POLY

DIVISION OF POLYMER CHEMISTRY

Malika Jeffries-El, Dylan Boday and Timothy White, *Program Chairs*

SUNDAY MORNING

Section A

Sheraton Denver Downtown Hotel
Directors Row E

Next Generation Smart Materials

Bio-inspired and Biomimetic Systems

Cosponsored by PMSE‡
Y. C. Simon, *Organizer*
E. B. Berda, J. Foster, *Organizers, Presiding*

8:30 Introductory Remarks.

8:35 1. Poly(phthalaldehydes) as stimuli-responsive, depolymerizable materials that are capable of providing amplified responses.**A.M. DiLauro**, S.T. Phillips

9:05 2. Making “smarter” heparin-mimicking polymers.**N. Ayres**, Y. Huang, Q. Chai

9:35 3. Nucleobase hydrogen bonding in polymers as a source of intelligence.**T.E. Long**, K. Zhang, M. Aiba, S. Cheng, W.D. Chiang

10:05 Intermission.

10:15 4. Poly(phosphoester)s: From adhesives to stealth polymers
.**F. Wurm**

10:45 5. Light-degradable polymers: amplification strategies, response to new wavelengths, and application to a clinical challenge.J. Olejniczak, C. Carling, V. Nguyen Huu, A. Garcia, J. Luo, K. Zhang, **A. Almutairi**

11:15 6. Folding single polymer chains.**C. Barner-Kowollik**, J. Willenbacher, O. Altintas

11:45 Concluding Remarks.

Section B

Sheraton Denver Downtown Hotel
Governor's Square 12

Putting Renewable Polymers to Work

D. Boday, E. C. Hagberg, *Organizers, Presiding*

8:00 Introductory Remarks.

8:05 7. Poly(β-methyl δ-valerolactone) as a scalable and renewable soft segment for aliphatic polyester block polymers.**M.A. Hillmyer**

8:35 8. Commercialization of triglyceride-based thermoplastic elastomers for polymer modified asphalt pavements: Where the (bio)rubber meets the road.**E.W. Cochran**, R. Williams, N. Hernandez, M. Yan, A. Hohmann, M.J. Forrester

9:05 9. Conversion of agricultural residues into value-added products.**H. Cheng**, A. Biswas

9:35 Intermission.

9:50 10. Synthesis and functional properties of renewable polymers.**R.M. Waymouth**, X. Zhang, B. Timothy, A.J. Ingram, K. Chung, W. Ho, J. Hedrick

10:20 11. Design and synthesis of eumelanin-inspired polymers derived from vanillin.**T.L. Nelson**, R.P. Hopson, S. Selvaraju , N. Sachinthani

10:40 12. Thiol-ene films derived from phenolic acids.G. Yang, H. Tesefay, **M.L. Robertson**

11:10 13. Glass transition dynamics of biobased *poly*(ethylene 2,5-furandicarboxylate).**A. Codou**, N. Guigo, M. Moncel, L. Martino, J. Van Berkel, E. De Jong, N. Sbirrazzuoli

Section C

Sheraton Denver Downtown Hotel
Governor's Square 14

Celebrating the Fifth Year Anniversary of Polymer Chemistry (RSC)

Financially supported by Royal Society of Chemistry
D. M. Haddleton, B. S. Sumerlin, W. You, *Organizers, Presiding*

8:30 Introductory Remarks.

8:40 14. Nature's functionality on synthetic polymers - zwitterions and inverse zwitteirons.**T. Emrick**

9:10 15. Mimicry of photosynthesis: for the synthesis of well-defined polymers.S. Shanmugam, J. Xu, **C. Boyer**

9:40 16. New methodology for controlled supramolecular polymerization.**X. Zhang**

10:10 Intermission.

10:30 17. Sequential one-pot organocatalytic polymerization of epoxides and cyclic esters/carbonates.**J. Zhao**, D. Pahovnik, Y. Gnanou, N. Hadjichristidis

11:00 18. Building smart materials from poly(2-vinyl-4,4-dimethylazlactone) scaffolds.**A.B. Lowe**

11:30 19. Self-immolative polymersomes for high-efficiency triggered release and programmed enzymatic reactions.G. Liu, X. Wang, **S. Liu**

Section D

Sheraton Denver Downtown Hotel
Governor's Square 9

General Topics: New Synthesis & Characterization of Polymers

B. Barkakaty, D. Garcia, *Organizers*
A. Carlmark, F. Horkay, *Presiding*

8:00 20. Cartilage: architecture and function.**F. Horkay**, P.J. Basser

8:20 21. Drug-functionalized cell-penetrating peptides for enhanced delivery and binding in myotonic dystrophy type 1 treatment.**Y. Bai**, L. Nguyen, Z. Song, J. Cheng, S.C. Zimmerman

8:40 22. Novel biodegradable, biocompatible and biofunctional block copolymer scaffolds for tissue engineering applications.**P.P. Smith**, A.L. Rightler, B.K. McConnell, F. Zhang, S.O. Streubel, S. Lu, D. Price, S.G. Boyes

9:00 23. Protein:polymer conjugates via graft-*from* ring-opening metathesis polymerization.**S.A. Isarov**, J.K. Pokorski

9:20 24. Polylactic acid composite with natural fibers in food packaging.**S. Sedaghat**

9:40 25. N-heterocyclic carbenes in the organopolymerization of N-substitued N-carboxy-anhydrides to polypeptoid.**l. Falivene**, M. Alghamdi, L. Cavallo

10:00 26. Surface-initiated ring opening polymerization of carbonates and siloxanes from cellulose surfaces.S. Pendergraph, G. Klein, M.K. Johansson, **A. Carlmark**

10:20 27. Optimizing photo-CuAAC polymerization kinetic for dental restorative materials.**H. Song**, A.D. Baranek, M. McBride, T. Gong, A. Flores, J.W. Stansbury, C.J. Kloxin, C. Bowman

10:40 28. Chemical modification reactions of polysaccharides studied in real time by light scattering and viscometry-based methods.V.C. Spier, **A.M. Alb**

11:00 29. Radiolabeled polymers to probe the enhanced permeability and retention effect.**M.C. Parrott**

11:20 30. Investigating polymerization reactions with thermography: Differentiating between bulk effects, thermal diffusion and oxygen inhibition.**C. Wappl**, R. Geier, H. Freiszmuth, C. Slugovc, G. Gescheidt

11:40 31. High performance hydrogels based on melt-assembled networks of sphere-forming block copolymers.**J. Lewis**, T.S. Bailey

12:00 32. Withdrawn

Section E

Sheraton Denver Downtown Hotel
Directors Row I

Macromolecular and Nanoparticle Separation Science

Cosponsored by ANYL and PMSE
Financially supported by The Dow Chemical Company, Wyatt Technology, Tosoh BioScience, Waters, NIST
K. Beers, A. K. Brewer, W. Gao, A. M. Striegel, *Organizers, Presiding*

8:30 Introductory Remarks.

8:35 33. Size exclusion chromatography/gel permeation chromatography – a blessing and curse of science and technology of synthetic polymers.**D. Berek**

9:15 34. Industrial polymer analysis using a solvent elimination IR detector.**R. Allen**, S. Moyses, N. Jestel

9:45 35. Is SEC-Raman a feasible way of measuring copolymer chemical heterogeneity?.**A.M. Striegel**, L. Pitkanen, A.A. Urbas

10:15 Intermission.

10:30 36. Probing serum phase oligomer in acrylic emulsion polymerization process by GPC-RI/MS.**T. Zhang**, W. Gao, R. Even, D. Kline

11:00 37. Characterization of novel high temperature thermoplastic elastomers polybenzofulvene-block-polyisoprene-block-polybenzofulvene.**J.W. Mays**, W. Wang, T. White, N. Kang, K. Hong, R. Schlegel, M. Beiner, K. Williams, S.P. Gido

11:30 38. Ultrahigh performance size exclusion chromatography of synthetic polymers.**M. Janco**, J.N. Alexander, E.S. Bouvier, D. Morrison

12:00 39. Advanced polymer chromatography: Method development tools for SEC polymer analysis.**D. Morrison**, M. O'Leary

SUNDAY AFTERNOON

Section A

Sheraton Denver Downtown Hotel
Directors Row E

Next Generation Smart Materials

Bio-inspired and Biomimetic Systems

Cosponsored by PMSE‡
E. B. Berda, Y. C. Simon, *Organizers*
J. Foster, *Organizer, Presiding*
N. Zacharia, *Presiding*

1:30 Introductory Remarks.

1:35 40. Progress towards the efficient synthesis of polymers with precisely defined mass, sequence, and stereochemistry.J. Barnes, D. Ehrlich, F. Leibfarth, T.F. Jamison, **J.A. Johnson**

2:05 41. Programed block copolymers: At the end it is always good to be smart.**E.B. Coughlin**

2:35 42. Tunable solid state fluorescent materials for supramolecular encryption.X. Hou, C. Ke, **J.F. Stoddart**

3:05 Intermission.

3:25 43. Dynamic-covalent nanoparticles and self-healing hydrogels.S. Mukherjee, C.C. Deng, W. Brooks, M. Hill, **B.S. Sumerlin**

3:55 44. Chirality-selected phase behavior in ionic polypeptide complexes.**M.V. Tirrell**

4:25 45. Responsive polypeptide-based star and triblock copolymers: Smart function through morphology transitions.G.A. Strange, A.J. Johnson, I. Smith, J.G. Ray, **D.A. Savin**

4:55 Concluding Remarks.

Section B

Sheraton Denver Downtown Hotel
Governor's Square 12

Putting Renewable Polymers to Work

D. Boday, E. C. Hagberg, *Organizers, Presiding*

1:00 46. Diisocyanates and tackifiers from isosorbide.M.D. Zenner, **J.S. Chen**

1:20 47. Benzyl chloride functionalized polycarbonates: A versatile platform for the synthesis of functional biodegradable polycarbonates.**R. Ono**, S. Liu, S. Venkataraman, W. Chin, Y. Yang, J. Hedrick

1:50 48. Synthesis, characterization, and bimodal blend studies of renewable biobased epoxy resins from vanillyl alcohol.**E.D. Hernandez**, J.M. Sadler, J.J. La Scala, J.F. Stanzione

2:10 49. Selective organic catalysis in the synthesis of materials from sustainable resources by ring-opening polymerization.**A.P. Dove**

2:40 Intermission.

2:55 50. Renewable polymers in hydraulic fracturing applications.**J.R. Dorgan**

3:25 51. Soy-based polymer surfactants for personal care applications.A. Popadyuk, H. Kalita, B.J. Chisholm, **A.S. Voronov**

3:45 52. From biorefinery to performance technology: Transforming metathesized renewables oils into high value products.**K.O. Havelka**

4:15 53. Renewable feedstocks for the polymer industry.E.C. Hagberg, **P.D. Bloom**

4:45 54. Polysaccharide circuit boards for epidermal electronics.**M.A. Daniele**, J.S. Erickson, A.J. Knight, S.A. Roberts, K. Radom, S. Walper, J. Yuen

Section C

Sheraton Denver Downtown Hotel
Governor's Square 14

Celebrating the Fifth Year Anniversary of Polymer Chemistry (RSC)

Financially supported by Royal Society of Chemistry
D. M. Haddleton, B. S. Sumerlin, W. You, *Organizers, Presiding*

1:30 55. Hierarchical polymeric nanostructures from precision polymer chemistry.**S. Perrier**

2:00 56. Sequence-controlled polymerizations: The Holy Grail is near.**J. Lutz**

2:30 57. Protein-polymer conjugates by grafting to and grafting from methods.**H.D. Maynard**, C. Decker, J. Ko, J. Lee, T.H. Nguyen, E. Pelegri-O'Day, N. Matsumoto

3:00 Intermission.

3:20 58. Synthesis of protein-polymer conjugates with controllable activity through site-specific conjugation.X. Li, L. Wang, Y. Cai, L. Yuan, H. Wang, G. Chen, **H. Chen**

3:50 59. Entropy driven chain effects on ligation.**C. Barner-Kowollik**, A. Lederer, M. Coote, G. Gryn'ova, K. Pahnke, F.G. Schmidt, J. Brandt, N. Guimard

4:20 60. Mimicking complex biological membranes and their programmable glycan ligands.**V. Percec**

Section D

Sheraton Denver Downtown Hotel
Governor's Square 9

General Topics: New Synthesis & Characterization of Polymers

B. Barkakaty, D. Garcia, *Organizers*
N. S. Sampson, W. Xi, *Presiding*

1:00 61. Solution processable polydiacetylenes (PDAs) through acyclic enediyne metathesis polymerization (AEDMET).**Y. Qin**

1:20 62. Very long, linear polymers from tandem isomerization/alternating ring-opening metathesis polymerization (*i*-AROMP).L. Tan, K.A. Parker, **N.S. Sampson**

1:40 63. Ring-opening metathesis emulsion polymerization: A comparison of commercial and homemade surfactants and catalysts.**S.R. Almahdali**, K. Bukhriakov, V. Rodionov

2:00 64. Withdrawn

2:20 65. Incorporation and use of imidazoles as a dually dopable moiety in conjugated polymers.**J.D. Harris**, K.R. Carter

2:40 66. Pushing the limit of the RAFT process: One-pot preparation of multiblock copolymers.**G. Gody**, S. Perrier

3:00 67. RAFT polymerization of tertiary amine-based methacrylate pH-responsive monomers for smart MRI contrast agents.**L. Zhu**, S. Powell, S.G. Boyes

3:20 68. Stille catalyst-transfer polycondensation using palladium catalysts for the synthesis of well-defined conjugated materials.**Y. Qiu**, T. Kowalewski, K.J. Noonan

3:40 69. "Click" by "click" strategy in sequence controlled polymers synthesis.**W. Xi**, S. Pattanayak, C.J. Kloxin, C. Bowman

4:00 70. New polymer synthesis strategy based on multicomponent reactions.**R. Kakuchi**, P. Theato

4:20 71. Design and synthesis of segmented conjugated polymers via acyclic diene metathesis (ADMET).**G. Singh**, R.M. Peetz

4:40 72. Synthesis and polymerization of new 2-substituted vinylimidazolium salts.**D. Smith**, T. Muzio, T.W. Smith

5:00 73. Aza-Diels–Alder route to polyquinolines.**D.J. Dibble**, M. Umerani, A. Mazaheripour, Y. Park, A.A. Gorodetsky

Section E

Sheraton Denver Downtown Hotel
Directors Row I

Macromolecular and Nanoparticle Separation Science

Cosponsored by ANYL and PMSE
Financially supported by The Dow Chemical Company, Wyatt Technology, Tosoh BioScience, Waters, NIST
K. Beers, A. K. Brewer, W. Gao, A. M. Striegel, *Organizers, Presiding*

1:30 Introductory Remarks.

