

Abstract Submitted
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Modification of the conduction band edge energy via hybridization in quantum dots ROBERT MEULENBERG, JOSHUA WRIGHT, University of Maine — X-ray absorption near edge structure spectroscopy (XANES) and theoretical modeling are used to examine effects of hybridization on the conduction band edge in doped CdSe quantum dots (QDs). Experimentally, Cd M_3 -edge XANES provides evidence for a lowering of the CB minimum for Cu doped CdSe QDs that is dependent on Cu concentration. Theoretical modeling suggests the effects of hybridization between Cu and Cd atoms in the QD can explain our experimental results. The model can be extended for other dopant systems and provide a simple, yet effective, method to predict the effects of hybridization on the CB levels in QDs.

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