

Wednesday July 1, 1998

Review Lectures

R.5	Takabe H.	Recent Topics on Laser Produced Plasmas	479
R.6	Rosenbluth M.	Physics Fundamentals for ITER	480

Tutorial Lectures

Tu.7	Fisch N.J.	Intense Microwave Uses for Magnetic Fusion	481
Tu.8	Mahajan S.M.	Collective Phenomena in Physics	482
Tu.9	Hayashi T.	Self Organizing Plasmas	483

Topical Lectures

To.25	Galvao R.M.O.	The Alfvén Wave Heating, Current Drive, Plasma Flow & Improved Confinement Scenarios in Tokamaks	484
To.26	Fuchs V.	Interaction of Tokamak Edge Electrons with Lower Hybrid Antenna Electric Field Spectra	485
To.27	Montgomery D.C.	MHD Steady States as a Model for Confined Plasmas	486
To.28	Morales G.J.	Alfvénic Turbulence Associated with Density and Temperature Filaments	487
To.29	Surko C.M.	Antimatter Plasmas in the Laboratory	488
To.30	Das A.	Some Nonlinear Aspects of Two Dimensional Electron Magnetohydrodynamics	489
To.31	Alejaldre C.	First Plasmas in the TJ II Stellarator	490
To.32	Kick M.	Electric Field and Transport in W 7-AS	491
To.33	Fujisawa A.	Electric Pulsation and Profile Quantization in CHS Heliotron/Torsatron	492
To.34	Suttrop W.A.	Physics and Scaling of the L-H Transition and the H-Mode Barrier	493
To.35	Stöckel J.	Magnetic and Electrostatic Fluctuations in a Tokamak Plasma	494

To.36	Sato K.N.	Recent Progress in the Superconducting Tokamak TRIAM-1 M	495
-------	-----------	----------------------------------------------------------	-----

Oral presentations

Or.13	Shats M.G.	Confinement Bifurcations in the H-1 Helic: Formation and the Role of the Radial Electric Field in Fluctuation Suppression	496
Or.14	Fuchs C.	Polarimetric Line Density Measurements at W7-AS Using the Cotton-Mouton Effect	497
Or.15	Rapp J.	Exceeding the Greenwald Limit by Suppression of MARFEs in TEXTOR-94	498
Or.16	Sasao M.	Measurements of Beam Particle Losses in CHS	499
Or.17	Shenton M.J.	Atmospheric Pressure Non-Equilibrium Plasma Processing of Polymers	500
Or.18	Lee S.	Lithography Using a High Performance Plasma Focus Source	501
Or.19	Rohlena K.	Interpretation of Charge-Energy Spectra of Ions in an Expanding Laser Plasma	502
Or.20	Mofiz U.A.	Nonlinear Modes in the Electron-Positron Pulsar Plasmas	503

Posters

P3.001	Reichle R.	Towards a Global Power Balance in Tore Supra	504
P3.002	Maget P.	A Model for Improved Confinement in PEP Discharges	505
P3.003	Nguyen F.	Ergodic Divertor Experiments with Fast Wave Electron Heating in Tore Supra	506
P3.004	Geraud A.	Vertical Pellet Injection Experiments on Tore Supra	507
P3.005	Honoré C.	Small Scales Density Fluctuations in Tore Supra: Rupture in the Scaling Law	508
P3.006	Martin G.	Runaway Electrons: from Tore-Supra to ITER	509
P3.007	Zou X.	Edge Cooling Experiments and Non Local Transport Phenomena in Tore Supra	510
P3.008	Devynck P.	Measurements of Density Fluctuations Profiles With a Langmuir Probe in Limiter and Ergodic Divertor Configurations of Tore Supra	511
P3.009	Pégourié B.	Modelling of Particle Collection by the Ergodic Divertor of Tore Supra	512
P3.010	Martin Y.R.	Prediction of the ITER H-Mode Power Threshold by Means of Various Statistical Techniques	513
P3.011	Würz H.	A First Fully Consistent Analysis of Erosion of the ITER Vertical Targets for Disruptions and ELMs	514
P3.012	Valovič M.	An Analysis of the ITER H-Mode Confinement Database	515
P3.013	Leonard A.W.	The Impact of ELMS on the ITER Divertor	516

P3.014	Jaspers R.	Study of Runaway Electrons and Prospects for ITER	517
P3.015	Duval B.P.	Plasma Rotation across the H-Mode Transition in TCV	518
P3.016	Lister J.B.	Direct Measurement of the Plasma Response in TCV	519
P3.017	Martin Y.R.	Influence of the Plasma Shape on Mode Locking during the Plasma Ramp-Up in TCV	520
P3.018	Reimerdes H.	MHD Precursor to b-Limit Disruptions in Highly Elongated TCV Plasmas	521
P3.019	Hofmann F.	Observation of b-Limits in Highly Elongated Tokamak Plasmas	522
P3.020	Wukitch S.J.	ICRH and Current Rampup Experiments in Alcator C-Mod	523
P3.021	Boivin R.L.	Measurements of Local and Global Radiated Power in Alcator C-Mod H-Mode Plasmas	524
P3.022	Đuran I.	Coherent Modes and Broadband Magnetic Turbulence on the CASTOR Tokamak	525
P3.023	Heller M.V.	Scrape-Off Layer Intermittency in the Castor Tokamak	526
P3.024	Takamura S.	High-Duty Long-Duration Repetitive Tokamak Discharge with Static or Rotating Helical Magnetic Field at the Edge	527
P3.025	de Baar M.R.	Bifurcated States within Saturated Ohmic Confinement	528
P3.026	Hogeweyj D.	Transport Barriers and the q Profile	529
P3.027	de Klooe J.	Radial Particle Diffusion during Pellet Injection in RTP	530
P3.028	Hogeweyj D.	Non-Local Electron Heat Transport Effects Probed by Modulated ECH in the RTP Tokamak	531
P3.029	Salzedas F.	Avoidance of Density Limit Disruptions Using Electron Cyclotron Waves	532
P3.030	Karelse F.A.	Current Density Measurement with Tangential Thomson Scattering in Plasmas with Peaked and Hollow Electron Temperature Profiles	533
P3.031	Meulenbroeks R.F.G.	Off-Axis Sawtooth-Like Instabilities at $q=3/2$, 2, and 3 in the Rijnhuizen Tokamak	534
P3.032	Stepanov A.	Cross Polarization Scattering Experiments on the RTP Tokamak	535
P3.033	Beurskens M.N.A.	Structures in Te-Profiles: Combined Double Pulse Thomson Scattering and ECE-Imaging	536
P3.034	Martin P.	Local Energy Balance and Transport in RFX Standard and Anhed Plasmas	537
P3.035	Sonato P.	Control of the Locked Mode Position in RFX	538
P3.036	Sonato P.	In-Vessel Magnetic Field Measurements in RFX	539
P3.037	Serianni G.	Magnetic Fluctuations and Energy Flux in the Edge Region of RFX	540
P3.038	Sattin F.	Modelling of Carbon Behaviour in the Edge Plasma of RFX	541

