

MANSON BENEDICT
 DEAN BROWN
 JACK CHERNICK
 E. RICHARD COHEN
 E. C. CREUTZ
 O. E. DWYER
 PAUL GAST
 D. H. GURINSKY
 A. F. HENRY
 D. G. HURST
 A. A. JOHNSON
 L. W. NORDHEIM
 RALPH T. OVERMAN
 RONALD S. PAUL
 HUGH C. PAXTON
 FRED W. THALGOTT
 A. M. WEINBERG

ANS Officers

RAEMER E. SCHREIBER,
 President
 KARL P. COHEN,
 Vice President
 JOHN W. LANDIS,
 Treasurer
 OCTAVE J. DU TEMPLE,
 Executive Secretary

ANS Publications Staff

JOHN GRAHAM
 Senior Staff Editor
 RUTH FARMAKES
 Assistant Staff Editor
 CHARLES VIANE
 Design and Production Editor
 MARY M. GRIFFITH
 Art Editor
 JEAN BARR
 Production Assistant

Composition

BELJAN, ANN ARBOR, MICH.

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 312/325-1991. Subscription rate is \$25/volume; Volumes 31, 32, 33, and 34 will be published during 1968; 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 © 1968 by the American Nuclear Society, Inc.

Contents

TECHNICAL PAPERS

Reactor Physics Parameters of 1.03% Enriched Uranium Metal, D₂O Moderated Lattices . . *Walter H. D'Ardenne, Henry E. Bliss, David D. Lanning, Irving Kaplan, and Theos J. Thompson* 283

Prompt-Neutron Decay and Reactivity Measurements in Subcritical Uranium Metal Cylinders . . . *J. T. Mihalcz* 292

Anisotropic Neutron Slowing Down in Aluminum-Water Mixtures—I: Experiments *Philip F. Palmedo* 302

Anisotropic Neutron Slowing Down in Aluminum-Water Mixtures—II: Monte Carlo Calculations *Philip F. Palmedo* 313

Monte Carlo Criticality Calculations for Thermal Reactors *M. R. Mendelson* 319

The Asymmetric Source Method of Measuring Reactor Shutdown *J. F. Walter and A. F. Henry* 332

Asymptotic Solutions to the Transport Equation for a Plane Lattice *A. Leonard* 342

The Thermal-Neutron Milne Problem and the Albedo of a Semi-Infinite Absorbing Medium—I: Theory *André Mockel* 350

Ray Effects in Discrete Ordinates Equations *K. D. Lathrop* 357

Reflection and Refraction of Neutron Diffusion Waves *R. Kladrnik* 370

Parametric Fit of the Total Neutron Cross Section of Manganese from 0.01 eV to 50 keV *Thomas E. Stephenson and Sol Pearlstein* 377

Calculation of the Penetration of Gamma Rays Through Two-Layer Slabs *A. Shimizu* 385

Gamma Rays from Bombardment of Light and Intermediate Weight Nuclei by 16- to 160-MeV Protons and 59-MeV Alpha Particles *W. Zobel, F. C. Maienschein, J. H. Todd, and G. T. Chapman* 392

Diffusion Model for Release of Fission Products from Coated Particle Fuels . . *R. W. Dunlap and T. D. Gulden* 407

TECHNICAL NOTES

Interrelation of Nuclear Reactor Kinetic Experiments *J. L. Russell, Jr., and W. Rotter* 417

Nuclear Resonance Spacings and Synthetic Kernels *C. A. Wilkins, C. Chiarella, A. J. Gilks, and A. Reichel* 420

Exact Treatment of the Resonance Absorption of Neutrons of Intermediate Energy. *Yukio Ishiguro* 422

On the Application of Time-Synthesis Techniques to Coupled Core Reactors. *J. B. Yasinsky* 425

Statistical Analysis of Static Power Tilting in Reactors Due to Manufacturing Tolerances *F. D. Judge* 429

The Effect of Fission Density on Fission-Gas Release *R. M. Carroll, O. Sisman, and R. B. Perez* 430

CORRIGENDUM 431

BOOK REVIEW 432

VOLUME AUTHOR and SUBJECT INDEXES . . following page 432