

RSIC Newsletter



OAK RIDGE NATIONAL LABORATORY
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*Curiosity is a willing, a proud, an eager confession of ignorance. — S.
Leonard Rubinstein*

MORSE-CGA WORKSHOP PLANS FINALIZED

As a result of the responses to the MORSE-CGA Workshop Survey form (see December 1984 *RSIC Newsletter*), a four-day workshop on the MORSE Monte Carlo code system is planned for June 17-20, 1985, at the Holiday Inn in Oak Ridge, Tennessee. As indicated in the March 1985 *RSIC Newsletter*, the technical program will cover MORSE-CG; MARS Geometry, including Input, User Routines, and Geometry Plotting (JUNEBUG-II) Routines; Special MORSE Topics; and Sample Problem Presentation.

Written material describing each topic will be provided at the workshop.

Enrollment will be limited, so please complete and return the attached form as soon as possible. Deadline: **May 31, 1985**. A registration fee will be charged to defray expenses for conducting the workshop (\$75 if sent with the form; \$90 if paid at the workshop). Identification badges and other conference materials will be distributed at the registration desk beginning Monday morning, June 17, 1985, at 8:00 a.m.

The workshop will be held at the Holiday Inn, 420 S. Illinois Avenue, Oak Ridge, Tennessee 37830, USA, telephone 615-483-4371. We have reserved a block of rooms there at the reduced price of \$38 per night. If you wish us to make reservations for you, please indicate this on the attached registration form. You may make your own reservations through your local Holiday Inn if you wish. Please be sure to get a confirmation number and

indicate that you want one of the block of \$38 rooms if you do make your own. Limousine service from McGhee Tyson Airport, Knoxville, Tennessee, is available following the arrival of each flight.

The preliminary program is as follows:

Monday, June 17

Morning (Basic Concepts)

Registration (8:00am)
Introduction to MORSE — M. B. Emmett
Flow of the Program — S. N. Cramer
User Supplied Routines — J. S. Tang

Afternoon (Basic Input/Output)

Combinatorial Geometry — Emmett
Cross Section Input — Cramer
Other MORSE Input — Tang

Tuesday, June 18

Morning (MARS Geometry)

Introduction to MARS — Emmett
Input/Output Details — Emmett
Examples — Cramer, Tang
Errors, Diagnostics — Emmett

Afternoon (Additional MARS Topics)

User Supplied Routines — Cramer, Tang
Preparing User Routines — Cramer, Tang
Input, Biasing Parameter Details — Cramer, Tang

Evening

Conference Mixer and Reception

IF YOU CHANGE YOUR ADDRESS, please notify us (including Building and Room No. where needed). *Third Class Mail* is returned to us at our expense if the addressee has moved. If your mail is returned, your name will be deleted from our distributions until we hear from you.

Wednesday, June 19**Morning (JUNEBUG-II)**

Introduction to JUNEBUG-II — Emmett
 JUNEBUG-II Details — Emmett
 JUNEBUG-II Examples — Cramer, Tang
 Errors, Diagnostics — Emmett

Afternoon (Special MORSE Topics)

Multiplying & Critical Systems — Cramer
 Cross Section Preparation — R. W. Roussin
 Adjoint Calculations — Cramer, Tang

Thursday, June 20**Morning (Additional MORSE Features)**

DOMINO Coupling (MORSE-DOT) — Emmett, Cramer
 Albedo — Emmett, Cramer
 History Tapes — Emmett, Cramer
 Collision Density Plots — Emmett, Cramer
 Other Special Topics — All

Afternoon (Sample Problems)**Realistic Sample Cases — All**

The Workshop presentation team includes persons with considerable Monte Carlo and related experience.

