RSIC Newsletter

RADIATION SHIELDING INFORMATION CENTER

OAK RIDGE NATIONAL LABORATORY

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

POST OFFICE BOX X •
OAK RIDGE, TENNESSEE 37830

No. 176 *August 1979*

Where work is, there let our job be. . . . *Tertulian*

HAVE YOU RETURNED THE NEWSLETTER QUERY?

As we go to press, we have received approximately 500 responses out of a possible 1600 readers of the RSIC Newsletter. *We remind you that an affirmative response is required in order for you to continue receiving the RSIC Newsletter.* A failure to respond will be interpreted as a negative response, i.e., you no longer wish to receive the newsletter. We also remind you that the deadline for beginning our review of the newsletter distribution remains **September 1.**

We also call your attention to the fact that some respondents overlooked the query concerning financial sponsorship. This information, as well as that requested concerning your contribution to the RSIC information collections, will probably give us justification to continue to serve your needs without unit charges. Please help us to keep information in the RSIC subject coverage freely exchanged.

We again append the query form as the last page of this copy of the newsletter. If you have not already done so, we urge you to detach it, respond to the request for information, and mail it immediately. If you have responded, and remember that you failed to answer all the queries, please give us the additional information on this form. **We especially need to know the agency when you have government funding.**

It is with the cooperation and the collaboration of the international technical community that RSIC is able to provide a useful information exchange. We deeply appreciate each of your efforts to further this exchange process.

RSIC DIRECTOR TRAVELS

Betty F. Maskewitz is in Europe this August on an information review and collection trip on behalf of the ORNL Engineering Physics Information Centers (EPIC) for which she is responsible. The primary purpose of the travel is to represent the U.S. Nuclear Regulatory Commission (NRC) Data Bank program at the 5th International Conference on Structural Mechanics in Reactor Technology (SMIRT-5) on August 13–17, 1979 in Berlin (West) and to participate in a post-conference seminar on the Computational Aspects of the Finite Element Method (CAFEM-5). Ms. Maskewitz will give two invited papers, entitled, "The USA NRC/RSR Data Bank System and the Reactor Safety Research Data Repository (RSRDR)" and "A Survey of Major Data Management Systems." She will also participate in a panel discussion on Data Management.

While in Berlin, Ms. Maskewitz has been invited to visit the Technical Information Center of the German Democratic Republic (GDR) Office for Atomic Safety and Protection in East Berlin.

Following the above conferences, RSIC orientation and information collection visits will be made to the Federal Republic of Germany (FRG). She will visit and lecture in The National Physical-Technical Institution (PTB) at Braunschweig and will meet with West German shielding specialists in Hanau in a seminar hosted by NUKEM, GmbH.

An orientation visit with French shielding specialists at CEA/CEN/Saclay and a discussion of mutual problems of information exchange with the OECD Nuclear Energy Agency (NEA) Data Bank personnel in Paris and at Gif-sur-Yvette, France will conclude the travel. Ms. Maskewitz will return to Oak Ridge at the end of August.

IF YOU CHANGE YOUR ADDRESS, please notify us (including Building and Room No. where needed). *Third Class Mail* is returned to us at our expense if the addressee has moved. If your mail is returned, your name will be deleted from our distributions until we hear from you.

In addition to RSIC and RSRDR, EPIC includes the Nuclear Regulatory Commission (NRC) sponsored Technical Data Management Center (TDMC), which is currently involved in work associated with the enhancement, validation and documentation of computing technology used in support of NRC regulatory and licensing programs.

STANDARD ON DIRECT AND SCATTERED GAMMA RADIATION AVAILABLE

The newly-published standard, ANSI/ANS-6.6.1-1979, *Calculation and Measurement of Direct and Scattered Gamma Radiation from LWR Nuclear Power Plants,* is now available from the American Nuclear Society, 555 North Kensington Ave., La Grange Park, Ill., 60525, for $32. It was developed by Working Group ANS-6.6 of the ANS Standards Committee under the leadership of E. A. (Ed) Warman of Stone and Webster Engineering Corporation.

The scope reads as follows: This standard defines calculational requirements and discusses measurement techniques for estimates of dose rates near nuclear power plants due to direct and scattered gamma rays from contained sources on site. On-site locations outside plant buildings and locations in the off-site unrestricted area are considered. All sources that contribute significantly to dose rates are identified, and methods for calculating the source strength of each are discussed. Particular emphasis is placed on ^{16}N sources as they are significant sources of direct and scattered radiation for Boiling Water Reactors. The standard specifically excludes radiation from gaseous and liquid effluents. The standard describes the considerations necessary to compute dose rates, including component self-shielding, shielding afforded by walls and structures, and scattered radiation. The requirements for measurements and data interpretation of measurements are given. The standard includes normal operation and shutdown conditions but does not address accident or normal operational transient conditions.

The Nuclear Regulatory Commission has informed ANSI that NRC plans to refer to it in the Standard Review Plan for the Review of Safety Analysis Reports for nuclear power plants.

ENDF/B-V RELEASED FOR USE IN THE UNITED STATES

The United States Department of Energy has determined that ENDF/B-V will, for the present, be limited to users within the United States and AECL (Chalk River), except for the Standards, Special Purpose Dosimetry, and Actinide Files, and the Fission Product Files, which are available to everyone. However, this limitation is not intended to inhibit the release of documentation concerning how the evaluations were determined, the general characteristics of portions of the data (e.g., curves), the formats and procedures, and calculational results, nor the release by individuals or sponsoring organizations of their own information contributed to ENDF/B-V.

Limitations on ENDF/B-IV data are removed after the complete ENDF/B-V General Purpose Files are available in the U.S. and AECL (Chalk River).

The ENDF/B-V General Purpose and the Special Actinide Files have now been released by the Cross-Section Evaluation Working Group (CSEWG), and are now available for distribution from the National Nuclear Data Center (NNDC) at Brookhaven National Laboratory.

The contents of the ENDF/B-V General Purpose File are listed in Table 1, and those of the Special Purpose Actinide File are listed in Table 2.

