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Synthesis and Characterization of Magnetic Alloy Nanowire Arrays M. PADI, S. TALAPATRA, Rensselaer Nanotechnology Center and Department of MS&E, Rensselaer Polytechnic Institute, Troy NY., X. TANG, Department of Physics, Rensselaer Polytechnic Institute, Troy,NY 12180, T. KIM, R. VAJTAI, Rensselaer Nanotechnology Center, Rensselaer Polytechnic Institute, Troy NY., G.V.S. SASTRY, Department of Metallugy, Banaras Hindu University, Varanasi, India, M. SHIMA, P. AJAYAN, Rensselaer Nanotechnology Center and Department of MS&E, Rensselaer Polytechnic Institute, Troy NY. — We report the synthesis and characterization of ordered arrays of cobalt-nickel alloy nanowires electrodeposited into the pores of anodic alumina templates (AAO). Controlled diameters, lengths and compositions of these alloys were obtained by varying the pore sizes and electro-deposition conditions. The structural and magnetic properties of the samples were investigated using scanning electron microscopy (SEM), energy dispersive X-ray spectroscopy (EDS), transmission electron microscopy (TEM) and vibrating sample magnetometer (VSM). We also present the effect of the compositional ratio of cobalt and nickel on the magnetic properties of the nanowires.

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