

学术报告

报告题目: Sharp non-uniqueness for the 3D hyperdissipative Navier-Stokes equations: above the Lions exponent

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报告摘要: In this talk I will present one of our recent work in rigorous derivation of the degenerate parabolic-elliptic Keller-Segel system. We establish the classical solution theory of the degenerate parabolic-elliptic Keller-Segel system and its non-local version. Furthermore, we derive a propagation of chaos result. Due to the degeneracy of the non-linear diffusion and the singular aggregation effect in the system, we perform an approximation of the stochastic particle system by using a cut-offed interacting potential. An additional linear diffusion on the particle level is used as a parabolic regularization of the system. The propagation of chaos result is presented with two different types of cut-off scaling for the aggregation potential, namely logarithmic and algebraic scalings. For the logarithmic scaling the convergence of trajectories is obtained in expectation, while for the algebraic scaling the convergence in the sense of probability is derived. The result with algebraic scaling is deduced by studying the dynamics of a carefully constructed stopped process and applying a generalized version of the law of large numbers. This is a joint work with V. Gvozdk, A. Holtzinger, and Yue Li.

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1991-1995 辽宁大学数学系 学士

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研究方向: 偏微分方程分析及应用