



SUBMIT AN ABSTRACT FOR THE FOLLOWING 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, machine learning approaches, 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:

1. 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.
2. Magnetic materials for efficient energy conversion, reducing supply chain criticality and enhancing a circular economy.
3. Manufacturing methods for advanced amorphous and electrical steels.
4. Phase transformations with large caloric effects, manipulation of transition temperatures and hysteresis, and theoretical tools to design better caloric materials.
5. Advanced characterization techniques, including neutron and synchrotron radiation, to study magnetic materials.
6. Ab-initio, micromagnetic, machine learning, artificial intelligence, and accelerated development techniques to predict new magnetic materials and optimize their properties.

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