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: **exotic quantum criticalities**

Speaker: **Eun-Gook Moon**

(Korea Advanced Institute of Science and Technology)

Time: **4:00pm, Wednesday, May 17, 2017**

(3:30~4:00pm, Tea, Coffee, and Cookie)

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

Abstract

Exotic quantum criticalities beyond the Landau-Ginzburg-Wilson (LGW) paradigm is one of the cutting-edge themes in strongly correlated system. One concrete way to achieve such criticalities is to consider phase transitions around symmetric non-trivial phases such as quantum spin liquids, non-Fermi liquid phases, Weyl semi-metals, and topological insulators. Non-trivial entanglement of the symmetric phases enforces quantum phase transitions to be fundamentally different from ones of the LGW paradigm. Examples include symmetry breakings around a non-Fermi liquid phase as in pyrochlore iridates, quantum phase transitions from topological to trivial insulators as in BiTeI and black phosphorus, and nodal structure changing quantum phase transitions as in line-nodal metallic and superconductivities of heavy fermion systems. Another interesting clas is quantum criticalities with quantum anomalies. We discuss characteristics of the exotic quantum criticalities and their experimental consequences.