

# RSIC Newsletter



RADIATION SHIELDING INFORMATION CENTER

## OAK RIDGE NATIONAL LABORATORY

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

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No. 138

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*Americans judge that the diffusion of knowledge must necessarily be advantageous  
and the consequences of ignorance fatal.*

*...A. de Tocqueville (1835)*

### NEWS ON THE FIFTH INTERNATIONAL CONFERENCE ON REACTOR SHIELDING

The Call for Papers for the Fifth International Conference on Reactor Shielding to be held at the Hyatt Regency Hotel in Knoxville, Tennessee, April 18-22, 1977, has appeared in the April issues of the RSIC Newsletter and Nuclear News (p. 148). Deadline for summaries (4 copies in English, 300 words, no figures): postmarked August 20, 1976. Mail summaries to: S.A.W. Gerstl, Program Committee Chairman, Los Alamos Scientific Laboratory, T-1, MS-269, P. O. Box 1663, Los Alamos, NM 87545 USA.

Situated only 40 miles (65 km) from the Great Smoky Mountains National Park and surrounded by five Tennessee Valley Authority lakes, Knoxville has become one of the leading trade and manufacturing centers of the South and a major convention site. The population of Knox County exceeds 300,000. The weather in mid-April will be mild with low temperatures 40°-50°F (4-10°C) and high temperatures about 70°-80°F (21°-27°C) with a possibility of rain showers. Many flowers, such as azaleas and tulips, and flowering trees will be in bloom. The outstanding flowering tree, the dogwood, will be visible everywhere in woods growing wild and in most residential yards. Opportunities will be available for conference attendees to view the specially laid out Dogwood Trails where the dogwoods and other flowers and gardens are especially outstanding.

The conference hotel, the Hyatt Regency, is probably the most architecturally innovative hotel in Tennessee. Shaped like an Aztec pyramid, it features a lobby atrium rising up through the nine story edifice to skylights that fill the area with sunshine by day and the twinkle of stars by night. Located in the Knoxville downtown business district, the hotel affords every guest room a sweeping view of the Great Smoky Mountains, the Cumberland Mountains, or the excitement of the lobby atrium. Facilities include a rooftop restaurant, bank, gift shop, rental car, travel agency, hotel swimming pool, and parking garage. Registration for the conference will begin on the afternoon of April 17, 1977, in the John Sevier Foyer of the hotel.

For further information, contact D. K. Trubey, General Chairman, RSIC, ORNL, P. O. Box X, Oak Ridge, TN 37830.

### ANS SHIELDING AND DOSIMETRY DIVISION OFFICERS ELECTED

The American Nuclear Society has announced the election of the officers (1976-77) for the Shielding and Dosimetry Division:

Chairman — Fred R. Mynatt, ORNL  
Vice Chairman — Wilbur L. Bunch, HEDL  
Secretary — Nancy B. Willoughby, Bechtel  
Treasurer — Charles M. Huddleston, NOL  
Executive Committee — Gail de Planque Burke, ERDA-HASL  
Edward A. Warman, Stone and Webster  
James A. Lonergan, SAI

### TEN CSEWG YEARS

The recent meeting (May 19-20, 1976) of the Cross Section Evaluation Working Group (CSEWG) marked the tenth anniversary of the organization. Attendees of the first meeting at Brookhaven National Laboratory in 1966 were recognized by the presentation of certificates by Phil Hemmig, Chief, Physics Branch of ERDA's Division of Reactor Development and Demonstration. A special certificate was presented to Sol Pearlstein, Director of the National Neutron Cross Section Center, Brookhaven National Laboratory and Chairman of CSEWG, for his coordination of the group effort to produce the ENDF/B library.

### RPI ANNOUNCES SUMMER PROGRAMS IN REACTOR DESIGN AND TECHNOLOGY

Rensselaer Polytechnic Institute has announced three courses in Nuclear Reactor Design and Basic Nuclear Technology to be given this summer at Troy, New York. The courses are:

- July 12-16 Basic Nuclear Reactor Technology
- July 19-23 Nuclear Reactor Design
- July 26-30 Computer Applications and Reactor Design Codes

Further information can be obtained from:

Office of Continuing Studies  
Rensselaer Polytechnic Institute  
Troy, NY 12181

or telephone 518-270-6395 (Dr. B. K. Malaviya, Program Director)

### CHANGES TO THE CODES COLLECTION

#### PSR-68/MANYFILE

This utility routine for manipulation of data sets between various I-O devices, contributed by Oak Ridge National Laboratory, has been updated to eliminate double spaced output.

