HYCELTEC 2026

X Symposium on Hydrogen, Fuel Cells and Advanced Batteries

June 8th -11th

Alicante (Spain)

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CONTENT

GENERAL INFORMATION

X Symposium on Hydrogen, Fuel Cells and Advanced Batteries

Hyceltec 2026 is the tenth International Symposium on Hydrogen, Fuel Cells and Advanced Batteries. The Symposium is organized by the Materials Institute of the University of Alicante (IUMA) and will be held in Alicante, Spain.

Hyceltec 2026 will be an interdisciplinary forum for those researchers interested in topics related to hydrogen, fuel cells, batteries, supercapacitors and other energy storage devices, bringing together from academia, technological centers, and industry.

Topical areas include: (i) hydrogen production, storage and transportation, its integration with renewable energy sources, and its environmental social impact, etc; (ii) fuel cells, development of components and materials, device integration, degradation mechanisms, applications, etc; (iii) advanced batteries, liquid-, fused, solid-state and polymeric batteries, redox flow batteries, supercapacitors, electrochromic energy storage devices, sustainability and recyclability, etc.

This conference is expected to stimulate fruitful discussion, new ideas, and collaborations between specialists from various domains. As in preceding meetings, the conference aims at bringing together the scientists, engineers, and technologists working on these topics and intends to provide a forum for discussion on fundamental and technological scientific aspects of Hydrogen, Fuel Cells, and Advanced Batteries.

We hope you will enjoy the Symposium and that you will have time to interact with other researchers and colleagues and to visit our host city. Alicante is a seaside, cozy, and sunny city with pleasant weather and a nice atmosphere.

The Local Organizing Committee

Language

All lectures are in English. There will be no facilities for simultaneous translation.

Communication certificates

Attendance certificates, as well as certificates for oral and poster presentations, can be downloaded from the conference website (user area) once the congress has ended.

Internet

The conference venue will have open-access wireless networks available for all conference participants.

Remember that the electric current in Spain is 220V and plugs are two-pin continental sizes.

Meeting Room

A meeting room will be available to all conference participants within the conference venue (Lecture theatre A2/D02).

Advice to presenters

Oral Presenters

Duration

Plenary Talks: 60 min (50 min + 10 min Q&A)

Keynote Talks: 30 min (25 min + 5 min Q&A)

Oral Presentations: 15 min (12 min + 3 min Q&A)

Information

Presentations must be prepared in either PowerPoint 2016/2019/2021/365. Presenters are advised to use standard Office fonts and embed videos in the slides.

Please bring your widescreen slides in either PowerPoint or PDF form on a flash drive well in advance and before your presentation day.

There will be a chair in the room to introduce each presenter, moderate the Q&A for each talk and ensure you keep to the time. Practice your timing to stay within your time as the chairs will cut you short if you are not finished in this time.

Please arrive at least 15 minutes earlier to your session.

Poster Presenters

Format

The poster format is: Size A0 Portrait (841mm wide × 1189 mm high)

Information

Your poster board will be numbered by the ID of your contribution from the Conference Program.

Poster(s) should be readable at a distance of at least 1 meter.

Information on the day and time of your poster session is available in the Conference Program, but your poster will be displayed during the three days of the conference. Please make sure you attach your poster to the correct board.

Materials to pin up your poster will be available.

You will be expected to print and bring your poster with you to the conference. Printing will not be available at the conference.

CONFERENCE VENUE

Aulario II – Universidad de Alicante

Carretera de San Vicente del Raspeig, s/n

03690 San Vicente del Raspeig, Alicante (ES)

CONFERENCE OFFICE

The Conference Area will be located on the ground floor of the Aulario II building (conference venue). Outside the lecture theatre, in the central access area, the Conference Office will be permanently established next to the Hospitality Desk. Sponsors stands will be located on the 1st floor.

From the Conference Office room:

- You may access the Club Social II building, where work lunches will take place.
- Make coffee breaks, although they could also be carried out on the 1st floor, depending on the availability.
- Access the 1st floor where the poster sessions will take place.

SCIENTIFIC PROGRAM
TIME SCHEDULE

Hydrogen

Salón de actos - Aulario II Building

	Monday June 8	Tuesday June 9	Wednesday June 10	Thursday June 11
8:30		Opening Ceremony		
9:00		Plenary 1	Plenary 2	Plenary 3
9:30				
10:00		Oral Session 1 (2 keynotes, 2 orals)	Oral Session 7 (1 keynote, 4 orals)	Oral Session 11 (2 keynotes, 2 orals)
10:30				
11:00				
11:30		Coffee Break	Coffee Break	Coffee Break
12:00		Oral Session 2 (2 keynote, 2 orals)	Oral Session 8 (1 keynote, 4 orals)	Oral Session 12 (1 keynote, 4 orals)
12:30				
13:00				
13:30		Lunch	Lunch	Closing ceremony
14:00				Lunch
14:30				
15:00				
15:30		Oral Session 3 (1 keynote, 4 orals)	Poster Session 2 (Coffee)	
16:00				
16:30				
17:00	Registration	Poster Session 1 (Coffee)		
17:30				
18:00				
18:30				
19:00	Welcome Reception			
19:30				
20:00				
20:30		Cocktail	Conference Banquet	
21:00				
21:30				
22:30				

