RSIC Newsletter

RADIATION SHIELDING INFORMATION CENTER

OAK RIDGE NATIONAL LABORATORY

OPERATED BY UNION CARBIDE CORPORATION FOR THE U.S. DEPARTMENT OF ENERGY

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No. 171 *March 1979*

Defeat should never be a source of discouragement but rather a fresh stimulus.
. . . South

IOTTI, YANG, AND ROGERS SHARE BEST PAPER AWARD

Robert C. Iotti and T. L. Yang of Ebasco Services, Inc. and W. H. Rogers of Florida Power & Light Co. have been selected the winners of the American Nuclear Society Division of Radiation Protection and Shielding's BEST PAPER AWARD for a paper entitled "Reactor Cavity Streaming—The Problem and Engineered Solutions," presented at the Washington ANS meeting, November 1978.

According to S.A.W. Gerstl, RP&S Division Chairman, the award judges the above paper as scientifically most significant and as being presented with superior quality. The paper is published in "Radiation Streaming in Power Reactors," ORNL/RSIC-43 (ANS/SD-79/16), January 1979. The report, just coming off the press, is available from RSIC, DOE-TIC, and NTIS.

The Best Paper Award is a monetary prize of $100 and an award certificate. A presentation will be made to the authors by the RP&S Division at the ANS Annual Meeting to be held in Atlanta, Georgia, June 3–6, 1979.

WHAT'S IN A NAME?

The December 1976 issue of the RSIC Newsletter carried an article entitled "What's In A Name? – A Rose By Any Other Name" . . . which invited the reader to "play the name game" by commenting on the appropriateness of "Radiation Shielding Information Center" as a name for our activities and subject area. We now share excerpts from the responses we received.

The greater number of responses can be categorized as "What's in a name? We've gotten used to 'RSIC' as a resource on which we rely and know of no reason to change!" Others differed.

D. V. Gopinath of the Reactor Research Centre, Kalpakkam, Tamil Nadu, India and Jack Rapaport of Ohio University stated they would welcome a change to "Radiation **Physics** Information Center (RPIC)." Rapaport wrote, "At the Physics Department of Ohio University we have an 11 MeV Tandem Van de Graaff devoted mainly to neutron physics. Elastic and inelastic neutron cross sections have been measured on a series of elements. Some of the data have been published and others are being analyzed. We have no publications on subjects of radiation transport and shielding." Gopinath reasoned that "physics" more nearly described the scope of RSIC's coverage than "shielding." Others argued that the latter was the broader term.

Robert Howerton of Lawrence Livermore Laboratory also liked "radiation physics," and suggested "Radiation **Physics Analysis** Center (RPAC)."

T. L. Yang of Ebasco Services, Inc. suggested simplification to "Radiation **Information Analysis** Center (RIAC)."

Nick Tsoulfanidis, University of Missouri—Rolla, commented, "Since your organization provides data related to radiation, I would like to propose the name *Radiation **Data Information** Center*."

Joe T. Ching, Lawrence Berkeley Laboratories, inferred a global role for RSIC by suggesting that we aspire to become the "National Institute for Computers in Engineering (NICE)." Ching wrote "In the year 2000, computers will be the number one industry in the U.S. and software will surpass hardware as a useful national resource. We need someone competent to lay a solid foundation for nuclear engineers. I have all faith in RSIC."

The philosophical comments of A. Z. Livolsi, Babcock & Wilcox, gives a thought-provoking summation to the exercise. We cite them verbatim.

"Generally people's names do not give an insight on the character, inclinations and activities of the person. Then why must names of institutions give a precise description? It is not necessary for an institution to have a name fully describing its activities; a somewhat related illustration of its purpose would seem more befitting. In fact the generic name of 'national labs' conveys the idea of research much better than any detailed description of the kind of research being conducted.

