

2001 Spring Meeting

## 2001 SPRING NATIONAL ACS MEETING

San Diego, CA (April 1-6, 2001)

Program Meeting Chair: [Carrington Smith](#)

Abstract/Preprint Deadline: Nov. 1, 2000

The preliminary (detailed) program is available below.

### Division of Polymer Chemistry 50th Anniversary

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### High Resolution NMR Spectroscopy of Polymers

H. N. Cheng, Hercules Inc., Research Center, 500 Hercules Rd., Wilmington, DE 19808-1599, (302)-995-3505, fax (302)-995-4117, [hcheng@herc.com](mailto:hcheng@herc.com); A. English, DuPont Experimental Station, Wilmington, DE 19880-0356, (302) 695-4851; fax 302-654-4872, [english@usa.dupont.com](mailto:english@usa.dupont.com).

### Silicones and Silicone-Modified Materials (cosponsored PMSE)

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### Opportunities and Needs in Polymer Science for Measurement Techniques, Standards, and Future Technologies

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### In-situ Spectroscopy in Monomer and Polymer Synthesis

Tim Long, Virginia Tech, Dept. of Chemistry, Blacksburg, VA 24061-0344; (540)231-2480; fax (540)231-8517; [telong@vt.edu](mailto:telong@vt.edu); J. Andrews, ASI Applied Systems, 8223 Cloverleaf Drive, Suite 120, Millersville, MD 21108, (410)987-3222, fax (410)987-2626; J. E. Puskas, Univ. of Western Ontario, Dept of Chemical and Biochemical Engineering, London, Ontario, N6A 5B9, Canada, (519)661-4184, fax (519)850-2343, [jpuskas@uwo.ca](mailto:jpuskas@uwo.ca); R. Storey, Dept. of Polymer Science, U of Southern Mississippi, Hattiesburg, MS 39406, (601) 266-4879, fax (601) 266-5504, [Robson.Storey@usm.edu](mailto:Robson.Storey@usm.edu).

### Durability of Plastics and Rubbers

R. Clough, Sandia National Laboratory, MS 1407, Albuquerque, NM 87185; (505)844-3492; fax (505)844-9624; [RLCLOUG@SANDIA.GOV](mailto:RLCLOUG@SANDIA.GOV); P. DesLauriers, Phillips Petroleum Co., 145 CPL, Bartlesville, OK 74004; (918)661-7389; [pjdesla@bvmx.pppo.com](mailto:pjdesla@bvmx.pppo.com); N. Billingham, Univ. of Sussex, The School of Chemistry and Molecular Sciences, Falmer, Brighton, UK BN1 9QJ; [N.Billingham@sussex.ac.uk](mailto:N.Billingham@sussex.ac.uk).

### Dendrimers and Hyperbranched Polymers: From Synthesis to Applications (PMSE- Primary Sponsor).

Jean M. J. Frechet, Dept. of Chem., Univ. of CA - Berkeley, Berkeley, CA 94720-1460, (510) 643-3077, FAX (510) 643-3079, [frechet@cchem.berkeley.edu](mailto:frechet@cchem.berkeley.edu). Virgil Percec, Univ. of PA, Dept. of Chem., Rm. 4003, 231 S. 34th St., Philadelphia, PA 19104-6323, (215) 573-5527, FAX (215) 573-7888, [percec@sas.upenn.edu](mailto:percec@sas.upenn.edu); Douglas J. Kiserow, U.S. Army Research Office, Physical Sciences Directorate, Chemical Sciences Div., P.O. Box 12211, Research Triangle Park, NC 27709-2211, (919) 549-4213, FAX (919) 549-4310, [kiserow@aro-emhl.army.mil](mailto:kiserow@aro-emhl.army.mil).

### C. S. Marvel Award for Creative Polymer Chemistry Honoring Craig Hawker

Jean M.J. Frechet, Department of Chemistry, University of California, Berkeley, CA 94720-1460; (510)643-3077; Fax (510)643-3079; [frechet@cchem.berkeley.edu](mailto:frechet@cchem.berkeley.edu).

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**2001 ACS Award in Polymer Chemistry Honoring David A. Tirrell**

Timothy J. Deming, Depts of Chemistry and Materials Science and Engineering, University of California, Rm 2005, Materials Science Laboratory, Santa Barbara, CA 93106; (805) 893-8474; [tdeming@mrl.ucsb.edu](mailto:tdeming@mrl.ucsb.edu)2001 .

**ACS Award in Applied Polymer Science Honoring Daniel J. Brunelle**

W. Brittain, Dept. of Polymer Science, U. of Akron, Akron, OH 44325-3909; (330)972-5147; fax (330)972-5290; [brittain@polymer.uakron.edu](mailto:brittain@polymer.uakron.edu)

**General Papers**

This represents the PRELIMINARY PROGRAM. Please check with ACS for the final program. Sometimes the talks are switched.

# POLY

## DIVISION OF POLYMER CHEMISTRY

### Preliminary Program, 221st ACS National Meeting

**C. Smith, Program Chair**

#### SUNDAY MORNING

Section A

Unknown Room

**2001 ACS Award in Polymer Chemistry Honoring David A. Tirrell**

T. J. Deming, *Organizer, Presiding*

**8:30 – 1.** Synthesis and properties of synthetic block copolypeptides. **T. J. Deming**

**9:05 – 2.** Applications of protein-based materials in biotechnology: From academia to industry. **W. A. Petka**, J. L. Harden, A. Karger, G. Drouin, G. W. Slater

**9:40 – 3.** ProteinChip(r) system: Proteomics platform for rapid biomarker discovery and validation. **J. E. Beecher**

**10:15 – 4.** Thermo-reversible self-assembly of protein-based nanoparticles. **V. P. Conticello**, T. A. T. Lee, Y. Zhou

**10:50 – 5. Award Address** (ACS Award in Polymer Chemistry, sponsored by ExxonMobil Chemical Co). A polymer chemist's view of protein synthesis and design **D. A. Tirrell**

Section B

Unknown Room

**General Papers**

**Synthesis/Characterization**

C. A. Guymon, *Organizer, Presiding*

**8:30 – 6.** Novel blue light emitting polyhydroxy polyparaphenylenes. S. Valiyaveetil, **C. Baskar**, S. Wenmiao

**8:55 – 7.** Synthesis and micellization of diblock, triblock, and star block methacrylate copolymers **S. Pascual**, A. Pillay Narrainen, D. M. Haddleton

**9:20 – 8.** Anionic copolymerization of styrene and 1,3-cyclohexadiene K. Hong, **J. W. Mays**

**9:45 – 9.** New model for the microphase morphology of segmented polyurethanes and polyureas. **I. Yilgor**, E. Yilgor, S. Unal, U. Makal, M. Gordeslioglu, E. Yurtsever

**10:10 – 10.** Circular dichroism and circularly polarized photoluminescence of helical polyfluorenes. **H. Tang**, M. Fujiki, M. Motonaga, K. Torimitsu

**10:35 – 11.** Diffuse wave spectroscopy finds that PEG delays the aging of a foam. **A. H. Fawcett**, J. O. Uhomobhi

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**11:00 – 12.** Investigation of the coordinate forces in adhesion process for polymer and metal. **Y. Liu**, R. Wang, Z. Gao, L. Chen, L. Zhang

Section C

Unknown Room

### **Opportunities and Needs in Polymer Science for Measurement Techniques, Standards, and Future Technologies Neutron Scattering**

J. Antonucci and R. K. Eby, *Organizer*

E. Amis, *Organizer, Presiding*

**8:30** – Introductory Remarks, L. E. Smith

**8:50 – 13.** Polyolefin blend miscibility. **D. J. Lohse**

**9:20 – 14.** Probing polymer dynamics with ultra-thin membranes by neutron reflectivity. **A. R. Esker**, H. Gröll, S. K. Satija, C. C. Han

**9:50 – 15.** Structure and property characterization of low-k dielectric porous thin films. **B. J. Bauer**, E. K. Lin, H. Lee, **H. Wang**, W. Wu

**10:20** – Intermission.

**10:30 – 16.** Small angle neutron scattering measurements of nanoscale lithographic features. **W. Wu**, E. K. Lin, Q. Lin, M. Angelopoulos

**11:00 – 17.** Ion-induced volume transition in synthetic and biopolymer gels. **F. Horkay**, P. J. Basser, E. Geissler

**11:30 – 18.** Characterization of polymer-clay solutions by rheology, flow birefringence and SANS **C. C. Han**, G. Schmidt, A. I. Nakatani, A. Karim

## **SUNDAY AFTERNOON**

Section A

Unknown Room

### **2001 Polymer Division Carl S. Marvel Award for Creative Polymer Chemistry Honoring Craig Hawker**

J. M. J. Fréchet, *Organizer, Presiding*

S. R. Turner, *Presiding*

**1:25** – Introductory Remarks.

**1:30 – 19.** Convergent synthesis of dendrimers from 1989 to the present. **J. M. J. Fréchet**

**2:00 – 20.** Understanding the catalytic systems for atom transfer radical polymerization. **K. Matyjaszewski**

**2:30 – 21.** Catalytic and free-radical methods for the control of branching in macromolecules. **R. Waymouth**

**3:00 – 22.** Supramolecular polymers. **E. W. Meijer**

**3:30 – 23.** Controlling interfacial interactions: Grafting to and grafting from. C. J. Hawker, **T. P. Russell**

**4:00 – 24.** Complex nanostructured materials made possible by living free radical polymerization methodologies. **K. L. Wooley**

**4:30 – 25. Award Address** (Polymer Division Carl S. Marvel Creative Polymer Chemistry Award, sponsored by ). Controlling nanoscopic structures using well-defined dendritic and living free radical polymers **C. J. Hawker**

Section B

Unknown Room

### **General Papers Synthesis**

## 2001 Spring Meeting

C. A. Guymon, *Organizer*

D. A. Spivak, *Presiding*

**1:30 – 26.** Synthesis and characterization of asymmetrically substituted head-to-tail aromatic Schiff-base polymers. **M. Jeffries-El**, K. C. Ambrosio, R. M. Tarkka

**1:55 – 27.** Synthesis of potentially more blood compatible nitric oxide releasing acrylic copolymers. **P. G. Parzuchowski**, M. E. Meyerhoff

**2:20 – 28.** Approaches toward amorphous poly-2,7-fluorene networks **D. Marsitzky**, K. R. Carter

**2:45 – 29.** Cyclopolymerization of bis(methacrylates) incorporating binaphthyl moiety. **S. Zheng**, D. Y. Sogah

**3:10 – 30.** Modeling precise methyl branch placement in polyethylene via acyclic diene metathesis: Synthesis and morphological studies. J. A. Smith, G. Lieser, G. Wegner, **K. B. Wagener**

