35th Topical Meeting of the International Society of Electrochemistry

Conference Schedule

SUNDAY 7 May

Symposia colour code:

- Keynote
- **S1** - Fundementals
- **S2** - Energy
- **S3** - Environment
- **S4** - Health
- **S5** - David Williams Session

16:30 - 18:00
Pre-function/Lobby spaces
Registration

18:00-19:30 Norfolk Room | **Welcome Reception**

	MONDAY 8 May			TUESDAY 9 May			WEDNESDAY 10 May		
	Norfolk Room	Monaco II Room	Phoenix Room	Norfolk Room	Monaco II Room	Phoenix Room	Norfolk Room	Monaco II Room	Phoenix Room
08:00 - 08:20	Pre-function/Lobby spaces **Registration**								
08:20 - 08:40									
08:40 - 09:00	Norfolk Room | **Opening Ceremony**								
09:00 - 09:20				08:30 - Norfolk Room | **Keynote:** B. Jill Venton			08:30 - Norfolk Room | **Keynote:** Shi-Gang Sun		
09:20 - 09:40	Norfolk Room | **Keynote:** David Williams								
09:40 - 10:00				Invited S2a Oral S2a	Invited S1 Oral S1	Invited S2b Oral S2b	Invited S2a Oral S2a	Invited S3 Oral S3	Invited S1 Oral S1
10:00 - 10:20	Coffee break			Coffee break			Coffee break		
10:20 - 10:40	Invited S2a	Invited S1	Invited S2b						
10:40 - 11:00									
11:00 - 11:20									
11:20 - 11:40	Orals S2a	Orals S1	Orals S2b	Orals S2a	Orals S1	Orals S2b	Orals S2a	Orals S3	Orals S1
11:40 - 12:00									
12:00 - 12:20									
12:20 - 12:40									
12:40 - 13:00	Lunch			Lunch			Lunch		
13:00 - 13:20									
13:20 - 13:40									
13:40 - 14:00	Invited S2a	Invited S4	Invited S2b	13:30 - Norfolk Room | **Keynote:** Zaiping Guo			13:30 - Norfolk Room | **Keynote:** Justin Gooding		
14:00 - 14:20									
14:20 - 14:40	Orals S2a	Orals S4	Orals S2b	Invited S2a Orals S2a	Invited DW	Invited S2b Orals S2b	Invited S2a Orals S2a	Invited S3 Orals S3	Orals S2b
14:40 - 15:00									
15:00 - 15:20									
15:20 - 15:40	Coffee break			Coffee break			Coffee break		
15:40 - 16:00									
16:00 - 16:20		Invited S4							
16:20 - 16:40	Orals S2a	Orals S4	Orals S2b	Orals S2a	Invited DW	Orals S2b	Orals S2a	Orals S3	Orals S2b
16:40 - 17:00									
17:00 - 17:20							17:00 - Norfolk Room | **Closing Ceremony**		
17:20 - 17:40									
17:40 - 18:00									
18:00 - 19:00	18:00 - 20:00 Sifu & Monaco Rooms **Poster Session**								
19:00 - 20:00				19:00 - Norfolk, Kauri & Cypress Rooms **Conference Dinner**					
Evening									

35th Topical Meeting

of the International Society of Electrochemistry

7 - 10 May 2023
Gold Coast, Australia

Electrochemistry for energy, environment and health: Key challenges and enabling solutions

PROGRAM

https://topical35.ise-online.org
e-mail: events@ise-online.org

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74th Annual Meeting

of the International Society of Electrochemistry

Bridging scientific disciplines to address the world's challenges

3 - 8 September 2023

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Call for Registration

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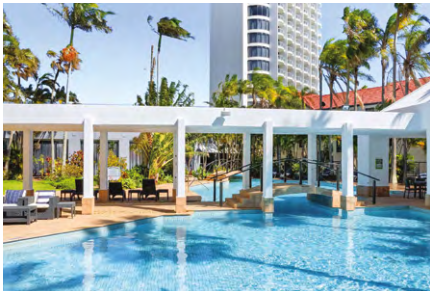
Venue



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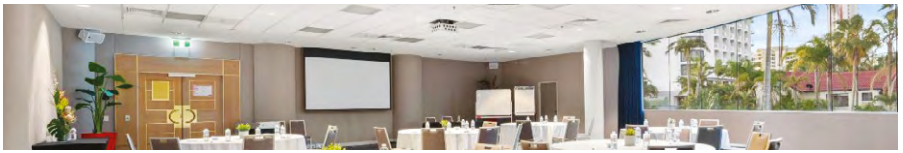
Conference Rooms

Norfolk Room (Located on the ground floor)

Welcome Reception
Opening/Closing Ceremony
Keynotes
Oral Presentations

Norfolk, Kauri & Cypress Room (Located on the ground floor & lobby level)

Conference Dinner



Phoenix Room (Located on the first mezzanine floor)

Oral Presentations

Monaco II Room (Located between the two towers)

Oral Presentations

Sifu & Monaco Rooms

Poster Presentations

International Society of Electrochemistry
Chemin du Closelet 2
1006 Lausanne
Switzerland

Printed in Australia

Program of the

35th Topical Meeting of the International Society of Electrochemistry

Electrochemistry for energy, environment and health: Key challenges and enabling solutions

7 - 10 May 2023
Gold Coast, Australia

Crowne Plaza Surfers Paradise
2807 Gold Coast Highway,
Surfers Paradise, Qld 4217, Australia

Organized by:

Division 1 - Analytical Electrochemistry
Division 3 - Electrochemical Energy Conversion and Storage
ISE Region Australia

Organizing Committee

Huijun Zhao, *Griffith University, Gold Coast, QLD (Chair)*
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Pre-function/Lobby spaces

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Welcome Reception

Norfolk Room

18:00 to 19:30 **Welcome Reception**

Monday 8 May

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Pre-function/Lobby spaces

08:00 to 08:40 **Registration**

Opening Ceremony

Norfolk Room

08:40 to 09:00 **Opening Ceremony**

Tuesday 9 May

Conference Dinner

Norfolk, Kauri & Cypress Rooms

19:00 **Conference Dinner**

Oral Presentations

Monday 8 May 2023 - Morning

Keynote

Norfolk Room

Chaired by Prof. Alan Bond

09:00 to 09:40 **Keynote**

David Williams *(Chemical Sciences, University of Auckland, Auckland, New Zealand)*

Expect the Unexpected: Effects of Scale in Practical Electrochemistry

s02a - Electrochemistry for energy

Norfolk Room

Chaired by Prof. Zaiping Guo - Prof. Shanqing Zhang

10:20 to 10:40 **Invited**

Lianzhou Wang *(Nanomaterials Centre, The University of Queensland, Brisbane, Australia)*

Designing Cathode Materials for Li-ion Batteries and Beyond

10:40 to 11:00

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

An investigation of the cathode electrolyte interphase *(CEI)* formation of Ni-rich layered materials by Ni ion catalyzation: monolayer CEI formation from an oligomer

11:00 to 11:20

Marzi Barghamadi *(Manufacturing, CSIRO , Clayton South, Australia)*, Tony F. Hollenkamp, Peter J. Mahon, Wenli Wei

Challenges with cell engineering and electrochemical cycling performance for scaled-up high loading sulfur cathodes

11:20 to 11:40

Hiroyuki Ueda *(Institute for Frontier Materials (IFM) & BattRI-Hub, Deakin University, Burwood (Melbourne), Australia)*, Maria Forsyth, Patrick Howlett, Daniela M. Josepetti

Towards the Realization of Organic Ionic Plastic Crystal-based Solid-state Batteries

11:40 to 12:00

Dawid Pakulski *(Poznan Science and Technology Park, Adam Mickiewicz University Foundation, Poznan, Poland)*, Artur Ciesielski, Paolo Samori

Metal Organic Polymers *(MOP) and Covalent Organic Framework (COF)* as High-Capacity Energy Storage Materials

12:00 to 12:20

Martin Ihrig *(Department of Chemical Engineering, National Taiwan University of Science and Technology, Taipei, Taiwan)*, Martin Finsterbusch, Olivier Guillon, Liang-Yin Kuo, Alexander M. Laptev, Shih-kang Lin, Ruijie Ye

