Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

A study of Co thin films grown on Si(111) with Al buffer layer
ZI Q. QIU, J. WU, J. CHOI, J. LI, Dept. of Phys., UC-Berkeley, Berkeley, CA 94720, A. SCHOLL, A. DORAN, Advanced Light Source, LBNL, Berkeley, CA 94720 — Growth and magnetic properties of Co/Si(111) and Co/Al/Si(111) were investigated using Scanning Tunneling Microscopy (STM), Surface Magneto-Optic Kerr Effect (SMOKE), and Photoemission Electron Spectroscopy (PEEM). For Co film grown directly on Si(111), silicide is formed at the interface which leads to a loss of magnetization for ultrathin Co film. By growing an Al buffer layer at the Co/Si interface, we found that the Al buffer layer effectively reduces the silicide formation and SMOKE signal was detected at a much thinner Co thickness as compared with Co film directly deposited on Si(111). Magnetic domain imaging using PEEM confirms the SMOKE measurement. STM measurements were also performed to study morphology change after inserting the Al buffer layer.

Zi Q. Qiu
UC-Berkeley

Date submitted: 01 Dec 2005 Electronic form version 1.4