

AUTHORS — DECEMBER 1992

ALPHA-PARTICLE SPECIAL

NONLINEAR DYNAMICS OF REACTION-DIFFUSION SYSTEMS: ANALYSIS AND COMPUTATIONS / *Hans Wilhelmsson, Bernard Etlicher*

Hans Wilhelmsson (right) (Doctor of Technology, Chalmers University of Technology, Sweden, 1959) is a professor of electromagnetic field theory and director of the Institute for Electromagnetic Field Theory and Plasma Physics at Chalmers University of Technology. **Bernard Etlicher** (PhD, University of Paris Sur-Orsay, France) is a research fellow at the Centre National de la Recherche Scientifique and has worked at the Laboratoire de Physique des Milieux Ionisés at Ecole Polytechnique since 1976. Since 1989, he has headed an experimental and numerical project on Z pinches and related high-voltage technologies.



ON SELF-TUNING CONTROL OF TOKAMAK THERMOKINETICS / *George H. Miley, V. Varadarajan*

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. **V. Varadarajan** (BE, mechanical engineering, 1984; MS, nuclear engineering, 1987) is a doctoral student in the Department of Nuclear Engineering at the University of Illinois. His academic interests include plasma physics, reactor theory, controls, and thermal hydraulics.



ALPHA-PARTICLE INFORMATION ON BURNING DEUTERIUM-TRITIUM PLASMAS FROM NEUTRON MEASUREMENTS / *Jan Källne, Giuseppe Gorini*

Jan Källne (right) (PhD, physics, Uppsala University, Sweden) has been a researcher since 1989 in the Department of Neutron Research at Uppsala University. **Giuseppe Gorini** (Laurea in Fisica, University of Pisa, Italy, 1985; Diploma di Perfezionamento in Fisica, Scuola Normale Superiore, Pisa, Italy, 1991) worked on the measurement and interpretation of fusion neutrons at the Joint European Torus from 1984 to 1988. He is currently a research assistant in the Physics Department of the University of Milan. His current research interests are the development of nuclear experimental methods for measurements on fusion burning plasmas and energy transport studies in plasmas using perturbative techniques.



IN-BEAM STUDY OF THE ${}^9\text{Be}(\alpha, n_1 \gamma){}^{12}\text{C}$ REACTION AND ALPHA-PARTICLE DIAGNOSTICS / Vasilij G. Kiptilyj, Alexander V. Matjukov, A. S. Mishin, Victor O. Najdenov, Igor A. Polunovskij, Leonid A. Rassadin, Igor N. Chugunov

Vasilij G. Kiptilyj (top right) [MS, nuclear physics, Leningrad State University (LSU), USSR, 1975; PhD, heavy-ion nuclear reactions, A. F. Ioffe Physical Technical Institute (PTI), USSR, 1986] is a senior research scientist at PTI. His research interests include fusion product (neutrons, gamma rays, and charged particles) diagnostics for tokamak plasmas. He is now involved in hard X-ray and gamma diagnostics at the Tuman-3, T-10, and T-15 tokamaks and is continuing his research in nuclear reaction physics. **Alexander V. Matjukov** (top left) (MS, electronics, Leningrad Electro-Technical Institute, USSR, 1975) is an engineer at PTI. His main interest is nuclear engineering. A biography and photograph of **A. S. Mishin** were not available. **Victor O. Najdenov** (center right) (DSc, physics, PTI, 1984) is head of the Nuclear Research Department of PTI. His current interest is the application of nuclear techniques to plasma physics, astrophysics, and solid-state physics. **Igor A. Polunovskij** (center left) (MS, nuclear physics, LSU, USSR, 1990) is a research scientist at PTI. His main is the analysis of data and computer simulations. **Leonid A. Rassadin** (bottom right) (MS, nuclear physics, LSU, USSR, 1976) is a research scientist at PTI. His main interest is nuclear engineering. **Igor N. Chugunov** (bottom left) (MS, nuclear physics, LSU, USSR, 1963; PhD, PTI, USSR, 1984) is head of the nuclear electronics team at PTI. His interest is nuclear engineering.



ALPHA-PARTICLE CONFINEMENT IN THE PRESENCE OF MAGNETIC RIPPLE AND MAGNETOHYDRODYNAMIC PERTURBATIONS / Ezio Bittoni, Marcel Haegi

Ezio Bittoni (right) (MS, physics, University of Bologna, Italy, 1963) has been a principal scientist at ENEA since 1967. He has been involved in the computational aspects of neutron blankets in nuclear reactors and numerical simulation of fluid dynamics and plasma physics problems, with a particular emphasis on impurity transport and alpha-particle containment in toroidal machines. **Marcel Haegi** (PhD, physics, University of Geneva, Switzerland, 1968) is a principal scientist at the Euratom-ENEA Fusion Laboratory in Frascati. His research interests include plasma physics, alpha-particle transport and containment, and their application to thermonuclear fusion reactors.



