



### Seminar

## Tunneling dynamics between superconducting bound states at the atomic scale

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*The Max Planck Institute for Solid State Research*

**Time: 4: 00 pm, Dec. 24, 2019 (Tuesday)**

**时间: 2019年12月24日 (周二) 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

A Yu-Shiba-Rusinov (YSR) state is a pair of in-gap states bound to magnetic impurities on a superconductor. While YSR states have received intensifying attention especially in the field of scanning tunneling microscopy (STM) due to its capability to resolve and measure the transport through single atom, the tunneling processes between YSR states still remain elusive. We are now able to controllably introduce YSR state of desired properties to the apex of the STM tip and measure the tunneling between the tip YSR state and a sample YSR state, which we call Shiba-Shiba tunneling. The resulting peak feature in current at the sum of the two YSR energies shows a blockade when increasing conductance, which renders YSR tip a general probe of the single level lifetime at the atomic scale. Furthermore, combining the direct and thermal assisted Shiba-Shiba processes, we are able to extract the spin dynamics of the system.

### About the speaker

黄浩楠, 2015年本科毕业于北京大学物理学院, 2017年在德国斯图加特马克思普朗克固体物理研究所获得硕士学位, 之后于该所和瑞士洛桑理工大学的联合项目继续攻读博士学位, 目前研究方向为用极低温扫描隧道显微镜(10mK)研究超导表面磁性原子相关的隧穿过程, 博士生导师为Klaus Kern教授。