

[MCARE 2024] Final Program

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Symposium 1. Materials for Hydrogen Fuel Production and CO2 Conversion in Carbon Neutrality

August 19 (MON)		[Symposium 1.] Session 01				Crystal Ballroom 3
15:20-17:10	110					
Chairperson(s)		TBA				
15:20-15:50	30	Keynote	Jae Sung Lee	Ulsan National Institute of Science and Technology(UNIST)	Towards Solar Hydrogen Production at Practical Scale	South Korea
15:50-16:20	30	Invited	Ryu Abe	Kyoto University	Mimicking Natural Photosynthesis: Visible-Light-Induced Water Splitting into H2 and O2 via Z-Scheme Photocatalysis Systems	Japan
16:20-16:50	30	Invited	Ji-Hyun Jang	Ulsan National Institute of Science and Technology(UNIST)	Morphology Control of Hematite for Efficient Photoelectrochemical Water Splitting	South Korea
16:50-17:10	20	Oral	Byung Sun Yoon	Chonnam National University	Hydrogen Production for Carbon Neutrality from Catalytic Decomposition of Methane via Ni/SBA-15 catalysts: Metal-Support Interaction Control Using a Nonionic-Surfactant	South Korea

August 20 (TUE)		[Symposium 1.] Session 02				Crystal Ballroom 3
09:00-12:00	180					
Chairperson(s)		TBA				
09:00-09:30	30	Invited	Tsutomu Minegishi	The Unievrsty of Tokyo	(Photo)electrochemical devices for carbon neutrality	Japan
09:30-10:00	30	Invited	Ho Won Jang	Seoul National University	Interfacial engineering for high-performance water splitting photoanodes	South Korea
10:00-10:30	30	Invited	Akinobu Nakada	Kyoto University	Molecular and Material Design of Photocatalysts for CO2 Reduction	Japan
10:30-11:00	30	Invited	Hyunwoong Park	Kyungpook National University	Artificial Photosynthesis Running Out of the Laboratory into the Field	South Korea
11:00-11:20	20	Oral	Kyong-Hwan Chung	Sunchon National University	Assessment of hydrogen productivity in liquid plasma cracking of perovskite composites with highly enhanced visible light responsibility	South Korea
11:20-11:40	20	Oral	Taehun Lee	Jeonbuk National University	Exploring Surface Structure and Dynamics of Bismuth Vanadate (BiVO4) Photoelectrodes: Insights from Machine Learning Molecular Dynamics	South Korea
11:40-12:00	20	Oral	Sanjay Mathur	University of Cologne	Tantalum nitrides and oxynitrides as advanced electrocatalysts for hydrogen evolution reaction	Germany

August 20 (TUE)		[Symposium 1.] Session 03				Crystal Ballroom 3
13:30-15:30	120					
Chairperson(s)		TBA				
13:30-14:00	30	Keynote	Yung-Eun Sung	Seoul National University	Electrocatalysts for electrochemical energy conversion devices	South Korea
14:00-14:30	30	Invited	Soo Young Kim	Korea University	Single Atom Decorated MOF Nanosheet for Electrochemical Conversion of CO2 to CO	South Korea
14:30-15:00	30	Invited	Chuan Zhao	The University of New South Wales	Challenges and Opportunities for Green Hydrogen Production from Water Electrolysis	Australia
15:00-15:30	20	Oral	Joo Young Park	Korea Institute of Materials Science(KIMS)	Absorptivity enhancement of MOF-801 through atmospheric pressure plasma exposure	South Korea

August 21 (WED)		[Symposium 1.] Session 04				Crystal Ballroom 3
09:00-10:50	110					
Chairperson(s)		TBA				
09:00-09:30	30	Invited	Yanguang Li	Soochow University	Material Design and Device Engineering for Electrochemical CO2 Reduction	China
09:30-10:00	30	Invited	Kwangyeol Lee	Korea University	Multielement Nanoparticle Tectonics Toward Efficient Electrochemical Catalysts	South Korea
10:00-10:30	30	Invited	Jun Huang	The University of Sydney	Tailoring Nanocatalysts for Chemoselective CO2 upcycling	Australia
10:30-10:50	20	Oral	Bee Lyong Yang	Kumoh National Institute of Technology, GHS co. Ltd.	Optimizing PEM Water Electrolysis: Surface-Engineered 1T ' -Phase WS2 Nanosheets and Stabilized Ti3C2 MXene for Enhanced Efficiency and Economic Viability	South Korea

August 21 (WED)		[Symposium 1.] Session 05				Crystal Ballroom 3
14:40-16:00	80					
Chairperson(s)		TBA				
14:40-15:10	30	Invited	Bin Liu	City University of Hong Kong	Probing CO2 Reduction Chemistry over Model Single Atom Catalyst under Operando Condition	Hong Kong
15:10-15:40	30	Invited	Qing MAO	Dalian University of Technology	Electrochemical CO2 Conversion towards Industrial Application	China
15:40-16:00	20	Oral	Eunice Estrella De Guzman	De La Salle University	Boosted Selectivity of Graphene-supported Cobalt Phthalocyanine towards the electrosynthesis of CO with Geopolymer	Philippines

August 22 (THU)		[Symposium 1.] Session 06				Crystal Ballroom 3
09:00-10:20	80					
Chairperson(s)		TBA				
09:00-09:20	20	Oral	Tahereh Mahvelati-Shamsabadi	University of Ulsan	Single Atom Pt Electrocatalysts on Unilamellar Reduced Graphene Oxide Nanosheets for Effective Alkaline Hydrogen Evolution Reaction	South Korea
09:20-09:40	20	Oral	Kyungsu Na	Chonnam National University	A New Carbon-Consuming Catalytic Cycle with Sequential Activation of CO2 and CH4	South Korea
09:40-10:00	20	Oral	Seenivasan Selvaraj	Chonnam National University	Minimal doping approach to Activate Lattice Oxygen Participation in K2WO4 Electrocatalysts for Oxygen Evolution Reaction	Philippines
10:00-10:20	20	Oral	Ziyaad Aytunaa	University of Cologne	Binary MO2 (M = V, Sn, Ti, Zr, Hf) High-Entropy Oxides as Superior Catalysts for Enhanced Oxygen Evolution Reaction	Germany

