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

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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, Fddd, and gyroid in diblock copolymer melts. Mikihito Takenaka , Myung Im Kim , Tsutomu Wakada , Satoshi Akasaka , Shotaro Nishitsuij , Kenji Saijo, Hirokazu Hasegawa , Kazuki Ito

8:12AM - A18.00002: Determination of Fddd phase boundary in polystyrene-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


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: Countering 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-SalphaS-Olefin Block Copolymers. Sheng Li , Richard Register, Brian Landes


10:12AM - A18.00012: Gradient Architecture as Means of Phase Diagram Manipulation in Copolymers: Accessing Both LCOT and UCOT in High Molecular Weight Styrene-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-PiBS 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

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


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


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


Session A20: Spatially Confined Polymer Materials

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 Pirna

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


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


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. Shuhairi Ajhami, Pengtao Yue, Yuriko Renardy
Session B4: Polymer Translocation

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

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 biominalization \textit{(in vitro)}.
Xiaolan Ba , Yizhi Meng , Nadine Pernodet , Sue Wriech , Chris Jacobsen , Helga Fölsch-Milhofer , Yi-xian Qin , Miriam Rafaiovic , Elaine DiMasi


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


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 , Bhuana 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: Orientation Change of Microphase-Separated Domains of Block Copolymer Thin Films Placed on Ordered Nanoparticle Monolayers. Kookheon Char , Taehee Kim


Session B19: Focus Session: Polymers and Ionic Liquids

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

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

Jae-Hong Choi, Liang Gwee, Yossef A. Elabd, Karen I. Winey

David Hoagland, John Harner

Kathy Singfield, Shawna Mitchell

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

Jonathan Kiel, Brian Kirby, Michael Mackay

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

Zhihua Xu, Huidong Zang, Bin Hu

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

Jennifer Segui, Ioana Gearba, Miriam Rajaffovich, Charles Black

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.
Neil Greenham

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 Fritz, Minaugus Rakaitis, Georg Bohn

**C1.00004:** The use of radius of gyration in a WLC polymer model of cancer cell adhesion to glycansinoglycans 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. Schoon Chang, Srikanth Singamaneni, Seth Young, Vladimir Tsvruk

**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, Chaoxu Li, Dieter Schlafer, Aijiang 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 Immered Embedded Photopolymer Matrix. Onome Swader, Damla Koylu, Kenneth Carter, Mark Dadmun

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

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

**C1.00013:** Long Range Order of Block Copolymer/CS$_{60}$/5 Thin Films. Katie Campbell, David Backnell, Jonathan 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. Hourfrost, 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 Atanisatis, 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, Hyunwoo Ro, Kyle Ahine, Jing Zhou, Jack Douglas

**C1.00022:** Examination of Nonliquidlike Behaviors in Molten Polymer Films. Z.H. Yang, Y.J. Park, Jian-Tai Chen, Emily Redston, Thomas Russell

**C1.00023:** Coarse Grained Simulation of Block Copolymer Systems. Ludwig Schreier, Marco Pinna, Xiaohu Guo, Andrei Zvelindovsky

**C1.00024:** Computer Simulation of Metallo-Supramolecular Networks. Shihu Wang, Chun-Hai Chung, Elena Dormidontova

**C1.00025:** Heat Capacity of $\textit{B. Mori}$ Silk Fibroin Based on the Vibrational-Motion of Poly(amino acid)s.. Marek Pyda, Xiao Hu, Peggy Cebe

**C1.00026:** Heat Capacity of the Silk-Water System Based on Vibrational-Motions of Poly(amino acid) and Water. Marek Pyda, Xiao Hu, Peggy Cebe

**C1.00027:** 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

**C1.00028:** Dynamics of Polystylen (PS) Melts: Multi-Scale Molecular Dynamic(MD) Approach. Won Bo Lee, Vagelis Harmandaris, Dominik Fritz, Kurt Kremer

**C1.00029:** Differential AC-chip nanocalorimeter for measurements at low pressure. Mathias Ahrenberg, Heiko Huth, Christoph Schick, Kenneth Kearns, Mark D. Ediger

**C1.00030:** Phase Stability in Nanoparticle/Homopolymer Thin Film Mixtures. Jenny Kim, Peter Green

**C1.00031:** Healing of Crack on Brittle Substrate by Dual Cross-Linked Nanogel Coating. German Kolmakov, Krzysztof Matyjaszewski, Anna Balazs

**C1.00032:** Design of responsive polymer surfaces with ultrafast response time. Jan Genzer, Evren Ozcam, Koji Wibulsky

**C1.00033:** Swelling Behavior of Diblock Copolymer Brushes. Bulent Akgun, Sushil Sattia, Gokce Ugur, Mark D. Foster

**C1.00034:** Effect of density and structure on dynamics within self-assembled monolayers. Derrick Stevens, Mary Scott, Jason Bochinski, Laura Clarke

