

Joint Meeting of the Italian and Spanish Sections of The Combustion Institute 2026

48th Meeting of the Italian Section of the Combustion Institute

Dedicated to Prof. Amable Liñán

26 – 29 May 2026 | Villa Fondi, Piano di Sorrento (NA), Italy

Detailed Scientific Program with Social Events

FINAL PROGRAM

WELCOME

The organizing committee wishes to thank you for attending the *Joint Meeting of the Italian and Spanish Sections of The Combustion Institute 2026 (26 – 29 May 2026, Villa Fondi, Piano di Sorrento, Italy)*.

The Joint Meeting of the Italian and Spanish Sections of The Combustion Institute is aimed at giving the opportunity for exchange of expertise and discussion between scientists and technologists working in the field of combustion, in all its fundamental and applied aspects, with specific emphasis to low-emission and sustainable technologies. We hope you will have a productive meeting!

As for the last meetings, awards will be given to the best presentations or posters delivered by PhD students or young researchers during the meeting.

Oral presentations: 15 min (recommended 12 min +3 min for Q&A), Poster presentation format: A0 portrait (width: 841 mm, height: 1188 mm)

VENUE

Via Ripa di Cassano, 26, 80063 Piano di Sorrento NA
26-29 May, 2026

Italian Section of The Combustion Institute

Associazione Sezione Italiana del Combustion Institute

P.le V. Tecchio, 80 – 80125 Napoli – Italia

ASICI website: www.combustion-institute.it

E-mail: info@combustion-institute.it



SEIC

Sección Española del Instituto de Combustión

Royal Academy of Engineering (RAI)

C. Don Pedro, 10 - 28005 Madrid- España

E-mail: seinstitutocombustion@gmail.com

SUPPORTING INSTITUTIONS AND MEDIA PARTNERS



DI
C
Ma
PI



DIPARTIMENTO DI
INGEGNERIA
INDUSTRIALE



energies

an Open Access Journal by MDPI



sustainability

an Open Access Journal by MDPI

BRONZE AND CONTRIBUTING SPONSORS



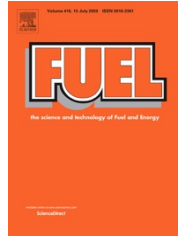
Contact Point

Dr. Giancarlo Sorrentino

E-mail: info@combustion-institute.it

SPECIAL ISSUES PUBLICATIONS

Selected papers from the conference proceedings will be published in Special Issue of the Flow, Turbulence and Combustion and Fuel Journals



Proceedings



Conference Co-Chairs

Dr. Mario Commodo (CNR-STEMS) – ITA

Prof. César Dopazo (UNIZAR) – ES

Steering and Organizing Committee

Dr. Giancarlo Sorrentino (CNR-STEMS) - ITA

Dr. Carmen Jiménez (CIEMAT) – ES

Prof. Giuseppe Langella (UNINA) – ITA

Dr. Daniel Martínez-Ruiz (UPM) - ES

Prof. Fabio Montagnaro (UNINA) – ITA

Prof. Francisco Tinaut (UPV) - ES

Prof. Mariano Sirignano (UNINA) – ITA

Prof. María U. Alzueta (UNIZAR) - ES

Dr. Gianluigi De Falco (CNR-STEMS) – ITA

Dr. Daniel Mira (BSC) - ES

Tuesday, 26 May 2026

18:00 - 20:00

Welcome Cocktail - BAR SYRENUSE

Wednesday, 27 May 2026

08:00 – 08:45

Registration

08:45 – 09:00

Opening Ceremony

09:00 – 09:45

Plenary Lecture – María U . Alzueta : **“Chemistry of ammonia and ammonia-carbon fuel mixtures”**
Chair: Carmen Jiménez

