北京大学
PEKING UNIVERSITY

One day workshop on Random Dynamical System



会议时间：2026 年 11 月 27 日-28 日

主办单位：北京大学数学科学学院

会议日程

日期	时间	报告题目	主持人
11 月 27 日	全天	报到、与研究生座谈 AI 与数学科研	
11 月 28 日	9:00-10:00	王奕倩 Full--intermittent synchronization transition in coupled piecewise expanding map lattices	刘子愉
	10:00-10:10	休息	
	10:10-11:10	宋玉林 Marginal-CDF SPDEs and Rank-Based Particle Systems: Uniform Propagation of Chaos	
	11:10-14:00	午餐、休息	
	14:00-15:00	陈勇 分数类高斯过程的统一的研究方法	刘勇
	15:00-15:10	休息	
	15:10-16:10	张让让 Well-posedness of the obstacle problem for generalized Dean-Kawasaki equation	

会议地点：北京大学智华楼 209

用餐地点：北京大学农园餐厅三楼

报告信息：

Full--intermittent synchronization transition in coupled piecewise expanding map lattices

报告人：王奕倩 （南京大学）

We develop a new geometric-combinatorial method to study synchronization, intermittent synchronization, and the absolutely continuous invariant measure (ACIM) for nearest-neighbour coupled map lattices (CML) of piecewise expanding maps. We demonstrate the existence of a critical coupling strength where a transition between full and intermittent synchronization takes place. Moreover, for the subcritical coupling case, we prove the uniqueness of ACIM.

Marginal-CDF SPDEs and Rank-Based Particle Systems: Uniform Propagation of Chaos

报告人：宋玉林 （南京大学）

We introduce a class of McKean--Vlasov stochastic reaction--diffusion equations in which the drift at a spatial point x depends on the one-point marginal distribution function, The finite approximation consists of H-valued particles interacting through their ranks at each spatial point. Under a monotone dissipative reaction we prove well-posedness and exponential Wasserstein contraction for both the limiting and particle systems. Under a baseline transition-kernel atomlessness condition, verified for odd polynomial reactions, the abstract interactions are identified with the ordinary distribution functions and rank formulas. For particle systems, we can also obtain the uniform-in-time estimate

分数类高斯过程的统一的研究方法

报告人：陈勇 （保山学院）

介绍我们对于各种分数类高斯过程的统一研究方法。从 Jolis（2007）对于一般的高斯过程的典则希尔伯特空间内积公式的刻画出发，利用有界变差函数的分部积分公式得到各种分数类高斯过程(基于其协方差函数)的典则希尔伯特空间内积公式。作为应用，我们给出基于这个方法的 SDE 的参数估计问题。该报告基于如下三篇论文：

1. Chen Y.;Zhou H.,Parameter Estimation for an Ornstein-Uhlenbeck Processes driven by a general Gaussian Noise. Acta Mathematica Scientia, 2021, 41B(2): 573–595.

2. Chen Y, Li Y, Zhou H. Berry-Esseen bounds for the statistical estimators of an Ornstein-Uhlenbeck process driven by a general Gaussian noise. Fract. Calc. Appl. Anal. 2025. 28(5):2607-2637.

3. Chen Y, Gao W, Li Y. Statistical Estimations for Non-Ergodic Vasicek Model Driven by Gaussian Processes. Acta Mathematicae Applicatae Sinica, English Series. 2026. 42(4): 1043-1067.

Well-posedness of the obstacle problem for generalized Dean-Kawasaki equation

报告人：张让让 （北京理工大学）

This talk concerns the obstacle problem for generalized Dean-Kawasaki equations driven by correlated conservative noise. We establish the existence, uniqueness and L^1 stability of stochastic kinetic solutions. Our core strategy combines a kinetic characterization of the Skorokhod condition with a precise description of the reflection measure term associated with the obstacle, in which the barrier substitutes the solution. This formulation makes the reflection mechanism explicit at the kinetic level and yields a stable framework adapted to L^1 doubling of variables method. Consequently, under a merely continuous obstacle and the same structural

assumptions as in the obstacle-free setting, we obtain well-posedness over the full porous-medium regime, covering degenerate diffusion and the critical square-root noise coefficient.