

**LaShanda T.J. Korley, Ph.D.**  
Distinguished Professor  
Department of Materials Science and Engineering  
Department of Chemical and Biomolecular Engineering  
University of Delaware  
Newark, DE 19716  
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### **Education**

**Massachusetts Institute of Technology (MIT)**, Department of Chemical Engineering/Program in Polymer Science and Technology, 2000-2005; Degree: Ph.D.

Advisors: Profs. Paula T. Hammond and Gareth H. McKinley

*Thesis Title: PEO-containing Copolymers as Polyurethane Soft Segments in the Development of High Performance Materials*

**Georgia Institute of Technology (GA Tech)**, 1997-1999; Degree: B.S. Chemical Engineering (Dual Degree Program)

**Clark Atlanta University (CAU)**, 1994-1998; Degrees: B.S. Chemistry and Engineering

### **Professional Experience**

#### **Distinguished Full Professor of Engineering**

UD, Department of Materials Science and Engineering, August 2023 –

#### **Distinguished Full Professor**

UD, Department of Materials Science and Engineering, September 2020 – July 2023

#### **Associate Editor, American Chemical Society (ACS) Macro Letters**

January 2023 –

#### **Affiliated Faculty Member**

University of Delaware (UD), Data Science Institute (DSI)

November 2022 –

#### **Full Professor**

UD, Department of Chemical and Biomolecular Engineering, September 2020 –

#### **Co-Director, NSF MRSEC Center for Hybrid, Active and Responsive Materials (CHARM)**

September 2020 –

#### **Director, DOE ERFC Center for Plastics Innovation (CPI)**

August 2020 –

#### **Distinguished Associate Professor**

UD, Department of Materials Science and Engineering, January 2018 – August 2020

UD, Department of Chemical and Biomolecular Engineering, January 2018 – August 2020

**Associate Director, Center for Research in Soft matter and Polymers (CRiSP), UD**  
April 2018 –

**Associate Editor, Journal of Applied Physics**  
June 2018 – December 2022

**Director, PIRE: Bio-inspired Materials and Systems**  
September 2017 –

**MLK Visiting Associate Professor**  
MIT, Department of Chemistry, January 2016 – August 2016

**Visiting Associate Professor**  
Petroleum and Petrochemical College (PPC), Chulalongkorn University, July 2015

**Climo Associate Professor**  
Department of Macromolecular Science and Engineering, Case Western Reserve University (CWRU), 2014 – 2017

**Climo Assistant Professor**  
Department of Macromolecular Science and Engineering, CWRU, 2012 – 2014

**Platform Leader, NSF Science and Technology Center for Layered Polymeric Systems (CLiPS)**  
Case School of Engineering, CWRU, 2011 – 2016

**Nord Distinguished Assistant Professor**  
Department of Macromolecular Science and Engineering, CWRU, 2009 – 2012

**Co-Director, REU Program in Polymers**  
Department of Macromolecular Science and Engineering/CLiPS, CWRU, 2009 – 2015

**Director, REU Site: Bio-inspired Materials and Systems**  
Case School of Engineering, CWRU, 2017

**Member, NSF Science and Technology Center, CLiPS**  
Case School of Engineering, CWRU, 2007 – 2016

**Assistant Professor**  
Department of Macromolecular Science and Engineering, CWRU, 2007-2014

**Provost's Academic Diversity Postdoctoral Fellow**  
Department of Chemical Engineering, Cornell University, 2005 – 2007

**Postdoctoral Associate**  
Department of Chemical Engineering, MIT, 2005

**Graduate Instructor**  
Department of Chemical Engineering, MIT, 2004

### **Graduate Teaching Assistant**

Department of Chemical Engineering, MIT, 2002

### **Graduate Research Assistant**

Department of Chemical Engineering, MIT, 2000 – 2005

### **Chemical Engineering Corporate Research Fellow**

Bell Laboratories, Lucent Technologies, Murray Hill, NJ 1999

### **Current Research Areas**

#### ***Functional polymeric material design***

- *Bio-inspired systems*
- *Hierarchical peptide polymer hybrids*
- *Sustainable materials*
- *Polymer recycling and upcycling strategies*
- *New fiber and composite manufacturing strategies*
- *Responsive composites*
- *Interplay of covalent and non-covalent interactions*