P3.039	Garzotti L.	Gas Puffing Experiments in the RFX Reversed Field Pinch	542
P3.040	Bolzonella T.	Comparison of Plasma Confinement Properties in the RFX and MST Experiments under Similar Stationary Conditions	543
P3.041	Puiatti M.E.	Impurity Injection Experiments in RFX	544
P3.042	Martin-Solis R.	Runaway Control in Tokamak Discharges	545
P3.043	Cereceda C.	Magnetic Field Dependence of Thermonuclear Alpha Particles Transport Quantities	546
P3.044	Fortov V.E.	Supersonic Heat Wave in Low Density Foams Generated by Soft X-Radiation from a Z-Pinch Plasma	547
P3.045	Kingsep A.S.	On the Anomalous Resistivity in the Current-Carrying Corona of Z-Pinch	548
P3.046	Korolev V.	Studies of Plasma Compression in Dense Z-Pinch Neck.	549
P3.047	Kukushkin A.B.	Formation of a Percolating Network in Dense Z-Pinch Plasmas	550
P3.048	Skvortsov V.A.	Dynamics of Micro Plasma Focus Formation in Vacuum-Spark Discharges	551
P3.049	Kravárik J.	Diagnostics of a Rod Corona of a MA Z-Pinch	552
P3.050	Kubeš P.	Generation of X-Radiation of a Rod Corona from a Small Magnetic Pinch	553
P3.051	Koláček K.	The Prague Fast Capillary Discharge - Preliminary Results	554
P3.052	Baronova E.	Cauchios Spectrograph Application for Investigation of Bremsstrahlung and Line Spectra, Emitted by Plasma Focus Discharge	555
P3.053	Žáček M.	Helicity Pinch Equilibrium with Radiative Processes	556
P3.054	Ivlev A.V.	The Expansion of the Underdense Plasma into a Vacuum under the Action of EM Wave Field	557
P3.055	Muravich A.I.	Numerical Investigation and Production of Sheet Z-pinch	558
P3.056	Nersisyan H.B.	Stopping of Gyrotory Fast Particle in Magnetized Cold Plasma	559
P3.057	Savjolov A.S.	Optical Diagnostics of the Plasmadynamics in "Vacuum Spark"	560
P3.072	Basiuk V.	Improved Scenario for Coupling ICRF Power to Electrons in Tore Supra	561
P3.073	Becoulet A.J.	Peculiarities of Mode Conversion Phenomena in Bounded Multispecies Plasma of a Tokamak	562
P3.074	Peysson Y.	Interpretation of the Non-Thermal Bremsstrahlung Emission During LH Current Drive on Tore Supra	563
P3.075	Giruzzi G.	Dynamic Modelling of Tearing Mode Stabilization by RF Current Drive	564
P3.076	Mailloux J.I.	Long Distance Coupling of the Lower Hybrid Waves on Tore Supra	565

P3.077	Joffrin E.	Reversed Shear Experiments in Tore Supra With Current Ramp-up and Lower Hybrid Current Drive	566
P3.078	Pecoul S.	Selfconsistent Determination of Currents on ICRH Antennae Taking into Account Magnetic Shielding	567
P3.079	Pinsker R.I.	Fast Wave Heating and Current Drive in Elming H-Mode Plasmas in DIII-D	568
P3.080	Prater R.	Electron Cyclotron Current Drive and Current Profile Control in the DIII-D Tokamak	569
P3.081	Žáček F.	Spectrum Broadening of LHW Launched in Tokamak CASTOR by Multijunction Grill Antenna	570
P3.082	Warrick C.	The Use of ECRH and LHCD to Optimise High b Plasma Performance in COMPASS-D	571
P3.083	Menard J.E.	High Frequency Fast Wave Coupling and Heating Studies in the CDX-U Spherical Torus	572
P3.084	Preinhaeler J.	Proposal of Quasi-optical grill for ITER	573
P3.085	Voitsekhoitch I.	Current Profile Control and Steady-State Reversed Shear Operation in ITER	574
P3.086	Kamelander G.	Burn Control of ITER-Like Plasmas by a Combination of Auxiliary Heating and Density Control	575
P3.087	Vdovin V.	Analysis of Travelling Fast Wave ICRF Antenna Radiating from a Recess in First Tokamak Wall. E	576
P3.088	Bruma C.	Basic Toroidal Effects on Alfvén Wave Current Drive in Small Aspect Ratio Tokamaks	577
P3.089	Meijer F.G.	Poloidal and Toroidal Rotation on the RTP Tokamak	578
P3.090	Hacquain S.	1D Modelling of Pulse Reflectometry: Density Profile Reconstruction Based on the Optimal Pulse Length	579
P3.091	Barry S.	First Measurements of the Faraday Rotation on Plasmas in TCV	580
P3.092	Badalec J.	VUV and USX Diagnostics of Impurities in CASTOR Tokamak	581
P3.093	Boucher I.	Reflectometry: Analytical and Numerical Modelling of Phase Variations with Large Amplitude Density Fluctuations	582
P3.094	Hron M.	Plasma Fluctuation and Probe Sheath	583
P3.095	Vayakis G.	Plasma Diagnostics in ITER Control	584
P3.096	Zhang G.	High Repetitive X-Ray Pinhole Camera Based on CCD and Its Application in Plasma X-Ray Source	585
P3.097	Boucher C.	Validation of Plasma Velocity Measurements with Mach Probes Using Laser Induced Fluorescence	586
P3.098	Alekseyev A.	Natural Diamond Detectors Testing at TORE SUPRA Application to 3 MeV Proton Spectra Diagnostics	587