"I have always thought that the name 'SIGMA CENTER' was more immediate, far less sibylline and/or pompous than NNCSC, and also had more character. Therefore, I wish you would consider 'GAMMA CENTER' to replace 'RSIC' (which sounds terrible: 'are sick'). The word 'Gamma' definitely conveys the idea of radiation without precluding any other types of radiation. On the other hand, it is not as exacting as 'radiation' and it is more friendly. In addition, your budgeting troubles may be so minimized because you are not exclusively involved in librarian activities. In this circumstance, I think that 'γ-center' may provide you with the type of umbrella you have been seeking.

"In conclusion, I would add that a name per se does not mean too much. 'RSIC' or 'γ-CENTER' or 'XYZ,' all would be equally well when a substantial quality backs them up, because it is the individual behind the name that really matters. So far RSIC has received much lustre because of its people."

What's in a name? That of 'RSIC' remains unchanged. However, the name of the RSIC umbrella organization continues to evolve, as denoted in the article which follows. To all respondents in the "name" game, please accept our appreciation for your cooperation.

ENGINEERING PHYSICS INFORMATION CENTERS (EPIC)

A popular term in today's R&D environment is the word "relevance," implying in this case that the 'name' should reflect the 'work scope' of the designated entity. The umbrella organization under which RSIC functions, formerly known as the "Technology Resource Group (TRG)" within the Engineering Physics Division, Oak Ridge National Laboratory, has been renamed "Engineering Physics Information Centers (EPIC)," under the presumption that this designation is more descriptive of the varied activities under it.

In addition to RSIC, the EPIC centers include the Biomedical Computing Technology Information Center (BCTIC), sponsored by DOE/DHHS and FDA/BRH; the NRC Reactor Safety Research Data Repository (RSRDR); and the NRC Technical Data Management Center (TDMC).

EPIC furnishes administrative, technical support, and clerical support staff, while each center has a technical staff with experience in the subject area. For more efficient response communications all centers share a centrally answered telephone rotary system with one number publicized.

615-574-6176 or FTS: 624-6176

A central EPIC station analyzes incoming mail and routes inquiries and requests to the subject center for action and response. It is important, therefore, that the communication be addressed properly and that the text is as specific as possible. Address:

RSIC, or BCTIC, or RSRDR, or TDMC
EPIC/EPD – 6025
Oak Ridge National Laboratory
P. O. Box X
Oak Ridge, Tennesssee 37830

RSRDR

RSRDR is the archival repository and response center of the NRC/RSR Data Bank System, which also includes Data Base Managers, and a Data Bank Processing System located at the Idaho National Engineering Laboratory (INEL).

The NRC/RSR Data Bank System is designed to manage data pertinent to research investigating the loss of coolant accident for both pressurized water reactors and boiling water reactors. The data is in the form of raw measured data that has not been processed with the exception of conversion to engineering units and application of calibration factors. Data sources include experimental programs sponsored by NRC, other government agencies, private industry, and foreign governments. Specific examples include data from: Semiscale; Loss of Fluid Test (LOFT); Two Loop Test Apparatus (TLTA); Thermal Hydraulic Test Facility (THTF); Full Length Emergency Cooling Heat Transfer Facility (FLECHT); Other Heat Transfer Loops; and Two Phase Pump Performance Facilities.

RSRDR maintains archival records and provides a distribution service. The stored data is available on demand to NRC contractors, to contributors to the Data Bank, and to other individuals or organizations working in the field of reactor safety. A nominal cost recovery fee is charged. However, charges may be waived on determination that the data is to be used in NRC-sponsored programs, or is otherwise supplied in the best interests of the NRC mission.

BCTIC

BCTIC is an information analysis center for biomedical computing technology in general and nuclear medicine in particular. The RSIC-developed "open code/data package" concept is utilized in a program aimed at advancing the state of the art in collaboration with a user community. A bimonthly newsletter, a directory of computer users in medicine, and a state-of-the-art review of medical imaging have been published.

TDMC

TDMC was established this fiscal year to apply verification/validation/standardization techniques and methods developed in RSIC to selected application areas in computing technology in support of NRC regulation and licensing programs. The program is guided by a select committee of NRC staff members and administered by the Deputy Director of the Division of Technical Information and Document Control within the Office of Administration.

