

Quantum and Kinetic Transport: Tutorials

Tuesday March 10, 2009

- 8:00–9:00 *Check-In/Light Breakfast (Hosted by IPAM)*
- 9:00–10:00 **Christian Ringhofer** (Arizona State University)
Tutorials: Day 1
- 10:00–10:30 *Break*
- 10:30–11:30 **Shi Jin** (University of Wisconsin-Madison)
Semiclassical computational methods for quantum mechanics
- 11:30–12:00 *Core Orientation with IPAM Staff*
- 12:00–2:00 *Lunch (on your own)*
- 2:00–3:00 **Thierry Goudon** (Institut National de Recherche en Informatique Automatique (INRIA))
Tools for the mathematical analysis of kinetic equations and related models 1: Introduction to kinetic models and basic properties
- 3:00–3:30 *Break*
- 3:30–4:30 **Lorenzo Pareschi** (Università di Ferrara)
Monte Carlo methods for kinetic equations 1: Kinetic equations and their computational challenges

Wednesday March 11, 2009

- 8:00–9:00 *Continental Breakfast*
- 9:00–10:00 **Christian Ringhofer** (Arizona State University)
Tutorials: Day 2
- 10:00–10:30 *Break*
- 10:30–12:00 **Shi Jin** (University of Wisconsin-Madison)
Asymptotic-preserving methods for kinetic problems in the fluid regime
- 12:00–2:00 *Lunch (on your own)*
- 2:00–3:00 **Thierry Goudon** (Institut National de Recherche en Informatique Automatique (INRIA))
Tools for the mathematical analysis of kinetic equations and related models 2: A collisionless model: the Vlasov-Poisson system
- 3:00–3:30 *Break*
- 3:30–4:30 **Lorenzo Pareschi** (Università di Ferrara)
Monte Carlo methods for kinetic equations 2: Classical Monte Carlo methods



Thursday March 12, 2009

- 8:00–9:00 *Continental Breakfast*
- 9:00–10:00 **Christian Ringhofer** (Arizona State University)
Tutorials: Day 3
- 10:00–10:30 *Break*
- 10:30–12:00 **Shi Jin** (University of Wisconsin-Madison)
Kinetic-Hydrodynamics Coupling
- 12:00–2:00 *Lunch (on your own)*
- 2:00–3:00 **Thierry Goudon** (Institut National de Recherche en Informatique Automatique (INRIA))
Tools for the mathematical analysis of kinetic equations and related models 3: Diffusion approximation: the Rosseland approximation
- 3:00–3:30 *Break*
- 3:30–4:30 **Lorenzo Pareschi** (Università di Ferrara)
Monte Carlo methods for kinetic equations 3: Methods for the fluid-limit

Friday March 13, 2009

- 8:00–9:00 *Continental Breakfast*
- 9:00–10:00 **Christian Ringhofer** (Arizona State University)
Tutorials: Day 4
- 10:00–10:30 *Break*
- 10:30–11:30 **Thierry Goudon** (Institut National de Recherche en Informatique Automatique (INRIA))
Tools for the mathematical analysis of kinetic equations and related models 4: Hydrodynamic limits and hyperbolic equations
- 11:30–12:00 *Break*
- 12:00–1:00 **Lorenzo Pareschi** (Università di Ferrara)
Monte Carlo methods for kinetic equations 4: Variance reduction techniques

