



RSIC Newsletter

Oak Ridge National Laboratory
POST OFFICE BOX 2008 ! OAK RIDGE, TENNESSEE 37831-6362
MANAGED BY MARTIN MARIETTA ENERGY SYSTEMS, INC.
FOR THE U.S. DEPARTMENT OF ENERGY

Phone No. 615-574-6176
FAX 615-574-6182

BitNet: PDC@ORNLSTC • Internet: PDC@ORNL.GOV

No. 346

September 1993

The thoughts that come often unsought, and, as it were, drop into the mind, are commonly the most valuable of any we have, and therefore should be secured, because they seldom return again.—Locke

CHANGES TO THE COMPUTER CODE COLLECTION

During the month four changes or additions were made to the computer code collection. Two new code systems were packaged and added, an existing code package was replaced with a newly frozen version, and one package was extended with an additional hardware version. Two changes resulted from foreign contributions.

PSR-188/ENTOSAN

The Netherlands Energy Research Foundation ECN, Petten, through the NEA Data Bank, Issy-les-Moulineaux, France, contributed a new hardware version of this code system that runs on the VAX family of computers under the VMS operating system. ENTOSAN calculates multigroup cross section values for a fine-group structure from data in the ENDF/B format. Contributions to the fine-group cross sections from parameters for resolved and unresolved resonances are computed, without including the effect of Doppler broadening. To these are added contributions from point cross section data, obtained by integrating over each energy group using the interpolation formula specified in the ENDF/B file. A constant neutron spectrum across each fine-energy group is assumed. In October 1983 RSIC packaged a CDC-Cyber 175 version of this code which runs under the NOS/BE operating system. Either package is available on one DS/HD 5.25-in. (1.2 MB) diskette in DOS

format. Reference: ECN-93 (April 1981). Fortran IV Extended; CDC Cyber 175 (P00188/C0175/00) or Fortran 77; VAX (P00188/D8810/00).

PSR-243/CGS 11.4

Los Alamos National Laboratory has released a newly frozen version of CGS designated Version 11.4. The Common Graphics CGS is a library of Fortran-callable subroutines that provide general-purpose 2D graphics for all devices in the Los Alamos Integrated Graphics System. New features include: support for the X Window System, support for PostScript, availability on most UNIX platforms, multiple fonts, full support for color. CGS runs on most UNIX-based computers including Cray, IBM RISC 6000, Sun SparcStations, DEC, and Hewlett Packard workstations. The X11R5 window system is required to install this system. X11R5, available free of charge from MIT, is not included in this package. Fortran 77 and C compilers are required. CGS is transmitted on one DS/HD 3.5-in. diskette in either DOS or tar format. References: LANL reports CIC #144 (1990), CIC # 145 (1990), and

CIC #902 (1992). Fortran 77 and C; Cray, IBM RISC 6000, Dec and Sun workstations (P00243MFMWS02).

PSR-329/LTC

The School of Nuclear Engineering at Purdue University in West Lafayette, Indiana, and the Argonne National Laboratory, Argonne, Illinois, contributed the LTC code system for personal computers. LTC calculates the time-dependent reactor temperatures, reactivities, and power of the liquid-metal-cooled reactor (LMR) after the initiation of either an unscrammed Transient Over Power (TOP) or a Loss of Heat Sink (LOHS) type of accident. The program is written in Microsoft GW-Basic and Quick Basic 4.5 for IBM personal computers equipped with a math coprocessor. The source files, the executable compiled with Quick Basic, and sample input and output data files are transmitted on one DS/HD (1.2 MB) diskette. Reference: ANL/RE-91/2 (1991). BASIC; IBM PC (P00329/PC386/00).

PSR-334/DIFBAS

The Institute of Radiation Dosimetry, Czech Republic, and the Physikalisch Technische Bundesanstalt, Braunschweig, Germany, contributed this code system to unfold pulse height spectra measured by a proton recoil detector (e.g. H-2 filled proportional counters or organic scintillators) to obtain neutron spectra. The algorithm is based on the Bayesian conditional probability assuming normal distributions of both the pulse height and the *a priori* spectra. The covariance filter method is employed to calculate the *a posteriori* spectrum and covariance matrix of the neutron spectrum. DIFBAS runs on personal computers based on an INTEL or comparable processor with at least 500 K of available RAM and on DEC VAX computers. The system has been tested with the Microsoft, NDP and VAX VMS compilers. The source files, utilities, and data files are transmitted on one DS/HD 5.25-in. (1.2 MB) diskette in DOS compressed format. Reference: PTB-7.2-93-1 (April 1993). Fortran 77; IBM PC and VAX (P00334/MNYCP/00).

