

## 2003 Fall NATIONAL ACS MEETING

**New York, NY (Sept. 7-12, 2003)**

**Program Meeting Chair: [Chris Bowman](#)**

### **Biocatalysis in Polymer Science (4-6 sessions)**

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### **Polymer Chemistry in Nanotechnology (6-8 sessions)**

C. Allan Guymon, Department of Chemical and Biochemical Engineering, University of Iowa, Seamans Center 4125, Iowa City, IA 52242, , allan-guymon@uiowa.edu, Phone: 319-335-5015, (Fax 319-335-1415); Douglas L. Gin, Departments of Chemistry and Biochemistry, and Chemical Engineering, University of Colorado at Boulder, Boulder, CO 80309-0424, Gin@spot.colorado.edu, Phone: 303-492-7640 (Fax 303-492-8595)

### **Polymeric Nanofibers (2-3 sessions)**

Darrell H. Reneker, Maurice Morton Institute of Polymer Science, Department of Polymer Science, The University of Akron, Akron, Ohio 44325-3909, dhr@polymer.uakron.edu, Phone: 330-972-6949 (Fax: 330-972-5290); Hao Fong, National Institute of Standards and Technology, 100 Bureau Drive, Mail stop 8546, Gaithersburg, MD 20899-8546, Phone: 301-975-3253, Fax: 301-963-9143, [hao.fong@nist.gov](mailto:hao.fong@nist.gov)

### **Organic and Polymer Materials for Plastic and Molecular Electronics(6-8 sessions)**

Zhenan Bao, Bell Laboratories, Lucent Technologies, 600 Mountain Avenue, Room 1A-261, Murray Hill, NJ 07974, zbao@lucent.com , Phone: 908-582-4716 (Fax: 908-582-4868); Bert de Boer, University of Groningen, Dept. of Polymer Chemistry, Materials Science Centre, Nijenborgh 4, 9747 AG Groningen, birdie@chem.rug.nl, Phone: +31 50 3634510 (Fax: N/A); Cherie R. Kagan, IBM T. J. Watson Research Center, P.O. Box 218, Route 134, Yorktown Heights, NY 10598, cheriek@us.ibm.com, Phone: 914-945-3003 (Fax: 914-945-2141)

### **Materials and Processing for MEMs Technology (4-6 oral sessions)**

Craig C. Henderson, Sandia National Labs MS9401, P.O. Box 969, Livermore, CA 94551, cchende@sandia.gov, Phone: 925-294-3628 (Fax: 925-294-3870)

### **Molecular Recognition using Polymeric Materials (3-4 sessions)**

S Thayumanavan, Department of Chemistry, Tulane University, 6400 Freret Street, New Orleans, LA 70118, thai@tulane.edu, Phone: 504-862-3586 (Fax: N/A); Vincent Rotello, Department of Chemistry, University of Massachusetts Amherst, Amherst, MA 01003, rotello@chem.umass.edu, Phone: 413-545-2058 (Fax: N/A)

### **Branching in Polyolefins(4 sessions)**

P. Arjunan, Baytown Polymers Center, Exxon Chemical Co, 5200 Baytown Drive, Baytown, TX 77522, pal.arjunan@exxonmobil.com, Phone: 281-834-1533 (Fax: N/A); J.E. McGrath, Department of Chemistry and Chemical Engineering, Virginia Polytechnic Institute and State University, Virginia Polytechnic Institute and State University, Blacksburg, VA 24061-0344, jmcgrath@vt.edu, Phone: 540-231-5976 (Fax: N/A)

### **Foundations of Polymer Science, as Exemplified by Paul J. Flory's Contributions**

J. E. Mark, Department of Chemistry, University of Cincinnati, Cincinnati, OH 45221, markje@email.uc.edu, Phone: 513-556-9292 (Fax 513-556-9239); Akihiro Abe, Department of Applied Chemistry, Tokyo Institute of Polytechnics, 1538 Iiyama, Atsugi 243-0297 Japan, aabe@chem.t-kougei.ac.jp, Phone: 81-46-242-9536 (Fax 81-46-242-9536)

### **General Papers (4 oral sessions)**

Dana Garcia, Analytical Research, Atofina Chemicals Inc, 900 First Avenue, King of Prussia, PA 19406, dana.garcia@atofina.com, Phone: 610-878-6731 (Fax: 610-878-6196)

### **Unilever Award (1 session)**

### **Industrial Sponsors (1 session)**

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# POLY

DIVISION OF POLYMER CHEMISTRY

## PRELIMINARY Program, 226th ACS National Meeting, New York, NY, September 7-11, 2003

C. N. Bowman, *Program Chair*

### OTHER SYMPOSIA OF INTEREST:

**Polymers at Inorganic Solid Surfaces: Synthesis and  
Characterization** (see *COLL*, Sun, Mon)

**ICI Student Award Symposium** (see *PMSE*, Tue)

**Nanostructured Liquid Crystal/Polymeric Materials,  
Applications and Devices** (see *PMSE*, Sun)

**Smart Nano-Assemblies** (see *PMSE*, Sun, Mon, Tue)

**BUSINESS MEETING:** Sat

### SUNDAY MORNING

Section A  
Unknown Site -- Unknown Room

#### **Foundations of Polymer Science. Paul Flory's Seminal Contributions, Present Status, and Projections**

D. Y. Yoon and C. M. Roland, *Presiding*

J. E. Mark, A. Abe, and L. Mandelkern, *Organizers*

**8:30** - Introductory Remarks.

**8:35 -1.** Paul Flory's contributions, and symposium overview. **J. E. Mark**

**9:00 -2.** Control of Polymer Structure using Transition Metal Catalysts. **R. H. Grubbs**

**9:25 -3.** Some aspects of polymer crystallization. **L. Mandelkern**

**9:50 -4.** Liquid Crystallinity and its Applications - The Intuitive Grasp of Physical Concepts Provided by the Flory Model. **A. Abe**

**10:15** - Intermission.

**10:25 -5.** Influence of chain configurations on polyolefin blend thermodynamics. **D. J. Lohse**

**10:50 -6.** Formation and Characterization of Networks: Implications for Structure-Property Relations of Elastomers. **B. E. Eichinger**

**11:15 -7.** Rubber elasticity experiments. **B. Erman**

**11:40 -8.** Interfacial rheology of complex, fluid interfaces. **G. G. Fuller**, E. Stancik, G. Gavranovic

Section B  
Unknown Site -- Unknown Room

## **Branching in Polyolefins**

### **Tutorials**

*Cosponsored with PMSE*

C. Friedrich and P. Arjunan, *Organizers, Presiding*

**8:30** - Introductory Remarks.

**8:35 -9.** Mathematical modelling of long chain branch formation in polyolefins made with single-site catalysts. **J. B. P. Soares**

**9:35 -10.** Control of polymer branching topology by late-transition-metal catalysis. **Z. Guan**

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**10:35** - Intermission.

**10:45 -11.** Characterization of long chain branching in polyolefins. **T. Sun**

**11:45 -12.** Determining the average chain length between branch points. **R. H. Colby**

Section C  
Unknown Site -- Unknown Room

## **Materials and Processing for MEMs Technology**

### **Tutorial Session**

C. C. Henderson, *Organizer, Presiding*

**8:30** - Introductory Remarks.

**8:40 -13.** Polymer micromachining and applications in sensors, microfluidics, and nanotechnology. **C. Liu**, J. Chen, J. Engel, J. Zou, X. (. Wang, Z. Fan, K. Ryu, K. Shaikh, D. Bullen

**9:20 -14.** Development of polymer MEMS structures for microfluidic devices and Lab-on-a-Chips. **C. H. Ahn**

**10:00** - Intermission.

**10:20 -15.** Applications of polymers in integrated microsystems. **K. Najafi**, Y. Gianchandani

**11:00 -16.** Micromachined polymers for MEMS applications. **M. Bachman**

**11:40 -17.** Parylene for MEMS applications. **Y. Tai**

Section D  
Unknown Site -- Unknown Room

## **Polymer Chemistry in Nanotechnology**

### **Polymers and Biology**

D. A. Shipp, *Presiding*

C. A. Guymon and D. L. Gin, *Organizers*

**9:00 -18.** Supramolecular polymers for organic and biomimetic nanotechnology. **S. I. Stupp**

**9:30 -19.** Bioinspired phospholipid polymer matrix with spontaneous rearrangement for cell invasion. **J. Watanabe**, K. Ishihara

**9:55 -20.** Well-defined polymer architectures for controlled assembly: Beta-sheet containing hybrid block copolymers. **J. M. Smeenk**, T. Huizing, H. G. Stunnenberg, J. C. M. van Hest

**10:20** - Intermission.

**10:35 -21.** Wrapping DNA double helix with plastics via self-assembly and photodecomposition of diazonium salt and diazoresin. **Y. Wei**, J. Zheng, H. Dong, S. Cheng, G. Yang, K. Qiu, W. Cao, Z. Li

**11:05 -22.** Synthesis and characterization of nano hydroxyapatite grafted with biodegradable and crosslinkable fumaric/adipic acid macromer. **E. Jabbari**, J. A. Gruetzmacher, L. Lu, B. L. Currier, M. J. Yaszemski

**11:30 -23.** Approach to study pH-responsive micro- and nanogels. **S. Kazakov**, M. Kaholek, B. Krasnikov, K. Levon

## **Memorial Symposium in Honor of Vivian T. Stannett**

### **Transport Properties of Polymers**

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## SUNDAY AFTERNOON

Section A  
Unknown Site -- Unknown Room

### **Foundations of Polymer Science. Paul Flory's Seminal Contributions, Present Status, and Projections**

R. L. Jernigan and R. A. Orwoll, *Presiding*  
J. E. Mark, A. Abe, and L. Mandelkern, *Organizers*

**1:30 -24.** Chain statistics. **W. L. Mattice**, C. A. Helfer

**1:55 -25.** Global optimization of potential energy of proteins. **H. A. Scheraga**

**2:20 -26.** Effects of base sequence and ligand binding on the large-scale properties of DNA. **W. K. Olson**

**2:45 -27.** Polysaccharides. **D. A. Brant**

**3:10** - Intermission.

**3:20 -28.** Supramolecular polymer science: Macromolecular synthesis through self-assembly. **S. I. Stupp**

**3:45 -29.** NMR and the microstructures, conformations, dynamics, and morphologies of polymers: Polypropylene and PET case studies. **A. E. Tonelli**

**4:10 -30.** Controlling crystal morphology in block copolymers. **R. A. Register**, Y. Loo, L. W. Lee

**4:35 -31.** Shape-persistent polyelectrolytes: facts and surprises. **G. Wegner**

**5:00 -32.** SANS studies of polymers in the condensed state, organic and supercritical solvents. **G. D. Wignall**

Section B  
Unknown Site -- Unknown Room

## **Branching in Polyolefins**

### **Tutorial/Synthesis**

*Cosponsored with PMSE*

P. Arjunan and C. Friedrich, *Organizers, Presiding*

**1:30** - Introductory Remarks.

**1:35 -33.** Architectural design of long chain branched polyolefins. **A. H. Dekmezian**, E. J. Markel, J. B. P. Soares, W. Weng, D. J. Lohse, C. A. Garcia-Franco, D. Bonchev, P. Arjunan, P. jiang, H. Fruitwala, T. Sun

**2:35 -34.** Branching in Polyethylenes via Versipol Catalysts and Macromonomers. J. Lahitte, F. Peruch, J. Kress, **P. J. Lutz**

**3:05 -35.** Control of polymer topology through transition-metal catalysis: synthesis of functional olefin copolymers using a chain walking catalyst. **Z. Guan**, G. Chen, S. X. Ma

**3:35** - Intermission.

**3:45 -36.** Segregated-star copolymers from a single-site polymerization catalyst. **T. Arai**, M. Nakajima, S. Hanasato, T. Ohtsu

**4:15 -37.** Structure and property of long chain branched isotactic polypropylene. **W. Weng**, W. Hu, A. H. Dekmezian

**4:45 -38.** Effects of long chain branching in polypropylene on shear-induced crystallization. **R. H. Somani**, L. Yang, B. S. Hsiao, P. Agarwal, A. Mehta, W. Weng

Section C  
Unknown Site -- Unknown Room

## **Materials and Processing for MEMs Technology**

## **Novel Polymer Structures, Materials, and Processing**

C. C. Henderson, *Organizer, Presiding*

**1:30 -39.** Polyimide Based Microcapacitor Force Arrays for Mechanical Actuation. **S. M. Bobbio**, S. W. Smith, J. M. Zara, S. M. Goodwin-Johannson, M. Govindarajan, C. Asokamani, S. P. Ramesh

**1:55 -40.** Polymer-based MEMS multi-modal sensory array. **J. Engel**, J. Chen, C. Liu

**2:20 -41.** Liquid crystalline polymer-based PCBMEMS. **D. Fries**, H. Broadbent, G. Steimle, A. M. Cardenas-Valencia

**2:45 -42.** Rapid fabrication of high aspect ratio plastic microstructures using microinjection molding techniques. **R. K. Trichur**, G. Beaucage, C. H. Ahn

**3:10** - Intermission.

**3:30 -43.** Investigation of fluid absorption in hybrid poly(dimethylsiloxane) (PDMS)/silicon biochips for long-term cell-incubation applications. **W. Chang**, R. Gomez, H. Li, D. Akin, R. Bashir

**3:55 -44.** Design of nanocomposite polymer coatings for MEMS applications. **D. Julthongpiput**, M. C. LeMieux, K. N. Bergman, V. Tsukruk

**4:20 -45.** Fast evaluation of next-generation lithographical patterns by small angle x-ray scattering. **T. Hu**

Section D  
Unknown Site -- Unknown Room

## **Polymer Chemistry in Nanotechnology**

### **Polymers and Nanoelectronics/Devices**

D. J. Dyer, *Presiding*

C. A. Guymon and D. L. Gin, *Organizers*

**1:15 -46.** Liquid crystal solutions of electronic polymers. **T. M. Swager**

**1:45 -47.** Nanostructuring of poly(paraphenyleneethynylene)s. **U. H. F. Bunz**, J. N. Wilson, B. Erdogan, Y. W. Wang

**2:10 -48.** Colorimetric polydiacetylene nano-sensors based on PAMAM dendrimer templates. A. Sarkar, P. S. Satoh, P. R. Dvornic, **S. N. Kaganove**

**2:35 -49.** Conjugated polymer nanowires. **S. A. Jenekhe**, Y. Zhu

**3:05** - Intermission.

**3:20 -50.** Inkjet Printing For Building Multilayer Devices. **P. Calvert**

**3:50 -51.** Plasma-Assisted Nanolithography with Organometallic Homo- and Block Copolymers. **G. J. Vancso**, S. Golze, M. A. Hempenius, I. Korczagin, H. Hillborg, R. G. H. Lammertink

