Russian Nuclear Data Center (CJD)
Institute of Physics and Power Engineering, Russia

IAEA Nuclear Data Section (NDS)
Austria

OECD NEA Data Bank (NEA DB)
France

US National Nuclear Data Center (NNDC)
Brookhaven National Laboratory, U.S.A

Nuclear Data Group (ATOMKI)
Institute for Nuclear Research, Hungary

Centre for Photonuclear Experiments Data (CDFE)
Institute of Nuclear Physics, Moscow State University, Russia

China Nuclear Data Center (CNDC)
China Institute of Atomic Energy, China

Center of Nuclear Physics Data (CNPD)
All Russian Scientific Research Institute of Experimental Physics, Russia

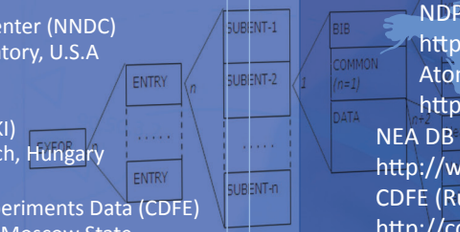
Nuclear Data Center (JAEA/NDC)
Japan Atomic Energy Agency, Japan

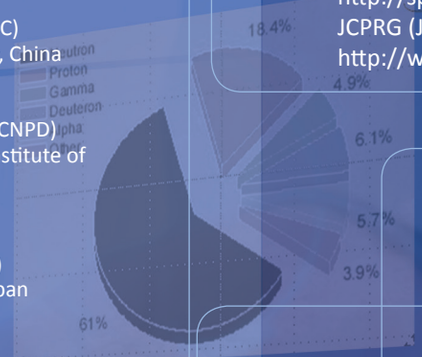
Hokkaido University Nuclear Reaction Data Centre (JCPRG) Hokkaido University, Japan

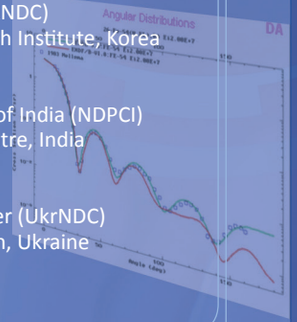
Korea Nuclear Data Center (KNDC)
Korea Atomic Energy Research Institute, Korea

Nuclear Data Physics Centre of India (NDPCI)
Bhabha Atomic Research Centre, India

Ukrainian Nuclear Data Center (UkrNDC)
Institute for Nuclear Research, Ukraine







NRDC EXFOR Web Retrieval Systems:

NDS (IAEA)
http://www-nds.iaea.org/exfor/
Mirrors:
- NNDC (USA)
  http://www.nndc.bnl.gov/exfor/
- CNDC (China)
  http://www-nds.ciae.ac.cn/exfor/
- NDPCI (India)
  http://www-nds.indcentre.org.in/exfor/
- Atomstandart (Russia)
  http://www-nds.atomstandard.ru/exfor/

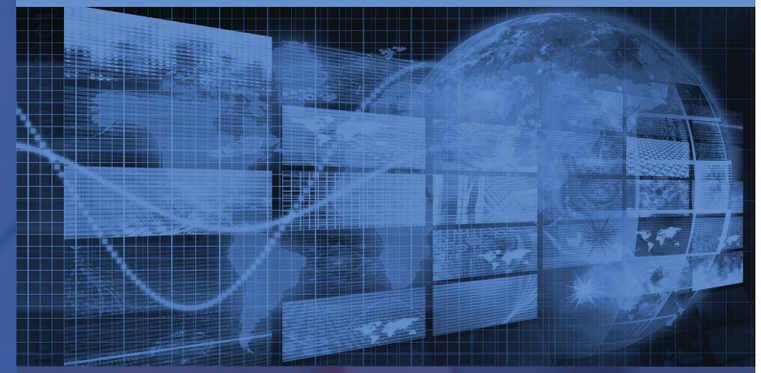
NEA DB (OECD)
http://www.oecd-nea.org/janisweb/
CDFE (Russia)
http://cdfe.sinp.msu.ru/exfor/
JAEA/NDC (Japan)
http://spes.jaea.go.jp/
JCPRG (Japan)
http://www.jcprg.org/exfor/

