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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.

#### Personal item

We are glad to announce that Dr. Charles L. Dunford from the US National Nuclear Data Center is the new Head of the IAEA Nuclear Data Section.

#### Data indexes and bibliographies

CINDA93, the 1993 edition of the bibliography and data index for microscopic neutron reaction data, is now available for a sales price of 620 Austrian Schillings. It covers the period 1988-1993 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). This CINDA database is available online.

BROND-2, CENDL-2, ENDF/B-6, JEF-2, JENDL-3.1: A compact joint index to these recently released and updated evaluated neutron reaction data libraries, is available as document IAEA-NDS-107 Rev.8. It also includes a joint index to the available fission-product yield data libraries.

NSR, bibliographic references to nuclear data publications relevant to the evaluation of nuclear structure and decay data. The database is available online. Recent additions to the NSR database are published regularly under the heading "Recent References" in the journal Nuclear Data Sheets.

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Fotojadernye Dannye - Photonuclear Data, an index to data published in the period 1986-1990, was prepared by the Centre for Photonuclear Experimental Data under V. Varlamov, Moscow State University. The index, which is bilingual in Russian and English, is available, costfree, as report INDC(CCP)-348. It supplements the earlier index (1976-1985), of which copies are still available.

IAEA-NDS-7 Rev. 93/11: Index of nuclear data libraries available on magnetic tape or PC diskettes from the IAEA Nuclear Data Section. H.D. Lemmel (ed.).

IAEA-NDS-0 Rev. 93/3: Index to the IAEA-NDS-Documentation Series for available nuclear data libraries.

#### New nuclear data libraries received

NDIS, online Nuclear Data Information System: How to access it see the last page of this Newsletter. For more detailed information request the document IAEA-NDS-150. In the past months some technical improvements have been made, which required that the online address had to be changed compared to the announcement in the previous issue of this newsletter. Most of the online data libraries have been updated, as described in the following items.

JEF-2, the Joint Evaluated File of nuclear data compiled at the NEA Data Bank in co-operation with several laboratories in the NEA Data Bank member countries. It contains evaluation of neutron reaction data for 313 elements or isotopes from 1-H-1 to 99-Es-253 in the neutron energy range from  $10^5$  eV to 20 MeV. Its first version had been released in 1990 (see issue 15 of this Newsletter). The present second version was finalized in 1991 and, after careful testing, released in the beginning of 1993. Compared to the first version it contains some additional or revised evaluations and many small improvements. It is in ENDF-6 format which is documented in the report IAEA-NDS-76 Rev. 4. A documentation of JEF-2 has not yet been issued, but the explanatory text within the files is rather detailed. A summary of contents is available as report IAEA-NDS-120 Rev. 2. The basic file with resonance parameters has 570.000 records. It is available on magnetic tape or online. A "point data" file (i.e. resonance parameters converted to cross-sections) is not yet available.

ENDF/B-6, the US evaluated nuclear data library, was updated in June 1993. The update of the neutron sublibrary includes 40 revised materials, i.e. new evaluations for 21-Sc-45, 53-I-127, extensively revised evaluations for 7-N-14, fission-product nuclides, 72-Hf isotopes, resonance region improvements for 27-Co-59, 92-U-238, 94-Pu-239, and miscellaneous improvements for the other materials. The files of the 40 revised materials are available on magnetic tape, upon request. (Alternatively, it is also possible to request the entire updated ENDF/B-6 neutron data library which has a size of about 600.000 records or 50 Megabytes.) - A "point data" file (i.e. resonance parameters converted to cross-sections) is available only for the original release of ENDF/B-6 and not for the two updates of 1991 and 1993. - ENDF/B-6 is available online. - Evaluation summaries for many nuclides of ENDF/B-6 are given in the report by P.F. Rose (ed.), 4th Edition of BNL-NCS-17541/ENDF-201, Oct. 1991.

ENDF utility codes. The new release 6.9 (Nov. 1993) by C.L. Dunford is available on magnetic tape or diskettes together with a documentation IAEA-NDS-29 Rev. 6.

