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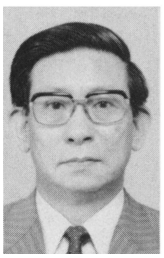
AUTHORS — SEPTEMBER 1989

FISSION REACTORS

PRESENT STATUS OF FAST BREEDER REACTOR DEVELOPMENT IN JAPAN

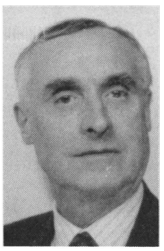
Sadamu Sawai
Yonesuke Iwakoshi

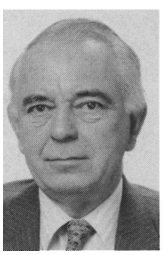


Sadamu Sawai (top) (BE, mechanical engineering, Tokyo University, Japan, 1951) is an executive director of the Power Reactor and Nuclear Fuel Development Corporation in Japan and is responsible for research and development for a fast breeder reactor (FBR) and an advanced test reactor, a Japanese heavy water reactor. **Yonesuke Iwakoshi** (BE, physical engineering, Tokyo University, Japan, 1951) is a deputy executive general manager of the Engineering Development Headquarters of the Japan Atomic Power Company. He is responsible for construction management of the Monju prototype FBR and for overall supervision of the development of a demonstration FBR.

CODES AND STANDARDS FOR FAST BREEDER REACTOR COMPONENTS—A EUROPEAN POINT OF VIEW

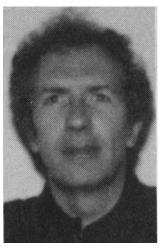
Roland L. Roche
C. H. A. Townley
Kurt Vinzens
H. Laue
Franco Corsi
M. De Bacci





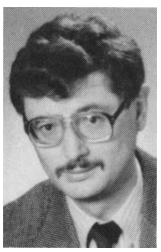
Roland L. Roche (top) (chartered engineer, ENS Arts et Metiers, France, 1946; PhD, analytical mechanics, University of Paris, France, 1949) is deputy manager of the engineering department of the Commissariat à l'Energie Atomique, Saclay. He is chairman of the European working group on codes and standards for fast reactors, professor at the Institut National des Sciences et Techniques Nucléaires, and member of the advisory board of the French Nuclear Safety Authority. His current research activity is in structural mechanics, structural integrity, and design and construction rules. **C. H. A. Townley** (bottom) has been engaged in structural integrity research at the Central Electricity Generating Board's (CEGB's) Berkeley Nuclear Laboratories since 1960. Until recently, he was branch manager. He now divides his time between structural integrity activities within CEGB and acting as head of the technical area for the United Kingdom Atomic

Energy Agency's fast reactor structural integrity program. **Kurt Vinzens** (top) (Dr. Eng., process engineering, Technische Hochschule, Federal Republic of Germany) is manager of the structural integrity department at Interatom. He is interested in liquid-metal-heated steam generators and stress analysis. A photograph and a biography were not available for **H. Laue** at publication time. **Franco Corsi** (bottom) (mechanical engineering, University of Rome, Italy, 1969) is in charge of the research staff of the ENEA thermomechanical service. He is now the ENEA coordinator for development and promotion of a finite element computer system. His current research interests are in high-temperature structural reliability, computer systems, codes, and standards. A photograph and a biography for **M. De Bacci** were not available at publication time.



DEFECTIVE FUEL ROD DETECTION IN OPERATING PRESSURIZED WATER REACTORS DURING PERIODS OF CONTINUOUSLY DECREASING FUEL ROD INTEGRITY LEVELS

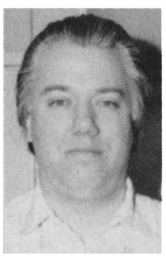
Harald Zänker

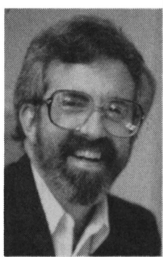


Harald Zänker [Dr. rer. nat. chemist, Academy of Sciences of the German Democratic Republic (GDR), 1986] obtained his degree in the field of investigations into chemical problems of defective fuel rod detection in operating pressurized water reactors (PWRs). Previously, he dealt with electrochemical research on steels and with gas chromatography. He is employed by the Central Institute for Nuclear Research, Rossendorf, Academy of Sciences of the GDR. His current research interests lie in the field of fuel rod surveillance in PWRs, transport behavior of fission products, adsorption-desorption phenomena, and radiochemical analysis in nuclear power plants.

