THE CHINESE UNIVERSITY OF HONG KONG
Department of Physics
SEMINAR

Magnetically Driven Anormalous Elasticity in Ultrathin Film of Iron

by

Professor Xiaofeng JIN (金曉峰教授)
Physics Department
Fudan University, China

Date: May 5, 2011 (Thursday)
Time: 3:30 - 4:30 p.m.
Place: L4, Science Centre, CUHK

ALL INTERESTED ARE WELCOME
****

Abstract

Properties of matter depend sensitively on physical parameters that define them. Tailoring these parameters in a well controlled way often lead to new phenomena and new state of matter. Unfortunately our ability to tune and combinatorially manage these parameters is very limited, leaving a large universe for discovery untouched. Here we develop a novel technique with molecular beam epitaxy to tune continuously the surface lattice constant. Applying this to Cu(001) on which ultrathin Fe films are epitaxially grown, we are able to observe for the first time the abnormal elastic property in Fe which expands vertically along its [001] direction when stretched horizontally along the [100] and [010] directions - a phenomenon has long been predicted by Landau but never realized in experiment. It is further proved unambiguously that this unusual elasticity originates from the interesting magnetic properties of face-centered-cubic Fe.

Enquiries: 2609 6339