

Present Status of JENDL-4

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Development of the forth version of Japanese Evaluated Nuclear Data Library (JENDL-4) was recommended by the *Ad Hoc* Committee on next JENDL in the Japanese Nuclear Data Committee of the former JAERI. The JENDL-4 project was adopted as a mid-term project regarding nuclear data evaluation in JAEA. JENDL-4 aims at applications to innovative reactors, high burn-up and use of MOX fuels for LWR, criticality safety with burn-up credit, and basic science such as astrophysics. Emphases are placed on the improvements of FP and MA data.

We have developed two nuclear model codes to obtain reliable nuclear data in the non-resonance energy region: POD and CCONE. These codes are based on the optical model, exciton model, and statistical model, although CCONE is mainly used for evaluation of MA nuclei while POD is tuned for FP.

As for evaluation of FP, we selected 213 nuclei having a half life of more than 10 days and a fission yield of larger than 0.1%. Priorities were assigned to each nucleus by considering the following items: needs from LWR, FBR, and ADS, availability of new differential measurements, comparison of JENDL-3.3 total and capture cross sections with experiments, benchmark results of JENDL-3.3 on STEK experiments, and results of data selection by WPEC SG21. As a result, we found 63 FP nuclei having priority-A. We have updated the resolved resonance parameters, which represent the low-energy behavior of cross sections, for 107 FP nuclei by analyzing new measurements.

In the non-resonance energy region for FP nuclei, a new set of global coupled-channel optical model parameters was obtained up to incident neutron and proton energies of 200 MeV. The coupled-channel parameters are superior to the spherical ones for deformed nuclei such as Sm. The parameters obtained reproduce measured s-wave neutron strength functions. Using these coupled-channel optical model parameters, the cross sections of Zn, Ag, Sn, Nd, Pm, Tb, and Dy were evaluated. Furthermore, evaluations of Mo, Nb, Pd, and Sm are in progress.

Evaluation for JENDL-4 is almost on schedule. As a special purpose file, JENDL Actinoid File will be completed by the end of March 2008 after integral tests.