FLTPD XV

Frontiers in Low Temperature Plasma Diagnostics

https://www.fltpd2024.cz/

Conference center of the Academy of Sciences of the Czech Republic, Liblice Castle near Prague, April 28-May 2, 2024

The 15th Frontiers in Low Temperature Plasma Diagnostics (FLTPD XV) workshop will start soon at Liblice Castle according to the following schedule

	Sunday 28th April	Monday 29th April	Tuesday 30th April	Wednesday 1st May	Thursday 2nd May	(*) Thursday
7:00-8:15		Breakfast	Breakfast	Breakfast	Breakfast	7:00-8:30
8:15-8:30		Opening				
8:30-9:20		**Stancu**	**Nijdam**	**Belmonte**	**Schleitzer**	8:30-8:55
9:20-9:45		**Drag**	**Černák**	**Siby**	**Ivanović**	8:55-9:20
9:45-10:10		**Orel**	**Tsankov**	**Lafaurie**	**Magee**	9:20-9:45
10:10-10:40		Coffee break	Coffee break	Coffee break	Coffee break	9:45-10:25
10:40-11:30		**Gerakis**	**Ono**	**Toyoda**	**Delbosq**	10:25-10:50
11:30-11:55		**Simeni Simeni**	**Bílek**	**Kapran**	**Sadeghi**	10:50-11:15
11:55-12:20		**Gazeli**	**Busch**	**Kim**	Closure	11:15-12:00
12:20-12:30						
12:30-13:30		Lunch	Lunch	Lunch	Lunch	12:00-13:00
13:30-15:30		Informal discussions	Informal discussions	Excursion	Departures	13:00-14:00
15:30-16:00	On-site Registration	Coffee break	Coffee break			
16:00-16:50		**Ambrico**	**Golda**			
16:50-17:15		**Aceto**	**O'Brien**			
17:15-17:40		**van Helden**	**Wubs**			
17:40-18:30						
18:30-20:00	Welcome reception	Dinner	Dinner	Conference dinner		
20:00-22:00		Poster session A	Poster session B	Informal discussions		

Invited lectures	Topical lectures	Poster session

(*) The time table for Thursday is a little different from other days.

Accommodation and Welcome

The standard check-in time at the Castle Hotel Liblice is at 2 p.m. The hotel is classified as a four-star hotel and features a number of historical rooms in the main castle building equipped with historical furniture as well as modern rooms in the eastern and western wings of the complex. **The welcome reception will start on Sunday at 18:30 and its course will develop depending on the current weather.**

Current (Sunday, April 21) weather forecast for Sunday, April 28: 

Conference program

The scientific program will consist of morning and afternoon lecture blocks (Invited & Topical lectures) separated by coffee and lunch breaks. On Monday (April 29) and Tuesday (April 30) there will be poster sessions in the afternoon after the last block of lectures. Wednesday (May 1) afternoon/evening will be filled with a conference trip and dinner. The program for Thursday (May 2) morning will consist of Topical lectures.

Lectures

Invited lectures last 40 minutes (+ 10 minutes for discussion). Topical lectures last 20 minutes (+ 5 minutes for discussion). The suggested aspect ratio for presentation is 16:9. The suggested format for presentations is pptx or pdf; ppt and odp are also supported. At the speaker desk you will find a laptop and a wireless presenter with a laser pointer. Please bring a USB stick with your presentation well before your session starts. Your presentation will be safely deleted directly after the end of your session.


Main conference hall

Poster presentations

The recommended poster format is A0 in portrait orientation. Two poster sessions A and B are scheduled immediately after dinner on Monday and Tuesday. Please display your poster at the stand marked with the number assigned to your presentation well in advance. All presenters for Monday's Poster Session A are requested to withdraw their posters by Tuesday lunchtime at the latest to make room for Poster Session B.


