

RSIC Newsletter

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Get your facts first, and then you can distort 'em as much as you please.—S. L. Clemons (Mark Twain)

CHANGES TO THE COMPUTER CODE COLLECTION

Five 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 two code packages were extended with additional hardware versions.

CCC-467/ITS 3.0

Experimental and Mathematical Physics Consultants, Gaithersburg, Maryland, contributed a personal computer version of ITS 3.0, the integrated TIGER series of coupled electron/photon Monte Carlo code system. ITS was developed at Sandia National Laboratory, Albuquerque, New Mexico. The UPEML code system is included in ITS 3.0 to emulate the basic features of the CDC UPDATE processor and to aid in the installation of ITS. The PC package runs on 386/486 personal computers with math coprocessors. The Lahey Fortran Compiler F77L-EM/32 Version 5.0, which incorporates the PharLap DOS extender, was used to create the executables included in the package. Fourteen megabytes of hard disk space is required to install this package. Version (B) is distributed on five DS/HD 3.5-in. (1.44 MB) diskettes. Version (A) is operable on Cray (UNICOS), CDC Cyber-76, IBM-3081 (MVS), VAX (VMS), IBM RISC and SUN UNIX workstations and is transmitted on either 1

DC 6150 tape cartridge or two DS/HD (1.2 or 1.44 MB) diskettes. References: SAND91-1634 (March 1992), Informal Notes (Feb. 1988, April 1992, and June 1992). Fortran-77; Cray, CYBER-76, IBM, VAX, IBM and Sun Unix workstations (A); PC (B).

CCC-542/CAP-88

The Environmental Protection Agency (EPA) Office of Radiation Programs, Las Vegas, Nevada, under the joint sponsorship of the EPA Office of Radiation Programs and the DOE Office of Environmental Guidance, contributed this personal computer code system designated CAP-88-PC (version C). CAP-88 assesses dose and risk due to radionuclide emissions to the air in compliance with National Emission Standards for Hazardous Air Pollutants (NESHAPs) for radionuclides other than radon at DOE facilities, under 40 CFR Part 61, Subpart H. CAP88-PC provides the CAP-88 methodology for assessments of both collective populations and maximally exposed individuals. The com-

plete set of dose and risk factors used in CAP-88 is provided. CAP88-PC requires a MS-DOS compatible personal computer with a hard disk with at least 3.5 MB of free space, 500 K free RAM and a math co-processor. Turbo C++ Version 1.0 and Lahey F77L, Version 4.10 were used to create the executable included in the package which runs under DOS 2.0 or higher. The PC package version (C) is transmitted on two DS/HD (1.2 MB) diskettes in compressed form. The IBM/MVS version (A) is transmitted on magnetic tape and 1 diskette. The VAX version (B) runs under VMS and is available on 3 DS/HD (1.2 MB) diskettes. References: U.S. EPA Draft (Sept. 1989). Fortran 77 and C (for PC); IBM (A), VAX(B), and PC (C).

CCC-603/FPZD

Marshall Space Flight Center, NASA, Huntsville, Alabama, contributed this one-dimensional multigroup neutron diffusion/depletion code system for calculating fuel loadings. FPZD can be used to determine fuel and poison distributions to achieve burnup independent power distributions with options for performing control searches and thermal-fluid feedback. FPZD calculates the spatial power and neutron flux distributions of a nuclear reactor along with its effective multiplication factor and time-dependent material compositions. FPZD runs on PC 386 or 486 computers with a math coprocessor under DOS 5.0. The Microsoft Version 5.01 compiler was used to create the executable included in the package. The executables and data files are distributed on three DS/HD (1.2 or 1.44 MB) diskettes. References: Informal document. PC; Fortran 77.

CCC-608/MILDOS-AREA

Argonne National Laboratory, Argonne, Illinois, through the DOE Energy Science and Technology Software Center, Oak Ridge, Tennessee, contributed this code system to estimate the radiological impacts of airborne emissions from uranium mining and milling facilities or any other large-area source involving emissions of radioisotopes of the uranium-238 series. MILDOS-AREA is a revision of the

CCC-398/MILDOS code developed by the Pacific Northwest Laboratory. MILDOS was designed to compute environmental radiation doses from uranium recovery operations. The MILDOS-AREA code provides improved capability for handling large-area sources and updates the dosimetry calculations of the original MILDOS code. MILDOS-AREA runs on IBM or compatible computers with a math coprocessor, 500 Kbytes of random access memory and a hard disk. The Lahey Fortran 77 V3.0 compiler was used to create the executable included in the package, which is distributed on one DS/HD (1.2 or 1.44 MB) diskette. Reference: ANL/ES-161 (June 1989). IBM PC; Fortran 77.

