



CONTENTS

VOLUME 3 NO. 9 SEPTEMBER, 1967/PAGES 521-584

NUCLEAR APPLICATIONS STAFF

LOUIS G. STANG, JR. *Editor*
DUDLEY THOMPSON *Associate Editor*
DORIAN STANG *Editorial Assistant*

ANS STAFF

Technical Publications and Production

JOHN GRAHAM *Senior Staff Editor*
RUTH FARMAKES *Assistant Staff Editor*
RICHARD HARRIS *Design and Production Editor*
MARY M. GRIFFITH *Art Editor*
HELEN ANDERSON *Copy Editor*
JEAN BARR *Production Assistant*

Advertising

JOHN GRAHAM *Advertising Sales Manager*
DENNIS J. IMBIOR *Midwest 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

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

COMPOSITION

BELJAN, ANN ARBOR, MICHIGAN

Address all manuscripts 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. It is printed in Danville, Illinois, and second-class postage is paid at Hinsdale, Illinois, and at additional mailing offices. Copyright (C) 1967 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 any time.

TECHNICAL PAPERS AND NOTES



Data Processing Applications to a Large Dual-Purpose Reactor / D. W. Leiby, C. F. Poor, C. T. Hayner - - 526

A Simplified Direct Reactivity Meter for D₂O-Moderated Systems / R. Dierckx, A. Marchal, A. Van Wauwe - - - - - 532

Fuel Properties and Nuclear Performance of Fast Reactors Fueled with Molten Chlorides / P. A. Nelson, D. K. Butler, M. G. Chasanov, D. Meneghetti - - - - 540



Mean Gamma-Ray Energy Absorption Coefficients / W. G. Unruh, M. Tomlinson - - - - - 548



Liquid Plutonium—A Review of its Physical Properties / L. J. Wittenberg, D. Ofte, W. G. Rohr - - - 550

Effect of Oxygen and Nitrogen in Tantalum on its Resistance to Corrosion by Liquid Plutonium Alloys / F. B. Litton, R. H. Perkins - - - - - 556



Solid-State Fission Chamber / J. Gourdon, J. Mitaine - 560



Purification of Inert Atmospheres / C. E. Johnson, M. S. Foster, M. L. Kyle - - - - - 563



Purification of Transplutonium Actinides Produced in Underground Thermonuclear Explosions / K. Wolfsberg, W. R. Daniels, G. P. Ford, E. T. Hitchcock - - 568



Optimization of Reactor Shutdown Margin Measurements in High Gamma Fluxes / D. P. Roux - - - - 575

¹⁴N₂O and ¹⁵N₂O Dosimeters for Mixed Gamma and Thermal-Neutron Radiation Fields / R. D. Brown, S. Dondes, P. Harteck - - - - - 581

DEPARTMENTS

COMMENTARY - - - - -	522
AUTHORS AND PAPERS - - - - -	523
LETTER TO THE EDITOR - - - - -	525
BOOK REVIEWS - - - - -	583