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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). - The major databases are also available online within NDIS, the Nuclear Data Information System.

#### WRENDA 93/94

World Request List for Nuclear Data Measurements. Report **INDC(SEC)-104**. This report is a world-wide compilation of nuclear data that are needed for applications but that are not known with sufficient accuracy. It covers mostly neutron cross-section data but also charged-particle cross-section data and nuclear decay data that are needed with increased accuracy in applications of fission and fusion reactors, radiation shielding and dosimetry, nuclear safeguards, medicine, radioisotope production, and others. The data requests (including the required data accuracy) were reviewed by official bodies such as national nuclear data committees and serve as a guide to nuclear physicists and administrators when planning nuclear data measurement and evaluation programmes.

There is a Supplement to WRENDA 93/94 containing Requests for fission-yield measurements, report **INDC(SEC)-105**, which was issued by participants of the IAEA Coordinated Research Programme on the Compilation and Evaluation of Fission-Yield Nuclear Data. - Both reports are available, costfree, upon request.

#### Online nuclear data service

How to access the online nuclear data service see the last page of this newsletter. A more detailed description is available as document **IAEA-NDS-150 Rev. 94/9**. Most of the nuclear data libraries that can be accessed online, have been updated and a few more have been added, as described elsewhere in this Newsletter.

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## Data indexes and bibliographies

CINDA94, the 1994 edition of the bibliography and data index for microscopic neutron reaction data, is now available for a sales price of 680 Austrian Schillings. It covers the period 1988-1994 and supplements the five volume issue CINDA A (1935-1987) issued in 1990, which is also still available (compare issue no. 15 of this Newsletter). A limited number of copies of CINDA is available costfree, primarily for users in developing countries. - The CINDA database is available online.

BROND-2, CENDL-2, ENDF/B-6, JEF-2, JENDL-3.2, IRDF: A compact joint index to these recently released and updated evaluated neutron reaction data libraries, is available as document IAEA-NDS-107 Rev.9 (July 1994).

PAPYRUS NSR, a nuclear data bibliography on IBM/PC programmed by P. Ekström and E. Browne for distribution on a CD-ROM. "Nuclear Structure References" (NSR) is a bibliographic database with references for low- and medium-energy nuclear physics data, produced and maintained by the U.S. National Nuclear Data Center, Brookhaven National Laboratory. A PC version of NSR, PAPYRUS NSR, is the result of a collaboration between Lund University, Sweden, and the Isotopes Project, Lawrence Berkeley Laboratory. This new product, which contains the entire NSR file (as of December 1993) with over 130,000 fully-searchable references, is available now on CD-ROM. Recommended is the use of an IBM/PC or compatible with a 386 (or higher) processor running DOS 6.2 and Windows 3.1 (or later), and a double-speed CD-ROM drive. The Isotopes Project has a limited number of CD-ROMs for distribution free of charge. To order a complimentary copy of PAPYRUS NSR write to: Edgardo Browne, Isotopes Project, Bldg. 50A, Room 6102, Berkeley, California 94720, U.S.A. (For the online version of NSR see the previous issue of this Newsletter.)

Photonuclear reaction data, a bibliographic index (1955-1992) by T. Asami and T. Nakagawa, report JAERI-M-93-195, Oct. 1993. The index is organized in a format similar to the well-known CINDA handbook.

IAEA-NDS-7 Rev. 94/9: Index of nuclear data libraries available from the IAEA Nuclear Data Section.

IAEA-NDS-0 Rev. 94/9: Index to the IAEA-NDS-Documentation Series for available nuclear data libraries.

## New nuclear data libraries received

JENDL-3.2, the second revision of JENDL-3, the Japanese Evaluated Nuclear Data Library by the JAERI Nuclear Data Center and the Japanese Nuclear Data Committee was released in June 1994. The library resulted from the merging of an updated version of JENDL-3.1 with the JENDL library of neutron cross-sections for fission-product nuclides. It contains now evaluations of neutron reaction data for 340 elements or isotopes, most of which have been recently reviewed and updated. It includes completely new evaluations for elements and isotopes of 17-Cl, 18-Ar, 31-Ga, 32-Ge, 33-As. The format has been upgraded to ENDF-6. It is available online or on magnetic tape. A summary of contents is available as document IAEA-NDS-110 Rev. 5. The basic file with resonance-parameters has more than one million records. A "point data file" (i.e. the resonance-parameters converted to cross-sections) was announced.

JEF-2.2 point data. The Joint Evaluated nuclear data File JEF-2.2 that was released by the NEA Data Bank and announced in the previous issue of this newsletter, is now available as point data (i.e. resonance-parameters converted to cross-section data) as resulting from the codes NJOY and RECENT for 300K. The size of the library is 249 Mbytes for the NJOY output resp. 167 Mbytes for the RECENT output. Available online or on magnetic tapes.

