

Magnetic Field Effects on the Optical Absorption and Polarizability of Donor in Quantum Dot

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Abstract

Using a variational method in the effective mass approximation, we have calculated the optical absorption spectra associated with transition between the ground state of a donor to the second conduction levels and the polarizability of donor impurity in quantum dot under an applied magnetic field. We have considered an infinite and finite confinement model to describe the barriers on the dot boundaries. We present our results as function of the size of the dot and several values of the magnetic field strength.

Keywords: Quantum dot, donor, absorption coefficient, polarizability, magnetic field

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