

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

Publications Committee

JAMES R. LILIENTHAL, Chairman  
 E. ALFRED BURRILL  
 MARGARET K. BUTLER  
 ROBERT W. DICKINSON  
 M. A. GREENFIELD  
 F. E. JAMERSON  
 WILLIAM R. KANNE  
 JOHN L. KURANZ  
 JOHN H. MARTENS  
 HOWARD D. PHILIPP  
 ROY G. POST

ANS Publications Staff

JOHN GRAHAM  
 Senior Staff Editor  
 RUTH FARMAKES  
 Assistant Staff Editor  
 RICHARD HARRIS  
 Design and Production Editor  
 MARY M. GRIFFITH  
 Art Editor  
 EDITH SMITH  
 Copy 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 27, 28, 29, and 30 will be published during 1967: 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 © 1967 by the American Nuclear Society, Inc.

Contents

TECHNICAL PAPERS

Stability Considerations in Two-Phase Flow. . . . .	<i>Louis M. Sholtkin</i>	317
The Chemistry of Hydrogen in Liquid-Alkali-Metal Mixtures Useful as Nuclear Reactor Coolants—I. Sodium-Potassium Eutectic . . . . .	<i>Edgar L. Compere and Jouko E. Savolainen</i>	325
Recovery of Beryllium from Acid Leaches of Beryl by Solvent Extraction. . . . .	<i>Joseph P. Surls, Jr. and Robert R. Grinstead</i>	338
Preparation of High-Purity Beryllium Compounds by Solvent Extraction. . . . .	<i>Robert R. Grinstead and Joseph P. Surls, Jr.</i>	346
The Absorbed Dose Rate from Both the Uncollided and the Once-Collided Flux of Gamma Rays at the Center of a Spherical Shell Shield Bombarded by an Isotropic Flux Spectrum of Protons . . . . .	<i>Richard Madey and Harold Shulman</i>	353
Parameters for the First Neutron Resonance in <sup>113</sup> Cd . . . . .	<i>R. Ö. Akyüz, Ç. Cansoy, and F. Domaniç</i>	359
Angle-Space Synthesis—an Approach to Transport Approximations . . . . .	<i>S. Kaplan, J. A. Davis, and M. Natelson</i>	364
Multitable Treatments of Anisotropic Scattering in <i>S<sub>N</sub></i> Multigroup Transport Calculations. . . . .	<i>G. I. Bell, G. E. Hansen, and H. A. Sandmeier</i>	376
Noise-Equivalent Source in Nuclear Reactors. . . . .	<i>Keiichi Saito</i>	384
Study of the Kinetics of Thermalized Neutron Populations in Multiplying or Nonmultiplying Heterogeneous Media. . . . .	<i>V. Deniz</i>	397
On the Experimental Application of the Neutron-Wave Technique to Thermal-Neutron Systems . . . . .	<i>R. S. Booth, R. H. Hartley, and R. B. Perez</i>	404
An Approximate Theory for the Slowing Down of Neutrons in a Nonmultiplying Medium . . . . .	<i>H. G. Kaper</i>	415
Synthesis of Three-Dimensional Flux Shapes Using Discontinuous Sets of Trial Functions . . . . .	<i>J. B. Yasinsky and S. Kaplan</i>	426
A General Modal-Expansion Method for Obtaining Approximate Equations for Linear Systems. . . . .	<i>Weston M. Stacey, Jr.</i>	438
Fast-Reactor Computational Models. . . . .	<i>Weston M. Stacey, Jr.</i>	443

TECHNICAL NOTES

The Influence of Chemical Binding on Milne Problem Neutron Leakage Spectra . . . . .	<i>J. M. Kalfelz and K. H. Beckurts</i>	450
On the Noise-Equivalent Source in a Zero-Power Reactor	<i>Keiichi Saito</i>	452
Properties of the Relaxation Lengths in <i>P<sub>L</sub></i> , Double- <i>P<sub>L</sub></i> , and Angle-Space Synthesis-Type Approximations . . . . .	<i>S. Kaplan</i>	456
The Correlation of the Energy of Single-Neutron Resonances Determined by Time-of-Flight Methods. . . . .	<i>S. A. R. Wynchank and W. W. Havens, Jr.</i>	458
Note on the Half-Width of the Neutron Pulse of a Pulsed Reactor . . . . .	<i>G. Kistner</i>	461
Extrapolation Distance in Water for Small Geometry. . . . .	<i>V. A. Swanson and J. A. DeJuren</i>	461
A Summation Scheme for Certain Series in Neutron Thermalization . . . . .	<i>A. A. Virjo</i>	462

BOOK REVIEWS . . . . . 464

LETTERS TO THE EDITOR

Comments on "Anisotropic Scattering Coefficients in the Constant Cross-Section Transport Equation". . . . .	<i>P. F. Zweifel</i>	466
-------------------------------------------------------------------------------------------------------------	----------------------	-----