PSR-137/MARLOWE

A newly frozen version of this code system for the simulation of atomic-displacement cascades in solids in the binary collision approximation was contributed by Oak Ridge National Laboratory under sponsorship of the DOE Division of Material Science. This new release, designated MARLOWE Version 13, incorporates many changes, some of which are listed here. A calculation of the time taken for each trajectory segment in a cascade was added. Several analyses of the time evolution of cascades are supplied. The 'simultaneous' collision procedure was modified to better represent the time development of a cascade. Collisions may be ordered in time, or the original procedure of ordering in velocity may be retained. All users are urged to obtain the new release which runs on many computers: IBM mainframes, Vax family, Data General MV family, Cray, Unix workstations and PCs. The compiler must support NAMELIST. Some assembler language is included for IBM mainframes, and C routines are included for Unix systems. MARLOWE has run under the Microsoft DOS operating system, version 3.3 using the Microsoft Fortran compiler version 5.0. A math coprocessor is required. References: Informal User's Guide; *Phys. Rev. B*, 40, 16, 10717-10726 (1989); *Nucl. Inst. and Meth. in Phys. Res.*, B48 408-413 (1990) and B67 396-400 (1992). The code is available on one DC 6150 cartridge or 2 HD disks.

CHANGE TO THE DATA LIBRARY COLLECTION

A new data library, contributed by the International Atomic Energy Agency (IAEA), was added to the collection.

DLC-161/IRDF-90

This international reactor dosimetry file was contributed by the International Atomic Energy Agency, Vienna, Austria. IRDF-90 contains recommended neutron cross section data to be used for reactor neutron dosimetry by foil activation. It also contains selected recommended values for radiation damage cross-sections and benchmark neutron spectra. This library supersedes all earlier versions of IRDF. It includes evaluations based on ENDF/B-V and ENDF/B-VI data, as well as evaluations of

14 reactions at IRK, Vienna. The data in the original ENDF-6 format were processed to 640 group extended SANDII format using the processing codes LINEAR, RECENT, and GROUPIE. The covariance information is not processed by these codes and is contained in IRDF-90 in the original ENDF-6 format. The damage cross sections from IRDF-85 are in the ENDF-5 format. IRDF-90 is transmitted on one DS/HD 5.25-inch diskette (1.2 MB). Reference: IAEA-NDS-141 (August 1990) and IAEA-NDS-11 (April 1985).

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.

Call for Papers Issued for WM'93

WM '93, the nineteenth annual nuclear waste symposium, will be held **February 28–March 4, 1993**, at the Tucson Convention Center, Tucson, Arizona. The organizer of the conference is WM Symposia, Inc., an Arizona non-profit corporation established to organize and hold the annual Waste Management Symposia and to support university curricula and research programs dedicated to protecting and improving national and international capabilities in the field of nuclear waste management and protection and remediation of the national and global environment. Hosted and sponsored by the University of Arizona, it is co-sponsored by the American Nuclear Society, the U.S. Department of Energy, New Mexico State University and the Waste-management Education and Research Consortium (WEREC), the Radwaste Systems Committee of the American Society of Mechanical Engineers and numerous commercial institutions. The conference is organized in cooperation with the International Atomic Energy Agency.

Session topics are planned to promote the theme of "HLW, LLW, Mixed Wastes and Environmental Restoration—Working Towards a Cleaner Environment." Several sessions of international interest are planned and contacts outside the U.S. are added where possible. Both invited and contributed papers are invited on topics involving research, development and operational experience in both high and low level nuclear waste, mixed waste, mill tailings, environmental restoration, and decommissioning management. Papers concerning national and international agreements and regulations governing these topics, as well as

Visitors to RSIC

During the month the following persons came for an orientation visit and/or to use RSIC facilities: *Erwin Z. Müller*, Atomic Energy Corporation of South Africa, Pretoria; *Gregory J. Storr*, Australian Nuclear Science and Technology Organization, Sydney; and *Hin Ye*, Vanderbilt University, Nashville, Tennessee.

the impact of these activities on the environment, are also solicited. Interested contributors are invited to contact

