Applied Dynamical Systems Seminar

Dr. Xiaoqiang Zhao,
Memorial University

Thursday, November 12, 2015
3:30-4:30pm, HH-3017

Basic Reproduction Ratios for Periodic Compartmental Models with Time Delay

Abstract:

In this talk, I will report our recent research on time-delayed compartmental population models in a periodic environment. We establish the theory of basic reproduction ratio R0 for such a class of systems. It is proved that R0 serves as a threshold value for the stability of the zero solution of the associated periodic linear systems. As an illustrative example, we also apply the developed theory to a periodic SEIR model with an incubation period and obtain a threshold result on its global dynamics in terms of R0. If time permits, I will mention more applications of this theory and the numerical computation of R0.