



**10th International Conference on
FRONTIERS OF PLASMA PHYSICS AND TECHNOLOGY (FPPT-10)**

13-17, March 2023, Kathmandu, Nepal

SCIENTIFIC PROGRAMME

**Sunday, 12th March 2023: [Venue-Hotel Mystic Mountain, Nagarkot.](#)
14.00-17.00 hrs. Registration**

Monday, 13th March 2023: [Venue-Hotel Mystic Mountain, Nagarkot.](#)

08.30-09.30	Registration	
09.30-10.00	Welcome	
Session 1	Chair: T. Ozaki, Canada	
10.00 -10.30	A. Becoulet France	progress in the procurement, construction and assembly of ITER
10.30-11.00	R. Gonzalez-Arrabal Spain	Materials and technology for fusion reactors
11.00-11.30	Tea	
Session 2	Chair: A. Bret, Spain	
11.30-12.00	S. Weber Czech Republic	The kilo-joule, nanosecond high repetition-rate facility at the Extreme Light Infrastructure ERIC (beamlines) for IFE studies
12.00-12.30	R. Kaiser ICTP, Italy	Muography - Imaging With Cosmic Ray Muons
12.30-13.00	Riccardi Italy	Non thermal plasma for air sanitation: a study using a surface dielectric barrier discharge
13.00-14.30	Lunch	
Session 3	Chair: L.N. Jha, Nepal	
14.30-14.50	T. Jeong Czech Republic	Formation of ultrastrong laser field and its application to quantum electrodynamics
14.50-15.10	F. Dorchies France	Femtosecond structural probing of warm dense matter with Betatron X-source
15.10-15.30	J.T. Mendonça Portugal	Superfluid light in plasmas
15.30-15.50	U. Chaulagain Czech Rep.	Laser plasma accelerator-based x-ray sources at ELI beamlines
15.50-16.20	Tea	
Session 4	Chair: Jaroslav Nejd, Czech Republic	
16.20-16.40	M. Barbarino The IAEA, Austria	The IAEA global Fusion activities
16.40-17.00	F. Porcelli Italy	Information about conference proceedings to be published in Fundamental Plasma Physics by Elsevier
18.30-20.00	WELCOME PARTY	

Tuesday, 14th March 2023: Venue-Hotel Mystic Mountain, Nagarkot

Session 5 Chair: C. Riccardi, Italy		
09.00-09.30	B. Sinha India	Hawking radiation, Hawking entropy from binary strange quark nuggets in the cosmic plasma
09.30-10.00	W. Miloch Norway	Structuring and variability of ionospheric plasma
10.00-10.30	J.J. Santos France	Experimental studies of extended-MHD effects and confinement properties of magnetized cylindrical implosions
10.30-11.00	S. Sebban France	Advances on laser-plasma based soft x-ray lasers and their applications
11.00-11.30 Tea		
Session 6 Chair: M. Masek, Czech Republic		
11.30-11.50	F. Porcelli Italy	Axisymmetric modes resonant at magnetic x-points in magnetically confined fusion plasmas
11.50-12.10	Sam M. Vinko UK	Building high accuracy emulators using deep neural architecture search
12.10-12.30	K. Ta Phuoc France	Femtosecond x-rays from laser plasma accelerators
12.30-12.50	B. Albertazzi France	Supernovae remnants and their interaction with external agents in the laboratory: how it structures the ISM
12.50-14.30 Lunch		
Session 7 Chair: J.T. Mendonca, Portugal		
14.30-14.50	I. Kourakis UAE	Nonlinear waves in space plasmas: Overview of recent advancements on the interface between nonlinear science and plasma physics
14.50-15.10	D. P. Subedi Nepal	Atmospheric Pressure Dielectric Barrier Discharge (APDBD) and its applications
15.10-15.30	B. Zelener Russia	Properties of a steady-state ultracold plasma
15.30-15.50	Jaroslav Nejdil Czech Republic	Science with laser-driven X-ray sources at ELI beamlines centre
15.50-16.20 Tea		
Session 8 Chair: S. Weber, Czech Republic		
16.20-16.40	S. Dangtip Thailand	Recent Progress of Thailand Tokamak-1
16.40-17.00	P. Yuan P.R. China	Time-evolution characteristics of spectrum and temperature of lightning discharge plasma
17.00-17.20	A.V. Shutov Russia	On the operation of KrCl excimer laser with 222 nm DUV laser wavelength

