

**7<sup>TH</sup> EDITION**

# ITQ WINTER MEETING

**13<sup>TH</sup> FEBRUARY 2025**



INSTITUTO DE  
TECNOLOGÍA  
QUÍMICA



EXCELENCIA  
SEVERO  
OCHOA  
07/2013-06/2017  
07/2017-06/2021  
2023-2026



CSIC  
CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS



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HR EXCELLENCE IN RESEARCH

## **PRESENTATION**

The ITQ Winter Meeting, launched in 2018, was established to showcase the research carried out at the Instituto de Tecnología Química (ITQ) throughout the year. The event provides a platform for sharing the work of the institute's research groups and offers young researchers the opportunity to present their studies through oral communications and posters, helping them gain experience and exchange knowledge.

Held annually, the meeting fosters interaction among ITQ members, creating a collaborative environment for discussion, strengthening internal connections, and exploring new research synergies. It also serves as a space to reflect on the institute's progress and scientific contributions.

We hope this meeting provides a stimulating environment for discussion and knowledge exchange.

Welcome to the 7th ITQ Winter Meeting!

## **ORGANIZING COMMITTEE**

Sonia Remiro  
Jose Luis Jordá  
Maria Barber

## **SCIENTIFIC COMMITTEE**

Jose Luis Jordá  
Sonia Remiro  
Pascual Oña  
Jose Manuel Serra  
Cristina Martínez  
Antonio E. Palomares  
Michael Renz  
Miguel Ángel González  
Sara Goberna  
Francisco Gonell  
Mercedes Boronat  
Marta Feliz

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2023-2026



# PROGRAM OVERVIEW

## 12TH FEBRUARY

**12:00 - 13:15** Poster session (ITQ building, ground floor)

## 13TH FEBRUARY

**08:45 - 09:00** Registration

**09:00 - 09:10** Introduction and welcome by the ITQ director - Prof. Jose Manuel Serra

**09:10 - 09:45** Keynote speaker - Dr. María Balaguer

**09:45 - 11:15** Oral communications (session 1)

**11:15 - 11:45** Coffee Break

**11:45 - 13:00** Oral communications (session 2)

**13:00 - 13:45** Plenary lecture - Prof. Montserrat Gómez

**13:45 - 14:00** Awards presentation and Closing



# PROGRAM

## 12TH FEBRUARY

**12:00-13:15** Poster session (ITQ building, ground floor)

**P01 - Rubén Victoria**

MANUFACTURING THIN LAYERS OF YTTRIA-STABILIZED-ZIRCONIA (8YSZ) DENSE ELECTROLYTES BY PIEZOELECTRIC DIGITAL PRINTING WITH AN INDUSTRIAL HEAD FOR SOLID OXIDE CELLS

Rubén Victoria, Laura Almar and José M Serra

**P02 - Carla Vidaurre Agut**

PHOTOACOUSTIC IMAGING WITH COVALENT ORGANIC FRAMEWORKS

Carla Vidaurre Agut, Eva Rivero-Buceta, Javier Lagares Martín, Pablo Botella Asunción

**P03 - J. L. del Río-Rodríguez**

SYNTHESIS OF HIGH INTEREST ORGANIC COMPOUNDS THROUGH MULTIPHASE COBALT CATALYSTS IN LIQUID PHASE

J. L. del Río-Rodríguez, S. Gutiérrez-Tarriño, P. Oña-Burgos

**P04 - William E. Mendoza-Hernández**

SYNTHESIS AND BIOLOGICAL EVALUATION OF NEW RESINIC ACID DERIVATIVES FROM BIOMASS AS ANTITUMOR AGENTS

William E. Mendoza-Hernández, Aday González-Bakker, José M. Padrón, Miguel A. González-Cardenete

