

# RSIC Newsletter



**Oak Ridge National Laboratory**  
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No. 363

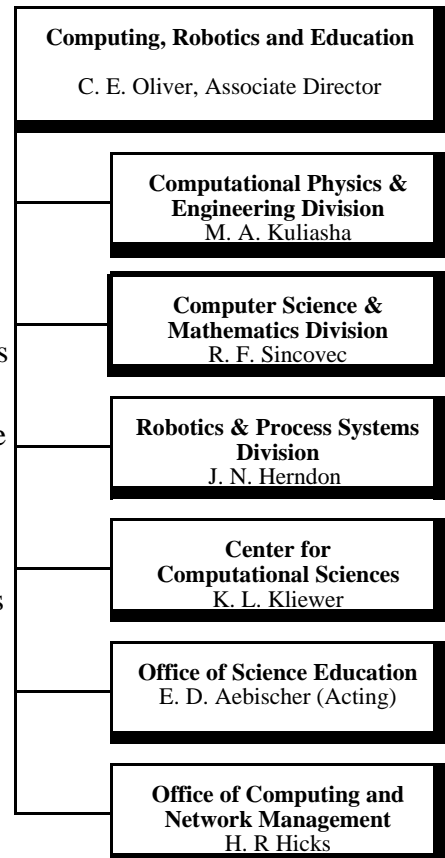
February 1995

*There is but one bond of peace that is both permanent and enriching: The increasing knowledge of the world in which experiment occurs.—Walter Lippmann*

## ORNL Reorganization Impacts RSIC Parent Organizational Structure

One result of the general reorganization of five directorates at Oak Ridge National Laboratory was the renaming of the Computing, Networking, Informatics, and Education directorate to Computing, Robotics, and Education. C. E. Oliver remains as the Associate Director. Under this directorate what was the Computing Applications Division was renamed Computational Physics and Engineering with M. A. Kuliasha as Division Director. The chart on the right shows the current organization of the directorate.

As part of the reorganization the Radiation Shielding Information Center was moved into the Computational Physics and Engineering Division. This is an administrative change. We expect to continue our high standard of service to the radiation transport and shielding community. For those of you who have visited our facilities in the past we are in the same location.



## CHANGES TO THE COMPUTER CODE COLLECTION

Four changes were made to the computer code collection during the month. Two existing code packages were replaced with newly frozen versions, and two code packages were updated with additional software or documentation.

