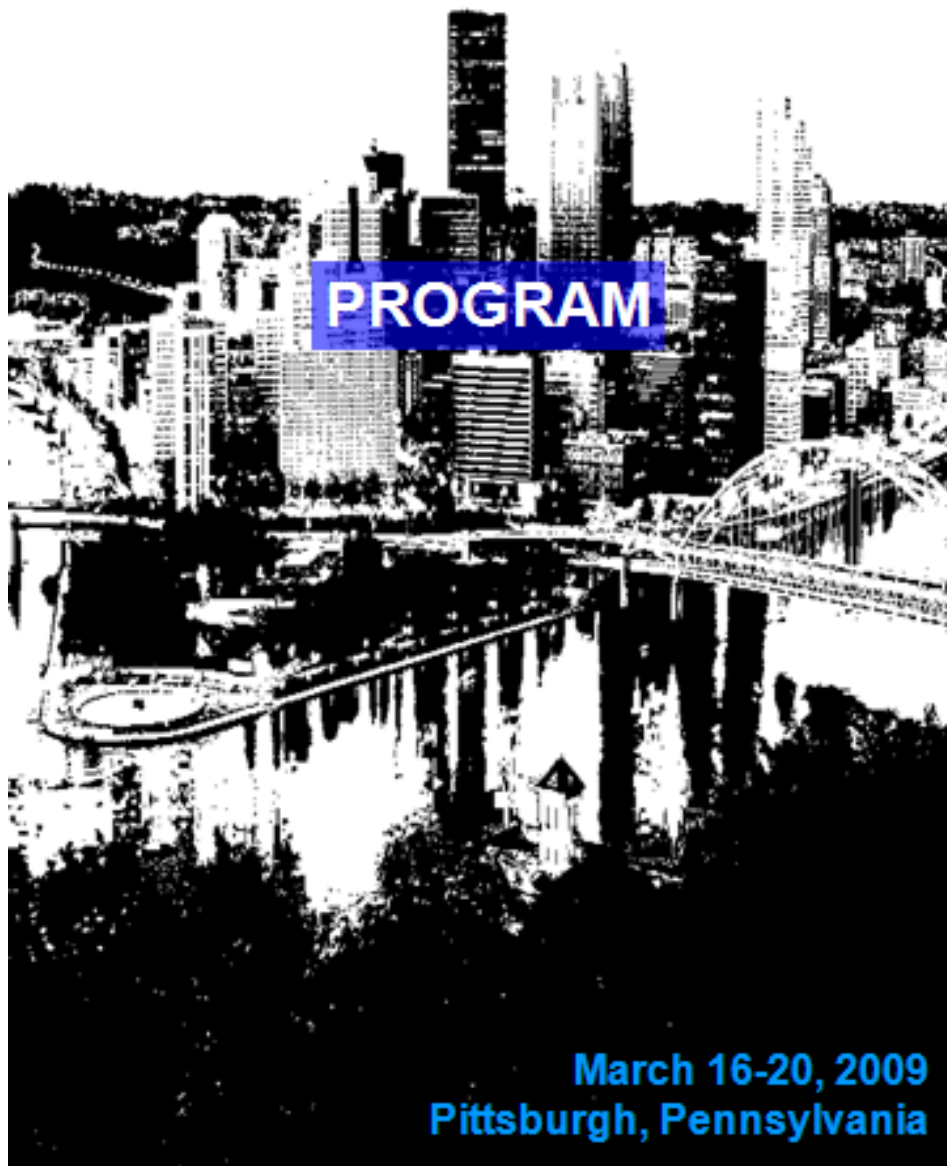


American Physical Society: Division of Polymer Physics



**PROGRAM**

**March 16-20, 2009  
Pittsburgh, Pennsylvania**

# DPOLY Short Course

## Physics of Polymer Nanocomposites

March 14 and 15, 2009

### Course Description

The objective of this course is to provide background on the critical issues, ranging from synthesis, fabrication, processing, and characterization that underlie the establishment of scientifically (not only observationally) grounded structure-property relationships. Additionally, the course will ensure the student has an appreciation of parallel fields of investigations with high relevance to polymer nanocomposites. Elucidating the numerous competing factors and phenomena that manifest in the equilibrium and dynamic character of nanoparticle-polymer systems are paramount to enabling prediction of physical phenomena and thus the ability to advance these materials to technologically relevant applications.

### Topics to be covered:

What are Polymer Nanocomposites – J. Gilman (NIST)

Fabrication Approaches

Overview of Inorganic Nanoparticle Synthesis and Properties – A. Barron (Rice U)

Overview of NCP Fabrication – T. Seery (U. Connecticut)

Manipulation of Interfacial (Corona) Region via Polymer Chemistry – TBD

Quantification Challenge (from particle to interface to collective assembly)

Dynamics at the Nanoparticle Interface and Within the Interfacial Region: Challenges for Interface Science - J. Torkelson (Northwestern)

Morphology & Topology Quantification – R. Vaia (AFRL)

Constitutive Relationships and Physical Properties

Mechanical, Electrical & Thermal Properties – K. Winey (U Pennsylvania)

Phase Behavior & Dynamics of Polymer-NP Blends

Equilibrium Behavior & Impact on Mesoscopic Order & Interfaces – V. Ginzburg (Dow)

Rheology - R. Krishnamoorti (U Houston)

### Course Organizers:

Rich Vaia (Air Force Research Laboratory Materials and Manufacturing Directorate) and Ramanan Krishnamoorti (University of Houston)

#### **Session A4: Polymers and Energy Applications Show**

**306/307**

Sponsoring Unit: DPOLY

*Chair: Nitash Balsara, University of California, Berkeley*

**8:00 AM, Monday, March 16, 2009**

**8:00AM - 8:36AM**

A4.00001: Ion solvation and its effects on the miscibility of binary polymer blends

*Invited Speaker: Zhen-Gang Wang*

**8:36AM - 9:12AM**

A4.00002: The Nanostructure of Nafion for Fuel-Cell Membranes from Small-Angle Scattering and NMR Analysis

*Invited Speaker: Klaus Schmidt-Rohr*

**9:12AM - 9:48AM**

A4.00003: New Materials and Approaches for Solution-Processed Organic Solar Cells

*Invited Speaker: Yueh-Lin Loo*

**9:48AM - 10:24AM**

A4.00004: Charge Transport and Storage within Radical Redox Polymers as Electroactive Materials in Energy Devices

*Invited Speaker: Hiroyuki Nishide*

**10:24AM - 11:00AM**

A4.00005: Polymers as active components in harnessing solar energy

*Invited Speaker: Jayant Kumar*

#### **Session A18: Bulk Block Copolymers I**

**319**

Sponsoring Unit: DPOLY

*Chair: Thomas Epps, University of Delaware*

**8:00 AM, Monday, March 16, 2009**

**8:00AM** - A18.00001: Order-order transition among lamellae,  $F_{ddd}$ , and gyroid in diblock copolymer melts. *Mikihito Takenaka, Myung Im Kim, Tsutomu Wakada, Satoshi Akasaka, Shotaro Nishitsuji, Kenji Saijo, Hirokazu Hasegawa, Kazuki Ito*

**8:12AM** - A18.00002: Determination of  $F_{ddd}$  phase boundary in polystyrene- $F_{block}$ -polyisoprene diblock copolymer. *Myung Im Kim, Satoshi Akasaka, Tsutomu Wakada, Mikihito Takenaka, Hirokazu Hasegawa*

**8:24AM** - A18.00003: Stabilization of Bicontinuous Phases in Diblock Copolymer Systems *Fernando Escobedo, Francisco Martinez-Veracoechea*

**8:36AM** - A18.00004: Structure-Properties Relationship in Proton Conductive Sulfonated Polystyrene-Polymethyl Methacrylate Block Copolymers. *Laurent Rubatat, Chaoxu Li, Herve Dietsch, Antti Nykainen, Janne Ruokolainen, Raffaele Mezzenga*

**8:48AM** - A18.00005: Morphology of Sulfonated Styrenic Pentablock Copolymer Solutions and Membranes. *Arun Kota, Karen Winey*

**9:00AM** - A18.00006: Thermodynamic Behavior of Poly(styrene-*b*-styrene sulfonate) Block Copolymers With Varying Counterions. *Kevin Cavicchi, Kevin Pollack*

**9:12AM** - A18.00007: Salt Doping in PEO Containing Block Copolymers: Counterion and Concentration Effects. *Wen-Shiue Young, Thomas Epps*

**9:24AM** - A18.00008: Ion transport through block copolymer electrolytes. *Scott Mullin, Ashoutosh Panday, Nitash Balsara*

**9:36AM** - A18.00009: Morphology of Novel Semicrystalline Ethylene- $\alpha$ -Olefin Block Copolymers *Sheng Li, Richard Register, Brian Landes*

**9:48AM** - A18.00010: Self-assembly of crystalline bioinspired block copolymers. *A.M. Rosales, H.K. Murnen, R.N. Zuckermann, R.A. Segalman*

**10:00AM** - A18.00011: Crystallization, Crystal Orientation and Morphology of Poly(ethylene oxide) under 1D Defect-Free Nanoscale Confinement. *Ming-Siao Hsiao, Joseph X. Zheng, Ryan M. Van Horn, Roderic P. Quirk, Edwin L. Thomas, Bernard Lotz, Stephen Z. D. Cheng*

**10:12AM** - A18.00012: Gradient Architecture as Means of Phase Diagram Manipulation in Copolymers: Accessing Both LCOT and UCOT in High Molecular Weight Styrene/*n*-Butyl Acrylate Systems. *Michelle Mok, Wesley Burghardt, Christopher Ellison, John Torkelson*

**10:24AM** - A18.00013: Effects of polydispersity on the order-disorder transition of diblock copolymer melts. *Tom Beardsley, Mark Matsen*

**10:36AM** - A18.00014: Dynamics of Disordered PI-PtBS Diblock Copolymer. *Hiroshi Watanabe*

**10:48AM** - A18.00015: Morphology of Renewable Polylactide / Soybean Oil Blends Compatibilized by Block Copolymers. *Megan Robertson, Kwanho Chang, Marc Hillmyer*

**Session A19: The Physics of Polymer Nanocomposites: Polymer Nanoparticle Interactions**

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Sponsoring Unit: DPOLY

*Chair: Amalie Frischknecht, Sandia National Laboratories*

**8:00 AM, Monday, March 16, 2009**

**8:00AM** - A19.00001: Functional polymer colloids stabilized by type-purified single-wall carbon nanotubes. *Erik K. Hobbie , Jeffrey A. Fagan , Jan Obrzut*

**8:12AM** - A19.00002: Theoretical analysis of dispersing of aggregated nanorods in shear flow in presence of AC electric or magnetic fields. *Victor Pryamitsyn , Venkat Ganesan*

**8:24AM** - A19.00003: Effective Interactions, Structure and Phase Behavior of Polymer Nanocomposites with Nonspherical Fillers. *Lisa M. Hall , Kenneth S. Schweizer*

**8:36AM** - A19.00004: Polymer-tethered nanoparticle “shape amphiphiles”: A new class of macromolecular building block for self-assembly

*Invited Speaker: Sharon Glotzer*

**9:12AM** - A19.00005: Control of the Spatial Distribution of Nanoparticles in Fluorescent Polymer Nanocomposites. *Chelsea Chen , Peter Green*

**9:24AM** - A19.00006: Importance of Chain Connectivity in the Formation of Non-covalent Interactions between Polymers and Single-Walled Carbon Nanotubes. *Dias Linton , Brad C. Miller , Huimin Li , Charles Feigerle , Bobby G. Sumpter , Mark D. Dadmun*

**9:36AM** - A19.00007: The Structure of Amphiphilic Polymers Interacting with Carbon Nanotubes. *Yachin Cohen , Meirav Granite , Wim Pyckhout-Hintzen , Aurel Radulescu*

**9:48AM** - A19.00008: Chain Expansion in Polymer-Nanoparticle Melts. *A. L. Frischknecht , E. S. McGarrity , M. E. Mackay*

**10:00AM** - A19.00009: Effects of nanoparticles on chain dynamics and glass transition in athermal polymer nanocomposites. *Hyun Joon Oh , Peter Green*

**10:12AM** - A19.00010: Dynamics in Nanoparticle Liquids. *Peter Mirau , Michael Jespersen , Richard Vaia , Robert Rodriguez , Emmanuel Giannelis*

**10:24AM** - A19.00011: Hierarchically Structured Block Copolymer Silicate Nanocomposites. *Ross Behling , Eric Cochran*

**10:36AM** - A19.00012: Effect of Copolymer-Nanoclay Interactions on Intercalation Kinetics. *Loan Vo , Haris Retsos , Emmanuel Giannelis*

**10:48AM** - A19.00013: Polymer Nanocomposites Containing Carbon Nanotubes and Exfoliated Nanoplatelets. *Hung-Jue Sue , Dazhi Sun*

**Session A20: Spatially Confined Polymer Materials**

321

Sponsoring Unit: DPOLY

*Chair: Joanne Budzien, Sandia National Laboratories*

**8:00 AM, Monday, March 16, 2009**

8:00AM - A20.00001: Field-Based Simulations of Confined Block Copolymers

*Invited Speaker: Glenn Fredrickson*

**8:36AM** - A20.00002: Diblock copolymers in thin films, *Marianne Heckmann , Barbara Drossel*

**8:48AM** - A20.00003: Block copolymers confined in nano-pores. *Andrei Zvelindovsky , Marco Pinna*

**9:00AM** - A20.00004: Order and Disorder in a Lamella Forming Fluid Near an Attractive Substrate. *Andrew Croll , An-Chang Shi , Kari Dalnoki-Veress*

**9:12AM** - A20.00005: Crystallization behavior of polyethylene under nanoscopic cylindrical confinement. *Woojung Cho , Euntaek Woo , June Huh , Younggyu Jeong , Kyusoon Shin*

**9:24AM** - A20.00006: Managing bond tension in spreading macromolecules. *Sergey Sheyko , Insun Park , Alper Nese , Krzysztof Matyjaszewski , David Shirvaniants , Michael Rubinstein*

**9:36AM** - A20.00007: Spreading of Polymer Films at the Molecular Scale: Conformation, Orientation, and Fractionation. *Michael Barrett , Alper Nese , Krzysztof Matyjaszewski , Sergei Sheiko*

**9:48AM** - A20.00008: Polarization Anisotropy of DNA in Nanochannels. *Fredrik Persson , Fredrik Westerlund , Jonas Tegenfeldt , Anders Kristensen*

**10:00AM** - A20.00009: Scaling of polymer diffusivity in confined colloid-polymer systems. *Amir Amini , Marc Robert*

**10:12AM** - A20.00010: Newtonian drop deformation in a viscoelastic matrix under shear *Shahriar Afkhami , Pengtao Yue , Yuriko Renardy*

#### **Session B4: Polymer Translocation**

**306/307**

Sponsoring Unit: DPOLY

**Chair: Murugappan Muthukumar, University of Massachusetts**

**11:15 AM, Monday, March 16, 2009**

**11:15AM** - B4.00001: Polymer Translocation: What Can We Learn From An Exactly Solvable One-Dimensional Model?

**Invited Speaker: Gary W. Slater**

**11:51AM** - B4.00002: DNA translocation through small channels and pores from molecular models. Hydrodynamic, electrostatic, and hybridization considerations.

**Invited Speaker: Juan de Pablo**

**12:27PM** - B4.00003: Simulation studies of DNA translocation through a nanopore

**Invited Speaker: Aniket Bhattacharya**

**1:03PM** - B4.00004: Anomalous dynamics of polymer translocation

**Invited Speaker: Gerard Barkema**

**1:39PM** - B4.00005: Polyelectrolyte Translocation

**Murugappan Muthukumar**

#### **Session B18: Focus Session: Templated Assembly of Polymers**

**319**

Sponsoring Units: DPOLY

**Chair: Alamgir Karim, NIST**

**11:15AM, Monday, March 16, 2009**

**11:15AM** - B18.00001: Directed Assembly of Biological Polymers

**Invited Speaker: Aline Miller**

**11:51AM** - B18.00002: Hydroxyapatite growth induced by self-assembled noncollagenous extracellular protein: a study on biomineralization (in vitro). Xiaolan Ba , Yizhi Meng , Nadine Pernodet , Sue Wirick , Chris Jacobsen , Helga F\"uredi-Milhofer , Yi-xian Qin , Miriam Rafailovich , Elaine DiMasi

**12:03PM** - B18.00003: Replication of Optical Microstructures of *Papilio palinurus* through Biomimicry. Mohan Srinivasarao , Matija Crne , Vivek Sharma , John Blair , Jung Ok Park , Christopher J. Summers

**12:15PM** - B18.00004: Polyelectrolyte and nanoparticle adsorption to nanopatterned surfaces. Thuy Chastek , Steven Hudson , Vince Hackley

**12:27PM** - B18.00005: Vertical Alignment of Single Wall Carbon Nanotubes (SWNTs) in Thin Polymer Films. Meagan Mauter , Menachem Elimelech , Chinedum Osuji

**12:39PM** - B18.00006: STM study of stereoselective oligomeric chains on cobalt oxide templates. Daejin Eom , Hui Zhou , Kwang T. Rim , Michael Lefenfeld , Colin Nuckolls , George W. Flynn , Tony F. Heinz

**12:51PM** - B18.00007: Breath-figure-templated assembly of holey polymer films. Vivek Sharma, Mohan Srinivasarao

**1:03PM** - B18.00008: Gelation in Semiflexible Polymers. Venkat Padmanabhan , Sanat K. Kumar

**1:15PM** - B18.00009: Highly Ordered Block Copolymer Templates for the Generation of Nanostructured Materials. E. Bhoje Gowd , Bhanu Nandan , Nadja C. Bigall , Alexander Eychmuller , Manfred Stamm

**1:27PM** - B18.00010: Polymeric nanocomposite comprising size-controlled organic nanostructures via copolymer-directed self-assembly. Dequan Xiao , Kunhua Lin , Qiang Fu , Qinjian Yin

**1:39PM** - B18.00011: Orientational Change of Microphase-Separated Domains of Block Copolymer Thin Films Placed on Ordered Nanoparticle Monolayers. Kookheon Char , Taehee Kim

**1:51PM** - B18.00012: Directed self-assembly of block copolymers for resolution enhancement and pattern rectification. Joy Cheng , Charles Rettner , Daniel Sanders , Alshakim Nelson , Hoa Truong , Ho-Cheol Kim , William Hinsberg

**2:03PM** - B18.00013: Tetragonal Ordering in Block Copolymer-Homopolymer Blend Films Laterally Confined in a Square Well. Su-Mi Hur , Carlos Garcia-Cervera , Ed Kramer , Glenn Fredrickson

**Session B19: Focus Session: Polymers and Ionic Liquids**

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Sponsoring Unit: DPOLY

**Chair: Peggy Cebe, Tufts University**

**11:15 AM, Monday, March 16, 2009**

**11:15AM** - B19.00001: Block Copolymers and Ionic Liquids: A New Class of Functional Nanocomposites

**Invited Speaker: Timothy Lodge**

**11:51AM** - B19.00002: Phase Behavior of Block Copolymer Solutions in an Ionic Liquid. *J.M. Virgili, M.L. Hoarfrost, N.P. Balsara, R.A. Segalman*

**12:03PM** - B19.00003: Ordering of Triblock Copolymer Surfactants by Blending with a Room Temperature Ionic Liquid. *Daniel Miranda, James Watkins, Thomas Russell*

**12:15PM** - B19.00004: Phase separation induced by polymer-ionic molecule complexation. *Issei Nakamura, An-Chang Shi*

**12:27PM** - B19.00005: Morphology and Ion Transport in Mixtures of Polymers and Ionic Liquid. *Jae-Hong Choi, Liang Gwee, Yossef A. Elabd, Karen I. Winey*

**12:39PM** - B19.00006: Dissolving Polymers in Ionic Liquids. *David Hoagland, John Harner*

**12:51PM** - B19.00007: Polyester Spherulite Crystallization in Ionic Liquids. *Kathy Singfield, Shawna Mitchell*

**1:03PM** - B19.00008: Understanding Ion Transport in Polymerized Ionic Liquids using Dielectric Spectroscopy. *U. Hyeok Choi, Hong Chen, Wenjuan Liu, Yossef A. Elabd, Ralph H. Colby*

**1:15PM** - B19.00009: Enhanced ionic conductivity of polyurethane ionomers by self-solvating cations. *Shih-Wa Wang, Ralph Colby*

**1:27PM** - B19.00010: Weakening Ion Interactions in Ionomers using Ionic Liquid Counterions. *Gregory Tudryn, Ralph H. Colby*

**1:39PM** - B19.00011: Processing of Natural Polymer-nanocomposites using Ionic Liquids as "Green Solvents." *Sameer Rahatekar, Asif Rasheed, Rahul Jain, K. Koziol, Alan Windle, Paul Trulove, Satish Kumar, Jeffrey Gilman*

**1:51PM** - B19.00012: Biocompatible Ionic Liquid-Derived Conducting Polymers. *Millicent Firestone, Christopher Burns, Sungwon Lee*

**Session B20: Focus Session: Polymers and Energy: Photovoltaics, Fuel Cells, Batteries I**

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Sponsoring Unit: DPOLY

**Chair: Bumjoon Kim, Korea Advanced Institute of Science and Technology**

**11:15AM, Monday, March 16, 2009**

**11:15AM** - B20.00001: Polymers for new battery technologies.

**Invited Speaker: Mohit Singh**

**11:51AM** - B20.00002: Control of Domain Orientation in Block Copolymer Electrolyte Membranes at the Interface with Humid Air. *Moon Jeong Park, Suhan Kim, Andrew M. Minor, Nitash P. Balsara*

**12:03PM** - B20.00003: Vertical phase-separation due to differences in surface energies in bulk heterojunction polymer solar cells. *Sarah Cowan, Anshuman Roy, Ji Sun Moon, Sung Heum Park, Alan Heeger*

**12:15PM** - B20.00004: Investigation of the bulk heterojunction structure of organic photovoltaics using neutron reflectivity. *Jonathan Kiel, Brian Kirby, Michael Mackay*

**12:27PM** - B20.00005: Size- and Shape-dependent efficiency of PbSe nanocrystal and nanowire doped organic semiconductor photovoltaics. *Wenting Li, Christopher Murray, Cherie Kagan*

**12:39PM** - B20.00006: Transient photovoltaic behavior of air-stable inverted organic solar cells with solution-processed electron transport layer and high work function top electrode. *Chang Su Kim, Yueh-Lin (Lynn) Loo*