**3:35 – 31.** New monomers from renewable resources. M. Johansson, **J. Samuelsson**

**4:00 – 32.** Factors affecting amine-acrylic Michael Addition as reactive diluents and polymer synthesis. K. A. Shooshtari, **M. R. Van De Mark**

**4:25 – 33.** Preparation of macromonomers by free radical polymerization in the presence of cationic addition-fragmentation agents. **P. Murer**, V. Desobry, M. Zink

Section C

Unknown Room

### **Opportunities and Needs in Polymer Science for Measurement Techniques, Standards, and Future Technologies New Measurement Techniques**

J. Antonucci and E. Amis, *Organizer*

R. K. Eby, *Organizer, Presiding*

**1:30** – Introductory Remarks, E.J. Amis

**1:45 – 34.** Characterization of symmetric diblock copolymers with high throughput techniques. **A. Karim**, A. P. Smith, J. F. Douglas, E. Amis

**2:15 – 35.** Combinatorial characterization of biodegradable polymers. **J. C. Meredith**, A. Tona, H. Elgendy, A. Karim, E. Amis

**2:45 – 36.** NIR applications for measuring water sorption and vinyl unsaturation in dental dimethacrylate polymers. **S. Dickens**, J. W. Stansbury, C. J. E. Floyd

**3:15** – Intermission.

**3:25 – 37.** Making MALDI-TOF-MS an absolute method for the determination of the MMD of polymers. **C. M. Guttman**, W. R. Blair, S. J. Wetzel

**3:55 – 38.** Mass spectrometry of spin-on-glass low-k dielectric precursors. **W. E. Wallace**, C. M. Guttman, J. Antonucci

**4:25 – 39.** Measuring in situ the adsorption of block copolymer amphiphiles and polyelectrolytes at interfaces: A comparison of evanescent, ellipsometric, and acoustic techniques **R. C. Advincula**, J. W. Mays, W. Knoll, Y. Wang, J. H. Youk, A. Baba, F. Kaneko, M. Park, J. Yang

## **SUNDAY EVENING**

Section A

Unknown Room

### **General Papers Synthesis**

## 2001 Spring Meeting

C. A. Guymon, *Organizer*

5:30 - 7:30

40. Convenient synthesis of aliphatic polyester catalyzed by distannoxane. **M. Ishii**, M. Okazaki, Y. Shibasaki, H. Takahashi, T. Hayakawa, M. Ueda

41. Anionic synthesis of polymers of 9,9-dimethyl-2-vinyl-fluorene, 9-methyl-9-trimethylsilyl-2-vinylfluorene and 9-methyl-2-vinylfluorene **X. Zhang**, T. Hogen-Esch

42. Aqueous ethylene polymerization: Stability of cationic Pd(II) complexes and polymer properties. **A. Held**, F. Weiss, S. Mecking

43. Controlled radical polymerization of electroluminescent vinyl derivatives. K. R. Carter, D. Marsitzky, **P. Blainey**

44. Copolymerization of 4-methyl-1-pentene and ethylene with new monocyclopentadienylamido titanium complexes. **G. Xu**, D. Cheng, Z. Lu

45. Copolymerization of disubstituted polar functionalized 1,3-butadienes **M. K. Rath**, V. V. Sheares

46. Copolymerization of ethylene with styrene using different constrained geometry catalysts. **G. Xu**, D. Cheng

47. Cyclopolymerization of templated-bis(methacrylates) derived from asymmetric Diels-Alder reactions. **S. Zheng**, D. Y. Sogah

48. Development of shielding materials for human space exploration. **R. L. Kiefer**, J. A. Weakley, D. R. McGlothlin, J. L. Dueber, S. A. Thibeault

49. Effect of particle size on ATRP from the surface of initiator coated silica nanoparticles. **T. von Werne**, T. E. Patten

50. Effect of zirconium alkoxide on formation of monolithic silica gel via bulk sol-gel process. - *Abstract Text not Available* Y. Zhang, N. Guo, **C. Wang**, Y. Bai, Y. Wei

51. Li-ion mediated anionic polymerization of 2-vinylnaphthalene in toluene/THF. **G. G. Nossarev**, T. E. Hogen-Esch

52. Methods for the preparation of sPS grafted copolymers. **S. Chan**, C. Li, C. Ting, G. J. Jiang

53. Michael addition of amines to acrylates: Macrocyclic formation. K. A. Shooshtari, **M. R. Van De Mark**

54. Modified bulk sol-gel process. L. Dong, Y. Zhang, L. Fu, **C. Wang**, Y. Wei

55. New positive-type photosensitive polyimide: Hyperbranched poly(etherimide) with diazonaphthoquinone. **M. Okazaki**, Y. Shibasaki, M. Ueda

56. New visible light photocatalysts for acrylate polymerization. G. A. Epling, **I. A. Banerjee**

57. Synthesis and characterization of novel fluorine-containing polymer with reactive side group. B. Liu, W. Hu, Y. Jin, **C. Chen**, Z. Jiang, W. Zhang, Z. Wu

58. Novel specialty polymers prepared by well-controlled ring-opening metathesis polymerization. **R. A. Charvet**, B. M. Novak

59. Ordered 2-D monolayers of nanometer scale rigid cyclic oligomer. **T. Ben**, C. Chen, H. Cao, X. Liu, H. Qiu, Z. Wu, W. Zhang, H. Ma

60. Synthesis of well defined methacrylate block copolymers by living radical polymerisation. **A. Pillay Narrainen**, S. Pascual, D. M. Haddleton

61. Polyacetylene containing benzyl carbazole chromophores: Synthesis and photoluminescence. P. P. S. Lee, Y. P. Dong, K. K. L. Cheuk, F. S. W. Chau, **B. Z. Tang**

62. Polymerization behaviors of poly(ether ketone) via Friedel-Crafts acylation. **Y. Sakaguchi**, K. Kimura, M. Omori, Y.

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Yamashita

63. Polymerization studies of thieno[3,4-*b*]pyrazines **D. D. Kenning**, M. R. Funfar, S. C. Rasmussen
64. Preparation of photoluminescent oligocarbosilanes by hydrosilylation. C. L. Kepler, **S. E. Gradwell**
65. Regio- and stereoselectivity for polymerization of diepisulfides catalysed by zinc complexes. **T. Satoh**, T. Imai, T. Kakuchi, K. Yokota
66. Regioselectivity of enzyme catalyzed transesterification on cellulose. **J. Xie**, Y. Hsieh
67. Amphiphilic polymeric supports via living radical polymerization. **N. Ayres**, D. M. Haddleton, A. J. Shooter, D. A. Pears
68. Living anionic polymerization of 2-vinylnaphthalene in the presence of potassium ion. **G. G. Nossarev**, T. E. Hogen-Esch
69. Ring-opening metathesis polymerization of norbornene in supercritical carbon dioxide. **X. Hu**, M. T. Blanda, S. R. Venumbaka, P. E. Cassidy
70. Cellulose functionalization by glutaraldehyde(GA). **Y. Wang**, Y. Hsieh
71. Solid supports for catalysis and separation processes in compressed carbon dioxide. **S. A. Cr  tt  **, J. M. DeSimone, R. G. Carbonell, W. Tumas
72. Chain extension and properties of biodegradable aliphatic polyesters with unsaturated units. **J. Yoon**, H. Jin, D. Kim, H. Cho, M. Kim
73. Synthesis and characterization of aromatic polyimides with pendant trifluoromethylphenyl groups. H. Zhou, K. Xie, S. Zhang, **S. Yang**
74. Lyotropic liquid crystalline acid doping of polyaniline. **S. R. Hammond**, W. Zhou, J. K. Avlyanov, D. L. Gin
75. Synthesis and characterization of controllable crosslinking poly (ether ether ketone). X. Liu, **T. Ben**, H. Qiu, Z. Gao, H. Cao, C. Chen, Z. Wu, W. Zhang
76. Multifunctional antibacterial cellulose. **X. Xu**, G. Sun
77. Polylactide-*b*-polyisoprene-*b*-polylactide triblock copolymers: New thermoplastic elastomers containing biodegradable segments. **E. M. Frick**, M. A. Hillmyer
78. Synthesis and characterization of polydiphenylmaleimide. **N. C. Yang**, J. K. Jeong, **D. H. Suh**
79. Polymerization of the regular hexagonal phase of tetradecyltrimethylphosphonium methacrylate. **D. Y. Markevitch**, B. A. Pindzola, D. L. Gin
80. Synthesis and characterization of tanninsulfonic acid-doped polyaniline. **J. P. Smith**, B. C. Berry, T. Viswanathan
81. Synthesis and chiroptical properties of poly(phenylacetylenes) bearing proline moieties. J. Luo, K. K. L. Cheuk, J. W. Y. Lam, **B. Z. Tang**
82. Synthesis and cytotoxicity of a D-galactose-containing polyphenylacetylene. B. S. Li, K. K. L. Cheuk, J. Zhou, Y. Xie, J. A. K. Cha, X. Xiao, **B. Z. Tang**
83. Synthesis and induced helical chirality of poly(phenylacetylenes) with monosaccharide pendants. K. K. L. Cheuk, J. Luo, J. W. Y. Lam, B. S. Li, **B. Z. Tang**
84. Synthesis and helical conformation of disubstituted polyacetylenes: Polybutynoate and polyphenylpropiolate bearing (-)-menthol pendants. Y. P. Dong, J. W. Y. Lam, K. K. L. Cheuk, J. Luo, **B. Z. Tang**
85. Synthesis of a well-defined amphiphilic block copolymer via atom transfer radical polymerization. **S. Gravano**, M. Borden, A. Chen, E. M. Doerffler, T. E. Patten, M. L. Longo

