Resonant Raman scattering studies of $Cd_{1-x}Zn_xS$ nanocrystals

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Abstract. Optical phonons in $Cd_{1-x}Zn_xS$ nanocrystals embedded in borosilicate glass are studied by resonant Raman scattering. A Raman-based assessment of the nanocrystal composition is performed. Compositional dispersion of the nanocrystals within the ensemble is revealed. The effect of confinement-related selection rules relaxation, scattering by surface phonons, and host matrix pressure on the Raman lineshape is analyzed.