

Multiple Length Scales in Polymers and Complex Fluids

Bishop's Lodge, Santa Fe, NM

October 18- 21, 2009

Sunday PM

4:30-6:00pm Registration

5:00-7:00pm Welcome Reception

Dinner – on your own

Monday October 19 AM Complexity

7:30-8:15am Continental Breakfast and Registration

8:15-8:30am Welcome

Chair: Kurt Kremer (Max Plank Institute for Polymer Science)

8:30-9:00am Jacob Israelachvili* (University of California, Santa Barbara)

- Scaling effects of stiffness, length and time in self- and directed-assembly processes

9:00-9:30am Michael Rubinstein* (University of North Carolina)

- Molecular Model of the Airway Surface Layer in Lungs

9:30-10:00am David Pine* (New York University)

- Random Organization

10:00 -10:30am Gary Grest* (Sandia National Laboratories)

- Interdiffusion and Self-Healing of Entangled at Polymer Melts

10:30-11:00am Break

Monday October 19 AM Glasses

Chair: Eric Sirota (Exxon)

11:00 11:30am Mark Robbins* (Johns Hopkins University)

- Following Entanglement Networks during Deformation and Yield of Glassy Polymers

11:30-11:50am Leo Silbert (University of Southern Illinois)

- Static and Dynamics of Granular Materials

11:50am- 12:20pm David Weitz* (Harvard University)

- Fast Crystals and Strong Glasses

Lunch

Monday October 19 PM Complexity in Biological Systems

Chair: Jim Harden (University of Ottawa)

2:00-2:30pm Mahn Won Kim* (Korea Advanced Institute of Science and Technology)
- Absorption and Transport of a Small Molecule on a Liposome

2:30-3:00pm Fred Macintosh* (Vrije Universiteit)
- Physics of Passive and Active Biopolymer Networks

3:00-3:30pm Mark Stevens* (Sandia National Laboratories)
- Understanding Mechanisms of Membrane Fusion

3:30-3:45pm Break

Chair: Ling Miao (Physical Review Letters)

3:45-4:15pm Steve Granick* (University of Illinois)
- Janus Colloids and Biomolecules

4:15-4:45pm Alex Levine* (UCLA)
- Sailing the Surfactant Sea: Hydrodynamics in Flat and Curved Membranes and Applications to Red Blood Cell Mechanics

Monday evening - Dinner on Your Own

Tuesday October 20 AM Interactions at Surfaces and Interfaces

7:30-8:00am Continental Breakfast

Chair: Costas Soukoulis (Iowa State University)

8:00-8:30am Sidney Nagel* (University of Chicago)
- Making a Splash (Gasp!)

8:30-9:00am Edmund Webb III* (Sandia National Laboratories)
- Capillary Phenomena in Liquid Metals

9:00-9:30am Sunny Sinha* (UCSD)
- Approach to the Glass Transition in Polymer Films as seen by XPCS
Studies of Surface Fluctuations

9:30-10:00am Jack Houston* (Sandia National Laboratories)
- Rheology of Water Confined at the nm Level: A Simple Molecule/A Complex Fluid

10:00-10:20am Christian Lorenz (Kings Collage, London)
- Molecular Dynamics Simulations of Confined Water under Shear

10:20-10:45am Break

Tuesday October 20 AM Polymer Networks and Gels

Chair: Amalie Frischknecht (Sandia National Laboratories)

10:45-11:15am Kurt Kremer* (Max Planck, Mainz)

- Topological Constraints in Soft Matter: From Elastomers to Chromosome Territories

11:15-11:45am Ralf Everaers* (Universite Lyon)

- From Structure to Dynamics of Entangled Polymers

11:45am-12:15pm Scott Milner* (Pennsylvania State University)

- Rotator Phases and Nucleation in Polyethylene

Lunch

Tuesday October 20 PM Complexity

Chair: Burkhard Dünweg (Max Plank Institute for Polymer Science)

2:00- 2:30pm Tom Lubensky* (University of Pennsylvania)

- Phonons and Response in Nearly Isotactic, Periodic Lattices

2:30-2:50pm Scott Sides (Tech-X Corporation)

- Nanoparticle Ordering in Block Copolymer Interfaces and Domains

2:50-3:10pm Ahmed Ismail (Sandia National Laboratories)

- Forces between Functionalized Nanoparticles

3:10-3:30pm David Heine (Corning)

- Modeling Suspensions in Viscous Solvents

3:30-3:50pm Mesfin Tsige (University of Southern Illinois)

- Interfacial Structure and Dynamics of Polydimethylsiloxane and water

3:50-4:20pm Phil Pincus* (University of California, Santa Barbara)

- Collapse of Polyelectrolyte Brushes: Multi-Valent Counterions

Break

Chair: Flint Pierce (Clemson University)

4:30-6:00pm POSTER SESSION

Conference Dinner 7:00pm (Bishop Lodge)

Wednesday October 21 AM Complexity

7:30-8:00am Continental Breakfast

Chair: Dirk Jan Bukman (Physical Review E)

8:00-8:30am Anna Balazs* (University of Pittsburgh)

- Using Computational Modeling to Design Smart Microcapsules and Responsive Gels

8:30-9:00am Miriam Rafailovich* (State University of New York, Stony Brook)

- The Effect of Surface Mechanics on Cell Function and Dynamics

9:00-9:20am Amalie Frischknecht (Sandia National Laboratories)

- Surface-induced phase transitions in polymer/nanoparticle blends

9:20-9:50am Steve Plimpton* (Sandia National Laboratories)

- Coarse-Graining Molecular Dynamics Simulations of Nanoparticles in Solution

9:50-10:10am Jeremy Lechman (Sandia National Laboratories)

- Numerical Simulations of Colloidal Rheology

10:10-10:30am Break

Wednesday October 21 AM Granular and Colloidal Systems

Chair: Phil Pincus (University of California, Santa Barbara)

10:30- 11:00am Andrea Liu* (University of Pennsylvania)

- Jamming and Glasses

11:00-11:20am James Landry (Lincoln Laboratories)

-Granular Materials: Packings and Flow

11:20-11:50am Dov Levine* (Technion University)

- ?Correlations and Order in Amorphous Solids?

11:50am-12:20pm Paul Chaikin* (New York University)

- Self-Replication without Life

Lunch-on Your Own