PERSONAL ITEMS

In serving a specialized area of scientific endeavor, it seems important that we note significant changes in the activities of people concerned with radiation protection, transport, and shielding in the nuclear industry. We, therefore, continue to carry personal items as they are brought to our attention.

ANS Honors Seven Fellows

Seven new ANS Fellows were formally recognized during the Honors and Awards Luncheon at the 1993 ANS Annual Meeting in San Diego. They were cited as follows:

Juan Eibenschutz, “for his outstanding technical and managerial leadership in the implementation of the Laguna Verde Project in Mexico, for the setting up of nuclear technology development programs in his country, and for his research work on decision analysis techniques for energy

planning.”

Harold K. Forsen “for his work in pioneering the development of fusion engineering at the University of Wisconsin; establishing the laser isotope separation effort at Exxon Nuclear Corp., that led to more than 100 corporate patents; and for successful management of R&D efforts at Bechtel on both nuclear and non-nuclear technologies.”

Ralph R. Fullwood “for accomplishments in the analysis of nuclear power plant and nuclear facility safety, for

measurements on neutron cross sections, for work in measurements and understanding of neutron thermalization in crystalline media, for the design and construction of nuclear instrumentation and particle accelerators, and for his outstanding work in teaching.”

Samuel D. Harkness “for important contributions to the improvement of fission and fusion nuclear systems through advances in materials performance and understanding.”

Munir A. Khan “for his work as a pioneer in promoting nuclear health, safety and regulation for the last 35 years at international and national levels.

As a staff member and later chairman of the IAEA Board, he advanced international understanding and collaboration regarding technical assistance, safety and nuclear proliferation regulation.”

Michael Natelson “for significant scientific and technical achievements evidenced by his contributions to multi-dimensional transport theory, including discovery and early characterization of ray effects, reactor kinetics and the development of the TWIGL time-dependent diffusion theory program; and for his leadership and work in demonstrating LWBR breeder technology and

Visitors to RSIC

During the month the following persons came for an orientation visit and/or to use RSIC facilities: *Kevin Edwards*, U. S. Navy, Charleston, South Carolina; and *Patrick Kuykendall*, U.S. Army, Redstone Arsenal, Alabama.

in introducing and analyzing advanced reactor concepts.”

Douglass E. Post, Jr., “for individual and leadership contributions to the modeling of tokamak transport and effect of impurities; for leadership in the physics design work for the International Tokamak Reactor (INTOR) and International Thermonuclear Experimental Reactor (ITER) projects; and for substantial contributions to fusion activities in the Society.”

Other ANS Honors

Karl O. Ott received the

Arthur Holly Compton Award “for his outstanding contributions in nuclear reactor physics and for his high standards and excellence in teaching and research.”

Leo B. Holland received the *Meritorious Performance in Reactor Operations Award* “for initiative, commitment, and dedication in achieving thirty-eight years of safe operation at Oak Ridge National Laboratory's Tower Shielding Reactor and Health Physics Research Reactor.”

Personnel Notes

J. Ernest Wilkins, Jr., ANS Fellow and past president, succeeds Paul G. Shewmon as chair of the U. S. Nuclear Regulatory Commission's independent Advisory Committee on Reactor Safeguards for the remainder of 1993. He was appointed to the ACRS in April 1990. **James C. Carroll** succeeds Wilkins as vice chair of the ACRS.

Calendar

Your attention is directed to the following events of interest.

September 1993

Environmental Transport and Dosimetry, an ANS Topical Meeting, Sept. 1–3, 1993, Charleston, South Carolina. Contact: Roy Rathbun, P.O. Box 42, New Ellenton, SC 29809 (phone Roy at 803-644-6967 or Bill Hennessy at 803-641-0420).

Computational and Experimental Validation of Nuclear Power Safety and Fuel Cycle Investigations, Sept. 5–9, 1993, Moscow, Russia. Contact: Prof. V. V. Khromov, Moscow Engineering Physics Institute,

Kashirskoe Shosse 31, Moscow, 115409, Russia (phone 095-324-7026, Fax 095-324-2111).

