ITC-10 Program

Monday, January 17, 2000

16:00 ~ 18:00 Registration **<at Oustat International Hotel>**

Tuesday, January 18, 2000

09:00 ~ 09:40 Registration **<3rd Floor>**

(Opening Session)
09:40 ~ 10:00 **Opening Ceremony** **<3rd Floor>**

10:00 ~ 10:20 – *Coffee Break* **<2nd Floor>** –

(Session I; LHD Overview) **<3rd Floor>**
10:20 ~ 11:00 **I-1** Progress of the LHD Experiment O. Motojima

(Session II; Machine Overview) **<3rd Floor>**
11:00 ~ 11:30 **II-1** Plasma Edge Physics and Island Divertor Studies in Wendelstein 7-AS K. McCormic

11:30 ~ 12:00 **II-2** CIEL in Tore Supra: How to Master Power and Particles on Very Long Discharges P. Garin

12:00 ~ 12:30 **II-3** High Performance and Currrent Device Study on TRIAM 1M H. Zushi

12:30 ~ 13:30 **Group Photo**

– *Lunch Break* –

(Poster Session I; **PI-1** ~ **PI-63**) **<2nd Floor>**
13:30 ~ 15:30 **Poster Presentations**

15:30 ~ 16:00 – *Coffee Break* **<2nd Floor>** –

(Session III; PFC and Materials) **<3rd Floor>**
16:00 ~ 16:30 **III-1** Actively Cooled Plasma Facing Components for Long Pulse High Power Operation R. Nygren

16:30 ~ 17:00 **III-2** Liquid Walls for Fusion First Walls and Blankets M. Abdou

17:00 ~ 17:20 **III-3** Time Evolution of Surface Topography of Plasma Facing Materials with Non-Uniform Impurity Deposition K. Ohya

17:20 ~ 17:40 **III-4** Preparation and Properties of the Composites Characterized by Functionally Gradient SiC Coating and Graphite Substrates Q. Guo

18:00 ~ 19:30 **Reception for Foreign Participants** **<2nd Floor>**

Wednesday, January 19, 2000

(Session IV; Theory) **<3rd Floor>**

09:00 ~ 09:30 **IV-1** Plasma Control in Advanced Steady State Operation of Tokamaks D. Moreau

09:30 ~ 10:00 **IV-2** Physics Issues in Long Pulse Plasma Confinement K. Itoh

10:00 ~ 10:20 **IV-3** Near-Axis Investigation of Plasma Confinement in Linked-Mirror Type Stellarators V.D. Shafranov

10:20 ~ 10:40 **IV-4** Sheaths with Dust Particles in an Oblique Magnetic Field Yu. I. Chutov

10:40 ~ 11:00 – Coffee Break –

(Session V; Core/Edge Plasma) **<3rd Floor>**

11:00 ~ 11:30 **V-1** Recent Progress towards Steady State Tokamak Operation with Improved Confinement in JT-60U T. Fujita

11:30 ~ 12:00 **V-2** Steady-State Operation with Transport Barriers and Control by ON-AND OFF CURRENT DRIVE on ASDEX Upgrade O. Gruber

12:00 ~ 12:30 **V-3** Physics of the Density Limit in Stellarators L. Giannone

12:30 ~ 13:30 – *Lunch Break* –

(Poster Session II; **PII-1 ~ PII-62**) **<2nd Floor>**

13:30 ~ 15:30 **Poster Presentations**

15:30 ~ 16:00 – *Coffee Break* **<2nd Floor>** –

(Session VI; Diagnostics and Transport) **<3rd Floor>**

16:00 ~ 16:30 **VI-1** Diagnostic Development for Steady-State High Power Operation C. Laviron

16:30 ~ 16:50 **VI-2** Progress toward Long Pulse, High Performance Plasmas in the DIII-D Tokamak P.A. Polizer

16:50 ~ 17:10 **VI-3** Modeling of Impurity Radiation and Transport during Long Pulse 'Breathing' Plasmas in LHD B.J. Peterson

17:10 ~ 17:30 **VI-4** Operation of TEXTOR-94 with a Tungsten Poloidal Main Limiter System A. Pospieszczyk

18:30 ~ 20:30 **Banquet** **<2nd Floor>**

Thursday, January 20, 2000

(Session VII; Machine Overview) **<3rd Floor>**

09:00 ~ 09:30 **VII-1** Long-Pulse Operation of the GAMMA 10 Tandem Mirror M. Ichimura

