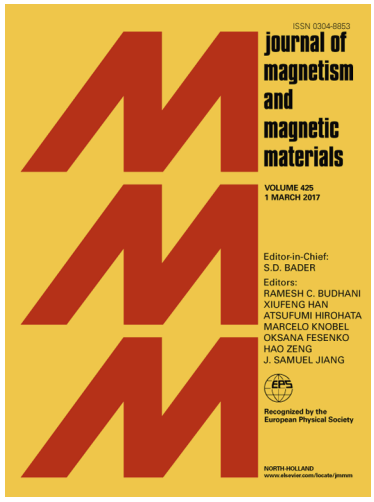


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PII: S0304-8853(17)30067-7
DOI: http://dx.doi.org/10.1016/j.jmmm.2017.04.008
Reference: MAGMA 62610

To appear in: *Journal of Magnetism and Magnetic Materials*

Received Date: 10 January 2017
Revised Date: 2 April 2017
Accepted Date: 5 April 2017

Please cite this article as: T. Kalaycı, C. Deger, S. Akbulut, F. Yildiz, Tuning Magnetic Properties of Non-Collinear Magnetization Configuration in Pt/[Pt/Co]$_6$/Pt/Co/Pt Multilayer Structure, *Journal of Magnetism and Magnetic Materials* (2017), doi: http://dx.doi.org/10.1016/j.jmmm.2017.04.008

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## Abstract

In this study, effects of Pt spacer and Co reference layers thickness in [Co/Pt]$_6$/Pt/Co multilayer have been revealed to tailor magnetization directions in non-collinear configuration. Magneto-optic Kerr effect and ferromagnetic resonance techniques were employed to investigate magnetic properties. Bilinear coupling between [Co/Pt]$_6$ and Co layers and anisotropy constants were determined by a micromagnetic simulation based on metropolis algorithm. 3 nm spacer causes ferromagnetic coupling while the samples have 4 and 5 nm spacer are coupled anti-ferromagneticaly. Also, tuning magnetic anisotropy of [Co/Pt]$_6$ layer was accomplished by Co reference layer. It is revealed that controlling of non-collinear states in such systems is possible by variation of thickness of spacer and reference layers and [Co/Pt]$_6$/$t_{Pt}$/$t_{Co}$ trilayer system can be used in multilayered magnetic systems.

*Keywords:* Non-collinear magnetic configuration, interlayer coupling, magnetic anisotropy, spin transfer torque

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