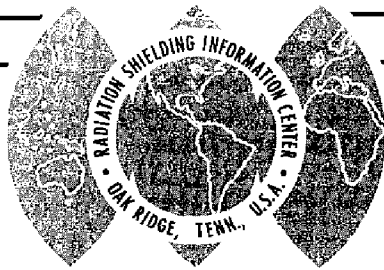


RSIC Newsletter



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. 74

January, 1971

*To disseminate knowledge is to disseminate prosperity
- I mean general prosperity and not individual riches
- and with prosperity disappears the greater part of
the evil which is our heritage from darker times.*

- Alfred Nobel

RSIC ADVISORY COMMITTEE FORMED

The Radiation Shielding Information Center (RSIC) functions within the ORNL Neutron Physics Division (NPD) which has long been engaged in shielding and radiation transport research. An NPD committee has been formed to advise RSIC on technical programs. The division director, F. C. Maienschein, is the chairman and current members are C. E. Clifford, E. A. Straker, F. R. Mynatt, D. K. Trubey, and H. Goldstein. Communication and cooperation with the committee will help RSIC take greater advantage of the technical expertise available locally in the division and externally in the shielding community at large. It is expected that membership on the committee will be rotated on some irregular basis.

VOLUNTEER INSTALLATION COORDINATORS TO BE REACTIVATED

In RSIC Newsletter No. 1, June 1, 1963, the following announcement appeared.

"RSIC will keep in contact with the radiation shielding community through a board of volunteer coordinators representing organizations that have a significant interest in shielding. The coordinators will

- *inform the Center of important shielding effort in their organizations;*
- *make the Center aware of relevant needs of the shielding community in the area of information transmission;*
- *apprise the Center of pertinent data or internal reports originating in their organizations; and*
- *make suggestions on how the services of RSIC can be improved."*

A meeting was called in conjunction with the American Nuclear Society meeting in Salt Lake City in June of that year. Another meeting was called in conjunction with the ANS meeting in Gatlinburg in June 1965. In each of these meetings a productive exchange of information and ideas took place. In the ensuing years, the Center's expansion consumed so much of the staff's time that no effort was made to promote and cultivate the continuing interest of the volunteer board.

Information exchange is vital to the information analysis center concept. Although constant communication takes place between the Center and the individuals in the shielding community, we normally are concerned with customer requests. The RSIC staff is required to aggressively pursue the collection of shielding information, including computer codes. With the cooperation of the industry in the collection activities more staff time could be utilized in evaluating, analyzing, synthesizing, and packaging the information acquired. Therefore, RSIC is taking steps to reactivate the board of volunteer installation coordinators.

A meeting of all interested individuals in the radiation shielding community is being planned in conjunction with the 1971 ANS Annual Meeting to be held in Boston, June 13-17, 1971. Details of the meeting will appear in the RSIC Newsletter.

PROGRAM SET FOR CROSS SECTION CONFERENCE

A preliminary program is available for the Third Conference on Neutron Cross Sections and Technology to be held in the Memorial Center of the University of Tennessee at Knoxville, March 15-17, 1971. The program and other conference details may be secured from the chairman, Dr. J. A. Harvey, Oak Ridge National Laboratory. Six invited and 71 contributed papers make up the program.

Session titles and invited papers are listed below.

SESSION I. INTEGRAL TESTS AND SENSITIVITY TO MICROSCOPIC DATA

"Critical Experiments and Spectrum Measurements on the Validity of Microscopic Data," E. D. Pendlebury, A.W.R.E., Aldermaston, Reading, Berks., Eng.
"Progress in Meeting Cross Section Needs from a Fast-Reactor Designer's View," W. W. Little and R. W. Hardie, WADCO Corporation

SESSION II: FAST NEUTRON CROSS SECTIONS

"Fast Neutron Cross Sections - Theory and Experiment," P. A. Moldauer and A. B. Smith, Argonne National Laboratory

SESSION III: EVALUATING AND HANDLING OF NEUTRON CROSS SECTION DATA

"Numeric Data Libraries of the National Neutron Cross Section Center," M. D. Goldberg, NNCSC, Brookhaven National Laboratory, Upton, New York

SESSION IV: PRESENT AND FUTURE APPLICATIONS OF CROSS SECTION TECHNOLOGY

SESSION V: ADVANCES IN FLUX AND NEUTRON CROSS SECTION DATA STANDARDS

"Present Status of Standards," H. H. Landon, National Bureau of Standards, Washington, D. C.