The initial effort includes meteorological (atmospheric) and other environmental transport computing technology and the SCALE system, frequently cited in the newsletter.

Current work in progress includes radiological assessment (GASPAR and LADTAP, dose factor codes; GALE, which computes effluents from PWR and BWR radwaste systems; and XOQDOQ for the meteorological evaluation of effluent releases from nuclear power plants) and a focus on the SCALE (Standardized Computing-Analysis for Licensing Evaluation System), methodology developed at ORNL to provide analytical capabilities (criticality safety, radiation shielding, heat transfer) to be applied in safety analyses of equipment and facilities proposed for licensing by NRC.

MORE ON NON-COMBUSTIBLE HYDROGENOUS SHIELDING MATERIAL

Warren J. Heiman, President of Reactor Experiments, Inc. of San Carlos, CA, reminded us that we departed from our normal RSIC publication policy when we called attention to a patent issued to a vendor competitor in the December 1978 issue of the RSIC Newsletter. Reactor Experiments, Inc. also produces a non-combustible hydrogenous shielding material identified as Type 277. Full information concerning the specific product is available from Chemtree Corporation (see December news article) and Reactor Experiments, Inc.

We are pleased that Mr. Heiman called this policy lapse to our attention. The critique was softened by

his closing statement that . . . "We still like the RSIC Newsletter; it kind of ties the shielding field together." We hope so.

ANS M&C DIVISION HOLDS TOPICAL MEETINGS

The final program for the National Topical Meeting on Computational Methods in Nuclear Engineering, scheduled for April 23–25, 1979 in Williamsburg, Va., has been published. The technical program is highlighted by special invited sessions in the following subject areas: Numerical Methods for Multidimensional Two-Phase Hydrodynamics Calculations; Methodologies for Nuclear Power Implementation Strategy Calculations; Methods for Structural Mechanics Calculations; and Numerical Solution of Differential Equations. Panels have been scheduled to discuss "Recent Developments in Standards Activities" and "Industrial and Governmental Laboratory Computing Practices."

Six sessions of contributed papers round out the program. In all, 56 invited and contributed papers will be given. The Proceedings for the meeting, containing the full papers, will be distributed to all meeting attendees at the time of registration at the meeting. Additional information may be secured from ANS headquarters.

At the 1978 ANS Winter Meeting in Washington, D.C., the Executive Committee of the M&C Division accepted a proposal from the Kerntechnische Gesellschaft (KTG) and European Nuclear Society (ENS) to host the 1981 M&C Topical Meeting in Munich, FRG, in April, 1981. Manfred Wagner was appointed Technical Program Chairman for the meeting. Details concerning the meeting, including the possibility of arranging for a group charter flight for meeting attendees to reduce travel expenses, will be forthcoming in the near future.

RSYST SEMINAR AT IKE (FRG)

The FRG Institut für Kernenergetik und Energiesysteme (IKE) of the University of Stuttgart will sponsor a seminar on its integrated modular code system for shielding and reactor physics calculations, RSYST, on May 14–15, 1979, immediately following the European Nuclear Society (ENS) meeting. The seminar is entitled "Introduction to the Application of RSYST for the Solution of Reactor Safety Related Problems." The seminar is open to anyone interested in the problem area, and foreign visitors will be welcomed. Further information is available from Dr. F.A.R. Schmidt, IKE University of Stuttgart, Pfaffenwaldring 31, 7000 Stuttgart 80, Federal Republic of Germany (FRG).

The RSYST code system has been placed in the OECD Nuclear Energy Agency (NEA) Data Bank, and the RSIC Code Package, CCC-269/RSYST, will be updated in the near future to reflect the current RSYST state of the art.

