



# RSIC Newsletter

**OAK RIDGE NATIONAL LABORATORY**  
POST OFFICE BOX X • OAK RIDGE, TENNESSEE 37831  
OPERATED BY MARTIN MARIETTA ENERGY SYSTEMS, INC.  
FOR THE U.S. DEPARTMENT OF ENERGY

Phone No. 615-574-6176 or FTS 624-6176  
Telex No. 8105721076 USDOE OKRE

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*To be able to be caught up into the world of thought — that is being educated. ...Edith Hamilton*

## MORSE-CGA Workshop Planned

In response to widespread interest determined through a continuing series of inquiries and requests for assistance in the effective use of the general purpose Monte Carlo multigroup neutron and gamma-ray transport code system CCC-203/MORSE-CG, RSIC will sponsor a workshop during the week of June 17–21, 1985, in the Oak Ridge, Tennessee area. The date selected follows the annual meeting of the American Nuclear Society (ANS) to be held in Boston, Massachusetts, June 9–14, 1985.

The computing technology to be featured in the workshop will be a newly frozen version, MORSE-CGA, which includes considerable development beyond that formerly packaged in RSIC. It should be noted that the workshop is planned to cover this specific code system. There is no plan to assess the state of the art of Monte Carlo techniques (as in the RSIC series of seminar-workshops) beyond that included in MORSE.

**A survey form intended to ascertain interest in attending the workshop is attached as the last page of this newsletter. Further information will be sent by direct mail to those who return the form.**

MORSE-CGA is an extension of the ORNL version of the MORSE-CG code with the added feature of the MARS array geometry package. This new geometry allows repeating segments of a finite

system to be modelled very efficiently. Nested arrays of other geometric arrays may be built up to any level with varying degrees of orientation, rotation, and translation. A diagnostic module of the MARS package is the JUNEBUG code which is capable of producing photograph-like, three-dimensional drawings relative to any position or orientation and with any degree of transparency. The basis of the MARS-JUNEBUG system is still the combinatorial geometry (COMGEOM) to which a torus body capability has recently been added.

In addition to the MARS geometry, many aspects of the MORSE and related code systems, such as coupling to discrete ordinates codes via DOMINO, will be presented in the course, with several other relatively new features being highlighted. The tentative plans are for the workshop to begin on Monday, June 17, with two or three days of classroom presentation followed by a day or half-day of an informal, problem-solving workshop. Your attention to all items on the survey form will be helpful in determining the exact format of the course.

Please return the form as soon as possible if you are interested in attending the workshop. A nominal registration fee will be required from each attendee at final registration. The RSIC staff will assist with local lodging and transportation arrangements.

## CHANGES TO THE COMPUTER CODE COLLECTION

Six changes were made to the RSIC computer code collection during the month of November. Three existing code packages were updated with changes and enhancements to the software and three new code systems were packaged and added to the collection. Four of the changes resulted from contributions from Brazil, France, Japan, and South Africa.

### CCC-254/ANISN-ORNL

The CDC 6600/7600 (C) version of this multigroup one-dimensional discrete ordinates transport code system with anisotropic scattering was updated to remove the buffer length declaration statement from the program card. This change will not affect users who have already implemented the code successfully. Paul Kase, Martin Marietta Corp., Denver, Colorado, reported a problem with this statement and his execution of problems on the CYBER 172/750. This change does not affect the IBM 360/370 (A) version, the UNIVAC 1108 (B), nor the Siemens 7441 (D) version of the code package.

### CCC-371/ORIGEN2-82

The IBM (A) version of this isotope generation and depletion code (matrix exponential method), which includes instructions for CDC conversion, was updated to replace a thermal data library (file 33) with an updated version of the library. The updated version was contributed by Jeff Franzen, Union Carbide Research Park, Tuxedo Park, N. Y., and added to the package with the approval of the ORNL developers. The Prime 400 (B) version was not affected by this replacement. FORTRAN IV; IBM and CDC (A) PRIME 400 (C).

