AMPS

workshop

Unlocking the Potential of SOC Technologies for a Decarbonized Future

in the framework of the AMPS project

webinar
10.00 - 12.30

May 30, 2025

WORKSHOP AGENDA

The project is supported by the Clean Hydrogen Partnership and its members.

Clean Hydrogen Partnership

Co-funded by the European Union

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AMPS Workshop • Unlocking the Potential of SOC Technologies for a Decarbonized Future.

An international online event exploring how Solid Oxide Cell technologies can drive industrial decarbonization and clean energy solutions across sectors.

Workshop agenda

Friday • May 30th, 2025

10.00 **Intro.**

10.05 **Presentation of the AMPS project.**
Marta Gandiglio, Politecnico di Torino

10.15 **SOC products: technology, applications and innovation.**
Somjai Isotalo, ELCOGEN

SOC applications: research and industrial experiences

10.30 **SOEC for hard-to-abate sector: decarbonizing ammonia production in Europe.**
Alessandro Magnino, Politecnico di Torino

10.45 **SOEC for hard-to-abate sector: experience from the industry.**
Andreas Mai, TOPSOE

11.00 **Integrated DRI-SOEC systems for green steel.**
Roberto Scaccabarozzi, Laboratorio Energia e Ambiente Piacenza (LEAP)

11.15 **SOFC for electricity generation: field operation of EU-funded installations.**
Paolo Marocco, Politecnico di Torino

11.30 **SOFC for electricity generation: experience from the Italian biogas industry.**
Andrea Chiabrando, Consorzio Monviso Agroenergia (CMA)

11.45 **Sustainable shipping with SOFCs: experience from the NAUTILUS project and future outlook.**
Santiago Salas Ventura, The German Aerospace Center (DLR)

Future perspectives and Q&A session

12.00 **Future perspectives for high-temperature electrochemical systems.**
Massimo Santarelli, Politecnico di Torino

12.15 **Q&A session.**

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Meet our speakers

Andrea Chiabrando • *Consorzio Monviso Agroenergia*

Degree in Agricultural Sciences from the University of Turin in 1994. Master's in Environmental Engineering (EPEA) at the Polytechnic University of Turin, specializing in Environmental Impact Assessment at Oxford Brookes University (UK). He is one of the leading experts in biogas and biomethane in Italy. He works in the fields of agroenergy, waste management, agricultural policy, rural development, and the relationship between agriculture, the environment, and agricultural economics. He is the Technical Director of CMA (Consorzio Monviso Agroenergia), an association that brings together 200 biogas production plants and 400 agricultural companies supplying biomass. He is responsible for innovation and institutional relations for the Consortium.

Marta Gandiglio • *Politecnico di Torino, Department of Energy*

Assistant professor in the Department of Energy at Politecnico di Torino. She is working on the design, modelling, and analysis of complex energy systems, with a focus on hydrogen, e-fuels, and high-temperature electrochemical technologies. Responsible for the "Renewable Energy Course" in Politecnico. She has worked and she is working in the framework of different EU projects on SOC technologies such as SOFCOM, DEMOSOFC, COMSOS, ELECTROLIFE and AMPS.

Somjai Isotalo • *ELCOGEN*

Technical Project Manager with backgrounds in quality, hardware, and failure analysis with over a decade of experience in the semiconductor and healthcare technology sectors. She holds a PhD in Physics, Green Belt in Lean Six Sigma and a Project Management Foundations certification.
Currently, she is contributing her expertise at Elcogen, a company specializing in high-efficiency fuel cell technology. Her commitment to continuous learning and excellence in project management and engineering underscores her dedication to advancing technology and innovation in her field.

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Andreas Mai • *TOPSOE*

Technology Manager SOEC, Power-to-X. 25 years of experience in SOC technology. Since 02/2023 working in Topsoe, Power-to-X division:

- 2006 - 2023: CTO @ HEXIS (CH, SOC developer & manufacturer)
- 2000 - 2006: PhD & Postdoc at FZJ (Research Center Jülich, D): SOFC air electrodes, degradation.

Area of expertise: SOEC / SOFC, High-temperature materials and electrochemistry, Electrolyzer system integration, PtX.

