Nuclear Data Newsletter

News from the Nuclear Data Section

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Photo courtesy of: Robin Forrest

From the Section Head

The increased use of nuclear methods and techniques in practically all fields of science and technology continues to create a growing demand for more and better numerical nuclear information. Nuclear data compilation and its use has grown considerably in magnitude, scope and depth, and the critical importance, as well as the need for continuing improved nuclear data, was greatly emphasised at the International Conference on Nuclear Data for Science and Technology (ND-2010) held in Jeju Island, Republic of Korea, 26-30 April 2010. This conference was partially sponsored by the IAEA with grants given to 12 scientists from 11 developing countries. The IAEA-Nuclear Data Section was well represented at this conference, with four staff members attending and these, together with other NDS staff members, contributed towards a total of twenty-three papers/posters. This conference brought together scientists and engineers involved in the production or use of nuclear data for various applications and covered measurements, theoretical model developments, evaluation, processing, validation and dissemination activities.

The week prior to ND-2010, a Technical Meeting of the International Network of Nuclear Reaction Data Centres (NRDC) was held in Sapporo, Japan. This Network constitutes a worldwide cooperation of nuclear data centres under the auspices of the IAEA and was established to coordinate the worldwide collection, compilation and dissemination of nuclear reaction data. As the definitive coordinator of the NRDC, the IAEA-NDS is primarily responsible for the major international experimental nuclear database (EXFOR). EXFOR is continuously compiled and

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All services provided to users are free of charge. Please contact us on the following addresses:

Nuclear Data Section
International Atomic Energy Agency
P.O. Box 100
A-1400 Vienna, Austria

Internet: http://www-nds.iaea.org/
Email: services@iaeand.iaea.org
Fax: +43 (1) 26007
Telephone: +43 (1) 2600-21710

Database News

If there is any Database News you would like to have mentioned in future issues of the Nuclear Data Newsletter send details to services@iaeand.iaea.org

MINSK Library updated library:
Evaluated neutron reaction data: 93-Np-237 9346 original KO K300 comment (October 2009) 'New evaluated neutron data file for ^{237}Np was included in the Minsk actinides library. The evaluation was based on the use of comprehensive nuclear models with parameters adjusted to fit the experimental data'.
http://www-nds.iaea.org/minskact/

IAEA-Med updated library:
Charged-particle cross section database for medical radioisotope production: Diagnostic radioisotopes and monitor reactions. The database contains evaluated cross sections for 48 reactions induced by light charged-particles with incident energies up to several tens of MeV (maximum 100 MeV).
http://www-nds.iaea.org/medical/

ROSFOND-2010 updated library:
This neutron library with 686 materials was issued in 2010 by IPPE, Obninsk, Russian Federation.
http://www.ippe.ru/podr/abbn/libr/rosfond.php

CENDL-3.1 new library:
Chinese evaluated neutron data library was issued in December 2009.
http://www-nds.iaea.org/ndspub/download-endf/CENDL-3.1/n-index.htm

TENDL-2009 new and updated library:
TALYS-based Evaluated Nuclear Data Library - new library and software extension issued in September 2009.
http://www-nds.iaea.org/ndspub/download-endf/TENDL-2009/

On-line News

Ongoing Service

The Nuclear Data Section is compiling an accessible electronic library of all documents produced by the IAEA pertaining to our Nuclear Data Services. These documents include IAEA-NDS, INDC and other NDS technical reports. All available documents and reports in the: INDC series, the IAEA-NDS series, the IAEA-TECDOCS, Conference Proceedings and NDS staff publications are listed in a tabular html form and are searchable. This project is on-going and can be accessed on: http://www-nds.iaea.org/reports-new/

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forms the basis of many calculational activities such as evaluation and the adoption of nuclear reaction data for plant design and development, medical applications and analytical sciences. (see NDS Meeting Reports, page 7).

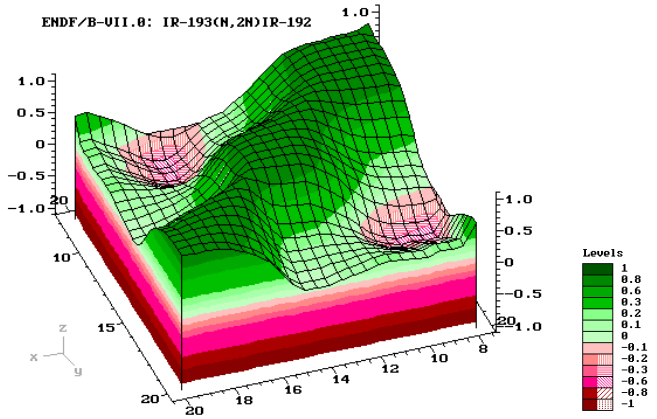
The increased use of electronic rather than paper-based documentation is one of the focus points in 'Greening the VIC'- a UN initiative. With the update of the NDS address database (ADLIST) undertaken earlier this year, and in support of a paperless environment, we would like to encourage everyone to subscribe to the ND Newsletter in electronic format. Please send an email to services@iaeand.iaea.org if you would prefer to be advised electronically when ND Newsletters are released.