### **Honors, Awards, and Fellowships**

2023 ACS Fellow

2023 AIChE Fellow

2023 RSC Fellow

2023 ACS POLY Fellow

2023 U.S. Science Envoy

2022 AIChE MAC William W. Grimes Award for Excellence in Chemical Engineering

2022 APS Fellow

2022 ACS PMSE Fellow

2021 AIChE MAC Gerry Lessells Award

2021 Chemical and Engineering News Black Trailblazer

2020 New Castle County Chamber of Commerce, Trailblazer Award

2020 AIMBE Fellow

2019 NOBCCChE Lloyd N. Ferguson Young Scientist Award

2019 China-America FOE organizing committee

2019 *Soft Matter* Emerging Investigator Alumni Spotlight

2019 National Nanotechnology Coordination Office, Celebrating Women in Nanotechnology

#### *Prior to UDeI*

2016 15<sup>th</sup> National Academy of Science (NAS) Japanese/American Frontiers of Science

Symposium - Planning

Group Member

2014 14<sup>th</sup> NAS Japanese/American Frontiers of Science Symposium – Planning

Group Member

2013 Nominated, Young Talent Award (**1 of 6 internationally**) Polymers for Advanced Technologies

2013 Invited Participant Global Challenges Summit (US National Academy of Engineering (NAE), UK Royal Society of Engineering & Chinese Academy of Engineering

2012 Japanese/American Frontiers of Science Symposium – NAS Kavli Fellow

2012 Best Poster Prize, National Faculty Collaborative Poster Session

2011 DuPont Young Professor Award

2011 CWRU Diekhoff Graduate Mentoring Award

2011 International of Pure and Applied Chemistry (IUPAC) Young Observer  
2010 National Science Foundation (NSF) CAREER Award  
2010 3M Nontenured Faculty Grant  
2010 Who's Who in Black Cleveland  
2010 Kaleidoscope Magazine 40-40 Club  
2010 NSF Broadening Research Participation Initiation Grant in Engineering  
2008 US-India Nanoscience and Engineering Institute (USINSEI)  
2007 NSF ADVANCE Cross-Disciplinary Initiative for Minority Women Faculty

*Prior to CWRU*

2005 Cornell University Provost's Academic Diversity Postdoctoral Fellowship  
2005 Gordon Research Conference Carl Storm Fellowship  
2004, 2002 Georgia Tech FOCUS Fellow  
2003 MIT Ford Motor Company Fellowship  
1999 Bell Labs, Lucent Technologies Cooperative Research Fellowship  
1999 Office of Naval Research Graduate Research Fellowship, *Declined*  
1999 Ford Foundation Predoctoral Fellowship, *Declined*  
1999 NSF Graduate Research Fellowship, *Declined*  
1995 American Chemical Society Scholarship Award

**Research Publications**

The names of current and former graduate students and postdocs are underlined, while undergraduate students are doubled underlined in the publication list. [#] citations as of September 5, 2023

*Peer-Reviewed Publications*

1. [19] Jensen, R.E.; O'Brien, E.; Wang, J.; Bryant, J.; Ward, T.C.; **James, L.T.**; Lewis, D.A.; Characterization of Epoxy-Surfactant Interactions; *Journal of Polymer Science: Polymer Physics Edition* **1998**, 36(15), 2781-2792.
2. [379] **Korley, L.T.J.**; Pate, B.D.; Thomas, E.L.; Hammond, P.T.; Effect of the Degree of Soft and Hard Segment Ordering on the Morphology and Mechanical Behavior of Semicrystalline Segmented Polyurethanes; *Polymer* **2006**, 47(9), 3073-3082; DOI:10.1016/j.polymer.2006.02.093
3. [67] **Korley, L.T.J.**; Liff, S.M.; Kumar, N.; McKinley, G.H.; Hammond, P.T.; Preferential Association of Segment Blocks in Polyurethane Nanocomposites; *Macromolecules* **2006**, 39(20), 7030-7036; DOI: 10.1021/ma061383
4. [110] Waletzko, R.S.; **Korley, L.T.J.**; Pate, B.D.; Thomas, E.L.; Hammond, P.T.; Role of Increased Crystallinity in Deformation-Induced Structure of Segmented Thermoplastic Polyurethane Elastomers with PEO- and PEO-PPO-PEO Soft Segments and HDI Hard Segments, *Macromolecules*, **2009**, 42(6), 2041–2053; DOI: 10.1021/ma8022052
5. [82] Ponting, M.; Abernathy, T.; **Korley, L.T.J.**; Hiltner, A.; Baer, E.; Gradient Multilayer Films by Forced Assembly Coextrusion, *Industrial and Engineering Chemistry Research (special contribution in honor of Don Paul's 65<sup>th</sup> Birthday)*, **2010**, 49(23), 12111–12118; DOI: 10.1021/ie100321h

