



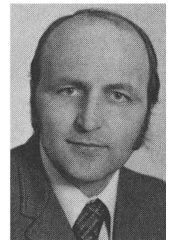
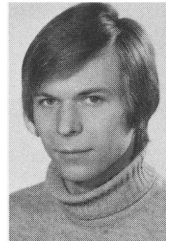
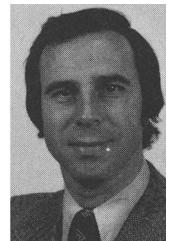
AUTHORS — APRIL 1977

REACTORS

COMBINED FREE AND FORCED CONVECTION EFFECTS ON TRANSIENT TEMPERATURE DISTRIBUTIONS IN A SCALED-DOWN MODEL OF THE INLET PLENUM OF THE SNR-300 REACTOR

*J. F. L. M. Brukx
G. P. R. Hansen
P. Voj*

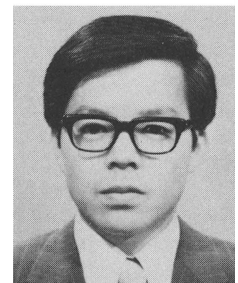
Johannes F. L. M. Brukx (top) (MS, mechanical engineering, Delft University of Technology, The Netherlands, 1970) is a group leader at INTERATOM in Bensberg, Federal Republic of Germany, responsible for dynamics analysis and control of liquid-metal fast breeder reactor (LMFBR) power plants. From 1969 to 1970 he was a research fellow at Argonne National Laboratory in the Reactor Analysis and Safety Division. Since 1972, he has also been a part-time research associate at the Laboratory of Thermal Power Engineering at the Delft University of Technology. Günter P. R. Hansen (center) (Dipl. Ing., nuclear engineering, TH Aachen, 1972) is a research engineer at INTERATOM and has been engaged in the thermohydraulic analysis of the SNR-300 reactor, particularly during emergency core cooling conditions. He is currently involved in experimental work on heat transfer and fluid dynamics of LMFBR fuel, blanket, and absorber element. Peter Voj (bottom) (Dr. Ing., mechanical engineering, Technical University Berlin, 1966) is head of the Department of Mechanical and Process Engineering Research at INTERATOM. He is currently investigating thermohydraulic and mechanical problems of reactor components for LMFBRs.



EXPERIMENTAL VERIFICATION OF A METHOD FOR SIMULATING A BOILING WATER REACTOR CORE BASED ON A FEW-GROUP COARSE-MESH DIFFUSION SCHEME

Sadao Uchikawa

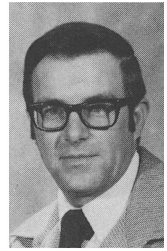
Sadao Uchikawa (MSc, nuclear engineering, Tokyo University, 1972) is a member of the Advanced Reactor Section of the Atomic Energy Research Laboratory, Hitachi, Ltd., Japan. His current interests include core design of commercial boiling water reactors and on-line core performance evaluation.



PLUTONIUM RELEASE FROM BURNING SODIUM

Jerry L. Stakebake (top) (BS, chemistry, Colorado State University; BS, meteorology, University of Utah, 1962) is a research specialist at Rockwell International's Rocky Flats Plant. For the past 12 years he has been involved in the investigation of gas-solid interactions between gases and plutonium and plutonium oxides. His primary interest is in the surface chemistry of solids. Herbert N. Robinson is a senior chemical technologist at Rockwell International's Rocky Flats Plant. He has been working in the nuclear field since 1954, the last 15 years of which have been in research and development.

