

# RSIC Newsletter



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(For RSIC TELEX Communication Only)

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*A word to the wise is not sufficient if it doesn't make sense—James Thurber*

## 7TH ICRS HOSTED BY ENGLAND

The *Seventh International Conference on Radiation Shielding (ICRS)* will be held at the Royal Bath Hotel, Bournemouth, United Kingdom (UK), September 12–16, 1988. The 7th ICRS is jointly organized by the OECD Nuclear Energy Agency (OECD/NEA) and the UK Atomic Energy Agency, Winfrith.

The scope of the conference includes topics of interest to radiation shielding and transport specialists in fission and fusion reactors, waste management and disposal, fuel reprocessing and decommissioning, radiological and materials dosimetry, accelerator design, and the use of radioisotopes in industry and medicine. Those who wish to respond to the call for papers, to be issued at a later date, should consider the following preliminary list of topics:

- Status and current requirements in data for shielding;

- Advances in calculational techniques—Monte Carlo, deterministic methods, design methods, interfacing of calculational methods;
- Developments in measurement techniques for use in the laboratory or in nuclear power plants;
- Current design problems and proposed solutions;
- Comparison of measurement and calculations on operating nuclear power plants and in benchmark experiments;
- Sensitivity methods and optimization in shielding; and
- Fuel shielding casks—design, calculation, and measurement.

Additional news will be published in this newsletter as it becomes available.

## CHANGES TO THE COMPUTER CODE COLLECTION

Six changes were made to the computer code collection during the month: the documentation for four existing code packages was modified or extended, an existing code package was replaced with a newly frozen version, and the file identifications for a PC code package were modified to distinguish between different versions. The newly frozen version was contributed by Japan.

### CCC-462 MICRO/NCRP49

At the suggestion of the State of Iowa Bureau of Environmental Health, the file identifications were clarified to better distinguish the three computer versions. The code system for implementing the methodology of NCRP Report 49, *Structural Shielding and Design and Evaluation for Medical Use of X Rays and Gamma Rays of Energies up*

to 10 MeV, was contributed by the Rhode Island Department of Health and the U. S. Environmental Protection Agency, Region I, Boston, Massachusetts. One double-sided, double-density diskette will hold all three versions. References: Informal notes (October 1984). BASIC; TRS-80, Model II/12/16, TRS-80 Model 4, and IBM PC.

#### CCC-464/BISON1.5

A newly frozen version of this one-dimensional discrete ordinates transport and burnup calculation code was contributed by the Nuclear Engineering Research Laboratory, Faculty of Engineering, University of Tokyo, Tokai-mura, and Nuclear Engineering Department, University of Tokyo, Tokyo. It calculates, through the progress of fuel burnup, the neutron and gamma ray flux, nuclear heating rate, effective neutron multiplication factor, neutron and gamma-ray energy spectra, reaction rate, radiation damage, or detector responses. It is particularly applicable for fusion-fission hybrid reactor calculations. The one-dimensional transport calculation is based on routines from CCC-254/ANISN. Bateman's method is adopted to solve the production-depletion equations for burnable nuclides. The burnup calculation is carried out by performing these two processes iteratively. BISON1.5 can be used for adjoint calculations. The data input can be in free format. The BISON58 42-group neutron and 21-group gamma-ray coupled cross-section set for 58 nuclides and the ACIX nuclear data library for burnup calculation are provided as part of the package. Reference: Informal Notes (February 1987). FORTRAN 77; HITACHI M-200H.

#### CCC-476/CAAC

The document for the AIRDOS-EPA part of this code system, used for the 1984 Clean Air Act assessments, was modified to alert users that the

square grid option is not operable in the current version (see June 1987 *RSIC Newsletter*). We thank the ORNL contributors for pointing out this problem. References: ORNL-5532 (1979), ORNL-5692 (1981), and ORNL-5952 (1984) and informal notes. FORTRAN IV; IBM-3033(A) and FORTRAN 77; VAX(B).

#### CCC-479/BALTORO

The document for this general purpose Monte Carlo radiation transport code system was updated to properly credit the original contributor of the package, the Institute of Nuclear Physics, Krakow, Poland. References: INP Rapport No. 1228/AP (1983). FORTRAN IV; CDC 6600/7600.

