

2014 Spring Meeting

## 2014 Spring - 247th NATIONAL ACS MEETING

Dallas, March 16-20, 2014

**POLY and PMSE sessions were located at the Hyatt Regency Dallas**

The POLY **Graphical Abstracts** are now available to POLY members

Program Meeting Chair Primary Contact: **Scott T. Iacono**

Program Meeting Chairs: **Dylan J. Boday, Malika Jeffries-EL**

Call for papers

**PACS was open for author abstract submission on 8/12/2013  
and closed (extended deadline) on October 21, 2013**

THE POLY/PMSE PLENARY LECTURE AND AWARDS RECEPTION IS SCHEDULED FOR WEDNESDAY EVENING

**PlenarySpeaker:** Joseph DeSimone, Department of Chemistry at the University of North Carolina at Chapel Hill

### Theme: Chemistry and Materials for Energy

*Program - Final*

ACS Award in Polymer Chemistry sponsored by ExxonMobil Chemical Company in Honor of Karen Wooley  
*Craig Hawker*

Frontiers in Polymer Characterization  
*Mark Dadmun, Tom Seery*

General Topics:

(1) New Synthesis and Characterization of Polymers  
*Dana Garcia, Balaka Barkakaty*

(2) Sub Topic: Challenges and Progress of Separation Based Polymer and Particles Characterization (PMSE/COLL/ANYL/DOW)  
*Dana Garcia, Wei Gao*

Materials For Energy Harvesting  
*Malika Jeffries-EL*

Peptide-Based Materials for Nanomedicine  
*Neil Cameron, Jan Van Hest, Timothy Deming*

Polymers for Oil and Gas Energy Operations  
*Gobet Advincula*

[Responsive Nanostructures and Nanocomposites](#)  
*Johan Foster, Erik Berda*

**Blurring the Boundaries of Traditional Disciplines**  
at the 247th ACS National Meeting and Exposition, Dallas, TX - March 16 2014

**Responsive Nanostructures and Nanocomposites**

Featuring prominent invited speakers in the field from around the globe:

Adah Almutairi (*UCSD*)  
Gary Beall (*Texas State*)  
Pol Besenius (*Uni Muenster*)  
Luisa de Cola (*Uni Strasbourg*)  
Todd Emrick (*UMass*)  
Alke Fink (*AMI*)  
Dave Fulton (*Newcastle*)  
Nathan Gianneschi (*UCSD*)  
Jeff Gilman (*NIST*)  
Sergio Granados-Focil (*Clark*)  
Jamie Grunlan (*Texas A&M*)  
Eva Harth (*Vanderbilt*)  
Brett Helms (*Molecular Foundry*)  
Alex Liddle (*NIST*)  
Emily Pentzer (*Case Western*)  
Jeff Pyun (*Arizona*)  
Stuart Rowan (*Case Western*)  
Dan Savin (*Southern Miss*)  
Yoan Simon (*AMI*)  
Brent Summerlin (*UF*)  
Marek Urban (*Clemson*)  
Marcus Weck (*NYI*)  
Karen Wooley (*Texas A&M*)

2014 Spring Meeting

Please attend and present your latest research in stimuli responsive nanostructured materials in this symposium at the March 2014 ACS meeting in Dallas

Organizers:

E. Johan Foster, PhD  
Adolphe Merkle Institute, Polymer Chemistry and Materials  
University of Fribourg

Prof. Erik Berda, PhD  
Department of Chemistry and Materials Science Program  
University of New Hampshire

[Sustainable Polymers, Processes, and Product Applications](#)  
*James Wang, Marc Hillmyer, Keyur Desai. Joint POLY/PMSE*

**Bridging the knowledge between academia and industry**  
at the 247th ACS National Meeting and Exposition, Dallas, TX - March 16 2014

## **Sustainable Polymers, Processes and Product Applications**

**Featuring prominent invited speakers in the field from academia and industry:**

n-Christine Albertsson, (KTH)

lan Boday, (IBM)

Eugene Chen (Colorado State)

N Cheng (USDA)

Nathan Gianneschi (UCSD)

frey Gilman (NIST)

ik Hagberg (ADM)

Mark Herrema (Newlight Technologies)

Prof. Kaichang Li (Oregon State)

Prof. Coleen Pugh (U of Akron)

Dr. Joseph Schroeder (Natureworks LLC)

Dr. Don Wardius (Bayer Materials Sci.)

