



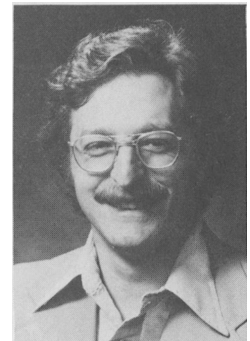
## AUTHORS — MID-AUGUST 1978

### CRITICAL REVIEW

#### VOID SWELLING IN METALS AND ALLOYS UNDER IRRADIATION: AN ASSESSMENT OF THE THEORY

*L. K. Mansur*

**Louis K. Mansur** (BS, physics, Lowell Technological Institute, 1966; MEng, engineering physics, 1968, and PhD, nuclear engineering and materials science, Cornell University, 1974) has been participating in the development of the theory of radiation-induced swelling and deformation of metals and alloys. He joined the Oak Ridge National Laboratory in 1974. Prior to this, he spent five years with the U.S. Atomic Energy Commission and the SEFOR experimental fast reactor, where he was engaged in reactor core and facilities design and reactor neutronics analysis.



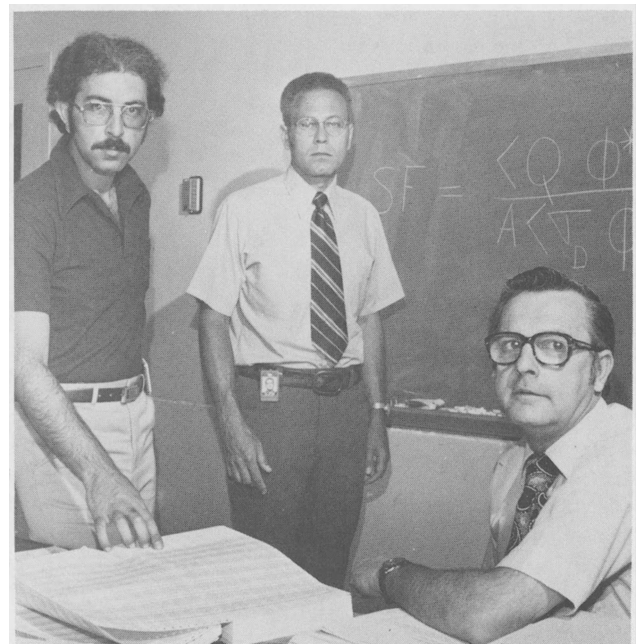
### REACTORS

#### CALCULATION OF THE SCALE FACTOR FOR INFERENCE OF PRESSURIZED WATER REACTOR CORE BARREL MOTION FROM NEUTRON NOISE SPECTRAL DENSITY

*J. C. Robinson  
F. Shahrokhi  
R. C. Kryter*

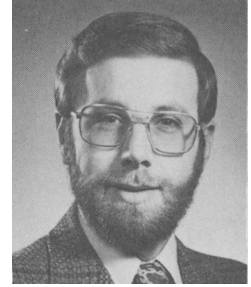
#### QUANTIFICATION OF CORE BARREL MOTION USING AN ANALYTICALLY DERIVED SCALE FACTOR AND STATISTICAL REACTOR NOISE DESCRIPTORS

**James C. Robinson** (right) (PhD, nuclear engineering, University of Tennessee, 1966) is professor of nuclear engineering at the University of Tennessee, consultant to Oak Ridge National Laboratory (ORNL), and one of the founders of Technology for Energy Corporation, a consulting firm. He has more than 10 years experience in the areas of noise measurements and reactor physics, with special emphasis on modeling, numerical analysis, and data interpretation. **Farshid Shahrokhi** (left) (MS, nuclear engineering, University of Tennessee, 1974) has been a graduate research assistant at ORNL since 1972. He is currently pursuing a PhD program in nuclear engineering and is engaged in the development of methods for detecting the presence and character of loose metallic parts in nuclear reactor primary cooling systems. **Robert C. Kryter** (center) (PhD, nuclear science, Rensselaer Polytechnic Institute, 1965) has worked for 13 years in noise analysis research and development, as applied to nuclear reactors, at ORNL. His current interests include automated surveillance and diagnostics methods, detection and location of failed fuel and loose metallic parts in operating reactors, and specialized noise data processing techniques and instrumentation.



## POTENTIAL RADIOLOGICAL CONSEQUENCES OF A MULTIPLE STEAM GENERATOR TUBE RUPTURE

*Roy R. Fray*

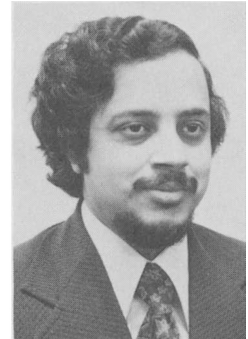


**Roy R. Fray** (BS, mechanical engineering, California State University at Fresno, 1970; ME, mechanical engineering, University of California at Davis, 1971) has been with Pacific Gas and Electric Company for the past seven years. In addition to his accident analysis work, his efforts have also included heat transfer, thermal-hydraulic, and risk/reliability analyses.