Fabrication and Characterization of Garnet-Based All Solid-State Li Batteries

s01 - Fundamental electrochemistry

Monaco II Room

Chaired by Prof. B. Jill Venton - Prof. Damien Arrigan

10:20 to 10:40 **Invited**

Minkyung Kang *(Institute for Frontier Materials, Deakin University, Burwood, Australia)*, Cameron Bentley, William C. Chueh, J. Tyler Mefford, Patrick R. Unwin

Multiscale Electrochemical Screening of Nanoparticles: from Sub-single Entity to Ensembles

10:40 to 11:00

Wooyul Kim *(Department of Energy Engineering, Korea Institute of Energy Technology (KENTECH), Naju, Korea)*

Operando Spectroscopic Analysis in Photo/Electro-Catalysis

11:00 to 11:20

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

Nanoscale Structure-Activity Mapping of Electrocatalysts

11:20 to 11:40

David Macedo *(CSIRO Mineral Resources, CSIRO, Melbourne, Australia)*, Samridhi Bajaj, Conor F Hogan, Theo Rodopoulos, Mikko Vepsalainen

Non-linear baseline fitting for improved measurement of return peak current in cyclic voltammetry

11:40 to 12:00

Sylvie Delpech *(IJCLab, CNRS, ORSAY, France)*

Electrochemical measurements for the determination of chemical properties in molten salt solvents

12:00 to 12:20

Tadaharu Ueda *(Marine Resource Science, Kochi University, Nankoku, Japan)*, Shuhei Ogo, Naoki Yamasaki

Voltammetric Behavior of Copper-substituted Polyoxometalate, $[SCuW_{11}O_{39}]^{4-}$, in CH3CN: Investigation on the Redox Mechanism with Adsorption and Desorption Processes

s02b - Electrochemistry for energy

Phoenix Room

Chaired by Dr. Jessica Allen - Dr. Belisa Marinho

10:20 to 10:40 **Invited**

Antonio Tricoli *(Faculty of Engineering, University of Sydney, Sydney, Australia)*

Engineering Fractal-Structured Metal Phosphides for Efficient and Scalable Water Splitting

10:40 to 11:00

Chuan Zhao *(School of Chemistry, University of New South Wales, Sydney, Australia)*

Challenges and Opportunities for Green Hydrogen Production from Water Electrolysis

11:00 to 11:20

Ziqi Sun *(School of Chemistry and Physics, Queensland University of Technology, Brisbane, Australia)*, Juan Bai, Ting Liao, Jun Mei, Ziyang Wu

Electrochemical water splitting catalysis on 2D nanomaterials

11:20 to 11:40

Olga Kasian *(YIG 'Dynamic Electrocatalytic Interfaces', Helmholtz-Zentrum Berlin GmbH, Berlin, Germany)*, Paola Aguero Gamboa, Leopold Lahn, Andrea Mingers

Towards rational design of electrocatalysts for anodic oxygen evolution

11:40 to 12:00

Jiabao Yi *(Engineering, University of Newcastle, Callaghan, Australia)*, Xuze Chu, Zhihao Lei, CI Sathish

Challenges and Opportunities for Green Hydrogen Production from Water Electrolysis

12:00 to 12:20

Marian Chatenet *(LEPMI, Grenoble INP, Saint Martin d'Hères, France)*, Richard Bousquet, Lucile Magnier, Valérie Parry, Céline Pascal, Virginie Roche, Irina Shchedrina, Eric Sibert

Highly-active oxygen evolution electrodes based on activated industrial Ni-Fe alloys

Monday 8 May 2023 - Afternoon

s02a - Electrochemistry for energy

Norfolk Room

Chaired by Prof. Jenny Pringle - Dr. Mega Kar

13:40 to 14:00 **Invited**

Nian Liu *(Chemical and Biomolecular Engineering, Georgia Institute of Technology, Atlanta, USA)*

Deeply rechargeable zinc anodes for high-energy rechargeable aqueous batteries

14:00 to 14:20

Lee Johnson *(Chemistry, University of Nottingham, Nottingham, United Kingdom)*, Konstantinos Dimogiannis, Andrei Khlobystov, Graham Newton, Andrzej Sankowski, Darren Walsh

Mg electrode cycling in simple salt glyme electrolytes

14:20 to 14:40

Zhenzhen Wu *(Centre for Clean Environment and Energy, Griffith University, Gold Coast, Australia)*, Shanqing Zhang

Interfacial engineering of Zinc anode in the aqueous electrolyte

14:40 to 15:00

Qi Li *(Foshan Xianhu Laboratory, Foshan Xianhu Laboratory, Foshan, China)*

Multiscale Structure Engineering of Electrode Materials *via* Controlled Assembly

15:00 to 15:20

Michele Tribbia *(Production Engineering, Universität Bremen, Bremen, Germany)*, Fabio La Mantia, Giorgia Zampardi

Optimizing Mild-acid Zinc-Ion Batteries Through Electroplated Functional Substrates

15:20 to 16:00

Coffee Break

16:00 to 16:20

Shanqing Zhang *(School of Environment and Science, Griffith University, Gold Coast, Australia)*

Building ion transport channels for all-solid-state lithium ion batteriesShanqing Zhang

16:20 to 16:40

Zhigang Chen *(School of Chemistry and Physics, Queensland University of Technology, Brisbane, Austria)*

Zero-emission thermoelectric power generation for carbon neutrality

16:40 to 17:00

Bin Luo *(Australian Institute for Bioengineering and Nanotechnology, The University of Queensland, Brisbane, Australia)*

Advanced materials for non-aqueous Aluminium-ion Batteries

17:00 to 17:20

Bing Sun *(School of Mathematical and Physical Sciences, University of Technology Sydney, Ultimo, Australia)*

Redox mediators for lithium-air batteries

17:20 to 17:40

Jens Noack *(Applied Electrochemistry, Fraunhofer Institute for Chemical Technology, Pfinztal, Germany)*, Chris Menictas, Nataliya Roznyatovskaya, Maria Skyllas-Kazacos

Status of Developments and Commercialization of Important Flow Battery Technologies

s04 - Health

Monaco II Room

Chaired by Prof. Guangzhao Mao - Dr. Yang Liu

13:40 to 14:00 **Invited**

Christian Amatore *(Chemistry, CNRS, ENS and Xiamen University, Paris, France)*, Wen-Ting Fan, Wei-Hua Huang, Hong Jiang, Yan-Ling Liu, Yu-Ting Qi, Si-Yu Tian, Wen-Tao Wu, Fu-Li Zhang

Differential Homeostasis Inside Single Activated Phagolysosomes: Quantitative Selective Measurements of sub-Millisecond Dynamics of ROS/RNS Production with a Nanoelectrochemical Sensor

14:00 to 14:20

Kevin Plaxco *(Chemistry and Biochemistry, University of California, Santa Barbara, Santa Barbara, USA)*

Real-time, *in vivo* molecular monitoring using EAB sensors

14:20 to 14:40

Saimon Moraes Silva *(Biomedical Engineering, Swinburne University, Melbourne, Australia)*, Chathurika Abeyrathne, Luke Cossins, Miaosi Li, Simon Moulton, Anushka Samudra, George W. Greene

Use of Lubricin in Electrochemical Sensors: Solving the Antifouling Problems Towards Biomedical Applications

14:40 to 15:00

Monalisha Ghosh Dastidar *(Research School of Chemistry, Australian National University, Acton, Australia)*, Krishnan Murugappan, David Nisbet, Christopher Nolan, Antonio Tricoli

Highly Tuneable and Ultrasensitive Electrode Platform for Diabetes Management

15:00 to 15:20

Seiya Tsujimura *(Faculty of Pure and Applied Sciences, University of Tsukuba, Tsukuba, Japan)*

Glucose biosensor strip using FAD-dependent glucose dehydrogenase and quinone mediators

15:20 to 16:00

Coffee Break

16:00 to 16:20 **Invited**

Wenlong Cheng *(Chemical and Biological Engineering, Monash University, Clatyon, Australia)*