**C1.00035:** Partial Crystallinity in Alkyl Side Chain Polymers. Vasav Sahu, Shishir Prasad, Johanna Vilatte, Zhang Jiang, Sunil Sinha, Ali Dinhajwala

**C1.00036:** Modifying material surfaces with siloxane-based coatings. Ali Ozcam, Jan Genzer

**C1.00037:** Carbon Nanotube Intra-connects With Conductive Polymers. Seon Woo Lee, Hyung Ju Ryu, Haim Ahrenberg, J.M. Virgili, J.B. Kerr, R.A. Segalman

**C1.00038:** Multi-Wall Carbon Nanotube Dispersions under Shear Flow. Saswati Pujari, Sameer Rahatekar, Jeffrey Gillman, Krzysztof Kozioł, Alan Windle, Wesley Burghardt

**C1.00039:** High Electric Energy Storage in P(VDF-HFP) Copolymers with Different Crystallinities. Fangxiao Guan, Steven Boggs, Lei Zhu

**C1.00040:** Fabrication of Highly Ordered Nanostructured Block Copolymer Templates using Supramolecular Assembly Approach. E. Bhoje Gowd, Manfred Stamm

**C1.00041:** A New Level of Hierarchical Structure Control by Use of Supramolecular Self-assembled Dendronized Block Copolymers. Raffaele Mezzenga, Chaoxu Li, Dieter Schlafer, Aijiang Zhang

**C1.00042:** Multi-scale simulation on solid benzene. Hua Liu, Hendrik Heinz
C1.00043: Segmental dynamics in poly(cyclohexyl methacrylate) / poly(alpha-methylstyrene) blends. Gareth Royston, Paul Sotta, Didier Long


C1.00045: Co-crystallization of Alkanes with Longer Methylen Segment within a Statistically Random Copolymer. Jeffrey Kalish, Suriyakula Ramalingham, Tuning Yang, Shao-Ling Hsu


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


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 polystyrene acrylic acid gradient copolymer at oil/water interfaces. Wu 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, Chinuedum Osuji

C1.00053: Registration of Lamellar Microdomains of PS-b-PDMAEMA to Topographic Guiding Patterns. Sang-Min Park, Charles Rettner, Jed Pitera, Ho-Ched Kim

C1.00054: The Assembly of Cyclodipeptide-Polymer Conjugates and Block Polymer. Nana Zhao, Brett Helms, Tong Xu

C1.00055: Block Copolymer Based Supramolecules for Organoelectronics. Benjamin Rancatore, Shih-Hao Yang, Clayton Maultide, 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 Oligosiloxane Nanoparticles. Nana Zhao, Tong Xu, Matthew H. Epp, III, Fei Chen, Carol L. Outerbridge

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

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

C1.00061: Controlled morphology of NanionS® (i.e. boxi [textregistered]) S perfluorinated ionomer membrane and poly(vinylidene-co-trifluoroethylene) blends for swelling suppression. Naizhiruamin Ahmad Nazir, Thein Kyu

C1.00062: Synthesis and Morphology Study of Copolymers Containing Imidazolium Ions. David Salas-de-la Cruz, Shurlene 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 Hayck, David Salas-de-la Cruz, Timothy E. Long, Karen I. Winey


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


C1.00068: Segmented polyurethane nanotube nanohybrid shishkebabs. Matthew Hood, James Sands, John LaScala, Rick Bayer, Christopher Li

C1.00069: Efficient Synthesis of Poly(4-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 Polyelectrolyteism in Water-Dispersible Polyaniline. Jacob Turver, Joung Eun Yoo, Yueh-Lin Loo

C1.00073: Development of Polymer Electrolyte Membrane (PEM) for Direct Methanol Fuel Cell (DMFC). Saiurung Changkhachom

C1.00074: Iontophoresis of Salicylic Acid From Salicylic Acid Doped Polyp-phenylene vinylene) Polyacrylamide Hydrogels. Sumonman Niamlang


C1.00076: Nanoparticle Tethered Perylene Tetracarboxylic Dianide 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. Jinghong Wu, Sarah Spannings, David Martin

C1.00078: Sensitivity Enhancement of PEDOT-PSS towards CO by Zeolite ZSM-5 Additive. Pajjavan Chanthamon

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

C1.00080: Effect of light attenuation on motion of photo-responsive polymer gels. Pratyush Dayat, 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-Dong Wang, P.E. Boukany, S. Ravindranath, Y.Y. Wang, X Li

C1.00084: The Viscoelastic Bulk Modulus: Effect of Crosslink Density. Jiaxi Guo, Sindee Sponsoring Units: DPOLY, DMP Chair: Anvar Zakhidov, University of Texas at Dallas

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. Rammath Ramachandran, Gregory Beaucage

