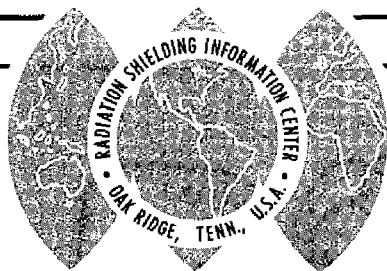


RSIC Newsletter



RADIATION SHIELDING INFORMATION CENTER

OAK RIDGE NATIONAL LABORATORY

OPERATED BY UNION CARBIDE CORPORATION • FOR THE U.S. ATOMIC ENERGY COMMISSION

POST OFFICE BOX X •
OAK RIDGE, TENNESSEE 37831

No. 68

July 1970

*Ignorance is preferable to error;
and he is less remote from the truth
who believes nothing
than he who believes what is wrong.*

- Thomas Jefferson

RSIC MONTE CARLO SEMINAR-WORKSHOP AT OAK RIDGE, OCTOBER 5-7, 1970

Plans are being made by RSIC for a seminar-workshop on "Monte Carlo Methods and Computer Codes for Radiation Transport in Shielding Applications" to be held October 5-7, 1970, in Oak Ridge. Approximately 1½ days will be devoted to contributed papers on recent Monte Carlo developments, especially in the areas of adjoint calculations, energy-group treatment, coupled neutron-gamma-ray calculations, time dependence, and 3-D geometry. If you wish to contribute a paper, please submit the title and abstract to RSIC by August 15. Contributors will be expected to provide a photo-ready manuscript summary on October 5 which should be about 300-500 words in length (not counting graphs, tables, or references). The papers will be published in the proceedings to be printed as soon as possible following the conference.

The remaining time will be devoted to a workshop featuring the ANTE 2 code, developed by Mathematical Applications Group, Inc. (MAGI), and the MORSE code, developed by Oak Ridge National Laboratory, Neutron Physics Division.

Information on the MORSE and ANTE 2 codes is given in the June Newsletter and is also available from RSIC upon request.

Those planning to attend the conference should notify RSIC by September 1, 1970. Further information will be sent to those planning to attend.



ACCELERATOR AND SPACE RADIATION CONFERENCE
TO BE HELD IN GENEVA IN 1971

The Organizing Committee has announced the International Congress on Protection Against Accelerator and Space Radiation to take place April 26-30, 1971 at CERN-Meyrin, Geneva, Switzerland. The conference is organized jointly by the Société Française de Radioprotection and the Fachverband für Strahlenschutz in collaboration with CERN.

Subjects treated at the conference will include problems relevant to the design, installation, and operation of accelerators from the point of view of basic dosimetry, radiobiology, and radiation protection, applied to the evaluation of the danger of accelerator-produced radiations. Similar topics concerned with protection against space radiations will also be covered.

Inquiries or requests for further information should be sent to Scientific Conference Secretariat, (E.W.D. Steel), CERN, 1211 Geneva 23, Switzerland.

