nuclear technology/Fusion™

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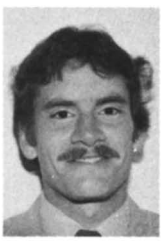
ICF CHAMBER ENGINEERING

IMPROVEMENT OF THE TWO-TEMPERATURE RADIATIVE TRANSPORT MODEL

Thomas J. McCarville
Gregory A. Moses
Gerald L. Kulcinski
Ihor O. Bohachevsky



Thomas J. McCarville (top right) [BSME, Arizona State University, 1977; PhD, University of Wisconsin (UW), Madison, 1982] is currently a member of the Energy Development Group at TRW. His research interests are in the area of engineering design and analysis for magnetic and inertial confinement fusion (ICF) devices. He is currently a member of the TRW design team for mirror fusion test facility-B. **Gregory A. Moses** (top left) (PhD, nuclear engineering, University of Michigan, 1976) is an associate professor of nuclear engineering at UW. His research interests include ICF reactor technology, radiation hydrodynamics, and transport theory. He worked for two summers at Lawrence Livermore National Laboratory and in recent years has been a visiting staff member with the Target Design Group at the Los Alamos National Laboratory (LANL). **Gerald L. Kulcinski** (bottom right) (BS, chemical engineering, and PhD, nuclear engineering, 1965, UW) is currently a professor in the Nuclear Engineering Department and director of the Fusion Engineering Program at UW-Madison. He has also conducted and directed research on the effects of radiation on metals while serving as a senior research scientist at the Battelle-Pacific Northwest Laboratories from 1965 to 1971, when he was also a lecturer at the Center for Graduate Study in Richland, Washington. In 1963, he worked on the Nuclear Rocket Program at LANL. His current research interests lie with the assessment of the technological problems associated with the production of power from both controlled thermonuclear and fission reactors and with specific problems of metals exposed to the intense radiation environment associated with fission and fusion reactors. **Ihor O. Bohachevsky** (bottom left) (BAE magna cum laude, New York University, 1956; PhD, applied mathematics, New York University, 1961) is a staff member in the Analysis and Assessment Division of LANL. His current work is in the area of ICF systems and applications studies with particular emphasis on the identification and solution of technical problems associated with the utilization of fusion energy. His previous work in the areas of fluid mechanics, numerical analysis, magnetohydrodynamics, and mathematical modeling was carried out at Cornell Aeronautical Lab, Buffalo, New York; Avco-Everett Research Lab, Everett, Massachusetts; and Bell Telephone Lab, Murray Hill, New Jersey.

TRITIUM SYSTEMS

CANADIAN EXPERIENCE WITH TRITIUM—THE BASIS OF A NEW FUSION PROJECT

Thomas S. Drolet
Kam Yuen Wong
Paul J. C. Dinner

Thomas S. Drolet (top) (PEng, MSc, and PhD, Royal Military College of Canada and University of London, England) has been at Ontario Hydro, a Canadian utility, since 1969 working in nuclear operations and design in decontamination, waste management, fuel disposal, heavy water production, and tritium management systems. He is currently the program manager for the Canadian Fusion Fuels Technology Project (CFFTP). **Kam Yuen Wong** (center) (PhD, University of Toronto, 1969) is a technical manager with the Health and Safety Division of Ontario Hydro. He worked in the development of radiation dosimetry programs, radiation protection practice, and environmental standards and monitoring. He is presently on special assignment with the CFFTP to prepare a reference document on Canadian tritium technology and experience that may have application to fusion. **Paul J. C. Dinner** (bottom) (BSc Hons, applied mathematics, 1969; MSc, physics, Laurentian University of Sudbury, Ontario, 1972; MEng, nuclear engineering, University of Toronto, 1978) is a supervising design engineer with the CFFTP. His responsibilities include management of contract R&D and fusion engineering design studies.

PROPORTIONAL-INTEGRAL CONTROL MODES FOR A HYDROGEN ISOTOPE DISTILLATION COLUMN

Masahiro Kinoshita
John R. Bartlit
Robert H. Sherman

Masahiro Kinoshita (top) (MS, chemical engineering, Kyoto University, 1979; PhD, chemical engineering, Kyoto University, 1983) has worked on development of computer-aided simulation procedures and programs for stage processes both in the fuel cycle system for a fusion reactor and in other chemical engineering systems. He has also started preliminary experimental study for cryogenic distillation. **John R. Bartlit** (center) (BSChE, Purdue University, 1956; DEng, chemical engineering, Yale University, 1963) joined Los Alamos National Laboratory (LANL) in 1962 and is presently deputy project manager of the tritium systems test assembly. His particular responsibilities lie in fusion fuel processing systems—the deuterium-tritium (D-T) fuel cleanup system and the hydrogen isotope separation system. **Robert H. Sherman** (bottom) (BS, chemistry, Illinois Institute of Technology, 1951; PhD, chemistry, University of California at Berkeley, 1955) is a physical chemist in the Materials Science and Technology Division of LANL. He has principal responsibility for the isotope separation and gas analysis systems, and is also collaborating on studies of muon catalyzed D-T fusion.

SAFETY/ENVIRONMENTAL ASPECTS

RELIABILITY ANALYSIS OF THE EMERGENCY POWER SUPPLY SYSTEM OF THE STARFIRE TOKAMAK

Paul J. Gierszewski
Carolyn D. Heising

Paul J. Gierszewski (right) (BASc, engineering science, University of Toronto, 1978) is an ScD candidate at the Massachusetts Institute of Technology (MIT), Nuclear Engineering Department, majoring in fusion technology, with a minor in reliability

analysis. His doctoral thesis is on numerical modeling of plasma and neutral gas transport in divertors. **Carolyn D. Heising** (PhD, Stanford University, 1978) is an assistant professor of nuclear engineering at MIT and an associate consultant with Pickard, Lowe and Garrick, Inc., in Irvine, California. She specializes in risk assessment method development, particularly in the areas of Bayesian methods and common cause analysis where her contributions include the development of procedures for making plant-specific estimates of human error rates, and for making calculations of system unavailability, including common cause failures (beta factors), repair, and maintenance times. Additionally, her MIT research group is working on the effects that improved models for core damage phenomenology have on risk studies. In this area she is noted for her analysis of the risk impact of inert boiling water reactor containments.