RSIC Newsletter

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On the clarity of your ideas depends the scope of your success in any endeavor.–James Robertson

8th International Conference on Radiation Shielding Call for Papers

Last year while planning the 1994 American Nuclear Society Radiation Protection and Shielding Division Topical Meeting, a decision was made to expand the meeting into the 8th International Conference on Radiation Shielding (ICRS8). The North Texas Section is the local ANS section sponsoring the meeting. It will be held April 24–27, 1994, at the Arlington Hilton in Arlington, Texas (817-640-3322). A recently issued Call-For-Papers solicits 600–900-word summaries (original plus two copies) for review. These summaries should be mailed by **August 31, 1993**, to the Technical Program Chair [Nolan E. Hertel of the Health Physics Program, George W. Woodruff School of Mechanical Engineering, Georgia Institute of Technology, Atlanta, GA 30332-0405]. Authors will be notified of acceptance of their papers during early October 1993; full camera-ready papers must be submitted by **January 1, 1994**, to be included in the proceedings.

Dick Rubin of TU Electric is serving as the General Chairman of ICRS8 and R. W. Roussin of the Radiation Shielding Information Center (RSIC) is acting as the International Liaison. Although the Technical Program Committee has had to proceed with its work, additional members from the international shielding community desiring to help encourage the submission of papers and participate in the review of papers will be added.

Tentative session topics include:

- High-Energy Particles & Accelerator Shielding;
- Aircraft and Space Radiation/Shielding;
- Materials, Nuclear Data and Experiments;
- PC Applications & Software;
- Semi-Empirical Techniques;
- Radiation Transport Methods & Applications;
- Geometry Description Software;
- Monte Carlo Methods & Applications;
- Sensitivity & Uncertainty Analysis;
- Waste Management & Disposal;
- Dosimetry;
- Spent Fuel Handling, Consolidation, Transportation & Storage;
- Fusion Reactors, Nucleonics & Shielding;
- Licensing and Regulation;
- Instrument & Equipment Qualification;
- Reactor Shielding;
- Pressure Vessel Damage: Calculations, Dosimetry & Standards;
- Radiation Effects;
- Characterization of Radiation Environments;
- Fluence-to-Dose-Equivalent Conversion Factors;
- Radiation Measurement, Instrumentation & Analysis; and
- Medical Applications.

In addition, papers on any topics of general interest to the shielding community would be appropriate for submission.

Training Course for SCALE Users - An Update

As announced in the February Newsletter, the Transportation and Packaging Safety Division of DOE will sponsor a training course for SCALE users that will be held July 19-23, 1993, in Oak Ridge, TN. The course will be held at Pollard Auditorium in Oak Ridge and will be structured in a workshop format with hands-on experience provided via problem analysis on workstation and PC platforms. Interested persons should return the attached Registration Form as soon as possible. For those who responded to the survey form, you will receive a completed registration form and will need only to send the fee and hotel reservation form.

MASH v1.0 Workshop Planned for Fall 1993

Plans are being formulated for a workshop in Oak Ridge on the Monte Carlo Adjoint Shielding Code System, MASH version 1.0. The MASH code system has been developed by the Oak Ridge National Laboratory (ORNL) and Science Applications International Corporation (SAIC) for the Department of Defense (DoD). MASH v1.0 is currently the code of choice in the U. S. Army Qualified Research Requirements (QRR) document and has been adopted by the NATO Panel VII Ad Hoc Group of Shielding Experts for performing nuclear survivability/vulnerability assessment calculations. MASH is the successor to the Vehicle Code System (VCS) initially developed at Oak Ridge National Laboratory (ORNL).

The MASH code system estimates neutron and gamma-ray environments and radiation protection factors for armored military vehicles and other shielding configurations by coupling a forward discrete ordinates air-over-ground transport calculation with an adjoint Monte Carlo treatment of the shielding geometry. The code system includes the GRTUNCL and DORT codes for air-over-ground transport calculations, a version of the MORSE code with the GIFT5 combinatorial geometry package for adjoint shielding calculations, and several auxiliary codes for data preparation, transformations, and coupling functions. The discrete ordinates calculation determines the fluence due to an external neutron/gamma-ray source on a coupling surface surrounding the shielding geometry. The Monte Carlo adjoint calculation determines the effectiveness of the fluence at that surface in causing a response in a detector within the shielding geometry, i.e., the "dose importance" of the coupling surface fluence. A coupling code folds the fluence together with the dose importance to determine the dose response as a function of the shielding geometry orientation relative to the source, distance from the source, and energy response of the detector.

It is expected that attendees will be drawn from the Department of Energy (DOE) community, the DoD community and selected contractors, as well as NATO organizations involved in the utilization of the code system. Current sponsorship for the MASH code system is through the Defense Nuclear Agency (DNA) which will provide coordination and approve attendance of the workshop. MASH v1.0 presently operates on a Cray computer system and is available only for this computing platform. Furthermore, distribution is controlled by the DNA and currently is restricted to U. S. and NATO installations.

