RSIC Newsletter

RADIATION SHIELDING INFORMATION CENTER

OAK RIDGE NATIONAL LABORATORY

OPERATED BY UNION CARBIDE CORPORATION • FOR THE U.S. ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION

POST OFFICE BOX X • OAK RIDGE, TENNESSEE 37830

No. 135 *March 1976*

I have long discovered that geologists never read each other's works, and that the only object in writing a book is a proof of earnestness, and that you do not form your opinions without undergoing labor of some kind.

...Charles Darwin

NEWS ON THE RSIC SEMINAR WORKSHOP ON ENERGY SPECTRA UNFOLDING

Titles and abstracts of papers to be presented at the RSIC seminar-workshop have been coming in prior to the March 1 deadline for abstracts. Some of the institutions and companies represented are: EURATOM CCR, Aerojet Nuclear, Lawrence Livermore, Oak Ridge, Science Applications, Inc., Battelle Pacific Northwest Laboratory, Westinghouse Electric Corp., Universities of Arkansas, Illinois, Missouri, Kansas State, and Purdue. More papers can probably be accepted.

Walter Meyer of the University of Missouri will lead a session on cooperative benchmark problems and comparisons. Dr. R. Dierckx of EURATOM CCR, Ispra, plans to give a paper on *Intercomparisons of Unfolding Codes for Neutron Spectra Evaluation*. Donald Lang, Australian Atomic Energy Commission Research Establishment, Lucas Heights, finds the distance too far to come but will contribute a paper for the proceedings.

Ross Burrus, who pioneered the FERDoR line of development is putting together a FERD-FERDoR package and will give a resumé of how it all started.

Please let us know as soon as possible if you plan to attend.

NEWS ON FIFTH INTERNATIONAL CONFERENCE ON REACTOR SHIELDING

The Technical Program Committee of the Fifth International Conference on Reactor Shielding, to be held April 18-22, 1977, in Knoxville, Tennessee, met recently and adopted a scope for the conference and a list of topics to be emphasized. The scope and topics are as follows:

I. Scope of the Conference

"This conference is intended to be an international meeting focused on both the fundamental and applied aspects of nuclear reactor plant shielding and radiation protection. Emphasis will be on operating power reactor occupational exposure problems, practical aspects of shield design, and requirements for nuclear data."

II. Conference Topics

1. Sensitivity analysis and data requirements for shielding.
2. Applications of new developments and improvements in radiation transport methods (e.g., S_n, finite elements, Monte Carlo, and others).
3. Integral shielding experiments for data and methods testing.
4. Shield design for fission and fusion power plants (including design criteria).
5. Neutron and gamma ray streaming in operating facilities and their analysis.
6. Occupational radiation exposure (review of current experience, design to reduce exposures).
7. Contamination by activated corrosion products and fission products (experience design to minimize, and methods to predict contamination levels).

8. Airborne radioactivity in nuclear plants (sources, detection equipment, ventilation systems, design of equipment to minimize airborne radioactivity).
9. In-plant radiation protection instrumentation (area radiation monitors, continuous air monitors, experience, design criteria, rationale for location of instruments).
10. Radiation damage (e.g., to reactor internals, electrical insulation, lubricants, gaskets, and seals).
11. Standards and information resources (efforts in material standards, penetration designs, and radiation zoning and monitoring).
12. Cost-benefit of shielding and radiation protection.

The deadline for 300-word summaries is tentatively set for August 20, 1976. Further information is available from the Technical Program Chairman, Siegfried Gerstl at P. O. Box 1663, MS-269, Los Alamos Scientific Laboratory, Los Alamos, N.M. 87545 or from the General Chairman, David Trubey at RSIC.

HIRSCH COMPLETES GUIDELINES FOR LONG RANGE CTR PROGRAM

Dr. Robert L. Hirsch, now Acting Assistant Administrator for Solar, Geothermal, and Advanced Energy Systems, recently completed guidelines for a flexible, new, long-range, magnetic fusion research program. Dr. Hirsch has been director of the Division of Controlled Thermonucler Research (CTR) since 1972.

