

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Thin film growth and characterization of full Heusler alloys $\text{Rh}_{2-x}\text{Co}_x\text{FeSn}$ and RhCoMnSn LI GAO, MINGYANG LI¹, MAHESH G. SAMANT, BRIAN P. HUGHES, KEVIN P. ROCHE, CLAUDIA FELSER², STUART S.P. PARKIN, IBM Research Division, Almaden Research Center, San Jose, California 95120 — Heusler alloys can be designed and prepared with high spin polarization, high Curie temperature, very low magnetization damping, as well as, tunable magnetic magnetization and anisotropy. Therefore, this family of compounds has great potential for applications such as spin-transfer-torque magnetic random access memory. The growth and characterization of epitaxial thin films of the Rh-based full Heusler compounds, $\text{Rh}_{2-x}\text{Co}_x\text{FeSn}$ and RhCoMnSn , are presented. The magnetization, Curie temperature and crystal structure of these compounds have been investigated and are compared with bulk materials. An important known property of many Heusler alloys is low magnetization damping. Ferromagnetic resonance (FMR) studies using a strip line transmission technique reveals Gilbert damping values of ~ 0.015 at room temperature in films of RhCoMnSn . These films have Curie temperatures well above room temperature whereas the Curie temperature of Rh_2FeSn is ~ 350 K.

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Date submitted: 07 Dec 2010

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