In order to help in planning the MASH v1.0 Workshop, we ask that you complete and return the attached form as soon as possible. The information collected will be used to gauge interest in participating in the workshop and determine the experience level of potential attendees so that the presentation of material can be properly focused. Further information will be mailed to those who return the form.

ORELA PASSES MILESTONE

The Oak Ridge Electron Linear Accelerator, which has been producing neutrons for research since 1969, has completed 100,000 operating hours with no lost time accidents. The accelerator supports basic and applied research efforts including providing data for nuclear reactor design and nuclear shielding studies.

CHANGES TO THE COMPUTER CODE COLLECTION

Six changes were made to the computer code collection during the month. Four new code systems were packaged and added to the collection and two existing code packages were replaced with newly frozen versions. Three changes resulted from foreign contributions.

CCC-553/RASCAL 2.0A

ORNL contributed a newly frozen version of this Radiological Assessment System for Consequence Analysis for use during response to radiological emergencies. The system supplements assessments based on plant conditions and quick estimates based on paper methods. The model is designed to provide a rough comparison to EPA Protective Action Guidance and thresholds for acute health effects. Two new models have been added in the new version, designated RASCAL 2.0A. The first, FM-DOSE, computes doses from known environmental activity in the air and on the ground. The second, DECAY, computes radiologic decay and ingrowth over a selected time period. RASCAL requires a personal computer with a math co-processor, 640 kb of memory, a hard disk with 1.6 Mb free. The recommended minimum configuration is a 386 PC with an EGA (or better) graphics adapter. MS-DOS 3.0 is required. MS-DOS 5.0 is recommended. Microsoft compilers were used to compile the Fortran and C sources to create the executables included in the package. The package is distributed on one DS/HD 5.25-in. (1.2 Mb) diskette in compressed format for DOS. Reference: NUREG/CR-5247 Rev. 1, PNL-8454 (in press). Fortran and C; PC 386 (C00553PC38601).

CCC-586/REPRISK PC

The Environmental Protection Agency, Las Vegas, Nevada, contributed a newly frozen version of this code system for modelling long-term radionuclide releases and population health effects resulting from disposal of high level radioactive wastes in mined geological repositories. REPRISK is a set of computer codes and databases to model the transport of radionuclides from the repository through the environment to exposed human populations and to estimate the resulting health impact. The new release, designated REPRISK-PC Version 1.02, modifies the Carbon-14 risk factor from 5.83E-2 to 1.24 E-1 cancer deaths per curie released. For the executables included in the package, the Lahey F77L Version 4.00 and Microsoft 8086 Object Linker were used to compile and link the Fortran sources. The Turbo C++ Version 1.00 compiler and Turbo Link Version 3.0 were used to compile and link the C sources. The package is distributed on one DS/HD 5.25-in. (1.2 Mb) diskette in compressed format for DOS. Reference: Draft report (Sept. 1992). Fortran 77 and C; PC 386 (C00586PC38601).

CCC-615/FURNACE

The Netherlands Energy Research Foundation ECN, through the NEADB, Issy-les-Moulineaux, contributed this code system to perform neutronic and photonic calculations in three dimensional toroidal geometry for application to fusion reactors. The geometry description is quite general, allowing any torus cross section and any neutron source density distribution for the plasma, as well as simple parametric representations of circular, elliptic and D-shaped tori and plasmas. FURNACE runs on CDC Cyber computers under NOS. The package is distributed on one DS/HD 5.25-in. (1.2 Mb) diskette in compressed format for DOS. Reference: ECN-85-165 (October 1985). Fortran IV; CDC Cyber (C00615C074000).

CCC-616/BERMUDA

The Japan Atomic Energy Research Institute (JAERI), Naka-gun, Japan, contributed this discrete ordinates code system developed for general use shielding analysis, including fusion and fission reactors. The time-independent neutron transport equation is solved for a given fixed source in one-, two-, and three-dimensional geometries. BERMUDA runs on the FACOM/VP2600-10 computer under OS-IV/F4 MSP. BERMUDA-1DN, for one-dimensional sphere and infinite slab geometries, was implemented on the IBM RISC 6000 workstation. The package is transmitted on two DS/HD 3.5-in. (1.44 Mb) diskettes. Reference: JAERI 1327 (May 1992). Fortran 77; FACOM VP2600 (C00616FV26000).

PSR-325/STAPRE-H

The Institute for Physics and Nuclear Engineering, Bucharest-Magurele, Romania, through the NEADB, Issy-les-Moulineaux, contributed this code system to calculate energy-averaged cross sections of particle induced nuclear reactions. Sequential emission of up to six particles, intermediary gamma-ray cascades, and the fission mechanism are taken into account. The code can be operated on IBM PC-XT. Optimum operation on IBM PC/AT requires more than 1 Mb RAM and an 80287 math co-processor. The package is transmitted

on one DS/HD 5.25-in. (1.2 Mb) diskette. References: *Atomic Nuclei* 329, 177-187 (1988), NP-63-1987, Rev.1 (May 1988), IRK 76/01 (Updated April 1981). Fortran 77; IBM PC/AT (P00325IBMPC00).

