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Selective dependence of the electron-phonon interaction on the nature of the optical transition in AlGaAs quantum wells

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Abstract

In the present work, it is carried out a study of the optical emission of Al_xGa_{1-x}As/GaAs quantum wells by photoluminescence (PL). A detailed analysis of the thermal redshift of the (PL) peaks showed that strength of the electron-phonon interaction is influenced by the degree of binding of the electron in the conduction band (free or localized excitonic state, bulk or quantum size confined state).

Keywords: electron-phonon interaction, AlGaAs, quantum well, photoluminescence

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