



8th ENMIX Workshop

Thessaloniki, CPERI/CERTH, October 6th-7th ,  
2022

## THURSDAY 6th October 2022

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8:30 – 9:00 Registration

9:00 – 09:10 Opening Prof E. Klemm

9:10 – 09:20 Welcome/Introduction Dr A. Lappas CPERI/CERTH

### SESSION 1: Synthesis & Characterization

Chairman: Prof. N. Novak-Tušar - Prof. Juan José Villora Picó

9:20 - 10:00 **Plenary Lecture: Prof Matthias Thommes, Friedrich –Alexander-University Erlangen-Nürnberg, Germany**

*"Insights into the adsorption and phase behavior of fluids in hierarchically structured nanoporous materials: Towards an advanced textural characterization"*

10:00 - 10:20 **Communication: Prof. Dr P. Cool, University of Antwerp, Belgium**

*"Synthesis of Ti-based nanocomposites for the photocatalytic reduction of CO<sub>2</sub>"*

10:20 - 10:40 **Communication: Dr. J. Gys, University of Antwerp, Belgium**

*"Nanostructuring The Surface Of Porous Titanium 3D Structures"*

10:40 - 11:00 **Communication: E. S. Duran-Urbe, University of Alicante, Spain**

*"P-doped carbon derived from phytic acid and its application for benzyl alcohol oxidation: Effect of the synthesis route on catalytic activity"*

11:00 - 11:30 **COFFEE BREAK (CPERI/CERTH Administration building foyer)**

11:30 - 11:50 **Communication: Dr. G. Kastrinaki, CPERI/CERTH, Greece**

*"Development of Catalytic nanoparticles in mesoporous materials; synthesis by aerosol routes, characterization of pore structure and catalytic kinetic model evaluation."*

11:50 - 12:10 **Communication: Dr. J. Martínez, UPV-CSIC, Valencia, Spain**

*"Structural and Chemical Characterization of Pd-M Bimetallic Nanoparticles from MOFs Mild-Processing as Versatile Catalysts"*

12:10 - 12:30 **Communication: Prof. M. F. R. Pereira, University of Porto, Portugal.**  
*"Influence of the textural properties and surface chemistry of carbon materials as support for CO<sub>2</sub> methanation catalysts"*

12:30 - 12:50 **Communication: Dr. J. H. Cavka, SINTEF AS, Norway**  
*"In-Situ Mass Analyzer – ISMA"*

12:50 - 13:10 **Communication: Dr. Eleni Iliopoulou, CPERI/CERTH, Greece**  
*"Novel Pd-Co/alumina catalysts for the oxidation of CO and other atmospheric pollutants"*

13:10 - 14:10 **LUNCH** (CPERI/CERTH Administration building foyer)

**SESSION 2: Catalysis** Chairman: Dr. E. Iliopoulou - Dr. C. Martinez

14:10 - 14:40 **Invited lecture: Dr. Luciana Lisi, CNR, Italy**  
*"Catalysts and sorbents for environmental and energetic applications at CNR-STEMS"*

14:40 - 15:00 **Communication: Dr. J S. Cimino, (CNR/STEMS), Italy**  
*"Li-Ru/Al<sub>2</sub>O<sub>3</sub> as Dual Function Materials for Combined CO<sub>2</sub> Capture and Methanation"*

15:00 - 15:20 **Communication: Prof. N. Novak Tušar, National Institute of Chemistry, Ljubljana, Slovenia**  
*"Bimetallic Oxide Catalysts on Porous Supports for Air Pollution Prevention"*

15:20 - 15:40 **Communication: Dr. Jan Florenski, University of Stuttgart, Germany**  
*"Structure-Property Relationships in Platinum-Loaded and Unloaded Cerium Oxides for CO-Oxidation"*

15:40 - 16:00 **Communication: Dr. A. Margellou, Chemistry Dpt., AUTH, Greece**  
*"Micro/mesoporous zeolitic catalysts for lignin valorisation to chemicals and fuels"*

16:00 - 16:20 **Communication: Dr. T. Papalas Chem. Engineering Dpt., AUTH, Greece**  
*"Evaluation of Bimetallic Co-Ni Oxygen Carriers for High-Purity H<sub>2</sub> Production via an Intensified Reforming Process"*

