49th EPS conference on Plasma Physics

Program

Sunday, 2 July 2023

14:00-18:00 Badge & transportation card pick-up

Monday, 3 July 2023

9:00-9:30	Opening Ceremony Session Chair: K. Crombé
9:30-10:10	Alfvèn Prize lecture
10:10-10:40	Coffee break
10:40-12:40	Plenary Session I Session Chair: S. Le Pape 11.002: Isotope physics of heat and particle transport with tritium in JET-ILW H-mode plasmas P. Schneider 11.003: Particle acceleration in astrophysical, magnetized turbulent plasmas M. Lemoine 11.004: Ignition in the laboratory at NIF and routes to higher compression D. Casey
12:40-14:00	Lunch break

14:00-16:00 Poster Session I (Mo_MCF*, Mo_BSAP*, Mo_LTDP* & Mo_BPIF*)

16:00-16:30 **Coffee break**

10.00 10.00	CONTCC BI CUR			
16:30-18:30	MCF	BSAP	LTDP	BPIF
	MCF	Astrophysical plasmas	Magnetized low-	ICF
	Session Chair: S. Pinches	Session Chair: C. Pfrommer	temperature plasmas	Session Chair: R. Florido
	I1.101: MAST Upgrade Results	I1.201: Dynamics of IntraCluster	Session Chair: S. Tsikata	I1.401: Effect of Strongly
	Towards Integrating High Core	Plasma: Transitioning to the New	I1.301: Adpative low-temperature	Magnetized Electrons and Ions on
	Confinement and Divertor Power	Era of High-resolution X-ray	plasmas	Heat Flow and Symmetry of
	Dissipation	Spectroscopy	M. Keidar	Inertial Fusion Implosions
	J. Harrison	I. Zhuravleva	I1.302: Kinetic modeling of the	A. Bose
	I1.102: Development of long	I1.202: How, where and when do	plasma-wall interaction in the	I1.402: Magnetized cylindrical
	pulse high performance plasmas	cosmic rays reach ultrahigh	divertor region	plasma implosion experiments at
	towards ITER and CFETR steady-	energies?	F. Cichocki	OMEGA, NIF and LMJ laser
	state operation on EAST	J. Matthews	O1.301: Numerical and	facilities.
	J. Qian	O1.201: The decay of MHD	experimental investigations of a	M. Bailly-Grandvaux

turbulence and the primordial particle depletion in stellarators H. Thienpondt I1.104: Modelling of Vertical Displacement Events in tokamaks: status and challenges ahead Total Control of the primordial origin of magnetic fields in cosmic voids (PhD Research Award) D. Hosking O1.202: The mechanism of efficient electron acceleration at the primordial origin of magnetic fields in cosmic voids (PhD Research Award) D. Hosking O1.202: The mechanism of efficient electron acceleration at the primordial origin of magnetic fields in cosmic voids (PhD Research Award) S. Merli O1.302: Toroidal helicon plasma source for metal foil pumps for DEMO S. Merli O1.302: Toroidal helicon plasma generation in TORPEX S. Vincent S. Vincent Cryogenic Direct-Drive Inertia	
I1.104: Modelling of Vertical Displacement Events in tokamaks: status and challenges ahead D. Hosking O1.302: Toroidal helicon plasma generation in TORPEX S. Vincent S. Vincent S. Vincent Cryogenic Direct-Drive Inertia	s in
Displacement Events in tokamaks: O1.202: The mechanism of status and challenges ahead of efficient electron acceleration at S. Vincent of S. Vincent of S. Vincent of S. Vincent of Cryogenic Direct-Drive Inertia	
status and challenges ahead efficient electron acceleration at S. Vincent Cryogenic Direct-Drive Inertia	
LANGE OF THE CONTRACT OF THE C	
J. Artola parallel non-relativistic electron- O1.303: Role of ion magnetisation Confinement Fusion on OMEG	Α
ion shocks on the self-bias / floating potential V. Gopalaswamy	
M. Shalaby in low-temperature plasma within	
O1.203: Particle acceleration at a magnetic field up to 0.5T	
ultrarelativistic shocks in P. Hiret	
gammay-ray burst outflows O1.304: Transport barriers and	
J.G. Kirk anomalous diffusion in a strongly	
O1.204: A Paraxial Investigation magnetized, low-temperature	
of Resistive Relativistic Jet plasma in the MDPX device	
Dynamics E. Thomas	
A. Loules O1.305: Operation and stability of	
an emissive cathode in a high	
density plasma	
F. Pagaud	
18:30-19:00 Break	
19:00-21:00 Welcome Reception (Conference Center)	
Tuesday, 4 July 2023	

