

## PMSE

## Division of Polymeric Materials: Science & Engineering

J. L. P. Jessop, C. Soles, J. Pyun, and T. R. Younkin, *Program Chairs*

### OTHER SYMPOSIA OF INTEREST:

**Water Soluble Polymers from Cellulose: Materials and Applications** (see *CELL*, Thu)

**Wood Polymer Surfaces** (see *CELL*, Mon)

**Polymeric Microcapsules: Theory, Experiment and Applications** (see *COLL*, Sun, Mon, Tue)

**Health and Safety Concerns of Polymeric Nanomaterials** (see *CHAS*, Mon, Tue)

**Undergraduate Research Poster Session: Polymer Chemistry** (see *CHED*, Mon)

**New Developments in Energy Conversion and Light-Harvesting** (see *PHYS*, Sun, Mon, Wed, Thu)

**Biomedical Applications of Polysaccharide-based Materials** (see *CELL*, Mon)

**Sci-Mix** (see *CELL*, Mon)

**Green and Renewable Composite Materials** (see *CELL*, Thu)

### SOCIAL EVENTS:

**Breakfast:** Sun, Mon, Tue, Wed, Thu  
**Reception:** Mon  
**Social Hour:** Mon, Tue

### BUSINESS MEETINGS:

**Business Meeting:** Mon  
**Executive Committee Meeting:** Sun

### SUNDAY MORNING

#### Section A

Sheraton  
Seasons Ballroom North

**ACS Award in Applied Polymer Science: Symposium in Honor of Benny D. Freeman**

D. R. Paul, *Organizer, Presiding*

**8:30 1.** Evolution of gas separation membranes. **D. R. Paul**

**9:00 2.** Gas membrane separations at MEDA™, the first 20 years. **G. Fleming**

**9:30 3.** Upper bound: Past and present. **L. M. Robeson**

**10:00** Intermission.

**10:15 4.** Crosslinkable polyimides for natural gas purification. **W. J. Koros**, D. R. Paul, A. Kratochvil

**10:45 5.** Gas transport properties of intrinsically microporous polymers. **I. Pinnau**, S. Thomas, M. D. Guiver, N. Du, J. Song

**11:15 6.** Novel polymers of intrinsic microporosity for membrane gas separation. **M. D. Guiver**, N. Du, J. Song, G. P. Robertson, I. Pinnau, S. Thomas

The official technical program for the 237th National Meeting is available online at [oasys2.confex.com/acs/237nm/techprogram/](http://oasys2.confex.com/acs/237nm/techprogram/).

#### Section B

Sheraton  
Harvest

**Multiphase Polymer Materials: From Fundamentals to Applications Carbon Filled Polymers**

J. Loos and C. Park, *Organizers*

H. Wang, *Organizer, Presiding*

**8:30** Introductory Remarks.

**8:35 7.** New insight into hierarchical structures of carbon black filler in rubbers. **T. Koga**, T. Hashimoto, M. Takenaka, K. Aizawa

**9:05 8.** Carbon nanotube and nanofiber reinforced films and fibers. **R. Jain**, H. G. Chae, S. Jagannathan, M. L. Minus, Y. H. Choi, Y. Liu, **S. Kumar**

**9:35 9.** Self-assembly of nanoparticle/organic hybrids. **S. Z. D. Cheng**, R. M. Van Horn, W.-B. Zhang, C.-L. Wang

**10:05** Intermission.

**10:20 10.** Carbon nanotube induced polymer crystallization: Nanohybrid shish kebabs and beyond. **B. Li**, B. Wang, C. Y. Li

**10:50 11.** Graphene-based materials. **R. S. Ruoff**

**11:20 12.** Biofunctionalized and graphene based polymer nanocomposites: The role of the interphase. **L. C. Brinson**, L. M. Hamming, T. Ramanathan

#### Section C

Sheraton  
Seasons Ballroom Three Seasons

**Cooperative Research Award Symposium in Honor of Professor Robert Waymouth and Dr. James Hedrick**

K. N. Wiegel, *Organizer, Presiding*

**8:30** Introductory Remarks.

**8:35 13.** Block and graft copolymers for toughening polylactide. **M. A. Hillmyer**

**9:05 14.** Polymers based upon building blocks derived from N-heterocyclic carbenes: Synthesis and applications. **C. W. Bielawski**

**9:35 15.** Development of new routes to benign polymeric materials. **G. W. Coates**

**10:05** Intermission.

**10:20 16.** Macromolecules and materials using olefin metathesis. **R. H. Grubbs**

**10:50 17.** Organocatalytic polymerization: A versatile strategy for polymer synthesis. **J. L. Hedrick**, R. M. Waymouth, F. Norder, R. C. Pratt, B. Lohmeier, W. Jeong, E. J. Shin, N. E. Kamber, D. A. Culkun, S. Cshihony

**11:20 18.** N-heterocyclic carbenes: Catalysts for controlled polymerization reactions. **R. M. Waymouth**, J. L. Hedrick, W. Jeong, E. J. Shin, D. A. Culkun, S. Cshihony

**11:50** Concluding Remarks.

#### Section D

Sheraton  
Smokehouse/Gavel/W/M Room

**Nanostructured Block Copolymer Materials**

Synthesis Cosponsored by NANO

D. A. Savin, *Organizer, Presiding*

**8:30** Introductory Remarks.

**8:35 19.** Segmented and gradient copolymers prepared by ATRP as nanostructured functional materials. **K. Matyjaszewski**

**9:05 20.** Novel activation strategies for the formation of polymeric nanostructures. **R. J. Amir**, S. Zhong, D. J. Pochan, C. J. Hawker

**9:25 21.** Organoboron block copolymers: Synthesis and self-assembly. **C. Cui**, **F. Jäkle**

**9:45 22.** Microwave-assisted RAFT polymerization: Block copolymers in the blink of an eye. **D. Roy**, **B. S. Sumerlin**

**10:15** Intermission.

**10:30 23.** Site transformation of polyisobutylene chain ends into functional RAFT agents for block copolymer synthesis. **A. J. D. Magenau**, N. Martinez-Castro, R. F. Storey

**11:00 24.** Synthesis of diblock copolymer containing photoacid-generator by RAFT. **Y. J. Kim**, M. Leolukman, H. Kang, P. F. Nealey, P. Gopalan

**11:20 25.** Functional soft nanoparticles via the RAFT process. **V. Jitchum**, S. Perrier

**Ion-Containing Polymers for New Technologies**

**Fundamentals and Applications** Sponsored by POLY, Cosponsored by PMSE

**Polymers and Carbon Nanotubes**

**Tutorial on Carbon Nanotubes** Sponsored by POLY, Cosponsored by COLL, I&EC, PHYS, PMSE, and NANO

### SUNDAY AFTERNOON

#### Section A

Sheraton  
Seasons Ballroom North

**ACS Award in Applied Polymer Science: Symposium in Honor of Benny D. Freeman**

B. W. Rowe, *Presiding*

D. R. Paul, *Organizer, Presiding*

**2:00 26.** Characterization and modeling of organic vapors sorption, diffusion and swelling in high free volume polynorborene with trimethyl-silyl side groups. **M. Galizia**, M. G. De Angelis, **G. C. Sarti**

**2:30 27.** CO<sub>2</sub> and water removal from flue gas. **M. Wessling**, J. Potrek, D. Nijmeijer, S. Reijerkerk, K. Fischbein

**3:00 28.** 6FDA-6FpDA as a multipurpose polymer: Synthesis and influence of casting process on gas separation properties of ultrahigh MW 6FDA-6FpDA. **J. de Abajo**, M. Calle, J. G. de la Campa, C. Garcia-Sanchez, **A. E. Lozano**, A. Hernandez, A. Marcos-Fernandez, D. M. Muñoz, L. Palacio, P. Pradanos, A. Tena

**3:30** Intermission.

**3:45 29.** Influence of network structural modifications on the properties of crosslinked poly(ethylene oxide) copolymer membranes for CO<sub>2</sub> separations. **D. S. Kalika**, S. Kalakunnath, M. K. Danquah, H. Lin, V. A. Kusuma, B. D. Freeman

**4:15 30.** Permeability, diffusivity and solubility of various gases in *Kurome* natural lacquer membranes. **K. Nagai**, T. Komatsuka, T. Ishimura, Y. Kamiya, T. Miyakoshi

**4:45 31.** Thermally rearranged polymers for gas separation membranes. **Y. M. Lee**

#### Section B

Sheraton  
Harvest

**Multiphase Polymer Materials: From Fundamentals to Applications New Strategies toward Multiphase Polymers**

H. Wang, J. Loos, and C. Park, *Organizers*

W. Hu, *Presiding*

**2:00 32.** Nanophasic amphiphilic conetworks and new nanohybrids therefrom. **B. Iván**, C. Fodor, G. Kali, P. Mezey, R. Thomann, R. Mülhaupt

**2:30 33.** Development of hydrogels grafted to a polypropylene substrate using a novel polyperoxide macroinitiator. **A. M. Kohut**, A. S. Voronov, I. Tarnavchyk, V. Y. Samaryk, N. Nosova, S. M. Vavarenko, S. A. Voronov

**2:50 34.** Mechanism of silver ion reduction in amphiphilic invertible nanoreactors. **A. S. Voronov**, A. M. Kohut

**3:10 35.** Nanocomposite hydrogels based on laponite and different polymers. **Y. Sun**, L. Li, **X. Guo**

**3:30** Intermission.

**3:45 36.** Synthesis of polymer core-shell particles in nonaqueous emulsion. **R. Haschick**, M. Klapper, K. Müllen

**4:05 37.** Withdrawn.

**4:35 38.** Determining the effectiveness of polymer blend compatibilization by multiblock copolymers formed in situ via melt mixing. **E. Ashcraft**, H. Ji, J. W. Mays, M. D. Dadmun

**4:55 39.** Reinforced thermoset composites using crystallizable solvents. **O. S. Yordem**, A. J. Lesser

**5:15 40.** Carbon nanofiber (CNF) reinforced polyacrylonitrile (PAN) fibers. **R. Jain**, H. G. Chae, S. Kumar

#### Section C

Sheraton  
Market Street Room

**General Papers/New Concepts in Polymeric Materials Branched Polymers & Polymeric Membranes**

J. L. P. Jessop, *Organizer*

J. W. Chan and M. B. Runge, *Presiding*

**1:30** Introductory Remarks.

**1:35 41.** Advanced control over glycidol polymerization: Hyperbranched polyglycerols via macroinitiators. **D. Wills**, H. Frey

**1:55 42.** Thiol-ene convergent star synthesis. **J. W. Chan**, B. Yu, **C. E. Hoyle**, A. B. Lowe

**2:15 43.** Poly(amidoamine) dendrimer in poly(ethylene glycol) network for a CO<sub>2</sub> separation membrane: Mechanism of preferential CO<sub>2</sub> separation. **I. Taniguchi**, S. Duan, S. Kazama, Y. Fujioka

**2:35 44.** Proton conductivity study of 4-vinylimidazole and acrylic acid copolymer membrane based on structural-temperature dependence. **M. Jithunsa**, K. Tashiro, **S. Chirachanchai**

**2:55** Intermission.

**3:10 45.** Synthesis of amphiphilic PSF-g-PEGMA copolymer by ATRP and its hydrophilic modification of PES membranes. **Y. Xu**, Z. Yi, L.-P. Zhu, J.-Y. Wang, J.-L. Shi, B.-K. Zhu

**3:30 46.** Dependence of the physical properties and transport behavior of perfluorotriptylamine-doped Teflon AF films on composition. **H. Zhang**, L. Hong, **S. G. Weber**

**3:50 47.** PDMS thimbles for the development of cascade reactions: A materials approach to organic chemistry. **M. B. Runge**, M. T. Mwangi, A. L. Miller II, M. Perring, K. M. Hoak, M. D. Schulz, N. B. Bowden

