# CONFERENCE PROGRAM

#### Oral Session SC Fusion Devices IIa

FD2-1 Construction and Assembly of Wendelstein 7-X
M. Wanner
FD2-2 The Recent Progress and Future Plan for EAST Tokamak
J. G. Li
FD2-3 Status of the KSTAR Tokamak
Construction
J. S. Bak
FD2-4 Recent Progress in SST-1 Tokamak
Y. C. Saxena

V

Plenary Session I

PL-1 Twenty Years since the Discovery of High Temperature Superconductivity *K. Kitazawa*PL-2 Progress of Plasma Experiments and Superconducting Technology in LHD *O. Motojima*

## Oral Session SC Fusion Devices I

FD1-1 Toward Steady State Operation in Large Tokamaks : The Experience of Tore Supra Superconducting Magnet System
J. L. Duchateau
FD1-2 Recent Progress in TRIAM-1M
Experimental Studies
K. N. Sato

#### Plenary Session II

**PL-3** Potential and Desire for HTS Application in Thermonuclear Fusion *P. Komarek* 

Oral Session Magnets & Conductor I

MC1-1 Superconducting Magnet and Conductor Research Activities in the US Fusion Program J. H. Schultz
MC1-2 Applied Superconductivity and Cryogenic Research Activities in NIFS T. Mito

#### Oral Session Magnets & Conductor II

MC2-1 Recent Topics in High-Field A15
Superconductors in Japan *K. Tachikawa*MC2-2 Design and Development of a New
Generation of Hybrid Magnet Systems for the
National High Magnetic Field Laboratory *J. R. Miller*MC2-3 Generation of High Magnetic Fields
Using Superconducting Magnets *T. Kiyoshi*MC2-4 Analysis of Stability and Quench in
HTS Devices - New Approaches *V. S. Vysotsky*

Oral Session Magnets & Conductor III

MC3-1 Cryogen-Free 18.1 T High Temperature Superconducting Magnet
G. Nishijima
MC3-2 Radiation Effects on Insulators for Fusion Magnets
K. Humer
MC3-3 Activity in SRL-Nagoya Coated
Conductor Center for Long YBCO Coated
Conductor
S. Miyata
MC3-4 RHQT JR Nb<sub>3</sub>Al Conductors Developed for Nuclear Fusion Reactors
T. Takeuchi

Oral Session SC Fusion Devices IIb

**FD2-5** Overview on Long Pulse Steady-State Operation in Tore Supra *D. van Houtte* 

#### Oral Session Cryogenics

#### Oral Session Reactor Design I

RD1-1 Development of Fusion Technology for DEMO in FZK *G. Janeschitzt*RD1-2 The European Power Plant Conceptual Study: Helium-Cooled Lithium-Lead Reactor
Concept *P. Sardain*RD1-3 Operational Flexibility of CS-less
Tokamak Power Reactor, VECTOR *S. Nishio*RD1-4 Design Studies of KOYO-Fast Laser
Fusion Power Plant *Y. Kozaki*

#### Oral Session Reactor Design II

RD2-1 Recent Progress in ARIES Compact Stellarator Study
F. Najmabadi
RD2-2 Status of HELIAS Reactor Studies
Yu. Igitkhanov
RD2-3 Recent Progress in Design Studies on LHD-type Reactor FFHR
A. Sagara CR-1 Cryogenic System of ITER
V. Kalinin
CR-2 Cryogenics in EAST
H. Y. Bai
CR-3 CFD Modeling of ITER Cable-inconduit Super-conductors. Part II: Correlations for the Central Channel Pressure Drop
R. Zanino
CR-4 Plant Process Validation Platform for the LHD Cryogenic System
R. Maekawa

#### Oral Session SC Fusion Devices III

FD3-1 Critical Issues for ITER in the Design, Fabrication and Operation of the ITER Magnets *N. Mitchell*FD3-2 Japanese Contributions to the Procurement of the ITER Superconducting Magnet *K. Okuno*FD3-3 Influence of Toroidal Field on the Design of Magnet Systems for Future Fusion Reactors *J. L. Duchateau*

### Oral Session Advanced Technologies

AT-1 Application of High Temperature
Superconducting Coil for Internal Ring Devices *Y. Ogawa*AT-2 The Levitated Dipole Experiment *J. Minervini*AT-3 Development of DI-BSCCO Wires and their Applications *J. Fujikami*AT-4 Long Pulse Operation of 170GHz ITER
Gyrotron by Beam Current Control *A. Kasugai*