BROND-2.1, the Russian evaluated nuclear data library for neutron reaction data. Compared to BROND-2 which was announced in the previous issues of this Newsletter, various corrections have been made to satisfy the requirements of the NJOY code. The library, which has a size of 266.000 records is available on tape or online. A "point data version" (where the resonance-parameters have been converted to cross-section data) is also available. A brief summary documentation is available as document IAEA-NDS-90 Rev. 7.

CENDL-2, 1993 version. Version 2 of the Chinese evaluated data library for neutron reactions had been announced in the previous issue of this newsletter. At that time, the library was partly in ENDF-5, partly in ENDF-6 format. Now all data have been converted to ENDF-6 format and small corrections have been made. Newly included are evaluations for 30-Zn; 73-Ta-181; 92-U-235 [=ENDF/B-6 evaluation updated for (n,2n), (n,3n) and delayed neutrons]; 94-Pu-240. For a summary of contents see the document IAEA-NDS-61 Rev.2. The more detailed documentation in No. 6 (1991) of "Communication of Nuclear Data Progress" which was announced already in the previous issue of this newsletter, was followed by a No. 6 Supplement (1992) [same as report CNIC-690; CNDC-10; INDC(CPR)-28] of which a limited number of copies is available. CENDL is available on magnetic tape or online.

EXFOR. This data library contains experimental nuclear reaction data and related parameters, compiled through an international effort of the nuclear data centers. It includes reactions induced by neutrons, charged particles and photons and is updated in about monthly intervals. It is part of our online system NDIS. Retrievals for specific reactions are available on magnetic tape upon request. Recently, a large compilation has been received on proton and alpha-particle induced reactions above 10 MeV that have been measured in Kazakhstan. For further details see below in the Handbooks section.

IRDF-90, version 2, the international reactor dosimetry file. It includes internationally recommended neutron cross-section data for selected nuclides to be used for reactor neutron dosimetry by foil activation. It also contains selected radiation damage cross-section data for Fe, Cr, Ni and benchmark neutron spectra. The data are in 640 group extended SANDII format. The present file contains 58 neutron activation reactions for 39 target materials (compared to the first version with 49 reactions for 36 materials). All files (except 2) contain covariance data in ENDF-6 format. Documentation in IAEA-NDS-141 Rev. 2, by N.P. Kocherov and P.K. McLaughlin. Available on a set of PC diskettes or magnetic tape.

PRONDOS. A small file of selected neutron activation reactions used for neutron dosimetry, evaluated by V.G. Pronjaev, has been received in 1990. It contains the reactions Cl-37(n, $\gamma$ ); Mn-55(n, $\gamma$ ) and (n,2n); Cu-63(n, $\gamma$ ) and (n,2n); La-139(n, $\gamma$ ); W-186(n, $\gamma$ ). - Available on diskette or magnetic tape, with summary document IAEA-NDS-142.

ASIYAD, fission-product yield data file based on the work by A.F. Grashin and A.D. Efimenko reported at the end 1988 Nuclear Data Conference in Mito, Japan, p. 971 of the proceedings. The file was converted to ENDF-6 format by the Russian Nuclear Data Center, Obninsk. For a summary see document IAEA-NDS-133.

The ENDF/B-6 fission-product yield data file consisting of two sublibraries for neutron-induced fission and spontaneous fission, was revised and supplemented with several additional fissile systems. The new version (about 100.000 records) is available on magnetic tape, upon request. Summary documentation: IAEA-NDS-106 Rev. 1.

The ENDF/B-6 high-energy data file, consisting of two sublibraries for incident neutrons and protons of energies up to 1 GeV, includes now evaluated data for 26-Fe-56 (1990) and 6-C-12, 82-Pb-208, 93-Bi-209 (1993). The library is available on magnetic tape, upon request. Summary documentation: IAEA-NDS-113 Rev. 1.

ENSDF, evaluated nuclear structure and decay data. This database, which is frequently updated, is available online. The most recent evaluations for specific mass numbers are regularly published in the journal Nuclear Data Sheet.

