Discrete Mathematics Seminar

Time: Friday, 21 February 2014, 1:00-2:00 PM
Room: 238 Derrick Hall
Title: Mathematical Modeling and its dynamical analysis
Speaker: Dr. Hunseok Kang, Soongsil University, Seoul Korea

Abstract:

1) In the first part, I present a mathematical study of a particular process in the brain. The research aims to establish a theoretical model at computational level of the mechanism in a cognitive process operated by the mirror-neuron system, to generate a multi-dimensional system from this model, and to analyze the fundamentals of the related cognitive process in terms of dynamical systems. Finally, to understand the interactions between two individual mirror-neuron systems, we formulate and examine coupled systems that are composed of two distinct systems.

2) In the second part, I present a study of wormlike micellar fluids collaborated with Prof. Young Ju Lee. We mathematically analyze a conservative ODE system with three species model in terms of dynamical systems, which can be extended to PDE system. With numerical simulations, we find that our model is capable of capturing rheological properties of wormlike micellar fluids.