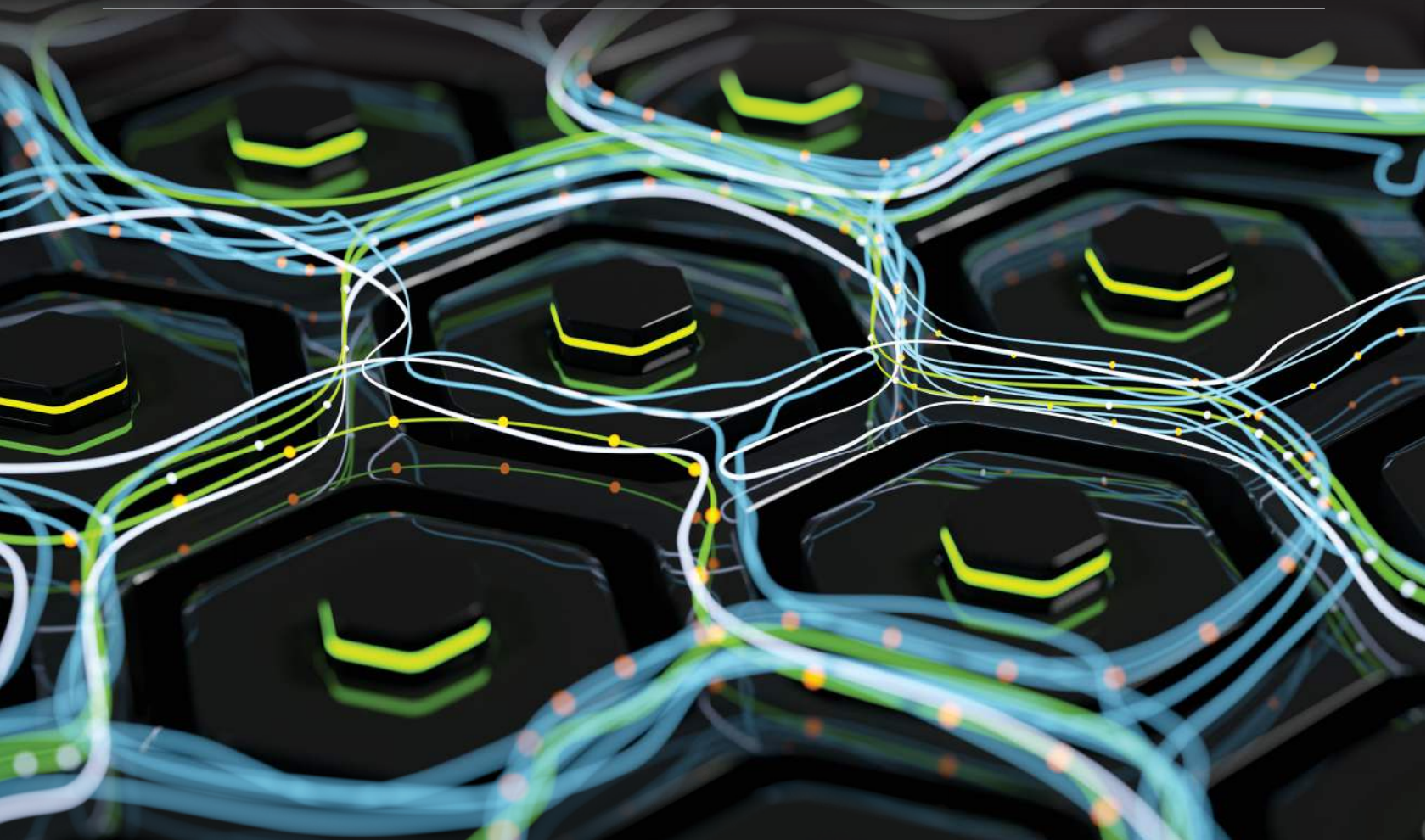


# MATERIAL CHALLENGES IN ALTERNATIVE AND RENEWABLE ENERGY 2023 (MCARE2023)

Combined with **Energy Harvesting Society meeting** (EHS 2023)

A joint meeting effort organized by ACerS Energy Materials and Systems Division and the Korean Institute of Chemical Engineers (KIChE)



AUGUST 21–24, 2023 | HYATT REGENCY BELLEVUE | WA, USA

Hosted and organized by:



Also organized by:



[www.ceramics.org/mcare23](http://www.ceramics.org/mcare23)

## NEWARE Technology Limited

NEWARE, founded in 1998, integrates Battery Testing System, Formation and Grading System, Environmental Test Chambers, NEWARE AI, MES, and Automated Production Line for Battery Manufacturers, Electric Vehicle Manufacturers, Energy Storage Enterprises, Universities, and Research Institutions worldwide.

With a track record of over 327,000 shipped pieces of equipment and 700+ patents and software copyrights, NEWARE is widely recognized for its innovative technology and expertise in the field.



📍 ADDRESS: 755 AMES AVENUE, MILPITAS, CA, USA, 95035

[www.neware-usa.com](http://www.neware-usa.com)



Session Information							
SESSION TITLE: Plenary I: Materials for Electrochemical Energy Systems: From distributed power generation to large scale hydrogen production							
SESSION ABBREVIATION:							
SESSION TYPE: Plenary							
SESSION START TIME: Mon 8/21/2023 8:15 AM							
SESSION DURATION: 75							
SESSION LOCATION: Grand Ballroom AB (Second Floor)							
SESSION HOST: Chair: Charmayne Lonergan							
Chair: Krista Carlson							
SESSION CREATOR: Stoltz, Marilyn							
SESSION TOPIC: Plenary Sessions							
CLIENT SESSION ID: 202							
SESSION NOTES TO ADMIN: Monday 8:15 a.m.							
Order	Control ID	Final ID	Title	Presenting Author	Presentation Type	Start/end time	Invitation Status
1			Opening Remarks			8:15 AM 8:30 AM	
2	3960435		Materials for Electrochemical Energy Systems: From Distributed Power Generation to Large Scale Hydrogen production	Singh, Prabhakar	Plenary	8:30 AM 9:10 AM	Accepted (7/27/2023)
3			Break			9:10 AM 9:30 AM	

**Session Information**

SESSION TITLE: Materials for Green Ammonia Cycling I  
 SESSION ABBREVIATION:  
 SESSION TYPE: Oral  
 SESSION START TIME: Mon 8/21/2023 9:30 AM  
 SESSION DURATION: 150  
 SESSION LOCATION: Grand Ballroom E (Second Floor)  
 SESSION HOST: Chair: Hyeyoung Shin  
 Chair: Yun Jeong Hwang  
 SESSION CREATOR: Yong, Kijung  
 SESSION TOPIC: S1 Materials for Green Ammonia Cycling  
 CLIENT SESSION ID: 204  
 SESSION NOTES TO ADMIN: - Monday 9:30 a.m. - Starts at the beginning time of the conference. [Chair Assignment (6 Chairs for 3 sub-sessions)] - 1st sub-session : Hyeyoung Shin, Yun Jeong Hwang - 2nd session (after 1st break time) : Wooyul Kim, Hyo Won Kim - 3rd session (after 2nd break time) : Yongju Yun, Kijung Yong

