4th EuCheMS Conference on Green and Sustainable Chemistry
TARRAGONA, 22-25 SEPTEMBER 2019

PROGRAM

http://eugsc4.iciq.es/
Welcome

It is our great pleasure to welcome you all to the 4th edition of the EUCheMS conference on Green and Sustainable Chemistry hosted in Tarragona at the Institute of Chemical Research of Catalonia (ICIQ) during 22-25 September 2019. This meeting follows previous successful editions held in Budapest (2013), Lisbon (2015) and York (2017) and continues to offer a platform for the communication of the latest advances in green and sustainable chemistry.

The leading topics of this conference are green/bio-polymers, photochemistry & catalysis, electrochemistry & catalysis, carbon dioxide valorization and biomass conversion. The program is divided over 4 days and counts with a joint session co-organized by the Division of Chemistry and the Environment (DCE) that focuses on water treatment. Further to this, two industrial sessions are organized with contributions from various representatives from larger ans smaller companies, and start-ups discussing the role and impact of sustainable approaches in the commercial sector.

The program consists of 6 plenary, 10 keynote and 45 oral presentations and there are two poster sessions with over 50 contributions. We thank in advance all the invited speakers/ and those that kindly accepted to deliver talks and present posters. We also are grateful to all our sponsors, and in particular the RSEQ, its Catalan section, the Catalan Chemical Society and all companies for their generous support to EUGSC-4.

We hope you will enjoy the conference and Tarragona, known for its Mediterranean cuisine, hospitality, attractive climate, many ancient Roman sites and the UNESCO protected cathedral. We wish you will have a great time with us here in Tarragona and at ICIQ, and thank you for making the EUGSC-4 a success.

On behalf of the organizing committee,

Arjan Kleij – chair of the EUGSC-4
**Conference at a glance**

### SUNDAY, 22nd September

**ICIQ AUDITORIUM**

<table>
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<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>15.00-17.00</td>
<td>Registration</td>
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<tr>
<td>17.00-18.00</td>
<td>Coffee/tea/refreshments</td>
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<tr>
<td>18.00-18.15</td>
<td>Conference opening</td>
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<tr>
<td>18.15-19.15</td>
<td>PL1: Cole-Hamilton</td>
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<tr>
<td>19.15-20.30</td>
<td>Reception</td>
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<td>20.30</td>
<td>Free time</td>
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### MONDAY, 23rd September

**ICIQ AUDITORIUM**

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<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>8.30-9.00</td>
<td>Official opening of EUGSC4 by Prof. Antonio Echavarren (RSEQ) and Prof. Arjan W. Kleij (chair of the EUGSC4)</td>
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<tr>
<td>9.00-10.00</td>
<td>PL2: Walter Leitner</td>
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<td>10.00-10.30</td>
<td>Coffee/tea/refreshments</td>
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### TUESDAY, 24th September

**ICIQ AUDITORIUM**

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<th>Time</th>
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<tr>
<td>9.00-10.00</td>
<td>PL4: Pérez-Ramírez</td>
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<td>10.00-10.30</td>
<td>Coffee/tea/refreshments</td>
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**Session: Heterogeneous catalysis**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session: Biomass conversion</th>
<th>Session: Water purification &amp; Sustainable Synthesis</th>
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<tbody>
<tr>
<td>10.30-11.10</td>
<td>KN5: López</td>
<td>KN8: Katsoyannis</td>
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<tr>
<td>11.10-11.30</td>
<td>OC17: Kaiser</td>
<td>OC29: Misra</td>
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<td>11.30-11.50</td>
<td>OC18: Romero</td>
<td>OC30: Luna</td>
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<td>11.50-12.10</td>
<td>OC19: Díaz</td>
<td>OC27: Saengdee</td>
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<td>12.10-12.30</td>
<td>OC20: Puértolas</td>
<td>OC28: Smith (Wiley)</td>
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### WEDNESDAY, 25th September

**ICIQ AUDITORIUM**

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<th>Time</th>
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<tr>
<td>9.00-10.00</td>
<td>PL6: Dyson (Green Chemistry lecture)</td>
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<td>10.00-10.30</td>
<td>Coffee/tea/refreshments</td>
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**Session: Photochemistry**

