

RSIC Newsletter



Oak Ridge National Laboratory
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He that will not apply new remedies must expect new evils.—Bacon

Trivelpiece Named ORNL Director

After an intensive eight-month national search, the new Laboratory Director for Oak Ridge National Laboratory was named on September 30. **Alvin W. Trivelpiece** will be able to use his considerable academic, industrial, and governmental experience to provide strong guidance in both planning and implementation of science and technology programs. He will leave his position as Executive Officer of the American Association for the Advancement of Science and assume full responsibility at the Laboratory about January 1, 1989. He will also serve as a Vice President of Martin Marietta Energy Systems, Inc., the subsidiary of Martin Marietta that manages ORNL and four other energy-related facilities for the U.S. Department of Energy.

Trivelpiece received his B.S. from the California Polytechnic State University in electrical engineering, followed by an M.S. and Ph.D. from the California Institute of Technology, also in electrical engineering. His professional experience includes professorial service at the University of California-Berkeley in electrical engineering and at the University of Maryland in physics. From 1976 to 1978 he served as Vice President for Engineering and Research, Maxwell Laboratories, Inc., San Diego, then from 1978 to 1981 as Corporate Vice President, Science Applications, Inc., La Jolla, California. He served as Director, Office of Energy Research, U.S. Department of Energy, Washington, from 1981 to 1987.

His scientific and technical achievements include four U.S. patents and two books (*Slow Wave Propagation in Plasma Wave Guides* and as a co-author of *Principles of Plasma Physics*). He has served as an Associate Editor of *Physics of Fluids* and as a correspondent on *Comments on Plasma Physics and Controlled Fusion Research*. He is a Fulbright Scholar, a Guggenheim Fellow and has authored numerous research publications.

ICRS7 Called A Success

Approximately 175 radiation shielding specialists from around the world attended the Seventh International Conference on Radiation Shielding (ICRS7) in Bournemouth, England, September 11-16, 1988. Installations from eighteen countries were represented, in addition to the International Atomic Energy Agency (IAEA), the Organization for Economic Cooperation and Development

(OECD), and the European Economic Community. The ICRS7 was jointly organized by the United Kingdom Atomic Energy Authority (UKAEA), Winfrith Establishment, and the OECD Nuclear Energy Agency (NEA).

The conference program was organized into 18 technical sessions, including oral presentations and 3 poster sessions, by Dr. A. McCracken, Pro-

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gram Chairman, and 16 committee members. Participants presented 137 papers in a variety of areas including General Shielding, Decommissioning, Calculational Methods, Power Reactors, 14 MeV Neutrons, Theoretical Methods, Streaming, Shielding Benchmarks, Sensitivity Analysis, Fuel Flasks, Pressure Vessel Dosimetry, Accelerator Shielding, Monte Carlo Methods, Licensing and Environmental Dosimetry, General Topics, and New Trends.

The featured speakers for the opening session were Dr. J.E.R. Holmes, Director, Winfrith Establishment, Dr. N. A. Tubbs, Deputy Head, NEA Data Bank, and Dr. E. W. Carpenter, Nuclear Plant Research Director of the Central Electricity Generating Board. Dr. J. Butler of Winfrith, Steering Committee Chairman, closed the conference with a summary.

Elsevier Applied Science Publishers, Ltd., Barking, Essex, England, will publish the conference proceedings. An announcement will be made in the *RSIC Newsletter* when it is available.

CHANGES TO THE COMPUTER CODE COLLECTION

Three changes were made to the computer code collection during the month. One new code system was packaged and added to the collection and two existing code packages were replaced with newly-frozen versions. Two changes resulted from foreign contributions.

CCC-486/RISKAP

This code, contributed by ORNL, analyzes increased risk to arbitrary populations. Risk is measured in terms of the expected number of premature deaths resulting from radiogenic cancers, the years of life lost as a result of these deaths, and the average number of years of life lost per premature death. RISKAP accommodates latency and plateau periods that vary with age at exposure and risk functions that vary with age at exposure as well as time after exposure. Reference: ORNL/TM-9910 (June 1986). FORTRAN IV; IBM 3033.

CCC-527/LISA3

A newly-frozen version of this code system was contributed by the Joint Research Centre, Ispra, Italy. LISA3 analyzes the hazard due to nuclear waste disposal in geological formations. The risk linked to pre-established release scenarios is assessed by the code in terms of dose rate to a maximum exposed individual. Various submodels in

the code simulate the system of natural and man-made barriers interposed between the contaminants and man. LISA3 uses structured programming to enhance its transportability. SPOP, a statistical post processing program for performing uncertainty and sensitivity analysis on the model output, was also added to the package. Reference: EUR 9306 EN and Technical Note 1.07.C2.85.56, EUR 11034 EN. Fortran 77; Amdahl 470 and IBM.

