



# 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

EasyLink Mailbox: 62813374

Telex(Answer Back): 854467(ORNL EPIC UD)

No. 243

February 1985

*Labour to keep alive in your breast that little spark of celestial fire  
called conscience. — George Washington*

## RSIC HAS DIRECT ACCESS TO ELECTRONIC COMMUNICATION

Use of electronic communication became more practical for RSIC in the new year. RSIC now has its own EasyLink and Telex numbers. They are:

EasyLink Mailbox: 62813374

Telex(Answer Back): 854467(ORNL EPIC UD)

Both services are provided by Western Union.

In the past we have found Telex to be a useful means of telecommunication with our foreign colleagues; it should now prove to be even more useful. We recommend that our colleagues in the U.S. use EasyLink to communicate with us if possible; the cost will be less.

## CHANGES TO THE COMPUTER CODE COLLECTION

During the month six changes were made to the RSIC computer code collection. Two new code systems were packaged and added to the collection, including a contribution from the Fed. Rep. of Germany. Two existing code packages were corrected or enhanced with additional software. The documentation of an existing code package was updated to correspond with previous changes in the code system's software. A previously existing code package was replaced with newer technology.

### CCC-272/TRIPOLI-2.2(84)

Following an internal audit of all materials associated with the TRIPOLI code series packaged in RSIC and a contribution of new modifications, a new package is offered. The code package is renamed TRIPOLI 2, Version 2, 1984 [2.2(84)] for ease in RSIC record keeping.

Staff members (*J. Gonnord and T. Vergnaud*) of CEA/CEN/Saclay SERMA/Laboratory of Shielding and Reliability visited RSIC in September 1984 and guided the implementation of considerable new code development into the code system. All prior packaged versions, made obsolete by this new contribution, have been removed from the col-

lection. The changes were extensive; current TRIPOLI users are advised to request the complete package.

TRIPOLI-2.2(84) is a 3-D Monte Carlo radiation transport code system written in FORTRAN IV and Assembler language for the IBM 370 and 3033 computers.

### CCC-371/ORIGEN2-82

The PRIME version (C) of this isotope generation and depletion code system — matrix exponential method — was updated to add from the IBM version 41 files of cross section data not originally included. A PRIME-version user will select a particular cross section file and merge it with the de-

cay file in order to perform a calculation of choice (the PRIME version requires the cross section data and decay data to be on the same file).

The December 1984 Newsletter attributed the contribution of an updated thermal data library to Jeff Franzen, Union Carbide Research Park, Tuxedo, New York. The library was actually contributed by the code developers in the Chemical Technology Division of Oak Ridge National Laboratory at the request of Mr. Franzen.

### CCC-462MICRO/NCRP49

This X-ray shield calculation code system was updated to make the following changes:

On line 1590, P0.01 was changed to P=0.01

On lines 1515, 1525, and 1527, the first word in the line was changed from PRINT to LPRINT.

The need for these changes was brought to the attention of RSIC by Lynn McGuire, Veterans Administration Hospital, Little Rock, Arkansas, and Bill Dundulis, Rhode Island Dept of Health and Radiation Control, Providence. BASIC; TRS-80 Model-II and -4.

### CCC-465/TP1

This computer code system for the calculation of reactivity and kinetic parameters by one-dimensional neutron transport perturbation theory was contributed by Kernforschungszentrum Karlsruhe, West Germany. It is a transport theory code system developed to determine reactivity effects and kinetic parameters, such as effective delayed neutron fractions and mean generation time, by applying the usual perturbation for one-dimensional geometry. Reference: KfK2738. FORTRAN IV; IBM 3033.

### CCC-467/ITS

This integrated TIGER series of coupled electron/photon Monte Carlo transport code systems was contributed by Sandia National Laboratories, Albuquerque, New Mexico. The code system permits a state-of-the-art Monte Carlo solution of linear time-integrated coupled electron/photon radiation transport problems with or without the presence of macroscopic electric and magnetic fields of arbitrary spatial dependence. The ITS code system contains a set of standard codes (TIGER, CYLTRAN, and ACCEPT), enhanced ionization/relaxation codes (TIGERP, CYLTRANP, and ACCEPTP), and macroscopic field codes (CYLTRANM and ACCEPTM). The "TIGER" codes are one-dimensional, multilayer. The "CYLTRAN" series can model three-dimensional axisymmetric cylindrical problems, and the "ACCEPT" family provides general geometry through the combinatorial geometry scheme. Through a machine portable utility that emulates the basic features of the CDC UPDATE processor, the user selects one of eight member codes to run on a machine of one of four major vendors. References: SAND84-0573 and SAND84-1896. FORTRAN-77. CRAY, VAX, CDC, and IBM.

### PSR-143/BREESE II

The documentation of this code package of auxiliary routines for implementing the albedo option in the MORSE Monte Carlo code package (CCC-203) was updated to add report number 1-138-02-034-00, "Neutron Streaming Calculations with MORSE/BREESE for the ORNL-TSF Two-Legged Duct and CRBR Prototypic Coolant Pipe Chaseway Experiments," to the document. The report was prepared by Science Applications, Inc., Oak Ridge, Tennessee. FORTRAN IV; IBM 360 & 370.

---

## Standards

The following nuclear standards were approved in December 1984.

ANSI/ANS-18.1-1984 *Radioactive Source Term for Normal Operation of Light Water Reactors* (revision of N237-1976).

ANSI/ANS-57.9-1984 *Design Criteria for an Independent Spent Fuel Storage Installation (Dry Storage Type)* (new standard).

## PERSONAL ITEMS

In serving a specialized area of scientific endeavor, it seems important that we note the changes in the circumstances 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.

### Weinberg Retires, Whittle Steps In

Effective February 1, 1985, **Dr. Charles E. Whittle, Jr.** will succeed **Alvin Weinberg** as Director of the Institute for Energy Analysis (IEA) in Oak Ridge, Tennessee. The Institute, a research organization within Oak Ridge Associated Universities (ORAU), is sometimes referred to as the energy think tank for the Department of Energy.

Weinberg took the directorship of the newly formed institute in 1974, after resigning as the director of ORNL, a post he had held for 18 years. Although recognized as a pioneer in nuclear research and development, Weinberg was also instrumental in the establishment of information science as a necessary element in scientific research. In the early 1960s he served as the chairman of the Panel on Science Information of the President's Science Advisory Committee (PSAC) which published the widely-known report *Science, Government, and Information*: ... more often called the Weinberg Report. This report gave birth to several specialized information centers (RSIC among them) and remains as the rationale for the "preservation of the technology which had been developed in recently-cancelled programs and the need to share technology across government programs."<sup>1</sup>

Weinberg will remain on the staff as a senior fellow to devote his time to research.

