

Oral Presentation

Topic 1: Batteries

Batteries-I (Location: R202, Nov 11, 2022) Chair: Kuan-Zong Fung		
TIME	SPEAKER	TITLE
09:50-10:30	Subhasish Basu Majumder* <i>Indian Institute of Technology, Kharagpur</i>	Li-ion Battery and Supercapacitor Hybrid Energy Storage
	Wei-Nien Su <i>National Taiwan University of Sci. and Tech.</i>	Highly Concentrated Electrolytes for Aqueous Zn Ion Batteries

Batteries-II (Location: R202, Nov 11, 2022) Chair: Wei-Nien Su		
10:50-12:10	Kuan-Zong Fung <i>National Cheng Kung University</i>	Revisiting Ni-rich Layered Oxide Cathodes with Different Processing Techniques
	Chun-Chen Yang <i>Ming Chi University of Technology</i>	Preparation of Ni-rich $\text{LiNi}_{0.855}\text{Co}_{0.095}\text{Al}_{0.05}\text{O}_2$ as Cathode Materials via Taylor Flow Reactor and Spray Dry Method
	Tzu-Ho Wu <i>National Yunlin University of Sci. and Tech.</i>	Expanded Spinel $\text{Zn}_x\text{Mn}_2\text{O}_4$ Induced by Glucose-Mediated Method for Stable Cycle Performance in Aqueous Zn-Ion Batteries
	Chia-Chin Chang <i>National University of Tainan</i>	Lean-electrolyte Lithium-Sulfur Cells with a Nickel/sulfur Energy Storage Material

Batteries-III (Location: R202, Nov 11, 2022) Chair: Linag-Yin Kuo		
13:10-14:30	Sheng-Heng Chung <i>National Cheng Kung University</i>	Lean-electrolyte Lithium-Sulfur Cells with a Nickel/sulfur Energy Storage Material
	Chien-Te Hsieh <i>Yuan Ze University</i>	LATP-based Composite Solid Electrolytes for High Performance Lithium Metal Batteries
	Aknachew Mebreku Demeku <i>National Taiwan University of Sci. and Tech.</i>	High-Entropy Oxide Nanoparticles Used as Efficient Electrocatalyst for Vanadium Redox Flow Batteries (VRFBs)
	Payam Kaghazchi <i>Forschungszentrum Jülich GmbH, Institute of Energy and Climate Research</i>	Theoretical Study of Layered Oxide Cathode Materials for Na-ion Batteries

Batteries-IV (Location: R202, Nov 11, 2022) Chair: Sheng-Heng Chung		
14:50-16:10	Donnic Bresser <i>Helmholtz Institute Ulm (HIU), Karlsruhe Institute of Technology (KIT)</i>	Green Materials and Processing Technologies for More Sustainable Lithium-Ion Batteries
	Laurence Hardwick <i>University of Liverpool</i>	Operando Optical Diagnostics of Lithium Battery Chemistries
	Yu-Lun Chueh <i>National Tsing Hua University</i>	Optimized Strategies on Surface Modification of Anode, Design of Deep Eutectic Solvent (DES)-Based Electrolytes, and Structural Engineered-Cathodes for High Performance Rechargeable Zinc and Aluminum Ion Batteries
	Martin Ihrig <i>Forschungszentrum Jülich GmbH, Institute of Energy and Climate Research</i>	Ceramic-Based All Solid-State Li Batteries by Advanced Sintering Techniques

Keynote Speaker / Invited Speaker / Oral Contributor

*Online Presentation

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Batteries-V (Location: R202, Nov 12, 2022) Chair: Wei-Ren Liu		
TIME	SPEAKER	TITLE
09:40-10:20	Bing-Joe Hwang <i>National Taiwan University of Sci. and Tech.</i>	Metal Deposition and Stripping in Metal Batteries
	Shih-Kang Lin <i>National Cheng Kung University</i>	Contact Stability in Oxide-based All-Solid-State Li Batteries

Batteries-VI (Location: R202, Nov 12, 2022) Chair :Bing-Joe Hwang		
10:40-12:00	Shigeto Okada* <i>Kyushu University</i>	Composite Cathodes with Sacrificial Salt and Anion Acceptor
	Takeshi Abe* <i>Kyoto University</i>	Ion Transfer at Interface between Electrode and Electrolyte
	Wei-Ren Liu <i>Chung Yuan Christian University</i>	Reactive Plasma Oxygen-Modified and Nitrogen-Doped Soft Carbon as a Potential Anode Material for Lithium-Ion Batteries using a Tornado-Type Atmospheric Pressure Plasma Jet
	Chia-Chin Chen <i>National Taiwan University</i>	Mixed Ion-Electron Transport in Composite Electrodes

