

# RSIC Newsletter

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October 1990

*To love what you do and feel that it matters)how could anything be more  
fun?)Katharine Graham*

## **Caution Regarding Cross Sections in SCALE-4**

SCALE users should be cautioned about differences in AMPX master format libraries and about using the Hansen Roach AMPX working library for general applications.

One significant difference between SCALE-4 and all previous versions of SCALE is the structure of the AMPX master format libraries. The cross sections are the same in both cases; however, the data are represented in a manner that allows correct interface with the implementation of the Nordheim Integral Treatment found in NITAWL-II of SCALE-4 and are not compatible with previous versions of NITAWL. NITAWL-II will not run using cross sections from releases other than SCALE-4. Using SCALE-4 cross sections with NITAWL from any other release of either SCALE or AMPX will produce erroneous results.

The Hansen Roach AMPX working library is included in SCALE solely for the purpose of executing sample cases. It is not recommended for general use within the SCALE system. Because working format libraries have problem-specific temperature dependence and appropriate resonance processing, they must be tailored to individual problems. The working library distributed with SCALE-4 was updated to correct errors that existed in previous releases in several nuclides: 92834, 92861, 94200, 12100, 14100, 16100, and 25100. The mixtures including these nuclides were not replaced. Users should be particularly wary of using the following mixtures for general applications: 200, 300, 301, 302, and 701. A replacement working format library with corrected mixtures will be available soon. Read the RSIC newsletter for announcement of its availability.

CCC-548/KENO5A-PC users will also need this replacement since the AMPX working library is the only cross section library distributed with this package.

## CHANGES TO THE COMPUTER CODE COLLECTION

Three changes or additions were made to the computer code collection during the month. One new code system was packaged and added to the collection, an existing code package was extended with an additional hardware version, and the contributor recommended a correction for an existing code package.

### CCC-467/ITS 2.1

Experimental and Mathematical Physics Consultants, Gaithersburg, Maryland, contributed a personal computer version of this integrated TIGER series of coupled electron/photon Monte Carlo code systems. The PC package includes both DOS and OS/2 versions. The executables for the DOS versions of ITS will run only on an 80386 computer with an 80387 coprocessor and about 4 Mbytes of memory. These versions run in protected mode using a DOS extender. The executables were created using Lahey FORTRAN Compiler F77L-EM/32 Version 3.00 and run at least twice as fast as the OS/2 versions. The executables for the OS/2 versions of ITS will run on either 80286 or 80386 under OS/2 and probably require around 4 Mbytes of memory. The OS/2 executables were created with the Microsoft Fortran 5.0 compiler and linker. Note that the PSR-245/UPEML code system has not been packaged for personal computers. The original developers at Sandia National Laboratories anticipate a release of ITS 3.0 sometime in 1991. The ITS 2.1 PC package is available on 14 5.25-in DS/HD (1.2MB) diskettes. References: Sandia National Laboratories Memo (December 1987 and April 1987), SAND 84-0573 (November 1984), Informal Report (1988), and Informal README (Sept. 1990). FORTRAN-77; CRAY, CYBER-76, IBM, CRAY-1, VAX (A); PC (B).

### CCC-542/CAP-88

CAP-88 assesses dose and risk due to radionuclide emissions to the air in compliance with National Emission Standards for Hazardous Air Pollutants (NESHAPs) for radionuclides. The developers at the EPA Office of Radiation Programs, Las Vegas, Nevada, recommend a correction to CAP-88. The change allows the use of either the word OPTI or OPTION in the instream data which tells the PREPAR program that option data follows. Only line 648 of the PREPAR2.FOR source need be changed from:

IF (LINE(1:6)  
.EQ. 'OPTION') THEN

to:

IF (LINE(1:4) .EQ. 'OPTI') THEN

Both the IBM and VAX versions require this change. The documentation has been updated with an explanation of differences between CAP-88 and the previous release CAAC. Users may write RSIC for copies of this information and for an explanation of the PREPAR correction. The IBM/MVS version is transmitted on magnetic tape; the VAX version runs under VMS and is available on two DS/HD (1.2MB) diskettes. References: U.S. EPA Draft (Sept. 1989). FORTRAN 77; IBM (A) and VAX(B).