Order	Control ID	Final ID	Title	Presenting Author	Presentation Type	Start/end time	Invitation Status
1	<a href="#">3934507</a>	MCARE-001-2023	Grand Canonical Quantum Mechanics applied to electrocatalytic reduction and oxidation reactions	Goddard, William	Invited (by Invitation Only)	9:30 AM 10:00 AM	Accepted (7/03/2023)
2	<a href="#">3923120</a>	MCARE-002-2023	Electrocatalytic Synthesis of Ammonia and Urea	Kwon, Youngkook	Invited (by Invitation Only)	10:00 AM 10:30 AM	Accepted (7/03/2023)
3	<a href="#">3938396</a>	MCARE-003-2023	Akaline-Membrane Electrolysis: Catalyst Fundamentals to Performance, Durability, and Interface Design	Boettcher, Shannon	Invited (by Invitation Only)	10:30 AM 11:00 AM	Accepted (7/07/2023)
4	<a href="#">3934922</a>	MCARE-004-2023	Poly(fluorene)-based anion exchange membranes with alkyl spacers for water electrolysis	Park, Taiho	Contributed (Oral)	11:00 AM 11:20 AM	Accepted (7/04/2023)
5	<a href="#">3934040</a>	MCARE-005-2023	Ammonia decomposition over Co/Al <sub>2</sub> O <sub>3</sub> prepared by citric acid-assisted impregnation	Yun, Yongju	Contributed (Oral)	11:20 AM 11:40 AM	Accepted (7/04/2023)
6	<a href="#">3934056</a>	MCARE-006-2023	Metal-supported carbon hybrid composite electrocatalysts for ammonia oxidation in solid acid electrolysis systems to produce high purity carbon-free H <sub>2</sub>	Mangishetti, Sandya	Contributed (Oral)	11:40 AM 12:00 PM	Accepted (7/05/2023)



**Session Information**

SESSION TITLE: Advanced Materials for Energy Storage I  
 SESSION ABBREVIATION:  
 SESSION TYPE: Oral  
 SESSION START TIME: Mon 8/21/2023 9:30 AM  
 SESSION DURATION: 150  
 SESSION LOCATION: Grand Ballroom AB (Second Floor)  
 SESSION HOST: Chair: Haegyeom Kim  
 Chair: Yoon Hwa  
 SESSION CREATOR: McCurdy, Karen  
 SESSION TOPIC: S2 Advanced Materials for Energy Storage  
 CLIENT SESSION ID: 206  
 SESSION NOTES TO ADMIN: Monday, August 21, 9:30 a.m.

Order	Control ID	Final ID	Title	Presenting Author	Presentation Type	Start/end time	Invitation Status
1	<a href="#">3942917</a>	MCARE-007-2023	Next Generation Electrodes for Fast Charging, High Energy, and Solid-State Rechargeable Batteries (Keynote)	Braun, Paul	Keynote	9:30 AM 10:10 AM	Accepted (7/12/2023)
2			Break			10:10 AM 10:30 AM	
3	<a href="#">3934426</a>	MCARE-009-2023	Understanding the role of mixed ionic-electronic conductor interlayer in all-solid-state lithium- metal batteries	Yao, Yan	Invited (by Invitation Only)	10:30 AM 11:00 AM	Accepted (7/12/2023)
4	<a href="#">3946372</a>	MCARE-010-2023	Advanced Na-metal halide battery technologies for ESS applications	Li, Guosheng	Invited (by Invitation Only)	11:00 AM 11:30 AM	Accepted (7/11/2023)
5	<a href="#">3934415</a>	MCARE-011-2023	Practical development of Si Anode with gas phase synthesis for high-energy lithium-ion batteries	Chae, Sujong	Invited (by Invitation Only)	11:30 AM 12:00 PM	Accepted (7/11/2023)

**Session Information**

SESSION TITLE: Fuel Cell and Water Electrolysis I  
 SESSION ABBREVIATION:  
 SESSION TYPE: Oral  
 SESSION START TIME: Mon 8/21/2023 9:30 AM  
 SESSION DURATION: 140  
 SESSION LOCATION: Grand Ballroom G (Second Floor)  
 SESSION HOST: Chair: Dong Young Chung  
 SESSION CREATOR: Lee, Jinwoo  
 SESSION TOPIC: S3 Advanced Materials for Fuel Cells and Electrolysis  
 CLIENT SESSION ID: 208  
 SESSION NOTES TO ADMIN: Monday 9:30 a.m.

Order	Control ID	Final ID	Title	Presenting Author	Presentation Type	Start/end time	Invitation Status
1	<a href="#">3938710</a>	MCARE-012-2023	Sub-Micron Thick Proton Conducting Oxide Membranes for Low Temperature Water Electrolysis	Esposito, Daniel	Invited (by Invitation Only)	9:30 AM 10:00 AM	Accepted (7/03/2023)
2	<a href="#">3905503</a>	MCARE-013-2023	Controlling Nanoparticle Growth via Diffusion-Limited Exsolution Mechanism	Myung, Jae-ha	Invited (by Invitation Only)	10:00 AM 10:30 AM	Accepted (7/03/2023)
3	<a href="#">3934598</a>	MCARE-014-2023	Multiscale Modeling and Simulation Approach in Fuel Cell	Jang, Seung Soon	Invited (by Invitation Only)	10:30 AM 11:00 AM	Accepted (7/11/2023)
4	<a href="#">3938769</a>	MCARE-015-2023	Caustic Aqueous Phase Electrochemical Reforming (CAPER) for process intensified hydrogen production	Ha, Su	Invited (by Invitation Only)	11:00 AM 11:30 AM	Accepted (7/03/2023)
5	<a href="#">3938790</a>	MCARE-016-2023	Development of Metal-Supported Solid Oxide Fuel Cell with Micro Reforming Catalyst Layer for Operation Under Direct Ethanol Fuel	Dewa, Martinus	Contributed (Oral)	11:30 AM 11:50 AM	Accepted (7/06/2023)

**Session Information**

SESSION TITLE: Materials and Process Challenges for Sustainable Nuclear Energy

SESSION ABBREVIATION:

SESSION TYPE: Oral

SESSION START TIME: Mon 8/21/2023 9:30 AM

SESSION DURATION: 190

SESSION LOCATION: Grand Ballroom F (Second Floor)

SESSION HOST: Chair: Krista Carlson  
Chair: Charmayne Lonergan

SESSION CREATOR: Stoltz, Marilyn

SESSION TOPIC: S11 Materials and Process Challenges for Sustainable Nuclear Energy

CLIENT SESSION ID: 210

SESSION NOTES TO ADMIN: Monday 9:30 a.m.

Order	Control ID	Final ID	Title	Presenting Author	Presentation Type	Start/end time	Invitation Status
1	<a href="#">3951207</a>	MCARE-017-2023	Material Challenges for Development of Long-Term Stable Reference Electrodes in Molten Salts	Simpson, Michael	Invited (by Invitation Only)	9:30 AM 10:00 AM	Accepted (7/11/2023)
2	<a href="#">3942637</a> (W)	MCARE-018-2023	Characterizing the Thermophysical Properties of Actinide and Non-actinide Bearing Molten Salts	Swinhart, Michaela	Contributed (Oral)	10:00 AM 10:20 AM	Not Yet Invited
3	<a href="#">3935965</a>	MCARE-019-2023	Crystallization in Iron Phosphates used for the Immobilization of Dehalogenated Chloride-Based Waste Salt	Murray, Paige	Contributed (Oral)	10:20 AM 10:40 AM	Accepted (7/12/2023)
4	<a href="#">3951194</a>	MCARE-020-2023	Knowledge gaps in cable aging for long-term operation of nuclear power plants	Fifield, Leonard	Contributed (Oral)	10:40 AM 11:00 AM	Invited
5	<a href="#">3931337</a>	MCARE-021-2023	Corrosion of K-3 Refractory with Simulated Waste Glasses	Li, Wenxia	Contributed (Oral)	11:00 AM 11:20 AM	Accepted (7/12/2023)
6	<a href="#">3937391</a>	MCARE-022-2023	Assessing Powdered Glass Chemical Durability Techniques for Hanford Site Low Activity Waste Glasses	Choi, Seunrag	Contributed (Oral)	11:20 AM 11:40 AM	Accepted (7/11/2023)
7	<a href="#">3938916</a>	MCARE-023-2023	Exploring Coupon-Based Glass Chemical Durability Techniques for Hanford Site Low Activity Waste Glasses	Westman, Jessica	Contributed (Oral)	11:40 AM 12:00 PM	Accepted (7/12/2023)
8	<a href="#">3938760</a>	MCARE-024-2023	Iodine capture with Ag-containing zeolite and recovery Ag for recyclability	Chong, Saehwa	Contributed (Oral)	12:00 PM 12:20 PM	Accepted (7/17/2023)
9	<a href="#">3938903</a>	MCARE-025-2023	Iodine Capture and Conversion to Stable Waste Form by Bismuth-Loaded Silica Xerogels with Hierarchical Pores	Baskaran, Karthikeyan	Contributed (Oral)	12:20 PM 12:40 PM	Accepted (7/17/2023)

**Session Information**

SESSION TITLE: Materials for Green Ammonia Cycling II

SESSION ABBREVIATION:

SESSION TYPE: Oral

SESSION START TIME: Mon 8/21/2023 1:30 PM

SESSION DURATION: 160

SESSION LOCATION: Grand Ballroom E (Second Floor)

SESSION HOST: Chair: Yongju Yun  
Chair: Kijung Yong

SESSION CREATOR: Yong, Kijung

SESSION TOPIC: S1 Materials for Green Ammonia Cycling

CLIENT SESSION ID: 214

SESSION NOTES TO ADMIN: Monday 1:30 p.m.