Batteries-VII (Location: R202, Nov 11, 2022) Chair: Chuan-Pu Liu		
14:00-15:20	Ching-Yuan Su <i>National Central University</i>	Fluorinated and Nanostructured Graphene as a Dual-Functional Anode to Achieve Dendrite-Free Lithium Metal Batteries
	Chia-Chen Li <i>National Tsing Hua University</i>	Carbon Fabric as Conductive Host of Silicon Anodes and Sulfur Cathodes
	Nae-Lih Wu <i>National Taiwan University</i>	Investigation of Fast (Dis)Charge Mechanism of High-Capacity Anatase Mesocrystal Anode
	Laurent Zinck <i>Innolith Science and Technology GmbH</i>	Lithium-Ion Batteries Powered by Inorganic Electrolyte

Batteries-VII (Location: R202, Nov 11, 2022) Chair: Nae-Lih Wu		
15:40-17:00	Fu-Ming Wang <i>National Taiwan University of Sci. and Tech.</i>	Evaluation of LiNiO ₂ with Minimal Cation Mixing as a Cathode for Li-Ion Batteries
	Tai-Feng Hung <i>Ming Chi University of Technology</i>	Hydrogel-derived Hierarchical Porous Activated Carbon as the Cathode aor Alkali Metal-Ion Capacitors
	Chuan-Pu Liu <i>National Cheng Kung University</i>	Propelling Silicon Thin Film Lithium Ion Battery by Appropriate Doping and Interlayered Silver Nanoparticles
	Hsing-Yu Tuan <i>National Tsing Hua University</i>	High-Performance Potassium-Ion Battery Materials

Topic 2: Capacitors and Fast Charging Devices

Capacitors and Fast Charging Devices-I (Location: R210, Nov 12, 2022) Chair: Che-Ning Yeh

TIME	SPEAKER	TITLE
09:40-10:00	Hiroto Nishihara* <i>Tohoku University</i>	Graphitized and Highly Mesoporous Graphene with High Durability and Sponge-like Flexibility for High-Performance Supercapacitors
10:00-10:20	Jeng-Yu Lin <i>Tunghai University</i>	High-Voltage and Wide Temperature-Tolerant Hybrid Electrolytes for Fast Charging Devices

Capacitors and Fast Charging Devices-II (Location: R210, Nov 12, 2022) Chair: Che-Ning Yeh

10:40-11:00	Hsun-Yi Chen <i>National Taiwan University</i>	On Fundamentals of Pseudocapacitive Materials and Validation in a Lithium-Ion Capacitor
11:00-11:20	Su-Ching Wang <i>National Taipei University of Technology</i>	Developing Zeolitic Imidazolate Frameworks 67-Derived Fluorides Using 2-Methylimidazole and Ammonia Fluoride for Energy Storage and Electrocatalysis
11:20-12:00	Shih-Yuan Lu <i>National Tsing Hua University</i>	Nanostructuring Anode Materials for High Performance Lithium Ion Capacitors

Capacitors and Fast Charging Devices-III (Location: R210, Nov 12, 2022) Chair: Yung-Tin Pan

14:00-14:20	Meng-Hua Lin <i>National Taiwan University</i>	Intercalation of Charge Carrier in Micro-sized LaMnO_3 Particles
14:20-14:40	Lu-Yin Lin <i>National Taipei University of Technology</i>	Design of Novel Self-assembled MXene and ZIF67 Derivative Composites as Electroactive Material of Energy Storage Device
14:40-15:20	Wataru Sugimoto* <i>Shinshu University</i>	Impact of Macro/microstructure of Nanosheet Architectures on Pseudocapacitive Charge Storage

Capacitors and Fast Charging Devices-IV (Location: R210, Nov 12, 2022) Chair: Yung-Tin Pan

15:40-16:00	Chia-Hung Hou <i>National Taiwan University</i>	Membrane Capacitive Deionization Technology: Engineering Implementation for Water Reuse
16:00-16:20	Sanna Gull <i>National Tsing Hua University</i>	High Capacity Aqueous Zinc-ion Storage Using High Oxidation State Metal-ion-preintercalated Vanadium Oxide Cathode
16:20-17:00	Jae-Jin Shim <i>Yeungnam University</i>	Doping and Substitution for Enhancing the Performance of Supercapacitors

