Abstract Submitted
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Anomalous Hall Effect of Co2MnSi thin films on GaAs (001) WILL BRANFORD, FRIDRIK MAGNUS, KELLY MORRISON, STEVEN CLOWES, YURY BUGOSLAVSKY, LESLEY COHEN, Blackett Laboratory, Imperial College, Prince Consort Road, London, SW7 2BZ, U.K;, LAURA SINGH, ZOE BARBER, Department of Materials Science and Metallurgy, University of Cambridge, Pembroke Street, Cambridge CB2 3QZ, UK , EXPERIMENTAL SOLID STATE PHYSICS TEAM, DEVICE MATERIALS GROUP TEAM — The Heusler alloy Co_2MnSi is a leading candidate material for spin injection and detection in hybrid spintronic devices. Recent measurements of ∼60% transport spin polarization by point contact Andreev reflection[1] and tunneling magnetoresistance[2] have demonstrated that below 10K Co_2MnSi significantly outperforms the elemental ferromagnets and other high Curie temperature ferromagnets such as NiMnSb. Here we study the anomalous Hall effect in a series of highly textured Co_2MnSi thin films on lattice-matched GaAs, and contrast with the corresponding measurements of polycrystalline NiMnSb films on silicon. The anomalous Hall effect is a function of the transport spin polarization. The implications of the normal and anomalous Hall signals as a function of temperature and film thickness will be discussed.

[1]L. J. Singh *et al*, APL **84,** 2367-2369 (2004).
[2]J. Schmalhorst *et al*, PRB **70,** art. no.-024426 (2004).

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