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. 130 *September 1975*

Let no man imagine that he has no influence. Whoever he may be, and wherever he may be placed, the man who thinks becomes a light and a power.

. . . Henry George

RSIC INFORMATION DISSEMINATION IN FY 1975

A total of 3080 separate letters/telephone calls (about 12.3 each working day) requesting a variety of services (6268 total) were processed during fiscal year 1975. This represents an increase in workload of > 12% over the previous year.

On an average, the following dissemination activities took place each working day.

2.6	code packages were shipped to requesters.
1.3	data packages were shipped.
9.1	shielding documents (RSIC reports, handbooks, code and data documentation in addition to those included in above packages) were mailed.
10.5	responses to inquiries for information: possible solutions to problems; recommendations of calculational methods, computer codes, nuclear data sets, or literature specimens for study; trouble-shooting problems when requester has difficulties; and miscellaneous consultation and advisory service (inquiries, trouble-shooting, technical discussions, miscellaneous).
0.4	special retrospective searches, in addition to the routine Selective Dissemination of Information (SDI) service.
1.0	shipment of information packets and/or abstracts of documents.
24.9	separate activities required daily to satisfy the 3080 letters of request.

The routine SDI services 432 people currently, and 13 mailings were made during the year, a total of 6006 pieces. One hundred five special searches of the literature were made for individual requesters during the year.

The RSIC Newsletter was mailed each month to a peak of 1436 people at the end of the fiscal year (17232, total). Maintenance of the RSIC-user directory resulted in 1919 changes during the year.

A total of 141 people (29 foreigners) came for an orientation visit and/or to use the Center's facilities during the year.

ANY INTEREST IN SPECTRA-UNFOLDING WORKSHOP?

Suggestions have been made that RSIC sponsor a seminar or seminar/workshop on the practical aspects of unfolding radiation energy spectra. Probably both neutron (e.g., reactor) and gamma-ray (e.g., NaI detector) would be considered. Please let us know if you are interested in attending or contributing to such a seminar and tell us about your major interest in this area. If we have sufficient response, probably such a seminar could be held in the spring.

RESERVE ORNL-RSIC-13 NOW

Preparations are underway to publish abstracts of the RSIC computer code collection CCC-169 through CCC-263. The publication will appear as ORNL-RSIC-13, Volume IV, "Abstracts of Digital Computer Code Packages Assembled by the Radiation Shielding Information Center."

Our usual practice is to print only the number of copies required to fill outstanding requests as of publication date and place the document in the National Technical Information Service (NTIS) for sale. We urge you, therefore, to send to us your request for a reserved copy to be distributed as it comes off the press.

RSIC AND UNIT CHARGING

In late 1974, the USAEC issued to all AEC-supported information centers a directive to charge certain users for products and services. These charges (minimum, $10) are to be billed against a pre-established account with the National Technical Information Service (NTIS) of the U.S. Dept. of Commerce in Springfield, Virginia.

Requesters to whom **the directive does not apply** fall into the following exemption categories:

a. Is associated with a financial sponsor of the information center or with the sponsor's contractors or special interest groups. **For RSIC, this would include: Energy Research and Development Administration (ERDA); Defense Nuclear Agency (DNA) for all DoD; Nuclear Regulatory Commission (NRC); and Electric Power Research Institute (EPRI) for the power industry.**
b. Is on a special list supplied by above sponsors.
c. Provides information to the center on a voluntary basis (literature, computer codes, nuclear data, etc.) and/or provides assistance to the center in its mission.
d. Where bilateral agreements cover free and uninhibited exchange.
e. Where the information is requested by a student or other individual doing research not funded by grant or salary.
f. Where the information requested is documented and available requiring less than one hour to assemble or resulting in a cost of less than $10.

RSIC has always communicated closely with its users and has enjoyed a high rate of reciprocal exchange. Most RSIC users have, through the years, been contributors of information. Most RSIC users have given assistance to us when needed—advice, participation in working groups, in the RSIC seminar workshops, etc. The extensive RSIC collections of codes and data attest to your support. We expect this mutual exchange, so vital to the advancement of technology, to continue. If the reader does not fall into any of the above categories for exemption, please call or write the RSIC Coordinator (Betty F. Maskewitz) to discuss your situation.

