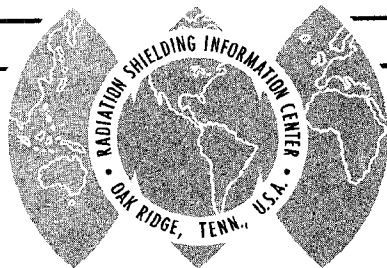


# RSIC Newsletter



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. 17

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## TABLES OF THE SECANT INTEGRALS AND COEFFICIENTS FOR BUILDUP FACTORS AVAILABLE ON MICROFICHE

Gene Hungerford and Jim Tilford of the Purdue University Nuclear Engineering Department have made tables of values of the secant integrals:

$$F(\theta) = \int_0^{\theta} e^{-B \sec x} dx ,$$

$$G(\theta) = \int_0^{\theta} B \sec x e^{-B \sec x} dx ,$$

$$H(\theta) = \int_0^{\theta} B^2 \sec^2 x e^{-B \sec x} dx .$$

The results were obtained using a 10-point Gaussian quadrature.

They have also done a least squares fit to the data of NYO-3075 and produced tables of the coefficients for the buildup factor form

$$B(x) = 1 + Bx + Cx^2$$

for the ranges  $0 \leq x \leq 4$  and  $4 \leq x \leq 20$ . Interpolation has produced values for 24 energies between 0.25 and 10 MeV.

Microfiche copies of either table are available from RSIC upon request.

RECENT VISITORS TO RSIC

The following people visited RSIC during the month of March: Roger L. Pilloton, ORNL; Philip F. Rose, Rocketdyne, Canoga Park, California; L. S. Neudorfer, F. E. Marsh, Jr., USAEC, Washington, D. C.; Mark Johnson and L. P. Miller, Computer Sciences Corp., Silver Springs, Maryland; Sadayoshi Horiguchi and Kunihiko Uematsu, Atomic Fuel Corporation, Tokyo, Japan; Richard G. Illing and David G. Kitzinger, Sandia Corporation, Albuquerque, New Mexico; U. Z. Williams, American Institute of Physics, New York; Alexis W. Lemmon, Jr., Battelle Institute, Columbus, Ohio; and Wilbur Bunch, Battelle-Northwest, Richland, Washington.

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 three fields of (1) reactor and weapons shielding, (2) space and accelerator shielding, and (3) shielding computer codes.

RSIC is not a documentation center. Hard copies of the literature cited below must generally be obtained elsewhere. In most cases, however, we will be able to supply microfiche copies upon request. There may be a delay if a microfiche original is not available and we must produce one. This will be the case with ordered and newly obtained literature only. Naturally, we cannot supply copies of literature which is copyrighted or whose distribution is restricted.

Reactor and Weapons Shielding

Health Physics, 12(1), 83-93 (January 1966)

Shielding Measurements for 3 MeV and 15 MeV Neutrons  
J. J. Broerse and F. J. van Werven

Radiology, 85: 1123 (December 1965)

The Gamma-Ray Evaluation of Diagnostic Shielding Barriers  
R. L. Witcofski, F. C. Watts, L. L. Engstrom, and C. E. Blackwell

Nucl. Instr. Methods, 37: 305-8 (November 1965)

Neutron Spectra from Am- $\alpha$ -Be and Ra- $\alpha$ -Be Sources  
M. N. Thompson and J. M. Taylor

MLM-1267 (C)

Gamma Ray Dose Rates from Shielded Plutonium-238 Sources  
D. L. Coffey and K. F. Wylie - February 14, 1966

ORNL-TM-1237

Gamma-Ray Attenuation Coefficients for Germanium  
G. T. Chapman - March 2, 1966

ORNL-tr-1053 (translated from EUR-103.F)

Gamma-Radiation Curves Relative to Steel, Aluminum and Uranium  
J. Frippiat and R. Nicks - 1962

