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ABSTRACTS

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Phase and group delay of the spin waves scattered on magnetic barrier

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The magnonics devices are considered to be competitive to electronic and photonic systems due the small wavelength of spin waves at the GHz frequencies. This devices are based on the wave processing and therefore the controlling of the phase of spin waves is crucial for their operation. We are going to discuss the propagation (and tunneling) of spin waves over (and through) the magnetic barrier formed by the spatial changes of material parameters (magnetization saturation or magnetic anisotropy). We will investigate how the material and structural parameters (width of the barrier) affect the phase of spin waves[1]. In tunneling regime, we will discuss the counterintuitive effect of the saturation of group delay with the increase of the barrier width called Hartman effect[2]. In scattering regime, we are going to describe the changes of phase and group delay when the frequencies of the spin waves passes the resonances of the barrier.

References:

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