Program

Association in Solution III
Self-Assembly: From Bio-Colloids to Nano-Engineering

Bifröst University, Iceland
July 23-27, 2012

Conference Co-Chairs

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Monday July 23, 2012

16:00 – 17:00  Registration / Conference check-in

17:00 – 17:30  Coffee & tea

17:30 – 18:00  Welcome and introductory remarks
                Ulf Olsson and Norman Wagner

Thermodynamics & intermolecular interactions – Chair: Norman Wagner

18:00 – 18:30  Self-assembly at steady state
                Håkan Wennerström, Lund University, Sweden

18:30 – 19:00  A general interaction potential for hydrophobic and hydrophilic interactions
                Stephen Donaldson, University of California Santa Barbara, USA

19:30 -   Dinner

Notes

- Technical sessions will be held in the Rauðbrók room
- Posters will be in the Hrifla room
- All meals will be in the Hátíðarsalur room
- Audiotaping, videotaping and photography of presentations are prohibited.
- Speakers – Please have your presentation loaded onto the conference computer prior to the session start (preferably the day before).
- Speakers – Please leave at least 5 minutes for questions and discussion.
- Please do not smoke at any conference functions.
- Turn your mobile phones to vibrate or off during technical sessions.
Tuesday July 24, 2012

Colloids – Chair: Robert Prud'homme

08:30 – 09:00 Charged rod-like colloids in electric fields
Jan Dhont, Forschungszentrum Jülich, Germany

09:00 – 09:30 Total internal reflection microscopy measurements of low refractive index particles in polar solvent mixture
Johan Bergenholtz, University of Gothenburg, Sweden

09:30 – 10:00 Tuning self-assembly, microstructure, phase separation and gelation with depletion interactions in suspensions of charged colloids
Anna Stradner, Lund University, Sweden

10:00 – 10:30 Coffee & tea

10:30 – 11:00 Anisotropic microparticles on fluid interfaces
Kathleen Stebe, University of Pennsylvania, USA

11:00 – 11:30 Assembling responsive nanoparticles
Peter Schurtenberger, Lund University, Sweden

11:30 – 12:00 Poster program presentation
12:15 – 15:30 Lunch and discussions/poster session
15:30 – 16:00 Coffee & tea

Emulsions and micelles – Chair: Reinhard Strey

16:00 – 16:30 Why are hydrophobic/water interfaces negatively charged?
Kevin Roger, ESPCI Paris, France

16:30 – 17:00 Tuning the shape and stoichiometry of self-assembled phospholipid nanodiscs
Lise Arleth, University of Copenhagen, Denmark

Peptide self-assembly – Chair: Masayuki Imai

17:00 – 17:30 Self-assembled nanotubes in a model peptide system
Ulf Olsson, Lund University, Sweden

17:30 – 18:00 Break

18:00 – 18:30 Functional nanotubes from the self-assembly of peptide/polymer conjugates
Sebastian Perrier, University of Sydney, Australia

18:30 – 19:00 Engineering amyloid fibril structure and function via controlled protein aggregation
Raffaele Mezzenga, ETH Zürich, Switzerland

19:30 - Dinner
Wednesday July 25, 2012

Surfactant self-assembly – Chair: Gregory Warr

08:30 – 09:00  
* Dilute aqueous gel networks containing fatty alcohol and surfactant  
  Claudia Schmidt, University of Paderborn, Germany

09:00 – 09:30  
* Phase behavior of microemulsions with weak and strong surfactants  
  Doris Vollmer, Max Planck Institute, Mainz, Germany

09:30 – 10:00  
* How to make nanofoams  
  Reinhard Strey, University of Cologne, Germany

10:00 – 10:30  
Coffee & tea

Self-assembly kinetics – Chair: Michael Gradzielski

10:30 – 11:00  
* Probing self-assembly processes in bulk and at interfaces using synchrotron scattering techniques  
  Diego Pontoni, ESRF Grenoble, France

11:00 – 11:30  
* Kinetic self-assembly of block copolymers during rapid precipitation  
  Robert Prud’homme, Princeton University, USA

11:30 – 12:00  
* Kinetics in surfactant solutions studied by combining stopped-flow mixing with synchrotron SAXS  
  Jan Skov Pedersen, Aarhus University, Denmark

12:15 – 18:00  
Lunch and excursions

18:00 – 19:00  
Poster session

19:30 -  
Dinner
Thursday July 26, 2012

**Bio-membranes – Chair: Jan Dhont**

08:30 – 09:00  *Reversible gelation of vesicles, colloidal particles and biological cells*
Srinivasa R. Raghavan, University of Maryland, USA

09:00 – 09:30  *Exploring the energetics governing cholesterol homeostasis*
Paul Butler, NIST, USA

09:30 – 10:00  *Anomalous lateral diffusion in a viscous membrane surrounded by viscoelastic media*
Shigeyuki Komura, Tokyo Metropolitan University, Japan

10:00 – 10:30  Coffee & tea

**Bio-engineering – Chair: Alex Evilevitch**

10:30 – 11:00  *DNA-lipid complexes: structure and Brownian motion*
Frederic Nallet, University of Bordeaux, France

11:00 – 11:30  *Short DNA (sDNA) stacking regulates a thermotropic cubic to hexagonal phase transition in sDNA-lipid assemblies*
Cecilia Leal, University of Illinois, Urbana-Champaign, USA

11:30 – 12:00  *Phospholipids and proteins as active components of transistors: Where soft matter and organic electronics meet*
Gerardo Palazzo, University of Bari, Italy

