01	1.050E-01
8.000E+04	1.892E-01	7.527E-01	1.879E-01	8.123E-01	1.573E-01	9.982E-02
1.000E+05	1.759E-01	6.694E-01	1.746E-01	7.179E-01	1.454E-01	9.190E-02
1.200E+05	1.668E-01	6.043E-01	1.655E-01	6.436E-01	1.367E-01	8.582E-02
1.500E+05	1.572E-01	5.279E-01	1.556E-01	5.567E-01	1.266E-01	7.853E-02
1.700E+05	1.521E-01	4.868E-01	1.503E-01	5.103E-01	1.210E-01	7.446E-02
2.000E+05	1.458E-01	4.356E-01	1.436E-01	4.532E-01	1.139E-01	6.922E-02
2.500E+05	1.373E-01	3.702E-01	1.346E-01	3.815E-01	1.044E-01	6.219E-02
3.000E+05	1.305E-01	3.214E-01	1.273E-01	3.294E-01	9.697E-02	5.669E-02
5.000E+05	1.123E-01	2.090E-01	1.071E-01	2.145E-01	7.844E-02	4.315E-02
7.000E+05	9.985E-02	1.536E-01	9.384E-02	1.598E-01	6.833E-02	3.586E-02
8.500E+05	9.203E-02	1.274E-01	8.600E-02	1.340E-01	6.292E-02	3.210E-02
1.000E+06	8.499E-02	1.083E-01	7.927E-02	1.150E-01	5.840E-02	2.912E-02

Table 3.1 Maxwellian-averaged capture cross sections (continued)

unit: barns

kT(eV)	47-Ag-107	47-Ag-109	47-Ag-110M	48-Cd-106	48-Cd-108	48-Cd-110
1.000E+03	3.343E+00	4.326E+00	1.001E+01	2.661E+00	3.171E+00	1.346E+00
2.000E+03	2.484E+00	2.901E+00	7.246E+00	2.120E+00	1.957E+00	9.135E-01
3.000E+03	2.113E+00	2.361E+00	6.020E+00	1.812E+00	1.549E+00	7.484E-01
5.000E+03	1.753E+00	1.879E+00	4.833E+00	1.456E+00	1.177E+00	5.874E-01
1.000E+04	1.363E+00	1.413E+00	3.730E+00	1.043E+00	8.100E-01	4.176E-01
1.500E+04	1.155E+00	1.188E+00	3.282E+00	8.416E-01	6.428E-01	3.379E-01
2.000E+04	1.017E+00	1.042E+00	3.024E+00	7.166E-01	5.415E-01	2.896E-01
2.500E+04	9.167E-01	9.357E-01	2.848E+00	6.305E-01	4.726E-01	2.571E-01
3.000E+04	8.406E-01	8.543E-01	2.714E+00	5.676E-01	4.227E-01	2.335E-01
3.500E+04	7.804E-01	7.893E-01	2.608E+00	5.195E-01	3.849E-01	2.157E-01
4.000E+04	7.311E-01	7.358E-01	2.519E+00	4.818E-01	3.555E-01	2.019E-01
5.000E+04	6.546E-01	6.527E-01	2.375E+00	4.267E-01	3.130E-01	1.818E-01
6.000E+04	5.969E-01	5.903E-01	2.262E+00	3.887E-01	2.841E-01	1.682E-01
7.000E+04	5.512E-01	5.415E-01	2.170E+00	3.612E-01	2.636E-01	1.585E-01
8.000E+04	5.135E-01	5.020E-01	2.091E+00	3.407E-01	2.485E-01	1.513E-01
1.000E+05	4.545E-01	4.412E-01	1.964E+00	3.124E-01	2.280E-01	1.417E-01
1.200E+05	4.095E-01	3.962E-01	1.862E+00	2.940E-01	2.151E-01	1.356E-01
1.500E+05	3.586E-01	3.464E-01	1.741E+00	2.760E-01	2.026E-01	1.297E-01
1.700E+05	3.321E-01	3.208E-01	1.673E+00	2.674E-01	1.967E-01	1.268E-01
2.000E+05	3.001E-01	2.899E-01	1.584E+00	2.575E-01	1.899E-01	1.233E-01
2.500E+05	2.607E-01	2.518E-01	1.458E+00	2.458E-01	1.819E-01	1.186E-01
3.000E+05	2.324E-01	2.240E-01	1.351E+00	2.378E-01	1.763E-01	1.148E-01
5.000E+05	1.697E-01	1.603E-01	1.028E+00	2.221E-01	1.645E-01	1.036E-01
7.000E+05	1.382E-01	1.273E-01	8.075E-01	2.131E-01	1.579E-01	9.485E-02
8.500E+05	1.223E-01	1.105E-01	6.850E-01	2.057E-01	1.533E-01	8.889E-02
1.000E+06	1.098E-01	9.760E-02	5.882E-01	1.973E-01	1.485E-01	8.332E-02

kT(eV)	48-Cd-111	48-Cd-112	48-Cd-113	48-Cd-114	48-Cd-116	49-In-113
1.000E+03	2.946E+00	1.278E+00	2.830E+00	1.628E+00	4.193E-01	4.276E+00
2.000E+03	2.412E+00	9.445E-01	2.099E+00	8.990E-01	3.345E-01	3.280E+00
3.000E+03	2.169E+00	7.797E-01	1.779E+00	6.521E-01	2.858E-01	2.734E+00
5.000E+03	1.894E+00	5.976E-01	1.452E+00	4.539E-01	2.303E-01	2.155E+00
1.000E+04	1.546E+00	4.040E-01	1.095E+00	2.904E-01	1.645E-01	1.561E+00
1.500E+04	1.351E+00	3.190E-01	9.206E-01	2.259E-01	1.323E-01	1.292E+00
2.000E+04	1.219E+00	2.699E-01	8.094E-01	1.899E-01	1.131E-01	1.126E+00
2.500E+04	1.121E+00	2.376E-01	7.306E-01	1.666E-01	1.003E-01	1.011E+00
3.000E+04	1.044E+00	2.148E-01	6.712E-01	1.504E-01	9.123E-02	9.240E-01
3.500E+04	9.822E-01	1.978E-01	6.245E-01	1.384E-01	8.450E-02	8.559E-01
4.000E+04	9.306E-01	1.847E-01	5.867E-01	1.293E-01	7.933E-02	8.007E-01
5.000E+04	8.488E-01	1.660E-01	5.288E-01	1.164E-01	7.197E-02	7.164E-01
6.000E+04	7.859E-01	1.534E-01	4.860E-01	1.078E-01	6.704E-02	6.547E-01
7.000E+04	7.351E-01	1.445E-01	4.523E-01	1.017E-01	6.356E-02	6.076E-01
8.000E+04	6.926E-01	1.380E-01	4.246E-01	9.732E-02	6.098E-02	5.704E-01
1.000E+05	6.242E-01	1.293E-01	3.806E-01	9.132E-02	5.736E-02	5.159E-01
1.200E+05	5.707E-01	1.237E-01	3.460E-01	8.734E-02	5.481E-02	4.782E-01
1.500E+05	5.083E-01	1.181E-01	3.051E-01	8.305E-02	5.183E-02	4.400E-01
1.700E+05	4.750E-01	1.153E-01	2.830E-01	8.072E-02	5.013E-02	4.221E-01
2.000E+05	4.339E-01	1.118E-01	2.552E-01	7.765E-02	4.783E-02	4.022E-01
2.500E+05	3.818E-01	1.069E-01	2.195E-01	7.325E-02	4.450E-02	3.797E-01
3.000E+05	3.433E-01	1.028E-01	1.928E-01	6.946E-02	4.167E-02	3.638E-01
5.000E+05	2.542E-01	9.039E-02	1.312E-01	5.833E-02	3.368E-02	3.163E-01
7.000E+05	2.067E-01	8.097E-02	1.003E-01	5.083E-02	2.856E-02	2.734E-01
8.500E+05	1.816E-01	7.486E-02	8.531E-02	4.644E-02	2.562E-02	2.440E-01
1.000E+06	1.616E-01	6.934E-02	7.401E-02	4.271E-02	2.317E-02	2.176E-01

Table 3.1 Maxwellian-averaged capture cross sections (continued)

unit: barns

kT(eV)	49-In-115	50-Sn-112	50-Sn-114	50-Sn-115	50-Sn-116	50-Sn-117
1.000E+03	2.943E+00	1.169E+00	9.026E-01	1.600E+00	6.266E-01	1.161E+00
2.000E+03	2.448E+00	8.076E-01	6.023E-01	1.375E+00	4.615E-01	9.912E-01
3.000E+03	2.151E+00	6.599E-01	4.988E-01	1.187E+00	3.823E-01	8.886E-01
5.000E+03	1.775E+00	5.120E-01	3.950E-01	9.570E-01	2.955E-01	7.443E-01
1.000E+04	1.318E+00	3.577E-01	2.792E-01	6.918E-01	2.008E-01	5.503E-01
1.500E+04	1.091E+00	2.869E-01	2.240E-01	5.642E-01	1.581E-01	4.498E-01
2.000E+04	9.487E-01	2.447E-01	1.909E-01	4.858E-01	1.334E-01	3.868E-01
2.500E+04	8.484E-01	2.165E-01	1.688E-01	4.317E-01	1.173E-01	3.432E-01
3.000E+04	7.732E-01	1.962E-01	1.530E-01	3.920E-01	1.060E-01	3.108E-01
3.500E+04	7.142E-01	1.810E-01	1.412E-01	3.614E-01	9.768E-02	2.856E-01
4.000E+04	6.665E-01	1.692E-01	1.321E-01	3.372E-01	9.132E-02	2.653E-01
5.000E+04	5.940E-01	1.522E-01	1.191E-01	3.013E-01	8.231E-02	2.340E-01
6.000E+04	5.414E-01	1.407E-01	1.103E-01	2.762E-01	7.634E-02	2.109E-01
7.000E+04	5.014E-01	1.327E-01	1.042E-01	2.577E-01	7.218E-02	1.930E-01
8.000E+04	4.700E-01	1.268E-01	9.986E-02	2.435E-01	6.919E-02	1.787E-01
1.000E+05	4.241E-01	1.192E-01	9.431E-02	2.232E-01	6.539E-02	1.574E-01
1.200E+05	3.926E-01	1.150E-01	9.136E-02	2.090E-01	6.335E-02	1.423E-01
1.500E+05	3.605E-01	1.123E-01	8.965E-02	1.937E-01	6.209E-02	1.268E-01
1.700E+05	3.454E-01	1.118E-01	8.961E-02	1.856E-01	6.198E-02	1.193E-01
2.000E+05	3.284E-01	1.124E-01	9.050E-02	1.754E-01	6.245E-02	1.107E-01
2.500E+05	3.087E-01	1.151E-01	9.335E-02	1.618E-01	6.411E-02	1.007E-01
3.000E+05	2.944E-01	1.186E-01	9.678E-02	1.509E-01	6.609E-02	9.376E-02
5.000E+05	2.526E-01	1.300E-01	1.076E-01	1.221E-01	7.151E-02	7.780E-02
7.000E+05	2.178E-01	1.332E-01	1.104E-01	1.044E-01	7.132E-02	6.853E-02
8.500E+05	1.951E-01	1.315E-01	1.087E-01	9.423E-02	6.887E-02	6.305E-02
1.000E+06	1.752E-01	1.276E-01	1.051E-01	8.560E-02	6.547E-02	5.823E-02

kT(eV)	50-Sn-118	50-Sn-119	50-Sn-120	50-Sn-122	50-Sn-123	50-Sn-124
1.000E+03	6.920E-01	1.018E+00	2.907E-01	1.963E-01	2.902E+00	1.258E-01
2.000E+03	4.178E-01	9.553E-01	2.089E-01	1.852E-01	1.842E+00	1.053E-01
3.000E+03	3.153E-01	8.501E-01	1.699E-01	1.504E-01	1.434E+00	8.433E-02
5.000E+03	2.210E-01	6.952E-01	1.274E-01	1.005E-01	1.059E+00	5.840E-02
1.000E+04	1.361E-01	4.860E-01	8.335E-02	5.203E-02	7.057E-01	3.315E-02
1.500E+04	1.032E-01	3.754E-01	6.437E-02	3.687E-02	5.538E-01	2.403E-02
2.000E+04	8.554E-02	3.064E-01	5.347E-02	3.012E-02	4.647E-01	1.950E-02
2.500E+04	7.453E-02	2.596E-01	4.643E-02	2.637E-02	4.049E-01	1.682E-02
3.000E+04	6.703E-02	2.260E-01	4.157E-02	2.399E-02	3.616E-01	1.507E-02
3.500E+04	6.160E-02	2.008E-01	3.804E-02	2.232E-02	3.286E-01	1.383E-02
4.000E+04	5.752E-02	1.814E-01	3.539E-02	2.109E-02	3.026E-01	1.292E-02
5.000E+04	5.183E-02	1.535E-01	3.170E-02	1.939E-02	2.640E-01	1.166E-02
6.000E+04	4.809E-02	1.347E-01	2.930E-02	1.825E-02	2.368E-01	1.084E-02
7.000E+04	4.551E-02	1.212E-01	2.765E-02	1.745E-02	2.165E-01	1.027E-02
8.000E+04	4.365E-02	1.112E-01	2.647E-02	1.685E-02	2.008E-01	9.862E-03
1.000E+05	4.129E-02	9.739E-02	2.497E-02	1.605E-02	1.781E-01	9.324E-03
1.200E+05	3.999E-02	8.845E-02	2.413E-02	1.558E-02	1.625E-01	9.016E-03
1.500E+05	3.914E-02	7.979E-02	2.354E-02	1.519E-02	1.464E-01	8.795E-03
1.700E+05	3.899E-02	7.580E-02	2.341E-02	1.507E-02	1.388E-01	8.740E-03
2.000E+05	3.914E-02	7.130E-02	2.342E-02	1.499E-02	1.300E-01	8.732E-03
2.500E+05	3.985E-02	6.599E-02	2.369E-02	1.498E-02	1.196E-01	8.806E-03
3.000E+05	4.071E-02	6.205E-02	2.402E-02	1.500E-02	1.124E-01	8.895E-03
5.000E+05	4.259E-02	5.153E-02	2.447E-02	1.460E-02	9.366E-02	8.885E-03
7.000E+05	4.144E-02	4.445E-02	2.340E-02	1.360E-02	8.007E-02	8.359E-03
8.500E+05	3.942E-02	4.019E-02	2.207E-02	1.269E-02	7.144E-02	7.817E-03
1.000E+06	3.699E-02	3.654E-02	2.058E-02	1.177E-02	6.393E-02	7.246E-03

Table 3.1 Maxwellian-averaged capture cross sections (continued)

unit: barns

kT(eV)	50-Sn-126	51-Sb-121	51-Sb-123	51-Sb-124	51-Sb-125	52-Te-120
1.000E+03	2.360E-02	2.836E+00	1.903E+00	3.498E+00	2.591E+00	1.964E+00
2.000E+03	3.367E-02	2.103E+00	1.393E+00	2.551E+00	1.812E+00	1.233E+00
3.000E+03	3.270E-02	1.770E+00	1.152E+00	2.167E+00	1.498E+00	9.598E-01
5.000E+03	2.747E-02	1.408E+00	8.932E-01	1.803E+00	1.198E+00	7.178E-01
1.000E+04	1.925E-02	1.006E+00	6.135E-01	1.439E+00	8.899E-01	4.994E-01
1.500E+04	1.539E-02	8.062E-01	4.849E-01	1.259E+00	7.412E-01	4.074E-01
2.000E+04	1.321E-02	6.790E-01	4.080E-01	1.138E+00	6.463E-01	3.537E-01
2.500E+04	1.182E-02	5.893E-01	3.561E-01	1.045E+00	5.785E-01	3.178E-01
3.000E+04	1.085E-02	5.223E-01	3.184E-01	9.704E-01	5.271E-01	2.919E-01
3.500E+04	1.013E-02	4.704E-01	2.896E-01	9.074E-01	4.866E-01	2.724E-01
4.000E+04	9.588E-03	4.291E-01	2.667E-01	8.533E-01	4.538E-01	2.572E-01
5.000E+04	8.802E-03	3.676E-01	2.326E-01	7.643E-01	4.037E-01	2.351E-01
6.000E+04	8.267E-03	3.241E-01	2.082E-01	6.933E-01	3.673E-01	2.200E-01
7.000E+04	7.882E-03	2.920E-01	1.898E-01	6.350E-01	3.395E-01	2.091E-01
8.000E+04	7.594E-03	2.674E-01	1.755E-01	5.862E-01	3.177E-01	2.009E-01
1.000E+05	7.206E-03	2.324E-01	1.547E-01	5.087E-01	2.855E-01	1.895E-01
1.200E+05	6.973E-03	2.090E-01	1.405E-01	4.498E-01	2.629E-01	1.817E-01
1.500E+05	6.789E-03	1.859E-01	1.263E-01	3.838E-01	2.394E-01	1.734E-01
1.700E+05	6.732E-03	1.752E-01	1.198E-01	3.498E-01	2.281E-01	1.690E-01
2.000E+05	6.699E-03	1.633E-01	1.126E-01	3.091E-01	2.153E-01	1.633E-01
2.500E+05	6.704E-03	1.501E-01	1.048E-01	2.592E-01	2.005E-01	1.556E-01
3.000E+05	6.718E-03	1.411E-01	9.975E-02	2.236E-01	1.904E-01	1.494E-01
5.000E+05	6.506E-03	1.201E-01	8.788E-02	1.447E-01	1.679E-01	1.340E-01
7.000E+05	5.956E-03	1.061E-01	7.903E-02	1.066E-01	1.532E-01	1.249E-01
8.500E+05	5.475E-03	9.716E-02	7.292E-02	8.842E-02	1.429E-01	1.191E-01
1.000E+06	5.000E-03	8.915E-02	6.724E-02	7.508E-02	1.328E-01	1.134E-01

kT(eV)	52-Te-122	52-Te-123	52-Te-124	52-Te-125	52-Te-126	52-Te-127M
1.000E+03	2.181E+00	5.500E+00	9.531E-01	2.591E+00	6.099E-01	6.637E+00
2.000E+03	1.208E+00	3.511E+00	6.534E-01	1.625E+00	4.162E-01	4.187E+00
3.000E+03	9.087E-01	2.721E+00	5.262E-01	1.293E+00	3.303E-01	3.223E+00
5.000E+03	6.651E-01	2.006E+00	4.008E-01	1.019E+00	2.503E-01	2.351E+00
1.000E+04	4.567E-01	1.376E+00	2.727E-01	7.563E-01	1.715E-01	1.581E+00
1.500E+04	3.709E-01	1.125E+00	2.160E-01	6.223E-01	1.352E-01	1.272E+00
2.000E+04	3.212E-01	9.816E-01	1.835E-01	5.330E-01	1.139E-01	1.094E+00
2.500E+04	2.882E-01	8.854E-01	1.625E-01	4.686E-01	1.002E-01	9.757E-01
3.000E+04	2.646E-01	8.148E-01	1.478E-01	4.199E-01	9.064E-02	8.892E-01
3.500E+04	2.469E-01	7.599E-01	1.371E-01	3.820E-01	8.366E-02	8.226E-01
4.000E+04	2.332E-01	7.152E-01	1.289E-01	3.517E-01	7.835E-02	7.693E-01
5.000E+04	2.134E-01	6.461E-01	1.173E-01	3.067E-01	7.088E-02	6.887E-01
6.000E+04	1.999E-01	5.940E-01	1.096E-01	2.749E-01	6.593E-02	6.298E-01
7.000E+04	1.903E-01	5.528E-01	1.042E-01	2.513E-01	6.247E-02	5.844E-01
8.000E+04	1.832E-01	5.192E-01	1.003E-01	2.331E-01	5.994E-02	5.481E-01
1.000E+05	1.734E-01	4.670E-01	9.499E-02	2.066E-01	5.658E-02	4.931E-01
1.200E+05	1.669E-01	4.277E-01	9.161E-02	1.877E-01	5.448E-02	4.531E-01
1.500E+05	1.601E-01	3.831E-01	8.816E-02	1.672E-01	5.243E-02	4.097E-01
1.700E+05	1.566E-01	3.594E-01	8.641E-02	1.566E-01	5.143E-02	3.880E-01
2.000E+05	1.522E-01	3.300E-01	8.420E-02	1.437E-01	5.018E-02	3.622E-01
2.500E+05	1.464E-01	2.920E-01	8.123E-02	1.273E-01	4.851E-02	3.307E-01
3.000E+05	1.420E-01	2.630E-01	7.885E-02	1.150E-01	4.715E-02	3.073E-01
5.000E+05	1.319E-01	1.926E-01	7.209E-02	8.574E-02	4.323E-02	2.453E-01
7.000E+05	1.257E-01	1.541E-01	6.649E-02	6.958E-02	4.010E-02	2.020E-01
8.500E+05	1.210E-01	1.341E-01	6.232E-02	6.093E-02	3.779E-02	1.761E-01
1.000E+06	1.160E-01	1.185E-01	5.822E-02	5.398E-02	3.551E-02	1.546E-01

Table 3.1 Maxwellian-averaged capture cross sections (continued)

unit: barns

kT(eV)	52-Te-128	52-Te-129M	52-Te-130	53-I -127	53-I -129	53-I -131
1.000E+03	2.302E-01	5.830E+00	5.002E-02	4.564E+00	2.407E+00	2.417E+00
2.000E+03	1.499E-01	3.639E+00	5.075E-02	3.009E+00	1.710E+00	1.472E+00
3.000E+03	1.202E-01	2.789E+00	4.626E-02	2.387E+00	1.410E+00	1.118E+00
5.000E+03	9.346E-02	2.025E+00	3.631E-02	1.795E+00	1.108E+00	8.025E-01
1.000E+04	6.700E-02	1.354E+00	2.384E-02	1.233E+00	7.953E-01	5.198E-01
1.500E+04	5.503E-02	1.084E+00	1.918E-02	9.910E-01	6.473E-01	4.043E-01
2.000E+04	4.800E-02	9.289E-01	1.682E-02	8.454E-01	5.544E-01	3.385E-01
2.500E+04	4.335E-02	8.254E-01	1.535E-02	7.441E-01	4.893E-01	2.950E-01
3.000E+04	4.004E-02	7.503E-01	1.432E-02	6.682E-01	4.409E-01	2.638E-01
3.500E+04	3.755E-02	6.927E-01	1.354E-02	6.086E-01	4.035E-01	2.401E-01
4.000E+04	3.561E-02	6.468E-01	1.293E-02	5.604E-01	3.735E-01	2.213E-01
5.000E+04	3.279E-02	5.781E-01	1.202E-02	4.869E-01	3.287E-01	1.933E-01
6.000E+04	3.085E-02	5.288E-01	1.137E-02	4.332E-01	2.966E-01	1.732E-01
7.000E+04	2.946E-02	4.913E-01	1.091E-02	3.922E-01	2.725E-01	1.579E-01
8.000E+04	2.843E-02	4.619E-01	1.055E-02	3.598E-01	2.537E-01	1.460E-01
1.000E+05	2.706E-02	4.182E-01	1.009E-02	3.118E-01	2.261E-01	1.283E-01
1.200E+05	2.624E-02	3.871E-01	9.818E-03	2.777E-01	2.067E-01	1.159E-01
1.500E+05	2.550E-02	3.541E-01	9.600E-03	2.415E-01	1.860E-01	1.028E-01
1.700E+05	2.516E-02	3.381E-01	9.515E-03	2.235E-01	1.756E-01	9.629E-02
2.000E+05	2.475E-02	3.196E-01	9.422E-03	2.023E-01	1.630E-01	8.863E-02
2.500E+05	2.418E-02	2.986E-01	9.279E-03	1.766E-01	1.471E-01	7.916E-02
3.000E+05	2.364E-02	2.846E-01	9.117E-03	1.582E-01	1.350E-01	7.206E-02
5.000E+05	2.154E-02	2.514E-01	8.290E-03	1.158E-01	1.041E-01	5.387E-02
7.000E+05	1.945E-02	2.229E-01	7.401E-03	9.293E-02	8.511E-02	4.282E-02
8.500E+05	1.791E-02	2.017E-01	6.771E-03	8.092E-02	7.445E-02	3.681E-02
1.000E+06	1.647E-02	1.819E-01	6.191E-03	7.141E-02	6.575E-02	3.206E-02

kT(eV)	54-Xe-124	54-Xe-126	54-Xe-128	54-Xe-129	54-Xe-130	54-Xe-131
1.000E+03	6.758E+00	4.793E+00	1.365E+00	4.649E+00	1.791E+00	2.837E+00
2.000E+03	4.503E+00	2.947E+00	9.922E-01	2.911E+00	1.370E+00	1.816E+00
3.000E+03	3.537E+00	2.241E+00	8.299E-01	2.134E+00	1.088E+00	1.409E+00
5.000E+03	2.636E+00	1.632E+00	6.601E-01	1.445E+00	7.862E-01	1.033E+00
1.000E+04	1.839E+00	1.122E+00	4.796E-01	8.935E-01	5.116E-01	6.888E-01
1.500E+04	1.527E+00	9.252E-01	3.963E-01	6.872E-01	4.055E-01	5.452E-01
2.000E+04	1.353E+00	8.134E-01	3.461E-01	5.699E-01	3.469E-01	4.618E-01
2.500E+04	1.238E+00	7.390E-01	3.121E-01	4.916E-01	3.092E-01	4.058E-01
3.000E+04	1.155E+00	6.851E-01	2.875E-01	4.350E-01	2.826E-01	3.650E-01
3.500E+04	1.091E+00	6.441E-01	2.688E-01	3.920E-01	2.629E-01	3.338E-01
4.000E+04	1.041E+00	6.116E-01	2.543E-01	3.583E-01	2.478E-01	3.089E-01
5.000E+04	9.653E-01	5.636E-01	2.331E-01	3.088E-01	2.261E-01	2.717E-01
6.000E+04	9.115E-01	5.299E-01	2.186E-01	2.741E-01	2.114E-01	2.448E-01
7.000E+04	8.709E-01	5.049E-01	2.079E-01	2.484E-01	2.010E-01	2.243E-01
8.000E+04	8.391E-01	4.856E-01	1.998E-01	2.284E-01	1.933E-01	2.081E-01
1.000E+05	7.923E-01	4.571E-01	1.878E-01	1.988E-01	1.826E-01	1.835E-01
1.200E+05	7.592E-01	4.367E-01	1.790E-01	1.775E-01	1.754E-01	1.653E-01
1.500E+05	7.247E-01	4.145E-01	1.688E-01	1.542E-01	1.678E-01	1.451E-01
1.700E+05	7.082E-01	4.032E-01	1.633E-01	1.422E-01	1.637E-01	1.346E-01
2.000E+05	6.898E-01	3.898E-01	1.563E-01	1.277E-01	1.586E-01	1.218E-01
2.500E+05	6.704E-01	3.741E-01	1.472E-01	1.098E-01	1.519E-01	1.058E-01
3.000E+05	6.598E-01	3.639E-01	1.404E-01	9.666E-02	1.466E-01	9.407E-02
5.000E+05	6.541E-01	3.505E-01	1.257E-01	6.707E-02	1.337E-01	6.717E-02
7.000E+05	6.596E-01	3.514E-01	1.182E-01	5.225E-02	1.250E-01	5.344E-02
8.500E+05	6.580E-01	3.511E-01	1.133E-01	4.491E-02	1.189E-01	4.650E-02
1.000E+06	6.498E-01	3.480E-01	1.083E-01	3.930E-02	1.128E-01	4.110E-02

Table 3.1 Maxwellian-averaged capture cross sections (continued)

unit: barns

kT(eV)	54-Xe-132	54-Xe-133	54-Xe-134	54-Xe-135	54-Xe-136	55-Cs-133
1.000E+03	1.113E+00	1.180E+00	1.771E-01	6.254E-01	1.664E-02	3.768E+00
2.000E+03	5.971E-01	7.305E-01	1.355E-01	3.928E-01	1.211E-02	2.309E+00
3.000E+03	4.035E-01	5.587E-01	1.117E-01	3.011E-01	7.732E-03	1.807E+00
5.000E+03	2.406E-01	4.017E-01	8.434E-02	2.150E-01	3.862E-03	1.361E+00
1.000E+04	1.219E-01	2.573E-01	5.309E-02	1.351E-01	1.628E-03	9.381E-01
1.500E+04	8.560E-02	1.981E-01	4.013E-02	1.028E-01	1.212E-03	7.535E-01
2.000E+04	6.853E-02	1.647E-01	3.329E-02	8.501E-02	1.061E-03	6.433E-01
2.500E+04	5.870E-02	1.430E-01	2.910E-02	7.357E-02	9.623E-04	5.679E-01
3.000E+04	5.231E-02	1.278E-01	2.628E-02	6.557E-02	8.791E-04	5.120E-01
3.500E+04	4.784E-02	1.164E-01	2.425E-02	5.963E-02	8.056E-04	4.684E-01
4.000E+04	4.452E-02	1.075E-01	2.271E-02	5.504E-02	7.408E-04	4.333E-01
5.000E+04	3.994E-02	9.452E-02	2.055E-02	4.837E-02	6.355E-04	3.799E-01
6.000E+04	3.694E-02	8.535E-02	1.911E-02	4.373E-02	5.570E-04	3.408E-01
7.000E+04	3.483E-02	7.844E-02	1.810E-02	4.030E-02	4.991E-04	3.110E-01
8.000E+04	3.327E-02	7.298E-02	1.736E-02	3.765E-02	4.571E-04	2.873E-01
1.000E+05	3.116E-02	6.474E-02	1.640E-02	3.379E-02	4.082E-04	2.521E-01
1.200E+05	2.978E-02	5.865E-02	1.584E-02	3.108E-02	3.915E-04	2.269E-01
1.500E+05	2.834E-02	5.181E-02	1.538E-02	2.816E-02	4.026E-04	1.996E-01
1.700E+05	2.759E-02	4.822E-02	1.520E-02	2.668E-02	4.237E-04	1.857E-01
2.000E+05	2.661E-02	4.377E-02	1.502E-02	2.490E-02	4.651E-04	1.688E-01
2.500E+05	2.520E-02	3.805E-02	1.479E-02	2.264E-02	5.399E-04	1.473E-01
3.000E+05	2.397E-02	3.374E-02	1.455E-02	2.093E-02	6.066E-04	1.311E-01
5.000E+05	2.018E-02	2.352E-02	1.347E-02	1.657E-02	7.342E-04	9.128E-02
7.000E+05	1.751E-02	1.828E-02	1.230E-02	1.383E-02	7.239E-04	6.975E-02
8.500E+05	1.591E-02	1.570E-02	1.145E-02	1.227E-02	6.839E-04	5.897E-02
1.000E+06	1.453E-02	1.375E-02	1.064E-02	1.097E-02	6.364E-04	5.083E-02

kT(eV)	55-Cs-134	55-Cs-135	55-Cs-136	55-Cs-137	56-Ba-130	56-Ba-132
1.000E+03	1.008E+01	2.080E+00	2.377E+00	6.787E-02	4.178E+00	2.897E+00
2.000E+03	6.583E+00	1.224E+00	1.390E+00	8.512E-02	2.649E+00	1.840E+00
3.000E+03	5.065E+00	9.118E-01	1.031E+00	7.956E-02	2.104E+00	1.424E+00
5.000E+03	3.620E+00	6.398E-01	7.201E-01	6.490E-02	1.605E+00	1.052E+00
1.000E+04	2.302E+00	4.041E-01	4.530E-01	4.395E-02	1.148E+00	7.325E-01
1.500E+04	1.781E+00	3.111E-01	3.483E-01	3.404E-02	9.632E-01	6.077E-01
2.000E+04	1.490E+00	2.591E-01	2.898E-01	2.826E-02	8.586E-01	5.372E-01
2.500E+04	1.298E+00	2.254E-01	2.517E-01	2.443E-02	7.893E-01	4.904E-01
3.000E+04	1.159E+00	2.016E-01	2.246E-01	2.169E-02	7.393E-01	4.565E-01
3.500E+04	1.053E+00	1.836E-01	2.040E-01	1.963E-02	7.012E-01	4.306E-01
4.000E+04	9.677E-01	1.696E-01	1.879E-01	1.801E-02	6.710E-01	4.102E-01
5.000E+04	8.372E-01	1.488E-01	1.638E-01	1.562E-02	6.262E-01	3.802E-01
6.000E+04	7.401E-01	1.340E-01	1.464E-01	1.395E-02	5.946E-01	3.594E-01
7.000E+04	6.639E-01	1.228E-01	1.333E-01	1.272E-02	5.713E-01	3.444E-01
8.000E+04	6.019E-01	1.140E-01	1.228E-01	1.177E-02	5.534E-01	3.332E-01
1.000E+05	5.064E-01	1.009E-01	1.070E-01	1.041E-02	5.284E-01	3.180E-01
1.200E+05	4.361E-01	9.146E-02	9.556E-02	9.500E-03	5.122E-01	3.083E-01
1.500E+05	3.596E-01	8.142E-02	8.302E-02	8.589E-03	4.976E-01	2.994E-01
1.700E+05	3.214E-01	7.645E-02	7.662E-02	8.169E-03	4.920E-01	2.957E-01
2.000E+05	2.767E-01	7.062E-02	6.891E-02	7.715E-03	4.878E-01	2.923E-01
2.500E+05	2.240E-01	6.359E-02	5.929E-02	7.251E-03	4.881E-01	2.903E-01
3.000E+05	1.878E-01	5.848E-02	5.216E-02	6.995E-03	4.937E-01	2.912E-01
5.000E+05	1.136E-01	4.557E-02	3.508E-02	6.648E-03	5.339E-01	3.032E-01
7.000E+05	8.103E-02	3.731E-02	2.594E-02	6.344E-03	5.710E-01	3.122E-01
8.500E+05	6.637E-02	3.260E-02	2.141E-02	6.009E-03	5.906E-01	3.144E-01
1.000E+06	5.593E-02	2.874E-02	1.805E-02	5.624E-03	6.034E-01	3.134E-01

Table 3.1 Maxwellian-averaged capture cross sections (continued)

unit: barns

kT(eV)	56-Ba-134	56-Ba-135	56-Ba-136	56-Ba-137	56-Ba-138	56-Ba-140
1.000E+03	8.212E-01	4.693E+00	3.783E-01	7.440E-01	3.382E-02	8.053E-03
2.000E+03	5.707E-01	3.051E+00	2.849E-01	4.314E-01	2.146E-02	5.717E-03
3.000E+03	4.965E-01	2.284E+00	2.353E-01	3.107E-01	1.539E-02	4.810E-03
5.000E+03	4.311E-01	1.569E+00	1.746E-01	2.063E-01	1.038E-02	4.260E-03
1.000E+04	3.502E-01	9.725E-01	1.143E-01	1.224E-01	6.746E-03	4.054E-03
1.500E+04	3.032E-01	7.532E-01	9.182E-02	9.402E-02	5.591E-03	3.847E-03
2.000E+04	2.718E-01	6.336E-01	7.982E-02	7.954E-02	5.010E-03	3.625E-03
2.500E+04	2.492E-01	5.562E-01	7.219E-02	7.042E-02	4.618E-03	3.425E-03
3.000E+04	2.324E-01	5.013E-01	6.685E-02	6.396E-02	4.310E-03	3.252E-03
3.500E+04	2.194E-01	4.601E-01	6.289E-02	5.905E-02	4.054E-03	3.105E-03
4.000E+04	2.090E-01	4.278E-01	5.982E-02	5.516E-02	3.838E-03	2.981E-03
5.000E+04	1.938E-01	3.805E-01	5.543E-02	4.930E-02	3.494E-03	2.785E-03
6.000E+04	1.834E-01	3.472E-01	5.245E-02	4.507E-02	3.241E-03	2.640E-03
7.000E+04	1.761E-01	3.224E-01	5.034E-02	4.187E-02	3.054E-03	2.532E-03
8.000E+04	1.707E-01	3.030E-01	4.882E-02	3.935E-02	2.916E-03	2.448E-03
1.000E+05	1.637E-01	2.747E-01	4.690E-02	3.565E-02	2.741E-03	2.328E-03
1.200E+05	1.596E-01	2.545E-01	4.590E-02	3.305E-02	2.653E-03	2.240E-03
1.500E+05	1.562E-01	2.327E-01	4.533E-02	3.031E-02	2.620E-03	2.134E-03
1.700E+05	1.549E-01	2.216E-01	4.529E-02	2.896E-02	2.639E-03	2.070E-03
2.000E+05	1.538E-01	2.082E-01	4.547E-02	2.738E-02	2.706E-03	1.976E-03
2.500E+05	1.532E-01	1.914E-01	4.605E-02	2.549E-02	2.875E-03	1.828E-03
3.000E+05	1.537E-01	1.790E-01	4.669E-02	2.415E-02	3.068E-03	1.694E-03
5.000E+05	1.585E-01	1.476E-01	4.797E-02	2.104E-02	3.628E-03	1.297E-03
7.000E+05	1.613E-01	1.270E-01	4.678E-02	1.897E-02	3.744E-03	1.054E-03
8.500E+05	1.609E-01	1.144E-01	4.485E-02	1.756E-02	3.662E-03	9.268E-04
1.000E+06	1.586E-01	1.034E-01	4.250E-02	1.623E-02	3.515E-03	8.273E-04

kT(eV)	57-La-138	57-La-139	58-Ce-140	58-Ce-141	58-Ce-142	58-Ce-144
1.000E+03	2.641E+00	2.565E-01	1.245E-02	2.385E+00	1.982E-01	1.606E-01
2.000E+03	1.573E+00	1.909E-01	1.460E-02	1.450E+00	1.501E-01	1.069E-01
3.000E+03	1.193E+00	1.558E-01	1.423E-02	1.098E+00	1.142E-01	8.468E-02
5.000E+03	8.648E-01	1.167E-01	1.348E-02	7.869E-01	7.553E-02	6.298E-02
1.000E+04	5.791E-01	7.633E-02	1.159E-02	5.163E-01	4.131E-02	4.222E-02
1.500E+04	4.623E-01	5.906E-02	1.009E-02	4.081E-01	3.005E-02	3.387E-02
2.000E+04	3.942E-01	4.918E-02	8.956E-03	3.465E-01	2.473E-02	2.928E-02
2.500E+04	3.480E-01	4.269E-02	8.106E-03	3.057E-01	2.165E-02	2.635E-02
3.000E+04	3.140E-01	3.806E-02	7.462E-03	2.764E-01	1.964E-02	2.429E-02
3.500E+04	2.877E-01	3.456E-02	6.966E-03	2.542E-01	1.821E-02	2.276E-02
4.000E+04	2.665E-01	3.181E-02	6.579E-03	2.366E-01	1.714E-02	2.156E-02
5.000E+04	2.344E-01	2.772E-02	6.025E-03	2.106E-01	1.564E-02	1.981E-02
6.000E+04	2.108E-01	2.480E-02	5.660E-03	1.922E-01	1.464E-02	1.858E-02
7.000E+04	1.927E-01	2.260E-02	5.411E-03	1.785E-01	1.395E-02	1.765E-02
8.000E+04	1.784E-01	2.089E-02	5.238E-03	1.679E-01	1.345E-02	1.691E-02
1.000E+05	1.567E-01	1.838E-02	5.041E-03	1.526E-01	1.282E-02	1.576E-02
1.200E+05	1.412E-01	1.666E-02	4.965E-03	1.422E-01	1.244E-02	1.485E-02
1.500E+05	1.245E-01	1.493E-02	4.985E-03	1.318E-01	1.211E-02	1.375E-02
1.700E+05	1.161E-01	1.414E-02	5.057E-03	1.271E-01	1.194E-02	1.313E-02
2.000E+05	1.060E-01	1.328E-02	5.221E-03	1.221E-01	1.174E-02	1.234E-02
2.500E+05	9.350E-02	1.237E-02	5.586E-03	1.170E-01	1.143E-02	1.131E-02
3.000E+05	8.406E-02	1.181E-02	5.994E-03	1.140E-01	1.114E-02	1.054E-02
5.000E+05	6.010E-02	1.048E-02	7.265E-03	1.063E-01	1.020E-02	8.799E-03
7.000E+05	4.607E-02	9.322E-03	7.623E-03	9.719E-02	9.458E-03	7.869E-03
8.500E+05	3.875E-02	8.480E-03	7.495E-03	8.953E-02	8.937E-03	7.323E-03
1.000E+06	3.313E-02	7.697E-03	7.195E-03	8.193E-02	8.426E-03	6.831E-03