### CCC-546/MACCS

A new code system for calculation of reactor accident consequences was contributed by Sandia National Laboratories, Albuquerque, New Mexico. MACCS was developed for the U. S. Nuclear Regulatory Commission to replace the previous CRAC and CRAC2 codes. MACCS simulates the impact of severe accidents at nuclear power plants on the surrounding environment. The principal phenomena considered in MACCS are atmospheric transport, mitigative actions based on dose projection, dose accumulation by a number of pathways including food and water ingestion, early and latent health effects, and economic costs. MACCS can be used for a variety of applications including probabilistic risk assessment (PRA) of nuclear power plants and other nuclear facilities, sensitivity studies to gain a better understanding of the parameters important to PRA, and cost benefit analysis. Detailed meteorological, population, economic and health data are required. All model parameters can be provided by the user via input facilitating the analysis of consequence uncertainties due to uncertainties in the model parameters. MACCS runs on VAX computers and is designed to be machine independent. On a 32-bit fixed memory machine, approximately 5 megabytes RAM is required. Reference: NUREG/CR-4691, SAND86-1562 Vol. 1, 2, and 3 (February 1990). FORTRAN 77; VAX.

## 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.

**D. V. Gopinath**, formerly Head of Health and Safety Research Laboratory, Indira Gandhi Centre for Atomic Research, is now Director, Health and Safety Group at Bhabha Atomic Research Laboratory in Bombay. He succeeds S. D. Soman. Gopinath has led research efforts in radiation transport for many years and is the principal developer of the ASFIT (CCC-336) transport code. He is a member of the ANS-6.4.3 Working Group.

**John J. Dorning**, a member of the Engineering Physics and Mathematics Division (ORNL) Advisory Board, was one of three winners of the 1990 Ernest O. Lawrence Memorial Award for outstanding work in fields of science and engineering related to atomic energy. Dorning was selected for his work in the development of advanced numerical and computational methods for the solution of practical problems in fission reactor statics and kinetics, neutron transport, and fluid dynamics. The award will be presented at a Washington ceremony and includes a gold medal and a \$10,000 cash prize.

## Visitors to RSIC

During the month the following persons came for an orientation visit and/or to use RSIC facilities: *Walt Zobel* and *Ron Guthrie*, EGS Corp., Knoxville, Tennessee.

## Standards News

Your attention is called to the activity on the following standards of interest to the radiation shielding, transport, and protection specialist.

### Newly Published by ASTM

E 393-89, *Test Method for Measuring Reaction Rates by Analysis of Barium-140 from Fission*

*Dosimeters*, (revision of E 393-1984) \$8.

E 482-89, *Guide for Applications of Neutron Transport Methods for Reactor Vessel Surveillance*, (revision of E 482-82) \$8.

E 521-89, *Practice for Neutron Radiation Damage Simulation by Charged-Particle Irradiation*, (revision of E 521-1983) \$8.

E 704-89, *Method for Measuring Reaction Rates by Radioactivation of Uranium*, (revision of E 704-1984) \$8.

E 705-89, *Method for Measuring Reaction Rates by Radioactivation of Neptunium*, (revision of E 705-1984) \$8.

E 798-89, *Practice for Conducting Irradiations at Accelerator-Based Neutron Sources*, (revision of E 798-1981) \$8.

E 944-89, *Practice for Application of Neutron Spectrum Adjustment Methods in Reactor Surveillance*, (revision and title change of E 944-1983) \$8.

E 1006-89, *Practice for Analysis and Interpretation of Physics Dosimetry Results for Test Reactors*, (revision of E 1006-88) \$8.

ASTM standards may be ordered from ASTM, 1916 Race St., Philadelphia, PA 19103-1187 (phone 215-299-5585).

### PINS

IEEE 309-1970, *Test Procedures for Geiger-Muller Counters*, (reaffirmation).

IEEE 398-1972, *Test Procedures for Photomultipliers for Scintillation Counting and Glossary for the Scintillation Counting Field*, (reaffirmation).

IEEE Std 759-1984, *Test Procedures for Semiconductor X-Ray Energy Spectrometers*, (reaffirmed).

N42.4-1971, *High Voltage Connectors for Nuclear Instruments*, (reaffirmation).

N42.5-1965, *Bases for GM Counter Tubes*, (reaffirmation).

N42.6-1980, *Interrelationship of Quartz-Fiber Electrometer Type Dosimeters and Companion Charger*, (reaffirmation).

N42.12-1980, *Calibration and Usage of Sodium Iodide Detector Systems*, (reaffirmation).