09:30 ~ 10:00 **VII-2** Status of TJ-II Flexible Heliac Experiments and Issues towards Steady State Operation C. Alejaldre

10:00 ~ 10:20 **VII-3** Design and Engineering of the KSTAR Tokamak G.S. Lee

10:20 ~ 10:40 **VII-4** Development of Mechanical Mounting Scheme for Plasma Facing Components of SST-1 Tokamak S.S. Khirwadkar

10:40 ~ 11:00 – *Coffee Break* **<2nd Floor>** –

(Session VIII; Long Pulse Heating)

11:00 ~ 11:30 **VIII-1** Long-Pulse NB-Heated Discharges in LHD Y. Takeiri

11:30 ~ 12:00 **VIII-2** Long Pulse ICRF Heating Experiment on the LHD R. Kumazawa

12:00 ~ 12:30 **VIII-3** Heating and Current Drive System for Tore Supra in Steady State Operation A. Bécoulet

12:30 ~ 13:30 – *Lunch Break* –

14:00 ~ 16:30 **Technical Tour to LHD**

Friday, January 21, 2000

(Session IX; PSI/Erosion) **<3rd Floor>**

9:00 ~ 9:30 **IX-1** Wall Conditioning with a High Magnetic Field in HT-7 Superconducting Tokamak J. Li

9:30 ~ 10:00 **IX-2** Hydrogen Recycling and Wall Equilibration during Long-Pulse Operation P. Mioduszewski

10:00 ~ 10:30 **IX-3** Carbon Transport in Magnetic Fusion Devices: Aspects of Long Term Operation P. Wienhold

10:30 ~ 10:50 **IX-4** Tokamakium in TRIAM-1M and its Impacts on Plasma-Surface Interaction N. Yoshida

10:50 ~ 11:10 – *Coffee Break* **<2nd Floor>** –

(Session X; Divertor Plasmas) **<3rd Floor>**

11:10 ~ 11:40 **X-1** Divertor Design: Issues Raised by Steady State and Advanced Tokamak Operation D.P. Coster

11:40 ~ 12:10 **X-2** Dynamic Behavior of Detached Recombining Plasmas for Plasma Heat Pulse in the Divertor Simulator NAGDIS-II N. Ohno

12:10 ~ 12:30 **X-3** Divertor Plasma Behavior during Long Pulse Discharges in the Large Helical Device S. Masuzaki

12:30 ~ 13:30 *– Lunch Break –*

(Session XI; Future Machines and Technology) **<3rd Floor>**

13:30 ~ 14:00 **XI-1** Physics Design of Compact Stellarator Experiments G.H. Neilson

14:00 ~ 14:30 **XI-2** Steady State Aspects of WENDELSTEIN 7-X J.-H. Feist

14:30 ~ 15:00 **XI-3** Physics Design of RTO/RC ITER M. Shimada

15:00 ~ 15:20 **XI-4** Control of Fusion Power in a Steady-State Tokamak Reactor R. Kurihara

15:20 ~ 15:40 **XI-5** New Centrifuge Pellet Injector with a Screw Extruder for a Steady State Fuelling I. Viniar

(Session XII; Closing) **<3rd Floor>**

15:40 ~ **Closing Ceremony**

Saturday, January 22, 2000

14:00 ~ 16:00 **Lectures to citizens:** N. Inoue, M. Porkolab

<Poster Session I>

PI-1 The Direct Measurements of the Plasma Electric Potential by Heavy Ion Beam Probe on T-10 Tokamak: Does T-10 obtain the H-mode? A.V. Melnikov

PI-2 High Density Operation in the HT-7 Superconducting Tokamak X. Gao

PI-3 First-step Experiments of Neutral Beam Injection into an FRC Plasma T. Asai

PI-4 New Method of Ion Injection into Helical Device with the Use of the Helical Ripple Loss Cone S. Inagaki

PI-5 Low-aspect-ratio Quasi-axisymmetric Stellarator CHS-qa S. Okamura

PI-6 Development of the Real-time Image Data Acquisition System for Observing the Plasma Dynamic Behavior of LHD Long-pulse Discharges M. Shoji

PI-7 Analysis of Influence of the Radial Electric Field on Turbulent Transport in a Tandem Mirror Plasma V.I. Khvesyuk

PI-8 YAMATOR: High Magnetic-well Value Stellarators V.G. Kotenko

PI-9 On the Influence of Synchrotron Radiation on the Confinement Properties of Field Reversed Configuration in a D-^{3}He Fusion Reactor V.N. Litunovsky