TABLE 1. CONTENTS OF THE ENDF/B-V GENERAL PURPOSE FILE

Tape	Material	MAT
501	Dy-164	1031
	B-11	1160
	H-3	1169
	He-4	1270
	Cd	1281
	Co-59	1327
	Hf	1372
	Hf-174	1374
	Hf-176	1376
	Hf-177	1377
	Hf-178	1378
	Hf-179	1383
	Hf-180	1384
	Zr-90	1385
	Zr-91	1386
	Zr-92	1387
	Zr-94	1388
	Zr-96	1389
502	Lu-175	1032
	Lu-176	1033
	Ta-182	1127
	W-182	1128
	W-183	1129
	W-184	1130
	W-186	1131
	Ta-181	1285
503	Re-185	1083
	F-19	1309
	P-31	1315
	S-32	1316
	Gd-152	1362
	Gd-154	1364
	Gd-155	1365
	Gd-156	1366
	Gd-157	1367
	Gd-158	1368
	Gd-160	1370
505	Li-7	1272
	N-14	1275
	O-16	1276
	H-2	1302
	Be-9	1304
	N-15	1307
	O-17	1317
506	Na-23	1311
	Mg	1312
	Al-27	1313
507	Si	1314
	Ca	1320
508	Ti	1322
	V	1323
	Mn-55	1325
	Cu	1329
	Zr	1340
	Ba-138	1353
	Pb	1382
509	Eu-152	1292
	Eu-154	1293
	Xe-135	1294
	Kr-78	1330
	Kr-80	1331
	Kr-82	1332
	Kr-83	1333
	Kr-84	1334
	Xe-124	1335
	Kr-86	1336
	Xe-126	1339
	Xe-128	1348
	Xe-129	1349
	Xe-130	1350
	Xe-131	1351
	Xe-132	1352
	Xe-134	1354
	Xe-136	1356
	Eu-151	1357
	Eu-153	1359
510	Nb-93	1189
	Tc-99	1308
	Rh-103	1310
	Cd-113	1318
	Sm-149	1319
	Cs-133	1355
	Ag-107	1371
	Ag-109	1373
511	He-3	1146
(Standards)	H-1	1301
	Li-6	1303
	B-10	1305
	C	1306
	Au-197	1379
	U-235	1395
512	Cr	1324
	Ni	1328
513	Re-187	1084
	Cl	1149
	K	1150
	Mo	1321
	Fe	1326
514	Np-237	1337
(Actinides)	Pu-238	1338
	Pu-242	1342
	Cm-243	1343
	Cm-244	1344
	Cm-245	1345
	Cm-246	1346
	Am-241	1361
	Am-243	1363
	Am-242m	1369
	Pa-233	1391
	U-234	1394
	U-236	1396
515	Pu-240	1380
	Pu-241	1381
	Pu-239	1399
516	Th-232	1390
	U-233	1393
	U-238	1398

TABLE 2. CONTENTS OF THE ENDF/B-V SPECIAL ACTINIDE FILE

Tape	Material	MAT	
521	Th-228	8028	Decay Only
	Th-230	8030	
	Th-231	8031	Decay Only
	Th-233	8033	Decay Only
	Tl-208	8108	Decay Only
	Pa-231	8131	
	Pa-232	8132	Decay Only
	Pb-212	8212	Decay Only
	U-232	8232	
	U-237	8237	
	U-239	8239	Decay Only
	Bi-212	8312	Decay Only
	Np-236	8336	Decay Only
	Np-238	8338	
	Np-239	8339	Decay Only
	Np-236m	8346	Decay Only
	Po-216	8416	Decay Only
	Pu-236	8436	
	Pu-237	8437	
	Pu-243	8443	
	Pu-244	8444	
	Am-240	8540	Decay Only
	Am-242	8542	
	Am-244	8544	Decay Only
	Am-244m	8554	Decay Only
	Rn-220	8620	Decay Only
	Ra-224	8824	Decay Only

Tape	Material	MAT	
522	Cm-241	8641	
	Cm-242	8642	
	Cm-247	8647	
	Cm-248	8648	
	Cm-249	8649	Decay Only
	Bk-249	8749	
	Bk-250	8750	Decay Only
	Cf-249	8849	
	Cf-250	8850	
	Cf-251	8851	
	Cf-252	8852	
	Cf-253	8853	
	Es-253	8953	

NRC HIGHLIGHTS NEED FOR INCREASED EVALUATION OF DATA

The Committee on Chemical Sciences of the National Research Council's Assembly of Mathematical and Physical Sciences recently issued, "The Department of Energy: Some Aspects of Basic Research in the Chemical Sciences."[1] The report marks the conclusion of a study carried out by the committee to provide advice to DOE on plans for research in the chemistry-related sciences. One of the recommendations stated:

> "The funding mechanism used to support the critical evaluation of nuclear data should be extended to a commitment of an additional 0.2 percent of the total R & D budget of DOE (about $8 million) for the evaluation and compilation of data. The sum will support a data-evaluation program urgently needed for advancement of the DOE mission and of fundamental science."

In the section of the report discussing critically evaluated data, the committee cited the Buchsbaum[2] and CODAN[3] reports, which discuss the need for critically evaluated scientific data, and the editorial in SCIENCE[4] by W. H. Stockmayer, Chairman of the NRC Committee on Data Needs (CODAN). The report also states:

"The Committee concurs with the recommendations of the CODAN report which persuasively documents the need for critical evaluation and compilation of data in the U.S., an activity which has been seriously neglected. The need for evaluated data pervades basic and applied research as well as engineering and technology in government, industry, and universities.

"The utility and value of evaluated data depend upon the availability and reliability of the data and on the quality of their evaluation. The CODAN report emphasizes that data evaluation saves money in research, development, and technological applications such as those for which DOE has responsibility. The sooner evaluated data become available, the more money will be saved by channeling efforts into potentially fruitful directions. Timely, high-quality evaluations make it less likely that potential research and technological opportunities will be missed. It should be emphasized that the utility of evaluated data is not restricted to the specific properties, compounds, and conditions (temperature, pressure, etc.) tabulated. Ready availability of a sufficient number of reliable data points permits extrapolation to new compounds, new conditions, and, sometimes, unusual properties. Such extrapolations are of major importance in the assessment, development, and understanding of potential new processes."

After further discussion, the section concluded:

"Data needs related to DOE programs range over chemical sciences in the broadest sense, from spectroscopy to combustion engineering, from solid-state properties to corrosion. Chemical data pertinent to DOE programs include spectroscopic constants (from X-ray to nmr) for atoms, ions, and gaseous molecules; fundamental kinetic transport data, such as rate constants, diffusivities and conductivities; thermodynamic data (including data for surfaces and data at extreme conditions); crystal structures and phase diagrams; electrochemical data; state properties of solids, liquids, gases and plasmas.

"Data evaluation requires a considerable investment of time and money in the initial installation of literature-retrieval and data-processing techniques; data evaluation also requires highly trained people. For these reasons, it is important to ensure the continuity of groups with experience in critical evaluation and tabulation. The recommended program of continuing evaluation will have long-term applications for a wide range of fields, and it is essential to maintain a level of activity that will keep pace with the flow of new data in the literature. Funding and administrative mechanisms for the proposed data evaluation program should be developed by DOE to foster such a long-term commitment.

"Effective implementation of the program will require involvement of scientists (100 or 200) who have the background and experience necessary for critical evaluations. The program would benefit from participation of groups and individuals at the National Bureau of Standards, universities, national laboratories, existing data centers, and in industry. A benefit of dispersed data-evaluation efforts is the education of young scientists in the procedures suitable for objective, critical assessment of experimental results.

"It should be emphasized that data evaluation and the development of models to extrapolate data are intertwined activities. The availability of critically assessed data and the process of critical assessment are inherent parts of the development of reliable models to extend physical and chemical properties to new conditions of potential technological importance."