ADDITIONS TO THE COMPUTER CODE COLLECTION

- CCC-131/ANTE 2* Monte Carlo Code for the Solution of the Adjoint Neutron Transport Equation. Contributor: MAGI, White Plains, N. Y. Reference: DASA 2396. A CDC 6600 version is packaged; programming language - FORTRAN IV. May be transmitted on one reel of magnetic tape.
- CCC-132/ATTOW* Multigroup, Two-Dimensional Spinney Removal-Diffusion Shielding Code, contributed by the UKAEA Reactor Group, HQ, Risley, Warrington, Lancs., England. This version is operable on the IBM 7090, was tested and packaged by the ENEA Computer Programme Library, Ispra, Italy. It may be transmitted on one reel of magnetic tape. Reference: TRG-1466 (R).
- CCC-133/UNC-SAM 3* Monte Carlo Three-Dimensional Complex Geometry Shielding Code System with ENDT, contributed by United Nuclear Corporation, Elmsford, N. Y. The packaged version of UNC-SAM 3 and ENDT is written in FORTRAN IV and is operable only on CDC computers. One reel of magnetic tape is required for code transmittal. References: UNC-5157 and Supplement, and UNC-5243.
- CCC-134/2DBS* Two-Dimensional Multigroup Neutron Diffusion Shielding Code, contributed by Battelle Memorial Institute Pacific Northwest Laboratories, Richland, Washington. Programming is in FORTRAN IV and packaged version is operable on the UNIVAC 1108 computer. One reel of tape may be used for transmittal. Reference: BNWL-1291.
- CCC-135/GAMMON* Gamma Ray Moments Method Codes. Packaged: an elementary FORTRAN routine for evaluating coefficient-moments contributed by the Center for Radiation Research, National Bureau of Standards, Washington, D.C. and SPENCER, a FORTRAN program to approximately reconstitute a one-dimensional function for a finite number of its moments, contributed by Atomic International. References: informal notes and NAA-SR-MEMO-11653. FORTRAN IV for the IBM 360. SPENCER is operable also on the CDC 1604. One reel of tape required.
- CCC-136/COLLIMATOR* Monte Carlo Calculation of the Spectrum of Gamma Radiation from a Collimated Co-60 Source, contributed by the Nuclear Engineering Department, University of Illinois, Urbana, Illinois. FORTRAN IV and MAP for the IBM 7090. May be transmitted on one reel of tape.

- CCC-137/RIBD* Radio Isotope Buildup and Decay Code and Fast Reactor Library of Data, contributed by Battelle Memorial Institute Pacific Northwest Laboratories, Richland, Washington. References: BNWL-962, DUN-4136, and RL-NRD-610. FORTRAN IV for IBM and UNIVAC computers. May be transmitted on one reel of tape.
- CCC-138/PIGG* A Multigroup One-Dimensional P-1 Radiation Transport Code, contributed by AB Atomenergi, Kjeller, Norway, and the ENEA Computer Programme Library, Ispra, Italy. Packaged version is coded in FORTRAN 63 for the CDC 3600 computer. PIGG is similar to the PLMG with some significantly new features. It may be transmitted on one reel of tape.
- CCC-139/CONSTRIP V* Vertical Barrier - Finite Source Plane Gamma-Ray Penetration Code, contributed by the Research Triangle Institute, Research Triangle Park, N. C. References: RTI OU-266 and RTI OU-333. CONSTRIP V is an extensive modification of the NBS code, CONSTRIP, used in OCD programs. Written in FORTRAN IV for the IBM 360, May be transmitted on one reel of tape.
- CCC-141/RAC* Spinney Removal-Diffusion Code, Attenuation and Heat Generation in a Multiregion Shield, contributed by JAERI Shielding Codes Group through the ENEA Computer Programme Library, Ispra, Italy. The packaged version is written in FORTRAN IV and is operable on the IBM 360.
- CCC-142/MERCURE 3* Kernel Integration Code - Straight-Line Attenuation in a Three-Dimensional Geometry, contributed by CEA/CEN Fontenay-aux-Roses Nuclear Research Center. Reference: CEA-R-3264, ORNL-tr-1812. The code was written in FORTRAN IV for the IBM 7094, and is also operable on the IBM 360. It may be transmitted on one reel of magnetic tape.

VISITORS TO RSIC

Visitors to RSIC during the month of June were: R. N. Chanda, Dow Chemical Co., Rocky Flats Div., Golden, Colo.; James S. Creswell, TVA, Chattanooga, Tenn.; Marvin E. Donaldson, Kaman Nuclear, Colorado Springs, Colo.; Manuel Feliciano, Jr., Math Div., ORNL; Ernest F. Plechaty, Lawrence Radiation Laboratory, Livermore, Calif.; Makoto Akanuma, ENEA Computer Programme Library, Ispra, Italy; F. A. R. Schmidt, Institut für Kernenergetik, Stuttgart, Germany.