#### PSR-137/MARLOWE

Update Bulletins for this code for the simulation of atomic-displacement cascades in solids in the binary collision approximation are provided periodically by the contributors at ORNL. An Update Bulletin describes cumulative changes recommended for the version of MARLOWE released in July 1984. The latest, Update Bulletin 4, dated June 8, 1987, is available upon request from RSIC. References: Informal User's Guide; *Phys. Rev. B*, **9** (12), 5008 (1974).

#### PSR-233 MICRO/LSL-M2

A document update was made for this code system for adjusting neutron spectra calculated in nuclear reactors. The added material, provided by the ORNL contributors, clarifies the steps required to execute the eight sample problems provided with the package. Reference: NUREG/CR-4349 (ORNL/TM-9933); Informal Notes (September 1986). FORTRAN 77; IBM-PC/AT or IBM-PC with 640K memory and 8087 math coprocessor and fixed disk; IBM PC Professional FORTRAN Compiler, Version 1.0, under DOS 3.1.

## CHANGES TO THE DATA LIBRARY COLLECTION

A new data library was added to the collection and an existing data library was extended with a new PC version.

#### DLC-23G MICRO/CASK81

An IBM PC version of this 22-neutron, 18-photon group,  $P_3$  cross sections for shipping cask analysis library was contributed by Transnuclear,

White Plains, New York. The data were collapsed from a fine-group structure using a weighting function representative of a water-uranium mixture. Thus, the application of this data for problems not similar to this type of problem should be done with caution. Data are included for:  $^1\text{H}$ ,  $^4\text{He}$ , Be,  $^{10}\text{B}$ , C, N, O, Na, Mg, Al, Si, K, Ca, Ti, Cr, Mn, Fe, Ni, Cu, Zr, Mo, Sm, Ta, W, Pb,  $^{235}\text{U}$ ,  $^{238}\text{U}$ ,  $^{239}\text{Pu}$ , and  $^{240}\text{Pu}$ . Two convenient programs are provided for application of the data with CCC-255C MICRO/ANISN-W. The STAR14 program transfers the desired cross sections from the DLC-23G MICRO/CASK81 library to a 14\* array for use with the PC version of either CCC-255C/ANISN-W or PSR-229/GIP. DOSE reads the scalar flux and interval dimensions from the ANISN output to create a dose rate file. References: Informal Notes (June 1987, June 1981, March 1975, April 1974, March 1974, October 1973), *Trans. Am. Nucl. Soc.*, **15** (1972) 535,547. FORTRAN 77, Microsoft FORTRAN Optimizing Compiler; IBM PC XT. Two double-sided, double-density diskettes (360 KB) are required.

#### DLC-127/AGDATA

These two agricultural production data libraries (AGDATC and AGDATG) for dose and risk

assessment models were contributed by ORNL. These data, in a different form, are used in the CRRIS codes TERRA and ANDROS to estimate the health effects and risks from airborne radionuclides deposited on food and feed crops. They are also suitable for use in the assessment of other airborne pollutants that can affect man from food ingestion, such as effluents from synfuels or coal-fired plants. Both libraries contain crop and livestock feed production and productivity data, livestock inventories and sales data, and meteorological information (40 parameters in all) for any of 3067 counties (AGDATC) or 3524,  $\frac{1}{2}$ -by- $\frac{1}{2}$  degree longitude-latitude grid cells (AGDATG) that define the conterminous United States (excluding Alaska and Hawaii). The 1974 Census of Agriculture is the source of most of these data which were supplemented with the U.S. Department of Agriculture, Economics, Statistics & Cooperatives Service surveys of farmers and people who do business with farmers to provide agricultural information resolved to the state level. Two Fortran 77 retrieval programs, AGC and AGG, are provided for editing the county and grid-cell organized data files, respectively. References: *Journal of Environmental Quality*, **14**(4), 509-516 (October-December 1985) and ORNL-NSF-EP-35 (January 1973). EBCDIC records; IBM 3033.

### SPEED)S ADDED TO RSIC NETWORK

Electronic mail and file transfer to or from RSIC is possible on several networks. The latest capability is the use of SPEED)S for the transfer of PC files.

SPEED)S provides a "store-and-forward" file transfer capability using an error-free protocol, microcom networking protocol, via Telenet. Telenet is available in more than 500 cities in the U.S. and 50 countries. Personal computers supported are IBM PC or compatible and the Apple Mac Intosh. The SPEED)S system is easy to use; menus guide the user efficiently.

