北京大学量子材料科学中心

International Center for Quantum Materials, PKU

Seminar

Probing Valley Dynamics in WS_2/WSe_2 heterostructures

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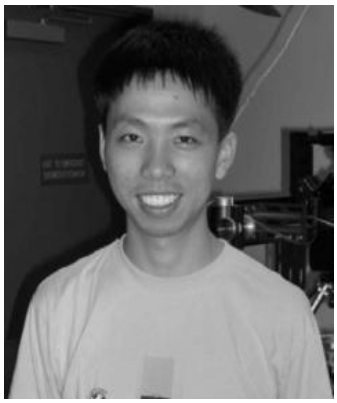

Time: 4:00pm, June 13, 2017 (Tuesday)

时间：2017年6月13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

Van der Waals heterostructures composed of stacked atomically thin layers can exhibit novel phenomena due to the unique layer-layer interactions. In this talk, I will describe our studies of ultrafast charge transfer between different transition metal dichalcoginide layers. This not only leads to ultrafast charge separation, but also enables the generation of high-purity and long-lived valley polarization with microsecond lifetime in WS_2/WSe_2 heterostructures. I will also discuss spatially and temporally resolved imaging of pure valley and spin current in the WS_2/WSe_2 heterostructure.

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About the speaker

Prof. Feng Wang received his physics Ph.D. from Columbia University in 2004. In 2005, he went to University of California, Berkeley as a Miller research fellow. Later he joined the physics department in UC Berkeley as an assistant professor in 2007. He was awarded the Sloan fellowship in 2008, the IUPAP C10 young scientist prize in 2009, the PECASE award and the Packard fellowship for science and engineering in 2010. Feng Wang has made seminal contributions to understanding optical and optoelectronic properties of carbon nanomaterials and atomically thin layered materials. He demonstrated experimentally the excitonic nature of optical transitions in carbon nanotubes, and discovered the unique field-tunable optical properties in graphene. He also realized a widely tunable semiconducting bandgap in bilayer graphene through electrical gating, discovered the indirect-to-direct bandgap transition in monolayer MoS_2, and studied ultrafast dynamics in these layered materials.