

Vibrational spectroscopy of InAs and AlAs quantum dot structures

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Abstract

In this paper we present an experimental comparative study of InAs/AlAs periodical structures with InAs and AlAs quantum dots (QDs) by means of infrared and Raman spectroscopies. The first observation of optical phonons localized in InAs and AlAs QDs using infrared spectroscopy is demonstrated. Confined optical phonon frequencies of the QDs measured by means of Raman scattering are compared with those deduced from the analysis of infrared spectra performed in the framework of the dielectric function approximation.

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