



29th Annual Meeting

of the
International Society of Electrochemistry

Mikulov, Monday 19 April to Wednesday 21 April 2021

Symposium 1b & 2
Oral presentation program

Monday 19 April 2021 - Morning

Symposium 2

Water: electrochemistry in securing the sustainable society development

08:20 to 08:40 Invited

Robert Hillman (School of Chemistry, University of Leicester, Leicester, United Kingdom), Salih Cihangir, Karl Ryder, Asuman Unal, Abdulcabbar Yavuz

[Efficient Defluoridation of Water by Reusable Aniline Polymer and Copolymer Modified Electrodes](#)

08:40 to 09:00

Amit N. Shocron (Faculty of Mechanical Engineering, Technion - Israel Institute of Technology, Haifa, Israel), P. Maarten Biesheuvel, Jouke Dykstra, Eric N. Guyes, Huub Rijnaarts, Matthew E. Suss

[Electrochemical Removal of Amphoteric Ions](#)

09:00 to 09:20

Yuan Zhang (Energy Materials, Leibniz institute for new materials, Saarbrücken, Germany), Sheng Bi, Guang Feng, Jiaying Peng, Volker Presser, Yuan Zhang

[Sub-nanometer carbon confinement: pore size effect on ion permselectivity and selectivity](#)

09:20 to 09:40

Coffee Break

09:40 to 10:00

Selin Ozkul (Environmental Technology, Wageningen University and Research, Wageningen, Netherlands), Roel Bisselink, Harry Bruning, Jouke Dykstra, Norbert Kuipers, Huub Rijnaarts, Jonathan van Daal

[Modelling Ion Transfer Through Ion Exchange Membranes in Electrodialysis for Multi-Ionic Solutions](#)

10:00 to 10:20

Jouke Dykstra (Environmental Technology, Wageningen University, Wageningen, Netherlands), Maarten Biesheuvel

[Proton transport across anion exchange membranes in electrochemical systems](#)

10:20 to 10:40

Walter Torres (CIDMEJu, CIDMEJu-CONICET, Jujuy, Argentina), Victoria Flexer

[Lithium recovery from brines by membrane electrolysis](#)

10:40 to 11:00

Frank Marken (Chemistry, University of Bath, Bath, United Kingdom)

[From Ionic Rectifiers to Water Desalination and to Water Harvesting](#)

11:00 to 12:00

Live zoom Q&A – S02 : Moderator Maarten Biesheuvel

Monday 19 April 2021 - Afternoon

Symposium 2

Water: electrochemistry in securing the sustainable society development

12:40 to 13:00

Jiri Barek (Analytical Chemistry, Charles University Prague, Prague 2, Czech Republic)
[Voltammetric and Amperometric Methods in Water Monitoring Where We Are and Where We Are Heading](#)

13:00 to 13:20

Agnese Giacomino (Drug Science and Technology, University of Torino, Torino, Italy)
[A portable kit for on-site mercury determination and speciation](#)

13:20 to 13:40

Giulia Moro (Department of Molecular Sciences and Nanosystems, Ca' Foscari University of Venice/University of Antwerp, Bassano del Grappa, Italy), Alessandro Angelini, Elise Daems, Karolien De Wael, Ligia Maria Moretto, Frank Sobott
[Polyfluoroalkyl Substances in Water: Bio- and Biomimetic Sensing Strategies](#)

13:40 to 14:00

Miroslav Fojta (Department of Biophysical Chemistry and Molecular Oncology, Institute of Biophysics of the CAS, Brno, Czech Republic), Ales Danhel, Monika Hermanova, Veronika Ostatna, Hana Pivonkova, Zuzana Soldanova
[Interactions of Mercury Ions with Nucleic Acids and Proteins: Analytical Utilization versus Possible Source of Artifacts](#)

14:00 to 14:20

Filippo Cavalca (R&D, Spectro Inlets, Copenhagen, Denmark), Søren Scott
[Enabling Real-Time Quantification of Electrochemical Desorption Phenomena with Sub-Monolayer Sensitivity](#)

14:20 to 14:40

Maarten Biesheuvel (Advanced Water Treatment, Wetsus, European Centre of Excellence for Sustainable Water, Leeuwarden, Netherlands)
[The dynamics of combined ion transport and electrode reactions – Revisiting Bard, Faulkner, and Vetter](#)

14:40 to 15:00

Coffee Break

15:00 to 15:20 *Invited*

Marta Hatzell (George W. Woodruff School of Mechanical Engineering, Georgia Tech, ATLANTA, USA)
[Prospects and Challenges for Electrochemical Remediation and Valorization of Waste Nitrate](#)

15:20 to 15:40

Sanela Martić (Forensic Science and Environmental and Life Sciences, Trent University, Peterborough, Canada)
[Electrocatalytic Formation of C-C bonds in Phenolic Compounds](#)

