RSIC Newsletter

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310 *September 1990*

The human mind cannot create anything. It produces nothing until after having been fertilized by experience and meditation; its acquisitions are the germs of its production.–Buffon

1992 RP&S Topical Meeting

Planning is well under way for the 1992 Topical Meeting of the ANS Radiation Protection and Shielding Division. The meeting will be held the last week of April 1992 in Pasco, Washington. The Eastern Washington Section of the ANS will serve as host of the meeting with participation from the Columbia Chapter of the Health Physics Society (HPS).

Wilbur Bunch is heading the Technical Program committee with the assistance of Lee Carter (ANS) and Paul Rittman (HPS). The first meeting of the Program Committee will be held following the Radiation Protection and Shielding Program Meeting in Washington, D. C. November 11, 1990. Anyone interested in serving on the Technical Program Committee for this topical should plan to attend at that time. Those wishing to serve on the committee but unable to attend the first meeting may write Lee Carter, HO-35, Westinghouse Hanford Co., P.O. Box 1970, Richland, WA 99325, or call him at 509-376-3929.

The technical scope of the topical will be quite broad to attract wide interest. The initial thrust of the Program Committee will be to identify major areas of current interest and to select individuals who will undertake the responsibility of stimulating the submission of papers.

A vendor show is planned in conjunction with the topical, which will focus on the latest hardware and software tools and state-of-the-art health physics instrumentation.

CHANGES TO THE COMPUTER CODE COLLECTION

Six changes were made to the Computer Code Collection during the month. Two new code systems were packaged and added to the collection, an existing code package was extended with an additional hardware version, one code package was corrected, and two code packages were enhanced with additional software or documentation. Two changes resulted from foreign contributions. In the following announcements, reference is made to 5.25-in diskettes; transmission by 3.5-in diskettes is also available (both 0.72 and 1.44 MB).

IF YOU CHANGE YOUR ADDRESS, please notify us (including Building and Room No. where needed). *Third Class Mail* is returned to us at our expense if the addressee has moved. If your mail is returned, your name will be deleted from our distributions until we hear from you.

CCC-463/GASPAR II

The contributors at Battelle Pacific Northwest Laboratory, Richland, Washington, have alerted RSIC of problems in the GASPAR II package for VAX computers. GASPAR II calculates radiation exposure to man from routine air releases of nuclear reactor effluents. Changes to subroutine REDDF which prints the external ground-dose-factor report are available. Modifications are also included for subroutine PARTS normalized dose factor calculations. Users may write RSIC for information. Include a DS/DD diskette for copies of the corrected subroutines. Reference: NUREG-0597 (June 1980) and NUREG/CR-4653, PNL-5907 (March 1987). FORTRAN; GASPAR IBM 3033 (A) and GASPAR II VAX (B).

CCC-514/ANISN-PC

This multigroup one-dimensional discrete ordinates transport code system with anisotropic scattering, originally contributed by EG&G Idaho, Inc., Idaho Falls, Idaho, has been updated. The University of Cincinnati, Cincinnati, Ohio, has contributed two utility programs to convert ANISN-formatted cross sections to CCCC ISOTXS format for input to ANISN/PC and APE, the input generator. The new programs were compiled using the Lahey FORTRAN 77 compiler. The package includes both PC and Unix workstation versions of the ANISN source code. The Ryan McFarland IBM Professional Fortran compiler was used to compile under PC/DOS. The PLINK86-Plus overlay linker was used to create an executable ANISN file of approximately 640K bytes. All files are included on one DS/HD (1.2MB) diskette in compressed form. Reference: EGG-2500 (December 1988). FORTRAN 77, IBM PC.

CCC-542/CAP-88

Brookhaven National Laboratory, Upton, Long Island, New York, contributed a new hardware version of the CAP-88 code system for VAX computers. CAP-88, developed by the EPA Office of Radiation Programs, Las Vegas, Nevada, assesses dose and risk due to radionuclide emissions to the air in compliance with National Emission Standards for Hazardous Air Pollutants (NESHAPs) for radionuclides. Health impacts from the inhalation, ingestion, air immersion and ground surface irradiation pathways are estimated, and results for maximally exposed individuals and regional populations out to 80 kilometers are tabulated. The new VAX version was tested on a VAX 6000 using VMS FORTRAN 5.4 compiler and is available on two DS/HD (1.2MB) diskettes. References: U.S. EPA Draft (Sept. 1989). FORTRAN 77; IBM (A) and VAX(B).