SESSION VI: NEUTRON CROSS SECTIONS IN THE RESONANCE ENERGY REGION

"Status and Comparison of Techniques for Resonance Measurements," M. S. Moore, Los Alamos Scientific Laboratory

POST MORTEM ON DISTRIBUTION VERIFICATION

Information services supported by the government are required to periodically verify their distribution lists. RSIC makes use of the SDI system and cards for this purpose and has just completed the purging of the distribution system of names of those individuals who did not return their green cards requesting continuation of RSIC mailings. If any colleague mentions not getting this January Newsletter, suggest that he write RSIC asking to be reinstated.

Note to foreign customers: We will not purge our non-domestic distribution lists until January 15. If you have not returned your green card, please do so immediately if you wish to remain on the RSIC distribution.

If at any time your Newsletter is unduly delayed, please contact RSIC.

HOW CAN YOU READ/WRITE TAPES?

To facilitate the processing of tapes used in transmitting data and code packages, a complete description of how the tape was written and how it can be read is helpful. When information is transmitted to RSIC or prepared by RSIC for a requester, we need to know the computer on which it is written or to be read, the system used and special information about what can be processed by the system. What track channel, in what density, labeled or unlabeled or standard label, what blocksize, what mode, how many files, what record format - are questions that need to be answered.

We would like to reduce costs by packing the tape reels as much as possible to cut down the number required for a given request. We use IBM equipment (7090, 360) for tapes written by RSIC; 7- or 9-track channel; 200, 556, or 800 bpi density, and can read/write blocked or unblocked data. If your hardware is different from ours, we normally write your tapes at 7-track, 556 or 800 bpi. If you can read blocked data and will give us

the blocksizes you can read, we can get a greater amount of information on the 7-track tape.

General use of the following format in your transmittal letter would be helpful.

Reel # _____; Track _____; Density _____; Tape Read/Written on Computer _____;
System Used _____; Is Tape Labeled? _____; What is Label? _____; Blocksize _____;
Record Format _____; Mode _____; How many files written on the tape when
transmitting information to RSIC? _____ and describe each file.

RSIC ADVISOR AT INTERNATIONAL MEET

F. R. Mynatt represented the United States at the Joint European Nuclear Energy Agency (ENEA)/International Atomic Energy Agency (IAEA) Specialist Meeting on the Physics Problems of Reactor Shielding held in Paris at OCED Headquarters, December 8-10, 1970.

Summaries of shielding activities in the various countries were presented. During the meeting a report entitled "The Physics of Reactor Shielding" was prepared, giving a worldwide overview of shielding activities. This report will be submitted to the EACRP for their approval. It is hoped that the report will be made generally available.

Following the conference, Mynatt visited the Radiation Physics and Shielding Group, AERE, Harwell, United Kingdom.

NTIS ANNOUNCES PRICE INCREASES

Beginning January 1, 1971, the National Technical Information Service will increase prices for documents in certain categories. These increases are made necessary by increasing costs. Pricing will be as follows:

PAPER COPY

1 to 300 pages	\$3.00
301 to 600 pages	6.00
601 to 900 pages	9.00
Over 900 pages	Exception Price

Two years after announcement, documents having 300 pages or less will have a service charge of \$3.00 added to the announcement price. No service charge will be added for documents over 300 pages.

Documents announced prior to January 1, 1969, have a service charge of \$3.00. added to the announcement price.

MICROFICHE

Microfiche reproduction of documents on a demand basis are priced at 95 cents per document.

Documents available on Standing Order through NTIS Selective Dissemination of Microfiche Service (SDM) are priced at 35 cents per document.

STANDARDS REPORT AVAILABLE

A special report on the activities of the ANS-6 Subcommittee on Radiation Shielding Standards is now available from NTIS (formerly CFSTI) and a limited number are available from RSIC. A brief discussion of the history, organization, and philosophy of the Subcommittee is included. Written by H. Clyde Claiborne, Donald J. Dudziak, and Norman M. Schaeffer, the report is entitled: "Activities of the ANS-6 Subcommittee on Radiation Shielding Standards," ORNL-TM-3251, December 1970.

