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TMS 2026
155th Annual Meeting & Exhibition

March 15–19, 2026
San Diego Convention Center
and Hilton San Diego Bayfront
San Diego, California, USA
#TMSAnnualMeeting

SUBMIT AN ABSTRACT FOR THE FOLLOWING SYMPOSIUM

ELECTRONIC, MAGNETIC, AND ENERGY MATERIALS

Advanced Materials for Energy Conversion and Storage 2026

This symposium intends to provide 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 technologies. For further understanding, accelerating the innovation and making the symposium focused, we have divided the symposium into four interconnected themes, namely: (a) Energy Conversion, (b) Energy Storage, (c) Materials Design, and (d) Functional themes (each theme is described in detail in the next section).

Recent developments in AI (Artificial Intelligence), big data, and Deep Learning will be a common factor for each theme. It is expected that the synergism and interdisciplinary nature of different themes, as well as the involvement of leading experts, will provide the attendees with an inclusive and holistic forum for discussion and learning new developments in Energy Conversion and Storage in the Symposium.

Theme 1: Energy Conversion
- Solid Oxide Cells (SOFCs, SOECs and RSOCs)
- 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
- PEM fuel cells
- Thermoelectric Devices

Theme 2: Energy Storage
- Batteries
- Physicochemical Interaction in intercalation, conversion, metal, and flow 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
- Phase change materials for thermal energy storage

Theme 3: Advanced Materials Design for Sustainability and Energy Harvesting, co-organized with the following symposium: Energy Technology 2026: Advancement in Energy Materials - Theory, Simulation, Characterization and Application
- Advanced materials for solar energy
- Advanced materials for wind energy
- Advanced materials for supercapacitors
- Green tribology
- Life cycle analysis of materials and products

Theme 4: Functional Materials, including coating, Ceramics, and Alloys
- 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

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SPONSORED BY:
TMS Functional Materials Division; TMS Energy Conversion and Storage Committee; TMS Energy Committee

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