



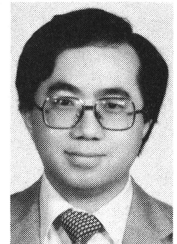
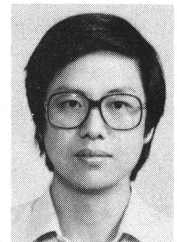
## AUTHORS — OCTOBER 1988

NUCLEAR SAFETY

### CRITICALITY SAFETY EVALUATION FOR HIGH-DENSITY SPENT-FUEL STORAGE RACKS

**Tien-Ko Wang** (top) [BS, nuclear engineering, 1975, and MS, nuclear science, 1977, National Tsing Hua University (NTHU), Taiwan; PhD, nuclear engineering, Purdue University, 1984] is the head of the Nuclear Reactors Division and an associate professor in the Department of Nuclear Engineering, NTHU, Taiwan. His current research interests are in the areas of research reactor analysis, nuclear power plant severe accident analysis, and radiation safety. **Szu-Li Chang** (center) (BS, 1985, and MS, 1987, nuclear engineering, NTHU, Taiwan) is currently a PhD student in the Department of Nuclear Engineering, Massachusetts Institute of Technology. Her research interest is in reactor physics. **Shi-Ping Teng** (bottom) (BS, nuclear engineering, NTHU, Taiwan, 1971; MS and PhD, nuclear engineering, Oklahoma University, 1982) is an associate professor in the Department of Nuclear Engineering, NTHU, Taiwan. His major research interests are in the areas of criticality safety and transport calculations.

*Tien-Ko Wang  
Szu-Li Chang  
Shi-Ping Teng*



### THE GROWTH OF HYGROSCOPIC PARTICLES DURING SEVERE CORE MELT ACCIDENTS

**Jorma Jokiniemi** (MS, 1984, and Licentiate of Science, 1988, physics, University of Helsinki, Finland) is a scientist in the Nuclear Engineering Laboratory at the Technical Research Centre of Finland, where he has been involved for the last 4 years in the field of fission product release and transport from a degraded light water reactor (LWR) core. He was a visiting scientist at the Electric Power Research Institute for 1 year doing work on modeling the behavior of aerosols during severe LWR accidents.

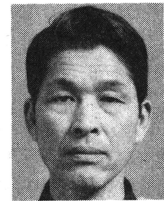
*Jorma Jokiniemi*



### THE COMPOSITION OF NO<sub>x</sub> GENERATED IN THE DISSOLUTION OF URANIUM DIOXIDE

**Tsutomu Sakurai** (top right) (PhD, Hokkaido University, Japan, 1974) joined the chemistry department at Japan Atomic Energy Research Institute (JAERI) in 1960. Since 1983, he has been engaged in the research of radioiodine treatment in spent-fuel solution and in dissolver off-gas. **Akira Takahashi** (top left) is a chemical technician at JAERI, working on the behavior of radioiodine in dissolution of spent fuels. **Niro Ishikawa** (bottom right) is a chemical technician at JAERI involved in research on the treatment of radioiodine in spent-fuel solution. **Yoshihide Komaki** (bottom left) (BS, chemistry, Shizuoka University, Japan, 1960) has been involved in the research of radioiodine treatment in spent-fuel solution and in the production of porous films of polymers by heavy-ion bombardment-truck etching at JAERI.

*Tsutomu Sakurai  
Akira Takahashi  
Niro Ishikawa  
Yoshihide Komaki*



### OUT-OF-CORE FUEL CYCLE OPTIMIZATION FOR NONEQUILIBRIUM CYCLES

**Scott A. Comes** (top) (BS, nuclear engineering, University of Virginia, 1982; PhD, nuclear engineering, North Carolina State University, 1987) is a research analyst at the Center for Naval Analyses. His work includes numerical analysis, computer modeling, and optimization of defense systems. **Paul J. Turinsky** (BS, chemical engineering, University of Rhode Island, 1966; MSE, 1967, and PhD, 1970, nuclear engineering, University of Michigan; MBA, business administration, University of Pittsburgh, 1979) is a professor in the Department of Nuclear Engineering at North Carolina State University. He previously was manager of core development in the Water Reactor Divisions of Westinghouse Electric Corporation. His current research activities are concerned with nuclear fuel management optimization and development of numerical algorithms used in core physics analysis well suited to parallel computer architectures.

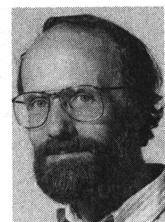
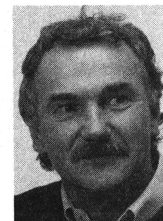
*Scott A. Comes  
Paul J. Turinsky*



### DEVELOPMENT AND ACTIVE DEMONSTRATION OF ACID DIGESTION OF PLUTONIUM-BEARING WASTE

**Herbert Wieczorek** (top) [PhD, chemistry, Technical University of Karlsruhe, Federal Republic of Germany (FRG), 1972] joined the Institute for Nuclear Waste Technology at Kernforschungszentrum Karlsruhe (KfK) in 1974. Since 1975, he has been responsible for work on the development of the acid digestion process. **Bernhard Oser** [Dipl.-Ing. (FH), chemical engineering, Fachhochschule Mannheim, FRG, 1972] has worked at KfK since 1976. His current work is in the field of research and development of radwaste treatment, especially nitration of medium-low and high-level waste (HLW), acid digestion, and the vitrification of HLW.

