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Spin-resonant tunneling in CdTe/Cd_{1-x}Mn_xTe double-barrier heterostructure with zero external field: Effect of in-plane wave vector

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Abstract

The tunneling of light hole (LH) and heavy hole (HH) in CdTe/Cd_{1-x}Mn_xTe double-barrier heterostructure with Dresselhaus spin-orbit interaction is studied. The effect of in-plane wave vector on barrier transparency, polarization efficiency and dwell time is theoretically analyzed. The in-plane wave vector increases the polarization efficiency of LH and HH. The enhanced spin-separation is achieved at high value of in-plane wave vector. The dwell time of LH and HH is also analyzed as a function of in-plane wave vectors.

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Heterostructure; Polarization; Spin-orbit interaction

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