

Modeling Dynamics of Gene Networks

Paul Aaron Scott, Georgia Southern University

The complexity of cell cycle control renders a significant barrier to understand its function at a network level. In this talk, we present mathematical modeling of such network evolution through modern graph theoretical tools and systems of differential equations. First we use data from the stationary distribution of random walks to model the dynamics of gene expression in the network. Then these individual sequences of data are used to set up systems of differential equations that are later used to predict the behavior of each key gene in a cell cycle.

Keywords: network, random walk, system of differential equations