RSIC Newsletter

OAK RIDGE NATIONAL LABORATORY
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FOR THE U.S. DEPARTMENT OF ENERGY

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It is always the adventurers who accomplish great things.—Montesquieu

LARGE ATTENDANCE EXPECTED FOR MORSE-CGA WORKSHOP IN JUNE

There have been many responses to previous *RSIC Newsletter* announcements about the MORSE-CGA Workshop being sponsored by RSIC in June. 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 technical program will cover the Monte Carlo computer code system, MORSE-CG, MARS geometry, input, user routines and plotting (JUNEBUG-II), special MORSE topics, and sample problem presentations.

The workshop will be held at the Holiday Inn, 420 S. Illinois Avenue, Oak Ridge, Tennessee 37830, USA, telephone 615-483-4371, where we have reserved a block of rooms for 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 was published in the April 1985 *RSIC Newsletter.*

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 since its inception. Noel Cramer of the Engineering Physics and Mathematics Division at ORNL 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.

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.

PERSONAL COMPUTER SURVEY

Last winter *RSIC Newsletter* readers were asked to complete a survey form giving us information concerning their use of personal computers (PCs). A total of 161 forms were returned representing about 10% of our readers. We would like to thank those who took the time to respond; it gives us a better picture of the use of PCs by shielding specialists.

Of the 161 responses, 3 reported no use. We suspect the nonusers are under represented, and we thank the 3 who responded for their cooperative spirit.

A total of 33 responses (20%) were foreign, which is reasonably consistent with the fraction of our foreign readers. Countries represented were: Japan (8), Canada (4), United Kingdom (3), Hungary (2), Fed. Rep. of Germany (2), Mexico (2), Argentina (1), Finland (1), India (1), Iran (1), Israel (1), Italy (1), Poland (1), Spain (1), Sweden (1), Turkey (1), and Venezuela (1).

We were not surprised that 53% of the respondents are using IBM PC/XT/AT, Compaq, or a similar clone. Other models represented are: Apple II (21), HP (9), DEC (8), Commodore (6), Zenith (6), NEC (4), TRS-80 (4), TI (3), Acorn (2), Kaypro (2), Apple MacIntosh (2), and 10 others with one each.

Approximately 55% indicated a desire to acquire personal computer programs for shielding calculations, dose assessment, or related purposes. Some mentioned specific codes in the RSIC collection. A number of others indicated varying interests such as numerical analysis or calculations outside our scope. About 10% indicated a willingness to share their programs within our scope or were developing programs that they intend to offer. We have high hopes of acquiring many of these programs.

At the present time, we have packaged and distributed only a few programs written for PCs, but these have proven to be quite popular. We write ASCII files on the requesters diskette using an IBM PC or TRS-80 Model 4. The TRS-80 has an optional CP/M operating system that can write almost any CP/M format. The master files are stored in ASCII code on the EPIC minicomputer. Both of our PCs use only 5.25-in disk drives.

Documentation has proven to be a problem for programs written for PCs; it is usually non-existent. A large document is not needed, but a basic explanation is required to get a user started. Sample problems are needed also. The dialog of a user session can be printed, and can be very helpful as part of the documentation.

We have had a number of requests for mainframe codes and data to be written on diskette. We are reluctant to do this since most packages are quite large and require many diskettes. It is best if the user can load the large RSIC codes or data files from tape to his own minicomputer or mainframe and then download to his own PC.

A number of survey comments were interesting. Some have found that it is more practical to return to the use of super minicomputers (such as the VAX). Another comment indicated that those who have developed personal computer applications will hold them proprietary for profit. We know that to some extent this is true, but we find that others are willing to share. It is clear that many useful programs are in use.

KENO-IV NOTE

Please note that KENO-IV free form reading routines have been found which interpret data incorrectly when it is entered as zero with an exponent. For example, data entered as 0.00-5 will be interpreted as -5.0×10^{-2}. The RSIC packages containing KENO-IV will not be updated to correct the error. The error does not occur in CSAS2.

