The Progress Report of CNDC
to NRDC Meeting

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NRDC Meeting, 25 - 26 May 2009

General

- China Nuclear Data Center serves as the secretariat of Chinese Nuclear Data Committee.
- CNDC: 4 new staffs, 24 staffs

  four group:
  - Nuclear Data Evaluation Group
  - Nuclear Theory Group
  - Macroscopic Data Group
  - Data Library Group

Nuclear Data Evaluation

- CENDL-3.1

  - CENDL-3.1 includes comprehensive data evaluations for all neutron reactions in the energy range from 10^{-5}eV to 20MeV for 200 nuclides. 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.
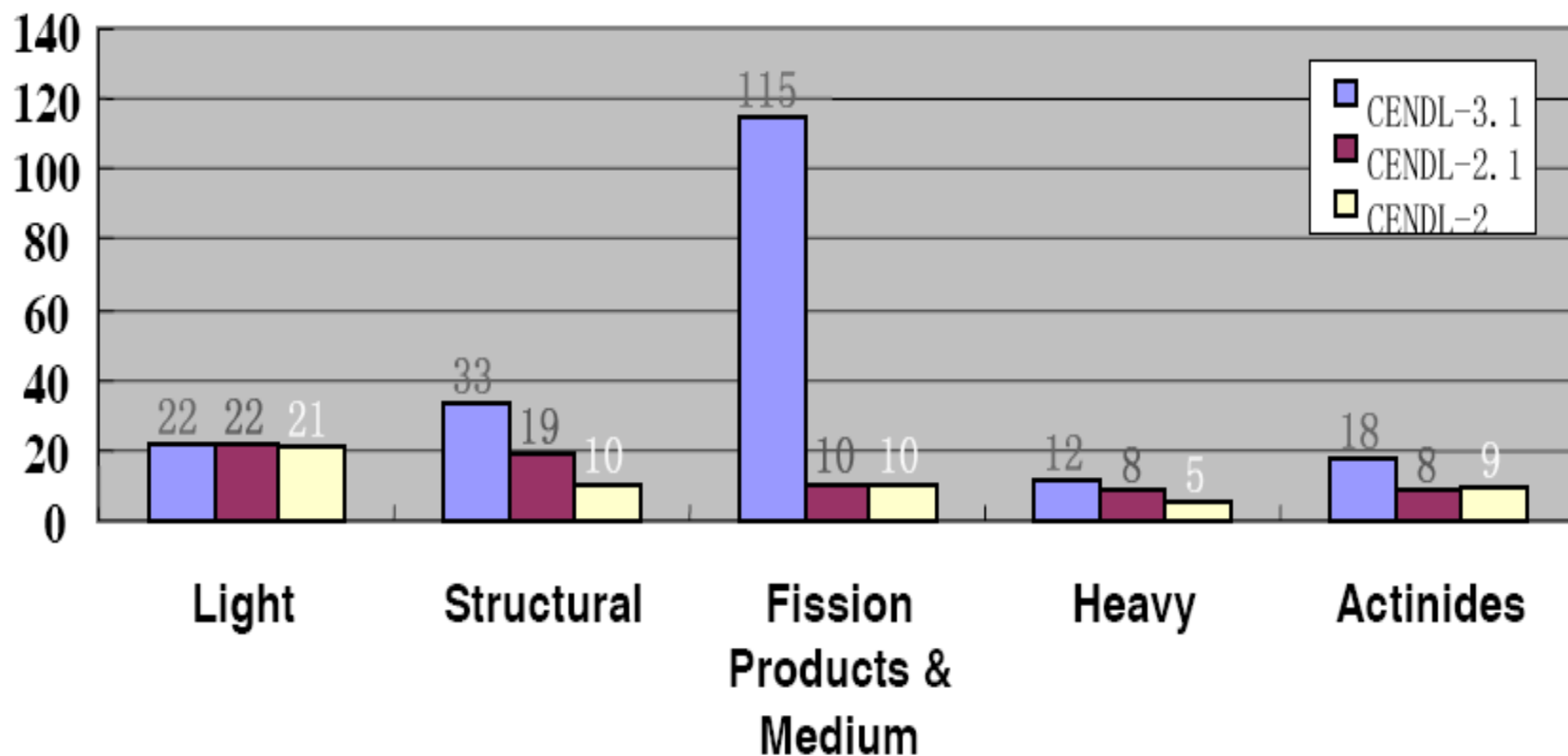
The Nuclides of CENDL-3.1

