



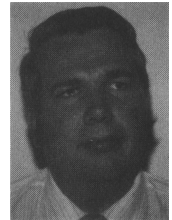
## AUTHORS — FEBRUARY 1986

### FISSION REACTORS

#### A PROCESS INHERENT ULTIMATE SAFETY BOILING WATER REACTOR

**Charles W. Forsberg** [BSc, chemical engineering, University of Minnesota, 1969; MS, nuclear engineering, Massachusetts Institute of Technology (MIT), 1972; ScD, nuclear engineering, MIT, 1974] has worked at Oak Ridge National Laboratory on a variety of fuel cycle and reactor problems. His current interests include fluidics and passive safety systems for power reactors and hazardous waste management (chemical and radioactive).

*Charles W. Forsberg*



#### MODELING OF BORON CONTROL DURING POWER TRANSIENTS IN A PRESSURIZED WATER REACTOR

**Philippe Mathieu** [electromechanical civil engineer, 1968, and PhD, 1975, University of Liège (UL), Belgium] has worked in the fields of energetics, heat and mass transfer, nonequilibrium thermodynamics, and uranium isotope separation at UL. He has modeled nonlinear heat transfers in the fuel elements of a nuclear reactor during power transients. He currently teaches nuclear engineering and thermodynamics in the Department of Applied Science at UL. A photograph and biography were not available for **E. Distexhe**.

*Philippe Mathieu  
E. Distexhe*

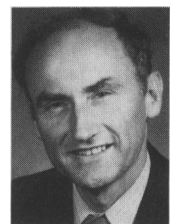


### NUCLEAR SAFETY

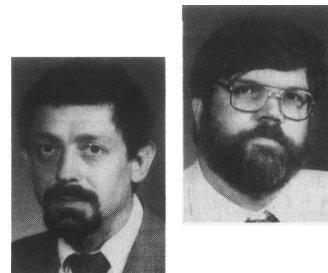
#### MODELING OF MULTIPLE-COMPONENT AEROSOLS — SENSITIVITIES TO ASSUMPTIONS

**Hans Jordan** (right) (AB, physics, Johns Hopkins University, 1961; MS, chemical engineering, Ohio State University, 1984) has been with Battelle's Columbus Division (BCD) since 1975. During that time he has been responsible for the development of several large computer codes concerned with the fate of

*Hans Jordan  
Philip M. Schumacher  
Vladimir Kogan*



radionuclides released during core melt accidents. His interests center on experimental and theoretical aerosol mechanics research. **Philip M. Schumacher** (top) (BS, chemistry, University of California, Davis, 1969) has been with BCD since 1970. He has worked on computer modeling of aerosol behavior since 1979. **Vladimir Kogan** (bottom) (MS, mathematical physics, USSR) is currently interested in research related to aerosol mechanics.

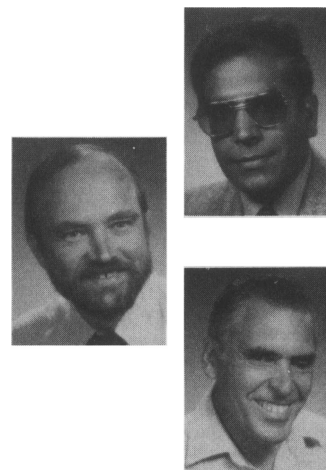


**RADIOACTIVE WASTE  
MANAGEMENT**

**SOURCE TERM CHARACTERIZATION FOR THE MAXEY FLATS LOW-LEVEL RADIOACTIVE WASTE DISPOSAL SITE**

**Ramesh Dayal** (top) (Diplom, Stuttgart Technical University, Federal Republic of Germany, 1968; PhD, geochemistry, Dalhousie University, Halifax, Nova Scotia, Canada, 1974) was a faculty member of the Marine Sciences Center at the State University of New York, Stony Brook, prior to joining the Department of Nuclear Energy at Brookhaven National Laboratory (BNL) in 1979. He is currently the leader of the Low-Level Radioactive Waste Group in the Nuclear Waste Management Division and is involved in research on geochemical aspects of radioactive waste disposal. **Richard F. Pietrzak** (center) (MS, chemistry, Miami University, 1965) is a chemistry associate in the Department of Nuclear Energy at BNL. His current interests include studies of low-level waste disposal sites and the development of waste solidification materials. **James H. Clinton** (bottom) (MS, biology, University of Illinois) is a chemistry associate in the Department of Nuclear Energy at BNL, and is currently involved in leaching studies of low-level radioactive waste forms.