12:15 – 15:30  Lunch and discussions/poster session

15:30 – 16:00  Coffee & tea

**Viscoelastic assemblies – Chair: Kathleen Stebe**

16:00 – 16:30  *Non-equilibrium association between oppositely charged polyelectrolytes and surfactants in the absence and presence of different additives*
Róbert Mészáros, Eötvös Loránd University, Hungary

16:30 – 17:00  *Structure and dynamics of highly viscous polyelectrolyte-surfactant complexes*
Michael Gradzielski, Technical University of Berlin, Germany

17:00 – 17:30  *Structural signature of a brittle-to-ductile transition in self-assembled networks*
Christian Ligoure, University of Montpellier II, France

17:30 – 18:00  Break

18:00 – 18:30  *Lamellar-"onion"-lamellar transition with varying temperature under shear flow in nonionic surfactant/water systems*
Tadashi Kato, Tokyo Metropolitan University, Japan

18:30 – 19:00  *In situ large amplitude oscillatory shear (LAOS) experiments on rod-like viruses and colloidal platelets*
Pavlik Lettinga, Forschungszentrum Jülich, Germany

19:30 -  Dinner
Friday July 27, 2012

Self-assembly in ionic liquids - Chair: Ulf Olsson

08:30 – 09:00 Amphiphilic structure and solubility in ionic liquids
Gregory Warr, University of Sydney, Australia

09:00 – 09:30 Self-assembly of cationic surfactants and block copolymers in protic ionic liquids
Norman Wagner, University of Delaware, USA

09:30 – 10:00 Coffee & tea

Colloidal Biology - Chair: Lise Arleth

10:00 – 10:30 Lambda-phage DNA confined by lipid membranes: Soft strings against soft surfaces
Carlos Marques, Institut Charles Sadron, Strasbourg, France.

10:30 – 11:00 Physical chemistry of viral evolution
Alex Evilevitch, Carnegie Mellon University, USA, and Lund University, Sweden

11:00 – 11:30 Molecular assembly to protocell
Masayuki Imai, Tohoku University, Japan

11:30 – 12:00 Concluding remarks
Håkan Wennerström and Kathleen Stebe

12:15 – Lunch and departure
List of Posters

Colloids, Nanoparticles

1. Fabrication of Silica Coated Magnetic Nanoparticles
   Naz Atay, Bogazici University, Istanbul, Turkey

2. Crystalline Nanoparticle Dispersions Do Not Ripen
   Manja Behrens, Lund University, Sweden

3. Intermediate Range Order in Proteins and Colloidal Suspensions
   Paul Godfrin, University of Delaware, USA

Lipid Membranes

4. Lipid Segregation Above T_m: The Case Against Holey Vesicles
   Paul Butler, NIST, USA

5. Insights into Membrane Thickness Fluctuations
   Paul Butler, NIST, USA

6. Self-Reproduction of Lipid Vesicles
   Yuka Sakuma, Tohoku University, Sendai, Japan

7. A Theoretical Approach to Phase Coexistence in Ternary Cholesterol-Phospholipid Mixtures
   Jean Wolff, Institut Charles Sadron, University of Strasbourg, France

Emulsions and Foams

   Kevin Roger, ESPCI, Paris, France

9. Controlled Emulsion Droplet Solvent Evaporation for the Continuous and Consistent Production of Particles
   Emily Chang, MIT, USA

10. Nano-Foams by ‘Continuity-Inversion’ of Dispersions
    Alexander Müller, University of Cologne, Germany

Shear Effects

11. Flow Instability and Shear Banding in a Multi Lamellar Vesicle System
    Luigi Gentile, University of Calabria, Italy

12. Nuclear Magnetic Resonance and Rheology Investigation of Crystallization Phenomena in Vegetable Oils
    Luigi Gentile, University of Calabria, Italy

13. Rheo-NMR Observations of Complex Fluids
    Stefan Kuczera, Victoria University, Wellington, New Zealand

14. Tuning Microstructure of Non-Ionic Micellar Networks: Rheology and Self-Diffusion Investigations
    Gerardo Palazzo, University of Bari, Italy
15. Deformation Hardening and Formation of Shear Bands Under Friction of Copper at Different Lubricant Conditions.
   Alex Laikhtman, Holon Institute of Technology, Israel

Method development

   Bruno Silva, University of California, Santa Barbara, USA

17. Chemical Processing by Swarm Robotics
   Jitka Cejkova, Chemical Robotics Laboratory, Institute of Chemical Technology, Prague, Czech Republic

Tuning Self-Assembly

18. Towards Understanding Peptide Self-Assembly: A Model System Study
    Çelen Cenker, Lund University, Sweden

19. Lamellar Gel Networks Based on Anionic Surfactants and Fatty Alcohols: Study of Structure in Hair Colorants
    Lauriane Lagarde, Institut Charles Sadron, University of Strasbourg, France and Procter and Gamble, Darmstadt, Germany

20. Phase Behavior and Self-Assembly in the Lecithin/Squalane System.
    Wataru Horie, POLA Chemical Industries, Yokohama, Japan and Physical Chemistry, Lund University, Sweden.

21. Structure and Dynamics of Microemulsion Networks Linked by End-Capped Star Polymers of Varying Functionality
    Paula Malo de Molina, Technical University of Berlin, Germany

22. Tunable Complex Fluids by Cyclodextrin Inclusion Complexation
    Robert Prud'homme, Princeton University, USA

23. Non-Traditional Block Copolymer Directed Kinetic Self-Assembly
    Robert Prud'homme, Princeton University, USA

24. Computer Simulations of a Thermo-Responsive Polymer in Aqueous Solution
    Eckhard Spohr, University of Duisburg-Essen, Germany

    Norman Wagner, University of Delaware, USA