

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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*Training is everything.
The peach was once a bitter almond;
cauliflower is nothing but cabbage with a college education.*

....Samuel L. Clemens (Mark Twain)

NEWS FROM THE Scribble Editor

A new post has been created for the Newsletter, that of *Scribble Editor*! His first contribution appears in this issue. Be sure to read the Newsletter all the way through as he has 'scribbled' on the last two pages.

DON'T MISS IT!

THE READERS INFORMATION EXCHANGE BOX

The Coordinators' suggestion "that the Newsletter be used as a vehicle for communication between research scientists working in the same general area so that they might share problems and possible solutions" is being taken seriously by at least one reader. In his "BOY-WANTS-GIRL" request boxed below, he chooses to remain anonymous for publication purposes. He requests that your response be sent to RSIC, and you may do so in writing or by telephone. We invite you to join us in this experiment in using the Newsletter as a two-way exchange medium. RSIC will, of course, respond to each inquiry from the information store when we feel we can help, and will transmit all suggestions from you to the requester.

BOY - WANTS - GIRL

1. Considering mothers, daughters, and the younger generation, can you suggest an existing computer code which would calculate the isotopic distribution of radionuclides in a closed volume at any time with a simple input of all concentrations per cc at the time of start of decay, by using already programmed decay scheme data?
2. Do you know of any programs for the above, which in addition to decay, can consider other different production and removal rates for each radionuclide?

NEW NCRP REPORT PUBLISHED

The recommendations of the National Council on Radiation Protection and Measurements titled "*Protection Against Neutron Radiation*" was issued this year as NCRP Report No. 38. This report was prepared by the Council's Scientific Committee 4 on Heavy Particles (Neutrons, Protons, and Heavier) which was chaired by H. H. Rossi. Copies may be purchased for \$3.00 from NCRP Publications, P. O. Box 4867, Washington, D.C. 20008.

CURRENT WORK AND PROBLEMS

We continue with this issue of the Newsletter, the *CURRENT WORK AND PROBLEMS* feature which reports in brief on work in progress at various installations. During the last month several more of our customers responded to our request for information on the work that they are doing by filling out the questionnaire attached to the back of the February or July 1971 Newsletters. We urge those of you who have not yet responded to do so soon.

We hope that some of you will read this section not only to find what others are doing which may help you, but also to find where you might be able to give a little helpful advice. If you have any suggestions, especially concerning areas where a need for work is felt, send a note to the person who has expressed the need. It will be appreciated.

The names in parentheses below identify the persons who reported the work at their installation.

At the University of Alberta, Edmonton, Alberta, Canada (W. G. Simon) studies are being made of nuclear reactions and scattering by 500 MeV protons with various targets. Small angle multiple coulomb, single coulomb, and nuclear elastic scattering are being studied from the viewpoint of shielding for a 500 MeV accelerator. A need is felt for more extensive Monte Carlo intranuclear cascade calculations at medium energies.

At the Division of Biology and Medicine, Argonne National Laboratory, Argonne, Illinois (N. A. Frigerio), work is being done on problems related to radiation therapy and radiation biology. This involves the determination of neutron, gamma, and charged particle spectral distributions, dose distributions, etc., in biological objects, in and around radiobiological and radiotherapeutic facilities, and in and around their shields.

A large, "total-analog", 3-dimensional Monte Carlo program used for computations, accepts any combination of source spectra (up to 15 MeV for neutron or gamma rays) and for any combination of 3-dimensional objects/shields which can be made up out of ellipsoids, spheroids, cylindroids, elliptical paraboloids, cones or rectangular solids. The code output consists of complete space/energy/dose distributions in each object for up to 20,000 incremental volumes within the objects and spectra and KERMA for the spaces between the objects. Currently implemented is a 45 region standard

man.