09:45 – 10:00

Break / Transfer

Time	Sala Congressi	Sala Maiolicata	Sala Pinacoteca
	Session I – Chair: Daniel Martínez Ruiz Hydrogen Flames and Instabilities	Session II – Chair: Javier Ballester Flame Dynamics: Instabilities, Ignition & Propagation	Session III – Chair: Sofia Galeotti Advanced technologies for Engines and Propulsion
10:00 – 10:15	[I-1] Differential and Preferential Diffusion Effects in Partially Premixed Hydrogen Combustion: To be or not to be considered for LES? <i>N. Swaminathan, C.D.K. Schumann, C.J. Li, J.C. Massey</i>	[II-1] The Effect of Time-Periodic Forcing on Intrinsically Unstable Flame Fronts <i>A. Bordini, A.J. Torregrosa, A. Broatch, J. García-Tiscar</i>	[III-1] Experimental Performance of a hydrogen-Fuelled Spark-Ignition Engine for Light-Duty Applications <i>F. Tinaut, R. Novella, J. Martín, J. Gómez-Soriano</i>
10:15 – 10:30	[I-2] Modelling Hydrogen-Air Autoignition in Confined Stagnation-Point Flows <i>F. Fruzza, S. Al Kassar, R. Lamioni, A. Attili, C. Galletti</i>	[II-2] Ignition by a concentrated Heat Source Near a Cold Wall Using a Chain-Branching Model: Flame Propagation above and below the Flammability Limit <i>R. Carmona, C. Jiménez, D. Fernández-Galisteo, V.N. Kurdyumov</i>	[III-2] Leveraging Innovative Gasoline Injection Technology to reduce Engine-Out Emissions in a High-Performance Engine <i>R. Ianniello, M. Pipicelli, F.C. Pesce, L. Gestri, C. Beatrice, G. Di Blasio</i>
10:30 – 10:45	[I-3] Finite-Rate and Manifold Based Simulations of Thermodiffusively Unstable Turbulent Premixed Flame <i>C. Matteucci, D. Cavaliere, D. Schintu, P.E. Lapenna, F. Creta</i>	[II-3] Nonadiabatic Strained Premixed Flames with Non-unity Lewis Numbers under Darcy's Law <i>P. Rajamanickam, J. Daou</i>	[III-3] Autoignition Prediction in a Dual-Fuel H2/Diesel CI Engine <i>D. Episcopo, S. Rossetti, E. Mancaruso, G. Saponaro, S.M. Camporeale, D. Laera</i>
10:45 – 11:00	[I-4] Scaling Laws Employing Numerical Dispersion Relations for Intrinsic Flame Instabilities in Hydrogen-Based Fuel Flames <i>T. Lehmann, T.L. Howarth, A. Attili, M. Gauding, H. Pitsch</i>	[II-4] A new propagation regime for flames with low fuel Lewis number below the flammability limit produced by a concentrated heat source: the influence of the curvature effect on the flame dynamics <i>V.N. Kurdyumov, C. Jiménez, D. Fernández-Galisteo</i>	[III-4] Novel Simulation Strategies for Homogeneous Reactivity Controlled Compression Ignition Engine Based on Chemical Kinetics <i>L.M. Grundl, P.K. Sundaram</i>
11:00 – 11:30	Coffee Break – Poster Session 1		

