

Abstract Submitted
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Non-equilibrium Greens functions for the simulation of quantum spin transport PAUL VON ALLMEN, Jet Propulsion Laboratory, FABIANO OY-
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— Spin transport in presence of a magnetic field and spin relaxation is computed within the non-equilibrium Green's function formalism. Spin transport, spin precession and spin relaxation are all described within the same theoretical framework. The full equations of motion for the time dependent Green's functions are solved numerically within the effective mass and the empirical tight-binding model. As an illustration of our methodology, we will present results on the spin transport across a ZnSe/GaAs interface and compare with time resolved Kerr rotation experiments. As observed in the experiment, the calculations show that the spin dynamics evolves from ZnSe-like to GaAs-like when the electric field across the heterojunction is increased.

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