

Abstract Submitted
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Effects of the surface plasmon excitations on photoluminescence by CdSe/ZnS quantum dots ANKIT SINGH, SURESH SHARMA, University of Texas at Arlington — We have studied the influence of localized surface plasmons (LSPs) and surface plasmon polaritons (SPPs) on the photoluminescence (PL) spectra of core/shell type CdSe/ZnS quantum dots. Thin film samples were deposited on glass slides, irradiated by 514-nm polarized beam from an Argon-ion laser, and PL spectra were measured by using a high-resolution 1.25-m JY-Horiba spectrometer equipped with liquid-nitrogen cooled CCD detector. In the first set of experiments, PL spectra were measured on QDs and QDs-Au NPs composites as functions of the intensity and polarization of the 514-nm laser beam. In the second set of experiments, PL spectra were measured by using the Kretschmann geometry, in which the SPPs are excited by p -polarized 514-nm laser beam incident upon 40-nm Au film deposited on a high-index prism. The QDs were deposited over the Au film by dissolving them in chloroform. We describe the manner in which the experiments were carried out by using several different configurations and present results, which show clearly the effects of the localized and travelling surface plasmons on PL emission.

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