	Session IV – Chair: Alessandro Stagni Carbon-free fuels Turbulent Combustion	Session V – Chair: Rachele Lamioni Soot Formation and Carbon Nanomaterials	Session VI – Chair: Pierre Boivin Numerical Combustion & CFD Methods
11:30 – 11:45	[IV-1] Numerical Analysis of Lean Premixed Turbulent Hydrogen Flame Dynamics under High Strain <i>E. Böncü, E.B. Senel, M. Désor, W. Polifke, I. Langella</i>	[V-1] Scalable Functionalization of Carbon Black and Soot for Li-Ion Batteries <i>B. Visone, C. Russo, B. Apicella</i>	[VI-1] Extrapolation Capabilities of Data Driven Methods for Combustion LES <i>S. Sureshbabu, A. Andreini</i>
11:45 – 12:00	[IV-2] The Impact of Equivalence Ratio on Premixed Hydrogen-Air Flames Head-On Quenching and Noise Generation <i>N. Misceo, F.G. Schiavone, S.M. Camporeale, D. Laera</i>	[V-2] From Gas-Phase Chemistry to Heterogeneous Carbon Deposition: Validation of a Kinetic Framework for Light Hydrocarbon Pyrolysis <i>L. Giardini, L. Pratali Maffei, A. Cuoci, A. Frassoldati, T. Faravelli, M. Pelucchi</i>	[VI-2] Extending Tabulated Chemistry Methods toward Multiregime Combustion <i>A. Surapaneni, C. Guillamón, D. Mira</i>
12:00 – 12:15	[IV-3] Toward Improved LES Modeling of Lean Hydrogen-Air Turbulent Flames <i>D. Cavalieri, D. Schintu, C. Matteucci, P.E. Lapenna, F. Creta</i>	[V-3] Oxygen Functionalization of Soot Particles produced in Oxygenated Fuel Combustion: The Ethanol Spread Flame Case <i>V. Esposito, C. Russo, B. Apicella, M. Sirignano</i>	[VI-3] A Priori Assessment of Two-Mixture Fraction Tabulated Chemistry for DNS of MILD and Non-MILD Combustion <i>L. Frascino, M. Vivenzo, H. Chu, H. Pitsch</i>
12:15 – 12:30	[IV-4] Steam-Diluted H ₂ Rich-Quick-Mix-Lean Concept for Low-NOx Applications <i>V. De Lauso, I. Langella</i>	[V-4] High-Temperature Gas-Phase Functionalization of Soot in a Post-Flame Tubular Reactor: Oxidation and Amination <i>A. Caputo, B. Apicella, A. Maaoui, M.M. Oliano, C. Russo, M. Sirignano</i>	[VI-4] GPU-Accelerated Combustion Simulations for High-Speed Flows <i>D. Mira, J.M. Klein</i>
12:30 – 12:45	[IV-5] LES of a Non-Premixed NH ₃ /H ₂ /N ₂ Flame at Elevated Pressure Using Stochastic Fields <i>W. Liu, W.P. Jones</i>	[V-5] Surface Forces in Soot Evolution: Hamaker Constant and Structural Ordering <i>A. Iannotta, L. Basta, G. De Falco, F. Picca, P. Minutolo, A. D'Anna, M. Commodo</i>	[VI-5] Parallel in Iteration Robust Multigrid Solver for 2D Coupled Reactive Flow Systems <i>E. Tekin, M. Karaca, S.I. Martynenko</i>
12:45 – 13:00	[IV-6] Evaluation of the Diffusion Models on Hydrogen Combustion using Hybrid Lattice Boltzmann Method <i>M. Atci, M. Karaca, Z. Song</i>	[V-6] The effects of oxygen doping and partial premixing on the structure, soot, and propagation of a Planar Mixing Layer Flame (PMLF) <i>M.K. Ashour, C.P. Bjork, F. Carbone</i>	[VI-6] Incoming Flow Characteristics Modelling for Exit Boundary Condition improvement in Channel Flows <i>D. Rodriguez-Gutiérrez, R. Gómez-Miguel, E. Fernández-Tarrazo, M. Sánchez-Sanz</i>
13:00 – 14:30	Lunch Break – Women in Combustion		
14:30 – 15:15	Plenary Lecture – Francesco Creta: “Intrinsic Instabilities of Premixed Flames” Chair: Mauro Valorani		
15:15 – 15:30	Break / Transfer		
	Session VII - Chair: Maria Virginia Manna Ammonia Combustion & Low-Emission Technologies	Session VIII - Chair: Paola Giudicianni Flame Synthesis, Materials & Multi-Physics Phenomena including solar-assisted and CO ₂ Capture	Session IX – Chair: Timoteo Dinelli CFD and Reduced-Order Modeling for Advanced Combustion Systems
15:30 – 15:45	[VII-1] Thermo-Diffusive Effects Saturation in Turbulent Premixed Partially Cracked Ammonia Flames <i>R. Intranuovo, S. Zitouni, F.G. Schiavone, P. Bréquigny, C. Mounaïm-Rousselle, D. Laera</i>	[VIII-1] Carbon Coated Blue TiO ₂ Nanostructured Layers produced via One-Step Aerosol Flame Synthesis <i>A. Khalique, G. De Falco, N. Mushtaq, M. Commodo, P. Minutolo, L. Muller, H. Wiggers, C. Schulz, A. D'Anna</i>	[IX-1] Accurate Estimation of NOx Emission by Simplified and Detailed Mechanisms in a Coke-Oven-Battery <i>D. Ettore, T. Vela, M. Torresi, C. Sanchez Martinez, A. Vicentini, G. Rossiello</i>
15:45 – 16:00	[VII-2] Experimental Investigation of Cracked NH ₃ and NH ₃ -H ₂ Combustion in a Semi-Industrial Furnace under MILD Conditions <i>E. Rahmani, N. Cid, M.M. Kamal, A. Coussement, A. Parente, M. Lubrano Lavadera</i>	[VIII-2] High-Resolution Differential Mobility Analysis of NMC Nanoparticles for Battery Cathodes Synthesized by a Flat Premixed Droplet-Seeded Flame (FPDSF) <i>O.S. Fuhr, F. Khosravi, M.K. Ashour, F. Carbone</i>	[IX-2] A Novel CRN Approach to Model Mixing Non-Uniformities in Gas Turbine <i>R. Lamioni, A. Del Bono, L. Lucchese, R. Malpica Galassi, F. Fruzza, L. Tognotti, C. Galletti</i>
16:00 – 16:15	[VII-3] Experimental investigation of flashback limits in H ₂ /NH ₃ /air flames: Influence of burner size and material <i>R. Hernández-Sánchez, M. Sánchez Sanz</i>	[VIII-3] Evaluation of K ₂ CO ₃ -Impregnated Amberlite for CO ₂ Capture On-Board Ships <i>M. Balsamo, F. Hassan, F. Montagnaro, A. Erto</i>	[IX-3] Reduced order model for digital twin with application for on-line control of large-scale industrial furnace <i>F. Cenvinzo, P. Domingo, L. Vervisch, S. Nasser El Dine, A. Sayed Kassem, P.D. Nguyen</i>

16:15 – 16:30	[VII-4] Direct Numerical Simulation of High-Pressure Ammonia Combustion in a MILD-RQL Dual-Stage Burner <i>M. Cimini, D. Cecere, E. Giacomazzi</i>	[VIII-4] Solar Driven Chemical Looping Reforming of Methane Using γ -Al ₂ O ₃ -Supported Perovskite <i>R. Russo, S. Padula, C. Tregambi, M. Troiano, R. Solimene, G. Landi</i>	[IX-4] Predictive Modeling of a Bluff-Body Stabilized Turbulent Flame <i>X. Zou, A. Parente, S. Le Clainche</i>
16:30 – 17:00	Coffee Break – Poster Session 1		
17:00 – 18:30	ASICI Meeting & D'Alessio PhD Award		
18:30 - 20:30	Early Career Researcher Mixer - La Serra Sunset Bar		

Thursday, 28 May 2026

08:30 – 09:00	Registration
09:00 – 10:30	Special Session Dedicated to Prof. Amable Liñán
10:30 – 11:00	Poster Session 2
11:00 – 11:30	Coffee Break – Poster Session 2

