

Upper bound on correlations for two-dimensional $O(N)$ -symmetric models

Yvan Velenik

Université de Genève - Switzerland

Abstract:

I'll discuss the statistical mechanics of two-dimensional lattice spin systems with an $O(N)$ -symmetric interaction. It is a classical result that in such systems, under weak assumptions, the continuous symmetry cannot be spontaneously broken and that correlations decay at least algebraically with the distance. I'll explain these basic facts and shall sketch their proofs. I'll then describe recent results allowing to extend the conclusion to not necessarily smooth and possibly long-range interactions.

This is based on a joint work with Maxime Gagnebin.