Dr. James Wang (Kimberly-Clark)

Prof. Robert Waymouth (Stanford)

2014 Spring Meeting

*Co-sponsored by PMSE - Polymeric Materials Science and Engineering*

**Please attend and present your latest research in sustainable polymers in this symposium at the March 2014 ACS meeting in Dallas**

**<http://www.acs.org/content/acs/en/meetings.html>**

**Looking forward to seeing you at the March 2014 ACS meeting in Dallas and learn about sustainable polymers - advances in science and application of for society!**

**Organizers:**

**James H. Wang**, Ph.D.  
Kimberly-Clark Corporation  
Corporation Research & Eng.

**Prof. Marc Hillmyer**, Ph.D.  
University of Minnesota  
Department of Chemistry

**Keyur Desai**, Ph.D.  
Kimberly-Clark Corporation  
Corporate Research & Eng.

Synthesis and Applications of Conjugated Materials: Contributions from Texas and Beyond  
*Seth Rasmussen, Mihaela Stefan*. Joint **POLY/HIST**

The 12th International Symposium on Biorelated Polymers  
*Ray Ottenbrite, Carmen Scholz*

Paul J. Flory Polymer Education Award in Honor of George Odian  
*Nan-Loh Yang, Chong Cheng*

POLY/PMSE Plenary Lecture & Awards Reception. Plenary Speaker: Joseph DeSimone  
*Dylan J. Boday, Jeff Youngblood, Scott Iacono*

**[Excellence in Graduate Polymer Research](#)**

*H. N. Cheng, Christopher J. Ellison, Timothy E. Long, Christine Landry-Coltrain*

## 10th Excellence in Polymer Graduate Research Symposium

Dallas, TX- March 16-20, 2014



The tenth symposium on "Excellence in Polymer Graduate Research" took place at the national ACS meeting in Dallas, Texas on March 16-18, 2014. The purposes of this symposium are to provide recognition to outstanding graduate students in polymer science and engineering, to foster networking and exposure, and to help develop the careers of future leaders in our field. We publicized this symposium via the POLY list server, POLY web page, and direct email messages to over 100 departments that are active in polymer research. We requested that each department nominate one outstanding graduate student to speak on his or her original research in this special symposium. Each student should fill out an application form and have a nominating letter from the research advisor and a letter from the department head.

This year we received a record number of 55 submissions. (The previous record was 42 in 2013.) We were very pleased with both the quantity and the quality of the papers. The symposium was organized into four half-day oral sessions, a very large poster session, and a networking social. In the oral sessions on Sunday and Monday 28 students gave talks on their work, and in the Tuesday poster session 27 students presented their posters. These oral and poster sessions went very well. Many graduate students asked questions during the talks, and it was enjoyable to see them interacting during and after the sessions.

As part of the recognition, each student received a certificate plus a cash award. We were pleased that Dr. Tom Barton, the 2014 ACS President, personally visited the

symposium and spoke to the students. Tom actually worked with polymers early in his career and made a reference to his experience in his speech. Later, Dr. Kathryn Beers, the 2014 Chair of the ACS Polymer Chemistry Division, also spoke to the students. A reception followed where the students mingled with the participants of the POLY Undergraduate Symposium.

**This symposium was organized by** the ACS Polymer Chemistry Division (POLY), and cosponsored by Presidential Event (PRES), Young Chemists Committee (YCC), Division of Professional Relations (PROF), and Society Committee on Education (SOCED). The symposium had the generous support of POLY, Industrial Advisory Board of the Polymer Division (IAB), and the Division of Materials Research at National Science Foundation (NSF/DMR). The detailed symposium program is attached.