6. [19] Kamperman, M; **Korley, L.T.J**; Yau, B.; Johansen, K.M.; Joo, Y.L.; Wiesner, U.; Nanomanufacturing of Continuous Composite Nanofibers with Confinement-induced Morphologies, *Polymer Chemistry* **2010**, *1*, 1001-1004; DOI:10.1039/c0py00146e
7. [53] Stone, D.A.; **Korley L.T.J.**; *Invited Perspective to Macromolecules, Cover Article*, *Macromolecules* **2010**, Bioinspired Polymeric Nanocomposites, *43*(22), 9217–9226; DOI:10.1021/ma101661p
8. [29] Stone, D.A.; Hsu, L.; Wheeler, N.R.; Wilusz, E.; Zukas, W.; Wnek, G.E.; **Korley, L.T.J.**; Mechanical Enhancement via Self-Assembled Nanostructures in Polymer Nanocomposites, *Soft Matter* **2011**, *7*(6), 2449 – 2455; DOI:10.1039/C0SM01262A
9. [34] Burt, T.M.; Keum, J.; Hiltner, A.; Baer, E.; **Korley, L.T.J.**; Confinement of Elastomeric Block Copolymers via Forced Assembly Co-extrusion, *ACS Applied Materials and Interfaces* **2011**, *3*(12), 4804-4811; DOI:10.1021/am201297f
10. [47] Stone, D.A.; Wanasekara, N.D.; Jones, D.; Wheeler, N.R.; Wilusz, E.; Zukas, W.; Wnek, G.E.; **Korley, L.T.J.**; All-Organic, Stimuli-Responsive Polymer Composites with Electrospun Fiber Fillers, *ACS Macro Letters* **2012**, *1*(1), 80-83; DOI:10.1021/mz200049v
11. [45] Johnson, J. Casey; Wanasekara, N.D.; **Korley, L.T.J.**; Utilizing Peptidic Ordering in the Design of Hierarchical Polyurethane/ureas, *Biomacromolecules* **2012**, *13*(5), 1279-1286; DOI:10.1021/bm201800v
12. [45] Lai, C-Y.; Hiltner, A.; Baer, E.; **Korley, L.T.J.**; The Deformation of Confined Poly(ethylene oxide) in Multilayer Films, *ACS Applied Materials and Interfaces* **2012**, *4*(4), 2218–2227; DOI: 10.1021/am300240r
13. [36] Johnson, J.C; **Korley, L.T.J.**; *Invited Review*, Enhanced Mechanical Pathways through Nature’s Building Blocks: Amino Acids; *Soft Matter* **2012**, *8*(45), 11431-11442; DOI: 10.1039/C2SM26185E
14. [30] Burt, T.M.; Jordan, A.M.; **Korley, L.T.J.**; Towards Anisotropic Materials via Forced Assembly Co-extrusion, *ACS Applied Materials and Interfaces* **2012**, *4*(10), 5155–5161; DOI:10.1021/am301072s
15. [34] Wanasekara, N.W.; Stone, D.A.; Wnek, G.E., **Korley, L.T.J.**; Stimuli-responsive and Mechanically-switchable Electrospun Composites; *Macromolecules* **2012**, *45*(22), 9092–9099; DOI:10.1021/ma301896u
16. [14] Burt, T.M.; Jordan, A.M.; **Korley, L.T.J.**; Investigating Interfacial Contributions on the Layer-thickness Dependent Mechanical Response of Confined Self-assembly via Forced Assembly, *Macromolecular Chemistry and Physics* **2013**, *214*(8), 873-881; DOI:10.1002/macp.201200588
17. [14] Wanasekara, N.W.; **Korley, L.T.J.\***; *Invited Feature Article*, Toward Tunable and Adaptable Polymer Nanocomposites; *Journal of Polymer Science Part B: Polymer Physics* **2013**, *51*(7), 463-467; DOI:10.1002/polb.23253

