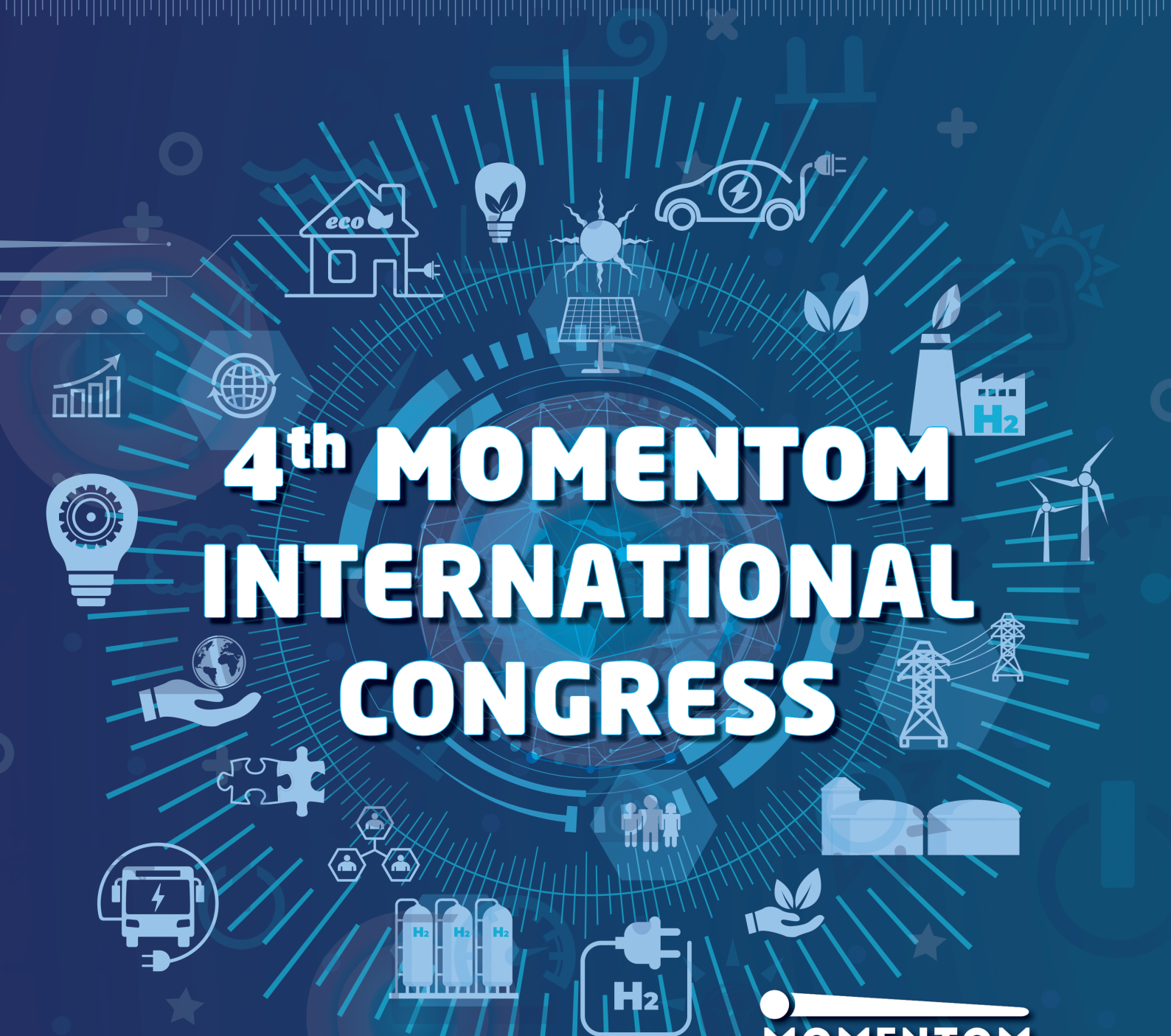
02-04 APRIL 2025

ACCELERATING THE ENERGY TRANSITION



4th MOMENTOM INTERNATIONAL CONGRESS

UNIVERSITÉ PARIS-SACLAY
BUILDING HENRI MOISSAN
17, AVENUE DES SCIENCES
91400 ORSAY - FRANCE

MOMENTOM

MOlecules
and **M**aterials
for the **EN**ergy
of **TOM**orrow

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INFORMATION & REGISTRATION
https://momentom2025.sciencesconf.org

