

6th International Symposium on Catalysis for Clean Energy and Sustainable Chemistry (CCESC2026)

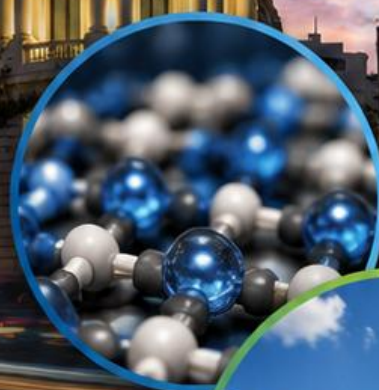
Madrid, Spain

September 28th–30th,
2026



CCESC 26

6TH INTERNATIONAL SYMPOSIUM ON CATALYSIS
FOR CLEAN ENERGY AND SUSTAINABLE CHEMISTRY



PROGRAMME

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WELCOME

On behalf of the **Sustainable Energy and Chemistry (EQS) Group** at the Institute of Catalysis and Petrochemistry (ICP-CSIC), it is our pleasure to welcome you to the *6th International Symposium on Catalysis for Clean Energy and Sustainable Chemistry (CCESC26)*, held in Madrid.

This symposium brings together researchers, academics, industry professionals, and students from around the world to discuss recent advances and challenges in catalysis, clean energy, and sustainable chemistry. We hope it will provide an excellent platform for scientific exchange, foster new collaborations, and inspire innovative solutions to global sustainability challenges.

We sincerely thank all invited speakers, authors, and members of the Scientific Committee for their valuable contributions and dedication to developing a high-quality

scientific programme. We also **gratefully acknowledge the companies, institutions, and sponsors** whose support has made CCESC26 possible and has strengthened the interaction between academia and industry.

Beyond the scientific sessions, we encourage you to enjoy Madrid, a city renowned for its rich history, culture, architecture, and hospitality. We also invite you to take full advantage of the networking opportunities offered throughout the symposium.

We wish you a productive, enjoyable, and inspiring stay in Madrid and a successful CCESC26.

Welcome to Madrid!



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GENERAL INFORMATION

Madrid is the vibrant **capital of Spain**, known for its rich history, lively culture, and stunning architecture. The city offers a unique blend of tradition and modernity — from the majestic Royal Palace and the historic Plaza Mayor to the modern skyscrapers of Cuatro Torres. Madrid is also famous for its world-class museums, such as the Prado, Reina Sofía, and Thyssen-Bornemisza, which attract art lovers from around the globe. Beyond its monuments, Madrid's nightlife, tapas bars, and friendly atmosphere make it one of the most welcoming cities in Europe.



Hall of Realms. Museo Nacional del Prado

The Venue

CCESC26 will be held in the Faculty of Medicine - Universidad Complutense de Madrid. It was created on 8 July 1845. However, the Faculty of Medicine has much older origins, dating back to the medical studies that existed at the time of Cardinal Cisneros, in the late 15th or early 16th century, with 1496 being the most likely year of foundation. At that time, it was located in the city of Alcalá de Henares. The unique building is a site of cultural interest and is fully protected. The 'Complutense spirit' is of great importance to the Faculty of Medicine, permeating its way of being and, therefore, all its activities, driving it to look to the future, based on a history of more than five hundred years, and to progress constantly.



Faculty of Medicine

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- Reología de polvos

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- Filtros y separadores ciclónicos
- Detección de gases

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- Reactores de vidrio (borosilicato)
- Reactores de presión y autoclaves
- Alta presión (hasta 200 bar)
- Control dinámico de temperatura
- MicroActivity - reacción catalítica

Muestreo, válvulas y calibración

- Acondicionamiento y toma de muestras
- Valvulería y racorería
- Medición de humedad y validación
- Lab. calibración de caudal
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SPANISH SOCIETY OF CATALYSIS (SECAT)

WEB: <https://secat.es/en/>

Institute of Catalysis and Petroleum Chemistry, CSIC
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The **Spanish Society of Catalysis** (SECAT) is a non-profit scientific society founded in 1995, comprising over 600 members engaged in the study and applications of catalysis. SECAT promotes scientific-technical progress and societal awareness of catalysis through:

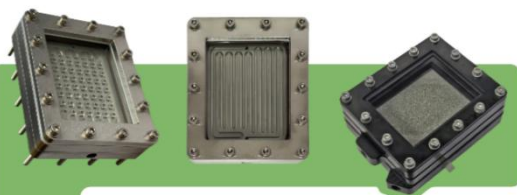
- Biennial Scientific Meetings and seminars for young researchers
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BIOMETETA TECNOLOGÍA Y SISTEMAS, S.A. es una empresa dedicada a la distribución de equipos de instrumentación científica para preparación de muestras y análisis de propiedades químicas y físicas. Ofrecemos soluciones tecnológicas que su laboratorio necesita, estudio pormenorizado de sus necesidades, asesoramiento sobre las posibles soluciones que más se adapten a su empresa u organización. Nuestras firmas representadas disponen de los más rigurosos controles de calidad.

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SCIENTIFIC PROGRAMME

Monday			September 28th		
HALL					
13:00-15:15		Registration			
PROFESSOR BOTELLA ROOM					
Opening Ceremony					
Opening remarks by Dra. SILVIA MORALES DE LA ROSA and Dr. ÁLVARO TOLOSANA MORANCHEL , Co-Chairs CCESC 2026.					
15:15-16:00		Welcome address by Prof. Dr. JORGE GÓMEZ , Vice-Rector for Technology and Sustainability of the Complutense University of Madrid.			
Remarks and closing of the opening ceremony by Prof. Dr. JOSÉ M. MARTELL , Vice-President for Scientific and Technical Research of the Spanish National Research Council (CSIC).					
SESSION 1		Chair: Miguel Antonio Peña / María Escudero			
16:00-17:00		PL-1	Prof. Dr. Lourdes F. Vega		
Energy Institute and Department of Chemical and Petroleum Engineering, Khalifa University of Science and Technology, Abu Dhabi, United Arab Emirates					
Engineering Catalysts Across Scales: From Molecular Understanding to Industrial Energy Technologies					
17:00-17:30		Coffee Break			
17:30-18:00		KN-1	Dr. Juan María González Carballo (Senior Researcher) and Dr. Rosa María Ladera Gallardo (Pilot plant engineer. Hydrogen & Power-to-X)		
Storing the Energy of the Future: Science, Innovation and Impact from the Iberian Center for Research in Energy Storage					
Centro Ibérico de Investigación en Almacenamiento Energético					
18:00-18:15		OS1-1	Sacrificial MOFs as efficient precursors for NiAl₂O₄ spinel-derived catalysts in dry reforming of methane		
<u>A. Choya</u> , M. Córdoba, B. de Rivas, J. I. Gutiérrez-Ortiz, and R. López-Fonseca					
Chemical Technologies for Environmental Sustainability (TQSA), Department of Chemical Engineering, Faculty of Science and Technology, University of the Basque Country EHU, Leioa (Spain)					
18:15-18:30		OS1-2	Highly Efficient, Magnetically Recoverable Nanocatalysts for the Chemical Recycling of Polyester Waste: From Glycolysis to Aminolysis		
<u>I. Cano</u> ¹ , C. Martín ¹ , A. Muiño ¹ , U. Gastesi ¹ , E. Solana-Madruga ¹ , D. Ávila-Brande ¹ , M. Perfecto ² , G. Beobide ² , and S. Cárdenas ³					
¹ Departamento de Química Inorgánica, Universidad Complutense de Madrid, Madrid 28040, Spain					
² Departamento de Química Orgánica e Inorgánica, Universidad del País Vasco, E-48080 Bilbao, Spain					
³ Affordable and Sustainable Sample Preparation (AS2P) Research Group, Departamento de Química Analítica, Instituto Químico para la Energía y el Medioambiente (IQUEMA), Universidad de Córdoba, 14071 Córdoba, Spain					

18:30-18:45	OS1-3	In Situ Electrochemical Scanning Transmission Electron Microscopy for Probing Electrocatalyst Dynamics and Activity at the Nanoscale <u>N. Ortiz Peña</u>¹, E. Daviddi², L. Godeffroy², N. Afsahi², Y. Wang², M. Cheng², J. F. Lemineur², F. Kanoufi², D. Alloyeau¹, J. M. Noël², D. Ihiawakrim², M. Han ^{4,5}, S. Carencu⁴, C. Sanchez ^{3,4}, C. Laberty-Robert⁴, D. Portehault⁴, O. Ersen³, B. Lassalle-Kaiser⁵, and S. Stanesco⁵ ¹ Université Paris Cité, CNRS, Laboratoire Matériaux et Phénomènes Quantiques, 75013 Paris, France ² Université Paris Cité, CNRS, ITODYS, Paris, France ³ Institut de Physique et Chimie des Matériaux de Strasbourg (IPCMS), UMR 7504 CNRS – Université de Strasbourg, Strasbourg, France ⁴ Sorbonne Université, CNRS, Collège de France, Laboratoire Chimie de la Matière Condensée de Paris, France ⁵ Synchrotron SOLEIL, L'Orme des Merisiers, Saint-Aubin, France
18:45-19:00	OS1-4	Pilot-Scale Demonstration of a Catalytic GVL-Based Biorefinery for Complete Lignocellulosic Biomass Valorization <u>M. Soto-Alvarez</u>, P. Sanchez Sanchez, S. Vega Maroto, F. Vila, and D. M. Alonso Instituto de Catalisis y Petroleoquímica (ICP-CSIC), Madrid, Spain

