Abstract Submitted
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Coarsening and biodiversity in cyclically competing species[1] BEN INTOY, MICHEL PLEIMLING, Virginia Tech — When four species compete stochastically in a cyclic way, the formation of two teams of mutually neutral partners is observed. We study through numerical simulations the extinction processes that can take place in this system both in the well mixed case as well as on different types of lattices [1]. The different routes to extinction are revealed by the probability distribution of the domination time, i.e. the time needed for one team to fully occupy the system. If swapping is allowed between neutral partners, then the probability distribution is dominated by very long-lived states where a few very large domains persist, each domain being occupied by a mix of individuals from species that form one of the teams. Many aspects of the possible extinction scenarios are lost when only considering averaged quantities as for example the mean domination time. We also discuss some results for a model where species, that compete in Rock-Paper-Scissor fashion, have mixed strategies rather than pure strategies. We compare the case with mixed strategy to the pure strategy case and look at similarities and differences.

[1] B. Intoy and M. Pleimling, J. Stat. Mech (2013) P08011.

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