PSR-328/ORPLOTPC

ORNL contributed the ORPLOTPC code system to read data from evaluations in ENDF format (V or VI), perform required calculations, and plot results versus available measured data. These tools are useful in showing weaknesses in evaluations and for uncovering discrepancies. ORPLOTPC is capable of plotting results for reaction cross sections, differential scattering cross sections, angle-integrated emission spectra, double-differential cross sections of neutron emission, and gamma-ray spectra. The programs are written in Fortran and were developed for Vax computers running VMS. They have been implemented on IBM compatible personal computers connected to Hewlett-Packard laser printers. The Lahey F77L-EM/32 compiler and linker were used to create the executables included in the package. The executables require DOS 3.3 or higher and a math coprocessor. WordPerfect5.1 is required to convert and display screen plots on an EGA or VGA monitor. The package is distributed on two DS/HD 5.25-in. (1.2 Mb) diskettes in compressed format for DOS. Reference: ORNL informal report (1993). Fortran; PC 386 (P00328PC38600).

CHANGE TO THE DATA LIBRARY COLLECTION

A new data library was added to the collection during the month.

DLC-154/ANSL-V

ORNL contributed these ENDF/B-V based multi-group cross-section libraries which were generated to support the Advanced Neutron Source (ANS) reactor design studies. ANSL-V libraries are in AMPX master interface format. ANSL-V includes the following fine- and broad-group libraries: (1)Fine-Group (99 energy groups) General Purpose Neutron (GPN) Library; (2) Broad-Group (39 energy groups) General Purpose Neutron (BGGPN) Library; (3) Secondary Gamma-Ray Production (SGRP) Library in a 39 neutron and 44 gamma-ray group structure; (4) Gamma-Ray Interaction (GRI) Library containing data in a 44 gamma-ray group structure; (5) and Coupled Neutron-Gamma (CNG) Library containing 39-group neutron data from GPN, 39 neutron and 44 gamma-ray group secondary gamma-ray production data from SGRP, and 44 group gamma-ray data from GRI. Neutron and secondary gamma-ray production data were generated primarily from evaluations in the ENDF/B-V General Purpose Library. Gamma-ray interaction data sets were generated from DLC-99/HUGO. Problem-dependent cross sections can be derived from the ANSL-V data with the AMPX-77 modular code system, which is available from RSIC as PSR-315 for either IBM/MVS or Cray/UNICOS systems. The AIM program from either AMPX-77 or CCC-545/SCALE-4 can be used for mode conversion. ANSL-V card-image files are transmitted in tar format on cartridge or 8-mm tape. Reference: ORNL-6618 (Sept. 1990). All computers (D00154ALLCP00).

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.

Charles C. Baker, Associate Director for Technology in Oak Ridge National Laboratory's Fusion Energy Division, is the U.S. team leader of the multinational effort to complete the engineering design of the International Thermonulcear Experimental Reactor (ITER). Baker will be responsible for coordinating all U.S. work on the ITER, including planning, scheduling, and research and development assignments. The U.S., the European Community, Japan, and the Russian Federation are collaborating in the project.

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.

Environmental Transport and Dosimetry Topical in September

The American Nuclear Society Savannah River Section and the Environmental Sciences Division are the sponsors of the September 1993 Topical Meeting on *Environmental Transport and Dosimetry*. The meeting will be held in Charleston, South Carolina, September 1–3, 1993. The meeting will provide a forum for discussion of recent advances in the understanding of the transport, diffusion,and dosimetric effects of radionuclides in the environment. Topics will include emerging technologies, observational studies, numerical and physical model developments or applications, and fundamental theoretical developments or applications for chronic or accidental releases of radionuclides to the environment. Registration and program information can be obtained from Robert Addis, Savannah River Laboratory, Environmental Transport Group, Bldg. 773-A, Box 616, Aiken, SC 29808 (phone 803-725-3325).

Israel Hosts Reactor Physics and Reactor Computations Conference

The Israel Nuclear Society and the European Nuclear Society are cosponsoring the *International Conference on Reactor Physics and Reactor Computations* to be held January 23–26, 1994, in Tel Aviv. The topics proposed in the first call for papers are intended to offer a broad review of the state of the art in reactor physics, with an emphasis on new reactor concepts and new computational methods. Those who wish to participate may submit a summary of 500–1000 words on the following topics:

- New Developments in Reactor Theory (LWR, HWR, LMFBR, Gas-Cooled and Advanced Reactors)
- Fuel Management and Physics of Fuel Cycle for Various Nuclear Fuels
- Diffusion and Nodal Computations
- Transport Theory and Shielding
- Sensitivity and Perturbation Analysis
- Nuclear Data and Validation
- Reactor Kinetics
- Reactivity Computations for Reactor Safety
- Actinides Burners
- Artificial Intelligence Methods in Reactor Theory
- Super and Parallel Computers in Reactor Theory
- Reactor Physics and Reactor Computations in the Academic Curriculum
- Industrial Applications of Neutron Physics Methods
- Experimental Methods in Reactor Physics.

