



CONTENTS

VOLUME 5 NO. 3 SEPTEMBER 1968/PAGES 97-192

NUCLEAR APPLICATIONS STAFF

LOUIS G. STANG, JR. *Editor*
JULES B. GODEL *Assistant Editor*
DORIAN STANG *Editorial Assistant*

ANS STAFF

Technical Publications and Production

JOHN GRAHAM *Senior Staff Editor*
RUTH FARMAKES *Assistant Staff Editor*
CHARLES VIANE *Production Editor*
JEAN BARR *Production Assistant*
JUNE JOHNSON *Art Editor*

Advertising

RICHARD HARRIS *Advertising Sales Manager*
ROSEMARY HARVEY *Circulation Manager*

EDITORIAL ADVISORY BOARD

E. ALFRED BURRILL—S. H. BUSH
A. B. CHILTON—ERIC T. CLARKE
VAUGHN CULLER—W. KENNETH DAVIS
M. C. EDLUND—W. H. ESSELMAN
PAUL R. FIELDS—JOHN H. FRYE, JR.
DAVID B. HALL—JOSEPH M. HENDRIE
STEPHEN LAWROSKI—FORREST J. REMICK
S. SANDHAUS—MORTIMER A. SCHULTZ
EDWIN L. ZEBROSKI

ANS OFFICERS

KARL P. COHEN *President*
LOUIS H. RODDIS, JR. *Vice President*
JAMES R. LILIENTHAL *Treasurer*
OCTAVE J. DU TEMPLE *Executive Secretary*

COMPOSITION







BELJAN, ANN ARBOR, MICHIGAN

Address all manuscript and editorial communications to the editorial offices. *Nuclear Applications*, 60 Rutherford Drive, Upton, New York 11973.

Nuclear Applications 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, two volumes published per year. It is printed in Danville, Illinois, and second-class postage is paid at Hinsdale, Illinois, and at additional mailing offices. Copyright © 1968 by the American Nuclear Society, Incorporated.

Statements made by authors of contributions to the various departments or of technical papers and notes do not necessarily reflect the viewpoint of the American Nuclear Society nor should their appearance herein be construed as tacit approval or endorsement by the Society. Abstracts appearing in *Nuclear Applications* may be freely republished anywhere at any time.

TECHNICAL PAPERS AND NOTES

- | | | |
|---|--|-----|
|  | A Filter for Fast Flux Testing in a Thermal Test Reactor / R. E. Wood, J. F. Kunze, F. L. Sims, C. S. Robertson, Jr. - - - - - | 105 |
| | A Sol-Gel Process for Preparing Dense Forms of PuO ₂ / M. H. Lloyd, R. G. Haire - - - - - | 114 |
| | Fuel Assembly Performance in Piqua Core I / K. J. Miller, W. R. McCurnin - - - - - | 123 |
| | Dependence of Heat Flux Distribution on Fissile Material Distribution in Fuel / P. Grillo, G. Testa - - - | 130 |
|  | Chemical Enrichment of Mercury Isotopes by Neutron Irradiation of Diphenylmercury in Solution / K. E. Collins, C. H. Collins - - - - - | 140 |
| | High Voltage Gamma-Electric Cell Operation / H. T. Sampson, G. H. Miley - - - - - | 145 |
|  | Compatibility of Materials with Alkali Metals for Space Nuclear Power Systems / W. O. Harms, A. P. Litman - - - - - | 156 |
|  | An In-Core Radiation Detector for Monitoring Pulsed Reactor Excursions / W. H. Todt- - - - - | 173 |
|  | Systems for Experimental Isotope Irradiation in a Production Reactor / G. B. Cole, G. F. Haase, W. R. Kennedy - - - - - | 179 |
|  | Gamma-Ray Assay of Plutonium-238 in Waste Drums / W. W. Strohm - - - - - | 183 |

DEPARTMENTS

- | | |
|------------------------------|-----|
| COMMENTARY - - - - - | 100 |
| AUTHORS AND PAPERS - - - - - | 102 |
| BOOK REVIEWS- - - - - | 190 |