

Polaronic Electron-Phonon Interactions on the Third-Harmonic Generation in a Square Quantum Well

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Abstract: The influence of electron-phonon interactions on third-harmonic generation in a square quantum well is investigated. The first- and third-harmonic generation coefficient is obtained by using compact-density-matrix approach and iterative method, and the numerical results are presented for a GaAs square quantum well. The results show that the third-harmonic generation coefficient is obviously enhanced after considering the influence of electron-phonon interactions.

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Key words: electron-phonon interactions, third-harmonic generation, nonlinearity

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