18. [10] Burt, T.M.; Monemian, S.; Jordan, A.M.; **Korley, L.T.J.**; Thin Film Confinement of Spherical Block Copolymers via Forced Assembly Co-extrusion, *Soft Matter* **2013**, *9*(17), 4381-4385; DOI:10.1039/C3SM27797F
19. [28] Wojtecki, R.J.; Wu, Q.; Johnson, J.C.; Ray, D. E.; **Korley, L.T.J.**, Rowan, S.J.; Optimizing the formation of 2,6-bis(N-alkyl-benzimidazolyl)pyridine-containing [3]catenates through component design, *Chemical Science* **2013**, *4*(12), 4440-4448; DOI: 10.1039/C3SC52082J
20. [34] Johnson, J. Casey; Wanasekara, N.D.; **Korley, L.T.J.**; *Invited Article 2014 Emerging Investigators Themed Issue*, Influence of Secondary Structure and Hydrogen-Bonding Arrangement on the Mechanical Properties of Peptidic-Polyurea Hybrids, *J. Mat. Chem. B* **2014**, *2*, 2554-2561; DOI: 10.1039/C3TB21476A
21. [88] Wang, J.; Langhe, D.; Ponting, M.; Wnek, G.E.; **Korley, L.T.J.**; Baer, E.; Manufacturing of Polymer Continuous Nanofibers Using a Novel Co-extrusion and Multiplication Technique, *Polymer* **2014**, *55*(2), 673-685; DOI: 10.1016/j.polymer.2013.12.025
22. [20] Jordan, A.M.; Lenart, W.; Carr, J.; Baer, E.; **Korley, L.T.J.**; Structural evolution during mechanical deformation in high-barrier PVDF-TFE/PET multilayer films using in-situ X-ray techniques. *ACS Applied Materials and Interfaces* **2014**, *6*(6), 3987-3994; DOI: 10.1021/am4053893
23. [69] Kim, S-E.; Wang, J.; Jordan, A.M.; **Korley, L.T.J.**; Baer, E.; Pokorski, J.; Surface Modification of Melt Extruded Poly( $\epsilon$ -caprolactone) Nanofibers: Toward a New Scalable Biomaterial Scaffold, *ACS Macro Letters* **2014**, *3*(6), 585-589. DOI: 10.1021/mz500112d
24. [17] Jang, K-S.; Johnson, J.C.; Hegmann, T.; Hegmann, E.; **Korley, L.T.J.**; Biphenyl-based Liquid Crystals for Elevated Temperature Processing with Polymers, *Liquid Crystals* **2014**, *41*(10), 1473-1482; DOI: DOI:10.1080/02678292.2014.926405
25. [26] Monemian, S.; Jang, K-S.; Ghassemi, H.; **Korley, L.T.J.**; Probing the interplay of ultraviolet crosslinking and non-covalent interactions in supramolecular elastomers, *Macromolecules* **2014**, *47*(16), 5633-5642; DOI:10.1021/ma501183a
26. [61] Sharma, A., Neshat, A., Mahnen, C.J., Nielsen, A.d., Snyder, J., Stankovich, T.L., Daum, B.G., LaSpina, E.M., Beltrano, G., Li, S., Park, B.-W., Clements, R.J., Freeman, E.J., Malcuit, C., McDonough, J.A., **Korley, L.T.J.**, Hegmann, T., Hegmann, E.; Biocompatible, biodegradable and porous liquid crystal elastomer scaffolds for spatial cell cultures, *Macromolecular Bioscience* **2015**, *15*, 200-214; DOI:10.1002/mabi.201400325. *Materials Views*, 10/24/14, *Journal Back Cover*
27. [10] Johnson, J.C., **Korley, L.T.J.**, Tsige, M. Coarse-Grained Modeling of Peptidic/PDMS Triblock Morphology, *The Journal of Physical Chemistry B* **2014**, *118*(47), 13718-13728; DOI:10.1021/jp506553v
28. [42] Jordan, A.M., **Korley, L.T.J.**; Toward a Tunable Fibrous Scaffold: Structural Development during Uniaxial Drawing of Coextruded Poly(caprolactone) Fibers, *Macromolecules*, **2015**, *48*(8), 2614-2627; DOI:10.1021/acs.macromol.5b00370

