Makaleyi göster

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Düzenle Sil

The effect of impurity position and doping concentration on the binding energies and total optical absorption coefficients in a δ δ -doped quantum well

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Yazarlar	Aysevil Salman Durmuşlar, Aslan Turkoglu, Miguel Eduardo Mora-Ramos, Fatih Ungan
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Açıklama	In this present work, for different impurity position and ionized doping concentrations, we have theoretically investigated the linear, third-order nonlinear, and total optical absorption coefficients corresponding to the$(1 \rightarrow 2)$ intersubband transitions between the ground and first-excited conduction band states in a singleδ-doped GaAs well, with and without the presence of a donor impurity. Impurity binding energies were calculated using the effective-mass and parabolic band approximations within a variational scheme. The linear, third-order nonlinear, and total optical absorption coefficients for the intersubband transitions are calculated within the compact density matrix approach. The obtained results show that adding an impurity positioned at the symmetry center of the well, as well as the increase in the ionized donor concentrations, shifts the total optical absorption coefficients to higher photon energies. However, the …
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