RSIC Newsletter

No. 166   *October 1978*

Instruction ends in the schoolroom, but education ends only with life. A child is given to the universe to be educated.   *... F. W. Robertson*

ATTENTION ALL REQUESTERS!

Please help us serve you more efficiently!

As you are aware, RSIC gives priority to the filling of your requests and constantly seeks ways in which to do it more efficiently and more quickly. In a time when installation computer environments frequently change, we need a full description of your particular local environment, including the name (type) of computer and your read-write capabilities (tape units: track, density, blocking, labeling, etc.) included in each letter of request for computerized information such as codes/data. We urge that you query your computer center frequently in order to give us up-to-date information.

Always be specific in naming the computer you plan to use: manufacturer, brand name, model, and other pertinent information. This will allow us to select the most compatible hardware version in our collection.

If you have more than one type of tape unit, describe the read-write capability of each in terms of track number, density, blocking, labeling, etc. This will allow us to make the selection locally which will give the fastest turn-around time, or, to write the most possible information on a given reel.

In particular, please let us know when requesting codes/data packages if your tape units can read tape reels written at 1600 or 6250 bits-per-inch and/or if you can read blocked data and describe your constraints, if any. We now have available the facilities for writing at such higher densities as well as the normal 800 bpi, 9-track written tapes.

We continue to have the facilities to write 7-track, 556 bpi tapes, but this is non-routine, and we will do it only for those installations which have no other choice.

It is particularly important for **installations not using IBM-manufactured tape units to follow these guidelines** since our most readily available units (9 track, 800 bpi) were manufactured before present ANSI standards were established. These units create a gap of non-standard length following the beginning-of-tape marker which may create a problem in subsequent reading of the tape for some units. If you give us no information, we write your tape on these non-standard units.

Please help us serve you more efficiently.

Editor

AWARDS ANNOUNCED BY ANS RP&S

The American Nuclear Society Radiation Protection & Shielding Division announces the selection of the winners of the Division's BEST PAPER AWARD for papers presented at the ANS San Diego meeting in June 1978. A certificate and a monetary award will be presented to the authors at the RP&S Division business meeting in Washington, D.C. on November 14, 1978, after the technical session on "Radiation Protection Problems in Decommissioning Nuclear Installations."

The papers judged as "scientifically most significant and as being presented with superior quality" are as follows.

A Monte Carlo Method for Deep-Penetration Shielding Problems Based on Contribution Theory, by A. Dubi, S. A. W. Gerstl, and Donald J. Dudziak of the Los Alamos Scientific Laboratory, Los Alamos, New Mexico.

Photoneutron and ^{252}Cf Neutron Dose Comparisons for Radiotherapy Shielding, by N. E. Hertel and B. W. Wehring of the Nuclear Radiation Laboratory, University of Illinois, Urbana.

ANS M&C WILLIAMSBURG TOPICAL MEETING

The next ANS M & C Division-sponsored topical meeting is scheduled for April 23–25, 1979, in Williamsburg, Virginia. The meeting is entitled "Computational Methods in Nuclear Engineering" and is jointly sponsored by the Virginia Section of the ANS.

The meeting will focus on current developments in mathematical and computational methods for analyzing nuclear reactors and other nuclear systems. Highlights of the meeting will include invited sessions on (a) numerical solution of differential equations, (b) numerical methods for multidimensional, multifield hydrodynamics calculations, (c) methodologies for nuclear power implementation strategy calculations, and (d) structural mechanics methods. Contributed papers are also solicited for this last session, as well as for sessions on new and innovative methods for solving practical problems in (e) multidimensional radiation transport, (f) multidimensional static and transient reactor neutronics analysis, (g) thermal and hydraulic analysis, (h) controlled thermonuclear reactor analysis, and (i) nuclear system control and optimization.

A student paper competition will be sponsored, with monetary awards for the three best papers. Contributions for the competition should be clearly identified and are encouraged in any of the topic areas, with the stipulation that the primary author of each such paper be a student.

The call for papers asks that short summaries, not to exceed 1000 words in length, of prospective contributed papers for this meeting be sent by October 20, 1978, to the Technical Program Chairman, Dr. Donald R. Ferguson, Reactor Analysis and Safety Division, Argonne National Laboratory, Argonne, IL 60439, USA. The deadline for receipt of full papers, to be published in the meeting proceedings, is January 12, 1979.