Soft Electrochemical Biosensors and Supercapacitors

16:20 to 16:40

Marion Stephan *(Laboratoire de Génie Chimique, Université Paul Sabatier, Toulouse , France)*, Audrey Carrière, Cédric Dray, Anne Galinier, Pierre Gros, Damien Lagarde, Rémi Montané

Global Redox Potential: A Extracellular Biomarker of Cellular Metabolism

16:40 to 17:00

Yu-Hsin Chang *(Chemical Engineering, National Taiwan University of Science and Technology, Taipei, Taiwan)*, Ching-Cheng Chang, Pawisa Kanokpaka, Pang-Chen Wang, Min-Hsin Yeh

Self-powered triboelectric sensor with polyaniline/N-doped graphene quantum dots layer for non-invasive glucose monitoring in human sweat

17:00 to 17:20

Yang Liu *(College of Science and Engineering, James Cook University, Townsville, Australia)*, Scarlett Allende, Francisco C. Robles Hernandez, Mohan V. Jacob, Oomman K. Varghese, Muhammad Adeel Zafar

Microwave Plasma Synthesis of Graphene-Based Materials for Electrochemical Sensing Applications

s02b - Electrochemistry for energy

Phoenix Room

Chaired by Dr. Sylvie Delpech - A/Prof. Jie Zhang

13:40 to 14:00 **Invited**

Jessica Allen *(School of Engineering, University of Newcastle, Newcastle, Australia)*, Dylan Cuskelly, Jackson Lee, Simin Moradmand

Non-Consumable Anodes for Oxygen Evolution in Molten Salt Electrolysis: Sustainable Production of Advanced Carbon Materials from Carbon Dioxide

14:00 to 14:20

Jie Zhang *(Chemistry, Monash University, Melbourne, Australia)*

Electrochemical Reduction of Carbon Dioxide

14:20 to 14:40

Yong Zhao *(Energy Center, CSIRO, Newcastle, Australia)*, Fengwang Li, David Sinton

Efficient CO_2-to-multicarbon conversion in strong acid by the control of catalyst microenvironment

14:40 to 15:00

Youngkook Kwon *(School of Energy and Chemical Engineering, Ulsan National Institute of Science and Technology, Ulsan, Korea)*

Atomic Scale Electrocatalyst Design for Selective CO_2 Reduction

15:00 to 15:20

Palraj Kalimuthu *(School of Chemistry and Molecular Biosciences, The University of Queensland, Brisbane, Australia)*, Paul Bernhardt, Russ Hille

Electrochemical interconversion between formate and CO_2 by Formate Dehydrogenase from Cupriavidus necator

15:20 to 16:00

Coffee Break

16:00 to 16:20

Tom Rufford *(School of Chemical Engineering, The University of Queensland, St Lucia, Australia)*, Liam Charlesworth, Mohamed Nazmi Idros, Wu Yuming

Striving for reliable, reproducible, and relevant CO_2 electrolysis measurements in research laboratories

16:20 to 16:40

Mengran Li *(Chemical Engineering, University of Melbourne, Melbourne, Australia)*, Thomas Burdyny, Siddhartha Subramanian, Kailun Yang

Inherently Stable PGM-Free Bipolar Membrane Electrode Assembly for CO_2 Electrolysis

16:40 to 17:00

Richard Webster *(School of Chemistry, Chemical Engineering and Biotechnology, Nanyang Technological University, Singapore, Singapore)*, Si Man Tam, Malcolm Tessensohn

Electrochemical Capture and Conversion of CO_2(g) Using Reduced Quinones

17:00 to 17:20

Simin Moradmand *(Chemical Engineering, University of Newcastle, Callaghan, Australia)*, Jessica Allen

Magnetic Carbon Formation from Electrolytic Conversion of Carbon Dioxide in Molten Salts

17:20 to 17:40

Shailendra Kumar Sharma *(Chemical and Process Engineering, University of Canterbury, Christchurch, New Zealand)*, Vladimir B. Golovko, Aaron T. Marshall

Au clusters-based electrocatalysts for CO_2 reduction

Tuesday 9 May 2023 - Morning

Keynote

Norfolk Room

Chaired by Prof. Debbie Silvester-Dean

08:30 to 09:10 **Keynote**

B. Jill Venton *(Department of Chemistry, University of Virginia, Charlottesville, USA)*, Qun Cao, Nicolay Lavrik, Zijun Shao, Cheng Yang

D Printed Carbon Electrodes for Neurochemistry

s02a - Electrochemistry for energy

Norfolk Room

Chaired by Prof. Antonio Tricoli - Dr. Bin Luo

09:20 to 09:40 **Invited**

Gao Liu *(Energy Storage and Distributed Resources Division, Lawrence Berkeley National Laboratory, Berkeley, USA)*

The Application of Conductive Polymers in Lithium Rechargeable Batteries

09:40 to 10:00

Dewei Chu *(School of Materials Science and Engineering, UNSW Sydney, Sydney, Australia)*

Bio-inspired Moisture Electric Generators: From Nanoionic Materials to Devices

10:00 to 10:40

Coffee Break

10:40 to 11:00

Zhaolin Liu *(Electronics Materials Department, Institute of Materials Research and Engineering, A*STAR, Singapore, Singapore)*, Nguk Neng Tham

Silicon/Silica/Carbon Hybrid Composite as Anode for Advanced Li-ion Batteries

11:00 to 11:20

Lei Zhang *(Science, Griffith University, Gold Coast, Australia)*

The application of silicon anode materials in energy storage systems

11:20 to 11:40

Qingbing Xia *(School of Chemical Engineering, The University of Queensland, Brisbane, Australia)*

Dependence of Sodium Ion Storage Properties on the Local Structure of Hard Carbon

11:40 to 12:00

Hae Ri Lee *(Energy engineering, Konkuk university, Seoul, Korea)*, Seunggyun Han, Han-Ik Joh

The Stability Enhancement of Sulfur-enriched Mo3S13 clusters for Li-ion batteries by the coating of extracted polycyclic aromatic hydrocarbons

12:00 to 12:20

Samia Said *(Electrochemical Innovations Lab, Chemical Engineering, UCL, London, United Kingdom)*

Black Phosphorus Degradation during Intercalation and Alloying in Batteries.

s01 - Fundamental electrochemistry

Monaco II Room

Chaired by Dr. Ruth Knibbe - Prof. Aaron Marshall

09:20 to 09:40 **Invited**

Guangzhao Mao *(Chemical Engineering, University of New South Wales, Kensington, Australia)*, Mohamed Kilani

Exploring Charge-Transfer Complex Electrochemistry for Nanosensor Scale Up

09:40 to 10:00

Ivan Buijnsters *(Precision and Microsystems Engineering, Delft University of Technology, Delft, Netherlands)*, Simona Baluchova, Yaiza Gonzalez-Garcia, Ziyu Li, Zhichao Liu, André Sartori, Matthias Schreck

Heavily Boron-Doped Diamond Grown on Scalable Heteroepitaxial Quasi-Substrates: A Promising Single Crystal Material for Electrochemical Sensing Applications

10:00 to 10:40

Coffee Break

10:40 to 11:00

Samridhi Bajaj *(La Trobe Institute of Molecular Sciences, La Trobe University, Bundoora, Australia)*, Georgina Armendáriz-Vindales, Conor F Hogan, Mohammad Reza Moghaddam

Bipolar annihilation electrochemiluminescence

11:00 to 11:20

Andela Bacinic *(Division for Marine and Environmental Research, Rudjer Boskovic Institute, Zagreb, Croatia)*, Marina Mlakar

Electrochemical analysis of Co(II) complex with L-glutathione under seawater conditions

11:20 to 11:40

Thomas Ruether *(Energy, CSIRO, Clayton, Australia)*, Yuyang Hou, Theo Rodopoulos, Fiona Yu

Electrochemical induced and controlled creation of thin uniform conducting polymer films on architecturally complex (semi)conducting surfaces

11:40 to 12:00

Tony Breton *(MOLTECH-Anjou - CNRS, University of Angers, Angers, France)*, Magali Allain, Thomas Cauchy, Laure Fillaud, Christelle Gautier, Nikolaos Kostopoulos, Emmanuel Maisonhaute, Jean-Marc Noël, Laure Pichereau