C1.00088: Borylation of Polystyrene: Random Blocky vs. Truly Random Copolymers. Wayne Powers, Zachariah Norman, Chang Ryu, Chulsung Bae, Jan Genzer

C1.00089: Phase behavior study of polystyrene and deuterated polystyrene in alkyl-cyclohexanes. Zachariah Norman, Wayne Powers, Chang Ryu

C1.00090: Zero-dimensional organic nanoparticles via copolymer directed self-assembly. Dequan Xiao, Kanhua Lin, Qiang Fu, Qinjian Yin

C1.00091: Ultrafast Nanocalorimetry and Superheating in Linear Polymers. Christoph Schick, Alexander Minakov, Andreas Wurm

C1.00092: Intermolecular Interactions in Polymer/C60 Blends. Peter Mirau, Marjan Lyons

C1.00093: Effect of Hydrophobicity on the Adsorption of Human IgG to Thiolated Gold Surfaces as Characterized by SPR. Kristen Duthe, Adele Peynor


C1.00095: Protected Plasmonic Nanostructures for High Resolution Chemical Imaging using Tip Enhanced Raman Spectroscopy. Rebecca Butt, Carlos Bariros, Andrey Malkovskiy, Alexander Kisliuk, Alexei Sokolov, Mark Foster


C1.00097: Resonant soft x-ray reflectivity studies on the structural arrangement of polymers at interfaces. Markus Mezger, Blandine Jerome, Jeffrey Kortright, Manuel Valdivares, Eric Gillixson

C1.00098: A spectroscopic ruler to measure chain conformations at the solid-liquid interface. Subhalakshmi Kumar, Janet Wong, Sang Chul Bae, Steve Granick

C1.00099: Vibrational Relaxation and Dynamical Transitions in Atactic Polystyrene. Hanqing Zhao, Yung Park, Paul Painter


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. Chuchen Wang, Alberto Salleo, Ludwig Gorts, Jain McCulloch, Martin Heeney, Alexander Ziegler

2:42PM - D18.00002: Thermoelastic Bulk Modulus: Effect of Crosslink Density. Jiaxi Guo, Sindee Sponsoring Units: DPOLY, DMP Chair: Anvar Zakhidov, University of Texas at Dallas

3:06PM - D18.00003: Effect of Hydrophobicity on the Adsorption of Human IgG to Thiolated Gold Surfaces as Characterized by SPR. Kristen Duthe, Adele Peynor

3:18PM - D18.00005: Electrostatic Force and Charge Transport in Multilayered Conjugated Polymer Films. Alexey Kovalev, Yanyan Cao, Theresa Mayer, Thomas Mallouk

3:30PM - D18.00006: Ab initio study of molecular packing of organic semiconducting materials. Salomon Turgman, Jan Genzer

3:42PM - D18.00007: Quantification of Molecular and Nanostructural Topology. Rammath Ramachandran, Gregory Beaucage

3:54PM - D18.00008: Zero-dimensional organic nanoparticles via copolymer directed self-assembly. Dequan Xiao, Kanhua Lin, Qiang Fu, Qinjian Yin

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

4:30PM - D18.00011: Resonant soft x-ray reflectivity studies on the structural arrangement of polymers at interfaces. Markus Mezger, Blandine Jerome, Jeffrey Kortright, Manuel Valdivares, Eric Gillixson

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

Resonant soft x-ray reflectivity studies on the structural arrangement of polymers at interfaces. Markus Mezger, Blandine Jerome, Jeffrey Kortright, Manuel Valdivares, Eric Gillixson

A spectroscopic ruler to measure chain conformations at the solid-liquid interface. Subhalakshmi Kumar, Janet Wong, Sang Chul Bae, Steve Granick

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

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

Sponsoring Unit: DPOLY
Chair: Marcus Cicerone, National Institute of Standards and Technology

2:30 PM, Monday, March 16, 2009

Invited Speaker: Jin Wang

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


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


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

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, Sapan Parekh


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

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


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


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


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


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

Session H2: Polymer Physics Prize Symposium Honoring Steve Granick

Spirit of Pittsburgh Ballroom BC
Chair: Michael Rubinstein, University of North Carolina
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

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
9:24AM - H18.00006: Solvent annealing of Micropatterned PS-b-PEO copolymer films. Tae Hee Kim , Himadri Acharya , Hee June Joeng , Cheolmin Park
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 Bulasz , Thomas Russell
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  
9:00AM - H19.00004: Cooperativity and fragility in glass forming systems: not a simple relationship. Liang Hong, Alexander Kisliuk, Alexei Sokolov  
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 Riggelman, Gregory Toepfferwein, Juan de Pablo, Hau-Nan Lee, M. D. Ediger  
10:36AM - H19.00012: A Model of Glassy Polymers that Includes both Spatial and Temporal Fluctuations. Grigori Medvedev, James Caruthers  