### CCC-372/TRIPOLI 2.1

This three-dimensional Monte Carlo radiation transport code system was updated with material furnished by the original developers of the CEA/CEN/Saclay SERMA/Shielding Laboratory, via the OECD Nuclear Energy Agency Data Bank, Gif-sur-Yvette, France. The changes made possible a simpler definition of conical surfaces by using the options CONEX, CONEY, and CONEZ, where the cone axis is parallel to the X, Y, or Z axis, where  $X_s$ ,  $Y_s$ , and  $Z_s$  are ordinates of the cone top  $t = tg \alpha$  where  $\alpha$  is the opening angle. In this case the cone axis is in the negative zone. More details of the update may be requested from RSIC. FORTRAN IV; IBM-3033.

### CCC-407/UNIMUG3

A code system for the solution of the multigroup diffusion equations in one-dimensional geometry by numerical integration is a contribution of Instituto de Estudos Avançados-CTA, Sao Jose dos Campos, SP Brazil. UNIMUG3 determines the multiplication factor, fluxes and adjoint fluxes. It permits variation of the volume of any one of the regions for determining the critical state and performs the adjoint flux calculation and critical size search. Reference: ORNL-tr-5033. FORTRAN IV; CDC CYBER 170.

### CCC-464/BISON

This one-dimensional transport and burnup code system is a contribution of the University of Tokyo, Japan. BISON performs burnup calculations based on one-dimensional transport theory. It can calculate the following values for slab, cylindrical, or spherical geometry through the progress of fuel burnup: (1) neutron and gamma-ray flux; (2) nuclear heating rate; (3) effective neutron multiplication factor; (4) neutron and gamma-ray energy spectra; and (5) reaction rate, radiation damage, or detector response. Reference: UTNL-R-0141. FORTRAN 77; HITAC M-200H.

### PSR-209/GAMX1

GAMX1 is a contribution of the Atomic Energy Board, Pelindaba, Pretoria, Republic of South Africa, through the NEA Data Bank, Gif-sur-Yvette, France. It evaluates accurate peak areas of gamma-ray and x-ray spectra generated by Ge(Li) and Si(Li) spectrometers. It renders accurate estimates of peak heights, position of centroids, and the backgrounds in the vicinity of the photopeaks being analyzed. However, it is intended to analyze spectra containing isolated peaks of known energy only; no facilities for peak location, energy calibration, or the analysis of doublets are included. Reference: PEL-255. FORTRAN IV; IBM 370.

## CHANGES TO THE DATA LIBRARY COLLECTION

During the month the data library collection gained a newly frozen version of an existing data library and a new data library contributed by Japan was added to the collection.

### DLC-88/TPASGAM

This radiation decay library of gamma-ray energies and branching ratios has been replaced by a newly frozen version contributed by the Oak Ridge National Laboratory. The library contains gamma-ray decay information for 1177 radionuclides. The data consist of gamma-ray energies and intensities as well as cross section information useful in activation analysis. Three separate files of data and two short computer routines are included in the package. The data reported in DLC-19/DECAYGAM were the parent data for this library. Additions and changes have been primarily for fission product radionuclides and for absolute normalization for most of the relative branching ratios given in the parent file. This compilation of radionuclide decay data contains, for those radionuclides tabulated, all necessary data for qualitatively and quantitatively measuring the concentration of photon-emitting radionuclides as well as con-

ducting activation analyses using gamma-ray spectrometry. It was developed specifically for use with PSR-164/TPASS. Reference: Informal Notes. FORTRAN IV; PDP-10 and IBM-3033.

### DLC-111/JFS

These 70- and 25-group neutron fast reactor cross section sets are a contribution of Japan Atomic Energy Research Institute, Tokyo, through the OECD NEA Data Bank, Gif-sur-Yvette, France. The library contains data for the following elements:  $^{10}\text{B}$ ,  $^{11}\text{B}$ , C, O, Na, Al, Cr, Fe, Ni, Cu,  $^{235}\text{U}$ ,  $^{238}\text{U}$ ,  $^{239}\text{Pu}$ ,  $^{240}\text{Pu}$ , and  $^{241}\text{Pu}$ . The group cross sections were prepared by processing evaluated data from UKNDL, ENDF/B, and KFK 120 using the PROF GROUCH-G code. The CONDENSE code system was prepared to collapse "The JAERI-Fast-Set-Version-1 70-Group Set" to "25-Group Set." Reference JAERI 1195 and JAERI 1199. FORTRAN IV; IBM 3033.