Fuel cells, Advanced Batteries and Supercapacitors

Lecture theatre A2/D01 - Aulario II Building

	Monday June 8	Tuesday June 9	Wednesday June 10	Thursday June 11
8:30		Opening Ceremony		
9:00		Plenary 1	Plenary 2	Plenary 3
9:30				
10:00		Oral Session 4 (1 keynote, 4 orals)	Oral Session 9 (1 keynote, 4 orals)	Oral Session 13 (1 keynote, 4 orals)
10:30				
11:00				
11:30		Coffee Break	Coffee Break	Coffee Break
12:00		Oral Session 5 (1 keynote, 4 orals)	Oral Session 10 (1 keynote, 4 orals)	Oral Session 14 (1 keynote, 4 orals)
12:30				
13:00				
13:30		Lunch	Lunch	Closing ceremony
14:00				Lunch
14:30				
15:00				
15:30		Oral Session 6 (1 keynote, 4 orals)	Poster Session 2 (Coffee)	
16:00				
16:30				
17:00	Registration	Poster Session 1 (Coffee)		
17:30				
18:00				
18:30				
19:00	Welcome Reception			
19:30				
20:00				
20:30		Cocktail	Conference Banquet	
21:00				
21:30				
22:30				

DAILY SCIENTIFIC PROGRAM

Monday, 8th June 2026

The Museum of the University of Alicante (MUA)

17:00-19:00 Registration

19:00-20:30 Welcome Reception

8:30-9:00 OPENING CEREMONY. Salón de Actos – Aulario II

9:00-10:00 PLENARY LECTURE 1. Salón de Actos – Aulario II

Design of Nanostructured Catalysts for Sustainable Energy and Environmental Uses

Prof. Hiromi Yamashita. The University of Osaka, Japan

Hiromi Yamashita has been a full professor at the University of Osaka since 2004. He received his PhD degree from Kyoto University in 1987. He was an assistant professor at Tohoku University (1987-1992), an assistant professor and associate professor at Osaka Prefecture University (1992-2003). He was an invited professor at the University Pierre and Marie Curie (UPMC), Shanghai University of Electronic Power, and Shanghai Normal University. He was a visiting research fellow at the Pennsylvania State University (1992), the University of Texas at Austin (1993), California Institute of Technology (1998-1999). He was the president of the Asia and Pacific Association of Catalysis Societies (2019-2023), the president of Catalysis Society of Japan (2019-2020), a member of Academia Europea (2019-), and the editor of Applied Catalysis B (2012-). He received awards from several societies, such as the Chemical Society of Japan, Catalysis Society of Japan, International Mesostructured Materials Association, etc. He has published more than 650 papers. His research interests include the design of single-site photocatalysts and nanostructured catalysts.

Chairperson: José Rodríguez-Mirasol

Oral Session 1: Hydrogen

Chairperson: Elena Pastor

10:00 **K1** (Id.1)
In Situ Time-Resolved X-ray Absorption Spectroscopy Unveils Partial Re-Oxidation of Tellurium Cluster for Prolonged Lifespan in Hydrogen Evolution
*Pang Kanglei, **Jiayin Yuan**, Uguz Neli Özlem*

10:30 **S1-1** (Id.35)
Development of Carbon Nitride-Supported Copper Electrocatalysts: An Operando X-ray Absorption Spectroscopy Study
***Sara Álvarez Parejo**, Gabriel Alemany Molina, Elisa Borfeccia, Emilia Morallón Núñez, Diego Cazorla-Amorós*

10:45 **S1-2** (Id.103)
Strategies to maximize the density of active sites in Ni-N-C catalysts for AEM electrolysis
*Carlos Serrano Alcalde, Sara Pérez Rodríguez, María Jesus Lázaro Elorri, **David Sebastián del Río***

11:00 **K2** (Id.118)
Operando Insights into Transition Metal Phosphides during the Oxygen Evolution Reaction
*David Ríos Ruiz, Pablo Arévalo Cid, Armando Ibraliu, Verónica Celorrio, Sandra Drev, Cecilia Gómez-Sacedón, Antonio de Lucas-Consuegra, **María Victoria Martínez Huerta***

11:30 **Coffee break**

Oral session 4: Advanced batteries and capacitors

Chairperson: Ana Arenillas

10:00 **K6** (Id.68)
3D carbon electrodes manufactured by Direct Ink Writing for all-iron redox flow batteries
***Victoria García Rocha**, Pablo Rodríguez Lagar, Alejandro Concheso Álvarez, Daniel Barreda, Zoraida González Arias, Miguel Montes-Morán, J. Ángel Menéndez, Clara Blanco, Ricardo Santamaría*

10:30 **S4-1** (Id.14)
Determination of the diffusion coefficient of vanadium ions in practical redox flow batteries
*Ignacio Ortiz de Landazuri Suárez, Manuel Montiel Argaiz, Antonio Lozano Fantoba, **Felix Barreras Toledo***

10:45 **S4-2** (Id.29)
Beyond Solubility Limits: Quinone Mediators for Redox-Mediated Aqueous Flow Batteries.
***Antonio Martínez Bejarano**, Giu A. Silva Testa, Vikram Singh, Nagaraj Patil, Paula Navalpotro, David Arnáiz-Gil, Gimena Martín-Tajadura, Edgar Ventosa, Evan Wenbo Zhao, Rebeca Marcilla*

11:00 **S4-3** (Id.80)
Towards Physically-Consistent Overpotential Decomposition in VRFB Stacks: A PINN-Based Modelling and Benchmarking Approach
*Andrés Bernabeu Santisteban, **Alejandro Clemente**, Yonca Belce, Lluís Trilla*