Whittle has been the Assistant Director of the Institute since 1977. He attended Centre College of Kentucky and earned his doctorate degree in physics from Washington University in St. Louis. He was a Fulbright scholar at the University of Leiden in The Netherlands, where he did postdoctoral work in low-temperature physics. Before joining IEA, Whittle was a professor and chairman of the physics department at Western Kentucky University.

1. "How It All Began," *RSIC Newsletter* 223 (June 1983).

### L. Spencer, NBS, Retires

After a long and distinguished career with the National Bureau of Standards (NBS), **Dr. Lewis V. Spencer** retired at the end of 1984. Lew began his career with NBS after earning his PhD at Northwestern University in 1948. His early work was on the development and publication of high quality data on photon and electron transport. He followed these efforts with the publication

of papers on the Mott scattering cross section, cavity ionization theory, and deep penetration of particles and photons.

His interest in shielding problems related to civil defense resulted in a monograph on fallout shielding data in 1956. He worked with *C. M. Eisenhower* and *L. N. FitzSimons* to develop the Standard Method for evaluating fallout protection in structures. Shortly afterward he began chairing a shielding subcommittee of the Advisory Committee on Civil Defense of the National Academy of Sciences; in 1965 he took over the chairmanship of the main committee.

*Structure Shielding Against Fallout Gamma Rays from Nuclear Detonations* (NBS Special Publ. 570, U.S. GPO, \$20), a summary of a 20-year effort in the U.S. to measure and calculate fallout shielding afforded by structures, was the result of a collaboration with *C. M. Eisenhower* and *A. B. Chilton* in the 1970s. His recent work was with the development of shielding methods against initial radiation from nuclear detonations.

Perhaps his most significant contribution in the area of shielding was his development, together with *U. Fano*, of the moments method solution to gamma-ray transport. Solutions by this method lead to the extensive tabulation of gamma-ray buildup factors by *Goldstein* and *Wilkins*. Other outstanding contributions were his calculations of electron depth-dose distributions, electron degradation spectra, and cavity ionization.

During his career, he received two silver medals and a gold medal from the Department of Commerce for Meritorious Service, the Distinguished Service Award of the Office of Civil and Defense Mobilization in 1960, and the first L. H. Gray Medal of the International Commission on Radiation Units and Measurements in 1969.

We at RSIC wish him well in his retirement.

### Iotti Promoted at Ebasco

**Robert C. Iotti** succeeds **Deslonge R. deBoisblanc** as vice president of advanced technology at Ebasco Services, Inc. of New York. Iotti was formerly chief engineer of applied physics.

### OOPS!

The award for best paper (reported on page 2 of January 1985 *RSIC Newsletter*) was presented to John M. Rich, Janet L. Westbrook, and Gerald P. Lahti by the ANS Radiation Protection and Shielding Division. It was presented at the November 1984 ANS Meeting for their paper entitled "Radiological Aspects of Hydrogen-Addition Water Chemistry at BWRs."

### Visitors to RSIC

During January 1985 the following persons came for

an orientation visit and/or to use RSIC facilities: *J. J. Wagschal*, Hebrew University, Jerusalem; and *Victor Cain*, Science Applications International, Oak Ridge, Tennessee.

\*\*\*\*\*

### Monte Carlo Classic Available

The Department of Energy Office of Scientific and Technical Information has announced that the classic document by Herman Kahn, *Applications of Monte Carlo*, is available. The work, published in 1954, contains three parts: Techniques with Random Variables, Evaluating Integrals, and Integral Equations. Anyone using Monte Carlo techniques would benefit from this book. It is available from the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161, in printed form only for \$22 (cost code A12). Ask for AECU-3259.

### 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

##### Radiation Effects Conference

Papers are solicited for the upcoming **1985 Annual Conference on Nuclear and Space Radiation Effects**, to be held in Monterey, California, July 22-24, 1985. The conference is sponsored by the Institute of Electrical and Electronics Engineers, Inc., and cosponsored by the Defense Nuclear Agency, Sandia National Laboratories, and Jet Propulsion Laboratory. Topics to be included in the conference are: Basic Radiation Effects Mechanisms for Materials and Devices; Radiation Effects and Spacecraft Charging in Satellites; Radiation Transport, Energy Deposition, Dosimetry, and Radiation Facilities; Methods of Design and Manufacturing for Radiation-Hardened Electronic Devices, Integrated Circuits, and the Effects of Radiation on These Devices; Electromagnetic Pulse Phenomena, Assessment of Coupling, and Measurement Technology (IEMP, SGEMP, SREMP); Single-Event Upset and Latchup Phenomena; Hardness Assurance Technology and Testing Techniques; Radiation Effects on the Materials and Electronics of Nuclear Reactors (Power and Space); and New Developments and New Techniques of Interest to

the Nuclear and Space Radiation Effects Community. Deadline for submitting papers is **March 1, 1985**. Further details may be obtained from J. M. McGarrity, 1985 NSRE Technical Program Chairman, Harry Diamond Laboratories, 2800 Powder Mill Rd., Adelphi, MD 20783 (phone 202-394-3180).

##### International Finite Element Seminar

A call for papers has been issued for the **Finite Element and Allied Methods for Reactor Physics and Shielding Calculations**, an international seminar to be held at the Imperial College of Science and Technology, London, England, September 18-20, 1985. Abstracts for consideration for presentation should be sent to the organizers by **March 15, 1985**. Details may be obtained from A. J. H. Goddard, Mech. Engr. Dept., Imperial College of Science and Technology, Exhibition Rd., London SW7 2BX.

##### 11th Fusion Symposium

A call for papers has been issued for the **11th Symposium on Fusion Engineering**. The conference is scheduled to take place November 18-22, 1985, in Austin, Texas. Papers are solicited in the following subject categories: Magnets and Coil Engineering; Superconductor Development; Energy Storage, Switching, and Supply; Vacuum and First-Wall Technology; Controls, Instrumentation, and Data Handling; Engineering Problems of Future Fusion Reactors; Experimental and Diagnostics System Design; Energetic Plasma and Particle Sources; Plasma Heating Systems; Remote Maintenance and Handling; Tritium and Chemical Systems; Driver/Target Technology for Inertial Confinement Fusion; Photon and Charged Particle Beam Transport Systems; Plasma Engineering; Design and Operation of Large Fusion Reactors; Quality Assurance and Reliability; and Health, Safety, and the Environment. Papers will be selected on the basis on timeliness, significance, and the importance of the work. Abstracts must be submitted by **May 1, 1985**. Further information may be obtained from Dawn East, Fusion Research Center, RLM 11.222, The University of Texas at Austin, Austin, Texas 78712 (phone 512-471-3926).

