

1116-AA-527      **Ami Radunskaya\*** (aer04747@pomona.edu), Math Department, Pomona College, 610 N. College Ave., Claremont, CA 91711. *Mathematically informed cancer vaccines.*

Novel treatments for cancer that boost an individual's immune response to cancer are the focus of current clinical trials and laboratory research. One of the challenges in the design of cancer vaccines is blocking the tumor's ability to suppress immune effectiveness while stimulating the immune response. To overcome this challenge, delivery mechanisms are being designed that package several treatments together. The big questions are the timing and size of the dose, and the rate of release of each substance.

In this talk, we develop a mathematical model using differential equations to describe the interactions between antigen presenting cells (stimulated by the vaccine), other immune cells and tumor cells. The model also captures some aspects of the trafficking of cells through the body, as well as the delivery of the vaccine and other agents. This model, along with mathematical tools from control theory and dynamical systems, can be used to suggest answers to the questions posed by clinicians. (Received September 05, 2015)