**4:15 -52.** Thermoplastic elastomers with cross-polymerizable hard blocks. **R. A. Koevoets**, R. P. Sijbesma, P. C. M. M. Magusin, E. W. Meijer

**4:40 -53.** Polymer coatings of carbon nanotube sensors. **A. Star**, T. Han, V. Joshi, G. Gruner

## **Directed Evolution of Enzymes**

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## **Memorial Symposium in Honor of Vivian T. Stannett**

### **Polymerization and Polymer Modification**

*Cosponsored with PMSE*

## **Soft Colloids: Fundamental Research and Technological Applications**

### **Interacting Nanoparticles**

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## **SUNDAY EVENING**

Section A

Unknown Site -- Unknown Room

### **General Papers**

#### **Polymer Synthesis and Characterization**

D. Garcia, *Organizer*

**5:00 - 7:00**

**54.** Effects of polymerization temperature & the addition of ethyl acetate as a chain transfer agent on  $M_v$  of poly(dimethylamino)ethyl methacrylate. **A. Phillips**, H. Lujan-Upton

**55.** Synthesis of a novel ligand-functionalized dithioester for RAFT polymerization. G. Zhou, **I. Harruna**

**56.**  $^1\text{H}$  NMR study of a novel aromatic macrocyclic oligomer with an asymmetric structure. G. Dang, W. Yang, C. Chen, **Y. Wei**, W. Zhang, Z. Wu, F. Li

**57.** Synthesis and characterization of some functional poly (4-vinylpyridine) metal complexes. H. Li, Y. Xu, **J. Wang**, **L. Zhang**

**58.** Synthesis of novel dimethacrylate monomer containing zirconium-fluoride complex for dental composites. **X. Xu**, X. Ding, L. Ling, J. O. Burgess

- 59.** Synthesis and characterization of some macromolecule metal complexes. H. Li, Y. Xu, K. Sha, **J. Wang**
- 60.** Synthesis and characterization of Schiff base and its metal complexes. M. Sun, D. Wang, **J. Wang, Y. Li**
- 61.** Synthesis and properties of nano-size PA/PSi soap-free core-shell latex. K. Zhang, X. Zong, H. Li, K. Sha, **J. Wang, S. Yang**
- 62.** Synthesis of polystyrene in emulsion by atom transfer radical polymerization. K. Zhang, H. Zhang, K. Sha, S. Zhao, **J. Wang, S. Yang**
- 63.** The synthesis and characterization of part dithiocarboxyl beta-cyclodextrin and its metal complex. Y. Jiang, S. Li, H. Zhang, **J. Wang**
- 64.** Investigation on kinetic of inverse emulsion polymerization of acrylic salt. **J. Wang, F. Zhang, S. Yu**
- 65.** Investigation on thickening properties of super water-absorbent resin. **J. Wang, F. Zhang, S. Yu**
- 66.** Synthesis and characterization of tetracarboxyphenylporphyrin and its metal complexes. M. Sun, D. Wang, **J. Wang, Y. Li**
- 67.** Reversible addition fragmentation chain transfer polymerization of *n*-butyl acrylate. B. C. Benicewicz, **M. J. Nasrullah, R. Vajjula**
- 68.** Synthesis, thermal stability, and light emitting properties of hyperbranched polyarylenes with different aromatic and chromophoric moieties. M. Häußler, J. W. Y. Lam, H. Peng, R. Zheng, C. W. Law, **B. Z. Tang**
- 69.** Synthesis and properties of poly(1-alkynes) with stigmasterol pendants. L. M. Lai, J. W. Y. Lam, **B. Z. Tang**

- 70.** Synthesis and properties of hyperbranched polyarylenes with triphenylamine moiety. R. Zheng, J. W. Y. Lam, H. Peng, M. Häußler, C. W. Law, **B. Z. Tang**
- 71.** An ionic liquid solvent method to prepare bridged polysilsesquioxane aerogels. **Y. W. Chen-Yang**, C. Y. Yuan, S. Dai, Y. Wei
- 72.** Synthesis of Fe/Zn double metal cyanide (DMC) complex catalyzed ring-opening polymerization. **S. Chen**, X. W. Xia, N. P. Xu
- 73.** Acrylic acid plasma polymerization to modify the surface of expanded poly(tetrafluoroethylene). **Y. W. Chen-Yang**, **C. W. Chen**, S. C. Tseng, Y. Z. Wu, H. C. Yang, J. Y. Kau
- 74.** Biocatalytic routes for the synthesis of amino acids containing amphiphilic copolymers for drug delivery applications. **R. Tyagi**, R. Kumar, V. S. Parmar, L. A. Samuelson, A. C. Watterson, J. Kumar
- 75.** Catalytic chain transfer by a cobalt(II) porphyrin in radical polymerization of methacrylic acid in water: observation and significance of reversible radical termination. **Y. Li**, Z. Lu, B. B. Wayland
- 76.** Novel azlactone functional initiators for atom transfer radical polymerization and their use. **M. S. Wendland**, D. D. Fansler, K. M. Lewandowski, L. R. Krepski, S. B. Roscoe, S. M. Heilmann, B. N. Gaddam
- 77.** Preparation and properties of sulfonated poly(ether sulfone)s containing 9,9-bis(4-hydroxyphenyl)fluorene. **Y. Sakaguchi**, K. Kitamura, S. Takase
- 78.** Preparation and proton conductivities of sulfonated poly(ether ketone) copolymers. **Y. Sakaguchi**, K. Kitamura, S. Takase

**79.** Quartz crystal microbalance study of heterogeneous polymerization kinetics: styrene polymerization with  $[\text{Pd}(\text{CH}_3\text{CN})_4][\text{BF}_4]_2$  thin film. **S. H. Kim**, K. Wain

**80.** Synthesis and thermal crosslinking of cycloliner carbosilane polymers. **Z. Wu**, J. Papandrea, T. Apple, L. Interrante

**81.** Synthesis of amino functionalized amphiphilic copolymers as potential gene delivery carriers. **S. K. Sharma**, A. K. Sharma, R. Kumar, V. S. Parmar, L. A. Samuelson, J. Kumar, A. C. Watterson

**82.** Ti(III)-catalyzed radical ring opening of epoxides and living radical polymerization of styrene. **A. D. Asandei**, **I. W. Moran**

**83.** Novel organosoluble polyamide-imides with high glass transition temperature containing noncoplanar 2,2'-bis(trifluorodimethyl)-4,4'-biphenylene unit. D. Liaw, **W. Chen**

**84.** Polymerization of 4-chloro-1,3-benzenedithiol. J. E. Hanson, **E. Miklius**, J. Gripenburg

**85.** Synthesis of cyclopropane dendrimers. J. E. Hanson, **H. J. Han**

**86.** Synthesis of thermal and photo reversible cross-linked polycyclooctene as a shape memory thermoplastic. **G. S. Constable**, E. B. Coughlin, A. J. Lesser

**87.** Catalytic oxyfunctionalization of polyolefins. **N. K. Boen**, M. A. Hillmyer

**88.** Synthesis of polymers based on spiro-orthocarbonates. **H. Bulbul Sonmez**, F. Wudl

**89.** Determination of the propagation rate constant in the carbocationic polymerization of 2,4,6-trimethylstyrene. **P. De**, R. Faust, H. Schimmel, H. Mayr, M. Moreau, B. Charleux, J. Vairon

**90.** Molecular design and synthesis of a novel polycyclic (aryl ether ketone)s. W. Yang, G. Dang, C. Chen, **W. Zhang**, Z. Wu, F. Li

**91.** Controllable ring-opening polymerization of macrocyclic oligomer containing 1,1'-bi-2-naphthol moiety. X. Wang, N. Liu, H. Cao, X. Liu, **W. Zhang**

**92.** Preliminary research of chiral recognition base on chiral rigid macrocyclic oligomer containing 1,1'-bi-2-naphthyl moiety. H. Cao, T. Ben, X. Wang, N. Liu, X. Liu, X. Zhao, C. Chen, **W. Zhang**

**93.** Thermal properties of controllable cross-linking sulfur-containing alternating PEEKK copolymer. X. Zhao, X. Liu, H. Wang, Z. Gao, C. Chen, **W. Zhang**

**94.** Synthesis and NMR study of 4-nitro-3',5'-diphenyl-biphenyl and 4-amino-3',5'-diphenyl-biphenyl. Y. Yu, L. Chen, H. Mao, X. Lu, **W. Zhang**

**95.** Chiral separation of racemic BN-DIF trimer. X. Wang, N. Liu, H. Cao, X. Zhao, **W. Zhang**

**96.** UV/Vis spectroscopic monitoring of the chemical oxide process of acetylamino capped polyaniline pentamer. Y. Yu, L. Chen, H. Mao, X. Lu, **W. Zhang**

**97.** Isothermal melt crystallization kinetics of alternating sulfur-containing PEEKK copolymer. X. Zhao, H. Wang, X. Liu, Z. Gao, C. Chen, **W. Zhang**

**98.** Nonisothermal melt crystallization kinetics of alternating sulfur-containing PEEKK copolymer. X. Zhao, H. Wang, X. Liu, Z. Gao, C. Chen, **W. Zhang**

**99.** Monosubstituted polyacetylenes bearing a thiophene ring prepared with a Rh complex catalyst. **M. Tabata**, A. Miyasaka, M. Nakamura, Y. Mawatari

**100.** MultiPEGs : multifunctional polyethylene glycol derivatives. **G. M. Bonora**, S. Drioli, M. Ballico

**101.** New approach to dendronized triblock copolymers using ROMP and bis-dendritic chain-transfer agents. **K. Sill**, T. Emrick

**102.** Preparation and phase characteristics of polystyrene-b-poly(ethylene-r-butylene)-b- polystyrene triblock copolymer/ organoclay nanocomposites. C. H. Lee, S. T. Lim, **Y. K. Kwon**, H. J. Choi

**103.** Tetraphenyl porphyrin transition metal catalysts in the living radical polymerization of styrene. **A. D. Asandei**, **I. W. Moran**, C. Brückner

**104.** Synthesis and characterization of thermotropic liquid crystalline polyester containing bulky fluorinated side group. Y. Yang, X. Dai, L. Zhang, **Z. Jiang**

**105.** Synthesis and characterization of poly( oxyethylene)s containing alkylthioalkyl or alkylsulfonylalkyl side groups. **S. Cha**, **H. Ryu**, J. Lee

**106.** Carboxylic acid-terminated hyperbranched polybenzoxazole (PBO) and its star block copolymers. **J. Baek**, C. B. Lyons, M. C. Laufersweiler, **L. Tan**

**107.** Synthesis and characterization of novel poly(aryl ether nitrile)s. S. Zhao, K. Zhang, H. Zhou, C. Chen, **Z. Wu**

**108.** Synthesis of naphthalene polymer with low dielectric constant. **K. Tsuchiya**, Y. Shibasaki, M. Ueda

**109.** Synthesis of polyamide dendrimers from unprotected AB<sub>2</sub>-building block using thionyl chloride as a condensing agent. **I. Washio**, Y. Shibasaki, M. Ueda

- 110.** Multitopic tris(pyrazolyl)methane building blocks. **S. Bakbak**, U. H. F. Bunz, D. L. Reger
- 111.** Poly(ethylene-styrene) copolymer ionomers. **S. Shim**, R. A. Weiss
- 112.** Synthesis and characterization of hyperbranched polylysine. **T. L. Menz**, T. M. Chapman
- 113.** Synthesis and characterization of novel poly(aryl ether ketone)s. W. Xingdong, Z. Bing, W. Guibin, **J. Zhenhua**
- 114.** Synthesis and characterization of novel unsymmetrical hyperbranched poly(phenylene sulfides). J. E. Hanson, **A. Mellace**
- 115.** Synthesis and characterization of poly(pyridinium salt)s with organic counterions exhibiting light-emitting properties. H. Han, **P. K. Bhowmik**, J. J. Cebe, I. K. Nedeltchev
- 116.** Synthesis and radical-crossover polymerization of macrocycle with alkoxyamine-based dynamic covalent bonds. **H. Otsuka**, G. Yamaguchi, K. Aotani, Y. Higaki, A. Takahara
- 117.** Synthesis of novel fluoride-releasing monomer and composites for dental application. **L. Ling**, X. Xu, X. Ding, J. O. Burgess
- 118.** The synthesis of a novel methyl containing aromatic. S. Liang, J. Cao, C. Liu, **H. Na**
- 119.** Comparison of free radical polymerization and living polymerization for the preparation of exfoliated PS/clay nanocomposites. **G. J. Jiang Sr.**, Y. J. Yang, W. Yang, J. C. Lin
- 120.** Functionalization of poly(aryl ethers)(PAEs): Synthesis and properties of carboxylic acid substituted PAEs. R. Xianhua, W. Dong, Z. Shuang, **J. Zhenhua**, W. Zhongwen

**121.** Novel synthetic routes to aminofunctionalized polyisobutylene. **D. Machl**, M. J. Kunz, W. H. Binder

**122.** Aromatic polyimides based on 3,3',5,5'-tetrabromo-2,2-bis[4-(4-aminophenoxy)phenyl]propane and aromatic dianhydrides. **R. C. Tsiang**, K. Hung

**123.** Cyclopolymerization of partially fluorinated divinylloxymethane. **Y. Yang**, F. Mike, Y. Koike, Y. Okamoto

**124.** Kinetic evaluation of hyperbranched A<sub>2</sub> + B<sub>3</sub> polycondensations. **D. Schmaljohann**, B. I. Voit

**125.** Synthesis and characterization of an alternating copolymer of vinyl pentafluorobenzoate and di(hexafluoroisopropyl) fumarate. **W. Liu**, Y. Guo, Y. Koike, Y. Okamoto

**126.** Preparation and characteristics of core-shell rutile titania / wollastonite at room temperature. **N. Tao**, H. Xu, B. Hari, X. Ding, Y. Sun, Z. Wang

**127.** Synthesis of glycoconjugated polystyrene microgel via TEMPO-mediated living radical polymerization. **A. Narumi**, H. Kaga, T. Satoh, T. Kakuchi

**128.** Structural investigation of pH/temperature sensitive hydrogels with UAA as the crosslinker. **L. Tang**, Y. Dai, D. Qi

**129.** Fourier transform infrared photoacoustic spectra of transition metal complexes of meso-tetra-(4-n-myristyloxyphenyl)porphyrin. W. Liu, Y. Shi, **T. Shi**

**130.** Preparation and control of microporous structure in crystalline polymer thin films via self-assembly. **Y. Wang**, W. D. Yan II, J. S. Shen, C. F. Long

