



AUTHORS — SEPTEMBER 1971

REACTORS

IN-LINE VACUUM-DISTILLATION SODIUM SAMPLER

W. H. Olson

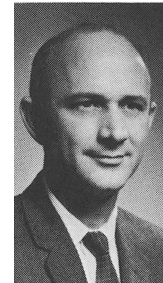
W. H. Olson (BSME, Colorado State University, 1959) has spent 12 years in operation, maintenance, and modification activities at sodium-cooled reactor facilities (SRE and EBR-II). He is presently a staff engineer in the Coolant Chemistry Section of the EBR-II project, where he is responsible for design, installation, and operation of sampling equipment on EBR-II coolant systems.



HOW TO MAKE A PROFIT ON WASTE HEAT

*Sam E. Beall, Jr.
G. Samuels*

Sam E. Beall, Jr. (right) graduated from the University of Tennessee as an industrial engineer and has been active in the design and development of nuclear reactors since the first one at the University of Chicago's Metallurgical Laboratory. He is currently director of the Oak Ridge National Laboratory's Reactor Division. Garland Samuels (BS, mechanical engineering, University of Arkansas, 1947; MS, mechanical engineering, Iowa State University, 1950) is a nuclear engineer with the Oak Ridge National Laboratory and is involved in the design and development work on several reactor projects. He is currently engaged in a study of power units for deep ocean applications.

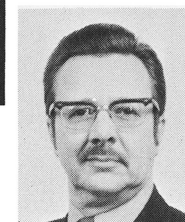
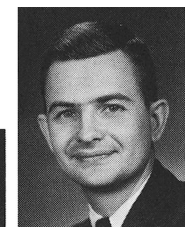
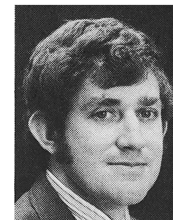


FUEL CYCLES

OPTIMIZATION OF NUCLEAR MATERIALS SAFEGUARDS SAMPLING SYSTEMS BY DYNAMIC PROGRAMMING

*G. D. Bouchey
B. V. Koen
C. S. Beightler*

G. D. Bouchey (left) (MS, nuclear engineering, Kansas State University) is presently a PhD student at the University of Texas at Austin. Among his interests are applied operations research and engineering systems analysis. B. V. Koen (top right) (BS, chemical engineering and BA, chemistry, The University of Texas; MS and ScD, nuclear engineering, The Massachusetts Institute of Technology; Diplome D'Ingenieur EN Genie Atomique, Saclay, France) is presently an assistant professor at the University of Texas. Among his interests are reactor kinetics, queueing theory, and heuristic programming. C. S. Beightler (bottom right) (BS, mechanical engineering, and MS, mathematics, The University of Michigan; PhD, industrial engineering, Northwestern University) is presently a professor of mechanical engineering and coordinator of the Operations



Research Program at the University of Texas at Austin. He has been involved in operations research for a number of years in both the university and industry, and among his current interests is the computer implementation of various optimization techniques.

CHEMICAL PROCESSING

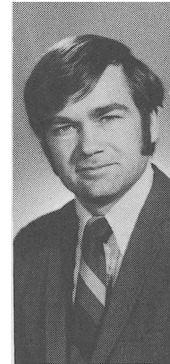
HEAD-END SEPARATION OF TRISO-COATED FISSILE AND FERTILE PARTICLES FOR HIGH-TEMPERATURE GAS-COOLED REACTORS

*S. Langer
N. L. Baldwin
H. R. Phillips*

HEAD-END SEPARATION OF BISO-COATED FISSILE AND FERTILE PARTICLES FOR HIGH-TEMPERATURE GAS-COOLED REACTORS

*S. Langer
H. R. Phillips
N. L. Baldwin*

S. Langer (right) (PhD, chemistry, Illinois Institute of Technology) is currently group leader of the Nuclear Fuels Group in the R&D Division of Gulf General Atomic Company. His interests include fission product release, fuel processing and reprocessing, and in-pile fuel behavior for gas-cooled reactor fuels. N. L. Baldwin (left) (BS, chemistry) is a member of the R&D Division staff and his current areas of study include the transport and release mechanisms of gaseous fission products from nuclear fuel materials. H. R. Phillips (not shown) (BS, chemistry, Roosevelt University, 1963) is a former member of the Nuclear Fuels Group in the R&D Division of Gulf General Atomic Company. He has recently formed his own company, H. R. Phillips, Inc., in La Jolla, California whose interests are outside the field of nuclear technology.



