

Institute for Applied Mathematics, Bonn University

Oberseminar Stochastik

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Lipschitz-Saal (LWK 1.016)

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Stationary measures in the Kardar-Parisi-Zhang universality class

The Kardar-Parisi-Zhang (KPZ) equation is a nonlinear stochastic PDE introduced in Physics as a prototype for a large class of out-of-equilibrium dynamics. In dimension one, the KPZ equation on the line admits a remarkably simple stationary measure: the Brownian motion. For the KPZ equation on an interval or a half-line, however, stationary measures are non-Gaussian and depend on the boundary conditions imposed. Their explicit description has been obtained only recently, through the detailed study of integrable probabilistic models, such as ASEP or directed polymer models, that can be viewed as discretizations of the KPZ equation. We will first review these results, coming from a series of works by several groups of authors. I will then outline a new method to compute the stationary distributions of stochastic integrable models on a lattice such as last passage percolation, or directed polymer models.