



## Collective magnetization dynamics in arrays of thin iron-palladium nanodiscs

Arrays of closely packed mesoscopic magnets provide a rich playground for investigations of collective magnetization dynamics. Here we report on the magnetization dynamics of a square array of circular iron palladium alloy nanodiscs. The dynamical properties are explored using ferromagnetic resonance measurements and micromagnetic simulations. The obtained spectra exhibit features resulting from the interactions between the discs, with a clear dependence on both temperature and the direction of the externally applied field. Furthermore, we calculated the mode profiles of the excited standing spin waves. The developed simulation tools, can be utilized for analyzing and designing the microwave response of extended arrays of thermally active and interacting nanomagnets, having interesting topological and interaction schemes, such as artificial spin ice.

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