### TRISM Workshop Held at LANL

The Energy Technologies Group (J. Wiley Davidson, leader) of the High Technology System Studies Section (Donald J. Dudziak, leader) of the Analysis and Assessment Division of the Los Alamos National Laboratory (LANL) hosted and led a user's workshop on TRISM, October 16-18, 1984. The workshop was sponsored by the Department of Energy Office of Fusion Energy to provide an opportunity for users of the particle transport method within the fusion community to become familiar with the TRISM code system capabilities.

The code system is currently installed and available to fusion research personnel who have access to the National Magnetic Fusion Energy Computer Center (NMFECC) at Lawrence Livermore National Laboratory. A public domain version, now in preparation, will be made generally available via RSIC.

TRISM, a two-dimensional, discrete-ordinates transport code system, has triangular mesh capa-

bilities which are applicable to the curved and toroidal geometries of fusion devices. It has undergone significant improvements during the last two years including completely new free-field input, added input options, and enhanced edit and graphics capabilities. Also, a new deterministic streaming technique, the Streaming Matrix Hybrid Method, has been incorporated.

LANL staff members and others assisting Davidson in presenting the workshop included Duane Marr; Brad Clark; Alexine Martinez; Jacek Arkuszewski of EIR, Würenlingen, Switzerland; and Mark J. Embrechts of Rensselaer Polytechnic Institute of Troy, N. Y.

### NRC/WRSR Transactions to be Published

The 12th NRC Water Reactor Safety Research (WRSR) Information Meeting held at National Bureau of Standards (NBS), Gaithersburg, Maryland, on October 22-26, 1984, drew a large attendance and featured a full five-day program of

papers and panels. The program included sessions on Reactor Systems, Containment Systems, Severe Accident Sequence Analysis and Assessment, Fuel Systems, Accident Source Term Assessment, Materials Engineering, Risk Analysis, Mechanical and Structural Engineering, Separate Effects/Model Development and Experiments, Foreign Programs in Thermal Hydraulics, Pressurized Thermal Shock/Analysis and Experiments, Code Assessment and Improvement, 2D/3D Research, Nuclear Plant Analyzer Program, Radiation Protection, Process Control, Instrumentation and Control Program, Seismology, Equipment Survival in Accidents, Human Factors and Safeguards, and on the Electric Power Research Institute (EPRI) and Japanese safety research programs. The transactions will be published by NRC and made generally available.

#### PC Survey Note

The personal computer (PC) survey form included in the last *RSIC Newsletter* did not have a place included for the name of the respondent. Therefore we have included a revised form on the back of this issue. Use the amended form if you did not identify your response or have not yet responded.

#### PERSONAL ITEMS

We again take note of the activities and movement of people concerned with radiation protection, transport, and shielding in the nuclear industry.

#### Radkowsky and Booth Named ANS Fellows

Of the American Nuclear Society Fellows named during the November meeting in Washington, two are well known to the radiation transport community.

**Alvin Radkowsky**, a professor of nuclear engineering at Tel-Aviv University and at Ben Gurion University of the Negev in Israel, was cited as the inventor of poisons, seed-blanket cores, and other key inventions in both naval propulsion and commercial nuclear power plants. He was Chief Scientist in the U. S. Atomic Energy Commission (now Dept. of Energy) Office of Naval Reactors from 1950 to 1972. At present, he is leading a project to develop a thorium-core reactor which offers non-proliferation, cost, waste, and safety advantages over conventional systems.

**Ray S. Booth**, Oak Ridge National Laboratory, was cited for important theoretical and experimental contributions in the field of neutron pulse propagation, environmental behavior of radionuclides released in the nuclear industry, and surveillance and diagnostics of nuclear power plants. Ray was involved in a number of ORNL shielding experiments in the early 1970s.

