



11th International Conference
**FRONTIERS OF PLASMA PHYSICS AND
 TECHNOLOGY (FPPT-11)**
 May 5-9, 2025, Dubrovnik, Croatia

Hosted by the Plasma Science Division,
 Croatian Vacuum Society, Zagreb, Croatia.

SCIENTIFIC PROGRAMME

Sunday, 4th May 2025: 17.00-19.00 hrs. Registration (Tentative)

Monday, 5th May 2025.

08.00-09.00	Registration	
09.00-09.30	Welcoming the delegates	
Session 1	Chair: R. Fedosejev	
09.30 -10.00	R. Wagner The IAEA	Introduction to IAEA Fusion Activities.
10.00-10.30	D.H.H. Hoffmann. P.R. China	Fusion energy at the crossroads.
10.30-11.00	Peter Norreys UK	Applications of hyperspectral compressive sensing to high power lasers, novel accelerators and inertial fusion studies.
11.00-11.30	Tea	
Session 2	Chair: B. Sharkov	
11.30-12.00	R. Kaiser The ICTP	Fusion Energy and Climate Change.
12.00-12.30	W. J. Miloch Norway	Ionospheric plasma irregularities, their current understanding, models, and related Space weather effects.
12.30-13.00	V. Malka Israel	ELI – Nuclear Physics status and challenges.
13.00-14.30	Lunch	

Session 3		
Chair: M. Chaker		
14.30-14.50	Bob Nagler USA	Direct measurement of ion temperature, and electron-ion equilibration in warm dense matter.
14.50-15.10	Yulong Li P.R. China	Research on quasi-continuous diagnostic methods for two-dimensional shock wave velocity fields.
15.10-15.30	B. Ramakrishna India	Investigation of ion beam instabilities in intense laser plasma and applications.
15.30-15.50	Shen Zhang P.R. China	First-principles investigation to the equation of state and the electronic structure of warm dense matter.
15.50-16.20	Tea	
Session 4		
Chair: J. T. Mendonça		
16.20-16.40	S. M. Vinko UK	Relaxation dynamics of non-thermal electrons in free-electron-laser generated dense plasmas.
16.40-17.00	Hou Yong P.R. China	Transport properties of mixed ions in warm/hot dense matter regime.
17.00-17.20	F. Porcelli Italy	Magnetic reconnection in Magnetic Fusion plasmas: A review.
17.20-17.30	F. Porcelli Italy	Information on the Special issue, Frontiers of Plasma Physics and Technology 2025 (FPPT-25)
19.00-21.00	WELCOME PARTY	

Tuesday, 6th May 2025.

Session 5		Chair: C. Palmer
09.00-09.30	D. Margarone Czech Republic	Laser-plasma interaction and secondary sources of charged particles and radiation and their applications at ELI beamlines.
09.30-10.00	G. Loisel USA	The ZAPP collaboration: Elucidating astrophysical puzzles using the Z facility.
10.00-10.30	M. Coteló Ferreiro Spain	Radiation hydrodynamics code ARWEN for simulation of laboratory astrophysics.
10.30-11.00	M. Rakić Croatia	Natural water treated with Nitrogen plasma supported with Magnesium: A fertilizer of the future.
11.00-11.30	Tea	
Session 6		Chair: Z. Fan
11.30-11.50	B. Chen P.R. China	The inner interface mixture measurement of imploded capsule by single line-of-sight diagnostic in inertial confinement fusion.
11.50-12.10	P. McKenna UK	Harnessing machine learning to advance laser-driven ion acceleration.
12.10-12.30	M. Chaker Canada	Plasma-based synthesis of Titania-based photocatalysts.
12.30-12.50	T. Chao P.R. China	Study of the implosion process of double-shell targets using high spatial-temporal resolution hard X-ray radiography.
12.50-14.30	Lunch	

Session 7		
Chair: S. Ercegović Ražić		
14.30-14.50	T. Belmonte France	Hydrogen production from pure ammonia plasma by microwave discharges.
14.50-15.10	I. Kourakis UAE	Nonlinear waves in Space plasmas: Recent advancements and applications in planetary magnetospheres.
15.10-15.30	T. Ozaki Canada	Attosecond dynamics in laser-produced plasmas.
15.30-15.50	J.T. Mendonça Portugal	Photon acceleration and related topics.
15.50-16.20	Tea	
Session 8		
Chair: S. Vinko		
16.20-16.40	Gao Cong-Zhang P.R. China	Modeling the radiation transport in stochastic mixtures.
16.40-17.00	M. Mašek Czech Republic	Influence of nonlinear wave-particle interactions on the development of the stimulated Raman scattering.
17.00-17.20	A. Bret Spain	New results in collisionless shocks physics.
17.20-17.40	S.K. Gupta India	An overview of Advanced Instrumentation and Pulsed Power Technology for Various Plasma Applications.
17.40-18.30	Poster session; Appendix 1.	