Free registration

PROGRAM: DAY 1 AM

Hall

8:30—9:30 Welcoming coffee & registration

Amphitheater O. Kahn Chairwoman: Hynd Remita

9:30—10:00 Introductive words

Nicolas Méary, Vice president in charge of biodiversity, ecologic transition, sustainable development, environment and green developement, Conseil Départemental de l'Essonne

Mehran Mostafavi, vice-président Recherche Université Paris-Saclay

Patrick Schembri, Director of Institute for Sustainable Energy, Université Paris-Saclay

10:00—10:45 PLENARY #1 Nagore Ortiz Vitoriano: Naturally-derived Biopolymer-based Electrolytes for Electrically Rechargeable Zn-air Batteries

10:45—11:15 KEYNOTE #1 Sylvie Matelly: Boosting European Innovation: A Complex Challenge?

11:15—11:35 ORAL #1 Antonella Iadecola: Insights on the role of the covalent Ni-O bonds in $LiNiO_2$ positive electrodes: a comprehensive hard X-ray spectroscopy study

11:35—11:55 ORAL #2 Luís Cunha Silva: On the path to developing MOF-based materials for sustainable (energy-related) processes

11:55—12:15 ORAL #3 Philip Schulz: Interface Engineering for Stable Perovskite Solar Cells

12:15—12:35 ORAL #4 Valérie Meille: Status of hydrogen storage in LOHCs

Hall

12:35—14:15 Lunch

PROGRAM: DAY 1 PM

Amphitheater O. Kahn Chairman: Patrick Schembri

14:15—15:00	PLENARY #2 Maria-Eugenia Sanin: Driving the Green Shift: Carbon Taxes, Subsidies, and the Road to Inclusive, Sustainable Private Transport
15:00—15:30	KEYNOTE #2 Wojciech Macyk: Profiting from merging photocatalysis with catalysis
15:30—16:00	Coffee break

3 PARALLEL SESSIONS

Amphitheater O. Kahn — **SESSION 1: FUEL CELLS & ELECTROLYZERS — chairman: Prakash C. Ghosh**

16:00—16:20	ORAL #5 Guilio Cordaro: High-Throughput Optimization of Proton-Conducting Solid Oxides for Hydrogen Technologies
16:20—16:40	ORAL #6 Rama Bhattacharyya: Study of 2,5 Polybenzimidazole-ZrO_2 Nanocomposite Membrane Towards Cost-effective Alkaline Water Electrolyzer
16:40—17:00	ORAL #7 Haitham Maslouh: Anti-corrosion thin films by Atomic Layer Deposition for low-cost Porous Transport Layers and Bipolar Plates in Proton Exchange Membrane electrolyzers
17:00—17:20	ORAL #8 Getachew Teklay Gebreslassie: Designing Eco-Friendly and Durable MOF-based Proton Exchange Membranes for Fuel Cells
17:20—17:40	ORAL #9 Negar Naghavi: Assessment of Ni-Mo-Fe based catalysts for PV-hydrogen production
17:40—18:00	ORAL #10 Divino Salvador Ramírez-Rico: Nitride and oxide-based anticorrosion thin films characterized by conductive Atomic Force Microscopy for their integration in PEM water electrolyzers

Amphitheater H. Daniel — **SESSION 2: BATTERIES & SUPERCAPS — chairwoman: Magali Gauthier**

16:00—16:20	ORAL #11 Emilie Bekaert: Advanced Diagnostic Tools for Early Detection of Degradation Mechanisms
16:20—16:40	ORAL #12 Stéphanie Belin: How can we ensure the reliable characterization of electrode materials during their operation using operando XAS? By using Full-Field Hyperspectral Imaging!
16:40—17:00	ORAL #13 Annouk Pelassy: Optimizing cell finishing processes: Study of the impact of process parameters on EEI formation using ex situ and operando nuclear microprobe characterizations
17:00—17:20	ORAL #14 Monika Parihar: Engineering electrode surface for Lithium Battery application by Atomic Force Microscopy
17:20—17:40	ORAL #15 Julius Akinribido: Study of Charge Transport Limitations in Lithium-ion Battery Electrodes
17:40—18:00	ORAL #16 Mahmoud Aboaouf: Characterization of Electronic Conductivity by Broadband Dielectric Spectroscopy of Positive Electrode Materials of Spinelle-Type Li-ion Batteries

