



# FLOWS AND NETWORKS IN COMPLEX MEDIA

April 27 – May 1, 2009

**ORGANIZING COMMITTEE:** **M. C. Carvalho** Georgia Tech, **Karl Kempf** Intel Corporation, **Stephan Mischler** Université de Paris IX (Paris-Dauphine), **Beneditto Piccoli** (CNR), **Christian Ringhofer** Arizona State University

## Scientific Overview

This workshop will be directed towards particle flows in complex topologies, either given in the form of networks and graphs, or in the form of random or quasi - periodic media. The aim of the workshop will be to bring together an interdisciplinary group of researchers in different areas such as traffic flow simulation, supply chain management and physical flows in random media. These areas share a number of common challenges and require therefore the usage of similar mathematical toolboxes. These challenges include the incorporation of the stochasticity of the flow and the topology into averaged macroscopic models via appropriate homogenization methods, the existence of intermediate regimes, consisting only of a limited number of cars, clients or particles, and the resulting need to develop hybrid modeling tools linking particle and discrete event simulation models to macroscopic fluid equations.

## Confirmed Speakers

**Dieter Armbruster** (Arizona State), **Francois Baccelli** (INRIA-ENS Paris), **Guillaume Bal** (Columbia University), **M. C. Carvalho** (Georgia Institute of Technology), **Jim G. Dai** (Georgia Tech), **Bruno Despres** (CEA, Paris), **Ingenuin Gasser** (Universität Hamburg), **Simone Goettlich** (Universität Kaiserslautern), **Ken Golden** (University of Utah), **Clemens Heitzinger** (Universität Wien), **Dirk Helbing** (Eidgenössische TH Hönggerberg), **Michael Herty** (Universität Kaiserslautern), **Reinhard Illner** (University of Victoria), **Tong Li** (University of Iowa), **Hubert Missbauer** (Leopold-Franzens Universität Innsbruck), **George Papanicolaou** (Stanford), **Benedetto Piccoli** (Nazionale delle Ricerche), **Michel Rascle** (Université de Nice Sophia Antipolis), **Sidney Redner** (Boston Univ.), **Leonid Ryzhik** (University of Chicago), **Panagiotis Souganidis** (Univ. of Texas), **Herbert Spohn** (Univ. of Munich), **Joachim von Below** (Université du Littoral)

## Long Program Schedule

This workshop is part of the long program "Quantum and Kinetic Transport: Analysis, Computations, and new Applications," March 9 – June 12, 2009:

- Tutorials, March 10 – 13, 2009
- Workshop 1: Computational Kinetic Transport and Hybrid Methods, March 30 – April 3, 2009
- Workshop 2: The Boltzmann Equation: DiPerna-Lions Plus 20 Years, April 15 – 17, 2009
- **Workshop 3: Flows and Networks in Complex Media, April 27 – May 1, 2009**
- Workshop 4: Asymptotic Methods for Dissipative Particle Systems, May 18 – 22, 2009
- Culminating Workshop at Lake Arrowhead Conference Center, June 7 – 12, 2009

## Participation

Additional information about this workshop including links to register and to apply for funding, can be found on the webpage listed below. Encouraging the careers of women and minority mathematicians and scientists is an important component of IPAM's mission, and we welcome their applications.

[www.ipam.ucla.edu/programs/ktws3](http://www.ipam.ucla.edu/programs/ktws3)



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