Preparation of Pickering Emulsions and Alignment of Silica Coated CdSe / CdS Quantum Nanorods

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Quantum nanorods (QNRs) are well studied because of their unique morphology and optical properties. QNRs have a wide absorption and narrow emission spectrum by the quantum confinement effect and emits polarization along the long axis. In general, QNR is hydrophobic at the surface due to the ligands used in the synthesis. Here we included silica, an easily synthesized particle with a hydrophilic surface, to synthesize silica-coated CdSe / CdS quantum nanorods (SQR). SQR has hydrophobic quantum nanorod tails and hydrophilic silica heads similar to molecular surfactants. We used these particles to form a Pickering emulsion and confirm its applicability as a surfactant. Besides, after modifying the silica part with a weakly acidic material to super hydrophilic modification, the alignment possibility of the SQR particles was evaluated.