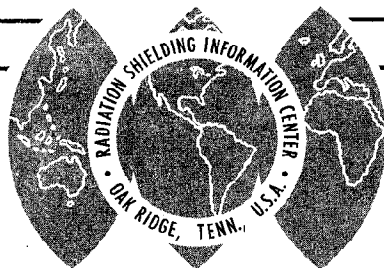


# RSIC Newsletter



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. 34

September 15, 1967

*"Such things and deeds as are not written down are covered with darkness,  
and given over to the sepulchre of oblivion." ..... Ivan Bunin*

SECOND CONFERENCE ON  
NEUTRON CROSS SECTIONS AND TECHNOLOGY  
March 4-7, 1968  
Shoreham Hotel - Washington, D. C.

The purpose of this Second Conference is to provide a common meeting area for the exchange of information among nuclear scientists and engineers interested in neutron cross sections. The conference program has been designed to consider all aspects of neutron cross sections: the need for accurate measurements; their determination by theoretical and experimental techniques; and their applications:

Contributions are encouraged on the following general topics:

The Need for and Use of Neutron Data in Fields of Basic and Applied Physics and Reactor Design

Flux Measurements and Cross Section Standards

The Measurement and Analysis of Total and Partial Cross Sections for Fissile and Non-Fissile Nuclei, Including a Presentation of the Latest Data

The Theory of Nuclear Cross Sections and the Analysis of Neutron Interactions

Nuclear Data Storage, Retrieval, and Evaluation

Use of Differential Data in Analyzing Integral Experiments

Sessions will consist of both invited and contributed papers. A 100-200 word abstract is required for contributed papers. Time allotted for presentation of papers accepted by the program committee will be 10 minutes.

Abstracts must be received by December 1, 1967, and should be forwarded to:

Dr. David T. Goldman, Chairman  
Conference on Neutron Cross Sections  
and Technology  
Reactor Radiations Division  
National Bureau of Standards  
Washington, D. C. 20234

Papers accepted for presentation during the Conference will be published in the proceedings.

The meeting is sponsored by the American Nuclear Society Divisions of Reactor Physics and Shielding, the American Physical Society Division of Nuclear Physics, the National Bureau of Standards, and the U. S. Atomic Energy Commission.

#### FAST REACTOR SHIELDING, ANYONE?

In the past we have not specifically identified fast reactor shielding for our information retrieval system. We find now, however, that this would be a useful index for those who wish to identify such work. Consequently, it would be useful to the Center if all those who are aware of literature specific to fast reactor shielding would identify it for us. Send us a copy of the article if you can, otherwise, send us the reference.

#### NEW RSIC REPORTS

Two reports giving results of proton penetration calculations have recently been issued by RSIC. These are: "Comparisons of Results Obtained with Several Proton Penetration Codes," ORNL-RSIC-17, by W. Wayne Scott and R. G. Alsmiller, Jr. and "Estimates of Primary and Secondary Particle Doses Behind Aluminum and Polyethylene Slabs Due to Incident Solar-Flare and Van Allen Belt Protons," ORNL-RSIC-18, by W. Wayne Scott.

#### RECENT VISITORS TO RSIC

The following people visited RSIC during the month of August 1967: Dr. R. B. Martin, M. H. Kiser, R. L. Jackson, and D. E. Large, AEC-ORO, Oak Ridge; N. T. Bray, Laboratory Records, ORNL; and C. P. Keim, Division of Technical Information, ORNL.

#### AUGUST 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 of (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 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 yet available for the codes literature.

#### Reactor and Weapons Shielding

AHSB (S) R 125

Neutron Cross-Sections of Pu 239 in the Energy Range 1.0E-10 MeV to 15.0 MeV  
W. Hart

BNL-50061A (L-391)

SCISRS Newsletter - Part A. Reference and Bibliography  
June 1967

BNL-325, Supplement No. 2

Neutron Cross Sections - Volume IIC, Z = 61 to 87  
M. D. Goldberg, S. F. Mughabghab, S. N. Purohit, B. A. Magurno,  
and V. M. May - August 1966

BNWL-TR-22 (Translation of Bul. Inform. Sci. Tech. No. 110, pp. 3-29 (1966))

Development of the Shielding for the Rapsodie Reactor  
W. Chwetzoff, F. Dubois, P. Poitevin  
April 26, 1967

CONF-660925

Seminar on Intense Neutron Sources, Proceedings of a U. S. Atomic Energy Commission/European Nuclear Energy Agency Seminar  
September 1966

HASL-187

Tabulated Values of Experimentally Determined Differential Energy  
and Angle Spectra for  $^{137}\text{Cs}$  Gamma Rays in Water and Air  
M. Alberg, H. Beck, K. O'Brien and J. E. McLaughlin  
Dec. 1966