Peggy Emmett, a member of the Computing and Telecommunications Division (C&TD), Martin Marietta Energy Systems, Inc. at Oak Ridge National Laboratory (ORNL), has been developing, maintaining, and applying the MORSE computer code system since its inception. Noel Cramer of the ORNL Engineering Physics and Mathematics Division has had extensive experience in developing and applying MORSE to a variety of radiation transport problems. Jabo Tang, C&TD at ORNL, has also had extensive experience in developing and applying MORSE and KENO to a variety of radiation transport problems. Robert W. Roussin, RSIC Director, has carried the lead for RSIC's cross section activities for many years.

Important SCALE Note

A special mailing has been made to collect feedback on SCALE usage and to alert known SCALE users to a possible problem with the 16-group data library. Included in the mailing, sent to known recipients of all versions of SCALE, are a "SCALE Code System Survey Form" and some notes titled "Comments on the Release of SCALE-3." The reader was asked to return the survey as soon as possible.

The "Comments," prepared by the SCALE developers, provides a history of the SCALE series and details the impact of the problem with the 16-group library. It stems from an inconsistency in the Bondarenko treatment of the 16-group library and may have a significant impact on some calculated results. The problem, which has been corrected for SCALE-3, exists in all prior versions: CCC-288A/SCALE-0 (IBM) and CCC-288B/SCALE-0 (CDC), CCC-424/SCALE-1, and CCC-

450/SCALE-2. Those planning to use one of these versions were urged to send a reel of magnetic tape to RSIC requesting the new 16-group library and necessary changes to the BONAMI module for that particular version of SCALE. Use of the above RSIC designations to identify your current version of SCALE was suggested.

The developers of SCALE, in addition to correcting the 16-group library Bondarenko treatment problem, have recently provided RSIC with the new version, CCC-466/SCALE-3. This newsletter contains instructions for ordering the new package in the section which covers changes to the computer codes collection.

We look forward to receiving the survey form from you. Your feedback will help enhance the utilization and development of the SCALE system and will be beneficial to the entire radiation transport community served by RSIC. SCALE users who did not receive the mailing should call or write to ask for it.

CHANGES TO THE COMPUTER CODE COLLECTION

During the month, three changes were made to the RSIC Computer Code Collection. Two hardware versions were added to an existing code package, a software update was made to an existing code package, and a previously packaged code system was replaced with new technology.

CCC-75/GGG

This multigroup gamma-ray kernel integration code system was extended to include an IBM 360/195 and a Perkin Elmer 3220 version. Radiation Research Associates, Inc., Ft. Worth, Texas contributed the new versions. Major variations in this version from the original G-3 program include altered techniques for mathematical geometry representation, buildup-factor computation, and radiation-source description. Geometric regions are defined for adaption of the FASTER geometry routines and buildup factors may be computed from input third-order polynomial coefficients. The most recent modification incorporated by Radiation Research Associates allows the treatment of multiple representative source points which may be isotropic or characterized by various anisotropic emission distributions. These recent modifications constitute increased program flexibility in comparison to previous versions in which source representation was restricted to the use of a single point-isotropic source. Reference: RRA-N7710. FORTRAN IV and Assembler language; IBM 360/370/391 and PERKIN ELMER 3220.

CCC-466/SCALE-3

The SCALE-2 modular code system for performing criticality, shielding, and heat transfer analyses of nuclear fuel facility and package designs has been replaced by a new version, SCALE-3. The contributor, Computing and Telecommunications Division of Martin Marietta Energy Systems, Inc., at Oak Ridge National Laboratory, has added several new modules to the system, updated many existing modules, and corrected errors existing in previous releases. The criticality