Tuesday September 29th

PROFESSOR BOTELLA ROOM

SESSION 2		Chair: Jose Miguel Campos Martín / Lourdes F. Vega
9:30-10:30	PL-2	Prof. Dr. Y. Román-Leshkov Chemical Engineering at the Massachusetts Institute of Technology (MIT) Electric Field-Enhanced Bronsted Acid Catalysis: Mechanistic Origins, Solvent Effects, and a Path to Scalable Reactors
10:30-10:45	OS2-1	Cooperative Au–Oxygen Vacancy Mechanism Enabling Efficient Oxidative Esterification of HMF to FDMC over Lanthanum-Based Catalysts Bueno, N. Viar, I. Gandaraia, and <u>J. Requies</u> Bilbao School of Engineering, University of the Basque Country (UPV/EHU), Bilbao, Spain
10:45-11:00	OS2-2	Selective synthesis of C4 α-hydroxyesters from C2-biomass derived glycolaldehyde: batch vs. continuous conditions V. de Blas-Sánchez^{1,2}, <u>A. Orozco-Saumell</u>¹, J. M. Jiménez-Martín¹, S. Hallen Lima¹, M. López Granados³, and J. Iglesias^{1,2} ¹ Chemical & Environmental Engineering Group, Universidad Rey Juan Carlos. C/Tulipan s/n, Mostoles, 28933, Spain; ² Instituto de Tecnologías para la Sostenibilidad, Universidad Rey Juan Carlos. C/Tulipan s/n, Mostoles, 28933, Spain; ³ Energy and Sustainable Chemistry Group. Institute of Catalysis and Petrochemistry, CSIC. C/Marie Curie, 2, Campus de Cantoblanco, 28049 Madrid, Spain
11:00-11:15	OS2-3	Direct transformation of furfural to cyclopentanone over CuCo/ZrAl-O catalyst F. Cernicharo, S. Derichs, and <u>M. E. Domine</u> Instituto de Tecnología Química (CSIC-UPV). Consejo Superior de Investigaciones Científicas, Universitat Politècnica de València, Valencia (España)

11:15-11:30	OS2-4	Silylated metal-USY zeolite: efficient catalyst for the Baeyer Villiger Oxidation <u>S. H. Lima</u> ¹ , J.M Jimenez-Martin ¹ , A. Orozco Saumell ¹ , V. de Blas-Sánchez ^{1,2} , N. García ¹ , J. Moreno ^{1,2} , and J. Iglesias ^{1,2} ¹ Chemical & Environmental Engineering Group, Universidad Rey Juan Carlos, C/ Tulipán s/n, 28933 Madrid, Spain. ² Instituto de Tecnologías para la Sostenibilidad, Universidad Rey Juan Carlos. C/ Tulipán, s/n. 28933, Madrid, Spain
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PROFESSOR SCHULLER ROOM

SESSION 3	Chair: <i>Francisco J. Perez-Alonso / María Luisa Testa</i>	
10:30-10:45	OS3-1	Role of Calcium in Unsupported Nickel-Based Catalysts Prepared by the Oxalate Route for CO₂ Methanation <u>L. Cruz Santos</u> ¹ , C. Poupin ² , E. Genty ² , and T Visart de Bocarmé ¹ ¹ Chemistry of Surfaces, Interfaces and Nanomaterials – ChemSIN Université libre de Bruxelles, Av. F. Roosevelt 50 - CP243, 1050 Bruxelles, Belgique ² Unité de Chimie Environnementale et Interactions sur le Vivant, UR 4492, UCEIV, Université du Littoral Côte d'Opale, F-59140 Dunkerque, France
10:45-11:00	OS3-2	Impact of synthesis route on gel-derived Ni-Al catalysts for light-assisted CO₂ methanation D. Estevez, H. Etxeberria and <u>V. L. Barrio</u> School of Engineering of Bilbao, University of the Basque Country (UPV/EHU), Plaza Ingeniero Torres Quevedo 1, 48013, Bilbao, Spain
11:00-11:15	OS3-3	Reaction-Driven Metal Exsolution from Spinel for Selective CO₂ Hydrogenation to Short-Chain Hydrocarbons <u>S. Saini</u> ¹ , G. J. Fulham ² , Q. Cai ¹ , E. J. Marek ² and K. Kousi ¹ ¹ School of Chemistry and Chemical Engineering, University of Surrey, Guildford, United Kingdom ² Department of Chemical Engineering and Biotechnology, University of Cambridge, Philippa Fawcett Drive, CB3 0AS, United Kingdom
11:15-11:30	OS3-4	Enhanced CO₂ Hydrogenation to Hydrocarbons using SIL-Modified Fe-Ru/Al₂O₃ Catalysts J. J. Villora-Picó ¹ , M. Maddaloni ² , A. Centeno-Pedraza ¹ , N. Artioli ² , <u>H. Manyar</u> ¹ ¹ School of Chemistry and Chemical Engineering, Queen's University Belfast, David-Keir Building, Stranmillis Road, Belfast, BT9 5AG, UK ² CEEP Laboratory, Department of Civil Engineering, Architecture, Territory, Environment and Mathematics, University of Brescia, via Branze 38, 25123 Brescia, Italy

11:30-12:00 Coffee Break / Poster Session

PROFESSOR BOTELLA ROOM

SESSION 4	Chair: <i>Cristina García Sancho / Jesus Requies</i>	
12:00-12:15	OS4-1	Rational design of Ni/Re/Mo supported Al₂O₃ catalysts for the hydrodeoxygenation of highly-oxygenated jet fuel precursors A. García ¹ , <u>S. Jerez</u> ¹ , E. Gaya ^{1,2} , M. Ventura ^{1,2} , M. Paniagua ¹ , G. Morales ^{1,2} , J.A. Melero ^{1,2} ¹ Chemical and Environmental Engineering Group, Universidad Rey Juan Carlos, Móstoles 28933, Spain ² Instituto de Investigación de Tecnologías para la Sostenibilidad, URJC, Móstoles 28933, Spain

12:15-12:30	OS4-2	Biochar-based catalytic decarboxylation and cracking of fatty acids to renewable diesel range hydrocarbons <u>H. Patel</u> , N. Nimalan, S. Emad Hashemnezhad, J. A. Onwudili <i>Energy and Bioproducts Research Institute, College of Engineering and Physical Sciences, Aston University, Aston Triangle, Birmingham, B4 7ET, United Kingdom</i>
12:30-12:45	OS4-3	Sequential Dehydration, Oligomerization and Hydrogenation of 2,3-Butanediol toward C8–C16 Paraffins <u>I. Lemir</u> ¹ , L. Amodio ¹ , B. Sanz ¹ , D. Serrano ^{1,2} , P. Pizarro ^{1,2} ¹ IMDEA Energy Institute, Avda. Ramón de la Sagra, 3, Móstoles, 28935 Madrid, Spain ² Chemical and Environmental Engineering Group, ESCET, Universidad Rey Juan Carlos, c/ Tulipán, s/n, Móstoles, 28933 Madrid, Spain
12:45-13:00	OS4-4	Synthesis of sustainable liquid fuels and alcohols from greenhouse emissions at mild conditions <u>A. Navarro-Puyuelo</u> ¹ , E. Raga ¹ , E. Bernad ¹ , D. Ripoll ¹ , L. Martínez-Izquierdo ¹ , J. Gorauskis ^{2,3} , I. Aguirrezabal ⁴ , P. L. Arias Ergueta ⁴ , R. Fernández de Luis ⁵ , V. Gil ^{1,3} ¹ Aragon Hydrogen Foundation, Parque Tecnológico Walqa Ctra. N-330, km. 566, 22197 Cuarte, Huesca, Spain; ² Institute of Nanoscience and Materials of Aragon (INMA-CSIC), Mariano Esquillor s/n, 50018 Zaragoza, Spain; ³ ARAID Foundation, Avda. de Ranillas 1-D, 50018 Zaragoza, Spain; ⁴ Basque Country University (UPV/EHU) Plaza Ingeniero Torres Quevedo, 1, 48013 Bilbao, Spain; ⁵ Basque Center for materials, applications and nanostructures (BCM), Bld. Martina Casiano, 3rd. Floor UPV/EHU Science Park, Barrio Sarriena s/n, 48940 Leioa, Spain
13:00-13:15	OS4-5	Glycerol derivatives as oxygenated additives for diesel fuel reformulation: Effect on performance and exhaust emissions of a diesel engine C. Hernandez-Luna, <u>R. Estevez</u> , A. Granados-Lopez, L. Aguado-Deblas, F. Perez-Hidalgo, V. Montes, F.M. Bautista <i>Departamento de Química Orgánica, Instituto Químico para la Energía y el Medio Ambiente (IQUEMA), Universidad de Córdoba, Spain</i>
13:15-13:30	OS4-6	Transforming Microalgae into Sustainable Fuels for the Transport Sector <u>M. Papageorgiou</u> ^{1*} , E. A. Nanaki ¹ , S. Kiartzis ¹ , A. Sadeq Abdo Esmail Al-Dubai ² , S. Bhatwadekar ² , A. J. Azuara ² , D. Castello ² , S. Awad ³ ¹ HELLENiQ ENERGY, 8A Chimarras Street, 15125 Maroussi, Greece ² AAU Energy, Thermal Engineering, Carbon Lab, Faculty of Engineering and Science, Aalborg University, Pontoppidanstræde 111, 9220 Aalborg Øst, Denmark ³ IMT Atlantique, GEPEA, UMR CNRS 6144, Department of Energy Systems and Environmental Engineering, 4 rue Alfred Kastler, 44307 Nantes Cedex 3, France