References:

1. The Department of Energy: Some Aspects of Basic Research in the Chemical Sciences, National Research Council (1979) Washington, D.C. 20418.
2. Report of the Office of Science and Technology Policy Working Group on Basic Research in the Department of Energy. OSTP (June 1978) Washington, D.C. 20500.

3. National Needs for Critically Evaluated Physical and Chemical Data, National Research Council (1978) Washington, D.C. 20418.
4. Data Evaluation: A Critical Activity, SCIENCE, 18 August 1978.

DRAFT OF ANS PUBLIC POLICY PAPER ON OCCUPATIONAL DOSE AVAILABLE

The American Nuclear Society is preparing a series of public policy papers to define the ANS position on several nuclear-related issues. The Radiation Protection and Shielding Division appointed a committee, headed by Ed Warman of Stone and Webster Engineering Corporation, to prepare a draft on proposed reductions in occupational radiation dose limits. The draft was approved by the Division Executive Committee in June and forwarded to the ANS Public Policy Committee which is responsible for all the ANS position papers. The approved paper should be available in September and will be published in *Nuclear News*.

CURRENT WORK AND PROBLEMS

We continue to report current work and problems as a means of promoting intercommunication between members of the RSIC user community. We encourage our readers to keep us informed and to feel free to communicate, directly or through RSIC, with their peers in areas of interest.

M. Hatchya, Chiba Laboratory, Mitsui Engineering and Shipbuilding Co., Ltd. (MES), Japan, reports the following new activities of members of MES (sponsors in parentheses):

- Nuclear Data Evaluation (JAERI) — M. Hatchya.
- Design Study on Medical Research Reactor for Boron Neutron Capture Therapy (National Science Foundation) — M. Hatchya.
- Check Calculation for Shielding Modification of Nuclear Ship Mutsu (Japan Nuclear Ship Development Authority) — Y. Kanemori, *et al.*
- Basic Design for Top Shielding of Prototype Fast Breeder Reactor MONJU (Power Reactor and Fuel Development Corp.) — Y. Kanemori, *et al.*
- Shielding and Critical Calculations for Spent Fuel Cask (Tokyo Electric Power Co.) — M. Matsumoto, *et al.*

Jon Broadway, Computer Services Section, United States Environmental Protection Agency, asks for help in the following area: "Please send any information on the existence or plans for an advanced interactive language with special capability for execution of syntactical matrix operations (preferably written in FORTRAN) and other capabilities similar to the program MLAB written in SAIL at National Institutes of Health, Bethesda, MD."

PERSONAL ITEMS

H. R. Hendrickson of the RSIC staff has taken a 2-year leave of absence from Oak Ridge National Laboratory to join the Nuclear Data Section of the International Atomic Energy Agency in Vienna, Austria. We wish Henri the best of success in this assignment.

J. Benjamin (Ben) Zipperer has recently joined the EPIC staff to provide technical support to all phases of the operation. His background is mathematics, having received a degree in Pure and Applied Mathematics from Armstrong State College, Savannah, Georgia, and having spent an additional year of study at the University of Kentucky, Lexington, Kentucky. We welcome Ben to EPIC.

Jean R. Gonnord of the Shielding Laboratory (LEP) of the Reactor and Applied Mathematical Studies Service (SERMA) of CEA/CEN/Saclay, France, has completed his one-year stay at RSIC. His assignment involved the interfacing of the TRIPOLI Monte Carlo code with the ENDF/B-IV data base.

Two summer student employees have joined EPIC as participants in an Oak Ridge Associated Universities program. **Ken Clement**, a Computer Science major at University of Southwestern Louisiana, Lafayette, Louisiana, and **Tom Williams**, a Mathematics major at Nicholls State University, Thibodaux, Louisiana, are spending the summer assisting the EPIC staff.

VISITORS TO EPIC

The following persons came for an orientation visit and/or to use EPIC facilities during the months of June and July: Ernst H. Brehm, BBC Mannheim, Germany; Edward T. Cheng and B. A. Engholm, General Atomic, San Diego, CA; A. Dubi, Ben Gurion University of the Negev, Beer Sheva, Israel; Dennis Mennerdahl, Swedish Nuclear Power Inspectorate, Stockholm, Sweden; Richard Kramer, Institute of Radiation Protection, Munich, Federal Republic of Germany; Kaoru Taniguchi and Shunsuke Uchida, Hitachi Ltd. Energy Research Laboratory, Hitachi, Japan; and G. G. Warner, UCC-ND Computer Sciences Division, Oak Ridge National Laboratory, Oak Ridge, TN.

CHANGES OF ADDRESS

The following address changes have been noted: **Robert R. Finck** *from* Institute of Radiophysics at Lund *to* the Radiation Physics Section of the National Defense Research Institute at Stockholm, Sweden; **Dr. David C. Oakley** *from* DNA Headquarters in Washington, D.C. *to* the NRC Waste Management Program at Lawrence Livermore Laboratory; and **Dr. R. T. Perry** *from* Battelle Laboratories in Richland, WA *to* the University of Wisconsin in Madison.

INTERNATIONAL JOURNAL OF THERMOPHYSICS ESTABLISHED

About two years ago, CINDAS (Center for Information and Numerical Data Analysis and Synthesis), at Purdue University, conducted an extensive international survey regarding the need for a new journal on thermophysics. Responses from nearly one thousand individuals reaffirmed the general consensus of the need for a high quality journal having a policy of broad coverage in all major scientific and technological areas of thermophysics. Based on the overwhelmingly positive attitude and the encouragement of the thermophysics community, it has been decided to establish the International Journal of Thermophysics.

The journal will publish original research articles, authoritative review papers, articles on relevant applications, brief communications on research and applications, and a section of general interest comprised of announcements of meetings, conferences, publications, and other pertinent information of interest to the thermophysics community. All publications will be refereed.

Some of the appropriate topics that will be considered for publication are: Thermodynamic properties—including heat capacity, enthalpy, vapor pressure, thermal expansion, surface tension, and other properties related to phase changes, PVT, and calorimetric studies; Transport properties—including thermal and electrical conductivity, thermal diffusivity, viscosity, and related properties; Thermal radiative properties—including emittance, absorptance, reflectance, and optical constants; New developments in experimental techniques and instrumentation relevant to thermophysical measurements; Reviews of current topics in thermophysics; Reports on reference materials and critical evaluation and standardization of techniques and procedures for thermophysical measurements; Methods of collection, critical evaluation, correlation, and dissemination of thermophysical properties data and information, and major international sources for such collections; and Selected technological applications of thermophysics.

The Editor-in-Chief invites members of the international community of researchers to submit brief informative abstracts of manuscripts intended for publication in the first and subsequent issues of the journal. Send your abstracts to: Dr. Ared Cezairliyan, Editor-In-Chief, Thermophysics Division (Bldg. 236), National Bureau of Standards, Washington, D.C. 20234, USA (301-921-3687).

The journal will be published by Plenum Press. Subscriptions should be addressed directly to Plenum Publishing Company, 227 West 17th Street, New York, NY 10011, USA.