Surface Modification using Diazonium Electrografting: Evidence for a Stepwise Mechanism involving Highly Reactive Diazenyl Radicals

12:00 to 12:20

Bren Mark Felisilda *(Department of Electrode Processes, Institute of Physical Chemistry - Polish Academy of Sciences, Warsaw, Poland)*, Alonso Gamero-Quijano, Martin Jönsson-Niedziólka, Karolina Majewska, Micheál Scanlon, Katarzyna Szwabinska

Interfacial Polymerization *via* Electro-Fenton Process at a Soft Polarized Interface

s02b - Electrochemistry for energy

Phoenix Room

Chaired by Prof. Zhigang Chen - A/Prof. Liangzhi Kou

09:20 to 09:40 **Invited**

Yun Hau Ng *(School of Energy & Environment, City University of Hong Kong, China)*

Solar Fuels Production from Photoelectrocatalysis

09:40 to 10:00

Chi-Chang Hu *(Department of Chemical Engineering, National Tsing Hua University, Hsin-Chu city, Taiwan)*, Chi-Yu Lai, Zhi-Xiu Lin, Yi-Ting Lu

Engineering the Water Content of Polyvinyl Alcohol-Based Gel Electrolytes for High-Rate, Flexible Zinc-Air Batteries

10:00 to 10:40

Coffee Break

10:40 to 11:00

Byungchan Han *(Chemical and Biomolecular Engineering, Yonsei University, Seoul, Korea)*, Minjoon Hong, Hyebin Yun

First-principles Calculations combined with Machine Learning Design Approach toward Electrochemical Energy Storage and Conversion Materials

11:00 to 11:20

Liangzhi Kou *(Faculty of Engineering, QUT, Brisbane, Australia)*

Ferroelectric and topological catalysis

11:20 to 11:40

Aoni Xu *(Department of physics, Technical University of Denmark, Kongens Lyngby, Denmark)*, Jens Nørskov

Li-mediated electrochemical ammonia synthesis -the operation-dependent optimum

11:40 to 12:00

Adam Weber *(Energy Technologies Area, Lawrence Berkeley National Laboratory, Berkeley, USA)*, Grace Anderson, Alexis Bell, Justin Bui, Woong Choi, Tugrul Ertugrul, Chanyeon Kim, Ahmet Kusoglu

Controlling reactivity for electrochemical reduction through mass transport

12:00 to 12:20

Hongjun Chang *(Department of Energy Systems Engineering, Chung-Ang University, Seoul, Korea)*, Janghyuk Moon, Yoojin Park

High transport properties of lithium-ion in electrolytes using high-throughput screening and multi-scale simulations for sub-zero operation of lithium-ion batteries

Tuesday 9 May 2023 - Afternoon

Keynote

Norfolk Room

Chaired by A/Prof. Porun Liu

13:30 to 14:10 **Keynote**

Zaiping Guo *(School of Chemical Engineering, The University of Adelaide, Adelaide, Australia)*

Designing Electrode Materials and Electrolyte for High Energy Lithium Ion Batteries

s02a - Electrochemistry for energy

Norfolk Room

Chaired by Dr. Bing Sun - Dr. Simin Moradmand

14:20 to 14:40 **Invited**

Jenny Pringle *(Institute for Frontier Materials, Deakin University, Burwood, Australia)*

Development of new solid and liquid electrolytes by tailoring the ionic and molecular structure

14:40 to 15:00

Helene Rouault *(Liten, CEA- Atomic Energy and alternative Energies Commission, Grenoble, France)*, Julio Abusleme, Dominique Bascour, Gaelle Besnard, Marc-David Braida, Daniel Gloesener, Djamel Mourzagh, Jeremie Salomon

Development of a Compartmentalized Lithium-ion Battery

15:00 to 15:20

Mohammadhosein (Momo) Safari *(Engineering Technology, Hasselt University, Hasselt, Belgium),* Ashutosh Agrawal, Tom Gouveia, Hamid Hamed, Rongying Lin, Mohammadhosein (Momo) Safari, Saeed Yari

Charge Transport and Mechanical Properties of Ionic-Liquid-Based Solid Polymer Electrolytes in Contact with Lithium Electrode

15:20 to 16:00

Coffee Break

16:00 to 16:20

Min Hong *(Centre for Future Materials, University of Southern Queensland, Springfield Central, Australia)*, Zhi-Gang Chen

Reducing Lattice Thermal Conductivity for Achieving High-Performance Thermoelectrics

16:20 to 16:40

Liang Wang *(Centre for Catalysis and Clean Environment, Griffith Univeristy, Gold Coast, Australia)*

Electrochemical Engineering of 2D Materials for Electrocatalysis

16:40 to 17:00

Nikolay Ryzhkov *(Advanced Materials and Surfaces, Empa., Dübendorf, Switzerland)*, Essraa Ahmed, Artur Braun, Nora Colson, Paul Janssen, Paulius Pobedinskas

Electric Polarization Effect on Photosynthetic Performance of Limnospira Immobilized at Diamond-like Carbon Electrodes

s05 - David Williams Session

Monaco II Room

Chaired by Prof. Chuan Zhao - Prof. Jadranka Travas-Sejdic

14:20 to 14:40 **Invited**

Alan Bond *(Chemistry, Monash University, Clayton, Australia)*

Mechanistic Cyclic Voltammetric Studies Underpinned by Human and Artificial Intelligence

14:40 to 15:00 **Invited**

Jadranka Travas-sejdic *(School of Chemistry, The University of Auckland, Auckland, New Zealand)*

Electrically Addressable Biointerfaces

15:00 to 15:20 **Invited**

Robert Kelly *(Materials Science & Engineering, University of Virginia, Charlottesville, USA)*

Understanding Localized Corrosion Under Atmospheric Conditions: Using Modeling and Experiment

15:20 to 16:00

Coffee Break

16:00 to 16:20 **Invited**

Aaron Marshall *(Department of Chemical and Process Engineering, University of Canterbury, Christchurch, New Zealand)*, Michael Bennington, Sally Brooker, Vladimir Golovko, Johan Hamonnet

Cobalt-based Electrocatalysts for the Efficient and Selective Electroreduction of CO_2

16:20 to 16:40 **Invited**

Daren Caruana *(Chemistry, University College London, London, United Kingdom)*

Plasma Electrochemistry: Redox reactions in Gases

16:40 to 17:00 **Invited**

Hubert Girault *(ISC, EPFL, Lausanne, Switzerland)*

Green and Turquoise hydrogen for mobility

s02b - Electrochemistry for energy

Phoenix Room

Chaired by Dr. Qinglan Zhao - Dr. Aoni Xu

14:20 to 14:40 **Invited**

Mega Kar *(Institute of Frontier Materials, Deakin, Burwood, Australia)*

Advanced, Non-Aqueous Electrolytes for Rechargeable Metal Batteries

14:40 to 15:00

Hoang-Long Du *(School of Chemistry, Monash University, Melbourne, Australia)*, Jacinta Bakker, Khang Dinh, Rebecca Hodgetts, Douglas MacFarlane, Karolina Matuszek, Cuong Nguyen, Alexandr Simonov

Electrochemical Synthesis of Green Ammonia with High-performance Li-Mediated Process

15:00 to 15:20

Rebecca Hodgetts *(Department of Chemistry, Monash University, Clayton, Australia)*, Hoang-Long Du, Andrew Nelson, Alexandr Simonov, Callum Weir-Lavelle

Interrogation of the Mechanism of Li-mediated Ammonia Electrosynthesis by in situ neutron reflectometry

15:20 to 16:00

Coffee Break

16:00 to 16:20

Qinglan Zhao *(Chemical and Biological Engineering Department, Hong Kong University of Science and Technology, Hong Kong, China)*

High-Rate and Sustainable Production of Urea and Ammonia via Electrochemical Reduction of CO_2 and Nitrates

16:20 to 16:40

Sam Johnston *(Chemistry, Monash University, Clayton, Australia)*, Sam Cohen, Khang N. Dinh, Sarbjit Giddey, Douglas R. MacFarlane, Christopher Munnings, Cuong K. Nguyen, Tam D. Nguyen, Alexandr N. Simonov

