

1145-34-1584 **Arielle Gaudiello*** (arielle@ucf.edu), 4393 Andromeda Loop N, Orlando, FL 32816, and
Zhisheng Shuai. *Impact of Asymmetric Movement on the Spatial Spread of Infectious Disease.* Preliminary report.

Spatial heterogeneity and rates of movement can have a large impact in the dynamics of an infectious disease. In this talk, we present an n -patch SIS model, incorporating both spatial heterogeneity and directed movement between populations. We assume mass action incidence, and disease-induced death rates. New global stability results are established utilizing a graph-theoretic approach and Lyapunov functions. Approximations for both the disease-free equilibrium and basic reproduction number are determined as the diffusion of human individuals are faster than the disease dynamics. Numerical simulations confirm validity of these approximations. (Received September 23, 2018)