Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

The Structural study of Spin Coated Thin Film Magnets AMBER LAGUERRE, Queensborough Community College CUNY, P. SAMARASEKARA, RASIKA DAHANAYAKE, University of Peradeniya, Sri Lanka, SUNIL DEHIPAWALA, Queensborough Community College CUNY, QCC-CUNY COLLABORATION, PERADENIYA COLLABORATION — Recently there has been a very high demand for small scale magnetic storage devices. The industry sector has consistently demanded sub micron or even nano-meter scale magnets. Magnetic thin films often contain several layers of coating. For the purpose of the study, we prepared thin film magnets by spin coating a precursor containing iron and nickel into a glass substrate. The thickness of the films were controlled by the spin rate. Precursor films on the substrate were then annealed to either 200°C to 350°C for up to 2 hours in air. The micro structure of iron in the films was investigated using X-ray Absorption Near Edge Structure (XANES) and Extended X-ray Absorption Fine Structure (EXAFS). The main absorption edge peak position and pre-edge energy position was identical in all of the samples. This indicates that there was no change in the charge state of the iron regardless of the number of layers and annealing temperature. However the main absorption edge jump, which is proportional to the amount of iron, varied depending on the experimental conditions.

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Date submitted: 15 Nov 2013 Electronic form version 1.4