



China Institute of Atomic Energy

Experimental Activities in China

Yu Hongwei

China Nuclear Data Center

China Institute of Atomic Energy



The following nuclear data measurement laboratories are included in china Nuclear Data Network:

- China Institute of Atomic Energy (CIAE)
- Peking University
- Sichuan University,
- Lanzhou University and etc.

The summarized activities are covered during the period of last one year



China Institute of Atomic Energy

- Neutron emission cross sections from ^9Be at neutron energy of 8 MeV:

The existing experimental DDX data are sparse and the evaluated data from different libraries are very different.

Energy : 8.17 MeV neutrons

The experiment was carried out with the Multi-detector Fast Neutron TOF Spectrometer on the HI-13 Tandem Accelerator of CIAE.



China Institute of Atomic Energy

- Precise measurements of γ -ray
Relative Intensities for ^{66}Ga :

The standard radioactive sources for the γ - detector efficiency calibration are up to 2754 keV.

The γ - emission energies from ^{66}Ga decay widely cover over 800-4806 keV



China Institute of Atomic Energy

The efficiencies below 2754keV can be calibrated with the available radioactive sources

The $^{19}\text{F}(p,\text{ag})^{16}\text{O}$ resonance reaction at $E_p=340.46\text{keV}$ was chosen as calibration source above 2754keV .



