



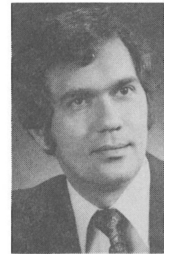
AUTHORS — AUGUST 1978

REACTORS

PRIMARY PIPE RUPTURE ACCIDENT ANALYSIS FOR THE CLINCH RIVER BREEDER REACTOR

*Dennis C. Albright
Robert A. Bari*

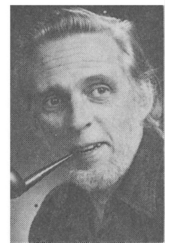
Dennis C. Albright (top) (BS, physics, Rensselaer Polytechnic Institute, 1969; MS, physics, University of Chicago, 1972; MS, nuclear engineering, Northwestern University, 1975) has been working in liquid-metal fast breeder reactor (LMFBR) systems analysis at Brookhaven National Laboratory (BNL) since 1974. His interests have been in the development of LMFBR systems codes, with particular emphasis on pipe rupture accident analysis, in-vessel heat transfer, and the calculation of steady-state operating conditions. **Robert A. Bari** (AB, physics, Rutgers University, 1965; PhD, physics, Brandeis University, 1969) has been involved in LMFBR safety analysis at BNL since 1974 and is currently the group leader for LMFBR safety evaluation in connection with BNL's Technical Assistance Program for the U.S. Nuclear Regulatory Commission.



LIMITATIONS ON TRITIUM TRANSPORT THROUGH FUSION REACTORS

*Andrew S. Zarchy
Robert C. Axtmann*

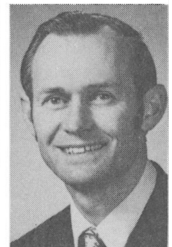
Andrew S. Zarchy (top) (PhD, chemical engineering, Princeton University, 1978) is a staff member at the General Electric Research and Development Center, Schenectady, New York, where he is engaged in coal gasification studies. **Robert C. Axtmann** (PhD, chemistry, Johns Hopkins University, 1950) is professor of chemical engineering at Princeton University. His current research includes studies in fusion reactor and geothermal energy technologies and the environmental effects of each.



THE USE OF NUCLEAR SYSTEMATICS TO ESTIMATE GAMMA SPECTRA

*Gene D. Holter
Stephen E. Binney*

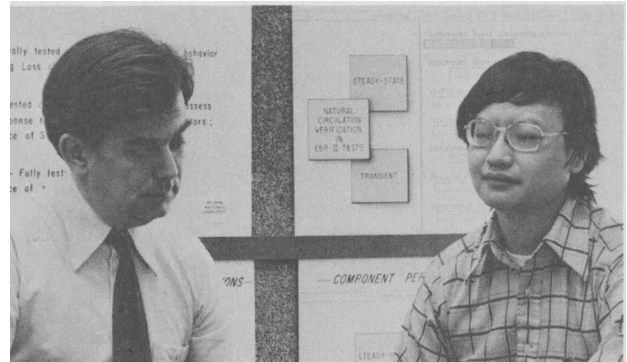
Gene D. Holter (top) (BA, physics, University of Oregon, 1968; MA, nuclear engineering, Oregon State University, 1977) is currently a graduate student at Oregon State University. **Stephen E. Binney** (PhD, nuclear engineering, University of California, Berkeley, 1970) has been teaching and performing research in the Department of Nuclear Engineering at Oregon State University since 1973. His interests primarily involve applications of nuclear instrumentation to environmental monitoring and uranium exploration.



RECENT IMPROVEMENTS IN IDENTIFYING FISSION PRODUCT SOURCES IN THE EXPERIMENTAL BREEDER REACTOR II

*J. D. B. Lambert
B. Y. C. So
F. S. Kirn
J. R. Armstrong
E. R. Ebersole
M. T. Laug*

