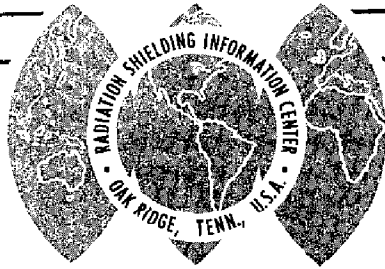


RSIC Newsletter



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

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May 1971

*He that refuseth instruction despiseth
his own soul; but he that heareth re-
proof getteth understanding.*

- PROVERBS 15:32

RSIC COORDINATORS TO MEET IN BOSTON

We are reactivating the RSIC Board of Volunteer Installation Coordinators. Members of the shielding community who will be attending the June meeting of the American Nuclear Society are invited to participate in the meeting being called on Wednesday, June 16, 1971. Plans are being made to hold a meeting at 1:00 P.M. in the Kent Room in the Sheraton Boston Hotel. Final plans will be posted on the ANS Public Information bulletin board near the registration area.

G. P. Lahti, head of the Shielding Section, Nuclear Systems Division, NASA Lewis Research Center, Cleveland, Ohio, will chair the Boston meeting and will act as chairman of the reactivated board. It is hoped that all shielding groups will be represented at the Boston meeting and that each will select a coordinator to serve on the board.

Basically, it is hoped that the coordinators will work closely with RSIC to ensure that the information analysis center stays viable in a rapidly changing industry and that the needs of the shielding community are met. The coordinators will act in an advisory capacity, informing the Center of important shielding efforts in their organizations, making the Center aware of relevant needs of the shielding community, apprising the Center of pertinent data or reports originating in their organizations, and making suggestions on how the RSIC services can be improved.

If your shielding group is not represented at the Coordinators' Meeting, you are invited to submit your suggestions or comments in writing to the chairman or directly to RSIC.

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, a few more of our customers responded to our request for information on the work that they were doing by filling out the questionnaire attached to the back of the February 1971 Newsletter; we are grateful to them. 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.

Not all the responses received are summarized here. Others will be reported in subsequent issues. The names of those who reported the work listed below are enclosed in parentheses.

THE USAEC HEALTH AND SAFETY LABORATORY, New York, N. Y. (K. O'Brien). Studies are being made of cosmic ray propagation through the atmosphere and of muons deep underground produced by cosmic ray processes. A need is expressed for doubly differential production cross sections at high energies (>500 MeV).

THE NASA LANGLEY RESEARCH CENTER, Hampton, Virginia (J. J. Singh), is studying inelastic interaction of high energy alpha particles with light nuclei. Plans are being made to convert the NASA Synchrocyclotron for alpha-particle acceleration, and it appears that revision of the R.F. system - leaving the magnetic field at its proton values - is the only practical approach. General studies of $A(\alpha, x)$ reactions for $E > 100$ MeV are felt to require immediate effort.

At the NASA MARSHALL SPACE FLIGHT CENTER, Huntsville, Alabama (C. L. Peacock, Jr.), a computer code system is being developed to compute secondary dose levels induced in a nuclear vehicle or in a space station with a nuclear power plant. In addition, an enhanced image, closed circuit TV, neutron radiography system is being developed for use with a 2.5 MeV Van de Graaff accelerator and/or a Cf-252 source.

THE UNIVERSITY OF MICHIGAN NUCLEAR ENGINEERING DEPARTMENT, Ann Arbor, Michigan (G. Knoll, W. Stephany, D. Gilliam), recently completed the design of a laboratory to be used for precision cross-section measurements using photoneutron sources. The CCC-82/ANISN code was used as a design tool for selecting a neutron absorbing liner. Presently work is being done to evaluate the scattered neutron flux in the laboratory. Studies are also being made of energy dependent neutron leakage and absorption in a MnSO_4 -filled sphere for keV energy neutron sources at the sphere center. Monte Carlo calculations of the neutron production and energy spectrum of photoneutrons from thin-shell sources are also being done. They have need for ANISN Formatted multigroup data below 0.414 eV for use with the DLC-2/99G

library.

Neutron transport from localized sources in bulk media is one general problem being considered at RENSSELAER POLYTECHNIC INSTITUTE, Troy, N. Y. (M. Becker). A specific area of concern is the sensitivity of transport results to basic cross-section data. Analytical methods are being developed for simultaneous slowing-down and diffusion with applications to the sensitivity problem and to the generation of position-dependent group constants. Also being studied are the improvement of discrete ordinates calculations, methods of treating anisotropic-scattering group constants, and the general problem of group-constant generation from basic cross-section data.

THE RADIOLOGICAL SCIENCES DIVISION, E. I. DUPONT DE NEMOURS & CO., SAVANNAH RIVER LABORATORY, Aiken, South Carolina (D. H. Stoddard) is concerned with measurements and calculations of shielding for the isotopes separations facility, research facility, and isotope shipping casks.

ADDITIONS TO THE COMPUTER CODE COLLECTION

Operable, tested with a sample problem, and available for distribution are the following code packages.

