

# GROUND AND EXCITED STATES OF $D^0$ AND $D^-$ DONORS IN A SPHERICAL QUANTUM DOT

*V.I. Boichuk, I.V. Bilynskyi, R.Ya. Leshko*

Institute of Physics, Mathematics, and Informatics  
of I. Franko Drohobych State Pedagogical University  
(3, Stryis'ka Str., Drohobych 82100, Ukraine;  
e-mail: leshkoroman@mail.ru)

## S u m m a r y

The energy of ground and excited states of electrons of the neutral and negatively charged donors as a function of a quantum dot radius in effective mass approximation for nondegenerate band was calculated for the Si/SiO<sub>2</sub> spherical nanoheterostructure based on the exact solution of the Poisson and Schrödinger equations. The singlet and triplet states of  $D^-$  donor were obtained. The dependence of ground energy states of  $D^0$  and  $D^-$  donors on dielectric permittivity of the matrix was investigated.