P3.099	Amagishi Y.	Plasma Flow Measurements Using a Mach Probe Calibrated by Alfvén Waves	588
P3.100	Armstrong R.J.	Probe Studies in the Toroidal Device "Blaamann"	589
P3.101	Berni L.A.	Simulation of the Thomson Scattering System for the Brazilian Spherical Tokamak ETE	590
P3.102	Donné T.	Polarimetry for Measuring the Current Density in ITER	591
P3.103	Ermak G.P.	High-Speed Varactor Diode Switches/Attenuators for Pulsed Radar and Amplitude Modulation Reflectometry	592
P3.104	Millar A.P.	Genetic Algorithms: Plasma Diagnostic Signal Analysis	593
P3.105	Veklich A.N.	Spectroscopy Diagnostics of Dense Multicomponent Thermal Plasma	594
P3.106	Nanobashvili I.	Relativistic Electron-Positron Plasma Dynamics in the Pulsar Magnetosphere	595
P3.107	Yamagiwa K.	Observations of Soliton Modes in an Unstable Electron-Beam Plasma	596
P3.108	Skvortsov V.A.	Thermonuclear Explosions of Neutron Stars Induced by Its Storms	597
P3.109	Trubnikov B.A.	About Possible Particle Beams in Astrophysical Gamma-Bursts	598
P3.110	Bharuthram R.	Beam Generated LEFs in the Auroral Plasma	599
P3.120	de Blank H.J.	Forced Nonlinear Magnetic Reconnection	600
P3.121	Das A.	Conditions for Diffusive Thermal Transport in a Model Nonlinear System	601
P3.122	Klinger T.	Stochastic Resonance in a Bistable Plasma Experiment	602
P3.123	Frank A.G.	Experiments on Magnetic Reconnection in 3D Configurations with X-Lines	603
P3.124	Kyrie N.P.	Excitation of Non-Equilibrium Electric Fields in Current Sheet Plasmas	604
P3.125	Davydova T.A.	Drift and Upper Hybrid Solitons in Nonuniform Magnetized Plasma	605
P3.126	Sandulovicu M.	Nonlinear Phenomena in Plasma as a Consequence of Self-Organization	606
P3.127	Abarzhi S.I.	Stable Steady Bubbles in the Rayleigh-Taylor Instability	607
P3.128	Kukushkin A.B.	Plasma Networking in Magnetically Confined Plasmas and Nonlocal Heat Transport in Filamentary Plasmas in a Tokamak	608
P3.129	Kaw P.K.	Effect of Plasma Fluctuations on Solar Neutrino Suppression by Matter Oscillations	609
P3.130	Kaw P.K.	Colour Diffusion in Relativistic Particle Simulation of a Parton Plasma	610
P3.131	Kaw P.K.	Magnetic Field Line Reconnection in Electron	611

	Magnetohydrodynamics			
P3.132	Anisimov I.	Deformation of the Non-Uniform Plasma Concentration Profile Due to the Modulated Electron Beam	612	
P3.133	Atipo A.	Spatio-temporal Dynamics and Stabilization of Unstable Periodic Orbits in an Undriven DC Glow Discharge	613	
P3.134	Avram C.	Current Jumps and Hysteresis Effects in the Current-Voltage Characteristic of a Single-Ended Q-Machine	614	
P3.135	Biborosch D.-L.	Glow-Discharge-Created Electron Beams: The Influence of Anode Geometry	615	
P3.136	Faria Jr. R.T.	Nonlinear Alfvén Waves in Multi-ion Plasmas	616	
P3.137	Gaelzer R.	Coupling Process for the Nonlinear Beam Instability	617	
P3.138	Greiner F.	The Pierce Diode as a Model for Selfoscillations and Controlling Chaos in Thermionic Discharges	618	
P3.139	Gyergyek T.	Nonlinear Dynamics of an Anode Type Double Layer Created in a Double Plasma Machine	619	
P3.140	Honzawa T.	Development of Modified Double Plasma Device Applicable to Basic Plasma Wave Experiments	620	
P3.141	Markov G.A.	Generation of Low Frequency Waves in a Magnetoplasma by a Plasma-Wave Modulated Beam Creating RF Discharge	621	
P3.142	Mironov V.A.	Bound States of Coulomb System in Superstrong Laser Fields in Plasmas	622	
P3.143	Nambu M.	Simulation Study of Nonlinear Plasma Maser	623	
P3.144	Serov A.A.	Influence of External RF-Field on Beam-Plasma Discharge in Magnetic Field	624	
P3.145	Umnov A.L.	Self-Organization Effects in the "Distributed EM Source-RF Discharge" Systems	625	
P3.146	Kostrov A.	Influence of Nonlinear Effects on the Electrodynamic Characteristics of VLF Loop Antennas in Magnetoplasma	626	
P3.147	Nikulin V.	Self-Organizing Current - Plasma Structures and Their Effect on Plasma Dynamics in a Plasma Focus	627	
P3.148	Prandi R.	Two-Dimensional EMHD Instabilities	628	
P3.149	Prandi R.	Large Scale Instabilities in Two-Dimensional Reduced MHD	629	
P3.150	Coelho R.	Analysis of the Three-Wave Resonance between Tearing Modes	630	
P3.151	Grasso D.	Nonlinear Regimes in Collisionless Magnetic Reconnection	631	
P3.152	Haines M.G.	Fast Reconnection Due to Triggered Microturbulence	632	
P3.153	Nocera L.	Organisation in the DNLS Equation	633	
P3.154	Porcelli F.	Resistive Stability of Magnetic X-Point Equilibria	634	
P3.155	Smirnov A.	Dynamics of Ultrashort Soliton-Like Pulses in Smoothly Inhomogeneous Nonlinear and Nonstationary Media	635	
P3.174	Helander P.M.	Neoclassical Transport in Rotating Plasmas	636	
P3.175	Chen H.	Impurity Particle Transport with Radial Electric Field and Plasma Rotation in JET Optimised Shear Plasmas	637	
P3.176	Sharapov S.	The Stability of Alpha Particle Driven AE in High Performance JET DT Plasmas	638	
P3.177	Romanelli M.	Enhancement of the Conventional Pfirsch-Schlüter Flux of Heavy Ions in a Rotating Plasma due to Poloidal Asymmetry in the Particle Density	639	
P3.178	Riconda C.	Stable Plasma Response to a Dynamic Magnetic Excitation	640	
P3.179	Caloutsis A.	The Development of Asymmetries in Mixed Plasma-Conductor Circuits and Tokamak Halo Currents	641	
P3.180	Vitela J.	Fusion Reactor Burn Control with Radial Basis Neural Networks	642	
P3.181	Tateishi G.	Burning Analysis of ITER-Like Plasma Based on 0-D and 1-D Transport Model	643	
P3.182	Kardaun O.J.W.F.	Catastrophe-Type Models to Fit Non-Linear Plasma Response Functions - A Statistical Approach towards Improving ITER Predictions	644	
P3.183	Solano E.R.	MHD Stability of the ITER Edge	645	
P3.184	Perkins F.W.	Burning Plasma Physics in ITER	646	
P3.185	Boucher D.L.	ITER Fusion Performance Projections for Inductive ELMy H-Mode and Non-Inductive Reversed Shear Scenarios	647	
P3.186	Pavlo P.	Lattice Boltzmann Modeling of the Gas Blanket Divertor	648	
P3.187	Candy J.	A Distributed Parallel Algorithm for the Nonlinear Evolution of Unstable Discrete Plasma Modes	649	
P3.188	Porter G.D.	Simulation of Plasma Flow in the DIII-D Tokamak	650	
P3.189	Miller R.L.	High Mode Number MHD Stability at the Edge of a Tokamak	651	
P3.190	Casper T.A.	Current Profile Modeling to Extend the Duration of High Performance Advanced Tokamak Modes in DIII-D	652	
P3.191	Waltz R.E.	Plasma Flux Surface Shape and Gyrokinetic Stability	653	
P3.192	Staebler G.M.	Electron Thermal Transport in Enhanced Core Confinement Regimes	654	
P3.193	Bachmann P.	Reaction-Diffusion Processes in Impurity Seeded Radiative Plasmas	655	
P3.194	Akers R.J.	Ion Physics in the START Spherical Tokamak	656	
P3.195	Helander P.M.	Transport in Edge Plasmas	657	
P3.196	Medvedev S.Yu.	MHD Limits in Low Aspect Ratio Tokamaks with Separatrix	658	
P3.197	Hastie R.J.	Resistive Wall Modes in Toroidal Plasmas	659	
P3.198	Zaitsev F.S.	Access to "Advanced" Regimes in Tight Aspect Ratio	660	