Experimentally, proton-recoil, He-3, Li-6 and threshold foils are used for neutron spectra, Ge-Li and NaI and Compton recoil chambers for gamma particle spectra, "LET" spectrometers for charged particle spectra along with some solid state detectors, and multiple ion chambers for direct dosimetry, along with some TLD and chemical dosimetry as needed. Measurements are made in facilities and in phantoms made of tissue equivalent liquids and semi-solids. Facilities include the JANUS Reactor thermal neutron and U-235 converter neutron biological irradiation rooms. Mono-energetic neutrons from 0.03 to 20 MeV are available via a Dynamitron accelerator.

The Japan Atomic Energy Research Institute, Tokai-Mura, Ibaraki-Ken, Japan (S. Miyasaka, Y. Furuta, Y. Kanemori) has examined and attempted to improve the NIOBE and O5R computer codes. These codes have been used, together with others, such as the NRN and MAC-RAD codes, for analysis of experiments. Development of a multigroup Monte Carlo code is also being attempted.

Experiments of neutron penetration for simple and multilayer geometry and of duct streaming are being made using the JRR-4 (swimming pool type reactor; maximum power 2.5 MW) and a Van de Graaff accelerator (2MV). Furthermore, developments and improvements of neutron spectrometers, such as a hydrogen proportional counter, He-3 proportional counter, liquid scintillation counter, Li-6 SSD sandwich counter, and threshold detectors are being made with the aim to support the experiments described above. In addition, mockup experiments for the shields of the experimental fast reactor (JOYO) and of the advanced thermal reactor (FUGEN) are being made under contracts between Power Reactor and Nuclear Fuel Development Corporation and JAERI.

The EIR: Swiss Federal Institute of Reactor Research, Wuerenlingen, Switzerland (V. Herrnberger) is involved with calculation and engineering design of shields for HWR, HTR, and GCFR. Optimization of an axial shield of given thickness, consisting of iron-water layers, is being studied. Removal-diffusion codes MAC-RAD, SABINE, and discrete ordinates codes DTF-IV and ANISN are applied. The integral transport method is being introduced for one-dimensional problems and is already successfully applied (code SHADOK) in pure water or iron shields. Component activation and resulting dose rates have been measured and calculated for a test reactor.

Work areas where it is felt that immediate effort is needed are: Neutron and gamma streaming through gas-filled slots and ducts and steel grid structures (in water) of typical axial reactor shields. Tests of cross-section sets and methods of solution against benchmark problems and existing shields.

AIR TRANSPORT SEMINAR-WORKSHOP PLANS

Enough feedback has been received by RSIC to indicate strong interest in the planned Seminar-Workshop on radiation transport in air to be held in Oak Ridge this autumn. It is hoped that the seminar will stress transport research and the validation of results and, in particular, will

bring out what has been done in studying our ability to predict radiation transport in air.

An agenda is being planned to give ample coverage to theory, calculational methods, and computer codes as applied currently. Key papers are being solicited. Those interested in presenting a paper should contact the RSIC Seminar-Workshop coordinator immediately. It is hoped that the collection of papers, when published, will constitute the state-of-the-art at this time.

The RSIC-Seminar-Workshop Coordinator will be pleased to have suggestions on the Seminar from possible contributors and/or participants.

RSIC STAFF NEWS

F. H. Clark is again contributing some time to the information analysis center, providing additional technical support to basic RSIC functions. During his former RSIC sojourn, Frank initiated several features in the Newsletter, including the "Current Work and Problems" series being published now. He organized and served as the first chairman of the CSEWG Shielding Subcommittee, whose efforts have always been supported by RSIC. At least one RSIC-generated document carries his name as author, "The Exponential Transform as an Importance-Sampling Device - a Review," ORNL-RSIC-14 (1966).