Strong gamma-rays emitted from radionuclides, by T. Ichimiya, T. Narita, K. Kitao. Diskette version, version 2, Oct. 1993. This is an update of the tabulation that was published in the report JAERI-M-92-51, as announced in the previous issue of this newsletter. The present update ("G3D.DAT") is based on the Sept. 1993 version of the ENSDF database. It is supplemented by a

compilation ("NRI.DAT") of such radionuclides and their gamma-rays, where the gamma intensity has not been reported. Diskette "Strong Gammas" with documentation IAEA-NDS-111 Rev. 1 available upon request.

#### Photon-electron interaction data

A package of three data libraries has been received from the Lawrence Livermore National Laboratory, USA. These are:

EADL, the Evaluated Atomic Data Library of the Lawrence Livermore National Laboratory, USA. This data library was published in tabular and graphical form in the report UCRL-50400 vol. 30 (1991) by S.T. Perkins, D.E. Cullen, M.H. Chen, J.H. Hubbell, J. Rathkopf, J. Scofield, 288 pages. It contains evaluated atomic subshell and relaxation data for isolated neutral atoms, including fluorescence yields, subshell parameters (e.g. binding energies), both radioactive and non-radioactive transition probabilities, and energy deposition terms. For a summary and description of the data format see the document IAEA-NDS-156.

EEDL, the Evaluated Electron Data Library of the Lawrence Livermore National Laboratory, USA. This data library was published in the report UCRL-50400 vol. 31 (1991) by S.T. Perkins, D.E. Cullen, S.M. Seltzer, 376 pages. It contains energy-dependent evaluated electron interaction cross-sections and related parameters for all elements from 1-H to 100-Fm, in tabular and graphic form. For a summary and description of the data format see the document IAEA-NDS-157.

EPDL, the Evaluated Photon Data Library of the Lawrence Livermore National Laboratory, USA. This data library was published in tabular and graphical form in the report UCRL-50400 Vol. 6 Rev. 4 (1989) by D.E. Cullen, M.H. Chen, J.H. Hubbell, S.T. Perkins, E.F. Plechaty, J.A. Rathkopf, J.H. Scofield. This report has 804 pages in 2 volumes (Z = 1 to 50 resp. Z = 51 to 100). It contains cross sections, from 10 eV to 100 GeV, average energy deposits, and form factors in tabular and graphic form; in addition, photoelectric cross-sections for each shell and coherent anomalous scattering factors are presented in graphic form. For a summary and description of the data format see the document IAEA-NDS-158.

#### Announcements

The next International Conference on Nuclear Data for Science and Technology will take place in Gatlinburg, Tennessee, USA, 9-13 May 1994. The program will include invited and contributed papers on studies dealing with the measurement and use of nuclear data, with emphasis on energy and non-energy application-oriented data. For information you are invited to contact Dr. J.K. Dickens, Chairman of the Organizing Committee, Building 6010, MS-6356, Oak Ridge National Laboratory, P.O. Box 2008, Oak Ridge, TN 37831-6356, USA. E-mail JKD@ORN.LSTC.BITNET.

The next International Conference on Radiation Shielding (ICRS8) will take place in Arlington, Texas, USA, 24-27 April 1994.

A Workshop on Nuclear Reactors - Physics, Design and Safety will be held at the International Centre for Theoretical Physics, Trieste, Italy, 11 April - 13 May 1994, for scientists and engineers from developing countries. For information contact ICTP, Box 586, 34100 Trieste, Italy, fax 224163.

## Selected new publications on nuclear data

### Charts of Nuclides

Japanese Chart of Nuclides 1992, issued by the Japanese Nuclear Data Committee, compiled by T. Horiguchi, T. Tachibana, T. Tamura. It contains in graphical presentation the ground-state half-lives of all nuclides, and in tabular form selected physical constants of elements and Gamma-Ray Intensity Standards of selected radionuclides. Hard-cover report with fold-out map, available cost-free upon request.

Strasbourg Chart of the Nuclides 1992 by M.S. Antony, Centre de Recherches Nucléaires et Université Louis Pasteur, F-67037 Strasbourg Cédex 2, France. The chart contains a new independent evaluation of nuclear half-lives and selected decay properties. It can be ordered from above address for a small fee in favour of a welfare association. A limited number of free copies has kindly been made available to the IAEA Nuclear Data Section for scientists in developing countries, upon request.