- CCC-200/MCNP4A** The documentation for this general purpose Monte Carlo code system for calculating the time-dependent continuous-energy transport of neutrons, photons, and/or electrons in three-dimensional geometries has been enhanced with the addition of LA-12827-M. The report "Criticality Calculations with MCNP, A Primer" was written to assist the nuclear criticality safety analyst to perform computer calculations using the Monte Carlo code MCNP. Users who already have the code package may request a copy of the Primer from RSIC. MCNP4A is available in UNIX tar format on cartridge tape or on 29, 3.5-in. DS/HD (1.44 MB) diskettes in self-extracting compressed DOS files. In addition to the source files, MCNP4A executables are included for personal computer users. These were created on a PC/486 under DOS 6.0 using the Lahey Fortran F77L3-EM/32 Version 5.10 compiler. References: LA-12625 (1993), LA-12212, LA-12827-M and *Nucl. Sci. Eng.* 116: 269–277 (1994). Fortran 77 and C; UNIX workstations, PC 386, Cray, Vax, Sun, DEC, HP and SGI, mainframe and all computers in general; (C00200/ALLCP/03).
- OP SYS:** UNIX, DOS, VMS
- Language:** Fortran 77
- Computers:** Many
- Format:** DOS, tar
- CCC-459/VENTURE-PC** Oak Ridge National Laboratory developed the mainframe version of this BOLD VENTURE reactor analysis code system. The University of Cincinnati under contract for Idaho National Engineering Laboratory ported a subset to personal computers and designated it VENTURE-PC. Two microcomputer versions exist: one for 16-bit and one for 32-bit personal computers. ORNL has enhanced the 32-bit package by replacing the executable with one created using the Lahey F77L-EM/32, version 5.01 compiler, to allow execution on Pentium computers. No changes were made to the source files. The microcomputer versions contain the VENTURE and BURNER modules plus several processing utilities.
- OP SYS:** DOS
- Language:** Fortran 77
- Computers:** PC
- Format:** DOS
- The new release is transmitted on 4 DS/HD 3.5-in. (1.44 MB) diskettes in self-extracting compressed DOS files. References: Inf. Doc. U. of Cinn. (88); LA-6280; ORNL-5062/R1; ORNL-5158; ORNL-5180; ORNL-5376; ORNL-5466; ORNL-5711; ORNL-5718; ORNL-CSD/78/R1; ORNL-TM-5887; EGG-2582. IBM 3033 (C00459/I3033/00), IBM PC/AT (C00459/IPCAT/00), and PC 386 (C00459/PC386/01).
- CCC-629/SESOIL** Oak Ridge National Laboratory contributed a newly frozen version of this one-dimensional, vertical transport code system for the unsaturated soil zone. The new version fixed an error that caused the program to bomb when the average monthly air temperature was -10 EC. The iteration procedure for the mass balance equations in the model was also improved. The previous version would eventually lose some contaminant mass if a simulation was run for several years (>20); this new version takes more iterations but is more accurate. Thus, mass balance is maintained more closely in this version.
- OP SYS:** DOS
- Language:** Fortran 77
- Computers:** PC

**Format:** DOS

SESOIL performs long-term simulations of chemical transport and transformations in the soil. The model uses theoretically derived equations to represent water transport, sediment transport on the land surface, pollutant transformation, and migration of the pollutant to the atmosphere and groundwater. The processes modeled by SESOIL are categorized into three cycles: hydrology, sediment and pollutant transport. The Ryan McFarland Fortran Compiler, Version 3.10.01, was used to create the executable included in the package. The Fortran source, executable, and sample input and output are transmitted on one DS/HD 5.25-in. (1.2 MB) diskette in DOS format. Reference: PUBL-SW-200-93 (June 1993). Fortran 77; IBM PC (C00629/IBMPC/01).

**PSR-137/MARLOWE****OP SYS:** DOS, UNIX**Language:** Fortran 77, C, Assembler**Computers:** many**Format:** DOS, tar

Oak Ridge National Laboratory has contributed a newly frozen version of this code system for simulating atomic collisions in crystalline targets using the binary collision approximation. This new release is designated Version 13c and includes many enhancements and some corrections to the scripts, preprocessor, control files, and source files. Some of the changes are listed here. The interface between the interatomic potential energy procedures and the inelastic energy loss procedures was changed to increase flexibility in defining the local inelastic energy loss. The selection of appropriate binding energies for target atoms was moved to a new procedure to facilitate letting the binding energies depend on the local environment of an atom. An optional damage-dependent binding model was added. Several variables formerly associated with the atoms are now associated with the lattice sites. The analysis of sputtered atoms was elaborated by reporting both 'reduced' and ordinary energy spectra. Several Unix control files are now included in a library archive termed the MARLOWE Toolkit.

The system executes easily on IBM MVS, VAX VMS, Data General, MS-DOS and a variety of Unix systems (AIX, DG/UX, EP/IX, HP-UX, IRIX, OSF-1, SunOS, Ultrix, and Unicos.) MARLOWE runs on personal computers under Microsoft DOS, version 3.3, and the Microsoft Fortran compiler, version 5.0. Earlier versions of this compiler do not support NAMELIST and cannot be used. Source, scripts, test problems, and documentation files are included in the package. No executables are included in this package. This package is transmitted either on one DS/HD 3.5-in. (1.44 MB) diskette in self-extracting compressed DOS files or on one diskette in a compressed tar file. References: Unpublished report (1994), *Phys. Rev. B* 40, (1989), *Nucl. Instrum. Methods in Phys. Res. B* 48 (1990), and *Nucl. Instrum. Methods in Phys. Res. B* 67 (1992). Fortran 77 and C or Assembler; many computers (P00137/MNYCP/01).



