



SUBMIT AN ABSTRACT BY JULY 1

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ANAHEIM CONVENTION CENTER & ANAHEIM MARRIOTT
ANAHEIM, CALIFORNIA, USA
#TMSAnnualMeeting

SUBMIT AN ABSTRACT FOR THE FOLLOWING TMS2022 SYMPOSIUM:

ENERGY & ENVIRONMENT

Energy Technologies and CO₂ Management

The reliance on fossil fuels for energy is unsustainable and has released an unprecedented amount of carbon dioxide into our atmosphere. The continual research and development effort into clean and sustainable energy technologies and efficient carbon dioxide management are of paramount importance to ensure the responsible progress of human civilization and innovations. This symposium is open to participants from industry, government, and academia and will focus on energy efficient technologies including innovative ore beneficiation, smelting technologies, and recycling and waste heat recovery, 'smart cool materials' for abating Urban Heat Islands as well as emerging novel energy technologies. Sessions will also cover various technological aspects of sustainable energy ecosystems, processes that improve energy efficiency, reduce thermal emissions, and reduce carbon dioxide and other greenhouse emissions. Contributions from all areas of non-nuclear and non-traditional energy sources are encouraged. Topics include, but are not limited to:

- Renewable Energy Resources to Reduce the Consumption of Traditional Fossil Fuels
- Emerging Technologies for Renewable Energy Harvesting, Conversion, and Storage
- New Concepts or Devices for Energy Generation, Conversion, and Distribution
- Waste Heat Recovery and Other Industrial Energy Efficient Technologies
- 'Smart Cool Materials' for Urban Heat Island Mitigation (such as cool roof infrared reflecting material, and low temperature heat absorbers for use in air conditioner condensers - like 'Endothermic Materials'. Low concentration CO₂ are part of Urban Heat Islands besides dissipated passive solar heat into atmosphere)
- Energy Education and Energy Regulation
- Scale-up, Stability, and Life-Cycle Analysis of Energy Technologies and Improvement of Existing Energy-intensive Processes
- Theory and Simulation in Energy Harvesting, Conversion, and Storage
- Design, Operation, and Optimization of Processes for Energy Generation (e.g., Carbon Capture) and Conversion of Energy Carriers
- Energy Efficiency Improvement in Process Engineering (e.g., for biomass conversion and improved combustion) and Electrical Engineering (e.g., for power conversion and developing smart grids)
- Thermoelectric/Electrolysis/Photoelectrolysis/Fundamentals of PV Emission Control, CO₂ Capture, and Conversion
- Carbon Sequestration Techniques
- CO₂ and Other Greenhouse Gas Reduction Metallurgy in Ferrous (iron & steel making and forming), Non-ferrous, and Reactive Metals Including the Critical Rare-earths
- Sustainability and Life Cycle Assessment of Energy Systems
- Thermodynamics and Modelling for Sustainable Metallurgical Processes
- Methodologies for Reducing the Cost of Energy Materials Production
- Circular Economy and Developing Resource Efficiency Model for Cutting Down the Transport from Remote Places
- Materials Extraction and Processing Steps for Enhancing Energy Efficiencies in Batteries, Supercapacitors, and Energy Efficient Cells
- Foundational Industry (metals-alloys, chemicals, refractories, cement) and Energy Economy and Role of Mineral Extraction

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