

Monday 30 August 2021 - AM

p1 Plenary

Room : R01 - Tamna A (1500)

09:00 to 09:50

**Lo Gorton** (Department of Biochemistry and Structural Biology, Lund University, Lund, Sweden)

Connecting Bacterial Cells and Biological Membranes to Electrodes through Redox Polymers

s01 Recent Developments in Analytical Electrochemistry: from Fundamentals to Devices

Room : R13 - 402 A+B (100)

Chairman : Won-Yong Lee; Saimon M. Silva

10:00 to 10:30 Keynote

**Pooi See Lee** (School of Materials Science and Engineering, Nanyang Technological University, Singapore, Singapore)

Electroanalytical modulation and device applications of solution-processible electrochromic materials

10:30 to 10:45

**Emily Kerr** (Institute for Frontier Materials, Deakin University, Waurn Ponds, Australia), David Hayne, Lachlan Soulsby, Joseph Bawden, Steven Blom, Egan Doeven, Luke Henderson, Conor Hogan, Paul Francis

Enhanced, Internally Standardised Co-reactant Electrogenerated Chemiluminescence

10:45 to 11:00

**Laena D'Alton** (Chemistry and Physics, La Trobe University, Melbourne, Australia), Conor Hogan

Considerations and Strategies to Achieve Ultra-low Detection Limits Using Electrochemiluminescence

11:00 to 11:15

Coffee Break

11:15 to 11:30

**Kai Yan** (School of Chemistry and Chemical Engineering, Huazhong University of Science and Technology, Wuhan, China)

Photo-Assisted Self-Powered Electrochemical Sensors for Pollutants Detection

11:30 to 11:45

**Xueming Dang** (School of Environmental Science and Technology, Dalian University of Technology, Dalian, China)

rGO-ZnIn<sub>2</sub>S<sub>4</sub> Functionalized Au-WO<sub>3</sub> IOPCs Z-scheme Heterojunction as An Efficient Strategy for Signal Amplification of Photoelectrochemical Assay

11:45 to 12:00

**Junko Kojima** (Business Incubation, Sysmex Corporation, Kobe, Japan), Kenichi Uchiyama, Yumi Yoshida

All-solid-state Ion-Selective Electrodes with Inorganic Insertion Material Paste Adding Solid Electrolyte

12:00 to 12:15

**Nicola Altenhuber** (Department of Electrical and Computer Engineering, Canterbury, Christchurch, New Zealand), Volker Nock, Alison J. Downard

An Aptamer Modified Sensor System to Measure Insulin

12:15 to 12:30

**Ricardo J. B. Leote** (Multifunctional Materials and Structures Laboratory, National Institute of Materials Physics, Magurele, Romania), Caroline G. Sanz, Anca Aldea, Madalina M. Barsan, Victor C. Diculescu

Flexible Bio(sensors) for Point-of-Care Biomedical Applications

12:30 to 12:45

**Monika Figiela** (Chemical Technology, Poznan University of Technology, Poznań, Poland), Dawid Kasprzak

Non-enzymatic amperometric glucose sensor based on CuO-CS/C

s02 Functional Surfaces and Electrochemically Active Materials: Preparation and Applications

Room : R05 - Samda B (100)

Chairman : Feng Ru Fan; Sachio Yoshihara

10:00 to 10:15

**Ichiro Koiva** (Department of Applied Chemistry,, College of Science and Engineering, Kanto Gakuin University, Yokohama, Japan), Asuka Hirata, Shuto Moriya, Natsumi Maeyama, Akira Morita, Jun Kawaguchi

Selective Electroless Nickel-Phosphorus Deposition on Resin Substrate by UV Irradiation

10:15 to 10:30

**Feng Ru Fan** (Department of Chemistry, Feng Ru Fan, Xiamen, China), Yang Zhao, Siying Huang, Zhong-Qun Tian

Thermally and Chemically Stable Silver Nanowires for Transparent Electrodes

10:30 to 10:45

**Sachio Yoshihara** (Department of Fundamental Engineering, School of Engineering, Utsunomiya University, 7-1-2 Yoto, Utsunomiya, Tochigi, Japan), Sachio Yoshihara, Reo Takizawa, Yoshifusa Ishikawa, Ken-ichiro Motoi, Tetsushi Oikawa

Application of Various Iron-Based Plated Electrodes Under Different Plating Conditions to Aqueous Type Metal-Air Battery

10:45 to 11:00

**Yao-Yin Lou** (College of chemistry and chemical engineering, Xiamen University, Xiamen, China), Chi Xiao, Jiayi Fang

Promoting Efficient Electrocatalytic Hydrodechlorination of Alachlor on Shape-Controlled Pd Nanocrystals of High-Index Facets

11:00 to 11:15

Coffee Break

11:15 to 11:30

**Sopon Butcha** (Molecular Science and Engineering, Vidyasirimedhi Institute of Science and Technology (VISTEC), Rayong, Thailand), Veronique Lapeyre, Chularat Wattanakit, Alexander Kuhn

Self-Assembled Monolayer Functionalized Chiral-imprinted Platinum Electrodes for Highly Enantioselective Electrosynthesis

11:30 to 11:45

**Chularat Wattanakit** (School of Energy Science and Engineering, Vidyasirimedhi Institute of Science and Technology (VISTEC), Rayong, Thailand), Sopon Butcha, Sunpet Assavapanumat, Thittaya Yutthalekha, Veronique Lapeyre, Bhavana Gupta, Adeline Perro, Neso Sojic, Alexander Kuhn

Enantioselective Synthesis with Nanostructured Chiral Metal Surfaces

11:45 to 12:00

**Marisa Ketkaew** (Chemical and Biomolecular Engineering, Vidyasirimedhi Institute of Science and Technology (VISTEC), Rayong, Thailand), Marisa Ketkaew, Getnet Kassahun, Patrick Garrigue, Laurent Bouffier, Alexander Kuhn, Chularat Wattanakit, Dodzi Zigah

Scanning Electrochemical Microscopy Study of PtCe Gradient Film Prepared by Bipolar Electrochemistry for Electro-Oxidation Reaction

12:00 to 12:15

**Madagonda M. Vadiyar** (Department of Energy and Materials Engineering, Dongguk University, Seoul, Korea), Kyung-Wan Nam

Metal-Organic Frameworks Derived Nanoconfinements of Cobalt Nanoparticles-Nitrogen doped Graphene/CNT for Alkali Ion Batteries

12:15 to 12:30

**Rawdah Whba** (Chemical Sciences, Universiti Kebangsaan Malaysia, Bangi, Malaysia), Rawdah Whba, Mohd Sukor Su'ait, Lee Tian Khoon, Salmiah Ibrahim, Nor Sabirin Mohamed, Azizan Ahmad

Synthesis and Characterization of Acrylonitrile Grafted Epoxidized Natural Rubber (ACN-g-ENR) by in-situ UV Curing Technique as Solid Polymer Electrolytes for Lithium-ion Rechargeable Batteries

12:30 to 12:45

**Ting Wu** (School of Physical and Chemical Sciences, University of Canterbury, Christchurch, New Zealand), Paula Brooksby, Christopher Fitchett, Christelle Gautier, Tony Breton, Alison Downard

Real-time Absorption Spectroelectrochemistry of Iron Porphyrin Modified Glassy Carbon During Oxygen Reduction Reaction

s04 Bioelectrochemistry: from fundamentals to applications

Room : R09 - 301 (80)

Chairman : Edmond Magner; Xinxin Xiao

10:00 to 10:30 Keynote

**Yang Tian** (Department of Chemistry, East China Normal University, Shanghai, China)

Developing New Tools for Understanding the Processes of Oxidative Stress in the Brain

10:30 to 10:45

**Benoît Piro** (Chemistry - Lab. ITODYS, Université de Paris, PARIS, France), Nga Dau, Samia Mekhmoukhen, Giorgio Mattana, Vincent Noel, Thi Thu Vu

An Electrochemically-Equipped Dressing for Wound Monitoring

10:45 to 11:00

**Włodzimierz Kutner** (Institute of Physical Chemistry, Polish Academy of Sciences, Warsaw, Poland), Marianna Gajda, Renata Rybakiewicz, Maciej Cieplak, Teresa Zolek, Dorota Maciejewska, Edyta Gilant, Piotr J. Rudzki, Katarzyna Grab, Andrzej Kutner, Pawel Borowicz, Krzysztof R. Noworyta

Aripiprazole Antipsychotic Drug Selective Determination with Extended-gate Field-effect Transistor (EG-FET) Chemosensor Using Molecularly Imprinted Polymer Transduction Unit

11:00 to 11:15

Coffee Break

11:15 to 11:30

**Miguel Aller Pellitero** (Pharmacology and Molecular Sciences, Johns Hopkins University School of Medicine, Baltimore, USA), Netzahualcóyotl Arroyo Currás

Osmium-based Organometallic Complexes as Redox Reporters for the Fabrication of Electrochemical Aptamer-based Sensors

11:30 to 11:45

**Elena Suprun** (Laboratory of Bioelectrochemistry, Institute of Biomedical Chemistry, Moscow, Russia), Gulnaz Kutdusova, Svetlana Khmeleva, Sergey Radko

Deoxyribonucleic Acid Oxidation on Carbon Electrodes: Some Quantitative Aspects

11:45 to 12:00

**Fei Wu** (Institute of Chemistry, Chinese Academy of Sciences, Beijing, China), Ping Yu, Lanqun Mao

Exploring Mediated Bioelectrocatalysis for Selective Biosensing

12:00 to 12:15

**Omer Yehezkeli** (Faculty of Biotechnology and Food Engineering, Technion, Haifa, Israel)  
Biotic/Abiotic Interfaced Systems for Biosensing and Enhanced (Bio)Catalysis

s05 New Electrochemical Approaches and Devices for Monitoring Diseases and Human Health

Room : R07 - 202 A + B (150)

Chairman : Haesik Yang

10:00 to 10:15 Invited

**I-Ming Hsing** (Department of Chemical and Biological Engineering, The Hong Kong University of Science and Technology, Hong Kong, China), Alan F. Rodríguez-Serrano, Xiao Lu, Xinyu Zhuang  
Synthetic Nucleic Acid Circuits for Small-Molecule Sensing and Point of Care Viral Testing

10:15 to 10:30

**David Williams** (School of Chemical Sciences, University of Auckland, Auckland, New Zealand), Bichen Zhu, Thomas Kerr-Philips, Zahraa Al Ghaus, Eddie Wai Chi Chan, David Barker, Clive Evans, Jadranka Travas-Sejdic

Mechanism of Ultra-High Sensitivity DNA Detection with Conducting Polymer-Modified Electrodes, and Prospects for Large-Scale Manufacture.

10:30 to 10:45 Invited

**Stefania Rapino** (Department of Chemistry, University of Bologna, Bologna, Italy), Maila Becconi, Simona De Zio, Francesco Falciani, Marco Malferrari

Cancer Metabolic Profile Detected by Scanning ElectroChemical Microscopy

10:45 to 11:00

**Benchaporn Lertanantawong** (Biomedical Engineering, Mahidol University, Salaya, Nakhon Pathom, Thailand), Thanyarat Chaibun, Jiratchaya Puenpa, Tatchanun Ngamdee, Nimaradee Boonapatcharoen, Pornpat Athamanolap, Anthony O'Mullane, Sompong Vongpunsawad, Yong Poovorawan, Su Yin Lee  
Ultrasensitive Electrochemical DNA Sensors for SARS-CoV-2 detection.

11:00 to 11:15

Coffee Break

11:15 to 11:30

**Lanqun Mao** (College of Chemistry, Beijing Normal University, Beijing, China)

Tackling Challenges in Electrochemical Sensing for In Vivo Analysis

11:30 to 11:45

**Limin Zhang** (School of Chemistry and Molecular Engineering, East China Normal University, Shanghai, China)

In Vivo Electroanalysis of Electroinactive Species in Rat Brain

11:45 to 12:00

**Chunyan Qin** (Intelligent Polymer Research Institute, University of Wollongong, Wollongong, Australia), Zhilian Yue, Yunfeng Chao, Robert Forster, Fionn Maolmhuaidh, Xu-Feng Huang, Stephen Beirne, Gordon Wallace, Jun Chen

Bipolar Electroactive Conducting Polymers for Wireless Cell Stimulation

12:00 to 12:15

**Dorota Matyszewska** (Faculty of Chemistry, University of Warsaw, Warsaw, Poland), Michalina Zaborowska

The Influence of Drug Lipophilicity on the Interactions of Anthracyclines with Phospholipid Layers Treated as Simple Models of Biological Membranes.

12:15 to 12:30

**Susana Campuzano** (Analytical Chemistry, Faculty of Chemistry, Complutense University of Madrid, Madrid, Spain), Eloy Povedano, Ana A. Montero-Calle, Víctor Ruiz-Valdepeñas, Rebeca M. Torrente-Rodríguez, María Gamella, María Pedrero, Rodrigo Barderas, Paloma Yáñez-Sedeño, José M. Pingarrón

Translational bioelectroanalytical tools bringing us closer to precision medicine

12:30 to 12:45

**Joanna Juhaniewicz-Debinska** (Faculty of Chemistry, University of Warsaw, Warsaw, Poland), Damian Dziubak, Kinga Burdach

The effect of ganglioside GM3 on human islet amyloid polypeptide (amylin) interactions with model lipid membranes

s06 Advanced lithium-ion batteries; from basics to cutting-edge technologies

Room : R02 - Halla A (270)

Chairman : Kyung Yoon Chung; Eungje Lee; Hikari Sakaebe

10:00 to 10:30 Keynote

**Eungje Lee** (Chemical Sciences and Engineering Division, Argonne National Laboratory, Lemont, USA)

Materials Development towards Sustainable Li-Ion Batteries

10:30 to 10:45

**Francesca Soavi** (Department of Chemistry, Alma Mater Studiorum University of Bologna, Bologna, Italy), Federico Poli, Alessandro Brilloni, Giovanni Spina

Pullulan as green component for high potential Li-ion battery cathodes

10:45 to 11:00

**Laurien Merinda** (Graduate Applied Science and Technology, National Taiwan University of Science and Technology, Taipei, Taiwan), Fu-Ming Wang, Nae-Lih Wu

Monolayer Adsorption Effect on Layered Li(Ni<sub>0.8</sub>Co<sub>0.1</sub>Mn<sub>0.1</sub>)O<sub>2</sub> Cathode Materials for Lithium Ion Batteries

11:00 to 11:15

Coffee Break

11:15 to 11:30

**Léa Mangani** (LEPMI, Grenoble INP, Grenoble, France)

Determination of the lithium diffusion coefficient in composite electrodes for Li-ion batteries by time-effective electrochemical methodologies

11:30 to 12:00 Keynote

**Juergen Janek** (Institute of Physical Chemistry, Justus Liebig University, Giessen, Germany)

Single crystalline vs. polycrystalline high capacity cathode materials in LIB and SSB

12:00 to 12:15

**Abir Ghosh** (Department of Chemical Engineering & Technology, Indian Institute of Technology (BHU), Varanasi, Varanasi, India), Jamie M. Foster, Gregory Offer, Monica Marinescu

Effect of Oxygen Evolution and Passivation Layer Growth on The Degradation of Ni-rich Cathodes (NMC811) in Li-ion Batteries

s07b Next-generation Batteries: Novel chemistry and design

Room : R11 - 303 (100)

Chairman : Tejs Vegge

10:00 to 10:30 Keynote

**Robert Dominko** (Department of Materials Chemistry, National institute of chemistry, Ljubljana, Slovenia), Sara Drvaric Talian, Nejc Pavlin, Miran Gaberscek

## Sustainable protection layer for Li metal batteries

10:30 to 10:45

**Zhen Chen** (Helmholtz Institute of Ulm/Karlsruhe Institute of Technology, Helmholtz Institute of Ulm/Karlsruhe Institute of Technology, Ulm, Germany), Zhen Chen, Guk-Tae Kim, Jae-Kwang Kim, Maider Zarrabeitia, Matthias Kuenzel, Hai-Peng Liang, Dorin Geiger, Ute Kaiser, Stefano Passerini  
Highly Stable Quasi-Solid-State Lithium Metal Batteries with Designed Solid Electrolyte/Electrodes Interlayers

10:45 to 11:00

**Janika Wagner** (IAM - Electrochemical Technologies, Karlsruhe Institute of Technology, Karlsruhe, Germany), Michail Gerasimov, Fridolin Röder, Perla B. Balbuena, Ulrike Krewer  
Revealing the impact of chemistry on SEI formation on Li metal by multi-scale modelling

11:00 to 11:15

Coffee Break

11:15 to 11:30

**Qiang Zhang** (Department of Chemical Engineering, Tsinghua University, Beijing, China)  
Emerging Energy Chemistry at Li metal and Electrolyte Interfaces

11:30 to 11:45

**Gunther Wittstock** (Chemistry Department, School of Mathematics and Science, Car von Ossietzky University of Oldenburg, Oldenburg, Germany), Bastian Krueger, Luis Balboa, Jan Frederik Dohmann, Peer Bärmann, Martin Winter, Peter Bieker, Tobias Placke  
Evolution of Solid Electrolyte Interphases as Seen by Scanning Electrochemical Microscopy

11:45 to 12:00

**Gustavo Hobold** (Department of Mechanical Engineering, Massachusetts Institute of Technology, Cambridge, USA), Betar Gallant  
Probing Electrolyte-Dependent Li<sup>+</sup> Transfer Through the Native Solid Electrolyte Interphase on Li

12:00 to 12:15

**Stefan Freunberger** (IST Austria, Institute of Science and Technology Austria, Klosterneuburg, Austria)  
Reaction mechanisms and phase evolution in main group redox chemistries

12:15 to 12:30

**Hsisheng Teng** (Chemical Engineering, National Cheng Kung University, Tainan, Taiwan), Hanh T. T. Nguyen, Dang H. Nguyen, Qin-Cheng Zhang  
All-Solid-State Polymer Electrolytes for High-Stability and Dendrite-Free Lithium-Metal Batteries

12:30 to 12:45

**Daniel Schroeder** (Institute of Energy and Process Systems Engineering (InES), TU Braunschweig, Braunschweig, Germany)  
Operando Insight and Physico-Chemical Modeling to Analyze Dendrite Growth in Metal-Oxygen Batteries

s07 Next-generation Batteries: Novel chemistry and design

Room : R01 - Tamna A (1500)

Chairman : Silvia Bodoardo

10:00 to 10:30 Keynote

**Kristina Edstrom** (Department of Chemistry - Angstrom Laboratory, Uppsala University, Uppsala, Sweden)  
Transformative approaches to accelerate battery research to invent the batteries of the future

10:30 to 10:45 *Invited*

**Seok Woo Lee** (School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore, Singapore)

A saline water based battery for a smart contact lens

10:45 to 11:00

**Lucia Fagiolari** (Department of Applied Science and Technology, Politecnico di Torino, Turin, Italy), Daniele Versaci, Julia Amici, Carlotta Francia, Silvia Bodoardo, Federico Bella

An Exploratory Study of Electrode Materials Suitable for Potassium-based Batteries

11:00 to 11:15

Coffee Break

11:15 to 11:30 *Invited*

**Maria Assunta Navarra** (Chemistry, Sapienza University of Rome, Rome, Italy), Ruggero Poiana, Akiko Tsurumaki, Ernestino Lufrano, Cataldo Simari, Isabella Nicotera

Safe Gel Polymer Electrolytes for High Voltage Lithium batteries

11:30 to 11:45

**Yoshitaka Tateyama** (GREEN, National Institute for Materials Science (NIMS), Tsukuba, Japan), Yong Youn, Kei Kubota, Shinichi Komaba

Nanometer-size Na Cluster Formation in Micropore of Hard Carbon as Origin of Higher-capacity Na-ion Battery: A DFT Study

11:45 to 12:00

**Nicola Boaretto** (CIC EnergiGUNE, Basque Research and Technology Alliance (BRTA), Vitoria-Gasteiz, Spain), Leire Meabe, Elias Lobato, Xabier Casas, Pierre Ranque, Itziar Aldalur, Frédéric Aguesse, Maria Martinez

Hybrid Ceramic-Polymer Electrolytes for High-Energy Lithium Metal Batteries

12:00 to 12:15

**Mario El Kazzi** (Energy and Environment, Paul scherrer Institute (PSI), Villigen, Switzerland), Xiaohan Wu, Marta Mirolo, Carlos A. F. Vaz, Petr Novák

(Electro-)Chemical and Electronic properties of LiCoO<sub>2</sub>-Li<sub>3</sub>PS<sub>4</sub> Interface Probed by Operando X-Ray Photoelectron Spectroscopy

s10 Electrochemical systems for energy conversion: Fuel Cells and Electrolyzers

Room : R03 - Halla B (230)

Chairman : Albert Sung Soo Lee

10:00 to 10:15 *Invited*

**Wenzhen Li** (Chemical & Biological Engineering Department, Iowa State University, Ames, USA), Xiaotong Chadderdon, David Chadderdon, Hengzhou Liu

Electrocatalytic Conversion of Furanic Compounds for Production of Valuable Chemicals

10:15 to 10:30

**Patricia V B Santiago** (Institute of Chemistry, Unicamp, Campinas, Brazil), Swathi P. Raju, Karthik Akkirajuc, Yang Shao-Horn, Pablo S. Fernández

Understanding the role of A site substitution on perovskite oxides as electrocatalyst for the oxidation of small organic molecules

10:30 to 10:45

**Sukhwa Hong** (Division of Environmental Science and Engineering, Pohang university of Science and Technology, POSTECH, Pohang, Korea), Jiseon Kim, Kangwoo Cho

Direct Urea Oxidation and Oxygen Evolution Reaction on Electrodeposited Mixed NiFe (Hydr)oxide Electrocatalysts

10:45 to 11:00

**Jun Hyun Lim** (Energy Engineering Department, Dankook university, Cheonan-si, Korea), Juhee Ahn  
The effect of size controlled perfluorinated sulfonic acid ionomers via supercritical dispersion used as polymer electrolyte membrane for water electrolysis

11:00 to 11:15

Coffee Break

11:15 to 11:30

**Tuan Linh Doan** (Graduate School of Energy Science and Technology, Chungnam National University, Daejeon, Korea), Han Eol Lee, Taekeun Kim  
Study the efficiency of IrO<sub>2</sub>/TiO<sub>2</sub> catalyst coated titanium porous transport layer (PTL) on the polymer electrolyte membrane water electrolysis (PEMWE) performance.

11:30 to 11:45

**Tamara Milicic** (Electrochemical Energy Conversion, Max Planck Institut for Dynamics of Complex Technical System, Magdeburg, Germany), Luka Zivkovic, Tanja Vidakovic-Koch  
Development of Macroscopic Dynamical Model of Proton Exchange Membrane Water Electrolyzer

11:45 to 12:00

**Choeun Kim** (Department of Mechanical and Information Engineering, University of Seoul, Seoul, Korea)  
Productivity Enhancement of an Automotive Proton Exchange Membrane Fuel Cell Stacks by Developing Exchangeable Unit Cell

12:00 to 12:15

**Jaewon Kirk** (Center for Hydrogen and Fuel Cell Research, Korea Institute of Science and Technology, Seoul, Korea), Dong Gyun Kang, Hyangsoo Jeong, Hyuntae Sohn, Chang Won Yoon, Suk Woo Nam, Jonghee Han, Yongmin Kim  
Optimal Sizing of Key Components and Adaptive Energy/Power Management in Hydrogen Energy Storage System

12:15 to 12:30

**Hyungjun Lee** (Energy Engineering, Hanyang University, Seoul, Korea), Chanho Kim, Sungmin Kim, Hoyeon Jung, Heesung Yoon, Taeseup Song  
Boosting the Cathodic Activity of Solid Oxide Fuel Cells via Introducing Subcontinuous 2D La<sub>0.6</sub>Sr<sub>0.4</sub>CoO<sub>3- $\delta$</sub>  Nanosheet

12:30 to 12:45

**Sourabh Chougule** (Graduate School of Energy Science and Technology, Chungnam National University, Daejeon, Korea), Arokia Anto Jeffery, Jiho Min, Yunjin Kim, Keonwoo Ko, Namgee Jung  
Carbon shell encapsulated metal nanoparticles for selective electrochemical reactions in fuel cells

s11 Electrochemical Conversion of Carbon Dioxide and its Utilization

Room : R04 - Samda A (100)

Chairman : Lin Zhang; Jinqiu Zhang

10:00 to 10:30 Keynote

**Alexis Bell** (Department of Chemical and Biomolecular Engineering, University of California, Berkeley, USA)  
Design of Optimal Microenvironment for the Attainment of High Yields of C<sub>2</sub>+ Products via the Electrochemical Reduction of CO<sub>2</sub>

10:30 to 10:45

**Jinqiu Zhang** (School of Chemistry and Chemical Engineering, Harbin Institute of Technology, Harbin, China), Yilin Yao, Shiji Zhang, Yueping Xiong, Peixia Yang, Maozhong An  
Sequential Copper Nanowires with Crystal Defects for Selective Electrochemical Reduction of CO<sub>2</sub> to C<sub>2</sub>H<sub>4</sub>

10:45 to 11:00

**Nick Daems** (Applied Electrochemistry and Catalysis (ELCAT), UAntwerpen, Wilrijk, Belgium), Daniel Choukroun, Pablo Merino, Gonzalo Santoro, Luis Vazquez, Clara Rettenmaier, Arno Bergmann, Lidia Martinez, Beatriz Roldan Cuenya, Jose Angel Martin Gago, Tom Breugelmans  
Surfactant-free Cu nanoparticles with controllable oxidation state as electrocatalyst for the CO<sub>2</sub> reduction towards C<sub>2</sub> chemicals

11:00 to 11:15

Coffee Break

11:15 to 11:30 *Invited*

**Minhua Shao** (Department of Chemical and Biological Engineering, The Hong Kong University of Science and Technology, Hong Kong, China), Shangqian Zhu  
In Situ Infrared Spectroscopic Studies on CO<sub>2</sub> Electrochemical Reduction Reaction

11:30 to 11:45

**Hilmar Guzmán** (DISAT, Politecnico di Torino, Turin, Italy), Daniela Roldán, Federica Zammillo, Nunzio Russo, Simelys Hernández  
Enhanced Electroreduction of CO<sub>2</sub> to C<sub>2</sub>+ Products on B-doped CuO Catalysts

11:45 to 12:00

**Simelys Hernandez** (Department of Applied Science and Technology (DISAT), Politecnico di Torino, Turin, Italy), Hilmar Guzman, Samir Bensaid, Nunzio Russo  
Cost-Effective Nanostructures for Electrochemical CO<sub>2</sub> Conversion to Chemicals and Fuels

12:00 to 12:15

**Venkata-Siva-Rama-Krishna Tandava** (Advanced Materials for Energy, Catalonia Institute for Energy Research, Sant Adria de Besos, Spain), Sebastián Murcia López, Joan Ramón Morante  
Optimizing Cu/CuOx/Carbon Black Supported Gas Diffusion Electrodes. A Systematic Electrocatalytic CO<sub>2</sub> Reduction Study enhancing Selectivity towards C<sub>2</sub> and C<sub>2</sub>+ Value-added Products.

12:15 to 12:30

**Mariana Monteiro** (Catalysis and Surface Chemistry, Leiden University, Leiden, Netherlands), Mariana Monteiro, Federico Dattila, Bellenod Hagedoorn, Rodrigo García-Muelas, Núria López, Marc Koper  
The role of cations on CO<sub>2</sub> reduction and how their properties impact the reaction selectivity

12:30 to 12:45

**Lin Zhuang** (College of Chemistry and Molecular Sciences, Wuhan University, Wuhan, China), Nian Wu, Xing Wei, Zhenglei Yin  
Chemical Field Coupled Electrocatalysis: A Selectivity Enhancing Strategy for CO<sub>2</sub> Conversion

s12 Corrosion and corrosion protection

Room : R12 - 401 (100)

Chairman : Beatriz Mingo; Monica Santamaria

10:00 to 10:30 *Keynote*

**Janine Mauzeroll** (Chemistry, McGill, Montreal, Canada)  
surfaces of engineering alloys and complex architectures such as welds or fractured samples.

10:30 to 10:45

**Sachiko Ono** (Dept. Applied Chemistry, Kogakuin University - Hachioji Campus, Tokyo, Japan)

## Structure Analysis of Anodic Alumina Film after Ni-Sealing

10:45 to 11:00

**Xiaole Han** (Graduate School of Engineering, Hokkaido University, Sapporo, Japan), Masatoshi Sakairi  
Effect of Chloride Salts on Hydrogen Permeation Behavior of Steel During Wet/Dry Corrosion

11:00 to 11:15

Coffee Break

11:15 to 11:30

**Beatriz Mingo** (Department of Materials, The University of Manchester, Manchester, United Kingdom), Yue Guo, Rafael Leiva-Garcia, Allan Matthews, Aleksey Yerokhin  
Active Corrosion Protection of PEO Coatings On Magnesium Alloys

11:30 to 11:45

**Benny Wouters** (Electrochemical and Surface Engineering, Vrije Universiteit Brussel, Brussels, Belgium), Ehsan Jalilian, Negin Madelat, Raf Claessens, Guy Van Assche, Tom Hauffman, Herman Terryn, Annick Hubin  
Monitoring initial ion and water uptake of organic coatings using time-resolved instantaneous electrochemical impedance spectroscopy

11:45 to 12:00

**Andrea Zaffora** (Department of Engineering, University of Palermo, Palermo, Italy), Francesco Di Franco, Paola Vassallo, Monica Santamaria  
Double Step Electrochemical Process for the Deposition of Superhydrophobic Coatings to Improve Corrosion Resistance of AA5083 Alloy

12:00 to 12:15

**Ting Wu** (Institute of Surface Science, Helmholtz-Zentrum Geesthacht, Geesthacht, Germany), Carsten Blawert, Maria Serdechnova, Polina Karlova, Gleb Dovzhenko, D. C. Florian Wieland, Stevan Stojadinovic, Rastko Vasilic, Kristina Mojsilovic, Mikhail L Zheludkevich  
Formation of Plasma Electrolytic Oxidation Coatings on Pure Niobium in Different Electrolytes

12:15 to 12:30

**Liana Anicai** (Center of Surface Science and Nanotechnology, University Politehnica of Bucharest, Bucharest, Romania), Aurora Petica, Adrian Cristian Manea, Oana Andreea Lazar, Teodor Visan  
Environmentally-Friendly Cerium-Based Conversion Coatings Obtained by Cathodic Electrodeposition in Deep Eutectic Solvents Formulations for Corrosion Protection of AA7075 Aluminium Alloys

12:30 to 12:45

**Nnaemeka Nnaji** (Chemistry, Rhodes University, Grahamstown, South Africa), Nnaemeka Nnaji, Njemuwa Nwaji, John Mack, Tebello Nyokong  
Ball-type phthalocyanines and reduced graphene oxide nanoparticles as separate and combined corrosion inhibitors of aluminium in HCl- Experimental and computational approaches

s14 Electrochemical Technology for Process Intensification and Sustainability

Room : R10 - 302 (80)

Chairman : Karine Groenen-Serrano; Fabio La Mantia

10:00 to 10:30 Keynote

**Karel Bouzek** (Department of Inorganic Technology, University of Chemistry and Technology Prague, Prague 6, Czech Republic), Monika Drakselová, Veronika Recková, Martin Prokop  
Gas Diffusion Layer Permeability and Its Impact on the PEM Fuel Cell Performance

10:30 to 11:00 Keynote

**John Weidner** (Chemical Engineering, University of Cincinnati, Cincinnati, USA)

## Solar-Hydrogen Production in a Hybrid-Sulfur Electrolyzer

11:00 to 11:15

Coffee Break

11:15 to 11:45 Keynote

**Fabio La Mantia** (Energy Storage and Energy Conversion Systems, University of Bremen, Bremen, Germany)

Electrochemical lithium recovery by means of electrochemical ion pumping: from materials to processes

11:45 to 12:00

**Luis Diaz Aldana** (Chemical Processing, Idaho National Laboratory, Idaho Falls, USA), Tedd Lister, Meng Shi, Eugene Engmann

Electrochemical Enabling Processes for the Recovery of Value and Critical Materials from End-of-Life Electronics

12:00 to 12:15

**Javier Llanos** (Department of Chemical Engineering, University of Castilla-la Mancha, Ciudad Real, Spain), Yelitza Delgado, Javier Llanos, Francisco Jesús Fernández

Modelization of Cu Recovery from Real Acid Mine Drainage with Coupled Energy Generation

12:15 to 12:30

**Liqing Qiao** (Chemistry, Xiamen University, xiamen, China)

Photoelectrochemical mechanical polishing of n-type gallium nitride semiconductor wafers

12:30 to 12:45

**Zahra Chaghazardi** (Mechanical, Industrial and Aerospace Engineering, Concordia University, montreal, Canada), Rolf Wüthrich

Effect of Electropolishing Parameters on Optical Properties of Titanium Parts

s20 Recent Development in Spectroscopy, Microscopy and Theory for Atomic/Molecular Level Understanding of Electrochemical Interfaces

Room : R08 - 203 (100)

Chairman : Kei Murakoshi

10:00 to 10:30 Keynote

**Tianquan Lian** (Chemistry, Emory University, Atlanta, USA)

In situ VSFG Spectroscopic Probe of the Structures and Dynamics of Molecular Catalyst at Electrode/Liquid Interfaces

10:30 to 10:45

**Leon Jacobse** (Center for X-ray and Nano Science CXNS, Deutsches Elektronen-Synchrotron DESY, Hamburg, Germany), Ralf Schuster, Xin Deng, Silvan Dolling, Tim Weber, Herbert Over, Jörg Libuda, Vedran Vonk, Andreas Stierle

Observing the Oxidation of Platinum under operando Electrochemical Conditions

10:45 to 11:00

**Marcel Risch** (NWG Gestaltung des Sauerstoffentwicklungsmechanismus, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, Berlin, Germany)

Epitaxial La<sub>0.6</sub>Sr<sub>0.4</sub>MnO<sub>3</sub> as a model electrode for oxygen electrocatalysis in aqueous electrolytes: peroxide yield, protocols and in situ X-ray absorption spectroscopy

11:00 to 11:15

Coffee Break

11:15 to 11:30

**Victor Climent** (Institute of Electrochemistry, University of Alicante, Alicante, Spain), Valentin Briega-Martos, Francisco J. Sarabia, Enrique Herrero, Juan M. Feliu  
Laser Heating and Interfacial Water Structure on Pt(111)/non-Adsorbing Electrolyte Interfaces: Influence of Cations

11:30 to 11:45

**Ahmed Elshatla** (Electrochemistry Dep., Institute of Physical and Theoretical Chemistry - Bonn Uni., Bonn, Germany), Manuel Landstorfer  
Experimental and theoretical investigation of some aprotic solvents in contact Au(111) electrodes

11:45 to 12:00

**Carol Korzeniewski** (Department of Chemistry & Biochemistry, Texas Tech University, Lubbock, USA), Jiahe Xu, Eric M. Peterson, Jay P. Kitt, Shelley D. Minter, Joel M. Harris  
Confocal Raman Microscopy for In-Situ Studies of Transformations at Electrode-Electrolyte Interfaces

12:00 to 12:15

**Iuliia V. Voroshylova** (Chemistry and Biochemistry, University of Porto, Faculty of Sciences, Porto, Portugal), Heigo Ers, Volodymyr Kovega, Borja Docampo Alvarez, Piret Pikma, Vladislav Ivanistsev, M. Natália D.S. Cordeiro  
Ionic Liquids-Metal Interface: Insights from MD Simulations

12:15 to 12:30

**Heigo Ers** (Institute of Chemistry, University of Tartu, Tartu, Estonia), Meeri Lembinen, Maksim Misin, Ari Paavo Seitsonen, Maxim Fedorov, Vladislav Ivanistsev  
Dismantling the potential drop at the graphene-ionic liquid interface using DFT-MD simulations

12:30 to 12:45

**Nicolas Georg Hoermann** (Theory Department, Fritz-Haber-Institut der Max-Planck-Gesellschaft, Berlin, Germany), Karsten Reuter  
Theoretical Description of non-Nernstian thermodynamic Cyclic Voltammograms

Monday 30 August 2021 - PM

s01 Recent Developments in Analytical Electrochemistry: from Fundamentals to Devices

Room : R13 - 402 A+B (100)

Chairman : Christopher Brett; Rasa Pauliukaite

*16:00 to 16:30 Keynote*

**Damien Arrigan** (School of Molecular and Life Sciences, Curtin University, Perth, Australia)

Ion-transfer Sensing via Soft Interfaces

*16:30 to 16:45*

**Alan O'Riordan** (Nanotechnology Group, Tyndall National Institute - University College Cork, Cork, Ireland), Luiza Wasiewska, Kaye Burgess, Geraldine Duffy, Benjamin O'Connell, Ian Seymour, James Rohan, Pierre Lovera, Ivan O'Connell, Aidan Murphy

Remote Detection of Inorganic Species using Generator Collector Enabled In-Situ pH Control at Silicon Chip Substrates

*16:45 to 17:00*

**Konstantin Mikhelson** (Physical Chemistry, St.Petersburg State University, St.Petersburg, Russia), Elena Solovyeva, Valentina Keresten

The Paradox of the Non-constancy of the Bulk Resistance of Ionophore-based Ion-selective Membranes: The Origin and Possible Practical Applications

*17:00 to 17:15*

**Melania Loredana Onea** (Functional Nanostructures, National Institute of Materials Physics "Romania, Magurele, Romania), Adrian Enache, Elena Matei, Monica Enculescu, Ionut Enculescu

Bio-Sensing properties of Single ZnO nanowire Field Effect Transistor

*17:15 to 17:30*

**Simon Schumacher** (Technical Chemistry III, University Duisburg-Essen, Duisburg, Germany), Lukas Madauß, Tsvetan Tarnev, Swapnil Varhade, Emmanuel Batsa Tetteh, Marika Schleberger, Wolfgang Schuhmann, Corina Andronescu

Scanning Electrochemical Cell Microscopy – Investigation of the Hydrogen Evolution Reaction on Thin Film Dichalcogenides

*17:30 to 17:45*

Coffee Break

*17:45 to 18:00 Invited*

**Guobao Xu** (State Key Laboratory of Electroanalytical Chemistry, Changchun Institute of Applied Chemistry, CAS, Changchun, China), Wenyue Gao, Kateryna Muzyka, Liming Qi, Xiangui Ma, Shuang Han, Fan Yuan, Baohua Lou, Christian Amatore

Development of Simple Devices for Electroanalysis and Electrochemiluminescent Analysis

*18:00 to 18:15*

**Fred Lisdar** (Biosystems Technology, Technical University Wildau, Wildau, Germany), Shuang Zhao, Marc Riedel, Zhao Yue, Wolfgang Parak

Exploiting metal/semiconductor hybrid particles to introduce visible light sensitivity for photoelectrochemical sensor application

*18:15 to 18:30*

**Valentina Pifferi** (Dipartimento di Chimica, Università degli Studi di Milano, Milan, Italy), Luigi Falciola, Alessandro Minguzzi, Alberto Vertova

Photorenewable Electrochemical Sensors for Real-Time Monitoring of Drinking Water Quality

*18:30 to 18:45*

**Sheila Hernandez** (Chemistry, Universidad de Burgos, Burgos, Spain), Martin Perez-Estebanez, William Cheuquepan, Aranzazu Heras, Alvaro Colina  
Simultaneous UV/Vis absorption and Raman spectroelectrochemistry: New experimental set-up for understanding Electrochemical Surface Oxidation Enhanced Raman Scattering phenomenon.

s02 Functional Surfaces and Electrochemically Active Materials: Preparation and Applications  
Room : R05 - Samda B (100)  
Chairman : Paolo Bollella; Alison Downard

*16:00 to 16:30 Keynote*

**Alison Downard** (School of Physical and Chemical Sciences, University of Canterbury, Christchurch, New Zealand), Liam Carroll, Joel Schuurman, Alexandra McNeill, Rodrigo Martinez Gazoni, Roger Reeves, Martin Allen  
Electrografted Aryl Layers: a Versatile Method for Tuning the Surface Electronic Properties of ZnO, SnO<sub>2</sub> and Ga<sub>2</sub>O<sub>3</sub>

*16:30 to 16:45*

**Roberto Bernasconi** (Dipartimento di Chimica, Materiali e Ingegneria Chimica, Politecnico di Milano, Milano, Italy), Negar Fouladvari, Salvador Pané, Luca Magagnin  
Drug Release Enhancement from Electrodeposited Polypyrrole Layers by Bipolar Electrochemistry

*16:45 to 17:00*

**Tevin Bissen** (Chemistry, North West University , Potchestroom , South Africa)  
Synthesis and evaluation of (NiZnxCry)O electrocatalysts for the oxygen evolution reaction

*17:00 to 17:15*

**Alexander Black** (School of Chemistry, University of Southampton, Southampton, United Kingdom), Philip Bartlett  
Characterisation and Application of Weakly Coordinating Solvents for the Electrodeposition of Semiconductors

*17:15 to 17:30*

**Paolo Bollella** (Chemistry, University of Bari, Bari, Italy), Zhong Guo, Selvakumar Edwardraja, Vasantha Krishna Kadambar, Kirill Alexandrov, Artem Melman, Evgeny Katz  
Self-powered molecule release systems activated with chemical signals processed through reconfigurable Implication or Inhibition Boolean logic gates

*17:30 to 17:45*

Coffee Break

*17:45 to 18:00*

**Marta Choinska** (Department of Electrochemistry at the Nanoscale, J. Heyrovsky Institute of Physical Chemistry of the CAS, Prague, Czech Republic), Hana Dejmková, Jan Fischer, Ludek Míka, Tomáš Navrátil  
Selected 3D printed materials in electrochemistry: their stability and influence on the various solutions and analytes

*18:00 to 18:15*

**Paolo Ciocci** (Laboratoire ITODYS, Université de Paris, Paris, France)  
Revealing the heterogeneities in electrochemical activity of indium tin oxide electrode via optical microscopy and SECM

*18:15 to 18:30*

**Joanna Dolinska** (Institute of Physical Chemistry, Polish Academy of Sciences, Warsaw, Poland), Marcin Holdynski, Marcin Opallo  
When impurities are an opportunity for more efficient electrocatalysis

18:30 to 18:45

**Nick Duinslaeger** (Technology and Evaluation, Catalan Institute for Water Research (ICRA), Girona, Spain), Jelena Radjenovic  
Graphene Sponge Electrodes For Electrochemical Treatment of Perfluoroalkyl Substances (PFAS)

s04 Bioelectrochemistry: from fundamentals to applications

Room : R09 - 301 (80)

Chairman : Wlodzimierz Kutner; Christophe Leger; Yang Tian

16:00 to 16:30 Keynote

**George Malliaras** (Department of Engineering, University of Cambridge, Cambridge, United Kingdom)  
Electronics on the Brain

16:30 to 16:45

**Michalina Zaborowska** (Faculty of Chemistry, University of Warsaw, Warsaw, Poland), Damian Dziubak, Dorota Matyszewska, Renata Bilewicz  
Model raft biomembranes following exposure to statins - monitoring changes in structure and electrical properties

16:45 to 17:00

**Damian Dziubak** (Biological and Chemical Research Centre, Faculty of Chemistry, , Warszawa, Poland), Slawomir Sek  
Membranolytic lipo-oligoureas- the new class of antimicrobial compounds

17:00 to 17:15

**Shuto Osaki** (Graduate School of Engineering, Osaka University, Suita, Japan), Shin-ichi Wakida, Eiichi Tamiya  
Effect of the surfactants for gold-linked electrochemical immunoassay

17:15 to 17:30

**Simon Guette-Marquet** (Laboratoire de Genie Chimique, Institut National Polytechnique de Toulouse, Toulouse, France), Christine Roques, Alain Bergel  
Electron Transfers Between Animal Cells and Polarized Electrodes

17:30 to 17:45

Coffee Break

17:45 to 18:00

**Luiza Wasiewska** (Nanotechnology, Tyndal National Institute, Cork, Ireland), Geraldine Duffy, Catherine Burgess, Alan O'Riordan  
Development of Ultra-Sensitive, On-Chip Biosensor for Detection of stx1 Gene Using Interdigitated Microelectrodes Modified with Chitosan-Gold Composite.

