

Abstract Submitted  
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**Growth and magnetism of highly (001)-oriented [Fe/Pt]<sub>n</sub>/Pt films**<sup>1</sup> T.A. GEORGE, X.Z. LI, L. YUE, DAVID J. SELLMYER, University of Nebraska — Highly (001) textured non-epitaxial  $L1_0$  FePt films have been fabricated on SiO<sub>2</sub> substrates by post-deposition annealing 11 nm magnetron sputtered multilayers of Fe and Pt with an additional overlayer of 1 nm Pt. An identical series of films was made without the thick Pt terminating layer for comparison. All films were post-deposition annealed at 600 °C for 300 s in a rapid thermal processor and show a high degree of chemical order. The ordered films without a Pt overlayer include a mixture of (001) and randomly oriented grains. In the samples with a Pt overlayer only the (00 $l$ ) peaks are visible, demonstrating an enormous enhancement in the degree of (001) texture. Structural analysis reveals a decrease in surface roughness from over 2 nm to less than 1 nm, elimination of voided regions, and an increase in average grain size from 50 to 150 nm with the inclusion of a Pt overlayer. Magnetic hysteresis loops show a high squareness ratio for Pt-overlayer samples with coercivities much smaller than their no-overlayer counterparts. The effects of Fe:Pt stoichiometry and bilayer thickness are investigated along with the involved grain-growth process.

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