The deadline for submission of summaries is **June 15, 1993**. Further information may be obtained from The Reactor Physics Conference Secretariat, Dan Knassim Ltd., P.O. Box 57005, Tel Aviv 61570, Israel (phone 972-3-5626470; fax 972-3-5612303), or to E. Elias by e-mail: NERRO02@TECHNION.TECHNION. AC.IL.

Morocco to Host 6th International Radiation Physics Conference

The International Physics Society is sponsoring the *6th International Radiation Physics Conference (ISRP 6)*, to be held July 18–22, 1994, in Rabat, Morocco. This is the sixth in a series that began in 1974 in Calcutta. The theme of the meeting will be the fundamental processes in radiation physics, as well as their applications in production, detection, and utilization of radiation in different socio-economical and cultural fields. Further information may be obtained from Pr. M. Berrada, Laboratoire de Physique Nucléaire, Faculté des Sciences, B.P. 1014 Rabat, Morocco (fax 212 7-77-99-78).

Calendar

Your attention is directed to the following events of interest.

April 1993

Meeting on Radiation Protection Measurements: Theory and Practice, Apr. 1–2, 1993, Oxford, United Kingdom. Contact: D.N.S. Dixon, Society for Radiological Protection, 67 Oatlands Park, Linlithgow, West Lothian EH 49 6AS, UK.

29th Annual Meeting of the National Council on Radiation Protection and Measurements, Apr. 7–8, 1993, Arlington, Virginia. Contact: NCRP, 7910 Woodmont Avenue, Suite 800, Bethesda, MD 20814 (phone 301-657-2652).

Auditing Process Safety Management Systems, Apr. 13–15, 1993, Cambridge, Massachusetts. Contact: Lucy Melhem, Arthur D. Little, Inc., 20 Acorn Park, Cambridge, MA 02140-2390 (phone 617-498-6117).

55th Annual American Power Conference, Apr. 13–15, 1993, Chicago, Illinois. Contact: R. W. Porter, American Power Conference, Illinois Inst. of Technology, Chicago, IL 60616.

Joint International Conference on Mathematical Methods and Supercomputing in Nuclear Applications, Apr. 19–23, 1993, Karlsruhe, Germany. Contact: H. Kuesters, KFK/INR, Postfach 3640 D-W-7500 Karlsruhe 1, Germany, or W. Werner, GRS, D-W-8046 Garching, Germany.

Introduction to Radiation Protection, Apr. 19–23, 1993, Cambridge, Massachusetts. Contact: David J. Allard, Arthur D. Little, Inc., 20 Acorn Park, Cambridge, Massachusetts 02140 (phone 617-498-6101).

Towards Next Generation Light Water Reactors, Apr. 25–28, 1993, The Hague, The Netherlands, a topical meeting sponsored by the European Nuclear Society. Contact: ENS Secretariat, P.O. Box 5032, CH-3001, Berne, Switzerland (fax 41-31 22 92 03).

International High-Level Radioactive Waste Management Conference, Apr. 25–29, 1993, Las Vegas, Nevada, sponsored by the ANS, the U.S. Dept. of Energy, and the American Society of Civil Engineers. Contact: Billy Cole, E. R. Johnson Assoc., 10461 White Granite Drive, Suite 204, Oakton, VA 22124 (phone 703-359-8355; Fax 703-359-0842).

4th Topical Symposium on Emergency Preparedness and Response, to be held Apr. 26–29, 1993, in Long Island, New York. Contact: Brant Aidikoff, Technical Program Chairman, LIANS, Box 436, Upton, New York 11973 (phone 516-436-4256).

International Workshop on Physics and Instrumentation at Future Linear Colliders, Apr. 26–30, 1993, Kona, Hawaii. Contact: F. Harris, University of Hawaii, Physics Department, Honolulu, HI 96822.

Seminar on Advanced Monte Carlo Computer Programs for Radiation Transport, Apr. 27–29, 1993, at Centre d'Etudes, Saclay, France. Contact: Enrico Sartori, OECD/NEA, 12 boulevard des Iles, F-92130 Issy les Moulineaux, France. (phone 33 (1) 4524 1072 or 71, Fax 33 (1) 4524 1110, or Internet sartori@nea.oecd.circe.fr.)