PI-10 Study of the Ohmic Plasma Density Limit in Hl-1M ZHOU Yan

PI-11 Characteristics of Tearing Modes in Steady State High β_p Mode Discharges in JT-60U A. Isayama

PI-12 Global Motions of Highly Elongated Low Aspect Ratio Tokamak Y. Narushima

PI-13 Study of Toroidal Currents in LHD and its Application to Equilibrium Control S. Sakakibara

PI-14 MHD Instabilities Destabilized by Energetic Ions on LHD S. Yamamoto

PI-15 Z_{eff} Derived from the Sawtooth-performances in the Center of Tokamak for Steady State Plasmas Y.Z. Zheng

PI-16 Pressure Driven MHD Instabilities Observed in the LHD Plasmas M. Takechi

PI-17 Impurity Emission Characteristics of Long Pulse Discharges in Large Helical Device T. Kobuchi
PI-18 Particle Balance Modeling for Steady-State Magnetic Fusion Devices and its Application to Recent Observations in LHD Y. Hirooka
PI-19 Characteristics of Divertor Field in a Helical-Axis Heliotron Device (Heliotron J) T. Mizuuchi
PI-20 Poloidal Magnetic Field Fluctuations in Low-Edge Safety Factor q_Ψ *(a)* in Iran-Tokamak1 (IR-T1) M. Gohranneviss
PI-21 Magnetic Suppresion Concept for Secondary Emission Electron End Flux in Open System V.I. Khvesyuk
PI-22 Improvement of Local Helical Coil Configuration for Dynamic Ergodic Divertor Y. Kikuchi
PI-23 Thermal Instability and MARFE Study in HT-7 Superconducting Tokamak X. Gao
PI-24 Study of the Secondary Emission Effects in the HIBP Analyzer Split Detector. N.B. Dreval
PI-25 Revised Boundary Condition for the $\boldsymbol{E} \times \boldsymbol{B}$ Drift Dominated Plasma Flow in the Scrap-off Layer D. Sharma
PI-26 Experimental Studies of Electric Currents in the Divertor Plasma of a Helical Device V.V. Chechkin
PI-27 Feedback Control Achievements and Endeavours in Tore Supra Plasma Wall Interactions Control A. Grosman
PI-28 Dynamic Behavior of Detached Recombining Plasmas to Plasma Heat Pulse Generated by Short Pulse RF Heating Y. Uesugi
PI-29 Particle Balance Study in Long-pulse Discharges in LHD Y. Nakamura
PI-30 Active Edge Control by LID for Steady State Plasmas T. Morisaki
PI-31 LHD Helical Divertor and Its Performance in the First Experiments N. Noda
PI-32 Morphology of Thick Codeposited Layers on Plasma Facing Components M. Rubel
PI-33 Characteristics Changes of Tungsten Surface Irradiated by Low Energy and High Flux He Plasma M.Y. Ye
PI-34 Thermal Response and Material Degradation of Tungsten-Coated Carbon Divertor Mock-Ups by High Heat Flux K. Tokunaga
PI-35 The Distance-Monitoring Characteristics of Materials During the Irradiation O.V. Kalantaryan
PI-36 Fabrication, High Heat Flux Testing, and Thermo-mechanical Analysis of Super Mechanically Joined Divertor Plate for LHD Y. Kubota
PI-37 Plasma Stainless Wall Interaction of the LHD H. Suzuki
PI-38 Study of Material Response under High Heat Plasma Load Relevant to Plasma Disruptions V.N. Litunovsky
PI-39 ICRF Boronization on HT-7 Superconducting Tokamak X.M. Gu
PI-40 Transient Hydrogen Release from Graphite just after High Flux Beam Irradiation K. Matsuhiro
PI-41 Chemical Behavior of Energetic Deuterium Implanted into Silicon Carbide K. Iguchi
PI-42 Hydrogen Recycling in a Long-Pulse Discharge Plasma on the Tandem Mirror GAMMA 10 S. Kobayashi
PI-43 Surface Compositional Changes of Bulk-boronized Graphites under Low Flux Ion Impact K. Hosaka
PI-44 Particle Recycling at Carbon Deposited Tungsten Surfaces Facing TEXTOR-94 Plasmas M. Wada
PI-45 Particle Balance Analysis on Carbon Sheet Pump Applied to the GAMMA10 Tandem Mirror Plasmas Y. Ishimoto
PI-46 Surface Analysis of Wall Samples Exposed to LHD Plasmas N. Inoue
PI-47 Applications of ICRF Produced Plasmas in HT-7 Superconducting Tokamak X. Yang
PI-48 Simulation Study on Influence of Mutual Contamination on Ion Reflection and Sputtering from Tungsten and Carbon Materials R. Kawakami
PI-49 Parameters of D-T, Catalyzed D-D, and D-^{3}He Tandem Mirror Reactors in Burning Operating V.I. Khvesyuk
PI-50 10 Hz Deuterium Pellet Injector for 1000 s Continuous Fuelling I. Viniar
PI-51 Helicity Injection Experiment in the SINP Tokamak N.R. Ray
PI-52 Coil System for the Resonant Pumping In/Out of Particles in Toroidal Magnetic Traps A.A. Shishkin
PI-53 Helias Reactor Studies T. Amano
PI-54 Forced Magnetic Reconnection due to Boundary Perturbation A. Ishizawa
PI-55 Development of a Forced Gas-Cooled Brewster Window for High-Power, CW Millimeter Waves T. Shimozuma
PI-56 Development of a Steady State Microwave Ion Source for a High Flux Ion Beam Irradiation to First Wall Materials T. Shimada
PI-57 Electron Cyclotron Current Drive Control of Neoclassical Nonlinear Tearing Modes S. Nowak
PI-58 A Novel Fast-scanning Millimetre Wave Heterodyne Radiometer with Innovatory Design for ECE Diagnostics on HT-7 Superconducting Tokamak S. Zhang
PI-59 Electron Density Measurement by Multi-channel FIR Interferometer on HT-7 Superconducting Tokamak Y.X. Jie
PI-60 Self Focusing of Electromagnetic Waves in a Nonlinearly Absorbing Plasma Ghanshyam

