



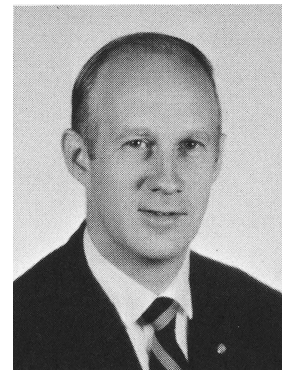
AUTHORS — OCTOBER 1971

REACTORS

EVALUATION OF CRITICAL MASS FOR OPEN-CYCLE GAS-CORE ROCKET REACTORS

Robert E. Hyland

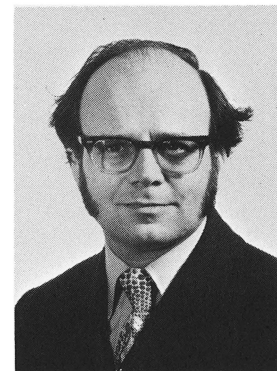
Robert E. Hyland (BS, Cleveland State University, 1955) has been working at NACA-NASA since 1955 in the Advanced Concepts Group at the Lewis Research Center. He has been involved in gas-core work, analytically and experimentally, since 1958. Other areas of interest and involvement of nuclear propulsion have included the large subsonic airplane and air cushion vehicles.



ANOMALIES IN THE ANALYSIS OF AIR-SPACED ARRAYS

Thomas Gutman

Thomas Gutman (BS, mechanical engineering, Rochester Institute of Technology, 1959) is the nuclear licensing and safety supervisor at the Combustion Engineering Nuclear Products Manufacturing, Windsor facility, where he is responsible for radiological, criticality, and industrial safety.

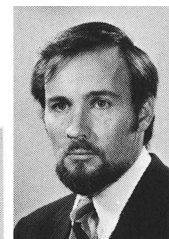
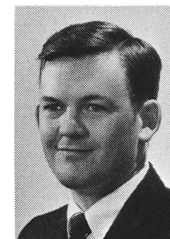


REACTOR SITING

A RISK ESTIMATE FOR AN URBAN-SITED REACTOR

*Harry J. Otway
Ronald K. Lohrding
Morris E. Battat*

Harry J. Otway (top) (PhD, UCLA) has been at the University of California, Los Alamos Scientific Laboratory since 1958, involved in both the design and testing of Rover project nuclear rocket reactors. More recently he has been in the Test Division working on the Plowshare program and nuclear-related environmental problems. Ronald K. Lohrding (center) (PhD, mathematical statistics, Kansas State University) has been in the Statistical Consulting Group at LASL for over two years. His research interests are in nonparametric statistics and hypothesis testing. Morris E. Battat (bottom) (PhD, physics, Washington University) is a member of the Theoretical Division at LASL and is presently engaged in evaluating and testing nuclear data for reactor applications. He has also taught courses at the University of New Mexico in reactor shielding and interactions of radiation with matter.



PRESSURE EQUALIZATION SYSTEM FOR GAS-COOLED FAST BREEDER REACTOR FUEL ELEMENTS

Robert J. Campana

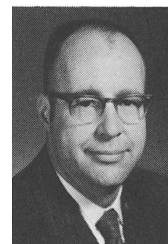
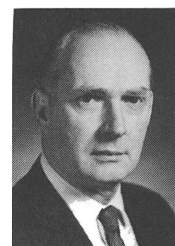
Robert Campana (BS, engineering physics, University of Maine, 1949) is a senior staff engineer at Gulf General Atomic where he has been engaged in the development of the gas-cooled fast breeder reactor (GCFR) since 1965 and has been primarily associated with the development of the vented fuel element.