*J. L. Stakebake
H. N. Robinson*

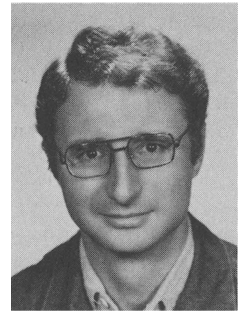


FUELS

EXPERIMENTAL INVESTIGATION OF FUEL-COOLANT INTERACTION

Wiktor Żyszkowski

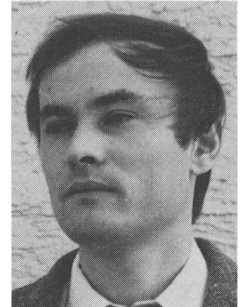
Wiktor Żyszkowski (PhD, engineering science, Institute of Nuclear Research, Warsaw, 1968) has since 1961 been a research scientist in the Reactor Engineering Department at the Institute of Nuclear Research in Świerk near Warsaw, Poland. His interests include heat transfer in nuclear reactors and reactor safety problems, with a particular attention to thermal explosion. He investigated the thermal explosion phenomenon during his stay at Kernforschungszentrum Karlsruhe in the Federal Republic of Germany as a fellow of A. v. Humboldt-Foundation (1972, 1973, and 1975) and at Manchester University in England as an invited research fellow (Spring 1976).



ANALYSIS OF THE VENTING SYSTEM OF THE GAS-COOLED FAST BREEDER REACTOR FUEL ELEMENT FOR VARIOUS OPERATING CONDITIONS

Klaus W. Klein

Klaus W. Klein (Diplom-Ingenieur, Technical Universities of Karlsruhe and Berlin, 1968) was until 1974 involved with gas-cooled fast breeder reactor development at Kraftwerk-Union, with special interest in core-design and safety. Now he is a member of the Nuclear Engineering Section of a utility.

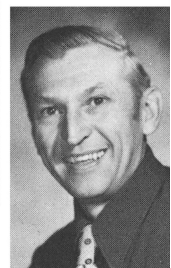
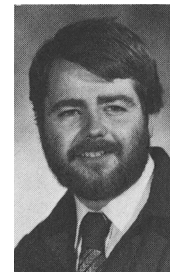


RADIOACTIVE WASTE

PREPARATION AND CHARACTERIZATION OF SINTERED GLASS-CERAMICS FROM CALCINED SIMULATED HIGH-LEVEL WASTE

*E. G. Samsel
J. R. Berreth*

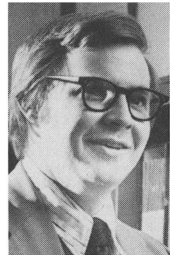
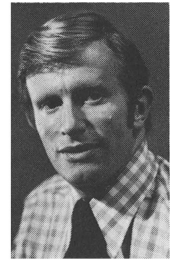
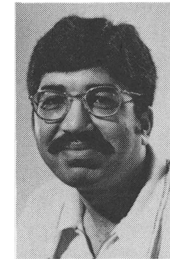
E. G. Samsel (top) (BS, chemistry, Idaho State University, 1974) has worked on developing nuclear waste forms while at the Idaho National Engineering Laboratory and is currently a graduate student at Princeton University. J. R. Berreth (MS, chemistry, Washington State University, 1954) has worked in nuclear waste management for several years and is currently involved in waste form process development.



MECHANICAL PROPERTIES OF LIQUID-METAL FAST BREEDER REACTOR PRIMARY PIPING MATERIALS

C. R. Brinkman (top) (PhD, metallurgy, University of Utah, 1966) is presently the group leader of the Mechanical Properties Group of the Metals and Ceramics Division at Oak Ridge National Laboratory (ORNL). His interests include mechanical properties of materials as related to energy conversion systems, fatigue, creep, hydrogen embrittlement, and radiation effects in solids. V. K. Sikka (center) (PhD, metallurgical engineering, University of Cincinnati, 1973) worked with radiation damage in body-centered-cubic metals and alloys. He joined ORNL in March 1974, and has been working on heat-to-heat variation in tensile and creep properties of Types 304 and 316 stainless steel. Roy T. King (bottom) (PhD, metallurgy and materials science, Carnegie Mellon University, 1968) has been working at ORNL for 11 years, where he is actively involved in mechanical properties of materials for nuclear reactors. He is presently coordinator for fossil energy research work in the Metals and Ceramics Division at ORNL.