Order	Control ID	Final ID	Title	Presenting Author	Presentation Type	Start/end time	Invitation Status
1	<a href="#">3938462</a>	MCARE-026-2023	First-principles based electrocatalysts design for ammonia production	Shin, Hyeyoung	Contributed (Oral)	1:30 PM 1:50 PM	Accepted (7/03/2023)
2	<a href="#">3932593</a>	MCARE-027-2023	Electrochemical NH <sub>3</sub> Production from Li-mediated N <sub>2</sub> Reduction Reactions	Hwang, Yun Jeong	Contributed (Oral)	1:50 PM 2:10 PM	Accepted (7/11/2023)
3	<a href="#">3934411</a>	MCARE-028-2023	Improvement of stability and energy efficiency in Li-mediated electrochemical nitrogen reduction for green ammonia synthesis	Lim, ChaeEun	Contributed (Oral)	2:10 PM 2:30 PM	Accepted (7/03/2023)
4	<a href="#">3932348</a>	MCARE-029-2023	Enhancing Electrocatalytic Nitrate Reduction to Produce Ammonia over Cu-CeO <sub>2</sub> Catalyst via Controlling Defects	Kong, Yujin	Contributed (Oral)	2:30 PM 2:50 PM	Accepted (7/03/2023)
5	<a href="#">3933335</a>	MCARE-030-2023	Understanding the role of proton permeation of ion-exchange membranes on transport resistance for electrochemical systems	Ngo, Hoang Thai Bao	Contributed (Oral)	2:50 PM 3:10 PM	Accepted (7/07/2023)
6			Break			3:10 PM 3:30 PM	
7	<a href="#">3931707</a>	MCARE-031-2023	Incorporation of isolated metal atoms into a titanium dioxide matrix for efficient ammonia photosynthesis	Moon, Hyun Sik	Contributed (Oral)	3:30 PM 3:50 PM	Accepted (7/03/2023)
8	<a href="#">3933571</a>	MCARE-032-2023	Revealing the role of water molecules in the inhibition mechanism of photoelectrochemical NH <sub>3</sub> oxidation on BiVO <sub>4</sub>	Kwak, Hyelim	Contributed (Oral)	3:50 PM 4:10 PM	Accepted (7/03/2023)



**Session Information**

SESSION TITLE: Advanced Materials for Energy Storage II

SESSION ABBREVIATION:

SESSION TYPE: Oral

SESSION START TIME: Mon 8/21/2023 1:30 PM

SESSION DURATION: 210

SESSION LOCATION: Grand Ballroom AB (Second Floor)

SESSION HOST: Chair: Ho Seok Park  
Chair: Sujong Chae

SESSION CREATOR: McCurdy, Karen

SESSION TOPIC: S2 Advanced Materials for Energy Storage

CLIENT SESSION ID: 216

SESSION NOTES TO ADMIN: Monday, August 21, 1:30 p.m.

Order	Control ID	Final ID	Title	Presenting Author	Presentation Type	Start/end time	Invitation Status
1	<a href="#">3938547</a>	MCARE-033-2023	Designing Electrochemical Energy Storage with Nanoscale Materials (Keynote)	Dunn, Bruce	Keynote	1:30 PM 2:10 PM	Accepted (7/11/2023)
2	<a href="#">3934401</a>	MCARE-034-2023	Reframing ionic transport and interphases through nano colloidal electrolytes for Li-metal batteries	Lee, Hongkyung	Invited (by Invitation Only)	2:10 PM 2:40 PM	Accepted (7/11/2023)
3	<a href="#">3936468</a>	MCARE-035-2023	Developing Environmentally Benign and Cost-effective Sulfur Cathode for Lithium/Sulfur Batteries	Hwa, Yoon	Invited (by Invitation Only)	2:40 PM 3:10 PM	Accepted (7/11/2023)
4			Break			3:10 PM 3:30 PM	
5	<a href="#">3953508</a>	MCARE-036-2023	Cathode materials with high energy conversion efficiency aqueous zinc ion batteries	Cao, Guozhong	Invited (by Invitation Only)	3:30 PM 4:00 PM	Accepted (7/11/2023)
6	<a href="#">3934100</a>	MCARE-037-2023	A nanoscale SnO <sub>2</sub> layer on Zn metal anode, via atomic layer deposition, enables a reversible anode performance for aqueous Zn-ion batteries	Kim, Hyung-Seok	Invited (by Invitation Only)	4:00 PM 4:30 PM	Accepted (7/11/2023)
7	<a href="#">3933246</a>	MCARE-038-2023	Polyanionic compounds for Na- and K-ion batteries	Kim, Haegyeom	Invited (by Invitation Only)	4:30 PM 5:00 PM	Accepted (7/11/2023)

**Session Information**

SESSION TITLE: Fuel Cell and Water Electrolysis II

SESSION ABBREVIATION:

SESSION TYPE: Oral

SESSION START TIME: Mon 8/21/2023 1:30 PM

SESSION DURATION: 170

SESSION LOCATION: Grand Ballroom G (Second Floor)

SESSION HOST: Chair: Sang Hyun Ahn

SESSION CREATOR: Lee, Jinwoo

SESSION TOPIC: S3 Advanced Materials for Fuel Cells and Electrolysis

CLIENT SESSION ID: 218

SESSION NOTES TO ADMIN: Monday, 1:30 p.m.

Order	Control ID	Final ID	Title	Presenting Author	Presentation Type	Start/end time	Invitation Status
1	<u>3941930</u>	MCARE-039-2023	Generation of Macropore in the Metal Oxide Support using Combustible Polystyrene Sphere for Oxygen Evolution Reaction	Pak, Chanhoo	Invited (by Invitation Only)	1:30 PM 2:00 PM	Accepted (7/04/2023)
2	<u>3938537</u>	MCARE-040-2023	Atomically Dispersed Electrocatalysts for Low Temperature Fuel Cells and Water Electrolysis	Lee, Jinwoo	Invited (by Invitation Only)	2:00 PM 2:30 PM	Accepted (7/11/2023)
3	<u>3938829</u>	MCARE-041-2023	High-Throughput Synthesis and Characterization of PGM-Free PEFC Cathode Catalysts	Park, Jae Hyung	Invited (by Invitation Only)	2:30 PM 3:00 PM	Accepted (7/03/2023)
4			Break			3:00 PM 3:20 PM	
5	<u>3938688</u>	MCARE-042-2023	Nanostructured transition metal compounds for electrocatalytic hydrogen production	Kang, Jin Soo	Invited (by Invitation Only)	3:20 PM 3:50 PM	Accepted (7/04/2023)
6	<u>3938475</u>	MCARE-043-2023	Synthesis and Assembly of Metal Phosphide Nanoparticles for Hydrogen Evolution Reaction Catalysis	Ha, Don-Hyung	Invited (by Invitation Only)	3:50 PM 4:20 PM	Accepted (7/03/2023)

**Session Information**

SESSION TITLE: Materials for Hydrogen Fuel Production and CO<sub>2</sub> Conversion or Carbon Neutrality I  
 SESSION ABBREVIATION:  
 SESSION TYPE: Oral  
 SESSION START TIME: Mon 8/21/2023 1:30 PM  
 SESSION DURATION: 200  
 SESSION LOCATION: Grand Ballroom F (Second Floor)  
 SESSION HOST: Chair: Ji-Hyun Jang  
 SESSION CREATOR: McCurdy, Karen  
 SESSION TOPIC: S5 Materials for Hydrogen Fuel Production and CO<sub>2</sub> Conversion or Carbon Neutrality  
 CLIENT SESSION ID: 220  
 SESSION NOTES TO ADMIN: Monday, August 21, 1:30 p.m.

