



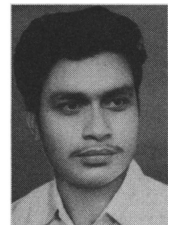
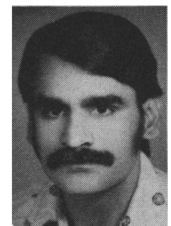
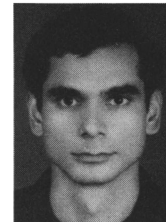
## AUTHORS — JULY 1987

### FISSION REACTORS

#### TOMOGRAPHIC RECONSTRUCTION OF THE DENSITY FIELD USING RADIAL POLYNOMIALS

**R. K. S. Rathore** (top) [PhD, Indian Institute of Technology (IIT), Delhi, India, 1973; DSc, Delft, Netherlands, 1974] is an assistant professor of mathematics at IIT, Kanpur, India. His broad interests lie in various aspects of approximation theory, numerical analysis, and linear algebra. His current activities are in the areas of image processing and computerized tomography. **P. Munshi** (center) (MS, Ohio State University, 1979) is a lecturer in the nuclear engineering program at IIT, Kanpur, India. His areas of interest are two-phase flow, reactor safety, and tomographic systems. **I. D. Dhariyal** (bottom) (PhD, Ohio State University, 1977) is an assistant professor of mathematics at IIT, Kanpur, India. His research interests are multiple decisions, ranking and selection, and tomography. **S. T. Swamy** (photo not available) (M. Tech., IIT Kanpur, India, 1985) is a software consultant in Tirichirapalli, India. His areas of interest are systems programming and instrumentation.

*R. K. S. Rathore*  
*P. Munshi*  
*I. D. Dhariyal*  
*S. T. Swamy*



### NUCLEAR SAFETY

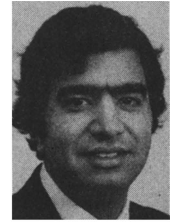
#### INCREASING DIESEL START TIME FOR A BOILING WATER REACTOR (BWR/6) USING THE NEW EMERGENCY CORE COOLING SYSTEM APPROACH

**R. Muralidharan** (right) (PhD, mechanical engineering, Imperial College of Science & Technology) is with the General Electric Company, where, over the past 20 years, he has been involved in solving heat and mass transfer problems associated with power generation and conversion equipment. His current work is on boiling water reactors, including the modeling of aerosol scrubbing phenomena associated with the release of fission products through the suppression pool under severe accident conditions.

*R. Muralidharan*  
*V. K. Chexal*



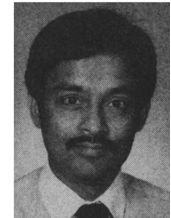
**V. K. (Bindi) Chexal** (right) (BS, mechanical engineering, Thapar Institute of Technology, India, 1970; MS, mechanical engineering, Georgia Institute of Technology, 1972) is a subprogram manager in the Nuclear Safety Analysis Center, Nuclear Power Division of the Electric Power Research Institute (EPRI). Currently, he has two matrix management assignments, emergency core cooling systems and piping integrity. From 1975 to 1977, he worked for the Atomic Energy of Canada, Ltd., and before joining EPRI, he spent 5 years with Quadrex Corporation.



**EVACUATION RISKS: QUANTIFICATION AND APPLICATION TO EVACUATION SCENARIOS OF NUCLEAR POWER PLANTS**

**Warren F. Witzig** (top) (BS, electrical engineering, Rensselaer Polytechnic Institute, 1942; MS, electrical engineering, 1944, and PhD, physics, 1952, University of Pittsburgh) is professor emeritus of nuclear engineering at the Pennsylvania State University. His special interests include fuel management, reactor design, nuclear safety and licensing, and environmental problems associated with radioactive waste. **Sunil D. Weerakkody** (BSc, mechanical engineering, University of Moratuwa, Sri Lanka, 1980; MS, 1984, and PhD, 1986, nuclear engineering, Pennsylvania State University) is a staff engineer at the NUS Corporation. His special interests include emergency planning, risk assessments and their applications, and thermal hydraulics.

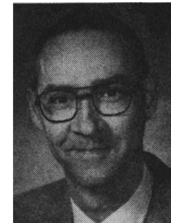
*Warren F. Witzig  
Sunil D. Weerakkody*



**ORGANIC IODIDE FORMATION DURING SEVERE ACCIDENTS IN LIGHT WATER NUCLEAR REACTORS**

**Edward C. Beahm** (top right) (PhD, chemistry, Pennsylvania State University, 1973) joined the Oak Ridge National Laboratory (ORNL) in 1974. Since 1983, he has been studying the chemistry and transport of fission products in light water reactor containments. **Yun-ming Wang** (top left) (MS, chemistry, Chung Cheng Institute of Technology, Taiwan, 1980) was a guest scientist at ORNL in 1986. He is a staff member of the Nuclear Chemistry Division of the Institute of Nuclear Energy Research, Taiwan. **Simon J. Wisbey** (bottom right) (BSc, chemistry, University of Bristol, United Kingdom, 1979) was a guest scientist at ORNL in 1986. He joined the staff at Harwell Atomic Energy Research Establishment in 1979, where he has worked on plutonium chemistry related to fuel reprocessing and on assessment of waste repository sites. **William E. Shockley** (bottom left) is a senior science technologist with 40 years of experience at ORNL. Much of his work has been in developing ion exchange techniques and processes for the retention of iodine in reprocess wastes.

