

2nd International Conference on  
**Catalysis Science and Chemical Engineering**

**&**

International Conference on  
**Material Science and Engineering**

**October 02-04, 2024**  
**ADEIT, University of Valencia, Spain**



## **INSTRUCTIONS FOR SPEAKERS**

1. Plenary Talks: Plenary speakers will be allotted 25 minutes to present their results, followed by a 5 minutes discussion period.
2. Keynote Talks: Keynote speakers will be allotted 22 minutes to present their results, followed by a 3 minutes discussion period.
3. Invited talks: Authors will be allotted 17 minutes to present their results, followed by a 3 minutes discussion period.
4. Oral talks: Authors will be allotted 12 minutes to present their results, followed by a 3 minute discussion period.
5. Please do not exceed the allotted time slot
6. Speakers should have their presentations saved on a USB memory stick.
7. It is suggested to email a copy of the presentations to us as back up.
8. Please prepare the presentation in PPT files, PDF is not recommended.
9. Basic AV setup will be provided: laser pointer, cordless mike, desktop mike, sound system.
10. Laptops equipped with Windows 10, Office 2010 Pro English (Word, Powerpoint, Excel) and Adobe Reader are provided.
11. If your presentation files contain movies, please make sure that they are well formatted and connected to the main files. You may check your slides during the breaks.
12. Projectors are equipped with standard VGA connection ports. Mac users should bring their own adapter cord.
13. Please re-check this program prior to the conference to confirm if any changes have been made to your session.
14. Conference volunteers will move the mic during Q&A. Audience with questions may raise hand to receive the mic.

## **INSTRUCTIONS FOR POSTER PRESENTATION**

1. Maximum poster size is A0
2. Push pins for attaching the poster to the board will be provided.
3. Poster presenters will be directed to the designated board at the start of the poster session.
4. Author must be present to provide details and answer questions during the selected poster session times.

## **SPEAKER ZOOM GUIDELINES**

### **How to Participate in a Zoom Meeting?**

If you have trouble logging in to Zoom or any technical issues, please write to us at [akshatha@materialsconferenceeurope.com](mailto:akshatha@materialsconferenceeurope.com) and [chairs@catalysis-science.com](mailto:chairs@catalysis-science.com).

### **Join a Meeting**

- Join a meeting by clicking on a Zoom link received from the organizers.
- Follow the prompts to download and run Zoom application
- Enter the meeting ID if prompted
- Click to join the audio.
- When you are in the meeting, click on the Start Video button to start your video.

If you already have Zoom software installed: Open the Zoom platform, click 'join' and enter the meeting ID and password.

### **Mute/Unmute & Audio Settings**

You can mute and unmute your microphone. The host also can mute you. We recommend using a headset and/or microphone as it will lead to better sound quality than using your computer audio. Turn off all sound notifications on your device. Note: During the presentation we will unmute everyone except the speaker and the chairs.

### **Screen Share**

You will be allowed to share your screen during your presentation. Your computer screen will become visible to all the participants once you start sharing your screen. Please close all other applications on your computer so that notifications do not appear during your presentation. Keep the PowerPoint slide open on your system before you click the 'Share Screen' button. You are recommended to share the specific PowerPoint slide and not your desktop.

### **Presentation Timings**

Please note that all the timings mentioned in the program are as per the Spain time zone (GMT+2). Do ensure that you check the time difference well in advance and join the meeting at least 30 minutes prior to your scheduled presentation time. If you need us to tell the specific time slot for your presentation (in local time zone), do let us know. (or) use world time buddy.com for the accurate time zone.

## CatScience &amp; Materials Europe 2024

## ADEIT- University of Valencia, Spain

08:45-09:45 **Registrations**

09:45-10:00 **Opening, Welcome and Announcements**

Raquel Galian, University of Valencia, Spain

Gyorgy Keglevich, Budapest University of Technology and Economics, Hungary

## Plenary Session

## Session Chair: Raquel Galian, University of Valencia, Spain

10:00-10:30 **Hysteresis Processes in Ionic, Electronic, and Biological Devices**

Juan Bisquert, ITQ UPV CSIC, Spain

10:30-11:00 **Narrow Bandgap Organic Acceptor Materials for Organic Solar Cells**

