

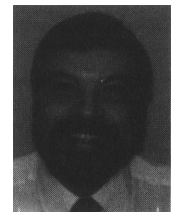


## AUTHORS — JANUARY 1986

### FISSION REACTORS

#### **A DYNAMIC MODEL FOR PREDICTING CANDU PRESSURIZER PERFORMANCE**

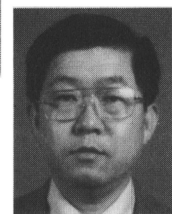
*Samir M. Sami*



**Samir M. Sami** (BScA, MScA, and PhD, Université de Montréal, 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, Université de Sherbrooke, and is involved in various projects with Atomic Energy of Canada Ltd., Westinghouse Canada Ltd., Rolls-Royce Canada, and Canairtech Inc.

#### **SOME TRANSIENT CHARACTERISTICS OF PIUS**

*Yoshiro Asahi  
Hiroaki Wakabayashi*



**Yoshiro Asahi** (top) (PhD, nuclear engineering, University of Michigan, 1972) has worked in the fields of nuclear reactor dynamics and nuclear power plant safety at Japan Atomic Energy Research Institute, Tokai-mura, Japan. His current interest centers on the development of nuclear power plant models. **Hiroaki Wakabayashi** (DE, nuclear engineering, University of Tokyo, Japan, 1968) has worked on a lead spectrometer, the research reactor YAYOI, and nuclear policy at Nuclear Engineering Research Laboratory (University of Tokyo), Tokai-mura, Japan. His current interest centers on the international development of inherently safe reactors.

### NUCLEAR SAFETY

#### **ANALYTICAL SIMULATION OF BOILING WATER REACTOR PRESSURE SUPPRESSION POOL SWELL**

*Stanley K. Widener*



**Stanley K. Widener** (BS, mechanical engineering, University of Texas, Austin, 1981; MS, mechanical engineering, University of California, Berkeley, 1984) worked with the General Electric Company (GE), Nuclear Energy Division, until 1984, principally in boiling water reactor containment design and analysis. He currently works with GE's Aircraft Engine Group.

## IODINE-131 SPECIES IN THE STACK EXHAUST AIR OF LIGHT WATER REACTORS

*H. Deuber*

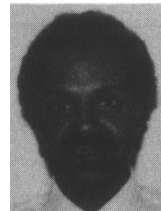


## INVESTIGATIONS ON THE RETENTION OF ELEMENTAL RADIOIODINE BY ACTIVATED CARBONS AT HIGH TEMPERATURES

**H. Deuber** [PhD, physical chemistry, University of Bonn, Federal Republic of Germany (FRG), 1972] has worked at the Karlsruhe Nuclear Research Center, FRG, since 1973. His primary research interest is in the field of nuclear filter technology.

## INTERPRETATION OF CONDUCTIVITY-SENSITIVE LIQUID-LEVEL TRANSDUCER SIGNALS IN A SMALL BREAK LOSS-OF-COOLANT ACCIDENT TEST FACILITY

*Yassin A. Hassan*

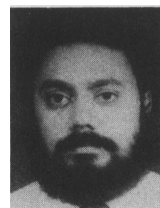


**Yassin A. Hassan** (BS, nuclear engineering, University of Alexandria, Egypt, 1968; MS, 1975, and PhD, 1979, nuclear engineering, University of Illinois) is a principal engineer at the Nuclear Power Division, Babcock & Wilcox Company, Lynchburg, Virginia. His interests include computational methods, testing and analysis in fluid flow, and heat transfer.

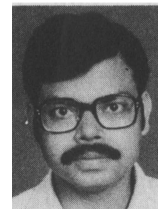
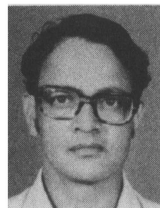
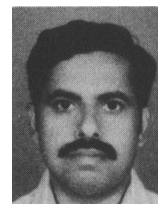
## NUCLEAR FUELS

## DEVELOPMENT AND FABRICATION OF 70% PuC-30% UC FUEL FOR THE FAST BREEDER TEST REACTOR IN INDIA

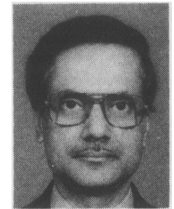
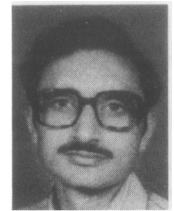
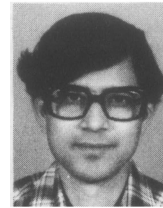
*Chaitanyamoy Ganguly*  
*Parameshwar Venkappa Hegde*  
*Gyan Chand Jain*  
*Uddharan Basak*  
*Radhey Shyam Mehrotra*  
*Sukomal Majumdar*  
*Pradip Ranjan Roy*



