



Asymptotic Methods for Dissipative Particle Systems

• May 14-18, 2009

ORGANIZING COMMITTEE: ERIC CARLEN (RUTGERS/G.TECH) CHAIR, IRENE GAMBA (U.T. AUSTIN), PETER MARKOWICH (U. VIENNA), MARIO PILVIRENTI (ROMA, ITALY), ROBERT PEGO (CARNEGIE-MELLON), ANNE NOURI (U. MARSEILLES, FRANCE), CEDRIC VILLANI (ENS, LYON)

Scientific Overview

Asymptotic methods for dissipative particle systems have been emerging over the last decade out of a number of streams of research that involve kinetic and complex particle systems, modeling the evolution of probability distributions of various kinds. In many cases where classical macroscopic models fail, interesting non-classical states have been found. Examples of such systems have been recently reported in rapid granular flows, coalescence-breakage models for jet-bubble flows, coagulation-fragmentation processes, cooling effects in gas mixtures involving chemical reactions, soft condensed matter, social-science-related applications such as the modeling of swarms, opinion formation, wealth distribution, economic models related to decision making, and pedestrian and evacuation dynamics.

It is the goal of this workshop to bring together researchers from diverse areas, including statistical mechanics, particle systems, probability theory and applications, to discuss developing areas of non-conservative dynamics and the emergence of non-equilibrium statistical states, and to explore potential applications in the natural and social sciences.

Confirmed Speakers

Eli Ben-Naim (Los Alamos National Laboratory), **María Caceras** (University of Granada), **Silvia Caprino** (Università degli Studi di Roma "Tor Vergata"), **Eric Carlen** (Rutgers), **Miguel Escobedo** (Universidad del País Vasco), **Raffaele Esposito** (Università di L'Aquila), **Ester Gabetta** (Università di Pavia), **Irene Gamba** (University of Texas, Austin), **Ray Goldstein** (University of Cambridge), **Thierry Goudon** (CNRS & Université Lille 1, Laboratoire Paul Painlevé), **Phillippe Laurecot** (Université de Toulouse I (Sciences Sociales)), **Xuguang Lu** (Tsinghua University), **Jani Lukkarinen** (University of Helsinki), **Peter Markowich** (University of Cambridge), **Rossana Marra** (Università degli Studi di Roma "Tor Vergata"), **Govind Menon** (Brown University), **Clément Mouhot** (Université de Paris IX (Paris-Dauphine)), **Anne Nouri** (Université d'Aix-Marseille I (Université de Provence)), **Lorenzo Pareschi** (Università di Ferrara), **Robert Pego** (Carnegie-Mellon University), **Mario Pulvirenti** (Università di Roma "La Sapienza"), **Fraydoun Rezakhanlou** (UC Berkeley), **Wolfgang Wagner** (Weierstraß-Institut für Angewandte Analysis und Stochastik (WIAS)), **Bernt Wennberg** (Chalmers University of Technology)

Long Program Schedule

This workshop is part of the Long Program "Quantum and Kinetic Transport"

- 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/ktws4



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