

## Workshop I: Membrane Protein Science and Engineering

Monday March 27, 2006

- 8:00–8:45 *Check-In/Light Breakfast (Hosted by IPAM)*
- 8:45–9:00 *Welcome and Opening Remarks*
- 9:00–10:00 **David Needham** (Duke University)  
*Red Blood Cell as a Product: Part I Biodesign Methodology and Materials Selection*
- 10:00–10:30 *Break*
- 10:30–11:30 **David Needham** (Duke University)  
*Red Blood Cell as a Product: Part II RBC Properties and Component Design*
- 11:30–2:00 *Lunch (on your own)*
- 2:00–3:00 **Jemal Guven** (National Autonomous University of Mexico (UNAM))  
*Stress and geometry in fluid membranes*
- 3:00–3:30 *Break*
- 3:30–4:30 **Markus Deserno** (Max Planck Institute for Polymer Research)  
*Lipid membranes between nano and micro: A solvent-free coarse-grained simulation model – and what we can learn from it.*
- 4:30–5:30 **Petia Vlahovska** (Max Planck Institute for Colloids and Interfaces)  
*“Vesicle micro-hydrodynamics”*
- 5:30–7:00 *Wine/Cheese Reception (Hosted by IPAM)*



## Tuesday March 28, 2006

- 8:00–9:00 *Continental Breakfast*
- 9:00–10:00 **Sahraoui Chaieb** (University of Illinois at Urbana-Champaign)  
*Morphology, Kinematics and Dynamics of Wrinklesomes*
- 10:00–11:00 **Roland Netz** (Technische Universität München)  
*Polymers and Proteins at Membranes far from Equilibrium*
- 11:00–12:00 **Jay Groves** (UC Berkeley)  
*Rewiring the T cell signaling network using solid-state nanostructures*
- 12:00–2:00 *Lunch (on your own)*
- 2:00–3:00 **Jason Hafner** (Rice University)  
*“Probing Membrane Electrostatics with the Atomic Force Microscope”*
- 3:00–3:30 *Break*
- 3:30–4:30 **Kirill Katsov** (UC Santa Barbara)  
*Variations on Bilayer Membrane Fusion Mechanism*

## Wednesday March 29, 2006

- 8:00–9:00 *Continental Breakfast*
- 9:00–10:00 **Alex Levine** (UCLA)
- 10:00–11:00 **Gary Ayton** (University of Utah)  
*New multiscale approaches for examining the structure and dynamics of membrane bound proteins.*
- 11:00–11:30 *Break*
- 11:30–12:30 **Jie Liang** (University of Illinois at Chicago)  
*The nature of membrane protein assembly and applications in structure prediction*
- 12:30–1:30 *Lunch (on your own)*
- 1:30–2:30 **Maria McGee** (Wake Forest University)  
*Blood coagulation: at the interface between physical and chemical kinetics.*
- 2:30–3:30 **Philip Pincus** (UC Santa Barbara)  
*HETEROGENEOUSLY CHARGED MEMBRANES*
- 3:30–4:00 *Break*

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- 4:00–5:00 **Robert Raphael** (Rice University)  
*Electromechanical Coupling in Cells and Membranes: Theory and Experiment*
- 5:00–6:30 *Dinner (Hosted by IPAM)*

### Thursday March 30, 2006

- 8:00–9:00 *Continental Breakfast*
- 9:00–10:00 **Huey Huang** (Rice University)  
*How do peptides make holes in the membranes?*
- 10:00–11:00 **Ka Yee Lee** (University of Chicago)  
*Poking and Sealing Holes: Interactions of Antimicrobial Peptides and Poloxamers with Lipid Membranes*
- 11:00–12:00 **Wladimir Urbach** (École Normale Supérieure)  
*Lateral mobility in membranes. Characterization of protein-protein interactions in a versatile system of model membranes.*
- 12:00–2:00 *Lunch (on your own)*
- 2:00–3:00 **Frank Brown** (UC Santa Barbara)  
*Simple models for biomembrane structure and dynamics*
- 3:00–3:30 *Break*
- 3:30–4:30 **Dennis Discher** (University of Pennsylvania)  
*Expansion of nature's toolbox with block copolymer membranes - Polymersomes*

### Friday March 31, 2006

- 8:00–9:00 *Continental Breakfast*
- 9:00–10:00 **Jacob Schmidt** (UCLA)  
*Enabling Membrane Protein-based Single Molecule Sensors*
- 10:00–11:00 **William Foster** (University of Houston)  
*PIPs, pattern formation, and the regulation of the cytoskeleton*
- 11:00–12:00 **Steven Boxer** (Stanford University)  
*Imaging Supported Membranes Beyond the Diffraction Limit: Interferometry and Mass Spectrometry*
- 12:00–2:00 *Conclusion and Lunch (on your own)*

