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## Influence of the second shell layer (TOPO, HDA) on the optical properties of CdSe/ZnS nanocrystal powder

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### Keywords

nanocrystals, photoluminescence, CdSe/ZnS, HDA, TOPO

### Abstract

CdSe/ZnS nanocrystal powder covered with an additional cap layer (II-shell) of hexadecylamine (HDA) or tri-n-octylphosphine oxide (TOPO) has been investigated by using photoluminescence (PL) and total photoluminescence excitation (TPLE) spectroscopy. Depending on II-shell composition, different emission properties of the system have been observed. Strong emission bands at 2.00 eV and 1.95 eV related to nanocrystalline CdSe core recombination have been observed for TOPO and HDA-CdSe/ZnS nanocrystals, respectively. In both cases, weak emission bands centered at 3.5 and 2.8 eV have also been found. Moreover, in the case of TOPO II-shell, emission band at 1.65 eV related to defect state recombination has been observed. In both cases, similar absorption properties have been found, indicating that II-shell composition does not change nanocrystal absorption properties in an efficient way.



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