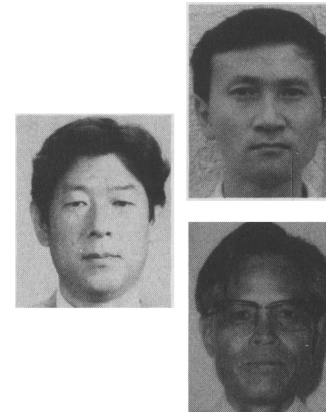
*Ramesh Dayal  
Richard F. Pietrzak  
James H. Clinton*



**A MELT REFINING METHOD FOR URANIUM-CONTAMINATED ALUMINUM**

**Tatsuhiko Uda** (top) (BS, pharmacology, 1970, and MS, agricultural technology, 1972, Kyoto University, Japan) has been working at the Energy Research Laboratory, Hitachi, Ltd., on uranium handling and measurement problems. **Hajime Iba** (center) (BS, 1964, and MS, 1966, applied chemistry, Tohoku University, Japan) has been working at the Energy Research Laboratory, Hitachi, Ltd., on uranium handling and fuel reprocessing technology. **Kiyoshi Hanawa** (bottom) is the acting chief of a uranium enrichment engineering section at the Power Reactor and Nuclear Fuel Development Corporation, Tokai Works. His current research is on the waste management of uranium-contaminated materials produced by enrichment plants.

*Tatsuhiko Uda  
Hajime Iba  
Kiyoshi Hanawa*



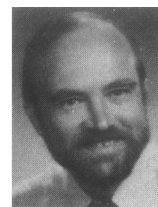
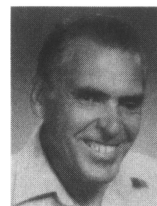
**OXIDATION-INDUCED GEOCHEMICAL CHANGES IN TRENCH LEACHATES FROM THE MAXEY FLATS LOW-LEVEL RADIOACTIVE WASTE DISPOSAL SITE**

**Ramesh Dayal** (right) (Diplom, Stuttgart Technical University, Federal Republic of Germany, 1968; PhD, geochemistry, Dalhousie University, Halifax, Nova Scotia, Canada, 1974) was a

*Ramesh Dayal  
Richard F. Pietrzak  
James H. Clinton*



faculty member of the Marine Sciences Center at the State University of New York, Stony Brook, prior to joining the Department of Nuclear Energy at Brookhaven National Laboratory (BNL) in 1979. He is currently the leader of the Low-Level Radioactive Waste Group in the Nuclear Waste Management Division and is involved in research on geochemical aspects of radioactive waste disposal. **Richard F. Pietrzak** (top) (MS, chemistry, Miami University, 1965) is a chemistry associate in the Department of Nuclear Energy at BNL. His current interests include studies of low-level waste disposal sites and the development of waste solidification materials. **James H. Clinton** (bottom) (MS, biology, University of Illinois) is a chemistry associate in the Department of Nuclear Energy at BNL, and is currently involved in leaching studies of low-level radioactive waste forms.



### STATIONARY TRANSPORT OF DISSOLVED SPECIES IN THE BACKFILL SURROUNDING A WASTE CANISTER IN FISURED ROCK: SOME SIMPLE ANALYTICAL SOLUTIONS

*Ivars Neretnieks*

**Ivars Neretnieks** is a professor of chemical engineering at the Royal Institute of Technology in Stockholm, Sweden. He has been doing research in the field of radionuclide migration in geologic media since 1977. He is a consultant to the Swedish Nuclear Fuel Supply Company and the Swiss equivalent, NAGRA, and has participated in the recent safety analyses performed by both organizations. He is principal investigator of two projects in the internationally funded STRIPA project, where he makes *in situ* experiments of tracer migration in crystalline rock at large depths (360 m).