It is nearly the end of my first year in office. This period has seen numerous staff changes in NDS due to the IAEA rotation policy, retirement, etc. and although I initially suffered from health problems, I now feel fully integrated into life at the IAEA (and Vienna) and look forward to continued interaction with all of you in the world of nuclear data.

Robin Forrest

Computer Codes and Data Libraries

The following databases and libraries are available cost-free on CD-ROM on request:



EXFOR-CINDA Database and Retrieval System, version 1.99, data updated to December 2009:

- Integrated CINDA and EXFOR
- Advanced interactive search
- Help based on Dictionaries
- Interactive graphics with ZVView
- Does not need installation, can run from CD-ROM
- Works with Local and Remote Databases
- CINDA extended by charged particle and photo-nuclear reactions
- EXFOR and CINDA as MS-Access databases

Developed by:Viktor Zerkin, IAEA-NDS, 1999-2009.

EndVer/GUI and EXFOR-CINDA package, December 2009:

An integrated software package for comparison of evaluated nuclear data files with experimental data from the EXFOR database (also contains interactive plotting).
Features:

- EndVer with Graphic User's Interface
- Integrated EndVer - PrePro-2007 - EXFOR
- PostScript graphics with PlotC4
- Plotting ENDF Files vs. EXFOR:
  MF4 (DA), MF5 (DE), MF6 (DAE), MF3+33 (SIG)
- Interactive graphics with ZVView
- Full EXFOR and CINDA databases
- Test version for Macintosh

Developed by:Viktor Zerkin, IAEA-NDS, 2004-2009.

Visualization of Covariances (ENDF-File33):

New software available via ENDF Web interface using extended ZVView; includes animated 3-D presentations of correlation matrices. The system allows visualization of the following quantities: covariance for a given reaction (MT), cross-reaction (MT-MT) and cross-material (MAT-MAT) covariance, relative and absolute cross section uncertainties; it also shows MF33 structure.
http://www-nds.iaea.org/endf/

ENDF April 2007: 14 Evaluated Data Libraries for Nuclear Applications in original and pointwise formats:

- BROND-2.2
- CENDL-2
- ENDF/B-VI-8
- ENDF/B-VII-0
- ENDF/B-VII-0-300
- ENDF/HE-VI
- IAEA-MEDICAL
- IAEA-STANDARDS
- INDL/TSL
- IRDF-2002
- IRDF-2002-G
- JEFF-3.1
- JEFF-3.1/A
- JENDL-3.3

Further computer codes and data libraries available on request: http://www-nds.iaea.org/cd-catalog.html

ZVView

A multi-platform software package designed so that evaluators of nuclear reaction data can perform efficient interactive visual analyses of cross section data retrieved from the EXFOR and ENDF libraries; this package has been extended to plot 2-dimentional arrays z(x,y) used for plotting covariances.
http://www-nds.iaea.org/ndspub/zvview/

ENDF archive

Collection of old and new evaluated data libraries for FTP downloading (39 libraries) in ENDF-4,-5,-6 formats.
http://www-nds.iaea.org/ndspub/download-endf/

JANIS 3.1 latest version December 2009 from NEA Data Bank (only available through Java Webstart).

This is a Java-based nuclear information software with a display program designed to facilitate the visualisation and manipulation of nuclear data. http://www.nea.fr/janis/

ADS-2.0 Nuclear Data Library:

An application test library in ACE and MATXS format for ADS neutronics design
http://www-nds.iaea.org/ads/

EMPIRE v.2.19

A new version of this system of codes for nuclear reaction calculations is to be released later in 2010.
http://www-nds.iaea.org/empire/index.html

NDS Meeting Reports

2nd Research Coordination Meeting (RCM) on Heavy charged-particle interaction data for radiotherapy
Sicily, June 8 – 12, 2009
Scientific Secretary: Roberto Capote Noy; 12 participants from 12 countries/institutes, plus 1 NDS staff



