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Introduction: WEB
(Nuclear Structure and Decay Data: Introduction to Relevant Web Pages)

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DRAFT

27 March 2008

NUCLEAR STRUCTURE AND DECAY DATA: INTRODUCTION TO RELEVANT WEB PAGES

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28 April 2008

Summary

A brief description is given of the nuclear data centres around the world able to provide access to those databases and programs of highest relevance to nuclear structure and decay data specialists. A number of Web-page addresses are also provided for the reader to inspect and investigate these data and codes for study, evaluation and calculation. These instructions are not meant to be comprehensive, but should provide the reader with a reasonable means of electronic access to the most important data sets and programs.

1. Introduction

A network of international/national nuclear data centres constitutes the infrastructure for the provision of a wide range of atomic and nuclear data services to scientists worldwide (Table 1). More than 100 data libraries are readily available cost-free from these centres through the Internet, CD-ROM and other media.

Two nuclear data centres of particular note are the National Nuclear Data Center (NNDC) at Brookhaven National Laboratory and the Nuclear Data Section at the International Atomic Energy Agency (IAEA-NDS) in Vienna, Austria. Access to the most relevant databases and associated codes through their web addresses are described below (both main directional web pages are shown in the Annex):

National Nuclear Data Center, Brookhaven - *http://www.nndc.bnl.gov/*

IAEA Nuclear Data Section: *http://www-nds.iaea.org*/

and IAEA-NDS mirror sites at IPEN, Brazil, *http://www-nds.ipen.br/*
and BARC, Mumbai, India, *http://www-nds.indcentre.org.in/*
that are maintained by NDS staff.

All libraries and related documentation held by the Nuclear Data Section are available free of charge to scientists in IAEA Member States. Overviews are given by Schwerer and Obložinský (2001) and in the document *Index of Nuclear Data Libraries Available from the* IAEA *Nuclear Data Section* (Schwerer, 2007) – also available on:

http://www-nds.iaea.org/reports/nds-7.pdf to download as PDF file.

Brief descriptions of the contents and format of most libraries are published in the IAEA-NDS-report series (Schwerer and Lemmel, 2007), while an introduction to NDS database projects and services can be found at *http://www-naweb.iaea.org/napc/nd/index.asp*

2. Nuclear Structure and Decay Data Evaluators' Network

A network of centres has been established that specializes in nuclear structure and decay data (Pronyaev *et al.*, 2004); see also Table 2 for a list and access addresses through the Web and e-mail contacts. These laboratories and institutes are involved in all facets of compilation and production of recommended nuclear structure and decay data (*i.e.*, review, evaluation and processing), sharing the evaluation work by mass chain, and meeting biennially to discuss their common problems and interests under the auspices of the IAEA Nuclear Data Section.

3. World Wide Web (WWW)

The web page of the IAEA Nuclear Data Services can be found at the web addresses http://www-nds.iaea.org/ (IAEA, Vienna, Austria), http://www-nds.ipen.br/ (IPEN, Brazil), and http://www-nds.indcentre.org.in/ at BARC, India; the equivalent web page for NNDC is http://www.nndc.bnl.gov/. These pages contain interactive access to the major databases, as well as overviews of all nuclear data libraries and databases available from the IAEA *(IAEA Nuclear Data Guide)* and NNDC, and access to various reports, manuals, nuclear data utility programs, Nuclear Data Newsletters and other informative documentation.