Wednesday, 7th May 2025.

Session 9		Chair: M. Rakić
09.00-09.30	V. Miller USA	Chemical and electrical feedback between plasma source and biological targets: Implications for plasma medicine.
09.30-10.00	S. Ercegović Ražić Croatia	Argon plasma influence on bacterial reduction of PA6 filaments extruded with zinc oxide nanoparticles.
10.00-10.30	Cormac Corr Australia	Inductively coupled electrothermal plasma and applications.
10.30-11.00	S. Karsch Germany	Towards ultracold electron beams - high-transfer efficiency in Hybrid PWFA-LWFA.
11.00-11.30	Tea	
Session 10		Chair: Silvia Cipiccia
11.30-11.50	R. Fedosejevs Canada	High power interactions with dilute underdense targets focal cone high harmonic generation and ponderomotive electrons.
11.50-12.10	Fan Zhengfeng P.R. China	Electron-proton relaxation in hot-dense plasmas with a screened quantum statistical potential.
12.10-12.30	B. Sharkov Russian Federation	Accelerator for monochromatic r-burst generation in relativistic electron-photon interaction.
12.30-12.50	C. A. J. Palmer UK	Exploiting novel liquid sheet targets for the generation of high-flux proton beams.
12.50-14.30	Lunch	

Session 11		Chair: Yu. Gu
14.30-14.50	S. Cipiccia UK	Laser-driven X-ray sources for imaging applications.
14.50-15.10	S. Petrović Serbia	Laser surface patterning of Ti/Zr thin films for biomedical applications.
15.10-15.30	Cheng Gao P.R. China	Theoretical studies on M-shell localization of highly charged Mg produced by XFEL.
15.30-15.50	Uroš Cvelbar Slovenia	Driving scientific research with large data.
15.50-16.40	Tea	
Session 12		Chair: W. Miloch
16.20-16.40	G. Throumoulopoulos Greece	SOLOV'EV-Equilibrium-based steady states with plasma flow.
16.40-17.00	Feng Zhang P.R. China	Muon production and acceleration with ultra high-intensity laser.
17.00-17.20	A. Fukuyama. Japan	Kinetic full wave analysis in inhomogeneous plasmas using the integral form of dielectric tensor.
17.20-17.40	B. Gaković Serbia	Ultra fast laser processing of nano layer thin films.

Thursday, 8th May 2025

Session 13		Chair: B. Ramakrishna
09.00-09.30	Yu. Gu P.R. China	High resolution radiography for ICF research based on picosecond laser.
09.30-10.00	M. Perlado Spain	Engineering perspectives in Laser Fusion.
10.00-10.30	G. Malka France	Investigation of advanced laser-driven proton sources produced in interaction of relativistic laser pulse with low density foams and application to the study of Proton Boron fusion.
10.30-11.00	X. Zhang P.R. China	Development of advanced x-ray imaging diagnostics for the fusion plasmas driven by 100kJ lasers.
11.00-11.20	B. Shen P.R. China	Positron acceleration with coherent transition radiation
11.20-11.40	R. Khanal Nepal	Optimisation of atmospheric pressure plasma technology for sustainable agricultural productivity.
11.40-12.30	Concluding Session: Nikša Krstulović. Young Scientist Award announcement. Closing Remark: Tara Desai End of FPPT-11	
12.30-14.00	Lunch	
19.00-21.00	Young Scientist Award presentation and Banquet	

