Schedule for the 3rd Mid-Atlantic Soft Matter workshop, October 17, 2008

8:00 am  
Registration and Breakfast, (Clayton Hall)

8:55 am  
Opening Remarks

9:00 am  
Michael Mackay (University of Delaware)  
*Thermodynamics in thin films and how it affects self assembly*

9:45 am  
Sound-bite Session I

10:30 am  
Coffee Break

11:15  
Ahmed Alsayed (University of Pennsylvania)  
*Phase-Transitions in Temperature Sensitive Colloidal Suspensions*

12:00 pm  
Lunch, (Clayton Hall)

1:30 pm  
Patrick Spicer (Procter & Gamble Co.)  
*Microstructural Heterogeneity and Large-Scale Soft Matter Manufacturing*

2:15 pm  
Sound-bite Session II

2:50 pm  
Coffee Break (Clayton Hall)

3:15 pm  
Eric Dufresne (Yale University)  
*Colloidal Electrostatics at Vanishing Ionic Strength*

4:00 pm  
Sound-bite Session III

4:30 pm  
Break

4:45 pm  
Kathryn Beers (NIST)  
*High Throughput Approaches to Polymer Science using Microreactor Technology*
High Throughput Approaches to Polymer Science using Microreactor Technology
Kathryn L. Beers
Polymers Division, NIST

We are interested in assembling nanoparticles to interfaces and use polymer thermodynamics in thin films and how it affects self assembly.

Michael Mackay
Department of Chemical Engineering, University of Delaware

I will describe our preliminary observations of many-body contributions to electrostatic interactions in a charged colloidal suspension. We mimic nanoparticles in water with an easy-to-manipulate system of microparticles in oil - where the screening length can be much greater than one micron. We measure interparticle forces with femtoNewton precision by analyzing the relaxation of systems that have been gently perturbed with optical tweezers. By systematically measuring the interactions of 2, 3, and 7 identical spherical particles in identical solvent conditions, we directly observe the breakdown of pairwise-additivity.

Eric R. Dufresne
Departments of Mechanical Engineering, Yale University

I will discuss how we are using microrheological techniques to try and answer these questions, show some examples, and suggest some paths forward for increasing our understanding of this open research area.
**Sound-bite Session I**

1. Richard Arevalo (Georgetown University)
   *Stress Inhomogeneities In Sheared Collagen Networks*

2. Aaron Baldwin (University of Delaware)
   *Heparinized extracellular matrix-mimetic scaffolds for controlled release of therapeutic macromolecules*

3. Anindita Basu (University of Pennsylvania)
   *Shear deformation in fibrin gels*

4. Brendan Brelsford (Georgetown University)
   *Semi-flexible Polymer Networks: Dissipative Particle Dynamics Simulation*

5. Ted Brzinski (University of Pennsylvania)
   *Drag Forces in a Granular Bed*

6. Daniel Chen (University of Pennsylvania)
   *Gelation of Rigid Rod Networks*

7. Sudeep Dutta (Georgetown University)
   *Confocal rheology of disordered colloidal dispersions*

8. Wouter Ellenbroek (University of Pennsylvania)
   *Charge inversion of walls exposed to salt solution*

9. Sarah Grieshaber (University of Pennsylvania)
   *Hybrid Elastin Mimetic Polymers with Alternating Molecular Architecture for Vocal Fold Tissue Engineering*

10. Hongyu Guo (Johns Hopkins University)
    *XPCS Study of Nanoparticle Motion within Concentrated Entangled Polymer Solutions*

11. Elizabeth Knowlton (Georgetown University)
    *Where rheology meets the confocal*

12. Ohm Divyam Krishna (University of Delaware)
    *Design of collagen mimetic peptide : self assembly from nano to micro scale*

**Sound-bite Session II**

13. Ke Chen (University of Pennsylvania)
    *Breaking of jams in granular flows*

14. Andrzej Latka (Saint Joseph's University)
    *Direct imaging of colloidal suspensions with short-range attractive potential*

15. Julie Lawson (University of Delaware)
    *Generating Surface Energy Gradients for Block Copolymer Thin Film Studies*

16. Myung Han Lee (Johns Hopkins University)
    *Microrheology of Protein Layers at The Air-Water Interface*

17. Matthew Lohr (University of Pennsylvania)
    *Continuing Studies of Correlation in Constrained Thermosensitive Colloids*

18. M. Lisa Manning (Princeton University)
    *Shear banding in amorphous solids*

19. Armstrong Mbi (Georgetown University)
    *Force Distribution in Colloidal Glass: Breaking Down The Boundaries...*

20. Naa Larteokor McFarlane (University of Delaware)
    *Phase behavior of uncharged polymer - colloid suspensions*

21. Jason McMullan (University of Delaware)
    *Directed Assembly of Particle Suspensions with Electrical Fields*

22. Manish Mittal (University of Delaware)
    *Assembly of ellipsoidal titanium dioxide particles*

23. Ting Nie (Materials Science & Engineering, University of Delaware)
    *Molecularly engineered hydrogel for regulating the controlled release of biomolecules and cell responses*

24. Maki Nishida (Georgetown University)
    *Development of Raman Correlation Spectroscopy for nanoparticle analysis.*

25. Kerstin Nordstrom (University of Pennsylvania)
    *Microfluidic Rheology of Microgel Pastes*

**Sound-bite Session III**

26. Bum Jun Park (University of Delaware)
    *Two-dimensional self-assembled crystals of colloids underneath oil-water interfaces*

27. Kelly Schultz (University of Delaware)
    *Material assembly and gelation kinetics of PEG-heparin hydrogels using multiple particle tracking microrheology*

28. John P. Singh (University of Delaware)
    *Directed self assembly of micrometer-sized anisotropic particles*

29. Chris Snively (University of Delaware)
    *Green Polymers from "Unpolymerizable" Monomers*

30. Indira Sriram (University of Delaware)
    *Two particle measurements in the direct limit*

31. Kimani A. Stancil (Howard University)
    *Drying Assembly of CdSe Nanorods*

32. Maeva S. Tureau (University of Delaware)
    *Nanostructured Networks as Active Capture Devices for Environmental Metabolomics using Block Copolymers*

33. Paula Vasquez (University of Delaware)
    *Condensed Structures of MR Fluids in Microgravity*

34. Wen-Shiue (Owen) Young (University of Delaware)
    *Effect of salt-doping on PS-PEO copolymer.*

35. Peter Younker (University of Pennsylvania)
    *Growth of Local Order During Aging*

36. Zexin Zhang (University of Pennsylvania)
    *Quench the Colloidal Suspensions*