

# 75<sup>th</sup> Annual Meeting

of the International Society of Electrochemistry

18 - 23 August 2024

*Montréal, Canada*

Electrochemistry -  
Science and Technology for a  
Sustainable and Better Planet



# PROGRAM

<https://annual75.ise-online.org>  
e-mail: [events@ise-online.org](mailto:events@ise-online.org)

# Symposium Schedule by Room



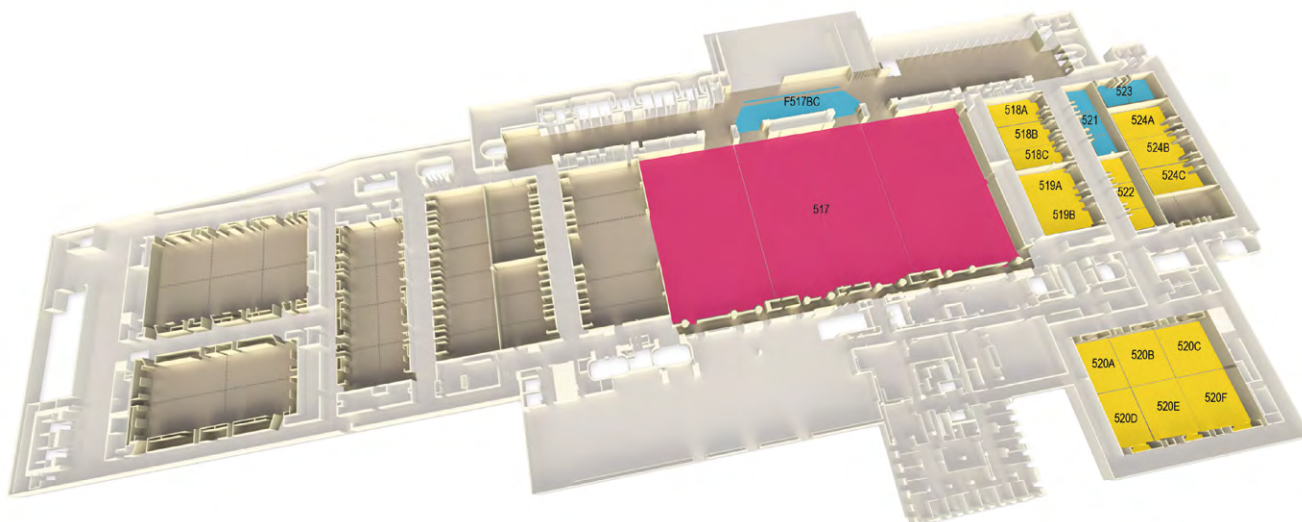
Room Name	Monday 19		Tuesday 20		Wed 21	Thursday 22		Friday 23
	AM	PM	AM	PM	AM	AM	PM	AM
518A	Symp. 1		Symp. 1		Symp. 2	Symp. 2		Symp. 2
518B	Symp. 9		Symp. 3		Symp. 3	Symp. 3		Symp. 3
518C	Symp. 4		Symp. 4			Symp. 4		
519A	Symp. 5a		Symp. 5a		Symp. 5a	Symp. 5a		Symp. 5a
519B	Symp. 5b		Symp. 5b		Symp. 5b	Symp. 5b		Symp. 5b
520A		Symp. 6	Symp. 6		Symp. 6	Symp. 6		
520B	Symp. 7a		Symp. 7a		Symp. 7a	Symp. 7a		Symp. 7a
520C		Symp. 7b	Symp. 7b		Symp. 7b	Symp. 7b		
520D		Symp. 8	Symp. 8		Symp. 8	Symp. 8		Symp. 8
520E	Symp. 10a		Symp. 10a		Symp. 10a	Symp. 10a		Symp. 10a
520F			Symp. 10b				Symp. 17	Symp. 17
522	Symp. 11		Symp. 11		Symp. 11	Symp. 11		Symp. 11
524A	Symp. 12		Symp. 12		Symp. 13	Symp. 13		Symp. 13
524B	Symp. 16	Symp. 16	Symp. 16	Symp. 14	Symp. 14	Symp. 14		
524C	Symp. 15		Symp. 15		Symp. 15	Symp. 15		

Symposium 1	The electroanalytical journey from the fundamental electrochemical concept to the analytical application
Symposium 2	Scanning probe microscopies: Towards quantitative electrochemistry
Symposium 3	Improving health monitoring and pollutant detection using electrochemical sensors
Symposium 4	Bioelectrochemistry – diversity and focus
Symposium 5	Electrochemistry of advanced batteries: Fundamentals, progress, and challenges
Symposium 6	Fast processes/power electrochemical energy storage systems
Symposium 7	Electrocatalysis: Understanding electrochemical processes at the atomic level for industrial-scale systems
Symposium 8	Corrosion and surface modifications
Symposium 9	Machine learning in electrochemical materials science: Progress, challenges and opportunities
Symposium 10	Sustainability and green electrochemical science and technology
Symposium 11	Energy electrochemical technology/electrosynthesis and industrial processes
Symposium 12	Molecular platforms and electrochemistry for a sustainable society
Symposium 13	Double-layer reloaded: Theory meets experiments
Symposium 14	Recent advances in photoelectrochemistry and plasmonics: Fundamentals and applications
Symposium 15	Advances in methods for in-situ and operando study of electrochemical interfaces and systems
Symposium 16	General session
Symposium 17	Symposium in memory of Allen Bard

# ISE Conference Plan - Palais des congrès de Montréal



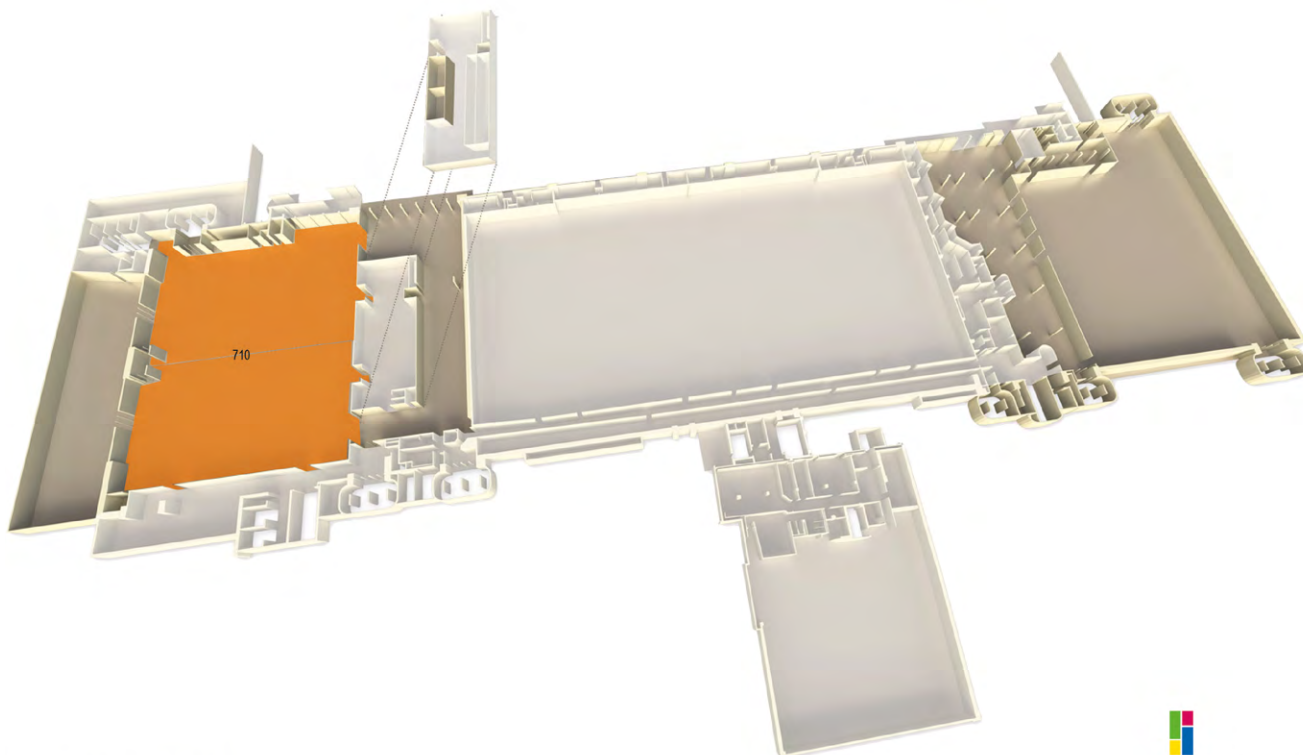
- OFFICES, REGISTRATION, SPEAKER READY ROOM
- EXHIBITION, POSTERS, CATERING
- MEETING



Level 5



- PLENARY



Level 7 and 8





# The 75<sup>th</sup> Annual Meeting of the International Society of Electrochemistry

Electrochemistry –  
Science and Technology for a Sustainable and Better Planet  
18 - 23 August 2024. Montréal, Canada

PALAIS DES CONGRÈS DE MONTRÉAL - 1001 Pl. Jean-Paul-Riopelle, Montréal, QC H2Z 1H5, Canada - congresmtl.com

## CONTENTS

Symposium Schedule by Room .....	inside front cover
Plan - Palais des congrès de Montréal .....	i
Welcome Address .....	iv
Organizing Committee .....	v
Exhibitors / Sponsors .....	vi-vii
Symposium Organizers .....	viii-ix
Tutorial Lectures & Workshops .....	x
Plenary Lectures .....	xi
Prize Winners 2023 .....	xii-xiii
Awards / Poster Sessions .....	xiv
ISE Society Meetings .....	xv
Publications / Social Program .....	xvi
Oral Presentation Program	
<i>Sunday Afternoon</i> .....	2
<i>Monday Morning</i> .....	3
<i>Monday Afternoon</i> .....	12
<i>Tuesday Morning</i> .....	28
<i>Tuesday Afternoon</i> .....	43
<i>Wednesday Morning</i> .....	64
<i>Thursday Morning</i> .....	71
<i>Thursday Afternoon</i> .....	78
<i>Friday Morning</i> .....	98
Poster Presentation Program - All Symposia .....	107
ISE Society Information .....	135
General Conference Information .....	inside back cover
<i>Registration Hours during the Meeting</i>	
<i>On Site Registration Fees, Lunches, Coffee Breaks, Internet Service</i>	
Day-by-Day Week Schedule .....	back cover

## Welcome Address

Dear Colleagues,

On behalf of the ISE executive committee, the Organizing Committee and the Symposium Organizers, we are both delighted and honored to welcome you in Montréal, from the 18<sup>th</sup> to 23<sup>rd</sup> of August for the 75<sup>th</sup> Annual Meeting of the International Society of Electrochemistry.

Since the days of pioneers like Professor Brian Conway and Montréal born Nobel Laureate Rudolph A. Marcus (Plenary Lecturer - Symposium 17), Canada has had a strong community of electrochemical researchers, which is more vibrant today than ever before. Over the years electrochemistry has been the foundation of some of Canada's most important industries, like aluminum production based on an abundance of renewable energy. Today, we continue this tradition as industries that produce the critical electrochemical devices needed for renewable energy storage are setting up facilities in Canada, fully in line with our 75<sup>th</sup> Annual Meeting motto "Science and Technology for a Sustainable and Better Planet".

Our host city of Montréal, founded in 1642, is one of the earliest settlements in New France and indeed North America. Its large and varied history is told in its many museums including the fascinating archeological museum (Pointe-à-Callière), conveniently located in the Old Port. The Old Port, once the commercial center of the city, is now a charming and lively quarter, with an abundance of art galleries, restaurants and bars, well worth a visit. Towering over the city is the "mountain" (Mount Royal) of Montréal, from which the city takes its name. From here there is a spectacular view of the city. Looking toward the east, the casual observer can see the '76 Summer Olympics site, with its iconic stadium structure. The Olympic site now houses many attractions including the new planetarium and the world-renowned Biodôme which features 4 distinct ecosystems found in the Americas. Nearby, is the Montréal Botanical Garden National Historic Site of Canada, a 190-acre site that hosts 22 000 different species, greenhouses and the Montréal insectarium. Looking south from the mountain, downtown Montréal is laid out, with its main thoroughfare St. Catherine stretching from the Village in the east, through the Quartier des Spectacles, host to outdoor concerts and shows, before it passes towards the west island. St. Catherine and its cross street St. Laurent is host to a vast range of different restaurants and bars, where you can savor Montréal treats like smoked meat sandwiches and poutine with local beer and wine.

As about 1 000 participants congregate from all over the world, we hope that the city and the Palais des Congrès will provide ample opportunity for scientific discussions and friendly gatherings, so Please Enjoy!

We would like to thank all the members of the local and international Organizing Committee and all the symposium organizers for their contribution to the organization of the meeting. We would also like to gratefully acknowledge Raphael Berger and Gil Bourgeois for administration and conference organization, as well as Petr Krtil who has been much help in the early stages. Finally, we would like to thank all the student helpers.

**Daniel Bélanger & Steen Schougaard**

*Co-chairs of the Organizing Committee of the 75<sup>th</sup> ISE Annual Meeting*

## Organizing Committee

**Plamen Atanassov**, *Irvine, USA*

**Elena Baranova**, *Ottawa, Canada*

**Daniel Bélanger (Co-chair)**, *Montréal, Canada*

**Dan Bizzotto**, *Vancouver, Canada*

**Takayuki Homma**, *Tokyo, Japan*

**Katharina Krischer**, *Munich, Germany*

**Janine Mauzeroll**, *Montréal, Canada*

**Shelley D. Minteer**, *Salt Lake City, USA*

**Monica Santamaria**, *Palermo, Italy*

**Steen Schougaard (Co-chair)**, *Montréal, Canada*

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**Exhibitor booths**


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**Room: 517ABCD**

Micrux Fluidic	<b>7</b>	<b>8</b>	Ivium	Elsevier	<b>17</b>	<b>18</b>	Springer
Liquidloop	<b>19</b>	<b>20</b>	Royal Society of Chemistry	Scribner	<b>15</b>	<b>16</b>	Pine Research
Origalys	<b>5</b>	<b>6</b>	BAS Inc.	PalmSens	<b>13</b>	<b>14</b>	PalmSens
Spectro Inlets	<b>3</b>	<b>4</b>	BioLogic	easyXAFS	<b>11</b>	<b>12</b>	Gamry
Metrohm	<b>1</b>	<b>2</b>	Sensolytics	ECS	<b>9</b>	<b>10</b>	ZAHNER

### Exhibition Hours

Monday:	09:30-20:00
Tuesday:	09:30-18:00
Wednesday:	09:30-12:00
Thursday:	09:30-18:00
Friday:	09:30-12:00



## Exhibitors



BAS Inc.



Biologic



easyXAFS LLC



ECS - The Electrochemical Society



Elsevier



Gamry Instruments Europe



Ivium



LIQUIDLOOP



Metrohm



Micrux Fluidic



Originalys



PalmSens



Pine Research



Royal Society of Chemistry



Scribner Associates, Inc



Sensolytics



SpectroInlets



Springer Verlag GmbH

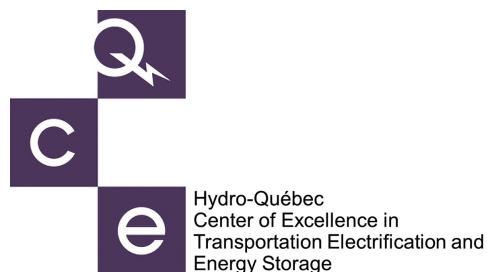


ZAHNER-Elektrik GmbH &amp; Co. KG

## Sponsors



Centre Québécois sur  
les Matériaux Fonctionnels  
Québec Centre  
for Advanced Materials



Hydro-Québec



Université du Québec à Montréal

UQAM



Faculté des sciences

Université du Québec à Montréal

UQAM Faculté des sciences

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## Symposium Organizers

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### Symposium 1 **The electroanalytical journey from the fundamental electrochemical concept to the analytical application**

Maria Cuartero Botia (Coordinator), *Royal Institute of Technology (KTH) in Stockholm*  
Gaston Crespo, *Royal Institute of Technology (KTH) in Stockholm*  
Antonella Badia, *Université de Montréal*  
Christia Brosseau, *Saint Mary's University*

### Symposium 2 **Scanning probe microscopies: Towards quantitative electrochemistry**

Wojciech Nogala (Coordinator), *Institute of Physical Chemistry Polish Academy of Sciences*  
Guy Denuault (Coordinator), *University of Southampton*  
Joshua Byers, *Université du Québec à Montréal*  
Zhifeng Ding, *Western University*

### Symposium 3 **Improving health monitoring and pollutant detection using electrochemical sensors**

Silvia Cere (Coordinator), *INTEMA UNMDP – CONICET*  
Rasa Pauliukaite, *Center for Physical Sciences and Technology, Vilnius*  
Fabio Cicoira, *Polytechnique Montréal*  
Philippe Dauphin-Ducharme, *Université de Sherbrooke*

### Symposium 4 **Bioelectrochemistry – diversity and focus**

Fred Lisdat (Coordinator), *Technische Hochschule Wildau*  
Keisei Sowa, *Kyoto University*  
Zhe She, *Queen's University* Sabine Kuss, *University of Manitoba*  
Hye Jin Lee Kyungpook, *National University*

### Symposium 5 **Electrochemistry of advanced batteries: Fundamentals, progress, and challenges**

Hye Ryung Byon (Coordinator), *KAIST Chemistry*  
Dominic Bresser, *Helmholtz Institute Ulm*  
Andy Sun, *Western University*  
Christian Kuss, *University of Manitoba*

### Symposium 6 **Fast processes/power electrochemical energy storage systems**

Olivier Fontaine (Coordinator), *Molecular Electrochemistry for Energy laboratory - VISTEC*  
Olivier Crosnier, *Université de Nantes*  
Ouassim Ghodbane, *Institut National de Recherche et d'Analyse Physico-Chimique, INRAP*  
Aiping Yu, *University of Waterloo*

### Symposium 7 **Electrocatalysis: Understanding electrochemical processes at the atomic level for industrial-scale systems**

Gregory Jerkiewicz (Coordinator), *Queen's University*  
Michael Eikerling, *Forschungszentrum Jülich*  
Samira Siahrostami, *Simon Fraser University*  
Shigenori Mitsushima, *Yokohama National University*

### Symposium 8 **Corrosion and surface modifications**

Carmen Pérez (Coordinator), *University of Vigo*  
Jan M. Macak, *University of Pardubice*  
Samantha M. Gateman, *Western University*  
Joey Kish, *McMaster University*

### Symposium 9 **Machine learning in electrochemical materials science: Progress, challenges and opportunities**

Vincent Vivier (Coordinator), *Sorbonne University*  
Koji Fushimi, *Hokkaido University*  
James Noel, *Western University*

### Symposium 10 **Sustainability and green electrochemical science and technology**

Carlos A. Martínez-Huitle (Coordinator), *Federal University of Rio Grande do Norte*  
Manuel A. Rodrigo, *Universidad de Castilla*  
Drew Higgins, *McMaster University*  
Cao Thang Dinh, *Queen's University*

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## Symposium Organizers

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**Symposium 11 Energy electrochemical technology/electrosynthesis and industrial processes**

Sara Cavaliere (Coordinator), *University of Montpellier*  
Ignasi Sires, *University of Barcelona*  
C. A. Ponce-de-Leon-Albarran, *University of Southampton*  
Edward (Ted) Roberts, *University of Calgary*

**Symposium 12 Molecular platforms and electrochemistry for a sustainable society**

Ismael Diez Perez (Coordinator), *King's College London*  
Olivier Buriez, *École Normale Supérieure*  
Eva Nichols, *University of British Columbia*

**Symposium 13 Double-layer reloaded: Theory meets experiments**

Olaf Magnussen (Coordinator), *Kiel University*  
Jun Cheng, *Xiamen University*  
Daniel Guay, *INRS*  
Leanne Chen, *Guelph University*

**Symposium 14 Recent advances in photoelectrochemistry and plasmonics: Fundamentals and applications**

Aicheng Chen (Coordinator), *University of Guelph*  
Minghua Zhou, *Nankai University*  
Fatwa F. Abdi, *Helmholtz-Zentrum Berlin*  
Leyla Soleymani, *McMaster University*

**Symposium 15 Advances in methods for in-situ and operando study of electrochemical interfaces and systems**

Ian Burgess (Coordinator), *University of Saskatchewan*  
Jakub Drnec, *European Synchrotron Radiation Facility (ESRF)*  
Ana M. Gómez-Marín, *Instituto de Química de São Carlos*  
Bin Ren, *Xiamen University*

**Symposium 16 General session**

Jean Lessard (Coordinator), *Université de Sherbrooke*  
Wataru Sugimoto, *Shinshu University*  
Clara Santato, *Polytechnique Montreal*  
Donal Leech, *University of Galway*

**Symposium 17 Symposium in memory of Allen Bard**

Janine Mauzeroll (Coordinator), *McGill University*  
Carlos M. Sánchez-Sánchez, *CR CNRS – HDR*  
Mario A Alpuche Aviles, *University of Nevada, USA*

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## Tutorial Lectures & Workshops

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**Sunday, 18 August 2024**

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### Tutorial 1

**Room: 524A**

13:30 to 16:45

#### **Modelling of Electrochemical Systems**

**Dean R. Wheeler**, *Brigham Young University, USA*

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### Tutorial 2

**Room: 524C**

13:30 to 16:45

#### **Hyphenated Techniques in Electrochemistry**

**Ian Burgess**, *University of Saskatchewan, Canada*

**Jakub Drnec**, *European Synchrotron Radiation Facility, France*

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**Tuesday, 20 August 2024**

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### Workshop

**Room: 524B**

09:30 to 10:30 **Symposium 16** General Session

#### **Electrochimica Acta Workshop**

**Robert Hillman**, *Editor in Chief Electrochimica Acta, University of Leicester, UK*

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## Plenary Lectures

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**Room: 710**

### Sunday, 18 August 2024



18:00 to 19:00

**Rudolph Marcus**

*(California Institute of Technology, California, USA)*

A Similarity of Rate Constant Equations for Electron, Atom and Group Transfers and for Entry/Exit of Nucleotides in Biological Motors

### Monday, 19 August 2024



09:00 to 10:00

**Gerardine G. Botte**

*(Texas Tech University, USA)*

Electrolysis of Ammonia Towards Sustainability

### Tuesday, 20 August 2024



08:15 to 09:15

**Kisuk Kang**

*(Seoul National University, South Korea)*

Oxygen-redox chemistry in layered transition metal oxides for advanced lithium-ion battery cathode materials

### Wednesday, 21 August 2024



08:15 to 09:15

**David P. Wilkinson**

*(University of British Columbia, Canada)*

Electrolyzers and Fuel Cells - Electrochemical Engines for the 21<sup>st</sup> Century

### Thursday, 22 August 2024



08:15 to 09:15

**Mary P. Ryan**

*(Imperial College London, UK)*

Electrochemical Degradation Processes - Nanoscale Processes that Control Macroscale Stability applications

### Friday, 23 August 2024



08:15 to 09:15

**Alexander Kuhn**

*(Université de Bordeaux, France)*

Electrochemically Induced Asymmetry: from Molecules and Materials to Motion and Back

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## ISE Prize Winners 2023

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### ISE-Elsevier Prize for Experimental Electrochemistry

**Ian Burgess**, *University of Saskatchewan, Canada*

Thursday 22 August 2024 - 16:20-17:00, Symposium 15, ROOM 524C

**Advances in Electrochemical Attenuated Total Reflection Surface Enhanced Infrared Absorption Spectroscopy**

The ISE-Elsevier Prize for Experimental Electrochemistry was awarded to **Ian Burgess** for seminal contributions to the development of IR spectroelectrochemistry. He has pioneered over many years the application of lab- and synchrotron-based IR spectroscopy methods, in particular ATR-SEIRAS. His work pushed the limits of spatial and temporal resolution of these methods and made them available to a much wider range of electrochemical systems, which will be of use in many areas of electrochemistry.

### Kasumi Niki Prize in Bioelectrochemistry

**Ana Maria Oliveira-Brett**, *University of Coimbra, Portugal*

Thursday 22 August 2024 - 09:30-10:10, Symposium 4, ROOM 518C

**Bioelectrochemical Sensing of Health-Relevant Biological Interactions**

The Kasumi Niki Prize in Bioelectrochemistry was awarded to **Ana Maria Oliveira-Brett**, for important and original contribution to the areas of bioelectrochemistry, electron transfer reactions of compounds of biological interest, bioelectroanalysis and for her great involvement in the bioelectrochemistry community.

### Alexander Kuznetsov Prize for Theoretical Electrochemistry

**Mira Todorova**, *Max-Planck-Institut für Eisenforschung, Germany*

Thursday 22 August 2024 - 14:40-15:20, Symposium 7a, ROOM 520B

**Advancing Electrochemical Insights: Ab Initio Control and Realistic Description of Solid-Liquid Interfaces**

The Alexander Kuznetsov Prize for Theoretical Electrochemistry was awarded to **Mira Todorova** for development and application of state-of-art ab-initio based multi-scale simulation techniques on the forefront of theoretical electrochemistry to tackle problems in fundamental surface electrochemistry. Most notably, by developing an ab-initio potentiostat, she has opened new doors towards exciting new paths in experimental and theoretical electrochemistry alike.

### Jaroslav Heyrovsky Prize for Molecular Electrochemistry

**Simone Ciampi**, *Curtin University, Australia*

Monday 19 August 2024 - 10:10-10:50, Symposium 12, ROOM 524A

**Augmented electrolysis rates at partially fouled electrodes: reactant enrichment, unexpected convection aid or current crowding?**

The Jaroslav Heyrovsky Prize for Molecular Electrochemistry was awarded to **Simone Ciampi** for unique and original contributions opening new ways of exploring chemical catalysis using electrostatics in the electrochemical double layer.

### Tajima Prize

**Federico Bella**, *Politecnico Torino, Italy*

Monday 19 August 2024 - 11:30-12:10, Symposium 10a, ROOM 520E

**Engineering Integrated Electrochemical Energy Devices through Non-Critical Materials**

The Tajima Prize was awarded to **Federico Bella**, for innovative work in the field of advanced photoelectrochemical cells and post-lithium batteries.

### ISE Prize for General Electrochemical Materials Science

**Raphaële J. Clément**, *University of California at Santa Barbara, USA*

Monday 19 August 2024 - 14:00-14:20, Symposium 16, ROOM 524B

**Designing Co- and Ni-Free Cathode Materials for Li- and Na-ion Batteries**

The ISE Prize for General Electrochemical Materials Science was awarded to **Raphaële J. Clément**, for innovative work in the field of advanced batteries.

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## ISE Prize Winners 2023

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### Zhaowu Tian Prize for Energy Electrochemistry

**Carlo Santoro**, *University of Milano Bicocca, Italy*

Monday 19 August 2024 - 16:20-17:00, Symposium 7b, ROOM 520C

**Oxygen Reduction Reaction: designing electrocatalysts moving from neutral to alkaline electrolytes**

The Zhaowu Tian Prize for Energy Electrochemistry was awarded to **Carlo Santoro**, for development of electrocatalytic and bio-electrocatalytic systems for fuel cells, water electrolyzers and bioelectrochemical applications.

### ISE-Elsevier Prize for Green Electrochemistry

**Juliana Brito**, *UNESP, Brazil*

Tuesday 20 August 2024 - 09:30-10:10, Invited, Symposium 10a, ROOM 520E

**Towards Ambient Ammonia Synthesis: A Potential Alternative to the Haber-Bosch Process**

The ISE-Elsevier Prize for Green Electrochemistry was awarded to **Juliana Brito**, for contributions in the fields related to photoelectrocatalysis, water splitting and CO<sub>2</sub> reduction.

### ISE-Elsevier Prize for Applied Electrochemistry

**Dulce Maria Morales Hernandez**, *Engineering and Technology Institute Groeningen, Netherlands*

Thursday 22 August 2024 - 14:00-14:20, Symposium 7b, ROOM 520C

**Competition between the Electrooxidation of Alcohols and the Oxygen Evolution Reaction on a Ni-based Catalyst**

The ISE-Elsevier Prize for Applied Electrochemistry is awarded to **Dulce Maria Morales Hernandez**, for contributions in the fields related to the electrochemical conversion of oxygen to the electro-oxidation of alcohols, the impact of binders on electrode properties and oxygen conversion electrocatalysts

### Early Career Analytical Electrochemistry Prize of ISE Division 1

**Paolo Bollella**, *University of Bari, Italy*

Tuesday 20 August 2024 - 14:00-14:40, Symposium 1, ROOM 518A

**From Wearable and Minimally Invasive to Edible Enzyme-based Amperometric Biosensors**

The Early Career Analytical Electrochemistry Prize of ISE Division 1 was awarded to **Paolo Bollella** in recognition of his recent achievements in Analytical Electrochemistry. The Award Selection Committee was impressed by the quality and scale of his contribution to the development of ultrasensitive enzyme-based amperometric sensors for the detection of biomarkers in clinical, food, and environmental samples.

### Oronzio and Niccolò De Nora Foundation Young Author Prize

**Mohsin Muhyuddin**, *University of Milano Bicocca, Italy*

The award will be presented at the ISE annual meeting in Mainz, 2025.

**Deciphering the Evolution of HER and ORR Activity: Insights from Pyrolyzed Nickel Phthalocyanine Functionalized Carbon Black**

The De Nora Foundation Young Author Prize was awarded to **Mohsin Muhyuddin** for the paper: Iron-based Electrocatalysts Derived from Scrap Tires for Oxygen Reduction Reaction: Evolution of Synthesis-Structure-Performance Relationship in Acidic, Neutral and Alkaline Media. Published in *Electrochimica Acta* 2022, 433, 141254

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## Electrochimica Acta and ISE Travel Awards for Young Electrochemists 2024

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**Mattia Belotti**, *Australia*

**Gullit Deffo**, *Cameroon*

**Julia Fernandez Vidal**, *Netherlands*

**Zachary Gossage**, *Japan*

**Giampaolo Lacarbonara**, *Italy*

**Kelechi Nwambaekwe**, *South Africa*

**Micheala Plevová**, *Czech Republic*

**Ftiri Nur Indah Sari**, *Taiwan*

**Jamie Trindell**, *Netherlands*

**Yudong Xue**, *Switzerland*

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### Poster presentations session for all symposia

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**Room: 517**

Poster set-up: **Monday, from 12:30 to 16:20**

Poster Presentations & Cocktail : **Monday, 19 August 2024, from 18:00 to 20:00**

Poster Presentations : **Wednesday, 21 August 2024, from 10:50 to 12:30**

Poster take-down: **Thursday, before 18:00**



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## ISE Society Meetings

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### Sunday, 18 August 2024

#### Opening Ceremony

17:00 to 18:00 › Room 710

### Monday, 19 August 2024

#### Division Officers Meeting

12:40 to 13:40 › Room 520A

#### Regional Representatives Meeting

12:40 to 13:40 › Room 520C

### Tuesday, 20 August 2024

#### Council Meeting

12:45 to 13:45 › Room 522

### Thursday, 22 August 2024

#### General Assembly

11:15 to 12:15 › Room 710

#### Division Meetings

12:40 to 13:40

Division 1 Analytical Electrochemistry › Room 518A

Division 2 Bioelectrochemistry › Room 518C

Division 3 Electrochemical Energy Conversion and Storage › Room 519B

Division 4 Electrochemical Materials Science › Room 520C

Division 5 Electrochemical Process Engineering and Technology › Room 522

Division 6 Molecular Electrochemistry › Room 524A

Division 7 Physical Electrochemistry › Room 524C

### Friday, 23 August 2024

#### Closing Ceremony

12:15 to 12:30 › Room 710

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## Publications

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### *Electrochemistry – Science and Technology for a Sustainable and Better Planet*

Electrochimica Acta is launching a **Virtual Special Issue (VSI)** in **May 2024**, which comprises a selection of papers presented at the 75<sup>th</sup> Annual Meeting, held from August 18 to 23, 2024, in Montréal, Canada.

Special Issue Editor:

**Dr. Sotiris Sotiriopoulos**

Professor of Electrochemistry  
Physical Chemistry Laboratory, Chemistry Department  
Aristotle University of Thessaloniki  
Thessaloniki 54124 . Greece

A team of Executive and Guest editors will be involved in the process.

**This is an invited-only special issue.**

Upon invitation, please provide prospective contributors with the following specific instructions on how to submit a paper:

- 1) Go to: <https://www.journals.elsevier.com/electrochimica-acta>
- 2) Click on the “**Submit your article**” option from the top menu
- 3) Enter your **username** and **password** (first time users will have to register)
- 4) Select “**ISE-2024**” as the “Article Type”
- 5) Select “**Sotiris Sotiriopoulos**” at the “**Request Editor**” dropdown menu
- 6) Follow the remaining step-by-step instructions to submit your paper

Submission of contributions: **From 18 May 2024 with deadline 24 December 2024**

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## Social Program

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### RECEPTIONS

#### Welcome Reception

Sunday, 18 August 2024, 19:15-20:30

in Room 710

#### Monday Cocktail (during poster session)

Monday, 19 August 2024, 18:30-20:00

in Room 517

#### Thursday Banquet

Thursday, 22 August 2024, 19:30-23:00

Old Port of Montréal THE BELVEDERE

2 De la Commune St W, Montreal, Quebec H2Y 4B2, Canada

<https://www.oldportofmontreal.com/hall-rentals/halls/belvedere>



100 EUROS : Places are limited. All tickets for the banquet must be pre-booked and are non-refundable.

### EXCURSIONS

#### Wednesday, 21 August 2024

A concierge from *Tourisme Montréal* will be present at the Montréal Palais des Congrès close to the registration desk to provide tourist information and restaurant recommendations.

**Monday** 10h00 - 18h00

**Tuesday** 10h30 - 18h30

**Wednesday** 10h00 - 14h00

# Oral presentation program



# Sunday 18 September 2024 - Afternoon

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## Tutorial 1

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**Room: 524A**

13:30 to 16:45

**Dean R. Wheeler** (*Brigham Young University, USA*)

[Modelling of Electrochemical Systems](#)

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## Tutorial 2

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**Room: 524C**

13:30 to 16:45

**Ian Burgess** (*University of Saskatchewan, Canada*).

**Jakub Drnec** (*European Synchrotron Radiation Facility, France*).

[Hyphenated Techniques in Electrochemistry](#)

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## Opening Ceremony

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**Room: 710**

*Presented by Daniel Bélanger and Steen Schougaard*

17:00 to 18:00

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## Plenary - Part of Symposium 17 in memory of Allen Bard

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**Room: 710**

*Chaired by Mario Alpuche-Aviles*

18:00 to 19:00

**Rudolph Marcus** (*California Institute of Technology, California, USA*)

[A Similarity of Rate Constant Equations for Electron, Atom and Group Transfers and for Entry/Exit of Nucleotides in Biological Motors](#)

# Monday 19 August 2024 - Morning

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## Plenary lecture

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**Room: 710**

Chaired by *Elena Baranova*

09:00 to 10:00

**Gerardine G. Botte** (*Institute for Sustainability and Circular Economy, Chemical Engineering Department, Whitacre College of Engineering, Texas Tech University USA*)

[Electrolysis of Ammonia Towards Sustainability](#)

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## Symposium 1 The electroanalytical journey from the fundamental electrochemical concept to the analytical application

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**Room: 518A**

Chaired by *Paolo Bollella, Agueda Molinero-Fernandez*

10:10 to 10:50 Keynote

**Wei Gao** (*Medical Engineering, California Institute of Technology, Pasadena, USA*)

[Skin-Interfaced Wearable Biosensors](#)

10:50 to 11:10

Coffee Break

11:10 to 11:30

**Philippe Dauphin Ducharme** (*Chimie, Université de Sherbrooke, Sherbrooke, Canada*)

[Electrochemical Biosensors for Multiplexed Whole Blood Measurements](#)

11:30 to 11:50

**Robert Johnson** (*School of Chemistry, University College Dublin, Dublin, Ireland*), Emer Farrell, Fionn McNeill, Patrick Guiry

[The Detection of Trace Metal Contaminants and the Determination of Enantiomeric Purity in Confined Aprotic Solvent](#)

11:50 to 12:10

**Justyna Kalisz** (*Faculty of Chemistry, University of Warsaw, Warsaw, Poland*), Emilia Stelmach, Katarzyna Wegrzyn, Barbara Wagner, Krzysztof Maksymiuk, Agata Michalska

[Low-Cost Disposable Ion-Selective Electrodes](#)

12:10 to 12:30 Invited

**Daniel Rojas** (*UCAM-SENS, Universidad Católica San Antonio de Murcia, Murcia, Spain*), Gaston Crespo, Maria Cuartero

[D printing technologies as an innovative toolbox for the development of electrochemical sensors](#)

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## Symposium 4 Bioelectrochemistry - diversity and focus

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Room: 518C

Chaired by Fred Lisdat

10:10 to 10:50 Keynote

**Clare Megarity** (Chemistry, University of Manchester, Manchester, United Kingdom)

Enzyme Cascades Driven and Controlled in the Electrochemical Leaf.

10:50 to 11:10

Coffee Break

11:10 to 11:30

**Keisei Sowa** (Division of Applied Life Sciences, Graduate School of Agr., Kyoto University, Kyoto, Japan)

Structural Bioelectrochemistry on Tungsten-containing Formate Dehydrogenase 1 from *Methylobacterium extorquens* AM1

11:30 to 11:50

**Ismael Diez-Perez** (Chemistry, Kings College London, London, United Kingdom), Tracy Ha, Desmond Koomson, Albert C. Aragonés, Jhanelle White, Kavita Garg, Qiankun Wang, Jessica P., Sarah Barry

Real-Time Electrical Transduction of Single Catalytic Turnover Events in a Single-Protein Enzymatic Junction

11:50 to 12:10

**Alan Le Goff** (Département de chimie moléculaire, CNRS/University Grenoble Alpes, Grenoble, France)

Carbon Monoxide Dehydrogenases on Functionalized Carbon Nanotubes for Reversible CO<sub>2</sub>-to-CO Conversion

12:10 to 12:30

**Scott Prins** (Chemistry, McGill University, Montréal, Canada), Thiago Selva, Lucas Lima, Elena Rosini, William R. de Araujo, Loredano Pollegioni, Janine Mauzeroll

Sensing D-Serine Using a Disposable Electrochemical Enzymatic Biosensor

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## Symposium 5a Electrochemistry of advanced batteries: Fundamentals, progress, and challenges

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Room: 519A

Chaired by Christian Kuss

10:10 to 10:50 Keynote

**Kang Xu** (Chief Scientist, SES AI, Woburn, USA)

Designing Better Electrolytes and Interphases via Artificial Intelligence

10:50 to 11:10

Coffee Break

11:10 to 11:30 *Invited*

**Minah Lee** (*Energy Storage Research Center, Korea Institute of Science and Technology (KIST), Seoul, Korea*)

Developing Organic Carbonates with High Flash Points for Safer Li-ion Battery Electrolytes

11:30 to 11:50

**Jorge Roberto Valenzuela García de León** (*Institute of Applied Materials – Electrochemical Technologie, Karlsruhe Institute for Technology, Karlsruhe, Germany*), Leon Schmidt, Kie Hankins, Janika Wagner-Henke, Ulrike Krewer

Understanding Gas Evolution and Electrolyte Degradation during Thermal Abuse of Lithium-ion Battery

11:50 to 12:10

**Baptiste Salomez** (*Electric Components Division, Ampère, Guyancourt, France*), Sylvie Grugeon, Pierre Tran-Van, Stéphane Laruelle

Real Impact of Additives and Lithium Salts on Thermal Degradation of Electrolyte in NMC-Graphite Battery: a Gas Analysis

12:10 to 12:30

**Zoya Sadighi** (*Chemistry and Chemical Biology, McMaster University, Hamilton, Canada*), Kevin J. Sanders, Emma G. Magee, Aiman Quadiri, Gillian R. Goward

Employing Operando <sup>7</sup>Li NMR Measurement to Examine Lithium Plating in Lithium-Ion Batteries

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## Symposium 5b Electrochemistry of advanced batteries: Fundamentals, progress, and challenges

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Room: 519B

Chaired by Mousumi Dey

10:10 to 10:30

**Victoria G. Rocha** (*Materials Chemistry, Carbon Science and Technology Institute INCAR-CSIC, Oviedo, Spain*), P. Rodriguez-Lagar, A. Concheso, Z. González, C. Blanco, R. Santamaría, M. Montes-Morán, R. Menéndez

Carbon-based 3D Printed Electrodes for All-Iron Redox Flow Batteries

10:30 to 10:50

**Maedeh Pahlevaninezhad** (*Applied Research and Innovation Services (ARIS), Southern Alberta Institute of Technology (SAIT), Calgary, Canada*), Rad Sadri, Damilola Momodu, Karamullah M Eisawi, Ehsan Aminfar, Majid Pahlevani, Michael Naguib, Edward P.L. Roberts

MXene Modified Electrode for the All-Vanadium Redox Flow Battery

10:50 to 11:10

Coffee Break

11:10 to 11:30

**Seongmo Ahn** (*Chemistry, Korea Advanced Institute of Science and Technology, Daejeon, Korea*)

Ion Pairing Modulation for Enhanced Performance of Nonaqueous Organic Redox Flow Batteries Utilizing Naphthalene Diimide Derivatives.

11:30 to 11:50

**Giampaolo Lacarbonara** (*Department of chemistry, University of Bologna, Bologna, Italy*),  
Rossella Petruzzelli, Catia Arbizzani

Comparative rotating disk electrode analysis of copper-based redox flow batteries: unraveling the role of supporting electrolytes on the electrochemical kinetics

11:50 to 12:10

**Karim Boutamine** (*D4 ICGM, Montpellier University, Montpellier, France*), Patricia Bassil, Frédéric Favier,  
Olivier Ouari, Steven Le Vot

Improving the performance of organic polysolutes for aqueous redox flow batteries

12:10 to 12:30

**Florence Geneste** (*Rennes Institute of Chemical Sciences, University of Rennes, Rennes, France*), Patricia  
Bassil, Didier Floner, Solène Guiheneuf, Ludovic Paquin

Efficient One-Pot In Situ Synthetic Method of Water-Soluble Hydroxynaphtoquinones for Redox Flow Batteries

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## Symposium 7a Electrocatalysis: Understanding electrochemical processes at the atomic level for industrial-scale systems

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**Room: 520B**

Chaired by Gregory Jerkiewicz, Pawel J. Kulesza

10:10 to 10:50 Keynote

**Boon Siang Yeo** (*Chemistry, National University of Singapore, Singapore*)

Electrosynthesis of Oxygenates and Hydrocarbons

10:50 to 11:10

Coffee Break

11:10 to 11:30

**Plamen Atanassov** (*Chemical & Biomolecular Engineering, University of California Irvine, Irvine, USA*),  
Eamonn Murphy, Baiyu Sun, Shengyuan Guo

Electrochemical Reduction of Nitrate to Ammonia: Achieving Industrially Relevant Current Densities with Fe<sub>2</sub>O<sub>3</sub>/Fe-N-C Nano-Composite Electrocatalysts

11:30 to 11:50

**Marco Altomare** (*Dept. Chemical Engineering, MESA+ Institute for Nanotech., University of Twente, Enschede, Netherlands*)

Dewetted nanoparticles to study nanoscale effects in electrocatalysis

11:50 to 12:10

**Claude Lamy** (*Institut Charles Gerhardt Montpellier (ICGM), CNRS-University of Montpellier, Montpellier, France*), Issam Nciri, Karine Vigier, Christophe Coutanceau

Investigation of Liquid Organic Hydrogen Carriers (LOHC) Issued from Biomass Resources

12:10 to 12:30

**Pawel J. Kulesza** (*Faculty of Chemistry, University of Warsaw, Warsaw, Poland*)

Importance of metal-oxide-additive on activity of low-Pt-content-catalysts during oxygen reduction



## Symposium 9 Machine learning in electrochemical materials science: Progress, challenges and opportunities

Room: 518B

Chaired by Koji Fushimi

10:10 to 10:30 Invited

**Fanny Balbaud-Celerier** (*Corrosion and Material Behavior Research Division, CEA, Gif sur Yvette, France*), Soufyane Achache, Celine Cannes, Charly Carriere, Sylvie Delpéch, Clara Desgranges, Mohamed El Garah, Oumaima Gharbi, Stephane Gorsse, Mohamed Goune, Rafael Herschberg, Ekaterina Kurchavova, Laure Martinelli, Bernard Normand, Kevin Perrin, Frederic Sanchette, Eric Schmucker, Franck Tancret, Mireille Turmine, Annabelle Vernouillet, Vincent Vivier, Sheng Yuan

Accelerated Discovery of Corrosion Resistant Materials for Molten Salt Applications

10:30 to 10:50

**Koji Fushimi** (*Faculty of Engineering, Hokkaido University, Sapporo, Japan*), Kota Hirasawa, Yuki Tsuji, Mana Iwai, Sho Kitano, Hiroki Habazaki

Diagnosis of Corrosion Products on Steels by Machine Learning of Optical Microscopic Images

10:50 to 11:10

Coffee Break

11:10 to 11:30

**Benny Wouters** (*Research Group Sustainable Materials Engineering, Vrije Universiteit Brussel, Brussels, Belgium*), Raf Claessens, Meisam Dabiri Havigh, Vincent Vangrunderbeek, Annick Hubin

Combining operando ORP-EIS and machine learning to detect ageing of Li-ion batteries during charging

11:30 to 11:50

**Micha Philipp** (*Institute for Engineering Thermodynamics, German Aerospace Center (DLR), Ulm, Germany*), Yannick Kuhn, Arnulf Latz, Birger Horstmann

Physics-Based Inverse Modeling of Degradation in Li-ion Batteries by using Bayesian Methods

11:50 to 12:10

**Byron Ross** (*Chemistry, University of Warwick, Coventry, United Kingdom*), Kayleigh Skidmore, Álvaro Romero-Calvo, Sophia Haussener, Katharina Brinkert

Modelling Gas-Bubble Dynamics in Electrolysis Systems under Reduced Gravitational Conditions

12:10 to 12:30

**Soroosh Hakimian** (*Mechanical Engineering, École de technologie supérieure, Montreal, Canada*), Hakim A. Bouzid, Lucas A. Hof

Application of Recurrent Neural Networks to Electrochemical Noise Data to Predict Flange Face Corrosion Rates of Bolted Joints

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## Symposium 10a Sustainability and green electrochemical science and technology

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**Room: 520E**

Chaired by *Federico Bella, Shuhui Sun*

10:10 to 10:50 Keynote

**Aimy Bazylak** (*Mechanical and Industrial Engineering, University of Toronto, Toronto, Canada*)

From catalyst layers to flow fields: where do we go next?

