THE WORLD COMES HERE.

TMS 2023

152nd Annual Meeting & Exhibition

MARCH 19–23, 2023
SAN DIEGO CONVENTION CENTER &
HILTON SAN DIEGO BAYFRONT
SAN DIEGO, CALIFORNIA, USA
#TMSANNUALMEETING

SUBMIT AN ABSTRACT BY JULY 1 FOR THE FOLLOWING TMS2023 SYMPOSIUM:

ENERGY & ENVIRONMENT

Advanced Materials for Energy Conversion and Storage 2023

This symposium provides a forum to discuss advanced materials for energy conversion and storage and accelerating the development and acceptance of innovative materials and test techniques for clean energy technology.

Theme 1: Energy Conversion. Focus areas include experiments and modeling of energy conversion systems, including:

- SOFCs and Reversible SOFCs/SOECs
- PEM Fuel Cells
- The Durability of the Fuel Cell and Stack Materials
- Degradation due to Thermo-Mechanical-Chemical Effects
- Effect of Microstructure Evolution on Properties and Efficiency
- Chromium Poisoning from Interconnections and Balance of Plant
- Advances in Characterization and Modeling Techniques for Energy Generation Systems (AI, Big Data, Deep Learning)

Theme 2: Energy Storage. Focus areas include:

- Batteries
- Physicochemical Interaction in Intercalation, Conversion, and Metal Batteries
- Electrode Microstructure - Property - Performance Interplay
- Mesoscale Modeling and Characterization
- Degradation and Safety Characteristics in Electrodes
- Computer Simulation/Modeling (AI, Big Data, Deep Learning)

Theme 3: Materials Design for Sustainability and Energy Harvesting. Focus areas include green and sustainable technologies for energy harvesting, additive manufacturing (AM), green tribology, next-generation products and processes, and development of advanced instrumentation and control systems. Session topics include:

- Solar Energy
- Wind Energy
- Supercapacitor
- AM, 3D Printing, and Sustainability
- Green Tribology
- Life Cycle Analysis of Materials and Products
- Computer Simulation/Modeling (AI, Big Data, Deep Learning)

Theme 4: Functional Materials, including coating, Ceramics, and Alloys. Focus areas include:

- Functional Oxides, Nitrides, and Carbides
- Ceramics and Dielectrics
- Sensors
- Thermal Energy Harvesting, Conversion, Storage, and Management Devices
- Functional Coatings for Harsh Environments
- Nanotechnology and Multifunctional Materials
- Membrane Separation Materials, Processes, and Systems (H2, O2, CO2)
- Water Splitting and Other Catalyst Applications
- In-Situ Spectroscopy and Advanced Characterization of Functional Materials
- Harsh Environment Electromagnetic Materials
- Computer Simulation/Modeling (AI, Big Data, Deep Learning)

ORGANIZERS

Jung Choi, Pacific Northwest National Laboratory
Amit Pandey, Lockheed Martin Space
Partha Mukherjee, Purdue University
Surojit Gupta, University of North Dakota
Soumendra Basu, Boston University
Paul Ohodnicki, University of Pittsburgh
Eric Detsi, University of Pennsylvania

SYMPOSIUM SPONSORS

TMS Functional Materials Division
TMS Energy Conversion and Storage Committee

www.tms.org/TMS2023

QUESTIONS?
Contact programming@tms.org