

AUTHORS — MARCH 1989

PLASMA ENGINEERING

MODELING OF PELLET ACCELERATION BY TWO-STAGE GUNS

Giulio Riva (top) (Degree, aeronautical engineering, 1978, and PhD, energetics, 1982, Politecnico di Milano, Italy) has been a researcher at CNPM-CNR since 1983. His experience and current interests are in heterogeneous combustion and gas dynamics. **Adolfo Reggiori** (Degree, aeronautical engineering, Politecnico di Milano, Italy, 1962; PhD, New York University, 1968) is professor of fluid machinery at the University of Brescia. His experience is in gas dynamics and combustion. Current interests in the fusion field include high-speed pellet injection.

*Giulio Riva
Adolfo Reggiori*



APPLICATION OF A TWO-FLUID THEORETICAL PLASMA ENERGY CONFINEMENT SCALING TO CURRENT TOKAMAK REACTOR DESIGNS

Erfan Ibrahim (PhD, nuclear engineering, University of California-Berkeley, 1987) is an assistant development engineer in the Fusion Engineering and Physics Group at the University of California-Los Angeles (UCLA). He held a temporary appointment as a physicist at Lawrence Livermore National Laboratory from August 1987 until January 1988 at which time he joined the UCLA Fusion Engineering and Physics Group. His main interests are plasma thermal transport, confinement, and reactor design in nuclear fusion.

Erfan Ibrahim



BLANKET ENGINEERING

A HELIUM-COOLED SOLID BREEDER CONCEPT FOR THE TRITIUM-PRODUCING BLANKET OF THE INTERNATIONAL THERMONUCLEAR EXPERIMENTAL REACTOR

Mohamed A. Abdou (right) [PhD, University of Wisconsin (UW), 1973] is a professor in the Department of Mechanical, Aerospace, and Nuclear Engineering at the University of California, Los Angeles (UCLA). He is also the leader of the Fusion Engineering Program. His research interests include fusion neutronics, thermal hydraulics, blanket technology, fusion reactor

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design, and system studies. **A. René Raffray** (top right) (D. Eng., mechanical engineering, University of California, Davis, 1985) joined the Fusion Engineering Group at UCLA in 1985. He is responsible for the solid breeder activities of the group. His research interests are in fusion reactor technology and heat transfer. Current areas of focus include modeling of tritium transport in solid breeders, packed bed gap conductance, and International Thermonuclear Experimental Reactor blanket design analysis. **Zinovy R. Gorbis** (top left) (Kandidat Nauk, mechanical engineering, Academy of Sciences, Kiev, USSR, 1954; Doctor of Engineering Science, mechanical engineering, Academy of Sciences, Minsk, USSR, 1963) was professor and head of the nuclear power plants department from 1963 to 1969, head of the heat and mass transfer department from 1969 to 1976, and a professor from 1976 to 1980 at the Odessa Technological Institute, USSR. From 1980 to 1987, he worked as an engineer-economist-researcher at Vilnius, USSR. In 1987 he joined the Fusion Engineering Group at UCLA. His research interests are mainly in heat transfer and fluid mechanics. **M. S. Tillack** (second from top right) (PhD, 1984, nuclear engineering, Massachusetts Institute of Technology) is a principal development engineer at UCLA in the Fusion Engineering Program. His research interests are in the area of fusion nuclear technology and testing, with a special interest in liquid-metal blankets. **Yoichi Watanabe** (center left) (PhD, nuclear engineering, UW, 1984) is an associate development engineer in the Fusion Engineering Program at UCLA. He has worked on tandem mirror plasma physics, neutron transport theory, and reliability analysis, and method development. **Alice Y. Ying** (third from top right) (PhD, nuclear engineering, University of Cincinnati, 1985) is an assistant development engineer in the Fusion Engineering Group at UCLA. She has done research on the design and construction of pressurized water reactor simulation loops. Her current interests include magnetohydrodynamic (MHD) heat transfer, solid breeder blanket modeling and experiments, and safety for fusion systems. **Mahmoud Z. Youssef** (bottom left) (PhD, nuclear engineering, UW, 1980) is a senior research engineer in the Department of Mechanical, Aerospace, and Nuclear Engineering at UCLA. His research interests are in the areas of pure fusion and hybrids, radioactivity and safety analysis, sensitivity and perturbation theory, and neutronics methods for fusion and fission reactors. **Kaoru Fujimura** (bottom right) (ME, mechanical engineering, Kyoto University, Japan, 1978) has worked in the area of high-temperature gas-cooled reactors at the Japan Atomic Energy Research Institute. He has also had experience in theoretical fluid mechanics. He worked with the Fusion Engineering Group at UCLA as a visiting scientist in 1987-88. His current interests include the stability of MHD flow in a liquid-metal blanket design and thermomechanics of solid breeder blankets.



