

Abstract Submitted  
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**Effects of particle mobility in one-dimensional rock-paper-scissors games**<sup>1</sup> SIDDHARTH VENKAT, MICHEL PLEIMLING, Virginia Polytechnic Institute and State University — As the behavior of a system composed of cyclically competing species is strongly influenced by the presence of fluctuations, it is of interest to study cyclic dominance in low dimensions where these effects are the most prominent. We here discuss rock-paper-scissors games on a one-dimensional lattice where the interaction rates and the mobility can be species dependent. Allowing only single site occupation, we realize mobility by swapping particles of different species. When the interaction and swapping rates are species independent, a strongly enhanced swapping rate yields an increased mixing of the species, leading to a mean-field like coexistence even in one-dimensional systems. This coexistence is transient when the rates are asymmetric, and eventually only one species will survive. Interestingly, in our spatial games the surviving species can differ from the species that would survive in the corresponding zero-dimensional model. We identify different regimes in the parameter space and construct the corresponding dynamical phase diagram.

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