The web addresses specified above provide links with the following highly relevant databases (see also Section 4):

- ENSDF - evaluated nuclear structure and decay data (http://www.nndc.bnl.gov/ensdf/)
- MIRD - medical internal radiation dose tables (http://www.nndc.bnl.gov/mird/)
- Wallet cards - Ground and metastable state properties (http://www.nndc.bnl.gov/wallet/)
- NUDAT - selected evaluated nuclear data (http://www.nndc.bnl.gov/nudat2/)
- NSR - Nuclear Science References (http://www.nndc.bnl.gov/nsr/)
- Masses - Atomic Mass Evaluation Data File (http://www.nndc.bnl.gov/amdc/)

For example, NSR bibliographic information can be explored through:

- Known author name,
- Keynumber (*e.g.*, 1970Ya02 consists of the first two letters of the lead author (Ya (of Yamazaki)), year (1970), and number designation (02)); also to be found in *Recent References*, *Nuclear Data Sheets*, although curtailed since early 2004; *Recent References* are also available as PDF files – see http://www.nndc.bnl.gov/nsr/recref.html),
- Nuclide,

as well as through other criteria.

The reader is encouraged to access all of these databases, codes and information manuals through an explorative process, and assess their user-friendliness and usefulness. Your feedback is also welcome, and would help us to improve our web services.

4. Access to Relevant Databases and Programs

The data in some of the nuclear structure databases have been evaluated and assembled through the combined efforts of specialists within the international nuclear structure and decay-data evaluators' network (Section 2), while others are effectively more user-friendly derivatives and subsets of these same data files (*e.g.*, Nuclear Wallet Cards and NuDat).

4.1 Primary databases

NSR: Nuclear Science References is a bibliographic database for low and intermediate energy nuclear physics and available on-line
(see http://www-nds.iaea.org/nsr/ and http://www.nndc.bnl.gov/nsr/).

ENSDF: Evaluated Nuclear Structure Data File is the 'master' library for nuclear structure and decay data maintained through the evaluators' network co-ordinated by the IAEA (see Section 2), and containing evaluated experimental data for most known nuclides in the mass range from 1 to 294; published in *Nuclear Data Sheets* (Tuli, 2008) and *Nuclear Physics A* (Bakker, 2008) and available on-line (see http://www.nndc.bnl.gov/ensdf/).

4.2 Other specialised and derived databases

Atomic masses 2003 (Wapstra *et al.*, 2003): mass evaluations for over 2900 nuclides; available on-line (see both http://www-nds.iaea.org/masses/ and http://www.nndc.bnl.gov/masses/).

Nuclear Wallet Cards (Tuli, 2005): basic properties of ground and metastable states; available as pocket book and on-line (see http://www.nndc.bnl.gov/wallet/). The NNDC site also contains Nuclear Wallet Cards for Radioactive Nuclides (Tuli, 2004), available as a pocket book and online, and Palm Pilot versions of both books.

NuDat: Nuclear Data contains user-friendly extracts of applications data from ENSDF and the Nuclear Wallet Cards, plus thermal neutron data; available on-line (see http://www.nndc.bnl.gov/nudat/).

MIRD: Medical Internal Radiation Dose is based on ENSDF and data processed by RADLST to generate, for example, tables of energies and intensities for X-rays and Auger electrons (Burrows, 1988); available on-line (see http://www.nndc.bnl.gov/mird/).

Reduced Transitional Probabilities: Electric quadrupole transition probabilities for the ground to first 2+ state of even-even nuclides extracted from the evaluation of Raman *et al.* (2001) (see http://www.nndc.bnl.gov/be2/).

Double Beta Decay: Set of double beta (ββ) decay data based on experimentally observed double beta (ββ) decay transitions in ^{48}Ca, ^{76}Ge, ^{82}Se, ^{96}Zr, ^{100}Mo, ^{116}Cd, ^{128,130}Te, ^{130}Ba, ^{150}Nd and ^{238}U (see http://www.nndc.bnl.gov/bbdecay/)

XUNDL: eXperimental Unevaluated Nuclear Data Library is a compilation of experimental nuclear structure and decay data in ENSDF format – oriented primarily to high-spin data, but also contains some reaction and decay data (see http://www.nndc.bnl.gov/ensdf/).