## 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.

## ICNC'95

The Fifth International Conference on Nuclear Criticality Safety (ICNC'95) will be held September 17-22, 1995, at the Hyatt Regency Hotel in Albuquerque, New Mexico. A true international representation of over 140 papers will be presented in oral and poster sessions. Several special events to celebrate the theme "A Half Century of Nuclear Criticality Safety" are also scheduled. Technical tours of facilities at Los Alamos National Laboratory and Sandia National Laboratory are scheduled for Friday, September 22. A pre-registration form will be distributed in the near future. Persons who do not receive a pre-registration form or who want more information on the conference should contact the General Chair, Norm Pruvost, at 505-667-1448 (fax 505-665-4970).

### Calendar

Your attention is directed to the following events of interest.

#### March 1995

*34th International Nuclear and Particle Physics University Meeting: Low-Dimensional Models in Statistical Physics and Quantum Field Theory*, Mar. 4-11, 1995, Schladming, Austria. Contact: Univ. Graz, Inst. f. Theoretische Physik, Universitätsplatz 5, A-8010, Graz, Austria (fax 43-316-384091, email utp@edvz.kfunigraz.ac.at).

*Radiation Transport Calculations Using the EGS4 Monte Carlo System*, Mar. 6-9, 1995, Seattle, Washington. Contact: Ms. Suzan Walker, Computer Services Director, The Lawrence H. Lanzl Inst. of Medical Physics, 3876 Bridge Way N., Suite 300, Seattle, WA 98103-7951 (phone 206-545-1141; fax 206-545-1347; email suzan\_walker@lanzl.com).

*Transportation & Packaging of Radioactive Materials*, Mar. 6-10, 1995, Washington, DC. Contact: Technical Management Services, Inc., P.O. Box 226, New Hartford, CT 06057 (phone 203-738-2440, fax 203-738-9322).

*1995 HEART Conference*, Mar. 13-17, 1995, Sandia National Laboratories, Albuquerque, New Mexico. Contact: Delores Walters, JAYCOR, P.O. Box 85154, San Diego, CA 92138 (phone 619-535-9763).

*Internal Dose Assessment*, Mar. 13-17, 1995, Knoxville, Tennessee, a course offered by Consultec Scientific, Inc. Contact: Consultec Scientific, Inc., Suite 110, 725 Pellissippi Pkwy., Knoxville, TN 37932-3300 (phone 615-675-4333

or 800-269-4333; fax 615-675-4334; email info@consultec.com).

*Radiation Health and Risks*, Mar. 13-17, 1995, Knoxville, Tennessee, a course offered by Consultec Scientific, Inc. Contact: Consultec Scientific, Inc., Suite 110, 725 Pellissippi Pkwy., Knoxville, TN 37932-3300 (phone 615-675-4333 or 800-269-4333; fax 615-675-4334; email info@consultec.com).

*Gamma Spectroscopy*, Mar. 20-24, 1995, in Oak Ridge, Tennessee, a short course sponsored by Oak Ridge Associated Universities. Contact: Registrar Professional Training Programs, Oak Ridge Associated Universities, P.O. Box 117, Oak Ridge, TN 37831-0117 (phone 615-576-3576 or 615-241-4888; fax 615-576-9383).

