

INTERNATIONAL SYMPOSIUM ON PLASMA-ASSISTED COMBUSTION

CentraleSupélec, University Paris-Saclay, France
September 29 – October 1, 2025



Conference Program

Monday, September 29

Start of the day			
10:00	11:00	01:00	Registration
11:00	11:15	00:15	Welcome remarks by Officials
11:15	11:30	00:15	Introductory remarks by Laux
11:30	11:50	00:20	F1 Guerra-Garcia
11:50	12:10	00:20	F2 Shao
12:10	12:30	00:20	F3 Roger
12:30	14:00	01:30	Lunch break
14:00	14:20	00:20	I1 Opacich
14:20	14:40	00:20	I2 Tybora
14:40	15:00	00:20	I3 Dou
15:00	15:20	00:20	I4 Nomoto
15:20	15:40	00:20	I5 Braun
15:40	16:10	00:30	Coffee break
16:10	16:30	00:20	F4 Gravili
16:30	16:50	00:20	F5 Gillingham
16:50	17:10	00:20	F6 Du Garreau
17:10	17:30	00:20	F7 Salem
17:30	18:00	00:30	F8 Blanchard & Wang
18:00	20:00	02:00	Welcome reception
20:00	End of the day		

Tuesday, September 30

Start of the day			
09:00	09:20	00:20	H1 Leonov
09:20	09:40	00:20	H2 Rocamora
09:40	10:00	00:20	H3 Ombrello
10:00	10:20	00:20	H4 Gomez del Campo
10:20	10:50	00:30	Coffee break
10:50	11:10	00:20	H5 Starikovskaia
11:10	11:30	00:20	H6 Thawko
11:30	11:50	00:20	S1 Shanbhogue
11:50	12:10	00:20	S2 Perrin-Terrin
12:10	12:30	00:20	S3 Veran
12:30	14:00	01:30	Lunch break and Group picture
14:00	14:20	00:20	S4 Alkhalifa
14:20	14:40	00:20	S5 Vaysse
14:40	15:00	00:20	S6 De Giorgi
15:00	15:20	00:20	S7 Ambrazevicius
15:20	15:40	00:20	S8 Leygonie
15:40	16:00	00:20	S9 Campanella
16:00	18:00	02:00	Coffee break and Poster session in the library
18:00	20:00	02:00	Departure to Paris
20:00	23:00	03:00	Banquet
23:00	End of the day		

Wednesday, October 1

Start of the day			
09:00	09:20	00:20	TAI1 Faingold
09:20	09:40	00:20	TAI2 Kandel
09:40	10:00	00:20	P1 Mehdi
10:00	10:20	00:20	P2 Bizot
10:20	10:50	00:30	Coffee break
10:50	11:10	00:20	P3 Gablier
11:10	11:30	00:20	P4 Wang
11:30	11:50	00:20	P5 Basit Chandio
11:50	12:10	00:20	D1 Sun
12:10	12:30	00:20	D2 Bernard
12:30	14:00	01:30	Lunch break
14:00	14:20	00:20	D3 Grunbok
14:20	14:40	00:20	D4 Alicherif
14:40	15:00	00:20	D5 Vazquez
15:00	15:20	00:20	D6 Ravelid
15:20	15:40	00:20	D7 Shen
15:40	16:00	00:20	Coffee break in the library
16:00	17:30	01:30	Lab visits
17:30	End of the day		

Monday, September 29, 2025							
Welcome remarks by CNRS, INSIS and CentraleSupélec's representatives							
Monday, September 29, 11:00 - 11:15 (15 min)							

Introductory remarks by Christophe O. Laux (Laboratoire EM2C, CNRS, CentraleSupélec, Uni. Paris-Saclay)							
Monday, September 29, 11:15 - 11:30 (15 min)							

Fundamentals (1) - Plasma-Fluid interactions							
Monday, September 29, 11:30 - 12:30 (1 hour)							
Session chair: TBA							
<i>ID</i>	<i>Start</i>	<i>End</i>	<i>Duration</i>	<i>First author</i>	<i>Institution(s)</i>	<i>Title of presentation</i>	
F1	11:30	11:50	00:20	Guerra-Garcia	MIT	Laminar Flames as a Bridge Between Fundamental and Applied Plasma-Assisted Combustion Research	
F2	11:50	12:10	00:20	Shao	KAUST	Mutual Enhancement Between Plasma and Combustion: A Computational Study of Streamer Propagation and Flame Response	
F3	12:10	12:30	00:20	Roger	EM2C (CS)	Nanosecond Discharges, from Compressible Phenomena to Low-Mach Solvers	