ANS TOPICAL MEETING ON LWR FUEL PERFORMANCE SCHEDULED

The American Nuclear Society Topical Meeting on Light Water Reactor Fuel Performance will convene on April 29–May 2, 1979, Portland, Oregon. Sponsored by the ANS Fuel Cycle Division and the Oregon Section, this meeting will bring together representatives of electric utilities, fuel vendors, and fuel performance experts to discuss the state of the art regarding light water reactor fuel performance. Special emphasis will be given to operating data, performance modelling, pellet-cladding interactions, and high burnup effects on fuel performance. Papers will be presented in sessions on fuel performance experience, fission gas release, pellet-cladding interactions and fuel performance under off-normal and transient conditions. For registration information contact ANS, P. O. Box 731, Portland, Oregon 97207.

BASIC HEALTH PHYSICS COURSE

The LSU Nuclear Science Center offers a five-day course in basic health physics in Baton Rouge beginning on December 11, 1978 whose objective is to present the basic principles of health physics to engineers, scientists, managers, and other technical personnel with a BS degree in science or engineering or a high school diploma and several years' experience in a technical area. The use of advanced mathematics will be minimized since the emphasis will be on solutions to practical problems. Previous offerings of this course have been approved by the American Board of Health Physics for 12 units of credit toward the continuing education requirement for recertification and it is expected that similar accreditation will be granted for the December course.

The registration fee of $325 includes all the required notes and materials. The class size is restricted to 17 to maximize the effectiveness of instruction. Additional information may be obtained by calling (504) 388-2163 (FTS 688-2163), or by writing the Nuclear Science Center, LSU, Baton Rouge, LA 70803.

RADIATION PHYSICS CONFERENCE

The Third National Symposium on Radiation Physics, sponsored by Andhra University, will be held on February 22-24, 1979, Waltair, Andhra Pradesh, India. Topics to be covered include: basic interaction of radiation with matter (energy transfer and storage, measurement, processing and computation of cross sections); computational and experimental techniques of radiation transport; and instrumentation for detection and spectral measurements of different types of radiation. A special session will be devoted to each of the areas of low level and low energy radiation measurements, techniques for spectral unfolding, and specific proposals for radiation physics experiments at the Variable Energy Cyclotron, Calcutta.

The Call for Papers includes these instructions:

a. The abstract forming an extended synopsis of the paper must be between 400 to 600 words indicating the scope of the work and highlighting the principal contributions.
b. Five copies of the abstract should be sent before December 1, 1978, to Dr. K. Parthasaradhi, Nuclear Physics Department, Andhra University, Vishakapatnam 530 003, Andhra Pradesh, India.
c. Typing should be double-spaced and the abstract should conform to the following style; title should be in initial capitals (underlined); authors' names and names of the institutions should be in initial capitals (not underlined.)
d. Tables and graphs should be avoided; simple mathematical formulae are acceptable.
e. All handwritten matter such as equations, etc., should be written legibly with black ink.

PERSONAL ITEMS

Sümer Sahin of Iszmir, Turkey has accepted a one year faculty appointment in the Ecole Polytechnique Fédérale de Lausanne, Switzerland.

Victor Cain has recently been named the division manager of the Resource and Energy Analysis Division (READ) of the Oak Ridge office of Science Applications, Inc.

VISITORS TO RSIC

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

Richard Buck, Edward M. Lent, and David Margolies, Lawrence Livermore Laboratory, Livermore, Calif.; S. K. Bhatnagar, United Engineers & Constr. Inc., Philadelphia, Penn.; Laural L. Briggs, Argonne National Laboratory, Argonne, Ill.; A. R. Buhl, Nuclear Regulatory Commission, Washington, D.C.; Vic Cain, Science Applications, Inc., Oak Ridge, Tenn.; Kwok-Chi Chan, Atomic Energy of Canada, WNRE, Pinawa, Manitoba, Canada; C. W. Ma, Bechtel Corporation, San Francisco, Calif.; S. McGowan, Department of National Defense, Ottawa, Canada; Carol J. Rhodes, Bechtel Power, Norwalk, Calif.; Dr. Peter Roberts, Rolls Royce and Associates Ltd., Derby, England; R. T. Schuttler, University of Toulouse, Toulouse, France; W. K. Hagen and G. L. Simmons, Science Applications, Inc., La Jolla, Calif.; and Henry Till, Electric Power Research Institute, Palo Alto, Calif.

