

# 凝縮系物理学ゼミナール

日時：4月14日（水）13：30～

場所：理学部5号館 413号室

講演者：Wu Xintian 氏 (Beijing Normal University)

## 「Excited states of the saddle point equation of the Landau-Ginzburg-Wilson Hamiltonian with random temperature」

The phase transition in quenched disordered systems is studied on the level of the saddle point solution. Two-dimensional saddle point equation of the Landau-Ginzburg-Wilson Hamiltonian with random temperature is numerically solved for the excited states. It is shown that the excited-state solutions can be described by the domain walls. The length of domain wall and the free energy increase due to the domain wall are calculated. On the level of the saddle point solution the partition function can be mapped to an Ising model approximately.

The coupling between Ising spin is estimated. The phase transition is discussed according to this Ising model. It is found that there are two classes of phase transition: inhomogeneous and homogeneous. Different from the pure system, for the phase transition in disordered systems there are fluctuations on the level of saddle point solution.

参考文献: Phys. Rev. B 79, 184208 (2009)