The aim of the updated CTR plan, still under development, is to define and outline alternante approaches to the development of pure fusion, electrical power systems under all foreseeable conditions. These include the need for fusion power the priority given the program by the nation, the funding made available, and the state of the art, including physics and engineering technology advancements.

AMERICAN NUCLEAR SOCIETY CANDIDATES ANNOUNCED

The nominating committee of the ANS Shielding and Dosimetry Division has announced the following candidates for office for the year beginning in June: *Shielding and Dosimetry*—Chairman, F. R. Mynatt (ORNL); Vice Chairman, Wilbur Bunch (HEDL) and Murray Schmoke (U.S. Army Ballistic Research Lab); Secretary, Martin O. Cohen (Mathematical Applications Group, Inc.) and Nancy Willoughby (Bechtel); Treasurer, Charles Huddleston (U.S. Naval Surface Weapons Center); Executive Committee (by pairs): Gail de P. Burke (ERDA) and James Lonergan (Science Applications); Eugene Normand (Sargent & Lundy) and Charles Weisbin (ORNL); Ed Warman (Stone & Webster) and Mike Wells (Radiation Research Associates).

The nominees for the ANS Board of Directors are: Margaret Butler, Russell L. Crowther, John Cunningham, Reino J. Ekholm, Geoffrey Eichholz, Albert Goodjohn, Joseph M. Hendrie, Leonard J. Koch, Herman Postma, James Ramey, Einar Swanson, Walter Wolf, and C. Pierre Zaleski. Brownell, Jupiter, and Meyer are Shielding and Dosimetry Division members.

NUMBER, PLEASE

The Federal Telecommunication System (FTS) recently changed its number format and many of its telephone numbers. We try to keep up a directory including phone numbers for everyone on our distribution to save time of our staff in making calls. Needless to say, the new FTS system has given us a batch of problems. If your FTS number has changed, could you drop us a line with the new number?

VISITORS TO RSIC

The following persons visited RSIC during the month of January: Ray Booth and Helga Gerstner, Instrumentation and Controls Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee; A. R. Buhl, Energy Research and Development Administration, Oak Ridge, Tennessee; Clyde Jupiter, Nuclear Regulatory Commission, Washington, D.C.; Charles D. Swanson, Control Data Corporation, Minneapolis, Minnesota; and Randall W. Pack, Electric Power Research Institute, Pala Alto, California.

LAST MINUTE ALERT!

The Euratom Shielding Information Service (ESIS) has announced plans for a Seminar-Workshop on the three-dimensional Monte Carlo multigroup neutron radiation transport code system, TRIPOLI, developed by the CEA/CEN/Saclay Shielding Group in France to be held at Ispra (Varese), Italy 18–19 October, 1976. Watch the April issue of the RSIC Newsletter for additional information.

CHANGES IN THE CODE COLLECTION

CCC-214/DOPEX-1D2C

This one-dimensional, two-constraint radiation shield optimization code package was updated to correct an error called to RSIC attention by Jack Courtney, LSU, and Jerry Lahti, Sargent and Lundy, formerly with the original contributor, NASA Lewis Research Center. A statement describing the correction or the complete code package may be requested.

CCC-274/TIMEX

This one-dimensional time-dependent explicit discrete ordinates multigroup transport code with anisotropic scattering was contributed by Los Alamos Scientific Laboratory. Reference: LA-4800 (July 1972). FORTRAN IV; CDC-7600. An IBM 360 version is in process.

CCC-275/E-DEP-1

This heavy ion energy deposition code package, designed to calculate the distribution of energy deposited into elastic collisions for a beam of heavy ions coming to rest in an amorphous target material of up to six atomic components, was contributed by *Naval Research Laboratory*, Washington, D. C. Reference: Computer Physics Communication 7(1974), 85-94, (June 1973). FORTRAN IV; CDC 3800.

