RSIC Newsletter

OAK RIDGE NATIONAL LABORATORY
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FOR THE U.S. DEPARTMENT OF ENERGY

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The future evolves in an orderly manner out of the realities of the past, filtered and shaped by the decisions of the present — David Pearce Synder

RSIC'S PARENT EXPANDS, RENAMED

Effective February 1, 1984, the local Mathematics and Statistics Research (MSR) organization in Computer Sciences became a section within the Engineering Physics Division under the continuing management of R. C. Ward, who will report to F. C. Maienschein, Division Director. This consolidation forms the Engineering Physics and Mathematics Division, the Oak Ridge National Laboratory (ORNL) organizational unit in which RSIC is embedded.

The MSR organization has successfully combined research in applied mathematics, numerical analysis, and statistics with practical applications. The transfer is made in order to bring these research activities, which are expected to expand to include computer science, into the Laboratory.

RSIC STUDIED

RSIC has been selected as the information analysis center to be included in a study to determine the value of specialized information activities to research program productivity. The study is being conducted by King Research, Inc. (KRI) of Rockville, Maryland, under the sponsorship of the National Science Foundation and the Department of Energy Office of Scientific and Technical Information's Technical Information Center (TIC) at Oak Ridge.

In addition to the selection of RSIC for the "information analysis center" category, four other categories are being studied: a multi-purpose laboratory library (ORNL), a single purpose facility library (Rocky Flats), a specialized information center (National Energy Software Center), and a non-integrated contractor library (Rockwell Energy Systems).

The KRI approach focuses on assessing the "value added" by specialized information activities. A random sampling of RSIC users will be contacted by KRI and questioned concerning user/RSIC interaction and the value of RSIC products and services. The cooperation of those who are selected will be appreciated.

NOTE TO CODE/DATA REQUESTERS

Seven-track tape drives will soon be removed from the IBM system at ORNL. This system has been used by RSIC for many years to copy code systems and data libraries to 7-track tapes when requested by the user. We can continue to furnish 9-track-written tapes.

CHANGES TO THE COMPUTER CODES COLLECTION

Five changes were made to the RSIC computer codes collection; four new code systems and a new version of an existing code were added. Two of the changes resulted from contributions made by Finland.

CCC-448/QAD-UE

This version of the QAD-CG (CCC-307) point kernel shielding code system which includes a revised numerical integration option for gamma-ray volume source problems was contributed by United Engineers and Constructors, Inc., Philadelphia,

Pennsylvania. Using a revised gamma-ray point kernel source volume integration option to reduce user setup time, this system provides increased computational efficiency for large volume source problems. A point-kernel, ray-tracing technique for gamma-ray calculations and either a modified Albert-Welton kernel or kernels obtained from the moments method solution of the Boltzmann equation for neutron penetration calculation is used. The new technique performs a coupled ray angular integration at the detector position as opposed to an integration over the source volume. Reference: NU-542. FORTRAN IV; Honeywell 66/60.

CCC-449/TRANSHEX

This two-dimensional, multigroup collision probability code system for hexagonal geometry was contributed by the Technical Research Center of Finland in Helsinki. Determining the thermal neutron scalar flux distribution arising from a known epithermal flux in two-dimensional hexagonal geometry, TRANSHEX solves the isotropic collision probability equations for a region-averaged scalar flux by an iterative method. Either a successive over-relaxation or an inner-outer iteration technique is applied. Flat flux collision probabilities between triagonal space regions with white boundary condition are utilized. The effect of epithermal flux is taken into consideration as a slowing down source that is calculated for a given spatial distribution and 1/E energy dependence of the epithermal flux. Reference: "TRANSHEX," book by Otaniemi Kesäkuu (1973). FORTRAN V; UNIVAC 1108.

PSR-142/MORSEC-SP2

This MORSE cross-section processing routine has been replaced by a new version contributed by United Engineers and Constructors, Inc., Philadelphia, Pennsylvania. This version incorporates reduced storage requirements for complex multimedia problems and flexibiity in retaining elemental cross section angular data when describing elemental mixtures. Reference: NU-588. FORTRAN IV; Honeywell 66/60.