STATUS REPORT ON THE WEAPONS RADIATION SHIELDING HANDBOOK

During the past year Chapter 2, *Basic Concepts of Radiation Shield Analysis*, and Chapter 7, *Engineering Methods for Designing Initial Radiation Shields for Blast-Hardened Underground Structures* (classified), were published. Copies of Chapter 2 are still available from RSIC. Chapter 7, however, is classified and distribution is obviously limited to those who meet the requirements for receiving classified information.

Chapter 3, *Methods for Calculating Neutron and Gamma-Ray Attenuation*, has been revised and should be distributed within the next few months.

DLC-15/STORM-ISRAEL DATA PACKAGE UPDATED

A program for editing the STORM-ISRAEL Photon Interaction Data has been added to DLC-15. The program, called EDIT23, is essentially the same as that being distributed with the DLC-7 evaluated photon interaction data. Minor modifications were made by RSIC to enable the program to recognize all the MT numbers used in DLC-15. Those wanting EDIT23 should send a reel of magnetic tape to RSIC, indicating how it is to be written.

LIST OF REPORTS ISSUED BY RSIC

- ORNL-RSIC-1 - (Superseded by ORNL-RSIC-5)
- ORNL-RSIC-2 - (Superseded by ORNL-RSIC-5)
- ORNL-RSIC-3 - A Comparison of First- and Last-Flight Expectation Values Used in an OSR Monte Carlo Calculation of Neutron Distributions in Water - D. K. Trubey and M. B. Emmett (May 1965)
- ORNL-RSIC-4 - Some Calculations of the Fast-Neutron Distribution in Ordinary Concrete from Point and Plane Isotropic Fission Sources - D. K. Trubey and M. B. Emmett (June 1965)
- *ORNL-RSIC-5, Vol. I and II - Bibliography, Subject Index, and Author Index of the Literature Examined by the Radiation Shielding Information Center (Reactor and Weapons Shielding)
- ORNL-RSIC-6, Vol. I and II - Abstracts of the Literature Examined by the Radiation Shielding Information Center (Reactor and Weapons Shielding)
- +ORNL-RSIC-7 - Tabulated Values of Scattered Gamma-Ray Fluxes in Iron Interpolated from Moments-Method Calculation - D. K. Trubey (May 1965)
- ORNL-RSIC-8 - Survey of Methods for Calculating Gamma-Ray Heating - H. C. Claiborne (June 1965)
- ORNL-RSIC-9 - A Comparison of Three Methods Used to Calculate Gamma-Ray Transport in Iron - D. K. Trubey, S. K. Penny, and K. D. Lathrop (October 1965)
- ORNL-RSIC-10 - A Survey of Empirical Functions Used to Fit Gamma-Ray Build-up Factors - D. K. Trubey (February 1966)
- ORNL-RSIC-11 (Rev. II) - Bibliography, Subject Index, and Author Index of the Literature Examined by the Radiation Shielding Information Center (Space and Accelerator Shielding) (May 1970)
- ORNL-RSIC-12 - Abstracts of the Literature Examined by the Radiation Shielding Information Center (Space and Accelerator Shielding)
- ORNL-RSIC-13, Vol. I and II - Abstracts of Digital Computer Codes Assembled by the Radiation Shielding Information Center - Betty F. Maskewitz
- ORNL-RSIC-14 - The Exponential Transform as an Importance-Sampling Device - A Review - Francis H. Clark (Jan. 1966)
- ORNL-RSIC-15 - Bibliography of the Computer Codes Literature Examined by the Radiation Shielding Information Center - Betty F. Maskewitz, Vivian A. Jacobs, Jane Gurney (July 1967)
- ORNL-RSIC-16 - Use of ICRU-Defined Units in Shielding - D. K. Trubey (October 1968)
- ORNL-RSIC-17 - Comparisons of Results Obtained with Several Proton Penetration Codes - W. Wayne Scott and R. G. Alsmiller, Jr. (July 1967)
- ORNL-RSIC-18 - Estimates of Primary and Secondary Particle Doses Behind Aluminum and Polyethylene Slabs Due to Incident Solar-Flare and Van Allen Belt Protons - W. Wayne Scott (July 1967)

