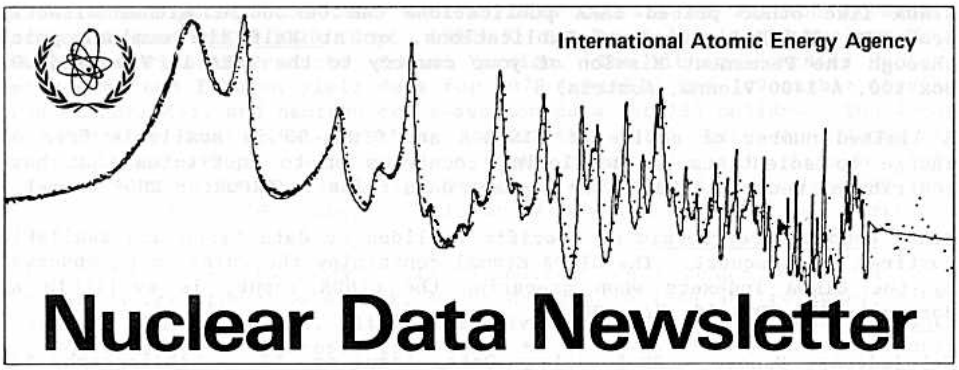

ISSUE No. 15 March 1991
ISSN 0257–6376

Note: Unless indicated otherwise, the quoted data, documents or codes are available costfree upon request. - When requesting data on magnetic tape, kindly specify the acceptable density (1600 or 6250 bpi), maximum block size, and whether the data should be in EBCDIC or ASCII code. Only 9 track tapes are used. Data files or computer codes that are not too large can also be sent on DOS standard diskettes (either 5.25 inch, 1.2 Mb or 3.5 inch, 1.44 Mb).

Data indexes and bibliographies

CINDA-A (1990): A new "archival" issue of CINDA, the bibliography and data index of microscopic neutron data, has been published in five volumes. In preparation for the new issue of CINDA-A, the CINDA file has been thoroughly reviewed and updated. Superseded references, such as old progress reports, have been removed. References on the same experiment have been blocked together. Cross-references to the numerical nuclear data file EXFOR have been completed. - Vol. 1 contains the introduction and detailed explanation of the computer-based CINDA system including the dictionaries of abbreviations used for the laboratories and bibliographic references. The remaining volumes contain the CINDA listing for elements/isotopes from 1-hydrogen to 30-zinc (vol. 2), 31-gallium to 54-xenon (vol. 3), 55-cesium to 83-bismuth (vol. 4), and from 84-polonium to 105-hahnium (vol. 5). CINDA-A contains all bibliographic references on neutron nuclear data from 1935 to 1987. It is supplemented by the volume CINDA-90, which contains the references from 1988 to 1990.

The 5 volumes of CINDA-A together have a sales price of 4,140.- Austrian Schillings; CINDA-90 costs 360.- Austrian Schillings.

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CINDA like other priced IAEA publications can be bought either directly from the IAEA, Division of Publications, or at half the nominal price through the Permanent Mission of your country to the IAEA in Vienna (P.O. Box 100, A-1400 Vienna, Austria).

A limited number of copies of CINDA-A and CINDA-90 is available free of charge to scientists in developing countries or to institutes that have contributed neutron data to the nuclear data files in EXFOR or ENDF format.

CINDA computer retrievals on specific nuclides or data types are available costfree upon request. The CINDA Manual containing the rules to be observed by the CINDA indexers when preparing the CINDA input, is available as document IAEA-NDS-109, Rev. 90/2.

Fotojadernye Dannye - Photonuclear Data, issue nr. 13, a bibliography for the literature published in 1989, prepared by the USSR Photonuclear Data Centre in English and Russian, is available costfree upon request.

