1090-60-307 **Chi-Jen Wang*** (cjwang@iastate.edu), 396 Carver Hall, Ames, IA 50011, and **Da-Jiang Liu** and **James W. Evans**. *Wave and droplet solutions for a spatial epidemic model exhibiting a discontinuous transition to an all-healthy state.*

A population of sick and healthy individual resides on an infinite square lattice. Sick individuals spontaneously recover at rate p, and healthy individual become infected at rate O(1) if they have two or more sick neighbors. As p increases, the model exhibits a discontinuous transition from an infected to an all healthy state. Relative stability of the two states is assessed by exploring the propagation of planar interfaces separating them, although we find that equistability depends on orientation of the interface. We also explore the evolution of droplet-like configurations (e.g., an infected region embedded in an all healthy state). We analyze this stochastic model by applying truncation approximations to the exact master equations describing the evolution of non-uniform states. We thereby obtain a set of discrete (or lattice) reaction-diffusion equations amenable to numerical analysis. (Received March 04, 2013)