##### 5th EuReData Conference

The **5th EuReData Conference on Reliability Data Collection and Use in Risk and Availability Assessment** will be held April 9-11, 1986, in Heidelberg, Fed. Rep. of Germany. Papers are solicited on the following topics: collection and organization of reliability data; the interface between data and their application in probabilistic risk assessment; availability modelling, economics etc.; and the exchange of data between the many industrial, scientific, and technological fields. The deadline for sub-

mitting abstracts is **June 15, 1985**. Details may be obtained from H. J. Wingender, NUKEM GmbH, D-6450 Hanau, P.O. Box 110080, Fed. Rep. of Germany.

### Calendar

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

#### 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).

*Medical Planning and Care in Radiation Accidents Course*, March 4-8, 1985, Oak Ridge, Tennessee, sponsored by DOE. Contact: Robert C. Ricks, Director, REAC/TS, ORAU, P.O. Box 117, Oak Ridge, Tenn. 37831-0117 (phone 615-576-3131).

*ANS Executive Conference on the Ramifications of the Source Term*, March 10-13, 1985, North Charleston, South Carolina. Contact: Richmond Gardner, Stone and Webster, P.O. Box 2325, Boston, MA 02107 USA (phone 617-589-2422).

*Handling of Radiation Accidents by Emergency Personnel Course*, March 12-15, 1985, Oak Ridge, Tenn., sponsored by DOE. Contact: Robert C. Ricks, Director, REAC/TS, ORAU, P.O. Box 117, Oak Ridge, Tenn. 37831-0117 (phone 615-576-3131).

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

*Numerical Methods and Digital Computer Techniques for Engineers and Scientists*, March 18-22, 1985, a University of California-Los Angeles Extension Course sponsored by the Dept. of Engineering and Science. Registration information may be obtained from the Short Course Program Office, UCLA Extension, P.O. Box 24901, Los Angeles, CA 90024 (phone 213-825-1295 or 3344).

*Incineration of Low-Level Radioactive Wastes*, March 21-22, 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.

*Conference on Nuclear Structure Physics*, March 25-27, 1985, Univ. of Surrey, England. Contact: Inst. of Physics, 47 Belgrave Square, London, SW1X 8QX, England.

*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).

*2nd Workshop on Perspectives in Nuclear Physics at Intermediate Energies*, March 25-29, 1985, Trieste, Italy. Contact: 2nd Workshop on Perspectives in Nuclear Physics at Intermediate Energies, International Centre for Theoretical Physics, P.O. Box 586, I-34014 Trieste, Italy (phone 040-224281).

*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: W. Roger Ney, NCRP, 7910 Woodmont Ave., Suite 1016, Bethesda, MD 20814 USA.

*International Meeting on Advances in Nuclear Engineering 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).

*Radiation Protection Instrumentation Course*, April 15-19, 1985, Boston, Massachusetts. Contact: Office of Continuing Education, Harvard School of Public Health, 677 Huntington Ave., Boston, MA 02115 (phone 617-732-1171).

*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, KY 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

*Handling of Radiation Accidents by Emergency Personnel Course*, May 7-10, 1985, Oak Ridge, Tenn., sponsored by DOE. Contact: Robert C. Ricks, Director, REAC/TS, ORAU, P.O. Box 117, Oak Ridge, Tenn. 37831-0117 (phone 615-576-3131).

*Beijing International Symposium on Hydrogen Systems*, May 7-11, 1985, Beijing, China (PRC), sponsored by the International Association for Hydrogen Energy and the China Association for Science and Technology. Contact: Ann G. Raffle, I.A. H.E., P.O. Box 248266, Coral Gables, FL 33124.

*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).

*Control of Occupational Exposures in Nuclear Power Plants Course*, May 13-17, 1985, Boston, Massachusetts. Contact: Office of Continuing Education, Harvard School of Public Health, 677 Huntington Ave., Boston, MA 02115 (phone 617-732-1171).

*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, South 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 22-24, 1985, Monterey, California, sponsored by the Institute of Electrical and Electronics Engineers, Inc. and cosponsored by the Defense Nuclear Agency, Sandia National Laboratories, and the Jet Propulsion Laboratory. 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.

*Medical Planning and Care in Radiation Accidents Course*, August 19-23, 1985, Oak Ridge, Tennessee, sponsored by DOE. Contact: Robert C. Ricks, Director, REAC/TS, ORAU, P.O. Box 117, Oak Ridge, Tenn. 37831-0117 (phone 615-576-3131).

*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.

#### September 1985

*ANS Topical on Criticality Safety and the Storage of Fissile Material*, Sept. 9-12, Jackson, Wyoming. Contact: Robert E. Wilson, Idaho Chem Processing Plant, P.O. Box 4000, (CPP-668), Idaho Falls, IL 83403 (phone 208-526-1361).

*Handling of Radiation Accidents by Emergency Personnel Course*, Sept. 10-13, 1985, Oak Ridge, Tenn., sponsored by DOE. Contact: Robert C. Ricks, Director, REAC/TS, ORAU, P.O. Box 117, Oak Ridge, Tenn. 37831-0117 (phone 615-576-3131).

*Health Physics in Radiation Accidents Course*, Sept. 23-27, 1985, sponsored by DOE. Contact: Robert C. Ricks, Director, REAC/TS, ORAU, P.O. Box 117, Oak Ridge, Tenn. 37831-0117 (phone 615-576-3131).

*ANS Topical Meeting on High Level Nuclear Waste Disposal — Technology and Engineering*, Sept. 24-26, 1985, in Pasco, Washington. Contact: Edward B. Ash, Rockwell Hanford, P.O. Box 800, Richland, WA 99352 (phone 509-376-6846).

#### 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.

*12th Annual Meeting and International Conference on Nuclear Energy*, October 20-23, 1985, Boston, Massachusetts, sponsored by the World Nuclear Fuel Market. Contact: Donna P. Cason, Administrative Director, WNFM, 5720 Peachtree Parkway, Norcross, GA 30092 (phone 404-447-1144).

*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).

*International Symposium on Source Term Evaluation for Accident Conditions*, October 28-November 1, 1985, Columbus, Ohio. Participation must be through designation by the Government of a Member State of the IAEA or by an organization invited to participate. Contact: Secretariat, c/o International Atomic Energy Agency, Vienna International Centre, P.O. Box 100, A-1400, Vienna, Austria.

#### November 1985

*11th Symposium on Engineering Problems in Fusion Research*, November 18-22, 1985, Austin, Texas. Contact: Ward Harris, Fusion Research Center, Univ. of Texas at Austin, RLM 11.1222, Austin, TX 78712 (phone 512-471-4576 or 4698).