*Health Physics for the Industrial Hygienist*, Mar. 27-31, 1995, in Oak Ridge, Tennessee, a

### SCALE Workshop

**Please note that all spaces have been filled for the SCALE Training Course in April (newsletter #358). If you were unable to attend this session and are interested in attending courses in the future, indicate your interest by mail, fax, or email to Lindy Norris, Oak Ridge National Laboratory, P.O. Box 2008, Oak Ridge, TN 37831-6370 (phone 615-574-6471; fax 615-576-3513; email NORRISLF@ornl.gov). You will be placed on a mailing list for notification of future courses.**

short course sponsored by Oak Ridge Associated Universities. Contact: Registrar Professional Training Programs, Oak Ridge Associated Universities, P.O. Box 117, Oak Ridge, TN 37831-0117 (phone 615-576-3576 or 615-241-4888; fax 615-576-9383).

#### **April 1995**

*High Performance Computing '95*, Apr. 9–13, 1995, Tucson, Arizona, sponsored by the Society for Computer Simulation. Contact: High Performance Computing '95, Argonne National Laboratory, 9700 S. Cass Ave., Argonne, IL 60439 (email tentner@pepper.ra.anl.gov).

*Applied Health Physics*, Apr. 10–May 12, 1995, in Oak Ridge, Tennessee, a five-week course sponsored by Oak Ridge Associated Universities. Contact: Registrar Professional Training Programs, Oak Ridge Associated Universities, P.O. Box 117, Oak Ridge, TN 37831-0117 (phone 615-576-3576 or 615-241-4888; fax 615-576-9383).

*31st Annual Meeting of the National Council on Radiation Protection and Measurements*, Apr. 12–13, 1995, Arlington, Virginia. Contact: NCRP, Suite 800, 7910 Woodmont Ave., Bethesda, MD 20814-3095 (phone 800-229-2652; fax 301-907-8768).

*5th Topical Meeting on Emergency Preparedness and Response*, Apr. 18–21, 1995, Savannah, Georgia, sponsored by the American Nuclear Society Savannah River Section. Contact: Charles H. Hunter, Jr., Technical Program Chairman, Westinghouse Savannah River Co., Bldg. 773-A, Aiken, SC 29808 (phone 803-725-2953; fax 803-725-4233).

*ICONE-3, The Third International Conference on Nuclear Engineering—Nuclear Power and the Energy Future*, Apr. 23–27, 1995, Kyoto, Japan. Contact: Mr. M. Takahashi, Japan Society of Mechanical Engineers, Shinjuku-Sanshin Bldg. 5F, 2-4-9 Yoyogi, Shibuya-ku, Tokyo 151 Japan (phone 81-3-3379-6781; fax 81-3-3379-0934); or W. C. Cleff, Sargent & Lundy, 55 E. Monroe St., Chicago, IL 60603.

*SCALE Training Course*, Apr. 24–28, 1995, in Oak Ridge, Tennessee, sponsored by the DOE Transportation and Packaging Safety Division and hosted by the Radiation Shielding Information Center (RSIC) at ORNL. Contact: Lindy Norris, Oak Ridge National Laboratory, P.O. Box 2008, Oak Ridge, TN 37831-6370 (phone 615-574-

6471).

*Radiation Safety*, Apr. 24–28, 1995, a training course offered by Northwestern University. Contact: Allison Ando, McCormick School of Engineering, Northwestern University, 2145 Sheridan Road, Evanston, IL 60208-3124 (phone 708-491-3365, fax 708-491-8539).

*CEC Workshop: Advanced Methods in Radiation Dosimetry and Measurement*, Apr. 24–28, 1995, Bad Honeff, Germany. Contact: GSF-Forschungszentrum f. Umwelt und Gesundheit GmbH, H.G. Paretzke, Ingolstaedter Landstr. 1, D-91465, Neuherberg, Germany.

*International Conference on Mathematics and Computations, Reactor Physics, and Environmental Analyses*, Apr. 30–May 4, 1995, Portland, Oregon. Contact: Ms. L. Briggs, Argonne National Laboratory, 9700 S. Cass Ave., Argonne, IL 60439 (phone 708-252-4677, fax 708-252-4620, email llbriggs@anl.gov).