Time	Sala Congressi	Sala Maiolicata	Sala Pinacoteca
	Session X - Chair: Carmela Russo Reaction Kinetics, Thermochemistry, Fuel Cells & Alternative Fuels	Session XI – Chair: Davide Laera Hydrogen and Gas Turbine Combustion: Burners, Emissions and Modelling	Session XII – Chair: Giovanni Battista Ariemma Spray & Droplet Combustion Including Aviation fuels and Cryogenic Systems
11:30 – 11:45	[X-1] Gibbs energy minimisation by using stochastic and geometrical optimisation methods for fuel reforming processes <i>M. Turhan Çoban, S. Yilmaz, K. Bayramoğlu, H. Atalay</i>	[XI-1] Experimental Investigation of Novel Non-Premixed Hydrogen Burner <i>S. Galeotti, A. Picchi, A. Ballotti, K. Donner, A. Jocher, A. Andreini</i>	[XII-1] Evaporation Dynamics and Soot Formation of HEFA-SPK and Jet A Fuel Droplets at Elevated Temperatures <i>Á. Muelas, T. Poonawala, J. Ballester</i>
11:45 – 12:00	[X-2] On the mixture-dependent nature of ammonia thermal decomposition: the role of bath gas and initial composition <i>T. Dinelli, B.Y. Belal, A. Elkhazraji, S.A. Alturaifi, A. Stagni</i>	[XI-2] Assessment of Hydrogen Efficiency Functions for Thickened Flame Model at Gas Turbine Relevant Conditions <i>M. Ballini Berlincioni, S. Castellani, M. Amerighi, R. Meloni, W. Song, A. Gruber, A. Andreini</i>	[XII-2] Flamelet-Based Modeling of High-Pressure Cryogenic Methane/Oxygen Flames <i>D. Schintu, D. Cavalieri, F. Creta, P.E. Lapenna</i>
12:00 – 12:15	[X-3] Refinement of a Lumped Kinetic Mechanism for Oxymethylene Ethers (OME1-5) <i>A. Guillonneau, T. Dinelli, A. Frassoldati, L. Pratali Maffei</i>	[XI-3] Mechanisms of Emission Reduction in a Hydrogen-Enriched Kerosene Spray Combustion <i>P. Rouco, K. Dave, A. Gangoli Rao, F. De Domenico, I. Langella</i>	[XII-3] Spray Characteristics of H ₂ -Enriched Jet A1 and HEFA-SAF/Jet A1 Blend in a Low-Swirl Combustor <i>E.A. Scelzo, S. Singh, F. Picca, M. Commodo, S.R. Harth, A. D'Anna, D. Trimis</i>
12:15 – 12:30	[X-4] Cross-Interactions in the Combustion Chemistry of NH ₃ /CH ₃ OH/H ₂ Blends <i>A. Ruiz-Gutiérrez, I. de Diego, M.U. Alzueta</i>	[XI-4] Direct numerical simulation of premixed hydrogen-air flames subject to thermo-diffusive effects in a fully developed turbulent channel flow at $Re_\tau = 530$	[XII-4] Gaseous Emission Response of Jet A-1 and HEFA-SAF Blends in a NexGen Burner: Equivalence-Ratio Effects, and Emission Indices <i>A. Muhammed Raji, M.B.A. Manescau, K. Chetehouna, L. Lamoot</i>