## Poster Session Program

- PS1-01 Bi2212 HTS Bulk Tubes Prepared by the Diffusion Process for Current Lead Application J. Ohkubo
- PS1-02 Mechanical Properties of Bi-2212 Superconducting Bulk with Alumina Fiber Reinforcement *H. Tamura*
- PS1-03 Optimization of a Conduction-Cooled LTS Pulse Coil A. Kawagoe
- PS1-04 Electromagnetic Behavior of HTS Coils in Persistent Current Operations *T. Hemmi*
- PS1-05 Improvement in the Critical Current Density by Two Orders of Magnitude for MgB<sub>2</sub> Tapes using an Aluminum Sheath *T. Nakane*
- PS1-06 The Low Activation Superconducting Materials Based on the Requirement for an Advanced Fusion Reactor Application *Y. Hishinuma*
- PS1-07 High Strength Nb<sub>3</sub>Sn Strands Applying the Prebending Effect *K. Watanabe*
- PS1-08 Irradiation Effect of D-T Neutron on Superconducting Magnet Materials for Fusion Application A. Nishimura
- PS1-09Tensile and Damage Behavior of Plain Weave Glass/Epoxy<br/>Composites at Cryogenic TemperaturesS. Takano
- PS1-10 Stability Measurements of LTS/HTS Hybrid Superconductors *G. Bansal*
- PS1-11 Stability Test of Cable-In-Conduit-Conductors for SST-1 G. Bansal
- PS1-12 Test and Analysis of Current Unbalance Inside the ASTEX Multistrand CICC Coil *A. Di Zenobio*
- PS1-13 Comparison of Avalanche-like Quenches induced Current Limits between NbTi and Nb<sub>3</sub>Sn Cable in Conduit Conductors *K. Seo*
- PS1-14 Coupling Loss with Long Time Constants due to Large Displacement of Strands in Large CIC Conductor *T. Yagai*
- PS1-15 Different Loss Contributions in Superconducting Magnets Caused by Additional Change of the Magnetic Field S. Takács

- PS1-16Change of the Induced Magnetic Field and Time Constant along<br/>Finite Twisted Superconducting CablesS. Takács
- PS1-17 Pressure Drop of the SST-1 Cable-in-Conduit Conductor S. Pradhan
- PS1-18 Design of the Magnet System for a 42 GHz 200 kW Gyrotron S. Pradhan
- PS1-19 Effect of Thermal Contact between Winding Pack and Casing on Thermal Behavior of SST-1 TF Coil A. K. Sahu
- PS1-20 Overview of Fundamental Study on Remountable HTS Magnet S. Ito
- PS1-22 Feasibility Study on High Field Magnets Using Stress-Minimized Helical Coils S. Nomura
- PS1-23 Prototype Superconducting Magnet for the FFAG Accelerator *T. Obana*
- PS1-24 The Test Facility and EAST Superconducting Magnets Test Yu Wu
- PS1-25 The Design of Quench Protection of EAST Toroidal Field Power Supply System L. W. Xu
- PS1-26 Open Loop Excitation and Electrical Parameter Estimation of LHD Superconducting Coils *H. Chikaraishi*
- PS1-27 Pulse Height Analysis on the Balance Voltage and Acoustic Emission Signals in the LHD Superconducting Coils *N. Yanagi*
- PS1-28 Protection of LHD Coils by Intelligent Observation of Voltage Signals *T. Ishigohka*
- PS1-29 Influence of Hysteresis Loss on Quench-Voltage Detection in Large Superconducting Magnets *K. Takahata*
- PS1-30 Flashover Characteristics along Spacer at Cryogenic Temperature Influenced by Minute Gaps between Spacer and Electrode *A. Minoda*
- PS1-31 Numerical Analysis on Effect of Surface Oxidation on Stability of LHD Conductor Immersed in Saturated He I and Pressurized He II *M. Ohya*
- PS1-32 Upgrading Program for Improving the Cryogenic Stability of LHD Helical Coils by Lowering a Temperature S. Imagawa
- PS1-33 Steady State Heat Transfer of an Oxidized Copper Surface in Subcooled Liquid Helium *A. Iwamoto*

- PS1-34 Performance of Cold Compressors in a Cooling System of an R&D Superconducting Coil Cooled with Subcooled Helium S. Hamaguchi
- PS1-35 Results of LHD Cryogenic System Operations S. Moriuchi
- PS1-36 Cryogenic Process REal-Time SimulaTor (C-PREST) K. Ooba
- PS1-37 Helium Refrigeration System of the KSTAR Tokamak C. H. Choi
- PS1-38 Current Leads Performance Test for SST-1 B. Sarkar
- PS1-39 Cryogenic System of Steady State Superconducting Tokamak SST-1: Operational Experience and Controls *B. Sarkar*
- PS1-40 Operation of Cryostat Vacuum Vessel of HT-7 Superconducting Tokamak *Y. Yang*
- PS1-41 Design Study of the Cryogenic Systems for the Fusion Power Plant *S. Yamada*
- PS1-42 Cryogenic Pellets with Controlled Length for Pellet Ablation Studies *I. da S. Rêgo*
- PS1-43 Performance of Fueling Pellet Injectors for Large Helical Device *M. Hoshino*
- PS2-01 Stability Analysis of GAMMA10 Tandem Mirror with Diverter Y. Sasagawa
- PS2-02 The Analytical Formulation of a Neoclassical Resonant Transport in a Mirror *I. Katanuma*
- PS2-03 The Study by Mappings of the Orbits and Diffusion of Ions Trapped in the Magnetic Field of GAMMA10 H. Saimaru
- PS2-04 Density Measurement by Using a Gold Neutral Beam Probe at the Inner Mirror Throat in the Tandem Mirror GAMMA10 *Y. Miyata*
- PS2-06 Progress Towards High-Performance Steady-State Operation on DIII-D C. M. Greenfield
- PS2-07 Plasma Control Techniques Applicable to High Performance, Steady State, Superconducting Tokamaks *A. G. Kellman*
- PS2-08 Two Dimensional Ion Flow Velocity Measurement System N. Nishino

