




Original Paper

High-pressure effects on the intersubband optical absorption coefficient and relative refractive index change in an asymmetric double δ -doped GaAs quantum well

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First published: 26 March 2015 | <https://doi.org/10.1002/pssb.201451444> | Citations: 6

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Abstract

In the framework of the effective mass approximation and using a Thomas–Fermi-like model for the conduction band potential energy profile, the effects of hydrostatic pressure on the linear and nonlinear intersubband optical response of an asymmetric double δ -doped quantum well are studied. In particular, the intersubband coefficients of light absorption and the relative refractive index change in the system were calculated. It is found that the pressure causes a redshift of the signal response as well as a reduction in the coefficients's amplitudes. We have also found that the asymmetry of the potential profile clearly affects the relative refractive index change because, as long as the system