HM2 room 2000 (2nd floor) — **SESSION 3: PHOTOPRODUCTION OF H_2 — chairwoman: Ewa Kowalska**

16:00—16:20	ORAL #17 Dorota Rutkowska-Zbik: Platinum Carbonyl Chini Clusters as Catalysts for Photocatalytic H_2 Generation: Theory and Experiment
16:20—16:40	ORAL #18 Caroline H. Claudino: Evaluation of the ability of hematite and titanium dioxide heterojunctions to photo(electro)-chemically generate H_2
16:40—17:00	ORAL #19 Lei Wang: Inverse Opal Titania Modified with Gold for Visible-light Photocatalytic Activity
17:00—17:20	ORAL #20 Arianna Melillo: Photocatalytic Hydrogen Production: Insights into Titanium-Based MOFs MIP-177(Ti) and MIP-209(Ti)
17:20—17:40	ORAL #21 Priscila Hasse Palharim: Synergistic Integration of Persistent Luminescent Materials and Black TiO_2 for Enhanced Green Hydrogen Production

Hall

18:00—19:45	Poster session #1 & Cocktail

PROGRAM: DAY 2

Amphitheater O. Kahn Chairman: Loïc Assaud

9:00—9:45 PLENARY #3 Nicola Pinna: Novel Materials Chemistry for Energy and Environmental Applications

9:45—10:15 KEYNOTE #3 Pierre Henneaux : Multi-energy networks: ensuring the security of supply

10:15—10:25 Booths presentations

Hall

10:25—10:55 Coffee break

3 PARALLEL SESSIONS

Amphitheater O. Kahn — **SESSION 1: BATTERIES & SUPERCAPS — chairwoman: Antonella Iadecola**

10:55—11:15 ORAL #22 Bernard Lestriez: Dry Spray-Coated Graphite/PVdF Electrodes for EV Lithium-Ion Batteries

11:15—11:35 ORAL #23 Sergio Mayer: Elucidating new synthesis procedures for Na_3PS_4 sodium solid electrolyte

11:35—11:55 ORAL #24 Gabrielle Mpacko Priso: Exploring the massive electron storage in the polyoxometalates

11:55—12:15 ORAL #25 Jesus Santos-Pena: Revisiting the electrochemical activity of alpha-V_2O_5 electrode for aqueous ammonium ion batteries

12:15—12:35 ORAL #26 Rébecca Bazin: Electrochemical Functionalization of Porous Materials for Supercapacitor Applications

Amphitheater H. Daniel — **SESSION 2: PHOTOVOLTAICS — chairman: Philip Schulz**

10:55—11:15 ORAL #27 Huriye Ertay: In-situ Multimodal Analysis of Metal Halide Perovskite Film Formation and Degradation for Stable Perovskite Solar Cells

11:15—11:35 ORAL #28 Thanh-Tuan Bui: Development of Hole Transporting Molecules for Perovskite Solar Cells

11:35—11:55 ORAL #29 Andrés Soto: Narrow Interconnection in Inverted Perovskite Solar Modules Using a Single Nanosecond UV Laser

11:55—12:15 ORAL #30 Ange Bernardin Chambissie: Innovative Synthesis and Characterization of Non-Toxic Gold-Based Double Perovskites

12:15—12:35 ORAL #31 Christian Cariño: Photon Catchers and Electron Keepers: The Potential of Hybrid Polyoxometalates in Solar Energy Conversion

HM2 room 2000 (2nd floor) — **SESSION 3: ENERGY NETWORKS — chairman: Marc Petit**

10:55—11:15 ORAL #32 Pierre-Etienne Testelin: Loadflow method for long-term planning and the valorization of new levers

11:15—11:35 ORAL #33 Emile Emery: Energy-optimal placement of storage systems in the power grid network

11:35—11:55 ORAL #34 Pierre Dumont: Energy Arbitrage Potential of Bidirectional Electric Vehicles Considering Virtual Mileage Impact on Vehicle Residual Value

11:55—12:15 ORAL #35 Adel Razek: Sustainable management of energy storage and transfer in electric vehicles involved in a green smart city environment

Hall

12:35—14:00 Lunch

INNOVATION SESSION

Amphitheater O. Kahn Chairman: Marc Petit

14:00—14:30 PLENARY #4 Pierre Millet: Polymer Electrolyte water electrolysis : from functional materials to industrial developments