- 131.** Synthesis and properties of liquid crystal zinc porphyrin. L. Wei, **W. Ce**, S. Tongshun, Z. Wanjin, L. Lijuan
- 132.** Synthesis of liquid crystal of meso-tetra-(4-myristyloxyphenyl)porphyrin. W. Liu, Y. Shi, **T. Shi**
- 133.** Ferriprotoporphyrim complex-catalyzed polymerization of methyl methacrylate and acrylamide with relatively controlling molecular weights. **J. Kadokawa**, A. Kokubo, H. Tagaya
- 134.** Quaternary ammonium salts (QAS) grafted cellulose fiber with novel anti-bacterial functions. **X. Xing**, X. Wang, H. Zeng, X. Zhou, Z. Liu
- 135.** Design and application of photopatternable nanomaterials. **R. Tangirala**, E. Baer, A. Hiltner, C. Weder
- 136.** Electrical and spectroscopic property differences of poly(3-alkoxythiophenes) synthesized by variuos methods. **E. E. Sheina**, R. D. McCullough
- 137.** Excimers as molecular probes: deformation–induced color changes in photoluminescent polymer blends. **B. R. Crenshaw**, C. Weder
- 138.** Exploring methods to increase the tensile and tear strengths of 100% cotton print cloth. **N. T. Prevost**, N. (. D. Sachinvala, A. A. Lambert III, J. H. Campbell, S. Gallagher, J. M. Bland, O. D. Dailey Jr., K. Maskos, W. P. Niemczura
- 139.** Fabrication of 3-D porous scaffold using PLLA based poly(ester-urethane)/HAp composites. **I. Chin, K. Kim**
- 140.** Nonlinear optical active conjugated dendrimers. Z. Peng, **M. Lu**, J. Wang, Y. Pan

- 141.** Polarization properties of the eigenmodes in chiral binaphthyl optical waveguides. **Y. Kim**, M. Lee, V. Jain, W. Cao, M. M. Green, J. Goldhar, C. H. Lee, W. N. Herman
- 142.** Preparation of siloxane-phosphonate xerogels by freeze drying. **S. Gallagher**
- 143.** Hydrophobic surfaces generated by immobilization of poly(ethylene glycol). **E. Cataltarla**, T. J. McCarthy
- 144.** Polyelectrolyte charge in mixed solvents. **A. Popov**, D. A. Hoagland
- 145.** Study morphology transitions in a block copolymer thin film by pinning of domain growth and by post-solvent annealing. Y. Cao, **Y. Wang**, Y. Xing, S. Dong
- 146.** Elongation of diblock copolymer melt: elongation flow opto-rheometry and small angle X-ray scattering. **Y. K. Kwon**, J. P. Kang, M. Okamoto, T. Kotaka
- 147.** Theoretical studies of the structure of adsorbed particles on cylindrical surfaces. **C. Shew**, A. Hall, A. Hall
- 148.** Static light scattering study of the formation of partially hydrolyzed poly(acrylamide)/calcium(II) complexes. **J. Zhou**, **G. Sun**, Z. Han, G. Liao, R. Wu, Q. Zhang, F. Liu
- 149.** Effect of salts on the hydrolyzed polyacrylamide's conformational properties. **G. Sun**, **J. Zhou**, G. Liao, Z. Han, F. Liu
- 150.** Thermo-oxidative degradation of polypropylene by selective labeling and  $^{13}\text{C}$  NMR spectroscopy. **R. A. Assink**, D. K. Derzon, R. L. Clough, D. Mowery, R. Bernstein
- 151.**  $^1\text{H}$  NMR study of a novel aromatic polycyclic forcipate oligomer. G. Dang, W. Yang, C. Chen, **Y. Wei**, W. Zhang, Z. Wu, F. Li

**152.** Deformation study of melt-pressed ultrahigh molar mass polyethylene films. **C. Seoul**, I. Sics, B. Chu, B. S. Hsiao

**153.** Hexagonal to cubic phase transition in the D<sub>2</sub>O-induced reverse micellar solution of an amphiphilic block copolymer. **Y. K. Kwon**, D. H. Kim, J. H. Lim, J. P. Kang

**154.** Thermal relaxation of reaction-induced strain in poly(etherketones) synthesized in highly viscous polyphosphoric acid/P<sub>2</sub>O<sub>5</sub> as polymerization medium. **J. Baek**, G. E. Price, C. B. Lyons, L. Tan

**155.** On line visible spectroscopic study on the capping reaction of styrene cations with ditolyethylene. **P. De**, M. V. Munavalli, R. Faust

**156.** Temperature-dependent self-organization of phosphazene block copolymers. **Y. Chang**, **E. S. Powell**, H. R. Allcock, S. M. Park, C. Kim

**157.** Twin-screw reactive extrusion of Nylon6/montmorillonite nanocomposites fiber-grade chips. M. Zhao, X. Pan, Y. Wang, **Y. Wang**

**158.** Adsorption and desorption properties of DMAEMA-grafted PE and ePTFE films in response to pH and temperature. **K. Yamada**, C. Takagi, M. Hirata

**159.** High crystalline polyethylene by space-confined polymerization. **S. Chan**, C. Ting, Y. Lin, T. Su

**160.** The influence of Zn dopant on the structural transformation of gel-driven nanosized titania powders. **H. Xu**, N. Tao, Y. Jiang, B. Hari, Y. Sun, Z. Wang

**161.** Temperature sensitive lasing in polymeric lyotropic cholesteric liquid crystals. P. V. Shibaev, **K. Tang**, A. Z. Genack, V. I. Kopp, **M. M. Green**

**162.** Synthesis and characterization of nanosized anatase and rutile titania with narrow size distribution in sol-gel process. **H. Xu**, N. Tao, Y. Jiang, B. Hari, Y. Sun, Z. Wang

**163.** Electrostatic self-assembly multilayers from hyperbranched polyelectrolyte pair. **T. Qiu, L. Tang**, H. You, X. Tuo, **D. Liu**

**164.** High-purity nano silica obtained from rice husk. **N. Tao**, H. Xu, Y. Jiang, Y. Sun, Y. Tian, Z. Wang

**165.** Adsorption of polyelectrolytes to surface-modified Nylon films. **M. Herrera-Alonso**, T. J. McCarthy

**166.** Self-crosslinkable polyurethane-urea with reactive functional group. T. Zhang, K. Xi, **X. Yu**

**167.** Synthesis and DSC analysis of PEEK-PEDEK block copolymer. H. Wang, X. Zhao, X. Liu, L. Chen, J. Ma, C. Chen, **Z. Wu**, Y. Zhou

**168.** Synthesis and isothermal crystallization kinetics of PEEK-PEDEK alternative copolymer. H. Wang, X. Zhao, X. Liu, L. Chen, J. Ma, C. Chen, **Z. Wu**, Y. Zhou

**169.** Synthesis and nonisothermal crystallization kinetics of PEEK-PEDEK alternative copolymer. H. Wang, X. Zhao, X. Liu, L. Chen, J. Ma, C. Chen, **Z. Wu**, Y. Zhou

**170.** Kinetics of isothermal crystallization of PEEK-PEDEK block copolymer. H. Wang, X. Zhao, X. Liu, L. Chen, J. Ma, C. Chen, **Z. Wu**, Y. Zhou

**171.** Nonisothermal crystallization kinetics of PEEK-PEDEK block copolymers. H. Wang, X. Zhao, X. Liu, L. Chen, J. Ma, C. Chen, **Z. Wu**, Y. Zhou

**172.** Kevlar degradation studies. **R. Bernstein**, D. K. Derzon, K. T. Gillen

## MONDAY MORNING

Section A  
Unknown Site -- Unknown Room

### Biocatalysis in Polymer Science

#### Tutorial Lectures

*Cosponsored with BIOL*

R. A. Gross, *Organizer, Presiding*

H. N. Cheng, *Organizer*

**8:30** - Introductory Remarks.

**8:35 -173.** The role of molecular farming in industrial biocatalysis. **B. L. Marrs**

**9:05 -174.** Protein engineering for enzymatic polyester hydrolysis. **J. T. Kellis Jr.**

**9:35 -175.** Structure-based virtual high throughput screening for enzyme optimization. **B. I. Dahiyat**

**10:05** - Intermission.

**10:15 -176.** PHAs: A disruptive technology for the plastics/chemicals industry. **J. Barber**

**10:45 -177.** Protein engineering strategies for the synthesis of glycopolymer architectures. **K. L. Kiick**

**11:15 -178.** BASF viewpoint on the role of enzyme technology in polymer chemistry. **T. Weber, B. Hauer**

**11:35 -179.** Novel synthesis of monomers and polymers with enzymes. **B. Hauer**

## **Branching in Polyolefins**

### **Structure-Properties**

*Cosponsored with PMSE*

C. Friedrich and P. Arjunan, *Organizers, Presiding*

**8:30** - Introductory Remarks.

**8:35 -180.** New process for preparing long chain branched polyolefin (PE, PP, EP, etc.) involving styrenic diene molecules. **T. C. M. Chung**

**9:05 -181.** New proposal on the branching mechanism of Phillips CrOx/SiO<sub>2</sub> catalyst for ethylene homo-polymerization. **M. Terano**, B. Liu, Y. Fang

**9:35 -182.** Linear or branched polyethylenes from supported (aryloxy) titanium (IV) cyclopentadienyl complexes. **R. M. Kasi**, E. B. Coughlin

**10:05** - Intermission.

**10:15 -183.** Polymerization and characterization of long-chain branched polyethylene via metallocene catalysis. J. Seppälä, **E. Kokko**, A. Malmberg, B. Löfgren

**10:45 -184.** Long-chain branching and elongational properties of polyethylene and polypropylene melts. **H. Muenstedt**, C. Gabriel, **D. Auhl**

**11:15 -185.** A Monte Carlo model to describe the detailed chain topology of branched polyethylene made with two single-site catalysts. **L. C. Simon**, J. B. P. Soares

**11:45 -186.** Classification of polymer topologies using the  $\delta$  vs  $G^*$  plot. **D. H. Schulze**, B. Kappler, T. Roths, C. Friedrich

## **Materials and Processing for MEMs Technology**

### **Polymers in Microfluidic Applications**

C. C. Henderson, *Organizer, Presiding*

**8:30 -187.** Poly(vinylidene fluoroethylene-trifluoroethylene) based high performance electroactive polymers for BioMEMs. **F. Xia**, T. Xu, C. Huang, S. Tadigadapa, Q. Zhang

**9:10 -188.** Epoxy Casting for Microfluidic Systems. **P. Sethu**, C. H. Mastrangelo

**9:35 -189.** Augmenting the Capabilities of Polymeric Microanalytical Devices. **R. L. McCarley**, S. A. Soper, A. F. Smith, Y. Wang, S. Wei, B. Vaidya, M. Galloway

**10:00** - Intermission.

**10:20 -190.** Micromachined polymeric microvasculatures: A three-dimensional microfluidic system using inclined SU-8 structures and laser machining. **Y. Yoon**, R. Powers, Y. Choi, C. Courcimault, M. G. Allen

**10:45 -191.** Polymer MEMS for micro fluid delivery systems. **E. F. Meng**, Y. Tai

**11:10 -192.** Thermally responsive hydrogel microvalves. **C. Folk**, C. Ho, X. Chen, F. Wudl

**11:35 -193.** High-throughput milli-fluidic platform for polymer formulations. **K. L. Beers**, J. T. Cabral, H. J. Walls, A. Karim, E. J. Amis, C. Harrison

**12:00** - Concluding Remarks.

## **Polymer Chemistry in Nanotechnology**

### **Block Copolymers**

C. A. Guymon, *Organizer, Presiding*

D. L. Gin, *Organizer*

**8:15 -194.** Structure-property relationships in hierarchical ordered block copolymer/particle mixtures. M. R. Bockstaller, E. Chan, **E. L. Thomas**

**8:45 -195.** Nanopatterning self-assembled monolayers using block copolymer lithography. **A. W. Harant**, C. N. Bowman

**9:10 -196.** Synthesis of block copolymers containing a nanoparticle and a single linear coil segment using controlled/living radical polymerization. J. Pyun, Y. Kim, C. W. Frank, C. Gonzales, **C. Hawker**, J. M. J. Fréchet

**9:35 -197.** Nano- and Micro-world of Block Copolymers - From Self-assembly to Nanomechanical Devices. **G. Liu**

**10:05** - Intermission.

**10:20 -198.** Phase behavior and applications of solution self-assembly in linear-dendritic block copolymers. **P. T. Hammond**

**10:50 -199.** Order in block copolymers through the urea hydrogen bonding motif. **R. P. Sijbesma**, R. M. Versteegen, R. Koevoets, E. W. Meijer

**11:20 -200.** Synthesis and characterization of a cage-like structure of nanoscopic dimensions. **J. L. Turner**, H. Huang, E. E. Remsen, K. L. Wooley

**11:45 -201.** Block copolymer encapsulated gold and cobalt nanoclusters. **L. A. Miinea**, L. B. Sessions, K. D. Ericson, D. Glueck, R. B. Grubbs

Section E  
Unknown Site -- Unknown Room

## **Unilever Award Symposium**

### **Honoring Christopher Bielawski**

*Cosponsored with PMSE*

R. H. Grubbs, *Presiding*

W. T. Ford, *Organizer*

**8:30 -202.** Nanobiomaterials for regenerative medicine. **S. I. Stupp**

**9:00 -203.** Cell surface engineering with non-canonical amino acids. A. J. Link, **D. A. Tirrell**

**9:30 -204.** Helical oligomers and folding driven polymerization. **J. S. Moore**, D. Zhao

**10:00 -205.** An atom economical approach to dendrimers using click chemistry. **C. J. Hawker**

**10:30 -206.** Nanoporous plastics from ordered block copolymer precursors. **M. A. Hillmyer**

**11:00 -207.** Catalysis in controlled/living radical polymerization. **K. Matyjaszewski**

**11:30 -** Award Presentation: K. P. Ananth, Unilever, Inc.

**11:35 -208.** Tailoring Polymer Synthesis with Designer Ru Catalysts. **C. W. Bielawski**, R. H. Grubbs

## **Soft Colloids: Fundamental Research and Technological Applications**

### **Nanoparticle Arrays and Assemblies**

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## **MONDAY AFTERNOON**

Section A

Unknown Site -- Unknown Room

### **Biocatalysis in Polymer Science**

#### **Enzyme Discovery and Immobilization**

*Cosponsored with BIOL*

H. N. Cheng, *Organizer, Presiding*

R. A. Gross, *Organizer*

**1:30 -209.** Biotechnology: Key to sustainable technology for the 21st century as illustrated in three case studies. **L. Henderson**

**2:00 -210.** Engineering biocatalysts for polymer modification. **J. Minshull**, J. Ness, T. Cox, S. Govindarajan, C. Gustafsson

**2:30 -211.** Elucidation of a novel nitrile hydrolyzing activity found in a *Pseudomonas fluorescens* genomic library. **C. B. Conboy**, K. Li, P. Swanson, J. Allen, P. McGovern, T. Thomas, S. Resnick, J. Stankowski, M. V. Subramanian

**3:00** - Intermission.

**3:10 -212.** Genetic basis of *E. coli* O128 polysaccharide biosynthesis gene cluster. J. Shao, M. Li, Q. Jia, Y. Wen, **P. G. Wang**

**3:40 -213.** Smart assembly of hybrid biopolymers: New enzyme immobilization techniques. **J. C. M. van Hest**, E. E. Akpa, N. R. Cameron, A. Duréault, T. Michon, N. Carette, J. Thies, S. Pierre, R. Weberskirch, A. Galan

**4:10 -214.** Amphiphilic surface grafts for enzyme binding on ultra-specific surface fibers. **Y. Hsieh**, Y. Wang, H. Chen

Section B  
Unknown Site -- Unknown Room

## **Branching in Polyolefins**

### **Characterization**

*Cosponsored with PMSE*

P. Arjunan and C. Friedrich, *Organizers, Presiding*

**1:30** - Introductory Remarks.

**1:35 -215.** Identifying branching structure in metallocene catalyzed polyethylene using rheological techniques. **D. G. Baird**, P. J.

