

Joint Colloquium Talk

Dept of Mathematics & IMS

Modeling and Analysis of Collective Behavior of Self-propelled Agents

by

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Date & Time : 19 Aug 2009 (Wed), 2:00 pm
Venue : Colloquium Room A (S14, #03-10)

Abstract

Collective behavior of self-propelled agents (representing birds, fishes, auto cars, etc) such as flocking, swarming, trail formulation, attract much of recent research activities in applied mathematics. In this talk, I will discuss some recent developments in modeling and analysis of these emergence behavior. In particular, I will present some analysis of flocking estimates for Cucker-Smale modes, Vicsek modes for birds and fish. I will discuss connection and passage between particles model, kinetic model and continuum model of these self-propelled agents. I will also present some analysis on short path statistics, a recent developed subject with many applications including collective behavior.

Brief Biography

Professor Jian-Guo Liu is currently at Department of Physics and Department of Mathematics, Duke University. He obtained his PhD from Department of Mathematics at UCLA in 1990. His research interests include analysis and computation of nonlinear partial differential equations arising in fluid dynamics and materials science, computational fluid dynamics, numerical analysis, scientific computing and applied mathematics in general. He is currently the Managing Editors of the Journal of Hyperbolic Differential Equations and the journal of Methods and Applications of Analysis.

- *Light Refreshments will be served after the talk.*