1:35 74. Size and composition-based nanoparticles separations and analyses using field-flow fractionation.**K.R. Williams**

2:15 75. Self-organization phenomena in biomacromolecules investigated by field flow fractionation.**A. Lederer**

2:45 76. Asymmetrical flow field-flow fractionation for the comprehensive characterization of polymer assemblies.**F.M. Winnik**

3:15 Intermission.

3:30 77. Measurement of size and certain structural features of sub-nanokilometer particles in suspension.**P.J. Wyatt**

4:00 78. Asymmetric flow field flow fractionation: A versatile tool for nanoparticle separation.**C. Rosu**, R. Cueto, E. Reichmanis, P.S. Russo

4:30 79. Semipreparative asymmetric flow field-flow fractionation for nanoparticle characterization.**C. Bria**, A. Ashames, P. Skelly, S.R. Williams

5:00 80. Synthesis and characterization of functional polymer nanoparticles via sonogashira coupling.**A. Prasher**, D. Chao, E.B. Berda

Nanotechnology: Delivering on the Promise

Research & Development

Sponsored by PRES, Cosponsored by AGFD, AGRO, ANYL, CARB, CCPA, CCS, CHAS, COLL, COMSCI, CORP, ENFL, HIST, I&EC, IAC, MPPG, PMSE, POLY, SCHB and SOCED

MONDAY MORNING

Section A

Sheraton Denver Downtown Hotel
Directors Row E

Next Generation Smart Materials

Materials with Special Optical, Electronic and Mechanical Behavior

Cosponsored by PMSE‡
E. B. Berda, J. Foster, *Organizers*
Y. C. Simon, *Organizer, Presiding*
C. K. Lyon, *Presiding*

8:30 Introductory Remarks.

8:35 81. Mechanochromism of block copolymer photonic gels.**E. Chan**, E.L. Thomas

9:05 82. Development of mechanochemical and thermal triggers for release of small organic molecules.**A.J. Boydston**

9:35 83. Responsive photonic multilayers from photo-crosslinkable polymers and nanocomposites.**R.C. Hayward**

10:05 84. Voxelated liquid crystal elastomers.**T.J. White**, T.H. Ware, J. Wie

10:35 Intermission.

10:45 85. Stretchable electronic materials and devices.**Z. Bao**

11:15 86. Applying reconfigurable networks of charge-transporting polycyclic aromatic hydrocarbons to problems in energy storage.**B.A. Helms**, P.D. Frischmann, L.C. Gerber, S.E. Doris, C. Li

11:45 87. Creating new architectures for π-conjugated semiconducting polymers.**C.K. Luscombe**

12:15 Concluding Remarks.

Section B

Sheraton Denver Downtown Hotel
Governor's Square 12

Putting Renewable Polymers to Work

Cellulosics

D. Boday, E. C. Hagberg, *Organizers, Presiding*

8:00 88. High performance cement via cellulose nanocrystal addition.**J.P. Youngblood**, R. Moon, J. Weiss, P. Zavattieri, Y. Cao

8:30 89. Effect of the electrical double layer on surface-initiated controlled radical polymerization from cellulose nanocrystals in aqueous media.**J.O. Zoppe**, X. Xu, H.A. Klok

8:50 90. Can hemicelluloses be used for durable wood adhesives?.**E.E. Malmström**, E. Norström, L. Fogelström, P. Nordqvist, F. Khabbaz

9:10 91. Multifunctional fluorescent sensors for imaging the interphase in polymer nanocomposites.**J. Gilman**, D. Fox, J. Woodcock, J. Liddle, S. Stranick, R. Beams, G. Myers, C. Davis, N. Chen, L. Sacui

9:40 Intermission.

9:55 92. Structured and functionalized nanocellulose for controlled release and implantation.**J. Foster**

10:25 93. Renewable thermoplastic materials from cellulose.**J.H. Wang**, Y. Bai, B. Zhou, Z. Yu, Q. Jia, W. Wang, H. Tan

10:55 94. Renewable thermoplastics from lignin.**A.K. Naskar**, C.D. Tran, A.S. Bova

11:15 Concluding Remarks.

Section C

Sheraton Denver Downtown Hotel
Governor's Square 14

Excellence in Graduate Polymer Research

Cosponsored by PRES, PROF, SOCED and YCC
Financially supported by POLY and IAB (POLY)
C. J. Ellison, T. E. Long, *Organizers*
H. Cheng, C. J. Landry-Coltrain, *Organizers, Presiding*

8:30 Introductory Remarks.

8:35 95. Post-electrospinning derivatization of polymer nanofibers with bioactive species using translationally-relevant chemical methods.**J. Zheng**, D.H. Reneker, M. Becker

8:55 96. Sequential inverse vulcanization and electropolymerization for conductive plastic sulfur.**P.T. Dirlam**, J. Pyun

9:15 97. Manipulating conjugation in electronic polymers: Chemical sensors and precursor routes.**J.G. Weis**, T.M. Swager

9:35 98. Poly(Ionic liquid)s and their block copolymers: Synthesis, characterization, self-assembly, and applications.**H. He**, H. Nulwala, K. Matyjaszewski

9:55 Intermission.

10:10 99. Facile post-polymerization modification of blocked isocyanate and hydrazide containing polymers.**E.A. Hoff**, B. Abel, C.A. Tretbar, C.L. McCormick, D.L. Patton

10:30 100. Sequencing in step-growth polymerization: Influence of segment length on thermomechanical properties of polysulfone-containing segmented polyesters.**J.M. Dennis**, G.B. Fahs, R.B. Moore, S.R. Turner, T.E. Long

10:50 101. Olefin cross-metathesis, a mild, modular and efficient approach towards functionalized cellulose esters.**X. Meng**, J.B. Matson, K.J. Edgar

11:10 102. Scalable production of mechanically tunable block polymers from sugar.**D.K. Schneiderman**, M. Xiong, F.S. Bates, K. Zhang, M.A. Hillmyer

11:30 Remarks by ACS President, Dr. Diane G. Schmidt, and Photo Session.

Section D

Sheraton Denver Downtown Hotel
Governor's Square 15

Electrical, Thermal, & Mass Transport in Polymer Nanocomposites & Alloys

Barrier and Separation Behavior

Cosponsored by PRES
Financially supported by Avery Dennison, 3M, Bayer MaterialScience, Kuraray
J. C. Grunlan, M. Priolo, L. Wagberg, *Organizers*
P. Larsson, D. F. Schmidt, *Presiding*

8:30 Introductory Remarks.

8:35 103. Electrospun composite membranes of cellulose acetate (CAc) and poly (vinyl alcohol) (PVA).**L. Baghernejad**, R. Ozer, R. Mohan, O. Shoham, S. Odueyungbo, E.V. Iski

8:55 104. Assessing gas permeability in polymer nanolaminates.E. Dunkerley, **D.F. Schmidt**

9:25 105. Thermally reduced graphene oxide-PEI multilayer thin films as electrically conductive gas barrier layer.**B. Stevens**, **J.C. Grunlan**

9:45 106. Stretchable gas barrier achieved with partially hydrogen-bonded multilayer nanocoating.**K.M. Holder**, F. Xiang, B.R. Spears, M. Huff, M. Priolo, E. Harth, **J.C. Grunlan**

10:05 Intermission.

10:25 107. Multilayered nanocomposites containing high aspect ratio particulates.**S. Nazarenko**

10:55 108. Polymer membranes for gas and liquid separations.**B.D. Freeman**

11:25 109. Polymer composites for gas separation membranes and sorbents.**W. Koros**

11:55 110. Biomaterial-based barrier materials and composites: A review on how to prevent unwanted water interactions and water-induced property deterioration.**P. Larsson**, L. Wagberg

Sheraton Denver Downtown Hotel
Directors Row I

Macromolecular and Nanoparticle Separation Science

Cosponsored by ANYL and PMSE
Financially supported by The Dow Chemical Company, Wyatt Technology, Tosoh BioScience, Waters, NIST
K. Beers, A. K. Brewer, W. Gao, A. M. Striegel, *Organizers, Presiding*

8:30 Introductory Remarks.

8:35 111. Polysaccharide characterization using asymmetrical flow field-flow fractionation and multiangle light scattering (AF4-MALS): Successes and challenges.**L. Nilsson**

9:20 112. Asymmetrical flow FFF coupled with light scattering for the separation and the structural characterization of glucopolymers with various branching patterns.**A. Rolland-Sabate**, F. Grimaud, R. Irague, S. Guilois, D. Lourdin, J. Putaux, G. Potocki-Véronèse, A. Buléon

9:55 113. Characterization of hyaluronic acid and polymer JR using size exclusion chromatography with advanced detection techniques.**X.M. Liu**, **E. Maziarz**

10:30 Intermission.

10:45 114. Challenges associated with size exclusion chromatography of amphiphilic cellulose ether materials.**D.M. Meunier**, Y. Li, E.M. Partain, M. Brackhagen, P. Oliver

11:20 115. New approach to overcome hydrophobic interaction in cellulose ethers for reliable molecular weight characterization.**Y. Li**, D.M. Meunier, D. Redwine, M. Brackhagen, R. Adden

Nanotechnology: Delivering on the Promise

Opportunities and Challenges for Health, Safety and the Environment

Sponsored by PRES, Cosponsored by AGFD, AGRO, ANYL, CARB, CCPA, CCS, CHAS, COLL, COMSCI, CORP, ENFL, HIST, I&EC, IAC, MPPG, PMSE, POLY, SCHB and SOCED

Integrating Chemistry and Polymer Science Research into the Classroom

Sponsored by CHED, Cosponsored by PMSE and POLY

MONDAY AFTERNOON

Section A

Sheraton Denver Downtown Hotel
Directors Row E

Next Generation Smart Materials

Composite Materials and Smart Processes

Cosponsored by PMSE‡
Y. C. Simon, *Organizer*
E. B. Berda, J. Foster, *Organizers, Presiding*

1:30 Introductory Remarks.

1:35 116. Ionic polymer carbon composites as a new design for electroactive actuators and sensors.**R.B. Moore**

2:05 117. Thermal properties of polymer-inorganic composites.**M. White**

2:35 118. Covalently linked polymer–clay nanocomposites: Polymer brushes grafted from lamellar organosilicates.**S.L. Burkett**, K.A. Winchell, E.W. Vaimberg

2:55 Intermission.

3:15 119. Synthesis and characterization of ionically crosslinked polymer networks.**K.A. Cavicchi**

3:45 120. Vinylic vitrimers.M. Röttger, **R. Nicolay**, L. Leibler

4:15 121. Combined hydrophobicity and mechanical durability through surface nanoengineering.P.R. Elliott, S.P. Stagon, **H. Huang**

4:45 Concluding Remarks.

Section B

Sheraton Denver Downtown Hotel
Governor's Square 12

Industrial Innovations in Polymer Chemistry

Cosponsored by BMGT
M. Hunt, C. Lipscomb, *Organizers, Presiding*

1:30 Introductory Remarks.

1:35 122. Sustainable carbon sources for the chemical industry: CO_2 is becoming a direct and indirect component in polyurethane plastics.**C. Guertler**, K. Malsch, M. Wohak, A. Wolf, A. Bardow, N. von der Assen, W. Leitner, T.E. Mueller

2:05 123. Building a portfolio of renewable diols for unsaturated polyester resins.**E.C. Hagberg**, P.D. Bloom

2:35 124. From literature research to industrial production and back again: A polymer's tale.**L.M. Stratton**, B. Gordon III, T.W. Smith, K.M. Kayne

3:05 125. Living polymerization routes to siloxane macromers.**J.D. Goff**, B. Arkles

3:35 126. Enhanced material properties from new isomer configurations of polyetherimides.**P.M. Johnson**

4:05 Intermission.