Electrochemical Oxidation of Ammonia to Nitrates

16:40 to 17:00

Peter Sherrell *(Chemical Engineering, The University of Melbourne, Parkville, Australia)*, Alexander Corletto, Amanda Ellis, Donghyuck Park

Enhanced Electrocatalysis *via* Mechanical Energy Conversion

Wednesday 10 May 2023 - Morning

Keynote

Norfolk Room

Chaired by Prof. Huijun Zhao

08:30 to 09:10 **Keynote**

Shi-Gang Sun *(Department of Chemitry, Xiamen University, Xiamen, China)*, Yan-Xia Jiang, Yu-Cheng Wang, Jian Yang, Zhi-You Zhou

Structure Design and Properties Enhancement of Non-Precious Metal Catalysts for PEMFCs

s02a - Electrochemistry for energy

Norfolk Room

Chaired by Prof. Yun Hau Ng - Dr. Cameron Bentley

09:20 to 09:40 **Invited**

Lin Zhuang *(Chemistry Department, Wuhan University, Wuhan, China)*

Alkaline Polymer Electrolyte Based Technologies: Fuel Cells and Electrolysis

09:40 to 10:00

Wen-Feng Lin *(Department of Chemical Engineering,, Loughborough University,, Loughborough, United Kingdom)*

Low-cost Electrocatalysts for Alkaline Fuel Cells and Seawater Electrolyser

10:00 to 10:40

Coffee Break

10:40 to 11:00

Yoshitsugu Sone *(Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency, Chuo-ku, Sagamihara, Japan)*, Miki Ichikawa

Operability of the Reversible-type Regenerative Fuel Cell with the Interdigitated Structure of the Electrode

11:00 to 11:20

Jin Zhang *(Environmental Engineering, Beihang University, Beijing, China)*

Polymer electrolyte membrane with core-shell tin pyrophosphate proton conductor for fuel cells above 200 °C

11:20 to 11:40

Quentin Meyer *(School of Chemistry, , Sydney, Australia)*, Shiyang Liu, Chuan Zhao

Performances and Stability of Fe-N-C Catalysts in Proton Exchange Membrane Fuel Cells

11:40 to 12:00

Carsten Cremers *(Applied Electrochemistry, Fraunhofer Institute for Chemical Technology (ICT), Pfinztal, Germany)*, Nikul Maniya, Jan Meier

Corrosion investigation of Gas Diffusion Layers for Low Temperature Polymer Electrolyte Membrane Fuel Cells

12:00 to 12:20

Ying Da Wang *(Minerals and Energy Resources Engineering, University of New South Wales, Sydney, Australia)*, Ryan Armstrong, Dan Brett, Matthew Crawford, Francesco Iacoviello, Stephen Kelly, James McClure, Quentin Meyer, Peyman Mostaghimi, Paul Shearing, Kunning Tang, Robin White, Chuan Zhao

Beyond Hardware Imaging and Modelling of Hydrogen Fuel Cells with Deep Learning and High Performance Computing

s03 - Environment

Monaco II Room

Chaired by Prof. Ziqi Sun - Prof. Dewei Chu

09:20 to 09:40 **Invited**

Yanli Zhao *(School of Chemistry, Chemical Engineering and Biotechnology, Nanyang Technological University, Singapore, Singapore)*

Surface-Engineered Nanostructures for Advanced Electrocatalysis

09:40 to 10:00

Sharon Monaci *(Institute for Frontier Materials, Deakin University, Melbourne, Australia)*, Maria Forsyth, Daniele Mantione, David Mecerreyes, Daniela Minudri, Anthony Somers

Synthesis and characterization of novel organic corrosion inhibitors for mild steel

10:00 to 10:40

Coffee Break

10:40 to 11:00

Ming-Han Tsai *(Institute of Environmental Engineering, National Yang Ming Chiao Tung University, Hsinchu, Taiwan)*, Chi-Chang Hu, Chihpin Huang

Effect of Cu morphology of Cu_2O/Ni foam electrode on ammonia electrocatalytic oxidation and N selectivity

11:00 to 11:20

Belisa Alcantara Marinho *(Deparment for Nanostructured Materials, Josef Stefan Institute, Ljubljana, Slovenia)*, Miran Ceh, Barbara Ljubec Bozicek, Ziva Marinko

Synthesis of Catalysts Thin Films by Anodization of Titanium and other Metal Alloys

11:20 to 11:40

To be decided

11:40 to 12:00

Wanyu Lyu *(Centre for Future Materials, University of Southern Queensland, Brisbane, Australia)*, Zhigang Chen, Min Hong, Weidi Liu, Xiaolei Shi

Doping effect of rare earth elements on high-performance GeTe thermoelectrics

12:00 to 12:20

Xiaolei Shi *(School of Chemistry and Physics, Queensland University of Technology, Brisbane, Australia)*, Zhigang Chen

Strategies for improving the thermoelectric performance of SnSe-based materials

s01 - Fundamental electrochemistry

Phoenix Room

Chaired by A/Prof. Dawei Su - Dr. Rebecca Hodgetts

09:20 to 09:40 **Invited**

Ruth Knibbe *(Engineering, Architecture and Information Technology, University of Queensland, Brisbane, Australia)*

In-operando electrochemical transmission electron microscopy characterisation

09:40 to 10:00

Dmitrii Rakov *(AIBN, University of Queensland, Brisbane, Australia)*, Xiaodan Huang, Chengzhong Yu

Role of Interface and Interphase on Non-Uniform Metal Deposition in Aluminium Metal Anode Batteries

10:00 to 10:40

Coffee Break

10:40 to 11:00

Isao Shitanda *(Pure and Applied Chemistry, Tokyo University of Science, Noda, Chiba, Japan)*, Chihiro Baba, Masayuki Itagaki, Keiichi Komatsuki, Noya Loew, Keisuke Miyamoto, Shingo Niinobe, Kazuma Sugaya, Hikari Watanabe, Yoshifumi Yamagata

Rheo-Impedance Study for Dispersibility of Carbon Inks

11:00 to 11:20

Masnun Naher *(School of Chemistry and Molecular Biosciences, The University of Queensland, St Lucia, Australia)*

Catalytic and Mechanistic Studies of Copper(II) Complexes with Tetra-aza Macrocyclic Ligands for Atom Transfer Radical Addition

11:20 to 11:40

De-Yin Wu *(Department of Chemistry, Xiamen University, Xiamen, China)*, Zhong-Qun Tian, Yuan-Fei Wu

Plasmon-Mediated Photoelectrochemical Chemical Reactions on Noble Metal Electrodes of Nanostructures

11:40 to 12:00

Masatsugu Morimitsu *(Dept of Science of Environment and Mathematical Modeling, Doshisha University, Kyotanabe, Japan)*, Sachi Matsuura, Yuki Sakurai, Hayato Suzuki, Kazuya Takeuchi

Titanium Disk Method for RDE Measurements to Evaluate Pure Kinetics of Nano-oxide Oxygen Catalyst

12:00 to 12:20

Yan Ying Lee *(Institute for Applied Materials-Electrochemical Technologies, Karlsruhe Institute of Technology, Karlsruhe, Germany)*, Hoon Seng Chan, Ulrike Krewer, André Weber

Exploring the Potential of Nonlinear Frequency Response Analysis in Electrode-Resolved and Full-Cell Lithium-ion Batteries

Wednesday 10 May 2023 - Afternoon

Keynote

Norfolk Room

Chaired by A/Prof. Yulin Zhong

13:30 to 14:10 **Keynote**

Justin Gooding *(School of Chemistry, The University of New South Wales, Sydney, Australia)*, Sanjun Fan, Katharina Gaus, Yuanqing Ma, Richard Tilley, Yanfang Wu, Ying Yang

From electrochemically modulating single molecule fluorescence towards detecting single proteins

s02a - Electrochemistry for energy

Norfolk Room

Chaired by Dr. Quentin Meyer - Dr. Zhenzhen Wu

14:20 to 14:40 **Invited**

Yan Xiang *(School of Space and Environment, Beihang University, Beijing, China)*, Yunqi Li, Yiyang Liu, Shanfu Lu, Haining Wang, Jin Zhang

