

**Title:** Evolving Healthy Populations

**Speaker:** Nina H. Fefferman

**Panel:** Behavior, Control, and Emergent Behavior in Ecological and Epidemiological Systems

**Panel Organizers:** Carlos Castillo-Chavez and Benjamin Morin

**Abstract:** Social species inherently experience greater risks of infectious disease outbreaks than do solitary species. The greater the reliance on social function for continued survival/reproduction, the greater the risks participating individuals face of catching infections from each other. Studies that have explored the evolution of social systems frequently show how selection that favors cooperation/the emergence of sociality is predicated on repeated interactions (at least over generations), but as expected repetition of contact increases, so do the social benefits and so do the disease risks. In this talk, we'll show how selective pressure to minimize disease transmission risks can favor particular types of individual social behaviors over others, while still allowing for very similar individual- and group-level benefits from sociality.