



European Fuel Cells and Hydrogen

PIERO LUNGI CONFERENCE

FINAL PROGRAM

September 17th-19th 2025
Capri / Italy

ORGANIZED BY



Università degli Studi
di Napoli Parthenope



Ente Nazionale per le Nuove
Tecnologie, l'Energia e lo Sviluppo Economico Sostenibile



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09:00	09:20	Welcome Viviana Cigolotti, Jack Brouwer, <i>Chairs of EFCH2 2025</i>
09:20	09:30	Opening Ceremony - The Italian Energy Framework and the role of Hydrogen Gilberto Pichetto Fratin, <i>Italian Minister of Environment and Energy Security</i>
09:30	09:45	The role of ENEA to support a viable hydrogen economy Giorgio Graditi, <i>General Director ENEA</i>
Session I - "Shaping the Future of Hydrogen Innovation"		
09:45	10:00	National hydrogen programmes and incentives Stefania Crotta, <i>General Director, Financial Programs and Incentives, Ministry of the Environment and Energy Security</i>
10:00	10:15	Driving Innovation in the EU Hydrogen Ecosystem: Priorities, Projects, and Pathways Mirela Atanaisu, <i>Head of Unit Operations and Communications, Clean Hydrogen Partnership</i>
10:15	10:30	Strategic Research Priorities for Hydrogen: A Roadmap Beyond 2030 Luigi Crema, <i>President of Hydrogen Europe Research</i>
10:30	10:45	Hydrogen Ecosystem Development: The Role and Status of ARCHES Adam Weber, <i>Chief Technology Officer, Alliance for Renewable Clean Hydrogen Energy Systems, ARCHES</i>
10:45	11:00	Critical Challenges and Opportunities in Building a Viable Hydrogen Market Jack Brouwer, <i>Director, Clean Energy Institute, University of California Irvine</i>
11:05	11:15	Q & A
11:15	11:45	COFFEE BREAK
Session II - "Unlocking the Hydrogen Market - What's Missing?"		
11:45	13:00	Roundtable discussion moderated by Maurizio Melis Marco Molica Colella, <i>Hydrogen Europe</i> Francesco Giacobone, <i>Fincantieri</i> Roy Weening, <i>Yokogawa</i> Alexandros Ouzounopoulos, <i>ACI Europe, Alliance for Zero Emission Aviation</i> Eiji Ohira, <i>European Representative Japan Hydrogen Association(JH2A)</i>
13:00	13:30	Closing remarks "Key Messages and Way Forward"
13:30	15:30	LUNCH

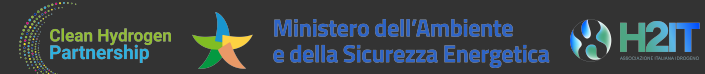
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		Session 1a: ROOM TEATRO	Session 1c: ROOM DONNA LUCIA
<p>ICE 2025 sessions listed in this program are open to EFCH2 2025 participants</p>		<p>ICE204/3 Combustion in Hydrogen Fueled Engines Chairpersons: Cosmin Dumitrescu & Fabrice Foucher & Silvia Marelli & David Serrano & Ezio Mancaruso</p>	<p>ICE505/1 Hydrogen and Fuel Cell Vehicle Applications Chairpersons: Gaetano De Paola & Antonio Sciarretta</p>
14:30	14:50	<p>Experimental Analysis of Enhanced Scavenging Efficiency in Hydrogen-Powered Internal Combustion Engines for Heavy-Duty Applications 2025-24-0056 <i>Christoph Schuette, Jonathan Borg, FPT Motorenforschung AG; Sergio Giordana, Nicola Rapetto, FPT Industrial S.p.A.</i></p>	<p>Potential and limitations of fuel cells powertrains for hydrogen FSAE vehicles Oral Only 25ICE-0044 <i>Lorenzo Martoccia, Alessandro D'Adamo, Università di Modena e Reggio Emilia</i></p>
14:50	15:10	<p>Study of a CI Engine for Off-Road Application in Diesel-Hydrogen Dual Fuel Configuration 2025-24-0055 <i>Raphaël Gelé, Christine Rousselle, Pierre Brequigny, Université D'Orleans; Ezio Mancaruso, Salvatore Rossetti, STEMS - CNR</i></p>	<p>Decarbonization of Urban Public Transport: Development and Final Assessment of a Hydrogen-fueled Hybrid Propulsion system Oral Only 25ICE-0051 <i>Ivan Arsie, Università di Napoli Parthenope; Michele Battistoni, Università degli Studi di Perugia; Roberto Cipollone, Università degli Studi dell'Aquila; Enrico Corti, University of Bologna; Federico Millo, Benedetta Peiretti Paradisi, Politecnico di Torino</i></p>
15:10	15:30	<p>Boosting System Architectures for Hydrogen Internal Combustion Engines Oral Only 25ICE-0219 <i>Andrea Gerini, Amalia Gouzounis, Mohsen Mirzaeian, FPT Industrial – PWT Engineering; Silvia Marelli, Federico Nannetti, Vittorio Usai, Università di Genova</i></p>	<p>Design and Simulation of a SOLar HYdrogen Powered Electric Vehicle Oral Only 25ICE-0061 <i>Gabriele Di Blasio, Michele Pipicelli, STEMS-CNR; Giacomo Silvagni, University of Bologna</i></p>
15:30	15:50	<p>Combustion Characteristics and Efficiency of a Turbocharged Hydrogen-Fueled Internal Combustion Engine Under Ultra-Lean, High-Load Conditions 2025-24-0048 <i>Sobhan Azizianamiri, Xavier Tautia, Alain Maiboom, Nicolas Perrot, Nantes Université, École Centrale Nantes, CNRS, LHEEA</i></p>	<p>A Numerical Study on the Impact of Capillary Pressure and Relative Permeability on Water Transport in Proton Exchange Membrane Fuel Cells 2025-24-0109 <i>Carmine Marra, Sebastiano Breda, Alessandro D'Adamo, Università di Modena e Reggio Emilia; Alessio Barbato, Alexandros Panagoulas, Siemens Digital Industries Software</i></p>
15:50	16:10	<p>Development of a Compact Hydrogen Engine for Commercial Applications 2025-24-0060 <i>Jonas Endres, Christian Beidl, Technische Universität Darmstadt; Silas Hofmann, HTM Hydro Technology Motors GmbH</i></p>	<p>Comparing Different Electrical Architectures for a Parallel PEMFC-Battery Hybrid Electric Lightweight Vehicle 2025-24-0110 <i>Massimo Sicilia, Davide Cervone, Pierpaolo Polverino, Cesare Pianese, Università di Salerno</i></p>
16:10	16:40	<p>Coffee Break</p>	

