

Abstract Submitted
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Controlling the Self-Assembly of Inorganic Nanoparticles within Conjugated Rod-Coil Block Copolymers BRYAN MCCULLOCH, RACHEL SEGALMAN, University of California - Berkeley — Blends of conjugated polymers and inorganic nanoparticles have been investigated for numerous applications however optimization relies on precise control over the nanoscale morphology. We have designed a conjugated rod-coil block copolymer consisting of poly(3-(2'-ethyl)hexylthiophene)-b-poly(2-vinyl pyridine) (P3EHT-b-P2VP) which self assembles into controllable morphologies. Inorganic nanoparticles reside within the P2VP domain due to the favorable interactions between P2VP and the nanoparticle surface as well as the exclusionary effects of the liquid crystalline P3EHT. The nanoparticle location can be tuned by altering nanocrystal surface chemistry. These findings are used to develop a comprehensive understanding of the self assembly processes in conjugated rod-coil block copolymer nanocomposites.

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