

AUTHORS — MAY 1985

EXPERIMENTAL DEVICES

ANALYSIS OF DOUBLET PROTON SPECTRA FROM LASER IMPLOSION EXPERIMENTS

D. R. Welch (top) (BS, Northwestern University, 1980; MS, University of Illinois, 1982) is a PhD candidate in the Fusion Studies Laboratory at the University of Illinois (UI). His current research interests include diagnostic development for inertial confinement fusion experiments involving charged-particle and neutron detection. **D. B. Harris** (center) (BS, 1978; MS, 1982; and PhD, 1984, nuclear engineering, UI) joined Los Alamos National Laboratory in 1984 as a staff member of the Energy Technologies Group in the Analysis and Assessment Division. His current work involves systems analysis for KrF laser-fusion drivers and inertial confinement fusion reactor systems. **George H. Miley** (bottom) (PhD, University of Michigan, 1958) is professor and chairman of the Nuclear Engineering Program at UI. In addition to research on fusion, he is well known for his research on energy conversion and nuclear-pumped lasers.

*D. R. Welch
D. B. Harris
George H. Miley*



PLASMA ENGINEERING

PASSIVE CONTROL OF THE VERTICAL INSTABILITY IN INTOR

Scipione Bobbio (right) (graduate, electrical engineering, University of Naples, 1965) is currently full professor in electrotechnics at the University of Naples, Italy. His research interests are mainly in electromagnetics with particular reference to controlled

*Scipione Bobbio
Enzo Coccoresse
Giulio Fabricatore
Raffaele Martone
Guglielmo Rubinacci*



fusion technology. **Enzo Coccoresse** (top right) (graduate, electrical engineering, University of Naples, 1972) is associate professor in electrotechnics at the University of Naples. His research interests are in the electrical problems for plasma physics devices. He is involved with the design work of the Next European Torus (NET). **Giulio Fabricatore** (top left) (graduate, electrical engineering, University of Naples, 1972) is currently associate professor of electrotechnics at the University of Naples. His present fields of interest are mainly in experimental research on plasma physics as well as on electrical properties of polymeric materials. **Raffaele Martone** (bottom right) (graduate, electrical engineering, University of Padua, 1973) is associate professor in electrotechnics at the University of Calabria, Italy. He has worked on electrical engineering studies of tokamak reactor concepts. He is involved with the design work of NET and the Reverse Field Pinch Experiment. **Guglielmo Rubinacci** (bottom left) (graduate, electrical engineering, University of Naples, 1975) is currently associate professor of electrotechnics at the University of Salerno, Italy. His research interests are mainly in the field of magnetic fusion.



NEUTRAL BEAM ORIENTATION ON THE TOKAMAK FUSION TEST REACTOR

David R. Mikkelsen (top) (PhD, physics, University of Washington) has been a physicist at the Princeton Plasma Physics Laboratory (PPPL) since 1977. He developed computational models of neutral beam injection (NBI) and fast ion orbits in tokamaks. **Clifford E. Singer** (center) (FBIS, PhD, University of California, Berkeley) has worked on the theory and applied physics of plasma transport in tokamak experiments and reactors at PPPL since 1977. He has published studies of space and planetary physics, interstellar propulsion and communication, and molecular biology and evolution. **Robert J. Goldston** (bottom) (PhD, astrophysics, Princeton University, 1977) did his PhD research on the ATC tokamak at the PPPL, where he worked on developing plasma diagnostic techniques based on hydrogen neutral beams. Since that time he has participated in experiments on the PLT, PDX, and TFTR tokamaks at PPPL. His primary interests have been NBI physics and confinement scaling in tokamaks with auxiliary heating.

*David R. Mikkelsen
Clifford E. Singer
Robert J. Goldston*



ALPHA-DRIVEN FAST MAGNETOSONIC WAVE HEATING IN TOKAMAK PLASMAS

George H. Miley (right) (PhD, University of Michigan, 1958) is professor and chairman of the Nuclear Engineering Program 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. Photographs and biographies for **William R. Sutton III** and **Dieter J. Sigmar** were not available at publication time.