Alessandro Magnino • *Politecnico di Torino, Department of Energy*

PhD student in the Department of Energy at Politecnico di Torino. After the Master of Science in Renewable Energy Systems, he started his PhD activity on the topic "Techno-economic and environmental analysis of the role of low-carbon fuels in the design of future energy systems". The main focus of his research is oriented toward the role of high-temperature cells in the decarbonisation of hard-to-abate sectors, actively collaborating on the AMPS project and with its partners.

Paolo Marocco • *Politecnico di Torino, Department of Energy*

Assistant Professor in the Department of Energy at Politecnico di Torino. He holds a PhD in Energy Engineering. His research mainly focuses on energy system optimization, modeling of the hydrogen supply chain - from production to multiple end uses - and the experimental analysis of high-and low-temperature fuel cells and electrolysers. He contributes to Bachelor's and Master's degree courses at Politecnico di Torino on renewable energy sources and energy storage. He has been actively involved in several hydrogen-related European projects, including REMOTE, COMSOS, AMPS, TULIPS, CRAVEH2, HYDRA and GREENHY.

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Santiago Salas Ventura • *DLR*

Santiago Salas Ventura is a research associate at the German Aerospace Center (DLR) Institute of Engineering Thermodynamics, where he is also pursuing a Ph.D. His work in the electrochemical high-temperature processes (EHT) group focuses on the development and transient simulation of solid oxide cell (SOC) systems. As topic lead for SOFC drive trains, he has contributed to EU-funded projects including SWITCH and NAUTILUS, integrating modelling, simulation, and experimental validation of flexible energy systems with SOCs, with a focus on scale-up towards the MW-scale. In project NAUTILUS, he was responsible for the work package of genset engineering and Proof of Concept, as well as demonstrator commissioning and operation. Currently, he is working on SOFC system digital twin modelling and validation for maritime application.

Massimo Santarelli • *Politecnico di Torino, Department of Energy*

Prof. Massimo Santarelli, Full Professor of Thermodynamics and Heat Transmission, Coordinator of the PhD in Energy of Politecnico di Torino.
Author of about 340 papers in international journals (h-index 61 @May 2025).
The main research activity is related to the topic of complex innovative systems (thermochemical and electrochemical processes) applied to the energy sector. Coordinator of the STEPS laboratory (Synergies of Thermochemical and Electrochemical Electrical Systems) of the Politecnico di Torino, and of the HySyLab and CO2 Circle Lab of the Politecnico di Torino. Member of the Energy Center initiative of the Politecnico di Torino. Coordinator of EU projects SOFCOM (FCH1-JU Call 2010), DEMOSOFC (FCH2-JU Call 2014), REMOTE (FCH2-JU Call 2017). Partner in EU projects (ELECTROLIFE, H2START, H2SHIFT, HYDRA, CRAVE-H2, IMAGHYNE, H2ACADEMY, GREESKILLS4H2, BEST4Hy, SUBLIME, ICO2CHEM, COMSOS, TEACHY, ENEFIELD, ENFICA-FC, BRISK II, SELECT-CD, Explore Energy, Virtual Hub, MARS-EV), Coordinator of several national projects. Coordinator of the MSc Erasmus+ HySET (Hydrogen Systems and Enabling Technologies). Member for Italy of ISO / TC 197 "Hydrogen Technologies" and of IEC-TC 105 "Fuel Cells".

Roberto Scaccabarozzi • *LEAP - Laboratorio Energia e Ambiente Piacenza*

Energy engineer, earned his Ph.D. in Energy and Nuclear Science and Technology in 2020 at Politecnico di Milano, focusing on the techno-economic performance of CO_2 capture technologies, particularly on novel oxy-combustion and Allam cycle configurations. Since 2015, he has collaborated with LEAP, where he specialize in process simulation and techno-economic assessments of energy conversion and CO_2 capture systems, and where he is currently a senior researcher in the Low Carbon Technologies area, working on the decarbonization of industrial processes through the integration of carbon capture and hydrogen-based systems. Responsible for the process simulation activities of several publicly funded projects, including "HySteel", focused on the demonstration and techno-economic assessment of high-temperature electrolyzers integrated into DRI processes to produce green steel.

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Organizing Secretariat

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