

Abstract Submitted
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Spin Polarization and Spin Transport in Co-based Heusler alloys MUHAMMAD M. FAIZ, RAGHAVA P. PANGULURI, Wayne State University-Physics Department, SABINE WURMEHL, CLAUDIA FELSER, Johannes Gutenberg-Universitat, Germany, BORIS NADGORNYY, Wayne State University-Physics Department — The Co-based Heusler alloys are of special interest for possible spintronic applications due to their high Curie temperatures and high magnetic moment per unit cell. Co_2FeSi is especially promising as a candidate half-metal as it has a Curie temperature of approximately 1100K and the integer magnetic moment of $6\mu_B$ per unit cell [Ref. S. Wurmehl et al]¹. The samples have been prepared by arc melting of stoichiometric quantities of pure metals in argon atmosphere followed by annealing in sealed quartz tubes at 1300K. Here, we report comparative spin polarization, P , in Co_2FeSi and Co_2MnFeSi using Point Contact Andreev Reflection Spectroscopy (PCAR). We have also studied spin transport in Heusler/Au bilayers. Variable thickness Au films were deposited on top of the Heusler samples and the PCAR technique was then used to probe P on the Au side. We will give the estimates of the spin diffusion length in Au based on these measurements and compare the results with conventional ferromagnetic spin injectors. 1. S. Wurmehl et al., J. Appl. Phys. 99, 08J103 (2006).

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