When using the NP option of MANYFILE with 133-column records, the list option produces double spaced output, wasting paper and producing twice as large a stack of output. This problem can be eliminated by changing the PUT statement 99 from:

```
PUT SKIP LIST (SUBSTR(LINE,2));
TO:
PUT EDIT (SUBSTR(LINE,2)) (SKIP,A(132));
```

This fix has an added benefit--by cutting the printed output (for NP files) in half, the chances of exceeding the print quota are greatly decreased.

[This correction has been in use by RSIC since February 1976].

#### CCC-278/SPOOR

This Monte Carlo simulation of the turbulent transport of airborne contaminants was contributed by Los Alamos Scientific Laboratory. Reference: LA-6130 (January 1976). FORTRAN IV; CDC-7600.

#### VISITORS TO RSIC

The following persons visited RSIC during the month of May: Arnie Warshawsky, U.S. Army Nuclear Agency, Fort Bliss, Texas; Dr. Kenneth Kin, Control Data Corporation, Rockville, Maryland; D. O. Harton, Control Data Corporation, Knoxville, Tennessee; Charles D. Swanson, Control Data Corporation, Minneapolis, Minnesota; and Craig Kullberg, Massachusetts Institute of Technology, Cambridge, Massachusetts.

## MAY ACCESSION OF LITERATURE

The following literature cited has been ordered for review, and that selected as suitable will be placed in the RSIC Information Storage and Retrieval Information System (SARIS). This early announcement is made as a service to the shielding community. **Copies of the literature are not distributed by RSIC.** They may generally be obtained from the author or from a documentation center such as the National Technical Information Service (NTIS), Department of Commerce, Springfield, Virginia 22151.

*RSIC maintains a microfiche file of the literature entered into SARIS, and duplicate copies of out-of-print reports may be available on request. Naturally, we cannot fill requests for literature which is copyrighted (such as books or journal articles) or whose distribution is restricted.*

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

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

### REACTOR AND WEAPONS RADIATION SHIELDING LITERATURE

AAEC/E-336

Comparison of Calculations Made with Three Time-Dependent Neutron Codes TDA, MORSE, and POW.

McGregor, B.; Harrington, B.  
December 1974

Dep., NTIS (U.S. Sales Only) \$4.50

AAEC/E-359

Neutron Yields and Energy Spectra from the Thick Target Li(p,n) Source.

Ritchie, A.I.M.

June 1975

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

AEC-tr-7314, pp.14-17

Calculation of the Efficiency of Spherical Sources by the Trial and Error Method (Monte Carlo Method).

Djagatspanyan, R.V.; Kosortov, B.I.; Kheifets, L.I.; Osipov, V.B.

May 1975

NTIS

AEC-tr-7314, pp.54-59

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

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

May 1975

NTIS

AED-CONF-75-(41-006 (In German)

Experience with the LiF Thermoluminescence Dosimeters. Applications with Low-Energy X-Rays.

Leitz, W.; Frost, D.; Ribbe, W.

1975

INIS

AEEW-M-1368

Revision of Photon Interaction Data in the UKAEA Nuclear Data Library.

Knipe, A.D.

October 1975

Dep., NTIS (U.S. Sales Only) \$4.50

AMMRC-TR-74-33; AD/A-005218

Computer Programs for Quantity Determination in Neutron Activation Analysis. Final Report.

Antal, J.J.; Warnas, A.A.

