



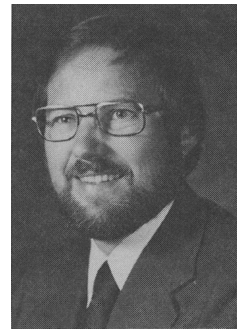
## AUTHORS — SEPTEMBER 1978

### TUTORIAL MATERIALS/DESIGN INTERACTION IN NUCLEAR SYSTEMS

#### RATIONALE FOR INCORPORATING INSERVICE INSPECTION REQUIREMENTS DURING NUCLEAR POWER PLANT DESIGN/FABRICATION

*Gary J. Dau*

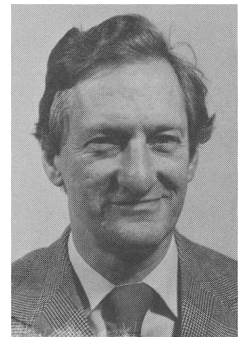
**Gary J. Dau** (BS, mechanical engineering, University of Idaho, 1961; PhD, nuclear engineering, University of Arizona, 1965) is program manager for nondestructive examination in the Nuclear Systems and Materials Department at the Electric Power Research Institute (EPRI). In this position, he is responsible for formulating and implementing research activities to improve inservice inspection technology for use on commercial nuclear plants. Prior to joining EPRI, he had over ten years of experience at Battelle-Pacific Northwest Laboratories, where he managed groups involved in nondestructive testing and nuclear waste management.



#### MATERIALS AND DESIGN INTERACTION IN ADVANCED REACTORS

*J. Boulton*

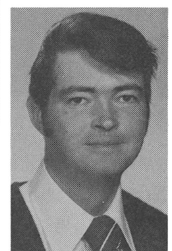
**John Boulton** (PhD, physical chemistry, University of London, 1956) worked for several years on the behavior of materials in both gas- and water-cooled reactor systems for the U.K. Atomic Energy Authority. After joining Atomic Energy of Canada Limited at its Whiteshell Nuclear Research Establishment (WNRE) in 1965, he continued work in the materials field and from 1969 was head of the Materials Development Branch. In early 1977, he was appointed assistant to the vice-president of the WNRE.



#### THE EFFECT OF SWELLING AND CREEP ON LIQUID-METAL FAST BREEDER REACTOR PERFORMANCE

*W. P. Barthold  
J. C. Beitel*

**Wolfgang P. Barthold** (top) (BS, physics, University of Goettingen, Germany, 1958; Dr. rer. nat., theoretical physics, University of Kiel, Germany, 1961) is head of the Systems Design Section at Argonne National Laboratory (ANL). His interests include nuclear, mechanical, and thermal design and analysis of advanced reactor concepts as well as model and methods development for design analysis. **Jon C. Beitel** (BS, mathematics, Aurora College, 1966) has been on the staff of ANL's Applied Physics Division since 1968. He has worked in fast reactor analysis and methods development, and has been involved in systems design for the last four years.

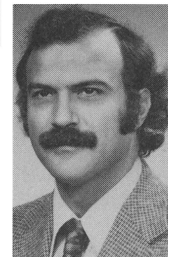
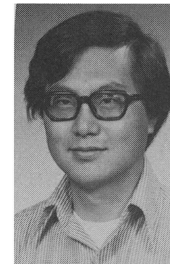


## REACTORS

### ON THE PROBABILITY OF LOSS OF dc POWER FOLLOWING ac FAILURE IN A NUCLEAR POWER PLANT

**J. S. Chun** (top) (BS, 1969, MS, 1971, electrical engineering, Michigan Technological University) is a graduate student at the University of California at Los Angeles (UCLA), working toward his PhD degree. His interests include the application of probabilistic methods to nuclear reactor safety. **George E. Apostolakis** (diploma, electrical engineering, National Technical University of Athens, 1969; MS, engineering science, California Institute of Technology, 1970; PhD, engineering science and applied mathematics, California Institute of Technology, 1973) is an assistant professor of engineering and applied science at UCLA. His interests include the development of mathematical methods for quantitative safety analysis of complex systems and the study of the risks and benefits from large technological systems.

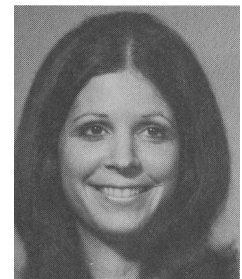
*J. Chun*  
*G. E. Apostolakis*



### OPERATION OF THE WATER-TO-SODIUM LEAK DETECTION SYSTEM AT THE EXPERIMENTAL BREEDER REACTOR II

**Marilyn M. Osterhout** (MS, chemistry, University of Florida, 1972) has been employed at Argonne National Laboratory in Idaho since 1974. She is a staff chemist in the Experimental Breeder Reactor II Plant Chemistry Group. Her interests include water-to-sodium leak detection, impurity monitoring and control, and technical training programs.