CCC-276/DOT 3.5

Two-dimensional discrete ordinates code contributed by Oak Ridge National Laboratory. DOT 3.5, newly frozen version of ORNL's code development, was developed (1) To provide a test vehicle for several new ideas to be used in DOT IV; (2) To facilitate checking between DOT III and DOT IV; (3) To make new developments available to the user on an interim basis until DOT IV is ready for general use. The most significant change is a marked improvement in convergence on deep-penetration problems. New features in the control input section allow some flexibility in the rebalance method. Informal notes revising DOT III documentation ORNL-TM-4280 and input and output from a sample problem is packaged. A reel of magnetic tape is required for transmittal.

PSR-63/AMPX-I

The modular code system for generating coupled multigroup neutron-gamma-ray libraries from ENDF/B was updated to correct the first card of subroutine LTPN in LAPHANGAS. This card, after being corrected reads: SUBROUTINE LTRM (XDAT,XL,XU,F,BOT,TOP,T, DENO,AN,E,X,NBT,INT,. This correction was called to RSIC attention by the ORNL originators.

CHANGE TO DATA COLLECTION

DLC-38/ORYX-E

The data library of ORIGEN yield and cross sections data was updated by changing the tritium set in all fission-product yield and decay data files to be consistent with those in use at ORNL. In addition, an exponent error in the actinide file was corrected as indicated by a January 1974 RSIC Newsletter item. The updated version is denoted **DLC-38B**. A listing of the new tritium data set is available upon request.

FUTURE MEETINGS OF INTEREST TO FUSION R & D

In 1976b

March 15–17, *Internat'l Conference on Advanced Nuclear Energy Systems*, Pittsburgh, PA. Contact A. Redding, W, P. O. 355, Pittsburgh, PA 15230.

March 29, *Blanket and Shield Workshop*, BNL. Contact J. Powell, BNL.
March 29–31, *3rd Energy Technology Conference/Exposition*, Washington D.C. Contact Government Institutes, Inc.
March TBD, *Damage Assessment Workshop*, ERDA, Germantown, MD. Contact T. C. Reuther, DCTR.
March TBD, *University of Wisconsin D&T Program Review*, ERDA, Germantown, MD. Contact R. Kostoff/F. Coffman, DCTR.
March TBD, *TFTR Neutral Beam Steering Committee Meeting*, ERDA, Germantown, MD. Contact J. W. Beal, DCTR.
April 7–9, *Annual Sherwood Theory Meeting*, Madison, Wisconsin. Contact J. Shohet, U. of Wisconsin.
April 19–21, *Fusion Power Coordinating Committee*, LLL. Contact G. K. Hess, Jr., DCTR.
April 27–30, *2nd European Conference on Computational Physics*, Munich, Germany.
May 11–14, *6th Internat'l Cryogenic Engineering Conference*, Grenoble, France. Contact ICEC 6 Secretary.
May 24–26, *IEEE Conference on Plasma Science*, U. of Texas, Austin. Contact E. J. Powers, U. of Texas.
May 26–28, *Mini Course on Fusion* (in conjunction with IEEE Plasma Science Meeting), U. of Texas, Austin. Contact G. H. Miley, U. of Illinois, 214 N.E.L., Urbana, Illinois.
June 7–11, *Fundamentals of Controlled Fusion* (Summer Course), MIT. Contact L. Lidsky, MIT.
June 8–10, *1976 Power Electronic Specialists Conference*, Cleveland, Ohio. Contact P. A. Thollot, NASA-Lewis Research Center.
June 13–18, *Annual ANS Meeting*, Toronto, Canada. Contact ANS.
June 14–18, *Technology for Fusion Reactors* (Summer Course), MIT. Contact L. Lidsky, MIT.
June 14–18, *9th Symposium on Fusion Technology*, Garmisch-Partenkirchen. Contact H. Lohnert, Max Planck Inst. Garching, FRG.
June 28–July 2, *Conference on Plasma Heating*, Grenoble, France. Contact T. Consoli, Grenoble.
July 21–22, *Annual Information Meeting, Thermonuclear Division*, ORNL. Contact J. F. Clarke, ORNL.
July 26–30, *5th Internat'l Conference on Atomic Physics*, Berkeley, California. Contact R. Marrus, ICAP Chairman, U. of Calif., Berkeley.
July TBD, *Fusion Power Coordinating Committee*, PPPL. Contact G. K. Hess, Jr., DCTR.
August 17–20, *Applied Superconductivity Conference*, Stanford, California. Contact T. H. Geballe, Stanford.
September 6–17, *3rd Symposium on Plasma Heating of Toroidal Devices*, Varenna, Italy. Contact W. Hooke, PPPL.
September 20–October 1, *Tokamak Reactors for Breakeven*, Erice, Italy. Contact H. Knoepfel, Frascati.
September 21–23, *2nd Topical Meeting on the Technology of Controlled Nuclear Fusion*, Richland, Washington. Contact L. Schmid, PNL.
October 6–13, *IAEA 6th Conference on Plasma Physics CTR*, Berchtesgaden, Germany. Contact J. A. Phillips, Vienna.
October 18–22, *Internat'l Symposium on Plasma Wall Interaction*, Julich, Bundesrepublik, Deutschland. Contact Dr. Eduard Hintz.
November 8–12, *IAEA Large Tokamak Meeting*, Princeton, N. J. Contact J. N. Grace, DCTR.
November 14–18, *APS Division of Plasma Physics*, San Francisco, California. Contact F. W. Crawford, Stanford U.
November 14–19, *ANS/AIF International Meeting*, Washington, D. C. Contact D. G. Pettergill, ANS, Hinsdale, Illinois.