### Conference Proceedings

Fission-product nuclear data, proceedings of a JAERI/NEA meeting 25-27 May 1992 in Tokai, Japan. Proceedings by Y. Kikuchi (ed.). Report NEA/NSC/DOC-(92)9, 512 pages. Limited number of free copies available upon request.

1992 Symposium on Nuclear Data, 26-27 Nov. 1992, JAERI, Japan. Proceedings by M. Baba and T. Nakagawa (eds.), report JAERI-M-93-046 (380 pages). Limited number of copies available costfree. Contents: 40 papers on topics such as JENDL-3 testing; Status of JENDL-3 revision; Nuclear data in medium energy region; Nuclear data evaluation methods; Covariances; papers on various cross-section measurements; etc.

Nuclear data requirements for fission reactor decommissioning, IAEA meeting Vienna, 7-11 Sept. 1992. 11 papers, conclusions, recommendations. N.P. Kocherov (ed.). Report INDC(NDS)-269, costfree.

Nuclear Data for Fusion Reactor Technology, a KfK/NEA topical conference 23 Oct. 1991, Karlsruhe, Germany. Proceedings by S. Cierjacks (ed). Contents: 6 papers on measurements and testing of nuclear data; 9 papers on model calculations, evaluations and data files. Report KfK-5062, available costfree.

Charged-particle and photonuclear data libraries for FENDL, IAEA meeting 8-9 Oct. 1992, US National Nuclear Data Center, Brookhaven. Summary report INDC(NDS)-268 by A.B. Pashchenko, costfree.

Nuclear data for neutron multiplication in fusion-reactor first-wall and blanket materials, IAEA meeting 19-21 Nov. 1990, Chengdu, China. 18 papers, A.B. Pashchenko, D.W. Muir (eds). Report INDC(NDS)-281, costfree. Summary report on the same meeting INDC(NDS)-264, costfree.

Measurement and analysis of 14 MeV neutron-induced double-differential neutron emission cross-sections, needed for fission and fusion reactor technology, IAEA research coordination meeting 31 March - 2 April 1992, Chiang Mai, Thailand. Proceedings by Wang DaHai (ed). Conclusions and recommendations resulting from the coordinated research project, and 10 papers from institutes in seven participating countries. Report INDC(NDS)-272, costfree.

Evaluation and processing of covariance data, proceedings of a NEA NSC meeting 7-9 Oct. 1992, Oak Ridge National Laboratory, USA, M. Wagner (ed.). 21 papers and 2 working group reports on needs, generation and processing of evaluated covariance data. Report NEA/NSC/DOC-(93)3, 290 pages. Limited number of free copies available upon request.

Activation cross-sections for the generation of long-lived radionuclides, of importance in fusion reactor technology, IAEA research coordination meeting 11-12 April 1993, Del Mar, California, USA. Summary report by A.B. Pashchenko (ed.), INDC(NDS)-288; proceedings with 19 papers from participants in 8 countries, report INDC(NDS)-286; both reports costfree.

Activation cross-sections for the generation of long-lived radionuclides, of importance in fusion reactor technology, IAEA research coordination meeting 11-12 Nov. 1991, Vienna. Proceedings by Wang DaHai (ed). Conclusions and 12 papers from institutes in eleven participating countries. Report INDC(NDS)-263, costfree.

Nuclear Data Evaluation Methodology, proceedings of a symposium 12-16 Oct. 1992 at the Brookhaven National Laboratory, USA. C.L. Dunford (ed). 700 pages, 128.- US\$. To be ordered from World Scientific Publishing Co., P.O. Box 128, Singapore 9128, Fax (65)3825919. The publisher offers special prices to developing countries and some Eastern European countries.

Computation and analysis of nuclear data, relevant to nuclear energy and safety, lectures presented at an IAEA training course at the International Center for Theoretical Physics, 10 Feb. - 13 March 1992, Trieste, Italy. M.K. Mehta, J.J. Schmidt (eds). 1000 pages, 128.- US\$. To be ordered from World Scientific Publishing Co. (see preceding item for address and special offer).