JEF-2.2 Fe-56. Kindly note that the JEF-2.2 basic file that was accessible in our online system and distributed by us before Sept. 1994, contained a superseded version of the file for Fe-56 for which the valid file is now available. Recipients of JEF-2.2 will receive the new Fe-56 file soon. The correct file is identified by "REV1-FEB92".

**JEF-2.2 INTER.** From the JEF-2.2 point-data file tables of important cross-section values have been derived by the code INTER, including all cross-section values for 0.0253eV, thermal Maxwellian, fission spectrum, 14.MeV, plus resonance-integrals and thermal g-factors. - Available on tape or diskette.

**JENDL-3.2/FPY**, the JENDL fission-product yield data library, has been compiled by T. Nakagawa in ENDF-6 format. The evaluated data have been taken over from JNDC-FP2, a special format data library that had been announced in issue No. 15 of this Newsletter and documented in the reports JAERI-M-89-204 (1989) and JAERI-1320 (1990). Available on tape.

**JEF-2/FPY**, the JEF-2 fission-product yield data library by the NEA Data Bank, in ENDF-6 format. The evaluated data have been taken over from UKFY2, the UK fission-product yield data library by M. James and R. Mills. Brief summary: IAEA-NDS-123 Rev. 1. Size: 46,000 records, available on tape. - The original UKFY2 file (documented in IAEA-NDS-124) contains supplementary information such as chain yields, fractional independent yields, and bibliographic references; available on tape.

**JEF-2/DD**, the JEF-2 radioactive decay data library by the NEA Data Bank, in ENDF-6 format, containing decay data for 2345 radionuclides. The data, which were compiled by the JEF Decay Data Working Group, were mostly taken over from UK decay data files and from ENSDF. Brief documentation: IAEA-NDS-122 Rev. 1. Available online and on magnetic tape.

**JEF-2/TSL**, the JEF-2 thermal neutron scattering law data library by J. Keinert and M. Mattes. It contains revised evaluations for H bound in H<sub>2</sub>O and CH<sub>2</sub>, D in D<sub>2</sub>O, graphite, and a new evaluation for beryllium, together 120,000 records. - Documentation see IAEA-NDS-121 Rev. 1. - Available on tape.

**JEF-2/Photo**, the JEF-2 photo-atomic interaction data library containing pair production cross-sections, photoelectric cross-sections, coherent scattering cross-sections, atomic form factors, and other data for all elements from Z=1 to 100. It is based on the Livermore EPDL file and on the ENDF/B-6 Photo-Atomic data file. Compared to ENDF/B-6, the photo-electric cross-section data have been updated in 1990. - 260,000 records. Summary documentation: IAEA-NDS-58 Rev. 4. - Available online and on magnetic tape.

**BROND-2** - updates of the Russian evaluated nuclear data library: for the five stable zirconium isotopes revised files have been received which now include gamma-production data. Small corrections were made in the files for 1-D-2, 7-N-14,15, 14-Si, 41-Nb-93, 50-Sn. - Documentation see IAEA-NDS-90 Rev. 8. - Available are either the revised files (about 46,000 records) or the entire BROND-2 library (about 275,000 records).

**ADL-3**. Neutron activation data library by O.T. Grudzevich, A.V. Zeleneckij, A.V. Ignatjuk, A.B. Pashchenko. It contains data for 20,049 neutron activation reactions, in ENDF-6 format. The list of reactions included is given in Yadernye Konstanty, issue 1993 (3-4). Summary documentation: IAEA-NDS-137. Available on magnetic tape or online from the NDSOPEN area.

**FENDL activation data, ENDF format**: neutron activation cross-section data library for more than 11,000 neutron activation reactions with 636 target nuclides in the incident energy range up to 20 MeV. It is presented in two formats: FENDL/PA, "point data", i.e. cross-sections as function of the neutron energy in ENDF-6 format, and FENDL/GA, "group data" in the widely used VITAMIN-J energy group structure in ENDF-6 histogram format. It is supplemented by a decay data library FENDL/D in ENDF-6 format for about 2900 nuclides and isomers. The data have been compiled for fusion design applications but can be used, of course, for other applications as well. Available on magnetic tape, or online through INTERNET/FTP from the FENDL area, directories FENDLA and FENDLD, respectively. Documentation: IAEA-NDS-148, Rev. 1, April 1994, by A.B. Pashchenko and P.K. McLaughlin. Note that further revisions of this library by the FENDL cooperation are expected. The present version has the designator 1.1.