**4:10 48.** Development of polybenzoxazine membranes for ethanol/water separation: Effect of mixture contents on sorption and swelling behaviors. **K. Pakkethati**, A. Boonmalert, T. Chaisuwan, S. Wongkasemjit

**4:30** Concluding Remarks.

#### Section D

Sheraton  
Smokehouse/Gavel/W/M Room

**Nanostructured Block Copolymer Materials**

**Solutions and Gels** Cosponsored by NANO

D. A. Savin, *Organizer*

B. S. Sumerlin, *Presiding*

**1:30 49.** Compartmentalized gels from linear ABC terpolymers in water. **T. P. Lodge**, R. R. Taribagil, M. A. Hillmyer

**2:00 50.** Controlling the formation of nanostructured vesicular gels for multienzyme encapsulation and cell delivery. **T. P. Smart**, G. Battaglia

**2:20 51.** Responsive micelles and organogels from polypeptide-based block copolymers. **S. S. Naik**, J. D. Stempier, A. D. Richardson, **D. A. Savin**

- 2:40 52.** Fluorescent pH-/thermo-responsive micelles from block copolymers synthesized via reversible addition fragmentation chain transfer (RAFT) polymerization. **N. Suchao-in**, S. Chirachanchai, S. Perrier
- 3:00** Intermission.
- 3:20 53.** Assembling amphiphilic block copolymers through instabilities of liquid interfaces. **J. Zhu, R. C. Hayward**
- 3:50 54.** Double stimuli-responsive porous membranes from polystyrene-block-poly(*N,N*-dimethylaminoethyl methacrylate) diblock copolymers. **F. Schacher**, T. Rudolph, M. Ulbricht, A. H. E. Müller
- 4:10 55.** Enzyme containing porous polymer-somes as nanoreaction vessels for cascade reactions. **S. M. Kuiper**, M. Nallani, D. M. Vriezema, J. J. Cornelissen, J. C. van Hest, R. J. M. Nolte, A. E. Rowan
- 4:30 56.** Complex micelle architectures from polyferrocene diblock copolymers using living, crystallization-driven supramolecular polymerizations. **N. S. Jeong**, T. Gädt, G. Cambridge, M. A. Winnik, I. Manners

**Carl S. Marvel Creative Polymer Chemistry Award in Honor of Geoffrey Coates**  
Sponsored by POLY, Cosponsored by ORGN and PMSE

#### Ion-Containing Polymers for New Technologies

**Emerging Technologies** Sponsored by POLY, Cosponsored by PMSE

#### Polymers and Carbon Nanotubes Dispersion and Functionalization

Sponsored by POLY, Cosponsored by COLL, I&EC, PHYS, and NANO

### MONDAY MORNING

#### Section A

Sheraton  
Seasons Ballroom North

#### ACS Award in Applied Polymer Science: Symposium in Honor of Benny D. Freeman

B. D. McCloskey, *Presiding*

D. R. Paul, *Organizer, Presiding*

- 8:30 57.** Chlorine resistant membranes for reverse osmosis and nanofiltration. **J. E. McGrath**
- 9:00 58.** Hydrophilic-hydrophobic nanostructured polymeric materials for desalination. **H. B. Park**, B. D. Freeman, J. E. McGrath
- 9:30 59.** Graft copolymer coatings to prevent membrane fouling. **R. Revanur**, K. Kratz, K. Breitenkamp, B. D. McCloskey, B. D. Freeman, **T. S. Emrick**
- 10:00** Intermission.
- 10:15 60.** Polymers with sub-1-nm size pores for water nanofiltration and desalination based on the polymerization of surfactant liquid crystals. **D. L. Gin**, M. Zhou, E. S. Hatakeyama, P. R. Nemade, B. R. Wiesenauer, J. E. Bara, R. L. Kerr, R. D. Noble
- 10:45 61.** Separation of hematopoietic stem and progenitor cells from human peripheral blood through polyurethane foaming membranes modified with several amino acids. **A. Higuchi**, S-T. Yang, P-T. Li
- 11:15 62.** Removal of volatile organic compounds from water by hydrophobic polymer membranes containing ionic liquid. **T. Uragami**, Y. Matsuoka, E. Fukuyama, T. Miyata

#### Section B

Sheraton  
Harvest

#### Multiphase Polymer Materials: From Fundamentals to Applications Functional Polymers for Sensors and Actuators

H. Wang and J. Loos, *Organizers*

C. Park, *Organizer, Presiding*

- 8:30 63.** Shear piezoelectricity of biopolymeric and synthetic chiral polymers. **E. Fukada**

- 9:00 64.** Electroactive nanotube polymer nanocomposites for sensors and actuators. **J. S. Harrison**, S. E. Lowther, J. H. Kang, C. Park
- 9:30 65.** Multifunctional polymers and nanocomposites. **Q. M. Zhang**
- 10:00** Intermission.
- 10:15 66.** Multiphase polymer membranes for direct methanol fuel cell. **S. C. Kim**, D. H. Kim, J. Choi, Y. H. Kwon, S. Y. Lee
- 10:35 67.** Conducting polymer cubic phases. **D. C. Martin**, Y. Shen, J. Wu, L. K. Povlich, M. Leach, S. A. Spinninga, C. Shaw
- 11:05 68.** Magnetic field effects in Pi-conjugated polymer/fullerene blends. **F. Wang**, H. Bässler, Z. V. Vardeny
- 11:35 69.** Shear piezoelectricity in biopolymers and their carbon nanotube composites. **C. Lovell**, J. M. Fitz-Gerald, C. Park, J. S. Harrison

#### Section C

Sheraton  
Market West Room

#### Functional Polymer Nanocomposites for Energy Storage and Conversion Dielectric Polymer Nanocomposites for Electrical Energy Storage

Cosponsored by NANO

Q. Wang and L. Zhu, *Organizers, Presiding*

- 8:30** Introductory Remarks.
- 8:35 70.** Nanostructure-level modeling of nonlinear energy storage in polymer-ceramic nanocomposites. **J. P. Calame**
- 9:00 71.** Nanodielectrics for energy storage from first principles computations. **R. Ramprasad**, N. Shi, G. Pilania, M. Stourmura
- 9:25 72.** Dielectric breakdown in nanodielectrics. **E. Tuncer**, I. Sauer, D. R. James, A. R. Ellis, K. L. More
- 9:50 98.** Nation-clay hybrid fuel cell membranes with a network structure. **E. Burgaz**, H. Lian, R. H. Alonso, L. Estevez, **E. P. Giannelis**
- 10:15** Intermission.
- 10:25 74.** Polymer/BaTiO<sub>3</sub> nanocomposites for energy storage. **P. Kim**, N. Doss, J. Tillotson, P. J. Hotchkiss, J. Li, S. R. Marder, **J. W. Perry**
- 10:50 75.** Dielectric strength and corona endurance of polymers and nanocomposites with in-plane lamellar nanostructure. **S. S. Brandstetter**, L. F. Drummy, M. Tchoul, S. Fillery, J. C. Horwath, D. L. Schweickart, M. Durstock, **R. A. Vaia**
- 11:15 76.** Effect of titanium dioxide core polystyrene shell nanoparticles on the dielectric strength of polystyrene films. **A. J. Maliakal**
- 11:40 77.** Ferroelectric polymer based dielectric polymer nanocomposites. **J. Li**, P. Khanchaitit, J. Pan, **Q. Wang**

#### Section D

Sheraton  
Smokehouse/Gavel/W/M Room

#### Nanostructured Block Copolymer Materials Morphology and Phase Behavior

Cosponsored by NANO

D. A. Savin, *Organizer*

K. A. Cavicchi, *Presiding*

- 8:30 78.** Poly(vinyl ester) block copolymers derived from cobalt-mediated radical polymerizations. **D. N. Bunck**, **M. K. Mahanthappa**

**Photographing or recording meeting sessions and/or activities other than your own are prohibited at all official ACS events without written consent from ACS.**

- 9:00 79.** Lithium salt doping in PEO-containing block copolymers: Counterion and concentration effects. **T. H. Epps III**, W-S. Young
- 9:30 80.** Versatile block copolymer: From fundamentals to application. **W. Zhou**, S. F. Hahn, C. F. Diehl, K. Koppi, D. J. Murray
- 9:50** Intermission.
- 10:10 81.** Domain spacing in mesophase separated olefin block copolymers: Effect of polydispersity and comparison to theory. **J. D. Weinhold**, P. L. Roberts, E. Garcia-Melittin, G. R. Marchand, P. D. Hustad
- 10:30 82.** Engineering morphologies of mesoporous block copolymer nanorods by confinement. **Y. Wang**, Y. Qin, M. Knez, U. Gösele, M. Steinhart
- 10:50 83.** Synthesis of a novel coil-rod-coil ABA triblock copolymer comprised of regioregular poly(3-hexylthiophene) and poly(methyl methacrylate) segments. **T. Higashihara**, M. Ueda
- 11:10 84.** Gas separation properties in copolyetherimides in relation to their phase separated structure. **A. Marcos-Fernandez**, A. E. Lozano, J. G. de la Campa, J. de Abajo, A. Tena, L. Palacio, P. Pradanos, A. Hernandez

#### Polymers and Carbon Nanotubes

**Processing of Composites** Sponsored by POLY, Cosponsored by COLL, I&EC, PHYS, PMSE, and NANO

### MONDAY AFTERNOON

#### Section A

Sheraton  
Seasons Ballroom North

#### ACS Award in Applied Polymer Science: Symposium in Honor of Benny D. Freeman

D. R. Paul, *Organizer, Presiding*

- 2:00 85.** Corn (sugars) based chemistries for the polymer and related industries. **M. Jaffe**, G. Collins, A. J. East, W. Hammond, Z. Ophir, X. Feng, P. Friedhoff
- 2:30 86.** Advances in polymeric systems. **E. Baer**, A. Hiltner
- 3:00 87.** Enhancing gas barrier by confined crystallization. **A. Hiltner**, E. Baer
- 3:30** Intermission.
- 3:45 88.** Physical aging behavior of ultrathin glassy polymer films. **B. W. Rowe**, D. R. Paul, B. D. Freeman
- 4:15 89.** Polydopamine: A simple membrane modification to increase separation efficiency. **B. D. McCloskey**, H. B. Park, B. D. Freeman
- 4:45 90. Award Address** (ACS Award in Applied Polymer Science, sponsored by Eastman Chemical Company). Polymer-based materials for separations applications. **B. D. Freeman**

#### Section B

Sheraton  
Harvest

#### Multiphase Polymer Materials: From Fundamentals to Applications Biomedicine-Inspired Materials

H. Wang, J. Loos, and C. Park, *Organizers*

H. J. Kong, *Presiding*

- 2:00 91.** Revisit an old problem: Complexation between DNA and PEI. **C. Wu**
- 2:30 92.** Withdrawn.
- 3:00 93.** Synthesis of single molecule-bis-(long DNA) triblock architectures and their characterization toward single-molecule electronics. **J. K. Lee**, F. Jäckel, Y. H. Jung, J. B-H. Tok, W. E. Moerner, Z. Bao
- 3:20** Intermission.
- 3:35 94.** Bioinspired multiphase materials: Supramolecular hydrogels to mimic enzymes. **Q. Wang**, Z. Yang, L. Li, **B. Xu**

- 4:05 95.** Amphiphilic helix bundle forming peptide-polymer conjugates. **J. Y. Shu**, C. Tan, Y-J. Huang, **T. Xu**
- 4:35 96.** New pharmaceutical vector for oral administration of insulin. **A. Callet**, L. Danicher, Y. Frère
- 4:55 97.** Mechanical properties of beetle elytral cuticle, a hierarchically ordered, multicomponent biomaterial. **J. Lomakin**, C. Eichler, Y. Arakane, K. J. Kramer, R. W. Beeman, M. R. Kanost, **S. H. Gehrke**

