Meiji University Global COE Program

36th Mathematical Sciences based on Modeling, Analysis and Simulation seminar

Date: January 26, 2011, 17:30～18:30

Location: Meiji Univ. Ikuta Campus, Build 2 Annex A, Room A401

Danielle HILHORST

(CNRS and University Paris-Sud 11)

Title : A nonlinear parabolic-hyperbolic PDE model for contact inhibition of cell-growth

Abstract :We consider a parabolic-hyperbolic system of nonlinear partial differential equations which describes a simplified model for contact inhibition of growth of two cell populations. In one space dimension it is known that global solutions exist and that they satisfy the segregation property which reflects the inhibition mechanism: if initially the two populations are segregated – in mathematical terms this translates in disjoint spatial supports of their densities - this property remains valid for all later times. The space-time curves which separate the two populations are free boundaries. In this talk, we use recent results on transport equations and Lagrangian flows to obtain similar results in the case of several spatial variables. This is joint work with Michiel Bertsch, Hirofumi Izuhara and Masayasu Mimura.

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, K. Ikeda and S.Kinoshita)

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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.