**FENDL activation data, MCNP and REAC:** processed neutron activation cross-sections derived by F.M. Mann et al from FENDL/PA. The data have been processed in two modes: 1. Continuous energy format as used in MCNP Monte Carlo codes: "FENDL/PA-MCNP", 96 Megabytes. 2. ASCII 175-group multigroup format as used in REAC codes: "FENDL/PA-175G", 26 Megabytes. Summary documentation: IAEA-NDS-168. An index of the activation reactions included and a description of the processing procedure is contained in the report **WHC-EP-0727**, "Processing of FENDL-PA/1.1" by F.M. Mann et al. - Available online through INTERNET/FTP from the directories fendl/fendla/Mann/MCNP resp. fendl/fendla/Mann/group. (Note that further revisions of this library by the FENDL cooperation are possible.)

**DROSG-87**, monoenergetic neutron source reactions. An updated version of DROSG-87, a data file with FORTRAN program giving angular dependences of neutron energies, differential cross-sections and neutron yields for 13 monoenergetic neutron source reactions, was released. Version 3.20 (September 1994) contains a new evaluation of the d-T reaction and minor improvements in some of the other data and related codes. A detailed documentation of the contents and the latest changes is included in the diskette. Summary documentation: IAEA-NDS-87 Rev. 3.

**FENDL/E**. Evaluated nuclear data library of neutron nuclear interaction cross-sections and photon-atom interaction cross sections for fusion applications documented in IAEA-NDS-128 by S. Ganesan and P.K. McLaughlin. It includes selected data evaluations taken over from ENDF/B-6, BROND-2 and JENDL-3 for 63 nuclides from 1-H-1 to 83-Bi-209.

**WIMSD Nb Bi**. WIMSD multigroup data for Nb and Bi derived from ENDF/B-6.1, JEF-2.2, JENDL-3.2, by Jung-Do Kim and Choong-Sup Gil, Korea. Data on a PC diskette, 478,000 bytes. Tabular and graphical intercomparison and documentation: IAEA-NDS-152.

**ENDF/B-5**. The U.S. Nuclear Data Library ENDF/B-5 had been issued in 1979 but only parts of it had been freely released. Now the bulk of it, i.e. the "ENDF/B-5 General Purpose File", has become available. Although it is, since 1990, superseded by ENDF/B-6, it may still be of interest for intercomparison purposes. - Documentation see IAEA-NDS-155. - Graphical plots of the library were published by B.A. Magurno, R.R. Kinsey, F.M. Scheffel in the report EPRI-NP-2510 (not available from IAEA). - The format of the library is ENDF-5, see IAEA-NDS-75 Rev. 1. - Available on magnetic tape.

**Nuclear Masses**. There are two files. 1) The Audi/Wapstra evaluation of atomic masses, 1993, based on experiments and systematics. Documented in IAEA-NDS-47 Rev.2. 2) The file of "Nuclear ground-state masses and deformations" by P. Möller et al., 1994, based on experiments and a nuclear mass theory. Documented in IAEA-NDS-147 Rev. 2. - Both available on magnetic tape or diskette, or online/FTP.

#### Gamma ray analysis

**IDGAM**, a PC code and database to identify isotopes in a radioactive sample by their gamma rays. The diskette by R. Paviotti Corcuera, M. de Moraes Cunha, K.A. Jayanthi (Brazil) is available costfree from IAEA/NDS. Documentation: IAEA-NDS-135. IDGAM uses the gamma-ray database "Strong gamma-rays" by T. Narita et al (as announced in Nuclear Data Newsletter No. 18) based on the Sept. 1993 version of the international ENSDF database.

**GAMQUEST**, a computer program to identify gamma rays by E. Browne, Lawrence Berkeley Laboratory, USA. **Not available from the IAEA.** - This program is especially suited to the analysis of samples produced by neutron activation, and of environmental samples containing radioactive pollutants. It searches a large database of over 60 000 gamma rays to identify the spectral lines from samples. It runs on the VAX/6610 computer cluster of the Lawrence Berkeley Laboratory and can be accessed from individual accounts or through Hepnet, Internet, or World Wide Web networks. - Documentation see report LBL-35715.

## Photon-electron interaction data

21-1-1994

In the last issue of this newsletter a package of three data libraries for interaction of atoms (EADL), electrons (EEDL) and photons (EPDL) was announced. Unfortunately, these could not yet be dispatched to requestors due to unforeseen technical difficulties with DAT tape formats. We wish to apologize for the delays. The files are now available, together 44 Mbytes. - Meanwhile the format documentation for these data has become available: S.T. Perkins, D.E. Cullen: ENDL type formats for the LLNL data libraries EADL, EEDL and EPDL. Report UCRL-ID-117796 (1994).