PSR-227/ECIS-88

A newly-frozen version of this code system was contributed by CEA/CEN Service de Physique Theorique, Saclay, through the OECD Nuclear Energy Agency Data Bank, Gif-sur-Yvette, France. The code system solves the coupled differential equations arising in nuclear model calculations and performs parameter searches to fit calculated results to experimental data. ECIS-88 is a generalization of ECIS-79. For the rotational band both the rotational and vibrational models are included. An option for solving the Dirac equation has been added. It also contains the statistical model as formulated by Moldauer. Source files for IBM, CRAY, VAX and CONVEX are included in the same package. Reference: Informal documentation. FORTRAN 77; IBM, CRAY, VAX and CONVEX.

CHANGES TO THE DATA LIBRARY COLLECTION

Two new data libraries were added to the collection during the month. Both resulted from contributions from Canada.

DLC-139/SIGMA-A

This library of photon interaction and absorption cross sections was contributed by the Ontario Cancer Institute, Toronto, Ontario, Canada. In addition to partial cross section data, the following are given: mass attenuation coefficients, mass energy transfer coefficients, mass energy absorption coefficients, average energy transferred to electrons, average energy absorbed per interaction, and average stopping power of electrons. Data are given for 94 elements and 25 composite materials covering the energy range 1 keV to 100 MeV. The reactions considered are coherent and incoherent scattering, photoelectric absorption, and pair production. FORTRAN 77 retrieval programs developed on the Data General MV/Family under AOS/VS are included in the mainframe/minicomputer version which is available on magnetic tape. These programs should be operable on other systems without undue difficulty. For use on personal computers, the ASCII data have been separated into four parts which are available on 4 DS/DD (360K)

diskettes. References: Informal notes (8/88) and *Med. Phys.* **7**(1), 51-54 (Jan./Feb. 1980).

DLC-140/THERMGAM

Atomic Energy of Canada Limited, Chalk River Nuclear Laboratories, Ontario, Canada, contributed this catalog of prompt gamma rays from thermal-neutron capture. The catalog, based on the data published between 1968 and March 1980, updates the information on natural elements in the previous compilations. It was designed primarily as a convenient tool for analytical prompt gamma-ray spectroscopy. Other potential uses are the identification of background gamma rays and of chemical trace impurities in target materials used for (n,gamma) studies and for prediction of secondary gamma rays from materials irradiated by neutrons. The data are given in two tables for $Z = 1 - 83$ (except Pm), 90 and 94. Table 1 lists gamma rays in order of increasing energy. Table 2 lists gamma rays by element. Both tables are available on magnetic tape, and Table 2 is available on 2 DS/DD (360K) diskettes. No retrieval program is included. References: Informal notes (8/88) and Atomic Data and Nuclear Data Tables, **26**(6) (1981).

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.

John Lakey, Director of the Department of Nuclear Science and Technology at the Royal Naval College, Greenwich, England, was elected president of the International Radiation Protection Association (IRPA). The IRPA, an association of 28 radiation protection societies in 32 countries, is an internationally recognized author-

ity on health physics and nuclear emergency management. Lakey lectures on these topics throughout the world and teaches a course on accident response at Harvard University as an honorary visiting faculty member.

Visitors to RSIC

During the month the following persons came for an orientation visit and/or to use RSIC facilities: *Robert A. Kehlet*, Defense Nuclear Agency, Alexandria, Virginia; *Pierre Nigel*, OECD NEA Data Bank, Gif-sur-Yvette, France; *Wing Sing Tsui*, Hong Kong Environmental Protection Dept., Kowloon; and *Kwai Lam Wong*, University of Tennessee, Knoxville, Tenn.

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.

Program Announced for 6th Space Nuclear Power Systems

The preliminary program for the upcoming 6th Space Nuclear Power Systems Symposium has been released. The symposium will be held January 8—12, 1989, in Albuquerque, New Mexico. The program includes the following topics:

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| Congressional Views and Budget Perspectives Plenary Session | Radioisotope Power Systems |
| Space Policy and Missions Plenary Session | Space Nuclear Safety I and II |
| Special Session on User's Perception of Space Nuclear Power Plenary Session | Energy Storage |
| SP-100 Ground Engineering Systems (GES) Plenary Session | Radiation and Environmental Effects (Poster) |
| Public's Perception of Space Nuclear Power Plenary Session | Simulation and Modeling (Poster) |
| Space Missions and Applications | Power Systems Concepts (Poster) |
| Microgravity Two Phase Flow | Key Issues in Space Nuclear Power |
| Manufacturing and Processing | Power Conditioning |
| High Temperature Materials I, II, III, and IV | Thermal Management I and II |
| Power Requirements for Research | Static Energy Conversion |
| Instrumentation | Reactor and Power System Control |
| Space Nuclear Fuels I and II | Flight Qualification and Testing |
| Nuclear Electric and Direct Propulsion I and II | Dynamic Energy Conversion |
| | Reliability and Survivability |
| | Reactors and Shielding |
| | Reliability and Life |

Three short courses will be held in conjunction with the symposium January 5—8. The courses include Introduction to the Space Environment, Space Power Technology, and Space Nuclear Propulsion. Information on the short courses may be obtained from Mohamed S. El-Genk, University of New Mexico.