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Topic 3: Photoelectrochemistry

Photoelectrochemistry-I (Location: R209, Nov 11, 2022) Chair: Tung-Han Yang

TIME	SPEAKER	TITLE
09:50-10:10	Jyh-Ming Wu <i>National Tsing Hua University</i>	Piezocatalysis and Piezoelectrocatalysis: Hydrogen Production and Environmental remediation
10:10-10:30	Yung-Jung Hsu <i>National Yang Ming Chiao Tung University</i>	Semiconductor Heterostructures for Photoconversion Applications

Photoelectrochemistry-II (Location: R209, Nov 11, 2022) Chair: Tung-Han Yang

10:50-11:10	Tai-Chou Lee <i>National Central University</i>	Photocatalyst Thin Films for Solar-to-Chemical Conversion
11:10-11:30	Chia-Ying Chiang <i>National Taiwan University of Sci. and Tech.</i>	BiVO ₄ Photoanode for Photoelectrochemical Glycerol Oxidation
11:30-11:50	Yan-Gu Lin <i>National Synchrotron Radiation Research Center</i>	Surface and Interface Analyses of Heterogeneous Functional Materials for Energy Applications
11:50-12:10	Tzu-Sen Su <i>National Tsing Hua University</i>	Crown Ether Modulation as Host-guest Complexation for over 23% of Perovskite Solar Cells

Photoelectrochemistry-III (Location: R209, Nov 11, 2022) Chair: Ho-Hsiu Chou

13:10-13:50	Jih-Jen Wu <i>National Cheng Kung University</i>	Intrinsic Defect Modified Carbon Nitrides for Efficient Solar Energy Conversion and Storage
13:50-14:10	Chun-Hong Kuo <i>National Yang Ming Chiao Tung University</i>	Nanoarchitectonic Engineering for Small Molecule Conversion
14:10-14:30	Ying-Chih Pu <i>National University of Tainan</i>	The Effects of Crystal Facet Modulation and Surficial Oxygen Vacancies to Improve Photoelectrochemical Performance of BiVO ₄ Photoanode

Photoelectrochemistry-IV (Location: R209, Nov 11, 2022) Chair: Ho-Hsiu Chou

14:50-15:10	Ho-Hsiu Chou <i>National Tsing Hua University</i>	Design and Synthesis of Semiconducting Polymers for Visible-Light-Driven Hydrogen Evolution
15:10-15:50	Alexander Cowan* <i>University of Liverpool</i>	Mechanistic Studies of Inorganic Photoelectrodes and Polymer Photocatalysts for Light-Driven Water Splitting

Topic 4: Electrochemical Technologies

Electrochemical Technologies-I (Location: R209, Nov 12, 2022) Chair: Lin-Chi Chen

TIME	SPEAKER	TITLE
09:40-10:20	Ruey-An Doong* <i>National Tsing Hua University</i>	Enhanced Capacitive Deionization and Metal Ion Removal by Using Carbon-Based Nanocomposites

Electrochemical Technologies-II (Location: R209, Nov 12, 2022) Chair: Wei-Fan Kuan

10:40-11:00	Lin-Chi Chen <i>National Taiwan University</i>	Composition Profiling and IoT Applications in Intelligent Agriculture with Potentiometric Solid-Contact Ion-Selective Electrodes
11:00-11:20	Kuo-Lin Huang <i>National Pingtung University of Sci. and Tech.</i>	Boron-Doped Diamond Electrodes for Electrochemical Degradation of Pharmaceutical Active Compounds in Aqueous Solutions
11:20-11:40	Yu-Jen Shih <i>National Sun Yet-san University</i>	Role of Metallic Cu and Sn Based Catalysts in Electrochemical Denitrification and Selectivity
11:40-12:00	Tsan-Yao Chen <i>National Tsing Hua University</i>	Tunable Dimension of Atomic Pt Cluster Decoration on Co Oxide Supported Pd Nanoparticle as Single Nanoparticle Reactor as Alkaline Fuel Cell Cathode Materials

Electrochemical Technologies-III (Location: R209, Nov 12, 2022) Chair: Kuan-Wen Wang