#### Handbooks

Nuclear Data Standards for Nuclear Measurements. 1991 NEANDC/INDC Nuclear Standards File. Report NEANDC-311 (1992). H. Condé (ed.) - In this document the internationally recommended nuclear standard reference data are tabulated and their status and accuracy are discussed. The following reactions are included: H(n,n); Li-6(n,t)He-4; B-10(n, $\alpha$ )Li-7; C(n,n); Au-197(n, $\gamma$ ); U-235(n,f) cross-section and fission fragment anisotropy; U-238(n,f); Al-27(n, $\alpha$ ); Co-59(n,2n); Nb-93(n,2n); neutron energy standards; actinide half-lives and thermal fission parameters; Cf-252 fission neutron yield and spectrum; neutron flux comparison; X-ray and gamma-ray standards (the latter identical to the "XG Standards" and IAEA-TECDOC-619 announced earlier).

V.N. Levkovski: Cross-sections of medium mass nuclide activation (A=40-100) by medium energy protons and alpha particles (E=10-50 MeV). Moskva 1991. The book is in Russian. An English language abstract and table of contents is attached. The many tables and graphs are understandable without knowledge of Russian. - The book contains the experimental results of activation cross-sections for more than 500 nuclear reactions. The data have been measured on the cyclotron of the Nuclear Physics Institute of the Academy of Sciences of Kazakhstan. Most of them have not yet been published elsewhere. - The book can be obtained from Dmitri Levkovski, Russia, 140012, Moscow Region, Lubertsy, 1-Pankovski proezd 1-2-17, Tel. (095)554 4789, e-mail Internet dima@misiss.msk.su. The cross-section data from this book have been compiled in EXFOR by F.E. Chukreev, Nuclear Data Center of the Moscow Kurchatov Institute.

Pre-Equilibrium Nuclear Reactions, by E. Gadioli and P.E. Hodgson. Oxford Studies in Nuclear Physics No. 15, 85.- £, to be ordered from Oxford University Press, Walton Street, Oxford OX2 6DP, UK. The book gives a comprehensive survey of the experimental and theoretical research devoted to pre-equilibrium nuclear reactions, including multistep compound and multistep direct theories, a review of theories of nuclear-level densities, and others.

### 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)

### Progress-reports

- \* INDC(NDS)-279. The co-operation of the Nuclear Reaction Data Centers. Report of an IAEA meeting 1-3 Sept. 1992. H.D. Lemmel et al. (eds).
- \* INDC(NDS)-280. Report of the IAEA Nuclear Data Section to the International Nuclear Data Committee, July 1990-Dec. 1992.
- \* AEA-RS-5262. UK Chemical Nuclear Data Committee, data studies in 1991. A.L. Nichols (ed).
- \* AEA-RS-5519. UK Chem. N.D.C., data studies 1992, A.L. Nichols (ed.).
- \* BNL-NCS-47947. Reports to the US Nuclear Data Committee, May 1992.
- BARC-1992/P/4. BARC Division of Radiological Protection, progress report 1989-1991. B.L. Gupta (ed).
- \* KfK-5079. Nuclear data research in Germany 1991/92. S. Cierjacks (ed).
- \* INDC(JPN)-162. Japanese Nuclear Data Committee, progress report July 1991 - June 1992. S. Kikuchi (ed.).
- JAERI-M-92-124. JAERI, Tandem, Linac, VDG, Annual report April 1991 - March 1992. M. Ishii et al. (eds).
- NETU-58. Tohoku University, Japan, Fast Neutron Laboratory progress report 1991/92. N. Hirakawa (ed).
- \* INDC(ARG)-11. Nuclear data in Argentina 1992/93. G.H. Ricabarra (ed.).
- \* INDC(EUR)-26. Central Bureau for Nuclear Measurements, Geel, Annual progress report on nuclear data, 1991.
- \* INDC(CPR)-27. Communication of Nuclear Data Progress, China, No. 7 (1992).
- \* INDC(CPR)-29. Communication of Nuclear Data Progress, China, No. 8 (1992).
- \* INDC(CPR)-30. Communication of Nuclear Data Progress, China, No. 9 (1993).

