RSIC Newsletter

OAK RIDGE NATIONAL LABORATORY
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The world is before you, and you need not take it or leave it as it was when you came in—James Baldwin

A TIMELY REMINDER!

Your feedback of ideas, suggestions, comments, corrections, new information, and/or philosophic musings is much appreciated by the RSIC staff. Your response to the periodic survey is essential to our continuing viability. Within this season of New Years Resolutions, we hope that one resolve will be to immediately respond to our request for current information concerning your work and its sponsors.

We again append a copy of the RSIC Periodic Distribution Query Form which was initially published in the *RSIC Newsletter* No. 217, December 1982. Please tear off the two-page, two-part sheet, answer all parts of the query and return it immediately. Failure to respond will be interpreted as a lack of interest in receiving the *RSIC Newsletter* and the distribution list will be modified accordingly.

New Publication Noted

Medical Physics Data Book, T. N. Padikal and S. P. Fivozinsky, Eds., NBS Handbook 138, 127 pp., 1982, Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402, SN 003-003-02391-4, is now available at a cost of $5.50 from the Superintendent of Documents or from the American Association of Physicists in Medicine, 335 East Forty-fifth Street, New York, NY 10017.

CHANGES TO THE COMPUTER CODE COLLECTION

Changes to the code collection for the month of December included a newly frozen version, an update, and an extension of existing code systems.

CCC-79/ISOSHLD II

This kernel integration code package with general purpose isotope shielding analysis was updated to correct a data library incompatibility. File 5 of the tape list formerly issued for the IBM version (B) of this code package was omitted from the ISOSHLD II portion of the package because that data file is compatible with ISOSHLD III only. The UNIVAC version (A) of the package was not affected by this update. FORTRAN IV and assembler language; IBM 360/370, 3033 and UNIVAC.

CCC-203/MORSE-CG

The IBM 360 package of the general purpose Monte Carlo multigroup neutron and gamma-ray transport code system has been extended by the addition of 2 groups of special source routines for determination of POINT and EVENT value. Some changes were also made in miscellaneous user routines in Subroutine SOURCE that has the comment "sample source for K-Eff calculations." File 3 of the original master of the RANF file was divided into 2 files in order to use as packaged. DOMINO II sample problem, input and output, and MORSE (DOMINO) output was added to reflect changes made to the code from previous updates. Suggestions for these changes were contributed by the original ORNL code developers. Neither of the additions affect the CDC (B) or UNIVAC (A) versions. FORTRAN IV and Assembler Language; IBM 360.

CCC-371/ORIGEN-II-1982

The original ORIGEN II code system was re-

placed by a newly frozen version provided by the Oak Ridge National Laboratory. The new version represents a number of corrections and minor modifications made as a result of user feedback and internal examination of the uses of ORIGEN II. Select changes were made to enhance usefulness of the package. Cross section libraries of thorium-cycle LMFBRs were added. A description of the new version may be requested from RSIC. Both the CDC and the IBM versions of the code are replaced by this newly frozen version. FORTRAN IV; IBM 3033 and CDC.

PERSONAL ITEMS

R. B. Perez, G. De Saussure, J. L. Munoz-Cobos, J. Barhen, and **R. Q. Wright,** of the University of Tennessee and Oak Ridge National Laboratory, received the *Best Paper Award* for their paper, "On the ENDF/B Unresolved Resonance Region Formalism Representation." The winning paper was chosen by the ANS Reactor Physics Division from among those presented at the December 1981 ANS Winter Meeting in San Francisco. In addition, a special certificate of appreciation was presented to **Paul Greebler,** who has served as chairman of the division and was instrumental in establishing the division's standards program.

David R. Lide, Chief of the Office of Standard Reference Data, National Bureau of Standards, was elected Secretary-General for ICSU/CODATA for the 1982–86 period at the thirteenth General Assembly held October 8–9, 1982. The Secretary-General has oversight responsibility for CODATA scientific activities, the operation of the CODATA Secretariat in Paris, and the various publication programs. Lide was the U.S. National Delegate to CODATA from 1973–81 and has been a member of the Executive Committee since 1978.

William N. McElroy, manager of irradiation environment at the Hanford Engineering Development Laboratory, Richland, Washington, was a recipient of the 1982 Award of Merit by the American Society for Testing and Materials. The award, presented at the Eleventh International Symposium on the Effects of Radiation on Materials held June 28 in Scottsdale, Arizona, honored McElroy "for his distinguished service in the advancement of voluntary consensus standarization in the field of nuclear radiation metrology, and for his leadership in ASTM and related international standardization efforts."