Ignition enhancement							
Monday, September 29, 14:00 - 15:40 (1 hour 40 min)							
Session chair: TBA							
<i>ID</i>	<i>Start</i>	<i>End</i>	<i>Duration</i>	<i>First author</i>	<i>Institution(s)</i>	<i>Title of presentation</i>	
I1	14:00	14:20	00:20	Opacich	NRC & AFRL	Investigating the Impact of Voltage Modulation Pattern on Pulse Coupling for Bursts of Nanosecond Discharges	
I2	14:20	14:40	00:20	Tybora	Technion	Flow Velocity and Temperature Dependence of NPHFD Ignition in Ethylene–Air Mixtures	
I3	14:40	15:00	00:20	Dou	KAUST	Ignition of ultra-lean and highly-diluted hydrogen-air mixtures by bursts of nanosecond repetitively pulsed discharges	
I4	15:00	15:20	00:20	Nomoto	Kyoto Uni.	Effects of Fuel Diffusivity on Ignition Probability of Repetitively Pulsed Discharge Ignition in a Quiescent Mixture	
I5	15:20	15:40	00:20	Braun	AFRL	Arc Formation Across Large Electrode Gaps in a Linear Flow Tunnel Using Nanosecond-Pulsed High-Frequency Discharges	

Fundamentals (2) - Kinetics							
Monday, September 29, 16:10 - 18:00 (1 hour 50 min)							
Session chair: TBA							
<i>ID</i>	<i>Start</i>	<i>End</i>	<i>Duration</i>	<i>First author</i>	<i>Institution(s)</i>	<i>Title of presentation</i>	
F4	16:10	16:30	00:20	Gravili	VUB & EM2C (CS)	A novel phenomenological model using state-to-state data for the simulation of plasma-assisted flames	
F5	16:30	16:50	00:20	Gillingham	CERFACS & KTH	Plasma-Assisted Combustion modelling using a Semi-Analytical phenomenological approach: application to NH3-H2-Air ignition	
F6	16:50	17:10	00:20	Du Garreau	EM2C (CS)	Measurement of N2(C) and N2(B) quenching rate constants	
F7	17:10	17:30	00:20	Salem	CERFACS & ISAE-ENSMA	Phenomenological Modeling of Plasma Assisted H2 Combustion: PACMIND – H2	
F8	17:30	18:00	00:30	Blanchard & Wang	EM2C (CS)	A physics-informed analytical model of nanosecond discharges for large-scale simulations of plasma-assisted combustion	

Tues day, September 30, 2025

Supersonic combustion (1)

Tuesday, September 30, 09:00 - 10:20 (1 hour 20 min)

Session chair:	TBA
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<i>ID</i>	<i>Start</i>	<i>End</i>	<i>Duration</i>	<i>First author</i>	<i>Institution(s)</i>	<i>Title of presentation</i>
H1	09:00	09:20	00:20	Leonov	Uni. Of Notre Dame	Air-Fuel Mixing Improvement in Supersonic Flow by Electrical Discharges
H2	09:20	09:40	00:20	Rocamora	ONERA	Plasma-assisted supersonic combustion in LAERTE facility
H3	09:40	10:00	00:20	Ombrello	AFRL	Repetitively Pulsed Discharge Flameholding in Supersonic Flow
H4	10:00	10:20	00:20	Gomez del Campo	Specter Aerospace	An Overview of the Application of Plasma-Assisted Combustion to Complex Aerospace Systems

Supersonic combustion (2) & Flame stabilization (1)

Tuesday, September 30, 10:50 - 12:30 (1 hour 40 min)

Session chair:	TBA
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<i>ID</i>	<i>Start</i>	<i>End</i>	<i>Duration</i>	<i>First author</i>	<i>Institution(s)</i>	<i>Title of presentation</i>
H5	10:50	11:10	00:20	Starikovskaia	Polytechnique & ISAE-ENSMA	Nonequilibrium plasma for detonability enhancement: decrease of cell size and DDT distance
H6	11:10	11:30	00:20	Thawko	Technion & Princeton Uni.	Plasma-Assisted Deflagration to Detonation Control in a mesoscale channel
S1	11:30	11:50	00:20	Shanhogue	MIT	Impact of Nanosecond Repetitively Pulsed Discharge on Emissions and Dynamic Stability of CH4/NH3 flames
S2	11:50	12:10	00:20	Perrin-Terrin	EM2C (CS)	Influence of Electrode Position on Plasma-Assisted Combustion in a Model Aeronautical Combustor
S3	12:10	12:30	00:20	Veran	EM2C (CS)	Characterization of a plasma generated by nanosecond repetitively pulsed discharges in a swirled stabilized combustor

Flame stabilization (2)