We believe that the greatest number of RSIC requesters fall into one or more of the above categories. Since we must be prepared to document this if called upon, we will appreciate your assistance. When requesting information, please tell us under whose auspices you do the work (see (a) above) or give us other information to make the determination. All such information will be considered privileged and will be handled as such.

We continue to work with the philosophy that *this is your information center; only with your cooperation and your collaboration can we give a viable service.* We are always happy to serve you.

RSIC GRAB BAG

We make another offering of extra copies of documents received in RSIC. We will distribute as usual on a first-come basis until the supply is exhausted. Please order by report number.

NE-3383-102-69U (ENDF-128), *LUTE and LATEX, Special-Purpose Codes to Translate from Modified—UK to ENDF/B Format,* submitted by D. J. Dudziak and J. M. Cook (August 1969).

ORNL-4744, *Operating Instructions for the High-Energy Nucleon-Meson Transport Code HETC,* K. C. Chandler and T. W. Armstrong (January 1972).

ORNL-4933, *Energy Deposition by 45-GeV Photons in H, Be, Al, Cu, and Ta,* R. G. Alsmiller, Jr., J. Barish (January 1974).

ORNL-4985, *Gamma-Ray Production Due to Neutron Interactions with ^{68}Zn and the Level Structure of ^{68}Zn,* J. K. Dickens (September 1974).

ORNL-TM-3518, *XCHEKR—A Multigroup Cross-Section Editing and Checking Code,* C. E. Burgart and E. A. Straker (August 1971).

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 (November 1973).

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, R. G. Alsmiller, Jr. (March 1974).

UCRL-50400, Vol. 1, *An Integrated System for Production of Neutronics and Photonics Calculational Constants, Volume I, ECSIL, A System for Storage, Retrieval, and Display of Experimental Neutron Data,* R. J. Howerton, W. J. Cahill, K. L. Hill, D. W. Thompson and S. T. Perkins (January 1968).

UCRL-50400, Vol. 5, *An Integrated System for Production of Neutronics and Photonics Calculational Constants, Volume 5, CLYDE, A Code for the Production of Calculational Constants from Nuclear Data,* R. J. Doyas, T. C. Michels, S. T. Perkins and R. J. Howerton (May 1971).

UCRL-51427, *Evaluated Neutron Reaction Data for Uranium 238,* R. J. Howerton and M. H. MacGregor (July 1973).

CHANGES IN THE CODE COLLECTION

The following changes were made in the month of August.

CCC-46/OGRE

The general purpose Monte Carlo Gamma-Ray Transport Code System, OGRE, has been extended to include an auxiliary code, OGRE-GS, a modification of OGRE-G to handle the analysis of the leakage gamma-ray spectrum from a thin sample plate. OGRE-G calculates dose rate at arbitrary points in an arbitrary geometry. This addition is the contribution of the Hitachi Research Laboratory, Ibaraki, Japan and the Oak Ridge National Laboratory. The OGRE System is available in FORTRAN IV, IBM 360.

CCC-153/ASFIT-D

This Gamma-Ray Transport Code for One-Dimensional Finite Systems was contributed by Bhabha Atomic Research Centre, Bombay, India and Oak Ridge National Laboratory. FORTRAN IV; IBM 360.

CCC-209/DOT III

The two-dimensional Discrete Ordinates Transport Code Package has been extended by the inclusion of a version converted from IBM 360 to run on the CDC 6000-series computers (CYBER 73, CDC 6600/7600, etc.) contributed by the Utility Network of America, McLean, Virginia. The original DOT III is an ORNL product, packaged as 209A. This version is packaged as 209B.

CCC-217/ORIGEN

This Isotope Generation and Depletion Code—Matrix Exponential Method—has been updated to allow for use of two new data libraries (see DLC-38/ORYX-E). The extension was a contribution of the Chemical Technology and Neutron Physics Divisions, Oak Ridge National Laboratory. Users of ORIGEN are advised to request the new code package rather than try to implement the rather substantial changes in the programming.

CCC-222/TWOTRAN II

Both hardware versions, CDC and IBM, have been updated to correct errors in subroutines STORAF, FIXUP, and OUTPUT3 called to RSIC attention by Forrest W. Brinkley, Jr., Los Alamos Scientific Laboratory. This Two-Dimensional Multigroup Discrete Ordinates Transport Code in (x,y), (r,θ), and (r,z) Geometries is the original work of LASL.

