RSIC Newsletter

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The man who graduates to-day and stops learning to-morrow is un-educated the day after.—Newton D. Baker

ANS M&C/RP&S Topical Program Set

The technical program of the joint American Nuclear Society Mathematics and Computation (M&C) and Radiation Protection and Shielding (RP&S) Divisions 1989 Topical Meeting was finalized at a two-day meeting in Los Alamos, New Mexico, August 25-26. The Topical is entitled "Advances in Nuclear Engineering Computation and Radiation Shielding," and will be held April 9-13, 1989, in Santa Fe, New Mexico. A total of 77 papers will be presented. Of those, 28 were contributed from a total of 13 countries outside the United States. Further details will be provided as they become available.

CHANGES TO THE COMPUTER CODE COLLECTION

During the month five changes were made to the computer code collection. Four new code systems were packaged and added to the collection and one existing code package was extended with an additional hardware version. Two changes resulted from foreign contributions.

CCC-422/RADRISK

This code package was extended with a Data General MV/2000 AOS/VS version contributed by the Royal Observatory of Hong Kong in Kowloon. RADRISK estimates radiation dose rates to various human organs from inhalation or ingestion of radioactive materials and the health effects in a reference population as a result of this exposure. The data generated by RADRISK is read by DARTAB which is included in the CCC-476/CAAC package. Reference: ORNL/TM-7105 (December 1980). FORTRAN IV, IBM (A); FORTRAN 77, Data General (B).

CCC-531/FE3DGW

This code system for analyzing flow through large, multilayered ground-water systems was contributed by the Office of Nuclear Waste Isolation, Battelle Memorial Institute, Columbus, Ohio. The system models noncontinuous and continuous layering, time-dependent and constant sources/sinks, and transient as well as steady state flow. The system offers a wide choice in specifying boundary conditions such as prescribed heads, nodal injection or withdrawal, constant or spatially varying infiltration rates, and elemental source/sink. Initial conditions can be prescribed as vertically hydrostatic or variable hydraulic head. The partial differential equation for hydraulic head in large, multilayered natural systems is solved by the finite element method. Reference: BMI/ONWI-548 (October 1984). FORTRAN V; VAX.

CCC-533/DISKTRAN

Both the IBM and CRAY versions of this code package were contributed by Oak Ridge National Laboratory (ORNL). DISKTRAN uses disk surface external boundary angular fluxes from a 2-D, R-Z DOT-IV calculation to obtain fluxes and detector responses at detectors in a void region beyond either end of the cylinder. Integral as well as spectral responses may be calculated. In addition, 1-D angular dependent detector responses may be calculated by group at each detector location. Several response functions may be entered, either as 1-D or as 2-D ANISN cross section arrays. The code treats only the end (disk) surfaces of the cylinder and requires a DOT-IV flux file as input. References: ORNL Informal Documentation (1986 and 1988). FORTRAN IV and Assembler; IBM(A). FORTRAN 77; CRAY(B).

PSR-252/STRADE

This code system was contributed by the Joint Research Center, Ispra, Italy, through the OECD Nuclear Energy Agency Data Bank in Gif-sur-Yvette, France. STRADE generates matrices of experimental designs based on the Latin Hypercube Sampling technique that can be applied to any kind of sensitivity analysis or system identification problem involving a large number of input variables. The program has been developed for use in reactor safety probabilistic analyses. Reference: EUROCOPI No. 14 (1981). FORTRAN IV; AMDAHL or IBM.

PSR-266/SPUNIT

This code system for spectrum unfolding using information theory was contributed by Battelle Pacific Northwest Laboratory, Richland, Washington. SPUNIT unfolds measurements made by a multisphere (Bonner sphere) neutron spectrometry system using the Sanna response functions in the iterative unfolding technique. Using count rates from each detector/moderator configuration and previously determined response function values, SPUNIT calculates the neutron energy distribution, dose rate, and dose equivalent rate for the measured radiation field. Reference: PNL Informal Document (1984). FORTRAN IV; PDP-11 and VAX.