		Plasmas	
P3.199	Hegna C.C.	Reduced MHD Equations for Low Aspect Ratio Devices	661
P3.200	Kolesnichenko Y.I.	Edge Localized Fast Magnetoacoustic Waves in a Tokamak Plasma with Elliptic Cross-Section	662
P3.201	Lütjens H.	Effects of Plasma Shaping and Diamagnetic Rotation on the Stability Thresholds of Moderate-n Balloning Modes Driven by High β Internal Kinks	663
P3.202	Ossipenko M.V.	L-H Transition Simulations Based on Edge Turbulent Layer Model	664
P3.203	Catto P.J.	Scaling Law Simulations for Diverted Partially Ionized Plasmas	665
P3.204	Pavlenko V.	Global and Propagating Drift Modes in Rotating Tokamak Plasmas	666
P3.205	Revenchuk S.	Ship Waves of the Drift Type in Rotating Tokamak Plasmas	667
P3.206	Persson H.	Influence of Frozen-in Law Violation Effects on Turbulent Equipartition in Tokamaks	668
P3.209	Amemiya H.	High Power Sharp Pulse Microwave Discharge in Air: Interpulse Regime	669
P3.210	Denisenko I.B.	Surface Wave Discharge between Large-Area Metal Electrodes in the External Magnetic Field	670
P3.211	Girka V.O.	Modelling of Gas Discharge on Azimuthal Surface Waves in Cylinder Waveguide Structure	671
P3.212	Gutiérrez-Tapia C.	Dynamics of Ozone Generation in a Silent Oxygen Discharge	672
P3.213	Gutsol A.F.	Purification of Scandium Crystalline in MW Plasma	673
P3.214	Kiyama H.	Production of a Low Energy Ion Beam Plasma with Low Electron Temperature	674
P3.215	Kuzmin S.G.	On Separation of Heavy Isotopes by Means of Selective ICRH	675
P3.216	Leys C.	Stability and Homogeneity of Direct-Current Discharges for Slab Lasers	676
P3.217	Brablec A.ín	Application and Diagnostics of High Pressure RF Discharges	677
P3.218	Jeništa J.	Parametric Study of a Water-Swirl Stabilized Electric Arc	678
P3.219	Slavík V.	Time - Resolved Emission Spectra of Plasma Produced by Excimer Laser Ablation of Pb-Bi-Sr-Ca-Cu-O	679
P3.220	Šícha M.	The Radio Frequency Unipolar Hollow Cathode Discharge Induced by the RF Discharge in the Plasma-Chemical Reactor	680
P3.221	Petržilka V.	Nonlinear Electron Acceleration by Cascade Wave Trapping for Various Helicon Wave Antenna Design	681
P3.222	Kopecký V.	Electric probes investigation of turbulence in the interaction	682

		zone of the plasma jet with the ambient air	
P3.223	Hrachová V.	Kinetics of Reactions in DC Glow Discharge in Oxygen	683
P3.224	Janča J.	The Structure and Dynamics of the Free dc Gliding and Point arc between Metal Electrode and Solution Surface by the Video Technic	684
P3.225	Chen F.F.	Coupled Helicon-Cyclotron Modes: Theory and Experiment	685
P3.226	Johnston T.W.	Diffusion and Energy Modelling of an Argon Plasma Discharge in a Uniform Magnetic Field	686
P3.227	Krämer M.	Power Deposition and Wave Fields in a High-Density Helicon Discharge	687
P3.228	Riccardi C.	Evidence of Plasma Waves Formation in the RMT Ion Thruster	688
P3.229	Shamrai K.P.	Mechanisms of a rf Power Absorption in Helicon Plasma Sources	689
P3.230	Simonchik L.V.	High Current Self-Maintained Glow Discharge in Helium at Atmospheric Pressure	690
P3.231	Tsuda S.	Examination of Fixing Method of Plasma Potential for Ion Extraction by Using Background Plasma	691
P3.232	Zuz V.	Pulsing Discharges in Deuterium	692
P3.233	Porytskyy P.	Experimental Study of the Instabilities of Plasma Channel under Electrical Discharge in a Water	693
P3.234	Kadurina T.	Investigation of Fractal Structures under Discharge in a Water	694
P3.235	Serov A.A.	On Possibilities of Adjustment of Plasma Parameters in Beam-Plasma Discharge	695
P3.236	Sato N.	Ion Energies in the Pulse-Modulated Mixture Plasma	696
P3.237	Turlapov A.V.	Modeling of a Mirror-Trapped Plasma for ECR Ion Sources	697
P3.238	Kotalík P.	Cross-Talk in a DC Matrix Plasma Display Cell of General Shape	698
P3.239	Castillo-Mejia F.	Research on Dense Plasma Focus Hard X-Ray Emission with Scintillator-Photomultiplier and Thermoluminescent Detectors Measurements	699
P3.240	Ikehata T.	Effects of a Conducting Mesh on the Speed of JxB Driven Rotating Plasmas	700
P3.241	Popa G.	Transition Stages in the Reactive Magnetron Discharge	701
P3.242	Roberto M.	Electrical Breakdown in Argon/Cl ₂ Discharges	702
P3.243	Zabaidullin O.	Experimental and Numerical Studing of a Microsecond POS Dynamics	703
P3.244	Azarenkov N.A.	Surface Wave Discharge under Low Pressures and Some Their Applications	704

Thursday July 2, 1998

Review Lectures

R.7	Spatschek K.H.	On the Route to a Better Understanding of the Complex Nonlinear Dynamics of a Plasma	707
R.8	Litvak A.G.	Plasma Formation by Microwave Beams. Physics & Application	708

Tutorial Lectures

Tu.10	Laval G.	Controversies in Quasilinear Theory	709
Tu.11	Martin P.	Magnetic and Thermal Relaxation in the Reversed Field Pinch	710

