Ferromagnetic Resonance in Ru/Co/MoPt multilayers

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Introduction
Synthetic antiferromagnets (SAFs) are based on the oscillatory RKKY interlayer exchange coupling of thin magnetic layers through metal, via the conduction electrons [1]. The low field tunability of the magnetic state in SAFs opened the route to spintronic devices [2]. It is the same tunability that makes them attractive for other applications such as tunable magnonics [3] and terahertz nano-oscillators [4]. In Ru/Co multilayers with in plane anisotropy we have observed hybridized modes of mixed optic-acoustic character. Here we extend the study to a perpendicular anisotropy system Ru/Co/MoPt.

Experimental Methods – Results
The multilayered [Ru$_6$/Co$_x$/MoPt$_4$]$_{12}$ (with $x=12$-$16$ Å) films have been deposited on rotating substrates, at room temperature by magnetron sputtering. The hysteresis loops show a weak perpendicular anisotropy with a smeared spin-flop transition about 5kOe. Angle dependent cavity FMR results support the conclusion that the samples exhibit a canted AF state up to 14kOe.

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References

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