CCC-544/CEPXS/ONELD

CEPXS/ONELD is a discrete ordinates code package for one-dimensional coupled electron-photon transport over the energy range of 100 MeV to 1.0 keV. The documentation for this code package, which was contributed by Los Alamos National Laboratory, Los Alamos, and Sandia National Laboratory, Albuquerque, New Mexico, was updated with the addition of a Results Guide. The Results Guide compares CEPXS/ONELD predictions to the predictions of Monte Carlo codes and to experiment. These comparisons are made for a variety of quantities, including energy deposition, charge deposition and electron current spatial profiles as well as electron and photon spectra. Two hardware versions of the code are available. The VAX version runs under VMS and includes a few lines of C. The Cray version runs under the Los Alamos CTSS operating system with the CFTLIB library. References: SAND89-1685 (October 1989), SAND89-1661 (September 1989) LA-9184-M, Rev. (December 1989), and SAND89-2211 (July 1990). FORTRAN 77; VAX (A) and Cray (B).

CCC-554/LSHINSE

NUKEM GmbH in the Federal Republic of Germany contributed this program to calculate flux and dose rate caused by gamma radiation emanating from a point source and being scattered in the surrounding air. LSHINSE solves equations for skyshine by use of Simpson integration. The integration limits are chosen such that the partial shielding of the scattering air is approximated by rectangular walls around the source. All forms of single scattering are considered. Multiple scattering is taken into account in an approximate way by use of buildup factors. The code runs on IBM-compatible computers with MS DOS or PC DOS using the Microsoft FORTRAN Version 4.01 or 5 compilers. It is transmitted on one DS/HD (1.2MB) 5.25-in. diskette. Reference: Informal document (November 1989). FORTRAN 77; IBM PC.

CCC-555/ALBEDO/ALBEZ

NUKEM GmbH in the Federal Republic of Germany contributed these programs to calculate the attenuation of scattered radiation in straight or bent air ducts for gamma radiation in the range 0.1–3 MeV and fast neutrons in the range 0.1–14 MeV. ALBEDO treats straight ducts and ducts with one bend; ALBEZ treats ducts with two bends. For gamma radiation, the theory is based on the Compton effect and is limited to the energy range 0.1 to 3 MeV. In the case of neutrons, the programs are valid only for fast neutrons in the range 0.1 to 14 MeV. The codes run on IBM-compatible computers with MS DOS or PC DOS using the Microsoft FORTRAN Version 4.01 or 5 compilers. It is transmitted on one DS/HD (1.2MB) 5.25-in. diskette. Reference: Informal document (January 1990). FORTRAN 77; IBM PC.

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.

New ANS Division Officers

The American Nuclear Society has announced election results for its division officers and executive committees for 1990–1991.

Radiation Protection and Shielding – *Daniel T. Ingersoll*, chair; *William C. Hopkins*, vice-chair; *William T. Urban*, secretary; *Margaret B. Emmett*, treasurer. New executive committee members are: *Jay. Y. Lee, Robert C. Little*, and *Robert T. Santoro*.

Mathematics and Computation – *Paul Nelson*, chair; *Laural L. Briggs*, vice-chair; *Alireza Haghighat*, secretary; *Yousry Y. Azmy*, treasurer. New members of the executive committee are: *Marvin L. Adams, Clarence E. Lee*, and *Walter L. Weaver*.

Fusion Energy – *Donald L. Cook*, chair; *Gregory A. Moses*, vice-chair; *Mohamed Y. A. Gohar*, secretary/treasurer. New executive committee members are: *Paul. J. Gierszewski, Ronald L. Miller*, and *Clement Poching Wong*.

