

Abstract Submitted
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Biodiversity and co-existence of competing species¹ AHMED ROMAN, Virginia Tech, DEBANJAN DASGUPTA, University of Virginia, MICHEL PLEIMLING, Virginia Tech — Understanding why and how species co-exist is a necessary step to the program of manipulating multispecies environments in order to preserve the biodiversity of the environment of interest. To this end we consider a generalization of the cyclic competition of species model. We show that our model enjoys a Z_n symmetry which is explained via a simple graph theoretic technique. This symmetry gives rise to pattern formation and cluster coarsening of the species. We show that biodiversity is achievable in the mean field limit provided that the species in the clusters have reaction rates which correspond to non-trivial equilibria.

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