Order	Control ID	Final ID	Title	Presenting Author	Presentation Type	Start/end time	Invitation Status
1	<a href="#">3937520</a>	MCARE-044-2023	Photon-harvesting Technologies for Perovskite Absorbers and Water Splitting Reactions (Keynote)	Mathur, Sanjay	Keynote	1:30 PM 2:10 PM	Accepted (7/31/2023)
2	<a href="#">3938762</a>	MCARE-045-2023	Enabling scalable CO <sub>x</sub> reduction	Neyerlin, Kenneth	Invited (by Invitation Only)	2:10 PM 2:40 PM	Accepted (7/25/2023)
3	<a href="#">3930481</a>	MCARE-046-2023	The novel design of gas-feeding CO <sub>2</sub> fuel cell using direct hydrazine oxidation reaction	Kim, Yong Seok	Contributed (Oral)	2:40 PM 3:00 PM	Accepted (7/17/2023)
4			Break			3:00 PM 3:20 PM	
5	<a href="#">3942938</a>	MCARE-047-2023	Development of Ultra-stable Nanocatalysts for CO <sub>2</sub> Reforming of Methane by in situ Microscopy	Huang, Jun	Invited (by Invitation Only)	3:20 PM 3:50 PM	Invited
6	<a href="#">3938459</a>	MCARE-048-2023	Carbon neutral production of iron from iron oxide and salt water	Kempler, Paul	Invited (by Invitation Only)	3:50 PM 4:20 PM	Accepted (7/11/2023)
7	<a href="#">3938834</a>	MCARE-049-2023	Uncovering Operando Dynamics and Degradation Mechanisms for Cobalt-based Oxygen Evolution and Reduction Electrocatalysts	Burke Stevens, Michaela	Invited (by Invitation Only)	4:20 PM 4:50 PM	Accepted (7/11/2023)

**Session Information**

SESSION TITLE: Advanced Materials for Energy Storage III

SESSION ABBREVIATION:

SESSION TYPE: Oral

SESSION START TIME: Tue 8/22/2023 9:30 AM

SESSION DURATION: 170

SESSION LOCATION: Grand Ballroom AB (Second Floor)

SESSION HOST: Chair: Hongkyung Lee

SESSION CREATOR: McCurdy, Karen

SESSION TOPIC: S2 Advanced Materials for Energy Storage

CLIENT SESSION ID: 304

SESSION NOTES TO ADMIN: Tuesday, August 22, 9:30 a.m.

Order	Control ID	Final ID	Title	Presenting Author	Presentation Type	Start/end time	Invitation Status
1	<a href="#">3897210</a>	MCARE-050-2023	High Energy Ni-rich $\text{LiNi}_{0.9}\text{Co}_{0.05}\text{Mn}_{0.05}\text{O}_2$ Cathode Materials Preparation and Performance Evaluations for Li-Ion Batteries	Abebe, Eyob	Contributed (Oral)	9:30 AM 9:50 AM	Invited
2	<a href="#">3934088</a>	MCARE-051-2023	Multifunctional Polymeric Phthalocyanine-Coated Carbon Nanotubes for Efficient Redox Mediators of Lithium–Sulfur Batteries	Kim, Won Il	Contributed (Oral)	9:50 AM 10:10 AM	Accepted (7/11/2023)
3	<a href="#">3934089</a>	MCARE-052-2023	Stable 3D Conductive Metal Organic Frameworks for Aqueous Magnesium Storage System	Park, Hye Rin	Contributed (Oral)	10:10 AM 10:30 AM	Accepted (7/12/2023)
4			Break			10:30 AM 10:40 AM	
5	<a href="#">3937207</a>	MCARE-053-2023	Polyoxometalate-Polymer Hybrid Artificial Layers for Ultrastable and Reversible Zn Metal Anodes	Byun, Jin Suk	Contributed (Oral)	10:40 AM 11:00 AM	Accepted (7/11/2023)
6	<a href="#">3934628</a>	MCARE-054-2023	Rational Design of 2D Conductive Metal-Organic Frameworks for Energy Applications	Choi, Ji Yong	Contributed (Oral)	11:00 AM 11:20 AM	Accepted (7/11/2023)
7	<a href="#">3938452</a>	MCARE-055-2023	Novel Low-Cost Laser-Induced Graphene-based Flexible Supercapacitors with MWCNT Coatings for Next-Generation Renewable Energy	Shah, Saqlain	Contributed (Oral)	11:20 AM 11:40 AM	Invited
8	<a href="#">3939664</a>	MCARE-056-2023	Atomistic view of charge/discharge in layered $\text{MnO}_2$	Misture, Scott	Contributed (Oral)	11:40 AM 12:00 PM	Accepted (7/31/2023)
9	<a href="#">3934591</a>	MCARE-057-2023	Redox Flow Batteries using $\text{O}_2$ and Metal-Organic Complexes as redox active materials	Lim, Hyeonsoo	Contributed (Oral)	12:00 PM 12:20 PM	Invited

**Session Information**

SESSION TITLE: Fuel Cell and Water Electrolysis III

SESSION ABBREVIATION:

SESSION TYPE: Oral

SESSION START TIME: Tue 8/22/2023 9:30 AM

SESSION DURATION: 150

SESSION LOCATION: Grand Ballroom G (Second Floor)

SESSION HOST: Chair: Jinwoo Lee

SESSION CREATOR: Lee, Jinwoo

SESSION TOPIC: S3 Advanced Materials for Fuel Cells and Electrolysis

CLIENT SESSION ID: 306

SESSION NOTES TO ADMIN: Tuesday, 9:30 a.m.

Order	Control ID	Final ID	Title	Presenting Author	Presentation Type	Start/end time	Invitation Status
1	<a href="#">3912910</a>	MCARE-058-2023	MOF-based catalysts for efficient electrochemical conversion of CO <sub>2</sub> to CO	Kim, Soo Young	Invited (by Invitation Only)	9:30 AM 10:00 AM	Accepted (7/03/2023)
2	<a href="#">3934814</a>	MCARE-059-2023	Near-complete charge separation in tailored BiVO <sub>4</sub> -based heterostructure photoanodes toward artificial leaf	Jang, Ho Won	Invited (by Invitation Only)	10:00 AM 10:30 AM	Accepted (7/03/2023)
3	<a href="#">3937062</a>	MCARE-060-2023	Self-terminated electrodeposition of platinum group metal electrocatalysts	Ahn, Sang Hyun	Invited (by Invitation Only)	10:30 AM 11:00 AM	Accepted (8/01/2023)
4	<a href="#">3938432</a>	MCARE-061-2023	Design of oxygen electrocatalysis based on activity-stability relationship	Chung, Dong Young	Invited (by Invitation Only)	11:00 AM 11:30 AM	Accepted (7/11/2023)
5	<a href="#">3938442</a>	MCARE-062-2023	Interface engineering near catalyst to develop (photo)electrocatalytic energy conversions	Jang, Youn Jeong	Invited (by Invitation Only)	11:30 AM 12:00 PM	Accepted (7/03/2023)

**Session Information**SESSION TITLE: Materials for Hydrogen Fuel Production and CO<sub>2</sub> Conversion or Carbon Neutrality II

SESSION ABBREVIATION:

SESSION TYPE: Oral

SESSION START TIME: Tue 8/22/2023 9:30 AM

SESSION DURATION: 160

SESSION LOCATION: Grand Ballroom F (Second Floor)

SESSION HOST: Chair: Shannon Boettcher

SESSION CREATOR: McCurdy, Karen

SESSION TOPIC: S5 Materials for Hydrogen Fuel Production and CO<sub>2</sub> Conversion or Carbon Neutrality

CLIENT SESSION ID: 308

SESSION NOTES TO ADMIN: Tuesday, August 22, 9:30 a.m.