Marble hall - Poster sessions

Excursion

The excursion on Wednesday afternoon will be a guide tour to **Chateau Mělník and Lobkowitz's wine cellars**. Archaeologists have discovered that grapevine have been cultivated in Mělník since the dawn of Czech history in the 9th century. The production of wine and its trade became an important activity of the local people in the Middle Ages. Below the Mělník Castle, there are three floors of extensive historical cellars with a size exceeding 1,500 m2, the foundations of which were built by Charles IV. The wine-making history of the House of Lobkowicz dates back to 1798 when they brought 6,000 seeds of Burgundy grapevine from France. The excursion will include guided tastings of Lobkowicz wines, which take place in the cellars of the castle. You will see here, among other things, original wooden barrels with beautiful carvings.




Conference dinner

The conference dinner is open to all registered participants, accompanying persons and sponsors. It will start on Wednesday at 18:30 and its organization and course will evolve depending on the current weather.

Leisure and relax

Opening hours of restaurant 11am - 10pm. The lobby bar is open daily until 11 p.m. The hotel wellness is open from Tuesday to Sunday (11:00 - 23:00). If you would like to use the castle's Wellness & Spa and other services reservation is required 24 hours in advance.

Other options for accompanying persons:

Lobeč Brewery - not only beer lovers will appreciate a visit to the technical monument of the Steam Brewery in Lobč near Mšeno, which has a tradition of brewing beer in the Kokořín region for 500 years. In 2009, the Ministry of Culture declared this brewery a monument and since 2013 it has been part of the European Route of Industrial Heritage (ERIH). The tour with tasting and a guide in Czech takes about 90 minutes.
Shooting range Byšice - the shooting range is located less than 2 km from the Liblice castle and offers the possibility of shooting with a shotgun at asphalt targets (American trap, Double trap, Universal trap, Skeet) or shooting from pellet guns up to a distance of 30 m.

Please contact the hotel reception for detailed information and reservation.

Jogging and walking

For lovers of jogging/walking, there are two trails (short and long) in the forest near the castle garden (entrance right behind the castle pond), along the perimeter of the **'Slatinná louka' nature reserve** (declared mainly for the protection of rare species of plants). The terrain is very waterlogged, with numerous canals crossing it. In the middle there is a vast marshy meadow with a few solitary trees, a valuable fragment of the original Polabian calcareous marshes with the occurrence of a number of rare plant species, especially orchids. Enjoy time in this place to calm your mind and sharpen your senses.

Nature reserve 'Slatinná louka'

Check-out and departures

Standard check-out time at the Liblice Castle Hotel is 11 a.m. We ask all conference participants to check-out during the last coffee break at the latest. The FLTPD XV agenda will end after the closing ceremony just before Thursday's lunch. Participants who have requested departure assistance via the online questionnaire (transfer to PRG airport or downtown Prague) please contact LOC staff desk for an update after lunch on Wednesday before leaving for the excursion.

Invited speakers

- **Paolo Francesco Ambrico (ISTP-CNR Bari, Italy)**
  Plasma Diagnostics: A Key to open the Plasma Agriculture blackbox?
- **Thierry Belmonte (University of Lorraine, CNRS, France)**
  Non-equilibrium plasmas produced under liquid by electric discharges
- **Alexandros Gerakis (Luxembourg Institute of Science and Technology, Luxembourg)**
  Non-resonant four wave mixing laser diagnostics for low temperature plasmas
- **Judith Golda (Ruhr-Universität Bochum, Germany)**
  Diagnostics for atmospheric pressure plasmas in plasma catalysis
- **Sander Nijdam (Eindhoven University of Technology, Netherlands)**
  Anatomy of a single positive streamer in air
- **Ryo Ono (The University of Tokyo, Japan)**
  Laser diagnostics of single-filament streamer discharge for numerical simulation validation
- **Gabi-Daniel Stancu (University Paris-Saclay, France)**
  Challenges of nonlinear fluorescence induced by conventional and novel lasers for plasma diagnostics
- **Hirotaka Toyoda (Nagoya University, Japan)**
  Angular distribution measurement of high-energy argon neutrals and ions incident on RF electrode of a capacitively-coupled plasma