Table 3.1 Maxwellian-averaged capture cross sections (continued)

unit: barns

kT(eV)	59-Pr-141	59-Pr-143	60-Nd-142	60-Nd-143	60-Nd-144	60-Nd-145
1.000E+03	1.561E+00	1.226E+00	1.222E-01	3.288E+00	5.744E-01	4.723E+00
2.000E+03	8.719E-01	7.129E-01	1.169E-01	1.778E+00	3.111E-01	2.986E+00
3.000E+03	6.371E-01	5.286E-01	1.039E-01	1.293E+00	2.190E-01	2.278E+00
5.000E+03	4.329E-01	3.681E-01	8.503E-02	8.953E-01	1.513E-01	1.620E+00
1.000E+04	2.576E-01	2.286E-01	6.807E-02	5.647E-01	1.065E-01	1.030E+00
1.500E+04	1.916E-01	1.735E-01	6.273E-02	4.370E-01	9.151E-02	7.995E-01
2.000E+04	1.563E-01	1.426E-01	5.958E-02	3.663E-01	8.310E-02	6.722E-01
2.500E+04	1.341E-01	1.222E-01	5.716E-02	3.205E-01	7.736E-02	5.892E-01
3.000E+04	1.187E-01	1.077E-01	5.513E-02	2.881E-01	7.304E-02	5.298E-01
3.500E+04	1.072E-01	9.679E-02	5.339E-02	2.638E-01	6.961E-02	4.846E-01
4.000E+04	9.819E-02	8.822E-02	5.187E-02	2.448E-01	6.679E-02	4.490E-01
5.000E+04	8.494E-02	7.561E-02	4.939E-02	2.170E-01	6.240E-02	3.958E-01
6.000E+04	7.548E-02	6.677E-02	4.748E-02	1.973E-01	5.916E-02	3.577E-01
7.000E+04	6.834E-02	6.022E-02	4.602E-02	1.827E-01	5.671E-02	3.289E-01
8.000E+04	6.272E-02	5.518E-02	4.491E-02	1.714E-01	5.482E-02	3.064E-01
1.000E+05	5.446E-02	4.794E-02	4.349E-02	1.551E-01	5.220E-02	2.733E-01
1.200E+05	4.870E-02	4.300E-02	4.285E-02	1.441E-01	5.055E-02	2.499E-01
1.500E+05	4.282E-02	3.799E-02	4.291E-02	1.331E-01	4.901E-02	2.251E-01
1.700E+05	4.006E-02	3.562E-02	4.343E-02	1.282E-01	4.830E-02	2.126E-01
2.000E+05	3.701E-02	3.296E-02	4.473E-02	1.229E-01	4.746E-02	1.977E-01
2.500E+05	3.373E-02	2.995E-02	4.773E-02	1.175E-01	4.628E-02	1.788E-01
3.000E+05	3.167E-02	2.792E-02	5.117E-02	1.141E-01	4.519E-02	1.643E-01
5.000E+05	2.733E-02	2.304E-02	6.242E-02	1.038E-01	4.086E-02	1.255E-01
7.000E+05	2.419E-02	1.952E-02	6.665E-02	9.222E-02	3.666E-02	1.006E-01
8.500E+05	2.199E-02	1.725E-02	6.665E-02	8.335E-02	3.373E-02	8.663E-02
1.000E+06	1.995E-02	1.529E-02	6.517E-02	7.502E-02	3.101E-02	7.543E-02

kT(eV)	60-Nd-146	60-Nd-147	60-Nd-148	60-Nd-150	61-Pm-147	61-Pm-148
1.000E+03	5.041E-01	1.239E+01	1.201E+00	1.291E+00	1.194E+01	1.873E+01
2.000E+03	3.460E-01	7.211E+00	6.311E-01	7.435E-01	6.976E+00	1.122E+01
3.000E+03	2.781E-01	5.249E+00	4.461E-01	5.436E-01	5.097E+00	8.295E+00
5.000E+03	2.191E-01	3.535E+00	3.034E-01	3.792E-01	3.459E+00	5.682E+00
1.000E+04	1.689E-01	2.115E+00	1.991E-01	2.554E-01	2.102E+00	3.461E+00
1.500E+04	1.482E-01	1.594E+00	1.640E-01	2.133E-01	1.604E+00	2.634E+00
2.000E+04	1.360E-01	1.313E+00	1.460E-01	1.913E-01	1.338E+00	2.189E+00
2.500E+04	1.277E-01	1.134E+00	1.347E-01	1.767E-01	1.169E+00	1.906E+00
3.000E+04	1.215E-01	1.007E+00	1.268E-01	1.655E-01	1.051E+00	1.707E+00
3.500E+04	1.166E-01	9.119E-01	1.208E-01	1.561E-01	9.623E-01	1.559E+00
4.000E+04	1.126E-01	8.370E-01	1.161E-01	1.478E-01	8.934E-01	1.443E+00
5.000E+04	1.063E-01	7.254E-01	1.088E-01	1.335E-01	7.923E-01	1.273E+00
6.000E+04	1.017E-01	6.450E-01	1.033E-01	1.217E-01	7.214E-01	1.153E+00
7.000E+04	9.795E-02	5.838E-01	9.872E-02	1.117E-01	6.687E-01	1.063E+00
8.000E+04	9.488E-02	5.353E-01	9.475E-02	1.033E-01	6.281E-01	9.905E-01
1.000E+05	8.993E-02	4.630E-01	8.796E-02	9.013E-02	5.692E-01	8.812E-01
1.200E+05	8.592E-02	4.114E-01	8.220E-02	8.050E-02	5.283E-01	7.998E-01
1.500E+05	8.093E-02	3.567E-01	7.502E-02	7.031E-02	4.848E-01	7.074E-01
1.700E+05	7.809E-02	3.297E-01	7.102E-02	6.538E-02	4.627E-01	6.585E-01
2.000E+05	7.441E-02	2.982E-01	6.596E-02	5.978E-02	4.355E-01	5.976E-01
2.500E+05	6.947E-02	2.606E-01	5.940E-02	5.343E-02	3.991E-01	5.186E-01
3.000E+05	6.556E-02	2.339E-01	5.448E-02	4.920E-02	3.689E-01	4.581E-01
5.000E+05	5.488E-02	1.715E-01	4.272E-02	4.039E-02	2.788E-01	3.085E-01
7.000E+05	4.743E-02	1.361E-01	3.596E-02	3.548E-02	2.176E-01	2.273E-01
8.500E+05	4.285E-02	1.171E-01	3.213E-02	3.252E-02	1.838E-01	1.871E-01
1.000E+06	3.889E-02	1.021E-01	2.892E-02	2.988E-02	1.573E-01	1.571E-01

Table 3.1 Maxwellian-averaged capture cross sections (continued)

unit: barns

kT(eV)	61-Pm-148M	61-Pm-149	62-Sm-144	62-Sm-147	62-Sm-148	62-Sm-149
1.000E+03	2.792E+01	1.219E+01	3.433E-01	1.266E+01	2.292E+00	2.251E+01
2.000E+03	1.750E+01	7.017E+00	2.995E-01	7.229E+00	1.197E+00	1.362E+01
3.000E+03	1.324E+01	5.089E+00	2.520E-01	5.225E+00	8.589E-01	1.003E+01
5.000E+03	9.291E+00	3.423E+00	1.978E-01	3.499E+00	6.032E-01	6.787E+00
1.000E+04	5.768E+00	2.058E+00	1.424E-01	2.092E+00	4.061E-01	3.987E+00
1.500E+04	4.405E+00	1.563E+00	1.181E-01	1.587E+00	3.312E-01	2.946E+00
2.000E+04	3.665E+00	1.302E+00	1.041E-01	1.320E+00	2.898E-01	2.399E+00
2.500E+04	3.195E+00	1.138E+00	9.483E-02	1.151E+00	2.631E-01	2.061E+00
3.000E+04	2.868E+00	1.024E+00	8.822E-02	1.032E+00	2.445E-01	1.832E+00
3.500E+04	2.626E+00	9.392E-01	8.325E-02	9.428E-01	2.307E-01	1.666E+00
4.000E+04	2.439E+00	8.727E-01	7.936E-02	8.720E-01	2.200E-01	1.539E+00
5.000E+04	2.167E+00	7.733E-01	7.367E-02	7.661E-01	2.047E-01	1.359E+00
6.000E+04	1.977E+00	7.007E-01	6.977E-02	6.897E-01	1.943E-01	1.236E+00
7.000E+04	1.836E+00	6.441E-01	6.698E-02	6.316E-01	1.869E-01	1.144E+00
8.000E+04	1.725E+00	5.979E-01	6.495E-02	5.858E-01	1.813E-01	1.072E+00
1.000E+05	1.561E+00	5.260E-01	6.244E-02	5.179E-01	1.734E-01	9.639E-01
1.200E+05	1.442E+00	4.717E-01	6.128E-02	4.699E-01	1.679E-01	8.842E-01
1.500E+05	1.309E+00	4.106E-01	6.117E-02	4.191E-01	1.618E-01	7.943E-01
1.700E+05	1.238E+00	3.789E-01	6.185E-02	3.937E-01	1.584E-01	7.466E-01
2.000E+05	1.148E+00	3.404E-01	6.368E-02	3.635E-01	1.539E-01	6.871E-01
2.500E+05	1.027E+00	2.924E-01	6.809E-02	3.255E-01	1.476E-01	6.089E-01
3.000E+05	9.279E-01	2.569E-01	7.330E-02	2.961E-01	1.421E-01	5.478E-01
5.000E+05	6.514E-01	1.731E-01	9.182E-02	2.168E-01	1.249E-01	3.901E-01
7.000E+05	4.823E-01	1.287E-01	1.011E-01	1.668E-01	1.108E-01	2.989E-01
8.500E+05	3.950E-01	1.066E-01	1.032E-01	1.400E-01	1.015E-01	2.518E-01
1.000E+06	3.292E-01	9.009E-02	1.027E-01	1.192E-01	9.311E-02	2.156E-01

kT(eV)	62-Sm-150	62-Sm-151	62-Sm-152	62-Sm-153	62-Sm-154	63-Eu-151
1.000E+03	3.059E+00	1.970E+01	3.835E+00	9.028E+00	1.972E+00	3.064E+01
2.000E+03	1.819E+00	1.208E+01	2.056E+00	5.296E+00	1.176E+00	1.997E+01
3.000E+03	1.380E+00	9.076E+00	1.523E+00	3.863E+00	8.893E-01	1.552E+01
5.000E+03	1.004E+00	6.351E+00	1.111E+00	2.590E+00	6.449E-01	1.128E+01
1.000E+04	6.854E-01	3.990E+00	7.739E-01	1.518E+00	4.394E-01	7.254E+00
1.500E+04	5.616E-01	3.086E+00	6.408E-01	1.115E+00	3.593E-01	5.574E+00
2.000E+04	4.930E-01	2.582E+00	5.659E-01	8.949E-01	3.127E-01	4.625E+00
2.500E+04	4.491E-01	2.247E+00	5.161E-01	7.525E-01	2.800E-01	4.012E+00
3.000E+04	4.184E-01	2.003E+00	4.791E-01	6.515E-01	2.546E-01	3.581E+00
3.500E+04	3.957E-01	1.814E+00	4.496E-01	5.754E-01	2.341E-01	3.262E+00
4.000E+04	3.784E-01	1.661E+00	4.249E-01	5.157E-01	2.169E-01	3.015E+00
5.000E+04	3.534E-01	1.428E+00	3.850E-01	4.275E-01	1.899E-01	2.655E+00
6.000E+04	3.361E-01	1.257E+00	3.538E-01	3.652E-01	1.695E-01	2.402E+00
7.000E+04	3.230E-01	1.124E+00	3.285E-01	3.186E-01	1.537E-01	2.210E+00
8.000E+04	3.123E-01	1.017E+00	3.077E-01	2.824E-01	1.412E-01	2.058E+00
1.000E+05	2.950E-01	8.563E-01	2.757E-01	2.299E-01	1.229E-01	1.825E+00
1.200E+05	2.808E-01	7.402E-01	2.526E-01	1.936E-01	1.102E-01	1.651E+00
1.500E+05	2.632E-01	6.157E-01	2.282E-01	1.565E-01	9.753E-02	1.456E+00
1.700E+05	2.532E-01	5.540E-01	2.164E-01	1.387E-01	9.164E-02	1.353E+00
2.000E+05	2.404E-01	4.818E-01	2.027E-01	1.186E-01	8.516E-02	1.227E+00
2.500E+05	2.233E-01	3.964E-01	1.866E-01	9.586E-02	7.807E-02	1.066E+00
3.000E+05	2.099E-01	3.371E-01	1.750E-01	8.073E-02	7.345E-02	9.456E-01
5.000E+05	1.752E-01	2.114E-01	1.462E-01	5.074E-02	6.311E-02	6.563E-01
7.000E+05	1.532E-01	1.532E-01	1.274E-01	3.765E-02	5.629E-02	5.007E-01
8.500E+05	1.401E-01	1.261E-01	1.161E-01	3.160E-02	5.192E-02	4.222E-01
1.000E+06	1.289E-01	1.064E-01	1.064E-01	2.716E-02	4.798E-02	3.625E-01

Table 3.1 Maxwellian-averaged capture cross sections (continued)

unit: barns

kT(eV)	63-Eu-152	63-Eu-153	63-Eu-154	63-Eu-155	63-Eu-156	64-Gd-152
1.000E+03	2.826E+01	2.184E+01	2.507E+01	1.294E+01	7.466E+00	8.673E+00
2.000E+03	1.956E+01	1.398E+01	1.699E+01	7.736E+00	4.278E+00	4.954E+00
3.000E+03	1.574E+01	1.072E+01	1.347E+01	5.704E+00	3.094E+00	3.731E+00
5.000E+03	1.194E+01	7.652E+00	1.002E+01	3.891E+00	2.066E+00	2.670E+00
1.000E+04	8.201E+00	4.883E+00	6.691E+00	2.352E+00	1.204E+00	1.754E+00
1.500E+04	6.592E+00	3.800E+00	5.291E+00	1.782E+00	8.858E-01	1.404E+00
2.000E+04	5.655E+00	3.204E+00	4.488E+00	1.476E+00	7.185E-01	1.212E+00
2.500E+04	5.026E+00	2.816E+00	3.957E+00	1.280E+00	6.142E-01	1.087E+00
3.000E+04	4.568E+00	2.537E+00	3.574E+00	1.142E+00	5.421E-01	9.986E-01
3.500E+04	4.216E+00	2.324E+00	3.283E+00	1.037E+00	4.891E-01	9.327E-01
4.000E+04	3.936E+00	2.153E+00	3.052E+00	9.536E-01	4.482E-01	8.818E-01
5.000E+04	3.510E+00	1.892E+00	2.708E+00	8.280E-01	3.892E-01	8.089E-01
6.000E+04	3.199E+00	1.700E+00	2.462E+00	7.363E-01	3.485E-01	7.598E-01
7.000E+04	2.957E+00	1.550E+00	2.276E+00	6.657E-01	3.186E-01	7.246E-01
8.000E+04	2.762E+00	1.429E+00	2.130E+00	6.093E-01	2.956E-01	6.978E-01
1.000E+05	2.462E+00	1.245E+00	1.913E+00	5.242E-01	2.621E-01	6.590E-01
1.200E+05	2.237E+00	1.111E+00	1.758E+00	4.629E-01	2.386E-01	6.309E-01
1.500E+05	1.984E+00	9.646E-01	1.591E+00	3.974E-01	2.133E-01	5.993E-01
1.700E+05	1.852E+00	8.907E-01	1.507E+00	3.650E-01	2.004E-01	5.824E-01
2.000E+05	1.688E+00	8.029E-01	1.404E+00	3.273E-01	1.847E-01	5.611E-01
2.500E+05	1.478E+00	6.960E-01	1.274E+00	2.830E-01	1.648E-01	5.325E-01
3.000E+05	1.319E+00	6.189E-01	1.174E+00	2.524E-01	1.496E-01	5.092E-01
5.000E+05	9.229E-01	4.408E-01	9.001E-01	1.869E-01	1.107E-01	4.399E-01
7.000E+05	7.026E-01	3.444E-01	7.198E-01	1.535E-01	8.710E-02	3.868E-01
8.500E+05	5.901E-01	2.941E-01	6.176E-01	1.357E-01	7.433E-02	3.525E-01
1.000E+06	5.044E-01	2.548E-01	5.352E-01	1.213E-01	6.423E-02	3.220E-01

kT(eV)	64-Gd-154	64-Gd-155	64-Gd-156	64-Gd-157	64-Gd-158	64-Gd-160
1.000E+03	7.730E+00	2.057E+01	6.161E+00	1.238E+01	2.990E+00	2.375E+00
2.000E+03	4.495E+00	1.363E+01	3.421E+00	7.534E+00	1.677E+00	1.281E+00
3.000E+03	3.303E+00	1.068E+01	2.446E+00	5.650E+00	1.186E+00	8.711E-01
5.000E+03	2.292E+00	7.852E+00	1.657E+00	3.964E+00	8.055E-01	5.490E-01
1.000E+04	1.479E+00	5.220E+00	1.057E+00	2.515E+00	5.296E-01	3.232E-01
1.500E+04	1.188E+00	4.152E+00	8.474E-01	1.955E+00	4.316E-01	2.500E-01
2.000E+04	1.034E+00	3.544E+00	7.352E-01	1.637E+00	3.762E-01	2.108E-01
2.500E+04	9.372E-01	3.136E+00	6.617E-01	1.424E+00	3.379E-01	1.845E-01
3.000E+04	8.685E-01	2.835E+00	6.078E-01	1.268E+00	3.085E-01	1.649E-01
3.500E+04	8.161E-01	2.599E+00	5.656E-01	1.147E+00	2.847E-01	1.495E-01
4.000E+04	7.742E-01	2.407E+00	5.312E-01	1.051E+00	2.649E-01	1.369E-01
5.000E+04	7.098E-01	2.109E+00	4.779E-01	9.054E-01	2.338E-01	1.176E-01
6.000E+04	6.617E-01	1.887E+00	4.382E-01	8.005E-01	2.103E-01	1.035E-01
7.000E+04	6.240E-01	1.712E+00	4.075E-01	7.210E-01	1.921E-01	9.287E-02
8.000E+04	5.938E-01	1.569E+00	3.831E-01	6.585E-01	1.777E-01	8.457E-02
1.000E+05	5.483E-01	1.351E+00	3.470E-01	5.665E-01	1.564E-01	7.259E-02
1.200E+05	5.160E-01	1.189E+00	3.221E-01	5.015E-01	1.417E-01	6.449E-02
1.500E+05	4.828E-01	1.011E+00	2.970E-01	4.327E-01	1.268E-01	5.646E-02
1.700E+05	4.669E-01	9.202E-01	2.856E-01	3.985E-01	1.198E-01	5.277E-02
2.000E+05	4.488E-01	8.126E-01	2.732E-01	3.581E-01	1.121E-01	4.874E-02
2.500E+05	4.276E-01	6.823E-01	2.601E-01	3.090E-01	1.035E-01	4.436E-02
3.000E+05	4.123E-01	5.897E-01	2.515E-01	2.735E-01	9.763E-02	4.152E-02
5.000E+05	3.697E-01	3.870E-01	2.286E-01	1.915E-01	8.273E-02	3.539E-02
7.000E+05	3.357E-01	2.894E-01	2.079E-01	1.485E-01	7.188E-02	3.159E-02
8.500E+05	3.126E-01	2.429E-01	1.929E-01	1.268E-01	6.494E-02	2.915E-02
1.000E+06	2.914E-01	2.086E-01	1.787E-01	1.102E-01	5.883E-02	2.691E-02

Table 3.1 Maxwellian-averaged capture cross sections (continued)

unit: barns

kT(eV)	65-Tb-159	72-Hf-174	72-Hf-176	72-Hf-177	72-Hf-178	72-Hf-179
1.000E+03	1.327E+01	8.123E+00	3.491E+00	1.225E+01	2.353E+00	9.767E+00
2.000E+03	9.451E+00	4.724E+00	1.909E+00	7.376E+00	1.299E+00	5.608E+00
3.000E+03	7.652E+00	3.487E+00	1.415E+00	5.511E+00	9.627E-01	4.115E+00
5.000E+03	5.792E+00	2.441E+00	1.028E+00	3.873E+00	6.965E-01	2.848E+00
1.000E+04	3.918E+00	1.598E+00	7.265E-01	2.500E+00	4.854E-01	1.814E+00
1.500E+04	3.107E+00	1.293E+00	6.107E-01	1.987E+00	4.047E-01	1.430E+00
2.000E+04	2.632E+00	1.132E+00	5.425E-01	1.708E+00	3.575E-01	1.221E+00
2.500E+04	2.314E+00	1.029E+00	4.939E-01	1.527E+00	3.242E-01	1.085E+00
3.000E+04	2.081E+00	9.554E-01	4.560E-01	1.398E+00	2.982E-01	9.870E-01
3.500E+04	1.902E+00	8.989E-01	4.250E-01	1.299E+00	2.770E-01	9.113E-01
4.000E+04	1.759E+00	8.534E-01	3.989E-01	1.219E+00	2.592E-01	8.501E-01
5.000E+04	1.543E+00	7.830E-01	3.570E-01	1.097E+00	2.306E-01	7.554E-01
6.000E+04	1.383E+00	7.302E-01	3.247E-01	1.005E+00	2.087E-01	6.840E-01
7.000E+04	1.260E+00	6.886E-01	2.991E-01	9.322E-01	1.913E-01	6.273E-01
8.000E+04	1.160E+00	6.548E-01	2.782E-01	8.724E-01	1.772E-01	5.808E-01
1.000E+05	1.008E+00	6.034E-01	2.466E-01	7.785E-01	1.559E-01	5.083E-01
1.200E+05	8.942E-01	5.663E-01	2.241E-01	7.067E-01	1.408E-01	4.540E-01
1.500E+05	7.690E-01	5.273E-01	2.008E-01	6.247E-01	1.252E-01	3.937E-01
1.700E+05	7.051E-01	5.085E-01	1.898E-01	5.813E-01	1.179E-01	3.630E-01
2.000E+05	6.286E-01	4.872E-01	1.779E-01	5.279E-01	1.100E-01	3.264E-01
2.500E+05	5.351E-01	4.629E-01	1.652E-01	4.598E-01	1.015E-01	2.822E-01
3.000E+05	4.680E-01	4.462E-01	1.573E-01	4.087E-01	9.630E-02	2.507E-01
5.000E+05	3.172E-01	4.013E-01	1.391E-01	2.854E-01	8.414E-02	1.787E-01
7.000E+05	2.413E-01	3.621E-01	1.238E-01	2.179E-01	7.398E-02	1.392E-01
8.500E+05	2.038E-01	3.334E-01	1.127E-01	1.833E-01	6.674E-02	1.182E-01
1.000E+06	1.756E-01	3.060E-01	1.022E-01	1.568E-01	6.007E-02	1.017E-01

kT(eV)	72-Hf-180	73-Ta-181	74-W -182	74-W -183	74-W -184	74-W -186
1.000E+03	1.189E+00	8.988E+00	3.021E+00	4.309E+00	2.437E+00	2.013E+00
2.000E+03	7.633E-01	5.273E+00	1.564E+00	2.322E+00	1.283E+00	9.467E-01
3.000E+03	6.317E-01	3.865E+00	1.046E+00	1.700E+00	8.320E-01	6.037E-01
5.000E+03	5.121E-01	2.622E+00	6.521E-01	1.196E+00	4.907E-01	3.638E-01
1.000E+04	3.873E-01	1.574E+00	4.096E-01	7.946E-01	2.951E-01	2.414E-01
1.500E+04	3.267E-01	1.187E+00	3.436E-01	6.434E-01	2.490E-01	2.161E-01
2.000E+04	2.874E-01	9.795E-01	3.113E-01	5.566E-01	2.280E-01	2.041E-01
2.500E+04	2.581E-01	8.484E-01	2.900E-01	4.971E-01	2.141E-01	1.952E-01
3.000E+04	2.348E-01	7.567E-01	2.734E-01	4.523E-01	2.029E-01	1.871E-01
3.500E+04	2.156E-01	6.880E-01	2.592E-01	4.168E-01	1.930E-01	1.794E-01
4.000E+04	1.994E-01	6.341E-01	2.466E-01	3.875E-01	1.839E-01	1.719E-01
5.000E+04	1.735E-01	5.538E-01	2.248E-01	3.416E-01	1.676E-01	1.580E-01
6.000E+04	1.538E-01	4.959E-01	2.067E-01	3.067E-01	1.538E-01	1.457E-01
7.000E+04	1.382E-01	4.515E-01	1.915E-01	2.790E-01	1.420E-01	1.352E-01
8.000E+04	1.257E-01	4.162E-01	1.788E-01	2.565E-01	1.320E-01	1.261E-01
1.000E+05	1.070E-01	3.629E-01	1.590E-01	2.218E-01	1.165E-01	1.118E-01
1.200E+05	9.380E-02	3.244E-01	1.447E-01	1.964E-01	1.051E-01	1.013E-01
1.500E+05	8.021E-02	2.828E-01	1.300E-01	1.691E-01	9.338E-02	9.016E-02
1.700E+05	7.383E-02	2.621E-01	1.233E-01	1.556E-01	8.782E-02	8.476E-02
2.000E+05	6.681E-02	2.377E-01	1.163E-01	1.398E-01	8.165E-02	7.858E-02
2.500E+05	5.934E-02	2.086E-01	1.092E-01	1.212E-01	7.480E-02	7.137E-02
3.000E+05	5.480E-02	1.880E-01	1.052E-01	1.083E-01	7.015E-02	6.631E-02
5.000E+05	4.654E-02	1.409E-01	9.599E-02	7.963E-02	5.830E-02	5.411E-02
7.000E+05	4.167E-02	1.142E-01	8.681E-02	6.432E-02	4.964E-02	4.642E-02
8.500E+05	3.832E-02	9.935E-02	7.974E-02	5.620E-02	4.426E-02	4.187E-02
1.000E+06	3.513E-02	8.733E-02	7.299E-02	4.974E-02	3.969E-02	3.801E-02

Table 3.1 Maxwellian-averaged capture cross sections (continued)

unit: barns

kT(eV)	82-Pb-204	82-Pb-206	82-Pb-207	82-Pb-208	83-Bi-209	88-Ra-223
1.000E+03	6.488E-01	2.112E-02	2.117E-02	2.891E-06	5.740E-02	5.692E+00
2.000E+03	4.875E-01	2.879E-02	2.401E-02	2.338E-06	3.313E-02	3.446E+00
3.000E+03	3.811E-01	2.453E-02	2.035E-02	2.183E-06	2.354E-02	2.584E+00
5.000E+03	2.736E-01	1.979E-02	1.560E-02	2.792E-06	1.498E-02	1.822E+00
1.000E+04	1.652E-01	1.643E-02	1.260E-02	4.241E-05	7.780E-03	1.181E+00
1.500E+04	1.216E-01	1.433E-02	1.215E-02	1.849E-04	5.331E-03	9.315E-01
2.000E+04	9.773E-02	1.301E-02	1.133E-02	3.667E-04	4.172E-03	7.830E-01
2.500E+04	8.259E-02	1.229E-02	1.036E-02	5.238E-04	3.538E-03	6.790E-01
3.000E+04	7.215E-02	1.190E-02	9.458E-03	6.388E-04	3.166E-03	6.001E-01
3.500E+04	6.455E-02	1.165E-02	8.671E-03	7.151E-04	2.942E-03	5.379E-01
4.000E+04	5.880E-02	1.144E-02	8.000E-03	7.611E-04	2.808E-03	4.874E-01
5.000E+04	5.073E-02	1.102E-02	6.937E-03	7.934E-04	2.685E-03	4.104E-01
6.000E+04	4.540E-02	1.055E-02	6.136E-03	7.823E-04	2.658E-03	3.546E-01
7.000E+04	4.167E-02	1.005E-02	5.516E-03	7.534E-04	2.671E-03	3.124E-01
8.000E+04	3.895E-02	9.557E-03	5.028E-03	7.198E-04	2.701E-03	2.794E-01
1.000E+05	3.535E-02	8.699E-03	4.335E-03	6.597E-04	2.779E-03	2.312E-01
1.200E+05	3.317E-02	8.030E-03	3.899E-03	6.214E-04	2.862E-03	1.979E-01
1.500E+05	3.130E-02	7.330E-03	3.526E-03	6.100E-04	2.992E-03	1.637E-01
1.700E+05	3.055E-02	7.007E-03	3.387E-03	6.301E-04	3.085E-03	1.475E-01
2.000E+05	2.983E-02	6.661E-03	3.268E-03	6.933E-04	3.238E-03	1.293E-01
2.500E+05	2.910E-02	6.290E-03	3.191E-03	8.543E-04	3.527E-03	1.089E-01
3.000E+05	2.858E-02	6.047E-03	3.183E-03	1.041E-03	3.849E-03	9.557E-02
5.000E+05	2.665E-02	5.452E-03	3.342E-03	1.608E-03	5.075E-03	6.960E-02
7.000E+05	2.458E-02	5.043E-03	3.552E-03	1.791E-03	5.706E-03	5.712E-02
8.500E+05	2.302E-02	4.789E-03	3.673E-03	1.791E-03	5.793E-03	5.040E-02
1.000E+06	2.150E-02	4.562E-03	3.744E-03	1.740E-03	5.672E-03	4.486E-02

kT(eV)	88-Ra-224	88-Ra-225	88-Ra-226	89-Ac-225	89-Ac-226	89-Ac-227
1.000E+03	1.571E+00	6.669E+00	2.724E+00	1.223E+01	1.351E+01	1.316E+00
2.000E+03	9.835E-01	4.072E+00	1.857E+00	7.823E+00	8.817E+00	7.298E-01
3.000E+03	7.599E-01	3.062E+00	1.469E+00	6.018E+00	6.864E+00	5.365E-01
5.000E+03	5.593E-01	2.159E+00	1.094E+00	4.346E+00	5.030E+00	3.726E-01
1.000E+04	3.842E-01	1.371E+00	7.562E-01	2.861E+00	3.380E+00	2.269E-01
1.500E+04	3.155E-01	1.052E+00	6.219E-01	2.271E+00	2.738E+00	1.641E-01
2.000E+04	2.757E-01	8.667E-01	5.434E-01	1.937E+00	2.388E+00	1.273E-01
2.500E+04	2.478E-01	7.423E-01	4.885E-01	1.714E+00	2.165E+00	1.030E-01
3.000E+04	2.262E-01	6.518E-01	4.467E-01	1.553E+00	2.009E+00	8.578E-02
3.500E+04	2.085E-01	5.827E-01	4.133E-01	1.430E+00	1.894E+00	7.309E-02
4.000E+04	1.936E-01	5.277E-01	3.857E-01	1.331E+00	1.804E+00	6.340E-02
5.000E+04	1.696E-01	4.457E-01	3.426E-01	1.182E+00	1.671E+00	4.970E-02
6.000E+04	1.511E-01	3.871E-01	3.101E-01	1.073E+00	1.574E+00	4.060E-02
7.000E+04	1.364E-01	3.430E-01	2.845E-01	9.881E-01	1.494E+00	3.419E-02
8.000E+04	1.244E-01	3.086E-01	2.637E-01	9.200E-01	1.426E+00	2.949E-02
1.000E+05	1.061E-01	2.585E-01	2.321E-01	8.154E-01	1.305E+00	2.311E-02
1.200E+05	9.299E-02	2.239E-01	2.092E-01	7.375E-01	1.197E+00	1.904E-02
1.500E+05	7.936E-02	1.884E-01	1.850E-01	6.503E-01	1.056E+00	1.518E-02
1.700E+05	7.289E-02	1.714E-01	1.734E-01	6.050E-01	9.729E-01	1.344E-02
2.000E+05	6.575E-02	1.522E-01	1.605E-01	5.496E-01	8.637E-01	1.156E-02
2.500E+05	5.807E-02	1.300E-01	1.472E-01	4.795E-01	7.168E-01	9.514E-03
3.000E+05	5.337E-02	1.150E-01	1.400E-01	4.269E-01	6.040E-01	8.194E-03
5.000E+05	4.481E-02	8.228E-02	1.332E-01	2.988E-01	3.457E-01	5.537E-03
7.000E+05	3.994E-02	6.480E-02	1.314E-01	2.278E-01	2.272E-01	4.242E-03
8.500E+05	3.663E-02	5.551E-02	1.278E-01	1.912E-01	1.756E-01	3.584E-03
1.000E+06	3.352E-02	4.816E-02	1.225E-01	1.632E-01	1.403E-01	3.076E-03

Table 3.1 Maxwellian-averaged capture cross sections (continued)

unit: barns

kT(eV)	90-Th-227	90-Th-228	90-Th-229	90-Th-230	90-Th-232	90-Th-233
1.000E+03	1.103E+01	3.139E+00	1.141E+01	3.364E+00	2.584E+00	5.029E+00
2.000E+03	7.087E+00	1.894E+00	7.425E+00	1.940E+00	1.670E+00	3.108E+00
3.000E+03	5.453E+00	1.444E+00	5.764E+00	1.462E+00	1.346E+00	2.372E+00
5.000E+03	3.924E+00	1.059E+00	4.193E+00	1.067E+00	1.057E+00	1.714E+00
1.000E+04	2.548E+00	7.346E-01	2.733E+00	7.423E-01	7.761E-01	1.121E+00
1.500E+04	2.010E+00	6.040E-01	2.130E+00	6.112E-01	6.428E-01	8.761E-01
2.000E+04	1.715E+00	5.254E-01	1.786E+00	5.317E-01	5.568E-01	7.348E-01
2.500E+04	1.525E+00	4.699E-01	1.561E+00	4.752E-01	4.949E-01	6.403E-01
3.000E+04	1.390E+00	4.277E-01	1.400E+00	4.322E-01	4.478E-01	5.717E-01
3.500E+04	1.288E+00	3.941E-01	1.278E+00	3.980E-01	4.106E-01	5.191E-01
4.000E+04	1.209E+00	3.667E-01	1.184E+00	3.702E-01	3.805E-01	4.774E-01
5.000E+04	1.089E+00	3.245E-01	1.044E+00	3.277E-01	3.349E-01	4.152E-01
6.000E+04	1.003E+00	2.935E-01	9.448E-01	2.970E-01	3.020E-01	3.710E-01
7.000E+04	9.354E-01	2.697E-01	8.706E-01	2.739E-01	2.773E-01	3.381E-01
8.000E+04	8.811E-01	2.508E-01	8.125E-01	2.560E-01	2.583E-01	3.128E-01
1.000E+05	7.971E-01	2.225E-01	7.266E-01	2.303E-01	2.312E-01	2.767E-01
1.200E+05	7.335E-01	2.024E-01	6.655E-01	2.130E-01	2.134E-01	2.527E-01
1.500E+05	6.608E-01	1.814E-01	5.998E-01	1.955E-01	1.962E-01	2.292E-01
1.700E+05	6.222E-01	1.712E-01	5.668E-01	1.872E-01	1.885E-01	2.184E-01
2.000E+05	5.741E-01	1.597E-01	5.272E-01	1.778E-01	1.801E-01	2.065E-01
2.500E+05	5.116E-01	1.468E-01	4.780E-01	1.666E-01	1.705E-01	1.926E-01
3.000E+05	4.633E-01	1.383E-01	4.410E-01	1.586E-01	1.632E-01	1.822E-01
5.000E+05	3.395E-01	1.195E-01	3.442E-01	1.370E-01	1.393E-01	1.497E-01
7.000E+05	2.657E-01	1.057E-01	2.810E-01	1.197E-01	1.182E-01	1.229E-01
8.500E+05	2.262E-01	9.605E-02	2.443E-01	1.079E-01	1.047E-01	1.063E-01
1.000E+06	1.950E-01	8.702E-02	2.141E-01	9.710E-02	9.302E-02	9.234E-02

kT(eV)	90-Th-234	91-Pa-231	91-Pa-232	91-Pa-233	92-U -232	92-U -233
1.000E+03	2.945E+00	1.028E+01	7.780E+00	8.698E+00	3.500E+00	1.211E+00
2.000E+03	1.820E+00	7.067E+00	5.274E+00	6.049E+00	2.334E+00	8.044E-01
3.000E+03	1.410E+00	5.688E+00	4.157E+00	4.929E+00	1.798E+00	6.443E-01
5.000E+03	1.057E+00	4.387E+00	3.081E+00	3.864E+00	1.259E+00	5.130E-01
1.000E+04	7.480E-01	3.232E+00	2.092E+00	2.867E+00	7.329E-01	4.125E-01
1.500E+04	6.159E-01	2.779E+00	1.699E+00	2.435E+00	5.200E-01	3.735E-01
2.000E+04	5.337E-01	2.513E+00	1.477E+00	2.169E+00	4.035E-01	3.502E-01
2.500E+04	4.752E-01	2.323E+00	1.327E+00	1.978E+00	3.298E-01	3.337E-01
3.000E+04	4.308E-01	2.174E+00	1.215E+00	1.831E+00	2.790E-01	3.210E-01
3.500E+04	3.957E-01	2.049E+00	1.125E+00	1.712E+00	2.418E-01	3.106E-01
4.000E+04	3.674E-01	1.942E+00	1.051E+00	1.613E+00	2.135E-01	3.018E-01
5.000E+04	3.244E-01	1.765E+00	9.316E-01	1.460E+00	1.733E-01	2.875E-01
6.000E+04	2.936E-01	1.623E+00	8.378E-01	1.345E+00	1.462E-01	2.761E-01
7.000E+04	2.707E-01	1.505E+00	7.610E-01	1.256E+00	1.268E-01	2.665E-01
8.000E+04	2.532E-01	1.406E+00	6.967E-01	1.186E+00	1.124E-01	2.581E-01
1.000E+05	2.288E-01	1.248E+00	5.946E-01	1.083E+00	9.234E-02	2.437E-01
1.200E+05	2.133E-01	1.127E+00	5.170E-01	1.010E+00	7.931E-02	2.312E-01
1.500E+05	1.993E-01	9.890E-01	4.305E-01	9.325E-01	6.677E-02	2.147E-01
1.700E+05	1.935E-01	9.169E-01	3.864E-01	8.921E-01	6.117E-02	2.048E-01
2.000E+05	1.879E-01	8.291E-01	3.340E-01	8.408E-01	5.524E-02	1.914E-01
2.500E+05	1.823E-01	7.196E-01	2.711E-01	7.689E-01	4.925E-02	1.724E-01
3.000E+05	1.785E-01	6.393E-01	2.270E-01	7.073E-01	4.584E-02	1.571E-01
5.000E+05	1.617E-01	4.558E-01	1.343E-01	5.233E-01	4.011E-02	1.179E-01
7.000E+05	1.411E-01	3.618E-01	9.280E-02	4.043E-01	3.632E-02	9.569E-02
8.500E+05	1.260E-01	3.139E-01	7.414E-02	3.405E-01	3.340E-02	8.361E-02
1.000E+06	1.122E-01	2.762E-01	6.098E-02	2.911E-01	3.052E-02	7.382E-02

