

# Poster Competition

## Grading Rules for Poster Competition

Students who participate in the Poster Competition should print their posters and be posted before the designated time (Topic 1, 3, 5 on November 11<sup>th</sup>; Topic 2, 4 on November 12<sup>th</sup>). The “Winners” and “Honorable Mention” posters will be selected, and the certificates and prize money will be awarded for encouragement.

### I. Eligibility (must meet all requirements):

1. The contestants must have student status at the time of the conference. Please bring your student ID for verification at the registration desk.
2. To participate in the competition, students must be registered for this conference and have completed the registration payment.

### II. Competition rules and grading policy:

1. Required poster format: A0 (84.1 cm x 118.9 cm). According to the assigned time slots, **please complete the poster posting before 12:00 on Nov. 11<sup>th</sup> or 12<sup>th</sup>.**
2. Grading policy: Content (50%), Art and Design (20%), and Presentation & QA (30%).

### III. Award

1. Top 10 % of each topic will be announce as “Winners” and awarded NT \$2000.
2. Top 20% of each topic will be given an “Honorable Mention”.

### IV. Undefined matters will be discussed and decided by the committee and judges.

# Poster Competition

## Topic 1: Batteries

(Fri, Nov 11, Chemical Engineering Building 1F)

No.	Presenting Author	Affiliation	Title
T1-PC-001	Yi-Yen Hsieh	National Tsing Hua University	Architectural van der Waals Bi <sub>2</sub> S <sub>3</sub> /Bi <sub>2</sub> Se <sub>3</sub> topological heterostructure as a superior potassium-ion storage material
T1-PC-002	Che-Ya Wu	National Tsing Hua University	Freeze Drying Process Applied in Constructing 3D-Net Architecture Cellulose Nanofiber / Waste-Si Composite in Lithium-ion Battery Anode Materials
T1-PC-003	Zhi-Ting Liu	Chung Yuan Christian University	Temperature effects on biomass carbon derived from sawdust as an anode material for Na ion batteries
T1-PC-004	Cheng-En Yu	Chung Yuan Christian University	Li <sub>1.3</sub> Al <sub>0.3</sub> Ti <sub>1.7</sub> (PO <sub>4</sub> ) <sub>3</sub> solid electrolytes synthesized by microwave-assisted hydrothermal reaction for Li all-solid-state batteries
T1-PC-005	Yin-Chen Hsu	Chung Yuan Christian University	Mechanochemical Synthesis of Li <sub>6</sub> PS <sub>5</sub> Br Solid Electrolytes for Li Solid Batteries
T1-PC-006	Cheng-Che Wu	National Cheng Kung University	High-energy-density Lithium-Sulfur Electrochemistry with a Lean-electrolyte Design based on a Hot-pressed Electrospun Cathode
T1-PC-007	Chien Hao Yeh	National Tsing Hua University	Improved Electrochemical Performance of Oxygen-Redox-Based Layer Oxide Cathode for Na-ion Batteries Through Alkaline Metal Layer Doping
T1-PC-008	Debabrata Mohanty	Yuan Ze University	High conduction solid polymer electrolyte for all-solid-state lithium-ion battery at ambient temperature
T1-PC-009	Yu-Hsuan Li	Chung Yuan Christian University	Silicon/carbon composite anode derived from nano silicon/phenolic resin/pitch as anode materials for lithium-ion batteries
T1-PC-010	Yun-Chen Wu	National Cheng Kung University	Bifunctional cathode structure design for high-sulfur-loading and lean-electrolyte lithium-sulfur cells
T1-PC-011	Chui-Yi Kung	National Cheng Kung University	Tin-modified Sulfur for Lithium-Sulfur Batteries
T1-PC-012	Wei-Chu Hsu	Chung Yuan Christian University	Enhanced electrochemical properties of hard carbon derived from phenolic resin modified via a high efficiency oxygen-induced plasma treatment as anode materials for lithium ion batteries