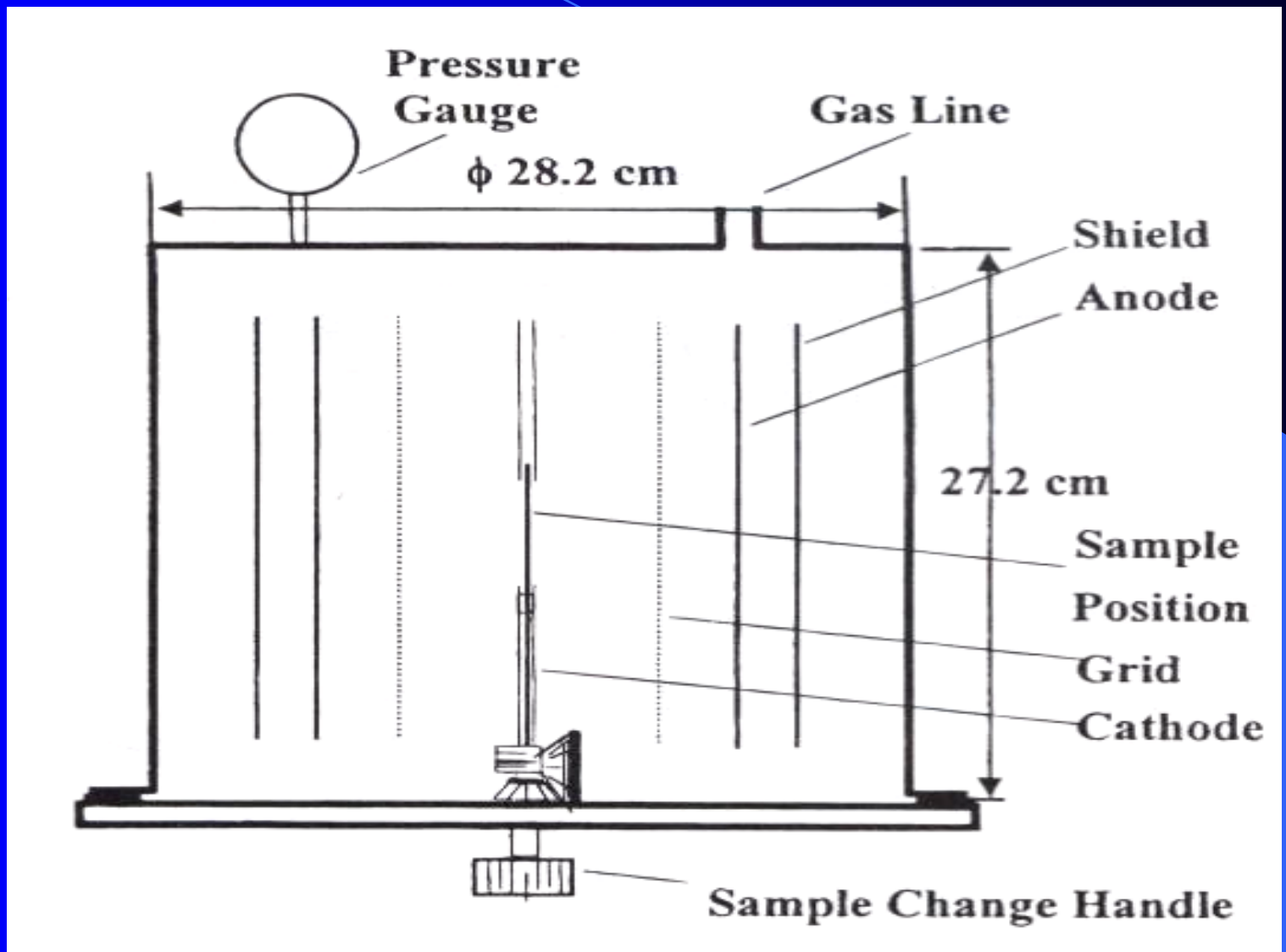
Peking University

- Measurement of differential cross sections of the ${}^6\text{Li}(n,t){}^4\text{He}$ reaction at 1.85 – 4.42 MeV:

There are few differential data with large discrepancies in MeV region.

Using a gridded ionization chamber, the differential cross sections were measured at 1.85, 2.67, 3.67 and 4.42 MeV

The total uncertainties of differential cross sections are 5.1~7.3 %.