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<tr>
<th>Time</th>
<th>Session: Industrial Session</th>
<th>Session: Fuels</th>
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<tbody>
<tr>
<td>10.30-11.10</td>
<td>KN10: Bonchio</td>
<td>OC41: Sala</td>
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<tr>
<td>10.50-11.10</td>
<td>OC42: Basí</td>
<td>OC43: Soriano</td>
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<tr>
<td>11.10-11.30</td>
<td>OC37: Bonin</td>
<td>OC44: Shi</td>
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<td>11.30-11.50</td>
<td>OC38: Pascal</td>
<td>OC45: Gao</td>
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<td>11.50-12.10</td>
<td>OC39: Sahoo</td>
<td>OC46: Moonshiram</td>
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<td>12.10-12.30</td>
<td>OC40: Moonshiram</td>
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**Closing Ceremony AUDITORIUM**

(Prof. Carles Bo, president of the Societat Catalana de Quimica & Prof. Arjan W. Kleij, Chair)
Program

SUNDAY, 22nd September

ICIQ Auditorium

15:00 – 17:00  Registration
17:00 – 18:00  Coffee / Tea / Refreshments
18:00 – 18:15  Conference Opening
18:15 – 19:15  Plenary Lecture 1: David Cole-Hamilton
Effect Chemicals from Waste Bio - Oils
19:15 – 20:30  Reception

MONDAY, 23rd September

ICIQ Auditorium

08:30 – 09:00  Official Opening of EUGSC-4
by Prof. Antonio M. Echavarren (President of the RSEQ) and Prof. Arjan W. Kleij (chair of the EUGSC-4)
09:00 – 10:00  Plenary Lecture 2: Walter Leitner
Metal Nanoparticles on Supported Ionic Liquid Phase Catalysts (M@SILP): A Molecular Approach to Multifunctional Catalytic Systems
10:00 – 10:30  Coffee / Tea / Refreshments

Session: Catalysis for Synthesis – ICIQ Auditorium

10:30 – 11:10  Keynote Lecture 1: Steve Nolan
Easy Access to Metal-N-heterocyclic Carbene Catalysts
11:10 – 11:30  Oral Communication 1: Giulia Licini
Vanadium Catalyzed Aerobic Oxidative C-C Bond Cleavage
11:30 – 11:50  Oral Communication 2: Jèssica Margalef
Efficient and Readily Available Metal-Catalyst Libraries for the Presentation of High Value Chiral Compounds
11:50 – 12:10  Oral Communication 3: Miguel Claros
Visible-Light Reductive Cyclization of Unactivated Alkyl Chlorides
12:10 – 12:30  Oral Communication 4: Nerea González-Gallardo
Palladium Mesoionic Carbenes as General Precatalyst for Sustainable Cross-Coupling Reactions

Session: Polymers – ICIQ Library

10:30 – 11:10  Keynote Lecture 3: Sophie Guillaume
Tailor-made PolyHydroxyAlkanoates by Stereocontrolled Ring-Opening Polymerization of Functional β-lactones.
11:10 – 11:30  Oral Communication 9: Gerard Lligadas
Uncovering Opportunities for Sustainable Polymer Synthesis by SET-LRP
11:30 – 11:50  Oral Communication 10: Alessandro Pellis
Enzymes: Powerful Catalysts for the Synthesis of Functional Polyesters
11:50 – 12:10  Oral Communication 11: Claudio Pellechia
Alternating CO₂, Cyclohexene Oxide Copolymers and (Stereo)Block Copolymers of L-, D-, rac-Lactides and e-Caprolactone by New Pyridylamidozinc(II) Catalysts
12:10 – 12:30  **Oral Communication 12: Marta E. G. Mosquera**  
*Earth Abundant Metals Compounds as a Catalysts for the Production of Bioplastics*

13:00 – 15:00  Lunch & Poster Session & Exhibition  
(outside, ICIQ terrace)

**Session: Sustainable Solvents – ICIQ Auditorium**

15:45 – 16:25  **Keynote Lecture 2: Michael North**  
*Sustainable Solvents for Organic Synthesis*

16:25 – 16:45  **Oral Communication 5: Olympe Longeras**  
*Sustainable Deep Eutectic Solvent for CO₂ Capture Improvements*

16:45 – 17:05  **Oral Communication 6: Hugo Cruz**  
*Deep Eutectic Solvents as Sustainable Materials for Energy Applications*

17:05 – 17:25  **Oral Communication 7: João M. M. Araújo**  
*Bioprivileged Ionic Liquids and Deep Eutectic Solvents: From Extraction/Purification to Drug Development*

17:25 – 17:45  **Oral Communication 8: Ana B. Pereiro**  
*Fluorinated Ionic Liquids as Novel Task-Specific Materials*

**Session: Transformation of CO₂ – ICIQ Library**

15:45 – 16:25  **Keynote Lecture 4: Benjamin Buckley**  
*Selective Anti-Markovnikov Hydrocarboxylation of Olefins: Formation of All-Carbon Quaternary Centres*