ICRU REPORT ON ANALYSIS OF INTERCOMPARISON OF INTERNATIONAL NEUTRON DOSIMETRY STANDARDS

International Commission on Radiation Units and Measurements (ICRU) Report 27 contains an analysis of the results of an intercomparison of international neutron dosimetry standards. The report describes the intercomparison procedure, the radiation fields used, the dosimetry systems employed by the participants, and important factors in the evaluation of kerma and absorbed dose. (Paperbound. 1-9 copies, $9 each; 10-99 copies, $7.50 each; 100 or more copies, $7 each. Order from ICRU Publications, P. O. Box 30165, Washington, D.C. 20014.)

CHANGES IN THE COMPUTER CODE COLLECTION

Several changes were made in the computer code collection during September.

CCC-248/SWAN

The code system for the analysis and optimization of fusion reactor nucleonic characteristics was updated to correct an error in the input processor, Subroutine AREAD, called to RSIC's attention by Princeton Plasma Physics Laboratory, the code originator. Current users may correct their own version by following instructions listed under PSR-88/AREAD which follows.

CCC-253/ANISN-PPL

The Princeton Plasma Physics Laboratory version of ANISN (multigroup 1-D discrete ordinates transport code) was updated to correct an error in the input processor (AREAD), called to RSIC's attention by the code originator, William G. Price, Jr. Current users may make their own correction by following the instructions noted in PSR-88/AREAD which follows. The routine is built into ANISN-PPL and is also packaged as a stand-alone code.

CCC-302/CACA-2

Heavy isotope and fission product concentration calculational system for experimental irradiation capsules contributed by Oak Ridge National Laboratory. Reference: ORNL/TM-5266; FORTRAN IV; IBM 360.

CCC-305/ERPEX

A Monte Carlo determination of the distributions of energetic proton ranges in silicon, an extension to CCC-228/SPAR, a calculation of stopping powers and ranges for muons, charged pions, protons and heavy ions was contributed by the Institute of Experimental Physics, Warsaw University, Warsaw, Poland. FORTRAN IV; CDC CYBER 70.

CCC-322/S3

A kernel integration code with multigroup gamma-ray scattering, based on a Los Alamos Scientific Laboratory contribution (CCC-75/G^3), was contributed by Westinghouse Electric Corporation, Bettis Atomic Power Laboratory, West Mifflin, Penn. The name S3 was chosen since the scattering calculation has three steps: calculation of the flux arriving at the scatterer from the point source, calculation of the differential scattering cross section, and calculation of the scattered flux arriving at the detector. Reference: LA-5176 and WBAPL informal communications; FORTRAN IV; CDC-6600.

PSR-88/AREAD

The input data processing routine which allows large amounts of data to be specified in compact, free-form notation for several discrete ordinates codes, a contribution of the Princeton Plasma Physics Laboratory, has been updated to correct an error called to RSIC attention by the code originator. AREAD, an improved version of FIDO, has been widely distributed. Current users may note the following: When a negative "I" field was entered, the sign propagated onto all following numbers until a "V" field was processed. To correct this situation, five statements must be inserted after "NUM=0" which follows statement 124 of the source program as follows: IEX=0, IEXP=0, NPPN=0, NSCL=0, and ISGN=1.

PSR-112/MAME

The package of miscellaneous AMPX I modules for performing transport calculations and manipulating cross sections in AMPX interface format was updated to correct two problems. First, a problem with negative integer and floating numbers in Subroutine SCALE within BONAMI may be modified as follows: a) add the statement EQUIVALENCE (XMW,MW); b) change statement 110 to read 110 XMW=Z(I) and add the statement IF(MW.LE.0)GO TO 121; c) add the statement 121 CONTINUE

after the statement IF(I.LT.L)GO TO 110. Secondly, the MALOCS module was replaced by a new version in order to correct a problem with deleting groups from the fine-group structure. The need for these changes was suggested by the ORNL code originators. The changes were made to both A (CDC-7600) and B (UNIVAC-1110) versions of the code package.