Order	Control ID	Final ID	Title	Presenting Author	Presentation Type	Start/end time	Invitation Status
1	<a href="#">3963573</a>	MCARE-063-2023	Electrocatalysis at Buried Interfaces	Esposito, Daniel	Invited (by Invitation Only)	9:30 AM 10:00 AM	Accepted (7/11/2023)
2	<a href="#">3938538</a>	MCARE-064-2023	Development of Reaction-Transport Kinetics Model for Electrochemical CO <sub>2</sub> Reduction on Copper: Moving Away from Tafel Slopes	Morales-Guio, Carlos	Invited (by Invitation Only)	10:00 AM 10:30 AM	Accepted (7/11/2023)
3	<a href="#">3938555</a>	MCARE-065-2023	Efficient, Selective Photoreduction of Carbon Dioxide on Colloidal CdS Nanosheets	Lee, Doh	Invited (by Invitation Only)	10:30 AM 11:00 AM	Accepted (7/11/2023)
4	<a href="#">3936495</a>	MCARE-066-2023	Electrochemical Bicarbonate Conversion	Lees, Eric	Invited (by Invitation Only)	11:00 AM 11:30 AM	Accepted (7/11/2023)
5	<a href="#">3940123</a>	MCARE-067-2023	Developement of Catalytic Materials and Process to Produce Formic Acid by CO <sub>2</sub> Hydrogenation	Jung, Kwang Deog	Contributed (Oral)	11:30 AM 11:50 AM	Accepted (7/12/2023)
6	<a href="#">3940979</a>	MCARE-068-2023	Hydrogen and Syngas Production Using High Temperature Solid Oxide Electrolysis Cells	Springer, Renaldo	Contributed (Oral)	11:50 AM 12:10 PM	Accepted (7/11/2023)



**Session Information**

SESSION TITLE: Thermoelectric Energy Harvesting I  
 SESSION ABBREVIATION:  
 SESSION TYPE: Oral  
 SESSION START TIME: Tue 8/22/2023 9:30 AM  
 SESSION DURATION: 160  
 SESSION LOCATION: Grand Ballroom E (Second Floor)  
 SESSION HOST: Chair: Bed Poudel  
 SESSION CREATOR: Poudel, Bed  
 SESSION TOPIC: S7 Thermoelectric Energy Harvesting  
 CLIENT SESSION ID: 310  
 SESSION NOTES TO ADMIN: Tuesday, 9:30 a.m.

Order	Control ID	Final ID	Title	Presenting Author	Presentation Type	Start/end time	Invitation Status
1	<a href="#">3935582</a>	MCARE-069-2023	High Performance Thermoelectric Materials and Devices (Keynote)	Ren, Zhifeng	Keynote	9:30 AM 10:10 AM	Accepted (7/11/2023)
2	<a href="#">3938842</a>	MCARE-070-2023	Realizing a 15% Conversion Efficiency in Functional Gradient Half-Heusler Thermoelectric Materials for Power Generation	Li, Wenjie	Invited (by Invitation Only)	10:10 AM 10:40 AM	Accepted (7/12/2023)
3	<a href="#">3933498</a>	MCARE-072-2023	Enhancement of Thermoelectric Properties of Materials under High Pressures	Kumar, Ravhi	Invited (by Invitation Only)	10:40 AM 11:10 AM	Accepted (7/10/2023)
4	<a href="#">3939480</a>	MCARE-073-2023	Design and Synthesis of Metal Chalcogenides for Thermoelectric Applications	Hodges, James	Invited (by Invitation Only)	11:10 AM 11:40 AM	Accepted (7/10/2023)
5	<a href="#">3938494</a>	MCARE-074-2023	Thermoelectric materials and modules for high temperature and high efficiency power generation	Poudel, Bed	Invited (by Invitation Only)	11:40 AM 12:10 PM	Accepted (7/10/2023)

Session Information							
SESSION TITLE: Plenary II: Energy Harvesting Materials and Systems							
SESSION ABBREVIATION:							
SESSION TYPE: Plenary							
SESSION START TIME: Wed 8/23/2023 8:30 AM							
SESSION DURATION: 60							
SESSION LOCATION: Grand Ballroom AB (Second Floor)							
SESSION HOST: Chair: Shannon Boettcher							
Chair: Ji-Hyun Jang							
SESSION CREATOR: Stoltz, Marilyn							
SESSION TOPIC: Plenary Sessions							
CLIENT SESSION ID: 402							
SESSION NOTES TO ADMIN: Wednesday, 8:30 a.m.							
Order	Control ID	Final ID	Title	Presenting Author	Presentation Type	Start/end time	Invitation Status
1	<u>3955767</u>	MCARE-PLEN-003-2023	Energy Harvesting Materials and Systems	Priya, Shashank	Plenary	8:30 AM 9:10 AM	Accepted (7/10/2023)
2			Break			9:10 AM 9:30 AM	

**Session Information**

SESSION TITLE: Advanced Materials for Energy Storage IV

SESSION ABBREVIATION:

SESSION TYPE: Oral

SESSION START TIME: Wed 8/23/2023 9:30 AM

SESSION DURATION: 170

SESSION LOCATION: Grand Ballroom AB (Second Floor)

SESSION HOST: Chair: Ho Seok Park

SESSION CREATOR: McCurdy, Karen

SESSION TOPIC: S2 Advanced Materials for Energy Storage

CLIENT SESSION ID: 404

SESSION NOTES TO ADMIN: Wednesday August 23, 9:30 a.m.

Order	Control ID	Final ID	Title	Presenting Author	Presentation Type	Start/end time	Invitation Status
1	<a href="#">3936743</a>	MCARE-075-2023	Application of powder atomic layer deposition process to energy conversion devices: A case study on solid oxide fuel cell electrode	An, Jihwan	Invited (by Invitation Only)	9:30 AM 10:00 AM	Accepted (8/01/2023)
2	<a href="#">3936979</a>	MCARE-076-2023	Explainable Machine Learning Models for Precise State of Charge Estimation in Electric Vehicle Batteries	Sim, Min Kyu	Invited (by Invitation Only)	10:00 AM 10:30 AM	Accepted (8/03/2023)
3	<a href="#">3938609</a>	MCARE-077-2023	Catalytic particle preparation by crack generation	Yoon, Hyunsik	Invited (by Invitation Only)	10:30 AM 11:00 AM	Accepted (7/11/2023)
4	<a href="#">3904076</a>	MCARE-078-2023	Electrode design of carbon-based materials for next-generation energy storage devices	Kim, Kue-Ho	Contributed (Oral)	11:00 AM 11:20 AM	Accepted (7/12/2023)
5	<a href="#">3933301</a>	MCARE-079-2023	Employment of UV-VIS Spectroscopy to Optimize Performance of All-Iron Aqueous Redox Flow Batteries by Analyzing Capacity Degradation	Shin, Mingyu	Contributed (Oral)	11:20 AM 11:40 AM	Accepted (7/12/2023)
6	<a href="#">3937793</a>	MCARE-080-2023	Atomic-layer-Deposited Aluminum doped Indium Oxide Electron Transport Layer for All-Perovskite Tandem Solar Cell	Youn, Pil Ju	Contributed (Oral)	11:40 AM 12:00 PM	Accepted (7/11/2023)
7	<a href="#">3938370</a>	MCARE-081-2023	Metal Oxide decorated Pt/High Crystalline Carbon Electrocatalyst for Enhanced Catalytic Durability	Woo, SeungMin	Contributed (Oral)	12:00 PM 12:20 PM	Accepted (7/11/2023)

**Session Information**

SESSION TITLE: Materials for Hydrogen Fuel Production and CO2 Conversion or Carbon Neutrality III  
 SESSION ABBREVIATION:  
 SESSION TYPE: Oral  
 SESSION START TIME: Wed 8/23/2023 9:30 AM  
 SESSION DURATION: 160  
 SESSION LOCATION: Grand Ballroom F (Second Floor)  
 SESSION HOST: Chair: Paul Kempler  
 SESSION CREATOR: McCurdy, Karen  
 SESSION TOPIC: S5 Materials for Hydrogen Fuel Production and CO2 Conversion or Carbon Neutrality  
 CLIENT SESSION ID: 406  
 SESSION NOTES TO ADMIN: Wednesday, August 23, 9:30 a.m.