PSR-191/EDISTR

This code system for generating a nuclear-decay database for radiation dosimetry was contributed by the Oak Ridge National Laboratory. Using as input the basic radioactive decay data from the Evaluated Nuclear Structure Data File developed by the Nuclear Data Project at the Oak Ridge National Laboratory and now maintained by the Brookhaven National Laboratory, EDISTR calculates the mean energies and absolute intensities of all principal radiations associated with the radioactive decay of a nuclide. The program provides a physical database for internal dosimetry calculations. Other calculations performed by the system are the determination of (1) the average energy of beta particles in a beta transition, (2) the beta spectrum as a function of energy, (3) the energies and intensities of x-rays and Auger electrons generated by radioactive decay processes, (4) the bremsstrahlung spectra accompanying beta decay and monoenergetic Auger and internal conversion electrons, and (5) the radiations accompanying spontaneous fission. Reference: ORNL/TM-6689. FORTRAN IV; IBM 3033.

PSR-204/SAMPO80

This gamma-ray spectrum analysis method for minicomputers was contributed by Helsinki University of Technology, Finland. A rapid analysis code system for gamma-ray spectra measured with Ge(Li) or HPGe detectors, SAMPO80 consists of three separate parts: the shape calibration part, SAMPOSHAPE; the peak search and fitting part, SAMPOFIT; and the nuclide identification part, SAMPOID. The shape calibration procedure uses a non-linear least squares algorithm with a variable metric method. Some other features include peak location with a smoothed second difference method, peak area calculation with a linear least squares fit to predefined peak shapes, and nuclide identification with a linear least squares fit based on associated lines. Reference: UCRL-19452. FORTRAN V; NOVA2.

CHANGES TO THE DATA LIBRARY COLLECTION

Two data libraries were added to the RSIC Data Library Collection during the month.

DLC-99/HUGO

HUGO is a data library prepared by incorporating newly evaluated data from the National Bureau of Standards with data from an existing data library, DLC-7/HPICE, which is the ENDF/B-IV photon interaction data. It contains pair and triplet cross sections, photo-electric cross sections and atomic form factors, and the corresponding coherent scattering cross sections. Evaluated data in ENDF/B-V format are provided for elements Z=1 to 100. Two codes, EDPHOT for selectively printing the data and COMP23 for comparing two photon interaction data libraries, are also in the package. Reference: ORNL/RSIC-46(ENDF-335). FORTRAN IV; IBM 3033.

DLC-105/MCNPDAT

This supplemental cross section data library, based on ENDF/B-V, was contributed by Los Alamos National Laboratory for use with the CCC-200/MCNP general purpose Monte Carlo code system. The current MCNP package has an extensive set of corresponding cross-section data, based on ENDF/B-IV and other evaluations.

The package contains continuous (RMCSS1) and discrete (DRMCCS1) cross sections. The RMCCS1 data library is an update of the RMCCS library documented in the Los Alamos manual "MCNP - A General Monte Carlo Code for Neutron and Photon Transport," (Version 2B, April 13, 1981). Because of the size of this library it is separated into two files, RMCCS1A and RMCCS1B. There are two retrieval codes in the package, PRPR and MAKXSF, both to be used to translate the data into binary form, which will cut down on the running time of MCNP. Reference: Informal notes. FORTRAN IV; CDC 7600, CRAY1, IBM 3033, and VAX 11.

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PERSONAL ITEMS

In serving a specialized area of scientific endeavor, it seems important that we take note of the movement 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. During the past month we have been informed of the following changes.

RSIC has been informed of the following changes of address: *Lloyd D. Stephens,* from Lawrence Livermore Laboratory, to the Department of Energy, San Francisco Operations; *Yung-An Chao,* from Carnegie-Mellon University, to Westinghouse Electric Corp., Pittsburgh, Pennsylvania; and *Patrick D. Soran,* from Los Alamos National Laboratory, to Schlumberger Well Services, Houston, Texas.

Visitors to RSIC

During the month of January the following persons came for an orientation visit and/or to use RSIC facilities: *Bonnie C. Carroll,* Department of Energy, Office of Scientific and Technical Information, Oak Ridge; *Nancy K. Roderer,* King Research, Inc., Rockville, Maryland; and *Edward Blakeman,* ORNL Engineering Technology.

New Publications Announced

We call attention to the availability of the following publications.

NEA DB Publishes S-W Proceedings

The Proceedings of a Seminar-Workshop on Finite Element Multidimensional Diffusion Codes sponsored by the Nuclear Energy Agency Data Bank of Gif-sur-Yvette, France, on September 15–16, 1983, has been published as the December 1983 issue (No. 30) of the *Newsletter of the NEA Data Bank.* Information on availability may be secured from NEA Data Bank, F91191 Gif-sur-Yvette CEDEX, France.