## 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

**AAEC/E-571**, . . *Neutronic Models for the HIFAR Reactor*, . . Harrington, B.V., . . September 1983, . . NTIS (U.S. Sales Only), PC A03/MF A01

**AECL-5715(Rev.1)**, . . *Low-Level Radiation. A Review of Current Estimates of Hazards to Human Populations*, . . Myers, D.K., . . May 1982, . . NTIS (U.S. Sales Only), PC A06/MF A01

**AECL-6973**, . . *FISSPROD-3. An Expanded Fission Product Accumulation Program Using ENDF/B-V Decay Data*, . . Walker, W.H.; Hebert, A., . . November 1982, . . NTIS (U.S. Sales Only), PC A05/MF A01

**AECL-7261**, . . *Preparation of Magnetic Tapes for the Transfer of Information to/from Other Computer Systems*, . . Clark, K.D.; Peterson, M.A., . . June 1982, . . NTIS (U.S. Sales Only), PC A02/MF A01

**AECL-7690**, . . *Testing ENDF/B-V Data for Thermal Reactors*, . . Craig, D.S., . . October 1982, . . NTIS (U.S. Sales Only), PC A06/MF A01

**AECL-7919**, . . *Dose Conversion Factors for Intakes of Selected Radionuclides by Infants and Adults*, . . Johnson, J.R.; Dunford, D.W., . . January 1983, . . NTIS (U.S. Sales Only), PC A03/MF A01

**AECL-8057**, . . *Introduction to Radiation Protection Principles*, . . White, J.M., . . January 1983, . . NTIS (U.S. Sales Only), PC A04/MF A01

**AECL-8060**, . . *Neutronic Evaluations of Activations in Graphite-Thorium Assemblies, 14 MeV Neutron Sources. Comparisons with Measurements*, . . Kushneriuk, S.A.; Wong, P.Y., . . April 1983, . . NTIS (U.S. Sales Only), PC A04/MF A01

**AEW-R-1669**, . . *Factors Relevant to Control of Out-of-Core Radiation Fields in BWRs*, . . Comley, G. C.W., . . August 1983, . . NTIS (U.S. Sales Only), PC A02/MF A01

**AEW-R-1715**, . . *Comparison of Measured Neutron Reaction Rates in Fast Reactor Steels with Calculated Values Using FD5 Data*, . . Murphy, M.F.; Stevenson, J.M.; Taylor, W.H., . . June 1984, . . UKAEA Atomic Energy Establishment, Winfrith, Reactor Physics Division

**AERE-R-10953**, . . *Some Concepts in Evaluating the Health Effects of Radiation*, . . Billington, D.E.; Cameron, R.F., . . December 1983, . . HMSO, London, price pounds 6.00

**ANL/FPP/TM-183**, . . *Tritium Catalyzed Deuterium Tokamaks*, . . Greenspan, E.; Miley, G.H.; Jung, J.; Gilligan, J., . . April 1984, . . NTIS, PC A04/MF A01

**BMI-1983-021 (In German)**, . . *Benefit Effort Relation of Sacrificial Layers*, . . Reineke, H.H.; Hahn, K., . . November 1983, . . NTIS (U.S. Sales Only), PC A05/MF A01

**BMI-1984-028 (In German); GRS-A-882 (In German)**, . . *Evaluation of the Radiation Exposition in Criticality Failure Accidents Using 120-Group Transport Calculations*, . . Hesse, U., . . January 1984, . . NTIS (U.S. Sales Only), PC A04/MF A01

**BNL-51771 (First Edition)**, . . *Charged Particle Nuclear Data Bibliography, Literature Scanned from March 1, 1982 Through March 31, 1984*, . . Holden, N.E.; Ramavaram, S.; Dunford, C.L., . . April 1984, . . NTIS

**BNL-NUREG-29860; CONF-811103-28**, . . *TRAC-PD2 and RELAP5/MOD1 Predictions of Heated Rod Bundle Experiments*, . . Neymotin, L., . . 1981, . . NTIS, PC A02/MF A01 - GPO

**CEA-CONF-6704; CONF-830406-114**, . . *Fusion Reactor Blanket: Neutronic Studies in France*, . . Barre, F.; Gervaise, F.; Giancarli, L., . . April 1983, . . NTIS (U.S. Sales Only), PC A06/MF A01

**CEA-CONF-6708; CONF-830304-24**, . . *State of the Art in Using Finite Element Method for Neutron Diffusion Calculation*, . . Kavenoky, A.; Lautard, J.J., . . March 1983, . . NTIS (U.S. Sales Only), PC A02/MF A01

**CINDA-84 Supplement**, . . *The Index to Literature and Computer Files on Microscopic Neutron Data*, . . IAEA, . . November 1984, . . International Atomic Energy Agency, Vienna

**CONF-840570-12**, . . *Structural Materials for Fusion Reactor Blanket Systems*, . . Bloom, E.E.; Smith, D.L., . . 1984, . . NTIS, PC A02/MF A01

**CONF-840614-83**, . . *Sensitivities of the Flux Spectrum in the Cavity of a PWR to Variations in the Core Source Distribution*, . . Broadhead, B.L.; Maerker, R.E., . . June 3, 1984, . . NTIS, PC A02/MF A01

**CONF-8406167-5**, . . *Approaches to Radiation Guidelines for Space Travel*, . . Fry, R.J.M., . . 1984, . . NTIS, PC A02/MF A01

**CONF-840807-1**, . . *Blanket Materials for Fusion Reactors: Comparisons of Thermochemical Performance*, . . Johnson, C.E.; Fischer, A.K.; Tetenbaum, M., . . 1984, . . NTIS, PC A02/MF A01

**CONF-840902-4**, . . *Recent Developments in Neutron Dosimetry and Damage Calculations for Fusion Materials Irradiations*, . . Greenwood, L.R.; Smither, R.K., . . 1984, . . NTIS, PC A02/MF A01

**CONF-840902-5**, . . *Fluence, Dosimetry, and Steel dpa Rates in EBR-II*, . . Meneghetti, D.; Kucera, D.A., . . 1984, . . NTIS, PC A02/MF A01

**DOE/ER/52103-T1**, . . *Development and Analysis of Fusion Breeder Blanket Neutronics. Progress Report, November 1, 1983 - October 31, 1984*, . . California Univ., Los Angeles (USA). Dept. of Mechanical, Aerospace and Nuclear Engineering, . . 1984, . . NTIS, PC A02/MF A01

**DOE/LLW-13Tc**, . . *Low-Level Radioactive Waste Treatment Technology. Low-Level Radioactive Waste Management Handbook Series*, . . Oak Ridge National Lab., TN (USA); EG and G Idaho, Inc., Idaho Falls (USA). Low-Level Management Program, . . July 1984, . . NTIS, PC A13/MF A01

**DOE/NBM-4017489**, . . *Notes for Lectures in China: Topics from Radiation Physics*, . . Inokuti, M., . . 1984, . . NTIS, PC A03/MF A01

**DOE/OR/00033-T74**, . . *Characterization of the Effects of Continuous Salt Processing on the Performance of Molten Salt Fusion Breeder Blankets*, . . Patterson-Hine, F.A., . . May 1984, . . NTIS, PC A06/MF A01