*William R. Sutton III
Dieter J. Sigmar
George H. Miley*



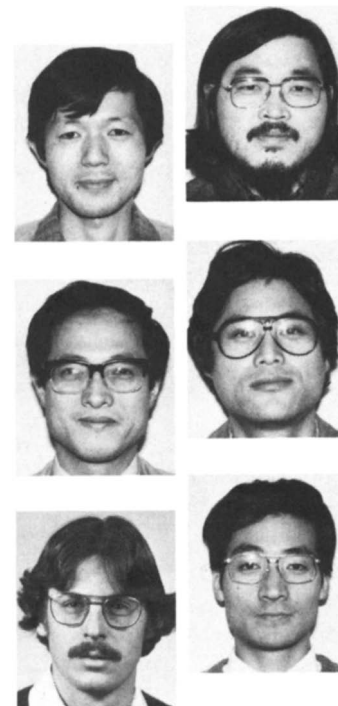
PERFORMANCE OF THE PROTOTYPE JT-60 INJECTOR UNIT IN THE PRESENCE OF A SIMULATED STRAY MAGNETIC FIELD

Shigeru Tanaka (top right) (Dr. Eng., instrumentation engineering, Keio University, 1983) is a research scientist in the Division of Thermonuclear Fusion Research (DTFR) at the Japan Atomic Energy Research Institute (JAERI). He is engaged in development of the ion source and the neutral beam injector (NBI) for the JT-60 tokamak. **Masato Akiba** (top left) (Dr. Eng., nuclear engineering, Kyushu University, 1983) is a research scientist in the DTFR at JAERI. He works mainly in developing the control system and the ion source for the JT-60 NBI. **Masanori Araki** (second from top right) (B. Eng., nuclear engineering, Kobe University of Mercantile Marine, 1979) is a research scientist in the Division of Large Tokamak Development (DLTD) at JAERI. He is involved in design and development of the NBI for the JT-60. **Masayuki Dairaku** (second from top left) (mechanical engineering, Mito Technical High School, 1982) is a technician in the DTFR at JAERI. He is engaged in the development of the cryopumping system for the JT-60 NBI. **Hiroshi Horiike** (third from top right) (Dr. Eng., nuclear engineering, Osaka University, 1982) is a research scientist in the DTFR at JAERI. He works mainly in developing the ion source and the NBI for the JT-60. **Takao Itoh** (third from top left) (MS, physics, Tokai University, 1972) is a research scientist in the DTFR at JAERI. He has worked in developing the magnetic system (reflecting magnet, magnetic shields, etc.) for the JT-60 NBI and is currently engaged in the development of a helium beam injector for the active beam diagnostic system for the JT-60. **Mikito Kawai** (fourth from top right) (B. Eng., electrical engineering, Kiriu Technical College, Gunma University, 1973) is an engineer in the DLTD at JAERI. He is engaged in developing the control system for the JT-60 NBI. **Masao Komata** (fourth from top left) (electrical engineering, Hitachi Technical High School, 1983) is a technician in the DTFR at JAERI. He is engaged in developing the power supply system for the JT-60 NBI. **Masaaki Kuriyama** (fifth from top right) (Dr. Eng., mechanical engineering, Tokyo Institute of Technology) is a senior scientist in the DLTD at JAERI. He works in developing and constructing the NBI system for the JT-60. **Shigeru Kitamura** (fifth from top left) (electrical engineering, Sakata Technical High School, 1975) is a technician in the DLTD at JAERI. He is involved in developing the power supply system and constructing the JT-60 NBI. **Shinzaburo Matsuda** (sixth from top right) (Dr. Eng., electrical engineering, Kyoto University, 1978) is a senior scientist and chief of Plasma Heating Laboratory I in the DTFR at JAERI. He manages development of the ion source and the NBI system for the JT-60 and is the head of the Neutral Beam Development Group. **Mamoru Matsuoka** (sixth from top left) (M. Eng., electronic engineering, Nagoya University, 1979) is a research scientist in the DTFR at JAERI. He is involved in developing the power supply and control system as well as the magnetic system for the JT-60. **Kiyoshi Mizuhashi** (bottom right) (B. Eng., electrical engineering, Kiriu Technical College, Gunma University, 1976) is an engineer in the DTFR at JAERI. He is now engaged in the construction of the JT-60 NBI and maintenance of the prototype injector unit. **Yutaka Ohuchi** (bottom left) (mechanical engineering, Tsuchiura Technical High School, 1962) is a technician with many years of experience in operation and maintenance of

*Shigeru Tanaka
Masato Akiba
Masanori Araki
Masayuki Dairaku
Hiroshi Horiike
Takao Itoh
Mikito Kawai
Masao Komata
Masaaki Kuriyama
Shigeru Kitamura
Shinzaburo Matsuda
Mamoru Matsuoka
Kiyoshi Mizuhashi
Yutaka Ohuchi
Yoshihiro Ohara
Yoshikazu Okumura
Kiyoshi Shibamura
Takemasa Shibata
Kazuhiro Watanabe
Russel P. Wells*