15:40 to 16:00 *Invited*

Ann Cornell (Chemical Engineering, KTH Royal Institute of Technology, Stockholm, Sweden),
Rafael B. Araujo, Egon Campos dos Santos, Gunnar Henriksson, Daniel Martín-Yerga, Lars G.M.
Pettersson, Irina Terekhina, Xiaowen Yu

[Electrocatalysts of PdNi for oxidation of alcohols in alkaline conditions](#)

16:00 to 16:20

Ján Híveš (Inorganic Technology, Slovak University of Technology, Bratislava, Slovakia),
Michaela Benkoová, Lucia Fasková, Emília Mališová, Daniela Pavúková

[Encapsulation of electrochemical prepared ferrates by zeolites](#)

16:20 to 16:40

Moussa Bougouma (Department of chemistry, Université Norbert ZONGO, Koudougou, Burkina
Faso), Claudine Buess-Herman, Thomas Doneux, Alassane Sorgho

[Electrodeposition of tellurium in choline chloride-urea and choline chloride-oxalic acid deep eutectic solvents](#)

16:40 to 17:00

Aleksey Lisenkov (Department of Materials and Ceramic Engineering/CICECO, University of
Aveiro, Aveiro, Portugal), Jorge Frade, Andrei Kovalevsky, Daniela Lopes

[Electrodeposition of iron under intermittent current conditions](#)

17:00 to 18:00

Live zoom Q&A – S02 : Moderator Robert Hillman

Tuesday 20 April 2021 - Morning

Symposium 2

Water: electrochemistry in securing the sustainable society development

08:20 to 08:40 *Invited*

Xiao Su (Chemical and Biomolecular Engineering, University of Illinois Urbana-Champaign, Urbana,
USA)

[Electrochemical reactive separations for micropollutant remediation and sustainable metal recovery](#)

08:40 to 09:00

Eleftheria Ntagia (Center for Microbial Ecology and Technology (CMET), Ghent University, Ghent,
Belgium), Wen Hao, Korneel Rabaey

[Electrochemistry connects the petroleum refineries with the chemical industry: a case study to turn the waste of the first into feedstock for the second](#)

09:00 to 09:20

Davide Clematis (Department of Civil, Chemical and Environmental Engineering, University of
Genoa, Genova, Italy), Antonio Maria Asensio, Antonio Barbucci, Davide Cademartori, Maria
Paola Carpanese, Marina Delucchi, Marco Panizza

[Groundwater pollution: an energy consumption challenge for electrochemical advanced oxidation processes](#)

09:20 to 09:40

Coffee Break

09:40 to 10:00

Faidzul Hakim Adnan (Laboratoire Réactions et Génie des Procédés (LRGP), Université de Lorraine - CNRS, Nancy, France), Emmanuel Mousset, Marie-Noëlle Pons
[Influence of Micrometric Interelectrode Distances and Cathode Materials on Mineral Scaling during Advanced Electro-oxidation Process](#)

10:00 to 10:20

Jing Ma (Laboratoire Géomatériaux et Environnement, Université Gustave Eiffel, Marne-la-Vallée, Cedex 2, France), Nihal Oturan, Mehmet A. Oturan, Clément Trelu
[Porous Sub-stoichiometric Titanium Oxide for Removal of Organic Pollutants: Effectiveness, Mechanisms and Lifetime](#)

10:20 to 10:40

Kangwoo Cho (Division of Environmental Science and Engineering, Pohang University of Science and Technology, Pohang, Korea), Seokhwa Hong, Eunju Hwang, Woonghee Lee
[Mixed Bi-Ti Oxide Heterojunction Layers to Control the Reactive Chlorine Generation from IrO₂ Based Dimensionally Stable Anode](#)

10:40 to 11:00

Modestas Vainoris (Physical Chemistry Department, Vilnius University, Vilnius, Lithuania), Henrikas Cesiulis, Aliona Nicolenco, Natalia Tsyntsaru
[Electrochemically deposited Fe/Cu foam as Fenton reagent for catalytic mineralization of Methyl Orange](#)

11:00 to 12:00

Live zoom Q&A – S02 : Moderator Cristina Sáez

Tuesday 20 April 2021 - Afternoon

Symposium 2

Water: electrochemistry in securing the sustainable society development

13:40 to 14:00

Julia Isidro Elvira (Chemical Engineering, University of Castilla-La Mancha, Ciudad Real, Spain), Julia Isidro Elvira, Manuel Andrés Rodrigo Rodrigo, Cristina Sáez Jiménez, Elisama Vieira dos Santos, João Miller de Melo Henrique
[Mobilization of Organochlorine Compounds in the Treatment of Electrochemically Assisted Soils](#)