Martin Becker, was one of two professors of nuclear engineering at Rensselaer Polytechnic Institute (RPI), Troy, New York to receive high awards. Becker, a Fellow of the American Nuclear Society, was selected by the American Society for Engineering Education to receive its 1982 *Glenn Murphy Award,* an annual award recognizing a distinguished nuclear engineering educator for notable professional contributions to the teaching of undergraduate and/or graduate nuclear engineering students. The award was presented at the association's annual conference, held June 20–24, at Texas A&M University.

Don Steiner, RPI professor of nuclear engineering and also a Fellow of ANS, received a certificate of appreciation from the U.S. Department of Energy, citing him for "personal commitment through service as Manager of the Fusion Engineering Design Center for the Technical Management Board, as well as for significant contributions to the definition of the Fusion Engineering Device."

VISITORS TO RSIC

The following persons came to RSIC during the month of December to visit and/or to use RSIC facilities: *Charles M. Ward,* U.S. Army Foreign Science and Technology Center, Charlottesville, Virginia and *Roger Rydin,* University of Virginia, Charlottesville.

UPCOMING MEETINGS, COURSES, AND SYMPOSIA

Please note the following information about upcoming events of interest.

Call for Papers on Numerical Methods

The *International Conference on Numerical Methods in Nuclear Engineering,* will be held September 6–9, 1983, in Montreal, Quebec, Canada. The conference is sponsored by the Nuclear Science and Engineering Division of the Canadian Nuclear Society, and papers are solicited for the the following general topics:

- reactor dynamics and safety;
- fuel and fuel channel modeling;
- thermal hydraulics;
- probabilistic risk assessment;

- multidimensional reactor analysis;
- transport theory (fission and fusion reactors, shielding);
- power control and optimization;
- in-core data processing algorithms;
- software engineering;
- mathematical models for advanced fuel cycles; and
- resource and energy management.

The deadline for 750—1200-word summaries is March 25, 1983; the final paper deadline is July 15, 1983. For further details contact Riccardo A. Bonalumi, Nuclear Studies and Safety Department, H16 H17, Ontario Hydro, 700 University Ave., Toronto, Ont. M5G 1X6, Canada; phone 416-592-7026.

Courses

A short course on **Criticality Accident Dosimetry,** will be held April 11–15, 1983, at the Dosimetry Applications Research Facility of the Oak Ridge National Laboratory in Oak Ridge, Tennessee. The fee for the course is $750; registration deadline is March 25, 1983. The course will provide a detailed survey of neutron and gamma radiation dosimetry associated with nuclear criticality accidents. Lectures will be presented concerning area and personnel monitoring, chromosome aberrations, dose estimation, criticality alarm monitoring, and biological effects of radiation. Experimental work will allow participants to obtain dose estimates and accident information using neutron activation (foils, blood sodium, hair), and thermoluminescent methods. Criticality accidents will be simulated by operating the Health Physics Research Reactor in the pulse mode. Additional information may be obtained from R. E. Swaja or C. S. Sims, ORNL, P.O. Box X, Bldg. 7710, Oak Ridge, Tennessee 37830; phone 615-574-5851.

The University of New Mexico Department of Chemical and Nuclear Engineering is sponsoring a course entitled, **Nuclear Criticality Safety,** May 16–20, and a **Nuclear Criticality Specialist's Workshop** to follow on May 23–25. Both the course and the workshop will be held in Taos, New Mexico. The Nuclear Criticality Safety course will provide an overview of the theory and practice of nuclear criticality for those with less than two years of experience. The registration deadline is April 1, 1983. The course fee is $625 for ANS Nuclear Criticality Safety Division members and $650 for nonmembers. The workshop is intended for those who have attended an earlier basic course, such as the course which precedes this workshop, or who have equivalent experience. The registration deadline for the workshop is March 1, 1983. Additional information about both the course and the workshop may be obtained from Glenn A. Whan, Department of Chemical and Nuclear Engineering, University of New Mexico, Albuquerque, NM 87131; phone 505-277-5442 or -5431.

Statistics for Radiological Sciences and Protection will be presented May 29–June 3, 1983, in Merrimack, New Hampshire. The course presents the development and use of fundamental statistical concepts applicable to data reduction and error analyses. Concepts and relationships are reinforced by the presentation of applications in the field of radiological sciences and protection and through the solutions of sample problems. The manual and text are included for a fee of $650. Further information and registration forms may be obtained from the course sponsor, Kenneth W. Skrable, 6 Ruthellen Rd., Chelmsford, Massachusetts 01824; phone 617-453-1045 or 452-5000, ext. 2239.