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- 86.** Synthesis of poly(2-hydroxyethyl methacrylate)-*block*-poly(lactide) on gold by dual living polymerization. **J. Kim**, C. Wang, M. L. Bruening, G. L. Baker
- 87.** Synthesis of novel hydrophilic copolymers containing L,L-lactide and 5-methyl-5-benzyloxycarbonyl-1,3-dioxan-2-one R. F. Storey, **B. D. Mullen**, K. M. Melchert
- 88.** Synthesis and optical limiting properties of hyperbranched polyphenylenes. K. Xu, H. Peng, **B. Z. Tang**
- 89.** Synthesis of poly(lactide)/(methyl methacrylate) block copolymers by a combination of ring-opening and atom transfer radical polymerization. **T. Liu**, G. L. Baker
- 90.** Temperature and pH sensitive IPN hydrogels. **H. Chen**, Y. Hsieh
- 91.** Synthesis and photoluminescence of hyperbranched polyphenylenes. H. Peng, K. Xu, J. Luo, **B. Z. Tang**
- 92.** Poly(N,N-dimethylacrylamide) containing pendent perfluorooctyl groups: Reversible hydrogel formation with  $\beta$ -cyclodextrin and sodium 1-adamantanecarboxylate **S. J. Tomczak**, T. E. Hogen-Esch
- 93.** Temperature-sensitive N-isopropylacrylamide copolymers with hydrophobic spacers. **A. Licea-Claverie**, R. Salgado-Rodriguez, K. Arndt
- 94.** Synthesis and polymerization of new self-polymerizable quinoxaline monomers. **J. Baek**, D. J. Klein, F. W. Harris
- 95.** Synthesis and properties of stretchable polyetherimides for alignment layers in liquid crystal displays. **H. Wang**, S. Z. D. Cheng, F. W. Harris
- 96.** Synthesis and properties of thermally stable and light emitting liquid crystalline poly(butyrate) and poly(phenylpropiolate). **J. W. Y. Lam**, Y. Dong, B. Z. Tang
- 97.** Synthesis and thermal stability of naphthalene-containing polybutyrate and polyphenylpropiolates. Y. P. Dong, J. W. Y. Lam, **B. Z. Tang**
- 98.** Synthesis and thermotropic liquid crystalline properties of poly(aryl ether ketone copolymers containing a TERT-butyl side group). H. Sun, H. Wang, **C. Chen**, Z. Jiang, W. Zhang, Z. Wu
- 99.** Evidence for styrenic structures in polystyrene dimers formed with dibromomethane. **E. S. Tillman**, T. E. Hogen-Esch
- 100.** Synthesis of electroluminescent organic/inorganic polymer nanocomposites. **S. C. Farmer**, T. E. Patten
- 101.** Formation of a pure tail to tail dimer of 4-(N,N-dimethylamino)styrene. Block copolymers with styrene **W. N. Warner**, T. E. Hogen-Esch
- 102.** Synthesis of highly branched polymers having double chains in each monomer unit by grafting-onto method of using living anionic polymers. **S. Ryu**, A. Hirao
- 103.** Formation of cyclic polystyrene by anionic polymerization: Fluorescence studies. **K. A. Alberty**, E. S. Tillman, S. Carlotti, S. E. Bradforth, T. E. Hogen-Esch
- 104.** Synthesis of homopolymer and diblock copolymer brushes on silicate substrates by reversible addition fragmentation chain transfer technique. **M. Baum**, W. J. Brittain
- 105.** Synthesis of N-(2,6-diisopropylphenyl)-3-(bis-2-pyridylmethyl)amino propanamide-Cu(I) complexes for use in atom transfer radical polymerization **C. Troeltzsch**, M. M. Olmstead, T. E. Patten
- 106.** Synthesis and characterization of macrocyclic poly(2-vinylnaphthalene). **G. G. Nossarev**, T. E. Hogen-Esch
- 107.** Synthesis of polyarylenevinylene and polyarylenevinylenearyleneethynylene derivatives having a maleimide group. **D. H. Suh**, **N. C. Yang**
- 108.** Synthesis of polypropylene-g-polystyrene using the nitroxide mediated radical polymerization. E. Park, **J. Yoon**

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**109.** Synthesis of soluble poly(ether imide)s derived from various new bis(ether anhydride)s. **D. Liaw**, C. Hsu, I. Chen, B. Liaw

**110.** Synthesis, characterization, and antibacterial activity of novel N-halamine polymers **Y. Sun, G. Sun**

**111.** Synthesis, stability, and photoluminescence of poly[w-(1-naphthoxy)-1-alkynes] P. P. S. Lee, K. K. L. Cheuk, Y. P. Dong, F. S. W. Chau, **B. Z. Tang**

**112.** Thiophene-based branched conjugated polymers. **B. Sankaran**, R. A. Vaia, L. Tan

**113.** Transcarbamation between thermoplastic polyurethane and poly(ethylene-co-vinyl alcohol) during blend processing. **D. D. Jiang**, R. F. Storey

**114.** Whisker of Poly(p-oxybenzoyl-alt-Mercaptobenzoyl). **K. Kimura**, Y. Yamashita, K. Kobashi, Y. Sakaguchi

Section B

Unknown Room

**General Papers  
Characterization**

C. A. Guymon, *Organizer*

**5:30 - 7:30**

**115.** Blends of bitumen with polymers, XII: Design engineering of bulk properties **A. H. Fawcett**, T. McNally

**116.** Applications of atomic force microscopy to current problems in industrial polyester chemistry. **D. A. Schiraldi**, M. L. Occelli, S. A. C. Gould

**117.** Thermal behavior of poly(lactic acid) related to the application of disperse dyes. **I. I. Negulescu**, N. E. Lowe

**118.** Cluster glass transitions in styrene-co-citraconate ionomers. J. Kim, **J. Kim**, M. Hong, S. Kim, J. Yoo, Y. Lee

**119.** Contact angle study of PSII treated styrene ionomers: A preliminary study. J. Kim, M. Hong, J. Yoo, J. Yu, **Y. Lee**, H. Lim

**120.** Determination of the deactivation rate constants of 1-phenylethyl radical with Cu(II) $X_2$ /4,4'-di(5-nonyl)-2,2'-bipyridine **H. Paik**, K. Matyjaszewski

**121.** Dynamic mechanical properties and morphology of poly(ethyl acrylate) ionomers containing itaconate ionic groups. J. Kim, **S. Kim**, J. Yu, S. Jarng, Y. Lee

**122.** Dynamics of a copolymer chain under an alternating electric field. R. Wenzel, **C. Shew**

**123.** Inorganic constitution of silk fibroin. **T. Tanaka**, J. Magoshi, Y. Magoshi, S. Inoue, M. Kobayashi, H. Tsuda, S. Nakamura

**124.** Mechanical properties of styrene ionomer blended with diacid molecules. J. Kim, **J. Kim**, S. Jarng, Y. Lee, W. Kim

**125.** Monte Carlo simulations for drug carrying capacity of micelles. **Y. Chen**, C. Shew

**126.** Morphology of styrene ionomers containing p-aminobenzoic acid. **J. Kim**, M. Hong, J. Yu

**127.** Preoatation and some mechanical properties of microcellular polysulfone foam. **H. Sun**, J. E. Mark

**128.** Preparation and characterization of organo-silicon dipping film on the surface of optical resins. Y. Wang, R. Pan, B. Wang, **B. Yang**

**129.** Preparation and properties of nanocomposites based on polysulfone and an organoclay. **H. Sun**, G. S. Sur, G. Beaucage, J. E. Mark

**130.** Preparation and properties of oligo-phenylene vinylene derivative/silica composite film. **J. Tang**, D. Yu, Y. Wang, C.



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Wang, B. Yang

**131.** Rheological evidence of isotropization transition of A thermotropic liquid crystalline poly(aryl ether ketone). H. Sun, **C. Chen**, H. Wang, Z. Jiang, W. Zhang, Z. Wu

**132.** Rheological properties of biodegradable aliphatic polyester/montmorillonite nanocomposites. **S. T. Lim**, Y. H. Hyun, H. J. Choi, M. S. Jhon

**133.** Second glass transition in weakly clustered poly(styrene-co-itaconate) ionomers. J. Kim, **M. Hong**, J. Yu

**134.** Sound-damping properties of styrene-methacrylate ionomers: A preliminary study. J. Kim, J. Kim, J. Yoo, J. Lee, K. Lee, **S. Jang**

**135.** Study on optical properties of transparent resin containing lead ion. **Q. Lin, B. Yang, Y. Ma**, J. Zhou, X. Meng, J. Shen

**136.** Surface modifications of PEN films and their wettability. A. Cerisier, B. Hu, **R. M. Ottenbrite, J. A. Siddiqui**

Section C

Unknown Room

### **Opportunities and Needs in Polymer Science for Measurement Techniques, Standards, and Future Technologies**

E. Amis and R. K. Eby, *Organizer*

J. Antonucci, *Organizer, Presiding*

**5:30 - 7:30**

**137.** In situ adsorption studies of functionalized poly(styrene-b-isoprene) with zwitterionic groups: Correlation with quartz crystal microbalance and surface plasmon spectroscopy. **M. Park**, J. H. Youk, S. Pispas, N. Hadjichristidis, R. C. Advincula

**138.** In situ investigation of adsorption properties of block copolymer amphiphiles by surface plasmon spectroscopy. **R. C. Advincula**, J. Mays, W. Knoll, Y. Wang, J. Yang, H. Chip, S. Seth, M. Park, J. H. Youk

**139.** Structural hierarchy in polyisoprene/toluene gels. **F. Horkay**, G. B. McKenna, E. Geissler

## **MONDAY MORNING**

Section A

Unknown Room

### **Division of Polymer Chemistry 50th Anniversary Material Science in the 21st Century I**

W. J. Brittain and A. English, *Organizer*

P. A. Pincus, *Presiding*

**7:55** - Introductory Remarks.

**8:00 - 140.** Soft actuators. **P. de Gennes**

**8:50 - 141.** Single molecule studies of the extension of polymers in shear, elongational, and mixed flows **S. Chu**

**9:40 - 142.** Polymer materials: Making polymers work. **P. Smith**

**10:30** - Intermission.

**10:40 - 143.** Novel biomedical materials. **R. S. Langer**

**11:30 - 144.** Functional molecules: A lesson from nature. **P. Schultz**

Section B

Unknown Room

### **In-situ Spectroscopy in Monomer and Polymer Synthesis**

## 2001 Spring Meeting

J. Andrews, J. E. Puskas, and R. Storey, *Organizer*

T. Long, *Organizer, Presiding*

C. D. Stokes, *Presiding*

**8:25** – Introductory Remarks.

**8:30 – 145.** Real-time fiber optic mid-IR monitoring of solution and suspension polymerizations. **J. E. Puskas**, E. Tzaras, G. Marr, A. J. Michel

**9:00 – 146.** Effect of tert-butyl 5-norbornene-2-carboxylate on adhesion and 193-nm lithographic properties of maleic anhydride/norbornene alternating copolymers. **A. J. Pasquale**, H. D. Truong, R. D. Allen, T. E. Long

**9:30 – 147.** Kinetic study of ultrafast polymerization reaction by realtime IR spectroscopy. **C. Decker**, F. Masson, C. Bianchi

**10:00 – 148.** In situ analysis of the thermal elimination reaction in the synthesis of poly(p-phenylene vinylene)(PPV) and PPV derivatives. **G. A. Arbuckle-Keil**, Y. Liszewski, J. Wilking, B. Hsieh

**10:30 – 149.** Monitoring vinyl copolymerizations with near-IR spectroscopy. **J. W. Stansbury**, J. Tanaka

**11:00 – 150.** Real-time monitoring of isocyanate chemistry using a fiber-optic FTIR probe. **M. A. Thomson**, P. J. Melling, A. M. Slepiski