#### Visitors to RSIC

During the month the following persons came for an orientation visit and/or to use RSIC facilities: *Chao-Yie Yang*, *Hai-Young Huang*, and *Jing-Tong Yang*, Inst. of Nuclear Energy Research, Taiwan; *Yasumasa Ando* and *Yuuki Hachiya*, PNC, and *Hiroyuki Kadotani*, Century Research Corp., Tokyo, Japan; *Andrew Baran*, NUKEM, Hanau, Fed. Rep. Germany; *Ludwig Schänzler*, Wehrwissenschaftliche Dienststelle der Bundeswehr für ABC-Schutz, Munster, Fed. Rep. Germany; *Larry W. Bell*, NRC, Bethesda, Maryland; and *David S. Price*, Louisiana Dept. of Environmental Quality, Baton Rouge.

#### COURSES, CONFERENCES, 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 conferences, courses, or symposia, feel free to send your announcements and calls for papers to RSIC.

#### Calls for Papers

##### X- and Gamma-Ray Sources and Applications

The Program Committee for the 6th Symposium on

*X- and Gamma-Ray Sources and Applications*, to be held May 21-23, 1985, in Ann Arbor, Michigan, is soliciting papers describing research and development in the following topics: Sources, including secondary target sources and synchrotron x-ray sources; Detectors and detection systems; Data acquisition and data analysis systems and methods; X- and gamma-ray spectroscopy, including extended x-ray absorption fine structure; Particle-induced x-ray emission and radiation-induced fluorescence; Analytical standards and elemental analysis; New and unique applications of x- and gamma-rays, including synchrotron radiation; and Industrial radiography and tomography (digital tomography). Summaries must be received by the Program Committee by

**January 21, 1985.** Mail summaries to Martin A. Ludington, Symposium Secretary, Dept. of Physics, Albion College, Albion, MI 49224 (phone 517-629-5511 ext. 263).

### CNS Conference

The 6th Annual Conference of the Canadian Nuclear Society (CNS) is being held in conjunction with the Canadian Nuclear Association's 25th Annual International Conference, June 2-5, 1985, in Ottawa, Canada. The CNS solicits papers on subjects relating to applications of nuclear technology, both technical and socio-economic, including Thermal Hydraulics, Reactor Physics, Fuel Cycles, Risk Assessment, Safety Analysis, Regulatory Aspects, Nuclear Plant Design and Operation, Radiation Protection and Health Physics, Isotopes and Radiation, Food Preservation, and Other Applications of Nuclear Technology. Research and development results in new reactor applications, fusion, applications of accelerators, and areas of advanced technology are especially welcome. Summaries of no more than 900 words, including figures and tables counting as 150 words each, must be postmarked no later than **January 7, 1985**. Submit four sets to the Conference Chairman: P. M. French, 1985 CNS Annual Conference, c/o Atomic Energy Control Board, P.O. Box 1046, Ottawa, Canada, K1P 5S9 (phone 613-996-9947).

### ANS Topical on High Level Nuclear Waste Disposal

The Fuel Cycle and Waste Management Division and the Richland, Washington Section of the American Nuclear Society (ANS) and sponsoring an international topical meeting on the *Technology and Engineering Aspects of High Level Nuclear Waste Disposal*, to be held September 24-25, 1985, in Pasco, Washington.

Plenary sessions will provide perspectives of the Nuclear Waste Disposal Program in the U.S. and the status of international programs. The last two days includes a schedule of three concurrent sessions on the following subjects.

- I. Site Characterization and Selection
- II. Repository Engineering and Construction
- III. Package Design and Testing
- IV. Disposal System Performance
- V. Disposal and Storage System Costs
- VI. Disposal in Overall Fuel Cycle Context

Papers for presentation and special poster sessions are solicited in the areas of site characterization and selection (tectonics, rock-mechanics, hydrology, geology and geochemistry, socio-economic and environmental impacts, and the influence of external factors on potential waste sites) and all engineering aspects (repository and waste package design, testing, and disposal system performance and costs). **January 31, 1985** is the

deadline for submission of a summary of approximately 1000 words or a draft of the full paper and an abstract (100 word maximum plus title, authors, and affiliations). Papers should be double-spaced and abstracts should be single-spaced on a separate sheet of paper. Submit four copies to H. C. Burkholder, Tech. Prog. Chairman, High Level Waste Disposal Internatl. Top. Meeting, Battelle, Pacific Northwest Laboratory, P.O. Box 999, Richland, WA 99352 USA. Notification of acceptance of contributed papers will be made by February 28, 1985. Full papers must be received by May 31, 1985, and the camera-ready paper must be in the possession of the session chairman before the paper can be presented.