Frank has been involved in shielding research over a period of many years. At ORNL, along with other commitments, he was associated with early development of the O5R Monte Carlo Code (CCC-17) and assisted at the first Seminar-Workshop held by RSIC where O5R was featured. The first of the RSIC peripheral shielding code packages, PSR-1/MAX-XTREME, is the result of work done by him and F. B. K. Kam. He has continued to give some time to shielding. He served as a consultant to the committee who prepared the 1971 NCRP Report No. 38 on "Protection Against Neutron Radiation" and contributed data to the shielding part of the report. He is the author of an article titled "Methods and Data for Reactor Shield Calculations," which appears in the book *ADVANCES IN NUCLEAR SCIENCE AND TECHNOLOGY*, Vol. 5 (1969).

Miss Jackie Needham, an ORNL librarian for three years, has joined RSIC as an information specialist. She assists in the myriad of tasks required in information collecting, processing, packaging, and distribution.

RSIC continues to participate in the Oak Ridge Associated Universities' (ORAU) Undergraduate Research Trainee Program. Our summer participant is Miss Janet Endress, Evansville, Ind., a student at St. Mary's College,

Notre Dame, Indiana.

NEW ADDITIONS TO THE COMPUTER CODE COLLECTION

- CCC-165/DOSE1 Gamma-Radiation Dosimetry for Arbitrary Source and Target Geometry, contributed by Physics Division, Oak Ridge National Laboratory. Reference: ORNL-TM-3398. FORTRAN IV, IBM 360.
- CCC-166/DAVE Monte Carlo Gamma-Ray Transport Code System in One-Dimensional Spherical Geometry, contributed by the Research Institute of National Defence, Stockholm, Sweden. FORTRAN IV, IBM 360. Reference: FOA-4C-4374-29. DAVE is a modification of SALOMON (CCC-33).

PERSONAL ITEMS

R. L. Ashley is now Chief Nuclear Engineer in Bechtel Corporation, Gaithersburg, Maryland. Ray was at Atomics International for many years.

William A. Woolson, formerly associated with Aerojet Nuclear Systems, Sacramento, California, is now with Science Associates, Inc. (SAI), La Jolla, California.

VISITORS TO RSIC

Visitors to RSIC during the month of July were: M. Abdou, University of Wisconsin, Madison, Wis.; P. Bonanos, Princeton University, Princeton, N. J.; J. Darvas, KFA-Juelich, Germany; C. D. Dishman, E. Haskin, and T. G. Swaney, The Boeing Company, Wichita, Kans.; R. J. Harris, Jr., Science Associates, Inc., San Diego, California; R. K. Disney, Westinghouse Astromuclear Laboratory, Pittsburgh, Pa.; C. R. Hopkins, Gulf General Atomic, San Diego, Calif.; Rosalind Huang, NUS Corporation, Washington, D.C.; D. C. Kaul, DASA, Washington, D.C.; C. W. Maynard, University of Wisconsin, Madison, Wis.; J. L. Russell, Gulf Radiation Technology, San Diego, Calif.; E. A. Straker, SAI, Huntsville, Ala.; M. Wilkinson, The Boeing Co., Seattle, Wash.

JULY ACCESSION LIST OF LITERATURE

The RSIC is now aware of the literature cited in the following list. 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.

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L. K. Bustad, C. W. Mays, Marvin Goldman, L. S. Rosenblatt, N. W. Hetherington, W. J. Bair, R. O. McClellan, C. R. Richmond, R. E. Rowland
Avail.: Dep.; NTIS
- A/CONF.49/P-91 (CONF-710901-51) September 1971
Recent Advances in Radiation Therapy
H. D. Suit
Avail.: Dep.; NTIS
- A/CONF.49/P-840 (CONF-710901-30) September 1971
Recent Advances in Applications of Isotopes and Radiation in the United States
E. E. Fowler
Avail.: Dep.; NTIS
- The above reports prepared for 4th international conference on the peaceful uses of atomic energy; Geneva, Switzerland, September 1971)*
- AEC-tr-7195 1969
Radioactive Isotopes and the Body
Yu. I. Moskalev (ed.)
(Translation of Radioaktivnye Izotopy i Organizm, Izdatel'stvo Meditsina, Moscow, 1969) 458 pages
Avail.: Dep.; NTIS
- AECL-3855 March 1971
Recovery and Benefits from Radiation Damage
W. Bennett Lewis
Avail.: Dep.; NTIS (U.S. Sales only); AECL, Chalk River, Ontario, \$0.50
- AEW-M-962 (CONF-700505-26) March 1971
Experience in the Use of Thermoluminescent Dosimeters for Radiation Dose Control Purposes
H. E. Preston, J. J. Clifton, C. D. Hallett
Avail.: Dep.; NTIS (U.S. Sales only)
(From 2. congress of the international radiation protection association, Brighton, England, 3 May 1970)
- ANL-7748 March 1971
A Critical Review of the Energy Released in Nuclear Fission
J. P. Unik, J. E. Gindler