R/D and Industrialization of High-Temperature PEM Fuel Cell

14:40 to 15:00

Munkhbayar Batmunkh *(Queensland Micro- and Nanotechnology Centre, Griffith University, Brisbane, Australia)*, Munkhjargal Bat-Erdene, Abdulaziz Bati, Sarangerel Davaasambuu, Purevlkham Myagmarsereejid, Solongo Purevdorj, Joe Shapter, Suvdanchimeg Sunderiya, Selengesuren Suragtkhuu, Yu Lin Zhong

Oxidation and Degradation of 2D Materials: Electrocatalytic Activities

15:00 to 15:20

Petr Mazur *(Department of Chemical Engineering, University of Chemistry and Technology Prague, Prague, Czech Republic)*, Jiri Charvat, David Graf, Cameron Gray, Petr Hauschwitz, Jaromir Hnat, Juraj Kosek, Martin Paidar, Jaroslav Pocedic, Premysl Richtr, Adam Sedlacik

Zinc-air flow battery: towards eco-friendly and stable stationary storages

15:20 to 16:00

Coffee Break

16:00 to 16:20

Yu Lin Zhong *(School of Environment and Science, Griffith University, Nathan, Australia)*

A Green and Scalable Electrochemical Route for Cost-Effective Mass Production of MXenes for Supercapacitor Electrodes

16:20 to 16:40

Porun Liu *(Centre for Catalysis and Clean Energy, Griffith University, Gold Coast, Australia)*

Monoatomic Sites on Two Dimensional Substrates for Oxygen Reduction and Hydrogen Evolution reactions

16:40 to 17:00

Mengyang Dong *(Centre for Catalysis and Clean Energy, Griffith University, Gold Coast, Australia)*, Nicholas M. Bedford, Huaiqin Fu, Porun Liu, Huajie Yin, Huijun Zhao, Zhengju Zhu

Advanced Heterostructures of Transition Metal-based Electrocatalysts for Superdurable Zn-air Batteries

s03 - Environment

Monaco II Room

Chaired by Dr. Masnun Naher - Dr. Minkyung Kang

14:20 to 14:40 **Invited**

Paul Bernhardt *(School of Chemistry and Molecular Biosciences, University of Queensland, Brisbane, Australia)*

Electrochemical Insight to Cu-Catalysed Atom Transfer

14:40 to 15:00

Helmini Jayarathne *(Department of Biochemistry and Chemistry, La Trobe University, Bundoora, Australia)*, Darrell Elton, Conor F Hogan

Why does the reproducibility of screen-printed carbon electrodes depend on electrochemical technique?

15:00 to 15:20

Paul Kilmartin *(School of Chemical Sciences, University of Auckland, Auckland, New Zealand)*, Rasangani Sabaragamuwa

Reaction of Quinones Generated Electrochemically with Wine Nucleophiles

15:20 to 16:00

Coffee Break

16:00 to 16:20

Damien Arrigan *(Molecular and Life Sciences, Curtin University, Perth, Australia)*, Damien Delahaye, Peter Ó Conghaile

Particle Impact Electrochemistry for the Detection of "Rouging"

16:20 to 16:40

Fabian Steininger *(Department of Biology - Microbiology, Aarhus University, Aarhus C, Denmark)*, Gaston Crespo, Maria Cuartero, Klaus Koren, Alexander Wiorek

Chemical Imaging of Dissolved Inorganic Carbon *(DIC)* in Heterogeneous Samples

16:40 to 17:00

Dawei Su *(Science, The University of Technology Sydney, Australia)*

Functional Materials for Gas-Involved Energy Reactions

s02b - Electrochemistry for energy

Phoenix Room

Chaired by Dr. Munkhbayar Batmunkh - Dr. Lei Zhang

14:20 to 14:40

Adam Gorczynski *(Faculty of Chemistry, Adam Mickiewicz University, Poznan, Poland)*, Artur Ciesielski, Wlodzimierz Czepa, Maciej Kubicki, Veronica Montes-Garcia, Dawid Pakulski, Violetta Patroniak, Paolo Samori

Utilization of polyoxometalate *(POM)*-based hybrid materials for high-performance supercapacitors

14:40 to 15:00

Yu Zou *(Centre for Catalysis and Clean Energy, Griffith University, Gold Coast, Australia)*, Porun Liu, Yun Wang, Huajie Yin, Huijun Zhao

In situ Raman Spectroscopic Study towards MXene Single-Atom Electrocatalyst for high-Current Density Alkaline Hydrogen Production

15:00 to 15:20

Tao Wan *(School of Materials Science and Engineering, University of New South Wales, Sydney, Australia)*, Dewei Chu, Yanzhe Zhu

Robust Flexible Quasi-Solid-State Ag-Zn Batteries with High Areal Capacity and Long Cycle Life

15:20 to 16:00

Coffee Break

16:00 to 16:20

Adam Lewis-Douglas *(Engineering Science, University of Oxford, Oxford, United Kingdom)*, S. Jon Chapman, David Howey, Toby Kirk, Colin P. Please

Practical Challenges Associated with Nonlinear Impedance Measurements for Battery Characterization

16:20 to 16:40

Gözde Kardes *(Institute for Applied Materials-Electrochemical Technologies, Karlsruhe Inst. of Technology, Karlsruhe, Germany)*, Ulrike Krewer, Philipp Röse

Revealing the Structure-Performance Relationship of IrO_2 by Microkinetic Modeling of Cyclic Voltammograms

16:40 to 17:00

Shiwei Tao *(School of Mechanical and Mining Engineering, University of Queensland, Brisbane, Australia)*, Yalong Jiao, Ruth Knibbe, Miaoqiang Lyu

Solvent-derived Cathode-Electrolyte Interphase for Reversible Zinc-Graphite Dual-Ion Batteries

Poster Presentations

Sifu & Monaco Rooms

Monday 8 May

18:00 to 19:00 - odd poster numbers (001, 003, 005 ...)

19:00 to 20:00 - even poster numbers (002, 004, 006 ...)

S01 - Fundamental electrochemistry

S01-001

Gye Seok An *(Advanced Material Engineering, Kyonggi University, Suwon, Korea)*, Ji Hun Jeong

Fabrication of Multilayered Core-Shell structured Fe_3O_4@SnO_2@C nanoparticles through surface treatment and carbonization

S01-002

Samridhi Bajaj *(La Trobe Institute of Molecular Sciences, La Trobe University, Bundoora, Australia)*, Georgina Armendáriz-Vindales, Peter Ó Conghaile, Conor F Hogan

Utilising Fourier transform alternating current voltammetry for determination of homogeneous kinetics

S01-003

Junbeom Bang *(Department of Chemical Engineering and Materials Science, Chung-Ang University, Seoul, Korea)*, Sang Hyun Ahn

The Effects of Alkali Metal Cations for Electrochemical Ammonia Oxidation Reaction in Alkaline Electrolyte on Platinum Electrode

S01-004

Ivan Buijnsters *(Precision & Microsystems Engineering, Delft University of Technology, Delft, Netherlands)*, Essraa Ahmed, Simona Baluchova, Bob Brocken, Ken Haenen, Zhichao Liu, Paulius Pobedinskas

Ink-Jet Printed Boron-Doped Diamond Chip Electrodes for Electrochemical Sensing

S01-005

Miao Chen *(CSIRO Mineral Resources, CSIRO, Melbourne, Australia)*

Quantitative Evaluation of the Galvanic Effect of Pyrite (FeS_2) on the Electrochemical Dissolution of Enargite (Cu_3AsS_4)

S01-006

Seonghyun Choe *(School of Chemical Engineering and Materials Science, Chung-Ang university, Seoul, Korea)*, Sang Hyun Ahn, Junhyeong Kim

Regulating Product Selectivity in Electrochemical CO_2 Reduction by Tuning the Nanostructure of Cu Electrocatalyst

S01-007

Lachlan Gaudin *(Department of Chemistry, Monash University, Melbourne, Australia)*, Cameron Bentley, Minkyung Kang

