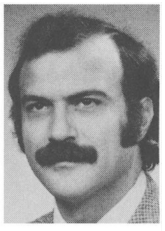
nuclear technology®

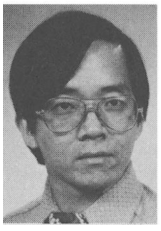
AUTHORS — MID-AUGUST 1980

REACTORS

THE UNAVAILABILITY OF SYSTEMS UNDER PERIODIC TEST AND MAINTENANCE

G. Apostolakis
T. L. Chu



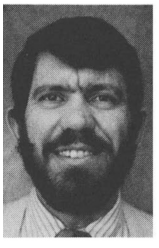


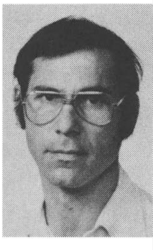
G. Apostolakis (top) (Diploma, electrical engineering, National Technical University, Athens, Greece, 1969; MS, 1970, and PhD, 1973, engineering science and applied mathematics, California Institute of Technology) is an associate professor of engineering and applied science at the University of California, Los Angeles (UCLA). His research interests are in risk assessment. **T. L. Chu** (BS, physics, National Cheng Kung University, Taiwan, 1972; MS, nuclear engineering, UCLA, 1979) is a doctoral student in nuclear engineering at UCLA.

FUELS

GAS TAG IDENTIFICATION OF FAILED REACTOR ASEMBLIES—IV. ANALYSIS METHODS

J. A. Figg
N. J. McCormick
R. E. Schenter
F. Schmittroth

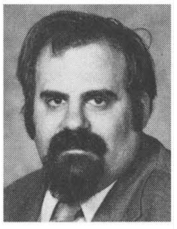


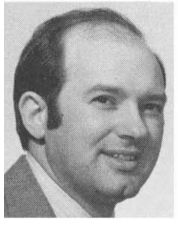


Jane A. Figg (top right) (MA, mathematical statistics, University of California, Berkeley, 1946) joined the Hanford Engineering Development Laboratory (HEDL) in 1971. She has been primarily involved with gas tagging systems since 1975. **Norman J. McCormick** (top left) (PhD, nuclear engineering, University of Michigan, 1965) is a professor of nuclear engineering at the University of Washington, where he has been a faculty member since 1966. He has served as a consultant to HEDL since 1974 and has published several papers and holds a U.S. patent in the area of gas tagging. **Robert E. Schenter** (bottom right) (PhD, nuclear physics, University of Colorado, 1963) has worked since 1965 at HEDL, where he is currently manager of the Nuclear Analysis Section. This group provides evaluated nuclear data in support of the Fast Flux Test Facility, the Fusion Materials Irradiation Test Facility, and other nuclear facilities. **Frank Schmittroth** (bottom left) (PhD, nuclear physics, Oregon State University, 1968) has worked at HEDL since 1970, mainly on nuclear data evaluations. His current interests include methods of data adjustment and unfolding and the use and development of nuclear models for data evaluation.

IRRADIATION PERFORMANCE OF METALLIC DRIVER FUEL IN EXPERIMENTAL BREEDER REACTOR II TO HIGH BURNUP

Robert E. Einziger
Bobby R. Seidel

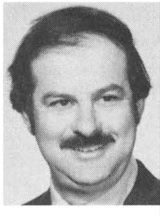




Robert E. Einziger (top) (BS, physics, Georgia Institute of Technology, 1967; MS and PhD, physics, Rensselaer Polytechnic Institute, 1973) was responsible for the evaluation of irradiation performance of Experimental Breeder Reactor II (EBR-II) driver fuel at Argonne National Laboratory. He is currently a senior engineer at the Westinghouse Hanford Company where he is studying the failure mechanisms and performance of light water reactor spent fuel as a waste form. **Bobby R. Seidel** (BS, metallurgy, Montana College of Mineral Science and Technology, 1967; MS, 1969, and PhD, 1975, materials science, Northwestern University) has been responsible for the qualification and performance characterization of driver fuel and internal reactor components of the EBR-II for more than five years. Currently, he manages the technical activities of fuels and materials performance.

TURBULENT FLOW SPLIT MODEL AND SUPPORTING EXPERIMENTS FOR WIRE-WRAPPED CORE ASSEMBLIES

Chong Chiu
Neil E. Todreas
Warren M. Rohsenow



Chong Chiu (top) [BS, nuclear engineering, Tsinghua University, 1974; MS, 1976, and PhD, 1977, nuclear engineering, Massachusetts Institute of Technology (MIT)] is supervisor of operational margin analysis with Combustion Engineering, Inc. He is interested in the thermal performance of pressurized water reactors and liquid-metal fast breeder reactors. **Neil E. Todreas** (center) (BS and MS, mechanical engineering, Cornell University, 1958; ScD, nuclear engineering, MIT, 1966) is professor of nuclear engineering at MIT. His interests are in the areas of thermal-hydraulic analysis of design and safety aspects of nuclear systems. **Warren M. Rohsenow** (bottom) (BS, mechanical engineering, Northwestern University, 1941; ME, 1943, and ScD, 1944, mechanical engineering, Yale University) is professor of mechanical engineering at MIT. His interests are in the area of heat transfer and its application to energy generating systems.

