



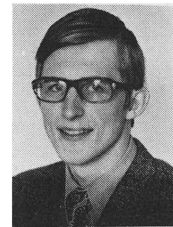
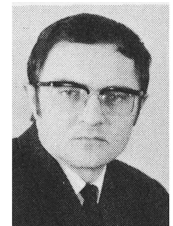
AUTHORS — NOVEMBER 1973

REACTORS

SPECTRAL ANALYSIS OF SAMPLED NUCLEAR REACTOR PLANT DATA WITH HETERODYNE DIGITAL FILTERING TECHNIQUES

H. Roggenbauer
W. Seifritz
T. Lindmo

H. Roggenbauer (top) (Diplomingenieur, electrical engineering, Technical University in Vienna, 1961) worked in the field of reactor technology at the Studiengesellschaft für Atomenergie in Seibersdorf, Austria, from 1965 to 1968; in 1968 he was delegated to the OECD Reactor Project in Halden, Norway. Since 1972 he has been a member of the permanent staff at the Halden Project, where he is working in the Control Research Division. His special interests are control theory and simulation techniques. W. Seifritz (center) (PhD, nuclear engineering, Technical University Karlsruhe, 1969; habilitation, reactor technology, Technical University Hannover, 1972) worked from 1964 to 1969 at the Kernforschungszentrum Karlsruhe, joined the University of Hannover in 1969, and in 1971/72 was on sabbatical leave at the OECD Reactor Project in Halden, Norway. He has nearly ten years of experience in his principal research interests, the experimental and theoretical aspects of reactor noise analysis. He is presently Privatdozent at the Technical University Hannover, Germany. T. Lindmo (bottom) received his civil engineering degree in physics from the Norwegian State Institute of Technology in 1972, and since then has worked as a research engineer in the Control Research Division of the OECD Halden Reactor Project. He is taking a special interest in numerical methods and optimization techniques.

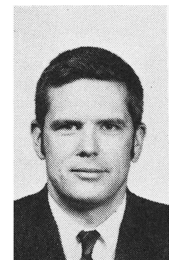


FUEL CYCLES

DETERMINATION OF OPTIMUM FUEL LOADINGS IN PRESSURIZED WATER REACTORS USING DYNAMIC PROGRAMMING

Richard B. Stout
Alan H. Robinson

Richard B. Stout (left) (PhD, Oregon State University, 1972) has been employed as nuclear engineer in the Fuel Management Group of EXXON Nuclear Corporation since 1971. He is currently working on an improved reactor core simulator for use in in-core fuel management. Alan H. Robinson (PhD, Stanford University, 1965) is an associate professor of nuclear engineering at Oregon State University. His current technical interests are very high speed neutron radiography, nuclear fuel management, and reactor computation methods. Before joining OSU in 1966, he worked as a physicist for General Electric's Nuclear Energy Division.



UO₂ PELLET-STACK SHORTENING IN A BOILING WATER REACTOR

F. List (left) (MS, mechanical engineering, The Technical University of Denmark, 1956) and P. Knudsen (MS, chemical engineering, The Technical University of Denmark, 1955) are members of the technical staff of The Danish Atomic Energy Commission's Research Establishment Risø. They are both engaged in studies of the in-reactor performance of UO₂-Zr test rods and fuel elements.

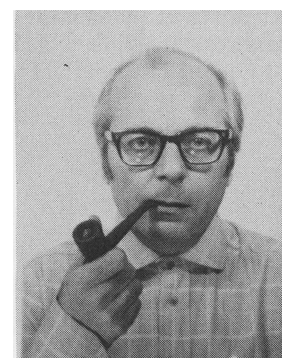
*F. List
P. Knudsen*



USE OF METALLIC THORIUM FOR LWBRs AND LWRs

G. B. Zorzoli (PhD, electrical engineering, Politecnico di Torino, 1955; "libera docenza," nuclear reactor physics, 1963) is head of the Design and Advanced Studies Division at Centro Informazioni Studie d'Esperienze, Segrate (Milano), a nonprofit research organization, and has been an associate professor of nuclear reactor physics at Politecnico di Milano since 1960. His main areas of interest are reactor physics and design.