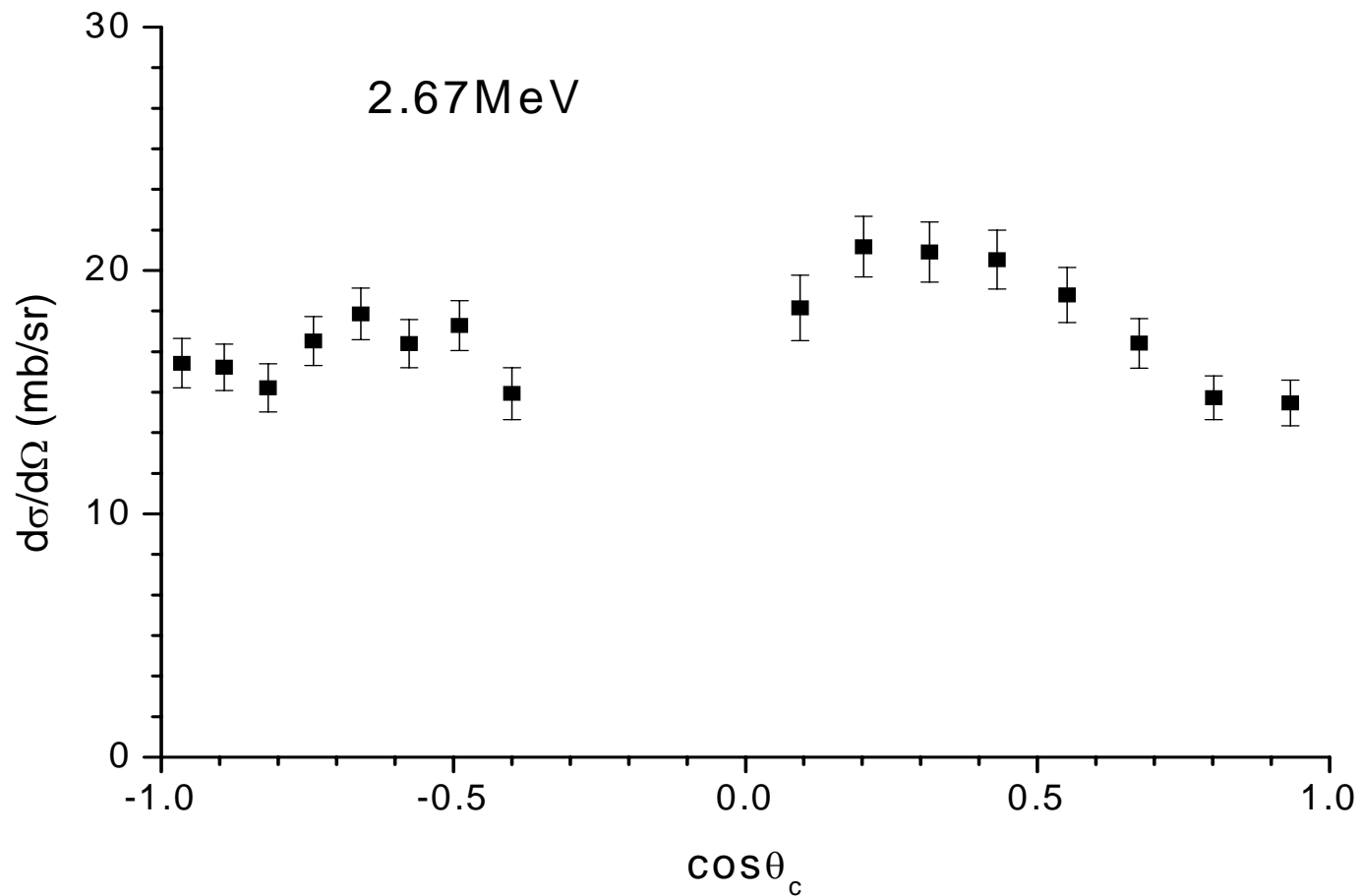


Peking University

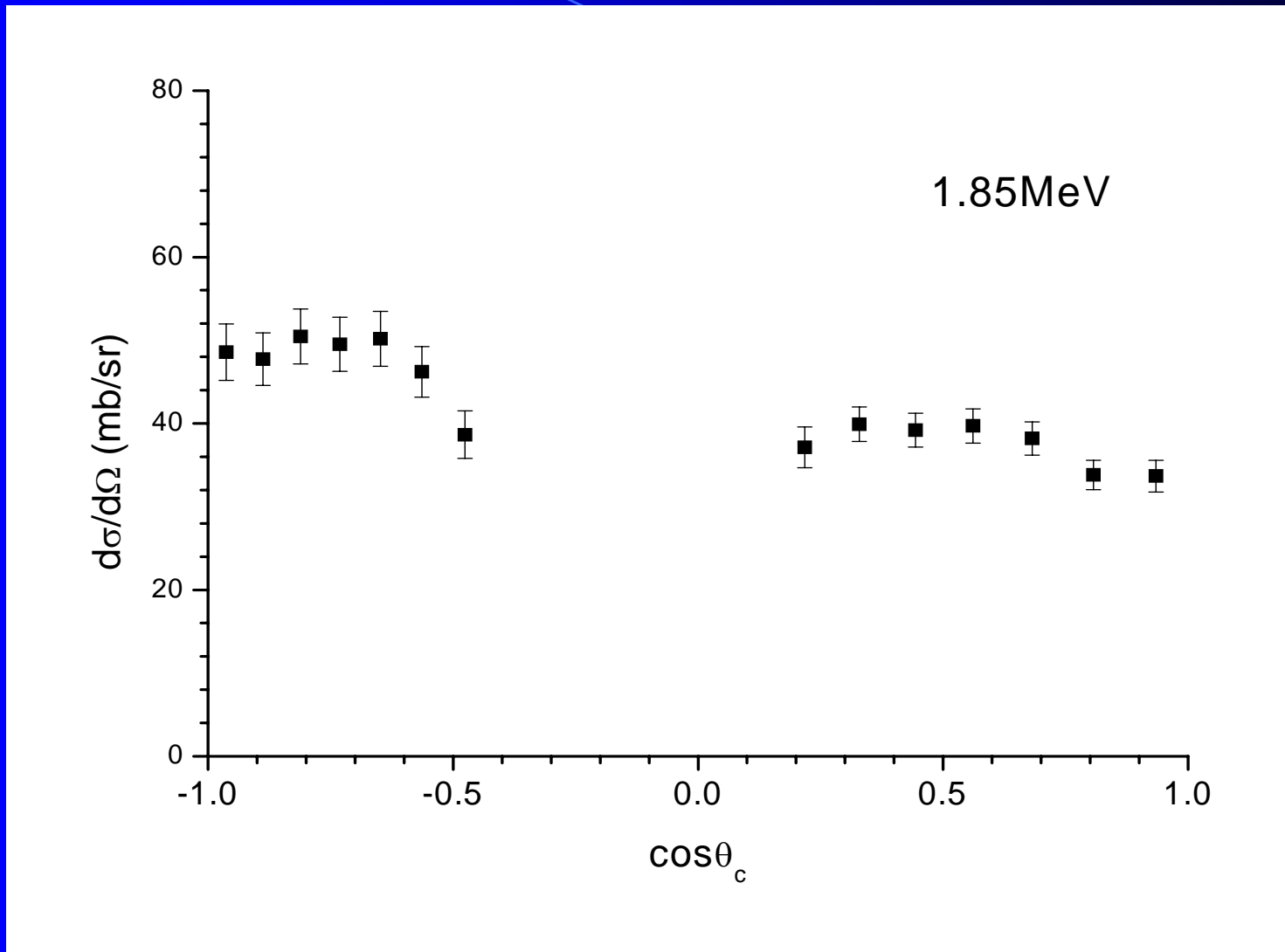
- The differential cross section for $^{10}\text{B}(n, \alpha)^7\text{Li}$ reaction:

The differential cross-section and integrated cross sections measurement was continued

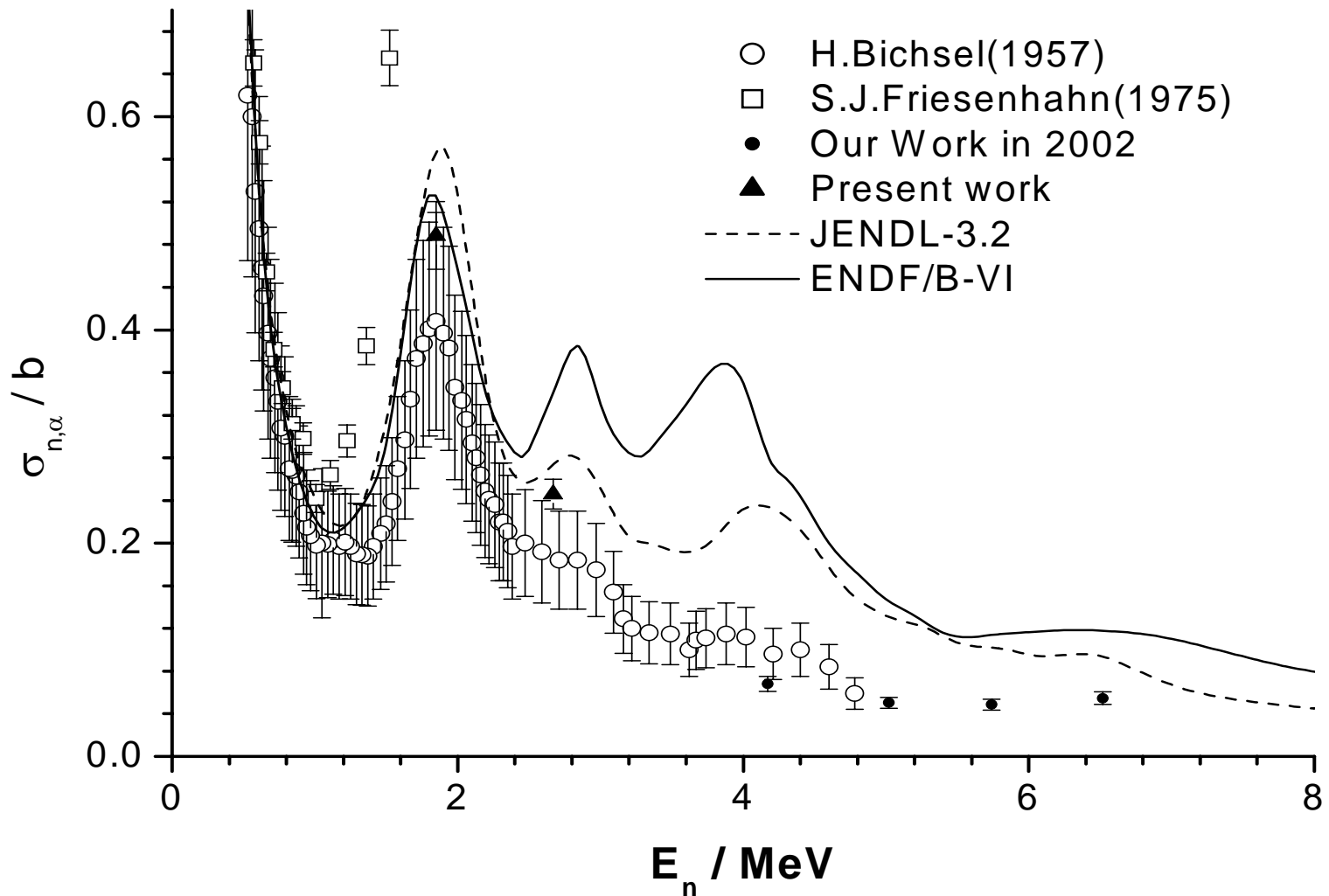
$E_n=4.17, 5.02, 5.74, 6.52, 1.85, 2.67\text{MeV}$



The differential cross section for $^{10}\text{B}(n, \alpha)^7\text{Li}$ reaction



The differential cross section for $^{10}\text{B}(n, \alpha)^7\text{Li}$ reaction



