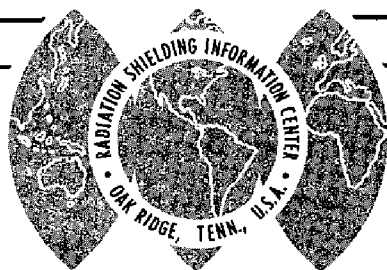


RSIC Newsletter



RADIATION SHIELDING INFORMATION CENTER

OAK RIDGE NATIONAL LABORATORY

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

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A criticism unsigned is unworthy of consideration.

-- Anonymous

AIR TRANSPORT SEMINAR-WORKSHOP PRELIMINARY PROGRAM

The dates for the RADIATION TRANSPORT IN AIR SEMINAR-WORKSHOP are now firmly set as November 15-17, 1971. Anyone who has done significant work in radiation transport in air is invited to join in what is hoped to be an assessment of the state of the art. Those planning to attend the conference should notify RSIC as soon as possible. Further information will be sent to those who plan to attend.

SEE REGISTRATION FORM ON LAST PAGE

For papers to be included, it is important that RSIC have the pertinent information as soon as possible. The Seminar program will include the following papers:

- 1.) Status of Microscopic Cross Section Data Sets for Air Transport
Philip Young (Nitrogen) and Graham Foster (Oxygen), Los Alamos Scientific Laboratory, New Mexico
- 2.) Pulsed Spheres Integral Experiments
Luisa Hansen, Lawrence Livermore Laboratory, California
- 3.) Comparison of Calculations with Integral Experiments with Emphasis on Secondary Gamma Rays
E. A. Straker, Science Applications, Inc., Huntsville, Alabama
- 4.) Air Transport in a Disturbed Atmosphere
Thomas Albert, Martin-Marietta Corporation, Orlando, Florida
- 5.) A Last-Collision Model of the Air-Ground Interface Effect on Fast-Neutron Angle Distributions
R. L. French and L. G. Mooney, Radiation Research Associates, Fort Worth, Tex.
- 6.) Exponential Air Transport - Two-Dimensional Work
J. R. Keith, Kaman Nuclear, Colorado Springs, Colorado

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 installations.

At the Westinghouse Advanced Reactors Division, Waltz Mill Site, Madison, Pennsylvania (S. Gerstl), Westinghouse concentrates all shielding efforts related to the development and design of radiation shielding for sodium cooled fast reactors. A group of six scientists and engineers (A. J. Court, S. A. W. Gerstl, R. Paquette, J. L. Rathbun, J. Ritts, R. S. Rust) are continuously working on shielding problems as they evolve during the design of the FFTF and LMFBR Demonstration Plant fast reactors. The activity of this group covers all phases of design-oriented radiation shielding work such as multi-dimensional diffusion and transport calculations in complex geometries, evaluation and preparation of shielding cross sections, coordination and direction of shielding experiments. With respect to future shielding development, highest priority should be attached to the improvement of two and three-dimensional transport codes which are capable of handling typical radiation streaming problems as described in "Some Typical Radiation Streaming Problems in Sodium-Cooled Fast Reactors," S. A. W. Gerstl, ANS Transactions, Vol. 13, No. 2, p. 857 (November 1970). In the case of a heterogeneous iron/sodium shield containing voids and streaming paths, for which a total flux attenuation of 10^{-8} is calculated for a fission neutron source assuming a fully homogenized configuration, the aim is to calculate the true attenuation for the real two or three-dimensional geometry including line-of-sight, diffusive and spectral streaming, with no more than a factor of 2 uncertainty throughout the whole configuration, consuming no more than 2 hours computer time on an IBM 360 or CDC 6600 type computer.

The Comitato Nazionale per l'Energia Nucleare, Centro di Studi Nucleari, Casaccia, Italy, has a new shielding group (U. Farinella, V. Pado). Most of the activity to be set up at CNEN in the domain of shielding will concern fast reactors. This will include the development of specialized calculational tools for shielding, for instance, two-dimensional removal-diffusion methods and Monte Carlo methods with specialized techniques to reduce the variance.

RSIC REACTOR AND WEAPONS SHIELDING BIBLIOGRAPHY ISSUED

The report by H. C. Claiborne, R. W. Roussin, J. Gurney, and A. Gustin, "Bibliography, Subject Index, and Author Index of the Literature Examined by the Radiation Shielding Information Center (Reactor and Weapons Shielding,)" ORNL-RSIC-5, Vol. III, has just been issued. The bibliography, containing 600 references indexed according to subject category, includes RSIC accession numbers between 1700 and 2300. The author index, however, covers accessions 0-2300.