4.3 Programs

Useful computer codes for the calculation of specific nuclear structure and decay data parameters include the following:

BrIcc: calculates internal conversion electron coefficients based on the "frozen orbitals" approximation (Band *et al.*, 2002 and Raman *et al.*, 2002), internal electron-positron pair formation coefficients based on Schlüter and Soff (1979), and Hoffman and Soff (1996), and E0 electronic factors based on Hager and Seltzer (1969), Bell *et al.* (1970), and Passoja and Salonen (1986);

GABS: calculates absolute γ-ray intensities;

GTOL: undertakes least-squares fits to γ-ray energies and calculates net feeding to nuclear levels;

LOGFT: calculates *log ft* values for β and electron-capture decay, average $\beta^{\pm}$ energies and capture fractions based on Gove and Martin (1971);

PANDORA: checks "correctness" of the physics in ENSDF;

and others are available through the NNDC web page *http://www.nndc.bnl.gov/nndcscr/ensdf_pgm/*.

4.4 Interactive calculational tools

Users can perform calculations interactively over the web by means of four processing tools:

Nuclear Structure Calculational Tools:

- BrIcc: calculates internal conversion electron coefficients based on the "Frozen orbitals" approximation (Band *et al.*, 2002 and Raman *et al.*, 2002), internal electron-positron pair formation coefficients based on Schlüter and Soff (1979), and Hoffman and Soff (1996), and E0 electronic factors based on Hager and Seltzer (1969), Bell *et al.* (1970), and Passoja and Salonen (1986) (see *http://www.rsphysse.anu.edu.au/nuclear/bricc/*);
- HSICC: calculates internal conversion coefficients based on the theoretical values of Hager and Seltzer (1968), and Dragoun *et al.* (1969 and 1971) (see *http://www.nndc.bnl.gov/hsicc/*);
- LOGFT: calculates *log ft* values for β and electron-capture decay, average $\beta^{\pm}$ energies and capture fractions based on Gove and Martin (1971) (see *http://www.nndc.bnl.gov/logft/*).

Atomic Masses, Q-values and Threshold Energies: calculates reaction Q-values, threshold energies and decay Q-values based on the 2003 Update to the Atomic Mass Evaluation (Audi *et al.*, 2003), and retrieves other quantities contained in this evaluation (see *http://www.nndc.bnl.gov/qcalc2/*).

4.5 Other network web sites

Web sites of other members of the Nuclear Structure and Decay-data Network (Table 2) contain much useful information, for example:

Energy Levels of Light Nuclei, A = 3 - 20: evaluations, preprints, lists of recent references, reprints for A = 3 - 20 nuclides, and Palm Pilot applications and databases (see *http://www.tunl.duke.edu/NuclData/*);

jvNubase: ground and metastable state properties, based primarily on ENSDF with some additions derived from more recent data (see *http://www.nndc.bnl.gov/amdc/jvnubase/Nucleus.html*);

RadWare: software package for interactive graphical analysis of gamma-ray coincidence data library of level scheme files in the RadWare ASCII-gls format that have been derived from ENSDF, XUNDL and contributed level schemes (see *http://radware.phy.ornl.gov/*).

4.6 Nuclear structure and decay-data evaluator's corner

http://www.nndc.bnl.gov/nndc/evalcorner/ is primarily designed for ENSDF evaluators and currently contains:

- an interface to ENSDF which allows evaluators to retrieve ENSDF mass chains and nuclides in a basic format (*i.e.*, ComTrans has not been run),
- simplified NSR retrieval system designed for ENSDF evaluators,
- new ENSDF analysis and utility codes in β testing, and
- links to relevant manuals and materials from previous ENSDF or NSDD workshops.

5. Concluding Remarks

The contents of this report represent a brief introduction to the means of accessing a powerful set of compiled and evaluated nuclear structure and decay-data libraries, as well as codes for the analysis and development of such data. Useful applications of these data and tools are wide ranging, and the reader is encouraged to explore their potential through the various routes outlined above, and so develop a much greater understanding of their capabilities.

