**THE UNIVERSITY OF ALABAMA IN HUNTSVILLE**

**MATHEMATICAL SCIENCES COLLOQUIUM**

**Dr. Wenzhang Huang**

The Department of Mathematical Sciences

The University of Alabama in Huntsville

**Traveling Wave Solutions for Diffusive**

**Predator-Prey Systems**

 **DATE: Friday, August 28, 2015**

 **TIME: 3:00 p.m. – 4:00 p.m.**

 **PLACE: Shelby Center 219**

The reaction-diffusion systems, which have been frequently used as the models for many problems in physics, chemistry and biology, can give rise to important solutions – the wave solutions. In this talk we begin with a brief introduction to the history and development of research done on the traveling wave solutions for reaction-diffusion systems. We then present a recently developed method to study the existence of traveling wave fronts for a general class of models of predator-prey interaction described by reaction-diffusion systems. Our approach consists of a geometrical shooting argument and an analytic method by the construction of a Liapunov function and the use of Lasalle's invariance principle. Our approach can be extended to larger class of reaction-diffusion systems, such as the models of combustion, Belousov-Zhabotinskii reaction, SI-type of disease transmission, and the model of chemostat.

**Refreshments will be served at 2:30 p.m. in SC 201 suite landing.**