4:20 127. Pushing the boundaries for hydrocarbon extraction in the oil & gas industry through block copolymer technology.**E.B. Murphy**

4:50 128. Advances in polyethyelene.**M. Demirors**

5:20 129. Abundant, low cost U.S. shale gas supply stimulates polyolefins renaissance.**P. Brant**

Section C

Sheraton Denver Downtown Hotel
Governor's Square 14

Excellence in Graduate Polymer Research

Cosponsored by PRES, PROF, SOCED and YCC
Financially supported by ACS Polymer Division Industrial Advisory Board
H. Cheng, C. J. Landry-Coltrain, *Organizers*
C. J. Ellison, T. E. Long, *Organizers, Presiding*

1:30 Introductory Remarks.

1:35 Recognition of Poster Presenters.

1:45 130. Unexpected anomalous diffusion in associating protein hydrogels.**S. Tang**, M. Wang, B.D. Olsen

2:05 131. Reducing-environment sensitive synthetic hydrogels for controlled delivery of therapeutics.**P.M. Kharkar**, A.M. Kloxin, K.L. Kiick

2:25 132. Photodegradable hydrogels for studying axon guidance and the user-directed formation of neural circuits.**T. Brown**, D. McKinnon, K.S. Anseth

2:45 133. Molecular N-dopants and N-dopable conjugated polymers.**B. Naab**, S. Zhang, X. Gu, E. Evans, T. Kurosawa, K. Vandewal, A. Salleo, G.L. Millhauser, S. Barlow, S.R. Marder, Z. Bao

3:05 Intermission.

3:20 134. High-throughput screening of electrochromic polymers toward neutral colors.**M.T. Otley**, G.A. Sotzing

3:40 135. Chiral transmission to self-assembling nanostructures from circularly polarized light.**J. Yeom**, B. Yeom, H. Chan, K. Smith, S. Dominguez-Medina, J. Bang, G. Zhao, W. Chang, S. Chang, A. Chuvilin, D. Melnikau, A. Rogach, P. Zhang, S. Link, P. Kral, N. Kotov

4:00 136. Polymer-particle rheological analysis of adsorbed cement additives for improved processing.**L.R. Murray**, E.G. Soltys, K.A. Erk

4:20 137. Efficient simulation of the molecular scale behavior of polymer melts: Understanding polymer dynamics and rheology.**N.A. Rorrer**, J.R. Dorgan

Section D

Sheraton Denver Downtown Hotel
Governor's Square 15

Electrical, Thermal, & Mass Transport in Polymer Nanocomposites & Alloys

Energy, Electrical and Thermal

Cosponsored by PRES
Financially supported by Avery Dennison, 3M, Bayer MaterialScience, Kuraray
J. C. Grunlan, M. Priolo, L. Wagberg, *Organizers*
S. T. Iacono, J. P. Youngblood, *Presiding*

1:30 Introductory Remarks.

1:35 138. Electrical and thermal conductivity of PAN/CNT composite fibers for heating behavior.**A. Chien**, S. Kumar

1:55 139. Aqueous MWCNT dispersions and their highly thermally conducting coatings.**J. Texter**, X. Ma, R. Crombez

2:25 140. Thermal and other properties in cellulose nanocrystal composite materials.**J.P. Youngblood**, J.A. Diaz, A. Martini, R. Moon

2:55 141. Thermal and electrical transport in nanoconfined poly(3-hexylthiophene)-multi-walled carbon nanotube composite fibers.**M.K. Smith**, V. Singh, K. Kalaitzidou, B.A. Cola

3:15 Intermission.

3:25 142. Metallized perfluoropolyether nanocomposites: New materials for structural energetics.S.C. Kettwich, J. McCollum, K.S. Kappagantula, N. Clayton, E. Avjian, H.A. Miller, D.W. Ball, M. Pantoya, **S.T. Iacono**

3:55 143. Soft, compressible and fully Interdigitated 3D energy storage devices built by layer-by-layer assembly inside aerogels.**M.M. Hamedi**, **L. Wagberg**, **G. Nyström**, **A. Marais**, **E. Karabulut**, Y. Cui

4:25 144. Hybrids of conducting polymers and carbon nanotubes for harvesting electrical energy and thermoelectric cooling.**C. Yu**

Section E

Sheraton Denver Downtown Hotel
Directors Row I

Macromolecular and Nanoparticle Separation Science

Cosponsored by ANYL and PMSE
Financially supported by The Dow Chemical Company, Wyatt Technology, Tosoh BioScience, Waters, NIST
K. Beers, A. K. Brewer, W. Gao, A. M. Striegel, *Organizers, Presiding*

1:30 Introductory Remarks.

1:35 145. Temperature gradient interaction chromatography: Principle and applications.**T. Chang**

2:15 146. Gradient elution at critical point of adsorption: Separation by chemical composition and microstructure.**Y. Brun**, C.J. Rasmussen

2:45 147. Use of 2-D chromatographic techniques to elucidate macromolecular structures.**J.A. McConville**, P. Kilz, M. Adler, W. Radke, D. Lohmann

3:15 Intermission.

3:30 148. Online 2D *a*TREF-*h*SEC technique for polyolefins characterization.**Y. Yu**, M. Hildebrand, M.A. Stepp, P.J. DesLauriers, C.C. Tso

4:00 149. High temperature liquid chromatography of Polyolefin.**R. Cong**, W. deGroot

4:30 150. Dual flow refractive index detection for polymer analysis by high temperature gel permeation chromatography.**A.K. Brewer**

5:00 151. Exploring a chiral cross-linker by molecular imprinting using chromatographic and batch rebinding techniques.**B. Hebert**, D. Meador, D. Spivak

Nanotechnology: Delivering on the Promise

Bridging the Gap to a Thriving US Marketplace

Sponsored by PRES, Cosponsored by AGFD, AGRO, ANYL, CARB, CCPA, CCS, CHAS, COLL, COMSCI, CORP, ENFL, HIST, I&EC, IAC, MPPG, PMSE, POLY, SCHB and SOCED

Undergraduate Research Posters

Polymer Chemistry

Sponsored by CHED, Cosponsored by PMSE, POLY and SOCED

MONDAY EVENING

Section A

Colorado Convention Center
Hall C

Sci-Mix

8:00 - 10:00

152. Polyalkylmethacrylate-functionalized inorganic nanoparticles as solid-solid phase change materials: Effect of spacer length, molecular weight and graft density on heat storage capacity.**K.A. Stockmal**, S. Granados Focil

233, **234**, **243**, **244**, **245**, **249**, **250**, **256**, **267**, **270**, **274**, **278**, **279**, **282**, **284**, **286**, **288**, **289**, **292**, **293**, **296**, **298**, **306**, **310**, **311**, **312**, **313**, **315**, **319**, **320**, **323**, **330**, **343**, **347**, **369**, **370**, **371**. See Subsequent Listings.

STRETCH Your Students' Polymer Knowledge by Putting Some BOUNCE into Your Curriculum

Polymer Science Education and the NGSS

Sponsored by CHED, Cosponsored by PMSE, POLY, RUBB and SCC

STRETCH Your Students' Polymer Knowledge by Putting Some BOUNCE into Your Curriculum

Polymer Science Education and the NGSS

Sponsored by CHED, Cosponsored by PMSE, POLY, RUBB and SCC

TUESDAY MORNING

Section A

Sheraton Denver Downtown Hotel
Governor's Square 14

Carl S. Marvel Creative Polymer Chemistry Award in Honor of Todd Emrick

M. Jeffries-El, T. P. Russell, *Organizers*
R. C. Hayward, J. Pyun, *Presiding*

8:30 Introductory Remarks.

8:35 153. From molecules to functional materials: Controlling structure and properties through synthesis.**R.B. Grubbs**

9:05 154. Metal oxide nanoparticle hybrids: New photoresists with extraordinary sensitivity.J. Jiang, B. Zhang, L. Li, E.P. Giannelis, **C.K. Ober**

9:35 155. Harnessing biomimetic catch bonds to create mechanically robust nanoparticle networks.B. Iyer, V.V. Yashin, **A.C. Balazs**

10:05 156. Exploiting reversible-covalent chemistry to investigate materials and mechanisms.H. Sun, C.P. Kabb, S. Mukherjee, **B.S. Sumerlin**

10:35 157. Importance of the intricate linkage of the needs of particular biomedical applications to the design characteristics of functionally-sophisticated nanoscopic macromolecules to achieve efficacy.**K.L. Wooley**

11:05 158. Bioconjugate and hybrid systems prepared by atom transfer radical polymerization.**K. Matyjaszewski**

Section B

Sheraton Denver Downtown Hotel
Governor's Square 12

Energy and Materials

Cosponsored by PMSE
S. T. Iacono, *Organizer*
S. Clarson, A. Sellinger, *Organizers, Presiding*

8:30 Introductory Remarks.

8:40 159. Stability of substituted benzyltrimethyl ammonium cations in caustic environments.**M.R. Sturgeon**, H. Long, C. Macomber, D.M. Knauss, Y. Yang, B.S. Pivovar

9:10 160. Interplay between relaxations and structure in anion-exchange membranes (AEMs).**V. Di Noto**, G. Nawn, K. Vezzù, F. Bertasi, E. Negro, S. Lavina, A. Maes, A.M. Herring, S. Ertem, E. Coughlin

9:30 161. Hydroxide conductive benzyltrimethylammonium functionalized polysulfone-polyformal multiblock copolymers for alkaline fuel cells.**D.J. Strasser**, D.M. Knauss

9:50 162. Understanding ionomer thin films.**A.Z. Weber**, A. Kusoglu, S. Shi, M. Tesfaye

10:20 Intermission.

10:35 163. Diffusion NMR as a tool for understanding ion and solvent transport in anion exchange membranes.**H. Sarode**, Y. Yang, A.M. Herring

10:55 164. Hydroxide degradation mechanism for cations in anion exchange membranes: A computational study.**H. Long**, B.S. Pivovar

11:15 165. Withdrawn

11:35 166. Carbon/zirconia/fluoroionomer nanocomposites as polyelectrolyte-membrane fuel cell electrocatalyst support.**S.E. Creager**, J.A. Shetzline

Section C

Sheraton Denver Downtown Hotel
Plaza Court 8

Undergraduate Research in Polymer Science

Financially supported by Sabic Innovative Plastics, ACS Polymer Division Industrial Advisory Board
S. E. Morgan, S. I. Nazarenko, *Organizers, Presiding*

8:00 167. Hydrolytically stable bio-adaptable thiol-ene network.**D.A. Zamorano**, R. Reit, D. Simon, B.R. Lund, T. Ware, W. Voit

8:15 168. Synthesis of p(NIPAM)-p(DMA) copolymers for protein conjugation.**D. Park**, M.N. Zhou, J.W. Lowe, K. Chiu, S.L. Goh

8:30 169. Protein adsorption characteristics of amphiphilic starch-containing hybrid polymer films.**A.R. Linehan**, A. Sengupta, P.M. Iovine

8:45 170. Expanding the one step acid hydrolysis/Fischer esterification of cellulose nanocrystals.S. Spinella, **V. Hepworth**, A. Maiorana, Q. Qian, R.A. Gross

9:00 171. Design and synthesis of pH-responsive polymers to aid in cancerous tumor detection.**K. Farquhar**, L. Zhu, S.G. Boyes

9:15 Intermission.

9:30 172. Antioxidant copolymers in biological applications.**D.M. Barber**, T.A. Brenner, L. Qiao, S.L. Goh

9:45 173. Fabrication of conducting polymer/silk composite films with topographically nanopatterned surfaces.**N. Ostrovsky-Snider**, S. Severt, J.D. Larson, A. Murphy

10:00 174. Synthesis of hollow polydimethylsiloxane microspheres.**S.J. Fuchs**, J.M. Rankin, K.S. Suslick

10:15 175. Synthesis of resorcinarene-core polylactide/polyethylene glycol star block copolymers using click chemistry: Optimizing polymer coupling reactions using No-D NMR spectroscopy.**W.H. Horn**, A.E. Tipton, P.S. Corbin

10:30 176. Shrinkage stress in two-stage reactive polymer systems.**B. Earle**, S. Chatani, M. Podgorski, C. Bowman

10:45 177. Investigation of trans-1,4-polyisoprene as an organogelator for organic solvents.**P.G. Thomas**, K.A. Cavicchi

Section D

Sheraton Denver Downtown Hotel
Governor's Square 9

General Topics: New Synthesis & Characterization of Polymers

B. Barkakaty, D. Garcia, *Organizers*
K. M. Miller, T. Vokata, *Presiding*

8:00 178. Michael addition polyester networks from imidazolium and 1,2,4-triazolium polymerizable ionic liquids.**K.M. Miller**

8:20 179. Novel polyurethane/polyhydroxyurethane hybrid polymers and their applications as elastomers and adhesive bonding agents.**E.K. Leitsch**, W.H. Heath, J.M. Torkelson

8:40 180. Polyurea glycopolymers from lactose and mannose modified-diamines with different diisocyanate comonomers: Synthesis and anticoagulant properties.**Y. Huang**, M.A. Shaw, E.S. Mullins, N. Ayres

9:00 181. Novel poly(borosiloxane)s and their properties.**P. Puneet**, R. Vedarajan, N. Matsumi

9:20 182. Reverse anomeric effect (RAE)-mediated syntheses of sugar poly(orthoesters).**L. Li**, K. Knickelbein, J. Wang , M.J. Obrinske, W. Du

9:40 183. New monomers and catalysts for nonisocyanate polyurethanes.**R. Lambeth**

10:00 184. Synthesis of biodegradable conjugated polymers with controlled backbone flexibility.**T. Vokata**, J. Moon

10:20 185. Baylis-Hillman reaction as a versatile platform for the synthesis of densely functionalized polymers.**A. Joy**, C. Peng

10:40 186. Redox-switchable copolymerization reactions.**J. Byers**, A.B. Biernesser, K. Delle Chiaie, J. Curley

11:00 187. Reverse-selective gas separation membranes based on segmented copolymers of PEO and iptycene-containing polyimides.**R. Guo**, S. Luo, G. Kline

11:20 188. Donor-acceptor conjugated polymers with modular electronic properties and very narrow band gaps.**J.D. Azoulay**, B. Zhang

Section E

Sheraton Denver Downtown Hotel
Directors Row I

Macromolecular and Nanoparticle Separation Science

Cosponsored by ANYL and PMSE
Financially supported by The Dow Chemical Company, Wyatt Technology, Tosoh BioScience, Waters, NIST
K. Beers, A. K. Brewer, W. Gao, A. M. Striegel, *Organizers, Presiding*

8:30 Introductory Remarks.

