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Effects of dopant positions in a CdSe QD JONATHAN MULIANG,
CHING-YAO FONG, University of California, Davis — Quantum Dots (QDs) are isolated clusters of atoms with diameters ranging from the order of $\sim 1\text{nm}$ - 10nm and can be thought of as “artificial atoms.” In addition to properties of QDs being size-dependent, doping provides another means of controlling the properties of the material, in particular the donor state, just as with bulk semiconductors. Using a CdSe QD model with In doping, we examine through ab initio methods the properties with the In dopant at different locations. Also, we investigate the effects of a dangling bond on the donor state in the CdSe QD.

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