CCC-156/MECC-3	Medium-Energy Intranuclear Cascade Code System, contributed by Neutron Physics Division, Oak Ridge National Laboratory. Reference: ORNL-4564. FORTRAN IV, IBM 360/75/91.
CCC-160/PICA	Photon-Induced Intranuclear Cascade Analysis Code System, contributed by the Neutron Physics Division, Oak Ridge National Laboratory. Reference: ORNL-4687. FORTRAN IV, IBM 360/75/91.
CCC-161/NMTC	Nucleon-Meson Transport Code System, contributed by Neutron Physics Division, Oak Ridge National Laboratory. Reference: ORNL-4606. FORTRAN IV, IBM 360/75/91.
CCC-162/FPIP	Fission Product Inventory Code, contributed by Westinghouse Astronuclear Laboratory, Pittsburgh, Pa. Reference: WANL-TME-537, Revision 1. FORTRAN.
CCC-163/FISSP-CLOUD	Fission Product Inventory, Release, Transport and Dose Calculation, contributed by Sandia Laboratories, Albuquerque, New Mexico. Reference: SC-RR-70-338. FORTRAN IV, CDC 6600.

The following peripheral shielding code packages are available.

PSR-28/AMUSE Gamma-Ray Spectra Unfolding Code, contributed by Los Alamos Scientific Laboratory. Reference: LA-4030. FORTRAN, CDC 6600.

PSR-29/SCANS Spectra Calculation from Activated Nuclide Sets, contributed by Idaho Nuclear Corporation, Idaho Falls. Reference: IN-1446. FORTRAN IV, IBM 360.

UKE UPDATED

The original UKE code was designed to translate UKAEA neutron cross section data into the ENDF/B-I data format. The code has been updated to translate the data into the ENDF/B-II data format. The new version is packaged as PSR-15B/UKE-II.

RSIC PAPER AT NUCLEAR MEDICINE MEETING

An invited paper entitled "A Computer Code Center - Experience and Operations" was presented by Betty F. Maskewitz to the Symposium on the Sharing of Computer Programs and Technology in Nuclear Medicine held in Oak Ridge, April 2 and 3. Sponsors of the topical meeting were the Nuclear Medicine Society, the Oak Ridge Associated Universities, Oak Ridge National Laboratory, and Vanderbilt University. Proceedings of the Symposium will be published.

NEW CATEGORY IN REACTOR-WEAPONS LITERATURE SYSTEM

A new category has been added to the Reactor-Weapons literature system. If this category corresponds with your interests, please write us requesting that the following be added to your profile:

111600 Sources - Neutron - Reaction - Photoneutron

PERSONAL ITEMS

Dr. Ricardo Artigas has left the Battelle Memorial Institute, Columbus, Ohio to accept a position as Specialist-Nuclear Criticality with the Nuclear Energy Division of General Electric Company, in San Jose, California.

Karl Koebberling, formerly with Aerojet Nuclear Systems in Sacramento, California, is now with the Bay Tree Company in Atlanta, Georgia.

Dr. John Herbst has left the Nuclear Technology Corporation, White Plains, New York, for employment with the Computer Science Corporation in Elmsford.

Dr. W. J. Wieseahn is now associated with TRIUMF, Dept. of Chemistry, Simon Fraser University, in Burnaby, British Columbia, Canada.

VISITORS TO RSIC

Visitors to RSIC during the month of April were: H. Atkinson, Jr., USAEC-DTI, Washington, D. C.; J. Courtney, Rancho Cordova, Calif.; R. W. Enz and J. G. Picarelli, AFWL, Kirtland AFB, New Mexico; D. C. Kaul, DASA, Washington, D. C.; P. Kirkegaard, Danish AEC, Research Establishment Riso, Roskilde, Denmark; Willy Matthes, CCR EURATOM, Ispra, Italy; V. J. Orphan, Gulf Radiation Technology, San Diego, Calif.; L. F. Rodriguez, University of Cincinnati, Cincinnati, Ohio; D. Shupe, SAMSO, Redondo Beach, Calif.; K. Volet, Picatinny Arsenal, Dover, N. J.; R. M. Webb, TRW, Redondo Beach, Calif.

APRIL 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.

REACTOR AND WEAPONS SHIELDING

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Under Doors
H. Cordes, W. Futtermenger

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Construction and Calibration of a ^6LiF Boundary Layer Counter-
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E. Werner

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February 1969

Measurement of Neutron and Gamma Radiation Within the Biological
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H. Bindewald, H. Cordes, W. Futtermenger, G. Stiller

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W. Futtermenger

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Measurement of the Penetrability by Neutrons of Specimens of
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H. Bindewald, S. Sasse

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Waste Control Problems in an Expanded Nuclear Power Industry
P. J. Barry, I. L. Ophel
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AFRRI SR68-25

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An Analytical Pulse Reactor Model with Delayed Neutrons
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Studies of the Effects of Irradiation on Cladding and Structural
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Battelle Memorial Institute, Columbus, O.

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Analysis of In-and-Down Scattered Radiation Measurements in a
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Treatment of Contaminations by Pu-239
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Weighting and Bias in a Monte Carlo Calculation for Neutrons in the
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J. Brisbois, A. Rafalovitch, A. Sonnet

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