Symposium 2. Advanced Materials for Energy Storage

August 19 (MON)		[Symposium 2.] Session 01				Crystal Ballroom 1
15:20-16:50	90					
Chairperson(s)		<i>Ranjith Thangavel (Indian Institute of Technology), Seung-Yong Lee (Hanyang Univ.)</i>				
15:20-15:50	30	Invited	Yongning Zhou	Fudan University	New layer-structured cathode materials for sodium-ion batteries and their sodium storage mechanisms	China
15:50-16:10	20	Oral	Jinsuk Byun	Sungkyunkwan University	Polyoxometalate Initiated In-situ Conformal Coating of Multifunctional Hybrid Artificial Layers for High Performance Zinc Metal Anodes	South Korea
16:10-16:30	20	Oral	Hyeok Jae Lee	Sungkyunkwan University	Bi-coated 3D Porous Cu Current Collector for Zn Metal Anode	South Korea
16:30-16:50	20	Oral	QUOC HAO NGUYEN	Kyung Hee University	Fabrication of Fe single atoms and ultrafine Mo ₂ C embedded in Nitrogen-carbon heterostructures for enhanced oxygen reaction performance in Zinc-air batteries	South Korea

August 20 (TUE)		[Symposium 2.] Session 02				Crystal Ballroom 1
09:00-11:40	160					
Chairperson(s)		<i>Yoon Hwa (Arizona State Univ.), Kota Suzuki (Tokyo Institute of Technology)</i>				
09:00-09:30	30	Keynote	Atsuo YAMADA	The University of Tokyo	Liquid Madelung energy accounts for the huge potential shift in electrochemical systems	Japan
09:30-10:00	30	Invited	Changshin Jo	Pohang University of Science and Technology(POSTECH)	Structuring of Prussian blue analogues particles for sodium ion battery applications	South Korea
10:00-10:30	30	Invited	Yi Yu	ShanghaiTech University	Transmission Electron Microscopy of Lithium Metal	China
10:30-11:00	30	Oral	Junsu Kim	Sungkyunkwan University	Polymeric phthalocyanine induced inorganic rich SEI on carbonaceous host enabled stable lithium metal anode	South Korea
11:00-11:20	20	Oral	Viet Phuong Nguyen	Korea Institute of Machinery and Materials(KIMM)	Regulating Lithium Nucleation and Growth by Ultrathin ZnF ₂ Layer for Dendrite-Free Lithium-Metal Anode	South Korea
11:20-11:40	20	Oral	ALPHONSE RAJ RUBY	Jeju National University	Dopamine-assisted Li ₄ Ti ₅ O ₁₂ decoration on MCMB anode for lithium-ion batteries	South Korea

August 20 (TUE)		[Symposium 2.] Session 03				Crystal Ballroom 1
13:30-15:30	120					
Chairperson(s)		Won-Jin Kwak (UNIST), Yi Yu (ShanghaiTech Univ.)				
13:30-14:00	30	Invited	Wei Liu	ShanghaiTech University	Advanced sintering methods for garnet electrolytes and solid-state lithium-metal batteries	China
14:00-14:30	30	Invited	Yoon Hwa	Arizona State University	Characterization and Electrochemical Performance of Low Crystallinity Sulfur-Carbon Composites in Lithium-Sulfur Batteries	United States
14:30-15:00	30	Invited	Sangryun Kim	Gwangju Institute of Science and Technology	Hydride-based superionic conductors for all solid-state batteries	South Korea
15:00-15:30	30	Invited	Che-Ning Yeh	National Tsing-Hua University	On the Fast Charging of Graphite Electrodes for Lithium-ion Batteries	Taiwan

August 20 (TUE)		[Symposium 2.] Session 04				Crystal Ballroom 1
16:00-17:50	110					
Chairperson(s)		Sangryun Kim (GIST), Wei Liu (ShanghaiTech Univ.)				
16:00-16:30	30	Invited	Chia-Chin Chen	National Taiwan University	Mixed Ion-Electron Transport in Solid-State Batteries	Taiwan
16:30-17:00	30	Invited	Kota Suzuki	Tokyo Institute of Technology	Material Search Guidelines of Superionic Conductors for All-Solid-State Lithium Battery	Japan
17:00-17:30	30	Invited	Seung-Yong Lee	Hanyang University	Lithium Growth Behaviors Investigated by Cryo-TEM	South Korea
17:30-17:50	20	Oral	Arul Sravanan Raaju Sundhar	Jeju National University	Unlocking fast charging potential with solvent-free single-step electrode interphase engineering for Ni-rich cathode materials and beyond	South Korea

August 21 (WED)		[Symposium 2.] Session 05				Crystal Ballroom 1
09:00-10:50	110					
Chairperson(s)		Xiaodi Ren (USTC), Kyojin Ku (Hanbat Nat'l Univ.)				
09:00-09:30	30	Keynote	ChunYi Zhi	City University of Hong Kong	Conversion Anode for Aqueous Zinc Batteries	Hong Kong
09:30-10:00	30	Invited	Jaegwon Ryu	Sogang University	Dual-ion Strategy for Extreme Fast-charging Batteries	South Korea
10:00-10:30	30	Invited	Sung-Kyun Jung	Ulsan National Institute of Science and Technology(UNIST)	Guided phase transition in host formation reaction for designing cathode materials of Li-ion batteries	South Korea
10:30-10:50	20	Oral	Sang-Wook Han	Jeonbuk National University	Structural and Magnetic Properties of Exchange Bias Co/CoO Bilayers	South Korea