Details about the 6th Symposium may be obtained from The Institute for Space Nuclear Power Studies, Chemical and Nuclear Engineering Department, University of New Mexico, Albuquerque, NM 87131.

Calendar

Your attention is directed to the following events of interest.

November 1988

Indoor Air Pollution and Radon, Nov. 2-4, 1988, a short course offered by the University of Texas at Austin. Contact: Continuing Engineering Studies, College of Engineering, Ernest Cockrell Hall 10.324, The University of Texas at Austin, Austin, TX 78712 (phone 512-471-3506).

Below Regulatory Concern (BRC) Radwaste Disposal, Nov. 7-11, 1988, a short course offered by the University of Texas at Austin. Contact: Continuing Engineering Studies, College of Engineering, Ernest Cockrell Hall 10.324, The University of Texas at Austin, Austin, TX 78712 (phone 512-471-3506).

Gamma-Ray Assay of Nuclear Materials, Nov. 28-Dec. 2, 1988, Los Alamos, New Mexico, sponsored by the U.S. Dept. of Energy. Contact: Linda Robinson, LANL, Los Alamos, NM 87545 (phone 505-667-5258 or FTS 843-5258).

December 1988

Radon in Buildings: Sources, Biological Effects, Monitoring, & Control, Dec. 19-20, 1988, a short course offered by the Harvard School of Public Health, Boston, Massachusetts. Contact: Office of Continuing Education, Harvard School of Public Health, 677 Huntington Ave., Boston, MA 02115 (phone 617-732-1171).

January 1989

6th Symposium on Space Nuclear Power Systems, Jan. 9-12, 1989, Albuquerque, New Mexico, sponsored by the Univ. of New Mexico. Contact: Mohamed El-Genk, The Inst. for Space Nuclear Power Studies, Univ. of New Mexico, 237 Farris Engineering Center, Albuquerque, NM 78131 (phone 505-277-2813).

April 1989

25th Annual Meeting of the National Council on Radiation Protection and Measurements, Apr. 5-6,

1989, in Washington, D. C. Contact: W. Roger Ney, Executive Director, NCRP, 7910 Woodmont Ave., Suite 800, Bethesda, MD 20814.

Advances in Nuclear Engineering Computation and Radiation Shielding, Apr. 9-13, 1989, Santa Fe, New Mexico, a topical meeting sponsored by the ANS M&C and RP&S Divisions. Contact: E. W. Larsen, Technical Program Chairman, Group X-6, MS B226, Los Alamos National Laboratory, Los Alamos, NM 87545 USA (phone 313-936-0124).

7th International Meeting on Radiation Processing, April 23-28, 1989, Leeuwenhorst Congress Center, Noordwijkerhout, The Netherlands, a biennial conference dedicated to the dissemination and advancement of the technology of industrial radiation processing. Contact: E. Franken, 7th Internatl. Meeting on Radiation Processing, P.O. Box 4240, 6710 EE Ede, The Netherlands (phone AA 31 8380 37476; Telex 37030; FAX AA 31 8380 39643).

Fifty Years With Nuclear Fission, Apr. 26-28, 1989, Gaithersburg, Maryland, sponsored by the U.S. National Bureau of Standards. Contact: Jan Hauber, Room B109, Bldg. 245, National Bureau of Standards, Gaithersburg, MD 20899.

10th Annual Meeting of the Canadian Radiation Protection Association, Apr. 30-May 3, 1989, in Victoria, British Columbia. Contact: Lutz E. Moritz, TRIUMF, 4004 Wesbrook Mall, Vancouver, B. C., Canada V6T 2A3 (phone 604-222-1047; Telex (0)-4508503; FAX 604-222-1047).

June 1989

Annual Meeting of the American Nuclear Society, June 4-8, 1989, Atlanta, Georgia. Contact: ANS Meetings Dept., 555 N. Kensington Ave., La Grange Park, IL 60525 (phone 312-352-6611).

Packaging and Transportation of Radioactive Materials: PATRAM '89, June 11-16, 1989, Arlington, Virginia, sponsored by US-DOE. Contact: Larry Blalock, Chairman, US Organizing Comm., US Dept. of Energy, P.O. Box 2001, Oak Ridge, TN 37831-8765 (phone 615-576-0945 or FTS 626-0945).

SEPTEMBER 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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