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Theory of damping for the standing spin waves IRINA BARIAKHTAR, Boston College, USA, VICTOR BARIAKHTAR, Institute of Magnetism, Ukraine — It is well known, that the thin magnetic films exhibit dependency of the magnetic dispersion on the wave vector. This is due to the fact that in films with their thickness comparable to the exchange length, the wave vector of the spin waves becomes of the order of the exchange length because of the boundary conditions for magnetization. These kinds of thin films were studied at first by Kittel [1]. The standing spin waves are characterized by the fact, that under certain conditions they do not correlate to an alternating magnetic field within or outside the film [2]. The damping theory for the standing spin waves was not well studied yet. This problem appears interesting, since the distance between the neighboring standing spin waves increases with increasing number of frequency as n, and the attenuation increases with a mode number increase as n^4. In other words, high-frequency modes of the standing spin waves are not created if the exchange relaxation mechanism is valid. The standing spin waves properties are being well studied experimentally lately [3]. The authors would like to compare their theoretical results to the experimental data.

[1] Phys. Rev. 110, 1295 (1958).
[2] Spin Waves. Interscience (Wiley), New York (1968).
[3] Phys. Rev. Lett. 107, 037202 (2011).

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