A limited number of the reports are available from RSIC. Those who wish to receive this volume should request it from RSIC. They are also available from NTIS.

WANTED

NON-IBM TO IBM FORTRAN CONVERSION CODES

We are aware of a program, CONVERT, written for the CDC 6600, which looks for and flags or changes some of the FORTRAN difference in an IBM FORTRAN program in converting it for use with the CDC 6600.

It would be useful to have at RSIC computer codes which would convert, in a similar fashion, non-IBM FORTRAN to IBM FORTRAN for use on the IBM machines here at ORNL. We would appreciate hearing from our customers about the existence of such codes.

CORRECTION TO CCC-127/MORSE-SAMBO

Cal Burgart, ORNL, has given additions and corrections to the CCC-127/MORSE-SAMBO multigroup Monte Carlo code system. These have been mailed to all MORSE users on our distribution. A copy of the additions and corrections is available to others upon request.

SECONDARY GAMMA-RAY PRODUCTION LIBRARY UPDATED

The DLC-12/POPLIB has been updated with the addition of ten and the voiding of one data set. Also, the title of one data set was modified. The updated library, designated DLC-12C, now contains 243 data sets. The library is intended for use with the PSR-11/POPOP4 code which generates neutron to gamma-ray multigroup transfer cross sections for eventual use in coupled multigroup calculations. Those interested in obtaining the

CHANGE OF NAME FOR LAWRENCE RADIATION LABORATORIES

The Lawrence Radiation Laboratories at Livermore and Berkeley, California, are now known as the Lawrence Livermore Laboratory and the Lawrence Berkeley Laboratory, respectively.

PERSONAL ITEMS

Dr. R. Meier has taken new responsibility as assistant to the director of research at Brown Boveri, Baden, Switzerland. The present task as head of the physics department at the Federal Institute for Reactor Research, Wurenlingen, has been taken over by *Dr. Josef Brunner*.

Jack Courtney recently became Asst. Professor of Nuclear Engineering at the Nuclear Science Center at Louisiana State University in Baton Rouge. He will be teaching nuclear engineering and radiation shielding courses this fall.

Harvey Brush has recently been transferred to the Vernon Branch of Bechtel as Vice President, Manager of Division Operations. Mr. Brush was formerly located with Bechtel in San Francisco.

Harry E. P. Krug, Jr. is now Industry Marketing Manager of Atomic/Nuclear Industries, Control Data Corporation, Minneapolis, Minnesota.

Martin Leimdorfer of Industri-Matematik AB has moved to his new offices at Bromma, Sweden. The offices were originally located at Lidings, Sweden.

Duaine Lindstrom, formerly with Aerojet Nuclear Systems, is now at the Department of Chemical Engineering of Imperial College, London, England. He will be teaching nuclear engineering to graduate students and chemical engineering to undergraduate students.

Kevin Rooney, formerly with Atomics International, has taken a position with Sargent & Lundy, Engineers, in Chicago, Illinois, and will be doing reactor shielding work.

Paul Stevens is now head of the Nuclear Engineering Department at Oregon State University in Corvallis, Oregon. Dr. Stevens has been professor in the Nuclear Engineering Department at the University of Tennessee and has acted as a consultant to the Neutron Physics Division of ORNL for 5 years.

R. J. Neuhold, formerly of Babcock and Wilcox, is now associated with the USAEC at Germantown, Maryland.

Neal Hartmann is now in New York City with the Nuclear Energy Liability Insurance Associates. He was previously with Westwood Laboratories in New Jersey.

VISITORS TO RSIC

Visitors to RSIC during the month of August were: R. N. Abbott, Knoxville, Tenn.; S. Kaufman, Argonne National Laboratory, Argonne, Ill.; G. P. Lahti, NASA Lewis Research Center, Cleveland, O.; Joseph Perona, Chemical Technology Div., ORNL; G. R. Purcell, University of Tennessee, Knoxville, Tenn.; V. Swift, Sand Springs, Okla.

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 (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 National Technical Information Service (NTIS), Department of Commerce, 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 the 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.

REACTOR AND WEAPONS SHIELDING

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Methodology for Computing Potential Radiation Dose to Man from
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