

Physico-chemical nanomaterials science
Phonon confinement in nanocrystals cadmium sulfide

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CdS is an inorganic compound. It is the principal source of cadmium for all commercial applications. CdS crystal can act as a solid state laser. In thin-film form, CdS can be combined with other layers for use in certain types of solar cells. Based on ab initio calculations, we report on lattice vibration properties in nanocrystals CdS. Our finding showed that the phonon frequencies modes of CdS nanocrystals are significantly increased relative to the CdS bulk values. This has been traced back to the quantum confinement effect of phonon modes.

References

1. N. Bouarissa, *Physica B* 406 (2011) 2583
2. N. Bouarissa, *J. Comput. Theor. Nanoscience* 10 (2013) 1284