**P05 - Jordi Torró**

NEW LAMELLAR ZEOLITIC PHASES AND STRUCTURAL MODIFICATIONS VIA SOFT EXFOLIATION PROCESSES IN MWW-TYPE ZEOLITES

Jordi Torró, Urbano Díaz

**P06 - Miguel Ródenas**

MECHANISM OF N<sub>2</sub>O DECOMPOSITION CATALYSED BY Cu-EXCHANGED ZEOLITES

Miguel Ródenas, Mercedes Boronat, Reisel Millán

**P07 - Pablo García-Aznar**

COMPUTATIONAL INSIGHT INTO THE GUANYLATION OF CARBODIIMIDES VIA Ti<sub>3</sub>C<sub>2</sub>T<sub>x</sub> MXENE AS A HETEROGENEOUS CATALYST

Pablo García-Aznar, Germán Sastre, Aicha Anouar, Elena Romero Salicio, Abdessamad Gurrane, Amparo Fornelli, Hermenegildo García, Ana Primo

**P08 - A. Royo**

A DFT STUDY OF THE MECHANISM OF CO<sub>2</sub> METHANATION ON Ru-BASED CATALYSTS

A. Royo, M. Boronat



# PROGRAM

## 12TH FEBRUARY

### **P09 - Carlos Moriana**

NEXT-GENERATION CATALYSTS: RUTHENIUM NANOPARTICLES FOR SELECTIVE HYDROFORMYLATION

Carlos Moriana, Andrea Garcia-Ortiz, Patricia Concepcion, K.S. Arias, Maria José Climent, Sara Iborra, and Avelino Corma

### **P10 - E. Bello-Jurado**

ENHANCING NUCLEATION TO SYNTHESIZE Al-RICH CHA ZEOLITES UNDER ULTRA-LOW OSDA CONTENTS

E. Bello-Jurado, I. Millet, L. Van Tendeloo, F-W. Schütze, P. N. R. Vennestrøm, A. Corma, M. Moliner

### **P11 - Daniel Gutiérrez Martín**

3D SPOTLIGHT: A TUBULAR PROTONIC CERAMIC ELECTROLYZER

Daniel Gutiérrez Martín, Laura Almar, Álvaro Represa, Sonia Escolástico, Jose Manuel Serra

### **P12 - Susi Hervàs Arnandis**

COMMERCIAL ALUMINA CATALYZES THE HALOGEN EXCHANGE REACTION OF LONG ALKYL HALIDES IN BATCH AND IN FLOW PROCESSES

Susi Hervàs Arnandis, Paloma Mingueza-Verdejo, Judit Oliver-Meseguer, Antonio Leyva-Pérez

### **P13 - Yolanda Semanate-Esquivel**

SYNTHESIS OF HIGH-SILICA ERI BY MACHINE LEARNING ASSISTED OSDA DESIGN

Yolanda Semanate-Esquivel, Mingrou Xie, Danieel Schwalbe-Koda, Estefanía Bello-Jurado, Alexander Hoffman, Cecilia Paris, Manuel Moliner, R. Gómez-Bombarelli

### **P14 - Matea Bacic**

A CATALYTIC BARRIER-LESS ACETYLENE SEMI-HYDROGENATION

Matea Bacic, Jordi Ballesteros-Soberanas, Marta Mon, Mercedes Boronat and Antonio Leyva-Pérez

### **P15 - G. Egea-Castro**

PdCo BASED MULTIFUNCTIONAL CATALYST FOR REDUCTION, OXIDATION, CO<sub>2</sub> CAPTURE AND REVALORIZATION PROCESSES

G. Egea-Castro, A. Yuste, J. Martinez, J. Mazarío, P. Oña Burgos

### **P16 - Kevin Mego**

OER ACTIVITY PROMOTED BY LIGAND-FREE Cs<sub>2</sub>Pt(Cl, Br)<sub>6</sub> PEROVSKITE PHOTOCATALYST FOR SOLAR-DRIVEN WATER SPLITTING

Kevin Mego, Hermenegildo G. Baldoví, Pedro Atienzar



# PROGRAM

## 12TH FEBRUARY

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### **P17 - Gonzalo Rivera-Sierra**

CONTROL OF THE NEUROMORPHIC RESPONSE OF NANOFUIDIC MEMRISTORS  
Gonzalo Rivera-Sierra, Juan Bisquert

