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## Evidence for the Chemical Nature of Capping in CdSe Nanoparticles

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**Abstract** — The CdSe nanocrystals were grown by TOPO (trioctyl phosphine oxide)capping method using CdO as a precursor. CdSe nanoparticles of size 30-40 Å have been prepared at different Cd:Se ratios. Extended X-ray Absorption Fine Structure (EXAFS) analysis was used on a variety of CdSe nanocrystallites to study the surface structure. Our EXAFS results show that TOPO binds to the CdSe particles via Cd-O bond and not through the Se-O bond. Use of excess Cd initially (Cd : Se = 2 : 1), caps the CdSe particles with an extra layer of Cd. This extra cap renders further stability to the particles against oxidation and light, as is evident from the more stable emission properties of these particles. However, when the excess Cd is not present as in the case of Cd : Se = 1 : 1, then the particles are less stable to oxidation and light.