**12:51PM** - B20.00007: Controlling Photovoltaic Loss: Recombination of Dissociated Electrons and Holes in Organic Solar Cells. *Zhihua Xu, Huidong Zang, Bin Hu*

**1:03PM** - B20.00008: Photo-induced improvement of Bulk Heterojunction Polymeric Solar Cells. *Kamil Mielczarek, Alexander Cook, Anvar Zakhidov*

**1:15PM** - B20.00009: High-Vacuum Annealing of Polythiophene:Methanofullerene Bulk Heterojunction Solar Cells. *Jennifer Segui, Ioana Gearba, Miriam Rafailovich, Charles Black*

**1:27PM** - B20.00010: Optimizing Ionic Electrolytes for Dye-Sensitized Solar Cells. *Xiaojuan Fan, Sarah Hall*

**1:39PM** - B20.00011: Improved polythiophene conductivity by thermal crosslinking for solar cell applications. *I.R. Gearba, C.-Y. Nam, R. Pindak, C.T. Black*

**1:51PM** - B20.00012: Modeling photocurrent transients in organic solar cells. *Inchan Hwang, Neil Greenham*

**2:03PM** - B20.00013: Conjugated Polymer Organic Solar Cells made using Low Bandgap Vinylene-linked Benzothiadiazole-thiophene. *N. C. Heston, J. Mei, S. Vasilyeva, J. R. Reynolds*

## **Session C1: Poster Session I**

Exhibit Hall A

2:00 – 5:00 PM

### **C1.00001: POLYMERIC AND ORGANIC MATERIALS I**

**C1.00002:** High Electric Energy Storage in a Three-Phase Polymer Nanocomposite. *Jing Wang , Fangxiao Guan , Lei Zhu*

**C1.00003:** Rheological Singularity near the Phase Transition of Hairy Nanoparticles in Polymer Melts. *Xiaorong Wang , Victor Foltz , Mindaugas Rackaitis , Georg Bohm*

**C1.00004:** The use of the radius of gyration in a WLC polymer model of cancer cell adhesion to glycosaminoglycans substrates. *Antonio Peramo , Garrett Matthews*

**C1.00005:** Polymer dynamics and ion conduction in modified soluble starch. *HyungKi Lee , James Runt*

**C1.00006:** Responsive Block Copolymer and Gold Nanoparticle Hybrid Nanotubes. *Sehoon Chang , Srikanth Singamaneni , Seth Young , Vladimir Tsukruk*

**C1.00007:** Magnetic Field Alignment of Rod-Coil Block Copolymers and Identification of Liquid Crystalline Orientation. *X. Gu , B.D. Olsen , A. Hexemer , E. Gann , R.A. Segalman*

**C1.00008:** A New Level of Hierarchical Structure Control by Use of Supramolecular Self-assembled Dendronized Block Copolymers. *Raffaele Mezzenga , Chaoux Li , Dieter Schluter , Afang Zhang*

**C1.00009:** Fabrication of Highly Ordered Nanostructured Block Copolymer Templates using Supramolecular Assembly Approach. *E. Bhoje Gowd , Manfred Stamm*

**C1.00010:** Neutron Reflectivity Study of dPS Brushes Grown from an Inimer Embedded Photopolymer Matrix. *Onome Swader , Damla Koylu , Kenneth Carter , Mark Dadmun*

**C1.00011:** Surface Dynamics of Branched Polystyrene films. *Shih-Fan Wang , Jae Sik Lee , Sewoo Yang , Roderic P. Quirk , Mark D. Foster , Zhang Jiang , Suresh Narayanan , David Wu*

**C1.00012:** Magnetic Field Driven Alignment of Lamellar and Hexagonal Surfactant Mesophases for Templated Synthesis of Nanomaterials. *Pawel Majewski , Chinedum Osuji*

**C1.00013:** Long Range Order of Block Copolymer/CS<sub>60</sub> Thin Films. *Katie Campbell , David Bucknall , Yonathan Thio*

**C1.00014:** Orientation distribution in a uniaxially and biaxially drawn poly(L-lactic acid) by Raman spectra. *Min Sang Park , Yee Shan Wong , Subbu Venkataraman , Mohan Srinivasarao*

**C1.00015:** Highly Ordered Nanoporous Template from ABC Triblock Copolymer. *Dong Hyun Lee , Soojin Park , Thomas Russell*

**C1.00016:** Morphology and Ionic Conductivity of Block Copolymer--Ionic Liquid Systems. *M.L. Hoarfrost , J.M. Virgili , J.B. Kerr , R.A. Segalman*

**C1.00017:** Ionic Salt Effect on the Phase Transition of PS-b-P2VP Copolymers. *Bokyung Kim , Hyungju An , Du Yeol Ryu , Jehan Kim*

**C1.00018:** Comb Polymer Architectures for Versatile Nanoparticle Assembly. *Alexander Mastroianni , Kari Thorkelsson , Yue Zhao , Joseph Luther , Jill Millstone , Paul Alivisatos , Jean Frechet , Ting Xu*

**C1.00019:** Electric Energy Storage in P(VDF-HFP) Copolymers with Different Crystallinities. *Fangxiao Guan , Steven Boggs , Lei Zhu*

**C1.00020:** Multi-scale simulation on solid benzene. *Hua Liu , Hendrik Heinz*

**C1.00021:** Viscoelastic Properties of Nanoimprinted Polymers. *Christopher Soles , Yifu Ding , Hyunwook Ro , Kyle Alvine , Jing Zhou , Jack Douglas*

**C1.00022:** Examination of Nonliquidlike Behaviors in Molten Polymer Films. *Z.H. Yang , Y.J. Wang , L. Todorova , O.K.C. Tsui*

**C1.00023:** Preparation of Mesoporous Ceramics from Polymer Nanotubes. *Dian Chen , Soojin Park , Jiun-Tai Chen , Emily Redston , Thomas Russell*

**C1.00024:** Coarse Grained Simulation of Block Copolymer Systems. *Ludwig Schreier , Marco Pinna , Xiaohu Guo , Andrei Zvelindovsky*

**C1.00025:** Computer Simulation of Metallo-Supramolecular Networks. *Shihu Wang , Chun-Chung Chen , Elena Dormidontova*

**C1.00026:** Heat Capacity of Poly(silk) Silk Fibroin Based on the Vibrational-Motion of Poly(amino acid)s. *Marek Pyda , Xiao Hu , Peggy Cebe*

**C1.00027:** Heat Capacity of the Silk-Water System Based on Vibrational-Motions of Poly(amino acid)s and Water. *Marek Pyda , Xiao Hu , Peggy Cebe*

**C1.00028:** A Generic Fourier-Space Approach for Discovering Ordered Phases of ABC Star Triblock Copolymers. *Feng Qiu , Guojie Zhang , Ping Tang , Hongdong Zhang , An-Chang Shi*

**C1.00029:** Collapse Transitions in Thermosensitive Alternating Copolymers: A Monte Carlo Study. *Ioannis Bitsanis , Anastasia Rissanou , Stanislav Burov , Eveangelos Manias*

**C1.00030:** Dynamics of Polystylen (PS) Melts: Multi-Scale Molecular Dynamic(MD) Approach. *Won Bo Lee , Vagelis Harmandaris , Dominik Fritz , Kurt Kremer*

**C1.00031:** Differential AC-chip nanocalorimeter for measurements at low pressure. *Mathias Ahrenberg , Heiko Huth , Christoph Schick , Kenneth Kearns , Mark D. Ediger*

**C1.00032:** Phase Stability in Nanoparticle/Homopolymer Thin Film Mixtures. *Jenny Kim , Peter Green*

**C1.00033:** Healing of Crack on Brittle Substrate by Dual Cross-Linked Nanogel Coating. *German Kolmakov , Krzysztof Matyjaszewski , Anna Balazs*

**C1.00034:** Design of responsive polymer surfaces with ultrafast response time. *Jan Genzer , Evren Ozcam , Julie Willoughby*

**C1.00035:** Swelling Behavior of Diblock Copolymer Brushes. *Bulent Akgun , Sushil Satija , Gokce Ugur , Mark D. Foster*

**C1.00036:** Effect of density and structure on dynamics within self-assembled monolayers. *Derrick Stevens , Mary Scott , Jason Bochinski , Laura Clarke*

**C1.00037:** Partial Crystallinity in Alkyl Side Chain Polymers. *Vasav Sahni , Shishir Prasad , Johanna Villate , Zhang Jiang , Sunil Sinha , Ali Dhinojwala*

**C1.00038:** Modifying material surfaces by siloxane-based coatings. *Ali Ozcam , Jan Genzer*

**C1.00039:** Carbon Nanotube Intra-connects With Conductive Polymers. *Seon Woo Lee , Haim Grebel , Andrei Sirenko , Daniel Lopez , Avi Kornblit*

**C1.00040:** Orientation Dynamics in Multi-Wall Carbon Nanotube Dispersions under Shear Flow. *Saswati Pujari , Sameer Rahatekar , Jeffrey Gillman , Krzysztof Koziol , Alan Windle , Wesley Burghardt*

**C1.00041:** Defect Structures in Block Copolymer/Nanoparticle Blends. *Hyung Ju Ryu , Michael Bockstaller*

**C1.00042:** Effect of Nanoparticle Core Size on Polymer-Coated Gold Nanoparticle Location in Block Copolymers. *J. D. Petrie , G. H. Fredrickson , E. J. Kramer*

**C1.00043:** Segmental dynamics in poly(cyclohexyl methacrylate) / poly(alpha-methylstyrene) blends. *Gareth Royston , Paul Sotta , Didier Long*

**C1.00044:** Surface segregation of end-functionalized homopolymers in a homopolymer matrix. *Michael Dimitriou , Cheng Wang , Kristin Schmidt , Harald Ade , Craig Hawker , Edward Kramer*

**C1.00045:** Co-crystallization of Alkanes with Longer Methylene Segments within a Statistically Random Copolymer. *Jeffrey Kalish , Suriyakala Ramalingham , Yuning Yang , Shaw Ling Hsu*

**C1.00046:** Phase Behavior of a Weakly Interacting Polystyrene and Poly(n-hexyl methacrylate) System. *Hyungju Ahn , Sudhakar Naidu , Du Yeol Ryu , Junhan Cho*

**C1.00047:** Polydisperse Block Copolymer Melts: Beyond the Schulz-Zimm Distribution. *Nathaniel Lynd , Marc Hillmyer , Mark Matsen*

**C1.00048:** Network Phase Behavior of ABC Triblock Copolymer-Homopolymer Blends for Nanoporous Membranes. *Maeva Tureau , Thomas H. Epps, III*

**C1.00049:** Solution self-assembly behavior of block copolymer blends with restricted hydrophilic block *Jiahua Zhu , Sheng Zhong , Ke Zhang , Karen Wooley , Darrin Pochan*

**C1.00050:** Time-composition superpositioning in the rheological behavior of triblock copolymer/selective co-solvent blends. *Arjun Krishnan , Rudolf Bukovnik , Richard Spontak*

**C1.00051:** Drop shape analysis of poly-styrene acrylic acid gradient copolymer at oil/water interfaces. *Wa Yuan , Michelle Mok , John Torkelson , Kenneth Shull*

**C1.00052:** Influence of Binding Strength on the Structure of Supramolecular Polymer-Surfactant Complexes. *Manesh Gopinadhan , Evan Beach , Paul Anastas , Chinedum Osuji*

**C1.00053:** Registration of Lamellar Microdomains of PS-b-PMMA to Topographic Guiding Patterns. *Sang-Min Park , Charles Retmer , Jed Pitera , Ho-Cheol Kim*

**C1.00054:** The Assembly of Cyclopeptide-Polymer Conjugates and Block Polymer. *Nana Zhao , Brett Helms , Ting Xu*

**C1.00055:** Block Copolymer Based Supramolecules for Organoelectronics. Benjamin Rancatore , Shih-Huang Tung , Clayton Mauldin , Paul Tillberg , Claire Woo , Jean M.J. Frechet , Ting Xu

**C1.00056:** Chain Bridging in Semicrystalline Multiblock Copolymers. *Manas Shah , Venkat Ganesan*

**C1.00057:** Tuning the Structure-Directing Block in Crystalline-Crystalline Diblock Copolymers. *Sheng Li, Sasha Myers , Richard Register*

**C1.00058:** Tethered Polyhedral Oligomeric Silsesquioxane on Lamellar Single Crystal of Poly(D-lactide). *Xin-Fei Yu , Wen-Bin Zhang , Ryan Van Horn , Roderic Quirk , Stephen Cheng*

**C1.00059:** A simple method to control the porosity in thin block-copolymer films. *Wonjoo Lee , Xin Zhang , Robert M. Briber*

**C1.00060:** Nanoscale functionalized surface pattern by combining block copolymer template and click chemistry. *Xinyu Wei , Wei Chen , Thomas Russell*

**C1.00061:** Controlled morphology of Nafion<sup>®</sup> perfluorinated ionomer membrane and poly(vinylidene-co-trifluoroethylene) blends for swelling suppression. *Nadzrinahamin Ahmad Nazir , Thein Kyu*

**C1.00062:** Synthesis and Morphology Study of Copolymers Containing Imidazolium Group. *David Salas-de la Cruz , Sharlene R. Williams , John Layman , Matt Green , Timothy E. Long , Karen I. Winey*

**C1.00063:** Nanoscale Ionic Aggregate Morphology in Zwitterionic Copolymers. *Jae-Hong Choi , Rebecca Huyck , David Salas-de la Cruz , Timothy E. Long , Karen I. Winey*

**C1.00064:** Dynamics and Morphology of Sulfonated Polystyrene Ionomers by Dielectric Spectroscopy. *Alicia Castagna , Wenqin Wang , Karen I. Winey , James Runt*

**C1.00065:** Dynamics of Strongly Associating Polymer Blends Using Broadband Dielectric Spectroscopy. *Kevin Masser , James Runt*

**C1.00066:** Investigating void development in filled elastomers under uniaxial strain. *Ailish O'Halloran , Arthur Scholz , Kristin Schmidt , Lixia Rong , Shigeyuki Toki , Benjamin Hsiao , Ed Kramer*

**C1.00067:** Probing the Mullins Effect in Filled Elastomers by Small Angle X-ray and Neutron Scattering. *Arthur Scholz , Rex Hjelm , Mark Taylor , Ed Kramer*

**C1.00068:** Segmented polyurethanes containing carbon nanotube nanohybrid shishkebabs. *Matthew Hood , James Sands , John LaScala , Rick Beyer , Christopher Li*

**C1.00069:** Efficient Synthesis of Poly(hydroxyethyl Methacrylate)-b-Poly(dimethylaminoethyl Methacrylate) Block Copolymer by Atom Transfer Radical Polymerization. *Wei Tang , Yueh-Lin Loo*

**C1.00070:** Atom Transfer Radical Copolymerization of Gradient Copolymers of HEMA/DMAEMA with Arbitrary Composition Profiles. *Keith Gallow , Yueh-Lin Loo*

**C1.00071:** Improving the Electrical Conductivity of Polyaniline Through Molecular Control. *Joung Eun Yoo , William Krekelberg , Tracy Bucholz , Thomas Truskett , Yueh-Lin Loo*

**C1.00072:** An Investigation of Polyelectrochromism in Water-Dispersible Polyaniline. *Jacob Tarver , Joung Eun Yoo , Yueh-Lin Loo*

**C1.00073:** Development of Polymer Electrolyte Membrane (PEM) from Bisphenol S for Direct Methanol Fuel Cell (DMFC). *Sairung Changkhamchom*

**C1.00074:** Iontophoresis of Salicylic Acid From Salicylic Acid Doped Poly(p-phenylene vinylene)/ Polyacrylamide Hydrogels. *Sumonman Niamlang*

**C1.00075:** Morphology of Hole Injection Layers for Polymer Light Emitting Diodes. *Kristin Schmidt , Karen E. Sohn , Fabrice Amy , Ling Yang , Edward J. Kramer*

**C1.00076:** Nanoparticle Tethered Perylene Tetracarboxylic Diimides as Novel Photo Harvesting Antennae. *Wenbin Zhang , Bin Sun , Hui Li , Matthew Panzner , Wiley Youngs , Roderic Quirk , Stephen Cheng*

**C1.00077:** Highly Ordered Phases in Electrochemically Deposited Poly(3,4-ethylenedioxythiophene) (PEDOT)-LiBr. *Jinghang Wu , Sarah Spanninga , David Martin*

**C1.00078:** Sensitivity Enhancement of PEDOT-PSS towards CO by Zeolite ZSM-5 Additive. *Pojjawan Chanthaanont*

**C1.00079:** Flexible Field Emission Devices. *Sunny Sethi , Ali Dhinojwala*

**C1.00080:** Effect of light attenuation on motion of photo-responsive polymer gels. *Pratyush Dayal , Olga Kuksenok , Anna C. Balazs*

**C1.00081:** Watching Nanoparticles Move through Polymers. *Juan Guan , Bo Wang , Stephen Anthony , Sung Chul Bae , Steve Granick*

**C1.00082:** An emerging theoretical picture of yielding for entangled polymeric liquids undergoing sudden deformation and flow. *Shi-Qing Wang , P.E. Boukany , S. Ravindranath , Y.Y. Wang , X. Li*



**C1.00083:** Gas Diffusion and Free Volume Behavior of Ethylene Vinyl Alcohol Copolymers: Effect of Hydrogen Bonding Interaction. *Justin Brandt , Sergei Nazarenko , Brian Olson , Alexander Jamieson*

**C1.00084:** The Viscoelastic Bulk Modulus: Effect of Crosslink Density. *Jiayi Guo , Sindee Simon*

**C1.00085:** Adhesion Behavior of Non-planar Wrinkled Surfaces. *Santanu Kundu , Ravi Sharma , Alfred Crosby*

**C1.00086:** Microvoid formation and strain hardening in highly cross-linked polymer networks. *Debashish Mukherji , Cameron Abrams*

**C1.00087:** Quantification of Molecular and Nanostructural Topology. *Ramnath Ramachandran , Gregory Beaucage*

**C1.00088:** Computer simulation study of solvent quality and reaction geometry on controlled radical polymerization. *Salomon Turgman , Jan Genzer*

**C1.00089:** Borylation of Polystyrene: Random Blocky vs. Truly Random Copolymers. *Wayne Powers , Zachariah Norman , Chang Ryu , Chulsung Bae , Jan Genzer*

**C1.00090:** Phase behavior study of polystyrene and deuterated polystyrene in alkyl-cyclohexanes. *Zachariah Norman , Wayne Powers , Chang Ryu*

**C1.00091:** Zero-dimensional organic nanoparticles via copolymer directed self-assembly. *Dequan Xiao , Kunhua Lin , Qiang Fu , Qinjian Yin*

**C1.00092:** Capillary thinning and break-up of hydrogel-elastomer composites. *Yinan Lin , Darrell Reneker*

**C1.00093:** Ultrafast Nanocalorimetry and Superheating in Linear Polymers. *Christoph Schick , Alexander Minakov , Andreas Wurm*

**C1.00094:** Intermolecular Interactions in Polymer/C60 Blends. *Peter Mirau , Marjan Lyons*

**C1.00095:** Effect of Hydrophobicity on the Adsorption of Human IgG to Thiolated Gold Surfaces as Characterized by SPR. *Kristen Duthie , Adele Poyner*

**C1.00096:** Understanding Rubber Friction in the Presence of Water Using Sum Frequency Generation Spectroscopy. *Ping-Yuan Hsu , Kumar Nanjundiah , Ali Dhinojwala*

**C1.00097:** Protected Plasmonic Nanostructures for High Resolution Chemical Imaging using Tip Enhanced Raman Spectroscopy. *Rebecca Butt , Carlos Barrios , Andrey Malkovskiy , Alexander Kisliuk , Alexei Sokolov , Mark Foster*

**C1.00098:** Infrared and optical spectroscopy study of UHMWPE polymers. *M.S. Wolf , J.N. Morvan , S.V. Dordevic , N. Stojilovic*

**C1.00099:** Resonant soft x-ray reflectivity studies on the structural arrangement of polymers at interfaces. *Markus Mezger , Blandine Jerome , Jeffrey Kortright , Manuel Valvidares , Eric Gullikson*

**C1.00100:** A spectroscopic ruler to measure chain conformations at the solid-liquid interface. *Subhalakshmi Kumar , Janet Wong , Sung Chul Bae , Steve Granick*

**C1.00101:** Vibrational Relaxation and Dynamical Transitions in Atactic Polystyrene. *Hanqing Zhao , Yung Park , Paul Painter*

**C1.00102:** Specific Heat Spectroscopy of Simple Chain Models. *Jonathan R. Brown , John D. McCoy , Douglas Adolf , Brian Borchers*

**Session D18: Focus Session: Transport and Optical Properties of Conjugated Polymers and other Solution Processable Semiconductors**

**319**

Sponsoring Units: DPOLY, DMP

**Chair: Anvar Zakhidov, University of Texas at Dallas**

**2:30 PM, Monday, March 16, 2009**

**2:30PM** - D18.00001: Microstructure and Charge Transport in pBTTT Thin Film Transistors. *Chenchen Wang , Alberto Salleo , Ludwig Goris , Iain McCulloch , Martin Heeney , Alexander Ziegler*

**2:42PM** - D18.00002: Interfacial Charge Transfer in Nanoscale Polymer Transistors. *Jeffrey Worne , Rajiv Giridharagopal , Kevin Kelly , Douglas Natelson , John Anthony*

**2:54PM** - D18.00003: Ab initio study of molecular packing of organic semiconducting materials. *Sefa Dag , Lin-Wang Wang*

**3:06PM** - D18.00004: Electrical Noise in Individual Conducting Polymer Nanowires. *Alexey Kovalev , Yanyan Cao , Theresa Mayer , Thomas Mallouk*

**3:18PM** - D18.00005: Thin film morphology of organic electronic materials. *S. D. Hudson , R. J. Kline , D. M. Delongchamp , O. D. Jurchescu , D. J. Gundlach , L. J. Richter*

**3:30PM** - D18.00006: Conjugated polymer/layered inorganic nanocomposites: solution processable route to enhanced thermoelectric performance. *Kevin See , Jeffrey Urban , Rachel Segalman*

**3:42PM** - D18.00007: Revealing Transmission in Metal-Molecule Junctions Using Length Dependant Thermopower Measurements. *Jonathan A. Malen , Peter Doak , Kanhayalal Baheti , T. Don Tilley , Arun Majumdar , Rachel A. Segalman*

**3:54PM** - D18.00008: Thermally-Induced Mesophase Transitions in Alkyl-Substituted Thienoacenes. *Charles M. Shaw , Xinnan Zhang , Lidaris San Miguel Rivera , Geetha G. Nair , Antal Jakli , Adam J. Matzger , David C. Martin*

**4:06PM** - D18.00009: Fullerene-based anchoring groups for molecular electronics. *Christian Martin , Dapeng Ding , Jakob Sorensen , Thomas Bjornholm , Jan van Ruitenbeek , Herre van der Zant*

**4:18PM** - D18.00010: An organic nanoparticles transistor behaving as a spiking synapse. *Dominique Vuillaume , Fabien Alibert , Christophe Novembre , David Guerin , Stephane Pleutin , Kamal Lmimouni , Christian Gamrat*

**4:30PM** - D18.00011: The role of the oxygen/water redox couple in suppressing electron conduction in field-effect transistors. *Pierre L. Levesque , Carla M. Aguirre , Matthieu Paillet , Fran[c]ois Lapointe , Benoit C. St-Antoine , Patrick Desjardins , Richard Martel*

**Session D19: Focus Session: Grazing Incidence Scattering and New Imaging Techniques**

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Sponsoring Unit: DPOLY

*Chair: Marcus Cicerone, National Institute of Standards and Technology*

**2:30 PM, Monday, March 16, 2009**

**2:30PM** - D19.00001: Probing kinetics and dynamics of nanocomposites with grazing-incidence small-angle x-ray scattering.

