

AUTHORS — NOVEMBER 1993

FUSION FUEL CYCLES

DESIGN OF THE COMPACT TOROID FUELER FOR CENTER FUELING TOKAMAK DE VARENNES / *Roger Raman, John C. Thomas, David Q. Hwang, Garrard D. Conway, Francois Martin, Akira Hirose, Paul Gierszewski, Réal Décoste*

Roger Raman (top right) (PhD, plasma physics, University of Washington, 1990) is responsible for the Canadian Fusion Fuels Technology Project. He has worked at the University of California–Davis (UC–Davis)/Lawrence Livermore National Laboratory (LLNL) on the CTIX project and at the University of Saskatchewan. He currently works at Centre Canadien de Fusion Magnétique (CCFM) on the Tokamak de Varennes (TdeV). His current research interests are compact toroid (CT) fueling, alternate fusion concepts, and fusion applications for space propulsion. **John C. Thomas** (top left) (MS, applied science, UC–Davis, 1990) is currently finishing his doctoral thesis work involving the propagation of CTs across magnetic fields. **David Q. Hwang** (center right) (PhD, applied physics, California Institute of Technology, 1978) is a professor of applied science at UC–Davis/LLNL. **Garrard D. Conway** (center left) (PhD, plasma physics, University of Manchester Institute of Science and Technology, United Kingdom, 1985) is a research associate in the University of Saskatchewan Physics Department. Current research interests include microwave and radar diagnosis of plasma fluctuations and turbulence. **Francois Martin** (no photograph available) (PhD, nuclear engineering, Massachusetts Institute of Technology, 1976) is a professor at INRS-Energie et Matériaux, University of Québec, and is head of the TdeV operations group. His current research interest is tokamak fueling. He is currently involved in experiments on tokamak fueling by CT injection. **Akira Hirose** (bottom right) (BE, 1965, and ME, 1967, Yokohama National University, Japan; PhD, University of Tennessee, 1969) is a professor of physics at the University of Saskatchewan and director of the STOR-M tokamak program. His research interests include ohmic H modes, anomalous transport, CT injection, strong turbulence, and turbulent heating. **Paul Gierszewski** (bottom left) (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. **Réal Décoste** (right) (PhD, physics, University of Maryland, 1978) is the director of operations for the TdeV at CCFM. His current research interests are the optimization of tokamak scenarios with particular emphasis on the divertor.



PLASMA HEATING SYSTEMS

THEORETICAL EVALUATIONS OF NEUTRAL BEAM INJECTION EFFICIENCY FOR THE TJ-II HELICAL-AXIS STELLARATOR / José Guasp Pérez, Macarena Liniers

José Guasp Pérez (top) (PhD, physics, University of Madrid, Spain, 1970) is a theoretician at Asociación Euratom/CIEMAT para la Fusión. His main areas of interest are magnetics, orbits, and transport in stellarators. **Macarena Liniers** (PhD, University of Madrid, Spain, 1987) has been a member of the CIEMAT Fusion Division since 1988. Her work has been related to experimental plasma physics, and she is currently studying neutral beam injection design.



TRITIUM SYSTEMS

SURFACE DECONTAMINATION OF TYPE 304L STAINLESS STEEL WITH ELECTROLYTICALLY GENERATED HYDROGEN: DESIGN AND OPERATION OF THE ELECTROLYZER / G. Bellanger

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



ICF TARGETS

TRANSMUTATION OF ^{90}Sr BY INERTIAL CONFINEMENT FUSION / Hirofumi Takashita, Kenji Konashi

Hirofumi Takashita (right) (Dr, physics, Tokyo Metropolitan University, Japan) studied nucleon structure by using the quark, bag, and soliton models. He has worked on the transmutation of long-lived radioactive nuclides at the Power Reactor and Nuclear Fuel Development Corporation. **Kenji Konashi** (Dr, nuclear engineering, University of Tokyo, Japan, 1989) is a research associate at the Tohoku University Institute for Materials Research.



DEVELOPMENT OF A NOVEL ALGORITHM AND PRODUCTION OF NEW NUCLEAR DATA LIBRARIES FOR THE TREATMENT OF SEQUENTIAL (x, n) REACTIONS IN FUSION MATERIAL ACTIVATION CALCULATIONS /
Siegfried W. Cierjacks, Pavel Obložinský, Stefan Kelzenberg, Bernhard Rzehorz

