

# RSIC Newsletter

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## Oak Ridge National Laboratory

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*Every human mind is a great slumbering power until awakened by keen desire and by definite resolution to do.—Edgar F. Roberts*

## CHANGES TO THE COMPUTER CODE COLLECTION

Three changes were made to existing code packages during the month; one code was extended with an additional hardware version, corrections were made to another, and one was replaced with a newly frozen version.

### CCC-543/TORT

A newly frozen version of this three-dimensional, discrete ordinates, transport code system has been developed by Oak Ridge National Laboratory under sponsorship of the Defense Nuclear Agency. The new release, designated TORT 2.5, differs significantly from the previous release 1.5. The most significant difference is the availability of a multimesh capability in TORT. The directional quadrature and order of cross section expansion can vary with energy group. Reflected and periodic boundary conditions are now available on all external surfaces. Negative source removal comparable to DORT has been added to TORT. The response summaries now include zone volumes and average responses. Upscatter capability is now functional. This release runs under UNIX operating systems on Cray, IBM RISC System/6000, Sun, and HP computers. The package is available on either a DC 6150 tape cartridge or two 3.5-in. diskettes (2.0 MB) written in tar format or 2 DS/HD (1.2 MB) diskettes in compressed mode readable by

DOS. References: ORNL-6268 (November 1987), ORNL-5851 (July 1982), ORNL/TM-8362 (Sept. 1982), and informal documentation (October 1992). Fortran, CAL, C; Cray, IBM RISC/6000, Sun, and HP.

### PSR-125/GNASH

This pre-equilibrium, statistical nuclear-model code system has been updated by Los Alamos National Laboratory with a new release that runs on Cray computers running either UNICOS or CTSS as well as Vax computers running VMS. GNASH provides a flexible method by which reaction and level cross sections, isomer ratios, and emission spectra (neutron, gamma-ray, and charged particle) resulting from particle-induced reactions can be calculated. This version is functionally equivalent to RSIC's September 1991 release which incorporated the Kopecky-Uhl model for calculating gamma-ray strength functions and transmission coefficients. The package is transmitted on one DS/HD (1.2 MB) 5.25-in. diskette. Reference: LA-12343-MS (July

1992). Fortran 77; Cray and Vax.

### **PSR-315/AMPX-77**

This modular code system for generating coupled, multigroup, neutron-gamma libraries from ENDF/B was developed at ORNL and first released in August 1992. This month some corrections were made to the IBM JCL files. Users who have the package may write for a list of required changes. The IBM-configured package, which includes a

program to convert the source files from IBM to Cray, is designated version (A) and is available on 3 DS/HD diskettes. The Cray-configured package (B) is available on a DC 6150 (150 MB) cartridge tape written in tar format. For computers other than Cray, users should request version (A). Reference: ORNL/CSD/TM-283 (October 1992). Fortran 77 and Assembler for IBM and Fortran 77 and C for Cray.

## **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.

## **Visitors to RSIC**

During the month the following persons came for an orientation visit and/or to use RSIC facilities: *Jerzy C. Loskiewicz*, Institute of Nuclear Physics, Krakow, Poland; and *Anna Loskiewicz-Vuczak*, University of Tennessee, Knoxville.

## **CONFERENCES, COURSES, SYMPOSIA**

RSIC attempts to keep its users/contributors advised of conferences, courses, and symposia in the field of radiation protection, transport, and shielding through this section of the newsletter. Should you be involved in the planning/organization of such events, feel free to send your announcements and calls for papers to RSIC.

### **Calendar**

Your attention is directed to the following events of interest.

#### **February 1993**

*HEART*, Feb. 1–5, 1993, Naval Training Center, Orlando, Florida, sponsored by the Department of Defense and the Department of Energy. Contact: Arne Kalma, S-Cubed, 3020 Callen Road, San Diego, CA 92121 (phone 619-450-2439).

*Practical Radiation Shielding*, Feb. 1–5, 1993, Atlanta, Georgia, a course sponsored by Shonka Research Associates, Inc. Contact: Shonka Research Assoc., 4939 Lower Roswell Road, Suite 106, Marietta, GA 30068

(phone 404-509-7606).

*Internal Dosimetry*, Feb. 8–12, 1993, Las Vegas, Nevada. Contact: Woodson Assoc., Inc., P.O. Box 2665, Gaithersburg, MD 20886 (phone 301-990-0751, Fax 301-990-6153).