module, KENO V, has been replaced with KENO V.a which offers enhanced geometry capabilities and optional geometry printer plots. The plotting module, JUNEBUG, has been replaced with JUNEBUG-II which offers substantial improvement in run time and significantly reduces data storage requirements. Four new modules, REGPLOT6, HEATPLOT-S, PICTURE, and CESAR have been added to SCALE with this release. REGPLOT6 and HEATPLOT-S offer geometry and output plotting capability for HEATING6 analyses. PICTURE generates printer plots for MARS geometry input, and CESAR searches a data base containing input data for SCALE analysis of critical experiments. Major module changes are: (1) CSAS4 has been updated to improve the search options, provide for interfacing with KENO V.a, and provide two new analytical sequences; (2) HTAS1 has been updated to add geometry and output plot features; and (3) ORIGEN-S has been updated to provide improved calculation of the neutron source strength computation of neutron source spectra and generation of optional output files for subsequent use in plotting. Minor enhancements and/or error corrections have been added to the Materials Information Processor, the Standard Composition Library, MARS, MORSE-SGC, XSDRNPM-S, ICE-S, HEATING6, BONAMI-S, KENO IV, SAS2, the 16-group Hansen Roach data, the 123-group Gam-Thermos library, and the SCALE subroutine library. One 2400-ft reel of tape is sufficient for transmittal if the user can read 6250 bpi. If the tape must be

PSR-54/INTRIGUE-II

This logarithmic and semilogarithmic Calcomp plotting package was updated to remove the PLOTTER and PLOT 21 files from the package. Users are now instructed to use DISSPLA if it is available for plotting. Otherwise users are encouraged to request PSR-127/GOFRR or PSR-155/DOGS for plotting functions involved in INTRIGUE-II. IBM 360/370.

NEW LITERATURE AVAILABLE

Reactor Physics & Shielding Topical Proceedings

The Proceedings of the Topical Meeting on Reactor Physics and Shielding held in September 1984 in Chicago have now been published as CONF-840901, Vol. I and II (ISBN: 0-89448-113-4). The two volumes are available from the American Nuclear Society, 555 N. Kensington Ave., La Grange Park, IL 60525, order no. 700095 at \$75 a set.

Water Reactor Safety Meeting Proceedings

The 6-volume proceedings of the Twelfth Water Reactor Safety Research Information Meeting are now available. The meeting was held at the National Bureau of Standards, Gaithersburg, Maryland, October 22-26, 1984. The volumes provide a comprehensive review of the research issues in light-water reactor technology. A brief description of the volumes follows:

Volume 1 (\$8.50) — Plenary Session I; Integral System Tests; Separate Effects; International Programs in Thermal Hydraulics; Calculation of Appendix K Conservatism

Volume 2 (\$9.00) — Pressurized Thermal Shock; Code Assessment and Improvement; 2D/3D Research Program; Nuclear Plant Analyzer Program

Volume 3 (\$12.00) — Containment Systems Research; Fuel Systems Research; Accident Source Term Assessment; Japanese Industry Safety Research

Volume 4 (\$8.00) — Materials Engineering Research

Volume 5 (\$9.00) — Mechanical Engineering; Structural Engineering; Seismic Research; Process Control; Instrumentation and Control Program; Equipment Qualification and Nuclear Plant Aging

Volume 6 (\$9.50) — Plenary Session II; Human Factors and Safeguards Research; Health Effects and Radiation Protection; Risk Analysis; EPRI Safety Research

The proceedings volumes (NUREG/CP-0058, Vol. 1-6) are available for the above prices from GPO Sales Program, Division of Technical Information and Document Control, U.S. Nuclear Regulatory Commission, Washington, DC 20555, and from the National Technical Information Service, U.S. Dept. of Commerce, 5285 Port Royal Road, Springfield, VA 22161.

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.

Canada to Host 1986 CODATA

The *Tenth International CODATA Conference* is scheduled for July 14-17, 1986, at the Westin Hotel, Ottawa, Ontario, at the invitation of the National Research Council of Canada with the collaboration of the Royal Society of Canada and the Ontario Ministry of Industry and Trade. The conference is titled "The Computer Handling and Dissemination of Data," and is organized around a number of multi-disciplinary and discipline-oriented symposia in the area of scientific and technical data. Major themes will be: Computerized Databases — Technology and Management; Computer Techniques in Data and Systems Analysis; Numerical Information Systems in Material Science, Technology, and Industry; Numerical Information Processing in the Biosciences; Numerical Data Processing and Dissemination in the Geosciences; and Data Needs in Industry.

