The behaviour of the Ising single spin expectation at any temperature

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Abstract

We consider the single spin expectation of the Ising model. We believe that the single spin expectation at the center of the discrete ball with radius r surrounded by plus spins converges into the spontaneous magnetization exponentially fast all but the critical temperature and polynomially at critical temperature. For percolation, it is known that the corresponding quantity behaves in the same way. By using the random current representation, which is one of the stochastic geometric representations of the Ising model, it is possible to apply the same idea for the Ising model. In this talk, I would like to explain the known results and ongoing problems about the behaviour of the single spin expectation of the Ising model. This talk is based on the joint work with Markus Heydenreich and Akira Sakai.

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