		A. Gruber, F. Rong, M. Schneider, H. Nicolai, C. Hasse	
12:30 – 12:45	[X-5] Theory-Driven Rate Rules: From 1- to Multiple-Ring Aromatics <i>N. Fanari, T. Faravelli, L. Pratali Maffei</i>	[XI-5] Two-Stage Reduction of H ₂ -Air Kinetics for CFD: Sensitivity Pruning and Multi-Objective Rate Optimization <i>G. Cinieri, N. Yalynskaya, M.B. Chandio, Z.A. Shah, G. Mehdi, O. Kaario, M.G. De Giorgi</i>	[XII-5] Towards a Real-Fluid UFPV Framework for Aero-Engine Sustainable Aviation Fuels <i>M.M. Molinari, D. Cavalieri, A. Franzese, M. Valorani, P.P. Ciottoli</i>
12:45 – 13:00	[X-6] Oxygen Transport Limitation Through the Ionomer Film in PEM Fuel Cells <i>P.L. Garcia-Ybarra, A. Garcia-Corral, S. Martin, J.L. Castillo</i>	[XI-6] A Numerical Investigation on the Thermal Characteristics Of A Multi-Hole Burner Fed With H ₂ -Enriched Mixtures <i>S. Yilmaz, R. Lamioni, F. Fruzza, K. Bayramoğlu, C. Galletti</i>	
13:00 – 14:15	Lunch Break – Poster Session 2		
14:15 – 14:30	Meet our Bronze Sponsor - Technikgruppe		
14:30 – 15:15	Plenary Lecture – Peyman Givi : “Computational Turbulent Combustion in the Age of the Second Quantum Revolution” Chair: César Dopazo		
15:15 – 15:30	Break / Transfer		
	Session XIII - Chair: Gianluigi De Falco Combustion Diagnostics & Experimental Characterization	Session XIV - Chair: Mario Sanchez Sanz Detonation, Explosions & Fire Safety	Session XV - Chair: Raúl Hernández Sánchez Solid Fuel Combustion and Biomass Thermochemical Conversion & Valorization
15:30 – 15:45	[XIII-1] Real Time Multi-Species Monitoring of Unstable Combustion Regimes via 4 Hz Raman Gas Analysis <i>R. Dal Moro, M.V. Manna, F. Melison, G.B. Ariemma, V. Rosati, V. Castro, L. Cocola, P. Sabia, L. Poletto</i>	[XIV-1] Observations on the scale effect in hydrogen/air explosions using high-fidelity numerical simulations <i>M. Bambauer, J. Hasslberger, M. Klein</i>	[XV-1] Eulerian-Eulerian CFD Modelling of Polyethylene Pyrolysis in Fluidized Beds for Plastic Thermochemical Recycling <i>X. Guan, A. Locaspi, E. Cipriano, R. Caraccio, A. Cuoci</i>
15:45 – 16:00	[XIII-2] Optical Characterization of Ammonia/Methane MILD Combustion in a Cyclonic Burner <i>V. Castro, G.B. Ariemma, P. Sabia, G. Sorrentino, R. Ragucci, M. de Joannon</i>	[XIV-2] High Fidelity Numerical Investigation of a Novel Air-Hydrogen Rotating Detonation Combustor Geometry with Outlet Restriction and Co-Axial Injection <i>Q. Delaunay, A. Bruce, M. Bohon, A. Andreini</i>	[XV-2] Tailoring Phenolic Content in Bio-Oils through Catalytic Fast Pyrolysis <i>A. Capasso, R. Migliaccio, A. Basco, B. Ciccone, G. Ruoppolo, M. Urciuolo, P. Brachi</i>
16:00 – 16:15	[XIII-3] Chemiluminescence from Hydrogen-Methane Laminar Premixed Flames: Experiments and Numerical Comparison <i>K. Zeb, A. Muelas, J. Ballester</i>	[XIV-3] A Phase-Change Model for Liquid-Fueled Detonation <i>L. Angelilli, V. Raman</i>	[XV-3] Kinetic Modelling of the Catalytic Effects of Potassium Salts on Cellulose Pyrolysis <i>J. Ren, R. Caraccio, A. Frassoldati, T. Faravelli, M. Pelucchi</i>
16:15 – 16:30	[XIII-4] Experimental Investigation of Plasma-Assisted Lean Hydrogen-Enriched Flames in a Swirl-Stabilized Burner <i>S. Bonuso, P. Di Gloria, V. Scaringi, M.G. De Giorgi</i>	[XIV-4] Bridging Small-Scale and Large-Scale Flame Spread in Halogen-Free Power Cables <i>A. Alonso, M. Lázaro, N. Generó, E. Pérez, E. Opazo, D. Alvear</i>	[XV-4] Thermochemical Valorization of Digestate via HTL Coupled with Co-Pyrolysis of Hydrochar and Straw <i>G. Marotta, F. Di Lauro, C.M. Grottola, D. Amato, M. Balsamo, F. Montagnaro, R. Ragucci, R. Solimene, P. Giudicianni</i>
16:30 – 17:00	Coffee Break – Poster Session 2		
	Session XVI - Chair: Francisco Tinaut Advanced Combustion technologies for Alternative and blended Fuels	Session XVII – Chair: Corinna Maria Grottola Biomass Gasification & Characterization	Session XVIII – Chair: Alvaro Muelas CO ₂ Capture, Reforming & Carbon-Neutral Technologies
17:00 – 17:15	[XVI-1] Numerical Assessment of Plasma-Radical Enrichment in Lean H ₂ /Air and NH ₃ /H ₂ /Air Rotating Detonation Engines <i>G. Cinieri, M.G. De Giorgi, P. Sabia, A. Andreini</i>	[XVII-1] TGA-FTIR Characterization of Olive Residue Gasification for Sustainable Energy Conversion <i>A. Gürz, V. Bhaskar Reddy, M. Karaca</i>	[XVIII-1] Na-Promoted Ru/Mg–Al Dual-Function Material for Integrated CO ₂ Capture and Methanation under Realistic Feed Conditions <i>M.E. Fortunato, E.M. Cepollaro, L. Lisi, S. Cimino</i>

17:15 – 17:30	[XVI-2] Impact of CH ₄ /H ₂ Blends on the Entrainment Ratio of Domestic Cooktop Burners <i>M. Galbusieri, F. Cozzi, A. Cuoci</i>	[XVII-2] Modeling of the Gasification of a Biomass Particle <i>R. Caraccio, C. Aresi, A. Frassoldati, T. Faravelli</i>	[XVIII-2] Non-Catalytic CO ₂ Reforming of Oxygenated Bio-Oil Compounds <i>M.V. Manna, D. Amato, G. Fabozzi, G.B. Ariemma, P. Sabia, R. Ragucci, M. de Joannon</i>
17:30 – 17:45	[XVI-3] Partially Premixed Swirling Turbulent Flames: How Far Are We from the BML Model? <i>S.S. Can, E. Böncü, E.M. Saday, M. Karaca, C. Allouis, A. Yozgatligil, I. Gökalp</i>	[XVII-3] Biomass Gasification in a Fluidized Bed Reactor Simulated with RN Approach <i>C. Aresi, N. Fanari, L. Pratali Maffei, R. Caraccio, A. Frassoldati, T. Faravelli</i>	[XVIII-3] Photocatalytic Dry Reforming of CH ₄ <i>F. Miccio, M. Boscherini, I. Zanoni</i>

