



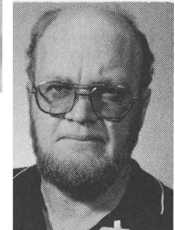
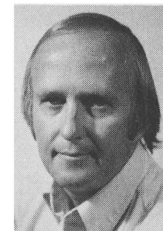
AUTHORS — APRIL 1982

FISSION REACTORS

EROS: AN EXPERIMENTAL BREEDER REACTOR II OPERATIONAL SAFETY CODE

E. M. Dean (top) (BS, Idaho State University, 1970) is a staff member of the Argonne National Laboratory (ANL) Experimental Breeder Reactor II (EBR-II) Project working in the areas of overall EBR-II plant simulation and testing, and reactor shutdown system and control system analysis and evaluation. **H. A. Larson** (PhD, University of Washington, 1970) is a staff member of the ANL EBR-II Project, working in the application of reactor analysis. His current interest is the application of system codes to large liquid-metal fast breeder reactor facilities.

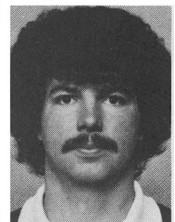
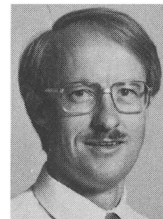
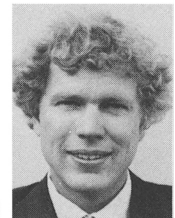
*E. M. Dean
H. A. Larson*



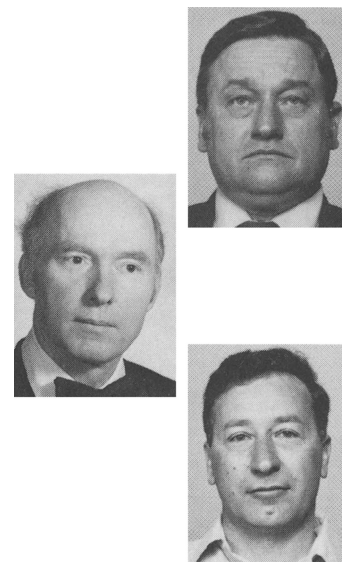
SENSITIVITY AND UNCERTAINTY ANALYSIS OF THE COUPLED FAST REACTIVITY MEASUREMENTS FACILITY CENTRAL FLUX SPECTRUM

John M. Ryskamp (top right) (PhD, nuclear engineering, Rensselaer Polytechnic Institute, 1979) is a project engineer at EG&G Idaho, Inc., Idaho National Engineering Laboratory (INEL), coordinating nuclear training program improvements. His current interests include reactor physics, reactor experimentation, and reactor operation. **Robert A. Anderl** (top left) (PhD, experimental nuclear physics, Iowa State University, 1972) is a senior scientist in the Physics Division of EG&G Idaho, Inc., INEL. His current research interests include the measurement of integral cross sections, applications of integral data to cross-section evaluation, neutron dosimetry, and on-line mass-separator technology. **B. L. Broadhead** (bottom right) (MS, nuclear engineering, University of Tennessee, 1979) is currently completing PhD work at the University of Tennessee as a research assistant in nuclear engineering. His current interests include processing nuclear data covariance information with applications to standard field characterizations, dosimetry unfolding problems, and nuclear data adjustments. **W. E. Ford III** (bottom left) (MS, nuclear engineering, University of Tennessee, 1967) is leader of the Cross Section Methods Group of the Computer Sciences Division of Union Carbide Corporation Nuclear Division. He has directed the generation of many multigroup cross-section libraries that are used throughout the nuclear industry in criticality safety analyses, thermal and fast reactor studies, fusion reactor studies, and in-shield design studies. He is responsible for the maintenance and distribution

*John M. Ryskamp
Robert A. Anderl
B. L. Broadhead
W. E. Ford III
J. L. Lucius
J. H. Marable
J. J. Wagschal*



of the AMPX cross-section processing system. **J. L. Lucius** (top) (MS, mathematics, Mississippi State University, 1956) is leader of the Nuclear Code Development Group of the Computer Sciences Division of Union Carbide Corporation Nuclear Division. His current interest is the development of computational methods to be used in the solution of sensitivity and uncertainty analysis problems. **J. H. Marable** (center) (PhD, physics, University of Tennessee, 1967) is a research staff member of the Engineering Physics Division of the Oak Ridge National Laboratory (ORNL). He taught reactor analysis for several years in the Oak Ridge School of Reactor Technology and has performed research in the area of sensitivity and uncertainty analysis since 1975. **J. J. Wagschal** (bottom) (PhD, physics, The Hebrew University of Jerusalem, 1965) is a consultant to the Engineering Physics Division of ORNL and is a member of the Racah Institute of Physics at the Hebrew University of Jerusalem, Israel, where he is an associate professor of physics. His current research interests include neutron and neutrino transport, light water reactor pressure vessel damage dosimetry, and cross-section uncertainty and adjustment.