Doerpinghaus

**2:05 -216.** New method to detect very low levels of long chain branching in high density polyethylene. **C. Bailly**, V. Stephenne, D. Daoust, P. Godard, E. Van Ruymbeke, R. Keunings

**2:35 -217.** Elastic inhomogeneities in branched polymer melts as revealed by neutron scattering. **D. J. Read**, T. C. B. McLeish, M. Heinrich, W. Pyckhout-Hintzen, J. Allgaier, D. Richter

**3:05 -218.** From linear viscoelasticity to the architecture of highly branched polyethylene. **C. Carrot**, J. C. Majesté, P. Stanescu

**3:35** - Intermission.

**3:45 -219.** Influence of long-chain branching on the entrance flow of polyolefin melts. **M. Schwetz**, H. Muenstedt, A. Merten, M. Heindl

**4:15 -220.** Shear modification: An explanation based on the pom-pom polymer. **S. Bourrigaud**, G. Marin II, A. Poitou

**4:45 -221.** Topology in polyolefines as seen by solid-state nmr and ft-rheology. **M. Wilhelm**, M. A. Pollard, R. Graf, K. Klimke, H. W. Spiess, O. Sperber, C. Piel, W. Kaminsky

Section C  
Unknown Site -- Unknown Room

## **Organic and Polymer Materials for Plastic and Molecular Electronics**

### **Molecular Electronics**

C. Kagan, *Organizer, Presiding*  
Z. Bao and B. de Boer, *Organizers*

**1:30 -222.** Self-assembled molecular rectifying diodes on silicon: Synthesis, experimental and theoretical charge transport studies. **D. Vuillaume**, S. Lenfant, C. Krzeminski, G. Allan, C. Delerue

**2:10 -223.** Structural and electrical characterization of organic monolayers on surfaces. **E. Garfunkel**, W. Jiang, M. M. Frank, Y. J. Chabal, N. Zhitenev, Z. Bao, B. de Boer, O. Celik

**2:50 -224.** Functional self-assemblies with nanoscale ordering for molecular electronics and biomaterials. **H. Ma**, S. Kang, M. Kim, K. Kim, M. T. Zin, M. H. Zareie, M. Sarikaya, **A. K. - Jen**

**3:30 -225.** Conjugated diblock oligomers for molecular electronics. **L. Yu**

**4:10 -226.** Molecular devices. **S. Datta**

**4:50 -227.** Molecular Muscles Based on Mechanically Interlocked Molecules. **H. Tseng**, S. A. Vignon, J. F. Stoddart

Section D  
Unknown Site -- Unknown Room

## **Polymer Chemistry in Nanotechnology**

### **Polymers and Liquid Crystals**

D. L. Gin, *Organizer, Presiding*

C. A. Guymon, *Organizer*

**1:30 -228.** Self-assembling dendritic nanostructures. **V. Percec**

**2:00 -229.** Nanostructured gels via photopolymerization of lyotropic liquid crystalline templates. C. L. Lester, **C. A. Guymon**

**2:30 -230.** Ordered structures formed by ABC triblock copolymers in selective solvent: Effect of polymer architecture and solvent conditions as predicted by mean-field theory. **P. Alexandridis**, K. Yong, K. Chain, N. P. Shusharina, S. Balijepalli, H. J. M. Gruenbauer

**2:55 -231.** Novel properties and applications for polymerized lyotropic liquid crystal assemblies. **D. L. Gin**, W. Gu, Y. Xu, M. Zhou, T. J. Kidd

**3:25** - Intermission.

**3:40 -232.** Nanostructured anisotropic ion-conductive polymers. **T. Kato**, K. Kishimoto, M. Yoshio, K. Hoshino, T. Suzawa, T. Mukai, H. Ohno

**4:10 -233.** Polymer/LC nanoscale Two-phase Composites. **T. J. Bunning**, L. V. Natarajan, V. P. Tondiglia, D. W. Tomlin, R. L. Sutherland

**4:40 -234.** Long range ordering of block copolymer microstructures in thin films. **D. H. Adamson**, D. E. Angelescu, J. Waller, V. Pelletier, M. L. Trawick, R. A. Register, P. M. Chaikin

## **Soft Colloids: Fundamental Research and Technological Applications**

## **Technologies Based on Soft Colloids**

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### **TUESDAY MORNING**

Section A

Unknown Site -- Unknown Room

#### **Biocatalysis in Polymer Science**

##### **New Biocatalytic Applications**

*Cosponsored with BIOL*

J. Minshull, *Presiding*

R. A. Gross and H. N. Cheng, *Organizers*

**8:30 -235.** Enzymatic conversion of simple raw materials into therapeutically valuable products. **J. S. Dordick**, L. Santhanam, M. G. Hogg, L. S. Ferreira, D. Kim

**9:00 -236.** Enzymatically synthesized conducting polyaniline nanocomposites: A solid state NMR study. M. Thiyagarajan, L. A. Samuelson, J. Kumar, **A. L. Cholli**

**9:30 -237.** Biocatalysis of siloxane bonds. A. R. Bassindale, **K. F. Brandstadt**, T. H. Lane, P. G. Taylor

**10:00** - Intermission.

**10:10 -238.** 3-Hydroxypropionic acid: A building block for bio-based polymers. **R. Gokarn**, O. Selifenova, H. Jessen, S. Gort, H. Liao, J. Anderson, S. Gwegorryn, D. Cameron

**10:40 -239.** Kymene® G3-X wet-strength resin: enzymatic treatment during microbial dehalogenation. **R. J. Riehle**

**11:10 -240.** High-affinity integration of biominerals with functional polymers inspired by extracellular matrix proteins of natural bone. **J. Song**, C. R. Bertozzi

Section B  
Unknown Site -- Unknown Room

## General Papers

### Polymer Synthesis

J. E. Quezada-Martich, *Presiding*

D. Garcia, *Organizer*

**8:30 -241.** Disulfonated polybenzoxazoles for proton exchange membrane fuel cell applications. **B. Einsla**, C. N. Tchatchoua, Y. J. Kim, J. E. McGrath

**8:50 -242.** Influence of polar groups in sulfonated poly(arylene ether) copolymers as proton exchange membranes. **W. L. Harrison**, M. J. Sumner, M. Hill, Y. S. Kim, M. Hickner, C. N. Tchatchoua, J. S. Riffle, J. E. McGrath, L. Dong

**9:10 -243.** Synthesis and characterization of poly(arylene ether sulfone) copolymers with sulfonimide side groups. C. G. Cho, Y. Kim, **M. Hill**, J. E. McGrath

**9:30 -244.** Photocrosslinkable acrylonitrile terpolymers as carbon fiber precursors. **T. Mukundan**, V. A. Bhanu, K. B. Wiles, M. Bortner, D. G. Baird, J. E. McGrath

**9:50 -245.** Synthesis and isolation of two homologous series of diheptyloxy-substituted oligo(p-phenylene vinylenes). **R. M. Peetz**, E. Thorn-Csanyi

**10:10 -246.** Homogeneous synthesis of fluorinated and nonfluorinated alternating poly(olefin sulfone)s in compressed solutions of sulfur dioxide in carbon dioxide. **D. A. Schorzman**, J. M. DeSimone

**10:30 -247.** Sulfonation of 1,3-cyclohexadiene polymers. **K. Hong**, M. Liu, J. W. Mays

**10:50 -248.** Synthesis and ROMP of modular norbornene derivatives for the preparation of polymers with cationic amphiphilic repeating units. **M. F. Ilker**, H. Schule, E. B. Coughlin

**11:10 -249.** Synthesis of poly(isobutylene-b-tert.-butyl vinyl ether) and poly(isobutylene-b-tert.-butyldimethylsilyl vinyl ether) diblock copolymers. **Y. Zhou**, R. Faust

**11:30 -250.** Synthesis and characterization of ionic, thermotropic liquid- crystalline polyesters. **P. K. Bhowmik**, H. Han, J. J. Cebe, I. K. Nedeltchev

**11:50 -251.** Synthesis and characterization of a diethylene glycol monobutyl ether-capped polysiloxane-polyethylene glycol block copolymer. **J. E. Quezada-Martich**, Q. Fan, S. C. Ugbohue

**12:10 -252.** Synthesis and polymerization of the bromoacrylated plant oil triglycerides to rigid, flame retarded polymers. S. H. Kusefoglou, **T. Eren**

Section C  
Unknown Site -- Unknown Room

## **Organic and Polymer Materials for Plastic and Molecular Electronics**

### **Organic Electronics**

B. de Boer, *Organizer, Presiding*

Z. Bao and C. Kagan, *Organizers*

**8:30 -253.** Dry Printing of Electronic Devices. **G. B. Blanchet**

**9:10 -254.** Fabrication of arrays of polymeric transistors using microfluidics. **M. L. Chabinyc**, K. E. Paul, W. S. Wong, R. A. Street

**9:30 -255.** Micro-contact printing and the electrochemical cross-linking approach to conjugated polymer ultrathin films and devices. **R. Advincula**, C. Xia, K. Onishi, A. Baba, W. Knoll

**9:50** - Intermission.

**10:10 -256.** Non-invasive contact printing and lamination schemes for organic device fabrication. **Y. -. Loo**, J. A. Rogers, J. W. P. Hsu, R. L. Willett, Z. Bao, K. W. Baldwin, H. E. Katz, A. Dodabalapur, T. Someya, P. K. -. Ho, K. W. West

**10:50 -257.** Use of surface-initiated ROMP in the synthesis of polymer dielectric layers for organic thin film transistors. **I. M. Rutenberg**, O. A. Scherman, Z. Bao, R. H. Grubbs, W. Jiang, E. Garfunkel

**11:10 -258.** Engineering electric fields at conjugated polymer interfaces. **M. C. Lonergan**, C. Cheng, S. Boettcher, L. Gao, D. H. Johnston

**11:30 -259.** Fabricating micropatterns of conducting polymers using microcontact printing. Z. Liang, K. Li, **Q. Wang**

Section D  
Unknown Site -- Unknown Room

## **Polymer Chemistry in Nanotechnology**

### **Polymers and Surfaces**

V. M. Rotello, *Presiding*

D. L. Gin and C. A. Guymon, *Organizers*

**8:15 -260.** Patterned surfaces through polymer brushes. **C. K. Ober**, W. Senaratne, L. Andruzzi

**8:45 -261.** Responsive polymer substrates by nanoengineering with surface initiated polymerization. **D. J. Dyer**, J. Feng

**9:10 -262.** Fluorine containing polymers and the emerging nanotechnology. **E. J. onah**

**9:35 -263.** Biocatalytically Synthesized Conducting Helical Polyaniline Nanocomposites. M. Thiyagarajan, L. A. Samuelson, J. Kumar, **A. L. Cholli**

**10:00** - Intermission.

**10:15 -264.** Photo-embossing as a tool for complex surface relief structures. C. DeWitz, **D. J. Broer**

**10:45 -265.** Linear poly(pentafluorostyrene) and poly(ethylene glycol) based amphiphilic networks: Novel nanoscopically-resolved self-assemblies with potential anti-fouling applications. **J. Johnson**, C. S. Gudipati, K. L. Wooley

**11:10 -266.** Effects of molecular architecture, w-functional groups and hydrogen-bonding on the nanoscopic features of highly-ordered self-assemblies. **H. Ma**, K. Kim, H. Li, J. S. Horwitz, M. T. Zin, M. H. Zareie, M. Sarikaya, **A. K. -. Y. Jen**

**11:35 -267.** Synthesis of poly(styrene) grafted to poly(isocyanate)s. **G. S. Long**, M. E. Smith, J. Small, J. Mercer-Smith

## **Soft Colloids: Fundamental Research and Technological Applications**

### **Structure of Soft Colloids and their Interfacial Behavior**

*Cosponsored with COLL*

## **TUESDAY AFTERNOON**

Section A

Unknown Site -- Unknown Room

### **Biocatalysis in Polymer Science**

#### **Synthesis and Characterization**

*Cosponsored with BIOL*

J. S. Dordick, *Presiding*

R. A. Gross and H. N. Cheng, *Organizers*

**1:30 -268.** Imaging the distribution of immobilized enzymes using infrared micro-spectroscopy. **L. Miller**, Y. Mei, W. Gao, R. A. Gross

**2:00 -269.** In situ atomic force microscopic observations of enzymatic degradation behavior for biodegradable poly[(R)-3-hydroxybutyric acid] and its copolymers. **H. Abe**, Y. Kikkawa, T. Hirota, Y. Doi

**2:30 -270.** Lipase-catalyzed esterification of polyacrylic acid with extraordinary selectivity. **B. Sahoo**, W. Gao, R. A. Gross

**3:00** - Intermission.

**3:10 -271.** Preparation, properties, and utilization of bio-based biodegradable Nodax<sup>TM</sup> PHA copolymers. **I. Noda**, E. B. Bond, P. R. Green, D. H. Melik, K. Narasimhan, L. A. Schechtman, M. M. Satkowski

**3:40 -272.** Sorbitol containing polyesters by direct lipase-catalyzed polycondensations: synthesis and characterization. **A. Kulshrestha**, A. Kumar, W. Gao, R. A. Gross

**4:10 -273.** Nondestructive regioselective modification of laccase by linear-dendritic copolymers. Enhanced oxidation of polyaromatic

hydrocarbons in water. **I. Gitsov**, K. R. Lambrych, J. Nakas, P. Lu, J. Ryan, S. Omori, S. W. Tanenbaum

Section B  
Unknown Site -- Unknown Room

## General Papers

### Polymer Synthesis

J. K. Funk, *Presiding*

D. Garcia, *Organizer*

**1:30 -274.** Mild one-step core-shell micelles formation by living ROMP. **T. Choi**, R. H. Grubbs

**1:50 -275.** Synthesis of covalently bonded organic-inorganic hybrid materials. **Z. Peng**, M. Lu, B. Xu, L. Xu, Y. Wei, B. Xie, N. Katabathini