IAEA DATA MEET ANNOUNCED

The Second Advisory Group Meeting on Transactinium Isotope Nuclear Data (TND) is being convened at CEN Cadarache, France, May 2–5, 1979, by the IAEA in cooperation with the OECD Nuclear Energy Agency (NEA). The meeting will bring together TND producers responsible for their measurement and evaluation with TND users concerned with their applications, to achieve the following objectives: summarize TND requirements for nuclear reactors and fuel cycles including new trends in nuclear technology; review the status of the required TND in the light of new measurements, calculations and evaluations, including reports on coordinated research programs and recent meetings; and formulate specific technical recommendations for future activities and their coordination. Invited and contributed papers and open discussion will be featured.

Subject to the approval of the Agency's Publications Committee, the proceedings of this meeting, including the review papers, the working group reports, and the conclusions and recommendations are planned to be published in the IAEA Report Series.

Nominations of participants must be submitted by the Government of a Member State of the International Atomic Energy Agency or by an international organization. Detailed information is available from A. Lorenz, IAEA Nuclear Data Section.

REPORT ON RESPONSE FUNCTION AVAILABLE

A report, ORNL/TM-6634, "*Development of a Mid-Head Radiation Dose Response Function*," by D. K. Trubey, J. R. Knight, D. E. Bartine, and J. V. Pace, III, is now available from the DOE Technical Information Center, Oak Ridge, TN, 37830 and National Technical Information Service, 5285 Port Royal Road, Springfield, VA, 22161 (Printed copy $4.50; microfiche $3). RSIC has several copies which are available on a first come–first served basis until the supply is exhausted.

TWO NEW NCRP REPORTS

The National Council on Radiation Protection and Measurements (NCRP) has announced the publication of two NCRP Reports: No. 57, **Instrumentation and Monitoring Methods for Radiation Protection,** and No. 58, **A Handbook of Radioactivity Measurements Procedures.**

Preparation of NCRP Report No. 57 was undertaken to bring NCRP recommendations abreast of the rapidly advancing technology in the area of radiation measurement and the proliferation of government regulations pertinent to radiation monitoring. The report covers, first, the fundamentals of survey and monitoring procedures for radiation protection purposes, and then follows with the specifics of area survey methods. Personnel monitoring methods are described in detail, and this is followed with an extensive section on the different types of instruments used for the various types of surveys. A brief section is included on the principles of radiation accident monitoring. The techniques, instruments and practices described are applicable to all types of institutions concerned with radiation or radioactive materials. These include industrial plants, scientific laboratories, universities, and hospitals or clinics. The radiation sources considered in the new report include x-ray machines, sealed and unsealed radioactive materials, low-energy accelerators and low-power nuclear reactors.

A Handbook of Radioactivity Measurements Procedures, (NCRP Report No. 58) treats general radioactivity measurement and standardization procedures. The vast number of different radioactive materials that have become available in the last three decades for application in medicine, scientific research and industry emphasize the need for a modern treatment of radioactivity measurement. Report No. 58 provides this. The following topics are covered: physics of some radiation detectors; fundamental or direct measurements of activity in radioactive decay; indirect or comparative measurements of activity in radioactive decay; techniques for the preparation of standard solutions and samples for counting and calibration; the assay of radioactivity and the identification of radionuclides in environmental, medical and industrial laboratories; statistics; and the assurance of accuracy and precision in national and international measurements of radioactivity. An appendix carries detailed, recently compiled, decay data for approximately 250 radionuclides of particular significance to those concerned with medical and biological applications of radioactivity. In addition, an appendix treating the statistics of radioactive decay is included.

The reports are available from NCRP Publications, P. O. Box 30175, Washington, D.C. 20014.

ANS RP&S PUBLICATIONS AVAILABLE

John C. Courtney, Publications Chairman of the ANS Radiation Protection and Shielding Division, has announced that the following publications continue to be available from the American Nuclear Society at a price of $3.00/copy with the exception of SD-11, which costs $2.00/copy. Orders will be filled as long as the supply lasts. The number of copies available are shown in parenthesis following each citation.