20:00 – 22:00 **Social Dinner - CIRCOLO DEI FORESTIERI**

Friday, 29 May 2026

08:30 – 09:00 **Registration**

09:00 – 09:45 **Plenary Lecture – Roberto Solimene : “Fluidized beds for thermal energy storage and fuel production”**
Chair: Fabio Montagnaro

09:45 – 10:00 **Break / Transfer**

10:00 – 11:00 **Industrial Round Table – Moderators: Mariano Sirignano, Maria Grazie De Giorgi**
Panelists:
 - Damir Zibrat - Technikgruppe
 - Pedro Romero - ITP Aero
 - Cecilia Sebastiani - Babcock Wanson Group
 - Gianluca Rossiello - Termotecnica Industriale S.r.l.
 - Alessandro Della Rocca - Tenova

11:00 – 11:30 **Coffee Break**

Time	Sala Congressi	Sala Maiolicata	Sala Pinacoteca
------	----------------	-----------------	-----------------

	Session XIX - Chair: Davide Amato Hydrogen and Renewable Fuel Production, Gasification and Carbon Circularity	Session XX - Chair: Pasquale di Gloria Soot and Carbon Material Formation and Metal Combustion	Session XXI – Chair: Davide Cavalieri Propulsion and Engines including Afterburners & Supersonic Systems
11:30 – 11:45	[XIX-1] Hydrogen Production Enhancement in SMR Reactors: A Parametric CFD Analysis of Honeycomb Fin Design <i>M. Kapan, S. Yilmaz, K. Bayramoğlu</i>	[XX-1] Random Forest Identification of Soot Formation Indicators in an RP-3 Laminar Diffusion Flame <i>E. Bilge Çelik, F. Göçer, M. Karaca</i>	[XXI-1] Modeling Jet-A1 Combustion in Afterburners with an Optimized Two-Step Global Mechanism <i>G. Generini, S. Castellani, A. Andreini</i>
11:45 – 12:00	[XIX-2] Study of H ₂ Yield in Catalytic Fluidized Bed Gasification in Different Oxygen Atmospheres <i>F. Suzzi, L. Polchri, A. Gondolini, A. Fasolini, F. Basile, A. Sanson, F. Miccio</i>	[XX-2] The Impact of Fuel Structure and Flow on PAH Formation in Turbulent Flames <i>H. Shariatmadar, R.P. Lindstedt</i>	[XXI-2] Thermoacoustic Analysis of a Micro Gas Turbine Using Large Eddy Simulations <i>V. Albos, E.B. Porcelli, C. Vankelekom, S.M. Camporeale, D. Laera, W. De Paepe</i>

12:00 – 12:15	[XIX-3] Detailed Chemical-Kinetic Simulation of Hydrogen Generation Via Ammonia Thermal-Partial Oxidation in a Counter-Current Microchannel-Based Reactor <i>D. Fernández-Galisteo, E. Fernández-Tarrazo, C. Jiménez, V.N. Kurdyumov</i>	[XX-3] Secondary Aerosol Formation from Jet A-1 and HEFA-SAF Combustion in Partially Premixed Flames <i>F. Picca, E.A. Scelzo, G. Lombardi, M. Commodo, A. D'Anna</i>	[XXI-3] High-Fidelity Large Eddy Simulation of Supersonic Combustion in Hydrogen-Air Coflow Jets <i>F. Zanetti, M. Fratini, M. Cimini, D. Cecere, E. Giacomazzi, M. Bernardini</i>
12:15 – 12:30	[XIX-4] Domesticating CO ₂ : Is CCUS the Only Strategy? <i>I. Gökalp, A. Yozgatligil</i>	[XX-4] Effect of DME Addition on Soot Formation in Ethane Coflow Diffusion Flames <i>E. Bilge Çelik, A.E. Karataş, N. Eaves, M. Karaca</i>	[XXI-4] Flame Structure and Sub-Grid Turbulence-Chemistry Interaction in a Cavity-Stabilised Ramjet <i>S. Navarro-Martinez, T.-H. Un</i>
12:30 – 12:45	[XIX-5] Renewable Gas from Biomass Gasification and Methanation: Environmental Performance of a Bio-SNG Supply Chain in Southern Italy <i>V. Del Duca, R. Chirone, A. Coppola, A. Paulillo, R. Ruggiero, F. Scala</i>	[XX-5] A Model of a Horizontal Iron Aerosol Flame Attached to a Planar Holder <i>K. Mehrabi, F.J. Higuera</i>	[XXI-5] Thermodynamic Analysis of Hydrogen-Enriched Diesel Combustion Using a Single-Zone Engine Cycle Model <i>K. Bayramoğlu, S. Yilmaz, K.D. Kaya, T. Bayramoğlu</i>