CHANGES TO THE COMPUTER CODE COLLECTION

Eight changes were made to the computer code collection during the month. Two new code packages were added, four existing code packages were extended with additional hardware versions, and two code packages were updated to correct errors or improve the technology. Also note the correction to April's Newsletter which follows.

!!CODES ERRATUM!!

Due to an error in the typesetting program used for the newsletter, part of the announcement for **CCC-466/SCALE-3** (page 3) was left off the April *RSIC Newsletter*. The news item continues as follows:

One 2400-ft reel of tape is sufficient for transmittal if the user can read 6250 bpi. If the tape

must be written at 1600 bpi, four reels of tape are required. References: NUREG/CR-0200; ORNL/NUREG/CSD-2 Vols. I/R3, II/R2, and III/R2. FORTRAN IV; IBM 3033.

CCC-254/ANISN

This multigroup one-dimensional discrete ordinates transport code with anisotropic scattering was extended to include a DEC-20 version contributed by Goodyear Aerospace Corp., Litchfield Park, Arizona. This version has been designated (G). FORTRAN IV. IBM 360/370 (A), UNIVAC-1108 (B), CDC (C), TR440 (D), SIEMENS (E), PRIME (F), and DEC (G).

CCC-288/SCALE-0

This CDC SCALE-0 package designated CCC-288B, is being maintained for the convenience of CDC users and no longer corresponds in a one-to-one fashion to the IBM SCALE-0 package CCC-288A. Some significant corrections have been made to improve calculational results. Changes were made to the CSAS source, a later version of BONAMI was added, and libraries and COMPOZ data were revised. The changes and new version were supplied by Westinghouse Idaho Nuclear Company, Idaho Falls, and Oak Ridge National Laboratory. The present state of CSAS is described in the documentation. BONAMI was converted to CDC from SCALE2 IBM version and added to this CDC package and the 16-group Hansen-Roach data were modified (see the "Important SCALE Note" as published on page 2 of the April 1985 *RSIC Newsletter*). Several new materials were added to COMPOZ data and several elements were added to the isotope distribution table. In the 123-group library, the higher-order P_n coefficients were corrected for some nuclides. The 16-group criticality safety library was lifted from SCALE-3 (where the inconsistency in Bondarenko treatment had already been corrected, see April Newsletter) and installed in this CDC package. FORTRAN IV; CDC.

CCC-316/XOQDOQ-82

This code package for meteorological evaluation of routine effluent releases at nuclear power stations was extended to include a Data General MV/8000 converted from the IBM version by NRC/TDMC. FORTRAN IV; IBM 3033 (A) AND FORTRAN 77; DG MV/8000 (B).

CCC-462MICRO/NCRP49

This X-ray shield calculation code system was updated to make changes and was extended to accommodate an IBM PC version. The changes were suggested and the new version was contributed by the Rhode Island Department of Health and Radiation Control, Providence, and the U. S. Environmental Protection Agency, Region I, Boston, Massachusetts. The nature of the changes includes the ability to enter data in meters or feet; automatic calculation of the Pb equivalent of Type X gypsum board for small thicknesses of Pb; and improvements to speed up calculation of secondary barrier requirements via the Archer method [*Health Physics* **44**(5): 507-17 (1983)]. Reference: Informal Notes. BASIC; TRS-80 Model-II and -4 and IBM-PC.

CCC-468MICRO/LINEDOSE

This line source shielding code system for personal computers was contributed by Duquesne Light Company, Shippingport, Pennsylvania. It computes the gamma-ray dose from a pipe source modeled as a line. The pipe is assumed to be iron and has a concrete shield of arbitrary thickness. The calculation is made for eight source energies between 0.1 and 3.5 MeV. The Rockwell method is used to find the equivalent line source for the pipe whose parameters are determined by interactive input. A point kernel integration using a Berger fit buildup factor is employed. Reference: Informal Notes. IBM PC; TRS-80, Model 4.

