

2017 Spring Meeting

## 2017 Spring - 253 rd NATIONAL ACS MEETING

San Francisco, CA, April 2-6, 2017

*All POLY Division presentations and events were held at the Moscone Center in San Francisco*

Please use the submission process: [MAPS](#) [Meeting Abstracts Programming System] for the San Francisco ACS meeting

Program Meeting Chair Primary Contact: [Corinne Lipscomb](#)  
Program Meeting Chairs: [Timothy White](#), [Thomas Epps](#)

Call for papers

**MAPS for author abstract submission was open on September 6 and closed on October 31, 2016**

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

**PlenarySpeaker: Juan De Pablo from the University of Chicago**

**Theme: Advanced Materials, Technologies, Systems, and Processes**

*Program - Final*

50th Anniversary Celebration of Macromolecules (PMSE)  
*Tim Lodge*

ACS Award in Polymer Chemistry in honor of Murugappan Muthukumar (PMSE)  
*Tim Lodge*

Carl S. Marvel Creative Polymer Chemistry Award in honor of Theresa Reineke  
*Tim Lodge*

Contributions of IBM Almaden to Polymer Science (PMSE)  
*Bob Miller, Do Yoon, Erik Hagberg*

Excellence in Graduate Polymer Research (PRES, YCC, SOCED, and PROF )  
*H.N. Cheng, Christopher J. Ellison, Timothy Long, and Christine Landry-Coltrain*

## 13th Excellence in Polymer Graduate Research Symposium

## San Francisco, CA April 3-4, 2017



[see previous years](#)

The thirteenth symposium on "Excellence in Polymer Graduate Research" took place at the national ACS meeting in San Francisco, California on April 3-4, 2017. The purpose of this symposium was 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 filled out an application form and had a nominating letter from the research advisor and a letter from the department head.

This year we had 52 students in the symposium, with 34 oral presentations and 18 posters. This was the largest number since the symposium started in 1994. The oral sessions went very well. Despite the short time allotted to each speaker (20 minutes), the students were well prepared and stayed within the time limit. The presentations were well done. The poster session was also successful with a lot of traffic and good discussions in front of the posters. For both oral and poster sessions, the scientific quality of the papers was generally high.

Dr. Allison Campbell, 2017 ACS President, visited the symposium at the end of the afternoon oral session on Monday to give an encouraging talk to the students. She was introduced by Prof. Marc

Hillmyer, the 2017 POLY Chair. A group photo was taken with the students, Dr. Campbell and Prof. Hillmyer. As part of the recognition, each student received a certificate plus a cash award. In addition, Wiley (Journal of Polymer Science) presented book awards (worth \$250 each) to four students (Alice Chang, Apoorv Shanker, James Ioccozia, and Dibyendu Debnath) in recognition of outstanding papers.

This symposium was sponsored 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), Tosoh, Wiley, and Dr. George Foster's Bequest. The detailed symposium program is attached and listed below.

*Symposium Organizing Committee:* H. N. Cheng, USDA Christopher Ellison, University of Minnesota Christine Landry-Coltrain, Eastman Kodak Company Timothy E. Long, Virginia Tech

## **Symposium Program**

Sponsored by POLY, cosponsored by PRES, PROF, SOCED, YCC  
Supported by POLY, POLY Industrial Advisory Board, Tosoh, Wiley, and Dr. George Foster's Bequest

