

ENERGY SPECTRUM OF A CHARGE OF QUANTUM DOTS WITH DIFFERENT SHAPES

V.I. Boichuk, I.V. Bilynsky, I.O. Shakleina

Ivan Franko Drohobych State Pedagogical University
(24, Ivan Franko Str., Drohobych 82100, Ukraine;
e-mail: *ioshak@mail.ru*)

S u m m a r y

The article presents a theoretical analysis of the splitting of the energy levels of a charge (an electron, a hole) by group theory for quantum dots of cubic, hexagonal, and tetrahedral shapes in the cases where a particle spin equals 0 or $1/2$. The energies and the wave functions of states for quantum dots with different shapes are evaluated by perturbation theory. As a basis, a quantum dot with spherical symmetry is chosen, and an exact value of the energy of a charge in it is found. The specific calculations are performed for the GaAs/AlAs and InAs/GaSb heterostructures.