



## AUTHORS — MARCH 1972

### REACTORS

#### RADIATION LEVEL BUILDUP ON PLANT PIPING DURING SECOND CORE OPERATION OF SHIPPINGPORT PLANT

*C. A. Bergmann  
D. P. Bour*

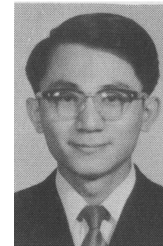
C. A. Bergmann (left) (BS, chemical engineering, University of Missouri, 1954; MS, business administration, University of Pittsburgh, 1968) has worked in the field of radiation buildup in nuclear power plants for 12 years. He is presently a supervisor in safety engineering at Bettis Atomic Power Laboratories and participated in the Shippingport decontamination at the end of first core operation. D. P. Bour (MS, chemical engineering, Carnegie-Mellon University, 1969) has had 11 years experience in nuclear and radiochemistry. He is presently a supervisor in coolant technology at Bettis Laboratories and previously worked for Duquesne Light Company at the Shippingport Plant.



#### A SYSTEMATIC PROCEDURE FOR REACTOR CONTROL SYSTEM DESIGN

*Sen-I Chang  
T. W. Kerlin*

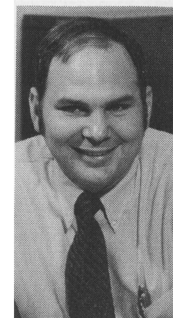
Sen-I Chang (left) (MS, nuclear engineering, University of Tennessee, 1971), after receiving his BS degree, joined the Institute of Nuclear Energy Research of the Republic of China. From 1969 to 1971 he worked at Oak Ridge National Laboratory and attended the University of Tennessee. T. W. Kerlin (PhD, University of Tennessee) worked at Atomics International and Oak Ridge National Laboratory prior to joining the faculty of the Nuclear Engineering Department at the University of Tennessee.



#### A NOISE TECHNIQUE FOR MEASURING REACTIVITY INDEPENDENT OF THE NEUTRON GENERATION TIME

*J. C. Robinson  
N. J. Ackermann, Jr.*

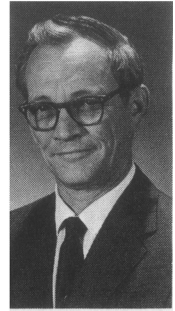
James C. Robinson (left) (PhD, University of Tennessee, 1966) is a professor in the Nuclear Engineering Department of the University of Tennessee. He is a consultant to the Instrumentation and Controls Division at Oak Ridge National Laboratory. His principal research interests are in the theoretical aspects of reactor kinetics and dynamics. Norbert J. Ackermann, Jr. (PhD, University of Tennessee, 1971) is a nuclear engineer in the Instrumentation and Controls Division at Oak Ridge National Laboratory, where he is involved in the development of a subcriticality measurement system for LMFBRs. His main interests are theoretical and experimental reactor kinetics and dynamics and the development of nuclear instrumentation.



### AN EMPIRICAL FORMULA THAT PREDICTS THE CRITICAL PARAMETERS OF A URANIUM SOLUTION SLAB-CYLINDER SYSTEM

*Harold E. Clark  
Grover Tuck*

Harold E. Clark (left) (BA, mathematics, St. Vincent College), a senior physicist, is working on his MS in physics at Colorado School of Mines. Grover Tuck (MS, physics, University of Idaho) is a senior research physicist. Clark and Grover have been associated with the Critical Mass Laboratory of Dow's Rocky Flats Division for some time. As a team, they have performed several series of experiments involving uranium metals and solutions.

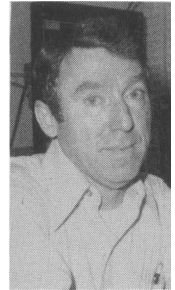


## FUELS

### THE CHEMICAL CHARACTERIZATION OF URANIUM NITRIDES

*V. J. Tennery  
J. L. Botts*

V. J. Tennery (left) (PhD, ceramic engineering, University of Illinois, 1959) has been a staff member of the Metals and Ceramics Division since 1968. He presently is head of the Ceramic Process Development Lab in that division. Prior to coming to Oak Ridge he was a professor of ceramic engineering at the University of Illinois. At Oak Ridge his work has been concerned with research on advanced nuclear fuels such as UN and (U,Pu)N. J. L. Botts (BS, chemistry, Tennessee Technological University, 1950) has been a member of the Analytical Chemistry Division at Oak Ridge National Laboratory for the past 20 years. His present activities include the development and evaluation of analytical methods on advanced reactor fuels.