- ORNL-RSIC-19 - A Review of the Discrete Ordinates S_N Method of Radiation Transport Calculations - D. K. Trubey and Betty F. Maskewitz (March 1968)
- ORNL-RSIC-20 - Weapons Radiation Shielding Handbook - Chapter 5: Methods for Calculating Effects of Ducts, Access Ways, and Holes in Shields - Wade E. Selph and H. Clyde Claiborne (Jan. 1968)
- ORNL-RSIC-21 - Weapons Radiation Shielding Handbook - Chapter 4: Neutron and Gamma-Ray Albedos - Wade E. Selph (Feb. 1968)
- ORNL-RSIC-22 - Comparisons of Results Obtained with Several Proton Penetration Codes - Part II - W. Wayne Scott and R. G. Alsmiller, Jr. (June 1968)
- ORNL-RSIC-23 - A Survey of Recent Soviet Radiation Shielding Work - J. Lewin, J. Gurney, D. K. Trubey (Sept. 1968)
- ORNL-RSIC-24 - Compilation of Data on Experimental Shielding Facilities and Tests of Shields of Operating Reactors - Compiled by: European American Committee on Reactor Physics, European Nuclear Energy Agency (Nov. 1968)
- ORNL-RSIC-25 and Supp. 1 - Shielding Benchmark Problems - A. E. Profio, Editor
- ORNL-RSIC-26 - The Attenuation Properties of Concrete for Shielding of Neutrons of Energy less than 15 MeV - F.A.R. Schmidt (August 1970)
- ORNL-RSIC-27 - A Review of Multigroup Nuclear Cross Section Preparation - Theory, Techniques, and Computer Codes - compiled by D. K. Trubey and J. Gurney (Jan. 1970)
- ORNL-RSIC-28 - Comparisons of the Results Obtained with Several Electron-Penetration Codes - W. Wayne Scott (March 1970)
- ORNL-RSIC-29 - A Review of the Monte Carlo Method for Radiation Transport Calculations - compiled by Betty F. Maskewitz and Vivian Z. Jacobs (in press)

* ORNL-RSIC-5, Vol. I is no longer available from RSIC. Requesters are referred to the National Technical Information Service, Department of Commerce, Springfield, Va. 22151.

+ ORNL-RSIC-7 is available from RSIC in microfiche only.

RSIC has a limited supply of all other reports available upon request. They may also be requested from the National Technical Information Service.

REMINDER

RESERVATION FORM IN DECEMBER RSIC NEWSLETTER FOR ORNL-RSIC-5, Vol. III, should be returned to RSIC no later than February 1. We need your opinion on the usefulness of such publications so that we may know how best to serve you. We are now considering the advisability of publishing this general shielding bibliography which would include the literature reviewed since September 1968.

PERSONAL ITEMS

The personal items feature of the newsletter was initiated in January 1968 to bring news of people known in the shielding community. We do not actively seek the information, but we are pleased to print what is sent voluntarily to RSIC. If you would like to use the newsletter to keep the industry apprised of your activities, the personal items feature is available to you.

*

Dr. T. G. Williamson of the Nuclear Engineering Department of the University of Virginia is on leave from the University to accept a Ford Foundation grant in Engineering Practices. He is working on reactor training simulators with Combustion Engineering in Windsor, Connecticut, and will return to the University in September.

**

Former part-time RSIC staff member, W. Wayne Scott, has been elected the first president of the Oconee Community College, Seneca, South Carolina, and will take office this month. He leaves the Chattanooga Technical Institute, Chattanooga, Tenn., where he was assistant director. Since leaving RSIC, Scott has been working on a doctorate in education at Ohio State University. He will be awarded the degree this spring.

VISITORS TO RSIC

Visitors to RSIC during the month of December were: D. R. Edwards, University of Missouri, Rolla, Mo.; D. C. Kaul, DASA, Washington, D.C.; G. Reimann and W. Weber, Technical University München, Germany; M. Wilkinson, The Boeing Co., Seattle, Wash.

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 National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, Virginia 22151.