14:00-14:20	Li-Hsien Yeh <i>National Taiwan University of Sci. and Tech.</i>	Promising Ionic Devices for Ultrahigh Performance Osmotic Energy Harvesting
14:20-14:40	Ruben Foeng <i>National Taiwan University of Sci. and Tech.</i>	Effect of Polysiloxane-Based Conducting Polymer as An Additive for NMC 811 Cathode Li-Ion Battery
14:40-15:00	Cheng-Lan Lin <i>Tamkang University</i>	Electrochromic Devices Fabricated Using UV-cured Polyethylene Glycol Diacrylate Electrolytes and in-situ Polymerized Poly(3,4-ethylenedioxythiophene) Thin Films
15:00-15:20	Wei-Fan Kuan <i>Chang Gung University</i>	Manipulating Asymmetric Morphology of PVDF Porous Membranes for Lithium Metal Battery Applications

Electrochemical Technologies-IV (Location: R209, Nov 12, 2022) Chair: Li-Hsien Yeh

15:40-16:20	Chia-Wen(Kevin) Wu <i>National Taiwan University</i>	Metal-Organic Frameworks (MOFs)-Driven Electrochemical Technology for Carbon Neutral Society
16:00-16:20	Thi Kim Anh Nguyen <i>National Tsing Hua University</i>	Architecture of Badam Tree Leaf-Derived Carbon and Metal-Carbide as Asymmetric Electrochemical Nanomaterials for Capacitive Deionization
16:20-17:00	Kuan-Wen Wang <i>National Central University</i>	Revealing and Modification of Ru/C Catalysts for Efficient Hydrogen Evolution

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Topic 5: Electrochemical Driven Conversion

Electrochemical Driven Conversion-I (Location: R210, Nov 11, 2022) Chair: Tsu-Chin Chou

TIME	SPEAKER	TITLE
09:50-10:10	Sung-Fu Hung National Yang Ming Chiao Tung University	Tandem Catalysis and Spatial Confinement Enhancement Enable Efficient Carbon Dioxide Reduction Reaction to Multi-carbon Products
10:10-10:30	Ming-Kang Tsai National Taiwan Normal University	Field-Dependent Microscopic Description for CO ₂ RR on Cu-Based Materials by the First-Principle Simulations

Electrochemical Driven Conversion-II (Location: R210, Nov 11, 2022) Chair: Sung-Fu Hung

10:50-11:10	Chen-Hao Wang National Taiwan University of Sci. and Tech.	Metal Carbide/Oxide Electrocatalyst-Loaded Graphite Felt as a High-Performance Electrode for All Vanadium Redox Flow Battery
11:10-11:30	Di-Yan Wang Tunghai University	Development of Active Electrochemical Catalysts for Ammonia and Hydrogen Evolution Reaction
11:30-12:10	Li-Chyong Chen National Taiwan University	Single-atom MN ₄ Electrocatalysts Incorporated with Coplanar or Axial Heteroatom for HER or ORR: Electronic Structure and Mechanistic Studies via X-ray Spectroscopies

Electrochemical Driven Conversion-III (Location: R210, Nov 11, 2022) Chair: Chung-Wei Kung

13:10-13:30	Heng-Liang Wu National Taiwan University	<i>in-situ</i> Vibrational Spectroscopy Studies of CO ₂ Electroreduction at Cu-Based Electrocatalyst
13:30-13:50	Chia-Yu Lin National Cheng Kung University	Efficient Electrocatalytic System for the Synthesis of Hexamethylenediamine from Acrylonitrile and Water as the Feedstock
13:50-14:10	Amisha Beniwal National Tsing Hua University	Potential Cooperation between CoPt Nanoalloys and Atomic Pt-Clusters Improves the Oxygen Reduction Performance of Metal Oxide Composite Supported Pd Nanoparticles
14:10-14:30	Jun De Zhan National Taiwan University of Sci. and Tech.	Insight into Surface State of Ni ₂ O ₃ and NiO During Glycerol Electro-Oxidation by <i>in-situ</i> Raman Spectroscopy

Electrochemical Driven Conversion-IV (Location: R210, Nov 11, 2022) Chair: Heng-Liang Wu

14:50-15:10	Chung-Wei Kung National Cheng Kung University	Robust Metal–Organic Frameworks for Electrocatalysis
15:10-15:50	Ding-Huei Tsai National Tsing Hua University	MgO Supported Copper Catalyst with Enhanced Carbon Dioxide Reduction Reaction under Anion MEA Conditions
15:10-15:50	Yong-Song Chen National Chung Cheng University	Effect of Carbon Black Composition of Slurry Electrode on the Performance of an All-iron Redox Flow Batteries
15:10-15:50	Senthil Raja Duraisamy National Tsing Hua University	Effect of Fe-doping on the Electrocatalytic Oxygen Evolution Performances of Cobalt MOF-derived Co ₃ O ₄ Nanocomposites