Radiopharmaceutical Internal Dosimetry, Apr. 27–30, 1993, Oak Ridge, Tennessee. Contact: Registrar, REAC/TS, Oak Ridge Institute for Science and Education, P.O. Box 117, Oak Ridge, TN 37831-0117 (phone 615-576-3131, Fax 615-576-9522).

May 1993

Radiation Emergencies — What to Do, What to Say, May 3–7, 1993, Chicago, Illinois. Contact: Woodson Assoc., Inc., P.O. Box 2665, Gaithersburg, MD 20886 (phone 301-990-0751, Fax 301-990-6153).

6th International Symposium on Transport Phenomena, May 9–13, 1993, Seoul, Korea, sponsored by the Pacific Center of Thermal-Fluids Engineering. Contact: Jong H. Kim, Electric Power Research Institute, P.O. Box 10412, Palo Alto, CA 94303 (phone 415-855-2671, fax 415-855-1026).

Advanced Workshop on Occupational and Environmental Radiation Protection, May 10–14, 1993, Boston, Massachusetts, a short course offered by Harvard School of Public Health. Contact: Mary F. McPeak, Assoc. Dean for

Continuing Education, 677 Huntington Ave., Boston, MA 02115 (phone 617-432-1171; Fax 617-432-1969).

Radiation Safety, May 17–21, 1993, Minneapolis, Minnesota. Contact: Woodson Assoc., Inc., P.O. Box 2665, Gaithersburg, MD 20886 (phone 301-990-0751, Fax 301-990-6153).

Occupational Internal Dosimetry, May 17–21, 1993, Oak Ridge, Tennessee. Contact: Registrar, REAC/TS, Oak Ridge Institute for Science and Education, P.O. Box 117, Oak Ridge, TN 37831-0117 (phone 615-576-3131, Fax 615-576-9522).

International Symposium on the Measurement Assurance in Dosimetry, May 24–27, 1993, Vienna, sponsored by the International Atomic Energy Agency. Contact: Conference Service Section, IAEA, P.O. Box 100, A-1400 Vienna, Austria (Fax 43 1234564).

Management and Disposal of Radioactive Waste, May 24–28, 1993, Boston, Massachusetts, a short course offered by Harvard School of Public Health. Contact: Mary F. McPeak, Assoc. Dean for Continuing Education, 677 Huntington Ave., Boston, MA 02115 (phone 617-432-1171; Fax 617-432-1969).

German Nuclear Society/German Atomic Forum Annual Meeting on Nuclear Technology, May 25–27, 1993, Cologne, Germany. Contact: INFORUM GmbH, Heussallee 10, W-5300 Bonn 1, Germany (phone 49 0228 507 223).

9th International Conference on High Power Particle Beams, May 25–29, 1993, Washington, DC. Contact: D. Mosher, University of Maryland, Naval Research Lab., P.O. Box 1077, Oxon Hill, MD 20750.

June 1993

Conference and International Symposium on Radionuclide Metrology and Its Applications, June 7–11, 1993, Teddington, United Kingdom. Contact: Dr. P. Christmas, National Physical Laboratory, Div. of Radiation Science and Acoustics, Teddington, Middlesex TW11 OLW, UK (Fax 4481 943 6317).

Preparation for the Health Physics Certification Exam, June 7–11, 1993, Chattanooga, Tennessee. Contact: Woodson Assoc., Inc., P.O. Box 2665, Gaithersburg, MD 20886 (phone 301-990-0751, Fax 301-990-6153).

Safewaste '93: The Final Disposal of Nuclear Waste, June 14–18, 1993, Avignon, France, sponsored by the ANS and the European Nuclear Society. Contact: Pierre Tanguy, EDF, Direction Generale 32, Rue de Monceau, 75384 Paris Cedex 08, France.

Radioactive Materials Transport and Radwaste Disposal, June 14–18, 1993, Portland, Oregon. Contact: Woodson Assoc., Inc., P.O. Box 2665, Gaithersburg, MD 20886 (phone 301-990-0751, Fax 301-990-6153).

Planning for Nuclear Emergencies, June 14–18, 1993, Boston, Massachusetts, a short course offered by Harvard School of Public Health. Contact: Mary F. McPeak, Assoc. Dean for Continuing Education, 677 Huntington Ave., Boston, MA 02115 (phone 617-432-1171; Fax 617-432-1969).

In-Place Filter Testing Workshop, June 21–25, 1993, Boston, Massachusetts, a short course offered by Harvard School of Public Health. Contact: Mary F. McPeak, Assoc. Dean for Continuing Education, 677 Huntington Ave., Boston, MA 02115 (phone 617-432-1171; Fax 617-432-1969).

July 1993

Nuclear and Space Radiation Effects Conference, July 19–23, 1993, Snowbird, Utah. Contact: P. V. Dressendorfer, Sandia National Laboratories, Division 2535, P.O. Box 5800, Albuquerque, NM 87185.