Section C

Unknown Room

**Opportunities and Needs in Polymer Science for Measurement Techniques, Standards, and Future Technologies  
Crystallization, Interfaces, and Aging**

R. K. Eby, E. Amis, and J. Antonucci, *Organizer*

J. D. Hoffman, *Presiding*

**8:30** – Introductory Remarks, J.D. Hoffman

**8:45 – 151.** Aspects of the diversity of polymer crystallization habits. **F. Khoury**

**9:15 – 152.** Crystal modulus of silk. **A. Sinsawat**, S. Putthanarat, S. Zarkoob, Y. Magoshi, J. Magoshi, R. Pachter, M. O. Stone, R. K. Eby

**9:45 – 153.** Energy release rate for a crack in a tilted block. **A. N. Gent**, M. Razzaghi-Kashani

**10:15** – Intermission.

**10:25 – 154.** Reactive processing with difunctional oligomers to increase interfacial adhesion in polymer blends. **M. D. Dadmun**, C. O'Brien, J. K. Rice

**10:55 – 155.** Effect of self-assembled monolayer technology on fiber-matrix adhesion. **G. A. Holmes**, E. Feresenbet, D. Raghavan

**11:25 – 156.** Development and use of novel volatile analysis methods to monitor polymer aging. **D. M. Chambers**, J. M. Bazan, J. I. Ithaca

Section D

Unknown Room

**Silicones and Silicone-Modified Materials**

*Cosponsored with Division of Polymeric Materials: Science and Engineering*

M. E. Van Dyke, M. J. Owen, J. J. Fitzgerald, and S. D. Smith, *Organizer*

S. J. Clarson, *Organizer, Presiding*

**8:00 – 157.** Silicones and silicone-modified materials: An overview. **S. J. Clarson**

**8:30 – 158.** New multi-functional fluorosilicones via the cyclopolymerization of trifluorovinyl aromatic ether

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monomers. **D. W. Smith Jr.**, S. Narayan-Sarathy, J. Ji, R. H. Neilson, R. Traiphol, D. Perahia

**9:00 – 159.** Poly(dimethylsiloxanes) modified with inorganic polyhedra. **T. S. Haddad**, A. Lee, S. H. Phillips

**9:30 – 160.** Amphiphilic polyorganosiloxane nanospheres: Encapsulation of hydrophilic dyes. **M. Maskos**, M. Schmidt, N. Jungmann

**10:00** – Intermission.

**10:20 – 161.** Synthesis and photo-oxidative degradation of 2,6-bis[ $\omega$ -trimethylsiloxypolydimethyldisiloxy-2'-dimethylsilylethyl]acetophenone J. R. Sargent, S. K. Gupta, **W. P. Weber**

**10:50 – 162.** Polyhedral oligomeric silsesquioxane surfactants. **B. Viers**, A. R. Esker, C. Farmer

**11:20 – 163.** Effect of crosslinkers on the mechanical properties of addition cure phenylsilsesquioxanes. **Z. Li**, F. McGarry, B. Zhu, D. Katsoulis, J. R. Keryk

### MONDAY AFTERNOON

Section A

Unknown Room

**Division of Polymer Chemistry 50th Anniversary  
Material Science in the 21st Century II**

W. J. Brittain and A. English, *Organizer*

B. M. Novak, *Presiding*

**1:30 – 164.** Dendrimers, conducting oligomers, DNA, and nanocrystals as building blocks for nanotechnology **J. M. J. Fréchet**

**2:20 – 165.** Reactions of single-site olefin polymerization catalysts with functionalized olefins. **R. F. Jordan**

**3:10** – Intermission.

**3:20 – 166.** Moving from structure to function. **G. M. Whitesides**

**4:10 – 167.** Macromolecular structures for molecular electronics. **J. R. Heath**, J. F. Stoddart, Y. Luo, C. P. Collier

**5:00** – Concluding Remarks.

Section B

Unknown Room

**General Papers  
Hydrophilic/Degradable Polymers**

C. A. Guymon, *Organizer*

K. L. Wooley, *Presiding*

**1:30 – 168.** Estimation of polar and dispersive surface energy parameters of polycaprolactone using the imbedded fiber retraction method. **G. Biresaw**, C. J. Carriere

**1:55 – 169.** Polymer distribution patterns in starch/poly(lactic acid)/poly(hydroxy ester ether) blends by phase modulation photoacoustic spectroscopy. **X. Cao**, S. H. Gordon, J. L. Willett, D. J. Sessa

**2:20 – 170.** Silyl ether-coupled poly(caprolactone)s with stepwise hydrolytic degradation profiles. K. L. Wooley, **M. Wang**, Q. Zhang

**2:45 – 171.** Polymerization of lactones and D,L-lactide initiated by lanthanum isopropoxide **M. Save**, A. Soum

**3:10** – Intermission.

**3:25 – 172.** Polyelectrolytic amphiphilic model networks in water: Synthesis and characterization. **C. S. Patrickios**, M.

## 2001 Spring Meeting

Vamvakaki

**3:50 – 173.** PS-b-PEO/silica films with regular and reverse mesostructures of large characteristic length scales prepared by solvent evaporation-induced self-assembly. **K. Yu**, C. J. Brinker, A. J. Hurd, A. Eisenberg

**4:15 – 174.** Preparing hydrophilic styrenic block copolymers: Coupling polyetherdiamine with carboxylated polystyrene-block-polybutadiene. **R. C. Tsiang**, C. Chen

Section C

Unknown Room

### In-situ Spectroscopy in Monomer and Polymer Synthesis

T. E. Long, J. Andrews, and J. E. Puskas, *Organizer*

R. Storey, *Organizer, Presiding*

**1:25** – Introductory Remarks.

**1:30 – 175.** Investigation of high temperature, isobutylene polymerizations utilizing real-time ATR-FTIR spectroscopy **C. D. Stokes**, R. F. Storey

**2:00 – 176.** Real-time FTIR monitoring and modeling of polymerization reactions. **J. Erbes**, M. Haehnlein, S. Koltzenburg, A. Schramm

**2:30 – 177.** Continuous monitoring of emulsion polymerization using spectroscopic techniques. A. M. Cardenas-Valencia, **V. Shastry**, J. Vara, L. H. Garcia-Rubio

**3:00 – 178.** Kinetic and FTIR spectroscopic investigations of the methanol carbonylation over supported rhodium catalysts. **J. Bodis**, J. Mink

**3:30 – 179.** Helical poly (3-methyl-4-vinylpyridine): In situ observation of the formation of secondary helical structures by CD spectroscopy. **I. M. Khan**, B. Sannigrahi

**4:00 – 180.** Rapid curing of poly(3,4-epoxy-1-butene) in the presence of a redox initiator system Y. Yoo, L. K. Johnson, J. R. Lizotte, A. J. Pasquale, **T. E. Long**

Section D

Unknown Room

### Silicones and Silicone-Modified Materials

S. J. Clarson, J. J. Fitzgerald, S. D. Smith, and M. E. Van Dyke, *Organizer*

M. J. Owen, *Organizer, Presiding*

**1:10 – 181.** Exploiting silicone-protein interactions: Stabilization against protein denaturation at interfaces. **M. A. Brook**, P. Zelisko, V. Bartzoka

**1:40 – 182.** High temperature/high humidity polyimide coatings for aluminosilicate glass surfaces. **S. R. Wagner**, R. L. De Rosa

**2:10 – 183.** Fluoride catalyzed conversion of  $\beta$ -acetoxyethylsilsesquioxane: Chloride-free precursor for silica films. **K. A. Ezbiansky**, D. H. Berry, R. J. Composto, B. Arkles

**2:40** – Intermission.

**3:00 – 184.** Adhesion of silicone coatings to polypropylene films. **L. O'Hare**, S. R. Leadley, B. Parbhoo, J. G. Francis

**3:30 – 185.** Plasma polymerized barrier layers. **E. M. Johnson**, S. J. Clarson, H. Jiang, W. Su, J. Grant, T. J. Bunning

**4:00 – 186.** Polymerization of silane quaternary ammonium salts on fibers. **R. Kotek**, S. Mohamed Abo El Ola, C. White, P. Hauser

**4:30 – 187.** Polymethylsiloxane modified polythiophene precursor polymers: Polymer networks for ultrathin film electro-optical applications. R. Advincula, **C. Xia**

2001 Spring Meeting

## TUESDAY MORNING

Section A

Unknown Room

### Division of Polymer Chemistry 50th Anniversary Previous Marvel Creative Polymer Chemistry Award Recipients I

W. Mattice, *Organizer*

J. M. DeSimone, *Presiding*

8:25 – Introductory Remarks.

8:30 – 188. Prediction of melt state rheological properties. **L. J. Fetters**

9:05 – 189. Bridging between atomistic and coarse-grained models: Application to the mixing of simple polymeric hydrocarbons. **W. L. Mattice**

9:40 – 190. Polymer based microphotonics. **E. L. Thomas**

10:15 – 191. Some perspectives on generating controlled oriented semicrystalline morphologies and their importance for practical applications. **G. L. Wilkes**

10:50 – 192. Advanced drug and cell delivery systems. **R. S. Langer**

Section B

Unknown Room

### In-situ Spectroscopy in Monomer and Polymer Synthesis

T. Long, J. Andrews, and R. Storey, *Organizer*

J. E. Puskas, *Organizer, Presiding*

A. J. Pasquale, *Presiding*

8:25 – Introductory Remarks.

8:30 – 193. Allure of "molecular videos": In situ IR spectroscopy of polymerization processes. **T. E. Long**, J. R. Lizotte, A. J. Pasquale, D. T. Williamson, Y. Yoo

9:00 – 194. In situ NMR monitoring of living radical polymerization: Reaction kinetics and catalyst evolution. **D. M. Haddleton**, S. Perrier, S. A. F. Bon

9:30 – 195. In situ proton NMR analysis of radical co- and terpolymerization. **H. Ito**, D. C. Miller, M. H. Sherwood

10:00 – 196. Real-time melamine formaldehyde reaction monitoring using in situ FTIR spectroscopy. **M. A. Pavlosky**, R. Ferwerda, M. Scheepers, J. J. Nusselder

10:30 – 197. Process monitoring of polymer melts by in-line near IR and Raman spectroscopy in extruders. **D. Fischer**, E. Pigorsch

11:00 – 198. Application of FT-NIR spectroscopy for monitoring the kinetics of living polymerizations. **M. Lanzendörfer**, H. Schmalz, V. Abetz, A. H. E. Müller

Section C

Unknown Room

### Silicones and Silicone-Modified Materials

S. J. Clarson, J. J. Fitzgerald, M. J. Owen, and S. D. Smith, *Organizer*

M. E. Van Dyke, *Presiding*

8:00 – 199. Diffusion of polydimethylsiloxane mixtures with silicate nanoparticles. **T. Cosgrove**, C. Roberts, G. V. Gordon, R. G. Schmidt

8:30 – 200. Modulus reduction mechanism of trimethylsiloxy silicates in polyorganosiloxanes. **R. G. Schmidt**, L. R.

