PHYSICAL MATHEMATICS SEMINAR

Dynamical Quorum Sensing and Collective Behavior in Unicellular Organisms

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ABSTRACT:

In this talk, I will present ongoing work on communication and collective behavior in unicellular organisms. In the first half of the talk, I will show how we are using concepts from physics and dynamical systems such as universality to make simple, predictive models of complex biological behaviors in cellular populations of the social amoeba Dictyostellium. Inspired by Dictyostelium, in the second half of the talk, I will focus on the physics and mathematics of dynamical quorum sensing. In particular, I will discuss how we can use techniques from applied mathematics and physics to understand cell-density dependent transitions to collective oscillations.

TUESDAY, DECEMBER 13, 2011
2:30 PM
Building 2, Room 105

Reception at 3:30 PM in Building 2, Room 290
(Math Dept. Common Room)

http://math.mit.edu/pms

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