



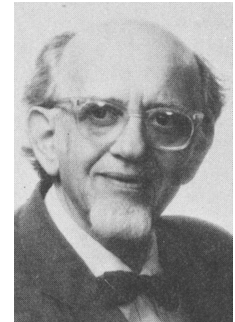
## AUTHORS — JULY 1979

### REACTORS

#### TRANSVERSE FLOW IN HIGH-TEMPERATURE GAS-COOLED REACTOR GRAPHITE ELEMENTS

*Karol J. Mysels*

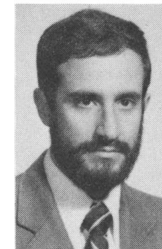
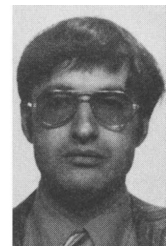
**Karol J. Mysels** (PhD, chemistry, Harvard University, 1941) has been a research consultant since retiring from the General Atomic Company (GA) in 1979. As senior research advisor at GA from 1970-1979, he was concerned mainly with the transport of metallic fission products and thermochemical water splitting. He is also chairman of the Commission on Colloid and Surface Chemistry of the International Union of Pure and Applied Chemistry, which is the area of most of his research work. He received the National Award in the field from the American Chemical Society in 1964. His previous employment was with R. J. Reynolds Industries as associated director of research and with the University of Southern California as professor of chemistry.



#### EXPERIMENTAL STUDY OF SCRAM TRANSIENTS IN GENERALIZED LIQUID-METAL FAST BREEDER REACTOR OUTLET PLENUMS

*Paul A. Howard  
Juan J. Carbajo*

**Paul A. Howard** (top) (PhD, systems engineering, Marquette University, 1975) is a principal investigator at Argonne National Laboratory (ANL). His current technical interests are experimental simulation of outlet plenum mixing and the utilization of microprocessors in an experimental facility. **Juan J. Carbajo** [Ing. Ind., mechanical engineering, University of Madrid (1970); MS (1975) and PhD (1976), nuclear engineering, University of Maryland] is assistant professor of nuclear engineering at the University of Illinois and a consultant to ANL. His main interests are in containment analysis, reflood of light water reactors, two-phase flow, and fast breeder reactor transient analysis.



#### AN IMPROVED WATER DENSITY FEEDBACK MODEL FOR PRESSURIZED WATER REACTORS

*A. L. Casadei  
P. J. Turinsky*

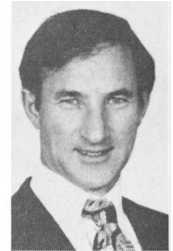
**Alberto L. Casadei** (top) (PhD, nuclear engineering, Rensselaer Polytechnic Institute, 1976) is manager in the core design function at Nuclebras. Previously, he worked for the Nuclear Fuel Division of Westinghouse Electric Corporation on the nuclear and thermal-hydraulic design and performance of pressurized water reactor (PWR) cores. **Paul J. Turinsky** (PhD, nuclear engineering, The University of Michigan, 1970) is manager of Core Development for the Water Reactor Divisions of Westinghouse Electric Corporation. His work has been in the areas of computational reactor physics, neutron interaction theory, and PWR core design and performance.



### ON THE USE OF A BAYESIAN REASONING IN SAFETY AND RELIABILITY DECISIONS—THREE EXAMPLES

**Stan Kaplan** (top) (BS, civil engineering, City College of New York, 1954; MS, PhD, mechanical engineering and applied mathematics, University of Pittsburgh, 1960; ORSORT, 1955) is a consultant specializing in quantitative risk analysis and applied decision theory. **B. John Garrick** (BS, physics, Brigham Young University, 1952; MS, PhD, engineering, University of California, Los Angeles, 1968; ORSORT, 1955) is a principal in the firm of Pickard, Lowe and Garrick, Inc. He is currently a consultant in reliability, risk, and safety.