FUELS

AN INVESTIGATION OF FAST-REACTOR FUEL TESTING IN A THERMAL REACTOR CORE

*J. C. Carter
H. Greenspan*

Harold Greenspan (right) (PhD, Illinois Institute of Technology, 1969) is an associate mathematician at Argonne National Laboratory where he is working on methods for reactor calculations. J. C. Carter (BS, U.S. Naval Academy; MS, Columbia University) is a nuclear engineer at the Argonne National Laboratory. Currently his interest is in establishing the relevance of experimental data and mathematical models to the dynamics of nuclear reactors.



REACTOR FUEL MANAGEMENT OPTIMIZATION IN A DYNAMIC ENVIRONMENT

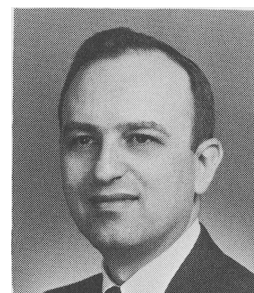
*D. Elias
F. J. Munno*

D. Elias (right) (PhD, nuclear engineering, University of Maryland, 1970), currently a nuclear engineer with the AEC Reactor Development and Technology Division, Washington, D.C., is presently engaged in LMFBR systems engineering. His previous experience includes project engineer on SNAP 11 and senior engineer of advanced power systems at Pratt and Whitney Aircraft. F. J. Munno (PhD, nuclear engineering, University of Florida, 1964) is an associate professor of nuclear engineering at the University of Maryland.



SURFACE HEAT FLUX FOR INCIPIENT BOILING IN LIQUID METAL HEAT PIPES

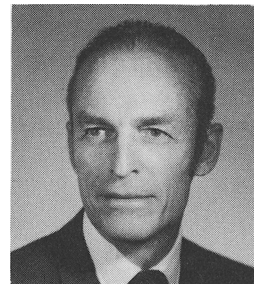
Calvin C. Silverstein



Calvin C. Silverstein (BS, Newark College of Engineering, 1950; MS, Princeton University, 1951) has been an independent consultant in heat transfer, energy conversion, and nuclear power systems since 1965. For the last four years he has specialized in the design of liquid metal heat pipes for nuclear and aerospace applications.

GAS-COOLED FAST BREEDER REACTOR FUEL ROD DESIGN CONSIDERATIONS

W. I. Thompson



W. I. Thompson (ScD, chemical engineering, MIT, 1938) is a senior technical advisor with Gulf General Atomic where he works on development of the gas-cooled fast reactor. He has been a process engineer in the nuclear field since 1941 (Manhattan Project) and has worked on gas-cooled reactors since 1956.

RADIOACTIVE WASTE

STATUS OF THE WASTE SOLIDIFICATION DEMONSTRATION PROGRAM

*Jack L. McElroy
Albert G. Blasewitz
Kenneth J. Schneider*

J. L. McElroy (top right) is a senior engineer in the Chemical Technology Department at Battelle-Northwest. He has been active in the research and development and process engineering associated with radioactive waste management and has been responsible for conducting engineering-scale tests with the Waste Solidification Prototypes. A. G. Blasewitz (left) is an engineering associate in chemistry and chemical engineering at WADCO. He has 23 years of experience and management responsibility in engineering and development work related to nuclear technology, encompassing production reactors, fuels, reprocessing technology, and waste management. K. J. Schneider (bottom right) is an engineering associate in the Chemical Technology Department at Battelle-Northwest. Since 1950 he has held a number of positions in the research and development and process engineering of waste management and reprocessing of spent nuclear fuels.

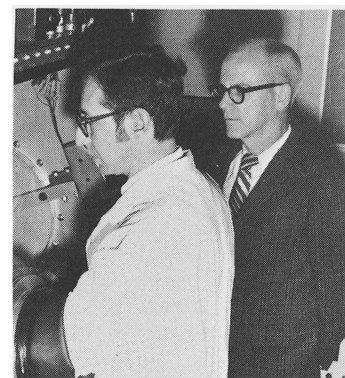


MATERIALS

MEASUREMENT OF CESIUM SORPTION ISOTHERMS IN LIQUID SODIUM

*M. H. Cooper
G. R. Taylor*

G. R. Taylor (right) (BS, chemical engineering, and DSc, physical chemistry, Carnegie Institute of Technology) is manager, Chemical Technology, Westinghouse Advanced Reactors Division. His present responsibilities include development of the chemical technology required for the LMFBR. His previous work at Westinghouse included studies of chemical shim (boric acid) for the PWR. Prior to joining ARD he was manager, Chemistry, PWR Division. M. H. Cooper (MS, chemical engineering, Cornell University) is a fellow engineer in chemical technology at West-



inghouse Advanced Reactors Division. For the past several years he has been investigating the behavior of fission products in sodium. Previous responsibilities included systems engineering and fuel development at United Nuclear Corporation and high-temperature liquid metal and molten salt component development for the ANP program with Pratt and Whitney Aircraft.