JUNE ACCESSION LIST OF LITERATURE

The RSIC is now aware of the literature cited in the following list. This literature has either been obtained by RSIC or has been placed on order. When received, this material will be examined and assigned to various files if suitable for our information system. The accession list is divided into three fields (1) reactor and weapons shielding, (2) space and accelerator shielding, and (3) shielding computer codes. These titles are announced before processing and indexing so that there will be no delay and can serve as a prompt announcement of current literature.

RSIC is not a documentation center. Copies of the literature cited must generally be obtained from the author or from a documentation center such as the Clearinghouse for Federal Scientific and Technical Information, Springfield, Virginia 22151.

RSIC maintains a microfiche file of literature entered into its information system. Computer searches of this system (which produces a special bibliography) and duplicate microfiche copies of the literature in our file are available upon request. Naturally, we cannot supply copies of literature which is copyrighted (such as books or journal articles) or whose distribution is restricted. Neither service is available for the codes literature.

REACTOR AND WEAPONS SHIELDING

AAEC/TM-529

January 1970

The Application of Chandrasekhar's Method to Deep Penetration Problems
B. E. Clancy
Available: Australian Atomic Energy Commission, Research Establishment, Lucas Heights

AECL-3423

September 1969

Calculations of Flux Spectra and Energy Deposition for Fast Neutrons
K. K. Mehta, P. R. Kry
Available: Scientific Document Distribution Office, Atomic Energy of Canada Limited, Chalk River, Ontario \$2.50 per copy

AERE-R-6115

July 1969

A Lead-Shielded Cell for the Analysis of Alpha, Beta, Gamma Active Materials
G. W. C. Milner, A. J. Wood, A. J. Fudge
Available: CFSTI as N70-19833

- AFRI TN68-2 *February 1968*
Neutron Activation of Portland Cements
F. E. Penaranda
Available: Armed Forces Radiobiology Research Institute, Defense
Atomic Support Agency, Bethesda, Md.
- AFWL-TR-69-116 (AD-701066) *December 1969*
Experimental Tests of Shielding Codes
A. E. Profio
Available: CFSTI
- BNL-50186 *April 1969*
Radionuclide Generators: Past, Present, and Future
L. G. Stang, Jr.
- BNWL-1339 *April 1970*
Activation and Shielding of FTR Sodium
C. A. Mansius
Available: CFSTI
- BNWL-1333 *April 1970*
FFTF Shielding Program
- DASA-1892-5 *June 1970*
Weapons Radiation Shielding Handbook. Chapter 2. Basic Concepts
of Radiation Shielding Analysis
P. N. Stevens, H. C. Claiborne
Available: CFSTI
- DESY-70/5 *February 1970*
Neutron Dosimetry in the Energy Range Between 10 and 100 MeV
K. Tesch
Available: DESY, Bibliothek, 2 Hamburg 52, Notkestieg 1, Germany
- FTD-MT-24-243-69 (AD-703059) *December 1969*
Modern Trends in the Investigation of Nuclear Reactor Shielding.
S. G. Tsypin
Available: CFSTI
- FSTC-HT-23-485-68 *February 1970*
Gamma Radiation Build-Up Factors for Finite Media
V. A. Klimanov, V. P. Mashkovich, Yu. N. Podsevalov
Available: CFSTI as AD-703399

- FSTC-HT-400-68 (AD-852138) (*Translation of Russian Book*) 1967
Small Scale Reactor Shielding
D. L. Broder
Available: CFSTI
- GA-9950 *March 17, 1970*
Neutron Scattering Kernels Calculations at Epithermal Energies
G. M. Borgonovi
Available: Dep., CFSTI
- GEMP-742 *December 1969*
Analysis of EBR-II Neutron Spectra by Monte Carlo and Discrete
Ordinates Methods
W. E. Edwards, W. B. Henderson, N. R. Baumgardt
Available: CFSTI
- JUL-634-MA (*In German*) *December 1969*
Solution of the Stationary Neutron Transport Equation with
Spherical Symmetry
W. Hanke, E. Horlitz, W. Petry
Available: Dep., CFSTI (U.S. Sales Only)
- ORNL-TM-2564 *June 12, 1970*
Kerma Factors and Secondary Gamma-Ray Sources for Some Elements
of Interest in Thermonuclear Blanket Assemblies
J. J. Ritts, M. Solomito, D. Steiner
- ORNL-TM-2781 *May 7, 1970*
Time-Dependent Neutron and Secondary Gamma-Ray Transport in
Infinite Air and in Air Over Ground
E. A. Straker
- ORNL-TM-2822 *May 1970*
Preliminary Appraisal of the Hazards Problems of a D-T Fusion
Reactor Power Plant
A. P. Fraas, H. Postma
Available: Dep., CFSTI
- ORNL-TM-2958 *April 15, 1970*
A Monoenergetic 6130-keV Gamma-Ray Source for Detector Calibration
J. K. Dickens, R. D. Baybarz
- ORNL-TM-2991 *May 22, 1970*
The Calculation of Neutron-Induced Physical Doses in Human Tissues
J. J. Ritts, M. Solomito, P. N. Stevens