10:50 to 11:10

Coffee Break

11:10 to 11:30

**Michaela Plevová** (*Department of Inorganic Technology, UCT Prague, Praha 6 – Dejvice, Czech Republic*), Jaromír Hnát, Jan Žitka, Karel Bouzek

Effect of Membrane Pretreatment and Catalyst Conductivity on the Performance of Membrane Alkaline Water Electrolysis

11:30 to 12:10 *Tajima Prize*

**Federico Bella** (*Applied Science and Technology, Politecnico di Torino, Torino, Italy*), Anna Mangini, Noemi Pirrone, Sabrina Trano, Lorenzo Sibella, Sara Garcia Ballesteros, Lucia Fagiolari, Daniele Versaci, Julia Amici, Carlotta Francia, Teresa Gatti, Silvia Bodoardo

Engineering Integrated Electrochemical Energy Devices through Non-Critical Materials

12:10 to 12:30 Invited

**Shuhui Sun** (*Énergie Matériaux Télécommunications, Institut National de la Recherche Scientifique (INRS), Varennes, Canada*), Huiyu Lei, Diane Rawach, Xiaohua Yang, Sixiang Liu, Pan Wang, Zonghua Pu, Jean-Pol Dodelet, Gaixia Zhang

PGM-free and Low-PGM Electrocatalysts for Hydrogen Production and Fuel Cells

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## Symposium 11 Energy electrochemical technology/electrosynthesis and industrial processes

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**Room: 522**

Chaired by *Sara Cavaliere*

10:10 to 10:50 Keynote

**Jasna Jankovic** (*Materials Science and Engineering, University of Connecticut, Storrs, USA*)

From Inks to Electrodes - From Lab-Scale to Scale-Up: Correlating Microstructural Parameters to Performance and Degradation in Proton Exchange Membrane Fuel Cells and Water Electrolyzers

10:50 to 11:10

Coffee Break

11:10 to 11:30

**Michael Eikerling** (*Institute of Energy and Climate Research, Forschungszentrum Jülich GmbH, Jülich, Germany*), Ying Sun, Thomas Kadyk, Andrei Kulikovskiy

[Ionomer in Catalyst Layers of PEM Fuel Cells: From Structure-based Modeling to Impedance-based Diagnostics](#)

11:30 to 11:50

**Jannik Heitz** (*Theory and Computation of Energy Materials (IEK-13), Forschungszentrum Jülich GmbH, Jülich, Germany*), Thomas Kadyk, Michael Eikerling

[Modeling the Impact of Ionomer on Performance and Degradation in Catalyst Layers of PEM Fuel Cells](#)

11:50 to 12:10 Invited

**Fabio Dionigi** (*Technische Chemie, Technische Universität Berlin, Berlin, Germany*), Lujin Pan, Jiasheng Lu, Olivia Dunseath, Dash Fongalland, Pierre-Yves Blanchard, Sara Cavaliere, Alex Martinez Bonastre, Jonathan Sharman, Deborah Jones, Peter Strasser

[Integration of PtNi Octahedral and PtCo Intermetallic Nanoparticle Catalysts in Fuel Cell Cathodes](#)

12:10 to 12:30

**Carlos Augusto Campos Roldan** (*ICGM, CNRS, Montpellier, France*), Raphaël Chattot, Jean-Sébastien Filhol, Hazar Guesmi, Frédéric Pailloux, Andrea Zitolo, Pierre-Yves Blanchard, Jakub Drnec, Jacques Rozière, Sara Cavaliere, Deborah Jones

[Operando Property-Activity-Stability Trends of Platinum- Neodymium Nanoalloys during the Oxygen Reduction Reaction](#)

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## Symposium 12 Molecular platforms and electrochemistry for a sustainable society

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**Room: 524A**

Chaired by *Simone Ciampi, Ismael Diez Perez*

10:10 to 10:50 **Jaroslav Heyrovsky Prize for Molecular Electrochemistry**

**Simone Ciampi** (*Chemistry, Curtin University, Bentley, Australia*), Harry Rodriguez, Wathsala Kapuralage, K. Swaminathan Iyer, Nadim Darwish

[Augmented electrolysis rates at partially fouled electrodes: reactant enrichment, unexpected convection aid or current crowding?](#)

10:50 to 11:10

Coffee Break

11:10 to 11:30 Invited

**Cunlan Guo** (*College of Chemistry and Molecular Sciences, Wuhan University, Wuhan, China*)

[Non-covalent Interactions in Solid-state Peptides and Proteins Charge Transport](#)

11:30 to 11:50 Invited

**Jie Bai** (*College of Materials, Xiamen University, Xiamen, China*), Xiaohui Li, Yan Zheng, Junyang Liu, Wenjing Hong

[Observation of Quantum Interference Effects based on Electrochemical Gating](#)

11:50 to 12:10

**Rajarshi Samajdar** (*Chemical and Biomolecular Engineering, University of Illinois at Urbana Champaign, Urbana, USA*)

Active learning to understand and predict the electronic behavior of peptides

12:10 to 12:30

**Shahid Khaleel** (*Engineering Physics, Polytechnique Montreal, Montreal, Canada*), Zhaojing Gao, Anthony Camus, Clara Santato

Charge Carrier Transport in Sepia Melanin for Sustainable Organic Electronics

MONDAY AM

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## Symposium 15 Advances in methods for in-situ and operando study of electrochemical interfaces and systems

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**Room: 524C**

Chaired by Robert Hillman

10:10 to 10:50 Keynote

**Yong Yang** (*Department of Chemistry, Xiamen University, Xiamen, China*)

Operando NMR Study on Non-Aqueous and All Solid State rechargeable Li/Na Battery

10:50 to 11:10

Coffee Break

11:10 to 11:30

**Jing-Hua Tian** (*IKKEM, IKKEM, Xiamen, China*), Si-Yuan Ma, Shao-Ping Wu, Hai-Long Wang, Wei-Wei Wang, Dan Wu, Zhong-Qun Tian

The Study on the Early Safety Warning of LIBs with Integrated Operando Techniques

11:30 to 11:50

**Heng-Liang Wu** (*Center for Condensed Matter Sciences, National Taiwan University, Taipei, Taiwan*)

Modulating the Voltage Decay and Cationic Redox Kinetics of Li-Rich Cathodes via Controlling the Local Electronic Structure

11:50 to 12:10

**Mengyang Cui** (*Chemistry and Chemical Biology, McMaster University, Hamilton, Canada*), Cameron Gurwell, Kevin Sanders, Gillian Goward

Stack Pressure Effect on Dendritic Lithium Formation in Hybrid-Solid State Batteries Using <sup>7</sup>Li NMR Spectroscopy and Chemical Shift Imaging

12:10 to 12:30

**Syeda Ramin Jannat** (*Materials, Imperial College London, London, United Kingdom*), Zhenyu Guo, James Douglas, Shelly Conroy, Neil Mulcahy, Lukas Worch, Maria-Magdalena Titirici, Ifan Stephens, Baptiste Gault, Mary Ryan

'Cry(o)ing' Out For Safer Batteries: The Application of Cryo-Microscopy to Study Early-Stage Dendritic Growth in Lithium-Ion Batteries

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## Symposium 16 General Session

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Room: 524B

Chaired by Wataru Sugimoto

10:10 to 10:30

**Mattia Belotti** (*Chemistry, Monash University, Melbourne, Australia*), Simone Ciampi, Mohsen MT El-Tahawy, Nadim Darwish, Isabella C Russell, K. Swaminathan Iyer, Marco Garavelli, Michelle L. Coote, Li-Juan Yu

Luciferin Electrochemiluminescence

10:30 to 10:50

**Antoine Juneau** (*Chemistry, McGill University, Montreal, Canada*), Marzieh Abdolhosseini, Camille Rocq, Hanh D. M. Pham, Mia Pascall, Rustam Z. Khaliullin, Sylvain Canesi, Eric McCalla, Janine Mauzeroll

Navigating Electrosynthesis Challenges Using High-Throughput Electrochemistry: A Case Study on Hypervalent Iodine Phenol Dearomatization

10:50 to 11:10

Coffee Break

11:10 to 11:30

**José Manuel Ramos-Villaseñor** (*Centro Conjunto de Investigación en Química Sustentable, Instituto de Química-CCIQS, Toluca, Mexico*), José Manuel Ramos Villaseñor, Jessica Sotelo Gil, MariCarmen Paola Flores Morales

Cyrene®-solvent mixtures as solvent for organic electrosynthesis

# Monday 19 August 2024 - Afternoon

MONDAY PM

## Symposium 1 The electroanalytical journey from the fundamental electrochemical concept to the analytical application

**Room: 518A***Chaired by Philippe Bühlmann, Daniel Rojas**14:00 to 14:20 Invited*

**Agata Michalska** (*Faculty of Chemistry, University of Warsaw, Warsaw, Poland*), Katarzyna Wegrzyn, Justyna Kalisz, Emilia Stelmach, Krzysztof Maksymiuk

[Emission Intensity Readout of Ion-Selective Electrodes Operating under Electrochemical Trigger](#)

*14:20 to 14:40*

**Tim Albrecht** (*School of Chemistry, University of Birmingham, Birmingham, United Kingdom*), Rand Al-Waqfi, Oliver Irving, Cengiz Khan, Lauren Matthews

[Direction matters for DNA translocation in nanopipettes](#)

*14:40 to 15:00*

**Emilia Witkowska Nery** (*Institute of Physical Chemistry, Polish Academy of Sciences, Warsaw, Poland*), Elżbieta Jarosińska, Martyna Durka, Wojciech Mazurkiewicz

[Better prediction of analyte content in complex samples using a low-cost sensor array and a conditional algorithm](#)

*15:00 to 15:20*

**Konrad Rudnicki** (*Department of Inorganic and Analytical Chemistry, University of Łódź, Łódź, Poland*), Sławomira Skrzypek, Lukasz Poltorak

[Comparative electrochemical study of veterinary drug – danofloxacin – at glassy carbon electrode and electrified liquid-liquid interface](#)

*16:00 to 16:20*

Coffee Break

*16:20 to 16:40*

**Paula Calli Falcowski** (*Fundamental Chemistry, São Paulo, Brazil*), Bruna Marin Fronza, Roberto Ruggiero Braga, Mauro Bertotti

[Influence of Electrolyte Environment on Real-time and Long-term Measurements of Calcium Release by Dental Composites with Liquid Contact Ion-Selective Electrodes](#)

*16:40 to 17:00*

**Pedro Henrique Alves Damasceno** (*Fundamental Chemistry, Institute of Chemistry, University of São Paulo, São Paulo, Brazil*), Mauro Bertotti

[Improved Ascorbate Detection in HaCaT Cells with a Nanoporous Gold Modified Ultramicroelectrode using SECM](#)

17:00 to 17:20

**Vanessa Ataide** (*Fundamental Chemistry, Institute of Chemistry/University of Sao Paulo, Sao Paulo, Brazil*), Thawan Oliveira, Irlan Lima, Thiago Paixão, Lucio Angnes

Synthesis of zinc oxide nanostructures induced by CO<sub>2</sub> laser for sensing applications

17:20 to 17:40

**Eleonora-Mihaela Ungureanu** (*Doctoral School of Chemical Engineering and Biotechnologies, National University of Science and Technology, Bucharest, Romania*), Amalia Stefaniu, Gabriela Stanciu, Magdalena-Rodica Bujduveanu, Alina-Giorgiana Brotea, Ovidiu-Teodor Matica, Eleonora-Mihaela Ungureanu

Chemically modified electrodes based on azulenyphenyloxazolones

17:40 to 18:00

**Fred Lisdat** (*Biosystems Technology, Technical University Wildau, Wildau, Germany*), Conrad Kallabis, Peter Beyerlein

Magnesium ions interference in voltammetric dopamine detection – solutions for reliable concentration analysis by machine learning tools

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## Symposium 4 Bioelectrochemistry - diversity and focus

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**Room: 518C**

Chaired by David P. Hickey, Keisei Sowa

14:00 to 14:40 Keynote

**Akihiro Okamoto** (*Research Center for Macromolecules and Biomaterials, National Institute for Materials Science, Tsukuba, Japan*)

Electrochemically Decoding Life: A New Glimpse into Enzyme Dynamics in an Intact Cell

14:40 to 15:00

**Luma Lopes** (*Chemistry, University of Manitoba, Winnipeg, Canada*), Luma Lopes, Michael Zarychta, Muhammad Hayat, Angela Jiang, Danyel Ramirez, Frank Schweizer, Ayush Kumar, Sabine Kuss

Electrochemical quantification of antibiotic retention in bacteria: advances towards the voltametric detection of antibiotic resistance

15:00 to 15:20

**Rihab Gharbi** (*Chemical Engineering, McGill University, Montreal, Canada*), Sasha Omanovic, Sabahudin Hrapovic, Emmanuel Nwanebu, Boris Tartakovsky

The Influence of Transition Metals on the Carbon Dioxide Conversion in a Microbial Electrosynthesis Cell

16:00 to 16:20

Coffee Break

16:20 to 16:40 Invited

**Alessandro Porchetta** (*Department of Sciences and Chemical Technologies, University of Rome Tor Vergata, Rome, Italy*), Andrea Idili, Alejandro Chamorro

Using DNA-Based Scaffolds and Aptamers for Electrochemical Determination of Clinically-Relevant Antibody

16:40 to 17:00 Invited

**Sebastien Cote** (*Physics, Universite de Montreal, Montreal, Canada*), Minh-Dat Nguyen, Philippe Dauphin-Ducharme

Unraveling Molecular Interactions in Aptamer-Based Electrochemical Biosensors

17:00 to 17:20

**Zhe She** (*Department of Chemistry, Queen's University, Kingston, Canada*)

Investigating Immunoproteins Interactions on Surfaces Towards Electrochemical Biosensing

17:20 to 17:40

**Sanela Martic** (*Forensic Science, Material Science, Trent University, Peterborough, Canada*)

Intrinsically Disordered Proteins on Gold Surfaces

17:40 to 18:00 Invited

**Damien Arrigan** (*School of Molecular and Life Sciences, Curtin University, Perth, Australia*), Hum B. Lamichhane, Evelyn Innes

Assessing the protein interactions of 'forever chemicals' using ion-transfer electrochemistry

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## Symposium 5a Electrochemistry of advanced batteries: Fundamentals, progress, and challenges

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**Room: 519A**

Chaired by Minah Lee

14:00 to 14:20 Invited

**Michael Metzger** (*Department of Physics and Atmospheric Science, Dalhousie University, Halifax, Canada*), Kate Leslie, Assylzat Aishova, Jessie Harlow, Divya Rathore, Kenneth Tuul, Jeffin James Abrahm

Long-lifetime LMFP/Graphite Cells Enabled by Advanced Electrolytes

14:20 to 14:40

**Ievgen Obraztsov** (*Czech Advanced Technology and Research Institute (CATRIN), Palacký University Olomouc, Olomouc, Czech Republic*), Rostislav Langer, Jean G.A. Ruthes, Volker Presser, Michal Otyepka, Radek Zbořil, Aristides Bakandritsos

Superior Lithium-ion Storage via Supramolecular Organization of an Organic Carboxylic Salt

14:40 to 15:00

**Fu-Ming Wang** (*Graduate Institute of Applied Science and Technology, National Taiwan University of Science and Technology, Taipei, Taiwan*)

Investigations of An Organic Catalyst to Ni-rich Cathode Materials: Effects on Deteriorated, Cathode Electrolyte Interphase, and Chemical Crossover

15:00 to 15:20

**Angela Mai** (*Chemistry, University of Manitoba, Winnipeg, Canada*), Christian Kuss

Aqueous Polypyrrole:Carboxymethyl Cellulose Conducting Binder for Graphite Electrodes in Lithium-Ion Batteries

15:30 to 16:00

**Special Session**



16:00 to 16:20

Coffee Break

16:20 to 16:40

**Wei-Ren Liu** (*Department of Chemical Engineering, Chung Yuan Christian University, Taotuan, Taiwan*)

Silicon/hard Carbon Composites Derived from Phenolic Resin as Anode Materials for Lithium-ion Batteries

16:40 to 17:00

**J. Michael Sieffert** (*Chemistry, McGill University, Montreal, Canada*), Eric McCalla

Improving Li ion anodes through systematic doping of Titanium Niobate

17:00 to 17:20

**Song-Zhu Kure-Chu** (*Dept. of Materials Function and Design, Nagoya Institute of technology, Nagoya, Japan*), Kohya Matsuhira, Peng Wang, Jiacheng Liu, Yoko Sakurai, Takahsi Matsubara, Noriaki Kurita, Takehiko Hihara

Optimizing the Nanostructures of TiO<sub>2</sub>-TiN/MoO<sub>2</sub>-MoO<sub>3</sub>-Mo<sub>2</sub>N Composite Films on Ti for LIB Anodes with Enhanced Performance

17:20 to 17:40

**Guillaume Lamblin** (*Material research and Technology department, Luxembourg Institute of Science and Technology, Belvaux, Luxembourg*), Julien Barbe, Anthony Valero, Emanuele Barborini, Guillaume Lamblin

Fabrication of Copper/Nanocarbons composites materials for Li-ion Batteries advanced anodic current collectors

17:40 to 18:00 Invited

**Riccardo Ruffo** (*Materials Science, University of Milano Bicocca, Milano, Italy*), Irene Ostroman, Chiara Ferrara, Stefano Marchionna, Antonio Gentile, Nicholas Vallana

Highly Reversible Nanocomposite Electrodes for Alkaline Ion Batteries Obtained by Oxidation of MAX Phases

18:00 to 18:20

**ChanJoo Park** (*Department of Mechanical Engineering, Gachon University, Seongnam-si, Korea*)

New Pouch Cell Design Optimized for Electric Vehicle Load Variability

18:20 to 18:40

**Youbean Lee** (*Department of Mechanical Engineering, Gachon University, Seongnam-si, Korea*)

Regeneration of the Surface Structure of Ni-rich Layered Cathode by Lithium-ion Relocation Effect from Electroosmosis Technology

## Symposium 5b Electrochemistry of advanced batteries: Fundamentals, progress, and challenges

**Room: 519B**

Chaired by *Victoria G. Rocha*

14:00 to 14:20

**Mousumi Dey** (*Mechanical and materials engineering, University of Turku, Turku, Finland*)

[Automated Screening of Redox-Active Metal Complexes for Flow Batteries Using Pipetting Robot](#)

14:20 to 14:40

**Jonas Hereijgers** (*Applied Electrochemistry & Catalysis, University of Antwerp, Antwerp, Belgium*),

Renée De Wolf, Raphaël Delogne, Luis Fernando Arenas Martinez

[Accelerated degradation testing to assess the performance and durability of redox flow batteries](#)

14:40 to 15:00

**Vahid Abbasi** (*Mechanical & Materials Engineering, University of Turku, Turku, Finland*), Vahid Abbasi, Pekka Peljo

[Boosting the Cell Voltage in Biphasic Flow Batteries Using Galvani Potential Difference](#)

15:00 to 15:20

**Gimena Marin Tajadura** (*Dept. of Chemistry, University of Burgos, Burgos, Spain*), Virginia Ruiz, Edgar Ventosa

[On the Role of Solid Booster Confinement in the External Reservoir for High Performance Redox Mediated Flow Batteries](#)

15:30 to 16:00 **Special Session in room 519A** (Symposium 5a)

16:00 to 16:20 Coffee Break

16:20 to 16:40

**Coumba Fall** (*Hérault, Institut Charles Gerhardt Montpellier (ICGM), Montpellier, France*), Pierre Louis Taberna, Patrice Simon, Frederic Favier, Steven Le Vot

[Investigating the Influence of Aryl Diazonium Modification on Graphite Felt for the Improvement of Redox Flow Batteries](#)

16:40 to 17:00

**Hannah Burnett** (*Chemistry, The University of Manchester, Manchester, United Kingdom*), Hannah O. Wood, Paola Carbone, Amr Elgendy, Andinet Ejigu, Robert A. W. Dryfe

[Making Hydrophobic Quinones Hydrophilic: Electrochemical Studies of Anthraquinone in Aqueous Solution](#)

17:00 to 17:20

**Anja Lenzer** (*Helmholtz Institute Ulm, Karlsruhe Institute of Technology, Ulm, Germany*), Jakob Asenbauer, Kai Shi, Tobias Eisenmann, Dominic Bresser

[Alkali Perylene-Tetra-Carboxylates as Electrode Materials for Organic Batteries – Fundamental Insights and First Steps Towards Practically Meaningful Cells](#)

17:20 to 17:40

**Sabrina Trano** (*Department of Applied Science and Technology, Politecnico di Torino, Torino, Italy*), Daniele Mantione, Gabriele Lingua, Marco Armandi, Carlotta Francia, David Mecerreyes, Federico Bella

[Facing the Bigger K-Ion Challenge in Potassium Organic Batteries](#)

## Symposium 6 Fast processes/Power electrochemical energy storage systems

**Room: 520A**

Chaired by *Ouassim Ghodbane, Rebecka Kost*

14:00 to 14:40 Keynote

**Pedro Gomez-Romero** (*NEO-Energy, ICN2, Barcelona, Spain*)

From Hybrid Nanomaterials to Macrodevices for Fast Energy Storage

14:40 to 15:00

**Patricia Bassil** (*Hérault, Institut Charles Gerhardt Montpellier, France*), Steven Le Vot, Frédéric Favier

Restacking 2D-Electroactive Materials to Engineer Hybrid Composites for Supercapacitors

15:00 to 15:20

**Zhi Liang Dong** (*Mechanical and Materials Engineering, University of Western Ontario, London, Canada*), Tsun-Kong Sham, Yang Zhao

High-Performance Solid-State Na-S Batteries Achieved via Cation and Anion Tuned Sulfide-based Solid-State Electrolyte

15:30 to 16:00 **Special Session**

16:00 to 16:20 Coffee Break

16:20 to 16:40 Invited

**Hiroto Nishihara** (*Advanced Institute for Materials Research, Tohoku University, Sendai, Japan*)

Customized 3D Graphene for Fast and Durable Energy Storage

16:40 to 17:00

**Andrea Inclan Acevedo** (*Novel Energy-Oriented Materials, Institut Català De Nanociència I Nanotecnologia, Barcelona, Spain*), Adrian Crespo, Riccardo Argurio, Leandro Nicolas Bengoa, Nieves Casañ-Pastor, Pedro Gómez-Romero, Andrea Inclan

Synthesis and characterization of hybrid materials based on Keggin Polyoxometalate fixed on carbon as oxygen reduction reaction electrocatalysts in near neutral aqueous media

17:00 to 17:20

**Rebecka Kost** (*Institute for Technical and Environmental Chemistry (ITUC), Friedrich Schiller University, Jena, Germany*), Fabian Alexander Kreth, Andrea Balducci

Post-mortem Gas Chromatography-Mass Spectrometry Analysis on Aging Processes in Supercapacitors

17:20 to 17:40

**Enzhong Jin** (*Dept. of Mechanical & Materials Engineering, University of Western Ontario, London, Canada*), Yang Zhao

Rational Design of Artificial Interface for Stabilizing Alkali Metal Anode Via Atomic and Molecular Layer Deposition

17:40 to 18:00

**Miguel Granados-Moreno** (*Prototyping: Metal-ion Capacitors, CIC energiGUNE, Vitoria-Gasteiz, Spain*), María Arnaiz, Juan Luis Gómez-Urbano, Andrea Balducci, Eider Goikolea, Jon Ajuria

No-SEI-forming electrolytes enabled by  $\text{Li}_2\text{C}_4\text{O}_4$  acting concurrently as pre-lithiation and film forming additive

## Symposium 7a Electrocatalysis: Understanding electrochemical processes at the atomic level for industrial-scale systems

Room: 520B

Chaired by *Christophe Coutanceau, Daniel Scherson*

14:00 to 14:20 Invited

**Laetitia Dubau** (*LEPMI - CNRS, Université Grenoble Alpes, Grenoble, France*), Keyla Teixeira Santos, Luz Zavala, Kavita Kumar, Vincent Martin, Frederic Maillard, Laetitia Oliviero

[Optimizing the Hydrogen Evolution Activity and Stability of MoS<sub>2</sub>/C](#)

14:20 to 14:40

**Ashraf Abdel Haleem** (*Advanced Chemical Energy Research Center, Yokohama National University, Yokohama, Japan*), Ashraf Abdel Haleem, Kensaku Nagasawa, Yoshiyuki Kuroda, Yoshinori Nishiki, Akihiro Kato, Yun Bao, Takuto Araki, Shigenori Mitsushima

[Harmonizing Alkaline Water Electrolyzers with Renewables: Reverse Current Challenges and a Relevant Accelerated Durability Test](#)

14:40 to 15:00

**Luc Lajaunie** (*Department of Inorganic Chemistry, University of Cadiz, Spain*), JJ Quintana Gonzalez, AJ Medina Olivera, R Sun, R Manzorro, C Pardanaud, AB Hungría, L Cubillana-Aguilera, JM Palacios-Santander, JC Hernandez Garrido

[Defect Engineering in 2D-Based Core@Shell Nanostructures for Hydrogen Evolution Reaction: Comparative Study of Au@MoS<sub>2</sub> and Au@Mo\(W\)S<sub>2</sub> Systems](#)

15:00 to 15:20

**Jihyeon Park** (*Department of Chemical Engineering, McMaster University, Hamilton, Canada*), Eric Liu, Shayan Angizi, Ahmed Abdellah, Ecem Kirici

[Ir-coated TiO<sub>2</sub> Nanoparticles for Oxygen Evolution Reaction in Acidic Media](#)

16:00 to 16:20

Coffee Break

16:20 to 16:40 Invited

**Christophe Coutanceau** (*IC2MP, Coutanceau, Professor, POITIERS, France*), Koffi Bouho, Thibault Rafäideen, teko W. Napporn

[CO-tolerant electrocatalysts for the HOR in acidic media](#)

16:40 to 17:00

**Daniel Scherson** (*Chemistry, Case Western Reserve University, Cleveland, USA*)

[The Electrostatic Stimulation of Adsorbed Carbon Monoxide Oxidation on Pt in Aqueous Acidic Electrolytes](#)

17:00 to 17:20

**Enrique Herrero** (*Instituto de Electroquímica, Universidad de Alicante, Alicante, Spain*), Pepe Jordá-Faus, Rosa M. Arán-Ais, Rubén Rizo

[On the Effect of the OH Adsorption Behavior of OH in the ORR](#)

17:20 to 17:40

**Ryo Kurihara** (*RCSEC, Graduate School of Engineering Science, Osaka University, Toyonaka, Japan*),  
Kaito Nagita, Keitaro Ohashi, Yoshiharu Mukouyama, Takashi Harada, Shuji Nakanishi, Kazuhide Kamiya

Carbon Monoxide Reduction Reaction to Produce Multicarbon Products in Acidic Electrolytes  
Using Gas Diffusion Electrode Loaded with Copper Nanoparticles

17:40 to 18:00

**Ana C. Tavares** (*Centre Énergie Matériaux Télécommunications, Institut National de la Recherche Scientifique, Varennes, Canada*), Diwakar Kashyap, Cybelle O. Soares, Daniel Guay, Guy Denuault

Investigating Hydrazine Oxidation on Au and Pt Surfaces Using Transient Amperometry

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## Symposium 7b Electrocatalysis: Understanding electrochemical processes at the atomic level for industrial-scale systems

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**Room: 520C**

Chaired by Nagahiro Hoshi, Carlo Santoro

14:00 to 14:20 Invited

**Nagahiro Hoshi** (*Graduate School of Engineering, Chiba University, Chiba, Japan*), Masashi Nakamura,  
Takuro Kamei

Enhancement of the Activity of the Oxygen Reduction Reaction on the High Index Planes of Pt<sub>3</sub>Co  
Electrodes with Melamine

14:20 to 14:40

**Julia Buschermöhle** (*Institute of Engineering Thermodynamics, German Aerospace Center (DLR), Oldenburg, Germany*), Julia Müller-Hülstede, Henrike Schmies, Dana Schonvogel, Peter Wagner, Michael Wark

High-performance MOF-based M-M-N-C catalysts for the ORR in HT-PEM fuel cells

14:40 to 15:00

**Na Tian** (*Chemistry department, Xiamen University, Xiamen, China*)

P-Doping Strategy Increasing the Stability of PtCo Nanoparticles for the Oxygen Reduction Reaction

15:00 to 15:20

**Masatsugu Morimitsu** (*Department of Environmental Systems Science, Doshisha University, Kyotanabe, Japan*)

Reduction in Overpotential of Oxygen Reactions by Increasing Exchange Current Density of Bi-Ru  
Based Pyrochlore Oxide

16:00 to 16:20

Coffee Break

16:20 to 17:00 **Zhaowu Tian Prize for Energy Electrochemistry**

**Carlo Santoro** (*Department of Materials Science, University of Milano-Bicocca, Milan, Italy*)

Oxygen Reduction Reaction: designing electrocatalysts moving from neutral to alkaline electrolytes

17:00 to 17:20

**Anna Omelchuk** (*Institut des Sciences Chimiques de Rennes, UMR 6226, Université de Rennes, Rennes, France*),  
Auguste Tetenoire, Mikael Kepenekian, Arnaud Fihey, Corinne Lagrost, Yann Leroux

Oxygen Reduction Reaction electrocatalysis enhanced by functionalized plasmonic Gold Nanorods

17:20 to 17:40

**Zhiqin Liang** (*School of Physics Science and Engineering, Beijing Jiaotong University, Beijing, China*)

The Effect of Buffer Electrolyte on Proton-Coupled Electron Transfer Kinetics in Electrochemical Hydrogenation Reactions

17:40 to 18:00

**Alexander Bagger** (*Department of Physics, Technical University of Denmark, Lyngby, Denmark*), Amy Wuttke

Predicting Electrochemical Urea Synthesis

MONDAY PM

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## Symposium 8 Corrosion and surface modifications

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**Room: 520D**

Chaired by Samantha Gateman, James Noel

14:00 to 14:20 Invited

**James Noel** (*Chemistry, The University of Western Ontario, London, Canada*), Xuejie Li, Xinran Pan,  
Thalia Standish, Fraser Filice, Dmitrij Zagidulin, Sina Matin, Mehran Behazin

Measuring and Modeling the Galvanic Corrosion of Copper-Coated Carbon Steel

14:20 to 14:40

**Shaghayegh Shoghi** (*Chemistry, University of Western Ontario, London, Canada*), Elham Salehi Alaei,  
Mehran Behazin, James J. Noël

Investigating Corrosion of Oxide-covered Copper in an Aqueous Thiosulfate Solution

14:40 to 15:00

**Ghazal Shafiee** (*Chemistry, Western University, London, Canada*), Jeffrey Henderson, Mehran Behazin,  
Peter Keech, Samantha Gateman

Investigating the Impact of Cathodic Cleaning on Copper Corrosion

15:00 to 15:20

**Saviour Umoren** (*Interdisciplinary Research Center for Advanced Materials, King Fahd University of  
Petroleum & Minerals, Dhahran, Saudi Arabia*)

Synergistic Effect of Polyethylene Oxide-b-Polypropylene Oxide Copolymer and Potassium Iodide  
on Copper Corrosion Inhibition in HCl Solution

15:30 to 16:00

**Special Session**

16:00 to 16:20

Coffee Break

16:20 to 16:40

**Xin Li** (*School of Chemistry and Chemical Engineering, Harbin Institute of Technology, Harbin, China*),  
Yaqiang Li, Ruopeng Li, Maozhong An, Peixia Yang, Jinqiu Zhang

High-flat and Stable Leveler Tetrazolium Blue Chloride in The Electroplated Copper Filling of Through Holes for Printed Circuit Boards

16:40 to 17:00

**Qunjie Xu** (*College of Chemical and Environmental Engineering, Qunjie Xu, professor, Shanghai University of Electric Power, Shanghai, China*), Tao Zhang

Research on New High-end, Environmentally Friendly, and Efficient Leveling Agent for Electroplated Copper

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## Symposium 9 Machine learning in electrochemical materials science: Progress, challenges and opportunities

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Room: 518B

Chaired by Mikhail Zheludkevich

14:00 to 14:20 Invited

**Hideki Katayama** (*Research Center for Structural Materials, National Institute for Materials Science, 1-2-1 Sengen, Tsukuba, Japan*)

Development of Corrosion Risk Prediction Model of Steel Materials from Environmental Data Using Machine Learning

14:20 to 14:40

**Mikhail Zheludkevich** (*Institute of Surface Science, Helmholtz-Zentrum Hereon, Geesthacht, Germany*),  
Christian Feiler, Xuejiao Li, Bahram Vaghefinazari, Tim Würger, Sviatlana Lamaka

New efficient corrosion inhibitors discovered via data-driven techniques

14:40 to 15:00

**Chia-Yu Chang** (*Department of Chemical Engineering, National Taiwan University of Science and Technology, Taipei, Taiwan*), Bing Joe Hwang, Wei-Nien Su

Utilizing an Electrochemically Created Template and Cationic Substitution to Convert Copper Phthalocyanine into High-loading Single-atom Catalysts

15:00 to 15:20

**Baptiste Py** (*Department of Mechanical and Aerospace Engineering, The Hong Kong University of Science and Technology, Hong Kong, China*), Francesco Ciucci

Optimized Deconvolution of the Distribution of Relaxation Times with Finite Gaussian Processes

16:00 to 16:20

Coffee Break

## Symposium 10a Sustainability and green electrochemical science and technology

**Room: 520E**

Chaired by *Drew Higgins, Esther Santos*

14:00 to 14:20

**Joudi Dabboussi** (*Institut des Sciences Chimiques de Rennes, Univ. of Rennes, France*), Muriel Matheron, Gabriel Loget  
**Solar-Driven H<sub>2</sub> Production with Urea Oxidation**

14:20 to 14:40

**Wei-Sheng Liao** (*Graduate Institute of Applied Science and Technology, National Taiwan University of Science and Technology, Taipei, Taiwan*), Bing-Joe Hwang, Wei-Nien Su, Meng-Che Tsai  
**Platinum Single-Atom on Defective and Highly- conductive Layered MXene for Enhanced Electrocatalytic Hydrogen Production**

14:40 to 15:00

**Tess Seip** (*Mechanical and Industrial Engineering, Univ. of Toronto, Canada*), Ahmed M. Hasan, Harsharaj B. Parmar, Lijun Zhu, Spencer Lytle, Jian Wang, Adam P. Hitchcock, Nima Shaigan, Marius Dinu, Khalid Fatih, Aimy Bazylak  
**Elucidating catalyst morphology changes with electrochemical conditioning in polymer electrolyte membrane water electrolyzers**

15:00 to 15:20

**Shawn Gouws** (*Department of Chemistry, Nelson Mandela University, Gqeberha, South Africa*)  
**Characterization of OER catalysts for green hydrogen production via PEM water electrolytes**

16:00 to 16:20 Coffee Break

16:20 to 16:40

**Pooria Hadikhani** (*Institute of Applied Materials-Electrochemical Technologies, Karlsruhe Institute of Technology, Karlsruhe, Germany*)  
**Numerical Simulation of Bubble-Induced Overpotentials in Membrane-less Water Electrolyzers**

16:40 to 17:00

**Jasneet Kaur** (*Physics and Engineering, Brock University, St. Catharines, Canada*), Matthew Schweinbenz  
**Nano-Engineered Ion Conducting Membranes for Clean Energy Systems**

17:00 to 17:20

**Sai Praneeth Thota** (*Département de chimie, biochimie et physique, Université du Québec à Trois-Rivières, Trois-Rivières, Canada*), Samaneh Shahgaldi  
**Synthesis and Characterization of Lignocellulosic Carbon for Development of Microporous Layer in Proton Exchange Membrane Fuel Cells**

17:20 to 17:40

**Kokilavani Shanmugasundaram** (*Energy and material science, INRS-EMT, Varennes, Canada*), Gurpreet S. Selopal, Lei Jin, Federico Rosei  
**Surface engineering of environment-friendly Cu-doped ZnInSe<sub>2</sub> Quantum dots for photoelectrochemical hydrogen production**

17:40 to 18:00

**Esther Santos** (*R&D, APRIA SYSTEMS SL, ASTILLERO, Spain*), Axel Arruti, Pedro Gómez  
**Hybrid Reactor for Solar CO<sub>2</sub> and N<sub>2</sub> Conversion Coupled to Wastewater Treatment**



## Symposium 11 Energy electrochemical technology/electrosynthesis and industrial processes

**Room: 522**

Chaired by Edward Roberts

14:00 to 14:40 Keynote

**Erik Kjeang** (School of Mechatronic Systems Engineering, Simon Fraser University, Surrey, Canada),  
Mohammad Shojayian, Elaheh Hantoosh Zadeh

Cathode Catalyst Durability in Fuel Cells

14:40 to 15:00 Invited

**Isabella Nicotera** (Chemistry and Chemical Technologies, Università della Calabria, Rende (CS), Italy),  
Cataldo Simari, Mohamed Habib Ur Rehman, Irene Gatto, Carmelo Lo Vecchio, Vincenzo Baglio

Design and Development of New Nanocomposite Polymer Electrolyte Membranes for Fuel Cells and Electrolyzers

15:00 to 15:20

**Patrick Fortin** (Sustainable Energy Technology, SINTEF, Trondheim, Norway), Magdalena Müller, Sara Andrenacci,  
Luis Colmenares-Rausseo, Marius Sandru, Eugenia Sandru, Stefan Chisca, Mihail Barboiu, Sanaa Daakour, Ion Grosu,  
Niculina Hadade

Cationic Covalent Organic Frameworks as Anion Exchange Membranes for Electrochemical Energy Applications

15:30 to 16:00 **Special Session**

16:00 to 16:20 Coffee Break

16:20 to 16:40

**Franklin Egemole** (Chemistry, Simon Fraser University, Burnaby, Canada), Ana Laura Biancolli, Steven Holdcroft

Reinforced Sulfo-Phenylated Polyphenylene Membranes for Proton Exchange Membrane Water Electrolysis

16:40 to 17:00

**Sara Cavaliere** (ICGM, University of Montpellier, Montpellier, France), Rodrigo Schneider, Marta Zaton,  
Deborah Jones, Jacques Rozière

Active Nanofiber Reinforcements for Performing and Durable Fuel Cell Membranes

17:00 to 17:20

**Marina Bauer** (Department of Chemistry, Simon Fraser University, Burnaby, Canada)

Synthesis and Characterisation of Sulfo-Phenylated Polyphenylenes for Fluorine-Free Membranes in Energy Conversion Devices

17:20 to 17:40

**Binyu Chen** (Chemistry, Simon Fraser University, Burnaby, Canada), Alessandra Menandro, Qiliang Wei

The Impact of Pre-exchanging on Anion-Exchange Membrane for Water Electrolysis & Fuel Cell Applications

17:40 to 18:00

**Adrian Hartert** (Electrochemical Interface Engineering, Helmholtz-Institute Erlangen-Nürnberg for Renewable Energy, Erlangen, Germany), Alvaro Seijas Da Silva, Simon Thiele, Anna T.S. Freiberg

Revisiting the Role and Effect of Anion-Exchange Ionomer on Electrode Performance in AEMWE

## Symposium 12 Molecular platforms and electrochemistry for a sustainable society

Room: 524A

Chaired by *Serena Arnaboldi, Olivier Buriez*

14:00 to 14:20 Invited

**Serena Arnaboldi** (*Chemistry, University of Milan, Milano, Italy*), Sara Grecchi, Tiziana Benincori, Roberto Cirilli, Gerardo Salinas, Alexander Kuhn

Wireless detection and separation of chiral analytes

14:20 to 14:40

**Malinee Niamlaem** (*Department of Chemistry, University of Milan, Milan, Italy*), Sara Grecchi, Roberto Cirilli, Tiziana Benincori, Serena Arnaboldi

Halloysite Nanotubes in Electrochemical Enantioselective Discrimination

14:40 to 15:00

**Massimo Marcaccio** (*Dept. Chemistry "G. Ciamician", University of Bologna, Bologna, Italy*), Massimo Marcaccio, Lorenzo Ripani, Davide Gramigni, Lawrence T. Scott, Marina A. Petrukhhina, Toru Amaya, Francesco Paolucci

Carbon Nanostructures from the Electrochemical Reactivity of Polyaromatic Hydrocarbons

15:30 to 16:00

Special Session

16:00 to 16:20

Coffee Break

16:20 to 16:40 Invited

**Kevin Moeller** (*Chemistry, Washington University in St. Louis, St. Louis, USA*)

Electroorganic Synthesis and the Construction of Point-of-Care Diagnostics.

16:40 to 17:00

**Thomas Pichon** (*LCBM - CEA Grenoble, Grenoble, France*), Julien Pérard, Christine Cavazza, Alan Le Goff

Bio-Hybrid system for the Water-Gas Shift reaction: Electrochemical reaction between a CO oxidation enzyme and a HER catalyst

17:00 to 17:20

**Guillaume Longatte** (*Institut des Sciences Moléculaires, Université de Bordeaux, Pessac, France*), Frédéric Lemaître, Manon Guille-Collignon, Olivier Buriez, Labbé Eric

Electrochemical Behavior of Quinones Classically Used for Bioenergetical Applications: Considerations and Insights about the Anodic Side

17:20 to 17:40

**Natalie LeSage** (*Chemistry, University of British Columbia, Vancouver, Canada*), David Wilkinson, Dan Bizzotto, Jason Tai Hong Kwan, Manou Davies

Peptide adsorption study to enable electro-enzymatic CO<sub>2</sub> reduction

17:40 to 18:00

**Yan B. Vogel** (*Department of Chemical Engineering, Delft University of Technology, Delft, Netherlands*), Le Nhan Pham, Maarten Stam, Reinout F. Ubbink, Michelle L. Coote, Arjan J. Houtepen

Solvation Shifts the Band-Edge Position of Colloidal Quantum Dots by nearly 1 eV

## Symposium 15 Advances in methods for in-situ and operando study of electrochemical interfaces and systems

Room: 524C

Chaired by Jakub Drnec

14:00 to 14:20 Invited

**Hang Ren** (*Department of Chemistry, The University of Texas at Austin, Austin, USA*), C. Hyun Ryu

[Bridging the Gap: Mapping Local Activity and Selectivity in Electrocatalysis using a Hybrid SECM-SECCM Probe](#)

14:20 to 14:40

**Christoph Griesser** (*Dept of Physical Chemistry, University of Innsbruck, Austria*), Toni Moser, Julia Kunze-Liebhäuser

[Elucidating the surface structure and chemistry of gold in situ: A combined XPS and STM approach](#)

14:40 to 15:00

**Jun Cheng** (*Chemistry, Xiamen University, Xiamen, China*)

[In situ probing oxide-water interfaces by combining EC-STM and MLMD](#)

15:00 to 15:20

**Jean-François Lemineur** (*Chemistry, Université Paris Cité, Paris, France*), Zhu Zhang, Louis Godeffroy, Marine Cheng, Sanli Faez, Frédéric Kanoufi

[Optical Microscopy for Imaging Hydrogen Storage at the Nanoscale](#)

16:00 to 16:20 Coffee Break

16:20 to 16:40 Invited

**Robert Hillman** (*School of Chemistry, University of Leicester, Leicester, United Kingdom*), Nicholas Ross, Olivia Vessey, Karl Ryder, Xiao Su, Anaira Roman Santiago, Shao Wei Tsai, Hanyu Wang, Jim Browning

[Neutron reflectivity spatial profiling of anion exchanging electroactive polymer films for water remediation](#)

16:40 to 17:00

**Ayman El-Zoka** (*Materials Engineering, Imperial College London, London, United Kingdom*)

[In situ Characterization of Iodide-Gold Interaction in Nanoconfinement using Cryo-Atom Probe Tomography](#)

17:00 to 17:20

**Victor Vanpeene** (*DEHT, CEA-LITEN, Grenoble, France*), Olga Stamati, Cyril Guilloud, Remi Tucoulou, Benjamin Holliger, Marion Chandesris, Sandrine Lyonard, Julie Villanova

[Going Towards Operando X-Ray Nano-Tomography, the Challenges](#)

17:20 to 17:40

**Tien Ching Ma** (*Helmholtz Institute Erlangen-Nürnberg for Renewable Energy, Forschungszentrum Jülich GmbH, Erlangen, Germany*), Andreas Hutzler, Boris Bensmann, Richard Hanke-Rauschenbach, Simon Thiele

[Influencing Water Electrolysis Performance by Modifying the Complex Interface between Transport and Catalyst Layer](#)

17:40 to 18:00

**Meijing Wang** (*Chemical Engineering, Polytechnique Montreal, Montreal, Canada*)

[Investigating Ionic Injection/Ejection during Doping/Dedoping Processes in Electropolymerized Organic Electrochemical Transistors](#)

## Symposium 16 General Session

Room: 524B

Chaired by Raphaële Clément, Jean Lessard

14:00 to 14:20 **ISE Prize for General Electrochemical Materials Science**

**Raphaële Clément** (Materials, University of California Santa Barbara, Santa Barbara, USA), Emily Foley, Hanna Porter, Vincent Wu, Tianyu Li, Erick Lawrence, Raynald Giovine

Designing Co- and Ni-Free Cathode Materials for Li- and Na-ion Batteries

14:20 to 14:40

**Antonella Badia** (Chemistry, Université de Montréal, Montréal, Canada), Ons Hmam, Christophe Guérin, Félix Côté-Dubuc

The Redox-Triggered Ion-Pairing Association of Ionic Amphiphiles to Electroactive Monolayers

14:40 to 15:00

**Gabriela Malyszko** (Department of Functional Materials Engineering, Gdansk University of Technology, Gdansk, Poland), Gabriela Malyszko, Piotr Jasinski, Sylwia Pawlowska

New composite material based on hydrogel and combined conductive fillers for energy storage applications

15:00 to 15:20

**Morongwa Emmanuel Ramoroka** (Chemistry, University of Cape Town, Cape Town, South Africa), Emmanuel Iwuoha, Samantha Douman

Dendritic-co-Polymers as Donor Materials for Organic Photovoltaic Cells

16:00 to 16:20

Coffee Break

16:20 to 16:40

**Tanja Kallio** (Department of Chemistry and Materials Science, Aalto University, Espoo 02150, Finland), Farhan Ali, Eeva-Leena Rautama, Jani Sainio, Hua Jiang, Simo Huotari

CeO<sub>x</sub>-decorated Pd nanoparticles on single walled carbon nanotubes for alkaline Hydrogen Oxidation Reaction

16:40 to 17:00

**Marc Tesch** (Electrochemistry Group, Max Planck Institute for Chemical Energy Conversion, Mülheim an der Ruhr, Germany), Sebastian Neugebauer, Praveen Narangoda, Sabita Bhandari, Ioannis Spanos, Robert Schlögl, Anna Mechler

On the Reproducibility of Rotating Disc Electrode Experiments in the Evaluation of Powder Catalysts for the Oxygen Evolution Reaction

17:00 to 17:20

**Safa Chaaben** (Centre Énergie Matériaux Télécommunications, Institut National de la Recherche Scientifique, Varennes, Canada), Yuting Lei, Benjamin Diby Ossoinon, Emanuele Orgiu

Electrical properties of graphene oxide obtained by electrochemical exfoliation and functionalized with 4-aminobenzoic acid

17:20 to 17:40

**Wallans dos Santos** (*Pharmacy, Universidade Federal dos Vales do Jequitinhonha e Mucuri, DIAMANTINA, Brazil*), Larissa Melo, Lucas de Faria, Luciano Arantes, Diego Alves, Rodrigo Munoz, Eduardo Richter

Selective Screening of NBOHs, NBOMes, and LSD in forensic samples using an innovative 3D-Printed Electrochemical Double Cell

17:40 to 18:00

**Oshin Misquitta** (*Institute of Frontier Materials (IFM), Deakin University, Melbourne, Australia*), Miaosi Li, Chathurika Abeyrathne, Rosanne Guijt, Sally McArthur, Saimon M. Silva, George Greene

A study on the electrochemical behavior of unprocessed biological fluids.

# Tuesday 20 August 2024 - Morning

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## Plenary lecture

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**Room: 710**

*Chaired by Steen Schougaard*

08:15 to 09:15

**Kisuk Kang** (*Department of Materials Science and Engineering, Research Institute of Advanced Materials (RIAM), Seoul, Korea*)

Oxygen-redox chemistry in layered transition metal oxides for advanced lithium-ion battery cathode materials

TUESDAY AM

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## Symposium 1 The electroanalytical journey from the fundamental electrochemical concept to the analytical application

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**Room: 518A**

*Chaired by Agata Michalska, Lukasz Poltorak*

09:30 to 10:10 Keynote

**Philippe Bühlmann** (*Department of Chemistry, University of Minnesota, Minneapolis, USA*), Celeste R. Rousseau, Emily E. A. Robinson, Mahmoud Abdelwahab Fathy Sayed

Controlling the Phase Boundary Potential at the Interface of Ionophore-Doped Sensing Membranes and Carbon Solid Contacts

10:10 to 10:30

**Christopher Brett** (*Department of Chemistry, University of Coimbra, Coimbra, Portugal*), Joseany Almeida, Rafael Buoro

Ternary deep eutectic solvents as a novel approach for enhancing polymer modified electrochemical sensors

10:30 to 10:50

Coffee Break

10:50 to 11:10

**Laurent Bouffier** (*ISM, Univ. Bordeaux, Talence, France*), Dodzi Zigah, Neso Sojic, Stéphane Arbault, Alexander Kuhn, Guobao Xu, Anne de poulpiquet

Combining Bipolar Electrochemistry with Rotating Electrodes: Concepts, Applications and Fun!