### Neutron cross-sections

- \* NISTIR-5177. The ENDF/B-6 neutron cross-section measurement standards. A.D. Carlson et al.
- \* NISTIR-4838. An evaluation of KERMA in carbon and the carbon neutron cross-sections. E.J. Axton.
- Physik Daten/Physics Data No. 13-7 (1992). Evaluation of the fast neutron cross-sections of Fe-56 including complete covariance information. H. Vonach, S. Tagesen, M. Wagner, V. Pronjaev.
- \* JAERI-1325. JENDL Dosimetry File. March 1992. N. Nakagawa et al. Note: This is the detailed report on the JENDL-3 dosimetry library which has been advertised in the previous issue of this newsletter.
- \* INDC(NDS)-266. Reference nuclear parameter library for nuclear data computation. Summary of an IAEA meeting, Vienna, 13-15 Nov. 1991.
- \* INDC(GER)-38. Analytic number theory and the nuclear level density. A. Anzaldo Meneses.

- \* INDC(CCP)-351. 14 MeV facility and research in IPPE Obninsk. S.P. Simakov et al.
- \* INDC(CCP)-352. Five USSR papers: New nuclear data set ABBN-90 and its testing (Koshcheev). Neutron cross-sections for structural materials (Pasechnik). Secondary neutron spectra of U-235, U-238 for incident neutrons 1-2.5 MeV (Kornilov). New data on pre-fission neutrons from 14.7 MeV neutron-induced fission (Boykov). Rotational modes contribution to the observed level density (Rastopchin).
- \* INDC(CCP)-353. Two lectures given at an IAEA training course in Obninsk, Russia, 15 June - 10 July 1992. S.M. Bednjakov et al.; Testing capture cross-sections of fission products in reactivity perturbation experiments. A.A. Goverdovsky: Multidimensional analysis of charged particles from neutron-induced reactions.
- \* INDC(CCP)-354. Evaluation of excitation functions for isomeric levels in neutron reactions. O.T. Grudzevich, A.V. Zeleneckij, K.I. Zolotarev, N.V. Kornilov, A.B. Pashchenko.
- \* INDC(CCP)-355. Inelastic scattering of 1-2.5 MeV neutrons by U-235 and U-238 nuclei. N.V. Kornilov et al.
- \* INDC(CCP)-356. Self-consistent description of isomer yields in neutron reactions. O.T. Grudzevich, A.V. Zeleneckij, A.V. Ignatjuk, A.B. Pashchenko.
- \* INDC(CCP)-357. Neutron reactions with nuclei in isomeric states. O.T. Grudzevich, A.V. Ignatjuk, A.V. Zeleneckij, A.B. Pashchenko.
- \* INDC(CCP)-359. Preparation of evaluated data for a fission barrier parameter library for isotopes with  $Z = 82-98$ , with consideration of the level density models used. G.N. Smirenkin.
- \* INDC(NDS)-273. Measurement, theory and evaluation 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)-282. Standard input data sets for nuclear model computations of nuclear data. Summary report of an IAEA meeting, Bologna/Siolo, Italy, 21-25 June 1993. G. Reffo et al. (eds).
- \* INDC(CUB)-7. Fission cross-section calculations for Pu-239(n,f) and Am-241(n,f) using the semimicroscopical combined method in the level density formalism. V.F. Garcia et al.
- \* INDC(ARG)-10. Integral fission cross-section ratios of Th-232, U-236, U-238 relative to U-235 in the neutron spectrum produced by 23.2 MeV deuterons incident on a thick Be metal target. M.D. Bovisio de Ricabarra et al.
- \* INDC(ARG)-12. Integral activation cross-section ratios of Ti(n,x)Sc-46, Ti(n,x)Sc-47, Ti-48(n,p)Sc-48, Ti-50(n, $\alpha$ )Ca-47 relative to Al-27(n, $\alpha$ )Na-24 in the neutron spectrum produced by 23.2 MeV deuterons incident on a thick Be metal target. M.D. Bovisio de Ricabarra et al.
- \* INDC(NDS)-265. Total neutron cross-section of U-238 as measured with filtered neutrons of 55 keV and 144 keV. Pham Zuy Hien et al., Dalat, Vietnam.
- \* INDC(BZL)-35. Comparative study of few-group cross-sections for thermal reactor fuel cells. L. Enrique Claro, A. Prati.