14:00 to 14:20

Martín Muñoz Morales (Chemical Engineering Department, Faculty of Chemical Sciences and Technologies, Ciudad Real, Spain), Pablo Cañizares, Florymar Escalona-Durán, Carlos Martínez-Huitle, Manuel Andrés Rodrigo, Cristina Sáez
[Cobalt mediated electro-scrubbing for the removal of perchloroethylene](#)

14:20 to 14:40

Miguel Herraiz Carbone (Departamento de Ingeniería Química, Universidad de Castilla-La Mancha, Albacete, Spain), Pablo Cañizares, Salvador Cotillas, Engracia Lacasa, Eva Riquelme, Manuel Andrés Rodrigo, Caridad Sainz de Baranda, Cristina Sáez
[Towards the removal of antibiotic-resistant bacteria in polymicrobial urines by electrochemical oxidation](#)

14:40 to 15:00

Coffee Break

Symposium1b

Energy: electrochemistry in securing the sustainable society development

15:00 to 15:20

Cristina Sáez (Chemical Engineering, University of Castilla-La Mancha, Ciudad Real, Spain), Pablo Cañizares, Aline Dória, Katlin I. B. Eguluz, Isabelle M.D. Gonzaga, Angela Moratalla, Manuel A. Rodrigo, Giancarlo R. Salazar-Banda

[New 3D anode for antibiotics removal in urine of polymedicated patients](#)

15:20 to 15:40

Javier Llanos (Department of Chemical Engineering, University of Castilla-la Mancha, Ciudad Real, Spain), Gustavo Acosta, Erica Bustos, Pablo Cañizares, Manuel A. Rodrigo

[Analysis of Ozone and Hydrogen Peroxide Electro-Generation under Pressure Conditions](#)

15:40 to 16:00

Mayra Rodriguez-Peña (Chemical Engineering Department, University of Castilla-La Mancha, Ciudad Real, Spain), Carlos Eduardo Barrera-Díaz, José Antonio Barrios, Javier Llanos, Manuel Andres Rodrigo, Cristina Sáez

[Effect of pressure on the electrochemical generation of Ozone in PEM electrolyzers with BDD electrodes](#)

16:00 to 16:20

Lamia Rebiai (Métallurgie et Matériaux Inorganiques, Institut de Chimie et des Matériaux Paris Est, Thiais, France), Sam Azimi, Stéphane Bastide, Christine Cachet-Vivier, Diane Muller-Bouvet, Vincent Rocher

[Photoelectrochemical Conversion of Urea on FTO/Fe₂O₃/Ni Photoanodes for the Production of H₂](#)

16:20 to 16:40

Mariusz Wtulich (Chemistry and Technology of Functional Material, Gdansk University of Technology, Gdansk, Poland)

[Hydrothermal modification of titania nanotubes towards photoanodes enhancing activity under solar light illumination](#)

16:40 to 17:00

David Fermin (School of Chemistry, University of Bristol, Bristol, United Kingdom), Xin Sun, Devendra Tiwari

[Probing the Activity of Multicomponent Ferrite Materials for Photoelectrochemical Water Splitting](#)

17:00 to 18:00

Live zoom Q&A – S01b & S02 : Moderator Marta Hatzell

Wednesday 21 April 2021 - Morning

Symposium1b

Energy: electrochemistry in securing the sustainable society development

08:20 to 08:40

Silvia Franz (Department of Chemistry, Materials and Chemical Engineering, Politecnico di Milano, Milano, Italy), Massimiliano Bestetti, Gian Luca Chiarello, Elena Selli

[Application of Plasma Electrolytic Oxidation to produce Engineered Titanium Dioxide Photoanodes for Water Splitting and Water Treatment](#)

09:00 to 09:20

Gerd Mutschke (Institute of Fluid Dynamics, HZDR, Dresden, Germany), A. Bashkatov, K. Eckert, S.S. Hossain, X. Yang
[Thermocapillary Effects at Gas Bubbles Growing on Electrodes](#)

09:20 to 09:40

Coffee Break

09:40 to 10:00

Volker Presser (INM - Leibniz Institute for New Materials, Saarland University, Saarbrücken, Germany)
[Beyond the double-layer: charge-transfer processes for high-performance desalination batteries](#)

10:00 to 10:20

Youri Gendel (Faculty of Civil and Environmental Engineering, The Technion-Israel Institute of Technology, Haifa, Israel), Gidon Amikam, Youri Gendel
[Capacitive-faradaic fuel cells for the cleaner environment: mechanisms, opportunities, and challenges.](#)