## 2001 Spring Meeting

Badour, G. V. Gordon

**9:00 – 201.** In situ spectroscopy in the preparation of polyarylenes, perfluorocyclobutyl polymers, and polylactide derivatives **D. W. Smith Jr.**, E. J. Nelson, K. P. U. Perera, N. Abayasinghe

**9:30 – 202.** Application of  $^1\text{H}/^{13}\text{C}/^{29}\text{Si}$  3-D NMR for structural assignment of 1-trichlorosilyl-2-methyl-cyclohexane Isomers. **H. Yue**, J. P. Cannady, B. Nugent, M. Tzou, M. Chai, P. L. Rinaldi

**10:00 –** Intermission.

**10:20 – 203.** Prediction of the elastomeric modulus of poly(dimethyl siloxane) networks formed by endlinking. **R. F. T. Stepto**, J. I. Cail, D. J. R. Taylor

**10:50 – 204.** Influence of hydrogen bonding on the properties of silicone copolymers. **I. Yilgor**, E. Yilgor, S. Unal, U. Makal

**11:20 – 205.** Photoexcitation and -emission spectra of phenyl—substituted siloxanes. **M. W. Backer**, U. C. Pernisz

Section D

Unknown Room

### High Resolution NMR Spectroscopy of Polymers Tutorial

H. N. Cheng, *Organizer*

A. D. English, *Organizer, Presiding*

**8:30 – 206.** Modern multi-dimensional NMR spectroscopy of biopolymers - new techniques, new labeling, new parameters, new dynamics **R. A. Byrd**

**9:15 – 207.** Multi-dimensional NMR analysis of synthetic polymers. **P. L. Rinaldi**

**10:00 –** Intermission.

**10:15 – 208.** Computer-aided NMR methods for polymer analysis. **H. N. Cheng**

**11:00 – 209.** Small animal magnetic resonance imaging: Methods and applications. **J. R. Garbow**, J. J. H. Ackerman

### TUESDAY AFTERNOON

Section A

Unknown Room

### Division of Polymer Chemistry 50th Anniversary Previous Marvel Creative Polymer Chemistry Award Recipients II

W. Mattice, *Organizer*

L. J. Fetters, *Presiding*

**1:25 –** Introductory Remarks.

**1:30 – 210.** Progress in the design and synthesis of artificial proteins. **D. A. Tirrell**

**2:05 – 211.** Biological route to novel electronic and photonic materials. **S. Tripathy**, W. Liu, R. Nagarajan, P. Wu, S. Roy, J. Kumar, F. F. Bruno, L. Samuelson

**2:40 – 212.** Making well-defined polymers the other way: Atom transfer radical polymerization. **K. Matyjaszewski**

**3:15 – 213.** Controlled polymerizations using transition metal complexes. **B. M. Novak**

**3:50 – 214.** Carbon dioxide technology platform. **J. M. DeSimone**

Section B

Unknown Room

### High Resolution NMR Spectroscopy of Polymers

## 2001 Spring Meeting

### Solution NMR of Synthetic Polymers

A. D. English, *Organizer*

H. N. Cheng, *Organizer, Presiding*

**1:00 – 215.** Chain end characterization of copolymers containing diphenylphosphinyl ends by  $^{31}\text{P}$ -NMR spectroscopy. **H. J. Harwood**, B. R. Barkes, R. Medsker

**1:30 – 216.** NMR/isotopic labeling and mechanistic studies of cationic ring-opening copolymerization. **N. Yang**, P. Dunn, M. Werner, S. P. Fenelli, J. A. Grates

**2:00 – 217.** Recent advances in the NMR description of polypropylenes. **A. L. Segre**, V. Busico

**2:30 – 218.** Effect of internal donors in propylene polymerization with the aid of NMR and internet. **R. Chûjô**, K. Shimozawa, M. Saito

**3:00** – Intermission.

**3:30 – 219.** Triple resonance multidimensional solution NMR of fluoropolymers: Problems, solutions, and results **P. L. Rinaldi**, O. Assemat, L. Li, V. Dudipala, S. Stakleff

**4:00 – 220.** Compositional and configurational assignments of acrylonitrile copolymers by 2-D NMR spectroscopy. **A. S. Brar**

**4:30 – 221.** Solution NMR characterization of polyimides based on 4,4'-diaminotriphenylmethane **A. Martinez-Richa**, R. Vera-Graziano, D. Likhatchev

Section C

Unknown Room

### Silicones and Silicone-Modified Materials

S. J. Clarson, M. J. Owen, S. D. Smith, and M. E. Van Dyke, *Organizer*

J. J. Fitzgerald, *Organizer, Presiding*

**1:10 – 222.** Dynamics and structure of polydimethylsiloxane emulsions as studied by pulsed field gradient NMR and small-angle neutron scattering. **T. Cosgrove**, T. Garasanin Bellenger, A. J. Goodwin, A. Kretschmer, L. Marteaux

**1:40 – 223.** Poly(amidoamine-organosilicon) (PAMAMOS) dendrimers and their derivatives of higher degree of structural complexity. **P. R. Dvornic**, M. J. Owen, S. E. Keinath, J. Hu, L. W. Hoffman, P. L. Parham

**2:10 – 224.** Dendrimer-based interpenetrating polymer networks. - *Abstract Text not Available* **D. Teyssié**, F. Vidal, I. Hémonic, S. Boileau, S. D. Reeves, P. R. Dvornic, M. J. Owen

**2:40 – 225.** Neutron scattering studies of linear and cyclic poly(dimethylsiloxanes). **A. C. Dagger**, V. Arrighi, S. Gagliardi, M. J. Shenton, S. J. Clarson, J. A. Semlyen

**3:10** – Intermission.

**3:30 – 226.** 2D-NMR and LC-NMR characterization of siloxane/styrene block copolymers. **A. M. Morgan**, S. K. Pollack, K. Beshah

**4:00 – 227.** Synthesis of poly(methylmethacrylate-dimethylsiloxane) block copolymers: Thermal and morphology studies. **L. Bes**, K. Huan, E. Khoshdel, D. M. Haddleton

**4:30 – 228.** High resolution pattern replication utilizing siloxane-modified acrylate network stamps. **K. R. Carter**, M. E. Best, G. M. McClelland, B. D. Terris

Section D

Unknown Room

### Durability of Plastics and Rubbers

#### Tutorial

## 2001 Spring Meeting

P. DesLauriers and N. C. Billingham, *Organizer*

R. Clough, *Presiding*

12:55 – Introductory Remarks.

1:00 – 229. Oxidative degradation of polymers: An introduction. **N. C. Billingham**

1:45 – 230. Macro-and micro-spectrophotometric techniques for assessing material changes in accelerated conditions. **J. Lemaire**

2:30 – 231. Polymer photodegradation and stabilization: A tutorial. **J. E. Pickett**

3:15 – 232. Design and durability of high performance/high temperature polymers. **P. M. Hergenrother**

4:00 – 233. Lifetime predictions for elastomers from accelerated aging experiments. **K. T. Gillen**, R. L. Clough

4:45 – 234. Stabilization of polymers: Introduction. **H. Zweifel**

### **Combinatorial Approaches To Polymer Design and Modeling**

*Cosponsored with Biotechnology Secretariat*

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## **TUESDAY EVENING**

Section A

Unknown Room

### **Durability of Plastics and Rubbers**

R. Clough, P. DesLauriers, and N. C. Billingham, *Organizer*

6:00 - 8:00

235. Degradation of a foamed poly(dimethylsiloxane). **A. N. Chaudhry**, N. C. Billingham

236. Degradation of MDI-based poly(ester urethane) initiated by exposure to dilute concentrations of nitrogen dioxide. **E. B. Orler**, D. A. Wroblewski, D. W. Cooke, B. L. Bennett

237. Diffusion of slip/antiblocking agents in polyolefins: A study by FTIR ATR spectroscopy and stack experiments. N. C. Billingham, **C. Kefaleas**

238. Effects of peroxide crosslinking on the oxidative stability of PE-LD: A study using chemiluminescence. **P. K. Fearon**, S. W. Bigger, N. C. Billingham

239. Formation of self generating, inorganic passivation layer on nylon 6 / layered silicate nanocomposite **H. Fong**, R. A. Vaia, J. H. Sanders, D. M. Lincoln, P. J. John, A. J. Vreugdenhil, J. Bultman, C. A. Cerbus, H. G. Jeon

240. Hydrogen uptake mechanism of silicone rubber-DEB getter mixture. **M. Balooch**, L. N. Dinh

241. Investigation of aging signatures of silicone polymers for incorporation into predictive models. **B. Balazs**, R. S. Maxwell, J. D. LeMay

242. Mechanical properties of thermally-aged glove samples. **K. V. Wilson Jr.**, B. L. Smith, J. M. Macdonald, J. M. Castro, W. P. Steckle Jr.

243. Monitoring thermo-oxidative degradation in elastomers by NMR relaxation measurements. **R. A. Assink**, D. P. Lang, M. Celina, B. Sanderson, K. T. Gillen

244. Oxidative degradation analysis of HTPB/IPDI polyurethane using <sup>17</sup>O and <sup>13</sup>C NMR. **D. J. Harris**, R. A. Assink, M. C. Celina

245. Study of the effects of additive interaction in polymer stabilization. **E. Földes**, J. Lohmeijer



## 2001 Spring Meeting

246. Superposition and wear-out approaches applied to polymer lifetime prediction. **M. Celina**, K. T. Gillen

247. Crystallization behavior as a tool for assessing changes in high phenyl content silica filled PDMS/PDPS copolymer composite foams. **R. Maxwell**, B. Balazs, S. DeTeresa, R. Cohenour, L. Thompson

Section B

Unknown Room

### Silicones and Silicone-Modified Materials

S. J. Clarson, J. J. Fitzgerald, M. J. Owen, S. D. Smith, and M. E. Van Dyke, *Organizer*

6:00 - 8:00

248. Synthesis and characterization of poly(N,N-dimethyl acrylamide)-l-poly(dimethylsiloxane) amphiphilic conetworks. S. Szabó L, **B. Ivan**

249. Designing new application-specific silicones for GC columns. **D. V. Patwardhan**, F. L. Dorman, C. M. English

250. Measuring the size and shape of poly(dimethylsiloxanes) by spectroscopy. **M. J. Shenton**, A. C. Dagger, H. Herman

251. Novel silicone materials with improved thromboresistance via nitric oxide release. **H. Zhang**, K. Osterholzer, G. M. Annich, S. I. Merz, J. Miskulin, M. E. Meyerhoff