WM Symposia, Inc.
245 S. Plumer
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Tucson, Arizona 85719
Voice (602) 792-2561 or (602) 624-8573
FAX (602) 792-3993

for a complete list of topics and instructions on the submission of extended summaries (in triplicate) of their contributions, which are due by **September 25, 1992**. Acknowledgement of all summaries received will be mailed within two working days of receipt. The summaries will undergo a critical technical review by the Program Advisory Committee to determine if they meet the criteria of originality, technical content, significance and subject. Summaries submitted after the due date may not be considered. Authors will be notified of acceptance by November 22, 1992. Completed papers are required by February 1, 1993. The approved papers will be assigned to either oral or poster sessions to assure that the best method of presentation for the particular format and requirements of the paper is provided.

Calendar

Your attention is directed to the following events of interest.

August 1992

Modeling of Subsurface Flow and Pollution, Aug. 3–7, 1992, a short-course sponsored by the University of Cincinnati. Contact: University of Cincinnati, Groundwater Course, Groundwater Research Center, Cincinnati, OH 45221-0018.

SLOPOS5, 5th International Workshop on Slow-Positron Beam Techniques for Solids & Surfaces, Aug. 6–10, 1992, Jackson Hole, Wyoming, USA. Contact: Eric H. Ottewitte, Idaho National Engineering Laboratory, P.O. Box 1625, Idaho Falls, ID 83415-2114 USA (phone 208-526-1751; Fax 208-526-9267).

Basic Radiation Safety & Management, Aug. 13–14, 1992, Newport Beach, California, a seminar presented by Stan A. Huber Consultants, Inc. Contact: Stan A. Huber Consultants, Inc., 200 N. Cedar Road, New Lenox, IL 60451 (phone 815-485-6161; Fax 815-485-4433).

Nuclear Technologies for Space Exploration, Aug. 16–19, 1992, Jackson Hole, Wyoming. Contact: Dr. David Woodall, University of Idaho, College of Engineering, Moscow, ID 83843 (phone 208-885-6479).

Occupational and Environmental Radiation

Protection, Aug. 17–21, 1992, 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).

Tennessee Industries Week-27, Aug. 17–21, 1992, Knoxville, Tennessee. Contact: Nuclear Engineering Department, Pasqua Engineering Bldg., The University of Tennessee, Knoxville, TN 37996-2300.

Spectrum 92: ANS Topical Meeting on Nuclear and Hazardous Waste Management, Aug. 23–27, 1992, Boise, Idaho. Contact: Technical Program Chair Dieter Knecht, WINCO, P.O. Box 4000, MS-5213, Idaho Falls, ID 83403 (phone 208-526-3627).

Low Level Radioactive Waste Management, Aug. 31–Sept. 4, 1992, Atlanta, a short course sponsored by Georgia Tech Continuing Education. Contact: Dept. of Continuing Education, Georgia Institute of Technology, Atlanta, GA 30332-0385 (phone 404-894-2547).

September 1992

IRRMA '92, Topical Meeting on Industrial Radiation and Radioisotope Measurement Applications, Sept. 8–11, 1992, Raleigh, North

Carolina. Contact: William F. Troxler, Troxler Electronic Laboratories, Inc., P.O. Box 12057, Research Triangle Park, NC 27709 (phone 919-549-8661).

Risk Analysis in Occupational & Environmental Health, Sept. 9–11, 1992, 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).

8th International Meeting on Radiation Processing, Sept. 14–19, 1992, Beijing, China, sponsored by the International Atomic Energy Agency. Contact: International Meeting on Radiation Processing, P.O. Box 1012 (30), Beijing 100 822, China.

Introduction to Radiation Protection, Sept. 21–25, 1992, Cambridge, Massachusetts, a short course sponsored by Arthur D. Little, Inc. Contact: Paul H. Jones, Jr. or David J. Allard, Arthur D. Little, Inc., 20 Acorn Park, Cambridge, MA 02140-2390 (phone 617-864-5770).

6th Annual INEL Computing Symposium, Sept. 22–24, 1992, Idaho Falls. Contact: Teri Williams, EG&G Idaho, Inc., P.O. Box 1625, Idaho Falls, ID 83415-2602 (phone 208-526-9728).

Emergency Planning for Fixed Nuclear Facilities, Sept. 29–Oct. 2, 1992, Cambridge, Massachusetts, a short course sponsored by Arthur D. Little, Inc. Contact: Paul H. Jones, Jr. or David J. Allard, Arthur D. Little, Inc., 20 Acorn Park, Cambridge, MA 02140-2390 (phone 617-864-5770).