PROFESSOR SCHULLER ROOM

SESSION 5 **Chair: Dalia Liuzzi / Sergey Tin**

12:00-12:15	OS5-1	Ni and Co Phosphides as Non-Noble Hydrogen Evolution Catalysts in Membrane Electrolyzers: Activity and Stability Evaluation A. G. Cardone ^{1,2} , <u>M. Etzi</u> ¹ ¹ Istituto Italiano di Tecnologia, Center for Sustainable Future Technologies, Via Livorno 60, 10144 Torino, Italy ² Politecnico di Torino, Dept. of Applied Science and Technology, C.so Duca degli Abruzzi 24, 10129 Torino, Italy
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12:15-12:30	OS5-2	From Bulk Screening to Nanostructured Thin Films: A Scalable Design Strategy for High-Entropy Alloy Electrocatalysts via Mechanical Alloying, PLD, and beyond <u>A. Asghari Alamdari</u> ^{1*} , H. Jahangiri ² , J Quinson ^{1,3} , U. Unal ² , A. Bentien ¹ ¹ Biological and Chemical Engineering Department, Aarhus University, 40 Åbogade, 8200, Aarhus, Denmark ² Koç University Surface Science and Technology Center (KUYTAM), Koc University, Sariyer 34450, Istanbul, Türkiye ³ CICA-Centro Interdisciplinar de Química e Biología, Facultade de Ciencias, Universidade da Coruña, Campus de Elviña, A Coruña, Spain
12:30-12:45	OS5-3	Heterostructured Bi₂WO₆/TiO₂ Photoanodes for Solar-Driven Water Electrolysis <u>E. Díaz Ortega</u> ^{1,2} , Á. Sanz Antón ³ , J. L. Gómez de la Fuente ¹ , S. Rojas Muñoz ¹ , M. Peña Jiménez ¹ , M. Retuerto Millán ¹ , Á. Tolosana Moranchel ¹ ¹ Grupo de Energía y Química Sostenibles, Instituto de Catálisis y Petroleoquímica (ICP-CSIC), Madrid, Spain ² Facultad de Ciencias, Universidad Autónoma de Madrid, Madrid, Spain ³ Departamento de Ingeniería Química y de Materiales, Universidad Complutense, Madrid, Spain
12:45-13:00	OS5-4	A Scalable Flow Photoelectrochemical Cell with Porous Metal Foam Photoanodes for Solar Water Splitting <u>Malek Y. S. Ibrahim</u> ^{1*} , David M. Köpf ¹ , S. Chamani ² , R. Sharma ² , S. Ma Andersen ² ¹ Redeem Solar Technologies GmbH, Graz, Austria; ² Department of Green Technology, University of Southern Denmark, Odense, Denmark
13:00-13:15	OS5-5	Transition Metal Phosphides as promising HER catalysts for PEMWE applications <u>J. Torrero</u> ¹ , D. Galyamin ¹ , J. L. Gómez de la Fuente ¹ , F. J. Pérez-Alonso ¹ , P. González García, A. Tolosana-Moranchel ¹ , L. Pascual ¹ , P. Ferrer ² , J. D. Elliott ² , D. Gianolio ² , M. Retuerto ¹ , S. Rojas ¹ ¹ Grupo de Energía y Química Sostenibles, Instituto de Catálisis y Petroleoquímica, CSIC, C/Marie Curie 2, 28049, Madrid, Spain ² Diamond Light Source, Harwell Science and Innovation Campus, Didcot, OX11 0DE, UK

13:30-15:00 Lunch Break

PROFESSOR BOTELLA ROOM

SESSION 6 **Chair: Patrica Reñones Brasa / Marcelo E. Domine**

15:00-15:30 KN-2 **Eva Nanaki**
Energy transition insights: Integrating waste to fuel innovations for hard to abate industries
New Technologies & Innovation Analyst in Helleniq Energy Holding S.A.

15:30-15:45 OS6-1 **Fuel-grade hydrocarbons and chemicals from 1-dodecene, a model representative of polyolefin plastic pyrolysis oils using a novel induction heating reactor**

A. Hart¹, J. Hughes¹, M. Adam², E. Binner², S. Rigby², J. Wood¹

¹ School of Chemical Engineering, University of Birmingham, Edgbaston, Birmingham, B15 2TT

² Department of Chemical and Environmental Engineering, Faculty of Engineering, University of Nottingham, University Park, Nottingham NG7 2RD, UK

15:45-16:00 OS6-2 **Hydrothermal Liquefaction of Alkali Lignin to Value-Added Phenolics with Syngas Co-Production over Ru/Ni-Zeolite Using Formic Acid**

O. Mohammad, J. Onwudili, Q Yuan

Energy and Bioproducts Research Institute (EBRI)

16:00-16:15 OS6-3 **Engineering PdAu/CeO₂ Alloy/Oxide Interfaces for Selective Methane-to-Methanol Conversion with Water**

E. Fernández-Villanueva^{1,2,3}, P. G. Lustemberg², R. Pérez^{3,4}, M. V. Ganduglia-Pirovano²

¹ Universitat Politècnica de València, Camí de Vera s/n, 46022 Valencia, Spain

² Instituto de Catálisis y Petroleoquímica (ICP-CSIC), C/ de Marie Curie 2, 28049 Madrid, Spain

³ Dep. de Física Teórica de la Materia Condensada, UAM, C. U. de Cantoblanco, 28049 Madrid, Spain

⁴ Condensed Matter Physics Center (IFIMAC), UAM, C. U. de Cantoblanco, 28049 Madrid, Spain

PROFESSOR SCHULLER ROOM

SESSION 7 **Chair:** Isabel Suelves / Ramón Moreno-Tost

15:30-15:45 OS7-1 **Tuning Fischer–Tropsch Synthesis Performance through Promoter Spatial Control Using Atomic Layer Deposition**

A. Charise Cariño^{1,2}, M. Biset-Peiró¹, E. Martín Morales¹, J. Llorca³, E. Domínguez Ojeda⁴, A. Garzón Manjón⁴, J. Arbiol^{4,5}, J. Guílera^{1,6}

¹ Catalonia Institute for Energy Research (IREC), Jardins de Les Dones de Negre 1, 08930, Sant Adrià de Besòs, Spain

² Universitat Autònoma de Barcelona (UAB), 08193, Bellaterra, Spain

³ Institute of Energy Technologies, Department of Chemical Engineering and Center for Research in Multiscale Science and Engineering, Universitat Politècnica de Catalunya, EEBE, Eduard Maristany 10-14, Barcelona 08019, Spain

⁴ Catalan Institute of Nanoscience and Nanotechnology (ICN2), CSIC and BIST, Campus UAB, Bellaterra, 08193, Barcelona, Catalonia, Spain

⁵ ICREA, Pg. Lluís Companys 23, 08010 Barcelona, Catalonia, Spain

⁶ Facultat de Química, Universitat de Barcelona, Martí I Franquès

15:45-16:00 OS7-2 **Atomic Layer Deposition-Engineered Cu/ZnO/Al₂O₃ Catalysts for Efficient CO₂ Valorization to Methanol**

C. Magagnin², J. Guílera¹

¹ Institut de Recerca en Energia de Catalunya (IREC), Barcelona, Catalonia, Spain

² Universitat de Barcelona (UB), Barcelona, Catalonia, Spain

16:00-16:15 OS7-3 **Plasma-assisted methanol synthesis from carbon dioxide and hydrogen**

J.D. Duran-Martin¹, S. Saud², E. Morais², A. Natoli¹, J.M. Gonzalez-Carballo^{1*}

¹ Iberian Centre for Research in Energy Storage (Fundecyt-PCTEX CIAE.), Escuela Politécnica, Av. de la Universidad, s/n, 10003 Cáceres (Spain)

² Research group PLASMANT, Department of Chemistry, University of Antwerp, Groenenborgerlaan 171-2020 Wilrijk-Antwerp (Belgium)