- ANU-P-502 1970
Notes on Nuclear Spectroscopy Instrumentation
T. R. Ophel
(Australian National Univ., Canberra Research School of Phys. Sciences)
- BARC-648 1971
Whole Body Counting of Radiation Workers
R. K. Hukkoo, D. S. Katoch
Avail.: Dep.; NTIS (U.S. Sales only)
(Bhabha Atomic Research Centre, Bombay, India)
- BMI-1899 March 1971
Effect of Irradiation on the Creep of Uranium Dioxide
James S. Perrin, William R. D. Wilson
Avail.: Dep.; NTIS
- BNWL-1183-7 January 1971
The Measurement of Radiation Exposure of Astronauts by Radio-chemical Techniques. Quarterly Research Report to the NASA Manned Spacecraft Center, October 5, 1970 - January 3, 1971
R. L. Brodzinski
- BRL-1522 (AD-721621) January 1971
Analysis of In-and-Down Scattered Radiation Measurements in a Basement
A. L. Jenkins, D. E. Hinkley
Avail.: NTIS
- BS-4094: Part 1: 1966 1966
Recommendation for Data on Shielding from Ionizing Radiation. Part 1. Shielding from Gamma Radiation
British Standards Institution, 2 Park St., London, W1A 2BS, 40s. net
- BS-4094: Part 2: 1971 1971
Recommendation for Data on Shielding from Ionizing Radiation. Part 2. Shielding from X-Radiation
British Standards Institution, 2 Park St., London W1A 2BS, 2 pounds net
- CEA-CONF-1685 1970
Neutron Dosimetry and Spectrometry by the Multisphere Method - Present State of the Studies at the Service d'Etudes de Surete Radiologique
G. Benezech, M. Bricka, M. Dolias
Avail.: NTIS

CINDA-71

January 1, 1971

CINDA 71. An Index to the Literature on Microscopic Neutron Data
IAEA

(This issue supersedes the preceding issues of CINDA)

CONF-700440-1

April 1, 1970

Nuclear Power Reactor Wastes and Our Environment

R. G. Barnes

(From 3. annual national pollution control conference; San Francisco,
Calif. 1 April 1970)

CONF-710302-3

1970

Some Problems Encountered Processing ENDF/B Data with ETOG and ETOP

R. A. Grimesey, G. L. Singer

Avail.: Dep.; NTIS

(From meeting on new developments in reactor mathematics and
applications, Idaho Falls, Idaho, 29 March 1971)

CONF-710201-11

1971

RAFFLE Monte Carlo Code and Its Use to Obtain Correlated Estimates
of Collapsed Cross Sections

W. E. Vesely, F. J. Wheeler, R. S. Marsden

Avail.: Dep.; NTIS

(From meeting on new developments in reactor mathematics and
applications; Idaho Falls, Idaho, 29 March 1971)

DP-1250

May 1971

Calculated Enhancement of Thermal Neutron Flux from a ²⁵²Cf Source
F. K. McCrosson

EGG-1183-1524

July 1, 1971

Gamma-Ray Scattering at the Air-Ground Interface - Experimental

R. L. Summers

HEDL-SA-152 (CONF.710510-1)