August 21 (WED)		[Symposium 2.] Session 06				Crystal Ballroom 1
14:40-16:00	80					
Chairperson(s)		<i>Jaeeon Ryu (Sogang Univ.), Sung-Kyun Jung (UNIST)</i>				
14:40-15:00	20	Invited	Xiaodi Ren	University of Science and Technology of China	Molecular Anchoring Strategy for High-Voltage High-Safety Lithium Metal Batteries	China
15:00-15:20	20	Invited	Kyojin Ku	Hanbat National University	Partially disordered rock-salt materials for lithium-ion batteries from aerosol based synthesis	South Korea
15:20-15:40	20	Invited	Youngjin Kim	Kangwon National University	Unraveling the Intricacies of Residual Lithium in High-Ni Cathodes for Lithium-ion Batteries	South Korea

August 22 (THU)		[Symposium 2.] Session 07				Crystal Ballroom 1
09:00-11:40	160					
Chairperson(s)		<i>Seongmin Bak (Yonsei Univ.), Minkyung Kim (Kwangwoon Univ.)</i>				
09:00-09:30	30	Invited	Won-Jin Kwak	Ulsan National Institute of Science and Technology(UNIST)	Electrolyte design for reversible organic electrode batteries	South Korea
09:30-10:00	30	Invited	Ranjith Thangavel	Indian Institute of Technology	Sustainable Materials for Sodium-ion based Energy Storage Systems with High Energy and Power Density	India
10:00-10:30	30	Invited	Hee-Dae Lim	Hanyang University	Regulating Mg deposition by constructing protective and magnesiophilic layers for reversible multivalent Mg-metal batteries	South Korea
10:30-11:00	30	Oral	Ranjith Balu	Kumoh National Institute of Technology	Facile synthesis of Ce doped NiCoTe@N-doped porous carbon for long-lasting and flexible rechargeable zinc-air battery	South Korea
11:00-11:20	20	Oral	Sangeeta Adhikari	Chonnam National University	Enhancing the energy storage capacity of an aqueous ammonium ion supercapacitor through molybdenum-based oxide-sulfide electrode system	South Korea
11:20-11:40	20	Oral	TOAN MINH PHAM	Kyung Hee University	An Ultrathin 2D Nanostructured Ti, Fe-codoped CoS as Robust Electrocatalyst for Rechargeable Zn-air Batteries	South Korea

August 22 (THU)		[Symposium 2.] Session 08				Crystal Ballroom 1
13:30-15:30	120					
Chairperson(s)		<i>Changshin Jo (POSTECH), Hee-Dae Lim (Hanyang Univ.)</i>				
13:30-14:00	30	Invited	Seongmin Bak	Yonsei University	Mutl-Scale/Multi-Modal Characterization Studies of Battery Materials Using Synchrotron-Based X-ray Techniques	South Korea
14:00-14:30	30	Invited	Minkyung Kim	Kwangwoon University	Stabilizing ultra-nickel layered oxide, LiNiO2 as a cathode for lithium ion batteries	South Korea
14:30-14:50	20	Oral	Vishwanathan Ravichandran	Jeju National University	P-phenylenediamine Functionalized Graphene Micro-supercapacitors for Self-powered Environment Monitoring System	South Korea
14:50-15:10	20	Oral	Vignesh Krishnan	Jeju National University	Redox-mediated biowaste-derived porous carbon electrode for high performance symmetric supercapacitor	South Korea
15:10-15:30	20	Oral	Rajavarman Swaminathan	Jeju National University	Binder-Free Tungsten Disulfide: A Hydroelectric-Powered Supercapacitor Towards Self-Sustainable System	South Korea

August 22 (THU)		[Symposium 2.] Session 09				Crystal Ballroom 1
16:00-18:00	120					
Chairperson(s)		Yongchai Kwon (SEOULTECH), Hyung-Jun Koo (SEOULTECH)				
16:00-16:30	30	Oral	Ha-Na Jang	Seoul National University of Science and Technology	Impact of transition metal co-doping on F-doped SnO2 deposited graphite felt for vanadium redox flow batteries	South Korea
16:30-17:00	30	Oral	Mingyu Shin	Seoul National University of Science and Technology	Exploration of Catholytes for Fe(BIS-TRIS) Flow Batteries	South Korea
17:00-17:20	20	Oral	Mike Jason Koleczko	Seoul National University of Science and Technology	Multiaxial Superomniphobic Hyperbola Structures for Self-cleaning Properties in Solar Cells	South Korea
17:20-17:40	20	Oral	Min-Young Choi	Seoul National University of Science and Technology	A Highly Stretchable Textile-Based Supercapacitor with Liquid Metal Current Collector	South Korea
17:40-18:00	20	Oral	SangHyun Sohn	Seoul National University of Science and Technology	Synergy coupling of tribovoltaic and moisture-enabled electricity from hygroscopic materials	South Korea

Symposium 3. Advanced Materials for Next Generation Photovoltaics

August 20 (TUE)		[Symposium 3.] Session 01				Crystal Ballroom 3
16:00-18:00	120					
Chairperson(s)		<i>TBA</i>				
16:00-16:30	30	Invited	Severin Niklas Habisreutinger	Oxford PV Ltd.	The opportunities and challenges of perovskite-based tandem photovoltaics	United Kingdom
16:30-17:00	30	Invited	Nakita K Noel	University of Oxford	Controlling the Crystallisation Dynamics of Halide Perovskites: The Path to Improved Performance and Stability	United Kingdom
17:00-17:30	30	Invited	Jay Patel	King's College London	Terrestrial And Non-Terrestrial Environmental Effects on Perovskite Solar Cell Performance	United Kingdom
17:30-18:00	30	Invited	Yen-Hung Lin	The Hong Kong University of Science and Technology	Reaching the Goldilocks Zone: Mastering the Defective Nature of Perovskite Solar Cells	Hong Kong

