



# 14<sup>th</sup>

## Workshop of Young Researchers

Dec 11-12  
2025

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2025

## 11 DECEMBER

**09:00 - 09:30 h**

Imdea Energy: Current Status and Action Plan  
2026 - **David Serrano**

**SESSION 1. CHAIRS:**  
**Freddy Oropeza & Elvira Romero**

**09:35 - 09:42 h**

Study of thermal stability of dendritic ZSM-5 zeolites  
for the production of bio-jet fuels precursors by aldol  
condensation of furfural and cyclopentanone -  
**Daniel de la Calle**

**09:42 - 09:49 h**

Unlocking Advanced Waste Management Models  
**Nicolás Martínez**

**09:49- 09:56 h**

Boosting microbial oil production from food waste-  
derived short-chain fatty acids: gas-permeable  
membrane pretreatment as innovative strategy to  
ncrease the C/N ratio - **Marta de Vicente Martínez**

**09:56- 10:03 h**

The Quinones-based Redox-mediated Flow Battery  
**Antonio Martínez**

**10:03 - 10:10 h**

Platinum Finds Its Perfect Match: A Thiazole  
Polymer for Record-Breaking Hydrogen  
Photocatalysis - **Sandra Palenzuela**

**10:10 - 10:17 h**

Vapour-Phase Hydrodehalogenation reaction with  
Pd@MIL-101(Cr)-NH<sub>2</sub>: Advancing MOF-Derived  
Catalytic Platforms - **Raúl Mulero**

**10:17 - 10:24 h**

Frequency Restoration Support with Virtual  
Power Plants with base on the Availability of  
Energy Resources - **Marco Vinicio Avendaño**

**10:24 - 10:31 h**

Thermochemical Drama: Microalgae caught  
between two hot processes - **Ainhua Díaz**

**10:31 - 10:38 h**

Porphyrins, lanthanides, spice, and everything  
nice: P-MOFs for environmental remediation -  
**Guillermo Gortázar**

**10:38 - 10:45 h**

Evaluating the role of W dopant in TiO<sub>2</sub>  
nanocrystals for Smart Windows  
**Nicolo Tonelli**

**10:45 - 10:52 h**

From lab to 50-L reactor: open-mixed cultures for  
the valorization of agroindustrial waste into  
ethanol - **Alejandra Martorell**

**10:52 - 10:59 h**

The Last Line of Defense: Dendritic Zeolites for  
Antimicrobial Therapeutics - **Beatrice Fodor**


**11:00 - 11:30 h**

**COFFE BREAK by IMDEA Energy**



**SESSION 2. CHAIRS:**  
**Nagaraj Patil & Laura Collado**

**11:30 - 11:37 h**

Supporting decision-making for sustainable  
biomethane deployment: a case study in Spain.  
**ONLINE**  **Santiago Abelleira**

**11:37 - 11:44 h**

Zeolites as Efficient Catalysts for Methane Dry  
Reforming. **ONLINE**  **María Romay**

11:44 - 11:51 h

From Planas Structured: Modeling the Rate Performance of Battery Electrodes.

ONLINE  **Tomás García**

11:51 - 11:58 h

STATCOM: The hero our grid needs but we don't deserve - **Josue Andino**

11:58 - 12:05 h

Copperoxidemon digivolves in...: Scaling up can be achieved (with the power of friendship!)

**Javier Llorente**

12:05 - 12:12 h

A Roadmap Towards Low-Carbon Photocatalytic Hydrogen - **Tabita González - Zubieta**

12:12 - 12:19 h

Influence of Different Microplastic Concentrations on Methane Production from the Organic Fraction of Municipal Solid Waste

**David Sánchez Mata**

12:19 - 12:26 h

Urealyzer: A new approach to for hydrogen production - **María Cuartero**

12:26 - 12:33 h

PV-CST-SOE Hybridization for Solar-driven Green Hydrogen Production - **Maria Beatrice Falasconi**

12:33 - 12:40 h

Influence of the synthesis method on the structure of ZSM-11 zeolites: liquid gel vs xerogel

**Ana López**

12:40 - 12:47 h

Metal-Organic Frameworks for the Adsorption and Controlled Release of Natural Antimicrobials in Food Preservation

**Miriam Aban**

12:47 - 12:54 h

Sustainability benchmarking of the integrated system for a novel solid oxide electrolyzer

**Khaled El Jardali**

SESSION 3. CHAIRS:

**Miguel García Tecedor & Jennifer Cueto**

13:00 - 13:07 h

Evolving from nano to dendritic zeolites: How Al, Ga, and Fe tune furfural conversion to different valuable products - **Gemma Pérez**

13:07 - 13:14 h

Towards Sustainable Hydrogen based Transport Systems across Land, Air, and Water

**Sumanth Maddula**

13:14 - 13:21 h

Bioconversion of saline wastes into microbial oil: salinity and c/n effects in *Yarrowia lipolytica*'s performance - **Tomás Zubak**

13:21 - 13:28 h

Red Pill Analytics: Beyond the Electrochemical Curve - **Raúl Calle**

13:28 - 13:35 h

Iron vs. Gallium in MFI Zeolites: A Catalytic Duel for Aromatization and Dehalogenation of Plastic Waste

**Alberto Pinto**

13:35 - 13:42 h

Mapping the Energy Transition: Spatial and Social Dimensions of Spain's NECP - **Alicia Mortera**

13:42 - 13:49 h

Effect of the aeration in the sustainable protein and lipid co-production by *Yarrowia lipolytica* from carboxylates. - **Paula de la Huerta**