11:15 **S4-4** (Id.74)
Beyond the Membrane: Enhancing Stability through Interphase Insights in Aqueous Biphasic Flow Batteries
***Paula Navalpotro**, Carla Santana Santos, Murilo L. Alcantara, Vanesa Muñoz-Perales, Santiago Enrique Ibañez, Antonio Martínez-Bejarano, Nomnotho Jiyane, Catarina M.S.S. Neves, Rubén Rubio-Presa, Thomas Quast, Wolfgang Schuhmann, Joao A.P. Coutinho, Rebeca Marcilla*

11:30 **Coffee break**

Oral Session 2: Hydrogen

Chairperson: Juana María Rosas

12:00 **K3** (Id.25)
H_2 production via photo(thermo)reforming of organic compounds on hybrid carbon/semiconductor catalysts
Alberta Genco, Alicia Gomis-Berenguer, Elisa Garcia-Lopez, Giuseppe Marci, ***Conchi Ania***

12:30 **S2-1** (Id.18)
Enhanced CO_2 reduction through thermo-photocatalysis over modified TiO_2 systems
Piotr Patulski, ***Nicolás García-Pérez****, Ángel Berenguer-Murcia, Diego Cazorla-Amorós*

12:45 **S2-2** (Id.58)
Design and evaluation of MoS_2-CdS heterostructures for hydrogen production via the photoreforming of lactic acid
Juan Manuel Rives*, María Carmen Román, María Ángeles Lillo*

13:00 **K-4** (Id.87)
Modeling High-Pressure Hydrogen Uptake by Nanoporous Materials
Rafael Morales Ospino*, Alain Celzard, Vanessa Fierro*

13:30 **Lunch**

Oral session 5: Fuel Cells

Chairperson: Paula Navalpotro

12:00 **K7** (Id.54)
High Fe(III) Content Molecular Electrocatalyst in Fuel Cell Applications
Federico Tasca

12:30 **S5-1** (38)
Effect of the Sulfur Incorporation in Single Atom Catalysts as Electrocatalyst for PEMFC-Type Devices
José Luis Pérez*, María Karla López, Javier Narciso, Roberto Gómez, Andrés Parra*

12:45 **S5-2** (Id.120)
Tracking the evolution of winery-waste derived single atom Cu-N-C electrocatalysts during the CO_2 to CO conversion
Ana Cristina Giménez Rubio*, Manuel Gutierrez-Roa, Irene Vela, Andrea Zitolo, María Jesús Lázaro, Sara Perez-Rodríguez*

13:00 **S5-3** (Id.122)
Single-atom and MOF-derived catalysts for the electroreduction of O_2 and CO_2
Elena Pastor

13:00 **S5-4** (Id.13)
Silica coating of PEM fuel cell Pt/carbon electrocatalysts to enhance durability upon operation
Lucas Elvira*, Ali Haider, Loïc Noumbi, Nathalie Job, Sophie Hermans*

13:30 **Lunch**

Oral Session 3. Hydrogen / Fuel Cells

Chairperson: Raúl Berenguer

15:30 **K5** (Id.119)
Microbial Electrochemical Technology for sustainable wastewater treatment and simultaneous hydrogen production
Ana J. Vega de Armas, Marti Aliaguilla, Pau Bosch-Jimenez, Eduard Borràs, Lidia Zulema Borjas, Abraham Esteve-Núñez, ***Juan Manuel Ortiz***

16:00 **S3-1** (Id.114)
Study of the effect of configurational parameters on the performance of a microbial desalination cell
Sahar Abdolbaghi*, Vânia Oliveira, Alexandra Rodrigues Pinto*

16:15 **S3-2** (Id.56)
Doped-tin oxide electrocatalysts as anode in water electrolysis
Javier García de Quirós*, Emilia Morallón, Diego Cazorla-Amorós*

16:30 **S3-3** (Id.89)
Neural-network-based strategies for computational modeling of hydrogen fuel cells: from data-driven surrogates to physics-informed approaches
Raúl Losantos*, Radu Mustata, Manuel Montiel, Luis Valiño*

16:45 **S3-4** (Id.48)
Use of unmanned vehicles in intensive olive cultivation (OLIVARIA Project)
Fernando Isorna Llerena*, Diego Tejada Guzmán, Matías Díez Pérez, Rubén Cuesta Zurita, Eduardo López González*

17:00 -19-00 **Poster Session 1 and coffee break**

Oral session 6: Advanced batteries and capacitors

Chairperson: David Sebastian

15:30 **K8** (Id.20)
Intrinsic Electronic Limitations in Carbon Electrodes for Electrochemical Capacitors
Hirotomo Nishihara

16:00 **S6-1** (Id.23)
Investigation of the surface composition of carbon xerogels used in carbon-carbon composites for sodium-ion batteries
Zoé Deckers*, Berke Karaman, Hélène Tonnoir, Bryan Carré, Alexandre Léonard, Jimena Castro-Gutiérrez, Driélle Müller, Alain Celzard, Vanessa Fierro, Da Huo, Raphaël Janot, Nathalie Job*

16:15 **S6-2** (Id.104)
Lead the Charge: Modern Solutions for Battery Material Characterization
César del Río, *Gonzalo Anguera Pujadas, Carlos Gracia*

16:30 **S6-3** (Id.71)
Polymer-Stabilized Ammoniate Electrolytes for Sodium Batteries
Pablo Hiller*, Carmen Miralles, Roberto Gómez*

