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**Spin flip in spin-orbit split quantum wires in magnetic field<sup>1</sup>**

OLEG A. TRETIAKOV, Tohoku University and Texas A&M University, K. S. TIKHONOV, V. L. POKROVSKY, Texas A&M University and Landau Institute for Theoretical Physics — We study spin-flip processes induced by ac electromagnetic field in quantum wires with strong spin-orbit coupling in the presence of an external magnetic field. The dc magnetic field is essential to enable the electric dipolar excitation of the spin-flip processes. We consider the electron spin-flip resonance in the framework of Luttinger liquid theory. The electron-electron interaction is strong in quantum wires and changes the shape of the spin-flip resonance curve at the spin wave frequency and produces an additional cusp at the frequency of collective charge excitation. We discuss how this spin flip is affected by the dissipation processes and the dispersion curvature.

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