Meiji University Global COE Program

7th Mathematical Sciences based on Modeling, Analysis and Simulation seminar

Date : May 27, 2009, 16:30～17:30

Location : Meiji Univ. Ikuta Campus, Build 2 Annex A, Room A205

Takeshi Ohtsuka (Meiji Univ.)

Titile : Interface evolution by unbalanced tristable Allen-Cahn type equation

Abstract : Allen-Cahn equation, which is a reaction-diffusion equation expressing phase separation and diffusion, is introduced to express the motion of grain boundaries between two stable phase in a crystal. Formal asymptotic analysis shows that internal layer of the solution approximates the interface motion by mean curvature flow, and the difference of strength of stability between two stable phase derives the driving force to the interface motion. In this talk we introduce a tristable type of Allen-Cahn equation, which expresses the situation including three stable phase and two internal layers. We shall give a brief introduction to the study of singular limit of tristable Allen-Cahn type equation, and discuss the dynamics of internal layer when stabilities of three phase are unbalanced.

Everyone is welcome to attend the MAS seminar.

Meiji institute for Advanced Study of Mathematical Science (http://www.mims.meiji.ac.jp)

（Organizers: M. Mimura, D. Ueyama, Y. Wakano and K. Ikeda）

MAS seminar is partly supported by Meiji University Global COE program "Formation and Development of Mathematical Sciences Based on Modeling and Analysis" (http://gcoe.mims.meiji.ac.jp/), the Grant-in-Aid for Scientific Research (S), "Mathematical Theory of Nonlinear-Non-equilibrium Reaction-Diffusion Systems" by M. Mimura (http://nnrds.math.meiji.ac.jp/).

Access: 10 minutes on foot from Ikuta St. Odakyu line,
Or 10 minutes by bus No. 13「明治大学正門前」, get off at the last stop.
See http://www.meiji.ac.jp/koho/campus_guide/ for details.