#### **May 1995**

*1995 International High-Level Radioactive Waste Management Conference: Progress Toward Understanding*, May 1–5, 1995, Las Vegas, Nevada. Contact: Allen G. Croff, American Nuclear Society, 555 N. Kensington Ave., La Grange Park, IL 60525 (fax 708-352-6464).

*2nd International Nuclear Technology Forum on Nuclear Energy and Alternative Energy Resources*, May 4–6, 1995, Antalya, Turkey. Contact: Chamber of Mechanical Engineers, Sumer Sok. No. 36/1-A, 06440, Demirtepe, Ankara, Turkey (fax 312-231-3165).

*Conference on Nuclear Physics at Intermediate Energy*, May 8–12, 1995, Trieste, Italy. Contact: ICTP, Italy (phone 39-040-22410; fax 39-040-224163).

*Conference and International Symposium on Radionuclide Metrology and Its Applications*, May 15–19, 1995, Paris, France. Contact: Laboratoire Primaire des Rayonnements Ionisants, P.O. Box 52, F-91193, Gif-sur-Yvette Cedex, France (fax 33-1-69-08-29-19, email ICRM@BABAORUM.CEA.FR).

*13th International Conference on Nondestructive Evaluation in the Nuclear and Pressure Vessel Industries*, May 22–25, 1995, Kyoto, Japan. Contact: ASM Internatl., Member Services Center,

Materials Park, OH 44073 USA (fax 216-338-4634).

*1st International Conference on Neural, Parallel, and Scientific Computations*, May 28–31, 1995, Atlanta, Georgia. Contact: Morehouse College, Dept. of Mathematics, M. Sambandham, 830 Westview Drive, SW, Atlanta, GA 30314 (fax 404-458-7932, email icnpssc@voyager.cau.auc.edu).

#### June 1995

*Air Sampling for Radioactive Materials*, June 12–16, 1995, in Oak Ridge, Tennessee, a short course sponsored by Oak Ridge Associated Universities. Contact: Registrar Professional Training Programs, Oak Ridge Associated Universities, P.O. Box 117, Oak Ridge, TN 37831-0117 (phone 615-576-3576 or 615-241-4888; fax 615-576-9383).

*ANS Annual Meeting*, June 25–29, 1995, Philadelphia, Pennsylvania. Contact: Dickinson M. Smith, PECO Energy Company, MC 63C-3, 965 Chesterbrook Blvd., Wayne, PA 19087-5681 (phone 215-640-6600) or ANS Meetings Dept., 555 N. Kensington Ave., La Grange Park, IL 60525 (phone 708-579-8258).

*Environmental Monitoring*, June 26–30, 1995, in Oak Ridge, Tennessee, a short course sponsored by Oak Ridge Associated Universities. Contact: Registrar Professional Training Programs, Oak Ridge Associated Universities, P.O. Box 117, Oak Ridge, TN 37831-0117 (phone 615-576-3576 or 615-241-4888; fax 615-576-9383).

#### July 1995

*32nd Annual IEEE International Nuclear and Space Radiation Effects Conference*, July 21–27, 1995, Madison, Wisconsin. Contact: United Technologies, Microelectronics Center, 1575 Garden of the Gods Road, Colorado Springs, CO 80907 (fax 719-594-8187).

*Joint Annual Meeting of the Health Physics Society and the American Association of Physicists in Medicine to Celebrate the X-Ray Centennial*, July 23–27, 1995, Boston, Massachusetts. Contact: Health Physics Society, ATTN: Richard J. Burke, Jr., Suite 130, 8000 Westpark Drive, McLean, VA 22102 (phone 703-790-1745; fax 703-790-9063) or American Association of Physicists in Medicine, ATTN: Salvatore Trofi, Jr., One Physics Ellipse, College Park, MD 20740-3846 (phone 301-209-3350; fax 301-209-0862).