## Publications on nuclear data libraries

Evaluation and compilation of fission-product yields, report LA-UR-94-3106/ENDF-349, Sept. 1993, by T.R. England and B.F. Rider. This is the detailed documentation of the ENDF/B-6 fission product yield data file that was announced in the previous issue of this Newsletter. The report includes 1) The main part with text and tables (37 pages); 2) a bibliography (136 pages); 3) six appendices listing all the compiled and evaluated data (together about 1300 pages). This report is available through INTERNET under the anonymous node T2.LANL.GOV under the subnode YIELDS. There is a "readme.yld" file for additional information. - For those who do not have access to INTERNET, full-size copies of the main part and the bibliography are available from IAEA-NDS, and perhaps a magnetic tape copy of the entire report.

CENDL, Chinese evaluated nuclear data library: The reports INDC(CPR)-25 and INDC(CPR)-28 contain the documentation of the CENDL-2 library, including summary of the data evaluation procedure, curves and references. Reports available costfree.

Absolute gamma branching ratios for fission-products in the mass range 74-165. A comprehensive compilation by G. Rudstam, Studsvik, Sweden. Report INDC(SWD)-024, available costfree.

BOFOD, Russian evaluated photo-neutron data library, by A.I. Blokhin, N.N. Buleeva, S.M. Nasyrova, O.A. Pakhomova, S.V. Zbrodskaja, A.M. Cibulja. A detailed description of this data library, with tables and curves, is given in the journal *Yadernye Konstanty 1992* (3-4) pp. 3-54. English translation INDC(CCP)-381. Copies available, costfree.

ADL-3, Russian evaluated neutron activation data library. A catalogue of 20049 excitation functions was published by O.T. Grudzevich, A.V. Zeleneckij, A.V. Ignatjuk, A.B. Pashchenko in *Yadernye Konstanty 1993* (3-4). (Two pages introduction in Russian, abstract in English; 180 pages of index, self-explanatory.) Copies available, costfree.

WIMS-D4 Nuclear Data Library, status report of the IAEA WIMS library update project. S. Ganesan (ed.). Report INDC(NDS)-290, costfree.

Intermediate energy data: "Cross-sections of reactions of particles and nuclides with nuclides", a handbook with many tables and curves by V.S. Barashenkov, Dubna 1993. Contents: Part 1 tables of experimental cross-sections of neutrons up to a few hundred MeV for about 30 selected nuclides and of protons up to a few GeV for about 60 selected nuclides, including total, elastic and inelastic cross-sections. Data are also given graphically with eyeguide curves. Part 2 pion interactions with nuclei. Part 3 nuclear reactions of antinucleons and K mesons. Part 4 experimental cross-sections of d, t, He3,  $\alpha$  particles in the MeV range, partly up to GeV, on selected nuclides; and nuclide-nuclide cross-sections in the energy range 100 MeV - 100 GeV. - Handbook, 346 pages, to be ordered from the author, Joint Institute for Nuclear Research, Dubna, Russia.



### Conference Announcements

The next International Nuclear Physics Conference, which follows the one held in Wiesbaden, Germany, in 1992, will be held in Beijing, China, 21-26 August 1995. It will be supported by the International Union of Pure and Applied Physics, the International Centre of Theoretical Physics, various Chinese scientific organizations, and will be organized by the China Institute of Atomic Energy under the chairmanship of its president, Prof. Sun Zuxun. - For information contact: Prof. Xu Jincheng, CIAE, P.O. Box 275 (80), Beijing 102413, China. Phone: 86-1-9357787, Fax: 86-1-9357008, E-Mail: CIAEDNP@VXIHEP.IHEP.CERN.CH.

ICRM-95. The next Conference and International Symposium on Radionuclide Metrology and its Applications will take place in Paris, France, 15-19 May 1995, organized by the International Committee for Radionuclide Metrology and the Laboratoire Primaire des Rayonnements Ionisants (LPRI), covering topics on  $\alpha$ -particle spectrometry,  $\gamma$ -ray and  $\beta$  spectrometry, life sciences, low-level measurements, radionuclide metrology techniques, nuclear decay data, etc. - Contact address: J.L. Boutaine, LPRI, BP 52, F-91193 Gif-sur-Yvette Cedex, France. Fax: (33)1.69.08.26.19, E-Mail: ICRM@BABAORUM.CEA.FR.

