# KI-Net: Kinetic description of emerging challenges in multiscale problems of natural sciences

An NSF Research Network in Mathematical Sciences

# Transport Models for Collective Dynamics in Biological Systems

## January 15-19, 2013

**SAS Hall, Department of Mathematics**
**North Carolina State University**

## Organizers

| | |
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| **Sébastien Motsch** | University of Maryland |
| **Benoît Perthame** | Université Pierre et Marie Curie |
| **Eitan Tadmor** | University of Maryland |

## Confirmed Participants

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**Limited number of openings available.**
To apply, complete the application before
**November 2, 2012**

For more information and to apply:
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$t=10^{-5}$



$t=4.4 \cdot 10^{-5}$
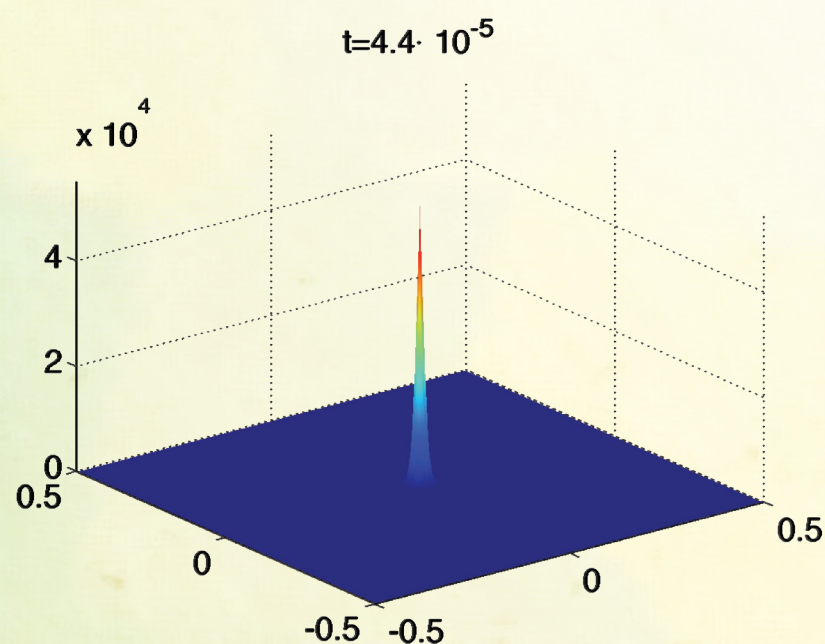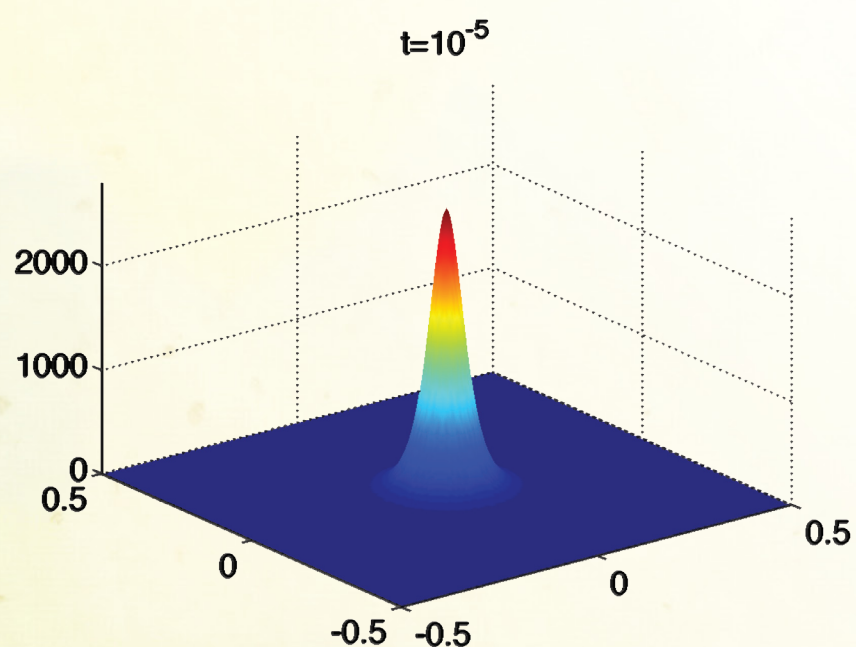
Images courtesy of Alina Chertock, Alexander Kurganov

## Scientific Background

The emergence of collective dynamics is a fascinating phenomenon which arises in different context of biological systems. Many such systems are modeled by transport equations which contain new mathematical difficulties with many open questions for both numerical and analytical studies. Moreover, many of these biological systems are multiscale phenomenon leading to both microscopic and macroscopic descriptions.

## Goals

To stimulate interdisciplinary discussions on new developments, with a particular focus on comparing models, experimental data and numerical studies. A second line of discussions will focus on the new mathematical challenges raised by these models, e.g. link between micro and macro descriptions, complex traffic optimization and pattern formation.

**KI-Net Hubs**