Wednesday, 15th March 2023

10.30 hrs	Departure from Hotel Mystic Mountain, Nagarkot to Kathmandu. Free bus service is available to delegates.
11.30	Arrival at the Hotel Yak and Yeti and check-in.
12.30	Lunch at the hotel restaurant
14.30	Departure to Tribhuvan University, Kathmandu
15.00	Visit to the Laboratories and scientific forum with staff and researchers.
17.00	Tea/Coffee

19.00-21.00

Banquet

PREPARED

Thursday, 16th March 2023: Venue-Hotel Yak and Yeti, Kathmandu

Session 9 Chair: R. Gonzalez-Arrabal, Spain		
09.00-09.30	V. Malka Israel	Manipulating relativistic electrons with intense laser pulses - among the most innovative tools in modern sciences
09.30-10.00	B. Nagler USA	Measurement of ion temperature and electron-ion equilibration times in warm dense matter using inelastic X-ray scattering at X-ray free electron lasers
10.00-10.30	T. Ozaki Canada	Intense, highly monochromatic high-order harmonics from Gallium plasma
10.30-11.00	A. Bret Spain	Do collisionless shocks fulfil the Rankine-Hugoniot conditions?
11.00-11.30	Tea	
Session 10 Chair: S. Sebban, France		
11.30-11.50	M. Masek Czech Republic	Spectral line broadening of the Raman scattered waves in laser plasmas
11.50-12.10	B. Ramakrishna India	Kilotesla magnetic fields and resistive instabilities in laser solid interaction
12.10-12.30	V. D. Zvorykin Russia	Nonlinear compression of 20-ns uv KRF laser pulses into ps to sub-ns range for the shock-ignition ICF
12.30-12.50	R. Hedwig Indonesia	Food analysis by observing plasma characteristics from laser-induced breakdown spectroscopy technique
12.50-14.30	Lunch	
Session 11 Chair: J.J. Nakarmi, Nepal		
14.30-14.50	A. Fukuyama Japan	Recent progress in kinetic full-wave modelling in inhomogeneous plasmas
14.50-15.10	L.N. Mishra Nepal	An experimental study of the influence of non-thermal plasma on liquid interface
15.10-15.30	R.L. Singh Czech Republic	Measurement of he-like Rydberg series redistribution during ns-kJ laser-matter interaction
15.30-15.50	Dawei Liu P.R.China	Low-temperature plasma technology for the inactivation of pathogenic microbial aerosol
16.00-18.00	Tea and Poster session; Appendix 1	

Friday, 17th March 2023: Venue-Hotel Yak and Yeti, Kathmandu

Session 12 Chair: B. Nagler, USA		
09.00-09.30	A. Ciardi France	Astrophysics with magnetised laser plasmas
09.30-10.00	J. Freundlich France	Star formation across cosmic time
10.00-10.30	K. Falk Germany	Novel x-ray sources based on nano-structured targets for isochoric heating and probing of plasmas
10.30-11.00	E. Angelini Italy	Low-temperature plasma technology for the preservation of cultural heritage
11.00-11.30 Tea		
Session 13 Chair: W. Miloch, Norway		
11.30-11.50	Xuekai Pei P.R. China	Atmospheric pressure air plasmas for Nitrogen fixation
11.50-12.10	Baifei Shen P.R. China	Suppression of stimulated Raman scattering by angular incoherent light
12.10-12.30	B. Loughran UK	Automated control and optimisation of laser-driven ion acceleration
12.30-12.50	U. Cvelbar Slovenia	The origin and future of ionic wind
12.50-14.30 Lunch		
Session 14 Chair: Dawei Liu, P.R. China		
14.30-14.50	A. Singh India	Theoretical investigation of second harmonic generation of Laguerre-Gaussian laser beam in plasma
14.50-15.10	Punit Kumar India	Turbulence and chaos in quantum plasma
15.10-15.50	Brief presentations by young researchers.	
15.50-16.30	Concluding Session: Raju Khanal Scientific Summary Best poster awards Closing Remark; Tara Desai End of FPPT-10	