### Conference Proceedings

Nuclear data evaluation methodology, proceedings of an international symposium held at the Brookhaven National Laboratory, USA, 12-16 Oct. 1992, edited by C.L. Dunford. It includes on 735 pages 77 papers under the headings Evaluation intercomparison; Analysis of experimental data; Influence of integral data; Data fitting methods; Resonance region; Nuclear models and their input parameters; Medium energy data; Charged particle and photo-nuclear data; Decay data evaluation; Covariance data generation; Computer aided evaluation. The book can be ordered from the World Scientific Publishing Co., P.O. Box 128, Farrer Road, Singapore 9128. USA office: 1060 Main Street, River Edge, NJ-07661. UK office: 73 Lynton Mead, Totteridge, London N20 8DH. Sales Price 128.- Special prices to developing countries and some Eastern European countries. - **Not available from IAEA.**

1993 Symposium on Nuclear Data, 18-19 Nov. 1993 at JAERI, Tokai, Japan. Proceedings edited by M. Kawai and T. Fukahori, Report **JAERI-M-94-019**, Feb. 1994. (53 papers, 425 pages.) Contents: Summaries of nuclear data activities in selected countries; research contributing to JENDL and various energy-related applications; nuclear data for non-energy applications; panelists presentations on the occasion of the 30th anniversary of the Japanese Nuclear Data Committee; etc. - Limited number of free copies available on request.

ICENES 93, 7th International Conference on Emerging Nuclear Energy Systems, Makuhari, Chiba, Japan, 20-24 Sept. 1993. Proceedings by World Scientific, Singapore. H. Yasuda (ed.). **To be purchased from World Scientific.**

Nuclear Spectroscopy and the Structure of the Atomic Nucleus, international conference in Dubna, Russia, 20-23 April 1993. Book of abstracts of 380 papers, in Russian. **Not available from IAEA.** Contact: K.A. Eridnev, Institute of Physics of the Sankt Petersburg University, 198904 St. Petersburg, St. Peterhof, Russia.

Nuclear Excited States, "ISNES '92", Proceedings of the 2nd international symposium on nuclear excited states, Łódź, Poland, 22-26 June 1992. L. Lason, M. Przytula (editors). 40 papers in English by authors from 9 countries, with a summary overview by E. Sheldon. **Not available from IAEA.** To be ordered from Wydawnictwo Uniwersytetu Łódzkiego, Łódź, Poland.

## Selected reports and documents on nuclear data

- \* = documents available costfree from IAEA/NDS upon request.
- = available from originator or from the INIS Microfiche Service (IAEA, P.O. Box 100, A-1400 Vienna, Austria)

### Meeting reports

- \* INDC(NDS)-307. Coordination of the International Network of Nuclear Structure and Decay Data Evaluators. Summary of an IAEA meeting hosted by the Lawrence Berkeley Laboratory, USA, 16-20 May 1994. C.L. Dunford, H.D. Lemmel (ed.)
- \* INDC(NDS)-308. Coordination of the Nuclear Reaction Data Centers. Summary of an IAEA meeting hosted by the NEA Data Bank, Paris, France, 25-27 April 1994. O. Schwerer, C.L. Dunford, H.D. Lemmel (ed.)
- \* INDC(NDS)-298. Preparation of fusion benchmarks in electronic format for nuclear data validation studies. Summary of an IAEA meeting, Vienna, 13-16 Dec. 1993. S. Gansan (ed.)
- \* INDC(NDS)-299. Preparation of processed nuclear data libraries for thermal, fast and fusion research and power reactor applications. Summary of an IAEA meeting, Vienna, 8-10 Dec. 1993. S. Ganesan (ed.)
- \* INDC(NDS)-282. Standard input data sets for nuclear model computations of nuclear data. Summary of an IAEA meeting, hosted by ENEA Bologna at Sirolo, Ancona, Italy, 21-27 June 1993.
- \* INDC(NDS)-273. Improvement of measurements, theoretical computations and evaluations of neutron induced helium production cross-sections. Summary of an IAEA research coordination meeting, Debrecen, Hungary, 17-19 Nov. 1992. A.B. Pashchenko (ed.)
- \* INDC(NDS)-301. Comparison of activation cross-section measurements and experimental techniques for fusion reactor technology. Summary of an IAEA meeting held in cooperation with JAERI, Tokai, Japan, 15-17 Nov. 1993. A.B. Pashchenko (ed.)
- \* INDC(NDS)-297. Review of uncertainty files and improved multigroup cross-section files for FENDL. Summary of an IAEA meeting held in cooperation with JAERI, Tokai, Japan, 8-12 Nov. 1993. S. Ganesan (ed.)
- \* JAERI-M-94-68. Proceedings of the Specialists' Meeting on Covariance Data, Tokai, Japan, 15-16 July 1993. Y. Nakajima (ed.)
- \* INDC(NDS)-296. H.D. Lemmel (ed.): Coordination of the International Network of Nuclear Structure and Decay Data Evaluation. Summary of a meeting in Geel, Belgium, 9-13 Nov. 1992.