Calendar

Please note the following.

February 1983

International Symposium on Beta Dosimetry and Measurement, Washington, D.C., February 15–17, organized by the U.S. Department of Energy, the U.S. Nuclear Regulatory Commission, the Institute of Nuclear Power Operations, and the American Health Physics Society.

Annual Meeting of the Radiation Research Society, San Antonio, Texas, February 27–March 3. Contact: Diane Taub, 4720 Montgomery Lane, Suite 506, Bethesda, Maryland 20014.

Waste Management '83, Tucson, Arizona, February 27–March 3, sponsored by the University of Arizona, the American Nuclear Society, and the American Society of Mechanical Engineers' Radwaste Systems Committee. Contact: General Chairman Roy Post, Editor, *Nuclear Technology,* University of Arizona, Tucson, Arizona 85721; or

Technical Program chairman M. E. Wacks, Department of Nuclear and Energy Engineering, University of Arizona, Tucson, AR 85721.

March 1983

Fuel Cycle Conference '83 Westin Crown Center, Kansas City, Missouri, March 20–23. Contact: Edwin Wiggin, Executive Vice President, Atomic Industrial Forum, Inc., 7101 Wisconsin Avenue, Bethesda, Maryland 20814; phone 301-654-9260.

Topical Meeting on Advances in Reactor Computations, Salt Lake City, Utah, March 28–31, sponsored by the ANS Mathematics and Computation Division and the ANS Idaho Section. Contact: General Chairman Vincent Acquino, Argonne National Laboratory, P.O. Box 2528, Idaho Falls, Idaho 83401, phone 208-526-7616; or Technical Program Chairman Elmer Lewis, Department of Mechanical and Nuclear Engineering, Northwestern University, Evanston, Illinois 60201, phone 312-492-7025.

April 1983

Topical Meeting on Technology of Fusion Energy, Knoxville, Tennessee, April 26–28, sponsored by the ANS Oak Ridge/Knoxville Section, the ANS Fusion Energy Division, Oak Ridge National Laboratory, the U.S. Department of Energy, and the Electric Power Research Institute. Contact: General Chairman James L. Scott, ORNL, P.O. Box X, Oak Ridge, Tennessee 37830, phone 615-574-4834; or Technical Program Chairman Charles Flanagan, Fusion Energy Div, Oak Ridge, TN 37830, phone 615-576-5503.

May 1983

Louisiana State University is offering a five-day short course on basic health physics to begin on May 9, 1983 at a cost of $425. Contact: J. C. Courtney, Nuclear Science Center, Louisiana State University, Baton Rouge, LA 70803: phone (504) 388-2163.

6th International Conference on Radiation Shielding Tokyo, Japan, May 16–20, 1983, Japan. Sponsored by Japan Atomic Energy Research Institute (JAERI), Cosponsoring/cooperating organizations: Science and Technology Agency (government of Japan); IAEA; OECD-NEACRP; Power Reactor and Nuclear Fuel Development Corporation (PNC); Japan Nuclear Ship Research and Development Agency; Federation of Electric Power Companies; five atomic industry groups and five construction companies; the Atomic Energy Society of Japan; and the American Nuclear Society. Contact: T. Asaoka, Division of Reactor Engineering, JAERI, Tokai-mura, Ibaraki-ken, 319-11 Japan. Final paper deadline, May 2, 1983.

June 1983

Third International Conference on Emerging Nuclear Energy Systems, Helsinki, Finland, June 6–9, sponsored by the Finnish Nuclear Society, the European Nuclear Society, the American Nuclear Society, and the USSR Academy of Sciences. Contact: Jorma Routti, Helsinki University of Technology, Department of Technical Physics, SF-02150 Espoo 15, Finland (Telex: 12-1591); or S. J. Karttunen, Technical Research Centre of Finland, Nuclear Engineering Laboratory, P.O. Box 169, SF-0181 Helsinki 18, Finland.

ANS Annual Meeting, Detroit, Michigan, June 12–16. Contact: General Chairman Walter J. McCarthy, Jr., Chairman and Chief Executive Officer, Detroit Edison, 2000 Second Ave., Detroit, Michigan 48226, phone 314-237-8800; or Technical Program Chairman Denis O'Brien, Commonwealth Edison, Route 1-Box 84, Braidwood Station, Braceville, Illinois 60407, phone 815-458-2801.