*Invited Speaker: Jin Wang*

**3:06PM** - D19.00002: Single beam approach for GISAXS. *Byeongdu Lee , Chieh-Tsung Lo , Pappannan Thiyagarajan , Zhongwei Niu , Qian Wang*

**3:18PM** - D19.00003: Surface Dynamics of Free PS Chains on Chemically Identical Polymer Brushes: An XPCS Study. *Gokce Ugur , Bulent Akgun , Zhang Jiang , Suresh Narayanan , William J. Brittain , Mark D. Foster*

**3:30PM** - D19.00004: X-ray Standing Wave Studies of Stability and Dynamics in Poly(4-bromostyrene)/Poly(4-vinylpyridine) Thin Films. *Yan Sun , Kenneth Shull , Jin Wang*

**3:42PM** - D19.00005: Quantitative electron tomography and its application to polymer nanostructures

*Invited Speaker: Hiroshi Jinnai*

**4:18PM** - D19.00006: Three-dimensional subwavelength imaging with phase-less power extinction tomography. *Alexander A. Govyadinov , George Y. Panasyuk , John C. Schotland*

**4:30PM** - D19.00007: Helium ion microscopy and its application to organic materials. *Steven Hudson , Andras Vladar , Bin Ming*

**4:42PM** - D19.00008: Robust Tips for High Resolution Chemical Imaging. *Carlos Barrios , Andrey Malkovskiy , Alexander Kisliuk , Alexei Sokolov , Mark Foster*

**4:54PM** - D19.00009: Broadband CARS microscopy. *Marcus Cicerone , Joung Lee , Yeon Ho Kim , Sapun Parekh*

**5:06PM** - D19.00010: Intensity Fluctuations of Optical Microscopy as a Means to Measure Axial Diffusion. *Malvika Bihari , Thomas Russell , David Hoagland*

**5:18PM** - D19.00011: Three-Dimensional Imaging of Polymeric Nanostructures by Molecular Switching in Far Field Fluorescence Microscopy. *Chaitanya Ullal , Roman Schmidt , Alexander Egner , Benjamin Harke , Jan Keller , Douglas Adamson , Lars Kastrup , Stefan Hell*

**Session D20: Polymers and Energy: Photovoltaics, Fuel Cells, Batteries II**

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Sponsoring Units: DPOLY

*Chair: Azar Alizadeh, General Electric*

**2:30 PM, Monday, March 16, 2009**

**2:30PM** - D20.00001: Simulation study of proton transport in stretched nanocomposite ionomer fuel-cell membranes. *Philip Taylor , Elshad Allahyarov*

**2:42PM** - D20.00002: The role of nanoparticle-membrane coupling in nanocomposite ionomers. *Elshad Allahyarov , Philip Taylor*

**2:54PM** - D20.00003: Multi-Lamellar Structures in Nafion. *Joseph A. Dura , Vivek S. Murthi , Michael R. Hartman , Sushil K. Satija , Charles F. Majkrzak*

**3:06PM** - D20.00004: RT-TDDFT simulation of the optical properties of a model organic photovoltaic device. *F. Vila , J.J. Rehr*

**3:18PM** - D20.00005: Collecting photo-generated charge carriers from metallo-organic materials. *A.R. Carter , J.H. Park , Y.-H. Chou , Y. Ghosh , C.R. Reed , L.M. Mier , T.L. Gustafson , M.H. Chisholm , A.J. Epstein*

**3:30PM** - D20.00006: Monolithic Tandem Organic Photovoltaic Cell Utilizing Transparent Carbon Nanotube Interlayer. *Kamil Mielczarek , Senku Tanaka , Raquel Ovalle Robles , Alexander Kuznetsov , Brian Wang , Dean Hsu , Ray Baughman , Anvar Zakhidov*

**3:42PM** - D20.00007: Tandems of solid dye-sensitized solar cell with carbon nanotubes interlayer. *Chao-Chen Yuan , Jiangbin Xia , Anvar Zakhidov*

**3:54PM** - D20.00008: NEXAFS Spectroscopy of Biomimetic Dyes for Solar Cells. *Peter Cook , Xiaosong Liu , Franz Himpsel*

**4:06PM** - D20.00009: Semiconductor Conjugated Polymer-Quantum Dot Nanocomposites at the Air/Water Interface and Their Performance in Thin Film Solar Cells. *Zhiqun Lin , Matthew Goodman , Jun Xu , Jun Wang*

**4:18PM** - D20.00010: Effect of polymer mobility on conductivity of single-ion conductors. *Kokonad Sinha , Janna Maranas*

**4:30PM** - D20.00011: Electrochemical Characterization of poly (styrene-b-ethylene oxide)/LiTFSI Lamellar Diblock Copolymer Electrolyte System. *Nitash Balsara , Ashoutosh Panday , Scott Mullin , Nisita Wanakule*

**4:42PM** - D20.00012: Progress toward few-molecule photochemistry with a low temperature STM. *David Daughton , Donghun Lee , Jay Gupta*

**4:54PM** - D20.00013: Confinement-Induced Fast Discharge and Low Dielectric Losses in Ferroelectric PVDF Graft Copolymers. *Lei Zhu , Fangxiao Guan , Zhongzhe Yuan*

**5:06PM** - D20.00014: First-principles Simulation of Electrochemical Systems at Fixed Applied Voltage: Vibrational Stark Effect for CO on Platinum Electrodes. *Ismaila Dabo , Eric Cances , Yanli Li , Nicola Marzari*

## Session H2: Polymer Physics Prize Symposium Honoring Steve Granick

### Spirit of Pittsburgh Ballroom BC

Sponsoring Unit: DPOLY

Chair: *Michael Rubinstein, University of North Carolina*

**8:00 AM, Tuesday, March 17, 2009**

#### **8:00AM - 8:36AM**

H2.00001: Polymer Physics Prize Talk: Polymer Mobility at Surfaces and in Confined Environments

*Invited Speaker: Steve Granick*

#### **8:36AM - 9:12AM**

H2.00002: Engineered Colloids Having Particles of Controlled Size, Shape, and Chemistry

*Invited Speaker: Joseph DeSimone*

#### **9:12AM - 9:48AM**

H2.00003: Polymers under Cylindrical Confinement

*Invited Speaker: Thomas Russell*

#### **9:48AM - 10:24AM**

H2.00004: The Challenge of Understanding the “Complexity” of Polymeric Fluids and Solutions

*Invited Speaker: Jack Douglas*

#### **10:24AM - 11:00AM**

H2.00005: Anisotropic Self-Assembly of Nanoparticle Amphiphiles

*Invited Speaker: Sanat Kumar*

## Session H18: Block Copolymer Thin Films I

**319**

Sponsoring Units: DPOLY

Chair: Kevin Yager, National Institute of Standards and Technology, Polymers

**8:00 AM, Tuesday, March 17, 2009**

#### **8:00AM - 8:36AM**

##### **H18.00001: Polymer Physics Prize Symposium Break**

**8:36AM** - H18.00002: Analysis of block-copolymer thin film ordering through a moving thermal zone. *Kevin Yager, Nathaniel Fredin, Ronald Jones*

**8:48AM** - H18.00003: Neutral Parameter Window for Perpendicularly Oriented Block Copolymer Resists Deposited on Organosilicate Substrates with Tunable Surface Energy. *Hyoseon Suh, Kookheon Char, Huiman Kang, Paul F. Nealey*

**9:00AM** - H18.00004: Effect of Surface Energetics on Block Copolymer Thin Film Phase Behavior. *Julie Lawson, Michael Baney, Thomas Epps*

**9:12AM** - H18.00005: Systematic tunability of self-assembled block copolymer patterns. *Yeon Sik Jung, Caroline Ross*

**9:24AM** - H18.00006: Solvent annealing of Micropatterned PS-b-PEO copolymer films. *Tae Hee Kim, Himadri Acharya, Hee June Joeng, Cheolmin Park*

**9:36AM** - H18.00007: Transition Behavior of Block Copolymer Thin Films. *Du Yeol Ryu, Changhak Shin, Hyungju Ahn, June Huh, Kwang-Woo Kim, Thomas Russell*

**9:48AM** - H18.00008: Thin Film Morphology of Diblock and Triblock Copolymers with Bulk Order-Order Transitions (OOT). *K.E. Sohn, R.C. Coffin, G.C. Bazan, E.J. Kramer, K. Kojio, B.C. Berry, A. Karim, M. Sprung, J. Wang*

**10:00AM** - H18.00009: UV-Induced Order-to-Order Transition (OOT) in Thin Films of Supramolecular Diblock Copolymer Assemblies Containing 2-(4'-Hydroxyphenylazo)benzoic Acid. *Wei Chen, Jia-Yu Wang, Xinyu Wei, Anna Balazs, Thomas Russell*

**10:12AM** - H18.00010: Dilute Micelle Arrays in Block Copolymer Thin Films. *John Papalia, Richard Register, Douglas Adamson, Paul Chaikin*

**10:24AM** - H18.00011: Surface Dynamics of Segregation Layer in Blockcopolymer Films. *Sanghoon Song, Wonsuk Cha, Zhang Jiang, Suresh Narayanan, Adrian Ruehm, Sunil K. Sinha, Hyunjung Kim*

**10:36AM** - H18.00012: Block Copolymer Brushes. *Mark Matsen*

## Session H19: Solid Amorphous Polymers

320

Sponsoring Unit: DPOLY

Chair: *Sergei Nazarenko, University of Southern Mississippi*

8:00 AM, Tuesday, March 17, 2009

8:00AM - 8:36AM

**H19.00001: Polymer Physics Prize Symposium Break**

**8:36AM** - H19.00002: Paradigms for the Glass Transition. *Gregory McKenna*

**8:48AM** - H19.00003: Twinkling Fractal Theory of the Glass Transition: Applications and Insights. *Richard Wool*

**9:00AM** - H19.00004: Cooperativity and fragility in glass forming systems: not a simple relationship. *Liang Hong , Alexander Kisliuk , Alexei Sokolov*

**9:12AM** - H19.00005: Molecular Interpretations of Observed non-Fickian Penetrant Transport Behavior in Glassy Polymers. *Adam Ekenseair , Richard Ketcham , Nicholas Peppas*

**9:24AM** - H19.00006: On the Nature of Gas Transport of Ethylene Vinyl Alcohol Copolymers. *Sergei Nazarenko , Justin Brandt , Brian Olson , Alexander Jamieson*

**9:36AM** - H19.00007: Photochemical Crosslinking of Preformed Glassy and Amorphous Polymers Through bis-Benzophenone Mediated Covalent Bridging. *Nicholas Carbone , Mary Dickson , Jeffrey Lancaster , Greg Carroll , Jeffrey Koberstein*

**9:48AM** - H19.00008: Evolution of Entanglements During Craze Formation. *Ting Ge , Mark Robbins , Robert Hoy , Stefanos Anogiannakis , Christos Tzoumanekas , Doros Theodorou*

**10:00AM** - H19.00009: Dynamics of a polymer nanocomposite during active deformation. *Robert Riggleman , Gregory Toepferwein , Juan de Pablo , Hau-Nan Lee , M. D. Ediger*

**10:12AM** - H19.00010: Rheological Scaling Relation for an Out-of-Equilibrium Colloidal Solid. *H. Henning Winter , X. Wang , G. Xue , P. Sun*

**10:24AM** - H19.00011: Strain Hardening in Bidisperse Polymer Glasses. *Mark O. Robbins , Robert S. Hoy*

**10:36AM** - H19.00012: A Model of Glassy Polymers that Includes both Spatial and Temporal Fluctuations. *Grigori Medvedev , James Caruthers*

**10:48AM** - H19.00013: Anomalous crack propagation in reinforced natural rubber. *Paul Sotta , Brice Gabrielle , Didier Long , Loic Vanel , Pierre-Antoine Albouy , Francesca Peditto*

## Session H20: Electrically and Optically Active Polymers

321

Sponsoring Unit: DPOLY

Chair: *Lynn Loo, Princeton University*

8:00 AM, Tuesday, March 17, 2009

8:00AM - 8:36AM

**H20.00001: Polymer Physics Prize Symposium Break**

**8:36AM** - H20.00002: Soliton and polaron induced 3D conformational changes in conjugated polymers. *Andre Leitao Botelho , Xi Lin*

**8:48AM** - H20.00003: Conjugated Polymer based sensor for detecting explosives such as RDX (1,3,5-Trinitroperhydro-1,3,5-triazine). *Abhishek Kumar , Robinson Anandkathir , Jayant Kumar*

**9:00AM** - H20.00004: Charge-transfer excitons in strongly coupled organic semiconductors. *Paul-Ludovic Karsenti , Jean-Francois Glowe , Carlos Silva*

**9:12AM** - H20.00005: Highly Conductive Polymer Films by Post-Processing Solvent Annealing and Their Broad Applications in Organic Electronics. *Joung Eun Yoo , Kwang Seok Lee , Enrique Gomez , Kimberly Baldwin , Yangming Sun , Chang Su Kim , Hong Meng , Yueh-Lin Loo*

**9:24AM** - H20.00006: Electrochemical Stability of Polyaniline Beyond pH 9. *Jacob Tarver , Joung Eun Yoo , Yueh-Lin Loo*

**9:36AM** - H20.00007: Quadratic Electro-optic Effect in a Novel Nonconjugated Conductive Polymer, iodine-doped Polynorbornene. *Ananthakrishnan Narayanan , Mrinal Thakur*

**9:48AM** - H20.00008: Quadratic Electro-optic Measurements in Nonconjugated Conductive Polymers, iodine-doped Polyisoprene and Poly( $\beta$ -pinene) at 1.55 $\mu$ m. *Ananthakrishnan Narayanan , Jitto Titus , Mrinal Thakur*

**10:00AM** - H20.00009: Adaptive parallel eigensolver for electronic structure calculation of PPV. *Yihua Bai , Guoping Zhang*

**10:12AM** - H20.00010: Ultrasensitive Solution Processed Polymer Photodetectors. *Xiong Gong , Minghong Tong , Gang Yu , Chan-Long Shieh , Boo Nilsson , Alan Heeger*

**10:24AM** - H20.00011: Twin instability of Peierls distortion and its mechanical consequence on conductive polymer actuation. *Minghai Li , Andre Botelho , Xi Lin*

**10:36AM** - H20.00012: Soliton migration along  $\text{trans}$ -polyacetylene backbone. *Minghai Li , Yongwoo Shin , Xi Lin*

**10:48AM** - H20.00013: Optical Properties of a Conjugated Oligomer Near the Surface of a Metallic Nanosphere. *Railing Chang*

## Session J5: Polymer Nanoparticle Interactions

401/402

Sponsoring Unit: DPOLY

*Chair: Thomas Russell, University of Massachusetts*

11:15 AM, Tuesday, March 17, 2009

**11:15AM - 11:51AM**

J5.00001: Simulations of Polymer Grafted Nanoparticles in a Polymer Matrix

*Invited Speaker: Grant Smith*

**11:51AM - 12:27PM**

J5.00002: Interaction, Structure and Transport of Polymer Grafted Nanoparticles

*Invited Speaker: Ramanan Krishnamoorti*

**12:27PM - 1:03PM**

J5.00003: Modification of Block Copolymers Using Surface-Functionalized Hard and Soft Nanoparticles

*Invited Speaker: Richard Spontak*

**1:03PM - 1:39PM**

J5.00004: Polymer single crystal meets nanoparticle, toward ordered hybrid materials

*Invited Speaker: Christopher Li*

**1:39PM - 2:15PM**

J5.00005: DNA Directed Nanoparticle Assemblies

*Invited Speaker: Francis W. Starr*

## Session J18: Charge Transport and Optical Properties of Organic Semiconductors

319

Sponsoring Units: DMP, DPOLY

*Chair: Markus Wohlgenannt, University of Iowa*

11:15AM, Tuesday, March 17, 2009

**11:15AM** - J18.00001: Light Emitting Transistors of Organic Single Crystals

*Invited Speaker: Yoshihiro Iwasa*

**11:51AM** - J18.00002: Quantum-Chemical Approach to Electronic Coupling

*Invited Speaker: Jean Luc Bredas*

**12:27PM** - J18.00003: Modification of the electronic properties of rubrene crystals by extrinsic species. *Leonidas Tsetseris, Sokrates Pantelides*

**12:39PM** - J18.00004: Charge carrier transport and optical properties of SAM-induced conducting channel in organic semiconductors. *Vitaly Podzorov*

**12:51PM** - J18.00005: Infrared spectroscopy of organic semiconductors modified by self-assembled monolayers. *O. Khatib, B. Lee, V. Podzorov, J. Yuen, A.J. Heeger, Z.Q. Li, M. Di Ventra, D.N. Basov*

**1:03PM** - J18.00006: Gate electric-field tuning of contact barriers between metals and organic semiconductor crystals. *J. Takeya, M. Yamagishi, K. Nakayama, T. Uemura*

**1:15PM** - J18.00007: Controlling Grain Size in Solution-Processed Organic Semiconductors for Thin-Film Transistors. *Stephanie Lee, Chang Su Kim, Enrique Gomez, Cheng Wang, Alexander Hexemer, Michael Toney, John Anthony, Yueh-Lin (Lynn) Loo*

**1:27PM** - J18.00008: Charge transport in crystalline organic semiconductors: using polymorphs to explore the effect of crystal packing. *Oana Jurchescu, Devin Mourey, Sankar Subramanian, Sean Parkin, Brandon Vogel, John Anthony, Thomas Jackson, David Gundlach*

**1:39PM** - J18.00009: A crystalline organic semiconductor grown from a mesophase: A test of polaron band theory. *Naresh Shakya, Chandra Pokhrel, Brett Ellman, Shin-Woong Kang, Satyan Kumar, Yulia Getmanenko, Robert Twieg*

**1:51PM** - J18.00010: First-principles study of charge injection and transport through pentacene multilayers. *Yong-Hoon Kim*

**2:03PM** - J18.00011: Low temperature, field-dependent mobility in pentacene thin-film transistors. *Adrian Southard, Vinod Sangwan, Dan Lenski, Michael Fuhrer, Ellen Williams*

## **Session J19: Block Copolymer Thin Films II**

**320**

Sponsoring Unit: DPOLY

*Chair: Kevin Cavicchi, University of Akron*

**11:15 AM, Tuesday, March 17, 2009**

- 11:15AM** - J19.00001: Self-assembled surface patterns from organometallic-containing triblock terpolymers. *Vivian Chuang , Caroline Ross , Jessica Gwyther , Ian Manners*
- 11:27AM** - J19.00002: Improvement of Extraction Efficiency of LED with Surface Relief Nanostructure Fabricated by Self-Assembled Block Copolymer Pattern. *Ryota Kitagawa , Akira Fujimoto , Koji Asakawa*
- 11:39AM** - J19.00003: Self-Assembling Block Copolymer Resist Mixtures towards Lithographic Resists for Sub-10 nm Features. *Curran Chandler , Vikram Daga , James Watkins*
- 11:51AM** - J19.00004: Directed assembly of block copolymers on chemically nanopatterned substrates: enabling science for ultra high resolution lithography. *Paul Nealey*
- 12:03PM** - J19.00005: Conditions for the directed assembly of thick block copolymer films on chemically nano-patterned surfaces. *Adam M. Welander , Paul F. Nealey*
- 12:15PM** - J19.00006: Directed self-assembly of diblock copolymer thin films on chemically-patterned substrates for defect-free nano-patterning. *Mikihito Takenaka , Yasuhiko Tada , Satoshi Akasaka , Synsuke Aburaya , Hiroshi Yoshida , Hirokazu Hasegawa , Elizabeth Dobisz , Dan Kercher*
- 12:27PM** - J19.00007: Lamellar and Non-bulk like Morphologies in Thin Films of Block Copolymer on Chemical Nanopatterned Surfaces. *Guoliang Liu , Francois Detcheverry , Juan J. de Pablo , Paul F. Nealey*
- 12:39PM** - J19.00008: Self-confinement in Block Copolymer Thin Films Induced by Chemical Patterns Made from Electro-oxidation Nanolithography. *Ji Xu , Antonio Checco , Benjamin Ocko , Soojin Park , Shiliu Wang , Thomas Russell*
- 12:51PM** - J19.00009: Time-Resolved SAXS Characterization of Block Copolymer Blends on Chemically Nanopatterned Surfaces. *Karl Stuen , Paul Nealey , Dillip Satapathy , Kim Nygard , Harun Solak*
- 1:03PM** - J19.00010: Imaging Layer Effect on Density Multiplication in the Directed Assembly of Block Copolymer Thin Films. *Huiman Kang , Eungnak Han , Padma Gopalan , Paul Nealey*
- 1:15PM** - J19.00011: Molecular Transfer Printing Using Block Copolymers. *Shengxiang Ji , Chi-Chun Liu , Guoliang Liu , Paul Nealey*
- 1:27PM** - J19.00012: Pattern interpolation in thin films of lamellar, symmetric copolymers on nano-patterned substrates. *Francois Detcheverry , Umang Nagpal , Guoliang Liu , Paul Nealey , Juan de Pablo*
- 1:39PM** - J19.00013: Thin Films of Polydimethylsiloxane-Containing Block Copolymers. *Maurice Wadley , Kevin Cavicchi*
- 1:51PM** - J19.00014: Interfacial Bending of Lamellar Microdomains of Block Copolymers. *Sang-Min Park , Meng Dong , Charles Rettner , Qiang Wang , Ho-Cheol Kim*
- 2:03PM** - J19.00015: Observation of Surface Corrugation-Induced Alignment of Lamellar Microdomains in PS-b-PMMA Thin Films. *Ho-Cheol Kim , Sang-Min Park , Charles Rettner , Brian Berry , Elizabeth Dobisz*

