明治大学先端数理科学インスティテュート

MIMS現象数理カフェセミナー

日時：2017年12月5日(火) (12:40 ～ 13:20)

場所：中野キャンパス8階　談話室

Variational analysis of Keller-Segel models

Yoshifumi Mimura (MIMS, Meiji Univ.)

Abstract: We introduce the Keller-Segel model for describing the aggregation phenomenon of certain microorganisms called “slime molds”, which have a characteristic property called chemotaxis. Chemotaxis is the motion toward higher concentration of a chemical substance. This kind of microorganism, when put in a nutrition-poor environment, produces a chemical substance that attracts other individuals within the same population. This leads to the formation of an aggregate which produces spores. In this way, the slime molds propagate the next generation.

From a mathematical point of view, the aggregation phenomenon can be interpreted as the blow-up of the solution of two simultaneous partial differential equations. In this talk, we show that the blow-up solution never exists if the mass of the slime mold is less than a certain value.

問い合わせ：

Lorenzo Contento

Email: contento@meiji.ac.jp