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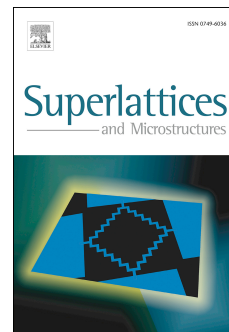
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# Spin-Orbit Interaction Effects on the Electronic Structure of Spherical Quantum Dot with Different Confinement Potentials

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## Abstract

In this paper simultaneous effects of spin-orbit interaction and external magnetic field on the energy eigenvalues and functions of the spherical quantum dot with infinite and finite potential barriers are studied. We have derived the matrix form of the spin-orbit interaction Hamiltonian in the spherical coordinate to find the energy eigenvalues and functions of the system at the presence of spin-orbit interaction. It is shown that energy eigenvalues and functions strongly depend on the spin-orbit interaction strengths, external magnetic field and the dot size for both infinite and finite confinement potentials.

*Keywords:* Spin-Orbit Interaction, Quantum Dot, Energy Eigenvalue, Spherical

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