18:00 to 18:15

**Zhang Wenrui** (College of Life Science and Technology, Xinjiang Unniversity, Urumqi, China), Chen Fei, Meng Fanxing, Wu Wanfeng, Shao Shuxuan, Duan Mengjiao, Zhang Minwei  
Construction and Application of Flexible Biosensor based on Au@PB NPs

18:15 to 18:30

**Saranya Thiruvottriyur Shanmugam** (Bioengineering, University of Antwerp, Antwerp, Belgium), Stanislav Trashin, Karolien De Wael  
Singlet Oxygen-Based Photoelectrochemical DNA Sensors

18:30 to 18:45

**Hum Lamichhane** (Molecular and Life Sciences, Curtin University, Perth, Australia), Terence Henares, Mark Hackett, Damien Arrigan  
Structural Changes in Insulin at a Soft Electrochemical Interface

s05 New Electrochemical Approaches and Devices for Monitoring Diseases and Human Health  
Room : R07 - 202 A + B (150)  
Chairman : Ilaria Palchetti

*16:00 to 16:30 Keynote*

**John A. Rogers** (, Northwestern University, , USA)  
Soft Microfluidic Analysis Systems for the Skin

*16:30 to 16:45 Invited*

**Wei Gao** (Medical Engineering, California Institute of Technology, Pasadena, USA)  
Skin-Interfaced Wearable Sweat Biosensors

*16:45 to 17:00*

**Francesca Mazzara** (Ingegneria, Università degli Studi di Palermo, Palermo, Italy), Chiara D'Agostino, Bernardo Patella, Alan O'Riordan, Giuseppe Aiello, Claudia Torino, Antonio Vilasi, Rosalinda Inguanta  
Sensors for the monitoring of analytes in the sweat

*17:00 to 17:15*

**Cecilia Cristea** (of Analytical Chemistry, Iuliu Hatieganu University of Medicine and Pharmacy, Cluj-Napoca, Romania), Alexandra Canciu, Oana Hosu, Andreea Cernat, Mihaela Tertis  
Electrochemical Sensors as Tools for Pathogen Bacteria Detection

*17:15 to 17:30*

**Hadar Ben-Yoav** (Biomedical Engineering, Ben-Gurion University of the Negev, Beer Sheva, Israel), Matan Aroosh, Rajendra P. Shukla, Russell E. Ware, Alexander A. Vinks  
Intelligent Microelectrodes Array for Hydroxyurea Prediction in Blood

*17:30 to 17:45*

Coffee Break

*17:45 to 18:00 Invited*

**María Jesús Lobo-Castañón** (Química Física y Analítica, University of Oviedo, OVIEDO, Spain), Ramón Lorenzo-Gómez, Ana Díaz-Fernández, Paula Gómez-Meijide, Sofia Tellado-Arbesú, Rebeca Miranda-Castro, Noemi de-los-santos-Alvarez  
Aptamers against Cancer Biomarkers: Selection and Integration into Electrochemical Sensors

*18:00 to 18:15*

**Elena Ferapontova** (Interdisciplinary Nanoscience Center (iNANO), Aarhus University, Aarhus, Denmark)  
Ultrasensitive and Specific Electroanalysis of a Breast Cancer Biomarker HER-2/neu Protein in Human Serum

*18:15 to 18:30*

**Kaylyn K. Leung** (Center for Bioengineering, University of California Santa Barbara, Santa Barbara, USA), Alex M. Downs, Gabriel Ortega, Kevin W. Plaxco  
Elucidating the Signal Drift Mechanisms with Electrochemical DNA sensors in Whole Blood

*18:30 to 18:45*

**Giulia Moro** (Department of Molecular Sciences and Nanosystems, Ca' Foscari University of Venice, Venice, Italy), Jessica Ghirardo, Patrick Severin Sfragano, Alessandro Angelini, Ilaria Palchetti, Federico Polo

Synthetic Receptor-based Biosensor for Human Urokinase-Type Plasminogen Activator (h-uPA): from Affinity Assays to Portable Platform Design

s06 Advanced lithium-ion batteries; from basics to cutting-edge technologies

Room : R02 - Halla A (270)

Chairman : Dominic Bresser; Gu Lin; Hikari Sakaebe

16:00 to 16:15

**Oliver Lohrberg** (Institute of Materials Science, TU Dresden, Dresden, Germany), Christian Heubner, Sebastian Maletti, Michael Schneider, Alexander Michaelis

Li-Plating and Stripping in Anode-Free Li-ion Batteries: Insights from operando dilatometry

16:15 to 16:30

**Simon E. J. O'Kane** (Department of Mechanical Engineering, Imperial College London, London, United Kingdom), Simon E. J. O'Kane, Ian D. Campbell, Mohamed W. J. Marzook, Gregory J. Offer, Monica Marinescu

Modelling the physical origin of the differential voltage minimum associated with lithium plating in Li-ion batteries

16:30 to 16:45

**Tao Gao** (Chemical Engineering, University of Utah, SALT LAKE CITY, USA), Dimitrios Fraggedakis, Supratim Das, William Chueh, Ju Li, Martin Bazant

Understanding the interplay between Li insertion and Li plating in graphite anodes

16:45 to 17:00

**Caroline Keller** (IRIG-SyMMES, Université Grenoble-Alpes, Grenoble, France), Saravanan Karuppiah, Guilhem Paradol, Samuel Tardif, Claire Villevieille, Sandrine Lyonnard, Cédric Haon, Pascale Chenevier

Custom Silicon Nanowires for Lithium-Ion Batteries

17:00 to 17:15

**Anshuman Chaupatnaik** (Materials Research Center (MRC), Indian Institute of Science (IISc), Bangalore, India), Prabeer Barpanda

Lead-based Perovskite Oxide Anodes for Rechargeable Batteries

17:15 to 17:30

**Chen Xuewen** (Materials Function and Design, Nagoya Institute of Technology, Nagoya, Japan), Song-Zhu Kure-Chu\*, Sung-Hyung Lee, Takashi Matsubara, Takehiko Hihara, Hitoshi Yashiro

Electrochemical characterization and Deterioration mechanism of TiO<sub>2</sub>-TiN/Sn-SnO<sub>2</sub> composite films for LIB anodes with high safety and large capacity

17:30 to 17:45

Coffee Break

17:45 to 18:00 *Invited*

**Yoshiyasu Saito** (Research Institute for Energy Conservation, AIST, Tsukuba, Japan), Ken Okada

In-Situ Heating XRD Measurement to Study Thermal Runaway of Lithium-ion Batteries

18:00 to 18:15

**Jeremy Dawkins** (Chemistry, McGill University, Montréal, Canada), Steen Schougaard, Janine Mauzeroll, Isaac Maartens, Marta Mirolo, Isabelle Beaulieu, Danny Chhin

Operando Observation of Li<sup>+</sup> in Li-ion Batteries

18:15 to 18:30

**Sebastian Maletti** (Institute of Materials Science, TU Dresden, Dresden, Germany), Christian Heubner, Christoph Lämmel, Michael Schneider, Roman Fedorov, Yair Ein-Eli, Alexander Michaelis

Single Particle Electrochemistry: Revealing Intrinsic Properties of Battery Materials

18:30 to 18:45

**Xinhua Zhu** (Department Materials and Chemistry, Vrije Universiteit Brussels, Ixelles, Belgium), Benny Wouters, Raf Claessens, Annick Hubin

State of Charge Identification of Lithium-ion Batteries by Operando EIS

s07 Next-generation Batteries: Novel chemistry and design

Room : R01 - Tamna A (1500)

Chairman : Kristina Edstrom

16:00 to 16:30 Keynote

**Tejs Vegge** (Department of Energy Conversion and Storage, Technical University of Denmark, Kgs. Lyngby, Denmark)

AI-accelerated discovery processes for next-generation battery materials

16:30 to 16:45

**Tomooki Hosaka** (Department of Applied Chemistry, Tokyo University of Science, Shinjuku-ku, Japan), Shinichi Komaba, Tatsuo Matsuyama, Taiga Fukabori, Ryoichi Tatara, Kei Kubota

Electrode Materials and Electrolytes for High-Voltage and High- Power K-Ion Batteries

16:45 to 17:00

**Martina Hegemann** (Physical and theoretical Chemistry Electrochemistry, University of Bonn, Bonn, Germany)

ORR and OER in Ca<sup>2+</sup> containing DMSO/Tetraglyme and DMSO/THF ElectrolyteM. Hegemann, H. Baltruschat\*Rheinische Friedrich-Wilhelms Universität Bonn Abteilung Elektrochemie, Roemerstrasse 164, 53117 Bonn, Germany\* Baltruschat@uni-bonn.de

17:00 to 17:15

**Maren-Kathrin Heubach** (Institute of Electrochemistry, Ulm University, Ulm, Germany), Areeg Abdelrahman, Fabian M. Schuett, Maximilian U. Ceblin, Maximilian J. Eckl, Sven J. Zeller, Ludwig A. Kibler, Timo Jacob

Sodium Deposition from [MPPip][TFSI] on Au(111) - From Initial Nucleation to Cluster Growth

17:15 to 17:30

**Niklas Borchers** (Institute of Engineering Thermodynamics, German Aerospace Center (DLR), Ulm, Germany), Birger Horstmann

Model-Based Electrolyte Design for Rechargeable Zinc Ion Batteries

17:30 to 17:45

Coffee Break

17:45 to 18:00 Invited

**Ezequiel Leiva** (Química Teórica y Computacional, Universidad Nacional de Córdoba, Córdoba, Argentina), Maximiliano Gavilán-Arriazu, Francisco Fernandez, Daniel Barraco

Kinetic Modeling of Lithium-ion Insertion in Prototypical Systems

18:00 to 18:15

**Christian Heubner** (Mobile Energy Storage Systems and Electrochemistry, Fraunhofer IKTS, Dresden, Germany), Tobias Lein, Björn Matthey, Sebastian Maletti, Michael Schneider, Alexander Michaelis

Electrochemical Alkali-Ion Exchange for Synthesis and Investigation of Novel Battery Materials

18:15 to 18:30

**Randy Jalem** (Green Research on Energy and Environmental Materials, National Institute for Materials Science (NIMS), Tsukuba, Japan), Randy Jalem, Yoshitaka Tateyama

First-principles DFT study on the Na<sup>+</sup> Superionic Conductivity in Cation-Doped Na<sub>3</sub>SbS<sub>4</sub> Solid Electrolytes for All-Solid-State Batteries

s07b Next-generation Batteries: Novel chemistry and design

Room : R11 - 303 (100)

Chairman : Julia Amici

16:00 to 16:15

**Donald Dornbusch** (Materials Chemistry and Physics, NASA Glenn Research Center, Cleveland, USA), Vadim Lvovich, Rocco Viggiano, Frederick Dynys, John Connell, Yi Lin  
Practical considerations in designing Solid state Li-S cells for electric aviation

16:15 to 16:30

**Xizheng Liu** (Institute For New Energy Materials and Low-Carbon Technology, Tianjin University of Technology, Tianjin, China)  
Composite gel electrolytes formed in situ for stable ambient Li/Na-O<sub>2</sub> batteries

16:30 to 16:45

**Nao Nomura** (Department of Chemistry and Life Science, Yokohama National University, Yokohama, Japan), Shanglin Li, Jiali Liu, Kazuhide Ueno, Kaoru Dokko, Masayoshi Watanabe  
Higher Energy Density and Longer Life of Li-S Batteries

16:45 to 17:00

**Daniele Versaci** (DISAT, Politecnico di Torino, Torino, Italy), Melina Cozzarin, Julia Amici, Martin E. Zoloff Michoff, Carlotta Francia, Arnaldo Visintin, Ezequiel Leiva, Silvia Bodoardo  
C<sub>3</sub>N<sub>4</sub>-based double layer approach for enhancing Li-S battery performances

17:00 to 17:15

**Xinsheng Zhang** (Chemical Engineering, East China University of Science and Technology, Shanghai, China)  
Functional Separator Coating based on Porous Organic Polymers for advanced Lithium-Sulfur Batteries

17:15 to 17:30

**Svetlana Menkin** (Department of Chemistry, University of Cambridge, Cambridge, United Kingdom), Christopher A. O'Keefe, Anna B. Gunnarsdóttir, Sunita Dey, Federico Pesci, Zonghao Shen, Darren M. C. Ould, Ainara Aguadero, Dominic Wright, Clare P. Grey  
Interface dynamics and metal plating in lithium and sodium anode-free batteries

17:30 to 17:45

Coffee Break

17:45 to 18:00

**Jiulin Wang** (Chemical Engineering, Shanghai Jiao Tong University, Shanghai, China), Huanhuan Yuan, Jiahang Chen  
Multifunctional Binder for S@pPAN cathode in Rechargeable Lithium Batteries

18:00 to 18:15

**Yongzhu Fu** (College of Chemistry, Zhengzhou University, Zhengzhou, China)  
Organosulfides as Cathode Materials for Rechargeable Li Batteries

18:15 to 18:30

**Christian Prehal** (Dept. of Information Technology and Electrical Engineering, ETH Zurich, Zurich, Switzerland), Heinz Amenitsch, Vanessa Wood, Stefan Freunberger  
Mechanisms of reversible active material electrodeposition in Li-O<sub>2</sub> batteries and beyond

18:30 to 18:45

**Fujun Li** (Chemistry, Nankai University, Tianjin, China), Zhuo Zhu, Qingliang Lv, Youxuan Ni, Shuo Zhao, Jun Chen

## Photo-involved Li-O<sub>2</sub> batteries and the reaction mechanism

s10b Electrochemical systems for energy conversion: Fuel Cells and Electrolyzers

Room : R06 - 201 A + B (150)

16:00 to 16:15

**Serhiy Cherevko** (Helmholtz-Institute Erlangen-Nuernberg for Renewable Energy, Forschungszentrum Juelich GmbH, Erlangen, Germany), Konrad Ehelebe, Julius Knöppel, Daniel Escalera-Lopez

How to Test the Stability of Electrocatalysts?

16:15 to 16:30

**Fengmin Du** (Development Fuel Cells, BMW Group, Munich, Germany), Tuan Anh Dao, Andreas Bauer, Michael Obermaier, Thomas J. Schmidt, Alin Orfanidi

Experimental and Simulative Investigations of Carbon Corrosion on the Performance Losses in PEMFCs

16:30 to 16:45

**Luka Pavko** (Department of materials chemistry, National institute of chemistry, Ljubljana, Slovenia), Luka Pavko, Matija Gatalo, Gregor Krizan, Janez Krizan, Bostjan Genorio, Francisco Ruiz-Zepeda, Angelja Kjara Surca, Nejc Hodnik, Miran Gaberscek

Towards Ultimate Pt-alloy Electrocatalyst Carbon Support Stability in PEMFC Applications

16:45 to 17:00

**Raghunandan Sharma** (Department of Green Technology (IGT), University of Southern Denmark, Odense, Denmark), Shuang Ma Andersen

Degradation mechanisms of electrochemical activity of Pt/C during the accelerated stress test focused on catalyst support corrosion

17:00 to 17:15

**Tina Djukic** (Department of Materials Chemistry, National Institute of Chemistry, Ljubljana, Slovenia), Léonard Jean Moriau, Martin Sala, Luka Pavko, Mitja Kostelec, Matija Gatalo, Nejc Hodnik

Effect of Temperature on Metal Dissolution of Pt-based Oxygen Reduction Reaction Electrocatalysts for PEM Fuel Cells

17:15 to 17:30

**Daniel Escalera López** (Helmholtz-Institute Erlangen-Nürnberg for Renewable Energy, Forschungszentrum Jülich GmbH, Erlangen, Germany), Steffen Czoska, Janis Geppert, Alexey Boubnov, Philipp Röse, Erisa Saraci, Ulrike Krewer, Jan-Dierk Grunwaldt, Daniel Guay, Serhiy Cherevko

The Stability of Cation-Substituted IrO<sub>2</sub> Catalysts Toward Water Splitting

17:30 to 17:45

Coffee Break

17:45 to 18:00

**Matija Gatalo** (Department for materials chemistry, National Institute of Chemistry, Ljubljana, Slovenia), Leonard Jean-Moriau, Francisco Ruiz-Zepeda, Martin Aala, Luka Pavko, Marjan Bele, Nejc Hodnik, Miran Gaberscek

Nano-engineering of High Performance Pt-alloy Intermetallics

18:00 to 18:15

**Kurt Mayer** (Inst. of Chemical Engineering and Environmental Technology, Graz University of Technology, Graz, Austria), Viktor Hacker

Simulations and Experiments on Critical Operating Conditions with Total Harmonic Distortion

18:15 to 18:30

**Aktilik Akhmetova** (Department of Chemical and Materials Engineering, Nazarbayev University, Nur-Sultan, Kazakhstan), Xuemiao Pan, Yanwei Wang, Almagul Mentbayeva

Chitosan-Based Anion Exchange Membranes for Fuel Cells Mechanically Enhanced with Polyacrylonitrile Nanofiber Network

18:30 to 18:45

**Nicolai Schmitt** (Ernst-Berl-Institute for Technical Chemistry, TU Darmstadt, Darmstadt, Germany), Bastian Etzold

Best practice for accurate determination of ORR catalyst activity in gas diffusion electrode half-cells

s10 Electrochemical systems for energy conversion: Fuel Cells and Electrolyzers

Room : R03 - Halla B (230)

16:00 to 16:15 *Invited*

**Maria Escudero-Escribano** (Department of Chemistry, University of Copenhagen, Copenhagen, Denmark)

Novel Electrode Materials for Oxygen and Carbon Monoxide Electrocatalysis: Structure Sensitivity and Electrolyte Effects

16:15 to 16:30

**Carlota Bozal-Ginesta** (Chemistry, Imperial College London, London, United Kingdom), Reshma R. Rao, Camilo A. Mesa, Xinyi Liu, Sam Hillman, Ifan E.L. Stephens, James R. Durrant

Operando spectroelectrochemical analysis of active state kinetics in water-oxidation IrOx electrocatalysts

16:30 to 16:45

**Alexandra Iskortseva** (Department of Electrochemistry, MSU, Moscow, Russia), Eduard Levin, Victoria Nikitina

Kinetics of One-Step Electron Transfer Processes on Semiconducting Electrodeposited Transition Metal Oxides in Aqueous Solution

16:45 to 17:00

**Gerard Montserrat Siso** (Department of Physics, Chalmers University of Technology, Göteborg, Sweden), Björn Wickman

PdNi Thin Films for Hydrogen Oxidation Reaction and Oxygen Reduction Reaction in Alkaline Media

17:00 to 17:15

**David J. Fermin** (School of Chemistry, University of Bristol, Bristol, United Kingdom), Veronica Celorrio  
Site Activity Enhancement via d-Orbital Overlap in Ru-Mn Pyrochlores Oxygen Electrocatalysts

17:15 to 17:30

**Dulce M. Morales** (NWG Gestaltung des Sauerstoffentwicklungsmechanismus, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, Berlin, Germany), Javier Villalobos, Mariya A. Kazakova, Marcel Risch

Impact of Nafion on the Oxidation State of Manganese Oxides Investigated by Electrochemical and X-Ray Absorption Spectroscopic Methods

17:30 to 17:45

Coffee Break

17:45 to 18:00

**Nicolas Grimaldos-Osorio** (IRCELYON, University Claude Bernard Lyon 1, Villeurbanne, France), Nicolas Grimaldos-Osorio, Fabrizio Sordello, Monica Passananti, Philippe Vernoux, Angel Caravaca  
From plastic-waste to hydrogen: A first electrochemical approach using a model molecule and pure PMMA

18:00 to 18:15

**Sotirios Mavrikis** (Engineering and Physical Sciences, University of Southampton, Southampton, United Kingdom), Ling Wang, Carlos Ponce de León

Electrochemical Synthesis of Hydrogen Peroxide via Water Oxidation using Boron Doped Diamond

18:15 to 18:30

**Kenji Sakamaki** (Dept. of Applied Chem. & Biochem., Fukushima College, National Institute of Technology, Iwaki-shi, Fukushima, Japan)  
Hydrogen Generation Derived from Water Dissociation (26)

18:30 to 18:45

**Mohamed A. Ghanem** (Chemistry Department, College of Science, King Saud University, Riyadh, Saudi Arabia), Abdullah M. Al-Mayouf, Prabhakarn Arunachalam, Mabrook S. Amer, Mark T. Weller  
Transition-metals oxyhalides electrocatalysts for boosting the electrochemical energy reactions

s11 Electrochemical Conversion of Carbon Dioxide and its Utilization

Room : R04 - Samda A (100)

Chairman : Wen-Bin Cai; Ruud Kortlever

16:00 to 16:15 Invited

**Plamen Atanassov** (Chemical & Biomolecular Engineering, University of California Irvine, Irvine, USA)  
Transition metal-Nitrogen-Carbon Catalysts for Electroreduction of Carbon Dioxide

16:15 to 16:30

**Xin Zong** (School of Chemistry and Chemical Engineering, Harbin Institute of Technology, Harbin, China), Jinqiu Zhang, Yueping Xiong  
Synergistic metal/CeO<sub>2</sub> nanofiber catalysts for efficient CO<sub>2</sub> electroreduction

16:30 to 16:45

**Akansha Goyal** (Leiden Institute of Chemistry, Leiden University, Leiden, Netherlands), Christoph J. Bondü, Matthias Graf, Marc Koper  
Quantitative understanding of mass transport effects for electrochemical CO<sub>2</sub> reduction reaction on Nano-porous gold catalysts

16:45 to 17:00

**Wen-Bin Cai** (Department of Chemistry, Fudan University, Shanghai, China), Hong Li, Xia-Guang Zhang  
Selective Reduction of CO<sub>2</sub> to CO on Spontaneously Sb-Modified Cu Electrode

17:00 to 17:15

**Philipp Röse** (IAM-Electrochemical Technologies, Karlsruhe Institute of Technology, Karlsruhe, Germany), Steffen Czioska, Christian Of, Leonie Wildersinn  
Investigation of the Electrocatalytic Reduction of CO<sub>2</sub> in Organic Electrolytes on Cu-Zn Nanoparticles

17:15 to 17:30

**Xin Wang** (College of chemistry, Zhengzhou University, Zhengzhou, China), Wen-Jin Yin, Yubing Si, Xiaoxiao Guo, Wei Guo, Yongzhu Fu  
Conversion of CO<sub>2</sub> to chemical feedstocks over bismuth nanosheets in situ grown on nitrogen-doped carbon

17:30 to 17:45

Coffee Break

17:45 to 18:00

**Ruud Kortlever** (Process & Energy, Delft University of Technology, Delft, Netherlands)  
The Effect of Process Conditions on the Electrocatalytic CO<sub>2</sub> Reduction Reaction

18:00 to 18:15

**Stefan Popovic** (Department of Materials Chemistry, National Institute of Chemistry, Ljubljana, Slovenia), Marjan Bele, Nejc Hodnik

Reconstruction of Copper Nanoparticles at Electrochemical CO<sub>2</sub> Reduction Reaction Conditions Occurs via Two-step Dissolution/Redeposition Mechanism: Identical Location Scanning Electron Microscopy (IL-SEM) Study

18:15 to 18:30

**Bruna Baggio** (Physics, University of Liverpool, Liverpool, United Kingdom), Paramaconi Rodriguez, Jack Beane, Adam Kolodziej, Christopher Lucas, Yvonne Grunder

In Situ Surface X-ray Diffraction of Cu Single Crystal Electrodes in Neutral Phosphate Electrolyte

18:30 to 18:45

**André Dourado** (Facultät für Physik, TUM, Garching, Germany), Katharina Krischer  
CO<sub>2</sub> Reduction Reaction on Cu<sub>2</sub>O Electrodes: High Faradaic Currents at Low Overpotential Accompanied by Current Oscillations

s12 Corrosion and corrosion protection

Room : R12 - 401 (100)

Chairman : Achim Walter Hassel; Ricardo M. Souto

16:00 to 16:30 Keynote

**Marta Mohedano** (Chemical and Material Engineering, Universidad Complutense de Madrid, Madrid, Spain), Ana Santos-Coquillat, Enrique Martinez-Campos, Lara Moreno, Raul Arrabal, Endzhe Matykina  
Bioactive Plasma Electrolytic Oxidation Coatings for Corrosion Protection and Functionalization

16:30 to 16:45 Invited

**Jan Kollender** (Joining Technologies and Corrosion, Swiss Federal Laboratories for Materials Science, Dübendorf, Switzerland)

Evaluation of electrochemical corrosion techniques on highly passive biomaterials using online ICP-MS

16:45 to 17:00

**Virginie Roche** (LEPMI, Univ. Grenoble Alpes, CNRS, Grenoble-INP, Saint Martin d'Herès, France), Jose Eduardo Berger, Gabriel H. Asato, Alberto Moreira Jorge Jr

Corrosion behavior and mechanical properties of two equimolar compositions of high entropy

17:00 to 17:15

Coffee Break

17:15 to 17:30

**Achim Walter Hassel** (Institute of Chemical Technology of Inorganic Materials, Johannes Kepler University Linz, Linz, Austria), Cezarina Cela Mardare, Michael T. Woldemedhin, Andrei Ionut Mardare  
Niobium Titanium Alloys for Medical Applications- Composition, Microstructure, Passivity

17:30 to 17:45 Invited

**Santiago Fajardo** (Surface Engineering, Corrosion and Durability, National Centre for Metallurgical Research CENIM-CSIC, Madrid, Spain), Raul Reyes-Riverol

Recent Advances in the Mechanism of Magnesium Dissolution and Anomalous Hydrogen Evolution

17:45 to 18:00

**Ricardo M. Souto** (Department of Chemistry, University of La Laguna, La Laguna, Spain), Dániel Filotás, Lívia Nagy, Géza Nagy

New Insights on the Influence of Aluminum on the Anomalous Hydrogen Evolution of Anodized Magnesium using SECM

18:00 to 18:15

**Abdelmoheiman Zakaria Benbouzid** (Laboratoire Interfaces et Systèmes Electrochimiques (LISE), Sorbonne Université, Paris, France), Oumaima Gharbi, Mai T. T. Tran, Mireille Turmine, Vincent Vivier

Understanding the pH Effect on the Magnesium Corrosion by means of Electrochemical Impedance Spectroscopy

18:15 to 18:30

**Jelena Bajat** (Department of Physical Chemistry and Electrochemistry, Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia), Mihael Bucko, Alexandre Bastos, Mário Ferreira  
Influence of water content in the electrolyte on the corrosion susceptibility of pure magnesium in ethaline

s14 Electrochemical Technology for Process Intensification and Sustainability

Room : R10 - 302 (80)

16:00 to 16:30 Keynote

**Karine Groenen Serrano** (Laboratoire de Genie Chimique, Universite Paul Sabatier, Toulouse, France)  
New insights into Peroxo-compounds Electrosynthesis for the Treatment of Recalcitrant Pollutants

16:30 to 16:45 Invited

**Elizabeth J. Biddinger** (Chemical Engineering, City College of New York, New York, USA), Andrew S. May, Steven M. Watt

Electrochemical Conversion of Furanics for Sustainable Chemicals and Fuels

16:45 to 17:00

**Bastian Mei** (Faculty of Science and Technology (TNW), University of Twente, Enschede, Netherlands), Kasper Wenderich, Arthur Ramos Flöering

Selective anodic water oxidation to hydrogen peroxide using boron-doped diamond electrodes

17:00 to 17:15 Invited

**Miguel Modestino** (Chemical and Biomolecular Engineering, New York University, Brooklyn, USA), Daniela Blanco

Process Intensification Approaches in Organic Electrosynthesis of Nylon Intermediates

17:15 to 17:30

**Jonathan Schalck** (Engineering, University of Antwerp, Wilrijk, Belgium), Jonas Hereijgers, Tom Breugelmans

Electrosynthesis of ethylene to ethylene oxide

17:30 to 17:45

Coffee Break

17:45 to 18:00

**Florian Schwarz** (Electrochemical Reaction Engineering, RWTH Aachen University, Aachen, Germany), Anna K. Mechler

Electro-oxidation of Anhydrous Methanol to Formaldehyde

18:00 to 18:15

**Philippe Vernoux** (IRCELYON, CNRS, Villeurbanne, France), Philippe Vernoux, Benjamin Gilbert, Thomas Cavoue, Angel Caravaca, Stéphanie Bruyère, Sylvie Migot, Pauline Vilasi, David Horwat  
Ethylene electrooxidation into ethylene oxide on nanostructured Ag/GDC electrocatalysts

18:15 to 18:30 Invited

**Onofrio Scialdone** (Dipartimento di Ingegneria, Università degli Studi di Palermo, Palermo, Italy)  
Towards the electrochemical conversion of CO<sub>2</sub> to formic acid at an applicative scale: analysis of the situation

18:30 to 18:45

**Masahiro Kunimoto** (Department of Applied Chemistry, Waseda University, 3-4-1, Okubo, Shinjuku-ku, Tokyo, Japan), Shoji Hikaru, Keisuke Saito, Masahiro Yanagisawa, Takayuki Homma

In-situ Spectroscopic Analyses of Electrolyte Decomposition Reaction in Li Ion Battery using Plasmonic Sensor Element

s20 Recent Development in Spectroscopy, Microscopy and Theory for Atomic/Molecular Level Understanding of Electrochemical Interfaces

Room : R08 - 203 (100)

Chairman : Nuria Garcia-Araez; Beomgyun Jeong

*16:00 to 16:15 Invited*

**Yasufumi Takahashi** (NanoLSI, Kanazawa University, Kanazawa, Japan)

Nanoscale electrochemical imaging for Visualising the Heterogeneous Catalytic Activity

*16:15 to 16:30*

**Minkyung Kang** (Department of Chemistry, University of Warwick, Coventry, United Kingdom),  
Cameron L. Bentley, J. Tyler Mefford, William Chueh, Patrick R. Unwin

Nanoparticle Activities Across Length Scales: from Sub-single Entity to Ensembles

*16:30 to 16:45*

**Dmitry Momotenko** (Department of Chemistry, Carl von Ossietzky University of Oldenburg, Oldenburg, Germany)

Single-Nanoparticle Thermometry with a Nanopipette

*16:45 to 17:00*

**Kun Jiang** (School of Mechanical Engineering, Shanghai Jiao Tong University, Shanghai, China)

Titration of the Local Coordination Structure of Single-Atom Catalyst by Combined Spectroelectrochemical and Computational Approaches

*17:00 to 17:15*

**Andrea Russell** (School of Chemistry, University of Southampton, Southampton, United Kingdom),  
Haoliang Huang, Oliver Blackman, Veronica Celorrio

Isolating the contributions of Sn and Sn oxides in the bifunctional behaviour of PtSn CO oxidation electrocatalysts

*17:15 to 17:30*

**Julia Kunze-Liebhäuser** (Institute of Physical Chemistry, University of Innsbruck, Innsbruck, Austria),  
Andrea Auer, Eva-Maria Wernig, Mie Andersen, Nicolas Hörmann, Karsten Reuter, Xing Ding,  
Aliaksandr Bandarenka

Self-activation of copper electrodes during CO electro-oxidation in alkaline electrolyte

*17:30 to 17:45*

Coffee Break

*17:45 to 18:00*

**Pablo Fernández** (Physical Chemistry, University of Campinas, Campinas, Brazil), Rafael Vicente,  
Heloisa Gomes, Itamar Neckel

Perspectives in single nanoparticle studies in the Carna ba beamline at SIRIUS

*18:00 to 18:15*

**Rafael A. Vicente** (Physical Chemistry, State University of Campinas, Campinas, Brazil), Guilherme H. Oliveira, Ren  A. Nome, Pablo S. Fern ndez

Low-frequency Stimulated Raman Spectroscopy Measurements at Electrochemical Interfaces under Different Applied Potentials

Tuesday 31 August 2021 - AM

p1 Plenary

Room : R01 - Tamna A (1500)

09:00 to 09:50

**Daniel Mandler** (Institute of Chemistry, Hebrew University of Jerusalem, Jerusalem, Israel)  
From Nano to Nano: Electrochemical Deposition using Nanomaterials as Building Blocks

s01 Recent Developments in Analytical Electrochemistry: from Fundamentals to Devices

Room : R13 - 402 A+B (100)

Chairman : Wei-Ssu Liao; Guobao Xu

10:00 to 10:30 Keynote

**Jun-Jie Zhu** (Chemistry and Chemical Engineering, Nanjing University, NANJING, China), Cheng Ma  
Single-Particle Electrocatalysis and Single-Cell Analysis by Electrochemiluminescence Microscopy

10:30 to 10:45

**Debbie Silvester** (School of Molecular and Life Sciences, Curtin University, Perth, Australia), Simon Doblinger, Sarah Linden, Amber Nguyen  
Poly(Ionic Liquids) as Robust Electrochemical Gas Sensing Materials for the Sensing of Oxygen and Sulfur Dioxide

10:45 to 11:00

**Saimon M. Silva** (Biomedical Engineering, Swinburne University of Technology, Melbourne, Australia), George W. Greene, Dênio Emanuel Pires Souto, Will Gates, Jon Miller, Simon Moulton  
Low-cost sensors for on-spot detection of PFAS

11:00 to 11:15

Coffee Break

11:15 to 11:30 Invited

**Chuan Zhao** (School of Chemistry, The University of New South Wales, Sydney, Australia)  
Metal organic framework-based materials for electrochemistry: from catalysis to analysis

11:30 to 11:45

**Yi-Tao Long** (School of Chemistry and Chemical Engineering, Nanjing University, Nanjing University, China), Yi-Tao Long  
Nanopore Electrochemistry for Single-entity Measurements

11:45 to 12:00

**Tomoki Iwama** (Graduate School of Environmental Studies, Tohoku University, Sendai, Japan), Yuanyuan Guo, Syoma Handa, Kumi Y. Inoue, Tatsuo Yoshinobu, Fabien Sorin, Hitoshi Shiku  
Demonstration of magnified imaging using thermally tapered bipolar electrode array

12:00 to 12:15

**Fabrizio Poletti** (Department of Chemical and Geological Sciences, University of Modena and Reggio Emilia, Modena, Italy), Barbara Zanfognini, Laura Favaretto, Emanuele Treossi, Manuela Melucci, Vincenzo Palermo, Chiara Zanardi  
Functionalized graphene oxide for continuous and simultaneous capillary flow sensing of biomarkers in sweat

12:15 to 12:30 Invited

**Omolola Esther Fayemi** (Chemistry, North West University, Mafikeng South Africa, Mafikeng, South Africa), Moeng Motitswe  
Electrochemical Detection of Pb and Cu in water at PAN/Au Modified Electrode

12:30 to 12:45

**Jordi Abellà** (Analytical and Applied Chemistry, Universitat Ramon Llull, Barcelona, Spain), Marc Nel-lo, Enric Lujan, Sergi Colominas

Development of a Sensor for Lithium Monitoring in Molten Pb-Li

s02 Functional Surfaces and Electrochemically Active Materials: Preparation and Applications

Room : R05 - Samda B (100)

Chairman : Zbigniew Stojek; Vessela Tsakova

10:00 to 10:15

**Ezer Castillo** (Department of Chemistry, Binghamton University, Binghamton, USA), Yunxiang Xie, Nikolay Dimitrov

Electrochemical Approach for the Synthesis of Alloy Materials Beyond Thermodynamic Limits: A Proof-of-Concept Study

10:15 to 10:30

**Luis F. Chazaro-Ruiz** (Division de Ciencias Ambientales, Instituto Potosino de Investigación Científica y Tecnológica, San Luis Potosí, Mexico), D. Ricardo Martínez-Vargas, Roxana Larios-Duran, Rene Rangel-Mendez

Activated Carbon Electrode Modified with Lanthanum(III) for Fluoride Electrosorption

10:30 to 10:45

**Jun Gao** (Physics, Engineering Physics and Astronomy, Queen's University, Kingston, Canada)

Fast Ion Transport Across a Planar Polymer/Polymer Interface in Bilayer Light-Emitting Electrochemical Cells

10:45 to 11:00

**Zbigniew Stojek** (Faculty of Chemistry, University of Warsaw, Warsaw, Poland), Marcin Karbarz, Klaudia Kaniewska

Micro and regular Pt electrodes modified with positively charged hydrogel layer. Analyte transport aspects

11:00 to 11:15

Coffee Break

11:15 to 11:30

**Vessela Tsakova** (Institute of Physical Chemistry, Bulgarian Academy of Sciences, Sofia, Bulgaria), Aneliya Nakova, Radoslav Ivanov, Caterina Czibula, Christian Teichert

PEDOT-Supported Pd Nanocatalysts – Oxidation of Formic Acid

11:30 to 11:45

**Eoghan Vaughan** (Micro and Nano Systems, Tyndall National Institute, University College Cork, Cork, Ireland)

Visible Laser Scribing Fabrication of Porous Graphitic Carbon Electrodes: Applications as a Disposable Biosensing and Gas-sensing Platform

11:45 to 12:00

**Li Shao** (Chemistry, University of Southampton, Southampton, United Kingdom), Andrew Hector, Philip Bartlett, Richard Beanland, Yasir Noori, Wenjian Zhang, Yisong Han

Templated electrodeposition of nanoscale materials

12:00 to 12:15

**Katarzyna Siuzdak** (Centre for Plasma and Laser Engineering, The Szwalski Institute of Fluid-Flow Machinery, Gdańsk, Poland), Paulina Rudzińska, Jakub Karczewski, Jacek Ryl, Adam Cenian, Katarzyna Grochowska

Rapid Thermal Treatment of Titania Nanotubes –Fast Track Towards Efficient Crystallization

12:15 to 12:30

**Nazym Tuleushova** (Institut Européen des Membranes, University of Montpellier, Montpellier, France),  
Hynd Remita, Ibrahim Abdellah, David Cornu, Yaovi Holade, Sophie Tingry  
Gold-based Nanocatalysts For Glycerol Electro-Oxidation

s03 Electrochemistry at Liquid/Liquid Interfaces: From Fundamental to Applications

Room : R06 - 201 A + B (150)

Chairman : Zhifeng Ding; Naoya Nishi

10:00 to 10:15 Invited

**Talia Jane Stockmann** (Chemistry, Memorial University of Newfoundland, St. John's, Canada), Reza  
Moshrefi, Siamak Khoshrou

Electrochemically induced Au nanoparticle formation at micro liquid/liquid interfaces

10:15 to 10:30

**Reza Moshrefi** (Chemistry, Memorial University of Newfoundland, St. John's, Canada), Reza Moshrefi,  
T. Jane Stockmann

Investigation of Nanocomposite Thin-film Formation at an Electrified Micro Liquid-liquid Interface Using  
Tetrachloroaurate and Dithiafulvenyl Functionalized Pyrene

10:30 to 10:45

**Naoya Nishi** (Energy and Hydrocarbon Chemistry, Kyoto University, Kyoto, Japan), Yohei Kuroyama,  
Tetsuo Sakka

A Water-Free ITIES: Ionic Liquid/Oil Interface for Base Metal Nanostructure Formation