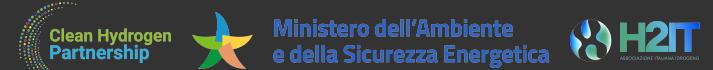
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	Session 2a:		Session 2c:		Session 2d:	
	ROOM TEATRO		ROOM DONNA LUCIA		ROOM ROTONDA	
<i>The sessions of the ICE 2025 conference, which are included in this program, are open to the EFCH2 2025 participants</i>	ICE 204/4 Combustion in Hydrogen Fueled Engines Chairpersons: Cosmin Dumitrescu & Fabrice Foucher & Silvia Marelli & David Serrano & Ezio Mancaruso		ICE 505/2 Hydrogen and Fuel Cell Vehicle Applications Chairprsons: Gaetano De Paola & Antonio Sciarretta		Hydrogen Transportation Session Chair: Carlo Carcasci	
16:40 - 17:00	Influence of Gas Pressure Levels on Injection Timing, Combustion Anomalies, and Emissions of a Hydrogen Gas Engine 2025-24-0053 <i>Raphael Rößlhuemer, Felix Fellner, Patrick Fitz, Maximilian Prager, Malte Jaensch, Technical University of Munich</i>		Effect of PEM Fuel Cell Technology Advancement on the Energy Efficiency of a Heavy-Duty Vehicle 2025-24-0111 <i>Beyza Dursun, Per Tunestal, Oivind Andersson, Lund University; Max Johansson, Lars Eriksson, Linköping University; Ulf aronsson, Volvo AB</i>		100 Numerical Analysis of Natural Gas-Hydrogen blending in Pipelines Gino Cortellesa <i>University of Cassino and Southern Lazio</i>	
17:00 - 17:20	Characterization of Exhaust Gas Recirculation Effects in a Hydrogen-Fueled 4-Cylinder Engine with Direct Injection 2025-24-0052 <i>Robin Schmelcher, Andre Casal Kulzer, IFS University of Stuttgart; Thomas Gal, Antonino Vacca, Marco Chiodi, FKFS; Peter Grabner, Kevin Gschiel, Graz University of Technology</i>		1D Electrochemical-Thermal Model of planar SOFCs for transport application Oral Only 25ICE-0125 <i>Marin Poujol, Nouhayla Toubout, Alain Charlet, Guillaume Colin, University of Orleans</i>		98 Experimental Study on the Effects of Hydrogen in Gas Distribution Customer Service Lines: Stratification in Gas Risers and Meter Aging Michele Francesconi <i>Università degli studi di Firenze</i>	
17:20 - 17:40	Lifting the Key Functional Figures Concerning Performance and Efficiency for 2nd Gen. H2 Engines for On- and Off-Highway Installations by Tailored Engineering Measures 2025-24-0049 <i>Thomas Koerfer, FEV Group GmbH; Pascal Zimmer, Zhengling Li, Stefan Pischinger, Moritz Lückerrath, TME RWTH Aachen University</i>		Life cycle assessment of different powertrain alternatives for a clean urban bus across diverse weather conditions Oral Only 25ICE-0201 <i>Benedetta Peiretti Paradisi, Federico Millo, Luciano Rolando, Matteo Prussi, Andrea Piano, Politecnico di Torino</i>		276 Assessment of Hydrogen Integration into the Italian Gas Transmission Network: Blending vs. Pure Hydrogen Transport Marco Cavana <i>Politecnico di Torino</i>	
17:40 - 18:00	Assessing H2ICE emissions using a dedicated exhaust analyzer Oral Only 25ICE-0240 <i>Jean-Baptiste Masurier, Alexis Tinchon, Saad Mahmood, Fabrice Foucher, Universite D'Orleans</i>				94 Optimal Gas Flow Model for Evaluating the Fluid Dynamic Feasibility of Transporting Hydrogen-Natural Gas Blends in National Networks Gabriele Guzzo <i>Università degli studi di Firenze</i>	
18:00 - 18:20	Closing Remarks				97 Effect of hydrogen blending on odorant measurement Gino Cortellesa <i>University of Cassino and Southern Lazio</i>	

