

THE MATHEMATICS DEPARTMENT PRESENTS

A MATHEMATICS COLLOQUIUM

THURSDAY, April 30, 2009

BOND HALL 217

4:00 pm

Title: Turing patterns with an external linear morphogen gradient

Speaker: Tilmann Glimm, Western Washington University

Abstract: I will present the analysis of a simple generic model of a reaction-diffusion system consisting of an activator and an inhibitor molecule in the presence of a chemical gradient. It is assumed that this chemical gradient is established independently of the reaction-diffusion system and acts by increasing the activator production rate. Mathematically, this leads to non-autonomous reaction-diffusion equations. The model is motivated by several existing models in developmental biology in which a Turing reaction-diffusion patterning mechanism has been proposed and various chemical gradients are known to be important for development. I will put special emphasis on the general background of the model and the questions which it seeks to answer. This talk is based on recent joint work with J. Zhang and Y.-Q. Shen.

Refreshments will precede the talk at 3:30pm in Bond Hall 300.