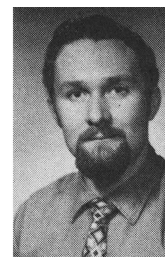
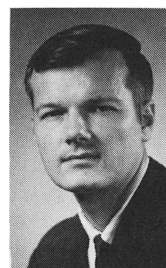
G. B. Zorzoli



FIRST REPORT ON APPARATUS TO SIMULATE IN-REACTOR TRANSIENT HEATING CONDITIONS IN OXIDE FUEL COLUMNS

B. J. Wrona (top left) (BS, Illinois Institute of Technology, 1972), is an engineering assistant in the Fuels Properties Group, Materials Science Division, Argonne National Laboratory. He joined Argonne in 1962 and has worked primarily on oxide fuels properties. Currently, he is engaged in the study of fuel motion under accident heating conditions, and is an MS candidate at Illinois Institute of Technology. J. T. A. Roberts (top right) (BSc, 1965, MSc, 1966, and PhD, 1968, Manchester University, England) is leader of the Fuels Properties Group. Since joining Argonne in 1968, he has studied the plastic flow and fracture behavior of UO₂ and (UPu)O₂ fuels, and is currently directing research on reactor-safety-related fuel element materials properties. Edward W. Johanson (bottom left) (BS, University of Illinois, 1954) joined the Electronics Division of Argonne National Laboratory in 1957 and has since been designing various analog and digital instruments as required by the ANL scientific staff. His present assignments include the direct heating apparatus and the MK IIC control loops for the LMFBR program at TREAT, HFEF, and ANL-EAST. Wayne D. Tuohig (bottom right) (PhD, University of Florida, 1972), is assistant ceramist in the Fuels Properties Group. His background includes powder metallurgy, devitrification of glasses, and sintering studies of uranium dioxide. He is currently developing ceramic materials for use in high-temperature electrochemical cells.

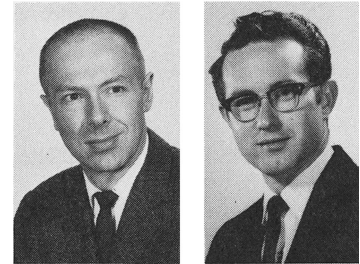
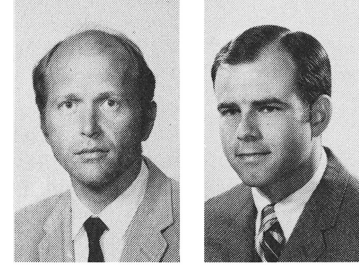
*B. J. Wrona
J. T. A. Roberts
E. Johanson
W. D. Tuohig*



CALIFORNIUM-252 ASSAY SYSTEM FOR FBR-TYPE FUEL PINS

H. O. Menlove (top left) (PhD, nuclear engineering, Stanford University), R. A. Forster (top right) (PhD, nuclear engineering, University of Virginia), J. L. Parker (bottom left) (PhD, physics, University of Utah), and Darryl B. Smith (bottom right) (PhD, physics, University of New Mexico) are staff members at the Los Alamos Scientific Laboratory, working in the Nuclear Analysis Research Group. Their research activities have included the application of neutron transport calculations, gamma-ray spectroscopy, and statistical analysis techniques for the nondestructive assay of fissionable materials.

*H. O. Menlove
R. A. Forster
J. L. Parker
Darryl B. Smith*



EFFECT OF MINOR ALLOY VARIATIONS ON THE THERMAL DENSIFICATION OF AUSTENITIC STAINLESS STEELS

John F. Bates (left) (BS, Colorado School of Mines) is a research engineer with the Damage Analysis Section of the Materials Department at the Westinghouse Hanford Company. His primary area of activity is irradiation-induced swelling and creep of reactor materials. Jerry L. Straalsund (center) (PhD, engineering science, Washington State University) is manager of the Mechanical Properties Section of the Materials Department at the Westinghouse Hanford Company. His principal area of research is irradiation-induced swelling of reactor structural materials. Mike M. Paxton (right) (MS, metallurgy, University of Washington, 1967) is a research engineer at Westinghouse Hanford Company. His principal area of responsibility is cladding and fuel-duct characterization for the Fast Flux Test Facility.

*J. F. Bates
M. M. Paxton
J. L. Straalsund*