11:10 to 11:30

**Oforbuike Egbe** (*Chemistry, Memorial University of Newfoundland, St. John's, Canada*), Bradley Morrissey, Nikita Harvey, Lindsay Cahill, Celine Schneider, Jane Stockmann

Single Entity Electrochemical Detection of Ionosome at a Micro Water/alkylphosphonium Ionic Liquid Interface

11:30 to 11:50

**Christa Brosseau** (*Chemistry, Saint Mary's University, Dartmouth, Canada*), Shruti Bindsri, Maddison Eisnor, Sumayyah Chotoye

Electrochemical Surface-Enhanced Raman Spectroscopy (EC-SERS) for Bioanalytical Sensing

11:50 to 12:10

**Miaosi Li** (*R&D, Universal Biosensors, Rowville, Australia*)

Commercial scale production of electrochemical biosensors

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## Symposium 3 Improving health monitoring and pollutant detection using electrochemical sensors

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Room: 518B

Chaired by Bhavik Patel

09:30 to 10:10 Keynote

**Elizabeth von Hauff** (*Electrical Engineering, Fraunhofer FEP / TU Dresden, Dresden, Germany*)

Coating technologies and interfacial analytics for next generation energy conversion and storage devices

10:10 to 10:30

**Jing Fang Tan** (*Department of Health, Medical and Applied Sciences, Central Queensland University, Rockhampton, Australia*), Shaneel Chandra, Amie Anastasi

Development of Electrochemical Dissolved Inorganic Nitrogen Sensors for Smart Water Monitoring

10:30 to 10:50 Coffee Break

10:50 to 11:10

**Safeer Ahmed** (*Chemistry, Quaid-i-Azam University, Islamabad, Pakistan*), Javaria Idrees

Voltammetric Sensing of Inorganic Mercury ( $\text{Hg}^{2+}$ ) on Ag and Ag-Cu Modified Glassy Carbon Electrode

11:10 to 11:30

**Yaser Greish** (*Chemistry, United Arab Emirates University, Al Ain, United Arab Emirates*), May Mohamed, Fathy Hassan

Synthesis and characterization of Au@ZIF-8 and Au@ZIF-L hybrid nanostructures for the electrochemical sensing of Serotonin

11:30 to 11:50

**Ahmad Al Shboul** (*Electrical Engineering, École de technologie supérieure (ÉTS), Montreal, Canada*)

Non-invasive Breath Analysis using Wearable Sensors for Healthcare

11:50 to 12:10

**Xinzin Wen** (*Research Center for Macromolecules and Biomaterials, National Institute for Materials Science, Tsukuba, Japan*)

Membrane Vesicles Enhance Electric Conduction within *Porphyromonas gingivalis* Biofilm

12:10 to 12:30

**Nazneen Meethal** (*Chemistry, McMaster, Hamilton, Canada*), Peter Kruse

Developing Covalent Organic Framework (COF)-based Chemiresistive Water Quality Sensors

## Symposium 4 Bioelectrochemistry - diversity and focus

Room: 518C

Chaired by Nicolas Plumeré, Alessandro Porchetta

09:30 to 10:10 Keynote

**Kevin Plaxco** (*BioEngineering, University of California, Santa Barbara, Santa Barbara, USA*)

[Recent Advances in In Vivo Molecular Measurements](#)

10:10 to 10:30

**Nicolas Fontaine** (*Chemistry, Université de Sherbrooke, Sherbrooke, Canada*), Arielle Dauphin, Miriam Gaida, Rosalie Lapointe, Philippe Dauphin Ducharme

[Correlating the Analytical Performances of DNA-based Interfaces Through a Combined Electrochemical-Surface Plasmon Resonance Approach](#)

10:30 to 10:50

Coffee Break

10:50 to 11:10 Invited

**Kiana Aran** (*Bioengineering and School of Medicine, University of California San Diego, La Jolla, USA*)

[Integrating Biology and Technology: Unleashing the Power of Graphene Field Effect Transistors](#)

11:10 to 11:30

**Shane O'Neill** (*School of Chemistry, University College Dublin, Dublin, Ireland*), Robert P. Johnson

[Surface modification of Quartz Nanopores for the detection of pathogenic DNA Klebsiella pneumoniae.](#)

11:30 to 11:50

**Iaria Palchetti** (*Department of Chemistry, University of Florence, Florence, Italy*), Patrick S. Sfragano, Serena Laschi, Elisabetta Orsillo, Lorenzo Quadrini, Serena Pillozzi

[Microfluidic Procedures for the Electrochemical Biosensing of isothermally-amplified DNA](#)

11:50 to 12:10

**Dan Bizzotto** (*Chemistry, UBC, Vancouver, Canada*)

[EIS analysis of DNA SAM modified gold electrodes](#)

12:10 to 12:30

**Adrian Grzedowski** (*Chemistry, The University of British Columbia, Vancouver, Canada*), Geyang Zhou, Amita Mahey, Rachel Fernandez, Dan Bizzotto

[Using DNA Nano-Cubes Scaffolds as FRET Based Multimodal DNA Biosensor](#)



## Symposium 5a Electrochemistry of advanced batteries: Fundamentals, progress, and challenges

Room: 519A

Chaired by Alexandre Ponrouch

09:30 to 10:10 Keynote

**Shinichi Komaba** (*Department of Applied Chemistry, Tokyo University of Science, Tokyo, Japan*),  
Daisuke Igarashi, Takafumi Hirayama, Eun Jeong Kim, Ryoichi Tatara, Shinichi Komaba

Electrochemistry of Rubidium: A-GIC and  $A_xRhO_2$  (A = Li, Na, K, Rb)

10:10 to 10:30

**Marzieh Abdolhosseini** (*Chemistry, McGill, Montreal, Canada*), Shipeng Jia, Eric McCalla

A systematic exploration of the benefits of Ni substitution in Na-Fe-Mn-O cathodes

10:30 to 10:50

Coffee Break

10:50 to 11:10

**Lukasz Kondracki** (*Electrochemistry Laboratory, Paul Scherrer Institute, Villigen, Switzerland*), Julian Stropp,  
Samuel Steiner, Dominik Wierzbicki, Anna Wach, Sigita Trabesinger

$O_2$ -Release-Stabilized Stacking Faults in Co-free Materials for Na-ion Batteries

11:10 to 11:30

**Sungmin Na** (*Department of Mechanical Engineering, Gachon University, Seongnam, Korea*)

Optimizing Sodium-Ion Batteries with P2/O3 Simultaneous Structures: Mg Doping Without  
Controlling Na Content

11:30 to 11:50

**Yu Chun Huang** (*National Taiwan University of Science and Technology, Graduate Institute of Applied Science  
and Technology, Taipei, Taiwan*), Wei-Nien Su, Bing Joe Hwang

Development of the Hybrid Lithium/Sodium-ion Batteries using  $LiVPO_4F$  as the Cathode Material

11:50 to 12:10

**Parham Pirayesh** (*Mechanical and Materials Engineering, The University of Western Ontario, London,  
Canada*)

Hybrid Artificial SEI Layer with Tuned Organic-inorganic Ratios for High-performance Na Metal  
Anodes

12:10 to 12:30

**Kie Hankins** (*Institute For Advanced Materials, Karlsruhe Institute of Technology, Karlsruhe, Germany*),  
Miftahussurur Hamidi Putra, Janika Wagner-Henke, Axel Gross, Ulrike Krewer

Electrochemically-based Kinetic Monte Carlo model for the study of SEI Formation and Properties  
in Na-ion Batteries

## Symposium 5b Electrochemistry of advanced batteries: Fundamentals, progress, and challenges

Room: 519B

Chaired by *Renaud Bouchet*

09:30 to 09:50

**Yanyu Wang** (*Department of Chemistry, University of Montreal, Montreal, Canada*), Dominic Rochefort

Enabling Self-standing and flexible Organic Ionic Plastic Crystal/Polymer Composite Electrolyte for Solid-state Lithium Batteries by Solution Casting Strategy

09:50 to 10:10

**Mohana Priya Dammu Babu** (*Department of Chemistry, Indian Institute of Technology Madras, Chennai, India*), Sahana B Moodakare, Raman Vedarajan, Kothandaraman Ramanujam

A Self-standing Quasi-gel-based polymer electrolyte for Solid-State Lithium/Lithium-ion Batteries

10:10 to 10:30

**Rak Hyeon Choi** (*Chemistry, Korea Advanced Institute of science and technology, Dajeon, Korea*), Hye Ryung Byon

Thin single-ion solid-state-electrolyte film using covalent organic frameworks for lithium-ion cells

10:30 to 10:50

Coffee Break

10:50 to 11:10

**Junjie Niu** (*Department of Materials Science and Engineering, University of Wisconsin-Milwaukee, Milwaukee, USA*)

A COF modified reliable lithium metal as anode electrode

11:10 to 11:30

**Katrin Geng** (*Helmholtz Institute Ulm, Karlsruhe Institute of Technology, Ulm, Germany*), Bryce Tappan, Yang Shao-Horn, Stefano Passerini, Dominic Bresser

Exchange current density determination for lithium-metal batteries with PEO-based electrolytes

11:30 to 11:50

**Boluwatife Igbaroola** (*Stockage et Transformation Électrochimiques de l'Énergie, Institut des Matériaux Jean Rouxel de Nantes (IMN), Nantes, France*), Yassine Eddahani, Luke O' Dell, Patrick Howlett, Maria Forsyth, Nicolas Dupré, Jean Le Bideau

Lithium Diffusion-Efficient Ionogels as Polymer Solid Electrolytes for Next-Gen Lithium-Ion Batteries.

11:50 to 12:10

**Daniel Sharon** (*Institute of Chemistry, The Hebrew University in Jerusalem, Jerusalem, Israel*), Idan Bar-lev, Keren Shvartzman, Netta Bruchiel-Spanier

Investigating Lithium Metal Electrodeposition Efficiency and Cycle Life in PEO-Based Solid-State Electrolytes

12:10 to 12:30

**David Lepage** (*Centre d'excellence en électrification des transports et en, Hydro-Québec, Varennes, Canada*), Ki Seok Koh, Xuewei Zhang, Sergey Krachkovskiy, Jean-Christophe Daigle, Chisu Kim

Organic ionic plastic crystal as scalable dual layer high energy lithium metal battery

## Symposium 6 Fast processes/Power electrochemical energy storage systems

**Room: 520A**

Chaired by Olivier Crosnier, Krzysztof Fic

09:30 to 10:10 Keynote

**Ge Li** (*Mechanical Engineering, University of Alberta, Edmonton, Canada*)

Electrolyte Engineering in Battery Technology

10:10 to 10:30

**Daniel Bélanger** (*Chimie, UQAM, Montréal, Canada*), Mona Amiri

Acetate-based water-in-salt electrolytes

10:30 to 10:50

Coffee Break

10:50 to 11:10

**Rossukon Jommongkol** (*Energy Science and Engineering, Vidyasirimedhi Institute of Science (VISTEC), Rayong, Thailand*), Daniel Crespy, Olivier Fontaine

pH-Responsive Polymer as a New Stable Solid Electrolyte Interphase for Water-in-Salt Battery

11:10 to 11:30

**Lucile Carlier** (*AMV-CPB2, Ampère, Guyancourt, France*), Mathieu Frégnaux, Baptiste Salomez, Sylvie Gurgeon, Christian Hans Krause, Naoki Matsuoka, Lucie Leveau, Stéphane Laruelle

Impact on the SEI Composition of Acetonitrile and LiFSI Substitution in LiPF<sub>6</sub>-Based Carbonate Electrolytes

11:30 to 11:50

**Marie-Eve Yvenat** (*Department of Electricity and Hydrogen for Transport, French Atomic Energy and Alternative Energy Agency (CEA), Grenoble, France*), Eric Mayousse, Benoit Chavillon

Solid Electrolyte Interphase in hybrid potassium-ion capacitor – A strategic materials-free and low-cost technology for high power applications

11:50 to 12:10 Invited

**Krzysztof Fic** (*Institute of Chemistry and Technical Electrochemistry, Poznan University of Technology, Poznan, Poland*), Paulina Bujewska, Przemyslaw Galek

Crowd-induced Behaviors of Ions at the Electrode/Electrolyte Interface Monitored by Electrochemical Dilatometry

12:10 to 12:30

**Emmanuel Pameté** (*Energy Materials, INM – Leibniz Institute for New Materials, Saarbrücken, Germany*), Emmanuel Pameté, Jean G. A. Ruthes, Marius Hermesdorf, Anna Seltmann, Delvina J. Tarimo, Desirée Leistenschneider, Volker Presser

Dry Electrode Processing for Supercapacitors with Enhanced Electrode-Electrolyte Compatibility and Reduced E-factor

## Symposium 7a Electrocatalysis: Understanding electrochemical processes at the atomic level for industrial-scale systems

Room: 520B

Chaired by Karl Mayrhofer, Iryna Zenyuk

09:30 to 10:10 Keynote

**Katsuyoshi Kakinuma** (*Hydrogen and Fuel Cell Nanomaterials Center, University of Yamanashi, Kofu, Japan*)

Development of new network structured oxide catalysts toward the application of proton or anion-exchange membrane water electrolysis

10:10 to 10:30

**Iryna Zenyuk** (*Chemical and Biomolecular Engineering, University of California Irvine, Irvine, USA*),  
Obeen Kwon, Nadia Tolouei, Hung-Ming Chang, Clifton Wang, Florian Chabot, Camille Roiron,  
Plamen Atanassov, Yu Morimoto

Understanding Structure to Property Relations for IrO<sub>x</sub> Amorphous and Crystalline Catalysts for PEM Water Electrolyzers

10:30 to 10:50

Coffee Break

10:50 to 11:10 Invited

**Karl Mayrhofer** (*Helmholtz-Institute Erlangen-Nürnberg, Forschungszentrum Jülich, Erlangen, Germany*),  
Serhiy Cherevko, Dominik Dworschak, Andreas Hutzler, Simon Thiele

The importance of understanding degradation mechanism for effective and efficient scale-up of electrocatalysts

11:10 to 11:30

**Frédéric Maillard** (*LEPMI, CNRS, Saint Martin d'Hères, France*), Delphine Clauss, Vincent Martin,  
Marta Mirolo, Jakub Drnec, Raphaël Chattot, Laetitia Dubau

Two-Dimensional Iridium Aerogel-Like Structures for Efficient and Stable Oxygen Evolution Reaction Activity

11:30 to 11:50

**Björn Wickman** (*Department of Physics, Chalmers University of Technology, Göteborg, Sweden*),  
Linnéa Strandberg, Victor Shokhen, Magnus Skoglundh, Björn Wickman

Identical Location Electron Microscopy to Follow Electrode Degradation in PEM Fuel Cells

11:50 to 12:10

**Raphaël Chattot** (*Chemistry of Materials, Nanostructures, Materials for Energy, Charles Gerhardt Institute of Montpellier, Montpellier, France*), Amir Gasmi, Meryem Ennaji, Morgane Stodel, Carlos Campos-Roldán,  
Jakub Drnec, Deborah Jones

Surface-Distorted PtNi/C Superstructure as Proton Exchange Membrane Fuel Cell Cathode Catalyst

12:10 to 12:30

**Kaido Tammeveski** (*Institute of Chemistry, University of Tartu, Tartu, Estonia*), Jaana Lilloja, Marek Mooste,  
Elo Kibena-Pöldsepp, Ave Sarapuu, Arvo Kikas, Vambola Kisand, Maike Käärik, Jekaterina Kozlova, Alexey Treshchalov,  
Pääm Paiste, Jaan Aruväli, Anastasiia Konovalova, Andrea Zitolo, Jaan Leis, Aile Tamm, Steven Holdcroft

Transition metal and nitrogen-doped carbon nanocomposites as anion-exchange membrane fuel cell cathode electrocatalysts

## Symposium 7b Electrocatalysis: Understanding electrochemical processes at the atomic level for industrial-scale systems

Room: 520C

Chaired by Drew Higgins, Aaron Marshall

09:30 to 09:50 Invited

**Aaron Marshall** (*Department of Chemical and Process Engineering, University of Canterbury, Christchurch, New Zealand*)

From Bulk Copper to Gas-Diffusion Electrodes for CO<sub>2</sub> Reduction

09:50 to 10:10

**Drew Higgins** (*Chemical Engineering, McMaster University, Hamilton, Canada*)

Understanding Electrochemical CO<sub>2</sub> Conversion Catalysts Through In Situ Electron Microscopy

10:10 to 10:30

**Mohamed S. E. Houache** (*Clean Energy Innovation Research Centre, National Research Council Canada, Ottawa, Canada*), Yawar Farhan, Tatiana Morin Caamano, Elena Baranova, Yaser Abu-Lebdeh

Exploring the reaction mechanisms of Dinitrile-Based Electrolyte Solutions for CO<sub>2</sub> Electroreduction

10:30 to 10:50

Coffee Break

10:50 to 11:10

**Alicia Gomis-Berenguer** (*Institute of Electrochemistry, University of Alicante, Alicante, Spain*), Sebastian Torres, Alicia Gomis-Berenguer, Jose Solla-Gullón, Conchi O. Ania, Jesus Iniesta

Operating Conditions for the Reduction of CO<sub>2</sub> on Nanoporous Carbon Electrodes

11:10 to 11:30

**Amanda Garcia** (*HIMS, University of Amsterdam, Amsterdam, Netherlands*), Didjay Bruggeman, Gadi Rothenberg

Unravelling Mechanisms and Proton Shuttling of Amines in Integrated Electrochemical CO<sub>2</sub> Capture and Utilization

11:30 to 11:50

**Maria Gomez-Mingot** (*Laboratoire de Chimie des Processus Biologiques, Collège de France, Paris, France*), Elli Vichou, Marc Fontecave, Carlos M. Sánchez-Sánchez

Molecular Surface Electrode Modification for Tuning Electrocatalytic CO<sub>2</sub> Conversion

11:50 to 12:10

**Rafaël Vos** (*Leiden Institute of Chemistry, Leiden University, Leiden, Netherlands*), Marc Koper

How Temperature and Pressure Affect the Selectivity of the Electrochemical Reduction of CO<sub>2</sub>

12:10 to 12:30

**Asato Inoue** (*RCSEC, Graduate School of Engineering Science, Osaka University, Toyonaka, Japan*), Sora Nakasone, Ryotaro Yoshida, Takashi Harada, Shuji Nakanishi, Kazuhide Kamiya

CO<sub>2</sub> Reduction Reactions to Multi-Carbon Organics at a Current Density of over 2 A/cm<sup>2</sup> by a [mu]m-scale Design of the Three-Phase Interface

## Symposium 8 Corrosion and surface modifications

Room: 520D

Chaired by Masayuki Itagaki, Sandrine Jakab-Costenoble

09:30 to 10:10 Keynote

**Masayuki Itagaki** (*Department of Pure and Applied Chemistry, Tokyo University of Science, Noda, Japan*)

Atmospheric Corrosion Sensors Fabricated by Screen-printing

10:10 to 10:30

**Zahra Jiryaesharahi** (*Electrochemical and Surface Engineering Research Group, Vrije Universiteit Brussel, Brussels, Belgium*), Zahra Jiryaesharahi, Negin Madelat, Herman Terryn, Tom Hauffman, Annick Hubin

Exploring the Influence of Electrolyte Concentration on the Diffusion Kinetics of Water and Ions Through Organic Coatings Using ORP-EIS

10:30 to 10:50

Coffee Break

10:50 to 11:10

**Emmanouil Ramoutsakis** (*S2CM, Université Paris-Saclay, CEA, Gif-sur-Yvette, France*), Emmanouil Ramoutsakis, Christian Bataillon, Edmond Blanchard, Céline Cabet, Catherine Guerre

Passivation study of AISI 316L under PWR PW conditions via Electrochemical Noise (EN) and Electrochemical Impedance Spectroscopy (EIS)

11:10 to 11:30

**Sandrine Jakab-Costenoble** (*DES/ISEC/DMRC/SPTC/LDCI, CEA Marcoule, Bagnols sur Ceze, France*), Léonie Lacombe, Florent Lebreton, Sarah Baghdadi, Nathalie Gruet

Corrosion Studies on Austenitic Stainless Steels under Nuclear Fuel Reprocessing Conditions

11:30 to 11:50

**Johanna-Maria Frenck** (*Institute of Materials Engineering, University of Kassel, Kassel, Germany*), Thomas Niendorf

Failure mechanism and corrosion protection for an iron-based shape memory alloy

11:50 to 12:10

**Mohammad Maroufkhani** (*Mechanical Engineering, ETS university, Montreal, Canada*), Mohammad Jahazi, Alireza Khodabandeh, Iulian Radu

Optimizing Pitting Corrosion Resistance of AISI 316L Stainless Steel Welds: The Role of Oxygen Content in the Protective Gases

12:10 to 12:30

**Van Anh T. Nguyen** (*Chemical Engineering, University of Toronto, Toronto, Canada*), Van Anh T. Nguyen, Roger C. Newman, Nicholas J. Laycock

A Pitting Model to Investigate the Evolution of Pit Morphology in Various Chloride Environment

## Symposium 10a Sustainability and green electrochemical science and technology

Room: 520E

Chaired by Juliana Brito, Carlos A Martínez-Huitle, Christiane de Arruda Rodrigues

### 09:30 to 10:10 ISE-Elsevier Prize for Green Electrochemistry

**Juliana Brito** (Analytical Chemistry, Physical Chemistry and Inorganic, UNESP, Araraquara, Brazil), Vinicius José Carvalho, Marina Medina, Magno Costa, Sirlon Francisco Blaskiewicz, Marcos Antônio Andrade Jr, Krishnan Rajeshwar, Lucia Helena Mascaro

Towards Ambient Ammonia Synthesis: A Potential Alternative to the Haber-Bosch Process

### 10:10 to 10:30

**Christian Pichler** (Institute of Applied Physics, TU Wien, Vienna, Austria), Richard Buchinger, Markus Valtiner

Bio-electrochemical conversion of plastic waste into value-added chemical products

### 10:30 to 10:50

Coffee Break

### 10:50 to 11:10

**Sebastian Beil** (Department of Electrosynthesis, Max-Planck-Institute for Chemical Energy Conversion, Mühlheim, Germany)

Electroorganic Oxidation of Carbohydrates, Alcohols, and Olefins

### 11:10 to 11:30

**Philippe Vernoux** (IRCELYON, CNRS, VILLEURBANNE, France), N. Grimaldos-Osorio, E. Louarn, C. Lorentz, F. Sordello, M. Passananti, O. Boyron, M. Taam, V. Monteil, J. Gonzalez Cobos, A. Caravaca

Recycling of polyethylene glycol aqueous solutions in a proton exchange membrane electrolyser

### 11:30 to 11:50

**Guorui Gao** (Department of Chemical Engineering, Queen's University, Kingston, Canada), Behnam Nourmohammadi Khiarak, Cornelius Obasanjo, Hung Lai, Cao-Thang Dinh

Stable Hydrocarbon Production from Bicarbonate Solutions

### 11:50 to 12:10

**Siebe De Ley** (Faculty of Applied Engineering, University of Antwerp, Antwerp, Belgium), Kevin Van Daele, Jonas Hereijgers, Tom Breugelmans

Exploring Electrochemical Hydrogen Looping for Efficient Oceanic Carbon Capture

### 12:10 to 12:30

**Fitri Nur Indah Sari** (Chemical Engineering, National Cheng Kung University, Tainan, Taiwan), Tzu-Hsuan Wang, Tzu-Hao Kuan, Ming-Chieh Hsieh, Chia-Yu Lin

Stable and Selective C<sub>2</sub> Product Generation from the Electrochemical CO<sub>2</sub> Reduction over Copper Iodide Chemically-Modified Gas-Diffusion Electrode

## Symposium 10b Sustainability and green electrochemical science and technology

**Room: 520F**

Chaired by *Carlos Alberto Martínez-Huitle, Edward Roberts*

09:30 to 09:50

**Youri Gendel** (*Civil and Environmental Engineering, Technion-Israel Institute of Technology, Haifa, Israel*), Erez Ruck, Shivamurthy Yashas, Hailu Demissie, Nitzan Rainer

[Hydrogen-Powered Processes for Metal Recycling from Secondary Sources and Water Treatment](#)

09:50 to 10:10

**Christine Cachet-Vivier** (*Institut de Chimie et des Matériaux Paris-Est, UPEC-CNRS, Thiais, France*), Wissem Hammoutene, Kadiatou Bah, Encarnacion Torralba, Marcos Oliveira, Sabrina Guérin, Sam Azimi, Vincent Rocher, Stéphane Bastide

[Electrochemical oxidation of ammonia from wastewater sludge dewatering effluent](#)

10:10 to 10:30 *Invited*

**Siegfried R. Waldvogel** (*Department of Electrosynthesis, Max-Planck-Institute for Chemical Energy Conversion, Mülheim, Germany*)

[Electrochemically Generated Platform Oxidizers for Electrifying Synthesis](#)

10:30 to 10:50

Coffee Break

10:50 to 11:10

**Tyra Lewis** (*Forensic Sci., Environmental and Life Sci., Material Sci., Trent University, Peterborough, Canada*), Tyra Lewis, Stephanie Gao, Sanela Martić

[Electrochemical vs Chemical Transformations of Triclosan](#)

11:10 to 11:30

**Aida Farsi** (*Mechanical & Industrial Engineering, University of Toronto, Canada*), Vasant Batta, Aimy Bazylak

[Heterogeneous Gas Diffusion Electrode Deformation in Anion Exchange Membrane CO<sub>2</sub> Electrolyzers](#)

11:30 to 11:50

**Ángela Moratalla** (*Department of Chemical Engineering, University of Castilla-La Mancha, Ciudad Real, Spain*), Sergio E. Correia, Engracia Lacasa, Pablo Cañizares, Manuel A. Rodrigo, Cristina Sáez

[Cost Comparison of Electrochemical Advanced Oxidation Processes for Hospital Effluent Treatment](#)

11:50 to 12:10

**Edward Roberts** (*Dept. of Chemical & Petroleum Engineering, University of Calgary, Canada*), Nigel Brown

[Scale-up and Commercialization of Water Treatment by Adsorption with Electrochemical Regeneration](#)

12:10 to 12:30

**Carlos Alberto Martínez-Huitle** (*Institute of Chemistry, Federal University of Rio Grande do Norte, Natal, Brazil*), Aline Maria Sales Solano, José Eudes Lima Santos, Leticia G. A. Costa, Leticia Milena Gomes da Silva, Jussara Câmara Cardozo, Marco A. Quiroz Alfaro, Aruzza Araújo, Amanda Duarte Gondim, Livia Nunes Cavalcanti, Elisama Vieira dos Santos, Carlos A Martínez-Huitle

[Solar-Driven Upgrading of Nitrobenzene by Coupled Hydrogenation Using Electrochemically Generated Green H<sub>2</sub>](#)



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## Symposium 11 Energy electrochemical technology/electrosynthesis and industrial processes

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**Room: 522**

Chaired by *Fabio Dionigi*

09:30 to 10:10 Keynote

**Peter Strasser** (*Department of Chemistry, Technische Universität Berlin, Berlin, Germany*)

Electrocatalytic CO<sub>2</sub> valorization to e-fuels and e-chemicals

10:10 to 10:30 Invited

**Damien Voiry** (*DM3, Institut Européen des Membranes, CNRS, Montpellier, France*)

Catalyst Design for Efficient Electro-conversion of CO<sub>2</sub> into Multicarbon Products

10:30 to 10:50

Coffee Break

10:50 to 11:10

**Maxwell Goldman** (*Material Science Division, Lawrence Livermore National Laboratory, Livermore, USA*),  
Aditya Prajapati, Peter Agbo, Tobias Kistler, Mohammed Abouremeleh, Chris Hahn

Selectivity Tuning Syngas Ratios via Electrochemical Reduction of CO<sub>2</sub> for Downstream Processes.

11:10 to 11:30

**Zhong XIE** (*National Research Council of Canada, National Research Council of Canada, Vancouver, Canada*),  
Harrison Mars, Peter Mardle, Wei Qu, Guangyu Wang

Edge-Type Reference Electrode Design to Monitor Membrane/Cell Stability and Decouple Anode (OER) and Cathode (CO<sub>2</sub>R) Kinetics for CO<sub>2</sub> Electrolyzer(CO<sub>2</sub>E)

11:30 to 11:50

**Hengameh Farahmandazad** (*Process and Energy, Delft University of Technology, Delft, Netherlands*),  
Alex Grütter, Shilong Fu, Earl Goetheer, Wiebren de Jong

Integrating CO<sub>2</sub> Capture with Electrochemical CO<sub>2</sub> Reduction to CO in Amine-based Solvent

11:50 to 12:10

**Katherine Lawrence** (*Process & Energy Department, TU Delft, Delft, Netherlands*), Ruud Kortlever

Impact of Catalyst Ink Dispersion Method on Gas Diffusion Electrode Performance for Electrochemical CO<sub>2</sub> Reduction

12:10 to 12:30

**Thomas Mairegger** (*Department of Physical Chemistry, University of Innsbruck / Net Zero Emissions Labs GmbH, Innsbruck, Austria*), Alexander Beck, Julia Kunze-Liebhäuser, Philipp Stadler

Acid-based electroreduction of CO<sub>2</sub> to formic acid – Combined industrial and fundamental approach

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## Symposium 12 Molecular platforms and electrochemistry for a sustainable society

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**Room: 524A**

Chaired by *Laurent Ruhlmann, Neus Vila*

09:30 to 10:10 Keynote

**Fabien Miomandre** (*PPSM, ENS Paris Saclay, Gif sur Yvette, France*), Jean-Frédéric Audibert, Baptiste Maillot, Julie Pham, Vitor Brasiliense

[Electrofluorochromism at the monolayer scale](#)

10:10 to 10:30

**Takamasa Sagara** (*Graduate School of Engineering, Nagasaki University, Nagasaki, Japan*), Masaki Toyohara, Sae Nakai, Misato Ouchi

[Electroactive Monolayer Platforms Involving Viologen on Electrode Surfaces](#)

10:30 to 10:50

Coffee Break

10:50 to 11:10 Invited

**Laurent Ruhlmann** (*Institut de Chimie - UMR 7177, Laboratoire d'Electrochimie, Université de Strasbourg, Strasbourg, France*), Yanzi Lin, Jingjing Wang, Ning Jiang, Yiming Liang

[Redox-active Platform Based on Polyoxometalates and \(Iso\)porphyrins](#)

11:10 to 11:30

**Neus Vila** (*Chemistry, Université de Lorraine-CNRS, LCPME, Villers les Nancy, France*), Alain Walcarius

[Assessing the Influence of Confinement on the Stability of Polyoxometalates-Functionalized Surfaces: A Soft Sequential Immobilization Approach for Electrochromic Devices](#)

11:30 to 11:50

**Elie Bou Rahhal** (*Maine-Et-Loire, MOLTECH-Anjou Laboratory, Université d'Angers, Angers, France*), Marylène Dias, Christelle Gautier

[Innovative Surface Engineering for TEMPO-Mediated Electrocatalysis](#)

11:50 to 12:10

**Christina Wark** (*Chemical Engineering & Materials Science, Michigan State University, East Lansing, USA*), Christopher Saffron, Meheryar Kasad, James Jackson

[Quantum Chemical Insight into Electrochemical Upgrading of Bio-oil](#)

12:10 to 12:30

**Madalina Marina Hrubaru** (*"C.D. Nenitzescu", Romanian Academy, Bucharest, Romania*), Madalina Marina Hrubaru, Amalia Stefaniu, Alina-Alexandra Corbei, Francis Aurelian Ngounoué Kamga, Eleonora-Mihaela Ungureanu, Elena Diacu

[Electrochemistry an DFT calculation on tetrahydroacridines](#)

## Symposium 15 Advances in methods for in-situ and operando study of electrochemical interfaces and systems

Room: 524C

Chaired by Jakub Drnec

09:30 to 10:10 Keynote

**Hans-Georg Steinrueck** (*Institute for a Sustainable Hydrogen Economy (INW) & RWTH, Forschungszentrum Jülich GmbH, Jülich, Germany*)

Quantitative cross-scale understanding of electrochemical systems

10:10 to 10:30

**Christina Roth** (*Electrochemical Process Engineering, University of Bayreuth, Bayreuth, Germany*), Rameshwori Loukrakpam, Bruna Ferreira Gomes Lobo, Martin Prokop, Tomas Bystron, Elena Voloshina, Beate Paulus, Karel Bouzek

Potential of operando  $\mu$  XANES for electrocatalysis – Following  $\text{H}_3\text{PO}_3$  adsorption on Pt surfaces in HT-PEMFC

10:30 to 10:50

Coffee Break

10:50 to 11:10 Invited

**Mehtap Oezaslan** (*Technical Electrocatalysis Laboratory, TU Braunschweig, Braunschweig, Germany*)

New Fundamental Insights into Electrochemical Reactions using in situ and operando complementary Techniques

11:10 to 11:30

**Ioannis Spanos** (*Heterogeneous Reactions, Max Planck Institute for Chemical Energy Conversion, Mülheim an der Ruhr, Germany*), Kahyun Ham, Ahyoun Lim, Marc Tesch

Operando analysis for active site reconstruction and identification of OER catalysts for water electrolysis

11:30 to 11:50

**Rameshwori Loukrakpam** (*Electrochemical Process Engineering, University of Bayreuth, Bayreuth, Germany*), Bruna Ferreira Gomes, Martin Prokop, Tomas Bystron, Karel Bouzek, Christina Roth

Understanding dynamic changes on Pt surfaces using single edge fixed energy studies in operando measurements

11:50 to 12:10

**Paul Aronstein** (*XAFS Applications, easyXAFS, Renton, USA*), Zachary Lebens-Higgins, William Holden, Devon Mortensen

Simplifying Access to X-ray Absorption Spectroscopy with Laboratory-Based X-ray Spectrometers

12:10 to 12:30

**Lise Daniel** (*LITEN/DEHT, CEA, Grenoble, France*), Bouthayna Alrifai, Rémi Vincent, Marta Mirolo, Quentin Jacquet, Juliette Charbonnel, Sylvie Genies

Investigating Large Prismatic Battery Cell Performance through Synchrotron-Based Wide Angle X-Ray Analysis

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## Symposium 16 General Session

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Room: 524B

Chaired by Donal Leech, Marc Tesch

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### Workshop

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09:30 to 10:30

#### Electrochimica Acta Workshop

**Robert Hillman** (*Editor in Chief Electrochimica Acta, University of Leicester, UK*)

10:30 to 10:50

Coffee Break

10:50 to 11:10

**Wataru Sugimoto** (*Faculty of Textile Science and Technology, Shinshu University, Ueda, Japan*),  
Hiroya Iwashita, Keisuke Muramatsu

[Intercalation of Organic Cations into Layered Titanic Acid in Non-Aqueous Solvents](#)

11:10 to 11:30

**Marjan Saeidi** (*Faculty of Science, Ontario Tech University, Oshawa, Canada*), Olena V. Zenkina,  
E. Bradley Easton

[Durable and Efficient Electrochromic Devices: Click Chemistry Approach to Create Covalent Monolayers on Extended Area Indium Tin Oxide \(ITO\)](#)

11:30 to 11:50

**Tanja Vidakovic-Koch** (*Electrochemical Energy Conversion, Max Planck Institute für Dynamik komplexer technischer Systeme, Magdeburg, Germany*), Tamara Milicic, Monisha Sivanskar, Antonio Sorrentino,  
Luka Zivkovic

[Understanding Nonlinear Dynamics of Electrochemical Processes: Selectivity and Energy Efficiency](#)

11:50 to 12:10

**Zhenyu Wang** (*Department of Computational Materials Design, Max-Planck-Institut für Eisenforschung GmbH, Düsseldorf, Germany*), Mira Todorova, Christoph Freysoldt, Jörg Neugebauer

[Computing Solvation Shell Dynamics and Energetics in Electron Transfer Reactions via Molecular Dynamics Simulations](#)

12:10 to 12:30

**Guobao Xu** (*State Key Laboratory of Electroanalytical Chemistry, Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, Changchun, China*), Fengxia Wu, Jianping Lai

[Shape-controlled Synthesis of Platinum-based Nanostructures and Its Applications for Electrocatalytic Oxidation of Methanol](#)

# Tuesday 20 August 2024 - Afternoon

## Symposium 1 The electroanalytical journey from the fundamental electrochemical concept to the analytical application

Room: 518A

Chaired by Christopher Brett, Fred Lisdat, Daniel Mandler

### 14:00 to 14:40 Early Career Analytical Electrochemistry Prize of ISE Division 1

**Paolo Bollella** (Department of Chemistry, University of Bari Aldo Moro, Bari, Italy), Angelo Tricase, Verdiana Marchianò, Eleonora Macchia, Cinzia Di Franco, Luigi Gentile, Dónal Leech, Reshma Kidayaveetil, Gaetano Scamarcio, Luisa Torsi

From Wearable and Minimally Invasive to Edible Enzyme-based Amperometric Biosensors

### 14:40 to 15:00

**Peter Cambal** (Department of Analytical Chemistry, Charles University, Faculty of Science, Prague, Czech Republic), Simona Baluchová, Andrew Taylor, Luděk Míka, Martin Vondráček, Pavel Hubík, Zuzana Gedeonová, Vincent Mortet, Karolina Schwarzová-Pecková

Electrochemical and Morphological Characterization of 113-, 115- and 118-oriented Single-crystal Boron Doped Diamond Electrodes – Tailoring BDD Surfaces for Electroanalysis and (Bio)sensing

### 15:00 to 15:20

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

Intrinsically Microporous Polymer Materials in Electroanalytical Chemistry

### 15:20 to 15:40

**Chloe Miller** (School of Applied Sciences, University of Brighton, Brighton, United Kingdom), Bhavik Patel

Different Strategies to Chemically Modify 3D Printed Carbon Thermoplastic Electrodes for Detection of Choline in Urine

### 15:40 to 16:00

**Kamonwad Ngamchuea** (Chemistry, Suranaree University of Technology, Nakhon Ratchasima, Thailand)

Non-enzymatic Copper-Based Electrochemical Sensors for Creatinine Analysis

### 16:00 to 16:20

Coffee Break

### 16:20 to 16:40

**Gabriel Junquetti Mattos** (Department of Inorganic and Analytical Chemistry, University of Geneva, Geneva, Switzerland), Justine Rothen, Nikolai Tiuftiakov, Eric Bakker

Ion Transfer Imaging by TEMPO-Redox-Modulated Fluorescence of Molecular Probes in Thin Membranes

### 16:40 to 17:00

**Karolina Kwaczynski** (Faculty of Chemistry, University of Łódź, Łódź, Poland), Bartłomiej Hurny, Lukasz Poltorak

Direct Ink Writing For Electroanalytical Applications

17:00 to 17:20

**Lukasz Poltorak** (*Department of Inorganic and Analytical Chemistry, University of Łódź, Łódź, Poland*), Grzegorz Kowalski, Karolina Sobczak, Karolina Kwaczynski, Konrad Rudnicki

Application Of 3D Printing/Printer In Electroanalytical Studies

17:20 to 17:40

**Dustyn C. Weber** (*Chemistry and Biochemistry, Miami University, Oxford, USA*), Jason Rakos, Nastasija Damjanovic, Shirmir D. Branch, Cory A. Rusinek

Investigation of a Free-Standing Optically Transparent Boron-Doped Diamond Grid Electrode for Fundamental Spectroelectrochemistry

17:40 to 18:00

**Kefilwe Vanessa Mokwebo** (*Chemical Sciences, University of the Western Cape, Cape Town, South Africa*), Emmanuel Iwuoha

Boron-Doped Diamond Voltammetric Reactor-Sensor System (Bdd VRSens) for Antiretroviral Drugs Determination

TUESDAY PM

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## Symposium 3 Improving health monitoring and pollutant detection using electrochemical sensors

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**Room: 518B**

Chaired by *Silvia Cere*

14:00 to 14:40 Keynote

**Peter Kruse** (*Chemistry & Chemical Biology, McMaster University, Hamilton, Canada*)

Strategies towards Improved Selectivity of Chemiresistive Sensors for Aqueous Environments

14:40 to 15:00

**JoElen Hagler** (*Chemical Engineering, Polytechnique Montreal, Montréal, Canada*), Guillaume Ducharme, Benedicte Amilhon, Fabio Cicoira

Electrochemical Characterization of Flexible Neural Probes for Deep Brain Recording

15:00 to 15:20

**Marie Hartmann Farines** (*Department of Chemistry, Federal University of Santa Catarina (UFSC), Florianópolis, Brazil*), Marie Hartmann Farines, Eduardo Constante Martins, Luan Gabriel Baumgarten, Edson Roberto Santana, João Paulo Winiarski, Nito Angelo Debacher, Almir Spinelli, Iolanda Cruz Vieira

Non-thermal plasma activated-3D disposable electrochemical sensors for the determination of methyldopa

15:20 to 15:40

**Zoraida González** (*Materials Chemistry, Carbon Science and Technology Institute INCAR-CSIC, OVIEDO, Spain*), Lucía Quintana, Adrián Vigil, Victoria G. Rocha, Marcos Granda, Patricia Álvarez, Rosa Menéndez, Zoraida González

Graphene-based novel electrochemical sensors for detecting water pollutants of emerging concern

15:40 to 16:00

**Ricoveer Shergill** (*School of Applied sciences, University of Brighton, Brighton, United Kingdom*), Oliver Keatch, Bhavik Patel

Crafting 3D printed carbon thermoplastic electrodes using multi-material architecture approaches for drug stability monitoring

16:00 to 16:20

Coffee Break

16:20 to 17:00 Keynote

**Agueda Molinero** (*Department of Chemistry, Fundacion Universitaria San Antonio, Stockholm, Spain*),  
Maria Cuartero Botia, Francisco Baños-Costa, Isabel M. Diaz Lozano

Potentiometric nanosensors: analytical tools for ions tracking at the single cell level

17:00 to 17:20

**Bhavik Patel** (*Centre for Lifelong Health & School of Applied Sciences, University of Brighton, Brighton, United Kingdom*), Khalil Hussain, Ryan Hopkins, Ricoveer Shergill, Mark Yeoman

In vivo 3D printed anorectal probe for early detection of age-related bowel dysfunction

17:20 to 17:40

**Adria Martinez** (*School of Chemistry, University College Dublin, Belfield, Ireland*)

Surface Modification of Glassy Carbon Electrode for Ultrasensitive 2,6-DNT Detection

17:40 to 18:00

**Thangaraj ST Balamurugan** (*Faculty of Chemistry, University of Łódź, Łódź, Poland*), Pawel Stelmasczyk,  
Renata Wietecha-Posluszny, Lukasz Poltorak

In-house Fabricated 3D-printed Supports for Rapid Electroanalytical Screening of Benzodiazepine  
Date and Rape Drugs

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## Symposium 4 Bioelectrochemistry - diversity and focus

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Room: 518C

Chaired by Damien Arrigan, Renata Bilewicz

14:00 to 14:40 Keynote

**Nicolas Plumeré** (*TUM Campus Straubing, Technical University Munich, Straubing, Germany*)

Intermittency in Biohybrid Energy Conversion

14:40 to 15:00

**William Lowery** (*Chemistry, Vanderbilt University, Nashville, USA*), Kane Jennings, David Cliffl

Nanostructured Morphology Effects on the Incorporation of Photosystem I for Photobioelectrodes

15:00 to 15:20

**Omer Yehezkeli** (*Faculty of Biotechnology and Food Engineering, Technion, Haifa, Israel*)

Photo-Driven Enzymatic or Microbial Fuel Cells for the Conversion of Biomass to Electricity and  
added-value chemicals

15:20 to 15:40

**Thomas Höfer** (*Campus Straubing for Biotechnology and Sustainability, Technical University of Munich,  
Straubing, Germany*), Thomas Höfer, Joshua M. Lawrence, Laura T. Wey, Jenny Z. Zhang, Nicolas Plumeré

Investigation of the Photoelectrochemical Response of *Synechocystis* sp. PCC 6803 by combining  
Systems Biology and Electrochemical Modelling

15:40 to 16:00 Invited

**David P. Hickey** (*Department of Chemical Engineering and Materials Science, Michigan State University, Michigan, USA*)

Deciphering Mediated Bioelectrocatalysis: Computational Tools for Exploring Redox Polymer-Enzyme Interactions at Electrochemical Interfaces

16:00 to 16:20

Coffee Break

16:20 to 16:40 Invited

**Isao Shitanda** (*Department of Pure and Applied Chemistry, Tokyo University of Science, Noda, Japan*)

Printable wearable biosensor and biofuel cell using porous carbon

16:40 to 17:00

**Raphaël Trouillon** (*Department of Electrical Engineering, Polytechnique Montreal, Montréal, Canada*)

Paper Electrochemical Devices for Cellular Chemistry

17:00 to 17:20

**Kosuke Ino** (*Graduate School of Engineering, Tohoku University, Sendai, Japan*), Yoshinobu Utagawa, Hiroya Abe, Hitoshi Shiku

Microphysiological System Device Integrated with a Porous Membrane Electrode for Cell Analysis

17:20 to 17:40

**Juliette Pelletier** (*Biomedical engineering, Polytechnique Montréal, Montréal, Canada*), Louis-Éric Trudeau, Raphaël Trouillon

Paper Device for Electrochemical Detection of Neurotransmitters in Neuronal Cell Cultures

17:40 to 18:00

**Nastaran Khodaparastagarabad** (*Chemistry, Laval University, Québec City, Canada*), Jesse Greener, Manon Couture

Microfluidic Bioelectrochemical Flow Cell with Wall Tube Electrode Configuration for Studies of Biocatalysis

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## Symposium 5a Electrochemistry of advanced batteries: Fundamentals, progress, and challenges

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**Room: 519A**

Chaired by *Riccardo Ruffo*

14:00 to 14:20 Invited

**Alexandre Ponrouch** (*ICMAB, CSIC, Bellaterra, Spain*)

Towards Calcium Metal Anode Batteries

14:20 to 14:40

**Maryam Nojabee** (*Electrochemical Energy Storage, German Aerospace Center (DLR), Stuttgart, Germany*), Joachim Haecker, Tobias Rommel, Laurin Rademacher, Zhirong Zhao-Karger, K. Andreas Friedrich

Calcium Metal Anodes – Similarities and Differences to their Mg and Li Counterparts



14:40 to 15:00

**Benjamin Schick** (*Institute of Electrochemistry, Ulm University, Ulm, Germany*), Xu Hou, Viktor Vanoppen, Matthias Uhl, Sibylle Riedel, Zhirong Zhao-Karger, Erik J. Berg, Timo Jacob

Effect of Different Electrolyte Components on Interphase Layer Formation and its Properties at the Anode of Mg Batteries

15:00 to 15:20

**Darya Snihirova** (*Institute of Surface Science, Helmholtz-Zentrum Hereon, Geesthacht, Germany*), Linqian Wang, Min Deng, Bahram Vaghefinazari, Yulong Wu, Tim Würger, Robert Meißner, Dave Winkler, Christian Feiler, Daniel Höche, Sviatlana Lamaka, Mikhail L. Zheludkevich

Selection of High-Efficiency Electrolyte Additives for Aqueous Mg-Air Batteries Based on Mechanistic Understanding and Machine Learning Approach

15:20 to 15:40

**Eugen Zemlyanushin** (*Institute for Applied Materials - Energy Storage Systems, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen, Germany*), Annika Lykka Müller, Tetsuya Tsuda, Sonia Dsoke

Interaction of Polyvinylidene fluoride (PVdF) and Polyvinylidene chloride (PVdC) with Aluminum chloride ( $\text{AlCl}_3$ ) / 1-Ethyl-3-methylimidazole (EMImCl) ionic liquid electrolyte in Rechargeable Aluminum-Batteries (RABs)

15:40 to 16:00

**Sebastian Liebl** (*Physical Chemistry, University Innsbruck, Innsbruck, Austria*), Daniel Werner, Engelbert Portenkirchner

Small Organic Molecules as Electrode Materials for Aqueous Sodium Ion Batteries

16:00 to 16:20

Coffee Break

16:20 to 16:40

**Pempa Tshering Bhutia** (*Chemistry and Solid-State Electrochemistry, Université de Picardie Jules Verne, Amiens, France*), Sylvie Grugeon, Stéphane Laruelle, Asmae El Mejdoubi, Jean-Pierre Bertrand, Guy Marlair

Fire Behavior of Liquid Electrolytes for Na-ion batteries

16:40 to 17:00

**Navid Solati** (*Laboratoire Chimie de la Matière Condensée de Paris, Sorbonne University, Paris, France*), Christel Laberty-Robert, Sarp Kaya, Sathiya Mariyappan

Dimensional Heterostructures with Enhanced Sodium Ion Storage Capacity

17:00 to 17:20

**Ijaz Ul Mohsin** (*Institute of Applied Materials – Applied Materials Physics, Karlsruhe Institute of Technology (KIT), Eggenstein-Leopoldshafen, Germany*), Carlos Ziebert

Impact of Operating Temperature and Discharge Rate on Cyclic Aging of Commercial 18650 Sodium-Ion Cells and Influence on Safety

17:20 to 17:40

**Roberto Manuel Torresi** (*Instituto de Química, Universidade de São Paulo, São Paulo, Brazil*), Vinícius D. Silva

Optimizing Sodium-Ion Battery Performance with Additives-Free Nanofiber Electrodes

17:40 to 18:00

**Maria Rodrigues** (*Fundamental Chemistry, Institute of Chemistry - University of São Paulo, São Paulo, Brazil*), Rafael Saji, Roberto Torresi