Radiation Transport Calculations Using the EGS4 Monte Carlo System, Sept. 6–10, 1993, sponsored by the National Physical Laboratory, Middlesex, United Kingdom. Contact: Dr. Simon Duane, Div. of Radiation Science and Acoustics, National Physical Laboratory, Queens Road, Teddington, Middlesex, UK TW11 0LW (phone 081-977-3222 Ext 6568, fax 081-943-6161).

2nd European Conference on Radiations and Their Effects on Devices and Systems, Sept. 13–16, 1993, Saint-Malo, France. Contact: CEA-DAM, Service Electronique, BP 12, F-91680 Bruyeres, Le

Chatel, France.

2nd International Conference on Computational Physics, Sept. 13–17, 1993, Beijing. Contact: Prof. Tian-Yuan Zhang, IAPCM, P.O. Box 8009, Beijing, P.R. China 100088 (Fax 011-86-1-201-0108).

Physics and Methods in Criticality Safety, a topical meeting of the Nuclear Criticality Safety Division of the American Nuclear Society, Sept. 19–23, 1993, Nashville, Tennessee. Contact: R. Michael Westfall, Oak Ridge National Laboratory, P.O. Box 2008, Oak Ridge, TN 37831-6370 (phone 615-576-3513), or Dennis Tollefson, Y-12 Plant, P.O. Box 2009, Oak Ridge, TN 37831-8221 (fax 615-574-2000).

MCNP4A, SABRINA, and 3Dviewer Graphics on the PC, Sept. 27–28, 1993, Gaithersburg, Maryland, a short course conducted by Experimental and Mathematical Physics Consultants, P.O. Box 3191, Gaithersburg, MD 20885 (phone 301-869-2317).

Radioactive Waste Volume Reduction, Sept. 27–29, 1993, Chicago, Illinois. Contact: Woodson Assoc., Inc., P.O. Box 2665, Gaithersburg, MD 20886 (phone 301-990-0751, Fax 301-990-6153).

Introduction to Radiation Protection, Sept. 27–Oct. 1, 1993, Cambridge, Massachusetts, a five-day course conducted by Arthur D. Little, Inc. Contact: David J. Allard, Arthur D. Little, Inc., 20 Acorn Park, Cambridge, MA 02140 (phone 617-498-6101, fax 617-498-7161).

Environmental Effects of Nuclear Power: Calculation and Control, Sept. 28–Oct. 1, 1993, Chicago, Illinois. Contact: Woodson Assoc., Inc., P.O. Box 2665, Gaithersburg, MD 20886 (phone 301-990-0751, Fax 301-990-6153).

Workshop on Data Analysis in Quality Control and in Radiation Protection of the Patient in Diagnostic Radiology and Nuclear Medicine, Sept. 29–Oct. 1, 1993, Grado, Italy. Contact: Dr. G. Contento, Ospedale Santa Maria della Misericordia, Piazza Santa Maria della Misericordia 15, I-33100 la Loi 200, B-1049 Brussels, Belgium.

October 1993

12th International Conference on Non-Destructive Evaluation in the Nuclear and Pressure Vessel

Industries, Oct. 3–7, 1993, Philadelphia, Pennsylvania. Contact: ASM International, Materials Park, OH 44073 USA (phone 216-338-5151; Fax 216-338-4634).

Internal Dose Assessment, Oct. 4–8, 1993, Phoenix, Arizona, a short course presented by Technical Management Services, Inc. Contact: Technical Management Services, Inc. P.O. Box 226, New Hartford, CT 06057 (phone 203-738-2440, fax 203-738-9322).

International Symposium on the Advanced Nuclear Power Systems: Design, Technology, and Strategies for Their Deployment, Oct. 18–22, 1993, Seoul, Korea. Contact: Conference Service Section, IAEA, P.O. Box 100, A-1400, Vienna, Austria.

Fall Meeting of the Division of Nuclear Physics of the American Physical Society, Oct. 20–23, 1993, Pacific Grove, California. Contact: D. V. R. Brown, Lawrence Livermore National Laboratory, Bldg. 181, L-288, P.O. Box 808, Livermore, CA 94550 (fax 510-423-8086).

Radiation Protection Engineering, Oct. 25–29, 1993, San Francisco, California. Contact: Woodson Assoc., Inc., P.O. Box 2665, Gaithersburg, MD 20886 (phone 301-990-0751, Fax 301-990-6153).