Order	Control ID	Final ID	Title	Presenting Author	Presentation Type	Start/end time	Invitation Status
1	<a href="#">3938737</a>	MCARE-082-2023	Electrocatalytic conversion of CO2 to multicarbon products (Keynote)	Sinton, David	Keynote	9:30 AM 10:10 AM	Accepted (7/31/2023)
2	<a href="#">3935266</a>	MCARE-083-2023	Atomically dispersed iridium catalysts on silicon photoanode for efficient photoelectrochemical water splitting	Jang, Ho Won	Invited (by Invitation Only)	10:10 AM 10:40 AM	Accepted (7/12/2023)
3	<a href="#">3938936</a>	MCARE-084-2023	Electro and photoactive Materials for Clean Energy Applications	Qurashi, Ahsan Ul Haq	Invited (by Invitation Only)	10:40 AM 11:10 AM	Invited
4	<a href="#">3938440</a>	MCARE-085-2023	Boosting up charge transport property of hematite for an efficient water splitting system	Jang, Ji-Hyun	Invited (by Invitation Only)	11:10 AM 11:40 AM	Accepted (7/11/2023)
5	<a href="#">3929900</a>	MCARE-086-2023	Layered Double Hydroxides and Derived Metal Oxides for Photoelectrochemical Applications	Cho, Seungho	Invited (by Invitation Only)	11:40 AM 12:10 PM	Accepted (7/11/2023)

**Session Information**

SESSION TITLE: Third Generation Photovoltaic Technologies with Emphasis on Perovskite Solar Cells and Modules I

SESSION ABBREVIATION:

SESSION TYPE: Oral

SESSION START TIME: Wed 8/23/2023 9:30 AM

SESSION DURATION: 140

SESSION LOCATION: Grand Ballroom G (Second Floor)

SESSION HOST: Chair: Kai Wang

SESSION CREATOR: McCurdy, Karen

SESSION TOPIC: S6 Third Generation Photovoltaic Technologies with Emphasis on Perovskite Solar Cells and Modules

CLIENT SESSION ID: 408

SESSION NOTES TO ADMIN: Wednesday, August 23,9:30 a.m.

Order	Control ID	Final ID	Title	Presenting Author	Presentation Type	Start/end time	Invitation Status
1	<a href="#">3933326</a>	MCARE-087-2023	Perovskite – a wonder material for photoelectronics	Liu, Shengzhong	Invited (by Invitation Only)	9:30 AM 10:00 AM	Accepted (7/11/2023)
2	<a href="#">3934098</a>	MCARE-088-2023	Highly Stable and Efficient Composites-Based Perovskite Solar Cells (Keynote)	Hahn, Yoon-Bong	Invited (by Invitation Only)	10:00 AM 10:30 AM	Accepted (7/17/2023)
3	<a href="#">3934255</a>	MCARE-089-2023	Highly Efficient Flexible Solar Cells on PET for Indoor Application via Halide Composition and Interfacial Design Optimization	Brown, Thomas	Invited (by Invitation Only)	10:30 AM 11:00 AM	Accepted (7/09/2023)
4	<a href="#">3934493</a>	MCARE-090-2023	Challenges of Metal Halide Photovoltaic Technology: Device Stability and Commercialization	Doumon, Nutifafa Yao	Invited (by Invitation Only)	11:00 AM 11:30 AM	Accepted (7/07/2023)
5	<a href="#">3932552</a>	MCARE-091-2023	Laser-Induced Wireless Power Transfer using Perovskite Solar Cells	Keremane, Kavya	Contributed (Oral)	11:30 AM 11:50 AM	Accepted (7/07/2023)

**Session Information**

SESSION TITLE: Thermoelectric Energy Harvesting II  
 SESSION ABBREVIATION:  
 SESSION TYPE: Oral  
 SESSION START TIME: Wed 8/23/2023 9:30 AM  
 SESSION DURATION: 230  
 SESSION LOCATION: Grand Ballroom E (Second Floor)  
 SESSION HOST: Chair: Armin Feldhoff  
 Chair: Wenjie Li  
 SESSION CREATOR: Poudel, Bed  
 SESSION TOPIC: S7 Thermoelectric Energy Harvesting  
 CLIENT SESSION ID: 410  
 SESSION NOTES TO ADMIN: Wednesday, 9:30 a.m.

Order	Control ID	Final ID	Title	Presenting Author	Presentation Type	Start/end time	Invitation Status
1	<a href="#">3938367</a>	MCARE-092-2023	Enhanced Thermoelectric Performance through Optimizing Spatially Distributed Transport Properties (DTP)	Crane, Doug	Invited (by Invitation Only)	9:30 AM 10:00 AM	Accepted (7/10/2023)
2	<a href="#">3938853</a>	MCARE-093-2023	High Power Density Thermoelectric Coolers	Nozariasbmarz, Amin	Invited (by Invitation Only)	10:00 AM 10:30 AM	Accepted (7/10/2023)
3	<a href="#">3938930</a>	MCARE-094-2023	Bismuth Telluride based Thermoelectric thin films fabricated using RF magnetron sputtering technique	Sharma, Shweta	Invited (by Invitation Only)	10:30 AM 11:00 AM	Accepted (7/10/2023)
4	<a href="#">3937551</a>	MCARE-095-2023	Opportunities and Challenges of Thermoelectric Copper Chalcogenides	Kleinke, Holger	Invited (by Invitation Only)	11:00 AM 11:30 AM	Accepted (7/17/2023)
5	<a href="#">3938484</a>	MCARE-096-2023	Giant ZT of Fluorine Doped SWCNTs	Adu, Kofi	Invited (by Invitation Only)	11:30 AM 12:00 PM	Invited
6	<a href="#">3938455</a>	MCARE-097-2023	High entropy alloys as thermoelectrics: A theoretical investigation of the PbSnTeSe alloy	Boulet, Pascal	Invited (by Invitation Only)	12:00 PM 12:30 PM	Accepted (7/12/2023)
7	<a href="#">3938486</a>	MCARE-098-2023	First-principle investigations on thermoelectric layered chalcogenides	Record, Marie-Christine	Invited (by Invitation Only)	12:30 PM 1:00 PM	Accepted (7/12/2023)



**Session Information**

SESSION TITLE: Spectral Conversion Materials for Energy Applications

SESSION ABBREVIATION:

SESSION TYPE: Oral

SESSION START TIME: Wed 8/23/2023 1:30 PM

SESSION DURATION: 250

SESSION LOCATION: Grand Ballroom AB (Second Floor)

SESSION HOST: Chair: Yuanbing Mao

SESSION CREATOR: McCurdy, Karen

SESSION TOPIC: S4 Spectral Conversion Materials for Energy Applications

CLIENT SESSION ID: 414

SESSION NOTES TO ADMIN: Wednesday, August 23, 1:30 p.m.