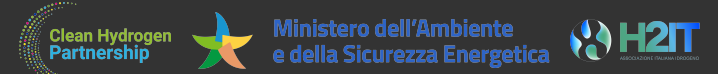
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	Session 3a: ROOM TEATRO		Session 3b: ROOM CAPRI		Session 3c: ROOM DONNA LUCIA		Session 3d: ROOM ROTONDA	
	Fuel Cells and Hydrogen for Aviation		High Temperature Fuel Cells I		Low Temperature Electrolysis I		Hydrogen Refueling Stations I	
	Session Chair: Jack Brouwer		Session Chair: Cesare Pianese		Session Chair: Adam Weber		Session Chair: Giulia Monteleone	
9:00 - 9:20	133	Degradation-Aware Design and Control of Fuel Cells for Hybrid Aeronautical Power Systems Paolo Aliberti <i>Università degli Studi di Salerno</i>	208	Development and Optimization of a Solid Oxide Fuel Cell System for Combined Heat and Power: The SO-FREE Project Giacomo Tamburrano <i>Università degli Studi Guglielmo Marconi</i>	170	Long-term performance assessment of Single-Cell and Short-Stack AEMWE configurations under Accelerated Stress Testing Carlotta Cosentini <i>Sapienza University of Rome</i>	306	KEYNOTE SPEECH: Fueling the Future: A University's Role in Advancing Hydrogen Mobility and International Collaboration David Blehman <i>Cal State LA</i>
9:20 - 9:40	176	PEM Fuel Cell Stack with Dead-Ended Anode for Electric Aviation: Efficient Operating with Low Degradation Jakob Trägner <i>Technische Universität Braunschweig</i>	136	Mathematical and numerical modelling of High-Temperature Solid Oxide Fuel Cells Giorgio Grossi <i>University of Cassino and Southern Lazio</i>	207	Scalable development of 3D LDH gas diffusion electrodes for AEM water electrolyzers Francesco Basile <i>Università di Bologna</i>	291	Impact of Subsidies on Hydrogen Refuelling Station Infrastructure Development Muhammad Atif Mahmood <i>University of Naples Parthenope</i>
9:40 - 10:00	228	Numerical Performance Comparison of Battery and PEM Fuel Cell Models for Lightweight Aircraft Applications Abolfazl Movahedian <i>University of Sannio</i>	172	Application of the Differential Impedance Analysis for Deeper Insight Into Solid Oxide Cells Degradation Blagoy Burdin <i>Trakia University, Bulgaria; IEES-BAS, Bulgaria</i>	226	On the development of doped cobaltite type electrocatalysts for OER in AMEWE Miryam Gulino <i>Sapienza University of Rome</i>	300	Optimization of Hydrogen Refueling Infrastructure for Heavy-Duty Vehicles Kwon Minseok <i>SNU</i>
10:00 - 10:20	132	Simplified Optimal Control Strategy for Low-Pressure Operation of PEMFC Systems Dominik Murschenhofer <i>German Aerospace Center (DLR)</i>	126	Impact of Ammonia Decomposition on SOFC Performance: A DRT Study Luigi Margutti <i>Università degli Studi di Perugia</i>	240	Anion Exchange Membrane Water Electrolysis with Poly(biphenyl piperidone co trifluoroacetophenone) random copolymers as Membranes Valentina Prusakova <i>Fondazione Bruno Kessler</i>	250	Technical and Economic Optimization Study of the Sizing and Operation of Key Components in Hydrogen Refueling Stations (HRS) Michele Martorelli <i>University of Calabria</i>
10:20 - 10:40	286	Solar and wind energy integration with energy load and hydrogen production: the case of a large-scale airport in Italy Gabriele Loreti <i>ENEA</i>			244	Advancing AEM Electrolysis: A Novel Single-Cell for Evaluating High-Performance Membranes and Electrodes Giulia Di Gregorio <i>Fondazione Bruno Kessler</i>	251	Development of Operational Optimization Models for Key Components in Hydrogen Refueling Stations (HRS) Matteo Genovese <i>University of Calabria</i>
10:40 - 11:00	Coffee Break							

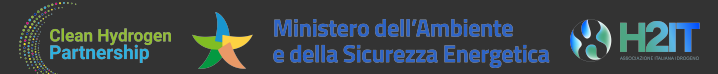
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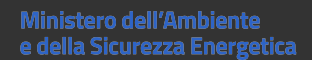