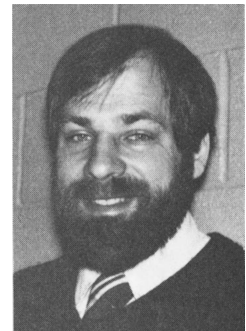
*Stan Kaplan  
B. John Garrick*



### EFLOD CODE FOR REFLOOD HEAT TRANSFER

**Rodney R. Gay** (PhD, nuclear engineering, Stanford University, 1974) has worked as an assistant professor of nuclear engineering at Rensselaer Polytechnic Institute in Troy, New York since 1977. Prior to that date, he was a project engineer at the Electric Power Research Institute, where he worked in the Nuclear Safety Analysis Division. His principal interests are in the thermal and hydraulic analysis of nuclear energy systems and in instrumentation development for two-phase flow and heat transfer.

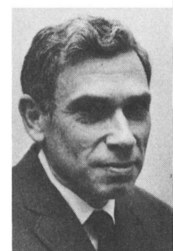
*Rodney R. Gay*



### AN AUTOMATED PROCEDURE FOR SELECTION OF OPTIMAL REFUELING POLICIES FOR LIGHT WATER REACTORS

**Bo-In Lin** (photo not available) (BS, National Tsing-Hua University, 1969; PhD, University of Cincinnati, 1977) was a graduate fellow at the Electric Power Research Institute (EPRI) while working on the present paper. He is currently employed by the General Electric Company in their Taiwan office. **Burt Zolotar** (top) (BE, physics, Cornell University, 1964; PhD, nuclear science and engineering, 1967) is currently program manager for neutronic analysis at EPRI. He has done research in reactor analysis, fuel management, and reactor kinetics. **Joel Weisman** (PhD, University of Pittsburgh) is professor of nuclear engineering at the University of Cincinnati. Prior to his university affiliation, he spent 18 years in industry, where his last position was that of manager of thermal and hydraulic analysis for the Westinghouse Power Division. He is coauthor of the ANS Monograph *Thermal Analysis of Pressurized Water Reactors* and editor of *Elements of Nuclear Reactor Design*, published by Elsevier.

*Bo-In Lin  
Burt Zolotar  
Joel Weisman*



**FACTORS AFFECTING DEFECTIVE FRACTION OF BISO-COATED HIGH-TEMPERATURE GAS-COOLED REACTOR FUEL PARTICLES DURING IN-BLOCK CARBONIZATION**

**A. J. Caputo** (top) [BS, chemical engineering, Case Institute of Technology (now Case-Western Reserve), 1952] is a lead development engineer in the Metals and Ceramics Division at Oak Ridge National Laboratory (ORNL). His work has been in process and equipment development for the fabrication of nuclear fuel. In addition to UO<sub>2</sub> fuel for light water reactors, this has included fuel for both the NERVA (Nuclear Engine Rocket Vehicle Application) reactor and the high-temperature gas-cooled reactor. He is presently involved with the development of the "Sphere-Pac" nuclear fuel process, which employs fuel in the form of microspheres. **D. Ray Johnson** (center) (BS, 1965, MS, 1968, and PhD, 1970, ceramic engineering, North Carolina State University) is a group leader in the Metals and Ceramics Division at ORNL. He worked at the Franklin Institute Research Laboratories from 1969 to 1971, was a National Research Council/National Academy of Sciences postdoctoral associate at the Air Force Materials Laboratory for a year, and spent two years at Coors Porcelain Company before joining ORNL. **Charles K. Bayne** (bottom) (PhD, statistics, North Carolina State University, 1974) is a research staff member of the Computer Science Division of Union Carbide Corporation, Nuclear Division. His current interests focus on data analysis, experimental design, and cluster analysis.

