Abstract Submitted
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Spin-wave excitations induced by spin current in spin-valve structures[1] HAOLIANG LIU, DALI SUN, CHUANG ZHANG, MATTHEW GROESBECK, ZEEV VALY VARDENY, Department of Physics Astronomy, University of Utah, DEPARTMENT OF PHYSICS ASTRONOMY, UNIVERSITY OF UTAH, SALT LAKE CITY, UTAH 84112, USA TEAM — We have investigated the magnetization dynamics of NiFe/Pt/Co spin-valve structures with different Pt layer thickness, using a broadband ferromagnetic resonance (FMR) and Brillouin light scattering (BLS) at ambient temperature. We found that the Gilbert damping factor, α of the two ferromagnetic (FM) layer films in the spin-valve structure are significantly larger than α of each individual FM layer. We interpret the increase in α in the spin-valve configuration as due to an interaction between the FM layers mediated by the induced spin current through the Pt interlayer when FMR conditions are met for one of the FM. This was verified by BLS of the spin-valve structure, in which the magnons density in the adjacent FM layer is enhanced upon FMR of the other FM layer. We have studied this spin-current-mediated interaction as a function of the Pt interlayer.

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