March 1971

Effects of Fast Neutron Irradiation on Chromel/Alumel Thermocouples

N. C. Hoitink

(From 19. annual northwest instrumentation conference; Richland,
Wash., 20 May 1971)

Avail.: Dep.; NTIS

IA-1232

December 1970

Estimate of the Error Between $B_{N+1}/$ and B_N /Approximations

Y. Ronen

Avail.: Dep.; NTIS (U.S. Sales only)

KAPL-P-3930

1971

Neutron Cross Sections and Strength Functions of Sm-147 and Sm-150
H. M. Eiland, S. Weinstein, K. W. Seemann

KFK-1340

February 1941

Status of the Karlsruhe Evaluated Nuclear Data File KEDAK on June 1970
B. Hinkelmann, B. Krieg, et al.

KFK-1361 (In German)

January 1971

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W. Kinnebrock
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KFKI-70-38 HP

February 1971

Ten Years of the Health Physics Department of the Central Research
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I. Feher, A. Andrasi, S. Makra (Hungarian Academy of Sciences)

KFKI-71-12

Two Codes for Calculation of Dose Distribution in Human Phantoms
Irradiated by External Photon Sources
L. Koblinger
Avail.: Dep.; NTIS (U.S. Sales only)

LA-4400

1970

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Avail.: GPO \$1.25

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June 1971

Calculations of Fast Critical Assemblies Using LASL and ENDF/B
Version-II Data
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(Presented at 17th Annual Meeting of the ANS, Boston, Mass.)

LA-TR-71-7

1967

Radioactivity Distribution of Emanation Decay Products Between
Aerosol Particles of Determined Size Ranges
J. Flattau, K. Rutowska

N71-20932 (Thesis)

1969

Gamma Rays from Al-28, Re-186, Re-188, Th-233, and Pa-233,
Following Neutron Capture
Willem Hoekstra
Avail.: NTIS
(Technische Hogeschool, Delft (Netherlands))

NASA-CR-1785

July 1971

Radiation Effects Design Handbook. Section 1. Semi-conductor Diodes
C. L. Hanks, D. J. Hamman
Avail.: NTIS

NASA-CR-1787

July 1971

Radiation Effects Design Handbook. Section 3. Electrical Insulation
Materials and Capacitors
C. L. Hanks, D. J. Hamman

NASA-TM-X-67861

June 1971

Measured and Calculated Fast Neutron Spectra in a Lead-and-Water
Shielded Reactor
G. P. Lahti, G. N. Wrights

NOLTR-70-222 (AD-722012)

November 1970

Some Calculations on the Transmission of Gamma Radiation Through
Homogeneous Slabs
C. M. Huddleston
Avail.: NTIS

NP-18513 (In Italian)

March 1964

Radioactive Contamination: Permissible Limits, Preventive Measure
and Decontamination
S. Ragusa
Avail.: NTIS

NP-18658

1970

Report on Some Aspects of Radiation Protection and Population Exposure
in Thailand
Avail.: NTIS
(Ministry of Public Health, Bangkok, Thailand, Radiation Protection
Service)

NRL-MR-2181 (AD-721068)

February 15, 1971

Irradiation Effects on Reactor Structural Materials
L. E. Steele, C. Z. Serpan, Jr., H. E. Watson, J. R. Hawthorne,
F. A. Smidt, Jr.
Avail.: NTIS

ORNL-4502

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Fission Product Transport and Behavior in the Stainless Steel Lined
Containment Research Installation (CRI)
G. W. Parker, G. E. Creek, W. J. Martin
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ORNL-4639 (N71-20644)

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ORNL Isotopic Power Fuels. Quarterly Report, Period Ending 30 Sep. 1970
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Avail.: NTIS

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Capabilities of Plastically Deformed Struts Under Specified Impact
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June 1971

Photoelectric Determination of Electron Attenuation Lengths in
Magnesium and Aluminum. (Thesis)
T. F. Gesell, E. T. Arakawa

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January 1971

New Computational Method for Space Energy Angular Dependent Reactor
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H. L. Dodds, Jr.
Avail.: NTIS