### ANS Technical Program Notes

The Executive Committee of the ANS Radiation Protection and Shielding Division has announced that the Division will not sponsor special sessions for the technical programs of the annual meeting of the Society to be held June 9-14, 1985, in Boston. The Program Committee has indicated that two topics will be addressed in special sessions during the November 1985 ANS meeting. They are:

- (1) Current Problems Associated With Post Accident Radiation Monitoring, and
- (2) Approximate Calculational Techniques for Radiation Protection Applications.

Several ANS sessions of potential interest to the radiation transport community are being planned for the June meeting as follows: reactor physics methods, computational methods in reactor safety, methods for neutral- and charged-particle transport, and the applications of symbolic manipulation programs in numerical computations (M&C); three sessions on data and analysis, validation experiences, and regulatory aspects of criticality safety; ten sessions on nuclear reactor safety; and five sessions on reactor physics topics.

### Radiopharmaceutical Dosimetry Symposium

The *4th International Radiopharmaceutical Dosimetry Symposium* will be held November 5-8, 1985, in Oak Ridge, Tennessee. The symposium is sponsored by the U.S. Food and Drug Administration and the U.S. Dept. of Energy. Current developments in nuclear medicine that have an impact on internal dose calculations will be the focus of the symposium. Invited and submitted papers will cover such topics as positron emitters, ultrashort-lived radionuclides, and radiolabeled monoclonal antibodies and blood elements. Abstracts on those and other pertinent topics should not exceed 250 words. **July 15, 1985** is the deadline for submitting an original abstract and two copies to Evelyn Watson, Program Committee, Radiopharmaceutical Dosimetry Symposium, Oak Ridge Associated Universities, P.O. Box 117, Oak Ridge, TN 37831-0117.

### Conference on Science and Technology of Fast Reactor Safety

The British Nuclear Energy Society (BNES) is sponsoring the *Conference on the Science and Technology of Fast Reactor Safety* to be held May 12-16, 1986, in Guernsey, Channel Islands, United Kingdom. This BNES conference and the ANS/ENS Topical (see Calendar, Feb. 1985) constitute the fourth comprehensive international review of fast reactor safety. The BNES conference will discuss topics associated with day-to-day operation of the reactor or with very low probability accidents.

Papers are solicited for presentation and poster sessions on the following topics: Sensing of abnormalities, Data handling and generation of trip signals, Shut down systems, Decay heat removal systems, Philosophy of structural integrity and the role of inservice inspection, Predictions of the development and outcome of accidents not terminated by trip action, Post core meltdown phenomena, Safety issues related to the secondary containment, and Assessment of the role of external hazards in fast reactor safety.

Those who wish to submit an abstract of up to 500 words should send it to the conference office so it will arrive before **May 1, 1985**. Details may be obtained from The Secretariat, British Nuclear Energy Society at the Institution of Civil Engineers, 1-7 Great George St., Westminster, London SW1P 3AA (phone 01-630-0726).

### Courses

#### Space Nuclear Power Systems Short Course

In conjunction with the 2nd Symposium on Space Nuclear Power Systems being held January 14-16, 1985, in Albuquerque, New Mexico, the Institute for Space Nuclear Power Studies will conduct a short course on the *Fundamentals of Space Nuclear Power Systems*, January 11-12. The course is an introduction to the subject of Space Nuclear Power Systems designed for engineers and researchers who are or will be involved in the development of space nuclear power systems, and senior or first year graduate engineering students. A group of national experts will cover topics which include System Integration and Applications, Introduction to Nuclear Engineering, Nuclear Core Design and Control, Nuclear Fuel Systems, Radiation Shield, Energy Transport and Rejection, Thermal Energy Conversion, Power Conditioning and Space Nuclear Power Safety. Additional information may be obtained from Prof. Mohamed S. El-Genk, Chemical & Nuclear Engr. Dept., Univ. of New Mexico, Albuquerque, NM 87131 (phone 505-277-5442).

### Calendar

Your attention is directed to the following additional events of interest to the radiation shielding and protection community.