PSR-197/METD

This computer code system for use with meteorological data was extended to include a Data General MV/8000 version converted from the IBM version by NRC/TDMC. FORTRAN IV; IBM 3033 (A) AND FORTRAN 77; DG MV/8000 (B).

PSR-206/TRANSX-CTR

This code for interfacing MATXS cross-section libraries to nuclear transport codes for fusion systems analysis was updated with material supplied by Los Alamos National Laboratory to correct an error in adjoint output, to fix a problem spatial collapsing with flux input from cards, to add some error messages and to fix some format statements.

The package has an auxiliary routine, CCC, which allows the user to extract a particular hardware version. Several sample problem input and output data are provided that demonstrate the use of TRANSX-CTR libraries in MATXS format. The latter are packaged separately as part of the data library collection. Reference: LA-9663-MS. FORTRAN 77; CDC, CRAY, IBM, VAX.

PSR-210/SCOPE

This code system for shipping cask optimization and parametric evaluation was contributed by Computing and Telecommunications Division, Martin Marietta Energy Systems, Inc. at the Oak Ridge National Laboratory. Given as input pretabulated values of the neutron and gamma-ray shield thicknesses, the decay heat load imposed by the spent fuel, and other mechanical design constraints such as the thicknesses of the various steel shells and the maximum allowable weight, the code will calculate the steady-state and transient temperature distribution in a cask before, during, and after a postulated 30-minute fire and/or the number of waste canisters that may be shipped in a given type of cask (Pb, Fe, or U metal) subject to certain constraints on the maximum allowable. Accompanying documentation includes tabulated values of optimized neutron and gamma-ray shield thicknesses for various types of casks containing 1-, 2-, 3-, 5-, 7-, or 10-year-cooled PWR spent fuel. It also includes multigroup (22n-18g) neutron/gamma-ray radiation source terms and decay heat rates for both PWR and BWR spent fuel. Reference: ORNL/CSD/TM-149, TTC-0316. FORTRAN IV; IBM 3033.

CHANGES TO THE DATA LIBRARY COLLECTION

During the month a new data library, contributed by Bulgaria, was added to the data library collection and an existing data library was updated.

DLC-55/RECOIL

This data library package of multigroup primary recoil spectra, displacement rates and gas-production rates for radiation damage studies was updated to make minor changes in the source program which enabled compilation on the Q source compiler and made the package compatible with the IBM-3033 computer. This update material was supplied by Oak Ridge National Laboratory. It does not affect current users.

DLC-112/L26P3S34

This 26-neutron-group P_3 library prepared using SUPERTOG-LTT for 34 materials was contributed by the Bulgarian Academy of Sciences, Sofia. SUPERTOG-LTT computes the average scattering cross sections for given energy groups as well as the P_n-matrices of elastic, inelastic and (n,2n) scattering. SUPERTOG-LTT converts the evaluated data of the Livermore Evaluated Nuclear Data Library (1975) into multigroup constants by handling elastic-scattering anisotropy data in the form of tabulated values of the probability-density function rather than Legendre expansion. The materials included in the library are: H, ^{6}Li, ^{7}Li, ^{10}B, ^{11}B, ^{12}C, N, O, ^{59}Co, ^{93}Nb, Zr, Sn, He, F, Mg, Al, Si, Cl, Cr, Mn, Fe, Ni, Cu, Mo, ^{181}Ta, Pb, ^{235}U, ^{239}Pu, ^{240}Pu, Ar, Ti, ^{31}P, ^{32}S, Ba. Reference: INDC(BUL)-007/GV. FORTRAN IV; IBM.

PERSONAL ITEMS

In serving a specialized area of scientific endeavor, it seems important that we take note of the movement 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.

Wagner Honored by ANS M&C Division

For his important role in the development and application of advanced computational methods for the analysis of nuclear reactors, Mannfred Wagner was presented with the Distinguished Service Award and a check for $500 by the M&C Division of the American Nuclear Society (ANS).