Topical Lectures

To.37	Mori W.B.	Propagation of High-intensity Lasers through Underdense Plasmas: Electron Acceleration and Self-modulation	711
To.38	Suckewer S.	Very Compact Soft X-Ray Laser and Potential Applications	712
To.39	Hutchinson I.H.	Edge Transport Barrier Phenomena	713
To.40	Thomsen K.	H-Mode Threshold Power and Confinement in H, D and D-T Plasmas	714
To.41	Fujimoto T.	Plasma Polarization Spectroscopy (PPS)	715
To.42	Ferro Fontan C.	Magnetohydrodynamic Turbulence	716
To.43	Krommes J.A.	Recent Results on Analytical Plasma Turbulence Theory: Realizability, Intermittency, Subcritical Turbulence, and SOC	717
To.44	Hinton F.L.	Dynamics of Poloidal Flows in Tokamaks	718
To.45	Kishimoto Y.	Toroidal Mode Structure in Weak and Reversed Magnetic Shear Plasma and its Role in the Internal Transport Barrier	719
To.46	Wang Z.Z.	Plasma Transport at Magnetic Axis in Toroidal Confinement Systems	720
To.47	Frank A.G.	Magnetic Reconnection in 3D Magnetic Configurations	721
To.48	Shukla P.K.	Physics of Neutrino Plasmas	722
To.49	Lakhin V.	Nonlinear Alfvén Perturbations in a Finite-Pressure Plasma	723

Oral presentations

Or.21	Ezumi N.	Investigation of Hydrogen Plasma Detachment in the Divertor Plasma Simulator NAGDIS-II	724
Or.22	Sadler G.	Neutron Measurements at JET during Operation in DT	725
Or.23	Tanaka H.	Formation and Confinement of Non-Neutral Electron Plasmas in a Multi-Ring-Electrodes Trap Using a Field Emitter Array Cathode	726
Or.24	Bhatnagar V.	Ion Cyclotron Resonance Heating in D-T Divertor Plasmas	727

Or.25	Lebedev S.V.	Observation of Internal Transport Barrier in Ohmically Heated Plasma in TUMAN-3M Tokamak	728
Or.26	Naito O.	Current Drive by Negative-Ion-Based Neutral Beam Injector in JT-60U	729
Posters			
P4.001	Navratil G.A.	Active Control of MHD Modes in a Tokamak	730
P4.002	Bravenec R.V.	Comparisons of Measurements and Gyrofluid Simulations of Turbulence in DIII-D	731
P4.003	Thomas D.M.	L-H State Transitions, Hysteresis, and Control Parameters on DIII-D	732
P4.004	Jackson G.L.	RI-Mode in the DIII-D Tokamak with a Neon Induced Radiating Mantle	733
P4.005	Garofalo A.M.	Study of the Resistive Wall Mode in DIII-D	734
P4.006	Colchin R.	Neutral Particle Pathways in DIII-D	735
P4.007	Boedo J.A.	Measurements of Background Plasma Flows and Their Role in Particle and Power Balance in the DIII-D Divertor Region	736
P4.008	Rice B.W.	Progress Towards Sustainment of Internal Transport Barriers in DIII-D	737
P4.009	Okabayashi M.	Circuit Equation Formulation of Resistive Wall Mode Feedback Stabilization Schemes and Application to Active Coil Design in DIII-D Device	738
P4.010	Hogan J.T.	Modelling of Giant ELM Effects on Impurity Enrichment in DIII-D	739
P4.011	Fielding S.J.	H-Modes on COMPASS-D with High Power ECRH	740
P4.012	Ribeiro C.	Pellet Injection, Confinement, and H-Mode Features on START	741
P4.013	Gryaznevich M.	High b Improved Confinement Régimes and Energetic-Ion-Driven Instabilities in the START Spherical Tokamak	742
P4.014	Cirant S.	Transport Studies during ECRH in Monotonic-q and Shear-Reserved FTU Plasmas	743
P4.015	Buratti P.	Internal MHD Modes in FTU Plasmas with High Core Confinement	744
P4.016	Pacella D.	Measurement of the Radiative Cooling Rate for Krypton and Its Transport in the FTU Plasma	745
P4.017	Pacella D.	Edge and Bulk Variations of Plasma Induced by Kr and Ar Injection in FTU	746
P4.018	Decoste R.	The L-H Transition on TdeV with Electron Cyclotron and Lower Hybrid Heating	747
P4.019	Nagata M.	Experimental Study of Helicity-Driven MHD Activity and Current Profiles in the HIST Spherical Torus	748

P4.020	Toyama H.	Turbulence in the Spherical Tokamak TST-M	749
P4.021	Budaev V.	The ExB Velocity Shear and Turbulent Transport in the Edge of Tokamak TF-2	750
P4.022	Sato K.	Ablation Characteristics in the Off-Axis Pellet Injection with/without NBI Heating on the JIPP T-IIU Tokamak	751
P4.023	Arvin R.	MHD Activity in Torus System and Helical Field	752
P4.024	Soliman H.M.	Plasma Focus Dynamics and Magnetic Fields	753
P4.025	Yagi Y.	An Interpretation of the Improved Confinement in High Pinch Parameter Plasma of TPE-1RM20 with the First Result of TPE-RX	754
P4.026	Kitano K.	Advanced Experiments on Field-Reversed Configuration in Osaka	755
P4.027	Brzozowski J.H.	Studies of Impurity Ion Rotation in Extrap-T2 Reversed-Field Pinch Plasma	756
P4.028	Sallander E.	Observation of Toroidally Symmetric Oscillations in the Soft X-Ray Spectral Region on the EXTRAP-T2 RFP	757
P4.029	Sakakita H.	Plasma and Mode Rotations in TPE-1RM20 Reversed-Field Pinch and the First Measurement of Plasma Rotation in TPE-RX	758
P4.030	Ohtsuka T.	Edge Plasma Properties of a Field-Reversed Configuration	759
P4.031	Nogi Y.Y.	Low Aspect Ratio Tokamak Produced by Negative-Biased Theta-Pinch	760
P4.032	Califano F.	Vlasov Kinetic Simulations of the Inhomogeneous Counter-Streaming Instability	761
P4.033	Gromov E.	Short Intense High-Frequency Wave Packets and Solitons in Plasma	762
P4.034	Kobryn A.E.	On the Theory of Nonlinear Hydrodynamic Fluctuations of Super Dense Plasma of Nuclear Fusion Targets	763
P4.035	Lapshin V.I.	Excitation of Electromagnetic Soliton by Electron Beam	764
P4.036	Nakamura T.	Dynamics of Intense and Finite Length Ion Beam Propagating in Plasma Channel	765
P4.037	Nishigory K.	Experiments on Interaction between Dense Plasmas and Heavy Ions	766
P4.038	Lebo I.G.	Analysis and 2D Numerical Modeling of Burn Through of Metallic Foil Experiments Using Power KrF- and Nd-Lasers	767
P4.039	Lebo I.G.	Numerical Investigation of the Effective Input of Laser Energy into a Cavity Through a Hole	768
P4.040	Fernández de Córdoba P.	Electrical Conductivity of Dense Metal Plasmas	769
P4.041	Drška L.	Enhancement of Nuclear Processes in Plasma Systems with Extreme Parameters	770