8:35 189. Polymer separations utilizing 2D liquid chromatography: Inherent limitations and perspectives.**M.R. Schure**

9:15 190. Computational/theoretical studies of polymer separations by liquid chromatography at critical condition (LCCC).**Y. Wang**

9:45 191. Framework for exploring the effect of physical and chemical heterogeneities on polymer-surface interactions.**C.R. Snyder**, C.M. Guttman, E.A. Di Marzio

10:15 Intermission.

10:30 192. Measurement of the surface interaction of solvated chains via model end-tethered polymer layers and self-consistent field theory.**R. Sheridan**, S.V. Orski, R.L. Jones, S. Satija, K. Beers

11:00 193. Computations related to nanoparticle characterization and nanocomposite property estimation.**F. Vargas-Lara**, A. Hassan, E.J. Garboczi, J. Douglas

11:30 194. Monovalent counter-ion mediated self-assembly of dendrimers.**S. Eghtesadi**

TUESDAY AFTERNOON

Section A

Sheraton Denver Downtown Hotel
Governor's Square 14

Carl S. Marvel Creative Polymer Chemistry Award in Honor of Todd Emrick

M. Jeffries-El, T. P. Russell, *Organizers*
R. C. Hayward, J. Pyun, *Presiding*

1:30 195. Surface modification of porous polymer membranes to reduce fouling by oil/water emulsion.**B.D. Freeman**

2:00 196. Micelle engineering via crystallization-driven self-assembly.**I. Manners**

2:30 197. Tuning dispersion of nanoparticles in polymer matrices.**R.C. Hayward**

3:00 198. Getting dopey with polymers and nanoparticles.**J. Pyun**

3:30 199. New approaches to designer polymers.**C.J. Hawker**

4:00 200. Structuring liquids with nanoparticles.m. Cui, T. Emrick, C. Huang, **T.P. Russell**

5:00 201. Tailoring polymer synthesis for materials and devices.**T. Emrick**

5:30 Concluding Remarks.

Section B

Sheraton Denver Downtown Hotel
Governor's Square 12

Energy and Materials

Cosponsored by PMSE
S. T. Iacono, *Organizer*
S. Clarson, A. Sellinger, *Organizers, Presiding*

1:30 202. Method of fabricating perfluorosulfonimde (PFSI) electrolyte materials.**J.S. Thrasher**, T.S. Sayler, A.V. Matsnev, R.E. Fernandez

2:00 203. Highly conductive alkaline poly(phenylene oxide) poly(vinyl benzyl trimethyl ammonium) diblock membrane for anion exchange membrane fuel cell applications.**T.P. Pandey**, M.W. Liberatore, A.M. Herring

2:20 204. Diblock copolymers of poly(2,6-dimethyl-1,4-phenylene oxide)-*b*-poly(vinylbenzyltrimethylammonium) prepared by nitroxide mediated polymerization for anion exchange membranes.**Y. Yang**, D.M. Knauss

2:40 205. Transport and morphology of polymerized ionic liquid block copolymer anion exchange membranes with various cations.**K.M. Meek**, F.L. Beyer, Y.A. Elabd

3:10 Intermission.

3:25 206. High-modulus, high-conductivity nanostructured polymer electrolyte membranes via polymerization-induced phase separation.**M.W. Schulze**, L.D. McIntosh, M.A. Hillmyer, T.P. Lodge

3:45 207. Morphology and transport in a tris(2,4,6-trimethoxyphenyl) phosphonium functionalized PPO for alkaline fuel cells.**Y. Liu**, B. Zhang, Y. Yang, S. Seifert, Y. Yan, M.W. Liberatore, A.M. Herring

4:05 208. Withdrawn

4:25 209. Ion transport in polymer electrolyte membranes for state of the art energy conversion technologies.**A.M. Herring**, G.A. Voth, T. Witten, E.B. Coughlin, D.M. Knauss, Y. Yan, M.W. Liberatore

Section C

Sheraton Denver Downtown Hotel
Plaza Court 8

Undergraduate Research in Polymer Science

Financially supported by Sabic Innovative Plastics, ACS Polymer Division Industrial Advisory Board
S. E. Morgan, S. I. Nazarenko, *Organizers, Presiding*

1:30 210. Rheological and morphological characterization of fractionated rigid-rod sulfone polymers.**J. Tropp**, K.M. Knauer, S.E. Morgan

1:45 211. Improving flame resistance and softness of cotton fabric with ultrasonication rinsing of multilayered nanocoating.**M. Krecker**, T. Guin, A. Milhorn, J.C. Grunlan

2:00 212. Development of hybrid magnetic cylindrical nanoparticles for pollutant remediation in aqueous environments.**S.M. Ward**, A. Pavía-Sanders, J.A. Flores, J.D. Russell, K.L. Wooley

2:15 Intermission.

2:30 213. Dynamic topology of thermally-responsive materials via Diels-Alder chemistry.**M. Markmann**, M.R. Martinez, E.D. Crenshaw, T. Kleine, P.J. Costanzo

2:45 214. Withdrawn

3:00 215. Strategies for recovery of Ru catalyst residues in olefin metathesis reactions.**W. Guzman**, J. Suriboot, J. Andrews, D. Bergbreiter

3:15 216. Synthesis and characterization of a block copolymer containing and self-immolative block.**A. Engler**, A. Lane, C.G. Willson

3:30 Intermission.

3:45 Panel Discussion.

Section D

Sheraton Denver Downtown Hotel
Directors Row E

Polymer Composites and High Performance Materials

Functional High Performance Polymers

J. W. Gilman, M. Meador, M. Meador, S. E. Morgan, D. Savin, *Organizers*
J. Woodcock, *Presiding*

1:30 217. Interactions between structure and properties that control moisture uptake in high-performance polycyanurates.**A.J. Guenthner**, M. Wright, A. Chafin, J.T. Reams, K.R. Lamison, M.D. Ford, S.P. Kirby, J.J. Zavala, V. Vij, J.M. Mabry

2:00 218. Tuning the glass transition temperature and energy damping capabilities of thiol-ene thermoset networks.O. McNair, A. Janisse, **D.A. Savin**

2:30 219. Alternative high performance polymers for ablative thermal protection systems.**T. Boghozian**

2:50 220. Versatile conjugated polymer/di-ureasil hybrid materials: From enhanced emission quantum yields to white light emission.**N. Willis-Fox**, A. Marques, M. Kraft, U. Scherf, H. Burrows, R.C. Evans

3:10 221. Intrachain radical chemistry as a facile route to well-defined polymeric nanostructures.**E.B. Berda**, J. Dickinson, J. Cole

3:40 222. Oxygen permeation and thermoset degradation with temperature.**M.C. Celina**, N. Giron, A. Quintana

4:10 223. Improving mechanical properties of highly branched perfluorinated polymer membranes.**M.J. Quast**, A.D. Argall, C.J. Hager, A. Mueller

4:30 224. Development of flexible polyimide-urea aerogels cross-linked with a triisocyanate.**B.N. Nguyen**, M. Meador

Section E

Sheraton Denver Downtown Hotel
Directors Row I

Macromolecular and Nanoparticle Separation Science

Cosponsored by ANYL and PMSE
Financially supported by The Dow Chemical Company, Wyatt Technology, Tosoh BioScience, Waters, NIST
K. Beers, A. K. Brewer, W. Gao, A. M. Striegel, *Organizers, Presiding*

1:30 Introductory Remarks.

1:35 225. Asymmetric flow field flow fractionation: An effective separation technique for polymers for which SEC/GPC fails.**S. Podzimek**

2:15 226. Root causes of molecular weight loss of poly(cyclic butylene terephthalate) in pCBT/clay nanocomposites during processing.**J.W. Lyons**, J.J. Kiefer

2:45 227. Leveraging polymer separation science to design new materials.**S. Moyses**, R.W. Allen, N. Jestel

3:15 Intermission.

3:30 228. Monitoring kinetics of polymeric processes.M.F. Drenski, C.A. McFaul, A.M. Alb, F. Twigg, C. Jarand, **W.F. Reed**

4:00 229. Polymeric antileaching agents that facilitate homogeneous catalysis.**M.L. Harrell**, C. Torres-Lopez, K. Gonzalez, D.E. Bergbreiter

4:30 230. Combined hydrophobic/oleophobic membrane separation and extraction for fuel treatment.**A.J. Guenthner**, J.T. Reams, K.T. Greeson, K.R. Lamison, A.S. Vam, S.P. Kirby, A. Kota, G. Kwon, A. Tuteja, J.M. Mabry

5:00 231. Surface patterning of ultrafiltration membranes to mitigate particulate and protein fouling.**S. Maruf**, Y. Ding, A.R. Greenberg, J. Pellegrino

TUESDAY EVENING

Section F

Colorado Convention Center
Hall E

Electrical, Thermal, & Mass Transport in Polymer Nanocomposites & Alloys

Cosponsored by PRES
Financially supported by Kuraray, Avery Dennison, Bayer MaterialScience, 3M, J. C. Grunlan, M. Priolo, L. Wagberg, *Organizers*

6:00 - 8:00

232. Polyethylene-based composites containing graphene platelets: Enhanced barrier and electrical properties via multilayer coextrusion and interdiffusion.**K.P. Meyers**, J.J. Decker, D.R. Paul, D.A. Schiraldi, S.I. Nazarenko

233. Investigating the reactivity of aluminum-based thermites with PFPE additive.**J.M. McCollum**, M. Pantoya, S.T. Iacono

234. Effect of reinforcement fabrics on free standing thin film thermite mechanical properties and combustion.**B. Clark**, M. Pantoya, R. Heaps, M. Daniels

235. Polyketone nanocomposite with non-covalently functionalized graphene for enhanced moisture barrier property.**I. Jeon**, T. Lee, J. Cho

236. Inter- and Intra- molecular interactions in some oligothiophenes and ethylenedioxythiophenes: X-ray single crystal structural analysis.P.T. Pham, **M.M. Bader**

237. Molecular modeling of electrical and thermal resistance across carbon nanotube and graphene nanoribbon contacts.**B.L. Farmer**, **V. Vasrhney**, S. Shenogin, J. Lee, A.A. Voevodin, A.K. Roy

238. Withdrawn

239. Improved dielectric breakdown strength of nanocomposites containing surface modified fillers.**M.H. Bell**, M. Mohammadkhani, B.C. Benicewicz, T. Krentz, Y. Huang, L. Schadler, S. Virtanen

240. Energy transport in molecules with repeating units occurs ballistically.**N. Rubtsova**, C.M. Nyby, H. Zhang, J. Jayawickramarajah, I.V. Rubtsov

Section F

Colorado Convention Center
Hall E

Energy and Materials

Cosponsored by ENFL and PMSE
S. Clarson, S. T. Iacono, A. Sellinger, *Organizers*

6:00 - 8:00

241. Synthesis of dendronized polymers and their self-assembly to nanostructured materials.**P.E. Guzmán**, R.H. Grubbs

242. Effects of Confinement on Structure and Proton Conductivity of PFSA.V. Sim, W. Han, **S.A. Ferdousi**, K.L. Yeung

243. Design and synthesis of stable angular polycyclic aromatic hydrocarbons.**J.T. Ly**, L. Zhang, A.L. Briseno

244. Preparation of polypyridylruthenium light harvesting polymers and application in water oxidation catalyst assembly.**J. JIANG**, G. Leem, Z. Chen, T. Pho, S. Keinan, Z. Fang, E. Puodziukynaite, J.R. Reynolds, K.S. Schanze

245. Development and characterization of layer-by-layer assembled ferrocene polymer/enzyme films for usage as biofuel cell anodes.**N.P. Godman**, J. DeLuca, D. Schmidtke, D.T. Glatzhofer

246. Synthesis and characterization of semifluorinated polyarylene copolymers.**S.M. Budy**, J. Jin, D.A. Loy, S.T. Iacono

247. Bandgap tuning of silicon quantum dots using organic surface ligands.**R. Anderson**, J. Bell, B. Gorman, A. Sellinger, M. Lusk

248. Synthesis and characterization of water stable, silicotungstic acid functionalized perfluorocyclobutyl polymer electrolyte.**A. Motz**