## RADIOISOTOPES AND ISOTOPES

### TRACK-ETCH NEUTRON RADIOGRAPHY WITH A NEW BORON CARBIDE CONVERTER

**Genichi Matsumoto** (top right) (BS, physics, Tokyo University, Japan, 1946) has been an assistant professor at Nagoya University since 1963. From 1956 to 1963, he served on the technical staff of the Research Reactor Division of the Japan Atomic Research Institute. His recent activities include nuclear safety engineering, neutron radiography (especially neutron television), and heat pipe technology. **Naohide Murata** (top left) (MS, nuclear engineering, Nagoya University, Japan, 1981) is now an examiner at the Japanese Government Patent Office. **Soju Suzuki** (center right) (MS, nuclear engineering, Nagoya University, Japan, 1976) is presently an assistant senior engineer at the Experimental Reactor Division, O-arai Engineering Center, the Power Reactor and Nuclear Fuel Development Corporation. **Mitsugu Matsumoto** (center left) (MS, nuclear engineering, Nagoya University, Japan, 1978) is now in the Invention Division, Promotion Bureau of the Science and Technology Agency, Japan. **Kohei Ohkubo** (bottom right) (BS, mechanical engineering, Aichi Institute of Technology, Japan, 1975) is a staff member of the Department of Nuclear Engineering, Nagoya University. **Yasushi Ikeda** (bottom left) (BS, physics, 1964, and PhD, nuclear engineering, Nagoya University, Japan) has been using mass spectrometry to investigate the thermodynamics of nuclear materials and has been doing research work in neutron radiography.

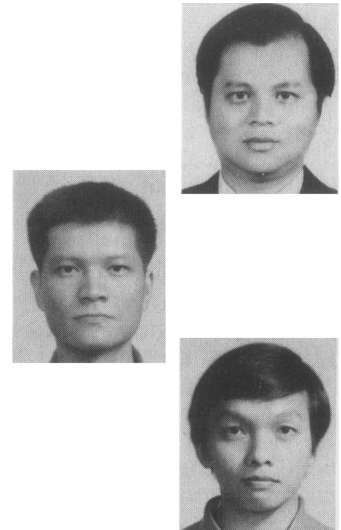
*Genichi Matsumoto  
Naohide Murata  
Soju Suzuki  
Mitsugu Matsumoto  
Kohei Ohkubo  
Yasushi Ikeda*



### DESIGN OF A NEW COUNTING CELL FOR MONITORING $^{85}\text{Kr}$ IN ENVIRONMENTAL AIR SAMPLES

**Jiunn-Guang Lo** (top) (BS, chemistry, National Chung Hsin University, Taiwan, 1965; MS, radiochemistry, University of California, Irvine, 1972) is a professor in the Institute of Nuclear Science, National Tsing Hua University, where he teaches analytical chemistry, radiochemistry, and radioisotope applications. His recent research activities include radioisotope applications in kinetic chemistry (such as hot atom chemistry and catalytic reactions), radioactive gas measurement in environmental air samples, and neutron activation analysis, including PGAA. **Dar-Yeong Chen** (center) (BS, nuclear engineering, 1981, and MS, Institute of Nuclear Science, 1983, National Tsing Hua University, Taiwan) is a health physicist in the Health Physics Division of Tai-Power Nuclear Power Station in Chin-Shan. **Jen-Zen Wang** (bottom) (BS, physics, Tunghai University, Taiwan, 1979; MS, Institute of Nuclear Science, National Tsing Hua University, Taiwan, 1983) works in the Health Physics Division of Tai-Power Nuclear Power Station in Kuo-Sheng.

*Jiunn-Guang Lo  
Dar-Yeong Chen  
Jen-Zen Wang*



### NONPROLIFERATION ISSUE OF THE PEBBLE BED HIGH-TEMPERATURE REACTOR

**E. Teuchert** (top) (PhD, theoretical physics, University of Cologne, Federal Republic of Germany) has been employed by Kernforschungsanlage Jülich since 1964. His current interests are computer code system development and analysis of high-temperature reactors (HTRs) and HTR fuel cycles, especially of the pebble bed reactor. **K. A. Haas** is a commercial clerk and applied programmer. He is working on HTR core design and fuel cycles serving the reactor codes, and performing computer graphics.

*E. Teuchert  
K. A. Haas*