Table 3.1 Maxwellian-averaged capture cross sections (continued)

unit: barns

kT(eV)	92-U -234	92-U -235	92-U -236	92-U -237	92-U -238	93-Np-236
1.000E+03	3.981E+00	3.159E+00	3.439E+00	5.395E+00	2.666E+00	3.191E+00
2.000E+03	2.488E+00	2.139E+00	2.151E+00	3.383E+00	1.653E+00	2.257E+00
3.000E+03	1.926E+00	1.740E+00	1.679E+00	2.589E+00	1.288E+00	1.843E+00
5.000E+03	1.432E+00	1.373E+00	1.271E+00	1.869E+00	9.757E-01	1.428E+00
1.000E+04	9.983E-01	1.047E+00	9.122E-01	1.227E+00	7.019E-01	1.015E+00
1.500E+04	8.144E-01	9.157E-01	7.559E-01	9.693E-01	5.791E-01	8.449E-01
2.000E+04	7.008E-01	8.363E-01	6.571E-01	8.231E-01	5.001E-01	7.521E-01
2.500E+04	6.205E-01	7.786E-01	5.860E-01	7.256E-01	4.429E-01	6.943E-01
3.000E+04	5.600E-01	7.328E-01	5.315E-01	6.545E-01	3.992E-01	6.550E-01
3.500E+04	5.127E-01	6.946E-01	4.885E-01	5.996E-01	3.647E-01	6.265E-01
4.000E+04	4.748E-01	6.617E-01	4.535E-01	5.555E-01	3.368E-01	6.049E-01
5.000E+04	4.182E-01	6.068E-01	4.006E-01	4.884E-01	2.947E-01	5.738E-01
6.000E+04	3.787E-01	5.620E-01	3.627E-01	4.395E-01	2.647E-01	5.518E-01
7.000E+04	3.503E-01	5.245E-01	3.346E-01	4.019E-01	2.423E-01	5.347E-01
8.000E+04	3.296E-01	4.924E-01	3.133E-01	3.722E-01	2.251E-01	5.204E-01
1.000E+05	3.028E-01	4.403E-01	2.835E-01	3.282E-01	2.007E-01	4.970E-01
1.200E+05	2.880E-01	3.996E-01	2.645E-01	2.971E-01	1.845E-01	4.776E-01
1.500E+05	2.779E-01	3.528E-01	2.468E-01	2.645E-01	1.689E-01	4.532E-01
1.700E+05	2.756E-01	3.282E-01	2.390E-01	2.486E-01	1.618E-01	4.391E-01
2.000E+05	2.757E-01	2.980E-01	2.304E-01	2.301E-01	1.540E-01	4.206E-01
2.500E+05	2.798E-01	2.599E-01	2.197E-01	2.081E-01	1.448E-01	3.951E-01
3.000E+05	2.848E-01	2.315E-01	2.108E-01	1.922E-01	1.375E-01	3.740E-01
5.000E+05	2.921E-01	1.622E-01	1.782E-01	1.526E-01	1.131E-01	3.106E-01
7.000E+05	2.808E-01	1.235E-01	1.500E-01	1.263E-01	9.291E-02	2.611E-01
8.500E+05	2.666E-01	1.035E-01	1.321E-01	1.106E-01	8.071E-02	2.297E-01
1.000E+06	2.505E-01	8.812E-02	1.168E-01	9.735E-02	7.069E-02	2.028E-01

kT(eV)	93-Np-237	93-Np-238	93-Np-239	94-Pu-236	94-Pu-238	94-Pu-239
1.000E+03	1.142E+01	2.108E+00	1.375E+01	7.000E+00	5.371E+00	4.964E+00
2.000E+03	7.876E+00	1.560E+00	9.731E+00	4.489E+00	3.430E+00	3.292E+00
3.000E+03	6.380E+00	1.347E+00	7.965E+00	3.518E+00	2.674E+00	2.556E+00
5.000E+03	4.961E+00	1.166E+00	6.219E+00	2.659E+00	2.003E+00	1.830E+00
1.000E+04	3.634E+00	9.600E-01	4.452E+00	1.917E+00	1.415E+00	1.148E+00
1.500E+04	3.062E+00	8.022E-01	3.637E+00	1.615E+00	1.172E+00	8.751E-01
2.000E+04	2.708E+00	6.824E-01	3.142E+00	1.431E+00	1.025E+00	7.249E-01
2.500E+04	2.453E+00	5.956E-01	2.803E+00	1.301E+00	9.208E-01	6.290E-01
3.000E+04	2.253E+00	5.326E-01	2.553E+00	1.201E+00	8.415E-01	5.621E-01
3.500E+04	2.090E+00	4.862E-01	2.358E+00	1.121E+00	7.783E-01	5.126E-01
4.000E+04	1.954E+00	4.510E-01	2.201E+00	1.056E+00	7.264E-01	4.742E-01
5.000E+04	1.736E+00	4.021E-01	1.959E+00	9.525E-01	6.456E-01	4.181E-01
6.000E+04	1.569E+00	3.699E-01	1.776E+00	8.752E-01	5.852E-01	3.784E-01
7.000E+04	1.435E+00	3.470E-01	1.631E+00	8.145E-01	5.380E-01	3.485E-01
8.000E+04	1.326E+00	3.298E-01	1.511E+00	7.654E-01	4.999E-01	3.246E-01
1.000E+05	1.155E+00	3.049E-01	1.321E+00	6.895E-01	4.416E-01	2.882E-01
1.200E+05	1.026E+00	2.876E-01	1.176E+00	6.325E-01	3.984E-01	2.609E-01
1.500E+05	8.809E-01	2.690E-01	1.010E+00	5.673E-01	3.500E-01	2.299E-01
1.700E+05	8.055E-01	2.597E-01	9.232E-01	5.323E-01	3.248E-01	2.135E-01
2.000E+05	7.138E-01	2.485E-01	8.168E-01	4.880E-01	2.939E-01	1.931E-01
2.500E+05	5.994E-01	2.344E-01	6.834E-01	4.292E-01	2.551E-01	1.667E-01
3.000E+05	5.157E-01	2.233E-01	5.856E-01	3.829E-01	2.268E-01	1.467E-01
5.000E+05	3.262E-01	1.885E-01	3.645E-01	2.656E-01	1.630E-01	9.821E-02
7.000E+05	2.334E-01	1.591E-01	2.582E-01	2.018E-01	1.307E-01	7.249E-02
8.500E+05	1.897E-01	1.400E-01	2.094E-01	1.707E-01	1.139E-01	5.982E-02
1.000E+06	1.580E-01	1.235E-01	1.747E-01	1.477E-01	1.005E-01	5.040E-02

Table 3.1 Maxwellian-averaged capture cross sections (continued)

unit: barns

kT(eV)	94-Pu-240	94-Pu-241	94-Pu-242	95-Am-241	95-Am-242	95-Am-242M
1.000E+03	4.583E+00	3.065E+00	3.270E+00	1.226E+01	3.474E+00	2.856E+00
2.000E+03	2.893E+00	2.084E+00	2.357E+00	8.340E+00	2.361E+00	2.040E+00
3.000E+03	2.281E+00	1.672E+00	1.968E+00	6.668E+00	1.891E+00	1.695E+00
5.000E+03	1.747E+00	1.286E+00	1.577E+00	5.099E+00	1.445E+00	1.367E+00
1.000E+04	1.279E+00	9.303E-01	1.167E+00	3.675E+00	1.036E+00	1.064E+00
1.500E+04	1.075E+00	7.796E-01	9.600E-01	3.078E+00	8.706E-01	9.327E-01
2.000E+04	9.420E-01	6.882E-01	8.226E-01	2.719E+00	7.758E-01	8.487E-01
2.500E+04	8.439E-01	6.243E-01	7.222E-01	2.467E+00	7.122E-01	7.866E-01
3.000E+04	7.673E-01	5.765E-01	6.453E-01	2.277E+00	6.658E-01	7.375E-01
3.500E+04	7.056E-01	5.393E-01	5.843E-01	2.125E+00	6.301E-01	6.971E-01
4.000E+04	6.547E-01	5.097E-01	5.348E-01	1.999E+00	6.019E-01	6.630E-01
5.000E+04	5.754E-01	4.652E-01	4.596E-01	1.801E+00	5.605E-01	6.081E-01
6.000E+04	5.166E-01	4.334E-01	4.054E-01	1.649E+00	5.322E-01	5.654E-01
7.000E+04	4.712E-01	4.094E-01	3.648E-01	1.528E+00	5.123E-01	5.310E-01
8.000E+04	4.351E-01	3.905E-01	3.334E-01	1.427E+00	4.982E-01	5.024E-01
1.000E+05	3.816E-01	3.623E-01	2.888E-01	1.270E+00	4.810E-01	4.576E-01
1.200E+05	3.436E-01	3.417E-01	2.591E-01	1.152E+00	4.723E-01	4.240E-01
1.500E+05	3.032E-01	3.189E-01	2.297E-01	1.018E+00	4.668E-01	3.868E-01
1.700E+05	2.830E-01	3.068E-01	2.160E-01	9.478E-01	4.650E-01	3.676E-01
2.000E+05	2.590E-01	2.915E-01	2.006E-01	8.611E-01	4.624E-01	3.442E-01
2.500E+05	2.295E-01	2.707E-01	1.828E-01	7.492E-01	4.553E-01	3.138E-01
3.000E+05	2.077E-01	2.534E-01	1.701E-01	6.630E-01	4.438E-01	2.895E-01
5.000E+05	1.552E-01	2.016E-01	1.389E-01	4.449E-01	3.744E-01	2.182E-01
7.000E+05	1.252E-01	1.649E-01	1.179E-01	3.235E-01	3.046E-01	1.687E-01
8.500E+05	1.089E-01	1.435E-01	1.049E-01	2.631E-01	2.611E-01	1.411E-01
1.000E+06	9.569E-02	1.259E-01	9.360E-02	2.185E-01	2.251E-01	1.194E-01

kT(eV)	95-Am-243	95-Am-244	95-Am-244M	96-Cm-241	96-Cm-242	96-Cm-243
1.000E+03	1.037E+01	3.339E+00	3.342E+00	1.025E+00	3.773E+00	2.453E+00
2.000E+03	7.192E+00	2.368E+00	2.371E+00	6.485E-01	2.465E+00	1.726E+00
3.000E+03	5.855E+00	1.947E+00	1.948E+00	5.001E-01	1.977E+00	1.402E+00
5.000E+03	4.593E+00	1.539E+00	1.536E+00	3.665E-01	1.544E+00	1.087E+00
1.000E+04	3.418E+00	1.171E+00	1.161E+00	2.545E-01	1.141E+00	7.830E-01
1.500E+04	2.909E+00	1.031E+00	1.018E+00	2.135E-01	9.514E-01	6.502E-01
2.000E+04	2.591E+00	9.572E-01	9.398E-01	1.904E-01	8.272E-01	5.693E-01
2.500E+04	2.357E+00	9.114E-01	8.894E-01	1.746E-01	7.362E-01	5.129E-01
3.000E+04	2.173E+00	8.808E-01	8.534E-01	1.626E-01	6.662E-01	4.704E-01
3.500E+04	2.020E+00	8.595E-01	8.261E-01	1.531E-01	6.103E-01	4.370E-01
4.000E+04	1.891E+00	8.442E-01	8.044E-01	1.454E-01	5.648E-01	4.098E-01
5.000E+04	1.682E+00	8.255E-01	7.721E-01	1.333E-01	4.951E-01	3.677E-01
6.000E+04	1.521E+00	8.166E-01	7.490E-01	1.244E-01	4.442E-01	3.365E-01
7.000E+04	1.391E+00	8.134E-01	7.318E-01	1.175E-01	4.054E-01	3.122E-01
8.000E+04	1.286E+00	8.137E-01	7.186E-01	1.120E-01	3.748E-01	2.927E-01
1.000E+05	1.122E+00	8.192E-01	6.997E-01	1.037E-01	3.293E-01	2.630E-01
1.200E+05	1.002E+00	8.261E-01	6.871E-01	9.772E-02	2.966E-01	2.415E-01
1.500E+05	8.695E-01	8.329E-01	6.746E-01	9.121E-02	2.611E-01	2.183E-01
1.700E+05	8.019E-01	8.336E-01	6.686E-01	8.788E-02	2.431E-01	2.068E-01
2.000E+05	7.204E-01	8.290E-01	6.617E-01	8.389E-02	2.213E-01	1.935E-01
2.500E+05	6.186E-01	8.088E-01	6.521E-01	7.894E-02	1.940E-01	1.780E-01
3.000E+05	5.429E-01	7.785E-01	6.425E-01	7.526E-02	1.738E-01	1.675E-01
5.000E+05	3.605E-01	6.286E-01	5.876E-01	6.500E-02	1.250E-01	1.428E-01
7.000E+05	2.625E-01	4.966E-01	5.161E-01	5.649E-02	9.754E-02	1.248E-01
8.500E+05	2.140E-01	4.187E-01	4.627E-01	5.065E-02	8.306E-02	1.126E-01
1.000E+06	1.782E-01	3.561E-01	4.134E-01	4.535E-02	7.171E-02	1.015E-01

Table 3.1 Maxwellian-averaged capture cross sections (continued)

unit: barns

kT(eV)	96-Cm-244	96-Cm-245	96-Cm-246	96-Cm-247	96-Cm-248	96-Cm-249
1.000E+03	4.888E+00	1.722E+00	2.536E+00	1.493E+00	2.135E+00	3.845E+00
2.000E+03	3.151E+00	1.181E+00	1.738E+00	1.174E+00	1.428E+00	2.390E+00
3.000E+03	2.518E+00	9.702E-01	1.421E+00	1.080E+00	1.163E+00	1.827E+00
5.000E+03	1.967E+00	7.823E-01	1.117E+00	1.021E+00	9.050E-01	1.321E+00
1.000E+04	1.467E+00	6.230E-01	8.027E-01	9.792E-01	6.356E-01	8.598E-01
1.500E+04	1.236E+00	5.625E-01	6.487E-01	9.379E-01	5.054E-01	6.607E-01
2.000E+04	1.084E+00	5.271E-01	5.491E-01	8.906E-01	4.228E-01	5.413E-01
2.500E+04	9.715E-01	5.015E-01	4.778E-01	8.426E-01	3.647E-01	4.600E-01
3.000E+04	8.839E-01	4.807E-01	4.243E-01	7.970E-01	3.214E-01	4.007E-01
3.500E+04	8.137E-01	4.630E-01	3.825E-01	7.548E-01	2.881E-01	3.554E-01
4.000E+04	7.561E-01	4.473E-01	3.492E-01	7.164E-01	2.617E-01	3.197E-01
5.000E+04	6.677E-01	4.204E-01	2.996E-01	6.498E-01	2.227E-01	2.670E-01
6.000E+04	6.034E-01	3.975E-01	2.648E-01	5.946E-01	1.957E-01	2.301E-01
7.000E+04	5.548E-01	3.775E-01	2.392E-01	5.484E-01	1.760E-01	2.027E-01
8.000E+04	5.168E-01	3.597E-01	2.198E-01	5.093E-01	1.611E-01	1.817E-01
1.000E+05	4.616E-01	3.291E-01	1.927E-01	4.465E-01	1.405E-01	1.517E-01
1.200E+05	4.233E-01	3.035E-01	1.750E-01	3.983E-01	1.271E-01	1.312E-01
1.500E+05	3.833E-01	2.720E-01	1.582E-01	3.441E-01	1.143E-01	1.106E-01
1.700E+05	3.637E-01	2.544E-01	1.505E-01	3.161E-01	1.086E-01	1.007E-01
2.000E+05	3.405E-01	2.322E-01	1.421E-01	2.824E-01	1.024E-01	8.962E-02
2.500E+05	3.122E-01	2.028E-01	1.321E-01	2.409E-01	9.576E-02	7.682E-02
3.000E+05	2.911E-01	1.802E-01	1.244E-01	2.105E-01	9.135E-02	6.801E-02
5.000E+05	2.353E-01	1.236E-01	1.004E-01	1.399E-01	8.027E-02	4.820E-02
7.000E+05	1.964E-01	9.200E-02	8.158E-02	1.026E-01	7.129E-02	3.729E-02
8.500E+05	1.726E-01	7.594E-02	7.026E-02	8.410E-02	6.495E-02	3.151E-02
1.000E+06	1.525E-01	6.384E-02	6.093E-02	7.035E-02	5.906E-02	2.699E-02

kT(eV)	96-Cm-250	97-Bk-249	97-Bk-250	98-Cf-249	98-Cf-250	98-Cf-251
1.000E+03	1.046E+00	1.002E+01	3.834E+00	2.991E+00	4.538E+00	2.522E+00
2.000E+03	7.317E-01	6.739E+00	2.678E+00	2.040E+00	2.972E+00	1.720E+00
3.000E+03	5.922E-01	5.415E+00	2.195E+00	1.655E+00	2.399E+00	1.409E+00
5.000E+03	4.487E-01	4.189E+00	1.734E+00	1.307E+00	1.885E+00	1.119E+00
1.000E+04	2.992E-01	3.037E+00	1.265E+00	1.020E+00	1.390E+00	8.138E-01
1.500E+04	2.304E-01	2.516E+00	1.031E+00	9.213E-01	1.152E+00	6.539E-01
2.000E+04	1.883E-01	2.181E+00	8.776E-01	8.648E-01	9.947E-01	5.487E-01
2.500E+04	1.594E-01	1.936E+00	7.668E-01	8.219E-01	8.799E-01	4.737E-01
3.000E+04	1.384E-01	1.745E+00	6.823E-01	7.850E-01	7.918E-01	4.176E-01
3.500E+04	1.224E-01	1.590E+00	6.152E-01	7.519E-01	7.219E-01	3.741E-01
4.000E+04	1.099E-01	1.463E+00	5.604E-01	7.217E-01	6.653E-01	3.393E-01
5.000E+04	9.168E-02	1.263E+00	4.757E-01	6.682E-01	5.796E-01	2.872E-01
6.000E+04	7.914E-02	1.114E+00	4.129E-01	6.224E-01	5.183E-01	2.498E-01
7.000E+04	7.006E-02	9.989E-01	3.645E-01	5.828E-01	4.725E-01	2.217E-01
8.000E+04	6.320E-02	9.074E-01	3.259E-01	5.485E-01	4.372E-01	1.997E-01
1.000E+05	5.359E-02	7.716E-01	2.685E-01	4.922E-01	3.865E-01	1.676E-01
1.200E+05	4.722E-02	6.760E-01	2.279E-01	4.484E-01	3.519E-01	1.453E-01
1.500E+05	4.087E-02	5.763E-01	1.854E-01	3.990E-01	3.163E-01	1.223E-01
1.700E+05	3.787E-02	5.279E-01	1.649E-01	3.735E-01	2.988E-01	1.113E-01
2.000E+05	3.446E-02	4.723E-01	1.413E-01	3.431E-01	2.779E-01	9.861E-02
2.500E+05	3.047E-02	4.074E-01	1.141E-01	3.058E-01	2.513E-01	8.385E-02
3.000E+05	2.766E-02	3.623E-01	9.567E-02	2.786E-01	2.304E-01	7.354E-02
5.000E+05	2.102E-02	2.613E-01	5.733E-02	2.108E-01	1.725E-01	4.994E-02
7.000E+05	1.706E-02	2.061E-01	3.976E-02	1.683E-01	1.353E-01	3.713E-02
8.500E+05	1.483E-02	1.766E-01	3.168E-02	1.443E-01	1.151E-01	3.061E-02
1.000E+06	1.299E-02	1.533E-01	2.592E-02	1.249E-01	9.908E-02	2.567E-02

Table 3.1 Maxwellian-averaged capture cross sections (continued)

unit: barns

kT(eV)	98-Cf-252	98-Cf-254	99-Es-254	99-Es-255	100-Fm-255
1.000E+03	1.997E+00	7.283E-01	1.214E+00	4.086E+00	2.050E+00
2.000E+03	1.523E+00	5.059E-01	1.112E+00	2.773E+00	1.432E+00
3.000E+03	1.298E+00	4.055E-01	1.047E+00	2.253E+00	1.171E+00
5.000E+03	1.060E+00	3.030E-01	9.618E-01	1.762E+00	9.109E-01
1.000E+04	7.933E-01	1.995E-01	8.455E-01	1.268E+00	6.384E-01
1.500E+04	6.551E-01	1.532E-01	7.775E-01	1.031E+00	5.092E-01
2.000E+04	5.623E-01	1.251E-01	7.287E-01	8.773E-01	4.286E-01
2.500E+04	4.939E-01	1.058E-01	6.903E-01	7.655E-01	3.722E-01
3.000E+04	4.412E-01	9.160E-02	6.585E-01	6.799E-01	3.303E-01
3.500E+04	3.995E-01	8.082E-02	6.313E-01	6.124E-01	2.976E-01
4.000E+04	3.657E-01	7.237E-02	6.075E-01	5.578E-01	2.715E-01
5.000E+04	3.146E-01	6.004E-02	5.679E-01	4.751E-01	2.322E-01
6.000E+04	2.781E-01	5.156E-02	5.359E-01	4.158E-01	2.038E-01
7.000E+04	2.510E-01	4.541E-02	5.093E-01	3.715E-01	1.823E-01
8.000E+04	2.302E-01	4.078E-02	4.866E-01	3.372E-01	1.654E-01
1.000E+05	2.007E-01	3.429E-02	4.491E-01	2.874E-01	1.403E-01
1.200E+05	1.811E-01	2.998E-02	4.182E-01	2.527E-01	1.224E-01
1.500E+05	1.616E-01	2.568E-02	3.786E-01	2.160E-01	1.033E-01
1.700E+05	1.524E-01	2.364E-02	3.553E-01	1.976E-01	9.382E-02
2.000E+05	1.420E-01	2.131E-02	3.235E-01	1.755E-01	8.258E-02
2.500E+05	1.292E-01	1.854E-02	2.781E-01	1.477E-01	6.895E-02
3.000E+05	1.194E-01	1.655E-02	2.405E-01	1.268E-01	5.918E-02
5.000E+05	9.138E-02	1.166E-02	1.438E-01	7.714E-02	3.708E-02
7.000E+05	7.208E-02	8.808E-03	9.467E-02	5.219E-02	2.609E-02
8.500E+05	6.122E-02	7.310E-03	7.251E-02	4.070E-02	2.089E-02
1.000E+06	5.258E-02	6.162E-03	5.728E-02	3.265E-02	1.714E-02

Table 3.2 Maxwellian-averaged fission cross sections

unit: barns

kT(eV)	88-Ra-223	89-Ac-227	90-Th-227	90-Th-228	90-Th-229	90-Th-230
1.000E+03	6.248E-02	8.679E-06	2.479E+00	1.251E-03	2.370E+00	0.000E+00
2.000E+03	6.259E-02	8.678E-06	1.921E+00	5.649E-04	1.889E+00	0.000E+00
3.000E+03	6.266E-02	8.677E-06	1.679E+00	3.141E-04	1.664E+00	0.000E+00
5.000E+03	6.275E-02	8.677E-06	1.445E+00	1.366E-04	1.440E+00	0.000E+00
1.000E+04	6.281E-02	8.677E-06	1.227E+00	3.960E-05	1.226E+00	0.000E+00
1.500E+04	6.283E-02	8.677E-06	1.133E+00	1.851E-05	1.133E+00	0.000E+00
2.000E+04	6.284E-02	8.677E-06	1.075E+00	1.068E-05	1.076E+00	0.000E+00
2.500E+04	6.284E-02	8.677E-06	1.033E+00	6.941E-06	1.034E+00	2.876E-10
3.000E+04	6.284E-02	8.677E-06	1.000E+00	4.878E-06	1.001E+00	4.335E-09
3.500E+04	6.285E-02	8.677E-06	9.728E-01	3.664E-06	9.733E-01	3.154E-08
4.000E+04	6.285E-02	8.677E-06	9.494E-01	3.045E-06	9.498E-01	1.485E-07
5.000E+04	6.285E-02	8.678E-06	9.108E-01	4.210E-06	9.112E-01	1.537E-06
6.000E+04	6.285E-02	8.688E-06	8.799E-01	1.285E-05	8.804E-01	8.544E-06
7.000E+04	6.285E-02	8.752E-06	8.545E-01	3.931E-05	8.550E-01	3.199E-05
8.000E+04	6.285E-02	8.998E-06	8.332E-01	9.991E-05	8.336E-01	9.151E-05
1.000E+05	6.285E-02	1.108E-05	7.990E-01	4.059E-04	7.995E-01	4.422E-04
1.200E+05	6.285E-02	1.773E-05	7.726E-01	1.088E-03	7.730E-01	1.360E-03
1.500E+05	6.285E-02	4.265E-05	7.419E-01	3.016E-03	7.423E-01	4.412E-03
1.700E+05	6.285E-02	7.248E-05	7.253E-01	4.916E-03	7.257E-01	7.780E-03
2.000E+05	6.285E-02	1.416E-04	7.042E-01	8.566E-03	7.046E-01	1.480E-02
2.500E+05	6.285E-02	3.391E-04	6.758E-01	1.619E-02	6.762E-01	3.058E-02
3.000E+05	6.285E-02	6.691E-04	6.529E-01	2.487E-02	6.533E-01	4.914E-02
5.000E+05	6.285E-02	3.503E-03	5.913E-01	6.010E-02	5.917E-01	1.179E-01
7.000E+05	6.285E-02	7.777E-03	5.560E-01	8.897E-02	5.563E-01	1.604E-01
8.500E+05	6.285E-02	1.109E-02	5.392E-01	1.064E-01	5.395E-01	1.797E-01
1.000E+06	6.285E-02	1.421E-02	5.282E-01	1.216E-01	5.285E-01	1.933E-01

kT(eV)	90-Th-232	90-Th-233	90-Th-234	91-Pa-231	91-Pa-232	91-Pa-233
1.000E+03	0.000E+00	4.126E-01	0.000E+00	4.234E-04	5.868E+00	0.000E+00
2.000E+03	0.000E+00	3.908E-01	0.000E+00	3.632E-04	4.422E+00	0.000E+00
3.000E+03	0.000E+00	3.811E-01	0.000E+00	3.501E-04	3.778E+00	0.000E+00
5.000E+03	0.000E+00	3.700E-01	0.000E+00	3.429E-04	3.123E+00	0.000E+00
1.000E+04	0.000E+00	3.474E-01	0.000E+00	3.465E-04	2.457E+00	0.000E+00
1.500E+04	0.000E+00	3.232E-01	0.000E+00	3.947E-04	2.161E+00	0.000E+00
2.000E+04	0.000E+00	3.007E-01	0.000E+00	5.504E-04	1.989E+00	2.456E-10
2.500E+04	0.000E+00	2.817E-01	0.000E+00	8.719E-04	1.875E+00	1.372E-08
3.000E+04	4.208E-10	2.664E-01	0.000E+00	1.380E-03	1.794E+00	2.022E-07
3.500E+04	2.895E-09	2.544E-01	0.000E+00	2.082E-03	1.734E+00	1.392E-06
4.000E+04	1.239E-08	2.453E-01	0.000E+00	2.993E-03	1.686E+00	5.959E-06
5.000E+04	9.752E-08	2.336E-01	0.000E+00	5.592E-03	1.619E+00	4.663E-05
6.000E+04	4.035E-07	2.277E-01	0.000E+00	9.567E-03	1.573E+00	1.887E-04
7.000E+04	1.179E-06	2.252E-01	3.143E-10	1.532E-02	1.540E+00	5.241E-04
8.000E+04	2.837E-06	2.244E-01	4.467E-09	2.308E-02	1.515E+00	1.151E-03
1.000E+05	1.240E-05	2.244E-01	1.808E-07	4.476E-02	1.479E+00	3.612E-03
1.200E+05	4.428E-05	2.239E-01	2.098E-06	7.354E-02	1.453E+00	8.043E-03
1.500E+05	2.085E-04	2.207E-01	2.382E-05	1.260E-01	1.425E+00	1.860E-02
1.700E+05	4.664E-04	2.171E-01	7.387E-05	1.645E-01	1.410E+00	2.798E-02
2.000E+05	1.197E-03	2.104E-01	2.603E-04	2.242E-01	1.390E+00	4.479E-02
2.500E+05	3.573E-03	1.981E-01	1.056E-03	3.225E-01	1.365E+00	7.724E-02
3.000E+05	7.434E-03	1.862E-01	2.624E-03	4.137E-01	1.345E+00	1.116E-01
5.000E+05	3.137E-02	1.515E-01	1.450E-02	6.872E-01	1.293E+00	2.307E-01
7.000E+05	5.678E-02	1.325E-01	2.771E-02	8.469E-01	1.259E+00	3.075E-01
8.500E+05	7.365E-02	1.238E-01	3.593E-02	9.230E-01	1.240E+00	3.469E-01
1.000E+06	8.889E-02	1.181E-01	4.272E-02	9.791E-01	1.226E+00	3.788E-01

Table 3.2 Maxwellian-averaged fission cross sections (continued)

unit: barns

kT(eV)	92-U -232	92-U -233	92-U -234	92-U -235	92-U -236	92-U -237
1.000E+03	3.448E+00	1.066E+01	5.642E-02	8.612E+00	4.766E-02	1.806E+00
2.000E+03	2.386E+00	7.773E+00	2.676E-02	6.103E+00	2.471E-02	1.542E+00
3.000E+03	2.098E+00	6.504E+00	1.918E-02	5.027E+00	1.694E-02	1.403E+00
5.000E+03	1.981E+00	5.257E+00	1.466E-02	3.997E+00	1.093E-02	1.245E+00
1.000E+04	2.063E+00	4.075E+00	1.279E-02	3.049E+00	6.708E-03	1.061E+00
1.500E+04	2.134E+00	3.592E+00	1.401E-02	2.668E+00	5.364E-03	9.677E-01
2.000E+04	2.174E+00	3.319E+00	1.670E-02	2.449E+00	4.694E-03	9.073E-01
2.500E+04	2.198E+00	3.140E+00	2.000E-02	2.302E+00	4.289E-03	8.648E-01
3.000E+04	2.213E+00	3.013E+00	2.348E-02	2.194E+00	4.019E-03	8.336E-01
3.500E+04	2.223E+00	2.918E+00	2.700E-02	2.108E+00	3.828E-03	8.103E-01
4.000E+04	2.230E+00	2.843E+00	3.062E-02	2.039E+00	3.690E-03	7.924E-01
5.000E+04	2.239E+00	2.736E+00	3.858E-02	1.931E+00	3.528E-03	7.678E-01
6.000E+04	2.244E+00	2.662E+00	4.847E-02	1.849E+00	3.493E-03	7.527E-01
7.000E+04	2.247E+00	2.609E+00	6.119E-02	1.785E+00	3.603E-03	7.431E-01
8.000E+04	2.249E+00	2.569E+00	7.721E-02	1.732E+00	3.916E-03	7.370E-01
1.000E+05	2.252E+00	2.510E+00	1.193E-01	1.651E+00	5.518E-03	7.312E-01
1.200E+05	2.253E+00	2.468E+00	1.724E-01	1.591E+00	9.097E-03	7.299E-01
1.500E+05	2.255E+00	2.421E+00	2.645E-01	1.527E+00	1.951E-02	7.321E-01
1.700E+05	2.255E+00	2.396E+00	3.291E-01	1.495E+00	3.015E-02	7.348E-01
2.000E+05	2.256E+00	2.365E+00	4.252E-01	1.460E+00	5.130E-02	7.398E-01
2.500E+05	2.256E+00	2.325E+00	5.744E-01	1.423E+00	9.727E-02	7.489E-01
3.000E+05	2.257E+00	2.297E+00	7.052E-01	1.402E+00	1.511E-01	7.576E-01
5.000E+05	2.257E+00	2.243E+00	1.070E+00	1.383E+00	3.670E-01	7.839E-01
7.000E+05	2.258E+00	2.218E+00	1.273E+00	1.384E+00	5.309E-01	8.012E-01
8.500E+05	2.261E+00	2.201E+00	1.368E+00	1.384E+00	6.218E-01	8.140E-01
1.000E+06	2.267E+00	2.187E+00	1.436E+00	1.385E+00	6.945E-01	8.295E-01

kT(eV)	92-U -238	93-Np-236	93-Np-237	93-Np-238	93-Np-239	94-Pu-236
1.000E+03	4.595E-04	1.261E+01	4.936E-02	1.044E+01	0.000E+00	5.999E-01
2.000E+03	2.074E-04	8.924E+00	3.761E-02	7.381E+00	3.501E-08	3.884E-01
3.000E+03	1.464E-04	7.291E+00	3.293E-02	6.026E+00	5.362E-06	3.075E-01
5.000E+03	1.188E-04	5.668E+00	2.921E-02	4.669E+00	2.948E-04	2.374E-01
1.000E+04	1.019E-04	4.127E+00	2.732E-02	3.332E+00	5.441E-03	1.830E-01
1.500E+04	9.206E-05	3.526E+00	2.747E-02	2.792E+00	1.364E-02	1.675E-01
2.000E+04	8.520E-05	3.206E+00	2.813E-02	2.512E+00	2.147E-02	1.633E-01
2.500E+04	8.027E-05	3.007E+00	2.902E-02	2.348E+00	2.866E-02	1.644E-01
3.000E+04	7.705E-05	2.872E+00	3.005E-02	2.243E+00	3.576E-02	1.685E-01
3.500E+04	7.530E-05	2.773E+00	3.125E-02	2.173E+00	4.339E-02	1.749E-01
4.000E+04	7.478E-05	2.698E+00	3.266E-02	2.123E+00	5.202E-02	1.829E-01
5.000E+04	7.675E-05	2.593E+00	3.652E-02	2.059E+00	7.352E-02	2.029E-01
6.000E+04	8.244E-05	2.523E+00	4.249E-02	2.020E+00	1.014E-01	2.275E-01
7.000E+04	9.286E-05	2.473E+00	5.137E-02	1.995E+00	1.355E-01	2.564E-01
8.000E+04	1.107E-04	2.436E+00	6.369E-02	1.978E+00	1.747E-01	2.891E-01
1.000E+05	1.913E-04	2.386E+00	9.921E-02	1.955E+00	2.641E-01	3.644E-01
1.200E+05	4.001E-04	2.355E+00	1.478E-01	1.938E+00	3.610E-01	4.501E-01
1.500E+05	1.263E-03	2.325E+00	2.381E-01	1.915E+00	5.073E-01	5.900E-01
1.700E+05	2.483E-03	2.312E+00	3.049E-01	1.901E+00	6.007E-01	6.862E-01
2.000E+05	5.760E-03	2.298E+00	4.084E-01	1.879E+00	7.305E-01	8.294E-01
2.500E+05	1.608E-02	2.282E+00	5.764E-01	1.843E+00	9.168E-01	1.054E+00
3.000E+05	3.266E-02	2.270E+00	7.288E-01	1.809E+00	1.068E+00	1.255E+00
5.000E+05	1.340E-01	2.232E+00	1.160E+00	1.705E+00	1.437E+00	1.823E+00
7.000E+05	2.373E-01	2.195E+00	1.393E+00	1.640E+00	1.604E+00	2.149E+00
8.500E+05	3.018E-01	2.171E+00	1.499E+00	1.607E+00	1.668E+00	2.310E+00
1.000E+06	3.561E-01	2.151E+00	1.573E+00	1.584E+00	1.709E+00	2.430E+00