16:20-17.00 **Plenary Lecture: Prof Deven Estes, University of Stuttgart, Germany**  
*"Immobilized Catalysts that Model Metal Support Interactions: Confinement Inside SiO<sub>2</sub> Mesopores "*

17:00 - 18:00 **COFFEE BREAK** (CPERI/CERTH Administration building foyer)

**POSTER SESSION**

20.30 **SOCIAL DINNER**

Friday 7th October 2022

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9:00 - 9:40 **Plenary Lecture: Prof T. Willhammar, Stockholm University, Sweden**  
*"Structural characterization of nanoporous materials using electron microscopy"*

**SESSION 3: Electrocatalysis & Photocatalysis** Chairman: Prof. P. Cool - Prof. E. Klemm

9:40 - 10:10 **Invited lecture: Prof P. Oña-Burgos UPV-CSIC, Valencia, Spain.**  
*"Development Of Tailored Electrocatalytic Materials For Energy Conversion"*

10:10 - 10:30 **Communication: Dr. K.M. Papazisi, CPERI/CERTH, Greece**  
*"Doped Lanthanum Strontium Chromites as Cathode Electrodes in Solid Oxide Electrolysis Cells"*

10:30 - 10:50 **Communication: Dr. E. Strataki, CPERI/CERTH, Greece**  
*"Iridium based electrocatalysts supported on titanium substrates for the oxygen evolution reaction on PEMWE systems"*

10:50 - 11:10 **Communication: C. Abreu-Jaureguí, University of Alicante, Spain**  
*"Improving the photocatalytic activity of TiO<sub>2</sub>/P<sub>25</sub> by using differently structured carbon materials as a co-catalyst"*

11:10 – 11:30 **COFFEE BREAK** (CPERI/CERTH Administration building foyer)

**SESSION 4: Advanced Materials / Processes**

Chairman: Prof. A. Sepúlveda Escribano - Dr D. Akporiaye

11:30 - 11:50 **Communication: Dr. C.Byrne, National Institute of Chemistry, Slovenia.**  
*"Evaluation of ZIFs as Potential Heat Storage Materials Using Water and Ethanol as Working Fluids"*

11:50 - 12:10 **Communication: Dr. M.A. van der Veen, Delft University of Technology, the Netherlands**  
*"Water: an Annoyance, a Reality and an Opportunity for Microporous Framework Materials"*

12.10-12.30 **Communication: Rui An, University of Antwerp, Belgium**  
*"The Origin of the Reduced Phosphorous-Carbon Bond Stability of Aminomethylphosphonic Acid Grafted on Titania"*

12:30 - 12:50 **Communication: Kaimin Zhang, University of Antwerp, Belgium**  
*"The Effect of 3PA Monolayer on Titania Support Properties"*

12.50-13.10 **Communication: J.J. Villora-Picó, University of Alicante, Spain**  
*"Sulfur-Doped Carbons as Metal-Free Catalysts for Nitroarenes Hydrogenation"*

13.10-13.30 **Communication: D. Koutsonikolas, CPERI/CERTH, Greece**

" Modelling and Simulation of Gas-liquid Contact Membrane Processes: Biogas Upgrading Using DEA Solutions "

13:30 - 14:00 **Closing remarks: Prof Elias Klemm**

14:00 – 15:00 **LIGHT LUNCH** (CPERI/CERTH Administration building foyer) - **Departure**

## POSTER SESSION

- P1. Synthesis Of Porous  $\text{CuO-Ce}_x\text{Zr}_{1-x}\text{O}_2$  Catalysts For Combustion Of Volatile Organic Compounds

W. Van Hoey<sup>1\*</sup>, I. Majewska<sup>2</sup>, A. Rokicińska<sup>2</sup>, P. Kuśtrowski<sup>2</sup>, P. Cool<sup>1</sup>

1) *Laboratory of Adsorption and Catalysis, Department of Chemistry, University of Antwerp, Wilrijk, Belgium*

2) *Department of Chemical Technology, Jagiellonian University, Krakow, Poland*

- P2. Supported Iron-based Nano-materials for the Valorization of Carbon Dioxide

A. Bakratsa<sup>1</sup>, G. Kastrinaki<sup>2</sup>, V. Zacharopoulou<sup>2\*</sup>, G. Karagiannakis<sup>2</sup>, V. Zaspalis<sup>1,2</sup>

1) *Department of Chemical Engineering, Aristotle University of Thessaloniki, Thessaloniki, Greece*

2) *Chemical Process & Energy Resources Institute, CERTH, Thessaloniki, Greece*

- P3. Does the Particle Diameter of a Catalyst/Packing Material Influence Plasma Dry Reforming of Methane?