16:15-16:45 Coffee Break / Poster Session

PROFESSOR BOTELLA ROOM

SESSION 8 **Chair:** Manolo López-Granados / Ana Orozco Samuell

16:45-17:00 OS8-1 **Selective deoxygenation of waste lipids over bimetallic phosphide catalysts**

P. Reñones, G. Blanco, M.C. Capel, D. San Juan, C. Caro, M. Lara Serrano, S. Morales de la Rosa, J.M. Campos

Sustainable Energy and Chemistry Group (EQS). Instituto de Catálisis y Petroleoquímica, CSIC, Madrid (28049), Spain

17:00-17:15	OS8-2	From Model Compounds to Real Waxes: Bifunctional Pt Catalysts on Oxide-Doped Carbon Nanofibers for Fischer-Tropsch Products Hydroconversion <u>M. Andrades-García</u> , S. Hernández-Asensio, D. Jiménez, C. Di Stasi, J. L. Pinilla, Isabel Suelves <i>Instituto de Carboquímica (ICB-CSIC). Miguel Luesma Castán, 4, 50018 Zaragoza</i>
17:15-17:30	OS8-3	Screening Waste-Derived Iron and Manganese Oxides as Low-Cost, Tuneable Catalysts for Plastic Pyrolysis Oil Upgrading <u>J. Hughes</u> ¹ , A. Hart ¹ , C.A. Rochelle ² , J. Wood ¹ ¹ <i>School of Chemical Engineering, University of Birmingham, Birmingham B15 2TT, United Kingdom</i> ² <i>British Geological Survey, Keyworth, Nottingham, NG12 5GG, United Kingdom</i>
17:30-17:45	OS8-4	Low-pressure lignin hydropyrolysis over Pt-impregnated Beta and ZSM-5 zeolites for achieving high-value oxygenated aromatic products <u>A.M. Montero-Csanady</u> ^{1,2} , M.I. Ávila ¹ , J. Cueto ^{1,3} , L. Briones ¹ , A. Peral ¹ , J.M. Escola ^{1,2} , D.P. Serrano ^{1,3} , G. Gómez-Pozuelo ¹ , J.A. Botas ^{1,2} ¹ <i>Chemical and Environmental Engineering Group, Rey Juan Carlos University</i> ² <i>Instituto de Investigación de Tecnologías para la Sostenibilidad, Rey Juan Carlos University, c/ Tulipán s/n, 28933, Móstoles (Madrid), Spain</i> ³ <i>IMDEA Energy Institute, Avda. Ramón de la Sagra, 28935, Móstoles (Madrid), Spain</i>

PROFESSOR SCHULLER ROOM

SESSION 9		Chair: Jose Iglesias / Marcos G. Farpón
16:45-17:00	OS9-1	Sustainable Development of Fly Ash-Derived Fe-Zn Catalysts for Fischer-Tropsch Synthesis <u>P. Balla</u> and S. Kim <i>Department of Chemical Engineering and Applied Chemistry, Chungnam National University, Daejeon 34134, Republic of Korea</i>
17:00-17:15	OS9-2	Direct carbonylation of glycerol with CO₂ Establishing reaction conditions and designing CeO₂ dispersion in the catalyst <u>J. Gajardo</u> ¹ , R. J. Chimentão ^{1*} , J. Colmenares-Zerpa ¹ , G. González ¹ , and F. Gispert-Guirado ² ¹ <i>Laboratorio de Investigación de Procesos Catalíticos y Adsorción (LIPROCAD), Universidad de Concepción, Concepción, (Chile)</i> ² <i>Scientific Resources Service, Rovira i Virgili University, Tarragona, (Spain)</i>
17:15-17:30	OS9-3	CO₂ fixation to prebiotic compounds over supported transition metal catalyst <u>B. Torres-Olea</u> ¹ , and H. Tüysüz ^{*,1} ¹ <i>Catalysis and Energy Materials IMDEA Materials Institute, 28906, Getafe, Madrid, Spain</i>
17:30-17:45	OS9-4	Mechanistic Insights into Dibenzyltoluene Hydrogenation over Nickel Catalysts: Linking Surface Phenomena and Reaction Kinetics <u>E. Rakić Krstić</u> ^{1,2} , F. Bergelj ¹ , A. Prašnikar ¹ , B. Pomeroy ¹ and B. Likozar ¹ ¹ <i>Department of Catalysis and Chemical Reaction Engineering, National Institute of Chemistry, 1001 Ljubljana, Slovenia</i> ² <i>Faculty of Chemistry and Chemical Engineering, University of Maribor, 2000 Maribor, Slovenia</i>

Wednesday September 30th

PROFESSOR BOTELLA ROOM

SESSION 10 **Chair:** Sergio Rojas / Gema Blanco Brieva

9:30-10:30 PL-3 **Prof. María Escurdero**

Catalan Institute of Nanoscience and Nanotechnology (ICN2)

Engineering Electrocatalytic Interfaces for Sustainable Fuels and Chemicals

10:30-10:45 OS10-1 **MXene- Based catalytic systems for CO₂ conversion into high-value building blocks for non-isocyanate polyhydroxyurethanes (NIPHUs)**

P. Cumplido, A. Benedito, and L. Martí

AIMPLAS, Valencia Technology Park, C. Gustave Eiffel 4, 46980, Paterna (Valencia), Spain

10:45-11:00 OS10-2 **Synthesis of Co-, Ni- and Cu-based hydrotalcites for the selective hydrogenation of 5-hydroxymethylfurfural**

N. Cabezas Zamorano^{1,2}, I. A. Rivas Mendoza¹, B. Torres Olea¹, C. García Sancho^{1,2}, R. Moreno Tost^{1,2}, J. M. Mérida Robles^{1,2}, and P. J. Maireles Torres^{1,2}

¹ Universidad de Málaga, Departamento de Química Inorgánica, Cristalografía y Mineralogía, Facultad de Ciencias, Campus Universitario de Teatinos, Málaga, 29071, Spain

² Universidad de Málaga, Instituto Interuniversitario de Investigación en Biorrefinerías (I3B), Edificio de Investigación Ada Byron, Arquitecto Francisco Peñalosa, 18, Campanillas, 29010 Málaga, Spain

11:00-11:15 OS10-3 **Microwave-synthesized Pd@MOF materials: defect control and plastic waste valorization under continuous flow conditions**

R. M. Guerrero^{1,2}, I. D. Lemir¹, C. Fernandez-Ruiz¹, S. Carrasco¹, D. P. Serrano^{1,4}, P. Horcajada¹, Y. Pérez^{1,3}, and P. Pizarro^{1,4}.

¹ IMDEA Energy Institute, Avda. Ramón de la Sagra, 3, Móstoles, Madrid, Spain

² Escuela Internacional de Doctorado, Universidad Rey Juan Carlos, Móstoles, 28933 Madrid, Spain

³ Department of Geology, Physics and Inorganic Chemistry, ESCET, Rey Juan Carlos University, c/ Tulipán s/n, Móstoles, Madrid), Spain

⁴ Chemical and Environmental Engineering Group, ESCET, Rey Juan Carlos University, c/ Tulipán, s/n, Móstoles, Madrid, Spain

11:15-11:30 OS10-4 **Transfer vinylation of alcohols in the presence of Ru catalyst**

S. Tin, and S. Opačák

Leibniz Institute for Catalysis, Albert-Einstein-Strasse 29a, 18059, Rostock, Germany

PROFESSOR SCHULLER ROOM

SESSION 11 **Chair:** Juan María González Carballo / Rafael Mariscal

10:30-10:45 OS11-1 **Enhanced Dry Reforming of Methane over Promoted NiAl₂O₄-Derived Catalysts: Structural and Mechanistic Study**

M. Córdoba¹, N. Yigit², A. Choya¹, B. de Rivas¹, J. I. Gutiérrez-Ortiz¹, G. Rupprechter², and R. López-Fonseca¹

¹ Chemical Technologies for Environmental Sustainability Group, University of the Basque Country, Leioa, Spain.

