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: **Lattice Realization of 3D Duality Web**

Speaker: **Jing-Yuan Chen 陈静远**
(Stanford University)

Time: **4:00pm, Tuesday, September 26, 2017**
(3:30~4:00pm, Tea and Coffee)

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

Abstract

Recently there has been much interest in an IR "Boson-Fermion duality" in 3 spacetime dimensions. This duality generates many more dualities, forming the so-called ``duality web''; some of these dualities have been extremely helpful in understanding intricate problems such as half-filled Landau level, insulator-superconductor transition, surface of strongly interacting topological insulator, etc. Despite the usefulness of these dualities, a solid foundation of them was in need. In this talk I will present how the basic Boson-Fermion duality, as well as the generated duality web, can be UV-completed as exact mappings on a lattice, thereby providing a simple, non-perturbative proof of the desired IR dualities.

Brief bio: Jing-Yuan Chen obtained his B.Sc. in Physics and Math from the University of Michigan Ann Arbor in 2011, and his Ph.D. in Physics, advised by Dam Thanh Son, from the University of Chicago in 2016. He is currently a Gordon and Betty Moore Postdoctoral Fellow in Condensed Matter Physics at the Stanford Institute for Theoretical Physics.