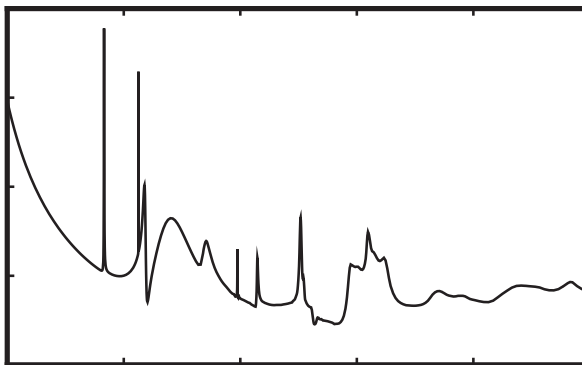




# NUCLEAR DATA

# NEWSLETTER



Nuclear Data Section (NDS)

International Atomic Energy Agency  
Vienna

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**Issue No. 33**

**March 2002**

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All services provided to users are free of charge.

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username: IAEANDS for interactive Nuclear Data Information System  
usernames: ANONYMOUS for FTP file transfer;  
FENDL2 for FTP file transfer of FENDL-2.0;  
RIPL for FTP file transfer of RIPL;  
NDSOHL for files saved in NDIS Telnet session

Web: <http://www-nds.iaea.org>

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## Announcement

**Workshop on Nuclear Structure and Decay Data Evaluation** will be held at the IAEA Headquarters, Vienna, Austria, 18 – 22 November 2002. Information Sheet and Application Form are available on <http://www-nds.iaea.org/ann-nsdd.html>. They can be received by e-mail or ordinary mail on the request which should be sent to the Nuclear Data Section at the addresses given on the cover pages.

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## Online News

The following INDC Reports are available at [http://iaeand.iaea.org/indc\\_sel.html](http://iaeand.iaea.org/indc_sel.html): INDC(CCP)-429, 430, INDC(NDS)-423 and INDC(UKR)-005.

The following new or revised IAEA-NDS Reports which describe the contents of the nuclear data libraries, files and computer packages are available at <http://www-nds.iaea.org/nds-0.html>: IAEA-NDS-58, 77, 87, 88, 100, 153, 196, 198, 199.

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## Offline News

**Updated databases and libraries are now available on CD-ROM:**

**IAEA-NDS-CD-04, WINENDF**, (November 2001). Updated in November 2001, contains all latest releases of comprehensive evaluated data libraries (ENDF/B-VI, Release 8, JENDL-3.2, JEF-2.2, BROND-2 and CENDL-2) and retrieval and merger system for MS Windows, Manuals and Documentation in PostScript format, Utilities and Preprocessing Codes.

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## New Data Libraries

**ENDF/B-VI Library, Release 8**, (including revisions up to September 2001) is available through Telnet/NDIS and Web from the NDS Web server and on CD-ROM. A revised report **IAEA-NDS-100** containing a description of the contents and major modifications is available as hardcopy and online: <http://www-nds.iaea.org/reports/nds-100.pdf>.

Note: This is the last (“frozen”) release of the ENDF/B-VI library. The first release of the

ENDF/B-VII library is scheduled for the year 2005.

**FOND-2.2. Evaluated Neutron Data Library** (Russian library of evaluated neutron data files for generating sets of constants in the ABBN constants system). A report **IAEA-NDS-199** by V.N. Koscheev, M.N. Nikolaev, A.M. Tsiboulia and G.V. Savoskina is available online at <http://www-nds.iaea.or.at/reports/nds-199r1.pdf> with hyperlinks to data files for 679 materials in ENDF-6 format selected from various Russian and foreign libraries. Available on CD-ROM.

**Neutron Excitation Function Guide for Reactor Dosimetry**, by O. Gritzay, M. Vlasov, L. Chervonna, V. Zerkin, N. Klimova, G. Kolota (January 2002). Contains hyperlinks to graphical and text information on intercomparison of 81 dosimetry reactions for 56 nuclides. Available on CD-ROM or online through hyperlinks in report: <http://www-nds.iaea.org/reports/indc-ukr-005.pdf>

**Updates to EPDL97**, Library of Photon and Electron interactions with atoms and atom relaxation library by D.E. Cullen, J.H. Hubbell and L. Kissel (1997), is available now in ENDF-6 format on CD-ROM or online at: <http://www-nds.iaea.org/epdl97/>.

**Theoretical Evaluation of Neutron and Proton Induced Fission Cross-Sections for Pb – Pu Targets in Energy Range 20 – 200 MeV**, by S. Yavshits, report IAEA-NDS-153 (February 2002). 9 proton induced and 12 neutron induced fission reaction cross sections for nuclei from Pb-204 to Pu-239 have been evaluated in the Multi-Configuration Fission approach. Report and data in ENDF-6 format are available on diskette or online at: <http://www-nds.iaea.org/reports/nds-153.pdf>.

