

## AUTHORS — SEPTEMBER 1992

### PLASMA ENGINEERING

#### TRANSPORT SIMULATIONS OF A DENSITY LIMIT IN RADIATION-DOMINATED TOKAMAK DISCHARGES II / *D. P. Stotler*

**D. P. Stotler** (BA, physics, Rice University, 1981; PhD, physics, University of Texas–Austin, 1986) is a research physicist at Princeton Plasma Physics Laboratory. He is primarily interested in tokamak edge modeling and global reactor performance calculations.

#### COUPLED PLASMA-NEUTRAL FLUID TRANSPORT COMPUTATIONS USING THE NEUTRAL DIFFUSION APPROXIMATION / *Erik L. Vold, Anil K. Prinja, Farrokh Najmabadi, Robert W. Conn*

**Erik L. Vold** (top right) [PhD, applied plasma physics, University of California–Los Angeles (UCLA), 1989] is a postdoctoral fellow in the Applied Theoretical Physics Division at Los Alamos National Laboratory. His current work involves computational transport of plasma and multiphase hydrodynamics. His interests include plasma/boundary-layer transport, plasma/neutral interactions, and coupled core/edge-plasma transport computations.

**Anil K. Prinja** (top left) (PhD, nuclear engineering, University of London, United Kingdom, 1980) is currently an associate professor of nuclear engineering at the University of New Mexico. His primary research interests are transport and kinetic theory, fundamental ion/solid interaction modeling, and computational tokamak edge-plasma physics. **Farrokh Najmabadi** (bottom right) (PhD, nuclear engineering, University of California–Berkeley, 1982) was a senior development engineer in the Fusion Engineering and Physics Program at UCLA. His primary research interests are applied plasma physics and fusion reactor physics and technology. **Robert W. Conn** (bottom left) (PhD, California Institute of Technology, 1968) is a professor of nuclear engineering and applied science at UCLA, and he has been codirector of UCLA's Center for Plasma Physics and Fusion Engineering since 1982. His primary research interests include plasma physics, plasma/surface interactions, fusion reactor design, and reactor plasma analysis.



**OPERATION PATH METHOD FOR IGNITION CRITERION IN A DEUTERIUM-TRITIUM TOKAMAK REACTOR** / *Osamu Mitarai, Akira 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. He worked in the Department of Physics at the University of Saskatchewan from 1981 to 1984, where he built the STOR-1M tokamak. His current interests are in the areas of alternating current tokamaks, current drive, ignition studies for deuterium-tritium and D-<sup>3</sup>He tokamak reactors, spin-polarized fusion, transport studies, and cosmology based on plasma physics. **Akira Hirose** (photograph not available) (BE, 1956, and ME, 1967, Yokohama National University, Japan; PhD, University of Tennessee, 1969) is currently engaged in tokamak (STOR-M) experiments and theoretical work on anomalous transport. He is interested in waves and instabilities in plasmas. **Harvey M. Skarsgard** (bottom) (BE, engineering physics, 1949, and MSc, physics, 1950, University of Saskatchewan, Canada; PhD, nuclear physics, McGill University, Canada, 1955) is a member of the faculty of the Physics Department at the University of Saskatchewan, where he started a plasma physics research laboratory. He has worked mainly on plasma heating experiments with the Plasma Betatron and STOR tokamaks.



**PLASMA HEATING**

**LOWER HYBRID HEATING IN A HIGH-FIELD DEUTERIUM-TRITIUM IGNITION EXPERIMENT** / *Linda E. Sugiyama*



**Linda E. Sugiyama** [BS, University of Wisconsin-Madison, 1975; PhD, applied mathematics, Massachusetts Institute of Technology (MIT), 1980] is currently a research scientist at MIT. She has worked on a variety of problems related to fusion energy and magnetically confined plasmas.

**BLANKET ENGINEERING**

**THEORETICAL INVESTIGATIONS OF A DOUBLE IONIZATION CHAMBER FOR ON-LINE MONITORING OF TRITIUM PRODUCTION IN FUSION BLANKETS** / *O. P. Joneja, P. Scherrer, J.-P. Schneeberger*



**O. P. Joneja** (top) [MSc, Punjabi University, India, 1966; graduate, Bhabha Atomic Research Centre (BARC) Training School, India, 1967; PhD, physics, University of Bombay, India, 1976] has been actively working on the fast neutron spectrometry and development of Monte Carlo codes for special applications. He worked as scientific officer at BARC from 1967 to 1991. Under a bilateral cooperation program, he worked at the Institute of Reactor Development (IRD) from 1972 to 1974, in the field of fast neutron spectrometry and from 1979 to 1980 on the LiAlO<sub>2</sub> blanket assembly for measuring integral tritium production. He participated in the LOTUS fusion blanket program from 1989 to 1990 at the Ecole Polytechnique Fédéral de Lausanne (EPFL), Switzerland; he is currently leader of the LOTUS blanket project. His interests include theoretical and experimental investigations of fusion hybrid blankets. **P. Scherrer** (bottom) (graduate, EPFL, Switzerland, 1992) studied



the development of the double ionization chamber as an on-line tritium breeding monitor as part of his diploma work. His current interest is the application of such a system for tritium breeding ratio measurements in experimental fusion blankets. **J.-P. Schneeberger** (right) (graduate, Ecole Polytechnique Fédérale de Zurich, Switzerland, 1950) is the director of the Institute of Génie Atomique at the EPFL, Switzerland. He conducted considerable research in the field of nuclear engineering in private industry before being nominated as professor of physics and nuclear engineering in 1969 at EPFL. He has made significant contributions in the domain of numerical methods and experimental fusion blanket physics. He is responsible for the LOTUS blanket and the CROCUS research reactor programs. His current interests include neutronic measurements and energy deposition studies in prototype fusion blankets.



