



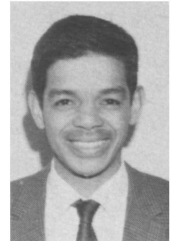
AUTHORS — FEBRUARY 1977

REACTORS

IN SITU REGENERATION OF FUSION REACTOR FIRST WALLS

Jack Chin (top) (MS, University of California at Los Angeles) has been involved in the development of pyro-carbon, silicon nitride, silicon aluminum nitride, silicon carbide, and tungsten coatings by vapor-phased processes for fusion, high-temperature gas-cooled reactor (HTGR), and thermionic reactor concepts since joining the General Atomic Company in 1962. He also has been a major contributor in the development of nuclear fuel particles, ceramic-to-metal seals trilayer insulators, and the testing of HTGR fuel concepts. Tihiro Ohkawa (Dr. Sci., physics, University of Tokyo, 1958) joined the staff at General Atomic Company in 1960 and is the director of the Fusion Division. His activities have included both theoretical and experimental controlled thermonuclear (fusion) work. He is co-inventor of the Multipole machine and inventor of the Doublet device. He is internationally known for his work with high-energy accelerators and plasmas. Since 1955, he has worked at the European Organization for Nuclear Research (CERN), the University of Tokyo, and at MURA. He is an adjunct professor at the University of California at San Diego.

*J. Chin
T. Ohkawa*



ANALYSIS OF REACTOR COMPONENT FLUENCE LIMITS USING DAMAGE FUNCTION METHODS

G. Robert Odette (top left) (PhD, nuclear engineering, Massachusetts Institute of Technology, 1970) is an associate professor of nuclear engineering at the University of California at Santa Barbara. His principal areas of teaching and research are in radiation effects and nuclear metallurgy, neutron dosimetry, fusion reactor technology, and energy and the environment. R. L. Simons (top right) (BA, physics, Western Washington State College, 1967) has been with Westinghouse Hanford Company since 1970 and is engaged in neutron dosimetry and irradiation effects studies for the liquid-metal fast breeder reactor program. W. N. McElroy (bottom left) (PhD, Illinois Institute of Technology, 1965) has been engaged in neutron dosimetry and irradiation effects studies for reactor fuels and materials development programs for the past 10 years. He is presently a fellow scientist in the Irradiation Analysis Section of Westinghouse Hanford Company and has technical responsibility for the operation of the Fast-Reactor Materials Dosimetry Center at the Hanford Engineering Development Laboratory (HEDL). Donald G. Doran (bottom right) (PhD, physics, Washington State University, 1960) has worked at HEDL since 1967 in the field of radiation damage analysis. He is currently a fellow scientist, with technical responsibility for radiation damage analysis studies in fission and fusion reactor programs.

*G. R. Odette
R. L. Simons
W. N. McElroy
D. G. Doran*



TORODIAL FIELD STRENGTH REQUIREMENTS IN TOKAMAK REACTORS

Weston M. Stacey, Jr. (top) (BS, physics, 1959; MS, nuclear science, Georgia Institute of Technology, 1962; PhD, nuclear engineering, Massachusetts Institute of Technology, 1966) is currently director of the Controlled Thermonuclear Reactor (CTR) Program at Argonne National Laboratory (ANL). His background is in fission reactor theory and more recently in fusion reactor engineering. Kenneth Evans, Jr. (BS, engineering physics, 1963; PhD, physics, University of Illinois, 1970) is involved in CTR plasma physics at ANL.

W. M. Stacey, Jr.
K. Evans, Jr.



SENSITIVITY ASSESSMENTS IN REACTOR SAFETY ANALYSIS

John E. Kelly (top left) (BS, physics, Seattle University, 1964) has been an employee of Science Applications, Inc. since leaving the *Reactor Safety Study* staff in 1974. His area of interest is the application of safety (probability) techniques to the analysis of nuclear power plants. F. L. Leverenz (top right) (BSEE, University of Cincinnati, 1966) has been employed at Science Applications, Inc. since 1974. Prior to this, he was a member of the *Reactor Safety Study* staff. His main area of interest is the development of safety and reliability analysis methodology. N. J. McCormick (bottom left) (PhD, nuclear engineering, University of Michigan, 1965) is a professor of nuclear engineering at the University of Washington. He recently spent a year's leave-of-absence with the Palo Alto office of Science Applications, Inc., working on reactor safety studies. R. C. Erdmann (bottom right) (PhD, nuclear engineering, California Institute of Technology, 1965) is manager of the Safety and Reliability Division for Science Applications, Inc., and is responsible for an accident/risk analysis of a fuel reprocessing plant, reactor-engineered safeguard systems, and reactors and their comparison to other risks.