December 1974

NTIS \$4.25

- ANCR-1206  
Mixed Zone Geometry Option for the RAFFLE  
General Purpose Monte Carlo Code.  
Marsden, R.S.; Wheeler, F.J.; Wessol, D.E.  
February 1975  
Dep., NTIS \$4.00
- ANL-Trans-1046  
Calculations by Monte-Carlo Method in Three  
Dimensions (TRIPOLI Code) of Neutron Spectrum  
in the Lower Shields of the Phenix.  
Nimal, J.C.; Vergnaud, T.  
Translation of CEA-N-1359  
October 1970  
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- ANU-P-606  
Tables for Calibration of Radiation Detectors.  
Bell, R.A.I.  
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Dep., NTIS (U.S. Sales Only) \$6.25
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ETOGM: Epithermal Cross Section Generation  
Code Using ENDF<sub>B</sub> Data.  
Wittkopf, W.A.; Tilford, J.M.; Kirschner, G.  
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Role and Use of Nuclear Theories and Models in  
Practical Evaluation of Neutron Nuclear Data  
Needed for Fission and Fusion Reactor Design and  
Other Nuclear Applications.  
Prince, A.  
1975  
Dep., NTIS \$6.00
- BNL-20760  
Calculational Model and Data for CTR  
Neutronics and Photonics.  
Maynard, C.  
September 1974  
Dep., NTIS \$4.50
- BRL-R-1868  
Time Integrated Neutron, Prompt and Secondary  
Photon Dose Evaluations Using the ATR Code for  
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Saccenti, J.C.  
March 1976  
Defense Documentation Center, Cameron  
Station, Alexandria, Va. 22314
- CEA-CONF-3297 (In French)  
Calculation of Cross Sections of Discrete Gamma  
Rays Production in the (n,n' $\gamma$ ) Reactions on  
Chromium and Nickel with Neutron Energy up to 10  
MeV.  
Duchemin, B.  
1975  
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- CEA-CONF-3309 (In French)  
Energy Spectrum Measurement of Fission  
Neutrons for <sup>235</sup>U and <sup>238</sup>U Fission Induced by 0.6  
MeV and 7 MeV Neutrons.  
Bertin, A.; Bois, R.; Frehaut, J.; Nicolas, P.  
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- CEA-R-4712  
Evaluation of the Nuclear Cross Section for the  
<sup>169</sup>Tm (n,2n) <sup>168</sup>Tm Reaction from Threshold to 20  
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Philis, C.; Young, P.G.  
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- COO-2218-17  
Fusion Cross Sections and Reactivities.  
Miley, G.H.; Towner, H.; Ivich, N.  
June 17, 1974  
Dep., NTIS \$5.50
- COO-2262-7  
Finite Element Method for Neutron Diffusion  
Problems in Hexagonal Geometry.  
Wei, T.Y.C.; Hansen, K.F.  
June 1975  
Dep., NTIS \$9.75
- CONF-740920  
Neutron Capture Gamma-Ray Spectroscopy.  
Proceedings of the Second International Symposium  
on Neutron Capture Gamma Ray Spectroscopy and  
Related Topics, Held in Petten, the Netherlands,  
September 2-6, 1974.  
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Production and Use of Quasimonoenergetic  
Neutron Beams at the R2 Reactor, Studsvik.  
Albinsson, H.; Ryde, N.  
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Reactor Centrum Nederland

- CONF-751101-56  
Preliminary Cross-Section Sensitivity Analysis  
for an Air-Over-Ground Environment.  
Pace, J.V., III; Bartine, D.E.  
1976  
Dep., NTIS \$4.50
- CONF-751125-136  
Energy Spectra of Fusion Neutrons from Plasmas  
Driven by Reacting Ion Beams.  
Towner, H.H.; Jassby, D.L.  
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Neutron Damage Calculations in Cu, Nb, and Au  
to 32 MeV: Application to Sputtering and  
Deuteron-Breakup Neutron Sources.  
Roberto, J.B.; Robinson, M.T.; Fu, C.Y.  
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- CONF-760209-6  
Characteristics of 15 MeV and Fission Neutron  
Damage in Niobium.  
Narayan, J.; Ohr, S.M.  
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Sputtering of Vanadium and Niobium under 14.1  
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Time-Dependent Measurements of  
Neutron-Induced Silicon Dose Rates in a Missile  
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Steinman, D.K.; Harris, L., Jr.; Friesenhahn, S.J.;  
Young, J.C.; Lurie, N.A.; Bryan, D.E.; Gober, W.E.  
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Intelcom Rad Tech, P.O. Box 80817, San Diego,  
Calif. 92138
- DNA-3753F  
Calculation of Gamma-Ray Response Matrix for  
5-cm NE-213 Organic Liquid Scintillation Detector.  
Lurie, N.A.; Harris, L., Jr.; Young, J.C.  
May 30, 1975  
Intelcom Rad Tech, P.O. Box 80817, San Diego,  
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- DP-MS-75-74; CONF-751101-40  
Acceleration Techniques for Response Matrix  
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Simulation of Transport Equations with Monte  
Carlo.  
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Radiological Protection—4. Radiation Protection  
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Improved Multigroup Representation of  
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Bulletin of the Data Centre of the Leningrad  
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February 1976  
IAEA Nuclear Data Section, Karnthner Ring 11,  
A-1010 Vienna

