

RSIC Newsletter

Oak Ridge National Laboratory

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We shall never have more time. We have, and have always had, all the time there is. No object is served in waiting until next week or even until to-morrow. Keep going day in and out. Concentrate on something useful. Having decided to achieve a task, achieve it at all costs.)Arnold Bennett

DETERMINISTIC METHODS SEMINAR/TORT WORKSHOP PLANNED FOR FEBRUARY 1992

There has been much interest expressed in the subject of deterministic methods, particularly the discrete ordinates approach, by the RSIC user community. We have been urged to conduct a seminar-workshop in this technical area and have tentative plans to host one in Oak Ridge during the week of February 3! 8, 1992.

The seminar part will include about 1½ days of invited and contributed technical presentations on developments and applications of deterministic methods for radiation transport problems. The seminar will be followed by about 1½ days devoted to the CCC-543/TORT three-dimensional discrete ordinates system. Wayne Rhoades of the Advanced Systems Group, Nuclear Analysis and Shielding Section, Engineering Physics and Mathematics Division of Oak Ridge National Laboratory, will lead the workshop.

A survey form intended to gauge interest in participating in the seminar-workshop is attached as the last page of the newsletter. Further information will be mailed to those who return the form.

Oak Ridge National Laboratory under Defense Nuclear Agency sponsorship released a newly frozen version of this three-dimensional discrete ordinates transport code system, based on the earlier DOT codes. TORT calculates the flux or fluence of particles throughout two- or three-dimensional geometric systems due to particles incident upon the system from extraneous sources or generated internally. Several related programs are included in the package: the DOS driver, GIP (a cross-section file preparation code), DOTTOR (prepares external boundary sources based upon a two-dimensional calculation), VISTA (vehicle input source transformation and assembly), and GRTUNCL (produces uncollided flux file). Currently, Cray and IBM RS/6000 versions of TORT are available.

We look forward to a strong participation in this seminar-workshop. Please return the form as soon as possible if you are interested in participating in the seminar-workshop. A registration fee will be required from attendees to cover expenses.

CHANGES TO THE COMPUTER CODE COLLECTION

Three changes were made to the computer code collection. Two new codes systems were packaged and added to the collection and an existing code package was replaced with a newly frozen version. Two changes resulted from foreign contributions.

CCC-371/ORIGEN2

A newly frozen version of this package for isotope generation and depletion was contributed by Oak Ridge National Laboratory. ORIGEN2 is a computer code system for calculating the buildup, decay, and processing of radioactive materials which uses a matrix exponential method to solve a large system of coupled, linear, first-order ordinary differential equations with constant coefficients.

The mainframe (A) and 80386/80486 (E) versions have been merged into a single new version identified as ORIGEN2, Version 2.1 (8-1-91). This package incorporates revised LWR cross-section libraries for standard- and extended-burnup fuel cycles. These revised LWR libraries were used in preparation of Revision 1 of the Characteristics Data Base (DOE/RW-0184).

To run on the PC 386 and PC 486, at least 4 MB of extended memory and a math coprocessor are required. This version was compiled and linked with the Lahey F77L-EM/32 extended memory FORTRAN compiler version 4.00 and the Lahey/Ergo OS/386 extended memory operating system version 2.1.05 under DOS 5.00. Installation of the entire code requires about 17.5 MB of free disk space. Sample problems were run on both the VAX and PC. Conversion to other mainframe computers should not be difficult. Three DS/HD diskettes are required for transmittal.

This release replaces the UNIVAC (B) and PRIME 400 (C) versions. Version (D) was not updated but is available on 2 DS/HD diskettes. It runs on an IBM PC 286 under versions of DOS prior to release 4. References: ORNL/TM-7175 (July 1980), *Nucl. Technol.* 62, 335 (September 1983), and Informal Notes (August 1991, December 1985, January 1985, October 1981). FORTRAN; VAX and PC 386/486 (A), PC 286 (D).

CCC-589/RANCHMD

The Paul Scherrer Institute, Würenlingen, Switzerland, through the NEA Data Bank, Gif-sur-Yvette CEDEX, France, contributed this code system for calculating release of radionuclides to the geosphere from a repository for high-level waste. RANCHMD calculates two dimensional transport of radionuclide chains through layered geological media, taking into account longitudinal dispersion, convection and retention. RANCHMD runs on VAX computers under VMS and is transmitted on one DS/HD diskette. References: Informal Document (February 1990), Swiss Federal Institute Technical Report 85-40 (February 1985), EIR-Bericht Nr. 554 (February 1985), EIR-Bericht Nr. 622 (April 1987). FORTRAN 77; VAX.