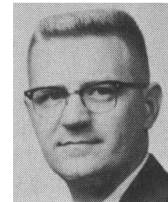
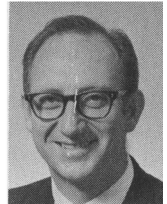
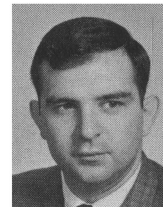
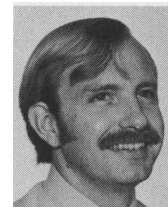


## MATERIALS

### INTERACTION OF CURIUM SESQUIOXIDE WITH REFRACTORY METAL MATRICES IN PRESSED AND SINTERED CERMET COMPACTS

*J. A. Donovan  
D. T. Rankin  
J. E. Stuckey  
P. K. Smith  
W. R. McDonell*

James A. Donovan (top left) (PhD, metallurgy, Notre Dame, 1966), D. Thomas Rankin (top right) (PhD, ceramics, Rutgers, 1967), P. Kent Smith (center left) (PhD, chemistry, University of Kansas, 1964), and William R. McDonell (bottom right) (PhD, chemistry, University of California, Berkeley, 1953) are members of the Nuclear Materials Division of the Savannah River Laboratory and are engaged in development of material forms and container systems for the radionuclide products of Savannah River reactors. John E. Stuckey (bottom left) (PhD, chemistry, University of Oklahoma, 1957) is presently a professor of chemistry at Hendrix College. He worked as a summer research participant at SRL during the course of the reported work; his current research interests are in x-ray crystallography.



## AN IMPROVED COLD TRAP FOR SODIUM SYSTEMS

Prodyot Roy (left) (PhD, materials science, University of California, Berkeley; research fellow at Max-Planck Institute) has been a member of the technical staff of General Electric Company, Breeder Reactor Department since 1968; his research interests are in sodium coolant chemistry, mass transfer, and materials behavior in sodium. Lawrence E. Pohl (BS, electrical engineering, University of California) is manager of the sodium process equipment unit of the Breeder Research Department of General Electric Company, Sunnyvale, California. He is responsible for the development of equipment and processes for handling, treating, and monitoring sodium and related atmospheres.

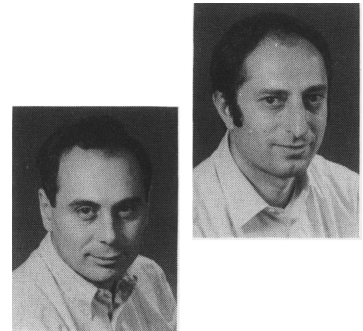
*Prodyot Roy  
Lawrence E. Pohl*



## ELECTROCHEMICAL MEASUREMENT OF THE SOLUBILITY OF CARBON IN SODIUM

F. J. Salzano (left), on the research staff at Brookhaven National Laboratory since 1956, is currently involved in studies of the chemistry of liquid sodium and has a special interest in developing continuous on-line impurity monitoring methods for liquid sodium systems. Leonard Newman (PhD, Massachusetts Institute of Technology, 1956) is head of the analytical chemistry group of the Department of Applied Sciences. Recent interests have included areas of sodium chemistry concerned with the fast breeder reactor program.

*F. J. Salzano  
L. Newman*



## CHEMICAL PROCESSING

## CONTINUOUS REMOVAL OF FISSION PRODUCTS IN A NITRIDE-FUELED REACTOR

R. N. Anderson (left) (PhD, mineral engineering, Stanford University, 1969) is research associate in the Department Mineral Engineering at Stanford University where his principal work is in the thermochemistry of metals. N. A. D. Parlee (PhD, chemistry, McGill University) has been professor of extractive metallurgy at Stanford since 1962. His primary research interests are in gas-liquid-metal reactions and he has published extensively in this area.

*R. N. Anderson  
N. A. D. Parlee*



## MATERIALS

## THERMAL EXPANSION COEFFICIENTS FOR SODIUM-POTASSIUM LIQUID ALLOYS

David L. Olson (left) (PhD, materials science, Cornell University, 1970) is presently a research associate with the Department of Metallurgical Engineering at The Ohio State University and is engaged in liquid metal research. Jeffrey L. Blough (BS, physics, Alma College, 1969) is presently completing his MS in metallurgical engineering at The Ohio State University. He has been engaged in liquid alkali metal research and has interest in nuclear materials.

*D. L. Olson  
J. L. Blough*

