

Abstract Submitted  
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**Magnetic properties of FeNi/Gd and Ni/Gd multilayers** MARIA R. HOSSU, ALI R. KOYMEN, University of Texas at Arlington — Magnetic properties of FeNi/Gd and Ni/Gd multilayers have been studied as a function of temperature. Magnetic measurements prove that multilayers studied (20-60Å layer thickness) have ferrimagnetic behavior and magnetic thermal hysteresis.  $M(T)$  has two different minima as temperature is cycled due to first order magnetic phase transition. Temperature difference up to 20K between these minima was observed for both systems having the same TM/Gd ratio. The temperature interval can be controlled with the external magnetic field magnitude. The Ni diffusion into Gd is different for the studied systems, changing the interface coupling and hence the mechanism of the phase transitions during the cooling and heating cycles.

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