**2:10 -276.** Methyl methacrylate polymerization by dimethyl zirconocenes and  $B(C_6F_5)_3$  I. Ratio effect. **J. Wang**, G. Odian, H. Haubenstock

**2:30 -277.** Methyl methacrylate polymerization by dimethyl zirconocenes and  $B(C_6F_5)_3$  II. Kinetics and living characteristics. **J. Wang**, H. Haubenstock, G. Odian

**2:50 -278.** New nitroxides for living/controlled radical polymerization of vinyl monomers. Relation between nitroxide structure and kinetic parameters. J. Catala, **E. Drockenmuller**

**3:10 -279.** Synthesis and characterization of zwitterionic thermosensitive microgels. **S. Nayak**, L. A. Lyon

**3:30 -280.** Polymerization of functionalized norbornenes: trends and reactivity ratios. **J. K. Funk**, C. Andes, A. Sen

**3:50 -281.** Reverse iodine transfer polymerization (RITP) : use of elemental iodine as a versatile control agent in living radical

polymerization. **P. Lacroix-Desmazes**, R. Severac, B. Otazaghine, B. Boutevin

**4:10 -282.** Synthesis of vinyl-functionalized polyphosphate and preparation of the biodegradable hydrogel with 2-methacryloyloxyethyl phosphorylcholine. **Y. Iwasaki**, C. Nakagawa, S. Komatsu, K. Akiyoshi, K. Ishihara

**4:30 -283.** Thermotropic liquid-crystalline main-chain viologen polymers: homopolymer of 4,4'-bipyridyl with the tosylate of 2,5-hexanediol and its copolymers with the ditosylate of 1,10-decanediol. W. Xu, **P. K. Bhowmik**, J. J. Cebe, H. Han

**4:50 -284.** Super  $\pi$ -conjugated helical polyacetylenes as nano color columnars prepared with Rh complex catalysts. **M. Tabata**, Y. Mawatari, A. Miyasaka, T. Sone, Y. Sadahiro

**5:10 -285.** Super  $\pi$ -conjugated helical polyacetylenes having a diphenylacetylene moiety as nano color columnar prepared with Rh complex catalyst. **Y. Mawatari**, Y. Sadahiro, M. Tabata

Section C  
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## **Organic and Polymer Materials for Plastic and Molecular Electronics**

### **Organic Electronics**

Z. Bao, *Organizer, Presiding*

B. de Boer and C. Kagan, *Organizers*

**1:30 -286.** Optimal Grain Structures for Printed Organic Semiconductor Devices. **H. E. Katz**, C. Kloc, Z. Bao

**2:10 -287.** Diels-Alder adducts of Pentacene as precursors for solution processed fabrication of organic thin film transistors. **A. Afzali**, C. D. Dimitrakopoulos, C. Kagan, T. O. Graham

**2:50** - Intermission.

**3:10 -288.** Towards printed organic electronics: Semiconductor materials design for plastic thin film transistors. **B. S. Ong**

**3:50 -289.** Conjugated ladder polymers for thin film transistors. **S. A. Jenekhe**, A. Babel

**4:30 -290.** Liquid crystal semiconducting polymers and their application in organic field effect transistors. **I. McCulloch**, C. Bailey, M. Giles, M. Heeney, D. Sparrowe, M. Shkunov, S. Tierney

Section D  
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## **Polymer Chemistry in Nanotechnology**

### **Polymer Nanocomposites**

U. H. F. Bunz, *Presiding*

D. L. Gin and C. A. Guymon, *Organizers*

**1:15 -291.** Polymer nanocomposites : Interplay between thermodynamics and kinetics. D. Shah, **E. P. Giannelis**, H. Chen

**1:45 -292.** Glass transition behavior of alumina/polymethylmethacrylate (PMMA) nanocomposites. **B. J. Ash**, L. S. Schadler, R. W. Siegel

**2:10 -293.** UV curable montmorillonite-acrylate nanocomposites. **F. M. Uhl**, D. C. Webster, B. R. Hinderliter, P. Davuluri, S. G. Croll, S. C. Wong

**2:35 -294.** Block copolymer-layered silicate nanocomposites. **D. A. Shipp**, H. Zhao, B. P. Farrell

**3:00** - Intermission.

**3:15 -295.** Recognition-mediated assembly of nanostructures using polymeric systems. **V. M. Rotello**

**3:40 -296.** Self-assembly of organinc-inorganic hybrid copolymers. **G. Cardoen**, E. Burgaz, S. P. Gido, E. B. Coughlin

**4:05 -297.** Controlling permeation through lanthanum-polyimide nanocomposite membranes. J. D. Warner, **D. E. Kranbuehl**, D. W. Thompson, E. Espuche, L. David

**4:30 -298.** Polysiloxane-nanosilver pools: A versatile new approach to functionalized silver organosols. **B. P. S. Chauhan**, R. Sardar, C. Oluwasuen

## **TUESDAY EVENING**

Section A  
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### **Polymeric Nanofibers**

H. Fong, *Presiding*

D. H. Reneker and H. Fong, *Organizers*

**5:30 - 7:30**

**299.** Carbon fibers from electrospun phenolic resins and poly(acrylonitrile) and their adsorption properties. **D. L. Gee**, G. E. Wnek, S. M. Zhuang, J. M. Layman, P. Lipowicz

**300.** Developments in Melt-Electrospinning of Thermoplastic Polymers. **J. Lyons**, F. K. Ko, C. Pastore

**301.** Conductive Polyaniline/PMMA Coaxial Nanofibers: Fabrication and Chemical Sensing. **H. Dong**, U. Megalamane, W. Jones Jr.

**302.** Electrospinning of segmented polyurethane urea for use as a tissue engineered scaffold. **D. K. Heldt**, S. Stachelek, R. Levy, F. K. Ko

**303.** Electrospinning P(LLA-CL) nanofiber: Structure and Biocompatibility. **M. Xiumei**, C. Xu, M. Kotak, H. J. Weber

**304.** Synthesis of polyaniline nanofibers and their applications in sensors. **J. Huang**, S. Virji, B. H. Weiller, R. B. Kaner

**305.** Aluminum nitride coated Nanofibers. **W. Liu**, G. Zhang, E. A. Evans, D. H. Reneker

**306.** Carbon nanotube reinforced (PEDT/PAN) nanocomposite for wearable electronics. **A. K. El-Aufy**, B. Nabet, F. K. Ko

**307.** Effect of Carbon Black Loading on Electrospun Butyl Rubber Nonwoven Mats. **N. Viriyabanthorn**, J. L. Mead, R. G. Stacer, C. Sung

**308.** Electroless deposition of thin metallic films on polymer fibers prepared via electrospinning. **N. J. Pinto**, A. N. R. da Silva, E. Fachini, P. Carrión, R. Furlan, I. Ramos

**309.** Detection of n-Butylamine Vapors by Morphologically Different Polyaniline Chemiresistive Detectors. **A. L. Briseno**, T. Gao, J. Huang, A. Hopkins, B. Sisk, R. B. Kaner, F. Zhou, N. S. Lewis

**310.** Electrospinning of conductive polymer nanofibers containing carbon nanotubes. **J. A. Stuckey**, M. D. Alexander Jr., B. M. Black, J. D. Henes

**311.** A new approach in melt-blown technique for fabrication of polymer nanofibers. **B. Gu**, J. V. Badding, A. Sen

**312.** Electrospinning of polyacrylonitrile (PAN) and hydrolysis of PAN nanofibers. **H. Liu**, Y. Hsieh

**313.** Electrospinning Titanium Alkoxide Precursor with Rare Earth Compounds. **W. Kataphinan**, D. H. Reneker, R. Teye-Mensah, E. A. Evans, R. Ramsier, D. J. Smith

**314.** Block Copolymer Nanofibers - Supra-polymer Chains. **G. Liu**

**315.** Electrospinning: A simple and novel method to obtain PVA/Cu core-shell structure in nanodimension. X. Hao, Z. Li, **C. Wang**

**316.** Morphology and activity of biological fabrics prepared by electro spray deposition method. **A. Tanioka**, I. Uematsu, H. Matsumoto, K. Morota, M. Minagawa, Y. Yamagata, K. Inoue

**317.** Self-assembling peptide rod amphiphiles based on 4'-hydroxy-4-biphenyl carboxylic acid. **R. C. Claussen**, B. M. Rabatic, E. Beniash, S. I. Stupp

**318.** Electrospinning: Preparation of aligned and oriented Polyacrylonitrile nanofibers. **S. F. Fennessey**, R. J. Farris

**319.** Super carbon fiber by electrospinning of single-walled carbon nanotubes reinforced polyacrylonitrile. **H. L. Lam**, N. Naguib, H. Ye, A. Ali, Y. Gogotsi, G. Yang, F. K. Ko

**320.** Using Surfactant Templates to Synthesize Polyaniline Nanowires on Flat Surfaces. **A. D. W. Carswell**, B. P. Grady, E. A. O'Rear III

**321.** Wetting of Nanofibers. **A. V. Neimark**, K. Kornev, P. I. Ravikovitch, S. Ruetsch

**322.** Gold Nanotubes by Fiber Templating Techniques. **F. Ochanda**, A. Atkinson, W. Jones

**323.** Nanomagnetic particle filled piezoelectric polymer nanocomposite wires by co-electrospinning. **H. Yang**, L. Loh, T. Han, F. K. Ko

**324.** Monolayers and nanofilms of fluorine containing polymers. **E. J. onah**, U. Oertel, B. Voit, C. Froeck, L. Haeussler, H. Komber, K. Lunkwitz

**325.** Thin, flexible and impermeable films made using clay sheets and clay reinforced polymer nanofibers. **Z. Sun**, D. H. Reneker

**326.** New solvents for cellulose electrospinning and preliminary electrospinning results. **M. W. Frey**, Y. Joo, C. Kim

**327.** Physical properties of arborol gels. **J. Sun**, K. Yu, P. Russo, J. A. Pople

**328.** Disc electrode for converging and directing electrospun fibers. **N. Bunyan**, J. Chen, I. Chen, S. Farboodmanesh

**329.** Preparation of ultrafine Poly (vinyl pyrrolidone) nanofiber by electrospinning. Q. Yang, Z. Li, Y. Hong, Y. Zhao, **C. Wang**, S. Qiu, Y. Wei

**330.** Processing parameters for electrospun Polyvinylalcohol (PVA) nanofibers and UV-crosslinking of modified PVA nanofibers. A. Greiner, **J. Zeng**, J. H. Wendorff, H. Hou

**331.** Synthesis and Characterization of Electrically Conducting Polyaniline Nanofiber Composites. **A. Hopkins**, **J. Juang**, R. B. Kaner, R. A. Lipeles, W. H. Kao

Section B  
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## **Biocatalysis in Polymer Science**

*Cosponsored with BIOL*

R. A. Gross and H. N. Cheng, *Organizers*

**5:30 - 7:30**

**332.** (Bio)macromolecule directed synthesis of nano- and microparticles. **S. V. Patwardhan**, S. J. Clarson

**333.** One pot synthesis of chiral block copolymers combining controlled radical polymerisation and enzymatic ring opening polymerisation. **A. R. A. Palmans**, J. peeters, M. Veld, A. Heise, E. W. Meijer

**334.** Enzymatic catalysis in the synthesis of poly(lactone-co-methacrylate) block copolymers. A. Heise, C. Koning, A. R. A. Palmans, **M. de Geus**

**335.** Novel route to block copolymers by living free radical/enzymatic cascade reaction. **B. A. Van As**, A. R. A. Palmans, A. Heise, E. W. Meijer

**336.** "Sweet silicones": Biocatalytic reactions to form organosilicone carbohydrate macromers. **B. Sahoo**, **K. F. Brandstadt**, **T. H. Lane**, **R. A. Gross**

**337.** Synthesis of zein derivatives and their structure/mechanical property relationship. **A. Biswas**, D. J. Sessa, S. H. Gordon, J. W. Lawton, J. L. Willett

**338.** Poly(cytidylic acid) and poly(adenylic acid) analogues: synthesis and catalytic activity for hydrolysis of phosphate and cleavage of nucleic acid. **K. S. Yoo**, Y. H. Kim, M. J. Han, J. Y. Chang

**339.** Enzymatic synthesis of conducting polyanilines without templates. **S. Kim**, B. Ferdinando, **L. Samuelson**, J. Kumar

**340.** Synthesis of ultrahigh molecular weight polyphenols by oxidative coupling using an enzyme-model catalyst. **T. Fukuoka**, H. Uyama, S. Kobayashi

**341.** Polymers from sugars: Chemoenzymatic synthesis and polymerization of 6-O'-vinylethylglucoside. **B. Kalra**, M. Bankova, R. A. Gross

- 342.** Asymmetric epoxidation of alfa-olefins having neighboring sugar template and alternating copolymerization with succinic anhydride. **A. Takasu**, T. Bandou, Y. Morimoto, S. Oyaizu, T. Hirabayashi, T. Kinoshita
- 343.** Polyester synthesis by reusable Lewis acid-catalyzed room-temperature direct polycondensation. **A. Takasu**, Y. Oishi, Y. Iio, T. Hirabayashi
- 344.** *Candida antarctica* Lipase B catalyzed solvent free polycondensation of adipic acid /1,8-octanediol. **A. Mahapatro**, A. Kumar, B. Kalra, R. A. Gross
- 345.** Lipase stability and activity in super critical CO<sub>2</sub> using  $\epsilon$ -caprolactone ring-opening polymerization as the model reaction. **T. Nakaoki**, **K. Makoto**, R. A. Gross
- 346.** Glycerol containing polyesters by direct lipase-catalyzed polycondensations: Synthesis and characterization. **A. Kulshrestha**, A. Kumar, W. Gao, R. A. Gross
- 347.** Lipase catalyzed amidation of ester pendant groups to form poly(n-alkylester-co-alkylamide) copolymers. **S. Chakraborty**, G. Xing, R. A. Gross
- 348.** Protease-catalyzed hydrolysis of formamide pendant groups to form poly(vinyl formamide-co-vinyl amine). **S. Chakraborty**, B. Sahoo, R. A. Gross
- 349.** Solid state properties of sorbitol or glycerol containing aliphatic copolyesters synthesized by lipase-catalyzed polymerization. **H. Fu**, A. Kulshrestha, R. A. Gross, M. Baiardo, M. Scandola
- 350.** The biocompatibility studies of sorbitol-containing polyesters. I. Synthesis, surface analysis and cell response in vitro. **Y. Mei**, A. Kumar, W. Gao, R. A. Gross, S. B. Kennedy, N. R. Washburn, E. J. Amis

Section C  
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## **Branching in Polyolefins**