16:25 – 16:45  **Oral Communication 13: Carmine Capacchione**  
*Reaction of Carbon Dioxide with Epoxides Promoted by [OSSO]-type Iron(III) Complexes*

16:45 – 17:05  **Oral Communication 14: Cristina Maquilón**  
*Stereo/Regio-Divergent Synthesis with CO₂*

17:05 – 17:25  **Oral Communication 15: Katie J. Lamb**  
*Using Metal Salen and Salophen Complexes for the Green Synthesis of Cyclic Carbones from Epoxides and Carbon Dioxide*

17:25 – 17:45  **Oral Communication 16: Sergio Fernández**  
*Identification of the Key Mechanistic Steps involved in the Cobalt-Catalyzed CO₂ Reduction*

**TUESDAY, 24th SEPTEMBER**

09:00 – 10:00  **Plenary Lecture 4: Javier Pérez-Ramírez**  
*Frontiers in Catalysis Engineering for Sustainable Technologies*

10:00 – 10:30  Coffee / Tea / Refreshments

**Session: Heterogeneous Catalysis – ICIQ Auditorium**

10:30 – 11:10  **Keynote Lecture 5: Núria López**  
*A Modeling Perspective on Green and Sustainable Chemistry*

11:10 – 11:30  **Oral Communication 17: Selina K. Kaiser**  
*Metal-Dependant Structure-Activity Relations in Acetylene Hydrochlorination*
<table>
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<tr>
<th>Time</th>
<th>Session</th>
<th>Speaker</th>
<th>Title</th>
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<tr>
<td></td>
<td>Session: Biomass Conversion – ICIQ Library</td>
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<tr>
<td>10:30 – 11:10</td>
<td>Keynote Lecture 7: François Jérôme</td>
<td>Synthesis of Renewable Meta-Xylylenediamine and Alkyl Levulate from Biomass-Derived Furfural</td>
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<td>11:30 – 11:50</td>
<td>Oral Communication 26: Peter J. Deuss</td>
<td>Towards High Value Lignin; Reactive Fractionation and Modification</td>
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<td>11:50 – 12:10</td>
<td>Oral Communication 27: Laksana Saengdee</td>
<td>Facile Preparation of Modified Natural Rubber by Both Epoxidation and Hydrogenation and its Properties</td>
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<td>Session: Water Purification &amp; Sustainable Synthesis – CTTI-URV</td>
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<td>10:30 – 11:10</td>
<td>Keynote Lecture 8: Ioannis Katsoyiannis</td>
<td>Overview of Technologies used for Wastewater Reclamation and Reuse and Implementation Examples</td>
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<td>11:10 – 11:30</td>
<td>Oral Communication 29: Archimista Misra</td>
<td>Magnetic Removal of Multiple Pollutants from Water by Polyoxometalate Supported Ionic Liquid Phases (POM-SILPs)</td>
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<td>11:50 – 12:10</td>
<td>Oral Communication 31: Juan C. Scaiano</td>
<td>Design and Implementation of Novel Materials for Heterogeneous Photocatalysis</td>
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<td>12:10 – 12:30</td>
<td>Oral Communication 32: Eduardo García-Verdugo</td>
<td>Polymer as non Innocent Vector to Develop Efficient Rose Bengal Supported Catalyst</td>
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<tr>
<td>13:00 – 15:00</td>
<td>Lunch &amp; Poster Session &amp; Exhibition</td>
<td>(outside, ICIQ terrace)</td>
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<td>15:45 – 16:25</td>
<td>Keynote Lecture 6: Michael Meier</td>
<td>Renewability is not Enough: Sustainable Synthesis of Biomass-derived Monomers and Polymers</td>
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<td>16:45 – 17:05</td>
<td>Oral Communication 22: Andrés Moreno</td>
<td>Use of Microwave Radiation Catalysis in the Treatment and Transformation of Lignocellulosic by-Products from Agrifood Industries</td>
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ICIQ Auditorium

17:25 – 17:45 Oral Communication 24: Rohit Gaikwad
Biogas Conversion to Methanol via Steam Reforming in a Container Sized Module

Industrial Session – ICIQ Library

15:45 – 16:25 BASF: Jordi Simón
Biodegradable-Compostable Polymers as Key for Closing the Loop of Organic Matter

16:25 – 17:05 PIRELLI: Luca Giannini
Tackling the Challenge of Sustainability in the Tyre Industry

17:05 – 17:45 CLARIANT: Michael Mager
Perspectives on Sustainability in the Polymers Industry