NEW ICRU REPORTS AVAILABLE

The International Commission on Radiation Units and Measurements (ICRU) announced the publication of two new ICRU Reports: **ICRU Report 30,** ***Quantitative Concepts and Dosimetry in Radiobiology,*** and **ICRU Report 31,** ***Average Energy Required to Produce an Ion Pair.***.

ICRU Report 30 deals with dosimetry pertinent to radiobiological experiments, and considers methods of improving the accuracy and intercomparability of dosimetry in radiobiology. The is, in essence a handbook, primarily for the experimental radiobiologist and the radiological physicist, although it is also expected to be of value to the hospital physicist and radiotherapist. The report introduces and describes concepts and definitions of importance in quantitative radiobiology. The material is intended to provide both the physicist and the biologist a fuller appreciation of the range of concepts involved in performing work in a quantitative manner, the degree of accuracy desired and appropriate, and the difficulties and pitfalls associated with achieving that degree of accuracy. The dosimetry portion of the new report constitutes a revision of ICRU Report 10e, *Radiobiological Dosimetry.*

ICRU Report 31 reviews the available information on the mean energy required to produce an ion pair (W) in gases, liquids and solids, for a variety of radiations. The report provides, where possible, suggested values for current usage. For gases, it provides an examination of experimental methods, current theories, and gas mixtures, and then includes a compilation of experimental values with emphasis on energy dependence and suggested values. For liquids and solids, references to more extensive discussions elsewhere are given. The report also provides introductory material on the history and use of W and a concluding section on expected trends in future research and new applications.

Individuals and organizations already on the ICRU Publications Standing Order List will receive copies of the new reports automatically and be invoiced for their order. Others may purchase copies of the new reports or place their name on the Standing Order List by directing their order to ICRU Publications, P. O. Box 30165, Washington, D.C. 20014, U.S.A.

CANADIAN NUCLEAR ASSOCIATION OFFERS COURSES

The Canadian Nuclear Association (CNA) is offering a course on Quality Assurance. The first offering will be at the Pillar and Post, Niagara-on-the-Lake, Ontario, October 28 – November 1, 1979. Repeat courses will be given November 25–29 (one in English, one in French) at Hotel L'Estérel, Ville D'Estérel, Québec. Further information is available from the Canadian Nuclear Association, 65 Queen St. W., Suite 1120, Toronto, Ontario M5H 2M5.

GEORGE WASHINGTON UNIVERSITY ANNOUNCES COURSE

The Continuing Engineering Education Program at George Washington University, Washington, D.C., offers a course on *Applications of Intense Charged-Particle Beams,* October 1–4, 1979. This course is designed for managers of industrial and technical projects, advanced technology analysts, researchers and others who need a better understanding of the increasing applications of intense charged-particle beams. The presentation will include examples of these applications such as pulsed high power microwave generator, gas laser excitation and controlled thermonuclear fusion research.

Emphasis will be on technological advances in particle beam generation and applications, and will include present capabilities, specifications, and limitations, in addition to the short- and long-term probable applications. The lecturers are specialists in intense charged-particle beam generation and applications.

Topics to be covered include: Intense Charged-Particle Beam Generation — Electron Diodes, Ion Sources, and Collective Effect Accelerators; Radiation Sources — Laser Excitation, Intense X-Ray Generation, and High Power Microwave Generation; Fusion Applications — Particle Beam Pellet Fusion,

Reversed Magnetic Field Configurations, and Plasma Heating; Hybrid Systems — Fissile Material Breeding.

For additional information, contact Office of Continuing Engineering Education, George Washington University, Washington, D.C. 20052.

UNIVERSITY OF TENNESSEE TO OFFER APPLIED REACTOR PHYSICS COURSE

A short course on *Computational Methods in Nuclear Reactor Analysis—Statics, Kinetics, Depletion* will be offered September 10–14, 1979 at the University of Tennessee, Knoxville, as a part of Tennessee Industries Week (TIW). The registration fee is $400, and the deadline for registration is August 24, 1979.

Areas to be covered include multidimensional diffusion theory methods for applications in reactor statics, space-time kinetics, and fuel depletion; transport theory methods including the discrete ordinates method, integral transport theory, and the Monte Carlo method; cross-section generation and processing utilizing the AMPX system developed at the Oak Ridge National Laboratory.

The first day of the course will cover the fundamentals of nuclear reactor physics beginning with the fission process and proceeding through development of the Boltzmann transport equation and the diffusion approximation of the transport equation. This material will provide a good foundation to the non-nuclear engineer for study of the more advanced material to be presented Tuesday through Friday. For the participant with some nuclear background, the first day would be a review of basic nuclear engineering.

For additional information contact: Dean F. N. Peebles, Dean of Engineering, Tennessee Industries Week, College of Engineering, University of Tennessee, Knoxville, TN 37916 (615-974-5321); or H. L. Dodds, Associate Professor of Nuclear Engineering, Oak Ridge National Laboratory, P. O. Box X, Oak Ridge, TN 37830 (615-574-6085).

UPCOMING MEETINGS

We call attention to the following upcoming meetings.

September 1979

ANS Executive Conference on International Nuclear Commerce, September 9–11, 1979, Royal Sonesta Hotel, New Orleans, Louisiana. Contact: D. G. Pettengill, ANS Meeting Manager, 555 North Kensington, La Grange Park, Illinois 60525.

ASIDIC Fall Meeting on Non-Bibliographic Data Bases, September 16–18, 1979, Parker House Hotel, Boston, Massachusetts. Contact: Ms. J. Webb, ASIDIC, P. O. Box 8105, Athens, Georgia 30603.

The tenth annual American Law Institute–American Bar Association (ALI-ABA) Course of Study on *Atomic Energy Licensing and Regulation*, September 27–29, 1979, The Mayflower, Washington, D.C. Contact: Registrar, ALI-ABA, 4025 Chestnut St., Philadelphia, PA 19104.

October 1979

International Conference on Nuclear Cross Sections for Technology, October 22-26, 1979, University of Tennessee, Knoxville. Contact: Department of Conferences, U. of Tennessee, 1629 Melrose Ave., Knoxville, TN 37916. (See January 1979 RSIC Newsletter for details).

November 1979

Federal Computer Conference, November 6–8, 1979, Sheraton-Park Hotel, Washington, D.C. Contact: Federal Computer Conference, P. O. Box 368, Wayland, Massachusetts 01778.

March 1980

International Radiation Protection Agency 5th International Congress, March 9–14, 1980, Jerusalem, Israel. Contact: A. Eisenberg, General Secretary of 5th International Congress of IRPA, P. O. Box 16271, Tel Aviv, Israel (See April 1979 RSIC Newsletter for details).

ADVICE FOR USERS OF OLDER VERSIONS OF ANISN

K. Verschuur, Netherlands Energy Research Foundation (ECN), Petten, The Netherlands, has pointed out an improvement that can be made to versions of ANISN obtained from RSIC prior to 1973. For large problems (large values for IGM and ISCT), the calculation of the Legendre components of the down-scatter source in subroutine S824, consumes considerable computational time. In most cross-section libraries, the higher Legendre components of the scattering matrix are for the most part filled with zeroes, and correspondingly much time is lost in multiplying these zeroes in S824. It is a simple matter to skip these useless calculations by adding a conditional GOTO statement. (CURRENT VERSIONS OF ANISN CONTAIN THIS MODIFICATION).