CHANGE TO THE DATA LIBRARY COLLECTION

A new data library was packaged and added to the collection.

DLC-130/DABL69

This multigroup cross-section library based on DLC-113C/VITAMIN-E data was developed at Oak Ridge National Laboratory to serve as a broad group library for Defense Nuclear Agency radiation transport calculations. It supersedes DLC-31/ FEWG1 which has served that role in previous years. The energy group structure (46n,23g) is a subset of the VITAMIN-E group structure and is tailored to air-over-ground environments. Based on ENDF/B-V data and a reevaluation of Fe (Mod 3), this library consists of 80 nuclides that can be used to solve typical calculations of interest to the DNA radiation transport community. The Legendre order of expansion for angular distribution is 5. Source spectra and response functions useful in radiation transport applications are included. Most computer codes requiring multigroup cross sections can use the data. Both ANISN and AMPX formats are provided. References: ORNL/ TM-10568 (in press). IBM 360/370.

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.

Dr. Clarence E. Lee has been elected vice president, computational physics at Applied Physics, Inc.,

Albuquerque, New Mexico. The responsibilities for this position include directing research in transport theory, reactor physics, hydrodynamics, and waste management.

Visitors to RSIC

During the month the following persons came for an orientation visit and/or to use RSIC facilities: *Sverre Hval*, OECD Halden, Norway; *J. E. Lunde*, Tramore, County Waterford, Ireland; *Mark Mitckes*, Lee Wan Associates, Oak Ridge, Tenn.; *Raiko Sun*, Lawrence

Berkeley Laboratory, California; and *Joyce Amenta* and *Steve Scott*, Nuclear Regulatory Commission, Washington, D.C.

ANSI Catalog Released

A completely revised *1988 Catalog of American National Standards* is now available from the American National Standards Institute (ANSI). An extensive subject index designed to simplify the search for particular standards has been added to the catalog. More than 8000 ANSI-approved standards are listed. Nonmembers of ANSI may purchase the catalog for $20, plus shipping and handling.

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.

A BRC Radwaste Disposal Short Course offered by the University of Texas at Austin, will be held November 7–11, 1988, at Austin.

Participants who complete the course will be able to determine the radiological health impacts of disposing of short-lived radionuclide waste in sanitary landfills. The methodology of the Nuclear Regulatory Commission code system IMPACTS-BRC and the Environmental Protection Agency code system PATHRAE will be emphasized in determining what level of activity is below regulatory concern (BRC). Modifications in these computational procedures developed at the University of Texas-Austin and the Texas Low-Level Radioactive Waste Disposal Authority will be covered using the BRC rule in Texas.

The number of participants is limited: therefore, early enrollment is encouraged. The $895 fee covers all educational material and break-time refreshments. Registration information may be requested from Continuing Engineering Studies, College of Engineering, Ernest Cockrell Hall 10.324, The University of Texas at Austin, Austin, TX 78712 (phone 512-471-3506). Address questions concerning course content to Dr. Hertel (phone 512-471-3085).

Calendar

Your attention is directed to the following events of interest.

October 1988

4th International Symposium on Radiation Physics (ISRP-4), Oct. 3–7, 1988, São Paulo, Brazil. Contact: Prof. Ivan Cunha Nascimento, ISRP-4 Chairman of the Organizing Committee, Inst. de Fisica-Universidade de São Paulo, Caixa Postal 20516 (Telex: 011-37920 IF SP -1498-São Paulo-SP-Brazil).

4th Annual DOE Model Conference, Oct. 3–7, 1988, Oak Ridge, Tennessee. Contact: Cynthia Kendrick, ORNL, P.O. Box 2008, Oak Ridge, TN 37831-6029 (phone 615-576-2632 or FTS 626-2632).