Order	Control ID	Final ID	Title	Presenting Author	Presentation Type	Start/end time	Invitation Status
1	<a href="#">3936889</a>	MCARE-099-2023	From Molecule to Applications: Inventing Luminescent Nanoparticles for Biology and Catalysis	Han, Gang	Invited (by Invitation Only)	1:30 PM 2:00 PM	Accepted (7/12/2023)
2	<a href="#">3930140</a>	MCARE-100-2023	Multi-wavelength excitable core/multishell upconversion nanophosphors	Jang, Ho Seong	Invited (by Invitation Only)	2:00 PM 2:30 PM	Accepted (7/11/2023)
3	<a href="#">3930306</a>	MCARE-101-2023	Embedding lanthanide fluoride-based nanoparticles in TiO <sub>2</sub> metallogel to exploit their upconversion and Lewis acid properties for catalysis	Mishra, Shashank	Invited (by Invitation Only)	2:30 PM 3:00 PM	Accepted (7/12/2023)
4			Break			3:00 PM 3:20 PM	
5	<a href="#">3934611</a>	MCARE-102-2023	Molecule-like lanthanide-oxide clusters in virtually unchanged ZnO	Westin, Gunnar	Invited (by Invitation Only)	3:20 PM 3:50 PM	Accepted (7/11/2023)
6	<a href="#">3938632</a>	MCARE-103-2023	Keeping it simple? Straight-forward synthesis of PVP-UCNPs and lessons learned using a high-safety autoclave reactor for PEI-UCNPs and OA-UCNPs	MacKenzie, Lewis	Invited (by Invitation Only)	3:50 PM 4:20 PM	Accepted (7/12/2023)
7	<a href="#">3936900</a>	MCARE-104-2023	Making thermal sensing applications easily accessible with a modern synthesis approach and printable nanoparticles	Homann, Christian	Contributed (Oral)	4:20 PM 4:40 PM	Accepted (7/12/2023)
8	<a href="#">3932291</a>	MCARE-105-2023	2D Nanostructures Materials for Water Oxidation: Challenges and Opportunities	Ibrahim, Kassa	Invited (by Invitation Only)	4:40 PM 5:10 PM	Accepted (7/12/2023)
9	<a href="#">3968880</a>	MCARE-137-2023	An optical route to increase the open circuit voltage from organic and perovskite solar cells	Martorell, Jordi	Invited (by Invitation Only)	5:10 PM 5:40 PM	Accepted (7/26/2023)

**Session Information**

SESSION TITLE: Materials for Hydrogen Fuel Production and CO<sub>2</sub> Conversion or Carbon Neutrality IV  
 SESSION ABBREVIATION:  
 SESSION TYPE: Oral  
 SESSION START TIME: Wed 8/23/2023 1:30 PM  
 SESSION DURATION: 140  
 SESSION LOCATION: Grand Ballroom F (Second Floor)  
 SESSION HOST: Chair: Ahsan Ul Haq Qurashi  
 SESSION CREATOR: McCurdy, Karen  
 SESSION TOPIC: S5 Materials for Hydrogen Fuel Production and CO<sub>2</sub> Conversion or Carbon Neutrality  
 CLIENT SESSION ID: 416  
 SESSION NOTES TO ADMIN: Wednesday, August 23, 1:30 p.m.

Order	Control ID	Final ID	Title	Presenting Author	Presentation Type	Start/end time	Invitation Status
1	<a href="#">3938615</a>	MCARE-106-2023	Enhancing Photoelectrochemical and Electrochemical Fuel Production through Low-Dimensional Reduction Catalysts	Sim, Uk	Invited (by Invitation Only)	1:30 PM 2:00 PM	Accepted (8/03/2023)
2	<a href="#">3938394</a>	MCARE-107-2023	The Chemistry and Physics of Bipolar Membranes with Applications in Water, Energy, and Decarbonization	Boettcher, Shannon	Invited (by Invitation Only)	2:00 PM 2:30 PM	Accepted (7/12/2023)
3	<a href="#">3939520</a>	MCARE-108-2023	Electrochemical CO <sub>2</sub> reduction reaction with Ni-N-C catalyst	Hwang, Yun Jeong	Invited (by Invitation Only)	2:30 PM 3:00 PM	Accepted (7/11/2023)
4			Break			3:00 PM 3:20 PM	
5	<a href="#">3960450</a>	MCARE-109-2023	Development of Strontium Free Alternative Oxygen Electrodes for Solid Oxide Electrolysis Cells (SOECs)	Karki, Surendra	Invited (by Invitation Only)	3:20 PM 3:50 PM	Accepted (7/11/2023)

**Session Information**

SESSION TITLE: Third Generation Photovoltaic Technologies with Emphasis on Perovskite Solar Cells and Modules II

SESSION ABBREVIATION:

SESSION TYPE: Oral

SESSION START TIME: Wed 8/23/2023 1:30 PM

SESSION DURATION: 200

SESSION LOCATION: Grand Ballroom G (Second Floor)

SESSION HOST: Chair: Kai Wang

SESSION CREATOR: McCurdy, Karen

SESSION TOPIC: S6 Third Generation Photovoltaic Technologies with Emphasis on Perovskite Solar Cells and Modules

CLIENT SESSION ID: 418

SESSION NOTES TO ADMIN: Wednesday, August 23, 1:30 p.m.

Order	Control ID	Final ID	Title	Presenting Author	Presentation Type	Start/end time	Invitation Status
1	<a href="#">3934600</a>	MCARE-111-2023	Efficient, stable and scalable perovskite solar cells	Seo, Jangwon	Invited (by Invitation Only)	1:30 PM 2:00 PM	Accepted (7/11/2023)
2	<a href="#">3934926</a>	MCARE-112-2023	Defect passivation for stable perovskite crystals	Park, Taiho	Invited (by Invitation Only)	2:00 PM 2:30 PM	Accepted (7/11/2023)
3	<a href="#">3931765</a>	MCARE-113-2023	Emerged Manufacturing for Sub-Soft Perovskite Material Development	Wang, Kai	Invited (by Invitation Only)	2:30 PM 3:00 PM	Accepted (7/12/2023)
4			Break			3:00 PM 3:20 PM	
5	<a href="#">3950427</a>	MCARE-114-2023	Review of Simple Halide and Chalcogenide Perovskites: NSMM versus Goldschmidt's Tolerance Factor	Tidrow, Steven	Invited (by Invitation Only)	3:20 PM 3:50 PM	Accepted (7/08/2023)
6	<a href="#">3933427</a>	MCARE-115-2023	Down-Selection of Biomolecules to Assemble "Reverse Micelle" with Perovskites	Wu, Haodong	Contributed (Oral)	3:50 PM 4:10 PM	Accepted (7/10/2023)
7	<a href="#">3933482</a>	MCARE-116-2023	A universal all-solid synthesis for high throughput production of halide perovskite	Zheng, Luyao	Contributed (Oral)	4:10 PM 4:30 PM	Accepted (7/07/2023)
8	<a href="#">3938807</a>	MCARE-117-2023	Tunable light emission using optical antenna	Sharma, Shweta	Contributed (Oral)	4:30 PM 4:50 PM	Accepted (7/09/2023)

**Session Information**

SESSION TITLE: Thermoelectric Energy Harvesting III

SESSION ABBREVIATION:

SESSION TYPE: Oral

SESSION START TIME: Wed 8/23/2023 1:30 PM

SESSION DURATION: 160

SESSION LOCATION: Grand Ballroom E (Second Floor)

SESSION HOST: Chair: Amin Nozariasbmarz

SESSION CREATOR: Poudel, Bed

SESSION TOPIC: S7 Thermoelectric Energy Harvesting

CLIENT SESSION ID: 420

SESSION NOTES TO ADMIN: Wednesday, 1:30 p.m.

Order	Control ID	Final ID	Title	Presenting Author	Presentation Type	Start/end time	Invitation Status
1	<a href="#">3950414</a>	MCARE-118-2023	Highly Improved Thermoelectric Performance of Tungsten-based Magnéli Phase Oxide $W_{18}O_{49}$ via Carrier Concentration Reduction	Ohtaki, Michitaka	Keynote	1:30 PM 2:10 PM	Accepted (8/03/2023)
2	<a href="#">3938641</a>	MCARE-119-2023	Texturing ceramics via electrospun nanoribbons: A route to high-performance thermoelectric $Ca_3Co_{4-x}O_{9-\delta}$	Feldhoff, Armin	Invited (by Invitation Only)	2:10 PM 2:40 PM	Accepted (7/11/2023)
3	<a href="#">3941415</a>	MCARE-120-2023	Charge and heat transport in calcium-manganate oxides for thermoelectric energy harvesting	Amouyal, Yaron	Invited (by Invitation Only)	2:40 PM 3:10 PM	Accepted (7/12/2023)
4	<a href="#">3934386</a>	MCARE-121-2023	High-Performance Ionic Thermoelectric Materials Based on the Soret Effect	Ouyang, Jianyong	Invited (by Invitation Only)	3:10 PM 3:40 PM	Accepted (7/10/2023)

**Session Information**

SESSION TITLE: Piezoelectric and Triboelectric Energy Harvesting using Low-Dimensional Materials

SESSION ABBREVIATION:

SESSION TYPE: Oral

SESSION START TIME: Thu 8/24/2023 8:30 AM

SESSION DURATION: 180

SESSION LOCATION: Grand Ballroom F (Second Floor)

SESSION HOST: Chair: Sohini Kar-Narayan

SESSION CREATOR: McCurdy, Karen

SESSION TOPIC: S8 Piezoelectric and Triboelectric Energy Harvesting using Low-Dimensional Materials

CLIENT SESSION ID: 502

SESSION NOTES TO ADMIN: Thursday, August 24, 8:30 a.m.

