Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Oscillatory Interlayer Coupling in Co/Pt Multilayers with Perpendicular Anisotropy JACOB KNEPPER, FENGYUAN YANG, The Ohio State University — Oscillatory interlayer coupling in ferromagnet/nonmagnet multilayers has been observed in many materials with the exception of only a few metals, including Pt. Recently, Co/Pt multilayers have attracted great attention because of the perpendicular anisotropy. However, the mechanism of the magnetic coupling in Co/Pt multilayers remains unknown. To our knowledge, oscillatory interlayer coupling has only been observed in multilayers with in-plane anisotropy. We investigated the interlayer coupling in Co(0.4nm)/Pt(0-8nm) multilayers with perpendicular anisotropy and repetition from 5 to 30 made by UHV sputtering. Hysteresis loops were measured between 8 and 293 K. The interlayer coupling is always ferromagnetic, which can be readily detected by coercivity with perpendicular anisotropy. The coercivity shows an oscillatory behavior with the Pt thickness for all multilayers. The period of the oscillation is 3 nm at 80 K. The oscillation of coercivity is a clear indication of the oscillatory interlayer coupling of Co across Pt. This is the first report of oscillatory interlayer coupling in Pt and in multilayers with perpendicular anisotropy.

Jacob Knepper
The Ohio State University

Date submitted: 30 Nov 2004 Electronic form version 1.4