*Marilyn M. Osterhout*

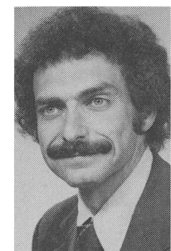
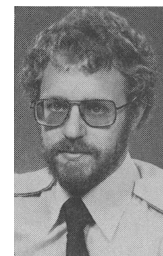


## REACTOR SITING

### CALCULATION OF RADIOLOGICAL DOSE DUE TO RELEASE OF TRITIUM OXIDES FROM CONTROLLED THERMONUCLEAR REACTORS

**T. E. McKone** (top) [MS, nuclear engineering, University of California at Los Angeles (UCLA), 1977] is currently a graduate student at UCLA. His interests include environmental and safety problems associated with thermal and fast fission reactors and fusion reactors. **W. E. Kastenberg** (PhD, nuclear engineering, University of California at Berkeley, 1966) is professor of engineering and applied science at UCLA. His research is concerned with nuclear reactor safety and environmental effects, risk assessment, and fusion technology.

*T. E. McKone*  
*W. E. Kastenberg*



## CHEMICAL PROCESSING

### THE INTERACTIONS OF HYDRAZINE, FERROUS SULFAMATE, SODIUM NITRITE, AND NITRIC ACID IN NUCLEAR FUEL PROCESSING SOLUTIONS

**Leonard W. Gray** (PhD, inorganic chemistry, University of South Carolina, 1972) is a process chemist in the Separations Technology Troubleshooting-Special Studies Laboratory at Du Pont's Savannah River Plant. For the past six years, he has been involved in the study of process upsets, process optimization, and control of undesirable side reactions.

*Leonard W. Gray*

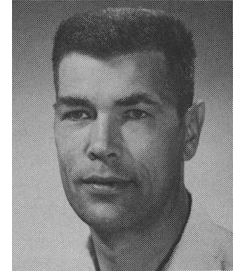


## MATERIALS

### NEUTRON IRRADIATION EFFECTS ON CARBON AND GRAPHITE CLOTHS AND FIBERS

*W. J. Gray*

**W. J. Gray** (PhD, physical chemistry, Iowa State University, 1967) has studied neutron radiation damage to graphite since he joined Battelle-Pacific Northwest Laboratories in 1967.

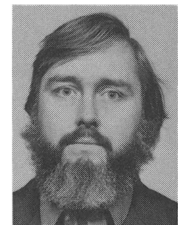


## RADIATION

### INJECTING IRRADIATION SAMPLES WITH A UNIFORM CONCENTRATION OF HELIUM USING CURIUM-244

*N. H. Packan  
W. A. Coghlan*

**Nicolas H. Packan** (top) (PhD, metallurgy, University of Missouri-Rolla, 1971) is a research staff member in the Metals and Ceramics Division of Oak Ridge National Laboratory (ORNL). He has been studying radiation effects in materials by the use of transmission electron microscopy, lately concentrating on the simulation of neutron damage (particularly void swelling) by heavy ion bombardment. **William A. Coghlan** (PhD, materials science, Stanford University, 1969) is a research staff member in the Metals and Ceramics Division of ORNL. His current interests involve diffusion and computer modeling of lattice defects related to radiation damage. In addition to his work at ORNL, he is a part-time faculty member in the Chemical and Metallurgical Engineering Department at The University of Tennessee in Knoxville.



## CHEMICAL PROCESSING

### HIGH-LEVEL RADIOACTIVE WASTE INCORPORATION INTO (SPECIAL) CEMENTS

*Della M. Roy  
George R. Gouda*

**Della M. Roy** (top) (BS, chemistry, University of Oregon; MS, PhD, mineralogy, Pennsylvania State University, 1952) is professor of materials science at The Pennsylvania State University's Materials Research Laboratory. Her research has included the chemistry of inorganic materials, mineral synthesis, high-temperature and high-pressure reactions, the chemistry of cement, and, during recent years, applications have been concentrated in the field of radioactive waste isolation. **George R. Gouda** (PhD, ceramic science, Pennsylvania State University, 1975) has since 1957 been involved in all the different facets of the cement science. He has worked during his graduate studies in the application of hot-pressed cement paste to radioactive waste.