STABILIZING EFFECT OF TRAPPED ALPHA PARTICLES ON LOW-FREQUENCY MHD BALLOONING MODES IN ITER PLASMAS WITH FLAT $q(\psi)$ PROFILES / Sergei Yu. Medvedev, Sergei E. Sharapov

Sergei Yu. Medvedev (right) [Moscow State University, USSR, 1980; Candidate of Sciences, Keldysh Institute of Applied Mathematics (KIAM), USSR, 1985] is a senior research scientist at KIAM. His interests include numerical methods in magnetohydrodynamics (MHD), ideal and resistive instabilities in tokamak plasmas, MHD wave spectra, and plasma heating. **Sergei E. Sharapov** (no photograph available) [Moscow Institute of Physics and Technology, USSR, 1985; Candidate of Sciences, Kurchatov Institute of Atomic Energy (KIAE), USSR, 1988] is a research scientist at KIAE. His interests include kinetic and MHD instabilities in tokamak plasmas and nonlinear phenomena in plasma.



COLLISIONLESS ALPHA-PARTICLE CONFINEMENT AND LOSS DISTRIBUTION IN STELLARATORS AS A FUNCTION OF THE ASPECT RATIO / Franco Alladio, Paola Batistoni, Alessandro Mancuso

Franco Alladio (top) (Dr., physics, Scuola Normale Superiore, Italy, 1976) joined ENEA in 1981, where he worked in magnetic measurements and in experiments on the Frascati Tokamak and the Frascati Tokamak Upgrade. He recently moved on to the field of three-dimensional magnetic configurations for fusion plasmas. **Paola Batistoni** (center) (Dr., physics, University of Florence, Italy, 1982) joined ENEA in 1984 as a member of the Applied Neutronics Division at the Frascati Fusion Centre. Her research interests are in the areas of neutron diagnostics for magnetically confined fusion devices and in the physics of fusion products. **Alessandro Mancuso** (bottom) (Dr., physics, University of Rome, Italy, 1973) has worked at ENEA since 1976 in the field of computer science and data acquisition. He is currently involved in the computation of three-dimensional magnetic field configurations for fusion plasmas.



HELIUM ACCUMULATION EFFECTS USING A BENCHMARKED ZERO-DIMENSIONAL MODEL / Shin Chang Hu, George H. Miley

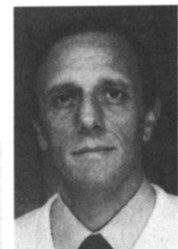
Shin Chang Hu (right) (MS, University of Illinois) is a doctoral candidate in nuclear engineering at the University of Illinois. Her current research interests include plasma power balance and alpha-particle transport and control studies. **George H. Miley** (PhD, University of Michigan, 1958) is a professor 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.



FIRST-WALL TECHNOLOGY

THERMAL TRANSIENTS DUE TO PLASMA SWEEPING ON THE MONO-BLOCK DIVERTOR PLATE FOR ITER / Vito Renda, Loris Papa, Antonio Soria

Vito Renda (top) (degree, nuclear engineering, Politecnico di Torino, Italy, 1971) worked on the design and structural analysis of the Superphénix liquid-metal fast breeder reactor. He is now head of the structural integrity and safety group at the Commission of the European Communities Joint Research Centre (JRC) at Ispra, where he is engaged in the fusion technology and safety program. **Loris Papa** (center) (high school diploma, nuclear technology) has experience in fission reactor technology and in fusion safety. **Antonio Soria** (bottom) (degree, energy engineering, Universidad Politecnica de Valencia, Spain, 1986) worked on probabilistic risk assessment and accidental sequences in nuclear power plants at Junta de Energia Nuclear. He currently works at the JRC, Ispra, on passive heat removal mechanisms for plasma-facing components.



LOCAL HEAT TRANSFER FOR SUBCOOLED FLOW BOILING WITH WATER / *Ronald D. Boyd, Xiaowei Meng*

Ronald D. Boyd (right) (BS, mechanical engineering, Tuskegee University, 1967; PhD, mechanical engineering, University of Michigan, 1976) is currently the Honeywell Endowed Professor in Engineering and the director of the Thermal Science Research Center at Prairie View A&M University. He is conducting research on high-heat-flux removal from fusion reactor components, space cold plate enhancement, mixed convection in plumes, and natural convection in enclosures. He has also taught at the Universities of Michigan and New Mexico. For 10 years at Sandia National Laboratories, he was a principal investigator and heat transfer consultant for the high-heat-flux materials and fusion component development, the liquid-metal fast breeder reactor spent-fuel transportation, the waste isolation pilot plant, and reactor safety programs. From 1968 to 1971, he was a research engineer at Los Alamos National Laboratory. His interests include theoretical and experimental (including optical) analyses of thermal transfer and transport processes. A biography and photograph of **Xiaowei Meng** were unavailable.



COLD FUSION

POLYNEUTRONS AS AGENTS FOR COLD NUCLEAR REACTIONS / *John C. Fisher*

John C. Fisher (AB, mathematics, Ohio State University, 1941; ScD, mechanical engineering, Massachusetts Institute of Technology, 1947) has done research in metallurgy, solid-state physics, and theoretical physics. His nuclear physics research has been done in collaboration with Thomas Paine Associates.



OBSERVATION OF STARS PRODUCED 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 wastes and nuclear alchemy.

