

# RSIC Newsletter



RADIATION SHIELDING INFORMATION CENTER

## OAK RIDGE NATIONAL LABORATORY

OPERATED BY UNION CARBIDE CORPORATION FOR THE DEPARTMENT OF ENERGY

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*Hold fast to dreams for if dreams die, life is a broken winged bird that cannot fly. . . . Langston Hughes*

### ANS RP&S News

Michael J. Kolar (EPRI) 1981-82 Chairman of the Radiation Protection and Shielding Division of the American Nuclear Society, has issued an open invitation for participation in all meetings and special sessions sponsored by the division and also all its committees. David E. Bartine (ORNL) is Chairman-Elect, E. Thomas Boulette (HEDL) is Secretary, and Joseph M. Cardito (S&W) is Treasurer. Heading Committees are: Wilbur Bunch (HEDL), Honors & Awards; R. Kep Disney (W-ARD), Nominations; Thomas E. Albert (SSAI), Program; Jack C. Courtney (LSU), Publications, and Foroohar Boorboor (UE), Membership.

The Best Paper Award from the Miami meeting was won by M. E. Sawan, G. A. Moses, and G. L. Kulcinski for their paper entitled "Time-Dependent Radiation Damage to the First Wall of a Heavy Ion Beam Fusion Reactor with Porous Tube Protection". The authors will each receive a certificate and will split a check for \$100.00. Both the check and certificates will be awarded at the San Francisco meeting.

### NSRDS-NBS 29 (1969) MOST CITED

The well-known publication "Photon Cross Sections, Attenuation Coefficients, and Energy Absorption Coefficients from 10 keV to 100 GeV", NSRDS-NBS 29 (1969) by John Hubbell has been identified as one of the most cited publications in its field. The Institute of Scientific Information, publishers of *Science Citation Index*, has requested John to prepare a commentary on the origins of this work for Current Contents.

### Bibliography of Computer Codes Available

RSIC has recently received a bibliography which includes 3916 citations on computer codes. The citations were compiled from the DOE Energy Data Base covering EDB File No. 74R8613 through EDB File No. 81R24889 (1974 through March 1981). The references are to reports from the Department of Energy and its contractors, reports from other government or private organizations, and journal articles, books, conference papers, and monographs. These citations are available for on-line searching and retrieval from the Technical Information Center's Energy Data Base using the DOE/RECON interactive system. Report citations are arranged alphanumerically by report number under each EDB subject category; nonreport literature citations are arranged chronologically. Corporate, Personal Author, Subject, and Report Number

Indexes are provided. This report (DOE/ TIC-3386, May 198 1) is available from the National Technical Information Service, US. Department of Commerce, Springfield, Virginia 22161. Price: Printed Copy A99.

## CHANGES IN THE COMPUTER CODE COLLECTION

The following changes were made during the month. .

### CCC-2541 ANISN-ORNL

The IBM version (A) of ANISN-ORNL, a multigroup one-dimensional discrete ordinates transport code system with anisotropic scattering, was extended to include new capabilities provided by the Health Physics Subdivision, Atomic Energy Board, Pretoria, South Africa, The South African contribution allows production of an output file of weighted cross sections and activity output written in FIDO format. FORTRAN IV; IBM 360,

### PSR-63/ AMPX II

AMPX-II, the code package for generating neutron, gamma-ray, or coupled neutron-gamma-ray multigroup cross sections, was extended to include ROLAIDS sample problem input and output to the package. In addition FORTRAN equivalents to the assembler language service routines were added. FORTRAN IV; IBM 360. to add Subroutine Library (service routines). FORTRAN IV; IBM 360,

### PSR-160/ ENBAL2

ENBAL2, designed to generate multigroup neutron and gamma-ray kerma factors, was contributed by the University of Birmingham in England. Computation of kerma factors is done from existing sets of multigroup cross sections, allowing the user to make best use of the various cross sections available in the multigroup data. Options available for the format of output of the kerma factors include formats enabling direct use of the values in transport codes such as ANISN (CCC-254). Reference: Paper 31 /02. FORTRAN IV; IBM 37013033.

