S9-6 Solid-state chemistry for functional materials

SHORT DESCRIPTION:

Inorganic solid-state materials such as oxides, non-oxides, intermetallics, metal-organic frameworks, and glasses are widely studied for their diverse electronic states and functional properties. These solids take different forms: powder, thin film, nano-particles, or single-crystals, and are characterized using advanced analyses. Nevertheless, one of the key challenges for solid-state chemists remains the rational design of materials with coordination environments and periodic structures that generate specific desirable properties and new characterization methods, including computational techniques. To accelerate the development of a new class of materials, solid-state scientists have recently turned their attention to anion-directed chemistry, high-entropy materials, molecule-containing inorganic materials, and so on. In parallel, advanced computational chemistry and characterization tools have contributed to understanding the correlations between composition, structure and properties. This symposium will focus on novel synthetic approaches to solid-state materials and their magnetic, dielectric, catalytic, optical, electrical, and other functional properties. It will also highlight the latest advances and challenges of theoretical, modeling, and machine-learning approaches, as well as characterization and analytical tools using synchrotron/neutron/electron/photon beams. It will facilitate sharing new ideas and exciting research between experimental and theoretical solid-state chemists.

SESSION TOPICS:

Design and synthesis of novel functional materials
Reaction mechanism of novel functional materials
Emerging properties and characterization techniques
New ideas, simulation, and modelling of new materials
Supra-ceramics -new materials incorporating molecular units

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