16:45 **S6-4** (Id.9)
Co-intercalation electrolyte enabling sodium ion batteries at low temperaturas
Yu Zhang

17:00 -19-00 **Poster Session 1 and coffee break**

9:00-10:00 PLENARY LECTURE 2. Salón de Actos – Aulario II

Exploring the electrode/electrolyte interface of carbon-based supercapacitors

Dr. Encarnación Raymundo-Piñero. CNRS, Orléans, France

Encarnación Raymundo-Piñero is Research Director at the CEMHTI-CNRS UPR3079 laboratory at Orléans (France). She got a PhD in Materials Science at the University of Alicante (Spain) in 2000, and after a post-doc in the USA, she moved to France in 2002 with a Marie Curie fellowship and joined the CNRS as permanent staff in 2006. In 2009, she was awarded the CNRS bronze medal. Her research focuses on the investigation of carbon-based materials and their composites as electrodes for supercapacitors, micro-supercapacitors, and batteries. A particular emphasis is placed on the development of novel functional carbon-based materials for electrochemical energy storage, the design of high-energy and high-power supercapacitors using environmentally friendly electrolytes, and exploring the electrode/electrolyte interphase. This is achieved through the development of new in situ/operando techniques based on solid-state NMR, Raman spectroscopy, and gas spectrometry. She holds 13 patents related to electrode materials and energy storage devices, and her publications have received over 15500 citation.

Chairperson: Diego Cazorla-Amorós

Oral Session 7. Hydrogen

Chairperson: María Carmen Román-Martínez

10:00 **K9** (Id.78)
Steam reforming of biomass pyrolysis liquids using Ni supported on activated carbons obtained from biomass pyrolysis solids
*Paula Cabrera-Reyes, María Nerea Rivas Márquez, Paula Riquelme-García, **Ramiro Ruiz Rosas**, Miriam Navlani-García, Juana María Rosas, Diego Cazorla-Amorós, José Rodríguez-Mirasol, Tomás Cordero*

10:30 **S7-1** (Id.86)
Biomass Gasification with Air: Integration of Gas Cleaning and CO_2 Valorization for Enhanced Process Performance
***Paulo Brito**, Bruna Rijo, Roberta Panizio, José Copa*

10:45 **S7-2** (Id.109)
Hydrogen and nanostructured carbon from methane pyrolysis using locally sourced metallurgical iron waste
***Daniel Torres**, Jaime López-de los Ríos, José Luis Pinilla, Isabel Suelves*

11:00 **S7-3** (Id.128)
Improving SOEC and tri-reforming efficiencies in the integration of SOEC and Gasification for H_2, methanol and dimethyl ether production
***Andrea Fasolini**, Micaela calzone, Nicola Boccagni, Elena Marchetti, Andrea Brigliadori, Francesca Bagioni, Elisa Mercadelli, Angela Gondolini, Nikolaos Dimitratos, Alessandra Sanson, Francesco Basile*

11:15 **S7-4** (Id.125)
Effect of Ni incorporation route on Ni-Al aerogel thermo-photocatalysts for CO_2 methanation
***Haritz Etxeberria Altuna,** Daniel Estevez, Laura Barrio*

11:30 **Coffee break**

Oral session 9: Fuel cells / hydrogen

Chairperson: Carmelo lo Vecchio

10:00 **K11** (Id.97)
Tuning the pore structure of Fe-N-C electrocatalysts for high ORR activity and stability
Giulia Gianola, Mirtha A.O. Lourenço, Tiago Morais, Luís Mafra, Juqin Zeng, ***Stefania Specchia***

10:30 **S9-1** (Id.92)
Degradation of Fe-N-C fuel cell catalysts in a gas diffusion electrode system
Miguel Coca-Arroyo, Beatrice Ricciardi, María Jesús Lázaro, David Sebastián, ***Cinthia Alegre***

10:45 **S9-2** (Id.90)
Influence of Fan Power, Geometry and Speed on the Performance of an Open-Cathode PEMFC Stack
Miguel N. Moreira*, Daniela S. Falcão, Alexandra M.F.R. Pinto, Rui B. Ferreira*

11:00 **S9-**3 (Id.70)
Modeling and numerical simulation of a solid oxide fuel cell stack using an iterative multi-scale approach
Cristina Raga*, Santiago Lain, David Parra, Blanca Isabel Arias*

11:15 **S9-4** (Id.124)
Enhancing Spanish Electric System Resilience Through The Characterization Of Intermittent Renewable Surpluses For Large-Scale Green Hydrogen Storage
David Bermejo Plana*, Genís Casanova Palomar, Laura Martí Ferré*

11:30 **Coffee break**

Oral Session 8: Hydrogen

Chairperson: Felix Barreras

12:00 **K10** (Id.12)
On the heating during refueling of a hydrogen-powered vehicle
Ana González-Espinosa, ***Antonio Lozano****, Juan Stehr, Jorge Barroso, Félix Barreras*

12:30 **S8-1** (Id.101)
Spatial planning of RFNBO electrolyzers through GIS–MCDA regulatory framework and statistical robustness analysis
Jorge Cuevas Moreno*, Jordi Renau, Fernando Sanchez*

12:45 **S8-2** (Id.111)
Digital twins for green hydrogen plants: balancing efficiency, generation, and degradation
Andrés Bernabeu Santisteban*, Héctor del Pozo González, Tolga Yalçin, Francisco Díaz-González, Lluís Trilla*

