

Status of KAERI/NDEL, 2003-2004

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Nuclear Data Evaluation Laboratory of Korea Atomic Energy Research Institute (KAERI/NDEL) has 9 Staffs and 1 Secretary. (Evaluation 5, Processing and Benchmark 3, Service 1)

The main project is “Evaluation of Nuclear Data for Nuclear R&D Projects” funded by government as a long term nuclear energy development program. KAERI/NDEL is performing nuclear data evaluation, multi-group library processing, and validation. For measurement of nuclear reaction data, KAERI/NDEL is contacting with Pohang Accelerator Laboratory and Van de Graff laboratory of Korea Institute of Geology and Mineral.

1. Facility

1.1. Pohang Accelerator Laboratory

The Pohang Time of Flight has extended the TOF length from 10.8 meter to 12.06 meter in order to improve the energy resolution.

1.2 Korea Institute of Geology and Mineral

The 1.4 MV Van de Graaf of KIGAM is equipped with a pulsing and bunching system to measure neutron capture cross section at 1 – 2 MeV range.

2. Measurement

Neutron total cross sections of natural Zr, Hf, Mo, Ta, Pb, Bi were measured in the energy range 0.01 - 100 eV at Pohang TOF during 2003 and 2004.

Neutron capture cross sections of ¹⁵⁵Gd, ¹⁵⁶Gd, ¹⁶⁰Gd were measured in the energy range 10 – 100 keV, and 550 keV at Pelletron accelerator of Tokyo Institute of Technology, Japan.

3. Evaluation

3.1. Resonance Parameter Analysis

The individual resonance parameters, up to 100 eV, of Ag, Dy, Sm, Hf, Ta, W were derived from SAMMY analysis of the transmission experiment carried out at Pohang Time-Of-Flight facility

3.2. Cross-section Evaluation

Neutron cross section of ¹²⁹I, ¹³⁵Cs, ¹⁰⁷Pd, ²³²Th, ²³¹Pa, ²³³Pa, ²³³U, ²³⁴U, ²³⁶U are evaluated using measured data and EMPIRE-II up to 20 MeV.

3.3. High Energy Cross Section Evaluation

Reaction cross sections of ^{232}Th , ^{233}U , ^{234}U , ^{236}U , ^{243}Am , ^{243}Cm , ^{244}Cm , ^{245}Cm for neutron and proton incident energy range 20 - 250 MeV were evaluated using ECIS-GNASH.

4. Services

The nuclear data web server <http://atom.kaeri.re.kr/> is continuing service for internet community.

END.