



AUTHORS — MID-DECEMBER 1977

REACTORS

COMPARISON OF MEASURED AND CALCULATED NITROGEN-16 ACTIVITY IN WATER FOR APPLICATION TO NUCLEAR-POWERED SHIP REACTOR DESIGNS

J. B. Sun (top) (PhD, nuclear engineering, Kansas State University, 1973) is a principal engineer in the Technical Staff Section at the Babcock & Wilcox Nuclear Power Generation Division. His interests include radiation shielding and protection and analysis for core physics calculations. H. D. Warren (BS, mathematics, Wake Forest University, 1959; MS and PhD, nuclear physics, University of Virginia, 1961 and 1963) is a research specialist in the Research and Development Division of the Babcock & Wilcox Company. His interests include the interaction of radiation with matter, nuclear instrumentation, and neutron radiography. His work with self-powered neutron detectors has received international recognition.

*J. B. Sun
H. D. Warren*



DESIGN CONSIDERATIONS FOR LARGE HETEROGENEOUS LIQUID-METAL FAST BREEDER REACTORS

Constantine P. Tzanos (top) (Diploma, chemical engineering, National Technical University of Athens, Greece, 1968; ScD, nuclear engineering, Massachusetts Institute of Technology, 1971) is a staff member of Argonne National Laboratory (ANL) in the Applied Physics Division. His interests include reactor analysis and design, reactor safety, and reactor control. Wolfgang P. Barthold (BS, physics, University of Goettingen, Germany, 1958; Dr. rer. nat., theoretical physics, University of Kiel, Germany, 1961) is head of the Systems Design Section at ANL. His interests include nuclear, mechanical, and thermal design and analysis of advanced reactor concepts, as well as model and methods development for design analysis.

*Constantine P. Tzanos
W. P. Barthold*



A PRACTICAL MEANS FOR PRESSURE TRANSDUCER RESPONSE VERIFICATION

David G. Cain (top) (BS, electrical engineering, University of California, 1966; PhD, electrical engineering, University of Washington, 1971) is project manager in the Department of Nuclear Safety and Analysis at Electric Power Research Institute. His interests include instrumentation development, equipment aging effects, and systems modeling. Carleton G. Foster (BS, electrical engineering, Rutgers University, 1967; MS, electrical engineering, San Jose State University, 1974) is program manager of the Instrumentation Division of Industrial Design and Engineering Associates. His interests include instrumentation design and development and bio-medical research.

*David G. Cain
Carleton G. Foster*



ENERGY OPTIMIZATION OF A CYCLED TOKAMAK

Peter S. Martini (top) (BS and BA, physics and mathematics, St. Cloud State University, 1975; MS, nuclear engineering, Virginia Polytechnic Institute and State University, 1977) is currently working on a PhD at Oregon State University in nuclear engineering. Ronald J. Onega (BS, 1960, MS, 1962, PhD, 1964, physics, Pennsylvania State University) is an associate professor of nuclear engineering in the Mechanical Engineering Department at Virginia Polytechnic Institute and State University. His interests include fission reactor dynamics and fusion reactor systems model development.