PSR-124/GIFT

A combinatorial geometry code system with model testing routines was contributed by USA Ballistic Research Laboratory, Aberdeen Proving Ground, Maryland. Basic input to GIFT is called "target description data" which defines to any degree of accuracy the three-dimensional shape and space of the components of any physical body or structure. GIFT's versatility includes computerized simulation modeling, target description/structural modeling, and target structural/vulnerability/signature analysis. Reference: BRL R-1802. FORTRAN IV; UNIVAC (A), CDC (B).

PSR-125/GNASH

This pre-equilibrium, statistical nuclear model (Hauser-Feshbach, multi-step) code for calculation of cross sections and emission spectra was contributed by Los Alamos Scientific Laboratory, Los Alamos, New Mexico. Providing a flexible method by which reaction and level cross sections, isomer ratios, and spectra (neutron, gamma-ray, and charged particle) resulting from particle-induced reactions can be calculated, GNASH calculates complicated sequences of reactions and includes a pre-equilibrium correction for binary channels. Reference: LA-6947. FORTRAN IV; CDC 7600.

PSR-126/RFSP-JÜL

A code system for unfolding neutron spectra from activation data was contributed by the Nuclear Research Center, Jülich, Federal Republic of Germany. It is a revised and improved version of an earlier RFSP [INDC(HUN)-8/U] code and SPECTRA (CCC-108). RFSP-JÜL calculates the spectral neutron flux density from activity measurements, guess spectrum, and cross-section data. Reference: JÜL-1475. FORTRAN IV source program, binary cross sections and initial input spectra; IBM 360.

PSR-127/GOFRR

A code to generate graphical output of DOT (CCC-276) and ANISN (CCC-254) fluxes and reaction rates was contributed by the Oak Ridge National Laboratory. Implemented for use with CALCOMP pen plotters, GOFRR can plot any one- or two-dimensional array plus 3-D perspective drawings, 2-D reaction rate and spectrum plots and can determine axes scales and perform symbol plotting. Reference: ORNL/TM-5063. FORTRAN IV; IBM 360.

PSR-128/GGTC-ENEL

This code for producing few-group neutron cross sections from multigroup data libraries for use in diffusion and transport codes was contributed by Ente Nazionale per l'Energia Elettrica (ENEL), Milano, Italy, through the OECD Nuclear Energy Agency Data Bank. Based on the General Atomic GGC code (PSR-12), GGTC-ENEL represents a revision and combination of GAM, GATHER, THERMOS, and COMBINING in which, among other additions, is an advanced intermediate resonance method in the fast sections. It is said to have offered a reduction in fast cross-section execution time by a factor of 3-5. Reference: *Annals of Nuclear Energy* (ANE) 4:91-106, 1977. FORTRAN IV; IBM 360.

CHANGES IN THE DATA LIBRARY COLLECTION

The following changes were made in the data collection.

DLC-37E/EPR

This coupled 121-group library for EPR neutronics was updated to replace the S_n photon-production data set. This replacement corrected the DLC-37/EPR error described in the February 1978 RSIC Newsletter.

DLC-42B/CLEAR

The 126-neutron, 36-gamma-ray group cross-section library for LMFBR core and shield neutronics has been updated by Oak Ridge National Laboratory to correct some cross sections and add data for additional materials. This version, denoted DLC-42B, contains data in AMPX master library format which corresponds in content to DLC-41B/VITAMIN-C (see Dec. 1977 RSIC Newsletter) and data in CCCC format which corresponds in content to DLC-53/VITAMIN-4C (see June 1978 RSIC Newsletter). Sample problems in the package are designed to be run using codes from PSR-117/MARS (April 1978 RSIC Newsletter). Transmittal requires 6 full reels of magnetic tape written 9 track, 800 bpi, and blocked records. Requesters with different tape-writing requirements should contact RSIC to discuss transmittal. IBM 360/91. Reference ORNL-TM-5142.

