INTERNATIONAL SYMPOSIUM ON PLASMA-ASSISTED COMBUSTION

CentraleSupélec, University Paris-Saclay, France

September 29 – October 1, 2025

Note 1: Hereafter,

First author

Presenter

Note 2: Unless specified,

Presenter = Corresponding author

Monday, september 29

10:00	11:00	01:00	Registration (with coffee break)	
11:00	11:15	00:15	Official welcome address	
11:15	11:30	00:15	Introduction, 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 (former library)	
14:00	14:20	00:20	I1	Opacich
14:20	14:40	00:20	I2	Senior-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	17:40	00:30	F7	Blanchard & Wang
17:40	18:00	00:20	Information	
18:00	20:00	02:00	Welcome reception	

Tuesday, September 30

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 (former library)	
14:00	14:20	00:20	S4	Ambrazevičius
14:20	14:40	00:20	S5	Leygonie
14:40	15:00	00:20	S6	Alkhalifa
15:00	15:20	00:20	S7	De Giorgi
15:20	15:40	00:20	S8	Vaysse
15:40	16:00	00:20	Coffee break (former library)	
16:00	18:00	02:00	Poster session (former library)	
18:00	20:00	02:00	Departure to Paris	
20:00	23:00	03:00	Banquet	

Wednesday, October 1

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	Campanella
10:20	10:50	00:30	Coffee break	
10:50	11:10	00:20	P3	Wang
11:10	11:30	00:20	P4	Gablier
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 (former library)	
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	Conclusions	
16:00	17:30	01:30	Lab visits	

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Monday, September 29, 2025 (Morning)

10:00 - 11:00 (1 hour)	**Registration (with coffee break)**	Théâtre Rousseau (e.070), Bouygues Bldg
11:00 - 11:15 (15 min)	**Official welcome address**	Théâtre Rousseau (e.070), Bouygues Bldg
11:15 - 11:30 (15 min)	**Introduction, Christophe Laux**	Théâtre Rousseau (e.070), Bouygues Bldg

11:30 - 12:30 (1 hour) — **Fundamentals (1) - Plasma-Flow interactions** — Théâtre Rousseau (e.070), Bouygues Bldg

ID	*Start*	*End*	*Duration*	*Title of presentation*	*Institution(s)*
F1	11:30	11:50	00:20	**Laminar flames as a bridge between fundamental and applied plasma-assisted combustion research** **Carmen Guerra-Garcia**, A. Ghoniem, S. Shanbhogue, R. Dijoud, C. Pavan, S. Rao, M. Cherry	MIT
F2	11:50	12:10	00:20	**Mutual enhancement between plasma and combustion: A computational study of streamer propagation and flame response** **Xiao Shao**, D.A. Lacoste, H.G. Im	KAUST
F3	12:10	12:30	00:20	**Nanosecond discharges, from compressible phenomena to low-Mach solvers** **Edouard Roger**, P. Mariotto, C.O. Laux	Uni. Paris-Saclay

12:30 - 14:00 (1 hour 30 min)	**Lunch**	Former library, Eiffel Bldg

Monday, September 29, 2025 (Afternoon)

14:00 - 15:40 (1 hour 40 min) — **Ignition enhancement** — Théâtre Rousseau (e.070), Bouygues Bldg