CCC-255/ANISN

The Multigroup One-Dimensional Discrete Ordinates Transport Code Package has been extended to include a new hardware version (CCC-255B; Burroughs B-5700) contributed by Kent State University, Kent, Ohio. This version is converted from the WANL version, CCC-255A; CDC 6600.

CCC-267/HAM

The Monte Carlo Multigroup Neutron and Photon High Altitude Transport Code System was contributed by Science Applications, Inc., La Jolla, California, and USA Ballistic Research Laboratories, Aberdeen Proving Ground, Maryland. HAM is a modification of MORSE (CCC-203) and incorporation of the high altitude geometry routines from HART. Reference: BRL-CR-228. FORTRAN IV, UNIVAC-1108.

PSR-93/PUFF

Multigroup Covariance Matrices Generator—ENDF/B-IV Neutron Uncertainty File Processing Code was contributed by Oak Ridge National Laboratory. Assistance in conversion to the CDC 6600/7600 was given by Los Alamos Scientific Laboratory. Reference: ORNL-TM-4847 (ENDF-218). FORTRAN IV, IBM 360 (PSR-93A) and CDC 6600/7600 (PSR-93B).

CHANGES TO THE DATA COLLECTION

The following data package was added to the collection in August.

DLC-38/ORYX-E

ORIGEN Yields and Cross Sections—Nuclear Transmutations and Decay Data from ENDF/B was contributed by the Chemical Technology and Neutron Physics Divisions, Oak Ridge National Laboratory. These data libraries were generated as input to CCC-217/ORIGEN: Isotope Generation and Depletion Code which uses Matrix Exponential Method.

RSIC MODEL FOR NEW CENTER

The Biomedical Computing Technology Information Center (BCTIC) has been established at the Oak Ridge National Laboratory by ERDA's Division of Biomedical and Environmental Research (DBER) as a national technology resource. The Center provides a coordinating focus for the interchange of information on computing technology, both hardware and software, among participating laboratories, hospitals, and medical clinics. The Society of Nuclear Medicine (SNM), the Society for Computer Medicine (SCM), and the FDA Bureau of Radiological Health (BRH) join ERDA as sponsors of the new center.

BCTIC was designed with the RSIC activities associated with computational methods and computer codes as a model. RSIC was contacted to see if its services could be "rented" to the biomedical community, at least initially. It was felt that the expertise and staff already assembled for this Center would be of great benefit in the developing of a biomedical computing technology information center and would permit its operation at a minimal incremental cost. After much discussion, the decision was made to establish an independent information analysis center to be designed, implemented and operated at ORNL. The Center would draw upon RSIC's expertise in staffing and procedures in code collection, analysis, testing, packaging, and dissemination during the initial stages, but would function as a viable, separate information analysis Center.

It was felt that basing the Center at ORNL would provide access to its strong base of information-handling expertise and systems and to both large and small computer technology. The close

proximity of the Oak Ridge Associated Universities (ORAU) research and training facilities, the University of Tennessee Research Hospital, Vanderbilt University's extensive research facilities in the use of computers in clinical applications, and ORNL programs in biomedical research, information technology, and computer science provides a strong base from which to build a national resource. Modern telecommunications will be used to bridge the distances between and among the various interested biomedical research and clinical groups throughout the country.

BCTIC's mission is to collect, organize, evaluate, and disseminate information in computing technology pertinent to biomedicine in general and nuclear medicine in particular. BCTIC functions include a clearinghouse to collect and package algorithms, computer programs, data, and interface designs pertinent to clinical and/or research biomedicine. This service permits users to transfer technological advances to others at minimal cost and, in return, to acquire new technology from other sources. Codes and data will be maintained using the *open code* concept, successfully developed and utilized by RSIC in the radiation transport field, which permits continual updates and revisions as errors and incompatibilities are detected or as programs are extended, modified, or translated into other languages. Other functions planned are: a periodic newsletter, seminars and workshops, literature review and the publication of bibliographies. A *Workbook of Clinical Resources* will be published this fiscal year.

Interested persons are invited to contact the Center as follows.

