

Spin-waves transmission through the interface with broken spatial inversion symmetry

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One of the biggest challenge in magnonics is spin waves (SWs) amplitude and phase manipulation at subwavelength distances. We study analytically and numerically transmission of normally incident SWs through an ultra-narrow interface with asymmetrical properties. In analytical model we consider the system consisting of two semi-infinite ferromagnetic medias separated by an interface. Between those medias we assume boundary conditions with broken spatial inversion symmetry (BSIS). These results are then verified numerically with assumed few-nanometres narrow interface region with a non-symmetrical magnetic properties. We present that transmission in such systems varies if wave incident from the one or the another side of the interface.

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