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Full Field-Frequency Study of Standing Spin Wave Modes in FM / NM / FM Trilayers[1] PETER WARNICKE, JAVIER PULECIO, SHAWN POLLARD, YIMEI ZHU, DARIO ARENA, Brookhaven National Laboratory — Spin waves constitute an attractive avenue for spintronic devices as they can be used to carry information through magnetic media as well as to store information in form of localized modes. As a way of manipulating these entities, external microwave fields can be employed. For a given precession frequency, the amplitude of the localized spin wave mode in a single ferromagnetic layer is determined by the confining geometry and applied magnetic field strength. By introducing a non-magnetic spacer layer into the layer, the development of spin waves can be modified in a frequency range by varying the spacer layer thickness [1,2]. Here we investigate the role of the spacer layer thickness in a Permalloy/Copper/Permalloy trilayer by means of full field-frequency ferromagnetic resonance (FMR) spectroscopy.

[1] H. Bosse and H. Gärtner, JMMM 80 339 (1989).
[2] M. Belmeguenai, T. Martin, G. Woltersdorf, M. Maier, and G. Bayreuther, PRB 76 104414 (2007).

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