

Photoelectrochemical stability of CdSe and CdSe/ZnS

Quantum Dots in Different Solvents

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Monodispersed CdSe and CdSe/ZnS core-shell quantum dots (QDs) were synthesized in 1-octadecene with oleic acid as a reacting media as previously reported [ref]. Both QDs were characterized by TEM, UV-vis and fluorescence spectroscopy. Stability of QDs is key to their use in different areas. In a core-shell quantum dots (QDs), the shell is believed to provide higher stability to the core. We studied photostability of CdSe and CdSe/ZnS in chloroform and methanol with different time of illumination and observed different stability of these QDs in two solvents. CdSe/ZnS was observed to be very stable in chloroform compared to CdSe. However, both CdSe and CdSe/ZnS were unstable in methanol. After continuous irradiation of the QDs in MeOH the fluorescence spectra changes drastically. The effect of photoelectrochemical reactions in methanol will be discussed on the chemical stability and on the photoluminescent behavior.