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## **Session J20: Frank J. Padden Jr. Award Symposium**

**321**

Sponsoring Unit: DPOLY

*Chair: Glenn Fredrickson, University of California, Santa Barbara*

**11:15 AM, Tuesday, March 17, 2009**

- 11:15AM** - J20.00001: Pressure Effects on Polymer Coil-Globule Transitions near an LCST. *David Simmons , Issac Sanchez*
- 11:27AM** - J20.00002: Structure-property relationships in ABA copolymer gels with A homopolymer additions. *Michelle Seitz , Rebecca Rottsolk , Kirt Page , Kenneth Shull*
- 11:39AM** - J20.00003: A Versatile Method for Covalent Layer by Layer Assembly of Thin Organic Films. *Hernan R. Rengifo , Cristian Grigoras , Jeffrey Koberstein*
- 11:51AM** - J20.00004: How do entangled polymeric liquids flow? *Sham Sundar Ravindranath , Shi-Qing Wang*
- 12:03PM** - J20.00005: Polymer Diffusion in Carbon Nanofiller / Polymer Nanocomposites. *Minfang Mu , Nigel Clarke , Russell Composto , Karen Winey*
- 12:15PM** - J20.00006: Tunable Wetting of Polymer Nanocomposite Films. *Marla McConnell , Shu Yang , Russell Composto*
- 12:27PM** - J20.00007: Direct Measurement of Molecular Mobility in Actively Deformed PMMA Glasses. *Hau-Nan Lee , Keewook Paeng , Stephen Swallen , Mark Ediger*
- 12:39PM** - J20.00008: Probing Surface Glass Temperature of Polymer Films via Pentacene Growth Mode, Microstructure, and Thin-Film Transistor Performance. *Choongik Kim , Antonio Facchetti , Tobin Marks*
- 12:51PM** - J20.00009: Responsive Polymer Surfaces: Crumpling, Folding, and Snapping Films. *Douglas Holmes , Alfred Crosby*
- 1:03PM** - J20.00010: Structure and mobility of PEO/LiClO<sub>4</sub> solid polymer electrolytes. *Susan Fullerton , Janna Maranas*
- 1:15PM** - J20.00011: Architectural effects in strongly hydrogen bonded thermoplastic elastomers. *Kathleen Feldman , Craig Hawker , Edward Kramer*

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**Session L1: John H. Dillon Medal Symposium in Honor of Venkat Ganesan**

**Spirit of Pittsburgh Ballroom A**

Sponsoring Unit: DPOLY

*Chair: Glenn Fredrickson, University of California, Santa Barbara*

**2:30PM, Tuesday, March 17, 2009**

**2:30PM - 3:06PM**

L1.00001: Dillon Medal Prize Lecture

*Invited Speaker: Venkat Ganesan*

**3:06PM** - L1.00002: Chain Stretching and Order-Disorder Transitions in Block Copolymer Monolayers and Multilayers. *Edward J. Kramer, Vindhya Mishra, Gila E. Stein, Karen E. Sohn, Sumi Hur, Glenn H. Fredrickson, Eric W. Cochran*

**3:18PM** - L1.00003: Free Energy Estimation in Field-Theoretic Simulations. *Glenn Fredrickson, Erin Lennon, Kirill Katsov*

**3:30PM** - L1.00004: Directed Crystallization in polymer solutions. *Murugappan Muthukumar*

**3:42PM** - L1.00005: The OS<sup>2</sup> Network by Molecular Design: CECD Tetrablock Terpolymers. *Frank S. Bates, Michael Bluemle, Guillaume Fleury, Timothy Lodge*

**3:54PM** - L1.00006: Suppression of Segmental Relaxation as the Origin of Strain Hardening in Polymer Glasses. *Kenneth Schweizer, Kang Chen*

**4:06PM** - L1.00007: Disappearance of high frequency modes in polymer dilute solution viscoelasticity. *Ronald Larson, Semant Jain*

**4:18PM** - L1.00008: Polymer Conductivity through Particle Connectivity. *Yueh-Lin Loo*

**4:30PM** - L1.00009: Modeling the Self-Assembly of Nanoparticle Amphiphiles. *Sanat Kumar, Athanassios Panagiotopoulos*

**4:42PM** - L1.00010: Confinement Effects on Polymer Dynamics in Nanocomposites. *Ramanan Krishnamoorti, Tirtha Chatterjee, Mansour Abdulkali, Madhusudan Tyagi*

**4:54PM** - L1.00011: Long-time dynamics of chains in polymer nanocomposites. *Peter Green*

**5:06PM** - L1.00012: Self-Assembly of Conjugated Rod-Coil Block Copolymers for Photovoltaic Applications. *R. A. Segalman, B.D. Olsen, Y. Tao, B. McCulloch*

**5:18PM** - L1.00013: Confinement Effects on Glassy-State Polymer Behavior in Thin Films, Nanocomposites, Tethered Nanoparticles, and Nanostructured Systems. *John Torkelson, Perla Rittigstein, Soyoung Kim, Rodney Priestley, Connie Roth, Manish Munda*

**Session L19: Focus Session: Ionically Gated and Conventional OFETs and Related Devices**

**320**

Sponsoring Units: DMP, DPOLY

*Chair: Jun Takeya, Osaka University*

**2:30 PM, Tuesday, March 17, 2009**

**2:30PM** - L19.00001: All-Printed Low Voltage Operation Polymer Transistors and Circuits Based on Ion Gel Gate Dielectrics. *Yu Xia, Jeong Ho Cho, Mingjing Ha, Michael Renn, C. Frisbie*

**2:42PM** - L19.00002: Non-volatile Ferroelectric Poly(vinylidene fluoride-co-trifluoroethylene) Memory based on Single Crystalline Triisopropylsilyl ethynyl Pentacene Field Effect Transistor. *Seok Ju Kang, Insung Bae, Youn Jung Park, Tae Ho Park, Jinwoo Sung, Cheolmin Park*

**2:54PM** - L19.00003: Polymer Electrolyte Gated Inorganic Transistors. *Anoop Singh Dhoot, Casey Israel, Xavier Moya, Stuart Wimbush, Tim Benseman, Judith MacManus-Driscoll, John Cooper, Neil Mathur, Richard Friend*

**3:06PM** - L19.00004: Employing 'Liquid Gap' Transistors to Examine the Mobility-Carrier Density Relation in Polymer and Single Crystal Organic Semiconductors  
*Invited Speaker: Daniel Frisbie*

**3:42PM** - L19.00005: Organic electrochemical transistors for sensing applications. *Fabio Cicoira, Sang Yoon Yang, John A. DeFranco, George G. Malliaras*

**3:54PM** - L19.00006: Contact resistance and lifetime of organic thin film transistors. *Gvido Bratina, Andra Petrovic*

**4:06PM** - L19.00007: Controlling charge carrier injection in solution processed pentacene transistors by molecular engineering of the electrodes. *Sangameshwar Rao Saudari, Cherie Kagan*

**4:18PM** - L19.00008: Infrared and Electro-Optic Properties of TIPS-Pentacene. *E.G. Bittle, J.W. Brill, J.E. Anthony*

**4:30PM** - L19.00009: Crossover from recombination limited charge transport to mobility restricted charge transport in organic LED. *Vladimir Prigodin, Arthur Epstein*

**4:42PM** - L19.00010: Interface and bulk controlled charge transport in Pd/CuPc/Pd sandwich devices. *Corneliu Colesniuc, Ivan Schuller*

**4:54PM** - L19.00011: RC Transmission Line Characterization of Organic Semiconductors. *Daniel Lenski, Adrian Southard, Michael S. Fuhrer*

**5:06PM** - L19.00012: Organic field effect transistors having single wall carbon nanotubes electrodes. *Fabio Cicoira, Carla M. Aguirre, Patrick Desjardins, Richard Martel*

**5:18PM** - L19.00013: Electrospun tin oxide/poly(3-hexylthiophene) nanofiber p-n diodes. *Nicholas Pinto*

**Session L20: Liquid Crystalline Polymers and Anisotropic Particles**

**321**

Sponsoring Unit: DPOLY

*Chair: Lei Zhu, University of Connecticut*

**2:30 PM, Tuesday, March 17, 2009**

**2:30PM - 3:06PM**

**L20.00001: Dillon Symposium Break**

**3:06PM** - L20.00002: Patterns on the iridescent beetle, *Chrysina gloriosa*. *Jung Ok Park, Vivek Sharma, Matija Crne, Mohan Srinivasarao*

**3:18PM** - L20.00003: Frustrated self-assembly of dendron and dendrimer-based supramolecular liquid crystals. *Raffaele Mezzenga, Nadia Canilho, Janne Ruokolainen, Edis Kasemi, Dieter Schlueter, Won Bo Lee, Glenn Fredrickson*

**3:30PM** - L20.00004: Hydrogen-Bonding Assisted Supramolecular Self-Assembly of Double Discotic Supermolecules. *Jianjun Miao, Lei Zhu*

**3:42PM** - L20.00005: Glassy correlations in nematic elastomers. *Bing Lu, Paul Goldbart, Xiaoming Mao*

**3:54PM** - L20.00006: Orientation distribution and process modeling of thermotropic liquid crystalline copolyester (TLCP) injection-moldings. *Robert Bubeck, Jun Fang, Wesley Burghardt, Susan Burgard, Daniel Fischer*

**4:06PM** - L20.00007: In Situ X-ray Scattering Measurements and Polydomain Simulations of Molecular Orientation Development during Injection Molding of Liquid Crystalline Polymers. *Jun Fang, Wesley Burghardt, Robert Bubeck*

**4:18PM** - L20.00008: Dynamics and rheology of active polar liquid crystalline films. *Luca Giomi, M. Cristina Marchetti, Tanniemola B. Liverpool*

**4:30PM** - L20.00009: Influence of nanorods on the properties of polymeric materials. *Gregory N. Toepferwein, Robert A. Riggleman, Juan J. de Pablo*

**4:42PM** - L20.00010: Interactions between rod-like cellulose nanocrystals and xylan derivatives: A light scattering study. *Jae Hyun Sim, Katrin Schwikal, Thomas Heinze, Shuping Dong, Maren Roman, Alan Esker*

**4:54PM** - L20.00011: Polymerization-Enhanced Alignment Order in Carbon Nanotube Composites. *Howard Wang, Yayong Liu, Narayan Das, Kunlun Hong, Gyula Eres, David Urig*

**5:06PM** - L20.00012: Perylene diimide liquid crystals: A density functional study. *Jeverson Arantes, Matheus Lima, Adalberto Fazzio, Hongjun Xiang, Su-Huai Wei, Gustavo Dalpian*

**Session M19: DPOLY Business Meeting**

**320**

**5:30 PM, Tuesday, March 17, 2009**



#### **Session P4: Physics of Polymer Membranes for Water Purification**

**306/307**

Sponsoring Unit: DPOLY

*Chair: Alamgir Karim, National Institute of Standards and Technology*

**8:00 AM, Wednesday, March 18, 2009**

##### **8:00AM - 8:36AM**

P4.00001: Transport of water and solutes in reverse osmosis and nanofiltration membranes

*Invited Speaker: David Cahill*

##### **8:36AM - 9:12AM**

P4.00002: High Flux Nanofibrous Membranes for Water Purification

*Invited Speaker: Benjamin Hsiao*

##### **9:12AM - 9:48AM**

P4.00003: Polymers for Waste Water Treatment

*Invited Speaker: Thomas Mallouk*

##### **9:48AM - 10:24AM**

P4.00004: Carbon Nanotube Membranes for Water Purification

*Invited Speaker: Olga Bakajin*

##### **10:24AM - 11:00AM**

P4.00005: Hierarchical Fiber Structures Made by Electrospinning Polymers

*Invited Speaker: Darrell H. Reneker*

#### **Session P18: Bulk Block Copolymers II**

**319**

Sponsoring Unit: DPOLY

*Chair: Bradley Olsen, California Institute of Technology*

**8:00 AM, Wednesday, March 18, 2009**

**8:00AM** - P18.00001: Directed Self-Assembly of Cadmium Selenide Nanocrystals in Conjugated Rod-Coil Block Copolymers. *B. L. McCulloch, J. Urban, R. A. Segalman*

**8:12AM** - P18.00002: Self-Assembly Behavior and Phase Diagram of Rod-Coil Block Copolymers Containing Poly3-alkyl thiophene. *Yi-Huan Lee, Wei-Che Yen, Wei-Fang Su, Chi-An Dai*

**8:24AM** - P18.00003: Nano-porous Poly(3-hexylthiophene) films: A novel route to prepare bulk heterojunction photovoltaic devices. *Tirtha Chatterjee, Kulandaivelu Sivanandan, Craig J. Hawker, Edward J. Kramer*

**8:36AM** - P18.00004: The Influence of Electric Fields on the Order-Disorder Transition Temperature of Block Copolymer Systems. *Heiko Schoberth, Kristin Schmidt, Kerstin Schindler, Alexander B"oker*

**8:48AM** - P18.00005: Phase Behavior of Polystyrene-block-Poly(n-alkyl-ran-n'alkyl methacrylate) Copolymers. *Hong Chul Moon, Junhan cho, Jin Kon Kim*

**9:00AM** - P18.00006: Gas Pressure Effect on Phase Behavior of Deuterated Polystyrene-block-poly(n-pentyl methacrylate). *Hye Jeong Kim, Jin Kon Kim, Du Yeol Ryu*

**9:12AM** - P18.00007: Pressure Jump Studies of Block Copolymer Phase Transition in Selective Solvent. *Yongsheng Liu, Rama Bansil, Milos Steinhart*

**9:24AM** - P18.00008: Self-assembled Oniontype Multiferroic Nanostructures. *Shenqiang Ren, Robert M. Briber, Manfred Wuttig*

**9:36AM** - P18.00009: Periodic Polymers for PhoXonics. *Edwin Thomas*

**9:48AM** - P18.00010: Hydration and phase separation of polyethylene glycol in copolymers of tyrosine derived carbonates. *N. Sanjeeva Murthy, Wenjie Wang, Joachim Kohn*

**10:00AM** - P18.00011: Robustness of Pluronic Block Copolymer Nanostructure to Structural Changes in Dispersed Nanoparticles. *Theresa A. LaFollette, Lynn M. Walker*

**10:12AM** - P18.00012: Phase behavior of block copolymer nanocomposites. *George Papakonstantopoulos*

**10:24AM** - P18.00013: Effect of Chain Architecture on Nanoparticle Miscibility in Block Copolymer Nanocomposites. *Jessica Listak, Hyung Ju Ryu, Ilhem F. Hakem, Rangou Sofia, Politakos Nikolaos, Misichronis Konstantinos, Apostolos Avgeropoulos, Michael R. Bockstaller*

**10:36AM** - P18.00014: Rheological and Mechanical Properties of Crosslinked Block Copolymer Nanofiber and Polystyrene Blends. *Sungwon Ma, Yonathan Thio*

**10:48AM** - P18.00015: Well Ordered Polymer Melts with Sub 5-Nanometer Domains upon Blending Surfactants with Selectively Associating Additives. *Vikram Daga, Vijay Tirumala, Curran Chandler, Alvin Romang, Eric Anderson, Eric Lin, James Watkins*

## **Session P19: The Physics of Polymer Nanocomposites: Properties**

**320**

Sponsoring Unit: DPOLY

*Chair: Jan Obrzut, National Institute of Standards and Technology*

**8:00AM, Wednesday, March 18, 2009**

**8:00AM** - P19.00001: Tuning optical properties of gold nanorods in polymer films through thermal reshaping. *Russell Composto, Eric Mills, Yu Liu*

**8:12AM** - P19.00002: Quenching Photoluminescence in Single-Walled Carbon Nanotube/Copolymer Composite Materials. *Andrew Schoch, L. Catherine Brinson, Kenneth R. Shull*

**8:24AM** - P19.00003: Temperature measurements of inverse micelles coated in gold nanoparticles using fluorescence. *Chad Daley, James A. Forrest, Ryan Speller, Toews William, Patrick McVeigh, Todd Emrick*

**8:36AM** - P19.00004: Magnetic and Optical anisotropy thiol-capped Au NPs embedded into a polymer. *Jose de la Venta, Miguel Angel Garcia, Virginia Bouzas, Andrea Pucci, Giacomo Ruggeri*

**8:48AM** - P19.00005: Stability of the double gyroid phase to nanoparticle polydispersity in polymer tethered nanosphere systems. *Carolyn Phillips, Christopher Iacovella, Sharon Glotzer*

**9:00AM** - P19.00006: Experimental and computational investigation of percolation in complex polymer nanocomposites. *Derrick Stevens, Lori Downen, Russell Gorga, Laura Clarke*

**9:12AM** - P19.00007: Influence on Thermal Diffusivity through a Transformation of Nanotube-like Clay Platelets in Polymer Blends. *Seongchan Park, Takashi Kashiwagi, Tadanori Koga, Jonathan Sokolov, Miriam Rafailovich*

**9:24AM** - P19.00008: Electrical Conductivity in Polymer Composites Containing Metal Nanowires: Simulation and Experiment. *Sadie White, Tarun Vemulkar, John Fischer, Karen Winey*

**9:36AM** - P19.00009: Polymer Nanocomposites Made with Unmodified Graphite or Carbon Nanotubes: Role of Dispersion in Optimizing Mechanical and Thermal Properties and Electrical Conductivity. *Junichi Masuda, Katsuyuki Wakabayashi, Philip Brunner, Cynthia Pierre, John Torkelson*

**9:48AM** - P19.00010: Conductive Paper by LBL Assembly of PSS and ITO onto Wood Fibers and its Electrical Properties through Impedance Spectroscopy and I-AFM. *Chunqing Peng, Yonathan Thio, Rosario Gerhardt*

**10:00AM** - P19.00011: Placement Control of Nanomaterial Arrays on Surface-Reconstructed Block Copolymer Thin Films. *Jeong Gon Son, Wan Ki Bae, Huiman Kang, Paul F. Nealey, Kookheon Char*

**10:12AM** - P19.00012: Confinement and Ordering of Au Nanorods in Polymer Films. *Michael J. A. Hore, Eric Mills, Yu Liu, Russell J. Composto*

**10:24AM** - P19.00013: Carbon nanotubes nucleate the growth of graphitic layers during carbonization of electrospun poly(acrylonitrile) nanofibers. *Sabina Prilutsky, Yachin Cohen, Eyal Zussman*

**10:36AM** - P19.00014: Crystallization and melting behavior of isotactic polypropylene and carbon nanotube nanocomposites. *Georgi Georgiev, Yaniel Cabrera, Lauren Wielgus, Zarnab Iftikhar, Michael Matterna, Peter Gati, Austin Potter, Peggy Cebe*

**10:48AM** - P19.00015: Crystallization kinetics in poly(ethylene oxide) / layered silicates nanocomposites. *Eleni Pavlopoulou, Sapfo Fotiadou, Eleni Papananou, Kiriaki Chrissopoulou, Spiros H. Anastasiadis, Giuseppe Portale, Wim Bras*

## **Session P20: Melts and Solutions**

**321**

Sponsoring Units: DPOLY

*Chair: Chang Ryu, Rensselaer Polytechnic Institute*

**8:00AM, Wednesday, March 18, 2009**

**8:00AM** - P20.00001: Dynamics and rheology of high molar mass polyethylene oxide solutions. *Abhishek Shetty, Michael Solomon*

**8:12AM** - P20.00002: Diffusive Properties of Dilute HPC Solutions: Comparative Study with DLS and FPR. *Ryan McDonough, Kiril Streltzyk, Paul Russo*

**8:24AM** - P20.00003: Helix formation via kinetic assembly of charged block copolymer cylinders in solution. *Sheng Zhong, Ke Zhang, Karen Wooley, Darrin Pochan*

**8:36AM** - P20.00004: Enhancing Polymer-Fullerene Miscibility Through Enthalpic Interactions. *Katie Campbell, David Bucknall, Yonathan Thio, Haskell Beckham, Uwe Bunz, Adam Hannon, Andrew Zappas, Bilge Hatiboglu, Michael Kempf*

**8:48AM** - P20.00005: Modeling Thermodynamic Behavior of Nonionic Surfactants in Water. *Valeriy Ginzburg, Pierre Varineau*

**9:00AM** - P20.00006: Role of surfactants on the assembly of amphiphilic copolymers through instabilities of organic/water interfaces. *Jintao Zhu, Ryan C. Hayward*

**9:12AM** - P20.00007: Influence of Intermolecular Interactions on Fragility of Polymers. *Kumar Kunal, Alexei Sokolov*

**9:24AM** - P20.00008: Random Walk of Chain Molecules Along Pore Axis. *Guiduk Yu, Sergei Obukhov, Jiun-Tai Chen, June Huh, Yoontae Hwang, Soonchun Mok, Priyanka Dobriyal, Pappannan Thiagarajan, Thomas P. Russell\*, Kyusoon Shin\**

**9:36AM** - P20.00009: Dynamics of Cyclic Molecules Threaded into a Linear Polymer Chain. *Koichi Mayumi, Hitoshi Endo, Michihiro Nagao, Noboru Osaka, Hideaki Yokoyama, Mitsuhiro Shibayama, Kohzo Ito*

**9:48AM** - P20.00010: Diffusion of Water through Methyl- and Hydroxyl-Terminated Poly(Dimethylsiloxane). *Ahmed E. Ismail, Gary S. Grest, David R. Heine, Mark J. Stevens, Mesfin Tsige*

**10:00AM** - P20.00011: Effect of Stereochemistry and Polydispersity on Diffusion in Polypropylene. *Ernst von Meerwall, Numan Waheed, Wayne Mattice*

**10:12AM** - P20.00012: On chain statistics and entanglement of flexible linear polymer melts. *Shi-Qing Wang*

**10:24AM** - P20.00013: Translational Diffusion in a Confined Polymer Melt. *Janet Wong, Liang Hong, Sung Chul Bae, Steve Granick*

**10:36AM** - P20.00014: Entangled Polymer Melt Dynamics Studied By Low-Field NMR. *Fabian Vaca Chavez, Patrick Huebsch, Ronald Zirbs, Wolfgang Binder, Kay Saalwachter*

