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The Princeton Collaborative Low Temperature Plasma Research Facility (PCRF) provides the entire scientific community access to specialized, world-class diagnostics, computational tools, and expertise in plasma physics.

# Welcome to 4th Annual PCRFB User Meeting, September 23-24, 2024

## September 23, 2024

9:30 AM	Yevgeny Raitses, Director/PI	PCRFB-PPPL	1st meeting day opening remarks
9:35 AM	Jon Menard Deputy PPPL Director for Research	PPPL	Welcome and Highlights about PPPL
10:00 AM	Nirmol Podder, Program Manager	DOE FES	Welcome remarks from DOE Fusion Energy Sciences
10:10 AM	Yevgeny Raitses	PCRFB-PPPL	Meeting Agenda

Session 1  
10:15am - 12:20pm

Igor Kaganovich (Co-PI)  
Willca Villafana

PCRF-PPPL Co-Chairs

10:15 AM	Aditi Roy	Siemens Technology USA	"In situ Detection of Plasma Induced Surface Interaction"
10:40 AM	Marien Simeni	University of Minnesota	"Development of Theory for Tin Microspheres-based 13.5 nm Soft X-ray Laser for Extreme Ultraviolet Lithography"
11:05 AM	John Foster	University of Michigan	"Probing the relationship between the electron spatial distribution, negative ions and the appearance of self-organized surface plasmas attachments in atmospheric pressure plasma"
11:30 AM	Pierre-Yves Taunay	United States Naval Academy	"Kinetic simulations of hollow cathode internal and plume plasmas"
11:55 AM	Uwe Kortshagen and Julian Held	University of Minnesota	"New model for the ion collection by cylindrical probes over a wide range of collisionality"

**Lunch Break 12:20pm - 1:00pm**

Session 2  
1:00pm - 2:50pm

Sophia Gershman

PCRf-PPPL Chair

1:00 PM	Ken Hara	Stanford University	<b>Invited Talk</b> "Kinetic effects of self-organization in partially magnetized plasma"
1:35 PM	Ali Mesbah	UC Berkley	"Investigating kinetic mechanisms of soot formation in plasma pyrolysis of methane via active learning"
2:00 PM	Selma Mededovic Thagard	Clarkson University	"Investigating the changes of the plasma-liquid contact area to improve the treatment performance of gas-liquid electrical discharge plasma reactors"
2:25 PM	Thomas C. Underwood	UT Austin	"Plasma Driven Pathways to Life on the Early Earth"

**Break 2:50pm - 3:00pm**

**PCRF Session**  
3:00pm - 4:15pm

**Michael Keidar,**  
PCRF Advisory Board Member

George Washington University **Chair**

3:00 PM

Yevgeny Raitses

PCRF

Report

3:15 PM

Shurik Yatom & Arthur Dogariu

PCRF

Diagnostics

3:35 PM

Igor Kaganovich

PCRF

Modeling

3:55 PM

Sophia Gershman

PCRF

Plasma Sources

**User Feedback**  
**Session #1**

4:15pm

**Bruce Locke,**  
PCRF User Group, Chair

**Danil Dobrynin**  
PCRF User Group

Florida State University

Drexel University

**Session Co-Moderator**

**Session Co-Moderator**

**Adjourn 5:00pm**

## September 24, 2024

9:30 AM	Yevgeny Raitses	PPPL	2nd meeting day opening remarks
9:35 AM	Erik Gilson, Head of Discovery Plasma Science	PPPL	Welcome from the PPPL Discovery Plasma Science Department

Session 4 9:50am - 12:05pm	Shurik Yatom	PCRF-PPPL	Session Chair
9:50 AM	Peter J. Bruggeman	University of Minnesota	"TaLIF measurements of sodium vapor in plasmas in contact with saline solutions"
10:15 AM	Maria Carreon	University of Arkansas	<b>Invited Talk "Electrifying Chemical Processes: Tailored Materials in Plasma Catalysis"</b>
10:50 AM	Amanda M. Lietz	North Carolina State University	"Impacts of Secondary Electron Emission on Radiofrequency Discharges Driven by Tailored Voltage Waveform"
11:15 AM	R. Mohan Sankaran, Davide Curreli and Robert Pierrard	Univ of Illinois at Urbana- Champaign	"Laser diagnostics of nitrogen fixation at a plasma-liquid interface"
11:40 AM	Lorenzo Mangolini	UC Riverside	"Characterization of low-temperature dusty plasma"

**Lunch Break 12:05pm – 1:00pm**

Session 5  
1:00pm - 3:05pm

Arthur Dogariu and  
Mikhail Shneider (co-PI)

Princeton  
University

Session Co-Chairs

1:00 PM	Junhwi Bak	Texas A&M	"Investigation of electrons in rotating plasmas"
1:25 PM	Azer Yalin and Victorien Blanchard	Colorado State University	"Spontaneous Raman Scattering and Optical Emission Spectroscopy Study of Dual-Pulse Laser Induced Plasma with Pre-Ionization"
1:50 PM	Kimberly Parker and Elijah Thimsen	Washington University at St. Louis	"Liquid ionic composition and plasma-phase species"
2:15 PM	Stephan Reuter and Denis Seletskiy	Polytechnique Montréal, Canada	"Highly sensitive small scale electric field detection in turbulent filamentary plasmas"
2:40 PM	Vandana Miller	Drexel University	"To investigate the influence of ionic changes produced in cell culture medium by dielectric barrier discharge on cell morphology and membrane permittivity"



User Feedback  
Session #2  
3:05pm

Bruce Locke, PCRFB  
User Group, Chair

Florida State  
University

Session Co-Moderator

Maria Carreon, PCRFB  
User Group

University of  
Arkansas

Session Co-Moderator

Danil Dobrynin, PCRFB  
User Group

Drexel University

Session Co-Moderator

**Adjourn 3:30-3:40pm**