**Symposium Organizing Committee:**

H. N. Cheng (POLY Member, USDA) Christopher Ellison (POLY Member, Univ. of Texas) Christine Landry-Coltrain (POLY Alternate Councilor, Eastman Kodak) Timothy E. Long (POLY Past Chair, Virginia Tech)

## **Symposium Program**

Hyatt Regency Room Reverchon A/B

### **Oral Session 1. Sunday morning 8:30 AM (Session Chairs: Christine Landry-Coltrain, Chris Ellison) Novel Polymeric Systems**

Introductory Remarks 22115 Shape Amphiphiles Based on POSS-Polymer Conjugates: Systematic Molecular Design, Sequential “Click” Synthesis, and Diverse Self-Assembly Behaviors. **Yue, Kan**, U. of Akron - Polymers

23424 Clickable Nucleic Acids: From Click Chemistry to Sequence Controlled Polymers. **Xi, Weixian**, U. of Colorado

21109 Maleic Anhydride and Ester Functionalization of Polypropylene with Suppressed Molecular Weight Reduction via Solid-State Shear Pulverization. **Diop, Mirian**, Northwestern U.

12274 Exploring Amphiphilic Copolymer Architectures with Cyclic Topology base on Poly(ethylene glycol) and Polycaprolactone: Synthesis, Characterization and Self-assembly Behavior. **Zhang, Boyu**, Tulane U.

**10:15 to 10:30 AM      Intermission (Visit by ACS President, Tom Barton)**

13174 Layer-by-layer approach for individual encapsulation of cells based on hydrogen-bonded, complimentary electrostatic and hydrophobic interactions. **Drachuk, Irina**, Georgia Tech - Materials

11397 Cationic Cobaltocenium-Containing Polymers: From Synthesis to Advanced Applications. **Zhang, Jiuyang**, U. of South Carolina

13134 Fluorine Containing UV-Curable Materials for Advanced Transport Applications. **Goetz, James**, U. of Southern Mississippi

**Oral Session 2. Sunday afternoon 1:00 PM (Session Chair: Chris Ellison, Christine Landry-Coltrain)**

**Mechanical, Stimuli-related, and Surface Patterning**

**Recognition of Poster Presenters** 14557 Multi-Functional Stimuli-Responsive Polymers. **Michal, Brian**, Case Western Reserve U.

10797 Materials that provide an amplified response through stimuli-induced depolymerization. **DiLauro, Anthony**, Penn State - Chem

22516 Photodirected confinement of wrinkles on a thiol-ene elastomer. **Ma, Stephen**, U. of Delaware - ChE

23071 Light-Mediated Addition Reaction and Controlled Radical Polymerization for Patterning Surfaces. **Poelma, Justin**, U. of California, Santa Barbara - Materials

**Intermission.**

16184 Engineering network associations for control of responsive reinforcement in nanostructured physical hydrogels. **Glassman, Matthew**, MIT

13321 Stress-responsive polymers via mechanochemistry. **Kean, Zachary**, Duke U.

16039 Modulating mechanochemical reactivity through regiochemical effects. **Brantley, Johnathan**, U. of Texas - Chem

**Remarks by POLY Chair, Dr. Kathryn Beers 4:30 PM to 5:00 PM**

**Symposium Reception (Hyatt Regency - Cotton Bowl Room) 5:00 PM to 6:00 PM**

**Oral Session 3. Monday morning 8:30 AM (Session Chair: H. N. Cheng, Christine Landry-Coltrain)**

**Biological and Biomedical Applications**

16549 Heparin-mimicking polymer conjugates stabilize basic fibroblast growth factor. **Nguyen, Thi** 20654 Resilin-PEG hybrid hydrogels: Analysis of cross-linking chemistries, mechanical properties and biocompatibility. **McGann, Christopher**, U. of Delaware - Materials

11164 Towards smart polymeric drug carriers: Self-assembling  $\gamma$ -substituted polycaprolactones with highly tunable thermoresponsive behavior. **Rainbolt, Elizabeth**, U. of Texas - Dallas

23167 Multivalent 3D display of glycopolymer chains from proteins for enhanced lectin interaction. **Lin, Ken**, UCLA - Bioeng

**Intermission** 12671 A pro-adjuvant strategy for delivery of vaccine adjuvants through PRINT nanoparticles. **Mueller, Sarah**, U. of North Carolina

