

Abstract Submitted  
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**Synthesis and Characterization of CoNi and FeCo Nanowires With High Coercivity**<sup>1</sup> J. PING LIU, NARAYAN POU DYAL, KINJAL GANDHA, University of Texas at Arlington — Ferromagnetic nanocrystals with shape anisotropy have drawn a great attention in the past decade because of their unique magnetic properties and potential applications in magnetic recording media and high performance nanocomposite magnets. CoNi and FeCo nanocrystals with different size, shape and composition were successfully synthesized via catalytic and non-catalytic chemical solution methods. It was found that the structure and morphology of the nanocrystals can be controlled by varying synthetic parameters such as solvent amount, catalyst and surfactant concentration, and heating rate. The length of the nanowires can be adjusted by changing the catalyst concentration. It has also been observed that the growth mechanisms for FeCo and CoNi nanowires are different. Magnetic properties of the FeCo and CoNi nanocrystals including coercivity and magnetization are found to be dependent on size, shape and composition of the nanowires. By optimizing the synthesis conditions, the FeCo and CoNi nanowires with enhanced magnetization and coercivity can be obtained.

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