PI-61 Robust Stabilization of Burn Conditions in Subignited Fusion Reactors Using Artificial Neural Networks Javier E. Vitela
PI-62 Time-Domain Self-Consistent Plasma Equilibrium in Damavand Tokamak R. Amrollahi
PI-63 Long Pulse Operation of a Small Toroidal Device Y. Wen

<Poster Session II>

PII-1 Development of CO_2 Laser Polarimetry for Long-Pulse Operations of LHD S. Tsuji-Iio
PII-2 Hardware of Steady State ICRF Heating for LHD T. Seki
PII-3 Preliminary Pellet Injection Experiment in the GAMMA10 Tandem Mirror E. Kawamori
PII-4 ECE Diagnostics in the Long Pulse Plasma of LHD H. Sasao
PII-5 Measurement of Soft X-Ray Image by Using CCD Camera for Long Pulse Discharge Y. Liang
PII-6 Steady State Diagnostic Neutral Beam Injector V.I. Davydenko
PII-7 Impurity Ion Diagnostics in the GAMMA 10 Tandem Mirror M. Yoshikawa
PII-8 New Application of a Deep Grooved Polarizer for ECCD M. Saigusa
PII-9 Experimental Program of Heliotron J F. Sano
PII-10 Sustainment of Spherical Tokamak by Means of Repetitive Injection of Compact Torus Plasma S. Shimamura
PII-11 Preliminary Results of the Neutral Particle Measurements in Large Helical Device T. Ozaki
PII-12 Velocity Distribution in the Edge Region of a Steady State Field-Reversed Configuration T. Takahashi
PII-13 Development of a Compact Toroid Injector for Large Helical Device and a New Concept of Burning Compact Toroid J. Miyazawa
PII-14 Fueling Pellet Injection in LHD and Its Prospect to Steady State Operation R. Sakamoto
PII-15 Continuous Operations of High-Power Gyrotrons M. Sato
PII-16 Source Plasma Formation of Field Reversed Configuration for a Long Pulse Operation T. Takahashi
PII-17 Electron Density Measurement for Steady State Plasmas Y. Kawano
PII-18 Real-Time Coil Current Control System for LHD Experiments S. Takami
PII-19 Plasma Shape Control and Equilibrium Beta Limit in Conventional Stellarators V.D. Pustovitov
PII-20 High Power and Long Pulse ECRF System in JT-60U K. Kajiwara
PII-21 Temporal Evolution of Impurity Profile Measured by a Soft X-ray Detector Array on LHD S. Ohdachi
PII-22 Effect of Thin Film Coating on Reflectance of In-vessel Metallic Mirror V.S. Voitsenya
PII-23 Thomson Scattering System for Steady State Plasma K. Narihara
PII-24 Long Pulse Operation of High Power Gyrotron Systems R.W. Callis
PII-25 Development of Long Pulse Gyrotron for Fusion Device H. Shoyama
PII-26 Plasma Heating in the Electron Cyclotron Ressonance Range with Lasers J.L. Ferreira
PII-27 A Tracer-encapsulated Pellet Injector TECPEL-2 I. Viniar
PII-28 Possibilities of Laser Applications for the Control of Periphery Currents A.F. Nastoyashchii
PII-29 Diamagnetic Diagnostic for Steady State Plasma in Stellarator O. Fedyanin
PII-30 Application of Pulsed Radar Reflectometry/Delayometry to the Large Helical Device Plasmas R. Pavlichenko
PII-31 Infrared Imaging Bolometry for Long Pulse Discharges on LHD N. Ashikawa
PII-32 Development of Frequency Tunable Gyrotrons in Milimeter to Submilimeter Wave Range for Plasma Diagnostics T. Idehara
PII-33 High Performance, Distributed Data Acquisition System Design for SST-1 H.D. Pujara
PII-34 Simultaneous Coarse and Unscheduled Rapid Changes Measurement of Plasma Parameters during Long Pulse Discharge H.D. Pujara
PII-35 Measurements and Modeling of Transmitted Power of EC Waves Propagating for Normal and Oblique Injection in FTU Tokamak during ECRH Experiments at 140 GHz S. Nowak
PII-36 Ion Temperature Gradient Instability, Alfvèn Waves and the Formation of the Transport Barrier B. Bhattacharyya
PII-37 Design of the KSTAR NBI System for Long-Pulse Operation B.H. Oh
PII-38 Fabrication and Test of an Engineering Model Cryo-sorption Pump of KAERI Test Stand for KSTAR NBI Y.S. Cho
PII-39 KSTAR ICRF System for Long Pulse Operation B.G. Hong
PII-40 R-Matrix Calculation of Bound and Continuum Al XI Fine-Structure States V. Stancalie
PII-41 Statistical Properties of Relaxing Dusty Plasmas Yu.I. Chutov
PII-42 Long Pulse Operation of Motor-Generator for Quasi-Steady Plasma Heating in the Large Helical Device S. Kitagawa
PII-43 Hydrogen Recycling Study by Balmer Lines Emissions in Linear Plasma Machine TPE K. Shimada