New data libraries received

IRDF-90, the International Reactor Dosimetry File, assembled by N.P. Kocherov and P.K. McLaughlin. It contains internationally recommended neutron cross-section data to be used for reactor neutron dosimetry by foil activation. It includes activation cross-section data for 35 materials. About one half of the data has been taken over from ENDF/B-6; the other half are new data evaluated in Austria and USA for IRDF-90. Data are given in 640 group extended SANDII structure; most of the data are accompanied by covariance data. Selected radiation damage cross-sections and benchmark neutron spectra have been taken over from the earlier version IRDF-85. The data library is available, free of charge, on magnetic tape or on a set of two PC diskettes, together with a documentation IAEA-NDS-141. For a survey of a number of properties of IRDF-90 data see the report ECN-I-91-004 by E.M. Zsolnay and H.J. Nolthenius.

ENDF-6 Formats Manual. A new version of this Manual has been received: ENDF-102 = BNL-NCS-44945 of July 1990 by P.F. Rose and C.L. Dunford. This can be obtained, free of charge, as report IAEA-NDS-76, Rev. 3.

JENDL-3.1. For JENDL-3, the new Japanese evaluated neutron reaction data library announced in the last newsletter, some modifications have been received. The modified library consisting of 171 materials with together 577 000 records is available, free of charge, on magnetic tape. A summary documentation is available as IAEA-NDS-110, Rev. 3.- JENDL-3 has been documented in two voluminous reports: JAERI-1319. Japanese Evaluated Nuclear Data Library JENDL-3. An introduction to JENDL-3 and a documentation by means of a reprint of the descriptive text (MF/MT=1451) contained in the data files, by K. Shibata, T. Nakagawa, T. Asami, T. Fukahori, T. Narita, S. Chiba, M. Mizumoto, A. Hasegawa, Y. Kikuchi, Y. Nakajima, S. Igarasi. JAERI-M-90-099. Curves and tables of neutron cross-sections of the Japanese Evaluated Nuclear Data Library JENDL-3. T. Nakagawa, T. Asami, T. Yoshida.

JENDL-3-F.P. JENDL-3 is supplemented by a separate library containing the neutron reaction data of 172 fission product nuclides with together 407 000 records. This library is now also available, costfree, on magnetic tape. A summary of its contents is included in the document IAEA-NDS-110, Rev. 3.

JNDC-FP2. The JNDC Nuclear Data Library of Fission Products, second version has been received from the Japanese Nuclear Data Committee. It is documented in two reports: JAERI-M-89-204 (Nov. 1989) H. Ihara (ed.):

Tables and figures from JNDC Nuclear Data Library of Fission Products, Version 2, and JAERI-1320 (Sept. 1990) K. Tasaka et al.: JNDC Nuclear Data Library of Fission Products, Second Version. The library contains nuclear decay data and fission yield data for 1078 unstable and 149 stable fission product nuclides, and neutron cross-section data for 166 nulides. The decay data include half-life, branching ratio, and total beta- and gamma-ray energies released per decay of each unstable nuclide. The fission yield data are given for 20 fissioning systems. The data library is in a free format, i.e. not ENDF format. It is available on magnetic tape, costfree, upon request.

JEF-1. The Joint Evaluated File of nuclear data compiled by the OECD Nuclear Energy Agency Data Bank, was finalized in 1986 and released, after a testing phase, in 1990. It includes evaluations of neutron reaction data for 301 elements or isotopes from 1-H-1 to 99-Es-253 in the neutron energy range from 10^{-5} eV to 20 MeV. It is in ENDF-5 format. It is available in two versions: the basic file with resonance parameters, with a total of 794 000 records; and the pointwise data file where the resonance parameters have been converted to cross-section data, with a total of 1.8 million records. A summary of contents is given in the document IAEA-NDS-120. - This library is supplemented by several specialized libraries:

JEF-1 Thermal Neutron Scattering Law Data evaluated at the Institut für Kernenergie in Stuttgart, containing four materials with together 90 000 data records; summary documentation: IAEA-NDS-121.