### Progress-reports

- \* Jül-2950 = NEA/NSC/DOC(94)-21. Nuclear data research in Germany 1993/94. S.M. Qaim (ed.).
- \* Jül-2803. Nuclear data research in Germany 1992/93. S.M. Qaim (ed.)
- \* INDC(JPN)-166. Japanese Nuclear Data Committee, progress report July 1992 to June 1993.
- PTB-Ann.Rept. 1992. Annual Report 1992, Physikalisch Technische Bundesanstalt, Germany, Division 7, Neutron Physics. R. Jahr, O. Hecker (ed.)
- \* NEA/NSC/DOC(93)-11. Central Bureau for Nuclear Measurements, annual progress report on nuclear data 1992.
- \* INDC(CPR)-30. Chinese Nuclear Data Center: Communication of nuclear data progress No. 9 (1993).
- \* INDC(CPR)-31. Chinese Nuclear Data Center: Communication of nuclear data progress No. 10 (1993).
- \* INDC(CPR)-32. Chinese Nuclear Data Center: Communication of nuclear data progress No. 11 (1994).

- \* **INDC(UK)-50.** UK Chemical Nuclear Data Committee, data studies 1993. A.L. Nichols.
- \* **INDC(ARG)-11.** Nuclear data in Argentina 1992-1993. G.H. Ricabarra.
- RIKEN Accelerator Progress Report 1993, Institute of Physical and Chemical Research, Japan.
- ATOMKI Annual Report 1993, Institute of Nuclear Research, Debrecen, Hungary.

#### Neutron cross-sections

- \* **INDC(SLK)-2.** Cross-sections of the O-16 (n, $\alpha\gamma$ ) reaction at 14.7 MeV. S. Hlávač, P. Obložinský et al.
- \* **INDC(CCP)-352.** Five papers by USSR authors. New nuclear data set ABBN-90 (Koshcheev et al). Neutron cross-sections for structural materials (Pasechnik et al). Secondary neutron spectra of U-235, U-238, 1-2.5 MeV (Kornilov et al). New data on prefission neutrons from 14.7 MeV neutron-induced fission (Boykov). Rotational modes and level density (Rastopchin).
- \* **INDC(CCP)-351.** 14 MeV facility and research in IPPE. Obninsk. S.P. Simakov et al.
- \* **JAERI-M-93-124.** Y. Kasugai et al: Measurement of formation cross-sections of short-lived nuclei by 14 MeV neutrons: Ru, Pd, Cd, Sn.
- \* **INDC(BLR)-1.** Evaluated neutron data for U-233. L.A. Bakhanovich et al. Translation of the preprint IYaE-2(25) (1992).
- \* **INDC(CCP)-380.** Method for analytical calculation of group-averaged functionals of neutron cross-sections in the unresolved resonance region. A.A. Lukyanov et al.

#### Neutron dosimetry reactions

- SAND92-0094. SNL RML recommended dosimetry cross-section compendium. P.J. Griffin et al.
- \* **INDC(NDS)-285.** J. Martinez-Rico: Comparison of the evaluations of the cross-sections Au-197(n,2n), Co-59(n,2n), Nb-93(n,2n).
- \* **INDC(CCP)-360.** Evaluation of cross-sections Ti-46(n,2n), Fe-54(n,2n) for neutron dosimetry in fusion facilities. S.A. Badikov et al.

#### Fission-products

- \* **INDC(NDS)-304.** M. Lammer (ed.): Progress in fission-product nuclear data. Issue no. 14, 1994.

#### Nuclear model parameters

- OCDE/GD(94)-21. K. Shibata: Sensitivities of calculated cross-sections of Fe-56 to model parameters.
- \* **INDC(PAK)-8.** I.E. Qureshi, Q.H. Khan: The global optical potentials and neutron-nucleus scattering data.
- \* **INDC(CCP)-359.** G.N. Smirenkin: Preparation of evaluated data for a fission barrier parameter library for isotopes Z=82-98, with consideration of the level density models used.

#### Nuclear states and gamma-rays

- \* **JAERI-M-94-59.** List of strong gamma-rays emitted from radionuclides (version 2). T. Narita et al. - This is the publication for the diskette "Strong gammas" by T. Ichimiya et al that had been announced in the last issue of this Newsletter.
- \* **NEA/NSC/DOC(93)12.** O. Bersillon, A. Schett: Classification of nuclear rotational states using weight diagrams of the Lie algebra  $A_2$ .
- \* **INDC(CCP)-361.** Selection of radiation sources for calibration of gamma-ray spectrometers. F.E. Chukreev.
- \* **INDC(CCP)-370.** NESSY, a relational PC database for nuclear structure and decay data. I.N. Boboshin, V.V. Varlamov, S.K. Trukhanov.