### **P18 - Heyi Zhang**

ION DIFFUSION DYNAMICS IN ORGANIC ELECTROCHEMICAL TRANSISTORS  
Heyi Zhang, Juan Bisquert

### **P19 - Javier Lagares Martín**

THE "SHIP IN A BOTTLE" CONCEPT IN DRUG DELIVERY BY PHOTOISOMERIZATION  
Javier Lagares Martín, Carla Vidaurre-Agut, Eva Rivero-Buceta, Pablo Botella Asunción

### **P20 - Jose Luis Jordá**

ITQ EQUALITY COMMISSION: 2024 REPORT  
Jose Luis Jordá, Teresa Blasco, María José Climent, Esther Domínguez, María Isabel Tadeo, Marta Feliz, Ana Primo, Antonio Chica, Jose Soriano, Sonia Remiro, Sara Goberna, Cora Pardo, Maria Barber, Michael Renz, Alexandra Velti, Jose Luis del Río

### **P21 - Jose Valero**

ITQ-35: A NEW MICROPOROUS GERMANATE ZEOLITE  
Jose Valero, J. I. Tirado, P. Pratim Das, L. Palatinus, S. Nicolopoulos, J. L. Jordá, G. Sastre, A. Cantín, S. Valencia, F. Rey

### **P22 - Matilde Ansino Ortiz**

THE ROLE OF METABOLITES IN THE PHOTOTOXICITY OF SUNSCREENS  
Matilde Ansino Ortiz, Marina García Castellanos, Gemma M Rodríguez Muñiz y Virginie Lhiaubet Vallet



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**08:45 - 09:00** Registration ("Cubo Azul" Assembly Hall - Polytechnic City of Innovation)

**09:00 - 09:10** Introduction and welcome by the ITQ director - Prof. Jose Manuel Serra

**09:10 - 09:45** Keynote speaker - **Dr. María Balaguer**

MICROWAVE MODULATION OF THE REDOX PROPERTIES OF SOLID STATE MATERIALS FOR ENERGY STORAGE AND CO<sub>2</sub> CONVERSION

M. Balaguer, A. Domínguez-Saldaña, B. García-Baños, P. Plaza-González, J. Santos-Blasco, A. Carrillo, D. Catalán-Martínez, J. M. Catalá-Civera, J. M. Serra  
ITQ (UPV-CSIC) / Instituto ITACA

**09:45 - 11:15** Oral communications (session 1)

**001 - Juan Antonio Soler Orenes**

PHOTOSENSITIZING PROPERTIES OF ADAPALENE

Juan Antonio Soler Orenes, Gemma M. Rodríguez Muñiz, Javier Hernández Gil, Miguel Ángel Miranda, Inmaculada Andreu, Virginie Lhiaubet Vallet

**002 - Elena Barrio-Querol**

OPTIMIZATION OF REDOX-STABLE ELECTRODES FOR ETHANE DEHYDROGENATION REACTION BASED IN PROTON CERAMIC ELECTROCHEMICAL REACTORS

E. Barrio-Querol, L. Almar, D. Catalán-Martínez, K. Leonard, J.M. Serra, S. Escolástico

**003 - María Payá-García**

ENVIRONMENTAL IMPACT OF THE UVA FILTER UVINUL® A PLUS: STRUCTURAL ASSIGNMENT AND ECOTOXICITY ASSESSMENT OF ITS KEY ACYL GLUCURONIDE PHASE II METABOLITE

María Payá-García, Gemma M. Rodríguez-Muñiz, Marta Moreno-Torres, Erika Moro, Lucas Santos-Juanes, Ana M. Amat, Salvador Gil, José V. Castell, Virginie Lhiaubet-Vallet, Miguel A. Miranda

**004 - Cristina Esteban**

DESIGN AND CHARACTERIZATION OF MULTI-COMPONENT LAMELLAR MATERIALS BASED ON MWW-TYPE ZEOLITIC LAYERS AND METAL OXIDE SUB-DOMAINS