CCC-590/MOCA

Nuclear Research Institute, Rez, Czechoslovakia, contributed this Monte Carlo criticality code system for hexagonal geometries used in the calculation of the neutron flux in the Soviet VVER reactor assembly in steady state. MOCA solves the linear Boltzmann transport equation without external source. The time-independent neutron transport equation is solved in three-dimensional geometry for the hexagonal reactor assembly in an infinite hexagonal lattice. MOCA calculates the multiplication factor, flux distribution and other neutron quantities. Only the region of the fuel assembly is considered. The code runs on IBM PC/AT and IBM PS/2 Model 60 computers. MOCA was compiled with Microsoft FORTRAN Version 4.01 or 5.0 under the DOS 3.3 operating system. The package is transmitted on one DS/HD diskette. References: Informal Document (March 1983). IBM PC/AT.

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.

Calendar

Your attention is directed to the following events of interest.

September 1991

Risk Assessment In Occupational and Environmental Health, Sept. 4! 6, 1991, 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 617-432-3515; Fax 617-432-1969).

Radiopharmaceutical Internal Dose Calculation Techniques, Sept. 9! 11, 1991, 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).

ICNC '91, Sept. 9! 13, 1991, Christ Church, Oxford, England, sponsored by AEA Technology, the OECD Nuclear Energy Agency, with cooperation from IAEA. Contact: John Bentley, 062/A32, AEA Technology Winfrith, Dorchester, Dorset DT2 8DH, England (phone 0305 203316; Fax 0305 202122).

3rd Symposium of Radiological Physicists with International Participation, Sept. 9! 13, 1991, Smolenice, Czechoslovakia, sponsored by the European Federation of Organizations for Medical Physics. Contact: Ms. S. Kozakova, Mickiewiczova 18, CS-81322 Bratislava, Czechoslovakia.

Applied Health Physics, Sept. 9! Oct. 11, 1991, 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).

INEL Computing Symposium, Sept. 10! 12, 1991, Idaho Falls, Idaho, sponsored by the Idaho National Engineering Laboratory. Contact: Teri Williams, EG&G Idaho, Inc., P.O. Box 1625, Idaho Falls, ID 83415-2602 (phone 208-526-9728, FTS 583-9728).

3rd International Conference on Radioactive Waste Management, Sept. 13! 16, 1991, Winnipeg, Manitoba, Canada. Contact: P. D. Stevens-Guille, Ontario Hydro, 700 University Ave., Toronto, Ont., Canada MTG 1X6 (phone 416-592-6024).

35th General Session of the International Atomic Energy Agency, Sept. 13! 22, 1991, Vienna. Contact: Conference Service Section, IAEA, P.O. Box 100, A-1400 Vienna, Austria (phone 222-2360).

7th International Symposium on Inhaled Particles, Sept. 16! 20, 1991, Edinburgh, United Kingdom. Contact: A. Robertson, British Occup. Hygiene Society, Ins. Occupational Medicine, Roxburgh Place, Edinburgh EH8 9SU, U.K. (phone 031 667 5131, fax 031 667 0136).

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).

5th International Symposium on the National Radiation Environment (NREV), Sept. 22! 28, 1991, Salzburg, Austria, sponsored by the Commission of the European Communities and the U.S. Department of Energy, in cooperation with the IAEA. Contact: Martial Olast, DG XII-d-3 (ARTS 2/44) Rue de al Loi, 200, B-1049 Brussels, Belgium (phone 32-2-235-07-23).

Focus '91: Nuclear Waste Packaging, Sept. 29! Oct. 2, 1991, Las Vegas. Contact: David Stahl, Tech. Program Chair, SAIC, 101 Convention Center Drive., Suite 407, Las Vegas, NV 89109 (phone 702-794-7778).

25th Anniversary Conference on Radiation Protection, Sept. 30! Oct. 3, 1991, Aachen, Germany. Contact: Forschungszentrum Jülich GmbH, Tagungsbuero, Postfach 1913, 5170 Jülich, Germany.

Seminar on Storage and Disposal of Low-Level Radioactive Wastes, Sept. 30! Oct. 4, 1991, Paris, sponsored by the IAEA. Contact: Conference Service Section, IAEA, P.O. Box 100, A-1400 Vienna, Austria (phone 222-2360).