For IGM=121, ISCT=8, and IEVT=0 a reduction of 30% in the total computer time has been noted. If IEVT≠0, the reduction may even become 50%.

NOTICE TO CODE/DATA REQUESTERS

On each magnetic tape submitted to Engineering Physics Information Centers (EPIC), please be sure to write a tapemark (end-of-file mark) in the same density as the tape is to be written. Failure to do this results in days lost in turnaround time between EPIC and its computer facilities. Our local system, as a protection to users, will not allow writing on a tape without a proper tapemark.

CHANGES IN THE COMPUTER CODE COLLECTION

The following changes were made in July.

CCC-261/MORSE-L

MORSE-L, the ORNL Monte Carlo Radiation Transport Code System (CCC-203) which was modified at the Lawrence Livermore Laboratory (LLL) to solve neutron, gamma-ray, and coupled neutron-gamma-ray PENETRATION PROBLEMS ONLY using the CDC-6600, has been extended to include a CDC-7600 version (B). Both versions of this package, (A) and (B), were contributions of Lawrence Livermore Laboratory. FORTRAN IV; CDC-6600, -7600.

CCC-348/RICECCC

RICECCC, contributed by the Central Electricity Generating Board, Berkeley Nuclear Laboratory, United Kingdom, is a reactor nuclide inventory code for estimating actinide and fission products using a point source model, and can be used for reactor shielding and decay heating calculations for waste management and other long-term studies. It also provides a source term for studies of the effect of nuclear power generation on the environment. References: RD/B/N4138 and RD/B/N4079. FORTRAN IV; IBM 360.

CCC-349/MEDUSA-PIJ

MEDUSA-PIJ, a contribution of Japan Atomic Energy Research Institute (JAERI), Tokai-mura, Naka-gun, Ibaraki-ken, Japan, is a one-dimensional laser fusion analyzer which calculates the energy deposited by emitted neutrons by the collision probability method. Under laser irradiation, electrons near the critical surface of the pellet are heated by inverse bremsstrahlung, resonance absorption, and various anomalous mechanisms. The total energy deposition is considered in the energy balance equation of the system at each time step, and a hydrodynamic equation is solved. Neutron spectra escaping from a fuel sphere can be calculated by a neutron slowing down equation derived using a two-collision model. Reference: JAERI-M/8186. FORTRAN IV; FACOM 230-75.

CCC-350/BRHGAM

BRHGAM, a Monte Carlo estimation of absorbed dose from x-ray sources in phantom man, was contributed by UCC-ND Computer Sciences Division, Oak Ridge National Laboratory. Compiled from the elements of ALGAM (CCC-152), BRHGAM has been used with normally incident 4 × 4 cm collimated

parallel monoenergetic photon beams of 30, 55, and 80 keV. Reference: ORNL/TM-4393. FORTRAN IV; IBM 360.

CHANGES IN THE DATA LIBRARY COLLECTION

The following changes were made in July.

DLC-45/SENPRO

The data package (compilation of multigroup sensitivity profiles in SENPRO format) has been updated to correct an error in the 26-group fast reactor benchmark sensitivity profiles. The ISTC (scattering order for total coefficients) parameter of the MAT-MT control record was improperly set in the standard interface file, SENPRO. ISTC was changed to 3 for the MAT-MT control records 913-1178. The National Nuclear Data Center, Brookhaven National Laboratory, called attention to the error, and Oak Ridge National Laboratory provided the material for correction. The updated version has been designated DLC-45C.

DLC-66/FPDL

The library of fission product yields, gamma-ray and beta spectra in ENDF-III format for ^{235}U, ^{238}U, ^{239}Pu, ^{232}Th, and ^{233}U was contributed by CEA, Centre d'Etudes Nucleaires de Saclay, Gif-sur-Yvette, France. The library includes the following data for each isotope produced from fission for 635 nuclides: the radioactive half-life; decay energies; energies and intensities of the β^+ and β^-; the energies and intensities of the γ rays. Reference: OLS-78-255, Note CEA-N-1822 and SERMA/LEP/79.357; IBM 360.

JULY 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

AERE-R-9298, Transmutation and Activation of Fusion Reactor Wall and Structural Materials., Jarvis, O.N., January 1979, H.M.S.O.

ANL/NDM-47, Scattering of MeV Neutrons from Elemental Iron., Smith, A.; Guenther, P., March 1979, Applied Physics Division, Argonne National Laboratory, Argonne, Illinois 60439

BNL-NUREG-25635; CONF-790602-14, One- and Two-Dimensional Heating Analyses of Fusion Synfuel Blankets., Tsang, J.S.K.; Lazareth, O.W.; Powell, J.R., 1979, Dep., NTIS

CONF-780508-Vol.1, Technology of Controlled Nuclear Fusion., Powell, J.R.; Eterno, C.T. (Eds.), 1978, Dep., NTIS $19.00 Hard Copy - $3.00 Mf

CONF-780508,Vol.1, pp.1-18, Magnetic Fusion Program in the United States: An Overview and Perspective., Clarke, J.F., May 1978, Dep., NTIS

CONF-780508,Vol.1, pp.19-27, Fusion - The Programme in the U.K. - and Other Thoughts., Carruthers, R., May 1978, Dep., NTIS

CONF-780508,Vol.1, pp.28-37, Development on Fusion Reactors in Japan., Mori, S., May 1978, Dep., NTIS

CONF-780508,Vol.1, pp.38-49, The JET Project - Progress in Construction and Management., Bertolini, E., May 1978, Dep., NTIS

CONF-780508,Vol.1, pp.51-57, Advanced Fusion Concepts Program., Dove, W.F., May 1978, Dep., NTIS

CONF-780508,Vol.1, pp.58-63, Alternative Fusion Concepts: Engineering and Utility Considerations., Gough, W.C.; Amherd, N.A., May 1978, Dep., NTIS

CONF-780508,Vol.1, pp.64-73, Tandem Mirror Reactor., Moir, R.W.; Barr, W.L.; Bender, D.J.; Carlson, G.A.; Dexter, W.L.; Doggett, J.N.; Fink, J.H.; Hamilton, G.W.; Lee, J.D.; Logan, B.G.; Neef, W.S.,Jr.; Peterson, M.A.; Rensink, M.E., May 1978, Dep., NTIS

CONF-780508,Vol.1, pp.74-82, The Elmo Bumpy Torus (EBT) Reactor - A Status Report., Uckan, N.A.; Bettis, E.S.; Dandl, R.A.; Hedrick, C.L.; Santoro, R.T.; Watts, H.L.; Yeh, H.T., May 1978, Dep., NTIS