ANS-SD-2, "Proceedings of the Special Session on Fast Neutron Spectroscopy," ANS 1964 Winter Meeting, San Francisco, California, December 1964. (15)

ANS-SD-3, "Proceedings of the Special Session on Accelerator Shielding," ANS 1965 Winter Meeting, Washington, D.C., November 1965. (3)

ANS-SD-4, "Proceedings of the Special Session on Radiation Transport and Biological Effects," ANS 1966 Winter Meeting, Pittsburgh, Pennsylvania, November 1966. (174)

ANS-SD-8, "Invited Papers, Shielding & Dosimetry Division (Key Problems in Reactor Shielding)," 1968 ANS Winter Meeting, Washington, D.C., November 1968. (4)

ANS-SD-11, "Proceedings of Sessions on Nuclear Data for Shielding and Multi-dimensional Shielding Calculations," ANS 1969 Winter Meeting, San Francisco, California, December 1969. (58)

ANS-SD-13, "Fast Reactor Shielding," Proceedings of invited papers given at ANS Meeting in Miami, Florida, October 1971. (36)

PERSONAL ITEMS

Robert E. Seamon, LASL, has called our attention to a Personal Item in the January issue of the RSIC Newsletter in which we placed the International Atomic Energy Agency (IAEA) in Vienna, **Italy**. Although the IAEA has plans to move into a new building at a different site in the same city in the near future, its headquarters remain, geographically, sited in Vienna, **Austria**.

CHANGES OF ADDRESS

The following notices of changes of address were received in February.

A. G. Lane, *from* Bokum Resources Corporation, Sante Fe, New Mexico, *to* York Research Consultants, Denver, Colorado; and **Leon West**, *from* Los Alamos Scientific Laboratory, *to* Canberra Industries, Inc. in Meriden, Connecticut.

LSU OFFERS HEALTH PHYSICS SHORT COURSE

The LSU Nuclear Science Center will offer a five-day course in basic health physics in Baton Rouge beginning on May 7, 1979. The registration fee of $350 includes all the required notes and materials.

The objective of this short course is to present the basic principles of radiation safety to engineers, scientists, managers, and other technical personnel. An educational background equivalent to a BS degree in science or engineering or a high school diploma and several years' experience in a technical area should be sufficient.

Additional information may be obtained by contacting Dr. R. C. McIlhenny or Dr. W. F. Curry at (504) 388-2163, FTS 688-2163. The mailing address is Nuclear Science Center, LSU, Baton Rouge, LA 70803.

RPI SUMMER PROGRAMS ANNOUNCED

The Rensselaer Polytechnic Institute has announced its 1979 summer programs in Nuclear Reactor Design and Basic Nuclear Technology: July 9–13, Basic Nuclear Reactor Technology; July 16–20, Nuclear Reactor Design; and July 23–27, Computer Applications and Reactor Design Codes. The program is intended primarily for nuclear industry and utility power company engineers and managerial and technical staff personnel as well as educators desiring a review of the background material and the methods and procedures involved in the analysis and design of current nuclear power reactor systems. It will also be useful to the practicing engineer interested in improving his background in nuclear technology, reactor design or computer applications. A number of important topics in reactor engineering and design will be covered in depth, starting from the fundamentals of nuclear reactor technology to the state-of-the-art techniques and methods used in the integrated design analysis and evaluation of nuclear power plants, including computational approaches and methods, safety and fuel management.

Complete details of the courses are available from the Office of Continuing Studies, Rensselaer Polytechnic Institute, Troy, New York 12181.

VISITORS TO RSIC

The following persons came for an orientation visit and/or to use RSIC facilities during the month of February:

L. L. Anthony, Union Carbide Corporation Nuclear Division, Oak Ridge; Stanley Bankert, EG&G, Idaho Falls, Idaho; J. C. Courtney, Louisiana State University, Baton Rouge; Dr. Wolfgang Dänner, Max-Planck-Institut fur Plasmaphysik, FR Germany; Frank G. Farkas and Bill Sievert, U. S. General Accounting Office, Detroit, Michigan; Charles Klabunde, Solid State Division, ORNL, Oak Ridge; and Ron Mlekodaj, Oak Ridge Associated Universities, Oak Ridge.