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Activities on Collection, Evaluation and Dissemination of Non-Neutron Nuclear Data in the USSR.

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January 1976

IAEA Nuclear Data Section, Karnthner Ring 11, A-1010 Vienna

## INIS-mf-1918

The Organisation and Work of the NRPB. National Radiological Protection Board, Harwell 1975

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## JAERI-M-5963

Approximate Expression of Collision Density and Correction of Group Elastic Removal Cross Section near a Wide Scattering Resonance.

Kikuchi, Y.; Katsuragi, S.

January 1975

INIS

## JAERI-M-6055 (In Japanese)

Method for Obtaining the Tritium Production Rate Distribution with a LiF Thermoluminescence Dosimeter.

Maekawa, H.

March 1975

INIS

## JRP 72-507LJ

Calculation of the Dose at Site Boundaries from  $^{14}\text{N}$  Radiation in Plant Components.

Woolson, W.A.; Profio, A.E.; Huffman, D.L.

December 8, 1972

JRB Associates, P.O. Box 1393, 1250 Prospect Street, La Jolla, California 92037

## KFK-2108 (In German)

GRUCAL. A Computer Program for Calculating Macroscopic Group Constants.

Woll, D.

June 1975

Dep., NTIS (U.S. Sales Only) \$8.00

## KFK-2129

FANAL - A Multi-Level Shape-Analysis Program for Resonance Parameter Determination by Least-Squares Fitting of Several Sets of Neutron Transmission Data Simultaneously.

Frohner, F.H.

January 1976

Kernforschungszentrum, Karlsruhe

## KFK-2219 (In German)

Measurement and Calculation of Neutron Leakage Spectra from Iron Spheres with a  $^{252}\text{Cf}$  Source in the Center.

Werle, H.; Bluhm, H.; Fieg, G.; Kappler, F.; Kuhn, D.; Lalovic, M.

November 1975

Dep., NTIS (U.S. Sales Only) \$4.50

## LA-6168-MS

Cross-Section Methodology in SIMMER.

Soran, P.D.

November 1975

Dep., NTIS \$4.50

## LA-UR-75-2157; CONF-750935-13

Dependence of Radiation Damage Analysis on Neutron Dosimetry.

Goland, A.N.; Parkin, D.M.

1975

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## MATT-1180

Fusion Reactivities and Neutron Source Characteristics of Beam-Driven Toroidal Reactors with Both D and T Injection.

Jassby, D.L.; Towner, H.H.

January 1976

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## MATT-1186

Comparison of the D-T Neutron Wall Load Distributions in Several Tokamak Fusion Reactor Designs.

Chapin, D.L.; Price, W.G., Jr.

December 1975

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## MATT-1192

Maximum Neutron Wall Loadings in Beam-Driven Tokamak Reactors.

Jassby, D.L.; Towner, H.H.

January 1976

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## NCRP-45

Natural Background Radiation in the United States.

NCRP

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National Council on Radiation Protection and Measurements, 7910 Woodmont Avenue, Washington, D.C. 20014

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Radioactivity in Plutonium, Americium, and  
Curium in Nuclear Reactor Fuel.  
Pigford, T.H.  
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University of California, Berkeley, Calif.
- ORNL-5013 (Applied Tech.)  
Neutron Total Cross Section Checks for Iron,  
Chromium, Nickel, Stainless Steel, Sodium and  
Carbon.  
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ERDA, TIC, P.O. Box 62, Oak Ridge, Tenn.  
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Neutronics Calculation for the TFTR Neutral  
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Olsen, D.K.; de Saussure, G.; Perez, R.B.; Silver,  
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A Linear Triangle Finite Element Formulation  
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Geometrical Irradiation Condition.  
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