14:00 - 15:30 h

LUNCH by IMDEA Energy



**SESSION 4. CHAIRS:**  
**Enrique Quismondo & Mar Alonso**


**15:30 - 15:37 h**

Sustainable and High-performance Sodium-Polymer Batteries - **Nikkil Medhavi**

**15:37 - 15:44 h**

MoS<sub>2</sub> as a Photothermal Catalyst for Green Ammonia- **Ehsan Hajjalilou**

**15:44 - 15:51 h**

V-doping of Ti/squarate-based Metal-Organic Frameworks towards the green hydrogen generation record via photocatalytic water splitting. **ONLINE**  **Javier Ferrando**

**15:51 - 15:58 h**

The poWer of Nice catalysts in Moving fatty acids toward jet fuels: different pathways with metal-modified n-ZSM-5 - **Maria Spinosa**

**16:00 - 16:15 h**

Prospective sustainability assessment of a hybrid photoelectrochemical system for fuel production and wastewater treatment  
**Vafa Feyzi**

**16:15 - 16:30 h**

Recycling processes for sustainable fabrication of CeO<sub>2</sub> materials for solar-driven fuel production  
**Beatrice Musig**

**16:30 - 16:45 h**

Semicontinuous anaerobic digestion of OFMSW: enhancement and in-situ biogas upgrading with zero-valent iron  
**John Alexan Villamil**

**16:45 - 17:00 h**

BRAIN Lab 2.0 (The mechanics of autonomous materials discovery)  
**Vinicio Alejandro Rosas**

**12 DECEMBER**

**SESSION 1. CHAIRS:**  
**Elia Tomás & Milan Prodanovic**

**09:00 - 09:15 h**

Laying the groundwork for safe and sustainable by-design hydrogen systems - **Khaoula Ben**

**09:15 - 09:30 h**

Dynamic performance and operation strategy of a novel air-based hybrid solar power plant with a supercritical CO<sub>2</sub> Brayton cycle - **Rui Chen**

**09:30 - 9:45 h**

Development of a Methodology for the Evaluation of Energy Storage Technologies in Critical Infrastructures - **David Muñoz - Torrero**

**9:45 - 10:00 h**

DClosing the Carbon Loop: Model-Driven Analysis of Hydrogen Self-Sufficiency and Lubricant Co-Production in SAF Biorefineries  
**Tesfaldet Gebreegziabher**

**10:00 - 10:15 h**

Life (Light) is like a box of chocolates...  
**Marcelo Alejandro Echeverri**

**10:15 - 10:30 h**

Butanes, butenes, butadiene... the truly key for selectivity - **Ignacio Daniel Lemir**

**10:30 - 10:45 h**

The Rise of BTC-NH<sub>2</sub>-Based Frameworks: From Molecular Design to Potential Applications  
**Khaled Hassanein**

**10:45 - 11:00 h**

Power Plant Controllers for the Provision of Ancillary Services - **Juan Diego Rios**

**11:00 - 11:30 h**

**COFFE BREAK by IMDEA Energy**





**SESSION 2. CHAIRS:**  
**Ricardo Conceicao & Catalina Biglione**

**11:30 - 11:45 h**

Porphyrin-MOFs Against the Silent Threat  
**Sergio Carrasco**

**11:45 - 12:00 h**

Catalytic Pathways to SAF: Paving the Way  
Towards Carbon-Neutral Aviation  
**Mauro Álvarez**

**12:00 - 12:15 h**

From Process Simulation to Integrated  
Assessment: Evaluating the Benefits of Advanced  
SAF Technologies - **Pedro Gerber**

**12:15 - 12:30 h**

Membrane-Free Flow Batteries: An Evolving  
Story of Chemistry and Engineering  
**Paula Navalpotro**

**12:30 - 12:45 h**

The SuperNenas cocktail: a therapy for colorectal  
cancer - **Eva Romani**

**13:00 - 14:30 h**  
**Voting for Awards**



**14:30 h**  
**CHRISTMAS LUNCH**

**POSTERS**

Toward frameworks for performance evaluation of  
SAF production: gaps and opportunities in Science  
for Policy - **Marco Vitale**

From High Ionic Strength Waste to Renewable  
Energy: Microbial Conversion of Whey  
**Elisa Rodriguez**

Screening Faradaic Materials for Electrochemical Li  
Recovery - **Alam Roni Rafiul**

Effect of defect engineering on photocatalytic  
efficiency in Ti-MOFs - **Miriam Vos**

Covalent and Metal-Organic Frameworks for water  
purification of pharmaceutical contaminants  
**Pedro García de Santos**

Integration of Supercapacitive Battery for Grid  
Applications - **Anandkrishan Koyaden**

Engineering Tomorrow's Jet Fuels: Tailoring  
Selectivity in High-Pressure Ethylene  
Oligomerization over Ni-based Zeolites  
**Alicia García de Fernando**

Tin dendritic zeolites: What do you Think  
**Marie Orban**

Pressure and hydrogen effects on the conversion of  
End-of-Life Vehicle Bumper via (Hydro)Pyrolysis  
**Sabeen Arshad**

Sustainable aviation fuels from biowaste-derived  
alcohols and carboxylic acids via olefin intermediates  
**Antonio Maroto**

Assessing thermo-chemical performance of  
hierarchically structured CeO<sub>2</sub> under high-  
temperature/high-radiation-fluxes  
**Vincenzo Fulgente**

The Automated Lab 2.0: Reinforcing Systems and  
Creating a Digital Twin Blueprint  
**Carlos Roig**

Parallel CO<sub>2</sub> Valorization Routes Enabled by Fe-  
Based MOFs Catalysts - **Paula García-Fraile**

Blood brain barrier crossing by surface engineered  
metal-organic frameworks  
**Claire Ayala**

Textile waste valorization by  
pyrolysis/hydropyrolysis  
**Tanguy De Closmadeuc**