29. [34] Monemian, S., **Korley, L.T.J.**; Exploring the Role of Supramolecular Associations in Mechanical Toughening of Interpenetrating Polymer Networks, *Macromolecules* **2015**, *48*(19) 7146-7155; DOI:10.1021/acs.macromol.5b01752
30. [15] Wanasekara, N.D., Matolyak, L., **Korley, L.T.J.**; Tunable Mechanics in Electrospun Composites via Hierarchical Organization, *ACS Applied Materials and Interfaces* **2015**, *47*(41), 22970-22979; DOI:10.1021/acsami.5b06230
31. [12] Jordan, A.M., Marotta, T., **Korley, L.T.J.**; Reducing Environmental Impact: Solvent and PEO Reclamation During Production of Melt-Extruded PCL Nanofibers, *ACS Sustainable Chemistry and Engineering* **2015**, *3*(11), 2994-3003; DOI:10.1021/acssuschemeng.5b0101
32. [7] Jang, K-S., **Korley, L.T.J.**; Phase diagrams of thermally-stable, polymer-dispersed liquid crystals: exploring the impact of chain length and chemical structure, *Polymer Engineering and Science* **2016**, *56*(4), 388-393; DOI:10.1002/pen.24264
33. [69] Jordan, A.M.; Viswanath, V.; Kim, S.-E.; Pokorski, J.; **Korley, L.T.J.**; *Invited Review*, Processing and Surface Modification of Polymer Nanofibers for Biological Scaffolds: A Review, *Journal of Materials Chemistry B* **2016**, *4*, 5958-5974; DOI:10.1039/C6SM00749J: Designated a 2016 Journal of Materials Chemistry B Hot Paper
34. [11] Lenart, W.R.; Jang, K.-S.; Jordan, A.M., Baer, E.; **Korley, L.T.J.**; Mechanically Tunable Dual-Component Polyolefin Fiber Mats via Two-Dimensional Multilayer Coextrusion, *Polymer* **2016**, *103*(26), 328–336; DOI:10.1016/j.polymer.2016.09.060
35. [16] Matolyak, L.E.; Keum, J.K.; **Korley, L.T.J.**; Molecular design – network architecture and its impact on the organization and mechanics of peptide-polyurea hybrids, *Biomacromolecules* **2016**, *17*(12), 3931–3939; DOI:10.1021/acs.biomac.6b013
36. [18] Alexander, Symone L.M.; **Korley, L.T.J.**; Tunable hygromorphism: structural implications of low molecular weight gels and electrospun nanofibers in bilayer composites, *Soft Matter* **2017**, *13*, 283-291; DOI:10.1039/C6SM00749J
37. [28] Sharma, A., Mori, T., Mahnen, C.J., Everson, H.R., Leslie, M.T., Nielsen, A.d., Lussier, L., Zhu, C., Malcuit, C., Hegmann, T., McDonough, T., Freeman, E.J., **Korley, L.T.J.**, Clements, R.J., Hegmann, E.; Effects of structural variations on the cellular response and mechanical properties of biocompatible, biodegradable, and porous smectic liquid crystal elastomers, *Macromolecular Bioscience* **2017**, *17*, 1600278; DOI:10.1002/mabi.201600278
38. [137] Chen, M., Gu, Y., Singh, A., Zhong, M., Jordan, A.M., Balazs, A.C., **Korley, L.T.J.**, Johnson, J.A.; Living additive manufacturing: transformation of parent gels into diversely functionalized daughter gels made possible by visible light photo-redox catalysis, *ACS Central Science* **2017**, *3* (2), 124–134; DOI: 10.1021/acscentsci.6b00335 (*First Reaction: Cyrille Boyer*)
39. [15] Kim, S.-E.; Jordan, A.M.; **Korley, L.T.J.**; Porkoski, J.; Drawing in poly ( $\epsilon$ -caprolactone) Fibers: Tuning Mechanics, Fiber Dimensions and Surface-Modification for Biomedical Applications, *Journal of Materials Chemistry B* **2017**, *5*, 4499-4506; DOI:10.1039/C7TB00096K