August 1993

SMiRT 12, Structural Mechanics in Reactor Technology, Aug. 15–20, 1993, Stuttgart, Germany. Contact: Prof. Karl Kussmaul, SMiRT 12, Stätliche Materialprüfungsanstalt (MPA), University of Stuttgart, Pfaffenwaldring 32, 7000 Stuttgart 80 Germany (phone 49-711-685-3582; Fax 49-711-685-3144 or 2635).

16th Reactor Operations International Topical Meeting, Aug. 16–19, 1993, Long Island, New York. Contact: Robert McNair, Brookhaven National Laboratory, Reactor Division, Bldg. 703, Upton,

NY 11973 (phone 516-282-2270, Fax 516-282-3014).

Occupational & Environmental Radiation Protection, Aug. 16–20, 1993, Boston, Massachusetts, a short course offered by Harvard School of Public Health. Contact: Mary F. McPeak, Assoc. Dean for Continuing Education, 677 Huntington Ave., Boston, MA 02115 (phone 617-432-1171; Fax 617-432-1969).

3rd European Space Power Conference, Aug. 23–27, 1993, Graz, Austria. Contact: J. Sanchez-Michielsen, ESTED, Power and Energy Conversion Division, P.O. Box 299, NL-2200 AG Noordwijk, The Netherlands (Fax 31-1719-84994).

8th ASTM-EURATOM Symposium on Reactor Dosimetry, Aug. 29–Sept. 3, 1993, Vail, Colorado. Contact: Patrick J. Griffin, Div. 6522, Sandia National Laboratories, Albuquerque, New Mexico 87185 (phone 505-845-9121).

Topical Meeting on Environmental Transport and Dosimetry, Aug. 31–Sept. 3, 1993, Charleston, South Carolina, sponsored by the ANS. Contact: Robert Addis, Savannah River Laboratory, Environmental Transport Group, Bldg. 773-A, Box 616, Aiken, SC 29808 (phone 803-725-3325).

3rd European Conference on Accelerators in Applied Research and Technology, Aug. 31–Sept. 4, 1993, Orleans, France. Contact: J. L. Debrun, CNRS, Centre d'Etudes et de Recherches par Irradiation, 3A rue de la Ferollerie, F-45071 Orleans Cedex 2, France (fax 38-63-0271).

September 1993

Computational and Experimental Validation of Nuclear Power Safety and Fuel Cycle Investigations, Sept. 5–9, 1993, Moscow, Russia. Contact: Prof. V. V. Khromov, Moscow Engineering Physics Institute, Kashirskoe Shosse 31, Moscow, 115409, Russia (phone 095-324-7026, Fax 095-324-2111).

2nd European Conference on Radiations and Their Effects on Devices and Systems, Sept. 13–16, 1993, Saint-Malo, France. Contact: CEA-DAM, Service Electronique, BP 12, F-91680 Bruyeres, Le Chatel, France.

2nd International Conference on Computational Physics, Sept. 13–17, 1993, Beijing. Contact: Prof. Tian-Yuan Zhang, IAPCM, P.O. Box 8009, Beijing, P.R. China 100088 (Fax 011-86-1-201-0108).

Physics and Methods in Criticality Safety, a topical meeting of the Nuclear Criticality Safety Division of the American Nuclear Society, Sept. 19–23, 1993, Nashville, Tennessee. Contact: R. Michael Westfall, Oak Ridge National Laboratory, P.O. Box 2008, Oak Ridge, TN 37831-6370 (phone 615-576-3513), or Dennis Tollefson, Y-12 Plant, P.O. Box 2009, Oak Ridge, TN 37831-8221 (fax 615-574-2000).

Radioactive Waste Volume Reduction, Sept. 27–29, 1993, Chicago, Illinois. Contact: Woodson Assoc., Inc., P.O. Box 2665, Gaithersburg, MD 20886 (phone 301-990-0751, Fax 301-990-6153).

Environmental Effects of Nuclear Power: Calculation and Control, Sept. 28–Oct. 1, 1993, Chicago, Illinois. Contact: Woodson Assoc., Inc., P.O. Box 2665, Gaithersburg, MD 20886 (phone 301-990-0751, Fax 301-990-6153).

Workshop on Data Analysis in Quality Control and in Radiation Protection of the Patient in Diagnostic Radiology and Nuclear Medicine, Sept. 29–Oct. 1, 1993, Grado, Italy. Contact: Dr. G. Contento, Ospedalae Santa Maria della Misericordia, Piazza Santa Maria della Misericordia 15, I-33100 la Loi 200, B-1049 Brussels, Belgium.

October 1993

12th International Conference on Non-Destructive Evaluation in the Nuclear and Pressure Vessel Industries, Oct. 3–7, 1993, Philadelphia, Pennsylvania. Contact: ASM International, Materials Park, OH 44073 USA (phone 216-338-5151; Fax 216-338-4634).

