

Workshop IV: Multiscale Analysis and Computation

Monday November 14, 2005

- 8:00–8:50 *Check-In/Light Breakfast (Hosted by IPAM)*
- 8:50–9:00 *Welcome and Opening Remarks*
- 9:00–9:50 **Eric Vanden-Eijnden** (New York University)
Nested Stochastic Simulation Algorithm for KMC with Multiple Time-Scales
- 9:50–10:20 *Break*
- 10:20–11:10 **Weiqing Ren** (Princeton University)
Multiscale modeling of polymeric fluids
- 11:10–12:00 **Bjorn Engquist** (University of Texas at Austin)
- 12:00–2:00 *Lunch (on your own)*
- 2:00–2:50 **Axel Voigt** (Center Of Advanced European Studies And Research)
Mean-field models for epitaxial growth far from equilibrium
- 2:50–3:20 *Poster Session Set Up*
- 3:20–4:10 **Martin Burger** (Johannes Kepler Universität Linz)
Coarse-graining of nucleation and growth models
- 4:10–5:00 **Petr Plechac** (University of Warwick)
Approximation of coarse-grained stochastic lattice dynamics
- 5:00–7:00 *Poster Session / Wine & Cheese Reception*

Tuesday November 15, 2005

- 8:30–9:00 *Continental Breakfast*
- 9:00–9:50 **Pierre Degond** (Université de Toulouse III (Paul Sabatier))
Asymptotically stable methods for plasmas in the quasineutral limit
- 9:50–10:20 *Break*

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- 10:20–11:10 **Mike Siegel** (New Jersey Institute of Technology)
The regularized evolution of material surfaces with large surface energy anisotropy
- 11:10–12:00 **Gero Friesecke** (University of Warwick)
Atomistic potential energy surfaces and solid mechanics
- 12:00–1:30 *Lunch (on your own)*
- 1:30–2:20 **Xiantao Li** (Pennsylvania State University)
Boundary conditions for molecular dynamics simulations of solids
- 2:20–3:10 **Claude Le Bris** (École Nationale des Ponts-et-Chaussées)
On the energy of some stochastic lattices and their macroscopic limits
- 3:10–3:40 *Break*
- 3:40–4:30 **Olof Runborg** (Royal Institute of Technology (KTH))
Super Fast Fourier Transforms and Sparse Spectral Methods for Multiscale PDEs
- 4:30–5:20 **Steven Lee** (Lawrence Livermore National Laboratory)
Teleprojective integrators for stiff multiscale problems

Wednesday November 16, 2005

- 8:30–9:00 *Continental Breakfast*
- 9:00–9:50 **Leslie Greengard** (New York University)
Electromagnetic simulation in microstructured materials
- 9:50–10:20 *Break*
- 10:20–11:10 **Martin Bazant** (Massachusetts Institute of Technology)
Multiscale Modeling of Flow in Amorphous Materials
- 11:10–12:00 **Christof Schuette** (Freie Universität Berlin)
- 12:00–2:00 *Lunch (on your own)*
- 2:00–2:50 **Sandra Troian** (Princeton University)
Slip Behavior at Liquid/Solid Interfaces: Comparison Between Molecular Scale Models and Continuum Predictions
- 2:50–3:20 *Break*
- 3:20–4:10 **Nigel Goldenfeld** (University of Illinois at Urbana-Champaign)
Beyond phase field models: renormalization group approach to multiscale modeling in materials science
- 4:10–5:00 **Dionisios Margetis** (Massachusetts Institute of Technology)
Surfaces of crystalline materials: From atomic steps to continuum evolution laws