N14.26, *Guidance on Quality Control Activities as They Relate to the Inspection, Preventive Maintenance, and Post-Incident Testing of Packages Used for the Shipment of Radioac-*

*tive Material*, (new).

N42.18, *Specification and Performance of On-Site Instrumentation for Continuously Monitoring Radioactivity in Effluents*, (revision).

N317, *Performance Criteria for Instrumentation Used for In-Plant Plutonium Monitoring*, (revision).

N544-1968, *Signal Connectors for Nuclear Instruments*, (reaffirmation).

Additional information about the above standards may be obtained from Louis Costrell, NIST, Gaithersburg, MD 20899.

## 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.

### REAC/TS Offers Radiation-Accident Courses

The Radiation Emergency Assistance Center/Training Site (REAC/TS) in Oak Ridge, Tennessee, offers several courses in the handling of radiation accidents during the year. A brief description of the courses follows.

***Handling of Radiation Accidents by Emergency Personnel*** is a 3½-day course designed for emergency room nurses and physicians who may need to administer initial hospital aid to a radiation accident victim. Lectures, complemented by demonstrations, laboratory exercises, and a simulated radiation accident drill, will emphasize the handling of the victim. Discussions include the fundamentals of radiation, detection and measurement, prevention of the spread of contamination, dose reduction for the victim and attending personnel, and the role of the medical physicist in caring for contaminated accident victims.

***Occupational Health in Nuclear Facilities*** is a 5-day course for nurses, physicians, and others who provide occupational health care to employees of government nuclear facilities. Information will be given on basic radiation sciences, health surveillance and evaluation, on-site emergency management of injuries, and medical implications of chemical, physical, biological, social, and psychological stresses on the ability to work. Inter-departmental relationships and medical, legal, and ethical issues will also be discussed.

***Health Physics in Radiation Accidents*** is a 5-day course for health physicists and radiation protection technologists who may be called upon to respond to accidents involving radioactive materials and injury to personnel. The major topics are radiological emergency procedures and the role of the health physicist in a medical environment.

***Medical Planning and Care in Radiation Accidents***, a 5-day course designed for physicians, presents an advanced level of information on

diagnosis and treatment of acute local and total body radiation exposure, internal and external contamination, combined injuries, and multi-casualty incidents involving ionizing radiation.

The dates the courses will be offered and registration information may be obtained from Martha Payne, Registrar, REAC/TS, Oak Ridge Associated Universities, P.O. Box 117, Oak Ridge, TN 37831-0117 (phone 615-576-3131, FTS 626-3131).

## ICNC'91,

The International Conference on Nuclear Criticality Safety (ICNC '91), will be held at Christ Church, Oxford, U.K., from 9! 13 September 1991. The Conference is the third international conference on nuclear criticality since 1983; earlier conferences having been held in Dijon (1983) and Tokyo (1987). The conference is being organized jointly by AEA Thermal Reactor Services of AEA Technology and the OECD Nuclear Energy Agency with the cooperation of the International Atomic Energy Agency. It is co-sponsored by the British Nuclear Energy Society. The scope of the conference is sufficiently broad to cover all the major aspects of nuclear criticality safety.

Copies of the General Information and Call for Papers can be obtained from: (1) the Conference Secretary, John Bentley, 062/A32, AEA Technology Winfrith, Dorchester, Dorset DT2 8DH, United Kingdom; (2) members of the organising committee; (3) the BNFL exhibition stand at the ANS Winter Meeting at Washington in November; (4) Nigel Smith, by sending an `em' message to user `brissen'.

Please note that the deadline for abstracts (<250 words) to reach the Conference Secretariat is **30 December 1990**.

## Calendar

Your attention is directed to the following events of interest.

### November 1990

*Nuclear Energy Forum*, Nov. 11! 14, 1990, Washington, D. C., sponsored by the U.S. Council for Energy Awareness. Contact: Conference Office, U.S.

Council for Energy Awareness, 1776 I Street NW, Suite 400, Washington, DC 20006-2495 (phone 202-293-0770).

*American Nuclear Society Winter Meeting*, Nov. 11! 16, 1990, Washington, D.C. Contact: Mary Keenan, Meetings Manager, ANS, 555 N. Kensington Ave., La Grange Park, IL 60525.

*International Symposium on High-Dose Dosimetry for Radiation Processing*, Nov. 12! 16, 1990, Vienna, sponsored by IAEA. Contact: Conference Service Section, IAEA, P.O. Box 100, A-1400 Vienna, Austria.