Table 3.2 Maxwellian-averaged fission cross sections (continued)

unit: barns

kT(eV)	94-Pu-238	94-Pu-239	94-Pu-240	94-Pu-241	94-Pu-242	95-Am-241
1.000E+03	2.109E+00	6.015E+00	2.138E-01	1.097E+01	3.479E-02	6.390E-02
2.000E+03	1.554E+00	4.057E+00	1.599E-01	7.881E+00	2.045E-02	4.490E-02
3.000E+03	1.342E+00	3.335E+00	1.334E-01	6.554E+00	1.522E-02	3.689E-02
5.000E+03	1.146E+00	2.714E+00	1.156E-01	5.262E+00	1.199E-02	2.927E-02
1.000E+04	9.815E-01	2.216E+00	1.099E-01	4.047E+00	1.172E-02	2.245E-02
1.500E+04	9.081E-01	2.041E+00	1.082E-01	3.547E+00	1.261E-02	1.994E-02
2.000E+04	8.601E-01	1.949E+00	1.057E-01	3.259E+00	1.355E-02	1.876E-02
2.500E+04	8.277E-01	1.891E+00	1.030E-01	3.067E+00	1.455E-02	1.823E-02
3.000E+04	8.067E-01	1.850E+00	1.007E-01	2.927E+00	1.568E-02	1.808E-02
3.500E+04	7.944E-01	1.820E+00	9.896E-02	2.819E+00	1.699E-02	1.819E-02
4.000E+04	7.887E-01	1.797E+00	9.782E-02	2.732E+00	1.850E-02	1.851E-02
5.000E+04	7.917E-01	1.765E+00	9.754E-02	2.599E+00	2.228E-02	1.964E-02
6.000E+04	8.077E-01	1.744E+00	1.001E-01	2.499E+00	2.727E-02	2.143E-02
7.000E+04	8.322E-01	1.731E+00	1.057E-01	2.419E+00	3.375E-02	2.401E-02
8.000E+04	8.622E-01	1.723E+00	1.147E-01	2.353E+00	4.199E-02	2.763E-02
1.000E+05	9.331E-01	1.716E+00	1.427E-01	2.249E+00	6.464E-02	3.906E-02
1.200E+05	1.012E+00	1.716E+00	1.834E-01	2.169E+00	9.612E-02	5.772E-02
1.500E+05	1.133E+00	1.725E+00	2.623E-01	2.080E+00	1.586E-01	1.013E-01
1.700E+05	1.213E+00	1.733E+00	3.226E-01	2.035E+00	2.082E-01	1.404E-01
2.000E+05	1.327E+00	1.749E+00	4.184E-01	1.985E+00	2.897E-01	2.113E-01
2.500E+05	1.495E+00	1.781E+00	5.787E-01	1.930E+00	4.316E-01	3.504E-01
3.000E+05	1.635E+00	1.814E+00	7.277E-01	1.900E+00	5.670E-01	4.991E-01
5.000E+05	1.992E+00	1.931E+00	1.162E+00	1.870E+00	9.637E-01	1.016E+00
7.000E+05	2.169E+00	2.001E+00	1.406E+00	1.865E+00	1.176E+00	1.348E+00
8.500E+05	2.249E+00	2.031E+00	1.519E+00	1.858E+00	1.268E+00	1.512E+00
1.000E+06	2.305E+00	2.050E+00	1.598E+00	1.851E+00	1.332E+00	1.630E+00

kT(eV)	95-Am-242	95-Am-242M	95-Am-243	95-Am-244	95-Am-244M	96-Cm-241
1.000E+03	1.404E+01	1.290E+01	3.179E-02	1.404E+01	1.404E+01	1.365E+01
2.000E+03	1.007E+01	9.388E+00	2.203E-02	1.007E+01	1.007E+01	9.742E+00
3.000E+03	8.348E+00	7.843E+00	1.794E-02	8.348E+00	8.348E+00	8.073E+00
5.000E+03	6.673E+00	6.320E+00	1.407E-02	6.673E+00	6.673E+00	6.454E+00
1.000E+04	5.093E+00	4.854E+00	1.060E-02	5.093E+00	5.093E+00	4.890E+00
1.500E+04	4.458E+00	4.253E+00	9.333E-03	4.458E+00	4.458E+00	4.225E+00
2.000E+04	4.111E+00	3.924E+00	8.757E-03	4.111E+00	4.111E+00	3.842E+00
2.500E+04	3.891E+00	3.714E+00	8.507E-03	3.891E+00	3.891E+00	3.589E+00
3.000E+04	3.737E+00	3.569E+00	8.444E-03	3.737E+00	3.737E+00	3.407E+00
3.500E+04	3.623E+00	3.461E+00	8.505E-03	3.623E+00	3.623E+00	3.268E+00
4.000E+04	3.533E+00	3.377E+00	8.658E-03	3.533E+00	3.533E+00	3.158E+00
5.000E+04	3.395E+00	3.250E+00	9.169E-03	3.395E+00	3.395E+00	2.992E+00
6.000E+04	3.291E+00	3.156E+00	9.939E-03	3.291E+00	3.291E+00	2.872E+00
7.000E+04	3.205E+00	3.081E+00	1.103E-02	3.205E+00	3.205E+00	2.780E+00
8.000E+04	3.129E+00	3.018E+00	1.260E-02	3.129E+00	3.129E+00	2.707E+00
1.000E+05	2.998E+00	2.913E+00	1.806E-02	2.998E+00	2.998E+00	2.599E+00
1.200E+05	2.884E+00	2.827E+00	2.817E-02	2.884E+00	2.884E+00	2.525E+00
1.500E+05	2.738E+00	2.718E+00	5.482E-02	2.738E+00	2.738E+00	2.452E+00
1.700E+05	2.653E+00	2.655E+00	8.068E-02	2.653E+00	2.653E+00	2.418E+00
2.000E+05	2.543E+00	2.572E+00	1.303E-01	2.543E+00	2.543E+00	2.383E+00
2.500E+05	2.395E+00	2.457E+00	2.330E-01	2.395E+00	2.395E+00	2.346E+00
3.000E+05	2.282E+00	2.368E+00	3.473E-01	2.282E+00	2.282E+00	2.324E+00
5.000E+05	2.040E+00	2.166E+00	7.612E-01	2.040E+00	2.040E+00	2.270E+00
7.000E+05	1.958E+00	2.086E+00	1.035E+00	1.958E+00	1.958E+00	2.227E+00
8.500E+05	1.936E+00	2.055E+00	1.173E+00	1.936E+00	1.936E+00	2.200E+00
1.000E+06	1.929E+00	2.035E+00	1.275E+00	1.929E+00	1.929E+00	2.178E+00

Table 3.2 Maxwellian-averaged fission cross sections (continued)

unit: barns

kT(eV)	96-Cm-242	96-Cm-243	96-Cm-244	96-Cm-245	96-Cm-246	96-Cm-247
1.000E+03	8.267E-01	1.310E+01	2.373E-01	1.120E+01	1.396E-01	7.935E+00
2.000E+03	6.695E-01	9.601E+00	1.964E-01	8.036E+00	1.069E-01	5.479E+00
3.000E+03	5.906E-01	8.023E+00	1.715E-01	6.676E+00	9.097E-02	4.500E+00
5.000E+03	5.012E-01	6.453E+00	1.421E-01	5.376E+00	7.424E-02	3.617E+00
1.000E+04	4.040E-01	4.907E+00	1.083E-01	4.158E+00	5.685E-02	2.868E+00
1.500E+04	3.610E-01	4.240E+00	9.199E-02	3.654E+00	4.920E-02	2.610E+00
2.000E+04	3.358E-01	3.855E+00	8.202E-02	3.366E+00	4.502E-02	2.490E+00
2.500E+04	3.194E-01	3.600E+00	7.536E-02	3.175E+00	4.270E-02	2.429E+00
3.000E+04	3.092E-01	3.416E+00	7.087E-02	3.038E+00	4.155E-02	2.397E+00
3.500E+04	3.036E-01	3.276E+00	6.800E-02	2.934E+00	4.120E-02	2.381E+00
4.000E+04	3.020E-01	3.165E+00	6.645E-02	2.851E+00	4.141E-02	2.372E+00
5.000E+04	3.085E-01	2.997E+00	6.672E-02	2.727E+00	4.304E-02	2.367E+00
6.000E+04	3.251E-01	2.876E+00	7.112E-02	2.636E+00	4.582E-02	2.366E+00
7.000E+04	3.498E-01	2.783E+00	7.967E-02	2.565E+00	4.960E-02	2.365E+00
8.000E+04	3.807E-01	2.710E+00	9.258E-02	2.507E+00	5.440E-02	2.360E+00
1.000E+05	4.564E-01	2.602E+00	1.319E-01	2.415E+00	6.775E-02	2.344E+00
1.200E+05	5.443E-01	2.527E+00	1.880E-01	2.342E+00	8.732E-02	2.322E+00
1.500E+05	6.867E-01	2.453E+00	2.961E-01	2.256E+00	1.301E-01	2.283E+00
1.700E+05	7.831E-01	2.420E+00	3.778E-01	2.209E+00	1.672E-01	2.258E+00
2.000E+05	9.238E-01	2.384E+00	5.055E-01	2.152E+00	2.334E-01	2.224E+00
2.500E+05	1.138E+00	2.348E+00	7.122E-01	2.083E+00	3.612E-01	2.179E+00
3.000E+05	1.322E+00	2.325E+00	8.958E-01	2.038E+00	4.958E-01	2.148E+00
5.000E+05	1.794E+00	2.271E+00	1.385E+00	1.969E+00	9.516E-01	2.105E+00
7.000E+05	2.014E+00	2.228E+00	1.638E+00	1.953E+00	1.232E+00	2.109E+00
8.500E+05	2.102E+00	2.201E+00	1.755E+00	1.946E+00	1.364E+00	2.120E+00
1.000E+06	2.158E+00	2.178E+00	1.839E+00	1.941E+00	1.456E+00	2.136E+00

kT(eV)	96-Cm-248	96-Cm-249	96-Cm-250	97-Bk-249	97-Bk-250	98-Cf-249
1.000E+03	1.080E-01	3.698E+00	8.708E-02	5.709E-02	4.996E+00	1.029E+01
2.000E+03	7.785E-02	2.863E+00	7.213E-02	3.843E-02	3.661E+00	7.161E+00
3.000E+03	6.988E-02	2.571E+00	6.706E-02	3.089E-02	3.152E+00	5.880E+00
5.000E+03	6.369E-02	2.354E+00	6.244E-02	2.390E-02	2.716E+00	4.715E+00
1.000E+04	5.602E-02	2.229E+00	5.566E-02	1.728E-02	2.408E+00	3.700E+00
1.500E+04	5.068E-02	2.198E+00	5.053E-02	1.426E-02	2.349E+00	3.295E+00
2.000E+04	4.664E-02	2.187E+00	4.656E-02	1.234E-02	2.342E+00	3.067E+00
2.500E+04	4.355E-02	2.185E+00	4.350E-02	1.098E-02	2.346E+00	2.919E+00
3.000E+04	4.118E-02	2.188E+00	4.114E-02	9.938E-03	2.352E+00	2.814E+00
3.500E+04	3.938E-02	2.193E+00	3.935E-02	9.125E-03	2.357E+00	2.734E+00
4.000E+04	3.805E-02	2.201E+00	3.803E-02	8.474E-03	2.361E+00	2.670E+00
5.000E+04	3.656E-02	2.216E+00	3.655E-02	7.510E-03	2.363E+00	2.572E+00
6.000E+04	3.651E-02	2.230E+00	3.649E-02	6.868E-03	2.362E+00	2.498E+00
7.000E+04	3.802E-02	2.242E+00	3.801E-02	6.477E-03	2.359E+00	2.436E+00
8.000E+04	4.144E-02	2.251E+00	4.143E-02	6.347E-03	2.354E+00	2.383E+00
1.000E+05	5.561E-02	2.262E+00	5.560E-02	7.207E-03	2.344E+00	2.294E+00
1.200E+05	8.132E-02	2.270E+00	8.129E-02	1.048E-02	2.334E+00	2.220E+00
1.500E+05	1.415E-01	2.278E+00	1.415E-01	2.236E-02	2.321E+00	2.128E+00
1.700E+05	1.935E-01	2.285E+00	1.935E-01	3.593E-02	2.313E+00	2.078E+00
2.000E+05	2.834E-01	2.297E+00	2.833E-01	6.497E-02	2.304E+00	2.015E+00
2.500E+05	4.466E-01	2.324E+00	4.464E-01	1.330E-01	2.294E+00	1.939E+00
3.000E+05	6.067E-01	2.353E+00	6.066E-01	2.172E-01	2.289E+00	1.890E+00
5.000E+05	1.081E+00	2.459E+00	1.080E+00	5.740E-01	2.290E+00	1.845E+00
7.000E+05	1.323E+00	2.515E+00	1.323E+00	8.515E-01	2.297E+00	1.882E+00
8.500E+05	1.423E+00	2.531E+00	1.423E+00	1.007E+00	2.301E+00	1.916E+00
1.000E+06	1.487E+00	2.534E+00	1.487E+00	1.132E+00	2.303E+00	1.947E+00

Table 3.2 Maxwellian-averaged fission cross sections (continued)

unit: barns

kT(eV)	98-Cf-250	98-Cf-251	98-Cf-252	98-Cf-254	99-Es-254	99-Es-255
1.000E+03	1.210E-02	5.946E+00	2.494E+00	2.199E+00	5.415E+00	2.345E+00
2.000E+03	7.989E-03	4.359E+00	1.889E+00	1.727E+00	3.938E+00	1.814E+00
3.000E+03	6.468E-03	3.748E+00	1.633E+00	1.516E+00	3.379E+00	1.586E+00
5.000E+03	5.112E-03	3.224E+00	1.388E+00	1.307E+00	2.901E+00	1.363E+00
1.000E+04	3.955E-03	2.857E+00	1.163E+00	1.107E+00	2.566E+00	1.154E+00
1.500E+04	3.647E-03	2.789E+00	1.084E+00	1.035E+00	2.505E+00	1.079E+00
2.000E+04	3.699E-03	2.782E+00	1.055E+00	1.010E+00	2.499E+00	1.052E+00
2.500E+04	4.021E-03	2.789E+00	1.051E+00	1.007E+00	2.505E+00	1.049E+00
3.000E+04	4.610E-03	2.797E+00	1.059E+00	1.016E+00	2.513E+00	1.058E+00
3.500E+04	5.505E-03	2.803E+00	1.075E+00	1.031E+00	2.519E+00	1.074E+00
4.000E+04	6.779E-03	2.808E+00	1.094E+00	1.050E+00	2.523E+00	1.093E+00
5.000E+04	1.086E-02	2.811E+00	1.135E+00	1.090E+00	2.526E+00	1.135E+00
6.000E+04	1.776E-02	2.810E+00	1.177E+00	1.130E+00	2.525E+00	1.177E+00
7.000E+04	2.834E-02	2.807E+00	1.216E+00	1.167E+00	2.522E+00	1.216E+00
8.000E+04	4.322E-02	2.802E+00	1.253E+00	1.203E+00	2.517E+00	1.253E+00
1.000E+05	8.690E-02	2.790E+00	1.321E+00	1.268E+00	2.507E+00	1.321E+00
1.200E+05	1.483E-01	2.778E+00	1.384E+00	1.329E+00	2.496E+00	1.385E+00
1.500E+05	2.667E-01	2.762E+00	1.474E+00	1.415E+00	2.482E+00	1.474E+00
1.700E+05	3.573E-01	2.753E+00	1.531E+00	1.470E+00	2.474E+00	1.531E+00
2.000E+05	5.017E-01	2.743E+00	1.613E+00	1.549E+00	2.464E+00	1.614E+00
2.500E+05	7.438E-01	2.731E+00	1.743E+00	1.673E+00	2.453E+00	1.743E+00
3.000E+05	9.686E-01	2.725E+00	1.861E+00	1.787E+00	2.448E+00	1.862E+00
5.000E+05	1.614E+00	2.726E+00	2.220E+00	2.132E+00	2.449E+00	2.221E+00
7.000E+05	1.965E+00	2.735E+00	2.433E+00	2.336E+00	2.456E+00	2.433E+00
8.500E+05	2.126E+00	2.739E+00	2.533E+00	2.431E+00	2.460E+00	2.532E+00
1.000E+06	2.238E+00	2.742E+00	2.601E+00	2.496E+00	2.463E+00	2.600E+00

kT(eV)	100-Fm-255
1.000E+03	5.670E+00
2.000E+03	4.170E+00
3.000E+03	3.589E+00
5.000E+03	3.087E+00
1.000E+04	2.733E+00
1.500E+04	2.668E+00
2.000E+04	2.662E+00
2.500E+04	2.669E+00
3.000E+04	2.677E+00
3.500E+04	2.683E+00
4.000E+04	2.688E+00
5.000E+04	2.691E+00
6.000E+04	2.690E+00
7.000E+04	2.687E+00
8.000E+04	2.682E+00
1.000E+05	2.671E+00
1.200E+05	2.659E+00
1.500E+05	2.644E+00
1.700E+05	2.635E+00
2.000E+05	2.625E+00
2.500E+05	2.614E+00
3.000E+05	2.608E+00
5.000E+05	2.609E+00
7.000E+05	2.617E+00
8.500E+05	2.621E+00
1.000E+06	2.624E+00

Table 3.3 Maxwellian-averaged (n,p) cross sections

unit: barns

kT(eV)	2-He- 3	3-Li- 6	5-B - 10	7-N - 14	11-Na- 23	12-Mg- 24
1.000E+03	2.537E+01	0.000E+00	1.509E-05	8.898E-03	0.000E+00	0.000E+00
2.000E+03	1.756E+01	0.000E+00	1.067E-05	6.291E-03	0.000E+00	0.000E+00
3.000E+03	1.409E+01	0.000E+00	8.710E-06	5.134E-03	0.000E+00	0.000E+00
5.000E+03	1.062E+01	0.000E+00	6.747E-06	3.969E-03	0.000E+00	0.000E+00
1.000E+04	7.140E+00	0.000E+00	4.771E-06	2.795E-03	0.000E+00	0.000E+00
1.500E+04	5.615E+00	0.000E+00	3.897E-06	2.301E-03	0.000E+00	0.000E+00
2.000E+04	4.717E+00	0.000E+00	3.380E-06	2.031E-03	0.000E+00	0.000E+00
2.500E+04	4.111E+00	0.000E+00	3.034E-06	1.865E-03	0.000E+00	0.000E+00
3.000E+04	3.671E+00	0.000E+00	2.788E-06	1.756E-03	0.000E+00	0.000E+00
3.500E+04	3.334E+00	0.000E+00	2.605E-06	1.680E-03	0.000E+00	0.000E+00
4.000E+04	3.067E+00	0.000E+00	2.465E-06	1.629E-03	0.000E+00	0.000E+00
5.000E+04	2.670E+00	0.000E+00	2.275E-06	1.600E-03	0.000E+00	0.000E+00
6.000E+04	2.388E+00	0.000E+00	2.209E-06	1.710E-03	0.000E+00	0.000E+00
7.000E+04	2.180E+00	0.000E+00	2.432E-06	2.021E-03	0.000E+00	0.000E+00
8.000E+04	2.019E+00	0.000E+00	3.416E-06	2.572E-03	0.000E+00	0.000E+00
1.000E+05	1.791E+00	0.000E+00	1.152E-05	4.362E-03	0.000E+00	0.000E+00
1.200E+05	1.638E+00	0.000E+00	3.719E-05	6.781E-03	0.000E+00	0.000E+00
1.500E+05	1.485E+00	1.070E-10	1.343E-04	1.076E-02	0.000E+00	0.000E+00
1.700E+05	1.414E+00	1.300E-09	2.501E-04	1.330E-02	0.000E+00	0.000E+00
2.000E+05	1.335E+00	2.151E-08	5.086E-04	1.668E-02	0.000E+00	0.000E+00
2.500E+05	1.248E+00	5.119E-07	1.154E-03	2.115E-02	1.256E-09	0.000E+00
3.000E+05	1.190E+00	4.178E-06	2.018E-03	2.444E-02	2.154E-08	1.046E-09
5.000E+05	1.070E+00	2.547E-04	6.448E-03	3.155E-02	9.076E-06	2.642E-06
7.000E+05	9.964E-01	1.350E-03	1.102E-02	3.574E-02	1.400E-04	8.026E-05
8.500E+05	9.473E-01	2.700E-03	1.423E-02	3.836E-02	4.765E-04	3.643E-04
1.000E+06	9.008E-01	4.271E-03	1.721E-02	4.044E-02	1.126E-03	1.051E-03

kT(eV)	12-Mg- 25	13-Al- 27	14-Si- 28	14-Si- 29	15-P - 31	16-S - 32
1.000E+03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2.000E+03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
3.000E+03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
5.000E+03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1.000E+04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1.500E+04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2.000E+04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2.500E+04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
3.000E+04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
3.500E+04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
4.000E+04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
5.000E+04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
6.000E+04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.025E-10	0.000E+00
7.000E+04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.122E-09	2.304E-10
8.000E+04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.886E-09	1.398E-09
1.000E+05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	9.312E-08	2.248E-08
1.200E+05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	5.827E-07	2.014E-07
1.500E+05	0.000E+00	3.381E-10	0.000E+00	0.000E+00	4.319E-06	2.538E-06
1.700E+05	0.000E+00	2.583E-09	0.000E+00	0.000E+00	1.214E-05	9.233E-06
2.000E+05	4.499E-10	2.641E-08	0.000E+00	1.317E-09	4.238E-05	4.184E-05
2.500E+05	1.486E-08	3.909E-07	3.849E-09	3.501E-08	1.980E-04	2.465E-04
3.000E+05	1.682E-07	2.476E-06	6.885E-08	3.400E-07	5.965E-04	8.302E-04
5.000E+05	2.685E-05	1.245E-04	3.193E-05	4.385E-05	6.376E-03	1.020E-02
7.000E+05	2.535E-04	7.998E-04	5.227E-04	4.126E-04	1.832E-02	3.109E-02
8.500E+05	6.889E-04	1.926E-03	1.839E-03	1.151E-03	2.905E-02	5.123E-02
1.000E+06	1.390E-03	3.654E-03	4.455E-03	2.399E-03	3.987E-02	7.287E-02

Table 3.3 Maxwellian-averaged (n,p) cross sections (continued)

unit: barns

kT(eV)	16-S - 33	17-Cl- 35	19-K - 39	19-K - 40	19-K - 41	20-Ca- 40
1.000E+03	1.819E-03	3.436E-02	0.000E+00	1.414E-02	0.000E+00	0.000E+00
2.000E+03	1.819E-03	1.486E-02	0.000E+00	1.370E-02	0.000E+00	0.000E+00
3.000E+03	1.819E-03	9.381E-03	0.000E+00	1.361E-02	0.000E+00	0.000E+00
5.000E+03	1.819E-03	5.210E-03	0.000E+00	1.357E-02	0.000E+00	0.000E+00
1.000E+04	1.819E-03	2.536E-03	0.000E+00	1.354E-02	0.000E+00	0.000E+00
1.500E+04	1.819E-03	1.918E-03	0.000E+00	1.354E-02	0.000E+00	0.000E+00
2.000E+04	1.819E-03	1.698E-03	0.000E+00	1.354E-02	0.000E+00	0.000E+00
2.500E+04	1.819E-03	1.578E-03	0.000E+00	1.354E-02	0.000E+00	0.000E+00
3.000E+04	1.820E-03	1.495E-03	0.000E+00	1.354E-02	0.000E+00	0.000E+00
3.500E+04	1.823E-03	1.437E-03	0.000E+00	1.354E-02	0.000E+00	0.000E+00
4.000E+04	1.831E-03	1.399E-03	0.000E+00	1.354E-02	0.000E+00	0.000E+00
5.000E+04	1.867E-03	1.379E-03	5.395E-10	1.354E-02	0.000E+00	0.000E+00
6.000E+04	1.943E-03	1.423E-03	1.350E-08	1.354E-02	0.000E+00	1.951E-09
7.000E+04	2.069E-03	1.523E-03	1.338E-07	1.354E-02	0.000E+00	2.148E-08
8.000E+04	2.250E-03	1.675E-03	7.451E-07	1.354E-02	0.000E+00	1.304E-07
1.000E+05	2.787E-03	2.133E-03	8.232E-06	1.354E-02	0.000E+00	1.644E-06
1.200E+05	3.551E-03	2.795E-03	4.103E-05	1.355E-02	1.228E-09	9.017E-06
1.500E+05	5.079E-03	4.176E-03	2.079E-04	1.359E-02	2.347E-08	5.076E-05
1.700E+05	6.315E-03	5.353E-03	4.519E-04	1.365E-02	9.468E-08	1.169E-04
2.000E+05	8.429E-03	7.490E-03	1.103E-03	1.381E-02	4.591E-07	3.100E-04
2.500E+05	1.246E-02	1.195E-02	3.151E-03	1.428E-02	2.820E-06	1.024E-03
3.000E+05	1.687E-02	1.735E-02	6.581E-03	1.501E-02	9.773E-06	2.489E-03
5.000E+05	3.475E-02	4.388E-02	3.289E-02	1.950E-02	1.472E-04	2.030E-02
7.000E+05	4.963E-02	7.183E-02	7.010E-02	2.456E-02	5.793E-04	5.705E-02
8.500E+05	5.857E-02	9.137E-02	9.891E-02	2.801E-02	1.138E-03	9.152E-02
1.000E+06	6.611E-02	1.092E-01	1.261E-01	3.107E-02	1.886E-03	1.276E-01

kT(eV)	20-Ca- 42	20-Ca- 43	21-Sc- 45	22-Ti- 46	22-Ti- 47	24-Cr- 50
1.000E+03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2.000E+03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
3.000E+03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
5.000E+03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1.000E+04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.242E-10	0.000E+00
1.500E+04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.297E-09	0.000E+00
2.000E+04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.143E-09	0.000E+00
2.500E+04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.725E-08	0.000E+00
3.000E+04	0.000E+00	0.000E+00	1.460E-10	0.000E+00	3.544E-08	0.000E+00
3.500E+04	0.000E+00	0.000E+00	1.608E-09	0.000E+00	6.035E-08	1.386E-10
4.000E+04	0.000E+00	0.000E+00	9.756E-09	0.000E+00	9.133E-08	3.638E-10
5.000E+04	0.000E+00	0.000E+00	1.230E-07	0.000E+00	1.707E-07	1.441E-09
6.000E+04	0.000E+00	0.000E+00	6.733E-07	0.000E+00	2.819E-07	4.061E-09
7.000E+04	0.000E+00	1.627E-10	2.291E-06	0.000E+00	4.573E-07	1.217E-08
8.000E+04	0.000E+00	1.097E-09	5.799E-06	0.000E+00	7.637E-07	4.284E-08
1.000E+05	0.000E+00	1.611E-08	2.190E-05	0.000E+00	2.252E-06	4.160E-07
1.200E+05	0.000E+00	9.975E-08	5.515E-05	0.000E+00	6.174E-06	2.189E-06
1.500E+05	0.000E+00	6.868E-07	1.476E-04	4.157E-10	2.152E-05	1.221E-05
1.700E+05	0.000E+00	1.872E-06	2.427E-04	3.436E-09	4.237E-05	2.822E-05
2.000E+05	9.504E-10	6.618E-06	4.233E-04	3.924E-08	9.855E-05	7.576E-05
2.500E+05	3.476E-08	3.488E-05	9.395E-04	6.776E-07	2.914E-04	2.594E-04
3.000E+05	4.447E-07	1.230E-04	1.655E-03	4.837E-06	6.589E-04	6.594E-04
5.000E+05	9.994E-05	2.241E-03	6.669E-03	3.156E-04	4.533E-03	6.377E-03
7.000E+05	1.141E-03	9.083E-03	1.430E-02	2.187E-03	1.206E-02	2.002E-02
8.500E+05	3.388E-03	1.714E-02	2.089E-02	5.305E-03	1.912E-02	3.386E-02
1.000E+06	7.264E-03	2.666E-02	2.767E-02	9.971E-03	2.658E-02	4.899E-02

Table 3.3 Maxwellian-averaged (n,p) cross sections (continued)

unit: barns

kT(eV)	26-Fe- 54	27-Co- 59	28-Ni- 58	28-Ni- 60	28-Ni- 61	29-Cu- 63
1.000E+03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2.000E+03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.731E-09
3.000E+03	0.000E+00	0.000E+00	5.078E-08	0.000E+00	0.000E+00	1.048E-08
5.000E+03	0.000E+00	0.000E+00	8.462E-08	0.000E+00	0.000E+00	4.967E-08
1.000E+04	0.000E+00	0.000E+00	1.692E-07	0.000E+00	0.000E+00	2.048E-07
1.500E+04	0.000E+00	0.000E+00	2.539E-07	0.000E+00	0.000E+00	4.450E-07
2.000E+04	0.000E+00	0.000E+00	3.385E-07	0.000E+00	0.000E+00	9.450E-07
2.500E+04	0.000E+00	0.000E+00	4.231E-07	0.000E+00	0.000E+00	1.869E-06
3.000E+04	0.000E+00	0.000E+00	5.078E-07	0.000E+00	0.000E+00	3.271E-06
3.500E+04	0.000E+00	0.000E+00	5.931E-07	0.000E+00	0.000E+00	5.125E-06
4.000E+04	0.000E+00	0.000E+00	6.813E-07	0.000E+00	0.000E+00	7.377E-06
5.000E+04	0.000E+00	0.000E+00	9.012E-07	0.000E+00	0.000E+00	1.287E-05
6.000E+04	1.466E-10	1.050E-10	1.317E-06	0.000E+00	0.000E+00	1.951E-05
7.000E+04	1.629E-09	7.139E-10	2.222E-06	0.000E+00	0.000E+00	2.737E-05
8.000E+04	1.008E-08	3.021E-09	4.034E-06	0.000E+00	0.000E+00	3.672E-05
1.000E+05	1.381E-07	2.303E-08	1.263E-05	0.000E+00	0.000E+00	6.146E-05
1.200E+05	8.749E-07	9.026E-08	3.316E-05	0.000E+00	0.000E+00	9.718E-05
1.500E+05	6.556E-06	3.599E-07	1.063E-04	0.000E+00	4.526E-10	1.794E-04
1.700E+05	1.843E-05	6.970E-07	2.005E-04	0.000E+00	2.851E-09	2.593E-04
2.000E+05	6.391E-05	1.487E-06	4.436E-04	2.477E-10	2.378E-08	4.275E-04
2.500E+05	2.941E-04	3.674E-06	1.240E-03	9.371E-09	2.886E-07	8.698E-04
3.000E+05	8.800E-04	7.300E-06	2.712E-03	1.125E-07	1.654E-06	1.555E-03
5.000E+05	9.976E-03	6.817E-05	1.811E-02	2.204E-05	7.534E-05	6.820E-03
7.000E+05	3.204E-02	3.278E-04	4.879E-02	2.637E-04	4.705E-04	1.477E-02
8.500E+05	5.529E-02	7.253E-04	7.865E-02	8.398E-04	1.107E-03	2.130E-02
1.000E+06	8.195E-02	1.306E-03	1.115E-01	1.941E-03	2.054E-03	2.773E-02

kT(eV)	31-Ga- 69	32-Ge- 70	34-Se- 74	35-Br- 79	36-Kr- 78	42-Mo- 92
1.000E+03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2.000E+03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
3.000E+03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
5.000E+03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1.000E+04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1.500E+04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2.000E+04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2.500E+04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
3.000E+04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
3.500E+04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
4.000E+04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
5.000E+04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
6.000E+04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
7.000E+04	0.000E+00	0.000E+00	0.000E+00	2.927E-10	0.000E+00	0.000E+00
8.000E+04	0.000E+00	0.000E+00	0.000E+00	1.262E-09	0.000E+00	0.000E+00
1.000E+05	8.646E-10	0.000E+00	0.000E+00	1.168E-08	0.000E+00	1.189E-10
1.200E+05	5.276E-09	1.983E-10	0.000E+00	5.729E-08	6.440E-10	1.394E-09
1.500E+05	4.073E-08	4.642E-09	7.866E-10	3.268E-07	1.484E-08	2.234E-08
1.700E+05	1.213E-07	2.176E-08	6.056E-09	8.089E-07	6.820E-08	9.145E-08
2.000E+05	4.702E-07	1.316E-07	6.492E-08	2.473E-06	4.023E-07	4.894E-07
2.500E+05	2.614E-06	1.148E-06	1.061E-06	1.032E-05	3.373E-06	3.812E-06
3.000E+05	9.222E-06	5.508E-06	7.389E-06	3.022E-05	1.539E-05	1.689E-05
5.000E+05	1.672E-04	2.041E-04	4.738E-04	3.837E-04	4.685E-04	5.014E-04
7.000E+05	7.193E-04	1.216E-03	3.305E-03	1.420E-03	2.535E-03	2.656E-03
8.500E+05	1.448E-03	2.800E-03	8.056E-03	2.677E-03	5.658E-03	5.780E-03
1.000E+06	2.424E-03	5.099E-03	1.517E-02	4.273E-03	1.017E-02	1.009E-02

Table 3.3 Maxwellian-averaged (n,p) cross sections (continued)

unit: barns

kT(eV)	44-Ru- 96	46-Pd-102	48-Cd-106
1.000E+03	0.000E+00	0.000E+00	0.000E+00
2.000E+03	0.000E+00	0.000E+00	0.000E+00
3.000E+03	0.000E+00	0.000E+00	0.000E+00
5.000E+03	0.000E+00	0.000E+00	0.000E+00
1.000E+04	0.000E+00	0.000E+00	0.000E+00
1.500E+04	0.000E+00	0.000E+00	0.000E+00
2.000E+04	0.000E+00	0.000E+00	0.000E+00
2.500E+04	0.000E+00	0.000E+00	0.000E+00
3.000E+04	0.000E+00	0.000E+00	0.000E+00
3.500E+04	0.000E+00	0.000E+00	0.000E+00
4.000E+04	0.000E+00	0.000E+00	0.000E+00
5.000E+04	0.000E+00	0.000E+00	0.000E+00
6.000E+04	0.000E+00	0.000E+00	0.000E+00
7.000E+04	0.000E+00	0.000E+00	0.000E+00
8.000E+04	0.000E+00	0.000E+00	1.186E-10
1.000E+05	1.215E-10	0.000E+00	5.008E-10
1.200E+05	9.931E-10	0.000E+00	1.759E-09
1.500E+05	1.067E-08	0.000E+00	1.165E-08
1.700E+05	3.647E-08	4.502E-10	3.723E-08
2.000E+05	1.623E-07	4.253E-09	1.639E-07
2.500E+05	1.065E-06	6.642E-08	1.069E-06
3.000E+05	4.348E-06	4.808E-07	4.190E-06
5.000E+05	1.216E-04	3.973E-05	8.979E-05
7.000E+05	6.696E-04	3.273E-04	4.071E-04
8.500E+05	1.527E-03	8.650E-04	8.477E-04
1.000E+06	2.818E-03	1.733E-03	1.471E-03

Table 3.4 Maxwellian-averaged (n,α) cross sections

unit: barns

kT(eV)	4-Be- 9	5-B - 10	7-N - 14	8-O - 16	9-F - 19	12-Mg- 24
1.000E+03	0.000E+00	1.890E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2.000E+03	0.000E+00	1.328E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
3.000E+03	0.000E+00	1.080E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
5.000E+03	0.000E+00	8.336E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1.000E+04	0.000E+00	5.873E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1.500E+04	0.000E+00	4.796E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2.000E+04	0.000E+00	4.165E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2.500E+04	0.000E+00	3.741E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
3.000E+04	0.000E+00	3.429E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
3.500E+04	0.000E+00	3.188E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
4.000E+04	0.000E+00	2.992E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
5.000E+04	5.490E-10	2.690E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
6.000E+04	6.193E-09	2.462E+00	1.208E-10	0.000E+00	0.000E+00	0.000E+00
7.000E+04	3.920E-08	2.280E+00	2.404E-09	0.000E+00	0.000E+00	0.000E+00
8.000E+04	1.720E-07	2.130E+00	2.240E-08	0.000E+00	0.000E+00	0.000E+00
1.000E+05	1.624E-06	1.893E+00	5.064E-07	0.000E+00	0.000E+00	0.000E+00
1.200E+05	8.231E-06	1.710E+00	4.085E-06	0.000E+00	0.000E+00	0.000E+00
1.500E+05	4.650E-05	1.498E+00	3.373E-05	0.000E+00	1.577E-10	0.000E+00
1.700E+05	1.094E-04	1.384E+00	9.223E-05	1.433E-10	1.816E-09	0.000E+00
2.000E+05	2.962E-04	1.243E+00	2.896E-04	3.976E-09	2.936E-08	0.000E+00
2.500E+05	9.634E-04	1.062E+00	1.085E-03	1.661E-07	7.227E-07	3.044E-09
3.000E+05	2.188E-03	9.308E-01	2.687E-03	1.938E-06	6.306E-06	5.437E-08
5.000E+05	1.219E-02	6.537E-01	1.906E-02	2.288E-04	5.122E-04	2.593E-05
7.000E+05	2.538E-02	5.353E-01	4.774E-02	1.611E-03	3.404E-03	4.394E-04
8.500E+05	3.430E-02	4.809E-01	7.146E-02	3.749E-03	7.752E-03	1.574E-03
1.000E+06	4.155E-02	4.397E-01	9.365E-02	6.785E-03	1.359E-02	3.858E-03

kT(eV)	12-Mg- 25	14-Si- 28	14-Si- 29	15-P - 31	16-S - 32	16-S - 33
1.000E+03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.898E-03	1.903E-01
2.000E+03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.898E-03	1.903E-01
3.000E+03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.898E-03	1.903E-01
5.000E+03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.898E-03	1.903E-01
1.000E+04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.898E-03	1.903E-01
1.500E+04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.899E-03	1.903E-01
2.000E+04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.898E-03	1.903E-01
2.500E+04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.898E-03	1.903E-01
3.000E+04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.899E-03	1.903E-01
3.500E+04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.898E-03	1.903E-01
4.000E+04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.898E-03	1.903E-01
5.000E+04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.898E-03	1.903E-01
6.000E+04	1.154E-10	0.000E+00	0.000E+00	0.000E+00	7.899E-03	1.903E-01
7.000E+04	1.271E-09	0.000E+00	0.000E+00	0.000E+00	7.898E-03	1.904E-01
8.000E+04	7.713E-09	0.000E+00	2.731E-10	0.000E+00	7.898E-03	1.904E-01
1.000E+05	9.723E-08	0.000E+00	2.640E-09	0.000E+00	7.899E-03	1.907E-01
1.200E+05	5.329E-07	0.000E+00	1.422E-08	0.000E+00	7.900E-03	1.911E-01
1.500E+05	2.985E-06	0.000E+00	8.372E-08	0.000E+00	7.913E-03	1.919E-01
1.700E+05	6.829E-06	0.000E+00	2.065E-07	0.000E+00	7.946E-03	1.926E-01
2.000E+05	1.782E-05	0.000E+00	6.406E-07	0.000E+00	8.081E-03	1.938E-01
2.500E+05	5.691E-05	4.667E-10	2.999E-06	2.307E-09	8.739E-03	1.962E-01
3.000E+05	1.346E-04	8.567E-09	1.047E-05	3.813E-08	1.023E-02	1.986E-01
5.000E+05	1.204E-03	6.918E-06	2.440E-04	1.444E-05	2.566E-02	2.066E-01
7.000E+05	4.494E-03	1.569E-04	1.260E-03	2.165E-04	5.014E-02	2.108E-01
8.500E+05	8.990E-03	6.436E-04	2.806E-03	7.404E-04	6.966E-02	2.120E-01
1.000E+06	1.521E-02	1.744E-03	5.117E-03	1.775E-03	8.822E-02	2.120E-01

