

Designed synthesis of nanocrystals for optoelectronic applications by studying their formation mechanism

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Designed synthesis of colloidal nanocrystals is essential for various applications. Thus, fundamental understandings on the formation processes of colloidal nanocrystals is important, which has not been well understood, yet. In this talk, I will present my research on the nanocrystal formation mechanism and their applications for optoelectronic devices. First, I will present semiconductor magic-sized nanoclusters, one of the most important prenucleation intermediates for nanocrystal synthesis. Second, I will discuss the recent use of liquid phase transmission electron microscopy for studying nanocrystal formation. Furthermore, I will briefly introduce the structure engineering of colloidal quantum dots for optoelectronic devices (e.g., solar cells and displays).