Photo courtesy of: Roberto Capote

This Coordinated Research Project (CRP), initiated in 2006, aims to provide nuclear data that quantifies heavy charged-particle interactions with materials relevant to radiotherapy, from beam generation and collimation to the interaction of the beams with patients and detectors. The 1st RCM, held in November 2007, proposed a programme of work to compile and evaluate charged-particle nuclear data for therapeutic applications with the recommended data to be carefully checked against experimental charged-particle interaction data and computer-based Monte Carlo simulations. This 2nd RCM followed up on the work which had so far been undertaken, agreed a clear schedule for the remaining activities of the CRP, and defined a set of benchmarks sensitive to nuclear data in proton and carbon therapy.
http://www-nds.iaea.org/reports-new/indc-reports/indc-nds/indc-nds-0560.pdf (in preparation, May 2010)

Technical Meeting (TM) on Technical Aspects of atomic and molecular data processing and exchange, 20th Meeting of the A+M Data Centres and ALADDIN Network
Vienna, September 7 – 9, 2009
Scientific Secretary: Denis Humbert; 17 participants from 9 countries, plus 4 NDS staff

The objectives of the meeting were to review the progress in A+M data related activities in the A+M Data Centres, review methods and procedures for data processing, and review and coordinate the work plans for the next period. A list of data needs and priorities is maintained and updated on the A+M Data Unit web server at http://www-amdis.iaea.org/DCN/fusion_data.php . The meeting recorded that all A+M Data Centres that maintain web sites have been very effective in delivering data, with many now ready to use the new XML Schema for Atoms, Molecules and Solids (XSAMS) exchange format, and also noted that requests on GENIE have increased, with collaboration and communications between Data Centres and the A+M Data Unit proving very useful and efficient.
http://www-nds.iaea.org/reports-new/indc-reports/indc-nds/indc-nds-0563.pdf

Consultants Meeting (CM) on XML Schema for atomic and molecular data and particle solid interactions
Vienna, September 10 – 11, 2009
Scientific Secretary: Denis Humbert; 8 participants from 3 countries, plus 3 NDS staff

In 2003, the Atomic and Molecular Data Unit initiated, within the collaborative efforts of the A+M Data Centres Network, a new standard for exchange of atomic, molecular and particle-solid interaction (AM/PSI) data based on the Extended Markup Language (XML). The new standard is now named XSAMS, which stands for XML Schema for Atoms, Molecules and Solids. In this biannual meeting to discuss progress made on XSAMS, and to foresee new developments and actions to be taken to promote this standard for AM/PSI data exchange, the principal concern was the preparation of the first public release of XSAMS, Version 0.1. The preparations were successful and XSAMS 0.1 was made public later in September on the NDS XSAMS web page http://www-amdis.iaea.org/xsams/
http://www-nds.iaea.org/reports-new/indc-reports/indc-nds/indc-nds-0562.pdf

Consultants Meeting (CM) on Benchmark of spallation models
Vienna, October 6 – 7, 2009

Scientific Secretary: Naohiko Otsuka; 8 participants from 5 countries, plus 3 NDS/Physics Section staff

This meeting was held to define how comparisons between spallation models can be made, present the results and draw preliminary conclusions about the prediction capabilities of the various models for different types of data with, as far as possible, the physics reasons for the respective successes or deficiencies. An in-depth analysis is to be undertaken of the results obtained from the meeting to:

- allow understanding of the physics reasons for the successes and deficiencies of the different models;
- further improve the models, with emphasis on issues having a major impact for applications;
- identify further needs for experimental data.

This analysis, which is expected to serve the needs of end-users by assessing the predictive power of the different models and induce further improvements to be undertaken, was presented at ND2010 held in the Republic of Korea, April 26 – 30.



Photo courtesy of: Hiroshi Iwase

A further meeting of the experts who participated in this CM, plus others, was organized by IAEA Physics Section (PS) (CM on Spallation Data Analysis, Saclay, France, February 8-11, 2010, Scientific Secretary: Günter Mank; 20 participants from 12 countries, plus 2 NDS/PS staff), to draw conclusions and discuss future needs for the design of spallation sources. In addition to the reports from the benchmark participants, discussion centred on:

- global analysis (double differential cross sections of neutron and light charged particles, residual production cross sections, neutron multiplicities);
- models based on the Dubna cascade;
- de-excitation models;
- differences in Bertini models;
- physics conclusions.

Consultants Meeting (CM) on International database on irradiated nuclear graphite properties
Vienna, November 12-13, 2009

Scientific Secretary: Hyun-Kyung Chung; 16 participants from 9 countries, plus 3 NDS/NPTDS staff

