


# Resonant Raman scattering study of CdSe nanocrystals passivated with CdS and ZnS

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**Abstract.** CdSe nanocrystals (NCs) were obtained from cadmium sulfate and sodium selenosulfate in aqueous gelatin solutions. A near-bandgap emission of CdSe NCs was noticeably enhanced after passivation with CdS or ZnS. Resonant Raman scattering spectra of the passivated NCs revealed new peaks attributed to the formation of the sulfide shells around CdSe cores. The peaks observed for the CdSe/CdS core-shell NCs near  $280\text{ cm}^{-1}$  were attributed to LO vibrations within a thin CdS passivating layer. Observation of the peak in the same frequency range for CdSe/ZnS is discussed within an assumption of alloying at the core-shell interface. Notable changes in the Raman spectra at different excitation wavelengths and shell parameters were attributed to the resonant and size-selective nature of the Raman process.

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