Table 3.4 Maxwellian-averaged (n,α) cross sections (continued)

unit: barns

kT(eV)	16-S - 34	17-Cl- 35	19-K - 39	19-K - 40	20-Ca- 40	20-Ca- 42
1.000E+03	0.000E+00	4.023E-07	1.474E-04	3.519E-02	0.000E+00	0.000E+00
2.000E+03	0.000E+00	2.845E-07	1.180E-04	2.983E-02	0.000E+00	0.000E+00
3.000E+03	0.000E+00	2.323E-07	1.036E-04	2.707E-02	0.000E+00	0.000E+00
5.000E+03	0.000E+00	1.801E-07	8.798E-05	2.398E-02	0.000E+00	0.000E+00
1.000E+04	0.000E+00	1.300E-07	7.045E-05	2.102E-02	0.000E+00	0.000E+00
1.500E+04	0.000E+00	1.113E-07	6.186E-05	2.060E-02	0.000E+00	0.000E+00
2.000E+04	0.000E+00	1.022E-07	5.641E-05	2.110E-02	0.000E+00	0.000E+00
2.500E+04	0.000E+00	9.713E-08	5.252E-05	2.194E-02	0.000E+00	0.000E+00
3.000E+04	0.000E+00	9.401E-08	4.955E-05	2.293E-02	0.000E+00	0.000E+00
3.500E+04	0.000E+00	9.196E-08	4.718E-05	2.395E-02	0.000E+00	0.000E+00
4.000E+04	0.000E+00	9.055E-08	4.524E-05	2.497E-02	0.000E+00	0.000E+00
5.000E+04	0.000E+00	8.893E-08	4.225E-05	2.695E-02	0.000E+00	0.000E+00
6.000E+04	0.000E+00	8.887E-08	4.006E-05	2.881E-02	1.804E-09	0.000E+00
7.000E+04	0.000E+00	9.170E-08	3.839E-05	3.055E-02	1.735E-08	0.000E+00
8.000E+04	0.000E+00	1.010E-07	3.711E-05	3.218E-02	9.602E-08	0.000E+00
1.000E+05	0.000E+00	1.726E-07	3.531E-05	3.517E-02	1.079E-06	0.000E+00
1.200E+05	0.000E+00	4.389E-07	3.432E-05	3.787E-02	5.521E-06	0.000E+00
1.500E+05	0.000E+00	1.967E-06	3.493E-05	4.155E-02	2.910E-05	2.185E-09
1.700E+05	0.000E+00	4.834E-06	3.797E-05	4.385E-02	6.491E-05	1.079E-08
2.000E+05	1.315E-10	1.566E-05	5.048E-05	4.720E-02	1.652E-04	6.654E-08
2.500E+05	5.775E-09	7.552E-05	1.146E-04	5.275E-02	5.156E-04	5.570E-07
3.000E+05	8.552E-08	2.544E-04	2.835E-04	5.847E-02	1.197E-03	2.485E-06
5.000E+05	2.787E-05	4.587E-03	3.557E-03	8.252E-02	8.903E-03	7.838E-05
7.000E+05	3.731E-04	1.886E-02	1.359E-02	1.042E-01	2.428E-02	4.842E-04
8.500E+05	1.175E-03	3.579E-02	2.558E-02	1.173E-01	3.846E-02	1.178E-03
1.000E+06	2.603E-03	5.598E-02	4.025E-02	1.275E-01	5.314E-02	2.262E-03

kT(eV)	20-Ca- 43	21-Sc- 45	22-Ti- 47	28-Ni- 58	28-Ni- 61	32-Ge- 70
1.000E+03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2.000E+03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
3.000E+03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.441E-07	0.000E+00
5.000E+03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.402E-07	0.000E+00
1.000E+04	2.747E-10	0.000E+00	0.000E+00	0.000E+00	4.803E-07	0.000E+00
1.500E+04	8.344E-09	0.000E+00	0.000E+00	0.000E+00	7.205E-07	0.000E+00
2.000E+04	4.757E-08	0.000E+00	0.000E+00	0.000E+00	9.606E-07	1.459E-10
2.500E+04	1.386E-07	0.000E+00	0.000E+00	0.000E+00	1.201E-06	3.556E-10
3.000E+04	2.879E-07	1.177E-09	0.000E+00	0.000E+00	1.441E-06	6.447E-10
3.500E+04	4.925E-07	8.308E-09	0.000E+00	0.000E+00	1.681E-06	9.902E-10
4.000E+04	7.458E-07	3.615E-08	0.000E+00	0.000E+00	1.921E-06	1.374E-09
5.000E+04	1.373E-06	2.864E-07	0.000E+00	0.000E+00	2.402E-06	2.222E-09
6.000E+04	2.139E-06	1.152E-06	0.000E+00	0.000E+00	2.885E-06	3.181E-09
7.000E+04	3.057E-06	3.143E-06	0.000E+00	2.090E-10	3.374E-06	4.358E-09
8.000E+04	4.199E-06	6.726E-06	1.681E-10	1.268E-09	3.874E-06	6.042E-09
1.000E+05	7.945E-06	1.986E-05	2.129E-09	1.598E-08	4.935E-06	1.383E-08
1.200E+05	1.643E-05	4.160E-05	1.192E-08	8.753E-08	6.131E-06	3.769E-08
1.500E+05	5.022E-05	8.922E-05	7.392E-08	4.884E-07	8.342E-06	1.532E-07
1.700E+05	9.644E-05	1.293E-04	1.924E-07	1.113E-06	1.022E-05	3.366E-07
2.000E+05	2.154E-04	1.992E-04	6.529E-07	2.885E-06	1.388E-05	9.139E-07
2.500E+05	5.684E-04	3.336E-04	3.352E-06	9.225E-06	2.334E-05	3.473E-06
3.000E+05	1.107E-03	4.819E-04	1.170E-05	2.257E-05	3.926E-05	9.998E-06
5.000E+05	4.193E-03	1.126E-03	2.116E-04	2.875E-04	2.383E-04	1.433E-04
7.000E+05	7.277E-03	1.783E-03	9.015E-04	1.386E-03	8.069E-04	5.911E-04
8.500E+05	9.276E-03	2.276E-03	1.819E-03	3.055E-03	1.520E-03	1.174E-03
1.000E+06	1.105E-02	2.773E-03	3.067E-03	5.478E-03	2.442E-03	1.943E-03

Table 3.4 Maxwellian-averaged (n,α) cross sections (continued)

unit: barns

kT(eV)	34-Se- 74	36-Kr- 78	42-Mo- 95	44-Ru- 96	48-Cd-106	73-Ta-181
1.000E+03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.392E-01
2.000E+03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.712E-01
3.000E+03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.735E-01
5.000E+03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.868E-01
1.000E+04	0.000E+00	0.000E+00	3.355E-08	3.676E-09	5.016E-10	5.386E-01
1.500E+04	0.000E+00	0.000E+00	9.641E-07	1.116E-07	1.523E-08	5.012E-01
2.000E+04	3.556E-10	5.677E-10	5.065E-06	6.365E-07	8.685E-08	4.461E-01
2.500E+04	1.036E-09	1.653E-09	1.344E-05	1.854E-06	2.530E-07	3.910E-01
3.000E+04	2.152E-09	3.435E-09	2.537E-05	3.852E-06	5.255E-07	3.414E-01
3.500E+04	3.681E-09	5.876E-09	3.949E-05	6.588E-06	8.989E-07	2.984E-01
4.000E+04	5.573E-09	8.894E-09	5.455E-05	9.970E-06	1.360E-06	2.618E-01
5.000E+04	1.024E-08	1.631E-08	8.430E-05	1.827E-05	2.493E-06	2.047E-01
6.000E+04	1.588E-08	2.515E-08	1.110E-04	2.804E-05	3.832E-06	1.634E-01
7.000E+04	2.250E-08	3.518E-08	1.338E-04	3.884E-05	5.321E-06	1.330E-01
8.000E+04	3.039E-08	4.643E-08	1.530E-04	5.037E-05	6.932E-06	1.102E-01
1.000E+05	5.254E-08	7.402E-08	1.828E-04	7.511E-05	1.051E-05	7.892E-02
1.200E+05	8.997E-08	1.126E-07	2.049E-04	1.019E-04	1.465E-05	5.918E-02
1.500E+05	2.038E-07	2.098E-07	2.301E-04	1.471E-04	2.245E-05	4.095E-02
1.700E+05	3.502E-07	3.210E-07	2.443E-04	1.817E-04	2.914E-05	3.309E-02
2.000E+05	7.689E-07	6.146E-07	2.644E-04	2.424E-04	4.234E-05	2.494E-02
2.500E+05	2.574E-06	1.779E-06	2.985E-04	3.755E-04	7.610E-05	1.675E-02
3.000E+05	7.428E-06	4.727E-06	3.374E-04	5.599E-04	1.305E-04	1.202E-02
5.000E+05	1.462E-04	8.273E-05	5.704E-04	1.995E-03	7.020E-04	4.619E-03
7.000E+05	8.212E-04	4.562E-04	9.304E-04	4.650E-03	2.115E-03	2.424E-03
8.500E+05	1.933E-03	1.077E-03	1.259E-03	7.255E-03	3.781E-03	1.665E-03
1.000E+06	3.631E-03	2.038E-03	1.611E-03	1.014E-02	5.883E-03	1.214E-03

Table 4.1 Comparison of Maxwellian-averaged capture cross sections at kT=30 keV

Nuclide	JENDL-3.2	Beer et al.[2]	Bao and Käppeler[1]	C
1-H - 1	2.429E-04			
1-H - 2	2.100E-06			
2-He- 3	1.452E-05			
3-Li- 6	3.571E-05			
3-Li- 7	4.169E-05			
4-Be- 9	6.979E-06			
5-B - 10	4.592E-04			
5-B - 11	6.269E-05			
6-C - 12	1.581E-05	1.680E-05±2.100E-06	2.000E-04±4.000E-04	
7-N - 14	6.953E-05	4.100E-05±7.000E-05		**
7-N - 15	2.623E-08			
8-O - 16	3.346E-05	8.600E-07±3.400E-07	2.000E-07±1.000E-07	**
9-F - 19	5.911E-03	5.700E-03±1.100E-03	5.400E-03±1.100E-03	
11-Na- 23	1.802E-03	2.100E-03±1.999E-04	2.300E-03±2.000E-04	
12-Mg- 24	3.733E-03	4.200E-03±1.999E-04	4.100E-03±4.000E-04	
12-Mg- 25	5.280E-03	6.500E-03±3.003E-04	6.500E-03±4.000E-04	
12-Mg- 26	8.075E-05	6.600E-05±3.003E-06	8.400E-05±5.000E-06	
13-Al- 27	3.393E-03	3.800E-03±2.998E-04	3.800E-03±3.000E-04	
14-Si- 28	1.690E-03	1.750E-03±2.000E-04	2.900E-03±3.000E-04	
14-Si- 29	6.017E-03	7.900E-03±8.998E-04	7.800E-03±9.000E-04	
14-Si- 30	6.078E-03	6.400E-03±6.003E-04	6.300E-03±6.000E-04	
15-P - 31	1.602E-03	1.740E-03±8.996E-05	1.740E-03±9.000E-05	
16-S - 32	5.682E-03	4.700E-03±2.002E-04	4.700E-03±2.000E-04	
16-S - 33	2.335E-03	7.400E-03±1.500E-03	7.400E-03±1.500E-03	**
16-S - 34	2.225E-04	2.900E-03±8.999E-04	2.900E-03	**
16-S - 36	6.393E-04		3.000E-04	**
17-Cl- 35	8.757E-03	1.000E-02±3.000E-04	1.000E-02±3.000E-04	
17-Cl- 37	2.528E-03	2.150E-03±7.998E-05	2.150E-03±8.000E-05	
18-Ar- 40	2.234E-03	2.330E-03±1.501E-04	2.330E-03±1.500E-04	
19-K - 39	1.890E-02	1.180E-02±4.000E-04	1.180E-02±4.000E-04	**
19-K - 40	1.975E-02		1.900E-02	
19-K - 41	3.210E-02	2.200E-02±6.996E-04	2.200E-02±7.000E-04	*
20-Ca- 40	5.223E-03	6.700E-03±7.002E-04	6.700E-03±7.000E-04	
20-Ca- 42	1.260E-02	1.560E-02±2.000E-03	1.560E-02±2.000E-03	
20-Ca- 43	3.491E-02	5.100E-02±5.998E-03	5.100E-02±6.000E-03	*
20-Ca- 44	7.844E-03	8.800E-03±1.300E-03	8.800E-03±1.300E-03	
20-Ca- 46	9.525E-04		5.400E-03±5.000E-04	**
20-Ca- 48	1.108E-04		8.900E-04±9.000E-05	**
21-Sc- 45	6.644E-02	8.990E-02±6.302E-03	8.990E-02±6.300E-03	
22-Ti- 46	2.079E-02	2.650E-02±3.201E-03	2.650E-02±3.200E-03	
22-Ti- 47	4.609E-02	6.480E-02±7.698E-03	6.440E-02±7.700E-03	
22-Ti- 48	3.368E-02	3.080E-02±5.100E-03	3.080E-02±5.100E-03	
22-Ti- 49	1.290E-02	2.210E-02±2.100E-03	2.210E-02±2.100E-03	*
22-Ti- 50	2.445E-03	4.000E-03±5.000E-04	4.000E-03±5.000E-04	*
23-V - 51	3.181E-02	4.200E-02±2.999E-03	4.200E-02±3.000E-03	
24-Cr- 50	3.835E-02	5.230E-02±1.300E-02	5.230E-02±1.300E-02	
24-Cr- 52	8.723E-03	8.790E-03±4.404E-04	9.800E-03±2.300E-03	
24-Cr- 53	3.187E-02	5.800E-02±9.999E-03	5.800E-02±1.000E-02	*
24-Cr- 54	3.744E-03	6.700E-03±1.600E-03	6.700E-03±1.600E-03	*
25-Mn- 55	3.141E-02	3.960E-02±2.400E-03	3.960E-02±2.400E-03	
26-Fe- 54	4.066E-02	2.770E-02±2.399E-03	2.910E-02±1.800E-03	*

Table 4.1 Comparison of Maxwellian-averaged capture cross sections at kT=30 keV (continued)

Nuclide	JENDL-3.2	Beer et al.[2]	Bao and Käppeler[1]	C
26-Fe- 56	1.324E-02	1.230E-02±5.006E-04	1.310E-02±7.000E-04	
26-Fe- 57	3.068E-02	3.500E-02±3.500E-03	3.500E-02±3.500E-03	
26-Fe- 58	1.420E-02	1.280E-02±1.300E-03	1.300E-02±1.300E-03	
27-Co- 59	3.886E-02	3.800E-02±3.800E-03	3.800E-02±3.800E-03	
28-Ni- 58	3.806E-02	4.230E-02±2.800E-03	3.780E-02±2.500E-03	
28-Ni- 60	2.819E-02	2.670E-02±1.399E-03	3.060E-02±1.500E-03	
28-Ni- 61	9.762E-02	8.230E-02±8.000E-03	8.230E-02±8.000E-03	
28-Ni- 62	1.956E-02	3.550E-02±4.001E-03	3.550E-02±4.000E-03	*
28-Ni- 64	2.043E-02	1.030E-02±1.100E-03	1.040E-02±1.100E-03	**
29-Cu- 63	7.705E-02	9.300E-02±1.400E-02	9.300E-02±1.400E-02	
29-Cu- 65	3.752E-02	5.300E-02±4.998E-03	5.300E-02±5.000E-03	
31-Ga- 69	1.204E-01	1.490E-01±1.299E-02	1.460E-01±6.000E-03	
31-Ga- 71	1.036E-01	1.220E-01±7.003E-03	1.250E-01±8.000E-03	
32-Ge- 70	8.690E-02	8.600E-02±4.997E-03	8.670E-02±5.000E-03	
32-Ge- 72	4.722E-02	5.700E-02±1.600E-02	5.700E-02	
32-Ge- 73	1.921E-01	2.840E-01±8.301E-02	2.840E-01	*
32-Ge- 74	1.409E-02	5.400E-02±5.999E-03	5.440E-02±3.000E-03	**
32-Ge- 76	8.383E-03		1.600E-02±1.300E-03	*
33-As- 75	4.521E-01	4.550E-01±1.802E-02	5.760E-01±3.500E-02	
34-Se- 74	2.096E-01		2.380E-01	
34-Se- 76	9.639E-02	1.640E-01±8.003E-03	1.460E-01	*
34-Se- 77	4.475E-01	4.410E-01±1.300E-01	4.410E-01	
34-Se- 78	9.113E-02	9.000E-02±1.800E-02	8.950E-02	
34-Se- 79	4.171E-01	2.180E-01±5.001E-02	2.180E-01±5.000E-02	**
34-Se- 80	3.964E-02	4.400E-02±3.001E-03	4.400E-02±3.000E-03	
34-Se- 82	3.035E-02		1.900E-02	**
35-Br- 79	6.902E-01	7.410E-01±3.001E-02	6.360E-01±4.200E-02	
35-Br- 81	2.482E-01	2.440E-01±1.000E-02	3.170E-01±1.700E-02	
36-Kr- 78	3.818E-01		3.370E-01±4.100E-02	
36-Kr- 80	2.958E-01	2.400E-01±1.399E-02	2.420E-01±1.400E-02	
36-Kr- 82	1.033E-01	7.800E-02±5.998E-03	7.900E-02±6.000E-03	*
36-Kr- 83	2.677E-01	2.340E-01±1.500E-02	2.370E-01±1.500E-02	
36-Kr- 84	4.069E-02	3.400E-02±3.998E-03	1.900E-02±2.400E-03	
36-Kr- 85	6.902E-02	6.700E-02±1.700E-02	6.700E-02±1.700E-02	
36-Kr- 86	5.129E-03	3.331E-03±2.352E-04	4.000E-03±3.000E-04	**
37-Rb- 85	2.835E-01	2.400E-01±9.000E-03	3.600E-01±2.000E-02	
37-Rb- 87	2.339E-02	1.800E-02±5.004E-04	1.100E-02±2.000E-03	
38-Sr- 86	6.880E-02	6.500E-02±2.301E-03	7.000E-02±4.000E-03	
38-Sr- 87	8.111E-02	9.220E-02±3.301E-03	9.400E-02±7.000E-03	
38-Sr- 88	6.398E-03	5.885E-03±1.577E-04	6.200E-03±5.000E-04	
38-Sr- 89	1.460E-02	3.950E-02±2.000E-02		**
38-Sr- 90	1.469E-02			
39-Y - 89	2.076E-02	1.881E-02±5.304E-04	2.100E-02±3.000E-03	
39-Y - 91	8.837E-02			
40-Zr- 90	2.092E-02	2.080E-02±2.201E-03	1.640E-02±1.000E-03	
40-Zr- 91	6.740E-02	6.000E-02±7.998E-03	6.000E-02±8.000E-03	
40-Zr- 92	4.596E-02	3.300E-02±4.000E-03	5.000E-02±6.000E-03	*
40-Zr- 93	9.982E-02	9.500E-02±1.000E-02	9.500E-02±1.000E-02	
40-Zr- 94	3.017E-02	2.610E-02±9.135E-04	3.300E-02±5.000E-03	
40-Zr- 95	1.401E-01	5.000E-02±2.500E-02	7.230E-02	**
40-Zr- 96	1.236E-02	1.003E-02±3.460E-04	2.500E-02±1.500E-02	

Table 4.1 Comparison of Maxwellian-averaged capture cross sections at kT=30 keV (continued)

Nuclide	JENDL-3.2	Beer et al.[2]	Bao and Käppeler[1]	C
41-Nb- 93	2.672E-01	2.657E-01± 5.101E-03	2.710E-01±1.500E-02	
41-Nb- 94	3.192E-01		5.340E-01	*
41-Nb- 95	4.048E-01			
42-Mo- 92	6.701E-02		7.000E-02±1.000E-02	
42-Mo- 94	1.152E-01		1.040E-01±2.000E-02	
42-Mo- 95	3.922E-01	2.920E-01±1.200E-02	3.740E-01±5.000E-02	*
42-Mo- 96	1.043E-01	1.120E-01±4.995E-03	1.030E-01±1.600E-02	
42-Mo- 97	3.905E-01	3.390E-01±1.400E-02	3.840E-01±5.000E-02	
42-Mo- 98	9.584E-02	9.900E-02±5.000E-03	1.020E-01±1.500E-02	
42-Mo- 99	4.818E-01			
42-Mo-100	8.862E-02		9.700E-02±2.000E-02	
43-Tc- 99	7.820E-01	7.820E-01±3.902E-02	7.990E-01±4.000E-02	
44-Ru- 96	2.664E-01		2.700E-01±6.000E-02	
44-Ru- 98	2.377E-01		2.220E-01	
44-Ru- 99	7.147E-01	9.310E-01±3.000E-01	9.310E-01	
44-Ru-100	2.073E-01	2.060E-01±1.300E-02	2.060E-01±1.300E-02	
44-Ru-101	9.142E-01	9.960E-01±4.004E-02	9.960E-01±4.000E-02	
44-Ru-102	1.904E-01	1.860E-01±1.099E-02	1.860E-01±1.100E-02	
44-Ru-103	5.782E-01	5.690E-01±2.850E-01	5.690E-01	
44-Ru-104	1.662E-01	1.610E-01±9.998E-03	1.610E-01±1.000E-02	
44-Ru-106	1.008E-01			
45-Rh-103	8.780E-01	8.105E-01±1.443E-02	8.750E-01±3.500E-02	
45-Rh-105	8.244E-01			
46-Pd-102	3.851E-01		3.100E-01	
46-Pd-104	2.954E-01	2.890E-01±2.899E-02	2.890E-01±2.900E-02	
46-Pd-105	1.199E+00	1.199E+00±5.995E-02	1.199E+00±6.000E-02	
46-Pd-106	2.920E-01	2.520E-01±2.500E-02	2.520E-01±2.500E-02	
46-Pd-107	1.300E+00	1.340E+00±6.003E-02	1.340E+00±6.000E-02	
46-Pd-108	2.442E-01	2.030E-01±2.000E-02	2.030E-01±2.000E-02	
46-Pd-110	1.565E-01	1.460E-01±2.000E-02	1.460E-01±2.000E-02	
47-Ag-107	8.406E-01	7.990E-01±2.397E-02	7.990E-01±2.400E-02	
47-Ag-109	8.543E-01	7.790E-01±2.298E-02	7.790E-01±2.300E-02	
47-Ag-110m	2.714E+00			
48-Cd-106	5.676E-01		5.550E-01±5.500E-02	
48-Cd-108	4.227E-01		4.070E-01±7.000E-02	
48-Cd-110	2.335E-01	2.460E-01±3.001E-02	2.530E-01±3.000E-02	
48-Cd-111	1.044E+00	1.063E+00±1.250E-01	1.063E+00±1.250E-01	
48-Cd-112	2.148E-01	2.330E-01±3.001E-02	2.220E-01±3.000E-02	
48-Cd-113	6.712E-01	7.280E-01±8.001E-02	7.280E-01±8.000E-02	
48-Cd-114	1.504E-01	1.610E-01±2.500E-02	1.500E-01±2.500E-02	
48-Cd-116	9.123E-02	9.400E-02±1.200E-02	9.400E-02±1.200E-02	
49-In-113	9.240E-01		7.870E-01±7.000E-02	
49-In-115	7.732E-01	7.430E-01±7.400E-02	7.430E-01±7.400E-02	
50-Sn-112	1.962E-01		2.020E-01±4.800E-02	
50-Sn-114	1.530E-01		1.840E-01	
50-Sn-115	3.920E-01		4.300E-01	
50-Sn-116	1.060E-01	9.200E-02±4.996E-03	1.000E-01±1.900E-02	
50-Sn-117	3.108E-01	4.020E-01±7.698E-02	4.020E-01±7.700E-02	
50-Sn-118	6.703E-02	6.300E-02±1.200E-02	6.300E-02±1.200E-02	
50-Sn-119	2.260E-01	2.470E-01±4.700E-02	2.470E-01±4.700E-02	
50-Sn-120	4.157E-02	3.900E-02±7.001E-03	3.900E-02±7.000E-03	

Table 4.1 Comparison of Maxwellian-averaged capture cross sections at kT=30 keV (continued)

Nuclide	JENDL-3.2	Beer et al.[2]	Bao and Käppeler[1]	C
50-Sn-122	2.399E-02		2.300E-02±5.000E-03	
50-Sn-123	3.616E-01			
50-Sn-124	1.507E-02		2.300E-02±4.000E-03	*
50-Sn-126	1.085E-02			
51-Sb-121	5.223E-01	5.320E-01±1.500E-02	7.400E-01±1.000E-01	
51-Sb-123	3.184E-01	3.030E-01±7.999E-03	4.400E-01±5.000E-02	
51-Sb-124	9.704E-01			
51-Sb-125	5.271E-01			
52-Te-120	2.919E-01		4.840E-01	*
52-Te-122	2.646E-01	2.800E-01±1.100E-02	2.950E-01±6.000E-02	
52-Te-123	8.148E-01	8.190E-01±3.301E-02	8.220E-01±5.000E-02	
52-Te-124	1.478E-01	1.540E-01±6.299E-03	1.620E-01±2.100E-02	
52-Te-125	4.199E-01	4.230E-01±1.700E-02	4.440E-01±4.400E-02	
52-Te-126	9.064E-02	8.830E-02±3.603E-03	8.000E-02±1.200E-02	
52-Te-127m	8.892E-01			
52-Te-128	4.004E-02		3.900E-02±5.000E-03	
52-Te-129m	7.503E-01			
52-Te-130	1.432E-02		1.550E-02±2.300E-03	
53-I -127	6.682E-01	6.350E-01±2.997E-02	6.350E-01±3.000E-02	
53-I -129	4.409E-01	4.410E-01±2.201E-02	4.410E-01±2.200E-02	
53-I -131	2.638E-01			
54-Xe-124	1.155E+00		9.930E-01±1.040E-01	
54-Xe-126	6.851E-01		3.240E-01	**
54-Xe-128	2.875E-01	3.470E-01±1.110E-01	2.490E-01	
54-Xe-129	4.350E-01	7.570E-01±6.503E-02	4.700E-01	*
54-Xe-130	2.826E-01	1.750E-01±4.900E-02	1.530E-01	**
54-Xe-131	3.650E-01	4.530E-01±8.100E-02	3.480E-01	
54-Xe-132	5.231E-02	6.460E-02±5.297E-03	5.750E-02±3.800E-03	
54-Xe-133	1.278E-01	1.340E-01±6.700E-02	1.340E-01	
54-Xe-134	2.628E-02	2.020E-02±1.701E-03	2.730E-02± 2.000E-03	*
54-Xe-135	6.557E-02			
54-Xe-136	8.791E-04	9.100E-04±7.999E-05	2.900E-03	
55-Cs-133	5.120E-01	5.090E-01±2.102E-02	5.090E-01±2.100E-02	
55-Cs-134	1.159E+00	9.580E-01±1.790E-01	9.580E-01	
55-Cs-135	2.016E-01	2.010E-01±1.000E-01	2.010E-01	
55-Cs-136	2.246E-01			
55-Cs-137	2.169E-02			
56-Ba-130	7.393E-01		7.150E-01±1.160E-01	
56-Ba-132	4.565E-01		4.470E-01	
56-Ba-134	2.324E-01	2.210E-01±3.399E-02	2.210E-01±3.500E-02	
56-Ba-135	5.013E-01	2.950E-01±5.900E-02	4.570E-01±8.000E-02	**
56-Ba-136	6.685E-02	6.000E-02±1.000E-02	6.900E-02±1.000E-02	
56-Ba-137	6.396E-02	5.200E-02±1.000E-02	5.700E-02±1.000E-02	
56-Ba-138	4.310E-03	3.900E-03±2.001E-04	3.900E-03±3.000E-04	
56-Ba-140	3.252E-03			
57-La-138	3.140E-01			
57-La-139	3.806E-02	3.840E-02±2.700E-03	3.840E-02±2.700E-03	
58-Ce-140	7.462E-03	1.060E-02±5.003E-04	1.060E-02±6.000E-04	
58-Ce-141	2.764E-01	1.670E-01±8.400E-02	1.670E-01	**
58-Ce-142	1.964E-02		1.810E-02±1.100E-03	
58-Ce-144	2.429E-02			

Table 4.1 Comparison of Maxwellian-averaged capture cross sections at kT=30 keV (continued)

Nuclide	JENDL-3.2	Beer et al.[2]	Bao and Käppeler[1]	C
59-Pr-141	1.187E-01	1.190E-01±1.501E-02	1.190E-01±1.500E-02	
59-Pr-143	1.077E-01			
60-Nd-142	5.513E-02	4.600E-02±4.002E-03	4.600E-02±4.000E-03	
60-Nd-143	2.881E-01	2.420E-01±9.995E-03	2.420E-01±1.000E-02	
60-Nd-144	7.304E-02	1.080E-01±6.005E-03	1.100E-01±6.000E-03	*
60-Nd-145	5.298E-01	4.850E-01±1.000E-01	4.850E-01±1.000E-01	
60-Nd-146	1.215E-01	1.570E-01± 4.000E-02	1.570E-01±4.000E-02	
60-Nd-147	1.007E+00	6.250E-01±1.560E-01	6.250E-01	**
60-Nd-148	1.268E-01	1.920E-01±3.999E-02	1.920E-01±4.000E-02	*
60-Nd-150	1.655E-01		1.870E-01±1.900E-02	
61-Pm-147	1.051E+00	1.163E+00±2.901E-01	1.163E+00	
61-Pm-148	1.707E+00	1.542E+00±3.850E-01	1.542E+00	
61-Pm-148m	2.868E+00		2.453E+00	
61-Pm-149	1.024E+00			
62-Sm-144	8.822E-02		9.200E-02±9.000E-03	
62-Sm-147	1.032E+00	1.005E+00±1.000E-01	1.005E+00±1.000E-01	
62-Sm-148	2.445E-01	2.580E-01±1.200E-02	2.670E-01±1.200E-02	
62-Sm-149	1.832E+00	1.409E+00±6.495E-02	1.454E+00±6.600E-02	*
62-Sm-150	4.184E-01	4.340E-01±2.600E-02	4.470E-01±2.600E-02	
62-Sm-151	2.003E+00	1.932E+00±2.060E-01	1.932E+00	
62-Sm-152	4.791E-01	4.010E-01±2.402E-02	3.780E-01±2.300E-02	
62-Sm-153	6.515E-01			
62-Sm-154	2.546E-01		2.930E-01±1.900E-02	
63-Eu-151	3.581E+00	4.367E+00±1.751E-01	4.367E+00±1.750E-01	
63-Eu-152	4.568E+00		4.816E+00	
63-Eu-153	2.537E+00	3.170E+00±3.170E-01	3.170E+00±3.170E-01	
63-Eu-154	3.574E+00	4.420E+00±6.630E-01	3.720E+00	
63-Eu-155	1.142E+00	1.909E+00±6.000E-01	1.909E+00	*
63-Eu-156	5.421E-01			
64-Gd-152	9.986E-01	1.045E+00±6.500E-02	9.850E-01±6.100E-02	
64-Gd-154	8.685E-01	8.780E-01±2.704E-02	1.278E+00±1.020E-01	
64-Gd-155	2.835E+00	2.721E+00±9.007E-02	2.800E+00±2.800E-01	
64-Gd-156	6.078E-01	6.390E-01±6.403E-02	6.390E-01±6.400E-02	
64-Gd-157	1.268E+00	1.355E+00±3.902E-02	1.538E+00±1.540E-01	
64-Gd-158	3.085E-01	2.210E-01±2.000E-02	2.080E-01±1.900E-02	*
64-Gd-160	1.649E-01		1.360E-01±1.300E-02	
65-Tb-159	2.081E+00	1.748E+00±9.701E-02	1.800E+00±1.000E-01	
72-Hf-174	9.554E-01		1.051E+00	
72-Hf-176	4.560E-01	4.580E-01±2.001E-02	4.580E-01±2.000E-02	
72-Hf-177	1.398E+00	1.366E+00±6.106E-02	1.366E+00±6.100E-02	
72-Hf-178	2.982E-01	3.100E-01±1.001E-02	3.100E-01±1.000E-02	
72-Hf-179	9.870E-01	9.910E-01±3.003E-02	9.910E-01±3.000E-02	
72-Hf-180	2.348E-01	1.750E-01±5.005E-03	1.750E-01±5.000E-03	*
73-Ta-181	7.567E-01	7.662E-01±1.509E-02	7.330E-01±3.700E-02	
74-W -182	2.734E-01	2.740E-01±8.001E-03	2.740E-01±8.000E-03	
74-W -183	4.523E-01	5.150E-01±1.499E-02	5.150E-01±1.500E-02	
74-W -184	2.029E-01	2.300E-01±1.001E-02	2.230E-01±7.000E-03	
74-W -186	1.871E-01	1.760E-01±4.998E-03	1.760E-01±5.000E-03	
82-Pb-204	7.215E-02	8.950E-02±5.504E-03	8.950E-02±5.500E-03	
82-Pb-206	1.190E-02	1.400E-02±9.996E-04	1.580E-02±8.000E-04	
82-Pb-207	9.458E-03	8.420E-03±4.404E-04	1.130E-02±7.000E-04	

Table 4.1 Comparison of Maxwellian-averaged capture cross sections at kT=30 keV (continued)

Nuclide	JENDL-3.2	Beer et al.[2]	Bao and Käppeler[1]	C
82-Pb-208	6.388E-04	3.647E-04±2.352E-05	6.500E-04±5.000E-05	**
83-Bi-209	3.166E-03	3.120E-03±3.201E-04	1.110E-02±1.100E-03	
88-Ra-223	6.001E-01			
88-Ra-224	2.262E-01			
88-Ra-225	6.518E-01			
88-Ra-226	4.467E-01			
89-Ac-225	1.553E+00			
89-Ac-226	2.009E+00			
89-Ac-227	8.578E-02			
90-Th-227	1.390E+00			
90-Th-228	4.277E-01			
90-Th-229	1.400E+00			
90-Th-230	4.322E-01			
90-Th-232	4.478E-01		4.590E-01±3.000E-02	
90-Th-233	5.717E-01			
90-Th-234	4.308E-01			
91-Pa-231	2.174E+00			
91-Pa-232	1.215E+00			
91-Pa-233	1.831E+00			
92-U -232	2.790E-01			
92-U -233	3.210E-01		3.520E-01±3.500E-02	
92-U -234	5.600E-01		6.430E-01±9.000E-02	
92-U -235	7.328E-01		7.750E-01±5.000E-02	
92-U -236	5.315E-01		5.300E-01±7.500E-02	
92-U -237	6.545E-01			
92-U -238	3.992E-01		4.430E-01±2.000E-02	
93-Np-236	6.550E-01			
93-Np-237	2.253E+00		1.978E+00±2.000E-01	
93-Np-238	5.326E-01			
93-Np-239	2.553E+00			
94-Pu-236	1.201E+00			
94-Pu-238	8.415E-01		7.830E-01±8.000E-02	
94-Pu-239	5.621E-01		5.250E-01±4.000E-02	
94-Pu-240	7.673E-01		7.140E-01±3.500E-02	
94-Pu-241	5.765E-01		5.900E-01±6.000E-02	
94-Pu-242	6.453E-01		5.610E-01±3.500E-02	
95-Am-241	2.277E+00		2.374E+00±1.200E-01	
95-Am-242	6.658E-01			
95-Am-242m	7.375E-01			
95-Am-243	2.173E+00		1.996E+00±1.400E-01	
95-Am-244	8.808E-01			
95-Am-244m	8.534E-01			
96-Cm-241	1.626E-01			
96-Cm-242	6.662E-01			
96-Cm-243	4.704E-01			
96-Cm-244	8.839E-01			
96-Cm-245	4.807E-01			
96-Cm-246	4.243E-01			
96-Cm-247	7.970E-01		4.800E-01±1.000E-01	*
96-Cm-248	3.214E-01		3.220E-01±5.000E-02	
96-Cm-249	4.007E-01			
96-Cm-250	1.384E-01			

Table 4.1 Comparison of Maxwellian-averaged capture cross sections at kT=30 keV (continued)

Nuclide	JENDL-3.2	Beer et al.[2]	Bao and Käppeler[1]	C
97-Bk-249	1.745E+00			
97-Bk-250	6.823E-01			
98-Cf-249	7.850E-01			
98-Cf-250	7.918E-01			
98-Cf-251	4.176E-01			
98-Cf-252	4.412E-01			
98-Cf-254	9.160E-02			
99-Es-254	6.585E-01			
99-Es-255	6.799E-01			
100-Fm-255	3.303E-01			

Table 4.2 Comparison of Beer[38] with JENDL-3.2 for Xe isotopes
(Maxwellian-averaged cross section at kT=25 keV, in mb)

	Beer	JENDL-3.2
^{124}Xe	706±91	1280
^{126}Xe	393±56	739
^{128}Xe	382±122	312
^{130}Xe	192±54	309
^{132}Xe	71.6±5.9	58.7
^{134}Xe	22.6±1.9	29.1
^{136}Xe	1.05±0.09	0.96

Table 4.3 Comparison of Toukan et al.[40] with others for Nd isotopes
(Maxwellian-averaged cross sections at kT=30 keV, in mb)

	Toukan et al.	JENDL-3.2	Beer et al.[2] or Bao et al.[1]
^{146}Nd	87.1±4.0	121.5	157±40
^{147}Nd	550±150*	1007	625±156
^{148}Nd	152±9	126.8	192±40
^{150}Nd	159±10	165.5	187±19

* Calculated value

Table 4.4 Comparison of Maxwellian-averaged fission cross sections at kT=30 keV

Nuclide	JENDL-3.2	Bao and Käppeler[1)]
92-U -233	3.013	3.182±0.160
92-U -234	0.0234	0.0235±0.004
92-U -235	2.194	2.228±0.070
92-U -236	0.004019	0.0009±0.0004
92-U -238	7.7E-05	0.0±0.00004
93-Np-237	0.03005	0.016±0.001
94-Pu-238	0.8067	0.701±0.050
94-Pu-239	1.850	1.883±0.075
94-Pu-240	0.1007	0.0985±0.005
94-Pu-241	2.9727	2.897±0.140
94-Pu-242	0.01568	0.0093±0.0005
95-Am-241	0.01808	0.0186±0.0013
95-Am-243	0.008444	0.0122±0.0012
96-Cm-247	2.397	2.064±0.400
96-Cm-248	0.04118	0.043±0.010