10:20 to 10:40

Lars Bläubaum (Institute for Applied Materials-Electrochemical Technologies, Karlsruhe Institute of Technology, Karlsruhe, Germany), Florian Baakes, Ulrike Krewer, Arno Kwade, Christine Nowak
[Impact of Particle Size on Gas Evolution and Performance including Temperature Abuse of Lithium-Ion Batteries](#)

11:00 to 12:00

Live zoom Q&A – S01b : Moderator Carlo Santoro

Wednesday 21 April 2021 - Afternoon

Symposium1b

Energy: electrochemistry in securing the sustainable society development

12:40 to 13:00

Junkai Zhao (College of Chemistry, Beijing Normal University, Beijing, China), Daina Wei, Xiaojing Yang, Ce Zhang
[Cultured Diatoms as Suitable Biomass Precursor for the Advanced Anode of Lithium-Ion Batteries](#)

13:00 to 13:20

Victoria Nikitina (Center for Energy Science and Technology, Skolkovo Institute of Science and Technology, Moscow, Russia)
[Desolvation as an Extremely Unlikely Rate-Limiting Step in Ion Intercalation Processes](#)

13:20 to 13:40

Jens Noack (Applied Electrochemistry, Fraunhofer Institute for Chemical Technology, Pfaffzettel, Germany), Chris Menictas, Karsten Pinkwart, Nataliya Roznyatovskaya, Maria Skyllas-Kazacos, Jens Tuebke
[Vanadium/Water Electrolyser to Recharge Vanadium/Oxygen Flow Batteries and Rebalance Vanadium-Redox-Flow-Batteries](#)

13:40 to 14:00

Jindrich Mrlík (Department of Chemical Engineering, University of Chemistry and Technology, Prague, Prague, Czech Republic), Jirí Charvát, Juraj Kosek, Petr Mazur, Jaromír Pcedic, Jirí Vrána
[Deactivation of negative felt electrode of vanadium redox flow battery: Double half-cell setup experiments](#)

14:00 to 14:20

Simon-Johannes Kinkelin (Technical Chemistry, Martin-Luther-Universität Halle-Wittenberg, Halle (Saale), Germany), Michael Bron, Matthias Steimecke, Katja Vogel
[Quantifying the electrochemical porosity of carbon electrodes and its influence towards the positive half-cell reaction in all-vanadium redox flow batteries](#)

14:20 to 14:40

Martin Bures (Department of chemical engineering, University of chemistry and technology, Prague 6, Czech Republic), Jirí Charvát, Juraj Kosek, Petr Mazur, Milos Svoboda, Zbynek Tomiska, Alexandr Zubov
[Predicting properties of carbon felt electrodes by mathematical modelling and \$\mu\$ -computed tomography](#)

14:40 to 15:00

Coffee Break

15:00 to 15:20 *Invited*

Francesca Soavi (Department of Chemistry, University of Bologna, BOLOGNA, Italy), Ncholu Manyala, Federico Poli, Carlo Santoro
[Valorization of Biodigestor Wastes in Supercapacitors and Microbial Fuel Cells](#)

15:20 to 15:40

Ruggero Rossi (Civil and Environmental Engineering, The Pennsylvania State University, State College, USA), Bruce Logan
[Pilot Scale Microbial Fuel Cell for Energy Generation from Wastewater](#)

15:40 to 16:00

Carlo Santoro (Department of Material Science, University of Milano-Bicocca, Milan, Italy), Kateryna Artyushkova, Plamen Atanassov, Sofia Babanova, Alain Bergel, Orianna Bretschger, Robert Brown, Kayla Carpenter, Alessandra Colombo, Rachel Cortese, Pierangela Cristiani, Benjamin Erable, Falk Harnisch, Mounika Kodali, Sujal Phadke, Sebastian Riedl, Luis Rosa, Uwe Schröder
[Cross-Laboratory Test on Operating Microbial Fuel Cells: Electrochemical and Microbiological Analysis](#)

16:00 to 16:20

Krzysztof Stolarczyk (Faculty of Chemistry, University of Warsaw, Warsaw, Poland), Michal Bystrzejewski, Roman Chomicz
[Carbon-Encapsulated Iron Nanoparticles as a Bioanode and Biocathode Material in Biofuel Cell and Biobattery](#)

16:20 to 16:40

Matteo Tucci (Water Research Institute (IRSA), National Research Council (CNR), Rome, Italy), Federico Aulenta, Carolina Cruz Viggi, Alessandro Milani, Marco Resitano
[Understanding the bioelectrochemical degradation of toluene in a continuous-flow reactor](#)

16:40 to 17:00

Mario Mitov (Chemistry, South-West University, Blagoevgrad, Bulgaria), Elitsa Chorbadzhiyska, Krassimir Kostov
[Silver Recovery by Microbial Electrochemical Snorkel](#)

17:00 to 18:00

Live zoom Q&A – S01b & S02 : Moderator Francesca Soavi