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Schwerpunkt Stochastik

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Rhein-Main-Kolloquium Stochastik

TU Darmstadt, Goethe-Universität Frankfurt und Gutenberg-Universität Mainz

Friday, 12 February, 2021

3:15 pm: **Rongfeng Sun (Singapore)**: (2+1)-dimensional directed polymer, SHE, and KPZ in the subcritical regime

Abstract: In this talk, we review recent progress for the (2+1)-dimensional directed polymer, SHE, and KPZ in the subcritical regime. We will explain how a phase transition arises on an intermediate disorder scale, and how techniques from (discrete) stochastic analysis can be applied to derive the limiting distributions of polymer partition functions both pointwise and as a random field. In particular, the latter implies that solutions of the mollified SHE and KPZ in the subcritical regime exhibits Gaussian fluctuations known as Edwards-Wilkinson universality.

4:15 pm: Virtual coffee break

4:45 pm: **Nikos Zygouras (Warwick)**: (2+1)-dimensional directed polymer and SHE in the critical window

Abstract: In this talk, we review recent results for the (2+1)-dimensional directed polymer and SHE in the critical window. Previously, Bertini-Cancrini'98 identified the limiting covariance of the solution of the mollified SHE in the critical window. Recently, we showed that the third moment of the solution of the mollified SHE converges, and hence the solution of the mollified SHE has non-trivial subsequential limits. A key ingredient in our analysis is the Dickman subordinator. We will also discuss subsequent work by Gu, Quastel and Tsai that extends our results to higher moments, and some open questions.
Based on joint work with F. Caravenna.

Venue: via Zoom, access data can be obtained at stochastik@uni-mainz.de

Any interested parties are welcome.

Yours, Matthias Birkner