DLC-44/COVERX

The compilation of multigroup cross-section covariance matrices in COVERX format for several important materials has been added to the RSIC collection. Three libraries are included: a 6-group fission spectrum library with data for ^{235}U, ^{238}U, ^{239}Pu, ^{240}Pu, and ^{241}Pu, a 10-group LMFBR core physics library with data for the above materials plus C, N, and O; a 15-group LMFBR shielding library with data for Na, Fe, C, N, and O. Sources for preparing the multigroup data were covariance files from ENDF/B-IV for C, N, and O, and informal files for the other materials. A retrieval program for BCD-to-binary conversion and editing is provided. Ref. ORNL-5318; ORNL/TM-6078. IBM 360/91. A single tape is required for transmittal.

SEPTEMBER 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

AAEC/E-424
Calculation of Angular Neutron Spectra from the Thick Target Li(p,n) Source.
Rainbow, M.T.; Ritchie, A.I.M.; Sullivan, L.
October 1977
Dep., NTIS (U.S.Sales Only)

AECL-4436/1
Radioactive Decay Properties of CANDU Fuel. Vol.1: The Natural Uranium Fuel Cycle. Part 1: Starting Materials: Uranium Ore, Separated, Uranium and Uranium Mill Tailings, and Part 2: Irradiated Fuel.
Clegg, L.J.; Coady, J.R.
January 1977
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AECL-4436/2
Radioactive Decay Properties of CANDU Fuel. Vol. 1: The Natural Uranium Fuel Cycle. Part 3: Reprocessed Fuel: Plutonium Product, and High Level Waste.
Clegg, L.J.; Coady, J.R.
January 1977
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AECL-5904
Tables of the Isotopic Composition of Transuranium Elements Produced in Canadian D_2O Moderated Reactors.
Milgram, M.S.; Sly, K.N.
August 1977
Dep., NTIS (U.S. Sales Only)

ANL-77-88
Approximations of Gamma Cross Sections for Fast Nuclear Reactors.
Grimm, K.N.; Meneghetti, D.
March 1978
NTIS $4.00

ANL/FRA-TM-111
    Review of Argonne Work on Monte Carlo Perturbation Methods.
    Gelbard, E.M.
    April 18, 1978
    NTIS

ARBRL-TR-02091
    The Effects of Moisture Content and Soil Composition Upon Air/Ground Tactical Nuclear Environments.
    Banks, N.E.; Klem, G.J.; Lichtenstein, H.
    July 1978
    NTIS

CBPF-A-0026/77
    Analysis of Intermediate-Energy (gamma,n) Reactions in Complex Nuclei.
    de Carvalho, H.G.; Foshina, M.; Martins, J.B.; Tavares, O.A.P.; Pinheiro Filho, J.D.; Di Napoli, V.; Salvetti, F.; Terranova, M.L.
    June 1977
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CEA-N-1995 (In French)
    EXCALIBUR - A Multigroup Code for the Solution of the Slowing-Down Transport Equation in Heterogeneous Fast Neutron Media.
    Jain, V.K.; Kavenoky, A.; Livolant, M.; Lorain, H.
    September 1977
    Dep., NTIS (U.S. Sales Only)

CONF-770997
    Safety and Environmental Aspects of Deuterium-Tritium Fusion Power Plants: Work Shop Summary.
    Baublitz, J.E.; Amherd, N.A. (Sponsors)
    May 1978
    NTIS

EIR-344
    Fast Computation of the Neutron Flux Distribution in X-Y Geometry Using the QPO First Collision Probability Method.
    Stepanek, J.; Hager, H.
    June 1978
    Eidgenoissisches Inst. fuer Reaktorforschung, Wuerenlingen, Switzerland

EPRI-NP-672(Vol.2)
    Spatial Distribution of Fission Product Gamma-Ray Energy Deposition in Light Water Reactor Fuel Elements. Final Report.
    Bass, R.B.; Johnson, W.R.
    April 1978
    Dep., NTIS

FEI-584 (In Russian)
    Spectra and Cross-Sections of Gamma Ray Production in Inelastic Interaction of Neutrons with C, O, Al, Ti, Fe, Ni, Pb and Bi Nuclei.
    Gonchar, A.I.; Lashuk, A.I.; Sadokhin, I.P.
    1975
    Dep., NTIS (U.S. Sales Only)