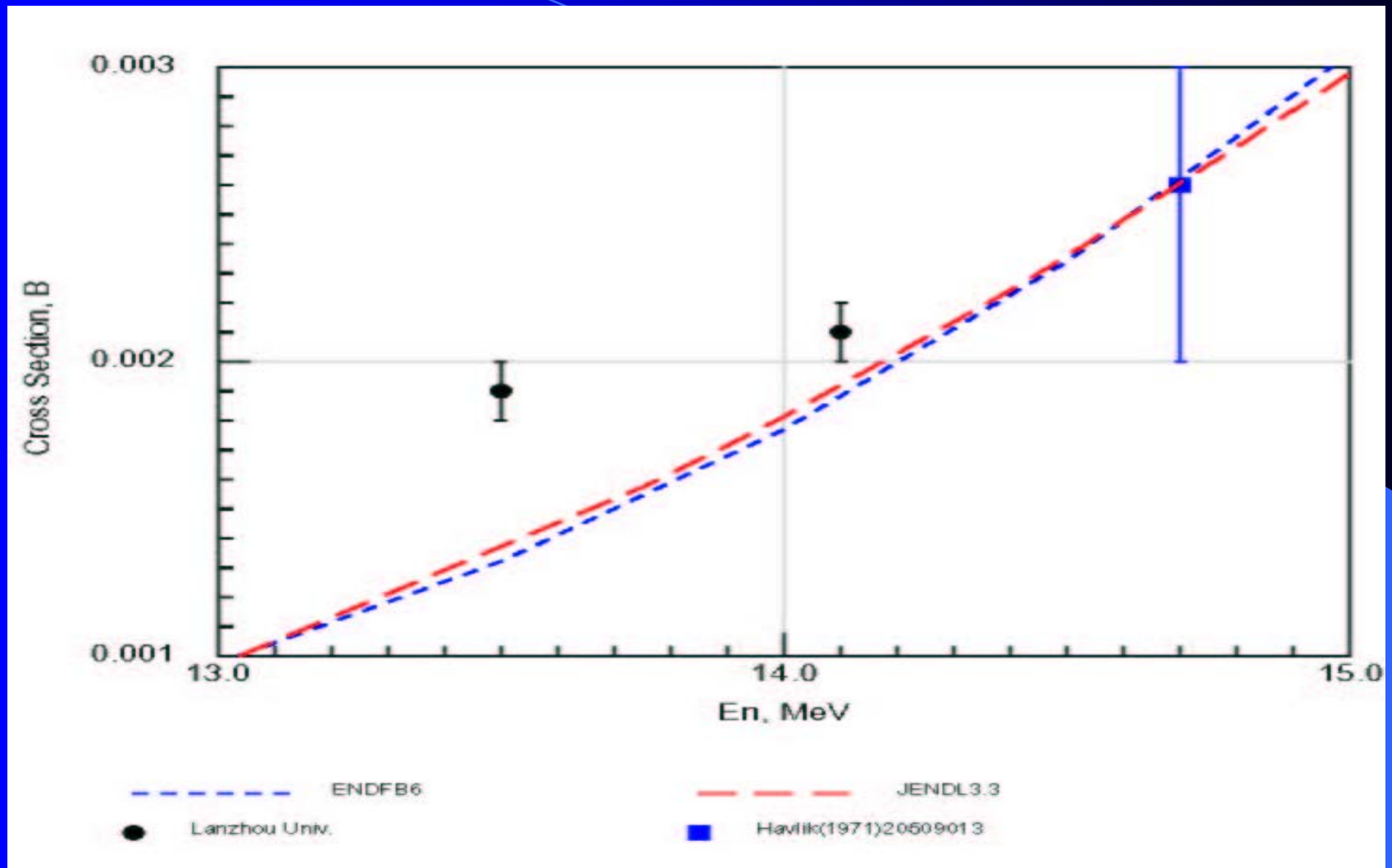
The cross section for $^{10}\text{B}(n, \alpha)^7\text{Li}$ reaction



