SUBMIT AN ABSTRACT BY JULY 1

FEBRUARY 27-MARCH 3, 2022
ANAHEIM CONVENTION CENTER & ANAHEIM MARRIOTT
ANAHEIM, CALIFORNIA, USA
#TMSAnnualMeeting

SUBMIT AN ABSTRACT FOR THE FOLLOWING TMS2022 SYMPOSIUM:

ENERGY & ENVIRONMENT

Advanced Materials for Energy Conversion and Storage 2022

Theme 1: Energy Conversion
Focus area topics include, but are not limited to, 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 the properties and efficiency
- Chromium poisoning from interconnections and Balance of Plant
- Advances in characterization and modeling techniques for energy generation systems

Theme 2: Energy Storage
Focus areas include:

- Batteries
- Physicochemical Interaction in intercalation, conversion, and metal batteries, e.g., lithium-ion, solid-state, Na-ion, Li-S, Li-air
- Electrode microstructure - property - performance interplay
- Mesoscale modeling and characterization (e.g., X-ray tomography)
- Degradation (e.g., mechanical, chemical, electrodeposition) and safety characteristics in electrodes

Theme 3: Materials Design for Sustainability and Energy Harvesting
Focus area: This component of the symposium will focus on various green and sustainable technologies for energy harvesting, additive manufacturing, green tribology, next-generation products and processes, and development of advanced instrumentation and control systems, etc. Proposed session topics include:

- Solar Energy
- Wind Energy
- supercapacitor
- Additive manufacturing, 3D printing, and sustainability
- Green Tribology
- Life cycle analysis of materials and products

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, and Management Devices
- Functional Coatings for Harsh Environments
- Nanotechnology and Multifunctional Materials
- Membrane Separation Materials, Processes, and Systems (H_2, O_2, CO_2)
- Water Splitting and Other Catalyst Applications
- In-Situ Spectroscopy and Advanced Characterization of Functional Materials
- Harsh Environment Electromagnetic Materials

This symposium provides a forum for researchers from national laboratories, universities, and industry to discuss the current understanding of materials science issues in advanced materials for energy conversion and storage including high-temperature processes, and to discuss accelerating the development and acceptance of innovative materials and test techniques for clean energy technology.

ORGANIZERS
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QUESTIONS?
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