Poster session: Appendix 1

Poster No.	Author/s	Title of the poster
[1]	A. K. Shah, S. H. Dhobi, R. L. Sah, B. K. Thakur, K. R. Shrama, R. Shrestha and L. N. Mishra. Nepal	Study of functional groups present in plasma-activated saline water
[2]	Abdul Klam Khan and Roshan Chalise Nepal	Effect of gliding arc discharge plasma for the germination and production of oyster mushroom
[3]	Aman Bhatia, Manya Dawra and Arvinder Singh India	Self-focusing and terahertz generation of Bessel-Gaussian laser beam in plasma
[4]	Avash Kattel and Roshan Chalise Nepal	Germination and seedling growth rate enhancement of rice paddy seeds by using cold atmospheric pressure plasma
[5]	B. K. Thakur, L. N. Mishra, R. Shrestha, A. K. Sah and R. L. Sah Nepal	Study of basic plasma parameters of atmospheric pressure plasma jet (APPJ) by electrical method
[6]	Basanta Raj Dangal, Roshan Chalise and Lekha Nath Mishra Nepal	Effect of variation of presheath ions temperature on multicomponent magnetized plasma-wall transition
[7]	Bhujendra Nepali, Roshan Chalise and Raju Khanal Nepal	Effect of negative ion concentration and magnetic field on electronegative plasma sheath by using kinetic trajectory simulation
[8]	Bidhwan Belbase Nepal	Analysis of neutron yield from PF400 device by varying different pressure
[9]	Binita Sedhai, Asmita Shrestha, Rajesh Prakash Guragain and Deepak Prasad Subedi Nepal	Effect of plasma treatment on the seed germination and seedling growth of radish (<i>Raphanus sativus</i>)
[10]	Claudia Riccardi, Alessandra Polissi, Cecilia Piferi, Matteo Daghetta, Priscilla Pasutto and Alessio Malacrida Italy	Air sanitation by surface dielectric barrier discharges
[11]	Salila Kumar Sethy and K. J. Sankaran India	Enhanced microplasma illumination of electrically conducting n+p co-ion implanted nanocrystalline diamond films

[12]	D. P. Subedi, R. Guragain and U. M. Joshi Nepal	Atmospheric pressure dielectric barrier discharge (APDBD) and its applications
[13]	Dipak Oli and Apsara Dulal Nepal	To study the physical properties of Bagmati, Sundarijal and distilled water sample before and after plasma treatment
[14]	G. K. Chhetri, R. P. Guragain, U. M. Joshi, and D. P. Subedi Nepal	Non-thermal atmospheric pressure plasma for mulberry silk fabric treatment
[15]	Hom Bahadur Baniya, Santosh Dhungana, Akhilesh Kumar Singh, Sabina Subedi, Neesha Kaucha, Rajesh Prakash Guragain and Deepak Prasad Subedi Nepal	Impact of cold atmospheric plasma treatment on physicochemical parameters of water samples
[16]	L. N. Mishra, R. Shrestha, A. K. Shah, R. L. Sah and B. K. Thakur Nepal	An experimental study of the influence of non-thermal plasma on liquid interface
[17]	M. Bhusal, M. Rai, S. Dahal, R. Sapkota, A. K. Shaha, R. L. Sah, R. Shrestha and L. N. Mishra Nepal	Study of functional group of plasma infused saline water using Fourier transform infrared spectroscopy
[18]	Manisha Rai, M. Bhusal, R. Sapkota, S. Dahal, A.K. Shah, R. L. Shah, R. Shrestha and L.N. Mishra Nepal	The study of FTIR spectrum on the DBD plasma treated lady finger seeds
[19]	Narendra Chaudhary, Lekha Nath Mishra and Roshan Chalise Nepal	Production, characterization and application of atmospheric rectangular dielectric barrier discharge in Nepali paper
[20]	Nisha Kaucha, Sabina Subedi, Hom Bahadur Baniya and Tika Ram Lamicchane Nepal	Characterization of cold atmospheric plasma: production of reactive species and its antibacterial properties
[21]	Num Prasad Acharya, Suresh Basnet and Raju Khanal Nepal	Effect of dust charge fluctuation in the magnetized dusty plasma sheath
[22]	Oat Bahadur Dhakal, Lekha Nath Mishra and Roshan Chalise Nepal	Circular dielectric barrier discharge for bacterial inactivation

