



# 清华大学高等研究院

Institute for Advanced Study, Tsinghua University

## 物理学术报告 Physics Seminars (biweekly)

**Title:** Recent progress of 2-dimensional topological insulators in both experiments and theories

**Speaker:** Haijun Zhang  
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**Time:** 4:00pm, Wednesday, June 17, 2015  
(3:30~4:00pm, Tea, Coffee, and Cookie)

**Venue:** Conference Hall 322, Science Building, Tsinghua University

### Abstract

Topological states are new states of quantum matter with topologically protected gapless boundary states. In two dimensions, the quantum spin Hall (QSH) and quantum anomalous Hall (QAH) states have topologically protected gapless helical and chiral edge states on the boundary, respectively, where the electron backscattering is expected to be prevented, offering a promising way for the application of electronic devices with no dissipation. Recently, both QSH and QAH made great progress in experiments and theories. In this talk, I would like to firstly talk about QSH and QAH states with a general picture, and also briefly review the recent progress in both experiments and theories, and make my outlook for the future of this field.