November 1993

Nuclear Energy Forum, Nov. 14–17, 1993, San Francisco, California. Contact: Conference Office, USCEA, 1776 I Street NW, Suite 400, Washington, DC 20006-3708 (phone 202-293-0770, Fax 202-785-4113).

Effective Utilization of MCNP4A on the PC, Nov. 14–18, 1993, a short course conducted by Experimental and Mathematical Physics Consultants, P.O. Box 3191, Gaithersburg, MD 20885 (phone 301-869-2317).

External Radiation Dosimetry, Nov. 15–19, 1993, a short course presented by Technical Management Services, Inc. Contact: Technical Management Services, Inc. P.O. Box 226, New Hartford, CT 06057 (phone 203-738-2440, fax 203-738-9322).

Air Sampling, Nov. 16–19, 1993, Albuquerque, New Mexico. Contact: Woodson Assoc., Inc., P.O. Box

2665, Gaithersburg, MD 20886 (phone 301-990-0751, Fax 301-990-6153).

Radiation Contamination Risk: Communicating with the Public, Nov. 29–Dec. 3, 1993, Clearwater Beach, Florida. Contact: Woodson Assoc., Inc., P.O. Box 2665, Gaithersburg, MD 20886 (phone 301-990-0751, Fax 301-990-6153).

January 1994

11th Symposium on Space Nuclear Power Systems, Jan. 9–13, 1994, Albuquerque, New Mexico. Contact: Richard Johnson, Inst. of Space Nuclear Power Studies, University of New Mexico, Chemical and Nuclear Engineering Dept., Albuquerque, NM 87131-1341.

Reactor Physics and Reactor Computations, Jan. 23–26, 1994, Tel Aviv, sponsored by the Israel Nuclear Society and the European Nuclear Society. Contact: Dan Knassim Ltd., P.O. Box 57005, Tel Aviv 61570, Israel (phone 972-3-562-6470, Fax 972-3-561-2303).

Measurement and Detection of Radiation, Jan. 31–Feb. 4, 1994, Orlando, Florida. Contact: Woodson Assoc., Inc., P.O. Box 2665, Gaithersburg, MD 20886 (phone 301-990-0751, Fax 301-990-6153).

February 1994

Managing Radioactive and Mixed Waste, Feb. 13–17, 1994, Albany, New York, sponsored by the Health Physics Society. Contact: John M Matusek, NENYHPS, P.O. Box 2249, Empire State Plaza Station, Albany, NY 12220-2249.

1992 HEART Conference, Feb. 14–18, 1994, Monterey, California. Contact: Logicon/RDA, ATTN: 1994 HEART Conference, Mr. Ed. Quinn, 2100 Washington Blvd., Arlington, VA 22204-5706.

Principles of Health Physics (C.H.P. Park 1 Exam Study), Feb. 27–Mar. 4, 1994. Contact: Woodson Assoc., Inc., P.O. Box 2665, Gaithersburg, MD 20886 (phone 301-990-0751, Fax 301-990-6153).

March 1994

Internal Dosimetry, Mar. 14–18, 1994. Contact: Woodson Assoc., Inc., P.O. Box 2665, Gaithersburg, MD 20886 (phone 301-990-0751, Fax 301-990-6153).

11th International Conference on the Use of Computers in Radiotherapy, Mar. 20–24, 1994, Manchester, United Kingdom. Contact: J. M. Wilkinson, Christie Hospital, Withington, Manchester M20 9BX, GB.

April 1994

Methods and Applications of Radioanalytical Chemistry (MARC III), Apr. 10–16, 1994, Kona, Hawaii, an International Topical Conference of the American Nuclear Society. Contact Prof. Roy H. Filby, Technical Program Chairman, Department of Chemistry, Washington State University, Pullman, WA 99164-4630 (phone 509-335-3331, fax 509-335-8867).

Topical Meeting on Advances in Reactor Physics, Apr. 11–14, 1994, Knoxville, Tennessee, sponsored by the American Nuclear Society. Contact: B. A. Worley, Oak Ridge National Laboratory, P.O. Box 2008, Oak Ridge, TN 37831-6363 USA (phone 615-574-6106).

High Performance Computing '94: Grand Challenges in Computer Simulation, Apr. 11–15, 1994, La Jolla, California, sponsored by the Society for Computer Simulation. Contact: Dr. Adrian Tetner, Argonne National Laboratory, 9700 S. Cass Ave., Argonne, IL 60439 (phone 708-252-8454).