August 21 (WED)		[Symposium 3.] Session 02				Pearl
14:40-18:00	200					
Chairperson(s)		<i>TBA</i>				
14:40-15:10	30	Invited	Hyesung Park	Korea University	Vacuum Processable Perovskite Solar Cells	South Korea
15:10-15:40	30	Invited	Yi Hou	National University of Singapore	Unlocking the Potential of Perovskite Solar Cells: from Single-Junction to Tandem	Singapore
15:40-16:10	30	Invited	Beomsoo Kim	Korea Research Institute of Chemical Technology(KRICT)	Advanced process for Wide Eg perovskite solar cells :Ambient air, vacuum evaporation and automated process	South Korea
16:10-16:40	30	Invited	Yuelong Li	Nankai University	Wide-band gap perovskite films for tandem solar cells	China
16:40-17:10	30	Invited	Jun Hong NOH	Korea University	Design of Interlayers in Halide Perovskite Thin Film Solar Cells	South Korea
17:10-17:40	30	Invited	Yousheng Wang	Jinan University	Defect passivation of wide-bandgap perovskites for indoor photovoltaics and perovskite/silicon tandem solar cells	China
17:40-18:00	20	Oral	Steven C Tidrow	Alfred University	Potential Simple Halide Perovskites: NSMM Review	United States

August 22 (THU)		[Symposium 3.] Session 03				Pearl
09:00-12:00	180					
Chairperson(s)		TBA				
09:00-09:30	30	Keynote	Sung-Yeon Jang	Ulsan National Institute of Science and Technology(UNIST)	High-Efficiency Solar Cells Based on Low Bandgap Perovskite Quantum Dots	South Korea
09:30-10:00	30	Invited	Jiaying Wu	The Hong Kong University of Science and Technology (Guangzhou)	Structural regulation for reduced charge recombination enabling high-efficient single-component organic solar cells	China
10:00-10:30	30	Invited	Jongmin Choi	Daegu Gyeongbuk Institute of Science and Technology(DGIST)	Material Engineering Strategies for High-Performance and Stabilized Quantum Dot and Perovskite Photovoltaics	South Korea
10:30-11:00	30	Invited	Chu-chen CHUEH	National Taiwan University	TBA	Taiwan
11:00-11:20	20	Oral	Kiran A. Nirmal	Korea University	Machine Learning Empowers Efficient Design of Ternary Organic Solar Cells with PM6 Donor	South Korea
11:20-11:40	20	Oral	Duangmanee Wongratanaphisan	Chiang Mai University	rGO-PEG Composites: Passivated Perovskite/Carbon Electrodes for Efficient and Stable Planar HTM-free Flexible Solar Cells	Thailand
11:40-12:00	20	Oral	Warunee Khampa	Chiang Mai University	Fabricating CsFA-based Perovskite Layers in High Humidity Environment for Enhanced Photovoltaic Performance	Thailand

August 22 (THU)		[Symposium 3.] Session 04				Pearl
13:30-15:30	120					
Chairperson(s)		TBA				
13:30-14:00	30	Invited	Jin-Wook Lee	Sungkyunkwan University	Crystal Growth and Composition Engineering for Reproducible Fabrication of High-Performance Perovskite Solar Cells	South Korea
14:00-14:30	30	Invited	Rui Wang	Westlake University	Constructing efficient and stable formamidinium-based perovskite	China
14:30-15:00	30	Invited	Jae Sung Yun	University of Surrey	Scanning Probe Microscopy Investigation of Halide Perovskites Solar Cells	UK
15:00-15:30	30	Invited	Zhongan LI	Huazhong University of Science and Technology	New Molecular Design Strategies of Hole Transporting Materials towards Efficient and Stable Perovskite Solar Cells	China

August 22 (THU)		[Symposium 3.] Session 05				Pearl
16:00-18:20	140					
Chairperson(s)		TBA				
16:00-16:30	30	Invited	Young Yun Kim	Korea Research Institute of Chemical Technology(KRICT)	A Pathway toward Realization of High-performance Large-area Perovskite Solar Modules	South Korea
16:30-17:00	30	Invited	Tzu Chien Wei	National Tsing-Hua University	Scale-up Engineering for Perovskite Solar Cells	Taiwan
17:00-17:30	30	Invited	Sanghan Lee	Gwangju Institute of Science and Technology	Organometal Halide Perovskite-Based dual Photoelectrodes for Unbiased Solar water splitting	South Korea
17:30-18:00	20	Oral	Wongsathon Musikpan	Chiang Mai University	Unveiling the Ideal P2 for Carbon Electrodes: An Experimental Study with UV Laser Scribing in Perovskite Solar Cells	Thailand
18:00-18:20	20	Oral	Chukwuebuka Emmanuel Usulor	Chiang Mai University	Surface Passivation with Oxalic Acid Treatment for Efficient and Stable Carbon-based Perovskite Solar Cells	Thailand

Symposium 4. Advanced Materials for Fuel Cells and Electrolysis

August 19 (MON)		[Symposium 4.] Session 01				Crystal Ballroom 2
15:20-16:50	90					
Chairperson(s)		TBA				
15:20-15:50	30	Invited	Sang Hoon Joo	Seoul National University	Atomically Dispersed Metal Catalysts Steering Selective Electrocatalysis of Commodity Chemical Production	South Korea
15:50-16:10	20	Oral	Abhisek Padhy	Faraday Materials Laboratories	Bifunctional Strontium Cobalt Molybdenum Oxide (Sr ₂ CoMoO ₆) Perovskite as an Efficient Catalyst for Electrochemical Water Splitting Reactions in Alkaline Media	India
16:10-16:30	20	Oral	T. Kavinkumar	Karpagam Acadaemy of Higher Education	Modulating Co-N/Mo-N/Fe-P configurations in cobalt molybdenum nitride/iron phosphide heterostructure by interface engineering for efficient electrocatalytic water splitting under alkaline media	India
16:30-16:50	20	Oral	HyeonSeung Jung	Gwangju Institute of Science and Technology	Design of Catalyst Layer for High Gas Diffusivity Evaluated with Electrochemical Electrode Analysis System in Polymer Electrolyte Membrane Fuel Cells	South Korea

