



NIMBioS

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NIMBioS Interdisciplinary Seminar

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Mathematical, Computational & Modeling Sciences Center

Arizona State University

3:30 p.m.**, **Thursday**, February 21, 2013

Hallam Auditorium, Rm 206, Claxton Education Building, 1122 Volunteer Blvd.

“Estimating biting rates of triatomine on preferred sylvatic hosts in overlapping vector-host cycles”

The parasite *Trypanosoma cruzi*, spread by triatomine vectors, affects more than 100 mammalian species throughout the Americas, including humans, in whom it causes Chagas' disease. In the U.S., only a few cases have been documented of human infection by vectors, but prevalence is high in sylvatic hosts (primarily raccoons in the southeast and woodrats in Texas). The sylvatic transmission of *T. cruzi* is spread by the vector species *Triatoma sanguisuga* and *Triatoma gerstaeckeri* biting their preferred hosts and thus creating multiple interacting vector-hosts cycles. The goal of this study is to quantify the number of contacts between different host and vector species in Texas from an agent-based model framework. The contact rates, which represent bites, are required to estimate transmission coefficients, which can be applied to models of infection dynamics.

**Join us for refreshments at 3 p.m. *in the 1st floor visitor breakroom.*

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The National Institute for Mathematical and Biological Synthesis (NIMBioS) brings together researchers from around the world to collaborate across disciplinary boundaries to investigate solutions to basic and applied problems in the life sciences. NIMBioS is sponsored by the National Science Foundation, the U.S. Department of Homeland Security, and the U.S. Department of Agriculture with additional support from The University of Tennessee, Knoxville.