[P5] Tricritical behavior of the *q*-rewiring Ising model

Jong-Min Park, University of Seoul

Recently Jędrzejewski etal. introduced the *q*-neighbor Ising model, in which an Ising spin interacts with randomly chosen *q* spins [1]. In contrast to the expectation that the model would belong to the equilibrium mean-field universality class, the system displays the first-order phase transition for $q>3$. We notice that the model is in contact with two thermal heat baths at the temperatures Tspin and Tnet$\rightarrow\infty$ governing fluctuations of the Ising spins and the underlying interaction network, respectively. The first-order phase transition is the effect of non-equilibrium dynamics with Tspin$\neq T$net. We investigate the phase diagram of the generalized model in the Tspin and Tnet plane to find the tricritical point separating the first order transition line and the second order phase transition line.

[1] A. Jędrzejewski, A. Chmiel, and K. Sznajd-Weron, Phys. Rev.E **92**, 052105 (2015).