AN ANALYTIC MODEL FOR THE PREDICTION OF IN-PILE BEHAVIOR OF OXIDE FUEL RODS

*E. Duncombe
C. M. Friedrich
W. H. Guilinger*

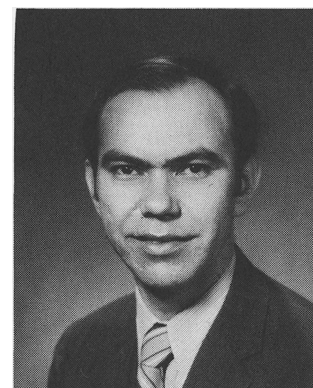
Eliot Duncombe (top) (PhD, University of Pittsburgh, 1965) is presently an advisory engineer in the Reactor Materials Analysis Section of Bettis Atomic Power Laboratory (BAPL). His current interest is in the field of fuel element analysis and investigation of material properties relating to fuel elements. Carl M. Friedrich (center) (DSc, mechanical engineering, Carnegie Institute of Technology, 1952) is presently an advisory engineer in the Structural Mechanics Section, BAPL. He has been engaged in developing analytical models and techniques for the representation of fuel elements and other reactor components. Willis H. Guilinger (bottom) (PhD, mathematics, University of Pittsburgh, 1963) is a supervisor in the Structural Mechanics Section, BAPL. He is responsible for the development of analytical methods and computer applications relating to the design of fuel elements and core structural components.



ESTIMATES OF FUEL CONTAINMENT IN A COAXIAL FLOW GAS-CORE NUCLEAR ROCKET

Henry A. Putre

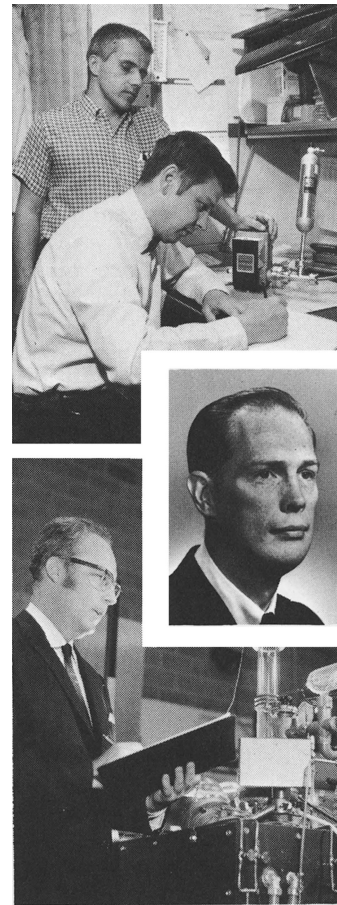
Henry A. Putre (MS, mechanical engineering, Cornell University) joined NASA-Lewis in 1963 and works in the Nuclear Systems Division on advanced nuclear concepts. His work is concerned mainly with reactor heat transfer and fluid mechanics. His past experience includes the design and testing of a 30-kW pressurized helium in-pile loop.



A HYDROGEN MONITOR FOR DETECTION OF LEAKS IN LMFBR STEAM GENERATORS

D. R. Vissers (second from top) (PhD, chemistry, The University of Wisconsin) is a member of the technical staff of the Chemical Engineering Division at Argonne National Laboratory. He is currently working on the design and development of hydrogen meters for LMFBR systems. J. T. Holmes (top) (MS, chemical engineering, University of California, Berkeley, 1960) is a group leader in the Chemical Engineering Division at Argonne National Laboratory. He is in charge of developing and testing on-line monitors for LMFBR systems including meters for hydrogen, oxygen, and carbon, and steam-to-sodium leak detectors for LMFBR steam generators. P. A. Nelson (inset) (PhD, chemical engineering, Northwestern University, 1958) is the engineering section head in the Sodium Technology Program of the Chemical Engineering Division. The efforts of his section are directed toward developing on-line sodium impurity monitors and failed fuel-element detection systems for LMFBRs. L. G. Bartholme (bottom) is a member of the technical staff of the Chemical Engineering Division. He is an expert in both high vacuum technology and sodium loop operation. Currently, he is working on the development of the hydrogen meter for LMFBR systems.