10:45 to 11:00

**Kohji Maeda** (Faculty of Chemistry and Engineering, Kyoto Institute of Technology, Kyoto, Japan),  
Mayuko Suzuki, Takehito Hirose, Yumi Yoshida, Kohji Maeda

In Situ Observation of the Dispersed State of O/W Emulsions Based on Electrochemiluminescence

11:00 to 11:15

Coffee Break

11:15 to 11:30

**Zhifeng Ding** (Chemistry, Univ of Western Ontario, LONDON, Canada)

From Voltabsorptometry at Liquid/Liquid Interfaces to Spooling Electrochemiluminescence Spectroscopy

11:30 to 11:45

**Hiroki Sakae** (Bioscience and Biotechnology, Fukui Prefectural University, Eiheiji-Town, Japan), Koji  
Takasuga, Takashi Yokoyama, Hirohisa Nagatani

Spectroelectrochemical study of ferritin-anionic fluorescent probe association at the 1,2-  
dichloroethane/water interface

11:45 to 12:00

**Rina Awata** (Chemistry and Biological Sciences, Graduate School of Arts and Sciences, Iwate  
University, Morioka, Japan), Md. Mijanur Rahman, Taisei Iwabuchi, Masato Saikawa, Yoshiki Kato,  
Takumi Yoshida, Fumiyasu Takagi, Garavdorj Batnyagt, Byambasuren Delgertsetsega, Tatsuya  
Takeguchi

Electrochemical Properties of Lithium-Air Batteries using Ionic Liquid Electrolytes with Different Side  
Chain

12:00 to 12:15

**Osamu Shirai** (Graduate School of Agriculture, Kyoto University, Kyoto, Japan), Yusuke Yamada, Yuki  
Kitazumi

Salinity Gradient Power Generation Using Ion-permselective Organic Liquid Membranes

12:15 to 12:30

**Nasib Kalaei** (Molecular and Life Sciences, Curtin University, Perth, Australia), Mitsutoshi Ide, Masa-aki Haga, David G. Smith, Katrina A. Jolliffe, Damien Arrigan

Exploring anion sensing by voltammetry at thin film electrodes mediated by lipophilic Ruthenium complexes

s04 Bioelectrochemistry: from fundamentals to applications

Room : R09 - 301 (80)

Chairman : Melinda David; Elisabeth Lojou

10:00 to 10:30 Keynote

**Shelley Minteer** (Chemistry, University of Utah, Salt Lake City, USA)

Enzymatic Bioelectrocatalysis for Synthetic Organic Electrosynthesis

10:30 to 10:45

**Pawel Kryszinski** (Faculty of Chemistry, University of Warsaw, Warsaw, Poland), Aleksandra Stefanowska, Piotr Koprowski, Adam Szawczyk

Mitochondrial Potassium Ion Channel ROMK2 Incorporated In the Model Lipid Membranes: Amperometric, Impedance Spectroscopy and Quartz Crystal Microbalance Studies

10:45 to 11:00

**Anna Lielpetere** (Analytical Chemistry Center for Electrochemical Sciences, Ruhr-University Bochum, Bochum, Germany), Jana Becker, Julian Szczesny, Felipe Conzuelo, Adrian Ruff, James Birrell, Wolfgang Lubitz, Wolfgang Schuhmann

Wiring Hydrogenases with High Viologen Loading Polymer

11:00 to 11:15

Coffee Break

11:15 to 11:30

**Shaheda Zannah** (Molecular and Life Sciences, Curtin University, Perth, Australia), Damien Arrigan  
Electrochemistry of catalase at a liquid/liquid micro-interface array

11:30 to 11:45

**Wassim Housseini** (LCPME, CNRS, Villers-l'Évêque-Nancy, France), François Lopicque, Alain Walcarius, Neus Vilà, Elisabeth Lojou, Nicolas Rouhier, Mathieu Etienne

Comparative Study Between the Electrochemical and the Electroenzymatic Regeneration of the NADPH cofactor

11:45 to 12:00

**Leonardo Castañeda-Losada** (Chemistry, Ruhr-Universität Bochum / Fraunhofer IGB, Straubing, Germany), David Adam, Nicole Paczia, Darren Buesen, Fabian Steffler, Volker Sieber, Tobias Erb, Michael Richter, Nicolas Plumeré

CO<sub>2</sub>-fixating Bioelectrocatalytic Cascades in Redox-Active Hydrogel for Stereoselective C-C Bond Formation via Reductive Carboxylation

12:00 to 12:15

**Hui Mun Man** (Bioenergetics and Protein Engineering, Aix-Marseille University, CNRS UMR 7281, Marseille, France), Hugo Le Guenno, Laurent Bouffier, Elisabeth Lojou, Anne de Poulpiquet

Studying Enzymatic Catalysis by Fluorescence Microscopy – Electrochemistry Coupling (EC-CLSM)

12:15 to 12:30

**Manuel Lopez-Ortiz** (Nanoprobes and Nanoswitches, IBEC - Institute for Bioengineering of Catalonia, Barcelona, Spain), Ricardo Zamora-Brito, Marina Inés Giannotti, Chen Hu, Roberta Croce, Pau Gorostiza

Single Protein Pair Electron Transfer between Photosystem I Complex and Redox Partner Protein Plastocyanin

12:30 to 12:45

**Huaiguang Li** (Campus Straubing for Biotechnology and Sustainability, Technical University Munich, Straubing, Germany)

Implementation of Oxygen-Sensitive Catalysts in Fuel-cells

s05 New Electrochemical Approaches and Devices for Monitoring Diseases and Human Health

Room : R07 - 202 A + B (150)

Chairman : Zong-Hong Lin

11:45 to 12:00

**Lucia Simona Ferraraccio** (Engineering-Nanotechnology, Swansea University, Swansea, United Kingdom), Paolo Bertocello

Electrochemiluminescence (ECL) at enzymes-encapsulated in Alginate Hydrogels

12:00 to 12:15

**Jyoti Jyoti** (Group of Molecular Films Research, Institute of Physical Chemistry, Polish Academy of Sciences, Warsaw, Poland), Renata Rybakiewicz, Teresa Zolek, Dorota Maciejewska, Andrzej Kutner, Krzysztof Noworyta, Włodzimierz Kutner

Carbazole Derivatives Based Molecularly Imprinted Polymer Film for the Fabrication of Cilostazol Electrochemical Chemosensor

12:15 to 12:30

**Samia Mekhmoukhen** (Chemistry - Lab. ITODYS, Université de Paris, PARIS, France), Khalil Chennit, Giorgio Mattana, Benoit Piro, Vincent Noel

Enzyme-free, Reference-less Transistor-based Biosensors for the Detection of Biological Analytes

12:30 to 12:45

**Kentaro Ito** (Graduate School of Environmental Studies, Tohoku University, Sendai, Japan), Kumi Y. Inoue, Kosuke Ino, Tomokazu Matsue, Hitoshi Shiku

Ultrasensitive Immunoassay using Double Signal Amplification Strategies of Redox Cycling and Cascade Reaction

s06 Advanced lithium-ion batteries; from basics to cutting-edge technologies

Room : R02 - Halla A (270)

Chairman : Takefumi Okumura; Marshall Shroeder; Seung-Wan Song

10:00 to 10:30 Keynote

**Hong Li** (Renewable Energy Laboratory, Institute of Physics, CAS, Beijing, China), Jiaze Lu, Rusong Chen, Xiqian Yu

The Thermal Stability of SEI with in-situ Solidification Strategy

10:30 to 10:45

**Timo Stettner** (Center for Energy and Environmental Chemistry, Friedrich-Schiller-University, Jena, Germany), Gabriele Lingua, Marisa Falco, Claudio Gerbaldi, Andrea Balducci

Protic Ionic Liquids as Electrolytes in Lithium Batteries

10:45 to 11:00

**Victoria Nikitina** (Center for Energy Science and Technology, Skolkovo Institute of Science and Technology, Moscow, Russia)

Rationalizing Hysteretic Effects in Phase-Transforming Metal-Ion Battery Materials Based on the Experimental Assessment of Nucleation and Growth Kinetics

11:00 to 11:15

Coffee Break

*11:15 to 11:30 Invited*

**Takefumi Okumura** (Environmental System Research Department, , Hitachi, Japan), Jun Kawaji  
Thermally Durable Electrolyte for Lithium Ion Battery

*11:30 to 11:45 Invited*

**Marshall Schroeder** (Energy Sciences Division, DEVCOM Army Research Laboratory, Adelphi, USA), Judith Alvarado, Chengcheng Feng, Travis Pollard, Michael Ding, Jungwoo Lee, Thomas Wynn, Minghao Zhang, Xuefeng Wang, Shirley Meng, Oleg Borodin, Kang Xu  
Leveraging Electrolyte Salt Chemistry and Concentration to Enable High Performance Lithium Batteries

*11:45 to 12:00*

**Jiyoung Ock** (Department of Chemistry and Biotechnology, Yokohama National University, Yokohama, Japan), Miki Fujishiro, Kazuhide Ueno, Masayoshi Watanabe  
Polymer Gel Electrolyte Comprising Highly Concentrated Electrolyte and Poly(vinylidene fluoride-co-hexafluoropropylene)

*12:00 to 12:15*

**Carla S. Santos** (Analytische Chemie, Ruhr-Universität Bochum, Bochum, Germany), Aliaksandr Bandarenka, Edgar Ventosa, Wolfgang Schuhmann  
Probing local ionic and electrical properties of SEI layers formed in Li-ion batteries using Scanning Electrochemical Microscopy.

*12:15 to 12:30*

**Anna Mangini** (Department of Applied Science and Technology, Politecnico di Torino, Turin, Italy), Mojtaba Alidoost, Daniele Versaci, Lucia Fagiolari, Julia Amici, Federico Bella, Carlotta Francia, Silvia Bodoardo  
Li-ion Batteries with Silicon Anodes: Study of Innovative Electrolytes Based on Carbonates

*12:30 to 12:45*

**Philip Daubinger** (R&D Center Electromobility, Fraunhofer Institute for Silicate Research ISC, Würzburg, Germany), Mara Göttlinger, Lukas Gold, Sarah Hartmann, Guinevere A. Giffin  
Pressure dependent aging mechanisms in lithium-ion cells

s07 Next-generation Batteries: Novel chemistry and design

Room : R01 - Tamna A (1500)

Chairman : Andrea Balducci

*10:00 to 10:30 Keynote*

**Paloma Almodovar** (R&D, Albufera Energy Storage S.L, Madrid, Spain), David Giraldo, Inmaculada Alvarez-Serrano, María Luisa López, Joaquín Chacón  
Al-air batteries: Progress, Challenges, and Perspectives

*10:30 to 10:45*

**Senthilkumar S.T.** (Electrochemical Processes Unit, IMDEA Energy, Madrid, Spain), Santiago E. Ibáñez, Paula Navalpotro, Rebeca Marcilla  
Development of membrane-free Zn-based redox flow battery using immiscible electrolytes

*10:45 to 11:00*

**Yonggang Wang** (Department of Chemistry, Fudan University, Shanghai, China)  
Organic Electrodes-based Rechargeable Batteries

*11:00 to 11:15*

Coffee Break

11:15 to 11:30 Invited

**Hui Xia** (School of Materials Science and Engineering, Nanjing University of Science and Technology, Nanjing, China)

LiMnO<sub>2</sub> Cathode Stabilized by Interfacial Orbital Ordering

11:30 to 11:45

**Sonia Dsoke** (Helmholtz Institute Ulm and Institute for Applied materials, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen, Germany), Fatemehsadat Rahide, Eugen Zemlyanushin, Noha Sabi

On the way toward non-corrosive electrolytes for aluminum batteries

11:45 to 12:00

**Jens Noack** (Applied Electrochemistry, Fraunhofer Institute for Chemical Technology, Pfingztal, Germany), Jens Noack, Mike Wernado, Jens Ortner, Karsten Pinkwart

Properties of different Iron/Iron redox flow batteries with recombination cell

12:00 to 12:15

**Monalisa Chakraborty** (Advanced materials for energy area, Catalonia Institute for Energy Research (IREC), Barcelona, Spain), Sebastián Murcia-López, Joan Ramón Morante, Teresa Andreu

Design optimization of low cost, highly efficient aqueous zinc-iodine flow battery

12:15 to 12:30

**Mikhail Vorotyntsev** (Electrochemistry, Frumkin Institute of Physical Chemistry and Electrochemistry, Moscow, Russia), Dmitry Konev, Alexander Midestov, Anatoly Antipov, Yury Tolmachev

Halate Reduction Reaction as Cathodic Process for Power Sources

s07b Next-generation Batteries: Novel chemistry and design

Room : R11 - 303 (100)

10:00 to 10:15

**Seongki Ahn** (Department of New energy and Mining Engineering, Sangji University, Wonju, Korea), Yongwook Kim, Eunbyoul Lee, Kazuhiro Yamabuki, Natsuki Nakamura, Hitoshi Mikuriya, Toshiyuki Momma

Designing a high-loading S cathode by 3D structured Al current collector and polymer layer for practical application of Li-S batteries

10:15 to 10:30

**Taegyu Jang** (Chemistry, Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Korea), Jin-Hyuk Kang, Sujung Kim, Minyoung Shim, Hye Ryung Byon

Investigating a nanometer-scaled surface roughness effect of the Li electrodeposition in 3-D patterned Cu current collector for Li-metal batteries

10:30 to 10:45

**Min Soo Jung** (School of Chemical and Biological Engineering, Seoul National University, Seoul, Korea), Kyu Tae Lee

Modifying Cation Configuration to Achieve Na-O<sub>2</sub> Battery Favoring Solution-Mediated Mechanism

10:45 to 11:00

**Neema Karima** (Energy System Engineering, Soonchunhyang University, Asan, Korea), Chaelin Seo, , Nguyen Cuong, Kelvin Nyamtara, Nungu Israel, Wook Ahn

Sponge Sulfur @ ZIF 67 wrapped in rGO as cathode material for Lithium Sulfur Battery.

11:00 to 11:15

Coffee Break

11:15 to 11:30 Invited

**Young Jun Kim** (SAINT, Sungkyunkwan University, Suwon, Korea)

Natural activation of CuO to CuCl<sub>2</sub> as a Cathode Material for Dual-Ion Lithium Metal Batteries

11:30 to 11:45

**Hongkyung Lee** (Department of Energy Science and Engineering, Daegu Gyeongbuk Institute of Science and Technology (DGIST), Daegu, Korea)

Lithium/Electrolyte Interface Engineering Towards Practical Li-metal Batteries

11:45 to 12:00

**Maryam Nojabaee** (Electrochemical Energy Technology, German Aerospace Center(DLR), Stuttgart, Germany), Martina Gerle, Jessica Schettler, Marina Schwan, Norbert Wagner, Barbara Milow, Andreas Friedrich

Understanding the Parameters Influencing the Impedance Response of Sulfur-Carbon Composite Cathode in Lithium-Sulfur batteries

12:00 to 12:15

**Marketa Zukalova** (Electrochemical Materials, J. Heyrovsky Institute of Physical Chemistry CAS, Prague, Czech Republic), Monika Vinarcikova, Ladislav Kavan

Nanocrystalline TiO<sub>2</sub>/Carbon/Sulfur Composite Cathodes for Lithium-Sulfur Battery

12:15 to 12:30

**Zhuoliang Jiang** (College of Chemistry, Nankai University, Tianjin, China), Zhuoliang Jiang, Yaohui Huang, Fujun Li

Suppressing O<sub>2</sub> in Li-O<sub>2</sub> Batteries by Lowering Charge Voltage

12:30 to 12:45

**Wei Yu** (Advanced Institute for Materials Research, Tohoku University, Sendai, Japan), Rui Tang, Zheng-Ze Pan, Hiroto Nishihara

Graphene Mesosponge Cathode with Few Edge Sites and High Surface Area for Lithium-Oxygen Batteries

s10 Electrochemical systems for energy conversion: Fuel Cells and Electrolyzers

Room : R03 - Halla B (230)

Chairman : Dong Young Chung

10:00 to 10:30 Keynote

**Shannon Boettcher** (Chemistry, Oregon Center for Electrochemistry, University of Oregon, Eugene, USA)

Alkaline and Bipolar Membrane Electrolyzers

10:30 to 10:45

**In Kee Park** (Energy engineering, Dankook university, Cheonan-si, Korea), Ji Hyun Lee, Denis Duchesne, Lisa Chen, Chang Hyun Lee, Jay H. Lee

Saline water electrolysis system with double-layered cation exchange membrane for low-energy consumption

10:45 to 11:00

**Natjanan Songserm** (Department of Chemistry, Kasetsart university, Bangkok, Thailand), Pongkarn Chakthranont, Chaiya Prasittichai

Electrodeposited Fe-doped Nickel Oxyhydroxide Electrocatalysts for the Oxidation of 5-Hydroxymethylfurfural to 2,5-Furandicarboxylic acid

11:00 to 11:15

Coffee Break

11:15 to 11:30

**Zhenhua Yan** (College of Chemistry, Nankai University, Tianjin, China), Fangyi Cheng, Jun Chen

## Electrodeposition of (Hydro)oxides for electrochemical water splitting

11:30 to 11:45

**Jaerim Kim** (Department of Materials Science and Engineering, Pohang University of Science and Technology (POSTECH), Pohang, Korea), Hyeonjung Jung, Sang-Mun Jung, Jinwoo Hwang, Noho Lee, Yong-Tae Kim, Jeong Woo Han, Jong Kyu Kim

Tailoring Binding Abilities by Incorporating Oxophilic Transition Metals on 3D Nanostructured Ni Arrays for Accelerated Alkaline Hydrogen Evolution Reaction

11:45 to 12:00

**Jiseon Kim** (Division of Environmental Science and Engineering, Pohang University of Science and Technology (POSTECH), Pohang, Korea), Kangwoo Cho

Self-supporting NiFe Oxalate from Accessible Chemical Treatment of NiFe Alloy Foam for Enhanced Urea Electrolysis and H<sub>2</sub> Production

12:00 to 12:15

**Noho Lee** (Department of Materials Science and Engineering, POSTECH, Pohang, Korea)

Microwave-Assisted Evolution of WO<sub>3</sub> and WS<sub>2</sub>/WO<sub>3</sub> Hierarchical Nanotrees For Hydrogen Evolution Reaction

12:15 to 12:30

**Siraj Sultan** (School of Energy and Chemical Engineering, UNIST, Ulsan, Korea), Youngkook Kwon

Atomic-Level Insights into the Modulation of CuRh Binding Energy for High-Performance Hydrogen Evolution Activity

12:30 to 12:45

**Miha Nosan** (Department of Chemical Engineering and Technical Safety, Faculty of Chemistry and Chemical Technology, Ljubljana, Slovenia), Bostjan Genorio, Ioannis Katsounaros

Oxygen Reduction Reaction Activity on Quasi-1D and 2D N-Doped Heat-Treated Graphene Oxide

s11 Electrochemical Conversion of Carbon Dioxide and its Utilization

Room : R04 - Samda A (100)

Chairman : Federico Calle-Vallejo; Boon Siang Yeo

11:15 to 11:30 Keynote

**Jens Norskov** (Physics, Technical University of Denmark, Lyngby, Denmark)

Electrochemical ammonia synthesis

10:00 to 10:30 Keynote

**Rich Masel** (CEO, Dioxide Materials, Boca Raton, USA), Zengcai Liu, Hongzhou Yang, Erick White, Michael Resch

Poison Effects on Alkaline CO<sub>2</sub> Electrolyzers

10:30 to 10:45

**Shofu Matsuda** (Department of Materials Science and Technology, Nagaoka University of Technology, Nagaoka, Japan), Yuta Yoshida, Minoru Umeda

CO<sub>2</sub> Electroreduction at Pt Black Catalyst in a Polymer Electrolyte Membrane Electrolyzer Cell

10:45 to 11:00

**Paula Sebastián Pascual** (Chemistry Department, University of Copenhagen, Copenhagen, Denmark), Amanda S. Petersen, Alexander Bagger, Jan Rossmeisl, María Escudero-Escribano

Experimental assessment of the surface structure and electrolyte effects on CO electroreduction on Cu well defined surfaces

11:00 to 11:15

Coffee Break

11:30 to 11:45

**Enrico Verlato** (ICMATE, CNR- National Research Council of Italy, Padova, Italy), Ferdinand Hof, Miriam Moro, Marco Musiani, Francesco Paolucci, Giovanni Valenti  
Exploiting Carbon Supported Copper Nanoparticles and Ceria Composites Properties Toward Electrochemical CO<sub>2</sub> Utilization

11:45 to 12:00

**Tiehuai Li** (Department of Chemical and Biological Engineering, The Hong Kong University of Science and Technology, Hong Kong, China), Minhua Shao  
Composition-dependent CO<sub>2</sub> Electrochemical Reduction Selectivity and Durability on Cu<sub>3</sub>PdxN Nanocrystals

12:00 to 12:15

**Nivedita Sikdar** (Analytical Chemistry - Center for Electrochemical Sciences, Ruhr University Bochum, Bochum, Germany), João R. C. Junqueira, Stefan Dieckhöfer, Thomas Quast, Michael Braun, Yanfang Song, Harshitha BARIK, Sabine Seisel, Jonas Weidner, Denis Ohl, Corina Andronescu, Wolfgang Schuhmann  
Impact of hydrophobicity and local pH change on product selectivity in CO<sub>2</sub> electroreduction

12:15 to 12:30

**Oriol Gutierrez** (Applied Electrochemistry and Catalysis, University of Antwerp, Antwerp, Belgium), Nick Daems, Willem Offermans, Yuvraj Y. Birdja, Metin Bulut, Deepak Pant, Tom Breugelmans  
The Inhibition of the Proton Donor Ability of Bicarbonate Promotes the Electrochemical Conversion of CO<sub>2</sub> from Bicarbonate Solutions

12:30 to 12:45

**Wei Jie Teh** (Chemistry, National University of Singapore, Singapore, Singapore), Oriol Piqué, Qi Hang Low, Weihan Zhu, Boon Siang Yeo, Federico Calle-Vallejo  
Efficient electroreduction of formic acid to methanol using the Ti<sup>3+</sup> sites and oxygen vacancies of anodised titanium

s12 Corrosion and corrosion protection

Room : R12 - 401 (100)

Chairman : Xiaopeng Lu; Sungmo Moon; Mikhail Zheludkevich

10:00 to 10:30 Keynote

**Dawei Zhang** (National Materials Corrosion and Protection Data Center, University of Science and Technology Beijing, Beijing, China), Xiaogang Li  
Intelligent Corrosion Control based on Data-driven Approaches

10:30 to 10:45 Invited

**Yolanda Hedberg** (Chemistry, The University of Western Ontario, London, Canada)  
Corrosion of Metals and Alloys in Food Contact - an Update on Regulations and Research

10:45 to 11:00

**Krishnaveni Venkidusamy** (CERAR, University of South Australia, Adelaide, Australia)  
Under Deposit Microbial Corrosion: Exploring Electrical Microbial Interactions with conductive deposits

11:00 to 11:15

Coffee Break

11:15 to 11:30

**Xiaopeng Lu** (Shenyang National Laboratory for Materials Science, Northeastern University, Shenyang, China), Yan Li, Tao Zhang, Fuhui Wang  
Unveiling the Inhibition Mechanism of SDS on Mg Alloy

11:30 to 11:45

**Li Li** (Graduate School of Engineering, Hokkaido University, Sapporo, Japan), Masatoshi Sakairi  
Effects of Zn<sup>2+</sup> on corrosion behavior of aluminum alloy and carbon steel in NaCl aqueous solutions

11:45 to 12:00

**Dongping Zhan** (Chemistry, Xiamen University, Xiamen, China), Lianhuan Han, Hantao Xu, Bingqian Du, Qinghui Meng, Yang Wang, Zhen Ma, Zhong-Qun Tian, Zhao-Wu Tian  
Electrochemical Nanoimprint Lithography By Controllable Corrosion

12:00 to 12:15

**Yaiza Gonzalez-Garcia** (Materials Science and Engineering, Delft University of Technology , Delft, Netherlands), A. Yilmaz, S. Kar, C. Ozkan, K. Traka, J. Sietsma  
The Effect of Microstructure on the Corrosion Behaviour of Low-Alloy Ferrous Alloys

s14 Electrochemical Technology for Process Intensification and Sustainability

Room : R10 - 302 (80)

10:00 to 10:15

**Roel Bisselink** (Biobased Chemistry and Technology & Food & Biobased Research, Wageningen University & Research, Wageningen, Netherlands), Jacco van Haveren, Harry Bitter  
Towards electrochemical process design for the production of valeric acid

10:15 to 10:30

**Claudio Cameselle** (Chemical Engineering, University of Vigo, Vigo, Spain), Susana Gouveia, Adrian Cabo, Claudio Cameselle  
Removal of Pesticides by Coupled Electro-Photochemical Oxidation

10:45 to 11:00

**Elisama Vieira Dos Santos** (School of Science and Technology, Federal University of Rio Grande do Norte, NATAL, Brazil), Karyn N. O. Silva, Karla C. F. Araújo, Djalma R. da Silva, Carlos A. Martínez-Huitle, Elisama Vieira Dos Santos  
Persulfate-soil washing: the green use of persulfate electrochemically generated with diamond electrodes for depolluting soils

11:00 to 11:15

Coffee Break

11:15 to 11:30 *Invited*

**Carlos A Martinez-Huitle** (Institute of Chemistry, Federal University of Rio Grande do Norte, Natal, Brazil), Karla C de Freitas Araujo, Djalma R. da Silva, Elisama V. dos Santos, Carlos A Martinez-Huitle, Robert Bogdanowicz  
Diamond-Carbon nanoarchitectures as electrocatalytic material for environmental applications

11:30 to 11:45 *Invited*

**Ignasi Sires** (Departament de Química Física, Universitat de Barcelona, Barcelona, Spain)  
Strategies for Sustainability Promotion in Electrochemical Advanced Oxidation of Organic Pollutants in Water

11:45 to 12:00

**Minghua Zhou** (College of Environmental Science and Engineering, Nankai university, Tianjin, China)  
MOFs Derived Core-shell Catalysts for Antibiotics Degradation by Heterogeneous Electro-Fenton Process

12:00 to 12:15

**Miguel Herraiz-Carboné** (Department of Chemical Engineering, University of Castilla-La Mancha, Albacete, Spain), Miguel Herraiz-Carboné, Angela Moratalla, Salvador Cotillas, Engracia Lacasa, Ana Valladolid, Sonia Ruiz, Pablo Cañizares, Manuel A. Rodrigo, Cristina Sáez

Removal of iodinated radiocontrast iopamidol in hospital urines by electrochemical technologies: electrolysis vs. electrocoagulation

12:15 to 12:30

**Jorge Vidal** (Química Inorgánica y Analítica, Universidad de Chile, Santiago, Chile), María Báez, Ricardo Salazar

Combined use of the processes of electrokinetic washing and electrooxidation in the treatment of a soil contaminated with Chloridazon

s20 Recent Development in Spectroscopy, Microscopy and Theory for Atomic/Molecular Level Understanding of Electrochemical Interfaces

Room : R08 - 203 (100)

Chairman : Sayoko Shironita

10:00 to 10:30 Keynote

**Hector Abruna** (Department of Chemistry and Chemical Biology, Cornell University, Ithaca, USA)

Energy Conversion and Storage: Novel Materials and Operando Methods

10:30 to 10:45

**Shi-Gang Sun** (Chemistry, Xiamen University, Xiamen, China)

Development of in-situ/operando spectroscopic methods for studies of electrochemical energy processes

10:45 to 11:00

**Yan Xia Chen** (Department of Chemical Physics, University of Science and Technology of China, Hefei, China), Meng Ke Zhang, Zhen Wei, Wei Chen, Jun Cai

Mechanistic Implication of the pH Effect and H/D Kinetic Isotope Effect on HCOOH/HCOO<sup>-</sup> Oxidation at Pt Electrode

11:00 to 11:15

Coffee Break

11:15 to 11:30

**Enrique Herrero** (Instituto de Electroquímica, Universidad de Alicante, Alicante, Spain), Adolfo Ferrer-Vilaplana, Valentín Briega-Martos

Mechanistic Insights into the Methanol and Formic Acid Oxidation Reactions on Platinum: Similarities and Differences.

11:30 to 11:45

**Albert K. Engstfeld** (Institute of Electrochemistry, Ulm University, Ulm, Germany), Jens Klein, Sylvain Brimaud, R. Jürgen Behm

Elucidating the Site-Specific Electrochemical and -catalytic Properties from UHV Prepared (Modified) Single Crystal Electrodes

11:45 to 12:00

**Huajie Ze** (College of Chemistry and Chemical Engineering, Xiamen University, Xiamen, China)

Molecular Insight of the Critical Role of Ni in Pt-Based Nanocatalysts for Improving the Oxygen Reduction Reaction Probed Using an In Situ SERS Borrowing Strategy

12:00 to 12:15

**Charlotte Gallenkamp** (Theoretical Chemistry/Catalysts and Electrocatalysts, Technical University of Darmstadt, Darmstadt, Germany), Xenia Richter, Ulrike I. Kramm, Vera Krewald

Using Density Functional Theory to Predict Spectroscopic Properties for FeNC Fuel Cell Catalyst Models

12:15 to 12:30

**Rebecca Pittkowski** (Department of Chemistry, University of Copenhagen, Copenhagen, Denmark),  
Spyridon Divanis, Mariana Klementova, Shahin Nikman, Harry Hoster, Sanjeev Mukerjee, Jan  
Rossmeisl, Petr Krtil

Theoretical Conception and Synthetic Approach for Enhancing Oxygen Evolution in Prototypical LaNiO<sub>3</sub>  
Perovskite by Rational Ni Oxidation State Pinning

Tuesday 31 August 2021 - PM

s01 Recent Developments in Analytical Electrochemistry: from Fundamentals to Devices

Room : R13 - 402 A+B (100)

Chairman : Valentina Pifferi; Alain Walcarius

*16:00 to 16:30 Keynote*

**Cameron Bentley** (School of Chemistry, Monash University, Clayton, Australia)

High-Resolution Electrochemical Imaging with a Mobile Meniscus Cell: Microscopic Structure-Activity in Molybdenum Sulfide Electrocatalysts

*16:30 to 16:45*

**Christopher Brett** (Department of Chemistry, CEMMPRE, University of Coimbra, Coimbra, Portugal), Wanderson Da Silva

Sensor and Biosensor Platforms with Polyphenazines Prepared in Ethaline Deep Eutectic Solvent

*16:45 to 17:00*

**Karolina Schwarzova-Peckova** (Department of Analytical Chemistry, Charles University, Faculty of Science, Prague 2, Czech Republic), Jan Klouda, Lenka Benesová, Kristýna Jelsíková, Karel Nesmerák, Eva Bláhová, Jan Veselý, Pavel Kocovský, Viraj A. Bhosale, Monika Zajacová-Cechová, Jana Nádvorníková, Jana Skopalová

Electrooxidation of Sterols and Bile Acids on Bare Electrode Materials: Mechanism and Utilization in Electroanalysis

*17:00 to 17:15*

**Slawomira Skrzypek** (Department of Inorganic and Analytical Chemistry, Faculty of Chemistry, University of Lodz, Lodz, Poland), Barbara Burnat, Andrzej Leniart

Carbon-based ceramic electrodes as sensors for electroanalysis

*17:15 to 17:30*

**Lekhetho Mpeta** (Institute for Nanotechnology Innovation, Rhodes University, Eastern Cape, South Africa)

Conjugation of Cobalt Phthalocyanines to Reduced Graphene Oxide via Click Chemistry for Enhanced Electrocatalysis

*17:30 to 17:45*

Coffee Break

*17:45 to 18:00 Invited*

**Sabine Szunerits** (IEMN, University of Lille, Lille, France)

Cardiac Troponin I Sensing on Graphene-coated Sensors: Effect on Surface Architecture

*18:00 to 18:15*

**Andreas Lesch** (Department of Industrial Chemistry, University of Bologna, Bologna, Italy), Sorour Darvishi, Horst Pick, Hubert H. Girault

Investigation of the Electrochemical Surface Reactivity of E. coli Biofilms using Soft Probe Scanning Electrochemical Microscopy

*18:15 to 18:30*

**Mihaela Tertis** (Analytical Chemistry Department, Iuliu Hatieganu University of Medicine and Pharmacy, Cluj-Napoca, Romania), Florina Maria Truta, Ana-Maria Dragan, Anca Florea, Andreea Cernat, Bogdan Feier, Karolien De Wael, Manel Del Valle, Cecilia Cristea

Experimental Design and Nanomaterials-based Electrochemical Sensors for Accurate Detection of Illicit Drugs in Street and Environmental Samples

*18:30 to 18:45*

**Qiao Liu** (LCPME, Université de Lorraine, Nancy, France), Alain Walcarius, Liang Liu  
Electrochemical Stripping Analysis from Micro-Counter Electrode

s02 Functional Surfaces and Electrochemically Active Materials: Preparation and Applications

Room : R05 - Samda B (100)

Chairman : Renata Bilewicz; Luigi Falciola

*16:00 to 16:30 Keynote*

**Renata Bilewicz** (Chemistry, University of Warsaw, Warsaw, Poland), Dorota Matyszewska, Michalina Zaborowska, Damian Dziubak, Ewa Nazaruk, Aleksandra Buta  
Lipid Nanostructured Materials for Functionalized Electrode Surfaces

*16:45 to 17:00*

**Luigi Falciola** (Department of Chemistry, Università degli Studi di Milano, Milano, Italy), Valentina Pifferi, Silvia Comis, Livia Nicolucci, Mariangela Longhi, Luigi Falciola  
Effect of Sol Aging on Electrochemical Performances of Titania Nanoporous Surfaces for Analytical Applications

*17:00 to 17:15*

**Florence Geneste** (Institut des Sciences Chimiques de Rennes, University of Rennes 1, Rennes, France), Yaoyin Lou, Wenyan He, Enrico Verlato, Marco Musiani, Florence Fourcade, Abdeltif Amrane, Mathieu Pasturel, Odile Merdrignac-Conanec  
New Porous Electrode Materials for Electrocatalysis

*17:15 to 17:30*

**Clara Gohlke** (Electrochemical Reaction Engineering, RWTH Aachen University, Aachen, Germany), Anna Mechler  
Electrochemical Activation of Nickel Electrodes for the Oxygen Evolution Reaction (OER)

*17:30 to 17:45*

Coffee Break

*17:45 to 18:00*

**Lena Harms** (Chemistry Department, Carl von Ossietzky University of Oldenburg, Oldenburg, Germany), Gunther Wittstock  
Multi-layer Thin Film Architectures of Metal Hexacyanometallates

*18:00 to 18:15*

**Julian Hengstler** (Dept. of Information Technology and Electrical Engineering, ETH Zürich, Zürich, Switzerland), Barnik Mandal, Genevieve Lau, Tomaso Zambelli, Dmitry Momotenko  
Nanoscale Electrochemical 3D Printing

*18:15 to 18:30*

**Shujin Hou** (Department of Physics, Technical University of Munich, Garching, Germany), Weijin Li, Roland A. Fischer, Aliaksandr Bandarenka  
Structural Conversion of Surface-Mounted Metal-Organic Framework Heteromultilayers Enables a Record Mass Activity towards Oxygen Evolution Reaction

*18:30 to 18:45*

**Adriana Ispas** (Elektrochemie und Galvanotechnik, Technische Universität Ilmenau, Ilmenau, Germany), Andreas Waibel, Mathias Fritz, Andreas Bund  
On the Electrodeposition of Ni-Cr Alloys

s03 Electrochemistry at Liquid/Liquid Interfaces: From Fundamental to Applications

Room : R06 - 201 A + B (150)

Chairman : Robert Dryfe

16:00 to 16:30 Keynote

**Maria Cuartero** (Department of Chemistry, KTH Royal Institute of Technology, Stockholm, Sweden)  
Ion-selective Electrodes Based on Interconnected Ion-transfer and Charge-transfer Processes

16:30 to 16:45

**Lukasz Poltorak** (Faculty of Chemistry, University of Lodz, Lodz, Poland), Konrad Rudnicki, Paulina Borgul, Slawomira Skrzypek  
Sensing at the electrified liquid-liquid interfaces. From antibiotics to illicit drugs.