### January 1985

*Environmental Radiation*, (18th Mid-Year Topical Meeting of the Health Physics Society), January 7-10, 1985, Colorado Springs, Colorado. Contact: R. J. Burk, Jr., Health Physics Society, 4720 Montgomery Lane, Suite 506, Bethesda, MD 20014.

*International Symposium on Radioactivity*, January 8-12, 1985, Pune, India, to commemorate the 50th anniversary of the discovery of artificial radioactivity. Contact: H. J. Arnikar, Convenor, ISR, Chemistry Dept., Univ. of Poona, Pune 411 007, India.

*2nd Symposium on Space Nuclear Power Systems*, January 14-16, 1985, Albuquerque, New Mexico. Contact: Mohamed S. El-Genk, 2nd Symp. Space Nuclear Power Systems, Chem/Nucl. Engr. Dept., FEC 239, Univ. of New Mexico Campus, Albuquerque, NM 87131.

*Radiological Protection Measurements and Their Traceability*, meeting and exhibition, January 22, 1985, London, sponsored by the Society for Radiological Protection. Contact: J. H. Martin, Dept. of Medical Biophysics, Blackness Lab., Univ. of Dundee, Dundee DD1 4HN, Scotland, UK.

*3rd International Modal Analysis Conference*, January 28-31, 1985, Orlando, Florida, sponsored by Union College. Contact: Rai D'Amelio, Union College, 1 Union Ave., Schenectady, NY 12308 (phone 518-370-6288).

### February 1985

*Israel Nuclear Society Meeting*, February 6-7, 1985, Beer-Sheva, Israel. Contact: A. Galperin, INS, Ben-Gurion Univ. of the Negev, Beer-sheva, Israel 84105 (phone 057-64341).

*National Symposium on Atomic Energy*, February 7-8, 1985, Tokyo, Japan, sponsored by the Atomic Energy Society of Japan. Contact: Minoru Masamoto, Secretary General, Atomic Energy Society of Japan, No. 1-1-13 Shimbashi, Minato-ku, Tokyo 105, Japan.

*International ANS/ENS Topical on Probabilistic Safety Methods and Applications*, February 24-28, 1985, San Francisco. Contact: Chauncey Starr, EPRI, 3412 Hillview Ave., Palo Alto, CA 94303 (phone 415-855-2121).

### March 1985

*6th Topical Meeting on the Technology of Fusion Energy*, March 3-7, 1985, San Francisco. Contact: Carl Henning, Lawrence Livermore National Laboratory, P.O. Box 5511, L-644, Livermore, CA 94550 (phone 415-846-7195).

*17th International Symposium on Radiation Protection Physics*, March 12-15, 1985, Dresden, German Dem. Rep. Contact: K. Hübner, Tech. Univ. Dresden, Physics Sect., Div. of Radiation Protection Physics, Mommsenstrasse 13, DDR-8027 Dresden, German Dem. Rep.

*Incineration of Low-Level Radioactive Wastes*, March 21, 1985, Tucson, Arizona, sponsored by the Universities of California and Arizona. Contact: Special Professional Education, Harvill Bldg., Box 9, Univ. of Arizona, Tucson, AZ 85721.

*Symposium on Radioactive Waste Management '85*, March 24-28, 1985, Tucson, Arizona, sponsored by Univ. of Arizona, U.S.-DOE, ANS, Electric Power Research Institute, American Society of Mechanical Engineers. Contact: Roy G. Post, General Chairman, Waste Management 85, College of Engineering, Univ. of Arizona, Tucson, AZ 85721.

*12th Annual Energy Technology Conference & Exposition*, March 25-27, 1985. Contact: Program Chairman, Energy Technology Conference, c/o Government Institutes, Inc., 966 Hungerford Dr., #24, Rockville, MD 20850.

*Occupational and Environmental Radiation Protection Course*, March 25-29, 1985, Boston, Massachusetts. Contact: Office of Continuing Education, Harvard School of Public Health, 677 Huntington Ave., Boston, MA 02115 (phone 617-732-1171).

*Annual Meeting of the Atomic Energy Society of Japan*, March 28-30, 1985, Tokyo. Contact: Minoru Masamoto, Secretary General, Atomic Energy Society of Japan, No. 1-1-13 Shimbashi, Minato-ku, Tokyo 105 Japan.