Session H20: Electrically and Optically Active Polymers

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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-Trinitrophenyl-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  
10:00AM - H20.00009: Adaptive parallel eigensolver for electronic structure calculation of PPV. Yihua Bai, Guoping Zhang  
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 ‘textit{trans}’-polycarbocetylene 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

11:15 AM - 11:51 AM
J5.00001: Simulations of Polymer Grafted Nanoparticles in a Polymer Matrix
**Invited Speaker:** Grant Smith

11:51 AM - 12:27 PM
J5.00002: Interaction, Structure and Transport of Polymer Grafted Nanoparticles
**Invited Speaker:** Ramanan Krishnamoorti

12:27 PM - 1:03 PM
J5.00003: Modification of Block Copolymers Using Surface-Functionalized Hard and Soft Nanoparticles
**Invited Speaker:** Richard Spontak

1:03 PM - 1:39 PM
J5.00004: Polymer single crystal meets nanoparticle, toward ordered hybrid materials
**Invited Speaker:** Christopher Li

1:39 PM - 2:15 PM
J5.00005: DNA Directed Nanoparticle Assemblies
**Invited Speaker:** Francis W. Starr

Session J18: Charge Transport and Optical Properties of Organic Semiconductors

11:15 AM - 11:51 AM
J18.00001: Light Emitting Transistors of Organic Single Crystals
**Invited Speaker:** Yoshihiro Iwasa

11:51 AM - 12:27 PM
J18.00002: Quantum-Chemical Approach to Electronic Coupling
**Invited Speaker:** Jean Luc Bredas

12:27 PM - 1:03 PM
J18.00003: Modification of the electronic properties of rubrene crystals by extrinsic species. Leonidas Tsetseris, Sokrates Pantelides

12:27 PM - 1:03 PM
J18.00004: Charge carrier transport and optical properties of SAM-induced conducting channel in organic semiconductors. Vitaly Podzorov

12:51 PM - 1:03 PM

1:03 PM - 1:39 PM
J18.00006: Gate electric-field tuning of contact barriers between metals and organic semiconductor crystals. J. Takeya, M. Yamagishi, K. Nakayama, T. Uemura

1:39 PM - 2:15 PM

2:15 PM - 3:03 PM
J18.00008: Charge transport in crystalline organic semiconductors: using polymorphs to explore the effect of crystal packing. Ooma Jurchescu, Devin Mourey, Sanmar Subramanian, Sean Parkin, Brandon Vogel, John Anthony, Thomas Jackson, David Gundlach

3:03 PM - 3:39 PM

3:39 PM - 4:15 PM
J18.00010: First-principles study of charge injection and transport through pentacene multilayers. Yong-Hoon Kim

4:15 PM - 5:03 PM
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
Sponsoring Unit: DPOLY
Chair: Kevin Cavicchi, University of Akron

11:15 AM, Tuesday, March 17, 2009

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
12:27PM - J19.00007: Lamellar and Non-bulk like Morphologies in Thin Films of Block Copolymer on Chemical Nanopatterned Surfaces. Guoliang Liu, Francois Detcheverry, Juan de Pablo, Paul F. Nealey
1:03PM - J19.00010: Imaging Layer Effect on Density Multiplication in the Directed Assembly of Block Copolymer Thin Films. Huiman Kang, Eungnak Han, Padma Gopalak, 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

Session J20: Frank J. Padden Jr. Award Symposium
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
12:03PM - J20.00005: Polymer Diffusion in Carbon Nanofiller / Polymer Nanocomposites. Minfong Mu, Nigel Clarke, Russell Composto, Karen Winey
12:15PM - J20.00006: Tunable Wetting of Polymer Nanocomposite Films. Marla McConnell, Shi Yang, Russell Composto
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
1:03PM - J20.00010: Structure and mobility of PEO/LiClO4 solid polymer electrolytes. Susan Fullerton, Janna Maranas
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
3:30PM - L1.00004: Directed Crystallization in polymer solutions. Murugappan Muthukumar
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 Larsson, 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, Athanasios Panagiotopoulos
4:42PM - L1.00010: Confinement Effects on Polymer Dynamics in Nanocomposites. Ramanan Krishnamoorti, Tirtha Chatterjee, Mansour Abdolahi, Madhusudan Tyagi
4:54PM - L1.00011: Long-time dynamics of chains in polymer nanocomposites. Peter Green
5:06PM - L1.00012: Self-Assembly of Conjugated Red-Coil Block Copolymers for Photovoltaic Applications. R. A. Segalman, B.D. Olsen, Y. Tao, B. McCulloch