ID	*Start*	*End*	*Duration*	*Title of presentation*	*Institution(s)*
I1	14:00	14:20	00:20	**Investigating the impact of voltage modulation pattern on pulse coupling for bursts of nanosecond discharges** **Katherine C. Opacich**, T.M. Ombrello	NASEM AFRL
I2	14:20	14:40	00:20	**Flow velocity and temperature dependence of NPHFD ignition in ethylene–air mixtures** **Weronika Senior-Tybora**, S. Shen, J.K. Lefkowitz	Technion
I3	14:40	15:00	00:20	**Ignition of ultra-lean and highly-diluted hydrogen-air mixtures by bursts of nanosecond repetitively pulsed discharges** **Jianyu Dou**, A. Jano Fong, E. Cenker, D.A. Lacoste	KAUST Saudi Aramco
I4	15:00	15:20	00:20	**Effects of fuel diffusivity on ignition probability of repetitively pulsed discharge ignition in a quiescent mixture** **Rikuma Nomoto**, Y. Akiyama, J. Hayashi, H. Kawanabe	Kyoto Uni.
I5	15:20	15:40	00:20	**Arc formation across large electrode gaps in a linear flow tunnel using nanosecond-pulsed high-frequency discharges** **Erik L. Braun**, K.C. Opacich, T.M. Ombrello	ISSI NASEM AFRL

15:40 - 16:10 (30 min)	**Coffee break**	In front of Rousseau, Bouygues Bldg

16:10 - 17:40 (1 hour 30 min) — **Fundamentals (2) - Kinetics** — Théâtre Rousseau (e.070), Bouygues Bldg

ID	*Start*	*End*	*Duration*	*Title of presentation*	*Institution(s)*
F4	16:10	16:30	00:20	**A novel phenomenological model using state-to-state data for the simulation of plasma-assisted flames** **Matteo Gravili**, G. Rekkas-Ventiris, S.Q.E. Wang, B. Fiorina, A. Bellemans	VUB Uni. Paris-Saclay
F5	16:30	16:50	00:20	**Plasma-assisted combustion modelling using a semi-analytical phenomenological approach: Application to NH3-H2-air ignition** H. Gillingham, T. Lesaffre, **Nicolas Barléon**	CERFACS KTH
F6	16:50	17:10	00:20	**Measurements of N2* quenching by combustion species** **Jean-Loup du Garreau de la Méchenie**, J.-B. Perrin-Terrin, C.O. Laux	Uni. Paris-Saclay
F7	17:10	17:40	00:30	**A physics-informed analytical model of nanosecond discharges for large-scale simulations of plasma-assisted combustion** **Victorien P. Blanchard, Stéphane Q.E. Wang**, N. Q. Minesi, B. Fiorina, C.O. Laux	Uni. Paris-Saclay

17:40 - 18:00 (20 min)	**Information**	Théâtre Rousseau (e.070), Bouygues Bldg
18:00 - 20:00 (2 hours)	**Welcome reception**	Espace capable (h.075), Bouygues Bldg

Tuesday, September 30, 2025 (Morning)

09:00 - 10:20 (1 hour 20 min) — **Supersonic combustion (1)** — Théâtre Rousseau (e.070), Bouygues Bldg

ID	*Start*	*End*	*Duration*	*Title of presentation*	*Institution(s)*
H1	09:00	09:20	00:20	**Air-fuel mixing improvement in supersonic flow by electrical discharges** **Sergey B. Leonov**	Uni. of Notre Dame
H2	09:20	09:40	00:20	**Plasma-assisted supersonic combustion in LAERTE facility** **Ancelin Rocamora**, J. Labaune, F. Tholin, A. Vincent-Randonnier, G. Pilla, C.O. Laux	ONERA Uni. Paris-Saclay
H3	09:40	10:00	00:20	**Repetitively pulsed discharge flameholding in supersonic flow** **Timothy Ombrello***, N. Tichenor, R. Leiweke, E. Hassan	AFRL Texas A&M Uni.
H4	10:00	10:20	00:20	**An averview of the application of plasma-assisted combustion to complex aerospace systems** **Felipe Gomez del Campo**, M. Nishihara, A. Chundru, I. Gulko, M. McCauley	Specter Aerospace

10:20 - 10:50 (30 min) — **Coffee break** — In front of Rousseau, Bouygues Bldg

10:50 - 12:30 (1 hour 40 min) — **Supersonic combustion (2) & Flame stabilization (1)** — Théâtre Rousseau (e.070), Bouygues Bldg

