

## *Ionic liquids for controlled synthesis of functional materials*

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Conventional synthesis of functional materials relies heavily on water and organic solvents. Alternatively, the synthesis of functional materials using, or in the presence of, ionic liquids represents a burgeoning direction in materials chemistry. Use of ionic liquids in solvent extraction and organic catalysis has been extensively studied, but their use in materials synthesis has just begun. Ionic liquids are a family of non-conventional molten salts that can act as both templates and precursors to functional materials, as well as solvent. They offer many advantages, such as negligible vapor pressures, wide liquidus ranges, good thermal stability, tunable solubility of both organic and inorganic molecules, and much synthetic flexibility. The unique solvation environment of these ionic liquids provides new reaction media for controlling formation of polymeric materials and tailoring morphologies of advanced materials. Challenges and opportunities in this research area will be discussed.

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