		Session 4a: ROOM TEATRO		Session 4b: ROOM CAPRI		Session 4c: ROOM DONNA LUCIA		Session 4d: ROOM ROTONDA	
		Fuel Cells for Maritime		High Temperature Fuel Cells II		Low Temperature Electrolysis II		Hydrogen Refueling Stations II	
		Session Chair: Rodolfo Taccani		Session Chair: Massimiliano della Pietra		Session Chair: Teo Martin		Session Chair: Matteo Genovese	
11:00	11:20	263	Dynamic modelling of sofc systems for hybrid maritime solutions <i>Massimo Rivarolo</i> <i>Università degli Studi di Genova</i>	120	Impact of bio-syngas contaminants on SOFC performance: experimental characterization and degradation model <i>Lucia Pera</i> <i>Politecnico di Torino</i>	96	High performance of a thin short-side-chain Aquivion® membrane for sustainable water electrolysis application <i>Antonino Salvatore Aricò</i> <i>CNR-ITAE</i>	295	Dynamic Modeling and Techno-Economic Optimization of Green Hydrogen On-Site Refueling Stations <i>Elio Simeoni</i> <i>Atena scarl</i>
11:20	11:40	121	Experimental analysis and control of a SOFC-Battery hybrid for use as powertrain on seagoing vessels <i>Daniele Fortunati</i> <i>German Aerospace Center (DLR)</i>	202	Performance analysis of solid oxide fuel cell fed with simulated gas produced by biomass gasification process <i>Maria José Escudero</i> <i>CIEMAT</i>	277	Electrochemical deposition of nife-layered double hydroxide layers for the anode catalyst in anion exchange membrane electrolyser <i>Rachmat Adhi Wibowo</i> <i>AIT Austrian Institute of Technology GmbH</i>	206	Design of a Zero-Emission Metal Hydride-based Refueling Station for H2-powered L6e Light-Duty Hybrid Vehicles <i>Marco Maggini</i> <i>University of Tuscia</i>
11:40	12:00	182	Towards Zero-Emission Shipping: SOFC-ICE Hybrid Propulsion for Maritime Decarbonization <i>Marta Gandiglio</i> <i>Politecnico di Torino</i>	186	Comparison of different fuel mixture for direct ammonia fuel cell <i>Michele Rizzi</i> <i>Fondazione Bruno Kessler</i>	174	Effect of operating conditions on proton exchange membrane electrolysis cell using computational fluid dynamics anaysis <i>Sihwan Yoon</i> <i>Seoul National University</i>	305	Sizing of small on-site hydrogen refueling stations: a modeling approach <i>Davide Lanni</i> <i>University of Cassino and Southern Lazio</i>
12:00	12:20	233	Techno-economic analysis of 10 MW SOFC powertrain system fed by hydrogen carriers in shipping <i>Aniello Cappiello</i> <i>University of Naples Parthenope</i>	281	Electrochemical Modelling of Dual-ion Effect in Molten Carbonate Fuel Cells <i>Juan Pedro Pérez Trujillo</i> <i>KTH Royal Institute of Technology</i>	191	On the effects of platinization of commercial titanium Porous Transport Layers in PEM water electrolysis cells <i>Elena Crespi</i> <i>Fondazione Bruno Kessler</i>	239	Evaluating Off-Grid and On-Grid Hydrogen Supply Scenarios for Refueling Infrastructure Deployment in Southern Italy <i>Simona Di Micco</i> <i>University of Naples Parthenope</i>
12:20	12:40	107	Thermal integration of pemfc and metal hydrides systems for maritime applications <i>Silvia Crosa</i> <i>University of Genoa</i>	83	Multi-modal porous microstructure for high temperature fuel cell application <i>Jaroslaw Milewski</i> <i>Warsaw University of Technology</i>	212	Impact of Porous Transport Layer Microstructure on Oxygen Transport in a PEM Electrolyzer <i>Giuseppe Sassone</i> <i>Fondazione Bruno Kessler</i>	164	Investigation of Pre-Cooling Systems for Hydrogen Refueling Stations Using Dynamic System Simulation: Design Requirements and Concept Comparison <i>Henrik Wassmuth</i> <i>TU Braunschweig</i>
12:40	13:00					223	Systematic Investigation of Hydrogen Production Efficiency as a Function of Electrode Properties and Electrolyte Composition <i>Jayesh Ruparelia</i> <i>Nirma University</i>	248	Multiphysics Numerical Modelling of Hydrogen-Refuelling-Station Components under Consecutive Dispensing Scenario <i>Francesco Piraino</i> <i>University of Calabria</i>
13:00	15:00	Lunch							

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	Session 5a: ROOM TEATRO		Session 5b: ROOM CAPRI		Session 5c: ROOM DONNA LUCIA		Session 5d: ROOM ROTONDA	
	Fuel Cell and Hydrogen for Heavy-Duty Transport		Advances in Solid Oxide Electrolysis Cells (SOEC)		Hydrogen as Energy Vector for Decarbonization I		Hydrogen Storage I	
	Session Chair: David Blekhman		Session Chair: Jarek Milewski		Session Chair: Alberto Giaconia		Session Chair: Antonino Salvatore Aricò	
15:00 - 15:20	271	Exploring the possibility of using hydrogen in po river inland waterways Stefano Barberis <i>University of Genoa</i>	79	One future of hydrogen production: Solar Heat Supported Solid Oxide Electrolysis Cell Nathalie Monnerie <i>German Aerospace Center (DLR)</i>	257	Potential of retrofitting mgts to h2 and nh3: from combustion fundamentals to a techno economic prospective Marcelo Rosário <i>HyLab – Green Hydrogen Collaborative Laboratory</i>	165	Metal hydrides based hydrogen storage for fuel cell hybrid vehicles: Numerical evaluation in real-world operating conditions Alessandro Polimeni <i>University of Rome 'Tor Vergata'</i>
15:20 - 15:40	266	A multi-criteria approach to evaluate the use of solid oxide fuel cells (sofc) onboard vessels Simone Piccardo <i>University of Genoa</i>	152	Experimental investigation and 3D modelling of a planar SOEC Valentina Biagioni <i>Sapienza University of Rome</i>	131	A Region-Specific European Analysis of SOEC-Based Green Ammonia Cost Competitiveness Alessandro Magnino <i>Politecnico di Torino</i>	230	Power vs. discharge efficiency of thermally controlled Metal Hydride hydrogen storage tanks: a revised analysis Vesselin Krassimirov Krastev <i>University of Rome 'Tor Vergata'</i>
15:40 - 16:00	294	Driving Energy Transition in Ports: Hydrogen-Powered Heavy-Duty Vehicles in Port Logistics An economic and environmental assessment through Total Cost of Ownership analysis Alessia Piccolo <i>Atena scarl/University of Naples Parthenope</i>	156	Alkalinization of SOECs with Basic Oxides Nanoparticles for Enhanced Coelectrolysis of CO2-H2O Mixture Patryk Blaszczyk <i>Gdańsk University of Technology</i>	112	Techno-economic evaluation of different applications for the direct utilization of imported ammonia Marcus Gapinski <i>TU Braunschweig</i>	284	Study of a PCM-hydride Reactor Paolo Proia <i>University of Rome 'Tor Vergata'</i>
16:00 - 16:20	118	Economic viability of sustainable railway propulsion systems: a decision-support framework Gabriele Peyrani <i>Politecnico di Torino</i>	175	Numerical Analysis of Solid Oxide Electrolysis Cell (SOEC) System Combined with LOHC Hydrogenation System Geon Lee <i>Seoul National University</i>	159	Membrane engineering applications in hydrogen and CO2 valorization under a greener energy scenario Henry Bryan Trujillo Ruales <i>CNR-ITM</i>	237	Design and analysis of a thermal management system for a novel metal hydride tank for H2 storage in fuel cell vehicles Jigarkumar Arjanbhai Ghevariya <i>University of Naples Parthenope</i>
16:20 - 16:40			232	Biomass to methanol by Breakthrough SOEC-based Process Asia Vedovi <i>Politecnico di Milano</i>	246	Electrosynthesis of Low-Carbon Olefins: A New Paradigm for Hard to Abate Industries Evanthia Nanaki <i>HELLENIQ ENERGY</i>	84	Techno-Economic Analysis of Hydrogen Storage Technologies for Different Real End-Use Demand Profiles and Sites Andrea Ademollo <i>Università degli studi di Firenze</i>
16:40 - 17:00	Coffee Break							