ID	*Start*	*End*	*Duration*	*Title of presentation*	*Institution(s)*
H5	10:50	11:10	00:20	**Nonequilibrium plasma for detonability enhancement: decrease of cell size and DDT distance** **Svetlana Starikovskaia**, M. Ali Cherif, V. Lafaurie, P. Vidal	Polytechnique ISAE-ENSMA
H6	11:10	11:30	00:20	**Plasma-assisted deflagration to detonation control in a mesoscale channel** **Andy Thawko**, D. Diskin, Y. Ju	Technion Princeton Uni.
S1	11:30	11:50	00:20	**Impact of nanosecond repetitively pulsed discharge on emissions and dynamic stability of CH4/NH3 flames** S. Shanbhogue, M. Cherry, C. Pavan, F. Gomez del Campo, C. Guerra-Garcia, **Ahmed F. Ghoniem**	MIT Specter Aerospace
S2	11:50	12:10	00:20	**Influence of plasma parameters on the LBO limit of a model aeronautical combustor** **Jean-Baptiste Perrin-Terrin**, H. Veran, P. Scouflaire, S. Ducruix, C.O. Laux	Uni. Paris-Saclay Safran AE
S3	12:10	12:30	00:20	**Dynamics of a plasma generated by nanosecond repetitively pulsed discharges in a swirled stabilized combustor** **Hugo Veran**, J.-B. Perrin-Terrin, P. Scouflaire, S. Ducruix, C.O. Laux	Uni. Paris-Saclay Safran AE

12:30 - 14:00 (1 hour 30 min) — **Lunch** — Former library, Eiffel Bldg

Tuesday, September 30, 2025 (Afternoon)

14:00 - 15:40 (1 hour 40 min) — **Flame stabilization (2)** — Théâtre Rousseau (e.070), Bouygues Bldg

ID	*Start*	*End*	*Duration*	*Title of presentation*	*Institution(s)*
S4	14:00	14:20	00:20	**Investigation of nonthermal plasma assisted combustion for methane-ammonia mixtures in non-premixed burner** **Ignas Ambrazevičius**, R. Paulauskas	LEI
S5	14:20	14:40	00:20	**Stabilization of NH3 flames using highly ionized nanosecond discharges** **Adrien P. Leygonie**, T.A.P. Brionne, P.G. Danieli, P. Scouflaire, C.O. Laux, N.Q. Minesi	Uni. Paris-Saclay
S6	14:40	15:00	00:20	**Enhancement mechanisms of NRP glow discharges applied to an ammonia-hydrogen-air flame** **Ammar M. Alkhalifa**, D.A. Lacoste	KAUST
S7	15:00	15:20	00:20	**Swirl angle-dependent effects of corona discharges on flow control and flame stabilization in hydrogen-based fuel combustion** **Maria Grazia De Giorgi**, S. Bonuso, P. Di Gloria, E.C. Karasu	Uni. of Salento
S8	15:20	15:40	00:20	**Lean blow-out limit extension in H2/air swirled flames by NRP discharges: A joint experimental and numerical investigation** **Nicolas Vaysse**, B. Kruljevic, J.-B. Perrin-Terrin, S.Q.E. Wang, D. Durox, R. Vicquelin, S. Candel, C.O. Laux, A. Renaud, B. Fiorina	Uni. Paris-Saclay

15:40 - 16:00 (20 min) — **Coffee break** — Former library, Eiffel Bldg

16:00 - 18:00 (2 hours) — **Poster session ➜ see last page** — Former library, Eiffel Bldg

18:00 - 20:00 (2 hours) — **Departure to Paris**

20:00 - 23:00 (3 hours) — **Banquet in Paris**

Wednesday, October 1, 2025 (Morning)

09:00 - 10:20 (1 hour 20 min) — **Thermoacoustic instability control & Pollutant emission reduction (1)** — Théâtre Rousseau (e.070), Bouygues Bldg