Tuesday, 4 July 2023

8:50-9:30	Innovation Prize lecture

Pleanary Session II 9:30-10:10 Session Chair: E. Kovacevic

MCF

12.002: Interchange magnetic reconnection as the driver of the fast solar wind

J.F. Drake

10:10-10:40 Coffee break

10:40-12:40

Turbulence and transport Session Chair: P. Schneider

12.101: Confinement, turbulence and flow sensitivity to plasma current in tokamak plasmas L. Vermare 12.102: Prediction of core kinetic profiles and burning plasma performance with high-fidelity gyrokinetic simulations in tokamaks P. Rodriguez-Fernandez

Laboratory plasmas Session Chair: M. Lemoine 12.201: Electron holes in phase space: Recent Theory and Observation I. Hutchinson O2.201: Axion production in

BSAP

strongly magnetized plasmas H. Terças O2.202: Acceleration mechanisms in extreme photon-plasma interactions

Plasmas for nanotechnology Session Chair: A. Borras

U. Cvelbar

12.301: Plasma technologies as a multipurpose toolbox for metal oxide nanosystem growth and tailoring C. Maccato

LTDP

12.302: Plasma-synthesized nanostructured and functional films

BPIF

BPIF

Session Chair: A. Debayle 12.401: Ab-initio description of Warm Dense Matter T. Dornheim 12.402: Ultrafast dynamics of relativistic electron heating in high-power laser-produced soliddensity matter H. Sawada 02.401: Influence of the solid-toplasma transition on the laser

I2.103: Theory based scaling law	J.C. Faure	O2.301: Recent results on the	energy deposition in targets and
of the L-mode and H-mode	O2.203: Thermal equilibrium of		subsequent hydrodynamics for
tokamak density limits and		assisted vacuum deposition	direct drive inertial confinement
experimental validation	dipole trap	F. Aparicio	fusion
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M. Giacomin	P. Steinbrunner	O2.302: Method to estimate the	R. Liotard
O2.101: Non-linear gyro-kinetic	O2.204: Collision rates estimated	process parameters for plasma-	O2.402: Experimental
Ion Temperature Gradient and	from exact N-body simulations	enhanced atomic layer deposition	investigation of SiO2 foam-filled
Trapped Electron Modes	E. Gravier	using deep learning techniques	hohlraums for inertial fusion
turbulence modelling in X-point	O2.205: Beyond resonance	Y. Yook	S. Iaquinta
geometry with Resonant Magnetic	broadening and quasilinear	O2.303: Towards the (bio)-	O2.403: Optimization of Polar
Perturbations	theory: towards Kubo >1	synthesis of carbon	Direct Drive Illumination for Mega-
M. Becoulet	A. Guillevic	nanostructures: understanding the	Joule Laser Facilities
O2.102: Two-dimensional ne and	O2.206: Experimental study of	decomposition of CO2 in a	D. Barlow
Te measurements of the edge	energetic electrons in magnetic	microwave plasma at atmospheric	O2.404: Simulations on the
plasma turbulence in TJ-II	islands in DIII-D	pressure	contribution of avalanche effect to
E. de la Cal	E.G. Kostadinova	A. Cobos-Luque	gain generation from p-B11 fusion
		O2.304: Atmospheric-pressure	C. Daponta
		microwave Ar/N2 afterglow for	
		heat-sensitive surface treatment	
		F.J. Morales-Calero	

12:40-14:00 **Lunch break**

Women/Inclusivity Meeting

14:00-16:00 Poster Session II (Tu_MCF*, Tu_BSAP*, Tu_LTDP* & Tu_BPIF*)