Session L19: Focus Session: Ionically Gated and Conventional OFETs and Related Devices
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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 Hu, Michael Renn, C. Frisbie
2:42PM - L19.00002: Non-volatile Ferroelectric Poly(vinylidene fluoride-co-trifluoroethylene) Memory based on Single Crystalline Tris(pentyl)silylpropylpentacene Field Effect Transistor. Seok Ju Kang, Insung Bae, Youn Jung Park, Tae Ho Park, Jinwoo Sung, Cheolmin Park
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
4:06PM - L19.00007: Controlling charge carrier injection in solution processed pentacene transistors by molecular engineering of the electrodes. Sangameshwar Rao Soudari, Cherie Kagan
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
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-hexithiophenene) nanofiber p-n diodes. Nicholas Pinto
Session L20: Liquid Crystalline Polymers and Anisotropic Particles

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, 'texit (Chrysina gloriosa). Jung Ok Park, Vivek Sharma, Matija Crne, Mohan Srinivasarao


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. Toepperwein, 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, Shaping Dong, Maren Roman, Alan Esker


Session M19: DPOLY Business Meeting

5:30 PM, Tuesday, March 17, 2009

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Sponsoring Unit: DPOLY
Chair: Lei Zhu, University of Connecticut
Session P4: Physics of Polymer Membranes for Water Purification

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: Olgica 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

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 , Kulaandai Sivandan , Craig J. Hawker , Edward J. Kramer
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. Brber , Manfred Wattig
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 Kuhn
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
10:36AM - P18.00014: Rheological and Mechanical Properties of Crosslinked Block Copolymer Nanofilber and Polystyrene Blends. Sungwon Ma , Yonathan Thio
Session P19: The Physics of Polymer Nanocomposites: Properties

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
8:36AM - P19.00004: Magnetic and Optical anisotropy thiol-capped Au NPs embedded into a polymer. Jose de la Venta, Miguel Angel Garcia, Virginia Bouzas, Andreaucci, 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
9:24AM - P19.00008: Electrical Conductivity in Polymer Composites Containing Metal Nanowires: Simulation and Experiment. Sadie White, Tarun Vemulkar, John Fischer, Karen Wines
10:00AM - P19.00011: Placement Control of Nanomaterial Arrays on Surface-Reconstructed Block Copolymer Thin Films. Jeong Gon Son, Won Ki Bae, Huiman Kang, Paul F. Nealey, Kookheon Char
10:24AM - P19.00013: Carbon nanotubes nuclelate 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, Daniel Cabrera, Lauren Wielgas, Zarnab Vaca Chavez, Patrick Huebsch, Ronald Zirhs, Wolfgang Binder, Kay Saulwaechter

Session P20: Melts and Solutions

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 Streletzky, Paul Russo
8:36AM - P20.00004: Enhancing Polymer-Fullerene Miscibility Through Enthalpic Interactions. Katie Campbell, David Bucknell, Yanthan Thin, Haskell Beckham, Uwe Bunz, Adam Hannon, Andrew Zappas, Bilge Hatiboglu, Michael Kempf
9:00AM - P20.00006: Role of surfactants on the assembly of amphiphilic copolymer through instabilities of organic/water interfaces. Jintao Zhu, Ryan C. Hayward
9:12AM - P20.00007: Influence of Intermolecular Interactions on Fragility of Polymers. Kumar Kuna, Alexei Sokolov
9:36AM - P20.00009: Dynamics of Cyclic Molecules Threaded into a Linear Polymer Chain. Koichi Mayumi, Hiroyuki Endo, Michihiro Nagao, Nobora Osaka, Hideaki Yosimura, Mitsuhiro Shibayama, Kohzo Ito
10:00AM - P20.00011: Effect of Stereochemistry and Polydispersity on Diffusion in Polypropylene. Ernst von Meerwall, Numam Wahed, 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 Zirhs, Wolfgang Binder, Kay Saulwaechter
Session Q4: Polymer Surface Instabilities

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

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)$_n$ and A(BA)$_n$ Miktoarm Architectures. Nathanial Lynd, Fusho Ouyerokun, Donal O'Donoghue, Dale Handlin, Glenn Fredrickson


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


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


12:51PM - 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, Xinglan 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


2:03PM - Q18.00015: Study on the strength of intermonomer interactions for PS-b-PMA 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

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Sponsoring Unit: DPOLY
Chair: Francis Starr, Wesleyan University

11:15AM, Wednesday, March 18, 2009


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 Helmmann, George Fytas


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


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


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

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

Session Q20: Thin Films and Adhesion I

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Sponsoring Unit: DPOLY
Chair: Chris Stafford, National Institute of Standards and Technology

11:15AM, Wednesday, March 18, 2009


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

12:03PM - Q20.00005: Dimension-Dependent Mechanical Properties of Pure and Antiplasticized Polymer Nanostructures. Sean Delclamide, 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


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

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. Yanikel Cabrera, Georgi Georgiev, Lauren Wiegus, Bret Stenger, Robert Judib, 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 Edelson, Luis Fernandez, Shubnam 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 Djojkovic

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, Schoon Chang, Ji-Hyun Jang, Whitney Davis, Edwin Thomas, Vladimir Tkruk