Optimizing Positive  $\text{MnO}_2$  Electrode and Water-in-Salt Electrolyte Composition for Enhanced Performance in Sodium-ion Batteries

## Symposium 5b Electrochemistry of advanced batteries: Fundamentals, progress, and challenges

Room: 519B

Chaired by Michael Metzger

14:00 to 14:20 Invited

**Renaud Bouchet** (*LEPMI (UMR5279), Grenoble INP- Université Grenoble Alpes (G INP-UGA), Grenoble, France*), James Isaac, Léa Mangani, Didier Devaux

Effective conductivity of composite polymer/ceramic electrolytes for all-solid-state batteries

14:20 to 14:40

**Nicola Boaretto** (*CIC energiGUNE, Basque Research and Technology Alliance (BRTA), Vitoria-Gasteiz, Spain*), Leire Meabe, Simon Lindberg, Haritz Perez-Furundarena, Itziar Aldalur, Elias Lobato, Francisco Bonilla, Izaskun Combarro, Antonio Gutiérrez-Pardo, Andriy Kvasha, Marine Lechartier, Remi Vincent, Sylvie Genies, Lise Daniel, María Martínez-Ibañez

Hybrid Ceramic Polymer Electrolytes for High-Voltage Solid-State Batteries

14:40 to 15:00

**Sanja Tepavcevic** (*Materials Science Division, Argonne National Laboratory, Lemont, USA*), Michael Coughlan, Meghan Burns, Jungkuk Lee, Pallab Barai, Priya Mirmira, Chibueze Amanchukwu, Venkat Srinivasan, Yuepeng Zhang

Advancing Li-transport in Composite Polymer Electrolytes with Functionalized LLZO Nanoparticles

15:00 to 15:20

**Hippolyte Houisse** (*UET-DEA IREB Batteries, Ampère SAS, Grenoble, France*), Victor Chaudoy, Christian Carrot, Renaud Bouchet

Development of a hybrid ceramic/polymer electrolyte for all-solid-state batteries via extrusion process

15:20 to 15:40

**Senhao Wang** (*Mining and materials engineering, McGill University, Montreal, Canada*)

Garnet-based hybrid solid-state electrolytes for high-performance all-solid-state lithium-metal batteries

15:40 to 16:00

**Neubi Xavier** (*School of Chemistry and Chemical Engineering, University of Surrey, Guildford, United Kingdom*), Qiong Cai

Atomistic Modelling of the Anode-Electrolyte Interface for Zero-Excess Solid-State Batteries

16:00 to 16:20

Coffee Break

16:20 to 16:40

**Benoit Fleutot** (*CETEES, Hydro-Québec, Varennes, Canada*), Emmanuelle Garitte, Fabien Nassoy, Benjamin Cruel, Steve Duchesne, Jean-François Filion, Isabelle Filteau, Amélie Forand, Marie-Claude Girard, Karine Tremblay, Chisu Kim

All-solid-state sulfide ceramic batteries: performances and future developments through interfaces engineering and electrochemical advanced measurements

16:40 to 17:00

**Giulia Serafino** (*Materials and Chemistry (MACH), Vrije Universiteit Brussel, Ixelles, Belgium*), Raf Claessens, Benny Wouters, Fernand Gauthy, Xinhua Zhu, Annick Hubin

[Operando/in-situ XPS study of sulfide-based Solid-State Li-ion Batteries](#)

17:00 to 17:20

**Leyla Hassen Adem** (*Department of Chemical Engineering, National Taiwan University of Science and Technology, Taipei, Taiwan*)

[In Situ DRIFTS Analysis of the Evolution of Surface Species over Li<sub>6</sub>PS<sub>5</sub>Cl Solid State Electrolyte During Moisture-Induced Degradation and During Heat Treatment](#)

17:20 to 17:40

**Sixu Deng** (*Chemical and Materials Engineering, Concordia University, Montreal, Canada*)

[Development of High-Performance Inorganic Solid-State Battery Cathodes](#)

17:40 to 18:00

**Xia Li** (*Chemical and Materials Engineering, Concordia university, Montreal, Canada*)

[Development of All-Solid-State Li-ion Batteries: Cathode Interface Design](#)

18:00 to 18:20

**Mehdi Costalin** (*Chemistry, University of Montreal, Montreal, Canada*), Cedric Barcha, Steeve Rousselot, Gabrielle Foran, Paul Nicole, Arnaud Prebe, David Ayme-Perrot, Mickael Dolle

[Sand Time Behavior of Symmetric Solid-State Lithium Metal Batteries.](#)

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## Symposium 6 Fast processes/Power electrochemical energy storage systems

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**Room: 520A**

Chaired by Raunaq Bagchi, Olivier Fontaine

14:00 to 14:20 Invited

**Andrea Balducci** (*Institute for Technical Chemistry & Environmental Chemistry, Friedrich-Schiller-University Jena, Jena, Germany*), Fabian Alexander Kreth, Lukas Köps

[Ethyl isopropyl sulfone based electrolytes in high power devices](#)

14:20 to 14:40 Invited

**Zifeng Lin** (*Materials Science and Engineering, Sichuan University, Chengdu, China*)

[MXene for Electrochemical Energy Storage in Aqueous Electrolytes](#)

14:40 to 15:00

**Xuanze Wang** (*School of Energy Science and Engineering, Vidyasirimedhi Institute of Science and Technology, Rayong, Thailand*), Siraprapha Deebansok, Jie Deng, Etienne Le Calvez, Yachao Zhu, Olivier Crosnier, Thierry Brousse, Olivier Fontaine

[Artificial intelligence-powered electrochemical signal analysis](#)

15:00 to 15:20

**Malgorzata Skorupa** (*Department of Physical Chemistry and Technology of Polymers, Silesian University of Technology, Gliwice, Poland*), Ethan Cao, Zuzanna Siwy, Katarzyna Krukiewicz

Bilayer conducting polymer structures for supercapacitive applications

15:20 to 15:40

**Marc Mosqueda** (*Solid State Chemistry, Instituto de Ciencia de Materiales (ICMAB-CSIC), Bellaterra, Spain*), Cristina Flox, Leandro Bengoa, Sandro Goñi, Nieves Casañ-Pastor

Bipolar electrochemistry contribution to energy storage systems

15:40 to 16:00

**Kulika Pithaksinsakul** (*School of Energy Science and Engineering (ESE), Vidyasirimedhi Institute of Science and Technology, Rayong, Thailand*), Malinee Niamlaem, Dodzi Zigah, Olivier Fontaine

Unveiling Novel Mechanisms in Energy Storage Materials with Mimic Battery Technique

16:00 to 16:20

Coffee Break

16:20 to 16:40

**Chi-Chang Hu** (*Department of Chemical Engineering, National Tsing Hua University, Hsin-Chu city, Taiwan*), Chen-Wei Tai, Liang-Chieh Tseng

Synthesis and Characterization of Hard Carbons with Large Plateau Capacity and High-rate Capability for Lithium-ion Storage

16:40 to 17:00

**Abdulmajid Abdallah Mohamed Mirghni** (*Interdisciplinary Research Center for Hydrogen Technologies, King Fahd University of Petroleum & Minerals (KFUPM), Dhahran, Saudi Arabia*), Ncholu Manyala, Md. Abdul Aziz

Graphene-Supported Pseudocapacitive Mechanism of Co-Mn Phosphate Materials in a Hybrid Supercapacitor Device

17:00 to 17:20 Invited

**Ouassim Ghodbane** (*Physico-Chemical Analysis, National INRAP, Ariana, Tunisia*), Sabrine Baachaoui, Walid Mabrouk, Noureddine Raouafi

Enhanced performances of flexible microsupercapacitors based on laser-induced graphene

17:20 to 17:40

**Fathy Hassan** (*Chemistry, United Arab Emirates University, Al Ain, United Arab Emirates*), Ahmed El-Sir, Ahmed Greish, Hesham El-Maghraby, Abbas Khaleel, Yaser Greish

Elevated Performance in Manganese Oxide/CNT Supercapacitors through Hybrid Nanostructures

17:40 to 18:00

**Raunaq Bagchi** (*Materials Science and Engineering, University of Toronto, Toronto, Canada*), Dian Yu, Jane Y. Howe, Keryn Lian

Effect of Surface Chemistry and Structure on Redox Active-Carbon Composites

## Symposium 7a Electrocatalysis: Understanding electrochemical processes at the atomic level for industrial-scale systems

**Room: 520B**

Chaired by Petr Krtil, Pedro Sobrinho

14:00 to 14:20 Invited

**Pedro Sobrinho** (*Electrochemistry and Materials Development, Hydrogen Optimized, Collingwood, Canada*), Jihane Hankache, Edward Stuart, Andrew Stuart

[RuggedCell™ Water Electrolysis: Advancing Proven Technology to Deliver the Lowest Levelized Cost of Hydrogen](#)

14:20 to 14:40

**Dominik Dworschak** (*Helmholtz-Institute Erlangen-Nürnberg, Forschungszentrum Jülich GmbH, Erlangen, Germany*), Nico C. Röttcher, George Pätzold, Simon Thiele, Karl J.J. Mayrhofer

[Accelerated Screening of Electrocatalysts for Water Electrolysis on Catalyst Layer Level by Gradient Roll-to-roll Coating and Half-cell Testing](#)

14:40 to 15:00

**Yao Zhou** (*College of Energy, Xiamen University, Xiamen, China*), Chun-Hua Zhen, Shi-Gang Sun

[Evolution of Cationic Vacancy Defects: A Motif for Surface Restructuration of OER Precatalyst](#)

15:00 to 15:20

**Sayed M. Elrefa'i** (*Heterogeneous Reactions, Max-Planck-Institut für Chemische Energiekonversion, Mülheim an der Ruhr, Germany*)

[Ni-based OER precatalysts: employing fundamental understandings to engineer practical electrode for alkaline water electrolysis](#)

15:20 to 15:40

**Shigenori Mitsushima** (*Graduate School of Engineering Science, Yokohama National University, Yokohama, Japan*), Takuto Miwa, Ashraf Abdel Haleem, Yoshiyuki Kuroda

[Start and Stop Durability Improvement of NiCo oxide coated on Ni Anode for Alkaline Water Electrolysis](#)

15:40 to 16:00

**Katerine Antil-Martini** (*Electrochemical Reaction Engineering, AVT, RWTH Aachen University, Aachen, Germany*), Anna K. Mechler

[Electrolyte Effects on the Oxygen Evolution Reaction in Neutral and Mild-Alkaline Conditions](#)

16:00 to 16:20

Coffee Break

16:20 to 16:40 Invited

**Akiyoshi Kuzume** (*Clean Energy Research Centre, University of Yamanashi, 4-4-37 Takeda, kofu, Japan*)

[In situ Raman investigation on Ni surfaces in alkaline media](#)

16:40 to 17:00

**Miklós Márton Kovács** (*Electrocatalysis HI ERN, Forschungszentrum Jülich GmbH, Nürnberg, Germany*), Karl J. J. Mayrhofer, Dominik Dworschak

Activity and Stability Benchmarking of Electrospun Nanofiber Catalyst Materials for Oxygen Evolution Reaction: The Importance of Temperature-Controlled Synthesis

17:00 to 17:20

**Petr Krtil** (*Catalysis, J. Heyrovsky Institute of Physical Chemistry, Prague, Czech Republic*), Kaoruho Sakata, Catalina Astudillo, Roman Nebel, Katerina Minhova Macounova, Kenta Amemiya

Operando Soft X-ray Approach to Characterization of Anodic Gas Evolving Reactions

17:20 to 17:40

**Onno van der Heijden** (*Leiden Institute of Chemistry, Leiden University, Leiden, Netherlands*), Jordy Eggebeen, Hanna Trzesniowski, Nipon Deka, Maartje van Rijn, Rik Mom, Marc Koper

Li<sup>+</sup> Cations Activate NiFeOOH for Oxygen Evolution in Sodium and Potassium Hydroxide

17:40 to 18:00

**Konstantin Rücker** (*Electrochemical Energy Storage, DLR Institute of Engineering Thermodynamics, Oldenburg, Germany*), Dereje H. Taffa, Julian Lorenz, Elliot Brim, Darius Hayes, Omeshwari Bisen, Marcel Risch, Corinna Harms, Ryan M. Richards, Michael Wark

Effect of in situ metal incorporation vs. compounded bimetallic nickel-based oxides on the oxygen evolution reaction

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## Symposium 7b Electrocatalysis: Understanding electrochemical processes at the atomic level for industrial-scale systems

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Room: 520C

Chaired by Ruud Kortlever, Yutzil Segura-Ramírez

14:00 to 14:20

**Ruud Kortlever** (*Process & Energy, Faculty of Mechanical Engineering, Delft University of Technology, Delft, Netherlands*)

Electrochemical CO<sub>2</sub> Reduction in the Presence of Gaseous Sulphur Impurities

14:20 to 14:40

**Philipp Röse** (*Institute for Applied Materials-Electrochemical Technologies, Karlsruhe Institute of Technology, Karlsruhe, Germany*), Ruth Witzel, Lilli Cziesla, Niklas Oppel

Understanding CO<sub>2</sub> Reduction in Organic Electrolytes: the Role of α-Brass Catalysts and Water Content

14:40 to 15:00

**Yutzil Segura-Ramírez** (*Laboratoire Interfaces et Systèmes Electrochimiques, Sorbonne Université, Paris, France*), Maria Gómez-Mingot, Marc Fontecave, Carlos M. Sánchez-Sánchez

CO<sub>2</sub> Electroreduction from Simulated Low-Concentrated CO<sub>2</sub> Flue Gas Using Molecular Catalysts

15:00 to 15:20

**Shilong Fu** (*Process & Energy, Delft University of Technology, Delft, Netherlands*), Ming Li, Boaz Izelaar, Wiebren De Jong, Ruud Kortlever

Tuning the Textural Properties of Carbon-based Catalysts for Enhanced CO<sub>2</sub> Electrolysis

15:20 to 15:40

**Järi Van den Hoek** (*Applied Engineering, University of Antwerp, Wilrijk, Belgium*), Femi Mathew, Lieven Hintjens, Nick Daems, Daniel Choukroun, Jolien Dendooven, Tom Breugelmans

Altering the Interface Properties of ALD-deposited In<sub>2</sub>S<sub>3</sub> Thin Films for CO<sub>2</sub> Electroreduction to Formate

15:40 to 16:00

**Junyan Wang** (*Department of Physical and Environmental Science, University of Toronto Scarborough Campus, Toronto, Canada*)

Exploring Diazonium Chemistry To Generate Anchored Silver-Palladium Aerogel On Carbon Cloth via For Electrochemical Reduction of CO<sub>2</sub>

16:00 to 16:20

Coffee Break

16:20 to 16:40

**Hagen Übele** (*School of Natural Sciences, Technical University of Munich, Munich, Germany*), Moritz J. Feil, Katharina Krischer

Potential Pulsed CO<sub>2</sub> Reduction Reaction on Polycrystalline Copper Electrodes Studied with Operando Plasmonic Interface Analysis

16:40 to 17:00

**Shunquan Tan** (*Chemical Engineering, McMaster University, Hamilton, Canada*), Xiaoxuan Yang, Shayan Angizi, Meng-Nan Zhu, Wajdi Alnoush, Kholoud E. Salem, Jihyeon Park, Drew Higgins

The Role of Carbon Support Surface Area and Porosity on the Formation of Atomically Dispersed Nickel-Nitrogen-Carbon Active Sites and CO<sub>2</sub> Electroreduction Performance

17:00 to 17:20

**Joey Murphy** (*Department of Chemistry, St Francis Xavier University, Antigonish, Canada*), Aaron Mason, Kyla Macdonald, Craig Bennett, Erwan Bertin

Investigation of the Difficulties in Long-term Operation of Bismuth Nanoparticle Gas Diffusion Electrodes for CO<sub>2</sub> Reduction

17:20 to 17:40

**Zhi Ming Zhang** (*the College of Chemistry and Chemical Engineering, Xiamen University, Xiamen, China*), Zhiming zhang, Tao Wang, Zhiyou Zhou, Shigang Sun

Probing the Mechanism of Cation Enhanced CO<sub>2</sub> Reduction in Acidic Media: Water Structure Determining the Hydrogenation Kinetics

17:40 to 18:00

**Primaggio Mantovi** (*Instituto de Química, Universidade de São Paulo, São Paulo, Brazil*), Leonardo D. de Angelis, Jean Castro da Cruz, Susana I. C. Torresi, Liane M. Rossi, Roberto M. Torresi

Tuning Water Levels in Ionic Liquids to Produce C<sub>2+</sub> Molecules by Suppressing HER

## Symposium 8 Corrosion and surface modifications

Room: 520D

Chaired by Alexandre Bastos, Vincent Vivier

14:00 to 14:20 Invited

**Vincent Vivier** (*Laboratoire de Réactivité de Surface, CNRS - Sorbonne Université, Paris, France*), Yaojun Hou, Divino Salvador Ramirez Rico, Fan Sun, Kevin Ogle, Oumaïma Gharbi, Mireille Turmine

[Cantor Alloy Corrosion Studied in Acidic Environment by Local Electrochemical Techniques](#)

14:20 to 14:40

**Vikram Singh** (*Chemistry, McGill University, Montreal, Canada*), Alban Morel, Danick Gallant, Janine Mauzeroll

[Investigating Localized Corrosion on Differently Finished Aluminum Alloys using Scanning Electrochemical Microscopy](#)

14:40 to 15:00

**Sebastian A. Skaanvik** (*Chemistry, Western University, London, Canada*), Julia Petryschuk, Samantha M. Gateman, James J. Noël

[Development of Scanning Ion Conductance Microscopy for Use in Corrosion Science](#)

15:00 to 15:20

**Ricardo M. Souto** (*Department of Chemistry, Universidad de La Laguna, La Laguna, Spain*), Javier Izquierdo

[Insights into the Passivity and Dissolution of Metals using Microelectrodes and Scanning Electrochemical Techniques](#)

15:20 to 15:40

**Zahra Sharifi** (*Leiden institute of chemistry, Leiden University, Leiden, Netherlands*), Saeed Behjati, Jacques Wijenberg, Arnoud De vooy, Marc Koper

[Utilizing EQCM and EC-STM to Uncover the Mechanism of Cr\(III\)-based Oxide-Hydroxide Film Electrodeposition in an Acidic Solution](#)

15:40 to 16:00

**Aleksandra Baron-Wiechec** (*NOMATEN Centre of Excellence, National Centre for Nuclear Research, Otwock, Poland*), Guocong Lin, Bingbing Xia, Damian Kalita

[Stable Isotopes of Oxygen and Hydrogen in Surface Analysis](#)

16:00 to 16:20

Coffee Break

16:20 to 16:40

**Shamim Pourrahimi** (*Mechanical Engineering, École de technologie supérieure (ÉTS), Montreal, Canada*), Lucas A. Hof

[Enhancing Surface Finish and Corrosion Resistance of Laser Powder Bed Fusion Manufactured Ti-6Al-4V Alloy Parts through Electrochemical Polishing and Anodization Optimization](#)

16:40 to 17:00

**Alexandre Bastos** (*Materials and Ceramic Engineering, University of Aveiro, Aveiro, Portugal*)

[D simulation of the spatial distribution of chemical species associated to the corrosion of the Zn-Fe couple](#)



17:00 to 17:20

**Lis Geraldine Zschach** (*Institute of Manufacturing Science and Engineering, Technische Universität Dresden, Dresden, Germany*), Robert Baumann, Flavio Soldera, Mateusz Marzec, Marcelo Sallese, Andrés Fabian Lasagni

One-Step Laser Treatment for Enhancing the Corrosion Resistance of Aluminum: Chemical and Electrochemical Characterization

17:20 to 17:40

**Agata Kolkowska** (*Faculty of Chemistry, Silesian University of Technology, Gliwice, Poland*), Agata Kolkowska, Artur Maciej, Aleksander Olesiński, Agata Blacha-Grzechnik, Agnieszka Stolarczyk, Anita Stoppel, Sascha Balakin, Natalia Beshchasma, Maksym Pogorielov, Wojciech Simka

Incorporation of diamond nanoparticles in oxide layer on NiTi formed during PEO process

17:40 to 18:00

**Delphine Veys-Renaux** (*Institut Jean Lamour, Université de Lorraine, Nancy, France*), Ana Gasco-Owens, Mauricio Pavia, Emmanuel Rocca

Fundamental aspects of H<sub>2</sub> evolution on AAO-covered Al and alloys

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## Symposium 10a Sustainability and green electrochemical science and technology

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Room: 520E

Chaired by Jing Ding, Soliu Ganiyu

14:00 to 14:20

**Tao Peng** (*Fuel Cells, Huairou Laboratory, Beijing, China*)

Electrocatalytic Valorization of Lignocellulosic Bio-oil Aromatics to Value-added Organics at Industrial-relevant Current Densities

14:20 to 14:40

**Florian Breitschaft** (*Department Electrosynthesis, Max Planck Institute for Chemical Energy Conversion, Mülheim an der Ruhr, Germany*), Aloisio de A. Bartolomeu, Siegfried R. Waldvogel

Electrochemical Upcycling of SO<sub>2</sub> into Alkyl Alkenylsulfonates using a Multicomponent Approach

14:40 to 15:00

**Mateusz Odziomek** (*Colloids department, Max Planck Institute of Colloids and Interfaces, Potsdam, Germany*), Anastasios Orestis Grammenos, Rémi André, Markus Antonietti

N-doped Carbon Electrocatalysts for Electrochemical Hydrogenation Reactions

15:00 to 15:20

**Elisama Dos Santos** (*School of Science and Technology, Universidade Federal do Rio Grande do Norte, Natal, Brazil*), Izaías Campos Paixão, Jussara C. Cardozo, Herbert L. Oliveira, José Eudes L. Santos, Amanda D. Gondim, L. N. Cavalcanti, C. A. Martínez-Huitle, Elisama Vieira dos Santos

Integrated-hybrid approach for biomass electroreforming and carboxylic acids recovery

15:20 to 15:40

**Andrea Nataly Arias Sanchez** (*Department of Chemical Engineering, University of Castilla - La Mancha, Ciudad Real, Spain*), Rafael Granados Fernández, Justo Lobato Bajo, Manuel Andres Rodrigo Rodrigo

Direct Electro-oxidation of Gaseous Streams Polluted with VOCs using Membrane Electrodes Assembly Type Cell: A Proof of Concept

15:40 to 16:00

**Zehao Fang** (*Department of Physical & Environmental Sciences, University of Toronto, Toronto, Canada*)

Application of Rh-Pd Bimetallic aerogel for Ethanol electrooxidation

16:00 to 16:20

Coffee Break

16:20 to 16:40

**Boaz Izelaar** (*Process & Energy, Delft University of Technology, Delft, Netherlands*), Boaz Izelaar, Pranav Karanth, Nandalal Girichandran, Mark J. Weijers, Ruud W. A. Hendrikx, Fokko M. Mulder, Ruud Kortlever

The Effect of Applied Potential on the Li-mediated Nitrogen Reduction Reaction

16:40 to 17:00

**Florent Belnou** (*SRMA, CEA Paris-Saclay, Gif-sur-yvette, France*), Michel Schlegel

Reduction of uranium with additive manufactured electrodes

17:00 to 17:20

**Jonathan Ruiz-Martinez** (*Division de Ciencias Ambientales, Instituto Potosino de Investigacion Cientifica y Tecnologica, San Luis Potosi, Mexico*), Rene Rangel-Mendez

Influence of Controlled Flow on Fluoride Electroassisted Sorption onto Lanthanum Modified Activated Carbon

17:20 to 17:40

**Reza Fayaz** (*Chemical Process Engineering, University of Bremen, Bremen, Germany*), Jorg Thöming, Fabio La Mantia, Michael Baune

Electrowinning of Metals and Oxygen from Martian Regolith in Molten Salts - Impacts of Anode Materials on Reduction Efficiency

17:40 to 18:00

**Mantas Leketas** (*Department of Chemistry, University of Manchester, Manchester, United Kingdom*)

Anion effect on capacitive deionization performance

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## Symposium 10b Sustainability and green electrochemical science and technology

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**Room: 520F**

Chaired by Christine Gabardo

14:00 to 14:20 Invited

**Thomas Burdyny** (*Chemical Engineering, Delft University of Technology, Delft, Netherlands*)

Material and System Stabilization of Copper Catalysts for the Electrochemical Reduction of CO<sub>2</sub> and CO

14:20 to 14:40

**Maryam Abdinejad** (*Chemical Engineering, MIT, Cambridge, USA*), Michael Massen-Hane, Hyowon Seo

Advancing Electrochemical CO<sub>2</sub> Capture Through Novel Oxygen-insensitive Heterocyclic Quinone-based Compounds

14:40 to 15:00

**Muhammad Bilal** (*Chemical Engineering, McGill University, Montreal, Canada*), Mahdi Salehi

Navigating CO<sub>2</sub> Reduction Pathways: Insights from Interfacial Electric Field Engineering

15:00 to 15:20 Invited

**Christine Gabardo** (*Research & Development, CERT Systems Inc., Toronto, Canada*), Colin O'Brien, Michael Pepe, Abdollah Hajizadeh, Michael Pepe, Alexander Ip

Scaling of the Electrochemical CO<sub>2</sub> Reduction Reaction

16:00 to 16:20

Coffee Break

16:20 to 16:40

**Christiane de Arruda Rodrigues** (*Chemical Engineering, Federal University of São Paulo, Diadema, Brazil*), Juliana De Almeida, Ana Carolina Ribeiro Felix

Copper Metal-Organic Framework Electrochemically Supported on Nanotubular Ti-O-W Oxides for Water Treatment

16:40 to 17:00 Invited

**Anna Klinkova** (*Department of Chemistry, University of Waterloo, Waterloo, Canada*), Jury Medvedev, Nyhenflore Delva

Anode Discharging Strategies for Swing Mode Electrolyzer

17:00 to 17:20

**Karina Muñoz-Becerra** (*Facultad de Ciencias de la Salud, CIBQA, Universidad Bernardo O'Higgins, Santiago, Chile*), Gloria Flores, F. Javier Recio, Sebastián Espina, José H. Zagal, Ricardo Venegas

Exploring the Impact of Activating Agents on the ORR Catalytic Activity of Biomass-Derived Fe-N-C catalysts

17:20 to 17:40

**Adam Weber** (*Energy Conversion Group, Lawrence Berkeley National Laboratory, Berkeley, USA*)

Exploring Transport and Kinetic Tradeoffs in Anion-Exchange-Membrane-based Electrolysis

17:40 to 18:00

**Bjorn Hasa** (*Material and Research Development, Toyota Research Institute of North America, Ann Arbor, USA*)

Voltage Breakdown Analysis on PEM Water Electrolysis

## Symposium 11 Energy electrochemical technology/electrosynthesis and industrial processes

Room: 522

Chaired by Sotirios Mavrikis

14:00 to 14:40 Keynote

**Fikile Brushett** (Department of Chemical Engineering, Massachusetts Institute of Technology, Cambridge, USA), Nicholas Matteucci

Modeling Redox-Mediated Processes in Electrochemical Systems

14:40 to 15:00

**Habin Park** (Chemical and Biomolecular Engineering, Georgia Institute of Technology, Atlanta, USA), Chenyu Li, Paul Kohl

Durable, Energy-Efficient Anion Exchange Membrane Water Electrolysis Enabled by Self-Adhesive Ionomer and High Ionic Strength Anolyte

15:00 to 15:20

**Frederic Fouda-Onana** (LITEN/DEHT, CEA, Grenoble, France), Gareth, P Keeley

Anion Exchange Membrane Water Electrolysis: Influence of electrode manufacturing on cell efficiency and durability

15:20 to 15:40

**Rakel Wreland Lindström** (Chemical Engineering, KTH Royal Institute of Technology, Stockholm, Sweden)

Effects of ion exchange capacity and ionomer distribution in electrodes used in poly(arylene piperidinium)-based AEMFCs

15:40 to 16:00

**María González-Ingelmo** (Materials Chemistry, Carbon Science and Technology Institute (INCAR-CSIC), Oviedo, Spain), Miriam López, Clara Blanco, Ricardo Santamaría, Patricia Álvarez, Marcos Granda, Zoraida González, Rosa Menéndez, Victoria G. Rocha

Ni-based OER Electrocatalyst with Enhanced Sensitivity to Fe Incorporation: Design, Study and Suitability for Operando Analysis

16:00 to 16:20 Coffee Break

16:20 to 16:40

**Dechun Si** (Fuel Cell Group, Beijing Huairou Laboratory, Beijing, China), Zhina Wang

Characterization and physical modeling of platinum surface oxidation at high operating voltages in proton exchange membrane fuel cell

16:40 to 17:00

**Fanqi Kong** (Faculty of Science, Ontario Tech University, Oshawa, Canada), Bradley Easton

A Sol-gel Approach to Non-carbonaceous Doped Metal Oxide Fuel Cell Catalyst Supports

17:00 to 17:20

**Luis Corona-Elizarraras** (Department of Chemistry, University of Nevada, Reno, Reno, USA), Sara Cavaliere, Ignacio Jimenez-Morales

Study of Antimony and Fluorine Implications on Doped Tin Oxide in Acidic Medium

17:20 to 17:40

**Robert Baumann** (*Chair for laser-based Manufacturing, Technische Universität Dresden, Dresden, Germany*), Hannes Rox, Lis Geraldine Zschach, Xugeng Yang, Gerd Mutschke, Kerstin Eckert, Andrés Fabian Lasagni

Laser Surface Texturing on Nickel Electrodes with Dual Wetting Properties for Improving the Alkali Electrochemical Performance

17:40 to 18:00

**Yashwardhan Deo** (*Electrochemical Reaction Engineering (AVT.ERT), RWTH Aachen University, Aachen, Germany*), Niklas Thissen, Vera Seidl, Julia Gallenberger, Jan P. Hofmann, Anna K. Mechler

Electrocatalytic Activity and Fe-Leaching Behaviour of Electrodeposited Ni-layers on Stainless Steel under Alkaline Electrolysis Conditions

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## Symposium 12 Molecular platforms and electrochemistry for a sustainable society

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Room: 524A

Chaired by *Eva M. Nichols, José H. Zagal*

14:00 to 14:40 Keynote

**Josh Hihath** (*Center for Bioelectronics and Biosensors, Arizona State University, Tempe, USA*)

Single-Molecule Electronics: Advances in Characterization and Integration

14:40 to 15:00 Invited

**José H. Zagal** (*Departamento de Química de los Materiales, Universidad de Santiago de Chile, Santiago, Chile*), Ingrid Ponce, Laura Scarpetta-Pizo, Luis Acuña

Reactivity Predictors and Guidelines based on Ligand Parametrization for Electrochemical Reactions Promoted by Metallophthalocyanines and Metalloporphyrins

15:00 to 15:20

**Eva M. Nichols** (*Chemistry, University of British Columbia, Vancouver, Canada*), Kaitlin L. Branch, Erin Johnson

Aggregation of Homogeneous Porphyrin Catalysts in Organic Electrolytes Broadly Inhibits Electrochemical CO<sub>2</sub> Reduction Performance

15:20 to 15:40

**Sylvie Chardon** (*Molecular Chemistry Department, Grenoble Alpes University - CNRS, Grenoble Cedex 9, France*), Camille Chartier, Rana Deeba, Cyrille Costentin

Beyond CO<sub>2</sub> activation: shedding light on N<sub>2</sub>O electroreduction catalyzed by low valent iron porphyrin

15:40 to 16:00

**Rida Farhat** (*Chemistry, University of British Columbia, Vancouver, Canada*), Eva Nichols

Reductive Electrochemical Desulfurization of Benzyl Thiols Using Cobalt Tetraphenylporphyrin

16:00 to 16:20

Coffee Break

16:20 to 16:40

**Jorge Pavez** (*Materials Chemistry, Universidad Santiago De Chile, Santiago, Chile*), Carolina P. Candia, Carlos P. Silva, Elizabeth Imbarack, Fabián Martínez-Gómez, Camila F Olguín, José H. Zagal, Nicolás Agurto

Electrocatalytic Oxygen Reduction on Metalloporphyrin with Second Coordination Sphere Substituents: Electronic and Steric effect study through pocket and extended structures

16:40 to 17:00

**Charles McCrory** (*Chemistry, University of Michigan, Ann Arbor, USA*), Jukai Zhou, Weixuan Nie, Drew Tarnopol, Md. Waseem Hussain

Breaking Scaling Relationships in Molecular Electrocatalysis for the CO<sub>2</sub> Reduction Reaction

17:00 to 17:20

**Joaquin Gonzalez** (*Química Física, Universidad de Murcia, Murcia, Spain*), Antonio J. Martinez-Garcia, Jose-Victor Hernandez-Tovar

Molecular electrocatalysis under finite diffusive mass transport conditions

17:20 to 17:40

**Yasser Matos-Peralta** (*Engineering Physics, Polytechnique Montréal, Montréal, Canada*), Yasser Matos-Peralta, Zhaojing Gao, Fabio Mocerino, Clara Santato

Structure-Charge Transfer Relationships in Biosourced Polyphenols for Energy Storage

TUESDAY PM

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## Symposium 14 Recent advances in photoelectrochemistry and plasmonics: Fundamentals and applications

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Room: 524B

Chaired by Aicheng Chen, Nianqiang Wu

14:00 to 14:40 Keynote

**Nianqiang Wu** (*Department of Chemical Engineering, University of Massachusetts Amherst, Amherst, USA*)

Plasmon-Mediated Photoelectrochemistry Spanning from Metals to Semiconductors

14:40 to 15:00 Invited

**Zhong-Qun Tian** (*Chemistry Department, Xiamen University, Xiamen, China*), Chao Zhan, Xia-Guang Zhang, De-Yin Wu, Zhong-Qun Tian

A Strategy of Plasmonic Electrocatalysis: Regulating the Reaction Pathway and Purging the Catalyst Poisons

15:00 to 15:20

**Andrew Bagnall** (*Department of Chemistry - Ångström Laboratory, Uppsala University, Uppsala, Sweden*), Sagar Ganguli, Alina Sekretareva

Nanoscale Strategies for Amplifying the Enhancement in Plasmon Enhanced Electrocatalysis: Insights and Challenges

15:20 to 15:40

**Luiz Henrique Dall Antonia** (*Chemistry, State University of Londrina, Londrina, Brazil*), Luan Pereira Camargo, Marcelo R. S. Pelissari, Paulo R. Catarini da Silva

Heterostructured Tungsten Trioxide and Iron Vanadate Material: Synergetic Strengthening for Photoelectrochemical Applications

15:40 to 16:00

**De-Yin Wu** (*College of Chemistry and Chemical Engineering, Xiamen University, Xiamen, China*),  
Jian-Zhang Zhou, Zhong-Qun Tian

Surface-Enhanced Raman Spectroscopy and Kinetic Study of Plasmon Photoelectrochemical Reactions

16:00 to 16:20

Coffee Break

16:20 to 16:40 Invited

**Susana Cordoba de Torresi** (*Instituto de Quimica, Universidade de São Paulo, São Paulo, Brazil*)

Urea formation by Plasmon-Assisted N<sub>2</sub> and CO<sub>2</sub> co-electrolysis onto Heterojunctions decorated by Bismuth and Silver Nanoparticles Mechanochemically Synthesized

16:40 to 17:00

**Víctor A. de la Peña O'Shea** (*Photoactivated processes Unit, MOSTOLES, Spain*), Mariam Barawi,  
Miguel Teceador, Laura Collado, Miguel Gomez, Marta Liras

A new generation of multifunctional systems for the Photo(electro) production of solar fuels

17:00 to 17:20

**Aicheng Chen** (*Department of Chemistry, University of Guelph, Guelph, Canada*), Joshua van der Zalm,  
Emmanuel Mena-Morcillo, Jesse Dondapati, Sapan Thind, Shuai Chen, Emad Hatami

Design and Study of Nanostructured Catalysts for Photoelectrochemical Water Splitting and Wastewater Treatment

17:20 to 17:40

**Chia-Liang Sun** (*Department of Chemical and Materials Engineering, Chang Gung University, Taoyuan, Taiwan*), Hung-Yu Chen, Shih-Wei Chan, Mrinal Poddar, Yuan Chen

Photoelectrochemical Detection of Melatonin and Ractopamine Using Graphene Oxide Nanoribbons

17:40 to 18:00

**Ramunas Levinas** (*Department of Catalysis, Center for Physical Sciences and Technology, Vilnius, Lithuania*),  
Vidas Pakstas, Gediminas Niaura, Roman Viter, Loreta Tamasauskaite-Tamasiunaite, Eugenijus Norkus

Advancements in Synthesis and Modification of White-Light-Sensitive TiO<sub>2</sub>-CuO Heterostructures: Exploring Bidirectional Photoelectrodes

## Symposium 15 Advances in methods for in-situ and operando study of electrochemical interfaces and systems

**Room: 524C**

Chaired by *Jakub Drnec*

14:00 to 14:20 Invited

**Andrea Russell** (*School of Chemistry and Chemical Engineering, University of Southampton, Southampton, United Kingdom*), Connor Sherwin, Veronica Celorrio, Katie Rigg, Armando Ibraliu, Abbey Tefler, Lucy McLeod, Alessandro Difilippo, Chris Zalitis

Operando XAS of Platinum ORR and Iridium Oxide OER Electrocatalysts at Operational Current Densities

14:20 to 14:40

**Qihao Li** (*Department of Chemistry and Chemical Biology, Cornell University, Ithaca, USA*), Héctor Abruña

Device-level Operando X-ray Absorption Spectroscopy Investigation of Electrocatalysts in Anion Exchange Membrane Fuel Cells

14:40 to 15:00

**Sheena Louisia** (*Chemistry, Leiden University, Leiden, Netherlands*), Rik Mom, Marc Koper

Looking into the Double Layer of Gold in Aqueous Electrolytes Using In-Situ X-ray Photoelectron Spectroscopy

15:00 to 15:20

**Huw Shiel** (*Materials, Imperial College London, London, United Kingdom*), Anastasia Teck, Magda Titirici, Mary Ryan

In Situ Investigation of Passivation Layers in Aluminium Batteries Using Soft X-ray Spectroscopies

15:20 to 15:40

**Melchiade Manirakiza** (*Engineering Physics, Polytechnique Montreal, Montréal, Canada*), José Ramon Herrera Garza, Ramin Karimi Azari, Francesca Soavi, Clara Santato

Charge carrier transport in LiCoO<sub>2</sub> cathode material studied in ion-gated transistor

15:40 to 16:00

**Laurianne Wojcik** (*Laboratoire CEMCA, UMR-CNRS 6521, Université de Bretagne Occidentale, Brest Cedex 3, France*)

Cryo-spectroelectrochemistry for the characterization of unstable copper-oxygen species

16:00 to 16:20

Coffee Break

16:20 to 16:40

**Gianluca Visagli** (*Chemistry, Université Paris-Saclay, Versailles, France*), Anne-Marie Gonçalves, Arnaud Etcheberry

Progressive surface passivation of an n-InP semiconductor due to polyphosphazene (PPP) in liquid ammonia



16:40 to 17:00

**Muna Abdulaziz** (*Science, Ontario Tech University, Oshawa, Canada*), Tony George, Kostyantyn Pichugin, Germán Sciaini, Liliana Trevani

Electrochemical Channel Flow Cell Design for High T<sub>p</sub> Electrochemical Studies

17:00 to 17:20

**Linlin Liu** (*Chemistry, Laval University, Quebec city, Canada*), Nan Jia, Ian Burgess

Laminar Flow Spectroelectrochemistry

17:20 to 17:40

**José Dariel González Gallardo** (*Dirección de Ciencias, CIDETEQ, Pedro Escobedo, Mexico*), Amairani García Maya, Anahí García Vargas, Jannu Casanova-Moreno

Spectroelectrochemical study of the interaction between dissolved hydrogen and the reductive desorption of self-assembled monolayers on platinum surfaces.

17:40 to 18:00

**Daina Baker** (*Chemistry, University of British Columbia, Vancouver, Canada*), W. Russ Algar, Dan Bizzotto

Investigation into the Self-assembly of CdSe/ZnS Quantum Dots DNA Bioconjugates on Single-crystal Gold Bead Electrodes

# Wednesday 21 August 2024 - Morning

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## Plenary lecture

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**Room: 710**

*Chaired by Samira Siahrostami*

08:15 to 09:15

**David P. Wilkinson** (*Chemical and Biological Engineering, University of British Columbia, Vancouver, Canada*)

[Electrolyzers and Fuel Cells - Electrochemical Engines for the 21<sup>st</sup> Century](#)

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## Symposium 2 Scanning probe microscopies: Towards quantitative electrochemistry

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**Room: 518A**

*Chaired by Zachary T. Gossage, Gunther Wittstock*

09:30 to 10:10 Keynote

**Gunther Wittstock** (*Institute of Chemistry, Carl von Ossietzky University Oldenburg, Oldenburg, Germany*),  
Marius Muhle, Nelly Nembot

[In-situ and Operando Studies of Interfaces and Interphases in Batteries and Electrocatalysts by Scanning Electrochemical Microscopy](#)

10:10 to 10:30

**Zachary T. Gossage** (*Department of Applied Chemistry, Tokyo University of Science, Tokyo, Japan*),  
Ryoichi Tatara, Tomooki Hosaka, Shinichi Komaba

[Measuring Interfacial Ion Transfer at Operating Electrodes of Aqueous K-Ion Batteries](#)

10:30 to 10:50

Coffee Break

10:50 to 12:30

**Poster Presentations - Room 517**

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## Symposium 3 Improving health monitoring and pollutant detection using electrochemical sensors

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**Room: 518B**

Chaired by Leyla Soleymani

09:30 to 09:50

**Carlos Rodrigo Salazar Gallupe** (*Department of Chemistry, University of Central Florida, Orlando, USA*), Zoe Wainscott, Karin Y. Chumbimuni-Torres

Highly reproducible flexible ISE for the detection of multiple ions in saliva

09:50 to 10:10

**Rokas Zalneravicius** (*Department of Bioanalysis, Vilnius university, Vilnius, Lithuania*), Pannawich Thirabowonkitphithan, Atefeh Shafaat, Tautgirdas Ruzgas, Wanida Laiwattanapaisal, Jessica Neilands, Evelina Lukaitė, Yasmine Rezk, Marius Dagys

Potentiometric, amperometric and wireless detection of microbial biofilms

10:10 to 10:40

**Special Session**

10:40 to 10:50

Coffee Break

10:50 to 12:30

**Poster Presentations - Room 517**

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## Symposium 5a Electrochemistry of advanced batteries: Fundamentals, progress, and challenges

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**Room: 519A**

Chaired by Dominic Bresser

09:30 to 10:10 Keynote

**Michel Armand** (*Electrochemical energy storage, CIC Energigune, Vitoria-Gasteiz, Spain*)

Advanced and More Sustainable Batteries

10:10 to 10:30

**Annick Hubin** (*Chemistry and Materials, Vrije Universiteit Brussel, Brussels, Belgium*), Lieven Bekaert, Alexandre Roelens, Tewelde Gebregeorgis, Giulia Serafino, Joan Busacker, Mesfin Haile Mamme

Advancing Battery Research through Hybrid Multiscale Computation and Operando/In-situ Frameworks

10:30 to 10:50

Coffee Break

10:50 to 12:30

**Poster Presentations - Room 517**

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## Symposium 5b Electrochemistry of advanced batteries: Fundamentals, progress, and challenges

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**Room: 519B**

Chaired by Yongzhu Fu

09:30 to 09:50

**Roza Bouchal** (*Colloid Chemistry, Max Planck institute of Colloids and Interfaces, Potsdam, Germany*), Ibrahim Al Kathemi, Markus Antonietti

[Aqueous Eutectic Electrolytes for Zinc Metal Batteries](#)

09:50 to 10:10

**Zhenrui Wu** (*School of Engineering, The University of British Columbia, Kelowna, Canada*), Yihu Li, Amardeep Amardeep, Yijia Shao, Yue Zhang, Jian Zou, Liping Wang, Jia Xu, Dawid Kasprzak, Evan Hansen, Jian Liu

[Roles of Acetonitrile in Shaping Gas Evolution and Electrochemical Properties of Aqueous Zinc-ion Batteries](#)

10:10 to 10:30

**Adrian Crespo** (*Solid State Chemistry, Bellaterra, Spain*), Andrea Inclán, Riccardo Argurio, Leandro Bengoa, Nieves Casañ-Pastor

[Enhanced oxygen reduction reaction using polyoxometalates as mediators in near neutral electrolytes in zinc-air batteries.](#)

10:30 to 10:50 Coffee Break

10:50 to 12:30 **Poster Presentations - Room 517**

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## Symposium 6 Fast processes/Power electrochemical energy storage systems

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**Room: 520A**

Chaired by Olivier Crosnier, Olivier Fontaine

09:30 to 09:50

**Gaixia Zhang** (*Department of Electrical Engineering, École de Technologie Supérieure (ÉTS), Montreal, Canada*), Hongliu Dai, Mingjie Wu, Fang Dong, Huaihu Sun, Shuhui Sun

[Rational Design of Electrodes and Electrolytes for Next-Generation Lithium-Metal and Metal-Air Batteries](#)

09:50 to 10:10

**Joshua Chamberland** (*Chemical Engineering, Queen's University, Kingston, Canada*), J. Scott Parent

[Symmetric Ionic Liquid-Based Battery-Supercapacitor Hybrid with Bipolar Nitroxide Radical Redox Activity](#)

10:10 to 10:30

**Younes Abghoui** (*Engineering and natural sciences, University of Iceland, Reykjavik, Iceland*)

[Hydrogen fuel cells vs lithium-ion batteries in electric vehicles](#)

10:30 to 10:50 Coffee Break

10:50 to 12:30 **Poster Presentations - Room 517**

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## Symposium 7a Electrocatalysis: Understanding electrochemical processes at the atomic level for industrial-scale systems

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**Room: 520B**

Chaired by Gregory Jerkiewicz, Jan Macak

09:30 to 09:50

**Jan Macak** (*Center of Materials and Nanotechnology, University of Pardubice, Pardubice, Czech Republic*)

Atomic Layer Deposition of Noble Metal Single Atoms and Nanoparticles for Electrocatalytic Applications

09:50 to 10:10

**Gregory Jerkiewicz** (*Chemistry, Queen's University, Kingston, Canada*), Marina Tintor

"Frozen Electrocatalysis" – Electrochemical Reaction Involving H<sub>2</sub> and O<sub>2</sub> Taking Place at Platinum Electrodes in Frozen Aqueous Acidic Medium

10:10 to 10:30

**Parastoo Agharezaei** (*Institut National de la Recherche, Centre Énergie Matériaux Télécommunications, Varennes, Quebec, Canada*), Marina Tintor

CuNi-based single-atom alloy catalysts for nitrogen reduction reaction: A DFT study

10:30 to 10:50 Coffee Break

10:50 to 12:30 **Poster Presentations - Room 517**

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## Symposium 7b Electrocatalysis: Understanding electrochemical processes at the atomic level for industrial-scale systems

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**Room: 520C**

Chaired by Rosa M. Arán Ais, Iwona A. Rutkowska

09:30 to 09:50

**Iwona A. Rutkowska** (*Faculty of Chemistry, University of Warsaw, Warsaw, Poland*), Pawel J. Kulesza

Hybrid electrocatalytic systems for oxidation of dimethyl ether: comparison to performance of simple alcohols

09:50 to 10:10

**Rosa M. Arán Ais** (*Institute of Electrochemistry, University of Alicante, Alicante, Spain*), Dalila S. Mekazni, Enrique Herrero, Juan M. Feliu

Propanol as Liquid Organic Hydrogen Carrier: Electrooxidation and Surface Structure Effects on Platinum

10:10 to 10:30

**Ieva Agne Cechanaviciute** (*Analytical Chemistry – Center for Electrochemical Sciences, Ruhr University Bochum, Bochum, Germany*), Wolfgang Schuhmann, Corina Andronesco, Bhawana Kumari, Ieva Agne Cechanaviciute

Gas Diffusion Electrodes for Electrochemical Oxidation of Gaseous Ammonia to Nitrite

10:30 to 10:50 Coffee Break

10:50 to 12:30 **Poster Presentations - Room 517**

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## Symposium 8 Corrosion and surface modifications

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**Room: 520D**

Chaired by *Ricardo M. Souto*

09:30 to 09:50

**Jamie Trindell** (*Leiden Institute of Chemistry, Leiden University, Leiden, Netherlands*), Mark Aarts, Marc T.M. Koper  
[Investigating Electrolyte Effects on Cathodic Corrosion of Pt\(100\) via in situ AFM](#)