*Atlanta Conference on the SSC, Industrial and Scientific Opportunities*, Nov. 13! 15, 1990, Atlanta, sponsored by the Southeastern Universities Research Association and the Southeastern Section of the American Physical Society. Contact: for registration call (800) 325-5007 or (404) 894-2400; program information may be obtained from William L. Dunn, Quantum Research (919) 544-4952, or Tony A. Gabriel, ORNL (615) 574-6082.

*First Annual Congress of the Mexican Nuclear Society*, Nov. 21! 23, 1990, Mexico City. Contact: Sociedad Nuclear Mexicana, Mexico (phone 525/540-6566; Fax 525/521-3798).

### December 1990

*International Symposium on Heavy Ion Inertial Fusion*, Dec. 3! 6, 1990, Berkeley, California, sponsored by the Lawrence Berkeley Laboratory. Contact: M. Field, Lawrence Berkeley Laboratory, 1 Cyclotron Rd., MS 50B/2270, Berkeley, CA 94720 USA.

*Regional Congress on Sea Dumping of Low Levels of Radioactive Wastes: Scientific Radiation Protection Considerations*, Dec. 11! 12, 1990, Paris, sponsored by the International Radiation Protection Association. Contact: G. Uzzan, SFRP, B.P. 72, F-92265 Fontenay-aux-Roses Cedex, France (phone 33 1 46 54 71 39).

### January 1991

*8th Symposium on Space Nuclear Power Systems*, Jan. 7! 10, 1991, in Albuquerque, New Mexico, sponsored by the U.S. Department of Energy, NASA, Los Alamos National Laboratory, Sandia National Laboratory, and the American Institute of

Chemical Engineers. Contact: Mary Bragg, Univ. of New Mexico, Albuquerque, NM 87131 USA (phone 505-277-4950).

*PIME '91)The International Workshop on Nuclear Public Information in Practice*, Jan. 27! 30, 1991, Annecy, France, sponsored by the European Nuclear Society. Contact: PIME '91 Secretariat, c/o ENS, P.O. Box 5032, CH-3001 Berne, Switzerland (phone 031 21 61 11).

## February 1991

*Nuclear News Marketing Conference*, Feb. 4! 6, 1991, Clearwater Beach, Florida, USA, sponsored by the American Nuclear Society. Contact: ANS Meetings Dept., 555 N. Kensington Ave., La Grange Park, IL 60525 (phone 708-579-8258).

*7th All-Union Conference on Monte Carlo Methods in Computational Mathematics and Mathematical Physics*, Feb. 19! 21, 1991, in Novosibirsk, USSR. Contact: Dr. J. V. Bulavsky, Computational Center of Siberian Branch of Academy of Science, 6, prospect Ak.Lavrentyeva, Novosibirsk 630090, USSR (phone 356721).

## April 1991

*27th Annual Meeting of the National Council on Radiation Protection and Measurements*, Apr. 3! 4, 1991, Bethesda, Maryland. Contact: NCRP, 7910 Woodmont Ave., Suite 800, Bethesda, MD 20814 (phone 301-657-2652).

*Meeting on Nuclear and Particle Physics*, Apr. 9! 11, 1991, Liverpool, U.K., sponsored by the Institute of Physics. Contact: Meetings Officer, The Inst. of Physics, 47 Belgrave Square, London LS1X 8QX, UK.

*Advances in Mathematics, Computations, and Reactor Physics*, Apr. 28! May 1, 1991, Pittsburgh, Pennsylvania, and International Topical Meeting sponsored by the ANS, Mathematics & Computation Division and the Reactor Physics Division. Contact: J. E. Olhoeft, Westinghouse Electric Corp., P.O. Box 355, WEC-E205, Pittsburgh, PA 15230-0355 USA (phone 412-374-5704).

*1991 International High-Level Radioactive Waste Management Conference*, Apr. 28! May 3, 1991, Las Vegas, Nevada, sponsored by the ANS and the American Society of Civil Engineers. Contact: Dillard B. Shipley, Technical Program Chair,

American Nuclear Society, 555 N. Kensington Ave., La Grange Park, IL 60525 USA.

*Conference on Occupational Radiation Protection*, Apr. 29! May 3, 1991, Guernsey, United Kingdom, sponsored by the British Nuclear Energy Society. Contact: British Nuclear Energy Society, Secretariat, 1-7, Great George St., London SW1P 3AA U.K.

