



量子材料科学中心 International Center for Quantum Materials

Seminar

Probing the graphene bridge

Xu Du

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- **Time: 10:00pm, July. 9, 2015 (Thursday)**
- **时间: 2015年07月09日 (周四) 上午10:00**
- **Venue: Room W563, Physics Building, Peking University**
- **地点: 北京大学物理楼 西563**

Abstract

Suspended graphene devices offer opportunities for studying the intrinsic electrical and mechanical properties of the material. I will discuss our recent works on two different aspects of the properties of graphene in suspended devices. From the aspect of quantum transport, in ultrahigh quality ballistic graphene-superconductor junctions, we demonstrate the impact of Dirac fermionic electronic structure on the superconducting proximity effect and the observation of the long-standing theoretical prediction on pseudo-diffusive charge transport. From the aspect of strain-engineering, by fabricating graphene nanomechanical resonators on flexible substrates, we are able to tune the mechanical resonance of these graphene "nano-drums" and study both non-linear dynamics and the impact of strain on the charge transport properties. I will briefly discuss the implication of these developments in possible new research directions.

About the speaker

Prof. Xu Du received Bachelor of Engineering degree from Beijing University of Aero. & Astr. in 1996, Master of Science degree from Beijing University in 1999, and ph.D degree from University of Florida in 2004. After doing postdoctoral study at Rutgers University, he joined the faculty of department of Physics and Astronomy at Stony Brook University in 2009. His research interest is mainly in mesoscopic physics and applications of nanomaterials, where he published several important works in prestigious physics journals including Nature and Science, with a total citation of over 4900 times. He received U.S Air Force Office of Scientific Research Young Investigator Award.