RSIC Newsletter

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309 *August 1990*

Decision is a sharp knife that cuts clean and straight; indecision, a dull one that hacks and tears and leaves ragged edges behind it.–Gordon Graham

CHANGES TO THE COMPUTER CODE COLLECTION

Six changes were made to the computer code collection during the month. Four existing code packages were updated, and two existing code packages were extended with additional versions. Four changes resulted from foreign contributions.

CCC-121/SABINE-3

This code package was extended to include a version for personal computers contributed by NUKEM GmbH in the Federal Republic of Germany. SABINE-3 determines the spatial distribution of energy dependent neutron and gamma-ray fluxes in a reactor shield. The removal-diffusion method is applied to calculate neutron fluxes. The gamma-ray flux is the product of the uncollided flux times a region dependent buildup factor. The PC version runs on IBM-compatible computers with MS 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. References: EUR 3636.e (1967) and informal notes. FORTRAN IV; IBM 3033(A), CDC 7600 (B), UNIVAC (C); and FORTRAN 77; IBM PC (D).

CCC-475/SCALIAS3.1

The contributors of the VAX version of this package, Atomic Energy of Canada, Ltd., Whiteshell Nuclear Research Establishment, Pinawa, Manitoba, Canada, have asked RSIC to inform users of changes which correct the sensitivity of KENO-Va and NITAWL-S answers to changes in the VAX/VMS Mathematics Run-Time Library from Version 4.7 to 5.1. The two changes include modifications to Subroutine AZIRN in the VAX system-dependent routines and to NITAWL. Using double precision functions for certain operations corrects the problems. Users may write RSIC for details on the necessary changes. The package is available on one 6250-bpi tape in VMS BACKUP format. Reference: NUREG/CR-0200 (ORNL/NUREG/CSD-2), Vol. 1,2,3. FORTRAN 77; IBM 3033 (A) and VAX (B).

CCC-493/QAD-CGGP

This package, contributed by Japan Atomic Energy Research Institute (JAERI) and Oak Ridge National Laboratory (ORNL), is a combinatorial geometry version of QAD-P5A, a point kernel code for neutron and gamma-ray shielding calculations. QAD-CGGP includes the use of the G-P fitting function for the buildup factors. This update replaces buildup factor coefficients for the elements molybdenum to uranium, based on PALLAS calculations which used DLC-136/PHOTX cross sections. These data were also added to the DLC-

129/ANS643 and CCC-494/G33-GP packages. It is recommended that users of the 1988 version of QAD-CGGP update by getting DLC-129 (see announcement below). The documentation of DLC-129 includes the text of the proposed standard, and the package includes several tables of correction factors recommended by ANS-6.4.3. The QAD-CGGP PC version, tested at RSIC using the Ryan-McFarland Fortran compiler, Version 2.42, requires a math coprocessor (e.g., 8087). The package is available on tape or 2 DS/DD (360K) diskettes, which include the executable files. References: Informal notes (Oct. 1988) and Bechtel Power Corp. NE007 (1977). FORTRAN 77; Data General MV/family, IBM 3033 (A) and IBM PC (B).

CCC-494/G33-GP

G33-GP, a revision of G-cubed called G33, contributed by JAERI and ORNL, performs scattering calculations with a buildup factor applied to the first scatter. This update replaces buildup factor coefficients for the elements molybdenum to uranium, based on PALLAS calculations which used DLC-136/PHOTX cross sections. These data were also added to the DLC-129/ANS643 and CCC-493/QAD-CGGP packages. It is recommended that users of the 1988 version of G33-GP update by getting DLC-129. The PC version of G33-GP was tested at RSIC using Ryan-McFarland Fortran, Version 2.42 and requires a math coprocessor (e.g., 8087). The package is available on tape or 1 DS/DD (360K) diskette, which includes the executable files. References: Informal notes (Oct. 1988) and LA-5176 (1973). FORTRAN 77; Data General MV/family, IBM 3033 (A) and IBM PC (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, was updated. The developer, who now works for Los Alamos National Laboratory, New Mexico, has recommended a refinement for spherical geometry (IGE = 3) problems with low order quadrature. Users may contact RSIC for details on this refinement. This package includes both PC and UNIX workstation versions of the source code. The Ryan McFarland IBM Professional Fortran compiler was used to compile the programs 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. Some minor corrections have also been made to the document. Reference: EGG-2500 (December 1988). FORTRAN 77, IBM PC.

PSR-243/CGS

A new version of this general purpose graphics system was contributed by Los Alamos National Laboratory, New Mexico, to run on Cray computers under UNICOS. CGS Version 10 is available for the VAX family of computers running both VMS and UNIX operating systems, Cray computers running CTSS and UNICOS and the Sun workstation running the UNIX operating system. Each version is transmitted via one 5.25-in DS/HD (1.2MB) diskette. References: LANL GR801 (Dec. 1985), GR801.1 (July 1988), GR800 (Dec. 1985), GR800.1 (Oct. 1988), GR864 (Nov. 1985), GR805 (Oct. 1985) and informal documentation (1985 and 1979). FORTRAN 77 VAX/VMS (A), CRAY/CTSS (B); FORTRAN 77 and C SUN/UNIX (C), VAX/UNIX (D) and CRAY/UNICOS (E).

