

Abstract Submitted
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Mesoscopic Spin Hall effect PHILIPPE JACQUOD, University of Arizona, INANC ADAGIDELI, University of British Columbia, JENS BARDARSON, CARLO BEENAKKER, University of Leiden — We focus on the mesoscopic spin Hall effect in ballistic microstructures. Using an extension of Landauer-Buttiker formalism, we calculate the average and variance of spin Hall conductance using the semiclassical approximation as well as Random Matrix theory. We compare these calculations to numerical simulations. We show in particular that the diagonal contribution corresponding to the classical (spin)conductance vanishes. However, interference corrections lead to a finite spin-Hall conductance. This conductance depends crucially on whether the system is regular or chaotic.

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