To acquire SPEED)S capability, both the sending and receiving parties need a SPEED)S account and software available from SPEED)S Corporation, 430 First Ave. North, Minneapolis, MN

55401-1713 (phone 612-341-0920). The cost of an account and manual is minimal. Additional charges are based on the number of bytes sent or received.

The SPEED)S service is intended as a substitute for mailing floppy diskettes. We recommend BITNET or ARPANET to those with access to these networks, since SPEED)S is limited to the speed of a modem (1200 or 2400 baud).

RSIC network addresses are:

BITNET: pdc@ORNLSTC.

ARPANET: pdc@ORNL-STC10.ARPA.

ANSIRS (American Nuclear Society):

AMN007.

SPEED)S: 1779.

Easylink and Telex: See masthead.

### NCRP Election Results

President of the National Council on Radiation Protection and Measurement (NCRP), Warren K. Sinclair, has announced the election of the following new Council members: *Michael A. Bender*, Brookhaven National Laboratory, Upton, New York; *Bruce B. Boecker*, Lovelace Inhalation Toxicology Research Institute, Albuquerque, New Mexico; *Stanley B. Curtis*, Lawrence Berkeley Laboratory, Berkeley, California; *Ethel S. Gilbert*, Battelle Pacific Northwest Laboratories, Richland, Washington; *Joel E. Gray*, Mayo Clinic, Rochester, Minnesota; *Kenneth R. Kase*, University of Massachusetts Medical Center, Worcester, Massachusetts; *Paul Slovic*, Decision Research, Eugene, Oregon; and *Marvin Ziskin*, Temple University School of Medicine, Philadelphia, Pennsylvania.

Those reelected to the Council are: *Patricia W. Durbin*, Lawrence Berkeley Laboratory; *R. J. Michael Fry*, Oak Ridge National Laboratory (ORNL), Oak Ridge, Tennessee; *Charles E. Land*, National Cancer Institute, Bethesda, Maryland; *Mortimer L. Mendelsohn*, Lawrence Livermore National Laboratory, Livermore, California; and *Chester R. Richmond*, ORNL. *Donald G. Jacobs*, Roy F. Weston, Inc., Oak Ridge, Tennessee, was elected to serve on the Board of Directors. Reelected as President and Vice President were *Warren K. Sinclair*, NCRP, Bethesda, Maryland, and *S. James Adelstein*, Harvard Medical School, Boston, Massachusetts.

### ANS Divisions Elect Officers

The spring elections gave the following results in those divisions of interest to the radiation shielding and transport community.

**Radiation Protection and Shielding**—Chair, *Nick Tsoulfanidis*; vice chair, *William J. Johnson*; secretary, *Daniel T. Ingersoll*; treasurer, *William C. Hopkins*; executive committee, *Leland J. Carter*, *Jess Greenborg*, and *Mark L. Williams*; continuing EC members, *Thomas E. Albert*, *F. (Jeff) Boorboor*, *Margaret E. Emmett*, *Arnold H. Fero*, *J. Kenneth Shultis*, and *Richard A. Weller*.

**Mathematics and Computation**—Chair, *Robert M. Westfall*; vice chair, *Cyrus H. Adams*; secretary, *William R. Martin*; treasurer, *Richard J. Wagner*; executive committee, *Forrest B. Brown*, *Alain J. Kavenoki*, and *Paul J. Turinsky*; continuing EC members, *Raymond F. Alcouffe*, *Richard D. Lawrence*, *Paul Nelson, Jr.*, *Eugene L. Wachpress*, *Wallace F. Walters*, and *Brian A. Worley*.

**Fusion Energy**—Chair, *Robert A. Krakowski*; vice chair, *Carl D. Henning*; secretary/treasurer, *Donald L. Cook*; executive committee, *William J. Hogan*; *Gregory*

*A. Moses*, *John P. Holdren*, *Edward T. Cheng*, and *Francois Prevot*; continuing EC members, *Donald J. Grove*, *Lewis S. Masson*, *John Sheffield*, *Don Steiner*, and *A. Uckan*.

**Reactor Physics**—Chair, *Paul J. Turinsky*; vice chair, *Richard J. Cacciapouti*; secretary, *Henry H. Windsor*; treasurer, *Paul W. Dickson*; executive committee, *James W. Daughtry*, *Bernard I. Spinrad*, and *Armando Travelli*; continuing EC members, *Roger Owen Anderson*, *S. K. Bhattacharyya*, *Dimitrios M. Cokinos*, *Charles L. Cowan*, *Judson Hardy*, and *James A. Lake*.

