

Online Seminar on Chemotaxis

Date: 10th of February 2023 17:00 – 18:00 in “Seoul–Tokyo” hour
(which is 9:00 – 10:00 in “Central EU” hour and 16:00 – 17:00 in “Beijing” hour)

Speaker: Masaaki Mizukami (Kyoto University of Education)

Title: Possible points of blow-up in a parabolic–elliptic chemotaxis system with spatially heterogeneous logistic term

Abstract:

This talk deals with the parabolic–elliptic chemotaxis system with environmental dependent logistic source

$$u_t = \Delta u - \nabla \cdot (u \nabla v) + \kappa(x)u - \mu(x)u^2, \quad 0 = \Delta v - v + u$$

in a smooth bounded domain $\Omega \subset \mathbb{R}^2$, where $\kappa, \mu \in C^0(\overline{\Omega})$ with $\mu \geq 0$ are given functions. About this problem Fuest (2020) obtained existence of blow-up solutions in the radial setting. Then one of the next questions is where the solution blows up. The purpose of this work is to show that the blow-up set \mathcal{B} is contained in $\{x \in \overline{\Omega} \mid \mu(x) = 0\}$. This talk is based on a joint work with T. Black (Paderborn University), M. Fuest (Leibniz University Hannover) and J. Lankeit (Leibniz University Hannover).

Organizers: Jie Jiang (jiang@apm.ac.cn) and Kentaro Fujie (fujie@tohoku.ac.jp)