Applied Dynamical Systems Seminar

Yuxiang Zhang,
Memorial University

Friday, March 16, 2012
1:00p.m., HH-3017

A reaction-diffusion Lyme disease model with seasonality

Abstract:

In this talk, I will report our recent research on a reaction-diffusion Lyme disease model with seasonality. In the case of a bounded habitat, we obtain a threshold result on the global stability of either disease-free or positive periodic state. In the case of an unbounded habitat, we establish the existence of the spreading speed of the disease and its coincidence with the minimal wave speed for the time-periodic travelling wave fronts. We also estimate parameter values based on some published data, and use them to study the Lyme disease transmission in Port Dove, Ontario. Our numerical simulations are well consistent with our analytic results.

This talk is based on the joint work with Dr. Xiaoqiang Zhao.