RSIC Newsletter

RADIATION SHIELDING INFORMATION CENTER

OAK RIDGE NATIONAL LABORATORY

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

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RSIC DISTRIBUTION LIST CLASSIFIED

The distribution list of the RSIC has been recently divided into four classes. The first three classes consist of names of individuals who wish to receive information from RSIC related to (1) reactor and weapons shielding, (2) space and accelerator shielding, and (3) shielding computer codes. The fourth class consists of those interested in the RSIC newsletter only. Many names have been placed in more than one class. The RSIC recently sent a form to the distribution list requesting individuals to make this classification. Those who did not return the form have been classified by RSIC; therefore, if the non-respondents wish to clarify their classification, they should notify the Center.

The first class mentioned above will automatically receive RSIC reports, bibliographies, etc. relating to reactor and weapons shielding, and the RSIC newsletters, and may participate in the RSIC selective dissemination program in that field. The second class will likewise automatically receive RSIC information related to that field and the RSIC newsletter, and will soon be invited to participate in the forthcoming selective dissemination program in the field of space and accelerator shielding. The third class will automatically receive the newsletter and information relating to computer codes written for shielding calculations. The fourth class obviously will receive only the newsletter automatically.

Any individual may by special request receive information relating to a class of which he is not a member.

CHANGES IN RSIC COMPUTER CODE PACKAGES

Three RSIC computer code packages have recently been modified or corrected, or have had additions made to them. The changes were made in the packages CCC-1, CCC-10, and CCC-16 and are described below.

CCC-1/14-0

A few instructions have been added to CCC-1/14-0 which allow the receiver point and calculated dose rates to appear on the same page of the output. Stanton T. Friedman, Allison Division, GMC, Indianapolis, Indiana, made this modification. A binary card is available to those who are interested.

CCC-10/C-18

M. B. Wells, Radiation Research Associates, Inc., Fort Worth, Texas, has added five routines to the code package CCC-10/C-18. Written in FORTRAN, the auxiliary routines give assistance in preparing data for input, and do additional analyses of output from C-18. Detailed descriptions will be given later in an abstract of the CCC-10 package.

CCC-16/18-0

During a recent period of intensive use of the CCC-16/18-0 code package by the contributors, GE-NMPO, Cincinnati, several errors were uncovered and corrected. John P. Yalch forwarded to the Center corrections to the 18-0 main code and to the auxiliary routines 20-0 and 20-7. Symbolic listings and binary cards are available from RSIC.

Information and material relating to these changes may be obtained from RSIC. (Telephone no. 615-483-8611, ext. 3-6944 or FTS telephone no. 615-483-6944.)

MARCH ACCESSION LIST OF LITERATURE

The following accession list consists of literature which the RSIC obtained through its usual scanning procedures. This literature will be examined for assignment to various files or for possible rejection. The accession list is divided into the three fields of (1) reactor and weapons shielding, (2) space and accelerator shielding, and (3) shielding computer codes.

Reactor and Weapons Shielding

CEX-63.3

Barrier Attenuation of Air-Scattered Gamma Radiation
Z. G. Burson and R. L. Summers -- December 1964

Technical Report No. 34

Reactor Shielding
IAEA - Vienna -- March 1964

MLM-1219

Gamma Self-Absorption in a Spherical Distributed Gamma Source
K. W. Foster -- November 6, 1964

Trans. of Chalmers University of Technology, Gothenburg, Sweden, Nr. 287

On the Use of Monte Carlo Methods for Calculating the Deep Penetration of Neutrons in Shield
Martin Leimdorfer -- 1964

Trans. of Chalmers University of Technology, Gothenburg, Sweden, Nr. 288

The Backscattering of Fast Neutrons from Plane and Spherical Reflectors
Martin Leimdorfer -- 1964

RL-SA-19

Aggregates for Radiation Shielding Concrete
Leslie V. Whiton -- February 2, 1965

GA-5884

Neutron Cross Sections for Aluminum
G. D. Joanou and C. A. Stevens -- November 13, 1964

NDL-tr-46

The Effect of Neutrons with Energies above 6 Mev on Fission Foil Data
Jean Fappes and John H. McNeilly -- October 1964

AE-161

Comparisons of Measured and Calculated Neutron Fluxes in Laminated Iron and Heavy Water
E. Aalto -- October 1964

AE-166

The Transmission of Thermal and Fast Neutrons in Air Filled Annular Ducts through Slabs of Iron and Heavy Water
J. Nilsson and R. Sandlin -- December 1964

NOLTR-64-220

Gamma Ray Spectrometer Data Processing Programs
Susan Madigosky and R. T. Woodham -- November 19, 1964