CONF-780508,Vol.1, pp.83-89, The Reversed-Field Multiple Mirror Concept., Steinhauer, L.; Grossmann, W.; Seyler, C.E., May 1978, Dep., NTIS

CONF-780508,Vol.1, pp.193-202, Synfuels Production from Fusion Reactors., Fillo, J.A.; Powell, J.R.; Steinberg, M.; Salzano, F.; Benenati, R.; Dang, V.; Fogelson, S.; Isaacs, H.; Kouts, H.; Kushner, M.; Lazareth, O.; Majeski, S.; Makowitz, H.; Sheehan, T.V., May 1978, Dep., NTIS

CONF-780508,Vol.1, pp.230-238, Evaluation of Potential Blanket Concepts for a Demonstration Tokamak Hybrid Reactor., Chapin, D.L.; Chi, J.W.H.; Kelly, J.L., May 1978, Dep., NTIS

CONF-780508,Vol.1, pp.239-248, A BWTR (Boiling Water Tokamak Reactor) Blanket Study., Sze, D.K.; Maynard, C.W.; Sviatoslavsky, I.N.; Cheng, E.T.; Wang, C.C.; Wrazel, J., May 1978, Dep., NTIS

CONF-780508,Vol.1, pp.254-261, Nucleonic Aspects of the 'LINUS' Imploding Blanket., Dudziak, D.J., May 1978, Dep., NTIS

CONF-780508,Vol.1, pp.262-268, Scoping Nucleonic Studies for the Riggatron Fusion Reactor Concept., Wienke, B.R.; Dudziak, D.J.; Bosler, G.E., May 1978, Dep., NTIS

CONF-780508,Vol.1, pp.269-278, A Minimum-Thickness Blanket/Shield with Optimum Tritium Breeding and Shielding Effectiveness., Gerstl, S.A.W., May 1978, Dep., NTIS

CONF-780508,Vol.1, pp.324-333, An Assessment of Carbon and Silicon Carbide as First Wall Materials in Inertial Confinement Fusion Reactors., Hopkins, G.R.; Price, R.J.; Bullock, R.E.; Dalessandro, J.A.; Hovingh, J., May 1978, Dep., NTIS

CONF-780508,Vol.1, pp.347-356, FWLTB - A Mathematical Model to Calculate the Lifetime of the Fusion Reactor First Wall., Daenner, W.; Raeder, J., May 1978, Dep., NTIS

CONF-780508,Vol.1, pp.385-393, Measurements and Calculations of Fast Neutron Spectra in a Graphite-Reflected Lithium Assembly., Itoh, S.; Seki, Y.; Maekawa, H., May 1978, Dep., NTIS

CONF-780508,Vol.1, pp.394-401, TRIDENT-CTR: A Two-Dimensional Transport Code for CTR Applications., Seed, T.J., May 1978, Dep., NTIS

CONF-780508,Vol.1, pp.402-410, Computations of Nuclear Response Functions with MACK-IV., Abdou, M.A.; Gohar, Y., May 1978, Dep., NTIS

CONF-780508,Vol.1, pp.549-553, Materials Program for Magnetic Fusion Energy., Zwilsky, K.M.; Cohen, M.M.; Finfgeld, C.R.; Reuther, T.C., May 1978, Dep., NTIS

CONF-780508,Vol.1, pp.575-587, The Damage Analysis and Fundamental Studies Program., Doran, D.G.; Farrar, H.,IV; Goland, A.N.; Greenwood, L.R.; Heinrich, R.R.; Nolfi, F.V.; Odette, G.R.; Parkin, D.M.; Reuther, T.C.; Robinson, M.T.; Smidt, F.A.; Spraque, J.A.; Vandervoort, R.R.; Wilkes, P., May 1978, Dep., NTIS

CONF-780508,Vol.1, pp.598-610, The Newest Frontier in Radiation Damage Research - Laser Fusion Reactors., Kulcinski, G.L., May 1978, Dep., NTIS

CONF-780508, Vol.2, Technology of Controlled Nuclear Fusion., Powell, J.R.; Eterno, C.T.(Eds.), 1978, Dep., NTIS $19.00 Hard Copy - $3.00 Mf

CONF-780508,Vol.2, pp.1049-1059, "NUMAK" An Attractive Medium Field, Medium Size, Conceptual Tokamak Reactor., Conn, R.W.; Kulcinski, G.L.; Maynard, C.W., May 1978, NTIS

COO-4933-1; CONF-790602-1, Photoneutron Target Design for Fast Neutron Spectrum Measurements., Bokharee, S.A.; Emmett, R.W.; Becker, M.; Block, R.C.; Harris, D.R.; Malaviya, B.K.; Hayashi, S.A.; Yamamoto, S., 1979, Dep., NTIS

EPRI-NP-1056, Measurement and Analysis of Gamma Ray Induced Contamination of Neutron Dosimetry Procedures Used for Reactor Pressure Vessel Applications., Simmons, G.L., April 1979, Science Applications, Incorporated, 1200 Prospect St., La Jolla, California 92038

EPRI-NP-1067, Evaluation and Testing of Actinide Cross Sections., Benjamin, R.W., April 1979, Savannah River Lab., E.I. du Pont de Nemours and Co., Inc., Aiken, S.C. 29801

EPRI-NP-1098-SY, Symposium Summary: Nuclear Data Problems for Thermal Reactor Applications., Rose, P.F.; Pearlstein, S.; Ozer, O., June 1979, National Nuclear Data Center, Brookhaven National Laboratory, Upton, New York 11973

FRA-TM-120, Thermal Neutron Scattering Treatment in the Monte Carlo Code VIM., Milton, L.J., May 14, 1979, Applied Physics Division, Argonne National Laboratory, 9700 South Cass Avenue, Argonne, Ill. 60439

HEDL-TC-572(Rev.1), Analysis of FFTF Reactor Cavity Liners under Ex-Vessel PAHR Conditions., Polentz, L.M., June 1976, DOE, Technical Information Center, P.O. Box 62, Oak Ridge, Tennessee 37830

IAEA-207; CONF-761081, Differential and Integral Nuclear Data Requirements for Shielding Calculations., IAEA, 1978, Dep., NTIS (U.S. Sales Only)

INDC(CCP)-132/LV, Determination of the Errors in Evaluated Data with Allowance for Correlations. Evaluation of U-235 Fission Cross-Sections, alpha (^{235}U), alpha(^{239}Pu) and ^{239}Pu Fission Cross-Sections for the Evaluated Nuclear Data Library BOYaD-3., Kon'shin, V.A.; Sukhovitskij, E.Sh.; Zharkov, V.F., April 1979, IAEA Nuclear Data Section, Karntner Ring 11, A-1010 Vienna

LA-7849-MS, Contribution Monte Carlo., Dubi, A.; Gerstl, S.A.W., May 1979, NTIS

LA-UR-78-2116; CONF-781213-2, Computer Methods for Sampling from the Gamma Distribution., Johnson, M.E.; Tadikamalla, P.R., 1978, Dep., NTIS