ID	*Start*	*End*	*Duration*	*Title of presentation*	*Institution(s)*
TAI1	09:00	09:20	00:20	**Plasma control of thermoacoustic instabilities in hydrogen flames** **Galia Faingold**, M. Impagnatiello, N. Noiray	ETH Zurich
TAI2	09:20	09:40	00:20	**Impact of NRP discharges on flame dynamic** **Pablo Kandel**, A. Ghani	TU Berlin
P1	09:40	10:00	00:20	**Numerical investigation of synergistic effects of non-thermal plasma and water vapor on hydrogen combustion and NOx emissions** **Ghazanfar Mehdi**, O. Kaario, Z.A. Shah, M. Basit Chandio, M.G. De Giorgi	Aalto Uni. Uni. of Salento
P2	10:00	10:20	00:20	**Non thermal plasma-assisted MILD combustion of ammonia in a tubular flow reactor: An experimental and numerical study** **Fabiana Campanella**, R. Ragucci, P. Sabia	STEMS

10:20 - 10:50 (30 min) — **Coffee break** — In front of Rousseau, Bouygues Bldg

10:50 - 12:30 (1 hour 40 min) — **Pollutant emission reduction (2) & Advanced diagnostics (1)** — Théâtre Rousseau (e.070), Bouygues Bldg

ID	*Start*	*End*	*Duration*	*Title of presentation*	*Institution(s)*
P3	10:50	11:10	00:20	**Numerical analysis of NOx formation in a turbulent flame stabilized by nanosecond plasma discharges** **Stéphane Q.E. Wang**, R. Gablier, Y. Bechane, C.O. Laux, B. Fiorina	Uni. Paris-Saclay Normandie Uni.
P4	11:10	11:30	00:20	**Exploiting flow dynamic recirculation induced by NRP discharges to reduce thermal NOx emissions in plasma-assisted flames** **Renaud Gablier**, C.O. Laux	Uni. Paris-Saclay
P5	11:30	11:50	00:20	**Numerical investigation of plasma-assisted ammonia combustion in a recirculating cyclonic reactor under MILD condition** M. Basit Chandio, Z.A. Shah, G. Mehdi, **Maria Grazia De Giorgi**	Uni. of Salento Aalto Uni.
D1	11:50	12:10	00:20	**Spatiotemporal evolution of ns-plasma-assisted ammonia combustion using advanced laser diagnostics** **Jinguo Sun**, Y. Bao, K. Zhang, A.A. Konnov, A. Ehn	Lund Uni. Princeton Uni.
D2	12:10	12:30	00:20	**Kinetic and spectroscopic characterization of ammonia decomposition in a plasma stirred reactor** M. Bernard, N. Druker, S. Shen, G. Faingold, B.C. Harrod, B.C. Windom, A.P. Yalin, **Joseph K. Lefkowitz**	Technion Colorado State Uni.

12:30 - 14:00 (1 hour 30 min) — **Lunch** — Former library, Eiffel Bldg

Wednesday, October 1, 2025 (Afternoon)

14:00 - 15:40 (1 hour 40 min) — **Advanced diagnostics (2)** — Théâtre Rousseau (e.070), Bouygues Bldg

ID	*Start*	*End*	*Duration*	*Title of presentation*	*Institution(s)*
D3	14:00	14:20	00:20	**Planar and volumetric imaging of combustion environments using sodium and nitric oxide laser-induced fluorescence** **Christopher J. Grunbok**, B.S. Leonov, R.B. Miles	Texas A&M Uni.
D4	14:20	14:40	00:20	**Electric field measurements in a glow discharge-stabilized flame using E-FISH** **Mhedine Alicherif**, E.S. Sugeng, Z. Yang, T.L. Chng, D.A. Lacoste	KAUST NUS
D5	14:40	15:00	00:20	**Temperature dynamics in N2/CH4 plasma via hybrid fs/ps CARS** **Thomas Vazquez**, L. Dakroub, M. Scherman, B. Tretout, C.O. Laux, S. McGuire	Uni. Paris-Saclay ONERA
D6	15:00	15:20	00:20	**Single-shot TALIF imaging in an oxygen ns-plasma discharge** J. Ravelid, J. Sun, V. Kornienko, A.A. Konnov, E. Kristensson, Y. Bao, **Andreas Ehn**	Lund Uni. Princeton Uni.
D7	15:20	15:40	00:20	**Morphology and optical diagnostics of nanosecond-pulsed high-frequency discharges in high-velocity flows: Plasma elongation, inter-pulse coupling, and ignition** S. Shen, W. Senior-Tybora, M. Bernard, **Joseph K. Lefkowitz**	Technion

