

DOE LTP Centers and User Facilities 2022 Annual Meeting

Zoom password: LTP2022

** indicates virtual talks*

Friday, October 28, 2022			
	Time (Eastern)	Speaker	Title
8:15 – 8:30 am <u>Welcome</u> (Salon 1 & 2)			
	8:15 – 8:30	Mark Kushner	Introduction to Annual Meeting
8:30 – 9:50 am <u>Oral Session I: PICI</u> (Salon 1 & 2). Moderator: Aditya Lele			
1	8:30 – 8:50	Aditya Bhan*	Pathways and Timescales Involving Radical and Vibrationally Excited Species for NH ₃ Formation by Low Temperature, Atmospheric Pressure Plasma Catalysis
2	8:50 – 9:10	Selma Mededovic Thagard	Electrical Discharges in a Bubble Column Reactor: A Novel High Throughput Reactor Design for Water Treatment
3	9:10 – 9:30	Ali Mesbach	Towards Manufacture of Green Fertilizer via Low-Temperature Plasmas
4	9:30 – 9:50	Peter Bruggeman	Advancing Diagnostics for In Situ Measurements of Plasma Interactions with Complex Interfaces
9:50 – 10:10 am <i>Break</i>			
10:10 am – 12:10 pm <u>Oral Session II: PCRF</u> (Salon 1 & 2). Moderator: Brian Bayer			
1	10:10 – 10:30	Yevgeny Raitses	Princeton Collaborative Low Temperature Plasma Research Facility (PCRF): Status Update and New Solicitation of User Proposals
2	10:30 – 10:50	Sophia Gershman	Initiation of a Nanosecond Discharge in Water with Gas Bubbles
3	10:50 – 11:10	Willca Villafana*	EDIPIC-2D, an Open-source Versatile and Comprehensive Particle-In-Cell code for Low-Temperature Plasmas Modeling
4	11:10 – 11:30	Mikhail Shneider	On the Role of Osmotic Pressure in the Interaction of Plasma with Cells in a Physiological Saline
5	11:30 – 11:50	Yevgeny Raitses	Electron Beam Generated ExB Plasmas and Their Applications
6	11:50 – 12:10	Arthur Dogariu	Advanced Optical Diagnostics for Low Temperature Plasmas; Imaging Solvated Atoms with fs-TALIF
12:10 – 1:40 pm <i>Lunch</i>			

Friday, October 28, 2022 (continued)			
	Time (Eastern)	Speaker	Title
1:40 – 2:40 pm <u>Oral Session III: PACC</u> (Salon 1 & 2). Moderator: Joshua Morsell			
1	1:40 – 2:00	Igor Adamovich	Hybrid Ns Pulse / Capacitively Coupled RF Discharges for Plasma Chemistry and Plasma Catalysis
2	2:00 – 2:20	Yiguang Ju	Plasma Assisted Combustion and Manufacturing
3	2:20 – 2:40	Bruce Koel	Issues of Effectiveness and Energy Efficiency in Plasma Assisted Catalysis for Ammonia Synthesis
2:40 – 3:50 pm <u>Oral Session IV: SPRF</u> (Salon 1 & 2). Moderator: Andrew Powis			
1	2:40 – 2:50	Christopher Shaddix	Sandia's Plasma Research Facility (PRF): Status Update and New Solicitation of User Proposals
2	2:50 – 3:10	Christopher Kliewer	Nonlinear Optical Diagnostics Laboratory for Low-Temperature Plasma Assisted Chemistry
3	3:10 – 3:30	Lucas Beving	How Sheath Properties Change with Gas Pressure: Modeling and Simulation
4	3:30 – 3:50	Jonathan Frank	Imaging of Methyl Radical and Hydrogen Peroxide in Pulsed Plasmas by Photofragmentation Laser-Induced Fluorescence
3:50 – 4:00 pm Break			
4:00 – 4:50 pm Poster Session I (Salon 3 & 4)			
4:50 – 5:40 pm Poster Session II (Salon 3 & 4)			

