清华大学高等研究院

Institute for Advanced Study, Tsinghua University

物理学术报告

Physics Seminars (biweekly)

Title: **Stripes developed at the strong limit of nematicity in FeSe Film**

Speaker: **Wei Li 李渭**
(Department of Physics, Tsinghua University)

Time: **4:00pm, Tuesday, September 19, 2017**
(3:30~4:00pm, Tea and Coffee)

Venue: **Conference Hall 322, Science Building, Tsinghua University**

Abstract

Superconductivity in one monolayer FeSe film grown on SrTiO3 has attracted enormous attentions. For FeSe films thicker than one unite cell, however, the electronic structure is markedly different, with a drastically suppressed superconductivity and strong nematicity appearing. The physics driving this dichotomy of superconducting behavior is far from clear. Here we report on low-temperature scanning tunneling microscopy studies of the multilayer FeSe films grown by molecular beam epitaxy. We find a stripe-type charge ordering instability that develops beneath the nematic state. The emergence of the charge ordering indicates a magnetic fluctuation with a rather small wave vector, competing with the ordinary collinear antiferromagnetic order in FeSe films. The existence of stripes in iron-based superconductor, which resemble the stripe order in cuprates, provides a platform for probing the complex interactions between nematicity, charge ordering, magnetism and superconductivity in high-temperature superconductors.