

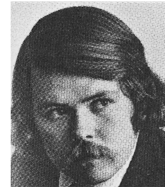


AUTHORS — SEPTEMBER 1974

REACTORS

MEASUREMENTS OF NEUTRON FLUXES IN STRONGLY ABSORBING GASEOUS MEDIA

*W. Bixby
K. Almenas*



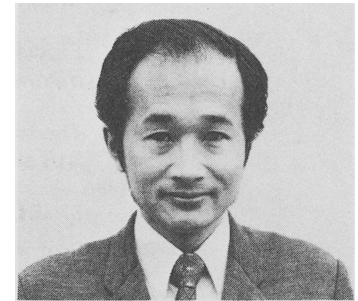
Willis W. Bixby (top) (PhD, nuclear engineering, University of Maryland) is currently employed by the U.S. Atomic Energy Commission in the Division of Reactor Safety Research. His areas of interest include reactor physics and two-phase flow phenomena. K. Almenas (PhD, nuclear engineering, University of Warsaw, 1968) is currently an associate professor at the University of Maryland. His interests are in the neutron and gamma-transport fields.



TRIANGULATION OF LOCAL COOLANT BOILING BY CROSS-CORRELATING ACOUSTIC NOISE SIGNALS

Hideaki Nishihara

Hideaki Nishihara (PhD, nuclear engineering, University of Michigan, 1965) is an assistant professor of nuclear engineering at Kyoto University. His research interests include reactor safety, reactor malfunction diagnosis, and the planning of nuclear energy systems. While on leave from Kyoto University in 1972-73, he was with the Department of Nuclear Engineering Sciences, University of Florida.

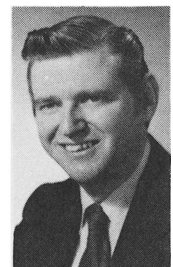


REACTOR SITING

A METHODOLOGY FOR POWER PLANT SITE SELECTION AT THE RECONNAISSANCE LEVEL

*Matthew C. Cordaro
William T. Malloy*

Matthew C. Cordaro (top) (PhD, applied nuclear physics, Cooper Union) is Manager of Environmental Engineering for the Long Island Lighting Company (LILCO). He has developed, coordinated, and administered for LILCO many of its environmental programs and is responsible for assuring that Company operations have the minimum practicable impact on the environment and comply with all applicable regulations. William T. Malloy (BS, industrial engineering, Hofstra University; MBA, Hofstra University) is vice president and general manager, Environmental and Mapping Division, Grumman Ecosystems Corporation. He is in charge of providing environmental and mapping services. His prior experience includes engineering management for the U.S. Army Corps of Engineers and the direction of multimillion dollar programs for Grumman Aerospace Corporation.



PLUTONIUM COATED PARTICLES DEVELOPMENT

H. Bairiot (center left) (MS, actuary, University of Louvain; MS, Massachusetts Institute of Technology), who joined Belgonucleaire (BN) in 1956 and after training in the United States in fuels, was in charge of the plutonium fuel manufacturing development from 1960 to 1963 and of the Belgian plutonium recycle program (partially sponsored by Euratom) from 1963 to 1972. He is presently responsible for fuel engineering activities of the company. L. Aerts (right) (engineering, electronics, metallurgy), who joined BN in 1963, was involved with the development of manufacturing techniques for HTR uranium fuels. Recently, he was put in charge of the HTR fuels production (industrial scale) and of the HTR plutonium fuels (demonstration scale). He is also responsible for the joint activities with SCK/CEN in the field of mixed carbide fuels. E. Trauwaert (left) (BS, University of Louvain), who joined BN in 1968, was delegated to The Nuclear Power Group Ltd. (GB) to work in the field of HTR fuels. Back at BN in June 1970, he was put in charge of studies on fuel economics. He is presently in charge of postirradiation examinations of thermal reactor fuels. J. Vangeel (center right) (engineering, chemistry, metallurgy) joined the SCK/CEN in 1955 and has been involved with fuel manufacturing techniques development. He is presently responsible for the HTR uranium and plutonium coated particle fuels (coating) and the common SCK/CEN-Bn activities in this particular field.

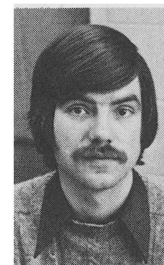
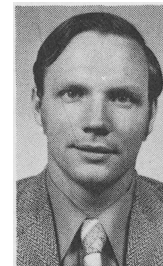
*H. Bairiot
L. Aerts
E. Trauwaert
J. Vangeel*



TRIGA CORE MANAGEMENT MODEL

William F. Naughton (top left) (PhD, nuclear engineering, The Pennsylvania State University) is currently reviewing and evaluating the Zion core physics data in the Production Nuclear Reactor Analysis Section of Commonwealth Edison Company. His main interests lie in core management and fuel cycle economics. Michael J. Cenko (top right) (BS, physics, Stevens Institute of Technology, 1970; MS, nuclear engineering, The Pennsylvania State University) is a graduate student at The Pennsylvania State University. His special interests include full use of computer systems in reactor physics calculations, fuel management, and Monte Carlo techniques. Samuel H. Levine (bottom left) (PhD, nuclear physics, University of Pittsburgh, 1954) is professor of nuclear engineering and director of the Breazeale Nuclear Reactor at Penn State. His technical interests currently are fuel management, neutron spectrum measurements, and research with TRIGA reactors. Warren F. Witzig (bottom right) (MS, electrical engineering, Rensselaer Polytechnic Institute, 1944; PhD, physics, University of Pittsburgh, 1952) is professor and department head of nuclear engineering, The Pennsylvania State University. Special interests include fuel management, reactor design, nuclear safety and licensing, and environmental problems associated with radiation waste and thermal effects.

