

お知らせ(その1)

N N D E N への投稿

Contribution to Neutron Nuclear Data Evaluation Newsletter-19

Japanese Nuclear Data Committee
(Nuclear Data Laboratory, JAERI)

Work in progress:

- 1) Compilation works have been delayed on the resonance parameters of ^{235}U , ^{238}U and ^{240}Pu by a working group of JNDC. The delay is mainly due to the decision to include in the compilation recently published parameters, particularly those reported at the Conference on Nuclear Cross Section and Technology at Washington in 1975. The works are now at the final stage. (informed by A. Asami, JAERI)
- ii) Evaluation of fission and capture cross sections for ^{239}Pu have been made in the energy range from 100 eV to 15 MeV on the basis of the experimental data. Total cross sections and v_p were also evaluated. Cross sections of (n,2n) and (n,3n) reactions are now estimated by Pearlstein's method. The neutron emission cross section is assumed by subtracting fission cross section from compound nucleus formation cross section. The result of the (n,2n) cross section is larger than that of ENDF/B-IV, but agrees well with the experimental data by Mather et al. Evaluation of elastic and inelastic scattering cross sections is in progress by using the optical model calculation. The potential parameters are determined so as to reproduce the evaluated total cross section. (informed by M. Kawai, NAIC)
- iii) Some revision of the previous evaluation on ^{235}U were made in the energy range 1 keV to 15 MeV. The elastic and inelastic scattering cross sections were evaluated on the basis of the experimental data and calculation with the ELIESE-3 code. The final values of the inelastic scattering cross section were determined by fitting a polynomial function to the experimental data in the energy range 2.0 to 7.5 MeV in which a considerable discrepancy appears between the measured and calculated values. The elastic scattering cross section was also corrected consistently according to the determination of the inelastic scattering cross section in the above energy range. Revision of evaluation was also performed for the fission cross section in the energy range 0.3 to 1.0 MeV. This revision was applied on the evaluation of the inelastic scattering cross section in the same energy range. (informed by H. Matsunobu, SAEI)
- iv) Evaluation of the neutron cross sections for some threshold reactions was made by comparing various experimental data. (informed by T. Asami, JAERI)
- v) The evaluation of ^{241}Pu is in progress. The fission cross sections above keV region are obtained from the recent data of $\sigma_f(^{239}\text{Pu})/\sigma_f(^{235}\text{U})$ by normalizing the $\sigma_f(^{235}\text{U})$ evaluated by H. Matsunobu. The total, capture and inelastic scattering cross sections are calculated with the statistical model. (informed by Y. Kikuchi, JAERI)
- vi) The evaluation of unresolved resonance parameters of ^{235}U , ^{238}U , ^{239}Pu and ^{240}Pu is in progress. (informed by Y. Kikuchi, JAERI)

Work planned for the near future:

Calculation of the neutron-induced gamma production cross sections of light to heavy nuclei will be started for neutron energies 0.5 to 20 MeV, using the GROGI code which is a spin-dependent nuclear evaporation program. (informed by H. Kitazawa, TIT)

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