### 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.

**Stefan Boerieu**, a long-term RSIC participant, formerly of Bucharest, Romania, has accepted a position in the Computer Systems Laboratory, Engineering, at the University of California-Santa Barbara. Dr. Boerieu is a specialist in disciplines related to radiation transport and shielding, is well versed in European and U.S. computing systems and technology, and is experienced in transport methods applications. He has served on the staffs of the Institute of Atomic Physics, Institute for Nuclear Technology, and the Institute for Nuclear Power Reactors in Romania. He was a visiting scientist in 1973 at Gulf General Atomic.

### Visitors to RSIC

During the month the following persons came for an orientation visit and/or to use RSIC facilities: *J. J. Wagschal*, Hebrew University, Jerusalem; and *David L. Coffey*, Nucleus, Inc., Oak Ridge, Tennessee.

### 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.

### CALLS FOR PAPERS

The following calls for papers have been issued for several conferences of interest to the radiation shielding community.

## Waste Management '88

The 14th Annual Waste Management Symposium will be held February 28–March 3, 1988, in Tucson, Arizona, under the sponsorship of the University of Arizona, ANS, the Electric Power Research Institute (EPRI), the American Society of Mechanical Engineers Radwaste Systems Committee, and several commercial institutions.

Papers on the research, development, and operational experience in both high- and low-level nuclear waste management and decommissioning are solicited for the following topics:

- Status of International Nuclear Waste Geologic Research Facilities and Activities
- Public Attitudes and Policy Issues in Nuclear Waste Management
- Social and Economic Issues in Nuclear Waste Management
- Legal Liability and Institutional Issues in Nuclear Waste Management
- Quality Assurance and Quality Control in Nuclear Waste Management
- Performance Assessment for Nuclear Waste Disposal
- Environmental Surveillance and Impacts in Nuclear Waste Disposal
- Federal/State/Indian Tribe Issues on Nuclear Waste Storage and Disposal
- Transportation of Nuclear Waste (Technical and Non-Technical Issues)
- Industry Concerns in Nuclear Waste Management
- Implementation of the Low-Level Radioactive Waste Policy Act of 1980 (PL96-573) and the Low-Level Radioactive Waste Policy Act Amendments of 1985 (PL99-240)
- Regulation and Licensing of LLW
- Mixed Chemical/Radioactive Waste Management
- Remedial Action Progress
- Monitored Retrievable Storage—Status and Technical Issues
- Defense HLW and TRU Storage and Disposal (including WIPP)
- Implementation and Status of the NWPA of 1982 (PL97-425)
- High-Level Waste Disposal Technology
- Modeling and Risk Assessment in HLW Storage and Disposal
- Beneficial Uses of Radioactive Waste
- General

Contributors are invited to submit extended summaries to the Technical Program Chairman, M. E. Wacks, Dept. of Nuclear and Energy Engineering, Univ. of Arizona, Tucson, AZ 85721 (phone 602-621-6160) by **September 18, 1987**.

## Safety of Next Generation Power Reactors

The ANS Nuclear Reactor Safety Division and Eastern Washington Section are sponsoring a topical meeting on *Safety of Next Generation Power Reactors*, May 1–5, 1988, in Seattle, Washington. The meeting is cosponsored by the ANS Reactor Physics, Reactor Operations, Human Factors, and Fuel Cycle and Waste Management Divisions, and the U.S. Dept. of Energy. International cooperation is provided by the European Nuclear Society, the Atomic Energy Society of Japan, the Canadian Nuclear Society, IAEA, and the OECD/NEA's Committee on the Safety of Nuclear Installations.

The focus of the conference is on the progress of commercial power reactor designs and special features which emphasize passive safety, enhanced engineered safety systems, or improved operability and maintainability. Recognizing that nuclear power reactor safety is a significant issue here and abroad, papers are invited from U.S. and international participants in the following subjects: Enhanced use of computers; Improved controllability and maintainability; Improved human factors considerations; Safety implications of advanced fuel cycles; Economic implications of attaining enhanced safety; and Public perception of safety.

**September 30, 1987** is the deadline for a 1000-word summary to be submitted to Alan E. Waltar, Technical Program Chairman, Westinghouse Hanford Company, P.O. Box 1970, Richland, WA 99352 (phone 509-376-0717).