16:00-16:30	Coffee break			
16:30-18:30	MCF	BSAP	joint MCF/LTDP	MCF
	Disruptions and runaway	Laboratory plasmas	Plasma-materials physics	Stellarators
	electrons	Session Chair: C. Kurantz	Session Chair: H. Reimerdes	Session Chair: S. Henneberg
	Session Chair: F. Felici	12.202: From microscale physics	12.303: Modeling of molecular	I2.107: Validation of pellet
	12.104: Disruption avoidance and	to astrophysical-scale effects:	kinetics in plasmas	deposition physics by
	investigation of the H-Mode	Using experiments on Omega and	A. Laricchiuta	simulation/experiment
	density limit in ASDEX Upgrade	the NIF to unravel the enduring	O2.305: From surface production	comparisons on helical devices
	B. Sieglin	enigma of astrophysical	to extraction in negative hydrogen	N. Panadero
	12:105: Benign Termination of RE	collisionless shocks	ion sources	I2.108: From the Helically
	Beams on ASDEX Upgrade and	G. Swadling	Ch. Wimmer	Symmetric eXperiment to a High
	TCV	O2.207: Laser-driven ion and	O2.306: EFISH and LIF	Field Stellarator Fusion Power
	U. Sheikh	electron acceleration from near-	5	Plant
	3	critical density gas targets	discharge used for atomization of	B. Geiger
	dynamics in shattered pellet	V. Ospina-Bohorquez	I = =	O2.105: A new quasi-isodynamic
	mitigated ITER disruptions	O2.208: Stellar opacities in the	M. Mrkvivková	stellarator configuration with good
	I. Pusztai	laboratory using a high intensity		fast-ion confinement and reduced
		laser	deuterium plasmas	turbulent transport
	experiments at ASDEX-Upgrade	H. Lahmar	A. Manhard	E. Sánchez
	rer design optimisation of the	O2.209: Generalized multi-		O2.106: Density control with the
	ITER Disruption Mitigation System	temperature Zhdanov closure for	Upgrade Super-X divertor	water-cooled divertor in
	S. Jachmich	the calculation of plasma	K. Verhaegh	Wendelstein 7-X stellarator
	O2.104: Magnetic measurements	transport coefficients		G. Schlisio

.210: The electron cyclotron user instability in laser ionised		of turbulence and heat pulse
-		propagation valuality
-		propagation velocity
smas		N. Kenmochi
Silva		O2.108: Drift effects in the
.211: Probing ultra-fast		scrape-off layer of the W7-X
ization and homogenization of		stellarator
ar-critical density foams at		M. Kriete
ativistic intensities at the		
D/HiBEF instrument		
Laso Garcia		
.212: Collective Radiation		
action in an Electron-Positron		
nch and Laser Collision		
J. Quin		
i a E L	211: Probing ultra-fast ization and homogenization of ar-critical density foams at ativistic intensities at the D/HiBEF instrument Laso Garcia 212: Collective Radiation action in an Electron-Positron and Laser Collision	211: Probing ultra-fast ization and homogenization of ar-critical density foams at ativistic intensities at the D/HiBEF instrument Laso Garcia 212: Collective Radiation action in an Electron-Positron and Laser Collision

18:30-19:00 **Break**

19:00-21:00 ITER Town Hall meeting (Conference Center)

Wednesday, 5 July 2023

8:50-10:10

Pleanary Session III

Session Chair: A. Dinklage

13.001: Formation and dynamics of the solar wind: new measurements from the inner solar system