Topical speakers

- **Domenico Aceto (ISTP-CNR Bari, Italy)**
  Laser Diagnostics in an Atmospheric Pressure, Plane-to-Plane Nanosecond Pulsed Diffused Dielectric Barrier Discharge
- **Petr Bilek (Institute of Plasma Physics CAS, Prague, Czech Republic)**
  Streamer-induced vibrational distribution functions of N_2 excited states at high E/N
- **Christian A. Busch (Ruhr University Bochum, Bochum, Germany)**
  From nanoseconds to milliseconds: State resolved CO_2 vibrational kinetics measured in a ns-APPJ
- **Mirko Černák (Masaryk University, Brno, Czech Republic)**
  Sub-nanosecond high-sensitivity discharge current measurements and their impact on the streamer breakdown theory
- **Vincent Delbosq (ICARE, Orléans, France)**
  High-frequency examination of charged-particle currents in low and high-power Hall thrusters
- **Cyril Drag (Ecole polytechnique, Palaiseau, France)**
  TALIF detection of atomic iodine produced in low-temperature plasmas or by laser photo-dissociation
- **Kristaq Gazeli (Université Sorbonne, Villetaneuse, France)**
  Enhancing the reliability of ps-TALIF and streak camera diagnostics for measurements of atomic densities in microplasmas
- **Jean-Pierre van Helden (INP, Greifswald, Germany)**
  Cavity ring-down spectroscopy of the spatial density distributions of argon excimers and H_2O_2 in cold atmospheric pressure plasma jets
- **Nikola V. Ivanović (University of Belgrade, Belgrade, Serbia)**
  End-on optical emission spectroscopy of neon spectral lines for estimation of the cathode sheath parameters of a Grimm-type glow discharge
- **Anna Kapran (Institute of Physics CAS, Prague Czech Republic)**
  Analysis of Sputtered Species Transport in High Power Impulse Magnetron Sputtering (HiPIMS) Discharge by means of magnetized QCM probe
- **Si-Jun Kim (Chungnam National University, Daejeon, South Korea)**
  Study on Arcing generated in a Capacitively Coupled Plasma: its evolution mechanism and influence on a capacitively coupled plasma

- **Victor Lafaurie (Ecole Polytechnique, Palaiseau, France)**
  Transient gradient pulsed nanosecond plasmas for the initiation of a detonation wave: plasma characterisation with OES and O-TALIF
- **Ryan Magee (University of York, York, UK)**
  Measuring negative ion yield and work function from phosphorus doped diamond, boron doped diamond, and graphite in deuterium plasmas
- **Casey P. O'Brien (University of Notre Dame, Notre Dame, USA)**
  Multi-Modal Operando Diagnostics of Low Temperature Plasma Catalysis
- **Inna Orel (Ruhr University Bochum, Bochum, Germany)**
  Electric field measurements in Helium-Nitrogen atmospheric pressure RF jet by EFISH technique: first results
- **Nader Sadeghi (Retired from Univ. Grenoble Alpes, Grenoble, France)**
  Pressure broadening of helium and hydrogen lines measured in atmospheric pressure parallel plate DBD plasma
- **Jessica Schleitzer (Christian-Albrechts-University Kiel, Kiel, Germany)**
  Optically trapped microparticles in a dual-frequency capacitively coupled rf discharge
- **Abdoulaye Siby (Université Sorbonne Paris, Villetaneuse, France)**
  Simultaneous measurements of absolute atom densities and gas temperatures in moderate pressure hydrogen microplasma
- **Marien Simeni Simeni (University of Minnesota, Minneapolis, USA)**
  Picosecond Three-Wave Mixing for High-Sensitivity Number Density Measurements in Flows and Plasmas
- **Tsanko V. Tsankov (Ruhr-Universität Bochum, Bochum, Germany)**
  Radio-frequency modulation spectroscopy for spatially resolved electric field measurement
- **Jente R. Wubs (INP, Greifswald, Germany)**
  Demonstrating the accuracy of THz absorption spectroscopy, TALIF, and CRDS by a comparison of atomic oxygen densities