LOW-ENRICHED URANIUM CONVERSION/POWER UPGRADE OF THE OHIO STATE UNIVERSITY RESEARCH REACTOR

Tunc Aldemir
Joseph W. Talnagi
Don W. Miller





Tunc Aldemir (top) (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 The Ohio State University (OSU). He has 9 years of experience with research reactor core design, analysis, and optimization. He has also served as an International Atomic Energy Agency expert on the low-enriched uranium (LEU) conversion/power upgrade of research reactors. **Joseph W. Talnagi** (center) (MSc, OSU, 1979) is a senior research associate at the Nuclear Reactor Laboratory, OSU. His research interests include reactor physics, nuclear instrumentation, and neutron activation analysis. His current activities include loading and initial testing of the LEU core for the OSU research reactor. **Don W. Miller** (bottom) (BS, physics, Miami University, 1964; PhD, nuclear engineering, OSU, 1971) is currently a professor and chair of the nuclear engineering program at OSU. His primary areas of interest are nuclear instrumentation, measurement, control, and application of artificial intelligence in nuclear engineering.

FUEL CYCLES

FAST FLUX TEST FACILITY FUEL HANDLING EXPERIENCE—NOVEMBER 1979 TO AUGUST 1988

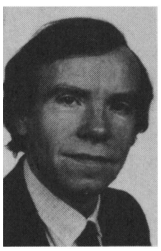
Delwin M. Romrell
Don M. Art
Richard D. Redekopp
James B. Waldo
Jerry L. Marshall

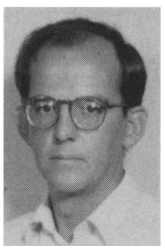
Delwin M. Romrell, Don M. Art, Richard D. Redekopp, James B. Waldo, and **Jerry L. Marshall** (no photos available) are all technical managers at the Fast Flux Test Facility located near Richland, Washington, and have a combination of more than 130 years of engineering experience in the nuclear and related fields.

NUCLEAR FUELS

AN IMPROVEMENT IN THE USE OF PLUTONIUM IN PRESSURIZED WATER REACTORS: THE SUBASSEMBLY MIXED-OXIDE FUEL MANAGEMENT CONCEPT

Corinne Bangil
Gérard Gambier
Michel Soldevila





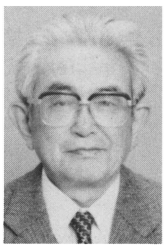
Corinne Bangil (top) (MS, physics, University of Perpignan, France, 1983; Deg., nuclear engineering, Institut National des Sciences et Techniques Nucléaires, France, 1985) has worked in the fields of neutronics, fuel cycle research, and reactor operation since 1986. **Gérard Gambier** (center) (MS, physics, University of Paris, France, 1964; Deg., engineering, Ecole Supérieure d'Electricité, France, 1966; PhD, nuclear engineering, University of Paris, France, 1974) is deputy head of the Reactor Physics Section at Electricité de France (EdF). He has worked in research and development of high-temperature reactors and is currently working on conventional and advanced light water reactors, together with fast breeders. His main interests and activities are in neutronics, fuel cycle, thermohydraulics, and reactor operation. **Michel Soldevila** (bottom) (MS, physics, University of Paris, France, 1975; PhD, nuclear engineering, University of Paris, France, 1978) works at EdF in the area of pressurized water reactor physics. His main interests and activities are in fuel cycle research and neutronics. He has been involved in the studies on plutonium recycling performed at EdF.

