Goos-Hänchen shift of spin-wave beam in transmission and reflection through interface between two ferromagnetic films

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Spin waves (SWs) are promising information carrier, for practical applications the control over SWs amplitude and phase is crucial. We analyse analytically and numerically reflection and refraction of SWs at the interface between two ferromagnetic materials. In analytical model we consider the system of two semi-infinite ferromagnetic medias separated by the interface region. These results are verified by micromagnetic simulations for thin film geometry. We have found the Goos-Hänchen shift for SWs in transmission and reflection and performed detailed investigations of its dependence on the incidence angle, anisotropy of the interface and surrounding materials.

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