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-Acetylde Conjugated Polymer Developed for Use in Organic Solar Cells. Zahra Nazrollahi, 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. Minja Lee, Jung O. Park, Mohan Srinivasarao

S1.00013: Trimerization of Monocyanate ester in Nanopores. Yang Pyo Koh, Qingxia Li, Sindee L. Simon

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


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

S1.00017: Control self-assembled nanowire using chemically modified substrates. Shusuke Aburaya, Satoshi Akasaka, Mikihoi Takanaka, Hiroaki Hasegawa, Yusukeko Tada, Hiroshi Yoshida, Nikos Hadjichristidis

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


S1.00020: In situ Raman Spectroscopy Study of Shear Transfer between Carbon Nanotubes and Amorphous Polymer. Minfang Ma, Sebastian Osswald, Yury Gogossi, 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 Streletzky, John McKenna, Imaan Benmerzoug, Pubudu Peris, Meki Bayachou

S1.00023: Cleavage Energies of Modified Layered Silicates by Molecular Dynamics Simulation. Yoo-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 Dubiere, 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


S1.00032: Well-defined branched polymers for studying surface segregation. Bost Liu, Shih-Fun 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. Zhiquan Lin, Myunghwan Byun, Suck Won Hong

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

S1.00037: Controlled morphology of biodegradable polymer blends. Sasivimon Budhiranon, 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, Zhiquan 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 Polylactide-$b$-Poly(ethylene-$co$-1-butene)-$b$-Polylactide Triblock Copolymers. Weiqiang Cao, Lei Zhu, Lixia Rong, Benjamin S. Iliasio

S1.00042: PEoH-PPO-b-PPO 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, Hyungin 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 Bunt


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 Khudal, Jutta Luettmer-Strathmann

S1.00051: Scaling of dynamic properties of polymer melts using friction coefficients of phantom chains - A Monte Carlo simulation study. Nenad Stojilovic, Jutta Luettmer-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. Breet Stonger, 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 Schröter, 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. Suriyakula Ramalingam, Shaw L. Hsu
Session T7: Patterns on Thin Elastic Sheets

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

2:30PM, Wednesday, March 18, 2009

2:30PM - 3:06PM
T18.00001: Surface plasmon polariton assisted organic solar cells
Invited Speaker: P. Peumans


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


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


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 Bie exciton Decay and Intermolecular Hopping in Zinc Phthalocyanine Films. Christopher Ryan


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

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


5:18PM - T18.00013: Time resolved photoluminescence studies of long lived emissive specie in F8BT:PF8 blends. Simon G'/elinas, Ian Howard, Richard Friend, Carlos Silva
Session T19: Theory and Simulation II

2:30PM, Wednesday, March 18, 2009

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


2:54PM - T19.00003: First principles electronic properties investigation of polythienoacene and its derivatives. Simon Pesant, Paul Boulangere, Guillaume Dumont, Michel Cottet


3:18PM - T19.00005: *Ab initio* Study of Diketo-Pyrrolo-Pyrrole Polymers for Photovoltaic Applications. Simon Levesque, Jean Frederic Laprade, Michel Cottet


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, Valery Ginzburg, Pratunna Jog, Jeffrey Weinhold, Rakesh Srivastava


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


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

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2:30PM, Wednesday, March 18, 2009

2:30PM - T20.00001: Magnetoresistance and magnetic-field-effects in organic semiconductor devices. Invited Speaker: Markus Wohlgenannt


3:42PM - T20.00003: Magnetic properties of TCNQF4 reacted with Ni(cod)$_2$. Ian Terry, Kimberly Quinn, Marek Szublewski

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


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


Session V2: Constrained Polymers

Spirit of Pittsburgh Ballroom BC
Sponsoring Units: DCMP, D POLY
Chair: Xiaolun 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

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Session V4: Microgels: Colloidal Properties of Gels

306/307
Sponsoring Units: D POLY, 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


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, John Torkelson


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, Jaroslav 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 Selaifer, Jan Genzer

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

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

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


8:36AM - 9:12AM
V19.00004: Combining Small Molecule with Block Copolymer: a Facile Approach to Direct Hierarchical Assembly of Nanoparticles
Invited Speaker: Ting Xu


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


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. Tsu-ehia Tseung, 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 Entley, Darrell Rennaker

10:36AM - V19.00012: Electrospinning Secmicrystalline 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
Session V20: Thin Films and Adhesion II

Sponsoring Unit: DPOLY
Chair: Connie Roth, Emory University

8:00AM - 8:12AM, Thursday, March 19, 2009

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


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


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. Dongming Qh, James A. Forrest

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


9:48AM - V20.00010: Apparent changes in the molecular dynamics of thin polymer layers due to the impact of interfacial layers. Anatoli Serghet, 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 glass transition behavior of ultrathin freely standing polymer films. Shanhong Xu, Gregory B. McKenna