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(Thesis)
W. L. Chen, W. H. Shinpaugh, H. H. Hubbell, Jr., J. W. Poston

ORNL-TM-3429 (ENDF-151)

May 27, 1971

Preparation of Data Sets in ENDF Format for Na, Mg, Cl, and K for Use
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R. W. Roussin, S. K. Penny, V. A. Singletary, J. B. Wright

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June 18, 1971

Response Functions for Bonner Ball Neutron Detectors
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Calibration of the Bonner Ball Neutron Detectors Used at the Tower
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H. Werle
Avail.: Dep.; NTIS

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J. Bourrieau, R. Schuttler
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Avail: Dep.; NTIS

ORO-680

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Effects of Low Level Irradiation Upon the Preservation of Food Products
Final Summary Report, May 1963-March 1970
R. A. Dennison, E. M. Ahmed
Avail.: Dep.; NTIS

R-591 (AD-717216, N71-20760)

September 1970

Statistical Model Calculations of Fe56 Neutron Cross Section
S. D. Bloom, J. M. Green, H. W. Hubbard, S. Moszkowski
Avail.: NTIS

RD/B/M-1022 (App.)

1967

Gamma and Bremsstrahlung Dose from ⁸⁵Kr in Air
John Harvey
Avail.: Dep.; NTIS (U.S. Sales only)
(Central Electricity Generating Board, Berkeley, England)

RPS-AR-3

1969

Annual Report for the Year 1969
(Ministry of Public Health, Bangkok, Thailand, Radiation Protection Service)
Avail.: NTIS

SAN-781-243

January 7, 1970

Review of In-Service Surveillance-Methods Applicable to Liquid Sodium Piping
C. F. Braun and Co., Alhambra, Calif.
Avail.: NTIS

TT-70-50092 (N71-22261)

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Gamma Spectrometry of Natural Environments and Formations: Theory of the Method Applications to Geology and Geophysics
R. M. Kogan
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UARAEE-104

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Transmission of Slow Neutrons in Multiple-Segment Ducts in a Water Shield
F. M. Sayed Ahmed, I. Hamouda
Avail.: Dep.; NTIS (U.S. Sales only)

UCRL-51,031

March 22, 1971

Sensitivity of Monte Carlo Calculations to the Neutron Cross Sections for Neutron Transport in Nitrogen and in Air
L. F. Hansen, J. D. Anderson

WHAN-FR-35

November 1970

Comparison of Nuclear Design Models for Power and Flux Distributions Near the FTR Core-Reflector Interface
L. D. O'dell, R. B. Rothrock
Avail.: NTIS

WHAN-SA-107 (CONF-710301-13)

1970

Neutron Energy Dependent Cross Section Evaluation by a Multiple Foil Activation Method
W. N. McElroy, R. L. Simons, J. A. Ulseth, L. S. Kellogg
Avail.: Dep.; NTIS

J. Inst. Nuc. Eng., 12(2), 31-35 (March/April, 1971)

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G. C. Burnan, J. R. A. Lakey

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- Nat. Phys. Sci.*, 229(4), 125-6 (Jan. 25, 1971)
Statistical Estimation of the Derivatives of Density Functions
M. S. Bartlett
- Nucl. Instrum. Methods*, 91, 573-6 (1971)
Monte-Carlo Unfolding of Neutron Spectra
R. Sanna, K. O'Brien
- Nucl. Instrum. Methods*, 91, 585-7 (1971)
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 α Activity Detection
G. De Leeuw-Gierts, S. Le Leeuw
- Nucl. Instrum. Methods*, 91(4), 565-71 (Feb. 15, 1971)
Fast Neutron Capture Cross Section Facility
R. I. Macklin, B. J. Allen
- Nucl. Sci. Eng.*, 45(1), 66-72 (July 1971)
Weighting and Biasing of a Monte Carlo Calculation for Very Deep
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J. M. Lanore
- Nucl. Sci. Eng.*, 45(1), 94-97 (July 1971)
Effective Atomic Numbers for Photoelectric and Incoherent Scattering
Processes of Gamma Rays
K. Siddappa, A. Khayyoom, K. Parthasaradhi, J. R. Rao
- Nucl. Technology*, 11(3), 357- (1971)
Neutron Shielding of Underground Nuclear Explosives
J. B. Green, R. M. Lessler
- Nucl. Technology*, 11(4), 592-601 (August 1971)
Through-Thickness Neutron Fluence and Embrittlement Gradients in
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C. Z. Serpan, Jr., H. E. Watson
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Gamma-Ray Lines from $(n,2n)$ and (n,n') Reactions in Radiogenic and
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B. Johnsson

