

DOE LTP Centers and User Facilities 2023 Annual Meeting

Thursday, December 7, 2023			
	Time (Eastern)	Speaker	Title
8:15 – 8:30 am <u>Welcome</u> (Salon 1 & 2)			
	8:15 – 8:30	Mark J. Kushner	Introduction to Annual Meeting
8:30 – 10:10 am <u>Oral Session I: PICI</u> (Salon 1 & 2) <i>Co-chairs: Ning Liu and Willca Villafana</i>			
1	8:30 – 8:50	Steven Shannon	SIW Propagation over Complex Dielectric Topologies
2	8:50 – 9:10	Brian Bentz	Tomographic Optical Emission Spectroscopy of Surface Ionization Waves
3	9:10 – 9:30	Aditya Bhan	Pathways and Timescales for Oxidative and Reductive N ₂ Conversion by Low Temperature, Atmospheric Pressure Plasma Catalysis
4	9:30 – 9:50	Selma Mededovic Thagard	Exploring the Degradation Pathways of PFOA in a Radio Frequency Driven Atmospheric Pressure Plasma Jet
5	9:50 – 10:10	Peter Bruggeman	The Impact of Plasma-Liquid Interactions on Near-Interfacial Plasma Properties
10:10 – 10:30 am Break			
10:30 am – 12:10 pm <u>Oral Session II: PCRf</u> (Salon 1 & 2) <i>Co-chairs: Jennifer Ganzallo and Michael Hinshelwood</i>			
1	10:30 – 10:50	Yevgeny Raitse	Princeton Collaborative Low Temperature Plasma Research Facility (PCRf): Status Update and New Solicitation of User Proposals
2	10:50 – 11:10	Sophia Gershman	Plasma in Contact with Liquid and Solid Materials for Environmental and Bio Applications (PCRf User Projects)
3	11:10 – 11:30	Mikhail Shneider	Dielectric Permittivity of Cell Membranes in a Physiological Solution Interacting with Low-Temperature Plasma
4	11:30 – 11:50	Igor Kaganovich	Modeling of Modern Plasma Processing Reactors: Plasma Physics and Surface Chemistry
5	11:50 – 12:10	Willca Villafana	Modeling Low-Temperature Plasmas with EDIPIC-2D: An Open-Source and Versatile Particle-In-Cell Code
6	12:10 – 12:30	Shurik Yatom	Measurement and Reduction of Ar Metastable Densities by Nitrogen Admixing in Electron Beam-generated Plasmas
12:30 – 1:50 pm Lunch			

Thursday, December 7, 2023 (continued)			
	Time (Eastern)	Speaker	Title
1:50 – 2:50 pm <i>Oral Session III: PACC</i> (Salon 1 & 2). Chair: <i>Oluwatosin Ohio</i>			
1	1:50 – 2:10	Igor Adamovich	Ns Pulse and Hybrid Ns Pulse / RF Discharges for Plasma Catalysis and Plasma Fuel Reforming
2	2:10 – 2:30	Yiguang Ju	Plasma Assisted Combustion and Control of Plasma Dynamics for Manufacturing
3	2:30 – 2:50	Bruce Koel	Plasma-Assisted Catalytic Synthesis of NH ₃
2:50 – 3:00 pm <i>Group Photo</i>			
3:00 – 3:10 pm <i>Break</i>			
3:10 – 4:30 pm <i>Poster Session I</i> (Salon 3 & 4)			
4:30 – 4:40 pm <i>Break</i>			
4:40 – 6:00 pm <i>Poster Session II</i> (Salon 3 & 4)			
6:00 pm <i>End of Day 1</i>			
Friday, December 8, 2023			
8:30 – 9:50 am <i>Oral Session IV: PRF</i> (Salon 1 & 2). Co-chairs: <i>Mahreen Khan and Stanislav Musikhin</i>			
1	8:30 – 8:50	Shane Sickafoose	Sandia National Laboratories Plasma Research Facility (PRF)
2	8:50 – 9:10	Lucas Beving	Understanding Sheath Expansion in Flowing Plasmas
3	9:10 – 9:30	Christopher Kliewer	Nonlinear Optical Diagnostics Laboratory for Low-Temperature Plasma-Assisted Chemistry
4	9:30 – 9:50	Nils Hansen	Opportunities for Mass Spectrometry to Study Plasma-Assisted Chemical Transformations
5	9:50 – 10:10	Jonathan Frank	Imaging of Methyl Radical and Hydrogen Peroxide in Plasmas by Photofragmentation Laser-Induced Fluorescence
10:10 – 10:30 pm <i>Break</i>			
10:30 – 11:30 am <i>Oral Session V: PICI</i> (Salon 1 & 2). Chair: <i>Yerbolat Ussenov</i>			
1	10:30 – 10:50	Gottlieb Oehrlein	Plasma/Catalyst Contributions for N ₂ Oxidation and Dry Reforming of Methane
2	10:50 – 11:10	Igor Adamovich	Characterization of Plasma Jets Impinging on Dielectric and Metal Surfaces
3	11:10 – 11:30	Mark J. Kushner	Shaping Liquid Surfaces for Selective Plasma Interactions
11:30 – 11:40 am <i>Break</i>			
11:40 am – 12:40 pm <i>Group Discussion</i> (Salon 1 & 2).			
12:40 pm <i>End of Day 2</i>			

