RSIC Newsletter

RADIATION SHIELDING INFORMATION CENTER

OAK RIDGE NATIONAL LABORATORY

OPERATED BY UNION CARBIDE CORPORATION • FOR THE U.S. ATOMIC ENERGY COMMISSION

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No. 120 November, 1974

Learning without thought is labour lost;
thought without learning is perilous
....Confucius
(6th Century B.C.)

SEMINAR-WORKSHOP POSTPONED

In agreement with suggestions made by individuals involved in multigroup data processing code development, the setting of a date for the proposed Seminar-Workshop (August 1974 Newsletter) has been postponed. Respondents to our request for comments seem to favor early spring in Tennessee. The RSIC Data Coordinator expects to have settled on a date and to be able to furnish additional information in the December Newsletter.

GLEANED FROM THE ESIS NEWSLETTER

The October issue of the ESIS (European Shielding Information Service) Newsletter announced changes within the Joint Research Center (JRC), Ispra, Italy. Following a decision of the European Commission (EURATOM), J. A. Dinkespiler has taken over the Direction of the JRC - Ispra from P. Caprioglio. Mr. Dinkespiler, who comes from the European Space Research Organization (ESRO), acts also as General Director Adjoint of the four EURATOM Centers. Internal reorganization also took place within the Ispra Center. Six Directors will administer the following divisions: Administration; Future Programs;Approved Programs;Direction A: informatics, system studies, data banks; Direction B: technology, electronics, ESSOR reactor; and Direction C: physics, chemistry, materials. The new structure will be effective by the end of 1974.

ESIS also announces the availability of Special Issue ESIS-3, a report on the Ispra meeting on Shielding Benchmark Experiments. A copy may be requested from ESIS, Joint Research Center, EURATOM, Ispra (Varese), Italy.

PERSONAL ITEMS

Burns and Roe, Inc. recently named *Eugene R. Volk* Director of Computer Services, responsible for management of the computer facilities, including commercial and engineering program development, computer operation, and advanced planning. Gene Volk's previous associations include Combustion Engineering, Oak Ridge National Laboratory, Atomic Power Development Associates and the Detroit Edison Company.

M. P. Billings and *W. R. Yucker* announce the formation of Radiation Physics Incorporated (RPI), located at 9802 Olympic Drive, Huntington Beach, California 92646,(714) 962-7247. RPI expects to provide to the industry engineering services related to radiation transport and radiobiological dose analyses, as well as a broad range of computer applications, including computations involving radiation transmission in extremely complex three-dimensional geometries by kernel or Monte Carlo techniques. The computerized anatomical man (CAM) model is maintained for analyses of radiation doses to body organs from radiation sources of all types. This model includes some 2450 distinct geometric regions, with internal body geometry such as organs, voids, bones and bone marrow being explicitly defined.

Dr. Sumer Sahin, formerly with the Karadeniz Technical University at Trabzon, Turkey, is now on the staff of the EGE Universitesti, Izmir-Bornova, Turkey, where he is an associate professor, engineering sciences.

George Poetschat, former Control Data Corporation staff member in Minneapolis, has established a nuclear applications consultant office in Beaverton, Oregon.

In announcing a change of address for *Satiri Anastasiadis*, we incorrectly switched agencies. Dr. Anastasiadis left Sargent and Lundy to work with The Ralph M. Parsons Company, and not the reverse!

ANS SHIELDING AND DOSIMETRY DIVISION NAME CHANGE

Jerry Lahti, Sargent & Lundy, has reported that the poll of the ANS Shielding and Dosimetry Division on changing the name has evoked a rapid and definitive response. By October 29, 59 replies had been received. Only 13% preferred retaining the present name. A total of 55% of the remainder preferred the name Shielding and Radiation Protection. More detailed results will be available later. A final ballot will be taken in early 1975.

CONFERENCE ON NUCLEAR CROSS SECTIONS AND TECHNOLOGY

The Fourth Conference on Nuclear Cross Sections and Technology will be held March 3-7, 1975, Shoreham Americana Hotel, Washington, D.C. Its general purpose is to summarize the present status of nuclear cross sections and technology, to discuss future cross section needs, and to provide opportunities for the exchange of information between nuclear scientists and engineers. Although contributions on all aspects of nuclear data are invited, the emphasis will be on the use of nuclear cross sections for applied purposes.