P4.042	Cadjan M.G.	Simulation of the Collisional Plasma Kinetics under the Action of Laser and Particle Beams	771
P4.043	Lukyanov A.	Stimulated Raman Scattering in the Presence of Ion Acoustic Fluctuations	772
P4.044	Rypdal K.	Understanding Cosmic Current Systems	773
P4.045	Burdo O.S.	Ballooning Modes Instability in the Space Plasmas	774
P4.046	Coppi B.	Transport of Angular Momentum in Hot Accretion Disks and in Laboratory Plasmas	775
P4.047	Palumbo L.J.	Analytical Stability Study of MHD Equilibria with Translational Symmetry	776
P4.048	Alladio F.	MHD Equilibrium and Stability of Force-Free Atmospheres of Interstellar Magnetic Clumps	777
P4.049	Cramer N.F.	Ion Ring Beam Instabilities in Magnetized Dusty Cometary Plasmas	778
P4.050	Karlický M.	Modelling of Force-Free Electric Currents in the Solar Atmosphere	779
P4.051	Shukla P.K.	Generation of Nonlinear Electrostatic Ion-Cyclotron-Drift Waves and Associated Ion Acceleration in Auroral Plasmas	780
P4.052	de Gouveia Dal Pino E.M.	Origin and Propagation of Ultra-High Energy Cosmic Rays	781
P4.053	de Gouveia Dal Pino E.M.	Magnetic Field on the Structure of Radiatively Cooling Protostellar Jets	782
P4.054	Miranda O.D.	Generation of Seed Magnetic Fields in the Universe	783
P4.055	Goncalves D.R.	Thermal Instability with Alfvén Heating on the Formation of Astrophysical Objects	784
P4.056	Bingham R.	Hot Plasma Within Clusters of Galaxies	785
P4.057	Bingham R.	Collective Plasma Effects in Scattering of Radiation in Astrophysical Plasmas	786
P4.058	Bingham R.	Ion Acceleration by Alfvén Waves on Auroral Field Lines	787
P4.059	Cheremnykh O.K.	The Relaxation of Non-Ideal Plasma with Mass Flow in a Gravitating System	788
P4.060	Vasconcelos M.J.	Alfvén Waves and MHD Turbulence in Accretion Disks	789
P4.072	Varandas C.	Influence of Non-Maxwellian Distributions on Electron Temperature Measurement by Heavy Ion Beam Probing	790
P4.073	Estrada T.	Turbulence and Beam Size Effects on Reflectometry Density Profile Measurements	791
P4.074	Lamela H.	Phase Measurements in an AC/DC Interferometer Prototype for the IR-TJII Diagnostics	792
P4.075	Sitenko A.G.	Electromagnetic Wave Conversion in Magnetized Plasmas (Diagnostics of Magnetic Fluctuations)	793

P4.076	Tarasenko N.V.	Laser-Induced Fluorescence and Time-Resolved Emission Spectroscopy of Laser-Ablation Plasma	794
P4.077	Umnov A.L.	Langmuir Probe with the Induction Feed and Optical-Fiber Information Transmission	795
P4.078	Vogel N.	X-Ray Radiation from Micropinches in Laser-Induced Discharges	796
P4.079	Winkler C.	On the Contamination of Langmuir Probes	797
P4.080	Sadowski M.	Calibration and Application of Nuclear Track Detectors for High-Temperature Plasma Diagnostics	798
P4.081	Sadowski M.	Studies of Ion Emission from Different PLasma Discharges of Axial Symmetry	799
P4.082	Zehnter P.	Determination of the Density and Temperature Profil of an Imploding Helium Gas Puff	800
P4.083	Zurro B.	On the Interpretation of Laser Ablation Data in Fusion Plasmas	801
P4.084	De Angelis R.	Analysis of Images of the FTU Plasmas	802
P4.085	Baronova E.	X-Ray Spectroscopy Application for Magnetic Field and Electron Beam Measurements in Laser Produced Plasma	803
P4.086	Bektursunova R.	Continuum Theory of Electrostatic Probe in Nuclear-Induced Plasmas	804
P4.087	Elizarov L.I.	Kinetic dynamics of initial negative ion plasma perturbation	805
P4.088	Hassanein A.	Interaction of Solar-Probe Inherent Atmosphere with In-Situ Measurements	806
P4.089	Voitenko Y.M.	Excitation of Electromagnetic Small-Scale Structures in Auroral Zones	807
P4.090	Němeček Z.	Possible Source of Plasma Density Fluctuations in the Magnetosheath	808
P4.091	Měrka J.	Plasma Parameters in the High-altitude Cusp: INTERBALL Observation	809
P4.092	Koryagin S.A.	Coulomb Collision in Plasma on Magnetic White Dwarfs	810
P4.093	Goedbloed J.P.	Axisymmetric Transonic MHD Flows	811
P4.094	Makletsov A.	Modelling of Spacecraft Charging in Low Earth Orbit	812
P4.095	Ram A.K.	Transverse Acceleration of Ions in the Earth's Ionosphere by Electrostatic Waves	813
P4.096	Souza de Assis A.	Wave Induced Auroral Electron Flux	814
P4.097	Gratton F.T.	Electron and Alpha Particle Influence on the Excitation of Right Hand Polarised Electromagnetic Ion Cyclotron Waves in Solar Ejecta	815
P4.098	Grésillon D.	Auroral Ionosphere Plasma Turbulence Transport Coefficient	816

P4.099	Mikhailov Y.	Waves Generated in the Vicinity of the Xenon Plasma Gun in the APEX-Experiment	817
P4.100	Alves M.V.	An Improved Model for Nonlinear Generation of Type III Solar Radio Bursts	818
P4.101	Verkhoglyadova O.P.	Compressional ULF Waves in the Dawn Plasma Sheet Observed by the Interball-Tail	819
P4.102	Ruzhin Y.Ya.	The Neutralization or Back Up Currents on APEX Satellite during Quasineutral Plasma Beams Injection	820
P4.103	Leubner M.P.	Auroral Electron Energization Due to Kinetic Alfvén Wave Turbulence	821
P4.104	Ignat M.	On the Resonant Interactions between Nonlinear Waves	822
P4.105	Chhajlani R.K.	The Kelvin-Helmholtz Instability of Two Streaming Plasma with Anisotropic and Polytopic Pressure Laws	823
P4.106	Grishanov N.	Dielectric Characteristics of a Dipole Magnetosphere	824
P4.107	Brenning N.	Generation of Field-Aligned Currents in Space Plasmas by Ion Bunching	825
P4.108	Anisimov I.	Whistler Modes Transitional Radiation Caused by the Modulated Electron Beam in the Periodically Inhomogeneous Plasma	826
P4.109	Amemiya H.	Lower Ionosphere (D-Layer) in Polar and Mid-Latitude Regions	827
P4.110	Spasovska I.Ph.	MV Lyr: Accretion Disk Phenomena	828
P4.120	van Milligen B.P.	Long-Range Correlations and Universality in Plasma Edge Turbulence	829
P4.121	Martines E.	Scaling Laws of Magnetic Turbulence in Reversed Field Pinch	830
P4.122	Weisen H.	Observation and Interpretation of Profile Consistency Features in the TCV Tokamak	831
P4.123	Yatsuyanagi Y.	Chaotic Reconnection of the Vortex-Current Filaments	832
P4.124	Hugill J.	Investigation of Plasma Loss Dynamics during Transition from L-Mode to H-Mode in Ohmically Heated Tokamak Plasmas	833
P4.125	Hirsch M.	ELM-Like Transport Events and Their Impact on Confinement in W7-AS	834
P4.126	Hidalgo C.	Radial Structure of Fluctuation Driven Flows in the Plasma Boundary of Fusion Devices	835
P4.127	Bleuel J.	Plasma Edge Turbulence: Comparison between Theory and Experiment	836
P4.128	Klinger T.	Experimental Study of Three-Wave Interaction of Drift Waves	837
P4.129	Das A.	Driven Turbulence in Two Dimensional Electron Magnetohydrodynamics	838

