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Nanoparticles from Step-Growth Coordination Polymerization
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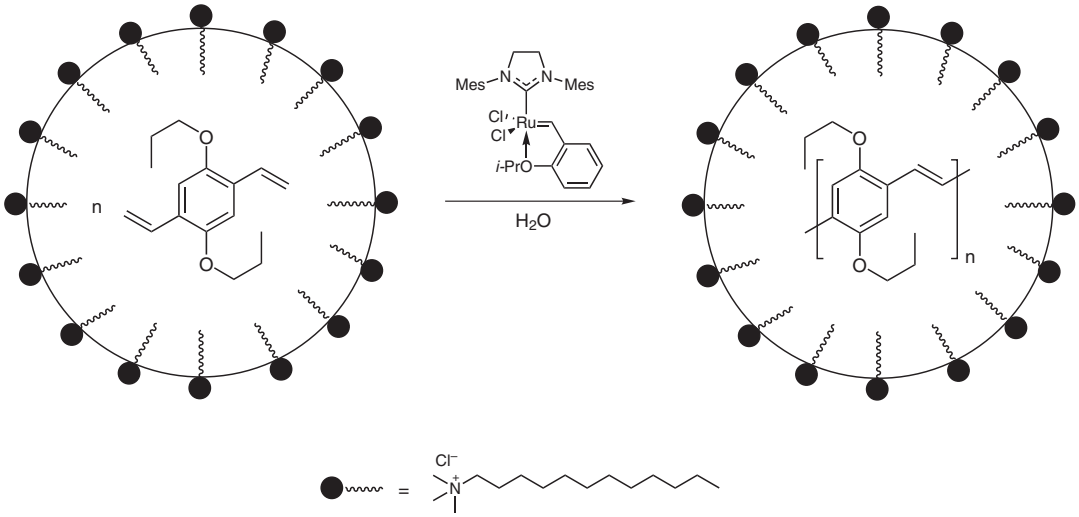
Conjugated Polymer Nanoparticles



Significance: Nanoparticles of a conjugated poly(phenylene vinylene) (PPV) were synthesized by step-growth polymerization of a divinyl monomer in an aqueous emulsion. Model studies in toluene revealed that the Hoveyda–Grubbs metathesis catalyst afforded the highest yield (>95%) of moderately high molecular weight PPV (Mn 2400 g/mol); additionally, the optimal monomer/catalyst ratio was also determined. Using these conditions, approximately 230 nm-sized PPV nanoparticles were synthesized within surfactant-stabilized toluene microemulsions in water.

Comment: Dispersions of conjugated polymer nanoparticles have been shown to possess superior processability over simple polymer solutions (Scherf et al. *Nat. Mater.* **2003**, *2*, 408). Moreover, nanoparticles open the door to using conjugated organic polymers in a host of bioimaging applications. In this paper, the authors present a unique, 'bottom-up' method of synthesizing PPV nanoparticles. Whereas it is most common to form conjugated polymer nanoparticles by crosslinking individual polymer chains, the authors perform the reverse by growing polymer chains within a micelle.

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