August 20 (TUE)		[Symposium 4.] Session 02				Crystal Ballroom 2
09:00-12:00	180					
Chairperson(s)		TBA				
09:00-09:30	30	Invited	Sang Hyun Ahn	Chung-Ang University	Self-terminated electrodeposition of platinum group metal electrocatalysts	South Korea
09:30-10:00	30	Invited	Jin Young Kim	Korea Institue of Science and Technology(KIST)	Materials Interface Engineering of Polymeric Composite Membrane for Hydrogen Fuel Cell and Water Electrolyzer Applications	South Korea
10:00-10:30	30	Keynote	Shaojun Guo	Peking University	Strain Catalysis for Hydrogen Cycles	China
10:30-11:00	30	Invited	Sungjun Kim	Korea Research Institute of Chemical Technology(KRICT)	Advanced anion conducting polymers for water electrolysis application	South Korea
11:00-11:20	20	Oral	June Sung Lim	Seoul National University	Designing Atomically Dispersed Ni Catalysts Mimicking the Ni SOD Enzyme for Efficient Electrochemical Hydrogen Peroxide Production	South Korea
11:20-11:40	20	Oral	Amr Hussein Mady Hussein	Yeungnam University	Core-shell Cu ₂ O@CoO/rGO composite as a robust catalyst for dual environmental applications: reduction of p-nitrophenol and heterogeneous catalyst for toxic organic pollutant removal.	South Korea
11:40-12:00	20	Oral	MOHAMED SADIQ MOHAMED SALEEM	Jeju National University	Sulfurization of binder-free cobalt oxide to cobalt sulfide as a non-noble electrocatalyst for hydrogen & oxygen evolution reaction	South Korea

August 20 (TUE)		[Symposium 4.] Session 03				Crystal Ballroom 2
13:30-15:30	120					
Chairperson(s)		TBA				
13:30-14:00	30	Keynote	Hoon Taek CHUNG	Sejong University	Perspectives of Hydrogen Industries and Electrolysis Technologies	South Korea
14:00-14:30	30	Invited	Seoin Back	Sogang University	From data to discovery: AI discovers electrocatalysts	South Korea
14:30-14:50	20	Invited	Yu Katayama	Osaka University	Role of Electrochemical Interface for Water Oxidation on Ruthenium Dioxide	Japan
14:50-15:10	20	Oral	Tae Ho Shin	Korea Institute of Ceramic Engineering and Technology(KICET)	Robust Ceramic Assisted Supports for High Durable PEMFC	South Korea
15:10-15:30	20	Oral	Shan K Sundaram	Alfred University	Engineered Cermets with Tunable Porosity for Energy Applications	United States

August 20 (TUE)		[Symposium 4.] Session 04				Crystal Ballroom 2
16:00-18:00	120					
Chairperson(s)		TBA				
16:00-16:30	30	Invited	Dingsheng Wang	Tsinghua University	Single Atom Catalysis	China
16:30-17:00	30	Invited	Jinwoo Lee	Korea Advanced Institute of Science and Technology(KAIST)	Atomically Dispersed Electrocatalysts for Low Temperature Fuel Cells and Water Electrolysis	South Korea
17:00-17:30	30	Invited	Ming Gong	Fudan University	Interfacial Mechanism on Oxygen Evolution Electrocatalysis	China
17:30-18:00	30	Invied	Dong Young Chung	Korea Advanced Institute of Science and Technology(KAIST)	Insights on porous structure for electrocatalytic active sites	South Korea

August 21 (WED)		[Symposium 4.] Session 05				Crystal Ballroom 2
09:00-10:50	110					
Chairperson(s)		TBA				
09:00-09:30	30	Invited	Hyun S. Park	Korea Institue of Science and Technology(KIST)	Electrochemical N2 reduction and NH3 oxidation for sustainable hydrogen storage and production under ambient conditions	South Korea
09:30-10:00	30	Invited	Myoung Hwan Oh	Korea Institute of Energy Technology(KENTECH)	Synthesis and Analysis of Nano-shell Catalysts for Harnessing Defects	South Korea
10:00-10:30	30	Invited	Byung Hyo Kim	Soongsil University	Structural analysis of Pt nanoparticles for fuel cell catalysts using liquid phase TEM	South Korea
10:30-10:50	20	Oral	Chandan Chandru Gudal	Gwangju Institute of Science and Technology	Strategic Usage of Redox Active Material and Sacrificial Zinc Electrode for Spontaneous Hydrogen Evolution Reaction	South Korea

Symposium 5. Frontiers of Functional Nanomaterials for Eco-friendly Devices Applications

August 21 (WED)		[Symposium 5.] Session 01				Charlotte
09:00-10:50	110					
Chairperson(s)		TBA				
09:00-09:30	30	Keynote	S. Ravi P. Silva	Advanced Technology Institute, University of Surrey	Innovations in flexible and thin film energy materials for a Net Carbon Zero future	United Kingdom
09:30-10:00	30	Invited	Dahl-Young Khang	Yonsei University	Ouzo-based Conducting Polymer Nanostructures for High Performance EMI Shielding	South Korea
10:00-10:30	30	Invited	Daehoon Han	Chonnam National University	Multi-Material 4D Printing for Functional Heterostructures	South Korea
10:30-10:50	20	Oral	Sung Woo Hong	Korea Institute of Industrial Technology(KITECH)	Highly Transparent, Colorless Optical Film with Outstanding Mechanical Strength and Folding Reliability Using Mismatched Charge-Transfer Complex Intensification	South Korea

August 21 (WED)		[Symposium 5.] Session 02				Charlotte
14:40-18:10	210					
Chairperson(s)		TBA				
14:40-15:10	30	Keynote	Yoon-Bong Hahn	Jeonbuk National University	Functional Nanomaterials for High Performance Photovoltaics, Sensors and Printed Electronics	South Korea
15:10-15:40	30	Keynote	Dae-Hyeong Kim	Seoul National University	Unconventional Solar Energy Conversion Devices	South Korea
15:40-16:10	30	Invited	Hanul Min	Korea University	Regulating External Strain in α -Phase Formamidinium Lead Iodide Perovskite Solar Cells via Hot-Casting Assisted Carving	South Korea
16:10-16:40	30	Invited	Hyung Do Kim	Kyoto University	Hole Transport Properties in Conjugated Polymer/Insulating Polymer Blend Films	Japan
16:40-17:10	30	Invited	IL JEON	Sungkyunkwan University	Aerosol-synthesized Surfactant-free Single-Walled Carbon Nanotube-based NO2 Sensors: Unprecedentedly High Sensitivity and Fast Recovery	South Korea
17:10-17:40	30	Invited	Kihyun Kim	Jeonbuk National University	Enhaced photoresponse of ZnO/silicon nanowire array heterojunction photodetertor	South Korea
17:40-18:10	30	Invited	Keun Heo	Jeonbuk National University	Highly sensitive broadband MSM Photodetector on Wafer-scale CVD grown MoS2	South Korea