16:45 to 17:00

**Konrad Rudnicki** (Department of Inorganic and Analytical Chemistry, University of Lodz, Lodz, Poland), Karolina Sobczak, Paulina Borgul, Slawomira Skrzypek, Lukasz Póltorak  
Quantitative Determination of Quinine in Water Tonic Samples by Ion Transfer Voltammetry

17:00 to 17:15

**Daniel Alonso Gamero Quijano** (Chemical Sciences, University of Limerick, Limerick, Ireland), Shayon Bhattacharya, Grégoire Herzog, Tewfik Soulimane, Damien Thompson, Micheál D. Scanlon  
Electrocatalytic Behaviour of c-type Cytochromes at an Electrified Liquid-Liquid Interface

17:15 to 17:30

**Rona Ronen** (The Nancy & Stephen Grand Technion Energy Program, Technion, Haifa, Israel), Matthew Suss  
Multiphase Single Flow Batteries

17:30 to 17:45

Coffee Break

17:45 to 18:15 Keynote

**Robert Dryfe** (Chemistry, University of Manchester, Manchester, United Kingdom), Hussain Al-Nasser, Andinet Anyalem, Alexandra Jones  
D Materials at the Liquid-Liquid Interface

18:15 to 18:30

**Kamil Cywinski** (Department of Chemical Sciences, University of Limerick, Limerick, Ireland), Andrés Molina, Ivan Molina, Micheál Scanlon  
Photoelectrochemistry of Porphyrin Films Adsorbed at Polarized Soft Interfaces under Visible Light Illumination

18:30 to 18:45

**Ivan Robayo** (Chemical Sciences, University of Limerick, Limerick, Ireland), Andres Molina, Micheál Scanlon  
A Kinetic Model for Dynamic Photocurrent Responses obtained from Self-Assembled Porphyrin Films at Liquid-Liquid Interfaces

s04 Bioelectrochemistry: from fundamentals to applications

Room : R09 - 301 (80)

Chairman : Wassim Housseini; Elena Suprun; Omer Yehezkeli

16:00 to 16:15

**Christophe Leger** (Bioénergétique et Ingénierie des Protéines, CNRS, Aix Marseille Université, Marseille, France), Vincent Fourmond, Nicolas Plumeré  
Understanding and designing bidirectional and reversible molecular catalysts of redox reactions, under conditions of direct or mediated electron transfer

16:15 to 16:30

**Edmond Magner** (Department of Chemical Sciences, University of Limerick, Limerick, Ireland), Simin Arshi, Alessandro Serletti, Xinxin Xiao, Kim Shortall  
Electrochemical Immobilisation of Enzymes for Biocatalysis

16:30 to 16:45

**Fangyuan Zhao** (Analytical Chemistry, Faculty of Chemistry and Biochemistry, Ruhr University Bochum, Bochum, Germany), Felipe Conzuelo, Volker Hartmann, Panpan Wang, Adrian Ruff, Marc Nowaczyk, Wolfgang Schuhmann  
Photosystem I /Redox Polymer-Based Bioelectrodes as the Basis for Efficient Biophotovoltaic Devices

16:45 to 17:00

**Julia Alvarez-Malmagro** (Institute of Catalysis and Petrochemistry, CSIC, Madrid, Spain), Julia Alvarez-Malmagro, Ana R. Oliveira, Cristina Gutiérrez-Sánchez, Beatriz Villajos, Ines A. C. Pereira, Marisela Vélez, Marcos Pita, Antonio L. De Lacey  
Bioelectrocatalytic Activity of W-Formate Dehydrogenase Covalently Immobilized on Functionalized Gold and Graphite Electrodes

17:00 to 17:15

**Xinxin Xiao** (Department of Chemistry, University of Denmark, Lyngby, Denmark), Edmond Magner, Xiaomei Yan, Jens Ulstrup  
Direct electron transfer of enzymatic bioelectrochemistry on dealloyed nanoporous gold

17:15 to 17:30

**Melinda David** (Faculty of Medicine, Transilvania University of Brasov, Brasov, Romania), Adrian Serban, Adrian Enache, Monica Florescu  
Nanozyme-based Sensors and the Role of their Electrocatalytic Properties towards Specific Biomolecules

17:30 to 17:45

Coffee Break

17:45 to 18:00

**Marco Malferrari** (Dept. of Chemistry, University of Bologna, Bologna, Italy), Ilaria Abdel Aziz, Gabriele Tullii, Maria Rosa Antognazza, Stefania Rapino  
Scanning Electrochemical Microscopy Reveals Modulation of Cellular Processes by Photostimulated Organic Semiconductor Films

18:00 to 18:30 Keynote

**Bo Zhang** (Chemistry, University of Washington, Seattle, USA), Zhuoyu Peng, Milomir Suvira  
Probing the Electrochemical Interface with Single-Molecule Fluorescence

s05 New Electrochemical Approaches and Devices for Monitoring Diseases and Human Health

Room : R07 - 202 A + B (150)

Chairman : Elena Ferapontova

16:00 to 16:30 Keynote

**Shana Kelley** (Chemistry, University of Toronto, Toronto, Canada)  
Building Electrochemical Biomolecular Sensors: Striving for Simplicity

16:30 to 16:45 Invited

**Hyongsok Tom Soh** (Electrical Engineering and Radiology, Stanford University, Stanford, USA)  
Continuous measurements of biomolecules in live subjects

16:45 to 17:00

**Min-Ah Oh** (Chemistry, Seoul National University, Seoul, Korea), Chang Il Shin, Taek Dong Chung  
Ion Transport-based Chemical Delivery Probe

17:00 to 17:15

**Sorour Darvishi** (Chemistry and chemical engineering, Swiss Federal Institute of Technology Lausanne (EPFL), Sion, Switzerland), Hubert Girault, Andreas Lesch, Horst Pick, Xiaoyun Li, Ping-Chih Ho, Sorour Darvishi

Electrochemical Detection of Melanoma Biomarker in Tape-Collected Stratum Corneum

17:15 to 17:30

**Siphesihle Nxele** (Chemistry, Rhodes University, Grahamstown, South Africa), Tebello Nyokong  
The Development of a Simple, Novel Aptasensors using Quantum Dots-Phthalocyanine Nanoconjugates and an Aptamer for the Electrochemical Detection of Prostate Specific Antigen

17:30 to 17:45

Coffee Break

17:45 to 18:15 Keynote

**Koji Sode** (Joint Department of Biomedical Engineering, University of North Carolina at Chapel Hill, Chapel Hill, USA), Inyoung Lee, Shouhei Takamatsu, Jeffrey Dick

Open Circuit Potential Based Continuous Monitoring System Employing Direct Electron Transfer Type Enzymes

18:15 to 18:30

**Katarzyna Grochowska** (Centre for Plasma and Laser Engineering, The Szwalski Institute of Fluid-Flow Machinery, PAsci, Gdansk, Poland), Wiktorija Lipińska, Adrian Olejnik, Katarzyna Siuzdak  
Laser-modified and Enzyme-based Glucose Sensor: Towards Non-invasive Device

18:30 to 18:45

**Bernardo Patella** (Department of Engineering, University of Palermo, Palermo, Italy), Serena Di Vincenzo, Maria Ferraro, Marco Buscetta, Elisabetta Pace, Chiara Cipollina, Giuseppe Aiello, Luciano Bollaci, Rosalinda Inguanta

Electrochemical quantification of oxidative stress in airway epithelial cells

s06 Advanced lithium-ion batteries; from basics to cutting-edge technologies

Room : R02 - Halla A (270)

Chairman : Guoying Chen; Gu Lin; Christian Masquelier

16:00 to 16:30 Invited

**Marie-Liesse Doublet** (Institut Charles Gerhardt, CNRS & Univ Montpellier, Montpellier, France)  
Anionic Redox through the eyes of XAS Spectroscopy

16:30 to 16:45

**Matteo Bianchini** (BASF SE, BASF SE, Ludwigshafen, Germany), Alexander Schiele, Simon Schweidler, Sabrina Sicolo, Francois Fauth, Emmanuelle Suard, Sylvio Indris, Andrey Mazilkin, Peter Nagel, Stefan Schuppler, Michael Merz, Pascal Hartmann, Torsten Brezesinski, Jurgen Janek  
From LiNiO<sub>2</sub> to Li<sub>2</sub>NiO<sub>3</sub>: Synthesis, Structures and Electrochemical Mechanisms in Li-Rich Nickel Oxides

16:45 to 17:00 Invited

**Guoying Chen** (Energy Storage and Distributed Resources Division, Lawrence Berkeley National Laboratory, Berkeley, Berkeley, USA), Dongchang Chen, Juhyeon Ahn  
Cation-Disordered Lithium-Excess Rocksalt Cathodes

17:00 to 17:15

**Susanne J. Wachs** (Helmholtz Institute Erlangen-Nürnberg for Renewable Energy, Forschungszentrum Jülich GmbH, Erlangen, Germany), Christopher Behling, Johanna Ranninger, Jonas Möller, Karl J.J. Mayrhofer, Balazs Berkes

Transition Metal Dissolution of a Ni-Rich Cathode Material – an Online Investigation

17:15 to 17:30

**Aleksandr Ivanishchev** (Institute of Chemistry, Saratov State University, Saratov, Russia), Irina Ivanishcheva, Sang-Cheol Nam, Junyoung Mun

Surface modification of electroactive materials particles with titanium carbosilicide: structural and electrochemical study

17:30 to 17:45

Coffee Break

17:45 to 18:00

**Alexey Volkov** (Department of Electrochemistry, Saint Petersburg State University, Saint Petersburg, Russia), Daria Meshcheva, Elena Tolstopjatova, Veniamin Kondratiev

Electrochemical Performance of Hydrothermally Synthesized MoS<sub>2</sub> Nanospheres as Li-Ion Batteries Anodes

18:00 to 18:15

**Ankush Bhatia** (BATT-ion, ICMPE CNRS, Thiais, France), Jean Pierre Pereira-Ramos, Rita Baddour-Hadjean

Detailed Redox Mechanism and Self-Discharge Diagnostic of 4.9 V LiMn<sub>1.5</sub>Ni<sub>0.5</sub>O<sub>4</sub> Spinel Cathode revealed by Raman Spectroscopy

18:15 to 18:30

**Victoria Andrea Vasquez Salgado** (Materials Engineering, Universidad de Antioquia, Medellin, Colombia), Victoria Vásquez-Salgado, Alejandro Vásquez, Jorge Calderón-Gutierrez

Effect of V and Sn Doping on Highly Stable LiMnPO<sub>4</sub>/C Produced by Fast Microwave Synthesis

s07 Next-generation Batteries: Novel chemistry and design

Room : R01 - Tamna A (1500)

Chairman : Maria Assunta Navarra

16:00 to 16:30 Keynote

**Julia Amici** (DISAT, Politecnico di Torino, Torino, Italy), Cecilia Andrea Calderon, Daniele Versaci, Davide Dessantis, Andrea Marchisio, Roberto Colombo, Lucia Fagiolari, Anna Mangini, Maria Laura Para, Simone Siccardi, Mojtaba Alidoost, Piera Diprima, Guillermina Luque, Daniel Baracco, Ezequiel Leiva, Federico Bella, Carlotta Francia, Silvia Bodoardo

Composite solid electrolytes toward safer Lithium-metal cells

16:30 to 16:45

**Hong-Kang Tian** (International Center for Materials Nanoarchitectonics, National Institute for Materials Science, Tsukuba, Japan), Randy Jalem, Bo Gao, Yoshitaka Tateyama

Electron and Ion Transfer across Interfaces of the NASICON-type LATP Solid Electrolyte with Electrodes in All-Solid-State Batteries

16:45 to 17:00

**Yuqi Li** (Institute of Physics, Chinese Academy of Sciences, University of Chinese Academy of Sciences, Beijing, China), Yaxiang Lu, Yong-Sheng Hu

Ultralow-Concentration Electrolyte for Low-Cost Na-Ion Batteries with Wide-Working-Temperature-Range

17:00 to 17:15

**James Isaac** (LEPMI, Grenoble INP, Grenoble, France), Didier Devaux, Renaud Bouchet

Ceramics Dispersed in Liquid Electrolytes: Predicting the Conductivity of Ceramic-in-Polymer Composite Electrolytes.

17:15 to 17:30

**Akiko Tsurumaki** (Department of Chemistry, Sapienza University of Rome, Rome, Italy), Giovanna Maresca, Naoki Suzuki, Koji Yoshida, Yuichi Aihara, Maria Assunta Navarra  
Sn/C Anode Materials for All-Solid-State Lithium Ion Batteries with Sulfide-Based Solid Electrolytes

17:30 to 17:45

Coffee Break

17:45 to 18:00

**Laura del Carmen García Alcalde** (Instituto de Ciencia y tecnología del Carbono, Materiales, Consejo Superior de Investigaciones Científicas, Oviedo, Spain), Zoraida González, Daniel Barreda, Victoria García, Clara Blanco, Ricardo Santamaría  
Studying the influence of carbon felt modification during electrophoretic deposition with nanocarbons on their performance as electrodes for vanadium redox flow batteries.

18:00 to 18:15

**Hai-Peng Liang** (Helmholtz Institute Ulm (HIU), Karlsruhe Institute of Technology (KIT), Ulm, Germany), Hai-Peng Liang, Zhen Chen, Stefano Passerini, Dominic Bresser  
Single-ion conducting polymer electrolyte for high-energy Li/NMC622 batteries

18:15 to 18:30

**Liwei Chen** (Chemistry and Chemical Engineering, Shanghai Jiaotong University, Shanghai, China), Chenji Hu, Yanbin Shen  
Bulk Interface Superionic Conductors

s10 Electrochemical systems for energy conversion: Fuel Cells and Electrolyzers  
Room : R03 - Halla B (230)

16:00 to 16:30 Keynote

**Bingjun Xu** (College of Chemistry and Molecular Engineering, Peking University, Beijing, China)  
Understanding Electrocatalytic CO<sub>2</sub> and CO Reduction at the Molecular Level

16:30 to 17:00 Keynote

**Zhichuan J. Xu** (School of Materials Science and Engineering, NTU, Singapore, Singapore)  
Pinning Effect Between Non-Ferromagnetic Catalyst Layer and Ferromagnetic Substrate in Promoting Water Oxidation Reaction

17:00 to 17:15

**Wen-Feng Lin** (Department of Chemical Engineering, Loughborough University, Loughborough, United Kingdom), Wen-Feng Lin, Yafeng Chen, Liang Hong, Adam Mckinley, Xiao Lin, Tian Sheng, Yawei Zhou, W. B. Cai, Z. Y. Zhou, S. G. Sun  
New Understanding of Electrocatalysis for Direct Alcohol Fuel Cells via Combined Study of in-situ FTIR Spectroscopy and DFT Modelling

17:15 to 17:30

**José Luis Olloqui-Sariego** (Physical Chemistry, Universidad de Sevilla, Sevilla, Spain), Silvia Gutiérrez-Tarriño, Juan José Calvente, Guillermo Mínguez-Espallargas, Fernando Rey, Avelino Corma, Pascual Oña-Burgos  
D-Cobalt-MOF based on Layered Nanosheets for Superior Electrocatalytic Water Oxidation in Neutral Media

17:30 to 17:45

Coffee Break

17:45 to 18:00

**Petr Krtil** (Nanocatalysis, J. Heyrovsky Institute of Physical Chemistry, Prague, Czech Republic), Serban Stamatina, Kateřina Minhová Macounová

## Local Structure Control of Selectivity in Sea Water Electrolysis - Model Case of Ru-Ti-O Oxides

18:00 to 18:15

**María González Ingelmo** (Instituto de Ciencia y Tecnología del Carbono, Materiales, Consejo Superior de Investigaciones Científicas (CSIC), Oviedo, Spain), Clara Blanco, Ricardo Santamaría, Patricia Alvarez, Marcos Granda, Victoria Garcia

Nickel/graphene-based electrocatalysts via freeze casting processing for water splitting reaction

18:15 to 18:30

**Biagio Buccheri** (Dipartimento di Ingegneria, Università degli Studi di Palermo, Palermo, Italy), Fabrizio Ganci, Bernardo Patella, Giuseppe Aiello, Rosalinda Inguanta

Ni-Fe Alloy Nanostructured Cathodes and Anodes for both Alkaline Electrolyser and Seawater Electrolysis

18:30 to 18:45

**Krystian Lankauf** (Faculty of Electronics, Telecommunications and Informatics, Gdańsk University of Technology, Gdańsk, Poland), Karolina Górnicka, Jakub Karczewski, Piotr Jasinski, Sebastian Molin  
Electrocatalytic Evaluation of Ternary MnCo<sub>2</sub>-xFexO<sub>4</sub> Spinel Oxides as Materials for Efficient Oxygen Evolution in Alkaline Media

s11 Electrochemical Conversion of Carbon Dioxide and its Utilization

Room : R04 - Samda A (100)

Chairman : Catia Arbizzani; Roman Latsuzbaia

16:00 to 16:15 Invited

**Nitish Govindarajan** (Fysik, Technical University of Denmark, Copenhagen, Denmark)

"pH effects" in electrochemical CO<sub>2</sub> reduction

16:15 to 16:30

**Qing Qin** (Analytical Chemistry, Ruhr University Bochum, Bochum, Germany), Wolfgang Schuhmann, Martin Oschatz

Rational design of porous carbon-based electrocatalysts for N<sub>2</sub> fixation through understanding of structure-property relationships

16:30 to 16:45

**Bethan J. V. Davies** (Department of Chemistry, Universitetsparken 5, Copenhagen, Denmark), Maria Escudero Escribano

Investigating Product Selectivity in Electrocatalytic Reactions with Focus on Dimethyl Carbonate Synthesis

16:45 to 17:00

**Catia Arbizzani** (Department of Chemistry Giacomo Ciamician, University of Bologna, Bologna, Italy), Giampaolo Lacarbonara, Sebastiano Chini, Sander Ratso, Ivar Kruusenberg

Graphitic carbon from CO<sub>2</sub> for sustainable Li ion battery anodes

17:00 to 17:15

**João R. C. Junqueira** (Analytical Chemistry - Center for Electrochemical Sciences, Ruhr-Universität Bochum, Bochum, Germany), Jonas Weidner, Nivedita Sikdar, Denis Ohl, Patrick Wilde, Wolfgang Schuhmann

Copper Chalcogen Electrocatalysts for Carbon Dioxide Reduction on Gas Diffusion Electrodes

17:15 to 17:30

**Roman Latsuzbaia** (Sustainable Process and Energy Systems, TNO, Delft, Netherlands), Susan Turk, Angel Alfonso Villanueva, Earl Goetheer

Scale up of electrochemical paired CO and Cl<sub>2</sub> production

17:30 to 17:45

**David McLaughlin** (Electrocatalytic Interface Engineering, Helmholtz-Institute Erlangen-Nuernberg for Renewable Energy, Erlangen, Germany), Markus Bierling, Simon Thiele  
Multiscale Tomographic Reconstruction of a CO<sub>2</sub> Reduction Reaction Gas Diffusion Electrode

s12 Corrosion and corrosion protection

Room : R12 - 401 (100)

Chairman : Vincent Vivier; Mikhail Zheludkevich

16:15 to 16:30

**Philippe Marcus** (IRCP/Physical Chemistry of Surfaces, Chimie ParisTech-CNRS, Paris, France), Zuo Cheng Wang, Charly Carrière, Antoine Seyeux, Sandrine Zanna, Dimitri Mercier  
Passive Films Characterization on NiCr and NiCrMo Alloys Using Advanced Surface Analytical Techniques

16:30 to 16:45

**Nadine Pebere** (INP-ENSIACET, CIRIMAT, Toulouse, France), Pierre Bonin, Nicolas Causse, Aurelien Roggero, Dominique Thierry, Nathalie Le Bozec  
Effect of temperature on the water uptake and glass transition variations on coil-coated materials: Toward a better understanding of blistering mechanisms

16:45 to 17:00

**Deni Jero** (INP ENSIACET, CIRIMAT, Toulouse, France), Nadine Pébère, Nicolas Caussé, Marion Roy, Fabrice Chaussec, Amaury Buvignier  
Linking Molecular Film Structure and Corrosion Protective Performance of Film Forming Amines on Carbon Steel Surfaces

17:00 to 17:15

**Francesco Di Franco** (Ingegneria, Università degli Studi di Palermo, Palermo, Italy), Giada Tranchida, Davide Pupillo, Giulio Ghersi, Paolo Cinà, Sannakaisa Virtanen, Monica Santamaria  
Effect of E. coli Biofilm formation and removal on passive films on AISI 316L during fermentation processes

17:15 to 17:30

**Salvatore Daniele** (Molecular Sciences and Nanosystems, University Cà Foscari of Venice, Mestre-Venice, Italy), Margherita Donnici, Erika Ferrari, Delphine Neff, Salvatore Daniele  
Comparative Effects of the Green Inhibitor Decanoic Acid and the Traditional Benzotriazole in Protecting Corroded Copper Artworks in Simulated Acid Rain. An Approach Based on Scanning Electrochemical Microscopy

17:30 to 17:45

Coffee Break

17:45 to 18:00 *Invited*

**Markus Valtiner** (Institute for Applied Physics, Vienna University of Technology, Vienna, Austria), Dominik Dowschak, Lukas Kalchgruber, Carina Brunnhofer, Hsiu-Wei Cheng  
Combining in-situ high resolution AFM and ICP-MS flow cell studies for characterizing localized corrosion

18:00 to 18:15

**Annica Wetzel** (6.2 Interfacial Processes and Corrosion, Bundesanstalt für Materialforschung, Berlin, Germany), Ozcan Ozlem, Witt Julia  
Corrosion Properties and Protective Oxide Film Characteristics of CrMnFeCoNi High Entropy Alloy and CrCoNi Medium Entropy Alloy

18:15 to 18:30 *Invited*

**Christopher L. Alexander** (Civil and Environmental Engineering, University of South Florida, Tampa, USA), Nelly Sofia Orozco, Maria Cardoso, Sachintha Wickramaarachchi  
On the Analysis of the Electrochemical Impedance Response of Corroding Steel in Concrete

18:30 to 18:45

**Mark Orazem** (Department of Chemical Engineering, University of Florida, Gainesville, USA), Ming Gao, Chen You, Arthur Dizon, Vincent Vivier  
Experimental Observation of Ohmic Impedance

16:00 to 16:15

**Vincent Vivier** (CNRS, Sorbonne University, Paris, France)  
On the impedance response of a passive electrode: what is the influence of the double layer capacitance

s14 Electrochemical Technology for Process Intensification and Sustainability  
Room : R10 - 302 (80)

16:00 to 16:15

**Sergi Garcia-Segura** (School of Sustainable Engineering and the Built Environment, Arizona State University, Tempe, USA)  
Application of electrochemical water treatment technologies: Identifying challenges and niche market opportunities

16:15 to 16:30

**Rodrigo de Mello** (Department of Chemical Engineering, Universidad de Castilla-La Mancha, Ciudad Real, Spain), Artur de Jesus Motheo, Cristina Saez, Manuel Andres Rodrigo Rodrigo  
Combination of adsorption process with electrochemical oxidation for benzene removal

16:30 to 16:45

**Hugo Olvera-Vargas** (Institute for Renewable Energies, National Autonomous University of Mexico (UNAM), Temixco, Mexico), Olivier Lefebvre  
Electrochemical Treatment of the Polyfluorinated Pollutant GenX: Electro-Fenton vs Anodic Oxidation

16:45 to 17:00

**Ana Sofia Fajardo** (School of Sustainable Engineering and the Built Environment, Arizona State University, Tempe, USA), Aksana Atrashkevich, Paul Westerhoff, Carlos M. Sanchez-Sanchez, Sergi Garcia-Segura  
May water matrix components limit real application of electrochemical reduction of nitrate?

17:00 to 17:15

**Andrea Nataly Arias Sanchez** (Chemical Engineering Department, Universidad de Castilla La Mancha, Ciudad Real, Spain), Manuel Andres Rodrigo Rodrigo, Justo Lobato  
Removal of Benzene and Xylene from Gaseous Streams through Electro-scrubbing Process

17:15 to 17:30

**Christine Cachet-Vivier** (Institut de Chimie et des Materiaux Paris-Est, CNRS- University Paris Est Creteil, Thiais, France), Raihana Benyahia, Rebiai Lamia, Laure Latapie, Guillaume Hopsort, Karine Serrano, Karine Loubiere, Theo Tzedakis, Sam Azimi, Vincent Rocher, Encarnacion Torralba-Penalver, Stephane Bastide  
Quantification of urea electrolysis products in alkaline medium

s16 Mathematical modelling in electrochemistry - from molecular scale to the process design  
Room : R11 - 303 (100)  
Chairman : Hyungjun Kim

16:00 to 16:15

**Michael Busch** (Department of Chemistry and Materials Science, Aalto University, Esbo, Finland), Elisabet Ahlberg, Kari Laasonen

From Absolute Potentials to a Generalized Computational Standard Hydrogen Electrode for Aqueous and Non-aqueous Solvents

16:15 to 16:30

**Se-Jun Kim** (Department of Chemistry, Korea Advanced Institute of Science and Technology, Daejeon, Korea), Stefan Ringe, Hyungjun Kim  
Development and applications of solvated GW approximation for 2D catalysts

16:30 to 16:45

**Seung-Jae Shin** (Chemistry, Korea Advanced Institute of Science and Technology, Daejeon, Korea), Donghyun Kim, Hyung-Kyu Lim, Stefan Ringe, Chang Hyuck Choi, Hyungjun Kim  
Atomic Details of Electrical Double Layer: Mean-field QM/MM Study

16:45 to 17:00

**Taeho Jung** (Department of Engineering Science, Oxford University, Oxford, United Kingdom), Charles Monroe  
Thermodynamic Factors for Nonelectroneutral Liquid Electrolytes with up to Two Neutral Solvents

17:00 to 17:15

**Luka A. Zivkovic** (Electrochemical Energy Conversion, Max Planck Institute, Magdeburg, Germany), Luka A. Zivkovic, Menka Petkovska, Tanja Vidakovic-Koch  
Process Intensification of Oxygen Reduction Reaction Owing to Multi-Input Periodic Modulation: Rigorous Optimization Based on Computer-Aided Nonlinear Frequency Response Method

17:15 to 17:30

**Jörn Brauns** (Chemical and Electrochemical Process Engineering, Clausthal University of Technology, Clausthal-Zellerfeld, Germany), Thomas Turek  
Dynamic Validation of an Alkaline Water Electrolysis Model by Fluctuating Operation

17:30 to 17:45

Coffee Break

17:45 to 18:15 Keynote

**Geoff Kelsall** (Chemical Engineering, Imperial College London, London, United Kingdom), Inyoung Jang, Nick Farandos, John Alexander  
Predicting Optimal Geometries of 3D-Printed Solid Oxide Electrochemical Reactors

18:15 to 18:30

**Roman Kodym** (Department of Inorganic Technology, University of Chemistry and Technology, Prague, Czech Republic), Dimitrios K. Niakolas, Evangelia Ioannidou, Stelios Neophytides, Karel Bouzek  
Lab-Scale Single-Cell Modelling of the High Temperature Solid Oxide Co-Electrolysis - A Kinetic Study

18:30 to 18:45

**Petr Vagner** (Numerical Mathematics and Scientific Computing, Weierstrass Institute for Applied Analysis and Stochastics, Berlin, Germany), Vojtech Milos, Dan Budac, Michal Carda, Martin Paidar, Juergen Fuhrmann, Karel Bouzek  
Generalized Nernst-Planck-Poisson model of solid oxide YSZ|LSM|O<sub>2</sub> electrode interface

s20 Recent Development in Spectroscopy, Microscopy and Theory for Atomic/Molecular Level Understanding of Electrochemical Interfaces

Room : R08 - 203 (100)

Chairman : Kai Exner

16:00 to 16:30 Keynote

**Sang Hoon Joo** (Department of Chemistry, Ulsan National Institute of Science and Technology (UNIST), Ulsan, Korea)

Revealing Selective Electrochemical Energy Conversion Reactions by Atomically Dispersed Catalysts with In Situ X-Ray Absorption Spectroscopy

*16:30 to 16:45 Invited*

**Hye Ryung Byon** (Chemistry, KAIST, Daejeon, Korea), Hyunjeong Oh, Hirona Yamagishi, Toshiaki Ohta

Interfacial reactions of LiCoO<sub>2</sub> positive electrodes in aqueous lithium-ion batteries

*16:45 to 17:00 Invited*

**Chang Hyuck Choi** (School of Materials Science and Engineering, Gwangju Institute of Science and Technology, Gwangju, Korea), Haesol Kim

Effects of the EDL Nature on Electrochemical Pt Dissolution

*17:00 to 17:15 Invited*

**Andrew Gewirth** (Chemistry, University of Illinois, Urbana, USA)

Understanding and Controlling Electrochemistry for Electrolyzers and Batteries

*17:15 to 17:30 Invited*

**Hyungjun Kim** (Department of Chemistry, Korea Advanced Institute of Science and Technology, Daejeon, Korea), Seung-Jae Shin, Chang Hyuck Choi, Donghyun Kim, Geunsu Bae

On the Atomic Origin of Camel-Shaped EDL Capacitance in Aqueous Electrolytes

*17:30 to 17:45*

Coffee Break

*17:45 to 18:00 Invited*

**Jungwon Park** (School of Chemical and Biological Engineering, Seoul National University, Seoul, Korea)

Liquid Phase TEM for Studying Catalysis and Electrochemistry of Nanomaterials

*18:00 to 18:15 Invited*

**Dong-Hwa Seo** (School of Energy and Chemical Engineering, UNIST, Ulsan, Korea)

First-Principles Study on the Reaction Mechanism in Lithium Electrode Materials

*18:15 to 18:30*

**Stefan Ringe** (Department of Energy Science & Engineering, DGIST, Daegu, Korea)

Computational catalyst design at electrified solid-liquid interfaces

Wednesday 1 September 2021 - AM

p1 Plenary

Room : R01 - Tamna A (1500)

09:00 to 09:50

**Hyuk Chang** (SDI R&D Center, Samsung SDI Co., Ltd, Suwon, Korea)

Ultimate Li ion battery and beyond

s01 Recent Developments in Analytical Electrochemistry: from Fundamentals to Devices

Room : R13 - 402 A+B (100)

Chairman : Jong-In Hong; Joohoon Kim

10:00 to 10:15 *Invited*

**Mauro Bertotti** (Fundamental Chemistry, University of São Paulo, São Paulo, Brazil)

Enhancing Electrochemical Sensing Performance by Using Novel Platforms

10:15 to 10:30 *Invited*

**Wei-Ssu Liao** (Chemistry, National Taiwan University, Taipei, Taiwan), Chang-Ming Wang, Chia-Han Hsieh, Yi-Jie Tsai

Soft Materials for Portable Electrochemical Sensing Devices

10:30 to 10:45

**Tybur Q. Casuse Driovinto** (Civil, Construction & Environmental Engineering, University of New Mexico, Albuquerque, USA), Ruben Rizo, Ya-Peng Yu, Jose M. Cerrato, Fernando H. Garzon, Enrique Herrero, Juan M. Feliu

Well-oriented Au Single Crystal and Thin Film Electrodes for Electrochemical Detection of Trace Arsenite in Water

10:45 to 11:00

**Tianxiao Ma** (Chemistry, University of British Columbia, Vancouver, Canada), Dan Bizzotto

On the investigation of the influence of local packing density and underlying surface crystallography on the stability of thiolated DNA

11:00 to 11:15

Coffee Break

11:15 to 11:30

**Kumi Y. Inoue** (Center for Basic Education, Faculty of Engineering, University of Yamanashi, Kofu, Japan), Mayo Komatsu, Tomoki Iwama, Tomokazu Matsue, Hitoshi Shiku

Dopamine imaging using cathodic electrochemiluminescence generated by co-reaction of ruthenium bipyridine complex and oxidized glutathione on closed bipolar electrode array

11:30 to 11:45

**Steven Linfield** (Department of Electrode Processes, Institute of Physical Chemistry, Polish Academy of Sciences, Warsaw, Poland), Sylwester Gawinkowski, Wojciech Nogala

Using Fluorescence-Enabled Electrochemical Microscopy to investigate sub-detection limit charge transfer processes

11:45 to 12:00

**Jungwook Kwon** (Department of chemistry, Pusan National University, Busan, Korea), Haesik Yang  
Rapid and Sensitive Fungal Detection Based on Intracellular Enzyme Combined with Redox Cycling

12:00 to 12:15

**Ponnusamy Nandhakumar** (Department of Chemistry, Pusan National University, Busan, Korea)  
Metal Nanozyme with Ester Hydrolysis Activity and Its Use for Sensitive Biosensing

12:15 to 12:30

**Chang Heon Lee** (Chemistry, Seoul National University, Seoul, Korea), Sung Il Kim, Hae Yeon Lee  
Airborne Bacteria Monitoring by Wet-Cyclone-Assisted DC Impedance Microfluidic Cytometer

12:30 to 12:45

**Jihyeon Kim** (Department of Chemistry, Pusan National University, Pusan, Korea)  
Electrochemical DNA Detection Using Photoredox Catalysis Induced by Surface Plasmonic Field

s02 Functional Surfaces and Electrochemically Active Materials: Preparation and Applications

Room : R05 - Samda B (100)

Chairman : Hyun Ahn; Iwona A. Rutkowska

10:00 to 10:15 Invited

**Hyun Ahn** (Chemistry, Yonsei University, Seoul, Korea)  
Electrochemical Synthesis of Nanomaterials via Controlled Electrolysis of Aqueous Nanodroplets

10:15 to 10:30

**Ahn Hong Ju** (Surface Materials Division, Korea Institute of Materials Science(KIMS), Changwon, Korea), Kim Seil, Yoo Bung Uk, Lee Joo Yul  
Synthesis and Thermoelectric Characterization of Organic-Inorganic Nanocomposites

10:30 to 10:45

**Kamila Lepicka** (Institute of Physical Chemistry, Polish Academy of Sciences, Warsaw, Poland), Piyush Sindhu Sharma, Pawel Borowicz, Gregory Francius, Alain Walcarius  
The privileged charge transfer and structural demands towards formation of 1D poly(NiSalen)s filaments inside mesoporous silica channels

10:45 to 11:00

**Marcin Jaskółowski** (Faculty of Chemistry, University of Warsaw, Warszawa, Poland), Agnieszka Wieckowska  
Comparison of gold-based dna monolayers composed of differently modified oligonucleotides

11:00 to 11:15

Coffee Break

11:15 to 11:30

**Debananda Mohapatra** (School of Chemical Engineering, Yeungnam University, Gyeongsan, Korea), Prof. Jae-Jin Shim  
Engineering MXene and Carbon Nano-onions for Clean Energy Production and Sensing

11:30 to 11:45

**Iwona A. Rutkowska** (Faculty of Chemistry, University of Warsaw, Warsaw, Poland), James A. Cox, Mikhail Vorotyntsev, Pawel J. Kulesza  
Redox Processes of Highly Inert Inorganic Oxo-Anions: Electrocatalytic Reduction of Arsenates(V) and Chlorates(V) in Acid Medium

11:45 to 12:00

**Seok Kim** (Division of Environmental Science and Engineering, Pohang University of Science and Technology (POSTECH), Pohang, Korea), Seokhyun Choung, Woonghee Lee, Sungho Bae, Jeong Woo Han  
Tuning the Selectivity of Ozone Evolution Reaction by Heterojunction Anodes

s03 Electrochemistry at Liquid/Liquid Interfaces: From Fundamental to Applications

Room : R06 - 201 A + B (150)

Chairman : Hye Jin Lee; Hirohisa Nagatani

10:00 to 10:30 Keynote

**Hubert Girault** (LEPA, EPFL, Sion, Switzerland)

Liquid-liquid interfaces from understanding interfacial polarisation to controlling charge transfer reactions

10:30 to 10:45

**Hye Jin Lee** (Chemistry, Kyungpook National University, Daegu, Korea)

Voltammetric Ionized Drug Sensitive Sensors with Soft Interfaces

10:45 to 11:00

**Bren Mark Felisilda** (Institute of Physical Chemistry, Polish Academy of Sciences, Warszawa, Poland),  
Daniel Alonso Gamero Quijano, Micheál Scanlon, Martin Jönsson-Niedziółka

Interfacial PEDOT Polymerization using Fenton<sup>TM</sup>s reagent at soft electrified interfaces

11:00 to 11:15

Coffee Break

11:15 to 11:30 Invited

**Martin Jonsson-Niedziółka** (Department of Electrode Processes, Institute of Physical Chemistry Polish Academy of Sciences, Warsaw, Poland), Julia Maciejewska-Komorowska, Marta Podrazka, Emilia Witkowska Nery

Measuring PFAS using an electrochemical pen

11:30 to 11:45 Invited

**Robert M. Corn** (Department of Chemistry, University of California-Irvine, Irvine, USA), Yunshan Fan, Athena Bengston

Spectroelectrochemical Measurements of Single Metallic Nanoparticles and Nanorods at Interfaces and in Nanofluidic Channels

11:45 to 12:00

**Hirohisa Nagatani** (Faculty of Chemistry, Institute of Science and Engineering, Kanazawa University, Kanazawa, Japan)

Specific Aggregation Behavior of Water-Soluble AIEgens at Liquid|Liquid Interfaces

12:00 to 12:15

**Terumasa Omatsu** (Faculty of Molecular Chemistry and Engineering, Kyoto Institute of technology, kyoto-shi, Japan), Kisho Hori, Naoto Ishida, Kohji Maeda, Yumi Yoshida

Ionic Transport through a Bilayer Lipid Membrane Depending on the Ionic Concentration in the Membrane

12:15 to 12:30

**Yumi Yoshida** (Faculty of Molecular Chemistry and Engineering, Kyoto Institute of Technology, Kyoto, Japan), Terumasa Omatsu, Naoto Ishida, Kisho Hori, Kohji Maeda

Ionic Distribution in a Bilayer Lipid Membrane

s04 Bioelectrochemistry: from fundamentals to applications

Room : R09 - 301 (80)

Chairman : Taek Dong Chung; Janice Limson

10:00 to 10:30 Keynote

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

Microbial Electrochemical Systems: Improvements through Cathode Electrocatalysis and Supercapacitive Mode Operations

10:30 to 10:45

**Janice Limson** (Biotechnology Innovation Centre, Rhodes University, Makhanda, South Africa), Ronen Fogel, Jan Kruid, Molopo Lipali, Lwazikazi Madikiza, Lerato Mpofo, Galad Smith

## Exploring Challenges and Opportunities in Remediation of Different Wastewaters using Microbial Fuel Cells

10:45 to 11:00

**Qun Yan** (School of Environmental and Civil Engineering, Qun Yan, Professor, Jiangnan University, Wuxi, China), Peng Zhou

Electrochemical insight into the activated algal biochar assisted hydrogenotrophic denitrification at biocathode using bioelectrochemical system (BES)

11:00 to 11:15

Coffee Break

11:15 to 11:30

**Katharina M. Fromm** (Department of Chemistry, University of Fribourg, Fribourg, Switzerland), Maksym Karamash, Carlos Salgueiro, Bernd Giese

Extracellular electron transfer in *Geobacter sulfurreducens* – On Rates and Mechanism

11:30 to 11:45

**Giada Caniglia** (Institute of Analytical and Bioanalytical Chemistry, Ulm University, Ulm, Germany), Christine Kranz

Charge density of *Escherichia coli* biofilms studied with Scanning Probes Techniques

11:45 to 12:00

**Erin Gaffney** (Chemistry, University of Utah, Salt Lake City, USA), Shelley Minter

Mechanisms of an Electroactive and Halophilic Bacterium for Saline Microbial Electrochemistry

12:00 to 12:15

**Kayode Olaifa** (Chemical and Materials Engineering, Nazarbayev University, Nur-Sultan, Kazakhstan), Qing Yang, Obinna Ajunwa, Enrico Marsili

Repurposing fungicides against bacterial biofilms – biochemical and bioelectrochemical assessment

12:15 to 12:30

**Joanna Roginska** (LCPME, University of Lorraine/CNRS, Nancy, France), Michel Perdicakis, Marc Hebrant, Julien Tournebize, Cedric Charbaut, Christelle Despas, Mathieu Etienne

Nitrate Reduction on Microbial Electrochemical Snorkel

12:30 to 12:45

**Matteo Tucci** (Water Research Institute (IRSA), National Research Council (CNR), Rome, Italy), Alessandro Milani, Marco Resitano, Carolina Cruz Viggì, Federico Aulenta

Bioremediation of toluene-contaminated groundwater with the “bioelectric well”: insights into the electrogenic biodegradation mechanisms

s06 Advanced lithium-ion batteries; from basics to cutting-edge technologies

Room : R02 - Halla A (270)

Chairman : Dominic Bresser; Hyung-Seok Kim; Seung-Wan Song

10:00 to 10:15

**Christoph Roitzheim** (Institute of Energy and Climate Research (IEK-1), Forschungszentrum Juelich GmbH, Juelich, Germany), Liang Yin Kuo, Yoo Jung Sohn, Sören Möller, Martin Finsterbusch, Payam Kaghazchi, Olivier Guillon, Dina Fattakhova-Rohlfing

Simulation supported localization of boron in B-doped  $\text{Li}[\text{Ni}_{0.8}\text{Co}_{0.1}\text{Mn}_{0.1}]\text{O}_2$  as cathode material for Li-ion batteries

10:15 to 10:45 Keynote

**Yang-Kook Sun** (Department of Energy Engineering, Hanyang University, Seoul, Korea)

Progress in High-Capacity Ni-Rich Cathode for Next-Generation Electric Vehicles

11:00 to 11:15

Coffee Break

11:15 to 11:30 *Invited*

**Hyojung Yoon** (Battery R&D Center, LG Energy Solution, Daejeon, Korea), Soyoung Kim, Juri Kim, Eun Ju Lee, Su Yong Lee, Seokkoo Kim

(De)lithiation Behavior of Integrated Silicon Oxides and Graphite Anodes Under Fast Charging Conditions

11:30 to 11:45 *Invited*

**Hyung-Seok Kim** (Center for Energy Storage Research, Korea Institute of Science and Technology, Seoul, Korea), Hyung-Seok Kim, Sunho Jeong

Hollow SiO<sub>x</sub> Encapsulated by rGO with High Capacity and Long-term Stability for LIB anode materials

11:45 to 12:00

**Seungcheol Myeong** (energy engineering, Hanyang University, seoul, Korea), Seho Sun, Dongsoo Lee, Jiwoon Kim, Taeseup Song

Improving Swelling Behavior by Controlling Microstructure of Lithium Ion Batteries

12:00 to 12:15 *Invited*

**Dominic Bresser** (Helmholtz Institute Ulm (HIU), Karlsruhe Institute of Technology (KIT), Ulm, Germany), Jakob Asenbauer, Yanjiao Ma, Adele Birrozzi, Tobias Eisenmann

Alternative Lithium-Ion Storage Mechanisms in Metal Oxides

12:15 to 12:30

**Tobias Eisenmann** (Helmholtz Institute Ulm, Karlsruhe institute of Technology (KIT), Ulm, Germany), Adele Birrozzi, Angelo Mullaliu, Jakob Asenbauer, Gabriele Giuli, Angela Trapananti, S. Javad Rezvani, Stefano Passerini, Dominic Bresser

Conversion/Alloying Anodes in Lithium-Ion Batteries - Unraveling the Impact of Transition Metal Dopants on Structure, SEI Formation and Electrochemical Performance via X-ray Absorption Spectroscopy

12:30 to 12:45

**Oleg Levin** (Institute of Chemistry, Saint Petersburg University, Saint Petersburg, Russia)

Switchable resistance conducting-polymer layer for Li-ion battery overcharge protection

s07 Next-generation Batteries: Novel chemistry and design

Room : R01 - Tamna A (1500)

Chairman : Sigita Trabesinger

10:00 to 10:30 *Keynote*

**Kostiantyn Kravchyk** (Department of Chemistry and Applied Biosciences, Laboratory of Inorganic Chemistry (LAC), Z<sup>A</sup>rich, Switzerland)

Electrochemistry of Aluminum-Graphite and Other Dual-Ion Batteries

10:30 to 10:45

**Masayoshi Watanabe** (Institute of Advanced Sciences, Yokohama National University, Yokohama, Japan)

Molten Solvates as Sparingly Solvating Electrolytes for High Energy Density Lithium Sulfur Batteries

10:45 to 11:00

**Gints Kucinskis** (Laboratory of Materials for Energy Harvesting and Storage, Institute of Solid State Physics, University of Latvia, Riga, Latvia), Inara Nesterova, Gunars Bajars

Synthesis and Electrochemical Performance of Na<sub>2</sub>FeP<sub>2</sub>O<sub>7</sub>/C Cathode for Sodium-Ion Batteries

11:00 to 11:15

Coffee Break

11:15 to 11:30

**Min Li** (Industrial chemistry "Toso Montanari", University of Bologna, BOLOGNA, Italy), Angelo Mullaliu, Stefano Passerini, Marco Giorgetti  
Titanium Activation in Prussian Blue Based Electrodes for Na-ion Batteries: A Synthesis and Electrochemical Study

11:30 to 11:45

**Bo Gao** (GREEN, National Institute for Materials Science, Tsukuba, Japan), Randy Jalem, Yoshitaka Tateyama  
Surface-Dependent Stability of Interface between Garnet Li<sub>7</sub>La<sub>3</sub>Zr<sub>2</sub>O<sub>12</sub> and Li Metal in the All-Solid-State Battery: A First-Principles Study

11:45 to 12:00

**Peng Dai** (College of Chemistry and Chemical Engineering, Xiamen University, Xiamen, China), Jingjing Fan, Chenguang Shi, Yanfen Wen, Ling Huang, Shi-gang Sun  
Mitigating the P2-O<sub>2</sub> phase transition of P2- Na<sub>0.67</sub>Ni<sub>0.33</sub>Mn<sub>0.67</sub>O<sub>2</sub> cathode by Lithium substitution for sodium-ion batteries

12:00 to 12:15

**Rolf Hempelmann** (Transfercentre Sustainable Electrochemistry, Saarland University and KIST Europe, Saarbruecken, Germany), Zhifeng Huang, Sangwon Kim, Ruiyong Chen  
Effect of Molecular Structure and Coordinating Ions on the Solubility and Electrochemical Behavior of Quinone Derivatives for Aqueous Redox Flow Batteries

12:15 to 12:30

**Ivan Stosevski** (Chemical and Biological Engineering, University of British Columbia, Vancouver, Canada), Arman Bonakdarpour, Baizeng Fang, David Wilkinson  
Rechargeable Near-Neutral Zinc-Manganese Oxide Batteries – New Insights into the Charge Storage Mechanism

s09 Understanding and application of fast storage processes (Supercapacitors & high power systems)  
Room : R07 - 202 A + B (150)  
Chairman : Woong Kim

10:00 to 10:30 Keynote

**Jeong Gon Son** (Soft Hybrid Materials Research Center, Korea Institute of Science & Technology, Seoul, Korea)  
Nanostructured Graphene for Energy Storage with Mechanical Stretchability