#### August 1995

*10th Brazilian Meeting on Reactor Physics and Thermal Hydraulics (X ENFIR) and the 3rd Brazilian Meeting on Nuclear Applications (III ENAN)*, Aug. 7–11, 1995, Rio de Janeiro, Brazil. Contact: Wilma S. Bastos, IEN, C.P. 68550, CEP-21945.970, RJ, Brazil (fax 55-21-5902692; email IENRCB@BRLNCC.BITNET).

*Safe Use of Radionuclides*, August 21–25, 1995, in Oak Ridge, Tennessee, a short course sponsored by Oak Ridge Associated Universities. Contact: Registrar Professional Training Programs, Oak Ridge Associated Universities, P.O. Box 117, Oak Ridge, TN 37831-0117 (phone 615-576-3576 or 615-241-4888; fax 615-576-9383).

#### September 1995

*5th International Conference on Radioactive Waste Management and Environmental Remediation*, Sept. 3–9, 1995, Berlin, Germany. Contact: ASME Headquarters, Ms. L. Friedman, 345 East 47th St., New York, NY 10017-2392 (fax 212-705-7856) or Battelle Pacific Northwest Laboratory, MSIN K1-19, SC Slate, P.O. Box 999, Richland, WA 99352 (fax 509-375-5963).

*VOLGA-95*, Sept. 4–8, 1995, in Volga, Russia. Contact: Prof. V. Khromov, Department Head, Chairman of Organizing Committee, Prof. V. Naumov, Program Chairman, or Dr. L. Goncharov, Scientific Secretary at the Moscow Engineering Physics Institute, Kashirskoe Shosse 31, Moscow, 115409, Russia (phone +7-095-323-9242; fax +7-095-324-7026; email volga@rephyd.mepi.msk.ru).

*4th European Space Power Conference*, Sept. 4–8, 1995, Poitiers, France. Contact: ESTEC, Power and Energy Conversion Div., Ms. J. Sanchez-Michielsen, P.O. Box 299, NL-2200, AG Noordwijk, Netherlands, or ESA Publications Division, T. D. Guyenne, NL-2200, AG Noordwijk, Netherlands (fax 31-1719-85433).

*International Conference on Evaluation of Emerging Nuclear Fuel Cycle Systems (GLOBAL'95)*, Sept. 11–14, 1995, Palais des Congres, Versailles, France. Contact: Massimo Salvatores, CE/CADARACHE, DRN, Bat. 707, F-13108 ST. Paul-lez Durance Cedex, France (phone +33 42 25 33 65; fax: +33 42 25 41 42; internet : salvatores@macadam.cea.fr)

*Environmental Monitoring*, Sept. 11–15, 1995, in Oak Ridge, Tennessee, a short course sponsored by Oak Ridge Associated Universities. Contact: Registrar

Professional Training Programs, Oak Ridge Associated Universities, P.O. Box 117, Oak Ridge, TN 37831-0117 (phone 615-576-3576 or 615-241-4888; fax 615-576-9383).

*Fifth International Conference on Nuclear Criticality Safety (ICNC'95)*, Sept. 17–22, 1995, at the Hyatt Regency Hotel in Albuquerque, New Mexico. Contact the General Chair, Norm Pruvost, at 505-667-1448 (fax 505-665-4970).

*Applied Health Physics*, Sept. 18–Oct. 20, 1995, in Oak Ridge, Tennessee, a five-week course sponsored by Oak Ridge Associated Universities. Contact: Registrar Professional Training Programs, Oak Ridge Associated Universities, P.O. Box 117, Oak Ridge TN 37831-0117 (phone 615-576-3576 or 615-241-4888; fax 615-576-9383).

*16th Symposium on Fusion Engineering*, Sept. 30–Oct. 4, 1995, Urbana, Illinois. Contact: Cella Elliott, Conference Secretary, Fusion Studies Lab., University of Illinois, Urbana, IL 61801 (phone 217-333-2772; fax 217-333-2906; email miley@uiucvmd.bitnet).