## Tritium Technology in Fission, Fusion and Isotopic Applications

The Canadian Nuclear Society is sponsoring the *Third Topical Meeting on Tritium Technology in Fission, Fusion and Isotopic Applications*, with the cosponsorship of the ANS. The meeting will be held May 1–6, 1988, in Toronto, Ontario, Canada.

Papers are solicited in the following general topics: Tritium Processing; Tritium Safety; Measurement of Tritium; Tritium Properties and Interaction with Materials; Containment, Control, and Maintenance of Tritium Systems; and Tritium Applications. The deadline for 600–900-word summaries is **October 15, 1987**. Questions on the call for papers should be directed to the Technical Program Co-Chairmen, W. J. Holtslander, CRNL, Chalk River, Ontario K0J 1J0 (phone 613-584-3311), or M. L. Rogers, MRC-Mound, Miamisburg, OH 45342 (phone 513-865-3081).

General information about the meeting can be obtained from Carole Burnham, Canadian Fusion Fuels, Technology Project, 2700 Lakeshore Rd. W., Mississauga, Ontario L5J 1K3.

## Japan to Host NDST Conference

*The International Conference on Nuclear Data for*

*Science and Technology* will be held in Mito, Japan, May 30–June 3, 1988. The sponsor of the conference is the Japan Atomic Energy Research Institute (JAERI) with the cosponsorship of the Power Reactor and Nuclear Fuel Development Corp., the Institute of Physical and Chemical Research, the Federation of Electric Power Companies of Japan, the Japan Electrical Manufacturers' Association, the Japan Atomic Industrial Forum, Inc., and the cooperation of the Science and Technology Agency, OECD/NEA, the IAEA, the Atomic Energy Society of Japan, and the Physical Society of Japan.

Conference topics will include a wide range of basic and applied research on nuclear data as follows: Differential and Integral Data for Fission and Fusion Reactors; Facilities, Instruments and Methods for Nuclear Data Measurements; Nuclear Data Analysis and Evaluation; Nuclear Theory and Experiments; Nuclear Structure and Decay Data, and Their Applications; Nuclear Data for Nuclear Fuel Cycle and Waste Management, and Their Applications; Nuclear Data for Dosimetry and Radiation Damage Studies, and Their Applications; and Nuclear Data for Biomedical and Industrial Applications. Invited papers, oral presentations of contributed papers, and poster sessions are planned.

English is the conference language. Those interested in presenting a paper should inform the Secretariat at the earliest convenience, but not later than September 15, 1987. Abstracts of contributed (oral or poster) and invited papers are due no later than **November 5, 1987**. The manuscript must be made available to the Conference Secretariat at the beginning of the Conference. All accepted contributions and poster presentations will be published in the proceedings.

The conference will be held at Mito Plaza Hotel in Mito City, Ibaraki Prefecture, 100 km north of Tokyo. The nearest air terminal is the New Tokyo International Airport (Narita), and the most convenient way to reach Mito is by train from Tokyo.

Copies of the first and second announcements and other details of the conference may be obtained from Sin-iti Igarasi, Conference Secretariat, Nuclear Data Center, JAERI, Tokai-mura, Naka-gun, Ibaraki-ken 319-11, Japan (phone 0292-82-5480; Telex, J24596; Facsimile, 0292-82-0528).

### Effects of Radiation on Materials

Andover, Massachusetts, is the setting for the *14th International Symposium on Effects of Radiation on Materials*, June 27–29, 1988. The American Society for Testing and Materials (ASTM) Committee E-10 on Nuclear Technology and Applications, conference sponsor, is soliciting papers on the effect of radiation on metals, ceramics, and other materials which will see irradiation service in thermal, fast or fusion reactor

environments; the simulation of such environments using charged particles; and the effects of radiation on solid waste forms. Authors are requested to submit a 300–500-word abstract to the Symposium Chairman, N. H. Packan, ORNL, Bldg. 5500, P.O. Box X, Oak Ridge, TN 37831-6376 (phone 615-574-5070) by **September 30, 1987**.

Additional information about the symposium may be obtained from Theresa Smoot, ASTM, 1916 Race St., Philadelphia, Pennsylvania 19103 (phone 215-299-5413).