#### **Session Q4: Polymer Surface Instabilities**

**306/307**

Sponsoring Units: DPOLY GSNP

*Chair: Alfred Crosby, University of Massachusetts Amherst*

**11:15AM, Wednesday, March 18, 2009**

**11:15AM - 11:51AM**

Q4.00001: Elastic instabilities in rubber

*Invited Speaker: Alan Gent*

**11:51AM - 12:27PM**

Q4.00002: Creasing instability of solvent-swelled polymer films

*Invited Speaker: Ryan Hayward*

**12:27PM - 1:03PM**

Q4.00003: The macroscopic delamination of thin films from elastic substrates

*Invited Speaker: Pedro Reis*

**1:03PM - 1:39PM**

Q4.00004: Elastic Instability and Pattern Formation in Confined Soft Elastomeric Films

*Invited Speaker: Manoj Chaudhury*

**1:39PM - 2:15PM**

Q4.00005: Micro-Origami: Elastic Instability of Polymer Films

*Invited Speaker: Pascal Damman*

#### **Session Q18: Theory and Simulation I**

**319**

Sponsoring Unit: DPOLY

*Chair: August Bosse, National Institute of Standards and Technology*

**11:15AM, Wednesday, March 18, 2009**

**11:15AM** - Q18.00001: Design of Thermoplastic Elastomers with Self-Consistent Mean Field Theory: Radial (ABA)<sub>n</sub>S and A(BA)<sub>n</sub>S Miktoarm Architectures. *Nathaniel Lynd, Folusho Oyerokun, Donal O'Donoghue, Dale Handlin, Glenn Fredrickson*

**11:27AM** - Q18.00002: Unified mathematical model for linear viscoelastic predictions of linear monodisperse and polydisperse and branched polymers. *Renat Khaliullin, Jay Schieber*

**11:39AM** - Q18.00003: Self-assembly of rod coil block copolymers under confinement. *Manas Shah, Venkat Ganesan*

**11:51AM** - Q18.00004: Theoretically Informed Particle-Based Simulations of Polymers in Arbitrary Ensembles. *Darin Pike, Francois Detcheverry, Marcus Mueller, Juan de Pablo*

**12:03PM** - Q18.00005: Fields Help Particles -- Fast Off-Lattice Monte Carlo Simulations of Soft Materials. *Yuhua Yin, Qiang Wang*

**12:15PM** - Q18.00006: Particles vs. Fields -- Finite-Range Interactions in Polymer Field Theories. *Qiang Wang*

**12:27PM** - Q18.00007: Mean Field Theory for Ionomer Melts. *Erica Saltzman, Sanat Kumar*

**12:39PM** - Q18.00008: Equilibrium and Beyond Equilibrium Properties of Polyelectrolytes - Ewald-Like Approach for Fluctuating Hydrodynamic and Electrostatic Interactions. *Juan P. Hernandez-Ortiz, Michael D. Graham, Juan J. de Pablo*

**12:51PM** - Q18.00009: Self Consistent Field Theory Study of the Effect of Grafting Density on the Height of a Weak Polyelectrolyte Brush. *Kevin Witte, You-Yeon Won*

**1:03PM** - Q18.00010: Adsorption and depletion of polyelectrolytes in charged. *Dadong Yan, Xingkun Man, An-Chang Shi*

**1:15PM** - Q18.00011: Field-Based Modeling and Simulation of Interfacial Fluctuations in Block Copolymers. *August Bosse*

**1:27PM** - Q18.00012: Variational Coarse-Graining of Discretized Field Theories of Fluids. *Michael Villet, Glenn Fredrickson*

**1:39PM** - Q18.00013: Simulation of Fluctuations in Diblock Copolymer Melts: Testing an Alternative to the Fredrickson-Helfand Theory. *Jian Qin, David Morse*

**1:51PM** - Q18.00014: Microphase Separation Induced by the Differential Monomer-Monomer Interactions in Diblock Copolymer/Homopolymer Blends. *Jiajia Zhou, An-Chang Shi*

**2:03PM** - Q18.00015: Study on the strength of intermonomer interactions for PS-b-PMMA using compressible RPA. *Hyungju Ahn, Du Yeol Ryu, Youngmin Kim, Kwang Hyun Song, Kyung Wook Kwon, Junhan Cho*

**Session Q19: The Physics of Polymer Nanocomposites: Rheology and Mechanical Properties**

320

Sponsoring Unit: DPOLY

*Chair: Francis Starr, Wesleyan University*

**11:15AM, Wednesday, March 18, 2009**

**11:15AM** - Q19.00001: Influence of Nanoparticles on the Amplitude of Molecular Motions and the Fragility of a Model Glass-Forming Polymer Melt. *Jack Douglas, Francis Starr*

**11:27AM** - Q19.00002: Macroscopic dynamics of polystyrene grafted silica nanoparticles in a homopolymer matrix. *Joseph Moll, Pinar Akcora, Sanat Kumar, Ralph Colby*

**11:39AM** - Q19.00003: Structure, ion transport and rheology of nanoparticle organic hybrids. *Haibo Qi, Lynden Archer*

**11:51AM** - Q19.00004: Effect of filler surface properties on stress relaxation behavior of carbon nanofiber/polyurethane nanocomposites. *I. Sedat Gunes, Guillermo Jimenez, Sadhan Jana*

**12:03PM** - Q19.00005: Synthesis of metal-molecule-metal structures for single-molecule transport and spectroscopy measurements. *Alex Neuhausen, David Goldhaber-Gordon, Chris Chidsey*

**12:15PM** - Q19.00006: Impact of Nanofillers on the Durability of Polymeric Coatings and Composites. *Li-Piin Sung, Stephanie Watson, Aaron Forster, Sheng Lin-Gibson*

**12:27PM** - Q19.00007: The "Music" of Silica-Poly(methyl methacrylate) Core-Shell Spheres: Eigenvibrations and Mechanical Properties at the Nanoscale. *Tim Still, Rebecca Sainidou, Goetz Hellmann, George Fytas*

**12:39PM** - Q19.00008: A Microscopic Model for the Reinforcement and the Non Linear Behaviour of Filled Elastomers and Thermoplastic Elastomers (Payne and Mullins Effects). *Didier Long, Samy Merabia, Paul Sotta*

**12:51PM** - Q19.00009: Molecular Simulation of Highly Crosslinked Epoxy Resin and POSS-Epoxy Nanocomposites. *Po-Han Lin, Rajesh Khare*

**1:03PM** - Q19.00010: Reducing Strain in Electrophoretically Deposited Nanocrystal Films by Post-Deposition Incorporation of Polymers. *Theodore Kramer, Steffen Jockusch, Michael Steigerwald, Nicholas Turro, Irving Herman*

**1:15PM** - Q19.00011: Mechanics of nanoscale composite films from stress-electrical measurements: A nanoscale foam. *Chieu Nguyen, Vivek Maheshwari, Ravi Saraf*

**1:27PM** - Q19.00012: Local dielectric permittivity profiles of sapphire/polypropylene interfaces. *Liping Yu, V. Ranjan, M. Buongiorno Nardelli, J. Bernholc*

**1:39PM** - Q19.00013: Flow induced orientation behavior of concentrated dispersions of multi-wall carbon nanotube suspensions under shear flow: Effect of aspect ratio and concentration. *Saswati Pujari, Wesley Burghardt, Sameer Rahatekar, Jeffrey Gilman, Krzysztof Koziol, Alan Windle*

**1:51PM** - Q19.00014: Polymorphism in electrospun poly(vinylidene fluoride)/nanoclay composite nanofibers. *Lei Yu, Peggy Cebe*

**2:03PM** - Q19.00015: Polymer/inorganic nanocomposites with prescribed morphologies. *E. Manias, M.J. Heidecker, J. Zhang, G. Polizos*

**Session Q20: Thin Films and Adhesion I**

321

Sponsoring Unit: DPOLY

*Chair: Chris Stafford, National Institute of Standards and Technology*

**11:15AM, Wednesday, March 18, 2009**

**11:15AM** - Q20.00001: Capillary wrinkling of a floating sheet under differential surface tension. *Jiangshui Huang, Wim H. de Jeu, Narayanan Menon, Thomas P. Russell*

**11:27AM** - Q20.00002: Effect of Long-chain Branching on Surface Dynamics of Polymer Films. *Mark D. Foster, Shih-fan Wang, Jae Sik Lee, Sewoo Yang, Zhang Jiang, Suresh Narayanan, David Wu*

**11:39AM** - Q20.00003: Entanglement swelling in polymer glasses. *Joshua D. McGraw, Kari Dalnoki-Veress*

**11:51AM** - Q20.00004: Microstructure Evolution during Solvent Evaporation from Thin Film Polymer Mixtures. *Nigel Clarke, Mireille Souche, Gavin Buxton*

**12:03PM** - Q20.00005: Dimension-Dependent Mechanical Properties of Pure and Antiplasticized Polymer Nanostructures. *Sean Delcambre, Robert Riggelman, Juan de Pablo, Paul Nealey*

**12:15PM** - Q20.00006: The stiffening of ultrathin polymer films in the rubbery regime -- the relative contributions of bending, membrane stress and surface tension. *Paul O'Connell, Gregory McKenna*

**12:27PM** - Q20.00007: Molecular confinement and residual stress in ultrathin polymer films. *Arnold Yang, Gunter Reiter, Yi-Hsin Chang, Yi Chien*

**12:39PM** - Q20.00008: Semifluorinated Polymers Confined at the Solid-Air Interface. *Umesh Shrestha, Stephen Clarson, Dvora Perahia*

**12:51PM** - Q20.00009: Crosslink Density Variations with Process Conditions in Plasma Polymerized Photonic Films. *Somesh Peri, Mark Foster, Jesse Enlow, Hao Jiang, Timothy Bunning, Bulent Akgun, Sushil Satija, Charles Majkrzak*

**1:03PM** - Q20.00010: Spatially Organized Polymer Films Prepared by Oblique Angle Polymerization. *Niranjan Malvadkar, Melik Demirel*

**1:15PM** - Q20.00011: Rubber Friction - A Molecular Picture. *Anish Kurian, Kumar Nanjundiah, Ali Dhinojwala*

**1:27PM** - Q20.00012: In-situ Adhesion Measurements Utilizing Layer-by-layer Functionalized Surfaces. *Christopher M. Stafford, Adam J. Nolte, Jun Young Chung, Marlon L. Walker*

**1:39PM** - Q20.00013: Tethered Lubricant Films Based On Cross-linked Polydimethylsiloxane. *Lucas Landherr, Claude Cohen, Lynden Archer*

**1:51PM** - Q20.00014: Effect of Adsorbed Films on Nanoscale Mechanical Contacts. *Shengfeng Cheng, Binquan Luan, Mark Robbins*

**2:03PM** - Q20.00015: The Promotion of Au Adhesion on Polymer Surfaces Using Polyhedral Oligomeric Silsesquioxane. *Chris Hughes, Brian Augustine, Alan Mo, Jonathan Wyrick, Bruno Caputo, Ethan Rosenthal*

**Session S1: Poster Session III (1:00-4:00pm)**

**Exhibit Hall A**

**S1.00001: POLYMERIC AND ORGANIC MATERIALS II**

**S1.00002:** Transmission Ellipsometry and X-Ray Studies on Shear Induced Order in iPP/CNT Nanocomposites. *Yaniel Cabrera , Georgi Georgiev , Lauren Wielgus , Bret Stenger , Robert Judith , Peggy Cebe*

**S1.00003:** Structure and applications of nanohybrid shish-kebabs. *Eric D. Laird , Bing Li , Christopher Y. Li*

**S1.00004:** Dielectric Relaxation of PVDF/STN Nanocomposites. *Lei Yu , Peggy Cebe*

**S1.00005:** Nanocomposites of Poly(vinylidene fluoride) with Multiwalled Carbon Nanotubes. *Wenwen Huang , Kyle Edenzon , Luis Fernandez , Shabnam Razmpour , Jenna Woodburn , Peggy Cebe*

**S1.00006:** Electrical/dielectric properties and conductivity mechanism of epoxy/expanded graphite composites. *Athanasios Kanapitsas , Emmanuel Logakis , Christos Pandis , Polycarpos Pissis , Natasa Jovic , Vladimir Djokovic*

**S1.00007:** Effect of interaction on the exfoliation and dispersion of a stack of platelets in a dynamic polymer matrix and solvent particles by a coarse-grained Monte Carlo simulation. *Barry Farmer , Ras Pandey*

**S1.00008:** Creating Janus Particles on Polymer Templates. *Marla McConnell , Matthew Kraeutler , Shu Yang , Russell Composto*

**S1.00009:** Mechanical Properties of Organized Microcomposites Fabricated by Interference Lithography. *Srikanth Singamaneni , Sehoon Chang , Ji-Hyun Jang , Whitney Davis , Edwin Thomas , Vladimir Tsukruk*

**S1.00010:** Diamond-shaped small-angle scattering and the deformation of fibrous textures. *Wenjie Wang , N. Sanjeeva Murthy*

**S1.00011:** Thin Film Optical Measurements on a Low-bandgap Platinum-Acetylide Conjugated Polymer Developed for Use in Organic Solar Cells. *Zahra Nasrollahi , Jianguo Mei , Katsu Ogawa , Young-Gi Kim , Nathan Heston , Daniel Arenas , Tracy Mc Carley , David Tanner , John Reynolds , Kirk Schanze*

**S1.00012:** The study of polymer chain structure within macroporous polymer films by breath figure templating method. *Minsu Lee , Jung O. Park , Mohan Srinivasarao*

**S1.00013:** Trimerization of Monocyanate ester in Nanopores. *Yung Pyo Koh , Qingxiu Li , Sindee L. Simon*

**S1.00014:** Diblock Copolymers under Nano-Confinement. *Dong Meng , Yuhua Yin , Qiang Wang*

**S1.00015:** First-Principles Prediction of Novel Technetium(IV) Halide Polymeric Compounds. *Philippe F. Weck , Eunja Kim , Frederic Poineau , Kenneth R. Czerwinski*

**S1.00016:** Control of Fibrinogen Assembly by Changing a Polarity of Surfaces. *Jaseung Koo , Ying Liu , Sara Snow , Pooja Rambhia , Tadanori Koga , Miriam Rafailovich , Dennis Galanakis*

**S1.00017:** Control self-assembled nanowire using chemically modified substrates. *Shusuke Aburaya , Satoshi Akasaka , Mikihiro Takenaka , Hirokazu Hasegawa , Yasuhiko Tada , Hiroshi Yoshida , Nikos Hadjichristidis*

**S1.00018:** Graphoepitaxy of 2D array of Spheres in Di-block Copolymers. *Adetunji Onikoyi , Edward Kramer*

**S1.00019:** Stress-Strain Relation of Tire Rubber Consist of Entangled Polymers, Fillers and Crosslink. *Katsumi Hagita , Y. Bito , Y. Minagawa , M. Omiya , H. Morita , M. Doi , H. Takano*

**S1.00020:** In situ Raman Spectroscopy Study of Stress Transfer between Carbon Nanotubes and Amorphous Polymer. *Minfang Mu , Sebastian Osswald , Yury Gogosti , Karen Winey*

**S1.00021:** MD simulations of nanofibers. *Robert Liverpool , Joseph Ortiz , Dilip Gersappe*

**S1.00022:** Structure, Dynamics, Loading Capacity, and Volume Phase Transition of Polymer Nanoparticles. *Kiril Strelitzky , John McKenna , Imaan Benmerzouga , Pubudu Peiris , Mekki Bayachou*

**S1.00023:** Cleavage Energies of Modified Layered Silicates by Molecular Dynamics Simulation. *Yao-Tsung Fu , Hendrik Heinz*

**S1.00024:** Large-scale nanocomposites simulations using hybrid particle/SCFT simulations. *Scott Sides*

**S1.00025:** DNA Electrophoresis: how partially denatured DNA stops moving in a gel. *David Sean , Gary Slater*

**S1.00026:** Detrapping Particles in a Gel : A Numerical Study. *Antoine Dub'e , Francis Torres , Gary W. Slater*

**S1.00027:** Electronic Structure of Aromatic and Quinoidic Oligothiophenes by First-principles Calculations. *Hiroshi Mizuseki , Yoshiyuki Kawazoe*

**S1.00028:** Probing Interfaces of Multilayer Polymeric Compensation Films for Liquid Crystal Display system. *Wumin Yu , Mark Foster*

**S1.00029:** Fabrication of Nanostructured Multilayers from Crosslinkable Block Copolymers. *Dongjune Hwang , Eunhye Kim , Hyunjung Jung , Du Yeol Ryu , Joona Bang*

**S1.00030:** Hybrid nanostructured thin films which adapt low adhesive properties in changing environment. *Sergiy Minko , Roman Sheparovych*

**S1.00031:** Glass transition in ultra thin polymeric films measured by differential AC-Chip calorimetry. *H. Huth , D.S. Zhou , C. Schick*

**S1.00032:** Well-defined branched polymers for studying surface segregation. *Boxi Liu , Shih-Fan Wang , Roderic Quirk , Mark Foster*

**S1.00033:** "Smart" Surfaces of Polymer Brushes. *Qiang Wang , Dong Meng*

**S1.00034:** Adsorption of phospholipid bilayers onto pullulan-modified cellulose surfaces. *Heejun Choi , Zelin Liu , Alan Esker*

**S1.00035:** Robust Self-Assembly of Highly Ordered Complex Structures by Controlled Evaporation of Confined Microfluids. *Zhiqun Lin , Myunghwan Byun , Suck Won Hong*

**S1.00036:** A new class of bio-heat resisted polymer blend. *Seongchan Pack , Takashi Kashiwagi , Tadanori Koga , Miriam Rafailovich*

**S1.00037:** Controlled morphology of biodegradable polymer blends. *Sasiwimon Buddhiranon , Thein Kyu*

**S1.00038:** A Spectroscopic Investigation on the Structural Evolution of Soy Based Polyurethane Foams. *Deepa Puthanparambil , Casey Kimball , Shaw L. Hsu*

**S1.00039:** Evaporative Organization of Hierarchically Structured Polymer Blend Rings. *Myunghwan Byun , Suck Won Hong , Feng Qiu , Zhiqun Lin*

**S1.00040:** Directing Hierarchical Assembly of Block Copolymer-Based Supramolecules Using Small Molecule Blends. *Paul Tillberg , Matthew Richards , Ting Xu*

**S1.00041:** Chirality Effect on Flory-Huggins Interaction Parameters in Poly(lactide-*co*-1-butene)-Poly(lactide Triblock Copolymers. *Weiqliang Cao , Lei Zhu , Lixia Rong , Benjamin S. Hsiao*

**S1.00042:** Structure of PEO-*b*-PPO-*b*-PEO Triblock Copolymer Inclusion Complexes with Beta-Cyclodextrin. *Chi-Chun Tsai , Stephen Z.D. Cheng , Bernard Lotz , Jin Huang , Yongming Chen*

**S1.00043:** Order-to-Order Transitions of Block Copolymer in Film Geometry. *Changhak Shin , Hyungju An , June Huh , Du Yeol Ryu*

**S1.00044:** Interfacial Polarization and Field Induced Orientation in Self Assembled Nanostructured Soft Ion Conductors. *Thomas Thurn-Albrecht , Peter Kohn , Klaus Schröter*

**S1.00045:** FTIR Investigation of Ion Environments in PEO-based "Single Ion" Polymer Conductors. *Mingfu Lu , James Runt , Paul Painter*

**S1.00046:** Origin of the low- $q$  X-ray scattering behavior in poly(ethylene oxide)-based ionomers. *Amanda McDermott , Gregory Tudryn , Jan Ilavsky , Andrew Allen , Ralph Colby , James Runt*

**S1.00047:** New type of Reverse Osmosis Membrane via Layer-by-Layer Assembly Process. *Junwoo Park , Joona Bang , Jeongju Park , Jinhan Cho*

**S1.00048:** Multiscale Computer Simulation of Tensile and Compressive Strain in Polymer-Coated Silica Aerogels. *Brian Good*

**S1.00049:** Simultaneous Prediction of Upper and Lower Critical Temperatures in Polymer Solutions Using a Constant Parameter Set. *Elizabeth Clark , Jane Lipson*

**S1.00050:** Monte Carlo simulations to study the effect of static and dynamic properties of polymer melts. *Kiran Khanal , Jutta Luettmmer-Strathmann*

**S1.00051:** Scaling of dynamic properties of polymer melts using friction coefficients of phantom chains - A Monte Carlo simulation study. *Nenad Stojilovic , Jutta Luettmmer-Strathmann*

**S1.00052:** Tacticity effects on viscoelastic properties of polystyrenes. *Chien-Lin Huang , Chi Wang*

**S1.00053:** Stress-induced Mobility in Polymer Glasses During Multistep Creep Deformation. *Hau-Nan Lee , Keewook Paeng , Stephen Swallen , Mark Ediger , Robert Riggleman , Juan de Pablo*

**S1.00054:** Unusual Spherulite Radial Growth Rate Kinetics of Poly(ethylene adipate): Observation of a Double Maximum in Growth Rate Curve. *Kathy Singfield , Ashley Rowe*

**S1.00055:** Simultaneous Dielectric Spectroscopy and X-ray Diffraction of Poly(ethylene terephthalate) and PET/Carbon Nanotube Nanocomposites. *Bret Stenger , Lei Yu , Peggy Cebe*

**S1.00056:** Crystallization kinetics and the orientation of crystals under cylindrical nanoconfinement. *Kyunghee Lee , Euntaek Woo , Kyong Wook Noh , Young Gyu Jeong , June Huh , Kyusoon Shin*

**S1.00057:** Crystallization of Polyethylene on nucleating and on passive substrates. *Thomas Henze , Klaus Schroeter , Thomas Thurn-Albrecht*

**S1.00058:** Impact of Protein-Metal Ion Interactions on the Crystallization of Silk Fibroin Protein. *Xiao Hu , Qiang Lu , David Kaplan , Peggy Cebe*

**S1.00059:** Effects of configurational defects on structural evolution in Poly(vinylidene fluoride-hexafluoropropylene) copolymers. *Suriyakala Ramalingam , Shaw L. Hsu*

**S1.00060:** Polymorphism Behaviors of Electrospun Poly(vinylidene fluoride) Nanofibers. *Zhenxin Zhong , Darrell Reneker*

**S1.00061:** Electrospun Buckling Coils. *Yu Xin , Darrell Reneker*

**S1.00062:** Hierarchical Structure on Nanofiber via Combination of Electrospinning and Polymer Crystallization. *Xi Chen , Bingbing Wang , Rucha Shah , Christopher Li*

