Departmental Colloquium

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Friday, Nov. 30, 2012
HH-3017
2:00 p.m.

Basic Reproduction Ratios for Almost Periodic Compartmental Epidemic Models

Abstract:

In this talk, I will first give a brief review of basic reproduction numbers in mathematical epidemiology. Then I will report our recent research on the basic reproduction ratio and its computation formulae for almost periodic compartmental epidemic models. It is shown that the almost periodic disease-free solution is stable if this ratio is less than unity, and unstable if it is greater than unity. We also apply the developed theory to a patchy model with almost periodic population dispersal and disease transmission coefficients to obtain a threshold type result for the uniform persistence and global extinction of the disease.