



清华大学高等研究院

Institute for Advanced Study, Tsinghua University

物理学学术报告 Physics Seminars (biweekly)

Title: Dirac Materials: theory and materials modeling

Speaker: Ji Feng 冯济

International Center for Quantum Materials, School of Peking University

URL: <http://www.phy.pku.edu.cn/~jfeng/>

Time: 4:00pm, Wednesday, Nov 19, 2014

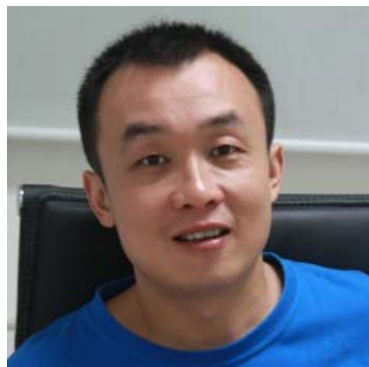
(3:30~4:00pm, Tea, Coffee, and Cookie)

Venue: Conference Hall 322, Science Building, Tsinghua University

Abstract

Dirac materials harbor Dirac Fermions, whose low-energy excitations are governed by the Dirac equation of relativistic quantum mechanics. Quite a number of materials of recent interest to the condensed matter community can be classified as Dirac materials, such as graphene, topological insulators and valleytronics materials. In this talk, I will introduce “Diracology” from the viewpoint of Berry phase, including related theories and computational aspects. This will be followed by recent progresses from my group in this direction of research, including

- (1) Materials prediction for realizing valleytronics;
- (2) Topological aspects of $Z_2 = 0$ systems;
- (3) Time permitting: Chern insulator from a “trivial” oxide.



冯济简历

2007年康奈尔大学博士。之后在哈佛大学和宾夕法尼亚大学从事博士后研究。于2011年加入北京大学，担任研究员、博士生导师。同年入选中组部首批“青年千人计划”。2013年获得自然科学基金委“优秀青年基金”。从事基于第一原理方法的材料模拟、代码开发和理论研究，目前主要关注贝里相位和拓扑电子态相关的问题。