### **Synthesis, Characterization**

*Cosponsored with PMSE*

C. Friedrich and P. Arjunan, *Organizers, Presiding*

**5:30 - 7:30**

**351.** Homopolymerization of omega-allyl or omega-undecenyl polystyrene macromonomers via coordination polymerization. **P. J. Lutz**, F. Isel, J. Lahitte, F. Peruch

**352.** Characterization of branched polyolefins by high temperature GPC utilizing function specific detectors. K. Tribe, G. Saunders, E. Meehan, **J. McConville**

**353.** Long-chain branches in metallocene-catalyzed polyethylene determined by a combination of SEC/multi-angle light scattering, NMR and rheology. **Y. Yu**, D. C. Rolfing, G. R. Hawley, P. J. DesLauriers

Section D  
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## **Foundations of Polymer Science. Paul Flory's Seminal Contributions, Present Status, and Projections**

J. E. Mark, L. Mandelkern, and A. Abe, *Organizers*

**5:30 - 7:30**

**354.** Nanostructuring polymer conformations to alter their properties. **A. E. Tonelli**, T. A. Bullions, M. Wei, X. Wang, T. Uyar

**355.** Nonisothermal crystallization behavior of polyethylene glycol (PEG)/poly (vinyl alcohol) (PVA) blends. Y. Na, M. Zhang, Y. Niu, **Z. Jiang**

**356.** Study on phase change behavior of polyethylene glycol (PEG)/poly (vinyl alcohol) (PVA) blends. M. Zhang, Y. Na, Y. Niu, **Z. Jiang**

**357.** Synthesis and characterization of a novel diphenol. Y. Wang, C. Zhu, J. Mu, G. Wang, **Z. Jiang**

**358.** Synthesis and characterization of a novel epoxy resin derived from amine-terminated(aryl ether ketone). X. Mi, H. Ding, **H. Na**

**359.** SYNTHESIS AND THERMAL CHARACTERIZATION OF POLY(ETHER ETHER KETONE-co-ETHER NAPHTHALENE EHTER KETONE-co-ETHER DIPHENYL ETHER KETONE ) RANDOM COPOLYMERS. Y. Niu, G. Wang, S. Zhang, T. Meng, **Z. Jiang**

**360.** Synthesis of syndiotactic polypropylene based diblock copolymer via metallocene catalyst mediated chain transfer reaction. **J. C. Kuo**

Section E  
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## **Materials and Processing for MEMs Technology**

C. C. Henderson, *Organizer*

**5:30 - 7:30**

**361.** Polymer derived ceramic materials from thiol-ene photopolymerizations. **S. K. Reddy**, N. B. Cramer, T. Cross, R. Raj, C. N. Bowman

Section F  
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## **Molecular Recognition Using Polymeric Materials**

S. Thayumanavan and V. M. Rotello, *Organizers*

**5:30 - 7:30**

**362.** Non-covalent, environmentally modulated molecular recognition between ELP biopolymers: A convenient route to reversible protein arrays. **N. Nath**, A. Chilkoti, S. Zauscher, J. Hyun, W. Lee

**363.** Thermally-reversible non-covalent polymer crosslinking. **R. J. Thibault**, P. Hotchkiss, V. Rotello

**364.** Dendritic antibody supramolecules. **H. Yamaguchi**, A. Harada

**365.** Attachment of diblock copolymers to surfaces using specific hydrogen-bonding interactions. **A. Sanyal**, T. B. Norsten, O. Uzun, H. Nakade, V. M. Rotello

**366.** Concentration and thermodynamic effects on DNA-based linear, reversible polymers. **J. Xu**, S. Craig

**367.** Design and Synthesis of a Conjugated Polymer as Fluorescence Turn-on Chemosensor. **L. Fan**, Y. Zhang, Y. Lin, W. E. Jones Jr.

**368.** Formation of nanoparticle incorporated polymeric micelles with controlled size. **O. Uzun**, B. L. Frankamp, A. Sanyal, V. M. Rotello

**369.** Hydrogen bonding vs. proton transfer: a model of substrate-enzyme interactions using o-quinones and thiourea substituted random styrene copolymers. **J. B. Carroll**, V. Rotello

**370.** New well-defined triarylborane polymers: Synthesis, characterization, and formation of polymeric Lewis acid - Lewis base complexes. **Y. Qin**, K. Parab, G. Cheng, O. Achara, F. Jäkle

**371.** Non-covalent patterning of gold nanoparticles using functionalized block copolymers. **R. Shenhar**, T. B. Norsten, A. Sanyal, O. Uzun, V. M. Rotello

**372.** Polyvalent ligand- receptor interactions for recognition of Bacillus spores. **O. M. Tarasenko**, S. Islam, P. Alusta, K. M. Levon

**373.** Selectivity of binding of polycations to DNA and synthetic polyanions. **A. N. Zelikin**, E. S. Trukhanova, D. Putnam, V. A. Izumrudov, A. A. Litmanovich

**374.** Structure variations in reversible polymers from metal ligand coordination. **W. C. Yount**, H. Juwarker, S. Craig

**375.** Supramolecular coordination chemistry in thermoresponsive poly(n-isopropylacrylamide) microgels containing terpyridine ligands. **M. Crne**, D. Gan, L. A. Lyon, M. Weck

**376.** Synthesis of a High Molecular Weight Amphiphilic Poly(para-phenylene) for Studying its Nanoscale Assemblies. **F. E. Alemendaroglu**, C. Zhang, A. D. Schlüter

**377.** Toward the synthesis of self-assembled block-copolymers. **M. N. Higley**, J. M. Pollino, E. Hollembeak, M. Weck

Section G  
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## **Organic and Polymer Materials for Plastic and Molecular Electronics**

Z. Bao, B. de Boer, and C. Kagan, *Organizers*

**5:30 - 7:30**

**378.** Effect of perylene dopant in poly(methylphenyl silane) solar cells. **C. Seoul**, J. Lee

**379.** Functional dendrimers based on unsymmetrical branching. **Z. Peng**, Y. Pan, J. S. Melinger

**380.** High diffraction efficiency with negligible gain in bipolar photorefractive polymer composite. **J. Hwang**, D. H. Kang, J. Sohn, S. Y. Park

**381.** Liquid Crystalline Dopant Induced Supramolecular Assembly of Organic Electroactive Material. K. Levon, **T. Sai**

**382.** Low band-gap poly (thieno[3,4-b]thiophene) consisting of cyanovinylene spacer units. **V. Seshadri**, G. A. Sotzing

**383.** Micropatterning of Conjugated polymers templated by self-assembled monolayers. Z. Liang, K. Li, **Q. Wang**

**384.** New synthesis of 4'-[1-methyl-1-(4'-hydroxybiphenyl-4-yl)ethyl]biphenyl-4-ol by nickel-catalyzed suzuki cross-coupling reaction of aryl tosylate with new organoboron reagent. **J. Hao**

**385.** Nonlinear optic polymers containing imine-based chromophores for all-optical wavelength converters in optical fiber communication. **S. K. Park Sr.**, J. Y. Do Sr., J. Ju Sr., S. Park Sr., M. Kim Sr., M. Lee Sr.

**386.** Photorefractive polymer material with low glass transition temperature: Contribution of orientational enhancement on photorefractive performance over that of Pockels effect. **H. Chun**, S. Song, D. Shin, N. Kim

**387.** Poly(biphenylmethylene) - A New Aromatic Hydrocarbon Polymer. **M. Beinhoff**, L. Bozano, J. C. Scott, K. R. Carter

**388.** Polymer synthesis and formulation of removable encapsulants using Diels-Alder reversible chemistry. **E. M. Russick**, J. H. Aubert

**389.** Preparation of Electrically Conductive Poly(3,4-ethylenedioxythiophene)-poly(styrenesulfonate)/polyurethane foams. **Y. Wang**, G. A. Sotzing, R. A. Weiss

**390.** Studies on Dynamic Mechanical Behaviors of Controllable Cross-linking Poly(ether ether ketone). X. Liu, H. Zhou, D. Ren, Z. Li, X. Zhao, H. Cao, X. Yang, Y. Yu, **W. Zhang**

**391.** Studies on High Temperature Performance of Controllable Cross-linking Poly(ether ether ketone). X. Liu, H. Zhou, Y. Yu, H. Cao, L. Chen, X. Zhao, X. Yang, **W. Zhang**

**392.** Studies on Isothermal Crystallization Kinetics of Controllable Cross-linking Poly(ether ether ketone). X. Liu, H. Zhou, X. Zhao, X. Yang, H. Cao, Y. Yu, C. Chen, **W. Zhang**

**393.** Synthesis and characterization of a dendritical prepolymer of poly(ether ketone ketone) s (PEKK). J. Mu, Y. Wang, C. Zhang, J. Chen, **Z. Jiang**

**394.** Synthesis and Characterization of a Novel Rigid Macrocyclic Oligomer Containing a Hydroxyl Moiety. N. Liu, X. Wang, H. Cao, **W. Zhang**

**395.** Synthesis and characterization of novel polycarbonates containing p-biphenyl moieties. **J. Hao**

**396.** Synthesis and Characterization on New Thiophene Derivative Containing Alkylene Linkage. H. Kim, S. O. Jung Sr., **Y. Kim**, **S. Kwon**

**397.** Synthesis and Electroluminescent Properties of Blue Emitting Copolymers Containing Fluorene and Biphenylene Vinylene. **Y. Kim**, K. Lee, D. Shin, H. You, **S. Kwon**

**398.** Synthesis, Characterization and Photoluminescence Properties of a Novel PPV-Thiophene Copolymer. **S. H. Wu**, C. H. Shen, R. C. Tsiang

**399.** The study of the properties of poly (aryl ether ketone)s containing thio-band irradiated by electron beam. Z. Gao, X. Yang, X. Liu, X. Zhao, C. Chen, **W. Zhang**

**400.** Yellow/orange-emitting poly[tri-(2,5-dihexyloxy-1,4-phenylenevinylene)-alt-(1,3-phenylenevinylene)]: Synthesis and characterizations. **L. Liao**, Y. Pang, L. Ding, F. E. Karasz

**401.** Control of end-groups of regioregular poly(3-alkylthiophenes) using Grignard methasis. **G. Sauvé**, M. Jeffries-El, R. D. McCullough

**402.** Controllable Cross-linking Sulfonated Poly (Ether Ether Ketone) Membranes. X. Yang, X. Liu, Z. Gao, X. Zhao, Z. Li, D. Ren, **W. Zhang**

**403.** Effect of molecular weight and irradiation dose on tensile properties of poly (aryl ether ketone) containing thio-band. Z. Gao, H. Mao, X. Liu, X. Yang, X. Zhao, C. Chen, **W. Zhang**

**404.** Effect of perylene dopant in poly(methylphenyl silane) light-emitting devices. **C. Seoul**, J. Park, J. Lee

**405.** Prediction of two photon absorption properties for large organic molecules using time-dependent density functional theory. **A. Masunov**, S. Tretiak

**406.** Steady-state rectification at ionic heterojunctions based on polyacetylene ionomers. **C. Cheng**, S. Boettcher, L. Gao, D. H. Johnston, M. C. Lonergan

**407.** Structure-property relationships for a,w-dialkyl substituted thiophene/fluorene based oligomers. **R. J. McKean**

**408.** Synthesis and characterization of 4-nirto-3<sub>i</sub><sup>-</sup>, 5<sub>i</sub><sup>-</sup>-di(2-naphthyl)-biphenyl. H. Mao, Y. Yu, L. Chen, X. Lu, Z. Gao, **W. Zhang**

**409.** Synthesis of Parent Aniline Hexamer By One-step Method. L. Chen, Y. Yu, H. Mao, X. Lu, **W. Zhang**

Section H  
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## **Polymer Chemistry in Nanotechnology**

C. A. Guymon and D. L. Gin, *Organizers*

**5:30 - 7:30**

**410.** Effect of organic modifier on the structure of oligo-poly(caprolactone)/layered silicate nanocomposites. **P. Maiti**

**411.** Formation of surface modified maghemite ( $\gamma$ -Fe<sub>2</sub>O<sub>3</sub>) nanoparticles as atom transfer radical polymerization initiators. **S. Gravano**, T. E. Patten

**412.** Photoinitiator solubility effects on polymer nanostructure development in lyotropic liquid crystals. **M. A. DePierro**, A. J. Olson, C. A. Guymon

**413.** Synthesis, characterization, and photopolymerization kinetics of novel polymerizable lyotropic liquid crystals: dimethylaminoethyl acrylate with variable alkyl chain lengths. **C. Comer**, P. J. McMullan, L. Williams, C. A. Guymon

**414.** High molecular weight bottlebrush polymers synthesized using the Grubbs' catalyst. **N. B. Bowden**, S. Jha, B. Hong

**415.** Multishaped Nanoframes of Silver in Acetonitrile. B. P. S. Chauhan, **P. Tewari**, R. Sardar, P. Sharma

**416.** Formation of nanostructured polymer filaments in nanochannel templates. C. Peng, W. J. Nam, S. J. Fonash, **B. Gu**, A. Sen, K. Strawhecker, S. Natarajan, H. C. Foley, S. H. Kim

**417.** Poly(n-butyl methacrylate) brushes from single-walled carbon nanotubes. **S. Qin, D. Qin, W. T. Ford**

**418.** Manipulation of hydrogen bonding mediated nanoscale self-assembly of the hard segment phase in model trisegment oligomeric polyurethanes. **J. P. Sheth**, A. Aneja, G. L. Wilkes

**419.** Preparation of selective sulfonated block copolymers with ionic nanochannels as proton conducting membranes. **J. Yang**, H. Seo, Y. Kim, J. Lee

**420.** Characterization of particle size distribution of polymeric nanoparticles by packed column hydrodynamic chromatography. K. Tribe, E. Meehan, **J. McConville**

**421.** Synthesis and Characterization of Novel Amphiphilic Core-Shell Polymer Nanoparticles. **P. Sunintaboon**, F. W. Harris, P. Li, J. Zhu

**422.** Synthesis of dendritic triblock copolymers of starburst oligoanilinated C60 elastomer. **T. Canteenwala**, S. Patil, M. Haldar, P. Padmawar, **S. Verma**, L. Chiang

**423.** Adsorption and chemistry of ultra-thin films of polyvinyl alcohol for sensor development. **M. Kozlov**, S. I. Moon, T. A. Smith, T. J. McCarthy

**424.** Bio-inspired preparation of nanoparticles by intramolecular disulfide crosslinks. **H. A. Aliyar**, M. D. Fetsch, P. D. Hamilton, E. E. Remsen, N. Ravi

**425.** Influence of tetraethoxysilane contents on mechanics properties of modified silsesquioxanes. **L. Hu**, H. You, X. zhang, H. Zhang, Y. Liu, Y. Huang, D. Sun

