



复旦大学数学科学学院 数学综合报告会

报告题目: On a Signal-dependent Keller-Segel Model for Local Sensing Chemotaxis, Part III

报告人: 江杰 (中国科学院武汉物理与数学研究所)

报告时间: 2020-09-02 星期三 10:00-11:00

报告地点: 腾讯会议 (会议号 195 889 097)

摘要: We would like to report our recent research on a signal-dependent Keller-Segel model in a series of talks. The model was originally proposed by Keller and Segel in their seminal work in 1971, which models the cellular movements due to a local sensing chemotaxis. The model features a signal-dependent motility which may vanish as the concentration becomes unbounded. Thus degeneracy is the main obstacle in analysis. In our work, we develop a new comparison method based on the nonlinear structure which provides us an explicit point-wise upper bound estimate for the concentration. Then, we study the global existence of classical solutions and discuss the boundedness. Moreover, a critical mass phenomenon as well as an infinite-time blow-up was verified in the two-dimensional setting. The talk is based on my recent joint work with K. Fujie from Tohoku University.

Part III: results and strategies in higher dimensions.

非线性数学模型与方法教育部重点实验室
中法应用数学国际联合实验室
上海市现代应用数学重点实验室
复旦大学数学研究所