

Joint CQSE and CASTS Seminar

Weekly Seminar
Apr. 17, 2015 (Friday)

TIME Apr. 17, 2015, 14:30 ~ 15:30
TITLE Dynamic critical scaling in classical and quantum annealing processes
SPEAKER Prof. Anders W Sandvik
Department of Physics, Boston University
PLACE Rm716, CCMS & New Physics Building, NTU

Abstract

Continuous phase transitions are associated with power-law scaling of physical observables in the equilibrium, and there is also associated dynamical scaling out of equilibrium. I will discuss dynamical scaling in processes where a critical point is approached by changing a parameter at a constant velocity. A useful framework within which to analyze such processes is that of Kibble and Zurek (KZ), and its later generalizations.

I will give examples of KZ scaling at both classical and quantum phase transitions, studied using classical and quantum Monte Carlo simulations.

Such studies of KZ scaling have recently become interesting in quantum computing within the paradigm of quantum annealing. I will discuss classical and quantum spin glass systems of interest in this context.