Appendix 1 - Poster session

Poster No.	Author/s	Title of the poster.
[1].	Rafaela Radičić, Lucija Krce, Nino Dimitrov, Bernarda Marković, Ivona Vidić Štrac, Janez Kovač, Marija Bačeković Koloper, Ivana Weber, Nikša Krstulović	Atmospheric pressure plasma jet-assisted fabrication of antibacterial PET/ZnO NP composite.
[2].	Rafaela Radičić, Rok Zaplotnik, Lucija Krce, Mario Ščetar, Karolina Pietrzak, Dane Lojen, Miran Mozetič, Nikša Krstulović.	RF plasma-assisted fabrication of PET/ZnO composites
[3].	Nikša Krstulović	Dynamics of colliding laser-produced plasma studied with cavity ring-down spectroscopy.
[4].	Cong-zhang Gao	Understanding and predicting the radiation flow in stochastic mixtures.
[5].	Aysha Nihidha Pulakkal, Hadi Susanto, Kuldeep Singh and Ioannis Kourakis	Nonlinear lattice dynamics & applications in dusty plasma crystals.
[6].	Somya Gupta, Devansh Desai and Saurin Shah	Design and development of an economical and energy efficient bi-directional power source for the Plasma sterilizer system.
[7].	Keyurkumar Patel, Rizwan Alad, Ashish Pandya, Suryakant Gupta	Comparative analysis of sey models for spacecraft surface charging in geo plasma environments
[8].	Ashish Pandya, Nikhil Kothari ¹ , Rizwan Alad, Suryakant Gupta, Keyurkumar Patel	Modelling realistic dynamics of differential charging of geo satellites immersed in Maxwellian plasma environments
[9].	Zeel Raval, Vrushank Mehta, H. L. Swami, Nisha Panghal, Unnati Patel, Suryakant Gupta, Rajesh Kumar	NF ₃ /Ar Plasma etching: Experiment and Simulation
[10].	Ashok D. Mankani, Priyesh Chauhan, Suryakant Gupta, Saurabh Kumar, Amal S, Aritra Chakraborty, Aditya Naugraiya, Meddi Tharun, Abhishek Singh, Paul Christian, and Ujjwal Kumar Baruah	Design and analysis of high voltage DC power supply system for Nuclear Fusion application

[11].	Mihai Boni, Andra Dinache, Ionut-Relu Andrei, Iuliana Urzica, Angela Staicu, Adriana Smarandache.	Addressing the microplastic pollution crisis: laser tech for monitoring and efficient removal
[12].	Mihai Boni, Ana-Maria Udrea, Andra Dinache, Tatiana Tozar, Madalina Andreea Badea, George Stanciu, Liviu Neagu, Diana Draghici, Ionut Ungureanu, Ionut Relu Andrei, Adriana Smarandache, Cristian Udrea, Sorina Nicoleta Voicu, Anamaria Cristina Bunea, Teodora Borcan, Diana Naum, Petru Ghenuche, Domenico Doria, Mihaela Balas, Viorel Nastasa, Angela Staicu	High-power laser-driven X-ray radiation for enhanced photodynamic therapy
[13].	Ionuț-Petrișor Ungureanu, Mihai Boni, Ionuț Relu Andrei, Sebastien Vincent-Bonnieu, Brice Saint-Miche, Mihail-Lucian Pascu, Iliia V. Roisman, Jeanette Hussong, Stephen Garoff, Angela Staicu.	Droplet Oscillations Induced by External Factors
[14].	Num Prasad Acharya, Suresh Basnet, and Raju Khanal	Nonlinear dust-ion acoustic solitary waves in collisional electronegative dusty plasma with trapped electrons.
[15].	Suresh Basnet, Roshan Chalise, Num Prasad Acharya, and Raju Khanal	Kinetic trajectory simulation method for plasma-wall interactions in electronegative and multi-component plasmas.
[16].	S. Dhungana, A. K. Singh, R. Chalise, R. Khanal, and H. B. Baniya	Development and characterization of a low-cost gliding arc discharge plasma system for seed treatment and plasma-activated water production.
[17].	G. A. Deshpande, K. Deka and V.L. Mathe.	Thermal plasma synthesized copper ferrite nanoparticles for applications in antimicrobial, anticancer therapy and magnetic hyperthermia agents.
[18].	Shalaka A. Kamble, A. Nandi, Sudha Bhoraskar and Vikas Mathe.	Development of electron emitters of nanocrystalline mixed rare earth hexaborides synthesized using arc plasma route.
[19].	N. P. Ghodke, S.V. Bhoraskar and V.L. Mathe.	Catalytic properties of cobalt-based nanoparticles synthesized by thermal plasma route for hydrogen production.

[20].	Sanket D Jangale, Shalaka A. Kamble, Somnath R. Bhopale, Sudha V. Boraskar, Mahendra A. More and Vikas L. Mathe.	Single-step, catalyst-free synthesis of various silicon carbide (sic) based systems using agricultural waste precursors by thermal plasma route and investigation of field emission and catalytic properties.
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Friday, 9th May 2025: Excursion to the Old City, Dubrovnik.

FRPPT-11