



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: Generalized modular transformations in 3+1D topologically ordered phases and triple linking invariant of loop braiding

Speaker: Ying Ran
Boston College

Time: 4:00pm, Wednesday, Dec 17, 2014
(3:30~4:00pm, Tea, Coffee, and Cookie)

Venue: Conference Hall 322, Science Building, Tsinghua University

Abstract

Previously, topologically ordered phases in 2+1 dimensions have been well studied, partially due to its close relation with 1+1D conformal field theory (CFT). In particular, the modular transformations, originally developed in the context of CFT, have been demonstrated to contain information on the braiding statistics of point-like particles and are characterizing features of topologically ordered phases in 2+1D. In this talk I discuss the natural generalization of these in 3+1D topologically ordered phases, in which the generalized modular transformations are found to be directly related to the braiding of extended loop-like excitations.