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


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

Sponsoring Units: DPOLY
Chair: Denis Pristinski, National Institute of Standards and Technology

11:15AM - 11:51AM, Thursday, March 19, 2009

11:15AM - W18.00001: Nanomechanics of Biomacromolecules from Native and Regenerated Musculoskeletal Tissues
Invited Speaker: Christine Ortiz


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

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


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

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


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


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


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


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 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
3:30PM - X18.00006: Kinetics of phase separation of thermoreversible gels. Francisco J. Solis , Christine Lean , Brent Vernon
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. Santana Kandu , Alfred Crosby
4:30PM - X18.00011: Dynamic display of biomolecular patterns through an elastic creasing instability of stimulus-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 Kozmak , Krzysztof Matyiaszewski , Anna Balazs
Session X19: Charged and Ion-containing Polymers

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


2:54PM - X19.00003: Hierarchial 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. Kshitijknan Manohrkung, Evangelos Manias


3:42PM - X19.00007: 3text[In situ] Neutron Reflectivity study of alcohols into ultra-thin ionomer films. Th外套ika Eampanwala, Dror Perahia, Lilin He, Christopher Cornelius


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


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 Schroeter


5:06PM - X19.00013: Phase diagrams of effective charge and size of an isolated polyelectrolyte chain and gels. Arindam Kundagrama, Murugappan Mathukumar

5:18PM - X19.00014: Single chain contraction and re-expansion by counterions of polyelectrolytes. Pengxiang Jia, Jiang Zhao

Session X20: Long Range Order in Polymer Structures and Morphologies

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


3:30PM - 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. Eungnak Han, Karl Stuen, Paul Nealey, Padma Gopalan

3:54PM - X20.00006: Control of the self-assembly of block copolymer materials in thin-films. Eungnak Han, Karl Stuen, Paul Nealey, Padma Gopalan


4:18PM - X20.00008: Macroscopic Addressable Arrays of Block Copolymer Microdomains. Soojin Park, Dong Hyun Lee, Bokyung 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: Quasicyristalline long-range order in an ABC block copolymer. Tomomori Dojera

5:06PM - X20.00011: Effect of chain extender on the phase behavior and morphology of high hard block content polyurethanes. Alberto Sainai, Achilles Tsotras

**Session Y16: Elastomers and Gels II**

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


8:24AM - Y16.00003: Strain induced alignment of particles in an elastomer host. Ben Spott, Jeremy Neal, Peter Palfiy-Muhoray


9:00AM - Y16.00005: Dynamics of Segmented Polyurethane Elastomers Using Dielectric Spectroscopy. James Runt, Daniel Fragiadakis, Alicia Castagna, Taeyi Choi


9:36AM - Y16.00008: Photoinduced distortions of polydomain liquid crystal elastomer samples. Wilder Iglesias, Peter Palfiy-Muhoray


**Session Y18: Focus Session: Surface Instabilities and Adsorbed or Grafted Layers**

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 - 8:48AM  

8:48AM - 9:00AM  
Y18.00003: Peculiarities in liquid phase of Styrene Butadiene rubber surface induced by Atomic Force Microscopy-assisted electrostatic nanolithography. Mindaugas Rackaitis, Sergei Lyuksyutov, Dmytro Kashyn, Pavel Paramonov, Robert Mallik

9:00AM - 9:12AM  
Y18.00004: Mechanical instabilities in periodic porous elasto-plastic solids. Srikanth Singamaneni, Katia Bertoldi, Sehoon Chang, Ji-Hyun Jung, Seh Young, Edwin Thomas, Mary Boyce, Vladimir Tsuruak

9:12AM - 9:24AM  
Y18.00005: Polymer Surface-induced Buckling. Rafael Verduzco, Samuel Sprunt, James T. Gleeson, Antal Jakli


10:00AM - 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


Session Y19: Surfaces and Adsorption I

8:00AM, Friday, March 20, 2009


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$_2$ 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


10:00AM - Y19.00011: Dynamics within alkylsiloxane SAMs studied by sensitive dielectric spectroscopy. Mary Scott, Derrick Stevens, Jason Bochinski, Laura Clarke


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

Session Y20: Biological-Synthetic Hybrid Materials

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 Terrell, Surekha Gajria, Thorsten Neumann, Luc Jaeger

9:12AM - Y20.00005: Gecko-Inspired Carbon Nanotube-Based Adhesives. Liehui Ge, Sunny Sehi, Anubha Goyal, Lijie Ci, Pulickel Ajayan, Ali Dhinojwala


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

Session Y36: Organic and Hybrid Surfaces and Interfaces

8:00AM - 11:12AM, 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


8:36AM - Y36.00004: Nanoscale conductivity measurements on organic thin films and interfaces. Justin Wells, Fei Song, Philip Hoffmann