This meeting was the last one of the series of meetings on the Irradiated Graphite Database to be organized by the Nuclear Data Section; the project was transferred to Division of Nuclear Energy in January 2010 and will henceforth be identified as the **IAEA International Knowledge Base on Irradiated Nuclear Graphite Properties**. The purpose of this meeting was to move forward the installation of Knowledge-Base software and define the initial work program of the new phase of the project. The purpose of the Graphite Knowledge Base is to preserve and further expand the existing scientific information on the manufacturing and utilisation of nuclear-grade graphite, including the origins of source materials, upon its irradiation behaviour, and all relevant information associated with its employment in peaceful atomic energy applications, in order to assist all aspects of the graphite 'lifecycle' including reactor design, operation (including safety issues), dismantling and disposal. Two observers from KorteQ Ltd in the United Kingdom provided an extensive presentation of the Knowledge Base. The working arrangement for Phase 2 of this project was reviewed and expanded in this meeting and will be reviewed in the Division of Nuclear Energy.
http://www-nds.iaea.org/reports-new/indc-reports/indc-nds/indc-nds-0566.pdf

1st Research Coordination Meeting (RCM) on Light element atom, molecule and radical behaviour in the divertor and edge plasma regions

Vienna, November 18 – 20, 2009

Scientific Secretary: Bas Braams; 16 participants from 10 countries (14 institutes), plus 3 NDS staff

The objective of this Coordinated Research Project (CRP) is to generate data for a number of radiative and collisional processes in ions of atoms and molecules of hydrogen, helium, lithium, beryllium, boron, carbon, nitrogen and oxygen at temperatures and densities typical of the edge and divertor region of fusion reactors. The 1st RCM meeting of this CRP reviewed ongoing and planned work of the participants and drew up a detailed plan of work required for the Project. Broadly speaking, effort is most needed to obtain fully resolved cross-sections for collision processes involving electronically excited atomic targets and electronically and vibrationally excited molecular targets. Another recent area of interest is processes involving HeX+ molecular ions (X=H,He,Li,Be,B,C). The progress in meeting the objectives of the CRP will be evaluated at the second RCM, which will be held in approximately eighteen months.
http://www-nds.iaea.org/reports-new/indc-reports/indc-nds/indc-nds-0564.pdf

Consultants Meeting (CM) on Assessment of nuclear data needs for particle induced gamma ray emission (PIGE)

Vienna, March 1 - 2, 2010

Scientific Secretary: Daniel Abriola; 4 participants from 4 countries, plus 1 NDS staff

This Consultants' Meeting was assembled to assess the viability of a new IAEA Coordinated Research Project (CRP) on the Development of nuclear data for PIGE for analytical applications. Discussion centred on the past and present status of the field and the experiments performed in participants' home institutes, as well as the nuclear data needs for PIGE analysis. Recommendations were made relative to the compilation, assessment, measurements, evaluation and benchmarking of cross-section data for PIGE, as well as their inclusion in the existent IBANDL database. A CRP was recommended.
http://www-nds.iaea.org/reports-new/indc-reports/indc-nds/indc-nds-0568.pdf

2nd Research Coordination Meeting (RCM) on Nuclear data libraries for advanced systems: fusion devices (FENDL-3)

Vienna, March 23 - 26, 2010

Scientific Secretary: Robin Forrest; 17 participants from 10 countries and 2 institutes, plus 2 NDS staff



Photo courtesy of: Janet Roberts

The main objective of the meeting was to review the progress of the activities performed within the framework of the CRP since the last meeting held in Vienna, 2 to 5 December 2008. A major part of the discussion addressed the status of the evaluations for the 88 materials in the general purpose starter neutron library (FENDL-3/SLIB). Issues were discussed relative to the availability and utilization of covariance in FENDL-3, the activation data files for neutrons, protons and deuterons, as well as the generation of the general purpose charged particle data library based primarily on TENDL-2009 or -2010. The overall objective of the CRP initiative is to improve the status of the nuclear databases, both general purpose and activation used for design of fusion devices, such as ITER and IFMIF. The deliverable of the CRP is to provide an evaluated nuclear data library for fusion applications. This new library, to be called FENDL-3.0, will be released at the end of the proposed CRP activities.
http://www-nds.iaea.org/reports-new/indc-reports/indc-nds/indc-nds-0567.pdf (in preparation, May 2010)

Consultants Meeting (CM) on XML Schema for atoms, molecules and solids (XSAMS)
Toki, Japan, March 24 - 26, 2010

Scientific Secretary: Bas Braams, Local Host Izumi Murakami; 17 participants from 6 countries plus 1 NDS staff

Experts on atomic and molecular data and their exchange met at National Institute for Fusion Science (NIFS), Toki-City, Japan, to review progress in the implementation of XSAMS, the XML Schema for Atoms, Molecules and Solids, and to discuss further development of the Schema. XSAMS is intended for querying and retrieving information from atomic, molecular, and plasma-material interaction databases. Version 0.1 of XSAMS was released in 2009 and pilot implementations are underway at the National Institute of Standards and Technology (USA), the Université Pierre et Marie Curie and Observatoire de Paris Meudon (France) and the Russian Federal Nuclear Center All-Russian Institute of Technical Physics.
http://www-nds.iaea.org/reports-new/indc-reports/indc-nds/indc-nds-0570.pdf (in preparation, May 2010)