13988 Structural impact and targeting effect of diblock glycopolymer pDNA delivery system. **Wu, Yaoying**, U. of Minnesota

20597 Synthesis of Organic Nanomaterials for Photothermal Ablation of Cancer Cells. **Cantu, Travis**, Texas State - Materials

**Oral Session 4. Monday afternoon 1:00 PM (Session Chair: Chris Ellison, H. N. Cheng)**

### **Various Applications**

22295 Nano- and micro-structured photopolymers as photoreceptor regeneration scaffolds. **Worthington, Kristan**

13600 Polymerizations with elemental sulfur: Sustainable polymers for energy and optics. **Griebel, Jared**, U. of Arizona

12258 Poly(benzothiadiazole-sexithiophene-diketopyrrolopyrrole) polymeric semiconductors: synthesis, characterization and charge transport properties. **Fu, Boyi**, Georgia Tech - ChE

15795 Sorting of Semiconducting SWNTs by conjugated polymers and their electronic applications. **Wang, Huiliang**, Stanford U.

### **Intermission**

22444 Correlating polymer properties to ionic-conductivity in poly(glycidyl ether)-based electrolytes. **Barteau, Katherine**, U. of California, Santa Barbara - ChE

13875 Improved polymer solar cell performance through new device designs. **Lu, Luyao**, U. of Chicago

23323 New n-Type Polymer Semiconductors For All-Polymer Solar Cells. **Hwang, Ye-Jin**, U. of Washington

### **Poster Session - Tuesday, 5:30 - 7:30 pm**

(Dallas Convention Center Hall A)

19840 Synthesis and characterization of thieno[3,4-b]thiophene acceptors with alkyl, aryl, perfluoroalkyl and perfluorophenyl pendants for donor-acceptor low bandgap polymers. **Homyak, Patrick**, U. of Massachusetts

16234 Synthesis and characterization of collagen grafted poly hydroxybutyrate valerate (PHBV) scaffold for loading of bovine serum albumin capped silver (Ag/BSA) nanoparticles in the potential use of tissue engineering application. **Bakare, Rotimi**, Howard U.

20901 Radical reactions useful for the synthesis of functional polymeric materials enabled by hypervalent iodine compounds. **Han, Hongzhang**, Southern Methodist U.

15576 Synthesis of photo-cross-



linkable core-shell bottlebrush copolymers and their transformation into well-defined organic nanotubes. **Onbulak, Sebla**, State U. of New York at Buffalo21234 Copolymerization: A humble approach to synthesize high strength glycosaminoglycan hydrogel scaffolds. **Khanlari, Anahita**, U. of Kansas20153 Thermoresponsive bottlebrush polymers. **LI, XIANYU**, Rice U.14555 Characterization and Application of Dendrimer-Rhodamine Conjugates. **Dougherty, Casey**, U. of Michigan - Chem20751 Conductive polymer based ultrasensitive potentiometric immunosensors. **Zhang, Qi**, NYU - Polytechnic Institute22368 Inorganic-organic hydrogel scaffolds for tissue engineering. **Nail, Lindsay**, Texas A&M U. - Biomed Eng23568 Ion-mobility mass spectrometry of a widely used photochromic system: Experimental support for the cisoid form of spiropyran. **Rogers, Robert**, Texas State U. - Chem13226 Mass spectrometry characterization of branched glycopolymers. **Liu, Xiumin**, U. of Akron - Chem10277 Helical Molecular Switches: Identification of the Specific Molecular and Supramolecular Rearrangement in a Thermo- and Solvo- Driven Chiroptical Switching Polycarbodiimide. **Reuther, James**, North Carolina State20348 Understanding The Process-Structure Relationship for Building Polymer-CNT Interphases. **Zhang, Yiyang**, Northeastern U.10416 Role of polymer stereoregularity on nanocomposites of Polystyrene with Single-Walled Carbon Nanotubes. **London, Laurisa**, Clark Atlanta U.12000 Remarkably regioselective deacylation of cellulose esters using tetrabutylammonium hydroxide. **Zheng, Xueyan**, Virginia Tech - Macro12850 Kinetics and thermodynamics of the decarboxylation of glycerol carbonate to produce glycidol: Computational insights. **Yeung, Andrew**, Texas A&M U. - Chem13624 Weak acid congeners: Polymer bound 1H-tetrazole v. carboxylic acid. **Chaloux, Brian**, Penn State - Materials15442 Borane-functionalized polythiophenes for optoelectronic and sensory applications. **Guo, Fang**, Rutgers U.15520 Diffusion of Nanomedicine into Composite Hydrogels: Time-resolved microMRI. **Wang, Xiaoling**, Virginia Tech - Chem20886 Synthesis of Tertiary Amine-Based pH-Responsive Block Copolymers for Use as 'Smart' MRI Contrast Agents. **Zhu, Liping**, Colorado School of Mines16353 Development of Sustainable Thermoplastic Elastomers from Vegetable Oils. **Wang, Shu**, U. of Houston16514 Antibacterial and hemolytic activities of peptide mimetic amphiphilic polyacrylates and poly(vinyl ester)s with systematic structural variations. **Punia, Ashish**, City U. of New York - College of Staten Island16903 High Energy Density Supercapacitors from Lignin derived Submicron Activated Carbon Fibers. **Hu, Sixiao**, U. of California, Davis20538 New top coat design controls orientation of sub-10 nm block copolymer domains. **Maher, Michael**, U. of Texas - ChE20286 Phosphorus Flame Retardants for Polymeric Materials Derived from Esters of Isosorbide and 10-Undecenoic Acid. **Daniel, Yoseph**, Central Michigan U. - Materials20648 Effective, Non-migrating Flame Retardants for Polymeric Materials Derived from 1,1-Di(4-aminophenyl)-1-dopylethane. **Han, Xiaorui**, Central Michigan U. - Chem15268 Laboratory test for ice release, first results from a prototypical glass (PMMA). **Wang, Chenyu**, Virginia Commonwealth U.

