



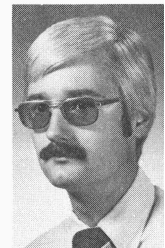
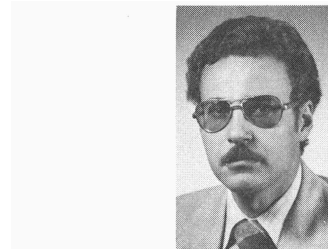
## AUTHORS – APRIL 1979

### REACTORS

#### ENGINEERING PROBLEMS OF LASER-DRIVEN FUSION REACTORS

**S. I. Abdel-Khalik** (top) (PhD, mechanical engineering, University of Wisconsin, 1973) is an associate professor of nuclear engineering at the University of Wisconsin (UW)-Madison. He joined the UW faculty in 1976 after two years of postdoctoral work in chemical engineering and one year with the nuclear industry. His research interests are in the areas of fusion technology and fast reactor safety. **Robert W. Conn** (center) (PhD, California Institute of Technology, 1968) spent one year at the Joint Euratom Nuclear Research Center at Ispra, Italy and a year at the Brookhaven National Laboratory before joining the UW in 1970. He has been a professor of nuclear engineering since 1975. His primary research interests include fusion reactor physics and technology, neutronics methods for fusion and fission reactors, and molecular collision theory. Since 1974, he has been director of the UW Fusion Research Program. **Gregory A. Moses** (bottom) (PhD, nuclear engineering, University of Michigan, 1976) has been an assistant professor of nuclear engineering at UW since 1976. His work has been in the area of inertial confinement fusion technology, particularly on the interaction between the exploding pellet and the reactor cavity and the computer simulation of imploding and burning fusion pellets. He has previously worked for two summers at the Lawrence Livermore Laboratory and is currently a visiting staff member with the Laser Fusion Applications Group at the Los Alamos Scientific Laboratory.

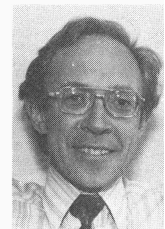
*S. I. Abdel-Khalik  
R. W. Conn  
G. A. Moses*



#### A GENERALIZED THEORY FOR PREDICTING MASS EFFLUENCE DURING REACTOR REFLOODING

**K. H. (Bill) Sun** (top) (PhD, mechanical engineering, University of California, Berkeley, 1973) has been doing nuclear technology research and development work since 1972. He was a technical leader at the General Electric Company and is presently a project manager at the Electric Power Research Institute (EPRI), with technical interest in fluid flow and heat transfer associated with nuclear safety and performance. **Romney B. Duffey** (BSc, physics, PhD, physics/geophysics, University of Exeter, England) has studied light water reactor, heavy water reactor, and liquid-metal fast breeder reactor safety in the electric utility industry since 1967. He is presently program manager at EPRI, with current interests in fuel and thermal-hydraulic experimentation and analysis.

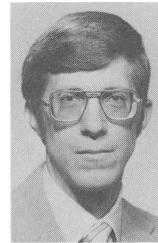
*K. H. Sun  
R. B. Duffey*



## THE INFLUENCE OF PHYSICS PARAMETERS ON TOKAMAK REACTOR DESIGN

**David A. Ehst** (top) (ScD, nuclear engineering, Massachusetts Institute of Technology, 1975) has been with the Fusion Power Program at Argonne National Laboratory (ANL) since 1976. His research work has included anomalous transport theory, EBT reactor design, and the tokamak experimental power reactor. His current interest is in advanced fusion concepts, such as steady-state tokamak reactors. **Kenneth Evans, Jr.** (center) (BS, engineering physics, 1963; PhD, physics, University of Illinois, 1970) is involved in plasma physics and fusion reactor design at ANL. **Weston M. Stacey, Jr.** (bottom) (BS, physics, 1959; MS, nuclear science, Georgia Institute of Technology, 1962; PhD, nuclear engineering, Massachusetts Institute of Technology, 1966) was director of the Fusion Power Program at ANL until 1977. He is currently a Callaway Professor of Nuclear Engineering at Georgia Institute of Technology. His background is in fission reactor theory and fusion reactor engineering.

