



## AUTHORS — APRIL 1981

### FISSION REACTORS

#### ON THE PROBLEM OF NOISE SPECTRA CLASSIFICATION IN NUCLEAR POWER PLANT OPERATION DIAGNOSTICS

**A. I. Mogilner** (top) (nuclear physics, 1948, PhD, 1958, and professor, 1966, Moscow State University) is a specialist in reactor physics and technology. The author of works in the area of reactor noise (*P*-method, statistical weight method, etc.), he has developed mathematical methods of experimental data analysis. Presently he is a director of the reactor diagnostics program in the Institute of Physics and Power Engineering, Obninsk, USSR. **A. O. Skomorokhov** (center) (radiophysics, Gorky State University, 1973) works in the Institute of Physics and Power Engineering, Obninsk. His main research interests are in the areas of pattern recognition theory and methods of heuristic self-organization application to nuclear power reactor diagnostics and software development of the computer-aided diagnostic systems. **D. M. Shvetsov** (bottom) (nuclear physics, 1958, and PhD, 1970, Moscow State University) studies reactor noise in the Institute of Physics and Power Engineering, Obninsk. In 1971, he was an International Atomic Energy Agency expert on reactor engineering in Cairo, Egypt. His present interests are in reactor diagnostics and experimental data from reactor processing.

*A. I. Mogilner*  
*A. O. Skomorokhov*  
*D. M. Shvetsov*

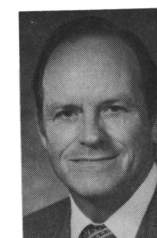
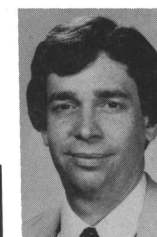


### CHEMICAL PROCESSING

#### CHEMICAL PROCESSING FACILITIES FOR PARTITIONING ACTINIDES FROM NUCLEAR FUEL CYCLE WASTE MIXTURES

**D. W. (Bill) Tedder** (top) (BChE, Georgia Institute of Technology, 1972; MSChE, 1973, and PhD, 1975, University of Wisconsin; Professional Engineers, Tennessee, 1978) held the position of staff engineer four years at Oak Ridge National Laboratory (ORNL) working on actinide partitioning for waste management. He has been an assistant professor of chemical engineering at Georgia Tech since 1979. He teaches chemical process and plant design, optimization, and synthesis. His research interests are in solvent extraction, waste management, and process invention. **Bruce C. Finney** (center) (BChE, University of Detroit, 1951) has been a senior development engineer at ORNL since 1957. He also worked seven years at Battelle Memorial Institute in Columbus, Ohio. His current interests are in fuel reprocessing and waste management. **J. O. (Tex) Blomeke** (bottom) (BChE, University of Texas, PhD, Georgia Tech) has been a staff member since 1950 of the Chemical Technology Division at ORNL, where he has worked in fuel and waste management research and development.

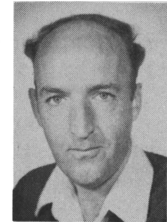
*D. W. Tedder*  
*B. C. Finney*  
*J. O. Blomeke*



**A MATHEMATICAL MODEL OF AN AUTOMATIC ASSEMBLER TO STACK FUEL PELLETS**

**Roger G. Jarvis** (top) (DPhil, nuclear physics, University of Oxford, 1952) has worked at the Chalk River Nuclear Laboratories (CRNL) of Atomic Energy of Canada Limited since 1956. He is now in the Applied Mathematics Branch. His primary interest is currently operations research. **Roger J. Joynes** (center) (BSc, mechanical engineering, University of Aston, England, 1970) has worked since 1970 at CRNL, where he is in the Mechanical Equipment Development Branch. His primary interests are the design and development of automated equipment for remote applications. **Colleen I. Bretzlaff** (bottom) (BA, mathematics, Queen's University, Ontario, 1978) has worked at CRNL since 1979. She is in the Applied Mathematics Branch. Her primary interest is computer programming.

