

# 北京师范大学 随机数学研究中心

## 学术报告

报告人: 朱湘禅 (中科院)

题目: Global existence and non-uniqueness for 3D Navier–Stokes equations with space-time white noise

时间: 2022 年 3 月 21 日 (周一) 下午 3:00-4:00

地点: 腾讯会议 473 773 870

**摘要:** We establish global-in-time existence and non-uniqueness of probabilistically strong solutions to the three dimensional Navier–Stokes system driven by space-time white noise. In this setting, solutions are expected to have space regularity at most  $-1/2 - \kappa$  for any  $\kappa > 0$ . Consequently, the convective term is ill-posed analytically and probabilistic renormalization is required. Up to now, only local well-posedness has been known. With the help of paracontrolled calculus we decompose the system in a way which makes it amenable to convex integration. By a careful analysis of the regularity of each term, we develop an iterative procedure which yields global non-unique probabilistically strong paracontrolled solutions. Our result applies to any divergence free initial condition in  $L^2 \cup B_{\infty, \infty}^{-1+\kappa}$ ,  $\kappa > 0$ , and implies also non-uniqueness in law.