*W. F. Naughton
M. J. Cenko
S. H. Levine
W. F. Witzig*



CARBON EQUILIBRIUM RELATIONSHIPS FOR AUSTENITIC STAINLESS STEELS IN A SODIUM ENVIRONMENT

Stuart A. Shiels (right) (PhD, metallurgy, University of Newcastle upon Tyne, England) has been with the Westinghouse Advanced Reactors Division since 1967. He currently holds the position of principal engineer and is responsible for the interstitial transfer studies in sodium systems. Chris Bagnall (center) (MA, metallurgy, University of Cambridge, England) joined the Westinghouse Advanced Reactors Division in 1969. He is a senior engineer in the Mass Transfer Studies Group working chiefly in the areas of interstitial transfer and sodium corrosion. Steven L. Schrock (left) (PhD, chemical engineering, Purdue University) is manager of Mass Transfer Studies Group at Westinghouse Advanced Reactors Division and is responsible for all in-sodium materials testing within the division. His liquid-metal experience started in 1963 with the Allison Division of General Motors.

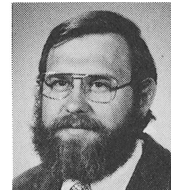
*Stuart A. Shiels
Chris Bagnall
Steven L. Schrock*



FLOW PATTERNS IN SODIUM COLD TRAP CRYSTALLIZER

David H. Lester (top) (PhD, chemical engineering, University of Rochester, 1969) is a senior development engineer for Battelle Northwest Laboratories, Richland, Washington. He joined Battelle after working at Hanford Engineering Development Laboratory of the FFTF project. He is currently working in nuclear isotope applications to medicine and nuclear waste management technology. Gerald R. Bloom (MS, Institute of Paper Chemistry, Lawrence College, 1964) is an advanced engineer in the Hanford Engineering Development Laboratory at Richland, Washington. He is currently doing research and development support work for the FFTF and LMFBR Programs in the area of sodium purification.

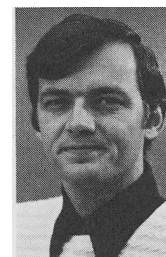
*David H. Lester
Gerald R. Bloom*



THE INFLUENCE OF GAS ENVIRONMENTS ON FATIGUE CRACK GROWTH RATES IN TYPES 316 AND 321 STAINLESS STEEL

M. W. Mahoney (top) (BS, physical metallurgy, University of California, Berkeley), currently enrolled in an MS program at the University of California, Los Angeles, is a member of the ASME Subcommittee on Elevated Temperature Fatigue and Fracture. His previous work has been in nuclear reactor materials development, and he is currently investigating fracture, creep, and stress corrosion at elevated temperatures in a variety of materials. N. E. Paton (BS and MS, metallurgical engineering, University of Auckland, New Zealand; PhD, Massachusetts Institute of Technology) is a member of Sigma Xi, American Society for Metals, Metallurgical Society of AIME, Professional Engineers of Ontario, and the AIME Mechanical Metallurgy Committee. His current research interests include stress corrosion, fracture, and mechanical properties of various materials.

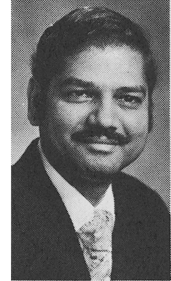
*M. W. Mahoney
N. E. Paton*



PROTON DOSE APPROXIMATION IN ARBITRARY CONVEX GEOMETRY

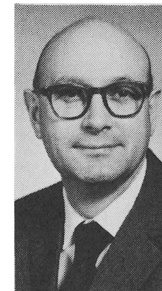
John W. Wilson (top) (MS, physics, College of William and Mary, 1968) has been an employee of NASA, Langley Research Center, since 1963. His areas of interest are high energy and nuclear physics, radiation transport, and real-time flight simulation. Govind S. Khandelwal (PhD, physics, University of North Carolina, 1966) is an associate professor and graduate program director in physics at Old Dominion University, Norfolk, Virginia. His fields of interest are theoretical atomic, nuclear, and radiation physics.