LTR-141-97, Neutron Shielding Requirements for the Loft Densitometers., Wheeler, F.J.; McCracken, R.T., January 23, 1979, Dep., NTIS

NCRP-60, Physical, Chemical, and Biological Properties of Radiocerium Relevant to Radiation Protection Guidelines., NCRP, December 15, 1978, NCRP Publications, P.O. Box 30175, Washington, D.C. 20014

NUREG/CR-0755, Gamma Dose Measurements at Zion and Fort Calhoun Stations., Dyer, N.C.; Bunting, R.L.; Nieschmidt, E.B.; Croney, S.T.; Kynaston, R.L.; McIsaac, C.V.; Underwood, D.R., April 1979, NTIS $7.25

NUREG/CR-0789; ORNL/NUREG/TM-315, Internal Dosimetry Data and Methods of ICRP-Part 1., Ford, M.R.; Bernard, S.R.; Dillman, L.T.; Watson, S.B., June 1979, NTIS

ORNL-5517, Specifications for Adjusted Cross Section and Covariance Libraries Based upon CSEWG Fast Reactor and Dosimetry Benchmarks., Weisbin, C.R.; Marable, J.H.; Collings, P.J.; Cowan, C.L.; Peelle, R.W.; Salvatores, M., June 1979, NTIS $5.25

STI/PUB-471(Vol.2); CONF-771209-P2, National and International Standardization of Radiation Dosimetry. Volume II., IAEA, December 1978, IAEA $31.00

UCRL-50400,Vol.17, Pt.F, DOWNER (Version 79-1): Group Collapse Cross Section and Transfer Matrices., Cullen, D.E., January 1979, NTIS

UCRL-81774; CONF-790316-1, New Radiobiological Findings Bearing on the 1977 ICRP Recommendations., Dobson, R.L., February 14, 1979, Dep., NTIS

UCRL-82177; CONF-781174-6, Actinide Cross Section Data and Inertial Confinement Fusion for Long Term Waste Disposal., Meldner, H., January 15, 1979, Dep., NTIS

UWFDM-306, NUWMAK - A Tokamak Reactor Design Study. Chapter I. Design Philosophy. Chapter II. Overview and Summary., Badger, B.(Ed.), March 1979, Fusion Engineering Program, Nuclear Engineering Department, University of Wisconsin, Madison WI 53706

WT-1120, Radiation Energy Absorbed by Human Phantoms in a Fission Fallout Field., Imirie, G.W.,Jr.; Sharp, R., 1955, Declassified September 19, 1959, NTIS

Health Phys., 36(3), 347-354, The Partition of Kerma to Account for Bremsstrahlung., Attix, F.H., March 1979

Health Phys., 36(3), 387-392, Attenuation of Primary and Leakage Radiation in Concrete for X-Rays from a 10 MV Linear Accelerator., Tochilin, E.; LaRiviere, P.D., March 1979

Health Phys., 36(5), 587-593, Use of Gypsum Wallboard for Diagnostic X-Ray Protective Barriers., Glaze, S.A.; Schneiders, N.J.; Bushong, S.C., May 1979

Health Phys., 36(5), 595-600, Attenuation Characteristics of Gypsum Wallboard., Christensen, R.C.; Sayeg, J.A., May 1979

Health Phys., 36(5), 635-637, Leakage Neutrons Produced by 10 MeV Medical Accelerators., McGinley, P.H.; Fenn, J.O.; White, T.A.,Jr., May 1979

J. Nucl. Sci. Technol., 14(11), 769-773, Use of Exterior Differential Forms to Express the Time Dependent Diffusion Equation in any Orthogonal Coordinate System., Bernal, S.R.; Waller, S.M., November 1977

J. Nucl. Sci. Technol., 14(11), 836-838, Induced Activity and Dose Rate in a Fusion Reactor with Molybdenum Blanket Structure., Iida, H.; Seki, Y.; Ide, T., November 1977

J. Nucl. Sci. Technol., 14(12), 916-919, Nuclear Characteristics of Gas-Suspended Boron Carbide Cooling Catalyzed D Fusion Reactor Blanket., Nakashima, H.; Ohta, M.; Nakao, Y., December 1977

Mem. Fac. Eng., Kyoto University, 38(1), 1-29, Nuclear Characteristics of D-D Fusion Reactor Blankets., Nakashima, H.; Ohta, M., March 1978

Nucl. Instrum. Methods, 159(1), 135-138, Sensitivity Analyses for the Secondary Intermediate-Energy Standard Neutron Field at the Nisus Facility., Azimi-Garakani, D.; Shahbazi, M., February 1, 1979

Nucl. Instrum. Methods, 159(1), 157-162, Measurement of Number Albedo of Backscattered Photons., Biswas, M.; Sinha, A.K.; Roy, S.C., February 1, 1979

Nucl. Instrum. Methods, 159(1), 229-234, Depth-Dose Distribution for Fission Neutron Spectra Degraded Through Low Z Shields., Singh, D.; Bisht, J.S.; Madhvanath, U., February 1, 1979

Nucl. Instrum. Methods, 160(3), 499-502, Monte Carlo Calculation of d-Be Neutron Yields., Cristenson, D.; McNaughton, M.W.; Jungerman, J.A., April 1, 1979

Nucl. Instrum. Methods, 160(3), 533-540, Statistical Errors of Dose Estimation in Personnel Neutron Monitoring with Albedo Dosimeters., Burgkhardt, B.; Heinselmann, M.; Piesch, E.; Viragh, E., April 1, 1979

Nucl. Sci. Eng., 71(1), 18-28, Neutron Yields from Alpha-Particle Bombardment., Bair, J.K.; del Campo, J.G., July 1979

Nucl. Sci. Eng., 71(1), 29-45, Calculation of the Total Flux at a Point by the Monte Carlo Track Rotation Estimator., Dubi, A.; Horowitz, Y.S., July 1979

Nucl. Sci. Eng., 71(1), 46-54, A Finite Moments Algorithm for Particle Transport Problems., Vaidyanathan, R., July 1979

Nucl. Sci. Eng., 71(1), 57-59, The Particle Spectrum to be Expected from a D-T Plasma. (Tech. Note), Liskien, H., July 1979

Nucl. Sci. Eng., 71(1), 59-64, A Correlation Technique for Resonance Calculations. (Tech. Note), Gregory, M.V., July 1979

Nucl. Sci. Eng., 71(1), 64-71, On the Validity of the Extended Transport Cross-Section Correction for Low-Energy Electron Transport. (Tech. Note), Morel, J.E., July 1979

Nucl. Technology, 44(2), 315-321, D-D Neutron and X-Ray Yields from High-Power Deuterium Beam Injectors., Kim, J., July 1979

BOOK, RADIATION DETECTION AND MEASUREMENTS., Knoll, G.F., 1979, Wiley Pub.