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		Session 6a: ROOM TEATRO		Session 6b: ROOM CAPRI		Session 6c: ROOM DONNA LUCIA		Session 6d: ROOM ROTONDA		Session 6e: ROOM ROTONDA A	
		Fuel Cells for Road Transport		IEA TCP Advanced FC Task31 Session - Advances in PEM Fuel Cell Advanced Fuel Cells		Hydrogen production: Modeling & Simulation Tools		Hydrogen Storage II		Microbial and Bioelectrochemical Technologies	
		Session Chair: Gabriele Loreti		Session Chair: Valentina Naticchioni		Session Chair: Stefano Campanari		Session Chair: Vesselin Krastev		Session Chair: Inga-Marie Lahrsen	
17:00	17:20	127	Model-based Humidity Control of a Polymer Electrolyte Membrane Fuel Cell-based Electric Vehicle Eva Neumair <i>BMW Group</i>	106	Quantification and visualization of ionomer distribution in catalyst layers of PEMFCs Pawel Gazdzicki <i>German Aerospace Center (DLR)</i>	129	Dynamic modeling of two-dimensional anion exchange membrane water electrolysis Kyoungjin Lee <i>Seoul National University</i>	193	Development of a numerical model for liquid hydrogen storage tanks for maritime sector Rodolfo Taccani <i>University of Trieste</i>	215	Quantifying the impact of nickel "shocking" in microbial fuel cells fed with synthetic fermentation broths Jack Morton <i>University of Southampton</i>
17:20	17:40	204	Sub-Optimal Control Strategy for Hydrogen Fuel Cell Heavy-Duty Trucks: A Fuzzy Logic Approach Isa Banagar <i>University of Oulu</i>	243	Membrane-Electrode Interactions in PEM Fuel Cells: The Role of Ionomers in Hydrocarbon-Based Membranes Carlo De Luca <i>University of Naples Federico II</i>	137	3D Modelling of electrolyzer and fuel cells with the NEOPARD-X framework: dimensionality effects Andrey Koksharov <i>German Aerospace Center (DLR)</i>	105	No-vent LH2 Transfer Processes using Top-Fill Albert Gil Esmendia <i>University of California, Irvine</i>	184	A Simple and Field-Deployable Microbial Fuel Cell Architecture for Stable and Sustainable Energy Generation: A Comparative Study of Sediment- and Plant-based Systems. Ambre Chabbert <i>Ecole Centrale de Lyon</i>
17:40	18:00	113	Integrated Modeling of a Fuel Cell Stack and Thermal Management System in a Fuel Cell Electric Bus Using Metaheuristic Optimization Yebeen Kim <i>Seoul National University</i>	179	Development of composite sPEEK membranes containing zeolite imidazole frameworks as ionic cross-linkers for energy applications. Alessandra Carbone <i>CNR-ITAE</i>	197	Development of a decision-oriented tool for operational management of PEMWE Federico Del Mondo <i>University of Trieste</i>	144	On the relevance of the para-to orthohydrogen conversion for the exergy utilisation of liquid hydrogen in liquid hydrogen regasification Magnus Lenger <i>Technische Universität Braunschweig</i>	235	Microbial Fuel Cells Fed with Microbial Electrolysis Cell Effluent for Sustainable Energy Applications Shirin Khorvash <i>Sapienza University of Rome</i>
18:00	18:20	145	Investigation of an Auxiliary High-Temperature Refrigeration System to Increase Cooling Capacity in Fuel Cell Vehicles Steffen Heinke <i>Technical University of Braunschweig</i>	229	Performance evaluation and durability analysis of pem fuel cells for sustainable energy applications Ottavio Longo <i>University of Calabria</i>	269	Microkinetic Modeling of Surface Reactions and Charge Transfer Dynamics in Solid Oxide Electrolysis Cells under Electrothermal Balanced Operation Ifrah Akhtar <i>Aalborg University</i>	92	Zero-Dimensional Modeling of Electrochemical Hydrogen Compressor Federico Croci <i>Università degli Studi di Modena e Reggio Emilia</i>	222	Microbial Fuel Cells working as transistors: addition of 3rd and 4th "pins" for self-monitoring internal states. Daniela Zertuche Moreno <i>University of Southampton</i>
18:20	18:40	117	Analysis of aging effects based on electrochemical characterisations within a durability test Eva Fensterle <i>Zentrum für Sonnenenergie- und Wasserstoff-Forschung Baden-Württemberg (ZSW)</i>	104	Advanced Core-Shell Structured Electrocatalysts for Oxygen Reduction Reaction: Influence of Core Size, Nitrogen Doping, and Carbon Shell Engineering Yongmin Kwon <i>Korea Institute of Energy Research</i>	267	Electrochemical Impedance-Based Modeling of an Electrolyte-Supported SOEC Short Stack Luca Riccio <i>University of Naples Parthenope</i>	 H2Excellence Best Thesis Awards Funded by the European Union			