15:40 - 16:00 (20 min) — **Conclusions** — Théâtre Rousseau (e.070), Bouygues Bldg

16:00 - 17:30 (1 hour 30 min) — **Visits of the PAC facilities** — Laboratoire EM2C, Eiffel Bldg

Poster session (former library) - Details		Former library, Eiffel Bldg
ID	*Title of poster*	*Institution(s)*
Poster1	**Temperature and H2O sensing in plasma-assisted ammonia flames via tunable laser absorption spectroscopy** **Pietro G. Danieli**, A.P. Leygonie, T.A.P. Brionne, P. Scouflaire, N.Q. Minesi	Uni. Paris-Saclay
Poster2	**Experimental characterization of a hydrogen/air flame stabilized with nanosecond repetitively pulsed discharges** **Thibault Popa**, J.-B. Perrin-Terrin, R. Gablier, C.O. Laux	Uni. Paris-Saclay
Poster3	**Low-order analysis of NRP discharges influence on operability and NOx emissions in a gas turbine combustion chamber** **Gaétan Bizot**, N. Barléon, T. Naess, A. Andreini	Uni. of Florence CERFACS
Poster4	**Plasma-assisted combustion: A pathway for future aero-engine combustion chambers** **Ahlem Ghabi**, H. Veran, C. Laux, S. Ducruix, G. Pilla, F. Collin-Bastiani, Y. Méry, B. Cuenot	Safran AE Uni. Paris-Saclay ONERA
Poster5	**Advanced optical diagnostics for the characterization of ns-pulsed plasma jets** **Jean-Baptiste Billeau**, D.V. Seletskiy, S. Reuter, S. Starikovskaia	Polytechnique PolyMontréal
Poster6	**Microcombustion assisted by plasma** **Geoffrey Kreyder**, C. Polese, L. Catoire, S.M. Starikovskaia	Polytechnique ENSTA
Poster7	**Plasma-enhanced ammonia/methane flames: A modular experimental platform for one-dimensional studies** **Maranda Cherry**, S. Shanbhogue, C. Guerra-Garcia	MIT
Poster8	**CAIPIRINH3A: Combustion of liquid ammonia, assisted by plasma discharges, as a novel and clean energy conversion method** **Svetlana Vankova**, S.M. Starikovskaia	Polytechnique
Poster9	**Nanosecond-pulsed plasma actuation on a 1D NH3/air laminar flame front** **Raphaël J. Dijoud**, C. Guerra-Garcia	MIT
Poster10	**Phenomenological modeling of plasma assisted H2 combustion: PACMIND-H2** **Ghadi Salem**, O. Gobins, F. Duchaine, V. Robin, N. Barleon	CERFACS ISAE-ENSMA
Poster11	**Pulsed DBD plasma driven multipoint ignition strategy to enhance DDT transition** **Ravi Patel,** X. Mi, S. Nijdam, J. van Oijen	TU Eindhoven
Poster12	**Towards calibration of picosecond TALIF** **Zhan Shu**, S. Latorre, J.-B. Billeau, J.-P. Booth, D.V. Seletskiy, S. Reuter, N.A. Popov, S.M. Starikovskaia	Polytechnique PolyMontréal Moscow State Uni.