IDO-16880-1 (Vols. 1 and 2)

Scintillation Spectrometry Gamma-Ray Spectrum Catalogue  
R. L. Heath  
August 1964

LA-3251-MS (Revised)

Transport Theory - The Method of Discrete Ordinates  
Bengt G. Carlson and Kaye D. Lathrop

LA-3695-MS

$^6\text{Li}$  and  $^7\text{Li}$  Data in the ENDF/B Format  
M. E. Battat, D. J. Dudziak, and R. J. LaBauve  
June 26, 1967

NASA TN D-2773

X-Ray Spectra Produced when Thick Silicon Targets are Bombarded  
with 1.05 and 1.25 Million Volts Electrons  
J. J. Singh, R. Adams, and C. Gross - December 1966

ORNL-4090

Measurements and Single-Velocity Calculations of Differential  
Angular Thermal-Neutron Albedos for Concrete  
R. E. Maerker and F. J. Muckenthaler  
July 1967

ORNL-TM-1625

Effects of Faulty Random Number Generators in Monte Carlo Calculations  
Henry A. Feldman - July 12, 1967

RRA-M63

On Depth-Dose Distributions for Fallout and Simulated Fallout  
Fields  
R. L. French and C. W. Garrett - August 31, 1966

RRA-M73

Monte Carlo Study of Directional Response Functions for Fallout  
Radiation Shielding Calculations  
J. H. Price and R. L. French - June 9, 1967

TO-B-67-25

Final Report. The Use of Scale Models in Structure Shielding Experiments  
A. L. Kaplan and N. B. Koepp-Baker

Ann Physique, 2, 17 (1967)

Mesure Calorimetrique de Lactivite des Sources Gamma Intenses des  
Doses Absorbees et des Facteurs Build-up  
M. Picq

Nucl. Appl., 3, 433-435 (July 1967)

Fission Neutron Attenuation and Gamma-Ray Buildup Factors for Lithium  
Hydride  
F. B. K. Kam and F. H. S. Clark

Nucl. Eng. Design, 5, 214 (1967)

Shielding Properties of UPB<sub>3</sub> Intermetallic Compound  
J. S. Moser and A. F. Rohach

Nucl. Eng. Bulletin, Vol. 5-1, ANS-1 (July 1967)

Proposed Standard Program for Testing Biological Shielding in  
Nuclear Reactor Plants  
Subcommittee ANS 6.1

Nucl. Instr. Methods, 51, 156-158 (1967)

The Influence on Relaxation Lengths for High Energy Neutrons  
of the Angular Distribution of the Incident Flux  
K. O'Brien and J. E. McLaughlin

Nuovo Cimento B, 49, 218 (1967)

Incoherent Scattering of Gamma-Rays in Low- and Medium-Z Elements  
K. Parthasa and V. V. Rao

Phys. Med. Biol., 12, 301 (1967)

X-Ray Spectra from Accelerators in Range 2 to 6 MeV  
R. E. Bentley, J. C. Jones, S. C. Lillicra

BOOK

Problems in Physics of Reactor Shielding. Collection of Articles.  
Issue 2  
D. L. Broder, A. P. Veselkin, Y. A. Egorov, A. P. Suvorov, S. G.  
Tsy-pin - 1966

07786-1-T (University of Michigan Dissertation)

Measurement of Fast Neutron Spectra in Water and Graphite  
Lawrence Harris, Jr. - April 1967

- J. Nucl. Energy, 21, 435-439 (May 1967)  
Axial Distribution of Fast Fission Neutrons in Straight Cylindrical Channels in Water  
V. P. Maskovich, A. N. Nikolaev, V. K. Sakharov, B. I. Sinitsin, S. G. Tsipin
- Sov. J. Atomic Energy, 21(2), 764-5 (August 1966)  
Neutron Transport in a Moving Medium  
E. A. Garusov, A. A. Kostritsa, Y. V. Petrov
- Sov. J. Atomic Energy, 21(2), 740-44 (August 1966)  
Effect of Neutron Irradiation on some Properties of Heat-Resistant Concretes  
V. B. Dubrovskii, Sh. Sh. Ibragimov, A. Ya. Ladygin, B. K. Pergamenshchik
- Sov. J. Atomic Energy, 21(2), 777-79 (August 1966)  
Scattering of Gamma Radiation from  $Ra^{226}$  and  $Cs^{137}$  by a Surface of Earth or Water  
M. B. Vasil'ev
- Sov. J. Atomic Energy, 21(1), 643-651 (July 1966)  
Study of the Spectra and Doses Created in the Iron-Water Shielding of a Monoenergetic Neutron Source  
O. A. Barsukov, V. S. Avzyanov, V. N. Ivanov
- Sov. J. Atomic Energy, 21(3), 851 (Sept. 1966)  
Dose Build-up Factors for Low-Energy Gamma Rays in Homogeneous and Heterogeneous Barriers  
D. B. Pozdneeve
- Sov. J. Atomic Energy, 21(3), 852 (Sept. 1966)  
Albedo of a Homogeneous Barrier of Finite Thickness for Low-Energy Gamma Rays  
D. B. Pozdneeve
- Sov. J. Atomic Energy, 21(3), 855-7 (Sept. 1966)  
Absorption of the Energy of Gamma Radiation from a Unidirectional Point Source of Gamma-Quanta in Plane Geometry  
F. A. Makhlis, L. A. Sugak, E. A. Plandin, and I. K. Shmyrev
- Sov. J. Atomic Energy, 21(4), 912-918 (Oct. 1966)  
Measurement of the Fast Neutron Albedo Dose for Different Shields  
L. A. Trykov, I. V. Goryachev, V. I. Kukhtevich
- Sov. J. Atomic Energy, 21(4), 926-930 (Oct. 1966)  
Neutron Penetration in Air  
P. A. Yampol'skii, V. F. Kokvikhin, A. I. Golubkov, N. A. Kondurushkin, A. V. Bolyatko