² Institute of Materials Chemistry, Vienna University of Technology, Vienna, Austria

10:45-11:00	OS11-2	Renewable Methane from Biogenic CO₂: Industrial Ex-Situ Thermocatalytic Methanation (ETM) of Raw Biogas <u>I. Grigoriadou</u> ¹ , G. Dedes ² , D. Kourkoumpas ² , and T. Sfetsas ¹ ¹ Biogas Lagada S.A.(BLAG), Kolchiko-Lagadas, Central Macedonia, Greece ² Centre for Research and Technology Hellas (CERTH), Chemical Process and Energy Resources Institute (CPERI), Thessaloniki, Greece
11:00-11:15	OS11-3	Interfacial and Structural Engineering of Ni Catalysts for Coking-Resistant Dry Reforming of Methane <u>H. Zhao</u> ¹ , W. Zhang ^{1,2} , C. Ding ^{1,2} , J. Yang, H. Song ¹ , and L. Chou ^{1*} ¹ State Key Laboratory of Low-Carbon Catalysis and CO ₂ Utilization, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, Lanzhou 730000, China ² University of Chinese Academy of Sciences, Beijing 100049, China
11:15-11:30	OS11-4	Hydrogen production through DME Steam Reforming over Cu/SiO₂-Al₂O₃ Bifunctional Catalysts <u>J. López-Martín</u> ^{1,2} , P. J. Megía ¹ , A. J. Vizcaíno ¹ , J. A. Calles ^{1,2} , and A. Carrero ^{1,2} ¹ Chemical and Environmental Engineering Group, Universidad Rey Juan Carlos, c/Tulipán s/n, 28933 Móstoles, Spain ² Instituto de Investigación de Tecnologías para la Sostenibilidad, Universidad Rey Juan Carlos, c/Tulipán s/n, 28933 Móstoles, Spain

11:30-12:00 Coffee Break / Poster Session

PROFESSOR BOTELLA ROOM

SESSION 12 Chair: Laura Barrio / Rufino M. Navarro

12:00-12:15	OS12-1	Metal Oxide-modified Zeolites for the Production of Sustainable Aviation Fuels (SAFs) precursors from Furfural and Levulinic Acid <u>N. Uricoechea</u> ^{1,2} , G. Morales ^{1,2} , M. Paniagua ¹ , and J. A. Melero ^{1,2} ¹ Chemical and Environmental Engineering Group, Rey Juan Carlos University, C/Tulipán s/n, 28933, Móstoles, Spain ² Instituto de Investigación de Tecnologías para la Sostenibilidad (ITPS), Rey Juan Carlos University, C/Tulipán s/n, 28933 Móstoles, Spain
12:15-12:30	OS12-2	From 2-Butanol and 2,3-Butanediol to Jet-Fuel Precursors: Role of H₂ over Cu/h-ZSM-5 Catalysts <u>A. Maroto</u> ¹ , I. Lemir ¹ , M. Álvarez ¹ , D. P. Serrano ^{1,2} , M. Ventura ^{2,3} , and P. Pizarro ^{1,2} ¹ Thermochemical Process Unit, IMDEA Energy. Avda. Ramón de la Sagra 3, 28935, Móstoles; ² Chemical and Environmental Engineering Group, ESCET, Rey Juan Carlos University, c/ Tulipán, s/n, Móstoles, Madrid, Spain; ³ Instituto de Investigación de Tecnologías para la Sostenibilidad (ITPS), Universidad Rey Juan Carlos, Móstoles, Spain
12:30-12:45	OS12-3	Sulfonic acid functionalized mesostructured SBA-15 silica for the synthesis of aviation fuel precursors from acetoin <u>F. J. Landazábal</u> ^{1,2} , A. Martín ¹ , M. Ventura ^{1,2} , J. A. Melero ^{1,2} , M. Paniagua ¹ , G. Morales ^{1,2} ¹ Chemical and Environmental Engineering Group; Rey Juan Carlos University. C. Tulipán, 28933, Móstoles, Spain ² Instituto de Investigación de Tecnologías para la Sostenibilidad (ITPS); URJC, C. Tulipán, 28933, Móstoles, Spain

12:45-13:00	OS12-4	Towards the Production of Green Diesel and Sustainable Aviation Fuel via Single-Stage Hydrotreatment of Waste Cooking Oil A. Muñoz-Arjona, C. Di Stasi, <u>D. Torres</u> , J. L. Pinilla, and I. Suelves <i>Instituto de Carboquímica, CSIC. C/ Miguel Luesma Castán 4, 50018, Zaragoza, España</i>
13:00-13:15	OS12-5	Integration of Heavy Fractions Upgrading in the Co-processing of Lignin and Terpenes towards Sustainable Aviation Fuels <u>M. G. Farpón</u> ¹ , D. Loh ¹ , M. S. Webber ² , B. Raffy ¹ , T. Nagorny ¹ , M. L. Stone ² , G. F. Peter ³ , G. T. Beckham ² and Y. Román-Leshkov ¹ ¹ Department of Chemical Engineering, Massachusetts Institute of Technology, Cambridge, MA ² Renewable Resources and Enabling Sciences Center, National Laboratory of the Rockies, Golden, CO; ³ School of Forest, Fisheries, and Geomatics Sciences, IFAS, University of Florida, Florida, FL

PROFESSOR SCHULLER ROOM

SESSION 13 **Chair:** Marcos Fernández García / Maria Retuerto

12:00-12:15	OS13-1	Promoting Hydrogen Photo-production using Mg Single Atom Species E. Fernández-García, ¹ U. Caudillo-Flores, ² R. Sayago-Carro, ¹ I. Barba-Nieto, ³ A. Tolosana-Moranchel, ¹ A. Kubacka, ¹ and <u>M. Fernández-García</u> ¹ ¹ Instituto de Catálisis y Petroleoquímica (CSIC), C/Marie Curie 2, 28049-Madrid, Spain ² Centro de Nanociencias y Nanotecnología, Universidad Nacional Autónoma de México, Ensenada 22800, México. ³ Departamento de Química Física, Universidad Complutense de Madrid, 28040 Madrid, Spain
12:15-12:30	OS13-2	Hydrogen Generation via Solar Thermo-Photoreforming of Aqueous Organic Solutions Using Semiconductor/Carbon Photocatalysts <u>E. I. García-López</u> ¹ , K. Abbassi ¹ , C. Ania ² , and G. Marci ¹ , ¹ Department of Engineering (DI), University of Palermo, Palermo, Italy ² POR2E Group, CEMHTI CNRS (UPR 3079), Université d'Orléans, 45071 Orléans, France
12:30-12:45	OS13-3	Turquoise Hydrogen by Methane Pyrolysis over Ni-Mo/MgO Catalysts: Impact of the Synthesis Route on Activity <u>M. Udayakumar</u> ¹ , M. Németh ¹ , A. Beck ¹ , T. Korányi ¹ , D. Olasz ¹ , G. Sáfrán ¹ , Z. Horváth ¹ , M. Veres ² , G. Bortel ² , and A. Horváth ¹ ¹ HUN-REN Centre for Energy Research, Konkoly-Thege M. street 29-33, Budapest, 1121, Hungary ² HUN-REN Wigner Research Centre for Physics, Konkoly-Thege M. street 29-33, Budapest, 1121, Hungary
12:45-13:00	OS13-4	MOF Derived Cu–Fe₃O₄/C Nanozymes for Colorimetric H₂O₂ Sensing <u>D. Mandal</u> ^{1,2} , I. Aguirrezabal ² , and J. Dhainaut ¹ ¹ Univ. Lille, CNRS, Centrale Lille, Univ. Artois, UMR 8181 - UCCS - Unité de Catalyse et Chimie du Solide, F-59000 Lille, France ² Department of Chemical and Environmental Engineering, Engineering School of the University of the Basque Country, Bilbao 48013, Spain
13:00-13:15	OS13-5	MnOx-based Catalysts for PROX: Features and Functionality <u>A. Cajumi</u> ¹ , C. Cannilla ¹ , G. Bonura ¹ , S. Todaro ¹ , and F. Arena ^{1,2*} ¹ CNR-ITAE “Nicola Giordano”, Via Salita S. Lucia 5, I-98126 Messina, Italy ² Dipartimento di Ingegneria, Università di Messina, Viale F. Stagno D'Alcontres 31, I-98166 Messina, Italy