09:50 to 10:10

**Mark Aarts** (*Leiden Institute of Chemistry, Leiden University, Leiden, Netherlands*), Jamie A. Trindell, Marc T. M. Koper  
[Nucleation-Growth of Etch Pits during Cathodic Corrosion on Platinum Single Crystals.](#)

10:10 to 10:30

**Selwyn Hanselman** (*Leiden Institute of Chemistry, Leiden University, Leiden, Netherlands*), Federico Calle-Vallejo, Thom Hersbach, Marc T. M. Koper  
[Densely Packed and Strongly Functionalized: Calculating Cathodic Corrosion on Pt\(111\)](#)

10:30 to 10:50 Coffee Break

10:50 to 12:30 **Poster Presentations - Room 517**

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## Symposium 10a Sustainability and green electrochemical science and technology

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**Room: 520E**

Chaired by *Carlos A Martínez-Huitle*

09:30 to 09:50 *Invited*

**Edward Roberts** (*Department of Chemical & Petroleum Engineering, University of Calgary, Calgary, Canada*), Behzad Fuladpanjeh Hojaghan, Mohammed Elsutohy, Mudasar Mohmood, Nael Yasri, Meysam Rahmanian Shahri, Milana Trifkovic

[Water Treatment by Electrocoagulation: Visualization, Fouling and Innovation](#)

09:50 to 10:10

**Yudong Xue** (*Institute of Chemical Sciences and Engineering, EPFL, Sion, Switzerland*)  
[Rational Surface and Interfacial Engineering of IrO<sub>2</sub>/TiO<sub>2</sub> Nanosheet Arrays toward High-Performance Chlorine Evolution Electrocatalysis and Practical Environmental Remediation](#)

10:10 to 10:30 *Invited*

**Soliu Ganiyu** (*Department of Civil and Environmental Engineering, University of Alberta, Canada, Edmonton, Canada*), Yue Ju, Ali Ali Abdelrahman, Mohamed Gamal El-Din  
[Remediation of organics in oil sands process water \(OSPW\) by electrochemical advanced oxidation processes: Process optimization, mechanisms and challenges](#)

10:30 to 10:50 Coffee Break

10:50 to 12:30 **Poster Presentations - Room 517**

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## Symposium 11 Energy electrochemical technology/electrosynthesis and industrial processes

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**Room: 522**

*Chaired by Damien Voiry*

*09:30 to 10:10 Keynote*

**Ifan Stephens** (*Materials, Imperial College London, London, United Kingdom*)

[Unravelling the bottlenecks in electrochemical N<sub>2</sub> reduction to NH<sub>3</sub>](#)

*10:10 to 10:30 Invited*

**Jesus Palma** (*Electrochemical Processes Unit, IMDEA Energy, Mostoles, Spain*), Enrique Garcia-Quismondo, Sergio Pinilla, Gabriel Garcia, Milan Prodanovic

[Challenges and opportunities for Digital Twins in Battery Systems](#)

*10:30 to 10:50 Coffee Break*

*10:50 to 12:30 Poster Presentations - Room 517*

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## Symposium 13 Double layer reloaded: Theory meets experiments

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**Room: 524A**

*Chaired by Olaf Magnussen*

*09:30 to 10:10 Keynote*

**Marc Koper** (*Leiden Institute of Chemistry, Leiden University, Leiden, Netherlands*)

[Electric double layer of platinum](#)

*10:10 to 10:40*

**Special Session**

*10:40 to 10:50*

Coffee Break

*10:50 to 12:30*

**Poster Presentations - Room 517**

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## Symposium 14 Recent advances in photoelectrochemistry and plasmonics: Fundamentals and applications

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**Room: 524B**

*Chaired by Susana Cordoba de Torresi*

*09:30 to 10:10 Keynote*

**Anna Hankin** (*Chemical Engineering, Imperial College London, London, United Kingdom*), George Creasey, Arend Moelich, John Rodriguez Acosta, Thomas Shalvey, Dora Garcia-Osorio, Tristan McCallum, Liam O'Neill, Guangrui Ai, Jon Major, Alexander Cowan, Craig McGregor, Andreas Kafizas

[Design and Development of Photoelectrochemical Reactors for Solar H<sub>2</sub> Production](#)

*10:10 to 10:40*

**Special Session**

*10:40 to 10:50*

Coffee Break

*10:50 to 12:30*

**Poster Presentations - Room 517**

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## Symposium 15 Advances in methods for in-situ and operando study of electrochemical interfaces and systems

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**Room: 524C**

*Chaired by Ian Burgess*

*09:30 to 10:10 Keynote*

**Laurence Hardwick** (*Department of Chemistry, University of Liverpool, Liverpool, United Kingdom*)

[What's Happening Inside that Battery? Understanding Desirable and Undesirable Reaction Processes through Operando Vibrational Spectroscopy of Electrode Interfaces](#)

*10:10 to 10:30*

**Andrew Wain** (*Electrochemistry Group, National Physical Laboratory, Teddington, United Kingdom*), Rudra Samajdar

[Minimally Invasive Operando Raman Spectroscopy of Battery Electrodes](#)

*10:30 to 10:50*

Coffee Break

*10:50 to 12:30*

**Poster Presentations - Room 517**



# Thursday 22 August 2024 - Morning

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## Plenary lecture

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**Room: 710**

*Chaired by Samantha Gateman*

08:15 to 09:15

**Mary Ryan** (*Department of Materials, Imperial College London, London, United Kingdom*)

[Electrochemical Degradation Processes - Nanoscale Processes that Control Macroscale Stability](#)

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## Symposium 2 Scanning probe microscopies: Towards quantitative electrochemistry

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**Room: 518A**

*Chaired by Nataraju Bodappa, Wolfgang Schuhmann*

09:30 to 10:10 Keynote

**Wolfgang Schuhmann** (*Analytical Chemistry - Center for Electrochemical Sciences, Ruhr University Bochum, Bochum, Germany*)

[Nano- and microelectroanalytic methods for understanding electrocatalysts](#)

10:10 to 10:30

**Nataraju Bodappa** (*Physics, McGill University, Montreal, Canada*), Peter Grutter

[In-situ AFM for Mapping Electrocatalytic Reaction](#)

10:30 to 10:50

Coffee Break

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## Symposium 3 Improving health monitoring and pollutant detection using electrochemical sensors

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**Room: 518B**

*Chaired by Nicolas Fontaine*

09:30 to 09:50

**José A. Ribeiro** (*Chemistry and Biochemistry Department, Sciences Faculty, University of Porto, Porto, Portugal*), Ana T. Silva, Carlos M. Pereira

[Nanostructured Imprinted Film for Electrochemical Sensing of Atrial Natriuretic Peptide](#)

09:50 to 10:10

**Dhesmon Lima** (*Department of Chemistry, University of Manitoba, Winnipeg, Canada*), Shubhneet Thind, Evan Booy, Dao Trinh, Sean McKenna, Sabine Kuss

[Detection of cytochrome c oxidase deficiency in living human fibroblasts using scanning electrochemical microscopy](#)

10:10 to 10:30

**Élodie V. d'Astous** (*Chemistry, Université de Sherbrooke, Sherbrooke, Canada*), Élodie V. d'Astous, Philippe Dauphin Ducharme

[Generalization of Electrochemical DNA-Host Chimeras for Continuous Host-Guest Sensing in Undiluted Whole Blood](#)

10:30 to 10:50

Coffee Break

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## Symposium 4 Bioelectrochemistry - diversity and focus

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**Room: 518C**

*Chaired by Sabine Kuss*

09:30 to 10:10 ***Kasumi Niki Prize in Bioelectrochemistry***

**Ana Maria Oliveira-Brett** (*Department of Chemistry, University of Coimbra, Coimbra, Portugal*)

[Bioelectrochemical Sensing of Health-Relevant Biological Interactions](#)

10:10 to 10:30

**Zixin Yu** (*Department of Physical & Environmental Sciences, University of Toronto, Scarborough, Canada*), Meissam Noroozifar, Yilei Xue, Kagan Kerman

[Electrochemical Simultaneous Determination of 5-Fluorouracil and Uracil Using MXene/TiO<sub>2</sub>-Fe Hybrid](#)

10:30 to 10:50

Coffee Break

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## Symposium 5a Electrochemistry of advanced batteries: Fundamentals, progress, and challenges

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**Room: 519A**

*Chaired by Betar M Gallant*

*09:30 to 10:10 Keynote*

**Ulrike Krewer** (*Institute for Applied Materials - Electrochem. Technologies, Karlsruhe Institute of Technology, Karlsruhe, Germany*), Janika Wagner-Henke, Michail Gerasimov, Kie Hankins, Walter Cistjakov

[Insight into Interphase Growth on Battery Electrodes via Kinetic Monte Carlo Simulation](#)

*10:10 to 10:30*

**Yang Zhao** (*Mechanical and Materials Engineering, Western University, London, Canada*)

[Interface Engineering and Understanding for the Next-Generation Batteries](#)

*10:30 to 10:50*

Coffee Break

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## Symposium 5b Electrochemistry of advanced batteries: Fundamentals, progress, and challenges

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**Room: 519B**

*Chaired by Lauren Marbella*

*09:30 to 09:50 Invited*

**Chisu Kim** (*Centre of Excellence in Transportation Electrification and E, Hydro-Québec, Varennes, Canada*), Hendrix Demers, Wen Zhu

[Design parameters for enhanced performance of  \$\text{Li}\_{1+x}\text{Ni}\_{0.6}\text{Co}\_{0.2}\text{Mn}\_{0.2}\text{O}\_2\$  cathodes at high voltage](#)

*09:50 to 10:10*

**Jean-Christophe Daigle** (*CEETSE, Hydro-Québec, Varennes, Canada*), Abdelbast Guerfi, Martin Dontigny, Catherine Gagnon, Alexis Perea, Yuichiro Asakawa

[Development of a  \$\text{LiMnFePO}\_4\$  based Advanced Li-ion Batteries](#)

*10:30 to 10:50*

Coffee Break

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## Symposium 6 Fast processes/Power electrochemical energy storage systems

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**Room: 520A**

Chaired by *Thierry Brousse, Olivier Fontaine*

09:30 to 10:10 Keynote

**Muhammed Musthafa Ottakam Thotiyl** (*Department of Chemistry, Indian Institute of Science Education and Research Pune, Pune, India*)

Ligand-Assisted Interfacial Energy Storage

10:10 to 10:30 Invited

**Frederic Favier** (*ICGM-CNRS, Institut Charles Gerhardt Montpellier, Montpellier, France*), Steven Le Vot

Supercapacitors: Environmental Impacts

10:30 to 10:50

Coffee Break

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## Symposium 7a Electrocatalysis: Understanding electrochemical processes at the atomic level for industrial-scale systems

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**Room: 520B**

Chaired by *Kenneth Ikechukwu Ozoemena, Jan Rossmeisl*

09:30 to 10:10 Keynote

**Jan Rossmeisl** (*Department of Chemistry, University of Copenhagen, Copenhagen, Denmark*)

Catalysis on High Entropy Alloys

10:10 to 10:30 Invited

**Kenneth Ikechukwu Ozoemena** (*School of Chemistry, University of the Witwatersrand, Johannesburg, South Africa*), Aderemi Bashiru Haruna, Agnes Mongwe, Lesego Gaolatlhe, Patrick Mwonga

Single Nanocrystals of High-Entropy Spinel Oxides on Defective Onion-Like Carbons as Electrocatalysts for Technologically Relevant Rechargeable Zinc-Air Batteries

10:30 to 10:50

Coffee Break

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## Symposium 7b Electrocatalysis: Understanding electrochemical processes at the atomic level for industrial-scale systems

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**Room: 520C**

Chaired by *Antonia Herzog, Germano Tremiliosi-Filho*

09:30 to 09:50 *Invited*

**Germano Tremiliosi-Filho** (*Chemistry Institute of Sao Carlos, University of Sao Paulo, São Carlos, Brazil*), Nelson Alexandre Galiote, Seiti Inoue Venturini, Cesar Augusto Duarte Rodrigues

Maximizing the Hydrogen Production by Electro-Coupling of Hydrogen Evolution with the Ethanol Electro-Oxidation Reactions. Development of catalytic cathode materials

09:50 to 10:10

**María de Jesús Gálvez-Vázquez** (*Department of Chemistry, Johannes Gutenberg-University Mainz, Mainz, Germany*), María de Jesús Gálvez-Vázquez, Pavel Moreno-García, Tobias Prenzel, Johannes Winter, Liliana Gálvez-Vázquez, Peter Broekmann, Siegfried R. Waldvogel

Binary And Ternary Metal Foam Catalysts As Novel Cathode Materials For Organic Electrosynthesis

10:10 to 10:30

**Antonia Herzog** (*MIT Electrochemical Energy Lab, Massachusetts Institute of Technology, Cambridge, USA*), Haldrian Iriawan, Yang Shao-Horn

Understanding and Tuning the Solid Electrolyte Interface in the Electrochemical Lithium-Mediated Ammonia Synthesis

10:30 to 10:50

Coffee Break

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## Symposium 8 Corrosion and surface modifications

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**Room: 520D**

Chaired by *John Scully*

09:30 to 10:10 *Keynote*

**Oumaïma Gharbi** (*Laboratoire de Réactivité de Surface, CNRS - Sorbonne Université, Paris, France*), Christophe Méthivier, Mireille Turmine, Vincent Vivier

The Reactivity of Alkylammonium Nitrate Ionic Liquids on Al-Cu alloys: From a Global Reaction Mechanism to the Molecular Scale

10:10 to 10:30

**Max Taras** (*ISCR, Université de Rennes, Rennes, France*), Jiayang Lin, Paula A. Brooksby, Jean-François Bergamini, Philippe Hapiot, Corinne Lagrost, Dongping Zhan, Yann R. Leroux

Patterning Organic Layers Using Protected Aryl Diazonium Salts

10:30 to 10:50

Coffee Break

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## Symposium 10a Sustainability and green electrochemical science and technology

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**Room: 520E**

Chaired by *Carlos Alberto Martinez-Huitle*

09:30 to 10:10 Keynote

**Jing Ding** (*School of Environment, Harbin Institute of Technology, Harbin, China*)

Exploring the synergistic impact of electric field and bimetals on sulfite activation through Fe/Mn@CF composite electrodes

10:10 to 10:30

**María del Pilar Castro Castro** (*Chemical Engineering Department, Universidad de Castilla-La Mancha, Ciudad Real, Spain*), María del Pilar Castro Castro, Ismael Fernández Mena, Miguel Ángel Montiel, Cristina Sáez Jiménez, Manuel Andrés Rodrigo Rodrigo

Scale-up of the electrochemical persulfate synthesis process

10:30 to 10:50

Coffee Break

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## Symposium 11 Energy electrochemical technology/electrosynthesis and industrial processes

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**Room: 522**

Chaired by *Jeff Gostick*

09:30 to 10:10 Keynote

**Tom Breugelmans** (*Applied Electrochemistry and Catalysis (ELCAT), University of Antwerp, Wilrijk, Belgium*), Sam Van Daele, Alana Rossen, Kevin Van Daele, Järi Van den Hoek

Engineering Challenges in CO<sub>2</sub> Electrolysis

10:10 to 10:30 Invited

**Sotirios Mavrikis** (*Biobased Products (BBP) - Sustainable Chemistry & Technology, Wageningen Food and Biobased Research (WFBR), Wageningen, Netherlands*), Roel Bisselink, Ted Slaghek, Shanmugam Thiyagarajan

Electrochemical conversion of sugar-derived acids via Kolbe electrolysis

10:30 to 10:50

Coffee Break

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## Symposium 13 Double layer reloaded: Theory meets experiments

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Room: 524A

Chaired by Jun Cheng

09:30 to 10:10 Keynote

**Axel Grob** (*Institute of Theoretical Chemistry, Ulm University, Ulm, Germany*)

[The Electrochemical Interface from a Theoretician's Atomistic Point of View](#)

10:10 to 10:30

**Rik Mom** (*Leiden Institute of Chemistry, Leiden University, Leiden, Netherlands*)

[Resolving the double layer using in situ XPS and XAS](#)

10:30 to 10:50

Coffee Break

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## Symposium 14 Recent advances in photoelectrochemistry and plasmonics: Fundamentals and applications

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Room: 524B

Chaired by Anna Hankin

09:30 to 10:10 Keynote

**Fumiaki Amano** (*Department of Applied Chemistry for Environment, Tokyo Metropolitan University, Hachioji, Japan*)

[Porous Transport Photoelectrodes for Polymer Electrolyte Photoelectrochemistry](#)

10:10 to 10:30

**Joshua van der Zalm** (*Chemistry, University of Guelph, Guelph, Canada*), Emmanuel Mena-Morcillo, Aicheng Chen

[Nanostructured TiO<sub>2</sub> Based Photoelectrocatalysts for the Degradation of Organic Pollutants](#)

10:30 to 10:50

Coffee Break

# Thursday 22 August 2024 - Afternoon

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## Symposium 2 Scanning probe microscopies: Towards quantitative electrochemistry

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**Room: 518A**

Chaired by *Samantha Gateman, Jean-Marc Noel*

14:00 to 14:20 Invited

**Jean-Marc Noel** (*Laboratoire ITODYS, Université Paris Cité, PARIS, France*), Yuhuan Wang, Frédéric Kanoufi, Nicolas Lepoul

Radical Scavengers: Keys to Deciphering and Controlling Oxygen Reduction at Platinum Electrocatalysts

14:20 to 14:40

**Shen Ye** (*Department of Chemistry, Tohoku University, Sendai, Japan*), Bingbing Li, Toshiki Kogina, Zhimin Yang, Aimin Ge, Kenichi Inoue, Shen Ye

In Situ AFM Observations of Oxygen Reduction and Evolution Reactions (ORR/OER) for Li-O<sub>2</sub> Batteries

14:40 to 15:00

**Gabriel Meloni** (*Chemistry, University of São Paulo, São Paulo, Brazil*), Kelsey Cremin, Marlene Hill, Orkun Soyer, Patrick Unwin

Using scanning electrochemical probe microscopy to generate controlled micro-scale chemical gradients: A new approach for single-cell analyses

15:00 to 15:20

**Roy Daou** (*Department of Chemistry, University of Manitoba, Winnipeg, Canada*), Mengzhen Lyu, Katherine Bazin, Dhésmon Lima, Evan Booy, Sabine Kuss

Detection of Platinum-Based Chemoresistance Using Scanning Electrochemical Microscopy and Correlation with MEK1 Activity in Living Cancer Cells

15:20 to 15:40

**Mengzhen Lyu** (*Chemistry, University of Manitoba, Winnipeg, Canada*), Nikita Thomas, Jadon Khouv, Dhésmon Lima, Dao Trinh, Sabine Kuss

Details Matter – How Experimental Parameters Affect the Cellular Response during Scanning Electrochemical Microscopy of Living Cells

15:40 to 16:00

**Katherine Bazin** (*Chemistry, University of Manitoba, Winnipeg, Canada*), Nikita Thomas, Vikram Singh, Dao Trinh, Sabine Kuss

Single Cell Scanning Photoelectrochemical Microscopy: Spectroelectrochemistry at the Microscale

16:00 to 16:20

Coffee Break



16:20 to 16:40 Invited

**Samantha Gateman** (*Chemistry, Western University, London, Canada*), Nishtha Saxena, Emmanuel Mena-Morcillo, Mehran Behazin, Peter Keech

Towards Quantifying Local Corrosion Rates of Copper using Scanning Electrochemical Cell Microscopy

16:40 to 17:00

**Emmanuel Mena-Morcillo** (*Chemistry, Western University, London, Canada*), Ali Ebrahimzadeh Pilehrood, Reza Moshrefi, Ghazal Shafiee, Mehran Behazin, Peter Keech, Samantha Gateman

How Does the Redox Mediator Choice Affect SECM Feedback Current in Corrosion Studies?

17:00 to 17:20

**Samaneh Salek** (*Chemistry, Université du Québec à Montréal (UQAM), Montreal, Canada*), Joshua C Byers

Voltametric Measurements in a Room Temperature Ionic Liquid Using Scanning Electrochemical Cell Microscopy

17:20 to 17:40

**Jiawei Yan** (*Chemistry Department, Xiamen University, Xiamen, China*), Zhuo Tan, Bingwei Mao

In Situ Scanning Tunneling Microscopy Study on Cu Electrodeposition in Deep Eutectic Solvent Ethaline

17:40 to 18:00

**Saeid Behjati** (*Chemistry, Leiden University, Leiden, Netherlands, Netherlands*), Marc Koper

In Situ EC-STM Study of an Evolving Gold Single-Crystal Electrode Surface by Oxidation-Reduction Cycles in Different Electrolytes

18:00 to 18:20

**Maren-Kathrin Heubach** (*Institute of Electrochemistry, Ulm University, Ulm, Germany*), Timo Jacob

In situ Scanning Tunnelling Microscopy in Ionic Liquids: Imaging Electrochemistry at Very Negative Potentials

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## Symposium 3 Improving health monitoring and pollutant detection using electrochemical sensors

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Room: 518B

Chaired by Philippe Dauphin Ducharme

14:00 to 14:40 Keynote

**Leyla Soleymani** (*Engineering Physics, McMaster University, Hamilton, Canada*)

Nucleic acid based electrochemical sensors for in situ and continuous monitoring

14:40 to 15:00

**Minh-Dat Nguyen** (*Chimie, Université de Sherbrooke, Sherbrooke, Canada*), Philippe Dauphin-Ducharme

SELEX to Sensors: A Step-by-Step Guide for Translating Aptamer

15:00 to 15:20

**Kaylin Januarie** (*Chemistry, University of the Western Cape, Cape Town, South Africa*), Marlon Oranzie, Usisipho Feleni, Emmanuel Iwuoha

Impedimetric Aptasensor for TB Diagnostics using Metal Dichalcogenide Quantum Dots

15:20 to 15:40

**Fangqing Liu** (*Department of Chemistry, University of Manitoba, Winnipeg, Canada*), Yaser Arteshi, Dhesmon Lima, Sheryl A. Tittlemier, Ashkan Koushanpour, Sabine Kuss

Electrochemical Detection of Mycotoxins in Canadian Grain

15:40 to 16:00

**James Rusling** (*Chemistry, University of Connecticut, Storrs Mansfield, USA*), Keshani Hiniduma, Thilini DeSilva, Sherif Shawky, Ketki Bhalerao, Rachele Canete, Jessica Rouge

Multiplexed CRISPR ECL Assays for miRNAs and proteins

16:00 to 16:20

Coffee Break

16:20 to 17:00 Keynote

**Kaiyu Fu** (*Chemistry and Biochemistry, University of Notre Dame, Notre Dame, USA*)

Implantable Aptamer-based Biosensors for Drug Real-Time Measurement in Live Animal

17:00 to 17:20

**Roobeh Siavash Moakhar** (*Bioengineering, McGill University, Montreal, Canada*), Rohan Mahimkar, Arash Khorrami Jahromi, Sahar Sadat Mahshid, Carolina del Real Mata, Yao Lu, Fabio Vasquez Camargo, Momar Ndao, Sara Mahshid

Novel Electrochemical Aptamer-Based Microfluidic Biosensor for Detecting *Cryptosporidium Parvum*

17:20 to 17:40

**Haesik Yang** (*Department of Chemistry, Pusan National University, Busan, Korea*), Gyeongho Kim

Electrochemical Biosensor using Direct Electron Transfer and an Antibody–Aptamer Hybrid Sandwich

THURSDAY PM

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## Symposium 4 Bioelectrochemistry - diversity and focus

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Room: 518C

Chaired by Hye Jin Lee, Ilaria Palchetti

14:00 to 14:40 Keynote

**Renata Bilewicz** (*Chemistry, University of Warsaw, Warsaw, Poland*), Michalina Zaborowska-Mazurkiewicz, Mostafa Torabi, Teresa Bizon, Dorota Matyszewska

Gold electrode modified with proteoliposome-derived bilayer for electrochemical studies of HMG-CoA Reductase and its inhibition

14:40 to 15:00

**Paria Pashazadeh** (*Faculty of Chemistry, University of Warsaw, Warsaw, Poland*), Damian Dziubak

Electrochemical and Spectroscopy approach for studying Vacuolating cytotoxin A (VacA) in biomimetic lipid membrane

15:00 to 15:20

**Tomas Sabirovas** (*Department of bioelectrochemistry and biospectroscopy, Life Sciences Center, Vilnius University, Vilnius, Lithuania*), Tomas Sabirovas, Martynas Talaikis, Gediminas Niaura, Gintaras Valincius

The Impact of SAM Phase Segregation on tBLM Biosensing Properties

15:20 to 15:40

**Dorota Matyszewska** (*Faculty of Chemistry, Biological & Chemical Research Centre, University of Warsaw, Warsaw, Poland*), Michalina Zaborowska-Mazurkiewicz, Damian Dziubak, Renata Bilewicz

Phospholipid Layers as Platforms to Study the Interactions with Biologically Important Species – Surface and Electrochemical Studies of Drugs and Proteins.

15:40 to 16:00

**Olivier Buriez** (*Ecole Normale Supérieure, CNRS, Paris, France*), Fatma Ben Trad, Bixente Carré, Vincent Wieczny, Jérôme Delacotte, Mathieu Morel, Manon Guille-Collignon, Stéphane Arbault, Frédéric Lemaître, Neso Sojic, Eric Labbé

Confined Enzymatic Reaction and Membrane Permeabilization of Giant Liposomes Imaged by Electrochemiluminescence

16:00 to 16:20

Coffee Break

16:20 to 16:40 Invited

**Zhifeng Ding** (*Chemistry, Univ of Western Ontario, London, Canada*), Michelle Li, Fraser Filice, Lina Yao

Zn<sup>2+</sup>-Induced Apoptosis in Single Human Bladder Cancer Cells

16:40 to 17:00 Invited

**Dawn Holmes** (*Physical and Biological Sciences, Western New England University, Springfield, USA*)

Diverse Methanogens and Acetogens Capable of Electrobiocorrosion

17:00 to 17:20

**Adam Robertson** (*Chemistry, Western University, London, Canada*), Zuleika Chin Lai Leung, Dean Harvey Betts

Gaining Confidence in Corrosion Rates of Metals for new Non-Hormonal Contraceptive Methods

17:20 to 17:40

**Taral Patel** (*Department of Physical Chemistry and Technology of Polymers, Silesian University of Technology, Gliwice, Poland*), Divine Yutefar Shyntum, Abdullah Abdullah, Małgorzata Skorupa, Roman Turczyn, Katarzyna Krukiewicz

Bioelectronic Advancements: Electrodeposited Quinoline-Derived Antibacterial Coatings for Improved Biocompatibility of Implantable Neural Electrodes

17:40 to 18:00

**Gullit Deffo** (*Chemistry, University of Dschang, Dschang, Cameroon*), Cyrille Fotsop, Marcel Ngaha, Sengor Fogang, Lionnel Vomo, Bibiane Nkuigoua, Calmette Shella, Alex Somba, Thierry Tene, Ida Tchummegne, Evangeline Njanja, Ignas Tonlé, Panchanan Puzari, Emmanuel Ngameni

Evaluation of Two Core-shells (Ag<sub>2</sub>S@- and Bi<sub>2</sub>S<sub>3</sub>@-) Based on Metal-Organic Framework (NH<sub>2</sub>-MIL-125-Ti)/Polyaniline for the Electroanalysis of Uric Acid in Urine Samples

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## Symposium 5a Electrochemistry of advanced batteries: Fundamentals, progress, and challenges

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**Room: 519A**

*Chaired by Jongwoo Lim*

*14:00 to 14:20 Invited*

**Betar M Gallant** (*Mechanical Engineering, MIT, Cambridge, USA*)

[Interplays of Composition and Function in the Lithium Metal Anode SEI](#)

*14:20 to 14:40*

**Mihail R. Krumov** (*Chemistry and Chemical Biology, Cornell, Ithaca, USA*), Héctor D. Abruña

[Tracking How Anion Affects Solid Electrolyte Interphase Formation and Anode Passivation with Operando Methods](#)

*14:40 to 15:00*

**Doriane Gallot--Duval** (*Service de Physico-Chimie, CEA, Gif-sur-yvette, France*), Thomas Meyer, Céline Quéré, Eric De Vito, Jean-Baptiste Sirven

[Isotopic labeling of lithium by Laser-Induced Breakdown Spectroscopy \(LIBS\) for the study of solid electrolyte materials](#)

*15:00 to 15:20*

**Anna Winiwarter** (*Department of Materials, Imperial College London, London, United Kingdom*), Bethan J. V. Davies, Daisy Thornton, Romain Tort, Artem Khobnya, Soren B. Scott, Ifan E. L. Stephens

[Parasitic Gas Evolution, Problematic Crosstalk or Beneficial Additive? The Role of Gases in Anode-free Li-metal Batteries](#)

*15:20 to 15:40*

**Taegyu Jang** (*Chemistry, KAIST, Daejeon, Korea*)

[Investigating aluminum corrosion behavior with lithium bis\(fluorosulfonyl\)imide \(LiFSI\) in fluorinated and non-fluorinated ether-based solutions for Li-metal batteries](#)

*15:40 to 16:00*

**Fridolin Röder** (*Bavarian Center for Battery Technology, University of Bayreuth, Bayreuth, Germany*), Felix Schomburg, Steffen Zappe, Srivatsan Ramasubramanian

[Computational methods for a knowledge-driven design of the formation process](#)

*16:00 to 16:20*

Coffee Break

*16:20 to 16:40 Invited*

**Jongwoo Lim** (*Chemistry, Seoul National University, Seoul, Korea*)

[Dynamic coupling of internal strain field and lithium pathway within individual battery particles in solid state batteries](#)

16:40 to 17:00

**Meisam Dabiri Havigh** (*Materials and Chemistry (MACH), Vrije Universiteit Brussels, Brussels, Belgium*), Xinhua Zhu, Noël Halleman, Benny Wouters, Raf Claessens, John Lataire, Herman Terry, Annick Hubin

[Operando ORP-EIS for in Situ Monitoring of Li Nucleation and Growth During Charging of Anode-Free Li Batteries](#)

17:00 to 17:20

**Janina Drews** (*Institute of Engineering Thermodynamics, German Aerospace Center @ Helmholtz Institute Ulm (DLR@HIU), Ulm, Germany*), Syed Abdul Ahad, Hugh Geaney, Timo Danner, Arnulf Latz

[Strategies to Spatially Guide Li Deposition in Porous Electrodes for High-Performance Lithium Metal Batteries](#)

17:20 to 17:40

**Jeremy Dawkins** (*Research Division, GBatteries, Ottawa, Canada*), Xian See, Madhusa Kulanathan

[Improving Battery Charging Algorithms Using Operando Microscopy](#)

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## Symposium 5b Electrochemistry of advanced batteries: Fundamentals, progress, and challenges

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**Room: 519B**

Chaired by Chisu Kim

14:00 to 14:20 Invited

**Lauren Marbella** (*Chemical Engineering, Columbia University, New York, USA*)

[Linking structure to function at electrochemical interfaces: Li-ion and beyond](#)

14:20 to 14:40

**Andrew Morrison** (*Electrochemical Innovation Lab, Chemical Engineering, University College London, London, United Kingdom*), Andrew R. T. Morrison, Will Dawson, Hamish T. Reid, Juntao Li, Isebella Mombrini, Alice V. Llewellyn, Partha Paul, James B. Robinson, Marco di Michiel, Philip Withers, Dan J.L. Brett, Paul R. Shearing

[Understanding Energy-Power Trade-off in Patterned Li-ion Battery Electrodes by Operando Spatially Localized XRD Measurements](#)

14:40 to 15:00

**Princess Stephanie Llanos** (*Department of Chemistry and Materials Science, Aalto University, Espoo, Finland*), Zahra Ahaliabadeh, Ville Miikkulainen, Kong Xiang Ze, Filipp Obrezkov, Jouko Lahtinen, Tanja Kallio

[High Voltage Cycling Degradation Analysis of a Tungsten-modified NMC811 using Operando XRD and Dilatometry](#)

15:00 to 15:20

**Jihyun Hong** (*Center for Energy Materials Research, Korea Institute of Science and Technology, Seoul, Korea*)

[Destabilized Layered-to-Rocksalt Surface Reconstruction Enabling Extended Cycle Life for Li- and Mn-rich Layered Oxides](#)

15:20 to 15:40

**Nooshin Zeinali Galabi** (*Chemistry, McGill University, Montreal, Canada*), Alexander Hebert, Maxime Blangero, Eric McCalla

Benefits of a wide range of dopants on transition metal dissolution in Li-rich Mn-based cathode materials

15:40 to 16:00

**Jong-il Park** (*LiB Materials Research Center, POSCO Next Hub, POSCO Holdings, Incheon, Korea*), Junghoon Kim, Been Namkoong, Hyunyoung Park

Eco-friendly synthesis approach for olivine cathode materials with low cost resources

16:00 to 16:20

Coffee Break

16:20 to 16:40

**Mathieu Cogniard** (*Liten-DEHT-STB-LM, Univ. Grenoble Alpes, CEA, Grenoble, France*), Mathieu Cogniard, Yohan Biecher, Cesare Atzori, Davide Salusso, Jean-François Colin

Operando XAS investigation of manganese redox processes in  $\text{Li}_2\text{MnO}_2\text{F}$

16:40 to 17:00

**Nam-Yung Park** (*Energy Engineering, Hanyang University, Seoul, Korea*)

Loss of Fast Charging Capability in Ni-Rich Cathodes in Terms of Kinetic Loss of Utilizable Li<sup>+</sup> Ions

17:00 to 17:20

**Yin-Ying Ting** (*Theory and Computation of Energy Materials (IEK-13), Forschungszentrum Jülich GmbH, Jülich, Germany*), Michael Eikerling, Payam Kaghazchi, Piotr M. Kowalski

Computational Design of High-Entropy Materials for Next-Generation Batteries

17:20 to 17:40

**Robert Kostecki** (*Energy Storage and Distributed Resources Division, Lawrence Berkeley National Laboratory, Berkeley, USA*), Hyungyeon Cha, Andrew Dopilka, Andrew Haddad, Jonathan Larson, Yueran Gu, Khryslyn Arano, Gabriel Veith, Vassilia Zorba

Si-based Metallic Glass Anodes for Li-ion Batteries

17:40 to 18:00

**Afshin Pendashteh** (*Multifunctional Nanocomposites Group, IMDEA Materials Institute, Getafe, Spain*), Rafael Tomey, Juan J. Vilatela

Pure Si paper-like anodes with over 1000 cyclability, unlocking 400 Wh/kg specific energy

18:00 to 18:20

**Misbah Mumtaz** (*Material Science and Engineering, University of Sheffield, Sheffield, United Kingdom*), Narayan Simrit Kaur, Serena Cussen

Investigation of Structural and Electrochemical Properties of Nb Doped Lithium Nickel Oxide Cathodes for LIBs

## Symposium 6 Fast processes/Power electrochemical energy storage systems

Room: 520A

Chaired by Frederic Favier, Enn Lust

14:00 to 14:20

**Marcelo A. Andrade** (*ST2E Stockage et Transformation Electrochimique de l'Energie, IMN - Institut des Matériaux de Nantes, Nantes, France*), Thierry Brousse, Olivier Crosnier, Patrik Johansson

Energy from Garbage: Recycling Heavy Metal-containing Wastewater Adsorbents for Energy Storage Applications

14:20 to 14:40 Invited

**Thierry Brousse** (*Institut des Matériaux de Nantes Jean Rouxel, Nantes Université / CNRS, Nantes, France*), Camille Douard, Hugo Mazoyer, Jean-Yves Mevellec, Olivier Crosnier, Laurence Athouël, Achraf Belkhiri, Julio Cesar De Luca, Yannick Amosse

Recycled carbon fibers as negative electrode for sodium-ion capacitors

14:40 to 15:00

**Mohammad Bandpey** (*Chemical Engineering, Queen's University, Kingston, Canada*), Ej Lung

Electrochemical Characterization and Post-mortem Analysis of a Supercapacitor-Battery Hybrid Based on Multivalent Vanadium

15:00 to 15:20

**Juan Luis Gómez Urbano** (*Faculty for Chemistry and Earth Sciences, Friedrich-Schiller-Universität, Jena, Germany*), Khai Shin Teoh, Massimo Melchiorre, Sandesh Darlami Magar, Francesco Ruffo, Andrea Balducci

Towards Enhanced Safety and Sustainability: The First Example of a Fluorine-Free Lithium-Ion Capacitor

15:20 to 15:40 Invited

**Enn Lust** (*Institute of Chemistry, University of Tartu, Tartu, Estonia*), Eneli Monerjan, Laura Kalder, Miriam Koppel, Heigo Ers, Maarja Paalo, Thomas Thomberg, Meelis Härmas, Riinu Härmas, Rasmus Palm, Jaanus Kruusma, Tavo Romann, Alar Jänes, Karmen Lust, Kenneth Tuul, Annabel Olgo, Patrick Teppor, Rutha Jäger, Jaak Nerut

Development of porous materials for high energy – power density green energy technology devices

15:40 to 16:00

**Carlos Pereira** (*Chemistry and Biochemistry, Porto University - FCUP, Porto, Portugal*), Ana Brandão, Sabrina Rosoiu-State, Renata Costa, Geanina Mihai, Pavel Potorac, Inês Invêncio, José Vázquez, Jesus Valcarcel, Liana Anicai, Marius Enachescu

Amorphous TiO<sub>2</sub>-Decorated Fish Waste-based Carbon Composites Towards More Sustainable and Efficient Energy Storage Systems

16:00 to 16:20

Coffee Break

16:20 to 16:40 Invited

**Olivier Crosnier** (*IMN, CNRS, Nantes, France*), Etienne Le Calvez, Abbas Khan, Camille Douard, Eric Gautron, Nicolas Dupré, Bruce Dunn, Thierry Brousse

Nb-based Oxides Electrode Materials for High Power Energy Storage Systems

16:40 to 17:00 *Invited*

**Cristina Flox** (*Dept. of Electrical Energy Storage, Iberian Centre for Research in Energy Storage, Cáceres, Spain*)

Development of Redox Flow Batteries with High Energy/Power Values

17:00 to 17:20

**Rana Abdel Samad** (*Maine-et-Loire, MOLTECH-Anjou Laboratory, Université d'Angers, Angers, France*),  
Frédéric Gohier, Charles Cougnon

Porous Conductive Polymers as Active Materials for Storage Application.

17:20 to 17:40

**Sonia Dsoke** (*Electrical Energy Storage, Fraunhofer Institute for Solar Energy Systems, Freiburg, Germany*),  
Rafael Córdoba Rojano, Thimo Siedel, Gauthier Studer, Birgit Esser

Fast storage by aluminum dual batteries

17:40 to 18:00 *Invited*

**Olivier Fontaine** (*Chemistry, Rayong, Thailand*)

Cracking the Code: Tackling Non-Ideal Electrochemical Behavior for Energy Storage

## Symposium 7a Electrocatalysis: Understanding electrochemical processes at the atomic level for industrial-scale systems

**Room: 520B**

Chaired by Piotr Kowalski, Samira Siahrostami

14:00 to 14:20

**Samira Siahrostami** (*Chemistry, Simon Fraser University, Burnaby, Canada*)

A New Selectivity Descriptor for Electrosynthesis of H<sub>2</sub>O<sub>2</sub>: A Dream Come True?

14:20 to 14:40

**Fabiola Domínguez-Flores** (*Institut für Theoretische Chemie, Universität Ulm, Ulm, Germany*), Sung Sakong,  
Marko Melander

Thermodynamics of Metal-Water Interface Formation from Ab-Initio Molecular Dynamics Simulations

14:40 to 15:20 *Alexander Kuznetsov Prize for Theoretical Electrochemistry*

**Mira Todorova** (*Computational Materials Design Department, Max-Planck-Institut für Eisenforschung GmbH, Düsseldorf, Germany*), Sudarsan Surendralal, Jing Yang, Florian Deißbeck, Stefan Wippermann, Jörg Neugebauer

Advancing Electrochemical Insights: Ab Initio Control and Realistic Description of Solid-Liquid Interfaces

15:20 to 15:40

**Tao Wang** (*Chemistry Department, Xiamen University, Xiamen, China*)

Tuning Proton Transfer and Diffusion Kinetics via Modifying Interfacial Hydrogen Bonding Structures

15:40 to 16:00

**Johanna Schröder** (*Chemical Engineering, Stanford University, Stanford, USA*), John C. Douglin,  
José A. Zamora Zeledón, Ashton M. Aleman, Matthew J. Liu, Jinyu Guo, Keven H. Stone, Alessandro Gallo,  
Will A. Tarpeh, Dario R. Dekel, G. T. Kasun Kalhara Gunasooriya, Michaela Burke Stevens, Thomas F. Jaramillo

Material changes of bimetallic Ag–Cr, Fe, Co, Ni, Cu, Sn electrocatalysts during alkaline oxygen reduction in fundamental versus alkaline membrane exchange fuel cell conditions



16:00 to 16:20

Coffee Break

16:20 to 16:40

**Piotr Kowalski** (*Institute of Energy and Climate Research: IEK-13, Forschungszentrum Juelich, Juelich, Germany*), Zhengda He, Yin-Ying Ting, Conor Price, Michael Eikerling

How does the low spin state of Fe enhance the OER activity of Fe-Doped NiOOH?

16:40 to 17:00

**Jinqiu Zhang** (*School of Chemistry and Chemical Engineering, Harbin Institute of Technology, Harbin, China*), Dehe Fan, Yumeng Li, Ruopeng Li, Yueping Xiong, Peixia Yang, Maozhong An

Experimental and Theoretical Studies of The Electrocatalytic Reaction Pathway for Producing Ethylene on Copper Based Nanowires

17:00 to 17:20

**Paramaconi Rodriguez** (*Hydrogen Technologies, CIC energiGUNE, Vitoria, Spain*), Nerea Azcona, Lorenzo Fallarino, Rosalia Cid, Federico Calle-Vallejo

Materials Screening for OER in Alkaline Media: Effects of Composition and Structure

17:20 to 17:40

**Miao Wang** (*Research Center for Energy and Environmental Materials, National Institute for Materials Science, Tsukuba, Japan*), Akimitsu Ishii, Ken Sakaushi

Effective Prediction of Oxygen Evolution Electrocatalyst Degradation by A Data-Driven Approach

17:40 to 18:00

**Christoph Jung** (*Helmholtz Institute Ulm (HIU) Electrochemical Energy Storage, Karlsruhe Institute of Technology, Karlsruhe, Germany*), Julia Bord, Timo Jacob

Catalyst Degradation Behavior in Fuel Cells: A Molecular Dynamics and Density Functional Theory Study

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## Symposium 7b Electrocatalysis: Understanding electrochemical processes at the atomic level for industrial-scale systems

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Room: 520C

Chaired by Kai Exner, Dulce M. Morales

14:00 to 14:20 **ISE-Elsevier Prize for Applied Electrochemistry**

**Dulce M. Morales** (*Engineering and Technology Institute Groningen (ENTEG), University of Groningen, Groningen, Netherlands*), Dulce M. Morales, Eleazar Castañeda Morales, Arturo Manzo Robledo

Competition between the Electrooxidation of Alcohols and the Oxygen Evolution Reaction on a Ni-based Catalyst

14:20 to 14:40

**Munetaka Oyama** (*Graduate School of Engineering, Kyoto University, Kyoto, Japan*), Masaki Adachi

Controlled Deposition of Platinum Nanoparticles on Nickel Wire via Galvanic Replacement Reactions with Acids

14:40 to 15:00

**Weiran Zheng** (*Department of Chemistry, Guangdong Technion-Israel Institute of Technology, Shantou, China*),  
Jing Chen, Xiaowu Huang, Elissaios Stavrou

Synergy between Oxygen Evolution and Ammonia Electrooxidation on NiOOH

15:00 to 15:20

**Peyman Taheri** (*Materials Science and Engineering, Delft University of Technology, Delft, Netherlands*),  
Khatereh Roohi, Mohammad Soleimani, Nabil Khossossi, Stefano Canossa, Majid Ahmadi, Ewout van der Veer,  
Seyedamirhossein Mohseni Armaki, Praasanth Ravi Anusuyadevi, Mahinder Ramadin, Prasad Gonugunta, Arjan Mol

Synthesis and Characterization of a New Cu-S Based Metal-Organic Framework as a Selective Electrocatalyst for Formate Production

15:20 to 15:40

**Dejun Chen** (*Chemistry, Georgetown University, Washington, USA*), Tianyu Ma, YuYe Tong

Is That Possible for Low-Temperature Electrochemical Steam Methane Reforming?

