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Caleb L Adams* (cadams5@radford.edu), PO Box 6942, Radford University, Radford, VA
24142. *Dynamics of a Two-Vector, Two-Pathogen, Two-Host Model*. Preliminary report.

In this talk, the speaker will present recent theoretical results from the dynamics of a two-vector, two-pathogen, two-host model. A system of ordinary differential equations is used to model the dynamics of two vector-borne pathogens (*Rickettsia parkeri* and *Rickettsia amblyommii*) that are increasingly found within tick populations of Virginia spread by two species of ticks (*Amblyomma maculatum* and *Dermacentor variabilis*), within a dual host system. Three methods of transmission are included in the model: vector-borne, transovarial, and co-feeding. Results of numerical simulations are presented and determine a range of parameter values which lead to coexistence of the two pathogens and values which lead to the extinction of one pathogen and persistence of the other. (Received September 20, 2016)