Fundamentals of Nondestructive Assay of Nuclear Material, Oct. 3–7, 1988, Los Alamos, New Mexico, sponsored by the U.S. Dept. of Energy. Contact: Linda Robinson, LANL, Los Alamos, NM 87545 (phone 505-667-5258 or FTS 843-5258).

International Symposium on the Feedback of Operational Safety Experience from Nuclear Power Plants, Oct. 3–7, 1988, Vienna, sponsored by the IAEA. Contact: IAEA, Conference Service Section, P.O. Box 100, A-1400 Vienna, Austria.

8th Topical Meeting on Technology of Fusion Energy, Oct. 9–13, 1988, Salt Lake City, Utah. Contact: Clyde R. Toole, EG&G Idaho, P.O. Box 1625 (WCB-W3), Idaho Falls, ID 83415.

30th Annual Meeting of the American Society for Therapeutic Radiology and Oncology, Oct. 9–14, 1988, New Orleans. Contact: ASTRO, 1891 Preston White Drive, Reston, VA 22091 (phone: 703-648-8900).

12th International Symposium on the Scientific Basis for Nuclear Waste Management, Oct. 10–13, 1988, Berlin, sponsored by the Materials Research

Society. Contact: Helga Fuchs, Hahn-Meitner-Institute GmbH, Glienicker Strasse 100, D-1000 Berlin 39, FRG (phone 49 30 8009 2291).

IMechE International Conference on Decommissioning of Major Radioactive Facilities, Oct. 11–12, 1988, London, sponsored by the Institution of Mechanical Engineers. Contact: Conference Dept. C376, Inst. of Mechanical Engineers, 1 Birdcage Walk, Westminster, London SW1H 9JJ, United Kingdom.

12th International Conference on Plasma Physics and Controlled Nuclear Fusion Research, Oct. 12–19, 1988, Nice, France, sponsored by the IAEA. Contact: IAEA, P.O. Box 100, A-1400 Vienna, Austria.

5th National Conference on Biomedical Physics and Engineering, Oct. 15–17, 1988, Sofia, Bulgaria. Contact: M. Markov, Department of Biophysics, Biological Faculty, Sofia University, 8, Dragan Tzankov Blvd., Sofia 1000, Bulgaria.

Techniques in Nuclear Shield Analysis, a five-day short course sponsored by the University of Texas College of Engineering, October 17–21, 1988, to be held in Ft. Worth, Texas. Contact: Continuing Engineering Studies, Ernest Cockrell Hall 10.324, The University of Texas at Austin, Austin, TX 78712.

Symposium on Multi-Level Health Effects Research: Molecules to Man, Oct. 17–22, 1988, Richland, Washington, sponsored by the U.S. Dept. of Energy and Battelle-Pacific Northwest Laboratories. Contact: James F. Parks, Battelle-Pacific Northwest Laboratories, P.O. Box 999, Richland, WA 99352 (phone: 509-375-2421 or FTS 444-2421).

16th Water Reactor Safety Information Meeting, Oct. 24–27, 1988, Gaithersburg, Maryland. Contact: Allen J. Weiss, Meeting Coordinator, Brookhaven National Laboratory, Bldg. 197-C, Upton, NY 11973.

Meeting of the American Nuclear Society, Oct. 30–Nov. 4, 1988, Washington, D.C. Contact: ANS, Meetings Department, 555 N. Kensington Ave., La Grange Park, IL 60525 (phone 312-352-6611).

TMI-2 Accident Materials Behavior, Oct. 30–Nov. 4, 1988, Washington, D.C., sponsored by the American Nuclear Society. Contact: Gregory R. Eidam, TMI Nuclear Plant, P.O. Box 480, Middletown, PA 17057 (phone 717-948-8000).

2nd Conference on Radiation Protection and Dosimetry, Oct. 31–Nov. 3, 1988, Orlando, Florida, sponsored by ORNL. Contact: C. S. Sims, ORNL, P.O. Box 2008, Oak Ridge, TN 37831-6379.