249. Cyclopentadiene-containing π-conjugated polymers.**L. Chen**, A. Pietrangelo

250. Modifying the bandgap of ITO and ZnO by 2eV using novel conjugated aromatic phosphonic and carboxylic acid ligands.**B.W. McNichols**, U. Koldemir, J.L. Braid, A. Morgenstern, M.E. Eberhart, R.T. Collins, D.C. Olson, A. Sellinger

Section F

Colorado Convention Center
Hall E

Excellence in Graduate Polymer Research

Cosponsored by PRES, PROF, SOCED and YCC
Financially supported by ACS Polymer Division Industrial Advisory Board
H. Cheng, C. J. Ellison, C. J. Landry-Coltrain, *Organizers*

6:00 - 8:00

251. Fluorescence conjugated microporous polymers with amino receptors as metal cation chemosensor.**A. Chen**, J.L. Duffy-Matzner, W.E. Bernier, W.E. Jones

252.
Roles of quinoidal character, regioregularity, and polydispersity in determining the photovoltaic performance of conjugated copolymers.**T. Zheng**, L. Yu

253. Magnetic core-fluorescent conjugated polymer shell nanoparticles prepared by surface-initiated Kumada polymerization.**S. Chatterjee**, C. Rosu, P.S. Russo, E.E. Nesterov

254. Fast initiating nickel precatalysts for π-conjugated polymer synthesis.**A.O. Hall**, S. Lee, A.J. McNeil

255. Growing green polymers using the sun: Organocatalyzed photoredox mediated polymerization.**J.C. Theriot**, G. Miyake

256. Oximes as eeversible links in polymer chemistry: Dynamic macromolecular stars.**S. Mukherjee**, A. Bapat, M. Hill, B.S. Sumerlin

257. Molecule to morphology chirality-transfer in ABC triblock terpolymers.**A. Sarkar**

258. Solid-state self-assembly: For advanced functional materials.**Y. Kim**, N. Kotov

259. How processing affects dispersion and thermomechanical properties of waterborne epoxy and cellulose nanocrystal composites.**N. Girouard**, J.C. Meredith, M. Shofner, G. Schueneman

260. Functional polymers via post-polymerization modification of poly(methionine).**E.G. Gharakhanian**

261. Withdrawn

Section F

Colorado Convention Center
Hall E

General Topics: New Synthesis & Characterization of Polymers

D. Garcia, T. Saito, *Organizers*

6:00 - 8:00

262. One-step synthesis of poly(oxazoline)-based amphiphilic block copolymers using a dual initiator for RAFT polymerization and CROP.**Y. Yu**, J. Youk

263. New binuclear α –diimine nickel catalysts for ethylene polymerization.**A.A. Alsaygh**

264. Preparation of helical star polymers using tris-nickel Initiators.**D.A. Siriwardane**, J.F. Reuther, B.M. Novak

265. Novel styrene sulfonate copolymer and its application.**S. Ozoe**

266. Synthesis, morphological behavior, and ODT of poly(cyclohexadiene)-based copolymers.**K. Misichronis**, J. Chen, K.J. Kahk, A. Imel, M.D. Dadmun, J.G. Kennemur, F.S. Bates, J.W. Mays, K. Hong, A.T. Avgeropoulos

267. Synthesis and facile end-group quantitation of functionalized PEG azides.**J.E. Semple**, **B.T. Sullivan**, K.N. Sill

268. Effect of ethers on BF_3-initiated cationic ring-opening polymerization of glycidol.**C.M. Staton**, A.A. Chaudhry, E.A. Shcherbina, L.A. Searcy, A.T. Royappa

269. Withdrawn

270. Chain-growth condensation rigid rod polymer brushes: Design and synthesis of a new polymer brush technique.**F.C. Prehn Jr**, S.G. Boyes

271. Chemical reactivity of hydroxyl end-groups in bis-MPA based hyperbranched polymers.**M. Syed**, S. Nazarenko

272. Comb-type triblock copolymers synthesized by RAFT polymerization and their capability for heavy crude oil emulsification.J. Huang, J. Xu, K. Chen, T. Wang, C. Cui, R. Zhang, L. Li, **X. Guo**

273. Polymerization of PEEK AB monomers with oxyalkylene linkages via NAS and Friedel-Crafts reactions.**S. Hennelly**, W.A. Feld

274. Synthesis of eumelanin- inspired polyindoles.**K. Sachinthani**, T.L. Nelson

275. Synthesis of fluorescently labelled sodium polystyrenesulfonate via atom transfer radical polymerization.**P. Balding**, A.M. Blake, P.S. Russo, W. Huberty, R. Cueto

276. Cyclic polymers via a solid-supported ruthenium-based metathesis catalyst system.**J.P. Edwards**, R.H. Grubbs

277. Synthesis and characterization of eumelanin-inspired ethynylene-linked polymers.**S. Adhikari**, S. Selvaraju, T.L. Nelson

278. Synthesis and characterization of alkoxy-functionalized polyselenophenes.**D. Khambhati**, T.L. Nelson

279. Withdrawn

280. Broad spectrum antimicrobial effectiveness for synthetic mimic of antimicrobial peptides.**A.L. Fogel**, S.E. Exley, G. Sahukhal, B. Abel, M.O. Elasri, C.L. McCormick, S.E. Morgan

281. PEGylated O_2-riched enzyme conjugatable polymer for long-term high performance electrochemical glucose sensors.**Z. Li**, S. Vaddiraju, F. Papadimitrakopoulos

282. Biodegradable, functional polyesters for fused deposition modeling.**K. Dube**, M. Guvendiren, V.B. Damodaran, J.B. Kohn

283. Regulation of protein properties via site-specific polymer conjugation.L. Wang, X. Li, H. Wang, L. Yuan, **H. Chen**

284. Toward side-selective modification of microdialysis sampling polyethersulfone (PES) membranes.**S. Phillips**, J. Stenken

285. Tuning the physical properties of poly(arylene ether)s prepared from 3,5-difluorobenzenesulfonamides.**R. Mitton**, E. Fossum

286. Triplet-triplet annihilation upconversion from rationally designed polymeric emitters with tunable interchromophore distances.**X. Yu**, X. Cao, X. Chen, N. Ayres, P. Zhang

287. Investigating the effects of a low refractive index counter-diffusive component in two-chemistry holographic photopolymer.**M. Alim**, B. Kowalski, C. Bowman, R. McLeod

288. Polycraft: polymer chemistry in the evolving paradigm of education.**S. Parker**, B.R. Lund, W. Voit

289. Chemo- and stereoselective polymerization of polar divinyl monomers by metallocenium catalysts.**F. Vidal**, E.Y. Chen

290. Starch-containing hybrid polymers: Studying protein adsorption via quartz crystal nicrobalance with dissipation (QCM-D).**A. Sengupta**, A.R. Linehan, P.M. Iovine

291. Synthesis and characterization of new low band gap polymers containing ethyl and phenyl ester fuctionalized polythiophene derivatives.**D.M. Shircliff**, B.M. Boardman

292. Renewable polymers derived from ferulic acid, biobased diols and fatty acid derivatives via ADMET.I. Barbara, A.L. Flourat, **F. Allais**

293. Electrochemical redox-unlocked smart polymeric ring.**A. Feng**, L. Peng, J. Yuan

294. Study of polymer dynamics in linear low density polyethylene by solid state NMR.**L. Caire da Silva**, R. Graf, C. Bowers, K.B. Wagener

295. Water based PEDOT conducting coating.**X. Liu**, J. Shen, Y. Feng, C. Ma, Z. Xiao, T. Fan, S. Tong, W. Zeng, Y. Liu, Y. Min

296. Synthesis of shell- crosslinked nanoparticles from polyhydroxylsaccharides block-polylactides.**J. Wang**, L. Li, M. Obrinske, L. Bitterman, W. Du

297. Developement of graphene/polyurea nacomposites based on admiceller polymerization.**T. Karim**

298. Flocculation of emulsified oil using a novel amphiphilic and cationic chitosan-based flocculant.**T. Lyu**, **H. Zhao**

299. Effects of Fullerene Chain Ends on Polymer Reptation.**A. Zhou**, R. Chen, S. Li, X. Sun, Y. Mi, **X. Wang**

300. Large molecule incorporation into polyimide aerogel matrix for enhanced aerospace application.**S.L. Vivod**, M.B. Meador, C.R. Pugh

Section F

Colorado Convention Center
Hall E

Innovations in Macromolecular Network Chemistry

Cosponsored by PMSE
A. J. Guenthner, B. R. Lund, L. M. Stratton, *Organizers*

6:00 - 8:00

301. Novel chlorine-containing hyper-cross-linked polymers as adsorbent for removing organic pollutants from humid streams.W. Wang, C. Wang, K. Wang, J. Chen, Z. Liu, Z. Hao, **Z. LIU**

302. Control of kinetics and stress development in polymer networks with acrylated vs. methacrylated polymer nanoparticles.**P.K. Shah**, J.W. Stansbury

303. Light controlled thiol-Michael addition initiated by photocaged superbases.**X. Zhang**, W. Xi, S. Chatani, M. Podgorski, C. Bowman

304. Synthesis of a biocompatible hydrogel platform for drug delivery using oxime click chemistry.**K.A. Gilmore**, D.B. Beezer, D.M. Stevens, E.A. Delesky, E.M. Harth

305. Thiol-vinyl sulfone and thiol-vinyl sulfone-isocyanate crosslinking reactions to generate glassy and tough network polymers.**M. Podgorski**, D. Nair, E. Becka, C. Bowman

306. Thiol-alkyne photopolymerization in miniemulsion: A facile route to functional polymer nanoparticles.**D.N. Amato**, D.A. Amato, M. Brei, R.F. Storey, D.L. Patton

307. Visible-light initiator with potential for bottom-up photocuring.**S. Lewis**, M. Barros, K. Sarao, M. Makhija, J.W. Stansbury

308. Toward "green" thermosets: Characterization of poly(alkylene mercaptosuccinates).G. Sternhagen, N. Levenhagen, **J.P. Droske**

309. Studies on the synthesis and ion conductivities of sp^3-hybridized boron-linked macrocycle-based covalent-organic network.**Y. Du**, H. Yang, W. Zhang

Section F

Colorado Convention Center
Hall E

Interacting with the Immune System using Polymeric Systems

B. De Geest, A. P. Esser-Kahn, *Organizers*

6:00 - 8:00

310. Light controlled activation of immune cells via photocaged NOD1 agonist.**A.C. Chon**, A. Esser-Kahn

311. Effect of spatially predetermined agonist presentation on immune response *via* polymeric systems.**K. Ryu**, K. Slowinska, R. Mancini, A.P. Esser-Kahn

312. Withdrawn

313. Enhancing CpG immunotherapy in brain cancer through improved delivery.**E. White**, D. Alizadeh, B. Badie, J.M. Berlin

Section F

Colorado Convention Center
Hall E

Macromolecular and Nanoparticle Separation Science

Joint POLY/PMSE Poster Session

Financially supported by The Dow Chemical Company, Wyatt Technology, Tosoh BioScience,

Waters, Green Materials – ICE Science, University of Dallas
K. Beers, A. K. Brewer, W. Gao, A. M. Striegel, *Organizers*

6:00 - 8:00

314. Use of high speed/high resolution size based chromatographic separation of polymeric materials with micro viscometric detection.**M.J. O'Leary**

315. Online coupling of specialty detectors in GPC for chemical and molar mass detection.J.A. McConville, **D. Lohmann**, T. Hofe, M. Cudaj, G. Guthausen, M. Wilhelm

316. Carbohydrate based hyper cross-linked organic polymers with –OH functional group for CO_2 separation.**H. Li**, B. Meng, S.M. Mahurin, S. Chai, D.C. Baker, H. Liu, S. Dai

Section F

Colorado Convention Center
Hall E

Next Generation Smart Materials

Cosponsored by PMSE
E. B. Berda, J. Foster, Y. C. Simon, *Organizers*

6:00 - 8:00

317. Flexible SiO_2 nanofilms assembled on poly(ethylene terephthalate) substrates through a room temperature fabrication process.**S. Yamamoto**, K. Sonobe, M. Mitsuishi, T. Miyashita

318. Degradable nanoparticles for light-assisted cancer invasion inhibition.**H. Chong**, S. Wang

319. 3D printing of mechanochromic polycaprolactone on entry-level printers.**G.I. Peterson**, M.B. Larsen, M. Ganter, D. Storti, A.J. Boydston

320. Nature-inspired intramolecular cyclization for fast light-triggered nanogel degradation.**C. de Gracia Lux**, J. Lux, G. Collet, S. He, M. Chan, J. Olejniczak, A. Almutairi

321. Supramolecular polymers synthesized by thiol-ene click polymerization from supramonomer.**Q. Song**, F. Li, L. Yang, Z. Wang, X. Zhang

322. ROS responsive tellurium-containing hyperbranched polymer.**R. Fang**, W. Cao, X. Zhang, H. Xu

323. Endothelial cell attachment on shape memory polymer surfaces.**T. Govindarajan**, R. Shandas

324. Interfacial fabrication of functional supramolecular polymeric networks for photocatalysis.**B. Yuan**, H. Yang, Z. Wang, X. Zhang

325. Cooperative effect of cucurbit[8]uril-based π-π interaction.**Z. Huang**, K. Qin, L. Yang, **Z. Wang**, **X. Zhang**

326. Withdrawn

327. Application of bioluminescence resonance energy transfer (BRET) in anticancer and antifungal research.**H. Bai**, S. Wang, X. Zhang