August 22 (THU)		[Symposium 5.] Session 03				Charlotte
09:00-12:00	180					
Chairperson(s)		TBA				
09:00-09:30	30	Invited	Sungjun Park	Ajou University	Ultraflexible organic optoelectronic devices for E-skin	South Korea
09:30-10:00	30	Invited	JANGYUP SON	Korea Institue of Science and Technology(KIST)	Surface/Interface Engineering of 2D Materials via Chemical Functionalization	South Korea
10:00-10:30	30	Invited	JI Eon Kwon	Korea Institue of Science and Technology(KIST)	Organic Nanocomposite Materials for Sustainable Energy Storage Applications	South Korea
10:30-11:00	30	Invited	Byung Joon Moon	Korea Institue of Science and Technology(KIST)	Chemical modulation of graphene quantum dots for their light-responsive applications	South Korea
11:00-11:30	30	Invited	Oi Lun Helena LI	Pusan National University	Plasma-engineered Chlorine-repulsive Electrocatalysts for Seawater-based devices	South Korea
11:30-12:00	30	Invited	Gunuk Wang	Korea University	A three-terminal vertical organic ferroelectric barristor for fast and energy-efficient neuromorphic computing	South Korea

August 22 (THU)		[Symposium 5.] Session 04				Charlotte
13:30-14:50	80					
Chairperson(s)		TBA				
13:30-13:50	20	Oral	Min Jin Kim	Chonnam National University	Inorganic perovskite nanocrystal for superior non-aqueous photoelectrochemical nitrogen reduction reaction (PEC-NRR)	South Korea
13:50-14:10	20	Oral	Naechul Shin	Inha University	Interface engineering of mixed-dimensional van der Waals heterostructures	South Korea
14:10-14:30	20	Oral	Eunsu Cho	Pohang University of Science and Technology(POSTECH)	Torsional Actuating of Chiral-Selective Spindle Microparticles	South Korea
14:30-14:50	20	Oral	JYOTI PRAKASH DAS	Jeju National University	Moisture-enabled ionovoltaic power source for next-generation Self-powered IoTs	South Korea

Symposium 6. Electromechanical Coupling Materials for Nanogenerators and Self-powered Electronics

August 19 (MON)		[Symposium 6.] Session 01				Pearl
15:20-16:40	70					
Chairperson(s)		Hong-joon Yoon (Gachon Univ.)				
15:20-16:00	30	Invited	Youngho Jin	Chung-Ang University	Self-powered multi-functional systems for individual chemical protections	South Korea
16:00-16:20	20	Oral	Noor UI Haq Liyakath Ali	Jeju National University	Decoupling the harmony of integrated structural-SC-TENG energy devices for real-world use in flexible and wearable electronics	South Korea
16:20-16:40	20	Oral	Vishal Natraj	Jeju National University	Exploring the Energy Harnessing and Ferroelectric Properties of Lithium Niobate/PDMS Composite Films for Knee Squat Analysis and Self-Powered Humidity Sensor	South Korea

August 20 (TUE)		[Symposium 6.] Session 02				Pearl
09:00-12:00	180					
Chairperson(s)		Hanjun Ryu (Chung-Ang Univ.)				
09:00-09:30	30	Keynote	Philippe Basset	Univ Gustave Eiffel	Conditioning systems for triboelectric nanogenerators	France
09:30-10:00	30	Invited	Jaehyeong Bae	Kyung Hee University	Innovations in solar energy: exploiting liquid-state photoacids for a new solar energy harvesting	South Korea
10:00-10:30	30	Invited	Dong-Myeong Shin	The University of Hong Kong	Power Manipulation of Droplet-based Triboelectric Nanogenerators	Hong Kong
10:30-11:00	30	Invited	Zhengyang Huo	Renmin University of China	Contact Electrification-induced Smart Personal Hygiene System	China
11:00-11:30	30	Invited	Kyeong Nam Kim	Daegu Gyeongbuk Institute of Science and Technology(DGIST)	Wearable Energy-Electronic Devices and Their Integration System Toward On-body Wearable Microgrids	South Korea
11:30-12:00	30	Invited	Shi Hyeong Kim	Korea Institute of Industrial Technology(KITECH)	Understanding piezoionic effect for chemo-mechanical energy harvesting	South Korea

August 20 (TUE)		[Symposium 6.] Session 03				Pearl
13:30-15:30	120					
Chairperson(s)		Hong-joon Yoon (Gachon Univ.)				
13:30-14:00	30	Keynote	Unyong Jeong	Pohang University of Science and Technology(POSTECH)	Design to Secure the Same Triboelectric Sensing Signals	South Korea
14:00-14:30	30	Invited	Geon-Tae Hwang	Pukyong National University	High-performance Magneto-Mechano-Electric Conversion Devices for Electronic Applications	South Korea
14:30-15:00	30	Invited	Zhen Wen	Soochow University	Contact-electrification Induced Ultrasensitive Pressure Sensors	China
15:00-15:30	30	Invited	Jihoon Chung	Kumoh National Institute of Technology	Enhancing Mechanical and Electrical Performance of Triboelectric Nanogenerator Through Lubrication and Mechanical Design	South Korea

