Institute for Applied Mathematics, Bonn University

Oberseminar Stochastik

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Lipschitz-Saal (LWK 1.016)

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Applications of random walks on Hecke algebra

Recently, random walks on Hecke algebras were recognized by A. Bufetov as a natural framework for the study of multi-species interacting particle systems. As a corollary, the Mallows measure can be viewed as the universal stationary blocking measure of interacting particle systems arising from random walks on Hecke algebras. Furthermore, the involution in Hecke algebras implies the color-position symmetry, which is a powerful tool for the asymptotic analysis of multi-species interacting particle systems. In this talk, we explore two facets of random walks on Hecke algebras. The first part focuses on the asymptotic behavior of the Mallows measure. In the second part, we consider applications of the color-position symmetry, particularly in the context of shock fluctuations in the half-line open Totally Asymmetric Simple Exclusion Process (TASEP) and Asymmetric Simple Exclusion Process (ASEP).