

Editorial Advisory Committee

MANSON BENEDICT
E. RICHARD COHEN
E. C. CREUTZ
FRANK G. DAWSON
PAUL GAST
D. H. GURINSKY
A. F. HENRY
A. A. JOHNSON
C. H. MILLAR
L. W. NORDHEIM
HUGH C. PAXTON
FRED W. THALGOTT

ANS Officers

JAMES R. LILIENTHAL
President
JOHN W. SIMPSON
Vice President/President Elect
J. ERNEST WILKINS, JR.
Treasurer
RAYMOND D. MAXSON
Assistant Treasurer
OCTAVE J. DU TEMPLE
Executive Secretary

ANS Publications Staff

NORMAN H. JACOBSON
Publications Manager
RUTH FARMAKES
Assistant Staff Editor
BARRETT M. SCHROEDER
Copy Editor
SIEGFRIED H. KRAPP
Production Manager
KATHRYN FROELICH
Production Assistant

Composition

BELJAN, ANN ARBOR, MICHIGAN

NUCLEAR SCIENCE AND ENGINEERING is published monthly by the American Nuclear Society, Incorporated, with executive and business offices at 244 East Ogden Avenue, Hinsdale, Illinois 60521—telephone 312/326-1991. Subscription rate is \$90/3 volumes, calendar year; \$35/single volume, single copy price is \$10 (special issues slightly higher): address subscription orders to the American Nuclear Society (back issues of Volumes 1-17 are available from Academic Press, 111 Fifth Avenue, New York, N.Y.). Second-class postage is paid at Hinsdale, Illinois and at additional mailing offices. NUCLEAR SCIENCE AND ENGINEERING is printed in Danville, Illinois. Copyright © 1973 by the American Nuclear Society, Inc. Inquiries about the distribution and delivery of NUCLEAR SCIENCE AND ENGINEERING and requests for changes of address should be directed to the publisher, the American Nuclear Society, 244 East Ogden Avenue, Hinsdale, Illinois 60521. Allow 6 weeks for a change to become effective.

NUCLEAR SCIENCE and ENGINEERING®

VOLUME 52, NUMBER 4, DECEMBER 1973

Contents

TECHNICAL PAPERS

- A Formal Methodology for Fault Tree Construction
J. B. Fussell 421
- The Analysis of Metal-Water Explosions
*S. J. Board, R. B. Duffey, C. L. Farmer,
and D. H. Poole* 433
- A Comparison Between Neutron Waves Reflected
from the Reflector and from the Core of a Water-
Moderated and -Reflected Reactor . . . *Gad Shani* 439
- Finite Element Analysis of Some Critical Fast
Assemblies *Juhani Pitkäranta
and Pekka Silvenmoinen* 447
- The Collided Flux Expansion Method for Time-
Dependent Neutron Transport
Barry D. Ganapol and Lawrence M. Grossman 454
- On the P-Wave Strength Functions of Thorium-232
and Uranium-238. *M. Goldsmith* 461
- Mass Distribution of Fission Products Following
Photofission of Uranium-238 *D. Swindle,
R. Wright, K. Takahashi, W. H. Rivera,
and J. L. Meason* 466
- Intensities of the 2158- and 2505-keV Gamma Rays
in the Decay of Cobalt-60 . . *Masatoshi Fujishiro* 474

TECHNICAL NOTES

- Anisotropic Elastic Scattering and Moving Media .
B. R. Wienke 482
- An Effect of Neutron Inelastic Scattering on the
Parameters of Fast Critical Assemblies
Péter Vértes 485
- Calculations of Fast-Reactor Data-Testing As-
semblies Utilizing Cross Sections from the MC²
and SDX Codes *E. M. Pennington* 486
- Integration over Discontinuous Trial Functions in
Flux Synthesis *Daniel K. Butler* 492
- Some Modifications in the Anisotropic Source-Flux
Iteration Technique *D. V. Gopinath,
K. Santhanam, and D. P. Burte* 494
- Conservation During Doppler Broadening.
Dermott E. Cullen 498
- Nonobservability of the $(n, \gamma n')$ Process at keV
Neutron Energies *P. A. Moldauer* 500

COMPUTER CODE ABSTRACT. 502

CORRIGENDUM 503

VOLUME 52 AUTHOR and SUBJECT INDEXES. . . . 504