

Abstract Submitted
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Spatial self-organization and self-alignment of quantum dots and rods by liquid crystals¹ DENNIS GARDNER, IVAN SMALYUKH, University of Colorado at Boulder, LIQUID CRYSTAL MATERIALS RESEARCH CENTER TEAM — We study the spatial self-assembly and self-alignment of CdSe quantum dots and rods in dilute liquid crystal (LC) suspensions. Employing the strong non-bleaching fluorescent signals from the quantum particles, we use fluorescent confocal microscopy to image the 3-D spatial location of the quantum particles. We demonstrate that LC defects and structures allow for controlled localization, alignment, and assembly of these quantum particles. Generalizing our studies for various nanoparticles of different compositions may provide new self-assembly-based methods of nanofabrication of metamaterials needed for applications such as cloaking at optical wavelengths, optical circuits, and super lenses.

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