



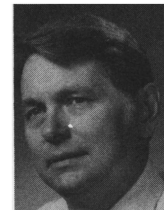
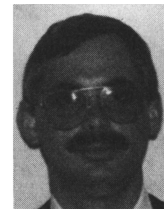
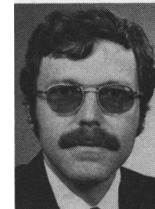
AUTHORS — OCTOBER 1986

FISSION REACTORS

EFFECT OF PRESSURIZER SIZING ON THE TURBINE TRIP TRANSIENT

Douglas A. Brownson (top) (MS, nuclear engineering, The Pennsylvania State University, 1983) is employed by Commonwealth Edison Company of Chicago in the development, implementation, and maintenance of computer codes used for light water reactor (LWR) analysis. **Anthony J. Baratta** (center) (PhD, physics, Brown University, 1979) is an associate professor of nuclear engineering at The Pennsylvania State University. Research interests include LWR transient analysis and neutron transport. **Gordon E. Robinson** (bottom) (PhD, mechanical engineering, The Pennsylvania State University, 1970) is an associate professor of nuclear engineering at The Pennsylvania State University. His research interests are in two-phase flow and thermal hydraulics of LWRs.

*Douglas A. Brownson
Anthony J. Baratta
Gordon E. Robinson*



A REDUCED-ORDER MODEL OF BOILING WATER REACTOR LINEAR DYNAMICS

José March-Leuba (BS, engineering, Universidad politécnica de Valencia, Spain, 1978; MS, nuclear engineering, 1982, and PhD, nuclear engineering, 1984, University of Tennessee) is associated with Oak Ridge National Laboratory. His work is mainly in the area of reactor dynamics, and he has been involved in the development of noise analysis techniques and in the calculation and measurement of boiling water reactor stability.

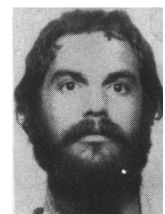
José March-Leuba



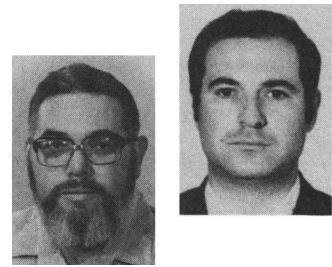
THE INFLUENCE OF NOISE ON EDGE DETERMINATION IN RADIOGRAPHY

Yossi Bushlin (right) (BA, physics, 1982, and MSc, nuclear engineering, 1985, Technion, Israel) is currently pursuing his PhD in the Department of Nuclear Engineering where he also works as an instructor. His current research is in the area of digital

*Yossi Bushlin
Dov Ingman
Y. Segal*



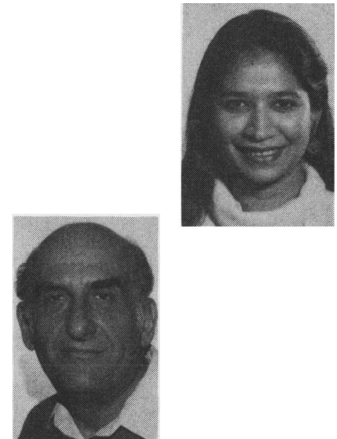
radiography. **Dov Ingman** (right) (PhD, Laboratory of Applied Nuclear Physics, Institute of Solid Fuel Materials, Moscow) works in the areas of nuclear gauging, nondestructive testing, reliability, random processes, and neutron physics. **Y. Segal** (left) (DSc, nuclear engineering, Technion—Israel Institute of Technology, Haifa, Israel) is a professor and head of the Department of Nuclear Engineering, Technion—Israel Institute of Technology. His main interests are in quantitative nondestructive testing methods with emphasis on radiography and tomography.



SUBCHANNEL VOID FRACTION PREDICTION VIA DRIFT-FLUX ANALYSIS

Hasna J. Khan (top) (BSc, mechanical engineering, Bangladesh University of Engineering and Technology, 1980; MS, nuclear engineering, 1982, and PhD candidate in nuclear engineering, University of Washington, Seattle) is involved in research on thermal hydraulics, two-phase-flow modeling, and boiling water reactor noise interpretation. **George Kosaly** (diploma, physics, 1957, and PhD, physics, R. Eotvos University, Budapest, Hungary, 1968) joined the solid state physics department of the Central Research Institute for Physics in 1960. From 1960 to 1967 he participated in extensive projects on slow neutron scattering in solids and liquids. In 1967, he joined the reactor physics department of the same institute, where from 1968 to 1976 he served as head of that department. His research interests involved reactor dynamics and power reactor noise diagnostics. In 1980 he joined the faculty of the University of Washington, Seattle, where he is now professor of mechanical and nuclear engineering. His current research interests are two-phase-flow theory, power reactor diagnostics, and the theory of turbulent combustion.