ARS '94, International Meeting on Advanced Reactor Safety, Apr. 17–20, 1994, Pittsburgh, Pennsylvania. Contact: D. Squarer, Westinghouse Electric Corp., Science and Technology Center, 1310 Beulah Road, Pittsburgh, PA 15235-5098 USA (phone 412-256-2063; fax 412-256-1348).

8th International Conference on Radiation Shielding, Apr. 24–27, 1994, Arlington, Texas, sponsored by the American Nuclear Society with cooperation from several international and professional societies. Contact: Dr. R. M. Rubin, TU Electric, 400 N. Olive St., LB81 24 SLIC, Dallas, TX 75201, or Nolan Hertel, Georgia Tech, Atlanta, Georgia 30332-0405 USA. R. W. Roussin is the International Liaison.

RECOD '94, 4th International Conference on Nuclear Fuel Reprocessing and Waste Management, Apr. 24–28, 1994, London. Contact: W. L. Wilkinson, RECOD '94 Steering Committee, British Nuclear Forum, 22 Buckingham Gate, London SW1E 6LB,

United Kingdom. (phone 071-828-0116; fax 071-828-0110).

42nd Annual Meeting of the Radiation Research Society, Apr. 25–29, 1994, Nashville, Tennessee. Contact: Radiation Research Society, 1891 Preston White Drive, Reston, VA 22091.

May 1994

9th Pacific Basin Nuclear Conference, May 1–5, 1994, Sydney, Australia. Contact: Australian Nuclear Association, P.O. Box 445, Sutherland, NSW 2232, Australia.

Advanced Health Physics (C.H.P. Part 2 Exam Study), May 1–6, 1994. Contact: Woodson Assoc., Inc., P.O. Box 2665, Gaithersburg, MD 20886 (phone 301-990-0751, Fax 301-990-6153).

International Workshop on Implementation of ALARA at Nuclear Power Plants, May 8–11, 1994, Long Island, New York. Contact: Dr. John W. Baum or Dr. T. A. Khan, Brookhaven National Laboratory, ALARA Center, Upton, Long Island, NY 11973 USA (phone 516-282-3228, Fax 516-282-5810).

International Conference on Nuclear Data for Science and Technology, May 9–13, 1994, Gatlinburg, Tennessee, USA. Contact: J. K. Dickens, Oak Ridge National Laboratory, P.O. Box 2008, Oak Ridge, TN 37831-6356 USA (phone 615-574-6115).

1994 Symposium on Radiation Measurements and Applications, May 16–19, 1994, Ann Arbor, Michigan, the 8th in a series sponsored by the U.S. Department of Energy. Contact: Helen Lum, Symposium Secretary, 3034 Phoenix Memorial Laboratory, The University of Michigan, Ann Arbor, MI 48109-2100.

Radioactive Materials Transport and Radwaste Disposal, May 16–20, 1994. Contact: Woodson Assoc., Inc., P.O. Box 2665, Gaithersburg, MD 20886 (phone 301-990-0751, Fax 301-990-6153).

June 1994

Radiation Safety Officer Training, June 13–17, 1994. Contact: Woodson Assoc., Inc., P.O. Box 2665, Gaithersburg, MD 20886 (phone 301-990-0751, Fax 301-990-6153).

July 1994

Environmental Health Physics, July 11–15, 1994. Contact: Woodson Assoc., Inc., P.O. Box 2665, Gaithersburg, MD 20886 (phone 301-990-0751, Fax 301-990-6153).

18th International Radiation Physics Society, July 18–22, 1994, Rabat, Morocco. Contact: Pr. M. Berrada, Lab. de Physique Nucléaire, Faculté des Sciences, B. P. 1014 Rabat, Morocco (Fax 212-7-77-99-78).

October 1994

Fourth Conference on Radiation Protection and Dosimetry, Oct. 24–26, 1994, Orlando, Florida, sponsored by the Oak Ridge National Laboratory. Contact: J. S. Bogard, ORNL, P.O. Box 2008, Oak Ridge, TN 37831-6379 (phone 625-574-5851, fax 615-574-9174).

March 1995

5th Topical Meeting on Tritium Technology in Fission, Fusion, and Isotopic Applications, Mar. 26–31, 1995, Augusta, Georgia, sponsored by the ANS. Contact: C. E. Murphy, Westinghouse SRC, Savannah River Lab., Aiken, SC 29808.