## May 1991

*Radiopharmaceutical Dosimetry Symposium*, May 7! 10, 1991, in Oak Ridge, Tennessee, sponsored by the Radiopharmaceutical Internal Dose Information Center. Contact: Audrey T. Schlafke-Stelson, Program Committee, 5th International Dosimetry Symposium, Radiopharmaceutical Internal Dose Information Center, Medical Sciences Division, Oak Ridge Associated Universities, P.O. Box 117, Oak Ridge, TN 37831-0117 USA (phone 615-576-3450).

## June 1991

*ANS Annual Meeting*, June 2! 6, 1991, Orlando, Florida. Contact: General Chair John A. DeMastry, Florida Power & Light Co., P.O. Box 14000, Juno Beach, FL 33408 (phone 407-694-3613).

*5th International Symposium on Radiation Physics*, June 10! 14, 1991, Dubrovnik, Yugoslavia. Contact: Dr. Ante Ljubijif, ISRP-5 Chairman, Ruder Boskoviif Inst., P.O. Box 1016, 41001 Zagreb, Yugoslavia (phone 41 425-563 or 41 434-467, Telex 21383 irbzg yu, Fax 41 425-497).

*Symposium on Radiation Shielding for the 21st Century*, June 25, 1991, Atlantic City, New Jersey, sponsored by the American Society for Testing and Materials. Contact: Ms. Dorothy Savini, Symposium Operations, ASTM, 1916 Race Street, Philadelphia, PA 19103-1187 (phone 215-299-5413).

## July 1991

*Health Physics Society Annual Meeting*, July 21! 26, 1991, Washington, D.C. Contact: Mr. Edward A. Tupin, 518 Meadow Hall Drive, Rockville, MD 20851 (phone 301-443-2850).

*International Illinois Low Level Radioactive Waste (LLWM) Symposium: The Quiet Revolution)Innovations in Low-Level Waste Management*, July 29! Aug. 1, 1991, Chicago, Illinois, sponsored by the Illinois Dept. of Nuclear

Safety. Contact: Ms. P. Burnett, Illinois Dept. of Nucl. Safety, 1035 Outer Park Drive, Springfield, IL 62704 USA.

251888 ext 2739, Fax 0305 202122, Telex 41231).

### September 1991

*Brazilian Meeting on Reactor Physics and Thermal Hydraulics*, Sept. 17! 20, 1991, São Paulo, Brazil. Contact: José Rubens Maiorino, IPEN-CNEN/SP, Caixa Postal 11049 (Pinheiros), 05499-São Paulo-SP-Brazil (phone 011 211-6011 Ext. 270; Telex 11 83592-IPEN-BR).

*ICNC '91, International Conference on Nuclear Criticality Safety*, September 1991, Oxford, United Kingdom. Contact: ICNC '91 Secretariat, Publicity Office, AEA Technology, Winfrith, Dorchester, Dorset DT2 8DH, United Kingdom (phone 0305

### October 1991

*1991 Joint International Waste Management Conference*, Oct. 21! 26, 1991, Seoul, Korea. Contact: Mr. Larry C. Oyen, Sargent & Lundy, 55 East Monroe St., Chicago, IL 60603 (phone 312-269-6750, Fax 312-269-3475, Telex 280603).

### November 1991

*Nuclear Energy Forum*, Nov. 10! 13, 1991, San Francisco, California. Contact: Conference Office, U.S. Council for Energy Awareness, 1776 I Street, N. W., Suite 400, Washington, DC 20006-2495 USA.

## 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.**

### RADIATION SHIELDING LITERATURE

**Dissertation, Univ. of Tennessee.** . *A General Study of Undersampling Problems in Monte Carlo Calculations.* . Vieira, W.J. . Dec. 1989. . Univ. of Tenn., Knoxville

**Chin. J. Nucl. Sci. Eng.**, **10**, **97-105**. . *Discussion on Certain Problems in Sn Methods and Calculations for Penetration Experiments with Direct Integral Method.* . Lu Renbao. . June 1990

**Fusion Technol.**, **17**, **371-384**. . *An Analysis of Radiation Streaming Through Inhomogeneities in the Fusion Reactor Blanket and Shield.* . Zimin, S.A. . May 1990

**Fusion Technol.**, **17**, **452-465**. . *LOTUS Lithium-Lead Fusion Blanket Concept for Neutronics Experiments.* . Azam, S.; Kumar, A. . May 1990