Photo courtesy of: Bas Braams

1st Research Coordination Meeting (RCM) on Prompt Fission Neutron Spectrum of Actinides
Vienna, April 6 - 9, 2010

Scientific Secretary: Roberto Capote; 12 participants from 9 countries and 1 institute, plus 1 NDS staff

The 1st RCM meeting of this CRP reviewed ongoing and planned work of the participants and drew up a detailed plan of work required to achieve the goal of the Project, namely, to provide prompt fission neutron spectra for ^{235,238}U, ^{239}Pu and ^{232}Th nuclei. The desired outcome will be a recommended evaluation of prompt fission spectra of major actinides with covariances from thermal to 20 MeV incident neutron energy.
http://www-nds.iaea.org/reports-new/indc-reports/indc-nds/indc-nds-0571.pdf (in preparation, May 2010)

Technical Meeting (TM) International Network of Nuclear Reaction Centres (NRDC)
Sapporo, Japan, April 20 - 23, 2010

Scientific Secretary: Svetlana Dunaeva; 25 participants from 7 countries, 1 international organization, plus 3 NDS staff

National, regional and specialized nuclear reaction data centres, coordinated by the IAEA/NDS, cooperate in the compilation, exchange and dissemination of nuclear reaction data in order to meet the requirements of nuclear data users in all countries i.e., the Network has the objective of providing nuclear physics databases that are required for nuclear technology (encompassing energy and non-energy applications) by coordinating the collection, compilation and dissemination of nuclear data on an international scale. At present 14 data centres participate in the Network. Each of the centres provides coverage for different geographical zones and/or specific types of nuclear data. Despite the disruption in flights caused by volcanic ash which prevented some people from attending and the delayed arrival of some others, the meeting was successfully convened. Discussions centred on general, technical and software aspects of EXFOR (the



Photo courtesy of: Hideki Murakami

library containing the extensive compilation of experimental nuclear reaction data), with conclusions drawn, and actions agreed upon to be undertaken by the various centres prior to the next meeting proposed for 23-24 May 2011.
http://www-nds.iaea.org/reports-new/indc-reports/indc-nds/indc-nds-0573.pdf (in preparation, May 2010)

Technical Meeting (TM) 17th Meeting of the IFRC Sub-committee on Atomic and Molecular Data for Fusion
Vienna, April 27 - 28, 2010

Scientific Secretary: Bas Braams; 9 participants from 9 countries, plus 2 NDS staff

Activities of the Atomic and Molecular Data Unit for the period 2008-2009, including Coordinated Research Projects and related meetings, external meetings, Data Centre Network collaboration and related work, database maintenance, and an overall assessment of activities in 2008-2009, were reviewed at this meeting, and recommendations were made for the 2012-2013 programme and budget cycle.
http://www-nds.iaea.org/reports-new/indc-reports/indc-nds/indc-nds-0572.pdf (in preparation, May 2010)

Technical Meeting (TM) on Neutron Reaction Data Covariances
Vienna, 27-30 September 2010

The IAEA Nuclear Data Section is organizing a **Technical Meeting (TM) on Neutron Reaction Data Covariances** to be held in Vienna on **27-30 September 2010**. The goal of the TM is to assess covariance data needs and recommend appropriate methodologies to address those needs. Roberto Capote will serve as NDS coordinator of the meeting: email: r.capote@iaea.org

Coordinated Research Projects

IAEA Coordinated Research Projects (CRPs) are a valuable mechanism for stimulating research in IAEA Member States of relevance to the IAEA programmes. Details of the CRPs of the Nuclear Data Section, both active and recently completed, can be found at: http://www-naweb.iaea.org/napc/nd/crps.asp

Selected Charts, Reports, Documents



Recent Releases:

Nuclear Data Sheets *Special Issue on Nuclear Reaction Data*, Vol. 110, No. 12 (2009). Special Issue Editor: P. Obložinský, National Nuclear Data Center, Brookhaven National Laboratories (BNL), United States. Limited hard copies available on request.

Evaluated Data Library for the Bulk of Fission Products Vol. 23, A report by the Working Party on International Evaluation Co-operation of the NEA Nuclear Science Committee; Co ordinator/Monitor: P. Obložinský, National Nuclear Data Center, Brookhaven National Laboratories (BNL), United States. Limited hard copies available on request.

INDC(NDS)-0539 Summary Report of the Third Research Coordination Meeting on Updated decay data library for actinides, Vienna, 8–10 October 2008, prepared by M.A. Kellett, July 2009.