COMPUTER CODES LITERATURE

ANL/FPP-77-5 ..... MACK-IV
MACK-IV, A New Version of MACK: A Program to Calculate Nuclear Response Functions from Data in ENDF/B Format., Abdou, M.A.; Gohar, Y.; Wright, R.Q., Argonne National Laboratory, Argonne, Illinois, July 1978

BNL-NCS-50681; CONF-77-523, 491-513
..... ALICE
Neutron, Proton, and Deuteron Induced Reaction Products in the 10 to 40 MeV Range., Divadeenam, M., Brookhaven National Laboratory, Upton, New York, July 1977

BNL-NUREG-50806 ..... SORS
Analysis of SORS: A Computer Program for Analyzing Fission Product Release from HTGR Cores During Transient Temperature Excursions., Dickey, J.M., Brookhaven National Laboratory, Upton, New York, April 1978, AVAIL: NTIS

BNWL-1002; ENDF-127 ..... ETOX
ETOX, A Code to Calculate Group Constants for Nuclear Reactor Calculations., Schenter, R.E.; Kidman, R.B., Battelle Northwest Laboratories, Richland, Washington, May 1969, UNIVAC 1108

DPSPU-77-30-10 .... RADIONUCLIDIC ANALYSIS
Computerized Radionuclidic Analysis in Production Facilities., Gibbs, A., Du Pont de Nemours and Co., Aiken, South Carolina, Savannah River Plant, March 1978, AVAIL: NTIS

E11-11730 ..... POISSON; PANDIRA; SUPERFISH
Computer Calculations of Dipoles and Quadrupoles Based on Permanent Magnets., Ilyushchenko, V.I., Joint Institute for Nuclear Research, Dubna, USSR, 1978, CDC 6500

JINR-10-9094 (In Russian)
..... SUCHE; SPECTR
Combined Processing of Gamma-Spectra on Small and Large Computers., Fromm, V.D., Joint Institute for Nuclear Research, Dubna, USSR, 1975, HP 2116C; CSC 6200, AVAIL: NTIS (U.S. Sales Only)

JNR 1691/IX/PR/A ..... SAMSY
SAMSY: A One-Dimensional Improved Shielding Code, User's Manual., Szymendera, L.; Wincel, K.; Sobolewska, I.; Kordyasz, D.; Polanski, A., Institute of Nuclear Research, Warsaw, Poland, 1977, CDC CYBER 73 FORTRAN EXTENDED

KIYI-76-14 (In Russian) ..... GAMMA SPECTRA
Technique for Processing Gamma Spectra Detected by Means of Ge(Li) Detectors in Study on Slow Neutron Capture., Belykh, G.V., AN Ukrainskoj SSR, Kiev. Inst. Yadernykh Issledovanij, 1976, AVAIL: NTIS (U.S. Sales Only)

ORNE-130-1978 ..... ALIS-1
ALIS-1 Program for Performing the Analysis of a General Linear Time-Invariant Multivariable System., Turcu, I.; Iftode, I., Institutul de Reactori Nucleari Energetici, Pitesti, Romania, August 1978, FORTRAN IV IBM 370/135

ORNL/CSD/TM-73 ..... FFCG
FFCG - A Free-Form Input Combinatorial Geometry Package., Fraley, S.K., Oak Ridge National Laboratory, Oak Ridge, Tennessee, March 1979

ORNL/TM-6055 ..... ORIGEN
Updated Decay and Photon Libraries for the ORIGEN Code., Croff, A.G.; Haese, R.L.; Gove, N.B., Oak Ridge National Laboratory, Oak Ridge, Tennessee, February 1979

ORNL/TM-6656 ..... WINDOWS
WINDOWS: A Program for the Analysis of Spectral Data Foil Activation Measurements., Stallmann, F.W.; Eastham, J.F.; Kam, F.B.K., Oak Ridge National Laboratory, Oak Ridge, Tennessee, December 1978, AVAIL: NTIS

SAND-77-8755; CONF-780431-9
..... SPUTTERING
Monte Carlo Studies of Sputtering., Haggmark, L.G.; Wilson, W.D., Sandia Labs., Livermore, California, April 1978, AVAIL: NTIS

SGAE-2487; RT-93/75 (In German)
..... THERMAL
Calculation of Thermal Neutron Spectra in a Wigner-Seitz-Cell by Means of a Combination of Selengut's Method of Overlapping Spectra and Multicollision Theory. Part 2: The Computer Program THERMAL - Description and Applications., Kamelander, G.; Putz, F., Oesterreichische Studiengesellschaft fuer Atomenergie G.m.b.H., Vienna, September 1975, AVAIL: INIS

Trans. Am. Nucl. Soc., 28, 257-58
..... TRIANGULAR MESH
Linear, Continuous Triangular-Mesh Difference Scheme for Transport Codes., Walters, W.F.; O'Dell, R.D., Los Alamos Scientific Laboratory, Los Alamos, New Mexico, June 1978

UCRL-52513 ..... RETECTUR; GAM100
Determination of Continuous Gamma-Ray Spectra Over the Energy Range 0.1 to 8 MeV., Fuess, D.A.; Slaughter, D.R.; Strout, R.E.; Rueppel, D.W., Los Alamos Scientific Laboratory, Los Alamos, New Mexico, August 1978, FORTRAN IV CDC 7600

ZJE-228 ..... BIBFP; BIBGRFP
Corrections and Supplements to the Fission Product Data Libraries BIBFP and BIBGRFP., Hep, J.; Valenta, V., Skoda Works, Nuclear Power Construction Division, Information Centre, Plzen, Czechoslovakia, 1978

RADIATION SHIELDING INFORMATION CENTER

RSIC Periodic Distribution Query

The *RSIC Newsletter* carries information about RSIC products and services. Do you wish to continue to receive it?_____. If so, please fill out the form below as completely as possible and mail it immediately. We will purge from the distribution list the names of those not responding on or before **September 1.** Please print or type the name and mailing address. Use additional paper as necessary.

A. Name: _____

Organization: _____

Address: _____

_____

_____

Telephone No: _____

(Commercial) (FTS)

B. Organization/institution type (Domestic____, Foreign____):

utility____, consultant____, industry-owned laboratory____, industrial vendor____, architect-engineer____, government laboratory____, government agency____, government contractor____, university____, health care organization____, other (specify):

_____

C. What computers do you use?

_____

D. How must tapes be written for your use? 7 or 9 track; 556, 800, 1600, or other_____BPI density; blocked or unblocked; labeled or unlabeled; other (specify): _____

_____

E. _____

_____

F. Please indicate your source of financial support (if government, **specify agency**; if more than one sponsor, indicate proportionate fraction of time spent on each). **This information is essential.**

____% agency_____ ; ____% agency_____ ; ____% agency_____ ; ____% agency_____ ; ____% agency_____ ; ____% agency_____ .

G. Have you placed your work in RSIC? _____. If yes, indicate below if it is time for an update. Do you have publications, computer codes, or data which you wish to contribute?

H. Please comment:

_____

_____

_____

THIS IS MY____FIRST; ____SECOND REPLY.

PLEASE RETURN TO: *Radiation Shielding Information Center*
Oak Ridge National Laboratory
P. O. Box X
Oak Ridge, Tennessee 37830