**EGG-PBS-6379-Rev.1**, . . *One-Dimensional Nodal Neutronics Routines for the TRAC-BD1 Thermal-Hydraulics Program*, . . Nigg, D.W., . . July 1984, . . NTIS, PC A04/MF A01

**EIR-Bericht Nr.535**, . . *The Present Computational Methods for Fusion and Fusion-Fission Hybrid Nucleonics Studies at EIR*, . . Stepanek, J.; Pelloni, S., . . October 1984, . . Eidg. Institut für Reaktorforschung Würenlingen, Schweiz

**EPRI-NP-3573-SR**, . . *Robinson 2 Reactor Vessel: Pressurized Thermal Shock Analysis for a Small-Break*

*LOCA*, . . Marston, T.; Griesbach, T.; Chao, J.; Chexal, B.; Norris, D.; Nickell, B.; Layman, B., . . August 1984, . . Research Reports Center, Box 50490, Palo Alto, CA 94303

**EPRI-NP-3642-SR**, . . *Few-Group Baffle and/or Reflector Constants for Diffusion Calculation Application*, . . Eich, W.J.; Williams, M., . . August 1984, . . Research Reports Center, Box 50490, Palo Alto, CA 94303

**FEI-1199 (In Russian)**, . . *Representation of Particle Space Distribution by Fourier Series in the Monte Carlo Method*, . . Androsenko, P.A.; Bolonkina, G.V., . . 1981, . . MF available from INIS

**FRNC-TH-1197 (In French)**, . . *Elaboration of a Simplified Method for LMFBR Neutron Calculations. Application to Some Problems Related to Research Programs*, . . Zaetta, A., . . November 1982, . . NTIS (U.S. Sales Only), PC A07/MF A01

**GA-A17389**, . . *Low Activation Fusion Design Studies - Annual Report for FY 1983*, . . Hopkins, G.; Cheng, E.T.; Levine, H.E.; Maya, I.; Schultz, K.R., . . October 1984, . . NTIS, PC A08/MF A01

**GSF-S-958**, . . *Calculation and Analysis of Photon Dose Equivalent Distributions in the ICRU Sphere*, . . Williams, G.; Swanson, W.; Kragh, P.; Drexler, G., . . December 1983, . . NTIS (U.S. Sales Only), PC A11/MF A01

**HEDL-SA-2429-FP; CONF-811103-134**, . . *Lessons Learned from FFTF Hot Cell Shield Measurements*, . . Bunch, W.L.; Luksic, A.T., . . October 1981, . . NTIS, PC A02/MF A01

**HEDL-SA-3088-FP; CONF-840627-9**, . . *Prediction of Dose and Field Mapping Around a Shielded Plutonium Fuel Fabrication Glovebox*, . . Strode, J.N.; Soldat, K.L.; Brackenbush, L.W., . . April 25, 1984, . . NTIS, PC A02/MF A01

**HEDL-SA-3101A; CONF-840902-2**, . . *Evaluation of Neutron Exposure Conditions for the Buffalo Reactor*, . . Lippincott, E.P.; Kellogg, L.S.; McElroy, W.N.; Baldwin, C.A., . . April 1984, . . NTIS, PC A02/MF A01

**IAE-3445/4 (In Russian)**, . . *Secondary Gamma Ray Characteristics in Two-Dimensional Cylindrical Shields*, . . Khmylev, A.N., . . 1981, . . NTIS (U.S. Sales Only), PC A02/MF A01

**IAE-3587/3 (In Russian)**, . . *Technique of Evaluation of Individual Radiation Doses to Population from Nuclear Plant Gaseous Wastes*, . . Kovalevich, O.M.; Shashkov, M.G.; Isaev, A.N., . . 1982, . . NTIS (U.S. Sales Only), PC A03/MF A01

**IAEA-R-3106-F**, . . *Measurement of Depth Dose Factors for Various 60-Co and X-Ray Beams with Ion Chambers and Thermoluminescent Dosimeters. Final Report for the Period 1 May 1982-30 April 1983*, . . Samsen, L., . . May 1983, . . NTIS (U.S. Sales Only), PC A02/MF A01

**IAEA-TECDOC-282; CONF-8109253**, . . *De Minimis Concepts in Radioactive Waste Disposal. Con-*



*siderations in Defining de Minimis Quantities of Solid Radioactive Waste for Uncontrolled Disposal by Incineration and Landfill. Report of the Advisory Group Meeting on Definition of de Minimis Quantities for Release of Low-Level Solid Radioactive Waste into the Terrestrial Environment Organized by the IAEA and Held in Vienna, 7-17 September.*, . . IAEA, . . February 1983, . . NTIS (U.S. Sales Only), PC A03/MF A01

**ICRU-37**, . . *Stopping Powers for Electrons and Positrons*, . . Wyckoff, H.O., . . October 1, 1984, . . ICRU Publications, 7910 Woodmont Avenue, Suite 1016, Bethesda, Maryland 20814

**INIS-BR-127 (In Portuguese)**, . . *Proposal of a New Model for Dose Calculation due to the Inhalation of Rn-222, Rn-220 and Their Sons with Brief Half-Life*, . . Mauricio, C.L.P., . . June 1982, . . NTIS (U.S. Sales Only), PC A06/MF A01

**INIS-mf-8990 (In Danish)**, . . *Radiation Protection Problems Connected with Uranium Ore Mining at Kvanefjeld and Uranium Processing*, . . Soerensen, A., . . August 1983, . . NTIS (U.S. Sales Only), PC A02/MF A01

**JAERI-M-82-216 (In Japanese)**, . . *Investigation of Shielding Analysis Method for Fusion Reactors*, . . Sasamoto, N.; Iida, H.; Ikeda, T., . . January 1983, . . NTIS (U.S. Sales Only), PC A04/MF A01

**JAERI-M-83-016**, . . *Application of ENSDF Data to Decay Power and Gamma-Ray Spectrum Calculation*, . . Katakura, J.; Naito, Y.; Hara, T., . . February 1983, . . NTIS (U.S. Sales Only), PC A03/MF A01

**JAERI-M-83-049**, . . *MULTI-KENO: A Monte Carlo Code for Criticality Safety Analysis*, . . Naito, Y.; Yokota, M.; Nakano, K., . . March 1983, . . NTIS (U.S. Sales Only), PC A11/MF A01

**JAERI-M-84-052; NEANDC(J)-98/AU; INDC(JPN)-85/GL**, . . *Graphs of Evaluated Neutron Cross Sections in JENDL-2*, . . Asami, T.; Narita, T. (Eds.), . . March 1984, . . Information Section, Div. of Technical Information, JAERI, Tokai-mura, Naka-gun, Ibaraki-ken 319-11, Japan