Nucl.	Content
Light Elements	^{1,2,3}H, ^{3,4}He, ^{6,7}Li, ^{9}Be, ^{10,11}B, ^{12}C, ^{14}N, ^{16}O, ^{19}F, ^{23}Na, ^{nat}Mg, ^{27}Al, ^{nat}Si, ^{31}P, ^{nat}S, ^{nat}Cl, ^{nat}K, ^{nat}Ca
Structural Materials	^{nat}Ti, ^{nat}V, $^{50,52\sim54,nat}$Cr, ^{55}Mn, $^{54,56\sim58,nat}$Fe, ^{59}Co, $^{58,60\sim62,64,nat}$Ni, ^{63,65,nat}Cu, ^{nat}Zn
Fission Products & Medium Elements	^{69,71,nat}Ga, $^{83,84\sim86}$Kr, ^{85,87,nat}Rb, $^{88\sim90}$Sr, ^{89,91}Y, $^{90\sim96,nat}$Zr, ^{93,95}Nb, ^{95,97,98,100,nat}Mo, ^{99}Tc, $^{99\sim105}$Ru, ^{103}Rh, ^{105,108}Pd, ^{107,109,nat}Ag, ^{113,nat}Cd, ^{115,nat}In, ^{nat}Sn, ^{121,123,nat}Sb, ^{130}Te, ^{127}I, $^{124,129,131,132,134\sim136}$Xe, $^{133\sim135,137}$Cs, $^{130,132,134\sim138,nat}$Ba, ^{139}La, $^{140\sim142,144}$Ce, ^{141}Pr, $^{142\sim148,150,nat}$Nd, ^{147,148,149}Pm, $^{144,147\sim152,154,nat}$Sm, $^{151,153\sim155,nat}$Eu, $^{152,154\sim158,160,nat}$Gd, ^{164}Dy
Heavy Elements	^{nat}Lu, ^{nat}Hf, ^{181}Ta, ^{nat}W, ^{197}Au, ^{nat}Hg, ^{nat}Ti, ^{204,206,207,207,nat}Pb,
Actinides	^{233,234,235,236,238,239}U, ^{237}Np, ^{238,239,240,241,242}Pu, ^{241,242}Am, ^{249}Bk, ^{249}Cf

CONTENT OF CENDL- 3.1

● **New evaluations**

- $^{12}C, ^{14}N, ^{16}O, ^{23}Na, Mg, Al, ^{46,47,48,49,50,nat}Ti,$
  $^{58, 60, 61, 62, 64}Ni, ^{63}Cu, ^{85}Y, ^{95}Zr, ^{99}Mo,$
  $^{129,131,132,134}Xe, ^{169}Tm, ^{181}Ta, ^{240}Pu$

- Experimental data evaluated: analyzed in physics, corrected for the standard used, adjusted for the error .