14th International Conference on Plasma Physics and Controlled Nuclear Fusion Research, Sept. 30–Oct. 7, 1992, Wuerzburg, Germany, sponsored by the International Atomic Energy Agency. Contact: IAEA, Conference Service Section, P.O. Box 100, A-1400 Vienna, Austria.

October 1992

International Symposium on Nuclear Data Evaluation Methodology, Oct. 12–16, 1992, Upton, New York, sponsored by Brookhaven National Laboratory. Contact: C. L. Dunford, Brookhaven National Laboratory, NNDC/197D, Upton, New York 11973.

Selection and Preparation of Witnesses for Environmental Litigation, Oct. 22–23, 1992, a course sponsored by the University of Texas at Austin. Contact: Continuing Engineering Studies, The University of Texas at Austin, College of Engineering, ECJ 10.324, Austin, TX 78712 (phone 512-471-3506, Fax 512-471-0831).

Analysis of Radioactive Environment Samples, Oct. 27–30, 1992, Atlanta, a short course sponsored by Georgia Tech Continuing Education. Contact: Dept. of Continuing Education, Georgia Institute of Technology, Atlanta, GA 30332-0385 (phone 404-894-2547).

November 1992

Radiation Physics Conference, Nov. 14–18, 1992, Kena, Egypt. Contact: Prof. A. H. El-Kamel, Vice President-Assit University, Kena Branch, Kena, Egypt (Fax 096-327-706).

1992 ANS/ENS International Meeting, Nov. 15–20, 1992, Chicago. Contact: General Chair James D. Shiffer, Pacific Gas & Electric Co., 77 Beale St., San Francisco, CA 94106 (phone 415-973-4684).

14th Low-Level Radioactive Waste Management Conference, Nov. 18–20, 1992, Phoenix, Arizona. Contact: Kathleen Asbell, EG&G Idaho, Inc., P.O. Box 1625, Idaho Falls, ID 83415-3960 (phone 208-526-8330; Fax 208-526-9165).

Basic Radiation Safety & Management, Nov. 19–20, 1992, Chicago, Illinois, a seminar presented by Stan A. Huber Consultants, Inc. Contact: Stan A. Huber Consultants, Inc., 200 N. Cedar Road, New Lenox, IL 60451 (phone 815-485-6161; Fax 815-485-4433).

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).

April 1993

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).

June 1993

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.

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).

JUNE 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

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Nucl. Sci. Eng., **111**, 1-20. . *Canada Deuterium*

Uranium Reactor Design Optimization Using Three-Dimensional Generalized Perturbation Theory. . Rozon, D.; Beaudet, M. . May 1992

Nucl. Sci. Eng., **111**, 21-33. . *Reconstruction of Pin Power and Burnup Characteristics from Nodal Calculations in Hexagonal-Z Geometry.* . Yang, W.S.; Finck, P.J.; Khalil, H. . May 1992

Nucl. Sci. Eng., 111, 34-45. . *A Spectral Nodal Method for One-Group X,Y-Geometry Discrete Ordinates Problems.* . De Barros, R.C.; Larsen, E.W. . May 1992

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Nucl. Sci. Eng., 111, 66-81. . *Estimation of Neutron Flux and Xenon Distributions via Observer-Based Control Theory.* . Park, Y.H.; Cho, N.Z. . May 1992

Nucl. Sci. Eng., 111, 82-101. . *Ex-Vessel Releases of Radionuclides During Molten Core/Concrete Interactions in Severe Light Water Reactor Accidents.* . Lee, M.; Wu, J.S. . May 1992

Nucl. Sci. Eng., 111, 102-111. . *Time-Dependent Monte Carlo Calculations of the Oak Ridge Electron Linear Accelerator Target Neutron Spectrum.* . Cramer, S.N.; Perey, F.G. . May 1992

ORNL/M-2066; SDC-92-00223. . *Simulation of Hanging File Experiments with CALOR89.* . Job P.K.; Price, L.E.; Proudfoot, J.; Handler, T.; Gabriel, T.A. . April 1992

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THE Monte Carlo Code MCBEND - Where It Is and Where Its Going. . . Chukas, S.J.; Miller, P.C.; Power, S.W. . . AEA Reactor Services, Winfrith, UK. . . May 1990. . . OSTI; NTIS (US sales only);

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ANL/CP-73636 DIF3D
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