**426.** Interactions between Carrageenan/Furcelleran and Bovine Serum Albumin: (1) Effects of Ionic Strength and Linear Charge Density. **J. Lee**, C. Ruengruglikit, Q. Huang

**427.** Lyotropic liquid crystal-butyl rubber blended nanomaterials. **J. Jin**, V. Nguyen, X. Lu, B. Elliott, D. L. Gin

**428.** Molecular shape memory of screw-sense switchable polysilylenes in the cast films. **A. Ohira**, M. Kunitake, M. Fujiki

**429.** Polymer modified off-axis multiwall nanotubes for fabrication of electrically conductive polyurethane nanocomposites. **M. D. Alexander Jr.**, H. Bentley, C. Wang

**430.** Synthesis and Characterization of PPI-3 Encapsulated Metal Nanoparticles. **M. Chai**, A. K. Holley, M. Norton

**431.** Preparation of Polystyrene/ Clay Nanocomposite by Suspension and Emulsion Polymerization. W. Yang, T. Ko, P. Shih, **G. J. Jiang Sr.**

**432.** Synthesis of primary amine containing polymer brushes grown from CdS/SiO<sub>2</sub> nanoparticles via ATRP. **E. D. Woodbury**, T. E. Patten

**433.** Miscibility of methyl silsesquioxane/poly(propylene glycol) hybrid nanocomposites for microelectronic applications. **Q. Huang**, C. W. Frank, H. Kim, W. Volksen, R. D. Miller

**434.** Biotemplate-directed synthesis and assembly of nanocrystals. **X. Mo**, S. M. Yu, M. P. krebs

## **WEDNESDAY MORNING**

Section A  
Unknown Site -- Unknown Room

### **Biocatalysis in Polymer Science**

#### **Novel Synthesis of Polyesters**

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S. Kobayashi, *Presiding*

R. A. Gross and H. N. Cheng, *Organizers*

**8:30 -435.** Combined catalytic reactions - an integrated biocatalytic approach in polymer chemistry. **A. Heise**, A. R. A. Palmans, C. Koning

**9:00 -436.** Synergies between lipase and chemical polymerization catalysts. **B. Kalra**, I. Lai, R. A. Gross

**9:30 -437.** Enzyme-catalyzed synthesis of hyperbranched polyesters. **H. Frey**, I. T. Neuner, M. Ursu

**10:00** - Intermission.

**10:10 -438.** Novel synthesis routes for polyhydroxyalkanoic acids with unique properties. B. Zhang, R. Carlson, E. N. Pederson, **F. Sreenc**

**10:40 -439.** Lipase catalyzed polyesterifications. A. Mahapatro, **A. Kumar**, B. Kalra, R. A. Gross

**11:10 -440.** Chemoenzymatic synthesis of enantioenriched substituted polycaprolactones. **K. S. Bisht**, T. F. Al-Azemi, L. Kondaveti

Section B  
Unknown Site -- Unknown Room

## **Molecular Recognition Using Polymeric Materials**

V. M. Rotello, *Organizer, Presiding*

S. Thayumanavan, *Organizer*

**8:30 -441.** Conducting Polymer Sensors: New Mechanisms for Chemical Specificity. **T. M. Swager**

**9:00 -442.** Lipopolysaccharide detection using polymerized diacetylenes. **A. Basu**, M. Rangin

**9:15 -443.** Synthesis and binding mechanisms of carbohydrate-substituted polymers. **L. L. Kiessling**

**9:45 -444.** Poly(para-phenyleneethynylene)s Bearing Biologically Relevant Ligands. **B. Erdogan**, U. H. F. Bunz

**10:00 -445.** Photocrosslinking of an artificial extracellular matrix protein via in vivo incorporation of aryl azide functionality. I. S. Carrico, M. Mock, N. Sharma, K. Nielson, **D. A. Tirrell**

**10:30 -446.** Dendronized Polymers: Synthesis and Complexes with DNA. **A. D. Schlüter**, I. Goessl, R. al-Hellany, L. Shu, J. P. Rabe

**11:00 -447.** Amphiphilic phenylene ethynylenes. **G. N. Tew**

**11:15 -448.** Now Accepting Donations-Molecular Recognition in Aqueous Solution. **B. L. Iverson**, G. Gabriel, J. Reczek

**11:45 -449.** Molecule-to-Material relationships in main-chain reversible polymers. **S. L. Craig**, J. Xu, J. Kim

Section C

Unknown Site -- Unknown Room

## **Organic and Polymer Materials for Plastic and Molecular Electronics**

### **Molecular Electronics**

Z. Bao, *Organizer, Presiding*

B. de Boer and C. Kagan, *Organizers*

**8:30 -450.** Functional pi-electron materials for nanoelectronics. **P. Baeuerle**, E. Mena-Osteritz, G. Fuhrmann, M. Ammann

**9:10 -451.** Molecular Electronics Based on Mechanically Interlocked Molecules. **J. F. Stoddart**, H. Tseng

**9:50 -452.** Self-assembled monolayers of conjugated thiols studied by infrared spectroscopy: Structure and metal electrode deposition. **M. M. Frank**, B. de Boer, Y. J. Chabal, Z. Bao

**10:10** - Intermission.

**10:20 -453.** Single molecules in electronic circuits – structure property correlations. **M. Mayor**, H. B. Weber, M. Elbing, J. Reichert, D. Beckmann, R. Ochs, M. Fischer, C. von Haenisch, M. Di Leo

**11:00 -454.** Conductance of molecular nanojunctions. **N. Zhitenev**

**11:40 -455.** High-yield process for making metal-molecule-metal junctions on microfabricated chips. **M. R. de jong**, I. Kretzschmar, R. A. Munden, A. A. Munden, G. H. Martin, M. A. Reed

Section D  
Unknown Site -- Unknown Room

## **Polymeric Nanofibers**

### **Electrospinning and Formation of Nanofibers**

G. C. Rutledge, *Presiding*

D. H. Reneker and H. Fong, *Organizers*

**8:30** - Introductory Remarks.

**8:40 -456.** Characterization of fluid flow in jets during electrospinning. **H. Xu**, A. L. Yarin, D. H. Reneker

**9:00 -457.** Functional nanofibers by electrospinning. **R. Dersch**, **A. Greiner**, J. H. Wendorff, A. Schaper

**9:20 -458.** Non-linear whipping Behavior of electrified fluid Jets. **S. V. Fridrikh**, J. H. Yu, M. P. Brenner, G. C. Rutledge

**9:40 -459.** Real time imaging of particulate motion in electrostatically driven jets of polymer solution. **J. M. Deitzel**, C. Krauthauser, D. Harris, C. Perganis, J. Kleinmeyer

**10:00 -460.** Multiple-Jet Electrospinning of Non-Woven Nanofiber Articles. **D. Fang**, B. Chu, B. Hsiao

**10:20 -461.** Measurements of the governing parameters in the electrospinning of polymer solutions. **A. Theron**, E. Zussman, A. L. Yarin

**10:40 -462.** Carbon Nanotubes formed on carbonized electrospun polymer Nanofibers. **H. Hou, D. H. Reneker**

**11:00 -463.** Fabrication of ceramic and composite nanofibers by electrospinning. **D. Li**, Y. Xia

**11:20 -464.** Nano fibers from melt electrospinning. **H. S. Khurana**, P. K. Patra, S. B. Warner

**11:40 -465.** Electrospinning polymer nanofibers in a vacuum. **D. H. Reneker**, H. Hou, R. Rangkupan, J. D. Lennhoff

## **Soft Colloids: Fundamental Research and Technological Applications**

### **Bulk Properties of Soft Colloidal Systems**

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## **WEDNESDAY AFTERNOON**

Section A  
Unknown Site -- Unknown Room

### **Biocatalysis in Polymer Science**

#### **Polysaccharides**

*Cosponsored with BIOL*

L. Henderson, *Presiding*

R. A. Gross and H. N. Cheng, *Organizers*

**1:30 -466.** In vitro enzymatic synthesis of artificial chondroitin and its derivatives catalyzed by testicular hyaluronidases. **S. Kobayashi**, M. Ohmae, S. Fujikawa

**2:00 -467.** Sugar polymer engineering with glycosaminoglycan synthase enzymes: 5 to 5,000 sugars and dozen flavors. **P. L. DeAngelis**

**2:30 -468.** Lipase catalyzed modification of starch nanoparticles within AOT coated reverse micelles. **S. Chakraborty**, B. Sahoo, R. A. Gross

**2:55 -469.** Conversion of cellulosic biomass to ethanol using enzymatic hydrolysis. **J. S. Tolan**

**3:25** - Intermission.

**3:35 -470.** A third mechanism of microbial cellulose degradation from comparative genomic studies. **D. B. Wilson**

**4:05 -471.** Amino acid-residue-specific enzymes for protein grafting and crosslinking. **G. F. Payne**, T. Chen, M. K. McDermott, D. A. Small, W. E. Bentley

**4:35 -472.** Enzyme-catalyzed modification of pectin. Q. Gu, R. G. Nickol, **H. N. Cheng**

Section B  
Unknown Site -- Unknown Room

## **Molecular Recognition Using Polymeric Materials**

S. Thayumanavan, *Organizer, Presiding*

V. M. Rotello, *Organizer*

**1:30 -473.** Molecular recognition in polymers using multiple hydrogen bonds: Expanding the toolbox. **R. P. Sijbesma**, G. B. W. L. Ligthart, R. M. Versteegen, R. A. Koevoets, E. W. Meijer

**2:00 -474.** Synthetic Duplex Oligomers Defined via Covalent Casting of a 1-Dimensional Hydrogen Bonding Motif. **M. J. Krische**, E. A. Archer

**2:15 -475.** Structure and Function in Beta-Peptide Foldamers. **S. H. Gellman**

**2:45 -476.** Recognition-mediated assembly using polymeric systems. **V. M. Rotello**

**3:15 -477.** Block-Copolymers and Perfectly Alternating-Copolymers via Self-Assembly. **M. Weck**, M. N. Higley, J. M. Pollino, E. Hollembeak

**3:30 -478.** Approaches towards biomimetic macromolecules. **S. Thayumanavan**

**4:00 -479.** Monomolecular imprinting: Synthetic hosts via molecular imprinting inside of dendrimers. **S. C. Zimmerman**, L. G. Schultz, N. G. Lemcoff

**4:30 -480.** The use of self-complimentary H-bonding functions to make assemblies of metallodendrimers. **F. M. MacDonnell**, K. L. Wouters, D. M. Rudkevich, H. Xu

**5:00 -481.** Conformational properties of folded metallodendrimers. M. R. Rauckhorst, A. J. Preston, S. A. Hatcher, C. M. Hadad, **J. R. Parquette**

## **Organic and Polymer Materials for Plastic and Molecular Electronics**

### **Organic Electronics**

C. Kagan, *Organizer, Presiding*

Z. Bao and B. de Boer, *Organizers*

**1:30 -482.** Synthetic routes to solution processable polycyclopentadithiophenes. **M. L. Turner**, P. Coppo, D. Cupertino, S. G. Yeates

**1:50 -483.** Synthesis and optical properties of conjugated dendrimers. **Z. Peng**, Y. Pan, J. S. Melinger

**2:10 -484.** Synthesis and properties of cross-linked conjugated polymers. E. Hittinger, A. Kokil, **C. Weder**

**2:30 -485.** HPLC Separation of regioregular poly(3-hexylthiophene) and its microcrystalline "nano-rods" domains in thin films. H. Yang, S. Park, D. Kim, K. Oh, S. Magonov, K. Cho, T. Chang, Z. Bao, **C. Y. Ryu**

**2:50** - Intermission.

**3:10 -486.** Plastic Deformation of Pentacene. L. F. Drummy, P. K. Miska, **D. C. Martin**

**3:50 -487.** Growth of pentacene thin films: a surface science perspective. **R. M. Tromp**

**4:30 -488.** electrostatics at the pentacene-SiO<sub>2</sub> interface. **L. Chen**, R. Ludeke, A. Schrott, C. R. Kagan, L. E. Brus

**4:50 -489.** Organic field effect transistors fabricated from polymerisable liquid crystals. **M. Heeney**, C. Bailey, M. Giles, D. Graham, D. Sparrowe, M. Shkunov, S. Tierney, W. Zhang, I. McCulloch

## **Polymeric Nanofibers**

### **Nanofiber Properties and Characterization**

H. Schreuder-Gibson, *Presiding*

D. H. Reneker and H. Fong, *Organizers*

**1:30 -490.** Orientation development in electrospun liquid-crystalline polymer nanofibers. **D. Y. Lin**, D. C. Martin

**1:50 -491.** Characterizing the stress-strain behavior of electrospun polyurethane fiber mats. **A. Pedicini**, R. J. Farris

**2:10 -492.** Effects of nanoclay on molecular structures of Poly (L-lactic) acid in electrospinning. K. Kim, **Y. L. Joo**, E. P. Giannelis

**2:30 -493.** Functional polymer nanofibers and nanotubes via electrospinning: Chemical modifications for selected advanced applications. **A. Greiner**, Z. Sun, J. Zeng, H. Hou, T. Kissel, J. H. Wendorff

**2:50 -494.** Microencapsulation of aqueous domains within electrospun polymer fibers. **E. Sanders**, G. E. Wnek, G. L. Bowlin, D. G. Simpson

**3:10 -495.** Phase morphology of electrospun nanofibers from polybutadiene (PB) /polycarbonate (PC) blends. **M. Wei**, J. L. Mead, C. Sung

**3:30 -496.** Using humidity and molecular weight to control the surface morphology of electrospun fibers. **C. L. Casper**, J. Stephens, B. Chase, J. Rabolt

**3:50 -497.** Bicomponent fiber electrospinning and the effect of porosity on surface wettability of electrospun mats. **P. Gupta**, G. L. Wilkes

**4:10 -498.** DOE Optimization and TEM of polycarbonate nanofibers. **N. Kattamuri**, C. Sung, J. Shin, J. Lee

**4:30 -499.** Electrospun Mesoporous Molecular Sieve Fibers. **K. J. Balkus Jr.**, S. Madhugiri, J. P. Ferraris, A. Chacko

**4:50 -500.** Molecular Self-Assembly of Redox Nanofibers. **Q. Cheng**

## **Soft Colloids: Fundamental Research and Technological Applications**

### **Synthesis in Soft Colloids and Characterization**

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## **THURSDAY MORNING**

Section A  
Unknown Site -- Unknown Room

### **General Papers**

#### **Polymer Characterization**

G. D. Jaycox, *Presiding*

D. Garcia, *Organizer*

**8:30 -501.** Macromolecular chirality: influencing material properties in subtle ways. **Y. Lu**, G. Tian, B. Novak

**8:50 -502.** Mechanistic studies of the copolymerization of propylene oxide and carbon dioxide: a microstructural approach. M. J. Byrnes, M. H. Chisholm, C. M. Hadad, **Z. Zhou**