**Fusion Technol.**, **17**, **466-475**. . *Shielding Studies for the Confinement Physics Research Facility.* . Kelleher, W.P.; Davidson, J.W.; Thayer, G.R.; Dudziak, D.J. . May 1990

**Fusion Technol.**, **17**, **476-483**. . *Neutronic Effects in Inertial Confinement Fusion Targets.* . Martinez-Val, J.M. . May 1990

**Nucl. Sci. Eng.**, **105**, **319-340**. . *Neutron and Gamma-*

*Ray Spectra from a Variety of Materials Bombarded with 14-MeV Neutrons.* . Goldberg, E.; Hansen, L.F.; Komoto, T.T.; Pohl, B.A.; Howerton, R.J.; Dye, R.E.; Plechaty, E.F.; Warren, W.E. . Aug. 1990

**Nucl. Sci. Eng.**, **106**, **37-46**. . *Power and Neutron Flux Distributions in the Core and Shielding.* . Cabrillat, J.C.; Martini, M. . Sept. 1990

**Nucl. Sci. Eng.**, **106**, **81-87**. . *Neutron Monitoring and the Inherent Source of Superphenix.* . Grouiller, J.P.; Perriguer, J.C.; Le Bourhis, A. . Sept. 1990

**Nucl. Sci. Eng.**, **106**, **94-97**. . *Measurement of Decay Heat and Comparison with Predictions.* . Gillet, G.; Favet, M.; Paulin, M. . Sept. 1990

**CINDA90, ISBN 92-0-039090-0**. . *The Index to Literature and Computer Files on Microscopic Neutron Data.* . 1990. . IAEA Nuclear Data Section

**NUREG/CR-4816; ORNL/TM-10328**. . *PR-EDB: Power Reactor Embrittlement Data Base, Version 1, Program Description.* . Stallmann, F.W.; Kam, F.B.K.; Taylor, B.J. . June 1990

**NUREG/CR-5366; ORNL/CSD/TM-267**. . *HTAS2: A Three-Dimensional Transient Shipping Cask Analysis Tool.* .

Wendel, M.W.; Giles, G.E. . May 1990

**ORNL-6591.** . *Doses to Railroad Workers Exposed to Shipments of High-Level Radioactive Waste.* . June 1990

**ORNL/M-900/R6.** . *Safety Analysis Report for Packaging (SARP) for the Oak Ridge National Laboratory (ORNL) Californium Shipping Container.* . Bigelow, J.E.; Alexander, C.W.; Aramayo, G.A.; Carley, T.G.; Feldman, M.R.; Hammond, C.R.; Insalaco, J.W.; McCauley, V.S.; Theiss, T.J. . Dec. 1989

**ORNL/TM-11175.** . *Designing Equipment for Use in Gamma Radiation Environments.* . Vandergriff, K.U. . May 1990

**ORNL/TM-11490.** . *Resonance Analysis of the 239Pu Neutron Cross Sections in the Energy Range 300 to 2000 eV.* . Derrien, H.; de Saussure, G. . June 1990

**ORNL/TM-11547.** . *Resonance Analysis and Evaluation of the 235U Neutron Induced Cross Sections.* . Leal, L.C. . June 1990

**SAND89-2304.** . *Computational and Experimental Modeling of Runaway Electron Damage.* . Niemer, K.A.; Croessmann, C.D.; Gilligan, J.G.; Bolt, H.H. . June 1990. . DOE OSTI, NTIS

## COMPUTER CODES LITERATURE

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Revision of Fast Reactor Group Constant Set JFS-3-J2. . . Takano, H.; Kaneko, K. . . Japan Atomic Energy Research Institute, Tokyo . . October 1989 . . AVAIL: NTIS (U.S. Sales Only)

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Decay Heat Calculation: An International Nuclear Code Comparison. . . Duchemin, B.; Nordborg, C. . . Nuclear Energy Agency, 75-Paris, France . . 1990

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The MELCOR Code System. . . Kelly, J.E.; Hodge, S.; Madni, I. . . Sandia National Labs., Albuquerque, NM . . October 1989 . . AVAIL: NTIS

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PARTITION: A Program for Defining the Source Term/Consequence Analysis Interface in the NUREG-1150 Probabilistic Risk Assessments. . . Iman, R.L.; Helton, J.C.; Johnson, J.D. . . Nuclear Regulatory Commission, Washington, D.C.; Sandia National Labs., Albuquerque, NM . . May 1990 . . AVAIL: NTIS; GPO; INIS

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