

THE COLLEGE OF SCIENCES AND MATHEMATICS &
THE R. W. YEAGY COLLOQUIUM PRESENT:

**Oscillations in an intrahost model
of *Plasmodium falciparum*
Malaria due to Cross-Reactive
Immune Response**

by

Jonathan Mitchell

Southern Methodist University

(an SFA alumnus)

**MONDAY, APRIL 20 @ 3:30PM,
MATH BUILDING 357**

We consider an intrahost model of malaria that allows for antigenic variation within a single species. More specifically, the host's immune response is compartmentalized into reactions to major and minor epitopes. We investigate parameter conditions that lead to transient oscillations, which correspond to recurrent clinical episodes of the diseases. We then investigate how a small delay in the activation of the immune response can lead to persistent oscillations and then describe how the disease parameters affect the severity and duration of the disease episodes.