Stochastic Webinar

Ergodicity and long-time behavior of the Random Batch Method for interacting particle systems

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周珍楠，北京大学北京国际数学研究中心助理教授。2014 年在美国威斯康辛大学麦迪逊分校获得博士学位，2014-2017 年在美国杜克大学担任助理研究教授，2017 年加入北京大学北京国际数学研究中心。主要研究领域为微分方程的应用分析，微分方程数值解，应用随机分析，随机模拟等，特别是关注来源于自然科学的应用数学问题。

Abstract： We study the geometric ergodicity and the long time behavior of the Random Batch Method for interacting particle systems, which exhibits superior numerical performance in recent large-scale scientific computing experiments. We show that for both the interacting particle system (IPS) and the random batch interacting particle system (RB-IPS), the distribution laws converge to their respective invariant distributions exponentially, and the convergence rate does not depend on the number of particles N, the time step τ for batch divisions or the batch size p. Moreover, the Wasserstein distance between the invariant distributions of the IPS and the RB-IPS is bounded by $O(\sqrt{\tau})$, showing that the RB-IPS can be used to sample the invariant distribution of the IPS accurately with greatly reduced computational cost.

讲座时间：

2023. 11. 29周三 上午10:00-11:00

会议地点：ZOOM会议室　会议ID：354 143 7366 密码：123456

主办单位：

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