北京大学量子材料科学中心

International Center for Quantum Materials, PKU

Weekly Seminar

Whispering Galleries in Circular Graphene Resonators

Yue Zhao 赵悦

Southern University of Science and Technology, China

Time: 4:00pm, Dec. 26, 2018 (Wednesday)

时间：2018年12月26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

Graphene provides an ideal platform for electron optics due to its light-like dispersion. Due to Klein tunneling, highly transparent pn junctions can be created by electron static gating. Electron reflection and transmissions at the boundaries can be manipulated by gate potential, enabling the quantum interference of electron waves. In analogy with optical wave propagations, Fabry-Perot interferences and Veselago lensing of carriers in graphene can be achieved in linear pn junctions. In circular geometries, the localized Dirac fermions can induce whispering gallery modes (WGM), similar to acoustic whispering galleries. In this talk, I will discuss the whispering galleries in our circular graphene resonators created by a local STM probe[1][2], as well as how the WGM states evolve as magnetic field increases[3].

[1] Zhao *et al.* ***Science*** **348**, 6235, 672-675 (2015).
[2] Natterer *et al.* ***Phys. Rev. Lett.*** **114**, 245502 (2015).
[3] Ghahari *et al.* ***Science*** **356**, 6340, 845-849 (2017)

About the speaker

Yue Zhao received her bachelor's degree at University of Science and Technology in 2005 and a doctorate in physics at Columbia University in 2011. She worked at National Institute of Standard and Technology as Research Associate until 2015, when she joined the faculty at Southern University of Science and Technology. She was awarded the 1000 Talents Program in 2016. Her work focuses on transport and STM study of novel two dimensional materials and their heterostructure devices.