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Neutral species domination on different lattices for the symmetric stochastic cyclic competition of four species[1] BEN INTOY, Virginia Tech, SVEN DOROSZ, University of Luxembourg, MICHEL PLEIMLING, Virginia Tech
— Although the mean-field solution for four species in cyclic competition is generally in good agreement with stochastic results, it fails to describe the extinction and absorbing states that finite size systems inevitably fall into. We study the effects of dimension, lattice type, and swapping rate between particles on the time it takes for the system to go into a static absorbing state, which consists of a neutral species pair. The lattice types discussed include the well mixed environment, one-dimensional line with periodic and closed boundary conditions, the Sierpinski triangle, and the two-dimensional square with periodic and closed boundary conditions. All simulations are run with less than a thousand sites, as in the symmetric case extinction time dramatically increases with lattice size. We find that for some of the studied lattices there are long and short lived configurations.

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