

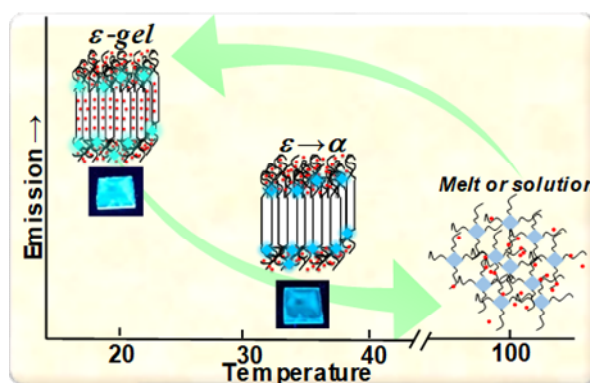
## Hierarchical Assemblies of Supramolecular Block Copolymers and Star-Shaped Poly(Lactide)s

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**ABSTRACT:** The structural ordering process plays a key role in controlling the nanostructured morphologies of the multiphase systems for diverse applications. Noncovalent polymer side-chain modification has emerged as a powerful tool for the creation of nanostructured materials with hierarchical morphologies and desirable properties. In the first part of my talk, a three-component hierarchical self-assembly approach to generate stable alternate donor-acceptor (D-A) assemblies within block copolymer microdomains will be discussed. [1,2] I will also discuss the incorporation of polymerizable small molecules within the block copolymer based supramolecules and their subsequent polymerization. [3] In the second part of my talk, the crystallization behavior of enantiomeric polylactides will be discussed to elucidate insights into chain dispositions and developing crystallized structures through intra- and inter-chain chiral interactions. [4] Further, the role of polymer

crystallization on the solid state emission properties of the star-shaped poly(L-lactide) (PLLA) will be discussed. [5,6] In the last part of my talk, stereocomplex formation and hierarchical structural changes during the heating of supramolecular gels obtained by polylactide racemic blends will be discussed. [7]



*Figure: Schematic representation of structural changes and emission behavior of star-shaped poly(L-lactide)/dimethylformamide gel during the heating and cooling process.*

**KEYWORDS:** block copolymers, star-shaped polymers, crystallization, self-assembly, thermoreversible gels

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