Tuesday, September 30, 14:00 - 16:00 (2 hours)
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Session chair:	TBA
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<i>ID</i>	<i>Start</i>	<i>End</i>	<i>Duration</i>	<i>First author</i>	<i>Institution(s)</i>	<i>Title of presentation</i>
S4	14:00	14:20	00:20	Alkhalifa	KAUST	Enhancement Mechanisms of NRP Glow Discharges Applied to an Ammonia Hydrogen-Air Flame
S5	14:20	14:40	00:20	Vaysse	EM2C (CS)	LBO limit extension in hydrogen swirling flames by NRP discharges : A joint experimental and numerical investigation
S6	14:40	15:00	00:20	De Giorgi	Uni. of Salento	Swirl Angle-Dependent Effects of Corona Discharges on Flow Control and Flame Stabilization in Hydrogen-Based Fuel Combustion
S7	15:00	15:20	00:20	Ambrazevičius	LEI	Investigation of Nonthermal Plasma Assisted Combustion for Methane - Ammonia Mixtures in Non-Premixed Burner
S8	15:20	15:40	00:20	Leygonie	EM2C (CS)	Influence of plasma regimes on NH ₃ flame topology and NO _x emissions
S9	15:40	16:00	00:20	Campanella	STEMS	Non thermal plasma-assisted MILD combustion of ammonia in a tubular flow reactor: an experimental and numerical study

Coffee break and Poster session in the library

Tuesday, September 30, 16:00 - 18:00 (2 hours)

Wednesday, October 1, 2025**Thermoacoustic instability control & Pollutant emission reduction (1)**

Wednesday, October 1, 09:00 - 10:20 (1 hour 20 min)

Session chair: TBA

<i>ID</i>	<i>Start</i>	<i>End</i>	<i>Duration</i>	<i>First author</i>	<i>Institution(s)</i>	<i>Title of presentation</i>
TAI1	09:00	09:20	00:20	Faingold	ETH Zurich	Plasma control of thermoacoustic instabilities in hydrogen flames
TAI2	09:20	09:40	00:20	Kandel	TU Berlin	Impact of NRP Discharges on Flame Dynamic
P1	09:40	10:00	00:20	Mehdi	Aalto Uni. & Uni. of Salento	Numerical Investigation of Synergistic Effects of Non-Thermal Plasma and Water Vapor on Hydrogen Combustion and NO _x Emissions
P2	10:00	10:20	00:20	Bizot	Uni. of Florence	Low-order analysis of NRP discharges influence on operability and NOx emissions in a gas turbine combustion chamber

Pollutant emission reduction (2) & Advanced diagnostics (1)

Wednesday, October 1, 10:50 - 12:30 (1 hour 40 min)

Session chair: TBA

<i>ID</i>	<i>Start</i>	<i>End</i>	<i>Duration</i>	<i>First author</i>	<i>Institution(s)</i>	<i>Title of presentation</i>
P3	10:50	11:10	00:20	Gablier	EM2C (CS)	Temporal evolution of NO density after nanosecond repetitively pulsed discharges in plasma-assisted combustion
P4	11:10	11:30	00:20	Wang	EM2C (CS)	Numerical analysis of NOx formation in a turbulent flame stabilized by nanosecond plasma discharges
P5	11:30	11:50	00:20	Basit Chandio	Uni. of Salento & Aalto Uni.	Numerical Investigation of Plasma-Assisted Ammonia Combustion in a Recirculating Cyclonic Reactor Under MILD Conditions
D1	11:50	12:10	00:20	Sun	Lund Uni.	Spatiotemporal Evolution of ns-Plasma- Assisted Ammonia Combustion using Advanced Laser Diagnostics
D2	12:10	12:30	00:20	Bernard	Technion & Colorado State Uni.	Kinetic and spectroscopic characterization of ammonia decomposition in a plasma stirred reactor

Advanced diagnostics (2)

Wednesday, October 1, 14:00 - 15:40 (1 hour 40 min)

Session chair: TBA

<i>ID</i>	<i>Start</i>	<i>End</i>	<i>Duration</i>	<i>First author</i>	<i>Institution(s)</i>	<i>Title of presentation</i>
D3	14:00	14:20	00:20	Grunbok	Texas A&M	Planar and Volumetric Imaging of Combustion Environments Using Sodium and Nitric Oxide Laser-Induced Fluorescence
D4	14:20	14:40	00:20	Alicherif	KAUST	Electric Field Measurements in a Glow Discharge-Stabilized Flame Using E-FISH
D5	14:40	15:00	00:20	Vazquez	EM2C (CS)	Temperature Dynamics in N ₂ /CH ₄ Plasma via hybrid fs/ps CARS
D6	15:00	15:20	00:20	Ravelid	Lund Uni.	Single-shot TALIF imaging in an oxygen ns- plasma discharge
D7	15:20	15:40	00:20	Shen	Technion	Morphology and Optical Diagnostics of Nanosecond-Pulsed High-Frequency Discharges in High-Velocity Flows: Plasma Elongation, Inter-Pulse Coupling, and Ignition