**ORAL Session - Monday morning. Session Chair: H. N. Cheng**

## 2017 Spring Meeting

| ORAL Session - Monday morning - Session Chair – H. N. Cheng |  |                      |                            |          |
|---|--|----------------------|----------------------------|----------|
| ID  | Title  | Student              | School                     | Time     |
|   | <i>Introductory Remarks</i>  |                      |                            | 8:00 AM  |
| 2608625   | Cooperative polymerization of $\alpha$ -helices induced by macromolecular architecture   | Ryan Baumgartner     | Illinois                   | 8:05 AM  |
| 2623632   | Prebiotic depsipeptide formation from the ester-amide exchange reaction  | Sheng-Sheng Yu       | Georgia Tech - ChE         | 8:25 AM  |
| 2655562   | Commodity plastic mimics from polyvinyl acetals derived from bioaromatic aldehydes and polyvinyl alcohol                           | Mayra Rostagno       | Florida                    | 8:45 AM  |
| 2602909   | Sustainable antimicrobial biomaterials and biobased plastics from natural biomass  | Mitra Ganewatta      | South Carolina             | 9:05 AM  |
| 2656967   | An Efficient, Regioselective Path to Water-Soluble Polysaccharide Ionomers   | Shu Liu              | Virginia Tech-Biomaterials | 9:25 AM  |
|   | <i>Intermission</i>  |                      |                            | 9:45 AM  |
| 2630927   | Improving the biopharmaceutical properties of oligonucleotides by brush-polymer-assisted compaction                                | Xueguang Lu          | Northeastern U.            | 10:00 AM |
| 2652158   | Complexation of linear DNA and polystyrene sulfonate with cationic copolymer micelles: Effect of polyanion flexibility             | Yaming Jiang         | Minnesota-ChE              | 10:20 AM |
| 2651176   | Photo-Responsive Polymeric Formulations to Attenuate Inflammation in Cardiovascular Tissues  | Chad Greco           | Delaware                   | 10:40 AM |
| 2652860   | Functionalized star-like $\epsilon$ -caprolactone amphiphilic block copolymers for thermoresponsive micellar drug delivery systems | Katherine Washington | Texas at Dallas            | 11:00 AM |

## ORAL Session - Monday afternoon. Session Chair: Christopher Ellison

| ORAL Session - Monday afternoon - Session Chair - Christopher Ellison |   |                            |                         |         |
|---|---|----------------------------|-------------------------|---------|
|   | <i>Recognition of Poster Presenters</i>   |                            |                         | 1:00 PM |
| 2643956   | A mechanically stiff 3D printed biomimetic hydrogel for <u>chondrogenesis</u> and cartilage tissue production   | Elizabeth <u>Aisenbrey</u> | Colorado-Materials      | 1:15 PM |
| 2639039   | Exciton migration in conjugated polymers at the amphiphilic interfaces  | <u>Byungjin</u> Koo        | MIT-Materials           | 1:35 PM |
| 2655654   | Molecular Engineering of Polymers to Realize High Thermal Conductivity in Amorphous Systems   | <u>Apoorv</u> Shanker      | Michigan-Macro          | 1:55 PM |
| 2639514   | Directed structure manipulation of conjugated polymers with external fields   | <u>Yujin</u> Xi            | Washington - <u>ChE</u> | 2:15 PM |
|   | <i>Intermission</i>   |                            |                         | 2:35 PM |
| 2659294   | Direct, single-step alignment of semiconducting polymer thin films and factors influencing their deposition via solution shearing                           | Leo Shaw                   | Stanford- <u>ChE</u>    | 2:50 PM |
| 2645274   | Direct formation of large area two-dimensional <u>nanosheets</u> from fluorescent semi-conducting homopolymer with new orthorhombic crystalline orientation | <u>Sanghee</u> Yang        | Seoul Nat Univ.         | 3:10 PM |
| 2644171   | Directed self-assembly of 5 nm block copolymer lamellae enabled by nanoimprint lithography  | Austin Lane                | Texas - <u>ChE</u>      | 3:30 PM |
| 2628147   | Quantitative predictions of shape memory effects in polymers  | Christopher <u>Hornat</u>  | Clemson                 | 3:50 PM |
|   | <i>Speech by ACS President Allison Campbell and Photo Session</i>   |                            |                         | 4:10 PM |
|   | IAB Career Panel  |                            |                         | 3:30 PM |

## ORAL Session - Tuesday morning. Session Chair: H.N. Cheng

## 2017 Spring Meeting

| ORAL Session - Tuesday morning - Session Chair - H. N. Cheng |   |                  |                          |          |
|--|---|------------------|--------------------------|----------|
| 2647614  | Consequences of low- $\gamma$ design in block copolymer self-assembly   | Alice Chang      | Caltech                  | 8:00 AM  |
| 2603493  | Development and applications of living alternating ring-opening metathesis polymerization of cyclopropenes                        | Benjamin Elling  | Stanford-Chem            | 8:20 AM  |
| 2652897  | Graft-through Synthesis and Assembly of Janus Bottlebrush Polymers from A-Branch-B Diblock Macromonomers                          | Ken Kawamoto     | MIT Chem                 | 8:40 AM  |
| 2655225  | Strong aliphatic polyester thermoplastic elastomers   | Annabelle Watts  | Minnesota-Chem           | 9:00 AM  |
| 2654833  | Synthesis and Characterization of Bottlebrush Polymers: The importance of the Anchor Group  | Scott Radzinski  | Virginia Tech - Polymers | 9:20 AM  |
|  | <i>Intermission</i>   |                  |                          | 9:40 AM  |
| 2656511  | Thiol-ene/ene Photopolymerization – Simple Reactions to Yield Complex Materials   | Douglas Amato    | U. Southern Miss         | 9:55 AM  |
| 2643555  | Chain-growth CuAAC polymerization: A versatile strategy to produce hyperbranched polymers with well-defined structures in one-pot | Xiaosong Cao     | Notre Dame               | 10:15 AM |
| 2655073  | WATER-SOLUBLE ION-CONTAINING POLY(ETHER ESTER)S FOR EXTRUSION 3D PRINTING   | Allison Pekkanen | Virginia Tech - Biomed   | 10:35 AM |
| 2651522  | Recyclable cross-linked polymer networks via one-step controlled radical polymerization   | Kailong Jin      | Northwestern-ChE         | 10:55 AM |

