Electron energy spectrum of the non-concentric spherical core-shell quantum dot

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Abstract

It was suggested the model of the spherical core-shell quantum dot with shifted core from common center. In the paper the effective mass approximation has been used and the Schrödinger equation has been solved by using the plane wave method. The electron energy spectra have been defined as a function of the both core radius and shell radius in the case of shifted core from the spherical center. Also, the dependence of the electron energy spectrum on the core/shell position has been calculated. The splitting of electron energy levels has been analyzed in the cases of different core position. That is why electron energy transitions will be different in comparison to the case of a no-shifted core. © 2023 Elsevier Ltd

Author keywords

Core-shell quantum dot; Energy spectrum; Shifted core

Indexed keywords

Engineering controlled terms

Dissociation; Nanocrystals; Semiconductor quantum dots; Shells (structures); Spheres

Engineering uncontrolled terms

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Engineering main heading

Electron energy levels

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Abstract

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