**JAERI-M-84-103; NEANDC(J)-99/AU; INDC(JPN)-86/GL**, . . *Summary of JENDL-2 General Purpose File*, . . Nakagawa, T. (Ed.), . . June 1984, . . Information Section, Div. of Technical Information, JAERI, Tokai-mura, Naka-gun, Ibaraki-ken 319-11, Japan

**KFK-3631 (In German)**, . . *EFFDOS - A FORTRAN-77-Code for the Calculation of the Effective Dose Equivalent*, . . Baer, M.; Honcu, S.; Huebschmann, W., . . January 1984, . . NTIS (U.S. Sales Only), PC A04/MF A01

**LA-UR-84-2609; CONF-8408100-1**, . . *Parallel Processing of Numerical Transport Algorithms*, . . Wienke, B.R.; Hiromoto, R.E., . . 1984, . . NTIS, PC A02/MF A01

**NBS Spec. Pub. 330**, . . *The International System of Units (SI)*, . . Goldman, D.T.; Bell, R.J. (Eds.), . . 1981, . . GPO \$3.25; add 25% for other than U.S. mailing

**ND-R-894(R)**, . . *Validation of the FISPIN Code Version 5 for PWR Calculations*, . . Burstall, R.F.; Allred, B.; Barnes, V.; Endacott, D.; Horncastle, D., . . September 1983, . . HMSO, London, price Pound 2.00

**NUREG-1054**, . . *Simplified Analysis for Liquid Pathway Studies*, . . Codell, R., . . August 1984, . . NRC; NTIS

**NUREG/CR-3469-Vol.1;**

**BNL-NUREG-51798-Vol.1**, . . *Occupational Dose Reduction at Nuclear Power Plants. Annotated Bibliography of Selected Readings in Radiation Protection and ALARA. Volume 1*, . . Baum, J.W.; Schult, D.A., . . February 1984, . . NTIS, PC A07/MF A01 - GPO

**NUREG/CR-3474; PNL-4824**, . . *Long-Lived Activation Products in Reactor Materials*, . . Evans, J.C.; Lepel, E.L.; Sanders, R.W.; Wilkerson, C.L.; Silker, W.; Thomas, C.W.; Abel, K.H.; Robertson, D.R., . . August 1984, . . NTIS, PC A08/MF A01 - GPO \$6.00

**NUREG/CR-3544; PNL-4886**, . . *Beta Particle Measurement and Dosimetry at NRC-Licensed Facilities*, . . Rathbun, L.A.; Endres, G.W.R.; Fox, R.A.; Robertson, P.L.; Scherpelz, R.I., . . August 1984, . . NTIS, PC A04/MF A01 - GPO \$4.25

**NUREG/CR-3677**, . . *Comparison of Radon Fluxes with Gamma-Radiation Exposure Rates and Soil <sup>226</sup>Ra Concentrations*, . . Young, J.A.; Thomas, V.W., . . April 1984, . . NRC; NTIS

**NUREG/CR-3699**, . . *A Summary of Computer Codes for Waste Package Performance Assessment*, . . Coffman, W.; Vogt, D.; Mills, M., . . March 1984, . . NRC; NTIS

**ORNL-4972/R2**, . . *MORSE Monte Carlo Radiation Transport Code System*, . . Emmett, M.B., . . July 2, 1984, . . NTIS, PC E03/MF A01

**ORNL-5974**, . . *MLSOIL and DFSOIL - Computer Codes to Estimate Effective Ground Surface Concentrations for Dose Computations*, . . Sjoreen, A.L.; Kocher, D.C.; Killough, G.G.; Miller, C.W., . . November 1984, . . NTIS

**ORNL/FEDC-83/11**, . . *Analysis of Tandem Mirror Reactor Performance*, . . Wu, K.F.; Campbell, R.B.; Peng, Y.-K.M., . . November 1984, . . NTIS, PC A03/MF A01

**PNL-SA-11965; CONF-840777-1**, . . *How Much Can Be Learned from Populations Exposed to Low Levels of Radiation*, . . Gilbert, E.S., . . May 1984, . . NTIS, PC A03/MF A01

**PNL-SA-12317; CONF-8406180-1**, . . *Problems in Estimating Lifetime Cancer Risks Due to Low-Level Exposure to Radiation*, . . Gilbert, E.S., . . May 1984, . . NTIS, PC A02/MF A01

**RI-155 (In Russian)**, . . *CASPAR Computer Code for Monte Carlo Calculations of Neutron Fields in Hexahedron Fuel Assemblies*, . . Korolev, E.V., . . 1982, . . NTIS, PC A02/MF A01

**RISO-M-2401**, . . *Dosimetry for Electron Beam Application.*, . . Miller, A., . . December 1983, . . NTIS (U.S. Sales Only), PC A03/MF A01

**SAND-84-1099**, . . *Self-Optimized Sector (SOS) Model of Self-Consistent Energy Loss and Scattering for an Electric Beam Propagating in Air.*, . . Vittitoe, C.N.; Clark, R.E., . . September 1984, . . NTIS, PC A03/MF A01

**SAND-84-1789C; CONF-840901-12**, . . *Generation of Radiation Transport Geometry from Computer-Generated Design Data.*, . . Jones, L.C.; McKeon, D.C., . . 1984, . . NTIS, PC A02/MF A01

**SKI-B-14-81 (In Swedish); EMS/NC-1 (In Swedish)**, . . *SCALE-O Computer Program for Criticality Analysis.*, . . Mennerdahl, D., . . June 1982, . . NTIS (U.S. Sales Only), PC A02/MF A01

**TVA/POWER/RHS-82-04**, . . *Emergency Dose Assessment Procedures for Releases of Radioactivity Due to Transportation Accidents.*, . . Coleman, J.H.; Eiford, B.M.; Robinson, M.S., . . February 1984, . . NTIS, PC A03/MF A01

**TVA/PUB-84/61**, . . *Emergency Dose Assessment Procedures for Atmospheric Releases of Radioactivity - Technical Bases. Appendix, Code Listings.*, . . Matheny, M.D.; Williams, B.J., . . June 1984, . . NTIS, PC A08

**TVA/PUB-84/62-Rev.1**, . . *Emergency Dose Assessment Procedures for Liquid Releases of Radioactivity from TVA Nuclear Power Plants.*, . . Robinson, M.S.; Matheny, M.D.; Wilkie, W.H., . . January 1984, . . NTIS, PC A03/MF A01

**TVA/PUB-84/63**, . . *RAC: Computer System for Radiation Accident Dose Assessment.*, . . Wilkie, W.H.; Earls, L.M.; Robinson, M.S., . . 1984, . . NTIS, PC A07/MF A01