10:30 to 10:45 Invited

**Sang-Jae Kim** (Mechatronics Engineering, Jeju National University, Jeju, Korea), Karthikeyan Krishnamoorthy, Parthiban Pazhamalai, Sindhuja Manoharan, Sang-Jae Kim  
Energy Conversion and Storage Mechanism on Piezoelectric Driven Electrochemical Self-Charging Supercapacitor

10:45 to 11:00

**Jinwoo Park** (Materials Science and Engineering, Korea University, Seoul, Korea), Junyoung Lee, Woong Kim  
Water-in-salt electrolyte based supercapacitors with AC-line filtering performance

11:00 to 11:15

Coffee Break

11:15 to 11:30

**Qing Jin** (Materials Science and Engineering, Korea University, Seoul, Korea), Mahima Khandelwal, Jinwoo Park, Nayoung Ji, Woong Kim  
Boron doped carbon-based aqueous electrochemical capacitor with high performance for AC line filtering

11:30 to 11:45

**Jae-Jin Shim** (School of Chemical Engineering, Yeungnam University, Gyeongsan, Korea), Abebaw Eshetie, Van Quang Nguyen  
Effect of Doping and Substitution on Energy Storage Performance of Supercapacitors

11:45 to 12:00

**Kein Kim** (Materials science and Engineering, Korea University, Seoul, Korea), Jinwoo Park, Woong Kim  
Conducting polymer supercapacitor with ultra high frequency response for AC-line filtering™ through the Electric Double Layer Capacitance(EDLC)

12:00 to 12:15

**Corentin Querne** (NIMBE, CEA, Gif sur Yvette, France), Xavier Sallenave, Philippe Banet, Pierre-Henri Aubert, Mathieu Pinault  
Combination of Thiophene-based Polymer and Vertically Aligned Carbon Nanotubes for n-doping based Negative Electrodes of Pseudocapacitors with High Energy and Power Densities

12:15 to 12:30 *Invited*

**Hiroto Nishihara** (Advanced Institute for Materials Research, Tohoku University, Sendai, Japan)  
Atomically designed carbon materials for electrochemical applications

12:30 to 12:45

**Rui Tang** (Advanced Institute for Materials Research, Tohoku University, Sendai, Japan), Keita Nomura, Takashi Kyotani, Hiroto Nishihara  
Enhancement of electric double-layer capacitance from the perspective of a three-dimensional graphene structure

s10 Electrochemical systems for energy conversion: Fuel Cells and Electrolyzers  
Room : R03 - Halla B (230)  
Chairman : Jin Young Kim

10:00 to 10:15

**Dong Young Chung** (Department of Chemistry, Gwangju Institute of Science and Technology, Gwangju, Korea)  
Dynamic electrochemical interface in oxygen evolution reaction

10:15 to 10:30

**Arokia Anto Jeffery** (Graduate School of Energy Science and Technology, Chungnam national University, Daejeon, Korea), Jiho Min, Sourabh Chougule, Yunjin Kim, Keonwoo Ko, Namgee Jung  
Edge-exposed WxMo1-xS2 nanosheets for hydrogen evolution reaction through precursor solution aging

10:30 to 10:45

**Seunggun Choi** (Department of Energy Engineering, Hanyang University, Seoul, Korea), Jiseok Kwon, Keemin Park, Seonghan Jo, Ungyu Paik  
Active and Durable Metal Boride Oxygen Evolution Catalyst with Sandwich Structure on the Surface Formed by ALD

10:45 to 11:00

**Sung Ryul Choi** (Department of Nanotechnology and Advanced Materials Engineer, Sejong University, Seoul, Korea)

Multiple perovskite layered lanthanum nickelate Ruddlesden-Popper systems as highly active and durable bifunctional electrocatalysts for oxygen electrode reactions

11:00 to 11:15

Coffee Break

11:15 to 11:30

**Juhee Ahn** (Energy Engineering Department, Dankook University, Chenon-si, Korea), Mobina Irshad Ali, Jun Hyun Lim, Yejun Park, In Kee Park, Denis Duchesne, Lisa Chen, Juyoung Kim, Chang Hyun Lee  
Perfluorinated Sulfonic Acid Ionomer-Poly(tetrafluoroethylene) Reinforced Membranes with Enhanced Chemical Resistance to Radicals for Polymer Electrolyte Membrane Fuel Cells

11:30 to 11:45

**Junu Bak** (Dept. of Materials Science and Engineering, Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Korea), Jeonghoon Lim, Kihyun Shin, JeongHan Roh, Sang Jae Lee, Graeme Henkelman, EunAe Cho

Discovering the In as a Novel Dopant for PtNi Octahedral Nanoparticles Designed through Computational Dopant Screening for Superior ORR Catalytic Performance

11:45 to 12:00

**Jin Young Kim** (Center for Hydrogen and Fuel Cell Research, Korea Institute of Science and Technology, Seoul, Korea)

Polymeric Composite Membrane: Research and Application for Polymer Electrolyte Water Electrolyzers and Fuel Cells

12:00 to 12:15

**Jong Gyeong Kim** (Graduate School of Energy Convergence, Gwangju Institute of Science and Technology, Gwangju, Korea), Sung Hoon Han

Effect of Pore Size Distribution of Nanoporous Fe-N-C Catalysts for Oxygen Reduction Reaction in Alkaline Medium

12:15 to 12:30

**Albert Sung Soo Lee** (Materials Architecturing Research Center, Korea Institute of Science and Technology, Seoul, Korea), Vladimir Atanasov, Yu Seung Kim

Synergistically Integrated Phosphonated Poly(pentafluorostyrene) for High Temperature Polymer Electrolyte Fuel Cells

12:30 to 12:45

**Jiho Min** (Graduate School of Energy Science and Technology, Chungnam National University, Daejeon, Korea), Arokia Anto Jeffery, Keonwoo Ko, Chougule Sourabh, Yunjin Kim

Development of a Pt-based core-shell nanocatalyst coated with a graphene layer to improve oxygen reduction activity and durability

s11 Electrochemical Conversion of Carbon Dioxide and its Utilization

Room : R04 - Samda A (100)

Chairman : Yun Jeong Hwang; Pawel J. Kulesza

10:00 to 10:30 Keynote

**Thomas Jaramillo** (Chemical Engineering, Stanford University, Stanford, USA)

Developing catalysts and design principles for CO<sub>2</sub> electro-reduction: From fundamentals to high performance systems

10:30 to 10:45

**Hoeun Seong** (Department of Chemistry, Yonsei University, Seoul, Korea), Vladimir Efremov, Jong Suk Yoo, Dongil Lee

Atom-Precise Metal Nanoclusters as a Powerful Platform for Identifying Active Sites for Electrochemical CO<sub>2</sub> Reduction

10:45 to 11:00

**Pawel J. Kulesza** (Faculty of Chemistry, University of Warsaw, Warsaw, Poland), Iwona A. Rutkowska, Anna Wadas, Ewelina Szaniawska

Development of Hybrid Metal-Oxide-Based Systems for Photoelectrochemical and Electrocatalytic CO<sub>2</sub> Reduction

11:00 to 11:15

Coffee Break

11:15 to 11:30

**Yun Jeong Hwang** (Chemistry Department, Seoul National University, Seoul, Korea)

Understanding Nanocatalyst for Electrochemical Reduction Reaction of CO<sub>2</sub>

11:30 to 11:45

**Yusik Oh** (Department of Chemistry, Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Korea), Hye Ryung Byon

Capping-ligand effect of copper nanoparticles for electrochemical reduction of carbon dioxide

11:45 to 12:00

**Dan Na** (School of Advanced Materials Engineering, Jeonbuk National University, Jeonju, Korea), Hyunwoo Jeong, Jiyeon Baek, Hyunsu Lim, Baeksang Yoon

Investigation of Li-CO<sub>2</sub> batteries with a ceramic LATP electrolyte

12:00 to 12:15

**Sanjana Chandrashekar** (Materials for Energy Conversion and Storage, TU Delft, Delft, Netherlands)

Cations - How Important Are They for the Electrochemical Reduction of CO<sub>2</sub>?

12:15 to 12:30

**Erdem IRtem** (Department of Chemical Engineering, Delft University of Technology, Delft, Netherlands), Floris van Dockum, Joost Middelkoop, Tom Burdyny

Effect of Intermediates in high-current CO<sub>2</sub> electrolysis using Copper Gas Diffusion Electrodes in a Flow-type Reactor

12:30 to 12:45

**Mengran Li** (Department of Chemical Engineering, Delft University of Technology, Delft, Netherlands), Tom Burdyny, Mohamed Nazmi Idros, Yuming Wu, Sahil Garg, Shuai Gao, Rijia Lin, Zhiheng Li, Lei Ge, Thomas Edward Rufford, Zhonghua Zhu, Geoff Wang

Effects of Dimensionality of Tin Oxide-Derived Catalysts on CO<sub>2</sub> Electrochemical Reduction by Using Gas Diffusion Electrode

s12 Corrosion and corrosion protection

Room : R12 - 401 (100)

Chairman : Sungmo Moon

10:00 to 10:30 Keynote

**Seong-Min Lee** (Gas Research Institute, Korea Gas Corp., Ansan, Korea)

Infrastructure Integrity and Corrosion Protection Technology in the Natural Gas Industry of Korea

10:30 to 10:45 Invited

**HeeJin Jang** (Department of Materials Science and Engineering, HeeJin Jang, professor, Chosun University, Gwangju, Korea), Hee-Soo Kim, Si-Jun Park, Seong-Moon Seo, Young-Soo Yoo, Hi-Won Jeong

The Effects of Alloying Elements on the High Temperature Oxidation Behavior of Ni-based Superalloys Studied by Design of Experiments (DOE) and Artificial Neural Network (ANN)

10:45 to 11:00 *Invited*

**Soo Yeol Lee** (Materials Science and Engineering, Chungnam National University, Daejeon, Korea),  
Min Ji Song, Woo Cheol Kim, Hyun Chul Kim, Jong Won Lim  
Experimental and Simulation Studies on Corrosion Failure Analysis in District Heating Facilities

11:00 to 11:15

**Sabrina Patricia Rosoiu** (Center of Surface Science and Nanotechnology, University Politehnica of Bucharest, Bucharest, Romania), Stefania Costovici, Geanina Mihai, Mirsajjad Mousavi, Yaiza Gonzalez-Garcia, Liana Anicai, Teodor Visan, Marius Enachescu  
Corrosion behavior of the ternary Sn-Cu-Ni lead free solders from deep eutectic solvents

11:15 to 11:30

**Shaukat Lone** (Institute of chemical technology of inorganic materials, Johannes kepler universität, linz, Austria), Shaukat Lone, Andrei Ionut Mardare, Cezarina Cela Mardare, Ivana Zirinski, Achim walter Hassel  
Comparison of Corrosion and Tribocorrosion Properties of Various Passive Biomaterials Under Bidirectional Sliding in Artificial Human Body Environment

s14 Electrochemical Technology for Process Intensification and Sustainability

Room : R10 - 302 (80)

Chairman : Youri Gendel; Sang Hoon Kim

10:00 to 10:15

**Hyuntae Bae** (Energy Engineering, Ulsan National Institute of Science and Technology, Ulsan, Korea)  
Electrochemical lithium recycling system toward renewable and sustainable energy technology

10:15 to 10:30 *Invited*

**Wooyul Kim** (Department of Chemical and Biological Engineering, Sookmyung Women's University, Seoul, Korea)  
Understanding Interfacial Electrocatalytic Process for CO<sub>2</sub> Reduction: Time-Resolved Infrared Spectroscopy

10:30 to 10:45

**Gun-hee Moon** (Extreme Materials Research Center, Korea Institute of Science and Technology (KIST), Seoul, Korea)  
Preparation of Active Metal Oxide Catalysts on Conductive Substrates Bypassing Multiple Energy Intensive Processes for Electrocatalytic Oxygen Evolution Reaction

10:45 to 11:00

**Jung-Je Woo** (Gwangju Bio/Energy R&D center, Korea Institute of Energy Research, Gwangju, Korea), Jiyong Ma, Geumui Noh, Jinju Song, Il-Chan Jang, Joonkyo Seo, Sunghun Choi  
Advanced Recycling Technology for Spent Li-ion Batteries

11:00 to 11:15

Coffee Break

11:15 to 11:30

**Sumin Yoo** (Civil and Environmental Engineering, Daejeon, Korea), Ga-Yeong Kim, Seok Hwan Jeon, Jong-In Han  
CNT/Porous Porphyrin Polymer-based Electrode for Electrochemical Gold Recovery from Electronic Waste

11:30 to 11:45

**Youri Gendel** (Faculty of Civil and Environmental Engineering, The Technion-Israel Institute of Technology, Haifa, Israel), Yonatan Darom, Gidon Amikam, Erez B. Ruck  
Highly selective separation of copper from electronics industry wastewater by Pt/AC-catalyzed hydrogenation of Cu<sup>2+</sup> ions and oxygenation of zero-valent Cu particles.

11:45 to 12:00

**Faidzul Hakim Adnan** (Laboratoire Réactions et Génie des Procédés (LRGP), Université de Lorraine - CNRS, Nancy, France), Emmanuel Mousset, Marie-Noëlle Pons  
Influence of Electroprecipitation on Pharmaceutical Micropollutant Degradation in Simulated and Reclaimed Wastewater

s16 Mathematical modelling in electrochemistry - from molecular scale to the process design  
Room : R11 - 303 (100)  
Chairman : Francois Lapicque

10:00 to 10:30 Keynote

**Michael Eikerling** (IEK-13: Theory and Computation of Energy Materials, Forschungszentrum Jülich GmbH, Jülich, Germany), Jacob A. Spooner, Victor M. Fernández-Alvarez  
Ionomer in Catalyst Layers for PEM Fuel Cells - Insights from Theory and Computation

10:30 to 10:45

**Jasmin Kaur** (Physical Modelling and Diagnostics Division IEK-13, Forschungszentrum Juelich GmbH, Juelich, Germany), Jasmin Kaur, Thomas Kadyk, Michael Eikerling  
Physics-Based Impedance Model to Diagnose Pore-level Effects in PEFC Electrodes

10:45 to 11:00 Invited

**Miran Gaberscek** (Department of Materials Chemistry, National Institute of Chemistry, Ljubljana, Slovenia), Joze Moskon, Sara Drvaric Talian, Robert Dominko  
Physics-based transmission line modeling of electrochemical cell's impedance

11:00 to 11:15

Coffee Break

11:15 to 11:45 Keynote

**Ulrike Krewer** (Inst. for Applied Materials - Electrochemical Technologies, Karlsruhe Institute of Technology, Karlsruhe, Germany), Fridolin Roeder, Florian Baakes, Daniel Witt  
Modelling of Li-Ion Batteries - From Cradle to Grave

11:45 to 12:00

**Fridolin Röder** (Bavarian Center for Battery Technology (BayBatt), University of Bayreuth, Bayreuth, Germany), Oke Schmidt  
Complex structures of conductive networks in lithium-ion battery electrodes and their impact on uncertainty and degradation

12:00 to 12:15

**Somayeh Toghiani** (Institute for Applied Materials - Electrochemical Technologi, Karlsruhe Institute of Technology, Karlsruhe, Germany), Florian Baakes, Ulrike Krewer, Ningxin Zhang, Helmut Kühnelt  
Model-based Design of high energy density solid-state lithium-ion batteries

12:15 to 12:30

**Walter Cistjakov** (Institute of Energy and Process Systems Engineering, TU Braunschweig, Braunschweig, Germany), Johanna Hoppe, Fridolin Röder, Jinkwan Jung, Hee-Tak Kim, Ulrike Krewer  
Multi-Scale Modeling of Li<sub>2</sub>S Precipitation Process During Lithium-Sulfur Battery Discharge

12:30 to 12:45

**Wen Xu** (Institute of Surface Science, Helmholtz-Zentrum Hereon, Geesthacht, Germany)

A Mathematical Model for Modeling the Surface Evolution of Mg Anode during Discharge of Aqueous Mg-air Battery

12:45 to 13:00

**Carmen María Fernández-Marchante** (Chemical Engineering, University of Castilla-La Mancha, Ciudad Real, Spain), Florymar Escalona-Duran, Martín Muñoz-Morales, Justo Lobato, Carlos Alberto Martínez-Huitle, Manuel Andrés Rodrigo

Modelling electro-scrubbers for removal of VOCs

s20 Recent Development in Spectroscopy, Microscopy and Theory for Atomic/Molecular Level Understanding of Electrochemical Interfaces

Room : R08 - 203 (100)

10:00 to 10:15

**Jaewoon Lee** (Department of Mechanical Engineering, Kyunghee University, Yongin-si, Korea), Sung-Joon Park, Seung-Ho Yu, Duho Kim

Oxygen Redox in M-incorporated Na-based Binary Layered Oxides

10:15 to 10:30 Invited

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

Electrolyte effects in CO<sub>2</sub> reduction and hydrogen evolution

10:30 to 10:45

**Piret Pikma** (Institute of Chemistry, Ravila 14A, Tartu, Estonia), Heigo Ers, Jaak Nerut

In situ STM and EIS study of Cd(0001)|EMImBF<sub>4</sub>+EMImI interface

10:45 to 11:15

**Peter Strasser** (Department of Chemistry, Technical University Berlin, Berlin, Germany)

Chemical Charge vs Electrode Potential – The Eum und Yang of Electrocatalysis

11:15 to 11:30

**Richard Haid** (Physics, Technical University of Munich, Garching, Germany), Regina Kluge, Thorsten Schmidt, Aliaksandr Bandarenka

Highly Resolved Imaging of Active Sites for Carbon-Based Electrocatalysis under Reaction Conditions

11:30 to 11:45

**Reshma Rao** (Chemistry, Imperial College London, London, United Kingdom), Alberto Bucci, Sacha Corby, Julio Lloret-Fillol, Ifan Stephens, James Durrant

Investigating the role of particle size and morphology on the water oxidation activity of nickel-based electrocatalysts using spectroelectrochemistry

11:45 to 12:00

**Katharina Krischer** (Physics Department, Technical University of Munich, Garching, Germany), Thomas Maier, Matthias Golibrzuch, Tina Angerer, Markus Becherer

Boosting of Hydrogen Evolution Reaction on Laterally Structured Metal/Semiconductor Electrodes

12:00 to 12:15

**Mathilde Bouvier** (Laboratoire de Physique de la matière condensée, Ecole Polytechnique, Palaiseau, France), Ivan Pacheco Bubi, Canrong Qiu, Tim Wiegmann, Finn Reikowski, Jochim Stettner, Olaf Magnussen, Fouad Maroun, Philippe Allongue

Operando SXR and XAS combined studies on cobalt oxides epitaxial films as model electrocatalysts for water splitting

12:30 to 12:45

**Kei Murakoshi** (Department of Chemistry, Hokkaido University, Sapporo, Japan), Hiro Minamimoto

In-situ Observation of Electronic Structures in Plasmonic Electrodes



Wednesday 1 September 2021 - PM

s01 Recent Developments in Analytical Electrochemistry: from Fundamentals to Devices

Room : R13 - 402 A+B (100)

Chairman : Guy Denuault; Fred Lisdat

*16:00 to 16:30 Keynote*

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

Polymers of Intrinsic Microporosity in Electroanalytical Chemistry

*16:30 to 16:45*

**Yuanzhu Zhao** (Department of Chemistry, University of Bath, Bath, United Kingdom), Neil B. Mckeown, Mariolino Carta, Frank Marken

Indirect Photo-electrochemical Detection of Carbohydrates Mediated by Hydrogen and Enhanced by a Polymer of Intrinsic Microporosity

*16:45 to 17:00*

**Nako Nakatsuka** (Institute for Biomedical Engineering, ETH Zurich, Zurich, Switzerland), Denis Buckingham, Ufuk Ilgin, Alix Faillétaz, Krishna Vadodaria, Fred Gage, Dmitry Momotenko, Janos Vörös  
Aptamer-Modified Nanopipettes for Sensing Electrochemical Signal Transduction from Neurons

*17:00 to 17:15*

**Julius Gajdar** (LCPME, Université de Lorraine, Nancy, France), Gregoire Herzog, Elise Rotureau, Jose-Paulo Pinheiro, Pablo Fanjul Bolado, Laurent Akrou, Mathieu Etienne

Applications of electrochemical oxygen filter

*17:15 to 17:30*

**Melisa del Barrio** (Química Analítica y Análisis Instrumental, Universidad Autónoma de Madrid + CSIC, Madrid, Spain), Moumita Rana, Juan José Vilatela, Encarnación Lorenzo, Antonio L. De Lacey, Marcos Pita

Photoelectrocatalytic Detection of NADH on n-type Silicon Semiconductors Facilitated by Carbon Nanotube Fibers

*17:30 to 17:45*

Coffee Break

*17:45 to 18:00*

**Rosa Rego** (Chemistry, University of Trás-os-Montes e Alto Douro, Vila Real, Portugal), Wasina Fins, Cristina Antunes, António Valente

Development of Electrochemical IoT Sensors: From Lab to Field

*18:00 to 18:15*

**Dionysios Soulis** (Chemistry, National and Kapodistrian University of Athens, Athens, Greece), Eleftheria Stavra, Varvara Pagali

Electrochemical paper-based devices entirely fabricated via programmable pen-on-paper plotting

*18:15 to 18:30*

**Eleonora Pargoletti** (Dipartimento di Chimica, Università degli Studi di Milano, Milan, Italy), Francesca Tessore, Gian Luca Chiarello, Giuseppe Cappelletti

Boosting the Oxide-based Chemoresistor Sensing Performances: the Role of Graphene Oxide and Porphyrins

*18:30 to 18:45*

**Alvaro Colina** (Chemistry, Universidad de Burgos, Burgos, Spain), Martin Perez-Estebanez, William Cheuquepan, Sheila Hernandez, Aranzazu Heras

Electrochemical Surface Oxidation-Enhanced Raman Scattering on Copper: A New Phenomenon for Analysis

s02 Functional Surfaces and Electrochemically Active Materials: Preparation and Applications

Room : R05 - Samda B (100)

Chairman : Liang Liu; Pascal Martin

16:00 to 16:15

**Erhan Karaca** (Chemistry, Hacettepe, Ankara, Turkey)

Schottky Contact of Nanostructured Bi<sub>2</sub>O<sub>3</sub> Deposited Electrochemically on Stainless Steel

16:15 to 16:30

**Karel Lacina** (CEITEC, Masaryk University, Brno, Czech Republic), Jakub Sopoušek, Jakub V&#283;žník

Blocking the Nanopores - Concepts and Meditation about Electrochemical (Label-Free) Biosensing

16:30 to 16:45

**Quentin Lenne** (Rennes Institute of Chemical Sciences, Université Rennes 1, Rennes, France), Yann Leroux, Corinne Lagrost

Gold Nanoparticles Functionalized with Calix[4]arenes as Selective Catalysts for Oxygen Reduction Reaction (ORR)

16:45 to 17:00

**Amina Lissanedine** (Laboratoire Réactions et Génie des Procédés, Lorraine university, Nancy, France), Emmanuel Mousset, Faissal Aziz, Marie-noëlle Pons, Laila Mandi, Naaila Ouazzani

Key Criteria for Selective Electrosorption of Phenolic Compounds on a Novel Biosourced Material for Olive Mill Wastewater Treatment

17:00 to 17:15

**Liang Liu** (LCPME, CNRS-Université de Lorraine, Villers-les-Nancy, France), Mariela Alicia Brites Helú

Rational Shaping of Hydrogel by Electrodeposition under Fluid Mechanics for Electrochemical Writing on Complex Shaped Surfaces

17:15 to 17:30

**Pascal Martin** (Chemistry, University of Paris, Paris, France), Jean Christophe Lacroix, Mingyang Liu, Philippe Decorse, Sebastien Belynck

Formation of organic bi-layers by stepwise electrochemical reduction of diazonium compounds: Bottom-Up Approach

17:30 to 17:45

Coffee Break

17:45 to 18:00 *Invited*

**Patrizia Romana Mussini** (Dipartimento di Chimica, Università degli Studi di Milano, Milano, Italy), Sara Grecchi, Serena Arnaboldi

Enantiomer discrimination in voltammetry in media of high structural order at the electrochemical interphase implemented with chirality

18:00 to 18:15

**Philani Mashazi** (Chemistry, Rhodes University, Makhanda, South Africa), Keamogeste Tshenkeng

pH Sensitive Electrochemical Sensor for Catecholamine Detection and Screening of Ascorbic Acid

18:15 to 18:30

**Elisa Maruccia** (Department of Applied Science and Technology (DISAT), Politecnico di Torino, Torino, Italy), Elisa Maruccia, Mirtha A. O. LourenÃ§o, Tatiana Priamushko, Mattia Bartoli, Sergio Bocchini, Freddy Kleitz, Claudio Gerbaldi

Design of nitrogen-containing carbonaceous adsorbents for CO<sub>2</sub> capture and energy storage applications

18:30 to 18:45

**Alexander Nekrasov** (Russian Academy of Sciences, Frumkin Institute of Physical Chemistry and Electrochemistry, Moscow, Russia), Olga Iakobson, Oxana Gribkova

Raman Spectroelectrochemical monitoring of conducting polymer film growth on reflective metallic electrodes: effects due to double excitation of the electrode/film/solution interfaces

s03 Electrochemistry at Liquid/liquid Interfaces: From Fundamental to Applications

Room : R06 - 201 A + B (150)

Chairman : Marcin Opallo; Micheál D. Scanlon

16:00 to 16:30 Keynote

**Micheál D. Scanlon** (Chemical Sciences, Bernal Institute, University of Limerick, Limerick, Ireland), Alonso Gamero-Quijano, Rob Lehane, Nataly Rey-Muñoz, Nicolas Rojas-Sanabria, Angelika Holzinger  
Electrosynthesis of Conducting Polymer Thin Films at an Electrified Liquid/Liquid Interface

16:30 to 16:45 Invited

**Pekka Peljo** (Department of Mechanical and Materials Engineering, University of Turku, Turku, Finland), Haiqiang Deng, Daniel Mandler, Ali Tuna, Hubert Girault

Some New Directions in Electrochemistry at Liquid-Liquid Interfaces: Ionosomes and Biphasic Flow Batteries

16:45 to 17:00

**Damien Degoulange** (Chimie du Solide et Energie, College de France, Paris, France), Nicolas Dubouis, Alexis Grimaud

Thermodynamics vs. Kinetics: determination of ions activity coefficients in super-concentrated electrolytes forming liquid/liquid interfaces

17:00 to 17:15 Invited

**Pierre-Francois Brevet** (Institut Lumière Matière, University Claude Bernard Lyon 1, Villeurbanne, France), Fabien Rondepierre, Antonin Pardon, Lucile Sanchez, Julien Duboisset, Oriane Bonhomme, Emmanuel Benichou

Molecular Organization in Liquids: a Nonlinear Optical View

17:15 to 17:30 Invited

**Lasse Murtomäki** (Department of Chemistry and Materials Science, Aalto University, Aalto, Finland), Eemi Nieminen

Reduction of Copper at the ITIES Studied with SECM

17:30 to 17:45

Coffee Break

17:45 to 18:00

**Rob Lehane** (Chemical Sciences, Bernal Institute, University of Limerick, Limerick, Ireland), Alonso Gamero-Quijano, Micheál D. Scanlon

Electrosynthesis of PEDOT Films at an Electrified Liquid-Liquid Interface

18:00 to 18:15

**Nataly Rey Munoz** (Department of Chemical Sciences, Bernal Institute, University of Limerick, Limerick, Ireland), Alonso Gamero Quijano, Angelika Holzinger, Micheál D. Scanlon

Electrosynthesis of Free-Standing Thin Films of Poly(3-hexylthiophene) at an Electrified Liquid-Liquid Interface

18:15 to 18:30

**Magdalena Kaliszczak** (LCPME, Université de Lorraine, CNRS, Nancy, France), Pierrick Durand, Emmanuel Wenger, Manuel Dossot, Franca Jones, Damien Arrigan, Gregoire Herzog  
Formation of caffeine: 1-hydroxy-2-naphthoic acid co-crystals at the polarized liquid-liquid interface

18:30 to 18:45

**Marcin Opalło** (Institute of Physical Chemistry, Polish Academy of Sciences, Warszawa, Poland), Justyna Kalisz, Wojciech Nogala, Wojciech Adamiak, Mateusz Gocyla, Hubert H. Girault  
The Solvent Effect on H<sub>2</sub>O<sub>2</sub> Generation at Room Temperature Ionic Liquid|Water Interface

s04 Bioelectrochemistry: from fundamentals to applications

Room : R09 - 301 (80)

Chairman : Katharina M. Fromm; Erin Gaffney; Seong Jung Kwon; Elisabeth Lojou

16:00 to 16:30 Keynote

**Michael Mirkin** (Chemistry & Biochemistry, Queens College - CUNY, Flushing, USA), Rui Jia  
Electrochemical Resistive-Pulse Sensing of Extracellular Vesicles

16:30 to 16:45

**Taek Dong Chung** (Department of Chemistry, Seoul National University (SNU), Seoul, Korea), Eun Joong Kim, Joohee Jeon, Sun-heui Yoon, Min-Ah Oh, Wonkyung Cho, Ji Yong Kim, Chang Il Shin  
Protein-modified Electrodes for Specific Coupling with Pre-synaptic Neuronal Membrane

16:45 to 17:00

**Seong Jung Kwon** (Department of Chemistry, Konkuk University, Seoul, Korea)  
Observation and Analysis of Stochastic Single Nanoparticle Collisions on Ultramicroelectrode and Its Application to Biosensing Scheme

17:00 to 17:15

**Takumi Yanase** (Department of Biotechnology and Life Science, Tokyo University of Agriculture and Technology, Koganei, Japan), Kentaro Hiraka, Kohei Ito, Ryutarō Asano, Kazunori Ikebukuro, Wakako Tsugawa, Junko Okuda-Shimazaki, Koji Sode  
The Strategic Design of Direct Electron Transfer Type Enzymes for the Development of Innovative Biosensing Technologies

s06 Advanced lithium-ion batteries; from basics to cutting-edge technologies

Room : R02 - Halla A (270)

Chairman : Jianyu Huang; Jie Li; Christian Masquelier

16:00 to 16:15 Invited

**Jie Li** (Department of Energy, Politecnico di Milano, Milan, Italy), Xu Hou  
Design of the effective electrode-electrolyte interphase in high-voltage aqueous lithium ion batteries

16:15 to 16:30

**Daniel Witt** (Institute of Energy and Process Systems Engineering, TU Braunschweig, 38106, Germany), Daniel Witt, Florian Baakes, Fridolin Röder, Ulrike Krewer  
Physicochemical SEI Modeling for a Holistic Understanding of Lithium-Ion Battery Behavior

16:30 to 16:45

**Ander Orue** (Advanced Electrolytes and Cell integration, CICenergiGUNE, Vitoria-Gasteiz, Spain), Nuria Gómez, Montse Casas-Cabanas, Pedro López-Aranguren, Frédéric Aguesse  
Designing High Performance Positive/Negative Electrodes for Poly(ethylene)oxide-based Solid-State Batteries

16:45 to 17:00 Invited

**Gleb Yushin** (Materials Science and Engineering, Georgia Institute of Technology, Atlanta, USA)  
Conversion Materials and Solid Electrolytes for Next Generation Lithium-Ion Batteries

17:00 to 17:15 *Invited*

**Marnix Wagemaker** (Radiation Science and Technology, Delft University of Technology, Delft, Netherlands), Tammo Schwietert, Violetta Arszewska, Chuang Yu, Chao Wang, Niek J.J. De Klerk, Jart Hageman, Thomas Hupfer, Ingo Kerkamm, Yaolin Xu, Eveline van der Maas, Erik M. Kelder, Alexandros Vasileiadis, Swapna Ganapathy  
Electrochemical stability of solid electrolytes

17:15 to 17:30

**Kefyalew Wagari Guji** (Applied Science, Graduate Institute of Applied Science and Technology, Taipei, Taiwan), Wen-Chen Chien  
Synthesis and Characteristic of Chelidonic Acid and Chelidamic Acid as Organic Anode Materials for Energy Storage

17:30 to 17:45

Coffee Break

17:45 to 18:00 *Invited*

**Jianyu Huang** (Clean Nano Energy Center, Yanshan University, Qinhuangdao, China), Yongfu Tang, Liqiang Zhang  
In Situ TEM Nano Electrochemistry

18:00 to 18:15

**Ngoc-Anh Tran** (LEPMI, Grenoble Alpes University, Grenoble, France), Jean Claude Lepretre, Fannie Alloin  
A Novel Designed Electrolyte for Magnesium Batteries

18:15 to 18:30

**Sebastien Martinet** (DEHT, CEA-LITEN, Grenoble, France), Youcef Kerdja, Marion Chandesris  
Improvement of NMC Electrode Microstructure and Performances Combining Microscopy Imaging, Modeling and Design of Experiments

18:30 to 18:45

**Sahir Naqash** (IEK-1, Forschungszentrum JÄ¼lich GmbH, JÄ¼lich, Germany), Martin Finsterbusch, Dina Fattakhova-Rohlfing, Olivier Guillon  
Interfacial elemental mappings and corrosion study of garnet-based solid state battery via secondary ion mass spectroscopy.

s07 Next-generation Batteries: Novel chemistry and design

Room : R01 - Tamna A (1500)

Chairman : Federico Bella

16:00 to 16:30 *Keynote*

**Sigita Trabesinger** (Battery Electrodes and Cells, Paul Scherrer Institute, Villigen PSI, Switzerland), Leitong Zhang, Chrysi Tsolakidou, Sathiya Mariyappan, Jean-Marie Tarascon  
Tracking Gas Evolution in Na-ion Battery by Online Electrochemical Mass Spectrometry

16:30 to 16:45

**Yingli Wang** (College of Chemistry, Nankai University, Tianjin, China), Yingli Wang, Fangyi Cheng  
Formulating NaPF<sub>6</sub> and LiPF<sub>6</sub> electrolytes to build fluorinated hybrid interface for robust lithium metal anode

16:45 to 17:00

**Weihua Chen** (Green Catalysis Center, and College of Chemistry, Zhengzhou University, Zhengzhou, China), Weihua Chen, Keming Song, Yanhua Wan, Juan Shi  
Interface Engineering Enables High-performance Sodium Ion Battery

17:00 to 17:15

**Ranine El Hage** (LCPME, CNRS, Nancy, France), Charles Yendoube Sano Meyeme, Fabien Chauvet, Laurent Cassayre, Beatrice Biscans, Theo Tzedakis

Effect of Vanadium (IV) Sulfate Particles Present in the Posolyte on the Anodic Current of a Vanadium Redox Flow Battery

17:15 to 17:30

**Luigi Faggiano** (Dept. of Chemistry "Giacomo Ciamician", Alma Mater Studiorum - University of Bologna, Bologna, Italy), Giampaolo Lacarbonara, Stefania Rapino, Catia Arbizzani

Electrochemical characterization of carbonaceous electrodes for Copper based redox flow battery

17:30 to 17:45

Coffee Break

17:45 to 18:00 *Invited*

**Philippe Poizot** (IMN-CNRS, University of Nantes, Nantes, France), Alia Jouhara, Eric Quarez, Nicolas Dupré

Electrochemically Driven Insertion of Ions in Organic Host Materials for Rechargeable Battery Applications

18:00 to 18:15

**Gabriele Lingua** (GAMELab, Department of Applied Science and Technology(DISAT), Politecnico of Turin, Turin, Italy), Marisa Falco, Petr S. Vlasov, Alexander S. Shaplov

Innovative Single Ion Conducting Block Copolymers enabling high-voltage, all-solid-state lithium metal batteries

18:15 to 18:30

**Jilei Liu** (College of Materials Science and Engineering, Hunan University, Changsha, China)

Unraveling the Potassium Storage Mechanism in Graphite Using Operando Spectroscopic Techniques

18:30 to 18:45

**Shuai Zhang** (Intelligent Polymer Research Institute, University of Wollongong, Wollongong, Australia), Yuqing Liu, Yuetong Zhou, Mark Buckingham, Leigh Aldous, Peter C Sherrell, Gordon G Wallace, Gregory Ryder, Shaikh Faisal, David L Officer, Stephen Beirne, Jun Chen

Advanced Wearable Thermocells for Body Heat Harvesting

s09 Understanding and application of fast storage processes (Supercapacitors & high power systems)

Room : R07 - 202 A + B (150)

Chairman : Andrea Balducci; Woong Kim

16:00 to 16:30 *Keynote*

**Patrice Simon** (CIRIMAT Laboratory, Université Paul Sabatier Toulouse III, Toulouse, France)

Fast storage processes: from double layer adsorption to high-rate redox reactions

16:30 to 16:45 *Invited*

**Veronica Augustyn** (Materials Science & Engineering, North Carolina State University, Raleigh, USA)

Understanding the Role of Confinement on Electrochemical Capacitance: Implications for High Power Energy Storage

16:45 to 17:00

**Andrea Balducci** (Institute for Technical Chemistry & Environmental Chemistry, Friedrich-Schiller University Jena, Jena, Germany), Lars H. Heß, Natalia Fulik, Eike Brunner, Andrea Balducci

Advanced in-situ techniques for the investigation of the electrode-electrolyte interphase in high voltage electrochemical capacitors

17:00 to 17:15

**Mariela Brites Helú** (LCPME, CNRS-Université de Lorraine, Villers-les-Nancy, France), Ranine El Hage, Vincent Feynerol, Mathieu Etienne, Liang Liu  
In-situ Electrochemistry of Single Carbon Fiber on a Felt for Supercapacitors by Scanning Gel Electrochemical Microscopy

17:15 to 17:30

**Jakub Menzel** (Institute of Chemistry and Technical Electrochemistry, Poznan University of Technology, Poznan, Poland), Przemyslaw Galek, Paulina Bujewska, Scott Donne, Krzysztof Fic  
New Insight into Ion Dynamics in Nanoporous Carbon Materials: an Application of the Step Potential Electrochemical Spectroscopy (SPECS) Technique and Electrochemical Dilatometry

17:30 to 17:45

Coffee Break

17:45 to 18:00

**Adam Slesinski** (Institute of Chemistry and Technical Electrochemistry, Poznan University of Technology, Poznan, Poland), Sylwia Sroka, Elzbieta Frackowiak, Jakub Menzel, Krzysztof Fic  
Operando monitoring of local pH value changes at carbon electrode surface in aqueous electrochemical capacitors

18:00 to 18:15

**Adrienne Allison** (Chemistry, Dalhousie University, Halifax, Canada), Heather Andreas  
Utilizing Electrochemical Impedance Spectroscopy to Understand Pseudocapacitive Manganese Oxide and its Impact on Carbon-Based Substrates

18:15 to 18:30

**Paulina Bujewska** (Institute of Chemistry and Technical Electrochemistry, Poznan University of Technology, Poznan, Poland), Paulina Bujewska, Krzysztof Fic  
Electrical Double-Layer Formation at Nanoporous Carbon Electrodes with Aqueous Electrolytes of various pH Monitored by Electrochemical Dilatometry

18:30 to 18:45

**Noemí Quintanal** (Grupo de Materiales Compuestos, Instituto de Ciencia y Tecnología del Carbono, Oviedo, Spain), Marta Sevilla, Clara Blanco, Ricardo Santamaría  
Interactions between electrode surface and ionic liquids in carbon based supercapacitors

s10 Electrochemical systems for energy conversion: Fuel Cells and Electrolyzers  
Room : R03 - Halla B (230)

16:00 to 16:30 Keynote

**Karl Mayrhofer** (Helmholtz-Institute Erlangen-Nürnberg, Forschungszentrum Jülich, Erlangen, Germany), Serhiy Cherevko, Ioannis Katsounaros, Balazs Berkes, Olga Kasian, Simon Geiger  
Evaluation of Electrocatalyst Activity, Stability and Selectivity – Online Coupling of Analytical Techniques to Electrochemical Flow Cells

16:30 to 16:45

**Regina Kluge** (Department of Physics, ECS, Technical University of Munich, Garching, Germany), Richard Haid, Eleftherios Psaltis, Thorsten Schmidt, Aliaksandr Bandarenka  
Assessment of Active Centers on Transition Metal Surfaces for the Oxygen Reduction and Evolution Reactions

16:45 to 17:00

**Anantrao Vijay Shirsath** (LRGP, University of Lorraine, Nancy, France), Caroline Bonnet, Stéphane Raël, François Lapicque  
Characterization of hydration imbalance in polymer electrolyte membrane fuel cell due to ageing by application of electrochemical pressure impedance spectroscopy (EPIS)

17:00 to 17:15

**Rubén Rizo** (Institute of Electrochemistry, University of Alicante, Alicante, Spain), Enrique Herrero, Juan M. Feliu

New Insights into the Hydrogen Peroxide Reduction Reaction and its Comparison with the Oxygen Reduction Reaction in Alkaline Media on Well-defined Platinum Surfaces

17:15 to 17:30

**Johanna Schröder** (DCBP, University of Bern, Bern, Switzerland), Vladislav A. Mints, Aline Bornet, Etienne Berner, Mohammad Fathi Tovini, Jonathan Quinson, Gustav K. Wiberg, Francesco Bizzotto, Hany A. El-Sayed, Matthias Arenz

The gas diffusion electrode setup as straightforward testing device for proton exchange membrane water electrolyzer catalysts

17:30 to 17:45

Coffee Break

17:45 to 18:00

**Mireya Carvela** (Chemical Engineering Department, University of Castilla-La Mancha, Ciudad Real, Spain), Ismael F. Mena, Carmen M. Fernandez-Marchante, Justo Lobato, Manuel A. Rodrigo

Electrochemically-assisted CO<sub>2</sub> Capture using Solar Photovoltaic Powering