In 1977
April 18–22, *5th International Conference on Reactor Shielding*, Knoxville, Tennessee. Contact D. K. Trubey, ORNL.
June 13–17, *International Meeting on New Energy Sources*, Paris, France. Contact Technoexpo.
October 25–28, *IEEE Fusion Engineering Meeting*, ORNL. Contact IEEE.

RSIC GRAB BAG

Copies of the following reports are available from RSIC:

ORNL-TM-1819, *Calculations of the Effect of the Air-Ground Interface on the Transport of Fission Neutrons Through the Atmosphere*, E. A. Straker and F. R. Mynatt.

ORNL-TM-2481, *Photonuclear Disintegration at High (<350 MeV) Energies*, T. A. Gabriel and R. G. Alsmiller, Jr.
ORNL-TM-2554, *Shielding Against Neutrons in the Energy Range 50 to 400 MeV*, R. G. Alsmiller, Jr., F. R. Mynatt, J. Barish, and W. W. Engle, Jr.
ORNL-TM-2781, *Time-Dependent Neutron and Secondary Gamma-Ray Transport in Infinite Air and in Air Over Ground*, E. A. Straker.
ORNL-TM-2848, *Calculation of the Long-Lived Induced Activity in Soil Produced by 200-MeV Protons*, T. A. Gabriel.
ORNL-TM-3025, *The Lateral Spread of High-Energy (≤ 400 MeV) Neutron Beams and Earthshine*, R. G. Alsmiller, Jr., F. R. Mynatt, M. L. Gritzner, J. V. Pace, and J. Barish.
ORNL-TM-3098, *The Low-Energy Neutron Spectrum of the ORNL Tower Shielding Reactor Beam*, R. M. Freestone, Jr., F. J. Muckenthaler, K. M. Henry, Jr., and C. E. Clifford.
ORNL-TM-3129, *User's Manual for Programs to Edit and Combine DLC-5/HALLMARK Calculational Results of Neutron and Secondary Gamma-Ray Transport in Air-Over-Ground Geometry*, C. L. Thompson, I. J. Brown, and R. W. Roussin.
ORNL-TM-3153, *An Approximate High-Energy Alpha-Particle-Nucleus-Collision Model*, T. A. Gabriel, R. T. Santoro, and R. G. Alsmiller, Jr.
ORNL-TM-3353, *Muon Transport and the Shielding of High-Energy (≤ 500 GeV) Proton Accelerators*, R. G. Alsmiller, Jr., F. S. Alsmiller, J. Barish, and Y. Shima.