13:15-15:00		Lunch Break
PROFESSOR BOTELLA ROOM		
SESSION 14		Chair: Marta Lara Serrano / Juan A. Melero
15:00-15:30	KN-3	Marina Holgado Dones Technical Director in Spanish Hydrogen Association (AeH2) AeH2 Census of Projects: An overview of the Spanish hydrogen sector from lab to market
15:30-15:45	OS14-1	Toward Near-Zero-Waste Valorisation of Wet Agro-Industrial Residues for Renewable Energy Production through Integrated Extraction and Supercritical Water Technologies <u>C. Cannilla</u> , A. Cajumi, G. Giacoppo, S. Todaro, M. Santoro, M. Failla, C. Corrente, F. Arena, M. Samperi, and G. Bonura CNR-ITAE "Nicola Giordano", Via Salita S. Lucia, 5, 98126, Messina, Italy
15:45-16:00	OS14-2	Structure-Performance Relationship in Ni-Co/La Catalysts for Selective THFA Hydrogenolysis <u>A. Valle</u> , I. Gandarias, J. M. Requies, and A. Barredo Department of Chemical and Environmental Engineering, Bilbao School of Engineering, University of the Basque Country (UPV/EHU), Plaza Ingeniero Torres Quevedo 1, E-48013 Bilbao, Spain
16:00-16:15	OS14-3	Suppressing Zn Loss in Zn-S-1 Catalysts for High-Selectivity CO₂-Assisted Propane Dehydrogenation X. Deng ^{1, 2} , <u>H. Song</u> ¹ , X. Xiang ¹ , J. Yang ¹ , L. Chou ¹ , and H. Zhao ¹ ¹ State Key Laboratory of Low Carbon Catalysis and Carbon Dioxide Utilization, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, Lanzhou 730000, P.R. China; ² University of Chinese Academy of Sciences, Beijing 100049, P.R. China
PROFESSOR SCHULLER ROOM		
SESSION 15		Chair: Pedro Maireles / Elena Millán
15:30-15:45	OS15-1	Impact of Al₂O₃ Preparation Method on the Catalytic Performance of Tetrahydrofurfuryl Alcohol Dehydration to Dihydropyran A. Pulido ¹ , <u>M. L. Testa</u> ² , C. Aliotta ² , V. La Parola ² , M. Russo ² , A. Cantalejo ¹ , M. López Granados ¹ , and R. Mariscal ¹ ¹ Instituto de Catálisis y Petroleoquímica (ICP-CSIC), C/ Marie Curie 2, 28049 Madrid (Spain); ² Istituto per lo Studio de Materiali Nanostrutturati (ISMN-CNR), via U.La Malfa 153- I-90146 Palermo (Italy)
15:45-16:00	OS15-2	Elucidating Support Effects for efficient δ-Valerolactone Production on Cu catalysts M. Macías-Villasevil ^{1,2} , <u>B. García</u> ¹ , S. H. Lima ¹ , A. Orozco-Saumell ¹ , M. Lopez-Granados ³ , R. Mariscal ³ , J. Iglesias ^{1,2} , A. García ¹ , and J. Moreno ^{1,2} ¹ Chemical & Environmental Engineering Group. Universidad Rey Juan Carlos ² Institute of Technologies for Sustainability. ITPS-URJC. Universidad Rey Juan Carlos ³ Sustainable Energy and Chemistry Group, Institute of Catalysis and Petrochemistry, CSIC
16:00-16:15	OS15-3	Effect of Cobalt doping of Ni/MgAl₂O₄ catalyst in combined steam/dry reforming (CSDR) of raw bio-oil <u>A. I. Quiñones</u> ¹ , J. Valecillos ² , G. Elordi ¹ , A. Remiro ¹ , and A. G. Gayubo ¹ . ¹ Dep. Chemical Engineering, Univ. Basque Country (UPV/EHU), Bilbao 48080, Spain ² Dep. Graphic Expression and Engineering Projects, Univ. Basque Country (UPV/EHU)

16:15-16:45

Coffee Break / Poster Session

PROFESSOR BOTELLA ROOM

SESSION 16

Chair: José Luis Gómez de la Fuente / Maricarmen Capel-Sánchez

16:45-17:00 OS16-1 **YBaCo₄O₇ as a promising Non-Noble OER Catalyst for PEM Water Electrolysis**

F. J. Pérez-Alonso, J. L. Gómez de la Fuente, J. Torrero, P. González García, A. Vázquez Romero, D. Galyamin, A. Tolosana-Moranchel, L. Pascual, M. Retuerto, and S. Rojas

Institute for Catalysis and Petrochemistry, ICP-CSIC, Sustainable Energy and Chemistry Group, Spain

17:00-17:15 OS16-2 **HF-Free Hydrothermal Synthesis of 2D-on-2D MBene@g-C₃N₄/g-C₃N₅ Photo(electro)catalysts for Furfural Upgrading to Sustainable Aviation Fuel**

M. Ashraf Sabri¹, S. Alareeqi¹, and L. F. Vega^{1,2}

¹ Research and Innovation Center on CO₂ and Hydrogen (RICH Center) and Chemical and Petroleum Engineering Department, Khalifa University of Science and Technology, Abu Dhabi, United Arab Emirates

² Energy Institute, Khalifa University of Science and Technology, Abu Dhabi, United Arab Emirates

17:15-17:30 OS16-3 **A new Pd/Co(OH)₂ Catalysts for the Photothermal Valorization of CO₂**

G. Gómez-Gómez,¹ I. Barba-Nieto,² U. Caudillo-Flores,³ A. Kubacka,¹ and M. Fernández-García¹

¹ Instituto de Catálisis y Petroleoquímica (CSIC), C/Marie Curie 2, 28049-Madrid, Spain

² Departamento de Química Física, Universidad Complutense de Madrid, 28040 Madrid, Spain.

³ Centro de Nanociencias y Nanotecnología, Universidad Nacional Autónoma de México, Ensenada 22800, México

17:30-17:45 OS16-4 **Using Magnetic Fields to Control Transport in Electrochemical Systems**

Rui Gao

Department of Physical and Macromolecular Chemistry, Faculty of Science, Charles University, Czechia

PROFESSOR SCHULLER ROOM

SESSION 17

Chair: Ana Bahamonde / Jorge Torrero

16:45-17:00 OS17-1 **Structure–Activity Relationship in Sulfonated Catalysts for the Conversion of Levulinic Acid to Isopropyl Levulinate and γ-valerolactone**

M. Russo, C. Aliotta, V. La Parola, G. Pantaleo, and M. L. Testa

Institute of Nanostructured Materials, ISMN-CNR, Via Ugo La Malfa 153, 90146 Palermo, Italy

17:00-17:15 OS17-2 **Glycerol valorization to STBE via propylsulfonic functionalized silicas: Impact of synthesis methodology on catalytic efficiency and stability**

A. Granados-López, R. Estévez, C. Hernández-Luna, F. Pérez-Hidalgo, V. Montes, and F.M. Bautista

Departamento de Química Orgánica, Instituto Químico para la Energía y el Medioambiente (IQUEMA), Universidad de Córdoba, Campus de Excelencia Internacional Agroalimentario CeIA3, Edificio Marie Curie, E-14014, Córdoba, España

17:15-17:30 OS17-3 **Computational Insights into Fe-MOFs Activation for Light Alkane Oxidation Catalysis**

Y. Iqbal^{1,2}, M. Huš¹, and E. Borfecchia²

¹ Department of catalysis and chemical reaction engineering, National Institute of chemistry, Ljubljana Slovenia;

² Department of Chemistry, University of Turin, Italy

17:30-17:45 OS17-4 **Preparation-method-controlled TiO₂/CeO₂/CuO catalysts for catalytic oxidation of methanol and dichloromethane**

H. Singh Malhi¹, L. Matějová¹, I. Troppová¹, B. Ptáčková^{1,2}, P. Kustrowski³, D. Fridrichová¹, S. Pitkääho⁴, and R. L. Keiski⁴

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² *Faculty of Material Science and Technology, VSB-Technical University of Ostrava, 17. listopadu 15/2172, 708 00 Ostrava-Poruba, Czech Republic*

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⁴ *Environmental and Chemical Engineering Unit, Faculty of Technology, University of Oulu, P.O.Box 4300, FI-90014 University of Oulu, Finland*

PROFESSOR BOTELLA ROOM

17:45-18:15

Closing Ceremony

List of Poster Presentations

P01 Upcycled Coffee Grounds as a Template for Ce-Modified TiO₂ Nanomaterials used in Photocatalytic Oxidation and Photoreforming

Elisa I. García-López¹, Narimene Aoun¹, Bartolomeo Megna¹,
Valeria La Parola², Giuseppe Marci¹

¹ Department of Engineering, University of Palermo, Viale delle Scienze, 90128, Italy;

² Istituto per lo Studio dei Materiali Nanostrutturati (ISMN)-CNR, via Ugo La Malfa, 153, 90146, Palermo, Italy

P02 Basic catalysts for the selective oxidation of glycolic aldehyde into formic acid

Gisela M. Arzac, Marina Cañadas-Cabrero, Marcela Martínez T., Asunción Fernández, Miguel Ángel Centeno and María Isabel Domínguez

Instituto de Ciencia de Materiales de Sevilla (CSIC-Univ. Sevilla), Avda. Américo Vespucio 49, 41092 Sevilla, España

P03 Eggshell-derived CaO catalysts for the selective oxidation of glycolic aldehyde into formic acid

Gisela M. Arzac¹, Marina Cañadas-Cabrero¹, Matías Gastón Rinaudo², María Roxana Morales², Marcela Martínez T¹., Asunción Fernández¹, Miguel Ángel Centeno¹ and María Isabel Domínguez¹

¹ Instituto de Ciencia de Materiales de Sevilla (CSIC-Univ. Sevilla), Avda. Américo Vespucio 49, 41092 Sevilla, España

² Instituto de Investigaciones en Tecnología Química (INTEQUI-CONICET), Facultad de Química Bioquímica y Farmacia, Universidad Nacional de San Luis (UNSL), Almirante Brown 1455, Capital, San Luis 5700, Argentina

P04 Deactivation of Pd/C catalysts in the formic acid-mediated hydrogenation of maleic acid to succinic acid: mechanisms and regeneration strategies

V. A. Francés Pérez¹, A. Orozco-Saumell², P. Ferrer³, R. Mariscal¹, M. López Granados¹

¹ EQS Group (Sustainable Energy and Chemistry Group), Institute of Catalysis and Petrochemistry (CSIC), C/ Marie Curie, 2, Campus de Cantoblanco, 28049 Madrid (Spain)