T1-PC-013	Tzu-Ching Chan	National Cheng Kung University	A Novel Sandwiched – Structural Poly(vinylidene fluoride-co-hexafluoropropylene)/ Polyacrylonitrile/ Poly(vinylidene fluoride-co-hexafluoropropylene) Membrane for the Lithium-Sulfur Battery
T1-PC-014	Yen-Chen Lin	National Cheng Kung University	Lithium Sulfur Batteries With a Thin Lithium and High-entropy-metal-oxide Separator
T1-PC-015	Guan-Ting Yu	National Cheng Kung University	Free-Standing Multidimensional Graphene-CNT Electrode for Highly Stable Lithium-Sulfur Batteries
T1-PC-016	Bo-Xian Ye	National Cheng Kung University	Solid-state Oxide Electrolyte in the Cathode for High-loading Lithium-Sulfur Batteries
T1-PC-017	Chen-Wei Tai	National Tsing Hua University	Accessing the superior plateau capacity of phenolic-formaldehyde resin-derived hard carbon for lithium-ion storage
T1-PC-018	Hao-Yu Ku	National Tsing Hua University	Improvements in Li deposition and stripping induced by Cu (111) nanotwinned columnar grains
T1-PC-019	Jia He Su	National Yunlin University of Science and Technology	Electrochemical Activation of ZnV <sub>2</sub> O <sub>4</sub> for Enhanced Energy Storage in Aqueous Zinc-Ion Batteries
T1-PC-020	Jun-Wei Yung	Chung Yuan Christian University	Synthesis and characterization of single-walled carbon nanotubes-modified SiO <sub>x</sub> /soft carbon/C composite as anode materials for Lithium-ion batteries
T1-PC-021	Yi-Ying Lee	National Yunlin University of Science and Technology	Crystallographic Effects of Vanadium Oxides on Electrochemical Performances in Aqueous Zn-Ion Batteries
T1-PC-022	Wei-Wen Shen	National Tsing Hua University	Self-Healing Cu <sub>3</sub> BiS <sub>3</sub> Nanocrystal Electrodes for Ultrastable Potassium Ion Storages: An Alternative Electrochemical Reconstruction
T1-PC-023	Liao Yan Jie	National Tsing Hua University	MnPS <sub>3</sub> /graphite nanocomposite as a high-performance anode material for potassium-ion half batteries
T1-PC-024	Xun-Hong Xiao	National Taiwan University of Science and Technology	Oxygen-Vacancy-Rich BiVO <sub>4</sub> Decorated on Graphite Felt to Improve the Vanadium Redox Flow Battery Performance
T1-PC-025	Ammayappan Anbunathan	Ming Chi University of Technology	In-situ growth of ZIF67 nanoparticles on the glass fiber separator as the performance booster for the lithium-sulfur polyacrylonitrile battery
T1-PC-026	Jian-Xue Huang	National Yunlin University of Science and Technology	Defect regulated spinel Mn <sub>3</sub> O <sub>4</sub> obtained by glycerol-assisted method for high-energy-density aqueous zinc-ion batteries
T1-PC-027	Che-Bin Chang	National Tsing Hua University	Rock-salt type solid solution as anode material for high performance potassium ion battery via high entropy engineering
T1-PC-028	Shou-Shan Mai	National Tsing Hua University	Interfacial Engineering of CNT-wrapped AgP <sub>2</sub> Composites Enables Excellent Potassium ion Hybrid Capacitors
T1-PC-029	Zan-Tang Wang	National Taiwan University	Nickel Metal Hybrid Battery Degradation Mechanism Analysis and State-of-Health Estimation by Machine Learning
T1-PC-030	Yu-Shan Huang	National Tsing Hua University	Effect of Current Density on the Electrodeposited Mg for Rechargeable Mg Batteries
T1-PC-031	Le-Yen Lin	National Taiwan University	Simulation of Mixed Ion-Electron Transport in Composite Electrodes
T1-PC-032	Yung-Jen Chang	National Tsing Hua University	The Discharge Behavior of Magnesium Metal Negative Electrode for Rechargeable Magnesium Batteries
T1-PC-033	Chien Po-Wen	National Tsing Hua University	Cu <sub>3</sub> PS <sub>4</sub> : a sulfur-rich metal phosphosulfide with superior ionic diffusion channel for high-performance potassium ion batteries/hybrid capacitors