August 20 (TUE)		[Symposium 6.] Session 04				Pearl
16:00-18:00	120					
Chairperson(s)		Hanjun Ryu (Chung-Ang Univ.)				
16:00-16:30	30	Invited	Sung Beom Cho	Ajou University	Understanding Triboelectricity based on Stuck Charge Model	South Korea
16:30-17:00	30	Invited	Seongpil An	Sungkyunkwan University	Piezoelectric Composites Based on Electrospun Nanofibers for Ultrathin and Highly Flexible Piezoelectric Nanogenerators	South Korea
17:00-17:30	30	Invited	Daewon Kim	Kyung Hee University	Triboelectricity-Based Intelligent Sensing for Autonomous Power Systems	South Korea
17:30-18:00	30	Invited	Hong-joon Yoon	Gachon University	Ultrasound Energy Harvesting Devices for Long-Term Use	South Korea

August 21 (WED)		[Symposium 6.] Session 05				Pearl
09:00-10:10	70					
Chairperson(s)		Hanjun Ryu (Chung-Ang Univ.)				
09:00-09:30	30	Invited	Yeonsik Choi	Yonsei University	A Bioresorbable Pacemaker with Transient Closed-loop Systems	South Korea
09:30-09:50	20	Oral	GEONJU CHOI	Seoul National University of Science and Technology	Robust triboelectric output performances in harsh ambient based on nylon 66-based composite nanofibers	South Korea
09:50-10:10	20	Oral	Jin Taek Lee	Jeonbuk National University	Micro-sized pattern with nanoscale height printed on PDMS using a cost-effective glass substrate enhances the performance of Triboelectric Nanogenerator (TENG) as a Morse code generator	South Korea

Symposium 7. Materials for Green Ammonia Cycling

August 20 (TUE)		[Symposium 7.] Session 01				Charlotte
09:00-12:00	180					
Chairperson(s)		Yun Jeong Hwang (SNU), Kijung Yong (POSTECH)				
09:00-09:40	40	Keynote	Ib Chorkendorff	Technical University of Denmark	Progress in thermal and electrochemical ammonia synthesis	Denmark
09:40-10:10	30	Invited	Yun Jeong Hwang	Seoul National University	Additives in the Electrolyte for the Li-mediated Nitrogen Reduction Reaction	South Korea
10:10-10:40	30	Invited	Hee Jo Song	Sejong University	Selective lithium-mediated electrochemical nitrogen reduction for green ammonia production	South Korea
10:40-11:00	20	Break	Break			
11:00-11:30	30	Invited	Kijung Yong	Pohang University of Science and Technology(POSTECH)	SEI Engineering for Enhancing Li-mediated N2 Reduction	South Korea
11:30-12:00	30	Invited	Jae Hyung Kim	Korea Institute of Energy Research(KIER)	Li-mediated electrochemical N2 activation toward NH3 utilizing H2O as a proton source	South Korea

August 20 (TUE)		[Symposium 7.] Session 02				Charlotte
13:30-15:30	120					
Chairperson(s)		Wooyul Kim (KENTECH), Hyeyoung Shin (Chungnam Nat'l Univ.)				
13:30-14:00	30	Invited	Youngkook Kwon	Ulsan National Institute of Science and Technology(UNIST)	Electrochemical Interface Design for C-N Coupling Reaction	South Korea
14:00-14:30	30	Invited	Yongju Yun	Pohang University of Science and Technology(POSTECH)	Hydrogen Production via Ammonia Decomposition over Supported Catalysts	South Korea
14:30-15:00	30	Invited	Yung-Jung Hsu	National Yang Ming Chiao Tung University	Core@Shell and Yolk@Shell Nanocrystals for Hydrogen Production	Taiwan
15:00-15:30	30	Invited	Tatsuya Kameyama	Nagoya University	Generation of Sensitized Anodic Photocurrent by Chiral Gold Nanocolloids	Japan

August 20 (TUE)		[Symposium 7.] Session 03				Charlotte
16:00-17:30	90					
Chairperson(s)		Yung-Jung Hsu (Nat'l Yang Ming Chiao Tung Univ.), Yongju Yun (POSTECH)				
16:00-16:30	30	Invited	Yan-Gu Lin	National Synchrotron Radiation Research Center	Visualizing Catalytic Dynamics Process via Synchrotron Radiation Multi-Techniques	Taiwan
16:30-17:00	30	Invited	Masaki Saruyama	Kyoto University	Controlled Synthesis of Semiconductor-Cocatalyst Hybrid Nanostructure for Photocatalytic Water Splitting	Japan
17:00-17:30	30	Invited	Chia-Yu Lin	National Cheng Kung University	Sustainable hydrogen generation and organics hydrogenation over the nanostructured nicked-based modified electrode at neutral pH	Taiwan

Symposium 8. Semiconductor Nanocrystal Quantum Dots

August 20 (TUE)		[Symposium 8.] Session 01- Optoelectronics with Semiconductor Nanocrystals Quantum Dots				Ruby
13:30-15:30	120					
Chairperson(s)		Doh C. Lee (KAIST)				
13:30-14:00	30	Keynote	Yizheng Jin	Zhejiang University	Managing the charge dynamics in Quantum-dot light-emitting diodes	China
14:00-14:25	25	Invited	Namyoung Ahn	Yonsei University	Progress in Colloidal Quantum Dot Lasing	South Korea
14:25-14:50	25	Invited	Satria Zulkarnaen Bisri	Tokyo University of Agriculture and Technology	Tweaking Charge Carrier Transport in Colloidal Quantum Dot Superlattices	South Korea
14:50-15:15	25	Invited	Byeong Guk Jeong	Pusan National University	Manipulating the Energy Landscape of Colloidal Heterovalent Nanocrystals by Interfacial Dipoles	South Korea
15:15-15:30	15	Oral	Yong Woo Kwon	Sungkyunkwan University	Surface State Modulation of ZnO Nanoparticles for Augmented Carrier Injection Efficiency in Quantum Dot Light-Emitting Diodes	South Korea