International Symposium on the Advanced Nuclear Power Systems: Design, Technology, and Strategies for Their Deployment, Oct. 18–22, 1993, Seoul, Korea. Contact: Conference Service Section, IAEA, P.O. Box 100, A-1400, Vienna, Austria.

Fall Meeting of the Division of Nuclear Physics of the American Physical Society, Oct. 20–23, 1993,

Pacific Grove, California. Contact: D. V. R. Brown, Lawrence Livermore National Laboratory, Bldg. 181, L-288, P.O. Box 808, Livermore, CA 94550 (fax 510-423-8086).

Radiation Protection Engineering, Oct. 25–29, 1993, San Francisco, California. Contact: Woodson Assoc., Inc., P.O. Box 2665, Gaithersburg, MD 20886 (phone 301-990-0751, Fax 301-990-6153).

November 1993

Nuclear Energy Forum, Nov. 14–17, 1993, San Francisco, California. Contact: Conference Office, USCEA, 1776 I Street NW, Suite 400, Washington, DC 20006-3708 (phone 202-293-0770, Fax 202-785-4113).

Air Sampling, Nov. 16–19, 1993, Albuquerque, New Mexico. Contact: Woodson Assoc., Inc., P.O. Box 2665, Gaithersburg, MD 20886 (phone 301-990-0751, Fax 301-990-6153).

Radiation Contamination Risk: Communicating with the Public, Nov. 29–Dec. 3, 1993, Clearwater Beach, Florida. Contact: Woodson Assoc., Inc., P.O. Box 2665, Gaithersburg, MD 20886 (phone 301-990-0751, Fax 301-990-6153).

January 1994

11th Symposium on Space Nuclear Power Systems, Jan. 9–13, 1994, Albuquerque, New Mexico. Contact: Richard Johnson, Inst. of Space Nuclear Power Studies, University of New Mexico, Chemical and Nuclear Engineering Dept., Albuquerque, NM 87131-1341.

February 1994

Managing Radioactive and Mixed Waste, Feb. 13–17, 1994, Albany, New York, sponsored by the Health Physics Society. Contact: John M. Matusek, NENYHPS, P.O. Box 2249, Empire State Plaza Station, Albany, NY 12220-2249.

1992 HEART Conference, Feb. 14–18, 1994, Monterey, California. Contact: Logicon/RDA, ATTN: 1994 HEART Conference, Mr. Ed Quinn, 2100 Washington Blvd., Arlington, VA 22204-5706.

March 1994

11th International Conference on the Use of Computers in Radiotherapy, Mar. 20–24, 1994, Manchester, United Kingdom. Contact: J. M. Wilkinson, Christie Hospital, Withington, Manchester M20 9BX, GB.

April 1994

Topical Meeting on Advances in Reactor Physics, Apr. 11–14, 1994, Knoxville, Tennessee, sponsored by the American Nuclear Society. Contact: B. A. Worley, Oak Ridge National Laboratory, P.O. Box 2008, Oak Ridge, TN 37831-6363 USA (phone 615-574-6106).

ARS '94, International Meeting on Advanced Reactor Safety, Apr. 17–20, 1994, Pittsburgh, Pennsylvania. Contact: D. Squarer, Westinghouse Electric Corp., Science and Technology Center, 1310 Beulah Road, Pittsburgh, PA 15235-5098 USA (phone 412-256-2063; fax 412-256-1348).

8ICRS, Apr. 24–27, 1994, Arlington, Texas. Contact: Dick Rubin, TU Electric, 400 N. Olive St., LB 81, Dallas, TX 75201 (phone 214-812-8247, Fax 214-812-8687).

RECOD '94, 4th International Conference on Nuclear Fuel Reprocessing and Waste Management, Apr. 24–28, 1994, London. Contact: W. L. Wilkinson, RECOD '94 Steering Committee, British Nuclear Forum, 22 Buckingham Gate, London SW1E 6LB, United Kingdom. (phone 071-828-0116; fax 071-828-0110).

May 1994

9th Pacific Basin Nuclear Conference, May 1–5, 1994, Sydney, Australia. Contact: Australian Nuclear Association, P.O. Box 445, Sutherland, NSW 2232, Australia.

International Workshop on Implementation of ALARA at Nuclear Power Plants, May 8–11, 1993, Long Island, New York. Contact: Dr. John W. Baum or Dr. T. A. Khan, Brookhaven National Laboratory, ALARA Center, Upton, Long Island, NY 11973 USA (phone 516-282-3228, Fax 516-282-5810).

International Conference on Nuclear Data for Science and Technology, May 9–13, 1994, Gatlinburg, Tennessee, USA. Contact: J. K. Dickens, Oak Ridge National Laboratory, P.O. Box 2008, Oak Ridge, TN 37831-6356 USA (phone 615-574-6115).

