# **ENERGY TECHNOLOGIES**

Since energy has been an issue in every branch of the industry, this symposium intends to address the needs for sustainable technologies with reduced energy consumption and pollutants, which also impacts the economics of the process. This symposium is open to participants from both industry and academia and will focus on energy efficient technologies including innovative ore beneficiation, smelting technologies, recycling, and waste heat recovery. The sessions will also cover various technological aspects of sustainable energy ecosystems, processes that improve energy efficiency, reduce thermal emissions, and reduce carbon dioxide (CO<sub>2</sub>) and other greenhouse emissions. Contributions from all areas of non-nuclear and non-traditional energy sources are welcomed.

### Topics include:

- Renewable energy resources for metals and materials production
- Waste heat recovery and other industrial energy efficient technologies
- New concepts or devices for energy generation, conversion, and distribution
- 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 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)
- Thermo-electric/electrolysis/photo-electrolysis/fundamentals of PV
- Emission control, CO<sub>2</sub> capture and conversion
- Carbon sequestration techniques
- CO<sub>2</sub> and other greenhouse gas reduction metallurgy in ferrous (iron and steel making and forming), non-ferrous, and reactive metals, including critical rare-earth metals
- Sustainability and life cycle assessment of energy systems
- Thermodynamics and modeling for sustainable metallurgical processes

## **ORGANIZERS**

Lei Zhang, University of Alaska Fairbanks, USA Jaroslaw Drelich, Michigan Technological University, USA Neale Neelameggham, IND LLC, USA Donna Post Guillen, Idaho National Laboratory, USA Nawshad Haque, CSIRO, Australia

#### **PROCEEDINGS PLANS**

A stand-alone proceedings volume is planned for this symposium. Manuscripts for accepted abstracts are due September 1.

# **SYMPOSIUM SPONSORS**

TMS Energy Committee
TMS Pyrometallurgy Committee