15:40 to 16:00

**Zhi-You Zhou** (*Department of Chemistry, Xiamen University, Xiamen, China*)

Electrocatalytic conversion of light hydrocarbons

16:00 to 16:20

Coffee Break

16:20 to 16:40

**Kai Exner** (*Theoretical Inorganic Chemistry, University of Duisburg-Essen, Essen, Germany*), Kapil Dhaka,  
Maksim Sokolov, Muhammad Usama

The Forgotten Mechanism in Electrocatalysis: On the Importance of Walden Steps for the Modeling of Energy Conversion Processes

16:40 to 17:00

**Kenneth Flores** (*School of Sustainable Engineering and the Built Environment, Arizona State University, Tempe, USA*), Dominic Varda, Nessa Hald, Gabriel Cerrón-Calle, Sergi Garcia-Segura

Engineering bio-inspired electrocatalytic Cu/Mn bimetallic centers for tandem N-resource recovery from selective nitrate electrochemical reduction

17:00 to 17:20

**Noemi Pirrone** (*Department of Applied Science and Technology (DISAT), Politecnico di Torino, Torino, Italy*), Sara Garcia Ballesteros, Simelys Hernández, Federico Bella

A Flow Cell Reactor Exceeding 100 h Electrochemical Nitrate Reduction to Ammonia

17:20 to 17:40

**Artem Khobnya** (*Materials Department, Imperial College London, London, United Kingdom*), Anna Winiwarter, Romain Tort, Bethan Davies, Ifan Stephens

Proton Activity and Gas Phase Ammonia in Lithium-Mediated Nitrogen Reduction

17:40 to 18:00

**Xiaoyu Li** (*College of Chemistry and Chemical Engineering, Xiamen university, Xiamen, China*)

Mechanism of Cations Suppressing Proton Diffusion Kinetics for Electrocatalysis

## Symposium 8 Corrosion and surface modifications

Room: 520D

Chaired by Oumaima Gharbi, Viswanathan S. Saji

14:00 to 14:20 Invited

**John Scully** (*Department of Materials Science and Engineering, University of Virginia, Charlottesville, USA*), Ho Lun Chan, Elena Romanovskaia, Sean Mills, Minsung Hong, Valentin Romanovski, Harjot Singh, Andy Minor, Peter Hosemann

The Corrosion Behavior of Binary Ni-Cr Alloys in Molten FLiNaK Salt at Various Electrode Potentials and Temperatures

14:20 to 14:40

**Jenna Cumbers** (*Department of Chemistry and Biochemistry, Miami University, Oxford, USA*), Cory Rusinek

Corrosion Resiliency of Boron-Doped Diamond Electrodes in Molten Salts of Interest to Deep Space Exploration

15:00 to 15:20

**Thilini Suduwella** (*Chemistry, McGill University, Montreal, Canada*), Thilini Suduwella, Vikram Singh, Anastasia Messina, Antoine Juneau, Mark Aloisio, Cathleen Crudden, Janine Mauzeroll

Electrochemical Deposition of N-Heterocyclic Carbene as a Surface Primer on Mild Steel

15:20 to 15:40

**Gerardo Jose Sanchez Segovia** (*Applied Physics Department, Research Center for Advanced Study (CINVESTAV), Merida, Mexico*), Lucien Veleva, Eduardo E. Flores-Cuevas

Surface Modification of AM60 Mg-Al Alloy with V and V<sub>2</sub>O<sub>5</sub> Sputter Deposits

15:40 to 16:00

**Viswanathan S. Saji** (*Interdisciplinary Research Center for Advanced Materials, King Fahd University of Petroleum & Minerals, Dhahran, Saudi Arabia*)

Materials Degradation in Polymer Electrolyte Membrane Fuel Cells and Metal-Air Batteries: Current Understandings and Perspectives

16:00 to 16:20

Coffee Break

## Symposium 10a Sustainability and green electrochemical science and technology

**Room: 520E**

Chaired by *Ali Seifitokaldani, Maria Blanco*

14:00 to 14:20

**Antunes Staffolani** (*Department of Chemistry “Giacomo Ciamician”, Alma Mater Studiorum - University of Bologna, Bologna, Italy*), Andrea Trebbi, Alessandro Gregucci, Francesco Capodarca, Francesca Soavi

[Sustainable and Direct Recovery of Lithium-Ion Battery Cathodes using a Green Solvent](#)

14:20 to 14:40

**Yohei Matsui** (*Energy Transformation Research Laboratory, Central Research Institute of Electric Power Industry, Yokosuka, Japan*), Yuki Maeda, Makoto Kawase

[Dominant Factors of Cell Resistance in Iron-Water-Acetone-based Thermally Regenerative Flow Battery](#)

14:40 to 15:00

**Molood Hoseinizadeh** (*Engineering physics, Polytechnique Montreal, Montreal, Canada*), Nila Davari, Abdelaziz Gouda, Hamza Hyat, Daria C.Boffito, Clara Santato

[Ultrasound-Assisted Modification of Carbon Cloth with Redox-Active Molecules: Toward Sustainable Surface Engineering for Energy Storage](#)

15:00 to 15:20

**Koray Cavusoglu** (*Chemistry, University of Burgos, Burgos, Spain*), Daniel Perez-Antolin, Mario Borlaf, David Muñoz-Torrero, Edgar Ventosa

[Semi-Solid Electrodes as a Promising Type of Electrode for Sustainable Batteries](#)

15:20 to 15:40

**Yibo Wen** (*Institute of Energy and Process Systems Engineering, Technische Universität Braunschweig, Braunschweig, Germany*), Katja Kretschmer, Daniel Schröder

[Impurities during Recycling of Lithium-Ion Batteries and their Impact on Parameters for Mathematical Models](#)

15:40 to 16:00

**Maria Blanco** (*department of materials science and engineering, norwegian university of science and technology, trondheim, Norway*)

[Diatom-SiO<sub>x</sub> as sustainable high-performance anodes for Li-ion batteries](#)

16:00 to 16:20

Coffee Break

16:20 to 16:40

**Valérie Charbonneau** (*Department of Chemical and Biotechnological Engineering, Université de Sherbrooke, Sherbrooke, Canada*), David Nadeau, François Larouche, Kamyab Amouzegar, Jocelyn Veilleux

[Black Mass Impurities Effect on Re-Synthesized NMC811 by Direct Carbonate Co-Precipitation](#)

16:40 to 17:00

**Zhaojing Gao** (*Engineering Physics, Polytechnique Montréal, Montreal, Canada*), Teresa Cecchi, Dieudonné Niyonkuru, Clara Santato

[Recovery of Ruthenium Flakes and Nanoparticles from Waste Fashion Items through Food Waste By-Products](#)

17:00 to 17:20 *Invited*

**Ali Seifitokaldani** (*Chemical Engineering, McGill University, Montreal, Canada*), Hamed Heidarpour, Mahdi Salehi, Amirhossein Farzi

Enhanced Ammonia Electrosynthesis over Phosphorus-Modified Nickel

17:20 to 17:40

**Hamideh Darjazi** (*Department of Applied Science and Technology, Politecnico di Torino, Turin, Italy*), Alessandro Piovano, Silvia Porporato, Matteo Gastaldi, Giuseppina Meligrana, Giuseppe Antonio Elia, Claudio Gerbaldi

Utilizing Recycled PVB from Laminated Glass Construction Waste as Polymeric Separators and Binders

17:40 to 18:00

**Jesse Greener** (*Chemistry, Université Laval, Quebec, Canada*), William Varroy, Marc-Antoine Bansept, Changhong Cao, Denis Boudreau

All-Graphite Microfluidic Microbial Fuel Cells: from Concept to Stacks

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## Symposium 11 Energy electrochemical technology/electrosynthesis and industrial processes

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**Room: 522**

Chaired by *Isabella Nicotera, Carlos Ponce-de-Leon-Albarran*

14:00 to 14:20

**Yao Yao** (*Chemistry, Great Bay University, Dongguan, China*)

Investigating the Cathode of Membrane Electrode Assembly Electrolyzer during Electrochemical CO<sub>2</sub> Reduction to Ethylene

14:20 to 14:40

**Onofrio Scialdone** (*Dipartimento di Ingegneria, University of Palermo, Palermo, Italy*), Federica Proietto, Mario Contino, Alessandro Galia, Paola Meli

Electrochemical conversion of carbon dioxide. Effect of operative parameters and reactors

14:40 to 15:00

**Peng-Fei Sui** (*Chemical and Materials Engineering, University of Alberta, Edmonton, Canada*), Jing-Li Luo

Defective Structure Modulation of Bismuth Oxyiodide for Efficient Formate Electrosynthesis

15:00 to 15:20

**Behnam Nourmohammadi Khiarak** (*Chemical Engineering, Queen's University, Kingston, Canada*)

Direct bicarbonate electroreduction into Ethylene over oxide-drive Cu mesh

15:20 to 15:40

**Zahra Hagheh Kavousi** (*Institut Européen des Membranes (IEM), University of Montpellier, Montpellier, France*), Clémence Badie, Lionel Santinacci, Massomeh Ghorbanloo, Yaovi Holade, Mikhael Bechelany

Pd-based Nanostructures by Atomic Layer Deposition as Multifunctional Free-standing Electrocatalysts for a Biomass-fed Electrolyzer

15:40 to 16:00

**Waralee Dilokekunakul** (*Chemical Process Engineering, RWTH Aachen University - Aachener Verfahrenstechnik, Aachen, Germany*), Mojtaba Mohseni, Matthias Wessling, Robert G. Keller

Maximizing Hydrogen Peroxide Production by Eco-Friendly Electro-Generation in a Flow-Through Module

16:00 to 16:20

Coffee Break

16:20 to 16:40

**Aline Leon** (*Low carbon energy systems, European Institute for Energy Research, Karlsruhe, Germany*), Julie Villanova, Klaudia Hradil

Nanoscale XRF, XAS and XRD study of Ni-GDC and Ni-YSZ of long-term operated solid oxide electrolysis cell

16:40 to 17:00

**Josef Schefold** (*Low Carbon Hydrogen Systems, Eifer-European Institute for Energy Research, Karlsruhe, Germany*), Aline Léon

Performance and Durability of Thin Electrolyte Supported Solid Oxide Cells in Steam Electrolysis Mode

17:00 to 17:20

**Takuya Tsujiguchi** (*Faculty of Mechanical Engineering, Institute of Science and Engineering, Kanazawa University, Kanazawa, Japan*), Kakeru Fujiwara, Yugo Osaka, Akio Kodama, Kouya Yoshida

Effect of the Pore Properties of Diffusion Layers on the Performance and Mass Transport in Direct Formic Acid Fuel Cell

17:20 to 17:40

**Florian Wilhelm** (*ECB, ZSW, Ulm, Germany*), Joachim Scholta

Test Results for a High Temperature PEMFC Stack for a Methanol Converting Electricity Generator

17:40 to 18:00

**Dawit Tedros Filmon** (*Electrobiotechnology, TU-München Campus Straubing, Straubing, Germany*), Steffen Hardt, Oliver Trost, James Birrel, Vincent Fourmond, Christophe Léger, Nicolas Plumeré

Bidirectional Catalysis for Protection of Polymer-Embedded [FeFe]-Hydrogenase from O<sub>2</sub> under Intermittent Hydrogen Evolution

THURSDAY PM

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## Symposium 13 Double layer reloaded: Theory meets experiments

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Room: 524A

Chaired by Katharina Doblhoff-Dier, Katharina Krischer

14:00 to 14:20 Invited

**Katharina Krischer** (*Physics Department, Technical University of Munich, Garching, Germany*), Lucas De Kam, Thomas Maier

The Origin of Electrolyte Effects during Alkaline Hydrogen Evolution Reaction on Continuous and Nanostructured Electrodes

14:20 to 14:40

**Marco Schönig** (*Catalysis and Surface Chemistry, Leiden University, Leiden, Netherlands*)

Nanoconfinement effects at the solid-liquid interface

14:40 to 15:00

**Masao Suzuki Shibata** (*Energy Conversion Group, Lawrence Berkeley National Laboratory, Berkeley, USA*), Yu Chen, Alexandra Zagalskaya, Tuan Anh Pham, Yu Morimoto, Adam Weber, Iryna Zenyuk

Multiscale Modeling of Electric Double Layer to Analyze Reaction Kinetics: Hydrogen Reactions

15:00 to 15:20

**Julia Fernández-Vidal** (*Leiden Institute of Chemistry, Leiden University, Leiden, Netherlands*), Marc T.M. Koper  
[Investigating the Structure of the Electric Double Layer During Hydrogen Electrocatalysis](#)

15:20 to 15:40

**Federico Dattila** (*Department of Applied Science and Technology (DISAT), Politecnico di Torino, Turin, Italy*), Mariana Monteiro, Chunmiao Ye, Alessia Fortunati, Federica Zammillo, Xiaoting Chen, Hilmar Guzmán, Rodrigo García-Muelas, Simelys Hernández, Marc Koper, Núria López  
[Modeling Electrolyte Effects in Electrochemical CO<sub>2</sub> Reduction](#)

15:40 to 16:00

**Tao Cheng** (*Institute of Functional Nano & Soft Materials (FUNSOM), Soochow University, Suzhou, China*)  
[Multiscale Electrochemical Interface and Interphase Simulation](#)

16:00 to 16:20

Coffee Break

16:20 to 16:40

**Katharina Doblhoff-Dier** (*Leiden Institute of Chemistry, Leiden University, Leiden, Netherlands*), Justina Moss, Bibiana Turkcan, Arthur Hagopian  
[The Structure of Cations at Electrochemical Interfaces](#)

16:40 to 17:00

**Nicéphore Bonnet** (*Theos, EPFL, Lausanne, Switzerland*), Nicola Marzari  
[Machine Learning Molecular Dynamics and Multiscale Modelling of the Electrode/Electrolyte Interface](#)

17:00 to 17:20

**Olaf Magnussen** (*Institute of experimental and applied physics, Kiel University, Kiel, Germany*), Finn Schröter, Jan Ole Fehrs, Timo Fuchs, Andrea Sartori, Olvido Moreda, Jakub Drnec  
[X-ray surface diffraction studies of the Pt-electrolyte interface structure](#)

17:20 to 17:40

**Ramin Karimi Azari** (*Engineering Physics, Polytechnique Montreal, Montreal, Canada*), Luan Pereira Camargo, José Ramon Herrera Garza, Lariel Neres, Martin Schwellberger Barbosa, Clara Santato  
[Metal Oxide Ion-Gated Transistors: from In Operando Characterization Techniques to Neuromorphic Computing Applications](#)

## Symposium 14 Recent advances in photoelectrochemistry and plasmonics: Fundamentals and applications

Room: 524B

Chaired by Fumiaki Amano, Dongling Ma

14:00 to 14:20 Invited

**Dongling Ma** (Center Energy, Materials and Telecommunications, Institut national de la recherche scientifique, Varennes, Canada)

Towards Broadband Photocatalysis

14:20 to 14:40

**Camilo Perdomo** (Chemical and materials Engineering, Concordia University, Montreal, Canada),  
Nhat Truong Nguyen

Surface chemistry approach for the synthesis of multijunction photocatalysts based on TiO<sub>2</sub> nanotubes 2D array

14:40 to 15:00

**Gabriel Cerron** (School of Sustainable Environment and the Built Environment, Arizona State University, Tempe, USA), Noah Butzine, Sergi Garcia-Segura

Photoelectrochemical Reduction of Nitrate Towards Selective Ammonia Recovery using Inter-layered Photo-Electrodes

15:00 to 15:20

**Joseph Daniel Chiong** (Chemistry and Biochemistry, Concordia University, Montreal, Canada), Zujhar Singh, Joseph Ricardo-Noordberg, Nhat Truong Nguyen, Marek B. Majewski

Titania Nanotube Semiconductor Arrays for Copper(I)-Bis(diimine) Sensitized Photoelectrodes

15:20 to 15:40

**Shadia Khan** (Chemical and Biological Engineering, University of Ottawa, Ottawa, Canada), Mohamed S. E. Houache, Yaser Abu-Lebdeh, Elena A. Baranova

Exploring Plasmon-Enhanced CO<sub>2</sub> Electrochemical Reduction on Copper-Based Catalysts

15:40 to 16:00

**Lina Marcela Aristizábal Duarte** (Chemistry, Universidad de los Andes, Bogotá, D.C., Colombia), María Teresa Cortes Montañez, Pablo Ortiz

Doped Nickel Oxide (NiOx) Layers via electrodeposition as Hole Transporting Material in Inverted Perovskite Solar Cells

16:00 to 16:20

Coffee Break

16:20 to 16:40

**Kelechi Nwambakwe** (Chemistry, SensorLab, University of the Western Cape, Cape Town, South Africa), Sodiq Yussuf, Ziyanda Tshobeni, Morongwa Ramoroka, Emmanuel Iwuoha

Down-Conversion and Electrokinetics of Nanoengineered Yttrium Oxyselenides for Enhanced Photovoltaics



16:40 to 17:00

**Shadrack Yimbila** (*Chemical and Materials Engineering, Concordia University, Montreal, Montreal, Canada*), Nhat Truong Nguyen, Camilo Perdomo

Microwave-assisted CuNi decoration on Titania nanotubes for enhanced photocatalytic conversion of CO<sub>2</sub>.

17:00 to 17:20

**Mahendra Patel** (*STI, LRESE, EPFL, Lausanne, Switzerland*)

Photo-electrochemical CO<sub>2</sub> to Ethylene conversion using Concentrated Solar Irradiation

17:20 to 17:40

**Negar Sabouhanian** (*Chemistry, University of Guelph, Guelph, Canada*), Jacek Lipkowski, Aicheng Chen

Development of Nanostructured Catalysts for Electrochemical CO<sub>2</sub> Reduction

17:40 to 18:00

**Stephane Bastide** (*Institut de Chimie et des Matériaux Paris-Est, CNRS - Université Paris-Est Créteil, Thiais, France*), Harsh Chaliyawala, Tarik Bourouina, Frederic Marty, Kadiatou Bah, Christine Cachet-Vivier, Encarnacion Torralba

Silicon Photocathodes with Bimetallic Nanocatalysts for Solar-Assisted CO<sub>2</sub> Electrochemical Conversion

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## Symposium 15 Advances in methods for in-situ and operando study of electrochemical interfaces and systems

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Room: 524C

Chaired by Ian Burgess

14:00 to 14:20

**Jian-Feng Li** (*Chemistry, Xiamen University, Xiamen, China*)

In-situ Raman Spectroscopy Study of Oxygen Reduction Reaction Intermediates

14:20 to 14:40

**Thomas Moffat** (*Materials Measurement Laboratory, NIST, Gaithersburg, USA*), David Raciti, Angela Hight Walker

SHINERS, ECMS and ECSTM Study of Cu Surface Chemistry

14:40 to 15:00

**Enrique Quiroga-González** (*Institute of Physics, BUAP, Puebla, Mexico*), Karina del Carmen Chávez-Gómez

Operando Raman Spectroscopy of Metal Oxide Thin Film Supercapacitors at the Electrode-Electrolyte Interphase

15:00 to 15:20

**Bin Ren** (*Department of Chemistry, Xiamen University, Xiamen, China*), Yajun Huang, Jingxin Huang, Tianyi Yang, Guokun Liu, Xiang Wang, Bin Ren

Combined Rotating Disk Electrode Technique and Electrochemical Surface-enhanced Raman Spectroscopy

15:20 to 15:40

**Madjid Tarabet** (*Meurthe-et-Moselle, LCPME / Université de Lorraine/ CNRS, Nancy, France*), Yinxi Zou, Manuel Dossot, Grégoire Herzog

SERS at Au nanoparticle films assembled at liquid-liquid interfaces under electrochemical control

15:40 to 16:00

**Guillaume Goubert** (*Chemistry, Université du Québec à Montréal, Montréal, Canada*), Maryam Alihosseini, Samaneh Salek Esfahani, Joshua Byers

[In Situ Study of MXene Single Flakes with Raman and SECCM](#)

16:00 to 16:20

Coffee Break

16:20 to 17:00 **ISE-Elsevier Prize for Experimental Electrochemistry**

**Ian Burgess** (*Chemistry, University of Saskatchewan, Saskatoon, Canada*)

[Advances in Electrochemical Attenuated Total Reflection Surface Enhanced Infrared Absorption Spectroscopy](#)

17:00 to 17:20 *Invited*

**Wen-Bin Cai** (*Department of Chemistry, Fudan University, Shanghai, China*), Kun Jiang, Xian-Yin Ma, Wei-Yi Zhang

[TiO<sub>2</sub> Barrier Layer on Si Enables Electrochemical ATR-SEIRAS Application in Strong Alkaline Electrolytes](#)

17:20 to 17:40

**JinYu Ye** (*Chemistry, Xiamen University, Xiamen, China*), JiaFeng Du, Nan Fang, ChunYu Qiu, JinYu Ye, YuCheng Wang, ZhiYou Zhou, ShiGang Sun

[Unraveling CO Poisoning Mechanism in PEMFCs by Using Operando Infrared Spectroscopy](#)

## Symposium 17 Symposium in memory of Allen Bard

**Room: 520F**

*Chaired by Mario Alpuche-Aviles, Carlos Sanchez-Sanchez*

14:00 to 14:40 *Keynote*

**Hector Abruna** (*Department of Chemistry & Chemical Biology, Cornell University, Ithaca, USA*)

[Energy Conversion and Storage: Novel Materials and Operando Methods](#)

14:40 to 15:00 *Invited*

**Sabine Kuss** (*Chemistry, University of Manitoba, Winnipeg, Canada*), Dhesmon Lima, Shubhneet Thind, Nikita Thomas, Roy Daou, Mengzhen Lyu

[From a Pioneer's Discoveries to Diagnostic Applications – Advancing SECM for the Quantitative Analysis of Living Cells](#)

15:00 to 15:20 *Invited*

**Shigeru Amemiya** (*Chemistry, University of Pittsburgh, Pittsburgh, USA*)

[Uncovering Interactions of Biological Membrane with Transported Molecule by Transient Scanning Electrochemical Microscopy](#)

15:20 to 15:40 *Invited*

**Netz Arroyo** (*Pharmacology and Molecular Sciences, Johns Hopkins University School of Medicine, Baltimore, USA*)

[Solutions to Overcome Competitive Displacement of Oligonucleotides from Nucleic acid-based Electrochemical Sensors in Biofluids](#)

15:40 to 16:00

**Dipankar Koley** (*Chemistry, Oregon State University, Corvallis, USA*)

Exploring Stripping Voltammetry on Ion-Selective Electrodes

16:00 to 16:20

Coffee Break

16:20 to 16:40 Invited

**Daniel Mandler** (*Institute of Chemistry, Hebrew University of Jerusalem, Jerusalem, Israel*), Din Zelikovich, Hila Sagi, Pavel Savchenko, Iska Cohen

From nanoparticle-imprinted matrix to scanning electrochemical microscopy

16:40 to 17:00 Invited

**Jeffrey Dick** (*Chemistry, Purdue University, West Lafayette, USA*)

Droplet Like It's Hot: New Measurement Tools to Probe Curious Chemistry in Multiphase Microenvironments

17:00 to 17:20

**Aliaksei Boika** (*Chemistry, The University of Akron, Akron, USA*), Baosen Zhang, Gabriel Gemadzie

Neural Network Analysis of Single Entity Electrochemical (SEE) Data

17:20 to 17:40 Invited

**Guy Denuault** (*Chemistry, University of Southampton, Southampton, United Kingdom*)

Chronoamperometry Revisited: Opportunities and Challenges

17:40 to 18:00 Invited

**Lianhuan Han** (*Department of Mechanical and Electrical Engineering, Xiamen University, Xiamen, China*)

Electrochemical Nanomachining of Semiconductor Based on Scanning Electrochemical Microscopy

18:00 to 18:20

**Qingdan Ding** (*Chemistry, East China University of Science and Technology, Shanghai, China*), Zehui Sun, Wei Ma

Probing Conformational Kinetics of Catalase with and without Magnetic Field by Single-Entity Collision Electrochemistry

# Friday 23 August 2024 - Morning

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## Plenary lecture

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**Room: 710**

Chaired by Dan Bizzotto

08:15 to 09:15

**Alexander Kuhn** (*Institut of Molecular Science, University of Bordeaux, Pessac, France*)

[Electrochemically Induced Asymmetry: from Molecules and Materials to Motion and Back](#)

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## Symposium 2 Scanning probe microscopies: Towards quantitative electrochemistry

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**Room: 518A**

Chaired by Joshua Byers, Joaquín Rodríguez-López

09:30 to 10:10 Keynote

**Joaquín Rodríguez-López** (*Department of Chemistry, University of Illinois Urbana-Champaign, Urbana, USA*), Peisen Qian, Armando Santiago-Carboney

[Scanning Electrochemical Microscopy in Emerging Electrolytes for Redox Flow Batteries: Convective, Kinetic, and Dynamic Effects](#)

10:10 to 10:30

**Joshua Byers** (*Chimie, Université du Québec à Montréal, Montréal, Canada*), Samaneh Salek, Romaric Beugré

[Time-resolved photoelectrochemistry of hematite photoanodes using scanning electrochemical cell microscopy](#)

10:30 to 10:50

Coffee Break

10:50 to 11:10 Invited

**Dongping Zhan** (*Chemistry, Xiamen University, Xiamen, China*), Wenjing Nan, Yang Wang, Lianhuan Han, Lan Geng

[Multi-Modes Integrated Scanning Electrochemical Microscopy](#)

11:10 to 11:30

**Karuna Aurel Kanes** (*Institute of Chemistry, Carl von Ossietzky Universität Oldenburg, Oldenburg, Germany*), Dmitry Momotenko

[Electrochemical Additive Manufacturing – Achieving 3D Metal Nanofabrication Using Chemical Focusing](#)

11:30 to 11:50

**Giada Caniglia** (*Institute for Analytical and Bioanalytical Chemistry, Ulm University, Ulm, Germany*), Sutripto Khasnabis, Robert Godin, Christine Kranz

[Platinum-Black Modified Microelectrodes for In Situ / Operando Hydrogen Measurements at Polymeric Carbon Nitride Microstructures](#)

11:50 to 12:10

**Wojciech Nogala** (*Nanoelectrochemistry Group, Institute of Physical Chemistry, Polish Academy of Sciences, Warsaw, Poland*), Ariba Aziz, Joanna Celej, Vaishali Shrivastav, Disha Disha, Vishal Shrivastav, Wojciech Nogala

SECM Analysis of Hydrogen Evolution Reaction and Coupled Homogeneous Processes

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## Symposium 3 Improving health monitoring and pollutant detection using electrochemical sensors

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**Room: 518B**

Chaired by *Dhesmon Lima*

09:30 to 09:50

**Meiru An** (*Institute for Materials Discovery, University College London, London, United Kingdom*), Meiru An, Mengyan Nie

High-performance Recycled Silk Fabric Based Wearable Biosensor Electrode

09:50 to 10:10

**Lauro Pradela Filho** (*Institute of Chemistry, University of São Paulo, São Paulo, Brazil*), Zachary Berkheimer, Anum Tahir, Thiago Paixão, Adam Woolley

Continuous-Flow Paper-Based Microfluidic Devices for Lactate Electrochemical Biosensing

10:10 to 10:30

**Mohamed Ahmed** (*Electrobiotechnology, Technical University of Munich, Straubing, Germany*), Alaa Oughli, Huijie Zhang, Nicoals Plumeré

Development of an Oxygen-Insensitive Electrochemical Oxidase-Based Biosensor

10:30 to 10:50

Coffee Break

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## Symposium 5a Electrochemistry of advanced batteries: Fundamentals, progress, and challenges

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**Room: 519A**

Chaired by *Hye Ryung Byon*

09:30 to 10:10 Keynote

**Shi-Gang Sun** (*Chemistry Department, Xiamen University, Xiamen, China*), Li-Bin Chen, Xiao-Hong Wu, Zheng-Gang Li, Zhen Tong, Peng-Fang Zhang, Ling Huang, Jun-Tao Li, Yu Qiao

A Sealed Li-Li Oxide Battery Based on Reversible  $\text{LiO}_2/\text{Li}_2\text{O}_2$  Interconversion

10:10 to 10:30

**Ken-ichi Inoue** (*Department of Chemistry, Graduate School of Science, Tohoku University, 980-8578, Japan*), Ken-ichi Inoue, Shiori Shinozaki, Nanako Ishida, Takeru Hiraide, Shen Ye

Quantitative Evaluation of Singlet Oxygen During Discharge in Lithium-Oxygen Batteries

10:30 to 10:50

Coffee Break

10:50 to 11:10

**Filipe Marques Mota** (*School of Chemistry, University of Lincoln, Lincoln, United Kingdom*)

Li-“air” batteries: CO<sub>2</sub>-related Challenges and Performance Enhancement Strategies

11:10 to 11:30

**Kohei Shimokawa** (*Frontier Research Institute for Interdisciplinary Sciences, Tohoku University, Sendai, Japan*), Kohei Shimokawa, Shogo Matsubara, Tomoya Kawaguchi, Akihiro Okamoto, Tetsu Ichitsubo

Light-Induced Charging of LiMn<sub>2</sub>O<sub>4</sub>-Based Cathode Materials for Aqueous Photobatteries

11:30 to 11:50

**Will Skene** (*Chemistry, Universite de Montreal, Montreal, Canada*), Elsa Briquleur, Mickaël Dollé

Rationally Designing Components of a Battery for it to be Charged with Light

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## Symposium 5b Electrochemistry of advanced batteries: Fundamentals, progress, and challenges

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**Room: 519B**

Chaired by *Stefan Freunberger*

09:30 to 09:50 *Invited*

**Stefan Freunberger** (*Institute of Science and Technology Austria, Klosterneuburg, Austria*)

New tools to assess mechanisms in sulfur electrochemistry

09:50 to 10:10

**Pouya Partovi-Azar** (*Institute for Chemistry, Martin Luther University of Halle-Wittenberg, Halle (Saale), Germany*), Rana Kiani, Timo Held, Daniel Sebastiani, Pouya Partovi-Azar

Ab initio Simulation of Operando Raman Spectroscopy of Sulfur/Carbon Copolymer Cathodes During the Discharge of Li-S Batteries

10:10 to 10:30

**Magdalena Muhr** (*School of Chemistry, University of Nottingham, Nottingham, United Kingdom*), Darren Walsh, Lee Johnson, Graham Newton

Achieving Superior Cell Performance in Li-S Batteries through Molecular Additives

10:30 to 10:50

Coffee Break

10:50 to 11:10 *Invited*

**Yongzhu Fu** (*Chemistry, Zhengzhou University, Zhengzhou, China*)

Organosulfide Cathode Materials for Rechargeable Metal Batteries

11:10 to 11:30

**Wenlong Tang** (*Faculty of Science and Engineering, Stratingh institute for chemistry, Groningen, Netherlands*), Jelte S Steen, Edwin Otten

Stability of Non-Aqueous RFB Electrolytes

## Symposium 7a Electrocatalysis: Understanding electrochemical processes at the atomic level for industrial-scale systems

**Room: 520B**

Chaired by Michael Busch, Amir Gasmí

09:30 to 09:50

**Michael Busch** (Department of Engineering Sciences and Mathematics, Luleå University of Technology, Luleå, Sweden), Michael Busch

Green Chlorate – Dream or Possibility?

09:50 to 10:10

**Olaf Brummel** (Interface Research and Catalysis, Friedrich-Alexander-Universitaet Erlangen-Nuernberg, Erlangen, Germany), Alexander Simanenko, Robert Huebsch, Pankaj Kumar Samal, Juntao Yang, Maximilian Kastenmeier, Florian Winkler, Tomáš Skála, Nataliya Tsud, Sascha Mehl, Josef Myslivecek, Yaroslava Lykhach, Joerg Libuda

The Origin of the Low Overpotential Peak in the Oxidation of 2-Propanol on PtRu Electrocatalysts

10:10 to 10:30

**Amir GASMI** (ICGM, Montpellier University, CNRS, Montpellier, France), Meryem Ennaji, Carlos A. Campos-Roldan, Jakub Drnec, Deborah Jones, Raphaël Chattot

Probing the (Local) Structure of Hollow Ir Cu Aerogel Catalyst during the Oxygen Evolution Reaction Using Operando X-Ray (Total) Scattering

10:30 to 10:50

Coffee Break

10:50 to 11:10

**Amber Watson** (School of Chemistry and Chemical Engineering, University of Southampton, Southampton, United Kingdom), Guy Denuault, Andrea E. Russell

Beyond the RDE: SCV for Electrocatalyst Screening

11:10 to 11:30

**Justus Masa** (Heterogeneous Catalysis, Max Planck Institute for Chemical Energy Conversion, Mülheim an der Ruhr, Germany), Sayed El Refaei

Design of stable electrodes for electrocatalytic oxygen evolution guided by transient dynamics and structure-activity-stability insights

11:30 to 11:50

**Parisa Molaeipourashka** (SURF, Vrije Universiteit Brussel, Brussel, Belgium), Bart van den Bossche, Roger de Paz Castany, Eva Pellicer, Annick Hubin, Mesfin Haile Mamme

Multi-ion-based Multiphysics modelling of Ni-W electrodeposition process

## Symposium 8 Corrosion and surface modifications

Room: 520D

Chaired by Erika Bustos, Monica Santamaria

09:30 to 10:10 Keynote

**Erika Bustos** (*Science, CIDETEQ, S. C., Pedro Escobedo, Mexico*), Víctor Julián González-Nava, Francisco Javier Bacame-Valenzuela, María Yolanda Reyes-Vidal, Juan Manríquez-Rocha, Selene Sepúlveda-Guzmán, Jesús Cárdenas-Mijangos, Roberto Fernando Frausto-Castillo

[Electrochemical Treatment of Hemodialysis Wastewater from a Clinic Using Modified Surfaces with Transition Metal Oxides](#)

10:10 to 10:30

**Silvia Cere** (*INTEMA, CONICET-University of Mar del Plata, Mar del Plata, Argentina*), Florencia Tano de la Hoz, Federico Fioravanti, Vanina Usach, Patricia Setton, Gabriela Lacconi, Maria Rosa Katunar

[Evaluation of graphene oxide \(GO\) coating on Mg-alloy for clinical applications: study of different conditions for GO deposition](#)

10:30 to 10:50 Coffee Break

10:50 to 11:10

**Monica Santamaria** (*Dipartimento di Ingegneria, Università degli Studi di Palermo, Palermo, Italy*), Monica Santamaria, Davide Pupillo, Vincenzo Verro, Giada Tranchida, Alexander B. Tesler, Sannakaisa Virtanen, Francesco Di Franco

[Tuning the biodegradation rate of Mg alloys for bioresorbable implants](#)

11:10 to 11:30 Invited

**Francesco Di Franco** (*Dipartimento di Ingegneria, Università degli Studi di Palermo, Palermo, Italy*), Francesco Di Franco, Davide Pupillo, Leonardo Iannucci, Sabrina Grassini, Monica Santamaria

[The effect of different physiological solutions on corrosion behaviour of zinc for biodegradable implants](#)

11:30 to 11:50

**Silviu Iulian Drob** (*Electrochemistry and Corrosion, Institute of Physical Chemistry "Ilie Murgulescu", Bucharest, Romania*), Valentina Mitran, Adela Ioana Staras, Jose Maria Calderon Moreno, Anisoara Cimpean, Silviu Iulian Drob

[Ternary zirconium bio-alloy for use in implantology](#)

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## Symposium 10a Sustainability and green electrochemical science and technology

Room: 520E

Chaired by Carlos Alberto Martinez-Huitle

09:30 to 09:50

**Erwan Bertin** (*Chemistry, St Francis Xavier University, Antigonish, Canada*), Joey Murphy, Aaron Mason, Craig Bennett

[Using Pulsed Laser Ablation in Liquids as an Environmentally Friendly Route to Prepare Electrocatalysts](#)

09:50 to 10:10

**Niranjanmurthi Lingappan** (*Dept. of Mechanical Engineering, Chonnam National University, Yong Bong-Ro, Korea*), Wonoh Lee

[Lithium-doped Molybdenum Iron Oxyhydroxide Nanosheets Coupled Polyaniline Functionalized Carbon Cloth as Bi-functional Electrocatalysts for Hydrogen/Oxygen Evolution Reactions at All pH Levels](#)



10:10 to 10:30

**Ebrahim Karimi Sibaki** (*Simulation and Modeling of Metallurgical processes, Montanuniversität, Leoben, Austria*), Abdellah Kharicha

Multiphase Modeling of Dynamically Deforming Electrode-Electrolyte Interface in Electrochemical Systems

10:30 to 10:50

Coffee Break

10:50 to 11:10

**Majid Shahsanaei** (*Chemistry and Structure of New Materials, University of Siegen, Siegen, Germany*), Nastaran Farahbakhsh, Shiva Mohajernia, Manuela S. Killian, Sina Hejazi

Synergistic enhancement of photocatalytic hydrogen production in TiO<sub>2</sub> nanosheets through light-induced defect formation and Pt single atoms

11:10 to 11:30

**Nastaran Farahbakhsh** (*Chemistry and Structure of novel Materials, Universität Siegen, Siegen, Germany*), Majid Shahsanaei, Sina Hejazi, Shiva Mohajernia, Manuela S. Killian

Ir Single-Atom Anchoring on NiO Nanostructures for Enhanced Oxygen Evolution Reaction

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## Symposium 11 Energy electrochemical technology/electrosynthesis and industrial processes

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**Room: 522**

Chaired by Jesus Palma

09:30 to 09:50 Invited

**Jeff Gostick** (*Chemical Engineering, University of Waterloo, Waterloo, Canada*), Mehrzad Alizadeh, Takahiro Suzuki, Shohji Tsushima

Going Against the Flow: Optimizing Redox Flow Battery Electrode Structures for Higher Power at Lower Pumping Cost

09:50 to 10:10 Invited

**Rebeca Marcilla** (*Electrochemical Processes Unit, IMDEA Energy, Móstoles, Madrid, Spain*)

Membrane-Free Redox Flow Batteries. Challenges and Opportunities.

10:10 to 10:30

**Ebrahim Karimi Sibaki** (*Simulation and Modeling of Metallurgical processes, Montanuniversität Leoben, Leoben, Austria*), Abdellah Kharicha

Modeling Electrolytic Gas Flow Generation in Vertical Cells with Application to Alkaline Water Electrolysis (AWE)

10:30 to 10:50

Coffee Break

10:50 to 11:10

**Himanshu Dehra** (*Wellstar Beacon Labs, Monarchy of Concordia, Faridabad, India*)

Sodium Metal Based Desalination Battery for Electrolysis and Trigenation using Direct-Current Generator

11:10 to 11:30

**Lucia Mascaro** (*Chemistry department, Federal University of São Carlos, São Carlos, Brazil*), Mitchell Silva, Matheus Brito, Lucia Mascaro

One-spot Microwave-Assisted Growth of Nickel Sulfides Directly on Porous Nickel Electrodeposited Over Steel Mesh for Alkaline Water Electrolysis

11:30 to 11:50

**Negin Madelat** (*Materials and chemistry, VUB (Vrij universiteit of Brussels), Ixelles, Belgium*), Benny Wouters, Raf Claessens, Tom Hauffman, Annick Hubin

In situ monitoring of the electrochemical performance of Pb-Ag anodes in the zinc electrowinning process under fluctuating current density using Operando ORP-EIS

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## Symposium 13 Double layer reloaded: Theory meets experiments

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**Room: 524A**

Chaired by Takeshi Fukuma, Daniel Guay

09:30 to 09:50 Invited

**Takeshi Fukuma** (*Nano Life Science Institute, Kanazawa University, Kanazawa, Japan*)

Visualizing EDL Structures and EC Reaction Distributions by Open-Loop Electric Potential Microscopy

09:50 to 10:10

**Manuel Landstorfer** (*Thermodynamic Modeling and Analysis of Phase Transitions, Weierstrass Institute for Applied Analysis and Stochastics, Berlin, Germany*), Helmut Baltruschat

Thermodynamic modeling of aqueous and aprotic electrode-electrolyte interfaces and their and double layer capacitance

10:10 to 10:30

**Nils Bruch** (*IEK-13, Forschungszentrum Jülich, Jülich, Germany*), Tobias Binninger, Jun Huang, Michael Eikerling

Modeling the Influence of Electrolyte Correlation Effects on Capacitance Characteristics of Electrified Interfaces

10:30 to 10:50

Coffee Break

10:50 to 11:10

**Donald Kirk** (*Chemical Engineering and Applied Chemistry, University of Toronto, Toronto, Canada*)

Energy Storage at the Helmholtz Layer- a new perspective

11:10 to 11:30

**Naoya Nishi** (*Department of Energy and Hydrocarbon Chemistry, Kyoto University, Kyoto, Japan*), Naoya Nishi, Iori Tabata, Koji Miyazato, Yuko Yokoyama, Tetsuo Sakka

Double Layer at the Electrochemical Interface of Ionic Plastic Crystals: a Molecular Dynamics Study

11:30 to 11:50

**Arkadiusz Grempek** (*Biological and Chemical Research Centre, University of Warsaw, Warsaw, Poland*), Damian Dziubak, Karolina Pułka-Ziach, Paulina Bachurska, Sławomir Sek

pH-dependent Charge Transfer Resistance of Functional Monolayers of Helical Oligoureas

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## Symposium 17 Symposium in memory of Allen Bard

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**Room: 520F**

*Chaired by Mario Alpuche-Aviles, Carlos Sanchez-Sanchez*

*09:30 to 10:10 Keynote*

**Michael Mirkin** (*Chemistry and Biochemistry, Queens College - CUNY, Flushing, USA*), Gaukhar Askarova, Koushik Barman, Tianyu Bo, Ziyuan Wang, Muhammad Rauf

[Following in Al Bard's Footsteps: SECM and Nanoelectrochemical Studies of Electrocatalysts](#)

*10:10 to 10:30 Invited*

**Christine Kranz** (*Institute of Analytical and Bioanalytical Chemistry, Ulm University, Ulm, Germany*), Eva Oswald, Giada Caniglia, Anna-Laurine Gaus, Max von Delius

[Scanning Electrochemical Probe Microscopy: Hydrogen Evolution Screening of Molecular Photocatalyst/Photosensitizer Arrays](#)

*10:30 to 10:50*

Coffee Break

*10:50 to 11:10 Invited*

**Peixin He** (*Research and development, CH Instruments, Inc., Bee Cave, USA*)

[Scanning Electrochemical Microscope Instrumentation](#)

*11:10 to 11:30*

**Kirk Bevan** (*Mining & Materials Engineering, McGill University, Montreal, Canada*)

[How Bright Can Electrochemical Luminescence Be?](#)

*11:30 to 11:50*

**Kristina Tschulik** (*Faculty of Chemistry and Biochemistry, Ruhr University, Bochum, Germany*)  
Johanna Angona, Oliver Trost, Zhibin Liu, Pouya Hosseini.

[Exploiting Single Nanoparticle Electrochemistry and Scanning Electrochemical Cell Microscopy to Reveal the Facet Dependent OER Activity of Cobalt Oxide Catalysts](#)



# Poster presentation program



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## Symposium 1 The electroanalytical journey from the fundamental electrochemical concept to the analytical application

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S01-P-001

**Je Hyun Bae** (*Graduate School of Analytical Science and Technology (GRAST), Chungnam National University, Daejeon, Korea*), Hyun Ju Yang, Jinju Kim

Selective Electrochemical Reactions Based on Adsorption at Nanoporous Electrodes

S01-P-002

**Ana Casanova** (*ICMN-UMR 7374, CNRS - Université d'Orléans, Orléans, France*), Christine Vautrin-UI

A Non-Invasive Multiplexed Sensor for the Monitoring in Real-Time of Stress Signals in Plants

S01-P-003

**Alicia Gomis-Berenguer** (*Institute of Electrochemistry, University of Alicante, Alicante, Spain*), Ana Casanova, Alicia Gomis-Berenguer, Craig E. Banks, Jesus Iniesta

Engineered Carbon-based Electrochemical Sensors for Biomarkers Detection in Epigenetic Modifications

S01-P-004

**Kosuke Ino** (*Graduate School of Engineering, Tohoku University, Sendai, Japan*), Kimiharu Oba, Hiroya Abe, Hitoshi Shiku

Electrochemiluminescence Microscopy of Cell Adhesion in Microphysiological Systems

S01-P-005

**Sung Il Kim** (*Department of Chemistry, Seoul National University, Seoul, Korea*), Taek Dong Chung

In Situ Real-Time Dendritic Growth Determination of Electrodeposits on Ultramicroelectrodes using Fourier Transform Electrochemical Impedance Spectroscopy

S01-P-006

**Don Hui Lee** (*Department of Chemistry, Yonsei University, Seoul, Korea*), Won-Yong Lee

Introducing Nano Electrochemistry to Affinity-based Biosensing System for Ultrasensitive In-situ Detection of Small Molecule

S01-P-007

**Gilberto Martinez-Blanco** (*Chemistry, University of British Columbia, Vancouver, Canada*), Daina Baker, Tianxiao Ma, Dan Bizzotto

Using EIS methods to measure the hybridization of redox-labeled ssDNA SAMs

S01-P-008

**Chloe Miller** (*School of Applied Sciences, University of Brighton, Brighton, United Kingdom*), Zehao Xue, Ricoveer Shergill, Bhavik Patel

D Printed Microelectrodes for Biological Measurement

S01-P-009

**Natasha Ross** (*Chemistry, University of the Western Cape, Bellville, South Africa*)

Electrochemical analysis of lead-free hybrid halide perovskite nanocomposites towards enhanced humidity sensing performance

S01-P-010

**Jorge Ruvalcaba-Juárez** (*Analytical Chemistry, Universidad Nacional Autonoma de Mexico, Mexico City, Mexico*), Arturo-de-Jesus Garcia-Mendoza

Influence of water as an impurity in a family of Room Temperature Ionic Liquids (RTILs) based on imidazolium.

S01-P-011

**Jorge Ruvalcaba-Juárez** (*Analytical Chemistry, Universidad Nacional Autonoma de Mexico, Mexico City, Mexico*), Oscar Valenzuela-Bonilla, Arturo-de-Jesus Garcia-Mendoza

Extraction of silver(I) in the water/bis(trifluoromethylsulfonyl)imide 1 butyl-3-methylimidazolium system.

S01-P-012

**J.A. Squella** (*Organic & Physical Chemistry Department., University of Chile, Santiago, Chile*)

Electrochemical Oxidation of Nimodipine Using MWCNT Buckypaper disks on Screen Printed Electrodes.