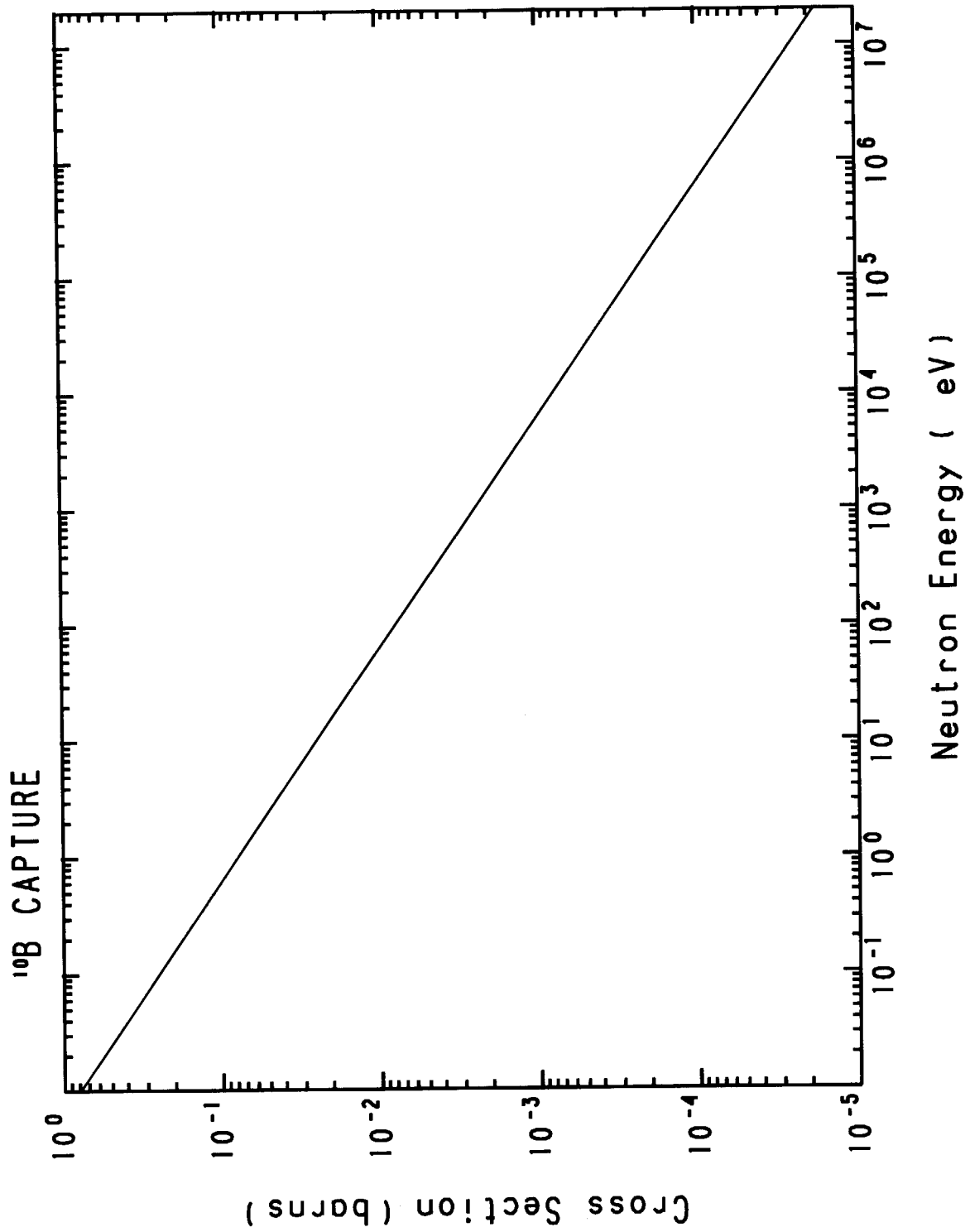

Fig. 2.1 Neutron capture cross section of ^{10}B

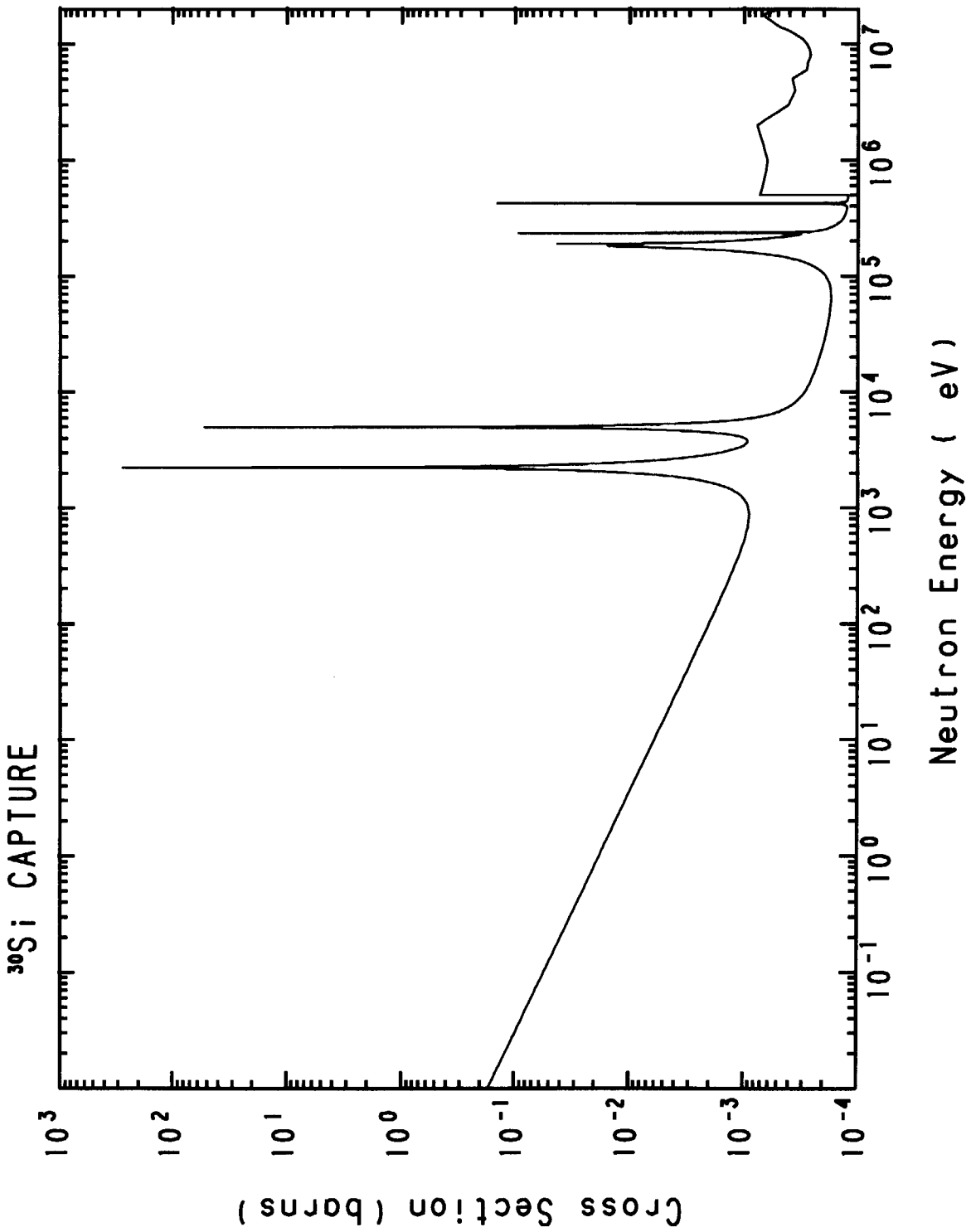

Fig. 2.2 Neutron capture cross section of ^{30}Si

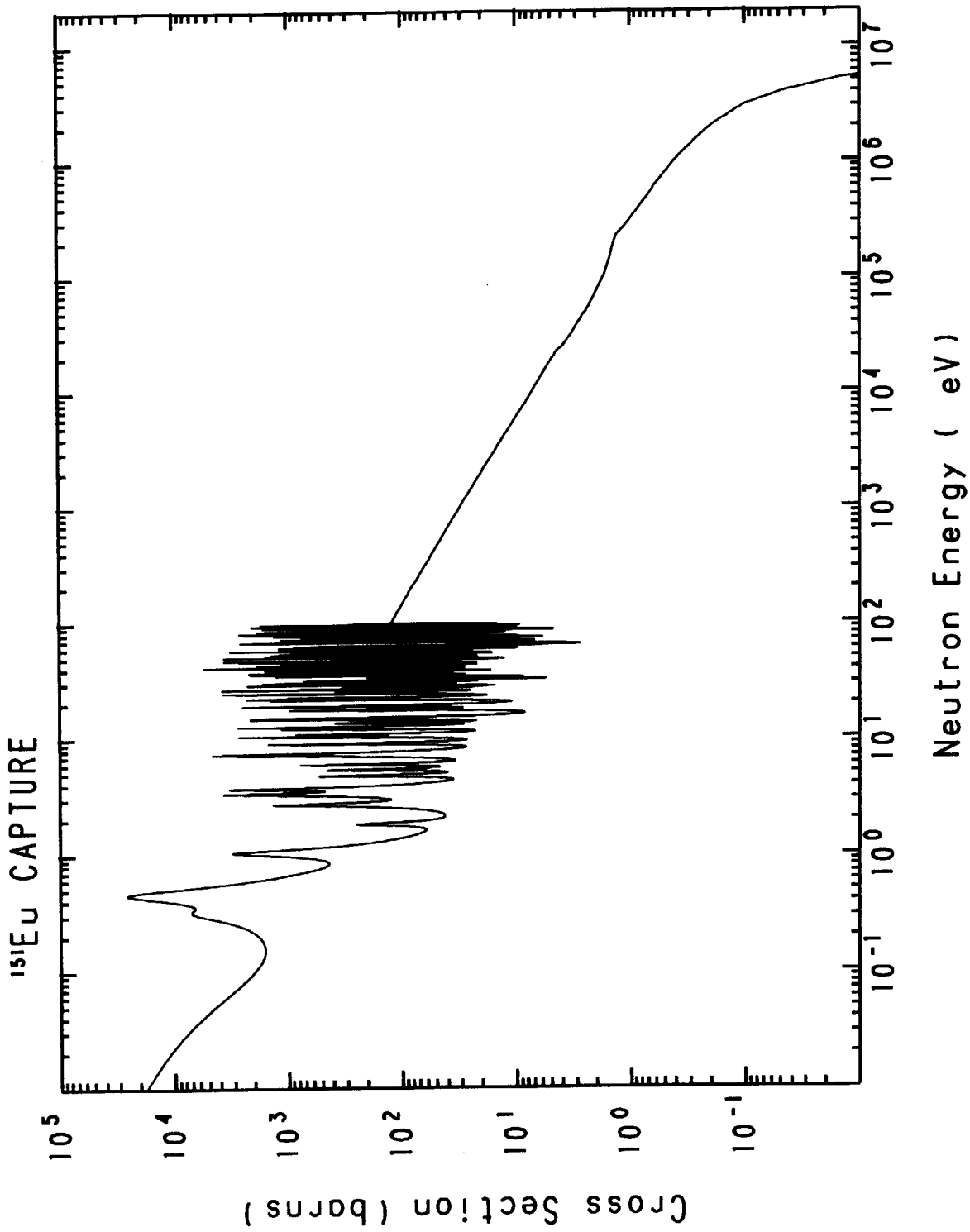

Fig. 2.3 Neutron capture cross section of ^{151}Eu

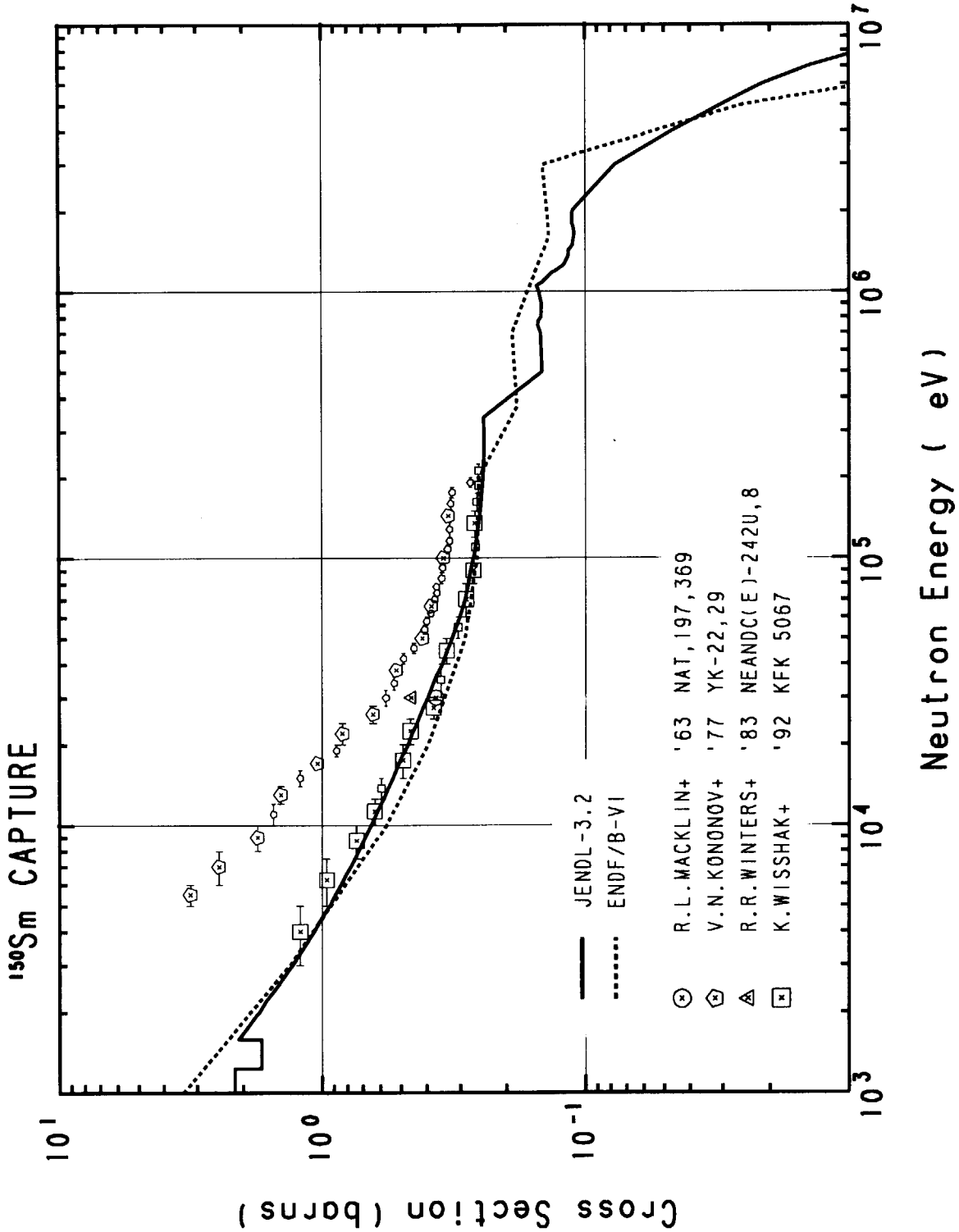

Fig. 2.4 Neutron capture cross section of ^{150}Sm

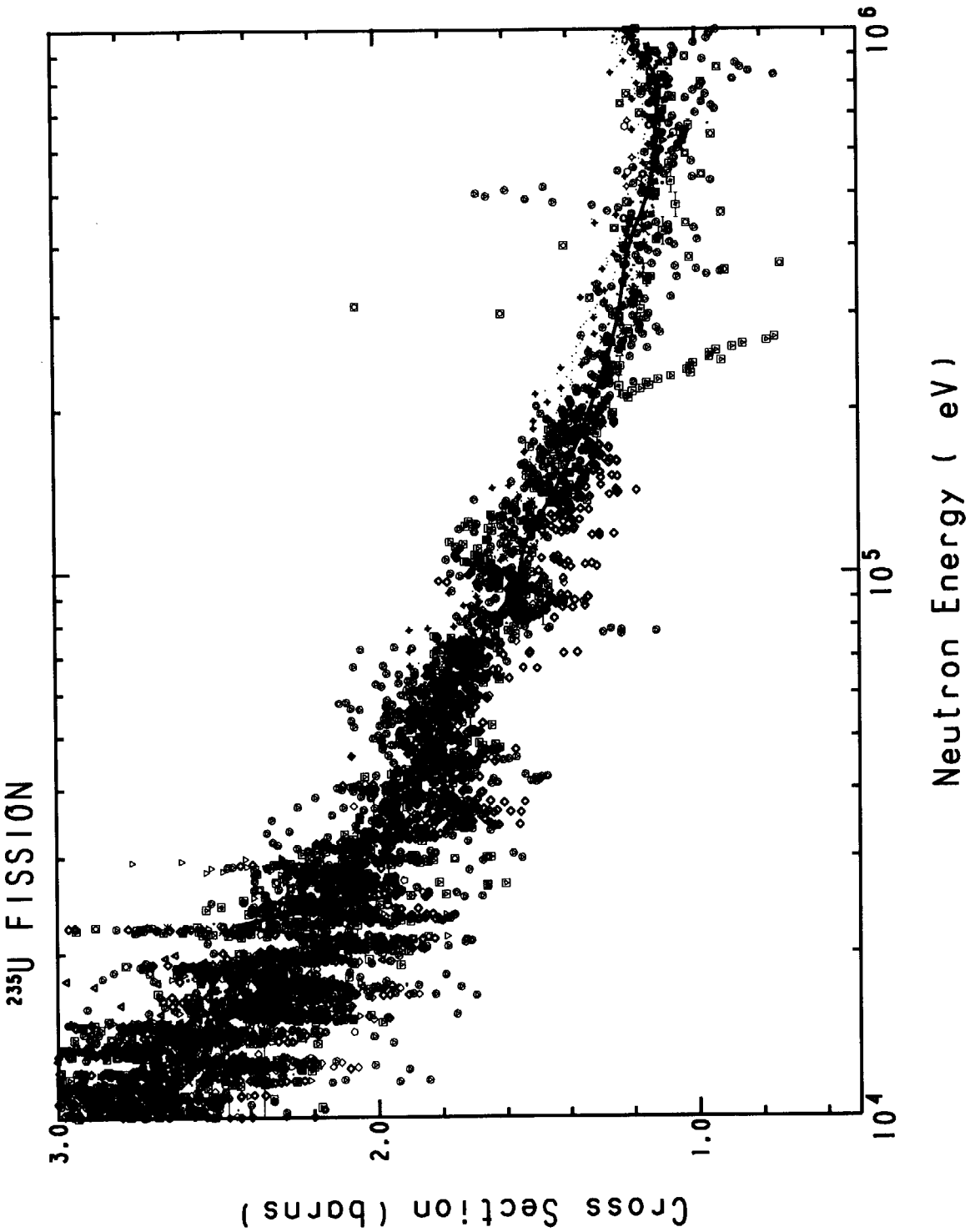

Fig. 2.5 Fission cross section of ^{235}U

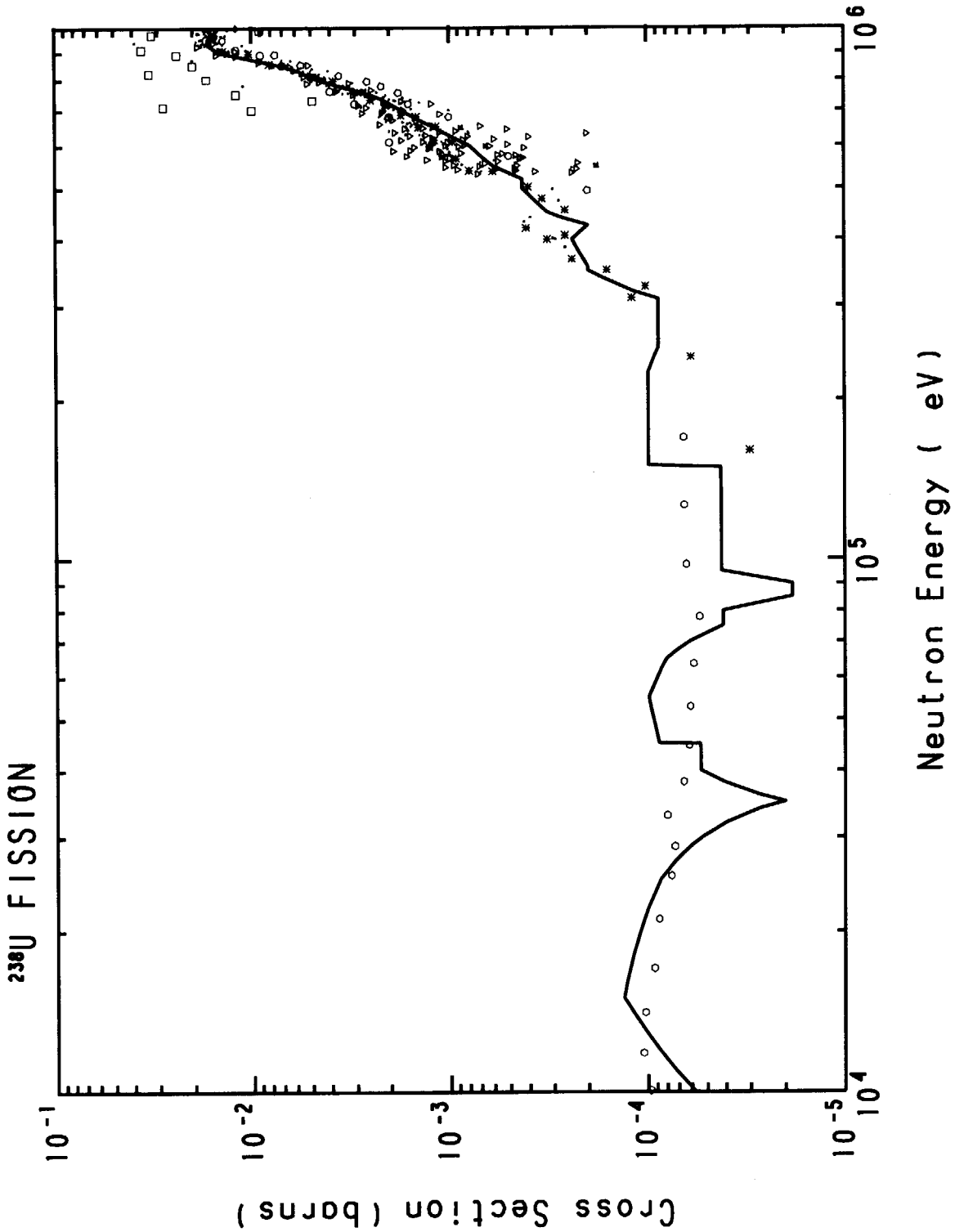

Fig. 2.6 Fission cross section of ^{238}U

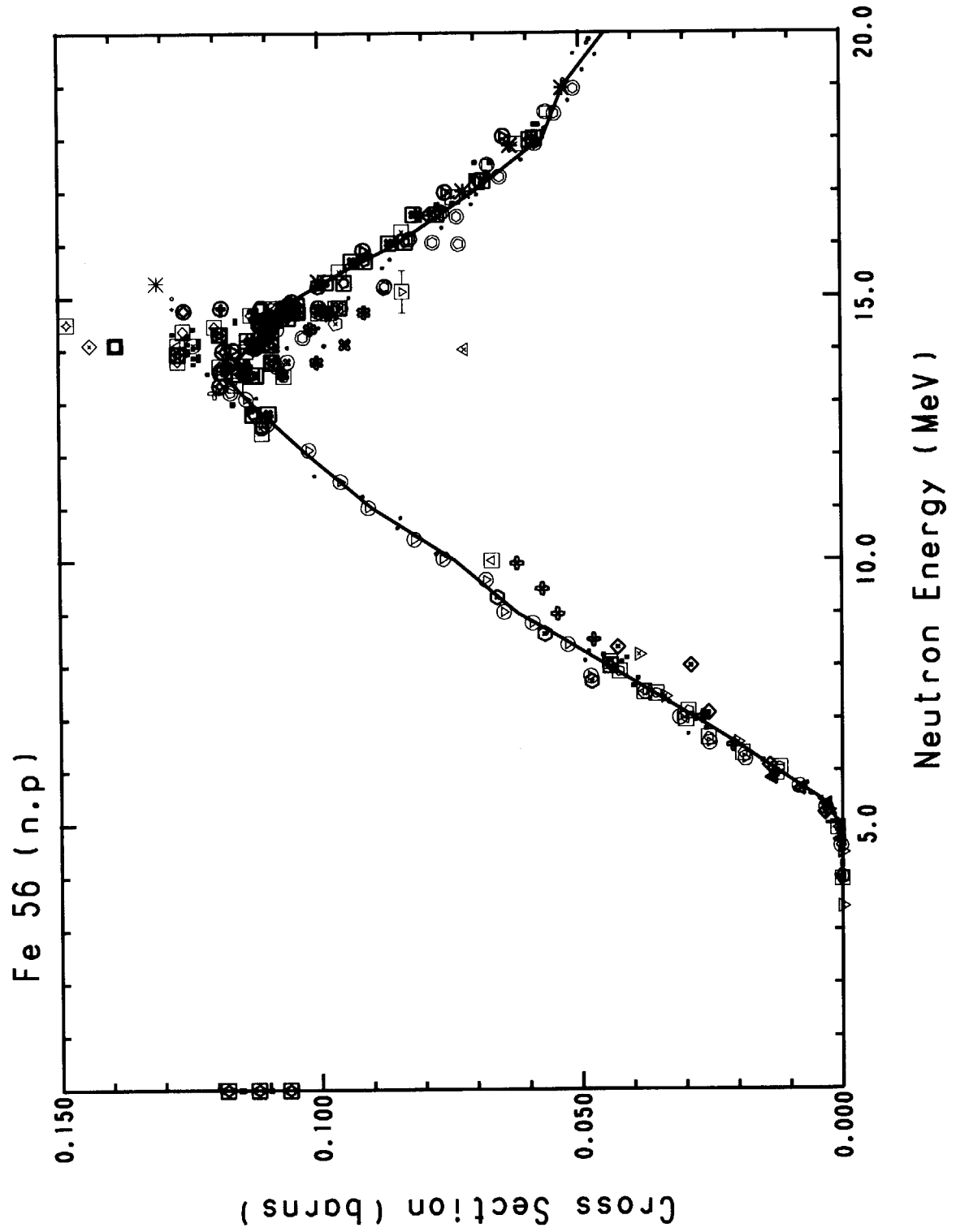

Fig. 2.7 ^{56}Fe(n,p) cross section

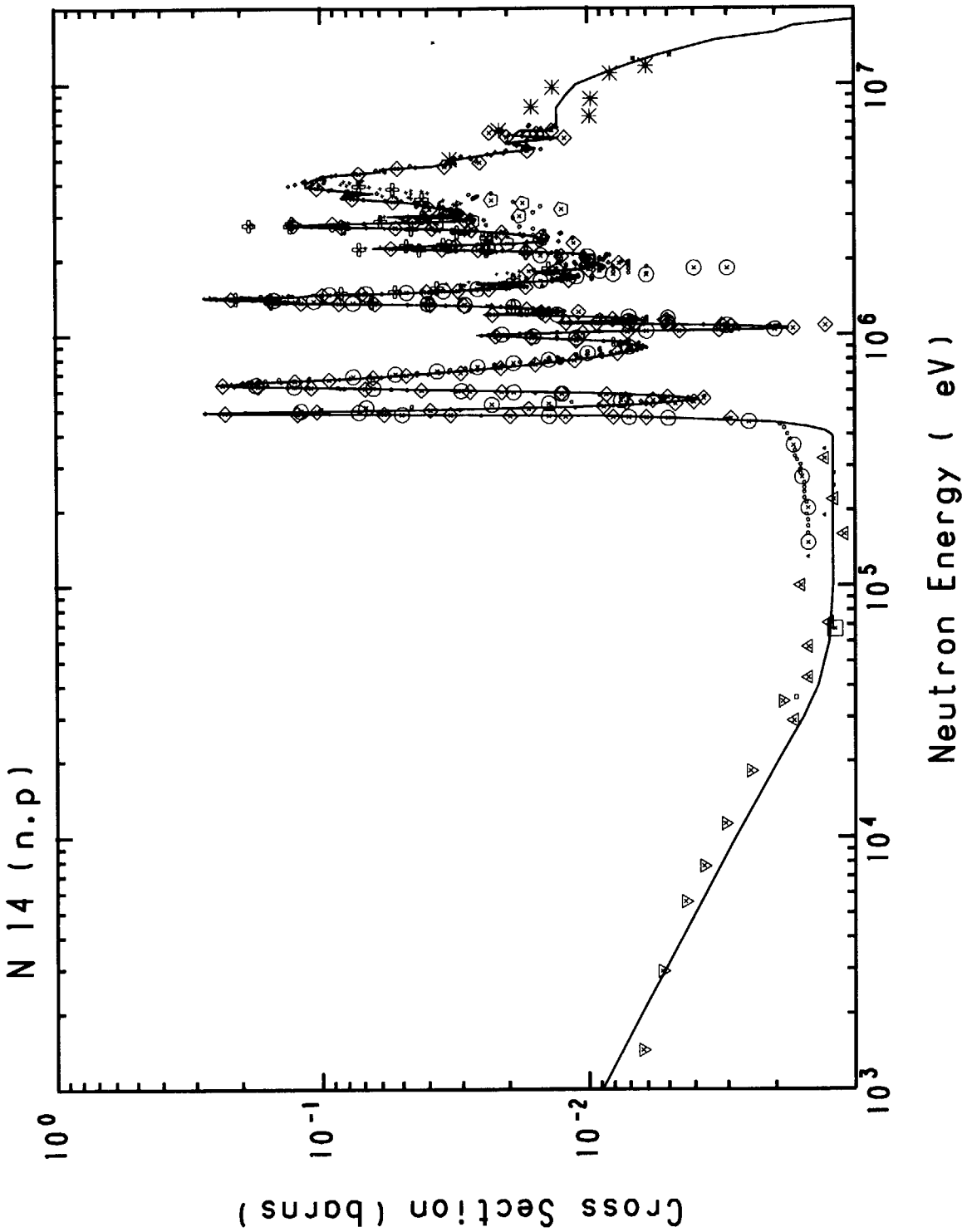

Fig. 2.8 $^{14}N(n,p)$ cross section

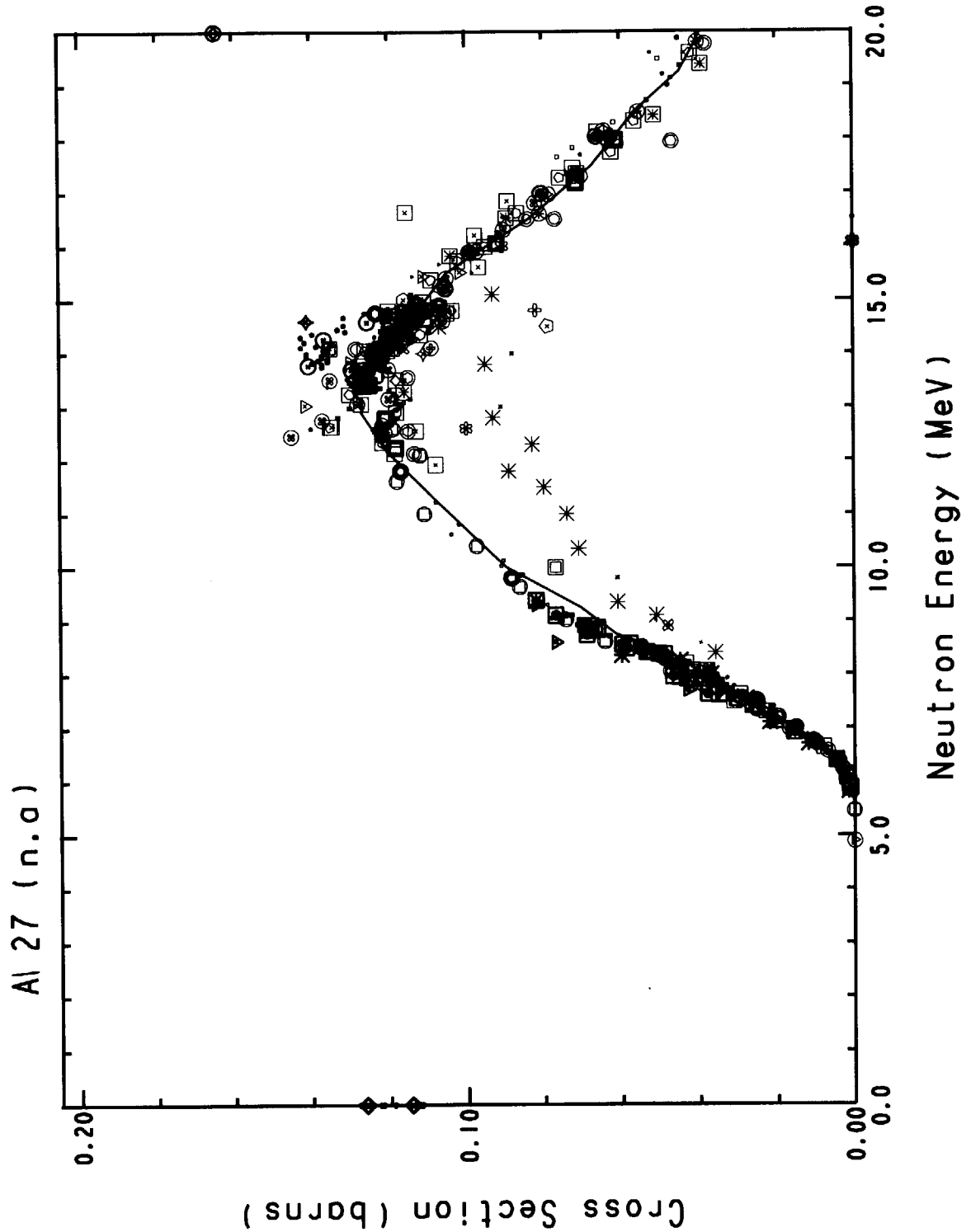

Fig. 2.9 ^{27}Al (n,α) cross section

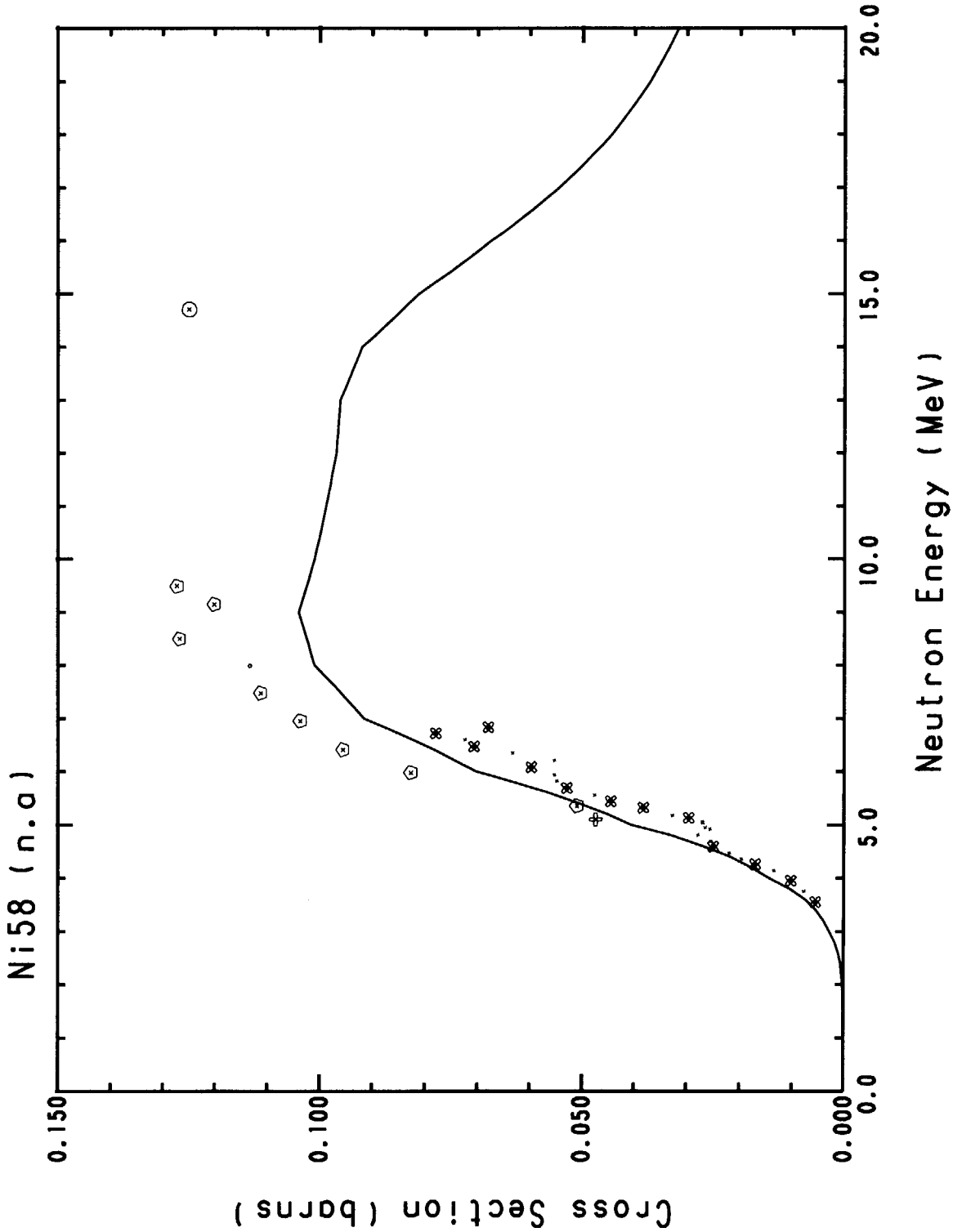

Fig. 2.10 ^{58}Ni(n,α) cross section

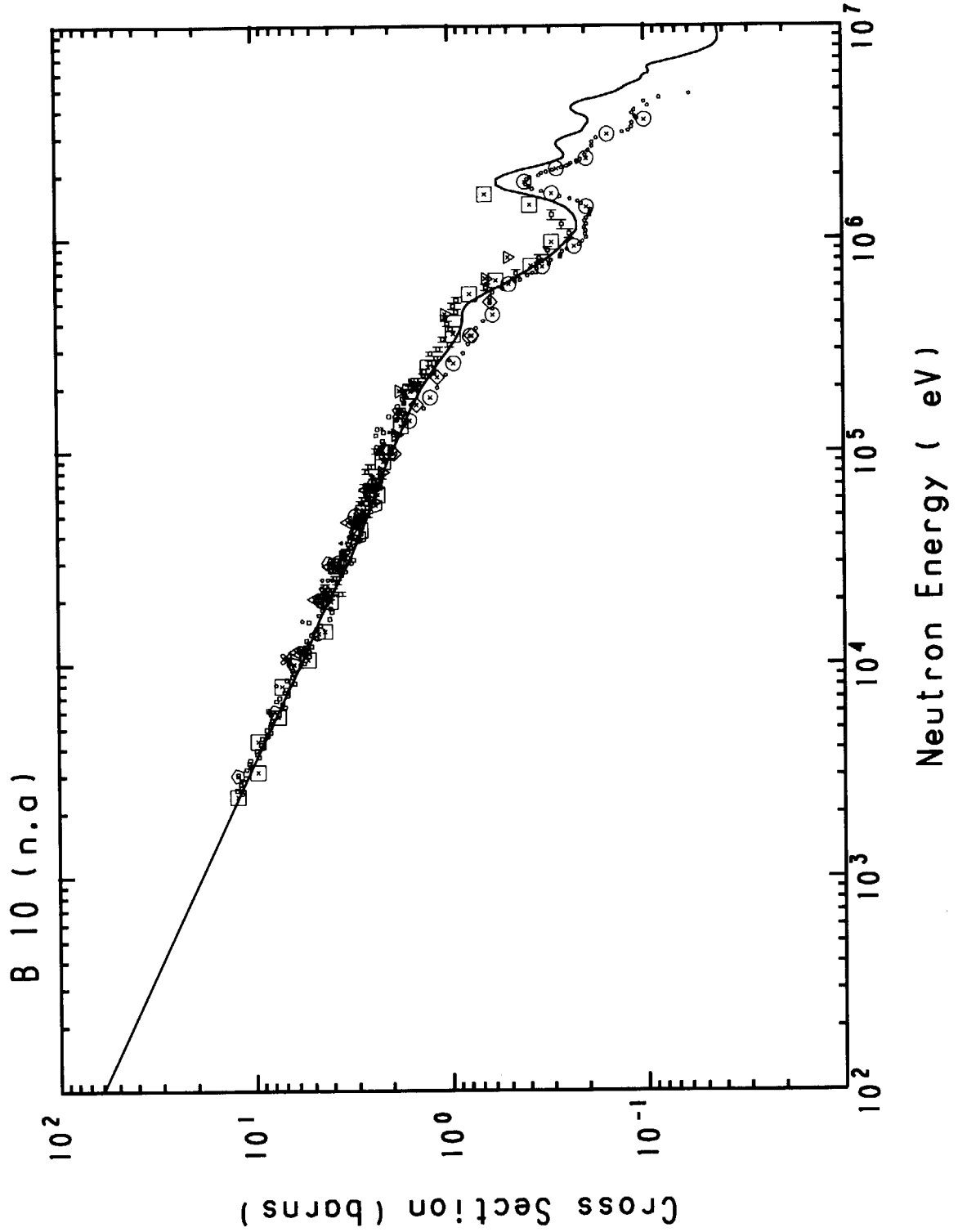

Fig. 2.11 $^{10}B(n,\alpha)$ cross section

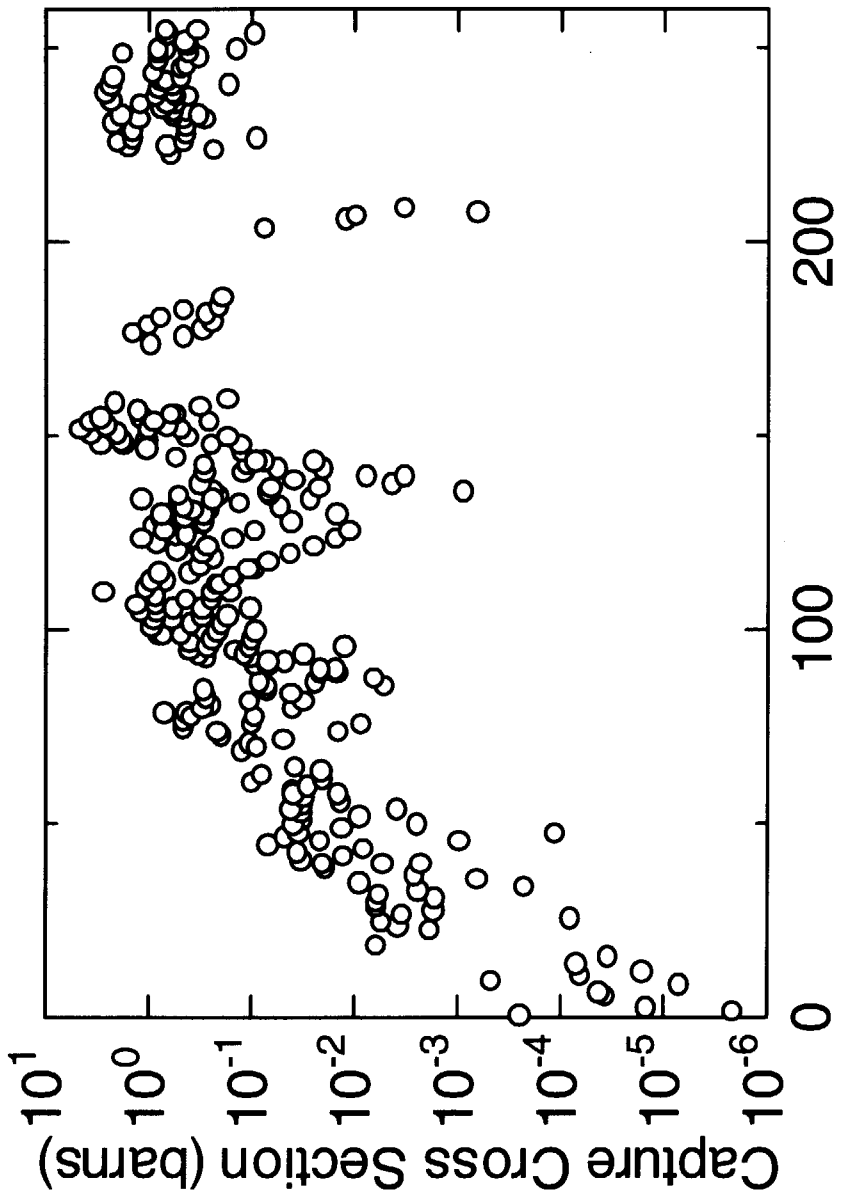

Fig. 4.1 Maxwellian-averaged capture cross sections at kT=30 keV

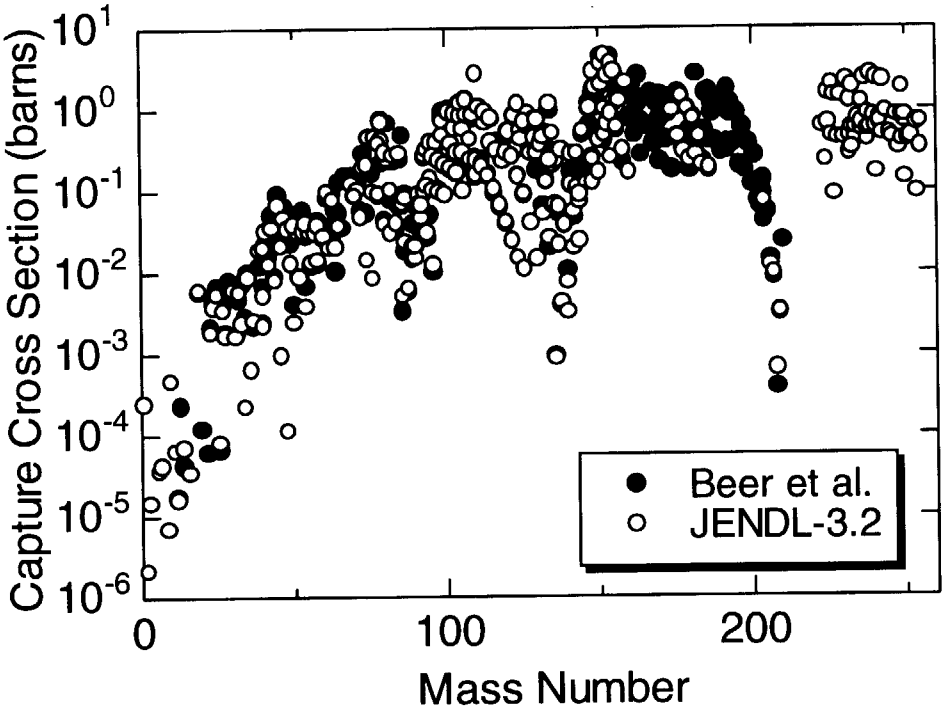

Fig. 4.2 Maxwellian-averaged capture cross sections at kT=30 keV
(comparison with Beer et al.[2])

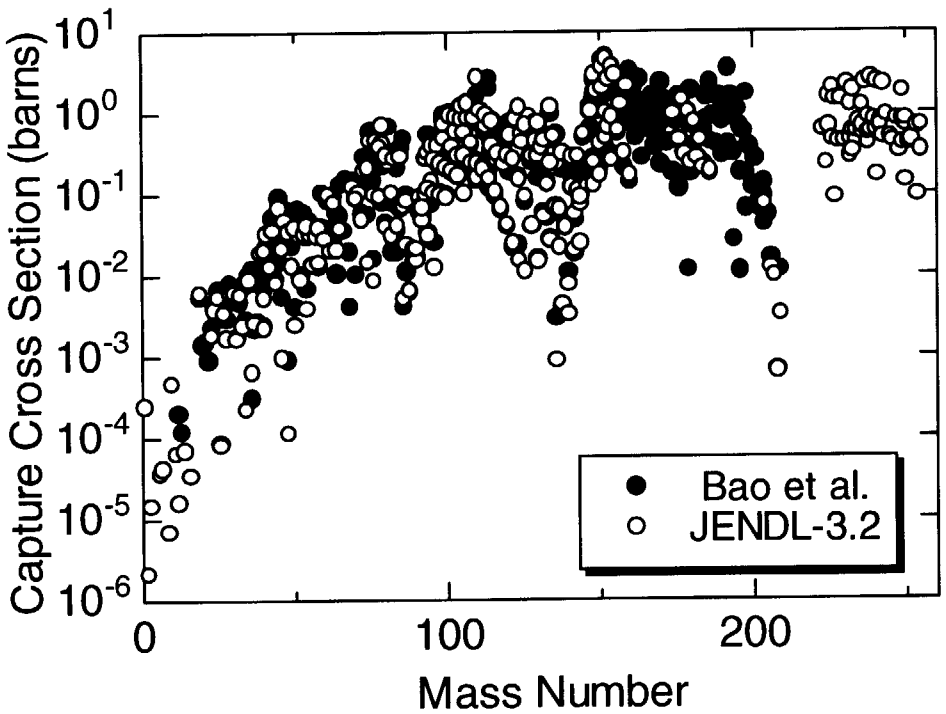

Fig. 4.3 Maxwellian-averaged capture cross sections at kT=30 keV
(comparison with Bao and Käppeler[1])