UPCOMING MEETINGS

March 1979

Fuel Cycle Conference '79, March 11–14, 1979, Peachtree Plaza Hotel, Atlanta, Georgia. Contact: Conference Registrar, Atomic Industrial Forum, Inc., 7101 Wisconsin Avenue, Washington, D.C. 20014.

Workshop on Reactor Construction and Operation—Managing Costs and Schedules, March 18–21, 1979, Fairmont Hotel, Dallas, Texas. Contact: Conference Registrar, Atomic Industrial Forum, Inc., 7101 Wisconsin Avenue, Washington, D.C. 20014.

April 1979

Regulation of Radiation in the Nuclear Industry, April 1–4, 1979, Mayflower Hotel in Washington, D.C. Contact: Atomic Industrial Forum, Inc., 7101 Wisconsin Avenue, Washington, D.C. 20014; Telephone (301) 654-9260.

Nuclear Power Safety Course, April 2–6, 1979, Georgia Institute of Technology, Atlanta, Georgia. Contact: Director, Department of Continuing Education, Georgia Institute of Technology, Atlanta, Georgia 30332.

National Topical Meeting on Computational Methods in Nuclear Engineering, April 23–25, 1979, Hospitality House Motor Inn, Williamsburg, Virginia. Contact: C. Duval Holt, ANS Mathematics & Computation Division/Virginia Section, National Topical Meeting, Computational Methods in Nuclear Engineering, Williamsburg, Virginia 23185.

Rockwell International Energy Systems Group offers the following courses in April at the Nuclear Training Center: "Radiation Protection Technology," a home study course covering the three general areas of Health Physics Fundamentals, Radiation Measurements and Operational Health Physics Technology; "Weld Inspection," April 9–13, 1979; and "Applied Sodium Technology," April 16–20, 1979. Contact: E. M. Rex, Nuclear Training Center; Phone (213) 341-1000, Ext. 2811.

May 1979

Workshop on Reactor Licensing and Safety, May 13–16, 1979, Waldorf-Astoria, New York, New York. Contact: Atomic Industrial Forum, Inc., 7101 Wisconsin Avenue, Washington, D.C. 20014; Telephone (301) 654-9260.

June 1979

19th Canadian Nuclear Association International Conference and Exhibition, June 13, 1979, Royal York Hotel, Toronto, Canada. Contact: Dr. Michael Hare, Program Chairman, CNA Conference, Atomic Energy of Canada Limited, Sheridan Park Research Community, Mississauga, Ontario, Canada, L5K 1B2.

July 1979

1979 IEEE Annual Conference on Nuclear and Space Radiation Effects, July 17–20, 1979, University of California, Santa Cruz, California. Contact: J. P. Raymond, Mission Research Corporation, P. O. Box 1209, La Jolla, California 92031.

CHANGES IN THE COMPUTER CODE COLLECTION

The following changes were made in the code collection in February.

CCC-209/DOT III

The DOT III two-dimensional discrete ordinates radiation transport code package was extended to include auxiliary routines for increased versatility. Version A (IBM 360) now includes perturbation code modules DGRAD and TPERT, contributed by the ORNL code originators. DGRAD calculates the directional flux gradients from DOT diffusion theory flux tapes. TPERT obtains exact and first-order reactivity changes. These modules have not yet been implemented in version (B). Reference: ORNL/CSD/TM-71. Version B (CDC) now includes GRTUNCL, a calculation of uncollided flux in 2-D r-z geometry from a point source on the z-axis and generates a first collision source tape. This CDC version of GRTUNCL was contributed by Century Research Corporation, Tokyo, Japan.