DECEMBER ACCESSION LIST REACTOR AND WEAPONS SHIELDING

- | | |
|--|---------------|
| AAEC/TM-545 | July 1970 |
| Use of Hauser-Feshbach Theory for Predicting Inelastic Scattering of Neutrons by Nuclei | |
| W. K. Bertram | |
| Avail.: Dep.; NTIS (U.S. Sales only) | |
| AAEC/TM-554 | August 1970 |
| Application of Variational Methods to Neutron Transport in Slabs | |
| I. J. Donnelly | |
| Avail.: Dep.; NTIS (U.S. Sales only) | |
| ABS-THH-1041 (In German) | July 1967 |
| Studies on the Propagation of Scattered Radiation in Air Channels with Multiple Reversals of Direction in the Shields of the Karlsruhe Reprocessing Plant for Irradiated Nuclear Fuels (WAK) | |
| W. Futtermenger | |
| ABS-THH-1042 (In German) | May 1967 |
| Temperature Distribution in Flat Laminated Shields with Inner Heat Sources | |
| G. Knust, H. Schultz | |
| ABS-THH-1043 (In German) | February 1968 |
| The Calculation of the Propagation of Gamma Radiation in Layers of Air with Single and Double Reversal of Direction by Means of the Monte Carlo Method | |
| C. D. Wüneke | |
| ABS-TUH-1049 (In German) | November 1969 |
| A Transmitting Counter for Measuring Neutron Spectra in the Range of Energies Below 10 KeV | |
| H. Bindewald | |
| ABS-TUH-1051 (In German) | June 1968 |
| Result of Measurements of Gamma Dose in the Shielding of the Gundremmingen Nuclear Power Plant | |
| W. Futtermenger | |

ABS-TUH-1052

March 1968

Results of Neutron Flux Measurements Within the Shield of the
Gundremmingen Nuclear Power Plant
H. Bindewald, G. Stiller

AEC-TR-7147

1967

Polymer-Cement Concretes and Polymer-Concretes
V. I. Solomatov
Avail.: Dep.; NTIS

AED-C-12-22

July 1970

Bibliographies in Nuclear Science and Technology, Section 12:
Nuclear Science Literature of Eastern Countries - B. Enssler (comp.)
Avail.: Dep.; NTIS (U.S. Sales only)

AEC-TR-7097

1964

Biological Shielding of Maritime Reactors
D. L. Broder, K. K. Popkov, S. M. Rubanov
Avail.: Dep.; NTIS

AEC-TR-7100

1967

Gamma Emission of Radioactive Fallout
Yu. A. Izrael', E. D. Stukin
Avail.: Dep.; NTIS

ANL-7696

May 1970

Some Improvements in Variational Flux Synthesis Methods
William L. Woodruff
Avail.: Dep.; NTIS

ANL-TRANS-842 (CONF-700605-4)

June 1970

Nuclear Data for Thermonuclear Reactors
Yu. F. Chernilin, G. B. Yan'kov
Avail.: Dep.; NTIS

ANL-TRANS-851

1967

Data Concerning the Biological Effect of the Mixed Neutron Radiation
of Atomic Reactors
L. Sztanyik
Avail.: Dep.; NTIS

APT-1170

November 16, 1970

Shelter Potential in Parking Garages - Final Report
C. T. McGavin
(Applied Parking Techniques, Inc., P.O.Box 707, Reston, Va. 22070)

BNWL-1339

April 1970

Activation and Shielding of FTR Sodium
C. A. Mansius
Avail.: Dep.; NTIS

BNWL-1430

September 1970

Metal Swelling and Irradiation Creep Effects Upon the Fast Test
Reactor Core Component Performance
R. J. Jackson, W. H. Sutherland, I. L. Metcalf
Avail.: Dep.; NTIS

BNWL-SA-3233 (CONF-700810-52)

July 13, 1970

Eventual Whole Body Exposure Rate from ^{85}Kr Released to the Atmosphere
M. M. Hendrickson
(From Symposium on Environmental Aspects of Nuclear Power Stations,
New York, N.Y.)
Avail.: Dep.; NTIS

CONF-690804, (p. 129)

August 1969

Neutron Capture γ -Rays from ^{45}Sc
B. B. V. Raju, B. M. Spicer
(Proceedings of the International Conference on Properties of
Nuclear States, Montreal, Canada, 25-30 Aug. 1969)

CONF-700211-3

February 1970

Embrittling Characteristics of Pressure Vessel Steel Plate
N. Ogura
(Translated from Japan Atomic Energy Society Meeting, Tokyo, February
12-13, 1970).
Avail.: Dep.; NTIS

CONF-700211-2

February 1970

Shielding in Nuclear Ships
I. Kataoka
(Translated from Japan Atomic Energy Society Meeting, Tokyo,
February 12-13, 1970)
Avail.: Dep.; NTIS

CONF-700408-3

1969

States and Radiation Control
J. R. Coleman
From 2nd Conference on Radiation and Man's Environment, Buck Hill
Falls, Pa.
(NUS Corp., Washington, D. C., Environmental Safeguards Div.)

