



Effect of CdS nanocrystals on the photoluminescence of Eu³⁺-doped silicophosphate sol gel glass

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Résumé en anglais	<p>In this work, we investigate the effect of co-doping with CdS nanoparticles on the photoluminescence properties of Eu³⁺ doped silicophosphate glass prepared via the sol gel method. Infrared spectroscopy (FTIR) revealed the insertion of phosphorus within the silicate network. XRD and TEM analyses revealed the presence of CdS nanoparticles dispersed in the glass matrix. Based on the optical study and the effective mass theory for spherical quantum dots, it was found that CdS nanocrystals have a gap of nearly 3.53 eV and a size of 2.42 nm. The enhancement of Eu³⁺ emission induced by CdS nanocrystals and thermal annealing was assigned to either an energy transfer via defect states or structural alteration of the glass network around the rare earth ions.</p>
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