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## Computer Codes and Packages

**EMPIRE-II, Nuclear Reaction Code, version 2.17.1** by M. Herman (NDS), (March 2002). A system of FORTRAN codes linked through a number of bash scripts that with a few key strokes and mouse clicks performs comprehensive calculations of nuclear reactions taking into account the contribution of most important reaction mechanisms. Available on CD-ROM and online at: <http://www-nds.iaea.org/empire/> as latest and most updated version.

## Selected Reports and Documents

**Chart of the Nuclides.** *Wall chart of the Nuclides from KAPL and General Electric CO, 15<sup>th</sup> edition (revision to 1996). Freely available on request of the users from developing countries.*

**Karlsruher Nuklidkarte.** *Wall Chart of the Nuclides from Karlsruhe, 6<sup>th</sup> edition (1995). Freely available on request of the users from developing countries.*

**INDC(CCP)-429.** *Articles Translated from Journal Yadernye Konstanty (Series: Nuclear Constants, Issue No. 2, 2000), October 2001.* This report contains the full English version of the journal issue Yadernye Konstanty 2000, No. 2. It includes 5 papers which were translated from Russian to English and 2 papers originally published in English:

- *Investigation of the <sup>232</sup>Th Neutron Cross-Sections in Resonance Energy Range* by Yu.V. Grigoriev et al.
- *ACT-1000. Group Activation Cross-Section Library for WWER-1000 Type Reactors* by K.I. Zolotarev et al.
- *Evaluation of <sup>54</sup>Fe(n,2n)<sup>54(m+g)</sup>Fe Reaction Cross Sections for High Energy Dosimetry Applications* by K.I. Zolotarev et al.
- *Application of a Mathematical Model of the Nucleus to Predict the Binding Energies of  $\beta$ -Unstable Heavy Nuclei* by O.P. Badaev
- *The FOND-2.2 Evaluated Neutron Data Library (Russian Library of Evaluated Neutron Data Files for Generating Sets of Constants in the ABBN Constants System)* by V.N. Koshcheev et al.
- *Libraries of Decay Data and Fission Product Yields in the ABBN-93 Constant Set* by S.V. Zabrodskaia et al.
- *Notes on the WIMS/ABBN Code* by G.M. Zherdev et al.

The report is available online at:  
[http://www-nds.iaea.org/indc\\_sel.html](http://www-nds.iaea.org/indc_sel.html).

**INDC(CCP)-430.** *Articles Translated from Journal Yadernye Konstanty (Series: Nuclear Constants, Issue No. 1, 2000), December 2001.* This report contains the full English version of the journal issue Yadernye Konstanty 2000, No. 1. It includes 7 papers which were translated from Russian to English and 2 papers originally published in English:

- *Study of Neutron Cross-Sections and the  $\alpha = \sigma_\gamma / \sigma_f$  Value for <sup>235</sup>U in the*

*1 meV – 2 MeV Energy Range* by Yu.V. Grigoriev et al.

- *Gamma-Ray Production Cross-Section and Spectrum Measurement Results for Inelastic Interaction of 14 MeV Neutrons with Nuclei of Na, S, Cl, Ti, V, Cr, Ni, Zn, Ge, Nb, Cd, In, Sn, Bi, <sup>235</sup>U and <sup>238</sup>U* by Yu.Ya. Nefedov et al.
- *Evaluated Resonance Parameters of <sup>234</sup>U* by G.B. Morogovskij et al.
- *Determination of the Potential Scattering Parameter and Parameterization of Neutron Cross-Sections in the Low-Energy Region* by G.M. Novoselov et al.
- *Neutron and  $\gamma$ -Emission from Fission Fragments* by O.T. Grudzevich
- *Semimicroscopic Treatment of Nuclear Fission Barriers* by S. Yavshits et al.
- *Multiconfiguration Fission Cross-Sections at Transitional Energy Region 20 – 200 MeV* by S. Yavshits et al.
- *Interactive Information System on the Nuclear Physics Properties of Nuclides and Radioactive Decay Chains* by V.I. Plyaskin et al.
- *Evaluation of how the Accuracy of Calculations of the Temperature Coefficient of Reactivity affects the Safety of Fast Reactors in a ULOF Type Accident* by A.V. Danilychev et al.

The report is available online at:  
[http://www-nds.iaea.org/indc\\_sel.html](http://www-nds.iaea.org/indc_sel.html).

**INDC(CPR)-053.** *Communication of Nuclear Data Progress, No. 25 (2000.6).* China Nuclear Data Center. Ed. by Liu Tingjin and Zhuang Youxiang.

