

**Joint Condensed Matter  
and Center for Soft Matter and  
Biological Physics Seminar**

**James Stidham**

**(Physics, Virginia Tech)**

**“Asymmetric Cyclic Predator-prey Systems”**

**Monday, November 1, 2021**

**4:00pm – 5:00pm**

**In Person and Virtual :**

**Zoom Link:** <https://virginiatech.zoom.us/j/83423730585>

Population dynamics is a rich and diverse field with applications in many other fields as for example lasers and chemistry. Cyclic predator-prey systems have been studied both at the mean field and microscopic level. Using a microscopic description of these interactions on a two-dimensional lattice we introduced asymmetries in these models. Using a spatial distribution of asymmetric rates we explore the effect on the system when a species has a chance to escape predation in a "habitat". This leads to interesting changes in the hierarchy of species and to different space-time patterns. Also we examine the effect of asymmetry on roughness of the interface separating competing teams in many species systems.