#### Section C

Sheraton  
Market West Room

#### Functional Polymer Nanocomposites for Energy Storage and Conversion Polymer Nanocomposites for PEM Fuel Cells

Cosponsored by NANO

L. Zhu and Q. Wang, *Organizers*

M. A. Hickner and V. Ramani, *Presiding*

- 1:30 73.** Achieving high dielectric constant polymer/BaTiO<sub>3</sub> nanocomposites at low filling ratios. **J. Wang**, F. Guan, Q. Wang, J. Huang, W. Li, **L. Zhu**
- 2:00 99.** Nanofiber network ion-exchange membranes for PEM fuel cells. **J. Choi**, K. M. Lee, R. Wycisk, **P. N. Pintauro**, P. T. Mather
- 2:30 100.** PEM degradation mitigation using functional inorganic additives. **P. Trogadas**, J. Parrondo, **V. Ramani**
- 3:00** Intermission.
- 3:10 101.** Transport properties of proton exchange membrane nanocomposites. **M. A. Hickner**
- 3:40 102.** Ion conduction in polymerized ionic liquids and ionic liquid-polymer mixtures. **H. Chen**, L. Gwee, J-H. Choi, D. Salas de la Cruz, K. I. Winey, **Y. A. Elabd**
- 4:10 103.** Preparation and characterization of *ex-situ* silica-Nafion® nanocomposite membranes with different size particles for application in PEM fuel cells. **B. Muriithi**, D. A. Loy
- 4:35 104.** Platinum nanoparticles supported on pristine carbon nanotubes for the anodic oxidation of methanol. **J. Zou**, L. Zhai

#### Section D

Sheraton  
Smokehouse/Gavel/W/M Room

#### Nanostructured Block Copolymer Materials

**Thin Films and Templates** Cosponsored by NANO

D. A. Savin, *Organizer*

D. L. Patton, *Presiding*

- 1:30 105.** Thin films of poly(dimethylsiloxane) block copolymers. **K. A. Cavicchi**
- 2:00 106.** Low-density gold nanoparticle arrays from block copolymer templates. **R. M. Stoltenberg**, S. C. B. Mansfield, **Z. Bao**
- 2:20 107.** Supramolecular assemblies of block copolymers as templates for nanofabrication. **B. Nandan**, E. B. Gowd, N. C. Bigall, A. Eychmüller, M. Stamm
- 2:40 108.** Diblock copolymer patterned surfaces for *Ulva* zoospores settlement assays. **C. M. Grozea**, N. Gunari, J. A. Finlay, D. Grozea, M. E. Callow, J. A. Callow, Z-H. Lu, G. C. Walker
- 3:00** Intermission.
- 3:20 109.** Nanostructured functional materials from self-assembled thin films of polyferrocenylsilane (PFS) block copolymers. **J. Gwyther**, I. Manners
- 3:40 110.** Electrospun polybenzoxazole nanofibers made by thermal conversion of hydroxy-containing polyimide. **Y. Zhou**, C. Cheng, J. Chen, A. Greiner, **H. Hou**

‡ Cooperative Cosponsorship

- 4:00 111. Poling of nonlinear optical chromophores in nanostructured polymeric materials. **M. Leolukman**, P. Paoprasert, B. Kelly, D. J. McGee, P. Gopalan
- 4:20 112. Effect of block length on interfacial structure and segregation of diblock copolymers at immiscible polymer/polymer interfaces. **A. O. Gozen**, R. J. Spontak, J. Genzer

**Active and Responsive Surfaces Polymer Brushes and Thin Films**  
Sponsored by POLY, Cosponsored by PMSE†

**Polymers and Carbon Nanotubes Properties of Composites** Sponsored by POLY, Cosponsored by COLL, I&EC, PHYS, PMSE, and NANO

**Undergraduate Research Poster Session: Polymer Chemistry** Sponsored by CHED, Cosponsored by PMSE, POLY, and SOCED

## MONDAY EVENING

### Section A

Salt Palace Convention Center  
Hall 5

### Sci-Mix

J. L. P. Jessop, *Organizer, Presiding*

### 8:00–10:00

168, 170, 188, 197, 201–203, 206, 211–212, 214, 216, 218–219, 221, 235, 249–251, 253–254, 257, 265, 268, 276, 282, 286–288, 290–291, 296–297, 301, 307, 309–310, 312, 315–317, 324. See subsequent listings.

## TUESDAY MORNING

### Section A

Sheraton  
Seasons Ballroom North

**Degradable Polymers: From Synthesis to Nanotechnology** Cosponsored by NANO

A. P. Dove, *Organizer, Presiding*

### 8:15 Introductory Remarks.

- 8:20 113. Organometallic catalysts for the ROP of lactones and cyclic carbonates: Stereoselectivity and immortal character. **M. Helou**, N. Ajellal, M. Bouyahy, C. M. Thomas, A. Trifonov, S. M. Guillaume, **J.-F. Carpentier**
- 8:45 114.  $C_3$ -symmetric amine tris(phenolate) complexes of group 4 and 14 metals for the highly stereoselective, solvent-free polymerization of lactide. **M. G. Davidson**, A. J. Chmura, C. J. Franks, M. D. Jones
- 9:10 115. Application of maleimide-functional poly(lactide)s for the preparation of multifunctional and architecturally diverse polymers by thiol-ene click chemistry. **M. J. Stanford**, R. J. Pounder, A. P. Dove
- 9:35 116. Poly( $\alpha$ -hydroxy-acids) from *O*-carboxy-anhydrides. **C. Bonduelle**, O. Thillaye du Boullay, B. Martin-Vaca, **D. Bourissou**
- 10:00 Intermission.
- 10:15 117. *N*-Trimethylsilyl amines for controlled ring-opening polymerization of amino acid *N*-carboxyanhydrides and facile end group functionalization of poly-peptides. **H. Lu**, **J. Cheng**
- 10:40 118. Polycaprolactone based novel degradable ionomers by free-radical polymerization. **S. Agarwal**, L. Ren
- 11:05 119. Polymers from macrocyclic lactones: Useful biomaterials? I. van der Meulen, M. de Geus, R. Deumens, B. A. J. Joosten, C. E. Koning, **A. Heise**
- 11:30 120. New degradable polymers made from natural compounds bile acids by ROMP. **J. E. Gautrot**, J. Zhang, Y. Shao, **X. X. Zhu**

## Section B

Sheraton  
Harvest

**Multiphase Polymer Materials: From Fundamentals to Applications Polymers in Flow: New Insights and Future Perspectives**

H. Wang, J. Loos, and C. Park, *Organizers*

B. Sohn, *Presiding*

- 8:30 121. Merging the world's rheology expertise through rheo-informatics. **H. H. Winter**
- 9:00 122. Electrophoresis and bending properties of polyelectrolytes. **L. A. Archer**
- 9:30 123. How can entangled polymers flow homogeneously? **S.-Q. Wang**, P. Boukany, S. Ravindranath, Y. Wang, X. Li, X. Zhu, L. Li, G. Wang
- 10:00 Intermission.
- 10:15 124. Component dynamics in miscible blends with and without hydrogen bonding. **T. P. Lodge**, A. Gaikwad, S. Ozair
- 10:45 125. Extensional flow-induced crystallization in multicomponent polyolefin melts. **X. Li**, J. K. Keum, F. Zuo, Y. Mao, **B. S. Hsiao**
- 11:15 126. Rheological examination on the shish kebab formation for ethylene copolymer with small amounts of ultrahigh molecular weight polyethylene. **Y. Niu**, W. Shao, Z. Wang

## Section C

Sheraton  
Market West Room

**Functional Polymer Nanocomposites for Energy Storage and Conversion Polymer Nanocomposites for Photovoltaics** Cosponsored by NANO

L. Zhu, *Organizer*

J. B. Asbury, *Presiding*

Q. Wang, *Organizer, Presiding*

- 8:30 127. Interfacial electronic properties in functional polymers for energy conversion. **J.-L. Bredas**
- 9:00 128. Materials design and interface engineering for high performance polymer solar cells. **A. K.-Y. Jen**, H.-L. Yip, S. Hau, N.-S. Baek, H. Ma
- 9:30 129. Improving efficiency of solid-state dye sensitized solar cells (DSSCs) through increased pore filling and Förster energy transfer. **M. D. McGehee**, M. Graetzel, I.-K. Ding, B. E. Hardin
- 10:00 Intermission.
- 10:10 130. Ultrafast IR spectroscopic study of free carrier formation and charge trapping in organic photovoltaic polymer blends. **R. D. Pensack**, K. M. Banyas, **J. B. Asbury**
- 10:35 131. Engineering bandgap and energy levels of conjugated polymers for organic solar cells: Fused bithiophenes. **S. Xiao**, H. Zhou, A. C. Stuart, **W. You**
- 11:00 132. Poly(3-hexylthiophene) supramolecular structures in carbon nanotube composites. **J. Liu**, J. Zou, **L. Zhai**
- 11:25 133. Novel quantum dot-poly(ethylene-co-vinyl acetate) as light-selective nanofilms. **W. Z. Xu**, **P. Charpentier**
- 11:50 134. Tailor the nanowire network morphology and charge carrier mobility of the poly(3-hexylthiophene)/C<sub>60</sub> films. **W. Liu**, **R. Liu**, W. Wang, W. Li, W. Liu, K. Zheng, Y. Tian, L. Ma, Y. Huang

**The official technical program for the 237th National Meeting is available online at [oasys2.confex.com/acs/237nm/techprogram/](http://oasys2.confex.com/acs/237nm/techprogram/).**

## Section D

Sheraton  
Smokehouse/Gavel/W/M Room

**Nanostructured Block Copolymer Materials Composites and Thermoplastics** Cosponsored by NANO

D. A. Savin, *Organizer, Presiding*

- 8:30 135. Development of the worm-like micelle block copolymer morphology in templated thermosets. **T. Hermel-Davidock**, H. S. Tang, D. J. Murray, S. F. Hahn
- 9:00 136. POSS containing block copolymers as templates for pattern transfer. **T. Hirai**, M. Leolukman, T. Hayakawa, M.-A. Kakimoto, P. Gopalan
- 9:20 137. Silsesquioxane materials as sun protection factor ingredients and as films for greenhouse covers. **L. Hu**, X. Chen, D. Wang, Y. Liu
- 9:40 138. Synthesis, modification with cubic polyhedral silsesquioxane, and self-assembly of poly(ethylene oxide)-*block*-poly(pentafluorostyrene) amphiphilic block copolymers. **H. Hussain**, B. H. Tan, K. Y. Mya, L. Ye, C. B. He, T. P. Davis
- 10:00 Intermission.
- 10:20 139. Novel polyisobutylene-based polyureas. **S. K. Jewrajka**, E. Yilgor, I. Yilgor, **J. P. Kennedy**
- 10:40 140. Phase behavior of polymeric hairy nanoparticles in polymer melts. **X. Wang**, V. J. Foltz, M. Rackaitis, G. G. A. Bohm
- 11:00 141. Novel water-soluble chitosan derivatives/quantum dots nanocomposite: Synthesis, characterization and photoluminescence properties. **Y. Du**, Y. Li, X. Wang

**Active and Responsive Surfaces Polymer Brushes and Thin Films**  
Sponsored by POLY, Cosponsored by PMSE†

**Polymers and Carbon Nanotubes Applications** Sponsored by POLY, Cosponsored by COLL, I&EC, PHYS, PMSE, and NANO

**Polymers for Photonics and Optoelectronics Multidimensional Patterning** Sponsored by POLY, Cosponsored by PMSE and NANO

## TUESDAY AFTERNOON

### Section A

Sheraton  
Seasons Ballroom North

**Degradable Polymers: From Synthesis to Nanotechnology** Cosponsored by NANO

A. P. Dove, *Organizer, Presiding*

- 1:15 142. Novel shape memory using thermal hysteresis of crystalline phase transition in crosslinked polybutylene succinate. **K. Inoue**, M. Yamashiro
- 1:40 143. Ecobionanocomposites: New bioplastics with improved use temperatures. **J. R. Dorgan**, B. Braun, L. O. Hollingsworth
- 2:05 144. Electrically conducting 3-D porous scaffolds for bone regeneration. **M. B. Runge**, M. Dadsetan, A. Maran, M. J. Yaszemski
- 2:30 145. Poly(lactide) triblock copolymers by combining ROMP and ROP. **L. M. Pitet**, M. A. Hillmyer
- 2:55 146. Mixed micelle formation through stereocomplexation between enantiomeric poly(lactide) block copolymers. **K. Fukushima**, F. Nederberg, S. H. Kim, J. P. K. Tan, Y.-Y. Yang, R. M. Waymouth, J. L. Hedrick
- 3:20 Intermission.
- 3:35 147. Organic nanoparticles via intramolecular crosslinking of poly(propargyl glycolide). **G. L. Baker**, E. B. Vogel, X. Jiang, M. R. Smith III

- 4:00 148. Self-assembled stereocomplexes formed from miko-arm PEG-*b*-PLA for controlled delivery of anticancer drug. **J. P. K. Tan**, F. Nederberg, E. A. Appel, S. H. Kim, K. Fukushima, J. Sly, R. D. Miller, Y. Y. Yang, R. M. Waymouth, J. L. Hedrick
- 4:25 149. One-pot synthesis of well-defined polyester nanoparticles and their post-modification. **A. E. van der Ende**, E. J. Kravitz, V. Sathiyakumar, **E. Harth**
- 4:50 150. Block polymer templated membranes for ultrafiltration. **M. A. Hillmyer**
- 5:15 Concluding Remarks.