INDC(NDS)-0542 Summary Report of the Third Research Coordination Meeting on Reference database for neutron activation analysis, Vienna, 17–19 November 2008, prepared by M.A. Kellett, December 2009.

INDC(NDS-)0555 Summary Report of the Third Research Coordination Meeting on Development of a reference data base for ion beam analysis, Vienna, 27–30 April 2009, prepared by D. Abriola and I. Vickridge, December 2009.

INDC(NDS)-0558 Summary Report of an IAEA Technical Meeting of the International Network of Nuclear Reaction Data Centres, Vienna, 25–26 May 2009, prepared by S. Dunaeva, N. Otsuka and O. Schwerer, August 2009.

INDC(NDS)-0559 Summary Report of an IAEA Technical Meeting of the International Network of Nuclear Structure and Decay Data Evaluators, Vienna, 23–27 March 2009, prepared by D. Abriola and J.K. Tuli, October 2009.

INDC(NDS)-0560 Summary Report of the Second Research Coordination Meeting on Heavy charged-particle interaction data for radiotherapy, INFN-LNS, Catania, Italy, 8-12 June 2009, prepared by H. Palmans and R. Capote, April 2010.

INDC(NDS)-0561 Missing level corrections using neutron spacings, prepared by G.E. Mitchell and J.F. Shriner, Jr., November 2009.

INDC(NDS)-0562 Summary Report of an IAEA Consultants' Meeting on XSAMS: XML Schema for atomic and molecular data and particle solid interactions, Vienna, 10–11 September 2009, prepared by D. Humbert and B.J. Braams.

INDC(NDS)-0563 Summary Report of an IAEA Technical Meeting on Technical aspects of atomic and molecular data processing and exchange, 20th Meeting of the A+M Data Centres and ALADDIN Network, Vienna, 7–9 September 2009, prepared by D. Humbert and B.J. Braams.

INDC(NDS)-0564 Summary Report of the First Research Coordination Meeting on Light element atom, molecule and radical behaviour in the divertor and edge plasma regions, Vienna, 18–20 November 2009, prepared by B.J. Braams, January 2010.

INDC(NDS)-0565 (available electronically only) Summary Report of an IAEA Consultants' Meeting on XML Schema for Atomic and Molecular Data, Paris, 6–7 December 2007, prepared by D. Humbert.

INDC(NDS)-0566 Summary Report of an IAEA Consultants' Meeting, 12th Meeting of the Technical Steering Committee, IAEA International Database on Irradiated Nuclear Graphite Properties, Vienna, 12-13 November 2009, prepared by H.K. Chung and A.J. Wickham, February 2010.

INDC(NDS)-0568 Summary Report of an IAEA Consultants' Meeting on Assessment of nuclear data needs for particle induced gamma ray emission (PIGE), Vienna, 1–2 March 2010, prepared by D. Abriola and A. Pedro de Jesus.

INDC(CCP)-0446 (available electronically only) Study of the multiplication and kinetic effects of salt mixtures and salt blanket micromodels on thermal neutron spectra of heavy water MAKET facility, prepared by Yu. E. Titarenko, *et. al.*, October 2009.

INDC(CCP)-0447 (available electronically only) Experimental and theoretical studies of the yields of

residual product nuclei produced in thin Pb and Bi targets irradiated by 40 – 2600 MeV protons, prepared by Yu. E. Titarenko, *et. al.*, October 2009.

INDC(CCP)-0448 (available electronically only) Measurements of the neutron field characteristics inside and on the surface of the Pb target micromodel exposed to 0.8 GeV protons, prepared by Yu. E. Titarenko, *et. al.*, October 2009.

INDC(CCP)-0449 (available electronically only) Measuring the neutron field characteristics of the outside surface of the 0.8 GeV proton-irradiated 'thick' W-Na target, prepared by Yu. E. Titarenko, *et. al.*, October 2009.

INDC(CCP)-0450 Measurements relevant to stimulating subcriticality in ADS facilities with 'thermal' blanket, prepared by Yu. E. Titarenko *et. al.*, October 2009.

INDC(CCP)-0451 Neutron-induced fission cross section of uranium, americium and curium isotopes, prepared by A.A. Alekseev, *et. al.*, December 2009.

INDC(EGY)-0008 Research studies performed using the Cairo Fourier Diffractometer Facility, prepared by R.M.A. Maayouf, edited by D. Ridikas, December 2009.

INDC(ITY)-0017 (available electronically only) Activity Report of the ENEA Nuclear Data Project in 2009, prepared by A. Ventura, March 2010.

INDC(SLO)-0001 (available electronically only) FENDL3 cross-section teating: sensitivity of the neutron flux deep in the shield of an ITER-like tokamak, prepared by G. Žerovnik, A. Trkov and I. Kodeli, February 2010.