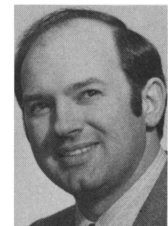
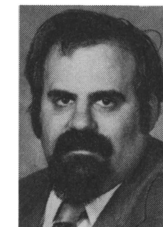
*Roger G. Jarvis  
Roger J. Joynes  
Colleen I. Bretzlaff*



**ANALYTICAL EVALUATION OF OVALITY AND APPLICATION TO FUEL ELEMENTS IN EXPERIMENTAL BREEDER REACTOR II SUBASSEMBLIES**

**Bobby R. Seidel** (top) (BS, metallurgy, Montana College of Mineral Science and Technology, 1967; MS, materials science, Northwestern University, 1969; MRE, religious education, North American Baptist Seminary; PhD, materials science, Northwestern University, 1975) has been responsible for the qualification and performance characterization of fuel, control, and blanket materials and related internal reactor components of the Experimental Breeder Reactor II (EBR-II) fast breeder reactor for more than five years at Argonne National Laboratory. Currently, in addition to assessing fuels and materials performance and reliability, he manages the technical activities within the EBR-II Reactor and Manufacturing Materials Support Section (RMMS), the foremost of which is qualification of the driver fuel for mild transient operation. **Robert E. Einziger** (center) (BS, physics, Georgia Institute of Technology, 1967; MS and PhD, physics, Rensselaer Polytechnic Institute, 1973) was responsible for the evaluation of irradiation performance of EBR-II driver fuel in the RMMS. He is currently a senior engineer at the Westinghouse Hanford Company where he is studying the failure mechanisms and performance of light water reactor spent fuel as a waste form. **Gary D. Hudman** (bottom) (BS, secondary education, math and physics, Idaho State University, 1971) has provided computer analytical support in the EBR-II RMMS section for nearly nine years. He was previously with Boeing Aircraft; General Electric Company, Aircraft Nuclear Propulsion; Atomics International, Organic Moderated Reactor Equipment; and Westinghouse Nuclear, NERVA. His current interests include interfacing and controlling measurement systems with small computers.

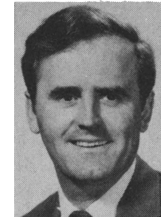
*B. R. Seidel  
R. E. Einziger  
G. D. Hudman*



### SOME OBSERVATIONS ON TIME-HARDENING AND STRAIN-HARDENING RULES FOR CREEP IN ZIRCALOY-2

*Glenn E. Lucas  
R. M. N. Pelloux*

**G. E. (Gene) Lucas** (top) [ScD, nuclear engineering, Massachusetts Institute of Technology (MIT)] has been an assistant professor of nuclear engineering at the University of California, Santa Barbara, since 1978. His primary research interests include nuclear fuels, mechanical metallurgy, pressure vessel embrittlement, and structural materials for fusion reactors. **Regis M. N. Pelloux** (MS and ScD, metallurgy, MIT, 1958) is professor of material engineering at MIT. He joined the faculty in 1969 after eight years with the Boeing Scientific Research Laboratory. His research interests are in the areas of mechanical behavior of metals, application of fracture mechanics to fatigue, to creep fatigue interactions, and to failure analysis.