[23]	P. Shrestha, S. K. Prajapati and R. Shrestha Nepal	Generation and characterization of touchable gas plasma jet for inactivation of prokaryotic and eukaryotic cells
[24]	Pooja Shrestha, Samjhana Dahal, Roshan Chalise, Lekha Nath Mishra and Raju Khanal Nepal	Plasma treatment effect on cauliflower germination, growth, and production using gliding arc discharge
[25]	Pradeep Karki, Suresh Basnet and Raju Khanal Nepal	Effect of electron impact ionization source term on magnetized plasma sheath
[26]	Prakash Kattel, Leela Pradhan Joshi and Roshan Chalise Nepal	Effect of atmospheric pressure plasma on hydro-thermally synthesized zinc oxide thin film
[27]	Proxy Kad, Vidisha Rana and Arvinder Singh India	Effect of dynamics of Hermite-Gaussian laser beam on THz generation in collisionless plasma
[28]	R. L. Sah, A. K. Shah, B. K. Thakur, R. Shrestha and L. N. Mishra Nepal	Breakdown of gas using dielectric barrier discharge at different pressures
[29]	R. Sapkota, S. Dahal, M. Rai, M. Bhusal, A. K. Shah, R. L. Sah, R. Shrestha and L. N. Mishra Nepal	Study of seedling growth of radish seed using dielectric barrier discharge at atmospheric pressure
[30]	R. Shrestha T. Niraula, M. Pokharel, P. Pandey, S. Bhattarai, S. Basukala, R. P. Guragain, D. P. Subedi and V. P. Shrivastava Nepal	Characterization and assessment of cold atmospheric pressure argon plasma jet for wound treatment
[31]	Rajesh Prakash Guragain, Hom Bahadur Baniya, and Deepak Prasad Subedi Nepal	Germination enhancement of radish (<i>Raphanus sativus</i>) and carrot (<i>Daucus carota</i>) seeds using dielectric barrier discharge (DBD)
[32]	Roshan Chalise, Bhagirath Ghimire and Raju Khanal Nepal	Enhancing agricultural productivity by atmospheric pressure plasma
[33]	Roshani Dahal, Lekha Nath Mishra and Roshan Chalise Nepal	Production, characterization and application of plasma for coriander seed germination

[34]	S. D. Jangale, M. A. Desai, S. A. Kamble, N. P. Ghodke, G. A. Deshpande, P. Yellurkar, S.D. Sartale, S.V. Bhoraskar and V. L. Mathe India	Thermal plasma treatment of coconut shells for the one-step synthesis of graphene-like structures and their electrochemical study
[35]	G. A. Deshpande, M. A. Desai, K. Deka, N. P. Ghodke and V. L. Mathe India	Thermal plasma processed manganese based hybrid oxide systems for supercapacitor applications.
[36]	Shalaka A. Kamble, Srikumar Ghorui, Dhruva Bhattacharjee, Sudha Bhoraskar and Vikas Mathe India	Thermal plasma processing of rare earth hexaborides for electron emission applications
[37]	S. Dahal, R. Sapkota, M. Rai, M. Bhusal, A. K. Shah, R. L. Sah, R. Shrestha and L. N. Mishra Nepal	Germination and seedling growth of spinach using cold plasma at atmospheric pressure
[38]	Sabina Subedi, Nisha Kaucha, Hom Bahadur Baniya and Tika Ram Lamichhane Nepal	Impact on physiochemical parameters of tap and well water samples by cold plasma treatments
[39]	Santosh Dhungana, Rajesh Prakash Guragain, Hom Bahadur Baniya and Deepak Prasad Subedi Nepal	Application of plasma activated water (PAW) generated from gliding arc discharge (GAD) on the enhancement of seed germination and growth of winter pea (<i>Pisum sativum</i>) austrian
[40]	Shradha Suman and K. J. Sankaran India	Microwave plasma-assisted nanostructured boron-doped diamond for electrochemical supercapacitors
[41]	Suman Aryal, Roshan Chalise, Suresh Basnet and Raju Khanal Nepal	Effect of atmospheric gliding arc plasma in sprouting of Nepali <i>kwati</i> beans
[42]	Suresh Basnet, Amit Patel, Shiva Bikram Thapa and Raju Khanal Nepal	Bohm sheath criterion and dust charge fluctuations for dusty plasma with electron emitting surface
[43]	Suresh Basnet, Rishi Ram Pokhrel and Raju Khanal Nepal	Characteristics of magnetized dusty plasma sheath with two ion species and q -nonextensive electrons
[44]	Teniza Bhujel Nepal	Soft X-ray yield with varying pressure in NX2 plasma focus device

[45]	Tingting An, Ping Yuan, Jianyong Cen, Simin Xue, Ruibin Wan and Hong Deng P.R.China	Temperature of natural ball lightning obtained by examination of the spectra
[46]	Devendra Raj Upadhyay, Suffian Mohamad Tajudin and Raju Khanal Nepal	Radiation shielding properties of lead free glass system: $75\text{TeO}_2-15\text{ZnO}-(10-x)\text{Nb}_2\text{O}_5-x\text{Gd}_2\text{O}_3$
[47]	Pramod Adhikari and Roshan Sunar Nepal	Natural radioactivity and hazard indices around mining area in South Lalitpur, Nepal

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