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Spin torque ferromagnetic resonance in Heusler based magnetic tunnel junctions JIE ZHANG, TIMOTHY PHUNG, AAKASH PUSHP, JAE-WOO JEONG, YARI FERRANTE, CHARLES RETTNER, BRIAN P. HUGHES, SEE-HUN YANG, STUART S.P. PARKIN, IBM Almaden Res Ctr — Heusler compounds are of interest as electrode materials for use in magnetic tunnel junctions (MTJs) due to their half metallic character, which leads to high spin polarization and high tunneling magnetoresistance. Whilst much work has focused on the influence of the half metallic character of the Heusler compounds on the magnetoresistance of MTJs, there is much less work investigating the influence of this electronic structure on the spin transfer torque. Here, we investigate the bias dependence of the anti-damping like and field-like spin transfer torque components as a function of the bias voltage in symmetric (CoMnSi/MgO/CoMnSi) and asymmetric (CoMnSi/MgO/CoFe) structure magnetic tunnel junctions using spin transfer torque ferromagnetic resonance. Lastly, we report on the effect of asymmetric bias dependence of the differential conductance on the spin transfer torque.

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