

北京师范大学 随机数学研究中心

学术报告

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时 间: 2023年11月9日(周四), 上午 10:00-11:00

地 点: ZOOM 会议号: 932 555 07459 (PW: 112233)

题 目: Mean field super-Brownian motion

摘 要: The mean-field stochastic partial differential equation (SPDE) corresponding to a mean-field super-Brownian motion (sBm) is obtained and studied. In this mean-fields Brownian motion, the branching-particle life-time is allowed to depend upon the probability distribution of the sBm itself, producing an SPDE whose space-time white noise coefficient has, in addition to the typical sBm square root, an extra factor that is a function of the probability law of the density of the mean-field sBm. This novel mean-field SPDE is thus motivated by population models where things like overcrowding and isolation can affect growth. A two step approximation method is employed to show the existence for this SPDE under general conditions. Then, mild moment conditions are imposed to get uniqueness. Finally, smoothness of the SPDE solution is established under a further simplifying condition. This is a joint work with M. Kouritzin, Panu Xia, Jiayu Zheng and Xiong Wang.