T.S. Horbury

13.002: Modeling of reactive plasmas for gas conversion

J. van Dijk

10:10-10:40 **Coffee break**

10:40-13:00

C	MCF	BSAP	LTDP	BPIF
	Scenario development	Space plasmas	Low-temperature plasma	Ultra-intense laser-plasma
	Session Chair: T. Bolzonella	Session Chair: O. Alexandrova	modeling	interaction
	13.101: Progress in the ITER	13.201: New Insights into	Session Chair: J. van Dijk	Session Chair: J. Metzkes-Ng
	baseline scenario development on	Turbulence-Driven Magnetic	I3.301: Plasma-Surface	13.401: Generating electron-
	TCV	Reconnection from NASA MMS	Interactions in Atomic Layer	positron plasma in QED
	B. Labit	J. Stawarz	Processing	avalanches with ultra-high
	I3.102: Long sustained highly	13.202: Kinetic processes in fast	D. Graves	intensity lasers
	peaked ion temperature with	collisionless plasma flows	O3.301: Secondary electron	A. Mironov
	internal transport barrier in KSTAR		emission from surfaces at very	14.402: Ion acceleration via RPA
	H. Han	O3.201: Flux Ropes, Turbulence,	low impact energies	S. Kar
	I3.103: Recent Experiments and	and Collisionless Perpendicular	F. Bronold	O3.401: High precision probing of
	Simulations to Develop	Shock Waves	O3.302: Modeling Thermal	laser-solid interaction with laser-
	Intrinsically Non-ELMing Enhanced		Ionization in Hypersonic Shock	accelerated electron beams
	Confinement Regimes	03.202: Kappa approach of the	Tubes	M. Gilljohann
	D.E. Ernst	electron beam instabilities at the	G. Colonna	O3.402: Quantum beamstrahlung:
	O3.101: Model based formation of	3	O3.303: Computational Fluid	a platform to precisely probe
	Advanced Tokamak discharges	M. Lazar	Dynamics modelling of a	strong-field QED

R. Schram	O3.203: Modelling Space Plasma	microwave plasma torch for the	T. Grismayer
O3.102: First global simulations of	,	synthesis of graphene	O3.403: New helical coil design
ITER 15MA Q=10 baseline	impact on Earth Magnetosphere	N. Mendoza	with controlled dispersion for the
scenario with D and T treated	B. Vaidya	O3.304: Disclosed formation and	post-acceleration and focusing of
separately in the SOL/divertor	O3.204: Evolution of nonlinear	role of electrostatic waves through	TNSA protons
F. Eriksson	electrostatic structures in the	3D PIC simulation of High Stability	A. Hirsch
O3.103: Stationary ELM-free	lunar wake region	Microwave Discharge Ion Source	O3.404: The E332 experiment at
H-mode in ASDEX Upgrade (PhD	K. Singh	L. Neri	FACET-II: harnessing beam-
Research Award)	O3.205: Nonlinear structures in	O3.305: FENNECS: a flexible code	
L. Gil	the Martian magnetosheath	to simulate non-neutral plasmas	density electron beams and
	S.S. Varghese	trapped in Penning-like annular	extremely dense gamma-ray
		potential wells	pulses
		G. Le Bars	A. Matheron
		O3.306: Hydrodynamic	O3.405: Positron generation and
		simulations of plasma devices for	acceleration in a self-organized
		compact particle-accelerator	photon collider driven by ultra-
		applications	short petawatt laser-plasma
		G. Boyle	interaction
		O3.307: Radiative transfer	K. Sugimoto
		simulations for in-situ diagnostic	
		of reactive, particle growing	
		plasmas	
		J. Kobus	

13:00-14:00 Lunch break

14:00-18:00 **Time off**

Thursday, 6 July 2023

8:30-9:50 Plenary Session IV

Session Chair: B. DUval

I4.001: Results and implications of the TCV plasma exhaust (PEX) upgrade

H. Reimerdes

14.002: Plasma polymerization mechanisms: applications and impact on related fields

D. Hegemann

9:50-10:10 **Coffee break**

10:10-12:10

:10	MCF	MCF	LTDP	BPIF
	Edge & divertor physics, plasma-wall interactions Session Chair: A. Hakola	_	Plasma processing and plasma chemistry Session Chair: D. Hegemann	Laser-plasma interaction and instabilities Session Chair: G. Lehmann
	I4.101: Compact radiative	I4.104: Advanced energetic	I4.301: Magnetron Sputter	I4.401: Inverse Bremsstrahlung
	divertor experiments at ASDEX	particle transport models	Epitaxy: A Multi-Diagnostic	Absorption
	Upgrade and their consequences	M. Falessi	Approach	D. Turnbull
	for a reactor	14.105: Clear observation of	A. Hinz	14.402: Raman amplification with
	T. Lunt		14:302: Multiscale modeling of	a 1015 Wcm-2 seed
	14.102: Validated edge and core	cascades driven by alphas during	plasma-surface interactions	J. Shaw