18:00 to 18:15

**Sergio Diaz-Abad** (Chemical Engineering, University of Castilla La Mancha, Ciudad Real, Spain), Justo Lobato, Manuel A. Rodrigo

Titanium dioxide Polybenzimidazole membranes for Green Hydrogen production by the sulfur dioxide depolarized electrolysis at high temperature

18:15 to 18:30

**Michelle Browne** (Advanced Materials and BioEngineering Research Centre, Trinity College Dublin, Dublin, Ireland), Valeria Nicolosi

Transition Metal Oxide Catalysts for the Oxygen Evolution Reaction

18:30 to 18:45

**María Isabel Díez García** (Advanced Materials and Systems for Energy Area, Fundació Institut de Recerca de l'Energia de Catalunya, IREC, Barcelona, Spain), Guillem Montaña, Andreu Cabot, Joan Ramon Morante

Highly Active Co-Fe-P Nanoparticles Supported on Porous Substrates for the Oxygen Evolution Reaction

s11 Electrochemical Conversion of Carbon Dioxide and its Utilization

Room : R04 - Samda A (100)

Chairman : Thomas Burdyny; Youngkook Kwon

16:00 to 16:30 Invited

**Federico Calle-Vallejo** (Materials Science and Physical Chemistry, University of Barcelona, Barcelona, Spain)

Toward Accurate and Affordable Computational Models for the Electroreduction of CO<sub>2</sub>

16:30 to 16:45

**Siddhartha Subramanian** (Chemical Engineering, Delft University of Technology, Delft, Netherlands), Joost Middelkoop, Thomas Burdyny

Influence of mass transport and spatial CO<sub>2</sub> concentration on CO<sub>2</sub> electroreduction to CO in a membrane electrode assembly

16:45 to 17:00

**Kailun Yang** (Department of Chemical Engineering, Delft University of Technology, Delft, Netherlands),  
Recep Kas, Wilson A. Smith, Thomas Burdyny  
Carbon-based gas diffusion layer causes flooding during electrochemical CO<sub>2</sub> reduction

17:00 to 17:15

**Hugo-Pieter Iglesias van Montfort** (Chemical Engineering, Delft University of Technology, Delft, Netherlands), Thomas Burdyny  
Direct imaging of electrocatalytic activity using infrared sensing during water-splitting and CO<sub>2</sub> reduction

17:15 to 17:30

**Youngkook Kwon** (School of Energy and Chemical Engineering, Ulsan National Institute of Science and Technology, Ulsan, Korea)  
Electric Field Engineering for Selective Electrochemical CO<sub>2</sub> Reduction

17:30 to 17:45

Coffee Break

17:45 to 18:00 *Invited*

**Thomas Burdyny** (Chemical Engineering, Delft University of Technology, Delft, Netherlands), Kailun Yang, Siddhartha Subramanian  
Impact of spatial current density and flow variations on CO<sub>2</sub> reduction selectivity in flow cells at elevated current densities

18:00 to 18:15

**Seonjeong Cheon** (Civil and Environmental Engineering, Korea Advanced Institute of Science and Technology, Daejeon, Korea), Dong-Yeon Kim, Youngkook Kwon  
Electrochemical System and Catalyst Development for Ammonia Production from Nitric Oxide

18:15 to 18:30

**Alexander Bagger** (Chemistry, University of Copenhagen, Copenhagen, Denmark)  
A unified view on the challenging N<sub>2</sub> reduction reaction and the likeliness of electrochemical CO<sub>2</sub> reduction reaction.

s16 Mathematical modelling in electrochemistry - from molecular scale to the process design

Room : R11 - 303 (100)

Chairman : Hyung Chul Ham

16:00 to 16:30 *Keynote*

**Karsten Reuter** (Theory Department, Fritz Haber Institute of the Max Planck Society, Berlin, Germany)  
Current Challenges in First-Principles based Modelling of Electrocatalysis

16:30 to 16:45

**Fanny Lambert** (Sciences, UPJV, Amiens, France), Yann Danten, Carlo Gatti, Christine Frayret  
Contribution of Density Functional Theory Modelling and Electronic Structure Investigations in the Quest for Optimal Sustainable Electrodes

16:45 to 17:00 *Invited*

**Jun Cheng** (Chemistry, Xiamen University, Xiamen, China)  
Chemical dynamics in catalysis and electrochemistry

17:00 to 17:15

**Lulu Zhang** (Department of Chemical Physics, University of Science and Technology of China, Hefei, China), Jun Cai, Yanxia Chen, Jun Huang  
Modelling Electrocatalytic Reactions with a Concerted Treatment of Multistep Electron Transfer Kinetics and Local Reaction Conditions

17:15 to 17:30

**Kai Exner** (Theoretical Inorganic Chemistry, University Duisburg-Essen, Essen, Germany)  
Re-Investigation of the Oxygen Evolution Reaction: Mathematical Modeling by a Binding-Energy Approach

17:30 to 17:45

Coffee Break

17:45 to 18:00

**Man Fai Ng** (Materials Science & Chemistry Department, Institute of High Performance Computing, Singapore, Singapore), Daniel John Blackwood, Hongmei Jin, Teck Leong Tan  
DFT Modelling of Corrosion of Metals: Insight into the Oxygen Reduction Reaction on the Passive Layers

18:00 to 18:15 *Invited*

**Sudarshan Vijay** (Department of Physics, Technical University of Denmark, Lyngby, Denmark), Georg Kastlunger, Wen Ju, Peter Strasser, Karen Chan  
Unified Perspective of Methods to Model Electrochemical Barriers

18:15 to 18:30

**Jia-Xin Zhu** (College of Chemistry and Chemical Engineering, Xiamen University, Xiamen, China), Jia-Bo Le, Marc Koper, Katharina Doblhoff-Dier, Jun Cheng  
Effects of Adsorbed OH on Pt(100)/Water Interfacial Structures and Potential

18:30 to 18:45

**Rüdiger Müller** (Thermodynamic Modeling and Analysis of Phase Transitions, Weierstrass Institute, Berlin, Germany), Manuel Landstorfer  
Modeling and simulation of concentration and field dependent susceptibility of liquid electrolytes

s19 Physicochemical and Mechanistic Aspects of Organic Electrosynthesis

Room : R12 - 401 (100)

Chairman : Amanda Garcia

16:00 to 16:30 *Keynote*

**Mahito Atobe** (Department of Chemistry and Life Science, Yokohama National University, Yokohama, Japan), Atshushi Fukazawa, Naoki Shida  
Organic Electrosynthetic Reactions Using a Proton-Exchange Membrane (PEM) Reactor

16:30 to 16:45 *Invited*

**Nicola Aust** (Chemical Synthesis Research, BASF SE, Ludwigshafen, Germany)  
Reductive Coupling in Industrial Organic Electrosynthesis

16:45 to 17:00

**Amanda Garcia** (HIMS, University of Amsterdam, Amsterdam, Netherlands)  
Insights into C-C coupling in CO<sub>2</sub> electroreduction towards C<sub>2</sub>+ products

17:00 to 17:15 *Invited*

**Robert Francke** (Electrochemistry & Catalysis, Leibniz Institute for Catalysis, Rostock, Germany), Timo Broese, Arend Roesel, Michal Májek  
Electrochemistry of Hypervalent Iodine Compounds

17:15 to 17:30 *Invited*

**Karthish Manthiram** (Chemical Engineering, Massachusetts Institute of Technology, Cambridge, USA)  
Electrocatalytic oxygen-atom transfer reactions

17:30 to 17:45

Coffee Break

*17:45 to 18:15 Keynote*

**Kevin Moeller** (Department of Chemistry, Washington University in St. Louis, St. Louis, USA)  
Playing on the Interface Between Organic Synthesis and Electrochemistry as a Means to Discover New Opportunities for Selectivity.

*18:15 to 18:30*

**Madara Darzina** (OSM group, Latvian Institute of Organic synthesis, Riga, Latvia), Anna Lielpetere, Aigars Jirgensons  
Electrosynthesis of  $\alpha,\beta$ -unsaturated esters from furfurylated ethylene glycols and amino alcohols

*18:30 to 18:45 Invited*

**Belen Batanero** (Organic and Inorganic Chemistry, University of Alcalá, Alcalá de Henares, Spain), Irene Quiros  
Electrosynthesis of Oxazol-2(3H)-Ones and Diaroylhydrazines from 1,2-Dicarbonyl Compounds and Arenediazonium Salts

s20 Recent Development in Spectroscopy, Microscopy and Theory for Atomic/Molecular Level Understanding of Electrochemical Interfaces

Room : R08 - 203 (100)

Chairman : Laurence Hardwick

*16:00 to 16:15 Invited*

**Jiajun Wang** (Institute of Advanced Chemical Power Sources, Harbin Institute of Technology, Harbin, China), Hanwen An  
Synchrotron X-ray Imaging of Battery Materials and Interfaces

*16:15 to 16:30 Invited*

**Wanli Yang** (Advanced Light Source, Lawrence Berkeley National Lab, Berkeley, USA)  
Recent Advances in Soft X-Ray Spectroscopy for Studying Energy Storage Materials

*16:30 to 16:45*

**Rik Mom** (Leiden Institute of Chemistry, Leiden University, Leiden, Netherlands), Hassan Nagra, Nipon Deka, Lorenz Falling, Juan-Jesús Velasco-Vélez, Denis Bernsmeier, Ralph Krähnert, Axel Knop-Gericke  
Operando XPS and XAS on Electrocatalysts for Fuel Cells and Electrolyzers

*16:45 to 17:00*

**Dino Tonti** (ICMAB-CSIC, , Barcelona, Spain), Wenhai Wang, Alvaro Yamil Tesio, Mara Olivares-Marín, Andrea Sorrentino, Eva Pereiro  
Insights on the interface evolution of lithium-oxygen battery cathodes using in situ electrochemical impedance and energy-dependent soft x-ray transmission microscopy

*17:00 to 17:15*

**Andrea Sorrentino** (Mistral Beamline, Life Science Division, ALBA Synchrotron Light Source, Cerdanyola del Valles, Spain), Laura Simonelli, Arefehsadat Kazzazi, Nina Laszczynski, Agnese Birrozzi, Angelo Mullaliu, Eva Pereiro, Stefano Passerini, Marco Giorgetti, Dino Tonti  
Visualization of chemical heterogeneities on cathode materials using full field soft x-ray transmission microscopy

*17:15 to 17:30*

**Christina Toigo** (Giacomo Ciamician, University of Bologna, Bologna, Italy), Martin Frankenberger, Nicolas Billot, Claudia Pscherer, Benedikt Stumper, Fabian Distelrath, Jonathan Schubert, Karl-Heinz Pettinger, Catia Arbizzani  
Improved LTO Electrodes by Modified Current Collector Surfaces

17:30 to 17:45

Coffee Break

17:45 to 18:00 *Invited*

**Ivan T. Lucas** (Chemistry, Sorbonne Université - LISE laboratory - UMR 8235 CNRS, PARIS, France), Antonin Gajan, Constance Lecourt, Blanca Torres Bautista, Laure Fillaud, Julien Demeaux  
Solid Electrolyte Interphase Instability in Operating Lithium-ion Batteries Unraveled by Enhanced-Raman Spectroscopy

18:00 to 18:15 *Invited*

**Sayoko Shironita** (Department of Materials Science and Technology, Nagaoka University of Technology, Niigata, Japan), Masatoshi Osawa, Minoru Umeda  
Application of surface-enhanced infrared absorption spectroscopy (SEIRAS) to fundamental research on lithium-ion batteries

18:15 to 18:30 *Invited*

**Erik J. Berg** (Department of Chemistry - Angstrom Laboratory, Uppsala University, Uppsala, Sweden)  
Operando Characterization of Interphases in Rechargeable Batteries

18:30 to 18:45

**Da Zhou** (Department of Chemical Physics, University of Science and Technology of China, Hefei, China), Aimin Ge, Ken-ichi Inoue, Yanxia Chen, Shen Ye  
Probing the Formation Process and Surface Structures of Solid-Electrolyte Interphase by SFG Vibrational Spectroscopy

s25 General Session

Room : R10 - 302 (80)

Chairman : Hongkyung Lee; Hochun Lee

16:00 to 16:15

**Paolo Inaudi** (Drug Science and Technology, University of Turin, Turin, Italy), Ornella Abollino, Mery Malandrino, Federico Stilo, Agnese Giacomino  
Redox Profile as Marker for the Authentication of Vegetable Oil

16:15 to 16:30

**Robert Hillman** (School of Chemistry, University of Leicester, Leicester, United Kingdom), Chloe Davis, Federica Lisa, Sarah Rose  
Electrochemical Aspects of Latent Fingerprint Visualization on Metal Surfaces Using Galvanic Deposition

16:30 to 16:45

**Leigh Aldous** (Department of Chemistry, King's College London, London, United Kingdom), Mark Buckingham, Kristine Laws  
Why 'water-in-salt' and analogous systems are often ineffective in thermogalvanic heat-to-electricity systems

16:45 to 17:00

**Kevin Wearen** (Chemistry, Dundalk Institute of Technology, Dundalk, Ireland), Timothy McCormac  
An Investigation into the Catalytic Properties of a Conducting Polymer Hybrid film containing a Mn<sup>2+</sup> Sandwich-type Polyoxometalate

17:00 to 17:15

**Yaovi Holade** (IEM, European Institute of Membranes of Montpellier, Montpellier, France), Sophie Tingry  
Nanostructured Silver-Gold Cages Directly Grown on Gas Diffusion Electrodes for Highly Active and Selective Glycerol Electrooxidation

17:15 to 17:30

**Lucia Alvarado** (ENGINEERING OF MINES, METALLURGY AND GEOLOGY, UNIVERSITY OF GUANAJUATO, GUANAJUATO, Mexico), Martin Caudillo González, Guadalupe Vázquez Rodríguez, Juan Carlos Baltazar Vera

Transport of Hexavalente Chromium Through Ion Exchange Materials During an Electrodeionization Process

17:30 to 17:45

Coffee Break

17:45 to 18:00

**Natalia Ormeño Cano** (Technologies and Evaluation, ICRA, Catalan Institute for Water Research, Girona, Spain), Jelena Radjenovic

Graphene-based electrodes for the electrochemical removal of antibiotics from water.

18:00 to 18:15

**Anna Segués Codina** (Technology and Evaluation, Catalan Institute of Water Research and University of Girona, GIRONA, Spain), Carles Borrego, Jelena Radjenovic

Chlorine-free disinfection of water using N-doped graphene-based sponge electrodes

18:15 to 18:30

**Thágor Moreira Klein** (Institute of Chemistry, Universidade Federal de Rio Grande do Sul (UFRGS), Porto Alegre, Brazil), Nathalie Ribeiro Wingert, Vladimir Lavayen, Jacqueline Arguello

Determination of lead (II) by anodic stripping voltammetry using a SPE/Au/2D-MoS<sub>2</sub>/AuNPs modified electrode

18:30 to 18:45

**Marcus Korb** (School of Molecular Sciences, The University of Western Australia, Perth, Australia)

Redoxchemistry of Ferrocenyl-Functionalized Half-sandwich Complexes

Thursday 2 September 2021 - AM

p1 Plenary

Room : R01 - Tamna A (1500)

09:00 to 09:50

**Christian Amatore** (Department of Chemistry, Ecole Normale Supérieure, CNRS and Xiamen University, Paris, France)

Oxygen and Nitrogen Activated Species and Oxidative Stress: Between our Best Survival Allies and Worst Foes

s01 Recent Developments in Analytical Electrochemistry: from Fundamentals to Devices

Room : R13 - 402 A+B (100)

Chairman : Sung Yul LIM; Steven Linfield

11:15 to 11:30

**Jong-In Hong** (Department of Chemistry, Seoul National University, Seoul, Korea), Taemin Kim, Kyoung-Rok Kim, Ik-Soo Shin

Reaction-Based Electrochemiluminescent Sensors for Selective Detection of Biochemical and Environmental Targets

11:30 to 11:45

**Bo Zhou** (School of Engineering and Materials Science, Queen Mary University of London, London, United Kingdom), Anirban Das, Karin A. Hing, Steffi Krause

Monitoring dynamic cellular responses using a photoelectrochemical imaging system with high spatiotemporal resolution

11:45 to 12:00

**Jooheon Kim** (Department of Chemistry, Kyung Hee University, Seoul, Korea), Taehoon Cho, Youngwon Ju, Jooheon Kim

Synthesis and Characterization of Dendrimer-Encapsulated Pt Nanoparticles for Their Application in Electroanalysis

12:00 to 12:15

**Myeungwoo Ryu** (Energy Engineering, Hanyang University, Seoul, Korea), Yongmin Jung, Seojin Park, Hojin Jeong, Taeseup Song

Stretchable and Transparent Paper for Printed Electronics Drawn by Conductive Ink

12:15 to 12:30

**Andrzej Krzeń** (Department of Electrode Processes, Institute of Physical Chemistry, Polish Academy of Sciences, Warsaw, Poland), Tomasz Gabler, Monika Janik, Martin Jönsson-Niedziółka, Mateusz Smietana

Electrochemistry in an optical fiber microcavity - a new approach to electrochemical processes in small volumes

12:30 to 12:45

**Woonghee Lee** (Division of Environmental Science and Engineering, Pohang University of Science and Technology, Pohang, Korea), Seok Kim, Kangwoo Cho

Selective Detection of Electrochemically Generated Ozone Using Scanning Electrochemical Microscopy

s02 Functional Surfaces and Electrochemically Active Materials: Preparation and Applications

Room : R05 - Samda B (100)

Chairman : Jaime Sanchez; Małgorzata Skorupa

10:00 to 10:15

**Karsten Voigt** (Institute of Materials Science, Technische Universität Dresden, Dresden, Germany), Christian Heubner, Michael Schneider, Alexander Michaelis

## Electrochemical Deposition of Metal/Metal Oxides Composites

10:15 to 10:30

**Luís C. Almeida** (Centro de Química Estrutural, Faculdade de Ciências da Universidade de Lisboa, Lisbon, Portugal), Rui D. Correia, Jorge P. Correia, Ana S. Viana

Electrosynthesis of Thick Bio-inspired Polydopamine Films - A Combined Electrochemical, Ellipsometric and Microgravimetric Study

10:30 to 10:45

**Gustavo Adrian Echeveste Salazar** (Laboratoire de Chimie Physique et Microbiologie pour les Mat, Université de Lorraine, Nancy, France), Ning Dang, Alain Walcarius, Liang Liu

Cross-linking of Electrodeposited Chitosan for Scanning Gel Electrochemical Microscopy (SGECM).

10:45 to 11:00

**Shibin Thomas** (Chemistry, University of Southampton, Southampton, United Kingdom), Philip Bartlett, Andrew Hector, Gillian Reid, William Levason, Danielle E Smith, Victoria K Greenacre, Yasir J Noori, Nema M Abdelazim, C. H. (Kees) de Groot

Non-aqueous Electrodeposition of Transition Metal Dichalcogenide Thin Films from Single Source Precursors

11:00 to 11:15

Coffee Break

11:15 to 11:30

**Jaime Sanchez** (DEPARTMENT OF INDUSTRIAL AND MATERIAL SCIENCE, CHALMERS UNIVERSITY OF TECHNOLOGY, Göteborg, Sweden), Zhenyuan Xia, Johanna Xu, Jinhua Sun, Leif Asp, Vincenzo Palermo

Electrophoretic Coating of LiFePO<sub>4</sub>/Graphene Oxide on Carbon Fibers as Cathode Electrodes for Structural Li-ion Batteries in Automotive

11:30 to 11:45

**Alex Ricardo Silva Olaya** (Department of Chemistry, Carl von Ossietzky University of Oldenburg, Oldenburg, Germany), Birthe Zandersons, Gunther Wittstock

Effect of the residual silver on the electrochemical activity of Nanoporous gold towards methanol oxidation in alkaline media

11:45 to 12:00

**Małgorzata Skorupa** (Department of Physical Chemistry and Technology of Polymers, Silesian University of Technology, Gliwice, Poland), Katarzyna Krukiewicz

Biofunctionalization of Electrodes for Bioelectronic Applications

s06 Advanced lithium-ion batteries; from basics to cutting-edge technologies

Room : R02 - Halla A (270)

Chairman : Kyung Yoon Chung; Hochun Lee; Naoaki Yabuuchi

10:00 to 10:15 Invited

**Naoaki Yabuuchi** (Department of Chemistry and Life Science, Yokohama National University, Yokohama, Japan)

Li-excess Rocksalt-type High-capacity Positive Electrode Materials for Li-ion Batteries

10:15 to 10:30

**Hyeongseon Choi** (HIU Helmholtz-Institute Ulm, Karlsruhe Institute of Technology, Ulm, Germany)

Cobalt? – Not Needed in Lithium-Rich Layered Oxides as Next-Generation Cathodes for Lithium-Ion Batteries!

10:30 to 10:45

**Senthil Chenrayan** (Energy Engineering, Gyeongsang National University, Jinju, Korea)  
Unraveling the Interplay of Cation-disorder and Solid-state Redox Reaction in High-Entropy Li<sub>1+x</sub>M' xM''  
1-2xO<sub>2</sub> Li-ion Cathodes

10:45 to 11:00

**Annika Schuer** (Helmholtz-Institute Ulm, Helmholtz-Institute Ulm, Ulm, Germany), Matthias Kuenzel,  
Dominic Bresser, Stefano Passerini  
Determination of Li<sub>2</sub>CO<sub>3</sub> and LiOH in Lithium Transition Metal Oxides

11:00 to 11:15

Coffee Break

11:15 to 11:30

**Hyukhee Cho** (Department of Mechanical Engineering, Gachon university, Gyeonggi-do, Korea)  
Conductive agent properties in electrode including Ni-rich NCM cathode for improving energy density

11:30 to 11:45

**Tae-Hee Kim** (Dept. of Materials Science and Engineering, Korea Advanced Institute of Science and  
Technology, Daejeon, Korea), Jaewook Shin, Saad A. Mohamed, Jihan Kim, HyeonMook Kang, YongJu  
Lee, GyuSeong Hwang, EunAe Cho  
Diffusion-Induced Dislocation as a Key Factor for Degradation of High-Ni Cathode Materials for Li-Ion  
Batteries

11:45 to 12:00

**Matthias Kuenzel** (Helmholtz Institute Ulm, Karlsruhe Institute of Technology, Ulm, Germany), Vidur  
Kumar, Arefeh Kazzazi, Dominic Bresser, Stefano Passerini  
Stabilized Interfaces in Sustainable High-Voltage Lithium-Batteries

12:00 to 12:15 Invited

**Hochun Lee** (Energy Science & Engineering, DGIST, Daegu, Korea), Seokbum Kang, Chang-eui Yang  
Crystalline Organic Electrolytes for Safe, Room-Temperature Operable Li and Na Batteries

12:15 to 12:30

**Lea Droguet** (Chaire de Chimie du solide et de l'energie, College de France, Paris, France), Olivier  
Fontaine, Gustavo Hobold, Betar Gallant, Jean-Marie Tarascon, Alexis Grimaud  
Instability of inorganic-based SEI in superconcentrated aqueous electrolyte

12:30 to 12:45

**Andrew Wang** (Engineering Science, University of Oxford, Oxford, United Kingdom), Samuel  
Greenbank, David Howey, Charles Monroe  
Macroscopic Effects of Preferential Electrolyte Co-solvation

s07 Next-generation Batteries: Novel chemistry and design

Room : R01 - Tamna A (1500)

Chairman : Paloma Almodovar

10:00 to 10:30 Keynote

**Sang-Young Lee** (Department of Chemical and Biomolecular Engineering, Yonsei University, Seoul,  
Korea)

Printed Artistic Power Sources for IoT Era

10:30 to 10:45

**Min Young Shin** (Nano Technology and Advanced Materials Engineering, Sejong University, Seoul,  
Korea), Natalia Voronina, Hee Jae Kim, Seung Taek Myung  
Effects of Ni Doping on Oxygen Redox Based Layered Cathode Materials for Sodium Ion Batteries

10:45 to 11:00

**Guanchen Li** (Department of Engineering Science, University of Oxford, Oxford, United Kingdom), Charles Monroe  
Lithium-Ion Transport Near the Interface Between a Solid Electrode and a Fully Ionic Liquid Electrolyte

11:00 to 11:15

Coffee Break

11:15 to 11:30

**Hyojun Lim** (Center for Energy Storage Research, Korea Institute of Science and Technology, Seoul, Korea)  
Heterointerface Design of Hierarchical MoS<sub>2</sub>/ Silicon Oxycarbide Anode for Sodium-Ion Storage

11:30 to 11:45

**Moony Na** (Chemistry, KAIST, Daejeon, Korea)  
Associations of Zn<sup>2+</sup> and H<sup>+</sup> during Energy Storage Process with Molecular Electrodes for Aqueous Zn-ion Batteries

11:45 to 12:00

**Long Nguyen** (Future Convergence Technology, Soonchunhyang university, Asan-si, Korea), SooHyeon Sin  
Nb/Al- Li<sub>7</sub>La<sub>3</sub>Zr<sub>2</sub>O<sub>12</sub> composite solid polymer electrolyte for all-solid-state lithium batteries

12:00 to 12:15

**Sunwook Kim** (Mechanical Engineering, Gachon university, Seongnam, Korea), Kyoungmin Min  
Y-doped P2-type Na<sub>0.67</sub>Ni<sub>0.33</sub>Mn<sub>0.67</sub>O<sub>2</sub>: A sodium-ion battery cathode with fast charging and enhanced cyclic performance

12:15 to 12:30

**Syam Kandula** (Soft Hybrid Materials Research Center, Korea Institute of Science and Technology (KIST), Seoul, Korea)  
Synthesis of FeS<sub>2</sub>@C Nanoboxes Encapsulated in rGO/SWCNT Network as an Effective Anode Material for Na-ion Batteries

12:30 to 12:45

**Kwan Woo Nam** (Department of Chemical Engineering and Materials Science, Ewha Womans University, Seoul, Korea)  
Hydration Effects and Emerging Materials for Divalent Batteries

s09 Understanding and application of fast storage processes (Supercapacitors & high power systems)  
Room : R07 - 202 A + B (150)  
Chairman : Sung-Kon Kim; Wataru Sugimoto

10:00 to 10:30 Keynote

**Soshi Shiraishi** (Graduate School of Science and Technology, Gunma University, Kiryu, Japan)  
New Developments in Electrochemical Capacitors Using Classic Carbon Materials

10:30 to 10:45

**Elzbieta Frackowiak** (Institute of Chemistry and Technical Electrochemistry, Poznan University of Technology, Poznan, Poland), Adam Slesinski, Justyna Piwek, Krzysztof Fic, Alen Vizintin, Blaz Tratnik, Maria Bernechea, Robert Dominko, Elzbieta Frackowiak  
High Frequency Response of Nitrogen-rich Carbon Electrodes in Aqueous Electrochemical Capacitor

10:45 to 11:00

**Lorenzo Migliorini** (Physics Department, University of Milan, Milano, Italy), Paolo Milani  
Supersonic cluster beam deposition of green micro-supercapacitors on biodegradable materials

11:00 to 11:15

Coffee Break

11:15 to 11:30

**Malinee Niamlaem** (-, Institut Charles Gerhardt-UMR 5253, University of Montpellier, Montpellier, France), Yachao Zhu, Dodzi Zigah, Olivier Fontaine

Cavity Microelectrode loaded with Activated Carbon for Highly Scan Rate Supercapacitors

11:30 to 11:45

**Minju Thomas** (Department of Chemistry and chemical Technology (CTC), University of Calabria, Rende, Italy), Francesco Lufano, Isabella Nicotera

Rapid Synthesis of Ordered Mesoporous Carbon and Application in Batteries and Supercapacitors

11:45 to 12:00

**Daisuke Takimoto** (Department of Chemistr, University of the Ryukyus, Nishihara, Japan), Keisuke Suzuki, Sho Hideshima, Wataru Sugimoto

Unusual redox behavior of quinone-derivative in the micropore of activated carbon

12:00 to 12:15

**Miranda Ndipingwi** (Chemistry, University of the Western Cape, Cape town, South Africa), Chinwe Ikpo, Precious Ekwere, Christopher Nolly, Emmanuel Iwuoha

Vanadia-Hydroxylated Graphene Nanohybrids as High Specific Energy Electrodes for Asymmetric Supercapacitors

12:15 to 12:30

**Seyed Esmaeil Mohammadi Pourhosseuni** (Chemistry, Poznan university of thecnology, Poznan, Poland), Paula Ratajczak, Annika Bothe, Andrea Balducci, François Beguin

Electrochemical performance of EDLCs in organic electrolyte with various electrode binders

s10 Electrochemical systems for energy conversion: Fuel Cells and Electrolyzers

Room : R03 - Halla B (230)

10:00 to 10:15

**Yao Yang** (Department of Chemistry and Chemical Biology, Cornell University, Ithaca, USA), Héctor Abruña

Operando X-ray Spectroscopy of Synergistic Co&#8722;Mn Spinel Oxides as Oxygen Reduction Electrocatalysts in Alkaline Fuel Cells

10:15 to 10:30

**Yun Wu** (Department of Materials Science and Engineering, Guangdong University of Petrochemical Technology, Maoming, China), Azhagumuthu Muthukrishnan, Shinsuke Nagata, Yuta Nabae

Quantification of kinetic rate constants of oxygen reduction reaction pathways over Pt-free electrocatalysts

10:30 to 10:45

**Fatma Abdelghafar** (School of Molecular and Life Sciences, Curtin University, Benetly, Australia)

Exploiting cobalt boride nanoflakes as bifunctional electrocatalysts for overall water splitting

10:45 to 11:00

**Qinglan Zhao** (Department of Chemical and Biological Engineering, Hong Kong University of Science and Technology, Hong Kong, China), Minhua Shao

High-Rate and Sustainable Production of Hydrogen Peroxide on Co-N-C Single-Atom Electrocatalysts in Simulated Seawater

11:00 to 11:15

Coffee Break

11:15 to 11:30

**Zidong Wei** (School of Chemistry and Chemical Engineering, Chongqing University, Chongqing, China)  
Electrochemical Catalysis from the Mesoscale Perspective

11:30 to 11:45

**Xiaojing Cheng** (Institute of Fuel Cells, School of Mechanical Engineering, Shanghai Jiao Tong University, Shanghai, China), Junliang Zhang  
New insight into the interplay between carbon support morphology and oxygen transport behavior in CCLs of PEMFCs

11:45 to 12:00

**Ricardo A. Escalona-Villalpando** (División de Investigación y Posgrado, Facultad de Ingeniería, Universidad Autónoma de Querétaro, Querétaro, Mexico)  
Increase in the Performance of a Microfluidic Glucose Biofuel Cell Connected in Series/Parallel Configurations

12:00 to 12:15

**Deli Wang** (School of Chemistry & Chemical Engineering, Huazhong University of Science & Technology, , China), Tonghui Zhao, Mingxing Gong, Tao Shen  
Electrocatalysis on Structure Ordered Intermetallics

12:15 to 12:30

**Wei Chen** (Department of Chemical Physics, University of Science and Technology of China, Hefei, China), Yan-Xia Chen  
pH effect of ORR and its implication on ORR mechanism

12:30 to 12:45

**Jiaye Chen** (School of Mathematics and Physics, University of Science and Technology Beijing, Beijing, Beijing, China)  
Revisiting Ir/TiO<sub>2</sub> catalyst to maximize iridium utilization for Oxygen Evolution Reaction

s15 Anodization and Its Applications in Environmental and Energy Research

Room : R04 - Samda A (100)

Chairman : Kiyoungh Lee

10:00 to 10:30 Keynote

**Sungmo Moon** (Surface Materials Division, Korea Institute of Materials Science, Changwon, Korea)  
Plasma Electrolytic Oxidation of Metals

10:30 to 11:00 Keynote

**Junghoon Lee Lee** (Metallurgical Engineering, Pukyong National University, Busan, Korea), Jei-Pil Wang, Donghyun Kim, Hyunsik Kim  
Multifunctional Surface of Oil-Impregnated Nanoporous Anodic Oxide of Metals

11:00 to 11:15

Coffee Break

11:15 to 11:30

**Juseok Kim** (Surface Materials Division, Korea Institute of Materials Science, Changwon, Korea), Heon-Cheol Shin, Sungmo Moon  
PEO Films Formed on Inner Surface of AA7050 Tube by Electrolyte Spray Method

11:30 to 11:45

**Duyoung Kwon** (Surface Materials Division, Korea Institute of Materials Science, Changwon-si, Korea), Sungmo Moon, Pungkeun Song

Effect of Pretreatment on PEO Film Formation Behavior of AZ91 Mg Alloy

11:45 to 12:00 *Invited*

**Liaoyong Wen** (School of Engineering, Westlake University, Hangzhou, China)

Unconventional AAO template guided binary nanostructuring and its emerging applications

12:00 to 12:15

**Hien Pham Van** (Surface Materials Division, Korea Institute of Materials Science, Changwon, Korea),  
Sungmo Moon, Sungmo Moon

Effect of Electrolyte Composition on Dielectric Breakdown of Anodic Oxide Film on Pure Aluminum

12:15 to 12:30

**Jaewon Lee** (Department of Advanced Science and Technology Convergence, Kyungpook National University, Sangju, Korea), Kiyoung Lee, Sanghyeon Moon

Photoelectrochemical properties according to the morphology and oxygen vacancy of anodic TiO<sub>2</sub> nanostructures

s18 Bringing Biomolecules and Electrodes together: Understanding Electron Transport in Life

Room : R11 - 303 (100)

10:00 to 10:30 *Keynote*

**Stuart Lindsay** (Center for Single Molecule Biophysics, Arizona State University, Tempe, USA)

Protein Electronics

10:30 to 10:45 *Invited*

**Haesik Yang** (Department of Chemistry, Pusan National University, Busan, Korea)

Indium Tin Oxide Electrodes for Selective Electron Transfer between an Electrode and an Enzyme

10:45 to 11:00

**Yang-Rae Kim** (Department of Chemistry, Kwangwoon University, Seoul, Korea)

Tunable Electrochemical Grafting of Diazonium for Bioconjugation

11:00 to 11:15

Coffee Break

11:15 to 11:30 *Invited*

**Magdalena Hromadova** (Electrochemistry at the Nanoscale, J. Heyrovsky Institute of Physical Chemistry of the CAS, Prague, Czech Republic)

Quantum Interference Effect in Single Molecule Junctions Containing Parallel Aliphatic Bridges

11:30 to 11:45

**Lubomir Pospisil** (Electrochemistry at nano scale, J. Heyrovsky Inst. of Physical Chemistry, Prague, Czech Republic)

Pyridine Terminated Molecular Rods: Conformational Flexibility and Electron Transfer

11:45 to 12:00

**Junyang Liu** (Chemical and Biochemical Engineering, Xiamen University, Xiamen, China), Dahai Zhou, Ping Duan, Yu Zhou, Qian-Chong Zhang, Zhong-Ning Chen, Wenjing Hong

Single-molecule Electrical Measurement in Strong Polar Solvent Environment using Dielectric Layer Coated Tip

12:00 to 12:15

**Yang Yang** (Pen-Tung Sah Institute of Micro-Nano Science and Technology, Xiamen University, Xiamen, China), Shiqiang Zhao, Yuling Zou, Yang Yang, Colin Lambert, Wenjing Hong

Cross-Plane Transport through Single-Molecule Van Der Waals Heterojunctions

12:15 to 12:30 *Invited*

**Albert C. Aragonès** (Molecular Spectroscopy Department, Max Planck Institute for Polymer Research, Mainz, Germany), Katrin F. Domke  
Electrochemical-gated Plasmonic molecular traps

12:30 to 12:45

**Nicolas Plumeré** (Campus Straubing for biotechnology and sustainability, Technical University Munich, Straubing, Germany)  
Protecting Hydrogenases for Energy Conversion

s19 Physicochemical and Mechanistic Aspects of Organic Electrosynthesis  
Room : R12 - 401 (100)  
Chairman : Hai-Chao Xu

10:00 to 10:30 Keynote Invited

**Christopher Sandford** (Department of Chemistry, Institut Català d'Investigació Química, Tarragona, Spain), Tyler Ball, Lydia Fries, David Hickey, Tianhua Tang, Matthew Sigman, Shelley Minter  
Developing Global Models to Predict Mechanisms in Organometallic Electrocatalysis

10:30 to 10:45

**Hai-Chao Xu** (Chemistry, Xiamen University, XIAMEN, China)  
Electrochemically Driven Radical Reactions: From Molecular Electrocatalysis to Molecular Photoelectrocatalysis

10:45 to 11:00

**Jan Svoboda** (Molecular electrochemistry and catalysis, J. Heyrovsky Institute of Physical Chemistry of the CAS, Prague, Czech Republic), Ludmila Simkova, Jiri Ludvik  
Electrophotocatalytic reduction of aryl halides by selected flavin derivatives

11:00 to 11:15

Coffee Break

11:15 to 11:30 Invited

**Carlos Frontana** (Dirección de Ciencia, CIDETEQ SC, Pedro Escobedo, Mexico), Jorge Antonio Rodriguez-Nunez, Georgina Armendariz-Vidales  
Have substituents become chemically negligible? Electron-transfer entropy changes in o-nitrobenzyl alcohol derivatives

11:30 to 11:45

**De-Yin Wu** (College of Chemistry and Chemical Engineering, Xiamen University, Xiamen, China), Hang Shi, Christian Amatore, Zhong-Qun Tian  
Electrochemical Reduction, Electrocatalytic Effect, and Surface-Enhanced Raman Spectral Chemical Enhancements of Benzyl Chloride at Silver Cathodes

11:45 to 12:00

**Karolína Salvadori** (Molecular Electrochemistry and Catalysis, J. Heyrovský Institute of Physical Chemistry of the CAS, Prague, Czech Republic), Ludmila Simkova, Pavel Matejka, Petra Curínová, Jiri Ludvik  
Electrochemical investigation of ureido-sulfonamidic receptors, supramolecular structures for binding phosphates.