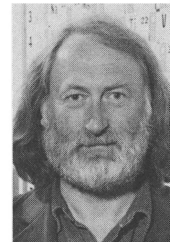
*Charles R. Brinkman
Vinod K. Sikka
Roy T. King*



MODIFICATION OF THE EXISTING YIELDING CREEP THEORY OF IRRADIATION CREEP IN ZIRCONIUM AND ZIRCALOY-2

P. K. Madden (top) (D. Phil., metal physics, University of Oxford, 1973) is a research officer in the Fuel and Core Division of the Central Electricity Generating Board, Berkeley Nuclear Laboratories. Her current interests include studies of irradiation growth in zirconium alloys in terms of material texture and microstructure. R. V. Hesketh (PhD, physics, Durham, 1953) is a research manager with the Central Electricity Generating Board. He presently works on thermotransport, electrotransport, and the basics of linear and nonlinear thermodynamics, as well as on reactor problems.

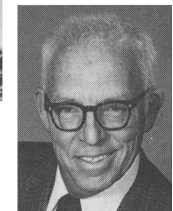
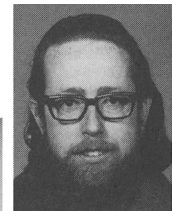
*P. K. Madden
R. V. Hesketh*



NEUTRON FLUX MEASUREMENT AT THE LAMPF RADIATION EFFECTS FACILITY

Dennis G. Perry (top) (PhD, nuclear chemistry, University of Washington, 1970) is a nuclear chemist for the Los Alamos Scientific Laboratory (LASL). His interests are in the areas of neutron dosimetry, nuclear reactions, nuclear fission, and computer applications to nuclear science. Margaret L. Simmons (center) (BS, mathematics, University of Houston, 1959) is a staff member in the Chemistry and Metallurgy Division of LASL. Her current interests include Monte Carlo methods in neutron transport, neutron shielding, and irradiation facilities. James S. Gilmore (bottom) (BS, chemistry, Union College, New York, 1943) is a nuclear chemist at LASL. His interests are in radiochemical separations and neutron-induced reactions.

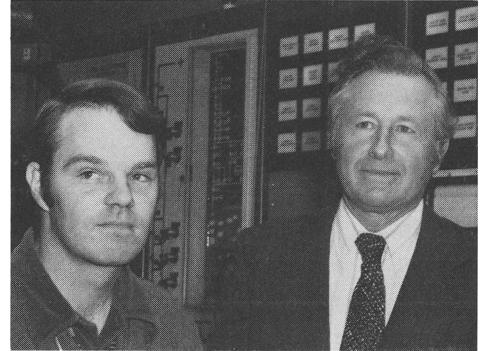
*Dennis G. Perry
Margaret L. Simmons
James S. Gilmore*



COMMENT ON THE INTERPRETATION AND APPLICATION OF LIMITING CRITICAL CONCENTRATIONS OF FISSION NUCLIDES IN WATER

E. D. Clayton
B. M. Durst

E. D. Clayton (right) (PhD, physics, University of Oregon, 1952) is manager of criticality research at Battelle-Pacific Northwest Laboratories (PNL) and is a research associate professor at the University of Washington Department of Nuclear Engineering. He is a pioneer in criticality studies with plutonium, and, since its inception in 1961, has been director of the Plutonium Critical Mass Laboratory of PNL. His current technical interests include most aspects of criticality measurements and studies. B. M. Durst (MS, nuclear engineering, Louisiana State University, 1974) is a research engineer at PNL. He has participated in both experimental and computational criticality studies at the Plutonium Critical Mass Laboratory of PNL.



MATERIALS

THE EFFECT OF CHEMISTRY VARIATIONS ON THE SHORT-TERM RUPTURE LIFE AND TENSILE PROPERTIES OF 20% COLD-WORKED TYPE 316 STAINLESS STEEL

D. R. Duncan
M. M. Paxton

Darrel Duncan (top) (BS, Washington State University, 1967; MS, Iowa State University, 1969) is an advanced engineer at Westinghouse Hanford Company, his principal area of responsibility being the thermal effects on mechanical properties of austenitic stainless steels. Michael Paxton (MS, metallurgy, University of Washington, 1967) is a senior engineer at Westinghouse Hanford Company, his principal area of responsibility being the mechanical properties of advanced alloys.