CTC-36

October 1, 1970

CIRK: CTC's Information Retrieval from Keywords
J. H. Owings, C. E. Price
Avail.: Dep.; NTIS

EUR-4498

April 17, 1970

Study of the Neutron Streaming Through Cylindrical Ducts with Two
Bends in Water: Experiments
B. Chinaglia, G. Bosio, D. Monti
Avail.: Dep.; NTIS (U.S. Sales only)

GA-9924

February 28, 1970

Final Report, February 26, 1969 - February 28, 1970. Ionizing
Radiation for the Treatment of Municipal Waste Waters

GA-9994

March 1970

Nonlinear Quasi-Static Analysis of Two-Dimensional Concrete Structures.
Part I: Theory. Part II: Computer Program Manual
Y. R. Rashid
Avail. Dep.; NTIS

GEAP-11093

October 1970

10-Decade Wide Range Neutron Monitoring System. Final Test Report.
W. K. Green
Avail.: Dep.; NTIS

HDL-TR-1454 (AD-695646)

July 1969

Analysis of Unfolding Gamma Ray Spectra Measured by Compton-Diode
Detectors
D. E. Wortman, C. A. Morrison, N. Karayianis

KFK-1203

July 1970

The Karlsruhe Sodium Tank Test Facility
F. Huber, R. A. Müller

KURRI-TR-60 (N70-37412)

1969

Measurements of Neutron Flux and Spectrum at KUR Irradiation
Facilities
K. Kanda, T. Nanjyo, K. Kobayashi, Y. Nakagome, T. Kozuka, et al.

LA-4335

December 1969

Neutron Measurement Using Thermoluminescent Dosimeters
M. J. Engelke

LA-4472

June 1970

Review of Flux Synthesis Methods
R. E. Alcouffe
Avail.: Dep.; NTIS

LA-4526

October 1970

CMF-13 Research on Carbon and Graphite. Report No. 14. Summary
of Progress from May 1 - July 31, 1970
M. C. Smith
Avail.: Dep.; NTIS

NASA-TM-X-2106

October 1970

Technological Problems Anticipated in the Application of Fusion
Reactors to Space Propulsion and Power Generation
J. R. Roth, W. D. Rayle
Avail.: NTIS

NASA-TM-X-52832 (N70-31905)

1970

Crew Radiation Dose from a Gas-Core Nuclear Rocket Plume
C. C. Masser
Avail.: NTIS

NBS-Handbook-107

June 1970

Radiological Safety in the Design and Operation of Particle
Accelerators
(American National Standards Inst., New York)
GPO \$0.30

NBS-TN-489

August 1969

Tables of Response Functions for Silicon Electron Detectors
M. J. Berger, S. M. Seltzer, S. E. Chappel, J. C. Humphreys, T. W.
Motz
Avail.: NTIS

NCG-TR-19 (AD-704688)

January 1970

The NCG Fallout Scaling Model: A Graphic-Numerical Method of Pre-
dicting Fallout Patterns for Nuclear Cratering Detonations
D. E. Burton
Avail.: NTIS as N70-36222

NRSS-14

September 1970

Study of the Penetration of Gamma Radiation Through Thin Slabs Oriented
at Right Angles to Each Other
E. E. Morris
(Nuclear Radiation Shielding Studies, University of Illinois)

NYO-4028-TA-1

December 1969

Final Report, October 1968 - November 1969. Applications of
Avalanche Type Semiconductor Radiation Detectors
P. A. Johnston

ORNL-4551

October 1970

V Neutron Elastic- and Inelastic-Scattering Cross Sections from
4.19 to 8.56 MeV
F. G. Perey, W. E. Kinney
Avail.: NTIS

ORNL-4552

December 1970

Neutron Elastic- and Inelastic-Scattering Cross Sections for Yttrium
in the Energy Range 4.19 to 8.56 MeV
F. G. Perey, W. E. Kinney
Avail.: NTIS