S01-P-013

**Andrew Wain** (*Electrochemistry Group, National Physical Laboratory, Teddington, UK*), Thomas Wakelin

Characterisation of Self-Assembled Monolayers using Electrochemical Impedance Spectroscopy: Time-Dependent Response

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## Symposium 2 Scanning probe microscopies: Towards quantitative electrochemistry

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S02-P-001

**Katherine Bazin** (*University of Manitoba, Winnipeg, Canada*), Nikita Thomas, Vikram Singh, Dao Trinh, Sabine Kuss

Single Cell Scanning Photoelectrochemical Microscopy: Spectroelectrochemistry at the Microscale

S02-P-002

**Philippe Hapiot** (*Institut des Sciences Chimiques de Rennes, CNRS - Université de Rennes 1, Rennes, France*), Guilhem Pignol, Shuai Liu

Using ferrocenylated Nanoparticles as Specific Redox Probes for SECM

S02-P-003

**Mariya Kadiri** (*Department of Mining, Metallurgical and Materials Engineerin, université laval, Québec city, Canada*), Hendra Hermawan

Electrochemical and surface characterization of TiHfZrNbx high-entropy alloys as bipolar plates for proton exchange membrane water electrolysis

S02-P-004

**Roy Daou** (*Dept. of Chemistry, University of Manitoba, Winnipeg, Canada*), Evan Booy, Sean McKenna, Sabine Kuss

Electrochemical Detection of Platinum-Based Chemoresistance and Correlation With MEK1 Activity in Living Cancer Cells

S02-P-005

**Samaneh Salek** (*Chemistry, Université du Québec à Montréal (UQAM), Montreal, Canada*), Joshua C Byers

Kinetic analysis of the oxygen reduction reaction on single platinum particles

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## Symposium 3 Improving health monitoring and pollutant detection using electrochemical sensors

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S03-P-001

**Mohamed Ahmed** (*Electrobiotechnology, Technical University of Munich, Straubing, Germany*), Huijie Zhang, Nicoals Plumeré

Development of an Oxygen-Insensitive Electrochemical Oxidase-Based Biosensor

S03-P-002

**Stephane Bastide** (*Institut de Chimie et des Matériaux Paris-Est, CNRS - Université Paris-Est Créteil, Thiais, France*), Raihana Benyahia, Lamia Rebiai, Encarnacion Torralba, Kadiatou Bah, Christine Cachet-Vivier

Urea detection with an Electrochromic Ni(OH)<sub>2</sub>/NiOOH Sensor

S03-P-003

**Nicholas Bruno** (*Chemistry, University of Central Florida, Orlando, USA*), Julio Ojeda, Wencai Zhang, Karin Chumbimuni-Torres

Differentiation of miRNA Using Highly Reproducible Biosensors for Early Detection of Metastatic Lung Cancer

S03-P-004

**Erika Bustos** (*Science, CIDETEQ, S. C., San Fandila, Mexico*), Víctor Julián González-Nava, Sara Solís-Valdéz, Selene Sepúlveda-Guzmán, Juan Manríquez-Rocha, Angela Stortini

Modified Surfaces with Prussian Blue over Screen-Printed Electrodes Base Carbon and Carbon Nanotubes for Sodium Detection in Soil Extracts

S03-P-005

**Ana Casanova** (*ICMN (UMR 7374), CNRS - Université d'Orléans, Orléans, France*), Oumayma Lourhzal, Jimmy Nicolle, Valérie Bertagna, Christine Vautrin-UI

Voltammetric Isoproturon Sensor Based on Electrosynthesized Molecularly Imprinted Polypyrrole Nanowires for Environmental Monitoring

S03-P-006

**Naïla Corcoran** (*Chemistry Dept., Université de Sherbrooke, Sherbrooke, Canada*), Philippe Dauphin Ducharme

Multi-Frequency Interrogation of Electrochemical Aptamer-Based Biosensors

S03-P-007

**Lisa Deflandre** (*Chemistry, Université of Sherbrooke, Sherbrooke, Canada*), Philippe Dauphin-Ducharme

Development of Electrochemical Aptamer-Based Micro-biosensors for Neurotransmitter Quantification and Imaging

S03-P-008

**Himanshu Dehra** (*Wellstar Beacon Labs, Monarchy of Concordia, Faridabad, India*)

Monitoring Noise of Physical Agents in the Cell Environment with Electrochemical Biosensors

S03-P-009

**Marie Hartmann Farines** (*Department of Chemistry, Federal University of Santa Catarina (UFSC), Florianópolis, Brazil*), Eduardo Constante Martins, Marie Hartmann Farines, Edson Roberto Santana, João Paulo Winiarski, Almir Spinelli, Iolanda Cruz Vieira

Environmental monitoring of emerging aquatic pollutants using low-cost 3D-printed electrochemical sensors



S03-P-010

**Raghav Jain** (*Agricultural Biotechnology, TERI Deakin Nanobiotechnology Centre, TERI, Gurugram, India*),  
Mandira Kochar, Mukul Dubey, Shayam Sharma, Na Kong, David Cahill, Wenrong Yang

[Nano Sentinel: Enhancing Food Security through Advanced Xoo Biosensing](#)

S03-P-011

**Sadaf Khoomortezaei** (*Chemical Engineering, Polytechnique Montreal, Montreal, Canada*)

[Advancement of Electrochemical Performance in PCB-based electrodes for Biomedical Applications](#)

S03-P-012

**Sang Hyun Lee** (*Dept. of Chemistry, Seoul National University, Seoul, Korea*), Myeongsik Shin, Taek Dong Chung

[Photothermal Ionic Current for Flow Cytometry of Red Blood Cell](#)

S03-P-013

**Adria Martinez** (*School of Chemistry, University College Dublin, Belfield, Ireland*)

[Surface Modification of Glassy Carbon Electrode for Ultrasensitive 2,6-DNT Detection](#)

S03-P-014

**Kefilwe Vanessa Mokwebo** (*Chemical Sciences, University of the Western Cape, Cape Town, South Africa*),  
Emmanuel Iwuoha, Samantha Douman, Natasha Ross

[Electromimetic Molecularly Imprinted Polymersensor For Wastewater Emtricitabine](#)

S03-P-015

**Minh-Dat Nguyen** (*Chimie, Université de Sherbrooke, Sherbrooke, Canada*)

[Computational Molecular Docking to Guide Development of Electrochemical Aptamer-based Biosensors](#)

S03-P-016

**Carlos Pereira** (*Chemistry and Biochemistry, Porto University - FCUP, Porto, Portugal*), Catarina Dias,  
Daniela Fernandes, Joana Costa, Patrícia Moreira, Ana Brandão, Isabel Mafra, Fernando Silva, Renata Costa

[Molecularly Imprinted Polymer Electrochemical Biosensors targeting Soy Gly m TI Allergen Detection in Complex Food Matrices](#)

S03-P-017

**José A. Ribeiro** (*Chemistry and Biochemistry Department, Sciences Faculty, University of Porto, Porto, Portugal*),  
Marcus Monteiro, Ana T. Silva, Rui Figueiredo, Carlos M. Pereira

[Plasmonic Sensor for Detection of Bovine Serum Albumin in Milk Using Imprinted Nanogels](#)

S03-P-018

**Syed Hamid Safiabadi Tali** (*Chemical and Materials Engineering, Concordia University, Montréal, Canada*),  
Farzad Mirzaie, Rozhin Saebi, Sana Jahanshahi-Anbuhi, Marc-Antoni Goulet

[Enhancing Stability of Bioreagents on Electrochemical Paper-Based Analytical Devices \(ePADs\)](#)

S03-P-019

**Paulina Sierra-Rosales** (*Instituto Universitario de Investigación y Desarrollo Tecnol, Universidad Tecnológica Metropolitana, Santiago, Chile*), Fernanda Marin, Franco Tamayo-San Martin, Constanza J Venegas,  
Rodrigo Araya-Hermosilla, Sara Miralles-Cuevas, Alejandro Cabrera

[Electrochemical Sensors to Determine Contaminants of Emerging Concern and Fe\(III\):EDDS Complex in Water Matrixes](#)

S03-P-020

**Babak Tavana** (*Chemistry, University of Guelph, Guelph, Canada*)

Electrochemical determination of Penicillin G in biological matrix based on the carbon paste electrode modified with a molecular imprinted polymer

S03-P-021

**Dustyn Weber** (*Chemistry and Biochemistry, Miami University, Oxford, USA*), Karen Gonzalez, Kendra Cassiday, Gina Letang, Cory A. Rusinek

Cloud Point Extraction for the Determination of Manganese by Cathodic Stripping Voltammetry

S03-P-022

**Zahraalsadat Yousefniayehromi** (*Chemistry and Material Science, Pisa University, Pisa, Italy*)

Impedimetric Phage-based Sensor for the Rapid Detection of Staphylococcus aureus from nasal swab

S03-P-023

**Zixin Yu** (*Department of Physical & Environmental Sciences, University of Toronto, Scarborough, Canada*), Meissam Noroozifar, Kagan Kerman, Heinz-Bernhard Kraatz

Electrochemical Detection of Selenate Using Ferrocene Peptide-Mediated Enzymatic Biosensor at Gold Nanodendritic Surfaces

S03-P-024

**Geyang Zhou** (*Chemistry, University of British Columbia, Vancouver, Canada*)

Probing NHS/EDC Modified Acid-Terminated Alkyl Thiol SAMs on Single Crystal Gold Bead Electrodes via In-Situ Electrochemistry and Fluorescence Microscopy

S03-P-025

**Okoroike C. Ozoemena** (*Electrochemical Technology Centre, Department of Chemistry, University of Guelph, Ontario, Canada*) Emmanuel Boateng, Aicheng Chen

Design of Electrochemical Immunosensor for Sensitive Detection of C- Reactive Protein Antigen

S03-P-026

**Carlos Ramirez** (*Chemistry, University of Guelph, Guelph, Canada*) Aicheng Chen

Graphene-Oxide Based Electrochemical Sensor for the Detection of Temozolomide

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## Symposium 4 Bioelectrochemistry - diversity and focus

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S04-P-001

**Syed Hassan Ali** (*Biomedical Engineering, Polytechnique Montreal, Montreal, Canada*)

Efficacy of Paper Sensors for the Detection and Quantification of Nitric Oxide in Real-Time

S04-P-002

**Alejandro Chamorro-Garcia** (*Dipartimento di Scienze e Tecnologie Chimiche, Università degli Studi di Roma "Tor Vergata", Roma, Italy*), Kevin Plaxco, Andrea Idili, Alejandro Chamorro-Garcia, Tod Kippin, Giovanni Valenti, Lisa Fetter

Real time and point of care electrochemical sensors for monitoring anti-cancer drugs and assist improved dosing

S04-P-003

**Vanshika Gupta** (*Chemistry, Purdue University, West Lafayette, USA*), Jeffrey E. Dick

Microaptasensors for Single-Cell Pharmacokinetics

S04-P-004

**Nadica Ivosevic DeNardis** (*Division for Marine and Environmental Research, Rudjer Boskovic Institute, Zagreb, Croatia*), Nives Novosel Vlastic, Tea Mistic Radic, Joanna Zemla, Malgorzata Lekka, Irem Demir-Yilmaz, Cecile Formosa Dague, Maja Levak Zorinc, Ivna Vrana, Krunoslav Juraic, Lucija Horvat, Petar Zutinic, Marija Gligora Udovic, Blazanka Gasparovic

[Microalgae's Behavior and Surface Properties Highlight Environmental Changes](#)

S04-P-005

**Fred Lisdat** (*Biosystems Technology, Technical University Wildau, Wildau, Germany*), Shuang Zhao, Zhao Yue, Dingcheng Zhu, Jann Harberts, Robert Blick, Robert Zierold, Wolfgang Parak

[Improved photoelectrochemical sensing system based on quantum dots](#)

S04-P-006

**Iliaria Palchetti** (*Department of Chemistry, University of Florence, Florence, Italy*), Lorenzo Quadrini, Serena Laschi, Claudio Ciccone

[Different Catalytic Approaches for Monitoring Urea in Wastewater](#)

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## Symposium 5 Electrochemistry of advanced batteries: Fundamentals, progress, and challenges

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S05-P-001

**Mark Aarts** (*Leiden Institute of Chemistry, Leiden University, Leiden, Netherlands*), Sai Gourang Patnaik, Toon Van Roy, Stefanie Sergeant, Maarten Debucquoy, Philippe M. Vereecken

[Water as Additive Directing Lithium Electrodeposition](#)

S05-P-002

**Haleh Baghernavehsi** (*chemistry, Laval University, Québec City, Canada*), Jesse Greener

[A microfluidic graphite electrode energy device to study and test the role of diffusive losses in thermally regenerative batteries](#)

S05-P-003

**Stephanie Bazylevych** (*Chemistry, McGill University, Montreal, Canada*), J. Michael Sieffert, Eric McCalla

[Optimizing the Performance of Nb-Ti-W-O Li-Ion Battery Anodes with Coatings](#)

S05-P-004

**Thomas Boulanger** (*Chemistry, Université de Montréal, Montréal, Canada*), Alizée Debiais, Calvine Lai, Guillaume Reynard, Louis Hamlet, Simon Généreux, Mick Vaillancourt, Hélène Lebel, Dominic Rochefort

[PEGylated Viologen Derivatives to Improve Performance of Aqueous Organic Redox Flow Battery.](#)

S05-P-005

**Qiong Cai** (*Chemistry and Chemical Engineering, University of Surrey, United Kingdom*), Qiong Cai, Ali Nasrallah

[Atomistic-Scale Insight into the Dendrite Formation Process at Li Metal Anode](#)

S05-P-006

**Rak Hyeon Choi** (*Chemistry, Korea Advanced Institute of Science and Technology, Daejeon, Korea*), Hye Ryung Byon, Donghwan Lee

[Excellent Li<sup>+</sup> ion conductivity of anion-immobilized single-ion solid-state electrolytes using covalent organic frameworks](#)

S05-P-007

**Alizée Debiais** (*Department of Chemistry, Université de Montréal, Montréal, Canada*), Dominic Rochefort, Radu Ion Iftimie, Calvin Lai, Hélène Lebel

Using DFT to Describe Properties of Viologen Derivatives for Redox Flow Batteries

S05-P-008

**Maddison Eisnor** (*Chemistry, McGill University, Montreal, Canada*), Antoine Juneau, Jon Adsetts, Steen Schougaard, Janine Mauzeroll

The Investigation of 10-Methylphenothiazine Stability as a Redox Shuttle in Lithium-Ion Batteries

S05-P-009

**Benoit Fleutot** (*CETEES, Hydro-Québec, Varennes, Canada*), Emmanuelle Garitte, Fabien Nassoy, Benjamin Cruel, Steve Duchesne, Jean-François Filion, Isabelle Filteau, Amélie Forand, Marie-Claude Girard, Karine Tremblay, Chisu Kim

Methodology and electrochemical technics for development of all-solid-state batteries

S05-P-010

**Tewelde Hailay Gebregeorgis** (*Materials and Chemistry, Vrije Universiteit Brussel (VUB), Brussels, Belgium*), Tewelde Hailay Gebregeorgis, Rodrigo Lopez Baez, Louis De Taeye, Xinhua Zhu, Annick Hubin, Mesfin Haile Mamme

Quantifying the Effect of Electrode Geometry on All-Solid-State Lithium-Ion Battery Performance Through Multiscale Multiphysics Modeling Framework

S05-P-011

**Martina Gerle** (*Electrochemical Energy Technology, German Aerospace Center, Stuttgart, Germany*), Robin Moschner, Peter Michalowski, K. Andreas Friedrich, Maryam Nojabae

Sulfurized Polyacrylonitrile (SPAN) Cathodes in Lithium-Sulfur Batteries: Investigating the Influence of Cathode Microstructure and Electrolyte System on Electrochemical Performance

S05-P-012

**Lisa Gerson** (*LITEN, CEA, Grenoble, France*), Manon Berthault, Jean-François Colin

Progress on solid-state pouch-cell manufacturing

S05-P-013

**Taos Guyot** (*DES/LITEN, CEA, Grenoble, France*), Julia Agullo, Damien Perret, Loïc Simonin, Sébastien Martinet

Iron Based Oxide Glasses as Cathode Materials for Sustainable and High-Energy Density Lithium-Ion Batteries

S05-P-014

**Sara Hamed** (*Chemistry and Materials Science, Aalto University, Espoo, Finland*), Seyedabolfazl Mousavihashemi, Filipp Obrezkov, Tanja Kallio

Uniform Li Deposition Formed by Lithophilic SiO<sub>2</sub> Doped Porous 3D Carbon Host for High Energy Density Li Metal Anode

S05-P-015

**Tai-Feng Hung** (*Battery Research Center of Green Energy, Ming Chi University of Technology, New Taipei City, Taiwan*), Sheng-Ming Chang, Tai-Feng Hung

Influence of Microwave-Assisted Sol-Gel and Freeze-Drying Processes on Electrochemical Performances of Carbon-Coated Sodium Vanadium Phosphate

S05-P-016

**Boluwatife Igbaroola** (*Stockage et Transformation Électrochimiques de l'Énergie, Institut des Matériaux Jean Rouxel de Nantes (IMN), Nantes, France*), Jonathan Hamon, Nicolas Gautier, Patrick Howlett, Bernard Lestriez, Maria Forsyth, Jean Le Bideau, Nicolas Dupré

From Half Cell to Full Cell: Understanding the SEI Evolution of Lithium-Ion Batteries Based on Silicon Anodes and Phosphonium Ionic Liquid Electrolyte.

S05-P-017

**Sarah Imhanria** (*Chemical and material engineering, Concordia university, Montreal, Canada*), Meysam Maleki

State of charge measurement techniques for flow battery electrolytes

S05-P-018

**Shipeng Jia** (*Chemistry, McGill University, Montreal, Canada*), Eric McCalla

Rational Design of Practical Layered Oxides for Na-ion Batteries via High-throughput Screening and Machine Learning

S05-P-019

**Tomas Kazda** (*Department of Electrical and Electronic Technology, Brno University of Technology, Brno, Czech Republic*), Jiří Báža, Ondřej Klvač, Pavel Cudek

Effect of the Binder and Pressing Pressure on the Electrochemical Properties of Recycled Graphite from Commercial Li-ion Batteries

S05-P-020

**Dong-Hwi Kim** (*Energy Engineering, Hanyang University, Seoul, Korea*)

Doping Mechanism of High-Valence Element into Ni-Rich Cathode Materials

S05-P-021

**Guillaume Lamblin** (*Material research and Technology department, Luxembourg Institute of Science and Technology, Belvaux, Luxembourg*), Guillaume Lamblin, Antoine Peisert, J.E. Martinez Medina, Emanuele Barborini

Electrochemical properties of Tin oxide nanostructured films fabricated by Supersonic Cluster Beam Deposition for anodic Li-ion batteries electroactive materials

S05-P-022

**QiuJun Li** (*Department of Mechanical and Materials Engineering, University of Turku, Turku, Finland*), Eduardo Martínez González, Vsevolod Peshkov, Petri Pihko, Pekka Peljo

Exploring Innovative Redox-Active Metal Complexes as Electrolytes for Redox Flow Batteries

S05-P-023

**Jinsub Lim** (*Energy Nano group, Korea Institute of Industrial Technology (KITECH), Gwangju, Korea*), YoungWoong Song, Minyoung Kim

Fabrication and electrochemical properties of composite solid electrolyte blended with PVDF-HFP/PEG for solid- state batteries

S05-P-024

**Chuen-Chang Lin** (*Department of Chemical & Materials Engineering, National Yunlin University of Science and Technology, Douliu, Taiwan*), Guang-Jhong Chen

Effects of Graphene Doped with Nitrogen or Deposited with Alumina on the Performance of Anode Materials for Lithium-Ion Batteries Verified by in Situ XRD Studies during Lithiation/Delithiation Processes

S05-P-025

**Mesfin Haile Mamme** (*Surface and Electrochemical Engineering Research group(SURF), Vrije Universiteit Brussel, Brussels, Belgium*), Lieven Bekaert, Tewelde Gebregeorgis, Xinhua Zhu, Annick Hubin

[Unveiling Solid-electrolyte/Electrode Interfaces of All-Solid-State Lithium and Sodium Metal Batteries](#)

S05-P-026

**Sergio Federico Mayer** (*Liten/DEHT/STB-L2PC, CEA-Grenoble, GRENoble, France*), Marta Mirolo, Alisson A Iles Velez, Ove Korjus, Emmanuelle Suard, Laureline Lecarme, Jean-Baptiste Ducros, Claire Villevieille

[Structure Evolution of Sodium Thiophosphate Electrolytes as Function of the Temperature](#)

S05-P-027

**Marc Mosqueda** (*Solid State Chemistry, Instituto de Ciencia de Materiales (ICMAB-CSIC), Bellaterra, Spain*), Adrián Crespo, Andrea Inclán, Xavier Torrelles, Nieves Casañ-Pastor

[Anodization of metal electrodes in metal-air batteries using wireless electrochemistry](#)

S05-P-028

**Ameer Nizami** (*Chemical and Materials Engineering, Concordia University, Montreal, Canada*), Mehdi Shamekhi, Gilles Peslherbe, Xia Li

[Modeling Transition Metal Nitrides for Interface Design in Lithium-Sulfur Batteries](#)

S05-P-029

**Aaron Gabriel Nunez Avila** (*Chemistry, Université de Montréal, Montréal, Canada*), A-Jay Khanmohamed, James D. Wuest, Dominic Rochefort

[Towards insoluble diphenoquinones for a use in organic batteries](#)

S05-P-030

**Chan-Woo Park** (*Materials Science and Engineering, Chonnam National University, Gwangju, Korea*), Sung-Bong Yoo, Intizar Abbas, Thi Huyen Tran Tran, Oh-Jeong Lee, Jong-Sook Lee

[Physics-based understanding of battery EIS from T and SoC dependence of simultaneous half and full cell measurements](#)

S05-P-031

**Anjana Raj Raju** (*Chemistry, University of Quebec Montreal (UQAM), Montreal, Canada*), Steen B. Schougaard

[A 3D COMSOL Model Investigating Microporous Substrate Effect on SECM Steady State Current](#)

S05-P-032

**Joan Roca Busacker** (*Electrochemical and Surface Engineering (SURF), Vrije Universiteit Brussel, Brussels, Belgium*), Louis de Taeye, Xinhua Zhu, Annick Hubin

[Thin-Film Cathode Material Characterization for Li-Ion Battery Performance Prediction](#)

S05-P-033

**Andrew Sellathurai** (*Chemical Engineering, Queen's University, Kingston, Canada*), Bo Zhang, Munyah Al Hamdani

[Investigation of Reduced Graphene Oxide Modified Zinc Anodes Using Various Electrochemical Techniques](#)

S05-P-034

**Hui Sun** (*College of New Energy and Materials, China University of Petroleum-Beijing, Beijing, China*), Jiahua Li, Yongxiang Liang

Improving Dendrite-Free Performance of Rechargeable Lithium-Metal Batteries through In-Situ Formation of Ion/Electron-Conductive Li<sub>3</sub>N-Al Interphase

S05-P-035

**Sabrina Trano** (*Department of Applied Science and Technology, Politecnico di Torino, Torino, Italy*), Sofia Raviolo, Federico Bella, Silvia Bodoardo, Carlotta Francia

Development of New Generation Lithium-Ion Batteries within the NEXTCELL Project

S05-P-036

**Dennis Triller** (*Institute for Applied Materials Energy Storage Systems, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen, Germany*)

Investigation of The Electrochemical Decomposition of Na<sub>2</sub>C<sub>4</sub>O<sub>4</sub>

S05-P-037

**Yogapriya Vetrivelam** (*Chemical and Petroleum Engineering, University of Calgary, Calgary, Canada*), Maedeh Pahlevaninezhad, Mira Mackintosh, Kiyomars Zarshenas, Michael Pope, Edward P.L. Roberts

Elucidating crossover in vanadium redox flow batteries with graphene-coated membranes

S05-P-038

**Youling Wang** (*Centre Énergie, Matériaux, Télécommunications (EMT), Institut National de la Recherche Scientifique (INRS), Varennes, Canada*), Juan Carlos Abrego-Martinez, Samuel Quéméré, Lionel Roué

Improved cycling performance of spray-dried graphite/silicon composites for Li-ion batteries

S05-P-039

**Yijia Wang** (*Department of Mechanical and Materials Engineering, University of Western Ontario, London, Canada*)

A Rational Design Approach Towards Multifunctional Artificial Interfaces for Highly-Stable Lithium Metal Anode

S05-P-040

**Youling Wang** (*Centre Énergie, Matériaux, Télécommunications (EMT), Institut National de la Recherche Scientifique (INRS), Varennes, Canada*), Juan Carlos Abrego-Martinez, Lionel Roué

Recycling fine graphite powder for fast-charging Li-ion batteries

S05-P-041

**Orynbay Zhanadilov** (*Department of nanotechnology and advanced materials engineer, Sejong University, Seoul, Korea*)

Exploring the Effects Induced by the Transition Metal Layer Vacancies in Sodium Cathode Material

S05-P-042

**Mi Zhang** (*School of Physical and Chemical Sciences, Queen Mary University of London, London, United Kingdom*), Christopher Jones, Patrick Cullen, Petra Szilagyi, Anthony Phillips

Silicate Organic Framework (SOF) as an Advanced Artificial Solid Electrolyte Interphase (ASEI) for Lithium-Metal Batteries

S05-P-043

**Lizbeth Zurita** (*Chemical Engineering, Brigham Young University, Provo, USA*), Dean Wheeler  
[Electrospinning Skeleton Solid-State Electrolyte Layer and Its Use in Li-ion batteries](#)

S05-P-044

**Ali Yaghtin** (*Dept. of Chemical and Materials Engineering, Concordia University, Montreal, Canada*), Sixu Deng  
[Unveiling the Critical Role of Cathode Interfacial Kinetics in Inorganic All-Solid-State Batteries](#)

S05-P-045

**Rozita Sadeghzadeh** (*chemistry, Université de Montreal, Montreal, Canada*), David Lepage, Arnaud Prébé, Gabrielle Foran, David Aymé-Perrot, Mickael Dollé  
[State-of-the-Art Ionic Conductivity Amplification Through In-Situ Ethylene Carbonate Formation In Hydrogenated Butadiene Rubber /Poly\(ethylene carbonate\) Electrolytes](#)

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## Symposium 6 Fast processes/power electrochemical energy storage systems

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S06-P-001

**Raffaele Agostino** (*Physics, Università della Calabria, Rende, Italy*)  
[Optimizing Pore Size Distribution and Packing of Zeolite Template Carbons for Improved Electrode Efficiency in Electrochemical Devices](#)

S06-P-002

**Malgorzata Skorupa** (*Department of Physical Chemistry and Technology of Polymers, Silesian University of Technology, Gliwice, Poland*), Krzysztof Karon, Edoardo Marchini, Stefano Caramori, Katarzyna Krukiewicz, Stefano Carli  
[PEDOT:Nafion as a highly efficient alternative to PEDOT:PSS for energy storage applications](#)

S06-P-003

**Frederik Stender** (*Institut für Materialphysik, Georg-August-Universität Göttingen, Göttingen, Germany*), Marcel Risch  
[Dependence of the Electrochemical Windows in Ionic Liquids on Water Content](#)

S06-P-004

**Subhiksha Venkatesh Raja** (*Department of Electrical Engineering, École de technologie supérieure, Montreal, Canada*), Hongliu Dai, Mingjie Wu, Fang Dong, Huaihu Sun, Oumayma El Jarray, Oumaima Rais, Daniel Limenew, Gaixia Zhang  
[Electrode and Electrolyte Design for Next-Generation Batteries](#)

S06-P-005

**Gaixia Zhang** (*Énergie Matériaux Télécommunications, Institut National de la Recherche Scientifique (INRS), Varennes, Canada*), Hongliu Dai, Gaixia Zhang, Shuhui Sun  
[Electrolyte Additive Approach for High-Energy-Density, Long-Lasting Li-Metal Batteries](#)



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## Symposium 7 Electrocatalysis: Understanding electrochemical processes at the atomic level for industrial-scale systems

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S07-P-001

**Yohannes Ayele Awoke** (*Center for condensed matter sciences, National taiwan University, Taipei, Taiwan*)  
Pt Single Atom-W Dual Sites as a Highly Active and Durable Catalyst for Electrochemical Methanol Oxidation

S07-P-002

**Alaleh Esfandiari** (*Chemical Engineering, McGill University, Montreal, Canada*), Maryam Abdinejad  
Copper-Porphyrin Immobilized onto Carbon Nanotubes as a Catalyst for Electrochemical CO<sub>2</sub> Reduction to Hydrocarbons

S07-P-003

**Amirhossein Farzi** (*Chemical Engineering, McGill University, Montreal, Canada*), Maryam Abdinejad, Thomas Burdyny, Ali Seifitokaldani  
Predicting the Electrocatalytic Activity of Electrografted Pyridines via Density Functional Theory Computations

S07-P-004

**Kotaro Fujimoto** (*Inorganic Materials Research Laboratory, Tosoh Corporation, Shunan, Japan*), Takuya Okada, Ryuhei Nakamura, Ailong Li, Shuang Kong, Kazuna Fushimi, Naoya Kitade  
Ultra-Low Iridium Content in Manganese Oxide Anode for High-Durability PEM Water Electrolysis

S07-P-005

**Ebrahim Ghasemy** (*Energy, Materials and Telecommunications, Institut national de la recherche scientifique, Montreal, Canada*), Pauline Schütt, Ana C. Tavares  
In Silico Study on the Stability and Oxygen Evolution Reaction of Nb<sub>2</sub>C MXene and Nb<sub>2</sub>C/graphene Heterostructure

S07-P-006

**Jeremy Gravelle** (*Department of Chemistry, Biochemistry and Physics, Université du Québec à Trois-Rivières, Green Hydrogen Lab, Trois-Rivières, Canada*), Jean-Yves Hihn, Bruno G. Pollet  
The Effects of Power Ultrasound as Performance Enhancer for Alkaline Water Electrolysis

S07-P-007

**Rui Huang** (*Department of Chemistry, Xiamen University, Xiamen, China*), Rui Huang, Shu Hu Yin, Yan Xia Jiang, Shi Gang Sun  
A Fe-NC Electrocatalyst Boosted by Trace Bromide Ions with Ultra-high Performance in Proton Exchange Membrane Fuel Cells

S07-P-008

**Sarmad Iqbal** (*Energy Conversion and Storage, Technical University of Denmark, Kongens Lyngby, Denmark*)  
Exploring the Activity-Stability Landscape of Ni<sub>1-x</sub>Fe<sub>x</sub>-LDH (x = 0-0.33) for the Oxygen Evolution Reaction at Industrially Relevant Alkaline Electrolysis Conditions

S07-P-009

**Yanxia Jiang** (*Department of Chemistry, Xiamen University, Fujian, China*)

Regulating surface composition of PtAu alloy for electro-oxidation of formic acid

S07-P-010

**Huiyu Lei** (*Centre Énergie Matériaux Télécommunications, Institut National de la Recherche Scientifique, Varennes, Canada*), Xiaohua Yang, Diane Rawach, Pan Wang, Tingting Liu, Zonghua Pu, Sixiang Liu, Gaixia Zhang, Shuhui Sun

Catalyst and Electrode Design for Fuel Cell and Hydrogen Technologies

S07-P-011

**Xiaoyu Li** (*College of Chemistry and Chemical Engineering, Xiamen university, Xiamen, China*)

Graph Theory Method for Exploring Water Structure in Proton Transfer Process

S07-P-012

**Charles McCrory** (*Chemistry, University of Michigan, Ann Arbor, USA*), Libo Yao, Kevin Rivera Cruz, Claire Yin, Paul Zimmerman, Nirala SinghElectrochemical CO<sub>2</sub> Reduction with Polymer-Catalyst Composites: Translating Polymer-Effects from Aqueous-Phase Batch Cells to Gas-Fed Flow Electrolyzers

S07-P-013

**Megha Megha** (*Énergie, Matériaux et Télécommunications, Institut national de la recherche scientifique, Varennes, Canada*), Ana C. Tavares, Kulbir Ghuman

Unraveling the Electrocatalytic Activity of Niobium-based MXenes

S07-P-014

**Anoop Naikkath** (*Chemical Engineering, Indian Institute of Technology Madras, Chennai, India*), Nikhil George Mohan, Kothandaraman Ramanujam, Ramanathan Srinivasan

Understanding the Mechanism of Electrochemical Carbon Dioxide Reduction Reaction on Tin: A Combined Experimental and Kinetic Modelling Approach

S07-P-015

**Anna Omelchuk** (*Institut des Sciences Chimiques de Rennes, UMR 6226, Université de Rennes, Rennes, France*), Quentin Lenne, Corinne Lagrost, Yann LerouxDetection of CO<sub>2</sub> Reduction Reaction (CO<sub>2</sub>RR) products catalyzed by AuNPs using Rotating Ring Disk Electrode vs. Gas Chromatography

S07-P-016

**Setareh Orangpour** (*Chemistry & Structure of novel Materials, Universität Siegen, Siegen, Germany*), Nastaran Farahbakhsh, Majid Shah Sanaei, Seyed sina Hejazi, Shiva Mohajernia, Manuela S. KillianEnhancing Photocatalytic Hydrogen Evolution on Anatase TiO<sub>2</sub> Nanosheets via Vanadium Co-catalyst Decoration

S07-P-017

**Noemi Pirrone** (*Department of Applied Science and Technology (DISAT), Politecnico di Torino, Torino, Italy*), Sara Garcia Ballesteros, Simelys Hernández, Federico Bella

Electrodeposited Bismuth Catalyst for Nitrogen-Containing Compounds Electrochemical Reduction

S07-P-018

**Sachithra Radhakrishnan** (*Chemical Engineering, Indian Institute of Technology Madras, Chennai, India*), Ramanathan Srinivasan

Mechanistic Analysis of Electrochemical CO<sub>2</sub> to CO Reduction Using Silver Electrodes

S07-P-019

**Shan Sahar** (*Chemical Engineering, Indian Institute of Technology Madras, Chennai, India*), Ramanathan Srinivasan

Elucidation of Oxygen Evolution Reaction Mechanism on Platinum in Alkaline Medium

S07-P-020

**Mabrook Saleh** (*Chemistry Département, KING SAUD UNIVERSITY, Riyadh, Saudi Arabia*), Prabhakarn Arunachalam, Maged Shaddad, Abdulhadi AL-Qadi

Enhanced Photoelectrochemical Water Splitting Coupled With Pharmaceutical Pollutants Degradation on Zr:BiVO<sub>4</sub> Photoanodes By Synergetic Catalytic Activity of NiFeOOH Nanostructures

S07-P-021

**Jun-Fei Shen** (*College of Chemistry and Chemical Engineering, Xiamen University, Xiamen, China*), Na Tian, Zhi-You Zhou, Shi-Gang Sun

In-situ Pyrolysis of Acetylacetonate Salts for Highly Stable Pt-based ORR Catalysts with Metal Vacancy Structure

S07-P-022

**Qunjie Xu** (*College of Chemical and Environmental Engineering, Qunjie Xu, professor, Shanghai University of Electric Power, Shanghai, China*)

Research on Carbon Nanotube Supported Cobalt Nitride/Phosphene Heterostructure for Efficient Oxygen Evolution Reaction

S07-P-023

**José H. Zagal** (*Departamento de Química de los Materiales, Universidad de Santiago de Chile, Santiago, Chile*), Luis Acuña, Ricardo Venegas, Ingrid Ponce

A new reactivity Descriptor: Electrochemical Hardness. Electrocatalytic activity of MN<sub>4</sub> molecular catalysts for ORR

S07-P-024

**Ludmila dos Santos Madalena** (*Énergie Matériaux Télécommunications (INRS-EMT), Institut National de la Recherche Scientifique, Varennes, Canada*), Ludmila dos Santos Madalena, Sara Tiferras, Joseph T. English, Phillipe Ouzilleau, Nadi Braidy, Ana C. Tavares

Electrochemical performance of NiFe<sub>2</sub>O<sub>4</sub> synthesized via Induction Thermal Plasma

S07-P-025

**Onno van der Heijden** (*Leiden Institute of Chemistry, Leiden University, Leiden, Netherlands*), Sunghak Park, Rafaël Vos, Jordy Eggebeen, Marc Koper

Tafel Slope Plot as a Tool to Analyse Electrocatalytic Reactions

S07-P-026

**Zhiming Zhang** (*the College of Chemistry and Chemical Engineering, Xiamen University, Xiamen, China*), Tao Wang, Zhiyou Zhou, Shigang Sun

Probing the Mechanism of Cation Enhanced CO<sub>2</sub> Reduction in Acidic Media: Water Structure Determining the Hydrogenation Kinetics

S07-P-027

**Muhammad Ali** (*IRC-HTCM, KFUPM, Dhahran, Saudi Arabia*)[First-principles Study on Graphene-Passivated MXene for Electrochemical Energy Production and Storage](#)

S07-P-028

**Muhammad Ali Ehsan** (*Center for Hydrogen Technologies and Carbon Management, King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia*), Abbas Saeed Hakeem[Binary Copper-Palladium Alloy Electrocatalysts for Exceptional Hydrogen Evolution Performance](#)

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## Symposium 8 Corrosion and surface modifications

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S08-P-001

**Josefina Ballarre** (*Applied Electrochemistry, Materials Science and Technology Institute, Mar del Plata, Argentina*), Melina Hankovits, Josefina Ballarre, Silvia Cere[Corrosion Analysis of a Biodegradable AZ91 Alloy With a Novel Surface Pre-treatment to Improve Antibacterial Effect and Osseointegration in Biomedical Applications](#)

S08-P-002

**Silvia Cere** (*INTEMA, CONICET-University of Mar del Plata, Mar del Plata, Argentina*), Florencia Tano de la Hoz, Luciana Malvestiti, Andrea Gomez Sanchez, Vanina Usach, Patricia Setton, Maria Rosa Katunar[Surface modification of Mg ZX10 with nanoflower structures for enhancing biomedical alloy performance](#)

S08-P-003

**Christophe Hitz** (*Hydro-Québec Research Institute, Hydro-Québec, Varennes, Canada*), Robert Lacasse, Pierre-Antony Deschênes, Isabelle Montplaisir, Lydia Damphousse, Alexandre Lapointe, Carlo Baillargeon[Corrosion Behavior of Martensitic Stainless Steel of Hydraulic Turbine Runners Under Load](#)

S08-P-004

**Agata Kolkowska** (*Faculty of Chemistry, Silesian University of Technology, Gliwice, Poland*), Magdalena Sucharowska, Artur Maciej, Sandra Pluczyk-Matek, Agata Blacha-Grzechnik, Agnieszka Stolarczyk, Maksym Pogorielov, Wojciech Simka[Surface modification of Ti6Al4V alloy with use of chemical and electrochemical methods](#)

S08-P-005

**Lila Laundry-Mottiar** (*Chemistry, McGill University, Montreal, Canada*), Antoine Juneau, Mark D. Alosio, Chase Radford, Steve Holdcroft, Cathleen M. Crudden, Janine Mauzeroll[Interrogation of N-heterocyclic Carbene Layers as Primers for Mild Steel Protection](#)

S08-P-006

**Jiacheng Liu** (*Department of Physical Engineering, Nagoya Institute of Technology, Nagoya, Japan*), Kazuya Miyagi, Satoshi Masuda, Peng Wang, Erli Lin[Understanding the Ion Transition in Fabrication of Al-Mo\(W\)-Ni-O Composite Films on Al Alloys through Hybrid Anodization](#)

S08-P-007

**Carmen Pérez** (*Materials Science, Universidade de Vigo, Vigo, Spain*), Belén Díaz, Antonio Diéguez, X. Ramón Nóvoa, Carmen Pérez[High-frequency impedance measurements on cement paste loaded with steel fibres.](#)

S08-P-008

**Carmen Pérez** (*Materials Science, Universidade de Vigo, Vigo, Spain*), Marta Cabeza, Belén Díaz, Carmen Mariño-Martínez, X. Ramón Nóvoa

Additive manufacturing of conductive mortars – An EIS study

S08-P-009

**Hiroyuki Saito** (*Mechanical Engineering, Tokyo Denki University, Tokyo, Japan*)

Wetting and Anti-corrosion Properties of L-B film coated Tin solder

S08-P-010

**Wojciech Simka** (*Faculty of Chemistry, Silesian University of Technology, Gliwice, Poland*), Agata Kołkowska, Artur Maciej, Aleksander Olesiński, Agata Blacha-Grzechnik, Agnieszka Stolarczyk, Natalia Beshchasna, Maksym Pogorielov, Wojciech Simka

Influence of PEO process parameters on physicochemical properties of NiTi alloy surface

S08-P-011

**Ihsan ulhaq Toor** (*Mechanical Engineering, KFUPM, Dhahran, Saudi Arabia*)

Evaluating the Corrosion Performance of Newly Developed Duplex Stainless Steel Alloys in the Presence of Nevamine-CP20 inhibitor

S08-P-012

**Lis Geraldine Zschach** (*Institute of Manufacturing Science and Engineering, Technische Universität Dresden, Dresden, Germany*), Robert Baumann, Andrés Fabian Lasagni

Long-Term Study on the Corrosion Resistance and Wettability of Laser-Functionalized Aluminum

S08-P-013

**Jessica S. G. Selva** (*Department of Chemistry, McGill University, Montreal, Canada*), Yuanjiao Li, Jashanpreet Kaur, Mark Aloisio, Anastasia Messina, Antoine Juneau, Ahmad Diraki, Souhaila Bendahmane, Mark C. Biesinger, Annie Levasseur, Cathleen Crudden, Janine Mauzeroll

N-Heterocyclic Carbenes Deposition on Copper Powder Surface Using Mechanochemistry

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## Symposium 10 Sustainability and green electrochemical science and technology

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S10-P-001

**Nasim Afzali** (*Chemistry, Laval University, Quebec, Canada*)

Electrochemical system utilizing liquid metal for CO<sub>2</sub> electro-reduction into graphite

S10-P-002

**Andrea N. Arias Sánchez** (*Chemical Engineering Department, University of Castilla-La Mancha, Ciudad Real, Spain*), Rafael Granados Fernández, Carmen M. Fernández-Marchante, Manuel A. Rodrigo, Justo Lobato

Development of Custom Electrochemically Assisted Absorber through 3D-Printing: An Economic Analysis

S10-P-003

**Mohammad Bahreini** (*Département de génie chimique et de génie biotechnologique, Université de Sherbrooke, Sherbrooke, Canada*), Martin Désilets, Ergys Pahija, Ulrich Legrand, Arthur Fink

Upscaling Analysis of Electrochemical Cell for Reduction of CO<sub>2</sub> to Formate through Numerical Modeling

S10-P-004

**Adriana Correia** (*Analytical Chemistry and Physical Chemistry, Federal University of Ceará, Fortaleza, Brazil*), Raíssa de Oliveira, Natalia Sousa, Luiz da Silva, Ronaldo do Nascimento, Lucia Mascaro, Thiago Oliveira, Paulo Casciano, Pedro de Lima-Neto

FeCu Electrodeposits from Ethaline for Hydrogen Evolution Reaction

S10-P-005

**Maria Pilar Castro** (*Chemical Engineering, University of Castilla-La Mancha, Ciudad Real, Spain*), Ismael F. Mena, M. Pilar Castro, Cristina Navas-Higuero, Engracia Lacasa, Manuel A. Rodrigo, Cristina Sáez

Study of a New Electrolyzer for Ozone Production Manufactured by 3-D Printing for Environmental Remediation

S10-P-006

**Francesco Di Franco** (*Dipartimento di Ingegneria, Università degli Studi di Palermo, Palermo, Italy*), Francesco Di Franco, Davide Pupillo, Paolo Territo, Marco Capodici, Gaspare Viviani, Monica Santamaria

Electrochemical process to recover metals from waste photovoltaic modules

S10-P-007

**Elisama Dos Santos** (*School of Science and Technology, Federal University of Rio Grande do Norte, Natal, Brazil*), Jéssica Pires de Paiva Barreto, Jose Eudes Lima Santos, Jussara Câmara Cardozo, Domingos Fabiano de Santana Souza, Lívia N. Cavalcanti, Amanda D. Gondim, Carlos A. Martínez-Huitle, Elisama Vieira dos Santos

Energy-saving electrochemical green hydrogen production coupled with persulfate or hydrogen peroxide valorization at boron-doped diamond electrodes

S10-P-008

**Wasif Farooq** (*Chemical Engineering, King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia*), Muthumariappan Akilarasan I, Muhammad Nawaz Tahir, Muhammad Ali Ehsan

A Facile Aerosol Assisted Chemical Vapor deposition of FeNi-Alloy as an Efficient Catalyst for HMF oxidation

S10-P-009

**Zoraida González** (*Materials Chemistry, Carbon Science and Technology Institute INCAR-CSIC, OVIEDO, Spain*), Yuliesquer Yaque, Patricia Álvarez, Uriel Sierra, Zoraida González, Victoria G. Rocha, Marcos Granda, R. B. Galindo, Rosa Menéndez

Sustainable Synthesis of Graphene-Like Materials from Wastes for Electrochemical Sensing

S10-P-010

**María González-Ingelmo** (*Materials Chemistry, Carbon Science and Technology Institute (INCAR-CSIC), Oviedo, Spain*), Clara Blanco, Ricardo Santamaría, Patricia Álvarez, Hanzhi Ye, Jesús Barrio, Magdalena Titirici, Victoria G. Rocha

Key Insights in Glycerol Electrooxidation Reaction using Ultradispersed Ni-based Catalysts

S10-P-011

**Joaquin Isasmendi** (*Engineering Physics, Polytechnique Montreal, Montreal, Canada*), Raphaël Trouillon, Lucien Weiss, Clara Santato

Biocompatible, Environmentally Benign Sepia Bio-inks for the Electrochemical Detection of Dopamine

S10-P-012

**A-Jay Alkarim Khanmohamed** (*Chimie, Université de Montréal, MTL, Canada*), Sébastien Néron, Aaron Gabriel Nunez Avila, Daniel Chartrand, James Wuest, Dominic Rochefort

Operando-Transmission X-ray Diffraction Tetrasubstituted Diphenquinones in Aqueous Batteries

S10-P-013

**Hyun-Woo Kim** (*Civil and Environmental Engineering, Korea Advanced Institute of Science and Technology, Daejeon, Korea*), Kwiyoung Kim, Jong-In Han

Direct Recovery of Electro-synthesized Ammonia from Low-concentration Nitric Oxide Using Pulse Electrodeposited Cu/C Catalyst in a Catholyte-free System

S10-P-014

**Mengjia Li** (*College of Chemistry and Chemical Engineering, Xiamen University, Xiamen, China*), Xiaochen Liu, Conghua Yang, Biying Su, Tao Wang

Enhancing Selective Hydrocarbon Oxidation via Electro-Thermochemical Catalytic Coupling

S10-P-015

**Linlin Liu** (*Chemistry, Laval University, Quebec City, Canada*), Haleh Baghernavehsi

A High-Performance 4-Electrodes Microfluidic Microbial Fuel Cell for High Power Output and High Substrate Conversion Efficiency

S10-P-016

**Carlos A Martínez-Huitle** (*Institute of Chemistry, Federal University of Rio Grande do Norte, Natal, Brazil*), José Eudes Lima Santos, Marco A. Quiroz Alfaro, Lívia Nunes Cavalcanti, Amanda Duarte Gondim, Elisama Vieira dos Santos, Carlos A Martínez-Huitle

Estimation of electrogenerated peroxydisulfate concentration from O<sub>2</sub> production on the p-Si/BDD anode

S10-P-017

**Marina Medina** (*Institute of Chemistry, UNESP, Araraquara, Brazil*), Juliana Ferreira de Brito

A Sustainable Approach to Prepare Metal Alloys Catalysts from Electrochemical Techniques

S10-P-018

**Angela Moratalla** (*Department of Chemical Engineering, University of Castilla-La Mancha, Ciudad Real, Spain*), Sergio E. Correia, Engracia Lacasa, Pablo Cañizares, Manuel A. Rodrigo, Cristina Sáez

Integrating Electrochemical Processes for the Synthesis of ClO<sub>2</sub>

S10-P-019

**Christian Onfray** (*Instituto Univ. de Investigación y Desarrollo Tecnológico, Universidad Tecnológica Metropolitana, Santiago, Chile*), Lucas Moreno, Abdoulaye Thiam

Enhancing the Heterogenous Electro-Fenton Degradation of a Mixture of Pharmaceutical Compounds Using Hybrid Biomass Waste-derived Catalysts

S10-P-020

**Kwangpil Park** (*Strategic Planning Division, Green Energy Institute, Mokpo City, Jeollanam-do, Korea*)[The Study on the Vulnerable Part to Wind Load in Renewable Energy Photovoltaic Power Structures](#)

S10-P-021

**Michaela Plevová** (*Department of Inorganic Technology, UCT Prague, Praha 6 – Dejvice, Czech Republic*),  
Martin Paidar, Jakub Roubal, Vojtech Vejvoda, Karel Bouzek[Significance of the Air as an Oxidant Pretreatment for Low Temperature Fuel Cells](#)

S10-P-022

**Manuela Sofia Páez Salamanca** (*Chemistry, University of the Andes, Bogotá, Colombia*),  
María Teresa Cortes Montañez[Synthesis, Electrochemical Characterization and Charge Storage Properties of Polyindole Films Deposited on Gold Substrates](#)

S10-P-023

**Janine Richter** (*Chemistry, McGill University, Montreal, Canada*), Michael Ruck[The Effect of Complex Equilibria on Cobalt Electrodeposition for the Ionometallurgical Recycling of Lithium-Ion Batteries](#)

S10-P-024

**Monica Santamaria** (*Dipartimento di Ingegneria, Università degli Studi di Palermo, Palermo, Italy*),  
Monica Santamaria, Federica Ursi, Andrea Zaffora, Francesco Di Franco[Electrochemical Processes for Recovering Niobium and Tantalum from Electronic Waste](#)

S10-P-025

**Esther Santos** (*R&D, APRIA SYSTEMS SL, Astillero, Spain*), Axel Arruti, Pedro Gomez[Design and construction of a CO<sub>2</sub> electrolyzer for formic acid production: cement industry successful case](#)

S10-P-026

**Ricoveer Shergill** (*School of Applied sciences, University of Brighton, Brighton, United Kingdom*),  
Paankhuri Bhatia, Laura Johnstone, Bhavik Patel[Eco-Friendly Approach to Making 3D-Printed Electrochemical Sensors](#)

S10-P-027

**Will Skene** (*Chemistry, Universite de Montreal, Canada*), Mohan Raj Anthony Raj, Gokul Balakrishnan Muthuperumal[Enabling Smart Windows by Understanding Molecular Effects of Structure on Color and Electrochemical Reversibility](#)

S10-P-028

**Antunes Staffolani** (*Department of Chemistry, Alma Mater Studiorum - University of Bologna, Bologna, Italy*),  
Aishabibi Ashir, Andrea Trebbi, Federico Mascetti, Francesca Soavi[Design of Lithium-Ion Batteries Cathodes for Direct Recycling of Production Scraps](#)

S10-P-029

**Munzir Suliman** (*Center of Hydrogen Technologies and Carbon Management, King Fahd University, Dhahran, Saudi Arabia*)[Metal doped copper based nitrogen rich Metal Organic Framework for Efficient CO<sub>2</sub> electroreduction to C<sub>2</sub> products](#)



S10-P-030

**Shuhui Sun** (*Énergie Matériaux Télécommunications, Institut National de la Recherche Scientifique (INRS), Varennes, Canada*), Xiaohua Yang, Jean-Pol Dodelet, Gaixia Zhang, Huiyu Lei

Strategies to Improve the Stability of Fe/N/C Catalysts in PEM Fuel Cells

S10-P-031

**Abdoulaye Thiam** (*Instituto de Investigación y Desarrollo Tecnológico (IDT), Universidad Tecnológica Metropolitana, Santiago, Chile*), Felipe Gamboa-Savoy, Natalia Hassan

Upgrading the antibiotics Removal in Water via Solar Heterogeneous Photoelectro-Fenton with  $\text{CuFe}_2\text{O}_4@\text{GO}@\text{MIL-100}(\text{Fe})$

S10-P-032

**Siegfried R. Waldvogel** (*Department of Electrosynthesis, Max-Planck-Institute for Chemical Energy Conversion, Müllheim, Germany*)

Electrochemical Upcycling of Pollutants

S10-P-033

**Hugh Warkentin** (*Chemical Engineering, Queen's University, Kingston, Canada*), Colin P. O'Brien, Behnam Nourmohammadi Khiarak, Christine M. Gabardo, Cao-Thang Dinh

Investigating Intermittency in Bicarbonate Electroreduction via Electrochemical Impedance Spectroscopy

S10-P-034

**Minghua Zhou** (*College of Environmental Science and Engineering, Nankai University, Tianjin, China*)

Electro-enhanced Activation of Peroxymonosulfate for Highly Efficient Water Decontamination

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## Symposium 11 Energy electrochemical technology/electrosynthesis and industrial processes

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S11-P-001

**Robert Baumann** (*Chair for laser-based Manufacturing, Technische Universität Dresden, Dresden, Germany*), Aron Stoll, Julian Heinrich, Kerstin Eckert, Andrés Fabian Lasagni

Influencing the Wetting Characteristics and Bubble Properties of Titanium by Laser-based Hierarchical Microstructures

S11-P-002

**Federico Bella** (*Department of Applied Science and Technology, Politecnico di Torino, Torino, Italy*), Gioele Pagot, Claudio Ampelli

Tailoring the Hydrophilic-Hydrophobic Reaction Zone for the Electrochemical Nitrogen Reduction Reaction to Ammonia: the HYDREAM project

S11-P-003

**Carlos Augusto Campos Roldan** (*ICGM, CNRS, Montpellier, France*), Raphaël Chattot, Pierre-Yves Blanchard, Jacques Rozière, Sara Cavaliere, Deborah Jones

Systematic Investigation of High-Loaded Platinum Intermetallic Nanostructures for Proton Exchange-Membrane Fuel Cells

S11-P-004

**Andrea Giarrizzo** (*Department of Applied Science and Technology, Politecnico di Torino, Torino, Italy*), Anna Mangini, Noemi Pirrone, Lorenzo Sibella, Lucia Fagiolari, Sara Garcia Ballesteros, Federico Bella

Photovoltaic-Powered Electrochemical Nitrogen Fixation for Ammonia Production in the SuN<sub>2</sub>rise ERC-StG