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see also *http://www.nndc.bnl.gov/nndcscr/ensdf_pgm/analysis/radlst/radlstdoc.pdf*.

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Hager, R.S., Seltzer, E.C., 1969. Internal conversion tables: Part III: Coefficients for the analysis of penetration effects in internal conversion and E0 internal conversion. Nucl. Data Tables, **6**, 1-127.

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Schwerer, O., 2007. Index of nuclear data libraries available from the IAEA Nuclear Data Section. IAEA report IAEA-NDS-7, July 2007, IAEA Vienna, Austria; see also *http://www-nds.iaea.org/reports/nds-7.pdf*.

Schwerer, O., Obložinský, P., 2001. Overview of nuclear data libraries and online services. Radiochim. Acta **89**, 197-200.

Tuli, J.K., 2004. Nuclear Wallet Cards for Radioactive Nuclides. March 2004, National Nuclear Data Center, Brookhaven, USA; see also *http://www.nndc.bnl.gov/wallet/*.

Tuli, J.K., 2005. Nuclear Wallet Cards. 7th Edition, April 2005, National Nuclear Data Center, Brookhaven, USA; see also *http://www.nndc.bnl.gov/wallet/*.

Tuli, J.K., Editor, 2008. Nuclear Data Sheets. Academic Press, Elsevier Science, Amsterdam, the Netherlands, ISSN 0090-3752.

Wapstra, A.H., Audi, G., Thibault, C., 2003. The AME2003 atomic mass evaluation (I). Evaluation of input data, adjustment procedures. Nucl. Phys. **A729**, 129–336; Audi, G., Wapstra, A.H., Thibault, C., 2003. The AME2003 atomic mass evaluation (II). Tables, graphs and references. Nucl. Phys. **A729**, 337-676.

Table 1. Network of International/National Nuclear Data Centres.