John D. B. Lambert (top left) (BSc, metallurgy, University of Liverpool, England, 1959), as manager of experiment and component analysis at Argonne National Laboratory (ANL), is responsible for surveillance of fuels irradiations in the Experimental Breeder Reactor II (EBR-II). Associated for 18 years with nuclear materials research, first at Harwell, England, and from 1970 at ANL, his current interest is in understanding the postbreach behavior of liquid-metal fast breeder reactor (LMFBR) elements. **Bernard Y. C. So** (top right) (PhD, chemical engineering, Pennsylvania State University, 1975) has responsibility for the development of new techniques and the improvement of existing techniques to detect, identify, and monitor breached elements in the EBR-II, particularly multiple-tag identification methods. His current interest is in establishing a model for fission product transport in LMFBR primary systems. **Frederick S. Kirn** (bottom, seated left) (MA, physics, University of Illinois, 1948) is manager of core surveillance and is responsible for the fissile loading of the EBR-II and the surveillance of the nuclear parameters, as well as the coordination of all efforts directed toward the detection and identification of fuel cladding breaches. He has been involved with the LMFBR program at ANL since 1954. **Jason R. Armstrong** (bottom, standing left) (BS, electrical engineering, University of Nebraska, 1966) has over nine years of direct experience in the operation of nuclear reactors and seven years in engineering and design of reactor instrumentation and control systems. Before joining ANL in 1972, he was a design engineer for the LOFT Project and later was a project engineer for the LOFT emergency core cooling system. At EBR-II, he has been shift supervisor, FEDAL engineer, and operations physicist. **Earl R. Ebersole** (bottom, seated right) (BS, chemistry, University of Wisconsin, 1943), as manager of the Argonne-West Analytical Laboratory, is responsible for all analytical chemistry at the EBR-II site. **Matthew T. Laug** (bottom, standing right) (MS, chemistry, University of Idaho, 1972) is in charge of a Mass Spectrometry Group in the EBR-II Analytical Laboratory, which provides thermal and inorganic gas analyses for nuclear fuel studies. His current interest is in developing an on-line mass spectrometer for the EBR-II cover gas cleanup system.



FUELS

LOWI, A NEW ZIRCALOY-UO₂ FUEL DESIGN: DESIGN CONSIDERATIONS, CALCULATIONS, AND TEST RESULTS

Arne Jensen

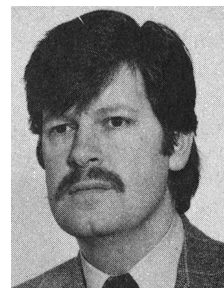
Arne Jensen (BCS, mechanical engineering, The Danish Engineering Academy, 1965) has, since graduation, been employed in the Nuclear Department of Elsinore Shipbuilding & Engineering Co., Ltd., and has been manager of the department since 1974. He is presently engaged in advanced graduate studies in economics and organizations at the Copenhagen School of Economics and Business Administration.



INVESTIGATION OF IRRADIATED URANIUM-PLUTONIUM CARBONITRIDE FUEL BY MICROPROBE ANALYSIS

C. T. Walker

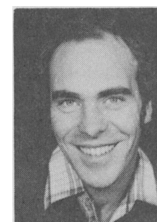
Clive T. Walker (PhD, metallurgy, University of Surrey, England, 1974) is a research officer at the Institute for Transuranium Elements (Euratom), near Karlsruhe, Federal Republic of Germany. His current technical interests include the physical chemistry of conventional and advanced fast breeder fuels and the chemical compatibility of nuclear waste and borosilicate glass.



ON THE CHARACTERIZATION OF ELASTO-PLASTIC MATERIAL BEHAVIOR USING THE CONCEPTS OF CRACK OPENING STRETCH AND J INTEGRAL

*Thomas Hollstein
Johann Georg Blauel*

Thomas Hollstein (top) (Dipl. Phys., Universität Saarbrücken, 1974) is with the Fraunhofer-Gesellschaft, Institut für Festkörpermechanik (solid mechanics), Freiburg, Federal Republic of Germany (FRG). For the past four years, he has been involved in the investigation of fracture problems in steels. **Johann Georg Blauel** (Dr. Ing., chemical engineering, University of Karlsruhe, 1970) has been with the Fraunhofer-Gesellschaft, Institut für Festkörpermechanik (solid mechanics), Freiburg, FRG, since 1963 as a research scientist and head of the Metallic Materials Research Group. His main field of work is fracture mechanics in general, with special emphasis on stress analysis and material problems in relation to the safety of reactor pressure vessels.



ON COMPRESSIBLE FLOW IN A GAS CENTRIFUGE AND ITS EFFECT ON THE MAXIMUM SEPARATIVE POWER

J. J. H. Brouwers

J. J. H. Brouwers (MS, Eindhoven University of Technology; PhD, physics, Twente University of Technology, The Netherlands) is group leader of the Separation Group at the Laboratory for Ultra Centrifuge Development of Ultra Centrifuge Nederland N.V., Almelo, The Netherlands, and is involved in fluid dynamics, physics of isotope separation, and centrifuge technology.



A SIMPLE RELATIONSHIP OF MAXIMUM Δk DUE TO COMPACTION OF UNMODERATED FISSILE MATERIALS

Charles R. Marotta

Charles R. Marotta (BS, physics, St. John's University, 1950) attended New York University from 1950 to 1955 for graduate studies in physics and mathematics. He developed one of the first multigroup diffusion digital computer programs for use with the nuclear powered aircraft projects of the early 1950's. His work and interests have been in the area of reactor theory and design, neutron, and gamma transport and Monte Carlo theory and associated problems in mathematical physics. At present, he is a senior member of the Transportation Branch of the U.S. Nuclear Regulatory Commission.