## Section B

Sheraton  
Harvest

**Multiphase Polymer Materials: From Fundamentals to Applications Polymeric and Flexible Electronics**

H. Wang, J. Loos, and C. Park, *Organizers*

D. S. Germack, *Presiding*

- 1:30 151. Advances in critical materials development for printed transistors. **B. Ong**
- 2:00 152. Materials and processes for thin film flexible electronics. **Z. Bao**
- 2:30 153. New materials for printed electronics. **F. Dötz**, P. Eckerle, I. Hennig, M. Kastler, S. Köhler, A. K. Mishra, H. Noguchi, S. Vaidyanathan
- 3:00 154. Printed biosensors for monitoring enzyme activities. **H. Wang**
- 3:20 Intermission.
- 3:35 155. Control of mobility in crystalline/amorphous conductive block copolymers. **R. D. McCullough**, T. Kowalewski, G. Sauvé, R. Zhang, A. E. Javier, M. Stefan, J. R. Cooper
- 4:05 156. Stretchable organic transistor integrated circuit using elastic conductors. **T. Someya**, T. Sekitani, Y. Noguchi, K. Hata, T. Fukushima, T. Aida
- 4:35 157. Synthesis of semiperfluoroalkyl polyfluorenes for *orthogonal processing* in hydrofluoroether solvents. **J. K. Lee**, H. H. Fong, A. A. Zakhidov, G. E. McCluskey, P. G. Taylor, G. G. Malliaras, A. B. Holmes, C. K. Ober
- 5:05 158. Controlled organic semiconductor growth via dielectric crystalline surface modification for high performance OTFTs. **A. A. Virkar**, S. C. B. Mannsfeld, M. F. Toney, Z. Bao

## Section C

Sheraton  
Market West Room

**Functional Polymer Nanocomposites for Energy Storage and Conversion Novel Concepts for Energy Applications** Cosponsored by NANO

Q. Wang, *Organizer*

J. L. Lutkenhaus, *Presiding*

L. Zhu, *Organizer, Presiding*

- 1:30 159. Modeling energy transduction in systems of nanoparticle-filled polymeric microcapsules. **A. C. Balazs**, O. B. Usta, A. Bhattacharya
- 2:00 160. Functional block copolymer-directed nanocomposites for energy storage and conversion. **U. Wiesner**
- 2:30 161. Superhydrophobic silicon surfaces with low light reflectivity. **Y. Xiu**, Y. Liu, D. W. Hess, **C.-P. Wong**
- 3:00 Intermission.
- 3:10 162. Electroactive metal oxide nanowires via magnetic assembly and oxidation of polymer coated ferromagnetic nanoparticles. **P. Y. Keng**, E. L. Ratcliff, **N. R. Armstrong**, **J. Pyun**
- 3:40 163. 2-D and 3-D Nanocomposite electrolytes and piezoelectric materials. **J. L. Lutkenhaus**