² Chemical & Environmental Engineering Group, Universidad Rey Juan Carlos, C/Tulipán s/n, Mostoles, 28933, Spain

³ Diamond Light Source, Harwell Science and Innovation Campus, Chilton, Didcot OX11 0DE UK

P05 Catalytic conversion of biomass derived furfuryl alcohol to 1,2,5-pentanetriol

A. Cantalejo, J.A. Pulido, M. López Granados, R. Mariscal

Institute of Catalysis and Petrochemistry (ICP-CSIC), C/ Marie Curie 2, 28049 Madrid (Spain)

P06 Upcycling cigarette butts by hydrolytic hydrogenation of their major component (cellulose acetate)

Esther Frecha, Antonio Herrera, Isabel Suelves, José Luis Pinilla

Instituto de Carboquímica-CSIC, c/Miguel Luesma Castán, 4, 50018, Zaragoza

P07 Hydrotreatment of Technical Lignins over Silica-Supported Metal Phosphide Catalysts: Activity, Selectivity, and Molecular Weight Evolution

G-Blanco-Brieva¹, M. C. Capel-Sanchez¹, M. Lara-Serrano¹, S. Morales-delaRosa¹, E. Ruiz², A. Susmozas³, J. M. Campos-Martín¹

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³ Advanced Biofuels and Bioproducts Unit, Department of Energy, CIEMAT, Avda. Complutense 40, Madrid 28040, Spain

P08 Influence of alkali and alkaline earth metals as additives on ammonia decomposition reaction over Ru/CeO₂ catalyst

Qi An^{1,2}, Huanling Song¹, Huahua Zhao¹, Xianmei Xiang, Jian Yang¹, Lingjun Chou¹

¹ State Key Laboratory of Low Carbon Catalysis and Carbon Dioxide Utilization, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, Lanzhou 730000, P.R. China;

² University of Chinese Academy of Sciences, Beijing 100049, P.R. China

- P09 Aspen Plus modelling of the continuous hydrodeoxygenation of 4-propylguaiaicol over a nickel-based catalyst: kinetic decoupling and definition of the operating window**
Flavio Jesús Romero Vásquez, Patricia Reñones Brasa, Marta Lara-Serrano, Silvia Morales-delaRosa, Jose M. Campos-Martin
Institute for Catalysis and Petrochemistry, ICP-CSIC, Sustainable Energy and Chemistry Group, Spain
- P10 Synthesis of 1,4-pentanediol from furfural using Cu-based catalysts supported on sepiolite**
 Juan A. Cecilia, Ramón Moreno-Tost, Cristina García-Sancho, Josefa M. Mérida-Robles, Pedro J. Maireles-Torres
Universidad de Málaga, Instituto Interuniversitario de Investigación en Biorrefinerías (I3B), Edificio de Investigación Ada Byron, Arquitecto Francisco Peñalosa, 18, Campanillas, 29010 Málaga, Spain
- P11 Design of monolayers of Al₂O₃, TiO₂ or ZrO₂ on sepiolite for the hydrogen catalytic transfer of furfural**
 Pablo Méndez Abreu^{1,2}, Juan A. Cecilia^{1,3}, Cristina García-Sancho^{1,3}, Ramón Moreno-Tost^{1,3}, Josefa M. Mérida-Robles^{1,3}, Pedro J. Etzi-Torres^{1,3}
¹ Universidad de Málaga, Departamento de Química Inorgánica, Cristalografía y Mineralogía, Málaga 29071, Spain
² Instituto Universitario de Materiales y Nanotecnología, IMANA. Centro Ada Byron, University of Malaga, 29071, Malaga, Spain
³ Universidad de Málaga, Instituto Interuniversitario de Investigación en Biorrefinerías (I3B), Edificio de Investigación Ada Byron, Arquitecto Francisco Peñalosa, 18, Campanillas, 29010 Málaga, Spain
- P12 Ni/Fe@C catalysts favoring C17-selective deoxygenation of waste cooking oil under hydrotreating conditions**
Sara Hernández-Asensio, Jaime López-de Los Ríos, Isabel Suelves, Daniel Torres, José Luis Pinilla
Instituto de Carboquímica (ICB-CSIC), Miguel Luesma Castán, 4, 50018 Zaragoza
- P13 From Biogas to Biomethane: Selection of NiO-Based Catalysts for Ex-Situ Thermocatalytic CO₂ Methanation**
Ifigeneia Grigoriadou¹, George Romanos², Themistoklis Sfetsas¹
¹ Biogas Lagada S.A., Kolchiko-Lagadas, Central Macedonia, Greece
² Institute of Nanoscience and Nanotechnology, NCSR "Demokritos", Agia Paraskevi, Athens, Greece
- P14 Short-chain alcohols synthesis from CO₂ hydrogenation with rhodium-based catalyst**
Maria Dore^{1,2}, Cristina Peinado¹, Sergio Rojas¹, José M. Campos-Martin¹, Silvia Morales-delaRosa¹, Dalia Liuzzi¹
¹ Sustainable Energy and Chemistry Group (EQS), Instituto de Catálisis y Petroleoquímica, CSIC, C/ Marie Curie 2, Cantoblanco, Madrid 28049, Spain
² Escuela de Doctorado, UAM, Madrid 28049, Spain
- P15 Nickel Selenides as Electrocatalysts for Hydrogen Production via the Urea Oxidation Reaction**
Israel Cano¹, Arturo Muiño^{1,2}, Cristina Adán¹, Maria Cuartero², Enrique García-Quismondo², Julio J. Lado², Jesús Palma²
¹ Departamento de Química Inorgánica, Universidad Complutense de Madrid, Madrid 28040, Spain
² Electrochemical Processes Unit, IMDEA Energy, Móstoles 28935, Madrid, Spain
- P16 Air-Stable Molybdenum Carbides via Carbon-Support Carburization: Critical Synthesis Insights for Ambient Handling**
Rut Guil-López, José Luis G. Fierro
Sustainable Energy and Chemistry Group (EQS), Institute of Catalysis and Petrochemistry, CSIC, Madrid, Spain
- P17 Bifunctional HER/OER activity of NiFeCo electrocatalysts under alkaline conditions**
Dalia Liuzzi, Francisco J. Pérez, José L. Gómez de la Fuente, Álvaro Tolosana, Sergio Rojas, María Retuerto
Instituto de Catálisis y Petroleoquímica, CSIC. Grupo de Energía y Química Sostenible, Madrid, Spain

- P18 Effect of support and intermediate layer in the performance of Pd composite membranes**
Negin Karim Zadeh Bajgiran¹, Leire Monasterio Velilla¹, José Valecillos², Gorka Elordi, Aingeru Remiro, Ana G. Gayubo
¹ Dep. Chemical Engineering, Univ. Basque Country (UPV/EHU), Bilbao 48080, Spain.
² Dep. Graphic Expression and Engineering Projects, Univ. Basque Country (UPV/EHU)
- P19 Thermodynamic equilibrium analysis of the steam reforming of bio-oil stabilized with methanol in a membrane reactor**
Negin Karim Zadeh Bajgiran¹, José Valecillos², Marta Alberdi¹, Gorka Elordi¹, Pedro Luis Benito³, Ana G. Gayubo¹
¹ Department of Chemical Engineering, UPV/EHU, P.O. Box 644, 48080 Bilbao;
² Department of Graphic Design and Engineering Projects, UPV/EHU, 48013 Bilbao
³ Department of Mining and Metallurgical Engineering. Materials Science, UPV/EHU, 48013 Bilbao
- P20 Clean Strategies for the Regeneration of a Ni/MgAl₂O₄ Catalyst in the Sustainable Syngas Production from Dry Reforming of Bio-oil**
 José Valecillos², Gorka Elordi¹, Negin Karinzadeh¹, Ambar Quiñones¹, Aingeru Remiro¹, Ana G. Gayubo¹
¹ Department of Chemical Engineering, UPV/EHU, P.O. Box 644, 48080 Bilbao
² Department of Graphic Design and Engineering Projects, UPV/EHU, 48013 Bilbao
- P21 Effect of ZnO Nanomorphology on the Structure and Catalytic Performance of ZnPd/ZnO Catalysts in CO₂ Hydrogenation to Methanol**
 N. Mota, A. Palomino, B. Pawelec and R.M. Navarro Yerga
 Instituto de Catálisis y Petroleoquímica (ICP), CSIC, c/ Marie Curie 2, Madrid, 28049, Spain
- P22 Structure-Acidity Relationships of Keggin Phosphotungstic Acid Supported on Mesocellular Silica Foam for Methanol Dehydration to DME**
 N. Mota, B. Pawelec, E. Fernández and R.M. Navarro Yerga
 Instituto de Catálisis y Petroleoquímica (ICP), CSIC, c/ Marie Curie 2, Madrid, 28049, Spain
- P23 Operation of single solid oxide cells with alternative cathode materials for CO₂ and steam co-electrolysis**
Elena Millán, Esperanza Ruiz, María J. Escudero
 Department of Energy, CIEMAT, Av. Complutense 40, 28040 Madrid, Spain
- P24 Optimization of Cu electrocatalyst for CO₂ electroreduction reaction for e-fuel production**
Álvaro Vazquez¹, Dina Mallouk¹, C. Prieto², F.J. Pérez-Alonso¹, J.L. Gómez de la Fuente¹, M. Retuerto¹, S. Rojas¹
¹ Grupo de Energía y Química Sostenibles, Instituto de Catálisis y Petroleoquímica, CSIC
² Instituto de Ciencia de Materiales de Madrid, ICMM, CSIC
- P25 Investigations on Cu-based catalysts for the dehydrogenation of the liquid organic hydrogen carrier compound 1,4-butanediol**
Stefan Spahn¹, Lucas Warmuth², Stephan Pitter², Franziska Auer¹, Peter Wasserscheid^{1,3,4}
¹ Forschungszentrum Jülich, Helmholtz-Institute Erlangen-Nürnberg für Renewable Energy (IET-2), Cauerstraße 1, 91058 Erlangen, Germany
² Institute of Catalysis Research and Technology (IKFT), Karlsruhe Institute of Technology, Hermann-von-Helmholtz-Platz 1, 76344 Eggenstein-Leopoldshafen, Germany
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⁴ Lehrstuhl für Chemische Reaktionstechnik, Friedrich-Alexander-Universität Erlangen-Nürnberg, Egerlandstraße 3, 91058 Erlangen, Germany