INDC(UK)-0093 National Physical Laboratory (NPL) Report IR 18, United Kingdom Nuclear Science Forum Progress Report, Data studies during 2008, edited by N.P. Hawkes, February 2010.

Also Available:

Nuclear Data Sheets *Special Issue on Evaluated Nuclear Data File ENDF/B-VII.0*, Vol. 107, No. 12 (2006). Special Issue Editors: P. Obložinský and M. Herman. Limited hard copies available on request. Also available on CD-ROM.

Nuclear Physics News Volume 19, No.1, 2009; Editor: Gabriele-Elisabeth Koerner, European Science Foundation, Munich, 2009. Contains Editorial written by A.L. Nichols. Limited number of this issue is available as hard copy on request.

Chart of the Nuclides ***(wall chart)*** *prepared by Knolls Atomic Power Laboratory (KAPL) and distributed by Lockheed Martin (16th edition, revised to 2002).* Available cost-free on request only for **teachers and scientists from developing countries.**

Chart of the Nuclides ***(Book)*** *prepared by Knolls Atomic Power Laboratory (KAPL) and distributed by Lockheed Martin (16th edition, revised to 2002).* This book form of the Nuclides Chart is available cost-free on request only for **teachers and scientists from developing countries.**

Karlsruher Nuklidkarte *wall chart of the nuclides from Karlsruhe, 7th edition (2006).* Available cost-free on request only for **teachers and scientists from developing countries**.

Karlsruher Nuklidkarte *Desk chart of the Nuclides from Karlsruhe, 7th edition (2006).* Available cost-free on request only for **teachers and scientists from developing countries**.

Chart of the Nuclides 2004 *Desk chart of the Nuclides from Japanese Nuclear Data Committee and Nuclear Data Centre, JAEA.* Available cost-free on request only for **teachers and scientists from developing countries**. An updated version of this publication is planned for later in 2010.

Nuclear Wallet Cards 2005 7th Edition, by Jagdish K. Tuli, National Nuclear Data Center. These pocket size wallet cards are available as hard copy on request.

Nuclear Wallet Cards for Radioactive Nuclides March 2004, by Jagdish K. Tuli, National Nuclear Data Center. These pocket size wallet cards are available as hard copy on request.

All INDC series reports listed above are available online through:
http://www-nds.iaea.org./reports-new/indc-reports

NOTE: earlier editions of KAPL and Karlsruhe Nuclides Charts, both as wall chart and in book form, are available cost free (as long as supplies last).

For orders and information on IAEA publications please contact:
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http://www.iaea.org/books

Staff Items

Marco Verpelli, who joined NDS in August 2003 as Systems Analyst/Programmer, has moved to the CTBTO (Comprehensive Test Ban Treaty Organization), an organization also situated at the Vienna International Centre (VIC) in Austria. With the IAEA rotation policy of a maximum seven years, Marco would have had to leave the Section in August of this year, however, a suitable opportunity for him arose at the CTBTO and he was fortunate enough to be offered the job. Among other things, what Marco leaves with us is the Live Chart of the Nuclides http://www-nds.iaea.org/livechart/, in which he was a key developer (see Nuclear Data Newsletter, Issue No. 47, May 2009, p. 4). http://www-nds.iaea.org/relnsd/vcharthtml/VChartHTML.html

Janet Roberts, having previously worked in the Section office, Janet has now taken up the position of Nuclear Data Services Assistant in the Nuclear Data Services Unit of the Section. Responsibilities include coordinating the collection, input and distribution of information regarding data libraries and nuclear databases produced by the Section, answering all off-line requests and assisting with EXFOR compilation work (plus putting together information for the ND Newsletters).

Lidija Vrapcenjak, with over two years experience as a Clerk in the Nuclear Data Services Unit, Lidija has now successfully interviewed for the position of Clerk in the Section office. Lidija provides all support services for the Section Office, is involved in organizing meetings, editing reports and in the production of publications, as well as serving as the internal Secretary of the International Nuclear Data Committee (INDC).

Alexander Oechs, joined the Section in March as a Clerk in the Nuclear Data Services Unit. He is involved in organization of meetings, editing of reports, and the production of publications.

Interviews for the vacant positions in the Section of Head, Nuclear Data Services Unit and Systems Analyst/Programmer, A+M Unit, have been carried out and announcement of the successful candidates is expected soon. Additionally, with the IAEA rotation policy, Svetlana Dunaeva will have completed seven years of service in October this year. Interviews for this post have also taken place and more details on the successor to Svetlana will be available in the next ND Newsletter.

