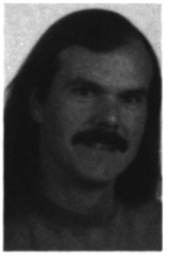
Fusion technology™

AUTHORS — JANUARY 1995

BLANKET ENGINEERING



MAGNETOHYDRODYNAMIC FLOWS IN ARBITRARY GEOMETRIES IN STRONG, NONUNIFORM MAGNETIC FIELDS – A NUMERICAL CODE FOR THE DESIGN OF FUSION REACTOR BLANKETS / *L. Bühler*

L. Bühler (mechanical engineering, 1988, and Dr. Ing., 1992, University of Karlsruhe, Germany) works at the Institute of Applied Thermo- and Fluid Dynamics of the Nuclear Research Center at Kernforschungszentrum Karlsruhe. His research activities are focused on convective transport phenomena and liquid-metal magnetohydrodynamic duct flows and their application in fusion blankets.

ADSORPTION AND DESORPTION RATE OF WATER ON THE VARIOUS CERAMIC BREEDER MATERIALS / *Yoshinori Kawamura, Masabumi Nishikawa*

Yoshinori Kawamura (top) (BE, 1989; ME, 1991; and PhD, 1994, nuclear engineering, Kyushu University, Japan) is a researcher in the Japan Atomic Energy Research Institute Tritium Process Laboratory. During the last 6 years, he has worked on ceramic breeder blanket interaction with tritium at Kyushu University. His current interests are in transport phenomena in the fusion fuel cycle. **Masabumi Nishikawa** (BE, chemical engineering, Kyoto University, Japan, 1966; MASc, University of British Columbia, Canada, 1968; PhD, Kyoto University, Japan, 1971) is a professor in the Department of Nuclear Engineering at Kyushu University. His current interests include mass (tritium) and heat balance in fusion reactors and also in chemical reactors.

TRITIUM SYSTEMS

EMBRITTLEMENT OF PALLADIUM AND PALLADIUM-SILVER ALLOY CATHODE MEMBRANES BY TRITIUM / *G. Bellanger*

EFFECTS OF TRITIUM ON CORROSION OF WELDED TYPE 316L STAINLESS STEEL / *G. Bellanger*

G. Bellanger has been responsible for research in the Commissariat à l'Energie Atomique Tritium Department for 10 years. His research includes materials electrochemistry, corrosion by tritiated water, and tritium diffusion in palladium cathode foil.

NUCLEAR REACTIONS IN SOLIDS

ELECTRON TRANSITIONS ON DEEP DIRAC LEVELS II / *Jaromir A. Maly, Jaroslav Vávra*

Jaromir A. Maly (top) (MS, chemical engineering, Technical University Brno, Czechoslovakia, 1951; PhD, nuclear chemistry, Czechoslovakia Academy of Science, Czechoslovakia, 1963) during the last 17 years has worked at Science Applications International Corporation and the Electric Power Research Institute as a senior scientist in the evaluation of nuclear accidents. His main interests are in chemical physics, quantum mechanics, nuclear reaction physics, neutron physics, radiochemistry, and computer calculations. **Jaroslav Vávra** (MS, nuclear physics, Charles University, Czechoslovakia, 1967; PhD, high-energy physics, McGill University, Canada, 1972) is a senior staff physicist at the Stanford Linear Accelerator Center. He has worked on many high-energy physics experiments in the last 20 years. His main interest is in the field of elementary particle physics.

MULTIBODY FUSION MODEL TO EXPLAIN EXPERIMENTAL RESULTS / *Akito Takahashi, Toshiyuki Iida, Hiroyuki Miyamaru, Morio Fukuhara*

Akito Takahashi (top left) (BE, electrical engineering, 1963, and MS, 1965, and PhD, 1974, nuclear engineering, Osaka University, Japan) is a professor at Osaka University, where he is the director of the Oktavian Facility. He is currently working on fusion neutronics and cold fusion research. **Toshiyuki Iida** (top right) (PhD, nuclear engineering, Osaka University, Japan, 1978) is an associate professor in the Osaka University Department of Nuclear Engineering. He is currently working on fusion diagnostics. **Hiroyuki Miyamaru** (bottom left) (BS, 1990, and MS, 1992, physics, Osaka University, Japan) is a research associate at the Oktavian Facility of Osaka University. He is currently working on radiation detection and instruments and cold fusion. **Morio Fukuhara** (bottom right) (BE, 1992, and ME, 1994, nuclear engineering, Osaka University, Japan) is currently working at nuclear power stations of Kansai Electric Power Corporation.

FUSION REACTORS

POLARIZED NUCLEI IN A SIMPLE MIRROR FUSION REACTOR / *David A. Noever*

David A. Noever (BSE, chemical engineering, Princeton University, 1984; PhD, theoretical physics, Oxford University, 1987) is a research physicist at the National Aeronautics and Space Administration, Marshall Space Flight Center. His research interest is fusion technology.