### Population Exposure From the Nuclear Fuel Cycle

The ANS Environmental Sciences, Radiation Protection and Shielding, and Fuel Cycle and Waste Management Divisions, and the ANS Oak Ridge/Knoxville Section are the sponsors for the ANS Topical Meeting *Population Exposure From the Nuclear Fuel Cycle*, to be held September 14–18, 1987, in Oak Ridge, Tennessee. In conjunction with the presentation of technical sessions which begin on Tuesday, six short courses sponsored by the Oak Ridge/Knoxville Section are offered on Monday as follows: Environmental Radiation Standards; Neutron Personnel Dosimetry; Biological Perspective of Occupational Exposure; Field Survey Methods and Applicable Standards; Monitoring Radon and Radon Daughter Concentrations; and Calculational Methods for Performing Environmental Radiological Assessment.

The technical sessions are tentatively planned as follows:

**Tuesday—Plenary Session, Keynote Address by C. R. Richmond, ORNL**

General Concepts in Radiation Exposure Control and Regulation  
Power Reactor Operational Experience

**Wednesday—Enrichment, Fuel Fabrication, and Reprocessing**

Mining, Milling, and Extraction  
Decontamination and Decommissioning

**Thursday—Waste Streams and Waste Management  
Contributed Papers**

**Friday—Nuclear Accidents, Dose Assessments, Lessons Learned and Medical Effects**

Additional information may be obtained from the General Chairman, R. O. Chester, ORNL, P.O. Box X, Oak Ridge, TN 37831-6383 (phone 615-576-2100).

### Shielding Short Course at Georgia Tech

The Department of Continuing Education at the

Georgia Institute of Technology (Georgia Tech) in Atlanta is offering a short course on *Practical Radiation Shielding*, September 14–18, 1987. The course is designed to provide a review of shielding basics along with training on the use of QAD/CG and other point kernel codes on personal computers. The class will provide 24 hours of instruction and 16 hours of computer labs with emphasis on practical problem set up and testing of results. Class size is limited to ensure no more than two users per workstation. The course will be taught by Joseph J. Shonka of Research Services, Inc., Alan Wells of Power Systems Associates, and Monte V. Davis of Georgia Tech. Participants may earn 3.3 Continuing Education Units.

The course fee is \$1195. For further information contact: Joseph J. Shonka, Research Services, Inc., 5199 Sandlewood Court, Marietta, GA 30068 (phone 404-594-9145).

#### ANS Topical on HLW

The ANS Fuel Cycle and Waste Management Division and the ANS Trinity Section is sponsoring a topical meeting/workshop entitled *The Integrated Spent Fuel and HLW Management System*. The workshop will take place September 28–30, 1987, in Albuquerque, New Mexico.

The focus will be on the integration of four primary components of spent fuel and high level waste management—waste sources, reactors or defense program; waste transportation; waste interim storage modes; and waste final disposal. The format will encourage dialogue between attendees to address ways in which the common concerns and overlapping interests of the four components can be more clearly identified, so that an improved management system can be built upon an understanding of component interdependencies.

Further details may be obtained from Neil Norman, General Chairman, Bechtel National, Inc., 50 Beale St., San Francisco, CA 94119 (phone 415-768-4035).

#### NRC 15th WRSI Meeting

The Nuclear Regulatory Commission (NRC) Office of Nuclear Regulatory Research will hold its *15th Water Reactor Safety Information (WRSI) Meeting* at the National Bureau of Standards (NBS) on October 26–30, 1987. The meeting will cover the results and plans of NRC's nuclear reactor safety and regulatory programs. Invited papers on the results of industry-sponsored safety research as well as safety research being conducted abroad will be presented. Concurrent sessions in the major areas of nuclear safety are planned. Complete details on the 15th WRSI meeting are available from the Meeting Coordinator, Allen J. Weiss (BNL), phone 516-282-4473.

#### Calendar

Your attention is directed to the following events of interest.

#### August 1987

*23rd Nuclear Accident Dosimetry Intercomparison*, Aug. 10–14, 1987, Oak Ridge, Tennessee, sponsored by ORNL. Contact: R. E. Swaja or C. S. Sims, ORNL, Bldg. 7710, P.O. Box X, Oak Ridge, TN 37831-6379 (phone 615-574-5851).

*Occupational and Environmental Radiation Protection*, Aug. 10–14, 1987, Boston, Massachusetts, a course sponsored by the Harvard School of Public Health. Contact: Dade W. Moeller, Office of Continuing Education, 677 Huntington Ave., Boston, MA 02115 (phone 617-732-1171).