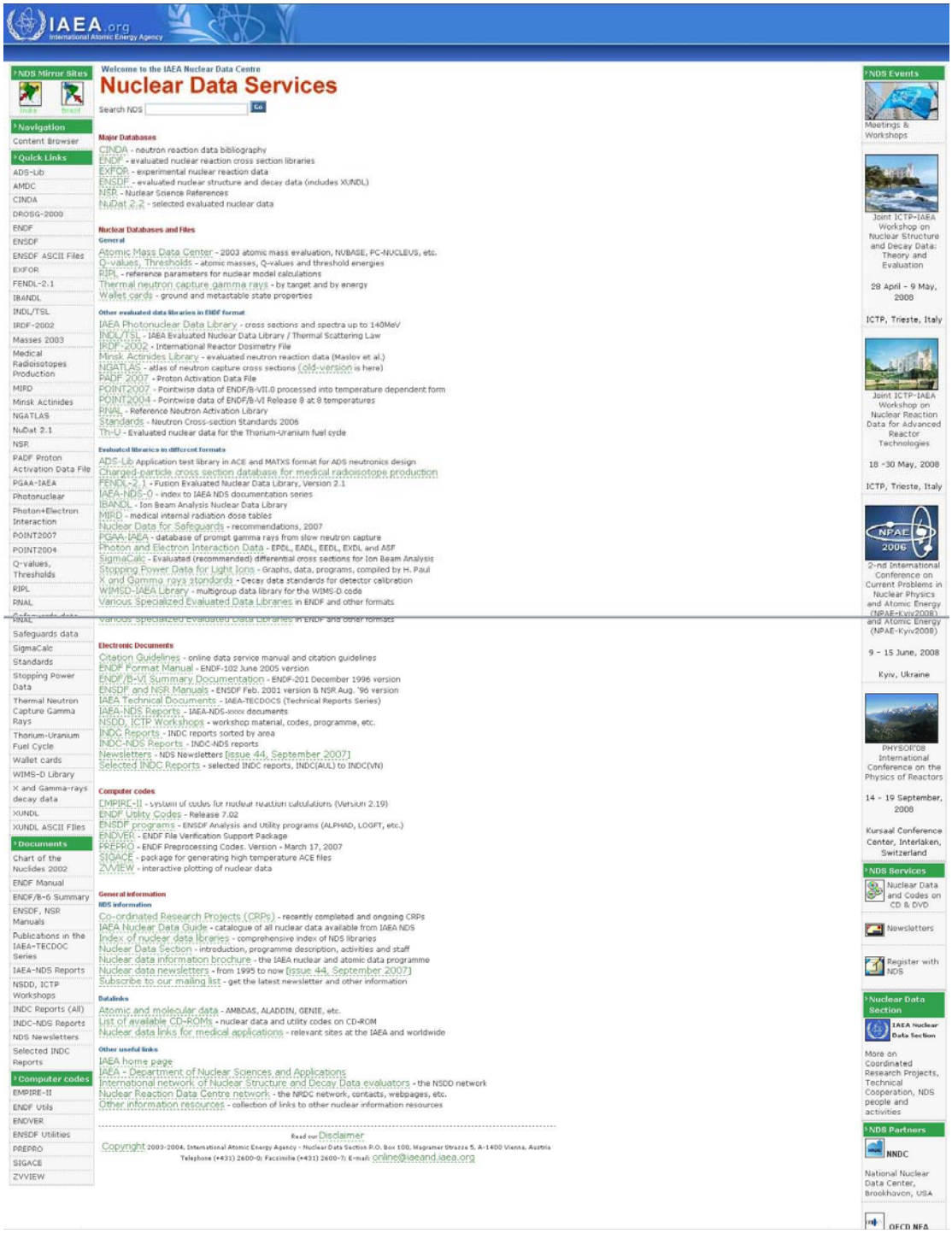
IAEA Nuclear Data Section, Vienna, Austria *http://www-nds.iaea.org/*
US National Nuclear Data Center, Brookhaven, USA *http://www.nndc.bnl.gov/*
OECD, NEA Data Bank, Paris, France *http://www.nea.fr/*
Russian Federation Nuclear Data Centre, Obninsk, Russian Federation *http://www.ippe.obninsk.ru/podr/cjd/*
9 co-operating specialised centres within: PR China, Hungary, Japan (2), Republic of Korea, Russian Federation (3) and Ukraine

Table 2. Nuclear Structure and Decay-data Network.

