FRIEDRICH-SCHILLER-
UNIVERSITÄT
JENA Fakultät für Mathematik und Informatik

Institut für Mathematik

Seminar zur Stochastik

Donnerstag, 3. November 2022
16:00 Uhr
SR 124 Carl-Zeiss-Str. 3

Frau Dr. Shenglan Yuan
(Universität Augsburg)

“Effective dynamics of interfaces for nonlinear SPDEs driven by multiplicative white noise”

Abstract: In the present work, we investigate the dynamics of the infinite-dimensional stochastic partial differential equations (SPDEs) with multiplicative white noise. We derive the effective equation on the approximate slow manifold detailedly by utilizing a finite-dimensional stochastic ordinary differential equation (SDE) describing the motion of interfaces. In particular, we verify the equivalence between the full SPDE and the coupled system under small stochastic perturbation. We use sophisticated large deviations to analyze the stochastic stability and show that solutions stay close to the slow manifold for a very long time with high probability via asymptotic estimates on the exit time. Moreover, we apply our results to modulation and amplitude equations, illustrated with an example about dynamical stability of stochastic Korteweg–de Vries equation.

This is a joint work with Dirk Blömker.

Alle Interessierte sind herzlich eingeladen

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