FIRST-WALL TECHNOLOGY

LOCAL WALL POWER LOADING VARIATIONS IN THERMONUCLEAR FUSION DEVICES

Matthew C. Carroll (right) (BS, mathematics, Lafayette College, 1974; MS, mechanical engineering, University of Illinois, 1982) operated pressurized water reactors as an officer in the U.S. Navy's nuclear power program from 1974 to 1978. He is currently involved in research connected with the thermal analysis

*Matthew C. Carroll
George H. Miley*



of fusion reactor first walls. **George H. Miley** (right) (PhD, University of Michigan, 1958) is a professor in the Department of Nuclear Engineering at the University of Illinois. In addition to research on fusion, he is well known for his research on energy conversion and nuclear-pumped lasers.



TRITIUM SYSTEMS

ENHANCING TRITIUM RELEASE FROM DIFFUSION-LIMITED SOLID LITHIUM COMPOUNDS

*Theodore A. Parish
Donald E. Palmrose*



Theodore A. Parish (top) (BS, mechanical engineering, Louisiana Tech University, 1967; MS, nuclear engineering, Georgia Institute of Technology, 1968; PhD, nuclear engineering, University of Texas at Austin, 1973) is currently an associate professor in the Department of Nuclear Engineering at Texas A&M University. He was previously employed as a nuclear engineer at the University of Texas, Babcock & Wilcox Company, and General Electric Company. His current research interests are in the areas of shielding, activation, and tritium handling for fusion reactors. **Donald E. Palmrose** (BS, nuclear engineering, Oregon State University, 1979; MS, nuclear engineering, Texas A&M University, 1986) operated pressurized water reactors as an officer in the U.S. Navy's nuclear power program from 1979 to 1984. He is currently studying in the PhD program for nuclear engineering at Texas A&M University with interest in optimizing tritium production in fusion blanket designs and in computational analysis of neutron/particle interactions on fusion plant components.



FUSION REACTORS

ALTERNATING CURRENT TOKAMAK REACTOR WITH LONG PULSES

*Osamu Mitarai
Sean W. Wolfe
A. Hirose
Harvey M. Skarsgard*

Osamu Mitarai (top) (MS, mechanical engineering, 1977, and PhD, nuclear engineering, 1979, Kyushu University, Japan) is an associate professor of electrical engineering at Kumamoto Institute of Technology, Japan. He worked in the Department of Physics, University of Saskatchewan, Canada, from 1981 to 1984 and built the STOR-1M tokamak. He often visits the University of Saskatchewan to cooperate on STOR tokamak projects. His current interests are in the areas of ac tokamak, current drive, ignition studies for the deuterium-tritium and D-³He tokamak reactor, spin-polarized fusion, transport studies, and cosmology based on plasma physics. **Sean W. Wolfe** (bottom) (BE, engineering physics, 1979, and PhD, plasma physics, 1987, University of Saskatchewan, Saskatoon, Canada) participated in the small tokamak experiments that demonstrated ac operation at the University of Saskatchewan. He also worked on the STOR-M tokamak experiment and is currently on grant contract at the Joint European Torus, working with the soft X-ray diagnostic



group. A photograph and a biography for **A. Hirose** were not available at publication time. **Harvey M. Skarsgard** (right) (BE, engineering physics, 1949, and MSc, physics, 1950, University of Saskatchewan, Canada; PhD, nuclear physics, McGill University, Canada, 1955) spent a year at the Atomic Energy Research Establishment, Harwell, another at the European Organization for Nuclear Research, Geneva, then joined the faculty of the physics department, University of Saskatchewan, where he started a plasma physics research laboratory. He has worked mainly on plasma heating experiments with the Plasma Betatron and the STOR tokamaks.