13:00 **S8-3** (Id.120)
Modeling the Voltage Response of Anion Exchange Membrane Water Electrolyzers with Different Electrode Materials for Power Electronics Design
Hector del Pozo Gonzalez*, Andrés Bernabeu-Santisteban, Andres Alberto Garcia-Blanco*

13:15 **S8-4** (Id.106)
Design and validation of modular hydrogen range extenders for electric mobility: A methodological study
Alberto Aguilar Asensio, ***Javier Tobajas Blanco***

13:30 **Lunch**

15:30 -17-30 **Poster Session 2 and coffee break**

Oral Session 10: Fuel cells / hydrogen

Chairperson: David Salinas-Torres

12:00 **K12** (Id.26)
Warped Graphene Layers Control ORR Activity of Carbon Catalysts via Configurational Entropy
Jun-ichi Ozaki, *Rieko Kobayashi*

12:30 **S10-1** (Id.45)
Development of hollow bimetallic catalysts supported on nanostructured carbons for sustainable PEM fuel cell electrodes
Ali Haider*, Lucas Elvira, Loïc Noumbi, Nathalie Job, Sophie Hermans*

12:45 **S10-2** (Id.88)
Tailoring Active and Stable Electrodeposited Ni-Based Catalysts for HER in Alkaline and Alkaline-Saline Media
María González Ingelmo, ***Lucia Muñiz Muñoz****, Clara Blanco, Ricardo Santamaría, Victoria García Rocha*

13:00 **S10-3** (Id.123)
Methanol Oxidation as a Diagnostic for OH Adsorption on Pt
Rubén Rizo, *Enrique Herrero*

13:15 **S10-4** (Id.85)
Engineering Nickel Catalysts for High-Efficiency Urea Electrolysis and Sustainable Hydrogen Production
María Cuartero-González

13:30 **Lunch**

15:30 -17-30 **Poster Session 2 and coffee break**

9:00-10:00 PLENARY LECTURE 3. Salón de Actos – Aulario II

Hybrid Electrochemical Energy Storage: Integrating Saline Electrolysis and CO_2 Capture for Next-Generation Renewable Systems

Prof. Manuel A. Rodrigo. University of Castilla-La Mancha, Spain

M.A. Rodrigo is Professor in Chemical Engineering at the University of Castilla-La Mancha (UCLM), with a career marked by pioneering contributions to electrochemical engineering. He graduated with honors in Industrial Chemistry from the University of Valencia in 1993 and earned his PhD in 1997, focusing on the automation of biological nutrient removal processes. Since joining UCLM in 1996, he has developed a robust research program in electrochemical technologies, initially targeting industrial wastewater treatment. His postdoctoral work at EPFL (Switzerland) introduced him to conductive diamond electrodes, which became central to his research. Over the years, he expanded his interests to include electrocoagulation, PEM fuel cells, electrocatalysis, electrokinetic soil remediation, and bioelectrochemical systems. More recently, he has explored innovative areas such as electro-refinery, reactive absorption, redox flow batteries and 3D-printed electrochemical cells. Rodrigo has published over 660 scientific articles, with a strong international collaboration rate and high impact (h-index 84, over 32000 citations). He has supervised 29 PhD theses and led numerous competitive projects and industry collaborations. He is deeply committed to mentoring young researchers and fostering international partnerships, particularly in Latin America. He has held leadership roles in major scientific societies and editorial boards and currently serves as Dean of the Faculty of Chemical Sciences and Technologies at UCLM. His work has been recognized with prestigious awards, including the 2020 Career Award from the Spanish Royal Society of Chemistry and the 2021 Research and Innovation Award from Castilla-La Mancha. In 2025, he was named Fellow of both the International Society of Electrochemistry and the Spanish Royal Academy of Sciences.

Chairperson: Francisco Montilla

Oral Session 11:Hydrogen

Chairperson: Cinthia Alegre

10:00 **K13** (Id.49)
Poly-Terphenyl-Piperidinium Anion Exchange Membranes for Next-Generation Hydrogen Technologies
***Vincenzo Baglio**, Carmelo Lo Vecchio, Irene Gatto, Gioacchino Bucca, Cataldo Simari, H.M. Ur Rehman, Martina De Bonis, Isabella Nicotera*

10:30 **S11-1** (Id.53)
Experimental validation of operational strategies and decision support tools for renewable hydrogen production in PEM and AEM multi-stack electrolyzers
***Eduardo López**, Alberto Monterroso, Miguel A. Ridao, Diego Tejada*

10:45 **S11-2** (Id.73)
Online identification of a semi-empirical reduced-order model for health monitoring of PEM electrolyser stacks
*Diego Tejada Guzmán, Alberto Monterroso Muñoz, Víctor García Peñas, Eduardo López González, **Jordi Renau Martínez***

11:00 **K14** (Id.62)
Stability Assessment of Commercial Membranes for AEM Water Electrolysis
***Daniela Falcao**, Vasco Lopes, Alexandra Pinto, Rui Ferreira*

11:30 **Coffee break**

Oral Session 13: Advanced batteries and capacitors

Chairperson: María Jesús Lázaro

10:00 **K16** (Id.82)
Carbon Strategies for Rechargeable Batteries
Quan-Hong Yang

10:30 **S13-1** (Id.10)
Novel nitrogen-based solid polymeric electrolytes for next-generation Zinc batteries: An environmental impact analysis using Life Cycle Assessment methodology
Miguel Ángel González Lara, *Ángel Galán-Martín, Daniel Brandell, Pedro Navarrete-Segado, Manuel Merguizo, Antonio Peñas-Sanjuán*

