FG Stochastische Systeme mit Wechselwirkung, WIAS

Institut für Stochastik, HUB Arbeitsgruppe Stochastik, TUB Lehrstuhl WT der Uni Potsdam

BERLINER KOLLOQUIUM

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STOCHASTISCHE ANALYSIS

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zum Thema

"Stochastic mean curvature flow"

Motion by mean curvature of embedded hypersurfaces in R^{N+1} is an important prototype of a geometric evolution law and has been intensively studied in the past decades. Mean curvature flow is characterized as a steepest descent evolution for the surface area energy and constitutes a fundamental relaxation dynamics for many problems where the interface size contributes to the systems energy. One of the main difficulties of the mean curvature flow is the appearance of topological changes and singularities in finite time. Further issues then arise in the mathematical treatment of the stochastic mean curvature flow, which was introduced as a refined model incorporating the influence of thermal noise.

We study a stochastically perturbed mean curvature flow for graphs in R^3 over the two-dimensional unit-cube subject to periodic boundary conditions. In particular, we establish the existence of a weak martingale solution. The proof is based on energy methods and therefore presents an alternative to the stochastic viscosity solution approach. To overcome difficulties induced by the degeneracy of the mean curvature operator and the multiplicative gradient noise present in the model we employ a three step approximation scheme together with refined stochastic compactness and martingale identification methods.

Interessenten sind herzlich eingeladen!

Ort: TU Berlin **(MA 041)**
Straße des 17. Juni 136
Zeit: Mittwoch, 14. Oktober 2015, um **17:15 Uhr**

Kaffee/Tee ab 16:45 Uhr