Online Seminar on Chemotaxis

Date: 24th of November 2023　16:00 – 17:00 in "Beijing" hour
(which is 9:00 – 10:00 in "Central EU" hour and 17:00 – 18:00 in "Seoul–Tokyo" hour)

Speaker: Min Tang (Shanghai Jiaotong University)

Title:
Macroscopic Models derived from kinetic models with internal state

Abstract:
We give a brief review of various macroscopic chemotaxis models that can be derived from kinetic models with internal states in different regimes. Depending on the asymptotics chosen the standard Keller-Segel equation, the flux-limited Keller-Segel (FLKS) equation, the modified Keller-Segel with adaptation and the fractional Keller-Segel model can be derived. Then we will focus on the pathway-based diffusion model (PBDM), which characterizes the dynamics of the engineered Escherichia coli populations. It is a diffusion equation with one additional variable that characterizes the internal dynamics. The model can form a stripe pattern and we provide some analytical results including the energy estimate and linear stability analysis.

Seminar website: `http://www.math.tohoku.ac.jp/~fujie/OSC.html`

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