Condensed Matter Seminar

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“Coarsening with non-trivial in-domain dynamics and dynamically generated hierarchies in predator-prey games”

Monday, February 4, 2019

4:00pm – 5:00pm

304 Robeson Hall

Spatial many-species predator-prey systems have been shown to yield very rich space-time patterns. We study the effects of non-trivial in-domain pattern formations in the context of a six-species predator prey game which exhibits growing domains composed of three species in a rock-paper-scissors relationship. Through the investigation of different quantities, such as space-time correlations and the characteristic length, and interface width we demonstrate that the non-trivial dynamics inside the domains affects the coarsening process as well as the properties of the interfaces separating the domains. A nine-species game is also introduced characterized by the spontaneous formation of spirals within spirals. The properties of these nested spirals are investigated through similar quantities including the temporal Fourier analysis of species density.