252. Aliphatic poly(silyl ether)s by Ru-catalyzed hydrosilylation copolymerization of aliphatic  $\alpha,\omega$ -diketones with  $\alpha,\omega$ -dihydrido-oligodimethylsiloxanes **J. M. Mabry**, W. P. Weber

253. Bioadhesion studies on microtextured siloxane elastomers. W. R. Wilkerson, C. A. Seegert, A. W. Feinberg, L. C. Zhao, M. E. Callow, R. Baney, A. B. Brennan

254. Calculation of large ring concentrations in poly(dimethyl siloxane) systems. **R. E. Heath**, J. A. Semlyen

255. Characterization of chemically and topographically modified siloxane elastomer. A. W. Feinberg, C. Seegert, W. R. Wilkerson, A. Gibson, L. Wilson, R. Baney, **A. B. Brennan**

256. Dehydrogenative silylation copolymerization: Synthesis of copoly[arylene-1,2-dioxy/oligodimethylsiloxanylene]s by ruthenium-catalyzed reaction of ortho-quinones with  $\alpha,\omega$ -dihydrido-oligodimethylsiloxanes **J. M. Mabry**, C. J. Teng, W. P. Weber

257. Divergent synthesis of tetra-branched star polysiloxanes by tetrakis(hydroxydimethylsiloxy)silane/phosphazene  $P_4$ -t-Bu superbase catalyzed proton transfer polymerization of  $D_3$ . G. Cai, **W. P. Weber**

258. Effect of thermal ageing on the non-network species in RTV5370 polysiloxane rubbers. **M. Patel**, A. R. Skinner

259. Hydrosilylation polymerizations with diallyl monomer - benzene solution vs. supercritical carbon dioxide R. Welsch, M. T. Blanda, S. R. Venumbaka, **P. E. Cassidy**, J. W. Fitch III

260. Improving structural control of PMMA-g-PDMS graft copolymers by ATRP. **H. Shinoda**, K. Matyjaszewski

261. Nanoporous organosilicates for low k dielectric applications. **W. Volksen**, R. D. Miller, C. J. Hawker, J. L. Hedrick, M. Toney, P. Rice, T. Magbitang, V. Lee, E. Huang, K. Rodbell, K. Lynn, M. P. Petkov, M. Weber

262. New methods of poly(siloxane) synthesis via phosphoronitrile Chloride Lewis acid catalysis. M. Fielden, J. G. Matisons, C. J. Embery, S. R. Clarke, **L. G. Britcher**

263. Observations on the synthesis of 1,3,5-tris(3-trimethoxysilylpropyl)-isocyanurate **P. M. Miranda**, A. MacGregor

264. Phase behavior and structural characterization of trisiloxane surfactant - water - silicon oil systems. **P. Alexandridis**, S. Ahn

265. Poly[1,1-bis(trimethylsiloxy)-3,3,5,5-tetramethyltrisiloxane] G. Cai, **W. P. Weber**

266. Preparation and properties of polyhedral oligosilsesquioxanes/polymer blends. **R. L. Blanski**, S. H. Phillips, A. Lee

## 2001 Spring Meeting

- 267.** Preparation of poly(dimethylsiloxane)-graph-oligo(oxyperfluoropropylene) via ring-opening polymerization. **M. A. Buese**, J. F. Gonzalez, C. G. Harbaugh, G. M. Stearman, M. S. Williams
- 268.** Silica surface treatment effects on the dynamics of poly(dimethyl siloxane) by time-of-flight neutron spectroscopy. A. I. Nakatani, **K. S. Kwan**, R. Ivkov, P. Papanek
- 269.** Siloxane coupling agents. **L. Britcher**, J. G. Matisons, D. C. Kehoe
- 270.** Sol-gel chemistry of 3-isocyanatopropyltriethoxysilane. D. A. Loy, **C. R. Baugher**, D. A. Schneider, A. Sanchez, F. Gonzalez
- 271.** Sol-gel chemistry of amino-functionalized organotrialkoxysilanes. D. A. Loy, **A. Sanchez**
- 272.** Sol-gel chemistry of epoxy-functionalized organotrialkoxysilanes. **D. M. Gara**, D. A. Loy
- 273.** Sol-gel chemistry of methacryloxy- and styryl-functionalized organotrialkoxysilanes. **M. R. Minke**, D. A. Loy
- 274.** Structure-property relationships for poly(dimethylsiloxane) networks in situ filled using titanium 2-ethylhexoxide and zirconium n-butoxide. **S. Murugesan**, J. E. Mark, G. Beaucage
- 275.** Structures of side chain liquid crystalline poly(silylenemethylene)s. **S. Park**, T. Zhang, L. V. Interrante, B. L. Farmer
- 276.** Study of curing properties of silicone structural sealant. **Y. Wang**, L. Liu, H. Wang, Q. Wu
- 277.** Study on the synthesis of optically active polysilane dendrimer. **H. Oh**, M. Omote, K. Suzuki, I. Imae, Y. Kawakami
- 278.** Synthesis and characterization of a new (tetrasilanol)cyclosiloxane. **B. M. Moore**, T. S. Haddad, S. Phillips
- 279.** Synthesis and properties of isomeric poly(1-hydrido-1-trimethylsiloxytetramethyltrisiloxane) and poly(1-dimethylsiloxy-pentamethyltrisiloxane), regular polysiloxanes, that contain both Si-H and  $\text{RSiO}_{3/2}(\text{T})$  units G. Cai, **W. P. Weber**
- 280.** Synthesis and properties of new ion conducting polymer: Poly(methacryloxypropyl-di(PDMS-b-TGME)). **J. Kim**, J. Lee
- 281.** Synthesis of copoly(silyl ether/silyl enol ether)s by ruthenium catalyzed hydrosilylation/dehydrogenative silylation of  $\alpha$ -diketones with  $\alpha,\omega$ -dihydrido-oligodimethylsiloxanes **J. M. Mabry**, W. P. Weber
- 282.** Synthesis of irregular linear cross conjugated copoly[2-trimethylsilyl-1,1-vinylene/2,4'- or 2,4-benzophenonylene] **S. K. Gupta**, W. P. Weber
- 283.** Synthesis of siloxanes and silsesquioxanes for 157 nm lithography. **H. V. Tran**, R. J. Hung, D. A. Loy, D. R. Wheeler, J. Byers, W. Conley, C. G. Willson
- 284.** Thermally stable siloxane copolymers for gas chromatography. **G. M. Day**, R. Cervini, G. J. Sharp

Section C

Unknown Room

### High Resolution NMR Spectroscopy of Polymers

H. N. Cheng and A. English, *Organizer*

**6:00 - 8:00**

**285.**  $^1\text{H}/^{13}\text{C}/^{29}\text{Si}$  Triple resonance 3-D NMR study of poly(dimethylsiloxane) MD3MH. **M. Chai**, P. L. Rinaldi, S. Hu

**286.** 2-D NMR of polymers: Comparison of some of the standard pulse sequences. **R. A. Newmark**, J. L. Battiste, M. N. Koivula

**287.** Azocellulose: A novel photodynamic polymer characterized by solid state  $^{13}\text{C}$  NMR. **A. Cholli**, S. Yang, M. M. Jacob, J. Kumar, S. K. Tripathy

## 2001 Spring Meeting

- 288.** Cationic copolymerization of trioxane with 1,3-dioxepane: An NMR study **N. Yang**, M. Cui, Y. Zhang, S. P. Fenelli, J. A. Grates
- 289.** Complex polymer mixture analysis by LC(GPC)-NMR. **J. Wu**, K. Beshah
- 290.** Conformational analysis of alkylated biuret and triuret: Evidence for helicity and helical inversion. **L. D. Ptak**, J. D. Thoburn, C. G. Wade
- 291.** Dynamics of deuterated molecules clathrated in crystalline syndiotactic polystyrene. **A. Grassi**, E. Trezza
- 292.** Effect of internal donors in propylene polymerization analyzed with the internet system. **K. Shimozawa**, M. Saito, R. Chûjô
- 293.** Estimation of physical properties of archaeological silk with the aids of NMR relaxation time and fluctuation-dissipation theorem. **R. Chûjô**, K. Fukutani, Y. Magoshi
- 294.** High field <sup>13</sup>C NMR spectra of chloroprene copolymers. **A. H. Fawcett**, W. Burns, A. B. Foster
- 295.** Multidimensional NMR studies on polyurethane dendritic wedges. **M. Chai**, P. L. Rinaldi, U. Puapaiboon, R. T. Taylor
- 296.** NMR investigation on peroxidase-catalyzed polymerization of sulfonated phenol. **A. L. Cholli**, W. Liu, J. Kumar, S. Tripathy, L. Samuelson
- 297.** Oligomers and fractals of polyester networks. **A. H. Fawcett**, G. Andrews, M. Hania
- 298.** Photostabilization of PET via photo-Fries' rearrangement. **M. Lin**, C. Lee
- 299.** Solid state NMR studies of high internal phase emulsion polystyrene foams crosslinked with trivinylbenzene and deuterated divinylbenzene. **W. P. Steckle Jr.**, D. A. Langlois, J. H. Small
- 300.** Structure determination of poly(vinyl alcohol) by 2-D NMR spectroscopy. **A. S. Brar**, R. Kumar, A. Yadav, M. Kaur
- 301.** Water in hydrogels: An NMR study of water/polymer interactions in lightly crosslinked chitosan networks. **A. A. De Angelis**, A. L. Segre, D. Capitani, V. Crescenzi

Section D

### Unknown Room

#### In-situ Spectroscopy in Monomer and Polymer Synthesis

T. Long, J. Andrews, J. E. Puskas, and R. Storey, *Organizer*

**6:00 - 8:00**

- 302.** In situ characterization of Ziegler-Natta polymerization: Laser reflection interferometry, X-ray photoelectron spectroscopy and thermal desorption of probe molecule **S. H. Kim**, D. Gnani, G. A. Somorjai
- 303.** Investigation of TiCl<sub>4</sub> reaction order in quasiliving carbocationic polymerization of isobutylene. R. F. Storey, **Q. A. Thomas**
- 304.** Observation of hydrophobic interactions in peptide/polymer non-covalent macromolecular complexes by 2D NOESY <sup>1</sup>H NMR spectra. **I. M. Khan**, K. P. Pemawansa
- 305.** Real-time fiber optic mid-IR monitoring of inimer-type living isobutylene polymerizations. **C. Paulo**, J. E. Puskas
- 306.** Real-time Fiber Optic Mid-IR Monitoring of Sequential Living Isobutylene and Styrene Block Polymerizations. M. Krombholz, **J. E. Puskas**
- 307.** Study of ring opening metathesis polymerization kinetics for endo and exo norbornene derivative monomer with in situ <sup>1</sup>H-NMR technique. **Q. Fu**, T. A. P. Seery