RETRAN ANALYSIS OF THE TURBINE TRIP TESTS PERFORMED AT THE PEACH BOTTOM ATOMIC POWER STATION UNIT 2

*Karl Hornyik
Joseph A. Naser*

Karl Hornyik (top) (PhD, nuclear engineering, University of Illinois, 1965) is an associate professor of nuclear engineering at Oregon State University. He has been working with Electric Power Research Institute (EPRI) staff on a number of projects concerning the qualification of the RETRAN code for analyzing light water reactor (LWR) transients. **Joseph A. Naser** (PhD, nuclear engineering, University of California, Berkeley) has been doing nuclear technology research and development work since 1971. He worked at Argonne National Laboratory before joining EPRI, where he is presently a project manager. His present technical interests are in system and core thermal hydraulics for LWR safety and analysis.



NUCLEAR SAFETY

ENVIRONMENTAL GAMMA-RAY MEASUREMENT METHODS FOR FRENCH NUCLEAR INSTALLATION IMPACT STUDIES

*D. Gauthier
C. Caput
F. Bourdeau*

D. Gauthier (top) (engineering, Conservatoire National d'Arts et Metiers, 1971) is currently at the Commissariat à l'Energie Atomique (CEA) and is involved in impact studies from gaseous releases of nuclear installations. He has been in charge of the on-site meteorological programs of the Laboratoire des Transferts Atmospheriques. He has also been actively engaged in experimental research in the field of radioecology. **C. Caput** (center) (engineering, Ecole Nationale d'Hydrographie, Nantes, 1959) is presently the head of the Laboratoire des Transferts Atmospheriques, a division of the Service d'Etudes et Recherches sur l'Environnement. His interests include radioecological research and studies concerning gaseous effluents. **F. Bourdeau** (bottom) (engineering, Ecole Polytechnique Feminine, 1955) is presently a scientist at the Direction de l'Equipement, a division of the Electricité de France. She is



involved in a radioecological research program sponsored by CEA and Electricité de France. She also works in the field of power plant siting.

FUEL CYCLES

BOILING WATER REACTOR CYCLE EXTENSION OPERATION

George C. Fullmer

George C. Fullmer (BS, physics, University of Washington, 1947) is presently program manager of Core Management Services at the General Electric Company Nuclear Energy Business Operations in San Jose, California. At the Hanford reactors, he developed and implemented dynamic techniques for the monitoring and control of xenon oscillations and core power distribution in the early 1950s and directed operational physics activities from 1953 to 1971.

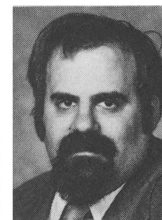


NUCLEAR FUELS

HIGH TEMPERATURE POSTIRRADIATION MATERIALS PERFORMANCE OF SPENT PRESSURIZED WATER REACTOR FUEL RODS UNDER DRY STORAGE CONDITIONS

*Robert E. Einziger
Sharon D. Atkin
David E. Stellrecht
V. Pasupathi*

Robert E. Einziger (top right) (BS, physics, Georgia Institute of Technology, 1967; MS and PhD, physics, Rensselaer Polytechnic Institute, 1973) is currently a senior scientist at the Westinghouse Hanford Company where he is studying the failure mechanisms and performance of light water reactor (LWR) spent fuel during dry interim storage and geologic disposal. **Sharon D. Atkin** (top left) (BS, metallurgical engineering, Michigan Technological University, 1980) has been involved with destructive examination of LWR spent fuel rods. She is currently heading a project to determine the weld ductility of irradiated material. **David E. Stellrecht** (bottom photo, right) (BS, metallurgical engineering, Michigan State University, 1962) directed the remote evaluation of commercial fuel rods at the Battelle Columbus Laboratories (BCL). His interests include experimental fuel rod fabrication, closure weld development, and evaluation of mechanical properties of nuclear materials. He is currently with Varian Associates. **V. Pasupathi** (bottom photo, left) (MS, materials science, University of Florida, 1967) is the manager of the hot cell facilities at BCL. His research interests are in the areas of postirradiation examination of reactor core components and evaluation of in-reactor performance.



MOL-7B-AN 18-PIN BUNDLE OPERATING 200 DAYS BEYOND BREACH

*Peter Weimar
Wolfgang Ernst*

Peter Weimar (right) (Dipl. Ing., mechanical engineering, University of Darmstadt, 1961; Dr.-Ing., University of Karlsruhe, 1969) has been engaged in nuclear technology research since 1961 at Karlsruhe Nuclear Research Center, Federal Republic of Germany. He has received a promotion in the field of nuclear cermet systems. Since 1972, he has been working in post-irradiation examination of spent fast breeder fuel pins. His



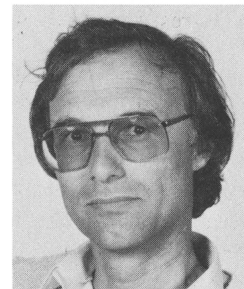
main interest is in the field of the behavior of defective mixed-oxide pins in the sodium of a fast breeder. **Wolfgang Ernst** (mechanical engineering, 1976) is working in the liquid-metal fast breeder reactor project at the Karlsruhe Nuclear Research Center, where he has been since 1968. His current interest is in the postirradiation examination of fast breeder fuel rods. His main concern is the evaluation of irradiation effects of sodium-cooled bundles.