P26 Tribocatalysis and tribochemical pathways for carbon-neutral Cement production and CO₂ valorisation to syngas and methane

F.J. Pérez-Alonso¹, D. Liuzzi¹, R. Nevshupa², M.M. Alonso², M. Palacios², J.R. Ares³, F. Leardini³, I.J. Ferrer³, M. Retuerto¹, S. Rojas¹.

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P27 Enantioselective Access to Axially Chiral Benzopyrano[1,2]thiazinone S,S-Dioxides via Oxidative NHC Catalysis

Monika Radosińska, Zbigniew Rafiński

Faculty of Chemistry, Chair of Organic Chemistry, Nicolaus Copernicus University in Toruń, Gagarina 7, 87-100, Toruń, Poland

P28 Catalytic upgrading of pyrolysis biooils for producing advanced biofuels

Alejandra Galán Carrasco^{1,2,3}, Rupali Jha², Jose M. Campos-Martin¹

¹ Institute for Catalysis and Petrochemistry, ICP-CSIC, Sustainable Energy and Chemistry Group, Spain

² Pyrocatalytica, Madrid, Spain

³ Escuela de Doctorado de Universidad Autónoma de Madrid, Madrid, Spain

P29 Epoxide-assisted synthesis of CuZn and CuNi bimetallic electrocatalysts for CO₂ electroreduction toward methanol production

Laura Sanchez Cupido, Francisco Fernandez Carretero, Antonela Gallastegui Buffarini, Hegoi Urretabizkaia, Ekain Gesalaga Fernandez and Daniela Minudri

Tecnalia, Basque Research and Technology Alliance (BRTA), Mikeletegi Pasealekua 2, 20009 Donostia-San Sebastian, Spain

P30 Hydrothermal synthesis and structural engineering of Cu-based bimetallic catalysts for electrochemical CO₂ reduction to ethanol

Daniela Minudri, Francisco Fernandez Carretero, Antonela Gallastegui Buffarini, Hegoi Urretabizkaia, Ekain Gesalaga Fernandez and Laura Sanchez Cupido

Tecnalia, Basque Research and Technology Alliance (BRTA), Mikeletegi Pasealekua 2, 20009 Donostia-San Sebastian, Spain

P31 From Structural Design to Photocatalytic Function: Multilevel Engineering of MOFs for Light-Driven Transformations

Arianna Melillo and Patricia Horcajada

IMDEA Energy Institute, Avenida Ramon de La Sagra, 3, 28935, Móstoles, Madrid, Spain

P32 Solar-driven photocatalytic degradation of polylactic acid nanoplastics over hierarchically structured chalcogenide coatings

Ana Bahamonde¹, Esther Ortega², Laura Valenzuela² and Roberto Rosal²

¹ Instituto de Catálisis y Petroleoquímica, ICP-CSIC, Marie Curie 2, Madrid E-28049, Spain

² Department of Chemical Engineering, University of Alcalá, Alcalá de Henares, Madrid E-28871, Spain

P33 Formation of heterojunctions over WO₃ nanoplates to improve the performance for photoelectrochemical water splitting

Elvira Díaz Ortega^{1,2}, Jose Luis Gómez de la Fuente¹, Pedro A. López-Peñalver², Miguel A. Peña¹, Sergio Rojas Muñoz¹, María Retuerto Millán¹, Álvaro Tolosana Moranchel¹

¹ Grupo de Energía y Química Sostenibles, Instituto de Catálisis y Petroleoquímica (CSIC), Madrid, Spain

² Facultad de Ciencias, Universidad Autónoma de Madrid, Madrid, Spain

P34 Enhanced OER Performance in Alkaline Conditions Using a High-Entropy Oxide Electrocatalyst

P. González-García, S. Rojas, A. Tolosana-Moranchel, J.L. Gómez, F.J. Pérez-Alonso, M. Retuerto

Instituto de Catálisis y Petroleoquímica, CSIC. C/Marie Curie 2, 28049, Madrid, Spain

P35 Asphaltene-derived carbon aerogels for alkali ion recovery from brine

Bader Alarbeed, Sebastián González-Ramírez, Amin Osatiashtiani and David Harbottle

School of Chemical and Process Engineering, University of Leeds, Leeds LS2 9JT, UK

P36 One-Pot Tandem Catalysis for the Direct Upgrading of 2,3-Butanediol to C8+ Olefins as SAF Precursors

A. Souza¹, S. Turriziani¹, I. Lemir¹, D. Serrano^{1,2}, P. Pizarro^{1,2}

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PRACTICAL INFORMATION

Registration: The registration and information desk is located at HALL. All the conference participants must be registered and are required to wear their conference badge at all times, conference and social programme.

Certificate of attendance, oral & poster presentation: The certificate will be inside accreditation envelope.

Wi-fi internet connection: Free wi-fi internet access is available at the conference site after registration.

INSTRUCTIONS FOR PRESENTATIONS

Oral presentations:

- Speakers will have to give their presentation in a pen drive in the speaker desk at least 2 hours before their session. **Please note that the use of personal laptops is not permitted.**
- The slides of the presentation may be in PowerPoint or pdf 16:9 format.
- Oral presentations will last **15 minutes including questions.**
- The Organizing Committee will be strict with the schedule and the length of the presentations.

Poster presentations:

- The **poster session** will be held in **HALL**.
- Poster measurements will be the corresponding of an A0 (1189mm height x 841mm width).
- The authors will have to hold their posters the first day and remove it at the end of the conference.
- The organization will provide the necessary material for setting up the poster.

PROGRAMME AT A GLANCE

Monday, September		Tuesday, September 29th		Wednesday, September 30th	
		9:30-10:30	Sala Prof. Botella Plenary 2	9:30-10:30	Sala Prof. Botella Plenary 2
		10:30-11:30	Oral session 2	10:30-11:30	Oral session 10
		11:30-12:00	Coffee break and poster session HALL	11:30-12:00	Coffee break and poster session HALL
		12:00-13:30	Oral session 4	12:00-13:30	Oral session 12
	Sala Prof. Botella				
13:00-15:15	Registration HALL	13:30-15:00	Lunch HALL	13:30-15:00	Lunch HALL
15:15-16:00	Opening ceremony	15:00-15:30	Keynote 2	15:00-15:30	Keynote 3
16:00-17:00	Plenary 1	15:30-16:15	Oral session 6	15:30-16:15	Oral session 14
17:00-17:30	Coffee break HALL	16:15-16:45	Coffee break and poster session HALL	16:15-16:45	Coffee break and poster session
17:30-18:00	Keynote 1	16:45-17:45	Oral session 8	16:45-17:45	Oral session 16
18:00-18:45	Oral session 1			17:45-18:15	Closing session
19:00-21:00	Welcome reception HALL	19:00-21:00	Tourist activity		
				21:00	Gala Dinner

SOCIAL PROGRAMME

- The welcome Cocktail will take place on 28th September after the end of the conference sessions at *Hall Faculty of Medicine*

Hall Faculty of Medicine



- Tourist Activity will take place on 29th **September**. A guided tour of Madrid's main historical landmarks, offering an overview of the city's rich history, culture, and architectural heritage.

Tour activity



- The **Gala Dinner** will take place at **Ramses restaurant** on Wednesday 30th September. Address: Plaza de la Independencia 4 (Puerta de Alcalá, Madrid) at 21:00h

Ramses restaurant





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TOPICS



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Catalytic technologies for sustainable hydrogen production, storage, and utilization.



Novel Trends in Catalysis

New catalysts, reactor concepts and process intensification for a sustainable future.



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