- ORNL-TR-2309 (CONF-691192-5) November 1969
Behavior of Concrete in the Presence of Thermal Stresses and
Radiation. Report No. 7
E. Crispino, S. Granata, P. Risoluti
(Translated from the 2nd Conf. on Prestressed Concrete Reactor Vessels
and their Thermal Insulation, Brussels, Belgium, Nov. 18-20, 1969)
Available: Dep., CFSTI
- ORNL-TR-2319 (Kernenergie, 12, 390-394 (1969)
(In German)
Radiation Shielding of Cylindrical Self-Absorbing Source in the
Axial Direction
F. W. Kruger, P. Seeligmann
- RRA-M701 June 1970
Differential Measurements of Fast-Neutron Air-Ground Interface Effects
R. L. French, L. G. Mooney
Available: Radiation Research Associates, Inc., 3550 Hulen St.,
Fort Worth, Texas 76107
- SC-DC-68-2229 May 13-17, 1968
Studies in Radiation Risk Criteria for SNAP Systems
R. J. Everett, M. A. Parsont
(Presented at the American Industrial Hygiene Conf., St. Louis, Mo.)
Available: CFSTI
- TID-20893 (Rev. 3) December 1969
Standard Nuclear Instrument Modules
L. Costrell
Available: Supt. of Documents, U.S. GPO, Washington, D. C. 20402
Price \$0.40
- TID-25375 September 3, 1965
Oak Ridge Associated Universities Health Physics Manual
Oak Ridge Associated Universities, Inc., Oak Ridge, Tenn.
- UCRL-50174 (Sec. 1) January 1970
Compilation of X-Ray Cross Sections. Section I.
W. H. McMaster, N. K. DelGrande, J. H. Mallett, J. H. Hubbell
Available: Dep., CFSTI
- UCRL-50810 February 1970
Four-Parameter Measurements of Delayed Gamma Rays from Spontaneous
Fission of Cf-252
F. W. Guy
(Thesis - Calif. Univ., Livermore, Lawrence Radiation Lab.)
Available: Dept., CFSTI

J. T. Daley

Nucl. Instr. Methods, 80(2), 325-332 (1970)

A Monte Carlo Technique for Correcting Experimental Fast-Neutron
Polarization Data

T. G. Miller, F. P. Gibson, G. W. Morrison

Nucl. Sci. Eng., 40(3), 478-483 (June 1970)

Use of Gauss-Laguerre Numerical Integration for Point Kernel Shield-
ing Calculations. (Tech. Notes)

P. C. Cochrane, D. W. Mesh

Nucl. Sci. Eng., 40(3), 487-488 (June 1970)

Photon Cross Sections of Uranium and Plutonium. (Tech. Notes)

H. F. Atwater

Nucl. Sci. Eng., 40(3), 485-486 (June 1970)

(ORNL-4457)

The Absolute Spectrum of Photons Emitted in Coincidence with
Thermal-Neutron Fission of Uranium-235.

R. W. Peelle, F. C. Maienschein

Phys. Med. Biol., 14, 615-26 (Oct. 1969)

Specific Absorbed Fractions for Photon Point Sources Within a
Scattering Medium

W. H. Ellett

