

Optical absorption in core–shell quantum

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In this article, we have investigated an electron energy spectrum, optical absorption coefficients (OACs) and polarizability under the effect of the co-directed electric and magnetic fields in the multilayer spherical quantum antidot (MSQAD) $\text{Al}_{0.3}\text{Ga}_{0.7}\text{As}/\text{GaAs}/\text{Al}_{0.3}\text{Ga}_{0.7}\text{As}$ with off-center impurity. The calculations were done for different dot sizes within the effective mass approximation using the matrix method. The dependence of the total, linear, and nonlinear OACs on the incident photon energy is calculated considering the intraband electron quantum transitions. The donor polarizability and impurity binding energy as function of electric field intensity are obtained at different values of the magnetic field induction.