INTERNATIONAL SYMPOSIUM ON PLASMA-ASSISTED COMBUSTION

CentraleSupélec, University Paris-Saclay, France

September 29 – October 1, 2025

Conference Program

Monday, September 29

	10:00		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

	09:00		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

	09:00		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 (Morning)

Registration

Monday, September 29, 10:00 - 11:00 (1 hour)

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

ID	*Start*	*End*	*Duration*	*First author*	*Institution(s)*	*Title of presentation*
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

ID	*Start*	*End*	*Duration*	*First author*	*Institution(s)*	*Title of presentation*
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

ID	*Start*	*End*	*Duration*	*First author*	*Institution(s)*	*Title of presentation*
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

Tuesday, September 30, 2025

Supersonic combustion (1)

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

Session chair: TBA

ID	*Start*	*End*	*Duration*	*First author*	*Institution(s)*	*Title of presentation*
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

ID	*Start*	*End*	*Duration*	*First author*	*Institution(s)*	*Title of presentation*
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	Shanbhogue	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)

Session chair: TBA

ID	*Start*	*End*	*Duration*	*First author*	*Institution(s)*	*Title of presentation*
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

Poster session in the library

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

ID	*Start*	*End*	*Duration*	*First author*	*Institution(s)*	*Title of presentation*
Poster1				Danieli	EM2C (CS)	Temperature and H_2O sensing in plasma-assisted ammonia flames via tunable laser absorption spectroscopy
Poster2				Popa	EM2C (CS)	Experimental characterization of a hydrogen/air flame stabilized with Nanosecond Repetitively Pulsed discharges
Poster3				Ghabi	SAFRAN AE	Combustion enhancement in Aeronautical Combustion Chambers with Nanosecond Plasma Discharges
Poster4				Billeau	Polytechnique	Advanced optical diagnostics for the characterization of ns-pulsed plasma jets
Poster5				Kreyder	Polytechnique	Microcombustion assisted by plasma
...				...	...	...

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

ID	*Start*	*End*	*Duration*	*First author*	*Institution(s)*	*Title of presentation*
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

ID	*Start*	*End*	*Duration*	*First author*	*Institution(s)*	*Title of presentation*
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

ID	*Start*	*End*	*Duration*	*First author*	*Institution(s)*	*Title of presentation*
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

Visits of the EM2C lab's PAC facilities

Wednesday, October 1, 16:00 - 17:30 (1 hour 30 min)