CCC-254/ANISN

The CDC version (C) of the multigroup one-dimensional discrete ordinates transport code package with anisotropic scattering was extended to include AWNL, an auxiliary code to calculate the adjoint weighted neutron lifetime. AWNL was contributed by Ecolé Polytechnique Federale, Lausanne, Switzerland. FORTRAN IV; CDC 6600/7600.

CCC-307/QAD-CG

A combinatorial geometry version of QAD-P5A (CCC-48) point kernel code for neutron and gamma-ray shielding calculations was contributed by Bechtel Power Corp., Gaithersburg Power Division, Gaithersburg, Maryland. In addition to adding the combinatorial geometry capability to QAD-P5A, several other changes were made. The concrete dose buildup was replaced by aluminum energy absorption buildup, making concrete shield problems possible; Albert-Welton kernel constants were updated; and blank common size was increased to accommodate a 100 × 100 mesh. Reference: Informal Code Manual NE007. FORTRAN IV; UNIVAC. The original QAD code system was developed and contributed by Los Alamos Scientific Laboratory, Los Alamos, New Mexico, and additional contributions were made by NASA Lewis Research Center, Cleveland, Ohio, Brown Engineering Company, Huntsville, Alabama, and Oak Ridge National Laboratory.

CCC-320/DOT IV

The DOT IV two-dimensional discrete ordinates code system with space-dependent mesh quadrature (DOT 4.2, January 1979) was updated to correct the following: the first IF test above statement 2680 needs to have "MAT" and "MIX" reversed. This affects a seldom-used activity option. Also in this update, provision was made for: If EPP < 0, pointwise convergence is replaced by coarse-mesh convergence. This can result in important savings in some problems since coarse-mesh convergence is sometimes more easily met. If this option is chosen, IMFD and JMFD in the output print refer to coarse-mesh intervals. "MXDVFX" is the integral of flux * volume across the coarse-mesh cell. If KEYJN and KEYIN > 0, key flux print will be as usual, but if KEYJN = KEYIN = 0, that print will refer to coarse-mesh flux * volume. This updated package is designated "DOT 4.2 (ORNL 10 Jan. 79)." FORTRAN IV; IBM 360. Current users may correct their own implemented version or send a full reel of tape to RSIC for the updated package.

PSR-123/FEDGROUP

The neutron multigroup cross-section processing code system using various evaluated data formats (KEDAK, UKNDL, ENDF/B, LENDL, etc.), contributed by the Central Research Institute for Physics in Budapest, Hungary, the Kirchatov Institute of Atomic Energy in Moscow, USSR, and the Institute of Nuclear Research at Swierk-Otwock, Poland, was replaced by an updated version of FEDGROUP. This new version, supplied by the original contributors, reflects development since the original contribution. FORTRAN IV; IBM 360.

PSR-124/GIFT

The package, combinatorial geometry code system with model testing routines, was extended to include an IBM version (C), contributed by Science Applications, Inc., La Jolla, California. The UNIVAC and CDC versions, (A) and (B), were contributed by USA Ballistic Research Laboratory, Aberdeen Proving Ground, Maryland.

CHANGES IN THE DATA LIBRARY COLLECTION

The following change was made in the data collection.

DLC-61/KDDK

Beta- and gamma-ray spectra due to thermal neutron fission of ^{235}U were contributed by the Oak Ridge National Laboratory. The NaI measurements for gamma-ray and NE-110 measurements for beta-ray spectra, respectively, were unfolded with the FERD code. The spectral yields and their uncertainties are tabulated on a pointwise basis as a function of beta- or gamma-ray energy. Results are provided for irradiation times in the 1 to 100s range, for times after fission in the 2 to 10,000s range, and for counting times in the 1 to 4000s range. Retrieval programs are provided for tabulating the data. Reference: NUREG/CR-0162 (ORNL/NUREG-39). FORTRAN IV; IBM 360.

FEBRUARY 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.