- 4:05 164.** Novel aligned carbon nanotube-polymer nanocomposites. **S. Zhang**, D. Bucknall, W. Lin, C-P. Wong
- 4:25 165.** Microporous poly(tris(4-ethynylphenyl)amine networks. **J-X. Jiang**, A. Trewin, C. D. Wood, H. Niu, Y. Z. Khimyak, A. I. Cooper
- 4:45 166.** Spectroscopic investigations on polyethylene-functionalized single wall carbon nanotube composites. **E. Ibrahim**, M. D. Chipara, R. Wilkins, A. C. Chipara, K. Lozano, M. Chipara
- 5:05** Concluding Remarks.
- Active and Responsive Surfaces Tuning Biological Interactions** Sponsored by POLY, Cosponsored by PMSE<sup>F</sup>
- Nanostructured Materials for Future Therapy Chemistry and Structures** Sponsored by POLY, Cosponsored by PMSE, BTEC, and NANO
- Polymerization in Nanostructured and Nanocomposite Systems New Frontiers in Nanotechnology** Sponsored by POLY, Cosponsored by PMSE and NANO
- Polymers for Photonics and Optoelectronics Applications** Sponsored by POLY, Cosponsored by PMSE and NANO
- TUESDAY EVENING**
- Section A
- Salt Palace Convention Center Hall 5
- Joint PMSE/POLY Poster Session**
- J. L. P. Jessop, *Organizer*
- 6:00-8:00 General Papers/New Concepts in Polymeric Materials.**
- 167.** Polyphosphazene coatings for microfabricated needles enhance intradermal vaccine delivery. **A. K. Andrianov**, D. P. DeCollibus, H. A. Gillis, H. H. Kha, A. Marin
- 168.** Effect of halide initiator structure on  $Cp_2TiCl_2$  controlled radical isoprene polymerizations. **A. D. Asandei**, H. S. Yu, O. Adebolu, C. P. Simpson, O. Duong
- 169.** Vinyl acetate copolymers with vinylidene fluoride and hexafluoropropene by UV mediated peroxide irradiation at room temperature. **A. D. Asandei**, Y. Chen
- 170.** Wheat gluten blends with aldehyde, thiol, epoxide and hydroxy functionalized silane coated alumina. S. Hemsri, C. P. Simpson, R. Parnas, **A. D. Asandei**
- 171.** Ability of a series of organotin polyethers derived from substituted hydroquinones to inhibit the vaccinia and herpes simplex viruses. K. R. Shahi, M. R. Roner, **G. Barot**, **C. E. Carraher Jr.**
- 172.** Ability of organotin polyethers derived from dieneol to inhibit ovarian, colon, lung, and breast cancer cells. K. R. Shahi, M. R. Roner, Y. Ashida, **G. Barot**, **C. E. Carraher Jr.**
- 173.** Cell inhibition by titanocene and hafnocene polyethers containing the synthetic hormone dienestrol. K. R. Shahi, M. R. Roner, Y. Ashida, **G. Barot**, **C. E. Carraher Jr.**
- 174.** F TOF MALDI MS of alkyl-substituted hydroquinones forming dibutyltin polyethers. **G. Barot**, **C. E. Carraher Jr.**
- 175.** Inhibition of bacteria and yeast by organotin polyethers derived from hydroquinone and hydroquinone derivatives. Y. Naoshima, K. Nagao, **G. Barot**, **C. E. Carraher Jr.**
- 176.** Inhibition of the HSV-1 and vaccinia viruses by organotin polyethers containing methylene spacers. K. R. Shahi, M. R. Roner, **G. Barot**, **C. E. Carraher Jr.**
- 177.** MALDI TOF EI MS of halogen-containing hydroquinone polyethers from diorganotin dichlorides-low mass isotopic abundance results. **G. Barot**, **C. E. Carraher Jr.**
- 178.** MALDI TOF EI MS of polyethers derived from dibutyltin dichloride and 1,2 diols. **G. Barot**, **C. E. Carraher Jr.**
- 179.** Standard F TOF MALDI MS of products from hydroquinone and substituted hydroquinone products formed from reaction with dibutyltin dichloride. **G. Barot**, **C. E. Carraher Jr.**
- 180.** Electrical properties of polymers derived from 1,1'-dicarboxycobaltincium hexafluorophosphate. **A. J. Battin**, **C. E. Carraher Jr.**
- 181.** Electrical properties of polymers derived from Group IVB metallocene dichlorides and various azo type commercial dyes. **A. J. Battin**, **C. E. Carraher Jr.**
- 182.** Electrical properties of titanocene polyethers. **A. J. Battin**, **C. E. Carraher Jr.**
- 183.** Heat pressed modified Nafion® membrane for enzyme immobilization and stabilization in air-breathable biocathodes. **S. Besic**, S. D. Minter
- 184.** Use of modified nafion membranes to immobilize whole and lysed mitochondria on carbon electrodes. **K. M. Boehm**, R. L. Arechederra, S. D. Minter
- 185.** Development of polybenzoxazine membranes for ethanol/water separation. **A. Boonmalert**, K. Pakkethati, T. Chaisuwan, S. Wongkasemjit
- 186.** Graphite-polyaniline composites: Surface area and magnetic susceptibility studies. **S. E. Bourdo**, C. Cole, A. S. Biris, T. Viswanathan
- 187.** Chelating polymers as absorbents for removal of low concentrations of toxic heavy metals from aqueous media. P. Amoyaw, C. Ingram, F-L. Hsu, **X. R. Bu**
- 188.** Decoupling optical properties in metallo-supramolecular poly(p-phenylene ethynylene)s. **M. Burnworth**, J. D. Mendez, M. Schroeter, S. J. Rowan, C. Weder
- 189.** Ability of polymers derived from reaction of triphenylantimony, triphenylarsenic, and Group IVB metallocene dichlorides with cephalixin to inhibit prokaryote and eukaryote microorganisms. Y. Naoshima, K. Nagao, **C. E. Carraher Jr.**
- 190.** Antibacterial and antyease activity of polyesters derived from triphenylantimony dichloride and triphenylarsenic dichloride. Y. Naoshima, K. Nagao, **C. E. Carraher Jr.**
- 191.** Group IVB metallocene polyethers containing the synthetic hormone dienestrol-MALDI MS. **C. E. Carraher Jr.**, Y. Ashida, G. Barot
- 192.** Inhibition of pancreatic cancer cell lines by selected organotin polymers. K. R. Shahi, M. R. Roner, G. Barot, A. J. Battin, **C. E. Carraher Jr.**
- 193.** Synthesis of Group IVB metallocene polyethers containing the synthetic hormone dienestrol. **C. E. Carraher Jr.**, Y. Ashida, **G. Barot**
- 194.** Blends of nylon 6/HDPE with Fusabond® compatibilizer: Effect of zinc neutralized maleated functional groups. **S. Charoenpongool**, M. Nithitanakul, B. P. Grady
- 195.** Silica/bismaleimide hybrid nanocomposite. **C. Chen**, J. Brown, T. B. Tolle
- 196.** Withdrawn.
- 197.** Novel acoustic wave generated from organic/inorganic hybrid glasses. **K. M. Choi**, K. J. Shea
- 198.** Rod-coil block copolymer micelles. **S. Y. Choi**, S. Lee, A. J. Jang, S. H. Kim, Y. J. Song, J. U. Lee, W. H. Jo
- 199.** Catalytic effects of transition metal ions on the synthesis of tanninsulfonic acid-doped polyaniline. S. E. Bourdo, K. K. Taylor, **C. Cole**, A. S. Biris, T. Viswanathan
- 200.** Preparation and study of UV-curable conductive composites using exfoliated graphite. **S. Datta**, M. Htet, D. C. Webster
- 201.** Development of high barrier layered systems using particulates. **J. J. Decker**, D. R. Paul, D. Schiraldi, A. Hiltner, S. Nazarenko
- 202.** Time dependent rheological behavior of wheat gluten-based aqueous mixtures. **J. Dong**, R. Parnas, A. D. Asandei
- 203.** Preparation and characterization of biocompatible quaternized chitosan nanoparticles encapsulating CdS quantum dots. **Y. Du**, Y. Li
- 204.** Application of admicellar polymerization in fiber reinforced concrete. **S. Duangpichakul**, J. H. O'Haver, M. Nithitanakul
- 205.** Hydrolysis and condensation of triethoxysilyl end-functionalized polyisoprene using phase transfer catalysts. **L. Feng**, K. A. Cavicchi
- 206.** Toward reheatable supramolecular polymers using aromatic amide motifs. **J. D. Fox**, S. Sivakova, S. J. Rowan
- 207.** Increasing  $T_g$  of polyimide composite film by addition of thermally treated talc. **K-I. Fukukawa**, I. Fujio, W. Yamashita, S. Tamai
- 208.** Imidazolium based dendrimers. **C. J. Gabriel**, D. L. Gin
- 209.** ER-SiO<sub>2</sub> core-shell particles prepared with a self-templating method. Q. Zhang, Y. Zhai, **G. Gao**
- 210.** Structure determination of poly(methylene green). **M. N. Germain**, S. D. Minter
- 211.** Premature crystallization of hydrogen-bonded liquid crystalline networks in the mesophase. **J. R. Greuel**, K. N. Wiegell
- 212.** Electronic and structural substituent effects on supramolecular mesophase structure and stability. **P. J. Schieffer**, T. E. Andrews, K. N. Wiegell
- 213.** Synthesis and properties of invertible amphiphilic polyurethanes. A. M. Kohut, **I. Hevus**, A. S. Voronov
- 214.** Electrospun CNTs-embedding carbon nanofibers for supercapacitor. X. Li, L. Yu, H. Fu, J. Chen, Q. Guo, C. Huang, **H. Hou**
- 215.** Electrospun heterogeneous palladium catalyst for Sonogashira coupling reaction. L. Chen, Y. Li, X. Li, S. Hong, **H. Hou**
- 216.** Electrospun polyimide nanofibers with high-strength and high-toughness. J. Chen, H. Fu, C. Cheng, F. Chen, S. Chen, **H. Hou**
- 217.** Synthesis of photosensitive polyheral oligomeric silsesquioxane (POSS) polymer with low dielectric constant. **Y. Ishida**, T. Hayakawa, M-A. Kakimoto, Y. Kima
- 218.** Rapid synthesis of poly(carboxylic acid) brushes by surface-initiated atom transfer radical polymerization. **P. Jain**, J. Dai, G. L. Baker, M. L. Bruening
- 219.** Novel methods for changing domain size and shape of poly(butyl acrylate-co-acrylic acid) in poly(styrene-co-acrylonitrile) matrix. **Y. Jin**, S. K. Kim
- 220.** Viscoelastic properties of rubber composites reinforced by wheat gluten and wheat starch co-filler. **L. Jong**
- 221.** Polymer nanocomposites: Solvent-free processing toward improved mechanical and thermal properties at ultralow filler loading. **K. R. Juggernaut**, E. C. McIntyre, F. E. Filisko
- 222.** Synthesis and characterization of PAMPS-filled nylon nonwoven membranes. **K-H. Jung**, B. Pourdeyhimi, X. Zhang
- 223.** Effect of atmospheric pressure plasma treatment on the wettability of wool fibre. O. N. Hung, **C-W. Kan**, C. W. M. Yuen
- 224.** Effect of atmospheric pressure plasma treatment on the wrinkle properties of cotton fibre. C. H. Au, Y. L. Lam, **C-W. Kan**, C. W. M. Yuen
- 225.** Effect of heat-setting process on the yarn shrinkage of poly(lactic acid) fibre. Y. M. Chui, **C-W. Kan**, C. W. M. Yuen
- 226.** Effect of heat-setting process on the yarn strength of poly(lactic acid) fibre. Y. M. Chui, **C-W. Kan**, C. W. M. Yuen
- 227.** Effect of laser engraving process on the surface properties of cotton fabric. C. W. Cheng, **C-W. Kan**, C. W. M. Yuen, C. K. Chan
- 228.** Influence of enzymatic treatment in neutral condition on the fabric property of cotton denim fabric. W. Y. Wong, **C-W. Kan**, C. W. M. Yuen
- 229.** Influence of plasma gas on the mechanical properties of wool fabric. **C-W. Kan**, C. W. M. Yuen
- 230.** Influence of plasma treatment on the wettability and dryability of synthetic fibres. **C-W. Kan**, C. W. M. Yuen
- 231.** Modification of regenerated cellulose fibre with plasma treatment. **C-W. Kan**, C. W. M. Yuen
- 232.** Structural information of plasma treated wool. **C-W. Kan**, C. W. M. Yuen
- 233.** Surface morphological changes of plasma-treated wool fibre. **C-W. Kan**, C. W. M. Yuen
- 234.** Novel polybenzoxazine based carbon aerogel electrode for supercapacitor. **P. Katanyoota**, T. Chaisuwan, S. Wongkasemjit
- 235.** Solid state and electrochemical characterization of nanostructured cobalt oxide wires. **P. Y. Keng**, J. Pyun
- 236.** New polymerizable surfactant liquid crystal that forms a bicontinuous cubic phase in water and nonaqueous solvents for ion-conductive materials applications. **R. L. Kerr**, S. Miller, B. J. Elliott, D. L. Gin
- 237.** Ferrocene containing polymers for functionalization of metal nanoparticles and metal oxide surfaces. **B. Kim**, J. Pyun
- 238.** Surface modification of carbon fiber for the enhancement of mechanical properties of silicone rubber/carbon fiber composites. **E. S. Kim**, T. W. Lee, E. J. Kim, J-S. Yoon
- 239.** Multivalled carbon nanotube/clay-incorporated polymeric nanocomposites. **H-S. Kim**, H-I. Kwon, J-S. Yoon, H-J. Jin
- 240.** Preparation and properties of high-strength and high-modulus poly(vinyl alcohol) fibers by gel spinning. **J. H. Kim**, W. P. Hong, S. H. Kim
- 241.** Rapid and reversible gel-sol transition of self-assembled gel induced by photoisomerization of dendritic azobenzenes. **J. H. Kim**, M. Seo, Y. J. Kim, S. Y. Kim
- 242.** Facile synthesis of hollow anatase titania prepared by charged polymeric nanosphere template. **K. B. Kim**, J. H. Oh, K. H. Lee, Y. K. Kwon
- 243.** Property modulation of poly(phenylene sulfide) film by addition of PA66 and PET. **Y. H. Kim**, G. H. Bae, J. C. Kim
- 244.** Removal of heavy metals from wastewater by polybenzoxazine-based aerogel. **T. Komalwanjit**, T. Chaisuwan, S. Wongkasemjit
- 245.** Nanoparticle arrays via block copolymer blend as a template. **C. Lee**, S-K. Lee, S. Y. Choi, S. H. Kim
- 246.** Morphological development and crystallization behavior of a poly(trimethylene terephthalate)/poly(hydroxy ether of bisphenol A) blend. S. H. Hong, B. Y. Kang, D. W. Yun, H-J. Jin, **K. H. Lee**
- 247.** Synthesis of poly(methyl methacrylate)/silver composite from silver-diamine complex in carbon dioxide. S-H. Han, B-J. Kim, K-K. Park, **S-H. Lee**
- 248.** Mesoporous titania films templated by block copolymer. **S-K. Lee**, J. W. Lee, S. H. Kim
- 249.** Diffusing-wave spectroscopy characterization on the film formation of acrylic latex emulsion by different coalescing agents. T. Qiu, S. Zhang, J. Cui, **X. Li**
- 250.** Physical properties of PE/polyhedral oligomeric silsesquioxane (POSS) nanohybrids. **S-K. Lim**, E-P. Hong, Y-H. Song, I-J. Chin
- 251.** Study on desulfurization mechanism by dynamic sorption of gasoline components in polyethylene glycol membranes. **L. Lin**
- 252.** Morphology of glass fiber reinforced polycarbonate/poly(butylene terephthalate) blends with various types of silane coupling agents. **T. Limpanuphap**, H. Manuspiya
- 253.** Soap-free emulsion polymerization for producing highly monodisperse polystyrene microspheres. **C. Liu**, J. Fang, F. Liu
- 254.** Synthesis, characterization and fluorescence properties of novel terbiem coordination polyaryletherketone. **D. Liu**, H. Yu, Z. Wang
- 255.** Study of chain transfer agent effect on gel point of poly(acrylamide) hydrogel. Q. Chen, D. Zhao, X. Liu, G. Jiang, L. Liu, J. Yu, **F. Liu**

