



## **Center for Soft Matter and Biological Physics**

### **Discussion Meeting**

**Ruslan Mukhamadiarov**

**(Physics, Virginia Tech)**

**"Nonlinear Dynamics and Chaos: Limit Cycles and 2-D Bifurcations"**

**Friday, June 28, 2019**

**1:30pm - 2:30pm**

**304 Robeson Hall**

Ubiquitous in nature, limit cycles are inherently nonlinear phenomena that can model systems with self-sustained oscillations. I am going to outline the existence conditions for the limit cycles, and I will show how the concept of limit cycles can be applied to study nonlinear oscillation problems.

In the second part of the talk we will revisit the bifurcations and extend the concepts that we covered in the first meeting to the phase plane. I am also going to consider the other possible scenarios that arise in two dimensions, namely Hopf bifurcations and global bifurcations of cycles.

