

Nuclear Data Needs in Japan

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Nuclear data needs related to the nuclear energy in Japan are not so much changed from the previous report in 2018. Developments concerning treatments of nuclear wastes are still important and transmutation of high-level radioactive wastes is a possible candidate. Development of accelerator driven system (ADS) for burning transuranic nuclides is in progress. For the design of ADS, it is needed to improve current nuclear data accuracy on

- neutron cross sections of ^{15}N and Fe, Pb, Bi, Pu, Am and Cm,
- Fission spectrum of Pu, Am and Cm.

Regarding light water reactor and fast reactors, for prediction accuracy improvement on nuclear characteristics of the reactors including data assimilation technics, accurate cross sections and their covariance are still needed especially for

- Neutron cross sections and covariances of actinides (U, Np, Pu, Am, Cm) and neutron absorber (Gd, Ag, In, Cd, W) for thermal reactors,
- Neutron cross sections for C, O isotopes and structure material for fast reactors.

For fusion technology and neutron shielding calculation, the completeness of nuclear data in the library is requested especially for covariance and energy emission of structure materials such as

- Covariance data of H, Li, Be, F, Si, Cr, Ti, Fe, Cu, Pb, W, Nb, Sn,
- Gamma-ray emission and recoil spectrum for all nuclei for estimation of KERMA factors.

In the nuclear sensing field, nuclear data are required for development of various methods of nondestructive assay:

- Neutron induced gamma-ray emission spectrum: actinide, structure material, O, B, Gd
- Accurate resonance parameters for neutron resonance transmission analysis: actinides, structure materials, etc,
- Beta-delayed gamma-ray spectrum of fission products.