EQUILIBRIUM TIME AND CRITICALITY CONSIDERATIONS IN URANIUM ENRICHMENT BY THE CHEMICAL-EXCHANGE PROCESS

Yasuhiko Fujii
Makoto Okamoto
Hiroyuki Kadotani
Hidetake Kakihana

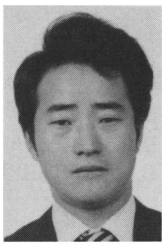
Yasuhiko Fujii (top) (Dr. Eng., nuclear engineering, Toyko Institute of Technology, Japan, 1973) is an associate professor at Tokyo Institute of Technology. He was on the staff of the International Atomic Energy Agency (IAEA) from 1979 to 1983 and served as a research and development engineer with Asahi Chemical Industry Company from 1972 to 1974. His recent technical interests are in the area of fusion chemistry. **Makoto Okamoto** (bottom) (Dr. Eng., nuclear engineering, Tokyo Institute of Technology, Japan, 1966) has been a professor in the nuclear reactor research laboratory at Tokyo Institute of Technology

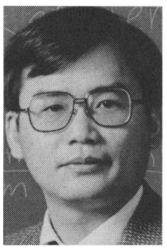
since 1984. His work has focused on isotope effects in chemical and physical processes. He has measured isotope effects occurring in various reactions in condensed and gas phases. His current interests lie in hydrogen isotope behavior in a plasma state. **Hiroyuki Kadotani** (top) (PhD, nuclear engineering, Tokyo Institute of Technology, Japan, 1984) is a division head of the technology department at the Century Research Center Corporation. His research interests lie in the field of computer applications to nuclear engineering and neutron physics. **Hidetake Kakihana** (bottom) (DSc, Tokyo University, Japan, 1951) is a professor at Sophia University. From 1980 to 1984, he was director of plasma physics at Nagoya University. He served as a deputy director general of the IAEA from 1977 to 1980. His main scientific efforts have been to establish a system of peaceful uses of nuclear energy entirely free from weapon uses.

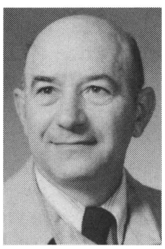


INCREASED-DISCHARGE-BURNUP METHOD FOR MULTICYCLE RELOAD DESIGN

Hyong Chol Kim
Ming-Yuan Hsiao
Samuel H. Levine





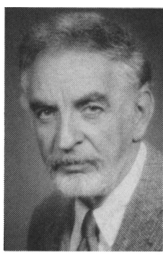


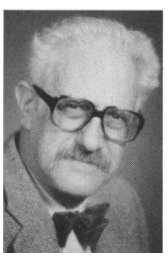
Hyong Chol Kim (top) [BS, Seoul National University, Korea; MS, 1986, and PhD, 1989, The Pennsylvania State University (PSU)] is a senior researcher at Nuclear Safety Center, Korea. His research interests are in fast reactor design, fuel management, optimal control, and reactor stability analysis. **Ming-Yuan Hsiao** (center) (BS, nuclear engineering, National Tsing-Hua University, Taiwan, 1976; MS, 1980, and PhD, 1983, nuclear engineering, University of Illinois) is an assistant professor of nuclear engineering at PSU. His research interests include fuel management, fission and fusion reactor design, neutron transport, and plasma transport. **Samuel H. Levine** (bottom) (PhD, nuclear physics, University of Pittsburgh, 1954) is a professor of nuclear engineering at PSU. His current technical interests are in fuel management, neutron radiography, optimization techniques, beta dosimetry, reactor design, fast reactor physics, research reactor experiments, and neutron spectrum measurements and calculations.

RADIOACTIVE WASTE MANAGEMENT

LONG-TERM ISOLATION OF HIGH-LEVEL RADIOACTIVE WASTE IN SALT REPOSITORIES CONTAINING BRINE

Donald G. Schweitzer
Cesar A. Sastre





Donald G. Schweitzer (top) (PhD, chemistry, Syracuse University, 1955) is a senior scientist in the department of nuclear energy at Brookhaven National Laboratory (BNL). From 1980 to 1988, he was the head of the U.S. Department of Energy (DOE) High-Level Waste Program at BNL. From 1974 to 1980, he was the head of the U.S. Nuclear Regulatory Commission (NRC) High-Level Waste Program at BNL. Both programs were designed to advise the DOE and the NRC on the adequacy of the DOE waste package programs with respect to compliance with existing regulations. Prior to 1974, he was head of the high-temperature gas-cooled reactor (HTGR) and superconductivity programs in the departments of nuclear energy and applied science. **Cesar A. Sastre** (Eng., University of Buenos Aires, Argentina, 1954) is a senior nuclear engineer at BNL. His recent work was in HTGR safety and in high-level waste package analysis. He previously worked in reactor physics and nonproliferation of nuclear weapons issues.