

Abstract Submitted
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2D Waveguides as spin devices: spin-orbit and lead effects¹ LILIA MEZA-MONTES, Instituto de Fisica BUAP — Straight waveguides with different shapes have been proposed as devices to control the spin polarized transport, with Rahn spin-orbit interaction as the mechanism to induce spin mixing. Several theoretical approaches have been applied, mostly based on transfer-matrix method. Here, the Schroedinger equation is solved by means of the Finite-Element Method, finding good agreement with previous calculations. It is known that positions of the leads influence the ballistic transport in this sort of cavities due to changes in the spatial symmetry. The role of the lead positions on the transmission and, in turn on the spin polarization, will be discussed for several geometries. The linear Dresselhaus interaction is taken into account to consider zincblende structure. Implications for quantum dots is also addressed.

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