Fifth Summer School on Computing Techniques in Physics, Tabor, Czechoslovakia, June 21–30. Contact: Dr. J. Nadrchal, Summer Schools on Computational Physics, Institute of Physics, Czechoslovak Academy of Sciences, Na Slovance 2, CS - 180 40 Praha 8, Czechoslovakia.

October 1983

3rd Topical Meeting on Fusion Reactor Materials, Albuquerque, New Mexico, October 10–13, sponsored by Sandia National Laboratories. Contact: M. J. Davis, General Chairman, 3rd Topical Meeting on Fusion Reactor Materials, Dept. 5830, Sandia National Laboratories, P.O. Box 5800, Albuquerque, NM 87185, USA

May 1984

International Radiation Protection Association (6th Congress and exhibition), Berlin (West), Federal Republic of Germany, May 7–12, 1984. Contact: R. Neider, Bundesanstalt fur Materialprufung (BAM), Unter den Eichen 87, D-1000 Berlin 45.

DECEMBER 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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CORRECTION TO ASTM STANDARDS

It has come to our attention via a telephone call from Mark Rowland of the University of New Mexico that a telephone number for ordering ASTM Standards given in the December issue of the newsletter was incorrect. The correct number is 215-299-5585.

RADIATION SHIELDING INFORMATION CENTER
PART I
RSIC Periodic Distribution Query

The *RSIC Newsletter* carries information about RSIC products and services. Do you wish to continue to receive it? ____. If so, please fill out the form below as completely as possible and mail it immediately. We will remove from the distribution list the names of those not responding on or before March 1, 1983. Please print or type the name and mailing address. Use additional paper as necessary.

A. Name: _____

Organization: _____

Mailing: _____

Address: _____

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Telephone No: _____
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B. Organization/institution type:

Utility	___	Industrial Laboratory	___	Health Care Agency	___
Consultant	___	Industrial Vendor	___	Government Lab.	___
Architect-Engineer	___	University	___	Hospital	___
Government Contractor	___	International Agency	___	Software Service	___
Power Reactor	___	Other _____			

C. What are the areas in which you are engaged?

Breeder Reactor	___%	Waste Management	___%
Gas Cooled Reactor	___%	Reactor Safety	___%
Light Water Reactor	___%	Criticality Safety	___%
Heavy Water Reactor	___%	Shipping Casks	___%
Fusion - Magnetic	___%	Fuel Cycle	___%
Fusion - Inertial	___%	Health Physics	___%
Fusion - Hybrid	___%	Occupational Exposure	___%
Weapons	___%	Radiation Damage	___%
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D. Organization/institution type: For United States installation, please indicate your source of financial support; if more than one sponsor, indicate proportionate fraction of time spent on each. This information is essential.

DOE - Breeder	___%	Defense Nuclear Agency	___%	NRC	___%
DOE - Fusion	___%	Army	___%	Utility	___%
DOE - Military	___%	Navy	___%	EPRI	___%
DOE - LWR	___%	Air Force	___%	State	___%
DOE - Navy	___%	Defense - Other	___%	Private	___%
DOE - Other	___%	Civil Defense	___%	University	___%
Other _____					

PART II

SURVEY OF RADIATION PROTECTION, SHIELDING AND TRANSPORT COMPUTING TECHNOLOGY
(Please answer each question, using additional paper as needed)

1. Do you compute radiation exposures or perform radiation transport calculations, (e.g., in-plant exposures, environmental studies, shield design)? Please describe.

2. Do you use computerized numerical data bases or cross section libraries?

3. What computing technology do you need (e.g., accurate, fast code to perform neutron streaming studies)?

4. What data libraries do you need? (e.g., radioactive decay nuclide data base, albedo data for MORSE for concrete elements)?

5. Describe your computer environment. What computers do you use?

6. What trends do you see — more computation on mini- and microcomputers, in-house or centralized computing facilities via remote terminal?

7. Do you have any outstanding shielding problem areas that should be addressed through additional R & D?

8. Have you obtained, and do you use, computer codes and data from RSIC? List; comment.

9. Have you developed computer codes and data libraries that you are willing to share through RSIC? Please list and cite documentation, if any exists.

10. Have you already placed your work in RSIC? ____. If yes, indicate below if it is time for an update. Do you have publications which you wish to contribute? Please comment:

_____

_____

_____

Please make any additional comments or suggestions.

PLEASE RETURN TO: *Radiation Shielding Information Center*
Oak Ridge National Laboratory
P.O. Box X
Oak Ridge, Tennessee 37830