

THE WORLD COMES HERE.
TMS 2025
154th Annual Meeting & Exhibition



March 23–27, 2025
MGM Grand Las Vegas
Hotel & Casino
Las Vegas, Nevada, USA
#TMSAnnualMeeting



SUBMIT AN ABSTRACT FOR THE FOLLOWING TMS2025 SYMPOSIUM:

ELECTRONIC, MAGNETIC, AND ENERGY MATERIALS

Advances in Magnetism and Magnetic Materials

This symposium focuses on structure, processing, and performance interrelationships for soft and hard magnetic materials, thin film magnetism, novel magnetic materials as well as functional aspects of magnetic phenomena: calorics, magnetoelastic, multiferroic, and magnetostrictive. The scope includes new material compositions, novel phenomena in magnetic materials, novel and advanced characterization approaches, processing methods and application driven magnetic component design for energy conversion, sensors, and actuators. We also encourage topics that focus on the economic and supply chain impacts related to magnetic materials manufacturing. Separate symposia exist for work related to additively manufactured magnetic materials, so this topic is not within the scope of this symposium.

Topics of particular interest include:

- Emerging and established manufacturing methods
 - a) bulk manufacturing of advanced magnetic materials
 - b) thermal-mechanical / thermal-magnetic processing
 - c) energy dense processing using RF, microwave, high pressure or high magnetic fields
- Magnetic materials for energy, sustainability, recycling, impacting climate change and environmental impact
- Manufacturing methods for advanced amorphous and electrical steels
- Phase transformations with large caloric effects, manipulation of transition temperatures and hysteresis, and theoretical tools to design better caloric materials
- Advanced characterization techniques, including neutron and synchrotron radiation, to study magnetic materials
- Ab-initio, micromagnetic, machine learning, artificial intelligence, and accelerated development techniques to predict new magnetic materials and optimize their properties

ORGANIZERS

Matthew Kramer, Ames Laboratory; **Eric Theisen**, Energy & Environmental Research Center; **Yaroslav Mudryk**, Ames National Laboratory/Iowa State University; **Daniel Salazar**, BCMaterials

SYMPOSIUM SPONSORS

TMS Functional Materials Division, TMS Magnetic Materials Committee