October 1991

ANS Executive Conference on Radiation Protection in Nuclear Power Plants) Lessons for the Present and a Bridge to the Future, Oct. 6! 9, 1991, Las Vegas, Nevada. Contact: B. Withers, Wolf Creek Nuclear Operations, P.O. Box 411, Burlington, KS 66839.

19th Water Reactor Safety Information Meeting, Oct. 14! 16, 1991, Rockville, Maryland, sponsored by Brookhaven National Laboratory. Contact: Brookhaven National Laboratory, Dept. of Nuclear Energy, Bldg. 197C, Upton, NY 11973.

7th Symposium on Neutron Dosimetry, Oct. 14! 18, 1991, Berlin, Fed. Rep. of Germany, sponsored by the Commission of the European Communities. Contact: Dr. R. Jarh, Physikalisch-Technische Bundesanstalt, Abt. 7, Bundesallee 100, 3300 Braunschweig, FRG.

Radiation Physics Meeting, Oct. 14! 18, 1991, Budapest, Hungary, sponsored by the European Society for Therapeutic Radiology and Oncology. Contact: University Hospital Street Rafael, Dept. of Radiotherapy, ESTRO Secretariat, B-3000 Louvain, Belgium.

First Regional Congress on Radiological and Nuclear Safety, Oct. 21! 25, 1991, Buenos Aires, Argentina, sponsored by the National Commission on Atomic Energy. Contact: Comision Nacional de Energia Atomica, Castilla de Correo No. 40, Aeropuerto Internacional de Ezeiza, Codigo Postal No 1802, Argentina.

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

14th International Meeting on Reduced Enrichment for Research and Test Reactors will be held in Jakarta, Indonesia, Nov. 4! 7, 1991. Contact: Dr. Widjang H. Sisworo, Batan, Biro Bina Program, P.O. Box 85 Kby, Jakarta 12001, Indonesia (Telex 62354, fax 021 511-110).

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.

1991 ANS Winter Meeting, Nov. 10! 14, 1991, San Francisco. Contact: General Chair James D. Shiffer, Pacific Gas & Electric Co., 77 Beale St., San Francisco, CA 94106 (phone 415-973-4684).

International Conference on Fusion Reactor Materials, Nov. 17! 22, 1991, Clearwater, Florida. Contact: P. J. Maziasz, Metals and Ceramics Division, Oak Ridge National Laboratory, P.O. Box 2008, Oak Ridge, TN 37831-6376.

Symposium on Fusion Energy, Nov. 18! 22, 1991, San Diego, California. Contact: Richard W. Callis, General Atomics, Fusion Division, P.O. Box 85608, San Diego, CA 92138-5608.

February 1992

1992 HEART Conference, Feb. 24! 28, 1992, Albuquerque, New Mexico. Contact: DASIAC, Attention: 1992 HEART Conference, 2560 Huntington Ave., Suite 500, Alexandria, VA 22303.

March 1992

1992 Topical Meeting on Advances in Reactor Physics, March 8! 11, 1992, Charleston, South Carolina, sponsored by the ANS Reactor Physics and Mathematics and Computations Divisions. Contact: Russ Ferrara, Westinghouse Savannah River Co., Savannah River Laboratory, Bldg. 786-1A, Room 5, Aiken, South Carolina 29808 (phone 803-725-8233).

Radiation Transport Calculations Using EGS4, Mar. 9! 12, 1992, a four-day, 80386 microcomputer-based course to be held in Seattle, Washington, sponsored by Inst. of Applied Physics and Medicine. Contact: Susan Walker, IAPM, 701 16th Ave., Seattle, WA 98122 (phone 206-553-7330).

Occupational and Environmental Radiation

Protection, Mar. 23! 27, 1992, 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 617-432-3515; Fax 617-432-1969).

April 1992

New Horizons in Radiation Protection and Shielding, Apr. 26! May 1, 1992, Pasco, Washington, a topical meeting of the ANS Radiation Protection and Shielding Division. Contact: Wilbur Bunch, HO-36, Westinghouse Hanford Co., P.O. Box 1970, Richland, WA 99352 (phone 509-376-6313).

May 1992

Radiation Protection Instrumentation, May 11! 15, 1992, 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 617-432-3515; Fax 617-432-1969).

8th International Radiation Protection Association

Conference, May 17! 22, 1992, Montreal, Canada. Contact: G. Webb, NRPB, IRPA 8 Secretariat, Chilton, Didcot, Oxon OX11 0RQ, United Kingdom.