EXFOR:

- THE FORMAT
- THE LIBRARY ITSELF
- THE INFORMATION SYSTEM

International Network of Nuclear Reaction Data Centres (NRDC)
coordinated by the IAEA Nuclear Data Section
http://www-nds.iaea.org/nrdc/
Last updated March 2018

International Network of Nuclear Reaction Data Centres (NRDC)



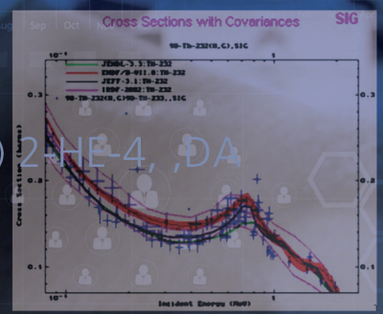
EXPERIMENTAL NUCLEAR REACTION DATA LIBRARY

EXFOR

EXFOR:
THE FORMAT

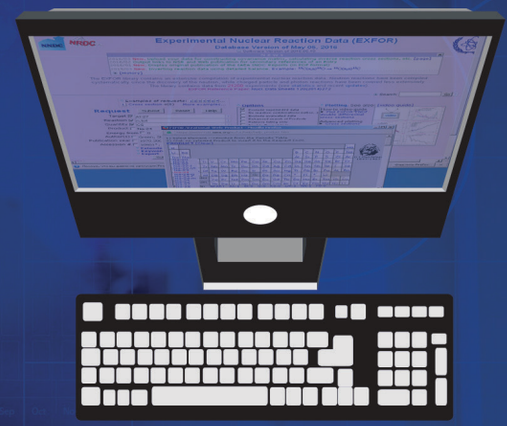
- *EXFOR=EXchange FORmat*
- **was agreed** for the data exchange between four Neutron Data Centres in 1969. Nowadays 13 members of the International Network of Nuclear Reaction Data Centres (NRDC) compile and maintain data for EXFOR under coordination of the IAEA Nuclear Data Section (NDS).
- **is** machine-readable format for checking and for further data processing. EXFOR includes dictionaries and rules.
- **can be read** by a human.

26-FE-56 (D, N) 27-CO-57,PAR,SIG
13-AL-27(P,X)0-NN-1,,DA/DE



3-LI-7 (P, A) 2-HE-4, ,DA

92-U-235 (N, F) ELEM/MASS,CUM,FY, ,FIS



EXFOR:
THE LIBRARY ITSELF

- **stores** the experimental nuclear reaction data on interactions of neutrons, charged particles, photons.
- **stores** numeric data, bibliographic information and experimental information about the data, the source of the data and history. EXFOR includes more than 22 000 descriptions of experiments and 15 000 000 data points (as of January 2018).
- **stores** various nuclear reaction quantities such as cross section, differential cross section (e.g., angular distribution, energy spectrum), double differential cross section, resonance parameter, fission product yield, fission neutron multiplicity.
- **is** the basis for the majority of the evaluated nuclear reaction data libraries.

EXFOR:
THE IAEA NDS RETRIEVAL SYSTEM

- **is** the effective processing system. **IAEA EXFOR Web Service** is http://www-nds.iaea.org/exfor/. Several search criteria such as target, reaction, quantities, products, energies, information about experiment, bibliographic reference, text-patterns and keywords are provided. Autonomous CD version of the EXFOR Library with retrieval system is regularly issued by NDS.
- **offers** the original format (X4) and several end-user formats for different needs. The “interpreted” formats (X4+, X4±, X4XML) give the user explanations of the internal codes and abbreviations and provide access to experimental data in formats appropriate for users. The “computational” formats (C4, C5, C5M) deliver data from EXFOR to users in format simple for software development.
- **displays** data on graphs in static and interactive plots with option for uploading of users’ data for comparison with the possibilities of drag-and-drop zoom, lin/log scaling, copy/paste data between systems and output to: PS, PDF, animated GIF, Html, ENDF-6, Fortran data.
- **provides** the following services: on-line re-calculations of cross sections, inverse reactions and inverse kinematics for angular distributions, automatic re-normalization, user’s corrections, experts’ corrections, constructing a covariance matrix from EXFOR uncertainties.