10:45 **S13-2** (Id.24)
Novel Polyperylenediimide-Based Organic Polymers as Cathode Materials for Secondary Calcium Organic Batteries: A Green Chemistry Approach
Belén Martínez*, Ruben Cruz, Juan Pedro Merino, Celeste García, Antonio Peñas*

11:00 **S13-3** (Id.40)
High-Purity Recovery and Structural Restoration of Anode Graphite from NMC-Type Batteries using a Mild Citric Acid-Based Hydrometallurgical Route
Pedro Navarrete-Segado*, M. Luz Godino-Salido, Abhishek Khaimar, David Anguera, Stephan Stuhr, Antonio Peñas-Sanjuán*

11:15 **S13-4** (Id.76)
Development of Software for Energy Management and Cost Minimization in Electrochemical Plant Operation Using Renewable Energy and Battery Support
Miguel Ángel Rodríguez Cano*, Alberto Rodríguez Gómez, Justo Lobato Bajo, Manuel A Rodrigo Rodrigo*

11:30 **Coffee break**

Oral Session 12: Hydrogen

Chairperson: Daniel Torres

12:00 **K15** (Id.115)
Single-atom M-N-C catalysts for the electrochemical CO_2-to-CO conversion
***Sara Pérez Rodríguez**, Irene Vela Murillo, David Sebastián del Río, María Jesús Lázaro Elorri, Manuel Gutiérrez Roa, Ana Cristina Giménez Rubio*

12:30 **S12-1** (Id.50)
Activity and Stability of $NiFe_2O_4$ Catalysts in PiperION® Based AEM Electrolysers
***Carmelo Lo Vecchio**, Irene Gatto, Mairaj Ahmad, Riccardo Dollenz, Angelo Mondello, Assunta Patti, Gioacchino Bucca, Vincenzo Baglio*

12:45 **S12-2** (Id.72)
Unraveling the effect of high-entropy in layered hydroxides for oxygen evolution reaction catalysis and durability
***Gabriel Alemany-Molina**, Youssra Youssra Diouane, Raúl Serna-Guijarro, Álvaro Seijas-Da Silva, Gonzalo Abellán*

13:00 **S12-3** (Id.75)
Engineering NiFe-LDH-Based Composites with Molybdenum Chalcogenides for AEM Water Electrolysis
***Beatrice Ricciardi**, Cinthia Alegre, Carlos Serrano, María Jesús Lázaro, David Sebastián.*

13:15 **S12-4** (Id.79)
Direct seawater electrolysis for hydrogen production
***Gabriel Melle**, Alejandro Ortega-Murcia, María Porcel-Valenzuela, Marta García-Pellicer*

13:30 **CLOSING CEREMONY**

14:00 **Lunch**

Oral Session 14: Advanced batteries and capacitors

Chairperson: Marta Sevilla

12:00 **K17** (Id.99)
Post-treatments on carbon xerogels to improve their performance as negative electrodes of Na-ion batteries
***Berke Karaman**, Hélène Tonnoir, Da Huo, Jimena Castro Gutiérrez, Bryan Carré, Alexandre F. Léonard, Marion Bermont, Zoé Deckers, Alain Celzard, Vanessa Fierro, Carine Davoisne, Raphaël Janot, Nathalie Job*

12:30 **S14-1** (Id.42)
A simple and effective method to synthesize ZnS@C composites for use as anode materials in Na-ion batteries
***Raúl Gimeno Ferrero**, Noel Díez Nogués, Marta Sevilla Solís*

12:45 **S14-2** (Id.64)
Exploring Fast Parameterization of P2D Models in Commercial Sodium-Ion Batteries via Intermittent Current Interruption
***Martin Roitegui**, Oier Arcelus, Emanuele Gucciardi*

13:00 **S14-3** (Id.105)
Chemical design of sustainable materials for the anode of high-performance sodium-ion battery anodes
***Julia Trojaola**, David García, Nuria Cuesta, Natalia Rey-Raap, Ana Arenillas, Belén Lobato, Ignacio Cameán*

13:15 **S14-4** (Id.108)
Pore Size Engineering in Sustainable Materials for Enhanced Sodium-Ion Battery Capacity
***David García Pérez**, Julia Trojaola, Nuria Cuesta, Belen Lobato, Ana Beatriz García, Ana Arenillas, Natalia Rey-Raap, Ignacio Cameán*

13:30 **CLOSING CEREMONY**

14:00 **Lunch**

POSTER SESSION

HYDROGEN AND FUEL CELLS

P1 (Id.5)

Co_3O_4 and Cr_2O_3 Particles Supported Biomass–Derived Nitrogen-Doped Carbon as an Electrocatalysts for Hydrogen Evolution Reaction

***Karina Vjūnova**, Loreta Tamašauskaitė-Tamašiūnaitė*

P2 (Id.8)

Preliminary assessment of hydrogen production via solar-driven biomass gasification

***Diogo Canavarro**, Bruna Rijo, Paulo Brito*

P3 (Id.21)

Production of H_2 from formic acid by tuning palladium-based catalysts supported on N-doped activated carbon

***Paula Riquelme García**, Jerónimo Juan Juan, David Salinas Torres, Miriam Navlani García, Diego Cazorla-Amorós, Alina Skorynina*

P4 (Id.22)

Biomass-derived nitrogen-doped Pd/C catalysts: tuning nitrogen groups for hydrogen storage and production