*Edward C. Beahm  
Yun-ming Wang  
Simon J. Wisbey  
William E. Shockley*



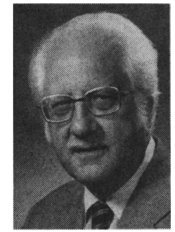
**A RATIONAL MODEL FOR THE OFF-SITE PROTECTIVE ACTION SELECTION DURING NUCLEAR REACTOR ACCIDENTS**

**Sunil D. Weerakkody** (right) [BSc, mechanical engineering, University of Moratuwa, Sri Lanka, 1980; MS, 1984, and PhD, 1986, nuclear engineering, Pennsylvania State University (PSU)] is a staff engineer at the NUS Corporation. His special interests

*Sunil D. Weerakkody  
Warren F. Witzig*



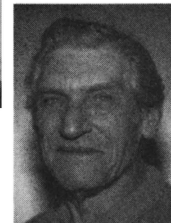
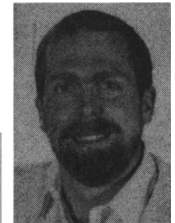
include emergency planning, risk assessments and their applications, and thermal hydraulics. **Warren F. Witzig** (right) (BS, electrical engineering, Rensselaer Polytechnic Institute, 1942; MS, electrical engineering, 1944, and PhD, physics, 1952, University of Pittsburgh) is professor emeritus of nuclear engineering at PSU. His special interests include fuel management, reactor design, nuclear safety and licensing and environmental problems associated with radioactive waste.



### MEASUREMENTS OF CAPILLARY PRESSURE IN URANIA DEBRIS BEDS

**Alfred W. Reed** (top) (PhD, mechanical engineering, Massachusetts Institute of Technology) has worked at Sandia National Laboratories (SNL) since 1976 in the areas of heat transfer and fluid flow. His current interests are in material interactions in severe fuel damage accidents. **Herbert Meister** (center) (PhD, physics, Technical University of Munich, Federal Republic of Germany, 1962) is a principal scientific officer of the Commission of the European Communities and is headquartered at the Joint Research Centre, Ispra, Italy. From 1981 to 1984, he was delegated to SNL in Albuquerque, New Mexico to participate in a series of in-pile experiments on reactor core debris coolability. He is presently involved in the European post-accident heat removal program. **Daniel J. Sasmor** (bottom) [PhD, physical chemistry, Western Reserve University (now known as Case-Western Reserve University), 1951] has worked at SNL since 1960. He is currently working in SNL's reactor safety experimental program.

*Alfred W. Reed  
Herbert Meister  
Daniel J. Sasmor*

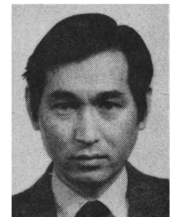
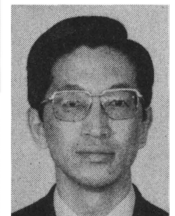
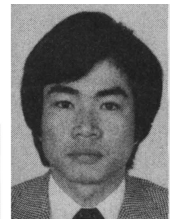


### CHEMICAL PROCESSING

### APPLICATION OF CARBOXYLIC ACID CATION EXCHANGE RESIN TO WATER PURIFICATION IN NUCLEAR POWER PLANTS

**Masami Matsuda** (top right) (BS, 1977, and MS, 1979, electronics, Osaka University, Japan) is a researcher at the Energy Research Laboratory (ERL), Hitachi, Ltd. He has developed volume reduction systems of radioactive wastes, and his primary areas of interest are radioactive waste management and reactor water chemistry. **Kiyomi Funabashi** (top left) (Hitachi Technical College, Japan, 1974) is a researcher at ERL where he is involved in adsorption chemistry and the development of a radioactive waste treatment system. **Fumio Kawamura** (center right) (BS, chemical engineering, Gunma University, Japan, 1970; MS, 1972, and Dr. Eng., 1976, Tohoku University, Japan) is a chief researcher at ERL. He specializes in transport phenomena and is currently working in the field of radioactive waste management and fuel reprocessing. **Shunsuke Uchida** (bottom left) (BS, physics, Osaka University, Japan, 1964; Dr. Eng., University of Tokyo, Japan, 1979) is a department manager at ERL. He has worked in radiation reduction programs for boiling water reactor plants and is currently involved in material science and radioactive waste management. **Katsumi Ohsumi** (bottom right) (BS, nuclear engineering, Osaka University, Japan, 1970) is a chief engineer at Hitachi Works, Hitachi, Ltd. His work has been in chemical and radiological engineering of reactor water chemistry.