CODATA (Committee on Data for Science and Technology), an interdisciplinary committee of the International Council of Scientific Unions (ICSU), deals with data of importance to science and technology, quantitative data on properties and behavior of matter, quantitative data and characteristic values of biological, geological, and astronomical systems, and other experimental and observational values in all areas of science represented by the member Unions of ICSU. Many of its activities pertain to problems common to the various disciplines.

The call for papers has been issued. Users of data, as well as those involved in data compilation, evaluation, and handling, are invited to submit contributions on subjects within the scope of the conference. To facilitate discussion and interchange of ideas, all contributed papers will be presented as posters. In addition to the presentation of posters, workshops will be organized in which groups of related posters will be discussed with an appointed chairman after the sessions.

The title of the poster should be submitted as soon as possible to the Program Committee Chairman, Prof. C. B. Alcock, Dept. of Metallurgy and Materials Science, University of Toronto, Toronto, Canada, Ontario M5S

1A4, Canada. Abstracts will be required by **December 15, 1985**. Authors will be notified of acceptance before February 1, 1986, and will receive instructions for providing the full text for presentation.

Further information may be obtained from Lois Baignée, Executive Secretary CODATA '86, Conference Services, National Research Council of Canada, Montreal Road, Ottawa, Canada K1A 0R6.

Calendar

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

May 1985

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

International Conference on Nuclear Data for Basic and Applied Science, May 13-17, 1985, Santa Fe, New Mexico. Contact Phillip G. Young, Mail Stop B243, Los Alamos National Laboratory, Los Alamos, NM 87545 USA (phone 505-667-7670).

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

Telecommunications & Networking...Supplying the Missing Link, May 19-22, 1985, Fort Lauderdale, Florida, sponsored by the American Society for Information Science. Contact: Lawrence A. Woods, Technical Program Committee Chairman, 221 Memorial Library, Univ. of Notre Dame, Notre Dame, IN 46556.

5th Pacific Basin Nuclear Conference, May 19-23, 1985, Seoul, South Korea, sponsored by the Korean Atomic Industrial Forum, the Korean Nuclear Society, ANS, and others. Contact: Sun-Chang Kim, Meeting Chairman, Korea Electric Power Corp., CPO Box 6583, Seoul, Korea. In the U.S. contact James Sweeney, General Electric Co., 175 Curtner Ave., MC-87, San Jose, CA 95125 (phone 408-925-1037).

9th Symposium on Microdosimetry, May 20-24, 1985, Toulouse, France, sponsored by the Commission of the European Communities, Atomic Physics Centre, and Paul Sabatier University. Contact: J. Booz, Commission of the European Communities, DG XII/F/1, Rue de la Loi 200, B-1049 Brussels, Belgium.

6th Symposium on X- and Gamma-Ray Sources and Applications, May 21-23, 1985, Ann Arbor, Michigan. Contact: Martin A. Ludington, Dept. of Physics, Albion College, Albion, MI 49224 USA.

30th Annual Meeting of the Health Physics Society, May 26-31, 1985, Chicago. Contact: R. J. Burk, Jr., Health Physics Society, 4720 Montgomery Lane, Suite 506, Bethesda, MD 20014 USA.

June 1985

25th Annual International Conf. of the Canadian Nuclear Association and 6th Annual Conf. of the Canadian Nuclear

Society, June 2-5, 1985, Ottawa, Ontario, Canada. Contact: J. A. Weller, General Manager, Canadian Nuclear Association, 111 Elizabeth St., 11th Floor, Toronto, Ontario, Canada M5G 1P7.

Annual Meeting of the American Nuclear Society, June 9-14, 1985, Boston, Massachusetts. Contact: David G. Pettenigill, ANS Meeting Manager, American Nuclear Society, 555 North Kensington Ave., La Grange Park, IL 60535.