Peter S. Martini
Ronald J. Onega

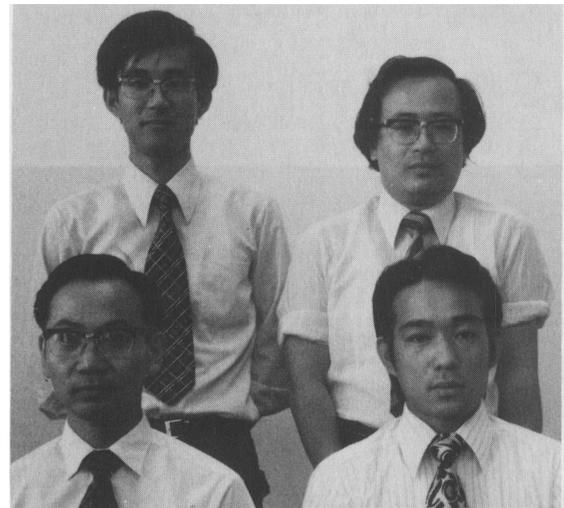


FUEL CYCLES

FEASIBILITY STUDY OF CORE MANAGEMENT SYSTEM BY DATA COMMUNICATION FOR BOILING WATER REACTORS

Hiroshi Motoda (top right) (PhD, nuclear engineering, University of Tokyo, 1972) is a senior researcher at Hitachi Atomic Energy Research Laboratory (HAERL) and has worked on the development of the core management system for boiling water reactors (BWRs). His current interest is in optimal control for load following. Satoshi Tanisaka (bottom right) (Nagasaki Technical High School, 1970) is an engineer at HAERL and has worked on on-line control programs for data transmission. His current interest is in on-line noise analysis. Takashi Kiguchi (bottom left) (PhD, nuclear engineering, University of Tokyo, 1975) is a researcher at HAERL and has worked on fast breeder reactor core physics analysis and BWR core management programs. His current interest is in prior information selection and on-line plant diagnosis. Haruo Yonenaga (top left) (Yamanashi Technical High School, 1964) is an engineer at HAERL and has worked on cathode ray tube display control programs. His current interest is in characteristics analysis of uranium-enriching cascade plants.

Hiroshi Motoda
Satoshi Tanisaka
Takashi Kiguchi
Haruo Yonenaga

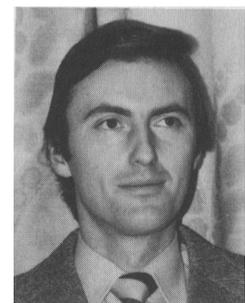


FUELS

COMPUTATION STUDIES OF CLADDING RELOCATION DYNAMICS DURING LIQUID-METAL FAST BREEDER REACTOR TRANSIENT UNDERCOOLING ACCIDENTS

Gerhard Angerer (PhD, technical physics, Vienna University of Technology, 1971) is a member of the scientific staff of the Karlsruhe Nuclear Research Center, Karlsruhe, Federal Republic of Germany. His current interest lies in the field of nuclear reactor safety. He is presently involved in the modeling and analysis of fuel and cladding motions during reactor transients.

G. Angerer



SOLID WASTE AS REFUSE-DERIVED FUEL

R. Fred Rolsten (top) (PhD, The Ohio State University, 1955) is assistant dean and professor of engineering at Wright State University. His current interests are materials-energy-environment-related technological problems of RDF—a coal supplement and resource recovery. Leon Glaspell (center) (MBA, Wright State University, 1970; aerospace engineering, West Virginia University, 1966) is a civil engineering manager at Wright-Patterson Air Force Base in Ohio, with a background in environmental protection engineering. James P. Waltz (bottom) (BME, University of Dayton, 1969) joined Lawrence Livermore Laboratory during 1976. As a project engineer his present activity in energy management involves computer simulation of building systems. As Special Energy Consultant for Air Force Logistics Command he conducted the test work done on refuse derived fuel at Wright Patterson Air Force Base. Before leaving the Air Force, he was awarded the Air Force Association's Logistics Middle Management Award for 1976.

*R. Fred Rolsten**Leon Glaspell**J. P. Waltz***AN OPTIMAL SET OF SELECTED URANIUM ENRICHMENTS THAT MINIMIZES BLENDING CONSEQUENCES**

Joel A. Nachlas (top) (BS, industrial engineering and operations research, Johns Hopkins University, 1970; MS, industrial engineering and operations research, University of Pittsburgh, 1972; PhD, industrial engineering and operations research, University of Pittsburgh, 1975) is an assistant professor of industrial engineering and operations research at the Virginia Polytechnic Institute and State University (VPI&SU). His interests include nuclear fuel cycle management and application of operations research to health care. Harold A. Kurstedt, Jr. (center) (BS, civil engineering, Virginia Military Institute, 1961; MS, nuclear engineering, University of Illinois, 1963; PhD, nuclear engineering, University of Illinois, 1968) is chairman of the nuclear engineering program at VPI&SU. His interests include nuclear fuel cycle management, nuclearic measurement and instrumentation, and reactor kinetics. John S. Lorber, Jr. (bottom) (BS, nuclear science, VPI&SU, 1975; MS, nuclear engineering, VPI&SU, 1977) is presently continuing his graduate education at VPI&SU. His interests include nuclear fuel cycle management and health physics.