AWRE O-81/64

DICE Mk. IV. The Preparation of Nuclear Data into a Form Suitable for Monte Carlo Calculations Using the IBM 7030 Computer
W. M. M. Kerr -- December 1964

EIR-Bericht Nr. 60 (Translation requested)

Etude de La penetration des neutrons thermiques dans des canaux cylindriques vides traversant un milieu hydrogen
Akbar Etemad -- December 1963

ORNL-3759

Determination of Thermal-Neutron Flux Distributions in the Bulk Shielding Reactor II by Copper Wire Activation Techniques
G. T. Chapman -- March 1965

Soviet J. At. Energy (English Transl.), 15(1), 671-674 (May 1964)

Attenuation of Pile Neutron Flux in Polyethylene
V. N. Avaev, G. A. Vasil'ev, A. P. Veselkin, Yu. A. Egorov, Yu. V. Orlov, and Yu. V. Pankrat'ev.

Soviet J. At. Energy (English Transl.) 15(1), 675-677 (May 1964)

Spectra of Fast Pile Neutrons in Passage through Polyethylene
V. N. Avaev, G. A. Vasil'ev, A. P. Veselkin, Yu. A. Egorov, Yu. V. Orlov, and Yu. V. Pankrat'ev

Soviet J. At. Energy (English Transl.), 16(1), 26-33 (1964)

Effect of Water Content in Concrete on Thickness and Cost of Reactor Shielding
D. L. Broader, L. N. Zaitsev, B. S. Sychev, and A. M. Tugolukov

Soviet J. At. Energy (English Transl.), 16(1), 34-40 (1964)

Spectra of Fast Reactor Neutrons after Passing through Graphite, Lead, and Iron
A. P. Veselkin, Yu. A. Egorov, Yu. V. Orlov, and Yu. V. Pankrat'ev

Soviet J. At. Energy (English Transl.), 16(1), 41-49 (1964)

Metal-Water Shielding from Point Neutron Sources
O. A. Barsukov and V. S. Avzyanov

Soviet J. At. Energy (English Transl.), 16(3), 258-263 (1964)

Analysis of the Reliability of Methods of Investigating the Continuous Spectra of Fast Neutrons and γ-Quanta
G. G. Doroshenko, V. I. Glagolev, I. R. Barabanov, and I. V. Filyishkin

BRL-MEMO-1545

The Use of the He^3 Spectrometer in Neutron Attenuation Measurements
A. Manning, T. Jeter, H. Schuckler, and W. Slack -- February 1964

EUR-2173-1

Variational Kantorovich-Ritz Method for Numerical Solution of Some Three Dimensional Neutronical Diffusion Problems
I. Galligani -- 1964

EUR-2174-1

Numerical Solution of Some Two-Dimensional Diffusion Neutronical Problems by the Variational Ritz Method
I. Galligani -- 1964

CEA-R-2599

Radiation Measurements Near the G2 and G3 Reactors
Jean-Phillippe Chassany and Roger Estournel -- November 1964

Nucleonics, 23(3), 76-81, March 1965

Absolute Calibration of Neutron Sources
Y. Gurfinkel and S. Amiel

BNL-889

Computational Methods of Gamma Irradiator Design
R. H. Bretton, B. Manowitz, et al. -- December 1964

AEET/HP/TH-9

Radiation Dose from Volume Sources
T. N. Krishnamurthi, V. K. Sundaram, and P. P. Damle -- 1962

NP-tr-1217

The Spectrum Matrix Method in γ-Ray Transmission Problems for Multiple Layers
A. Tsuruo

Ann. Phys. 30, 411-21 (December 1964)

Orthogonality of Case's Eigenfunctions in One-Speed Transport Theory
I. Kuscer, N. J. McCormick, and G. C. Summerfield

Atomic Energy Australia, 7(4), 27-30 (October 1964)

Concrete Blocks for Radiation Shielding
R. M. Cowdroy

GA-5885

Neutron Cross Sections for Tungsten Isotopes - Topical Report
G. D. Joanou and C. A. Stevens -- November 13, 1964

GA-5905

Neutron Cross Sections for Beryllium
G. D. Joanou and C. A. Stevens -- November 13, 1964

GA-5994

Neutron Cross Sections for U^{235}
G. D. Joanou and M. K. Drake -- December 10, 1964

CEX-63.11

Mobile Radiological Measuring Unit: Description and Operating Information
Z. G. Burson, R. L. Summers, and J. T. Brashears -- February 1965