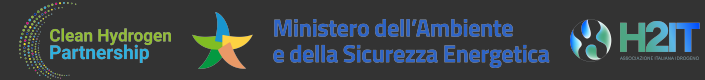
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		Session 7a: ROOM TEATRO		Session 7b: ROOM CAPRI		Session 7c: ROOM DONNA LUCIA		Session 7d: ROOM ROTONDA	
		Hydrogen Powered Aviation: Ongoing Projects and Technological Pathways 		PEM Fuel Cell I		Hydrogen Ecosystem: Techno-Economic and Strategic Perspectives I		Hydrogen as Energy Vector for Decarbonization II	
		Session Chair: Viviana Cigolotti		Session Chair: Marcello Romagnoli		Session Chair: Marta Gandiglio		Session Chair: Giovanni DI Ilio	
9:00	9:20	273	Last-mile delivery of H2 to Airports: A Schiphol case study Espen Flo Bødal <i>Sintef Energy Research</i>	162	Effect of water vapor content in MSR reformate on in-plane performance distribution of an HT-PEMFC Emilija Todorovski <i>University of Ljubljana, Faculty of Mechanical Engineering</i>	161	Hydrogen Ecosystem Development: A Case Study in California Adam Weber <i>ARCHES</i>	290	Exploring the role of hydrogen infrastructure in the energy transition Stefano Campanari <i>Politecnico di Milano</i>
9:20	9:40	296	Hydrogen Integration in Commercial Aviation: Technical and Operational Analysis at Malpensa Airport Andrea Altomonte <i>Atena scarl/University of Naples Parthenope</i>	169	Evaluating the combined effect of humidification, backpressure, and cathode stoichiometry on HT-PEMFC performance using DRT analysis Filip Todorovski <i>University of Ljubljana, Faculty of Mechanical Engineering</i>	211	An agent-based analysis of hydrogen penetration in the South Africa energy system Pacifique Koshikwinja Matabishi <i>Politecnico di Torino</i>	234	Green Hydrogen in Decarbonizing Hard-to-Abate Sectors: A Pathway for a Sustainable Steel Production Simona Di Micco <i>University of Naples Parthenope</i>
9:40	10:00	99	Scenarios for Operational and Techno-Economic Analysis of the Hydrogen Value Chain for Aviation Timo Schelm <i>Leibniz University Hannover</i>	254	Numerical analysis of an optimised serpentine HTEM Fuel Cell with BP-integrated cooling channels Vincenzo Mulone <i>University of Rome 'Tor Vergata'</i>	308	From Vision to Value: TCO-Driven Decision Making in the Hydrogen Economy – The Yokogawa Approach Roy Weening <i>Yogokawa</i>	116	The impact of an economic green hydrogen supply on defossilized steelmaking and direct-reduced iron supply chains Florian Scheffler <i>Fraunhofer IST</i>
10:00	10:20	180	Business models and policy support for LH2 supply infrastructure for H2-powered aviation Finn Schenke <i>Leibniz University Hannover</i>	130	Improved Local Description of the Capillary Pressure - Saturation Relation to Enhance Reliability of CFD Results König Lukas <i>Zentrum für Sonnenenergie und Wasserstoff</i>	87	A Flexible Methodology for Renewable Energy Integration: A PyPSA-Based Optimization Approach Applied to Northern Canada Elia Perelli <i>Politecnico di Torino</i>	199	Enhancing Carbon Capture in the Steel Sector through MCFC and PEM Electrolyzer Integration Riccardo Risso <i>University of Genoa</i>
10:20	10:40	181	The Impact of GH2 Infrastructure and Market Development on Optimal LH2 Supply Strategies for Aviation Timo Schelm <i>Leibniz Universität Hannover</i>	160	Development of Advanced Conductive Bipolar Plates for Proton Exchange Membrane Fuel Cells: Synergistic Effects of Graphite Particle Size, Hybrid Systems, and Carbon-Based Additives. Sahar Shojaei <i>Laval University</i>	190	Robust design of green hydrogen production systems – Mitigating business risks from PPA power sourcing uncertainties Jonathan Brandt <i>Leibniz University Hannover</i>	76	Hydrogen's impact on the environment in a net-zero plastics industry Inga-Marie Lahrson <i>ETH Zurich</i>
10:40	11:00	201	HASTA - Hydrogen Aircraft Sloshing Tank Advancement Antonio Agresta <i>ENEA</i>	168	Impedance Modeling Framework for Proton Exchange Membrane Fuel Cells Francesco Mazzeo <i>Politecnico di Torino</i>	153	Optimising Green Hydrogen Production: How Renewable Energy Sources Shape Cost and Plant Design Paolo Marocco <i>Politecnico di Torino</i>		
11:00	11:20	Coffee Break							