Saturday, October 29, 2022			
	Time (Eastern)	Speaker	Title
8:40 – 10:20 am <u>Oral Session V: PICI</u> (Salon 1 & 2). Moderator: Veda Gajula			
1	8:40 – 9:00	Gottlieb Oehrlein	Study of Surface Interactions for Plasma Catalytic Nitrogen Oxidation
2	9:00 – 9:20	Steven Shannon	Surface Ionization Wave Propagation: Surface Permittivity and Capacitance Effects
3	9:20 – 9:40	Brian Bentz	Tomographic Optical Imaging of a Pulsed Atmospheric Pressure Plasma Jet
4	9:40 – 10:00	Igor Adamovich	Characterization of Plasmas in Contact with a Liquid Water Surface
5	10:00 – 10:20	Mark Kushner	Atmospheric Pressure Plasma Interactions with Channels and Embedded Particles
10:20 – 10:40 am Break			
10:40 – 11:20 am <u>Oral Session VI</u> (Salon 1 & 2)			
	10:40 – 11:20	Mark Kushner	Review of DOE BRN on Plasmas for Microelectronics
11:20 am – 12:20 pm Group Discussion (Salon 1 & 2)			

Poster Session I. Friday, October 28, 4:00 – 4:50 pm

	Presenter	Title
1	Christopher Burger	Plasma Assisted Chemical-Looping Combustion: Low-Temperature Methane and Ethylene Oxidation with NiO
2	Ning Liu	Sensitive and Single-shot OH and Temperature Measurements by Femtosecond Cavity Enhanced Absorption Spectroscopy
3	Keegan Orr	Laser Induced Fluorescence Measurements of Vibrationally Excited Oxygen Produced by Recombination of O Atoms
4	Caleb Richards	CO ₂ Dissociation in Ns Pulse and “Hybrid” Ns-RF Discharge Plasmas
5	Andrew Powis	LTP-PIC, an Open-source, Three-dimensional Kinetic Code for Modelling Low-temperature Plasmas on Modern Supercomputing Architectures
6	Veda Prakash Gajula	Enhancing the Perfluorooctanoic acid (PFOA) Degradation through Plasma Reactor Parametric Optimization
7	Michael Hinshelwood	Study of Plasma-catalyst Surface Interactions for Nitrogen Oxidation
8	Victor Miller	Cold Plasma Treatment of Biomass Can Enhance Nitrate Content and Reduce Ammonia Evaporation
9	Sai Raskar	Propagation of Surface Ionization Waves Over Dry and Wet Microchannels Exposed to an Atmospheric Pressure Plasma Jet
10	Tanubhav Srivastava	Falling Liquid Film Plasma Reactor – A New Approach to Study Temporally Resolved Plasma-Liquid Interactions
11	Jianan Wang	OH and Water Vapor Concentration Measurements Surrounding Water Droplets in an Atmospheric Pressure Plasma
12	Brian Bentz	Photoemission Induced Plasma Breakdown in Argon

Poster Session II. Friday, October 28, 4:50 – 5:40 pm

	Presenter	Title
1	Aditya Dilip Lele	Modelling the Effect of Surface Charging on Surface Reactions During Plasma Synthesis of NH ₃ Using DFT
2	Xingqian Mao	Effects of Inter-pulse Coupling on Nanosecond Pulsed High Frequency Discharge Ignition in a Flowing Mixture
3	Sai Raskar	Electric Field Distribution in a “Hybrid” RF Discharge with Ionization Generated by Ns Discharge Pulses
4	Madeline Vorenkamp	Plasma Assisted Deflagration to Detonation Transition in a Microchannel
5	Shurik Yatom	Interconnections Among Pulse and Plasma Properties and Chemical Reactions in Gas-liquid Plasma
6	Foluke (Jennifer) Ganzallo	Degradation of Poly- And Perfluoroalkyl Substances (PFAS) in a Plasma Spinning Disk Reactor
7	Kseniia Konina	Low-Temperature Plasma Interaction with Rectangular Microchannels
8	Jordyn Polito	Reaction Mechanisms for Atmospheric Pressure Plasma Treatment of Organic Molecules in Solution
9	Ketong Shao	Density Functional Theory Coupled with Microkinetic Model to Study Plasma-Catalyst Interactions in Ammonia Synthesis
10	Hamzeh Telfah	Kinetics of HO ₂ Radical Formation and Decay in Ns Pulse O ₂ -He Plasmas over a Liquid Water Surface
11	Brian Bayer	Reactor Setup and Experimental Methods to Deduce Reaction Pathways and Timescales in Atmospheric Pressure Plasma Catalysis
12	Joshua Morsell	Propagation of Surface Ionization Waves on Dielectric Substrates with Simple Patterns