ORNL-TM-3365, *Application of DOT-MORSE Coupling to the Analysis of Three-Dimensional Snap Shielding Problems*, E. A. Straker, R. L. Childs, and M. B. Emmett.

ORNL-TM-3437, *Nucleon and Charged-Pion Albedo Spectra in an Accelerator Cave From 200-GeV Proton Interactions in Iron*, T. A. Gabriel and R. T. Santoro.

ORNL-TM-3553, *Convergence of the Discrete Ordinates Method for Anisotropically Scattering Multiplying Particles in a Subcritical Slab*, Paul Nelson, Jr.

ORNL-TM-3754, *The Effect of the Ground on the Steady-State and Time-Dependent Transport of Neutrons and Secondary Gamma Rays in the Atmosphere*, E. A. Straker.

ORNL-TM-3933, *Fast Reactor Shielding Methods Development*, F. R. Mynatt and M. L. Gritzner.

ORNL-TM-3944, *Neutron Cross Section Sensitivity Analysis: A General Approach Illustrated for a Na-Fe System*, D. E. Bartine, E. Oblow, and F. R. Mynatt.

ORNL-TM-3945, *Photon Dose Rates from the Interactions of 200 GeV Protons in Iron and Iron-Lead Beam Stops*, T. A. Gabriel and R. T. Santoro.

ORNL-TM-4029, *Shielding of Manned Space Vehicles Against Galactic Cosmic-Ray Protons and Alpha Particles*, R. T. Santoro, R. G. Alsmiller, Jr., and K. C. Chandler.

ORNL-TM-4060, *Shielding Against the Neutrons Produced when 400 MeV Electrons are Incident on a Thick Copper Target*, R. G. Alsmiller, Jr., and J. Barish.

ORNL-TM-4176, *ORNL TSF Pipe Chase Neutron Streaming Experiment—Phase One*, B. J. McGregor, F. R. Mynatt, F. J. Muckenthaler, and C. E. Clifford.

ORNL-TM-4235, *Application of a Discrete-Energy, Discrete-Ordinates Technique to the Study of Neutron Transport in Iron*, J. Ching, H. Goldstein, and E. M. Oblow.

ORNL-TM-4266, *Effects of Air-Density Perturbations on the Transport of Gamma Rays Produced by Point Gamma-Ray Sources*, B. J. McGregor and F. R. Mynatt.

ORNL-TM-4283, *ORNL TSF Pipe Chase Neutron Streaming Experiment—Phase Two*, B. J. McGregor, C. E. Clifford, F. J. Muckenthaler, and F. R. Mynatt.

ORNL-TM-4311, *Predicted Proton Spectrum at Forward Angles for 29.4-GeV N on C Collisions*, H. W. Bertini, T. A. Gabriel, and R. T. Santoro.

ORNL-TM-4334, *Calculated Secondary-Particle Spectra from Alpha-Particle and Carbon-Induced Nuclear Reactions*, T. A. Gabriel, R. T. Santoro, H. W. Bertini, and N. M. Larson.

ORNL-TM-4335, *Radiation Transport Cross-Section Sensitivity Analysis—A General Approach Illustrated for a Thermonuclear Source in Air*, D. E. Bartine, E. M. Oblow, and F. R. Mynatt.

ORNL-TM-4345, *Photon Spectra from Induced Activity in an Orbiting Spacecraft*, R. G. Alsmiller, Jr., G. T. Chapman J. W. Wachter, and J. Barish.