***María Bernal-Vela**, Miriam Navlani-García, Diego Cazorla-Amorós*

P5 (Id.32)

Methodology for MEA characterization

***Joël Martín Dalmas**, Adrián Martín Pintos, Marcos Castrillo Cuevas, Jose Ignacio Domínguez Carrero*

P6 (Id.47)

Highly porous carbons from hydrochar by means of a controlled physical activation process and their hydrogen storage performance

***Marta Sevilla**, Ana Fernández-Lera, María Dolores Casal, Stephen Otieno, Leo Scott Blankenship, Robert Mokaya, Teresa Valdés-Solís*

P7 (Id.51)

Aqueous-phase catalytic ammonia decomposition for hydrogen production at moderate temperature

***Manuela Sanchez Barbon**, Cristina Ruiz-Garcia, Jose Alberto Baeza, Luisa Calvo, Miguel Angel Gilarranz*

P8 (Id.52)

Techno-economic analysis of the integration of biomass-based processes and water electrolysis for hydrogen and renewable fuels production

***Eduardo López**, Diego Tejada, Adrián Castro, Bruna Rijo, Cecilia Mateos-Pedrero, Paulo Brito, Jose I. Domínguez, Ángel Álvarez, Jimena Incer, Fausto Posso*

P9 (Id.55)

Electrooxidation of glycerol catalyzed by low-temperature heat-treated NiO-based catalysts in alkaline media

***Raúl Ligero Peralta**, David Salinas Torres, Diego Cazorla-Amorós, Emilia Morallon*

P10 (Id.57)

Low-coated Pt/graphene electrocatalysts for her: synthesis, optimization and characterization in acidic and alkaline media

***Javier García de Quirós**, Sara Rodríguez, Emilia Morallón, Diego Cazorla-Amorós*

P11 (Id.59)

Lactic acid photoreforming over CdS: influence of crystallinity on activity under UV and solar irradiation

***Juan Manuel Rives López**, María Carmen Román Martínez, María Ángeles Lillo Ródenas*

P12 (Id.60)

Boosting hydrogen production via photoreforming of the aqueous phase from hydrothermal carbonization of olive stones: effect of reaction conditions

*Manuel Peñas-Garzón, María J. Valero-Romero, Ramiro R. Ruiz-Rosas, Juana M. Rosas, **Jose Rodríguez-Mirasol**, Tomás Cordero*

P13 (Id.61)

H_2 production by glycerol photoreforming under UV and solar light using TiO_2-Cu photocatalyst

***Juan Carlos Maciá Barrios**, Macarena Espinosa Agulló, María Carmen Román Martínez, María Ángeles Lillo Ródenas*

P14 (Id.65)

Hydrogen production via steam gasification of char obtained from slow pyrolysis of lignocellulosic biomass

***María Nerea Rivas Márquez**, Ramiro Ruiz Rosas, Juana María Rosas, José Rodríguez Mirasol, Tomás Cordero*

P15 (Id.66)

Hydrogen production through the water – gas shift reaction using sustainable Cu and Cu/ZnO – based catalysts

***María Nerea Rivas Márquez**, Paula Riquelme García, Ramiro Ruiz Rosas, Miriam Navlani, Juana María Rosas, Diego Cazorla-Amorós, José Rodríguez Mirasol, Tomás Cordero*

P16 (Id.69)

Hybrid Battery–Hydrogen Energy Storage for Data Center Power Supply and Long-Duration Backup: Architecture and Hierarchical EMS

*Alberto Aguilar Asensio, **Javier Tobajas Blanco***

P17 (Id.77)

New water treatment for green hydrogen production

*Francisco Manuel Soria López, **Miguel Ángel Rodríguez Cano**, Pablo Cañizares, Justo Lobato, Jesús Rodríguez-Ruiz, Carmen M. Fernández Marchante*

P18 (Id.84)

Advanced Energy Management Strategies for Hybrid Fuel Cell and Multi-Chemistry Battery Systems in Renewable Desalination Applications

***Paula Arias Cuberas**, Alejandro Clemente Leon, Levon Gevorkov, Lluis Trilla*

P19 (Id.91)

Design of ionic liquid-based ionogel membranes as alternatives to PFSA-based membranes in PEM fuel cells

***Eduardo Iniesta-López**, Adrian Hernandez-Fernandez, Pranav Sharda, Josh Bailey, Antonia Perez-de-los-Rios, Francisco Jose Hernandez-Fernandez*

P20 (Id.93)

Role of pore structure in the stability of Fe–N–C catalysts based on carbon xerogels for fuel cells

***Cinthia Alegre**, Miguel Coca-Arroyo, Beatrice Ricciardi, Laura Álvarez-Manuel, María Jesús Lázaro, David Sebastián*

P21 (Id.96)

Direct Electron Transfer of HRP entrapped in Silica Thin Films: Potential for peroxide-based biofuel cell

Maria Camila González, *Francisco Huerta, Francisco Montilla, Andrés Quintero*

P22 (Id.98)

Highly active Ni-Cu catalysts for the ammonia oxidation reaction

***Abraham Castilla Silvestre**, Elena Pastor, Sergio Díaz Coello, Julia Kunze Liebhäuser, Rubén Rizo*

P23 (Id.107)

Optimization of a Temperature Swing Adsorption dryer for green hydrogen.

