The Allen-Cahn equation with weakly critical initial datum

Tommaso Rosati

(University of Warwick)

Abstract

We study the Allen-Cahn equation in dimension 2 with white noise initial datum. In a weak coupling regime, where the nonlinearity is damped in relation to the smoothing of the initial condition, we prove Gaussian fluctuations.

The effective variance that appears can be described as the solution to an ODE. Our proof builds on a Wild expansion of the solution, which is controlled through precise combinatorial estimates.

Joint work with Simon Gabriel and Nikolaos Zygouras.

---

*Punctual, i.e. sine tempore!