



**The Hong Kong Polytechnic University
Department of Applied Mathematics**

Symposium

On

**Existence and Stability of Flow-Distributed Spikes
for Reaction-Diffusion Systems**

by

**Professor Matthias Winter
Brunel University
United Kingdom**

Abstract

We first present results on the existence and stability of multiple spikes in the case of the Gierer-Meinhardt system in one and two space dimensions. Then we incorporate convection into a reaction-diffusion system of Schnakenberg type and study the effect which the convection has on a single spike solution. We show that the spike is shifted away from the centre of the domain, where the details of the shift depend on the boundary conditions and the rate of convection. We prove that this shifted one-spike solution is stable. Analytical results will be complemented by numerical computations. Biological applications will be outlined. This is joint work with Juncheng Wei.

Date : 28 March 2011 (Monday)
Time : 11:00 a.m. – 12:00 noon
**Venue : Departmental Conference Room HJ610
The Hong Kong Polytechnic University**

***** ALL ARE WELCOME *****