328. Pursuing ordered microphase separation in mixed polymer brushes.**C.K. Simocko**, A.D. Price, D. Huber, A.L. Frischknecht, S. Hur, G.H. Fredrickson

329. Shape memory properties of polymer networks formed using photomediated copper(I)-catalyzed azide alkyne cycloaddition (photo-CuAAC).**M. McBride**, A.D. Baranek, C. Bowman

330. Bioderived polymers prepared from *N*-(acryloyl-2-pyrrolidone)s with ether and thio-ether-based residues.**R. Bhat**, A. Pietrangelo

331. Fabrication and characterization of a radiopaque embolic hydrogel coil.**T. Lee**, H. Song, I. Jeon, J. Cho

332. Novel hydrogelator for the creation of supramolecular structures for biomedical applications.**Y. Gao**, C. Berciu, D. Nicastro, B. Xu, F. Horkay

333. Electrochemical redox responsive micelles based on host-guest interactions and star polymers.**L. Peng**, A. Feng, J. Yuan

334. Production of polymeric composites with self-healing functionality by multi-axial electrospinning.**J. Seyyed Monfared Zanjani**, B. Saner Okan, M. Yildiz, Y.Z. Menceloglu

335. Detecting early metal corrosion via “turn-on” fluorescence in smart epoxy coatings.**D. Ghosh**, W. Ming

336. Withdrawn

337. Chemistry of MoS_2 solvent-assisted exfoliation: Correlation between moisture and the In-situ formation of reduction species.**R. Vaia**, D. Nepal, L.F. Drummy, K. Park

338. Two-component molecular gels as smart biocompatible soft materials.**J. Miravet**, B. Escuder Gil, C. Berdugo, C. Felip, S. Diaz-Oltra

339. Preparation of neutral color polymeric electrochromic devices using an commerical organic dye.**Y. Zhu**, M.T. Otley, X. Zhang, M. Li, G.A. Sotzing

340. Rationally engineering phototherapy modules of eosin-conjugated responsive polymeric nanocarriers via intracellular endocytic pH gradients.**G. Liu**, S. Liu

Section F

Colorado Convention Center
Hall E

Polymer Composites and High Performance Materials

J. W. Gilman, M. Meador, M. Meador, D. Savin, *Organizers*

6:00 - 8:00

341. Thermal and dynamic mechanical analysis of treated diatomaceous earth and epoxy films.**B.R. Sedai**, F.D. Blum

342. Ionic polymer-carbon composites as a new design for electroactive actuators and sensors.**D.G. Mackanic**, R.B. Moore

343. New perfluorocyclopentene-derived bisphenol cyanate ester for high performance applications.**C.A. Corley**, D.B. Barbee, S.T. Iacono

344. Time delay of open cycle potential (OCP) measurement during the in-situ polymerization of polyaniline with graphene oxide nanosheets.**W. Tang**, C. Yuan, J. Wang, S. Mo, C. Zhao, Y. Liu, Y. Min

345. Preparation and characterization of graphene /polyaniline composite with assistance of supercritical carbon dioxide.**W. Tang**, C. Yuan, J. Wang, S. Mo, C. Zhao, Y. Liu, Y. Min

346. Graphene-based waterborne coatings and its preparation.**C. Ma**, J. Shen, Y. Feng, X. Liu, Z. Xiao, T. Fan, S. Tong, Y. Liu, Y. Min

347. Adsorbed poly(vinyl acetate) on silica: experimental and molecular dynamics simulation studies.**H. Mortazavian**, C.J. Fennell, F.D. Blum

348. Raman investigations on polyethylene oxide - TiO_2 nanocomposites.**I. Elamin**, D. Chipara, H. Huang, Y. Zhai, H. Xu, D. Hui, M. Chipara

Section F

Colorado Convention Center
Hall E

Putting Renewable Polymers to Work

D. Boday, E. C. Hagberg, *Organizers*

6:00 - 8:00

350. Polymeric materials from biomass.**B.M. Upton**, A.M. Kasko

351. Recycle method of waste plastics based on physical degradation theory.**S. Yao**, A. Tominaga, N. Takenaka, N. Oda, H. Sekiguchi, R. Nakano

352. Aluminum(III) isopropoxide initiated polymerization of gluconolactone.**D. Saxon**, J. Scanlon

Section F

Colorado Convention Center
Hall E

Undergraduate Research in Polymer Science

S. E. Morgan, S. I. Nazarenko, *Organizers*

6:00 - 8:00

353. Synthesis, characterization, and optical properties of perfluorocyclic arylamine polymers.**D.B. Barbee**, F. Carty, **S.T. Iacono**

354. Synthesis, characterization, and utilization of tri(perylene bisimides) as an electron accepting material for polymer solar cells.**M. Roth**, L. Moore, S.E. Morgan

355. Incorporation of Diels-Alder chemistry into polymer matrices via an inimer approach.**E.D. Crenshaw**, M. Markmann, T. Kleine, A.E. London, P.J. Costanzo

356. Development of fluorocyclic silsesquioxanes as model templates for organically modified silica composites.**C. Thrasher**, A.R. Jennings, S.T. Iacono

357. Toward high temperature ellastomers based on poly(arylene ether)s derived from 3,5-difluorobenzene sulfonamides.**J. Schmitz**, E. Fossum

358. Tailoring the mechanical properties of conducting polymer films via crosslinking.**B. Farrell**, D. Spence, A. Murphy

359. Optimization silk-polypyrrole composite films for use as electromechanical actuators.**J.D. Larson**, N. Bradshaw, C. Klemke, S. Severt, J. Leger, A. Murphy

360. Molecular weight changing polymers via Diels-Alder chemistry.**M.R. Martinez**, M. Markmann, P.J. Costanzo

361. Investigation of spin coating a thiol-ene/acrylate shape memory polymer for application in thin film flexible devices

.**H. Guduru**

362. Investigation of thermally induced microphase separation in dicarboximide functionalized oxanorbornyl diblock copolymers by atomic force microscopy.**T. Kolibaba**, D.A. Waldow

363. Biobased replacements of bisphenol A diglycidal ether in epoxy resins.**C. Sago**, A. Maiorana, S. Spinella, R.A. Gross

364. Investigation of self-assembled nanomorphologies of functionalized dicarboxide oxanorbornyl diblock copolymers via small angle X-ray scattering and optical birefringence.**J. Rosales**, D.A. Waldow

365. Characterization and toxicity of alanine-based polymeric nanoparticles in D. *tigrina* planarian flatworms.**J.P. Wade**, S. Kumar, S. Taylor, E. Economou-Petrovits, R. Lidberg, P. De, L. Ramakrishnan

366. Synthesis and characterization of novel ethylene oxide functionalized dicarboxide oxanorbornyl polymers for use as a lithium-ion electrolyte support.**D. Smith**, D.A. Waldow

367. Reactivity ratio controlled polycondensation as a route to functional poly(arylene ether ketone)s.**K. Geremia**, E. Fossum

368. Energy efficient, closed-loop, water-free protocol for processing of cellulosics with quantitative recovery of an ionic liquid solvent.D. Smith, **R. Carrazzone**, M. Schloder, T.W. Smith

369. Multilayered nanocomposites with high aspect ratio graphene platelets: Controlled interdiffusion and improved gas barrier properties.**M. Otto**, K. Meyers, S.I. Nazarenko

370. Performance evaluation of variable nitrogen containing five membered ring vinyl monomers and acrylonitrile copolymer.**K.L. Denson**, B. Batchelor, S. Mahmood, D. Yang

371. Analysis of thiolene network compatibility with photolithographic solvents.**M. Seymour**, R. Reit, B.R. Lund, W. Voit

372. Modeling of block copolymer thin film behavior between neutral and preferential interfaces.**M. Carlson**, W. Durand, G. Blachut, M. Maher, C.J. Ellison, C.G. Willson

373. Self-assembly of size tagged triblock copolymer brushes via DNA hybridization.**A.H. Spring**

374. Multifunctional polyurethane hydrogels for biomedical applications.**C. Seitz**, M. Nguyen-Kim, J. Borghs, J. Wallenborn

375. Synthesis of jeffamine-based organogels and subsequent characterization using cavitation rheology.**S. Walley**, K.C. Bentz, D.A. Savin

376. Rheological characterization of cementitious mixtures with excess polyethylene oxide.**E. Soltys**, L. Murray, K.A. Erk

Joint PMSE/POLY Poster Session

Sponsored by PMSE, Cosponsored by POLY‡

WEDNESDAY MORNING

Section A

Sheraton Denver Downtown Hotel
Directors Row J

Next Generation Smart Materials

Smart Nanomaterials, Composites, and Gels

Cosponsored by PMSE‡
E. B. Berda, J. Foster, *Organizers*
Y. C. Simon, *Organizer, Presiding*
D. Balkenende, *Presiding*

8:30 Introductory Remarks.

8:35 377. Thermoresponsive supramolecular hydrogels based on diblock methylcellulose derivatives.**H. Kamitakahara**, A. Nakagawa, T. Takano

8:55 378. Hollow nanogels and double-shell nanogels with advanced temperature responsiveness.**W. Richtering**, J. Dubbert, M. Karg, J. Pedersen

9:15 379. Reversible aggregation of smart PEG-PDMAEMA diblock copolymers in aqueous solution.P. Conor, E. Stubbs, M. Schneider, D. Karis, **E.M. Glogowski**

9:35 380. Shape memory polymer foams through emulsion-templating.I. Gurevitch, C. Warwar, **M.S. Silverstein**

9:55 Intermission.

10:15 381. Bioderived poly(*N*-acryloyl-2-pyrrolidone)s: Structure/property correlations of a novel class of smart materials.R. Bhat, X. Sun, **A. Pietrangelo**

10:35 382. Luminescent organoborane polymers for anion detection.**F. Jaekle**, F. Cheng, F. Guo, P. Chen, F. Pammer

10:55 383. Liquid infused surfaces assembled by the layer-by-layer process.**N. Zacharia**, G. Zhu, C. Zhang

11:15 Concluding Remarks.

Section B

Sheraton Denver Downtown Hotel
Governor's Square 12

Energy and Materials

S. Clarson, *Organizer*
S. T. Iacono, A. Sellinger, *Organizers, Presiding*

8:30 384. Design, synthesis, and characterization of new sulfonated aromatic polyamides as proton exchange membranes for fuel cells.**F. Liu**, D.M. Knauss

8:50 385. Effect of hydration on mechanical properties of anion exchange membranes.M. Vandiver, B. Caire, Y. Li, D.M. Knauss, A.M. Herring, **M.W. Liberatore**

9:10 386. Original blend membranes of partially fluorinated copolymers bearing azole functions with sulfonated PEEK for PEMFC operating at low relative humidity.**B.M. Ameduri**

9:40 Intermission.

9:55 387. Foldable supercapacitors from triple networks of macroporous cellulose fibers, single-walled carbon nanotubes, and polyaniline nanoribbons.D. Ge, L. Yang, L. Fan, C. Zhang, X. Xiao, Y. Gogotsi, **S. Yang**

10:15 388. Withdrawn

10:35 389. Synthesis of perfluoropolyether-based electrolytes for lithium-ion battery applications.**D. Wong**, J.M. DeSimone, N.P. Balsara

10:55 390. Design principles for constructing conducting redox polymer based battery materials.C. Karlsson, H. Huang, L. Yang, X. Huang, M. Strømme, R. Emanuelsson, A. Gogoll, **M. Sjödin**

11:15 391. Mechanisms of self-discharge in p-doped conducting polymers.H. Olsson, C. Strietzel, Z. Qiu, M. Strømme, **M. Sjödin**

11:35 392. Designer nanoporous materials for energy storage and energy conversion applications.**A. van Buuren**, J. Lee, M. Bagge-Hansen, T. Willey, P.G. Allen, B. Wood, J. Biener

Section C

Sheraton Denver Downtown Hotel
Plaza Court 8

General Topics: New Synthesis & Characterization of Polymers

B. Barkakaty, D. Garcia, *Organizers*
Y. A. Elabd, M. R. Van De Mark, *Presiding*

8:00 393. Mechanochemical degradation of three-arm star polymers: Kinetics and modeling.**G.I. Peterson**, D. Church, A.J. Boydston

8:20 394. Impact of alkyl chain length on ion conduction and morphology in polymerized ionic liquid diblock copolymers.**J.R. Nykaza**, S. Sharick, E. Davis, Y. Ye, K.A. Page, A. Jackson, F.L. Beyer, K.I. Winey, Y.A. Elabd

8:40 395. Investigating the crystallinity of polytetrafluoroethylene (PTFE) by using terahertz time-domain spectroscopy (THz-TDS).**F. Senna Vieira**, C. Pasquini

9:00 396. Application of single-chain polymer nanoparticles from consecutive ROMP-RCM process.**Y. Bai**, H. Xing, X. Phang, Y. Lu, S.C. Zimmerman

9:20 397. High stiffness in aromatic-aliphatic poly(tyrosol carbonate) by hierarchical control over isomer sequence, phase behavior, and chain orientation.**S.D. Sommerfeld**, S.N. Murthy, Z. Zhang, M. Guvendiren, K. Dube, **J.B. Kohn**

9:40 398. Electronic and spintronic properties of poly(3-methylthiophene) polymer brushes.**T.W. LaJoie**, W. You

10:00 399. Middle and end labelled PMMA-d3: The effect of chain ends on polymer dynamics.**U.N. Arua**, F.D. Blum