Wagner's work in the early 1970s led to the development of Nodal Collision Probability Method and the Nodal Synthesis Method and helped lay the groundwork for the rapid development of the present class of consistently-formulated nodal methods. The Nodal Collision Probability Method (presented in 1972) was probably the first successful effort to formulate a fast-running transport-theory capability for global reactor calculations in three space dimensions. The Nodal Synthesis Method (two years later) used coupling coefficients iteratively regenerated via one-dimensional channel calculations to compute multidimensional diffusion-theory solutions, an idea which led naturally to the transverse-integration procedure common to nearly all present nodal diffusion methods. Certainly one of the best known of the present nodal diffusion methods is the Nodal Expansion Method developed by Wagner and his colleagues at Kraftwerk Union, and today this method forms the cornerstone of the advanced reactor analysis system at Kraftwerk Union. Wagner was the first (1979 M&C Topical, Williamsburg, Virginia) to apply similar ideas to the solution of the neutron transport equation. As evidence of the duration of his contributions, it is of interest to note that this Nodal Discrete Ordinates Methods uses a marching technique developed by Wagner in a paper published in Nukleonik in 1961. He authored two very valuable invited review papers at the 1975 and 1983 M&C Topical Meetings, the latter co-authored with K. Koebke. The value of his contributions to the development of advanced computational methods can be measured not only the extent to which these methods presently are used in the analysis of light-water reactors, but by the extent to which his research has inspired and influenced that of other workers in this field.

Ahmed Badruzzaman was the recipient of the Best Paper Award and a check for $200 at the recently held ANS M&C Division Topical Meeting for his poster entitled "A Three-Dimensional Radiation Transport Problem in Well-Logging." The Best Paper Award in the student division was presented to **Yoichi Watanabe** for his paper entitled "The DC_N–S_N Hybrid Method for Neutron Transport Calculations in R-Z Geometry." His advisor in this effort was *C. W. Maynard*, Univ. of Wisconsin, Madison. The award was presented with a check for $300. Second place and a check for $200 in the student division went to **Y. Y. Azmy**, whose advisor was *J. J. Dorning*, University of Virginia.

Visitors to RSIC

During the month the following persons came for an orientation visit and/or to use RSIC facilities: *Rouzaud Philippe, Gerard Dejonghe, Zarko Stankovski, Richard Sanchez, Jean Gonnord, Alain Kavenoky,* and *Jean Claude Gauthier,* from CEA, France; *Udo Schütt,* NUKEM, Hanau, Fed. Rep. of Germany; *Jerry Barry,* Australian Atomic Energy Commission, Lucas Heights; *Herbert Rief,* Commission of European Communities, Joint Research Center, Ispra, Italy; *Mike Sohn, Judi Briesmeister, John S. Hendricks, Jim T. West,* and *Edward C. Snow,* Los Alamos National Laboratory, New Mexico; and *Maximo S. Lazo,* Chemical and Nuclear Engineering Dept., University of New Mexico.

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.

ANS-Sponsored Topical Meetings

Advances in Fuel Management

A topical meeting, "Advances in Fuel Management," is planned for March 2–5, 1986, at the Pinehurst Hotel and Country Club in North Carolina. Meeting cosponsors include the ANS division of Fuel Cycle and Waste Management and Reactor Physics and the Eastern Carolinas Section, the Canadian Nuclear Society, and the Electric Power Research Institute (EPRI). The General Chairman is Al Watson of Carolina Power and Light Co., and Technical Program Chairman is Paul Turinsky of North Carolina State University. The Technical Program Committee has identified 13 technical sessions, with most emphasizing water reactors' fuel management, and one session devoted to advanced reactor systems. The "Call for Papers" will appear in the May 1985 issue of *Nuclear News.*