JEF-1 Radioactive Decay Data File, containing in ENDF-5 format the decay data for all the radioactive nuclides occuring as reaction products in the JEF-1 main library. Size: 170 000 records; summary documentation: IAEA-NDS-122.

JEF-1 Fission Product Yield Data: This library, which contains fission product yield data for 15 fissioning systems in 16 000 data records, is based on a file by E.A.C. Crouch of 1977 and updated by M.F. James in 1986. Summary documentation: IAEA-NDS-123.

BROND: Some supplements to the USSR evaluated nuclear data library BROND have been received. Tape BROND-NDS3 in ENDF-5 format contains neutron reaction data for the elements Na, Cl, Mn, Zr and for the isotopes N-14,15, Cu-63, Zr-90-96, La-139, W-186. Tape BROND-NDS4 in ENDF-6 format contains presently data for the elements Cr, Fe, Sn, Pb, Bi and for the isotopes H-2 and W-182. Summary documentation IAEA-NDS-90, Rev. 4.

BROND, ENDF/B-6, IRDF-90, JEF-1, JENDL-3.1. A compact joint index to these recently released data libraries is available as document IAEA-NDS-107 Rev. 5.

Neutron-source Reactions. The evaluated data library for neutron source reactions by M.Drosg (compare Nuclear Data Newsletter Nr. 11) has been supplemented by the reactions C-13(p,n)N-13 and H-1(C-13,n)N-13. The library now contains 13 reactions. The related FORTRAN program has now some additional features, e.g. to calculate not only the cross-sections and angular distributions at various target energies but also to calculate the neutron yields. The data file with the related code is available on a PC diskette. Documentation: IAEA-NDS-87, Rev. 2.

UENDL/NAA - the USSR evaluated nuclear data library for neutron activation analysis. This library contains recommended values of: activation cross-sections of 14.5 MeV neutrons and of neutrons from U-235 and Cf-252 fission; resonance integrals of capture, absorption and fission reactions; thermal neutron capture and absorption cross-sections; effective resonance energy values; main gamma-rays and intensities; half-lives and abundances for a large number of nuclides. The data are available on a set of two PC diskettes. Summary documentation: IAEA-NDS-125.

ENSGAM89. This database for about 15 000 gamma-rays from 2 777 radioactive nuclides was derived by P.Ekström and L. Spanier from the international Evaluated Nuclear Structure File ENSDF. It is contained on a PC diskette with a supporting computer code. Summary documentation: IAEA-NDS-118.

WIMKAL-88. The 1988 version of the WIMS-KAERI library of 69-group neutron cross-sections for thermal reactor design analysis with the WIMS code systems, by Jung-Do Kim, Korea Atomic Energy Research Institute. The library contains data evaluations for more than 130 materials selected from ENDF/B-5, ENDF/B-4, JENDL-2 and some other sources. For a summary of contents see the document IAEA-NDS-92. Magnetic tape copy available.

Selected new publications on nuclear data

Handbooks

Fission and beta-delayed decay modes, by D.N. Poenaru and M.S. Ivascu. This is volume 3 in the series "Particle emission from nuclei" published by CRC Press Inc., 2000 Corporate Blvd NW, Boca Raton, Florida, USA-33431. The book contains seven chapters contributed by leading experts. 1. Spontaneous fission. 2. Fission isomers. 3. Light-particle accompanied fission. 4. Beta-delayed proton and alpha emission. 5. Beta-delayed two-proton emission. 6. Beta-delayed particle emission from neutron-rich nuclei. 7. Unified approach to alpha-decay, heavy-ion emission and cold fusion. Each chapter contains an up-to-date review with many figures and a comprehensive list of references. - This book is not available from IAEA; contact the publisher quoted above.

