

Abstract Submitted  
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**Magnetic Transitions in Granular FeRh**<sup>1</sup> B. KAESWURM, F. JIMÉNEZ-VILLACORTA, R. BARUA, D. HEIMAN, L.H. LEWIS, Northeastern University — The relationship between the crystallographic lattice and magnetism in materials undergoing first order thermodynamic phase transitions, where structural and magnetic phase transitions occur simultaneously, are not fully understood. Nanostructuring of such materials offers a route to tailor these transitions through alteration of free energy terms dependent upon the surface area and volume of finite systems. Previous studies in melt spun ribbons of FeRh nanoprecipitates in a Cu matrix have shown a reduced phase transition compared to bulk [1]. In this study nanostructured FeRh films were obtained by RF sputter deposition in nonmagnetic matrices of Cu, Si and alumina. After vacuum annealing, the structure and magnetism of the samples were studied. Preliminary results highlight the relationships between chemistry, nanostructuring and magnetic response in the FeRh system.

[1] Evidence for Highly Suppressed Magnetostructural Transition Temperature in Nanostructured FeRh, R. Barua; F. Jimenez-Villacorta; H. Jiang; J.E. Shield; D. Heiman; L.H. Lewis, IEEE MMM Conference 2011, Scottsdale, Arizona, US, Abstract No CE-05

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