Advances in Reactor Physics and Safety

The ANS Northeastern New York Section of the ANS is planning a topical meeting on "Advances in Reactor Physics and Safety" for September 17–19, 1986, at Saratoga Springs, New York. Cosponsors include the ANS divisions of Reactor Physics and Nuclear Safety. The scope of the meeting will cover the area of advances in reactor physics and safety with a focus on topics of

mutual interest. Preliminary plans include the following sessions: Current Challenges in Reactor Physics and Safety (plenary); Pressure Vessel Embrittlement; Safety Limits and Core Instrumentation; Physics and Safety of Advanced Reactor Concepts; Point and Space-Time Core Models for Transient Analysis; Improvement and Validation of Plant Simulation Codes; Nuclear Plant Analyzers; Modeling of Degraded Cores; Safety Aspects of Core Design; and Advances in Reactor Physics and Safety.

The general chairman is Norman Francis (518-393-6611 Ext. 7011) of Knolls Atomic Power Laboratory, Schenectady, New York, and the program chairman is Donald Harris (518-270-6407) of Rensselaer Polytechnic Institute, Troy, New York. The meeting will be held at the Ramada Renaissance Hotel in Saratoga Springs.

Winter Meeting RP&S Special Sessions

The ANS Radiation Protection and Shielding Division (RP&S) will hold two special sessions at the Winter Meeting in November 1985 in San Francisco; "Current Problems Associated with Post-Accident Radiation Monitoring," organized by J. Johnson, Sargent and Lundy, Chicago, and "Approximate Calculated Techniques for Radiation Protection Applications," organized by J. Celnik, Stone & Webster, New York. For the latter session, papers about well-benchmarked, approximate, easy-to-use, fast methods that provide reasonable answers are being sought. Those interested in contributing a paper should contact the session organizer.

HPS to Hold ALARA Session in Annual Meeting

A special technical session on ALARA Engineering will be held during the annual meeting of the Health Physics Society, May 26–31, 1985, in Chicago. The session will be held at the Palmer House on May 30, with R. E. Alexander, NRC, and J. W. Baum, Brookhaven National Laboratory, acting as co-chairmen. Further information may be obtained from R. E. Alexander, 13131 Maltese Lane, Fairfax, VA 22033 (phone 301-427-4370).

Calendar

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

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. Pettengill, 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, Montectine 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, Universita 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 Phyics Department, Point Lepreau Generating Station, P.O. Box 10, Lepreau, New Brunswick, Canada E0G 2H0 (phone 506-659-2102 ext. 324).

Solutions to Nuclear Transportation Issues, June 16–19, 1985, Monterey, California, sponsored by the Atomic Industrial Forum, Inc. Contact: Conference Office, AIF, 7101 Wisconsin Ave., Bethesda, MD 20814-4805 (phone 301-654-9260).

Technical Committee on Guidance for the Optimization of Radiation Protection in the Transport of Radioactive Materials, June 17–21, 1985, Vienna, Austria, sponsored by the International Atomic Energy Agency, Contact: R. B. Pope, Division of Nuclear Safety, IAEA, P.O. Box 100, A-1400 Vienna, Austria.

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

22nd Nuclear Accident Dosimetry Intercomparison Study, August 9–13, 1985, Oak Ridge, Tennessee, sponsored by the Oak Ridge National Laboratory. Contact: C. S. Sims, ORNL, Bldg. 7710, P.O. Box X, Oak Ridge, TN 37831 (phone 615-574-5851).

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.

Occupational and Environmental Radiation Protection, August 19–23, 1985, Boston, Massachusetts, sponsored by the Harvard School of Public Health, OFfice of Continuing Education. Contact: Office of Continuing Education, Harvard School of Public Health, 677 Huntington Ave., Boston, MA 02115 (phone 617-732-1171).

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. fur Reaktorentwicklung, Kernforschungsentrum, 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

17th Japan Conference on Radiation and Radioisotopes, September 2–4, 1985, Tokyo, sponsored the the Japan Atomic Industrial Forum, Inc. Contact: Section for Industrial Programs and Technology, Japan Atomic Industrial Forums, Inc., Toshin Bldg., 1-13 Shimbashi, 1-chome, Minato-ku, Tokyo 105, Japan.