HEDL-SA-1393; CONF-780401-9
    Biases for Current FFTF Calculational Methods.
    Ombrellaro, P.A.; Bennett, R.A.; Daughtry, J.W.; Dobbin, K.D.; Harris, R.A.; Nelson, J.V.; Peterson, R.E.; Rothrock, R.B.
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    Dep., NTIS

HW-78334
    Method and Data for the Calculation of Shutdown Fuel Element Heat Generation.
    Stoddard, J.A.
    July 15, 1963
    Dep., NTIS

INDC(CCP)-123/L
    Neutron Cross-Section Calculations for ^{239}Pu, ^{241}Pu, ^{243}Pu and ^{235}U, ^{237}U and ^{239}U in the 1-150 keV Energy Region.
    Marshalkin, V.E.; Povyshev, V.M.
    June 1977
    IAEA Nuclear Data Section, Karntner Ring 11, A-1010 Vienna

JAERI-M-7148 (In Japanese)
    Neutron Cross Sections of ^{6}Li.
    Komoda, S.; Igarasi, S.
    July 1977
    Dep., NTIS (U.S. Sales Only)

JAERI-M-7153 (In Japanese)
    Method of the Sensitivity Analysis of Build-Up and Decay of Actinides.
    Mitani, H.; Koyama, K.; Kuroi, H.
    July 1977
    Dep., NTIS (U.S. Sales Only)

JAERI-M-7174 (In Japanese)
    Evaluation of Neutron Nuclear Data for ^{243}Am.
    Igarasi, S.; Nakagawa, T.
    June 1977
    Dep., NTIS (U.S. Sales Only)

Juel-1435
    Spectrum Unfolding from Activation Measurements in a CTR-Model Blanket Experiment. Comparisons and Sensitivity-Analysis.
    Kuijpers, L.J.M.
    July 1977
    Dep., NTIS (U.S. Sales Only)

KEK-77-17
    Measurement of Stray Neutron Doses Around KEK PS-Facility (I).
    Miyajima, M.; Hirayama, H.; Hozumi, K.; Miura, S.; Katoh, K.
    December 1977
    National Laboratory for High Energy Physics, Oho-Machi, Tsukuba-gun, Ibaraki-ken, 300-32, Japan

LA-7227-MS
    Electron Transport Code Theoretical Basis.
    Dubi, A.; Horowitz, Y.S.
    April 1978
    Dep. NTIS

LA-7288-T
    Calculation of Dosimetry Parameters for Fast Neutron Radiotherapy.
    Wells, A.H.
    May 1978
    NTIS $13.25

LA-7355-MS
    ENDF/B-IV, LIB-IV, and the CSEWG Benchmarks.
    Kidman, R.B.
    June 1978
    Los Alamos Scientific Lab., P.O. Box 1663, Los Alamos, N.M. 87545

LA-UR-78-772; CONF-780334-3
    Shielding Factor Method for Producing Effective Cross Sections: MINX/SPHINX and the CCCC Interface System.
    MacFarlane, R.E.; Weisbin, C.R.; Paik, N.C.
    1978
    Dep., NTIS $4.00

MITNE-220
    Application of Probabilistic Consequence Analysis to the Assessment of Potential Radiological Hazards of Fusion Reactors.
    Sawdye, R.W.; Kazimi, M.S.
    July 1978
    Massachusetts Institute of Technology

ND-R-30(R)
    Solution of the Time-Dependent, Multi-Group Neutron Transport Equation.
    Fletcher, J.K.
    October 1977
    Dep., NTIS

NRDL-TR-68-135
    Radioactivity Release from Radionuclide Power Sources. VIII. Release from Fully-Fueled Strontium Titanate and Strontium Oxide to Seawater.
    Lai, M.G.; Goya, H.A.; Kubose, D.A.; Cordoa, H.I.