Jinxin Wang<sup>1,2\*</sup>, Annemie Bogaerts<sup>1</sup> and Vera Meynen<sup>2</sup>

1) *Laboratory of Adsorption and Catalysis, Department of Chemistry, University of Antwerp, Wilrijk, Belgium*

2) *Plasma Lab for Applications in Sustainability and Medicine, Department of Chemistry, University of Antwerp, Wilrijk, Belgium*

- P4. Environmental Remediation Via 3D Printed  $\text{TiO}_2$ -Photocatalysts In Liquid Or Gas Phase Systems

R.-G. Ciocarlan<sup>1\*</sup>, V. Theuns<sup>1</sup>, M. Kus<sup>2</sup>, B. Michielsens<sup>2</sup>, P. Cool<sup>1</sup>

1) *Laboratory of Adsorption and Catalysis (LADCA), Department of Chemistry, University of Antwerp*

2) *Coating and Shaping Technologies, Unit Sustainable Materials, Flemish Institute for Technological Research (VITO)*

- P5. Nanoporous Activated Carbons as Efficient Desulfurization Adsorbents

Eleni D. Salonikidou<sup>1,\*</sup>, Dimitrios A. Giannakoudakis<sup>1</sup>, Margaritis Kostoglou<sup>1</sup>, Konstantinos S. Triantafyllidis<sup>1,2</sup>, Eleni A. Deliyanni<sup>1</sup>

1) *Department of Chemistry, Aristotle University of Thessaloniki, University Campus, Thessaloniki, Greece*

2) *Center for Interdisciplinary Research and Innovation (CIRI-AUTH), Balkan Center, Thessaloniki Greece*

- P6. Carbon-supported cobalt phosphides for nitroarenes hydrogenation

E. S. Durán-Uribe, E. V. Ramos-Fernández, A. Sepúlveda-Escribano\*

*Laboratorio de Materiales Avanzados, Departamento de Química Inorgánica – Instituto Universitario de Materiales de Alicante, Universidad de Alicante, Alicante, Spain*

- P7. Influence of Binder Concentration in Zeolitic ZSM-5/Bentonite Monoliths Fabricated Through Robocasting for Catalytic Applications

S. Koltsakidis<sup>1</sup>, V. Koidi<sup>1,2\*</sup>, M. Tzimtzimis<sup>1</sup>, A.A. Lappas<sup>2</sup>, E. Heracleous<sup>1,2</sup>, D. Tzetzis<sup>1</sup>

*1)School of Science and Technology, International Hellenic University, Thessaloniki, Greece*

*2)Chemical Process & Energy Resources Institute (CPERI), Centre for Research and Technology Hellas (CERTH), Thessaloniki, Greece*

- P8. Removal of Pollutants in the Aqueous Phase Using Carbon Materials

A. García Ripoll\*, E. De Oliveira Jardim, J.Farrando-Pérez, J. Silvestre Albero

*Laboratory of Advanced Materials, Department of Inorganic Chemistry, University Institute of Materials, University of Alicante, Spain.*

- P9. Improved Conductive and Mechanical Properties of HKUST-1@G Composite Materials for Hydrogen Adsorption

J. Farrando-Pérez\*, M. Martínez Escandell, J. Silvestre-Albero.

*Laboratory of Advanced Materials, Department of Inorganic Chemistry, University Institute of Materials, University of Alicante, Spain.*

- P10. ZIF-71 as an Effective Adsorbent for the Removal of Toxic Pollutants in Wastewater

J. Farrando-Pérez\*, J. Silvestre-Albero.

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