The published papers cover the work of *A. Kavenoky* and *J. J. Lautard* of CEA/CEN/Saclay Laboratory, France; *D. T. Grenfell,* SIA, Manchester, U.K.; *D. M. Davierwalla, C. E. Higgs, S. Pelloni,* and *J. Stepanek* of EIR, Würenlingen, Switzerland; *D. J. Dudziak,* Los Alamos National Laboratory, USA; *E. Shuttleworth* and *S. J. Chucas,* AEE/Winfrith, U.K.; *J. Katakura,* JAERI,

Japan; and *A. K. Ziver,* Nuclear Associates, Control Data, Ltd., Warrington, U.K. Specific code systems discussed included FINELM (Switz.), TRIDENT (USA), FENDER (U.K.), 2DFEM and FEDM (Japan), and FEED2 (U.K.).

NCRP Publications

The NCRP has announced the publication of three new documents.

NCRP Report No. 75, *Iodine-129: Evaluation of Releases from Nuclear Power Generation,* is available at a single-copy price of $10.00. The report considers and evaluates available information on iodine-129 in terms of its physical properties, production sources, physical transport, biological behavior, projected future production, waste management and the short- and long-term dose implications in the environment. Important sections of the report include human thyroid iodine-129 exposures from dietary sources, limits to the biological significance of iodine-129, control measures, and methods of iodine-129 analysis.

NCRP Report No. 76, *Radiological Assessment: Predicting the Transport, Bioaccumulation, and Uptake by Man of Radionuclides Released to the Environment,* is available for the single-copy price of $17.00. This report reviews the current status of the application of radionuclide transport models from the point of discharge to the environment to the point of intake by man. Though the report is intended as a reference document for users with technical knowledge of environmental transport, it should prove useful to others because of the information provided on important factors that influence environmental transport. Each section of the report is preceded by a concise summary of environmental transport processes being discussed and how the information relates to the overall assessment scheme treated by the report.

Proceedings No. 5, *Environmental Radioactivity,* is available for the single-copy price of $17.00. Titled after the principle session of the 1983 Annual Meeting of the NCRP, it includes presentations on the role of the environment, natural environmental radioactivity, radon in homes, man-made sources, assessment of various releases, uncertainties in assessment models, long-lived radionuclides, high-level waste and criteria for dose limits. The proceedings also includes the Seventh Lauriston S. Taylor Lecture, "The Human Environment–Past, Present and Future," by Merill Eisenbud, a paper on the Windscale incident and radiation protection in Great Britain, summaries of proposed changes in NRC radiation protection standards, the status of radioactive defense waste legislation, environmental and biological behavior of plutonium and transuranium elements, the 1982 report of the United Nations Scientific Committee on the Effects of Atomic Radiation, and brief presentations on the work of three NCRP scientific committees and task groups.

These three publications may be obtained from NCRP Publications, 7910 Woodmont Avenue, Suite 1016, Bethesda, Maryland 20814.

UPCOMING CONFERENCES, COURSES, AND SEMINARS

Attention is directed to the following events of interest to the radiation shielding and protection community.

Rossi Named 8th Taylor Lecturer

Harald H. Rossi of Columbia University has been named the 1984 Taylor Lecturer for the annual meeting of the *National Council on Radiation Protection and Measurements* (NCRP) to be held April 4–5, 1984, in Washington, D.C. A featured presentation of the NCRP Annual Meeting, the lecture, entitled "Limitations and Assessments in Radiation Protection," is scheduled for 5 pm on April 4, in the auditorium of the National Academy of Sciences building.

Rossi, a professor and director of the Radiological Research Laboratory of Columbia University in New York, is an expert on radiological physics, radiation dosimetry, and radiation protection. He has been a member and director of the NCRP, has served on governmental and international advisory committees, has served as an editor for scientific journals, and has a bibliography of over 150 publications. He is an alumnus of the University of Vienna, the University of Bristol, England, and received his Ph.D. at Johns Hopkins University in Baltimore.

