

Abstract Submitted
for the SES13 Meeting of
The American Physical Society

Extinction in four species cyclic competition¹ 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. 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.

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

¹This work is supported by the US National Science Foundation through grant DMR-1205309.

Michel Pleimling
Virginia Tech

Date submitted: 12 Sep 2013

Electronic form version 1.4