Yongfang Li, Institute of Chemistry-ICCAS, Beijing, China

11:00-11:30 **Coffee Break**

11:30-12:00 **Impedance Matching Schemes and Designed Wave Absorption Spectrum**

Ping Sheng, HKUST, Hong Kong, and Cambridge University, UK

## Session Chair: Gyorgy Keglevich, Budapest University of Technology and Economics, Hungary

12:00-12:30 **Electrocatalytic Refinery for Production of Fuels and Chemicals**

Shi Zhang Qiao, University of Adelaide, Australia

12:30-13:00 **Hydrogen Generation by Water Electrolysis**

Zhifeng Ren, University of Houston, USA

13:00-14:00 **Lunch Break**

14:00-14:30 **Strain Catalysis for Hydrogen Cycles**

Shaojun Guo, Peking University, China

14:30-15:00 **Emerging Energy Electrocatalysis for Rechargeable Batteries**

Qiang Zhang, Tsinghua University, China

15:00-15:30 **Functional Carbon Materials for Catalysis**

Jieshan Qiu, Beijing University of Chemical Technology, China

15:30-16:00 **Coffee Break**

16:00-16:30 **Visible Light-Induced Asymmetric Radical Reactions Catalyzed by Chiral N,N'-Dioxide Metal Complexes (Online)**

Xiaoming Feng, Sichuan University, China

16:30 Hrs  
Onwards

**Networking Cocktails**

## Session: Green Synthesis, Catalysis and Electrochemical Reactions

Session Chair: Amarajothi Dhakshinamoorthy, Polytechnic University of Valencia, Spain

- 09:30-09:55 **Keynote Talk: Green Methods in the Synthesis of Organophosphorus Compounds with Potential Bioactivity**  
Gyorgy Keglevich, Budapest University of Technology and Economics, Hungary
- 09:55-10:15 **Invited Talk: Harvesting Thermal and Mechanical Energy from Environment for Catalytic Applications**  
Weishu Liu, Southern University of Science and Technology, China
- 10:15-10:35 **Invited Talk: Structural Evolution and CO<sub>2</sub> Electroreduction in Cu Doped Gold Nanoclusters**  
Sara Goberna Ferron, Polytechnic University of Valencia, Spain
- 10:35-10:55 **Invited Talk: Atom Economical Ni-Catalyzed Reactions of Enynes and Allenynes for the Preparation of Complex Structures (Online)**  
Diego J. Cardenas, Universidad Autonoma de Madrid, Spain
- 10:55-11:25 **Coffee Break**
- 11:25-11:45 **Invited Talk: Exploring Innovations in Ethylene/CO Polymerisation through DFT Calculations: Advancing Sustainable Polymer**  
Lucia Caporaso, University of Salerno, Italy
- 11:45-12:05 **Invited Talk: Innovative Soft Templating Techniques for Catalyst Synthesis in Anion Exchange Membrane Water Electrolysis**  
Francisco Jose Fernandez Carretero, Tecnalia, Spain

## Session: Photocatalysis and Sustainability

Session Chair: Weishu Liu, Southern University of Science and Technology, China

- 12:05-12:25 **Invited Talk: Metal Organic Framework Based Photocatalysts for the Generation of Fuels**  
Amarajothi Dhakshinamoorthy, Polytechnic University of Valencia, Spain
- 12:25-12:45 **Invited Talk: Cement Based Materials Containing Recycled TiO<sub>2</sub> for Photocatalytic Applications**  
Manuel Melero, I2CON, Spain
- 12:45-13:05 **Invited Talk: Influence of Surface Microstructures and Molecules on Dynamic Wetting**  
Yaerim Lee, The University of Tokyo, Japan
- 13:05-14:00 **Lunch Break**
- 14:00-14:20 **Invited Talk: Organic Resin and Inorganic Fiberglass Recovery from Wind Turbine Blades Using Pyrolysis Technology**  
Samy Yousef, Kaunas University of Technology, Lithuania
- 14:20-14:35 **Calcined Titanium based Organic Framework Supported RuO<sub>x</sub> Nanoparticles as Photocatalyst for Solar-Assisted CO<sub>2</sub> Methanation via Sabatier Reaction**  
Marta Gonzalez Fernandez, Polytechnic University of Valencia, Spain

## Session: Functional Materials and Physical Chemistry

Session Chair: Jose Ramon Galan Mascaros, Institute of Chemical Research of Catalonia (ICIQ-CERCA), Spain

- 14:35-14:55 **Invited Talk: High Temperature Vacuum Temperature programmed Desorption as a New Characterization Method for Catalytic Materials**  
Takeharu Yoshii, Tohoku University, Japan
- 14:55-15:15 **Invited Talk: Exploring Ionic Liquid Materials for CO<sub>2</sub> Capture and Utilization: A Journey of Innovation**  
Marta Corvo, NOVA University Lisbon, Portugal
- 15:15-15:35 **Invited Talk: Insights to Improve the Surface Characterisation of Porous Materials**  
Ignacio Campello, Iberian Centre for Research in Energy Storage (CIIE), Spain
- 15:35-16:05 **Coffee Break**
- 16:05-16:25 **Invited Talk: Surface Chemical Properties of Interstellar Grains. Insights from Quantum Chemical Simulations**  
Albert Rimola, Universitat Autònoma de Barcelona (UAB), Spain
- 16:25-16:45 **Invited Talk: Rational Design of Electrocatalysts for Maximizing CO<sub>2</sub> Electrolysis Performance (Online)**  
Thuy Duong Nguyen Phan, National Energy Technology Laboratory (NETL), USA