predictions of tungsten erosion	recent JET DT experiments	L. Vialetto	O4.401: A steady-state approach
and transport in JET ELMy H-	M. Fitzgerald	O4.301: Optimization of a	to implementing laser-plasma
mode plasmas	O4.103: Nonlinear simulation of	negative oxygen ion beam	instabilities in hydrodynamics
H. Kumpulainen	energetic particle driven modes in	J. Han	codes
14.103: Investigating Negative-	ASDEX-Upgrade	O4.302: Physics-Informed	R. Nutter
Triangularity Configurations as a	H. Wang	Advanced Plasma	O4.402: Experimental campaign
Reactor Relevant Solution in the	O4.104: Ion temperature gradient	Equipment/Process Control	of laser plasma interaction on
TCV Tokamak	mode mitigation by energetic	Technologies for Plasma	Shenguang Octopus laser facility
O. Février	particles, mediated by forced-	Applications	L. Zhichao
O4.101: Experimental	driven zonal flows		O4.403: Predicting the growth of
characterization of divertor	J.N. Sama	O4.303: Hydrogen-Nitrogen Mixed	backward stimulated Brillouin
filamentary dependencies in TCV	O4.105: Resonant axisymmetric	Arc Plasma on Direct toluene	scattering of smoothed laser
and comparison with first-	modes in tokamak plasmas	conversion into C2 product	beams
principles turbulence simulations	F. Porcelli	C. Jung	C. Ruyer
C. Wüthrich	O4.106: Prediction of energetic	O4.304: Water treatment using	O4.404: Measurement of
O4.102: Study of W impurity	particle confinement in ITER		magnetic cavitation driven by heat
transport in the boundary plasma	operation scenarios	packed bed reactor at atmospheric	flow in a plasma
of EAST with different divertor	Z. Lin	pressure	C. Arran
conditions		X. Tang	
R. Ding			

12:10-13:30 Lunch break

MCF

Poster Session III (Th_MCF*, Th_BSAP*, Th_LTDP* & Th_BPIF*)

BSAP

13:30-15:30 15:30-17:30

Basic and astrophysical
plasmas Session Chair: T. Passot
14.201: Small-scale reconnection and kinetic instabilities in turbulent space plasmas <i>D. Verscharen</i> 14.202: Magnetars: the role of the magnetorotational instability and of the convective dynamo <i>J. Guilet</i> 04.201: MHD spectroscopic analysis of the resistive tearing growth rate under the influence of background flow <i>J. De Jonghe</i> 04.202: Chaos, Magnetic Fields, and the Cosmic Ray Anisotropy <i>V. López-Barquero</i> 04.203: Coherent radiation via synchrotron cooled electron cyclotron maser emission <i>P.J. Bilbao</i>
O4.204: Limits on the

Laboratory space & astrophysical plasmas Session Chair: R. Bilato

joint MCF/BSAP

14.303: Creating Astrophysically Relevant Systems in the Laboratory in the High-Energy-Density Regime ne *C. Kuranz* 14.304: Energy partition in collisionless shocks: a microphysical perspective F. Fiuza 14.305: Similarities between of nuclear fusion reactors and space vehicles J.P. Gunn 14.306: Nonadiabatic frequency

chirping Alfvén mode in fusion plasmas X. Wang

BPIF **Diagnostics**

HED facilities

V. Bouffetier

Intense Laser Pulses

Session Chair: D. Turnbull

14.403: Markers of Ignition: Nuclear Imaging in Inertial Confinement Fusion V. Geppert-Kleinrath O4.404: X-ray synthetic diagnostics for ICF applications F. Barbato O4.405: A spectroscopy method for high-energy photons in intense fields K. Fleck 04.406: Spatiotemporal beamplasma instabilities in the ultrarelativistic regime Y. Mankovska O4.407: Talbot X-ray deflectometry and applications at

O4.408: Guided Electromagnetic Discharge Pulses Driven by Short

	compression of magnetic islands, a source of synchrotron radiation bursts in PIC simulations of	M. Ehret
	strong-field 3D relativistic magnetic reconnection.	
	K.M. Schoeffler	
18:00 Rroak		