ORNL-TM-4369, *Calculations Related to the Use of Photons, Neutrons, Negatively Charged Pions, Protons, and Alpha Particles in Cancer Radiotherapy*, R. G. Alsmiller, Jr., R. T. Santoro, T. W. Armstrong, J. Barish, K. C. Chandler, and G. T. Chapman.

ORNL-TM-4406, *Gamma-Ray Production Due to Neutron Interactions with Tin For Incident Neutron Energies Between 0.75 and 20 MeV: Tabulated Differential Cross Sections*, J. K. Dickens, T. A. Love, and G. L. Morgan.

ORNL-TM-4407, *The Effects of Bone in the Use of Negatively Charged Pions in Cancer Radiotherapy*, R. T. Santoro, R. G. Alsmiller, Jr., and K. C. Chandler.

ORNL-TM-4419, *Energy Deposition by High-Energy Electrons (50 to 200 MeV) in Water*, R. G. Alsmiller, Jr., J. Barish, and S. R. Dodge.

ORNL-TM-4437, *Reactor Cross-Section Sensitivity Studies Using Transport Theory*, E. M. Oblow.

ORNL-TM-4446, *Calculations of Coolant-Pipe Neutron Streaming and Secondary Coolant Activation in the Fast Flux Test Facility*, B. J. McGregor, F. B. K. Kam, F. R. Mynatt, and L. S. Abbott.

ORNL-TM-4450, *Calculation of Energy Depositions and Dose Rates in Proposed Shielding Surrounding the TSR-II Reactor*, Shunsuke Uchida, Joe Lewin, and R. E. Maerker.

ORNL-TM-4490, *Calculated Physical and Biological Results when Negatively Charged Pions are Used to Irradiate a Small and a Large "Tumor" Volume in a Tissue Phantom*, R. T. Santoro and R. G. Alsmiller, Jr.

ORNL-TM-4494, *Analyses of Neutron Scattering and Gamma-Ray Production on Carbon for Neutron Energies from 1 to 15 MeV*, S. N. Cramer and E. M. Oblow.

ORNL-TM-4781, *An Example of the Application of the Cuex Methodology—the Calculated Exposure Resulting from Routine Stack Releases from the Haddam Neck Nuclear Power Plant*, Fred H. Sweeton.

ORNL-TM-4803, *Calculated Performance of a Mineral-Oil-Iron Ionization Spectrometer*, T. A. Gabriel, J. D. Amburgey, and R. T. Santoro.

ORNL-TM-4841, *Neutron and Secondary-Gamma-Ray Transport Calculations for 14-MeV and Fission Neutron Sources in Air-Over-Ground and Air-Over-Seawater Geometries*, J. V. Pace, III, D. E. Bartine, and F. R. Mynatt.

ORNL-TM-4847 (ENDF-218), *Cross Section and Method Uncertainties: the Application of Sensitivity Analysis to Study Their Relationship in Radiation Transport Benchmark Problems*, C. R. Weisbin, E. M. Oblow, J. Ching, J. E. White, R. Q. Wright, and J. Drischler.

ORNL-TM-4926, *High-Energy (40 MeV $\lesssim E_n \lesssim$ 400 MeV) Photonuclear Interactions*, T. A. Gabriel. Interactions, T. A. Gabriel.

ORNL-TM-4972 (ENDF-219), *The Nb(n,xγ) Reaction Cross Section for Incident Neutron Energies Between 0.65 and 20.0 MeV*, J. K. Dickens, G. L. Morgan, and E. Newman.

ORNL-TM-4973, *The Au(n.xγ) Reaction Cross Section for Incident Neutron Energies Between 0.2 and 20.0 MeV*, G. L. Morgan and E. Newman.

ORNL-TM-5018, *Measurement of Secondary Neutrons and Gamma Rays Produced by Neutron Bombardment of Water Over the Incident Energy Range 1 to 20 MeV*, G. L. Morgan.