The April 4 Scientific Session is entitled "Some Issues Important in Developing Basic Radiation Protection Recommendations." Papers to be presented include the following:

"Status of Human Risk Estimation," by William J. Schull of the Center for Demographic and Population Genetics at the University of Texas,

"Relative vs. Absolute Risk Models," by John D. Boice, Jr., of the National Cancer Institute (NCI),

"Effect of Age, Sex, Ethnic and Individual Differences upon Risk Estimation and the Probability of Causation," by Seymour Jablon of the National Academy of Sciences,

"Effects on the Embryo-Fetus," by Robert W. Miller of NCI,

"Mortality vs. Incidence," by Edward P. Radford of the Radiation Effects Research Foundation of Hiroshima,

"Genetic Impacts," by Seymour Abrahamson of the Departments of Zoology and Genetics at the University of Wisconsin,

"Non-Stochastic Effects," by Arthur C. Upton of New York University Medical Center,

"Direct Approach to Utilizing Risk Information in Establishing Permissible Levels," by Robert A. Schlenker of the Center for Human Radiobiology at Argonne National Laboratory,

"Dosimetric Aspects," by Ralph H. Thomas of Lawrence Berkeley Laboratory, and

"Implications for the NCRP Program," by NCRP President, Warren K. Sinclair.

The NCRP Business Meeting and Scientific Briefings on *What the NCRP Should be Doing for Federal Agencies* and *Current NCRP Committee Activities* is scheduled for April 5.

Plans Go Forward for ANS Topical

The 1985 Topical Meeting of the ANS Mathematics and Computation (M&C) Division will be held in the Hyatt-Regency Hotel in Knoxville, Tennessee, April 9–11, 1985. The meeting is being cosponsored by the European Nuclear Society and the Atomic Energy Society of Japan.

The General chairman is *Lee Dodds*; *Alain Kavenoky* of the French CEA/CEN Saclay Laboratory and *T. Asaoka* of Japan Atomic Energy Research Institute (JAERI) are technical program co-chairmen. A tentative program has been established with topics selected to provide a forum for traditional M&C areas of interest as well as for new areas of computational methodology. Poster sessions are being planned to promote informal interchange of ideas on the latest advances in nuclear engineering computation.

Watch this newsletter, the *Nuclear News*, and *Nuclear Europe* for the call-for-papers.

LANL Hosts Nuclear Data Conference

Los Alamos National Laboratory will host the **International Conference on Nuclear Data for Basic and Applied Science**, to be held May 13–17, 1985, in Santa Fe, New Mexico. The following topics are to be covered during the five-day conference:

- Differential and Integral Nuclear Data for Fission Reactors
- Differential and Integral Nuclear Data for Fusion Reactors
- Basic Nuclear Physics with Neutrons
- Facilities, Instruments, and Methods for Nuclear Measurements
- Nuclear Data Analysis and Evaluation
- Nuclear Standards and Metrology
- Theory of Nuclear Reactions
- Nuclear Model Calculations and Systematics
- Nuclear Structure and Decay Data for Applications
- Nuclear Data for Biomedical and Industrial Applications
- Nuclear Data for Astrophysics
- Physics and Chemistry of Fission

Additional information may be obtained from P. G. Young, Chairman, Conference on Nuclear Data for Basic and Applied Science, Los Alamos National Laboratory, Mail Stop B243, Los Alamos, New Mexico 87545 USA.

Calendar Items

Your attention is called to the following.

March 1984

Waste Management 84, March 11--15, 1984, Tucson, Arizona, sponsored by the Univ. of Arizona, American Society of Mechanical Engineers, ANS, Electric Power Research Institute, and U.S.DOE. Contact: Office of Special Professional Education, College of Engineering, Harvill Bldg. Box 9, Univ. of Arizona, Tucson, AZ 85721.

Nuclear Power and the Media, March 25–27, 1984, Berne, Switzerland, sponsored by the European Nuclear Society. Contact European Nuclear Society, P.O. Box 2613, CH-3001 Berne, Switzerland.

General Meeting of the American Physical Society, March 26–30, 1984, Detroit, Michigan. Contact: American Physical Society, 335 East 45th St., New York, NY 10017, USA.

Occupational and Environmental Radiation Protection, March 26–30, 1984, Boston, Massachusetts, a course sponsored by the Harvard School of Public Health, Office of Continuing Education. Contact: Office of Continuing Education, Harvard School of Public Health, 677 Huntington Ave., Boston, MA 02115 (phone 617-732-1171).

April 1984

5th International Conference on Nuclear Methods in Environmental and Energy Research, April 2–6, 1984, Mayaguez, Puerto Rico, USA, sponsored by the ANS; American Chemical Society; U.S.DOE; Univ. of Puerto Rico-Recinto; Univ. of Mayaguez; and the Univ. of Missouri. Contact: James R. Vogt, Univ. of Missouri, 214 Research Reactor, Columbia, Missouri 65211, USA (phone 314-882-4211).