**9:10 -503.** Fine tuning photorefractive properties of molecular photorefractive materials. **W. You**, Z. Hou, L. Yu

**9:30 -504.** Fabrication and mechanical properties analysis of optically transparent polyester/glass fiber matrix composites. **P. Vaghela**, J. O. Stoffer, O. Sitton

**9:50 -505.** Alternate layer deposition of poly(N-isopropylacrylamide) microgels to achieve thermoresponsive, microstructured thin films. **M. J. Serpe**, L. A. Lyon

**10:10 -506.** Light regulated chiroptical switches based on polymeric and oligomeric structures. **G. D. Jaycox**

**10:30 -507.** Probing the effect of curing conditions on shrinkage stress development and polymerization kinetics. **H. Lu**, J. W. Stansbury, C. N. Bowman

**10:50 -508.** New biodegradable amphiphilic triblock copolymers consisting of poly[(R)-3-hydroxybutyrate] and poly(ethylene oxide) and their association behavior in aqueous solution. **J. Li**, X. Ni, X. Li, Z. Zhou, K. W. Leong

**11:10 -509.** Immobilization of monometallic copper complexes on mesoporous silica and their activity as catalyst for oxidative coupling polymerization of phenols. **Y. Shibasaki**, J. N. Kondo, K. Domen, M. Ueda

**11:30 -510.** Unusual polysaccharide and its rheology. **J. D. Combie**

**11:50 -511.** Compatibility and morphology of the fluoro-polymer/polyacrylate latex interpenetrating polymer networks. **S. Chen**, W. Yan, L. Chen

**12:10 -512.** Competitive removal of  $Pb^{2+}$ ,  $Cu^{2+}$ ,  $Cd^{2+}$  by cellulose graft copolymer. **S. Cavus**, G. Gurdag, M. Yasar, M. A. Gurkaynak

## **Molecular Recognition Using Polymeric Materials**

A. Basu, *Presiding*

S. Thayumanavan and V. M. Rotello, *Organizers*

**8:30 -513.** Establishing the Supramolecular Chemistry of Carbon Nanotubes. K. S. Chichak, Y. Liu, A. Star, **J. F. Stoddart**

**9:00 -514.** Macromolecules with electrochemically controllable recognition properties. **G. Cooke**

**9:15 -515.** Mechanically interlocked macromolecular systems via pseudorotaxane self-assembly. **H. W. Gibson**, Z. Ge, F. Huang, J. W. Jones, H. Wang, A. Farcas

**9:45 -516.** Molecular recognition in dendrimers based on melamine. **E. E. Simanek**

**10:00 -517.** Molecular recognition in the construction of polymeric systems. **S. J. Rowan**, S. Sivakova, P. Suwanmala, J. B. Beck

**10:15 -518.** Polymeric enzyme mimics. **R. Breslow**

**10:45 -519.** Understanding the fundamental recognition behavior of molecularly imprinted polymers. **K. D. Shimizu**

**11:15 -520.** Polymeric Recognition of Bacterial Spores. **K. M. Levon**, T. Ji, M. Kaholek, S. Kazakov, O. M. Tarasenko, N. K. Sharma, B. Yu, Y. Zhou

**11:45 -521.** Synthesis and Single-molecule Studies of Modular Polymers Using Precise Hydrogen Bonding Interactions. **Z. Guan**, J. Roland, S. X. Ma, M. Nguyen, T. M. McIntire, D. A. Brant

## **Organic and Polymer Materials for Plastic and Molecular Electronics**

### **Organic Electronics**

B. de Boer, *Organizer, Presiding*

Z. Bao and C. Kagan, *Organizers*

**8:30 -522.** Charge transport in polymeric opto-electronic devices. **P. W. M. Blom**, T. V. Woudenberg, C. Tanase, V. Mihailetschi, B. de Boer

**9:10 -523.** Printed organic thin-film transistors for electronic circuits and displays. **M. G. Kane**

**9:50 -524.** Organic and Polymer Transistors for Chemical and Bio Sensing: From Macroscale to Nanoscale. **A. Dodabalapur**, D. Fine, L. F. Wang, S. Knudsen, D. Cauble, T. Jung, S. Khondker, M. J. Krische, A. D. Ellington, H. von Seggern

**10:30 -525.** Conjugated reactive mesogens for organo-electronic devices. **P. A. Glarvey**, M. L. Turner, M. Grell, K. S. Whitehead, D. D. D. C. Bradley, M. Voigt

**10:50 -526.** Photocurrent Generated with a Homoconjugated Bisfulleroid Polymer. **C. K. Shen**, G. Sonmez, A. D. Smith, B. J. Schwartz, Y. Rubin, F. Wudl

**11:10 -527.** Metallodendrimers which function as N- and P-type semiconducting materials for thin film transistors. **F. M. MacDonnell**, K. L. Wouters, W. P. Kirk, N. Basit

**11:30 -528.** Polymeric Electrochromic Devices: Polychromism, High Coloration Efficiency and RGB Colors. **G. Sonmez**, C. K. Shen, H. Meng, F. Wudl

**11:50 -529.** New regioregular head-to-tail poly(4-alkylquinoline)s. **Y. Zhu**, M. M. Alam, S. A. Jenekhe

**12:10** - Intermission.

Section D  
Unknown Site -- Unknown Room

## **Polymeric Nanofibers**

### **Biomedical Applications of Nanofibers**

F. K. Ko, *Presiding*

D. H. Reneker and H. Fong, *Organizers*

**8:30 -530.** Multifunctional nanofiber scaffolds for tissue engineering. S. S. Khan, A. fertala, **F. K. Ko**

**8:50 -531.** Prevention of post-surgical adhesions using electrospun bioabsorbable non-woven nanofiber membranes. X. Zong, K. Kim, J. Chiu, S. Li, B. Garlick, C. Brathwaite, T. Zimmerman, D. Fang, B. Chu, **B. S. Hsiao**

**9:10 -532.** Biomimetic processing of protein-based and bioderived polymers: Effects on chemical architecture. **J. S. Stephens**, C. L. Casper, J. F. Rabolt, B. Chase

**9:30 -533.** Electrospinning of biopolymers for tissue engineering. E. D. Boland, D. G. Simpson, G. E. Wnek, **G. L. Bowlin**

**9:50 -534.** Development of the BioHemostat – a treatment modality for high pressure bleeding based on super-absorbent polymers and electrospun membranes. **J. M. Layman**, E. Kenawy, J. R. Watkins, M. E. Carr Jr., G. L. Bowlin, G. Wnek

**10:10 -535.** Electrospun non-woven membranes as scaffolds for heart tissue constructs. **X. Zong**, H. Bien, C. Chung, L. Yin, K. Kim, D. Fang, B. Chu, B. S. Hsiao, E. Entcheva

**10:30 -536.** Incorporation of an antibiotic drug in electrospun poly(lactide-co-glycolide) non-woven nanofiber scaffolds. **K. Kim**, C. Chang, X. Zong, D. Fang, B. S. Hsiao, B. Chu, M. Hadjiargyrou

**10:50 -537.** Nylon 6 nanofiber reinforced BIS-GMA/TEGDMA dental restorative composite resins. **H. Fong**

**11:10 -538.** Nanofiber formation with self-assembling peptide amphiphiles containing cholesterol and RGDS. **M. O. Guler**, B. M. Rabatic, R. C. Claussen, S. I. Stupp

**11:30 -539.** Regenerated protein-based nanofibers by electrospinning process. **S. Sukigara**, M. Gandhi, J. Ayutsede, F. K. Ko

## **Issues of Homeland Security: What Can Chemists Do?**

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## **THURSDAY AFTERNOON**

Section A  
Unknown Site -- Unknown Room

### **General Papers**

#### **Polymer Characterization**

J. Lou, *Presiding*

D. Garcia, *Organizer*

**1:30 -540.** Functionalizing polylactides for tissue growth. **M. Wang**, C. P. Radano, M. E. Mackay, L. R. McCabe, G. L. Baker, M. R. Smith III

**1:50 -541.** Aqueous soluble dendrimers with shape-persistent hydrophobic cores for drug solubilisation. **N. L. Smith**, N. B. McKeown, N. H. Day, A. D'Emanuele, D. Attwood

**2:10 -542.** Design, synthesis and characterization of nitric oxide releasing acrylic copolymers with potentially improved blood compatibility. **Z. Zhou**, P. G. Parzuchowski, M. E. Meyerhoff

**2:30 -543.** SANS and osmotic observations on polyacrylate networks swollen in physiological salt solutions. **F. Horkay**, P. J. Basser, A. Hecht, E. Geissler

**2:50 -544.** Molecular weight and shear flow rate effect on stress-induced lift force on polystyrene. **J. Lou**

**3:10 -545.** A scaling relation for lift force on ultrahighmolecular weight polymers in shear flow. **J. Lou**

**3:30 -546.** Sidechain functionality effect on microphase separation of block copolymers. **R. Shenhar**, A. Sanyal, O. Uzun, H. Nakade, V. M. Rotello

**3:50 -547.** Comparison of crystallization kinetics in nanoconfined cylinder and double gyroid phases. **L. Zhu**, L. Sun, Q. Ge, R. P. Quirk, B. S. Hsiao, C. A. Avila-Orta, I. Sics

**4:10 -548.** Inclusion complexes formed between biodegradable amphiphilic poly(ethylene oxide)-poly[(R)-3-hydroxybutyrate]-poly(ethylene oxide) triblock copolymers and cyclodextrins. **L. Xu**, L. Jun, L. Kam W

**4:30 -549.** Thermodynamics of methanol sorption in Nafion® 117. **N. H. Jalani**, P. Choi, R. Datta

**4:50 -550.** FTIR studies on hydrogen bonded PVPh/PMMA blends revisit 1: solvent effect, miscibility and reproducibility. **H. Huang**, C. Ni, S. Huang

**5:10 -551.** FTIR studies on hydrogen bonded PVPh/PMMA blends revisit 2: W1/2 and its influence on data processing. **H. Huang**, C. Ni, S. Huang

Section B  
Unknown Site -- Unknown Room

## **Molecular Recognition Using Polymeric Materials**

K. D. Shimizu, *Presiding*

S. Thayumanavan and V. M. Rotello, *Organizers*

**1:30 -552.** Molecular recognition using dendritic building blocks - towards controllable nanomaterials. **D. K. Smith**

**2:00 -553.** Tunable Complex Stability in Surface Molecular Recognition Mediated by Self-Complementary Quadruple Hydrogen-Bonds. **H. Schönherr**, S. Zou, Z. Zhang, R. Förch, W. Knoll, G. J. Vancso

**2:30 -554.** Presentation of molecular recognition elements on nanoscopic surfaces. **M. J. Joralemon**, K. Qi, M. L. Becker, K. S. Murthy, E. E. Remsen, K. L. Wooley

**2:45 -555.** Covalent fixation of self-assembled architectures. E. W. Meijer, R. P. Sijbesma, **A. J. Wilson**, M. Masuda, P. Jonkheijm

**3:00 -556.** Membrane materials built from core shell nanoparticles and poly(2-hydroxyethyl methacrylate). **N. Kariuki**, M. J. Patterson, C. Zhong

**3:30 -557.** Synthesis and self assembly of star-shaped amphiphiles. **E. R. Zubarev**, J. Teng

Section C  
Unknown Site -- Unknown Room

## **Organic and Polymer Materials for Plastic and Molecular Electronics**

### **Organic Electronics**

C. Kagan, B. de Boer, and Z. Bao, *Organizers, Presiding*

**1:30 -558.** New conjugated polyphenothiazine and poly(phenothiazine-alt-fluorene) for OLEDs. **X. Kong**, A. P. Kulkarni, S. A. Jenekhe

**1:50 -559.** Electronic/photonic properties of mixed Langmuir-Blodgett film with poly(*n*-dodecylacrylamide) and  $\pi$ conjugated polymers. **A. Aoki**, S. Yoshida, T. Saito, T. Miyashita

**2:10 -560.** Ion transport studies on intrinsically conducting polymer prepared by solid-state crosslinking. **S. Jang**, G. A. Sotzing, M. Marquez

**2:30 -561.** New avenues to achieve high dielectric constant and high electromechanical response in electroactive polymers. **C. Huang**, Q. M. Zhang, F. Xia, Q. Wang, J. Su

**2:50 -562.** New soluble conjugated polyquinolines for optoelectronics. **C. J. Tonzola**, M. M. Alam, S. A. Jenekhe

**3:10 -563.** Synthesis and characterization of a PPV derivative: Poly(2,3-diphenyl-1,4-naphthalene vinylene) (DP-PNV). **Y. Patel**, G. Arbuckle-Keil, B. Hsieh

**3:30 -564.** Photochromic dihetarylethenes photocyclization - a new route to photosensitive polymers. **L. A. Rusanov**, M. .. M. Krayushkin  
M.M

**3:50 -565.** Synthesis and photophysics of n-type conjugated dendrimers for light-emitting diodes. **T. W. Kwon**, M. M. Alam, S. A. Jenekhe

Section D  
Unknown Site -- Unknown Room

## **Polymeric Nanofibers**

### **Electronic and Other Applications of Nanofibers**

W. E. Jones Jr., *Presiding*

D. H. Reneker and H. Fong, *Organizers*

**1:30 -566.** Nanoscale electronic fibers and tubes: Toward molecular level electronics packaging. **W. E. Jones Jr.**

**1:50 -567.** LiClO<sub>4</sub>-doped poly (ethylene oxide) electrospun nanofiber humidity sensors. **L. Dai, D. Aussawasathien**

**2:10 -568.** Pyrene Surface Modified Electrospun Nanofibrous Membranes for Sensor Application. **X. Wang**, S. Yang, C. Drew, L. Samuelson, J. Kumar

**2:30 -569.** Durable transparent materials: Electrospun nanofibers infused with transparent resin. **C. Krauthauser**, J. M. Deitzel, E. D. Wetzel, D. O'Brien

**2:50 -570.** Electrostatic Assembly of Titanium Dioxide on Surface Functionalized Electrospun Nanofibers. **C. Drew**, B. Ku, X. Wang, L. A. Samuelson, J. Kumar

**3:10 -571.** Electrospinning and phase characterization of polyaniline/polymethyl methacrylate blends. **K. Desai**, C. Sung

**3:30 -572.** Electrostatic processing of PVDF. **W. D. Bates**, C. P. Barnes, Z. Ounaies, G. E. Wnek

**3:50 -573.** Next-Generation Carbon Fibers by Electrospinning PAN and MWNT Nanocomposite. **N. L. Titchenal**, N. Naguib, H. Ye, Y. Gogotsi, J. Liu, F. K. Ko

**4:10 -574.** Novel polymeric nanofiber deposition processing. **J. Kameoka**

**4:30 -575.** Reactive routes to making modified nanofiber structures via electrospinning. **P. J. Brown**, D. Baker