Seminar

Precursor charge density wave in $La_{1.875}Ba_{0.125}CuO_4$

Dr. Hu Miao (苗虎)

Brookhaven National Laboratory, USA

Time: 4:00pm, Sep. 29, 2016 (Thursday)

时间: 2016年9月29日 （周四）下午4:00

Venue: w563, Physics building, Peking University

地点：北京大学物理楼，西563会议室

Abstract

The observation of charge density wave (CDW) order in numerous different samples has provided increasing support to the concept that CDW correlations are an intrinsic property of the high temperature superconducting cuprates. It has long been hypothesized that this order arises from the pinning of precursor high-temperature CDW fluctuations, but while precursor spin density wave (SDW) correlations have been studied in detail, the corresponding transition between pinned and precursor CDW correlations has never been observed. Here, using resonant inelastic x-ray scattering (RIXS), we report the discovery of such correlations above the nominal CDW transition in La1.875Ba0.125CuO4. The precursor CDW has a correlation length of a few unit cells and exists decoupled from the SDW. We find that the CDW and SDW correlations lock together at low temperature reconciling the apparently different properties of the CDW in different cuprates.

About the Speaker

苗虎，2015年博士毕业于中国科学院物理研究所,之后加入美国布鲁克海文国家实验室做博士后研究员。目前主要研究方向为利用X射线散射（RIXS / IXS / REXS / XPCS）研究非常规超导材料的电荷/磁激发及超导的配对机制。其主要工作发表在Nature communications, Physical Review Letter, Physical Review X等国际期刊。