## FUELS

### FUEL AND FISSION GAS RESPONSE TO SIMULATED THERMAL TRANSIENTS: EXPERIMENTAL RESULTS AND CORRELATION WITH FISSION GAS RELEASE AND SWELLING MODEL

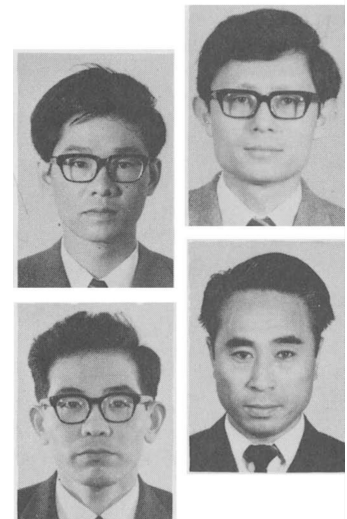
*G. Bandyopadhyay*



**G. Bandyopadhyay** (MS, 1970, PhD, 1973, materials science and engineering, University of California at Berkeley) has been a staff member of the Materials Science Division at Argonne National Laboratory since 1974. He is currently the principal investigator of direct-electrical-heating experimental programs studying the fuel and fission gas response during hypothetical transients. He is also a principal investigator of a program studying materials problems in high-temperature batteries.

### APPLICATION OF THE WARM WATER INJECTION METHOD TO IMPROVE THE EFFICIENCY OF IN-CORE WET SIPPIING FOR LEAKER DETECTION

*Shunsuke Uchida  
Motoaki Utamura  
Hideo Yusa  
Hideo Maki*

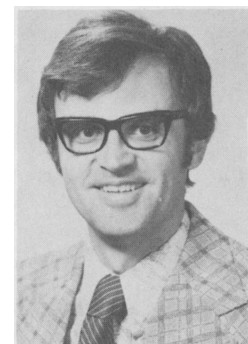


**Shunsuke Uchida** (top right) (BS, physics, Osaka University, 1964) has worked in reactor shielding for several years and is currently involved in the development of radiation reduction procedures in boiling water reactor (BWR) plants at Hitachi Ltd. **Motoaki Utamura** (top left) (BS, nuclear engineering, University of Tokyo, 1972) works at Hitachi Ltd. on reactor safety problems, with a special interest in heat transfer. **Hideo Yusa** (bottom right) (BS, physics, Tohoku University, 1959; Dr. Eng., nuclear engineering, Osaka University, 1969) is a senior researcher in radwaste treatment development at Hitachi Ltd. **Hideo Maki** (bottom left) (BS, mechanical engineering, Kyushu University, 1959; Dr. Eng., nuclear engineering, University of Tokyo, 1976) is a senior engineer in the BWR fuel design section of Hitachi Ltd., Hitachi Works.

## MATERIALS

### OXYGEN GETTERS FOR FAST REACTOR FUEL PINS

*C. E. Johnson  
D. C. Fee*

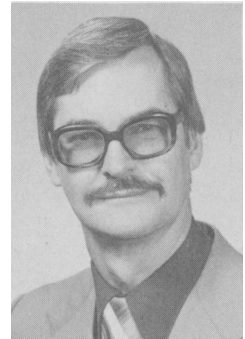


**Carl E. Johnson** (photograph not available) (PhD, chemistry, Michigan State University, 1958) is a chemist at Argonne National Laboratory (ANL) and is presently leader of the Fuels and Materials Chemistry Group. His past research activities have included investigations of phase equilibria and thermodynamic properties of molten salt solutions. He is presently engaged in similar studies on nuclear fuels and fission products. **Darrell C. Fee** (right) (PhD, chemistry, University of California at Berkeley, 1973) has been an assistant chemist at ANL since 1974. He is interested in the chemistry of oxide, carbide, and nitride fast reactor fuel pins.

## HOW DOES ONE PREDICT AND MEASURE RADIATION DAMAGE?

*F. A. Nichols*

**Fred A. Nichols** (BS, 1954, MS, 1958, metallurgical engineering, University of Kentucky; MS, 1963, PhD, 1964, metallurgy, Carnegie Institute of Technology) was a post-doctoral fellow with A. Seeger in Stuttgart, Germany, and, until 1976, was with the Bettis Atomic Power Laboratory, where he was manager of reactor materials and structural mechanics. Now at Argonne National Laboratory, he has been associate director and now is senior technical advisor, both in the Materials Science Division. He has authored numerous papers on many aspects of radiation effects in materials.



## REACTORS

## EFFECTS OF RECENT MODELING DEVELOPMENTS IN PROMPT BURST HYPOTHETICAL CORE DISRUPTIVE ACCIDENT CALCULATIONS

*J. J. Sienicki*  
*P. B. Abramson*

**James J. Sienicki** (top) (PhD, physics, University of Illinois at Chicago Circle, 1975) is a nuclear engineer in the Reactor Accident Modeling Group in the Applied Physics Division at Argonne National Laboratory (ANL). His interests include reactor safety analysis and the numerical modeling of thermo-hydrodynamic systems. **Paul B. Abramson** (BS, engineering mechanics, Lehigh University, 1961; PhD, physics, University of Colorado, 1968) is currently group leader for reactor accident modeling in the Applied Physics Division at ANL. From 1962 through 1965 he was at Atomics International, and from 1968 to 1974 he was chairman of physics at Colorado's Metropolitan State College in Denver (where he was also elected alderman and later mayor of the city of Wheat Ridge, Colorado, as an extracurricular activity). His current interests are in fast reactor accident modeling with specific interest in numerical compressible hydrodynamics and basic phenomenology in heat transfer.