#### **October 1995**

*International Conference on Radiation Dose Management*, Oct. 3–5, 1995, Windermere, United Kingdom. Contact: European Nuclear Society, Belpstrasse 23, CH-3007, Bern, Switzerland.

*International Symposium on Nuclear Energy*, Oct. 20–21, 1995, Bucharest, Romania. Contact: C. Briatianu, Univ. Politehnicadin Bucuresti, Facultateade Inginerie Mecanica, Splaiul Independentei Nr. 313, Sector 6, 77206, Bucharest, Romania (phone 40-1-6314010/224).

*Annual Meeting of the Society for Industrial and Applied Mathematics*, Oct. 23–26, 1995, Charlotte, North Carolina. Contact: Soc. for Indus. and App. Math., 3600 University City Sciences Center, Philadelphia, PA 19104-2688 (fax 215-386-7999, email meetings@siam.org).

#### **November 1995**

*ANS International Topical Meeting on Managing Plant Life*, Nov. 28–30, 1995, Nice, France. Contact: Dr. S. Charbonneau, Tour Fiat, Cedex 16, F-92024, Paris, France.

#### **December 1995**

*11th International Conference on Packaging and Transportation of Radioactive Materials*, Dec. 3–8, 1995, Las Vegas, Nevada. Contact: Laura Dechter, Social & Scientific Systems, Inc., 7101 Wisconsin Ave., Bethesda, MD 20814-4805 (phone 301-986-4870; fax 301-913-0351).

#### **January 1996**

*96th Annual Meeting of the American College of Nuclear Physicians*, Jan. 14–18, 1996, San Juan, Puerto Rico. Contact: American College of Nuclear Physicians, Mr. H. Johnson, Suite 700, 1101 Connecticut Ave., NW, Washington, DC 20036.

#### **April 1996**

*Annual Meeting of the National Council on Radiation Protection and Measurements*, Apr. 3–4, 1996, Arlington, Virginia. Contact: Natl. Council on Radiation, Protection and Measurements, Suite 800, 7910 Woodmont Ave., Bethesda, MD 20814 (fax 301-907-8768).

*U.S. Nuclear Regulatory Commission Regulatory Information Conference*, Apr. 9–11, 1996, Washington, D.C. Contact: Anna May Haycraft, U. S. NRC, Office of NRR, 12H5, Washington, DC 20555 (phone 301-504-3075).

*Annual Meeting of the Radiation Research Society*, Apr. 13–18, 1996, Chicago, Illinois. Contact: Radiation Research Society, M. G. Watson, Suite 600, 2021 Spring Rd., Oak Brook, IL 60521.

#### **July 1996**

*38th Annual Meeting of the American Association of Physicists in Medicine*, July 21–25, 1996, Philadelphia, Pennsylvania. Contact: Ms. A. R. Keyser, One Physics Ellipse, College Park, MD 20740-3846 (fax 301-209-0862).

## **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. For literature listed as available from INIS contact INIS Clearinghouse, International Atomic Energy Agency, P.O. Box 100, A-1400 Vienna.

*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** . . . *CINDA94: the Index to Literature and Computer Files on Microscopic Neutron Data* . . . . . 1994 . . . International Atomic Energy Agency, Vienna, Austria.

**Book** . . . *Proceedings of the Seminar on SCALE-4 and Related Modular Systems for the Evaluation of Nuclear Facilities and Package Design Featuring Criticality, Shielding and Transfer Capabilities* . . . . . 1994 . . . OECD Nuclear Energy Agency, Paris, France . . . . . Saclay France, 17-19 September 1991.

**Book** . . . *Proceedings of the Seminar on NJOY-91 and THEMIS for the Processing of Evaluated Nuclear Data Files* . . . . . 1994 . . . OECD Nuclear Energy Agency, Paris, France . . . . . Saclay France, 7-8 April 1992.

**Health Phys.** **68, 27-34** . . . *Radiation Transport in a Radiotherapy Room* . . . Agosteo, S.; Foglio Para, A.; Maggioni, B.; Sangiust, V.; Terrani, S.; Borasi, G. . . . . January 1995 . . . . .