US National Nuclear Data Center, Brookhaven, USA (maintenance of master ENSDF database) *http://www.nndc.bnl.gov/* Contact: J. K. Tuli (network co-ordinator) e-mail: Tuli@bnl.gov
Nuclear Data Project, Oak Ridge National Laboratory, USA *http://www.phy.ornl.gov/ndp/* Contact: M. S. Smith e-mail: MSmith@mail.phy.ORNL.gov
Isotope Project, Lawrence Berkeley National Laboratory, Berkeley, USA *http://ie.lbl.gov/* Contact: C. M. Baglin e-mail: baglin@lbl.gov
[Idaho National Laboratory, Idaho Falls, USA] Contact: C. W. Reich e-mail: cwreich@clearwire.net
Triangle University Nuclear Laboratory, Department of Physics, Duke University, USA *http://www.tunl.duke.edu/NuclData/* Contact: J. H. Kelley e-mail: kelley@tunl.duke.edu
Argonne National Laboratory, Nuclear Engineering Division, Argonne, USA http://www.td.anl.gov/NDP/ Contact: F.G. Kondev e-mail: kondev@anl.gov
Nuclear Data Centre, Petersburg Nuclear Physics Institute, Russian Federation Contact: I. A. Mitropolsky e-mail: mitrplsk@pnpi.spb.ru
Institute of Atomic Energy, Beijing, PR China Contact: Ge Zhigang e-mail: gezg@iris.ciae.ac.cn
Jilin University, Physics Department, Changchun, PR China Contact: Huo Junde e-mail: jdhuo@mail.jlu.edu.cn
Commissariat d'Énergie Atomique, Bruyères-le-Châtel, France Contact: J. Blachot e-mail: jblachot@orange.fr
JAEA Nuclear Data Centre, Tokai-Mura, Japan Contact: J. Katakura e-mail: katakura.junichi@jaea.go.jp
Nuclear Data Centre, Physics Department, Kuwait University, Kuwait Contact: A. Farhan e-mail: Ameenah@kuc01.kuniv.edu.kw
Department of Physics and Astronomy, McMaster University, Hamilton, Canada *http://physwww.physics.mcmaster.ca/~balraj/* Contact: B. Singh e-mail: ndgroup@mcmaster.ca
Department of Nuclear Physics, Australian National University, Canberra, Australia *http://wwwrsphysse.anu.edu.au/nuclear/* Contact: T. Kibédi e-mail: Tibor.Kibedi@anu.edu.au
Department of Physics, Indian Institute of Technology, Roorkee, India *http://www.iitr.ac.in/departments/PH/* Contact: A. K. Jain e-mail: ajainfph@iitr.ernet.in
IAEA Nuclear Data Section, Vienna, Austria (co-ordination of network meetings) *http://www-nds.iaea.org/* Contact: A. L. Nichols e-mail: *a.nichols@iaea.org*