14:30—14:45 Xavier Morise: TotalEnergies activities linked to energy transition

14:45—15:30 Start-up pitchs (SoyPV, Kurybees, Zest Clean Energy, Spark)

15:30—16:30 Round table on Innovation & Energy hosted by Elsa Couderc (The Conversation)

Hall

16:30—18:00 Poster session #2

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20:00—23:00 **GALA DINNER—LE TRAIN BLEU, PARIS**
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PROGRAM: DAY 3 AM

Amphitheater O. Kahn Chairman: Sylvain Franger

9:30—10:15	PLENARY #5 Christel Laberty-Robert: Composite Electrolyte for all Solid State Batteries
10:15—10:25	DIM MaTerRE presentation
10:25—10:50	Awards ceremony

Hall

10:50—11:15	Coffee break

3 PARALLEL SESSIONS

Amphitheater O. Kahn — **SESSION 1: PHOTOPRODUCTION OF H_2 — Chairwoman: Dorota Rutkowska-Zbik**

11:15—11:35	ORAL #36 Ewa Kowalska: Titania modified with copper species for photocatalytic activity enhancement
11:35—11:55	ORAL #37 Maxime Lajoye: Photocatalytic Tandems Based on Polyoxothiometalates and Metallic Clusters for the Production of Dihydrogen
11:55—12:15	ORAL #38 Magan Himanshu: High-entropy Tungsten-Based Oxide as Electrocatalyst and Potential Photo-electro-catalyst for H_2 Evolution
12:15—12:35	ORAL #39 Marie Le Pivert: HKUST-1/TiO_2 chitosan beads as photocatalyst for green hydrogen generation by photocatalysis

Amphitheater H. Daniel — **SESSION 2: CO_2 CONVERSION — chairman: Johnny Deschamps**

11:15—11:35	ORAL #40 Navaneeth Narayan Gowda: Design of Chiral Porous bio-hybrid materials as catalysts for CO_2 conversion
11:35—11:55	ORAL #41 Diep Le: Development of hybrid ZnO nanostructured layers electrodeposited on high-efficiency ACIGS solar cells for enhanced photoelectrochemical CO_2 reduction
11:55—12:15	ORAL #42 Ola Bajouk: Efficient CO_2 Electroreduction to CO Using Nanostructured Silver-based Catalysts

HM2 room 2000 (2nd floor) — **SESSION 3: MATERIALS FOR ENERGY — chairman: Clément Falaise**

11:15—11:35	ORAL #43 Francesca Gambassi: New selective PET based nanoporous membranes functionalized with MOFs for diffusion-osmotic mixing for blue energy optimization
11:35—11:55	ORAL #44 Prakash Chandra Ghosh: Green Hydrogen: Paving the Way for Clean Cooking in Rural Areas
11:55—12:15	ORAL #45 Elise Dirican: Thermogalvanic Effects in Ionic Liquids: Study of New Cu(II)/Cu(I) Redox Systems
12:15—12:35	ORAL #46 Ioannis Giannoutsos: Thermogalvanic energy conversion improvement in ionic liquids: redox solvation and coordination chemistry

Hall

12:35—14:00	Lunch

PROGRAM: DAY 3 PM

Amphitheater O. Kahn Chairwoman: Emmanuelle Deleporte

14:00—14:45 PLENARY #6 Aldo Di Carlo: See-through photovoltaics

3 PARALLEL SESSIONS

Amphitheater O. Kahn — **SESSION 1: H_2 CATALYSTS — Chairwoman: Juliana Silva**

14:45—15:05 ORAL #47 Rémi Gaultier: HER as a major vulnerability of TiO_2-based aqueous batteries. Could this system be an asset for electrocatalysis?

