

Applied Dynamical Systems Seminar

Mr. Jia-Bing Wang
Lanzhou University, China

Wednesday, October 26, 2016
2:00p.m., HH-3017

Entire solutions of nonlocal dispersal equations with monostable nonlinearity in space periodic habitats

Abstract:

This talk will focus on the issue about entire solutions for some evolutionary systems, mainly including the existence and qualitative properties. In particular, we are concerned with new types of entire solutions other than traveling wave solutions of nonlocal dispersal equations with monostable nonlinearity in space periodic habitats. We first establish the existence and properties of spatially periodic solutions connecting two steady states. Then new types of entire solutions are constructed by combining the rightward and leftward pulsating traveling fronts with different speeds and a spatially periodic solution. Finally, for a special class of heterogeneous reactions, we further establish the uniqueness of entire solutions and the continuous dependence of such an entire solution on parameters, such as wave speeds and the shifted variables. In other words, we build a five-dimensional manifold of solutions and the traveling wave solutions are on the boundary of the manifold. This talk is based on a joint work with Dr. Wan-Tong Li and Ms. Li Zhang.