**S1.00063:** PP/POSS Nanocomposites: Characterization and Properties of Melt Spun Fibers. *Byoung-Jo Lee , Sayantan Roy , Sadhan Jana*

**S1.00064:** Affine deformation in polymer networks  
*Anindita Basu , Qi Wen , Paul Janney , Arjun Yodh*

**S1.00065:** Length and Structure Dependence of Electron Transport in Organic Molecules  
*Shashi Karna , Govind Mallick , Haiying He , Ravindra Pandey*

### **Session T7: Patterns on Thin Elastic Sheets**

**407**

Sponsoring Units: GSNP DPOLY  
Chair: Benny Davidovitch, University of Massachusetts

**2:30PM, Wednesday, March 18, 2009**

**2:30PM - 3:06PM**

T7.00001: The undulating shape of growing ribbons

**Invited Speaker: Haiyi Liang**

**3:06PM - 3:42PM**

T7.00002: The Mechanics of Non-Euclidean Plates in Synthetic and Natural Sheets

**Invited Speaker: Eran Sharon**

**3:42PM - 4:18PM**

T7.00003: Wrinkling patterns on floating elastic films

**Invited Speaker: Narayanan Menon**

**4:18PM - 4:54PM**

T7.00004: Wrinkle to fold transitions: Stress relaxation in lipid monolayers and other elastic thin films

**Invited Speaker: Ka Yee C. Lee**

**4:54PM - 5:30PM**

T7.00005: Nonlinear dynamics of wrinkle growth and pattern formation in stressed elastic thin films on viscoelastic substrates

**Invited Speaker: Rui Huang**

### **Session T18: Focus Session: Organic Photovoltaics and Other Photonic Devices**

**319**

Sponsoring Unit: DPOLY

**Chair: Jeff Urban, Lawrence Berkeley National Laboratory**

**2:30PM, Wednesday, March 18, 2009**

**2:30PM - 3:06PM**

T18.00001: Surface plasmon polariton assisted organic solar cells

**Invited Speaker: P. Peumans**

**3:06PM** - T18.00002: Harvesting Lost Photons: Minimizing Sub-Bandgap Losses in Organic Photovoltaic Devices by Up-conversion. *Clara Santato, Loranger Sebastian, Banville David, Rosei Federico, Perepichka Dmytro*

**3:18PM** - T18.00003: In-situ X-ray characterization of thermal and solvent based annealing of thin P3HT and P3HT/PCBM films. *Tommy Hofmann, Htay Hlaing, Chang-Yong Nam, Charles Black, Benjamin Ocko*

**3:30PM** - T18.00004: Excited-State Dynamics at Organic Photovoltaic Heterojunctions by Pump-Probe Photoelectron Spectroscopy. *Gregory Dutton, Daniel Dougherty, Wei Jin, William Cullen, Janice Reutt-Robey, Steven Robey*

**3:42PM** - T18.00005: The role of triplet excitons in enhancing polymer solar cell efficiency: a photo-induced absorption study. *Kai Yang, Suchi Guha*

**3:54PM** - T18.00006: Photophysics of charge-transfer excitons in thin films of  $\pi$ -conjugated polymers. *Demetra Psiachos, Sumit Mazumdar*

**4:06PM** - T18.00007: Photo-crosslinkable Polythiophenes for Efficient Thermally Stable Organic Photovoltaics. *Bumjoon Kim, Yoshi Miyamoto, Biwu Ma, Jean M.J. Frechet*

**4:18PM** - T18.00008: Temperature Dependence of Biexciton Decay and Intermolecular Hopping in Zinc Phthalocyanine Films. *Christopher Ryan*

**4:30PM** - T18.00009: White tandem OLED with carbon nanotube interlayer. *Alexios Papadimitratos, Raquel Ovalle Robles, Ray Baughman, Anvar Zakhidov*

**4:42PM** - T18.00010: Tuning optical properties of blue-emitting polyfluorenes via hydrostatic pressure. *Keshab Paudel, Meera Chandrasekhar, Suchi Guha*

**4:54PM** - T18.00011: SERS Characterization of Self-Assembled Monolayers Embedded on Plasmonic Nano-structure. *Masato Maitani, Douglas Ohlberg, Haeyoung Yoon, Ping Kao, Demirel Melik, Zhiyong Li, Duncan Stewart, Stanley Williams, Theresa Mayer, David Allara*

**5:06PM** - T18.00012: Non-linear optics and local-field factors in liquid chloroform: A time-dependent density-functional theory study. *David A. Strubbe, Xavier Andrade, Angel Rubio, Steve G. Louie*

**5:18PM** - T18.00013: Time resolved photoluminescence studies of long lived emissive specie in F8BT:PFB blends. *Simon Velinas, Ian Howard, Richard Friend, Carlos Silva*

## Session T19: Theory and Simulation II

320

Sponsoring Units: DPOLY

*Chair: Amalie Frischknecht, Sandia National Laboratories*

**2:30PM, Wednesday, March 18, 2009**

**2:30PM** - T19.00001: Theory of polyzwitterionic solutions. *Rajeev Kumar, Glenn Fredrickson*

**2:42PM** - T19.00002: Charge transport in conjugated polymers: a multiscale picture. *Victor Ruehle, James Kirkpatrick, Kurt Kremer, Denis Andrienko*

**2:54PM** - T19.00003: First principles electronic properties investigation of polythienoacene and its derivatives. *Simon Pesant, Paul Boulanger, Guillaume Dumont, Michel C\^ot\^e*

**3:06PM** - T19.00004: Electronic structure and carrier transport in disordered conjugated polymers. *Nenad Vukmirovic, Lin-Wang Wang*

**3:18PM** - T19.00005: \emph{Ab initio} Study of Diketo-Pyrrolo-Pyrrole Polymers for Photovoltaic Applications. *Simon L\^evesque, Jean Fr\^ed\^eric Laprade, Michel C\^ot\^e*

**3:30PM** - T19.00006: First-principles investigation of PVDF and its copolymers. *V. Ranjan, Liping Yu, Marco Buongiorno Nardelli, J. Bernholc*

**3:42PM** - T19.00007: Adaptive Tempering Monte Carlo Study of Dense Polypyrrole Systems. *Yafei Dai, Estela Blaisten-Barojas*

**3:54PM** - T19.00008: Effect of the chain length and segment size of the free polymer on the interaction between two grafted monolayers in a good solvent. *Walter Chapman, Shekhar Jain, Valeriy Ginzburg, Prasanna Jog, Jeffrey Weinhold, Rakesh Srivastava*

**4:06PM** - T19.00009: Interpolation between State Points in the Simulated Perturbation Contributions of Polymer Solutions. *Amir Vahid, Neil H. Gray, J. Richard Elliott*

**4:18PM** - T19.00010: Self-limited filamentous bundles with chiral interactions. *Yasheng Yang, Robert Meyer, Michael Hagan*

**4:30PM** - T19.00011: Simulation of Microheterogeneous Networks and Extraction of Segment Orientation Behavior from D-NMR Spectra. *Bernardo Aguilera-Mercado, Claude Cohen, Fernando Escobedo*

**4:42PM** - T19.00012: Cooperative dynamics in polymer melts: a comparison of theoretical predictions with Neutron Spin Echo experiments. *Marina Guenza*

**4:54PM** - T19.00013: Equilibrium Partitioning of Polymers between Bulk Dilute Solution and Confining Pores. *Yanwei Wang, Flemming Y. Hansen, Guenther H. Peters, Ole Hassager*

**5:06PM** - T19.00014: Multivalent Nanoparticles: adsorption and organization of bidisperse polymer chains onto a solid interface. *Folusho Oyerokun, Richard Vaia, John Maguire, Barry Farmer*

**5:18PM** - T19.00015: Molecular simulation of crystal nucleation of n-alkane melts. *Peng Yi, Gregory Rutledge*

## Session T20: Focus Session: Magnetic Properties of Organic Semiconductors/Surface Characterization of Organic Materials

321

Sponsoring Units: DPOLY

*Chair: C.D. Frisbie, University of Minnesota*

**2:30PM, Wednesday, March 18, 2009**

**2:30PM** - T20.00001: Magnetoresistance and magnetic-field-effects in organic semiconductor devices.

*Invited Speaker: Markus Wohlgenannt*

**3:06PM** - T20.00002: Photo-induced Magnetism and Spintronics in Organic Semiconductors

*Invited Speaker: Arthur Epstein*

**3:42PM** - T20.00003: Magnetic properties of TCNQF4 reacted with Ni(cod)<sub>2</sub>. *Ian Terry, Kimberly Quinn, Marek Szablewski*

**3:54PM** - T20.00004: Magnetic and surface studies of transition metal complexes for molecular spintronics. *Patrick Truitt, Raman Tabwar, Ezekiel Johnston-Halperin, Norbani Abdullah, Carly Reed, Namrata Singh, Chandrani Chatterjee, Malcolm Chisholm*

**4:06PM** - T20.00005: Magneto-Transport in Polyaniline Nanofiber Network. *K. Deniz Duman, N.-R Chiou, V.N. Prigodin, A.J. Epstein*

**4:18PM** - T20.00006: Tuning the ionization energy of organic semiconductor films: The role of intramolecular polar bonds

*Invited Speaker: Norbert Koch*

**4:54PM** - T20.00007: Structural and Electronic Properties of Tetracene Thin Films. *Jun Shi, De-Tong Jiang, Tom Regier, Xiaorong Qin*

**5:06PM** - T20.00008: Perpendicular interaction between donor and acceptor molecules on Au (111). *U.G.E. Perera, R. Mishima, S-Wai Hla*

**5:18PM** - T20.00009: STM study of energy-storing photoactive organometallic molecules. *Jongweon Cho, Luis Berbil-Bautista, Niv Levy, Steve Meier, K. Peter C. Vollhardt, Michael F. Crommie*



**Session V2: Constrained Polymers**

**Spirit of Pittsburgh Ballroom BC**

Sponsoring Units: DCMP, DPOLY

*Chair: Xiaojun Wu, University of Pittsburgh*

**8:00 AM, Thursday, March 19, 2009**

**8:00AM - 8:36AM**

V2.00001: The low-force elasticity of single-stranded DNA

*Invited Speaker: Omar A. Saleh*

**8:36AM - 9:12AM**

V2.00002: Confinement Effects on the Structure of Complex Fluids

*Invited Speaker: Mahn Kim*

**9:12AM - 9:48AM**

V2.00003: Is your brain wired optimally?

*Invited Speaker: Dmitri Chklovskii*

**9:48AM - 10:24AM**

V2.00004: Gene brushes on a chip: From crowding and the search problem to synthetic systems

*Invited Speaker: Roy Bar-Ziv*

**10:24AM - 11:00AM**

V2.00005: Confinement effects on folding of proteins and RNA

*Invited Speaker: Dev Thirumalai*

**Session V4: Microgels: Colloidal Properties of Gels**

**306/307**

Sponsoring Units: DPOLY, DCMP

*Chair: Weitz David, Harvard University*

**8:00AM, Thursday, March 19, 2009**

**8:00AM - 8:36AM**

V4.00001: Melting and Frustration in Temperature-Sensitive Colloids

*Invited Speaker: Arjun Yodh*

**8:36AM - 9:12AM**

V4.00002: Equilibrium features in the arrested phase separation of PNIPAM microgels

*Invited Speaker: Veronique Trappe*

**9:12AM - 9:48AM**

V4.00003: New materials with microgels

*Invited Speaker: Jin-Woong Kim*

**9:48AM - 10:24AM**

V4.00004: Sublimation dynamics of colloidal microgel crystals

*Invited Speaker: A. D. Dinsmore*

**10:24AM - 11:00AM**

V4.00005: Phase behavior and rheology of ionic microgels

*Invited Speaker: Alberto Fernandez-Nieves*

## **Session V18: Focus Session: Physics of Green Polymers and of Biocompatibility**

**319**

Sponsoring Units: DPOLY DBP

*Chair: John Torkelson, Northwestern University*

**8:00AM, Thursday, March 19, 2009**

**8:00AM - 8:36AM**

V18.00001: Spectroscopic Analyses of Microstructures Associated with Plant Based Polymers

*Invited Speaker: Shaw Ling Hsu*

**8:36AM** - V18.00002: Toughening and reinforcing degradable polymers to extend their properties and applications. *SuPing Lyu, Jianbin Zhang, Adam Buckalew, Jim Schley, Bryant Pudil, Lian Luo, Chris Hobot, Mike Benz, Randy Sparer, Julie Trudel*

**8:48AM** - V18.00003: A QCM-D Study of the Enzymatic Degradation of Cellulose Thin Films. *Dan Glickman, Oleh Tanchak, Michael Reid, Amanda Quirk, Darrell Cockburn, Colin Macdougall, Anthony Clarke, Jacek Lipkowski, John Dutcher*

**9:00AM** - V18.00004: An Atomic Force Microscopy Study of the Mechanism of Cellulose Biodegradation. *Amanda Quirk, Maohui Chen, Darrell Cockburn, Sarah Regli, Anthony Clarke, John Dutcher, Jacek Lipkowski, Sharon Roscoe*

**9:12AM** - V18.00005: Observation of Biodegradation of Cellulose Fibers Using Surface Plasmon Resonance Imaging. *Oleh M. Tanchak, Scott Allen, Darrell Cockburn, Anthony J. Clarke, Jacek Lipkowski, John R. Dutcher*

**9:24AM** - V18.00006: Sustainable Engineering and Improved Recycling of PET for High-Value Applications: Transforming Linear PET to Lightly Branched PET with a Novel, Scalable Process. *Cynthia Pierre, John Torkelson*

**9:36AM** - V18.00007: Spontaneously Formed Biocompatible Surfaces in Water by Segregation of Amphiphilic Block Copolymers. *Hideaki Yokoyama, Takashi Ishizone, Naoya Torikai, Jaroslaw Majewski, Ayako Oyane*

**9:48AM - 10:24AM**

V18.00008: Electrospun Nanofibers for Neural and Tissue Engineering

*Invited Speaker: Younan Xia*

**10:24AM** - V18.00009: Control of Protein Adsorption on Surfaces with Grafted Polymers. *Igal Szleifer, Jan Genzer*

**10:36AM** - V18.00010: Optimization of Polymer Surfaces for Specific Targeting. *Elena Dormidontova, Matthew Hagy, Shihu Wang*

**10:48AM** - V18.00011: Cluster structure in urea aqueous solution and its effect on DNA denature. *He Cheng, Charles C. Han, Boualem Hammouda*

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## **Session V19: Focus Session: Hierarchically Ordered Systems**

**320**

Sponsoring Unit: DPOLY

*Chair: Albertu Striolo, University of Oklahoma*

**8:00AM, Thursday, March 19, 2009**

**8:00AM** - V19.00001: Semi-crystalline PMMA Stereocomplex Fibers. *Matija Crne, Shin-Woong Kang, Jung Ok Park, Satyendra Kumar, Mohan Srinivasarao*

**8:12AM** - V19.00002: Hierarchically Organized Peptide Core-Silica Shell Hybrids. *Aysegul Altunbas, Nikhil Sharma, Darrin J. Pochan*

**8:24AM** - V19.00003: Hierarchically Structured Regioregular Conjugated Polymer via Evaporative Self-Assembly. *Myunghwan Byun, Robyn Laskowski, Feng Qiu, Malika Jeffries-EL, Zhiqun Lin*

**8:36AM - 9:12AM**

V19.00004: Combining Small Molecule with Block Copolymer: a Facile Approach to Direct Hierarchical Assembly of Nanoparticles

*Invited Speaker: Ting Xu*

**9:12AM** - V19.00005: Hierarchical volume gratings by combining holographic-patterning and block copolymer self-assembly. *Michael Birnkrant, Russell Marron, Christopher Li, Lalgudi Natarajan, Vincent Tondiglia, Timothy Bunning*

**9:24AM** - V19.00006: Heteroarm Star Block Copolyampholytes as Templates for Hierarchically-Ordered Polyelectrolyte-Surfactant Complexes. *Matthew Hammond, Chaoyu Li, Constantinos Tsitsilianis, Raffaele Mezzenga*

**9:36AM** - V19.00007: Assembly of Organic/Nanoparticle Hybrid Systems. *Stephen Z.D. Cheng, Yingfeng Tu, Chun Ye, Wenbin Zhang, Xinfei Yu, Ryan M. Van Horn, Chien-Lung Wang*

**9:48AM** - V19.00008: Quantification of the Molecular Topology for Hierarchical Macromolecules. *Gregory Beaucauge*

**10:00AM** - V19.00009: Nanoparticle Assemblies via Self-Assembling Peptide Molecules. *Nikhil Sharma, Matthew Lamm, Joel Schneider, Kristi Kiick, Darrin Pochan*

**10:12AM** - V19.00010: Robust Three Dimensional Liquid Films through Nanoparticle Assembly. *Tzu-chia Tseng, Erin McGarrity, Phillip Duxbury, Amalie Frischknecht, Michael Mackay*

**10:24AM** - V19.00011: The path and motion of an electrospinning jet observed with videography and stereography. *Kaiyi Liu, Camden Ertley, Darrell Reneker*

**10:36AM** - V19.00012: Electrospinning Semicrystalline Block Copolymer Assemblies into Microfibers. *Kristen Roskov, Ian Manners, Richard Spontak*

**10:48AM** - V19.00013: Electrospinning of native cellulose from nonvolatile solvent system. *Shanshan Xu, Aihua He, Charles C. Han*

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## Session V20: Thin Films and Adhesion II

321

Sponsoring Unit: DPOLY

**Chair: Connie Roth, Emory University**

**8:00AM, Thursday, March 19, 2009**

**8:00AM** - V20.00001: Freestanding polymer films and the glass transition. *Jane Lipson, Scott Milner*

**8:12AM** - V20.00002: Temperature-Modulated Ellipsometry in Vacuum: A New Tool for Probing Glass Transition in Thin Supported Polymer Films. *Mikhail Efremov, Shauheen Soofi, Anna Kiyanova, Franco Cerrina, Paul Nealey*

**8:24AM** - V20.00003: Physical Aging in Nanoconfined Polymer Films: Importance of 3D vs. 1D Thermal Contraction in the Resulting Physical Aging Response. *Connie B. Roth, Elizabeth A. Baker, Perla Rittigstein, John M. Torkelson*

**8:36AM** - V20.00004: Segmental dynamics of supported and freestanding polystyrene thin films probed by dye reorientation. *Keewook Paeng, Hau-Nan Lee, Stephen Swallen, Mark Ediger*

**8:48AM** - V20.00005: Modeling Dielectric Relaxation in Simulations of Polymer Glasses and Thin Films. *Hendrik Meyer, Simone Peter, J. Baschnagel*

**9:00AM** - V20.00006: Neighboring Domains Perturb Glass Transition Temperature on Multilayer Films and Nanostructured Polymer Blend Systems. *Soyoung Kim, Connie Roth, Rodney Priestley, John Torkelson*

**9:12AM** - V20.00007: Near Surface Dynamics of Polymers Probed with Nanoparticle Embedding. *Dongping Qi, James A. Forrest*

**9:24AM** - V20.00008: Glass Transition of Thin Star Polymer Films. *Emmanouil Glynos, Peter Green*

**9:36AM** - V20.00009: The Glass Transition in Ultra-Thin Polymer Films Confined between Structured Surfaces. *Vikram Kuppa, Gregory Rutledge*

**9:48AM** - V20.00010: Apparent changes in the molecular dynamics of thin polymer layers due to the impact of interfacial layers. *Anatoli Serghei, Martin Tress, Friedrich Kremer*

**10:00AM** - V20.00011: Post-confinement Relaxation Behavior of Nanostructures on Polymer Surface. *Hua-Gen Peng, Yen Peng Kong, Albert Yee*

**10:12AM** - V20.00012: Molecular weight and chain architecture dependence of glassy compliance of ultrathin freely standing polymer films. *Shanhong Xu, Gregory B. McKenna*

**10:24AM** - V20.00013: Surface Chemistry Effects on the Reactivity and Properties of Nanoconfined Bisphenol M Dicyanate Ester in Controlled Pore Glass. *Sindee Simon, Qingxiu Li*

**10:36AM** - V20.00014: Relation Between Glass Transition Temperatures in Polymer Nanocomposites and Polymer Thin Films. *Jamie Kropka, Victor Pryamitsyn, Venkat Ganesan*

**10:48AM** - V20.00015: Finite Element Analysis of Nanoparticle embedding into glassy polymers. *Mark Ilton, James A. Forrest*

## Session W18: Focus Session: Mechanical Force Spectroscopy and Device Applications of Polymeric and Biological Materials

319

Sponsoring Units: DPOLY

**Chair: Denis Pristinski, National Institute of Standards and Technology**

**11:15AM, Thursday, March 19, 2009**

**11:15AM - 11:51AM**

W18.00001: Nanomechanics of Biomacromolecules from Native and Regenerated Musculoskeletal Tissues

**Invited Speaker: Christine Ortiz**

**11:51AM** - W18.00002: Transitions of a tethered chain under tension. *Jutta Luettmmer-Strathmann, Wolfgang Paul, Kurt Binder*

**12:03PM** - W18.00003: Velocity Dependency of Dragging Force and Wetting Properties of High Viscous Liquids Using Constant Diameter Nanoneedle-Tipped AFM Probes. *Mehdi Yazdanpanah, Mahdi Hosseini, Santosh Pabba, Charles Walter, Jayan Hewaparakrama, Robert Cohn*

**12:15PM** - W18.00004: Mechanical Properties of Individual Microgel Particles. *Sara Hashmi, Eric Dufresne*

**12:27PM** - W18.00005: Intrinsically Disordered Titin PEVK as a Molecular Velcro: Salt-Bridge Dynamics and Elasticity. *Jeffrey Forbes, Wanxia Tsai, Richard Wittebort, Kuan Wang*

**12:39PM** - W18.00006: Mechanical Signal Filtering by Viscoelastic Properties of Cuticle in a Wandering Spider. *Michael E. McConney, Clemens Schaber, Michael Julian, Joseph A.C. Humphrey, Friedrich Barth, Vladimir V. Tsukruk*

**12:51PM** - W18.00007: Bacterial Cell Wall Peptidoglycan at Single Molecule Resolution. *Ahmed Touhami, Manfred Jericho, Valerio Matias, Anthony Clarke, Terry Beveridge, John Dutcher*

**1:03PM** - W18.00008: Unfolding polyelectrolytes in a strong DC electric field. *Pai-Yi Hsiao, Kun-Mao Wu*

**1:15PM** - W18.00009: Liquid Drop Pinning on Micro-patterned Surfaces. *Ahmed Soliman, Yevgeniy Kalinin, Robin Baur, Robert Thorne*