A Nuclear Cross-Section Data Handbook, by H.M. Fisher, Los Alamos. This document presents in a compact form graphical and tabular summaries of neutron reaction data for 129 nuclides. The data were selected either from the Brookhaven library ENDF/B-5, or from the Livermore library ENDL-85 or, in some cases, from other sources. Report LA-11711-M. Presently not available from IAEA; it should become available as IAEA-INIS-Microfiche.

Meeting proceedings

Physics and Chemistry of Fission, 18th International Symposium on Nuclear Physics, Gaußig, GDR, 21-25 November 1988, proceedings edited by H. Märten and D. Seeliger. 53 review papers on current physical problems in nuclear fission research, on the occasion of the 50th anniversary of the discovery of nuclear fission. Report ZfK-732. Limited number of copies available costfree.

Nuclear data for radiation damage assessment and related safety aspects. IAEA advisory group meeting Vienna, 19-22 September 1989. Proceedings edited by N.P. Kocherov. Available as report IAEA-TECDOC-572, costfree.

Neutron induced photon production: measurement, calculation and evaluation of cross-sections. IAEA specialists' meeting, Smolenice, CSFR, 5-7 February 1990. Proceedings edited by N.P. Kocherov. Available as report INDC(NDS)-238, costfree.

Japanese 1989 Seminar on Nuclear Data, Tokai-mura, 16-17 November 1989. Proceedings edited by Y. Nakajima and M. Igashira. Available as report JAERI-M-90-025.

Indian 1988 Symposium on Nuclear Physics, Bombay, 27-31 December 1988. Proceedings published by the Bhabha Atomic Research Centre, Bombay. Not available from IAEA.

Neutron Radiography (3), World Conference Osaka, Japan, 14-18 May 1989. Proceedings edited by S. Fujine et al. Sold and distributed by Kluwer Academic Publishers, P.O. Box 322, 3300 AH Dordrecht, The Netherlands. Price 250,- Dfl. The conference papers presented in this volume of 1000 pages give a comprehensive survey on neutron radiography, the available facilities, detectors and methods, and the widespread applications in nuclear fuel examination, industrial materials testing, biomedical sciences, computer-tomography and others. - Not available from IAEA but to be ordered from the publisher quoted above.

Selected reports and documents on nuclear data

All quoted documents are available costfree from IAEA/NDS upon request.

International Nuclear Data Committee

* INDC(BZL)-32. Bulletin No.13 of the Nuclear Data Center, Sao José dos Campos, Brazil. R.A. Paviotti Corcuera.
* INDC(BZL)-33. Progress report, Brazil, 1989/90. R.D. Martinez Garcia (ed.).
* INDC(EUR)-24. Annual report on nuclear data 1989. CBNM Geel. A.J. Deruytter (ed.).
* INDC(GER)-35. Progress report on nuclear data activities in the Fed. Rep. of Germany, 1990. S. Cierjacks (ed.).
* INDC(HUN)-28. Progress report, Hungary, 1989/90. G. Kluge (ed.).
* BARC-1521. Progress report on nuclear data activities in India 1989/90. R.P. Anand.
* INDC(JPN)-142. Progress report by the Japanese Nuclear Data Committee, 1990. S. Kikuchi (ed.).
* INDC(NDS)-239. Report of the IAEA Nuclear Data Section to the International Nuclear Data Committee, 1990. D.W. Muir (ed.).
* INDC(POL)-13. Progress report, Poland, 1989/90. A. Marcinkowski (ed.).
* INDC(ROM)-21. Progress report, Romania, 1989/90. S.N. Rapeanu (ed.).
* INDC(SAF)-11. Progress report, South Africa, 1989/90. D.W. Mingay (ed.).
* INDC(SEC)-99. Index of recent INDC documents and single copy documents received.
* INDC(SEC)-100. INDC list of correspondents for the exchange of nuclear data information, annd compilation of national nuclear data committees.