CHANGE TO THE DATA LIBRARY COLLECTION

During the month, an existing data library was updated with new data. The change resulted from a foreign contribution.

DLC-129/ANS643

ANS643, contributed by ORNL, Tokyo Institute of Technology, and JAERI, is a package of geometric progression (GP) gamma-ray buildup factors and attenuation coefficients based on the compilation of American Nuclear Society Standards Working Group ANS-6.4.3. It was updated with two significant changes. The GP coefficients were

revised for the elements molybdenum and above in the table giving data for all elements, and a table of Taylor coefficients was added. The new data are based on PALLAS calculations which used DLC-136/PHOTX cross sections. In addition, a GP coefficient file was added for the high-Z elements which give detail near the absorption edges. Correction factors for neglect of coherent scattering and the change in spectra at the shield-tissue interface are included. Buildup factor data are provided for 23 elements and 3 mixtures (water, air, and concrete) for the energy range 15 keV to 15 MeV. Attenuation coefficients are provided for 100 elements. A retrieval code, Daniel, provides tables of buildup factors from the data file. The code uses subroutines developed in Japan for QAD-CGGP, which provide the capability to interpolate in energy and extrapolate in thickness. The package is available on tape or 1 DS/DD (360K) diskette. The Daniel retrieval program was compiled with the Microsoft Fortran compiler, Version 4.01. References: Informal notes (1988 and 1990), pp. 503–511 in *Proc. of Theory and Practice in Radiation and Shielding*, (April 1987), (April 1987), and ANSI/ANS-6.4.3 Draft (June 1990). FORTRAN 77; Data General MV/family, IBM 3033 (A) and IBM PC (B).

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.

Correction: We regret the misspelling of the name of **Professor Tomonori Hyodo** in the July issue of the newsletter. Professor Hyodo, a Fellow of the American Nuclear Society, enjoyed a long and distinguished career as a professor at Kyoto University before assuming his position at Okayama Vocational Training College.

Douglas Muir, of Los Alamos National Laboratory, is working for the International Atomic Energy Agency, Vienna, under a three-year contract. He is the Deputy Section Head in the Nuclear Data Section.

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.

Atlanta SSC Conference

The *Atlanta Conference on the SSC: Industrial and Scientific Opportunities* will be held November 13–15, 1990, in conjunction with the Southeastern Section of the American Physical Society Conference on November 15–17. Speakers from government, industry, universities, national laboratories, and the Superconducting Super Collider Laboratory will discuss the following topics: Status of the SSC, Physics Programs and Detectors, Industry's Role in the SSC, Universities and the SSC, and Political Perspectives. Program information may be obtained from William L. Dunn, Quantum Research, 919-544-4952, or Tony A. Gabriel, ORNL, 615-574-6082.

Winnipeg Hosts Canadian Conferences

The annual meetings of four Canadian scientific societies will be held June 16–19, 1991, in Winnipeg, Canada. The four participating

organizations in this joint event are the Canadian Radiation Protection Association (CRPA), Canadian Radiation Safety Officers (CRSO), Canadian College of Physicists in Medicine (CCPM), and the Canadian Organization of Medical Physicists (COMP). Following their annual meetings they will jointly sponsor the Radiation Protection Symposium on Thursday the 20th.

Further information about the meetings or the symposium may be obtained from Danny Buksak, Conference Secretariat, The University of Manitoba, 191 Frank Kennedy Bldg., Winnipeg, Manitoba, R3J 2N2 Canada (phone 204-474-6633, Fax 204-275-5863).

Calendar

Your attention is directed to the following events of interest.

September 1990

16th Symposium on Fusion Technology, Sept. 3–7, 1990, London. Contact: JET Joint Undertaking, Conference Office, Abingdon, Oxon, OX14 3EA, United Kingdom.

3rd European Community Conference on Radioactive Waste Management and Disposal, Sept. 17–21, 1990, Luxembourg. Contact: M. L. Cecille, Commission of the European Communities, DG XII/D-2 (Arts-Lux 2/16), Rue de la Low 200, B-1049 Brussels, Belgium (phone 32/2 235 75 88).

Joint Annual Congress of the German Society of Medical Physics, the Association of Radiation Protection, the Swiss Association of Radiation Biology and Medical Physics, and the Association of German Physicians in Radiation Protection, Sept. 19–22, 1990, Goettinger, Fed. Rep. of Germany. Contact: D. Harder, Inst. f. Medizinisch Physik und Biophysik, Gosslerstr. 10 f, D-3400 Goettingen, FRG (phone 0551 396 875).

ENC '90, The World Conference and Exhibition, Looking Into Nuclear's Future in the 21st Century, Sept. 23–28, 1990, Geneva, Switzerland, organized by the European Nuclear Society in collaboration with the American Nuclear Society and the European Atomic Forum, Foratom. Contact: ENC '90 Secretariat, c/o ENS, P.O. Box 5032, CH-3001 Berne, Switzerland.

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).

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. 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.

April 1991

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.

June 1991

5th International Symposium on Radiation Physics, June 10–14, 1991, Dubrovnik, Yugoslavia. Contact: Dr. Ante Ljubičić, ISRP-5 Chairman, Ruder Bošković 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

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.

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).

September 1991

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).

JULY 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.

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