1138-92-309 **Rachel Leander*** (rachel.leander@mtsu.edu), **Zack Jones**, **Vito Quaranta**, **Leonard Harris** and **Darren Tyson**. *A Drift-Diffusion Checkpoint Model Predicts a Highly Variable and Growth-Factor-Sensitive Portion of the Cell Cycle G1 Phase.*

Even among isogenic cells, the time to progress through the cell cycle, or the intermitotic time (IMT), is highly variable. This variability has been a topic of research for several decades and numerous mathematical models have been proposed to explain it. Recently, we developed a stochastic model of cell cycle progression as it is determined by sequential cell cycle checkpoints. This model, which describes each checkpoint as a drift-diffusion process coupled to a threshold, is called the drift-diffusion threshold (DDT) model. In this talk, I will discuss a custom numerical method for the estimation of the DDT model's parameters, and then present descriptive and predictive results obtained by applying the model to individual-cell data. (Received February 12, 2018)