Original papers describing significant contributions in the following or related areas are invited: Applications of Nuclear Data to Fission and to Fusion Reactors; Microscopic Data and Measurement Techniques; Standards; Benchmark Experiments and Sensitivity; Nuclear Data for Materials Analysis;

Nuclear Material Safeguards and Management; Nuclear Data for Environmental Protection; Biomedical Applications of Nuclear Data; and Other Applications of Nuclear Data. Sponsors are: Reactor and Shielding Divisions, ANS; Nuclear Physics Division, APS; International Union of Pure and Applied Physics; NBS; and ERDA (currently USAEC).

Sessions will consist of both invited and contributed papers. Abstracts of contributed papers may not be more than 200 words in length and must conform to the current rules for direct photocopy reproduction set forth in the current *Bulletin of the American Physical Society*. The abstract will be used as a basis for paper selection. It should include concise statements of results and interpretation of the significance of the work. Abstracts must be sent by December 6, 1974, to: Professor W. W. Havens, Jr., Chairman, Division of Nuclear Science and Engineering, Columbia University, 520 West 120 Street, New York, N. Y. 10027.

The proceedings of the Conference will be published. Instructions for preparing reproduction-ready copy will be sent to the authors of all papers accepted for presentation. Manuscripts will be required at the time of the Conference.

"THE OCEAN, NUCLEAR ENERGY & MAN"

The Second Biennial Topical Meeting on the above subject sponsored by the ANS Environmental Sciences and Power Divisions and the Florida ANS Section will be held May 7-9, 1975, in Tarpon Springs, Florida. Topics will include: nuclear power generation technology in the ocean environment; the impact of the ocean environment on nuclear power plants; the impact of nuclear power plants on the ocean environment; and other ocean-nuclear-energy-man interfaces, including maritime applications, multi-purpose plants, mariculture, the impacts of power generation in the ocean environment including cost-benefit-risk and safety considerations, nuclear power ocean applications with emphasis on transportation, desalination, and hydrogen production. Papers dealing with other aspects of the ocean-nuclear-energy-man interface will be welcome.

Deadline for 1,000-word summaries: December 12, 1974; papers: May 7, 1975. For further information contact Technical Program Chairman: M. J. Ohanian, Department of Nuclear Engineering Sciences, 202 Nuclear Sciences Center, University of Florida, Gainesville, Florida 32611, (904) 392-1401.

EUROPEAN NUCLEAR CONFERENCE

The European Nuclear Society (ENS), in collaboration with the American Nuclear Society (ANS), has planned its first conference, to be held at the Paris Convention Center, April 21-25, 1975. A preliminary program featuring "Nuclear Energy Maturity" and other information is available from Mr. Pierre Zaleski, Executive Chairman, Conférence Nucléaire Européenne, BP No. 27, 92140 Clamart, France.

CODE COLLECTION CHANGES

CCC-112/SAND II — The CDC 6600 code-data system for neutron flux spectra determination by multiple foil activation (iterative method) was updated to allow execution of sample problem with most recent data set. This change makes CCC-112C version compatible with the CCC-112B/SAND II IBM 360 version. The need for the update was called to RSIC attention by the University of Texas.

CCC-118B/SIGMA — An extended version of the space radiation dose analysis (within complex configurations) code was contributed by McDonnell Douglas Astronautics Company, Huntington Beach, California. FORTRAN IV, CDC 6600 series (CYBER 74). References: A3-830-BBFO-121 and DAC-60878. The original SIGMA (IBM 7094) was contributed by McDonnell Douglas's Missile and Space Systems Division at Santa Monica.

CCC-121/SABINE 3 — An improved version of EURATOM's Spinney (removal-diffusion) shielding code in complex geometry has been tested and packaged. This contribution of the Reactor Theory and Analysis Department of the EURATOM Establishment at Ispra, Italy, includes a new feature to test input data, a more accurate and flexible calculation of gamma-ray fluxes, and an updated data library. IBM 360; FORTRAN IV. Reference: EUR-5159 (1974).

CCC-233/CRYSTAL BALL — This program for determining neutron spectra from activation measurements was updated by the ORNL originator to allow a better iteration scheme in subroutine GTPSI. This change only or the entire package may be requested. FORTRAN IV, IBM 360. Reference: ORNL-TM-4601.

CCC-236/INDOS — The ORNL Environmental Sciences Division contributed a set of conversational FORTRAN IV programs designed for estimating internal radiation dose to man and implemented for use in time-sharing mode on the PDP-10 system. Reference: ORNL-4916. Can be transmitted on DEC or magnetic tape.