Annual Meeting of the Radiation Research Society, April 8–12, 1984, Orlando, Florida. Contact: American College of Radiology, 925 Chestnut St., Philadelphia, Pennsylvania 19107, USA.

Internal Dosimetry for Fixed Nuclear Facilities, April 9--13, 1984, Oak Ridge, Tennessee, a course presented by Oak Ridge Associated Universities. Contact: Registrar, Professional Training Programs, Oak Ridge Associated Universities, P.O. Box 117, Oak Ridge, TN 37831-0117 (phone 800-362-5555).

Radiation Protection Instrumentation Course, April 9–13, 1984, Boston, Massachusetts, sponsored by the Harvard School of Public Health, Office of Continuing Education. Contact: Office of Continuing Education, Harvard School of Public Health, 677 Huntington Ave., Boston, MA 02115 (phone 617-732-1171).

General Meeting of the American Physical Society, April 23–26, 1984. Contact: The American Physical Society, 335 East 45th St., New York, NY 10017 USA.

Applied Health Physics, April 23--May 25, 1984, Oak Ridge, Tennessee, a course presented by Oak Ridge Associated Universities. Contact: Registrar, Professional Training Programs, Oak Ridge Associated Universities, P.O. Box 117, Oak Ridge, TN 37831-0117 (phone 800-362-5555).

5th Annual Conference of the Canadian Radiation Protection Association, April 30–May 3, 1984, Banff, Alberta, Canada. Contact: Stuart E. H. Hunt, Local Arrangements Chairman, C-7 Civil Electrical Engr. Bldg., Univ. of Alberta, Edmonton, Alberta, Canada T6G 2G7 (phone 403-432-5655).

Control of Occupational Exposures in Nuclear Power Plants, April 30–May 4, 1984, Boston, Massachusetts, a course sponsored by the Harvard School of Public Health, Office of Continuing Education. Contact: Office of Continuing Education, Harvard School of Public Health, 677 Huntington Ave., Boston, MA 02115 (phone 617-732-1171).

May 1984

6th Congress of the International Radiation Protection Association, and *Exhibition,* May 7–12, 1984, Berlin, West Germany. Contact: R. Neider, Bundesanstalt für Materialprüfung (BAM), Unter den Eichen 87, D-1000 Berlin 45.

Nuclear Technology Exhibit, May 11–19, 1984, Bejing, China, sponsored by the ANS. Contact: P. Pollock, Exhibit Manager, ANS, 555 N. Kensington Ave., La Grange Park, Illinois 60525 USA (phone 800-323-3044).

6th Annual Symposium on Safeguards and Nuclear Material Management, May 14–18, 1984, Venice, Italy, sponsored by the European Safeguards Research and Development Association (ESARDA) and the Commission of the European Communities. Contact: L. Stanchi, Commission of the European Communities Joint Research Centre, I-21020 Ispra (Varese), Italy.

June 1984

24th Annual International Conference of the Canadian Nuclear Association, June 3–6, 1984, Saskatoon, Saskatchewan, Canada. Contact: J. A. Weller, General Manager, Canadian Nuclear Association, 111 Elizabeth Street, 11th Floor, Toronto, Ontario, Canada M5G 1P7.

29th Annual Meeting of the Health Physics Society, June 3–7, 1984, New Orleans, Louisiana. Contact: Richard J. Burk, Jr., Executive Secretary, Health Physics Society, 4720 Montgomery Lane, Suite 506, Bethesda, Maryland 20014, USA.

ANS Annual Meeting, June 3–7, 1984, New Orleans, Louisiana. Contact: Thomas H. Row, ORNL, Bldg. 4500, MS-S-178, Oak Ridge, TN 37831-2008 USA.

July 1984

9th Annual Conference of the Australian Radiation Protection Society, July 9–12, 1984, Darwin, North Territory, Australia. Contact: I. A. Prince, Conference Convenor, 1984 ARPS Conference, C/ - GPO Box 1701, Darwin, NT 5794, Australia.

Topical Meeting on Fission Product Behaviour and Source Term Research, July 15–19, 1984, Snowbird, Utah, sponsored by ANS; Electric Power Research Institute (EPRI); Canadian Nuclear Society; and the Atomic Energy Society of Japan. Contact: W. J. Quapp, EG & G Idaho, Inc., P.O. Box 1625, Idaho Falls, Idaho 83415, USA (phone 208-526-9606).

