

PHYSICAL MATHEMATICS SEMINAR

Collective Behaviour in Suspensions of Swimming Micro-organisms

TIMOTHY J. PEDLEY

DAMTP, University of Cambridge

ABSTRACT:

Suspensions of swimming micro-organisms exhibit a rich variety of collective behaviour, such as the bioconvection patterns seen for suspensions of upswimming cells that are denser than their surroundings, or the time-varying coherent structures seen in dense suspensions of swimming bacteria. Here we investigate the fluid dynamic mechanisms underlying these patterns, by means of (1) a continuum model for dilute suspensions, (2) hydrodynamic interactions between pairs of model micro-organisms, and (3) simulations and models for non-dilute suspensions. The talk will conclude with recent observations of ‘dancing’ algae.

TUESDAY, MARCH 30, 2010

2:30 PM

Building 2, Room 105

*Refreshments at 3:30 PM in Building 2, Room 290
(Math Department - Common Room)*



Massachusetts Institute of Technology

Department of Mathematics
Cambridge, MA