

Center for Soft Matter and Biological Physics

Discussion Meeting

Shadi Esmaeili

Physics Dept. Virginia Tech

An Exploration of Characteristics of System of Kuramoto Oscillators

Friday, July 6, 2018

1:30 pm—2:30 pm

304 Robeson Hall

Coupled oscillators and emergent synchronized patterns can be found in many phenomena in nature. Kuramoto model is the simplest model of coupled oscillators with an exact solution that can explain many such phenomena. By choosing a proper coupling constant and topology the system shows multi-stability. Also, by choosing non-homogeneous frequencies long period orbits emerge in the system. We study the effects of the change in different parameters of the system (e.g. coupling constant and width of frequency distribution) as well as the response of the system to external noise.