September 1984

5th International Symposium on Capture Gamma Ray Spectroscopy and Related Topics, September 10–14, 1984, Oak Ridge, Tennessee. Contact: S. Raman, Physics Division, Oak Ridge National Laboratory, P.O. Box X, Oak Ridge, Tennessee 37831 USA.

ANS Topical Meeting on Physics and Shielding, September 17–19, 1984, Chicago, Illinois. Contact: Leo LeSage, Argonne National Laboratory, Applied Physics Div., 9700 South Cass Ave., Argonne, Illinois 60439 USA (phone 312-972-6045).

5th ASTM-EURATOM Symposium on Reactor Dosimetry, September 24–28, 1984, Geesthacht, Fed. Rep. of Germany, sponsored by Commission of the European Communities, ASTM, U.S.DOE, and U.S.NRC. Contact: E. B. Norris, Southwest Research Institute, P.O. Drawer 28510, San Antonio, Texas 78284 (for Japanese and US authors); H. Rottger, Joint Research Centre, Petten Establishment, HFR Div., Postbus 2, 1755 ZG Petten (N. H.), Netherlands (all other authors). Last date for abstracts is December 1, 1983.

October 1984

International Conference on Occupational Radiation Safety in Mining, October 15–18, 1984, Toronto, Ontario, Canada, sponsored by the Canadian Nuclear Assoc., Canadian Dept. of Energy, Mines, and Resources, and the Atomic Energy Control Board. Contact: Internatl. Conf. on Occupational Radiation Safety in Mining, Canadian Nuclear Assoc., 111 Elizabeth St., 11th Floor, Toronto, Ontario, Canada M5G 1P7.

Symposium on Radiation Dosimetry, October 15–18, 1984, Knoxville, Tennessee, sponsored by Oak Ridge National Laboratory. Contact: R. T. Greene, ORNL, P.O. Box X, Bldg. 7710, Oak Ridge, TN 37831 USA.

Meeting of the Nuclear Physics Div. of the American Physical Society, October 18–20, 1984, Nashville, Tenn. Contact: American Physical Society, 335 E. 45th St., New York, NY 10017 USA.

Clinical Radiophysics, a symposium sponsored by the Clinical Radiophysics Section of the Society for Medical Radiology of the German Democratic Republic, October 28–November 1, 1984, Binz (island Rügen, German Democratic Republic). Contact: Dr. sc. techn. Manfred Tautz, 1115 Berlin-Buch, Wiltbergrstrasse 50, Städtisches Klinikum Buch, Spezialabteilung Strahlenphpysik, German Democratic Republic.

International Symposium on the Implementation of the IAEA Codes of Practice and Safety Guides for Nuclear Power Plants, October 29–November 2, 1984. Contact: Conf. Svc. Sect., IAEA, P.O. Box 100, A-1400 Vienna, Austria.

November 1984

National Conference on Biomedical Physics and Engineering November 3–4, 1984, in Sofia, Bulgaria, sponsored by the Bulgarian National Society of Biomedical Physics and Engineering. Contact: Chair of Physics and Biophysics, c/o eng. Peter Trindev, Medical Academy - Base No. 1, 1431 Sofia / 1 Boul. G.Sofiiski, Bulgaria.

Inter-Regional Seminar on Practical Problems Encountered in the Safe Transport of Radioactive Materials, November 5–8, 1984, Vienna. Contact: Conf. Svc. Sect., IAEA, P.O. Box 100, A-1400 Vienna, Austria.

Joint Meeting of the American Nuclear Society, the Atomic Industrial Forum, and the European Nuclear Society, November 11–16, 1984, Washington. Contact: George W. Cunningham, Nuclear Studies, Mitre Corp., 1820 Dolley Madison Blvd., McLean, Virginia 22102 USA.

International Symposium on Assessment of Radioactive Contamination in Man, November 19–23, 1984, Paris, sponsored by the International Atomic Energy Agency. Contact: Conf. Svc. Sect., IAEA, P.O. Box 100, A-1400 Vienna, Austria.

Conference on Radioactive Waste Management, November 27–29, 1984, London, sponsored by the British Nuclear Energy

Society. Contact: The Secretariat, British Nuclear Energy Society, at the Institution of Civil Engineers, 1-7 Great George St., London SWIP 3AA, U.K.

JANUARY 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

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CONF-831015-23, . . ***Bismuth Germanate's Role in the New Revolution in Gamma-Ray Spectroscopy.,*** . . Johnson, N.R.; Baktash, C.; Lee, I.Y., . . 1983, . . NTIS, PC A02/MF A01

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