June 1992

American Nuclear Society Annual Meeting, June 7! 12, 1991, Boston, Massachusetts. Contact: Mary Keenan, ANS, 555 N. Kensington Ave., La Grange Park, IL 60525 (phone 708-352-6611).

10th Topical Meeting on Technology of Fusion

Energy, June 7! 12, 1992, Boston, Massachusetts, sponsored by the American Nuclear Society and the U.S. Department of Energy. Contact: Stephen O. Dean, Fusion Power Associates, 2 Professional Drive, Suite 248, Gaithersburg, MD 20879 (phone 301-258-0545).

Environmental Radiation Surveillance, June 8! 12,

1992, 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 617-432-3515; Fax 617-432-1969).

July 1992

15th International Conference on High Energy Accelerators, July 20! 24, 1992, Hamburg, Fed. Rep. of Germany. Contact: F. Willeke, Deutsches Elektronen-Synchrotron, Notkestrasse 85, 2000 Hamburg 52, FRG.

August 1992

Nuclear Technologies for Space Exploration, Aug. 14! 17, 1992, Jackson Hole, Wyoming. Contact: Dr. David Woodall, INEL EG&G Idaho, P.O. Box 1625, Idaho Falls, ID 83415-2516.

September 1992

Hazardous and Radioactive Waste Management (Spectrum 92), Sept. 13! 17, 1992, sponsored by the ANS and the U.S. Dept. of Energy. Contact: Dr. Clyde W. Frank, EM-50/6B-158, U.S. Dept. of Energy, 1000 Independence Ave., SW., Washington, DC 20585 (phone 202-586-6382)

8th International Meeting on Radiation Processing, Sept. 14! 19, 1992, Beijing, China, sponsored by the International Atomic Energy Agency. Contact: International Meeting on Radiation Processing, P.O. Box 1012 (30), Beijing 100 822, China.

International Symposium on Nuclear Data Evaluation

Methodology, Sept. 28! Oct. 2, 1992, Upton, New York, sponsored by Brookhaven National Laboratory. Contact: C. L. Dunford, Brookhaven National Laboratory, NNDC/197D, Upton, New York.

14th International Conference on Plasma Physics and

Controlled Nuclear Fusion Research, Sept. 30! Oct. 7, 1992, Wuerzburg, Germany, sponsored by the International Atomic Energy Agency. Contact: IAEA, Conference Service Section, P.O. Box 100, A-1400 Vienna, Austria.

April 1993

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.

JULY ACCESSION OF LITERATURE

The following literature cited has been ordered for review, and that selected as suitable will be placed in the RSIC Information Storage and Retrieval Information System (SARIS). This early announcement is made as a service to the shielding community. Copies of the literature are not distributed by RSIC. They may generally be obtained from the author or from a documentation center such as the National Technical Information Service (NTIS), Department of Commerce, Springfield, Virginia 22161.

RSIC maintains a microfiche file of the literature entered into SARIS, and duplicate copies of out-of-print reports may be available on request. Naturally, we cannot fill requests for literature which is copyrighted (such as books or journal articles) or whose distribution is restricted.

This literature is on order. It is not in our system. Please order from NTIS or other available source as indicated.

RADIATION SHIELDING LITERATURE

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COMPUTER CODES LITERATURE

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 OSTI; NTIS; INSI; GPO

**RADIATION SHIELDING INFORMATION CENTER
SEMINAR-WORKSHOP**

**Theory and Application of Deterministic Radiation Transport Methods
February 3! 7, 1992**

Name: _____

Citizenship: _____

Organization: _____

Full Mailing Address: _____

Phone: _____

FAX: _____

G I plan to attend the seminar on Deterministic Radiation Transport Methods.

G I plan to attend the workshop on the TORT Discrete Ordinates System.

G I plan to contribute a paper on the seminar. I will send a suggested title now, and confirmed title and a 200-word abstract by November 1, 1991. I understand later papers may not be accepted. I will bring a camera-ready manuscript of the full paper to the conference.

Title of paper: _____

A registration fee to cover conference activities and proceedings will be collected at final registration.

Your suggestions for implementation of the above seminar-workshop will be appreciated.

This form may be Faxed to 615-574-9619 or mailed to:

Radiation Shielding Information Center
Oak Ridge National Laboratory
P.O. Box 2008, Bldg. 6025
Oak Ridge, TN 37831-6362