# Departmental Colloquium

**Dr. Chufen Wu,**
**Foshan University, China**

**Friday, January 12, 2018**
**1:00pm, HH-3017**

## Spatial dynamics of a stage-structured SEIRM epidemic model with latent period

**ABSTRACT:**
In this talk, we propose and investigate a stage-structured SEIRM epidemic model with latent period in a spatially continuous habitat. We first study the linear stability if equilibria of the model. Next we show the existence of semi-traveling wave solutions that connect the disease-free equilibrium ahead of the front, provided that the basic reproduction number is greater than one. Then we apply the Lyapunov functional approach to prove the convergence of the semi-traveling wave solution to the endemic equilibrium behind the front. In addition, the non-existence of bounded semi-traveling wave solution is investigated based on a combination of asymptotic estimates, Laplace transform, and Cauchy integral theorem. Finally, some simulations are given to illustrate the quantitative properties on the stability of equilibria and the evolution of profiles. This is a joint work with Dr. Wenzhang Huang.