



Recent Advances in Laser-Based Diagnostics for Combustion Research and Their Applications

August 5 - 6, 2017

Chairs

Christoph M. Arndt and Dina Hot

Mount Snow

89 Grand Summit Way

West Dover, VT, US

Conference Description

The Gordon Research Seminar on Laser Diagnostics in Combustion is a unique forum for graduate students, post-docs, and other scientists with comparable levels of experience and education to present and exchange new data and cutting edge ideas.

The latest trends and developments for laser-optical combustion diagnostics, as well as their impact for technical applications, will be discussed during this Gordon Research Seminar. Topics of the seminar will include (but are not limited to) well-established techniques for temperature, species and velocity measurements such as laser-induced fluorescence, particle image velocimetry and non-linear spectroscopy as well as novel technologies such as tunable diode lasers for absorption measurements and diagnostics for multi-phase flows.

Related Meeting



This GRS will be held in conjunction with the "Laser Diagnostics in Combustion" Gordon Research Conference (GRC). Those interested in attending both meetings must submit an application for the GRC in addition to an application for the GRS. Refer to the [associated GRC program page](#) for more information.

Conference Program

Saturday	
2:00 pm - 5:00 pm	Arrival and Check-in
3:30 pm - 3:45 pm	Introductory Comments by GRC Site Staff / Welcome from the GRS Chair
3:45 pm - 4:30 pm	Keynote Session: Diagnostic Challenges for Fundamental Understanding of Turbulent Combustion Discussion Leader: Christoph Arndt (German Aerospace Center (DLR), Germany)
3:45 pm - 4:15 pm	Robert Barlow (Sandia National Laboratories, USA) "Diagnostic Challenges for Fundamental Understanding of Turbulent Combustion"
4:15 pm - 4:30 pm	Discussion
4:30 pm - 6:00 pm	Poster Session
6:00 pm - 7:00 pm	Dinner

7:30 pm - 9:30 pm	<p>Soot and Spray Diagnostics / Mentorship Component: Career Panel</p> <p>Discussion Leaders: Zhiwei Sun (University of Adelaide, Australia) and Dina Hot (Lund University, Sweden)</p>
7:30 pm - 7:50 pm	<p>Robin Doddema (Eindhoven University of Technology, The Netherlands)</p> <p>"Spatially Resolved Species Concentration Measurements in a Pure Heptane and Heptane/Toluene Laminar Diffusion Flame Using Spontaneous Raman Scattering"</p>
7:50 pm - 8:00 pm	Discussion
8:00 pm - 8:20 pm	<p>Noud Maes (Eindhoven University of Technology, The Netherlands)</p> <p>"Unambiguous Formaldehyde Imaging in Diesel Sprays"</p>
8:20 pm - 8:30 pm	Discussion
8:30 pm - 8:50 pm	<p>Anand Makwana (The Pennsylvania State University, USA)</p> <p>"Application of LIF-LII to Investigate the Effects of Premixing on Aromatic Species and Soot Distributions in Laminar Co-Flow Flames at Atmospheric Pressure"</p>
8:50 pm - 9:00 pm	Discussion
9:00 pm - 9:30 pm	<p>Panel Discussion</p> <p><i>Career Perspectives and Insight in Peer Reviewed Publishing</i></p> <ul style="list-style-type: none"> • Christof Schulz (IVG, University of Duisburg-Essen, Germany) • Hope Michelsen (Sandia National Laboratories, USA) • Robert Barlow (Sandia National Laboratories, USA)

Sunday

7:30 am - 8:30 am	Breakfast
9:00 am - 11:00 am	Novel Approaches for Laser Diagnostics and Modelling Discussion Leader: Florian Zentgraf (Technische Universitaet Darmstadt, Germany)
9:00 am - 9:20 am	Christopher Abram (Princeton University, USA) "Development and Application of Methods for Characterizing Phosphor Particles for Flow Temperature Measurements"
9:20 am - 9:30 am	Discussion
9:30 am - 9:50 am	Andrew Williamson (University of Bremen, Germany) "Single-Shot Temperature Measurements in Flames by Time-Resolved Laser-Induced Breakdown Monitoring"
9:50 am - 10:00 am	Discussion
10:00 am - 10:20 am	Elin Malmqvist (Lund University, Sweden) "Demonstration and Applications of CW Laser Radar in Combustion Diagnostics"
10:20 am - 10:30 am	Discussion
10:30 am - 10:50 am	Timothy Wabel (University of Toronto, Canada) "Pseudo-PLIF Measurements Derived from DNS Data of a High-Ka Jet Flame"
10:50 am - 11:00 am	Discussion
11:00 am - 12:30 pm	Poster Session <i>Coffee will be served in the poster area from 11:00 am - 11:30 am</i>
12:30 pm - 1:30 pm	Lunch

1:30 pm - 2:30 pm	Application of Laser Diagnostics in Unusual Combustion Environments Discussion Leader: Timothy Haller (University of Texas at Austin, USA)
1:30 pm - 1:50 pm	Patrick Nau (German Aerospace Center (DLR), Germany) "Temperature and Concentration Measurements in a Gasifier with IR Absorption Spectroscopy"
1:50 pm - 2:00 pm	Discussion
2:00 pm - 2:20 pm	Jonathan Retter (University of Illinois at Urbana-Champaign, USA) "Spatially Correlated Temperature, Oxygen, and Fuel Measurements in a Plasma-Assisted Hydrogen Diffusion Flame by One-Dimensional fs/ps Rotational CARS Imaging"
2:20 pm - 2:30 pm	Discussion
2:30 pm - 3:00 pm	Evaluation Period <i>Fill in GRS Evaluation Forms</i>
3:00 pm	Seminar Concludes

Contributors

		
		



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