P4.130	Dinklage A.	Characterization and Numerical Simulation of the Route to Spatio-Temporal Turbulence in an Undriven DC Glow Discharge Plasma	839
P4.131	Kochetov A.V.	Electromagnetically Driven Langmuir Turbulence in a Dense Plasmas and Induced Plasma Properties	840
P4.132	Gravier E.	Control of the Chaotic Regimes of Nonlinear Drift Waves in a Magnetized Plasma	841
P4.133	Nielsen A.H.	Decaying Two-Dimensional Turbulence in Bounded Flows	842
P4.134	Simonchik L.V.	Plasma Parametric Decay Instability Driven by Frequency Modulated Pump	843
P4.135	Rasmussen J.J.	Equipartition and Transport in Two-Dimensional Electrostatic Turbulence	844
P4.136	Olshansky V.V.	Modelling of Electron-Ion Parametric Instability and Turbulence of Plasma in the Ion Cyclotron Frequency Range	845
P4.137	Honzawa T.	Plasma Cavity Formation and Nonlinear Frequency Conversion in the Range of Ion Plasma Waves	846
P4.138	Kabantsev A.	Violation of Parity in Nonlinear Saturated State of Drift Vortices	847
P4.139	Chukbar K.V.	Statistics of 2-d Vortices and Holtsmark's Distribution	848
P4.140	Kono M.	Vortex Lattice Formation in 2D Magnetized Plasmas	849
P4.141	Kono M.	Spiral Structures in Plasmas Produced by Electron Cyclotron Resonance	850
P4.142	Korsholm S.B.	Three Dimensional Study of the Hasegawa-Wakatani Drift-Wave Model	851
P4.143	Kudrin A.V.	Ionization Self-Ducting of High Intensity Whistler Waves in a Collisional Magnetoplasma	852
P4.144	Kuvshinov B.N.	Dispersion Properties of Two-Potential Dipole Vortices	853
P4.145	Leyser T.B.	Parametric Interaction of Self Trapped Upper Hybrid States - a Model of Stimulated Electromagnetic Emissions	854
P4.146	Naulin V.	Density Flux and Diffusion of Ideal Particles in Strong Drift-Wave Turbulence Containing Vortical Structures	855
P4.147	Pavlenko V.	Self-Consistent Turbulence in 2D Nonlinear Schrödinger Equation with Repulsive Potential	856
P4.148	Matsunaga Y.	Kinetic Simulation on Nonlinear Oscillation in Gas Discharge Plasma with Convective Scheme	857
P4.149	Takeda Y.	Anomalous Resistivity Given by Large Amplitude Fluctuations in the Vicinity of Lower Hybrid Frequency in a High-Voltage Linear Plasma Discharge	858
P4.150	Voitenko Y.M.	Spectral Energy Transfer in the Kinetic Alfvén Turbulence	859
P4.151	Vranješ J.	Shear Flow Driven Plasma Modes	860

P4.152	Zhdanov S.K.	Exact Theory of a Tearing Instability for a Thin Current Sheath	861
P4.153	Jovanovic B.M.	Optimum Conditions for Second Harmonic Generation in a Magnetized Plasma	862
P4.154	Oohara W.	Plasma-Structure Formation Due to a Local Production of Huge Negative Ions	863
P4.155	Gutierrez E.A.	Nonlinear Interaction of Acoustic Waves with Plasma of the Ionosphere: Theory and Experiment	864
P4.174	Hellberg M.	Modelling of Experiments on Electron-Acoustic Waves	865
P4.175	Taguchi M.	Anomalous Transport Matrix for Tokamak Plasmas in the Weak Turbulent Regime	866
P4.176	Rozhansky V.A.	Mechanisms of Transverse Conductivity and I-V Characteristics of Flush-Mounted Probes in a Tokamak	867
P4.177	Camargo S.J.	Transient Growth Mechanisms of Resistive Drift-Waves	868
P4.178	Fülöp T.-M.	The Radial and Poloidal Localization of Fast Magnetoacoustic Eigenmodes in Tokamaks	869
P4.179	Hassanein A.	Complete Physical Model for Plasma/Material Interactions during Loss of Plasma Confinement	870
P4.180	Kritz A.H.	A New Version of the Multi-Mode Transport Model	871
P4.181	Ludwig G.O.	Inductance of Tokamak Plasmas Using Toroidal Multipolar Expansions	872
P4.182	Martin P.	Tokamak Transport for Arbitrary Magnetic Cross Section in the Collisional Regime. Applications to Some Particular Cases	873
P4.183	Martinell J.J.	The Nonlinear Force from Fluctuations as Source of Plasma Rotation	874
P4.184	Mizuno N.	AIC Mode in Mirror Based Volumetric Neutron Source (FEF-II)	875
P4.185	Garcia O.E.	Theory and Simulation of Turbulence in Toroidal Magnetized Plasmas I	876
P4.186	Paulsen J.-V.	Theory and Simulation of Turbulence in Toroidal Magnetized Plasmas II	877
P4.187	Soboleva T.	Plasma Recombination and Stability of Detached Divertor Operation	878
P4.188	Tavakoli A.	The Rayleigh-Taylor Instability of Density Transition Layer	879
P4.189	Wahlberg C.	Analytical Stability Condition for the Ideal $m=n=1$ Kink Mode in a Toroidal Plasma with Elliptic Cross Section	880
P4.190	Wakatani M.	Ideal and Resistive Local MHD Instability in Negative Shear Tokamaks	881
P4.191	Yakovenko Y.V.	Resonant Guiding-Centre Motion of Ions with Arbitrary Orbit Width in a Tokamak	882

