

EDITOR

ROY G. POST
Department of Nuclear Engineering
University of Arizona,
Tucson, Arizona 85721

ANS OFFICERS

JOHN W. LANDIS, President JAMES R. LILIENTHAL, President Elect J. ERNEST WILKINS, Jr. Treasurer OCTAVE J. DU TEMPLE, Executive Secretary

ANS STAFF

NORMAN H. JACOBSON Publications Manager RUTH FARMAKES Assistant Staff Editor KATHRYN L. FROEHLICH Copy Editor SIEGFRIED H. KRAPP Production Manager LINDA DOLBY Production Assistant SHIRLEY G. KRUG Production Artist

Advertising

RICHARD HARRIS Advertising Sales Manager ROSEMARY HARVEY Circulation Manager

EDITORIAL ADVISORY BOARD

SPENCER H. BUSH, ERIC T. CLARKE, VAUGHN E. CULLER, GARY J. DAU, W. KENNETH DAVIS, MILTON C. EDLUND, WALTER H. ESSELMAN, PAUL R. FIELDS, JOHN H. FRYE, JR., STEPHEN J. GAGE, O. H. GREAGER, MARSHALL GROTENHUIS, VINCENT P. GUINN, DAVID B. HALL, DANIEL F. HANG, JOSEPH M. HENDRIE, PAUL KRUGER, STEPHEN LAWROSKI, FORREST J. REMICK, WALTON RODGER, ZOLTAN ROSZTOCZY, SOL SANDHAUS, WILSON TALLEY, EDWIN L. ZEBROSKI

Address all manuscript and editorial communications to the editorial offices, *Nuclear Technology*, Department of Nuclear Engineering, The University of Arizona, Tucson, Arizona 85721.

Nuclear Technology is published monthly by the American Nuclear Society, Inc., with executive and business offices at 244 East Ogden Avenue, Hinsdale, Illinois 60521, telephone 312/325-1991. Subscription rate is \$30 or \$82.50/three volumes per year. Single copy price is \$8 (special issue slightly higher). It is printed in Danville, Illinois, and second class postage is paid at Hinsdale, Illinois, and at additional mailing offices. Copyright © 1971 by the American Nuclear Society, Inc.

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 in Nuclear Technology may be freely republished anywhere at any time.

ON THE COVER:

This month's cover is a scanning electron microscope view of a carbon felt, courtesy of Sandia Laboratories.

CONTENTS - SEPTEMBER 1971

TECHNICAL PAPERS

REACTORS	
In-Line Vacuum-Distillation Sodium Sampler / W. H. Olson	7
How to Make a Profit on Waste Heat / Sam E. Beall, Jr., G. Samuels	12
FUEL CYCLES	
Optimization of Nuclear Materials Safeguards Sampling Systems by Dynamic Programming / G. D. Bouchey, B. V. Koen, C. S. Beightler	18
CHEMICAL PROCESSING	
Head-End Separation of Triso-Coated Fissile and Fertile Particles for High-Temperature Gas-Cooled Reactors / S. Langer, N. L. Baldwin, H. R. Phillips	26
Head-End Separation of Biso-Coated Fissile and Fertile Particles for High-Temperature Gas-Cooled Reactors / S. Langer, H. R. Phillips, N. L. Baldwin (Technical Note) -	31
FUELS	
An Investigation of Fast-Reactor Fuel Testing in a Thermal Reactor Core / J. C. Carter, H. Greenspan	36
Reactor Fuel Management Optimization in a Dynamic Environment / D. Elias, F. J. Munno	46
Surface Heat Flux for Incipient Boiling in Liquid Metal Heat Pipes / Calvin C. Silverstein	56
Gas-Cooled Fast Breeder Reactor Fuel Rod Design Considerations $/$ $W.$ $I.$ $Thompson$	63
RADIOACTIVE WASTE	
Status of the Waste Solidification Demonstration Program / Jack L. McElroy, Albert G. Blasewitz, Kenneth J. Schneider	69
MATERIALS	
Measurement of Cesium Sorption Isotherms in Liquid Sodium / M. H. Cooper, G. R. Taylor	83
Carbon-Carbon Materials for Ablative Environments / E.R. Frye	93
Reliability of Fluence-Embrittlement Projections for Pressure Vessel Surveillance Analyses / C. Z. Serpan, Jr	108
NUCLEAR EXPLOSIVES	
Some Comments on the Possibility of Thermodynamically Equilibrating Waste Organic Materials with Nuclear Devices / David R. Safrany	119
AEROSPACE	
Subliming Nuclear Microthruster and Its Space Applications / Philip T. Choong, Edward A. Mason	127
TECHNICAL NOTES	
REACTORS	
Effect of Gamma Radiation on LMFBR Subcriticality Measurements Using Noise Analysis / D. P. Roux, A. R. Buhl	137
RADIOISOTOPES	
A Glass Ampoule Sealer / G. J. Pokorny, A. D. Paulsen	141
DEPARTMENTS	
AUTHORS	2 144