12:45 – 13:00 **Closing Ceremony & Awards**

13:00 – 14:30 **Lunch Break – Farewell**



Detailed Program of the Work In Progress Poster Session

Poster Session 1 - Wednesday, 27 May 2026

NH ₃ /DMM CHEMISTRY IN A FLOW REACTOR <i>A. Ruiz-Gutiérrez, D. Manzano, M.U. Alzueta</i>	P1
IDLE OPERATION EFFECTS ON COMBUSTION STABILITY AND ENGINE DEGRADATION IN CNG ENGINES <i>N. Fonseca, A. Chico, N. Flores</i>	P2
SCALING AND SHAPE EVOLUTION OF TURBULENT H ₂ AND CH ₄ PREMIXED JET FLAMES <i>A. Maffei, T. L. Howarth, M. Cafiero, F. Cameron, M. Gauding, J. Beeckmann, H. Pitsch</i>	P3
AN INVESTIGATION ON THE EFFECT OF HYDROGEN PILOT INJECTION IN A PREMIXED SWIRL-STABILIZED AMMONIA FLAME <i>H. Degirmenci, J.M. Pastor, J.M. García-Oliver, F. V. Tinaut</i>	P4
EXPERIMENTAL CHARACTERIZATION OF THERMAL RUNAWAY PROPAGATION AND GAS EMISSIONS IN LARGE-FORMAT PRISMATIC LI-ION BATTERY MODULES <i>A. Gómez-Soriano, C. Mico, A. García, F. V. Tinaut</i>	P5
FLAME RETARDANT PLA/PBAT COMPOSITES: THE EFFECT OF CARBON DOTS, FLY ASH, HYDROCHAR, AND OTHER ADDITIVES <i>A. Bifulco, J. Passaro, I. Climaco, C. Imparato, G. Marotta, F. Di Lauro, M. Balsamo, F. Montagnaro, P. Russo, A. Aronne</i>	P6

EXPERIMENTAL AND NUMERICAL CHARACTERIZATION OF REALISTIC HYDROGEN LEAK-TO-EXPLOSION SCENARIOS <i>G. Foggiano, A. Cellier, S. Marragou, A. Guichard, T. Schuller, T. Poinso</i>	P7
SORPTION-ENHANCED STEAM METHANE REFORMING IN FLUIDIZED BED REACTORS: LITERATURE REVIEW AND RESEARCH OUTLOOK <i>S. Pesacane, B. Belaeff, F. Scala, F. Massa, A. Coppola</i>	P8
AMMONIA-ACETONE PYROLYSIS FOR LOW-EMISSION AVIATION <i>B. Rosales-Reina, M.U. Alzueta, M. Abián</i>	P9
NUMERICAL STUDY OF NEAR-WALL AUTOIGNITION IN H ₂ ENRICHED NATURAL GAS PREMIXED LAMINAR FLAMES <i>V. Latheesh, A. Cuoci</i>	P10
COUPLED SOLID-GAS DYNAMICS OF WILDLAND FIRE SPREAD <i>F. Cruz-Pérez, F. Veiga-López</i>	P11
BLENDING STRATEGIES FOR IMPROVING HEAVY OIL COMBUSTION: PENTANOL VS. TIRE PYROLYSIS OIL <i>T. Poonawala, Á. Muelas, J. Ballester</i>	P12
EXPERIMENTAL AND NUMERICAL INVESTIGATION OF GREEN FUELS COMBUSTION IN A SPRF COMBUSTOR <i>D. Bulleri, P. Palombella, R. Lamioni, M. Lubrano Lavadera, C. Galletti, A. Parente</i>	P13
INJECTOR-INDUCED EFFECTS ON HYDROGEN FLAME DYNAMICS IN COAXIAL SWIRL BURNERS <i>E. Ciuffoli, F. Cozzi</i>	P14
ASSESSMENT OF HVO CHEMICAL KINETIC MECHANISMS FOR MARINE GAS-TURBINE APPLICATIONS <i>D. Milia, E.B. Porcelli, D. Episcopo, S.M. Camporeale, D. Laera</i>	P15
SORET EFFECT IN H ₂ LEAN PREMIXED FLAMES UNDER ENGINE-LIKE CONDITIONS <i>G. Anaclerio, F. Fornarelli</i>	P16
ADJOINT, SENSITIVITY AND NON-MODAL ANALYSIS OF LOW-DIFFUSIVITY PLANAR DEFLAGRATIONS WITH ZEL'DOVICH-LIÑÁN-DOLD KINETICS <i>M. Napieralski, C. Huete, W. Coenen, V. N. Kurdyumov, C. M. Douglas, M. Sanchez-Sanz</i>	P17
HYDROGEN ENRICHMENT EFFECTS ON THERMOACOUSTIC INSTABILITIES IN A LEAN PREMIXED SWIRL-STABILIZED GAS TURBINE COMBUSTOR <i>M. Elgamal, A. Muelas, J. Ballester</i>	P18