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

AD-A-053250
Shelters in Soviet War Survival Strategy. Final Report.
Goure, L.
February 1978
NTIS

AEEW-M-1433
Heat Deposition in a Region of a Nuclear Reactor.
James, M.F.
January 1977
Dep., NTIS (U.S. Sales Only)

ANL/FPP/TM-115
Extrapolated Neutron Activation Cross Sections for Dosimetry to 44 MeV.
Greenwood, L.R.
September 1978
NTIS $4.50

BNL-24625; CONF-780807-9
Hydrogen Production from Fusion Reactors Coupled with High Temperature Electrolysis.
Fillo, J.A.; Powell, J.R.; Steinberg, M.
1978
Dep., NTIS

BNL-24906; CONF-780953-6
Fusion Energy for Hydrogen Production.
Fillo, J.A.; Powell, J.R.; Steinberg, M.
1978
Dep., NTIS

BNL-24907; CONF-780953-3
Two-Dimensional Heating Analysis of Fusion Blankets for Synfuel Production.
Lazareth, O.W.; Tsang, J.S.K.; Powell, J.R.
1978
Dep., NTIS

BNL-NCS-22500, pp.177-179
Californium-252 Fission Spectrum Irradiation Facility for Neutron Reaction Rate Measurements.
Grundl, J.A.; Spiegel, V.; Eisenhauer, C.M.; Heaton, J.T.,II; Bigelow, J.
March 1977
Brookhaven National Lab., Upton, N.Y.
Published in summary form only.

BNL-NCS-22500, pp.186-188
Fast Reactor Fission Yields.
Gilliam, D.M.; Grundl, J.A.
March 1977
Brookhaven National Lab., Upton, N.Y.
Published in summary form only.

BNL-NCS-22500, pp.260-261, 273-274
Assessment and Evaluation of Sodium Cross Sections on the Basis of Integral Flux Measurements.
Parvez, A.; Becker, M.
March 1977
Brookhaven National Lab., Upton, N.Y.
Published in summary form only.

BNL-NCS-24858; CONF-780921-2
Analysis of Neutrons Emitted from 14 MeV Neutrons Induced Reactions.
Pearlstein, S.
1978
Dep., NTIS

CEA-R-4854 (In French); Thesis
Study of Accelerated Diffusion in Gold and Aluminum under Neutron Irradiation.
Acker, D.
September 1977
Dep., NTIS (U.S. Sales Only)

CINDA 78 - Suppl. 5 to CINDA 76/77
An Index to the Literature on Microscopic Neutron Data.
IAEA
October 1, 1978
International Atomic Energy Agency, Vienna

CONF-770649-6
Radiation Considerations for Superconducting Fusion Magnets.
Abdou, M.A.
1977
NTIS

GA-A14614,Vol.V; ANL/FPP/77-6,Vol.V
GAC - ANL TNS Scoping Studies. Volume V. Support Engineering, Tritium and Neutronics.
Project Staff - Argonne National Lab.
January 1978
NTIS $8.00

HDL-CR-78-020-1; MR-7061
The Effects of Air and Ground Composition Perturbations Upon Energy Deposition Dates and Compton Electron Currents from a Surface Burst.
Beer, M.; Cohen, M.O.; Troubetzkoy, E.S.
December 1978
Mathematical Applications Group, Inc., 3 Westchester Plaza, Elmsford, N.Y. 10523

HEDL-TME-78-100
HEDL Evaluation of Thorium Cycle Cross Sections for ENDF/B-V.
Mann, F.M.
January 1979
NTIS

JINR-P16-11891 (In Russian)
Measurement of the Angle Distributions of Proton Flux Density from the Shielding of the 660 MeV Synchrocyclotron.
Alejnkiov, V.E.
1978
Joint Institute for Nuclear Research, Dubna

KFKI-77-44
Moments of the Fourier-Transformed Neutron Slowing-Down Kernel.
Gado, J.; Keresziuri, A.
June 1977
Kozponti Fizikai Kutato Intezet, Budapest (Hungary) ISBN 9633712637

LA-7396-M
MCNP: A General Monte Carlo Code for Neutron and Photon Transport.
July 1978
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