



### Weekly Seminar

## Scanning near-field optical microscopy and its applications in condensed matter physics

# 史志文

上海交通大学



**Time: 4:00pm, Dec. 12, 2018 (Wednesday)**

**时间: 2018年12月12日 (周三) 下午4:00**

**Venue: Room W563, Physics building, Peking University**

**地点: 北京大学物理楼, 西563会议室**

### Abstract

Scanning near-field optical microscopy (SNOM), is a microscopy technique for nanostructure investigation that breaks the far field optical resolution limit by exploiting the properties of evanescent waves. Basically, it is a combination of laser and atomic force microscope (AFM), where light is focused onto the apex of a metal-coated AFM tip. The near-field at the tip apex is strongly enhanced, leading to a strong local interaction of light with material underneath the tip. Optical image and spectroscopy with spatial resolution of  $\sim 10\text{nm}$  can be achieved, providing the capability to explore light-matter interaction at nanometer scale. In this talk, I will first briefly introduce the SNOM technique, and then talk about a few examples of exploring novel optical phenomena in low-dimensional materials with SNOM.

### About the speaker

史志文, 上海交通大学特别研究员, 博士生导师(2016-)。国家“青年千人”, 上海市“千人计划”专家, 上海市“东方学者”特聘教授。2007年毕业于中国科学技术大学, 获理学学士学位; 2012年毕业于中科院物理研究所, 获物理学博士学位; 2012年至2016年在美国加州大学伯克利分校从事博士后研究; 2016年初加入上海交通大学物理与天文学院。从事实验凝聚态物理研究, 主要关注低维纳米材料中出现的新奇物理现象, 研究涉及低维纳米材料与器件的加工制备以及纳米光学、激光光谱学、电输运、扫描探针显微表征等方面。迄今已在Nature、Nature Physics、Nature Photonics、Nature Materials等一流学术期刊上发表论文30余篇。