CARBON-CARBON MATERIALS FOR ABLATIVE ENVIRONMENTS

E. R. Frye

E. R. Frye, a mechanical engineer (University of Akron) has served as an Army Ordnance Department Proof Officer and Company Commander, design engineer (U.S. Stoneware Company), plant manager (Conneaut Rubber and Plastics), and currently heads the Composites Development Division at Sandia Laboratories. Present activities concern development and application of carbon-carbon composites.



RELIABILITY OF FLUENCE-EMBRITTEMENT PROJECTIONS FOR PRESSURE VESSEL SURVEILLANCE ANALYSIS

C. Z. Serpan, Jr.

Charles Z. Serpan, Jr. (BS, chemistry, Ohio University) has been associated with the Metallurgy Division, Reactor Materials Branch, of the Naval Research Laboratory in Washington, D.C. since 1962. He is primarily concerned with the interpretation of radiation effects from differing nuclear environments and has conducted extensive studies on methods of correlating radiation effects data. He is furthermore responsible for all neutron dosimetry and spectrum considerations of the analyses of neutron radiation effects on reactor structural materials for the Branch research program.



NUCLEAR EXPLOSIVES

SOME COMMENTS ON THE POSSIBILITY OF THERMODYNAMICALLY EQUILIBRATING WASTE ORGANIC MATERIALS WITH NUCLEAR DEVICES

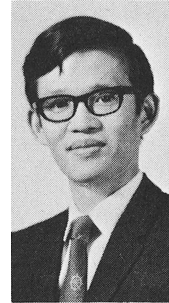
David R. Safrany

David Safrany (BS, PhD, physical chemistry, Rensselaer Polytechnic Institute) has had extensive experience in gas kinetics and dynamics and has authored numerous papers dealing with atomic and free radical reactions and nitrogen fixation. At present, he heads the Gas Kinetics Group at the Bechtel Corporation Laboratory where his current interests are studies of nitrogen oxides formation during hydrocarbon combustion, chemonuclear synthesis studies, and studies of H_2 production from solid wastes.

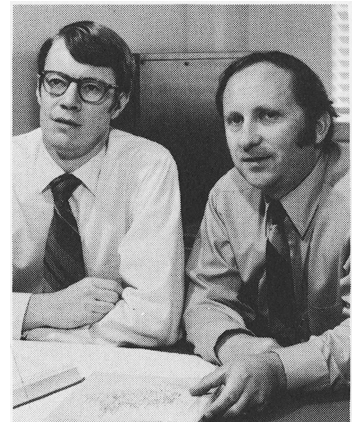


SUBLIMING NUCLEAR MICROTHRUSTER AND ITS SPACE APPLICATIONS*Philip T. Choong
Edward A. Mason*

Philip T. Choong (left) (PhD, nuclear engineering, MIT, 1969) started his career at the Stone and Webster Engineering Corporation where he worked on radiation shielding for power reactors. Currently, he is a senior scientist at United Nuclear Corporation. His present interests are in the reactor physics and numerical techniques for multidimensional problems encountered in LWR fuel management. Edward A. Mason (ScD, chemical engineering, MIT, 1950) is the chairman of the Nuclear Engineering Department at MIT. He has been actively involved in various aspects of nuclear power technology. His present research interests are in nuclear fuel management.

**EFFECT OF GAMMA RADIATION ON LMFBR SUBCRITICALITY MEASUREMENTS USING NOISE ANALYSIS***D. P. Roux
A. R. Buhl*

Dominique P. Roux (right) (PhD, physics, University of Geneva, Switzerland, 1958) has been a member of the Oak Ridge National Laboratory's Instrumentation and Controls Division since 1960. He is currently in charge of the Reactor Controls Research and Development Group. His primary interests are in reactor noise analysis, advanced neutron sensors, and nuclear instrumentation. Anthony R. Buhl (PhD, University of Tennessee, 1967) is a nuclear engineer with the same division. At ORNL he is involved in the development of a subcriticality measurement system for LMFBRs. His primary interests are in theoretical and experimental methods development for fast reactor kinetics and dynamics.

**A GLASS AMPOULE SEALER***G. J. Pokorny
A. D. Paulsen*

George Pokorny (left) is a staff member in the Materials Science Division at Argonne National Laboratory where he has been involved with the design of equipment and services for hot cells and glove boxes. Since 1959 he has been assigned to ANL's Plutonium Fabrication Facility. Art Paulsen is a manufacturer's representative in ANL's Fabrication Procurement Division, and is responsible for quality assurance and surveillance of commercially fabricated fuel elements.