P4.192	Candy J.	Nonlinear Theory of Internal Kink Modes Destabilized by Fast Ions in Tokamak Plasmas	883
P4.193	Hegna C.C.	Self-Consistent Turbulent Mean Field Forces in a Two-Fluid Theory of Toroidal Plasmas	884
P4.194	Heyn M.	3D Modeling of the Minority Distribution Function during rf Heating	885
P4.195	Scott B.D.	Fluid and Kinetic Computation of Drift Alfvén Turbulence	886
P4.196	Dudnikova G.	Simulation of Plasma Dynamic in Belt-Type Galathea	887
P4.197	Sato K.	Structures of Electrostatic Potential in a Transition Layer across Magnetic Field Lines	888
P4.198	Edenstrasser J.	Force-Free Equilibria of Minimum Magnetic Energy with Non-Constant $l(y)$	889
P4.199	Katsonis K.	Atomic and Molecular Processes for Fusion Plasma Modelling	890
P4.200	Sadowski M.	Analysis of Ion Trajectories within a Pinch Column of a PF-Type Discharge	891
P4.201	Rabinski M.	Fluid Model of Plasma in Magnetron Sputter Device	892
P4.202	Puri S.	Anomalous Transport Via Kirchhoff Radiation	893
P4.203	Liu M.	SXR Radiation Modeling for Neon Plasma Focus	894
P4.204	Khvesyuk V.I.	Particles Dynamics in FRC	895
P4.209	Mairey F.	Kinetic Study of Electron Impact Ionization in a Helium Diode	896
P4.210	Kotalík P.	Two-Phase Flow of a Plasma Jet and Powder Particles	897
P4.211	Komatsu Y.	Plasma Production Experiments with Force-Balanced Coils	898
P4.212	Rabinski M.	Numerical Modelling of Plasma in IPD Process	899
P4.213	Pekárek S.	Needle-to Plate Electrical Discharge at Atmospheric Pressure for Ecological Applications	900
P4.214	Glazunov G.P.	About Mechanism of Boron Carbide Transfer During Arc Regime of STB in Uragan-3M Torsatron	901
P4.215	Anikeev V.N.	Magnetic Controlled Hollow Cathode Arc Discharge and It's Applications	902
P4.216	Kerdja T.	Spectroscopic and Ion Probe Diagnostic of a Laser Created Titanium Plasma in Nitrogen Environment	903
P4.217	Horiuchi K.	In-Situ Chamber Wall Cleaning in Processing Plasmas	904
P4.218	Janča J.	HF Plasma Pencil for Plasmachemical Treatment of Materials	905
P4.219	Yang S.Z.	Plasma Processing Research of Pulsed High Energy Density Plasma, PSII, and ECR Plasma	906
P4.220	Tsiolko V.V.	Investigation of Principal Factors of the Sterilization by Plasma DC Glow Discharge	907

P4.221	Anikeev V.N.	Small Size Electric Arc Melting Furnace	908
P4.222	Bizyukov A.A.	Features of Coating Deposition in Beam-Plasma System	909
P4.223	Bondarenko G.G.	Influence of the Target Inhomogeneity on the Film Deposition in a Glow Discharge Plasma	910
P4.224	Gutsol A.F.	Plasmachemical Obtaining of Hollow Spherical Oxide Particles Suitable for Thermal Spraying	911
P4.225	Kuzmichev A.I.	Plasma Generating in Pulsed Inductive Discharge for Deposition of Thin Films with Self-Ion Bombardment	912
P4.226	Ligero Lopez A.	Theoretical Study of the W-TH Cathode on Plasma Arc Torches	913
P4.227	Liu B.	Ti Films Metallization of β -Si ₃ N ₄ Ceramics Surface Using a Pulse High Energy Density Plasma Gun	914
P4.228	Porytsky V.Ya.	On the Formation of Structures under the Plasma-Beam Treatment of Metal Targets	915
P4.229	Ueda M.	Results from Microwave and Glow Discharge Plasma Immersion Ion Implantation Experiments	916
P4.230	Ye M.	Deposition of TiN Thin Films with Strongly Ionized Plasmas in High Duty AC Tokamak Discharge	917
P4.231	Buršfková V.	Influence of Deposition Parameters on Mechanical Properties of SiO ₂ -Like Protective Coatings	918
P4.232	Eliáš M.	Characterization of Hydrogenated Carbon Nitride Films Prepared by the Plasma Enhanced Chemical Vapor Deposition	919
P4.233	Zajíčková L.	Optimization of Plasma Enhanced CVD from Standpoint of Optical Properties of Protective Coatings on Polycarbonates	920
P4.234	Hubička Z.	Application of the RF Plasma-Chemical Reactor with the System of Multi-Hollow-Cathodes for Deposition of the Composite Thin Films and Multilayer Structures	921
P4.235	Castell R.	Spectroscopic and Structural Studies of Laser Ablation of Zirconium-Based Materials	922
P4.236	Fredriksen A.R.	ECR-Device for Studies of Plasmas for Thin Film PECVD	923
P4.237	Lee P.	Argon Ion Induced Changes on Antimony Telluride Thin Films Using Dense Plasma Focus Device	924
P4.238	Bohmeyer W.	Fluence, Flux and Energy Dependence of Chemical Erosion of Carbon Fiber Compounds	925
P4.239	Castell R.	Optical Spectroscopy and Comparative Behavior Studies in the Laser-Plasma Interaction of N ₂ -Laser Ablation from Zr and Ti Surfaces in Air	926
P4.240	Kadlec S.	Plasma Diagnostics by Energy-Resolved Mass Spectroscopy of Ions During Triode Plating of TiN Films	927
P4.241	Hovorka D.	Microwave Plasma Nitriding of a Low-Alloy Steel	928
P4.242	Zeman P.	Structure and Microhardness of Magnetron Sputtered ZrCu	929

Friday

		and ZrCu-N Films	
P4.243	Popescu A.A.	The Role of Ionic Bombardment in Hollow Cathode Discharge Deposition Process of Hard Coatings	930
P4.244	Leipner I.	Sputtering of CuCr and CuCr-N Films and Their Properties	931
P4.245	Devia A.	Optical Spectrometry of Pulsed Plasma Used on Titanium Nitride Coating Production	932

Friday July 3, 1998**Review Lectures**

R.9	Prager S.	Dynamo & Anomalous Transport in the RFP's	935
R.10	Robinson D.C.	The Physics of Spherical Confinement Systems	936

Tutorial Lectures

Tu.12	Nishihara K.	Lyapunov Exponents of Dilute Gas, Liquid and Solid Plasmas	937
-------	--------------	------------------------------------------------------------	-----

Topical Lectures

To.50	Bell M.	Core Transport Reduction in Tokamak Plasmas with Modified Magnetic Shear	938
To.51	Litaudon X.	Electron and Ion Thermal Transport Barriers in JET and TORE Supra	939
To.52	Glasser A.H.	The NIMROD Code - A New Approach to Numerical Plasma Physics	940
To.53	Shapiro V.	Electron Energization by the Lower-Hybrid Waves and X-Ray Emission from Different Space Environments from Comets to Supernovae Shocks	941
To.54	Beyer P.	2D and 3D Boundary Turbulence Studies	942
To.55	Wolowski J.	Laser Produced Plasma Interactions with High Pulsed Magnetic Fields	943
To.56	Amari T.	Magnetohydro- Statics & Dynamics of the Solar Corona	944
To.57	Veltri P.	MHD Turbulence in Solar Wind: Coherent Structure, Self Similarity, Intermittency	945