ANS Fellows Honored in Nashville

The citation of ANS Fellow is given for attainment in the nuclear sciences by notable original research or invention, by technical leadership of substantial scope, or by outstanding leadership as a teacher. During the ANS June Meeting in Nashville, four new ANS Fellows were recognized at the Honors and Awards Luncheon. The new fellows are:

Robert A. Bari For his outstanding contributions to nuclear reactor safety, particularly in development and applications of probabilistic risk assessment techniques, and in the analysis of LWR and LMFBR severe accidents.

Michael L. Corradini For pioneering contributions to reactor safety, particularly in molten fuel-coolant interactions including estimation of probabilities of containment failure from vapor explosions, as well as estimating the limits to molten fuel mixing in coolants, modeling hydrogen generation during fuel-coolant interactions, and modeling transient pressure propagation during vapor explosions.

Harold L. Dodds, Jr. For superior teaching as evidenced by the perennially outstanding performance of his students in the Annual ANS Student Design Contest since the inception of the contest in 1975, and for significant accomplishments in the development and application of computational methods for the analysis of nuclear systems.

Michael C. Stauber For leadership in radiation and nuclear technology research oriented to the survivability of space missions, to controlled fusion, and for basic contributions to the development of nuclear microprobes based on ion beam analysis.

Visitors to RSIC

During the month the following persons came for an orientation visit and/or to use RSIC facilities: *Lee L. Simmons*, WINCO, Idaho Falls; *Elisabeth Perry*, Santa Fe Inst. for Psychotherapy, Santa Fe, N. M.; *R. T. Perry*, Los Alamos National Laboratory, N. M.; *Howard L. Hay*, Virginia Power, Charlottesville, Virginia; *Tom Ogden*, Univ. of Cincinnati, Ohio; *Bruce A. Wyshak*, Raytheon Co., Sudbury, Massachusetts; *Lourdes Elizondo* and *J. B. Sun*, Florida Power and Light, Juno Beach, Florida; *H. McIlwain*, Atomic Energy of Canada, Ltd., Manitoba; *J. S. Lan*, Westinghouse Hanford Co., Richland, Washington; *Lester Clemons*, Clemons Radiological Eng., Monroeville, Pennsylvania; and *Jesse A. Pagliaro*, Westinghouse-SEG, Oceanside, California.

Standards Activity

The following newly published standards are available from ANSI, Sales Dept., 1430 Broadway, New York, NY 10018 (phone 212-642-4900).

ANSI N42.17B-1989, *Radiation Instrumentation–Performance Specifications for Health Physics Instrumentation–Occupational Airborne Radioactivity Monitoring Instrumentation*; ($50).

ANSI N42.17C-1989, *Radiation Instrumentation –Performance Specifications for Health Physics Instrumentation–Portable Instrumentation for Use in Extreme Environmental Conditions*; ($35).

The following standard is available from IEEE Service Center, 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331 (phone 800-678-4333).

ANSI/IEEE 301-1988, *IEEE Standard Test Procedures for Amplifiers and Preamplifiers Used with Detectors of Ionizing Radiation*; ($50).

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.

September 1990

Symposium on Recent Advances in Multidisciplinary Analysis and Optimization, Sept. 24–26, 1990, San Francisco, sponsored by the U.S. Air Force and NASA. Contact: V. B. Venkayya, WRDC/FIBRA, WPAFB, OH 45433-6553 (phone 513-255-7191 or 513-255-6992).

Radiation Transport Calculations Using EGS4: A Four-Day Hands-on Course, Sept. 24–27, 1990, Ottawa, Canada. Contact: Dr. A. F. Bielajew, Div. of Physics, National Research Council of Canada, Ottawa, Canada, K1A 0R6 (phone 613-993-2715, Bitnet BLF@NRCVM01).

International Conference on Monte Carlo Methods for Neutron and Photon Transport Calculations, Sept. 25–28, 1990, Budapest, Hungary. Contact: Dr. Lázló Koblinger, Central Research Inst. for Physics, P.O. Box 49, H-1525 Budapest, Hungary (Fax 36-1-15552530).