***Tiago Sanros,** José Sousa, Frederico Relvas, Adélio Mendes*

P24 (Id.112)

Carbon-containing $LaMn_{1-x}Cu_xO_3$ Perovskites for Selective CO_2 Electrochemical Reduction

***Lidia Garcia Santos**, Mario García-Rodríguez, Samuel Calabuig-Mompó, Diego Cazorla-Amorós, Emilia Morallón*

P25 (Id.116)

Optimizing Nanoparticle Positioning in Nanotubes: A Chemometric and Finite Element Approach

Evaldo B. Carneiro-Neto, Kelvin Costa de Araújo, Roger Gonçalves, ***Ernesto Chaves Pereira de Souza***

P26 (Id.129)

Valorization of corn cob waste into biochar-based electrodes for sustainable energy generation in microbial fuel cells

***Lina Rocio Laymito Chumbimuni**, Raúl Berenguer, Juan Manuel Ortiz, Abraham Esteve-Núñez, Adolfo La Rosa-Toro*

ADVANCED BATTERIES AND CAPACITORS

P27 (Id.27)

Sustainable functionalization of carbon materials with nitrogen via mechanochemistry for energy storage applications

Joel Gran-García, Jorge Sánchez-Carrasco, ***Jessica Alejandra Chaparro-Garnica****, David Salinas-Torres, Emilia Morallón, Diego Cazorla-Amorós*

P28 (Id.28)

Activated carbons with different porous texture for zinc-ion hybrid capacitors

Óscar Jareño Amorós*, Jessica Chaparro Garnica, Emerson Vega Ramírez, David Salinas Torres, Emilia Morallón, Diego Cazorla-Amorós*

P29 (Id.30)

Can sodium carbonate be a sustainable electrolyte for activated carbon–based supercapacitors?

Laia Figueres-Fernández*, Cristian Jaimes-Páez, David Salinas-Torres, Diego Cazorla-Amorós, Emilia Morallón*

P30 (Id.33)

Influence of Oxygen Functional Groups on Iron Phthalocyanine–Graphene Interactions for Enhanced ORR Electrocatalysis

Samuel Calabuig Mompó, *Gabriel Alemany Molina, Diego Cazorla-Amorós, Emilia Morallón*

P31 (Id.43)

Synthesis of two-dimensional materials through controlled chemical and electrochemical exfoliation

Ricardo Hincapié-Ocampo*, Cristian Jaimes-Páez, Emilia Morallón, Ángel Berenguer-Murcia, Diego Cazorla-Amorós*

P32 (Id.81)

Dual-Phase High-Entropy Oxide (CrMnCoNiCu)xOy as a High-Performance Anode for Lithium-Ion Batteries

Dávid Csík*, Lenka Oroszová, Gabriela Baranová, Róbert Džunda, Beáta Ballóková, Zuzana Molčanová, Karel Saksl*

P33 (Id.83)

High-Entropy Oxide $(CrMnFeCoNi)_3O_4$ as an Electrocatalyst for High-Performance Lithium-Sulfur Batteries

***Lenka Oroszová**, Dávid Csík, Gabriela Baranová, Róbert Džunda*

P34 (Id.100)

Activated Carbon from Peach Pits with Chicken Feather Keratin for Supercapacitor Electrodes.

***Ofelia Marilú Arias Pinedo**, Vitor L Martins, David Salinas Torres, Angélica M Baena-Moncada*

P35 (Id.102)

TEMPO immobilized on magnetic silica nanoparticles as electrocatalyst for energy storage applications.

***Francisco José Lloret-Mateo**, César Quijada, Raúl Berenguer*

P36 (Id.113)

Valorization of grape pomace residues into N-doped activated carbons as electrochemical capacitor electrodes

Diego Lobato, Irene Vela, Sara Pérez Rodriguez, Cinthia Alegre, ***María Jesús Lázaro Elorri***

P37 (Id.117)

Protocols for evaluating advanced bio-sourced gel polymer electrolytes (GPEs) for sustainable zinc-air battery (ZAB) applications

***Barbara Belza**, Luca Bargnesi, Maria Martinez-Ibañez, Nagore Ortiz Vitoriano, Mattia Felice Palermo*

P38 (Id.130)

Binder-free and self-standing porous carbon fabric for flexible supercapacitors

***Angel Del Blanco García**, Marta Sevilla, Noel Diez, Antonio José Paleo*

SOCIAL PROGRAM

Participants and accompanying persons of HYCELTEC 2026 are invited to all the activities detailed in this social programme.

Monday, 8th June 2026

Welcome reception at the Museum of the University of Alicante (MUA). It will take place from 19:00 to 20:30 h.

Tuesday, 9th June 2026

Cocktail at Dársena Restaurant (Address: Perfecto Palacio de la Fuente, Muelle Pte., 6, 03003 Alicante; Panoramis Life & Business)

- From San Vicente del Raspeig to Dársena Restaurant:

Two buses will leave from Residencia Villa Universitaria (Avda. Vicente Savall Pascual, 16, San Vicente del Raspeig) at 20:00 h.

- From Dársena Restaurant to San Vicente del Raspeig:

Two buses will leave from Dársena Restaurant at 23:00 h.

Wednesday, 10th June 2026

Conference Banquet at Meliá Hotel (Address: Plaza del Puerto 3, Alicante)

- From San Vicente del Raspeig to Meliá Hotel:

Two buses will leave from Residencia Villa Universitaria (Avda. Vicente Savall Pascual, 16, San Vicente del Raspeig) at 20:00 h.

- From Meliá Hotel to San Vicente del Raspeig:

Two buses will leave from Meliá Hotel at 23:00 h.