




Original Paper

Nonlinear optical properties in an asymmetric double δ -doped quantum well with a Schottky barrier: Electric field effects

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Abstract

The effect of an externally applied static electric field on the nonlinear optical response in a GaAs asymmetric double δ -doped quantum well is studied. The proposed structure bears a configuration including a Schottky barrier that can be tuned via a contact voltage. Using the effective mass approximation and a many-body Hartree-type Thomas-Fermi approximation for the confining conduction band profile, it can be shown that such a system could be of interest for a practical realization of a nonlinear optical responder. It is found that the influence of the static electric field can be used to suitably tuning the occurrence and position of the resonant optical signals in the far-infrared regime.



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