VUT-65-D-3

Ultrasonic and Radiometric Measurement of Homogeneity and Density of  
Concrete in Biological Shield of Nuclear Reactor  
A. Honig and V. Zapletal - 1965

AD 619534

Electron Scattering Experiments: Measurement of Transmission of 8.3-MeV  
Neutrons Produced by a Van de Graaf Generator: Magnetization Curve of  
Holmium  
W. A. Little - June 1965

DP-949

Energy Spectra of Neutrons and Gamma Rays from Spontaneous Fission of  $^{244}\text{Cm}$   
T. R. Herold - July 1965

AFWL-TR-65-179

Parametric Investigation of the Exponential Transformation  
E. E. Jones - January 1966

AFWL-TR-65-193

Verification of Analytical Techniques (GAPLSN--Transport Theory and O5R-  
Monte Carlo Theory) by Utilization of Measured Fast Neutron Spectra in  
Infinite Paraffin and Spherical Paraffin Shields  
A. E. Profio - March 1966

TO-B 65-27

Final Report - Phase I - Structure Shielding from Simulated Fallout Gamma  
Radiation  
A. L. Kaplan, J. Waldman, J. L. Jones, W. E. Barch, and R. L. MacNeil  
November 1965

AFWL-TR-65-182

Transmission and Reflection of Nuclear Radiation for Various Incident  
Angles on Shield Materials  
D. M. Wheeler and R. J. Prevost - February 1966

WANL-PR(B)-009

Space Power Plant Study  
H. O. Blinn, J. P. Hanson, R. H. Lane, R. A. Markley, M. S. Mayer, P.  
Tauson, C. A. Thompson - December 31, 1963

JINR-P-2479

Passage of High-Energy Neutrons through Heavy (Concrete)  
B. S. Sychev, V. V. Mal'kov, M. M. Komochkov, L. N. Zaitsev - 1965

COO-1430-1 (NTC-126)

Shielding Analysis for the Fast Flux Test Facility  
Joseph DeFelice - June 30, 1965

BOOK

Atlas of Radiation Dose Distributions, Vol. I  
E. W. Webster and K. C. Tsien

NP-15635

Neutron Fluxes Available from Kaman Nuclear Neutron Generators  
D. E. Wood - June 11, 1963

EUR-2494.d

Shielding Experiments at the Reactor Station Geesthacht - Annual Report  
1964  
E. Bagge, and E. Fischer - 1965

Inzh.-Fiz.ZH., 8: 807-14 (June 1965) (Translation requested)

Temperature Distribution in Gamma Shielding  
D. P. Osanov

ORNL-P-1736

The SNAP Shielding Program at ORNL  
C. E. Clifford, J. Lewin

Shielding Computer Codes

NASA MSC-Project No. 3208P	January 1966	K009
MSC Solid Angle Radiation Dose Program by Alva C. Hardy Fortran II for IBM 7094		
NAA-SR-9982	October 1964	AISITE II
A Digital Computer Program for Investigation of Reactor Siting, Including External Radiation Dose Calculations by R. A. Blaine and E. L. Bramblett Fortran II for IBM 7094		
NASA TM-X-52166	1966	LPSC
The Lewis Proton Shielding Code by R. I. Hildebrand and H. E. Renkel Fortran IV for IBM 7094 II		

- NASA MSC Project No. 3066                      May 1965                      L015  
Shield Thickness Calculation Program (Vol. I. - Computer Program  
Users Manual)  
by C. Forrest Malone  
Fortran IV for IBM 7094 and UNIVAC 1107
- ORNL-3844    March 1966    LEP  
Instructions for the Operation of Codes Associated with the Low-Energy  
Intranuclear Cascade Calculation  
by Hugo W. Bertini, Hemma E. Francis, and Miriam P. Guthrie
- ORNL-3041    March 1966    SDC  
A Shielding-Design Calculation Code for Fuel-Handling Facilities  
by E. D. Arnold and B. F. Maskewitz  
Fortran for IBM 7090
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