*Hasna J. Khan
George Kosaly*



ARKAS: A THREE-DIMENSIONAL FINITE ELEMENT PROGRAM FOR THE CORE-WIDE MECHANICAL ANALYSIS OF LIQUID-METAL FAST BREEDER REACTOR CORES

Masatoshi Nakagawa (BS, 1973, and MS, 1975, nuclear engineering, Osaka University, Japan) is a senior researcher at the reactor core department of the Research Laboratory at Nippon Atomic Industry Group Company, Ltd. His recent research includes the development of computational methods in the area of core mechanics such as core bowing and fuel bundle mechanical performance under irradiation in liquid-metal fast breeder reactors.

Masatoshi Nakagawa



FUEL CYCLES

A LONG-TERM PERSPECTIVE ON THE LIGHT WATER REACTOR FUEL CYCLE

M. A. Malik

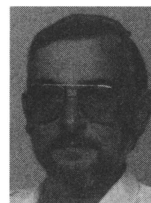
M. A. Malik (MSc, nuclear engineering, Centre for Nuclear Studies, Islamabad, Pakistan, 1979; MS, 1981, and PhD, 1985, nuclear engineering, Massachusetts Institute of Technology) recently joined the faculty of the Centre for Nuclear Studies where he teaches courses in the areas of nuclear fuel cycle and reactor design. His current research projects are in the field of nuclear fuel management.



THE ASSAY OF URANIUM AND PLUTONIUM IN REPROCESSING INPUT SOLUTIONS BY ISOTOPE DILUTION MASS SPECTROMETRY: RESULTS OF THE ISOTOPE DILUTION ANALYSIS MEASUREMENT EVALUATION PROGRAMS

Wolfgang Beyrich (top right) [PhD, physics, University of Marburg, Federal Republic of Germany (FRG), 1957] is a senior scientist of the Commission of the European Communities (Euratom), delegated to the Nuclear Research Center (NRC) at Karlsruhe in the FRG. He has had 17 years of experience in the application of mass spectrometry in research and industry, and since 1970 he has been responsible for the organization and evaluation of international intercomparison programs related to analyses of nuclear materials for safeguards. **Werner Golly** (top left) (Dipl.-Ing., electrical engineering, Technical University of Darmstadt, FRG, 1964) is a research staff member of the NRC. He has worked in several fields, including detection of defective fuel elements in nuclear reactors, safeguarding of special nuclear materials in the fuel cycle, and international intercomparison programs. He is currently engaged in applying near-real-time accountability to reprocessing facilities. **Gert Spannagel** (center right) (PhD, physics, University of Heidelberg, FRG, 1968) is a senior scientist of the NRC. He has worked in several areas, including radioecology, climatology, energy conversion techniques, cosmic rays, interplanetary material, and nuclear physics. He is currently engaged in mathematical modeling. **Paul De Bièvre** (center left) (PhD, Ghent University, Belgium, 1959) was an assistant/lecturer at Ghent University from 1959 to 1961. He joined the Central Bureau for Nuclear Measurements (CBNM) in 1961, where he has been a group leader for mass spectrometry since 1976. Since 1972 he has been a part-time professor in inorganic mass spectrometry at Antwerpen University. He has been a member of the IUPAC international committee on atomic weights and isotope abundances since 1971 and of its inorganic division committee since 1985. **Werner H. Wolters** (bottom right) worked for ~10 years in analytical research and production in industry. Since 1960 he has worked at the CBNM of the Commission of the European Communities in Belgium, where he is a member of the mass spectrometry group and is in charge of coordinating international measurement evaluation programs. **Willy Lycke** (bottom left) (degree, industrial engineer in nuclear chemistry, 1963) worked at the reprocessing plant of Eurochemic Mol for 2 years then joined Euratom in 1967, starting at TUI Karlsruhe on research and development for the purification of plutonium and americium. In 1970 he was transferred to CBNM Geel where he worked on the preparation of thin actinide layers. He is now in charge of preparing synthetic uranium isotope mixtures within the framework of the certification of uranium isotope reference materials for the European communities.

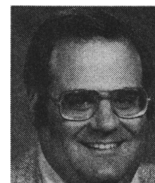
*Wolfgang Beyrich
Werner Golly
Gert Spannagel
Paul De Bièvre
Werner H. Wolters
Willy Lycke*



BEHAVIOR OF BREACHED PRESSURIZED WATER REACTOR SPENT-FUEL RODS IN AN AIR ATMOSPHERE BETWEEN 250 AND 360°C

Robert E. Einziger (right) (BS, physics, Georgia Institute of Technology, 1967; MS and PhD, physics, Rensselaer Polytechnic Institute, 1973) is currently a senior scientist at the Westinghouse

*Robert E. Einziger
Robert V. Strain*



Hanford Company, where he is studying spent fuel oxidation and the performance of light water reactor (LWR) spent fuel rods during dry interim storage and geologic disposal. **Robert V. Strain** (right) (BS, metallurgical engineering, Colorado School of Mines, 1964; MS, metallurgy, Iowa State University, 1966) is currently a member of the Irradiation Performance Group of the Materials Science and Technology Division at Argonne National Laboratory. His current interests are in the behavior of LWR core materials during accident conditions and the performance of LMF fuels operating after a cladding breach.