CCC-239/LGH-G — GKSS, the nuclear energy laboratory for engineering design and shipbuilding at Hamburg-Geesthacht, W. Germany, contributed their program for the calculation of gamma radiation through partially shielded gaps (Buildup Factor Method in Taylor's Approximation). FORTRAN IV, IBM 360. Reference: GKSS 73/E/17, ORNL-tr-2831.

CCC-240/CAMERA-CAM — The NASA Johnson Space Flight Center, Houston, Texas, and McDonnell Douglas Astronautics, Huntington Beach, California, contributed this radiation transport analysis code (CAMERA) and the computerized anatomical man model (CAM). Reference: MDC G4655. FORTRAN IV, CDC 6000 series.

CCC-242/AIREM — The U.S. Environmental Protection Agency's Office of Radiation Programs, Surveillance Branch, Washington, D.C., contributed their code system for the calculation of doses, population doses, and ground depositions due to atmospheric emissions of radionuclides. IBM 360/370 systems; FORTRAN IV. Reference: EPA-520/1-74-004 (1974).

CCC-243/PATCH-7 — Point Kernel Code - Single Scattering, contributed by McDonnell Douglas Astronautics Co., Huntington Beach, California. FORTRAN IV: CDC-6000 Series (CYBER 74). Reference: Informal Notes.

PSR-13/SUPERTOG III — Updated this data generator (fine group constants and Pn scattering matrices from ENDF/B) to correct errors in subroutines INELAS and TMF5 called to RSIC attention by R. Q. Wright, ORNL, and M. Mattes, IKE,Stuttgart, West Germany. Users may request these two subroutines alone or the entire package. In the latter case, a full reel of magnetic tape is required for transmittal. FORTRAN IV; IBM 360.

PSR-39/DRB — The Department of Nuclear Engineering, Kyoto University, Japan, extended the code package with a contribution of REFUM and BROAD Monte Carlo codes for calculating efficiencies and response functions of NaI (Tl) crystals for thick disk gamma-ray sources. The original package contained DEM only. FORTRAN; FACOM 230/60 (DEM) and 230/75 (REFUM, BROAD).

PSR-66/RNGP — Random Number Generator Package formerly packaged as MIRAN has been extended to include the following: GEORGE: Statistical Analysis Based on MIRAN, contributed by M. H. Turner, Irving, Texas; MIRAN: Machine Independent Uniform Random Number Generator, contributed by Science Applications, Inc., La Jolla, California; and SFLRAF: IBM 360 Random Number Generator and FLTRNF: CDC 6600 Random Number Generator, contributed by ORNL and AFWL.
FORTRAN IV, IBM 360/75/91. Informal documentation is available.

PSR-77B/ANSIFT — The ANSI Standard FORTRAN Sifting Program was converted to run on the IBM 360 computer at Oak Ridge National Laboratory. The CDC 6600 (PSR-77A) version was contributed earlier by Los Alamos Scientific Laboratory, Los Alamos, New Mexico. Reference: LA-5410-MS.

PSR-78/FORSIM — A FORTRAN-oriented simulation package for the automated solution of partial and ordinary differential equation systems contributed by AECL Chalk River Nuclear Laboratories, Canada. Reference: AECL-4316 and AECL-4608; FORTRAN IV, CDC 6600.

VISITORS TO RSIC

Visitors to RSIC during October were: H. C. Briggs, Indiana University, Bloomington, Ind.; A. R. Buhl, USAEC, Washington, D.C.; J. Cohen, NCRP, Washington, D.C.; R. E. George, Purdue University, West Lafayette, Ind.; E. Greenspan, Nuclear Research Center-Negev, and J. J. Wagschal, Hebrew University, Jerusalem, Israel; I. H. Jenks, Whiteshell Nuclear Research Establishment, Pinawa, Man., Canada; W. Kaiser, Institut für Kernchemie, Universität zu Köln, Germany; S. C. Lin, Taiwan, presently at the University of Tennessee, Knoxville; H. Matthaey, Institut für Exp. Kernphysik; Karlsruhe, Germany; J. P. Renier, Nuclear Assurance Corp., Atlanta, Ga.; Capt. R. C. Powell, Defense Nuclear Agency, Washington, D.C.; W. J. Roberts, Tennecomp, Oak Ridge, Tenn.; J. Sapyta and J. T. West, Babcock and Wilcox, Lynchburg, Va.; C. B. G. Taylor, AERE, Harwell, England.

OCTOBER 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 22151.

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.

Special bibliographies and selected computer-printed abstracts of the literature in the RSIC system are available upon request. The Selective Dissemination of Information (SDI) Service is available by submitting a list of subject categories defining the recipient's interests.

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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