‡ Cooperative Cosponsorship

256. Synthesis and characterization of surfactant macromonomers for hydrophobically associating polymers. G. Jiang, Q. Chen, G. Zhang, **F. Liu**
257. Rheological property of tremolite/nylon1010 composites. **X. Liu**, Z. Li, J. Yu, F. Liu
258. Polystyrene-poly(vinylbenzyl chloride) block copolymers for alkaline fuel cell membranes. **Y. Liu**, K. A. Cavicchi, J. Mause, B. Decker
259. Synthesis of dipropylene glycol catalyzed by organic amine. **L. Lu**, Y. Xiang, D. Xia, Y. Zhou
260. High flux nanofibrous membranes based on cellulose barrier processed by ionic liquids. **H. Ma**, K. Yoon, L. Rong, B. S. Hsiao, B. Chu
261. Surface modified marl in polybenzoxazine composite: Synthesis and characterization. **J. Mahajaroensiri**, T. Chaisuwan, R. Magaraphan
262. Structural and dynamic disorders of {alpha} form isotactic-polypropylene revealed by solid state-NMR. **A. Mamun**, T. Miyoshi
263. 2-D WAXD study of crystallization of propylene-1-butene random copolymer: Experiment and simulation. **Y. Mao**, C. Burger, F. Zuo, X. Li, D. W. Thurman, A. H. Tsou, B. S. Hsiao
264. Magnetic sensor derived by modified porous clay heterostructures. **A. Mattayyan**, R. Magaraphan, H. Manuspiya
265. Surface characterization of new versatile thermal-pH sensitive graft copolymers. **H. I. Meléndez-Ortiz**, E. Bucio, G. Burillo, T. Iwashima
266. Synthesis and characterization of hyper-branched poly(ether sulfone)s including imidazolium salts at the termini. **T. Ohsugi**, T. Hayakawa, M-A. Kakimoto
267. Adsorption of toxic gases from gasification process by polyHPIEs. **P. Pannak**, R. Magaraphan, P. Malakul, M. Nithitanakul
268. Development of durable surface active self-decontaminating polyurethane coating. **R. R. Pant**, P. A. Fulmer, J. H. Wynne
269. Functionalization of Si(100) and Si(111) surfaces with oligo(p-phenylene vinylene)s. C. Sun, Y. Wang, **R. M. Peetz**
270. Synthesis and characterization of homologous end-functional oligo(p-phenylene vinylene) oligomers. C. Sun, N. Vundyalala, C. Costanzo, S. Ghosh, **R. M. Peetz**
271. Effect of flame retardant filled PC/PBT blends on the combustible and thermal properties. **P. Pisadesumrit**, H. Manuspiya
272. Electrospinning of poly(butylene succinate)/cellulose acetate blends. **S-L. Quan**, S-G. Kang, I-J. Chin
273. Synthesis of acyclovir-containing polymers from disulfonil acid dichlorides. **T. S. Sabir**, **C. E. Carraher Jr.**
274. High performance hybrid composite conductive films: The development toward smart materials for gas sensor applications. **Y. Sangchutanakit**, S. Wongkasemjit, T. Chaisuwan
275. Study of the cure kinetics and cure chemistry of polyhedral oligomeric silsesquioxane phenylethynylphthalimide networks. **B. Seurer**, A. Lee
276. Preparation and proton conductivity of sulfonated polymer-modified silica colloidal crystals. **J. J. Smith**, I. Zhavor
277. Improvement in dielectric properties by using lamination technique of stretched polyvinylidene fluoride and polyvinylidene fluoride/barium strontium titanate composite film. **T. Sodsong**, H. Manuspiya
278. Polybenzoxazine based carbon aerogel as TiO<sub>2</sub> catalyst support for photocatalytic hydrogen production: Synthesis and characterization. **S. Somlok**, T. Chaisuwan, S. Wongkasemjit
279. PEDOT-enzyme biosensors. **S. A. Spanninga**, Z. Chen, D. C. Martin
280. Development of novel carbon foam derived from phenol-ethylenediamine benzoxazine precursor. **S. Sreewanichwipat**, S. Wongkasemjit, T. Chaisuwan
281. Admicellar polymerization of styrene and methyl methacrylate on natural rubber latex. **N. Srirachya**, T. Chaisuwan, R. Magaraphan
282. Effect of ionic species on the structure and properties of PEO-montmorillonite gels and films. E. A. Stefanescu, **C. Stefanescu**, I. I. Negulescu, W. H. Daly
283. Thiol-ene click chemistry as a simple, clean and efficient method to make a  $\Omega$  functionalized polystyrenes prepared by anionic polymerization. **B. Sun**, W-B. Zhang, J. E. Janoski, R. P. Quirk, S. Z. D. Cheng
284. Synthesis and dyeing properties on cotton fabrics of a cationic reactive dye. H. Zhang, T. Zhao, **G. Sun**
285. Molecular blend of poly(ethylene oxide) (PEO) and poly(methyl methacrylate-co-methacrylic acid) [poly(MMA-co-MAA)] and its ionic conductivity in copper-ion-polymer composite film. **J. Tang**, Y. Wang, J. Liu, S. Cao
286. Network-covered antistatic fiber. J. Liu, **J. Tang**, Y. Wang
287. Preparation of a pyridine-phenol boron complex encapsulated silica composite glass through a novel sol-gel process. Z. Song, H. Lin, **J. Tang**, Y. Wang, F. Liu
288. Synthesis and application of a nonchemically amplified photoresist for organic electronics. **P. G. Taylor**, J. K. Lee, A. A. Zakhidov, M. Chatzichristidi, H. H. Fong, J. DeFranco, G. G. Malliaras, C. K. Ober
289. Improving corrosion protection of epoxy coatings by chemical modification with glycidioxypropyltrimethoxysilane-modified silatrane. **T. Thongprom**, T. Chaisuwan, H. Manuspiya, S. Wongkasemjit
290. Fabrication of aligned porous polyurethane scaffold using directional freezing in DMSO. X. Yao, **X. Tuo**
291. Time-resolved measurements of spin-dependent carrier recombination in charge transfer states of pi-conjugated polymers. **K. J. van Schooten**, S. Liu, M. J. Walter, D. R. McCarney, U. Scherf, C. Bohme, J. M. Lupton
292. Rheological properties of hydrogels assembled by inclusion complexation between  $\alpha$ -cyclodextrin and poly(ethylene glycol). **J. Wang**, P. Liu, H. Ke, L. Zheng, X. Guo, L. Li
293. Preparation and study on the properties of biocompatible conjugation of nano-SiO<sub>2</sub>. **Y. Wang**, L. Wang, J. Tang, J. Liu, B. Yang, Z. Huang, R. Wang, N. Zhuang
294. Effects of branch density on the ring-banded spherulitic morphologies of polyethylene copolymers. J. Qiu, **Z. Wang**
295. Relaxation behaviors of long-chain branched poly(lactic acid) samples prepared by using polyfunctional monomer and electron-beam irradiation. Y. Wang, **Z. Wang**
296. Aliphatic linear-hyperbranched block copolymer amphiphiles. **F. Wurm**, H. Schüle, H. Frey
297. Linear-hyperbranched block copolymers containing metalorganic blocks. **F. Wurm**, I. Manners, H. Frey
298. Regioregular amphiphilic poly(phenylene ethynylene)s bearing alkyl and semifluoro-alkyl substituents. **K. B. Woody**, R. Nambiar, D. M. Collard
299. Functional coatings utilizing surface-active additives to degrade pesticides and chemical simulants. **J. H. Wynne**, M. B. Harney, J. P. Buckley, V. K. Cooper, B. T. Rasley
300. Hydrogen evolution system using artificial porphyrin-antibody complexes. **H. Yamaguchi**, T. Onji, H. Ohara, N. Ikeda, A. Harada
301. Poly(3-hexylthiophene)/carbon nanotube supramolecular centipede. J. Liu, J. Zou, **L. Zhai**
302. Cure kinetics and thermal properties of a novel phenolphthalein dicyanate. **B. Zhang**, Z. Wang
303. Study of surface hydrophilicity and mechanical properties of polypropylene modified by peregol. **C. Zhang**, B. Li, F. Yan, L. Wu, O. Zhang
304. Study of the aging effects of poly(p-phenylene benzobisoxazole) (PBO) fibers and PBO fiber reinforced composite after oxygen plasma treatment. **C. Zhang**, P. Chen, B. Wang, W. Li, X. Kang
305. Novel thermally switchable smart polymer films. **S. Zhang**, D. Bucknall, K. Hong, L. He, J. W. Mays

306. Synthesis of linear polyether chelating resins and their adsorption properties in chloroform solution. **S. Zhang**, C. Zhang, C. He, J. Xu
307. De-acetylated PVA for pharmaceutical hydrogel applications. D. Edgren, P. Zhu, E. Struble, R. Frame, **Y. Zhang**
308. Proton NMR of the product of diphenyltin dichloride and the antibacterial drug ciprofloxacin. **A. Zhao**, **C. E. Carraher Jr.**
309. Preparation of hydroxyethyl chitosan hydrogel and research of its swelling and drug releasing properties. **H. Zheng**, Y. Rao, X. Zou
310. Preparation, characterization of chitosan/acrylamide graft copolymer and research of its flocculation effect. **H. Zheng**, X. Chen, Y. Xu

#### Multiphase Polymer Materials: From Fundamentals to Applications.

311. Preparation and properties of high-temperature resistant and toughened epoxy resins matrix. J. Li, **P. Chen**, Z. Ma
312. Oriented crystallization of polyethylene templated by vertically aligned carbon nanotube arrays. **N. C. Das**, Z. Wang, Y. Liu, K. Yang, H. Wang
313. Nonequilibrium nanoblends: Understanding multicomponent mass transfer. **J. R. Dorgan**, S. Y. Nam
314. TiO<sub>2</sub> hollow spheres and their implication for nonvolatile electrolyte-based dye-sensitized solar cells. J. H. Park, S. Y. Jung, R. Kim, J. Kim, **S-S. Lee**
315. Polymer nanocomposites with random and aligned multiwalled carbon nanotubes. **Y. Liu**, N. C. Das, K. Hong, G. Eres, D. Urig, H. Wang
316. Mechanical properties of composite polymer microstructures fabricated by interference lithography. **S. Singamaneni**, S. Chang, J-H. Jang, E. L. Thomas, V. V. Tsukruk
317. Solution structure of poly(3-hexylthiophene) in toluene and its effect on cast-film morphology. **K. Yang**, C. Xu, N. C. Das, G. Reiter, H. Wang
318. Evolution of monoclinic and orthorhombic phases during the deformation of olefin block copolymers. **F. Zuo**, Y. Mao, B. S. Hsiao, H. Chen, D. Chiu, S-Y. Lai

#### Polymers for Microencapsulation and Coatings Technologies.

319. Microencapsulation for cure-on-demand and controlled release applications using novel thiol-acrylate chemistry. **C. Bounds**, R. Goetter, J. A. Pojman, M. Vandersall
320. Microencapsulation of concentrated sulfuric acid with an epoxy vinyl ester shell. **D. A. Schneider**, D. L. Huber, C. Crawford, A. Sanchez
321. Study on preparation and properties of PEG-modified nano-SiO<sub>2</sub>. L. Wang, Y. Wang, **J. Tang**, J. Liu, Z. Huang, R. Wang
322. Chitosan and heparin nanoconjugates for oral heparin delivery. **L. Wang**, P. Zhao, J. Wan, J. Chen
323. Preparation and performance research of carbomer/carboxymethyl chitosan microspheres. **Y. Xu**, L. Yin, L. Wang, W. Zhou, J. Lan, Y. Shen
324. Study on preparation of 2-deoxy-D-glucose poly(lactic acid) microsphere and its release behavior. **H. Zheng**, B. Wu, J. Zhao

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### WEDNESDAY MORNING

#### Section A

Sheraton  
Seasons Ballroom North

#### Polymers for Microencapsulation and Coating Technologies Novel Microencapsulation Techniques and Their Applications

D. Duffy, *Organizer*

L. Bao, *Organizer, Presiding*

- 8:30 Introductory Remarks.
- 8:35 325. Formation of functionalized nanocapsules for on-demand release obtained by the miniemulsion process. M. Urban, A. Hamberger, A. Musyanovych, **K. Landfester**
- 9:10 326. CeramiSphere: Controlled release from sol-gel micro and nanoparticles. **C. J. Barbé**, K. S. Finnie, L. Kong
- 9:45 353. Fractal kinetics of diacrylates postcuring by curve-fitting real-time FTIR. E. Nouzille, **T. Q. Nguyen**
- 10:05 Intermission.
- 10:15 328. Microencapsulation of a peroxide to increase the shelf life of an unsaturated polyester for electrical insulating applications. C. Bounds, R. Goetter, **J. A. Pojman**, M. Vandersall
- 10:35 329. Encapsulation of biomolecules in nanocapsules prepared in miniemulsion for a targeted drug delivery. **G. Baier**, A. Musyanovych, K. Landfester
- 10:55 330. Microencapsulation of bioactive components for foods and pharmaceuticals. **A. Millqvist-Fureby**
- 11:15 331. Polymeric nanocapsules and interaction with (stem) cells: Surface modifications, endocytosis and nanocapsule design for MRI applications. **V. Mailänder**, J. Dausend, U. Paiphanisiri, K. Landfester, H. Schrezenmeier

#### Section B

Sheraton  
Harvest

#### Multiphase Polymer Materials: From Fundamentals to Applications Multiphase Engineering of Polymeric Photovoltaics

H. Wang, J. Loos, and C. Park,  
*Organizers*

M. Bockstaller, *Presiding*

- 8:30 332. Vertical phase separation in poly(3-hexylthiophene): Fullerene derivative blends and its advantage for inverted structure solar cells. **L-M. Chen**, Z. Xu, G. Yang, J. Hou, Y. Wu, G. Li, Y. Xiang
- 9:00 335. High efficiency polymer-lithium oxide hybrid solar cells. **K. Lee**
- 9:30 334. Correlation of interfacial composition and bulk morphology to device performance in organic bulk heterojunction solar cells. **D. S. Germack**, C. Chan, B. Hamadani, R. J. Kline, D. J. Gundlach, L. J. Richter, D. A. Fischer, D. M. DeLongchamp
- 10:00 Intermission.
- 10:15 335. Semiconductor organic-inorganic nanocomposites: From synthesis to packing at the air/water interface and photovoltaic application. **Z. Lin**, M. D. Goodman, J. Xu, J. Wang, M. Jeffries-Ei
- 10:45 336. Heterojunction ZnO-nanorod-poly(3-hexylthiophene) solar cells. **C. Xu**, K. Yang, L. Huang, J. Loos, H. Wang

The official technical program for the 237th National Meeting is available online at [oasys2.confex.com/acs/237nm/techprogram/](http://oasys2.confex.com/acs/237nm/techprogram/).

