

# GAN/ALGAN HETERONANOSTRUCTURES: SELF-CONSISTENT COMPUTING IN THE DONOR DOPING

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We deal with allowed-subband quantum states of two-electron in a semiconductor spherical core/shell quantum dot. Within framework of the infrared transitions, solving the Schrödinger-Poisson equation for repulsive interactions on the conduction-subbands, we obtain energy shifts in the absorption peaks of dielectric functions. The energy eigenvalues of the GaN/AlGaIn nanocrystal have been computed as a function of the layer thicknesses through self-consistent field. The optical absorption transitions related to D- and D0 donor states, have been plotted considering linear dielectric permittivity. The obtained values of dielectric constant for GaN monolayers are compared with 3D simulation results. Refractive index and absorption coefficient under 3.0 nm GaN core radius have been also presented as a function of infrared photon energies.