COMBINATION OF FUEL-CLADDING CHEMICAL AND MECHANICAL INTERACTIONS IN MIXED OXIDE FUEL PINS

O. Götzmann (PhD, mechanical engineering, University of Karlsruhe, 1968) is a member of the Institute of Materials and Solid State Research of the Nuclear Research Center in Karlsruhe, West Germany. He has worked with the Project of Fast Breeder Development for the past ten years. His primary interests are in the field of material compatibility, especially in fuel/cladding compatibility and fuel/fission product chemistry.

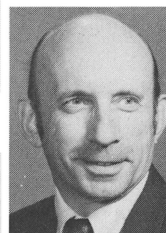
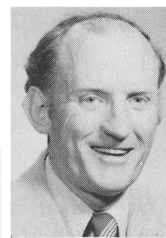
O. Götzmann



FUEL CHEMISTRY IMPACT ON VENTED FUEL PIN DESIGN

C. E. Johnson (top right) (PhD, chemistry, Michigan State University, 1958) is a senior chemist at Argonne National Laboratory (ANL) and is leader of the Fuels and Materials Chemistry Section. 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. **S. W. Tam** (top left) (PhD, materials science, State University of New York, Stony Brook, 1974) is an assistant metallurgist at ANL. His main interest is in transport processes in solid defect chemistry and nuclear materials. He is currently involved in modeling of nuclear fuel element behavior. **P. E. Blackburn** (bottom right) (PhD, physical chemistry, Ohio State University, 1954) is a chemist at ANL. He has been active in high-temperature chemistry and nuclear chemistry since joining Westinghouse Electric Corporation in 1954. He has written over 40 open-literature publications and reports in these fields. **D. C. Fee** (bottom left) (PhD, chemistry, University of California at Berkeley, 1973) has been employed at ANL since 1974. He is interested in the high-temperature properties of oxide, carbide, and nitride fast reactor fuel pins.

*C. E. Johnson
S. W. Tam
P. E. Blackburn
D. C. Fee*

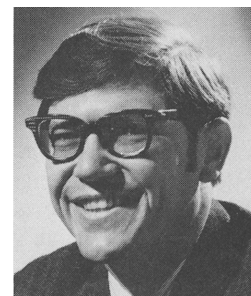


MATERIALS

HEAT TREATMENT OF $2\frac{1}{4}$ Cr-1 Mo STEEL FOR BREEDER REACTOR STEAM GENERATORS

R. L. Klueh (BS, metallurgical engineering, Purdue University, 1961; PhD, metallurgy and materials science, Carnegie-Mellon University, 1966) is a research metallurgist in the Metals and Ceramics Division at Oak Ridge National Laboratory. Until recently he was involved in mechanical property studies on liquid-metal fast breeder reactor steam generator materials. Currently, his technical interests involve radiation damage studies on materials for fusion reactors.

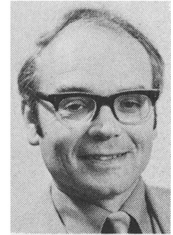
R. L. Klueh



MEASUREMENT OF THERMAL POWER DENSITY DISTRIBUTIONS BY FUEL PIN GAMMA SCANNING

J. T. Dawson (top) (BSc, physics, University of Bristol, 1970) is a research officer with the Central Electricity Generating Board at Berkeley Nuclear Laboratories, Gloucestershire, England. His technical interests include correlation of physics calculations with reactor measurements and computer control of experiments. **G. Smith** (LRSC, Member Royal Society of Chemistry, 1965) is now with the Atomic Energy Establishment, Winfrith, England. He was employed in reactor plant and radioisotope chemistry prior to his current work investigating counting techniques applied to reactor fuel pins and components.

*J. T. Dawson
G. Smith*



AN ASSESSMENT OF TRAC-PD2 REFILL CALCULATIONS BASED ON CREARE COUNTERCURRENT FLOW TESTS

T. F. Bott (BA, physics, University of Utah, 1970; PhD, chemical engineering, Brigham Young University, 1977) is a staff member in the Energy Division at Los Alamos National Laboratory. He has previously served as a nuclear propulsion officer in the U.S. Navy and worked in reliability and human factors at Oak Ridge National Laboratory. His current work is in Transient Reactor Analysis Code development.

T. F. Bott

