

1146-92-163

Robert Stephen Cantrell and **Chris Cosner*** (gcc@math.miami.edu). *Evolutionary stability of ideal free dispersal under spatial heterogeneity and time periodicity.*

The evolution of dispersal has been the subject of a considerable amount of interest in recent years. In the case of environments that are variable in space but static in time, it has been shown in several modeling contexts, including reaction-advection-diffusion equations and their spatially discrete or nonlocal analogues, that there are dispersal strategies that are evolutionarily stable, and those are the ones which can produce an ideal free distribution of the population. This talk will describe an extension of such ideas and results to reaction-diffusion-advection models in certain situations where the environment is periodic in time, specifically when the total amount of resources in the environment is constant but the location of the resources is time dependent. One difference between the static and time varying cases is that in the static case, for reaction-advection-diffusion equations, it is possible to choose strategies leading to an ideal free distribution that use only spatially local information. In the analogous time periodic cases, it appears that nonlocal spatial information is required. (Received January 19, 2019)