

Influence of spin pumping on spin wave spectra of single and double magnetic layers

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Recent experimental studies have shown that spin current can exert a torque not only on magnetic moments in metals, but also on interfacial moments of ferromagnetic insulators like yttrium iron garnet (YIG) [1]. Here, we present results of our analysis of the influence of spin pumping on spin waves in a single and double magnetic layers of YIG. The magnetization dynamics has been modeled with the Landau-Lifshitz-Gilbert equation [2], and effect of interface perpendicular magnetic anisotropy has been included. Generally, spin pumping contributes to the intrinsic Gilbert damping. In case of two magnetic layers separated by a nonmagnetic metallic spacer, the spin current pumped into the spacer leads to an additional dynamic coupling between the layers. Numerical results on spin wave spectra will be presented and discussed.

References:

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