J. E. Kelly
F. L. Leverenz, Jr.
N. J. McCormick
R. C. Erdmann



CHEMICAL PROCESSING

STUDY OF THE DISSOLUTION OF REFRACTORY PuO₂ IN NITRIC-HYDROFLUORIC ACID DISSOLVENTS AT 100°C

O. K. Tallent (left) (BS, chemistry, University of Tennessee, 1968) is a task leader in the Chemical Technology Division of Oak Ridge National Laboratory (ORNL). He has been engaged in various reactor fuel preparation and reprocessing studies, including UO₂-PuO₂ sol gel preparation, actinide oxide separations from molten salts, and a variety of plutonium aqueous system studies. His current interests include problems common to both liquid-metal fast breeder reactor (LMFBR) and light-water reactor (LWR) fuel reprocessing plants. James C. Mailen (PhD, chemical engineering, University of Florida, 1964) is a group leader in the Chemical Technology Division at ORNL. He has been engaged in various reactor fuel reprocessing areas, including fluoride volatility methods, molten salt breeder reactor studies, and aqueous processing of LMFBR and LWR fuels. His current interests include problems common both to LMFBR and LWR fuel reprocessing plants.

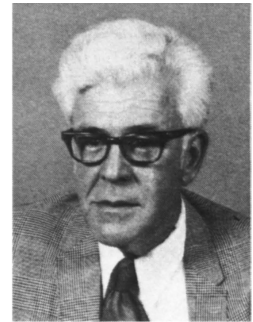
O. K. Tallent
J. C. Mailen



URANIUM-236 IN LIGHT WATER REACTOR SPENT FUEL RECYCLED TO AN ENRICHING PLANT

A. de la Garza

Andres de la Garza (BSME, Rice University, 1943) is a senior staff consultant with the Operations Analysis and Planning Division of Union Carbide Corporation, Nuclear Division, Oak Ridge, Tennessee. He has been involved with uranium-enriching activities since the startup of the first gaseous diffusion plant at Oak Ridge. His current work is in the interfaces of uranium enriching with other steps in the nuclear power fuel cycle.



THE REACTIVITY PERTURBATION ASSAY OF IRRADIATED FUEL RODS

*L. Green
J. T. Kriese
M. Natelson*

Lawrence Green (top) (PhD, physics, Pennsylvania State University, 1973) is a fellow scientist in the Experimental Physics Group of the Shippingport Project at the Bettis Atomic Power Laboratory (BAPL). His principal areas of work have been in the measurement of differential and integral neutron cross sections and fission neutron spectra. His current interests include the application of nuclear techniques to nondestructive testing. John T. Kriese (center) (PhD, nuclear engineering, North Carolina State University, 1972) is a senior scientist in reactor development and analysis activity at BAPL. His current interests include sampling techniques, Monte Carlo simulation, and neutron transport theory. Michael Natelson (bottom) (PhD, nuclear engineering, University of Michigan, 1965) is manager of Nuclear Design in the Shippingport Project at BAPL. Formerly, he was manager of Experimental Physics in the same project. His current interests are in the nuclear performance of light water breeder reactors. Previously, he was active in the development of nuclear design methods (transport theory and synthesis techniques) and in the study of neutron population fluctuation phenomena in nuclear reactors.



A GAMMA-RAY PERIMETER SECURITY SYSTEM

Donald A. Close

Donald A. Close (PhD, physics, The University of Kansas, 1972) is a staff member in the Nuclear Safeguards, Reactor Safety, and Technology Division at the Los Alamos Scientific Laboratory and is active in the research and development of nondestructive assay systems for nuclear material control.