9:00AM - Y36.00006: Cascade and Accumulation of Spin at CuPc/GaAs (100) interface. Huanjun Ding, Irfan Irfan, Yongli Gao, Mirko Cincetti, Marina Sanchez-Albareda, Jan-Peter Wustenberg, Oleksiy Andreyev, Michael Bauer, Martin Aeschlimann

9:12AM - Y36.00007: Electronic structure of MoO3 insertion layer at the interface between organic semiconductor and indium tin oxide (ITO). Huanjun Ding, Irfan Irfan, Yongli Gao, Frank So


9:48AM - Y36.00010: The substitution effect on the reorganization energy of metal free phthalocyanine. Choongkeun Lee, Karl Sohlerb

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 Pszala, James Kirkpatrick, Ferdinand Grozema, Kurt Kremer, Klaus Mjølven

10:12AM - Y36.00012: Anisotropic phases in ferromagnetic ultrathin films from multipolar interactions. Daniel Barci, Daniel Stariso

Session Z3: Non-viral Based Gene Delivery Systems: Opportunities, Obstacles and Challenges

11:15AM - 2:15PM, 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: Daxi 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

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: Complexation of oppositely charged polyelectrolytes in gene delivery and biology
Invited Speaker: Boris Shklovskii

Session Z18: Surfaces and Adsorption II

11:15AM - 11:51AM
Z18.00001: Dynamics of six-member molecular rings adsorbed onto graphite and MgO(100).
John Z. Larese, Peter Yaron

11:27AM - 11:51AM
Z18.00002: Heterogeneity of nitrogen multilayers adsorbed on graphite.
M. Golebiowska, L. Firlej, B. Kuchta, M.W. Roth

11:39AM - 11:51AM
Z18.00003: Surface Hopping and Sliding of Single DNA Chains under Electric Field.
Bexin Jing, Jiang Zhao

11:51AM - 12:03PM
Yongduo Liu, Vidvuds Ozolins

12:03PM - 12:27PM
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

12:27PM - 1:03PM
Stephen Hutcheson, Gregory McKenna

1:03PM - 1:27PM
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

1:27PM - 1:51PM
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

1:51PM - 2:03PM
Z18.00009: Chain-length dependence in surface stresses of alkanethiolate-covered Au(111).
V. Srinivasan, G. Cicero, J. C. Grossman

2:03PM - 2:15PM
Z18.00010: All-atom Molecular Dynamics simulations of partial pentane and hexane films on graphite.
M. Kasper, M.W. Roth, Carlos Wexler, L. Firlej, B. Kuchta

2:15PM - 2:27PM
Z18.00011: Temperature Dependent Adsorption Dynamics of Binary Mixtures of Halomethanes on Graphite and Silica/Silan MQ Surfaces.
Jonathan Nehring, G. Leuty, Mesfin Tsige

2:27PM - 2:45PM
Asem Abdulahad, Jeffrey Amos, Chang Ryu

2:45PM - 3:03PM
Z18.00013: Using Amphiphilic Copolymers and Nanoparticles to Organize Charged Biopolymers.
Jung Hyun Park, Marla McConnell, Yujie Sun, Yale Goldman, Russell Composto

3:03PM - 3:15PM
Z18.00014: Non-translational Molecular Diffusive Motion on Two Different Time Scales in Alkane Nanoparticles.

3:15PM - 3:27PM
Z18.00015: Synergetic binding and lateral segregation in polymer decorated micelles and nanoparticles.
Igal Szleifer, Rikkert Nap
**Session Z19: Semi-Crystalline Polymers**

Sponsoring Unit: DPOLY
Chair: Steve Hudson, National Institute of Standards and Technology

11:15AM, Friday, March 20, 2009


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. Grégory 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


12:27PM - Z19.00007: Microemulsions in Asymmetric Polymer Blends. Alisyn Nedoma, Megan Robertson, Nitash Balsara

11:15AM - Z20.00001: Microemulsions in Asymmetric Polymer Blends. Alisyn Nedoma, Megan Robertson, Nitash Balsara


12:15PM - Z20.00006: Phase Separation Mechanism of Polybutadiene/Polyisoprene Blends Under Oscillatory Shear Flow. Charles C. Han, Ruoya Zhang, He Cheng, Xia Dong


1:03PM - Z20.00010: Influence of polymer chain connectivity on local composition distribution in miscible polymer blends. Dmitry Bedrov, Wenjuan Liu, Ralph Colby


1:27PM - Z20.00012: Two DSC Glass Transitions in Miscible Blends of Polyisoprene / Poly(4-
\textit{tert}-butyl styrene). Junshu Zhao, Ye Sun, Lian Yu, Mark Ediger


1:51PM - Z20.00014: The Viscoelastic Behavior of Polymer/Oligomer Blends. Wei Zheng, Gregory McKenna, Sindee Simon
Special DPOLY Events

Sunday, March 15th 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 17th 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/)