

Abstract Submitted  
for the MAR11 Meeting of  
The American Physical Society

**Characterization of Co<sub>2</sub>FeAl nanowires**<sup>1</sup> KESHAB R. SAPKOTA, I.L. PEGG, J. PHILIP, Catholic University of America — Heusler alloy, Co<sub>2</sub>FeAl (CFA) is a potentially useful material in the field of spintronics due to its high spin polarization. The CFA nanowires are grown for the first time by the electrospinning method. The diameters of the wires formed are ranging from 80 – 100 nm. The structural characterization of the nanowires is done using X-Ray diffraction and Raman spectroscopy. The nanowires exhibit cubic structure with a lattice constant,  $a = 2.44 \text{ \AA}$ . Parallel arrays of nanowires are grown for magnetic characterization using electric field applied at the collector plate. The nanowires exhibit ferromagnetic behavior with a Curie temperature higher than 400 K. Nanoscale devices are fabricated with single CFA nanowire to understand the magnetotransport properties.

<sup>1</sup>This work has been supported by funding from NSF under CAREER Grant No. ECCS-0845501 and NSF-MRI, DMR-0922997.

Keshab Sapkota  
Catholic University of America

Date submitted: 22 Dec 2010

Electronic form version 1.4