November 1988

Indoor Air Pollution and Radon, Nov. 2–4, 1988, a short course offered by the University of Texas at Austin. Contact: Continuing Engineering Studies, College of Engineering, Ernest Cockrell Hall 10.324, The University of Texas at Austin, Austin, TX 78712 (phone 512-471-3506).

Below Regulatory Concern (BRC) Radwaste Disposal, Nov. 7–11, 1988, a short course offered by the University of Texas at Austin. Contact: Continuing Engineering Studies, College of Engineering, Ernest Cockrell Hall 10.324, The University of Texas at Austin, Austin, TX 78712 (phone 512-471-3506).

Gamma-Ray Assay of Nuclear Materials, Nov. 28–Dec. 2, 1988, Los Alamos, New Mexico, sponsored by the U.S. Dept. of Energy. Contact: Linda Robinson, LANL, Los Alamos, NM 87545 (phone 505-667-5258 or FTS 843-5258).

December 1988

Radon in Buildings: Sources, Biological Effects, Monitoring, & Control, Dec. 19–20, 1988, a short course offered by the Harvard School of Public Health, Boston, Massachusetts. Contact: Office of Continuing Education, Harvard School of Public Health, 677 Huntington Ave., Boston, MA 02115 (phone 617-732-1171).

January 1989

6th Symposium on Space Nuclear Power Systems, Jan. 9–12, 1989, Albuquerque, New Mexico, sponsored by the Univ. of New Mexico. Contact: Mohamed El-Genk, The Inst. for Space Nuclear Power Studies, Univ. of New Mexico, 237 Farris Engineering Center, Albuquerque, NM 78131 (phone 505-277-2813).

April 1989

25th Annual Meeting of the National Council on Radiation Protection and Measurements, Apr. 5–6, 1989, in Washington, D. C. Contact: W. Roger Ney, Executive Director, NCRP, 7910 Woodmont Ave., Suite 800, Bethesda, MLD 20814.

Advances in Nuclear Engineering Computation and Radiation Shielding, Apr. 9–13, 1989, Santa Fe, New Mexico, a topical meeting sponsored by the ANS M&C and RP&S Divisions. Contact: E. W. Larsen, Technical Program Chairman, Group X-6, MS B226, Los Alamos National Laboratory, Los Alamos, NM 87545 USA (phone 313-936-0124)

7th International Meeting on Radiation Processing, April 23–28, 1989, Leeuwenhorst Congres Center,

Noordwijkerhout, The Netherlands, a biennial conference dedicated to the dissemination and advancement of the technology of industrial radiation processing. Contact: E. Franken, 7th Internatl. Meeting on Radiation Processing, P.O. Box 4240, 6710 EE Ede, The Netherlands (phone AA 31 8380 37476; Telex 37030; FAX AA 31 8380 39643).

10th Annual Meeting of the Canadian Radiation Protection Association, Apr. 30–May 3, 1989, in Victoria, British Columbia. Contact: Lutz E. Moritz, TRIUMF, 4004 Wesbrook Mall, Vancouver, B. C., Canada V6T 2A3 (phone 604-222-1047; Telex (0)-4508503; FAX 604-222-1047).

June 1989

Annual Meeting of the American Nuclear Society, June 4–8, 1989, Atlanta, Georgia. Contact: ANS Meetings Dept., 555 N. Kensington Ave., La Grange Park, IL 60525 (phone 312-352-6611).

Packaging and Transportation of Radioactive Materials: PATRAM '89, June 11–16, 1989, Arlington, Virginia, sponsored by US-DOE. Contact: Larry Blalock, Chairman, US Organizing Comm., US Dept. of Energy, P.O. Box 2001, Oak Ridge, TN 37831-8765 (phone 615-576-0945 or FTS 626-0945).

AUGUST 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.

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