Universität zu Köln
Department Mathematik/Informatik
Prof. Dr. A. Drewitz

Einladung zum Oberseminar Stochastik

Am Mittwoch, 18.01.2023 um 17:45 Uhr, im Seminarraum 1 (Raum 005)
der Abteilung Mathematik, Weyertal 86-90, 50931 Köln, spricht:

Dr. Rodrigo Bazaes
(Universität Münster)

zum Thema

Subcritical Gaussian multiplicative chaos in the Wiener space: construction, moments and volume decay.

Abstract

We construct and study properties of an infinite dimensional analog of Kahane's theory of Gaussian multiplicative chaos. Namely, we consider a random field defined with respect to space-time white noise integrated w.r.t. Brownian paths in $d \geq 3$ and construct the infinite volume limit of the normalized exponential of this field, weighted w.r.t. the Wiener measure, in the entire weak disorder (subcritical) regime. Moreover, we show that this infinite volume measure, which we call the subcritical GMC on the Wiener space, is unique w.r.t. the mollification scheme in the sense of Shamov and determines its support by identifying its thick points.

This, in turn, implies that, almost surely, the subcritical GMC on the Wiener space is singular w.r.t. the Wiener measure. We also prove, in the subcritical regime, the existence of negative and positive (L^p for $p > 1$) moments of the total mass of the limiting GMC and deduce its Hölder exponents (small ball probabilities) explicitly. While the uniform Hölder exponent (the upper bound) and the pointwise scaling exponent (the lower bound) differ for a fixed disorder, we show that, as the disorder goes to zero, the two exponents agree, coinciding with the scaling exponent of the Wiener measure.

This is joint work with Isabel Lammers and Chiranjib Mukherjee.

Alle Interessenten sind herzlich eingeladen.

Die Dozenten der Stochastik