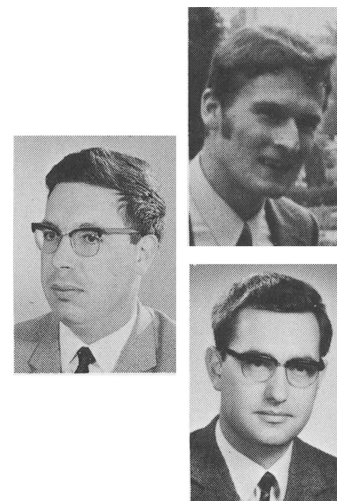
*D. R. Vissers
J. T. Holmes
P. A. Nelson
L. G. Bartholme*



A METHOD OF NONDESTRUCTIVE MEASUREMENT OF THE ABSOLUTE CUMULATIVE BARIUM-140 YIELD OF URANIUM IRRADIATED IN THERMAL AND FAST NEUTRON SPECTRA

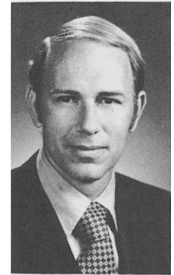
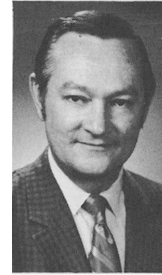
Wolfhard Krappel (top), a reactor physicist working on the development of measuring techniques for fast zero-power reactors, is now engaged in methods for nondestructive techniques for nuclear material assay at the Nuclear Engineering Institute, University of Hanover. Heinz Seufert (bottom) (PhD, nuclear engineering, University of Karlsruhe) is currently doing consulting work on the application of process-control computers in nuclear industry. Until 1969 he was with Gesellschaft fuer Kernforschung mbH, Karlsruhe. Dieter Stegemann (center) (PhD, nuclear engineering, University of Karlsruhe) is involved in development work in fast power breeders. He is now professor of nuclear engineering at the University of Hanover and head of the Nuclear Engineering Institute.

*W. Krappel
H. Seufert
D. Stegemann*

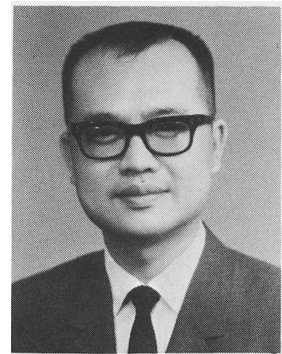


EXPERIMENTAL MEASUREMENT OF GAMMA HEAT IN THE HIGH FLUX ISOTOPE REACTOR*R. L. Senn
W. R. Mixon*

R. L. Senn (left) (BS, chemical engineering, University of Oklahoma, 1952) is a development specialist for irradiation engineering with the Reactor Division of Oak Ridge National Laboratory, where he has worked since 1956. William R. Mixon (BS, chemical engineering, University of Arkansas; MS, engineering science, University of Tennessee, 1968) has been with the Reactor Division at Oak Ridge National Laboratory since 1957. He is presently active with the Water Research Program at ORNL in the development of desalination of brackish waters by hyperfiltration using dynamic membranes.

**SAFETY CONSIDERATIONS FOR RECHARGE OF THOR SPENT FUELS IN ZPRL***P. S. Weng*

Pao-Shan Weng (PhD, nuclear engineering, Texas A&M University) is chief of the Health Physics Section of National Tsing Hua University where he has been teaching since 1967. He is also a consultant to the Chinese AEC and is doing environmental monitoring for the first power reactor [BWR 500 MW(e)] in Taiwan. His main interests are in dosimetry, activation analysis, and environmental survey.

**INVESTIGATION OF A DEVICE USING RADIATION TO CHARGE AND COLLECT PARTICULATE MATTER***William Dickter
M. A. Schultz*

William Dickter (top) (MS, nuclear engineering, The Pennsylvania State University) is currently a doctoral candidate in the Nuclear Engineering Department of The Pennsylvania State University. Present research activity involves a study of photon transport and shielding. M. A. Schultz (BS, electrical engineering, MIT, 1939) is a professor in the Nuclear Engineering Department at The Pennsylvania State University. He has been involved with nuclear control of the submarine *Nautilus*. His current interests range from the reliability of nuclear safety systems to the effects of power plants on the environment.