No.	Presenting Author	Affiliation	Title
T1-PC-034	Jung-Chieh Teng	National Tsing Hua University	A Sandwich-type Composite Polymer Electrolyte to Improve Interface Properties
T1-PC-035	Jian-Yi Li	National Tsing Hua University	Exploring the catalytic pathway of Binary Ruthenium-Tin Oxides for Li-O <sub>2</sub> batteries
T1-PC-036	Yi-Min Lin	National Taiwan University of Science and Technology	Vanadium Redox Flow Battery Using Nitrogen-doped Tungsten Carbide Nanowire Electrocatalyst Decorated on Graphite Felt Electrodes
T1-PC-037	Chun-Yen Yang	National Taiwan University	Controlling Lithium Storage of Terephthalic Acid-Based MOFs in Lithium Ion Batteries
T1-PC-038	Peng-Xuan Yu	National Taiwan University of Science and Technology	Preparation of Cu <sub>3</sub> N Thin Film on Cu foil by Atmospheric Pressure Plasma Jet and Acid treatment for Anode Free Lithium-Ion Battery
T1-PC-039	Hong-Jyun Huang	National Tsing Hua University	Effect of pH value of the Acetate-based Electrolyte on the Zn/MnO <sub>2</sub> Batteries
T1-PC-040	Chi-Yu Lai	National Tsing Hua University	Near-neutral flexible zinc-air batteries with high power densities and long cycle life using chloride-based gel polymer electrolytes
T1-PC-041	Yi-Xiu Chen	National Cheng Kung University	Facile Fabrication of (Inverse-) Patterned Construction to Realize the Fast-charging and Longevity of Silicon Anode for Lithium Micro-battery
T1-PC-042	Yee Jun Quay	National Cheng Kung University	High Performance Lithium-Sulfur Battery with Sulfide Solid Electrolytes
T1-PC-043	Hao-Wen Liu	National Taiwan University	R&D strategies on High Energy Density All-Solid-State Lithium Batteries (ASSLBs) with Halide Electrolytes
T1-PC-044	Wei-Hsiang Chen	National Taiwan University	Synthesis and Characterization of Multiple Ion Modification of Li(Ni <sub>0.8</sub> Co <sub>0.1</sub> Mn <sub>0.1</sub> )O <sub>2</sub> Cathode Material
T1-PC-045	Shiki Thi	National Taiwan University	Synthesis Strategies for High-Voltage-Stable Fluorinated Halide Solid State Electrolytes

## Topic 2: Capacitors & Fast Charging Devices

(Sat, Nov 12, Chemical Engineering Building 1F)

No.	Presenting Author	Affiliation	Title
T2-PC-001	Guan-Ting Yu	National University of Tainan	Mesoporous carbon derived from carbon black used for electric double-layer capacitor in organic electrolytes without adding of electron conductive filler
T2-PC-002	Tsung Yi Chen	National Tsing Hua University	Ni-containing Polyoxovanadates as Electrode Materials for High-energy Lithium-ion Capacitors
T2-PC-003	Wan-Ju Chiu	National Tsing Hua University	MoVOH micro flakes Interconnected with SWCNT as Cathodes for Aqueous Zinc-ion Batteries
T2-PC-004	Cheng-Hui Shen	National Cheng Kung University	Growth of Redox-Active Cerium-Based Metal–Organic Framework Nanocrystals on Carbon Nanotubes for Boosting Supercapacitor Performance
T2-PC-005	Yen-Yu Tung	National Tsing Hua University	MoO <sub>3</sub> /PEDOT:PSS electrodes for transparent and stretchable supercapacitors
T2-PC-006	Meng Fei Wu	National Tsing Hua University	Gas-Phase Electrophoresis of Glucose-Derived Carbon Nanosphere Colloid for Supercapacitor Applications

## Topic 3: Photoelectrochemistry

(Fri, Nov 11, Chemical Engineering Building 1F)

