



# 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:** Berry curvature dipole in Weyl semimetal materials

**Speaker:** Binghai Yan 颜丙海  
(*Weizmann Institute of Science*)

**Time:** 4:00pm, Tuesday, Oct. 24, 2017  
(3:30~4:00pm, Tea and Coffee)

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

#### Abstract

In the band structure of a Weyl semimetal (WSM), the conduction and valence bands cross each linearly through Weyl points that are usually treated as “monopoles” of the Berry curvature. As a second-order response, WSMs were very recently demonstrated to show strong nonlinear optical effects including an exotic nonlinear Hall effect. This is caused by the non-equilibrium distribution of the Berry curvature, described as the “dipole” of the Berry curvature. In this talk, I will talk about our recent results on nonlinear response for representative WSM materials TaAs and MoTe<sub>2</sub>.