

Abstract Submitted  
for the MAR15 Meeting of  
The American Physical Society

**The Statistical Mechanics of Zombies** ALEXANDER A. ALEMI, MATTHEW BIERBAUM, CHRISTOPHER R. MYERS, JAMES P. SETHNA, Cornell University — We present results and analysis from a large scale exact stochastic dynamical simulation of a zombie outbreak. Zombies have attracted some attention lately as a novel and interesting twist on classic disease models. While most of the initial investigations have focused on the continuous, fully mixed dynamics of a differential equation model, we have explored stochastic, discrete simulations on lattices. We explore some of the basic statistical mechanical properties of the zombie model, including its phase diagram and critical exponents. We report on several variant models, including both homogeneous and inhomogeneous lattices, as well as allowing diffusive motion of infected hosts. We build up to a full scale simulation of an outbreak in the United States, and discover that for ‘realistic’ parameters, we are largely doomed.

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Date submitted: 14 Nov 2014

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