ORNL-4579

December 1970

Dose-Estimation Studies Related to Proposed Construction of an
Atlantic-Pacific Interoceanic Canal with Nuclear Explosives: Phase
III
S. V. Kaye, P. S. Rohwer
Avail.: NTIS

ORNL-4585

September 1970

The MORSE Code - A Multigroup Neutron and Gamma-Ray Monte Carlo
Transport Code
E. A. Straker, P. N. Stevens, D. C. Irving, V. R. Cain
Avail.: Dep.; NTIS

ORNL-4592

September 1970

Neutron Physics Division Annual Progress Report for Period Ending
May 31, 1970
Avail.: Dep.; NTIS

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November 1970

Neutron and Secondary Gamma-Ray Induced Heat in the Ground Due to
Point 12.2-15-MeV and Fission Sources at an Altitude of 50 Feet
E. A. Straker, M. B. Emmett, M. L. Gritzner
Avail.: NTIS

ORNL-TM-1950 (Rev. 1)

November 1970

Program Weight: A FORTRAN IV Program for Evaluation of Weighting
Functions Used in Small-Angle X-Ray Scattering
M. G. Buchanan, R. W. Hendricks

ORNL-TM-3110

November 1970

Savannah River Americium-Curium Slug Carrier
L. B. Shappert, B. B. Klima
Avail.: Dep.; NTIS

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October 1970

Transition Temperature Considerations for Thick-Wall Nuclear
Pressure Vessels
D. A. Canonico

ORNL-TM-3177

November 1970

Molten Salt Breeder Experiment Design Bases
J. R. McWherter
Avail.: Dep.; NTIS

ORNL-TR-2331 (CEA-R-3942 *in French*)

Energy Losses, Range, and Bremsstrahlung Yield for 10 keV to 100 MeV
Electrons in Some Simple Elements and Some Chemical Compounds
L. Pages, E. Bertel, H. Joffre, L. Sklavenitis
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August 1970

Proceedings of the Symposium on Thermonuclear Fusion Reactor Design,
June 2-5, 1970
M. Kristiansen, M. O. Hagler (eds.)
Avail.: Dep.; NTIS

ORO-3346-65

October 31, 1970

Nuclear Spectroscopy with Radioactive Sources and Fast Neutron
Reactions, Sixth Annual Progress Report, 1970
R. W. Fink
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PB-193487

August 1970

Evaluation of an X-Radiation Dosimetry Service for Home Television
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C. P. Warr
Avail.: NTIS

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February 1970

Swelling During High Temperature Neutron Irradiation: The Influence of
Surface Energy and Stacking Fault Energy on Void Nucleation
J. T. Buswell
Avail.: Dep.

RPI-328-180

1969

Formulation and Application of Analytic Representations of Fast
Reactor Flux and Importance Spectra
F. E. Dunn, M. Becker
Avail.: NTIS

RRA-T703

July 8, 1970

Monte Carlo Study of Gamma-Ray Attenuation in Structures with Basements
D. E. Hinkley

SC-RR-70-338

July 1970

Computational Method for Calculation of Radiological Dose Resulting
from Hypothetical Fission Product Release
L. L. Bonzon, J. B. Rivard
Avail.: Dep.; NTIS

UCRL-50892 (Vol. 5)

July 1970

Weapons Effects Display System (WEDS MOD II): Fallout Computer Pro-
gram
P. Franklin
Avail.: Dep.; NTIS

WHAN-FR-12

October 1970

Analysis of ZPPR/FTR Shield Experiments: Neutron Distribution
E. T. Boulette
Avail.: NTIS

WHAN-FR-19 (CONF-700630-1)

September 1970

Uniaxial and Biaxial Creep-Rupture of Type 316 Stainless Steel After
Fast Reactor Irradiation
A. J. Lovell, R. W. Barker
(From Symposium on Effects of Radiation on Structural Materials,
Niagara Falls, Ontario, Canada)
Avail.: Dep.; NTIS

Japan J. Appl. Phys., 9(6), 673-8 (June 1970)

The Response of the Gamma-Ray Density Gauge to the Boundary Between
Two Materials
T. Uemura

J. Math. Phys., 11(8), 2445-58 (Aug. 1970)

Solution of the Initial-Value Neutron-Transport Problem for a Slab
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