Editorial Advisory Committee

MANSON BENEDICT DEAN BROWN **IACK CHERNICK** E. RICHARD COHEN E. C. CREUTZ Frank G. Dawson O. E. DWYER PAUL GAST D. H. GURINSKY A. F. HENRY D. G. Hurst A. A. Johnson L. W. Nordheim RALPH T. OVERMAN HUGH C. PAXTON FRED W. THALGOTT A. M. WEINBERG

ANS Officers

KARL P. COHEN
President
Louis H. Roddis, Jr.
Vice President
JAMES R. LILIENTHAL
Treasurer
OCTAVE J. DU TEMPLE
Executive Secretary

ANS Publications Staff

John Graham
Senior Staff Editor
Ruth Farmakes
Assistant Staff Editor
Dennis Brummell
Design and Production Editor
June Johnson
Art Editor
Dianne Doran
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 312/3251991. 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.

NUCLEAR SCIENCE and ENGINEERING

VOL. 34, No. 3

DECEMBER, 1968

Contents

TECHNICAL PAPERS	
A Study of the Release of Radioactive Metallic Isotopes from High-Temperature Gas-Cooled Reactors J. Appel and B. Roos Removal of Water and Carbon Dioxide from Heli-	201
um Coolants by Molecular Sieves Charles D. Scott	214
Inelastic Scattering of Thermal Neutrons in Graphite	224
Enriched Uranium-Graphite Systems James P. Phelps and Eugene V. Weinstock	237
Analysis of Brookhaven ²³⁵ U-Graphite Critical Experiments	251
Spheres Alan Staub, D. R. Harris, and Mark Goldsmith A Pulsed-Neutron Investigation of the Effect of	263
Temperature on the Decay of a Thermal-Neutron	
Population in H ₂ O Ice Ernest G. Silver Streaming Effects and Collision Probabilities in	275
Lattices	2 85
Systems by the Indirect Variational Method G. C. Pomraning An Applysia of Methods for Colonisting Spatially	308
An Analysis of Methods for Calculating Spatially Dependent Neutron Slowing Down Distributions **Harvey J. Amster**	313
TECHNICAL NOTES	
Linear Energy Transformation for Gamma-Ray Monte Carlo Calculations	328
tion Measurements of Spectral Indexes	32 9
Self-Shielding Factors for Scattering Dominant Neutron Resonances	331
Sensitivity of Neutron Transport in Oxygen to	
Various Cross-Section Sets E. A. Straker Applications of a Macroscopic Formulation of	332
Transport Theory . W. Pfeiffer and J. L. Shapiro Overlapping Group Methods with Discontinuous	336
Trial Functions	339
Different Axial Zones of a Neutron Flux Synthesis Computation	342
Martin Becker Verification of a Xenon Spatial Stability Criterion	343
Richard J. Hooper, Roger A. Rydin, and Weston M. Stacey, Jr.	344
COMPUTER CODE ABSTRACT	347
BOOK REVIEWS	348
VOLUME AUTHOR and SUBJECT INDEXES following page	349
Indexed in "Engineering Index" and Abstracted in "Nuclear Science Abstracts"	