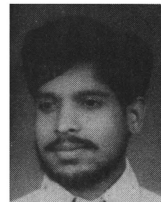
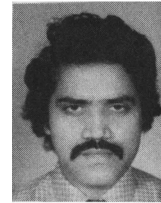
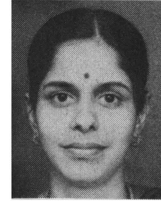
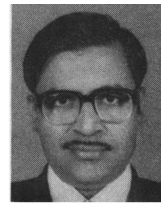
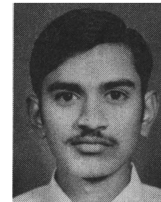
*Masami Matsuda  
Kiyomi Funabashi  
Fumio Kawamura  
Shunsuke Uchida  
Katsumi Ohsumi*



## DIRECT DISSOLUTION OF NUCLEAR MATERIALS FOR CHEMICAL QUALITY CONTROL

**Keshav Chander** (top right) (MSc, chemistry, Bombay University, India, 1978) has worked at Bhabha Atomic Research Centre (BARC) since 1967. Chemistry of actinide complexes and electrochemical techniques are his areas of interest. **Bharatkumar N. Patil** (top left) (BSc, Karnataka University, Dharwar, India, 1970) is involved in chemical analysis of fuel materials. **Jayshree V. Kamat** (center right) (MSc, chemistry, Bombay University, India, 1980) is engaged in the preparation of working standards required in connection with chemical quality control of fuels. **Nandakumar B. Khedekar** (center left) (BSc, University of Poona, Pune, India, 1977) is involved in the standardization of electrochemical techniques in chemical analysis of fuels. **Remani B. Manolkar** (bottom right) (BSc, Karnataka University, Dharwar, India, 1975) is working in areas related to analytical chemistry of uranium and plutonium. **Surendranath G. Marathe** (bottom left) (PhD, chemistry, University of Poona, Pune, India, 1968) joined BARC in 1967 and worked in the areas of nuclear and radiochemistry in-line analytical instrumentation. He is responsible for research and development work related to chemical quality control of nuclear fuels.

*Keshav Chander  
Bharatkumar N. Patil  
Jayshree V. Kamat  
Nandakumar B.  
Khedekar  
Remani B. Manolkar  
Surendranath G.  
Marathe*

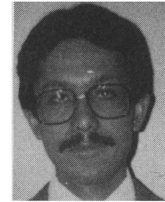
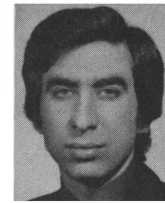


## RADIOACTIVE WASTE MANAGEMENT

## PROPERTIES OF NOVEL SELECTIVE ION EXCHANGERS FOR NUCLEAR PLANT APPLICATIONS

**Aaron Barkatt** (top right) (PhD, chemistry, The Hebrew University of Jerusalem, 1974) is a research professor at the Vitreous State Laboratory (VSL). He is interested in the surface chemistry of silicate glasses; he has used this to explore the chemical durability of glass and the development of glass optical fiber sensors. **Karen A. Michael** (top left) (BS, University of Maryland, 1983) has been a research assistant and graduate student at VSL since 1984. **William Sousanpour** (second from top right) [MS, chemistry, Catholic University of America (CUA), 1980] joined the VSL in 1980 and is doing research in the development of tests and models and analyzing the mechanisms of leaching processes involving nuclear waste form materials. **Alisa Barkatt** (center left) joined the VSL of CUA as a research assistant in 1978. **L. Miguel Penafiel** (third from top right) (MS, electrical engineering, CUA, 1980) is a research associate at the VSL of CUA. He joined the VSL in 1980 and is currently doing research in the area of optrode development. **Pedro B. Macedo** (bottom left) (PhD, physics, CUA, 1961) is a professor of physics and co-director of the VSL at CUA. His activity has been mainly in the molecular engineering of new glass materials for novel applications. **Herbert G. Sutter** (bottom right) (PhD, chemistry, Brown University, 1969) is the technical director of Duratek Corporation. His research specialties are ion exchange, vitrification of nuclear waste, and analytical chemistry.

*Aaron Barkatt  
Karen A. Michael  
William Sousanpour  
Alisa Barkatt  
L. Miguel Penafiel  
Pedro B. Macedo  
Herbert G. Sutter*



**DEVELOPMENT OF MATERIALS FOR FAST REACTOR FUEL ASSEMBLIES**

**D. J. Sherwood** (top) [BS, physics, Washington State University (WSU), 1980] is currently working for a PhD degree in engineering science at WSU. From 1982 to 1986 he provided management support for fast reactor technology programs at the Richland Operations Office of the U.S. Department of Energy. **A. L. Ward** (center) (BS, physical metallurgy, WSU, 1968) conducted applied research for 11 years in the area of radiation damage in structural materials. For the past 7 years he has been involved in the program management area of liquid-metal reactor technology development at the Westinghouse Hanford Company. **G. D. Johnson** (bottom) (MS, materials science, WSU, 1973) is currently the manager of materials engineering at Westinghouse Hanford Company. His research and management activities have centered on the development and characterization of materials for nuclear systems.

*D. J. Sherwood*  
*A. L. Ward*  
*G. D. Johnson*

