Abstract Submitted
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The order parameter dependence of transition temperature in FeRhPd alloy films HIDEO SATO, JIAN YU, GARY MANKEY, OLEG MRYASOV, PATRICK LECLAIR, MINT center, University of Alabama, MINT CENTER, UNIVERISITY OF ALABAMA TEAM — FeRh alloys and FeRh-TM alloys have recently attracted great interest because well-ordered films exhibit a phase transition with antiferromagnetism observed at lower temperatures and ferromagnetism at higher temperatures. Here, the order parameter dependence of transition temperature in $Fe_{47}Rh_{47}Pd_6$ films is reported. FeRhPd/Co films were fabricated such that different order parameters were obtained. A higher transition temperature was observed for a film with lower order parameter in sharp contrast to prior experiments with FeRh that show that the transition temperature monotonically increasing with order parameter [1]. The shift to lower transition temperature for the ordered film is accompanied by a sharpening of the phase transition. This is surprising, since disordered films are ferromagnetic throughout the temperature range of the measurements. These results, along with a possible explanation for the anomalous behavior including the effect of lattice constant on the transition temperature will be presented. Funded by the US DOE 1. Jiangwei Cao et al., J. Appl. Phys. 103, 07F501 (2008)

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