August 23, 1968
    DOE, TIC, P.O. Box 62, Oak Ridge, Tenn. 37830

NRPB-R-70
    Doses in Radiation Accidents Investigated by Chromosome Aberration Analysis. 8. A Review of Cases Investigated, 1977.
    Lloyd, D.C.; Purrott, R.J.; Prosser, J.S.
    January 1978
    Dep., NTIS (U.S. Sales Only)

NUREG-0367
    Radioactive Materials Released from Nuclear Power Plants (1976).
    Decker, T.R.
    November 1978
    NTIS $9.00

NUREG/CR-0162; ORNL/NUREG-39
    Delayed Beta- and Gamma-Ray Production Due to Thermal-Neutron Fission of ^{235}U, Spectral Distributions for Times after Fission Between 2 and 14000 Sec: Tabular and Graphical Data.
    Dickens, J.K.; Love, T.A.; McConnell, J.W.; Emery, J.F.; Northcutt, K.J.; Peelle, R.W.; Weaver, H.
    August 1978
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NUREG/CR-0171; ORNL/NUREG-47
    Fission-Product Energy Release for Times Following Thermal-Neutron Fission of ^{241}Pu Between 2 and 14000 Seconds.
    Dickens, J.K.; Emery, J.F.; Love, T.A.; McConnell, J.W.; Northcutt, K.J.; Peelle, R.W.; Weaver, H.
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ORNL-5467
    Macroscopic Cross Section Sensitivity Study for Fusion Reactor Shielding Experiments.
    Seki, Y.; Santoro, R.T.; Oblow, E.M.; Lucius, J.L.
    September 1978
    NTIS $4.50

ORNL/TM-6309
    Preliminary Neutronic Study of Actinide Transmutation in a Fast Reactor.
    Williams, M.L.; McAdoo, J.W.; Flanagan, G.F.
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ORNL/TM-6401/R1
    Nuclear Accident Dosimetry: Calculations and Comparison with Experimental Data.
    Santoro, R.T.; Alsmiller, R.G.,Jr.; Barnes, J.M.
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ORNL/TM-6486
Neutron-Photon Multigroup Cross Sections for Neutron Energies < 60 MeV.
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PNL-2719
Fusion Fuel Cycle Solid Radioactive Wastes.
Gore, B.F.; Kaser, J.D.; Kabele, T.J.
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UCRL-13801
Assessment of Carbon and Silicon Carbide as First Wall Materials in Inertial Confinement Fusion Reactors.
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Dep., NTIS
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Cross Section Probability Tables in Multi-Group Transport Calculations.
Cullen, D.E.; Plechaty, E.F.; Doyas, R.J.; Weisbin, C.R.; White, J.E.
March 1978
Dep., NTIS

UCRL-80699; CONF-780334-2
Production of Multi-Group Data at Livermore.
Giles, P.C.
March 1978
Dep., NTIS

UNI-1043
Dose Rates from Exposed Mark IV Fuel.
McNeece, J.P.; Haglund, N.S.
April 18, 1978
Dep., NTIS

UTNL-R-0032
Two-Dimensional Shielding Benchmarks for Iron at YAYOI, (1).
Oka, Y.; An, S.; Kasai, S.; Miyasaka, S.; Koyama, K.
No Date
Dep., NTIS (U.S. Sales Only)

UTNL-R-0042
Two-Dimensional Shielding Benchmarks for Sodium and Iron at YAYOI.
Oka, Y.; An, S.; Kasai, S.; Sakata, K.; Miyasaka, S.
No Date
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UWFDM-250
The Newest Frontier in Radiation Damage Research - Laser Fusion Reactors.
Kulcinski, G.L.
June 1978
Fusion Research Program, Nuclear Engineering Dept., University of Wisconsin, Madison, Wisconsin 53706

Atomic Data and Nucl. Data Tables, 21(1), 1-47
Internal Conversion Coefficients for E5 and M5 Nuclear Transitions $30 < Z < 104$.
Band, I.M.; Trzhaskovskaya, M.B.; Listengarten, M.A.
January 1978

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Isotropic and Cloud Source Irradiation by Monoenergetic Neutrons and Photons.
Jones, T.D.; Poston, J.W.
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Calculation of Exposure Rates from Gamma Sources in Walls of Dwelling Rooms.
Koblinger, L.
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Neutron Streaming Measurements at an 850-MWe Pressurized Water Reactor and Subsequent Shielding Recommendations.
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