Evaluated neutron nuclear data

* JAERI-M-90-101. Evaluation of neutron nuclear data for curium isotopes for JENDL-3. T. Nakagawa.
* INDC(CCP)-323. Reaction cross-sections induced by 14.5 MeV neutrons and by Cf-252 and U-235 fission spectrum neutrons. A review with data tables by A.B. Pashchenko. English translation of the Russian report FEI-236.
* INDC(NDS)-241. First results of FENDL-1 testing and start of FENDL-2. (FENDL = Evaluated Nuclear Data Library for Fusion applications.) Summary report of a consultants' meeting, Vienna, 25-28 June 1990. A.B. Pashchenko, D.W. Muir.

Nuclear Theory

* INDC(CPR)-18. DWBA calculation of the neutron angular distribution of Li-7(n,n'). Huang Feizeng, Bao Shanglian.

* INDC(ROM)-20. Nuclear structure effects on calculated fast neutron reaction cross-sections. V. Avrigeanu.

* INDC(CUB)-4. Analysis of experimental data of neutron-induced reactions and development of the code PCROSS for the calculation of differential pre-equilibrium emission spectra with modelling of the level density function. R. Capote, V. Osorio et al. - Note: The described code PCROSS is available from the NEA Data Bank, Saclay, France.

Experimental neutron reaction data

* JAERI-M-90-171. Measurement of formation cross-sections of short-lived nuclei by 14 MeV neutrons. K. Kawade et al.

* INDC(NDS)-240. Measurement and analysis of 14 MeV neutron-induced double-differential neutron emission cross-sections needed for fission and fusion reactor technology. IAEA research co-ordination meeting Vienna, 18-20 June 1990. Summary report, Wang Dahai (ed.).

* JAERI-M-90-220. Measurement of double differential neutron emission cross-sections at 14.1 MeV for Ti, Mo and Sn. A. Takahashi et al.

* INDC(CCP)-315. Differential neutron emission and inelastic cross-section for Pb-208 and Bi-209 at 14.1 MeV incident energy. S.P. Simakov et al.

* INDC(CHL)-3. Total neutron cross-sections at energies around 20 MeV. J.R. Morales et al.

* INDC(GDR)-58. The neutron emission cross-section of vanadium, tantalum and tungsten at 14 MeV neutron incidence energy. H. Al Obiesi et al.

* INDC(HUN)-29. Measurement of the U-238(n,2n) and Th-232(n,2n) cross-sections in the 13.5-14.8 MeV energy range. P. Raics et al.

* INDC(CUB)-3. Energy and time spreads of a particle beam used in APM technique. R. Capote et al.

* INDC(CCP)-314. The neutron leakage spectrum for an iron sphere with a central 14 MeV source. A.A. Borisov et al. English translation of the Russian report IAE-4990/8.

Fission-product nuclear data

* INDC(NDS)-222. Progress in fission-product nuclear data, issue 13., M. Lammer.

Charged particle reaction data

* INDC(JPN)-144. Compilation of excitation functions for the production of the radionuclides I-123, Xe-123, Cs-123 by charged-particle induced reactions. A. Hashizume et al.

Dosimetry

* INDC(IND)-43. Personnel neutron dosimetry, a review by O.P. Massand.

* INDC(CCP)-321. Neutron dosimetry of WWER pressure vessels. S.I. Borodkin, S.S. Lomakin.

Yadernye Konstanty

* Yadernye Konstanty 1989(4), in Russian with abstracts in English. Contents: Neutron data for thermal reactor calculation, data library KORT-88 (Abagjan). Evaluated neutron data for N-14 (Blokhin). Measurement of inelastic neutron scattering on Cu-63 and Cu-65 (Kramarovskij). Measurement of neutron capture cross-sections of Ru-102,104 and Ce-140,142 at 0.5-2.2 MeV (Trofimov). Calculation of interaction of nucleons and deuterons with Li-6 (Kamal). Optical spherical potential parameters of neutrons on Pb and U (Anikin). Evaluation of K value measurements (Mikhajlov). Neutron spectra from (p,n) on Ho, Pb, Bi isotopes (Zhuravlev). Calculation of bremsstrahlung radiation (Gabelko). Ra(alpha,n)Be neutron source corrections (Kharitonov).