**Health Phys.** **68, 41-49** . . . *Alpha Radiation Risk Coefficients for Liver Cancer, Bone Sarcomas, and Leukemia* . . . Hunacek, M.M.; Kathren, R.L. . . . . January 1995.

**Health Phys.** **68, 50-58** . . . *Issues in Space Radiation Protection: Galactic Cosmic Rays* . . . Wilson, J.W.; Kim, M.; Schimmerling, W.; Badavi, F.F.; Thibeault, S.A.; Cucinotta, F.A.; Shinn, J.L.; Kiefer, R. . . . . January 1995.

**Health Phys.**, **68, 67-70** . . . *Effect of Modified Calm Conditions on Nuclear Dispersion Estimates* . . . Shze Jer Hu; Hiroshi Katagiri; Hideo Kobayashi . . . . . January 1995.

**Health Phys.** **68, 89-93** . . . *Residence Times of Global Weapons Testing Fallout  $^{237}\text{Np}$  in a Grassland Soil Compared to  $^{239+240}\text{Pu}$ ,  $^{241}\text{Am}$ , and  $^{137}\text{Cs}$*  . . . Bunzl, K.; Kojuji, H.; Schimmack, W.; Tsumura, A.; Ueno, K.; Yamamoto, M. . . . . January 1995.

**Nucl. Sci. Eng.**, **118, 133-144** . . . *Numerical Studies of Radionuclide Migration in Heterogeneous Porous Media* . . . Buckley, R.L.; Loyalka, S.K.; Williams, M.M.R. . . . November 1994 . . . University of Missouri-Columbia, Columbia, MO; Electrowatt Engineering Services (UK) Ltd., Horsham, Sussex, United Kingdom.

**Nucl. Sci. Eng.**, **118, 145-152** . . . *Tomographic Gamma Scanning to Assay Heterogeneous Radioactive Waste* . . . Estep, R.J.; Prettyman, T.H.; Sheppard, G.A. . . . November 1994 . . . Los Alamos National

Laboratory, Los Alamos, NM.

**Nucl. Sci. Eng.**, **118, 153-159** . . . *Transmutation of  $^{99}\text{Tc}$  with the Use of an Accelerator* . . . Takeshi Kase; Kenji Konashi . . . November 1994 . . . Power Reactor and Nuclear Fuel Development Corp., Tokai, Japan.

**Nucl. Sci. Eng.**, **118, 160-177** . . . *A Contributor Monte Carlo Method* . . . Aboughantous, C.H. . . . November 1994 . . . Louisiana State University, Baton Rouge, LA.

**Nucl. Sci. Eng.**, **118, 186-193** . . . *Dynamic Compensation Methods for Self-Powered Neutron Detectors* . . . Geun-Sun Auh . . . November 1994 . . . Korea Atomic Energy Research Institute, Daejeon, Korea.

**Nucl. Sci. Eng.**, **119, 34-43** . . . *A Fast, Automated, Semideterministic Weight Windows Generator for MCNP* . . . Mickael, M.W. . . . January 1995 . . . Atlas Wireline Services, Houston, TX.

**Nucl. Sci. Eng.**, **119, 44-79** . . . *Extending the Direct Statistical Approach to Include Particle Bifurcation Between the Splitting Surfaces* . . . Burn, K.W. . . . January 1995 . . . ENEA - Bologna, Italy.

**Nucl. Sci. Eng.**, **119, 80-86** . . . *Mean Cosine for Thermal Energy Elastic Scattering* . . . Lathrop, K.D. . . . January 1995 . . . Stanford Linear Accelerator Center, Stanford, CA.

**Nucl. Technol.**, **109, 207-215** . . . *Iodine Release During a Steam Generator Tube Rupture* . . . Adams, J.P. . . . February 1995 . . . Idaho National Engineering Laboratory, Idaho Falls, ID.

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