fission reactors at JAERI. He recently joined the DLTD and is now engaged in developing the cryopumping system for the JT-60 NBI. **Yoshihiro Ohara** (top right) (Dr. Eng., nuclear engineering, The University of Tokyo, 1979) works for development of the ion source and the NBI for JT-60 as a research scientist in the DTFR at JAERI. **Yoshikazu Okumura** (top left) (M. Eng., nuclear engineering, Osaka University, 1976) is a research scientist of the DTFR at JAERI. He works mainly in developing ion sources, including negative ion sources and the beam diagnostic system for the JT-60 NBI. **Kiyoshi Shibamura** (center right) (M. Eng., mechanical engineering, Waseda University, 1980) is a research scientist in the DTFR at JAERI. He is involved in developing the cryopumping system for the JT-60 NBI. **Takemasa Shibata** (center left) (Dr. Sci., chemistry, The University of Tokyo, 1975) is a senior scientist in the DTFR at JAERI. He works mainly in developing the cryopumping system for the JT-60. His current interests include development of a negative ion-based NBI. **Kazuhiro Watanabe** (bottom right) (M. Eng., electrical engineering, Ibaraki University, 1982) is a research scientist in the DTFR at JAERI. He is mainly engaged in developing a helium beam injector for the active beam diagnostic system for the JT-60. **Russel P. Wells** (bottom left) (dual BS, mechanical engineering and materials science, 1977, and MS, materials science, 1978, The University of California, Davis) joined the staff of Lawrence Berkeley Laboratory in 1979 as a mechanical engineer as was assigned to the Magnetic Fusion Energy (MFE) Group. Beginning in May 1983, he spent one year in the Plasma Heating Laboratory I at JAERI as part of the U.S./Japan agreement on exchange of fusion energy information. He has now resumed his duties with the MFE Group, which include the design and fabrication of neutral beam accelerators and their associated test facilities, cooling, and calorimetric diagnostic systems.



BLANKET ENGINEERING

THERMAL CONDUCTIVITIES FOR SINTERED AND SPHERE-PAC Li_2O AND $\gamma\text{-LiAlO}_2$ SOLID BREEDERS WITH AND WITHOUT IRRADIATION EFFECTS

Yung Y. Liu (top) (BS, nuclear engineering, National Tsing-Hua University, Taiwan, 1971; MS, 1976, and ScD, 1978, nuclear engineering, Massachusetts Institute of Technology) has been a member of the Materials Science and Technology Division at Argonne National Laboratory (ANL) since 1978. He is also a member of the Fusion Power Program at ANL. Among his fusion-related interests are solid breeder blanket technology, neutron multipliers, and electrical insulators. **S. W. Tam** (PhD, materials science, State University of New York, Stony Brook, 1974) is a staff metallurgist in the Chemical Technology Division of ANL. He is experienced in fundamental and applied aspects of the behavior and properties of materials in nuclear technology. His current interest is in the area of breeder materials for fusion applications.

Yung Y. Liu
S. W. Tam



A STARTUP ANALYSIS OF FOUR INTERLINKED DISTILLATION COLUMNS FOR HYDROGEN ISOTOPE SEPARATION

Masahiro Kinoshita (top) (MS, 1979, and PhD, 1983, chemical engineering, Kyoto University) has worked on development of computer-aided simulation procedures and programs for stage processes both in the fuel cycle system for a fusion reactor and in other chemical engineering systems. He has also started preliminary experimental study for cryogenic distillation. **John R. Bartlit** (center) (BSChE, Purdue University, 1956; DEng, chemical engineering, Yale University, 1963) joined Los Alamos National Laboratory (LANL) in 1962 and is presently deputy project manager of the tritium systems test assembly. His particular responsibilities lie in fusion fuel processing systems—the deuterium-tritium (D-T) fuel cleanup system and the hydrogen isotope separation system. **Robert H. Sherman** (bottom) (BS, chemistry, Illinois Institute of Technology, 1951; PhD, chemistry, University of California at Berkeley, 1955) is a physical chemist in the Materials Science and Technology Division of LANL. He has principal responsibility for the isotope separation and gas analysis systems, and is also collaborating on studies of muon catalyzed D-T fusion.

*Masahiro Kinoshita
John R. Bartlit
Robert H. Sherman*



FUSION CHARACTERISTICS IN EXOTIC CATALYZED SYSTEMS

V. P. Gautam (right) (MS and PhD, 1965, University of Allahabad) joined the Indian Association for the Cultivation of Science, Calcutta (IACS) in March 1965 as a research officer. From September 1966 to August 1968 he worked as a research associate with L. L. Foldy at Case-Western Reserve University, Cleveland, Ohio. He then resumed duties at IACS and was selected as a reader in the Department of Theoretical Physics. Since March 1984, he has been professor of physics. His interests include particle and nuclear physics. A photograph and biography for **Lali Chatterjee** were not available at publication time.

*Lali Chatterjee
V. P. Gautam*



STEADY-STATE PROPERTIES OF THE FUSION REACTOR DIVERTOR PLASMA

Khalil Denno is professor of electrical engineering at New Jersey Institute of Technology. His major fields are electric power, electromechanical energy conversion, and direct energy conversion.

Khalil Denno