*Maintenance/Repair of Oil Filled Lead Glass Shielding Windows*, Feb. 9–11, 1993, Kent, Washington, sponsored by Hot Cell Services. Contact: Ronald A. Campbell, Hot Cell Services Corp., 22626 85th Place South, Kent, WA 98031 (phone 206-854-4945; fax 206-854-4947).

*Internal Dosimetry*, Feb. 9–12, 1993, Las Vegas, Nevada. Contact: Linda S. Woodson, Woodson Associates, Inc., P.O. Box 2665,

Gaithersburg, MD 20886 (phone 301-990-0751; fax 301-990-6153).

*Air Sampling*, Feb. 23–26, 1993, Orlando, Florida. Contact: Woodson Assoc., Inc., P.O. Box 2665, Gaithersburg, MD 20886 (phone 301-990-0751, Fax 301-990-6153).

### March 1993

*Counting Statistics*, Mar. 16–19, 1993, Augusta, Georgia. Contact: Woodson Assoc., Inc., P.O. Box 2665, Gaithersburg, MD 20886 (phone 301-990-0751, Fax 301-990-6153).

*Radioactivity: Detection & Measurement*, Mar. 29–Apr. 2, 1993, Scottsdale, Arizona. Contact: Woodson Assoc., Inc., P.O. Box 2665, Gaithersburg, MD 20886 (phone 301-990-0751, Fax 301-990-6153).

*Occupational and Environmental Radiation Protection*, Mar. 29–Apr. 2, 1993, Boston, Massachusetts, a short course offered by Harvard School of Public Health. Contact: Mary F. McPeak, Assoc. Dean for Continuing Education, 677 Huntington Ave., Boston, MA 02115 (phone 617-432-1171; Fax 617-432-1969).

### April 1993

*29th Annual Meeting of the National Council on Radiation Protection and Measurements*, Apr. 7–8, 1993, Arlington, Virginia. Contact: NCRP, 7910 Woodmont Avenue, Suite 800, Bethesda, MD 20814.

*Joint International Conference on Mathematical Methods and Supercomputing in Nuclear Applications*, Apr. 19–23, 1993, Karlsruhe, Germany. Contact: H. Kuesters, KFK/INR, Postfach 3640 D-W-7500 Karlsruhe 1, Germany, or W. Werner, GRS, D-W-8046 Garching, Germany.

*International High-Level Radioactive Waste Management Conference*, Apr. 25–29, 1993, Las Vegas, Nevada, sponsored by the ANS,

the U.S. Dept. of Energy, and the American Society of Civil Engineers. Contact: Billy Cole, E. R. Johnson Assoc., 10461 White Granite Drive, Suite 204, Oakton, VA 22124 (phone 703-359-8355; Fax 703-359-0842).

*4th Topical Symposium on Emergency Preparedness and Response*, to be held April 26–29, 1993, in Long Island, New York. Contact: Brant Aidikoff, Technical Program Chairman, LIANS, Box 436, Upton, New York 11973 (phone 516-436-4256).

*Radiopharmaceutical Internal Dosimetry*, April 27–30, 1993, Oak Ridge, Tennessee. Contact: Registrar, REAC/TS, Oak Ridge Institute for Science and Education, P.O. Box 117, Oak Ridge, TN 37831-0117 (phone 615-576-3131, Fax 615-576-9522).

### May 1993

*Contamination Risk: Communicating With the Public*, May 3–7, 1993, New Haven, Connecticut. 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, 1993, 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).

*Advanced Workshop on Occupational and Environmental Radiation Protection*, May 10–14, 1993, Boston, Massachusetts, a short course offered by Harvard School of Public Health. Contact: Mary F. McPeak, Assoc. Dean for Continuing Education, 677 Huntington Ave., Boston, MA 02115 (phone 617-432-1171; Fax 617-432-1969).

*Radiation Safety*, May 17–21, 1993, Denver, Colorado. Contact: Woodson Assoc., Inc., P.O. Box 2665, Gaithersburg, MD 20886

(phone 301-990-0751, Fax 301-990-6153).

*Occupational Internal Dosimetry*, May 17–21, 1993, Oak Ridge, Tennessee. Contact: Registrar, REAC/TS, Oak Ridge Institute for Science and Education, P.O. Box 117, Oak Ridge, TN 37831-0117 (phone 615-576-3131, Fax 615-576-9522).

