

Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Structural and Magnetic Characterizations of Y_xCo_y Nanowires¹

BISHNU DAHAL, KESHAB SAPKOTA, RAJENDRA DULAL, PARSHU GYAWALI, IAN L. PEGG, JOHN PHILIP, Catholic University of America — Nanowires of Y_xCo_y (Y_2Co_{17} , YCo_3 and YCo_5) are grown using electrospinning technique and by annealing at high temperature. The size of the nanowires varies from 80 – 300 nm in diameter. Structural analyses show that Y_2Co_{17} exhibits rhombohedral crystal structure while YCo_5 displays hexagonal crystal structure. The as-grown nanowires are polycrystalline in nature with an average grain size of 40 nm. YCo_3 nanowires are amorphous in nature. All the Y_xCo_y nanowires are found to be strong ferromagnetic materials as reported in the bulk system. The observed coercivity of the Y_xCo_y nanowires is low, typically around 500 Oe in comparison to the large coercivity observed in YCo nanoparicles

¹National Science Foundation, Grant No. ECCS-0845501 and DMR-0922997

Bishnu Dahal
Catholic University of America

Date submitted: 13 Nov 2013

Electronic form version 1.4