### SCA-1/ HEATING-5

The IBM version of HEATING-5, a generalized heat conduction code developed for inclusion in the SCALE system, has been updated to correct errors called to RSIC attention by F. R. Vaughn, NUS Corp., Rockville, Maryland, and Doyle Turner, Computer Sciences Division, UCCND, Oak Ridge, Tennessee. Details of the update may be requested from RSIC.

## PERSONAL ITEMS

After 18 years as head of the Nuclear Engineering Program (NEP) at the University of Missouri-Rolla, D. R. Edwards has returned to research and teaching, free of administrative duties. Albert Bolon is now director of the Nuclear Reactor Facility at the University and Nick Tsoulfanidis is head of the Nuclear Engineering Program.

Kenneth D. George, a recent Union Carbide retiree, is now a consultant in internal dosimetry with Me&Physics, Inc. in Tuxedo, New York.

Several people, well known to RSIC Newsletter readers, are involved in standards work. C. D. Thomas, Jr, of Science Applications, Inc, joins NUPPSO as management chairman of the re-established subcommittee, ANS-5, Fission Products, He has actively participated in ANS standards work as chairman of ANS-I 8.1, Source Term Specification. P. L. Ziemer, Ph.D. of Purdue University is the new vice-chairman of N13, Radiation Protection, replacing R. Synveen. B. A. Zolotar of Technology Development Corp. is the

ANS Reactor Physics Division Chairman for the coming year. He is a member of ANS-19, Physics of Reactor Design. S. N. Purohit of Consolidated Edison is the treasurer of the Reactor Physics Division and also serves on ANS-19, as well as ANS-6.1.2, Neutron and Gamma-Ray Cross Sections for Nuclear Radiation Protection Calculations. L. L. Barinka of Interactive Computer Modeling has been elected to the post of secretary of the Mathematics and Computation Division and is also chairman of Subcommittee ANS-10, Mathematics and Computation. E. T. Clarke of Technical Operations, Inc. is treasurer of the Isotopes and Radiation Division, and is the ANS representative to N13, Radiation Protection. W. N. McElroy is Chairman of Subcommittee E- 10.05 (Nuclear Radiation Metrology).

#### UPCOMING MEETINGS .

##### Cancellation of the February 1982 A1HA/HPS Joint Meeting

The American Industries Hygiene Association/ Health Physics Society Symposium Steering Committee has announced the cancellation of the joint meeting that was to be held in San Diego in February 1982 because not enough abstracts were received to assemble a scientific program. The Joint Program Committee deliberated on other ways to carry out the theme of the meeting—"Common Frontiers in Industrial Hygiene and Health Physics"—but the Steering Committee unanimously agreed that there was not enough material for a productive meeting in 1982.

##### Topical Meeting on Accelerator Health Physics

The Florida Chapter will put on a Midyear Topical Meeting February 21-24, 1982 at the Orlando Holiday Inn (International Drive). A call for abstracts on the topic of *Accelerator Health physics* has been issued. The tentative program is as follows: Accelerators: 1896 to 1999 (The Accelerator in Medicine and in Research); Radiation Production/Source Terms (Electron Accelerators to 10 MeV, Above 10 MeV, and Proton and Heavy Ion Accelerators); Shielding (Basic Interactions, Computer Codes vs Empirical Approaches, Design of Typical Medical Installations, Design of Typical Industrial Installations, and Design of Special Purpose/ High Energy Installations); Measurement of the Radiation Field (Fluence Determination, Dose Measurements, KERMA Determinations, Dose Equivalent Determinations, Small beams, short pulse, repetition rate, etc., and Personnel, Area and Beam Loss Monitoring); Environmental Impacts (Direct and Scattered Radiation, Activated Materials in Air/ Water, and "Fencepost" Dose Limit Rationale); Decontamination and Decommissioning (Induced Long Lived Radioactivity, Determinations, and Criterion for Disposal or Reuse); Rationale for and Impact of Potential Changes in the Dose Limits (Hiroshima and Nagasaki Revisited, Biological Significance of Small Beam or Partial Body Irradiation, BEIR III, and EPA Guidance); and Operational Radiation Safety Programs (Survey Requirement-Type/ Frequency, Staffing Levels-Number-j Qualifications, Personnel Protective Systems-Interlocks, Barriers, and Training Requirements).