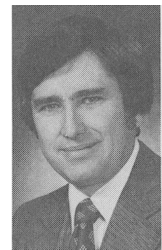
*David A. Ehst  
Kenneth Evans, Jr.  
Weston M. Stacey, Jr.*



## USE OF NEUTRON NOISE TO DETECT BWR-4 IN-CORE INSTRUMENT TUBE VIBRATIONS AND IMPACTING

**Dwayne N. Fry** (top right) (MS, University of Florida, 1962) has worked in the Instrumentation and Controls Division at Oak Ridge National Laboratory (ORNL) for 15 years in research and development of surveillance and diagnostic methods utilizing noise analysis techniques. His current interests include development of noise analysis methods for two-phase flow measurements and for monitoring mechanical components in a nuclear fuel reprocessing facility. **Robert C. Kryter** (top left) (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. **Melren V. Mathis** (center right) (BS, physics, Onachita Baptist University, 1962) has had more than 15 years experience in the area of instrumentation and control—8 relating directly to nuclear reactor control, surveillance, and special measurement systems employing noise analysis techniques. Prior to joining Technology for Energy Corporation (TEC), he spent five years as a development engineer with the Instrumentation and Controls Division at ORNL. Before joining ORNL, he was the instrumentation engineer for the SEFOR experimental fast reactor. **Julian E. Mott** (bottom left) (PhD, aeronautical engineering, University of Minnesota, 1966) is manager of mechanical testing and analysis at TEC. He has extensive experience in two-phase flow analysis and vibration measurement and analysis. Prior to joining TEC, Mott, a cofounder of TEC, was professor of nuclear engineering at the University of Tennessee and consultant to ORNL. **James C. Robinson** (bottom right) (PhD, engineering science, University of Tennessee, 1966) has worked in the areas of noise measurements and reactor physics, with special emphasis on modeling, numerical analysis, and data interpretation, for 15 years. He was professor of nuclear engineering at the University of Tennessee and consultant to ORNL. He is a cofounder of TEC, the company he is currently with.

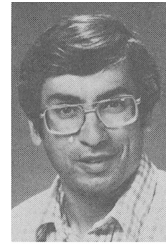
*D. N. Fry  
R. C. Kryter  
M. V. Mathis  
J. E. Mott  
J. C. Robinson*



### CHARACTERISTICS OF PLUTONIUM-TOPPED THORIUM CYCLES IN HEAVY-WATER-MODERATED PRESSURE TUBE REACTORS

**S. Banerjee** (top) (BSc, chemical engineering, I.I.T., Kharagpur; PhD, chemical engineering, University of Waterloo, 1968) is professor and holder of the Westinghouse Chair in the Department of Engineering Physics at McMaster University in Hamilton, Ontario. From 1968 to 1976, he worked at the Whiteshell Nuclear Research Establishment (WNRE) in the positions of research officer in the Chemical Technology Branch, head of the Reactor Analysis Branch, and acting director of the Applied Science Division. His current research and teaching interests are in nuclear safety and chemical engineering aspects of fuel cycles. **F. W. Barclay** (BA, physics and mathematics, University of British Columbia, 1955) is a research officer in the Applied Science Division at WNRE in Pinawa, Manitoba. He has worked in the areas of reactor physics, fuel cycle analysis, and reactor safety. He is currently conducting experiments related to reactor loss-of-coolant accidents.

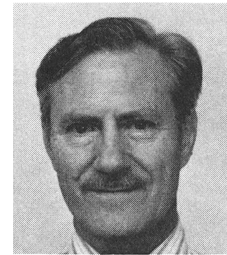
*S. Banerjee*  
*F. W. Barclay*



### SAVANNAH RIVER PLANT THORIUM PROCESSING EXPERIENCE

**D. A. Orth** (PhD, chemistry, University of California, 1951) has been in the Separations Technology Department at the Savannah River Plant (SRP) since 1953. His work has covered most technical areas (e.g., solvent extraction, ion exchange, nuclear safety) involved in the SRP separations programs for plutonium and other heavy elements. His current studies include power reactor fuel processing.