Facet-Dependent Electrocatalysis and Surface Electrochemical Processes on Polycrystalline Platinum

S01-008

Miguel Gonzalvez *(Shool of Chemistry and Molecular Biosciences, University of Queensland, Brisbane, Australia)*, Paul Bernhardt, Chuyi Su, Craig Williams

The Atypical Cu(II)-C Bond Mediates Electro-Catalytic ATRA:

S01-009

Gyeong Ho Han *(Department of Chemical Engineering and Materials Science, Chung-Ang university, Seoul City, Korea)*, Sang Hyun Ahn

Electrodeposited CuPd Alloy Catalysts for Gaseous CO_2 Electrochemical Reduction Reaction

S01-010

Seokjin Hong *(Department of Chemical Engineering and Materials Science, Chung-Ang University, 84 Heukseokno, Dongjak-gu, Seoul, Korea)*, Sang Hyun Ahn

Core@shell structured anode with boosted oxygen evolution reaction by corrosion engineering for anion exchange membrane water electrolyzer

S01-011

Gunani Jayamaha *(Institute for Frontier Materials, Deakin University, Burwood, Australia)*, Minkyung Kang

Local Electrochemical Analysis of Metal Alloys via Scanning Electrochemical Cell Microscopy (SECCM)

S01-012

Hedam Kim *(Department of Chemical Engineering and Materials Science, Chung-Ang University, Seoul, Korea)*, Sang Hyun Ahn, Junhyeong Kim

Electrochemical Redox-Supported Phosphidation to Prepare Phosphide-Based Electrode for a Proton Exchange Membrane Water Electrolyzer

S01-013

Yan Ying Lee *(Institute for Applied Materials-Electrochemical Technologies, Karlsruhe Institute of Technology, Karlsruhe, Germany)*, Hoon Seng Chan, Ulrike Krewer, Jelena Popovic-Neuber

Identifying Surface Processes during Calendric Aging of Li/Li Cells using Nonlinear Frequency Response Analysis

S01-014

Jake Limb *(School of Chemistry, Monash University, Melbourne, Australia)*, Cameron Bentley, Lachlan Gaudin

Nanoscale Structure-Activity Relationships of MoS_2 for the Electrochemical CO_2 Reduction Reaction (eCO_2RR)

S01-015

Noya Loew *(Department of Pure and Applied Chemistry, Tokyo University of Science, Noda, Japan)*, Masaki Hanzawa, Masayuki Itagaki, Chika Miura, Taku Ogura, Chiaki Sawahara, Isao Shitanda, Yuichi Takasaki, Hikari Watanabe

Investigation of Structural Changes in Common Redox Enzymes using Small Angle X-Ray Scattering

S01-016

Yalong Ma *(CSIRO Mineral Resources, CSIRO, Melbourne, Australia)*, Miao Chen

SECM In-situ Probing of the Interfacial Chemistry of Chalcopyrite ($CuFeS_2$) and Pyrite (FeS_2) During the Anodic Dissolution in Sulfuric Acid Solutions

S01-017

Mahin Maleki *(Institute for Frontier Materials, Deakin University, Burwood, Australia)*, Ehsan Farabi, Minkyung Kang

Visualising Electrochemical Electron Transfer Heterogeneity on Polycrystalline Titanium

S01-018

Jesse Mullen *(School of Molecular and Life Sciences, Curtin University, Perth, Australia)*, Rob Atkin, Hua Li, Debbie Silvester

Ionic Liquid Mixtures: Progress Towards Task-Specific Electrolytes for Electrochemical Applications

S01-019

Thi Hong Nga Ngo *(School of Chemistry and Physics, Queensland University of Technology, 4001, Australia)*

Exploring the Activity and Stability of Pb Incorporated IrO_2 Films for the Oxygen Evolution Reaction in Acidic Conditions

S01-020

Sorour Semsari Parapari *(Department for Nanostructured Materials, Jozef Stefan Institute, Ljubljana, Slovenia)*, Miguel Bernal, Miran Ceh, Layrton José Souza da Silva, Saso Sturm, Daniel Torres, Jon Ustarroz, Kristina Zuzek

Direct Observation of Electrochemical Dissolution of Electrodeposited Au Nanoparticles on the Glassy Carbon Electrode via In-situ Liquid TEM

S01-021

Yuan-Fei WU *(College of Chemistry and Chemical Engineering, Xiamen University, Xiamen, China)*

Surface Enhanced Raman Spectroscopy of Potentially Regulated SPR Photochemical Reactions

S02 - Electrochemistry for energy

S02-001

Norah Alghamdi *(SCMB and AIBN, University of Queensland, St Lucia, Australia)*

Dendrite-free Zinc electrodeposition induced by PFPE for high-performance zinc-bromine flow batteries (ZBFBs)

S02-002

Aya Assafiri *(Chemistry, University of New South Wales, Sydney , Australia)*, David B. Hibbert, Chen Jia, Donald Thomas, Chuan Zhao

Sensitive Detection of Ammonia Produced From Electrochemical Nitrogen Reduction by 1H NMR with Radiation Damping

S02-003

Rashmi Bhaskaran *(Chemical Engineering, Indian Institute of Technology Madras, Chennai, India)*, Raghuram Chetty

One-step Synthesis of Functionalized Graphene and its Application as Catalyst Support in PEMFC

S02-004

Eric Campbell *(Queensland Micro-Nanotechnology Centre, Griffith University, Brisbane, Australia)*, Tania Benedetti, Kelin He, Zimo Huang, Yulin Zhong

The electrochemical etching of V_2AlC and application in Aqueous Zinc Ion Batteries

S02-005

Ching-Cheng Chang *(Chemical Engineering, National Taiwan University of Science and Technology, Taipei, Taiwan)*, Yu-Hsin Chang, Yao-Sheng Cheng, Tsung-Hsin Lai, Min-Hsin Yeh

NIR Photoelectrochromic Device with Indoor Thermal Management for Self-powered Smart Windows

S02-006

Ching-Cheng Chang *(Chemical Engineering, National Taiwan University of Science and Technology, Taipei, Taiwan)*, Sofiannisa Aulia, Jia-Yaw Chang, Yao-Sheng Cheng, Ting-Ying Lee, Mia Rinawati, Ni Luh Wulan Septiani, Yu-Ting Wu, Min-Hsin Yeh, Brian Yuliarto

A Robust Cobalt Manganese Sulfide Thin Film as Electrocatalytic Layer for Quantum Dot-sensitized Solar Cells with Polysulfide Electrolyte

S02-007

Nur Aqlili Riana Che Mohamad *(Chemistry and Nanoscience, Ewha Womans University, Seoul, Korea)*, Kyunghee Chae, Dong Ha Kim, Filipe Marques Mota

Brown Bismuth Vanadate as a Novel Bifunctional Electrocatalyst for Li-air battery

S02-008

Wonmyung Choi *(Chemical and Biomolecular Engineering, Yonsei University, Seoul, Korea)*, Byungchan Han, Sungjun Hong

Unveiling the Role of Oxygen Functionals on Electrochemical Performance of Graphene Oxide Based Heterostructures as Sodium Ion Battery Anode: A First-Principles Approach

S02-009

Shinwoo Choi *(Department of Bioscience and Biotechnology, Konkuk University, Seoul, Korea)*, Youngrok Lee

Current Production by Respiration Process of Cyanobacteria in Dark Conditions

S02-010

Emily Cooper *(School of Mechanical and Mining Engineering, The University of Queensland, St Lucia, Australia)*, Ian Gentle, Ruth Knibbe, Ming Li

Crystallographic Matching from Brass Current Collectors allows smooth Sodium Deposition in "Anode-Free" Batteries

S02-011

Wlodzimierz Czepa *(Faculty of Chemistry, Adam Mickiewicz University in Poznan, Poznan, Poland)*, Artur Ciesielski, Dawid Pakulski, Paolo Samori, Samanta Witomska

Molecular approach for preparation of functional nanomaterials for high performance supercapacitors

S02-012

Desheng Feng *(School of Chemical Engineering, The university of Queensland, Brisbane, Australia)*, Mengran Li, Vanessa Peterson, Zhonghua Zhu