10:20 400. Dynamic surface tension comparison of colloidal unimolecular polymers with different hydrophilic groups: Sulfonate, carboxylate, and quaternary amine.**M.R. Van De Mark**

10:40 401. Modified ABS for fused filament fabrication 3D printing with improved interlayer adhesion.**K. Yang**, B. Lund, D. Sydney, C. Thompson, R. Smaldone, W. Voit

11:00 402. Anomalous thermal characteristics of poly(ionic liquids) derived from 1-butyl-2,3-dimethyl-4-vinylimidazolium salts.**T.W. Smith**, M. Zhao, F. Yang, D. Smith

11:20 403. Coordinated experimental and theoretical study of a polydisperse polymer thin film.**B.S. Lokitz**, R. Kumar, M. Kilbey, S.W. Sides, J. Ankner, J.F. Browning, B. Sumpter

11:40 404. Probing the interior of dendronized polymers with solvatochromic *p*-nitroanilino groups.**C. Gstrein**, A. Schlüter, B. Zhang

12:00 405. Preparation of antibacterial surfaces by liquid-infused nanoporous polymer.**M. Okuom**, D. Sabatka, A.E. Holmes

Section D

Sheraton Denver Downtown Hotel
Directors Row I

Polymer Composites and High Performance Materials

Nanocomposites

J. W. Gilman, M. Meador, S. E. Morgan, D. Savin, *Organizers*
M. Meador, *Organizer, Presiding*

8:30 349. Soft, lightweight conductors from nanoscale carbon.**M. Pasquali**

9:00 406.
Composites of graphene oxide and poly(vinyl acetate) - implications for enhanced mechanical behavior.B.K. Khatiwada, K. Bastola, R. Vaidyanathan, **F.D. Blum**

9:30 407. Covalent functionalization of graphene-based platelets for tailored solubility and assembly.B. McGrail, B. Rodier, **E. Pentzer**

10:00 408. Polymer grafted nanoparticle hybrids: Applications to gas separations and bimimetic materials.**S. Kumar**, C.J. Durning, B. Benicewicz

10:30 409. Assemblies of conjugated polymers on carbon nanotubes.**L. Zhai**

10:50 410. Improved carbon nanotube fibers through crosslinking and surface modification.**R. Ripy**, X. Lu, N. Kang, J.W. Mays

11:10 412. Facile synthesis of controlled, high molecular weight polyacrylonitrile via low temperature RAFT polymerization.**J.D. Moskowitz**, B. Abel, A.J. Varni, J. Welch, C.L. McCormick, J.S. Wiggins

11:30 413. Polymer matrix composites using covalently modified carbon nanotube sheets.**J.S. Baker**, M.A. Meador

Section E

Sheraton Denver Downtown Hotel
Governor's Square 14

Interacting with the Immune System using Polymeric Systems

Molecular Adjuvants

B. De Geest, A. P. Esser-Kahn, *Organizers, Presiding*

8:30 Introductory Remarks.

8:40 414. Application of multi-agonist scaffolds to modulate antigen presentation and adaptive immunity.**J. Tom**, A. Esser-Kahn

9:00 415. NIAID Adjuvant Program: Lessons and insights from the frontiers of vaccine adjuvant research.**W. Leitner**

9:50 416. Syntheses and biological evaluation of toll-like receptor-7 agonistic macromolecules.**N. Shukla**, S.A. David, A. Izzo, C. Hamilton, C. Mutz, D.B. Salunke, P. Gao, R. Balakrishnan, R. Ukani, S. Malladi, T. Day, T. Lewis

10:20 Intermission.

10:50 417. Programming immune responses with polymer carriers of Toll-like receptor (TLR) agonists.**G. Lynn**, R. Laga, B. Seder, L. Seymour

11:20 418. Controlling the immune system with light: photo-active TLR agonists.**A.P. Esser-Kahn**, R. Mancini, L. Stutts, K. Ryu

WEDNESDAY AFTERNOON

Section A

Sheraton Denver Downtown Hotel
Directors Row J

Next Generation Smart Materials

Smart Nanomaterials, Composites, and Gels

Cosponsored by PMSE
E. B. Berda, J. Foster, Y. C. Simon, *Organizers*
M. A. Ayer, N. Zacharia, *Presiding*

1:30 Introductory Remarks.

1:35 419. New opportunities in viral nanoparticle protein:polymer conjugates.J.D. Wallat, S. Isarov, J. Zhang, **J.K. Pokorski**

1:55 420. Withdrawn

2:15 421. Single-chain nanoparticles via reversible acetal crosslinks.**C.K. Lyon**, E.B. Berda

2:35 422. Optically responsive supramolecular glasses.**D. Balkenende**, C. Monnier, G. Fiore, C. Weder

2:55 Intermission.

3:15 423. Thermally-responsive azo-containing polymeric materials.**M.A. Ayer**, Y.C. Simon, C. Weder

3:35 424. Synthesis and phase behavior of alkyne-functionalized di- and triblock copolymers and their cobalt carbonyl adducts.**B. Jiang**, B. Qian, P. Yu, **R.B. Grubbs**

3:55 425. Responsive hydrogels for cells in dulture.S. Patil, P. Chaudhury, L. Clarizia, M.J. McDonald, E. Reynaud, P. Gaines, **D.F. Schmidt**

4:15 426. Helical polypeptides mediated nonviral gene and siRNA delivery.L. Yin, N. Zheng, H. Lu, N. Gbrielson, K. Kim, X. Deng, R. Zhang, **J. Cheng**

4:35 Concluding Remarks.

Section B

Sheraton Denver Downtown Hotel
Governor's Square 12

Energy and Materials

S. Clarson, *Organizer*
S. T. Iacono, A. Sellinger, *Organizers, Presiding*

1:30 427. Organic photovoltaics: Materials microstructure and its effects on device parameters.**A. Salleo**

2:00 428. High efficiency BODIPY lamellar organic photovoltaics.**J. Chen**, S.M. Conron, P. Erwin, M. Dimitriou, K. McAlahney, M.E. Thompson

2:20 429. Role of linking chemistry on charge separation and photovoltaic performance of all-conjugated block copolymers.J. Mok, Y. Lin, K. Smith, K. Yager, S.B. Darling, D.J. Gosztola, Y. Lee, R. Schaller, E. Gomez, **R. Verduzco**

2:40 430. Development of a DBfA Ttpe block copolymer for solar energy harvesting.**M. Hasib**, T.H. Nguyen, S.S. Sun

3:00 Intermission.

3:15 431. All-polymer solar cells.**Z. Bao**

3:45 432. Supramolecular polymer/fullerene composite nanofibers for organic photovoltaics.**Y. Qin**

4:05 433. Toward conjugated polymer photovoltaic cells from low-cost starting materials.**M. Jeffries-El**, M. Ewan, A. Bhuwalka, B.J. Hale, E.W. Muller, B.M. Kobilka

4:35 434. Semi-random donor-acceptor copolymers and terpolymers.**W.A. Braunecker**, Z.R. Owczarczyk, S.D. Oosterhout, N. Kopidakis, D.C. Olson

4:55 435. Photon upconverting soft materials.**F.N. Castellano**

Section C

Sheraton Denver Downtown Hotel
Directors Row E

Innovations in Macromolecular Network Chemistry

Self-healing or Magnetic

Cosponsored by PMSE
B. R. Lund, *Organizer*
A. J. Guenthner, L. M. Stratton, *Organizers*, *Presiding*

1:30 Introductory Remarks.

1:35 436. Oxime-functional hydrogels with tunable gelation and degradation behavior.**S. Mukherjee**, M. Hill, B.S. Sumerlin

2:00 437. Reversible dynamic urea bond for the design of functional polymers.H. Ying, Y. Zhang, K. Cai, **J. Cheng**

2:20 438. Supramolecular motifs in dynamic covalent PEG-hemiaminal organogel networks.**J.M. Garcia**

2:40 439. Malleable and self-healing polymer networks based on dynamic imine bond.**A. Chao**, D. Zhang

3:00 Intermission.

3:20 440. Emergent cure chemistry in the development of aerospace materials.**J.M. Mabry**, A.J. Guenthner, J.C. Marcischak, T.S. Haddad, J.T. Reams, M.D. Ford

3:45 441. Charged induced formation of crystalline network polymer.**C.T. Yavuz**

4:05 442. Magnetically induced free radical polymerization.**M. Soucek**, K. Miller, Z. He

4:30 443. New methods for curing thermally stable polycyanurate networks based on magnetic induction heating of coated nanoparticles.**A.J. Guenthner**, C.M. Sahagun, J.M. Mabry

4:50 Concluding Remarks.

Section D

Sheraton Denver Downtown Hotel
Directors Row I

Polymer Composites and High Performance Materials

Biopolymers, Nanocomposites and Bioapplications

J. W. Gilman, M. Meador, M. Meador, S. E. Morgan, *Organizers*
D. Savin, *Organizer, Presiding*

1:30 444. Structural nanocellulose composites.**J.P. Youngblood**, S. Chen, J. Liu, R. Moon, G. Schueneman

2:00 445. Sustainable, high-performance fiber composites.C. Kuncho, J. Möller, W. Liu, E. Reynaud, **D.F. Schmidt**

2:30 446. Processing and properties of polymer nanocomposites with cellulose nanocrystals.**C. Weder**, A. Nicharat, J. Sapkota, J. Foster

3:00 447. Hierarchically structured nanocomposites.**J.R. Dorgan**, C. Moran, B. Liu, R. Sosa, L.O. Hollingsworth

3:30 448. Stick-slip shear phenomenon of interfaces between cellulose nanocrystals.**S. Keten**, R. Sinko

4:00 449. Application of natural fiber welding to the fabrication of biopolymer composite materials.**E. Fox**, E.K. Brown, L. Haverhals, D. Gray, B. Tisserat, T. Price, M. Brusoski, H.C. De Long, P.C. Trulove

4:30 450. Ultrastiff nanocomposite hydrogels for biomedical applications.M. Jaiswal, J.R. Xavier, J.K. Carrow, P. Desai, **A.K. Gaharwar**

Section E

Sheraton Denver Downtown Hotel
Governor's Square 14

Interacting with the Immune System using Polymeric Systems

Immunoengineering

B. De Geest, A. P. Esser-Kahn, *Organizers, Presiding*

1:30 451. NMR and kinetic studies of nitric oxide loading of poly(acrylonitrile-*co*-1-vinylimidazole) for advanced wound healing.**B. Batchelor**, A. Lowe, S. Mahmood, K.J. Balkus, B.M. Novak

1:50 452. Poly(n-acetylgalactosamine)-antigen conjugates induce antigen-specific tolerance.**D.S. Wilson**, M. Damo, S. Kontos, G. Diaceri, J.A. Hubbell

2:15 453. Biomaterials for recruitment and differentiation of endogenous regulatory T cells.**S. Little**

2:45 454. Polymers for tumor immune therapy: In vitro and in vivo results on multifunctional cylindrical brush polymer conjugates.**M. Schmidt**, S. Gietzen, J. Buehler, C. Hoertz, M. Schinnerer, K. Fischer, A. Birke, M. Barz, C. Kappel, M. Bros, S. Grabbe

3:10 Intermission.

3:40 455. Using small molecules to engineer and explore human immunity.**D.A. Spiegel**

4:10 456. Modulation of the immune response by lymph node targeting.**H. Liu**

WEDNESDAY EVENING

Section F

Sheraton Denver Downtown Hotel
Plaza Ballroom AB

POLY/PMSE Plenary Lecture and Awards Reception

Cosponsored by PMSE
D. Boday, M. Jeffries-El, T. J. White, *Organizers, Presiding*

5:30 Network.

6:10 Introductory Remarks.

6:15 457. Celebration of the award winners.**K.L. Wooley**

7:00 Awards Reception.

THURSDAY MORNING

Section A

Sheraton Denver Downtown Hotel
Directors Row J

Next Generation Smart Materials

Smart Nanomaterials, Composites, and Gels

Cosponsored by PMSE‡
E. B. Berda, J. Foster, Y. C. Simon, *Organizers*
C. K. Lyon, N. Zacharia, *Presiding*

8:30 Introductory Remarks.

8:35 458. Size and rigidity dependent pharmacokinetics and biodistribution of cylindrical polymer brushes.**M. Muellner**, S.J. Dodds, T. Nguyen, D. Senyschyn, C. Porter, B. Boyd, F. Caruso

8:55 459. Controlling actuation and locomotion: Geometry-composition-humidity gradient correlations for semiautonomic films.**R. Vaia**, D.H. Wang, P. Buskohl, L. Tan

9:15 460. Tuning macroscopic properties using stimuli-responsive ionic lquid monomers.**J. Texter**

9:35 461. Synthesis and dual-emissive properties of thiophene-substituted difluoroboron β-diketonates in poly(lactic acid).**M. Kolpaczynska**, C.A. DeRosa, W.A. Morris, C. Fraser

9:55 Intermission.

10:15 462. Directed self-assembly of silicon-containing block copolymers for lithography.**M. Maher**, C. Rettner, C. Bates, G. Blachut, M. Carlson, W. Durand, J. Cheng, D.P. Sanders, C.J. Ellison, C.G. Willson

10:35 463. Switchable ultrahydrophobic and superhydrophilic polymer surfaces: Synthesis, characterization, and application.**T. Hofe**

10:55 464. Reversible single-chain selective point folding via cyclodextrin driven host/guest chemistry in water.**J. Willenbacher**, B. Schmidt, D. Schulze-Sünninghausen, O. Altintas, B. Luy, G. Delaittre, C. Barner-Kowollik

11:15 465. Toward self-healing semiconducting polymers.**B.C. Schroeder**, Z. Bao

11:35 Concluding Remarks.

