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Nanocomposite particle synthesis using switchable ionic liquids (SWILs)

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Anisotropic nanomaterials such as nanowires and nanorods often exhibit interesting properties that are critical for designing devices with desired function. It is known that the solvent play a central role, impacting reaction rates, product separation, efficiency, and most importantly cost. Traditional solution based protocols offer flexibility such as the use of various surface protecting agents, reducing agents and solvents that generate huge solvent waste and are often energy intensive. Use of surfactants often results in materials containing nonmagnetic impurities that have impact during magnet fabrication ultimately resulting in economical and environmental burdens. On the other hand, switchable ionic liquids (SWILs) are a prime choice for solution-based FeCo nanocomposite synthesis, as SWILs can be used as soft templates that offer the ability to change the solvent and template in-situ. I will present our recent results obtained on the synthesis of nanoparticles using SWILs.

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