ORNL-TM-5023, *Measurement of Secondary Neutrons and Gamma Rays Produced by Neutron Interactions with Nitrogen and Oxygen Over the Incident Energy Range 1 to 20 MeV*, G. L. Morgan.

ORNL-TM-5024, *Measurement of Secondary Neutrons and Gamma Rays Produced by Neutron Interactions in Silicon Dioxide Over the Incident Energy Range 1 to 20 MeV*, G. L. Morgan.

ORNL-TM-5072, *Measurement of Secondary Neutrons and Gamma Rays Produced by Neutron Interactions in Aluminum Over the Incident Energy Range 1 to 20 Mev* G. L. Morgan.

ORNL-TM-5081, *Gamma-Ray Production Due to Neutron Interactions with Silver for Incident Neutron Energies Between 0.3 and 20 MeV: Tabulated Differential Cross Sections*, J. K. Dickens, T. A. Love, and G. L. Morgan.

ORNL-TM-5097 (ENDF-220) *The Mo(n,xγ) Reaction Cross Section for Incident Neutron Energies Between 0.2 and 20.0 MeV*, G. L. Morgan and E. Newman.

ORNL-TM-5098 (ENDF-222), *The Cr(n,xγ) Reaction Cross Section for Incident Neutron Energies Between 0.2 and 20.0 MeV*, G. L. Morgan and E. Newman.

ORNL-TM-5215, *The Cu(n.xγ) Reaction Cross Section for Incident Neutron Energies Between 0.2 and 20.0 MeV*, G. T. Chapman.

ORNL-TM-5241, *Cross Sections for the Al(n,xn) and AL(n,xγ) Reaction Between 1 and 20 MeV*, G. L. Morgan and F. G. Percy.

THIS LITERATURE IS ON ORDER. IT IS NOT IN OUR SYSTEM. PLEASE ORDER FROM NTIS OR OTHER AVAILABLE SOURCE AS INDICATED.

REACTOR AND WEAPONS RADIATION SHIELDING LITERATURE

AAEC/E-360

Eigenvalues of the Discrete Ordinates Equations in Slab Geometry.

Donnelly, I.J.

September 1975

Dep., NTIS (U.S. Sales Only) $4.25

AEC-tr-7134, pp.54-59

Attenuation of the Neutron Flux Due to the Absorption in Solution and Its Effect on the Results of Neutron Activation Analysis of Solutions.

Kazachenkov, Yu.N.; Karatashev, E.R.; Chulkin, V.L.; Shtan, A.S.

May 1975

NTIS

BNL-20376

Version of the MORSE Multigroup Transport Code for Fusion Reactors Blankets and Shields Studies.

Ragheb, M.M.; Maynard, C.W.

August 30, 1975

Dep., NTIS $4.50

BNL-20563

Tritium Recovery from Fusion Blankets Using Solid Lithium Compounds.

Powell, J.R.; Wiswall, R.H.; Wirsing, E.

October 1975

NTIS

BNL-20581; CONF-751026-33

High-Energy Neutron Irradiation of Superconducting Compounds.

Sweedler, A.R.; Snead, C.L.; Newkirk, L.; Valencia, F.; Geballe, T.H.; Schwall, R.H.; Matthias, B.T.; Corenswit, E.

1975

Dep., NTIS $4.50

BNL-NCS-50464; ENDF-225

ENDF/B-IV Cross Section Measurement Standards.

Magurno, B.A.

April 1975

NTIS $6.50

BNL-NCS-50468; ENDF-229

Neutron Cross Sections of 59-Co Below 100 keV.

Mughabghab, S.F.; Krieger, T.J.

April 1975

NTIS $5.50

BNWL-B-450

PUDEQ: A Computer Code for Calculating Dose Equivalent from Internal Deposition of Plutonium at Hanford.

Houston, J.R.; Heid, K.R.