- Sov. J. Atomic Energy, 21(4), 956-7 (Oct. 1966)  
Optimum Composition of Homogeneous Shields  
S. M. Rubanov, L. S. Shkorbatova
- Sov. J. Atomic Energy, 21(4), 957-8 (Oct. 1966)  
Efficacy of Boron in Metal-Water Shields  
M. A. Kartovitskaya, S. M. Rubanov, L. S. Shkorbatova
- Sov. J. Atomic Energy, 21(4), 958-9 (Oct. 1966)  
Steady State Diffusion of Thermal Neutrons in Media with Random  
Inhomogenities  
A. V. Stepanov
- Sov. J. Atomic Energy, 21(4), 959-60 (Oct. 1966)  
Shielding Properties of Fireproof Chromite and Magnesite Concretes  
D. L. Broder, V. B. Dubrovskii, P. A. Lavdanskii, V. P. Pospelov,  
V. N. Solov'ev
- Sov. J. Atomic Energy, 21(4), 966-7 (Oct. 1966)  
Some Laws of the Distribution of the Gamma-Field of a Soft Emitter  
O. S. Marenkov
- Sov. J. Atomic Energy, 21(4), 968-9 (Oct. 1966)  
Some Characteristics of the Field of Backscattered Gamma Radiation  
in Working Premises  
N. F. Andryushin, B. P. Bulatov, G. M. Fradkin
- Sov. J. Atomic Energy, 21(4), 980-82 (Oct. 1966)  
Energy Characteristics of X-Rays with Maximum Voltages of 40-120 kV  
R. V. Stavitskii
- Sov. J. Atomic Energy, 21(5), 1026-1033 (Nov. 1966)  
Method of Calculating the Intensity of Backscattered Gamma Radiation  
B. P. Bulatov
- Sov. J. Atomic Energy, 21(5), 1062-3 (Nov. 1966)  
Propagation of Capture Gamma Radiation in a Uniform Spherical  
Shield  
B. K. Fedyushin
- Sov. J. Atomic Energy, 21(5), 1068 (Nov. 1966)  
Calculation of the Absorption of Epithermal Neutrons in an Infinite  
Lattice of Absorbing Slabs  
V. N. Gurin

Sov. J. Atomic Energy, 21(5), 1071-2 (Nov. 1966)

Calculating Photoelectric Attenuation Coefficients for Gamma Radiation

O. S. Marenkov

Sov. J. Atomic Energy, 21(5), 1076-8 (Nov. 1966)

Angular Distribution of Fast Neutrons Emerging from a Medium Which Contains Hydrogen

S. F. Degtyarev, V. I. Kukhtevich, A. P. Suvorov, V. V. Tarasov, V. K. Tikhonov, and S. G. Tsypin

Sov. J. Atomic Energy, 21(5), 1079-80 (Nov. 1966)

Passage of Fast Neutrons through Thick Layers of Lithium Hydride

G. M. Bozin, S. F. Degtyarev, V. I. Kukhtevich, B. I. Sinityn, V. B. Staroverov, V. K. Tikhonov, and S. G. Tsypin

Sov. J. Atomic Energy, 21(5), 1081-83 (Nov. 1966)

Build-up Factor of Fast Neutrons Versus the Relative Positions of Shielding and Detector

S. F. Degtyarev, V. I. Kukhtevich, V. K. Tikhonov, S. G. Tsypin

Sov. J. Atomic Energy, 21(5), 1084-6 (Nov. 1966)

Passage of Gamma Rays Through Spherical and Cylindrical Shielding Barriers

A. V. Larichev, O. F. Partolin, E. D. Chistov, O. M. Zараev