**1:27PM** - W18.00010: An Optical Biosensing Platform using Reprecipitated Polyaniline Microparticles. *Louis Nemzer, Arthur Epstein*

**1:39PM** - W18.00011: Patterning of Ferritin Nanoparticles on Gold Posts of Silicon Substrate. *Yunxia Hu, Dian Chen, Soojin Park, Todd Emrick, Thomas Russell*

**1:51PM** - W18.00012: Rapid Hydrogel Microactuator Using Elastic Instability. *Howon Lee, Chunguang Xia, Nicholas Fang*

**2:03PM** - W18.00013: Effect of Single Bacterium Cell and DNA Attachment on the Electrical Properties of Chemically Modified Graphene Sheets. *Nihar Mohanty, Vikas Berry*

## **Session W19: The Physics of Polymer Nanocomposites: Grafting and Dispersion**

320

Sponsoring Unit: DPOLY

**Chair: Arthi Jayaraman, University of Colorado, Boulder**

**11:15AM, Thursday, March 19, 2009**

**11:15AM** - W19.00001: A theoretical study of polymer grafted nanoparticles as fillers in polymer nanocomposites. *Arthi Jayaraman , Kenneth Schweizer*

**11:27AM** - W19.00002: Highly-branched anisotropic hybrid nanoparticles at surfaces. *Vladimir Tsukruk*

**11:39AM** - W19.00003: Particle Dynamics within Self-Assembling Polymer-Grafted Spherical Nanoparticles. *Pinar Akcora , Sanat K. Kumar , Yu Li , Brian Benicewicz , Suresh Narayanan*

**11:51AM** - W19.00004: Thermally Stable Au Nanoparticles via Photo-crosslinkable Polymeric Stabilizers. *Joona Bang , Misang Yoo , Bumjoon J. Kim*

**12:03PM** - W19.00005: Design of Polymer-Grafted Particles for Biocompatibility. *David Trombly , Venkat Ganesan*

**12:15PM** - W19.00006: Synthesis of Polystyrene-Silica Composite Particles via One-Step Nanoparticle-Stabilized Emulsion Polymerization. *Lenore Dai , Huan Ma*

**12:27PM** - W19.00007: Effects of Grafted Chain Density on Nanoparticle and Melt Structure. *Joshua Kalb , Sanat Kumar , Robert S. Hoy , Gary S. Grest*

**12:39PM** - W19.00008: Polyethylene/organically-modified layered-silicate nanocomposites with antimicrobial activity. *P. Songtipya , M.M. Jimenez-Gasco , E. Manias*

**12:51PM** - W19.00009: Modeling of block copolymer/nanoparticle nano-composites. *Marco Pinna , Ignacio Pagonabarraga , Andrei Zvelindovsky*

**1:03PM** - W19.00010: Interfacial Slip in Polymer Blends with Nanoparticles. *Joseph Ortiz , Eihab Jaber , Dilip Gersappe*

**1:15PM** - W19.00011: Synthesis of composite polymer nanoparticles. *Edward Van Keuren , Maki Nishida*

**1:27PM** - W19.00012: Relaxation behaviors of nanoparticles in polymer composites: influence of local frictions by polymer chains. *Byeongdu Lee , PAPPANNAN Thiyagarajan , Suresh Narayanan , Alec Sandy , Vilas Pol , Chieh-Tsung Lo , David Bohnsack*

**1:39PM** - W19.00013: Nano-particle distribution in a polymer nano-composite. *Panagiotis Maniadis , Ioannis N. Tsimpanogiannis , Edward M. Kober , Turab Lookman*

**1:51PM** - W19.00014: Thermoresponsive Self-Assembling Nanocomposites. *Kari Thorkelsson , Yue Zhao , Thomas Schilling , Alexander Mastroianni , Joseph M. Luther , Yue Wu , A. Paul Alivisatos , Ting Xu*

**2:03PM** - W19.00015: Self-Assembly of Polymer-Decorated Nanoparticles in the Bulk and in a Nanometric Confinement. *Damien Maillard , Sanat Kumar , Pinar Akcora*

## **Session W20: Theory and Simulation III**

321

Sponsoring Unit: DPOLY

**Chair: Jack Douglas, National Institute of Standards and Technology**

**11:15AM, Thursday, March 19, 2009**

**11:15AM** - W20.00001: Conformational Study of Di-Substituted \textit{para}-polyphenyleneethylene} (PPE) in Dilute Solutions. *Sabina Maskey , Flint Pierce , Dvora Perahia , Gary Grest*

**11:27AM** - W20.00002: Crystal and Rotator Phases of n-alkanes: a Molecular Dynamics Study. *Nathaniel Wentzel , Scott T. Milner*

**11:39AM** - W20.00003: Computational Modeling of Polymers and the Influence of Molecular Level Structural Features on Mechanical Properties. *Thomas Clancy , Sarah-Jane Frankland*

**11:51AM** - W20.00004: Hydrogen Bonding Structure in Hyperbranched Aliphatic Polyesters Studied by MD Simulations. *Brian Olson , Mukul Kaushik , Sergei Nazarenko*

**12:03PM** - W20.00005: Phases of functionalized polymer-inorganic composites in solution studied via molecular dynamics. *Joshua Anderson , Rastko Sknepnek , Alex Travesset*

**12:15PM** - W20.00006: The effect of chain stiffness on the structure and phase behavior of diblock copolymer melts. *G. Leuty , Mesfin Tsige*

**12:27PM** - W20.00007: Rigidity transition with increasing crosslinking of a single macromolecule. *Jiwi Liu , Phillip Duxbury*

**12:39PM** - W20.00008: Spreading of Droplets on Viscous Polymer Liquids. *Flint Pierce , Dvora Perahia , Gary Grest*

**12:51PM** - W20.00009: Shear rate threshold for the onset of boundary slip in dense polymer films. *Nikolai Priezjev*

**1:03PM** - W20.00010: Direct Numerical Evaluation of Plateau Modulus of Entangled Polymer Melts via Multi-Scale Molecular Dynamics(MD). *Won Bo Lee , Kurt Kremer*

**1:15PM** - W20.00011: Cole-Davidson Glassy Dynamics in Simple Chain Models. *John McCoy , Joanne Budzien , Taylor Dotson , Douglas Adolf , Jonathan Brown*

**1:27PM** - W20.00012: Glass transition temperature of PIB, PDMS and PMMA from small-time simulations. *Solomon Duki , Mesfin Tsige , Philip Taylor*

**1:39PM** - W20.00013: Translocation of a Polymer Through a Nanopore in the Presence of Obstacles. *Hendrick W. de Haan , Gary W. Slater*

**1:51PM** - W20.00014: Role of RNA in the self-assembly of virus: A coarse-grained Brownian Dynamics study. *J.P. Mahalik , Murugappan Muthukumar*

**2:03PM** - W20.00015: Probability of adsorption of peptide (CR3-1, S2) chains on clay minerals by coarse-grained Monte Carlo simulation. *Ras B. Pandey , Hendrik Heinz , Barry L. Farmer , Sharon Jones , Lawrence F. Drummy , Rajesh R. Naik*

#### **Session X4: Responsive Gels at Surfaces and in the Bulk**

**306/307**

Sponsoring Unit: DPOLY

*Chair: Ryan Hayward, University of Massachusetts*

**2:30PM, Thursday, March 19, 2009**

**2:30PM - 3:06PM**

X4.00001: Global Signaling of Localized Impact in Chemo-responsive Gels

*Invited Speaker: Anna Balazs*

**3:06PM - 3:42PM**

X4.00002: Volume-Phase Transitions and Swelling Instabilities in Surface-Tethered Responsive Gels

*Invited Speaker: Ryan Toomey*

**3:42PM - 4:18PM**

X4.00003: Supramolecular Gels in the Bulk and at Surfaces

*Invited Speaker: Stephen Craig*

**4:18PM - 4:54PM**

X4.00004: Photoresponsive Polymers: Converting Light to Mechanical Work

*Invited Speaker: Richard A. Vaia*

**4:54PM - 5:30PM**

X4.00005: 3D Microfabrication of responsive protein gels

*Invited Speaker: Jason Shear*

#### **Session X18: Elastomers and Gels I**

**319**

Sponsoring Units: DPOLY

*Chair: Alfred Crosby, University of Massachusetts*

**2:30PM, Thursday, March 19, 2009**

**2:30PM** - X18.00001: Phase behavior of poly(ethylene oxide) in ethyl alcohol / water mixtures. *S. H. Shin , R. M. Briber , B. Hammouda , D. L-T Ho*

**2:42PM** - X18.00002: pH-Responsive Swelling of PAMAM Dendrimer-Gels. Ronald Hedden , Burcu Unal

**2:54PM** - X18.00003: Studies on shear-thinning and recovery properties of beta-hairpin peptide hydrogel. *Congqi Yan , Radhika Nagarkar , Joel Schneider , Darrin Pochan*

**3:06PM** - X18.00004: Poly(Z-Lysine)-based Block Copolymer Organogels. *Sandeep S. Naik , Adam D. Richardson , Daniel A. Savin*

**3:18PM** - X18.00005: Anisotropic Poly(Vinyl Alcohol) Hydrogel: Connection Between Structure and Bulk Mechanical Properties. *Stephen Hudson , Jeffrey Hutter , Leonardo Millon , Wankei Wan , Mu-Ping Nieh*

**3:30PM** - X18.00006: Kinetics of phase separation of thermoreversible gels. *Francisco J. Solis , Christine Leon , Brent Vernon*

**3:42PM** - X18.00007: Structure and Rheology of Leucine Zipper Protein Hydrogels. *B.D. Olsen , J.A. Kornfield , D.A. Tirrell*

**3:54PM** - X18.00008: Morphology of biaxially stretched triblock copolymer gels using SAXS. *Arjun Krishnan , Tushar Ghosh , Richard Spontak*

**4:06PM** - X18.00009: Computer Simulation of a Switchable Metallo-Supramolecular Gel. *Shihu Wang , Elena Dormidontova*

**4:18PM** - X18.00010: Cavitation Rheology and Fracture Behavior of Polyacrylamide Hydrogels. *Santanu Kundu , Alfred Crosby*

**4:30PM** - X18.00011: Dynamic display of biomolecular patterns through an elastic creasing instability of stimuli-responsive hydrogel surfaces. *Jungwook Kim , Ryan Hayward*

**4:42PM** - X18.00012: Photo-induced locomotion of chemo-responsive polymer gels. *Pratyush Dayal , Olga Kuksenok , Anna C. Balazs*

**4:54PM** - X18.00013: Harnessing Labile Bonds between Nanogels Particles to Create Self-Healing Materials. *German Kolmakov , Krzysztof Matyjaszewski , Anna Balazs*

**5:06PM** - X18.00014: Effect of Confinement on the Dynamics of Three-Dimensional Chemo-responsive Gels. *Olga Kuksenok , Victor V. Yashin , Anna C. Balazs*

**5:18PM** - X18.00015: Diffusion of molecular probes and proteins in hydrogels. *Riccardo Raccis , Robert Roskamp , Annette Brunsen , Bernhard Menges , Ulrich Jonas , Wolfgang Knoll , George Fytas*

## Session X19: Charged and Ion-containing Polymers

320

Sponsoring Unit: DPOLY

**Chair: Jodie Lutkenhaus, Yale University**

**2:30PM, Thursday, March 19, 2009**

**2:30PM** - X19.00001: Molecular Weight and Charge Density Asymmetry in Polyelectrolyte Complexation. *Debra Audus, Glenn Fredrickson, Dominik Duechs*

**2:42PM** - X19.00002: PEG-based Sulfonated Ionomers Microphase Separate with Increasing Temperature. *Wenqin Wang, Gregory J. Tudryn, Ralph H. Colby, Karen I. Winey*

**2:54PM** - X19.00003: Hierarchical Structures in PDMS-based Ammonium Ionenes. *David Salas-de la Cruz, Sudipto Das, Garth Wilkes, Karen Winey*

**3:06PM** - X19.00004: Temperature and pH Responsive Chargeable Copolymers with Tunable LCSTs. *Kiattikhun Manokruang, Evangelos Manias*

**3:18PM** - X19.00005: Ionic Conductivity of Poly(ethylene oxide)-Containing Block Copolymers at Order-Disorder and Order-Order Transitions. *Nisita Wanakule, Ashoutosh Panday, Scott Mullin, Nitash Balsara*

**3:30PM** - X19.00006: Origin of Lateral Nanoscale Heterogeneities in Weak Polyelectrolyte Brushes. *You-Yeon Won, Kevin Witte, Jaehyun Hur*

**3:42PM** - X19.00007: Neutron Reflectivity study of alcohols into ultra-thin ionmer films. *Thusitha Etampawala, Dvora Perahia, Lilin He, Christopher Cornelius*

**3:54PM** - X19.00008: Dynamic behavior of polyelectrolyte multilayer investigated by thin film calorimetry. *H. Huth, R. Mueller, A. Fery, C. Schick*

**4:06PM** - X19.00009: Counter-ion fluctuations in the presence of a spherical macromolecule. *Leandro Boonzaaier, Kristian K. Mueller-Nedebock, Frederik G. Scholtz*

**4:18PM** - X19.00010: Counterion Condensation and Collapse of Sodium Polystyrene Sulfonate in Water: A Molecular Dynamics Study. *Jan-Michael Carrillo, Andrey Dobrynin*

**4:30PM** - X19.00011: Determining the Mobility of Ions in Polymer Electrolytes by Transient Current Measurements at High Voltages. *Thomas Thurn-Albrecht, Peter Kohn, Klaus Schröter*

**4:42PM** - X19.00012: Computational titrations of linear and branched polyethyleneimine. *Jesse Ziebarth, Yongmei Wang*

**4:54PM** - X19.00013: Phase diagrams of effective charge and size of an isolated polyelectrolyte chain and gels. *Arindam Kundagrami, Murugappan Muthukumar*

**5:06PM** - 19.00014: Single chain contraction and re-expansion by counterions of polyelectrolytes. *Pengxiang Jia, Jiang Zhao*

**5:18PM** - X19.00015: Conformation and Dielectrophoresis of Single Weak Polyelectrolyte under AC Electric Field. *Shengqin Wang, Yingxi Zhu*

## Session X20: Long Range Order in Polymer Structures and Morphologies

321

Sponsoring Unit: DPOLY

**Chair: Eric Cochran, Iowa State University**

2:30PM, Thursday, March 19, 2009

**2:30PM - 3:06PM**

X20.00001: Long range ordering in block copolymer thin films

**Invited Speaker: Caroline Ross**

**3:06PM** - X20.00002: Surface Morphology Diagram for Cylinder-Forming Block Copolymer Thin Films. *Alamgir Karim, Xiaohua Zhang, Jack Douglas, Ronald Jones*

**3:18PM** - X20.00003: Practical Implementation of Order Parameter Calculation for Directed Assembly of Block Copolymer Thin Films. *Chi-Chun Liu, Gordon Craig, Paul Nealey, Ricardo Ruiz, Nicola Ferrier*

**3:30PM** - X20.00004: Controlling the self-assembly of block copolymer materials in thin-films. *Eungnak Han, Karl Stuen, Paul Nealey, Padma Gopalan*

**3:42PM** - X20.00005: Shear Alignment and Realignment of Cylinder-Forming Block Copolymer Thin Films. *Andrew Marencic, Richard Register, Paul Chaikin*

**3:54PM** - X20.00006: Structural transition with thickness in films of poly-(styrene-b-2vinylpyridine) (PS-b-P2VP) diblock copolymer/homopolymer blends. *Vindhya Mishra, Edward Kramer, Su-mi Hur, Glenn Fredrickson, Michael Sprung*

**4:06PM** - X20.00007: A Modular and Hierarchical Supramolecular Block Copolymer Self-assembling Strategy Towards Square Arrays. *Chuanbing Tang, Erin Lennon, Michael Dimitriou, Glenn Fredrickson, Edward Kramer, Craig Hawker*

**4:18PM** - X20.00008: Macroscopic Addressable Arrays of Block Copolymer Microdomains. *Soojin Park, Dong Hyun Lee, Bokyoung Kim, Sung Woo Hong, Ji Xu, Unyong Jeong, Ting Xu, Thomas P. Russell*

**4:30PM** - X20.00009: Self-Extinguishing Crystallization: Copolymer Behavior under Flow. *Diana Smirnova, Meisam Hajimorad, Julia Kornfield*

**4:42PM** - X20.00010: Quasicrystalline long-range order in an ABC star block copolymer. *Tomonari Dotera*

**4:54PM** - X20.00011: Effect of chain extender on the phase behavior and morphology of high hard block content polyurethanes. *Alberto Saiani, Achilleas Tsiotas*

**5:06PM** - X20.00012: Ligand-induced order in Spotted vesicles and Striped micelles. *David Christian, Wouter Ellenbroek, Andrea Liu, Dennis Discher*

**5:18PM** - X20.00013: Electrospinning of semicrystalline polymer fibers. *Ying Liu, Shuang Chen, Chunhua Li, Elaine DiMasi, Gad Marom, Miriam Rafailovich*

## Session Y16: Elastomers and Gels II

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Sponsoring Unit: DPOLY

*Chair: Ryan Hayward, University of Massachusetts*

**8:00AM, Friday, March 20, 2009**

**8:00AM** - Y16.00001: Deuterium NMR studies of segment orientation in PDMS unimodal and bimodal endlinked networks. *Claude Cohen, Geoffrey Genesky, T. Michael Duncan*

**8:12AM** - Y16.00002: Volume-phase Transitions and Confined Water in Surface-tethered Poly(N-isopropylacrylamide) Networks. *Ajay Vidyasagar, Ryan Toomey*

**8:24AM** - Y16.00003: Strain induced alignment of particles in an elastomer host. *Ben Spott, Jeremy Neal, Peter Palfy-Muhoray*

**8:36AM** - Y16.00004: Dynamics of uniaxially oriented elastomers using dielectric spectroscopy. *HyungKi Lee, Daniel Fragiadakis, Darren Martin, James Runt*

**8:48AM** - Y16.00005: Shape-Memory Polymers Based on Fatty Acid-Filled Elastomeric Ionomers. *Elise Izzo, Robert Weiss*

**9:00AM** - Y16.00006: Dynamics of Segmented Polyurethane Elastomers Using Dielectric Spectroscopy. *James Runt, Daniel Fragiadakis, Alicia Castagna, Taeyi Choi*

**9:12AM** - Y16.00007: Polydomain to monodomain transition in nematic liquid crystal elastomers. *Badel Mbang, Fangfu Ye, Jonathan Selinger, Robin Selinger*

**9:24AM** - Y16.00008: Liquid crystal elastomers: Bent core flexo-electricity. *Martin Chambers, Rafael Verduzco, Samuel Sprunt, James T. Gleeson, Antal Jakli*

**9:36AM** - Y16.00009: Photoinduced distortions of polydomain liquid crystal elastomer samples. *Wilder Iglesias, Peter Palfy-Muhoray*

**9:48AM** - Y16.00010: Dynamic Aspect of Electro-Opto-Mechanical Effects in Swollen Nematic Elastomers. *Kenji Urayama, Atsushi Fukunaga, Toshikazu Takigawa, Antonio DeSimone, Luciano Teresi*

**10:00AM** - Y16.00011: Analysis of Diffusion through Dynamic Network Polymers using Multi-photon Fluorescence Recovery after Photobleaching. *Jiahui Li, Kelley Sullivan, Edward Brown, Mitchell Anthamatten*

**10:12AM** - Y16.00012: Gelling Mechanism of Aluminum Di-Soaps in Oils. *Xiaorong Wang, Mindaugas Rackaitis*

**10:24AM** - Y16.00013: Surface Plasmon Resonance Effects in Responsive Polyelectrolyte/Gold Nanoparticles Hydrogel Thin Films. *Ihor Tokarev, Iryna Tokareva, Venkateshwarlu Gopishetty, Sergiy Minko*

**10:36AM** - Y16.00014: Gelation, Dynamics and Mechanics of Associating Polymers: Exploring Parameter Space. *Robert S. Hoy, Glenn H. Fredrickson*

**10:48AM** - Y16.00015: Step Cycle Deformation Processing of Elastomers and Gels Based on Semicrystalline Polyolefin-based Block Copolymers. *Fanny Deplace, Zhigang Wang, Nathaniel A. Lynd, Atsushi Hotta, Glenn H. Fredrickson, Edward J. Kramer, Jeffrey M. Rose, Anna E. Cherian, Geoffrey W. Coates, Hisashi Ohtaki, K. Hirokane, F. Yamada, Yong-Woo Shin, Fumihiko Shimizu*

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## Session Y18: Focus Session: Surface Instabilities and Adsorbed or Grafted Layers

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Sponsoring Unit: DPOLY

*Chair: Ting Xu, University of California Berkeley*

**8:00AM, Friday, March 20, 2009**

**8:00AM - 8:36AM**

Y18.00001: Drying-Mediated Self-Assembly of Highly Ordered Complex Structures: From Polymers to Nanoparticles

*Invited Speaker: Zhiqun Lin*

**8:36AM** - Y18.00002: Morphology of Osmotically-Driven Surface Buckles. *Derek Breid, Alfred Crosby*

**8:48AM** - Y18.00003: Lateral Instability of Nanoimprinted Polymer Patterns during Thermal Annealing. *Yifu Ding, Kyle Alvine, Hyunwook Ro, Manish Kulkarni, Jack Douglas, Christopher Soles*

**9:00AM** - Y18.00004: Mechanical instabilities in periodic porous elasto-plastic solids. *Srikanth Singamaneni, Katia Bertoldi, Sehoon Chang, Ji-Hyun Jang, Seth Young, Edwin Thomas, Mary Boyce, Vladimir Tsukruk*

**9:12AM** - Y18.00005: Peculiarities in liquid phase of Styrene Butadiene rubber surface induced by Atomic Force Microscopy-assisted electrostatic nanolithography. *Mindaugas Rackaitis, Sergej Lyuksyutov, Dmytro Kashyn, Pavel Paramonov, Robert Mallik*

**9:24AM** - Y18.00006: Diffusion-Controlled, Self-Organized Growth of Symmetric Wrinkling Patterns. *Christopher M. Stafford, Jun Young Chung, Adam J. Nolte*

**9:36AM** - Y18.00007: Transition from Non-interacting to Interacting Regime of Tethered Polymer Chains. *Ryan Van Horn, Joseph X. Zheng, Ming-Siao Hsiao, Bernard Lotz, Edwin L. Thomas, Jutta Luettmmer-Strathmann, Stephen Z.D. Cheng*

