

SPECTRAL PARAMETERS
OF ELECTRON IN A MULTISHELL
SEMICONDUCTOR CYLINDRICAL
NANOTUBE WITH A DONOR
IMPURITY AT ITS AXIS

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S u m m a r y

The spectral parameters of an electron in the multishell semiconductor cylindrical nanotube with a donor impurity at its axis have been studied in the framework of the effective mass and rectangular potential models, by using the modified Bethe variational method. The electron-impurity binding energies and the oscillator strengths of intra-band optical quantum transitions have been analyzed as functions of the geometrical parameters of a combined nanotube composed of semiconductors GaAs and $\text{Al}_{0.4}\text{Ga}_{0.6}\text{As}$.