- 11:05 337.** 3-D Nanoscale organization of bulk heterojunction polymer solar cells. **S. S. van Bavel**, E. Sourty, G. de With, J. Loos

## Section C

Sheraton  
Smokehouse Gavel Rooms

**General Papers/New Concepts in Polymeric Materials Biological Polymers**

J. L. P. Jessop, *Organizer*

A. Patil, *Presiding*

- 8:30** Introductory Remarks.  
**8:35 338.** Influence of hydrogen bonding on polyolefine structure: A molecular dynamics simulation study. **B. Hanson**, D. Bedrov, G. D. Smith  
**8:55 339.** Modification of egg-albumin using Michael addition reactions. **N. K. Budhavaram**, J. R. Barone  
**9:15 340.** DNA gels: pH mediated structural changes. **F. Horkay**, P. J. Basser  
**9:35 341.** Poly(*N,N*-dimethylacrylamide)-*b*-poly(*L*-lysine) hybrid peptide copolymers: Synthesis and solution properties. **A. I. Trifiraidou**, I. Iliopoulos  
**9:55 342.** Postmodification of clickable polyisocyanopeptides. **E. Schwartz**, H. J. Kitto, M. Koepf, M. Nijemeisland, J. J. L. M. Cornelissen, A. E. Rowan, R. J. M. Nolte  
**10:15** Intermission.  
**10:30 343.** Thermally conductive poly(lactic acid) composites with a net-like structure of carbon fibers. **A. Nakamura**, M. Soyama, M. Iji  
**10:50 344.** Recognition and neutralization of *Bacillus cereus* spores and *Bacillus anthracis* toxins during phagocytosis using glycoconjugates. **O. Tarasenko**, A. Scott, P. Alusta, L. Soderberg  
**11:10 345.** Study of the triple helix structure of a water-insoluble B- (1-3)-D-glucan from the fruiting bodies of *Dictyophora duplicata*. **J. Wang**, J. Wan, P. Zhao, J. Chen  
**11:30 346.** Reversible structural transition of a DNA-lipid film. **S. Gajria**, T. Neumann, L. Jaeger, M. Tirrell  
**11:50** Concluding Remarks.

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## WEDNESDAY AFTERNOON

## Section A

Sheraton  
Seasons Ballroom North

**Polymers for Microencapsulation and Coating Technologies New Developments in Functional Coatings**

L. Bao, *Organizer*

D. Duffy, *Organizer, Presiding*

- 1:30 347.** Multilayer coatings for release of active molecules. **Y. Samoshina**, M. H. Sörensen, P. M. Claesson  
**2:05 348.** Self-healing polymer coatings. **P. V. Braun**, A. Griffith, S. H. Cho, S. R. White

- 2:25 349.** Novel perfluoropolyethers as fouling release coatings: Investigation of structure-property relationships relevant to fouling resistance and release. **Z. Hu**, J. A. Finlay, M. E. Callow, J. M. DeSimone  
**2:45 350.** Combining nitric oxide generation and sirolimus release in polymeric films: Potential coatings for stents and other biomedical devices. **B. Wu**, Y. Wang, P. Roy-Chaudhury, M. E. Meyerhoff  
**3:05** Intermission.  
**3:15 351.** End point immobilization of heparin on polyurethane film. **J. Wan**, J. Wang, L. Fang, J. Chen  
**3:35 352.** Stimuli-responsive polymer. **L. Tang**, C. Weder  
**3:55 327.** Pigment encapsulation with amphipolar copolymers via LCST phenomena and implications for coatings. **C. D. Eisenbach**, N. Bulychev, F. Wurst, K. Dimberger, T. Schauer  
**4:15** Concluding Remarks.

## Section B

Sheraton  
Harvest

**Multiphase Polymer Materials: From Fundamentals to Applications Polymers Containing Nanoparticles**

H. Wang, J. Loos, and C. Park, *Organizers*

Z. Lin, *Presiding*

- 2:00 354.** Nanoparticle jamming to create discrete and bicontinuous polymer blend morphologies. **R. J. Composto**, H.-J. Chung, S. Gam  
**2:30 355.** Micellar films of diblock copolymers containing nanoparticles and fluorophores. **B.-H. Sohn**, S. I. Yoo, J.-H. Kim, J.-H. Kim  
**3:00 356.** Molecular dynamics simulations of polymer grafted nanoparticles in a polymer melt. **G. D. Smith**, D. Bedrov  
**3:30** Intermission.  
**3:45 357.** Directed assembly of block copolymer films. **A. Karim**, B. Berry, K. Yager, A. Bosse, J. F. Douglas, R. L. Jones, R. M. Briber, H. C. Kim  
**4:15 358.** Effect of particle additives on the formation of 2-D-defect structures in block copolymers. H. J. Ryu, J. Listak, **M. Bockstaller**  
**4:45 359.** Well-defined nanostructured polymer blends with Janus particles. **A. Walther**, **A. H. E. Müller**  
**5:05 360.** Assembly of functionalized POSS-M nanoparticles. **R. Gunawidjaja**, F. Huang, M. Gurnenna, N. Klimentko, G. A. Nunnery, V. V. Shevchenko, R. Tannenbaum, V. V. Tsukruk

## Section C

Sheraton  
Smokehouse Gavel Rooms

**General Papers/New Concepts in Polymeric Materials Biological Applications**

J. L. P. Jessop, *Organizer, Presiding*

- 1:30** Introductory Remarks.  
**1:35 361.** Synthesis, characterization and properties evaluation of coumarin functionalized polymers for photoinduced drug release. **S. Agarwal**, C. Sinkel, A. Greiner  
**362.** Withdrawn.  
**1:55 363.** Microscopic characterization of micellar structures in modified Nafion® films. **C. E. Menius**, R. L. Arechederra, S. D. Minter

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- 2:15 364.** Assembly and characterization of phage-like nanoparticles (PLN's) for targeted breast cancer treatment. **G. Abbineni**, S. Modali, C. Mao  
**2:35 365.** Super bright conjugated polymer nanoparticles for long-term cell tracking. **N. A. Abdul Rahim**, W. McDaniel, K. Bardon, V. Vickerman, **J. H. Moon**, P. T. C. So  
**2:55** Intermission.  
**3:10 366.** Surface-anchored poly(2-vinyl-4,4-dimethyl azlactone) brushes as templates for enzyme immobilization. **S. P. Cullen**, I. C. Mandel, P. Gopalan  
**3:30 367.** Synthesis of complete and fragmented fourth generation dendrimers based on melamine to function as potential vectors in gene transfer. **M. A. Mintzer**, E. E. Simanek  
**3:50 368.** Dendrimer based diagnostic nanodevices for improved detection of inflammatory markers in the amniotic fluid. **H. J. Han**, R. Romero, R. M. Kannan  
**4:10 369.** Development of PAMAM-dendrimer based nanodevice for targeted delivery to Chlamydia trachomatis infection. **M. K. Mishra**, K. Kotta, J. W. Hudson, R. M. Kannan  
**4:30** Concluding Remarks.

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## THURSDAY MORNING

## Section A

Sheraton  
Seasons Ballroom North

**General Papers/New Concepts in Polymeric Materials Synthesis & Characterization**

J. L. P. Jessop, *Organizer*

A. Patil and A. L. Miller II, *Presiding*

- 8:30** Introductory Remarks.  
**8:35 370.** Selective coupling of terminal olefins with ethylene to obtain linear alpha-olefins. **A. O. Patil**  
**8:55 371.** Emulsion engineering: Polymer-mediated hierarchical and reversible emulsion droplet assembly. **J. V. M. Weaver**, S. P. Rannard, A. I. Cooper  
**9:15 372.** Synthesis of cycloaliphatic silicone block and random copolymers. **M. D. Soucek**, R. Chakraborty  
**9:35 373.** Development of a new class of liquid crystalline epoxy resin cured by mesogenic diol. **A. M. Issam**, M. Fadhley, W. D. Wan Rosli  
**9:55 374.** Sacrificial synthesis unlimited? A novel functionalization method for ROMP extended and evaluated. **S. Hilf**, A. F. M. Kilbinger  
**10:15** Intermission.  
**10:30 375.** Rapid formation of soft hydrophilic silicone elastomer surfaces. **A. E. Ozcem**, K. Efimenko, R. J. Spontak, J. Genzer  
**10:50 376.** Novel carbon aerogel prepared from benzoxazine precursors via ambient drying: Effect of amine derivatives. **T. Chaisuwan**, P. Lorjai, S. Wongkasemjit  
**11:10 377.** Synthesis of extended conjugation platinum porphyrins for near-IR LED applications. **J. R. Sommer**, R. T. Farley, K. R. Graham, Y. Yang, J. Xue, J. R. Reynolds, K. S. Schanze

- 11:30 378.** Polyamide resins with novel impact modification technologies for engineering thermoplastics applications. **J. Gavenonis**, E. A. Flexman  
**11:50** Concluding Remarks.

## Section B

Sheraton  
Harvest

**Multiphase Polymer Materials: From Fundamentals to Applications Advances in Polyolefin Blends and Composites**

J. Loos and C. Park, *Organizers*

H. Wang, *Organizer, Presiding*

- 8:30 379.** Nucleation phase separation under oscillatory shear in polybutadiene/polystyrene system. **C. C. Han**, R. Zhang, X. Dong  
**9:00 380.** Interplay of polymer crystallization and liquid-liquid demixing in multicomponent systems: Theory and simulations. **W. Hu**  
**9:30 381.** Polymerized delamination of clay in polyolefins: From efficient intercalative polymerization to product-retrievable nanocomposite preparation. **J.-Y. Dong**, Y. Hu  
**10:00** Intermission.  
**10:15 382.** Effects of phase separation on diffusion behaviors of polyethylene chains between polyethylene layers. L. Yang, Y. Niu, **Z. Wang**  
**10:45 383.** Oriented crystallization in isotactic polypropylene nanocomposite under shear flow conditions. **X. Dong**, T. Sun, F. Chen, Y. Zhou, D. Wang, C. C. Han  
**11:15 384.** Developing composites from nontraditional reinforcement materials using nonwoven webs. **Y. Zou**, N. Reddy, S. Huda, Y. Yang

## Section C

Sheraton  
Smokehouse Gavel Rooms

**Novel Applications of Supramolecular Materials**

C. W. Bielawski, *Organizer, Presiding*

- 8:30** Introductory Remarks.  
**8:35 385.** New imidazolium-based supramolecular polymer materials with functional properties in water and nonaqueous solvents. **D. L. Gin**, T. K. Carlisle, B. R. Wiesenauer, J. E. Bara, M. E. Reynolds, C. J. Gabriel, R. D. Noble  
**8:55 386.** Toward applications for metallo-supramolecular polymers. **S. J. Rowan**  
**9:15 387.** Supramolecular thermoreversible polymer networks with tunable properties. **M. Weck**, K. P. Nair, V. Breedveld  
**9:35 388.** Self-assembly of stimuli-responsive polymer-protein conjugates prepared by RAFT polymerization. P. De, M. Li, S. R. Gondi, D. Roy, **B. S. Sumerlin**  
**9:55** Intermission.  
**10:15 389.** Cucurbiturils in aqueous supramolecular polymers. **O. A. Scherman**  
**10:35 390.** Light-harvesting phosphonium polyelectrolytes. E. G. Tennyson, **R. C. Smith**  
**10:55 391.** Supramolecularly assembled functional hollow polymeric nanostructures. **R. K. O'Reilly**  
**11:15 392.** Polymeric systems containing macrocyclic structures for the extraction of ionic species from aqueous environments. **B. M. Rambo**, N. L. Bill, A. Aydogan, D. J. Coady, D.-S. Kim, C. W. Bielawski, J. L. Sessler  
**11:35 393.** Self-assembled peptide nanotubes for electronics and sensor devices. **H. Bai**, H. Matsui, R. de la Rica