PII-44 Calculation of High-pressure Argon Plasma Parameters Produced by Excimer Laser N. Tsuda
PII-45 Theoretical Analysis of Transport Barriers in Helical Systems S. Toda
PII-46 Normal Modes and Their High-Frequency Instabilities in Unbounded and Bounded Systems with Magnetized Electron Beam O. Watanabe
PII-47 Stable Pressure Profiles of the Turbuler Plasma in the Magnetic Field of the Internal Ring Current P.A. Popovitch
PII-48 Complete Suppression of Pfirsch-Schlüter Current in a Toroidal L=3 Stellarator M. Yokoyama
PII-49 Ultrashort-Pulse Cross Polarization Scattering in Plasmas with Magnetic Shear H. Hojo
PII-50 Effect of Net Toroidal Current on LHD Equilibrium with m/n=1/1 Island R. Kanno
PII-51 Effects of Dissipation on Interchange Mode in Heliotron Plasma K. Ichiguchi
PII-52 Real-time Sweep Experiments of the γ Parameter of the Superconducting Helical Coils and Its Effect on the LHD Configuration N. Yanagi
PII-53 Development of Key Technologies for Steady State Tokamak Reactor in JAERI K. Watanabe
PII-54 Analysis of Pellet Ablation R. Ishizaki
PII-55 Flicker Noise Related to Electrical Double Layer Dynamics M. Sanduloviciu
PII-56 Transport Analysis of Quasi Steady State Operations in LHD K. Yamazaki
PII-57 An Alternative Approach to a Fusion Reactor V.G. Kotenko
PII-58 Anomalous Transport of Particles and Energy in Self-Confined Non-Fusion H.F. Plasma with Relevance for Similar Phenomena Observed in Fusion Plasmas E. Lozneanu
PII-59 Improved Compact X-Ray Sources A. Mozelev
PII-60 Enhancement Design of a Laboratory Prototype Device of Plasma Lower Pressure CVD-ECR M.C. Hector Eduardo Gonzalez
PII-61 Filamentation Instability of an Electromagnetic Wave in an Expanding Magnetized Homogeneous Ghanshyam
PII-62 Magnetic Field Generation by Ion Acoustic Waves in an Inhomogeneous Plasma with Temperature Gradient Ghanshyam