* Yadernye Konstanty 1990(1). Isotonic and isotopic dependence of σ_γ of nuclei on neutron excess (Trofimov). B-10(n,t) in the subtreshold region (Kornilov). Approximation of total cross-section distribution density by Gram-Charlier series (Fomushkin). Penetration of fission-spectrum neutrons in spherical Cr and Ni samples (Baranov). SOKRATOR: system of nuclear data provision for reactor and shielding calculations (Nikolaev). SOKRATOR software for evaluated neutron data processing to group constants (Krivcov). Group constants for photon field calculation (Dubinin). Transport calculation data for neutrons and protons up to 500 MeV (Gorbatkov). Data library for electrons and charged particles of 100 eV to 100 MeV (Akkerman). Photon transport simulation (Kirdin). OKS-5 program package (Voloshchenko). Problem-oriented nuclear data library for fast neutron reactor shielding (Boljatko). Group constants libraries for light-water reactor shielding (Zharkov). Program for (n,γ) transition calculation for preparation of γ-sources in shut-down reactors (Borisov). Application dependent cross-section library in fast reactor shielding (Boljatko). Several papers on radiation field calculations.- Benchmark macroscopic experiments (Trykov). Comparison of data libraries for d-t neutrons on water, graphite, lead (Voronkov).

* Yadernye Konstanty 1990(2). Measurement of neutron leakage spectra from iron sphere with central 14-MeV neutron source (Devkin). Calculation of neutron cross-sections for production of long-lived isotopes and H and He nuclei in structural materials at 150 MeV (Konobejev). Neutron radiative capture and fission reaction yields for U and Th targets in 800-MeV proton beams (Kazarickij). Composition restriction system for analysis of radioactive safety (Chukreev). Follow papers on "Nuclear reactor data" and "Differential and integral experiments".

* INDC(CCP)-320. Translations from Yad. Konst. 1987(3). U-235 neutron cross-sections and energy distributions of secondary neutrons (Konshin et al.). Systematics of radiation widths and level density parameters in the mass range 40-250 (Bychkov et al.). Integral cross-sections for V-51(n,α), Nb-93(n,2n)m, Zr-90(n,2n) (Grigorjev et al.). Approximation of the cross-sections for charged-particle emission reactions near threshold (Badikov et al.). Group constants for U-233, U-235, Pu-239 in the resonance region (Vankov et al.).

* INDC(CCP)-322. Translations from Yad. Konst. 1988(3). Measurement and analysis of neutron transmission and self-indication of the neutron radiative capture cross-section for U-238 in the 5-110 keV region (Bakhovko et al.). Re-evaluation of the resonance parameters of Pu-241 (Morogovskij).

Awards

Prof. Herbert Goldstein of the Columbia University in New York, USA, was honored by the American Nuclear Society with the Arthur Holly Compton Award for outstanding contributions in nuclear sciences and engineering education. More than thirty years ago he conceived the CINDA system as a punched-card index to microscopic neutron nuclear data. His concept was so successful that CINDA was soon accepted as a worldwide reference system which remained essentially unchanged although the CINDA operations were repeatedly modified in keeping with developments in computer technology and database management.

Dr. Syed M. Qaim of the Nuclear Chemistry Institute of the Research Centre Jülich, FRG, has been awarded by the Pergamon Press with the "JARI Medal 1990" for Applied Radiation and Isotopes. The award recognizes Dr. Qaim's fundamental experimental and theoretical work on nuclear reactions with special appreciation for his nuclear data work in the field of charged particle reactions for the production and separation of radioisotopes for medical applications.

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Printed by the IAEA in Austria

91-01123