15:05—15:25 ORAL #48 Ba Lich Pham: Non-linear Optical Studies of Water Structure in the Electrical Double Layer at the Electrode-Electrolyte Interface

15:25—15:45 ORAL #49 Karine Philippot: Design of alloy-type nickel-copper nanoparticles by organometallic approach for the electrocatalytic hydrogen evolution reaction

15:45—16:05 ORAL #50 Maria El Khoueiry: New $\{Mo_3S_x\}$-based electrocatalysts for Hydrogen Evolution Reaction

Amphitheater H. Daniel — **SESSION 2: H_2 INNOVATIVE CONVERSION — Chairman: Emmanuel Cadot**

14:45—15:05 ORAL #51 Nicolas Keller: Photo-thermo catalysis: a strategy for boosting catalytic performances

15:05—15:25 ORAL #52 Christine Cachet-Vivier: Electrochemical oxidation of ammonia from wastewater treatment plant sludges

15:25—15:45 ORAL #53 Sylvain Gigot: Innovative transition metal-based catalysts for the dehydrogenation of a LOHC

15:45—16:05 ORAL #54 Salim Sebai: Experimental and Numerical Investigation of Dual-Fuel Hydrogen/Diesel Combustion: Effects of Diesel Mass, Injection Timing Strategies, and Engine Speed on Performance and NO_x Emissions in a Single-Cylinder Engine

HM2 room 2000 (2nd floor) — **SESSION 3: ENERGY & SOCIETY — Chairwoman: Natalia Zugravu-Soilita**

14:45—15:05 ORAL #55 Arnaud Barichella: Prospects for hydrogen-powered internal combustion engines to reduce emissions in the transport sector: what are the main challenges in terms of multi-level energy governance?

15:05—15:25 ORAL #56 Ibtissem Khelifati: Investigating the Potential of Renewable Energy Deployment for Energy Security and Resilience in Times of Climate and Geopolitical Instability

15:25—15:45 ORAL #57 Maria Eugenia Polegri Santoni: Structural Factors and Demand: Levers for Accelerating the Energy Transition

15:45—16:05 ORAL #58 Lisa Depraiter: Rare Earth Elements in Africa

Amphitheater O. Kahn

16:05—16:30 Conclusive words

POSTER SESSION #1

P#1	Flavien Marteau	A Comparison of Direct Water Injection with Membrane Humidifier for Proton Exchange Membrane Fuel Cells Humification
P#2	Lucica Gabriela Boc	Abundant electrocatalysts for H_2 generation using water electrolyzers
P#3	Haitham Maslouh	Anti-corrosion thin films by Atomic Layer Deposition for low-cost Porous Transport Layers and Bipolar Plates in Proton Exchange Membrane electrolyzers
P#4	Amel Zorai	Chemical Passivation of GaN Nanowires for the Development of Innovative Photocatalysts
P#5	Alisha Khan	Cu-based MOF/TiO_2 Composite Nanomaterials for Photocatalytic Hydrogen Generation and the Role of Copper
P#6	Monika Parihar	Engineering electrode surface for Lithium Battery application by Atomic Force Microscopy
P#7	Wahid Ullah	Enhancing Light Harvesting and Photocatalytic Performance of Graphdiyne through Structural Engineering
P#8	Magan Himanshu	High-entropy Tungsten-Based Oxide as Electrocatalyst and Potential Photo-electro-catalyst for H_2 Evolution
P#9	Juliana Souza	Investigation of a hybrid system based on chiral metal nanoparticles and TiO_2 nanotubes
P#10	Badr Dirrouch	Effects of Yb Doping on $LaFeO_3$ Nanoparticles: Experimental and DFT Studies
P#11	Essyllt Louarn	Mass spectrometry for electrocatalysis analysis
P#12	Yifan Xu	MOF based composites as Li-ion solid conductors
P#13	Jean-Charles Arnault	Nanodiamonds: an alternative for photocatalysis under solar light?
P#14	Like Zhang	New aerogel-based materials for the production of green hydrogen in low temperature water electrolyzers (PEMWE)
P#15	Sarah Baayyad	$NiFe_2O_4$-PVDF Nanocomposites: Synthesis, Characterization, and Applications
P#16	Marcos Vicente	Persistent luminescent photocatalysts based on $Sr_2MgSi_2O7:Eu^{2+},Dy^{3+}$ and $WO_3/BiVO_4$ for tetracycline degradation and hydrogen generation
P#17	Jessica Silva	Photoanodes based on heterojunctions of TiO_2, graphene oxide and α-Fe_2O_3 for application in hydrogen gas production
P#18	Aurélien Durupt	Reverse water-gas shift reaction at low temperatures over palladium- and ruthenium-based catalysts
P#19	Viet Dung Duong	Semiconducting conjugated oligomers for photo-driven water oxidation
P#20	Denis Menut	SOLEIL Substainable Energy Science Section: State of the art beamlines for ex situ and operando energy-relevant materials
P#21	Ewan Legeay	Synthesis of Mesoporous Nitrogen-Enriched and Graphitized Carbon Supports for Proton Exchange Membrane Fuel Cells
P#22		cancelled
P#23	Zakir Othmane	Synthesis and Characterization of Siloxene and Siloxene/BP Composite as Anode Material for Lithium-Ion Batteries
P#24	Margaux Gros	Towards In situ Magic Angle Spinning Nuclear Magnetic Resonance Spectroscopy for Batteries
P#25	Gaëlle Khalil	Decreasing the cost of H_2 production by using ultra-low PGM based catalysts for the HER in alkaline media
P#26	Anne-Lucie Teillout	Electrochemical study of iron-containing sandwich-type polyoxometalate as catalysts for hydrogen peroxide reduction
P#27	Isabelle Pitault	Towards a better knowledge of alkylcarbazoles as LOHC