*9th International Conference on Structural Mechanics in Reactor Technology (SMiRT-9)*, Aug. 17–21, 1987, Lausanne, Switzerland, sponsored by the International Association for Structural Mechanics in Reactor Technology, the Commission of the European Communities, and the École Polytechnique Fédérale de Lausanne. Contact: Folker H. Wittmann, École Polytechnique Fédérale de Lausanne, SMiRT-9, Chemin de Bellerive 32, CH-1007 Lausanne, Switzerland.

*International Conference on Nuclear Fuel Reprocessing and Waste Management*, Aug. 24–28, 1987, Paris, sponsored by the American Nuclear Society and the European Nuclear Society. Contact: Lloyd McClure, Westinghouse Idaho Nuclear Co., Idaho Chemical Processing Plant, P.O. Box 4000, Idaho Falls, ID 83401.

*Seminar on the Adoption, Application and Implementation of the Agency's Regulations for the Safe Transport of Radioactive Materials*, Aug. 31–Sept. 4, 1987, Vienna, sponsored by the International Atomic Energy Agency. Contact: Conference Service Section, IAEA, P.O. Box 100, A-1400, Vienna, Austria.

#### September 1987

*Pacific Basin Nuclear Conference*, Sept. 6–11, 1987, Beijing, People's Republic of China, sponsored by the Chinese Nuclear Society and the American Nuclear Society. Contact: Xu Honggui, Chinese Nuclear Society, P.O. Box 2125, Beijing, People's Republic of China, or ANS, 555 North Kensington Ave., La Grange Park, IL 60525 (phone 312-352-6611).

*ANS/ENS International Conference on Fast Breeder Reactor Systems: Experience Gained and Path to Economical Power Generation*, Sept. 13–17, 1987, Richland, Washington. Contact: M. C. Carelli, Westinghouse-AESD, P.O. Box 158, Madison, PA 15663 (phone 412-722-5284), or W. Marth, Kernforschungszentrum Karlsruhe, Postfach 3640, D-7500 Karlsruhe 1, F. R. Germany.

*Monte Carlo Transport of Electrons and Photons Below 50 MeV*, Sept. 24–Oct. 3, 1987, Trapani, Italy.

Contact: David W. O. Rogers, Ionizing Radiation Standards, National Research Council of Canada, Ottawa, Ontario K1A 0R6 Canada (phone 613-993-2715).

*2nd International Conference on New Frontiers for Hazardous Waste Management*, Sept. 27-30, 1987,

Pittsburgh, Pennsylvania, sponsored by NUS Corp., National Science Foundation, American Academy of Environmental Engineers, and the U.S. Environmental Protection Agency. Contact: Lynn Casper, NUS Corp., Park West 2, Cliff Mine Road, Pittsburgh, PA 15275-1071 (phone 412-788-1080).

## JUNE 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

**ANSI/ASTM-E-665-78**, . . . *Determining Absorbed Dose Versus Depth in Materials Exposed to the X-Ray Machines*, . . . Anon., . . . 1979, . . . American Society for Testing and Materials, Philadelphia, PA

**ANSI/ASTM-E-666-78**, . . . *Calculation of Absorbed Dose from Gamma or X Radiation*, . . . Anon., . . . 1979, . . . American Society for Testing and Materials, Philadelphia, PA

**BLG-595**, . . . *A Compendium of the Measurements Related to the Chernobyl Nuclear Accident*, . . . De-worm, J.P., . . . January 1987, . . . Centre D'Étude de L'Energie Nucleaire, Ch. Lemairestraat 1, 1160 Brussel

**BR-5869:1980; ISO-4037-1979**, . . . *Specification for X and Gamma Reference Radiations for Calibrating Dosimeters and Dose Rate Meters and for Determining Their Response as a Function of Photon Energy*, . . . British Standards, . . . 1980, . . . British Standards Institution, London (UK) Price Pound21.00.

**CONF-820948, pp.693-698**, . . . *Neutron Transport Calculation for JET Neutron Diagnostics*, . . . Verschuur, K.A., . . . 1983, . . . Pergamon Press, Oxford, England

**EGG-2497**, . . . *Evaluation of Beta Intensity Data in Nuclear Decay Schemes: Comments on Some Pitfalls*,

. . . Reich, C.W., . . . February 1987, . . . EG and G. Idaho, Inc., Idaho Falls, ID

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