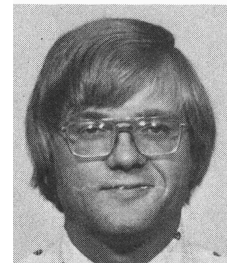
*D. A. Orth*



### DEVELOPMENT OF THE KRYPTON ABSORPTION IN LIQUID CO<sub>2</sub> (KALC) PROCESS: MASS TRANSFER EFFICIENCIES OF PACKED COLUMNS

**Thomas Michael Gilliam** (BS, chemical engineering, University of Tennessee, 1973) is a research staff member in the Chemical Technology Division at Oak Ridge National Laboratory. He has worked on the engineering development of systems to remove radioactive contaminants from off-gas streams generated by nuclear fuel reprocessing. His current interests focus on coal conversion technology, with special emphasis on increasing the filterability of coal-derived liquids.

*Thomas Michael Gilliam*



### ON THE BURNUP-DEPENDENT HEAT TRANSFER FROM FUEL TO CLADDING IN FAST REACTOR FUEL RODS

**Helmut Elbel** (right) (Diplomphysiker, Philipps University at Marburg, Germany, 1966) has been working as a research staff member at the Institute of Materials and Solid State Research of the Karlsruhe Nuclear Research Center in the Federal Republic of Germany since 1970. He is involved in the program for liquid-metal fast breeder reactor fuel pin development. His

*Helmut Elbel*  
*José López Jiménez*



activities concern irradiation experiments as well as modeling theory, for both steady-state and transient reactor operation conditions. **José López Jiménez** (MS, physics, Madrid University, 1964; Dr. 3rd cycle, nuclear physics, Paris, University and CEA Laboratory, 1967) has been a research staff member in the Fuel Element Department of the Junta de Energía Nuclear (JEN), Madrid, since 1969. He worked from 1973 to 1977 at the Karlsruhe Nuclear Research Center in Germany in the Institute of Materials and Solid State Research with the Fuel Rod Modeling Group. His current interests at JEN are fuel rod modeling and irradiation experiments.

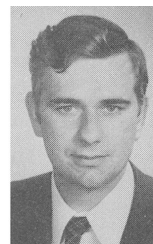


## MATERIALS

### MECHANICAL BEHAVIOR OF HONEYCOMB SPOT-WELDED SPACER GRIDS IRRADIATED IN TWO FUEL ROD BUNDLES

**Didier Haas** (top) (Ingénieur Civil Physicien, 1971, Université de Liège, Belgique) joined Belgonucleaire in 1972 to work in the Post-Irradiation Group for Fast Breeder Reactors. His current interests include the in-pile testing of fast reactor fuel subassemblies and the behavior of irradiated fuel and structural materials. **José Van de Velde** (center) (Higher Technical Institutes of Ghent and Brussels, Belgium) is a technical engineer for electromechanics and nuclear engineering. His experience includes hot-cell development in hot laboratory and postirradiation examinations of light water reactor and liquid-metal fast breeder reactor fuel experiments. **Helmut Braun** (bottom) (Diplomingenieur der Werkstofftechnologie, Universität des Saarlandes zu Saarbrücken) joined Interatom in 1969 to work as group leader in the Core Material Department. His current interests include the development of metallic materials, as well as the specification and qualification of fast reactor core components.

*D. Haas  
J. Van de Velde  
H. Braun*



## RADIOISOTOPES

### ELECTRICAL CHARGING OF MACROSCOPIC PARTICLES USING A BETA SOURCE AND ELECTRIC AND MAGNETIC FIELDS

**Robert A. Fjeld** (top) (BS, nuclear engineering, North Carolina State University, 1970; MS, PhD, nuclear engineering, The Pennsylvania State University, 1976) is an assistant professor of nuclear engineering at Texas A&M University. His current research interests are in the areas of radiation applications, environmental aspects of energy production, and aerosol physics. **Robert Jennings Heinsohn** (center) (PhD, mechanical engineering, Michigan State University, 1963) is a professor of mechanical engineering and a member of the Center for Air Environment Studies at The Pennsylvania State University. His research and teaching interests are in air pollution control, industrial ventilation, and combustion. He is a registered professional engineer in Pennsylvania. **Samuel H. Levine** (bottom) (PhD, nuclear physics, University of Pittsburgh, 1954) is professor of nuclear engineering and director of the Breazeale Nuclear Reactor at The Pennsylvania State University. His technical interests currently are in fuel management, neutron spectrum measurements, and research with radiation sources and TRIGA reactors.

*Robert A. Fjeld  
Robert Jennings Heinsohn  
Samuel H. Levine*