12:00 to 12:15

**Ji Yong Kim** (Chemistry, Seoul National University, Seoul, Korea), Samuel Jaeho Shin, Sun-Heui Yoon, Sang Hyun Lee, Taek Dong Chung  
Thin-layer Electrode Microchip for Accurate Determination of n in Electrochemical Organic Reactions

12:15 to 12:30

**Jirí Ludvík** (Molecular electrochemistry and catalysis, J. Heyrovský institute, Praha 8, Czech Republic),  
Lucie Koláčná, Tomáš Tobrman, Alan Liska  
Pentastituted Phospholes with Extended pi-Conjugated Arm for Organic Electronics

s20 Recent Development in Spectroscopy, Microscopy and Theory for Atomic/Molecular Level  
Understanding of Electrochemical Interfaces

Room : R08 - 203 (100)

10:00 to 10:15 *Invited*

**Beatriz Roldan Cuenya** (Department of Interface Science, Fritz Haber Institute of the Max Planck  
Society, Berlin, Germany)

Operando Structural and Chemical Evolution of Nanostructured Electrocatalysts

10:15 to 10:30 *Invited*

**Nuria Garcia-Araez** (Chemistry, University of Southampton, Southampton, United Kingdom), J.  
Padmanabhan Vivek, Niamh Ryall

Operando pressure measurements of Li-ion battery materials

10:30 to 10:45

**Alex Neale** (Stephenson Institute of Renewable Energy, University of Liverpool, Liverpool, United  
Kingdom), David Costa Milan, Filipe Braga, Igor Sazanovich, Laurence Hardwick

Operando Kerr Gated Raman Spectroscopic Investigations of Lithium-ion Intercalation Processes

10:45 to 11:00 *Invited*

**Rui Wen** (CAS Key Lab of Molecular Nanostructure and Nanotechnology, Institute of Chemistry,  
Chinese Academy of Sciences, Beijing, China)

In Situ AFM Investigations of the Electrochemical Interfaces in Lithium Batteries

11:00 to 11:15

Coffee Break

11:15 to 11:30 *Invited*

**Shuji Nakanishi** (Research Center for Solar Energy Chemistry, 1-3 Machikaneyama, Toyonaka, Japan)

Combined analysis using on-line DEMS, EIS and Nano-SIMS for discharge/charge reactions in aprotic

Li-O<sub>2</sub> batteries

11:30 to 11:45

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

Electrochemical FTIR Spectroscopy Studies of Electrochemical CO<sub>2</sub> Reduction on Cu Electrodes

11:45 to 12:00

**Laurence Hardwick** (Chemistry, University of Liverpool, Liverpool, United Kingdom), Julia Fernandez  
Vidal, Thomas Galloway, Gary Attard

Electrochemical and spectroscopic investigations of O<sub>2</sub> adsorption on Pt single crystal electrodes in non-  
aqueous alkali metal ion electrolytes

12:00 to 12:15

**Tatsuo Horiba** (Material and Life Science, Seikei University, Musashino, Japan)

LiBr-coated air electrodes for lithium-air batteries

12:15 to 12:30

**Ken-ichi Inoue** (Department of Chemistry, Tohoku University, Sendai, Japan), Shiori Shinozaki, Aimin  
Ge, Shen Ye

Quantitative Evaluation of Singlet Oxygen in Lithium-Oxygen Battery

s21 Electrochemical Solar Energy Conversion and Storage: from Fundamentals to Applications

Room : R09 - 301 (80)

Chairman : Hyunwoong Park

*10:00 to 10:30 Keynote*

**Kazuhiro Takanabe** (Department of Chemical System Engineering, The University of Tokyo, Tokyo, Japan)

Nanomembrane Decoration on Electrocatalyst Enables Selective Hydrogen or Oxygen Evolution Applicable to Photocatalytic Overall Water Splitting

*10:30 to 10:45 Invited*

**Wonyong Choi** (Division of Environ. Sci. Eng., Pohang Univ. of Sci. Technol. (POSTECH), Pohang, Korea), Tae Hwa Jeon

Photoelectrochemical Production of H<sub>2</sub>O<sub>2</sub> as a Solar Chemical

*10:45 to 11:00*

**Hyo Eun Kim** (Energy Engineering, Ulsan National Institute of Science and Technology (UNIST), Ulsan, Korea), Youn Jeong Jang

Photoelectrochemical Nitrate Reduction to Ammonia on Ordered Silicon Nanowire Photocathodes

*11:00 to 11:15*

Coffee Break

*11:15 to 11:30*

**Yuankai Li** (School of Chemical Engineering, Sungkyunkwan University (SKKU), Suwon, Korea), Jung Kyu Kim

Facile Surface Treatment in WO<sub>3</sub> for High Enhancement of Photoelectrochemical Water Oxidation

*11:30 to 11:45*

**Hyunwoong Park** (School of Energy Engineering, Kyungpook National University, Daegu, Korea), Tae Hwa Jeon, Wonyong Choi

Unrecognized Role of Ag(I) Ions Working as a Hole Transfer Mediator in Photoelectrochemical Water Oxidation on WO<sub>3</sub> Film

*11:45 to 12:00*

**Hafiz Ghulam Abbas** (Energy Science and Engineering, Daegu Gyeongbuk Institute of Science and Technology (DGIST), Daegu, Korea)

Arsenic Carbide Allotropes Prediction: An Efficient Platform for Hole-Conductions, Optical and Photoelectrocatalysis Applications

s24 Electrochemistry, Looking Back Looking Forward: Personal Perspectives

Room : R06 - 201 A + B (150)

Chairman : Taek Dong Chung; woonsup shin

*10:00 to 10:30 Keynote*

**Wolfgang Schuhmann** (Analytical Chemistry - Center for Electrochemical Sciences, Ruhr University Bochum, Bochum, Germany)

From solar energy conversion via biosensors and nanoelectrochemistry to electrocatalysis

*10:30 to 11:00 Keynote*

**Philip Bartlett** (Chemistry, University of Southampton, Southampton, United Kingdom)

Looking in the rearview mirror - a personal perspective

*11:00 to 11:15*

Coffee Break

*11:15 to 11:45 Keynote*

**Christopher Brett** (Department of Chemistry, CEMMPRE, University of Coimbra, Coimbra, Portugal)

## Reflections on Electrochemistry and ISE: from the Past to the Future

11:45 to 12:15 Keynote

**Juan M. Feliu** (Institute of Electrochemistry, University of Alicante, Alicante, Spain)

Memories of ISE

12:15 to 12:45 Keynote

**Plamen Atanassov** (Chemical & Biomolecular Engineering, University of California Irvine, Irvine, USA)

Looking through the Books of Papers: Traces of the Past that Chart the Future

s25 General Session

Room : R10 - 302 (80)

Chairman : Byung-Kwon Kim; Seong Jung Kwon

10:00 to 10:15

**Eunji Kwak** (Intelligent Energy and Industry, Chung-Ang University, Seoul, Korea), Jun-hyeong Kim

Different Thermal Runaway Pathways Depending on The Design of Lithium-ion Batteries

10:15 to 10:30

**Geunsu Bae** (School of Materials Science and Engineering, Gwangju Institute of Science and Technology, Gwangju, Korea), Haesol Kim, Chang Hyuck Choi

A Comprehensive Method for Quantification of Active Site Density and Turnover Frequency: from Single-Atom Metal to Nanoparticle Electrocatalysts

10:30 to 10:45

**Haesol Kim** (School of Materials Science and Engineering, Gwangju Institute of Science and Technology, Gwangju, Korea), Chang Hyuck Choi

Identification of single-atom Ni site active towards electrochemical CO<sub>2</sub> conversion to CO

10:45 to 11:00

**Sang Gu Ji** (Materials Science and Engineering, Gwangju Institute of Science and Technology, Gwangju, Korea), Chang Hyuck Choi

Significance of evaluating intrinsic activity of electrocatalysts

11:00 to 11:15

Coffee Break

11:15 to 11:30

**Jun-Hyeong Kim** (Intelligent Energy and Industry, Chung-Ang University, Seoul, Korea), Eunji Kwak, Ki-Yong Oh

Degradation assessment and prognosis for lithium-ion batteries through a multi-states Markov chain model

11:30 to 11:45

**Jung-Eun Cha** (Fuel Cell Research & Demonstration Center, , Buan, Korea), Young-Woo Choi, Won Bae Kim, Min Ho Seo

On determination of the ion transport numbers for cation exchange membranes by using single-junction electrodes

11:45 to 12:00

**Gerardo Salinas** (Bordeaux INP, University of Bordeaux, Pessac, France), Alice L. Dauphin, Ileana-Alexandra Pavel, Camille Colin, Silvia Voci, Elena Villani, Adeline Perro, Stéphane Arbault, Laurent Bouffier, Neso Sojic, Alexander Kuhn

Self-propelled electrochemical light emitting systems: from chemo-electronic to chemiluminescent swimmers

12:00 to 12:15

**Kim Degn Jensen** (Department of chemistry, University of Copenhagen, kbh Ø, Denmark), Kim Degn Jensen, Alexander Bagger, Amanda Schramm Petersen, Hao Wan, Jan Rossmeisl, María Escudero-Escribano

Electrolyte Influence on Single Crystal Voltammograms

12:15 to 12:30

**Yi-Cheng Shih** (Institute of Biomedical engineering, National YangMingChiaoTung, HsinChu, Taiwan), Lung Yi Chen, Yi-Pei Li, Tzu-En Lin

The Study of the Antioxidants in Red Wine by CuO Nanoparticles Modified Electrode

12:30 to 12:45

**Chih-Ning Tsai** (Institute of Biomedical Engineering, National Yang Ming Chiao Tung University, Hsinchu, Taiwan), Lung-Yi Chen, Yi-Pei Li, Tzu-En Lin

Quality prediction of red wine using machine learning algorithms and cyclic voltammetry

Thursday 2 September 2021 - PM

s02 Functional Surfaces and Electrochemically Active Materials: Preparation and Applications

Room : R05 - Samda B (100)

Chairman : Wojciech Nogala; Lidija Rafailovic

16:00 to 16:15

**Reitumetse Nkhahle** (Chemistry, Rhodes University, Makhanda, South Africa), Tebello Nyokong  
A Comparative Study on Symmetrical and Asymmetrical Cardanol-based Cobalt Phthalocyanines

16:15 to 16:30

**Wojciech Nogala** (Institute of Physical Chemistry, Polish Academy of Sciences, Warsaw, Poland), Anita Cymann-Sachajdak, Joanna Celej, Zuzanna Zarach, Jakub Kalecki, Bhavana Gupta, Steven Linfield, Piyush S. Sharma, Monika Wilamowska-Zawlocka, Wojciech Nogala  
Heterogeneous Activity Distribution on ITO and FTO Electrodes

16:30 to 16:45

**Krzysztof Noworyta** (Research Group of Functional Polymers, Institute of Physical Chemistry Polish Academy of Sciences, Warsaw, Poland), Jyoti Yadav, Renata Rybakiewicz-Sekita, Evgenia Dmitrieva, Teresa Zolek, Dorota Maciejewska, Włodzimierz Kutner  
Mechanistic Aspects of the Electrochemical Polymerization of the Selected Carbazole-based Monomers

16:45 to 17:00

**Lien Pacquets** (faculty of applied engineering, university of Antwerp, Wilrijk, Belgium), Daniel Choukroun, Nick Daems, Sara Bals, Tom Breugelmans  
Tuning Cu@Ag core-shell nanoparticles for the conversion of CO<sub>2</sub> towards CO

17:00 to 17:15

**Suganya Pitchai Muthusamy** (Applied science, Dundalk Institute of Technology, Dundalk, Ireland), Indherjith Sakthinathan, Tadaharu Ueda  
Electrochemical studies of Dawson type Polyoxometalate [(n-C<sub>3</sub>H<sub>7</sub>)<sub>4</sub>N]<sub>2</sub>S<sub>2</sub>W<sub>18</sub>O<sub>62</sub> /Ag-nanoparticle hybrid thin films formed by layer-by-layer deposition

17:15 to 17:30

**Jonathan Quinson** (Chemistry, University of Copenhagen, Copenhagen, Denmark), Francesco Bizzotto, Masanori Inaba, Maria Escudero-Escribano, Matthias Arenz  
Surfactant-free syntheses for improved electrocatalysts studies and design

17:30 to 17:45

Coffee Break

17:45 to 18:00

**Lidija Rafailovic** (Functional Interfaces and Surfaces, CEST, Center of Electrochemical Surface Technology, Wiener Neustadt, Austria), Jana Bischoff, Larisa Balc, Carmen Vladu, Huaping Sheng, Christoph Gammer  
Electrospun PAN nanofibers on Al foil surface functionalized by Ag nanodendrites

18:00 to 18:15

**Kubra Saka** (Department of Electrical and Electronics Engineering, Hacettepe University, Ankara, Turkey), Tolga Akca, Kadir Pekmez, Dincer Gokcen  
Electroless Deposition of Copper on PLA-based Filament

18:15 to 18:30

**Indherjith Sakthinathan** (Applied Science, Dundalk Institute of Technology, Dundalk, Ireland), Timothy McCormac

Layer by Layer construction of Nano architecture by Polyoxometalates and Conducting Polymer:  
Enhanced electrochemical Hydrogen Evolution Reaction

18:30 to 18:45

**Sweetie Ann Samuel** (Chemistry, Carl von Ossietzky University of Oldenburg, Lower Saxony, Germany),  
Gunther Wittstock

Diazonium based bilayer matrix for size selective recognition of nanoparticles

s07 Next-generation Batteries: Novel chemistry and design

Room : R01 - Tamna A (1500)

Chairman : Ezequiel Leiva

16:00 to 16:15

**Bernhard Gollas** (Institute for Chemistry and Technology of Materials, Graz University of Technology,  
Graz, Austria), Sandra Steiner, Philipp Materna, David Moser, Gerald Kothleitner, Martin Sterrer, Attila  
Csik

Electrochemical Behavior of Aluminium Anodes in Secondary Batteries with a Chloroaluminate Deep  
Eutectic Electrolyte

16:15 to 16:30

**Dirk Henkensmeier** (Center for Hydrogen and Fuel Cell Research, Korea Institute of Science and  
Technology (KIST), Seoul, Korea), Yongchai Kwon, Kobra Azizi, Hans Aage Hjuler

PBI based Membranes for Redox Flow Batteries

16:30 to 16:45

**Sunky Park** (Solids Chemistry and Materials Science, University of Picardy Jules Verne, Amiens,  
France), Jean-Noël Chotard, Dany Carlier, Iona Moog, Mathieu Duttine, Antonella Iadecola, François  
Fauth, Laurence Croguennec, Christian Masquelier

Sodium Insertion/Extraction Mechanism and Evolution of Local Environments in Fe/V-mixed NASICON  
Positive Electrode Materials for Na-ion Batteries

16:45 to 17:00

**Minjeong Shin** (School of Chemistry and Energy, Sungshin Women's University, Seoul, Korea), Andrew  
Gewirth

High Performance All-Solid-State Li-S Battery Enabled by Interfacial Modification

17:00 to 17:15

**Natalia Voronina** (Department of NanoTechnology and Advanced Materials Engineer, Sejong University,  
Seoul, Korea), Seung-Taek Myung

A New Approach to Stable Cationic and Anionic Redox Activity in O3-Layered Cathode for Sodium-Ion  
Batteries

17:15 to 17:30

**Cedrik Wiberg** (Department of Mechanical and Materials Engineering, University of Turku, Turku,  
Finland), Mahdi Moghaddam, Silver Sepp, Pekka Peljo

Experimental Studies of Solid Boosters in Aqueous Organic Redox Flow Batteries

17:30 to 17:45

Coffee Break

17:45 to 18:00

**Ruijie Ye** (Institute of Energy and Climate Research (IEK-1), Forschungszentrum Juelich GmbH, Juelich,  
Germany), Martin Ihrig, Martin Finsterbusch, Egbert Figgemeier

Sustainable Fabrication of Garnet-Based Solid-State Lithium Battery

18:00 to 18:15

**Jun Ho Yu** (Nanotechnology and Advanced Materials Engineering, Sejong University, Seoul, Korea),  
Chang-Heum Jo, Hee-Jae Kim, Seung-Taek Myung  
Promising Sodium Storage of Bismuthinite by Conversion Chemistry

18:15 to 18:30

**Xaver Lamprecht** (Physics, Chair of Energy Conversion and Storage, Technische Universitaet Muenchen (TUM), Munich, Garching, Germany), Rohit Ranganathan Gaddam, Aliaksandr Bandarenka  
Mechanistic Insights into Ultra-Fast Charging Aqueous Sodium Ion Batteries Based on Electrodeposited Prussian Blue Analogues

s09 Understanding and application of fast storage processes (Supercapacitors & high power systems)  
Room : R07 - 202 A + B (150)  
Chairman : Sonia Dsoke; Sung-Kon Kim

16:00 to 16:30 Keynote

**Yury Gogotsi** (Department of Materials Science and Engineering, Drexel University, Philadelphia, USA),  
Tyler S. Mathis, Xuehang Wang  
Charge storage in two-dimensional transition metal carbides (MXenes)

16:30 to 16:45 Invited

**Thierry Brousse** (Institut des Materiaux Jean Rouxel (IMN), Universite de Nantes, CNRS, Nantes, France), Etienne Le Calvez, Kevin Robert, Marielle Huve, Maya Marinova, Pascal Roussel, Laurent Fugere, Dimitri Yarekha, Olivier Crosnier, Camille Douard, Christophe Lethien  
Investigating the effects of implanted ions on the electrochemical behavior of vanadium nitride pseudocapacitive thin film electrode

16:45 to 17:00

**Wataru Sugimoto** (Research Initiative for Supra-Materials (RISM), Shinshu University, Ueda, Japan),  
Kana Ito, Sho Hideshima  
Charge Storage Mechanism of MnO<sub>2</sub> in Neutral Electrolyte – A rotating disk electrode study

17:00 to 17:15

**Mário Almeida** (Departamento de Engenharia Química - DEQ, Instituto Superior Técnico, Universidade de Lisboa, Lisboa, , Lisboa, Portugal), A. A. Más, T. M. Silva, M.F. Montemor  
From manganese oxide to manganese sulphide: synthesis and its effect on electrochemical energy storage performance

17:15 to 17:30

**Julio Cesar Espinosa-angeles** (Institut des Materiaux Jean Rouxel, University of Nantes, Nantes, France), Olivier Crosnier, Eric Quarez, Douard Camille, Thierry Brousse  
Electrochemical study of tungsten bronzes AxWO<sub>3</sub> (A = Li, Na, and K) as electrode materials for fast energy storage devices

17:30 to 17:45

Coffee Break

17:45 to 18:00

**Jianren Wang** (LCPME, University of Lorraine-CNRS, Nancy, France), Neus Vilà, Alain Walcarius  
Redox-Active Vertically-Aligned Mesoporous Silica Thin Films as Transparent Surfaces for Energy Storage Applications

18:00 to 18:15

**Eshagh Noormohammadi** (Department of Chemistry “Giacomo Ciamician”, University of Bologna, Bologna, Italy), Eshagh Noormohammadi, Federico Poli, Sohrab Sanjabi, Francesca Soavi  
Electrodeposition of Cobalt-Copper mixed oxides decorated with metal ion doped conductive polymers for supercapacitor electrodes

18:15 to 18:30

**Catarina Alves** (Chemical Engineering Department, Instituto Superior Técnico, Universidade de Lisboa, Lisboa, Portugal), Jorge Correia, Fátima Montemor

Synthesis of manganese oxide birnessite: the effect of cations on the pseudocapacitive behaviour of  $\gamma$ -MnO<sub>2</sub>

s10 Electrochemical systems for energy conversion: Fuel Cells and Electrolyzers

Room : R03 - Halla B (230)

16:00 to 16:15

**Dominik Wielend** (Institute of Physical Chemistry, Johannes Kepler University Linz, Linz, Austria), Hannah Rabl, Serpil Tekoglu, Hathaichanok Seelajaroen, Helmut Neugebauer, Nikolas Heitzmann, Dogukan Hazar Apaydin, Markus Clark Scharber, Niyazi Serdar Sariciftci

The study of oxygen reduction reactions with carbon based electrode materials: problems and solutions using rotating electrodes

16:15 to 16:30

**Lucia Mazzapioda** (Chemistry, Sapienza, University of Rome, Rome, Italy), Gabriele Moscatelli, Carmelo Lo Vecchio, Vincenzo Baglio, Maria Assunta Navarra

Enhancing Oxygen Reduction Reaction Catalytic Activity using Non-stoichiometric Metal Oxide Particles as Cathode Component in PEM Fuel Cells

16:30 to 16:45

**Hongxin Ge** (PERSEE, MINES ParisTech, PSL University, Sophia Antipolis, France), Sandrine Berthon-Fabry, Frédéric Jaouen, Frédéric Marillard, Kavita Kumar, Nicolas Bibent, Laetitia Dubau

Fe-N-Carbon Aerogel Catalysts with Enhanced Mass Transfer Property in Proton Exchange Membrane Fuel Cells

16:45 to 17:00

**Armin Hrnjic** (Department of Materials Chemistry D10, Hajdrihova 19, Ljubljana, Slovenia), Armin Hrnjic, Ana-Rebeka Kamsek, Andraz Pavlisic, Francisco Ruiz-Zapeda, Matija Gatalo, Leonard Moriau, Primoz Jovanovic, Nejc Hodnik

Atomic-scale Structure-Stability Characterization of Pt-Co/C Nanocatalyst for Oxygen Reduction Reaction Using Modified Floating Electrode Identical Location Transmission Electron Microscope Methodology

17:00 to 17:15

**Vincenzo Baglio** (CNR, Istituto di Tecnologie Avanzate per l'Energia (ITAE), Messina, Italy), Carmelo Lo Vecchio, Antonino Salvatore Arico, Henry Romero, Mikaela Dicome, Barr Zulevi, Alexey Serov

Performance and Durability of Commercial Platinum Group Metal-Free Cathodic Electrocatalysts in Direct Methanol Fuel Cells

17:15 to 17:30

**Marco Mazzucato** (Chemical Science, University of Padova, Padova, Italy), Tomasz Kosmala, Gaetano Granozzi, Christian Durante

Synergistic Effect of Sn(Phen)Cl<sub>2</sub> and Fe(Phen)<sub>3</sub>Cl<sub>2</sub> Precursors on Fe-N<sub>x</sub> Site Formation and Activity in Fe-N-C Catalyst for ORR

17:30 to 17:45

Coffee Break

17:45 to 18:00

**Sabita Bhandari** (Electrochemical Reaction Engineering, Aachener Verfahrenstechnik, Aachen, Germany), Dongyoon Shin, Marc F. Tesch, Shannon A. Bonke, Frederic Jaouen, Sonia Chabbra, Christoph Pratsch, Alexander Schnegg, Anna K. Mechler

The Role of Platinum Species in the Stabilization of FeNC catalysts for PEM Fuel Cells

18:00 to 18:15

**Francesc Valls Mascaró** (Chemistry, Leiden University, Leiden, Netherlands), Jon Bjarke Valbaek Mygind, Marc T. M. Koper, Marcel J. Rost  
Decreasing Catalyst Degradation: Platinum Stability for Fuel Cell Operation

18:30 to 18:45

**Olga A. Krysiak** (Analytical Chemistry, Centre for Electrochemical Sciences, Ruhr University Bochum, Bochum, Germany), Tobias Loeffler, Simon Schumacher, Alan Savan, Corina Andronescu, Alfred Ludwig, Wolfgang Schuhmann  
High-throughput electrochemical characterization of thin-film complex solid solutions electrocatalysts

s15 Anodization and Its Applications in Environmental and Energy Research  
Room : R04 - Samda A (100)  
Chairman : Junghoon Lee

16:00 to 16:30 Keynote

**Patrik Schmuki** (Mat Sci, University of Erlangen-Nuremberg, Erlangen, Germany)  
Formation of TiO<sub>2</sub> Nanotubes and Other Self-Organized Oxide Structures

16:30 to 16:45 Invited

**Jan Macak** (Center of Materials and Nanotechnologies, University of Pardubice, Pardubice, Czech Republic), Hanna Sopha, Raul Zazpe  
Anodic TiO<sub>2</sub> Nanotube Layers: Efficient Photocatalyst and Catalyst Support

16:45 to 17:00

**Ivana Zrinski** (Institute of Chemical Technology of Inorganic Materials, Johannes Kepler University Linz, 4040, Austria), Jan Philipp Kollender, Cezarina Cela Mardare, Achim Walter Hassel, Andrei Ionut Mardare  
Compositional dependent intrinsic defect engineered anodic memristors in wide spread hafnium-tantalum combinatorial library

17:00 to 17:15

**Song-Zhu Kure-Chu** (Materials Function and Design, Nagoya Institute of Technology, Nagoya, Japan), Hikaru Kaai, Xuwen Chen, Yukihsa Moriguchi, Takashi Matsubara, Takehiko Hihara, Hitoshi Yashiro  
Fabrication and Electrochemical Characterization of TiO<sub>2</sub>-TiN/MoO<sub>x</sub> Composite Films on Ti as High-Performance LIB Anodes

17:15 to 17:30

**Hanna Sopha** (Faculty of Chemical Technology, University of Pardubice, Pardubice, Czech Republic), Jan M. Macak  
New Protocols for the Synthesis of Anodic TiO<sub>2</sub> Nanotube Layers

17:30 to 17:45

Coffee Break

17:45 to 18:00

**Nnamdi Nwahara** (Chemistry, Institute for Nanotechnology Innovation, Rhodes University, Makhanda, South Africa), Omotayo Adeniyi, Philani Mashazi, Tebello Nyokong  
Ternary Heterojunction Assisted Photoelectrocatalytic Degradation of Orange G using Visible Light Responsive TiO<sub>2</sub> - Graphene Oxide Nanosheets - Zn Phthalocyanine

18:00 to 18:15 Invited

**Monica Santamaria** (Dipartimento di Ingegneria, Università degli Studi di Palermo, Palermo, Italy), Andrea Zaffora, Francesco Di Franco, Ilia Valov, Hiroki Habazaki

Role of electrochemical doping on the solid state properties of anodic films on valve metals and valve metal alloys

18:15 to 18:30

**Ana Sofia Gasco Owens** (Chimie et Physique des Solides et des Surfaces (CP2S), Université de Lorraine, CNRS, IJL, Nancy, France), Delphine Veys-Renaux, Emmanuel Rocca  
Cathodic Behavior of Anodic Aluminum Oxide in Sulfuric Acid

s17 Molecular Electroanalysis

Room : R13 - 402 A+B (100)

Chairman : Luigi Falciola

16:00 to 16:15 Invited

**Cyrille Costentin** (Departement de Chimie Moleculaire, Université de Paris et Université Grenoble Alpes, Grenoble, France)

Deciphering Mechanisms of Molecular Catalysis of Electrochemical Reactions and Electrophotocatalysis using Cyclic Voltammetry.

16:00 to 16:30 Keynote

**Alain Walcarius** (LCPME, CNRS - Lorraine University, Villers-les-Nancy, France), Tauqir Nasir, Cheryl Karman, Deomila Basnig, Himanshu Maheshwari, Grégoire Herzog, Neus Vilà, Christelle Despas  
Silica nanochannel membranes for electroanalysis

16:30 to 16:45 Invited

**Eric Bakker** (Department of Inorganic and Analytical Chemistry, University of Geneva, Geneva, Switzerland), Canwei Mao, Kye Robinson, Yoshiki Soda

Thin Membrane Ion Transfer Voltammetry to Probe Ion Interactions

16:45 to 17:00 Invited

**Chiara Zanardi** (Chemical and Geological Sciences, University of Modena and Reggio Emilia, Modena, Italy), Barbara Zanfognini, Laura Pigani, Alessandro Kovtun, Andrea Candini, Andrea Liscio, Laura Favaretto, Manuela Melucci, Vincenzo Palermo, Chiara Zanardi

Role of oxidized functional groups in the electrocatalytic properties of carbon-based nanomaterials

17:00 to 17:15

**Abhishek Kumar** (Chemistry, Institute of Molecular Chemistry, Burgundy University, Dijon, France), Marcel Bouvet, Mauro Bertotti, Rita Meunier-Prest

Interplay of mass transport and surface porosity in nanoporous gold in EC1 reactions: Case of ascorbic acid electrooxidation

17:15 to 17:30

**Sara Grecchi** (Chemistry, Università degli Studi di Milano, Milano, Italy), Serena Arnaboldi, Elisa Emanuele, Tiziana Benincori, Roberto Cirilli, Heinrich Lang, Lorenzo Guazzelli, Francesca Fontana, Simona Rizzo, Patrizia R. Mussini

Wide-scope Enantiodiscrimination at Chiral Electrochemical Interphases: Highlighting structure effects on Probe-Selector Interactions

17:30 to 17:45

Coffee Break

17:45 to 18:00

**Alan Liska** (Department of Molecular Electrochemistry and Catalysis, J. Heyrovsky Institute of Physical Chemistry of the CAS, v.v, Praha, Czech Republic), Philipp Frühwirt, Michael Haas, Jirí Ludvík, Georg Gescheidt-Demner

Voltammetric Behaviour of Polyacylgermanes and Related Compounds

18:00 to 18:15

**Vincenzo Scarano** (Dept. of Basic and Applied Sciences for Engineering, Sapienza University of Rome, Rome, Italy), Francesca D'Anna, Daniele Rocco, Marta Feroci, Salvatore Marullo, Leonardo Mattiello  
Anodic Dimerization and Solvatochromic behavior of Donor-Acceptor Oligothiophenes

18:15 to 18:30

**Monika Charazka** (Institute of Physical Chemistry, Polish Academy of Sciences, Warsaw, Poland), Kamila Lepicka, Jakub Kalecki, Wojciech Lisowski, Piyush Sindhu Sharma  
Ni(OH)<sub>2</sub> Type Nanoparticles Derived from Ni Salen Polymers: Is There Any Effect of the Polymeric Matrix Structure on the Electrocatalytic Performance?

s18 Bringing Biomolecules and Electrodes together: Understanding Electron Transport in Life  
Room : R11 - 303 (100)

16:00 to 16:30 Keynote

**David Cahen** (Faculty of Chemistry, Weizmann Institute of Science, Rehovot, Israel)  
Proteins as Bio-Electronic Materials

16:30 to 16:45 Invited

**Julea Butt** (School of Chemistry, University of East Anglia, Norwich, United Kingdom)  
Biomolecular Wires from Electric Bacteria

16:45 to 17:00

**Zdenek Futera** (Faculty of Science, University of South Bohemia, Ceske Budejovice, Czech Republic)  
Electric Field Effects on Adsorption Structure of Biomolecules on Gold Electrodes

17:00 to 17:30 Keynote

**Richard Nichols** (Department of Chemistry, University of Liverpool, Liverpool, United Kingdom), Andrea Vezzoli, Edmund Leary, Nicola Kay, Samantha Catarelli, Richard Brooke, Nicolo Ferri, Simon Higgins, Walther Schwarzacher, Jens Ulstrup  
Charge Transfer at the Single Molecule Level with Metal and Semiconductor Electrodes

17:30 to 17:45

Coffee Break

17:45 to 18:15 Keynote

**Jens Ulstrup** (Department of Chemistry, Technical University of Denmark, Kgs. Lyngby, Denmark), Christian Engelbrekt, Dmitrii Glukhov, Yueqi Li, Renat R. Nazmutdinov, Shokirbek Shermukhamedov, Zixiao Wang, Xinxin Xiao, Jiawei Yan, Xiaomei Yan, Tamara Zinkicheva  
Single-entity complex molecular and biomolecular electrochemistry

18:15 to 18:30

**Inco Planje** (Department of Chemistry, King's College London, London, United Kingdom), Stephanie Board, Jhanelle White, Tracy Ha, Ismael Díez-Pérez  
Copper-copper electronic communication within a bioengineered azurin dimer mutant

18:30 to 18:45 Invited

**Christian Nijhuis** (Molecules and Materials, University of Twente, Enschede, Netherlands)  
Multi-Functional Molecular Switches in Solid-State Tunnel Junctions

s19 Physicochemical and Mechanistic Aspects of Organic Electrosynthesis

Room : R12 - 401 (100)

Chairman : Hyun Ahn

16:00 to 16:15

**Anna Wuttig** (Chemistry, University of California, Berkeley, Berkeley, USA)

Controlled Single Electron Transfer via Metal-Ligand Cooperativity Drives Divergent Nickel Electro catalyzed Radical Pathways

16:15 to 16:30

**Rajkumar Devasenathipathy** (chemistry, Xiamen University, Xiamen, China)

Plasmonic Photoelectrochemical Reactions of Para-Aminobenzoic acid on Nanostructured Gold Electrodes

16:30 to 16:45

**Tána Sebechlebská** (Department of Physical and Theoretical Chemistry, Faculty of Natural Sciences Comenius University in Bratislav, Bratislava, Slovakia), Magdalena Hromadova, Viliam Kolivoska  
Electrochemical Properties of Composite Electrodes – Experiment vs Computational Modeling

16:45 to 17:00

**Ann Cathrin Brix** (Analytical Chemistry - Center for Electrochemical Sciences, Ruhr University Bochum, Bochum, Germany), Steffen Cychy, Martin Muhler, Wolfgang Schuhmann

Evaluation of non-noble metal-based electrocatalysts for biomass waste stream valorisation by means of in-situ ATR-FTIR spectro-electrochemistry

s20 Recent Development in Spectroscopy, Microscopy and Theory for Atomic/Molecular Level Understanding of Electrochemical Interfaces

Room : R08 - 203 (100)

Chairman : Ivan T. Lucas

16:00 to 16:15

**Shangqian Zhu** (Department of Chemical and Biological Engineering, The Hong Kong University of Science and Technology, Hong Kong, China)

A Surface-Enhanced Infrared Absorption Spectroscopic Study of pH-Dependent H and H<sub>2</sub>O Binding Energies on Pt surfaces

16:15 to 16:30

**Marcel Rost** (Huygens-Kamerlingh Onnes Laboratory, Leiden Institute of Physics - Leiden University, Leiden, Netherlands), Leon Jacobse, Francesc Valls Mascaro, Jon Bjarke Valbaek Mygind, Marc Koper  
Pt(111) Oxidation: Spoke Wheels or Spook Wheels

16:30 to 16:45

**Helmut Baltruschat** (Institute of Physical and Theoretical Chemistry, University of Bonn, Bonn, Germany), Inhee Park

Atomic-scale friction study: Underpotential deposition (UPD) of silver on I-modified Au(111) in aprotic electrolyte

16:45 to 17:00

**Louis Godeffroy** (ITODYS, Université de Paris, Paris, France), Louis Godeffroy, Paolo Ciocci, Anaclet Nsabimana, Mathias Miranda Vieira, Catherine Combellas, Jean-Marc Noël, Jean-François Lemineur, Frédéric Kanoufi

Deciphering competitive routes for nanoparticle electrodeposition by operando optical monitoring

17:00 to 17:15

**Tanja Geng** (Institute of Electrochemistry, University of Ulm, Ulm, Germany), Sven Zeller, Maximilian U. Cebelin, Ludwig A. Kibler, Timo Jacob

Electrochemical Deposition of Cu onto Au(111) from Deep Eutectic Solvents

17:15 to 17:30

**Christian Durante** (Chemical Sciences Department, Università degli Studi di Padova, Padova, Italy), Alessandro Facchin

Inverted activity for oxygen reduction reaction between Pt and Fe single-site catalyst: an EC-STM investigation on metal octaethylporphyrins

17:30 to 17:45

Coffee Break

17:45 to 18:00

**Katsuyoshi Ikeda** (Department of Physical Science and Engineering, Nagoya Institute of Technology, Nagoya, Japan)

In-Situ SERS Observation of Low-frequency Vibrations of Plasmon-Driven Chemical Transformations

18:00 to 18:15

**William Cheuquepan** (Analytical Chemistry, University of Burgos, Burgos, Spain), Martin Perez-Estebanez, Sheila Hernandez, Aranzazu Heras, Alvaro Colina

Understanding the interface of Cu and Ag surface in the Electrochemical Surface Oxidation Enhanced Raman Scattering

18:15 to 18:30

**Martin Perez-Estebanez** (Analytical chemistry, Universidad de Burgos, Burgos, Spain), William Cheuquepan, Sheila Hernandez, Jose Vicente Cuevas, Aranzazu Heras, Alvaro Colina

Raman Spectroelectrochemistry Study of Drugs: An EC-SOERS Approach.

18:30 to 18:45

**Johannes M. Hermann** (Institute of Electrochemistry, Ulm University, Ulm, Germany), Mohamed M. Elnagar, Timo Jacob, Ludwig A. Kibler

Application of Cathodically Facetted Gold Electrodes in SER-Spectroscopy

s21 Electrochemical Solar Energy Conversion and Storage: from Fundamentals to Applications

Room : R09 - 301 (80)

Chairman : David J. Fermin

16:00 to 16:30 Keynote

**Sophia Haussener** (Mechanical Engineering, EPFL, Lausanne, Switzerland)

Modeling, Experimentation and Design for Photo-Electrochemical Devices and Systems

16:30 to 16:45 Invited

**Anna Hankin** (Chemical Engineering, Imperial College London, London, United Kingdom), Brian Tam, Andreas Kafizas, John Alexander, Flurin Eisner, Jenny Nelson

Combined Model of Light and Dark Currents at Semiconductor | Liquid Interfaces

16:45 to 17:00 Invited

**Devendra Tiwari** (Department of Mathematics, Physics & Electrical Engineering, Northumbria University, Newcastle upon Tyne, United Kingdom), Xin Sun, David Fermin

Solution-processed GaFeO<sub>3</sub> photoanodes and BiFeO<sub>3</sub> photocathodes for solar water-splitting

17:00 to 17:15 Invited

**Salvador Eslava** (Chemical Engineering, Imperial College London, London, United Kingdom), Miriam Regue, Ibbi Y. Ahmet, Prince Saurabh Bassi, Andrew L. Johnson, Sebastian Fiechter, Roel van de Krol, Fatwa F. Abdi

Zn doping of Fe<sub>2</sub>TiO<sub>5</sub> Pseudobrookite-Based Photoanodes for improved charge separation and injection efficiencies

17:15 to 17:30

**Shiva Mohajernia** (Department of Materials Science, University of erlangen-nuremberg, Erlangen, Germany), Sina Hejazi, Patrik Schmuki

Single-Atom Photocatalysis: Surface-Defect Engineered TiO<sub>2</sub> Anatase as a Tunable Platform for Hosting Co-catalysts atoms

17:30 to 17:45

Coffee Break

17:45 to 18:00

**Mark Symes** (School of Chemistry, University of Glasgow, Glasgow, United Kingdom)  
Decoupled Electrolysis for Solar Energy Conversion

s24 Electrochemistry, Looking Back Looking Forward: Personal Perspectives

Room : R06 - 201 A + B (150)

Chairman : Taek Dong Chung; woonsup shin

16:00 to 16:30 Keynote

**Zhong-Qun Tian** (Department of Chemistry, Xiamen University, Xiamen, China), Zhong-Qun Tian, Ren Hu, Jun Cheng

My Path with the ISE and Outlook of Electrochemistry

16:30 to 17:00 Keynote

**Tetsuya Osaka** (Research Organization for Nano & Life Innovation, Waseda University, Shinjuku-ku, Japan), Norihiro Togasaki

Prospective View of Battery Energy Systems for Carbon Neutral- Role of Electrochemists -

17:00 to 17:30 Keynote

**Chongmok Lee** (Department of Chemistry & Nanoscience, Ewha Womans University, Seoul, Korea)  
'Electrochemistry That I Know' plus 'Electrochemistry and I'

17:30 to 17:45

Coffee Break

17:45 to 18:15 Keynote

**Woonsup Shin** (Chemistry, Sogang University, Seoul, Korea)

Electrochemistry, My Favorite to Understand Science and Technolgy

18:15 to 18:45 Keynote

**Hasuck Kim** (Department of Energy Science and Engineering, DGIST, Daegu, Korea)

Electrochemistry and ISE-My memories

s25 General Session

Room : R10 - 302 (80)

Chairman : Kyuwon Kim; Jun Hui Park

16:00 to 16:15

**Julie Indiana Phillips** (Molecular and Life sciences, Curtin University, Bentley, Australia), Debbie Silvester, Shinya Azuma, Tadaharu Ueda

Electrochemical Behaviour of a Polyoxometalate in a Range of Ionic Liquids

16:15 to 16:30

**Katharina Mairhofer** (Institute of Chemical Technologies and Analytics, Vienna University of Technology, Vienna, Austria)

A New Design for an Inverted Rotating Disk Electrode Set-Up using Magnetic Coupling

16:30 to 16:45

**Sarah Linden** (Molecular and Life Sciences, Curtin University, Perth, Australia), Damien Arrigan, Alexandra Yeung

## Student Engagement During an Experiment on the Bioelectrochemistry of Cytochrome c

16:45 to 17:00

**Supriya Bhaskaran** (Institute of process engineering, Otto-von-Guericke-Universität Magdeburg, Magdeburg, Germany), Nicole Vorhauer-Huget, Vikranth Kumar Surasani, Evangelos Tsotsas, Tanja Vidakovic-Koch

Study of the Invasion Patterns in Anodic PTL of Water Electrolyser using Lattice Boltzmann Simulations

17:00 to 17:15

**Giulia Marcandalli** (Leiden Institute of Chemistry, Leiden University, Leiden, Netherlands), Mariana Monteiro, Marc Koper

Electrolyte Buffering species as Oxygen Donor in Electrooxidation Reactions

17:15 to 17:30

**Fangchen Zhen** (Department of Chemistry, University of Rennes, Rennes, France), Corinne Lagrost, Ludovic Paquin, Philippe Hapiot

Electrochemistry Behavior and Electron Transfer Kinetics of Redox Couples (Ferrocene, Ferrocyanide and Quinones) in A Deep Eutectic Solvent

17:30 to 17:45

Coffee Break

17:45 to 18:00

**Aleksandr Bashkatov** (Institute of Fluid Dynamics, Helmholtz-Zentrum Dresden-Rossendorf (HZDR), Dresden, Germany), Syed Sahil Hossain, Xuegeng Yang, Gerd Mutschke, Kerstin Eckert

Dynamics of H<sub>2</sub> Bubbles Growing at Microelectrodes

18:00 to 18:15

**Liam Carroll** (School of Physical and Chemical Sciences, University of Canterbury, Christchurch, New Zealand), Caixia Hou, Rodrigo Martinez-Gazoni, Roger Reeves, Martin Allen, Alison Downard

Investigating the Electronic Effects of Surface Modifications On  $\alpha$ -Gallium Oxide Using Synchrotron XPS and Schottky Diode Fabrication

18:15 to 18:30

**Elodie Rousset** (School of Molecular Sciences, University of Western Australia, Perth, Australia), Matteo Piccardo, Robert W. Gable, Massimiliano Massi, Lorenzo Sorace, Alessandro Soncini, Colette Boskovic

Probing Ligand to Metal Charge Transfers in Europium Complexes with Redox-active Ligands

18:30 to 18:45

**Yan B. Vogel** (School of Molecular and Life Sciences, Curtin University, Bentley, Australia), Simone Ciampi

Stationary Bubbles as Redox-Active Entities

Friday 3 September 2021 - AM

p1 Plenary

Room : R01 - Tamna A (1500)

09:00 to 09:50

**Katherine Ayers** (Technology, Nel Hydrogen US, Wallingford, USA)

Development of Large Scale Electrolysis for Energy Applications

s07 Next-generation Batteries: Novel chemistry and design

Room : R01 - Tamna A (1500)

Chairman : Guanchen Li

10:00 to 10:30 Keynote

**Hee-Tak Kim** (Chemical and Biomolecular Engineering, KAIST, Daejeon, Korea)

Dendrite-free Zn electrodeposition enabled by interfacial engineering for aqueous Zn-based batteries

10:30 to 10:45

**Yong Min Lee** (Energy Science and Engineering, Daegu Gyeongbuk Institute of Science and Technology, Daegu, Korea)

Digital Twin-Driven Structural and Electrochemical Modeling for All-Solid-State Batteries

10:45 to 11:00

**Mukarram Ali** (Next Generation Battery Research Center, Korea Electro-technology Research Institute (KERI), Changwon-si, Korea), Ji-Hyun Yu, You-Jin Lee, Hae-Young Choi, Gumjae Park, Yoon-Cheol Ha  
A Solvent-Exchange Approach Towards Scalable Liquid-Phase Synthesis of Sulfide Solid Electrolytes for All-Solid-State Batteries

11:00 to 11:15

Coffee Break

11:15 to 11:30

**Jeong Keun Ko** (Department of Nano-Technology and Advanced Materials Enginee, Sejong university, Seoul, Korea), Jae Hyeon Jo, Seung Taek Myung

Bi<sub>2</sub>Te<sub>3</sub> carbon composite anode material for Potassium-Ion Batteries

11:30 to 11:45

**Yongku Kang** (Advanced Materials Division, Korea Research Institute of Chemical Technology, Daejeon, Korea), Tien Manh Nguyen, Jungdon Suk

Ni-Rich Layered Li[Ni<sub>x</sub>Co<sub>y</sub>Mn<sub>1-x-y</sub>]O<sub>2</sub> as Cathode Materials for Poly(ethylene oxide)-Based Lithium Polymer Batteries