#### April 1985

*21st Annual Meeting of the National Council on Radiation Protection and Measurements*, April 3-4, 1985, Washington, D. C. Contact: NCRP, 7910 Woodmont Ave., Suite 1016, Bethesda, MD 20814 USA.

*International Meeting on Advances in Nuclear Engineering and Computational Methods*, April 9-11, 1985, Knoxville, Tennessee, sponsored by ANS, European Nuclear Society (ENS), Atomic Energy Society of Japan. Contact: H. L. Dodds, c/o Univ. of Tennessee, Nuclear Engr. Dept., Knoxville, TN 37996 or R. M. Westfall, ORNL, P.O. Box X, Oak Ridge, TN 37831 (phone 615-574-5267).

*Fast Reactor Safety*, April 21-24, 1985, Knoxville, Tennessee, sponsored by the ANS, ENS. Contact: George Flanagan, Oak Ridge National Laboratory, P.O. Box X, Bldg. 6025, Oak Ridge, TN 37831 (phone 615-574-6155).

*Light Water Reactor Fuel Performance*, April 21-24, 1985, Orlando, Florida, an ANS Topical Meeting sponsored by the Fuel Cycle & Waste Management Division and Material Science & Technology Division. Contact: Daniel W. Kurtz, H-9, Florida Power Corp., P.O. Box 14042, St. Petersburg, FL 33733 (phone 813-866-4383).

*Workshop on Neutron Therapy: Low Dose Rate and Beam Radiation Therapy*, April 24-27, 1985, Lexington, Kentucky. Contact: Yosh Maruyama, Dept. of Radiation Medicine, Univ. of Kentucky, Lexington, KN 40536-0084 USA.

*General Meeting of the American Physical Society*, April 25-27, 1985, Washington. Contact: The American Physical Society, 335 East 45th St., New York, NY 10017.

*Tritium Technology in Fission, Fusion and Isotopic Applications*, April 30-May 2, 1985, Dayton, Ohio, sponsored by the ANS and the Canadian Nuclear Society. Contact: H. F. Anderson, Process Engr. Eval. & Control, Monsanto Mound Facility, P.O. Box 32, Miamisburg, OH 45342 (phone 513-865-4020).

#### May 1985

*International Conference on Nuclear Data for Basic and Applied Science*, May 13-17, 1985, Santa Fe, New Mexico. Contact: Phillip G. Young, Mail Stop B243, Los Alamos National Laboratory, Los Alamos, NM 87545 USA (phone 505-667-7670).

*Telecommunications & Networking...Supplying the missing link*, May 19-22, 1985, Fort Lauderdale, Florida, sponsored by the American Society for Information Science. Contact: Lawrence A. Woods, Technical Program Committee Chairman, 221 Memorial Library, Univ. of Notre Dame, Notre Dame, IN 46556.

*5th Pacific Basin Nuclear Conference*, May 19-23, 1985, Seoul, Korea, sponsored by the Korean Atomic Industrial Forum, the Korean Nuclear Society, ANS, and others. Contact:

Sun-Chang Kim, Meeting Chairman, Korea Electric Power Corp., CPO Box 6583, Seoul, Korea. In the U.S. contact James Sweeney, General Electric Co., 175 Curtner Ave., MC-87, San Jose, CA 95125 (phone 408-925-1037).

*6th Symposium on X- and Gamma-Ray Sources and Applications*, May 21-23, 1985, Ann Arbor, Michigan. Contact: Martin A. Ludington, Dept. of Physics, Albion College, Albion, MI 49224 USA.

#### June 1985

*25th Annual International Conf. of the Canadian Nuclear Association and 6th Annual Conf. of the Canadian Nuclear Society*, June 2-5, 1985, Ottawa, Ontario, Canada. Contact: J. A. Weller, General Manager, Canadian Nuclear Association, 111 Elizabeth St., 11th Floor, Toronto, Ontario, Canada M5G 1P7.

*Annual Meeting of the American Nuclear Society*, June 9-14, 1985, Boston, Massachusetts. Contact: David G. Pettengill, ANS Meeting Manager, American Nuclear Society, 555 North Kensington Ave., La Grange Park, IL 60535.

