Séminaire de Probabilités et Statistiques

Mardi 30 Mai à 14h00
Laboratoire Dieudonné
Salle de réunion (Bâtiment FIZEAU, 5e étage)

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Finite-time singularities of the stochastic harmonic map flow on surfaces.

A ferromagnetic material possesses a magnetization, which, out of equilibrium, satisfies the Landau-Lifshitz-Gilbert equation (LLG). Thermal fluctuations are taken into account by Gaussian space-time white noise.
At least in the deterministic case, there is an important parallel between this model and the so-called Harmonic Map Flow (HMF). This was originally used by geometers (in the early sixties) as a tool to build harmonic maps between two manifolds $u : M \to N$. The case where M is two dimensional is critical, in the sense that the natural energy barely fails to give well-posedness.
We do not address here the problem of the solvability of LLG driven by space-time white noise. Instead, we consider a spatially correlated version. We show that contrary to the deterministic case, blow-up of solutions happen no matter how we choose the initial data.