### ENDF data processing

- ANSTO/E-712. Generation and validation of a cross-section library based on ENDF/B-6 for the AUS neutronics code system. G.S. Robinson.

### Benchmarks

- JAERI-1330. Shielding benchmark tests of JENDL-3. Shielding Integral Test Working Group of the Japanese Nuclear Data Committee. March 1994.
- JAERI-M-94-14. Collection of experimental data for fusion neutronics benchmark. Sub Working Group of Fusion Reactor Physics Subcommittee. Feb. 1994.
- \* INDC(NDS)-300. Report on the second international activation calculation benchmark comparison study. E.T. Cheng, R.A. Forrest, A.B. Pashchenko.

### Proton scattering

- \* JAERI-M-94-11. Elastic and inelastic scattering of protons from oxygen-16. N. Koori et al.

### Intermediate-energy nuclear data

- International code comparison for intermediate energy nuclear data. Publication by NEA/OECD, to be ordered from the OECD Publications Service, 2 rue André Pascal, 75775 Paris Cedex 16, France, for a sales price of 270 french francs, plus postage. - It contains detailed results of calculations covering incident proton energies from 25 MeV to 1600 MeV on targets of Zr and Pb.

### Nuclear fusion

- \* INDC(NDS)-303. S. Ganesan, N. Kocherov, A. Pashchenko, J.J. Schmidt, H. Vonach: Status of important nuclear data required for ITER.

Yadernye Konstanty ("Nuclear Constants"), Moscow, Russia. This series appears in Russian with abstracts in English. Copies are available, costfree, from the IAEA Nuclear Data Section. Tables of contents are given in the following. Subject to available funds, selected articles are translated by IAEA and published as INDC(CCP)-reports.

- \* Yad. Konst. 1993 (3-4). Catalogue of the ADL-3 data library of 20049 excitation functions. (Grudzevich, Zeleneckij, Ignatjuk, Pashchenko)
- \* Yad. Konst. 1993 (1), in Russian with English abstracts. Contents: 1992 meeting of the Nuclear Data Commission (Abramov). The Center for Radionuclide Data at the Radium Institute (Chechev). Neutron radiative cross-sections for Th-232 and Au-197 between 0.37-1 MeV (Davletshin). Radiative neutron capture cross-sections for even isotopes of Nd-146, 148, 150, 0.5-2.2 MeV (Trofimov). Evaluation of thermal neutron cross-sections and resonance integrals for isotopes of Pa, Am, Cm, Bk (Belanova). Compilation of neutron leakage spectra measurements from spherical assemblies with T(d,n) and Cf-252 central neutron sources (Simakov). Evaluation of photonuclear reaction cross-sections using the method of reduction at significant systematic uncertainties (Varlamov).
- \* Yad. Konst. 1992 (3-4). Contents: Formation and application of the evaluated Photo-Neutron Data Library "BOFOD" (Blokhin). The cross-section library for transmutation and activation of materials irradiated by neutrons and protons with energies up to 100 MeV (Konobeev et al). Results of relative measurements of photofission yield and cross-sections for U-233,235, Np-237, Pu-239,241, Am-241, 5-11 MeV (Soldatov), with many tables and curves. Analytical calculations of neutron cross-sections in the unresolved region (Lukjanov). Neutron inelastic scattering at 5-8.5 MeV for Co-59, Y-89, Nb-93, Mo, In-113,115, Ta-181, Bi-209 (Simakov), with many tables and curves. 14 MeV facility and research in IPPE, Obninsk (Simakov), in English, same as INDC(CCP)-351. Code for calculation of isotope concentration and induced activity of irradiated materials (Korovin).