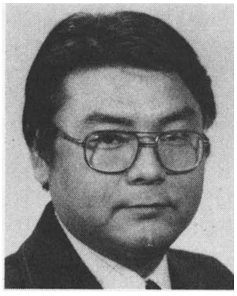
EMANATION THERMAL ANALYSIS—RESULTS FROM CHARACTERIZING INTERMEDIATE STEPS AND INTERMEDIATE PRODUCTS FOR URANIA SPHERES

Vladimír Balek
Miroslav Vobořil
Václav Baran

Vladimír Balek (top) (MSc, nuclear chemistry, Technical University of Prague, 1961; PhD, solid state chemistry, Moscow State University, 1967) is head of the Department of Nuclear Fuels at the Nuclear Research Institute of the Czechoslovak Atomic Energy Commission. For more than 10 years the emanation thermal analysis has been developed under his guidance. His main interest is application of radioactive indicators in materials research. **Miroslav Vobořil** (center) (Ing. Chem., silicate chemistry, Institute of Chemical Technology, Prague, 1964) is a research engineer of the Metallurgy Section at the Nuclear Research Institute, Řež. His current interest is in the application of thermoanalytical methods to the study of materials. **Václav Baran** (bottom) (Ing. Chem., Technical University, Brno, 1955; PhD, nuclear chemistry, Czechoslovak Academy of Science, Prague, 1962) has been with the Nuclear Research Institute, Řež, since 1959. His main scientific interest is in problems of uranium chemistry and technology, especially with sol-gel methods.

A COMPARATIVE STUDY OF TRITIUM BREEDING PERFORMANCE OF LITHIUM, Li_2O, AND Li_7Pb_2 BLANKETS IN A TOKAMAK POWER REACTOR

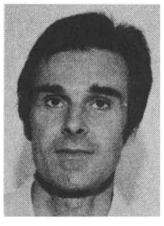
Jungchung Jung

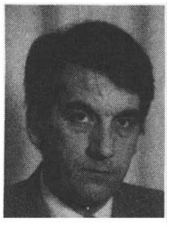


Jungchung Jung (PhD, nuclear engineering, Kyoto University, Japan, 1973) is in the Applied Physics Division at Argonne National Laboratory with the Fusion Power Program. His current activities include blanket/shield designs for the ongoing Commercial Tokamak Reactor Study, Fusion Reactor Blanket/Shield Design Study, and Advanced Fusion-Fuel System Study. He is also responsible for general neutronics method/code development and nuclear data evaluation.

SUIVI DE RUPTURE DE GAINE DU COMBUSTIBLE CARAMEL: EXPERIENCE CARINE

J. Gilbert
R. Marfaing
H. Vidal



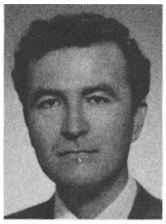


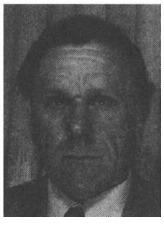
Jean Gilbert (top) (School Superieure d'Electricité de Paris, 1957) joined the Commissariat à l'Energie Atomique at Saclay in the Cores Service, where he participated in transuranium and radioisotope production studies. He is responsible for structural materials and nuclear instrumentation tools irradiation in the Section d'Etudes de Realisations des Irradiations aux Services des Piels de Saclay. **Henri Vidal** (bottom) (Ecole Nationale Superieure des Arts et Metiers, Paris, 1962) participated after joining the Commissariat à l'Energie Atomique at Saclay in the development of heavy water-gas (EL4) and heavy water-heavy water (Canadian Deuterium Uranium) reactor fuel rods. He had the responsibility for fuel element analysis and studies between 1971 and 1978. Currently, he is head of the Section d'Etudes et de Realisations des Irradiations aux Services des Piles de Saclay. (A photograph and biography for **R. Marfaing** were not available.)

NUCLEAR EXPLOSIVES

THE EFFECT OF THE SPONTANEOUS FISSION OF PLUTONIUM-240 ON THE ENERGY RELEASE IN A NUCLEAR EXPLOSIVE

Sümer Şahin
Jacques Ligou





Sümer Şahin (top) (MS, mechanical engineering, 1967, and PhD, nuclear engineering, 1970, University of Stuttgart, Federal Republic of Germany) is presently at Ecole Polytechnique Federale de Lausanne, Switzerland, where he is working to establish an effective multigroup neutron physics analysis system on the CDC-7326 computer. He is also involved in research on fusion-fission (hybrid) reactors. **Jacques Ligou** (MS, physics, University of Toulouse, France, 1955; MS, electrical engineering, Institute of Technology, 1955; PhD, nuclear physics, University of Lyon, France, 1957) is presently an associate professor at Ecole Polytechnique Federale de Lausanne. His research field is thermonuclear fusion and fusion-fission (hybrid) reactors.

USE OF FUEL THERMOCOUPLE TRANSIENT RESPONSE FOR DATA VERIFICATION AND FUEL ROD MODELING

Donald D. Lanning
Bruce O. Barnes
W. A. Scheffler

Donald D. Lanning (left) (BA, physics, University of Oregon, 1967; MS, nuclear engineering, University of Washington, 1979) has been at Pacific Northwest Laboratory (PNL) since 1967. He has held various assignments related to fuel handling and test fuel production. He is currently project manager for a program on steady-state irradiation testing and computer modeling of fuel rods sponsored by the U.S. Nuclear Regulatory Commission. **Bruce O. Barnes** (right) (BS, metallurgical engineering, South Dakota School of Mines, 1978) has been at PNL since 1978. He worked briefly with programs involving fuel rod modeling, and presently is developing standardized tests for nuclear waste storage materials. **W. A. Scheffler** (center) (BS, Tulave University, 1969; PhD, University of Minnesota, 1971) has been active in the field of thermal hydraulics since 1960. He has authored over 35 publications in the field of heat transfer. At present, he is an associate professor of mechanical and chemical engineers at the Joint Center for Graduate Study, Richland, Washington.