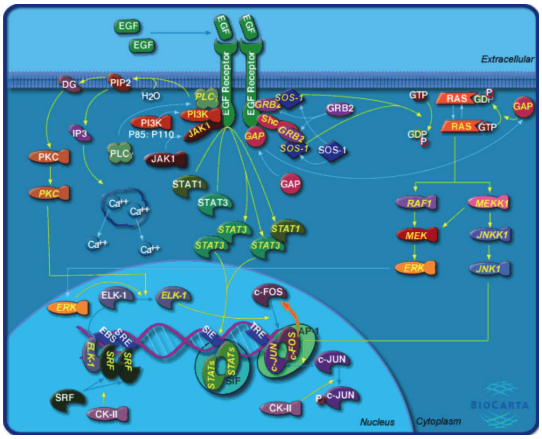
Student Research Talks (StReeTs)

Mason Experimental Geometry Lab (MEGL)

Adaptability Conditions in Biological Networks

Tracey Oellerich
Department of Mathematics Sciences
George Mason University



Abstract

Adaptation is a fundamental feature in biological systems. In certain complex biological networks, such as signal transduction, gene regulation, and protein interaction networks, we see the system returning to set activity levels following changes in their environment. The question remains as to how these networks manage to adapt to these changes. The goal is to identify factors that could indicate that a system will exhibit Robust Perfect Adaptation (RPA). We will examine the relationship between homeostatic systems and systems which exhibit RPA. Furthermore, we will discuss adaptability conditions for biological networks which include singular systems with non-hyperbolic equilibria.

Date: Friday, September 13, 2019
Time: 2:30pm–3:20pm
Place: Exploratory Hall 4106

Pizza and soda will be served at the presentation.

For further information or for special accommodations (including dietary restrictions), please contact Tracey Oellerich or Cigole Thomas via email at `toelleri@gmu.edu or cthoma40@gmu.edu` by Thursday.