Section B

Sheraton Denver Downtown Hotel
Governor's Square 12

Energy and Materials

S. Clarson, *Organizer*
S. T. Iacono, A. Sellinger, *Organizers, Presiding*

8:30 466. Light harvesting using colloidal quantum dots and hybrid organic-inorganic materials.**E. Sargent**

9:00 467. Preparation of P3HT/CdS nanocomposites via in-situ nanocrystal growth in P3HT amphiphilic block copolymers.**M. Kern**, C. Tian, S.G. Boyes

9:20 468. Rational material, interface, and device engineering for high-performance polymer and perovskite solar cells.**A.K. Jen**

9:50 469. Synthesis, characterization, and properties of selectively fluorinated conjugated polymers for organic photovoltaics.**P. Homyak**, E. Coughlin

10:10 470. Novel hierarchical composites of inorganic carbon and polysiloxanes for next-generation energy applications.**J.P. Lewicki**, M.A. Worsley, T. Baumann, E.B. Duoss, R.S. Maxwell

10:40 Intermission.

10:55 471. Structure measurements for organic photovoltaics manufacturing.**D. DeLongchamp**

11:25 472. Photoinduced charge transfer and thermal recombination dynamics of a ternary cascade heterojunction composed of poly(3-hexylthiophene), titanyl phthalocyanine, and Buckminsterfullerene.**J. Park**, O. Reid, G. Rumbles

11:45 473. Expanding use of photovoltaics in the developing world: The Nanopower Africa and Power Ethiopia projects.**G. Beaucage**

12:05 474. Withdrawn

Section C

Sheraton Denver Downtown Hotel
Directors Row E

Innovations in Macromolecular Network Chemistry

Medical: Hydrogels and Particles

Cosponsored by PMSE
L. M. Stratton, *Organizer*
A. J. Guenthner, B. R. Lund, *Organizers, Presiding*

8:30 Introductory Remarks.

8:35 475. Polymeric strategies for the encapsulation of cell lysates in view of anticancer immunotherapy.**L. Lybaert**, B. De Geest

8:55 476. Natural p(TA) hydrogel and microgel networks for diverse potential biomedical uses.**N. Sahiner**, S. Sagbas, M. Sahiner, **N. Aktas**

9:15 477. Multiresponsive polymer-protein conjugates as immuno-modulating stategy.**N. Vanparijs**, R. De Coen, B. De Geest

9:35 478. Tethered-sphere networks: An ideal platform for property control.**T.S. Bailey**

9:55 Intermission.

10:15 479. Printing of polymer hydrogels in micron sizes for the Co- and sequential delivery of drugs.**B.R. Spears**, D. Stevens, E. Harth

10:55 480. Cyclic defects in tetrafunctional poly(ethylene glycol) networks and networks with mixed junction functionality.**K. Kawamoto**, M. Zhong, B.D. Olsen, J.A. Johnson

10:35 481. Withdrawn

11:15 482. Development of hydrogels and functionalized silica surfaces utilizing novel fluorocyclic precursors.**A.R. Jennings**, C. Thrasher, S.T. Iacono

11:40 Concluding Remarks.

Section D

Sheraton Denver Downtown Hotel
Directors Row I

Polymer Composites and High Performance Materials

Nanoparticles & Nanocomposites

J. W. Gilman, M. Meador, M. Meador, D. Savin, *Organizers*
S. E. Morgan, *Organizer, Presiding*

8:30 483. Hyperbranched epoxy with POSS modification for enhanced toughness polymer composites
.**S.E. Morgan**, Q. Jin, J. Misasi, J.S. Wiggins

9:00 484. Stacking intumescing multilayer thin film onto clay-based nanobrick wall to impart self-extinguishing fire retardant behavior to polyurethane.**K.M. Holder**, M. Huff, M. Cosio, **J.C. Grunlan**

9:30 485. Effect of interfacial modification on the morphology and properties of polybenzimidazole/silica nanocomposite proton exchange membrane for use in fuel cells.**S. Singha**, T. Jana

9:50 486. Improvement of mechanical properties of methacrylate based composites by latex particles.**B. Sandmann**, B. Happ, I. Perevyazko, S. Hoeppener, T. Rudolph, F.H. Schacher, M.D. Hager, U. Fischer, P. Burtscher, N. Moszner, U.S. Schubert

10:10 487. Properties and synthesis of mixed bimodal nanoparticles via RAFT.**T.L. Neely**, B. Natarajan, L. Schadler, B.C. Benicewicz

10:40 488. Withdrawn

11:10 489. Photografting random copolymers to nanoparticles for well-dispersed nanocomposites.**A.W. Hauser**, R.C. Hayward

11:30 490. Interface-modified multilayer polymer films for high energy density capacitors.**M.A. Wolak**, M. Mackey, Z. Zhou, J. Carr, L. Zhu, E. Baer

Section E

Sheraton Denver Downtown Hotel
Governor's Square 14

Interacting with the Immune System using Polymeric Systems

Nanoparticulate Vaccination Strategies

B. De Geest, A. P. Esser-Kahn, *Organizers, Presiding*

8:30 491. Pollen grains for oral vaccination.**H. Gill**

9:00 492. mRNA based startegies for steering and amplifying the adaptive immune response.**B. De Geest**

9:20 493. Nanoparticles for brain tumor immunotherapy.**J.M. Berlin**

9:50 Intermission.

10:20 494. Modulating adaptive immunity with “carrier-free” polyelectrolyte multilayer films.Y. Chiu, L. Tostanoski, **C. Jewell**

10:50 495. Engineering lipid-based vaccine nanoparticles for modulation of immune responses.**J. Moon**

THURSDAY AFTERNOON

Section A

Sheraton Denver Downtown Hotel
Directors Row J

Next Generation Smart Materials

Smart Nanomaterials, Composites, and Gels

Cosponsored by PMSE‡
E. B. Berda, J. Foster, Y. C. Simon, *Organizers*
M. A. Ayer, D. Balkenende, *Presiding*

1:30 Introductory Remarks.

1:35 496. Concurrent block copolymer polymersome stabilization and bilayer permeabilization by stimuli-regulated “traceless” crosslinking.**X. Wang**, S. Liu

1:55 497. Polymeric nanoparticles from cooperative polymerization and their dynamic behaviors.**L. Li**, C. Yuan, S. Thayumanavan

2:15 498. Synthesis and characterization of thermoresponsive, biodegradable polyesters.**J.P. Swanson**, L.R. Monteleone, F. Haso, T. Liu, P.J. Costanzo, A. Joy

2:35 499. Depolymerization kinetics and gas capture of polycarbodiimides.**B.L. Batchelor**, J.F. Reuther, B.M. Novak

2:55 Intermission.

3:15 500. Stimuli-responsive microporous polymer hydrogels for treatment of severe limb wounds.**B.C. Streifel**, J. Lundin, G. Daniels, J.H. Wynne

3:35 501. Enhanced dry adhesion from tapered nanorods and their shape effect.**Y. Cho**, G. Kim, Y. Cho, S. Lee, H. Minsky, K. Turner, D. Gianola, S. Yang

3:55 502. To randomize or not to randomize: An investigation into the cell-uptake of polymers.**J. Moraes**, S. Recalcati, G. Gody, R. Peltier, S. Perrier, H.A. Klok

4:15 503. Polyelectrolyte exceeding ITO capabilities in flexible electrochromics.**Y. Zhu**, M.T. Otley, X. Zhang, M. Li, G.A. Sotzing

4:35 Concluding Remarks.

Section B

Sheraton Denver Downtown Hotel
Governor's Square 12

Energy and Materials

S. Clarson, *Organizer*
S. T. Iacono, A. Sellinger, *Organizers, Presiding*

1:30 504. Conjugated polymers for energy harvesting, storage and modulation.**J.R. Reynolds**

2:00 505. Synthesis and characterization of conjugated fulvene chromophores and polymers.**S.M. Budy**, K.J. Knuths, A. Davidson, G.J. Balaich, D.W. Ball, S.T. Iacono

2:20 506. Piezoelectric polymer composites: From energy harvesting to artificial muscles.**W. Voit**, C. Baur, G. Ellson

2:40 507. Conductance bistability in non-conjugated polymers: Memristors in neuromorphic applications.**S.H. Foulger**

3:10 Intermission.

3:25 508. Bioinspired green nanomaterials (GN) design and manufacture for post-combustion carbon capture and sequestration.**S.V. Patwardhan**

3:55 509. Microvascular materials for mass and energy transport.**A.P. Esser-Kahn**, D.T. Nguyen

4:15 510. Plastron trapping: Fluorinated surface treatment comparison to maintain stable plastrons under flow.**J.R. Alston**, M.A. Khan, R. Campos, A.J. Guenthner, J.M. Mabry

4:35 511. Self-repairable polymeric networks that consume carbon dioxide and water.Y. Yang, **M.W. Urban**

4:55 512. Safer and more energy efficient antifreeze.**E.V. Clancy**

Section C

Sheraton Denver Downtown Hotel
Directors Row E

Innovations in Macromolecular Network Chemistry

Click Chemistries

Cosponsored by PMSE
A. J. Guenthner, *Organizer*
B. R. Lund, L. M. Stratton, *Organizers, Presiding*

1:30 Introductory Remarks.

1:35 513. Functional polymer nanoparticles via thiol-ene nanoemulsion photopolymerization.**D.A. Amato**, D.N. Amato, A.S. Flynt, D.L. Patton

1:55 514. Withdrawn

2:15 515. Wide bicontinuous compositional windows from co-networks made with telechelic macromonomers.**G.N. Tew**

2:35 516. In situ polymerization of thiol-acrylate nanocomposite polymers with encapsulated stem cells.**L.A. Garber**, A. Forghani, J.A. Pojman, D. Hayes, R. Devireddy

2:55 Intermission.

3:15 517. Softening polymer substrates for chronically soft neural interface.**W. Voit**

3:35 518. Ester-free thiol-X resin: A new material with enhanced mechanical properties.**E. Becka**, M. Podgorski, C. Bowman

3:55 519. Photoinitiated Cu(I)-catalyzed azide-alkyne cycloaddition (CuAAC) based networks.**A.D. Baranek**, H. Song, M. McBride, P. Finnegan, T. Gong, C. Bowman

4:15 520. High temperature cyanate ester resins from renewable feedstocks: Upgrading through deoxygenation or conversion to hybrid resins.**B.G. Harvey**, A.J. Guenthner, W.W. Lai, A. Chafin, M. Garrison, J. Reams, L. Cambrea, H.A. Meylemans, M.C. Davis

4:35 521. Renewable furan-based epoxy-amine thermosets.**G.R. Palmese**

4:55 Concluding Remarks.

Section D

Sheraton Denver Downtown Hotel
Directors Row I

Polymer Composites and High Performance Materials

Computation and Characterization

J. W. Gilman, M. Meador, M. Meador, S. E. Morgan, D. Savin, *Organizers*
A. L. Fogel, *Presiding*

1:30 522. Dielectric spectroscopic analysis of cure behavior and relaxation processes in polymer composites.**M.K. Hassan**, C.H. Childers, K.A. Mauritz, J.S. Wiggins

2:00 523. Aligned CNT composites: Quantitative analysis by TEM tomography.**J. Liddle**, B. Natarajan, T. Lam, R. Sharma, N. Lachman, D. Jacobs, B. Wardle

2:30 524. Mapping the lyotropic phase behavior of diblock copolymer iongels.**T. Bennett**, I. Blakey, K.J. Thurecht, K. Jack

2:50 525. Spectroscopic Investigations of polyethylene-carbon nanofibers composites.R. Benitez, **I. Elamin**, B. Jones, L. Jianhua, D. Chipara, K. Lozano, **M. Chipara**

3:10 526. Computational design of next generation aerospace material systems.**E. Sapper**, I. Cole, M. Breedon, D. Winkler, F. Chen, C. Chu

3:40 527. Connecting molecular to continuum: A multiscale modeling approach using molecular dynamics and finite element analysis to predict composite failure.**S.J. Tucker**, S. Christensen

4:10 411. Lignin expanded acrylonitrile-butadiene-styrene (ABS) thermoplastic for composite applications.**A.K. Naskar**, S.K. Akato, D.L. Erdman

Section E

Sheraton Denver Downtown Hotel
Governor's Square 14

Interacting with the Immune System using Polymeric Systems

Macromolecular Engineering of the Immune Response

B. De Geest, A. P. Esser-Kahn, *Organizers, Presiding*

1:30 528. Supramolecular peptide immunomodulators.C. Mora Solano, R.R. Pompano, T. Sun, J. Chen, A.S. Chong, **J.H. Collier**

2:10 529. Engineering amphiphiles that target lymphoid tissues and optimally engage immune cells for more effective vaccines.**D.J. Irvine**

2:50 Intermission.

3:20 530. Designing novel protein mimics from simple synthetic polymers.**G.N. Tew**

3:50 531. Effect of 3D presentation of glycomimetic polymers on lectin interaction.**A.M. Kasko**, W. Liau, K. Lin