The Safety, Status and Future of Non-Commercial Reactors and Irradiation Facilities, Sept. 30–Oct. 4, 1990, Boise, Idaho, ANS Topical Meeting, sponsored by the Idaho Section and co-sponsored by The Commission of the European Communities (CEC), Atomic Energy Society of Japan, and the Nuclear Reactor Safety Division of the ANS. Contact: Dr. Romney B. Duffey, General Chairman, The Safety, Status and Future of Non-Commercial Reactors and Irradiation Facilities, P.O. Box 51218, Idaho Falls, ID 83405-1218 (phone 208-526-9804).

Spectrum '90: Nuclear and Hazardous Waste Management International Topical Meeting, Sept. 30–Oct. 4, 1990, Knoxville, Tennessee, sponsored by ANS. Contact: Technical Program, Spectrum '90, P.O. Box 1342, Oak Ridge, TN 37831 (phone Earl McDaniel at 615-574-0439 or Karl Notz at 615-574-6632).

October 1990

The Chernobyl Accident: New Recommendations of ICRP and Radon in Buildings, Oct. 5, 1990, Munich, Fed. Rep. of Germany, sponsored by Technischer Überwachungs. Contact: Frau M. Primus, TÜV Bayern E.V., Abt. Strahlenschutz, Westendstrasse 199, 8000 München 21, F. R. Germany.

9th Topical Meeting on Technology of Fusion Energy, Oct. 8–12, 1990, Chicago, sponsored by the American Nuclear Society. Contact: Technical Program Chair, Richard Mattas, Argonne National Laboratory, 9700 S. Cass Ave., Argonne, IL 60439 (phone 708-972-8673, FTS 972-8673).

18th Water Reactor Safety Information Meeting, Oct. 22–24, 1990, Washington, D. C., sponsored by the

U.S. Nuclear Regulatory Commission. Contact: Allen J. Weiss, Meeting Coordinator, Brookhaven National Laboratory, Bldg. 197-C, Upton, NY 11973.

November 1990

Nuclear Energy Forum, Nov. 11–14, 1990, Washington, D. C., sponsored by the U.S. Council for Energy Awareness. Contact: Conference Office, U.S. Council for Energy Awareness, 1776 I Street NW, Suite 400, Washington, DC 20006-2495 (phone 202-293-0770).

American Nuclear Society Winter Meeting, Nov. 11–16, 1990, Washington, D.C. Contact: Mary Keenan, Meetings Manager, ANS, 555 N. Kensington Ave., La Grange Park, IL 60525.

International Symposium on High-Dose Dosimetry for Radiation Processing, Nov. 12–16, 1990, Vienna, sponsored by IAEA. Contact: Conference Service Section, IAEA, P.O. Box 100, A-1400 Vienna, Austria.

Atlanta Conference on the SSC, Industrial and Scientific Opportunities, Nov. 13–15, 1990, Atlanta, sponsored by the Southeastern Universities Research Association and the Southeastern Section of the American Physical Society. Contact: for registration call (800) 325-5007 or (404) 894-2400,; program information may be obtained from William L. Dunn, Quantum Research (919) 544-4952, or Tony A. Gabriel, ORNL (615) 574-6082.

December 1990

International Symposium on Heavy Ion Inertial Fusion, Dec. 3–6, 1990, Berkeley, California, sponsored by the Lawrence Berkeley Laboratory. Contact: M. Field, Lawrence Berkeley Laboratory, 1 Cyclotron Rd., MS 50B/2270, Berkeley, CA 94720 USA.

January 1991

8th Symposium on Space Nuclear Power Systems, Jan. 7–10, 1991, in Albuquerque, New Mexico, sponsored by the U.S. Department of Energy, NASA, Los Alamos National Laboratory, Sandia National Laboratory, and the American Institute of Chemical Engineers. Contact: Mary Bragg, Univ. of New Mexico, Albuquerque, NM 87131 USA (phone 505-277-4950).