### 16:45-17:40 Poster Presentations

Session Chair: Gyorgy Keglevich, Budapest University of Technology and Economics, Hungary

- CAT01 **From Green Electrons to Molecules: Facilities at Tecnalia**  
Victor Oestreicher, Tecnalia, Spain
- CAT02 **Effect of Cerium Content and Calcination Temperature on the Catalytic Performance of Mg<sub>4</sub>Al<sub>2-x</sub>Ce<sub>x</sub>-HT Systems in the n-Butanol Oxidation Reaction**  
Faiza Sahraoui, University of Science and Technology Houari Boumediene (USTHB), Algeria
- CAT03 **Functional Gel Oxalate and Co-precipitation Methods for Methanol and DME Production over Bifunctional CuZnZr-CBV3024E Catalyst**  
Samira Ebrahimian, Monash University, Australia
- CAT04 **Iberian Centre for Research in Energy Storage**  
Ignacio Campello, Iberian Centre for Research in Energy Storage (CIIE), Spain
- CAT05 **Biodiesel Synthesis from Date Seed Oil Using Camel Dung as a Novel Green Catalyst: An Experimental Investigation**  
Raiedhah A. Alsaiaara, Najran University, Saudi Arabia
- MAT01 **Enhancing Catalytic O<sub>2</sub> Conversion to H<sub>2</sub>O<sub>2</sub> on Anodic Fe doped Tantalum Oxide Surfaces**  
Darowska Izabela, Jagiellonian University, Poland

## Session: Novel Materials for Energy and Biomedical Applications

Session Chair: Lidia Martinez, ICMM-CSIC, Spain

## Plenary Session

09:30-10:00 **Design and Synthesis of Nanomaterials for Biomedical and Energy Applications (Online)**  
Jackie Y. Ying, King Faisal Specialist Hospital & Research Centre, Saudi Arabia

## Keynote Talk

10:00-10:25 **Keynote Talk: Narrow Bandgap Organic Acceptor Materials for Organic Solar Cells**  
Xiaojun Li, ICCAS, Beijing, China

10:25-10:50 **Keynote Talk: Nanostructured Optical Materials for Energy and Biosensing Applications**  
Alicia de Andres, ICMM-CSIC, Spain

## 10:50-11:25 Coffee Break

11:25-11:50 **Keynote Talk: Development of Graphene-Reinforced Magnesium Metal Matrix Composites for Biodegradable Bone Implants**  
Yuncang Li, RMIT University, Australia

11:50-12:15 **Keynote Talk: Renewable Materials for a Sustainable Circular Economy**  
Anke Weidenkaff, Technische Universitat Darmstadt, Germany

12:15-12:40 **Keynote Talk: Excitonic and Electro-Optical Properties of 2D Tin Iodide Perovskites**  
Juan Martínez Pastor, Universidad de Valencia, Spain

12:40-13:00 **Title:Enhanced Functional Properties of the Multilayered Thin-Film Contacts Based on Cu by Low-Energy Ion Irradiation (Online)**  
Ivan Kruhlov, National University of Lviv, Ukraine

## 13:00-14:00 Lunch Break

## Session: Advanced Functional Materials and Characterization

Session Chair: Alicia de Andres, ICMM-CSIC, Spain

14:00-14:20 **Invited Talk: Titanium-Based Laminates Made using Blended Elemental Powder Metallurgy: Microstructure and Mechanical Behavior (Online)**  
Sergey Prikhodko, University of California, USA

14:20-14:40 **Invited Talk: Surface Engineering of Perovskite Nanocrystals: Sensitization and Photocatalytic Applications**  
Raquel Galian, University of Valencia, Spain

14:40-15:00 **Invited Talk: Modelling Damage Development During hot Forming of Super Cr13 at Reduced Working Temperature**  
Eduardo Garcia, Universidad de Deusto, Spain

15:00-15:20 **Invited Talk: Synthesis and Characterization of Fe-Based Oxides**  
Rocio Ranchal, Universidad Complutense de Madrid, Spain

15:20-15:40 **Invited Talk: Study of the Contact Behaviour of Mandrel Oxide Tribo-Layers in the Tube Piercing Process**  
Alberto Murillo Marrodan, University of Deusto, Spain

15:40-16:10 **Coffee Break**

16:10-16:30 **Invited Talk: Gas-Phase Synthesis Of Nanoparticles: An Alternative Physical Eco-Friendly Route**