*John W. Wilson
G. S. Khandelwal*

**RAY TRACING THROUGH REACTOR SHIELDS**

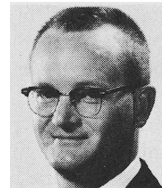
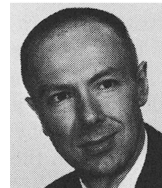
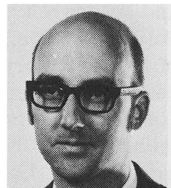
O. J. Wallace (top) (MS, University of Pittsburgh) is a senior scientific programmer in the Engineering Design Programming Group at the Bettis Atomic Power Laboratory, where his main work for the last eight years has been the development and programming of point-kernel techniques. Neil Cook (MS, University of Pittsburgh, 1961) is a senior scientific programmer in the Computer Systems Programming Group at the Bettis Laboratory. In the past he has been involved with several shielding and cross-section library programs, and his current activity is in the area of programmer support software.

*O. J. Wallace
N. D. Cook*

**A CONTINUOUS IN-LINE MONITOR FOR UF_6 ENRICHMENT**

T. D. Reilly (top left) (PhD, physics, Case Western Reserve University), E. R. Martin (top right) (PhD, physics, University of Utah), J. L. Parker (center left) (PhD, physics, University of Utah), L. G. Speir (bottom right), and R. B. Walton (bottom left) (PhD, physics, University of Wisconsin) are members of the Los Alamos Scientific Laboratory, working in the Nuclear Analysis Research Group to develop techniques for nondestructive assay of fissionable materials.

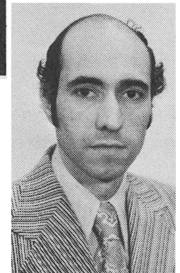
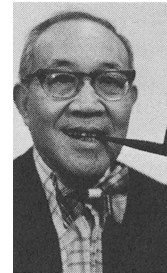
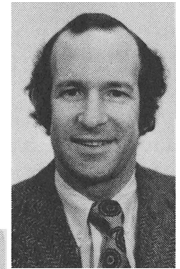
*T. D. Reilly
E. R. Martin
J. L. Parker
L. G. Speir
R. B. Walton*



THE MEASUREMENT OF EXTREMELY LOW-LEVEL RADIOIODINE IN AIR

N. P. Goldstein (top) (PhD, nuclear physics, McGill University, 1967) is a Fellow Scientist at the Westinghouse Research Laboratories, Pittsburgh, Pennsylvania. He has carried out experimental and theoretical studies on nuclear scattering, radiation effects in semiconductors, and in-core neutron detectors. His current research interests are in the development of advanced radiation monitors for power plants and environmental surveillance. K. H. Sun (center) (PhD, University of Pittsburgh, 1940) has been manager of the Radiation and Nucleonics Laboratory, Westinghouse Research Laboratories, since 1955. He was a Fullbright Professor and an IAEA Visiting Professor to Taiwan, and also served as nuclear consultant to a University of Michigan Atomic Energy Project. He has 32 years experience in nuclear science and technology and has worked in various fields, such as nuclear detectors and monitors, nuclear reactions including activation, radiation effects, space radiations, and applications of nuclear radiations in industry. J. L. Gonzalez (bottom) (associate degree, EE, Westinghouse Tech, Pittsburgh, Pennsylvania, 1962) has been with the Radiation and Nucleonics Laboratory, Westinghouse Research Laboratories since 1962 working in the areas of neutron activation and gamma-ray spectroscopy. He is presently involved in the development of techniques and equipment for the environmental and power-plant monitors of radioactivity.

*N. P. Goldstein
K. H. Sun
J. L. Gonzalez*



A SIMPLE DEVICE USING CAPACITANCE SWITCHES FOR DATA ENTRY IN MAN-MACHINE SYSTEMS

Michael Danchak (top left) (BSE, Princeton, 1965; MS, Rensselaer Polytechnic Institute, 1973) is completing work on his PhD dissertation and joined Combustion Engineering in July. His main interests lie in the application of interactive graphics to the nuclear field and the associated man-machine communications and human factors problems. William R. Moyer (top right) (PhD, Rensselaer Polytechnic Institute, 1966) is an assistant professor of nuclear engineering at Rensselaer, and director of computer operations and research in the Linear Accelerator Laboratory. In July he will join the Division of Laboratories and Research of the New York State Department of Health as an associate research scientist in computer systems design analysis. Joseph R. Tatarczuk (bottom left) (PhD, Rensselaer Polytechnic Institute, 1965) is assistant to the director, Linear Accelerator Laboratory at Rensselaer, where he is involved in nuclear physics research and real-time data acquisition instrumentation. Also, as physicist, V.A. Hospital, Albany, New York, he is engaged in the physics and computerization aspects of nuclear medicine. Martin Becker (bottom right) (PhD, Massachusetts Institute of Technology, 1964) has been a member of the Rensselaer Polytechnic Institute faculty since 1966 where he has been concerned with theory and computation related to fast breeder reactors. He is a member of the Advisory Committee for Reactor Physics, several ANS Committees, and serves as a consultant to Argonne National Laboratory, Gulf Nuclear Fuels Corporation, and the duPont Company (Savannah River Laboratory).

*Michael Danchak
William R. Moyer
Joseph R. Tatarczuk
Martin Becker*