Cristina Esteban, Alexandra Veltý and Urbano Díaz

**005 - Beatriz M. Moreno-Torralbo**

OXIDATIVE DEHYDROGENATION OF ETHANE WITH CO<sub>2</sub> AS OXIDIZING AGENT WITH CATALYST CrO<sub>x</sub>/MeO<sub>x</sub>/Al<sub>2</sub>O<sub>3</sub> (Me= Ni, Co, Ce, Pr)

B.M. Moreno-Torralbo, P. Concepción, J. Martínez-Triguero, J.M. López Nieto



# PROGRAM

## 13TH FEBRUARY

### **006 - Alberto Fernández-Arroyo**

Ru-SUPPORTED CATALYSTS FOR C-O AND C-C CLEAVAGE IN LIGNIN MODEL COMPOUNDS

Alberto Fernández-Arroyo, Lucía Camarena, Claudia Fernández, Marcelo E. Domine

### **007 - Paloma Mingueza-Verdejo**

CARBONYL-OLEFIN/ALKYNE METATHESIS REACTIONS CATALYZED BY BI-FUNCTIONAL H-USY ZEOLITES

Paloma Mingueza-Verdejo, David Velázquez-Ojeda, Cristina Bilanin, Francisco Garnes-Portolés, Silvia Rodríguez-Nuévalos, Judit Oliver-Meseguer, Antonio Leyva-Pérez

**11:15 - 11:45** Coffee Break

**11:45 - 13:00** Oral communications (session 2)

### **008 - Ander Diego-López**

OPTIMIZING THE USE OF LIGHT IN SUPPORTED TiO<sub>2</sub> PHOTOCATALYSTS: RELEVANCE OF THE SHELL THICKNESS

Ander Diego-López, Oscar Cabezuelo, Pedro Atienzar, Maria Luisa Marin, Francisco Boscá

### **009 - Imanol Quina**

HYDROCARBON PRODUCTION BY CO<sub>2</sub> ELECTRO-CATALYTIC REDUCTION IN A PRESSURIZED PROTONIC ELECTROCHEMICAL MEMBRANE REACTOR

I. Quina, L. Almar, D. Catalán-Martínez, A. Dos Santos, A. Martínez, J.M. Serra, S. Escolástico

### **0010 - Alberto Barros**

ADSORPTION OF SMALL MOLECULES ON ZEOLITE SSZ-45

Alberto Barros, Jose Valero, Susana Valencia, Fernando Rey

### **0011 - Benjamin Bohigues**

OVERCOMING ACTIVITY/STABILITY TRADEOFFS IN CO OXIDATION BY Pt/CeO<sub>2</sub>

Benjamin Bohigues, Sergio Rojas-Buzo, Davide Salusso, Yu Xia, Avelino Corma, Silvia Bordiga, Mercedes Boronat, Tom Willhammar, Manuel Moliner, Pedro Serna

### **0012 - Sabine Midré**

MXENE NITRIDES, THEIR APPLICATIONS AND LIMITATIONS

Sabine Midré, Sara Goberna-Ferrón, Hermenegildo Garcia Gomez, Ana Primo Arnau



# PROGRAM

## 13TH FEBRUARY

### **0013 - Juan Pablo Peñaloza**

MODIFICATION AND OPTIMIZATION OF CU-METAL-ORGANIC FRAMEWORKS (CU-MOFS): SYNTHESIS AND CHARACTERIZATION  
Juan Pablo Peñaloza, Alexandra Velly, Urbano Díaz

### **0014 - Miguel Ródenas**

INSIGHTS OF THE MECHANISM OF N<sub>2</sub>O DECOMPOSITION ON CU-CHA  
Miguel Ródenas, Mercedes Boronat, Reisel Millán

### **13:00 - 13:45** Plenary lecture - **Prof. Montserrat Gómez**

DESIGN AND APPLICATIONS OF NANOCATALYSTS: AN OVERVIEW AROUND 3D METALS

Montserrat Gómez

Laboratoire Hétérochimie Fondamentale et Appliquée, Université Toulouse (France)

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