Lidia Martinez, ICMM-CSIC, Spain

16:30-16:50 **Invited Talk: Acoustic Materials for Improving Ultrasound Imaging**

Vicente Romera Garcia, Polytechnic University of Valencia, Spain

**Session: AI and Computational Strategies in Materials Science**

**Session Chair: Leonardo Stella, University of Birmingham, UK**

16:50-17:10 **Invited Talk: First Principles Formulation of the Local Functionalization over Time in Two-Dimensional Materials**

Angel Luis Alvarez Castillo, Universidad Rey Juan Carlos, Spain

17:10-17:30 **Invited Talk: Perovskite Nanohybrid Materials for Optoelectronic and Sensing Applications**

Pedro Atienzar, Polytechnic University of Valencia, Spain

17:30-17:50 **Invited Talk: Minimising Dross in L- PBF via Physics Informed Reinforcement Learning**

Sam Eric Robbins, University of Birmingham, UK

## Plenary Session

Session Chair: Ryszard Ostaszewski, Institute of Organic Chemistry PAS, Poland

- 09:30-10:00 **Metal Organic Frameworks as Photocatalysts for the Production of Solar Fuels**  
Hermenegildo Garcia, Instituto Universitario de Tecnologia Quimica (CSIC-UPV)  
Polytechnic University of Valencia, Spain

## Keynote Talk

- 10:00-10:25 **Keynote Talk: Multimetallic Nitrides: Novel, Convenient Synthesis and Electrocatalytic Performance in Water Oxidation Conditions**  
Jose Ramon Galan Mascaros, Institute of Chemical Research of Catalonia (ICIQ-CERCA), Spain
- 10:25-10:50 **Keynote Talk: Iron Catalysis and their Applications in Synthesis of  $\pi$  - Functional Materials (Online)**  
Rui Shang, The University of Tokyo, Japan

10:50-11:10 Coffee Break

## Session: Catalytic Reaction Engineering

Session Chair: Albert Rimola, Universitat Autònoma de Barcelona (UAB), Spain

- 11:10-11:30 **Invited Talk: Chemoenzymatic Cascade Reaction for The Synthesis of High Value Products**  
Ryszard Ostaszewski, Institute of Organic Chemistry PAS, Poland
- 11:30-11:50 **Invited Talk: Activity and Stability of Hybrid Polyoxometalate-layered Double Hydroxide Nanocomposites Under Electrocatalytic Water Oxidation Conditions**  
Joaquin Soriano Lopez, University of Valencia, Spain
- 11:50-12:10 **Invited Talk: Coal fly Ash and Acid Mine Drainage Based Fe BEA Catalysts for the Friedel Crafts Alkylation of Benzene**  
Leslie Petrik, University of the Western Cape, Republic of South Africa
- 12:10-12:25 **Oral Talk: Innovative Flow-Cascade Process for Amino-Ester Production from Biomass Platform Molecules**  
Carlos Moriana Herraiz, Polytechnic University of Valencia, Spain
- 12:25-12:45 **Invited Talk: Phosphine-Driven Near UV Photoinitiation for User-Friendly Peptide and Desulfurization (Online)**  
Naresh M. Venneti, Wayne State University, USA

12:45-13:00 Closing







**PRISM**

Professional Conference Organizers

**Prism Scientific Services Pty Ltd.**, a premier conference organizer, envisions a sustainable future for the energy industry. Our goal is to unite experts and stakeholders through conferences, fostering collaboration and advancing sustainable practices. Committed to curating conferences on renewable energy and eco-friendly technologies, we catalyze the industry's development. Emphasizing interdisciplinary collaboration, our events address complex challenges. Dedicated to sustainability, we minimize footprints and promote eco-friendly venues, inspiring environmental responsibility. As catalysts for positive change, guiding the energy industry toward an innovative, environmentally responsible future in conferences that prioritize sustainable development.

If you are interested in forming a partnership with us for the planning and organization of conferences and events worldwide, please don't hesitate to contact us via email at [writeus@scientificprism.com](mailto:writeus@scientificprism.com) or by phone at **+61 416000202**. Our services extend to facilitating conferences anywhere in the world, and we look forward to the opportunity to discuss your specific needs and requirements.

We wish to see you at

# Materials Europe And CatScience 2025

**Prism Scientific Services Pty Ltd**

302/480 Collins Street, Melbourne, VIC 3000, Australia

<https://www.Scientificprism.com>

**Contact Information:**

[chairs@catalysis-science.com](mailto:chairs@catalysis-science.com)

[chairs@materialeurope.net](mailto:chairs@materialeurope.net)

**Phone:** +61 390163202

**Website:** <https://www.catalysis-science.com/>  
<https://materialsconferenceurope.com/>



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