- PS2-09 Application of Visible Bremsstrahlung to a Density Monitor in Steady State Fusion Reactor *H. Yamazaki*
- PS2-10 Study of First Mirror Exposure and Protection in HL-2A Tokamak *Y. Zhou*
- PS2-11 New Methods for Measuring Plasma Energy Using Superconducting Helical Coils K. Hamamura
- PS2-12 Ion Cyclotron Conditioning with Strong Magnetic Field in LHD N. Ashikawa
- PS2-13 Real Time Impedance Matching System Using Liquid Stub Tuners in ICRF Heating on LHD K. Saito
- PS2-14 Application of a magnetized coaxial plasma gun for a formation of a high-beta field-reversed configuration *T. Nishida*
- PS2-15 Compact toroid injection system for JFT-2M N. Fukumoto
- PS2-16 Start-up Assist by Magnetized Plasma Flow Injection on TPE-RX Reversed-Field Pinch *T. Asai*
- PS2-17 Suppression of Fast Electron Leakage from Large Openings in a Plasma Neutralizer for N-NB System *M. Kashiwagi*
- PS2-18 Compact Magnetic Systems for Fusion Reactor Research S. V. Ryzhkov
- PS2-19 Conceptual Design Activities of FDS Series Fusion Power Plants in China Y. Wu
- PS2-20 Comparative study of D-<sup>3</sup>He low and high aspect ratio tokamak reactors *O. Mitarai*
- PS2-21 Evaluation of Operation Scenario for Fusion DEMO Plant at JAERI -Constrain of Neutral Beam Injection System-*M. Sato*
- PS2-22 Non-Inductive Operation Scenario of Plasma Current Ramp-down in CS-less, Advanced Tokamak Reactor *Y. Nakamura*
- PS2-23 Conceptual Design Study on a Demonstration Tokamak Fusion Power Plant: Demo-CREST R. Hiwatari
- PS2-24 Dynamics of D+D Fusion Products in LHD Geometry A. A. Shishkin
- PS2-25 Removal of Cold-alpha Particles from Fusion Helical Reactor A. A. Shishkin
- PS2-26 Burning Plasma Simulation and System Assessment of Tokamak and Helical Reactors *K. Yamazaki*
- PS2-27 Numerical Study of Magnetic Field Configuration for FFHR from a Viewpoint of Divertor and Edge Field Structure *T. Morisaki*

- PS2-28 Development of Reactor Design Aid Tool Using Virtual Reality Technology N. Mizuguchi
- PS2-29 Investigation of Tritium Breeding Performance in FFHR by Three-Dimensional Neutronics Calculation *T. Tanaka*
- PS2-30 Development of CAD/MCNP Interface Program Prototype for Fusion Reactor Nuclear Analysis S. Sato
- PS2-31 Update and Visualization of ITER Basic Neutronics Model with the Auto-Modeling Code MCAM Q. Zeng
- PS2-32 Possibility of Tritium Self-Sufficiency with the Outboard Blanket Only in Low Aspect Ratio Tokamak Reactor *T. Hayashi*
- PS2-33 Conceptual Study on a Fast Ignition ICF Reactor with a Single Dry Wall Chamber and a High Repetition Laser K. Okano
- PS2-34 Development of a System Code for an ICF Reactor and Investigation of a Design Regime for a Dry Wall Chamber Concept *T. Goto*
- PS2-35 Control Techniques of a Thrust Vector for Magnetic Nozzle in Laser Fusion Rocket *Y. Kajimura*
- PS2-36 Orbit Adjusting System Using Magnetic Lens for Pb Coated Superconducting ICF Pellet R. Tsuji
- PS2-37Structural Stability and Self-healing Capability of Er2O3 In-situ<br/>Coating on V-4Cr-4Ti in Liquid LithiumZ. Yao
- PS2-38 Activation Experiment with D-T Neutrons on Materials Relevant to Liquid Blankets Z. X. Li
- PS2-39 The Potentiality for Fusion Application of V-4Cr-4Ti in Various Thermo-Mechanical States J. M. Chen
- PS2-40 Microstructure Analysis on JLF-1 Steel Tested by Tensile and Fatigue Deformation *H. L. Li*