



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

An NSF Research Network in Mathematical Sciences



## Conference Announcement

# Kinetic Theory for the Emergence of Complex Behavior in Social and Economic Systems

February 22-24, 2013

Center for Social Dynamics and Complexity  
Arizona State University

## Organizers

<b>Dieter Armbruster</b>	Arizona State University
<b>Irene M. Gamba</b>	University of Texas at Austin
<b>Christian Ringhofer</b>	Arizona State University

## Confirmed Participants

<b>Athena Aktipis</b>	Arizona State University
<b>Dieter Armbruster</b>	Arizona State University
<b>Benjamin Armbruster</b>	Northwestern University
<b>Ron Askin</b>	Arizona State University
<b>Dirk Brockman</b>	Northwestern University
<b>Alina Chertock</b>	North Carolina State University
<b>Irene M. Gamba</b>	University of Texas at Austin
<b>Michael Herty</b>	RWTH Aachen University
<b>Reinhard Illner</b>	University of Victoria, Canada
<b>Nicolas Lanchier</b>	Arizona State University
<b>C. Dave Levermore</b>	University of Maryland
<b>Doron Levy</b>	University of Maryland
<b>Edward MacKerrow</b>	Los Alamos National Laboratory
<b>Sébastien Motsch</b>	University of Maryland
<b>Vladislav Panferov</b>	California State University, Northridge
<b>Christian Ringhofer</b>	Arizona State University
<b>Ravi Srinivasan</b>	University of Texas at Austin
<b>Milind Tambe</b>	University of Southern California
<b>Paul Torrens</b>	University of Maryland
<b>Bernt Wennberg</b>	Chalmers University, Sweden

## Scientific Background

Kinetic theory describes the stochastic interaction of many particles or agents via high dimensional evolution equations of probability densities. Computationally tractable, low dimensional equations for macroscopic observables (emergence) are obtained via asymptotics for large time scales and many agents. This follows the recipe of Boltzmann's kinetic gas theory, leading to the basic equations of gas dynamics in the limit.

## Goals

To bring together applied mathematicians, social scientists and engineers to discuss:

- The most interesting and promising fields in social sciences and economics, their research questions and the possibilities and obstacles for a kinetic description.
- The possibilities of an aggregate mathematical description of multi-agent simulations, its successes and its limitations.
- The use of kinetic models in these disciplines - qualitative and quantitative models, their validation and their predictive power.

**A limited number of openings are available.**

To apply, complete the online application before  
**January 15, 2013.**

For more information and to apply:

[www.ki-net.umd.edu](http://www.ki-net.umd.edu)

The conference follows the KI-Net winter school on "An Introduction to Kinetic Models in the Emergence of Complex Behavior in Social and Economic Systems" to be held at the Institute for Computational Engineering and Sciences, University of Texas at Austin, February 18-21, 2013.

