

## Workshop I: Computational Kinetic Transport and Hybrid Methods

### Monday March 30, 2009

- 8:00–8:50 *Check-In/Light Breakfast (Hosted by IPAM)*
- 8:50–9:00 *Welcome and Opening Remarks*
- 9:00–9:50 **Shi Jin** (University of Wisconsin-Madison)  
*An Eulerian Gaussian Beam Method for High Frequency Waves*
- 10:00–10:15 *Break*
- 10:15–11:05 **Anton Arnold** (Technische Universität Wien)  
*Asymptotically Correct Finite Difference Schemes for Highly Oscillatory ODEs*
- 11:15–11:30 *Break*
- 11:30–12:20 **Giovanni Russo** (Università di Catania)  
*Semilagrangian Schemes for the BGK Model of the Boltzmann Equation*
- 12:30–2:30 *Lunch (on your own)*
- 2:30–3:20 **Victor Batista** (Yale University)  
*The MP/SOFT Method: Quantum Propagation of Wave Packets and Density Matrices*
- 3:30–4:00 *Break*
- 4:00–4:50 **Haobin Wang** (New Mexico State University)  
*Multilayer Formulation of the Multiconfiguration Time-Dependent Hartree Theory*
- 5:00–7:00 *Reception and Poster Session (Hosted by IPAM)*

### Tuesday March 31, 2009

- 8:15–9:00 *Continental Breakfast*
- 9:00–9:50 **Russel Cafilisch** (University of California, Los Angeles (UCLA))  
*Simulation of Coulomb Collisions for Plasma Kinetics*
- 10:00–10:15 *Break*
- 10:15–11:05 **Frank Graziani** (Lawrence Livermore National Laboratory)  
*Molecular Dynamics of Hot, Dense Radiative Plasmas*
- 11:15–11:30 *Break*

*(Tuesday schedule continued on next page)*



*(Tuesday schedule continued from previous page)*

- 11:30–12:20 **Andrew Christlieb** (Michigan State University)  
*A Conservative High Order Semi-Lagrangian WENO Vlasov Solver Based on Point Value Evolution*
- 12:30–2:30 *Lunch (on your own)*
- 2:30–3:20 **Jim Morel** (Texas A&M University - College Station)  
*Preconditioners for Thermal Radiation Transport*
- 3:30–4:00 *Break*
- 4:00–4:50 **Robert Lowrie** (Los Alamos National Laboratory)  
*The Structure of Radiative Shocks*

### Wednesday April 1, 2009

- 8:15–9:00 *Continental Breakfast*
- 9:00–9:50 **Chi-Wang Shu** (Brown University)  
*A Discontinuous Galerkin Solver for Boltzmann Poisson Systems in Nano Devices*
- 10:00–10:15 *Break*
- 10:15–11:05 **Jose Carrillo** (Autonomous University of Barcelona)  
*A Deterministic Solver for a Hybrid Quantum-Classical Transport Model in NanoMOSFETs*
- 11:15–11:30 *Break*
- 11:30–12:20 **Kyle Novak** (Air Force Institute of Technology)  
*A Semiclassical Transport Model for Quantum Barriers*
- 12:30–2:30 *Lunch (on your own)*
- 2:30–3:20 **Eric Cancès** (École Nationale des Ponts-et-Chaussées)  
*Interacting Electrons in Semiconductors and Nanodevices: A Mathematical Introduction to Density Functional Theory*
- 3:30–4:00 *Break*
- 4:00–4:50 **Marie-Helene Vignal** (Université de Toulouse III (Paul Sabatier))  
*Asymptotic-Preserving Particle-In-Cell Method for the Vlasov-Poisson System Near Quasineutrality*

### Thursday April 2, 2009

- 8:15–9:00 *Continental Breakfast*
- 9:00–9:50 **Hailiang Liu** (Iowa State University)  
*Recovery of High Frequency Wave Fields from Phase Space Based Measurements*
- 10:00–10:15 *Break*

*(Thursday schedule continued on next page)*

*(Thursday schedule continued from previous page)*

- 10:15–11:05 **William Dorland** (University of Maryland)  
*Kinetic Effects in Fluid Turbulence*
- 11:15–11:30 *Break*
- 11:30–12:20 **Luc Mieussens** (Université de Bordeaux II (Victor Segalen))  
*On the Use of the Micro-Macro Decomposition to Design Multiscale Numerical Schemes for Kinetic Equations*
- 12:30–2:30 *Lunch (on your own)*
- 2:30–3:20  
*TBA*
- 3:30–4:00 *Break*
- 4:00–4:50 *Panel Discussion*

### Friday April 3, 2009

- 8:15–9:00 *Continental Breakfast*
- 9:00–9:50 **Eitan Tadmor** (University of Maryland)  
*From Particle to Kinetic and Hydrodynamic Descriptions of Flocking*
- 10:00–10:15 *Break*
- 10:15–11:05 **Henning Struchtrup** (University of Victoria)  
*Beyond Hydrodynamics: Macroscopic Transport Equations for Rarefied Gas Flowses*
- 11:15–11:30 *Break*
- 11:30–12:20 **Manuel Torrilhon** (ETH Zürich)  
*Globally Hyperbolic Moment Equations in Kinetic Gas Theory*
- 12:30–2:30 *Lunch (on your own)*
- 3:30–4:00 *Coffee and Light Dessert*