S11-P-005

**Yoshihiro Mugikura** (*Energy Transformation Research Laboratory, Central Research Institute of Electric Power Industry, ZUSHI SHI, Japan*), Takumi Imabayashi, Akifumi Ido, Takayuki Ozeki, Koichi Asano, Hiroshi Morita, Tohru Yamamoto

Degradation analysis of SOFC performance (10)

S11-P-006

**Victoria G. Rocha** (*Materials Chemistry, Carbon Science and Technology Institute INCAR-CSIC, Oviedo, Spain*), M. López, M. González-Ingelmo, C. Blanco, R. Santamaría, P. Álvarez, M. Granda, Z. González, R. Menéndez

Ni-based Catalysts Supported on Carbon for Alkaline Seawater Splitting

S11-P-007

**Lindsay Sanderson** (*Chemistry, Simon Fraser University, Burnaby, Canada*), Binyu Chen, Steven Holdcroft

Investigating the impact of cathode catalyst layer on hydrogen crossover in anion exchange membrane water electrolysis

S11-P-008

**Philippe Vernoux** (*IRCELYON, CNRS, VILLEURBANNE, France*), Itzoatl Rafael Garduno Ibarra, Sahed Ahmed Ebrahim, Zhigang Yan, Antoinette Boreave, Frederic Dappozze, Jesus Gonzalez Cobos, Valérie Meille, Mathieu Prévot, Laurence Retailleau-Mevel

Bimetallic NiMe (M=Cu, Mn) catalysts for the selective electrooxidation of 5-hydroxymethylfurfural

S11-P-009

**Zhina Wang** (*School of Vehicle and Mobility, Tsinghua University, Beijing, China*), Dechun Si, Liangfei Xu, Jianqiu Li, Minggao Ouyang

Electrochemical Evaluation of MEA Performance Decay under High Operating Voltages for PEMFC

S11-P-010

**Gwangtaek Lee** (*Urban Environment Research, Korea Institute of Machinery and Materials, Daejeon, Korea*), DongYeon Kim, Jong-In Han

Back-diffusion of Ammonia and Its Control in Direct Ammonia Electro-stripping System

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## Symposium 12 Molecular platforms and electrochemistry for a sustainable society

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S12-P-001

**Laurent Ruhlmann** (*Institut de Chimie - UMR 7177, Laboratoire d'Electrochimie, Université de Strasbourg, Strasbourg, France*), Yanzi Lin, Jingjing Wang, Ning Jiang, Yiming Liang

Investigation towards photoactive covalent hybrids based on (iso)porphyrin-polyoxometalate assemblies

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## Symposium 13 Double layer reloaded: Theory meets experiments

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S13-P-001

**Linnéa Andersson** (*Department of Chemistry - Ångström Laboratory, Uppsala University, Uppsala, Sweden*),  
Michiel Sprik, Jürg Hutter, Chao Zhang

Finite field DFTMD simulations of the Au/NaCl(aq) interface

S13-P-002

**Deomila Basnig-Mamaoag** (*Chemistry, Caraga State University, Butuan City, Philippines*), Neus Vilá,  
Grégoire Herzog, Alain Walcarius

Critical Effect of Debye Length and Silica Nanochannel Pore Size for the Electrochemical  
Detection of Paraquat

S13-P-003

**Lisa Hirsch** (*Institute of Physical Chemistry, Karlsruhe Institute of Technology, Karlsruhe, Germany*), Rolf Schuster

Measuring the reaction volume of coadsorption processes upon the underpotential deposition of Ag  
on Au(111)

S13-P-004

**Ren Hu** (*Chemistry Department, Xiamen University, Xiamen, China*), Ren Hu, Yuan Fang, Xin Xu, Zhong-Qun Tian

Stark Tuning Slope of Carbon Monoxide Adsorbed on Pt(111) Surface – Discrepancy between  
Experimental Observation and Theoretical Calculation

S13-P-005

**Ramin Karimi Azari** (*Engineering Physics, Polytechnique Montreal, Montreal, Canada*), Zhaojing Gao,  
Patrick Dang, Clara Santato

Influence of P3HT Film Thickness and Molecular Weight on Synaptic Functions of Ion-Gated Transistors

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## Symposium 14 Recent advances in photoelectrochemistry and plasmonics: Fundamentals and applications

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S14-P-001

**Andrew Bagnall** (*Department of Chemistry - Ångström Laboratory, Uppsala University, Uppsala, Sweden*),  
Sagar Ganguli, Alina Sekretareva

Nanoscale Strategies for Amplifying the Enhancement in Plasmon Enhanced Electrocatalysis:  
Insights and Challenges

S14-P-002

**Yeuhyun (Kevin) Kim** (*Chemistry, York University, Toronto, Canada*), Stephanie Gora, Sylvie Morin

Electrochemical Characterization of Charge Carrier Dynamics in Direct Z-Scheme Heterojunction

S14-P-003

**Chenxiang Peng** (*Department of Chemistry, Zhejiang University, Hangzhou, China*)

Copper nanoparticles/reduced graphene oxide composite electrodes for CO<sub>2</sub> electrochemical reduction

S14-P-004

**Jonathan Quintal** (*Department of Chemistry, University of Guelph, Guelph, Canada*), Aicheng Chen  
Phase and Morphology Engineering of TiO<sub>2</sub> Photocatalysts for Water Splitting

S14-P-005

**Joshua van der Zalm** (*Chemistry, University of Guelph, Guelph, Canada*), Aicheng Chen  
Development of Spatially Resolved Optical Spectroscopy Coupled with Photoelectrochemical Mapping by Scanning Electrochemical Probe Microscopy

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## Symposium 15 Advances in methods for *in-situ* and *operando* study of electrochemical interfaces and systems

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S15-P-001

**Daina Baker** (*Chemistry, University of British Columbia, Vancouver, Canada*), Gilberto Martinez-Blanco, Dan Bizzotto  
Investigating the Stability of Self-assembled Alkyl Thiol Monolayers on Thin Copper Films Electrodeposited on Gold Single-Crystal Bead Electrodes

S15-P-002

**Donghoon Han** (*Department of Chemistry, The Catholic University of Korea, Bucheon, Korea*)  
Imaging and Quantifying the Generation of Single H<sub>2</sub> Nanobubbles using Electrochemical-Fluorescence Lifetime Imaging

S15-P-003

**Robert Hillman** (*School of Chemistry, University of Leicester, Leicester, United Kingdom*), Minodora Atasei, Nicholas Ross, Jeane Caroline da Silva Melo, Grazielle Cardoso Andrade, Alexandro Mangureira Lima de Assis, Adriana Santos Ribeira

Imaging And Compositional Mapping Of Latent Fingerprints Visualized Using Electrochemically Deposited Polypyrrole-Encapsulated Dye Films

S15-P-004

**Negar Sabouhanian** (*Chemistry, University of Guelph, Guelph, Canada*), Jacek Lipkowski, Aicheng Chen  
Electrochemical and In Situ FTIR Spectroscopic Studies of CO<sub>2</sub> Reduction at Bi-based Bimetallic Catalysts

S15-P-005

**Kaoruho Sakata** (*Institute of Materials Structure Science, High Energy Accelerator Research Organization, Tsukuba, Japan*), Kenta Amemiya

An Attempt to Observe Intermediates at the Solid-liquid Interface of Photocatalyst Electrode during Linear Sweep Voltammetry using Wavelength-Dispersive Soft X-ray Absorption Spectroscopy

S15-P-006

**Victor Vanpeene** (*DEHT, CEA-LITEN, Grenoble, France*), Didier Buzon, Alexis Martin, Sylvie Génies, Julie Villanova, Olga Stamati, Marion Chandesris, Sandrine Lyonard

Understanding the Interplay Between Heterogeneities and Aging in the Failure Mode of (NMC/Gr) Commercial Full Cell by Combined X-Ray Nano-Tomography and Electrochemical Analysis

S15-P-007

**Xinyi Wang** (*Institute of Energy and Process Systems Engineering, Technische Universität Braunschweig, Braunschweig, Germany*), Daniel Schröder

Revealing the Impact of Temperature and Pressure on the Chemical Degradation of Polymer-Based Solid-State Lithium-Sulfur Batteries

S15-P-008

**Shen Ye** (*Department of Chemistry, Tohoku University, Sendai, Japan*), Ryuuta Nagai, Kota Nemoto, Aimin Ge, Chengyang Xu, Koki Kannari, Kenichi Inoue, Shen Ye

In Situ Vibrational Spectroscopic Studies on the Solvent Stability on the Cathode Surface of Li-O<sub>2</sub> Batteries

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## Symposium 16 General session

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S16-P-001

**Younes Abghoui** (*Engineering and natural sciences, University of Iceland, Reykjavik, Iceland*)

Towards a greener tomorrow: the promise of hydrogen fuel cells

S16-P-002

**Muhammad Asif** (*Architectural Engineering, KFUPM, Dhahran, Saudi Arabia*)

Circular Economy in the Renewable Energy Sector

S16-P-003

**Sebastian Beil** (*Dept. of Electrosynthesis, Max-Planck-Institute for Chemical Energy Conversion, Mülheim, Germany*)

Electroorganic Oxidation of Carbohydrates, Alcohols, and Olefins

S16-P-004

**Agustín Bolzán** (*Electrochemistry, Instituto de Invest. Fisicoquímicas Teóricas y Aplicadas, La Plata, Argentina*), Sofía Tsunoda, Leticia Anahí Azpeitia, María José Rodríguez Presa, Claudio A. Gervasi

Tin Electrodeposition on Copper and Glassy Carbon in Oxaline Deep Eutectic Solvent

S16-P-005

**Julian Buchholz** (*Electrosynthesis, Max-Planck-Institute for Chemical Energy Conversion, Mülheim an der Ruhr, Germany*), Elisabeth K. Oehl, Maximilian M. Hielscher, Simone L. Kuhn

Discovering New Reaction Pathways of Electrochemical Dehydrogenative sp<sup>2</sup>-Couplings of Naphthols Accessing a Novel Bicyclic Naphthalenone Motif

S16-P-006

**Sara Ebrahimi** (*Chemical Engineering, Polytechnique Montreal, MONTRÉAL, Canada*), Sadaf Khoomortezaei, Jiaxin Fan, Fabio Cicoira

PEDOT Electrodeposition on Microelectrodes for Arthroscopy Probe Applications

S16-P-007

**Tony George** (*Chemistry, Ontario Tech University, Oshawa, Canada*), Muna Abdulaziz, Liliana Trevani, German Sciani

Impact of Annealing Conditions on the Electroanalytical Response of Thin-Film Pt Electrodes Prepared using Ti as the Adhesion Layer

S16-P-008

**Benjamin Good** (*Chemistry, St. Francis Xavier University, Antigonish, Canada*), Erwan Bertin  
[Synthesis and Characterization of Ag<sub>x</sub>Zn<sub>100-x</sub> Nanoparticles for CO<sub>2</sub> Reduction](#)

S16-P-009

**Patryk Janasik** (*Faculty of Chemistry, Politechnika Śląska, Gliwice, Poland*), Malgorzata Czichy, Pavel Chulkin,  
Mieczyslaw Lapkowski  
[Perimidine Compounds as Novel Organic Semiconductors](#)

S16-P-010

**kiyoul Kim** (*Material and Energy Technology Center, Agency for Defense Development, Daejeon, Korea*),  
HyunKi Yoon, HyeRyun Yoo, Yusong Choi  
[Research on Stable Operation of Fuel Cells in Submerged Enclosed Environments](#)

S16-P-011

**Benjamin Orimolade** (*School of Chemistry, University of Glasgow, Glasgow, United Kingdom*), Emily Draper  
[Succinonitrile Modified Polyacrylamide as a Quasi-solid Electrolyte for an Organic Based Electrochromic Device](#)

S16-P-012

**German Orozco** (*Electrochemical, CIDETEQ, Pedro Escobedo, Mexico*), Julieta Torres-González, Julio Cesar Avalos  
[Trivalent chromium plating: a century of research](#)

S16-P-013

**Noah Ruscica** (*Department of Chemistry, St. Francis Xavier University, Antigonish, Canada*), Erwan Bertin  
[The In-Situ Generation of H<sub>2</sub>O<sub>2</sub> for Fenton Degradation](#)

S16-P-014

**Junggho Ryu** (*Mineral Resources Division, Korea Institute of Geoscience and Mineral Resources (KIGAM), Daejeon, Korea*), Gyuhye Kim, Soonhyun Kim  
[Electrochemical Cs Recovery from Seawater Using a Membrane-Capacitive Deionization Cell for the Rapid Analysis of <sup>137</sup>Cs in Seawater](#)

S16-P-015

**Ryo Sato** (*School of Science and Engineering, Tokyo Denki University, Hatoyama, Japan*), Yoshiharu Mukouyama,  
Takashi Nishimura  
[Electrochemical Behavior of Palladium Nanoparticles on Glassy Carbon Fabricated by Simple Electrochemical Method](#)

S16-P-016

**Ryo Sato** (*School of Science and Engineering, Tokyo Denki University, Hatoyama, Japan*), Terumasa Kuge,  
Shuji Nakanishi, Yoshiharu Mukouyama  
[Corrosion Potential Oscillation due to Negative Differential Resistance](#)

S16-P-017

**Ryo Sato** (*School of Science and Engineering, Tokyo Denki University, Hatoyama, Japan*), Terumasa Kuge,  
Shuji Nakanishi, Yoshiharu Mukouyama  
[Simple Direct Alternating Current Battery using Iron Electrodes](#)

S16-P-018

**Gabriela Valdés-Ramírez** (*Chemistry, UAM-I, Mexico City, Mexico*)

Ferulic Acid, Electrochemical Oxidation onto Carbon Paste Electrode.

S16-P-019

**Hyeonwoo Yeo** (*School of Electrical Engineering, Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Korea*), Juho Lee, Ryong-Gyu Lee, Yong-Hoon Kim

Finite-bias molecular dynamics simulations of water at the electrified graphene surface

S16-P-020

**Sung-Bong Yoo** (*Materials Science and Engineering, Chonnam National University, Gwangju, Korea*), Thanh Trung Doan, Intizar Abbas, Chanwoo Park, John G. Fisher

A comparative analysis of Cyclovoltammetry in Electrochemistry vs. Ferroelectric P-E hysteresis

S16-P-021

**Hyunki Yoon** (*Material & Energy Technology Center, Agency for Defense Development, Daejeon, Republic of Korea, Korea*), Hyunki Yoon, Kiyoul Kim, Eunji Yoo, Jae-Seong Yeo, Yusong Choi

Improved low-temperature performance of lithium-ion batteries

S16-P-022

**Mi Zhang** (*School of Physical and Chemical Sciences, Queen Mary University of London, London, United Kingdom*), Christopher Jones, Patrick Cullen, Petra Szilagy, Anthony Phillips

MIL-53/LiTFSI/IL Composite Electrolyte for Advanced Energy Storage Devices

S16-P-023

**Muhammad Ali Ehsan** (*Center for Hydrogen Technologies and Carbon Management, King Fahd University of Petroleum and Minerals, DHAHRAN, Saudi Arabia*)

Bimetallic RhNi Thin Film Electrocatalyst for Enhanced and Durable Hydrogen Evolution in Acidic Environments

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## Symposium 17 Symposium in memory of Allen Bard

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S17-P-001

**Mario Alpuche-Aviles** (*Department of Chemistry, University of Nevada, Reno, Reno, USA*), Salvador Gutierrez-Portocarrero, Pradeep Subedi, Luis Corona-ElizarrarasMeasuring Single TiO<sub>2</sub> Nanoparticles Photocurrent in Methanol Photooxidation

S17-P-002

**Deomila Basnig-Mamaog** (*Chemistry, Caraga State University, Butuan City, Philippines*), Neus Vilá, Grégoire Herzog, Alain Walcarius

Preparation of mesoporous silica-zirconia film by electrochemically assisted self-assembly (EASA) for improved electrochemical detection

S17-P-003

**Changyue Du** (*Chemistry, McGill University, Montreal, Canada*), Mostafa Rammal, Mathieu Rivard, Matthew Harrington, Janine Mauzeroll

Tracking Dynamic and Localized pH Changes During Formation of Mussel Byssus and Mussel-Inspired Hydrogels

S17-P-004

**Jashanpreet Kaur** (*Department of Chemistry, McGill University, Montreal, Canada*), Golnoush Asadiankouhidehkordi, Vikram Singh, Andre C. Liberati, Mark Aloisio, Jeffrey Henderson, Mark Biesinger, Cathleen Crudden, Christian Moreau, Janine Mauzeroll

Surface Oxide Removal and Modification of Copper Surfaces using N-heterocyclic carbenes for Industrial Applications

S17-P-005

**Wenjing Nan** (*Department of Chemistry, Xiamen University, Xiamen, China*), Xuan Liu, Dongping Zhan

Correlating the Surface potential across the Ag/SLG Boundaries and the Interfacial Electron Transfer Reaction by Multimode Scanning Electrochemical Microscopy

S17-P-006

**Bhavik Patel** (*Centre for Lifelong Health & School of Applied Sciences, University of Brighton, Brighton, United Kingdom*), Chloe Miller, Mareike Herrmann, David Carter, Nicholas Turner, Priya Samuel

Single-entity electrochemical measurement of the electroactive cargo of extracellular vesicles can differentiate various cancer cell lines

S17-P-007

**Zehui Sun** (*School of Chemistry and Molecular Engineering, East China University of Science and Technology, Shanghai, China*), Zhuangzhuang Lai, Yingying Zhao, Jianfu Chen, Wei Ma

Clarifying Sequential Electron-Transfer Steps in Single-Nanoparticle Electrochemical Process for Identifying the Intrinsic Activity of Electrocatalyst



# ISE Society Information





## The International Society of Electrochemistry

The International Society of Electrochemistry (ISE) was founded in 1949 by leading European and American electrochemists to serve the growing needs of electrochemistry. At that time only a handful of scientists were members of the society – known as CITCE (Comité International de Thermodynamique et Cinétique Electrochimiques). Since then ISE has evolved and comprises now more than 3600 active members, from 77 countries, and is organized in 44 Regional Sections. Both industrialised and developing countries from all five continents are represented. ISE is, therefore, a truly world-wide organisation. ISE is a non-profit-making organisation with its seat in Lausanne, Switzerland.

The International Society of Electrochemistry (ISE) is devoted to the advancement of electrochemical science and technology through the promotion of international contacts and the dissemination of scientific knowledge. For this ISE organises Annual and Topical Meetings which are held in different countries each year and which cover a wide range of current topics in fundamental and applied electrochemistry. The activities of ISE include the sponsoring of regional meetings, and of special meetings of limited participation devoted to particular subjects. A scientific journal, *Electrochimica Acta*, is edited by ISE and supplied to its members at a special rate. Individuals, non-profit organisations, industrial companies and learned societies may become members of ISE. The administration of ISE is done by an Executive Committee, periodically elected by all members. The Regional Representatives together with the Division Officers form the ISE Council which advises the Executive Committee. The scientific activities of ISE are grouped into Scientific Divisions. They are organised and co-ordinated by the Committee of Division Officers headed by the President Elect. Upon joining ISE each member indicates his/her divisional interests.

The history of the International Society of Electrochemistry (ISE) is described in a series of articles published in Volume 45 of *Electrochimica Acta* and available on the web site of the Society ([www.ise-online.org/ise-about/ISE-history.php](http://www.ise-online.org/ise-about/ISE-history.php)).

### Why you should join ISE

ISE membership provides a number of advantages which can be summarized as follows:

- Individual members can get reduced subscription rates for the following journals:
  - Electrochimica Acta,
  - Journal of Electroanalytical Chemistry,
  - Electrochemistry Communications,
  - Bioelectrochemistry,
  - Journal of Power Sources,
  - Journal of Applied Electrochemistry,
  - Electrocatalysis,
  - Journal of Solid State Electrochemistry for personal use.
 There is also a **Discounted Package** available consisting of the Journal of Electroanalytical Chemistry, Electrochemistry Communications, and Bioelectrochemistry (online).
- Reduced registration fees at ISE Meetings
- Access to the "members restricted area" of the ISE website
- Access to the full membership directory with all members addresses

### How to become an ISE member

Becoming an ISE member is simple: you will find a Membership Application Form on the Society web site (at the address: [https://members.ise-online.org/members/new\\_members.php](https://members.ise-online.org/members/new_members.php)), which you can fill in and submit online. In the application form you will have to select up to three Divisions and indicate two sponsoring ISE members. Should it be difficult for you finding these sponsors, please write to the Executive Secretary of the Society - Dr. Petr Krtil, e-mail: [petr.krtil@jh-inst.cas.cz](mailto:petr.krtil@jh-inst.cas.cz)

### Membership fees

Individual yearly membership fees are 50 EUR for members above 30 years of age, and 15 EUR for members of age 30 or less and for Emeritus members. Once your application is accepted, the ISE Office will contact you for the payment of the Membership dues.



## ISE Organization

### Executive Committee

The Executive Committee is entrusted with the management of the Society.

### ISE Office

The ISE Office performs all administrative tasks related to the operation of the Society. It is located in Switzerland, and managed by an Executive Secretary.

The ISE Office serves as the primary contact for members and non-members.

### Division Officers

The scientific activities of ISE are grouped into seven Scientific Divisions and a New Topics Committee. The divisions are headed by a Chairperson assisted by a Past Chair, a Chair Elect and two Vice Chairs. Their role is to promote and represent the scientific interests of the division and its members, for example through contributing to the organization of Annual, Topical and other Society meetings.

### Regional Representatives

In each country or group of countries having fifteen members or more, a national or regional section of ISE may be formed. Each section has a Regional Representative.

### Council

The ISE Council is an Advisory Body. The voting members of the Council consist of three Officers from each Division and all the Regional Representatives. All persons constituting the Council are elected by the members of the Society.

### Scientific Meetings Committee

The Scientific Meetings Committee plans and oversees the organization and sponsorship of scientific meetings within the broad field of electrochemistry.

**Jaeyoung Lee**, *Chair*

**Katharina Krischer**, *observer ex-officio as President*

**Plamen Atanassov**, *ex-officio as President Elect*

**Monica Santamaria**, *ex-officio as Treasurer*

**Francesca Soavi**, *ex-officio as Secretary General*

**Silvia Cere**

**Rakel Wreland Lindstrom**

**Raphael Berger**, *non-voting member, representative of the ISE office*

**Petr Krtil**, *observer ex-officio as Executive Secretary*

### Fellows Nominating Committee

The Fellows Nominating Committee is a standing committee which proposes names to the Executive Committee for the title of ISE Fellow. It is also responsible for identifying candidates for honorary membership.

**Phillipe Hapiot**, *Institut Sciences Chimiques de Rennes CNRS, France (2020-2024), Chair in 2024*

**Maria Forsyth**, *Institute for Frontier Materials, Deakin University, Australia (2022-2026)*

**Hubert Gasteiger**, *TUM, Germany (2023-2027)*

**Bingwei Mao**, *Xiamen University, China (2023-2027)*

**Mark Orazem**, *University of Florida, USA (2024-2028)*



## ISE Executive Committee

### President

**Katharina Krischer**, Munich, Germany (2023-2024)

*Representation of ISE. Chairperson of Executive Committee, Council and General Assembly.*

### President Elect

**Plamen Atanassov**, Irvine, USA (2023-2024)

*Chairperson of Committee of Division Officers (CDO) and of Advisory Board for Annual Meeting: Coordination of scientific program of Annual Meeting, supervision of Division Officers' activities.*

### Immediate Past President

**Marc Koper**, Leiden, The Netherlands (2023-2024)

*Chairperson of Executive Committee in the absence of the President.*

### Vice Presidents

**Take Dong Chung**, Seoul, Korea (2021-2023)

*Responsible for ISE educational activities*

**Shelley Minteer**, Salt Lake City, USA (2023-2025)

*Responsible for regional sections*

**Wataru Sugimoto**, Ueda, Japan (2024-2026)

*Responsible for value for members*

**Elena Ferapontova**, Aarhus, Denmark (2022-2024)

*Responsible for communication and external relationships*

### Secretary General

**Francesca Soavi**, Bologna, Italy (2024-2026)

*General tasks*

Ensuring continuity and efficiency of scientific policy. Coordination of tasks of Vice Presidents. Identification of new developments in electrochemistry and possible new scientific and nonscientific activities. The President or President-Elect does not handle scientific matters.

*Tasks in collaboration with ISE Office*

Ensuring that the constitution, bylaws, guidelines, schedules, etc are observed. Preparation of Annual Reports. Collection of information for newsletters and coordination of actions.

*Annual ISE Meetings*

Coordination of Meetings (Location, time, topics). Representative of the Executive Committee and advisor to Local Organising Committees for nonscientific matters (Location, facilities, control of financial planning, schedule, publicity).

### Treasurer

**Monica Santamaria**, Palermo, Italy (2023-2025)

*Responsible for the administration and the management of the assets and property of the Society, preparation of budgets and financial reports, financial planning, investment policy, supervision of financial matters of Annual ISE Meetings.*

### Executive Secretary

**Petr Krtil**, Prague, Czech Republic (2024-2025)

*Responsible for maintaining the ISE calendar, assisting with organising the business and financial arrangements for Annual and Topical Meetings, organising committee appointments, assisting the Secretary General with Society elections, recruiting new members, and co-ordinating Executive Committee meetings. Drafts ISE documents, acts as web page editor, maintains ISE archives and records, and serves as the contact person for members (particularly at ISE meetings).*



## Scientific Divisions of ISE

### Division 1 – ANALYTICAL ELECTROCHEMISTRY

Experimental and theoretical aspects of the analytical process in which electrochemistry has a role, including sample collection / processing, separation, and species identification and quantitation.

*Chair: G. Denuault, Past Chair: L. Falciola, Chair Elect: M. Cuartero Botia,*

*Vice-Chairs: R. Pauliukaite, W. Nogala.*

### Division 2 – BIOELECTROCHEMISTRY

Aspects of electrochemistry and electroanalysis characterizing biological processes at the molecular level and relevant to the mechanisms of biological regulation of cells.

*Chair: I. Palchetti, Past Chair: E. Loujou, Chair Elect: C. Santoro, Vice-Chairs: O. Yehezkeili, H.J. Lee.*

### Division 3 – ELECTROCHEMICAL ENERGY CONVERSION AND STORAGE

Experimental and theoretical aspects of electrochemistry in which the goal is the interconversion of energy between different forms or the storage of energy, including the processes themselves and materials used for these purposes.

*Chair: T. Brousse, Past Chair: A. Balducci, Chair Elect: S. Dsoke, Vice-Chairs: S. Cavaliere, H.R. Byon.*

### Division 4 – ELECTROCHEMICAL MATERIALS SCIENCE

Aspects of materials science in which electrochemistry is part of the synthesis, processing, surface treatment, corrosion, characterization or modeling of new or existing materials, or in which electrochemistry is the user of such materials.

*Chair: H. Habazaki, Past Chair: V. Vivier, Chair Elect: C. Perez, Vice-Chairs: J. Macák, S. Cere.*

### Division 5 – ELECTROCHEMICAL PROCESS ENGINEERING AND TECHNOLOGY

Experimental and theoretical aspects and applications of electrochemistry in which engineering issues play a significant role, including scale-up and reactor design.

*Chair: C. Martinez Huitle, Past Chair: M. Rodrigo, Chair Elect: C. Ponce de Leon,*

*Vice-Chairs: I. Sires Sardonil, M. Zhou.*

### Division 6 – MOLECULAR ELECTROCHEMISTRY

Aspects of organic and inorganic electrochemistry, in which the emphasis is on molecular processes, including the understanding of mechanism and the role of structure.

*Chair: J. Zagal, Past Chair: M. Hromadova, Chair Elect: I. Diez Perez,*

*Vice-Chairs: P. Hapiot, F. Podvorica, G. Xu.*

### Division 7 – PHYSICAL ELECTROCHEMISTRY

Experimental, theoretical and computational aspects of electrochemistry, alone or in conjunction with other methods, relevant to interfaces and conductive media; this shall include physicochemical nature, structure and dynamics from the molecular to the macroscopic level.

*Chair: K. Domke, Past Chair: S. Ye, Chair Elect: M. Symes, Vice-Chairs: B. Ren, K. Hnida-Gut.*



## Regional Representatives

<b>Argentina</b>	S. Ceré	2024-2026	2nd term
<b>Australia-New Zealand</b>	R. Knibbe	2024-2026	1st term
<b>Austria</b>	J. Kunze Liebhauser	2022-2024	1st term
<b>Belgium</b>	T. Doneux	2022-2024	1st term
<b>Brazil</b>	L. Mascaro	2024-2026	2nd term
<b>Bulgaria</b>	V. Tsakova	2024-2026	2nd term
<b>Canada</b>	C. Santato	2022-2024	2nd term
<b>Chile</b>	I. Ponce	2022-2024	2nd term
<b>China</b>	Lin Zhuang	2023-2025	1st term
<b>Croatia</b>	N. Ivosevic DeNardis	2024-2026	2nd term
<b>Czech Republic</b>	T. Navrátil	2022-2024	1st term
<b>Denmark</b>	X. Xiao	2024-2026	1st term
<b>Estonia</b>	L. Siinor	2022-2024	2nd term
<b>Finland</b>	P. Peljo	2023-2025	2nd term
<b>France</b>	O. Buriez	2023-2025	1st term
<b>Germany</b>	T. Vidakovic-Koch	2024-2026	1st term
<b>Greece</b>	A. Karatonis	2022-2024	1st term
<b>Hungary</b>	C. Janaky	2023-2025	1st term
<b>India</b>	A.K. Satpati	2023-2025	2nd term
<b>Iran</b>	B. Rezaei	2022-2024	2nd term
<b>Ireland</b>	M. Scanlon	2022-2024	1st term
<b>Israel</b>	M. Noked	2023-2025	1st term
<b>Italy</b>	C. Arbizzani	2022-2024	2nd term
<b>Japan</b>	T. Tatsuma	2023-2025	2nd term
<b>Korea</b>	J. Lee	2022-2024	1st term
<b>Lithuania</b>	J. Juodkazyte	2023-2025	2nd term
<b>Mexico</b>	M. Miranda Hernandez	2024-2026	2nd term
<b>Netherlands</b>	K. Mathwig	2022-2024	2nd term
<b>Poland</b>	K. Fic	2022-2024	1st term
<b>Portugal</b>	A. Bastos	2024-2026	1st term
<b>Romania</b>	C. Cristea	2024-2026	2nd term
<b>Russia</b>	A. Antipov	2022-2024	2nd term
<b>Serbia</b>	J. Bajat	2023-2025	2nd term
<b>South Africa</b>	O. Arotiba	2022-2024	1st term
<b>Spain</b>	M. Escudero Escribano	2023-2025	1st term
<b>Sweden</b>	B. Wickman	2022-2024	1st term
<b>Switzerland</b>	M. Arenz	2022-2024	1st term
<b>Taiwan</b>	C. Hu	2022-2024	1st term
<b>Turkey</b>	B. Ulgut	2023-2025	2nd term
<b>United Kingdom</b>	M. Symes	2023-2025	1st term
<b>USA</b>	A. Weber	2023-2025	1st term



## Corporate Sustaining Members

Corporate Sustaining Members are industrial and commercial (profit-making) organizations. As a Corporate Sustaining Member you can nominate one or two person(s) as your representative(s).

Corporate Sustaining representatives have the following advantages:

- One representative receives an online access to the ISE journal *Electrochimica Acta* without further charge.
- They can participate in Annual ISE Meetings at reduced registration fees.
- They are invited to co-operate with the divisions, to give proposals and advice on division symposia.
- They are informed about the activities of ISE and about Annual, Topical and Special ISE Meetings and division symposia on new developments in science and technology.
- They can be elected as Society officers

### Advertising

- A list of the Corporate Sustaining Members is published regularly in *Electrochimica Acta* and on the web pages.

### Annual Meeting

- Special sessions will be organised for electrochemical and electroanalytical instrumentation.
- You can contact regional groups *via* Regional Representatives.
- Business meeting places will be offered during Annual ISE Meetings for contacts between people from science and industry to discuss issues such as job recruiting, co-operation in applied research, announcement of research frameworks, negotiation of research contracts etc.

For further information please contact the ISE Office. Corporate Sustaining Membership fee: 500 EURO

## Corporate Members

Corporate Members are teaching institutions, non-profit-making research organizations and learned societies. As a Corporate Member you can nominate a person as your representative who will have the following advantages:

- One representative receives an online access to the ISE journal *Electrochimica Acta* without further charge.
- They can participate in Annual ISE Meetings at reduced registration fees.
- They are invited to co-operate with the divisions, to give proposals and advice for division symposia.
- They are informed about the activities of ISE and about Annual and Special ISE Meetings and division symposia on new developments in science and technology.
- They can be elected as Society officers.

Corporate Membership fee: 300 EURO

- AMETEK • Ionode Pty Ltd • Magneto Special Anodes BV • Metrohm Autolab BV
- PalmSens BV • Paul Scherer Institute • Scribner Associates, Inc • Sensolytics GmbH
- Tanaka Kikinokogyo K.K. • Zahner-elektrik GmbH & Co KG

## Co-operation with other Societies

*ISE is an Associated Organization of IUPAC and has co-operation agreements with:*

- Bioelectrochemical Society (The) • Chinese Society of Electrochemistry •
- Deutsche Gesellschaft für Galvano- und Oberflächentechnik (DGO) •
- Electrochemical Division of the Italian Chemical Society • Electrochemical Society (The) •
- Electrochemical Society of Japan •
- Electrochemistry and Electroanalytical Division of the Brazilian Chemical Society •
- Electrochemistry Group of the French Society of Chemistry • European Federation of Corrosion •
- Fachgruppe Angewandte Elektrochemie der Gesellschaft Deutscher Chemiker •
- Korean Electrochemical Society • Sociedad Iberoamericana de Electroquímica •



## ISE Honorary Members

Honorary Members are appointed by the Executive Committee, after consultation with the Council, primarily in recognition of their contribution to ISE. The total number at any time is limited to ten.

The first Honorary Member of ISE, appointed in the year 2003, was **Otmar Dossenbach**, Treasurer of the Society for 21 years (1980-2000) and Executive Secretary for 2 years (2001-2002).

Two new Honorary Members were appointed in the year 2004: **Roger Parsons**, former President of the Society (1981-1982) who passed away on 4th January 2017, and **Sergio Trasatti**, former President of the Society (1989-1990) and Editor-in Chief of *Electrochimica Acta* (2003-2013).

Three Honorary Members have been appointed in the year 2005: **Ron Armstrong**, former Editor-in-Chief of *Electrochimica Acta* for 18 years, and two former Presidents of the Society, **Dieter Landolt** (1987-1988) and **Elton Cairns** (1999-2000)

In the year 2011, **Sharon Roscoe** was appointed Honorary Member for her valued contribution as Secretary General. She passed away on December 9th, 2015.

**Marco Musiani** was appointed Honorary Member in 2019 for his extraordinary service in the capacity of Executive Secretary supporting the Society during its unprecedented growth between 2003 and 2018

**Thierry Lenzin** was appointed Honorary Member in 2020 for his valued contribution as ISE Office Manager between 2001 and 2019.

## ISE Fellows

In recognition of their scientific or technical contributions to electrochemistry, the Society may confer on individual members the distinction of ISE Fellowship. Such ISE Fellows are appointed by the Executive Committee after consultation with the Council. The appointment does not carry automatic life-time ISE membership:

Hector Abruña	Eliezer Gileadi	Yi-Tao Long	Fritz Scholz
Radoslav Adzic	Hubert Girault	Digby Macdonald	Wolfgang Schuhmann
Richard Alkire	Yury Gogotsi	Douglas R. MacFarlane	Bruno Scrosati
Philippe Allongue	John B. Goodenough	Daniel Mandler	Yang Shao-Horn
Christian Amatore	Justin Gooding	Bing-Wei Mao	Ashok Shukla
Plamen Atanassov	Lo Gorton	Philippe Marcus	Patrice Simon
Doron Aurbach	Rolando Guidelli	Rudolf A. Marcus	Ulrich Stimming
Eric Bakker	Philippe Hapiot	Frank Marken	Peter Strasser
Philip N. Bartlett	Jurgen Heinze	Nenad Markovic	Shi-gang Sun
Martin Bazant	Robert Hillman	Jim McBreen	Yang-Kook Sun
R. Jürgen Behm	Bing Joe Hwang	Richard McCreery	Zhongqun Tian
Daniel Bélanger	György Inzelt	Shelley D. Minter	Jens Ulstrup
Nick Birbilis	Kingo Itaya	Angela Molina	Patrick Unwin
Alan Bond	Yasuhiko Ito	Sanjeev Mukerjee	Kohei Uosaki
Thierry Brousse	Deborah Jones	Richard Nichols	Costas Vayenas
Elton Cairns	Huangxian Ju	Petr Novak	Alain Walcarius
Aicheng Chen	Anny Jutand	Mark E. Orazem	Li-Jun Wan
Christos Comninellis	Takashi Kakiuchi	Tetsuya Osaka	Guoxiu Wang
Richard Compton	Arkady Karyakin	Masatoshi Osawa	Masahiro Watanabe
Serge Cosnier	Evgeny Katz	Stefano Passerini	Stanley Whittingham
Michael Eikerling	Paul Kenis	Emanuel Peled	George Wilson
Chunhai Fan	Hasuck Kim	José Pingarron	Martin Winter
W. Ron Fawcett	Marc Koper	Bin Ren	Yongyao Xia
Juan Feliu	Alexei Kornyshev	Zdenec Samec	Akira Yoshino
Mario Ferreira	Katharina Krischer	Robert Savinell	Gleb Yushin
Maria Forsyth	Alexander Kuhn	Elena Savinova	José Zagal
Elzbieta Frackowiak	Claude Lamy	David Schiffrin	Piotr Zelenay
Claude Gabrielli	Ovadia Lev	Wolfgang Schmickler	Jiujun Zhang
Hubert Gasteiger	Jacek Lipkowski	Patrik Schmuki	





## Society Awards

### Electrochimica Acta Gold Medal

The Electrochimica Acta Gold Medal may be awarded every two years to the person judged to have made the most significant contribution to electrochemistry in recent years.

### Frumkin Memorial Medal

The Frumkin Memorial Medal may be given once every two years. It recognises the outstanding contribution of a living individual over his/her life in the field of fundamental electrochemistry.

### Katsumi Niki Prize for Bioelectrochemistry

The Katsumi Niki Prize for Bioelectrochemistry may be awarded every two years to a scientist who has made an important contribution to the field of bioelectrochemistry.

### Bioelectrochemistry Prize of ISE Division 2

The Bioelectrochemistry Prize of ISE Division 2 may be awarded every two years to a scientist who has made an important contribution to the field of bioelectrochemistry.

### Brian Conway Prize for Physical Electrochemistry

The Brian Conway Prize for Physical Electrochemistry may be awarded every two years, in recognition of the most successful achievements in Physical Electrochemistry in recent years.

### Alexander Kuznetsov Prize for Theoretical Electrochemistry

The Kuznetsov Prize is awarded every two years to a living individual who has made groundbreaking contribution to the theory of electrochemical phenomena.

### Jaroslav Heyrovsky Prize for Molecular Electrochemistry

The Jaroslav Heyrovsky Prize for Molecular Electrochemistry, supported by ISE Division 6, may be awarded annually to a scientist who has made an important contribution to the field of molecular electrochemistry in the last 5 years.

### Zhaowu Tian Prize for Energy Electrochemistry

The Zhaowu Tian Prize for Energy Electrochemistry may be awarded annually to a scientist of less than 40 years of age on January 1st of the year of the award, in recognition of her/his recent achievements in the field of electrochemistry for energy.

### Tajima Prize

The Tajima Prize recognises the contributions made by younger electrochemists. Candidates must be less than 40 years old. An award may be made every year. The decision of the Award Committee will be based on published work.

### ISE-Prize for Electrochemical Materials Science

The ISE-Prize for Electrochemical Materials Science is awarded annually to a young person for contributions in the field of electrochemical material science, including corrosion, electrodeposition and surface treatment.

### Oronzio and Niccolò De Nora Foundation Young Author Prize

The Oronzio and Niccolò De Nora Foundation Young Author Prize may be awarded annually to a scientist of less than 30 years for the best paper published in the ISE society journal in the calendar year preceding the award.

### ISE-Elsevier Prize for Experimental Electrochemistry

The ISE-Elsevier Prize for Experimental Electrochemistry may be awarded annually to a person who has made an important contribution to experimental electrochemistry.

### ISE-Elsevier Prize for Green Electrochemistry

The ISE-Elsevier Prize for Green Electrochemistry may be awarded annually to a scientist of less than 35 years of age on January 1st of the year of the award, for recent application-oriented achievements in the field of environmental electrochemistry.

### ISE-Elsevier Prize for Applied Electrochemistry

The ISE-Elsevier Prize for Applied Electrochemistry may be awarded annually to a scientist of less than 35 years of age on January 1st of the year of the award, for recent achievements in the field of applied electrochemistry.

### Early Career Analytical Electrochemistry Prize of Division 1

The Early Career Analytical Electrochemistry Prize of ISE Division 1, sponsored by OrigaLys, may be awarded annually to a scientist of less than 35 years of age on January 1st of the year of the award in recognition of her/his recent achievements in Analytical Electrochemistry.

### Electrochimica Acta and ISE Travel Award for Young Electrochemists

The Electrochimica Acta Travel Awards for Young Electrochemists are aimed at favouring the participation of young electrochemists in the ISE Annual Meetings. The applicants must be ISE members. They must have obtained their Ph.D. not earlier than 6 years before the deadline for applications.



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## ISE Sponsored Meeting Information

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### What is an ISE sponsored meeting?

You may have noticed that scientific meetings in the field of electrochemistry are often labelled “ISE sponsored Meeting”. What does this mean? In addition to organizing its own meetings, such as the Annual and Topical Meetings, ISE may sponsor other international scientific meetings in the area of electrochemistry. ISE sponsorship is intended to be a sign of quality for the meeting.

### What are the requirements for ISE sponsorship?

ISE requires that the scientific quality of the meeting reaches the standard of its own meetings. It is desirable that the advisory board consists of ISE members, as far as possible. The meeting must be open to all ISE members.

### Who decides?

The decision is normally taken by the officers of the ISE Division in whose field of interest the topic of the meeting lies. ISE Division Officers should be involved in the organisation of the meeting. The ISE Executive Committee decides on the sponsorship for meetings of general interest.

### What are the obligations of the organizers?

The organizers have to publicise the ISE sponsorship in all the official documents related to the meeting (announcements, program, website etc.). At the meeting, a representative of ISE must be allowed to say a few words on behalf of the Society, and ISE must have the opportunity to advertise. After the meeting, the organizers should submit a short report to ISE to be published on the ISE website.

### What do the organizers receive from ISE?

ISE publishes announcements and reports of ISE sponsored meetings on its website. The ISE Office can organize, free of charge, mailings to all, or a group of ISE members. In appropriate cases, there may be a special issue of *Electrochimica Acta* associated with these meetings. Decisions about special issues are made by the Editor-in-Chief.

### What about money?

ISE sponsorship of a meeting does not necessarily include a financial contribution from ISE. The sponsoring Division(s) may use its funds to support such a meeting. The level of financial contribution will be determined by the Division(s), but a typical sum may be 500 Euros.

### How to apply for ISE sponsorship?

If you would like to have the scientific meeting you are organizing sponsored by ISE, please send an e-mail to the ISE Office, at least one year in advance of the time of the meeting, and attach a completely filled in sponsor request form. This form can be found on the ISE website at: <https://www.ise-online.org/ise-sponsoring/sponsoring-info.php>. The decision will be taken by the Officers of the sponsoring Division(s), or by the Executive Committee, and the ISE Office will inform the applicant.

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## ISE Regional Student Meetings

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Graduate Students who are members of ISE and intend to organize a Regional Student Meeting can apply for ISE financial support. Applications submitted by Graduate Students jointly with their supervisors or with other senior members of the staff of their university are also acceptable, but it is expected that the students will be engaged in the organizational aspects of the meeting as much as possible. Regional Student Meetings are typically one-day meetings involving graduate students active in the geographic area where the meeting takes place. The format of the meeting (oral presentations, posters, discussion sessions, other) is autonomously decided by the organizers who will be responsible for securing a venue and collecting registrations. No registration fee should be requested, if financially possible. When the Regional Student Meeting is associated to a larger ISE-sponsored meeting taking place in the same venue, the application must provide clear indication on the connections between the two events and must clearly describe the independent activities reserved to student participants. No later than one month after the meeting, the organizer(s) will send to the ISE Office a report on the event, including the names and the e-mail addresses of the participants. The student participants will be invited to apply for ISE membership. A report giving an overview of the meeting, accompanied by suitable pictures if available, will be posted on the ISE website under Student Activities.

Applications for ISE support must be sent by e-mail to the ISE Office, with a copy to the Regional Representative of the country where the meeting is organized, 3-12 months before the meeting date, using the application form. The local ISE Regional Representative, if requested, will assist the potential meeting organizer in the preparation of the application. Applications will be analyzed by a committee consisting of (i) ISE Immediate Past President (ii) ISE Secretary General, (iii) ISE Treasurer, (iv) ISE Vice President responsible for Educational Activity and (v) ISE Vice President responsible for Regional Sections. The response will be communicated to the applicant and to the relevant Regional Representative no later than 1 month after the application submission.

The maximum financial support will be 600 €; the expected use of the funds must be specified in the application. Co-sponsoring by other Societies and/or institutions is possible.

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# General Conference Information

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## Registration Hours during the Meeting

The registration will take place at **Desk F517**

Sunday, 18 August	13:00-17:00
Monday, 19 August	08:00-18:00
Tuesday, 20 August	08:00-18:00
Wednesday, 21 August	08:00-11:00
Thursday, 22 August	09:00-17:00
Friday, 23 August	09:00-11:00

## On Site Registration Fees

Regular registration fee	760 EURO
Registration fee for ISE members	660 EURO
Student registration fee	370 EURO
Student registration fee for ISE members	330 EURO
<i>Regular and Student Registration fees include: Admission to all scientific and exhibition sessions, three lunches (Monday, Tuesday and Thursday), receptions, coffee breaks, conference bag.</i>	
Program book	10 EURO
Tutorial Lectures	10 EURO
Banquet	100 EURO

## Lunches

Lunch will be provided on the in **room 517ABCD**

Monday	12:30-14:00
Tuesday	12:30-14:00
Thursday	12:30-14:00

## Coffee Breaks

Coffee Breaks will be situated in **room 517ABCD**

Monday Morning	10:50-11:10
Tuesday, Wednesday, Thursday and Friday Mornings	10:30-10:50
Monday, Tuesday and Thursday Afternoons	16:00-16:20

## Internet Service

WiFi for mobile phones, tablets, and laptops will be accessible within the Conference Center.

## Photography and recording during presentations

Photography and recording is not permitted during the meeting activities (tutorials, plenary lectures, oral and keynote presentations and/or poster sessions) without the express, written consent from ISE.

# Day-by-Day Week Schedule 18 - 23 August 2024



Sunday 18		Monday 19	Tuesday 20	Wednesday 21	Thursday 22	Friday 23
	08:15-09:15		Plenary Lecture	Plenary Lecture	Plenary Lecture	Plenary Lecture
	09:30-09:50	Plenary Lecture 09:00-10:00				
	09:50-10:10		Orals	Orals	Orals	Orals
	10:10-10:30	Orals				
	10:30-10:50		Coffee Break	Coffee Break	Coffee Break	Coffee Break
	10:50-11:10	Coffee Break				
	11:10-11:30					
	11:30-11:50	Orals	Orals	Poster Session 10:50-12:30	General Assembly 11:00-12:00	Orals
	11:50-12:10					
	12:10-12:30					Closing Ceremony
	12:30 to 14:00	Lunch	Lunch		Lunch	
Registration 13:00		Div.+Reg. Rep. 12:40-13:40	Council Meeting 12:40-13:40	Excursions	Division Meetings 12:40-13:40	
		Lunch	Lunch		Lunch	
	14:00-14:20					
	14:20-14:40					
Tutorials 13:30-16:45	14:40-15:00	Orals	Orals			Orals
	15:00-15:20					
	15:20-15:40					
	15:40-16:00					
	16:00-16:20	Coffee Break	Coffee Break			Coffee Break
	16:20-16:40					
	16:40-17:00					
	17:00-17:20	Orals	Orals		Orals	
Opening Ceremony	17:20-17:40					
	17:40-18:00					
Plenary Lecture	18:00-19:00	Posters & Cocktail 18:00-20:00				
Welcome Reception 19:15-20:30	19:00-20:00				Banquet 19:00-23:00	