- The UNF code for nuclear data model calculations with the unified Hauser-Feshbach and exciton model are implemented in the evaluations. The APMN code was used for automatically searching a set of optimal optical potential parameter.
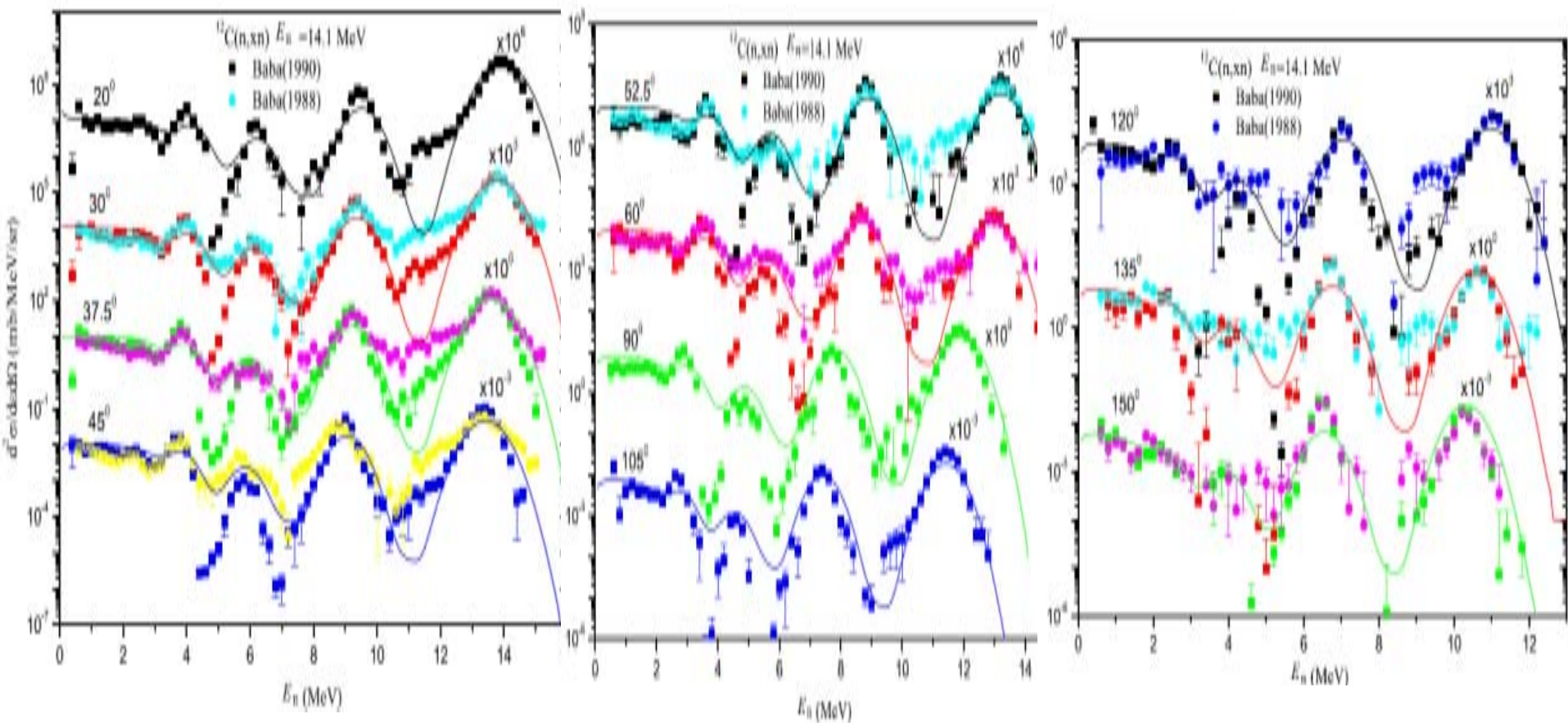
Double-differential cross sections of n+^{12}C

- **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 theoretical models code MEND has been improved

  -Calculated and evaluated
   n+^{54,56,57,58}Fe, n+^{54,56,57,58}Fe up to 250MeV
   n+^{233,234,235,236,238}U below 20 MeV

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- **Structure and Decay Data**

- CNDC have taken permanent responsibility for evaluating and updating NSDD for A=51, 52 and 195-198.

- About 40 new decay data evaluations finished in recent 2 years. The range of nuclides from ^{37}Ar to ^{153}Gd. These evaluations included the half-life, –ray intensity, branch ratio and decay schemes et.al. Two evaluation methods ENSDF and DDEP were used in our new evaluations.

• **Fission yield**

- The systematics on mass distribution of fission product nuclides

- The systematics on independent yield

- Cumulative yield data from ^{235}U and ^{238}U fission were evaluated for each about 50 fission product nuclides as a base of updating CENDL/FY and for some practical applications.

● Nuclear reaction model code

-    The code system LUNF series used for light nuclei model calculations were developed. This code system can be used for the model calculation for neutron introduced reaction with targets ^{6,7}Li ^{9}Be,^{10}B,^{12}C,^{14}N and^{16}O. LUNF system can also provide the energy-angular spectra (MF6 in ENDF format) model calculations.

- The theoretical model code MEND of nucleon-induced reaction has been improved. In the new version of MEND code, the gamma-production cross sections and ENDF format are included.

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• **International Co-operation**

The scientists of CNDC participate in two IAEA
Coordinated Research Projects:

-Minor Actinide Neutron Reaction Data

-Updated Decay Data Library for Actinides.

Foreign Scientists have visited CNDC/CIAE :

- A.J. Koning, NRG, Oct. 2008.

- S. G. Yavshits, S.V.Khlebnikov and O. T. Grudzevich, Khlopin Radium Institute and Obninsk State University, Oct. 2008.

- T.V. Golashvili, V.P. Chechev and S. Badikov, ATOMINFORM and Khlopin Radium Institute, Oct. 2008.

Meeting and Symposium

- The symposium on Nuclear Data Future needed, 16 Dec. 2008,Beijing

- The Technical Meeting of fission yield, May 15-18, 2009, Guilin

- The Meetings of China Nuclear Data Committee   14 May. 2009, Beijing