

Abstract Submitted
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Micromagnetic studies of Full Huesler alloy, Co₂FeAl, nanostructures¹ PATRICIA YORITOMO, The Catholic University of America, NICHOLAS MECHOLSKY, PARSHU GYAWALI, KESHAB SAPKOTA, I.L PEGG, JOHN PHILIP, Vitreous State Laboratory-The Catholic University of America — Co₂FeAl (CFA) is a full Huesler alloy with interesting magnetic behavior and very high Curie temperature. We have carried out micromagnetic simulations on CFA nanopillars using a program, NMAG, with various dimensions and spacing. The micromagnetic simulations are compared with the experimental results that we have obtained. Nanopillars are produced using the liftoff technique after electron beam lithography. The CFA nanopillars are grown using electron beam deposition of Co, Fe and Al in the stoichiometric ratio and by further annealing at 850 K for one hour. We have simulated the magnetic behavior of CFA nanopillars ranging from 30 to 90 nm in diameter and with a height of about 115 nm. Preliminary results show the simulated coercivities are 700 Oe and 2400 Oe for 60 and 30 nm pillars. These are comparable to the experimental results that we have obtained. Magnetic behavior of polycrystalline nanowires of varying diameters is also simulated using NMAG. We will present the simulation and experimental results of nanopillars and polycrystalline nanowires in detail.

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