Poster Session A (Monday, 20:00-22:00)

A01 **Garima Arora (IPP, Praque, Czech Republic)**
Optical diagnostics and parameters of the diffused streamer to spark transition observed on water-air interface

A02 **Jan Čech (Masaryk University, Brno, Czech Republic)**
CaviPlasma: Diagnostics of sub-atmospheric pressure discharge generated in hydrodynamic cavitation in fast-flowing liquid

A03 **James Ellis (Oxford Instruments Plasma Technology, Bristol, UK)**
The Applicability of a Microwave Resonant Probe to the Plasma Processing of Silicon Oxide

A04 **Jiří Fujera (IPP, Praque, Czech Republic)**
Study of water aerosol-based multihollow surface DBD

A05 **Carolina Alejandra Garcia-Soto (Université Paris Saclay, Palaiseau, France)**
Investigation of CH_4 plasma using capillary discharges for Hydrogen production at atmospheric pressure

A06 **Paul Hiret (University of Basel, Switzerland)**
Spiral probe for magnetic sheath characterisation up to 0.5T

A07 **Tomáš Hoder (Masaryk University, Brno, Czech Republic)**
Relative radiative state densities analysis for plasma diagnostics in argon and carbon dioxide discharges

A08 **Petr Hoffer (IPP, Praque, Czech Republic)**
Kerr effect for detection of sub-nanosecond high voltage waveforms in water

A09 **Jung-Hyung Kim (Korea Research Institute of Standards and Science, Daejeon, Republic of Korea)**
Planar cutoff probe for real-time electron density measurement on wafer

A10 **František Krčma (Brno University of Technology, Czech Republic)**
Surface distribution of RONS generated by cold microwave plasma torches operating at atmospheric pressure

A11 **Jiří Fujera (IPP, Praque, Czech Republic)**
Surface DBD in moist air for nitrogen fixation: a comparative study of pulsed versus amplitude-modulated AC powered discharge

A12 **Anne Limburg (Eindhoven University of Technology, Eindhoven, The Netherlands)**
Mapping surface charge migration on solid dielectrics using the Pockels effect

A13 **Kirsty McKay (University of Liverpool, Liverpool, UK)**
Examining low-temperature atmospheric plasma polymerization for the reduction of parasitic currents in type-II superlattice devices

A14 **Arne Meindl (Max Planck Institute for Plasma Physics, Germany)**
High resolution spectroscopy for plasma conversion applications

A15 **Rofaida Nihed Mekki (Institute of Physics of the Czech Academy of Sciences, Prague, Czech Republic)**
Plasma Diagnostics for Optimized Treatment Methods using RF Electron Cyclotron Wave Resonance discharge.

A16 **Iryna Naiko (Institute of Physics of the Czech Academy of Sciences, Prague, Czech Republic)**
Ion energy distribution function measurement in hybrid HiPIMS+cathodic arc with carbon target

A17 **Pia-Victoria Pottkaemper (Ruhr-University Bochum, Germany)**
Influence of Nanosecond Pulsed Plasmas in Liquids on Copper Surfaces

A18 **Ibrahim Sadiek (INP, Greifswald, Germany)**
Quantum-state-resolved spectroscopy of non-thermal molecular plasmas using mid-infrared frequency combs

A19 **Viktor Schneider (Christian-Albrechts-University Kiel, Germany)**
Langmuir probe measurements in a dual-frequency capacitively coupled rf discharge

A20 **Zdeněk Turek (Charles University, Prague, Czech Republic)**
Analysis of curling probe in low-pressure hot tungsten cathode system

A21 **Lilia Uvarova (Charles University, Prague, Czech Republic)**
Collisional deexcitation and radiative lifetime of vibrationally excited HCO^+ and HOC^+ ions

A22 **Steijn Vervloedt (Ruhr University Bochum, Bochum, Germany)**
Ammonia synthesis at a plasma-surface interface