#### **Fission products**

- \* JAERI-M-92-77. Curves and tables of neutron cross-sections of fission-product nuclei in JENDL-3. T. Nakagawa (ed.).



- \* INDC(NDS)-271. Mass-distribution in 8.3 MeV neutron-induced fission of U-238. Li Ze et al., Beijing.

#### Nuclear data for fusion applications

- JAERI-M-92-120. A study on radiation shielding analysis for toroidal field coils of a tokamak-type fusion reactor. S. Zimin.

#### Dosimetry

- NUREG/CR-3320. LWR pressure vessel surveillance dosimetry improvement program. W.N. McElroy et al. (eds).
- \* INDC(CCP)-360. Evaluation of the Ti-46 (n,2n) and Fe-54 (n,2n) reaction cross-sections for neutron dosimetry in fusion facilities. S.A. Badikov, A.V. Ignatjuk, A.B. Pashchenko, K.I. Zolotarev.

#### Nuclear data related codes

- \* INDC(CCP)-344. GRUKON - a package of applied computer codes. V.V. Sinitisa, A.A. Rineiskij. (IAEA translation by A. Lorenz).
- \* INDC(BZL)-36. ICAROG: a program for conversion of a data library in the WIMSD/4 format from the BCD to the binary code and vice versa. A.D. Caldéira.
- \* IEAv-6/92. Coupling the codes BURN and ANISN (in Portuguese). A.D. Caldéira.
- \* INDC(SLK)-1. PEGAS: Pre-equilibrium gamma-and-spin code. PC version. E. Beták, P. Oblozinsky.

#### Miscellaneous

- \* INDC(GRC)-2. Studies on microdosimetric effects of proton and alpha particles on water. G. Zarris et al.
- \* INDC(JPN)-164. Accuracy verification for calculation of radioactive inventory in the Japan Power Demonstration Reactor due to neutron activation. T. Sukegawa et al.

#### Intermediate energy nuclear data

- \* INDC(CPR)-26. Several studies on medium energy nuclear data calculation and evaluation. Qing-biao Shen.

#### Yadernye Konstanty

- \* Yad. Konst. 1992(1), in Russian with abstracts in English. Some papers are brief summaries only, others are more detailed with tables and figures. Brief summaries: Total neutron cross-section characteristics in resolved resonance region (Fomushkin). High radioactive isotope fission cross-section using nuclear explosions as pulsed neutron source (Fomushkin). Measurement of energy dependence of average fission prompt neutron number for U-235, Am-241, Cm-245 at 0.5-10 MeV (Khokhlov). Yield and energy distribution of photoneutrons from light, middle and heavy nuclei (Savin). Total fast neutron cross-sections at interaction with Be, B and Pb (Savin). Gamma-ray production cross-section at inelastic neutron interaction with Si (Savin). Neutron differential spectrum of measurements on lithium nuclei at 14.5 MeV (Vasiljev). Time distribution calculations of neutrons scattered by spherical layer of neutron spectrometers (Vasiljev). Measurement of interaction cross-sections of accelerated hydrogen isotopes and helium with light nuclei (Abramovich). Theoretical investigation of Be-10 threshold levels at excitation energies 17-23 MeV (Abramovich). Calculation of main thermonuclear reactions (Abramovich). Investigation of the neutron inelastic scattering on Zr isotopes with excitation of individual levels (Nemilov). Measurement of neutron induced fission cross-section ratios from 0.7 to 45 MeV