Poster Session I. Thursday, December 7, 3:10 – 4:30 pm

	Presenter	Title
1	Sonia Arumuganainar	Design of Ordered Mesoporous Oxides for Dielectric Barrier Discharge-assisted Catalysis of Ammonia Synthesis
2	Yevgeny Raitses	Electron Beam Generated Plasmas and Their Applications
3	Sai Raskar	Measurements of Excited Metastable Species and Ionization in a Nonequilibrium Heated Plasma Reactor
4	Brian Bentz	Mapping Electron Density with Laser-Collision Induced Fluorescence in the Budapest Capacitively Coupled Plasma Reference Cell
5	Ning Liu	Ferroelectrics-induced Surface Charge in Plasma
6	Shurik Yatom	Temperature Prediction in OES using Neural Networks
7	Brian Bayer	Availability and Reactivity of N ₂ (v) for NH ₃ Synthesis by Plasma Catalysis
8	Jordyn Polito	Computational Investigation of Mechanisms Leading to Reduction in Cell Viability by Changing Atmospheric Pressure Plasma Jet Configuration
9	Zhiyu Shi	Numerical Modeling of Plasma Assisted Deflagration to Detonation Transition in a Microscale Channel
10	Yerbolat Ussenov	Synthesis of Dust Nanoparticles in RF Discharge Plasma
11	Kseniia Konina	Atmospheric Pressure Plasma Jet Treatment of Polypropylene Materials with Non-Smooth Interfaces
12	Matthew Berry	Ammonia Generation in a “Hybrid” High Repetition Rate Ns Pulse / RF Discharge Sustained over a Catalytic Surface
13	Victor Miller	Data-Driven Dimensionless Number Discovery in a Nanosecond Pulsed Low Temperature Plasma
14	Matthew Hopkins	Electron-Field Instability: Excitation of Electron Plasma Waves by an Electric Field
15	Ketong Shao	Interpretable Attention-Based Transfer Learning for Plasma Catalysis
16	Hamzeh Telfah	Spatially- and Time-Resolved Measurements of HO ₂ Radicals in a Ns Pulse Atmospheric Pressure Plasma Jet

Poster Session II. Thursday, December 7, 4:40 – 6:00 pm

	Presenter	Title
1	Zihan Lin	Kinetic Modeling Analysis of Ar Addition to Atmospheric Pressure N ₂ -H ₂ Plasma for Plasma-Assisted Catalytic Synthesis of NH ₃
2	Sophia Gershman	The Role of Dielectric Properties of Biological Targets in non-thermal Plasma Treatment
3	Michael Hinshelwood	Study of Surface Interactions During Plasma Catalytic Dry Reforming of Methane
4	Grant Gorman	Particle-In-Cell Simulations of the Anode Sheath in DC Discharges
5	Xingqian Mao	Ignition Enhancement and NO _x Formation of NH ₃ /Air Mixtures by Non-equilibrium Plasma Discharge
6	Louis Hoffenberg	Molecular Dynamics Simulation of Vapor-Phase Nucleation of Metal Nanoparticles in a Reactive Plasma Atmosphere
7	Mahreen Khan	Improved Matching and Power Measurements in PICI reference RF Jet
8	Foluke (Jennifer) Ganzallo	Understanding Ionic Interactions and Distributions at Plasma-Liquid Interfaces and Their Influence on Liquid Phase Chemistry
9	Mackenzie Meyer	CH ₃ Radical Generation in Microplasmas for Up-Conversion of Methane
10	Yiteng Zheng	Nickel Nitride on Plasma-Assisted Ammonia Synthesis over Nickel Catalysts
11	Oluwatosin Ohiro	Microkinetic Model for Low-Temperature Plasma Assisted Catalysis by Fe and Ni Catalysts for Ammonia Synthesis
12	Sai Raskar	Spatio-Temporal Electric Field Distributions in an Atmospheric Plasma Jet Impinging on a Microchannel Array Surface
13	Keegan Orr	Measurements and Kinetic Modeling of O ₂ Vibrational Kinetics in O ₂ -Ar Mixtures Partially Dissociated by a Ns Pulse Discharge
14	Stanislav Musikhin	Studies of Catalyst Nanoparticles Synthesis Using Metal Arc Discharge: Experiment and Modeling
15	Tanubhav Srivastava	Femtosecond TALIF to Measure Atomic Sodium Densities in a Glow Discharge with NaCl Solution Electrode
16	James Trettin	Mechanistic Insights into Plasma-Assisted Catalysis by <i>Operando</i> DRIFTS