*International Symposium on the Measurement Assurance in Dosimetry*, May 24–27, 1993, Vienna, sponsored by the International Atomic Energy Agency. Contact: Conference Service Section, IAEA, P.O. Box 100, A-1400 Vienna, Austria (Fax 43 1234564).

*Management and Disposal of Radioactive Waste*, May 24–28, 1993, Boston, Massachusetts, a short course offered by Harvard School of Public Health. Contact: Mary F. McPeak, Assoc. Dean for Continuing Education, 677 Huntington Ave., Boston, MA 02115 (phone 617-432-1171; Fax 617-432-1969).

### June 1993

*Conference and International Symposium on Radionuclide Metrology and Its Applications*, June 7–11, 1993, Teddington, United Kingdom. Contact: Dr. P. Christmas, National Physical Laboratory, Div. of Radiation Science and Acoustics, Teddington, Middlesex TW11 OLW, UK (Fax 4481 943 6317).

*Health Physics Certification Review*, June 7–11, 1993, Chattanooga, Tennessee. Contact: Woodson Assoc., Inc., P.O. Box 2665, Gaithersburg, MD 20886 (phone 301-990-0751, Fax 301-990-6153).

*Safewaste '93: The Final Disposal of Nuclear Waste*, June 14–18, 1993, Avignon, France, sponsored by the ANS and the European Nuclear Society. Contact: Pierre Tanguy, EDF, Direction Generale 32, Rue de Monceau, 75384 Paris Cedex 08, France.

*Transport, Storage, and Disposal of Radioactive Waste*, June 14–18, 1993, Seattle, Washington. Contact: Woodson Assoc., Inc., P.O. Box 2665, Gaithersburg, MD 20886 (phone 301-990-0751, Fax 301-990-6153).

*Planning for Nuclear Emergencies*, June 14–18, 1993, Boston, Massachusetts, a short course offered by Harvard School of Public Health. Contact: Mary F. McPeak, Assoc. Dean for Continuing Education, 677 Huntington Ave., Boston, MA 02115 (phone 617-432-1171; Fax 617-432-1969).

### July 1993

*Nuclear and Space Radiation Effects Conference*, July 19–23, 1993, Snowbird, Utah. Contact: P. V. Dressendorfer, Sandia National Laboratories, Division 2535, P.O. Box 5800, Albuquerque, NM 87185.

### August 1993

*SMiRT 12, Structural Mechanics in Reactor Technology*, Aug. 15–20, 1993, Stuttgart, Germany. Contact: Prof. Karl Kussmaul, SMiRT 12, Stätliche Materialprüfungsanstalt (MPA), University of Stuttgart, Pfaffenwaldring 32, 7000 Stuttgart 80 Germany (phone 49-711-685-3582; Fax 49-711-685-3144 or 2635).

*Topical Meeting on Environmental Transport and Dosimetry*, Aug. 31–Sept. 3, 1993, Charleston, South Carolina, sponsored by the ANS. Contact: Robert Addis, Savannah River Laboratory, Environmental Transport Group, Bldg. 773-A, Box 616, Aiken, SC 29808 (phone 803-725-3325).

*8th ASTM-EURATOM Symposium on Reactor Dosimetry*, Aug. 29–Sept. 3, 1993, Vail, Colorado. Contact: Patrick J. Griffin, Div. 6522, Sandia National Laboratories, Albuquerque, New Mexico 87185 (phone 505-845-9121). See call for papers in September 1992 *RSIC Newsletter*.

**March 1994**

*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**

*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).

**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.

*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).

**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.

## DECEMBER ACCESSION OF LITERATURE

The following literature cited has been ordered for review, and that selected as suitable will be placed in the RSIC Information Storage and Retrieval Information System (SARIS). This early announcement is made as a service to the shielding community. Copies of the literature are not distributed by RSIC. They may generally be obtained from the author or from a documentation center such as the National Technical Information Service (NTIS), Department of Commerce, Springfield, Virginia 22161.

*RSIC maintains a microfiche file of the literature entered into SARIS, and duplicate copies of out-of-print reports may be available on request. Naturally, we cannot fill requests for literature which is copyrighted (such as books or journal articles) or whose distribution is restricted.*

This literature is on order. It is not in our system. Please order from NTIS or other available source as indicated.

