

Abstract Submitted  
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**Spin-polarized transport in a quantum wire controlled by a magnetic field** MAHDI ZAREA, SERGIO ULLOA, Ohio University — We investigate the effects of  $p^3$ -dependent Dresselhaus spin-orbit interaction on the transport properties of a quantum wire. The particles are subjected to a magnetic field along, and an electric field normal to the wire. The spin-orbit term leads to the spin-dependent renormalization of the mass of particles as well as the energy level splitting for different spins. This, in turn leads to spin-polarized tunneling transport controlled by the strength of the spin-orbit interaction and the magnetic and electric fields.

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