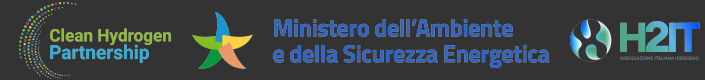
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		Session 8a: ROOM TEATRO		Session 8b: ROOM CAPRI		Session 8c: ROOM DONNA LUCIA		Session 8d: ROOM ROTONDA	
		Innovative manufacturing paths in High Temperature Cells		PEM Fuel Cell II		Hydrogen Ecosystem: Techno-Economic and Strategic Perspectives II		Biogenic Feedstock for Hydrogen Production	
		Session Chair: Vittoria Novelli		Session Chair: Vincenzo Mulone		Session Chair: Massimo Rivarolo		Session Chair: Francesco Basile	
11:20	11:40	188	Dual-Doping of Transition Metals into the Double-Perovskite La_{0.3}Sr_{1.7}Fe_{1.5}Mo_{0.5}O_{6-δ} for Potential Electrode Material in SOECs: Increased Stability in Hydrogen <i>Agata Ducka</i> Gdańsk University of Technology	115	Gas Diffusion Electrode half cell: A Versatile Tool for Half-Cell PEMFC Characterization <i>Mitja Kostelec</i> National Institute of Chemistry	167	Comparative Analysis of Power-to-Hydrogen Energy Storage System for Residential Application <i>Pierpaolo Polverino</i> Università degli Studi di Salerno	196	Hydrogen Production from Lignocellulosic Agro-Residues via Thermo-Catalytic Pathway <i>Francesco Zimbardi</i> ENEA
11:40	12:00	203	Seawater impact on Solid Oxide Cells materials: experimental methodology for laboratory characterization <i>Arianna Baldinelli</i> University of Pisa	216	Study on experimental parameters of PEMFC stack under CO contamination with Machine Learning Technique <i>Luca Praticò</i> Fondazione Bruno Kessler	90	Hydrogen Storage for Renewable Energy Integration: A Techno-Economic Comparison with Ammonia as Hydrogen Carrier <i>Mattia Calabrese</i> Università degli studi di Firenze	139	Design of a fermentation system for the production of biological hydrogen by Thermotoga Neapolitana bacteria <i>Giulia Crescente</i> Università degli studi di Messina (UNIME)
12:00	12:20	275	Manufacturing Approaches for Proton-Conducting SOCs <i>Angela Gondolini</i> CNR-ISSMC	73	A Virtual H₂ Sensor for improved Fuel Cell Control <i>Otalvaro Gutierrez Diana Maria</i> Robert Bosch GmbH	74	Techno-Economic Optimization of a SOFC-Based Biogas Power Plant Integrated with Green Hydrogen in a Local Energy System <i>Dario Colombari</i> Ricerca sul Sistema Energetico - RSE	217	Residual biomass pyrolysis in fluidized-bed reactors: a data-driven approach for control and design <i>Matteo Baldelli</i> University of Rome 'Tor Vergata'
12:20	12:40	200	Innovative approaches to MCFC component development for industrial-scale implementation <i>Dario Bove</i> University of Genoa	157	Performance Evaluation of a Copper Interdigitated Over-Humidification Sensor <i>Maximilian Kaefer</i> University of Technology Graz	279	Techno-economic assessment of large-scale hydrogen production via solid oxide electrolysis systems <i>Paolo Colbertaldo</i> Politecnico di Milano	289	Integrated membrane & biogas electrified catalytic reformer for decarbonised H₂ production <i>Vincenzo Palma</i> Università degli Studi di Salerno
12:40	13:00	122	Tailoring exsolved NP in Fe-doped Lanthanum Strontium Chromite: implications on H₂/CH₄ utilization in SOFCs <i>Davide Chinello</i> Università degli Studi di Padova	114	Fast and reliable parameterization of PEMFC models – sequential optimization for efficient parameter estimation <i>Johanna Bartlechner</i> TU Wien	304	Techno-Economic and Environmental Assessment of Hydrogen Integration in Renewable Energy Communities in Italy <i>Silvia Ricciuti</i> FONDAZIONE BRUNO KESSLER		
13:00	14:30	Lunch							

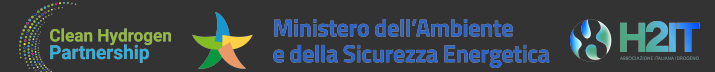
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		Session 9a: ROOM TEATRO		Session 9b: ROOM CAPRI		Session 9c: ROOM DONNA LUCIA		Session 9d: ROOM ROTONDA	
		Hydrogen Innovation and Future Trends		PEM Fuel Cell III		Hydrogen Ecosystem: Techno-Economic and Strategic Perspectives III		Sustainability and Life Cycle Assessment in the Hydrogen Economy	
		Session Chair: Antonio Agresta		Session Chair: Francesco Piraino		Session Chair: Matteo Genovese		Session Chair: Domenico Borello	
14:30	14:50	77	Experimental Evaluation of P2P for Long Duration Energy Storage Bobby Laviguer <i>University of California, Irvine</i>	134	Experimental validation of a PEMFC lumped dynamic model for on-board, diagnostic, prognostic and control applications Massimo Sicilia <i>Università degli Studi di Salerno</i>	218	Techno-economic feasibility study of an innovative proton conducting ceramic electrolysis system for hydrogen generation Fabiana Romano <i>University of Naples Parthenope</i>	140	Life cycle assesement and life cycle cost addressing in developing solid oxide fuel cells Gaetano Squadrito <i>CNR-ITAE</i>
14:50	15:10	173	A comprehensive assessment of hydrogen leakages along the entire supply chain: present and future scenarios Davide Trapani <i>Politecnico di Torino</i>	128	Spatially and Temporally Resolved Stainless Steel Bipolar Plate Degradation Model for PEMFCs Andraž Kravos <i>University of Ljubljana, Faculty of Mechanical Engineering</i>	209	Green Hydrogen and Wastewater Synergies: Cost-Effective Integration of Electrolysis Oxygen in Wastewater Treatment Plants Matz Levin <i>Leibniz University Hannover</i>	146	Sustainability assessment of PEMFC Jure Gramc <i>University of Ljubljana, Faculty of Mechanical Engineering</i>
15:10	15:30	245	Optimizing Electrocatalysis in Ni-Fe-Cr-Ru-Mo-(N) High-Entropy Films Sandro Zorzi <i>Fondazione Bruno Kessler</i>	238	Application of a Multiphysics Equivalent Stiffness Model of a PEMFC integrating the nonlinear mechanical behaviour of MEA components Luca Marcelli <i>Université Paris-Saclay</i>	147	Hydrogen Valley Optimization: Integrating Sectoral Synergies for Decarbonization Vincenzo Romano <i>Politecnico di Torino</i>	213	Pre-normative research on hydrogen release assessment Valerio Palmisano <i>ENEA</i>
15:30	15:50	270	Green Hydrogen Innovation: A Patent-Based Analysis of Critical and Strategic Resource Use Marinella Favot <i>Area Science Park</i>	101	Design of Experiment (DOE) for Optimising Automated 3D Printing of Proton Exchange Membrane Fuel Cell (PEMFC) Electrodes Luca Zannini <i>Università degli Studi di Modena e Reggio Emilia</i>	177	HyAcademy.eu: Building a Pan-European Hydrogen Skills Ecosystem for Climate Neutrality Marcello Romagnoli <i>Università degli Studi di Modena e Reggio Emilia</i>	287	Blue hydrogen can be a low-carbon hydrogen Davide Bonalumi <i>Politecnico di Milano</i>
15:50	16:10			154	CFD-Based Investigation of High Current Density Polarization Losses in PEM Fuel Cells Emanuele D'Alessio <i>Sapienza University of Rome</i>	265	Tecno-economic-environmental analysis of hydrogen technology production using domestic wastewater Muriel Iten <i>Fraunhofer Portugal</i>		