9th International Conference on Transport Theory, June 10-14, 1985, Montecatini Terme, Italy. Contact: Paul Nelson, Dept. of Mathematics, P.O. Box 4319, Texas Tech Univ., Lubbock, TX 79409 (phone 806-742-2566); those outside the U.S. may contact Prof. Vinicio Botti, Laboratorio Ingegneria Nucleare de Montecuccolino, Università degli Studi di Bologna, 40136 Bologna, Italy.

6th Annual Meeting of the Canadian Radiation Protection Association, June 11-13, 1985, Saint John, New Brunswick. Contact: John J. Paciga, New Brunswick Electric Power Commission, Health Physics Department, Point Lepreau Generating Station, P.O. Box 10, Lepreau, New Brunswick, Canada E0G 2H0 (phone 506-659-2102 ext. 324).

July 1985

22nd Annual Conference on Nuclear and Space Radiation Effects, July 22-24, 1985, Monterey, California, sponsored by the Institute of Electrical and Electronics Engineers, Inc. and cosponsored by the Defense Nuclear Agency, Sandia National Laboratories, and the Jet Propulsion Laboratory. Contact: Kenneth F. Galloway, B344 Tech, National Bureau of Standards, Washington, DC 20234 USA.

August 1985

Australian Radiation Protection Society Annual Meeting, August 19-21, 1985, Melbourne, Victoria, Australia. Contact: T. H. Gan, Australian Radiation Laboratory, Lower Plenty Road, Yallambie, Victoria 3085, Australia.

SMIRT-8, August 19-23, 1985, Brussels, Belgium. Contact: Sergio Finzi, CEC - Directorate Gen., X11-JRC, Brussels, Belgium.

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

International Seminar on Containment of Nuclear Reactors, August 26-27, 1985, Brussels, Belgium. Contact: Rolf Krieg, Inst. für Reaktorentwicklung, Kernforschungszentrum, Karlsruhe GmbH, Postfach 3640, D-7500 Karlsruhe 1, F. R. Germany or Algirdas H. Marchertas, Reactor Analysis and Safety Div., Argonne National Laboratory, Argonne, IL 60439 USA.

September 1985

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

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

International Seminar on Finite Element and Allied Methods for Reactor Physics and Shielding Calculations, September 18-20, 1985, London, England. Contact: A. J. H. Goddard, Mechanical Engr. Dept., Imperial College of Science and Technology, Exhibition Road, London SW7 2BX.

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

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

October 1985

Symposium on Organ Dosimetry for External Gamma and Neutron Radiations, October 22-24, 1985, Knoxville, Tenn., sponsored by the Oak Ridge National Laboratory. Contact: R. O. Chester, ORNL, P.O. Box X, Oak Ridge, TN 37831 (phone 615-574-2102, FTS 624-2102).

Computer Aided Methods in Radiation Protection, October 22-25, 1985, Budapest, Hungary. Contact: L. Koblinger, Central Research Institute for Physics, P.O. Box 49, H-1525 Budapest, Hungary (phone 699-499 ext. 14-95; Telex 22-47-22).

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

November 1985

Joint Meeting of the American Nuclear Society and the Atomic Industrial Forum, November 11-15, 1985, San Francisco. Contact: Meetings Dept., ANS, 555 North Kensington Ave., La Grange Park, IL 60525, or James R. Sasso, General Electric-MC-871, San Jose, CA 95125 (phone 408-925-1195).

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

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

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Maps of the area surrounding the Holiday Inn will be available at the registration desk. The maps will show you several fast food and shopping places in walking distance of the workshop site. The American Museum of Science and Energy is also within walking distance of this workshop site.

A group tour of Oak Ridge National Laboratory (ORNL) will be offered on Friday, June 21. I wish to participate in the tour. yes _____ no _____