1154-92-116 **Lauren R Dickman** (lrjohns7@asu.edu), **Evan Milliken*** (evan.milliken@asu.edu) and **Yang Kuang** (kuang@asu.edu). *Global analysis of a model of dendritic cell therapy for melanoma.* Preliminary report.

Melanoma, the deadliest form of skin cancer, is regularly treated by surgery in conjunction with a targeted therapy or immunotherapy. Dendritic cell (DC) therapy is an immunotherapy that capitalizes on the critical role dendritic cells play in shaping the immune response. Previous models of DC therapy were to complex to allow for extensive mathematical analysis. In this talk, a reduced model of DC therapy is presented. This model is simple enough to allow for mathematical analysis. At the same time, the model retains important interactions and remains complex enough to provide a good fit to murine data. Mathematical analysis and simulation reveals rich dynamics including backward bifurcation and Hopf bifurcation, which are both likely artifacts of a Bogdenov-Takens bifurcation that occurs on the boundary of the biologically relevant parameters space. The model, bifurcation analysis, and conditions for tumor persistence are presented along simulations and discussion. (Received August 09, 2019)