**Chaitanyamoy Ganguly** (top right) (BE, metallurgy, 1968, and PhD, metallurgical engineering, 1980, University of Calcutta, India) is the head of the Advanced Fuels Section of the Radiometallurgy Division, Bhabha Atomic Research Centre (BARC). He is currently on appointment to the Institute for Chemical Technology at the Nuclear Research Center, Jülich, Federal Republic of Germany, working on the gel-pelletization process for thorium-uranium fuels. His areas of interest include development and fabrication of plutonium-based liquid-metal fast breeder reactors (LMFBRs) and thorium-based pressurized heavy-water reactor (PHWR) advanced fuels. **Parameshwar Venkappa Hegde** (top left) (BSc, chemistry, Karnataka University, India, 1970; AMIE, metallurgical engineering, Institution of Engineers, India, 1975) is currently working as a scientific officer in the Radiometallurgy Division, BARC. He is presently engaged in the development and fabrication of plutonium-rich uranium-plutonium mixed-carbide fuel for the Fast Breeder Test Reactor (FBTR) and the development of thorium-bearing fuel for PHWRs. **Gyan Chand Jain** (bottom right) (MSc, chemistry, University of Indore, India, 1967) is currently working on process control, development, and production of carbide fuel pellets in the Radiometallurgy Division, BARC, as a senior scientist. His interests include process control analysis, fuel development, and material accounting in plutonium-fuel production technology. **Uddharan Basak** (bottom left) (BE, metallurgical engineering, Jadavpur University, India, 1976) is a scientific officer in the Radiometallurgy Division at BARC. He is associated with the development and fabrication of mixed-carbide fuel for the



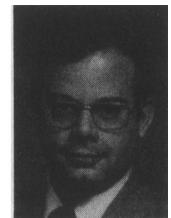
FBTR. His research interests include property evaluation of carbide fuel and development of thorium fuels for PHWRs. **Radhey Shyam Mehrotra** (top) (BSc, Allahabad University, 1965; BE, metallurgical engineering, University of Roorkee, 1969) is a senior scientific officer/engineer currently working on the development and fabrication of carbide fuels for the FBTR in the Radiometallurgy Division, BARC. His research activities include development of low- and high-plutonium-bearing oxide as well as nonoxide fuel pellets for LMFBRs and kinetics studies in the preparation and sintering of carbides of thorium and uranium. **Sukomal Majumdar** (center) (BE, metallurgy, University of Calcutta, India, 1967) is presently the officer-in-charge of the carbide fuel pellet fabrication facility. His interests include development and fabrication of plutonium-bearing oxide and nonoxide fuels for thermal and fast reactors, thermophysical property evaluation of fuel material, and alpha active solid waste management. **Pradip Ranjan Roy** (bottom) (BE, metallurgical engineering, Calcutta University, India, 1958) is currently the associate director, Metallurgy Group, BARC. His areas of interest include nuclear fuels technology, plutonium metallurgy, and powder metallurgy.



#### A NEW GASEOUS GAP CONDUCTANCE RELATIONSHIP

**David A. Wesley** (top) (PhD, mechanical engineering, University of Minnesota, 1976) formerly worked at Sandia National Laboratories, and since 1980 has worked for Babcock & Wilcox Company. He is currently a principal engineer in the thermal-hydraulic unit of the Nuclear Power Division and technical manager in charge of the TAC03 fuel pin thermal analysis code development program. **M. Michael Yovanovich** (BSc, Queen's University, Canada, 1957; MSc, State University of New York, Buffalo, 1963; ME, 1966, and ScD, 1967, mechanical engineering, Massachusetts Institute of Technology) has been with the University of Waterloo, Ontario, Canada, since 1969. His interest in various aspects of thermal contact resistance modeling and experiment began in 1963. Recently, he received the American Institute of Aeronautics and Astronautics Thermophysics Award "for his sustained and significant contributions to the advancement in the fundamentals of thermal contact resistance theory." He is a consultant to various aerospace, nuclear, and microelectronics industries within Canada and the United States.

*David A. Wesley  
M. Michael Yovanovich*

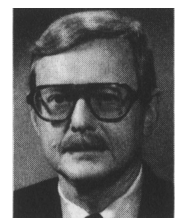


#### RADIOACTIVE WASTE MANAGEMENT

#### A BOUNDING ASSESSMENT METHOD FOR CORRELATING MEASURED GAS LEAKS TO THE POSSIBLE LOSS OF PARTICULATE CONTENTS FROM RADIOACTIVE MATERIALS PACKAGES

**John A. Andersen** (BME, University of Florida, 1955) has worked in the area of air transport crashworthy packagings for plutonium at Sandia National Laboratories, and has developed certified shipping packages for the U.S. Nuclear Regulatory Commission, the U.S. Department of Energy, and the International Atomic Energy Agency.

