Proposal of organizing a mini-symposium in CMPD5

- Mini-symposium title:
  Disease Modelling – from Within-Host to Population

- Organizers:
  Jing Chen, Nova Southeastern University, jchen1@nova.edu
  Xi Huo, University of Miami, x.huo@math.miami.edu
  Shigui Ruan, University of Miami, ruan@math.miami.edu

- Synopsis:
  The scope of disease models varies with respect to the purpose of the study, from the within-host scale on the dynamics of cells and pathogens, to the population scale on the dynamics of human and vector populations. This mini-symposium brings together talks in different scales of disease modeling, and aims for stimulating ideas and collaborations in multiple-scale modelling.

  The invited talks are nicely balanced in both scales: we will have talks given by Drs. Gurarie (1st talk), Jang, Munther, Rong, Salceanu, focusing on the dynamics of the pathogens and immune cells within the host population. We have Dr. Vaidya talking about how to bridge within-host and between host dynamics together in order to model HIV infections and spreads. We will have another half of speakers, Drs. Deng, Feng, Gurarie (2nd talk), Huang, Nevai, Ripoll, Shuai, and Zhang, to talk about modeling transmission and control of various diseases on the population level. Lastly, we will have Hao Kang to present his findings in analyzing a generalized structured population model on disease spreads.

- Confirmed speakers:
1. **Libin Rong**, University of Florida
   Title: Modeling HIV Dynamics under Treatment

2. **Paul Salceanu**, University of Louisiana at Lafayette
   Title: A Time-Delay Bacteria and Chronic Bacteriophage Model

3. **Daniel Munther**, Cleveland State University
   Title: Dose-Response Modeling for Listeria Monocytogenes: a New Perspective for Risk Assessment

4. **Sophia Jang**, Texas Tech University
   Title: Modeling Pancreatic Cancer Dynamics with Immunotherapy

5. **David Gurarie**, Case Western Reserve University
   Title: Immune selection and evolution of multi-strain malaria quasi-species

Disease Modelling – from Within-Host to Population
Organizers: Jing Chen, Xi Huo, and Shigui Ruan

6. **Naveen Vaidya**, San Diego State University
Title: Role of the Immune Status of HIV Infected Individuals on the Transmission in Population: From Within-Host to Between-Hosts Models

7. **Andrew Nevai**, University of Central Florida
Title: Feral Cat Population Dynamics and Feline Leukemia

8. **Zhisheng Shuai**, University of Central Florida
Title: The Impact of Asymmetric Movements on Disease Spread and Control

9. **Keng Deng**, University of Louisiana at Lafayette
Title: Asymptotic Behavior of an SIR Reaction-Diffusion Model with a Linear Source

10. **Qimin Huang**, Case Western Reserve University
Title: Modeling the Effect of Antibiotic Exposure on the Transmission of Methicillin-resistant *Staphylococcus aureus* in Hospitals with Environmental Contamination

11. **Wenjing Zhang**, Texas Tech University
Title: Global Stability and Re-Emergence in a Cholera Model Considering Stochastic Fluctuations in Pathogen-Host Encounter

12. **David Gurarie**, Case Western Reserve University
Title: Population biology of Schistosoma, its control and elimination: Insights from data analysis, modeling and computation

13. **Xiaomei Feng**, Shaanxi Normal University
Title: Modelling and Analyzing Virus Mutation Dynamics of Chikungunya Outbreaks

14. **Hao Kang**, University of Miami
Title: Nonlinear Age-Structured Population Dynamics with Non-local Diffusion

15. **Jordi Ripoll**, Universitat de Girona
Title: Numerical implementation of R0 in population dynamics