#### July 1985

*22nd Annual Conference on Nuclear and Space Radiation Effects*, July 21-24, 1985. Contact: Kenneth F. Galloway, B344 Tech, National Bureau of Standards, Washington, DC 20234 USA.

#### August 1985

*Australian Radiation Protection Society Annual Meeting*, August 19-21, 1985, Melbourne, Victoria, Australia. Contact: T. H. Gan, Australian Radiation Laboratory, Lower Plenty Road, Yallambie, Victoria 3085, Australia.

*SMIRT-8*, August 19-23, 1985, Brussels, Belgium. Contact: Sergio Finzi, CEC - Directorate Gen., X11-JRC, Brussels, Belgium.

*International Seminar on Containment of Nuclear Reactors*, August 26-27, 1985, Brussels, Belgium. Contact: Rolf Krieg, Inst. für Reaktorentwicklung, Kernforschungszentrum, Karlsruhe GmbH, Postfach 3640, D-7500 Karlsruhe 1, F. R. Germany or Algirdas H. Marchertas, Reactor Analysis and Safety Div., Argonne National Laboratory, Argonne, IL 60439 USA.

#### October 1985

*3rd International Topical Meeting on Reactor Thermal Hydraulics*, October 15-18, 1985, Newport, Rhode Island, sponsored by the ANS, American Society of Mechanical Engineers, and the American Institute of Chemical Engineers. Contact: 3rd Internatl. Top. Meeting on Reactor Thermal Hydraulics, c/o H. Shaffer, 1671 Worcester Road, Framingham, MA 01701 USA.

*Symposium on Organ Dosimetry for External Gamma and Neutron Radiations*, October 22-24, 1985, Knoxville, Tenn., sponsored by the Oak Ridge National Laboratory. Contact: R. O. Chester, ORNL, P.O. Box X, Oak Ridge, TN 37831 (phone 615-574-2102, FTS 624-2102).

*Nuclear Science Symposium*, October 23-25, 1985, San Francisco, California, sponsored by the Inst. for Electrical and Electronics Engineers. Contact: R. S. Larsen, Stanford Linear Accelerator Center, Stanford Univ., P.O. Box 4349, Stanford, CA 94305 (phone 415-854-9300 ext. 2726; FTS 461-9300 ext. 2726).

## NOVEMBER 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

**ABCC-02-62 (In Japanese and English),** . . *Residual Radiation in Hiroshima and Nagasaki*, . . Arakawa, E.T., . . February 1962, . . NTIS, PC A02/MF A01

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Personal Computer Survey

Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

I have access to a personal computer    yes\_\_\_    no\_\_\_

I regularly use a personal computer for

communications\_\_\_\_\_

as a terminal\_\_\_\_\_

scientific/engineering calculations\_\_\_\_\_

text processing\_\_\_\_\_

data base management\_\_\_\_\_

other (specify)\_\_\_\_\_

Type of system: manufacturer\_\_\_\_\_

model\_\_\_\_\_

operating system\_\_\_\_\_

Programming language\_\_\_\_\_

Type of disk drive (e.g., 5.25 in. SDDS)\_\_\_\_\_

I would like to obtain programs to \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

I have one or more programs that I might share. These perform the following function:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Comments:

Please return to:    Radiation Shielding Information Center

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# RADIATION SHIELDING INFORMATION CENTER

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Week of June 17-21, 1985, at Oak Ridge, Tennessee

Name: \_\_\_\_\_

Citizenship: \_\_\_\_\_

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Please indicate by check mark or specific designation your experience and background in the following areas:

	MORSE-CG code system	Other Monte Carlo codes	General trans- port and Monte Carlo theory	Multigroup cross section process- ing and use	Computer operating systems
little or none	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
some	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
substan- tial	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____

Do you have any general or specific areas of interest you would like to have presented in the course?

\_\_\_\_\_

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\_\_\_\_\_



John E. White



Elaine Copeland  
Robert W. Kousin

**I**t is a sincere pleasure to serve you.

We value your friendship, confidence and  
loyalty and can think of no more appropriate  
time than now to tell you so.

May the coming year be a most Happy and Healthful  
one for you and your family.

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