POSTER SESSION #2

P#28	Masa Johar	Active Photonic Glass for Hydrogen Generation
P#29	Zohreh Moghaddasi	AuNPs embedded in SiO_2@TiO_2 core-shells to boost H_2 production: Optical and structural characterizations
P#30	Abdullah Al Masum	Cl-doped Polypyrrole for photocatalytic green H_2O_2 production
P#31	Hong Phong Duong	Copper-based electro-catalysts for sustainable chemical production from carbon oxides conversion
P#32	Fatima Alayane	Crosslinked electron transport layer for stable perovskite solar cells
P#33	Manel Dridi	Energy production from wastewater-galvano-Fenton process
P#34	Edgar Velásquez	Expanding the applications of the SAFT-Î³ Mie Group-Contribution Equation of State: polycyclic aromatic hydrocarbons (PAH) and liquid organic hydrogen carriers (LOHC)
P#35	Khanh-Hung Tran	Experimental investigation of hydrogen-enriched biogas deflagration for various compositions
P#36	Maximilian Var	High performance triple mesoscopic perovskite solar cells under real outdoor working conditions
P#37	Thi-Hieu Hoang	Hydrogen-substituted Graphdiyne combined with hybrid Perovskites toward photocatalytic CO_2 reduction
P#38	Ange Bernardin Chambissie	Innovative Synthesis and Characterization of Non-Toxic Gold-Based Double Perovskites
P#39	Nisrine Assaad	MOF-based catalysts for enhanced CO_2 conversion using non-thermal plasma-assisted methods
P#40	Amalia Fitri	Plasmonic Photocatalysis on Noble Metal-Modified Titania
P#41	Yan Ding	Predictions of thermodynamic properties of CF3I and its mixtures with no binary interaction parameter using the Multipolar SAFT-VR-Mie equation of state
P#42	Nikola Ilic	Silicon micropillar arrays decorated with Ag_xCu_{100-x} as enhanced photocathodes for solar-driven CO_2 reduction
P#43	Nataliia Marchenko	Tailoring the performance of Pt/TiO_2 catalysts in the dehydrogenation of perhydrobenzyltoluene
P#44	Elisa Baron	Triple-mesoscopic perovskite solar cells with tunable bandgap for hydrogen production
P#45	Ching Thian Moi	Tuning the intrinsic catalytic activity of W and V doped MoS_x for hydrogen evolution reaction
P#46	Dongmin Wu	Urchin-like TiO_2 nanostructure obtained using cellulose nanocrystals as growth biotemplate for Oxygen Evolution Reaction
P#47	Ceren Alpaydin	Hydrogen production through dehydrogenation of morpholine borane in the presence of PSSA supported PdAg catalyst
P#48	Tianyong Gong	A Field-Controlled High-Temperature Superconducting Switch: Experiment and Simulation
P#49	Hatem Allagui	Energy management in a fuel cell-based hybrid electric vehicle using machine learning
P#50	Trung Dung Le	Laboratory Measurements for Machine Learning-based Modelling of LV Harmonic Sources for Harmonic Frequency Simulation
P#51	Théodore Cherrière	A shape optimization framework to design robust distance elements considering uncertainties
P#52	Alexandre Bach	A robust fault location method for MV distribution feeders
P#53	Pierre Dumont	Energy Arbitrage Potential of Bidirectional Electric Vehicles Considering Virtual Mileage Impact on Vehicle Residual Value
P#54	Pierre-Etienne Testelin	Loadflow method for long-term planning and the valorization of new levers

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