Biomedical Computing Technology Information Center (BCTIC)
Oak Ridge National Laboratory
P. O. Box X
Oak Ridge, Tennessee 37830

or telephone 615-483-8611/3-0293 or FTS 615-483-0293.

UPCOMING CONFERENCES

The American Nuclear Society (ANS) has planned an executive conference on **Nuclear Legislation Update** to be held in Loews L'Enfant Plaza Hotel, Washington, D.C., September 17–19, 1975. This conference will review current and pending legislation in the context of our overall energy problems. James T. Ramey, Vice President, Stone and Webster, is Conference Chairman. Information is available from ANS Headquarters, Hinsdale, Illinois, 312-325-1991: David Pettengill.

IEEE is holding a **Nuclear Reliability Seminar** on *Nuclear Power Generating Stations* at Atlanta's Omni International on September 17–19, 1975. Information is available from IEEE Standards Office, 345 East 47th Street, New York, New York, 10017; telephone 212-752-6800/528.

The Instrument Society of America has announced **ISA/75 Conference and Exhibit** to be held October 6–9, 1975 in Mecca Hall, Milwaukee, Wisconsin. The theme "The Real World of Instrumentation in Industry" supports the concept of practical applications. Nuclear-related sessions are scheduled on applications of digital computers in the power industry, new developments of computer applications in nuclear plants, and nuclear safety. Information may be secured from ISA, P. O. Box 34093P, Pittsburgh, Pennsylvania 15230.

An **International Conference on Radiation Effects and Tritium Technology for Fusion Reactors** will be held in Gatlinburg, Tennessee, October 1–3, 1975. Information is available from J. L. Scott, Oak Ridge National Laboratory, Oak Ridge, Tennessee, 37830; telephone 615-483-8611/3-6025. A fuller description appeared in RSIC Newsletter, May 1975.

The Societe Francaise de Radioprotection is organizing at Saclay, France, its **VIIIth International Conference** (March 23–26, 1976) **on Basic and Applied Aspects of Dosimetry.** An invitation has been issued for papers to cover the following: (1) Basic—absolute methods in measuring exposure and absorbed dose, metrology organization in several European countries, methods and problems of the transfer of references—limits and accuracies of several technics; and (2) Applied—environment and radiation

protection, with particular attention to protection problems near nuclear reactors and plants, medicine, with separation of the aspects in touch with the use of tracers for diagnosis, the use of isotopes for therapy and the external therapy, and industry of irradiation, measurement of large doses (several megarads). Additional information may be secured from M. Le Gallic, Secrétaire Général du VIII° Congres de la SFRP, C.E.N. de Saclay, B.P. n° 2, 91190 Gif-sur-Yvette.

PERSONAL ITEMS

A recent communication from **G. Venkataraman** reports that he is a member of the Division of Radiological Protection at the Bhabha Atomic Research Center, Bombay, India, conducting studies on various aspects of radiation protection as theoretical transport and experimental dosimetry using solid state, chemical, and biological dosimeters and ionization chambers, etc. His colleagues, **P. S. Nagarajan, M. A. Prasad**, and **M. G. Bhide**, are involved in radiation transport studies.

Walter Mitchell, III, Southern Nuclear Engineering, Inc., has changed his address from Dunedin to Clearwater, Florida.

The following changes of address have been noted: **Y. T. Song** from US Naval Ordnance Laboratory, Silver Springs to US Naval Surface Weapons Center, White Oak, Maryland; and **V. J. Orphan** from IRT Corporation to Science Applications, Inc., La Jolla, California.

