1117-92-286 **David Murrugarra*** (murrugarra@uky.edu), Department of Mathematics, University of Kentucky, Lexington, KY 40506. *Estimating Propensity Parameters using Google PageRank and Genetic Algorithms.*

Stochastic Boolean networks, or more generally stochastic discrete networks, are an important class of computational models for molecular interaction networks. The stochasticity stems from the updating schedule. The standard updating schedules include the synchronous update, where all the nodes are updated at the same time and gives a deterministic dynamic, and the asynchronous update, where a random node is updated at each time step that gives a stochastic dynamics. A more general stochastic setting considers propensity parameters for updating each node. SDDS is a modeling framework that considers two propensity values for updating each node, one when the update has a positive impact on the variable, that is, when the update causes the variable to increase its value, and the other when the update is negative, that is, when the update causes it to decrease its value. This extension adds a complexity in parameter estimation of the propensity parameters. This talk presents a method for estimating the propensity parameters for SDDS. The method is based on adding noise to the system using the Google PageRank approach to make the system ergodic and and then with the use of a genetic algorithm the propensity parameters are estimated. (Received January 16, 2016)