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**Michele L Joyner\*** (joynerm@etsu.edu), **Chelsea R Ross**, **Colton Watts** and **Thomas C Jones**. *A Stochastic Simulation Model for Anelosimus studiosus during Prey Capture.*

In this talk we derive a stochastic differential equation model to simulate the movement of a social/subsocial spider species, *Anelosimus studiosus*, during prey capture using experimental data collected in a structured environment. In a subsocial species, females and their maturing offspring share a web and cooperate in web maintenance and prey capture. Furthermore, observations indicate these colonies change their positioning throughout the day, clustered during certain times of the day while spaced out at other times. One key question was whether or not the spiders spaced out “optimally” to cooperate in prey capture. We first show the derivation of the model using experimental data to determine key parameters within the model. We then discuss possible spatial configurations for maximal prey capture using the model to simulate a spider path at feeding time. (Received August 30, 2013)