1154-60-1511 **Shirshendu Chatterjee**, **David Sivakoff** and **Matthew Wascher*** (wascher.1@osu.edu), Cockins Hall, 1958 Neil Ave, Columbus, OH 43210. *Survival dynamics for the contact process with avoidance on Z, Z_n, and the star graph.*

We consider the contact process with avoidance, a modified contact process, on directed graphs in which each healthy vertex can avoid each of its infected neighbors at rate α by turning off the directed edge from that infected neighbor to itself until the infected neighbor recovers. This model presents a challenge because, unlike the classical contact process ($\alpha = 0$,) it has not been shown to be an attractive particle system. We study the survival dynamics of this model on the lattice Z, the cycle Z_n, and the star graph. On Z, we show there is a phase transition in λ between almost sure extinction and positive probability of survival. On Z_n, we show that as the number of vertices $n \to \infty$, there is a phase transition between log and exponential survival time in the size of the graph. On the star graph, we show that as $n \to \infty$ the survival time is polynomial in n for all values of λ and α. This contrasts with the classical contact process where the the survival time on the star graph is exponential in n for all values of λ. (Received September 16, 2019)