### WEDNESDAY MORNING

Section A

## 2001 Spring Meeting

Unknown Room

### 2001 ACS Award in Applied Polymer Science Honoring Daniel J. Brunelle

W. J. Brittain, *Organizer, Presiding*

**8:30 – 308.** Nanocomposite formation via cyclic oligomers. X. Huang, S. Lewis, **W. J. Brittain**, R. A. Vaia

**8:55 – 309.** Dialogs with Dan: Collaborative polymer research the "GE way". **L. J. Mathias**

**9:20 – 310.** Materials for use in optoelectronic applications. **E. P. Boden**, K. P. Chan, H. L. Finkbeiner, D. G. Gascoyne, J. L. Gordon, K. R. Stewart, G. A. Wagoner

**9:45 – 311.** Photooxidation of poly(2,6-dimethyl-1,4-phenylene oxide) **J. E. Pickett**

**10:10 – 312.** Recent advances in photoinitiated cationic polymerization. **J. V. Crivello**

**10:35 – 313.** Dendrimers containing a poly(arylene ether sulfone) core: Linear polymers and copolymers. **A. S. Hay**, C. A. Martinez

**11:00 – 314. Award Address** (ACS Award in Applied Polymer Science, sponsored by ). Studies in polycarbonate, polyester, and polyetherimide chemistry **D. J. Brunelle**

Section B

Unknown Room

### Silicones and Silicone-Modified Materials

S. J. Clarson, J. J. Fitzgerald, M. J. Owen, and M. E. Van Dyke, *Organizer*

S. D. Smith, *Organizer, Presiding*

**8:00 – 315.** Synthesis of alternating polysiloxane copolymers by interfacial polymerization. **J. G. Matisons**, S. R. Clarke, M. J. Owen, D. Graiver

**8:30 – 316.** Spectroscopic, thermal, and mechanical properties of silicone-urea copolymers doped with transition metal salts E. Yilgor, M. Gordeslioglu, B. Dizman, **I. Yilgor**, E. Kaya

**9:00 – 317.** Silicone graft copolymers with styrene, methylmethacrylate and chloroprene **A. H. Fawcett**, A. B. Foster

**9:30 – 318.** Block and graft copolymers containing poly(dimethylsiloxane) and poly(4-vinylpyridine) segments by free radical polymerization. **Y. Kim**, D. Graiver, G. T. Decker, F. J. Hamilton Sr., H. J. Harwood

**10:00** – Intermission.

**10:20 – 319.** Silicone hydrogels based on methacrylate: Capped multi-block polyurethane-polysiloxane prepolymers. **Y. Lai**, E. T. Quinn, P. L. Valint

**10:50 – 320.** Synthesis and characterization of (star polystyrene)-*bl*-polydimethylsiloxane-*bl*-(star polystyrene). **D. M. Knauss**, T. Huang

**11:20 – 321.** Synthesis and properties of poly(butylene terephthalate)-poly(dimethylsiloxane) block copolymers. **D. A. Schiraldi**

Section C

Unknown Room

### High Resolution NMR Spectroscopy of Polymers

### Solid State NMR of Synthetic Polymers

H. N. Cheng, *Organizer*

A. English, *Organizer, Presiding*

**8:30 – 322.** Structure and dynamics of polymer/silsesquioxane mixtures and composites: Solution and solid-state NMR studies. **P. A. Mirau**, S. Yang

## 2001 Spring Meeting

**9:00 – 323.** Complex solvent self diffusion and morphology in permeable polymers. **P. T. Inglefield**, A. A. Jones, W. Wen, Y. Wang

**9:30 – 324.** Where are the chain ends in semi-crystalline polyethylene? **C. Wutz**, E. T. Samulski, M. Tanner, M. Brookhart

**10:00** – Intermission.

**10:15 – 325.** NMR studies of encapsulated polymers. **A. E. Tonelli**, J. Lu, P. A. Mirau

**10:45 – 326.** Solid state  $^2\text{H}$  NMR spectroscopy of nylon 6 and nylon 6/montmorillonite clay nanocomposites. **R. D. Davis**, L. J. Mathias, W. L. Jarrett Jr.

**11:15 – 327.** High temperature solid-state NMR of cross-linked, insoluble, and unswellable polymers **K. A. Thakur**  
Section D

Unknown Room

**Durability of Plastics and Rubbers**

**Analytical techniques for evaluating degradation**

R. Clough and P. DesLauriers, *Organizer*

N. Billingham, *Presiding*

**8:30 – 328.** Application of gel permeation chromatography to the study of polymer degradation. **E. Meehan**

**9:00 – 329.** Investigation of thermal and  $\gamma$ -irradiated hydrolysis in polymers using  $^{17}\text{O}$  NMR spectroscopy. **T. M. Alam**

**9:30 – 330.** Some novel approaches to the manipulation of data obtained from chemiluminescence and oxidative induction time experiments. **S. W. Bigger**, P. K. Fearon, D. J. Whiteman, T. L. Phease, N. C. Billingham

**10:00 – 331.** Chemiluminescence from oxidized polymers. **L. Rychla III**, J. Rychly

**10:25 – 332.** Electron spin resonance of radiation-induced oxidation in a poly(ester urethane) containing hard and soft segments. **M. S. Jahan**, M. C. King, J. M. Gray, D. W. Cooke, B. L. Bennett, E. B. Orler, D. A. Wroblewski

**10:50 – 333.** Polymer degradation study by factor analysis of GPC/FTIR data. **J. R. Schoonover**, S. L. Zhang

**11:15 – 334.** Thermo-oxidation mechanism of triblock(ethylene oxide-propylene oxide-ethylene oxide) copolymers analyzed by GC-MS and MALDI. **S. Karlsson**

**11:40 – 335.** Degradable polyethylene and test methods. **F. Khabbaz**, A. Albertsson

## WEDNESDAY AFTERNOON

Section A

Unknown Room

**General Papers**

**Characterization**

C. A. Guymon, *Organizer*

E. B. Orler, *Presiding*

**1:30 – 336.** Structure property relations for poly(acrylonitrile-co-methyl acrylate) carbon fiber precursors. **V. A. Bhanu**, K. B. Wiles, A. K. Banthia, A. Mansuri, M. Sankarapandian, T. E. Glass, P. Rangarajan, D. G. Baird, G. L. Wilkes, J. E. McGrath

**1:55 – 337.** Second look at polythieno[3,4-b]pyrazines: Low band-gap semiconductors and potential metal binding polymers D. D. Kenning, K. A. Mitchell, M. R. Funfar, **S. C. Rasmussen**

**2:20 – 338.** Driving helical geometries with light: From smart polymers to photoresponsive chiroptical switches. **G. D. Jaycox**

**2:45 – 339.** Molecular weight determination of a poly(ester urethane). **D. A. Wroblewski**, E. B. Orler, M. E. Smith

## 2001 Spring Meeting

**3:10 – 340.** Toward a standard method for calculating the binding parameters of molecularly imprinted polymers. **R. J. Umpleby II**, K. D. Shimizu

**3:35 – 341.** Structure-property relationships of poly(urethane-urea)s with mixed soft segments of ultra-low monol content poly(propylene glycol) and tri(propylene glycol). M. J. O'Sickey, B. D. Lawrey, **G. L. Wilkes**

**4:00 – 342.** Near-IR two-photon induced polymerizations using either benzophenone or thioxanthone-based photoinitiators. **L. L. Brott**, R. R. Naik, S. M. Kirkpatrick, D. J. Pikas, M. O. Stone

**4:25 – 343.** Pressure dependence of the second virial coefficient of polystyrene solutions. **C. L. Moses**, W. A. Van Hook  
Section B

Unknown Room

### Silicones and Silicone-Modified Materials

S. J. Clarson, J. J. Fitzgerald, M. J. Owen, and S. D. Smith, *Organizer*

M. E. Van Dyke, *Organizer, Presiding*

**1:10 – 344.** Organic/inorganic hybrid materials from polysiloxanes using atom transfer radical polymerization. J. Pyun, H. Shinoda, P. J. Miller, Y. Nakagawa, T. Kowalewski, **K. Matyjaszewski**

**1:40 – 345.** Synthesis and studies of polymers having a [Si-C-Si-O]<sub>n</sub> backbone structure: The poly(Silylenemethylene-co-Siloxanes). **L. V. Interrante**, J. Li, Q. Shen

**2:10 – 346.** Controlled synthesis of all-siloxane architectures by ring-opening polymerization. **J. Chojnowski**, M. Cypryk, W. Fortuniak, K. Kazmierski, M. Scibiorek, K. Rozga-Wijas

**2:40** – Intermission.

**3:00 – 347.** Microenvironment and structure of micelles formed by a polymeric siloxane surfactant in aqueous solutions. **Y. Lin**, P. Alexandridis

**3:30 – 348.** Cationic poly(dimethylsiloxane) surfactants: Synthesis, characterization, and aggregation behavior in dense carbon dioxide, fluorinated, and silicon-containing solvents **S. L. Folk**, J. M. DeSimone, E. T. Samulski

**4:00 – 349.** Reactivity of bis(dimethylsilyl)benzene in the catalytic cross-dehydrocoupling polymerization and properties of silphenylene-containing polymers. **Y. Kawakami**, H. Oh, T. Kawakita, J. Moon, I. Imae

**4:30 – 350.** Synthesis of functionalized carbosilane polymers using nucleophilic substitution/ADMET polymerization. **A. C. Church**, J. H. Pawlow, **K. B. Wagener**

Section C

Unknown Room

### High Resolution NMR Spectroscopy of Polymers

#### NMR of Biopolymers, I

H. N. Cheng and A. English, *Organizer*

A. S. Serianni, *Presiding*

**1:00 – 351.** Determining global structure of nucleic acids with dipolar couplings. **A. Pardi**, E. Mollova, S. McCallum, P. Hanson, K. Bondensgaard

**1:30 – 352.** Orientational constraints on polypeptide folds: The role of NMR in structural genomics. **J. H. Prestegard**

**2:00 – 353.** NMR Analysis of structural transition occurred in silk fibroins. **T. Asakura**

**2:30** – Intermission.

**2:45 – 354.** Origins of the flexibility of complex polysaccharides. **C. A. Bush**, M. Martin-Pastor, C. J. M. Stroop

**3:15 – 355.** Studies on the structure of exopolysaccharides produced by lactic acid bacteria. **J. F. G. Vliegthart**, E. J.