Poster Session B (Tuesday, 20:00-22:00)

B01 **Yanis Agha (Université Sorbonne Paris Nord, Villetaneuse, France)**
Propagation dynamics of fast ionization waves in He plasma jets using micrometric capillary tubes

B02 **Gabriel Flores Alfaro (Luxembourg Institute of Science and Technology, Luxembourg)**
Coherent scattering from ponderomotive-driven density perturbations for plasma diagnostics

B03 **Marcelo Baquero-Ruiz (EPFL, Lausanne, Switzerland)**
Picosecond two-photon absorption laser induced fluorescence measurements of atomic hydrogen in the RAID helicon device

B04 **Jean-Paul Booth (LPP CNRS, Palaiseau, France)**
Oxygen atom densities and kinetics in intermediate-pressure CCP discharges in O_2

B05 **Alexandra Brisset (EM2C, CNRS, Gif-sur-Yvette Cedex, France)**
Femtosecond TALIF for atomic radical detection at high pressure and cell calibration developments

B06 **Pavel Dvořák (Masaryk University, Brno, Czech Republic)**
Detection of free Ge atoms in discharges and flames by LIF

B07 **Nikita Lepikhin (Ruhr University Bochum, Bochum, Germany)**
A nanosecond sub-atmospheric pressure plasma jet: what can we control?

B08 **Konstantinos Giotis (Université Sorbonne Paris Nord, Villetaneuse, France)**
ICCD and streak imaging of a pulsed-driven surface dielectric barrier discharge at atmospheric-pressure ambient air

B09 **Anja Herrmann (DIFFER, Eindhoven, The Netherlands)**
Dual Thermocouple Probe for Mapping Nitrogen Radical density in ICP flow reactors

B10 **Arshad Hussain (Universit`a di Padova, Padova, Italy)**
Discharge-assisted LIBS for the analysis of hydrogen isotopes content in tungsten samples

B11 **Geoffrey Kreyder (LPP, Paris-Saclay, France)**
Nitrogen atoms ps-TALIF in atmospheric pressure nanosecond volume DBD plasma

B12 **Levin Krös (INP, Greifswald, Germany)**
Tunable laser absorption spectroscopy of all four Ar*($3p^5 4s$) states in a pulsed-driven dielectric barrier discharge with short gas-residence times

B13 **Luca Maestri (University of Trento, Trento, Italy)**
Time-resolved spectroscopic investigation of H_2/N_2 low-temperature plasmas

B14 **Tomas Medek (Masaryk University, Brno, Czech Republic)**
Measurement of hydrogen radical concentration in DBD ignited at different frequencies

B15 **Martina Mrkvičková (Masaryk University, Brno, Czech Republic)**
EFISH and LIF diagnostics of atomizers of tin hydride

B16 **Nikodin Nedić (University of Belgrade, Belgrade, Serbia)**
The Stark effect of argon Ar I 517.753 nm spectral line

B17 **Luka Rajacic (University of Belgrade, Belgrade, Serbia)**
Exploring the Dynamics of Laser-Induced Plasmas: A Two-Fluid Model Perspective

B18 **Nader Sadeghi (Retired from Univ. Grenoble Alpes, Grenoble, France)**
Measuring neon metastable density as low as a few 10^{10} m^{-3} by Cavity ringdown spectroscopy and treatment of the optical saturation problem

B19 **Zhan Shu (Ecole Polytechnique, Palaiseau, France)**
Absolute calibration of Xe/O cross-section ratio for TALIF in nanosecond capillary discharge: population distribution of the sub-levels of ground state O-atom in the afterglow

B20 **Tess van Eeden (DIFFER, Eindhoven, Netherlands)**
Studying non-thermal N_2/O_2 plasmas using in situ Raman spectroscopy

B21 **Yingjie Zhao (Luxembourg Institute of Science and Technology, Luxembourg)**
Development of the next-generation portable laser system for Coherent Rayleigh-Brillouin scattering

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Castle garden