## ORAL Session - Tuesday afternoon. Session Chair: Christopher Ellison

| ORAL Session - Tuesday afternoon - Session Chair – Chris Ellison |   |               |                        |         |
|--|---|---------------|------------------------|---------|
| 2648246  | Accessing poly(olefin)-block-poly(thiophene) copolymers via one-pot living polymerizations  | Amanda Leone  | Michigan-Chem          | 1:00 PM |
| 2651555  | Distinct thermophysical and interfacial properties associated with low molecular weight cyclic polystyrene in bulk and confined states: T <sub>g</sub> , fragility, and thin film stability | Lanhe Zhang   | Northwestern-Materials | 1:20 PM |
| 2644413  | Unzipping polyester as a new photoresist material   | Wontae Joo    | Texas-Chem             | 1:40 PM |
| 2641346  | Organocatalyzed Atom Transfer Radical Polymerization via Photoredox Catalysis   | Ryan Pearson  | Colorado-Chem          | 2:00 PM |
|  | <i>Intermission</i>   |               |                        | 2:20 PM |
| 2651438  | Simple, generalizable method towards highly aligned functional polymeric films  | Zhe Qiang     | Akron - Polym Eng      | 2:35 PM |
| 2638235  | High oxygen gas barrier multilayer thin films through pH and ionic strength manipulation of montmorillonite clay  | Yixuan Song   | TAMU                   | 2:55 PM |
| 2645622  | Controlling and manipulating crease formation in polymer brush platforms  | Karson Brooks | U. of Georgia          | 3:15 PM |
| 2657244  | Tuning CO <sub>2</sub> -philicity in highly permeable polymeric membranes for gas separation  | Tao Hong      | Tennessee              | 3:35 PM |

