

Abstract Submitted
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The effects of mobility on the one-dimensional four-species cyclic predator-prey model¹ DAVID KONRAD, MICHEL PLEIMLING, Virginia Tech
— The dynamics of a one-dimensional lattice composed of four species cyclically dominating each other is very much dependent on the rates of mobility in the system. We realize mobility as the exchange of two particles located at two nearest neighbor sites with some species dependent rate s . Allowing for only one particle per site, the different species interact cyclically, with species dependent consumption rate k , such that $k + s \leq 1$. When varying the exchange rates, we see vastly different behavior when compared to the three-species model. The patterns of domain growth and decay still show an overall power law behavior, however the fundamental trend of domain growth does not follow the three-species case. We also look at the space-time diagrams to see precisely how the domains form, grow, and decay.

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Michel Pleimling
Virginia Tech

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