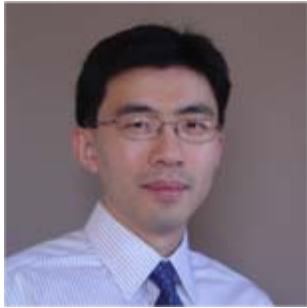




中心系列讲座 ICQM Weekly Seminar Series “Tailoring Magnetization Reversal in Nanostructures with Perpendicular Anisotropy”



Prof. Kai Liu(刘恺)
Physics Department
University of California – Davis

Time: 4:00pm, May. 6, 2011 (Friday)

时间: 2011年5月6日 (周五) 下午4:00

Venue: Room 607, Conference Room A , Science Building 5

地点: 理科五号楼607会议室

Abstract

Magnetic nanostructures with perpendicular anisotropy exhibit fascinating magnetization reversal processes and have important applications in perpendicular magnetic recording and spin-transfer torque devices. Our recent studies have highlighted the role of microstructures on the magnetization reversal. In particular, the presence of structural defects leads to local minima in the energy landscape of the system. Under magnetic field cycling, these minima and the whole energy landscape evolve, which in turn determine the path the system takes to reconfigure. The reversal mechanisms can be further tailored through nanopatterning and structure manipulation. One example is to deposit Co/Pt films onto nanoporous anodized alumina with various aspect ratios, where the magnetization reversal can be continuously changed from domain-wall motion to a rotation-dominated reversal. Another example is to create a graded anisotropy in the layers by varying the growth conditions during deposition, which simultaneously address the writability and thermal stability challenges. Depth-dependent magnetization profile in such materials has been probed by polarized neutron reflectivity and directly imaged by scanning electron microscopy with polarization analysis.

About the Speaker

刘恺教授1998年获美国约翰霍普金斯大学博士学位，而后在美国加州大学圣地亚哥分校任博士后。2001年任加州大学戴维斯分校物理系副教授，05年获Tenure及副教授，08年成为该系教授。他主要从事磁性纳米结构材料和物理的研究，荣获2005年美国Alfred P. Sloan奖研金，2007年加大戴维斯分校校长奖研金。在国际著名杂志发表论文80余篇，被引用3,000余次，获3项美国发明专利，邀请报告90多次，是Science, Nature, PRL, PRB, APL, JACS, Small, Adv. Mater.等著名学术期刊的审稿人。多次担任美国NSF, DOE, 及中国教育部等基金委评委。是2007年国际磁学会议MMM及2011年Intermag Program Committee Co-Chair。