Siegfried W. Cierjacks (no photograph available) [Dipl. Phys., neutron physics, University of Hamburg, Germany, 1962; PhD, nuclear physics, Kernforschungszentrum Karlsruhe (KfK), Germany, 1967] was a senior research scientist at KfK. His interests included neutron reaction cross sections, neutron sources for fusion technology, elementary particle physics, and material activation calculations. Dr. Cierjacks died in October 1992. **Pavel Obložinský** (top) [MS, nuclear physics, Moscow State University, USSR, 1967; PhD, nuclear physics, Slovak Academy of Sciences (SAS), Czechoslovakia, 1974; Habilitation, nuclear physics, SAS, 1992] is a principal research scientist at SAS. His top interests include mechanisms of nuclear reactions, particularly pre-equilibrium decay, gamma-ray emission, and neutron-induced reactions. **Stefan Kelzenberg** (center) (Dipl. Phys., elementary particle physics, University of Karlsruhe, Germany, 1990) is studying for his doctoral thesis at the KfK Institute for Materials Research. He is working on neutron-induced activation of materials for fusion reactors. **Bernhard Rzehorz** (bottom) (Dipl. Phys., elementary particle physics, University of Karlsruhe, Germany, 1988) is studying for his doctoral thesis at the University of Karlsruhe Institut für Experimentelle Kernphysik. He is working on pion absorption processes in light nuclei.



A POSSIBLE WAY TO NUCLEAR FUSION IN SOLIDS / *Gennady V. Fedorovich*

Gennady V. Fedorovich (MSc, Engineering-Physical Institute, USSR, 1965; PhD, Institute of Applied Mathematics, USSR, 1970; PhD, physical and mathematical sciences, Higher Attestation Commission, USSR, 1975) is head of the Applied Physics Laboratory in the Theoretical Problems Department of the Russian Academy of Sciences. His principal interest is in the field of controlled nuclear fusion in solids.



EXCESS HEAT EVOLUTION DURING ELECTROLYSIS OF H₂O WITH NICKEL, GOLD, SILVER, AND TIN CATHODES / *Tadayoshi Ohmori, Michio Enyo*

Tadayoshi Ohmori (top) (BSc, chemistry, Hokkaido University, Japan, 1962) is an instructor at the Hokkaido University Catalysis Research Center. His research interests include basic electrocatalytic processes, hydrogen electrode reactions, and electro-oxidation of organic compounds. **Michio Enyo** (BSc, chemistry, Hokkaido University, Japan, 1953; MSc, physical chemistry, Hokkaido University, Japan, 1955; PhD, physical chemistry, University of Pennsylvania, 1960) is a professor at the Hokkaido University Catalysis Research Center. His interests include the kinetics and mechanisms of electrode processes, basic reactions of fuel cells, hydrogen dissolution into electrode metals, and cold fusion.



COLD FUSION EXPERIMENTS WITH ORDINARY WATER AND THIN NICKEL FOIL / Takaaki Matsumoto

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



ELECTRON TRANSITIONS ON DEEP DIRAC LEVELS I / 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) worked 4 years at the Joint Institute for Nuclear Research in Dubna in heavy-ion nuclear reactions, 1½ years at Lawrence Berkeley Laboratory (LBL), where he discovered the bivalent state in californium, einsteinium, fermium, mendelevium, and nobelium, and 7 years at the National Center of Scientific Research (CNRS) of Orsay University, France, in Dirac Hartree-Fock calculations of all elements. During the last 17 years, he 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) did his PhD thesis on measurements of elementary particle scattering performed on the Bevatron accelerator at LBL. He was a postdoctoral fellow at the Triumf accelerator in Vancouver, Canada, and spent 1 year at the European Organization for Nuclear Research. He 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.



SOME THOUGHTS ON A SIMPLE MECHANISM FOR THE $2^1\text{H} + 2^1\text{H} \rightarrow 4^1\text{He}$ COLD FUSION REACTION / Alden E. Park

Alden E. Park (BS, math and physics, University of New Mexico, 1975; MS, physics, University of Colorado, 1979) has been employed by the Naval Air Warfare Center Weapons Division, China Lake, California, since 1980, developing methods for automatic target recognition. His nuclear fusion studies have not been carried out as part of his employment.



THE INFLUENCE OF DEPOSITS ON PALLADIUM CATHODES IN D_2O ELECTROLYSIS / C. J. Lihn, C. C. Wan, C. M. Wan, T. P. Perng

C. J. Lihn (left) (BS, chemical engineering, Chung Yuan University, Taiwan, 1985) is a doctoral student of chemical engineering at National Tsing-Hua University (NTHU), Hsinchu, Taiwan. His current interest is the fundamental electrochemical study of D_2O and H_2O electrolysis. **C. C. Wan** (right) (PhD, Columbia University, 1974) is currently professor of chemical engineering at



NTHU. **C. M. Wan** (left) (PhD, metallurgy, Uhta University, 1972) is a professor of materials science and engineering at NTHU. His current interest is cold fusion research. **T. P. Perng** (right) (PhD, University of Illinois at Urbana-Champaign, 1984) is currently professor of materials science and engineering at NTHU. His research interests include hydrogen behavior in solids and metal hydrides.



EXPERIMENTS OF ONE-POINT 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 from 1966 to 1973. Since 1973, he has been with Hokkaido University as an associate professor of nuclear engineering. His interests include nuclear transmutations of radioactive wastes and the nuclear industry.