SPACE AND ACCELERATOR SHIELDING

AERE-M-1887

May 1967

Calculated Quality Factors for Protons in Body and Eye-Lens Tissues
J. A. Dennis
Avail.: Dep.; NTIS (U.S. Sales only)
(Atomic Energy Research Establishment, Harwell, England)

DNPL/P-72

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An Experiment to Determine Shielding Requirements for a Multi-BeV
Electron Synchrotron Ring
F. J. Coleman, D. C. Thomas, G. Saxon

JINR-P2-5719 (In Russian)

1971

Interaction of High-Energy Radiation with Substance
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MDAC PAPER WD1631

June 1971

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W. R. Yucker
(Presented to ANS Seventeenth Annual Meeting, Boston, Mass.)

NASA-TN-D-6379

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The Risk of Solar Proton Events to Space Missions
M. O. Burrell

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J. W. Watts, Jr., M. O. Burrell
Avail.: NTIS

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May 1, 1970

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D. Blanc
(Toulouse Univ. (France), Centre de Physique Atomique et Nucleaire)

ORNL-4698

June 1971

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Particles from 62-MeV Protons Incident on ^{60}Ni
R. W. Peele, F. E. Bertrand

ORNL-TM-3336

August 10, 1970

Results from Medium-Energy Intranuclear-Cascade Calculation
H. W. Bertini, M. P. Guthrie

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Double Differential Distribution of Particles Produced in the Proton-
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SPACE SCIENCE BOARD REPORT - 1970

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FROM THE PEN OF THE SCRIBBLE EDITOR

One of the very good suggestions to come out of the recent RSIC Coordinators meeting was that the Newsletter be used to call forth thoughts, suggestions, and information from the readers on specific topics of interest to someone. We think the idea is so good we will try it ourselves.

The topics are not new ones. They are

1. "CLEAN" SHIELDING EXPERIMENTS
2. "CLEAN" SHIELDING CALCULATIONS
3. FUNDAMENTAL PENETRATION DATA IN COMMON TRANSMISSION MEDIA

Clean shielding experiments, of course, mean those performed in such a manner that source, media, and detector are capable of simple analytical representation. Topic 2 may be considered as calculations which might (but did not necessarily) accompany such measurements. Topic 3 includes measured or computed neutron and/or gamma-ray distributions in regular media from simple source configurations.

We are hopeful that we can package such information in a useful manner which can be easily updated and make it generally available. That part of the information in the interest area of the Benchmark Problems Group (BPG) of the ANS-6 Standards Committee will be offered to BPG for consideration for publication as ANS-SD-9 (ORNL-RSIC-25) Shielding Benchmark Problems.

We would like to hear of any relevant data or calculations you know of, current or ancient, obvious or obscure. While we do not wish to limit response at all, we would be especially delighted to hear of work in other lands. Whatever it is, please do not assume we already have it. Just turn this page over, write in the appropriate information and return it to

SCRIBBLE EDITOR, Newsletter
Radiation Shielding Information Center
Oak Ridge National Laboratory
Oak Ridge, Tennessee 37830

SCRIBBLE SHEET

I recall that (calculations, measurements, both) were made of

by (name if known)

at (installation)

at about (year)

Reference (if any)