ANNEX

Directional Web pages for NDS and NNDC


IAEA.org
International Atomic Energy Agency
NDS Mirror Sites
Welcome to the IAEA Nuclear Data Centre
Nuclear Data Services
Search NDS
Go
Navigation
Content Browser
Quick Links
ADS-Lib
AMDC
CINDA
DROSG-2000
ENDF
ENSDF
ENSDF ASCII Files
EXFOR
FENDL-2.1
IBANDL
INDL/TSL
IRDF-2002
Masses 2003
Medical Radioisotopes Production
MIRD
Minsk Actinides
NGATLAS
NuDat 2.1
NSR
PADF Proton Activation Data File
PGAA-IAEA
Photonuclear
Photon+Electron Interaction
POINT2007
POINT2004
Q-values, Thresholds
RIPL
RNAL
Safeguards data
SigmaCalc
Standards
Stopping Power Data
Thermal Neutron Capture Gamma Rays
Thorium-Uranium Fuel Cycle
Wallet cards
WIMS-D Library
X and Gamma-rays decay data
XUNDL
XUNDL ASCII Files
Documents
Chart of the Nuclides 2002
ENDF Manual
ENDF/B-6 Summary
ENSDF, NSR Manuals
Publications in the IAEA-TECDOC Series
IAEA-NDS Reports
NSDD, ICTP Workshops
INDC Reports (All)
INDC-NDS Reports
NDS Newsletters
Selected INDC Reports
Computer codes
EMPIRE-II
ENDF Utils
ENDVER
ENSDF Utilities
PREPRO
SIGACE
ZVVIEW
Major Databases
CINDA - neutron reaction data bibliography
ENDF - evaluated nuclear reaction cross section libraries
EXFOR - experimental nuclear reaction data
ENSDF - evaluated nuclear structure and decay data (includes XUNDL)
NSR - Nuclear Science References
NuDat 2.2 - selected evaluated nuclear data
Nuclear Databases and Files
General
Atomic Mass Data Center - 2003 atomic mass evaluation, NUBASE, PC-NUCLEUS, etc.
Q-values, Thresholds - atomic masses, Q-values and threshold energies
RIPL - reference parameters for nuclear model calculations
Thermal neutron capture gamma rays - by target and by energy
Wallet cards - ground and metastable state properties
Other evaluated data libraries in ENDF format
IAEA Photonuclear Data Library - cross sections and spectra up to 140MeV
INDL/TSL - IAEA Evaluated Nuclear Data Library / Thermal Scattering Law
IRDF-2002 - International Reactor Dosimetry File
Minsk Actinides Library - evaluated neutron reaction data (Maslov et al.)
NGATLAS - atlas of neutron capture cross sections (old-version is here)
PADF 2007 - Proton Activation Data File
POINT2007 - Pointwise data of ENDF/B-VII.0 processed into temperature dependent form
POINT2004 - Pointwise data of ENDF/B-VI Release 8 at 8 temperatures
RNAL - Reference Neutron Activation Library
Standards - Neutron Cross-section Standards 2006
Th-U - Evaluated nuclear data for the Thorium-Uranium fuel cycle
Evaluated libraries in different formats
ADS-Lib Application test library in ACE and MATXS format for ADS neutronics design
Charged-particle cross section database for medical radioisotope production
FENDL-2.1 - Fusion Evaluated Nuclear Data Library, Version 2.1
IAEA-NDS-0 - index to IAEA NDS documentation series
IBANDL - Ion Beam Analysis Nuclear Data Library
MIRD - medical internal radiation dose tables
Nuclear Data for Safeguards - recommendations, 2007
PGAA-IAEA - database of prompt gamma rays from slow neutron capture
Photon and Electron Interaction Data - EPDL, EADL, EEDL, EXDL and ASF
SigmaCalc - Evaluated (recommended) differential cross sections for Ion Beam Analysis
Stopping Power Data for Light Ions - Graphs, data, programs, compiled by H. Paul
X and Gamma rays standards - Decay data standards for detector calibration
WIMSD-IAEA Library - multigroup data library for the WIMS-D code
Various Specialized Evaluated Data Libraries in ENDF and other formats
Various Specialized Evaluated Data Libraries in ENDF and other formats
Electronic Documents
Citation Guidelines - online data service manual and citation guidelines
ENDF Format Manual - ENDF-102 June 2005 version
ENDF/B-VI Summary Documentation - ENDF-201 December 1996 version
ENSDF and NSR Manuals - ENSDF Feb. 2001 version & NSR Aug. '96 version
IAEA Technical Documents - IAEA-TECDOCS (Technical Reports Series)
IAEA-NDS Reports - IAEA-NDS-xxxx documents
NSDD, ICTP Workshops - workshop material, codes, programme, etc.
INDC Reports - INDC reports sorted by area
INDC-NDS Reports - INDC-NDS reports
Newsletters - NDS Newsletters [issue 44, September 2007]
Selected INDC Reports - selected INDC reports, INDC(AUL) to INDC(VN)
Computer codes
EMPIRE-II - system of codes for nuclear reaction calculations (Version 2.19)
ENDF Utility Codes - Release 7.02
ENSDF programs - ENSDF Analysis and Utility programs (ALPHAD, LOGFT, etc.)
ENDVER - ENDF File Verification Support Package
PREPRO - ENDF Preprocessing Codes. Version - March 17, 2007
SIGACE - package for generating high temperature ACE files
ZVVIEW - interactive plotting of nuclear data
General information
NDS information
Co-ordinated Research Projects (CRPs) - recently completed and ongoing CRPs
IAEA Nuclear Data Guide - catalogue of all nuclear data available from IAEA NDS
Index of nuclear data libraries - comprehensive index of NDS libraries
Nuclear Data Section - introduction, programme description, activities and staff
Nuclear data information brochure - the IAEA nuclear and atomic data programme
Nuclear data newsletters - from 1995 to now [issue 44, September 2007]
Subscribe to our mailing list - get the latest newsletter and other information
Datalinks
Atomic and molecular data - AMBDAS, ALADDIN, GENIE, etc.
List of available CD-ROMs - nuclear data and utility codes on CD-ROM
Nuclear data links for medical applications - relevant sites at the IAEA and worldwide
Other useful links
IAEA home page
IAEA - Department of Nuclear Sciences and Applications
International network of Nuclear Structure and Decay Data evaluators - the NSDD network
Nuclear Reaction Data Centre network - the NRDC network, contacts, webpages, etc.
Other information resources - collection of links to other nuclear information resources
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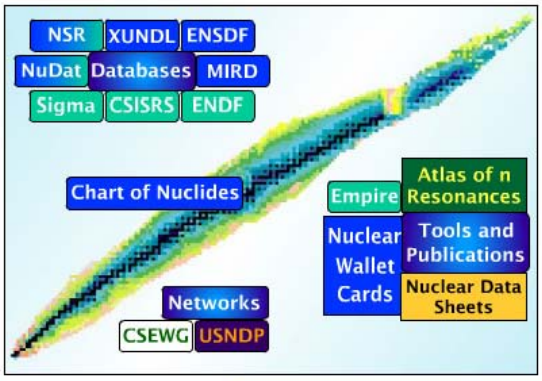
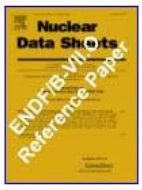
NDS Events
Meetings & Workshops
Joint ICTP-IAEA Workshop on Nuclear Structure and Decay Data: Theory and Evaluation
28 April - 9 May, 2008
ICTP, Trieste, Italy
Joint ICTP-IAEA Workshop on Nuclear Reaction Data for Advanced Reactor Technologies
18 -30 May, 2008
ICTP, Trieste, Italy
NPAE 2008
2-nd International Conference on Current Problems in Nuclear Physics and Atomic Energy (NPAE-Kyiv2008)
and Atomic Energy (NPAE-Kyiv2008)
9 - 15 June, 2008
Kyiv, Ukraine
PHYSOR'08 International Conference on the Physics of Reactors
14 - 19 September, 2008
Kursaal Conference Center, Interlaken, Switzerland
NDS Services
Nuclear Data and Codes on CD & DVD
Newsletters
Register with NDS
Nuclear Data Section
IAEA Nuclear Data Section
More on Coordinated Research Projects, Technical Cooperation, NDS people and activities
NDS Partners
NNDC
National Nuclear Data Center, Brookhaven, USA
OECD NEA