VISITORS TO RSIC

Visitors to RSIC during the month of August were: T. D. Beynon, University of Birmingham, AERE-Harwell, Birmingham, England; Jerry M. Freedman, Sandia Laboratories, Albuquerque, New Mexico; Harold A. Kurstedt, Jr., Virginia Polytechnic Institute, Blacksburg, Virginia; Charles W. Kee, ORNL–Chemical Technology Division, R. W. Knoll and J. E. Rushton, ORNL–Reactor Division, Farshid Shahrokhi, ORNL–Instrumentation and Controls, and Stewart Zweben, ORNL–Thermonuclear Division, Oak Ridge, Tennessee; Jimmie H. Roberts, Control Data Corporation, Huntsville, Alabama; P. G. Sassone (Georgia Tech.) and Brian D. Wright, Metrics, Inc., Atlanta, Georgia; John McKlveen, Arizona State University, Tempe, Arizona; Joe T. Ching, Energy, Inc., Idaho Falls, Idaho; Ahmad Nakhli, Nuclear Research Center, Tehran, Iran; Betty L. McCreary, Berea College, Berea, Kentucky; Robert Haight, Lawrence Livermore Laboratory, Livermore, California; C. W. Maynard, University of Wisconsin, Madison, Wisconsin; M. A. Abdou, Argonne National Laboratory (Applied Physics), Argonne, Illinois; Turner Trapp, Jr., Battelle Northwest Laboratories, Richland, Washington; David L. Chapin, Princeton Plasma Physics Laboratory, Princeton University, Princeton, New Jersey; G. E. Bosler, Los Alamos Scientific Laboratory, Los Alamos, New Mexico; and Jacek Jedruch, Westinghouse Fusion Power Systems, Pittsburgh, Pennsylvania.

AUGUST ACCESSION OF LITERATURE

The following literature cited has been ordered for review, and that selected as suitable will be placed in the RSIC Information Storage and Retrieval Information System (SARIS). This early announcement is made as a service to the shielding community. **Copies of the literature are not distributed by RSIC.** They may 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 the literature entered into SARIS, and duplicate copies of out-of-print reports may be available on request. Naturally, we cannot fill requests for literature which is copyrighted (such as books or journal articles) or whose distribution is restricted.*

Special bibliographies and selected computer-printed abstracts of the literature in the RSIC system are available upon request. The Selective Dissemination of Information (SDI) Service is available by submitting a list of subject categories defining the recipient's interests.

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

AEC-tr-7546
Problems in the Theory of Multiple Scattering of Particles.
Galishev, V.A.
1974
Dep., NTIS $5.45

ANL/CTR-75-1
Technical Critique on Radiation Test Facilities for the CTR Surface and Materials Program.
Persiani, P.J.
February 1975
NTIS

AWRE-Trans-65, pp.6-18; CONF-721143, pp.6-18
Forecasting of Radioactivity Levels Following a Contained Explosion.
Dupuis, M.; Humbert-Dorz, C.
March 1973
Dep., NTIS (U.S. Sales Only)

BNL-tr-586
Investigation of the Mechanism of Inelastic Scattering of 14-MeV Neutrons by Nuclei in a Wide Mass Number Range.
Zeliger, D.; Zeidel, K.; Hermsdorf, D.; Sassonov, S.; Toneev, V.D.
1973
Dep., NTIS (U.S. Sales Only)

BNWL-SA-5404; CONF-750503-21
New Directions in Health Physics.
Vaughan, B.E.
April 1975
Dep., NTIS $4.00

CINDA-75, Vol.1
An Index to the Literature on Microscopic Neutron Data. (Z to 52)
International Atomic Energy Agency
April 1975
IAEA - 2 Vols. and a Supplement $58.00

CINDA-75, Vol.2
An Index to the Literature on Microscopic Neutron Data. (Z not less than 53).
International Atomic Energy Agency
April 1975
IAEA - 2 Vols. and a Supplement $58.00

CONF-720902
Applications of Californium-252. Proceedings of the American Nuclear Society National Topical Meeting, Austin, Texas, September 11-13, 1972.
Gage, S.J. (Ed.)
June 1975
Dep., NTIS $10.60

CONF-721203-P2, pp.441-452
Neutron Source and Flux Standardization at Trombay: Recent Development of Techniques.
Shahani, M.G.; Sharma, D.; Kamboj, B.K.
1973
IAEA

CONF-721203-P2, pp.493-494 (In Russian)
Maximum Permissible High-Energy Neutron Fluxes.
In: Symposium of Neutron Monitoring for Radiation Protection Purposes, Vienna, Austria, 11 December 1972.
Dmitrievskii, I.M.; Potemkin, E.L.; Prolov, V.V.
1973
IAEA

CONF-750303-8
Gamma-Ray Production Measurements Due to Interactions of Neutrons with Elements Required for Nuclear Power Applications and Design.
Chapman, G.T.; Dickens, J.K.; Love, T.A.; Morgan, G.L.; Newman, E.
1975
NTIS