- \* INDC(CCP)-381. "BOFOD" photoneutron data library. A.I. Blokhin et al. Translated from Yad. Konst. 1992 (3-4).
- \* INDC(CCP)-379. Measurements of photofission yields and cross-sections for U-233,235, Np-237, Pu-239,241, Am-241, 5-11 MeV. A.S. Soldatov, G.N. Smirenkin. Translated from Yad. Konst. 1992 (3-4).
- \* INDC(CCP)-374. Evaluation of neutron cross-sections for fission-product nuclei in the energy range up to 50 MeV. V.P. Lunev et al. Translated from Yad. Konst. 1992 (2).
- \* INDC(CCP)-378. Leakage neutron spectra from Al, Ni, Ti spheres with a 14 MeV neutron source. B.V. Devkin et al. Translated from Yad. Konst. 1992 (1).
- \* INDC(CCP)-377. Inelastic scattering of neutrons by Zr isotopes with excitation of individual levels. Ja.M. Kramarovskii, L.A. Pobedonostsev. Translated from Yad. Konst. 1992 (1).
- \* INDC(CCP)-376. (n,p) and (n,np) reactions on Al-27, Si-28, Cr-50, Fe-54,56, Ni-58 and Ni at 14.1 MeV. L.I. Klochkova et al. Translated from Yad. Konst. 1992 (1).
- \* INDC(CCP)-375. Neutron radiative capture cross-sections for Th-232 and Au-197 0.8-2.5 MeV. A.N. Davletshin et al. Translated from Yad. Konst. 1992 (1).
- \* INDC(CCP)-372. Determination of neutron resonance parameters with the IBR-30 pulsed neutron source for U-238 and Sm isotopes. Ju.V. Grigorev, G. Georgiev et al. Translated from Yad. Konst. 1991/1992.
- \* INDC(CCP)-373. Secondary neutron spectra from spherical and hemispherical samples of structural materials induced by 14 MeV neutrons. A.I. Sankov et al. Translated from Yad. Konst. 1991 (4).
- \* INDC(CCP)-369. A.I. Saukov et al: Secondary neutron emission spectra from spherical and hemispherical samples of materials obtained at 14 MeV neutron energy. Transl. from Yad. Konst. 1991 (4).
- \* INDC(CCP)-368. M.A. Voskanjan et al: Absolute measurement of the Cr neutron capture cross-section 1 keV to 20 keV. Transl. from Yad. Konst. 1991 (4).
- \* INDC(CCP)-367. Integral tests of neutron nuclear data of actinides. 7 papers by Bednjakov, Koshcheev, Vankov, Gusejnov et al, translated from Yad. Konst. 1987-1991.
- \* INDC(CCP)-366. Evaluation of neutron nuclear data of actinides. 5 papers by Morogovskij, Kornilov, Bakhanovich, Maslov, Vankov et al, translated from Yad. Konst. 1987-1991.
- \* INDC(CCP)-365. Measurements of neutron nuclear data of actinides. 3 papers by Grigorev, Zenkevich, Kalinin et al, translated from Yad. Konst. 1987-1991.
- \* INDC(BUL)-014. N.T. Koyumdzhieva, N.B. Janeva: Average group data for Pu-241 in 0.1-21.5 keV energy region. Transl. from Yad. Konst. 1990 (4).
- \* INDC(CCP)-364. Three papers by Likjanov, Krivashev, Basenko et al on nuclear data analysis. Translated from Yad. Konst. 1989 (1).
- \* INDC(CCP)-363. V.E. Makarenko, F.E. Chukreev: Identification of high-spin states in U-235. Transl. from Yad. Konst. 1988 (4).
- \* INDC(CCP)-362. I.A. Kharitonov: Analysis of existing data and specifications of an experiment to determine the Cf-252 half-life to the required degree of accuracy. Transl. from Yad. Konst. 1987 (4).

The addresses of the co-operating nuclear data service centers

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Photonuclear data: Centr Dannyykh Fotojad. Eksp. (CDFE), Nauchno-Issl. Inst. Jad. Fiz., Moskovskij Gos Universitet, Leninskiye Gory, Moscow V-234, Russia. Fax 0959395034. Telex 411483 mgu su. INTERNET CDFE@COMPNET.NPIMSU.MSK.SU. Contact: V. Varlamov.

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The IAEA Nuclear Data Section offers data center services primarily to non-OECD countries (except Russia and China, see above). However, certain 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 last page of this newsletter.

Access to NDIS  
(online Nuclear Data Information System)  
via INTERNET (TCP/IP):

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Sample login:

TELNET IAEAND.IAEA.or.at  
(or 161.5.2.2)

IAEA VAX-VMS V5.4-3

Username: IAEANDS

Welcome to VAX/VMS version V5.4-3 on node M4300

.....  
.....

Enter NDS assigned authorization code (or GUEST): GUEST  
(or your authorization code if you have one)

Enter your last name (or DEFAULT or?) - - - - -

Authorization:

As a "GUEST", you will have 30 seconds of CPU time allocated. At the end of a GUEST session, you may sign up directly for an authorization code for full access service. (This code still needs to be activated by the NDIS manager before you can use it for future access.) Or, you may contact the IAEA Nuclear Data Section for assignment of an authorization code.

Retrieval system:

A user-friendly system provides ample help to the user who specifies the retrieval criteria in response to step-by-step prompts by the system. It also provides interactive assistance through HELP files. More detailed documentation on the system may be obtained by contacting the IAEA Nuclear Data Section.

Access to open areas for FTP file transfer:

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Sample login:

FTP IAEAND.IAEA.or.at

Username: FENDL (if FENDL files are wanted)  
NDSOPEN (for retrieving other available files or for  
sending files to IAEA)

No password required.

Then choose one of the available subdirectories, where you may find  
AAREADME.TXT files for further information.

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