*Joel A. Nachlas**Harold A. Kurstedt, Jr.**John S. Lorber, Jr.***DAMAGE FUNCTION FOR THE MECHANICAL PROPERTIES OF STEELS**

Alain Alberman (right) (MS, University of Paris, 1973; graduate, solid state physics, University of Orsay, 1974) joined the Research Reactor Physics and Dosimetry Group at the Services des Piles de Saclay in 1975. He works on radiation damage experiments (in-pile dosimetry) and

*A. Alberman**J. P. Genthon**L. Salon**G. Allegraud*

damage detector development. Jean-Pierre Genthon (top) (Ingénieur Ecole Supérieure d'Electricité, Paris, 1953; Dr. 3ème cycle, solid state physics, University of Paris, Orsay, 1965) has been head of the In-Pile Experiment Group of the Research Reactor Department at Saclay since 1975. He previously was in charge of the Research Reactor Physics and Dosimetry Group. He is involved in radiation damage dosimetry. Lucien Salon (center) has been a technician in the Research Reactor Department at Saclay since 1965. He is involved in damage detector fabrication and measurements. Georges Allegraud (bottom) has been a senior technician in the Technology Department at Saclay since 1962. He is in charge of mechanical test devices in hot cells.



STRESS-FREE SWELLING IN TYPE 304 STAINLESS STEEL AT HIGH FLUENCES

*T. A. Kenfield
W. K. Appleby
H. J. Busboom*

Tom Kenfield (left) (BS, metallurgical engineering, University of Cincinnati, 1973; MS, metallurgical engineering, University of Cincinnati, 1974) is a research engineer in the Core Materials Group of the Fast Breeder Reactor Department of General Electric Company (GE). His interests include in-reactor deformation and microstructural analysis of core components. Keith Appleby (center) (BSc, metallurgy, University of Durham, 1964; PhD, metallurgy, University of Newcastle upon Tyne, 1967) is manager of structural materials in the Fast Breeder Reactor Department at GE. His principal technical interest is the study of irradiation effects in core materials. Herb Busboom (right) (BS, metallurgical engineering, San Jose State University, 1961; MS, material science, Stanford University, 1963) is a development engineer with the Fast Breeder Reactor Department at GE. His past experience has involved in-reactor studies of fast reactor fuel cladding. He is presently involved with materials programs in support of secondary sodium systems required for heat transport in fast reactors.



THE CREEP-RUPTURE PROPERTIES OF A WELD-OVERLAID TYPE 304 STAINLESS-STEEL FORGING

*R. L. Klueh
D. A. Canonico*

R. L. Klueh (top) (PhD, metallurgy and materials science, Carnegie-Mellon University, 1966) is a research metallurgist in the Metals and Ceramics Division at Oak Ridge National Laboratory (ORNL). He is involved in mechanical property studies on liquid-metal fast breeder reactor steam generator materials. D. A. Canonico (PhD, metallurgical engineering, Lehigh University, 1965) is group leader of the Pressure Vessel Technology Laboratory of the Metals and Ceramics Division at ORNL.



FISSION RATE MEASUREMENTS WITH THE MAKROFOL SOLID-STATE TRACK RECORDER

*Dariusz Azimi-Garakani
John Garnett Williams*

Dariusz Azimi-Garakani (right) (BS, physics, University of Tehran, 1966; MS, physics, University of Tehran, 1968; MS, nuclear reactor science and engineering, Imperial College, 1973; PhD, nuclear engineering, Imperial College, 1976) is currently an assistant professor of nuclear technology at the University of Tehran in Iran. He has been active in the calculation and measurement of fission rates in a fast-neutron field for the past five years. His interests include teaching, reactor calculation and methods development for reactor physics, and engineering problems. John G. Williams (not pictured) (PhD, reactor physics, Imperial College, 1970) is a lecturer at Imperial College in England. His research and teaching are in the areas of nuclear reactor physics.