RADIOACTIVE WASTE
MANAGEMENT

A STUDY OF MINERAL ZEOLITE AS A NITROGEN OXIDES ADSORBENT FOR DISSOLVER OFF-GAS TREATMENT

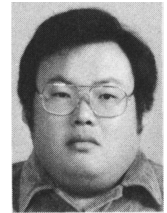
Hiromichi Fumoto (top right) (BS, MS, and PhD, 1983, nuclear chemical engineering, University of Tokyo, Japan) was a doctoral research associate at the Institute for Chemical Technology of Kernforschungsanlage Jülich (KFA) from 1979 to 1982 and a doctoral associate at the University of Tokyo from 1982 to 1983. Since 1983 he has been a senior researcher at the Industrial Research Institute, Japan, and his current interest is in the isotope separation process. **Shigekazu Sato** (top left) (BS and MS, biophysics, School of Hygienic Sciences, Kitazato University, Japan, 1974) has been a researcher at Industrial Research Institute, Japan, since 1974, making an experimental study of ammonia absorption, denitration, and water waste treatment. **Wataru Ito** (center right) (BS, chemistry, Science University of Tokyo, Japan, 1956) was a research fellow in the Department of Applied Chemistry, Faculty of Science, the University of Tokyo from 1956 to 1959 and has worked for the Industrial Research Institute, Japan, since 1959. He has studied methane cracking, radiation chemistry, and environmental chemistry. **Takaaki Tamura** (center left) (BS, MS, and PhD, 1957, chemistry, University of Tokyo, Japan) was an associate researcher from 1947 to 1961. He was a lecturer from 1961 to 1966, an associate professor from 1966 to 1971, and a professor from 1971 to 1983 at the University of Tokyo. Since 1983 he has been a professor emeritus at the University of Tokyo and president of the Industrial Research Institute, Japan. His current interest is in the application of mineral zeolite for separation processes. **Nobuya Yoshiki** (bottom right) (BS, MS, 1969, applied chemistry, Keio University, Japan) has been involved in research work since 1969 at the Central Research Institute of Electric Power Company and is currently manager of the Fuel Cycle Section, Nuclear Engineering Division, of the Energy & Environment Laboratory at the Central Research Institute of Electric Power Company, responsible for organizing projects on the nuclear fuel cycle, especially for high active waste handling and reprocessing technology. **Yasutoshi Kobayashi** (bottom left) (BS, Hiroshima University, Japan) worked at the Tokai reprocessing plant of the Power Reactor and Nuclear Fuel Development Corporation from 1978 to 1980. Since 1980 he has been involved in process development in the Department of Research and Development of the Japan Nuclear Fuel Service Company, Ltd. His current interest is in the process study for nuclear fuel reprocessing plants.

*Hiromichi Fumoto
Shigekazu Sato
Wataru Ito
Takaaki Tamura
Nobuya Yoshiki
Yasutoshi Kobayashi*



A DRIVING DEVICE FOR ACTIVATED WIRE FOR REACTOR FLUX MAPPING*Cheng-Hsin Mao
Pao-Shan Weng*

Cheng-Hsin Mao (top) (Li-Ming Institute of Technology, 1974) has been a technologist at the Nuclear Science and Technology Development Center of National Tsing Hua University (NTHU) since 1974. His primary research and interests include radiation detection and measurements. **Pao-Shan Weng** (PhD, nuclear engineering, Texas A&M University, 1966) was an associate professor at NTHU until 1970 and has been a professor since then. His primary research interests include health physics and nuclear applications.

**SENSITIVITY OF PRESSURIZED WATER REACTOR SOURCE TERM INVENTORY AND DECAY POWER TO CORE MANAGEMENT PARAMETERS***John K. Wheeler
Alexander Sesonske*

John K. Wheeler (top) (BS, 1983, and MS, 1985, nuclear engineering, Purdue University) joined the Department of Nuclear Fuel Services of Commonwealth Edison (CEC) in 1985 and is an engineer in the Computer Methods Development Group. He is currently involved in developing the boiling water reactor nuclear design methodology at CEC. **Alexander Sesonske** (PhD, University of Delaware, 1950) is professor of nuclear engineering at Purdue University. His broad interests lie in various nuclear reactor engineering areas, including system design, core management, fuels, thermal hydraulics, and safety.

