

Resonant Raman of CdS nanoparticles synthesized by aqueous solution precipitation

P. Rodríguez, G. González de la Cruz, S.A. Tomas and O. Zelaya Angel

Departamento de Física, CINVESTAV-IPN apartado postal 14-740, 07000 México, D.F.

Abstract

Resonant Raman measurements were performed on CdS nanoparticles prepared in aqueous solution precipitation. Starch added during the synthesis of the nanoparticles resulted in cadmium-rich nanoparticles forming a stable complex with starch. CdS quantum dots size distribution were measured using high resolution transmission electron microscopy (HRTEM) and X-ray diffraction (XRD). The band gap of the CdS nanoparticles was obtained by Photoacoustic spectroscopy technique. It was showed the band gap energy decreases with higher pH. The intensity Raman peak around at 305 cm^{-1} presented a maximum at pH=11. It shows that at this pH the synthesis produce the higher number of CdS nanoparticles.