11:45 to 12:00

**Sojung Koo** (Department of Mechanical Engineering, Kyung Hee University, Yongin-si, Korea), Geon-Hee Yoon, Seung-Ho Yu, Duho Kim

Realizing Reversible Oxygen Redox in Mn-based Sodium Layered Oxides with Improved Cycle stability

12:00 to 12:15

**Tahir Sattar** (Next Generation Battery Research Center, Korea Electrotechnology Research Institute, Changwon, Korea), Bong Soo Jin, Hyun Soo Kim

Enhancing the electrochemical performance of Ni-rich LiNi<sub>0.91</sub>Co<sub>0.06</sub>Mn<sub>0.03</sub>O<sub>2</sub> cathode material by combining Ca doping and phosphate coating for lithium ion batteries

12:15 to 12:30

**Vikram Singh** (Chemistry, Korea Advanced Institute of Science and Technology, Daejeon, Korea), Jaewook Kim, Bora Kang, Joonhee Moon, Sujung Kim, Woo Yoon Kim, Hye Ryung Byon

Azo-integrated Covalent Organic Frameworks as Electrodes for Lithium-ion Batteries

s08 Challenges in Battery Technologies for Advanced and Next-generation Electric Vehicles and Grid Storage

Room : R02 - Halla A (270)

10:00 to 10:30 Keynote

**Sang Cheol Nam** (Cathode materials research group, Research Institute of Industrial Science and Technology, Incheon, Korea), Oh min Kwon, Ji Woong Moon

All-Solid-State Lithium Ion Batteries with Garnet based Oxide and Argyrodite Sulfide Solid Electrolytes

10:30 to 10:45 Invited

**Brian Kim** (R&D Center, CIS Co., Ltd., Daegu, Korea)

Introduction of Business and Technology Strategies of CIS in Battery Industry

10:45 to 11:00 Invited

**Duck ki Yoon** (Research Institute, JeongKwan Display Co.,Ltd, Asan-si, Korea)

Inorganic Solid Electrolyte Commercialization Technology and Research on Its Application

11:00 to 11:15

Coffee Break

11:15 to 11:30 Invited

**Jin-Hong Kim** (Battery Materials Research Center, Research Institute of Industrial Science & Technology (RIST), Pohang, Korea), Hong-Yeul Bae

Development of Ultra-thin Lithium Anode using Electrodeposition Process and Feasibility Study for Drone Application

11:30 to 11:45 Invited

**Chang Hoon Lee** (Battery R&D, LG Energy Solution, Seoul, Korea)

Developing and Designing Commercially Viable Li-S Batteries

11:45 to 12:00 Invited

**Jin Hyeok Choi** (New & Renewable Energy Laboratory, Korea Electric Power Corporation Research Institute, Daejeon, Korea), Jeongho Lim, Kwangyong Park, Sungeun Lee

Development of the battery technologies for grid storage in KEPCO

s09 Understanding and application of fast storage processes (Supercapacitors & high power systems)

Room : R07 - 202 A + B (150)

Chairman : Krzysztof Fic; Hyung-Seok Kim

10:00 to 10:30 Keynote

**Jinping Liu** (SCCELS, Wuhan University of Technology, Wuhan, China)

Integrated thin-film (quasi-)solid-state hybrid supercapacitors

10:30 to 10:45 Invited

**Andrea Lamberti** (Department of Applied Science and Technology, Politecnico di Torino, Turin, Italy)

Laser-Induced Graphene as Active Materials for Flexible and Stretchable Micro-Supercapacitors

10:45 to 11:00

**Federico Poli** (Department of Chemistry, Alma Mater Studiorum University of Bologna, Bologna, Italy), Carlo Santoro, Ncholu Manyala, Francesca Soavi

Green supercapacitors for MFCs

11:00 to 11:15

Coffee Break

11:15 to 11:30

**Thibaud Guillemain** (Institut des Matériaux de Nantes, CNRS, Nantes, France)

All-solid 3D micro-supercapacitors based on MnO<sub>2</sub> and ionogel

11:30 to 11:45

**Heather Andreas** (Department of Chemistry, Dalhousie University, Halifax, Canada), Felicia Licht, Mallory Davis, Adrienne Allison, Jamie Stark

Modeling the Effects of Charge Redistribution and Faradaic Reactions on Electrochemical Capacitor Figures of Merit

11:45 to 12:00

**Chi-Chang Hu** (Department of Chemical Engineering, National Tsing Hua University, Hsin-Chu city, Taiwan), Jui-Yu Pai, Cheng-Ta Hsieh, Hao-Yu Ku, Laurence Hardwick

Electrospun Polyimide-copolymer Separators Designed for Electrical Double-Layer Capacitors and Lithium-ion Cells

12:00 to 12:15

**Riccardo Neri** (Dept. of Electrical Electronic and Information Engineering, Alma Mater Studiorum University of Bologna, BOLOGNA, Italy), Francesca Soavi, Federico Poli, Giovanni Emanuele Spina, Michele Zannoni, Chiara Gualandi, Riccardo Neri, Davide Fabiani

Electrospun piezo-supercapacitors: a strategy to design autonomous device

12:15 to 12:30

**Dawid Kasprzak** (Institute of Chemistry and Technical Electrochemistry, Poznan University of Technology, Poznan, Poland), Maciej Galinski

Chitin and chitin-cellulose composite hydrogels prepared by IL-based process as the novel electrolytes for electrochemical capacitors

12:30 to 12:45

**Emmanuel Pameté Yambou** (Faculty of Chemical Technology, Poznan University of Technology, Poznan, Poland), Emmanuel Pameté Yambou, Zhuanpei Wang, François Béguin

An all solid-state electrical double-layer capacitor operating down to -40 °C with the help of an ionogel electrolyte and a hierarchical micro-mesoporous carbon

s10 Electrochemical systems for energy conversion: Fuel Cells and Electrolyzers

Room : R03 - Halla B (230)

10:00 to 10:15 *Invited*

**Iryna Zenyuk** (Chemical and Biomolecular Engineering Department, University of California Irvine, Irvine, USA), Kaustubh Khedekar, Andrea Perego, Yongzhen Qi, Arezoo Avid, Prantik Saha

Interplay between Activity and Durability for Polymer Electrolyte Fuel Cells with Low Pt Loading

10:15 to 10:30

**Andrea Angulo** (Chemical and Biomolecular Engineering, New York University, Brooklyn, USA), Miguel Modestino

Understanding the Interactions Between Bubble Dynamics and Electrochemical Energy Losses in Flow Electrolyzers

10:30 to 10:45

**Federico Tasca** (Química de los Materiales, Universidad de Santiago de Chile, Santiago, Chile), Walter Orellana, Jose Zagal

In Search of the Most Active MN<sub>4</sub> Catalyst for the Oxygen Reduction Reaction. The Case for Perfluorinated and Octa(cyano) Fe Phthalocyanine

10:45 to 11:00 *Invited*

**Yuyan Shao** (Energy and Environment, Pacific Northwest National Laboratory, Richland, USA), Yuyan Shao, Xiaohong Xie

Atomically Dispersed M-N-C Electrocatalysts for Oxygen Reduction: Understanding Durability and Its Improvement

11:00 to 11:15

Coffee Break

11:15 to 11:30

**Maria I. Leon** (Departamento de Ingenieria Geomatica e Hidraulica, Universidad de Guanajuato, Guanajuato, Mexico), Jonathan Valentin, Tatiana Romero, Tzayam Perez, Jose L. Nava

A simulation study of the effect of the combined anode and cathode flow fields for the water management in an anion-exchange membrane fuel cell

11:30 to 11:45

**Linjun Li** (Department of Hydrogen Energy Systems, Kyushu University, Fukuoka City, Japan), Takahiro Karimata, Akari Hayashi, Hironori Nakajima, Kohei Ito

Evaluation of boiling effect on oxygen evolution reaction by three electrodes cell

11:45 to 12:00

**Chunmei Tang** (Graduate School of Chemical Sciences and Engineering, Hokkaido University, Sapporo, Japan), Sho Kitano, Hiroki Habazaki, Yoshitaka Aoki

Effects of Anode Functional Layer on Performances of Protonic Solid Oxide Steam Electrolyzers

12:00 to 12:15

**Phimanh Ngo** (Department of Hydrogen Energy Systems, Kyushu University, Fukuoka, Japan), Takahiro Karimata, Akari Hayashi, Hironori Nakajima, Kohei Ito

Diagnostic on the failure of polymer electrolyte membrane to the relative humidity cycle

12:15 to 12:30

**Huaneng Su** (Institute for Energy Research, Jiangsu University, Zhenjiang, China), Weiqi Zhang, Qian Xu

Development of High Performance and Durable Gas Diffusion Electrodes for HT-PEMFC

12:30 to 12:45

**Fei Xiao** (Department of Chemical and Biological Engineering, The Hong Kong University of Science and Technology, Hong Kong, China), Minhua Shao

Solid-State Synthesis of Highly Dispersed Nitrogen-Coordinated Single Iron Atom Electrocatalysts for Proton Exchange Membrane Fuel cells

s15 Anodization and Its Applications in Environmental and Energy Research

Room : R04 - Samda A (100)

Chairman : Jinsub Choi

10:45 to 11:00

**Ramesh Poonchi Sivasankaran** (Department of Chemistry Education, Chonnam National University, Gwangju, Korea)

TiO<sub>2</sub> NTs/r-GO/Cu-TCNQ array Photoanode for Efficient and Stable Photoelectrochemical Water Splitting

10:00 to 10:15

**Giovanni Zangari** (Materials Science and Engineering, University of Virginia, Charlottesville, USA), Marcel Mibus

Electrowetting-on-Dielectric Systems Based on Anodized Metal Oxides

10:15 to 10:45 Keynote

**Hidetaka Asoh** (Department of Applied Chemistry, Kogakuin University, Tokyo, Japan)

Anodization of Aluminum: From Alumite to Ordered Nanostructures

11:00 to 11:15

Coffee Break

11:15 to 11:30

**Masato Hino** (Material Function and Design, Nagoya Institute of Technology, Nagoya, Japan), Song-Zhu Kure-Chu\*, Xuwen Chen, Yukihiisa Moriguchi, Hisashi Sato  
Fabrication of Ni-W(Ox)-based Alloy Films with Ultra-High Hardness on Titanium by Anodization and Electrodeposition

11:30 to 11:45 *Invited*

**Kazuhiro Fukami** (Department of Materials Science and Engineering, Kyoto University, Kyoto, Japan)  
Helical Nanostructure Formation in Electrochemical Reactions Achieved by Confinement of Spatiotemporal Patterns in Nanoscale Environments

11:45 to 12:00 *Invited*

**Hiroaki Tsuchiya** (Graduate School of Engineering, Osaka University, 2-1 Yamada-oka, Suita, Osaka, Japan)  
Anodic Nanotube Coating of Biomedical Ti Alloys

s17 Molecular Electroanalysis

Room : R13 - 402 A+B (100)

Chairman : Olivier Buriez

10:15 to 10:30 *Invited*

**Osamu Niwa** (Advanced Science Research Laboratory, Saitama Institute of Technology, Fukaya, Japan), Shunsuke Shiba, Saki Ohta, Kazuya Ohtani, Shota Takahashi, Tomoyuki Kamata, Dai Kato  
Electrochemical Performances of Nitrogen-Containing Carbon Film Electrodes

10:30 to 10:45

**Maryam Abdinejad** (Faculty of Applied Sciences, dept. of Chemical Engineering, TU Delft/Materials for Energy Conversion and Storage (MECS), Delft, Netherlands), Prof Tom Burdyny  
Enhanced Electroreduction of Carbon Dioxide via electrografting of a p-phenylenediamine to a Ag electrode

10:45 to 11:00

**Yulin Zhou** (UMR 7177 CNRS, Université de Strasbourg, Strasbourg, France)  
Differential Electrochemical Mass Spectrometry studies of nitrite reduction catalyzed by Keggin W and Mo-based polyoxometalates and silver

11:00 to 11:15

Coffee Break

11:15 to 11:30 *Invited*

**Philippe Hapiot** (Institut des Sciences Chimiques de Rennes, CNRS - Université de Rennes 1, Rennes, France), Mian-Gang Li, Shuai Liu, Corinne Lagrost, Jia-Wei Yann, Bing-Wei Mao  
Charge Transfer Kinetics in Room Temperature Ionic Liquid. Solvent Reorganization and Electrode/Ionic Interface.

11:30 to 11:45

**Alexander Oleinick** (PASTEUR, CNRS, ENS - PSL Univ., Sorbonne Univ., Paris, France), Giovanni Pireddu, Irina Svir, Christian Amatore, Alexander Oleinick  
Interactive Competition Between Individual Diffusion Layers at Nano-/Microscopic Random Arrays of Band and Disk Electrodes

11:45 to 12:00

**Dongil Lee** (Department of Chemistry, Yonsei University, Seoul, Korea), Yongsung Jo, Hoeun Seong, Woojun Choi  
Atomically Precise Metal Nanoclusters as Model Catalysts for Achieving Efficient Electrocatalysis

12:00 to 12:15

**Gyeongho Kim** (Department of Chemistry, Pusan National University, Busan, Korea)  
Simple Electrochemical Method for Investigating the Dissolution Behavior of Layers Deposited by Atomic Layer Deposition

12:15 to 12:30 *Invited*

**Won-Yong Lee** (Chemistry, Yonsei University, Seoul, Korea), Daeho Jeong  
Electrochemical impedance glycosensor for ultrasensitive detection of carbohydrate and carbohydrate-binding proteins

12:30 to 12:45

**Aman Bhatia** (Department of Chemistry, Pusan National University, Busan, Korea)  
Fast Silver Deposition Induced by Enzymatic Reduction for Ultrasensitive Detection of Parathyroid Hormone

s18 Bringing Biomolecules and Electrodes together: Understanding Electron Transport in Life  
Room : R11 - 303 (100)

10:00 to 10:30 *Keynote*

**Justin Gooding** (School of Chemistry, The University of New South Wales, Sydney, Australia), Sanjun Fan, Yanfang Wu, James Webb, Ying Yang, Yuanqing Ma, Richard Tilley, Katharina Gaus  
Single Molecule Electrochemistry: From electrochemically modulating single molecule fluorescence to detecting single proteins

10:30 to 10:45 *Invited*

**Joshua Hihath** (Electrical and Computer Engineering, University of California, Davis, Davis, USA), Hyunhak Jeong, Lucas Domulevich  
Combined Junction Enhanced Raman and Conductance Spectroscopies on a Single-Molecule

10:45 to 11:00 *Invited*

**Wenjing Hong** (College of Chemistry and Chemical Engineering, Xiamen University, Xiamen, China)  
Electric field catalyzed chemical reaction and assembly process at single-molecule level

11:00 to 11:15

Coffee Break

11:15 to 11:30

**Andrea Vezzoli** (Department of Chemistry, University of Liverpool, Liverpool, United Kingdom), Chuanli Wu, Xiaohang Qiao, Craig Robertson, Simon Higgins, Richard Nichols  
Chemically Soldered Polyoxometalates as Electrochemical Single-Molecule Devices

s20 Recent Development in Spectroscopy, Microscopy and Theory for Atomic/Molecular Level Understanding of Electrochemical Interfaces  
Room : R08 - 203 (100)

Chairman : Beomgyun Jeong; Kei Murakoshi

10:00 to 10:15

**Jesse Dondapati** (Chemistry, University of Guelph, Guelph, Canada), Aicheng Chen  
UV-vis spectroscopic and quantitative structure-property relationship studies of photoelectrochemical oxidation of phenolic compounds at nanoporous TiO<sub>2</sub>

10:15 to 10:30

**Peter S. Toth** (Department of Physical Chemistry and Materials Science, University of Szeged, Szeged, Hungary), Gabor Szabo, Csaba Janaky

Photoelectrochemical properties of transition metal dichalcogenides in the function of structural features

10:30 to 10:45

**Stijn Mertens** (Department of Chemistry, Lancaster University, Lancaster, United Kingdom)

Ambient Bistable Single Dipole Switching in a Molecular Monolayer

10:45 to 11:00

**Masnun Naher** (School of Molecular Sciences, The University of Western Australia, Perth, Australia), Elena Gorenskaia, Kelly L. Turner, Andrea Vezzoli, Richard J. Nichols, Paul J. Low

Design and Synthesis of Radical Based Metal Complexes as Molecular Wires

11:00 to 11:15

Coffee Break

11:15 to 11:30

**Parvin Safari** (Molecular Sciences, University of Western Australia, Perth, Australia), Simon Guckel, Josef Gluyas, Martin Kaupp, Paul J. Low

Substituent control over the Electronic Character of Diethynylaryl-Bridged Mixed-valence Complexes

11:30 to 11:45

**Jianping Xiao** (State Key Laboratory of Catalysis, Dalian Institute of Chemical Physics, CAS, Dalian, China)

Direct Electrochemical Ammonia Synthesis from Nitric Oxide

s21 Electrochemical Solar Energy Conversion and Storage: from Fundamentals to Applications

Room : R09 - 301 (80)

10:00 to 10:30 Keynote

**Weitao Liu** (Physics Department, Fudan University, Shanghai, China)

Lattice vibrations at charged oxide water interface probed by sum-frequency spectroscopy

10:30 to 10:45

**Yi Rao** (Department of Chemistry and Biochemistry, Utah State University, Logan, USA), Tong Zhang, Yuqin Qian, Yi Rao

Structures and Dynamics of GaP Photo-electrode Surfaces by Time-Resolved Electronic Sum Frequency Generation

10:45 to 11:00

**Tong Zhu** (Mechanical Engineering, Beijing Institute of Technology, Beijing, China)

Exciton Transport Mechanisms and Charge Carrier Dynamics Directly Visualized by Ultrafast Microscopy

11:00 to 11:15

Coffee Break

11:15 to 11:30

**Shanlin Pan** (Department of Chemistry and Biochemistry, , Tuscaloosa, USA)

Advanced Scanning Electrochemical and Spectroelectrochemical Methods for Analyzing Surfaces of Catalytic Electrode Materials

11:30 to 11:45

**Nianxing Wang** (Chemistry and Chemical Engineering, Qilu University of Technology, Jinan, China), Mengyu Fu, Pingping Su, Huanjin Jiang, Mengxue Lu, Fujiao Cui, Tianduo Li, Pia Damlin, Carita Kvarnström, Nianxing Wang

Polyviologen Based Hybrid Films for Photocatalysis Applications

11:45 to 12:00

**Federico Bella** (Department of Applied Science and Technology, Politecnico di Torino, Torino, Italy), Lucia Fagiolari, Matteo Bonomo, Simone Galliano, Guido Viscardi, Claudia Barolo  
Water-based solar cells: electrochemical behavior of state-of-art electrodes and electrolytes

s22 Molecular Electrochemical Switches, Pumps, and Machines  
Room : R05 - Samda B (100)

11:15 to 11:45 Keynote

**Unyong Jeong** (Materials Science and Engineering, Pohang University of Science and Engineering (POSTECH), Pohang, Korea)  
Skin-Inspired Artificial Multimodal Ion Electronic Skin (IE-Skin)

11:45 to 12:00

**Hyeong Jun Kim** (Chemical and Biomolecular Engineering, Sogang University, Seoul, Korea)  
Ionoelastomer Heterojunctions Between Polymer Networks of Fixed Anions and Cations

12:00 to 12:15

**Jeong-Yun Sun** (Materials Science and Engineering, Seoul National University, Seoul, Korea)  
Ion-to-Ion Amplification through an Open Junction Ionic Diode

12:15 to 12:30

**Serena Arnaboldi** (Chimica, Università degli Studi di Milano, Milano, Italy), Gerardo Salinas, Aleksandar Karajic, Bhavana Gupta, Patrick Garrigue, Tiziana Benincori, Roberto Cirilli, Sabrina Bichon, Sébastien Gounel, Nicolas Mano, Alexander Kuhn  
Unconventional Electrochemical Approaches for the Direct Readout of Chiral Information

12:30 to 12:45

**Alexander Kuhn** (Institute of Molecular Sciences, University Bordeaux, Pessac, France), Bhavana Gupta, Ambrose Melvin, Lin Zhang, Bertrand Goudeau, Patrick Garrigue, Stephane Reculosa, Laurent Bouffier  
Hybrid Electroactive Polymers for Wireless Actuation and Pumping

s23 Electrochemistry Knowledge transfer: from academy to Startup Company and Industries  
Room : R06 - 201 A + B (150)  
Chairman : Jae Ho Shin ; Chang Hyun Lee

10:00 to 10:30 Keynote

**Youngjea Kang** (Blood Glucose R&D Center, i-sens, Inc, Seoul, Korea)  
CGMS: Current Status and Future Perspective

10:30 to 10:45

**Chang Hyun Lee** (Energy Engineering Department, Dankook University, Cheonan, Korea), Juhee Ahn, Jun Hyun Lim, In Kee Park  
Size Engineering of Perfluorinated Ionomers via Supercritical Fluid Dispersion and Its Electrochemical Applications

10:45 to 11:00

**Alessandro Minguzzi** (Dipartimento di Chimica, Università degli Studi di Milano, Milano, Italy), Alberto Vertova, Sandra Rondinini, Aniello Cammarano, Luigi Nicolais  
Our experience in the co-development of microelectrodes for wearable biosensing

11:00 to 11:15

Coffee Break

11:15 to 11:45 Keynote

**Stefano Saguatti** (Product management, Manz Italy SRL, Sasso Marconi, Italy), Luca Di Silvio

## EBA250 The European Batteries R-I Ecosystem

*11:45 to 12:00*

**Sergio Brutti** (Chemistry, University of Rome La Sapienza, Rome, Italy), Sergio Brutti, Eliana Quartarone, Francesca Soavi, Claudio Gerbaldi, Vincenzo Baglio, Piercarlo Mustarelli  
Gisel - Italian group for electrochemical energy storage

*12:00 to 12:15*

**André Mão de Ferro** (Management, , Lisbon, Portugal)  
Electrochemical Spin-off - a C2C-NewCap experience

*12:15 to 12:30*

**Alessandro Brilloni** (Dep. Of Chemistry "G. Ciamician", , Bologna, Italy), Federico Poli, Francesca De Giorgio, Francesca Soavi  
New High-Energy Semi-Solid Lithium/Oxygen Flow Battery: from research to spinoff company

*12:30 to 12:45*

**Luca Magagnin** (Chimica, Materiali e Ing. Chimica Giulio Natta, Politecnico di Milano, Milano, Italy)  
Harnessing the early stage research discoveries to startups

Friday 3 September 2021 - PM

s07 Next-generation Batteries: Novel chemistry and design

Room : R01 - Tamna A (1500)

16:00 to 16:15

**Vincent Feynerol** (LCPME, CNRS, Villers-lès-Nancy, France), Ranine El Hage, Mariela Brites Helú, Liang Liu, Mathieu Etienne

Determination of Charge Transfer Kinetics for Fast Redox Couples on Porous Carbon Felts by Electrochemical Impedance Spectroscopy

16:15 to 16:30

**Hiroyuki Ueda** (Institute for Frontier Materials (IFM), Deakin University, Burwood, Australia), Robert Kerr, Fuminori Mizuno, Maria Forsyth, Patrick C. Howlett

Incorporation of An Organic Ionic Plastic Crystal in Anode for All-solid-state Lithium-ion Batteries

16:30 to 16:45

**Almagul Mentbayeva** (Chemical and Material Engineering, National Laboratory Astana, Nur-Sultan, Kazakhstan), Aktilek Akhmetova, Zhumabay Bakenov

Temperature-Responsive Polymer Nanocomposite Membrane Aqueous Energy Storage Systems

16:45 to 17:00

**Jelena Popovic** (Physical Chemistry of Solids, Max Planck Institute for Solid State Research, Stuttgart, Germany)

Solid electrolyte interphase on Li/Na metal anodes in contact with liquid electrolytes

17:00 to 17:15

**Darya Snihirova** (Electrochemistry and Big Data Department, Helmholtz-Zentrum Geesthacht, Geesthacht, Germany), Linqian Wang, Min Deng, Bahram Vaghefinazari, Daniel Hoeche, Sviatlana V. Lamaka, Mikhail L. Zheludkevich

Performance Improvement of Aqueous Mg-air Battery by Electrolyte Additive Effective for Versatile Anode Material

17:15 to 17:30

**Linqian Wang** (Institute of Surface Science, Helmholtz-Zentrum Geesthacht, Geesthacht, Germany), Darya Snihirova, Min Deng, Cheng Wang, Daniel Höche, Sviatlana Lamaka, Mikhail Zheludkevich

Clarifying the Working Mechanism of Indium Chloride as Electrolyte Additive for Mg-Air Battery

s08 Challenges in Battery Technologies for Advanced and Next-generation Electric Vehicles and Grid Storage

Room : R02 - Halla A (270)

16:00 to 16:30 Keynote

**Kyeongjae Cho** (Materials Science and Engineering, UT Dallas, Richardson, USA), Patrick Conlin, Matthew Bergschneider, Taesoon Hwang, Hyungjun Kim, Maenghyo Cho

Roles of Materials Design in Battery Technology Innovations

16:30 to 16:45 Invited

**Bing joe Hwang** (Department of Chemical Engineering, National Taiwan University of Science and Technology, Taipei, Taiwan)

Decoupling Interfacial Reactions at Anode and Cathode of Lithium Metal Batteries

16:45 to 17:00 Invited

**Robson Monteiro** (GXPB, CBMM, Araxa, Brazil), Rogerio Ribas

Niobium – A Transformative Element for the Development of Advanced Lithium-Ion Battery Materials

17:00 to 17:15 Invited

**Ya You** (International School of Materials Science and Engineering, Wuhan University of Technology, Wuhan, China)

The Air Sensitivity of Layered Transition Metal Oxide Cathode Materials for Li/Na-Ion Batteries: Principles and Strategies

s09 Understanding and application of fast storage processes (Supercapacitors & high power systems)

Room : R07 - 202 A + B (150)

Chairman : Andrea Balducci; Hyung-Seok Kim

16:00 to 16:15

**Krzysztof Fic** (Institute of Chemistry and Technical Electrochemistry, Poznań, University of Technology, Poznan, Poland), Adam Mackowiak, Pawel Jezowski, Yukiko Matsui, Kazunari Soeda, Masashi Ishikawa  
Novel Concept for Hybrid Li-ion Capacitor

16:15 to 16:30

**Binson Babu** (Center for Energy and Environmental Chemistry Jena (CEEC), Friedrich-Schiller-University Jena, Jena, Germany), Christof Neumann, Marcel Enke, Alexandra Lex Balducci, Andrey Turchanin, Ulrich S Schubert, Andrea Balducci  
Investigation of the Aging and Self-discharge Processes in High Voltage Lithium-ion Capacitor containing Liquid and Gel-polymer Electrolytes

16:30 to 16:45

**Maria Arnaiz** (Centre for Cooperative Research on Alternative Energies, CICenergiGUNE (BRTA), Vitoria-Gasteiz, Spain), Devaraj Shanmukaraj, Daniel Carriazo, Dhruvajyoti Bhattacharjya, Aitor Villaverde, Michel Armand, Jon Ajuria  
A low-cost pre-metallation strategy enabling ultrafast and stable metal ion capacitors

16:45 to 17:00 Invited

**Paula Ratajczak** (Institute of Chemistry and Technical Electrochemistry, Poznan University of Technology, Poznan, Poland), Paula Ratajczak, Andrés Parejo-Tovar, S.E.M. Pourhosseini, François Béguin  
Detailed Analysis of Factors Contributing to Degradation of Carbon-based Electrochemical Capacitors

17:00 to 17:15

**Agnieszka Chojnacka** (Institute of Chemistry and Technical Electrochemistry, Poznan University of Technology, Poznań, Poland), Xuexue Pan, François Béguin  
The advantages of Na<sub>2</sub>C<sub>4</sub>O<sub>4</sub> as presodiation material for the anode of sodium-ion systems

17:15 to 17:30

**Qamar Abbas** (ICTM, Graz University of Technology, Graz University of Technology, Stremayrgasse 9/2, 8010 Graz, Graz, Austria), Horst Schraner, Harald Fitzek, Bernhard Gollas, Qamar Abbas  
Reversibility of the iodide/iodine redox reaction controlling the electrochemical performance of aqueous hybrid supercapacitors

17:30 to 17:45

Coffee Break

17:45 to 18:00 Invited

**Dominic Rochefort** (Chemistry, Université de Montréal, Montréal, Canada)  
What Role for Unconventional Electrolytes in the Development of Supercapacitors?

18:00 to 18:15

**Annika Bothe** (Center for Energy and Environmental Chemistry (CEEC), Friedrich-Schiller University Jena, Jena, Germany), S.E.M Pourhosseini, Paula Ratajczak, François Béguin, Andrea Balducci  
Adiponitrile-based Electrolyte for Electrical Double Layer Capacitors: advantages and limits

18:15 to 18:30

**Lukas Köps** (Institute of Technical Chemistry and Environmental Chemistry, Friedrich-Schiller-University Jena, Jena, Germany), Andrea Balducci

Realization of high-voltage EDLCs stable at high temperatures based on dimethylpyrrolidinium tetrafluoroborate

s10 Electrochemical systems for energy conversion: Fuel Cells and Electrolyzers

Room : R03 - Halla B (230)

16:00 to 16:15

**Javier Villalobos** (Nachwuchsgruppe Gestaltung des Sauerstoffentwicklungsmechani, Helmholtz-Zentrum Berlin, Berlin, Germany), Diego Gonzalez-Flores, Mavis Montero, Roberto Urcuyo, David Sanchez, Gabriela Fernandez, Marcel Risch

Key role of the electrolyte to enhance electrochemical restructuring of Co-based catalysts as an activation for oxygen evolution

16:15 to 16:30

**Sylwia Pawłowska** (Faculty of Electronics, Telecommunications and Informatics, Gdańsk University of Technology, Gdańsk, Poland), Krystian Lankauf, Patryk Blaszcak, Jakub Karczewski, Karolina Górnicka, Grzegorz Cempura, Piotr Jasinski, Sebastian Molin

Effect of MnCo<sub>2</sub>O<sub>4</sub> Particles Ball-Milling Process to Increasing of Electrocatalytic Activity for OER

16:30 to 16:45

**Jian Zhang** (Analytical Chemistry Center for Electrochemical Sciences, Ruhr University Bochum, Bochum, Germany), Wenhui He, Harshitha Barike Aiyappa, Thomas Quast, Stefan Dieckhofer, Denis Ohl, Joao R. C. Junqueira, Yen-Ting Chen, Justus Masa, Wolfgang Schuhmann

Hollow CeO<sub>2</sub>@Co<sub>2</sub>N Nanosheets Derived from Co-ZIF-L for Boosting the Oxygen Evolution Reaction

16:45 to 17:00

**Inyoung Jang** (Department of Chemical Engineering, Imperial College London, London, United Kingdom), Nick Farandos, John Alexander, Geoff Kelsall

Fabrication of 3D NiO-YSZ Structures for Enhanced Performance of Solid Oxide Fuel Cells and Electrolysers

17:00 to 17:15

**J.W. (Willem) Haverkort** (Process & Energy (3mE), Delft University of Technology, Delft, Netherlands)  
Gas-evolving flow-through electrode design and experiments

17:15 to 17:30

**Lifeng Liu** (Clean Energy, International Iberian Nanotechnology Laboratory, Braga, Portugal)

Bipolar membrane enabled asymmetric water electrolysis based on PGM-free bifunctional metal phosphide electrocatalysts

17:30 to 17:45

Coffee Break

17:45 to 18:00

**Liang Wu** (Institute for Future Transport and Cities, Coventry University, Coventry, United Kingdom), Egle Latvyte, Peter Vale, John Graves

Green Hydrogen Produced From Anion Exchange Membrane Ammonia Electrolysis

18:00 to 18:15

**Felix Lohmann-Richters** (Electrochemical Process Engineering (IEK-14), Forschungszentrum Juelich,, Juelich, Germany), Leon Buegers, Stefanie Renz, Martin Mueller, Marcelo Carmo

Membrane Development for Efficient Alkaline Electrolysis at Intermediate Temperature

18:15 to 18:30

**Aviral Rajora** (Process and Energy, Delft University of Technology, Delft, Netherlands), J. W. (Willem) Haverkort

An analytical multiphase model for diffusion layers in electrolyzers and fuel cells

18:30 to 18:45

**Alaa Faid** (Materials Science and Engineering, Norwegian University of Science and Technology, Trondheim, Norway), Svein Sunde

Scaling up NiMoB catalyst for 2 KW anion exchange membrane electrolyzer stack

s15 Anodization and Its Applications in Environmental and Energy Research

Room : R04 - Samda A (100)

Chairman : Yongtae Kim

16:00 to 16:30 Keynote

**Gabriel Loget** (Rennes Institute of Chemical Sciences, CNRS, Rennes, France), Bruno Fabre, Kiseok Oh

Electrochemical preparation of silicon anodes for solar water splitting

16:30 to 16:45 Invited

**Hans Kleemann** (Dresden Integrated Center for Applied Photophysics, Technische Universität Dresden, Dresden, Germany)

High-Frequency Vertical Organic Transistors with Anodized Base Electrode

16:45 to 17:00

**Evelyn Artmann** (Institute of Electrochemistry, University of Ulm, Ulm, Germany), Lukas Forschner, Vincent P. Menezes, Mohamed Elnagar, Ludwig A. Kibler, Timo Jacob, Albert K. Engstfeld

Electrode stability at high voltages in alkaline electrolyte

17:00 to 17:15 Invited

**Alexander Mozalev** (CEITEC - Central European Institute of Technology, Brno University of Technology, Brno, Czech Republic), Kirill Kamnev, Marcela Sepulveda, Maria Bendova, Zdenek Pytlíček

Dielectric/electrical Properties of Novel ZrO<sub>2</sub>-Al<sub>2</sub>O<sub>3</sub> Nanocomposite Films Prepared via the Anodizing of Al/Zr Metal Layers

17:15 to 17:30

**Hiroki Habazaki** (Faculty of Engineering, Hokkaido University, Sapporo, Japan)

Fabrication of Highly Active OER Electrocatalysts from Nanoporous Fluoride Precursors Formed by Anodizing

s17 Molecular Electroanalysis

Room : R13 - 402 A+B (100)

Chairman : Guobao Xu

16:00 to 16:30 Keynote

**Bin Ren** (Department of Chemistry, Xiamen University, Xiamen, China)

Electrochemical Raman spectroscopy for in-situ and operando studies at limits of time and spatial resolution and sensitivity

16:30 to 17:00 Keynote

**Francesco Paolucci** (Department of Chemistry, Alma Mater Studiorum - University of Bologna, Bologna, Italy), Giovanni Valenti, Alessandra Zanuti, Andrea Fiorani, Sara Rebecconi, Massimo Marcaccio, Stefania Rapino

Insights into the Mechanism of Coreactant Electrochemiluminescence Empower its Analytical Strength

17:00 to 17:15

**Giovanni Valenti** (Chemistry, University of Bologna, Bologna, Italy), Andrea Fiorani, Dongni Han, Dechen Jiang, Danjun Fang, Francesco Paolucci, Neso Sojic  
Spatially Resolved Electrochemiluminescence Through Chemical Lens

17:15 to 17:30

**Alessandra Zanut** (Chemical and Biomolecular Engineering, NYU Tandon School of Engineering, New York, USA), Francesco Palomba, Matilde Rossi Scota, Sara Rebecca, Massimo Marcaccio, Damiano Genovese, Enrico Rampazzo, Giovanni Valenti, Francesco Paolucci, Luca Prodi

Controlling Dye-Doped Silica Nanoparticles behavior for Enhancing Electrochemiluminescence Performance

17:30 to 17:45

Coffee Break

17:45 to 18:00

**Olivier Buriez** (Ecole Normale Supérieure, CNRS, Paris, France), Martina Ciskova, Laurent Cattiaux, Justine Pandard, Manon Guille-Collignon, Frederic Lemaitre, Jerome Delacotte, Jean-Maurice Mallet, Eric Labbe

Fluorescence Switches of the Redox-Responsive Rhodamine 101 Probe

18:00 to 18:15

**Andrea Fiorani** (Department of Chemistry, Keio University, Yokohama, Japan), Kohei Sakanoue, Irkham Irkham, Giovanni Valenti, Francesco Paolucci, Yasuaki Einaga

Electrogenerated Chemiluminescence at Boron-doped Diamond

18:15 to 18:30

**Sara Rebecani** (Department of chemistry, University of Bologna, Bologna, Italy), Francesca Arcudi, Luka Dordevic, Michele Cacioppo, Alessandra Zanut, Giovanni Valenti, Francesco Paolucci, Maurizio Prato

Lighting up the Electrochemiluminescence of Carbon Dots through Pre- and Post-Synthetic Design

s21 Electrochemical Solar Energy Conversion and Storage: from Fundamentals to Applications

Room : R09 - 301 (80)

Chairman : David J. Fermin

16:00 to 16:15

**Jeong Hun Kim** (Energy & Chemical Engineering, Ulsan National Institute of Science and Technology (UNIST), Ulsan, Korea), Jin Hyun Kim

Low Temperature Thermite Reduction on Metal Oxide Photoanode for Enhanced Photoelectrochemical Water Splitting: A Case Study on ZnFe<sub>2</sub>O<sub>4</sub>

16:15 to 16:30

**Ozlem Budak** (Chemical Engineering, Marmara University Engineering Faculty, Istanbul, Turkey), Ozlem Budak, Ozlem Uguz, Aleyna Nur Basey, Atif Koca

Photoelectrochemical Performance of RGO-CdS<sub>0.2</sub>Se<sub>0.8</sub> Photoelectrodes Prepared by One-step Electrodeposition Method

16:30 to 16:45

**Wouter Maijenburg** (ZIK SiLi-nano, MLU Halle-Wittenberg, Halle (Saale), Germany), Titus Lindenbergh, Denis Eberhart, Robert Naumann

Metal oxide nanowires and nanofibers for solar water splitting

16:45 to 17:00 *Invited*

**Heinz Frei** (Molecular Biophysics and Integrated Bioimaging Division, Lawrence Berkeley National Laboratory, Berkeley, USA), Hongna Zhang, Won Jun Jo

Nanoscale Integration of CO<sub>2</sub> Photoreduction by H<sub>2</sub>O under Ultrathin Membrane Separation

17:00 to 17:15

**Ozlem Uguz** (Chemical Engineering, Marmara University, Istanbul, Turkey), Ozlem Uguz, Ozlem Budak, Aleyna Nur Basey, Atif Koca

Studies on the Photoelectrochemical Performance of Mo, Ni and Cu Decorated RGO-CdS<sub>0.2</sub>Se<sub>0.8</sub> Photoelectrodes Fabricated by Electrodeposition Method

17:15 to 17:30

**Chengkai Xia** (School of Chemical Engineering, Sungkyumkwan University (SKKU), Suwon, Korea), Jung Kyu Kim

Highly Activated Iron Phosphate Over-layer for Enhancing Photoelectrochemical Ammonia Degradation

17:30 to 17:45

Coffee Break

17:45 to 18:00

**Ingrid Sequeda** (Chemistry, Universidad Industrial de Santander, Floridablanca, Colombia), Angel M. Meléndez

CO<sub>2</sub> Photoconversion on Cu<sub>2</sub>O Controlled by Copper Vacancies

s22 Molecular Electrochemical Switches, Pumps, and Machines

Room : R05 - Samda B (100)

16:00 to 16:30 Keynote

**Carmen Domene** (Chemistry, University of Bath, Bath, United Kingdom)

Seeking Inspiration from Biology: A Glimpse into Ion Channels, Transporters and the Electrical Properties of Cell Membranes

16:30 to 16:45

**Takamasa Sagara** (Graduate School of Engineering, Nagasaki University, Nagasaki, Japan), Bo Wang, Rintaro Morishita, Hironobu Tahara

Study on Redox Deformation and Electrochemistry of Viologen-Pendant Polymer Hydrogel for Quick Actuation

16:45 to 17:00

**Elena Gorenskaia** (School of Molecular Science, The university of western Australia , Perth, Austria), Masnun Naher, Kelly L. Turner, Andrea Vezzoli, Paul J. Low

Influence of Anchor Groups and Aromaticity on Single-Molecular Conductance of Oligo(phenyleneethynylene)

17:00 to 17:15

**Arkadiusz Grempek** (Biological and Chemical Research Centre, University of Warsaw, Warsaw, Poland), Imen Hnid, Amina Khettabi, Xiaonan Sun, Jean Christophe Lacroix, Frederic Lafolet, Saioa Cobo, Slawomir Sek

Photomodulation and Rectification in Bis(terpyridine) Dithienylethene Coordination Molecular Wires

17:15 to 17:30

**Klaus Mathwig** (OnePlanet Research Center, Imec Netherlands / OnePlanet Research Center, Wageningen, Netherlands)

Ion Transport and Switching in Microhole Ionomer Diodes

17:30 to 17:45

Coffee Break

17:45 to 18:15 Keynote

**Yi-Lun Ying** (School of Chemistry and Chemical Engineering, Nanjing University, Nanjing, China), Zheng-Li Hu, Yi-Tao Long

A Time-Resolved Single-Molecule Machine with a Nanopore

*18:15 to 18:30*

**Varshini J. Kumar** (School of Molecular Sciences, University of Western Australia, Perth, Australia),  
Saman Naghibi, Sara Sangtarash, Hafez Sadeghi, Andrea Vezzoli, Jian-Zhong Wu, Richard J. Nichols,  
Paul J. Low

Organic Radicals for Molecular Electronics: From Mixed Valence systems to Molecular Junctions