MARCH 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

Book. . *Monte Carlo Transport of Electrons and Photons*. . Jenkins, T.M., ed.; Nelson, W.R., ed.; Rindi, A., ed. . July 1988

Thesis. . *On Gamma Ray Shielding and Neutron Streaming Through Ducts*. . Kloosterman, J.L. . June 1992

Health Phys. 64, 272-278. . *Calculated Stopping Powers of Low-Energy Electrons in Some Materials of Interest in Radiation Protection*. . Akande, W. . March 1993

Health Phys. 64, 306-310. . *Measuring Additional Dose Rate Contributed by Nuclear Plants*. . Hayakawa, H.; Ohnishi, M.; Shimada, H. . March 1993

ICRU News. . *The Design and Manufacture of Anthropomorphic Phantoms*. . White, D.R. . June 1992

NRPB-R255. . *Radiation Exposure from the Normal Transport of Radioactive Materials within the United Kingdom*. . Gelder, R. . 1991

Nucl. Sci. Eng., 113, 217-226. . *Thermal and Epithermal Sensitivities of Cobalt Self-Powered Neutron Detectors*. . do Carmo Lopes, M.; Avila, J.M. . March 1993

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Nucl. Technol., 101, 262-269. . *Fission Product Transport Behavior*. . Kress, T.S.; Beahm, E.C.; Weber, C.F.; Parker, G.W. . March 1993

Nucl. Technol., 101, 270-281. . *Fission Product Release from Fuel Under Severe Accident Conditions*. . Hobbins, R.R.; Petti, D.A.; Hagrman, D.L. . March 1993

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AECL-10146-2. . *Validation of Keno V.a for Criticality Safety Calculations Involving WR-1 Fast-Neutron Fuel Arrangements*. . Gauld, I.C. . July 1991

ANL-92/20. . *7-GeV Advanced Photon Source Instrumentation Initiative*. . December 1992

ANL/FPP/TM-257. . *The Measurement of Gamma Ray Induced Heating in a Mixed Neutron and Gamma Ray Environment*. . Chiu, H.K. . October 1991

ORNL/TM-12152. . *Criticality Safety Studies for the Storage of Waste from Nuclear Fuel Services in Intercell Storage Wells 2 and 3 of Building 3019*. . Primm, III. R.T.; Hopper, C.M.; Smolen, G.R. . November 1992

ORNL/TM-12304. . *Comments on the ENDF/B-VI Evaluation for 235U in the Neutron Energy Region from 1 to 20 eV*. . Moxon, M.C. . . February 1993

Survey for Workshop on the MASH Code System
Tentatively Planned for Fall 1993 in Oak Ridge, Tennessee

A. Name: _____ Date: _____
Given/Initials Family Name

Organization _____

Mailing address: _____ MS: _____

_____

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City/State/Country: _____ Zip: _____

Phone (Comm): _____ FAX: _____

Electronic Mail Id. (e.g., BITNET, TELEX, MCI): _____

Please indicate your level of experience in the following areas:

	Monte Carlo	Discrete Ordinates	Adjoint Calculations	Shielding Analysis	Multigroup cross section
None					
Some					
Much					

Code System Experience

	MORSE	DORT	VCS	Combinatorial Geometry
None				
Some				
Much				

Indicate the areas of applications you anticipate for MASH:

_____

_____

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PLEASE MAIL OR FAX BY JUNE 1, 1993, TO:

Radiation Shielding Information Center
Oak Ridge National Laboratory
P.O. Box 2008
Oak Ridge, Tennessee 37831-6362

Phone 615-574-6176
FAX 615-574-6182

REGISTRATION FORM

Training Course for SCALE Users

Pollard Auditorium, Oak Ridge, Tennessee
July 19–23, 1993

Name ____

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Organization ____

Mailing address ____

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A block of rooms has been reserved at the Garden Plaza Hotel in Oak Ridge for attendees of the Training Course. The course location in Pollard Auditorium is within walking distance of the hotel. Please fill out the form at the bottom of this page and return it to the hotel.

The registration fee defrays expenses for conducting the training course (including handout materials) and entitles the registrant to attend all conference functions, including working lunches on Tuesday through Thursday and a reception on Monday evening. The deadline is **June 15, 1993**, for the registration fee of $200, in any negotiable form, payable to Radiation Shielding Information Center (RSIC). Mail directly to Mrs. Lindy Norris, Oak Ridge National Laboratory, P.O. Box 2008, Bldg. 6025, MS 6370, Oak Ridge, Tennessee 37831-6370. After **June 15**, a registration fee of $225 is required.

NOTE: Course attendance will be limited. PLEASE REGISTER EARLY.

Maps of the area surrounding the Garden Plaza Hotel will be available at the registration desk. The maps will show several fast food and shopping places within walking distance of the hotel. The American Museum of Science and Energy is also within walking distance of the hotel.

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Return to: GARDEN PLAZA HOTEL
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Block room rate: $52 + tax
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