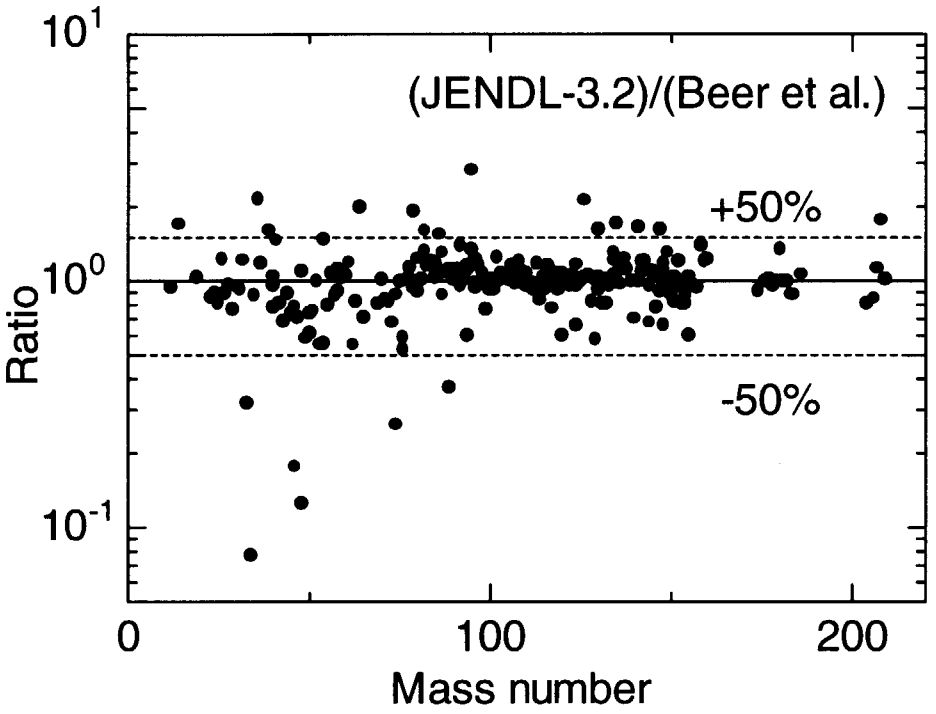

Fig. 4.4 Ratios of Maxwellian-averaged capture cross sections at kT=30 keV (JENDL-3.2 to Beer et al.[2])

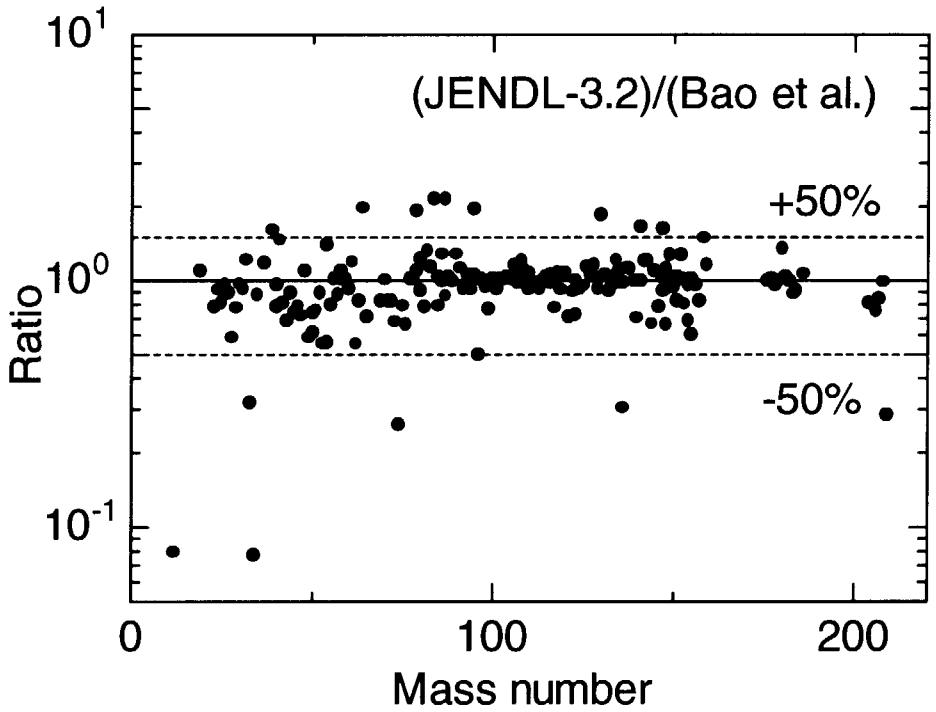

Fig. 4.5 Ratios of Maxwellian-averaged capture cross sections at kT=30 keV (JENDL-3.2 to Bao and Käppeler[1])

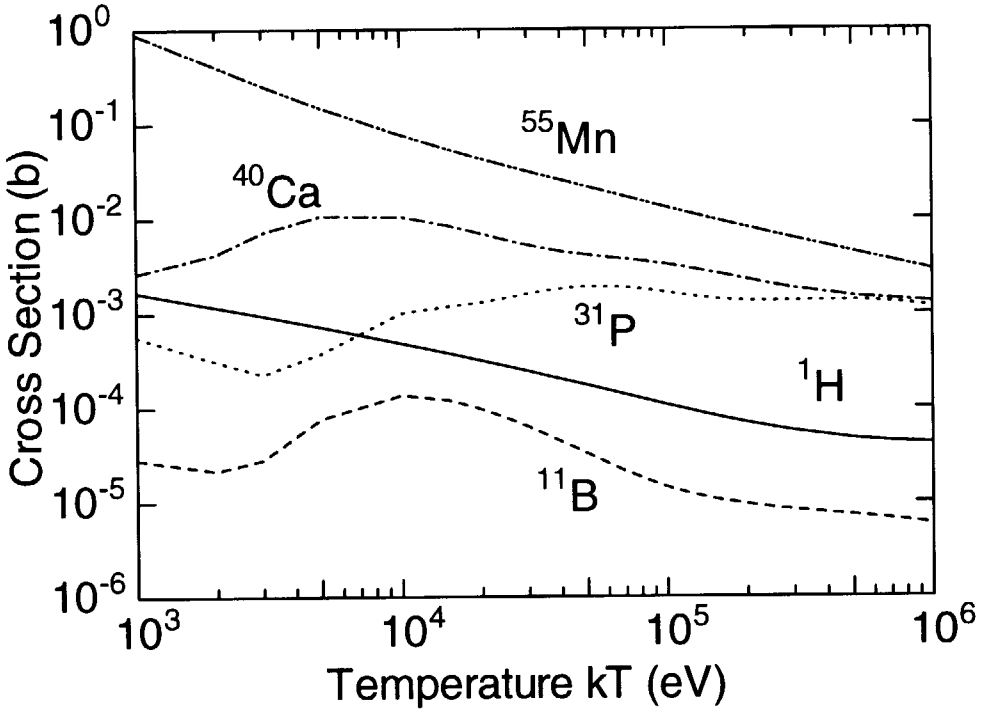

Fig. 4.6(a) Maxwellian-averaged capture cross sections of ^{1}H, ^{11}B, ^{31}P, ^{40}Ca and ^{55}Mn

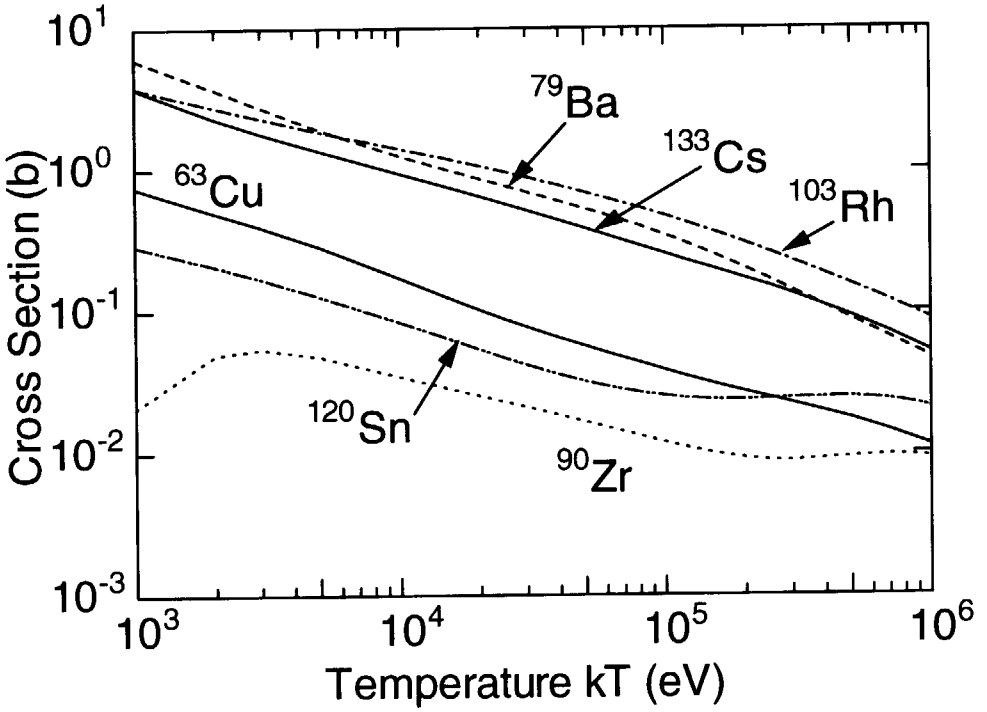

Fig. 4.6(b) Maxwellian-averaged capture cross sections of ^{63}Cu, ^{90}Zr, ^{79}Ba, ^{103}Rh, ^{120}Sn and ^{133}Cs

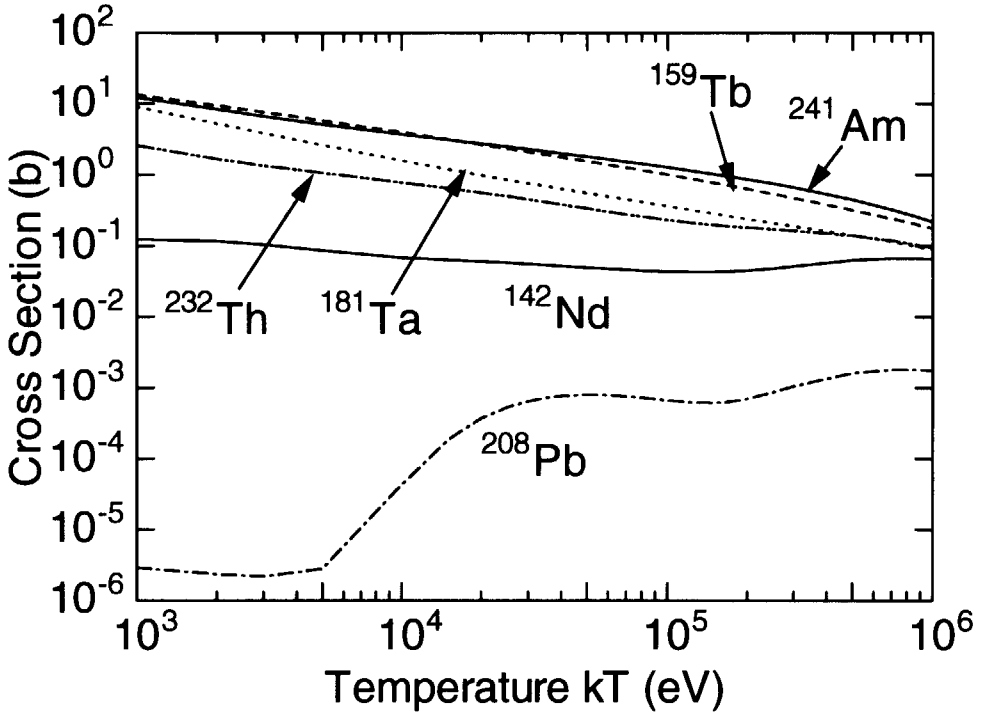

Fig.4.6(c) Maxwellian-averaged capture cross sections of ^{142}Nd, ^{159}Tb, ^{181}Ta, ^{208}Pb, ^{232}Th and ^{241}Am

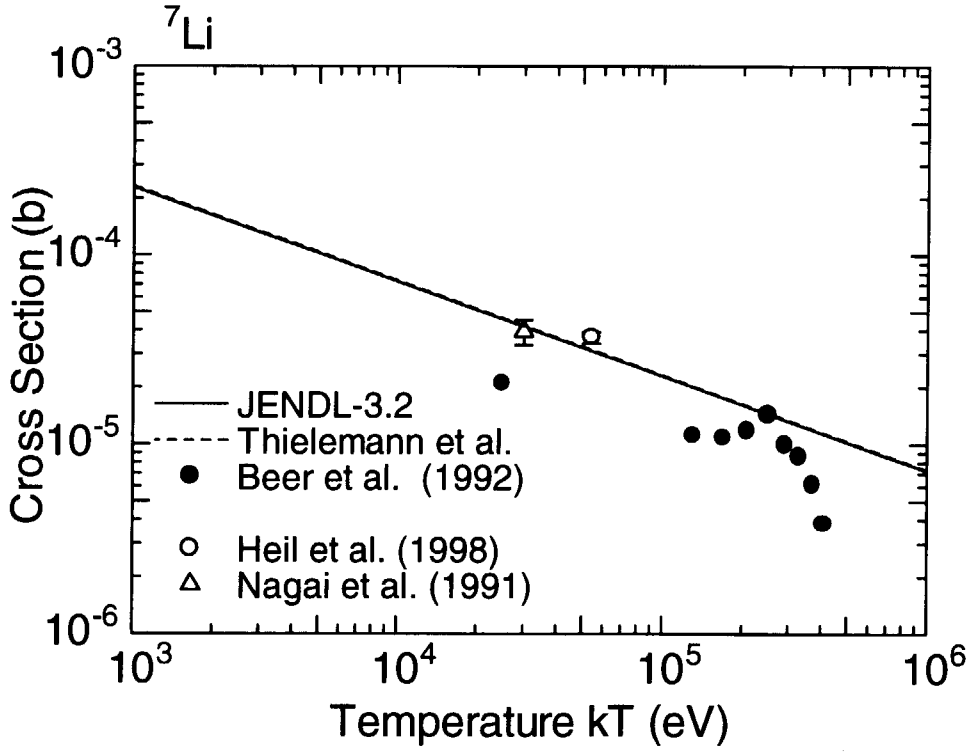

Fig. 4.7 Maxwellian-averaged capture cross section of ^{7}Li

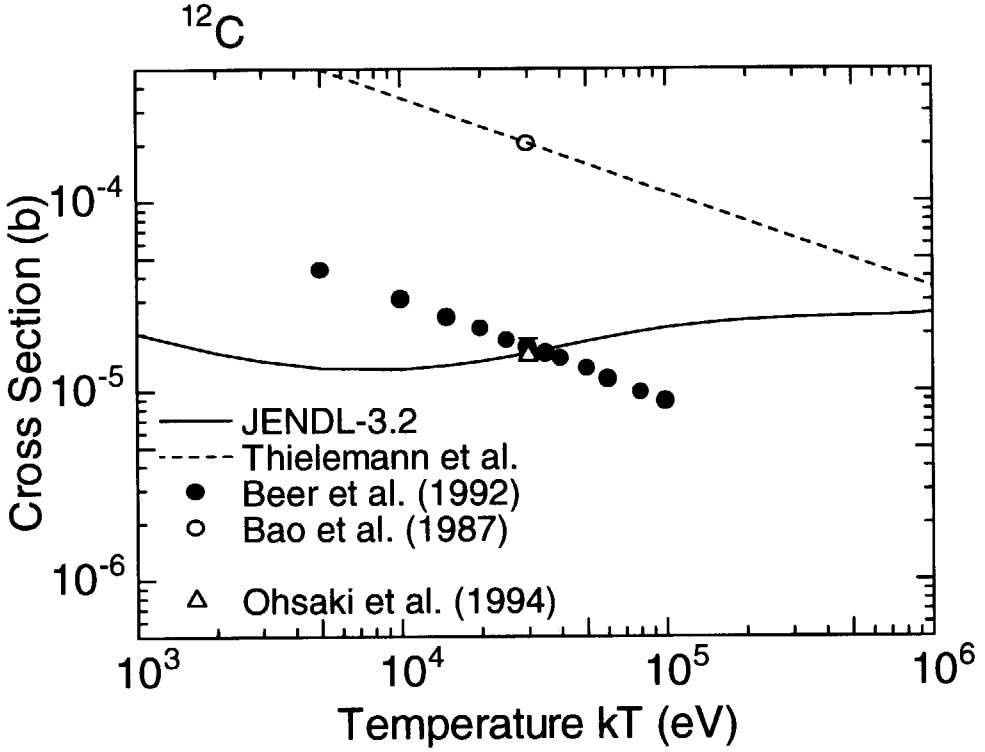

Fig. 4.8 Maxwellian-averaged capture cross section of ^{12}C

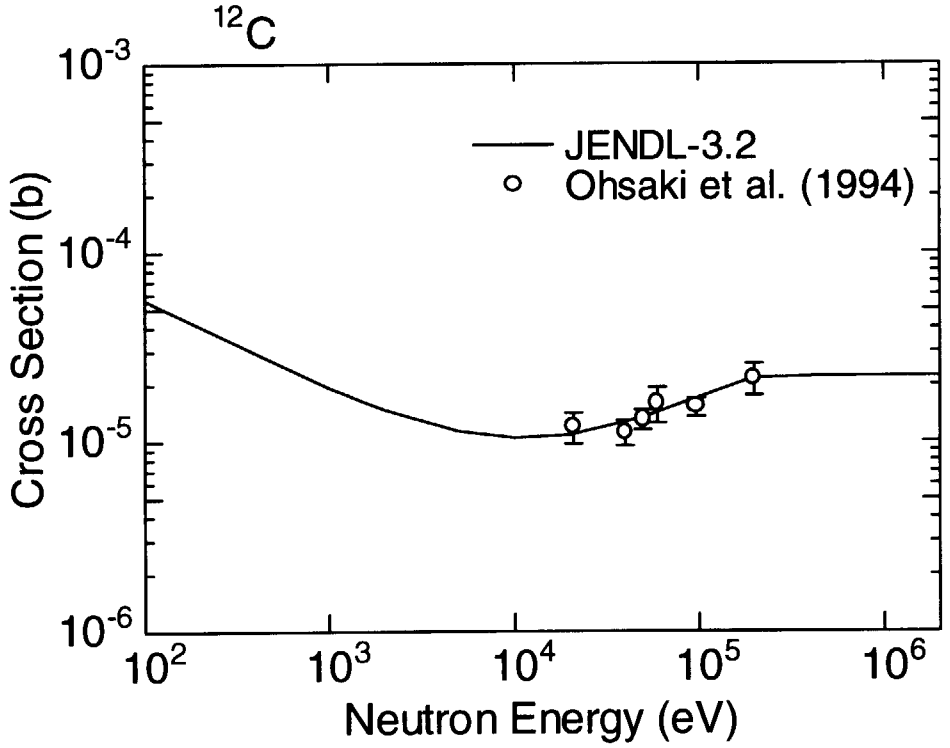

Fig. 4.9 Capture cross section of ^{12}C

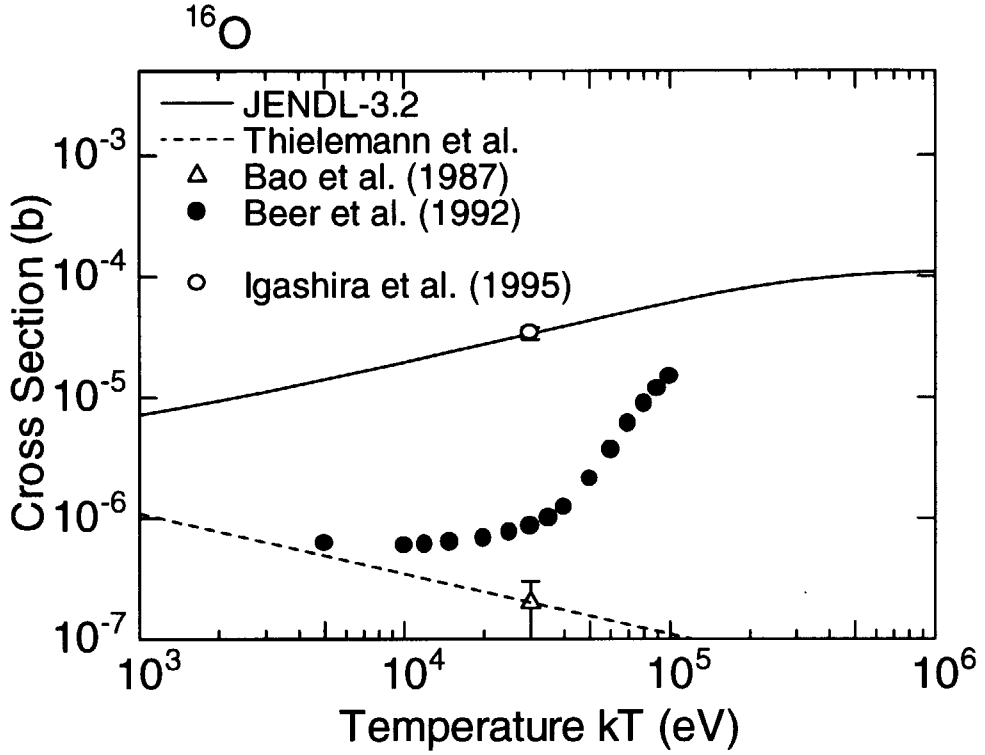

Fig. 4.10 Maxwellian-averaged capture cross section of ^{16}O

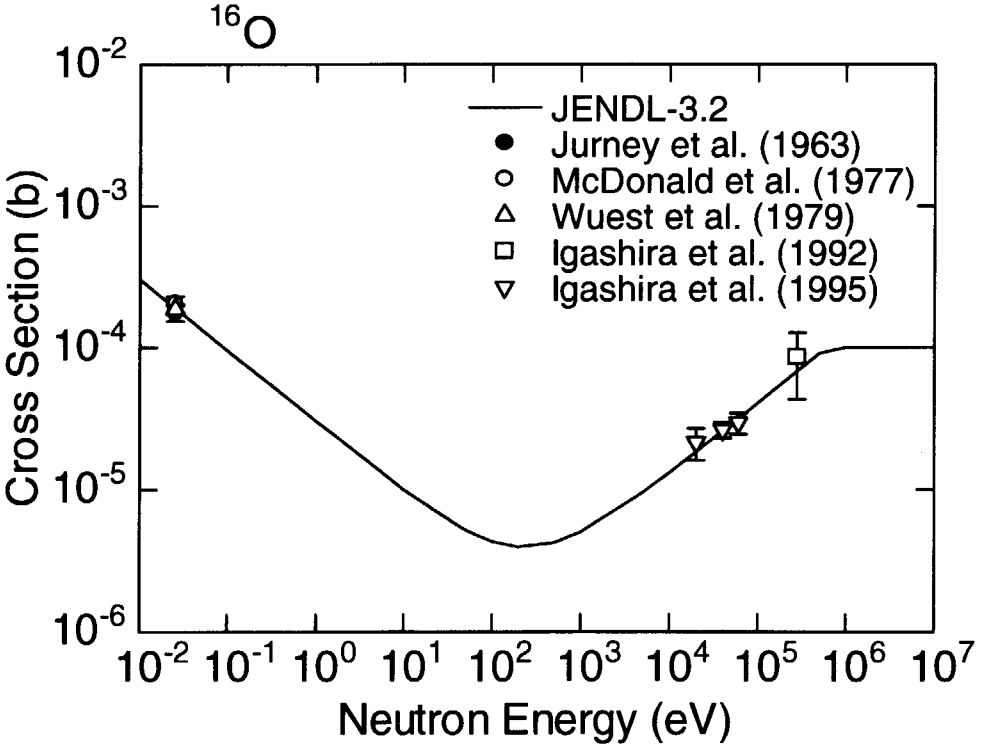

Fig. 4.11 Capture cross section of ^{16}O. Experimental data at the thermal neutron are those of Juney and Motz[43], McDonald et al.[44] and Wüst et al.[45]