In view of the short time available, it is important that the Program Committee receive abstracts on any of these topics as soon as possible—preferably by the 30th of October. *Send the abstracts directly to Charles B. Meinhold, President, Health Physics Society, Brookhaven National Laboratory, Upton, NY 11973, (516)282-4209, FTS 666-4209.*

*The National Nuclear Data Center will host a Seminar/workshop entitled "Thermal Reactor Benchmark Calculations, Techniques, Results, and Applications." This meeting, originally scheduled for October 19 and 20, 1981 will be held May 17 and 18, 1982. The Electric Power Research Institute (EPRI) will sponsor the meeting and publish the proceedings.*

*The highlight of the workshop will be an informal panel discussion. This workshop will review the formal presentations, point out where problem areas still exist, and make formal recommendations for future work.*

*For details on the call for papers for the NNDC Seminar/ workshop see the July 1981 RSIC Newsletter.*

### **Courses in Handling Radiation Accidents**

*The Radiation Emergency Assistance Center/ Training Center announces the following courses in handling radiation accidents in 1982.*

**Medical Planning and Care in Radiation Accidents**---November 26, 1981, March 8-12, 1982, August 23-27, 1982.

**Health Physics in Radiation Accidents**--January 11-15, 1982, September 20-24, 1982.

**Handling of Radiation Accidents by Emergency Personnel**--November 11-13, 1981, February 10-12, 1982, March 17-19, 1982, May 5-7, 1982, September 8-10, 1982.

*There is no tuition fee, An incidental fee of \$75 for Medical Planning and Cure in Radiation Accidents and Health Physics in Radiation Accidents and of \$60 for Handling of Radiation Accidents by Emergency Personnel is payable in advance.*

Participants are responsible for their travel, housing, and meal expenses. Housing and transportation information will be sent to each registrant. The deadline for receiving applications is two weeks before the start of each course.

Respective courses are acceptable for credit in Category 1 for Physician's Recognition Award by the American Medical Association, the Tennessee Nurses' Association, the American College of Emergency Physicians, the American Board of Health Physics, and the American Academy of Physicians' Assistants. These courses also meet requirements of the Nuclear Regulatory Commission for training emergency personnel,

Inquiries should be sent to: Robert C. Ricks, Ph.D., Associate Director, REACT/S, Oak Ridge Associated Universities, P.O. Box 117, Oak Ridge, TN 37830, (615) 576-3131.

### **Calendar of Meetings**

We call attention to the following meetings.

July 1982

*International Topical Mtg. Fast Breeder Reactor Safety & Related Design & Operational Aspects*, July 19-23, 1982, Lyon, France, Contact: J.B. van Erp, ANL-Bldg. 208, 9700 S. Cass Ave., Argonne, IL 60439, 312/972-4649.

*2nd Joint ASME/ANS Nuclear Conference*, July 25-28, 1982, Portland Hilton, Portland, OR. Contact: Larry Oyen, Sargent & Lundy, 55 E. Monroe, Chicago, IL 60603, 312/269-2000.

September 1982

*ANS National Workshop on Low Level Waste Packaging/Shipping*, September 12-15, San Diego, CA. Contact: Neil Norman, Manager, Environ. Projects, Bechtel National Inc., 724 47th Avenue, San Francisco, CA 94121, 415/768-4035.

### **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,*

**THIS LITERATURE IS ON ORDER, IT IS NOT IN OUR SYSTEM. PLEASE ORDER FROM NTIS OR OTHER AVAILABLE SOURCE AS INDICATED.**



# REACTOR AND WEAPONS RADIATION SHIELDING LITERATURE

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CONF-801064, pp.93-103

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