**UCID-20169**, . . *Code ALICE/85/300.*, . . Blann, M., . . September 1984, . . NTIS, PC A02/MF A01

**UCRL-90178; CONF-840627-10**, . . *Neutron Spectra as a Function of Angle at Two Meters from the Little Boy Assembly.*, . . Griffith, R.V.; Huntzinger, C.J.; Thorngate, J.H., . . July 2, 1984, . . NTIS, PC A03/MF A01

**UCRL-90405; CONF-840887-3**, . . *Monte Carlo 20 and 45 MeV Bremsstrahlung and Dose-Reduction Calculations.*, . . Goosman, D.R., . . August 1984, . . NTIS, PC A02/MF A01

**UCRL-91325; CONF-840902-3**, . . *Radiation Field Associated with Hiroshima and Nagasaki.*, . . Loewe, W.E., . . August 1984, . . NTIS, PC A02/MF A01

**XDC-55-9-150**, . . *Modification of Albert-Welton Point Attenuation Kernel.*, . . Haffner, J.W.; Van Valkenburg, H.M., . . September 1955, . . Declassified August 2, 1960, . . NTIS, PC A02/MF A01

**Ann. Nucl. Energy**, 8(11-12), 539-566, . . *The Why and How of Finite Elements.*, . . Ackroyd, R.T., . . 1981

**Ann. Nucl. Energy**, 8(11-12), 581-596, . . *The Application of the Finite Element Method to the Solution of Radiation-Shielding Problems.*, . . Grenfell, D.T., . . 1981

**Ann. Nucl. Energy**, 8(11-12), 633-646, . . *Phase-Space Finite Element Methods Applied to the First-Order Form of the Transport Equation.*, . . Martin, W.R.; Yehnert, C.E.; Lorence, L.; Duderstadt, J.J., . . 1981

**Ann. Nucl. Energy**, 8(11-12), 647-656, . . *A Solution of the Multigroup Transport Equation Using a Weighted Residual Technique.*, . . Fletcher, J.K., . . 1981

**Ann. Nucl. Energy**, 8(11-12), 657-675, . . *Some Efficient Lagrangian Mesh Finite Elements Encoded in ZEPHER for Two-Dimensional Transport Calculations.*, . . Mordant, M., . . 1981

**Ann. Nucl. Energy**, 8(11-12), 709-715, . . *A Comparison of Finite Elements and Discrete Ordinate Methods for One-Dimensional Multigroup Problems.*, . . Quah, C.S., . . 1981

**Fusion Technology**, 6(3), 584-596, . . *The Fusion Breeder - An Early Application of Nuclear Fusion.*, . . Maniscalco, J.A.; Berwald, D.H.; Moir, R.W.; Lee, J.D.; Teller, E., . . November 1984

**Fusion Technology**, 6(3), 616-624, . . *Radiation Safety Criteria for Maintenance and Waste Management in the Mirror Advanced Reactor Study.*, . . Maninger, R.C.; Dorn, D.W., . . November 1984

**Fusion Technology**, 7(1), 90-98, . . *Analysis of a 14-MeV Neutron Streaming Through a Narrow Hole Duct Using the Monte Carlo Coupling Technique.*, . . Ueki, K.; Ogawa, Y.; Naito, H.; Hyodo, T., . . January 1985

**Fusion Technology**, 7(1), 125-136, . . *Determination of Energetic Parameters of the (d,t) Neutron Beam of a Neutron Generator.*, . . Tsechanski, A.; Shani, G., . . January 1985

**Health Phys.**, 47(3), 345-359, . . *Regulatory Implications of Radiation Dose-Effect Relationships.*, . . Peterson, H.T., Jr., . . September 1984

**Health Phys.**, 47(4), 587-593, . . *Modifications to Recursion Unfolding Algorithms to Find More Appropriate Neutron Spectra.*, . . Lowry, K.A.; Johnson, T.L., . . October 1984

**J. Phys., A(London). Math. Gen.**, 15(1), 327-330, . . *Orthogonal Polynomials in Neutron Transport Theory.*, . . Dehesa, J.S., . . January 1982

**Nucl. Instrum. Methods**, 227(1), 146-149, . . *Some Characteristics of a Miniature Neutron Spectrometer.*, . . Sekimoto, H.; Oishi, K.; Hojo, K.; Hojo, T., . . November 1, 1984

**Nucl. Technology**, 68(1), 7-17, . . *Reduction in Reactor Vessel Irradiation Through Fuel Management.*, . . Bagnal, C.W., Jr.; Cavanaugh, G.P.; Harris, R.P.; Matzie, R.A., . . January 1985

**Nucl. Technology**, 68(1), 29-39, . . . *Shielding Factors for Gamma Radiation from Activity Deposited on Structures and Ground Surfaces*, . . . Jensen, P.H., . . . January 1985

**Nucl. Technology**, 68(1), 73-76, . . . *A Simple Probabilistic Risk Analysis for High-Level Waste Repositories*, . . . Cohen, B.L., . . . January 1985

**Nucl. Safety**, 25(4), 533-546, . . . *Comparison of Predictions from Internationally Recognized Assessment Models for the Transfer of Selected Radionuclides Through Terrestrial Food Chains*, . . . Hoffman, F.O.; Bergström, U.; Gyllander, C.; Wilkens, A.-B., . . . July-August 1984

**BOOK, Vol.1, Pt.A**, . . . *NEUTRON CROSS SECTIONS. VOL. I. NEUTRON RESONANCE PARAMETERS AND THERMAL CROSS SECTIONS, PART A: Z — 1-60*, . . . Mughabghab, M.; Divadeenam, M.; Holden, N.E., . . . 1981, . . . Academic Press \$65.00 ISBN: 0-12-509701-8

**BOOK, Vol.1, Pt.B**, . . . *NEUTRON CROSS SECTIONS. VOL. I. NEUTRON RESONANCE PARAMETERS AND THERMAL CROSS SECTIONS, PART B: Z — 61-100*, . . . Mughabghab, S.F., . . . November 1984, . . . Academic Press \$45.00 ISBN: 0-12-509711-5

## COMPUTER CODES LITERATURE

FRG/01100/RP-217 . . . . . DUST  
Albedo Monte Carlo Simulation of Thermal Neutron Streaming Through Multilegged Ducts, . . . Indira, R.; Murthy, K.P.N.; Singh, R.S., . . . Reactor Research Centre, Kalpakkam, India, . . . January 1982

FRG/01100/RP-219 . . . . . PLACID  
Monte Carlo Simulation of Gamma Streaming Through Straight Cylindrical Ducts - Code PLACID, . . . Indira, R.; Murthy, K.P.N., . . . Reactor Research Centre, Kalpakkam, India, . . . January 1982

