Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Impact of Boron Additions on the A1 to L1\textsubscript{0} Phase Transformation in FePt Alloy Films B. WANG, K. BARMAK, Department of Materials Science and Engineering, Carnegie Mellon University, Pittsburgh, PA 15213 — The combination of high magnetocrystalline anisotropy energy density and good corrosion resistance has resulted in significant interest in L1\textsubscript{0} ordered alloys such as FePt for ultrahigh density, heat assisted magnetic recording (HAMR) media, with areal storage densities of ≥1Tb/in\textsuperscript{2}. When deposited at room temperature, these FePt forms in the chemically-disordered A1 state, requiring a post-deposition anneal to form the ordered L1\textsubscript{0} phase. Previous work has shown that the composition of FePt films has a significant impact on the kinetics and thermodynamics of the A1 to L1\textsubscript{0} phase transformation. In this paper, we report on the impact of ternary additions of B to FePt on the thermodynamic and kinetic parameters of the transformation. We also compare and contrast the impact of B additions with those of ternary additions of Cu and Ni. It is shown that the introduction of B into Pt-rich FePt films lowers the activation energy and the kinetic ordering temperature for the A1 to L1\textsubscript{0} phase transformation. However, this impact becomes negligible when B is introduced into Fe-rich FePt films.

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Date submitted: 30 Nov 2008
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