October 1975

Dep., NTIS $5.45

BNWL-SA-5588; CONF-751105-16

Calculated Doses from Inhaled Transuranium Radionuclides and Potential Risk Equivalence to Whole-Body Radiation.

Strom, P.O.; Watson, E.C.

1975

Dep., NTIS $5.00

CERN-75-14
Monte Carlo Calculations of the Neutron Transmission Through the Access Ways of the CERN Super Proton Synchrotron.
Vogt, H.G.
November 1975
NTIS

CONF-750723-18
Ion Beam Pellet Fusion as a CTR Neutron Test Source.
Arnold, R.; Martin, R.
July 1975
Dep., NTIS $4.25

CONF-750857-1
ORNL PWR Blowdown Heat Transfer Program.
Thomas, D.G.; Bennett, R.F.; Hedrick, R.A.; Sheppard, J.D.; Eads, B.G.; Helms, R.E.; White, J.D.
1975
NTIS

CONF-750935-1
Review of Unfolding Methods for Neutron Flux Dosimetry.
Stallmann, F.W.; Kam, F.B.K.
1975
Dep., NTIS $4.00

CONF-750935-11
Comparison of Differential and Integral Cross Section Measurements.
Greenwood, L.R.; Heinrich, R.R.; Dudey, N.D.
1975
NTIS

CONF-750935-12
Fission-Rate Measurements by Activation Techniques: Methods, Accuracies, and Applications.
Dudey, N.D.; Heinrich, R.R.
1975
Dep., NTIS $4.25

CONF-751063-1
Sensitivity Analysis Development and Applications Program at ORNL.
Oblow, E.M.
1975
Dep., NTIS $5.00

COO-2458-5
Direct Data Adjustment for U-238.
Parvez, A.; Becker, M.
1975
NTIS

DP-1277
Personnel Albedo Neutron Dosimeter with Thermoluminescent 6-LiF and 7-LiF.
Hoy, J.E.
January 1972
NTIS

DP-Report-754
Establishment of Complete Fission Product Inventories for Irradiated Fuel Elements. Dragon Project.
Hick, H.; Lammer, M.; Nabielek, H.; York, J.
May 1971
Dep., NTIS (U.S. Sales Only) $10.00

ERDA-tr-68; IAE-2494 (In Russian)
Energy Balance in Large Installations of "Tokamak" Type.
Dnestrovskii, Yu.N.; Kostomarov, D.P.
1975
NTIS

EUR-5273d-e-f(Vol.I), pp.191-225
Considerations Concerning Neutron Dosimetry.
Bichsel, H.
March 1975
INIS

GA-A-13,661
Characteristics of a First Generation Commercial Fusion Power Plant.
Baker, C.C.; Harder, C.R.; Sarger, P.H.,Jr.
December 11, 1975
NTIS $4.00

HASL-296
A Data Set for Noble Gas Plume Exposure Model Validation.
Gogolak, C.V.
July 1975
NTIS $4.00

HEDL-SA-787
Benchmark Experiments for Fission Product Data (Nuclear Data).
Schenter, R.E.
1975
NTIS

HEDL-SA-901; CONF-750935-5
Neutron Spectrometry for Reactor Applications: Status, Limitations, and Future Directions.
Gold, R.
August 1975
Dep., NTIS $4.75

HEDL-SA-917; CONF-750935-6
Damage Analysis: Damage Function Development and Application.
Simons, R.L.; Odette, G.R.
September 2, 1975
Dep., NTIS $4.00

HEDL-SA-939; CONF-750935-10
Dosimetry for Fluence Applications.
Farrar, H.,IV; Lippincott, E.P.; McElroy, W.N.
September 1975
Dep., NTIS $4.00

HEDL-SA-986; CONF-750972-1
Techniques for Studying Corrosion and Deposition of Radioactive Materials in Sodium Loops.
Brehm, W.F.; Chulos, L.E.; McGuire, J.C.; Leaf, A.C.; Colburn, R.P.
September 1975
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