



Seminar

Engineering topological insulators for phase transitions & device applications

Qing Lin He

ICQM, School of Physics, Peking University, China

Time: 09:30am, November 22, 2024 (Friday)

时间: 2024年11月22日 (周五) 上午 09:30

Venue: Room W563, Physics Building, Peking University

地点: 北京大学物理楼 西563

Abstract

The topological insulator is known for its robust nontrivial topological states and relevant quantum properties, which could lead to exotic physics and revolutionary developments in electronics. In this talk, I will present several experimental methods, including heterointerfacing & selective-area epitaxial growth based on the molecular beam epitaxy technique and cryogenic magnetoelectric transport, for the material engineering of the $(\text{Bi,Sb})_2\text{Te}_3$ -based topological insulators and Chern insulators with a high degree of freedom. These methods allow us to explore the new spin-texture modulation, topological phase transitions as well as design and construct all-topological devices. Our results may find potential applications in topological spintronics and computations.

About the Speaker

Qing Lin He received his Ph.D. degree at HKUST at 2015. He conducted postdoctoral research at UCLA for three years before joining the International Center for Quantum Materials, School of Physics at Peking University as an assistant professor in 2018. His research focuses on molecular beam epitaxy and characterization of films, heterostructures, superlattices, and nanostructures for topological quantum computation, spintronics, and optoelectronics.