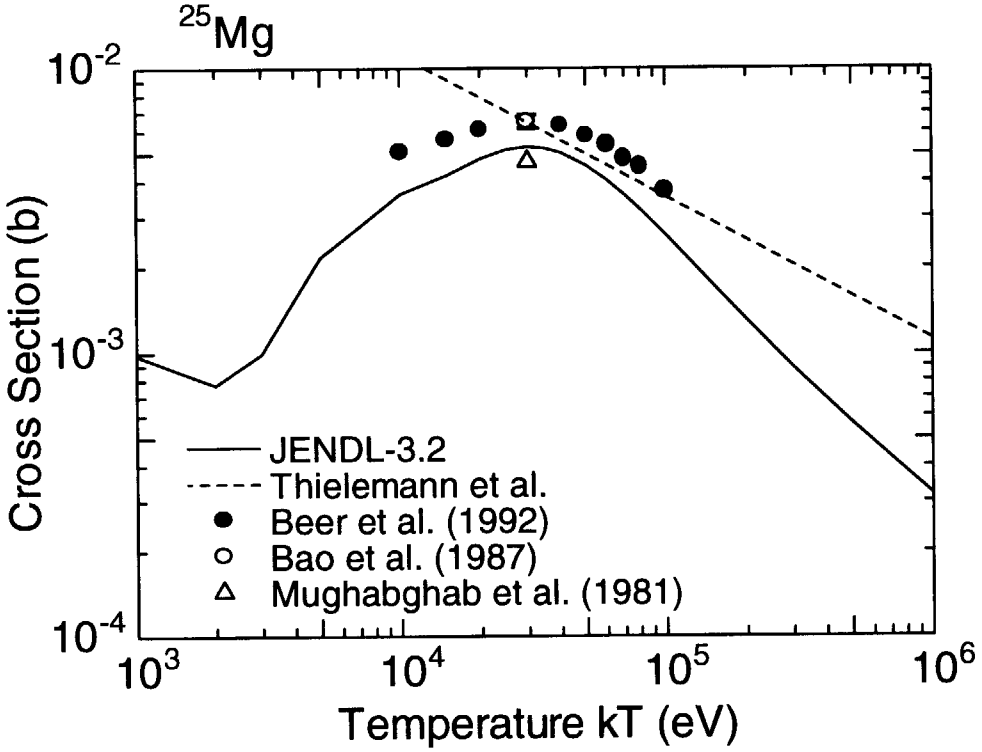

Fig. 4.12 Maxwellian-averaged capture cross section of ^{25}Mg

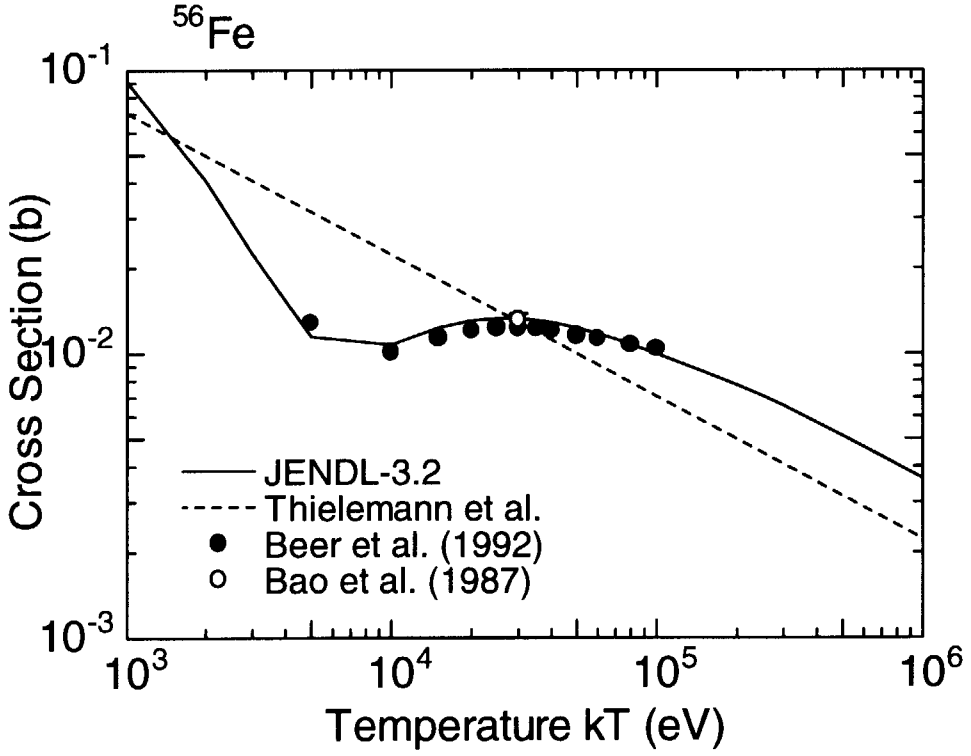

Fig. 4.13 Maxwellian-averaged capture cross sectio of ^{56}Fe

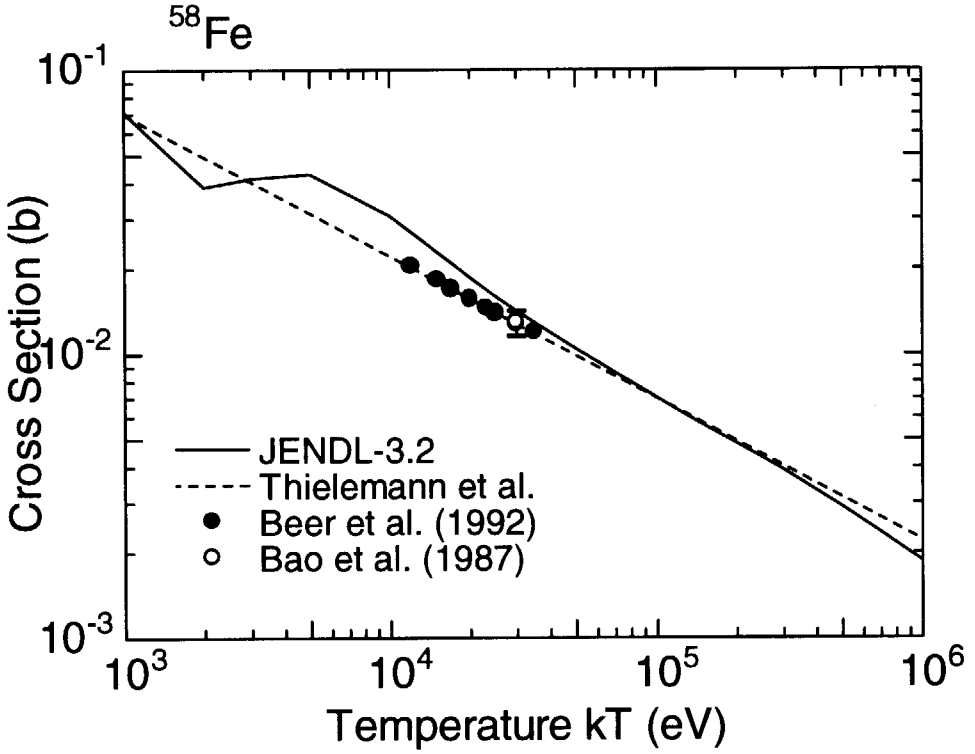

Fig. 4.14 Maxwellian-averaged capture cross section of ^{58}Fe

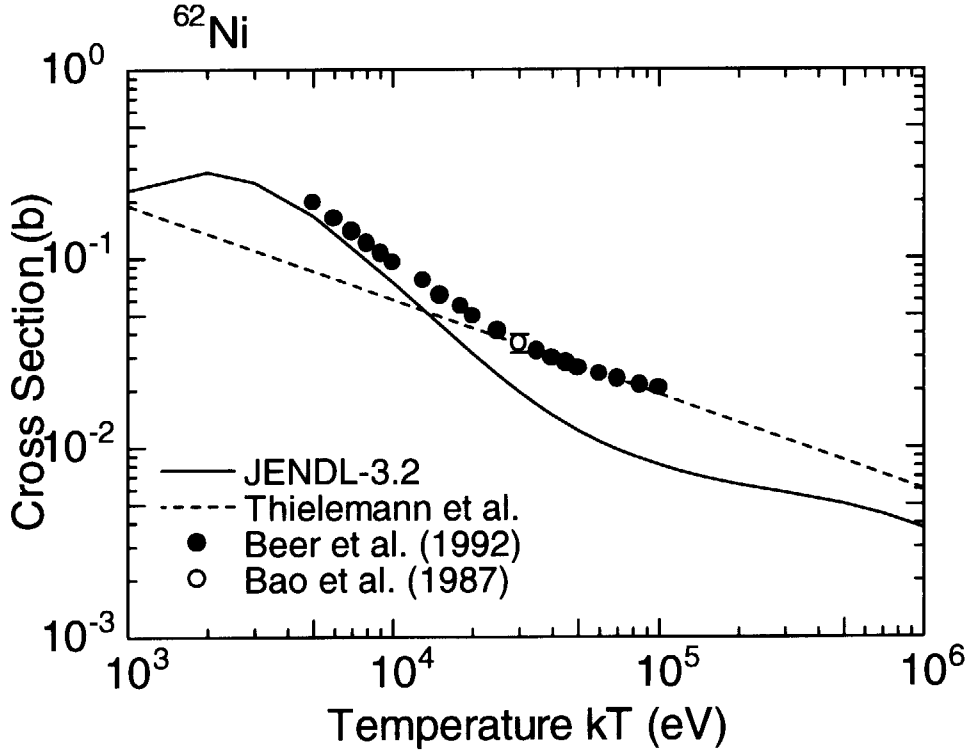

Fig. 4.15 Maxwellian-averaged capture cross section of ^{62}Ni

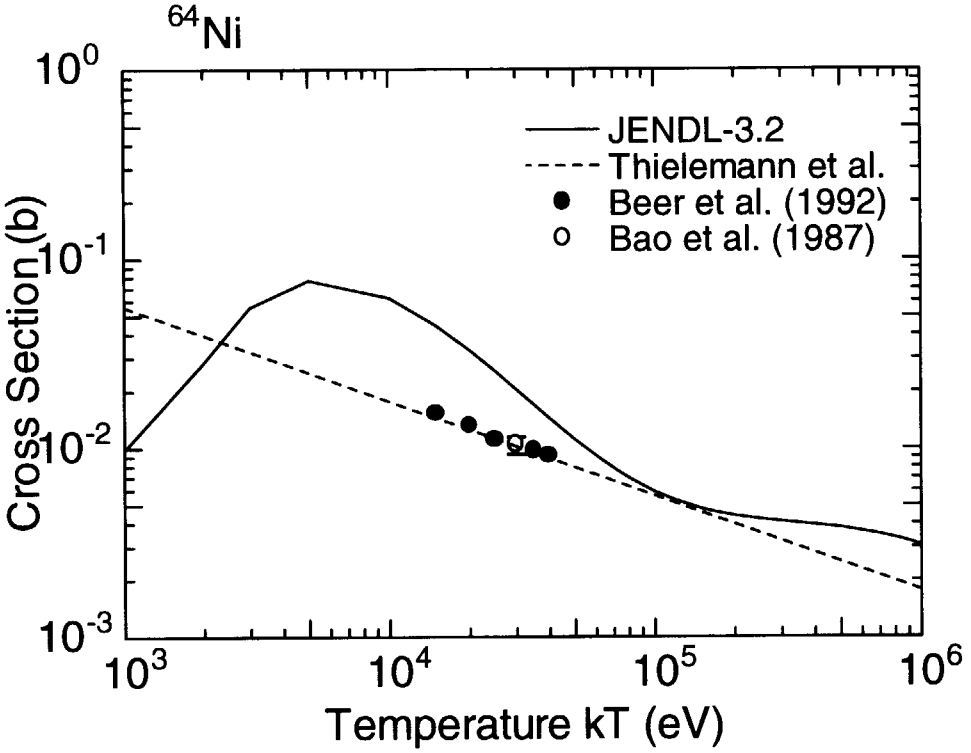

Fig. 4.16 Maxwellian-averaged neutron capture cross section of ^{64}Ni

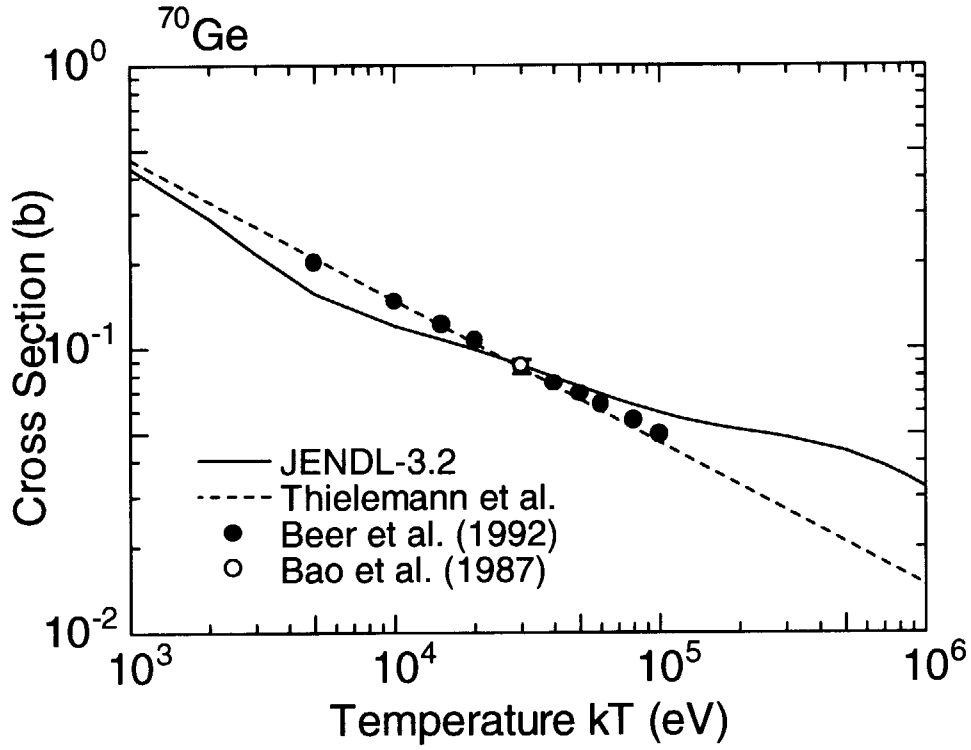

Fig. 4.17 Maxwellian-averaged capture cross section of ^{70}Ge

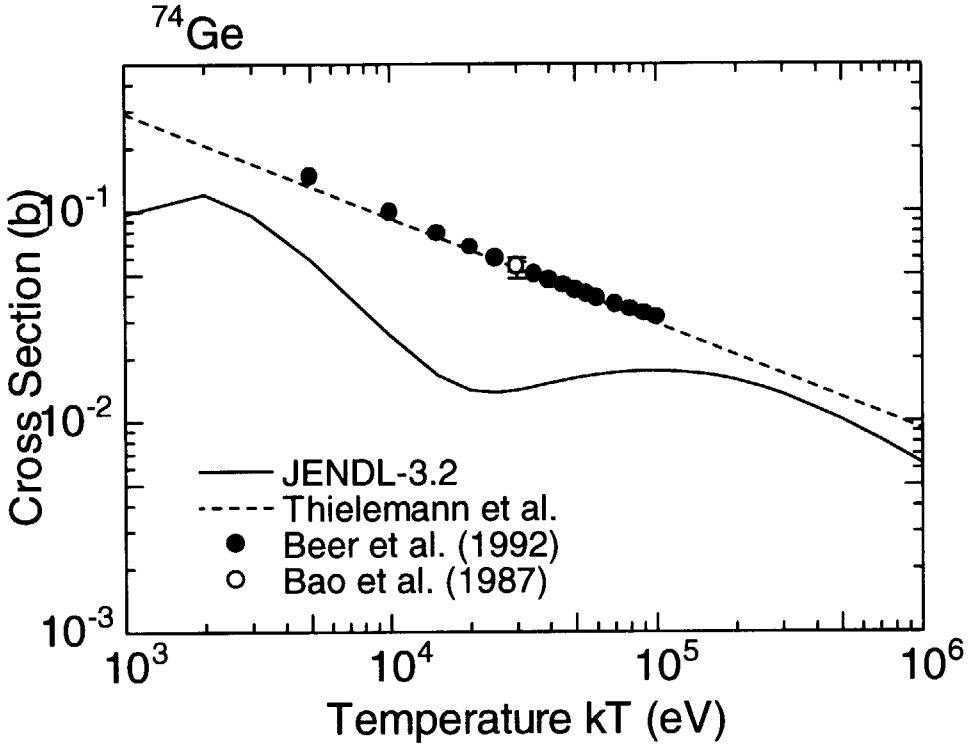

Fig. 4.18 Maxwellian-averaged capture cross section of ^{74}Ge

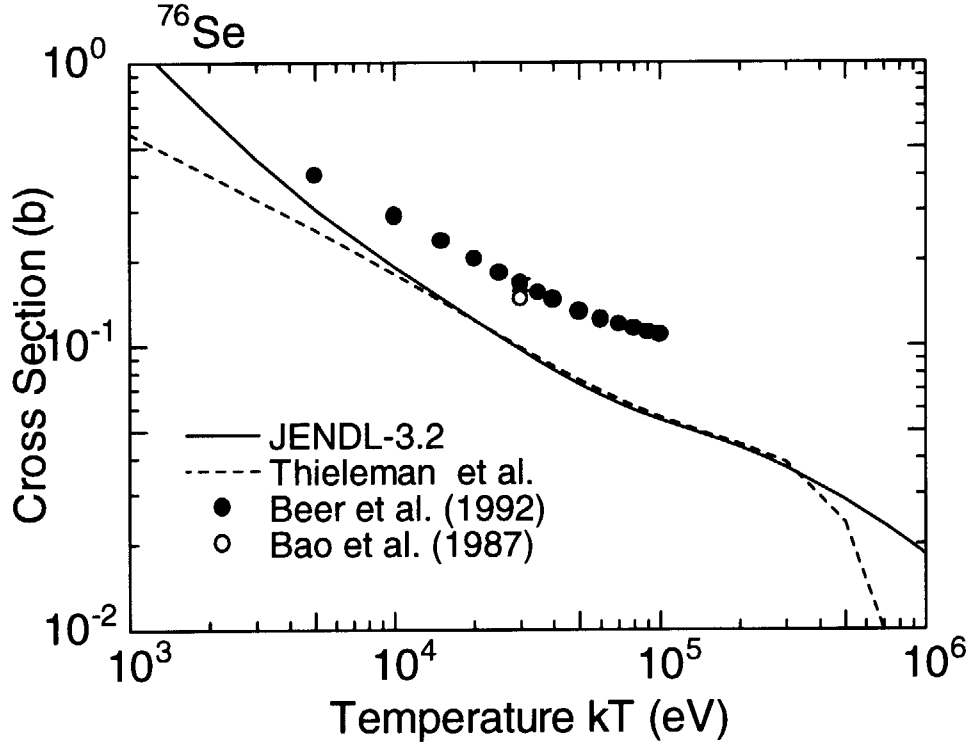

Fig. 4.19 Maxwellian-averaged capture cross section of ^{76}Se

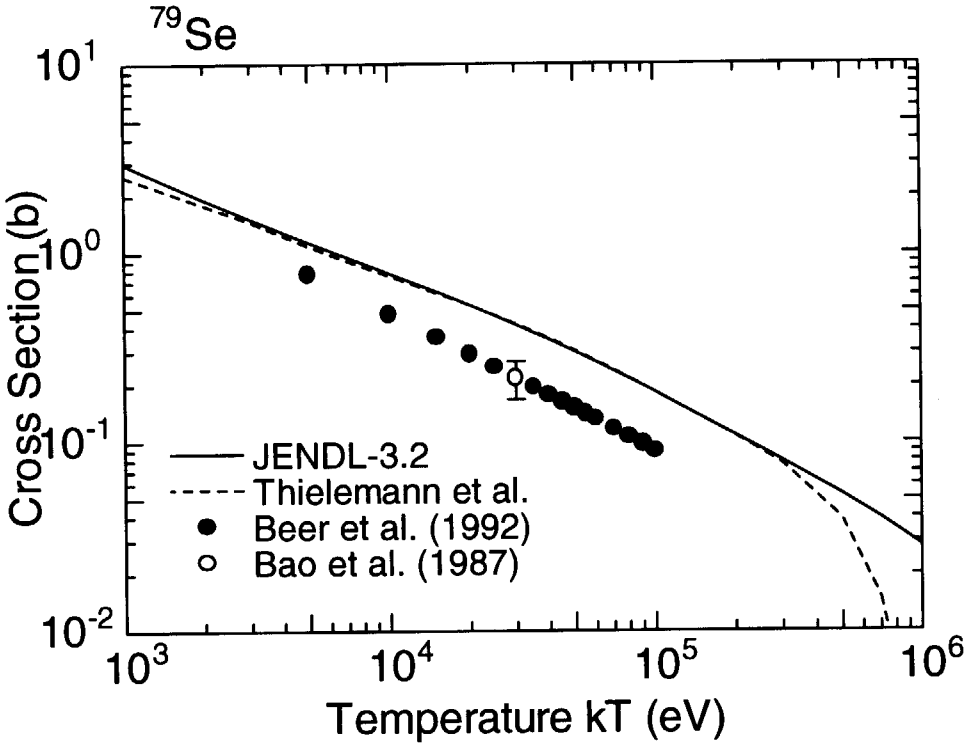

Fig. 4.20 Maxwellian-averaged capture cross section of ^{79}Se

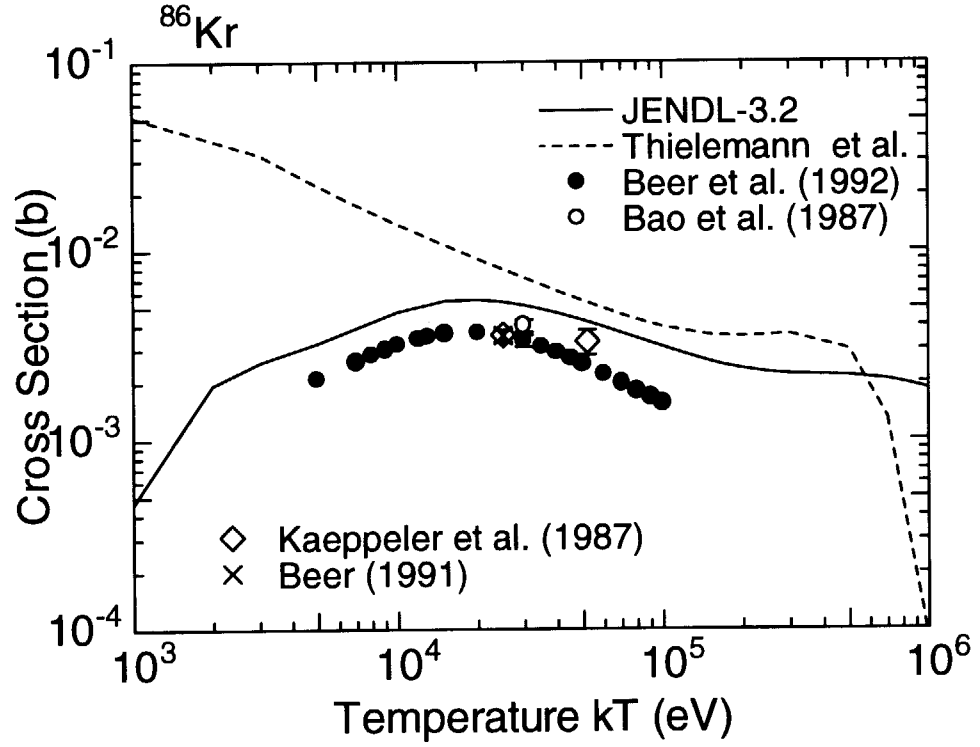

Fig. 4.21 Maxwellian-averaged capture cross section of ^{86}Kr

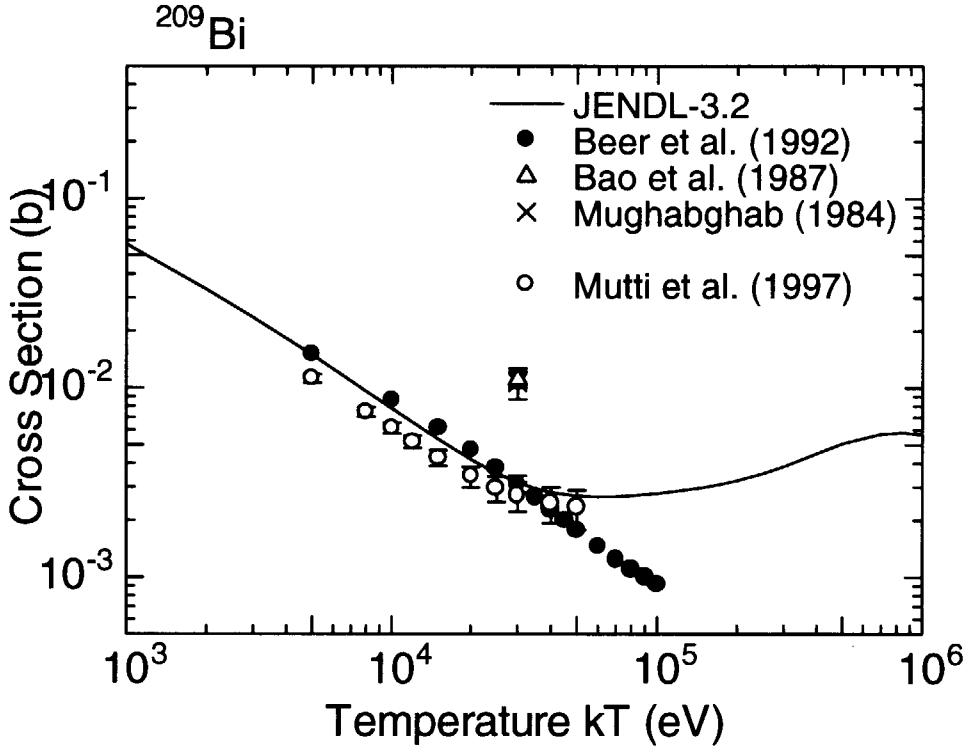

Fig. 4.22 Maxwellian-averaged capture cross section of ^{209}Bi

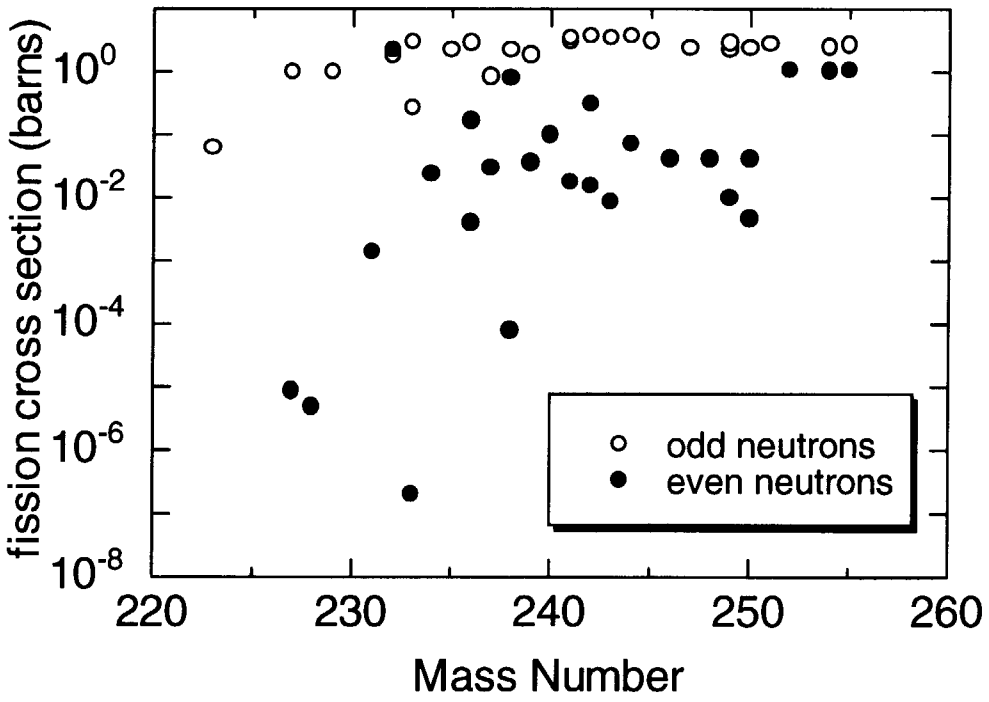

Fig. 4.23 Maxwellian-averaged fission cross section at kT=30 keV

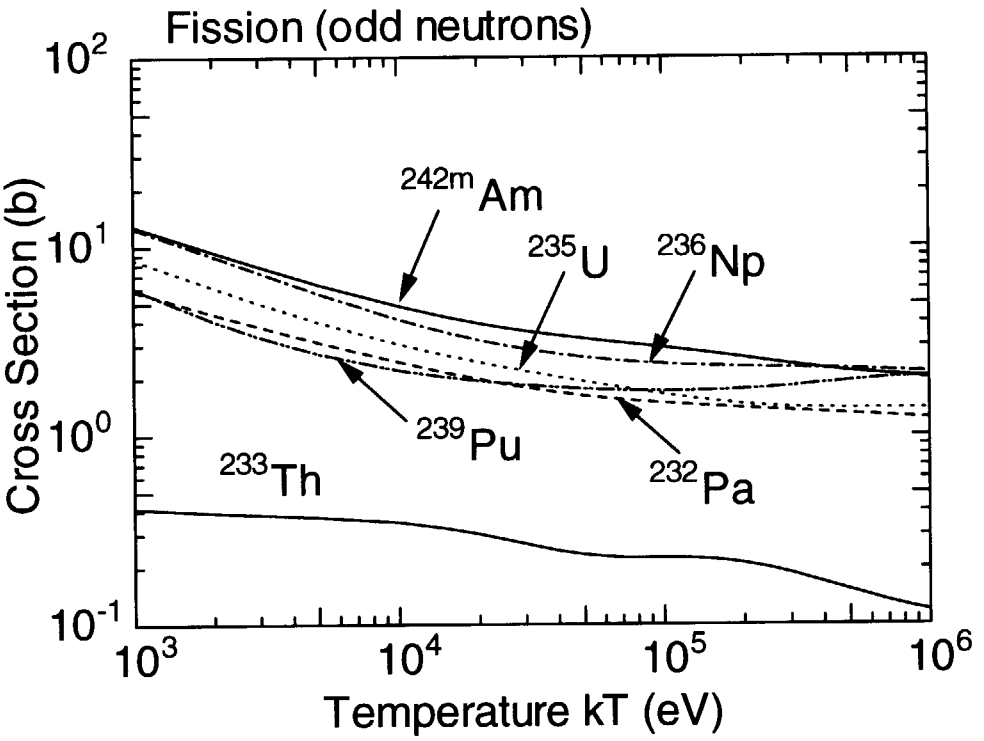

Fig. 4.24(a) Maxwellian-averaged fission cross sections of nuclides with odd neutrons

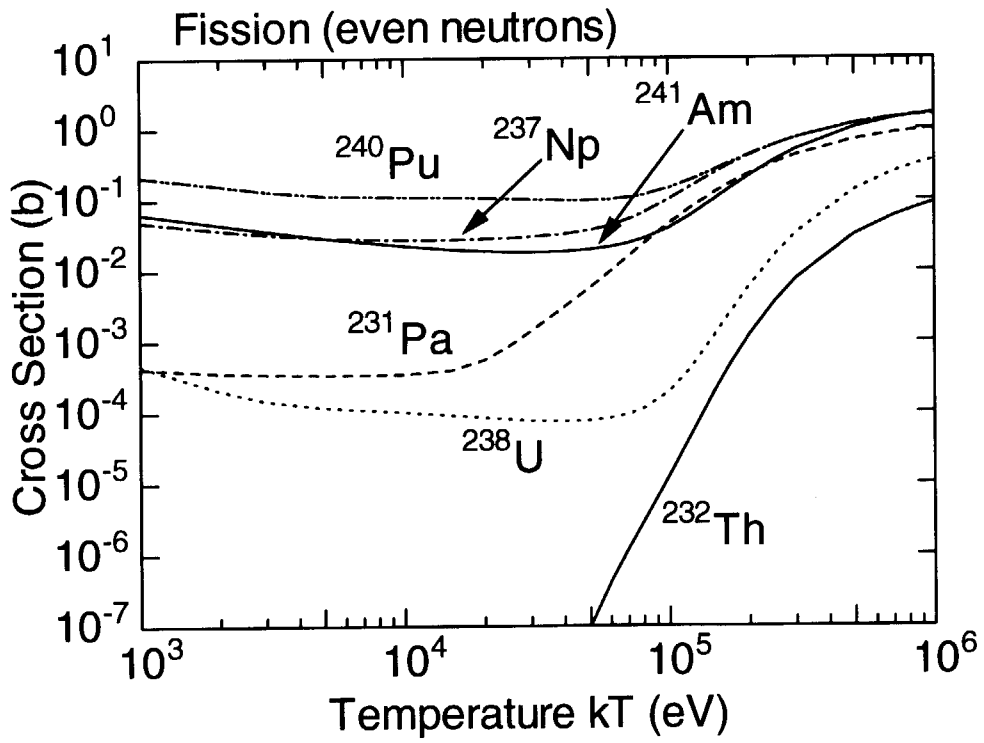

Fig. 4.24(b) Maxwellian-averaged fission cross sections of nuclides with even neutrons

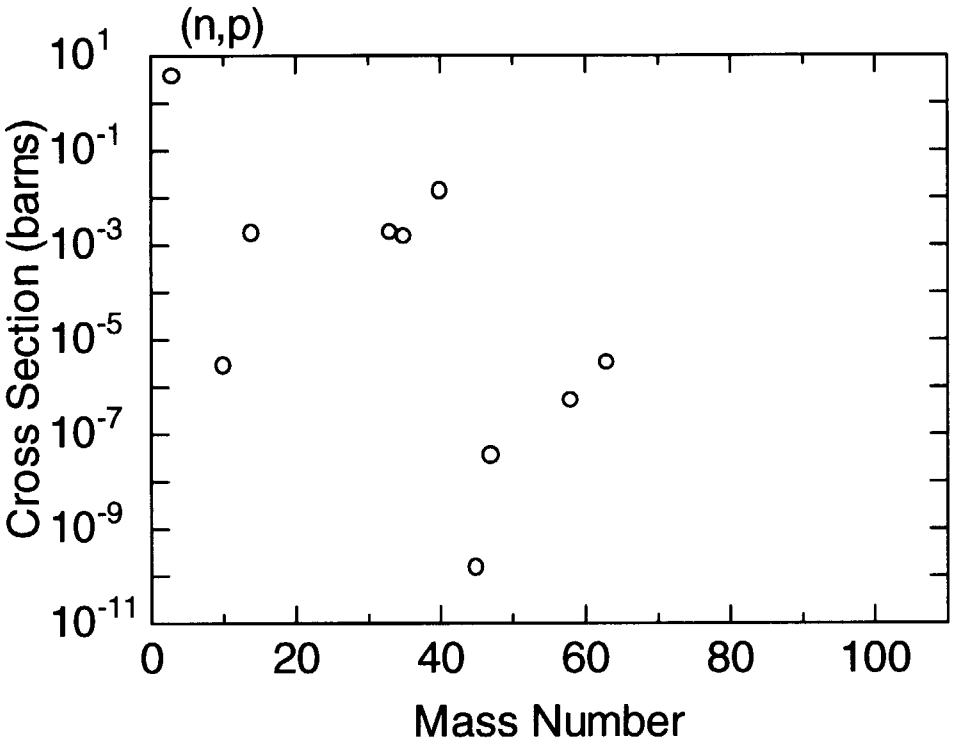

Fig. 4.25 Maxwellian-averaged (n,p) cross sections at kT=30 keV

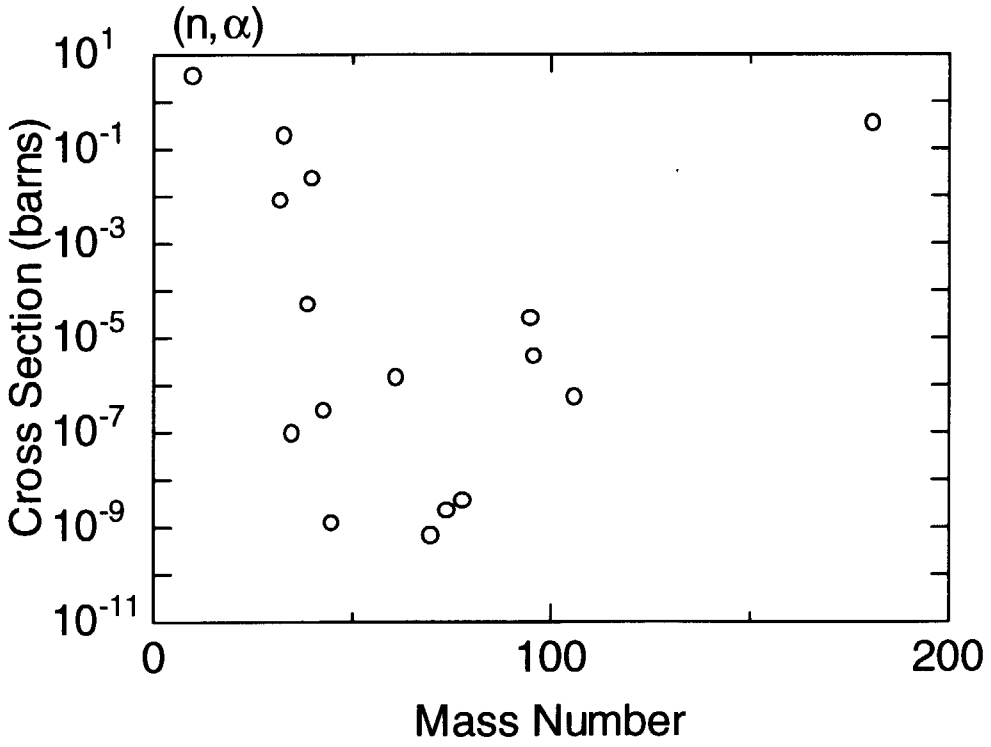

Fig. 4.26 Maxwellian-averaged (n,α) cross sections

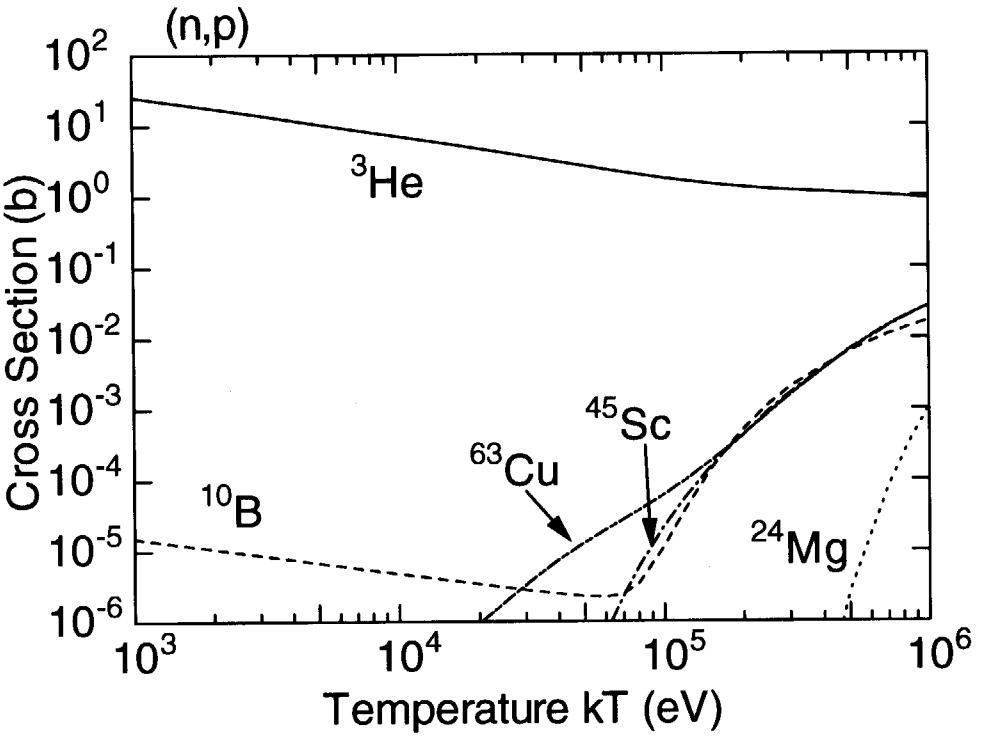

Fig. 4.27 Maxwellian-averaged (n,p) cross sections of ^{3}He, ^{10}B, ^{24}Mg, ^{45}Sc and ^{56}Fe

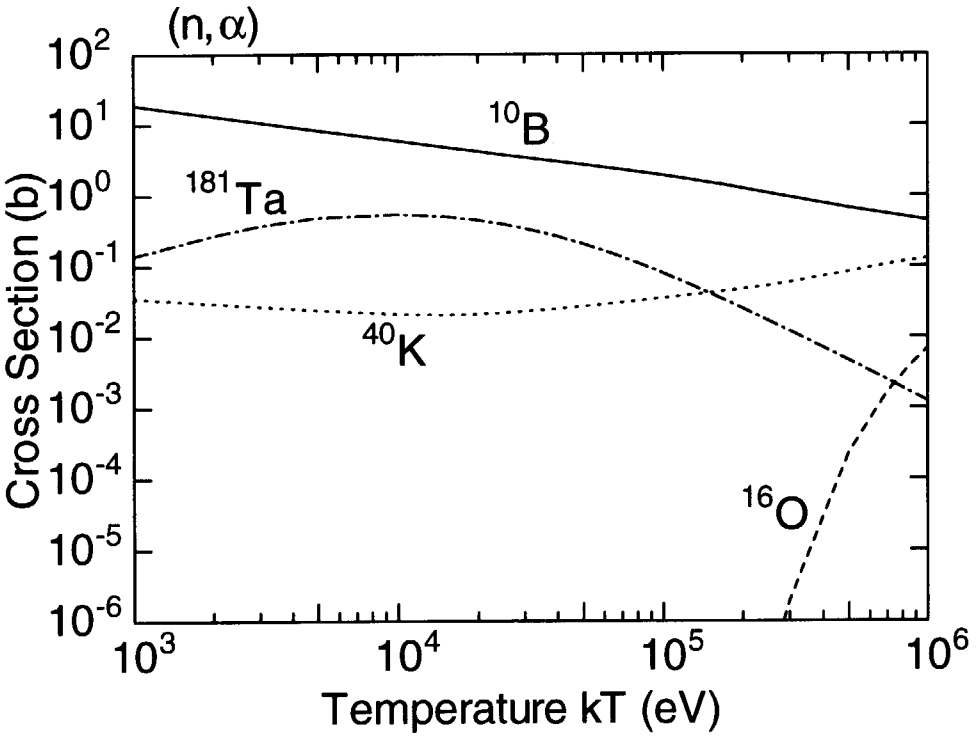

Fig. 4.28 Maxwellian-averaged (n,α) cross sections of ^{10}B, ^{16}O, ^{40}K and ^{181}Ta

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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^{-19} J

1 u = 1.66054 × 10^{-27} kg

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^{-1}
力	ニュートン	N	$m\cdot kg/s^2$
圧力，応力	パスカル	Pa	N/m^2
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	ジーメンス	S	A/V
磁束	ウェーバ	Wb	V·s
磁束密度	テスラ	T	Wb/m^2
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	℃	
光束	ルーメン	lm	cd·sr
照度	ルクス	lx	lm/m^2
放射能	ベクレル	Bq	s^{-1}
吸収線量	グレイ	Gy	J/kg
線量当量	シーベルト	Sv	J/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
バール	bar
ガル	Gal
キュリー	Ci
レントゲン	R
ラド	rad
レム	rem

1 Å = 0.1 nm = 10^{-10} m

1 b = 100 fm^2 = 10^{-28} m^2

1 bar = 0.1 MPa = 10^5 Pa

1 Gal = 1 cm/s^2 = 10^{-2} m/s^2

1 Ci = 3.7 × 10^{10} Bq

1 R = 2.58 × 10^{-4} C/kg

1 rad = 1 cGy = 10^{-2} Gy

1 rem = 1 cSv = 10^{-2} Sv

表5　SI接頭語

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

（注）

1. 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。
2. 表4には海里，ノット，アール，ヘクタールも含まれているが日常の単位なのでここでは省略した。
3. 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。
4. EC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(=10^5 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^2) = 10 P(ポアズ)(g/(cm·s))

動粘度　1 m^2/s = 10^4 St(ストークス)(cm^2/s)

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

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

1 cal = 4.18605 J（計量法）

= 4.184 J　（熱化学）

= 4.1855 J（15 °C）

= 4.1868 J（国際蒸気表）

仕事率　1 PS（仏馬力）

= 75 kgf·m/s

= 735.499 W

放射能	Bq	Ci
	1	2.70270 × 10^{-11}
	3.7 × 10^{10}	1

吸収線量	Gy	rad
	1	100
	0.01	1

照射線量	C/kg	R
	1	3876
	2.58 × 10^{-4}	1

線量当量	Sv	rem
	1	100
	0.01	1

（86年12月26日現在）