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**Nanostructured Materials for Future Therapy**

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**THURSDAY AFTERNOON**

## Section A

Sheraton  
Seasons Ballroom North

**General Papers/New Concepts in Polymeric Materials Synthesis & Characterization**

V. G. Viner, *Presiding*

J. L. P. Jessop, *Organizer, Presiding*

- 1:30** Introductory Remarks.  
**1:35 394.** Effect of bromine substitution and position on the thermal stability and thermal decomposition kinetics of brominated resole phenolic resins. **M. E. Moore**, M. Hosur, A. G. Ludwick, S. Jeelani  
**1:55 395.** Absorption spectroscopy study of self assembled multilayer films of polyelectrolytes containing azobenzene chromophores. **N. M. Ahmad**, C. J. Barrett  
**2:15 396.** Frontal cationic curing of epoxy resins: The effect of fillers and catalyst concentration on the front velocity, front temperature and mechanical properties. S. Scognamiglio, A. Mariani, C. Bounds, M. Luger, **J. A. Pojman**  
**2:35 397.** Effect of reactive and nonreactive additives on the frontal polymerization of multifunctional acrylates. **V. G. Viner**, J. A. Pojman  
**2:55 398.** Examination of thin film modulus for a series of poly (alkyl methacrylates). **J. M. Torres**, C. M. Stafford, B. D. Vogt  
**3:15** Intermission.  
**3:30 399.** Tailoring hydrophobic and inclusive interactions in modified poly (acrylic acid) solutions. J. Wang, H. Ke, P. Liu, L. Zheng, L. Li, **X. Guo**, S. F. Lincoln  
**3:50 400.** Study of gel fractions in the gelation of poly(acrylamide) and poly(acrylamide-co-N,N-dimethylacrylamide). **J. Yu**, D. Zhao, L. Liu, X. Liu, C. Liu, Q. Chen, F. Liu  
**4:10 401.** Formation of sparse network microstructures by photopolymerization-induced phase separation and subsequent solidification of solvent. **D. M. Hess**, A. J. Guenther  
**4:30 402.** Flexoelectric networks from bent-core nematic liquid crystal polymers. **R. Verduzco**, M. Chambers, A. Jákli, S. N. Sprunt, J. T. Gleeson  
**4:50** Concluding Remarks.

## Section B

Sheraton  
Harvest

**General Papers/New Concepts in Polymeric Materials Nanomaterials & Dielectric Materials**

J. L. P. Jessop, *Organizer*

Z. Lin, *Presiding*

- 1:30** Introductory Remarks.  
**1:35 403.** Single walled carbon nanotube fluorescence modulation in response to hydrogel swelling. **P. W. Barone**, J. Zhang, R. Ortiz, M. S. Strano  
**1:55 404.** Preparation of block copolymer nanostructures using metal-ligand interactions. **A. O. Moughton**, K. Stubenrauch, R. K. O'Reilly  
**2:15 405.** Effects of different graft copolymer constituent groups on sedimentation characteristics of coated iron nanoparticles. **H. Kalita**, B. J. Chisholm, A. Bezbaruah  
**2:35 406.** Rheological connection to phase separation of hairy nanoparticles in polymer melts. **X. Wang**, V. Foltz, M. Rackaitis, G. G. A. Bohm  
**2:55 407.** Effect of polyhedral oligomeric silsesquioxane (POSS) substituents on the rheological behavior in butyl methacrylate/POSS copolymers. **L. M. McGrath**, S. A. Weber, G. R. Yandek, J. M. Mabry

**3:15** Intermission.

- 3:30 408.** Anisotropic conductivity in polymer films using the micropores generated via solvent crazing. **P. Goel**, O. Weichold, M. Möller  
**3:50 409.** Designing high performance polymer dielectrics for wide-temperature power electronics applications. **N. Venkatasubramanian**, Z. Bai, J. T. Stricker, T. D. Dang  
**4:10 410.** High temperature polynorborene copolymer dielectric materials. **S. M. Dirk**, P. S. Sawyer, J. S. Wheeler, M. E. Stavig, B. A. Tuttle  
**4:30 411.** Low-*k* materials patternable in environmentally friendly solvents. **E. Murotani**, J. K. Lee, M. Chatzichristidi, A. A. Zakhidov, P. G. Taylor, C. K. Ober  
**4:50** Concluding Remarks.

## Section C

Sheraton  
Smokehouse Gavel Rooms

**Novel Applications of Supramolecular Materials**

C. W. Bielawski, *Organizer*

B. M. Rambo, *Presiding*

- 1:30 412.** Self-assembling boronate-linked materials. R. W. Tilford, B. M. Rambo, J. Liu, L. M. Lanni, W. Niu, J. J. Lavigne  
**1:50 413.** Withdrawn.  
**2:10 414.** Self-assembly of coordination polymers into tunable helical structures. **H.-J. Kim**, M. Lee  
**2:30 415.** Supramolecular block copolymer self assembly and nanolithography. **C. Tang**, M. D. Dimitriou, G. H. Fredrickson, E. J. Kramer, C. J. Hawker  
**2:50 416.** Self-assembly of porphyrin trimers in solution and at the liquid-solid interface. **N. Veling**, R. van Hameren, J. A. A. W. Elemans, A. E. Rowan, R. J. M. Nolte  
**3:10** Intermission.  
**3:30 417.** Iodinated shell crosslinked nanoparticles: Toward the development of X-ray contrast agents. **J. L. Sorrells**, N. S. Lee, C. L. Kahakachchi, W. McGhee, D. A. Moore, T. Rogers, K. L. Wooley  
**3:50 418.** Self-assembly of chiral star-shaped oligo(*p*-phenylene vinylene) substituted hexaarylbenzenes. **M. Wolffs**, R. A. A. Bovee, X. Lou, J. L. J. van Dongen, A. P. H. J. Schenning, Z. Tomovic, E. W. Meijer  
**4:10 419.** Soft matter nanoparticles by design: Supramacromolecular building blocks for future functional materials. V. Y. Lee, E. A. Appel, H. Nuno, M. Tjo, M. Maksimov, V. Ganapati, M. McNeil, J. L. Hedrick, R. D. Miller, **J. Sly**  
**4:30 420.** Tuning the selectivity of complementary quadruple hydrogen bonding. **T. F. A. de Greef**, T. Felder, G. Ercolani, G. B. W. L. Ligthart, E. W. Meijer, R. P. Sijbesma  
**4:50 421.** Responsive nanoporous colloidal films and membranes. I. Zharov, **O. A. Schepelina**, A. E. Abelow  
**5:10** Concluding Remarks.

**Nanostructured Materials for Future Therapy**

**Nanoparticles** Sponsored by POLY, Cosponsored by PMSE, BTEC, and NANO

**Please refrain from using cellular telephones and cameras during technical sessions.**

**PROF****Division of Professional Relations**

**R. D. Libby and D. J. Chesney**,  
*Program Chairs*

**SUNDAY EVENING**

**Excellence in Graduate Polymer Research**  
Sponsored by POLY, Cosponsored by PROF, SOCED, YCC, and PRES

**MONDAY MORNING**

**Alternative Energy Sources: Women at the Forefront of Science** Sponsored by WCC, Cosponsored by PROF

**Excellence in Graduate Polymer Research**  
Sponsored by POLY, Cosponsored by PROF, SOCED, YCC, and PRES

**MONDAY AFTERNOON**

**ACS Award in Industrial Chemistry: Symposium in Honor of George G. I. Moore** Sponsored by BMGT, Cosponsored by ORGN<sup>+</sup> and PROF, Financially supported by 3M

**Excellence in Graduate Polymer Research**  
Sponsored by POLY, Cosponsored by PROF, SOCED, YCC, and PRES

**Overcoming Issues in Graduate School**  
Sponsored by YCC, Cosponsored by PROF and CEPA

**MONDAY EVENING**

## Section A

Salt Palace Convention Center  
Hall 5

**Professionalism in the Twenty-First Century**

D. J. Chesney and R. D. Libby,  
*Organizers*

**8:00-10:00**  
1-6. See subsequent listings.

**Utilizing the X Factor: Empowering the Next Generation of Women Chemists**  
Sponsored by WCC, Cosponsored by PROF and CHED

**TUESDAY MORNING**

## Section A

Little America  
Arizona

**Professionalism in the Twenty-first Century: Poster Session and Town Hall Forum** Cosponsored by WCC

R. D. Libby and D. J. Chesney,  
*Organizers*

**10:00-12:00**

- Issues for the Division of Professional Relations town hall forum. **D. J. Chesney**
- The ACS ethics committee: Relevant or not? **D. J. Chesney**
- Developing soft skills provides career options. **J. K. Borchardt**
- How students (and working chemists) can reduce their ACS meeting expenses. **J. K. Borchardt**
- Opportunities and challenges in a global workplace. **L. M. Balbes**
- Ethics in academia: Gender and cultural issues. **S. M. Schelble**

**TUESDAY AFTERNOON**

**ACS Award for Encouraging Women into Careers in the Chemical Sciences: Symposium in Honor of Mary F. Singleton**  
Sponsored by WCC, Cosponsored by HIST<sup>+</sup>, PROF, and CEPA

**SCHB****Division of Small Chemical Businesses**

**J. H. Lauterbach and J. E. Sabol**,  
*Program Chairs*

**SOCIAL EVENT:**  
Reception: Tue

**BUSINESS MEETING:**  
Exec. Meeting: Mon

**SUNDAY AFTERNOON**

**Nontraditional Careers in Chemistry**  
Sponsored by YCC, Cosponsored by Chemical Information Careers Committee, CINF, CHAL, SOCED, CEPA, SCHB<sup>+</sup>, and POLY

**TUESDAY MORNING**

## Section A

Salt Palace Convention Center  
Ballroom A

**True Stories of Operating a Successful Small Chemical Business**

J. H. Lauterbach, *Organizer*

- 9:05** Introductory Remarks.  
**9:10 1.** Commercialization of a hand-portable GC-MS. **D. W. Lator**  
**9:35 2.** Enhancement of thermal properties of microencapsulated phase change materials by multivalued carbon nanotubes. **C. Thies**  
**10:00 3.** Withdrawn.  
**10:25** Intermission.  
**10:45 4.** Traveling chemist: Working as a consultant. **J. Gerlach**  
**11:10 5.** Optimization of octadentate 1,2-HOPO sensitized Eu luminescence in aqueous solution. **A. D'Aléo**, E. G. Moore, C. J. Jocher, J. Xu, K. N. Raymond  
**11:35** Concluding Remarks.

**Legal Perspectives on a Shrinking World: Intellectual Property, Business and Regulatory Issues in Nanotechnology**  
Sponsored by CHAL, Cosponsored by SCHB and NANO

**TUESDAY AFTERNOON**

## Section A

Salt Palace Convention Center  
Ballroom A

**Small Chemical Businesses and Nanoscience** Cosponsored by NANO

M. Lefenfeld, *Organizer*

- 1:30** Introductory Remarks. **M. Lefenfeld**.  
**1:35 6.** Commercializing "Small": What is the "Nano" business model? **G. M. Whitesides**  
**2:05 7.** Unique molecular architectures enabling new polymer applications. **T. M. Swager**  
**2:35 8.** The blending of research and teaching with entrepreneurship: The launching of Liquidia Technologies. **J. M. DeSimone**  
**3:05 9.** A small company made it possible to develop a novel approved anticancer compound. **R. Breslow**  
**3:35** Intermission.  
**4:05 10.** From laboratory to the real world: Some thoughts on commercializing the results of your research. **J. A. Rogers**  
**4:35 11.** Reducing risk is better than reducing fear in a high-tech business startup. **M. Dantus**  
**5:05 12.** Fundamental research and technology transfer. **R. H. Grubbs**  
**5:35** Concluding Remarks.