

# Present Status of CENDL Project

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## 1 General

Chinese Nuclear Data Committee assumes responsibility the management of CENDL project. Committee meetings are generally held once per year. The follows is the organization of committee:

Evaluation Working Party.

Measurements Working Party.

Benchmark Working Party.

CENDL is carried out by China Nuclear Data Center and China Nuclear Data Network, the follows are the including of the network:

China Institute of Atomic Energy.

Peking University, Sichuan University.

Lanzhou University.

Nankai University,

Jilin University and et al.

The progress and achievements in China nuclear data field are carried in the issue of Communication of Nuclear Data Progress (CNDP)

## 2. General purpose file

From 1996 to 2001, we have completed the evaluation of CENDL-3.0, total 209 nuclides are include CENDL-3.0, among them, the data of 169 nuclides were newly evaluated. The data are contained in the energy range from  $10^{-5}$  eV to 20 MeV. The ENDF-6 format is adopted, the files 1,2,3,4,6,12-15 are included for major fissile nuclide, structure material and light nuclide, files 1,2,3,4,5 are given for minor fissile and fission production nuclides. The data of CENDL-3.0 are being tested and improved for the problems found in the test.

The benchmark testing for some fission products of CENDL-3 has been done with the experiment performed on the CFRMF (Coupled Fast Reactivity Measurement Facility) of ANL/INEL. According to the analysis of the ratios of calculation to measurement, it can be seen that the evaluations of fission products from CENDL-3

are better than others evaluated libraries on the capture cross-sections, this is because of the updated experimental data used in the CENDL-3 evaluations.

Validation of CENDL-3.0 for fissile nuclei, light nuclei and structure material, such as Uranium isotopes, Plutonium isotopes, Beryllium, and Lead isotopes etc was also done according to the benchmarks testing results.

From 2001, we began a new five years plan of CENDL. The data of total 281 nuclides will be evaluated; covariance data will be included for ten important nuclides. The data of total 61 nuclides have been evaluated by now.

#### The new five years plan

Nuclides	Fissile Nuclides	Structure Material	Fission products	Light Nuclides	Total
Planned	44	58	166	13	281
Evaluated	20	26	61	4	111

The covariance data for  $^{65,63,\text{Nat}}\text{Cu}$  were evaluated and recommended in the energy range from 99.5 keV to 20MeV based on the available experimental data using the codes EXPCOV and SPC. The data can be as a part of the covariance file 33 in the evaluated library in ENDF/B-6 format for the corresponding nuclides, and also can be used as the basis of theoretical calculation concerned.

### 3. Nuclear physics basic database

The project is supported by China Ministry of science and technology, and it contain the following data base:

**(1) Nuclear structure and Nuclear Decay database**

**(2) Nuclear Model Parameters and computing programs library**

**(3) Special Purpose database:**

**Fission yield Data File:**

The evaluations of fission yield are continued, 79 product nuclides for  $^{235}\text{U}$  and 68 product nuclides for  $^{238}\text{U}$  are recommended.

**Prompt g-ray:**

The data for Nuclides A=1-35 were evaluated and the data for 20 nuclides of A>190 were revised.

**(4) Exfor Database**

**(5) Evaluation Nuclear data library**

We have set up nuclear data online service system in china, the address is <http://159.226.2.40/>, and a nuclear data online service system has been developed.

#### **4 Nuclear data for ADS**

This work is a part of the project of ADS system of China, and is supported by China Ministry of science and technology. The project include the following parts:

**(1) Intermediate energy file:**

Intermediate energy file will include neutron induced and proton-induced reaction data up to 250MeV for 20 nuclides. Joint the need of intermediate energy files, a new program MEND for calculating the nuclear data in medium energy region has been developed.

**(2) Study of Spallation target**

**(3) Multi-group cross section generated**

#### **5 The meeting and symposium:**

- (1) The symposium on Nuclear Data library, 13-17 Jan. 2003, Nanjing
- (2) The symposium on Nuclear Data Future need, 13-15 Oct. 2003, Yichang
- (3) The meeting of Benchmark Working Party, 16-18 Oct. 2003, Yichang
- (4) The meeting of Measurements Working Party, 7-9 Feb. 2004, Haerbin,