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).

3rd International Symposium on Radiation Physics (ISRP-3), September 30–October 4, 1985, Ferrara, Italy. Contact: ISRP-3 OC Chairman, Istituto de Fisica Generale dell 'Università de Ferrara, Via Paradiso 12, I-44100 Ferrara, Italy.

October 1985

Meeting on Nuclear Data, Cross Section Libraries and Application in Nuclear Energy, October 1–2, 1985, Bonn, Fed. Rep. of Germany, sponsored by the German Nuclear Technology Society and the European Nuclear Society. Contact: Dieter Emendörfer, Stuttgart University (IKE), Pfaffenwaldring 31, D-7000 Stuttgart 80, Fed. Rep. of Germany.

18th Annucal Meeting of the Radiation Protection Association: Population Radiation Exposure, October 6–10, 1985, Luebeck-Travemuende, Fed. Rep. of Germany. Contact: Dipl.-Phys. K. Henning, GKSS-Forschungszentrum, Geesthacht GmbH, Postfach 1160, D-2054 Geesthacht, Fed. Rep. of Germany.

3rd International Conference on Nuclear Technology Transfer, October 14–19, 1985, Madrid, Spain, sponsored by the Spanish Nuclear Society, the American Nuclear Society, and the European Nuclear Society. Contact: Myron Kratzer, International Energy Associates, Suite 600-600, New Hampshire Ave., Washington, DC 20036 (phone 202-342-6752) or Pierre Grau, Framatome, Tour Fiat, CEDEX 16, 92084 Paris, France (phone 796 04 06).

Technical Committee on the Assessment of the Radiological Impact from the Transport of Radioactive Materials, October 21–25, 1985, Vienna, Austria, sponsored by the International Atomic Energy Agency. Contact: R. B. Pope, Division of Nuclear Safety, IAEA, P.O. Box 100, A-1400 Vienna, Austria.

3rd International Topical Meeting on Reactor Thermal Hydraulics, October 15–18, 1985, Newport, Rhode Island, sponsored by the ANS, American Society of Mechanical Engineers, and the American Institute of Chemical Engineers. Contact: 3rd Internatl. Top. Meeting on Reactor Thermal Hydraulics, c/o H. Shaffer, 1671 Worcester Road, Framingham, MA 01701 USA.

12th Annual Meeting and International Conference on Nuclear Energy, October 20–23, 1985, Boston, Massachusetts, sponsored by the World Nuclear Fuel Market. Contact: Donna P. Cason, Administrative Director, WNFM, 5720 Peachtree Parkway, Norcross, GA 30092 (phone 404-447-1144).

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).

Nuclear Science Symposium, October 23–25, 1985, San Francisco, California, sponsored by the Inst. for Electrical and Electronics Engineers. Contact: R. S. Larsen, Stanford Linear Accelerator Center, Stanford Univ., P.O. Box 4349, Stanford, CA 94305 (phone 415-854-9300 ext. 2726; FTS 461-9300 ext. 2726).

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).

Technical Committee on Procedures for Assessing the Reliability of Transfer Models, November 18–22, 1985, Vienna, Austria, sponsored by the International Atomic Energy Agency. Contact: I. Savolainen, Division of Nuclear Fuel Cycle, IAEA, P.O. Box 100, A-1400 Vienna, Austria.

1st International Conference on Fusion Reactor Materials, November 19–22, 1985, Tokyo, Japan. Contact: R. R. Hasiguti, Science University of Tokyo, Kagurazaka, Shinjuku-ku, Tokyo, Japan 162.

December 1985

Technical Committee on Computer Codes in Fusion Research, December 3–5, 1985, Lausanne, Switzerland, sponsored by the International Atomic Energy Agency. Contact: M. Leiser, Head, Physics Section, Division of Research and Laboratories, IAEA, P.O. Box 100, A-1400 Vienna, Austria.

APRIL 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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