For NDS staff details: http://www-naweb.iaea.org/napc/nd/aboutus.asp

In Memoriam



We deeply regret to inform you that Denis de Frenne passed away on 6 October following complications from heart surgery he underwent last September. Denis was a long-time evaluator for the International Network of Nuclear Structure and Decay Data Evaluators (NSDD). He was invited to join the NSDD in 1970 by Jean Blachot. At that time, both were engaged in experiments in Institut Laue-Langevin (ILL), Grenoble, France, and Denis took over 5 of the 18 masses assigned to France. He continued to contribute to the Network activities and actively participated in its 18th meeting held in Vienna, 23-27 March 2009. This loss will be greatly felt by the NSDD community who always appreciated his knowledge in the field of nuclear data, and profited greatly from interactions with him (as did so many people). We will remember Denis as a wonderful person and a physicist of excellence. We owe him so much for his fine efforts in the course of his very productive life.

This Newsletter, as well as previous Issues, can be accessed electronically on:
http://www-pub.iaea.org/MTCD/publications/newsletter.asp?id=60

To ensure continued receipt of your Nuclear Data Newsletter, please keep us informed of any change in address:
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Nuclear Data Services – Contact points

For services to customers in USA and Canada:
US National Nuclear Data Center, Bldg. 197D, Brookhaven National Laboratory, P.O. Box 5000, Upton,
NY 11973-5000, USA. Tel. +1 631-344-2902; Fax +1 631-344-2806;
Email: nndc@bnl.gov ; Worldwide Web: http://www.nndc.bnl.gov/
For information regarding on-line services, contact: B. Pritychenko: pritychenko@bnl.gov.
For information regarding general NNDC services, contact M. Blennau: blennau@bnl.gov

For services to customers in OECD/NEA Data Bank member countries:
NEA Data Bank: OECD Nuclear Energy Agency, Le Seine Saint-Germain, 12 blvd des Iles,
F-92130 Issy-les-Moulineaux, France. Tel. +33 1 4524 (plus extension); Fax +33 1 45241110;
Contact: E. Dupont, ext. 1084. Email: Emmeric.Dupont@oecd.org or db@nea.fr ; Worldwide Web: http://www.nea.fr/databank/

For services to the countries of the former USSR:
Neutron data: Russia Nuclear Data Center, Centr Jadernykh Dannykh (CJD), Fiziko-Energeticheskij Institut, Ploschad Bondarenko, 249020 Obninsk, Kaluga Region, Russian Federation.
Tel. +7 08439-9-8982; Fax +7 095-230-2326;
E-mail: manokhin@ippe.obninsk.ru . Worldwide Web: manokhin@ippe.ru Contact: V.N. Manokhin.
Charged-particle data: Russia Nuclear Structure and Reaction Data Center (CAJAD), Kurchatov Institute,
Kurchatov Square 1, 123 182 Moscow, Russian Federation. Tel. +7 095-196-9968; Fax +7 095-882-5804;
Email: chukreev@polyn.kiae.su Contact: F.E. Chukreev.
Photonuclear data: Centre for Photonuclear Experiments Data, Centr Dannykh Fotoyadernykh Eksperimentov (CDFE), Skobeltsyn Institute of Nuclear Physics,
Lomonosov Moscow State University, Leninskie Gory, 119 922 Moscow, Russian Federation.
Tel. +7 495-939-3483; Fax +7 495-939-0896;
Email: varlamov@depni.sinp.msu.ru or varlamov@depni.npi.msu.su
Worldwide Web http://cdfe.sinp.msu.ru/ Contact: V.V. Varlamov.

For services to customers in China:
China Nuclear Data Center, China Institute of Atomic Energy, P.O. Box 275(41), Beijing 102413, China.
Tel. +86 10-6935-7275; Fax +86 10-6935-7008; Email: gezg@iris.ciae.ac.cn Contact: Ge Zhigang.

Computer codes of US origin to all countries:
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Tel. +1 865-574-6176; Fax +1 865-574-6182;
Email: pdc@ornl.gov . Worldwide Web http://epicws.epm.ornl.gov/ (there are charges and release restrictions)

Computer codes of non-US origin to all countries:
NEA Data Bank (see above) contact: J. Galan, ext. 1008; Email: Juan.Galan@oecd.org (there may be release restrictions)
IAEA Nuclear Data Section offers data centre services primarily to non-OECD countries
(except Russian Federation and China, see above). However, most products advertised in this Newsletter, specifically INDC reports, IAEA-NDS-documents, etc., are provided upon request to customers in all countries.
For on-line services see the first page of this Newsletter.
Users of countries in Latin America and Caribbean may use
IAEA-NDS mirror at Worldwide Web http://www-nds.ipen.br
Users in India and neighbouring countries may use
IAEA-NDS mirror at Worldwide Web http://www-nds.indcentre.org.in

Impressum

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