

S3-1 Advances in Electroceramics

SHORT DESCRIPTION:

The purpose of this symposium is to provide an international forum on advanced, state-of-the-art processing, characterization, fundamental understanding, modeling, informatics, and emerging application trends for electroceramics. This symposium will encompass processing, material development, microscopic characterization, modeling, simulation, and informatics of electroceramics, including thin and thick films, nanocrystals, bulk single crystals, and bulk ceramics. It will cover applications in dielectrics, piezoelectrics, ferroelectrics, ferromagnetics, semiconductors, and ionic conductors. It will place a strong emphasis on emerging areas in the fields of green processing of electroceramics, such as cold sintering process, low-temperature synthesis, and nanocrystal assembly. The symposium will also focus on the search for new electroceramic materials using materials informatics. Electroceramics for energy technologies—harvesting, conversion, and storage—will also be among the highlighted discussion topics. The goal is to provide both experienced scientists and students with a comprehensive and detailed understanding of current scientific and technological trends in electroceramic materials.

SESSION TOPICS:

- Advanced preparation of films, ceramics, and single crystals
- Advanced observations and measurements using new or evolving methods
- Materials design based on solid-state chemistry and defect chemistry
- Crystal structure and microstructure analysis for electroceramics
- Materials informatics for electroceramics
- Theoretical models and simulations for electroceramics
- State-of-the-art and new opportunities for applications using electroceramics
- Ferroelectric, magnetic and multiferroic materials and applications
- Piezoelectric materials and applications
- High-frequency and high-voltage dielectrics and applications
- Semiconductors and ionic conductors, and applications

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