

Abstract Submitted  
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**Magnetic force microscopy (MFM) study of FePt nanocrystals overcoated with silica**<sup>1</sup> ALEX DE LOZANNE, CHANGBAE HYUN, Department of Physics, University of Texas at Austin, Austin, TX 78712, DOH C. LEE, BRIAN A. KORGEL, Department of Chemical Engineering, University of Texas at Austin, Austin, TX 78712 — Chemically-synthesized FePt nanocrystals must be annealed at  $\sim 550\text{C}$  to induce the hard magnetic L10 phase. Sintering of nanocrystal films occurs at these temperatures, resulting in the loss of control over nanocrystal size and separation in the film. We have developed a silica overcoating strategy to prevent nanocrystal sintering. In this study, 6 nm diameter FePt nanocrystals were coated with 20 nm thick shells of silica using an inverse micelle process. Magnetization measurements of the annealed FePt@SiO<sub>2</sub> nanocrystals indicate ferromagnetism at room temperature. The micromagnetic properties of thin films of these nanocrystals were studied using MFM.

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