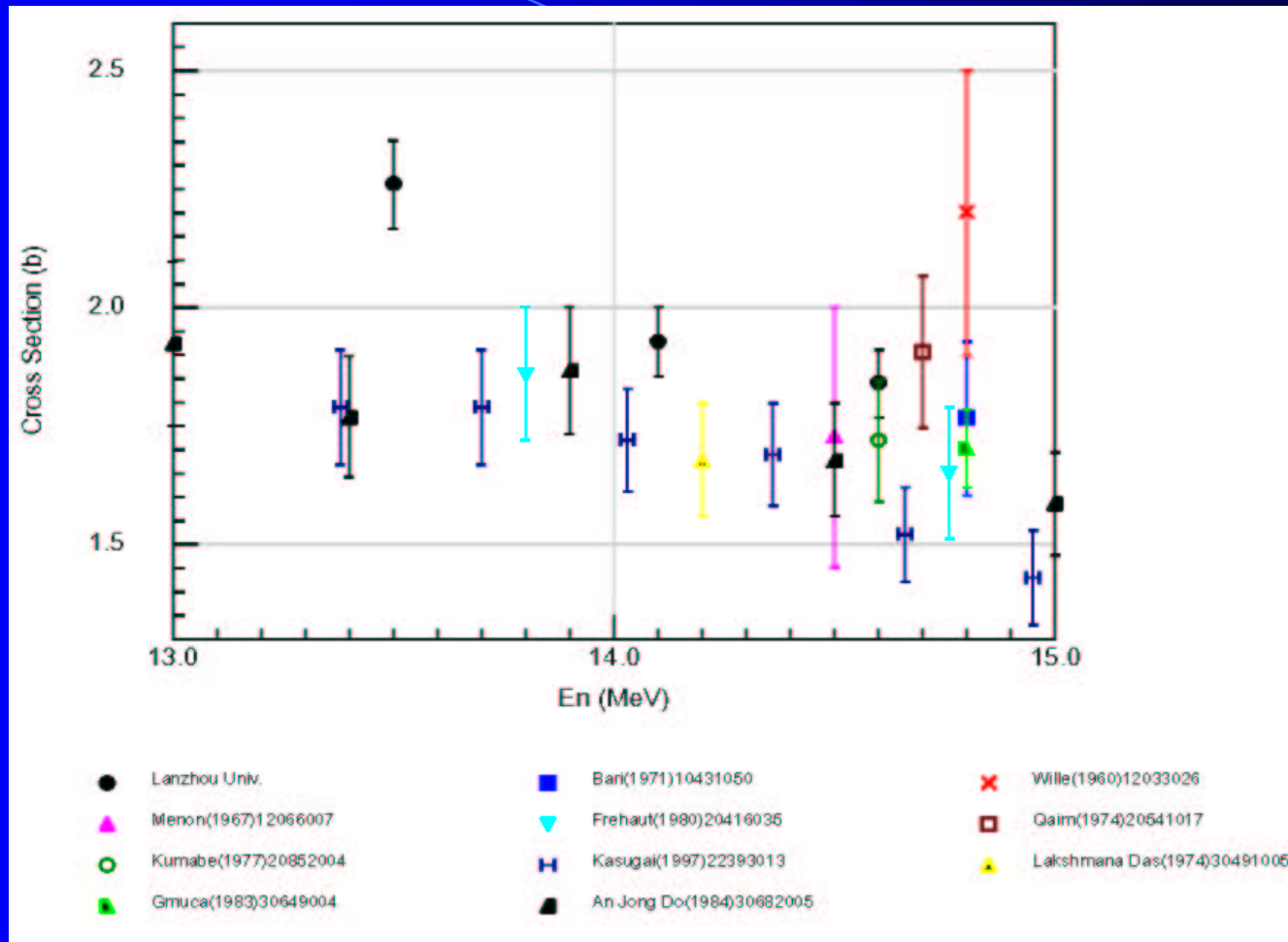
Lanzhou University

- The following cross sections was measured at neutron energy from 13.5 to 14.6MeV at Lanzhou University by using the activation method :

$^{150}\text{Nd}(n,2n)^{149}\text{Nd}$, $^{148}\text{Nd}(n,2n)^{147}\text{Nd}$,
 $^{142}\text{Nd}(n,2n)^{141}\text{Nd}$, $^{160}\text{Gd}(n,2n)^{159}\text{Gd}$,
 $^{141}\text{Pr}(n, p)^{141}\text{Ce}$, $^{139}\text{La}(n, p)^{139}\text{Ba}$,
 $^{158}\text{Gd}(n, p)^{158}\text{Eu}$, $^{146}\text{Nd}(n, p)^{146}\text{Pr}$



the cross section for $^{158}\text{Gd}(n, p)^{158}\text{Eu}$ reaction



The cross section for $^{142}\text{Nd}(n,2n)^{141}\text{Nd}$ reaction



Sichuan University

- The cross sections for the $^{115}\text{In}(n, \gamma)^{116}\text{In}$, $^{116\text{m}}\text{In}(n, \gamma)^{117}\text{In}$ and $^{71}\text{Ga}(n, \gamma)^{72}\text{Ga}$ reaction were measured in neutron energy range from 30 to 1500 keV.



China Institute of Atomic Energy

Thank you