CONF-750303-10
Cross Sections for the Production of Low Energy Photons by Neutron Interactions with Fluoride and Tantalum.
Dickens, J.K.; Morgan, G.L.; Perey, F.G.
1975
NTIS

CONF-750303-14
Development of a Two-Step Hauser-Feshbach Code with Precompound Decays and Gamma Ray Cascades: A Theoretical Tool for Cross Section Evaluations.
Fu, C.Y.
1975
NTIS

CONF-750303-15
Survey of Computer Codes Which Produce Multigroup Data from ENDF/B-IV.
Greene, N.M.
1975
NTIS

CONF-750303-25
Description of the ENDF/B-IV Silicon Evaluation Energy Distributions of Outgoing Particles.
Larson, D.
1975
NTIS

CONF-750303-30
Uncertainties and Correlations in Evaluated Data Set Induced by Use of Standard Cross Sections.
Peelle, R.W.
1975
NTIS

CONF-750303-31
Estimated Uncertainties in Nuclear Data: An Approach.
Perey, F.G.
1975
NTIS

CONF-750303-34
Cross Section Preparation for the Continuous-Energy Monte Carlo Code VIM.
Prael, R.E.
1975
NTIS

CONF-750303-35
Comparison of VIM and MC2-2: Two Detailed Solutions of the Neutron Slowing-Down Problem.
Prael, R.E.; Henryson, H.,II
1975
NTIS

CONF-750303-38
Radiation Shielding Information Center Data Activities.
Roussin, R.W.; Maskewitz, B.F.; Trubey, D.K.
1975
NTIS

CONF-750303-39
Representation of the Neutron Cross Sections in the Unresolved Resonance Region.
de Saussure, G.; Perez, R.B.
1975
NTIS

CONF-750544-1
Calculational Approach to Ionization Spectrometer Design.
Gabriel, T.A.
1974
Dep., NTIS $4.00

CONF-750624-1
Perturbation Theory and Sensitivity Analysis for Two-Dimensional Shielding Calculations.
Childs, R.L.; Bartine, D.E.; Engle, W.W.,Jr.
1974
Dep., NTIS $4.00

COO-2458-2
Interactive Approaches to Evaluating Methods and Data for Self-Shielded Resonance Absorption.
Becker, M.
1975
Dep., NTIS

COO-2467-2; CMU-NE-202
Three-Dimensional LMFBR Shielding Design and Analysis Code. Quarterly Progress Report, 1 December 1974 - 28 February 1975.
Poncelet, C.G.; Bucholz, J.A.
1975
Dep., NTIS $6.75

DP-MS-75-49; CONF-750528-2
Response of Savannah River Thermoluminescent Neutron Dosimeter to Monoenergetic Neutrons.
Hoy, J.E.; Hall, R.M.
1975
Dep., NTIS $4.00

EUR-5286e
Angular Flux of Gamma Rays in a Normal Concrete Shield.
Penkuhn, H.
1974
Dep., NTIS (U.S. Sales Only) $4.00

EUR-5287e
Radiological Protection. Technical Recommendations for Monitoring the Exposure of Individuals to External Radiation.
Commission of the European Communities, Luxembourg
1975
Dep., NTIS (U.S. Sales Only)

EURFNR-1148; KFK-1880 (In German); Thesis (In German)
Calculation of Neutron Flux in Outer Core and Blanket Regions of Fast Reactors.
Lalovic, M.
November 1973
Dep., NTIS $9.50

FDA-74-8044
Progress in Radiation Protection.
Bureau of Radiological Health, Rockville, Md.
1974
Bureau of Radiological Health, Rockville, Md.

