

Supporting Information

Size and Growth Rate Dependent Structural Diversification of $\text{Fe}_3\text{O}_4/\text{CdS}$

Anisotropic Nanocrystal Heterostructures

Hunter McDaniel and Moonsub Shim*

Department of Materials Science & Engineering, University of Illinois at Urbana-Champaign,

Urbana, IL 61801

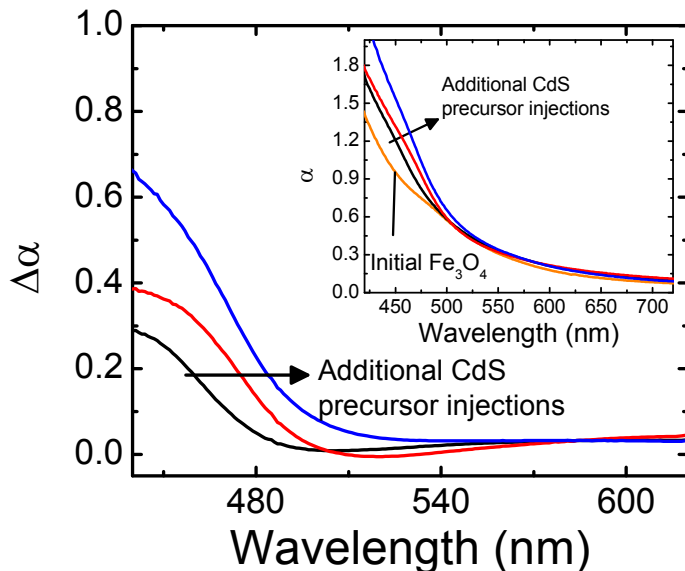


Figure S1. Difference spectra of $\text{Fe}_3\text{O}_4/\text{CdS}$ nanocrystal heterostructures after each of the first three CdS growth injection steps. Arrow indicates the progression of the spectrum with each growth step. $\Delta\alpha$ corresponds to absorption spectrum of $\text{Fe}_3\text{O}_4/\text{CdS}$ nanocrystal heterostructures with initial Fe_3O_4 nanocrystal spectrum subtracted. Inset shows the actual spectra including the initial Fe_3O_4 nanocrystal spectrum (α = absorbance). Initial Fe_3O_4 nanocrystals were ~ 7 nm diameter. Each growth injection consisted of 0.5 mmol of Cd/S reagents.

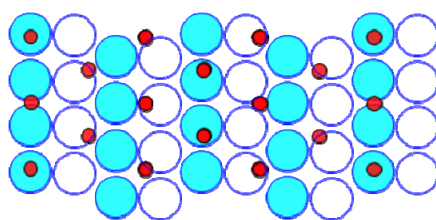


Figure S2. Schematic of the coincidence sites on the $(1\ 1\ 1)_{\text{Fe}_3\text{O}_4}/(1\ 0\ \bar{1})_{\text{CdS(Wurtzite)}}$ junction planes. Smaller red circles represent Fe atoms and the larger blue filled circles represent S atoms. Open circles represent S atoms that are slightly out of the plane with respect to the blue filled circles.