**9:48AM** - Y18.00008: Internal Structure of Diblock Copolymer Brushes. *Bulent Akgun, Charles F. Majkrzak, Sushil Satija, Gokce Ugur, William J. Brittain, Mark D. Foster, Xuefa Li, Jin Wang*

**10:00AM** - Y18.00009: Steric effects on the phase behavior of end-tethered - temperature-responsive polymers. *Charles Hogshead, Evangelos Manias*

**10:12AM** - Y18.00010: Self-Assembling Pi-conjugated Monolayer on Silicon. *J.-C. Lin, J. Kellar, J.-H. Kim, S. Nguyen, M. Hersam, M. Bedzyk, K. Bevan*

**10:24AM** - Y18.00011: The Dynamic Reinforcement of Polyvinyl Alcohol (PVA) as a Result of Non-equilibrium State of Polymer Supermolecular Structures and their Confinement in Nanofibers. *Eyal Zussman, Emil Shaked, Arkadi Arinstein*

**10:36AM** - Y18.00012: Phenomenology of Polymer Thin Film Dewetting during Vapor Deposition Polymerization. *Mitchell Anthamatten, Xichong Chen*

**10:48AM** - Y18.00013: Nano-adsorbents control surface properties of polyurethane. *SuPing Lyu, Darrel Untereker, Jim Schley, Tom Grailer, Anna Belu, Chris Hobot, Terri Bartlett, Randy Sparer*

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## Session Y19: Surfaces and Adsorption I

320

Sponsoring Unit: DPOLY

*Chair: Samuel P. Gido, University of Massachusetts*

**8:00AM, Friday, March 20, 2009**

**8:00AM** - Y19.00001: Sequence-directed organization in self-assembled monolayers of beta-peptides on solid surfaces: A Monte Carlo simulation study. *Jagannath Mondal, Bong June Sung, Arun Yethiraj*

**8:12AM** - Y19.00002: Thermal Response of PNIPAM Brushes Studied by Numerical Self-Consistent Field Calculations. *Dong Meng, Qiang WANG*

**8:24AM** - Y19.00003: Time evolution of the structure of fluorinated alkanes near solid surfaces. *Mesfin Tsige*

**8:36AM** - Y19.00004: Activation of CO<sub>2</sub> on transition metal surfaces and oxide supported metal thin films. *Sujata Paul, Marco Buongiorno Nardelli*

**8:48AM** - Y19.00005: Dynamics of an Adsorbed Polymer Chain. *Joshua Kalb, Sanat Kumar*

**9:00AM** - Y19.00006: Investigation of Carboxymethyl Cellulose Adsorption onto Regenerated Cellulose Surfaces via Quartz Crystal Microbalance with Dissipation Monitoring and Surface Plasmon Resonance Spectroscopy. *Zelin Liu, Paul Gatenholm, Alan Esker*

**9:12AM** - Y19.00007: Theory of Polymer Adsorption Onto Selected Chemically Patterned Substrates. *Alexander Chervanyov, Gert Heinrich*

**9:24AM** - Y19.00008: Cationic xylan adsorption onto self-assembled monolayers and model cellulose surfaces. *Alan Esker, Abdulaziz Kaya, Daniel Drazenovich, Wolfgang Glasser, Katrin Schwikal, Thomas Heinze*

**9:36AM** - Y19.00009: Introduction of a novel surface plasmon resonance imaging method for use in the study of quantitative kinetic surface interactions. *Scott Allen, Oleh Tanchak, John Dutcher*

**9:48AM** - Y19.00010: Pentacene on Cu(911): A Density Functional Theory study. *Abdelkader Kara*

**10:00AM** - Y19.00011: Dynamics within alkylsiloxane SAMs studied by sensitive dielectric spectroscopy. *Mary Scott, Derrick Stevens, Jason Bochinski, Laura Clarke*

**10:12AM** - Y19.00012: Control of The Morphology of Super-Hydrophobic Surfaces. *Robert Weiss, Andrey Dobrynin, Xueyuan Wang*

**10:24AM** - Y19.00013: Biomimetic and responsive artificial surfaces that quantitatively reproduce the water repellency of a Lotus leaf. *Spiros H. Anastasiadis, Vassilia Zorba, Emmanuel Stratakis, Marios Barberoglou, Emmanuel Spanakis, Panagiotis Tzanetakis, Costas Fotakis, Anca Mateescu, Maria Vamvakaki*

**10:36AM** - Y19.00014: Haloform Adsorption on Crystalline Copolymers of Vinylidene Fluoride with Trifluoroethylene. *Carolina C. Ilie, Jie Xiao, Peter A. Dowben*

**10:48AM** - Y19.00015: Shear-controlled Micro-nano Scaled Super-Hydrophobic Surfaces with Tunable Sliding Angles from isotactic-Polypropylene / Polypropylene Chlorid Blend. *Xia Dong, Charles C. Han, Song Hong, Yonghua Yao*

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## Session Y20: Biological-Synthetic Hybrid Materials

321

Sponsoring Unit: DPOLY

*Chair: Ali Dhinojwala, University of Akron*

**8:00AM, Friday, March 20, 2009**

**8:00AM - 8:36AM**

Y20.00001: Peptide Folding and Consequent Self-assembly for Shear Thinning Hydrogels with Immediate Recovery

*Invited Speaker: Darrin Pochan*

**8:36AM** - Y20.00002: Designing 'smart' hydrogels using peptide-responsive conjugates. *Alberto Saiani, Jean-Baptiste Guibaud, Aline Miller*

**8:48AM** - Y20.00003: "Backpack" Functionalized Living Immune Cells. *Albert Swiston, Soong Ho Um, Darrell Irvine, Robert Cohen, Michael Rubner*

**9:00AM** - Y20.00004: Reversible Structural Transition of a DNA Lipid Film. *Matthew Tirrell, Surekha Gajria, Thorsten Neumann, Luc Jaeger*

**9:12AM** - Y20.00005: Gecko-Inspired Carbon Nanotube-Based Adhesives. *Liehui Ge, Sunny Sethi, Anubha Goyal, Lijie Ci, Pulickel Ajayan, Ali Dhinojwala*

**9:24AM** - Y20.00006: Sensing Structures Inspired by Blind Cave Fish. *Michael E. McConney, Nannan Chen, David Lu, Kyle D. Anderson, Huan Hu, Chang Liu, Vladimir V. Tsukruk*

**9:36AM** - Y20.00007: Giant super-helix formation from aqueous bioinspired block copolymers. *H.K. Murnen, A.M. Rosales, R.N. Zuckermann, R.A. Segalman*

**9:48AM** - Y20.00008: The effects of supramolecular network topology on haptin-receptor avidity. *Jason Benkoski, Andrew Mason, Jill La Favors, Joshua Wolfe*

**10:00AM** - Y20.00009: Dynamic DNA Interactions with Functionalized Colloids. *Lu Zhang, Yingxi Elaine Zhu*

**10:12AM** - Y20.00010: Growth of well-defined metal and oxide nanoparticles on biological surfaces. *Vladimir Tsukruk*

**10:24AM** - Y20.00011: Fluorescent DNA-bound Ag nanoclusters. *Patrick O'Neill, Lourdes Velazquez, Kim Weirich, Deborah Fyngenson*

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### **Session Y36: Organic and Hybrid Surfaces and Interfaces**

**408**

Sponsoring Units: DMP, DPOLY

**Chair: V. Podzorov, Rutgers University**

**8:00AM, Friday, March 20, 2009**

**8:00AM** - Y36.00001: Diffusivity control in molecule-on-metal systems using electric fields. *Y.Y. Zhang , N. Jiang , S.X. Du , H.-J. Gao , Matthew J. Beck , Sokrates T. Pantelides*

**8:12AM** - Y36.00002: Oxygen-related traps in pentacene thin films: Energetic position and implications for transistor performance. *Wolfgang Kalb , Kurt Mattenberger , Bertram Batlogg*

**8:24AM** - Y36.00003: Grazing-incidence X-ray Diffraction of Tetracene Thin Films on Hydrogenated Si(001) Substrate. *De-Tong Jiang , Andrew Tersigni , Chang-Yong Kim , Jun Shi , Robert Gordon , Ning Chen , Xiaorong Qin*

**8:36AM** - Y36.00004: Nanoscale conductivity measurements on organic thin films and interfaces. *Justin Wells , Fei Song , Philip Hofmann*

**8:48AM** - Y36.00005: Density Functional Theory of Transition Metal Phthalocyanines. *Noa Marom , Leor Kronik*

**9:00AM** - Y36.00006: Cascade and Accumulation of Spin at CuPc/GaAs (100) interface. *Huanjun Ding , Irfan Irfan , Yongli Gao , Mirko Cinchetti , Marina Sanchez-Albaneda , Jan-Peter Wustenberg , Oleksiy Andreyev , Michael Bauer , Martin Aeschlimann*

**9:12AM** - Y36.00007: Electronic structure of MoO<sub>3</sub> insertion layer at the interface between organic semiconductor and indium tin oxide (ITO). *Huanjun Ding , Irfan Irfan , Yongli Gao , Frank So*

**9:24AM** - Y36.00008: HPLC and Semi-Prep Scale Fractionations of Poly(3-alkyl thiophenes). *Scott LeFevre , Heungyeol Choi , Taihyun Chang , Chang Ryu*

**9:36AM** - Y36.00009: Tailored Assembly of Organic Molecular Nanofibers into Advanced Donor-Acceptor Architectures. *Volodymyr Duzhko , Michael J. Kelley , Kenneth D. Singer*

**9:48AM** - Y36.00010: The substitution effect on the reorganization energy of metal free phthalocyanine. *Choongkeun Lee , Karl Sohlberg*

**10:00AM** - Y36.00011: Rational design of the shape and periphery of discotics: a synthetic way towards high charge carrier mobilities. *Denis Andrienko , Xinliang Feng , Valentina Marcon , Wojciech Pisula , James Kirkpatrick , Ferdinand Grozema , Kurt Kremer , Klaus M[\"u]llen*

**10:12AM** - Y36.00012: Anisotropic phases in ferromagnetic ultrathin films from multipolar interactions. *Daniel Barci , Daniel Stariolo*

### **Session Z3: Non-viral Based Gene Delivery Systems: Opportunities, Obstacles and Challenges**

**301/302**

Sponsoring Units: DPOLY, DBP

**Chair: Yongmei Wang, Memphis**

**11:15AM, Friday, March 20, 2009**

**11:15AM - 11:51AM**

Z3.00001: Small Bioactive Lipoplex (SBL) Nanoparticles Self-Assembled at Elevated Temperature and Pressure

**Invited Speaker: Leaf Huang**

**11:51AM - 12:27PM**

Z3.00002: New Developments in Non Viral Gene Delivery

**Invited Speaker: Ram Mahato**

**12:27PM - 1:03PM**

Z3.00003: Image-Guided Hydrodynamic Gene Delivery

**Invited Speaker: Dexi Liu**

**1:03PM - 1:39PM**

Z3.00004: Revisit an old problem -- Complexation between DNA and PEI

**Invited Speaker: Chi Wu**

**1:39PM - 2:15PM**

Z3.00005: Recent Developments in Non-Viral Gene Delivery

**Invited Speaker: Alexander Kabanov**

#### **Session Z4: Biological Polyelectrolytes**

**306/307**

Sponsoring Units: DPOLY, DBP

**Chair: Garegin Papoian, University of North Carolina**

**11:15AM, Friday, March 20, 2009**

**11:15AM - 11:51AM**

Z4.00001: How mechanical properties of DNA relate to chromosome structure

**Invited Speaker: Kerry Bloom**

**11:51AM - 12:27PM**

Z4.00002: Electrostatic Rigidity of Biological Polyelectrolytes

**Invited Speaker: Andrey Dobrynin**

**12:27PM - 1:03PM**

Z4.00003: *Deafness and espin-actin self-organization in stereocilia*

**Invited Speaker: Gerard C.L. Wong**

**1:03PM - 1:39PM**

Z4.00004: Mesoscale Modeling of Chromatin Folding

**Invited Speaker: Tamar Schlick**

**1:39PM - 2:15PM**

Z4.00005: Complexation of oppositely charged polyelectrolytes in gene delivery and biology

**Invited Speaker: Boris Shklovskii**

#### **Session Z18: Surfaces and Adsorption II**

**319**

Sponsoring Unit: DPOLY

**Chair: Elaine Zhu, University of Notre Dame**

**11:15AM, Friday, March 20, 2009**

**11:15AM** - Z18.00001: Dynamics of six-member molecular rings adsorbed onto graphite and MgO(100). *John Z. Larese , Peter Yaron*

**11:27AM** - Z18.00002: Heterogeneity of nitrogen multilayers adsorbed on graphite. *M. Golebiowska , L. Firlej , B. Kuchta , M.W. Roth*

**11:39AM** - Z18.00003: Surface Hopping and Sliding of Single DNA Chains under Electric Field. *Benxin Jing , Jiang Zhao*

**11:51AM** - Z18.00004: First Principles study of the formation of molecular junctions: benzenethiolate on Au (111). *Yongduo Liu , Vidvuds Ozolins*

**12:03PM** - Z18.00005: Molecular Dynamics Simulation of friction in contact-mode Atomic Force Microscopy of alkane films and nanoparticles. *F.Y. Hansen , P. Soza , H. Taub , U. Volkmann*

**12:15PM** - Z18.00006: The Measurement of Surface Rheological and Surface Adhesive Properties of a PDMS Rubber using Micro- and Nano-Particle Embedment. *Stephen Hutcheson , Gregory McKenna*

**12:27PM** - Z18.00007: Test of the universality of the scaling energy in alkanes based on the melting transition of monolayers adsorbed on graphite. *L. Firlej , B. Kuchta , M. Roth , C. Wexler*

**12:39PM** - Z18.00008: The role of local domain formation in the melting of hexane adlayers on graphite. *M.W. Roth , L. Firlej , B. Kuchta , C. Wexler*

**12:51PM** - Z18.00009: Chain-length dependence in surface stresses of alkanethiolate-covered Au(111). *V. Srinivasan , G. Cicero , J. C. Grossman*

**1:03PM** - Z18.00010: All-atom Molecular Dynamics simulations of partial pentane and hexane films on graphite. *M. Kaspar , M.W. Roth , Carlos Wexler , L. Firlej , B. Kuchta*

**1:15PM** - Z18.00011: Temperature Dependent Adsorption Dynamics of Binary Mixtures of Halomethanes on Graphite and  $\alpha$ -quartz Surfaces. *Jonathan Nehring , G. Leuty , Mesfin Tsigie*

**1:27PM** - Z18.00012: Liquid Chromatography at Critical Conditions: Balancing size exclusion and adsorption in nanopores. *Asem Abdulahad , Jeffrey Amos , Chang Ryu*

**1:39PM** - Z18.00013: Using Amphiphilic Copolymers and Nanoparticles to Organize Charged Biopolymers. *Jung Hyun Park , Marla McConnell , Yujie Sun , Yale Goldman , Russell Composto*

**1:51PM** - Z18.00014: Non-translational Molecular Diffusive Motion on Two Different Time Scales in Alkane Nanoparticles. *S.-K. Wang , M. Bai , H. Taub , E. Mamontov , K.W. Herwig , F.Y. Hansen , J.R.D. Copley , T. Jenkins , M. Tyagi , U.G. Volkmann*

**2:03PM** - Z18.00015: Synergetic binding and lateral segregation in polymer decorated micelles and nanoparticles. *Igal Szleifer , Rikkert Nap*

## Session Z19: Semi-Crystalline Polymers

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Sponsoring Unit: DPOLY

*Chair: Steve Hudson, National Institute of Standards and Technology*

**11:15AM, Friday, March 20, 2009**

**11:15AM** - Z19.00001: Pseudobrush theory of amorphous interphase in semicrystalline polymers. *Scott Milner*

**11:27AM** - Z19.00002: The impact of chain folding on the structure and morphology of polymer lamellae. *Bernard Lotz*

**11:39AM** - Z19.00003: Unexpected Observation of 2.5 Dimensional Growth of Polymer Spherulite. *Dujin Wang , Changming Wang , Ying Zhao , Jinliang Song , Buxing Han*

**11:51AM** - Z19.00004: Structural evolution under uniaxial drawing of Poly(D, L-lactide) Films. *Gr'egory Stoclet , Jean-Marc Lefebvre , Roland Seguela*

**12:03PM** - Z19.00005: Vitrification and Devitrification of Rigid Amorphous Fraction of PET during Quasi-isothermal Cooling and Heating. *Peggy Cebe , Huipeng Chen*

**12:15PM** - Z19.00006: Crystallization of Model Long Chain Branched Polyethylenes with Different Branching Architectures. *M. Vadlamudi , R. G. Alamo*

**12:27PM** - Z19.00007: An anomaly in the crystallisation rate of bimodal poly(ethylene oxide) weight distributions. *Jessica L. Carvalho , Sara L. Cormier , Kari Dalnoki-Veress*

**12:39PM** - Z19.00008: Effect of ppm Levels of Long Chain Branching on the Crystallization of Isotactic Poly(propylenes) from the Melt and from Solution. *Rufina G. Alamo , Juan P. Fernandez-Blazquez , Syed A. Abdullah , Madhavi Vadlamudi*

**12:51PM** - Z19.00009: Melting, Recrystallization and Superheating of Polymer Crystals Studied by Fast Calorimetry (1 MK/s). *Christoph Schick , Alexander Minakov , Andreas Wurm , Evgeny Zhuravlev*

**1:03PM** - Z19.00010: Nano-Scale Confinement Effects on Poly( $\epsilon$ -caprolactone) Crystallization at the Air/Water Interface. *Qiongdan Xie , Bingbing Li , Tomonori Saito , Wen Yin , Timothy Long , Richard Gandour , Alan Esker*

**1:15PM** - Z19.00011: Microphase Separation Controlled Beta Sheet Crystallization Kinetics in Silk Fibroin Protein. *Xiao Hu , Qiang Lu , David Kaplan , Peggy Cebe*

**1:27PM** - Z19.00012: Correlation between Structure and Vapor Sorption in Semi-crystalline Polymers: One Dimensional Nano-Swelling Measured using iVSANS. *Man-Ho Kim , Glinka J. Charles*

## Session Z20: Polymer Blends

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Sponsoring Unit: DPOLY

*Chair: Mark Foster, University of Akron*

**11:15AM, Friday, March 20, 2009**

**11:15AM** - Z20.00001: Microemulsions in Asymmetric Polymer Blends. *Alisyn Nedoma , Megan Robertson , Nitash Balsara*

**11:27AM** - Z20.00002: Nanostructured polymer blends by addition of gradient copolymer during melt mixing: Effects of copolymer sequence distribution on morphology and crystallization behavior. *Robert Sandoval , Jungki Kim , John Torkelson*

**11:39AM** - Z20.00003: A Morphological Study of Poly(Butylene Succinate)/Poly(Butylene Adipate) Blends with Different Blend Ratios and Crystallization Processes. *Jerold Schultz , Haijun Wang , Zhigua Gan , Shouke Yan*

**11:51AM** - Z20.00004: Phase equilibria and crystallization in mixtures of azobenzene chromophore and triacrylate. *Garrett O'Malley , Kenneth Milam , Namil Kim , Thein Kyu*

**12:03PM** - Z20.00005: Miscibility Studies on Polymer Blends Modified with Phytochemicals. *Neelakandan Chandrasekaran , Thein Kyu*

**12:15PM** - Z20.00006: Phase Separation Mechanism of Polybutadiene/Polyisoprene Blends Under Oscillatory Shear Flow. *Charles C. Han , Ruoyu Zhang , He Cheng , Xia Dong*

**12:27PM** - Z20.00007: Impact of Deuterium Substitution on the Physical Properties of Polymer Melts and Blends. *Ronald White , Jane Lipson*

**12:39PM** - Z20.00008: Mapping Mechanical Properties and Glass Transition Temperature in Polymer Materials with sub-100 nm Resolution. *Maxim Nikiforov , Stephen Jesse , Sangah Gam , Russell Composto , Louis Germinario , Sergei Kalinin*

**12:51PM** - Z20.00009: Understanding Dynamics of Multicomponent Polymer Systems Using Homopolymer/Copolymer Blends. *Caleb Dyer , Dias Linton , Mark Dadmun*

**1:03PM** - Z20.00010: Influence of polymer chain connectivity on local composition distribution in miscible polymer blends. *Dmitry Bedrov , Wenjuan Liu , Ralph Colby*

**1:15PM** - Z20.00011: Origins of Deviations from the RPA in Polymer Blends: Simulations and Theory. *Jun Kyung Chung , David Morse*

**1:27PM** - Z20.00012: Two DSC Glass Transitions in Miscible Blends of Polyisoprene / Poly(4- $\text{tert}$ -butyl styrene). *Junshu Zhao , Ye Sun , Lian Yu , Mark Ediger*

**1:39PM** - Z20.00013: Segmental dynamics in polymer blends: adapting the Long-Lequeux model. *Gareth Royston , Paul Sotta , Didier Long*

**1:51PM** - Z20.00014: The Viscoelastic Behavior of Polymer/Oligomer Blends. *Wei Zheng , Gregory McKenna , Sindee Simon*

## Special DPOLY Events

Sunday, March 15<sup>th</sup> 2009, 5:30pm – 9:00pm

DPOLY Reception  
August Henry's City Saloon  
946 Penn Avenue  
Pittsburgh, PA 15222  
Phone: 412-765-3270

This DPOLY reception recognizes **Steve Granick** (recipient of the 2009 Polymer Physics Prize) and **Venkat Ganesan** (recipient of the 2008 Dillon Medal).

Tuesday, March 17<sup>th</sup> 2009

DPOLY Business Meeting  
David L. Lawrence Convention Center  
Room: 320, 5:30 – 6:30 PM

## DPOLY Award Lectures

### *Polymer Physics Prize:*

8:00 AM, Tuesday, March 17, 2009  
David L. Lawrence Convention Center  
Spirit of Pittsburgh Ballroom BC  
Steve Granick  
Polymer Physics Prize Talk: Polymer Mobility at Surfaces and in Confined Environments

### *Padden Prize Symposium:*

11:15 AM, Tuesday, March 17, 2009  
David L. Lawrence Convention Center  
Room 321

### *Dillon Medal:*

2:30PM, Tuesday, March 17, 2009  
David L. Lawrence Convention Center  
Spirit of Pittsburgh Ballroom A  
*Venkat Ganesan*  
Dillon Medal Prize Lecture

*Disclaimer: The information contained within this booklet is unofficial and is accurate as of 1/28/2009. For all official information please refer to the APS March Meeting Proceedings (<http://meetings.aps.org/Meeting/MAR09/>)*