## ORAL Session - Tuesday evening



## 2017 Spring Meeting

| Symposium POSTER Session (April 4, 2017) |  |                                    |                                     |         |
|--|--|------------------------------------|-------------------------------------|---------|
| Tuesday evening, 6:00 - 8:00 PM          |  |                                    |                                     |         |
| 2602783                                  | Diversifying catalysts, monomers, cross-coupling strategies and functional groups in the controlled synthesis of conjugated polymers   | <a href="#">Yunyan Qiu</a>         | Carnegie Mellon                     | 6:00 PM |
| 2657943                                  | Bioinspired stimuli-responsive materials: Concurrent shape and color change in programmed cholesteric liquid crystal elastomers  | Michelle Leslie                    | Case Western Reserve                | 6:00 PM |
| 2604389                                  | Towards commercially scalable processes for polymers produced by sequential anionic and RAFT polymerization  | Michael Forrester                  | Iowa State- <a href="#">ChE</a>     | 6:00 PM |
| 2641108                                  | Scalable synthesis of <a href="#">macroCTAs</a> from living anionic polystyrene  | William Bradley                    | Iowa State- <a href="#">Chem</a>    | 6:00 PM |
| 2645104                                  | Synthesizing hyperbranched polyglycerol (HPG) derivatives for use in templating hard inorganic nanostructures, biocompatible soft nanoparticles and structure-preserving binder materials for batteries                  | <a href="#">James Iocozzia</a>     | Georgia Tech-Materials              | 6:00 PM |
| 2636160                                  | Synthesis of biodegradable polycarbonate nanostructures with selective lysis against gram positive bacteria  | <a href="#">Alekhya Nimmagadda</a> | South Florida                       | 6:00 PM |
| 2656205                                  | A Promising Approach to Developing Eco-Friendly, Sustainable and Dual-Cure Coatings  | <a href="#">Ozlem Akdogan</a>      | East Michigan U.                    | 6:00 PM |
| 2643929                                  | Engineering zwitterionic polymers that control cell adhesion and direct neurite growth to improve cochlear implants  | Braden Leigh                       | Iowa                                | 6:00 PM |
| 2654960                                  | Modification of alkene-containing copoly lactide scaffolds for biomedical applications   | <a href="#">Pranav Kalelkar</a>    | Georgia Tech - <a href="#">Chem</a> | 6:00 PM |
| 2645791                                  | Chalcogen polymers for completely solution-processed inorganic photovoltaics   | Trevor Martin                      | Washington - Materials              | 6:00 PM |
| 2641500                                  | Fluorinated <a href="#">thiophenes</a> in <a href="#">PBDT-TAZ</a> for bulk heterojunction solar cells: the impact of fluorination   | <a href="#">Qianqian Zhang</a>     | North Carolina                      | 6:00 PM |
| 2624765                                  | Introducing cobaltocenium to alkaline anion exchange membrane fuel cells (AAEMFC)  | <a href="#">Haomiao Yuan</a>       | U Mass                              | 6:00 PM |
| 2623757                                  | Real-time metrology for photopolymer additive manufacturing with exposure controlled projection lithography  | <a href="#">Xiayun Zhao</a>        | Georgia Tech-ME                     | 6:00 PM |
| 2645374                                  | Nanoscale considerations responsible for diverse macroscopic phase behavior in substituted isobutyl-POSS/poly(ethylene oxide) blends   | <a href="#">Yavuz Caydamli</a>     | NC State                            | 6:00 PM |
| 2656331                                  | Stable entrapment of cholesteric 1D photonic domains in liquid crystalline random terpolymer (LCRTP) architecture with dual covalent and physical networking sites: A platform towards elastomeric 1D photonic material. | <a href="#">Lalit Mahajan</a>      | Connecticut                         | 6:00 PM |
| 2625513                                  | <a href="#">Nanoporous</a> materials from ultrahigh molecular weight linear block copolymer precursors   | Jose Kenneth <a href="#">Mapas</a> | Univ. of Buffalo (SUNY)             | 6:00 PM |
| 2646004                                  | Segmental dynamics of poly(styrene-stat-methyl methacrylate-d3) in bulk and at very small amounts on silica  | Ugo <a href="#">Arua</a>           | Oklahoma State                      | 6:00 PM |
| 2648744                                  | Simple and Accurate Determination of Reactivity Ratios of Chain Copolymerization following Terminal Model by in-situ 1H-NMR technique  | <a href="#">Dibyendu Debnath</a>   | Akron - Polymer Sci                 | 6:00 PM |

General Topics: New Synthesis and Characterization of Polymers  
*Dana Garcia*

Incorporating Polymer Science into the Classroom (PMSE, CHED)  
*Sarah Morgan and Kevin Cavicchi*

Industrial Innovations in Polymer Science: Advanced Materials Technologies (PMSE)  
*Jamie Messman and Travis Baughman*

Next Generation Smart Materials  
*Erik Berda, Johan Foster, and Yoan Simon*

Polymer Applications and Characterization in the Biomedical Industry

## 2017 Spring Meeting

*Joram Slager and X. Micahel Liu*

### Polymer Chemistry (RSC) Lectureship

*Wei You, Jerimiah Johnson, and Emily Penzer*

### Polymeric Materials for Performance and Sustainability

*Michael Meador, Mary-Ann Meador, and Sarah Morgan*

### Polymers and Biomimicry

*Tiffany Williams and Ali Dhinojwala*

### Separation of Macromolecules and Particulates (ANYL, PMSE, COLL)

*Wei Gao, X. Michael Liu, Sara V. Orski, Yongmei Wang*

### Smart Polymers and Materials from Cyclodextrins: Novel Designs and Applications (PMSE)

*Gerhard Wenz and David H. Thompson*

### Structure to Function in Supramolecular Polymers and Materials

*Roxanne Kieltyka, Pol Besenius, and John Matson*

### Undergraduate Research in Polymer Science

*Sarah Morgan, Joe Lott, and Sergei Nazarenko*

### **Co-sponsored and other symposia of interest**

#### Advances in Polysaccharides: Practice and Applications

*Division of Cellulose and Renewable Materials (CELL)*

#### 7th Symposium on Green Polymer Chemistry: Biobased Materials and Biocatalysis

Contact: Richard Gross, [grossr@rpi.edu](mailto:grossr@rpi.edu)