17:30-18:00 **Break**

18:00-22:30 ConferenceDinner

Friday, 7 July 2023

8:50-10:10

Plenary Session V

Session Chair: K. McClements

15.001: Turbulence-optimized stellarator designs with improved ion confinement

G.T. Roberg-Clark

15.002: Novel approach toward Inertial Confinement Fusion

R. Scott

10:10-10:40 **Coffee break**

10:40-12:40

0	MCF	BSAP	LTDP	BPIF
	Heating & current drive and	Laboratory astrophysics	Dusty plasmas	Laser-plasma radiation and
	innovative data analysis	Session Chair: C. Palmer	Session Chair: M. Pustylnik	particle sources
	techniques	I5.201: Direct measurement of	O5.305: Ex situ measurement of	Session Chair: E. Gelfer
	Session Chair: J. Hillairet	non-thermal electron acceleration	dust size distribution of	I5.401: Femtosecond electron
	I5.101: Improving physical	from magnetically driven	nanoparticle growth process and	microscopy of the laser-plasma
	understanding and plasma	reconnection in a laboratory	comparison with in situ	wakefield
	performances with extensive	plasma	measurements	V. Malka
	experimental data analyses in	L. Gao	A. Petersen	I5.402: Efficient electron
	WEST	O5.201: Laboratory Plasma	I5.302: Laser-induced	acceleration via laser interaction
	J. Morales	Astrophysics at CERN	photodetachment for anions and	with an overdense plasma wedge
	O5.101: Real-time control of NBI	C.D. Arrowsmith	particle (de-)charging diagnostics	S. Marini
	fast ions, current-drive and	O5.202: Magnetized collisionless	in low pressure nanoddusty	O5.401: Spin-polarized ion beams
	heating properties	shock experiments, using a pulsed	-	from laser-plasma interaction
	M. Weiland	power driven magnetic piston	J. Beckers	L. Reichwein
	O5.102: Digital twin of tokamak	from an exploding wire array	O5.301: Thermal fluctuations of	O5.402: Gamma photon and
	diagnostics for heat exhaust and	L.G. Suttle	strongly coupled dusty plasmas: a	electron-positron production on
	confinement prediction	O5.203: Supersonic radiation	theoretical and experimental	the PETAL laser facility
	A. Medvedeva	wave in doped low-density foam	study	F. Brun
	O5.103: Latest High-Power	G. Malamud	A. Dhaka	O5.403: A multi-MeV alpha
	Helicon Experimental Results from		O5.302: Electron sticking of	particle source from proton-Boron
	DIII-D	Electromagnetic Waves	dielectric and metallic surfaces in	fusion reactions using a 10 GW
	R. Pinsker	I.E. Ochs	the plasma sheath	tabletop laser.
	O5.104: ICRF wave propagation	O5.205: Ultrahigh-Pressure	A. Mengel	V. Istokskaja
	and absorption modelling via	Generation in the Relativistic	O5.303: Size evolution and	O5.404: Electron bunch seeding of
	machine learning	Transparency Regime in Laser	plasma-particle interaction of	the self-modulation instability in
	A. Sánchez Villar	Irradiated Nanowire Arrays	single MF particles in the plasma	plasma <i>(PhD Research Award)</i>

	O5.105: Performance of the ECRH	J.F. Ong	sheath	L. Verra
	system of Wendelstein 7-X with	O5.206: Adiabatic-radiative shock	S. Wohlfahrt	
	regard to long pulse operation and	systems in astrophysical jets:	O5.304: Experimental	
	high performance plasmas in the	from the gamma-ray sky to the	observations of fore-wake	
	campaign OP2.1	laboratory	phenomena in between two	
	T. Stange	A. Araudo	charged object in flowing dusty	
	O5.106: Parameterisation of		plasmas	
	Microwave Beam Broadening by		P. Bandyophadhyay	
	Plasma Density Turbulence			
	L. Holland			
00	Lumah hasak			

12:40-14:00 **Lunch break**

14:00-16:00 Poster Session IV (Fr_MCF*, Fr_BSAP*, Fr_LTDP* & Fr_BPIF*)

16:00-16:30 **Coffee break**

16:30-17:50 Plenary Session V

Session Chair: C. Riconda

15.003: Fluctuations in weakly magnetized plasmas

S. Tsikata

15.004: Supernovae Remnants and their interaction with external agents in the laboratory: how it structure the ISM

B. Albertazzi

17:50-18:30 Closing Ceremony

Session Chair: K. Crombé