



THE CHINESE UNIVERSITY OF HONG KONG
Department of Physics
SEMINAR

A Collective Mechanism for Phase Variation in Biofilms

by

Dr. Nicholas CHIA (賈立平博士)

The University of Illinois at Urbana–Champaign, USA

Date: December 14, 2011 (Wednesday)

Time: 4:30 - 5:30 p.m.

Place: Rm 311 Science Centre North Block, CUHK

ALL INTERESTED ARE WELCOME

Abstract

Understanding how microbes gather into biofilm communities and maintain diversity remains one of the central questions of microbiology, requiring an understanding of microbes as communal rather than individual organisms. Phase variation plays an integral role in the formation of diverse phenotypes within biofilms. I go over my recent work in which I propose a collective mechanism for phase variation based on gene transfer agents, and apply the theory to predict the population structure and growth dynamics of a biofilm. Our results describe quantitatively recent experiments, with the only adjustable parameter being the rate of intercellular horizontal gene transfer.