

Abstract Submitted
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The Effects of Intrinsic Noise on an Inhomogeneous Lattice of Chemical Oscillators¹ MICHAEL GIVER, Brandeis University, ZAHERA JABEEN, University of Michigan, BULBUL CHAKRABORTY, Brandeis University — Intrinsic or demographic noise has been shown to play an important role in the dynamics of a variety of systems including biochemical reactions within cells, predator-prey populations, and oscillatory chemical reaction systems, and is known to give rise to oscillations and pattern formation well outside the parameter range predicted by standard mean-field analysis. Motivated by an experimental model of cells and tissues where the cells are represented by chemical reagents isolated in emulsion droplets, we study the stochastic Brusselator, a simple activator-inhibitor chemical reaction model. Our work extends the results of recent studies on the zero and one dimensional system to the case of a non-uniform one dimensional lattice using a combination of analytical techniques and Monte Carlo simulations.

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