**Yadernye Konstanty (Nuclear Constants), 2001 (1).** *Investigation of the <sup>93</sup>Nb neutron cross-sections in resonance energy range (Grigoriev Yu.V. et al., in English). The library of neutron data TENDL and 38 group neutron constant system TEND1038 (Abramovich S.N. et al., in Russian). Resolved Resonance Parameters of <sup>236</sup>Np (Morogovskij G.B. et al., in Russian). The evaluation of threshold reaction cross sections leading to long-lived radioactive nuclide production at irradiation of steels by neutrons of thermonuclear spectrum (Blokhin A.I. et al., in Russian). The relative 8-group delayed neutron abundances for monoenergetic neutron induced fission of <sup>239</sup>Pu (Piksaikin V.M. et al., in Russian). The relative 8-group delayed abundances for epithermal neutron induced fission of <sup>235</sup>U and <sup>239</sup>Pu (Piksaikin V.M. et al., in Russian). Delayed*

*neutron yield for fast neutron induced fission of  $^{238}\text{U}$  (Piksaikin V.M. et al., in English).*

*Delayed neutrons as probe of nuclear charge distribution in fission of heavy nuclei by neutrons (Isaev S.G. et al.). The energy spectrum of delayed neutrons from thermal neutron induced fission of  $^{235}\text{U}$  and its analytical approximation (Doroshenko A.Yu. et al., in English). About the new possibility for improvement of calculation accuracy of cascade  $\gamma$ -ray desintegration process parameters for heavy nuclei (Sukhovej A.M. et al., in Russian). Half-lives of radionuclides used in nuclear geochronology and cosmochronology (evaluated data) (Chechev et al., in Russian). Test calculations for photoneutron emission from surface of uranium sphere irradiated by 28 MeV electrons (Blokhin A.I. et al., in English). Calculational estimations of neutron yield from ADS target (Degtyarev I.I. et al., in English). Basics for low-activation lead coolant with isotopic enrichment for advanced nuclear*

*power systems (Khorasanov G.L. et al., in Russian). Copies of papers published in this report are available on request.*

**JAERI 1344.** *JENDL Dosimetry File 99 (JENDL/D-99) (January 2002). The JENDL Dosimetry File 99 (JENDL/D-99) for the determination of neutron flux and energy spectra is a revised version of the JENDL Dosimetry File 91 (JENDL/D-91). The report contains the description of the file and the results of its benchmark testing.*

**JAERI-Review 2001-030.** *JAERI TANDEM Annual Report 2000, April 1, 2000 – March 31, 2001 (November 2001).*

**Note: Unless indicated otherwise, the quoted data files, printed materials, or computer codes are available cost-free upon request. When requesting data files or codes, kindly give us your acceptable specifications.**

#### Co-operating nuclear data service centers

##### 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; E-mail: [nndc@bnl.gov](mailto:nndc@bnl.gov); Worldwide Web: <http://www.nndc.bnl.gov/>. For information on online services and requests contact: Ms. V. McLane.

##### For services to customers in OECD countries in Western Europe and Japan:

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; E-mail: (name)@nea.fr or [nea@nea.fr](mailto:nea@nea.fr); Worldwide Web: <http://www.nea.fr>, username: NEADB. Contact: C. Nordborg, ext. 1090.

##### 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, Russia. Tel. +7 08439-9-8982; Fax +7 095-230-2326; E-mail: [manokhin@ippe.obninsk.ru](mailto:manokhin@ippe.obninsk.ru). Worldwide Web <http://rndc.ippe.obninsk.ru/>. Contact: V.N. Manokhin.

Charged-particle data: Russia Nuclear Structure and Reaction Data Center (CAJAD), Kurchatov Institute, 46 Ulitsa Kurchatova, 123 182 Moscow, Russia. Tel. +7 095-196-9968; Fax +7 095-882-5804; E-mail: [feliks@polyn.kiae.su](mailto:feliks@polyn.kiae.su). Contact: F.E. Chukreev.

Photonuclear data: Centre for Photonuclear Experiments Data, Centr Dannykh Fotoyadernykh Eksperimentov (CDFE), Moscow State University, Vorob'evy Gory, 119 922 Moscow, Russia. Tel. +7 095-939-3483; Fax +7 095-939-0896; E-mail: [varlamov@depni.npi.msu.su](mailto:varlamov@depni.npi.msu.su) or [varlamov@depni.npi.msu.su](mailto:varlamov@depni.npi.msu.su). Worldwide Web <http://depni.npi.msu.su/cdfe/>. 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 10-6935-7830; Fax +86 10-6935-7008; E-mail: [yxzhuang@iris.ciae.ac.cn](mailto:yxzhuang@iris.ciae.ac.cn). Contact: Zhuang Youxiang.

##### Computer codes of US origin to all countries:

Radiation Safety Information Computational Center (RSICC), Oak Ridge National Laboratory, P.O. Box 2008, Oak Ridge, TN 37831-6362, USA. Tel. +1 865-574-6176; Fax +1 865-574-6182; E-mail: [pdcr@ornl.gov](mailto:pdcr@ornl.gov). Worldwide Web <http://epicws.epm.ornl.gov/>. (There may be charges and release restrictions.)

##### Computer codes of non-US origin to all countries:

NEA Data Bank, see above, contact: E. Sartori, ext. 1072; E-mail: [sartori@nea.fr](mailto:sartori@nea.fr). (There may be release restrictions.)

The IAEA Nuclear Data Section offers data center services primarily to non-OECD countries (except Russia 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 online 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>.