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CdS-silica xerogel nanocomposites: Processing-induced textural changes

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CdS-silica xerogel composites were prepared from tetramethoxysilane, acidic water, and formamide mixtures homogenized by high power ultrasounds. Different concentrations of $Cd(NO_3)_2$ were added. CdS semiconductor nanoparticles were precipitated by H_2S gas diffusion through the sonogel porous structure. Composite mechanical properties were enhanced by an impregnation process by the gel soaking in the same sol as-prepared. Textural parameters evolution is compared to the salt content in order to find the best performance to CdS nanocrystal growth. The impregnation process allows a better composite protection.

Keywords: Composites; Optical materials; Sol-gel
Materials: SiO_2 : CdS

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