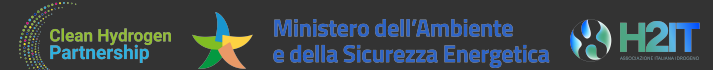
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ZABALA INNOVATION

Zabala Innovation is a leading international consultancy firm in innovation strategy and R&D&I financing. Since 1986, they have been supporting their clients in their entrepreneurial drive through the search for financing and the management and promotion of innovation.

In 1986, José M^a ZABALA, a chemical engineer with a PhD in Applied Natural Sciences from the University of Leuven, had an innovative idea. From his idea, Zabala Innovation was born, a consultancy firm dedicated to the comprehensive management of grants, subsidies and R&D projects. Three decades later, Zabala Innovation has become a company that counts over 570 professionals, 13 offices and more than 10,000 clients.

"It's not about the size, it's about the attitude. It's not about "where," it's about "how." - And with whom. Innovation is about transforming knowledge and technology into commercial opportunities: with objectives, timelines and a clear budget. This is why our goal isn't just about obtaining funding, it's about making our clients' projects commercially successful."

The logo for Zabala Innovation features the word "zabala" in a bold, lowercase, red sans-serif font. Below it, the word "INNOVATION" is written in a smaller, uppercase, dark blue sans-serif font. The entire logo is centered within a light gray circular background.

zabala
INNOVATION

ALRIGH2T

ALRIGH2T

ALRIGH2T aims to develop and test innovative technologies and processes for refuelling liquid hydrogen aircraft in real airport conditions, with the goal of reducing the aviation sector's environmental impact.

Emphasizing safety and standardization, ALRIGH2T strives to be a reference in the transportation sector, aligning with Clean Aviation and Clean Hydrogen objectives to advance industry standards.

The main objective of ALRIGH2T project is to develop innovative and complementary solutions for refuelling processes that reach adequate flow rates and relevant volumes for commercial aviation, as well as meet safety standards, and demonstrate them in two main European airports: the international airport of Milan-Malpensa and a reference airport in Paris.



NHP

NHP is an Italian company that has been operating for years in the green economy, realizing an integrated model of sustainable development at the service of enterprises, city and people. Thanks to the ICT technologies specially developed and a unique and extraordinary expertise, we are realizing the dream of a new balance between man, city, and energy.

The technologies and services developed by NHP aim to realize a new model of sustainable development for the planet, that is at the same time advantageous for the enterprises. In a world where the idea of energy saving is always a synonym of economic saving, the protection of the environment is one of the unavoidable aspects of profit. To achieve these goals we put all our heart and know-how in renewable energies and sustainable mobility, because we are aware that nowadays, technological progress has designed another path, both ethical and profitable, for the development of enterprises and communities.

YOKOGAWA

Yokogawa is a leading provider of Industrial Automation and Test and Measurement solutions. Combining superior technology with engineering services, project management, and maintenance, Yokogawa delivers field proven operational efficiency, safety, quality, and reliability.

By utilizing its measurement, control, and information technologies, Yokogawa is helping to solve social issues through the following businesses. As Yokogawa's main business, the industrial automation and control business has contributed to the development of a wide range of industries with its distributed control systems for the monitoring and control of plant production facilities.

Under the comprehensive OpreX brand, Yokogawa provides complete solutions that maximize customer value over the plant life cycle and from the plant to the management level, a range of software to improve productivity, production control systems, pressure transmitters, process analyzers, programmable controllers, industrial recorders, and so on.

Helping customers keep pace with advances in digital technology and an ever-changing business environment, Yokogawa provides the support needed for them to carry out their digital transformation (DX) and make the transition from industrial automation to industrial autonomy (IA2IA).



Duferco

Engineering

DUFERCO ENGINEERING

Duferco Engineering S.p.A., part of the Duferco Group, is an Italian company specializing in engineering, procurement, and construction (EPC) for industrial, energy, and infrastructure projects.

Founded in 1990, it plays a key role in steel plant development—such as the San Zeno Naviglio facility—and renewable energy systems including solar, hydroelectric, and biogas plants. The company also works on energy efficiency, grid systems, and infrastructure like ports and logistics hubs.

With in-house design, construction, and O&M capabilities, Duferco Engineering supports both group and external clients, focusing on innovation, sustainability, and integrated solutions for the energy transition and circular economy.

CANTIERI DEL MEDITERRANEO

Cantieri del Mediterraneo is a historic Italian shipyard based in Naples, with a long-standing tradition in shipbuilding, repair, and advanced engineering services.

Founded in the early 20th century, the company has consistently combined craftsmanship and technological innovation, serving both commercial operators and research organizations.

Today, Cantieri del Mediterraneo is at the forefront of the maritime energy transition, actively engaged in European and national projects such as MHYMOST (metal hydride hydrogen storage systems), SESTOH₂ (advanced hydrogen storage technologies), and TUGHYBOAT (modular hydrogen-based powertrain for sustainable naval propulsion).

Through these initiatives, the shipyard contributes to the development of hydrogen technologies, hybrid propulsion systems, and innovative solutions for green and smart shipping.

Driven by a mission to merge tradition with innovation, Cantieri del Mediterraneo delivers reliable and efficient shipbuilding services while promoting the adoption of next-generation technologies that enable decarbonization and sustainability across the maritime sector.





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