*A. J. Caputo  
D. R. Johnson  
C. K. Bayne*



**MIGRATORY PROPERTIES OF SOME NUCLEAR WASTE ELEMENTS IN GEOLOGIC MEDIA**

**Martin G. Seitz** (top right) (PhD, physics, Washington University, 1971) worked at the Geophysical Laboratory of the Carnegie Institution of Washington from 1971 to 1974, where he studied the geochemistry of trace elements, particularly plutonium, uranium, and thorium, in mineral-magma systems. He is a chemist in the Chemical Engineering Division of Argonne National Laboratory (ANL) and conducts experiments to understand the reactions of nuclear waste elements with geologic materials in aqueous solutions. **Paul G. Rickert** (top left) (MA, environmental science, Governors State University, 1976) is a staff member of the Chemistry Division of ANL. Since coming to ANL, his field of interest has been nuclear waste management. **Sherman Fried** (bottom right) (PhD, University of Chicago) worked at Northwestern University from 1942 to 1943 before coming to the Metallurgical Laboratory (now ANL.) He worked at the Radiation Laboratory at the University of California from 1960 to 1966. His field of research has continued to be the chemistry of the actinide elements, with interests in basic research as well as with applications to special problems. A senior scientist, he is involved in studies of migration of actinides from radionuclide repositories into the environment. **A. M. Friedman** (bottom left) (PhD, nuclear chemistry, Washington University, 1953) is a senior chemist at ANL, where he has worked since 1953. His interests are in nuclear structure, application of nuclear techniques to medicine, and radioactive waste disposal. He is currently a visiting

*M. G. Seitz  
P. G. Rickert  
S. Fried  
A. M. Friedman  
M. J. Steindler*



professor at the University of Chicago. **Martin J. Steindler** (right) (PhD, chemistry, University of Chicago, 1952) is associate director of the Chemical Engineering Division at ANL and is responsible for nuclear fuel cycle programs. He has extensive experience in fuel reprocessing and in the chemistry of actinides and fission products. Some of his recent work includes studies dealing with geologic disposal of nuclear waste and the determination of waste properties.

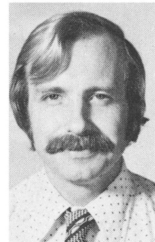
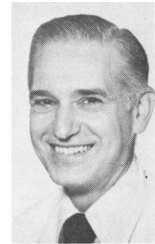
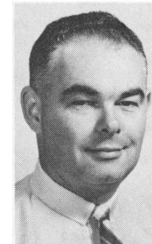


## MATERIALS

### CONTROL OF STRESS CORROSION CRACKING IN STORAGE TANKS CONTAINING RADIOACTIVE WASTE

**R. S. Ondrejcin** (top) (BS, chemistry, University of Illinois, 1951) is a staff chemist at Savannah River Laboratory (SRL). His work has included studies of stress corrosion cracking of titanium and carbon steel and corrosion of magnesium, nickel, and aluminum alloys. His current interest is in materials for nuclear waste management. **S. P. Rideout** (center) (MS, metallurgical engineering, University of Notre Dame, 1951) was research supervisor at SRL when this work was done. His research included stress corrosion of metals and effects of hydrogen in metals. He is presently a chief supervisor at Savannah River Plant, responsible for technical support to production of heavy water and reactor fuel elements. **J. A. Donovan** (bottom) (PhD, metallurgical engineering, University of Notre Dame, 1966) has been and continues to be involved with research on environmental degradation of materials at SRL, specifically nitrate stress corrosion and hydrogen embrittlement.

*R. S. Ondrejcin*  
*S. P. Rideout*  
*J. A. Donovan*



## ISOTOPES SEPARATION

### SEPARATIVE PERFORMANCE TRANSIENTS IN A GAS CENTRIFUGE

**Donald R. Olander** (AB, chemistry, Columbia University, 1953; BS, chemical engineering, Columbia University, 1954; ScD, chemical engineering, Massachusetts Institute of Technology, 1958) is professor of nuclear engineering at the University of California, Berkeley and is principal investigator in the Materials and Molecular Research Division of the Lawrence Berkeley Laboratory. His research and professional interests are in the fields of reactor fuel element materials and chemistry, radiation chemistry in gas-cooled reactors, chemical kinetics of gas-solid reactions, and uranium enrichment by the gas centrifuge.

*D. R. Olander*



## ACCELERATORS

### D-D NEUTRON AND X-RAY YIELDS FROM HIGH-POWER DEUTERIUM BEAM INJECTORS

**Jinchoon Kim** (PhD, nuclear engineering and plasma physics, University of California, Berkeley, 1971) worked at the Cyclotron Corporation (Berkeley) between 1971 and 1974 on deuterium-tritium fusion neutron generator and fast-neutron dosimetry. He has been a research staff member at Oak Ridge National Laboratory since 1974. His current research interests include neutral beam injection physics and technology, ion sources and accelerator, and beam and plasma diagnostics.

*Jinchoon Kim*

