

北京师范大学 随机数学研究中心

学术报告

报告人: 朱蓉禅 (北京理工大学)

题目: Stochastic quantization to perturbation theory of Φ_2^4 : asymptoticity and short distance

时间: 2021 年 11 月 1 日 (周一) 下午 3:40-4:40

地点: 教八-210

摘要: In this talk we study the perturbation theory of Φ_2^4 model on the whole plane via stochastic quantization. We use integration by parts formula (i.e. Dyson-Schwinger equations) to generate the perturbative expansion for the k -point correlation functions, and prove bounds on the remainder of the truncated expansion using SPDE estimates; this in particular proves that the expansion is asymptotic. Furthermore, we derive short distance behaviors of the 2-point function and the connected 4-point function, also via suitable Dyson-Schwinger equations combined with SPDE arguments. This talk is based on joint work with Hao Shen and Xiangchan Zhu.