Space and Accelerator Shielding

NBS Handbook 97

Shielding for High-Energy Electron Accelerator Installations -- July 1, 1964

ORNL-3713

Statistical Model Calculations of Nucleon-Nucleon and Pion-Nucleon Collisions: Center-of-Mass Spectra
R. G. Alsmiller, Jr. -- November 1964

NRL Memorandum Report 1463

Preliminary Report on the NRL 1963 Radiation Dosimeter Experiment Flown in Satellite 1963 - 21D
T. A. Chubb and H. W. Smathers, Jr. -- October 11, 1963

SAAC/20

Cosmic Radiation and Solar Particles at Aircraft Altitudes - Background Note
P. H. Fowler and D. H. Perkins -- September 25, 1962

SM-46334

Secondary Nucleons Produced in High Energy Nuclear Reactions
W. R. Yucker -- December 1964

FOA 4 Rapport (A 4411-411)

A Monte Carlo Procedure for Calculating the Migration of Protons Taking Account only of Electromagnetic Interactions
C. Johansson and M. Leimdorfer -- January 1965

Miscellaneous Reports

Spatial Variation of the Trapped Proton Spectrum
S. C. Freden, J. B. Blake and G. A. Paulikas

Measurement of the Cosmic Ray Neutron Flux in the Atmosphere
G. Boolla, G. Dogli Antoni, C. Dilworth, G. Ciannelli, E. Rocca, L. Soarsi and D. Shapiro

Shielding Computer Codes

(AI) CONF-642-8 — June 1964 — CURIE, DOSE, THUNDERHEAD

An Improved Method of Dose Calculation from Airborne Fission Products
by Norman A. Harris
FORTRAN for IBM-7094 Computer

AERE-R-4553 — August 1964 — SPECIFIC

Specific, A Monte Carlo Programme for High Energy Neutron Spectrum Estimation
by M. P. Kuffle
FORTRAN for IBM 7030 Computer

AMRL-TDR-64-11 — April 1964 — CARS

Computer Analysis of Radiation Shielding
by R. E. Fortney
FORTRAN for IBM-7090 Computer

CANEL TIM NO. 829 — November 1964 — STERNO

A Two-Dimensional, Gamma-Heating Code
by C. E. Keller
FORTRAN 63 for CDC-1604 Computer

EAD-103 December 1963 FAIL

Fallout Area Intensity Levels Code
by J. K. Witthaus
FORTRAN for IBM-7090 or -7094 Computer

EAD-119 Debruary 1964 G-33
AN-COMP-196

G-33, Code for Computing Gamma Ray Scattering
FORTRAN for IBM-7090, 7094

EUR 2152.e 1964 MAC-RAD

A Reactor Shielding Code--The Revised and Developed Edition of MAC
by U. Canali, H. Ilsemann, C. Ponti, and H. Preusch
FORTRAN for IBM-7090

IDO-16856 May 1963 MIST

A Multigroup Internuclear Slab Transport
by G. E. Putnam and D. M. Shapiro
FORTRAN for IBM-7090

NASA TN D-1115 MARTY-N and MARTY-G

Nuclear Radiation Transfer and Heat Deposition Rates in Liquid Hydrogen
by M. O. Burrell
FORTRAN for IBM-7090 Computer

ORNL-2958 October 1960 CRUNCH

An IBM-704 Code for Calculating Successive First Order Reactions
by M. P. Lietzke and H. C. Claiborne
SAP and FORTRAN for IBM-704 Computer

ORNL-3622 February 1965 05R

A General-Purpose Monte Carlo Neutron Transport Code
by D. C. Irving, R. M. Freestone, Jr., and F. B. K. Kam
FORTRAN, IBM-7090 and CDC-1604

ORNL-3648 August 1964 MYRA

A Computer Code for Calculating the Cost of Shipping Spent Reactor Fuels as a Function of Burnup, Specific Power, Cooling Time, Fuel Composition, and Other Variables
by Roger Salmon
FORTRAN for CDC-1604 and IBM-7090

UCRL-6891 May 1962 TRIKL-S

Gamma Energy Deposition in Infinite Source Media
by Alex Lorenz
FORTRAN for IBM-7090 Computer

UCRL-12005 August 1964 YOGI-G

Yogi-G: A Gamma-Ray Monte Carlo Program
by Simon Kellman
FORTRAN II for IBM 7090-7094 Computers

WADC TR 59-772 August 1960 TRAMM-P

The Transmission Matrix Method for Penetration Problems
by David Yarmush, Julius Zell, Raphael Aronson
FORTRAN II for IBM 704

WANL-TNR-063 September 1962 ACT I

Activation Source Strength Program
by P. C. Heiser and L. O. Ricks
FORTRAN II for IBM-7090 Computer