

Abstract Submitted
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Spin-to-charge and spin-to-spin conversion in the presence of SOC active interfaces JUAN BORGE, ANDREA DROGHETTI, Univ del Pais Vasco, ILYA TOKATLY, Ikerbasque basque foundation, ANGEL RUBIO, Univ del Pais Vasco — The inversion symmetry breaking at the interface between different materials generates strong spin-orbit coupling (SOC). We will study various transport phenomena in metal junctions induced by this interaction. We will calculate the perpendicular electrical current generated as a response to a non-equilibrium spin density using a scattering matrix approach. We will investigate the spin loss that occurs at the interface due to the presence of this interaction. We will show how this spin loss is intrinsically related with the so-called spin swapping effect, where a secondary spin current is generated due to the interplay between the SOC and the non-equilibrium spin distribution. Then we will see how this spin-to-charge conversion occurs in an aluminium-tungsten junction through DFT-based transport calculations.

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