August 20 (TUE)		[Symposium 8.] Session 02- Patterning and Self-assembly of Semiconductor Nanocrystal Quantum Dots				Ruby
16:00-18:05	125					
Chairperson(s)		Byeong Guk Jeong (Pusan Nat'l Univ.)				
16:00-16:25	25	Invited	Moon Sung Kang	Sogang University	Direct and Indirect Photopatterning of Quantum Dots	South Korea
16:25-16:50	25	Invited	Yeon Sik Jung	Korea Advanced Institute of Science and Technology(KAIST)	Custom-Patterning of quantum dots via selective wetting and dewetting	South Korea
16:50-17:15	25	Invited	Dahin Kim	University of Seoul	Magnetic Alignment and Anisotropic Photoluminescence of Semiconductor Nanoplatelets in Liquid Crystals	South Korea
17:15-17:40	25	Invited	Himchan Cho	Korea Advanced Institute of Science and Technology(KAIST)	Nondestructive, High-Resolution Direct Optical Lithography of Colloidal Quantum Dots and Perovskite Nanocrystals	South Korea
17:40-18:05	25	Invited	Hongseok Yun	Hanyang University	Self-Assembly of Polymer-Coated Inorganic Nanocrystals	South Korea

August 21 (WED)		[Symposium 8.] Session 03 - Cd-free Semiconductor Nanocrystal Quantum Dots				Ruby
09:00-11:00	120					
Chairperson(s)		Dahin Kim (Univ. of Seoul)				
09:00-09:30	30	Keynote	Sohee Jeong	Sungkyunkwan University	Surface-originated weak quantum confinement in tetrahedral indium arsenide quantum dots	South Korea
09:30-09:55	25	Invited	Hunter Y McDaniel	UbiQD, Inc.	Harnessing the Power of Solar Energy with Quantum Dots	United States
09:55-10:20	25	Invited	Taejong Paik	School of Integrative Engineering	Colloidal Synthesis of Heavy pnictogen chalcogenides Nanocrystals	South Korea
10:20-10:45	25	Invited	Min-Jae Choi	Dongguk University	Aminophosphine-derived synthesis of green InP quantum dots	South Korea
10:45-11:00	15	Oral	Chang Jiang	Nagoya University	Synthesis of Less-toxic Multinary Ag–Mn–Sn–S Quantum Dots with Composition-dependent Energy Gap	Japan

August 21 (WED)		[Symposium 8.] Session 04 & 05 - Synthesis and Photophysics of Semiconductor Nanocrystal Quantum Dots				Ruby
14:40-18:05	230					
Chairperson(s)		Moon Sung Kang (Sogang Univ.)				
14:40-15:10	30	Keynote	Rong Chen	Huazhong University of Science and Technology	Perovskite nanocrystal quantum dots for luminescent applications	China
15:10-15:35	25	Invited	Youngki Kim	Pohang University of Science and Technology(POSTECH)	Controlled Synthesis of Optoelectronic Nanocrystals using Liquid Crystalline Templates	South Korea
15:35-16:00	25	Invited	Jaehoon Lim	Sungkyunkwan University	Unlocking invisible defects in strained colloidal quantum dots	South Korea
16:00-16:25	25	Invited	Jongnam Park	Ulsan National Institute of Science and Technology(UNIST)	Synthesis of surface-engineered quantum dots for optoelectronic and biological applications	South Korea
16:00-16:50	50	Break	Break			
Chairperson(s)		Byeong Guk Jeong (Pusan Nat'l Univ.)				
16:50-17:15	25	Invited	Lazaro A Padilha	Universidade Estadual de Campinas	What is hidden underneath the inhomogeneously broadened emission spectra of colloidal nanocrystals ensemble?	Brazil
17:15-17:40	25	Invited	Ji-Sang Park	Sungkyunkwan University	Computational understanding of nanocrystals: defects and surfaces	South Korea
17:40-18:05	25	Invited	Min Kim	Jeonbuk National University	Surface Engineering of Perovskite Quantum Dots for Multifunctional Optoelectronic Applications	South Korea

Symposium 9. Advanced Biomaterials and Bioelectronics

August 19 (MON)		[Symposium 9.] Session 01				Ruby
13:00-15:00	120					
Chairperson(s)		TBA				
13:30-14:00	30	Keynote	Lan Yin	Tsinghua University	Biodegradable materials for electronic medicine and biosensors	China
14:00-14:30	30	Invited	Suck Won Hong	Pusan National University	Designing Biointerfaces Using Biomimetic Materials for New Applications	South Korea
14:30-14:50	20	Oral	Swati Panda	Daegu Gyeongbuk Institute of Science and Technology(DGIST)	Biodegradable triboelectric nanogenerator based pathogenic bacteria detection using carbohydrate-protein interactions	South Korea
14:50-15:10	20	Oral	Huong Dang	Chosun University	Effect of functional amine surface of 3D Poly (lactic-co-glycolic-acid) scaffold on oral soft tissue regeneration	South Korea
15:10-15:30	20	Oral	Su-Kyung KIM	Korea University	Development of Neuromorphic Devices for Low-Power/Complex Stimulus Detection Based on Cross-linked Electrolyte	South Korea

August 20 (TUE)		[Symposium 9.] Session 02				Ruby
09:00-11:30	150					
Chairperson(s)		TBA				
09:00-09:30	30	Keynote	Daishun Ling	Shanghai Jiao Tong University	Dynamic Nano-Assemblies for Biological Sensing, Imaging and Therapy	China
09:30-10:00	30	Invited	Jinmyoung Joo	Ulsan National Institute of Science and Technology(UNIST)	Unraveling intracellular fate and autophagic clearance of biodegradable silica nanoparticles using multimodal imaging	South Korea
10:00-10:20	20	Oral	Ruda Lee	Kumamoto University	Gene delivery for overcoming multi-drug resistance breast cancer	Japan
10:20-10:50	30	Invited	Sang Min Won	Sungkyunkwan University	Ultrathin encapsulation for implantable flexible electronics	South Korea
10:50-11:10	20	Oral	Sungwook Chung	Pusan National University	Preparation of two-dimensional Fe ₃ O ₄ nanodisks and nanosheets transformed from α-Fe ₂ O ₃ analogues and their applications in magnetic field-assisted microalgal harvesting and biorefinery processes	South Korea
11:10-11:30	20	Oral	Chang-Min Lee	Chosun University	Combinatorial effects of surface amine plasma-treating and topographical change on the behavior of oral tissue cells	South Korea