[Undergraduate Research in Polymer Science](#)

*Sarah Morgan, Daniel Savin, Sergei Nazarenko*

## Spring 2014, symposium and winners

The ninth annual Undergraduate Research in Polymer Science Symposium was held at the Dallas ACS National Meeting, with sixteen oral and 30 poster presentations from 30 universities across the country. Sabic Innovative Plastics sponsored travel awards for the top five abstracts. The POLY Industrial Advisory Board sponsored \$500 awards for the best paper and the best poster presentation. The symposium featured a career panel section with representatives from national lab, academic, and industrial laboratories. Kate Beers (NIST), Dan Savin (University of Southern Mississippi), and Diana Gerbi (3M), served as panelists. The program was co-sponsored by POLY, Sabic Innovative Plastics, and The University of Southern Mississippi School of Polymers and High Performance Materials, and culminated with a joint reception with the Excellence in Graduate Research Symposium. Sabic travel award winners were: Sophie Miller (Stanford University), Tyler Brown (University of Southern Mississippi), Joseph A. Moo-Young (North Carolina State University), Aakriti Kharel (Wesleyan College), and Hannah Brown, (University of Southern Mississippi). The best paper award was presented to Guilhem Dehoe (California Polytechnic State University San Luis Obispo), and the best poster award was presented to Ford Carty (U.S. Air Force Academy), by POLY IAB. The symposium was organized by Sarah Morgan, Sergei Nazarenko and Dan Savin of The University of Southern Mississippi.



1st Place Oral Presentation Guilhem Dehoe Virginia Polytechnic State University Title:  
Synthetic Design of Block Copolymer Amphiphiles for Nanomaterial Dispersion



*1st Place Poster Presentation Ford Carty  
U.S. Air Force Academy Title: New  
Fluorine-Containing Polyarylamines for  
Organic Electronics*



**2014 Travel Award Recipients**

Hannah Brown, University of Southern Mississippi Tyler Brown, University of Southern Mississippi Aakriti Kharel, Wesleyan College Sophie Miller, Stanford University Joseph A. Moo-Young, Nor

**Other POLY-cosponsored and symposia of interest**

PMSE Symposium on Electrospinning and Nanofibers in Honor of Professor Darrell Reneker's 85th Birthday

PMSE Symposium "Supramolecular Assembly and Gelation in Organic Media"

---