National Nuclear Data Center

BROOKHAVEN NATIONAL LABORATORY

- Nuclear Structure and Decay Databases
- Nuclear Structure and Decay Tools
- Nuclear Reaction Databases
- Nuclear Reaction Tools
- Bibliography Databases
- Networks and Links
- About the Center
- Publications
- Meetings



Astrophysical Reaction Rates New Covariance Workshop, June 24-27

Site Index - Search the NNDC: go

AMDC Atomic Mass Data Center, **Q-value Calculator**

Atlas of Neutron Resonances Parameters & thermal values

CapGam Thermal Neutron Capture γ-rays

Chart of Nuclides Basic properties of atomic nuclei

CINDA Computer Index of Nuclear (reaction) Data

CSEWG Cross Section Evaluation Working Group

CSISRS alias EXFOR Nuclear reaction experimental data

Empire Nuclear reaction model code

ENDF Evaluated Nuclear (reaction) Data File, **Sigma**

ENSDF Evaluated Nuclear Structure Data File

IRDF International Reactor Dosimetry File

MIRD Medical Internal Radiation Dose

NMMSS & DoE NMIRDC Safeguards & inventory decay data standards

NSR Nuclear Science References

Nuclear Data Sheets Nuclear structure & decay data journal

Nuclear Wallet Cards Ground & isomeric states properties

Nuclear Wallet Cards for Homeland Security

NuDat Nuclear structure & decay Data

USNDP U.S. Nuclear Data Program

XUNDL Experimental Un-evaluated Nuclear Data List

Links ordered alphabetically Order by category

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Acknowledgments - **Comments/Questions** - Disclaimer