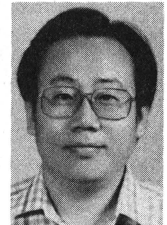
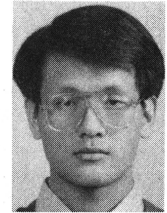
*Herbert Wieczorek  
Bernhard Oser*



**IDENTIFICATION OF TWO-PHASE FLOW PATTERNS BY A SINGLE VOID FRACTION SENSOR**

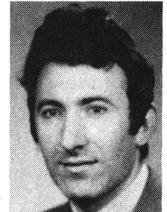
**Y. W. Wang** (top) [BS, 1985, and MS, 1987, nuclear engineering, National Tsing-Hua University (NTHU), Taiwan] is a PhD student in the Department of Nuclear Engineering at NTHU. His research interests include two-phase flow and heat transfer, time series, and system analysis. **C. H. King** (center) (MS, nuclear engineering, NTHU, 1978) is a PhD candidate in the Department of Nuclear Engineering at NTHU. His research interests include two-phase flow, neutron noise analysis, and system identification. Currently, he is concentrating on two-phase flow regime identification by neutron noise analysis. **B. S. Pei** (bottom) (BS, nuclear engineering, NTHU, 1975; MS, 1980, and PhD, 1981, nuclear engineering, University of Cincinnati) is an associate professor in the Department of Nuclear Engineering at NTHU. His research interests include two-phase flow and heat transfer, reactor safety analysis, and severe core damaging study.

*Y. W. Wang  
C. H. King  
B. S. Pei*

**IVA2 VERIFICATION: HIGH-PRESSURE GAS INJECTION IN A LIQUID POOL**

**Nikolay Ivanov Kolev** (MS, 1977, and PhD, 1978, nuclear engineering, Technical University of Dresden, German Democratic Republic) works in the area of reactor safety. He joined the Institute for Nuclear Research and Nuclear Energy of the Bulgarian Academy of Science in Sofia, Bulgaria, in 1978. From 1984 to 1987 he was a visiting scientist at the Kernforschungszentrum Karlsruhe. His primary interests are in the physics of two-phase flow and numerical solution of multiphase fluid-dynamic problems.

*Nikolay Ivanov Kolev*

**DEVELOPMENT OF COMPUTER PROGRAM DYNAM/US FOR PREDICTING THERMALLY INDUCED FLOW OSCILLATIONS IN TWO-PHASE FLOW SYSTEMS**

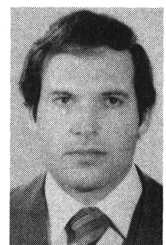
**S. M. Sami** (right) (BScA, MScA, and PhD, University of Montreal, Canada, 1981) has worked in the area of two-phase flow at various industries and institutions since graduation. He has specialized in the transient analysis of thermohydraulics and particularly thermohydraulic code developments for CANDU reactors. He is currently a professor of mechanical engineering at the University of Sherbrooke and is involved in various projects with Atomic Energy of Canada Ltd., Rolls-Royce Canada, Canairtech Inc., and Digital Lightwave Corporation. **M. Kraitem** (photo not available) (Ing. Mec., ISIB, Brussels, Belgium, 1985) is a graduate student at the University of Sherbrooke, Department of Mechanical Engineering.

*S. M. Sami  
M. Kraitem*

**DETERMINATION OF TRANSIENT RADIAL-AZIMUTHAL TEMPERATURE DISTRIBUTIONS IN FUEL BUNDLES UNDER LOSS-OF-COOLANT-ACCIDENT CONDITIONS**

**Nicholas T. Saltos** (right) [BS, nuclear engineering, University of Bologna, Italy, 1974; MSc, mechanical engineering, Worcester Polytechnic Institute, 1980; MS, 1982, and PhD, 1987, The Ohio State University (OSU)] is a probabilistic risk assessment (PRA) engineer with EI International, Idaho. His professional interest

*Nicholas T. Saltos  
Richard N. Christensen  
Tunc Aldemir*



areas include PRA, nuclear heat transfer and fluid flow, numerical and computational methods, and transient analysis. **Richard N. Christensen** (top) (BS, physics, Brigham Young University, 1968; MS, mechanical engineering, and PhD, nuclear engineering, Stanford University) is currently an associate professor in the nuclear engineering program at OSU. His current research areas include enhanced heat transfer, two-phase flow and heat transfer, condensation in the presence of a noncondensable, heat transfer in nuclear waste repositories, and inherently safe reactors. **Tunc Aldemir** (bottom) (BS, mathematical physics, Istanbul University, Turkey, 1971; MS, 1975, and PhD, 1978, nuclear engineering, University of Illinois) is an assistant professor of nuclear and mechanical engineering at OSU. He has developed numerical schemes for reactor subsystem modeling. His current research interests include numerical methods, probabilistic analysis of dynamic systems, optimal maintenance scheduling, and in-core fuel management.