Session: CO₂ Conversion – CTTI-URV

15:45 – 16:25 Keynote Lecture 9: Alessandra Quadrelli
CO₂ reduction: en route to renewable energies storage via MOFs and Porous Organic Polymers

16:25 – 16:45 Oral Communication 33: Gábor Papp
CO₂ Hydrogenation in Aqueous Solutions with Water Soluble Ir-Catalysts

16:45 – 17:05 Oral Communication 34: Charlene Ngassam
Dual Activation Catalysts for the Selective Conversion of CO₂ into Alkylidene Cyclic Carbonates and Oxoalkyl Carbonates

17:05 – 17:25 Oral Communication 35: Shoubhik Das
CO₂-Catalysed Oxidation and Dehydrogenation Reactions: Its Transition Metal-Free

17:25 – 17:45 Oral Communication 36: Francesca Milocco
Bifunctional Anionic Iron(II) Catalysts for the Conversion of CO₂ into Cyclic Carbonates

ICIQ Auditorium

17:50 – 18:50 Plenary Lecture 5: Siegfried Waldvogel
Concepts for Electrifying Organic Synthesis

21:00 Conference Dinner at the “Casa Joan Miret”

WEDNESDAY, 25th SEPTEMBER

ICIQ Auditorium

09:00 – 10:00 Plenary Lecture 6: Paul Dyson
Catalytic Transformations of Renewable Polymers

10:00 – 10:30 Coffee / Tea / Refreshments

Session: Photochemistry – ICIQ Auditorium

10:30 – 11:10 Keynote Lecture 10: Marcella Bonchio
Bio-inspired Nano-Architectures for Artificial Photosynthesis

11:10 – 11:30 Oral Communication 37: Julien Bonin
Solar Energy Storage in Chemical Bonds by Molecular Catalysis: from CO₂ to Fuels

11:30 – 11:50 Oral Communication 38: David Pascual
Light-Driven Competitive Reduction of Aromatic Ketones vs Aromatic Olefins in Aqueous Media

11:50 – 12:10 Oral Communication 39: Basudev Sahoo
Remote sp³ C-H Carboxylation Enabled by the Merger of Nickel and Photoredox Catalysis

12:10 – 12:30 Oral Communication 40: Dooshaye Moonshiram
Tracking the Electronic and Structural Configurations of Water Splitting Catalysts for Artificial Photosynthesis
**Industrial Session – ICIQ Library**

10:30 – 11:10  **HENKEL: Andreas Taden**  
Bio-based Adhesives: Where Do We Come From and Where Do We Go?

11:10 – 11:50  **ZYMVOL: Fátima Lucas**  
Making in Silico Enzyme Evolution a Commodity for the Widespread use of Industrial Biocatalysts

11:50 – 12:30  **ERT-FLOW: Esther Alza**  
Efficient Reaction Technologies for Sustainable Chemistry

**Session: Fuels – CTTI-URV**

10:30 – 10:50  **Oral Communication 41: Xavier Sala**  
Tunable Molecular-Material Hybrids at the Nanoscale for Catalytic Water Splitting

10:50 – 11:10  **Oral Communication 42: Víctor Sans**  
Efficient Base-Free Selective CO₂ Hydrogenation with Multifunctional Ionic Liquids

11:10 – 11:30  **Oral Communication 43: Joaquín Soriano-López**  
Electrocatalytic Oxygen Evolution in Neutral Water by a Bioinspired Manganese-Oxo Cluster

11:30 – 11:50  **Oral Communication 44: Haifeng Shi**  
Fabrication of 2D g-C₃N₄ Based Photocatalyst for Efficient Photocatalytic Degradation and CO₂ Reduction

11:50 – 12:10  **Oral Communication 45: Dandan Gao**  
Modular Design of Noble Metal-Free Mixed Metal Oxide Electrocatalysts for Complete Water Splitting

**ICIQ Auditorium**

12:35 – 13:00   **Closing Ceremony of EUGSC-4**  
by Prof. Carles Bo (President of the SCQ) and Prof. Arjan W. Kleij (Chair of the EUGSC-4)

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**Venue**

The 4th EuCheMS Conference on Green and Sustainable Chemistry will take place in the Institute of Chemical Research of Catalonia (Library & Auditorium) and the Centre de Transferència de Tecnologia i Innovació (CTTI). Please find below a map of the Campus Sesceledes where the two buildings are indicated.)

**S3**: Institut Català d'Investigació Química (ICIQ)  
**S2**: Centre de Transferència de Tecnologia i Innovació (CTTI)