

## AUTHORS — MAY 1993

### PLASMA ENGINEERING

#### OSCILLATION AND RECONNECTION OF PLASMA FIBERS IN A DESCRIPTION OF TOKAMAK PHENOMENA / *Nikos A. Salingaros, Rodolfo Carrera*

**Nikos A. Salingaros** (top) (PhD, physics, State University of New York–Stony Brook, 1978) is an associate professor at the University of Texas–San Antonio and is spending this year on leave at Southern Methodist University and the University of Texas–Arlington. Following a distinguished career in mathematical physics and relativistic field theory, he has developed the “fiber theory” as a new setting for plasma descriptions. **Rodolfo Carrera** (PhD, nuclear engineering, University of Wisconsin–Madison, 1983) is a senior research scientist and president of Valley Research Corporation, Austin, Texas. His primary areas of interest are plasma and nuclear science and technology



#### ANALYSIS OF BURN STABILIZATION OF IGNITED D-T TOKAMAK PLASMAS ALLOWING FOR RADIAL MOTION / *Akinori Oda, Yasuyuki Nakao, Takashi Kuitani, Kazuhiko Kudo, Masao Ohta*

**Akinori Oda** (top right) (ME, nuclear engineering, Kyushu University, Japan, 1987) is a research associate in nuclear engineering at Kyushu University. He is currently interested in burn control of tokamak plasmas and transport of neutrons and charged particles in high-density plasmas. **Yasuyuki Nakao** (top left) (Dr., nuclear engineering, Kyushu University, Japan, 1981) is an associate professor of nuclear engineering at Kyushu University. His current research interests include nuclear processes in high-density plasmas, transport of neutrons and charged particles, and the kinetics of burning plasmas. **Takashi Kuitani** (center right) (ME, nuclear engineering, Kyushu University, Japan, 1987) is an engineer in the New Energy and Special Machines Department, Mechanical System Engineering Section, at Mitsubishi Electric Corporation. His current interest is the safety and control of nuclear reactor systems. **Kazuhiko Kudo** (bottom left) (Dr., mechanical engineering, Kyushu University, Japan, 1974) is a professor of nuclear engineering at Kyushu University. His interests include nuclear safety and reactor control systems. **Masao Ohta** (bottom right) (BS, physics, Kyushu University, Japan, 1950; Dr., nuclear engineering, Kyoto University, Japan, 1965) retired from Kyushu University in 1987 and is currently president of Kyushu Teikyo Junior College. His current interest is future nuclear energy systems.



**THERMAL CONTROL OF CERAMIC BREEDER BLANKETS** / *A. René Raffray, Mark S. Tillack, Mohamed A. Abdou*

**A. René Raffray** (top) (D. Eng., mechanical engineering, University of California–Davis, 1985) is a senior development engineer in the Fusion Engineering Program at the University of California–Los Angeles (UCLA), where he is responsible for ceramic breeder design and modeling activities. His research interests are fusion reactor technology and heat and mass transfer. He is currently focusing on modeling of blanket tritium transport and thermomechanics behavior. **Mark S. Tillack** (center) (PhD, nuclear engineering, Massachusetts Institute of Technology, 1984) is a principal engineer at UCLA in the Fusion Engineering Program. His research interests are in the area of fusion nuclear technology and testing with an emphasis on blanket heat transfer and thermomechanics. **Mohamed A. Abdou** (bottom) (PhD, University of Wisconsin, 1973) is a professor in the Department of Mechanical, Aerospace, and Nuclear Engineering at UCLA. He is also the leader of the Fusion Engineering Program. His research interests include fusion neutronics, thermal hydraulics, blanket technology, fusion reactor design, and system studies.



**ANALYSIS OF THE THERMOMECHANICAL CONTACT BETWEEN BERYLLIUM BLOCKS AND STAINLESS STEEL PLATES IN ITER DESIGN** / *Alex Stojimirovic, Saurin Majumdar*

**Alex Stojimirovic** (top) (PhD, University of Illinois–Chicago, 1989) has done work at Argonne National Laboratory (ANL) in probabilistic fracture mechanics as well as in thermoelastic analyses of the fusion reactor blanket. **Saurin Majumdar** (PhD, University of Illinois, 1973) has been responsible for conducting stress and lifetime analyses of various fusion reactor blanket design studies conducted at ANL since 1974.



**EXCHANGE OF DILUTE CH<sub>4</sub> IN TRITIUM GAS** / *G. T. McConville, David A. Menke*

**G. T. (Terry) McConville** (top) (PhD, physics, Rutgers University, 1964) is a science fellow at EG&G Mound Applied Technologies. His research interests include deuterium reaction rates and effects of impurities in tritium on homogeneous and heterogeneous reactions. **David A. Menke** (BS, Wright State University, 1976) is a development technician at EG&G Mound Applied Technologies. His research interests include deuterium reaction rates and effects of impurities in tritium on homogeneous and heterogeneous reactions.