No.	Presenting Author	Affiliation	Title
T3-PC-001	Nuriallatush Sholihah	National Kaohsiung University of Science and Technology	Trifluoromethyl group-modified triphenylamine dibenzofulvene hole transporting interfacial layers for high performance inverted perovskite solar cells
T3-PC-002	Chia-Feng Li	National Taiwan University	Effect of Hole Transport Layer on Indoor Organic Photovoltaic
T3-PC-003	Sheng-Wen Huang	National Taiwan University	Composition Engineering of Methylammonium Free Wide Bandgap Perovskite Solar Cell with Suppressed Photoinduced Phase Segregation
T3-PC-004	Hsin-Te Chang	National Taiwan University of Science and Technology	Simplify Manufacturing Steps of Growing MoS <sub>2</sub> on Graphene for Photocatalytic CO <sub>2</sub> Reduction
T3-PC-005	Vinh Son Nguyen	National Tsing Hua University	Triple-Fence Porphyrins for High-Efficiency Dye-Sensitized Solar Cells
T3-PC-006	Yin-Hsuan Chang	Chang Gung University	Defect Passivation Toward High-Performance Perovskite Solar Cells
T3-PC-007	Ana Maria Oliveira Barbian	National Tsing Hua University	A TiO <sub>2</sub> /SnO <sub>2</sub> low-temperature bilayer electron transport material for perovskite solar cells with >20% efficiency
T3-PC-008	Jui-Tai Lin	National Tsing Hua University	High-Entropy Alloy-Semiconductor Hybrid Nanocrystals for Photocatalytic Water Splitting

## Topic 4: Electrochemical Technologies

(Sat, Nov 12, Chemical Engineering Building 1F)

No.	Presenting Author	Affiliation	Title
T4-PC-001	Yi-Min Wu	National Taiwan University	In Situ Dual-way Electrical Conditioning for a PEDOT-based K <sup>+</sup> Ion-selective Electrode by Galvanostatic and Potentiostatic Control
T4-PC-002	Yu-Hsiang Yang	National Tsing Hua University	A high-capacity hybrid desalination system using battery type and pseudocapacitive type electrodes
T4-PC-003	Hsiang-Chih Chuang	Chang Gung University	Supercritical CO <sub>2</sub> -Assisted Carbon Coating on Lithium Iron Phosphate Cathode for High-Performance Lithium-Ion Batteries
T4-PC-004	Cheng-Ting Hong	National Yunlin University of Science and Technology	Tunable KMF <sub>3</sub> (M = Ni, Mn) Perovskite Fluorides for Electro-oxidation of Urea
T4-PC-005	Ming-Kun Lu	National Tsing Hua University	Systematical Factorial experiment strategy study on the effect of electrodeposition parameter on copper roughness
T4-PC-006	An-Rong Huang	National Taiwan University	Mixed Proton-Electron Conduction of Metal Organic Frameworks
T4-PC-007	Ying Chen Liu	Tamkang University	Electrochemical cobalt and nickel recovery using deep eutectic solvents for treatment of spent lithium-ion batteries
T4-PC-008	Shih-Hua Chen	National Tsing Hua University	Direct-Current Electrodeposition of Nanotwinned Copper and Orientation-Controlled Copper Induced by Varying Additives
T4-PC-009	Ting-Yu Yang	Feng Chia University	A Simple Amperometric Sensor for Detection of Ascorbic Acid and Dopamine
T4-PC-010	Yu-Syuan Wu	Providence University	Flexible piezoelectric self-charging supercapacitor power cell based on ZIF-67/Co oxide/CC//Mn oxide/CC asymmetric electrodes and ion gel piezo-electrolyte
T4-PC-011	Song-Chi Chen	National United University	Morphologically tunable Bifunctional Cu oxide-based Nanomaterials on Cu wire for Non-enzymatic Glucose Sensing and Supercapacitors
T4-PC-012	Lei Hu	National Taiwan University of Science and Technology	Fabrication of electrochemical glucose sensor made by vertically aligned carbon nanotubes with MoO <sub>3</sub>
T4-PC-013	Hung-Yi Huang	National Tsing Hua University	Dopant-designed conducting polymers for constructing a high-performance, symmetric, electrochemical deionization system achieving low energy consumption and long cycle life
T4-PC-014	Shih-Han Wang	National Yunlin University of Science and Technology	CuOx/n-RGO for Exhaled Formaldehyde Gas Sensing
T4-PC-015	Su-Pin Liao	Chang Gung University	Polyethylene glycol enhances thermal stability of magneto-electrochemical biosensor for miRNA-183-5p
T4-PC-016	Xin-Ru Lin	Providence University	Voltammetric and electrochemical impedance spectroscopic studies on PVP- and PVP/VA-capped Pt electrodes for the applications of dye-sensitized solar cells