Order	Control ID	Final ID	Title	Presenting Author	Presentation Type	Start/end time	Invitation Status
1	<a href="#">3936129</a>	MCARE-122-2023	Ultrasound Energy Transfer System Through Contact Electrification	Hur, Sunghoon	Invited (by Invitation Only)	8:30 AM 9:00 AM	Accepted (7/10/2023)
2	<a href="#">3933770</a>	MCARE-123-2023	[001]-textured NKN-based piezoceramics with large electromechanical coupling factor for piezoelectric energy harvester	Nahm, Sahn	Invited (by Invitation Only)	9:00 AM 9:30 AM	Accepted (7/10/2023)
3	<a href="#">3931724</a>	MCARE-124-2023	Self-rectifying and artificial synaptic characteristics of amorphous Ta <sub>2</sub> O <sub>5</sub> thin films grown on Sr <sub>2</sub> Nb <sub>3</sub> O <sub>10</sub> nanosheets	Kim, Bumjoo	Contributed (Oral)	9:30 AM 9:50 AM	Accepted (8/03/2023)
4	<a href="#">3933769</a>	MCARE-125-2023	Self-rectifying and self-powered ReRAM devices fabricated using crystalline NaNbO <sub>3</sub> thin film grown at low temperature	Kim, In-Su	Contributed (Oral)	9:50 AM 10:10 AM	Accepted (7/10/2023)
5			Break			10:10 AM 10:30 AM	
6	<a href="#">3933789</a>	MCARE-126-2023	Enhanced piezoelectric properties of the [001]-textured PbZrO <sub>3</sub> -PbTiO <sub>3</sub> -Pb(Ni <sub>1/3</sub> Nb <sub>2/3</sub> )O <sub>3</sub> piezoceramics	Kim, Jung-soo	Contributed (Oral)	10:30 AM 10:50 AM	Accepted (7/10/2023)
7	<a href="#">3933809</a>	MCARE-127-2023	[001]-textured (Na, K) Nb-based lead-free piezoceramics sintered at low temperature and their application to piezoelectric actuator	Kim, Seung Hyun	Contributed (Oral)	10:50 AM 11:10 AM	Accepted (7/17/2023)
8	<a href="#">3938880</a>	MCARE-128-2023	Ferroelectric Properties of Halide Perovskite Molecular Semiconductor Thin Films	Krishnan Jagadamma, Lethy	Contributed (Oral)	11:10 AM 11:30 AM	Accepted (7/10/2023)

**Session Information**

SESSION TITLE: Emerging Concepts for Energy Harvesting

SESSION ABBREVIATION:

SESSION TYPE: Oral

SESSION START TIME: Thu 8/24/2023 8:30 AM

SESSION DURATION: 90

SESSION LOCATION: Grand Ballroom E (Second Floor)

SESSION HOST: Chair: Mari-Ann Einarsrud

SESSION CREATOR: Ryu, Jungho

SESSION TOPIC: S9 Hybrid Energy Harvesting Materials and Devices

CLIENT SESSION ID: 504

SESSION NOTES TO ADMIN: Thursday, 24 Aug, 8:30 a.m.

Order	Control ID	Final ID	Title	Presenting Author	Presentation Type	Start/end time	Invitation Status
1	<a href="#">3937417</a>	MCARE-129-2023	Direct-current (DC) piezoelectric power generator employing a sequential polarization change	Song, Hyun-Cheol	Invited (by Invitation Only)	8:30 AM 9:00 AM	Accepted (7/09/2023)
2	<a href="#">3933767</a>	MCARE-130-2023	Isothermal Energy Harvesting using BaTiO <sub>3</sub> Perovskite System Materials	Tanaka, Hirohisa	Contributed (Oral)	9:00 AM 9:20 AM	Accepted (7/07/2023)
3	<a href="#">3938711</a>	MCARE-131-2023	High efficiency of flexible thermoelectric module using porous polymeric filler	Shin, Joonchul	Contributed (Oral)	9:20 AM 9:40 AM	Accepted (7/11/2023)
4			Break			9:40 AM 10:00 AM	



**Session Information**

SESSION TITLE: Material Processing and Energy Harvesting Device Design

SESSION ABBREVIATION:

SESSION TYPE: Oral

SESSION START TIME: Thu 8/24/2023 10:20 AM

SESSION DURATION: 110

SESSION LOCATION: Grand Ballroom E (Second Floor)

SESSION HOST: Chair: Joonchul Shin

SESSION CREATOR: Ryu, Jungho

SESSION TOPIC: S9 Hybrid Energy Harvesting Materials and Devices

CLIENT SESSION ID: 506

SESSION NOTES TO ADMIN: Thursday, 24 Aug 10:20

Order	Control ID	Final ID	Title	Presenting Author	Presentation Type	Start/end time	Invitation Status
1	<a href="#">3938779</a>	MCARE-132-2023	Chemical solution-based fabrication of piezoelectric materials for energy applications	Einarsrud, Mari-Ann	Invited (by Invitation Only)	10:20 AM 10:50 AM	Accepted (7/08/2023)
2	<a href="#">3938557</a>	MCARE-133-2023	Bio-physicochemical Dual Energy Harvesting Fabrics For Self-sustainable Electronic Suits	Park, Jiwon	Contributed (Oral)	10:50 AM 11:10 AM	Accepted (7/11/2023)
3	<a href="#">3938913</a>	MCARE-134-2023	Autonomous Resonance-tuning Energy Harvester for Varying Frequency Environments	Lee, Dong-gyu	Contributed (Oral)	11:10 AM 11:30 AM	Accepted (7/11/2023)
4	<a href="#">3905954</a>	MCARE-135-2023	Stable output generation of a broadband magneto-mechano-electric generator under temperature variable environment by a self-resonance tuning	Song, Hyun Seok	Contributed (Oral)	11:30 AM 11:50 AM	Accepted (7/09/2023)
5	<a href="#">3934711</a>	MCARE-136-2023	Magnetoelectric transducer with high power capability for powering smart electronics	Karan, Sumanta Kumar	Contributed (Oral)	11:50 AM 12:10 PM	Accepted (7/07/2023)

# The American Ceramic Society Energy Materials and Systems Division

## CONNECT WITH YOUR INDUSTRY

### WHO IS THE ENERGY MATERIALS AND SYSTEMS DIVISION?

As one of 11 Divisions of the American Ceramic Society, we focus on stimulating the growth and activities of the Society in the arts and sciences pertaining to ceramic and glass materials for energy-related applications. We represent the Society in matters pertaining to the science and engineering of ceramic and glass materials and related technology, as they apply to the harvesting, conversion, storage, transport and utilization of energy.



### WHAT'S IN IT FOR YOU

- Connecting with industry professionals
- Meetings, symposia, and related events to stay current
- Access to member resources and industry publications
- Leadership development opportunities
- Awards and recognition
- Access to peer-reviewed journals
  - *Journal of the American Ceramic Society*
  - *International Journal of Applied Ceramic Technology*
  - *International Journal of Applied Glass Science*
  - *International Journal of Ceramic Engineering & Science*

[ceramics.org/EMSD](http://ceramics.org/EMSD)



**WHO IS ACERS?** We are an international society serving the engineered ceramic and glass industry with more than 11,000 professional and student members in 70 countries.