

Multiscale Methods and Validation in Medicine and Biology III

Los Angeles, California, February 25-26, 2016

CNSI Building, 5th Floor Presentation Space, UCLA

Thursday, February 25

8:00 am Continental Breakfast and Registration

Session 1: 8:30-10:30

8:30-9:00 Garikipati, K., *Mathematical Models for Patterning and Morphological Development*

9:00-9:30 Pathak, A., *Mechanics of Epithelial-to-Mesenchymal Transition in Confined Environments*

9:30-10:00 Fuller, G., *Measuring Adhesion between Uropathogenic E.Coli and Bladder-Epithelial Cells*

Poster Talks-2 minutes each

10:00 Hollenbeck, E., *Mechanical Properties of Bacillus Subtilis Biofilms Subjected to Large Macroscale Deformations*

Mills, E., *Probing the Active Process of Hair Cells: Adaptation & Spontaneous Oscillation Recovery after Overstimulation*

Faber, J., *Chaotic Behavior of Oscillatory Hair Cells*

10:10 Morning Break

Session 2: 10:30-Noon

10:30-11:00 Katira, S., *Pre-Transition Effects Mediate Forces of Assembly between Transmembrane Proteins*

11:00-11:30 Haselwandter, C., *Assembly, Architecture, and Collective Function of Membrane Protein Lattices*

11:30-12:00 Kahraman, O., *Stochastic Multiscale Dynamics of Synaptic Membrane Protein Domains*

Noon-1:00 pm Lunch

Session 3: 1:15-3:15

- 1:15-1:45 Boedicker, J., *Multiscale Dissection of Regulation in Microbial Ecosystems*
- 1:45-2:15 Rangamani, P., *Paradoxical Signaling Regulates Structural Plasticity in Dendritic Spines*
- 2:15-2:45 Dharmavaram, S., *Chirality of Viral Capsids*

Poster Talks-2 minutes each

- 2:45-2:55 Price, J., *Mechanics of Osmotically Shocked Bacteria*
Mistry, B., *Brownian Dynamics Simulation of Pressure Induced Pore-Transport through an Incommensurate Channel*
Ponnaluri, A., *Evaluating the Variational Framework for an Electromechanical Viscoactive Constitutive Model on a Biventricular Rabbit Heart*

2:55-3:15 Afternoon Break

Session 4: 3:15-4:55

- 3:15-3:45 Purohit, P., *A Fluctuating Elastic Plate and a Cell Model for Lipid Membranes*
- 3:45-4:15 Dennin, M., *Particle Impact on Monolayer Collapse: Experiments and Modeling*
- 4:15-4:45 Malmstadt, N., *Viscoelastic Deformation of Lipid Vesicles*

Poster Talks-2 minutes each

- 4:45-4:55 Waters, J., *Predicting DNA Unlooping with Phase-Space Sampling*
Hatami-Marbini, H., *Nonaffine Deformation in Three-Dimensional Filamentous Networks in Viral Capsids*
Singh, A., *A Study of Formation and Motion of Topological Defects*
Yang, D., *A Study of Transient Streaming Potential with Piezo-Effect in Bone*

4:55-6:30 Reception and Poster Session

6:30-8:00 Conference Dinner at Skylight Gardens

Friday, February 26

8:00 am Continental breakfast

Session 5: 8:30-10:30

8:30-9:00 Budyn, E., *Osteocyte Mechanobiology in Healing Live Allograft Biological Systems*

9:00-9:30 Dunn, A., *Cell Motility and Traction Force Generation in Three-Dimensional Fibrin Hydrogels*

9:30-10:00 del Alamo, J., *Traction Force Microscopy: To 3D and Beyond*

10:00-10:30 Popescu, G., *Investigating Cell Dynamics using Spatial Light Interference Microscopy (SLIM)*

10:30-10:45 Morning Break

Session 6: 10:45-12:15

10:45-11:15 Cray, S., *Field Theoretic Simulations of a Compressible Lipid Membrane: Implications for Surface Tension*

11:15-11:45 Foucard, L., *Encoding Mechano-Memories in Actin Networks*

11:45-12:15 Hunt, D., *Asymmetries Arising from the Space-Filling Nature of Vascular Networks*

12:15-1:30 Lunch

Session 7: 1:30-2:30

1:30-2:00 Sacks, M., *A Multi-Scale Integrated Model of the Mitral Valve: From Cellular Biophysics to Surgical Repair*

2:00-2:30 Perotti, L., *Identification of Unique Material Properties and In-Vivo Formulation of Energy Laws for Passive Myocardium*

2:30-3:00 Hatami-Marbini, H., *A Biphasic Transversely Isotropic Poroviscoelastic Constitutive Model for the Cornea*

3:00-3:15 Afternoon Break

Session 8: 3:15-4:15

- 3:15-3:45 Serov, A., *A Mathematical Model of Oxygen Transport in the Human Placenta*
- 3:45-4:15 Virag, L., *Implementation of Abdominal Aortic Aneurysm Growth and Remodeling Model into Finite Element Code*
- 4:15 Closing