GSI-tr-73/20; JINR-P-4-7312 (In Russian)
Complete Nuclear Fusion Reactions.
Kalinkin, B.N.; Permyakov, V.P.
November 1973
INIS

HEDL-TME-75-35 (Applied Technology)
Gamma Heating Rates in FTR Europia Control Assemblies.
Ward, J.T.
May 1975
ERDA Technical Information Center, P.O. Box 62, Oak Ridge, Tenn. 37830

HEDL-TME-75-50 (Applied Technology)
An Analysis of the Unprotected Transient Overpower Accident in the FTR.
Walter, A.E.; Wilburn, N.P.; Kolesar, D.C.; O'Dell, L.D.; Padilla, A.,Jr.; Stewart, L.N.; Partain, W.L.
June 1975
ERDA Technical Information Center, P.O. Box 62, Oak Ridge, Tenn. 37830 $10.60

ICRP-23
Radiation Protection.
ICRP
1974
Pergamon Press

INDC(CCP)-41/U
Nuclear Constants, No.8. Part 4. Providing Nuclear Data for Fast Reactor Calculations. Table of Contents.
Translated from Russian. Gosudarstvennyj Komitet Po Ispol'zovaniyu Atomnoj Ehnergii SSSR, Moscow.
July 1974
Dep., NTIS (U.S. Sales Only) $4.00

INDC(CCP)-42/U
Nuclear Constants, No.9.
Translated from Russian. Gosudarstvennyj Komitet Po Ispol'zovaniyu Atomnoj Ehnergii SSSR, Moscow.
August 1974
Dep., NTIS (U.S. Sales Only) $7.75

INDC(CCP)-42/U, pp.1-2
Re-evaluated Nuclear Constants for the Energy 0.0253 eV.
Morogovsky, G.B.
August 1974
Dep., NTIS (U.S. Sales Only)

JAERI-M-5492
Production of FP Group Constants for Fast Reactors with Cook's Evaluated Data.
Kikuchi, Y.; Tasaka, K.; Nishimura, H.; Hasegawa, A.; Katsuragi, S.
December 1973
NTIS (U.S. Sales Only)

JPRS-59702, pp.42-47
Influence of the Discontinuity Between Two Media on the Distribution of Absorbed Energy in a Charged Particle Track.
Kudryashov, E.I.; Marennyi, A.M.; Mescheryakova, O.M.; Popov, V.I.
1973
NTIS

JPRS-62553, pp.1-6
Dosimetric Investigations Aboard the Salyut Orbital Space Station.
Red'ko, V.I.; Kozlova, S.B.; Markelov, V.V.; Stepanov, A.S.; Chernykh, I.V.
July 24, 1974
NTIS

JPRS-63269, pp.2-13
Radiation Protection Laws and Regulations Described.
Ifflaender, G.
October 23, 1974
NTIS

JPRS-63502, pp.50-55
Escape of Radioactive Products into the Atmosphere During Underground Nuclear Explosions.
Izrael, Yu.A.
November 22, 1974
NTIS

JPRS-63502, pp.56-97
Atmospheric Spreading and Fallout of Products of Nuclear Explosions.
Izrael, Yu.A.
November 22, 1974
NTIS

JPRS-63502, pp.98-112
Gamma-Radiation Field of Radioactive Fallout, Cloud, and Stream of Radioactive Gases.
Izrael, Yu.A.
November 22, 1974
NTIS

JPRS-63502, pp.113-130
Migration and Biological Accessibility of the Radioactive Products of an Explosion.
Izrael, Yu.A.
November 22, 1974
NTIS

JPRS-63502, pp.131-133
Conclusions. An Approach to the Problems of Radiation Safety During Peaceful Nuclear Explosions, Providing Effective Protection of the Environment.
Izrael, Yu.A.
November 22, 1974
NTIS

JUL-1147-RG
Treatment of Anisotropic Neutron Scattering in Numerical Reactor Physics.
Brookmann, H.
December 1974
Dep., NTIS (U.S. Sales Only)

LA-4484-MS
Twenty-Five Group Cross Sections Used in the Los Alamos ROVER Program.
Sapir, J.
August 1970
Dep., NTIS $3.00

LA-4789
Neutron Production by Medium-Energy Protons on Heavy Metal Targets.
Fullwood, R.R.; Cramer, J.D.; Haarman, R.A.; Forrest, R.P.,Jr.; Schrandt, R.G.
January 1972
Dep., NTIS $3.00

LA-5191-P
A Proposal for a 14-MeV Intense Neutron Source at Los Alamos, New Mexico.
Emigh, C.R.; Brolley, J.E.,Jr.; Cline, M.C.
May 1973
Los Alamos Scientific Laboratory, University of Calif., Los Alamos, New Mexico 87544

LA-5933-MS
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