(Fomichev). Measurements and evaluation of decay data of the radionuclides Sm-145 and Gd-153 (Chechev). Photofission cross-section measurement with spontaneously fissioning nuclei in intense Bremsstrahlung fluxes (Gorshkov). Spontaneous fission neutron spectrum measurement of Cm-248 (Batenkov). Evaluation of the Np-237 fission cross-section for 20 keV to 20 MeV neutrons (Dushin). H-3 yield measurements in fast neutron induced fission (Dranchinskij). Photofission cross-section measurement for Cm-248 in the GDR region (Vorobjev). Isotonic systematics of the (n,p) reaction cross-sections at 14.5 MeV (Trofimov). Au, Np, Pu, Am X-ray production by 10-84 MeV protons (Kirejev). Relative proton induced fission cross-sections of Th-232, U-233, U-235, Np-237, Pu-239 for proton energies 25 to 70 MeV (Smirnov). (n,n' $\gamma$ ) excitation function measurement on Th-232 and U-238 (Filatenkov). Measurement of neutron spectra from fast neutron induced fission of Th-232, U-235, 238, Np-237 (Bojkov). 14 MeV cross-section measurements of Ag-109(n,2n)Ag-108m, Eu-151(n,2n)Eu-150, Eu-153(n,2n)Eu-152 (Blinov). More detailed papers with tables and figures: Investigation of 14.1 MeV (n,p) and (n,n' $\gamma$ ) reactions on Al-27, Si-28, Cr-50, Fe-54, 56, Ni-58, Ni (Klochkova). Inelastic neutron scattering on Zr isotopes with excitation of individual levels (Kramarovskij). Neutron radiative capture cross-section for Th-232 and Au-197 between 0.8 and 2.5 MeV (Davletshin). Neutron leakage spectra from Al, Ni, Ti spheres with central 14 MeV neutron source (Borisov). Measurement and evaluation of the averaged cross-section for Y-89(n,2n) for U-235 fission neutrons (Bojkov). Long-lived isotope production cross-section calculation for structural materials irradiated with neutrons above 20 MeV (Grudzevich). Status of delayed neutron data in view of the problem of transmutation of actinides (Ignatjev). Evaluation of prompt fission neutron spectra (Khomjakov). Evaluation of neutron data for Pa-231, 232, 233 (Maslov).

- \* Yad. Konst. 1992(2). Time-of-flight neutron spectrometer with resolution less than 1 ns (Isaev). Total neutron cross-sections of Nb, Bi, Al, Y, Mo 3 to 50 MeV (Isaev). Neutron cross-section evaluation for fission-products up to 50 MeV, with 67 data tables and 67 graphical plots (Lunev). Determination of neutron resonance parameters of Sm-147 and Sm-148 (Georgiev). Analytical method of average cross-section calculations in the unresolved resonance region for 2 open output channels (Lukjanov). Measurements of the effective delayed neutron yields in a reactor (Tjutjunnikov). Selection of radioactive sources for  $\gamma$ -ray spectrometer calibration (Chukreev).

#### Older documents of which copies are still available

- \* IAEA-SMR-93. Nuclear theory for applications. Lectures at an IAEA training course 25 Jan.- 19 Feb. 1982 in Trieste, Italy.
- \* IAEA-TECDOC-409. Research reactor activities in support of national nuclear programmes. Proceedings of two IAEA meetings, 10-13 Dec. 1985 in Budapest, Hungary, and 9-13 Sept. 1985 in Copenhagen, Denmark.
- \* IAEA-TECDOC-457. Nuclear data for fusion reactor technology. Proceedings of an IAEA meeting 1-5 Dec. 1986 in Gauszig, GDR.
- \* IAEA-TECDOC-483. Nuclear theory for fast neutron nuclear data evaluation. Proceedings of an IAEA meeting 12-16 Oct. 1987 in Beijing, China.
- \* IAEA-TECDOC-491. Nuclear data for the calculation of thermal reactor reactivity coefficients. Proceedings of an IAEA meeting 7-10 Dec. 1987 in Vienna.
- \* IAEA-TECDOC-506. Atomic and molecular data for radiotherapy. Proceedings of an IAEA meeting 13-16 June 1989 in Vienna.
- \* BNL-NCS-51771, first ed., suppl. 5. Integral charged particle nuclear data bibliography for literature 1988/1989. (Only few remaining copies of earlier issues available).

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Photonuclear data: Centr Dannykh 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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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?) \_ \_ \_ \_ \_

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