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National Nuclear Data Center

Brookhaven National
Laboratory is operated by
Brookhaven Science
Associates, a not-for-profit
research management
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contract with the
U.S. Department of Energy.

National Nuclear Data Center (NNDC) collects, evaluates and disseminates nuclear physics data for basic nuclear research and applied nuclear technologies.

Background: Originally founded as the Sigma Center in 1953, joined with the BNL evaluation group to become the Neutron Cross Section Center in 1966, became the National Nuclear Data Center in 1977. The NNDC represents a core facility of the U.S. Nuclear Data Program.

Head: Pavel Oblozinsky was named Head of the NNDC on February 1, 2002. He earned Ph.D. in nuclear physics in Bratislava, Slovakia in 1973 and worked mostly in reaction modeling. He served as Deputy Head of the Nuclear Data Section, IAEA, Vienna from 1993 to 2000.

Staff: 7 scientific, 3 professional and 3 support staff.

Products: NNDC is U.S. custodian of lowenergy nuclear physics databases that have enormous value and represent a genuine national resource. Its core consists of 6 basic nuclear databases.

- Bibliography: 168,000 abstracted papers in NSR, and 265,000 neutron references in CINDA.
- Experimental data: reaction data from 12,700 papers in CSISRS, and recent structure data from 870 papers in XUNDL.
- Evaluated data: nuclear structure properties of all known nuclei in ENSDF, and cross sections of all nuclei of practical importance in ENDF.

Users: NNDC serves numerous basic and applied user communities, mostly by direct Web services, variety of user support activities and publications.

Budget: \$2.8 million in FY02, primary sponsor is DOE Office of Science, Division of Nuclear Physics.

Major Activities:

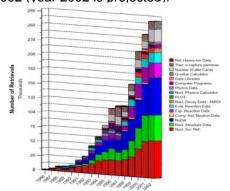
- Collection of bibliographic references -primarily responsible for NSR, contributes to CINDA.
- Compilation of experimental reaction data

 contributes to CSISRS, data published in U.S. and Canada.
- Evaluation of nuclear structure data responsible for evaluation of 56 A-chains for ENSDF.

- Evaluation of nuclear reaction data contributes to ENDF primarily in fission products range.
- Support to evaluators update of manuals, formats and checking codes primarily for ENSDF, ENDF and CSISRS.
- Coordination of the US Nuclear Data Program – effort of 26 FTE with \$4.9 million budget, major product is evaluated structure database ENSDF.
- Coordination of the US Cross Section Evaluation Working Group – major product is evaluated reaction database ENDF.
- International collaboration contributions to 3 networks coordinated by IAEA Vienna (databases ENSDF and CSISRS) and NEA Paris (5 national ENDF-like databases).
- Distribution of databases to other data centers – responsible for NSR, ENSDF, ENDF and several other databases.
- Dissemination of data to end users regular service to many users primarily via Web.
- Publications responsible for journal Nuclear Data Sheets and popular booklet Nuclear Wallet Cards

Recent Achievements:

- In March 2002, the Nuclear Wallet Cards has been adopted as the standard for DOE Nuclear Material Management and Safeguards Systems.
- In 2001, usage of NNDC electronic services has grown by 14% over the previous year. This confirms the growing trend in data retrievals observed in 1986 – 2002 (year 2002 is projected).



Issues: Aging of staff represents a serious problem, 4-5 retirements are expected in 1-3 years. Severe limitation of funds does not allow overlap of retired staff with new hires, meaning that there is a real threat in losing of expertise.

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NNDC, Head Pavel Oblozinsky