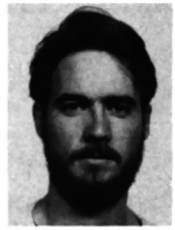


**A SIMPLE SCALING APPROACH TO CALCULATE ACTIVATION RADIOLOGICAL HAZARDS IN A SILICON CARBIDE FIRST WALL** / *S. K. Ho, F. J. Brechtel, T. Kenneth Fowler*

**S. K. Ho** (right) (PhD, nuclear engineering, University of Illinois, 1987) is currently a member of the research staff in the Department of Nuclear Engineering at the University of California–Berkeley. He spent 2 years at the Lawrence



Livermore National Laboratory with a U.S. Department of Energy magnetic fusion energy postdoctoral fellowship. His current research interests include plasma engineering, environmental and safety aspects of fusion, and tokamak reactor systems studies. **F. J. Brechtel** (top) (BS, 1987, and MS, 1992, mechanical engineering, University of California–Berkeley) conducted research for the Fusion Environmental and Safety Group at the University of California–Berkeley, resulting in his master’s thesis. He is currently enrolled as a National Aeronautics and Space Administration space grant fellow in the atmospheric sciences PhD program at Oregon State University. **T. Kenneth Fowler** (bottom) (BS, engineering, Vanderbilt University, 1953; MS, physics, Vanderbilt University, 1955; PhD, physics, University of Wisconsin, 1957) joined Oak Ridge National Laboratory in 1957, where he was leader of the Plasma Theory Group until 1965. He then moved to General Atomics, where he was head of the Plasma Physics Division until 1967. At LLNL, he was associate director for magnetic fusion energy from 1970 to 1988. He was named professor and chair of the Department of Nuclear Engineering at the University of California–Berkeley in 1988.



**MATERIALS ENGINEERING**

**HEAT CAPACITY OF LITHIUM METAZIRCONATE / Paul Gierszewski**

**THERMAL CONDUCTIVITY OF LITHIUM METAZIRCONATE / Paul Gierszewski**

**Paul Gierszewski** (ScD, nuclear engineering, Massachusetts Institute of Technology, 1983) is a fusion engineer with the Canadian Fusion Fuels Technology Project. He has been on attachment to the FINESSE project, the Next European Torus (NET) Team, and the Japan Atomic Energy Research Institute Tritium Processing Laboratory, where he worked on various aspects of blanket design and research and development. He is responsible for the Canadian ceramic breeder program, which is investigating lithium metazirconate and lithium titanate pebble beds for fusion blankets.



**ICF DRIVER TECHNOLOGY**

**GEOMETRIC ARRANGEMENT OF BEAMLETS IN LARGE LASER FUSION FACILITIES / Maxime Rabeau, John H. Pitts, Jean-François Mengué, Gérard Maurin**

**Maxime Rabeau** (top right) (DPE, physics, 1967) has been involved in laser and plasma experiments at Commissariat à l’Energie Atomique (CEA) since 1964. He worked on the Phebus and Heliotrope projects, and he was in charge of the megajoule laser laboratory at Limeil-Valenton. **John H. Pitts** (top left) (BS, mechanical engineering, Stanford University, 1955; MS, University of California–Berkeley, 1959; PhD, University of California–Davis, 1976) has conducted research on fluid dynamics, heat transfer, nuclear reactor safety, and inertial confinement fusion (ICF) at Lawrence Livermore National Laboratory since 1959. **Jean-François Mengué** (bottom right) (optical engineering, 1977) has been involved in laser-produced plasma experiments at CEA since 1968. He worked on the Octal and Phebus facilities. He is now involved in conceptual designs for a new megajoule laser for a future ICF facility. **Gérard Maurin** (bottom left) has worked on the mechanical and building engineering of the Phebus and megajoule facilities at CEA since 1982.



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## COLD FUSION

### CATHODE COOLING BY EXPANSION OF HYDROGEN IN CALORIMETRIC TESTS FOR COLD FUSION / *Bruce E. Gammon*

**Bruce E. Gammon** (BA, chemistry, 1962, and MS, physical chemistry, 1964, Oklahoma State University) is associate director and research scientist at the Thermodynamic Research Center at Texas A&M University. His recent work experience includes research projects in calorimetry, phase behavior of fluids, and state properties of substances found in fossil fuels. His areas of expertise and interest include thermodynamics, chemical physics, calorimetry, state properties, acoustics, statistical mechanics, physical chemistry, chemical engineering, instrumentation, and computing.



### OBSERVATION OF *d-d* FUSION NEUTRONS DURING DEGASSING OF DEUTERIUM-LOADED PALLADIUM / *Michael Bittner, Andreas Meister, Dieter Seeliger, Rainer Schwierz, Peter Wüstner*

**Michael Bittner** (top right) [MSc, physics, Technische Universität Dresden (TUD), Germany, 1987] is a research associate in neutron detection techniques in the Nuclear Physics Department at TUD. **Andreas Meister** (top left) (Dr. sc. nat., physics, TUD, Germany, 1984) is an associate professor in the Nuclear Physics Department at TUD. His interests include fusion neutronics. **Dieter Seeliger** (center right) (Dr. rer. nat., 1968, and Dr. sc. nat., 1971, physics, TUD, Germany) is a professor of experimental neutron and nuclear physics and head of the Physics Department at TUD. His interests include neutron spectroscopy, neutron-induced reactions, fusion neutronics, and nuclear fusion in condensed matter. **Rainer Schwierz** (bottom left) (Dr. rer. nat., physics, TUD, Germany, 1988) is a research associate in the Nuclear Physics Department at TUD. His interests are instrumentation and methods for nuclear physics. **Peter Wüstner** (bottom right) (MSc, physics, TUD, Germany, 1988) is a student researcher in the Nuclear Physics Department at TUD. His interest is fusion neutronics.



### COHERENT AND SEMICOHERENT NEUTRON TRANSFER REACTIONS III: PHONON FREQUENCY SHIFTS / *Peter L. Hagelstein*

**Peter L. Hagelstein** has been on the faculty at Massachusetts Institute of Technology (MIT) for 5½ years. He has worked in the area of X-ray lasers since 1975, and he and his group are currently developing a small-scale X-ray laser at MIT. During the past several years, he has worked on a theory for anomalous effects in deuterated metals.

