清华大学高等研究院

Institute for Advanced Study, Tsinghua University

学术报告

Title: **Microscopic theory of quantum phases: an information-theoretic approach**

Speaker: **Bei Zeng**
University of Guelph

Time: **3:00pm, Thursday, July 31, 2014**

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

Abstract

We discuss an information-theoretic approach to quantum phase and phase transitions, by exploring a relationship between the topological entanglement entropy and the irreducible many-body correlations. This relationship leads to a new type of topological entanglement entropy, which can be used to probe the symmetry-breaking properties hidden in the exact ground states of the symmetry-breaking orders. To use this new topological entanglement entropy for probing a quantum phase transition with symmetry-breaking, there is no need to know the symmetry or the symmetry-breaking order parameter.

arXiv:1402.4245, arXiv:1406.5046, arXiv:1406.5090