Coherent Exciton Emission from Coupled $CsPbBr_3$ Perovskite Quantum Dots in Strongly Quantum Confined Regime

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Coupled colloidal semiconductor quantum dots (QDs) in the form of 2D or 3D superlattice structure can exhibit exciton properties distinctly different from that of non-interacting QDs *via* either overlap of the exciton wavefunction among the coupled quantum dots or/and coherent exciton emission of the ensemble of QDs. In this presentation, we will discuss the effect of electronic coupling on the bright and dark exciton emission in 2D-array of coupled $CsPbBr_3$ QDs and also the signature of coherent excitation emission either as superfluorescence or superradiance in the 3D superlattices formed from strongly confined $CsPbBr_3$ QDs.