Health Phys., 46(4), 891-914 . . . . . EGS3  
Fluence to Dose Equivalent Conversion Factors Calculated with EGS3 for Electrons from 100 keV to 20 GeV and Photons from 11 keV to 20 GeV, . . . Rogers, D.W.O., . . . National Research Council of Canada, Ottawa, . . . April 1984

IAE-3445/4 (In Russian) . . . . . RADUGA-2  
Secondary Gamma Ray Characteristics in a Two-Dimensional Cylindrical Shields, . . . Khmylev, A.N., . . . Gosudarstvennyj Komitet po Ispol'Zovaniyu Atomnoj Ehnergii SSSR, Obninsk, . . . 1981, . . . AVAIL: INIS (Microfiche only)

IAE-3625/15 . . . . . EXECSP LIB  
Library of Service Programs for Neutron Time-of-Flight Spectra Processing, . . . Biryukov, S.A.; Vanina, T.L.; Zysina, N.Yu.; Peregudov, V.N., . . . Gosudarstvennyj Komitet po Ispol'Zovaniyu Atomnoj Ehnergii SSSR, Obninsk, . . . 1982, . . . FORTRAN, . . . SM-3; SM-4, . . . AVAIL: INIS (Microfiche only)

IAE-3668/5 (In Russian) . . . . . ERSTE  
Two-Dimensional Program for Calculating the Neutron Flux in Reactor Cells Using the Multigroup Kinetic Approximation, . . . Plyashkevich, V.Yu., . . . Gosudarstvennyj Komitet po Ispol'Zovaniyu Atomnoj Ehnergii SSSR, Obninsk, . . . 1982, . . . FORTRAN IV, . . . ES 1040, . . . AVAIL: INIS (Microfiche only)

IAE-3697/6 (In Russian) . . . . . TRAP-1  
TRAP-1 Program for Solving the Two-Dimensional Non-Stationary Fokker-Plank Equation, . . . Golovin, I.N.; Ershov, A.A.; Kozlov, N.P.; Khvesyuk, V.I., . . . Gosudarstvennyj Komitet po Ispol'Zovaniyu Atomnoj Ehnergii SSSR, Obninsk, . . . 1982, . . . FORTRAN IV, . . . BESM-6, . . . AVAIL: INIS (Microfiche only)

INIS-mf-9005, 110 . . . . . ENVIRONMENTAL MODELLING  
On the Application of Monte Carlo Calculations in Environmental Modelling, . . . Hoffmann, W.; Tschurlovits, M., . . . Salzburg Univ., Austria; Atominstitut der Österreichischen Universitäten, Vienna, Austria, . . . 1983, . . . AVAIL: INIS (Microfiche only)

INIS-mf-9040, 148-150 . . . TRANSPORT EQUATION  
An Approximate Analytical Procedure for Solving a Radionuclide Transport Equation, . . . Molyaner, G.L., . . . Atomic Energy of Canada Ltd., Chalk River, Ontario, . . . 1982, . . . AVAIL: INIS (Microfiche only)

J. Math. Phys., 25(1), 131-135 . . . . . INVERSE SCATTERING  
Solution of Multidimensional Inverse Transport Problems, . . . Larsen, E.W., . . . Los Alamos National Laboratory, NM, . . . January 1984

JEN-549 (In Spanish) . . . . . BETAL  
Code BETAL to Calculate Alpha/Beta Activities in Environmental Samples, . . . Travesi, A.; Romero, L., . . . Junta de Energia Nuclear, Madrid, . . . 1983, . . . FORTRAN IV, . . . AVAIL: INIS (Microfiche only)

JINR-10-83-366 (In Russian) . . . . . STOPOW/82  
STOPOW/82 Program for Calculations of Stopping

- Powers and Ranges for Heavy Ions in the Energy Range from 1 keV to 10 GeV/a.m.u., . . Henniger, J.; Horlbeck, B., . . Joint Inst. for Nuclear Research, Dubna, USSR, . . 1983, . . FORTRAN, . . CDC-6500
- KFK-3631 (In German) . . . . .  
 . . . . . EFFDOS; ISOLA III; WOLGA-1  
 EFFDOS - A FORTRAN-77-Code for the Calculation of the Effective Dose Equivalent, . . Baer, M.; Honcu, S.; Huebschmann, W., . . Kernforschungszentrum Karlsruhe G.m.b.H., West Germany, . . January 1984, . . FORTRAN-77, . . AVAIL: INIS (Microfiche only)
- NRPB-R-158 . . . . .  
 . . . . . ENVIRONMENTAL RADIOACTIVITY  
 Environmental Radioactivity Surveillance Programme: Results for the UK for 1982, . . Smith, D.M.; McAllister, G.; Welham, D.; Orr, D., . . National Radiological Protection Board, Harwell, UK, . . November 1983, . . AVAIL: INIS (Microfiche only); HMSO
- Nucl. Instrum. Methods, 219, 173-175 . . . SAMPO80  
 Adapting Gamma-Spectrum Analysis Program SAMPO for Microcomputers, . . Aarnio, P.A.; Routti, J.T.; Sandberg, J.V.; Winberg, M.J., . . Helsinki University of Technology, Espoo, Finland, . . 1984
- Nucl. Sci. Eng., 84(4), 324-336 . . . EPRI-CINDER-2  
 Lumped Fission Product Neutron Cross Sections Based on ENDF/B-V for Fast Reactor Analysis, . . Liaw, J.R.; Henryson, H., . . Argonne National Laboratory, IL, . . August 1983
- NUREG-0868 . . . . . DISPERS  
 A Collection of Mathematical Models for Dispersion in Surface Water and Groundwater, . . Codell, R.B.; Key, K.T.; Whelan, G., . . Nuclear Regulatory Commission, Washington, D.C.; Pacific Northwest Laboratory, WA, . . June 1982
- NUREG/CP-0029-Vol.2, 1141-1154 . . . . .  
 . . . . . SANDBP; FESP-JUEL  
 Experiences with Neutron Spectrum Unfolding Codes in Different Neutron Spectra, . . Zsolnay, E.M.; Szondi, E.J., . . Budapest Technical Univ., Hungary, . . July 1982, . . AVAIL: NTIS; INIS (Microfiche only)
- NUREG/CP-0029-Vol.2, 1165-1170 . . . . . SAIPS  
 Neutron Spectra Analysis Using Information-Computing System SAIPS, . . Bondars, H., . . Latvian State Univ., Riga, USSR, . . July 1982, . . AVAIL: NTIS; INIS (Microfiche only)
- NUREG/CP-0029-Vol.2, 1171-1178 . . . . .  
 . . . . . ITER-2; STAYSL; ITER-3  
 Unfolding of Real-80 Sample Problems by ITER-2 and STAYSL Codes, . . Najzer, M.; Glumac, B., . . Univ. E. Kardelj, Ljubljana, Yugoslavia, . . July 1982, . . AVAIL: NTIS; INIS (Microfiche only)