### RADIATION SHIELDING LITERATURE

**EUR-13013/2 en.** . *Methods and Codes for Assessing the Off-Site Consequences of Nuclear Accidents. Volume 2.* . Kelly, G.N., ed.; Luykx, F., ed. . 1991

**Book.** . *Introduction to Biological Radiation Effects; An Overview of Terrestrial and Space Radiation Effects of Humans.* . Prenn, U.L. . 1992

**Health Phys., 63, 698-701.** . *Photoneutron Fields in Medical Accelerator Rooms with*

*Primary Barriers Constructed of Concrete and Metals.* . McGinley, P.H. . December 1992

**J. Nucl. Sci. Technol., 28, 894-899.** .

*Uniform Approximations for a Radiation-Field Integral with Several Parameters.* . Besenghi, R.; Gabutti, B. . October 1991

**Nucl. Instrum. Methods, A321, 589-597.** .

*Calculations of the Photon Dose Behind Concrete Shielding of High Energy Proton Accelerators.* . Dworak, D.; Tesch, K.; Zazula, J.M. . May 1992

**Nucl. Sci. Eng., 112, 283-295.** . *The Response History Monte Carlo Method for*

*Electron Transport.* . Ballinger, C.T.; Rathkopf, J.A.; Martin, W.R. . December 1992

**Nucl. Sci. Eng., 112, 296-300.** . *Slowing-Down Time of Fast Electrons in Plasmas via the Fokker-Planck Equation.* . Manservisi, S.; Molinari, V.G. . December 1992

**Nucl. Sci. Eng., 112, 301-320.** . *Nonnegativity of the Anisotropic Scattering Source in Two-Angle ( $\mu, \phi$ ) Transport.* . Borsari, R.; Fioresi, R.; Trombetti, T. . December 1992

**Nucl. Sci. Eng., 112, 321-335.** . *Asymptotic Analysis of the Finite Moments Transport Method in Optically Thick Media.* . Badruzzaman, A. . December 1992

**Nucl. Sci. Eng., 112, 336-346.** . *The Asymptotic Diffusion Limit of Discretized Transport Problems.* . Larsen, E.W. . December 1992

**Nucl. Sci. Eng., 112, 347-360.** . *An Asymptotic Model for the Spreading of a Collimated Beam.* . Pomraning, G.C.; Prinja, A.K.; VanDenburg, J.W. . December 1992

**Nucl. Sci. Eng., 112, 361-368.** . *Adaptive Integral Equation Methods in Transport Theory.* . Kelley, C.T. . December 1992

**Nucl. Sci. Eng., 112, 369-374.** . *A Simple Derivation of the Neutron Transport Equation.* . Pazsit, I. . December 1992

**Nucl. Sci. Eng., 112, 375-382.** . *On Convergence to Equilibrium for Solutions to the Linear, Space-Inhomogeneous Boltzmann Equation.* . Pettersson, R. . December 1992

**Nucl. Sci. Eng., 112, 383-391.** . *LI Convergence of the Discrete Ordinates for the*

*Neutron Transport Equation in an Infinite Cylindrical Domain.* . Asadzadeh, M. . December 1992

**Nucl. Sci. J., 28, 403-412.** . *Some Results for the Radiation Flux in a Rectangular Straight Duct.* . Kalla, S.L.; Leubner, C.; Al-Saqabi, B. . December 1991

**J. Testing and Evaluation, 20, 78-86.** . *Properties of High-Density Concrete.* . Mukherjee, P.K. . January 1992

**Mathematica Balkanica, 5, 190-202.** . *Some Expansions Related to a Family of Generalized Radiation Integrals.* . Kalla, S.; Galue, L.; Kiryakova, V. . 1991

**NISTIR 4838.** . *An Evaluation of Kerma in Carbon and the Carbon Cross Sections.* . Axton, E.J. . February 1992

**ORNL/TM-12148.** . *Resolution of Dose and Reduction Factor Questions in Army Pulse Radiation Facility Experiments: Renormalization of Calculated and Measured Data.* . Santoro, R.T.; Drischler, J.D.; Johnson, J.O. . November 1992

**ORNL/TM-12230.** . *Specifications for the Development of BUGLE-93: An ENDF/B-VI Multigroup Cross Section Library for LWR Shielding and Pressure Vessel Dosimetry.* . White, J.E.; Wright, R.Q.; Roussin, R.W.; Ingersoll, D.T. . November 1992

**RI 1991-03.** . *Dosimetry of High-Energy Photon Beams. Present Status and Future Prospects for the Data Used in Ionization Chamber Dosimetry.* . Andreo, P. . . January 1992