April 1991

27th Annual Meeting of the National Council on Radiation Protection and Measurements, Apr. 3–4, 1991, Bethesda, Maryland. Contact: NCRP, 7910 Woodmont Ave., Suite 800, Bethesda, MD 20814 (phone 301-657-2652).

Advances in Mathematics, Computations, and Reactor Physics, Apr. 28–May 1, 1991, Pittsburgh, Pennsylvania, and International Topical Meeting sponsored by the ANS, Mathematics & Computation Division and the Reactor Physics Division. Contact: J. E. Olhoeft, Westinghouse Electric Corp., P.O. Box 355, WEC-E205, Pittsburgh, PA 15230-0355 USA (phone 412-374-5704).

1991 International High-Level Radioactive Waste Management Conference, Apr. 28–May 3, 1991, Las Vegas, Nevada, sponsored by the ANS and the American Society of Civil Engineers. Contact: Dillard B. Shipler, Technical Program Chair, American Nuclear Society, 555 N. Kensington Ave., La Grange Park, IL 60525 USA.

Conference on Occupational Radiation Protection, Apr. 29–May 3, 1991, Guernsey, United Kingdom, sponsored by the British Nuclear Energy Society. Contact: British Nuclear Energy Society, Secretariat, 1-7, Great George St., London SW1P 3AA U.K.

May 1991

Radiopharmaceutical Dosimetry Symposium, May 7–10, 1991, in Oak Ridge, Tennessee, sponsored by the Radiopharmaceutical Internal Dose Information Center. Contact: Audrey T. Schlafke-Stelson, Program Committee, 5th International Dosimetry Symposium, Radiopharmaceutical Internal Dose Information Center, Medical Sciences Division, Oak Ridge Associated Universities, P.O. Box 117, Oak Ridge, TN 37831-0117 USA (phone 615-576-3450).

June 1991

5th International Symposium on Radiation Physics, June 10–14, 1991, Dubrovnik, Yugoslavia. Contact: Dr. Ante Ljubiĉić, ISRP-5 Chairman, Ruder Boŝković Inst., P.O. Box 1016, 41001 Zagreb, Yugoslavia (phone 41 425-563 or 41 434-467, Telex 21383 irbzg yu, Fax 41 425-497).

July 1991

Health Physics Society Annual Meeting, July 21–26, 1991, Washington, D.C. Contact: Mr. Edward A. Tupin, 518 Meadow Hall Drive, Rockville, MD 20851 (phone 301-443-2850).

International Illinois Low Level Radioactive Waste (LLWM) Symposium: The Quiet Revolution–Innovations in Low-Level Waste Management, July 29–Aug. 1, 1991, Chicago,

Illinois, sponsored by the Illinois Dept. of Nuclear Safety. Contact: Ms. P. Burnett, Illinois Dept. of Nucl. Safety, 1035 Outer Park Drive, Springfield, IL 62704 USA.

September 1991

Brazilian Meeting on Reactor Physics and Thermal Hydraulics, Sept. 17–20, 1991, São Paulo, Brazil. Contact: José Rubens Maiorino, IPEN-CNEN/SP, Caixa Postal 11049 (Pinheiros), 05499-São Paulo-SP-Brazil (phone 011 211-6011 Ext. 270; Telex 11 83592-IPEN-BR).

ICNC '91, International Conference on Nuclear Criticality Safety, September 1991, Oxford, United Kingdom. Contact: ICNC '91 Secretariat, Publicity Office, AEA Technology, Winfrith, Dorchester, Dorset DT2 8DH, United Kingdom (phone 0305 251888 ext 2739, Fax 0305 202122, Telex 41231).

October 1991

1991 Joint International Waste Management Conference, Oct. 21–26, 1991, Seoul, Korea. Contact: Mr. Larry C. Oyen, Sargent & Lundy, 55 East Monroe St., Chicago, IL 60603 (phone 312-269-6750, Fax 312-269-3475, Telex 280603).

November 1991

Nuclear Energy Forum, Nov. 10–13, 1991, San Francisco, California. Contact: Conference Office, U.S. Council for Energy Awareness, 1776 I Street, N. W., Suite 400, Washington, DC 20006-2495 USA.

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.

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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