### AN EVALUATION OF TIME-DEPENDENT LOADING ANALYSIS ON A PIPING NETWORK USING RELAP4/REPIPE

*Ming-teh Hsu  
Joel Weisman  
John W. Redmond*

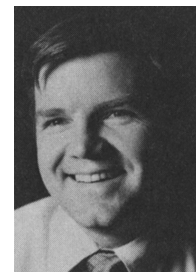
**Ming-teh Hsu** (top) (BS, nuclear engineering, National Tsing-Hua University, Republic of China; PhD, nuclear engineering, University of Maryland) is a senior engineer at EG&G Idaho, Inc., working in the areas of development and assessment of RELAP4/MOD7. Prior to joining EG&G, Hsu had three years experience in the application of RELAP4/MOD3 and MOD5 at Utilities Service Center, Control Data Corporation. He has authored eight publications relating to RELAP4 code. **Joel Weisman** (bottom) (PhD, University of Pittsburgh) is professor of nuclear engineering and director of the Nuclear Engineering Program at the University of Cincinnati. Prior to joining the University in 1968, Weisman spent 18 years in industry, where his last position was that of manager of thermal and hydraulic analysis for the Westinghouse Electric Corporation Pressurized Water Reactor Division. Weisman is coauthor of the American Nuclear Society monograph *Thermal Analysis of Pressurized Water Reactors* (2nd ed., 1979) and editor of *Elements of Nuclear Reactor Design*, published by Elsevier-North Holland in 1977. **John W. Redmond** (BS and MS candidate, nuclear engineering, New York University) was involved in the SNAP8 space station reactor design, and was lead engineer on the development of the major reactor safety transient code at Combustion Engineering. Redmond had been working in the application of RELAP4/MOD3 and MOD5 at Utilities Service Center, Control Data Corporation. A photograph of Redmond was not available at time of publication.



### EFFECT OF FAST NEUTRON IRRADIATION ON FATIGUE-CRACK GROWTH BEHAVIOR OF THREE NICKEL-BASE ALLOYS

*Lee A. James*

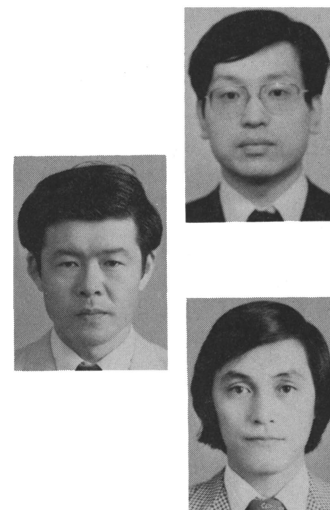
**Lee A. James** (BS, mechanical engineering, 1959; MS, mechanical engineering, University of Washington, 1965) is a fellow engineer with the Westinghouse Hanford Company. He has been engaged for many years in the characterization of materials behavior using fracture mechanics techniques and in the application of fracture mechanics to reactor structural components.



### REAL-TIME SIMULATION OF GAMMA EXPOSURE RATE BY PUFF MODEL

**Yoichi Ichikawa** (top) (BS, 1975, and MS, 1977, sanitary engineering, Kyoto University) has been employed at Central Research Institute of Electric Power Industry since 1977. His current research is in atmospheric diffusion of radioactive materials. **Akira Kobayashi** (center) (BS, electric communication engineering, Shinshu University, 1963) is employed in the Nuclear Energy Group of Toshiba Corporation. His general field of interest throughout his career has been the control and instrumentation of nuclear power plants. His recent interests include the environmental monitoring of nuclear power plants. **Yoshio Kitada** (bottom) (BS, 1972, and MS, 1974, nuclear engineering, Hokkaido University) joined Nippon Atomic Industry Group Co. Ltd., Nuclear Research Laboratory in 1974, and has been engaged in the study of developing the environmental radiation monitoring system for light water reactor nuclear power plant plume.

*Y. Ichikawa  
A. Kobayashi  
Y. Kitada*



### RADIATION BIOLOGY AND ENVIRONMENT

### PROPAGATION OF ERRORS FROM RESPONSE FUNCTIONS TO UNFOLDED SPECTRUM

**Kazuo Shin** (right) (MS, nuclear engineering, Kyoto University, 1976) is a research associate in the Kyoto University Department of Nuclear Engineering. He is interested in neutron transport theory, neutron and gamma-ray measurements, fusion neutronics, and accelerator shielding. **Yoshitomo Uwamino** (left) (MS, nuclear engineering, Kyoto University, 1979) is a scientist in National Institute of Radiological Science. He is interested in accelerator shielding, neutron measurements, and heavy ion dosimetry. **Tomonori Hyodo** (center) (BS, physics, 1947, and DrEng, nuclear engineering, Kyoto University) has been a professor of nuclear engineering in the Kyoto University Department of Nuclear Engineering since 1966. His research interests include transport of neutron and gamma rays through materials, reactor shielding, neutron and gamma-ray measurements, and fusion reactor neutronics.

*Kazuo Shin  
Yoshitomo Uwamino  
Tomonori Hyodo*