Poster Session 2 - Thursday, 28 May 2026

A PRELIMINARY STUDY ON VORTICITY GENERATION IN LEAN HYDROGEN FLAMES <i>E.B. Porcelli, N. Misceo, S.M. Camporeale, D. Laera</i>	P19
FROM CELLULOSE TO CONTAMINATED BIOGENIC WASTE: ELUCIDATING HTL PATHWAYS UNDER THE INFLUENCE OF CONTAMINANTS <i>N. Catli, A. Amadei, M. Damizia, M.P. Bracciale, B. de Caprariis</i>	P20
COMBUSTION TOOLBOX: A REDUCED-ORDER FRAMEWORK FOR HIGH-SPEED REACTIVE FLOWS <i>A. Cuadra, M. Vera, C. Huete</i>	P21
INVESTIGATIONS OF HYDROGEN ENRICHED NATURAL GAS COMBUSTION IN DOMESTIC GAS BURNERS <i>E.M. Saday, Ş.S. Can, A. Yozgatlıgil, I. Gökalp</i>	P22
PLASMA-ASSISTED IGNITION OF AMMONIA UNDER MILD COMBUSTION-RELEVANT DILUTION CONDITIONS <i>M.B. Chandio, Z.A. Shah, G. Cinieri, G. Mehdi, O. Kaario, N. Yalynskaya, M.G. De Giorgi</i>	P23
SPARSE-SENSING-BASED CONTROL-VARIABLE RECONSTRUCTION FOR THERMOCHEMICAL STATE PREDICTION IN MILD COMBUSTION USING AN FGM-ANN APPROACH <i>V. Rosati, B. Cassese, G. Sorrentino, R. Ragucci, M. de Joannon</i>	P24
EXPERIMENTAL INVESTIGATION OF JET A-1 COMBUSTION UNDER DILUTED AND PREHEATED CONDITIONS <i>G.B. Ariemma, P. Sabia, G. Sorrentino, M. de Joannon, R. Ragucci</i>	P25
FLAME SPRAY PYROLYSIS SYNTHESIS AND CHARACTERIZATION OF TiO ₂ NANOPARTICLES USING ETHANOL <i>N. Mushtaq, A. Khalique, G. De Falco, A. D'Anna</i>	P26
OH* AND CH* CHEMILUMINESCENCE ANALYSIS IN CH ₄ /H ₂ COUNTERFLOW DIFFUSION FLAMES. EFFECT OF FUEL DILUTION <i>L. Pesapane, G. Sorrentino, A. Maffei, H. Pitsch, P. Sabia, V. Castro, R. Ragucci, M. de Joannon</i>	P27
PHYSICS-AWARE PCA FOR REACTIVE FLOW DIMENSIONALITY REDUCTION <i>T. G. Baffetti, A. Procacci, A. Parente</i>	P28
COMPARATIVE ASSESSMENT OF TABULATED AND FINITE-RATE CHEMISTRY MODELS IN HYDROGEN COMBUSTION SYSTEMS <i>R. Riccardi, R. Savino, G. Sorrentino, S. Vellecco, M. Visone</i>	P29
EXPERIMENTAL AND KINETIC MODELLING STUDY OF PYRIDINE IGNITION AT HIGH PRESSURE. <i>F. Rizzuto, M. Bardin, L. Pratali Maffei, T. Dinelli, A. Heufer, M. Pelucchi</i>	P30

ONE-STEP OXYGEN FUNCTIONALIZATION OF SOOT NANOPARTICLES IN A PARTIALLY PREMIXED COUNTERFLOW TRIPLE FLAME <i>V. Esposito, A. Caputo, M. C. Scognamiglio, G. Mascolo, A. Pirozzi, M. M. Oliano, C. Russo, M. Sirignano</i>	P31
PERFORMANCE OPTIMIZATION OF AN AUTOMOTIVE TURBOCHARGED SPARK IGNITION ENGINE OPERATING WITH AMMONIA/HYDROGEN BLENDS <i>L. Teodosio, F. Berni, G. Langella</i>	P32
EFFECT OF PHASE SEPARATION ON THE AGING BEHAVIOR OF SLOW PYROLYSIS BIO-OIL <i>D. Amato, P. Giudicianni, C.M. Grottola, M.V. Manna, G. Fabozzi, R. Ragucci</i>	P33
NUMERICAL MODEL FOR THE FOULING PROCESS IN A INDUSTRIAL GAS TURBINE BURNER OPERATED UNDER METHANE AND ADDITION OF DIOLEFINS <i>V. Castro, G. Babazzi, M. Cerutti, C. Romano</i>	P34
DEVELOPMENT OF A HEAVY-DUTY BURNER FOR LOW-BOILING-POINT LIQUID FUEL: OPTIMIZATION OF INJECTION STRATEGIES <i>D. Ettorre, L. Morandi, D. Carucci, T. Vela, M. Torresi, A. Saponaro, G. Rossiello</i>	P35
INFLUENCE OF AMIDE BACKBONE STRUCTURE ON THE THERMOCHEMICAL DEGRADATION BEHAVIOR OF POLYAMIDE 6 <i>K. Wu, A. Frassoldati, C. Pappijn, G. Bellos, M. Dunkle, T. Faravelli</i>	P36
AN EXTENDED FGM-DPM FRAMEWORK FOR NUMERICAL SIMULATION OF SPRAY COMBUSTION IN HOT VITIATED CROSSFLOW <i>B. Cassese, G. Sorrentino, M. de Joannon, R. Ragucci</i>	P37
3R_ESS_2ND LIFE PROJECT. FROM NAPLES TO THE FUTURE OF SUSTAINABLE ENERGY STORAGE <i>B. Visone, C. Russo, O. Senneca, R. Marialto, B. Apicella.</i>	P38