**QUALIFICATION OF NEUTRONIC BLANKET AND SHIELDING CALCULATIONS IN A ONE-DIMENSIONAL APPROACH TO A TOKAMAK REACTOR / Ulrich Fischer**

**Ulrich Fischer** (Dipl.-Phys., Universität Karlsruhe, Federal Republic of Germany) works at Kernforschungszentrum Karlsruhe and is engaged in work on neutron physics and nuclear data. His current interests are in the field of fusion reactor blanket neutronics.



**ICF TARGETS**

**A SYMMETRY CRITERION FOR ARRANGEMENTS OF ENERGY SOURCES IN SPHERICAL TARGET EXCITATION / Richard M. Christensen, Mildred S. Dresselhaus**

**Richard M. Christensen** (right) (Dr. Eng., Yale University, 1961) has worked in areas connected with the mechanics of materials, especially as related to carbon fiber composites, including their symmetry characterization. **Mildred S. Dresselhaus** is an institute professor of electrical engineering and physics at the Massachusetts Institute of Technology and has contributed broadly to the solid-state physics literature, including issues of symmetry and their treatment using group theoretical methods.



**SAFETY/ENVIRONMENTAL ASPECTS**

**TRITIUM BEHAVIOR IN BIOLOGICAL SYSTEMS AND APPLICATION OF CURRENT KNOWLEDGE TO DOSE CALCULATION MODELS / Silvia Diabaté, Siegfried Strack**

**Silvia Diabaté** (right) [Dipl.-Biologist, 1977; Dr. rer. nat., Universität Gießen, Federal Republic of Germany (FRG), 1984] has worked at Kernforschungszentrum Karlsruhe (KfK) since 1985. She is currently working on the radioecology of tritium for the safety and environment program of the nuclear fusion project at KfK. **Siegfried Strack** (Dipl.-Ing., 1973, and Dr.-Ing., 1978, Technische Universität Berlin, FRG) has been with KfK since 1980. He has been involved in radioecological studies on tritium in the environment, focusing on the behavior of organically bound tritium, investigations of microbiological influences on the mobility of radioiodine in soils, and ecological studies of tritiated water in trees.



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## COLD FUSION

### SEARCHING FOR TINY BLACK HOLES DURING COLD FUSION / *Takaaki Matsumoto*

**Takaaki Matsumoto** (MS, nuclear engineering, Kyoto University, Japan, 1966) studied neutron and nuclear reactor physics at the Kyoto University Research Reactor Institute from 1966 to 1973. Since 1973, he has been with Hokkaido University as an associate professor of nuclear engineering. His interests include nuclear transmutation of radioactive waste and nuclear alchemy.



### REPRODUCIBLE "COLD" FUSION REACTION USING A COMPLEX CATHODE / *Yoshiaki Arata, Yue-Chang Zhang*

**Yoshiaki Arata** (right) (Dr. Eng., Osaka University, Japan, 1957) is an academician at the Japan Academy of Science and a professor at Osaka University. His research activities include development of ultra-high-energy density beam technology and cold fusion. **Yue-Chang Zhang** (Dr. Eng., Osaka University, Japan, 1986) has been an associate professor at Shanghai Jiao-Tong University since 1985 and a guest professor at Osaka University since 1988. Her research activities include cold fusion and welding technology.



### QUASI-ONE-DIMENSIONAL MODEL OF ELECTROCHEMICAL LOADING OF ISOTOPIC FUEL INTO A METAL / *Mitchell R. Swartz*

**Mitchell R. Swartz** (BS, 1971; MS; and ScD, 1984, electrical engineering, Massachusetts Institute of Technology; MD, Harvard University, 1978) conducts research into dye-photocatalyzed charge and proton transfer reactions at palladium and platinum electrodes. His interests include molecular sensors, viral inactivation, and radiation oncology.



### A LIGHT WATER EXCESS HEAT REACTION SUGGESTS THAT "COLD FUSION" MAY BE "ALKALI-HYDROGEN FUSION" / *Robert T. Bush*

**Robert T. Bush** (BS, physics, Michigan State University, 1959; MS, physics, University of California-Berkeley, 1961; PhD, physics, Northwestern University, 1971) is currently a professor of physics at California State Polytechnic University-Pomona, where he has taught and conducted research since 1971. His current interests include cold fusion theory and experimentation, plasma physics (relativistic beam-plasma source theory), philosophy of quantum mechanics, history of science, geophysics (seismology), and physics pedagogy.