## Topic 5: Electrochemical Driven Conversion

(Fri, Nov 11, Chemical Engineering Building 1F)

No.	Presenting Author	Affiliation	Title
T5-PC-001	Chih-Chieh Cheng	National Tsing Hua University	Modulation of Coordination Environment Enhances Electrocatalytic Efficiency of Mo Single Atoms toward Hydrogen Evolution Reaction
T5-PC-002	Tsung-Ju Lee	National Yang Ming Chiao Tung University	Surface-modified Cu <sub>2</sub> O Nanowire Enables CO <sub>2</sub> RR to C <sub>2</sub> <sup>+</sup> Products with Industrial-scale Current Density
T5-PC-003	Hsin-Jung Tsai	National Yang Ming Chiao Tung University	Carbon Nanofiber-supported Nickel Single-Atom Catalyst Meets the Industrial Criteria of CO <sub>2</sub> -to-CO Conversion
T5-PC-004	Zih-Yi Lin	National Yang Ming Chiao Tung University	Metal-organic-framework-derived Tubular Copper Electrocatalyst For Efficient Electroreduction of CO <sub>2</sub> To C <sub>2</sub> <sup>+</sup> Products
T5-PC-005	Wen-Jing Zeng	National Yang Ming Chiao Tung University	Chemical-Vapor-Deposited Cobalt Boride Boosts the Alkaline Seawater Electrolysis
T5-PC-006	Wen-Yang Huang	National Yang Ming Chiao Tung University	Cerium-incorporated MOF-derived Cobalt Oxide for High-efficient Non-noble Acidic Oxygen Evolution Reaction
T5-PC-007	Lu-Yu Chueh	National Tsing Hua University	WO <sub>x</sub> Nanowire Supported Ultra-Fine Ir OER Nanocatalyst
T5-PC-008	Zi Yin Huang	National Tsing Hua University	Manipulating the activity and selectivity of electrocatalytic CO <sub>2</sub> reduction reaction by adjusting water content in a membrane electrode assembly reactor
T5-PC-009	Wesley Jen-Yang Chang	National Tsing Hua university	The Effect of Ag-Cu Catalyst Layer Structure on CO <sub>2</sub> RR
T5-PC-010	Jia Min Cai	National Tsing Hua University	Electrochemical CO <sub>2</sub> reduction to methane on Cu catalyst by controlling the spatial distribution of catalyst
T5-PC-011	Shang-Cheng Lin	National Tsing Hua University	Manipulating the 2e <sup>-</sup> and 4e <sup>-</sup> oxygen reduction pathways by controlling the coordination environments of Au-based nanocrystals
T5-PC-012	Yu-Hsuan Hsu	National Tsing Hua University	The Catalyst Layer of Proton Exchange Membrane Fuel Cell Activity and Stability Enhancement by Molybdenum (Mo) Surface-Modified Platinum Cobalt (PtCo/C) Electrocatalyst
T5-PC-013	Wei-Ting Tu	National Tsing Hua University	The Influence of Dynamic Valence State of Copper and Silver to CO <sub>2</sub> RR by using Pulsed Potential Electrolysis
T5-PC-014	Yueh-Chun Hsiao	National Tsing Hua University	A Library of High-Entropy-Alloy Colloidal Nanocrystals for Catalysis
T5-PC-015	Bushra Rehman	National Tsing Hua University	Rational Design of WSe <sub>2</sub> /WS <sub>2</sub> Heterostructure by Low Temperature Plasma-Assisted Chemical Reaction toward Enhanced Hydrogen Evolution Reaction