## 2001 Spring Meeting

Faber, J. P. Kamerling

**3:45 – 356.** Gelling mechanism of glucomannan polysaccharides and their interactions with proteins. **I. C. Baianu**, E. Ozu  
Section D

Unknown Room

### **Durability of Plastics and Rubbers Stabilization and lifetime prediction**

R. Clough and N. C. Billingham, *Organizer*

P. DesLauriers, *Presiding*

**1:00 – 357.** New synergists for hindered amine light stabilizers. **P. Gijsman**

**1:30 – 358.** Action modes of unconventional polymer heat stabilizers: A comparison between 3-arylbenzofuranones and phthalides. **C. Krohnke**, O. Brede, E. Epacher, B. Pukanszky, B. Turcsanyi

**2:00 – 359.** Effect of stabilizers on degradation depth profiles and fracture of UV-degraded polypropylene and polycarbonate. **J. R. White**, T. J. Turton

**2:30 – 360.** How do nanocomposites enhance the thermal stability of polymers? **C. A. Wilkie**, J. Zhu, F. Uhl

**2:55 – 361.** Relating heat age tests to in-service automotive performance of polymeric materials. **D. R. Bauer**

**3:25 – 362.** Polyolefin durability estimates by oxidative stability testing. **L. Woo**, C. L. Sandford, S. Y. Ding

**3:50 – 363.** Combined MOMO analysis of the onset of thermal degradation in polymers. **E. Chamot**

**4:15 – 364.** Crosslink density and molecular weight effects on the viscoelastic response of a glassy high-performance polyimide. **L. M. Nicholson**, K. S. Whitley, T. S. Gates

**4:40 – 365.** Prediction for the lifetime of polymer insulation. **N. H. Turner**, D. G. Kasture, A. M. Bruning, W. L. Linzey

## **THURSDAY MORNING**

Section A

Unknown Room

### **Silicones and Silicone-Modified Materials**

S. J. Clarson, J. J. Fitzgerald, S. D. Smith, and M. E. Van Dyke, *Organizer*

M. J. Owen, *Organizer, Presiding*

**8:00 – 366.** Silicone biofouling release coatings: Correlation of compositional variables with macrofouling attachment strength. **J. Stein**, K. Truby, C. D. Wood, D. Wiebe, J. Montemarano, D. Wendt, C. Smith, E. Holm, A. Meyer, G. Swain, D. Lapota, C. Kavanagh, B. Kovach

**8:30 – 367.** Multi-arms PDMS functional stars: Synthesis and characterization. N. G. Vasilenko, G. M. Ignat'eva, E. A. Rebrov, V. D. Myakushev, M. Moeller, **A. M. Muzafarov**

**9:00 – 368.** Silicone elastomeric powders. **D. T. Liles**, Y. Morita, K. Kobayashi

**9:30 – 369.** Hyperbranched Poly(alkoxysiloxanes). **W. A. Goedel**, M. Jaumann, A. Muzafarov, M. Möller

**10:00** – Intermission.

**10:20 – 370.** Dynamic wetting behavior of hydrosilation-cured polydimethylsiloxane coatings. **J. Uilk**, R. Hayes, R. B. Fox, K. J. Wynne

**10:50 – 371.** Adsorption of an amphiphilic siloxane graft copolymer on hydrophobic particles. **Y. Lin**, T. W. Smith, P. Alexandridis

## 2001 Spring Meeting

**11:20 – 372.** Synthesis of vinyloxy acetate/siloxane copolymers for use on E glass fibers. **R. Ma**, C. Le-Huy, L. G. Britcher, J. G. Matisons

Section B

Unknown Room

### **High Resolution NMR Spectroscopy of Polymers Polymer Separations and Polymer Dynamics**

H. N. Cheng and A. English, *Organizer*

P. T. Inglefield, *Presiding*

**8:30 – 373.** On-line HPLC-NMR on polymers. **W. G. Hiller**, H. Pasch

**9:00 – 374.** Tacticity distribution analysis of poly(ethyl methacrylate) by on-line LCCAP-NMR. **K. Ute**, M. Janco, R. Niimi, T. Kitayama, K. Hatada, D. Berek

**9:30 – 375.** Copolymer characterization by SEC-NMR and SEC-MALDI. **M. S. Montaudo**

**10:00** – Intermission.

**10:15 – 376.** Dynamics of polyacrylates in concentrated chloroform solutions. **F. D. Blum**, R. B. Durairaj

**10:45 – 377.** NMR spectroscopic study of ion conducting <sup>15</sup>N labeled polyphosphazenes. **T. A. Luther**, M. K. Harrup, F. F. Stewart

**11:15 – 378.** Dynamics and structures of small oligomers of polyisocyanates by NMR. **C. Wade**, D. J. O'Leary, J. Roth, K. Armstrong, J. D. Thoburn, D. C. Miller, A. Pomerantz

Section C

Unknown Room

### **Durability of Plastics and Rubbers Degradation mechanisms**

P. DesLauriers and N. C. Billingham, *Organizer*

R. Clough, *Presiding*

**8:30 – 379.** Modeling, experimental evidence, and practical consequences of the infectious spreading of oxidative degradation in polymers **G. George**, I. Blakey, B. Goss, M. Grigg

**9:00 – 380.** Poly(vinyl chloride) degradation: Recent mechanistic investigations. **W. H. Starnes**, V. G. Zaikov, L. B. Payne, Y. Li, X. Ge

**9:30 – 381.** Kinetic study of polymeric binders in energetic materials. **C. A. Wight**, J. D. Peterson

**10:00 – 382.** Time-resolved singlet oxygen microscopes: monitoring a key degradation intermediate with spatial resolution. **P. R. Ogilby**, L. K. Andersen, N. Dam, P. K. Frederiksen, M. Joergensen, L. Poulsen

**10:25 – 383.** Effects of tin compounds on thermal and thermooxidative degradation of poly(vinyl chloride). **B. Iván**, R. Haszanova

**10:50 – 384.** New views of an old reaction. **F. L. Gugumus**

**11:15 – 385.** The effect of thermal ageing on the non-network species in RTV5370 polysiloxane rubbers. **M. Patel**, A. R. Skinner

**11:40 – 386.** Study of thermal oxidation of stabilized PP films during the induction period. **L. Audouin**, B. Fayolle, J. Verdu

## **THURSDAY AFTERNOON**

Section A

Unknown Room

### **Silicones and Silicone-Modified Materials**



## 2001 Spring Meeting

J. J. Fitzgerald, M. J. Owen, S. D. Smith, and M. E. Van Dyke, *Organizer*

S. J. Clarson, *Organizer, Presiding*

**1:10 – 387.** Investigations of tin catalysts in silicone RTV systems. **S. J. Clarson**

**1:40 – 388.** Mechanism of the Pt(0) catalyzed hydrosilylation reaction. **B. E. Eichinger**, J. Stein

**2:10 – 389.** Silicon biocatalysis. **P. W. Whitlock**, S. J. Clarson, L. L. Brott, R. R. Naik, M. O. Stone

**2:40** – Intermission.

**3:00 – 390.** Surfactant properties of poly(2-(dimethylamino)ethylmethacrylate-dimethylsiloxane) triblock copolymers synthesized by copper(I) mediated living radical polymerization. **D. M. Haddleton**, L. Bes, K. Huan, E. Khoshdel

**3:30 – 391.** Silicone substituted phthalocyanines for optical limiting applications. **E. M. Maya**, A. W. Snow, J. S. Shirk, S. R. Flom, R. G. S. Pong, G. L. Roberts

**4:00 – 392.** Mechanistic study on diffusion-controlled titanate-catalyzed condensation of alkoxy silanes in a non-polar solvent. **X. Zhou**, S. Hu, N. E. Shephard, D. Ahn

**4:30 – 393.** Synthesis and curing properties of dimethoxysilyl telechelic polyisobutylenes. S. Hadjikyriacou, **R. Faust**, T. Suzuki

Section B

Unknown Room

**High Resolution NMR Spectroscopy of Polymers**

**NMR of Biopolymers, II**

H. N. Cheng and A. English, *Organizer*

J. F. G. Vliegthart, *Presiding*

**1:00 – 394.** Glycan profiling of mammalian tissues and cells by homo- and heteronuclear nano-NMR spectroscopy. **H. van Halbeek**

**1:30 – 395.** Analysis of polysaccharides by NMR and separation techniques. **T. G. Neiss**, **H. N. Cheng**

**2:00 – 396.** Keratan sulfates: Structural investigations using NMR spectroscopy. **T. N. Huckerby**, G. M. Brown, R. M. Lauder, I. A. Nieduszynski

**2:30** – Intermission.

**2:45 – 397.** NMR J-couplings in saccharides: Combining theory with experiment. **A. S. Serianni**, I. Carmichael

**3:15 – 398.** Synthesis and physical and NMR characteristics of di- and tri-substituted cellulose ethers. **N. (. D. Sachinvala**, D. L. Winsor, W. P. Niemczura, K. Maskos, T. L. Vigo, N. R. Bertoniere

**3:45 – 399.** 2-D NMR Analysis of ethylcellulose. Q. Xu, **M. Brickhouse**, H. Wang

Section C

Unknown Room

**Durability of Plastics and Rubbers**

**Degradation under specific environmental stresses**

R. Clough and P. DesLauriers, *Organizer*

N. Billingham, *Presiding*

**1:00 – 400.** Mechanisms and kinetics of polyethylene hydroperoxide reactions in the melt. **F. L. Gugumus**

**1:30 – 401.** Use of rheology to detect and examine the degradation of polyethylene during processing. **D. C. Rohlfiing**, P. J. DesLauriers

## 2001 Spring Meeting

**2:00 – 402.** Degradation of poly (L-lactide). **A. C. Albertsson**, F. Khabbaz, M. Hakkarainen

**2:30 – 403.** Light stability of thermoset acrylate polymers. **C. Decker**, K. Zahouily, A. Valet

**2:55 – 404.** Effects of relative humidity on moisture-enhanced photolysis of acrylic-melamine polymer coatings: A quantitative study. **T. Nguyen**, J. Martin, E. Byrd, N. Embree

**3:20 – 405.** Use of integrating spheres as uniform sources for polymer photodegradation studies. **J. W. Chin**, J. W. Martin, E. Embree, E. Byrd, J. D. Tate

**3:45 – 406.** Effect of environmental variables on the weathering of some engineering thermoplastics. **J. E. Pickett**

**4:10 – 407.** Experimental investigation into  $\gamma$  radiation effects in filled and unfilled poly(ester) based poly(urethane)s. **J. J. Murphy**

**4:35 – 408.** Thermal aging of a plasticized poly(ester urethane). **E. B. Orler**, D. A. Wroblewski, D. W. Cooke, B. L. Bennett, M. E. Smith, M. S. Jahan, M. C. King

**5:00 – 409.** Microbiological growth testing on silicone rubber materials for outdoor high voltage insulation. **S. M. Wallstrom**, K. Dowling, S. Karlsson