Enhancing proton ceramic fuel cell cathode CO_2 tolerance via molten carbonate augmentation

S02-013

Ziheng Feng *(School of Materials Science and Engineering, University of New South Wales, Sydney, Australia)*, Dewei Chu, Tao Wan, Shuo Zhang, Renbo Zhu

A Self-rechargeable Moist-electric Generator with Diverse Applicable Conditions

S02-014

Huai Qin Fu *(Centre for Catalysis and Clean Energy, Griffith University, Gold Coast, Australia)*, Porun Liu, Huijun Zhao

Electrochemical fabrication of stable electrodes for efficient electrocatalytic reduction of CO_2

S02-015

Xinjie Guan *(School of Mechanical and Manufacturing Engineering, University of New South Wales, Sydney, Australia)*, Chris Menictas, Maria Skyllas-Kazacos

Hydraulic and Electrochemical Model for Redox Flow Batteries

S02-016

Wenwu Guo *(Chemical Engineering and Materials Science, Chung-Ang University, Seoul, Korea)*, Sang Hyun Ahna, Junhyeong Kim, Hyunki Kim

Constructing NiMnS electrode with Mn-rich surface for hydrogen production in anion exchange membrane water electrolyzer

S02-017

Vinay Gupta *(Physics, Khalifa University, Abu Dhabi, United Arab Emirates)*, Shanmugam Kumar

D printed Porous PLA/S/CNT based Nanocomposite Electrodes for Li-ion supercapacitor

S02-018

Sang Myeong Han *(Department of Chemistry, Yonsei University, Seoul, Korea)*, Jiyoung Kim, Dongil Lee

Rationally Designed Metal Nanocluster for Local Cation Enrichment in Electrocatalytic Carbon Dioxide Reduction

S02-019

Thom Harris-Lee *(Chemistry, Monash University, Melbourne, Australia)*, Cameron Bentley, Andrew Johnson, Frank Marken, Jie Zhang

New 3D Architectures for Photocatalysis: O_2 Evolution and Cl-Oxidation on TiO_2 Nanorods

S02-020

Alexander R. Heenan *(Department of Chemical and Process Engineering, University of Canterbury, Christchurch, New Zealand)*, Aaron T. Marshall

Impact of Electrode Geometry and Flowrate on the Selectivity and Activity of the Electrochemical CO_2 Reduction Reaction

S02-021

Minjoon Hong *(Dept. of Chemical and Biomolecular Engineering, Yonsei University, Seoul, Korea)*, Hoje Chun, Byungchan Han

Machine-learning Parametrization of Analytical Bond-order Potential for Atomic Decomposition of Electrolyte

S02-022

Armin Hrnjic *(Department of Materials Chemistry, National Institute of Chemistry, Hajdrihova 19, 1000 Ljubljana, Slovenia, Slovenia)*

Exploring Gas Diffusion Electrode Methodologies for Low-Temperature Fuel Cell Applications: An Interlaboratory Comparison

S02-023

Yu-Fang Hsu *(Chemical Engineering, Feng Chia University, Taichung City, Taiwan)*, Yun-Ya Wang, Yu-Ching Weng

Rapid Screening of Molybdenum Oxide based Electrocatalysts for Oxygen Evolution Reaction

S02-024

Mengqing Hu *(Centre for Catalysis and Clean Energy, Griffith University, Molendinar, Australia)*

Template Electrodeposition of Porous Lead Dioxide for Enhanced Electrochemical Ozone Production

S02-025

Lixu Huang *(IFM, Deakin University, Burwood, Australia)*, Maria Forsyth, Patrick Howlett, Faezeh Makhlooghi

Investigation on the influence of mixed-cation ionic liquid on SEI formation on Na metal anodes

S02-026

Ling Huang *(College of Chemistry and Chemical Engineering, Xiamen University, Xiamen, China)*, Hui Chen, Zheng Huang, Zhen Li, Chen-Guang Shi, Shi-Gang Sun, Zi-Hao Wen, Wei-Chen Zheng

n Interphase Engineering Method of Stabilizing Ni-rich Cathode in Lithium-ion Batteries by A Nucleophilic Reaction-Based Additive

S02-027

Suseong Hyun *(Department of Chemical and Biomolecular Engineering, Yonsei University, Seoul, Korea)*, Hoje Chun, Byungchan Han, Minjoon Hong, Joonhee Kang

First-Principles Study on Ultrafast Li-ion Diffusion in Halospinel $Li_2Sc_{2/3}Cl_4$ Through Multichannels Designed by Aliovalent Doping

S02-028

Mohamed Nazmi Idros *(School of Chemical Engineering, the University of Queensland, St Lucia, Australia)*, Timothy Duignan, Mengran Li, Thomas E. Rufford, Geoff G.X. Wang, Yuming Wu

Elucidating the effects of solvent-ionomer interactions on copper catalyst layers for CO_2 electrolysis to multicarbon products

S02-029

Martin Ihrig *(Department of Chemical Engineering, National Taiwan University of Science and Technology, Taipei, Taiwan)*, Martin Finsterbusch, Olivier Guillon, Alexander M. Laptev, Ruijie Ye

Polymer-Garnet-based Composite Cathodes for Solid-State Li Batteries

S02-030

HyungKuk Ju *(Clean Fuel Research Laboratory, Korea Institute of Energy Research, Daejeon, Korea)*, Jae Hyung Kim, Sun Hyung Kim, Kyungho Lee, Joonmok Shim, Hyung Chul Yoon

Electrochemical Nitrogen Reduction Reaction to Ammonia In Aqueous Electrolytes Using a Green eHaber-Bosch Process

S02-031

Yeji Jun *(Department of Chemical Engineering and Materials Science, Chung-Ang University, Seoul, Korea)*, Sang Hyun Ahn, Junhyeong Kim

Self-Terminated Growth of Layer-by-Layer Pt Films by Electrochemical Deposition: Decent and Cost-effective Electrodes for Ammonia Oxidation Reaction

S02-032

Seung-Ho Kang *(Materials and Energy Technology Center, Agency for Defense Development, Daejeon, Korea)*, Tae-Young Ahn, Hae-Won Cheong, Minu Kim, Jaein Lee

Shock-Activated Thermal Battery for Smart Ammunition Systems

S02-033

Dima Kaplan *(Mechanical Engineering Department, NRCN, Beer-Sheva, Israel)*, Amir Natan, Chen Olewsky, Emanuel Peled, Meital Shviro, Polina Tereshchuk

Study of Ruthenium Contamination Effect on Oxygen Reduction Activity of Platinum-based Fuel Cells Cathode Catalyst

S02-034

Arshdeep Kaur *(Department of Chemistry and Physics, Queensland University of Technology, Brisbane, Australia)*

Recovering materials from energy devices for electrocatalytic applications.

S02-035

Hyeongjae Kim *(Department of Bioscience and Biotechnology,Konkuk University, Konkuk University, Seoul, Korea)*, Yongwon Jeon, Sunghyun Kim, Jun Hyun Kim

Hydrogen production with wastewater from an alcohol factory treated with bicarbonate buffer in microbial electrolysis cells

S02-036

Jinsoo Kim *(Department of Chemical Engineering, Kyung Hee University, Yongin-si, Korea)*

Synthesis of Hollow CNT-Embedded CoFe-NC Electrocatalyst for Oxygen Reduction Reaction

S02-037

Jaehyun Kim *(Department of Energy Systems Engineering, Chung-Ang University, Seoul, Korea)*, Janghyuk Moon

Mechanical Stability Analysis of Composition-gradient SiOx for High-capacity Anode Using Stress-Diffusion Simulation Model

S02-038

Jinsoo Kim *(Dept. of Chemical Engineering, Kyung Hee University, Yongin-si, Korea)*

Synthesis of Ruthenium doped MoO_2 Spheres by Spray Pyrolysis and Their Application for Hydrogen Evolution Reaction

S02-039

Jun Hyun Kim *(R&D, EN Corporation, Dangjin-si, Korea)*, Yongwon Jeon, Sunghyun Kim, Tae Yeon Kong

A Microbial Electrolysis Cell for the Treatment of Wastewater from a Soju Factory

S02-040

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