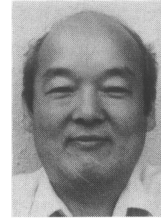
*John A. Andersen*



## VOLATILIZATION OF CESIUM FROM NUCLEAR WASTE GLASS IN A CANISTER

**Hiroshi Kamizono** (top right) (BS, applied chemistry, Saitama University, Japan, 1974; MS, 1976, and Dr. Sci., 1979, materials science, Tokyo Institute of Technology, Japan) has been with the High-Level Waste Management Laboratory at the Japan Atomic Energy Research Institute (JAERI) since 1980. His recent work includes the study of the safety and stability of nuclear waste glass, e.g. leachability, volatility, and thermal shock resistance. **Shizuo Kikkawa** (top left) (graduate, Tokyo Electrical High School, Japan) has specialized in the operation of hot cells at JAERI. His current interests center on the volatility and leachability of nuclear waste glass. **Shingo Tashiro** (bottom right) (BS, chemistry, Kyushu University, Japan, 1960) is the general manager of the Waste Safety Testing Facility Operation Division at JAERI. He is currently interested in the examination of the properties of nuclear waste glass. **Haruto Nakamura** (bottom left) (BS, 1957, and Dr.Sci., 1970, applied chemistry, Nagoya University, Japan) has worked at JAERI since 1970 and is currently general manager of the High-Level Waste Management Laboratory. His interests include study of the properties of nuclear waste glass and the nuclide migration in geologic formations.

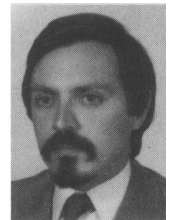
*Hiroshi Kamizono  
Shizuo Kikkawa  
Shingo Tashiro  
Haruto Nakamura*



## DISPOSAL OF HIGH-LEVEL RADIOACTIVE WASTE IN ARGILLACEOUS FORMATIONS: *IN SITU* AND LABORATORY HEATING EXPERIMENTS

**Emilio Tassoni** (top) (doctorate, mechanical engineering, University of Rome, Italy, 1973) is a researcher at the Casaccia Nuclear Centre, Italian Commission for Nuclear and Alternative Energy Sources (ENEA). His interests include geological disposal of radioactive waste, safety analysis, thermal and mechanical behavior of clay rocks, and computer applications. **Ferruccio Gera** (doctorate, geology, University of Rome, Italy, 1961) is currently with ISMES S.p.A., Rome, Italy, where he is supervisor of activities dealing with waste management. Previously, he worked at Oak Ridge National Laboratory, ENEA in Rome, and the Nuclear Energy Agency of the Organization for Economic Cooperation and Development, Paris. His areas of interest include radioactive and toxic waste disposal, safety assessment, and environmental impacts of disposal systems.

*Emilio Tassoni  
Ferruccio Gera*

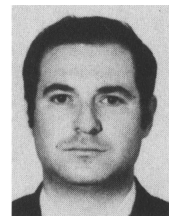


## RADIOISOTOPES AND ISOTOPES

## DERIVATIVE METHOD FOR EDGE ENHANCEMENT IN RADIOGRAPHIC TESTING

**Dov Ingman** (top) (PhD, Laboratory of Applied Nuclear Physics, Institute of Solid Fuel Materials, Moscow) presently works in the areas of nuclear gauging, nondestructive testing, reliability, random processes, and neutron physics. **Amos Notea** (PhD, nuclear science, Hebrew University, Jerusalem) is a professor and head of the nondestructive evaluation laboratory for Technion in Haifa, Israel. He is currently working on quantitative three-dimensional radiography for industrial applications.

*Dov Ingman  
Amos Notea*



**ON THE FRICTION FACTOR FOR FULLY DEVELOPED TURBULENT SODIUM FLOW IN SMALL SMOOTH TUBES***Naozo Hattori*  
*Kenji Hayashi*

**Naozo Hattori** (top) (BS and MS, physics, Science University of Tokyo, Japan; PhD, aeronautical engineering, University of Tokyo, Japan) worked in the areas of fluid dynamics and heat transfer at the Institute of Space and Aeronautical Science, University of Tokyo, from 1965 to 1976. He presently works at Power Reactor and Nuclear Fuel Development Corporation (PNC) and is interested in the natural circulation related to fast breeder reactor safety. **Kenji Hayashi** (mechanics, Hitachi Technical High School, Japan, 1973) is a senior technician at O-arai Engineering Center of PNC.