40. [69] Gu, T., Kawamoto, K., Zhong, M., Chen, M., Hore, M.J.A., Jordan, A.M., Olsen, B.A., **Korley, L.T.J.**, Johnson, J.A.; Semi-batch monomer addition as a general method to tune and enhance the mechanics of polymer networks via loop defect control, *Proceedings of the National Academy of Sciences* **2017**, *114*(19) 4875-4880; DOI:10.1073/pnas.1620985114
41. [23] Thompson, C.B.; **Korley, L.T.J.**; *Invited Review*, Harnessing Supramolecular and Peptidic Self-Assembly for the Construction of Reinforced Polymeric Tissue Scaffolds, *Bioconjugate Chem.* **2017**, *28* (5), 1325–1339; DOI: 10.1021/acs.bioconjugchem.7b00115
42. [10] Alexander, S.L.M.; Matolyak, L.E.; **Korley, L.T.J.**; Intelligent nanofiber composites: Dynamic communication between materials and their environment, *Invited Feature Article, Macromolecular Materials and Engineering* **2017**, *302*, 1700133; DOI: 10.1002/mame.201700133
43. [34] Jordan, A.M.; Kim, S.-E.; Van de Voorde, K.M.; Porkoski, J.; **Korley, L.T.J.**; In Situ Fabrication of Fiber Reinforced Three-Dimensional Hydrogel Tissue Engineering Scaffolds, *ACS Biomater. Sci. Eng.* **2017**, *3* (8), 1869–1879; DOI: 10.1021/acsbiomaterials.7b00229
44. [5] Alexander, S.L.M.; **Korley, L.T.J.**; Programming Shape and Tailoring Transport: Advancing Hygromorphic Bilayers with Aligned Nanofibers, *Soft Matter* **2017**, *13*, 5589 – 5596; DOI: 10.1039/C7SM00962C
45. [14] Matolyak, L.E.; Keum, J.K.; Van de Voorde, K.M.; **Korley, L.T.J.**; *Invited Article, Special Issue - Peptide materials*, Synthetic Approach to Tailored Physical Associations in Peptide-Polyurea/Polyurethane Hybrids, *Organic and Biomolecular Chemistry* **2017**, *15*, 7607-7617; DOI: 10.1039/c7ob01352c
46. [12] Prévôt, M.E.; Bergquist, L. E.; Sharma, A., Mori, T., Gao, Y.; Bera, T.; Zhu, C.; Leslie, M.T.; Cukelj, R.; **Korley, L.T.J.**; Freeman, E.J.; McDonough, J. A., Clements, R.J., Hegmann, E.; New developments in 3D liquid crystal elastomers scaffolds for tissue engineering: from physical template to responsive substrate, *Proc. of SPIE* **2017**, *10361*,103610T-11; DOI: 10.1117/12.2275338
47. [58] Prévôt, M. E.; Andro, H.; Alexander, S.L.M.; Ustunel, S.; Zhu, C.; Nikolov, Z.; Rafferty, S. T.; Brannum, M. T.; Kinsel, B.; **Korley, L.T.J.**; Freeman, E.J.; McDonough, J.A.; Clements, R.J.; Hegmann, E.; Liquid crystal elastomer foams with elastic properties specifically engineered as biodegradable brain tissue scaffolds, *Soft Matter* **2018**, *14*, 354 – 360; DOI: 10.1039/c7sm01949a
48. [6] Alexander, S. L. M.; **Korley, L.T.J.**; *Invited Article*, Nucleation effects of high molecular weight polymer additives on low molecular weight gels, *Polymer Journal* **2018**, *50*, 775-786; DOI: 10.1038/s41428-018-0076-0
49. [7] Matolyak, L.E.; Thompson, C. B.; Li, B.; Keum, J.; Cowen, J.; Tomazin, R.; **Korley, L.T.J.**; Secondary Structure Mediated Hierarchy and Mechanics in Polyurea-Peptide Hybrids, *Biomacromolecules* **2018**, *19* (8), 3445–3455; DOI: 10.1021/acs.biomac.8b00762
50. [4] Alexander, S. L. M.; **Korley, L.T.J.**; Restricting molecular mobility in polymer nanocomposites with self-assembling low molecular weight gel additives, *ACS Applied Materials and Interfaces* **2018**, *10*, 43040–43048; DOI: 10.1021/acsami.8b15112



51. [83] Brannum, M.L.; Steele, A.B.; Venetos, M.C.; **Korley, L.T.J.**; Wnek, G.E.; White, T.J.; Light Control with Liquid Crystalline Elastomers, *Advanced Optical Materials* **2019**, *7*, 1801683-1801687; DOI: 10.1002/adom.201801683
52. [8] Thompson, C.B.; Chatterjee, S.; **Korley, L.T.J.**; *Invited Article, Special Issue – Biomimetic Polymers*, Gradient Supramolecular Interactions and Tunable Mechanics in Polychaete Jaw Inspired Supramolecular Interpenetrating Networks, *European Polymer Journal* **2019**, *116*, 201-209; DOI: 10.1016/j.eurpolymj.2019.04.015
53. [22] Wang, C.; Brown, G.; Burris, D.; **Korley, L.T.J.**; Epps, III, T.H.; The Coating Architects: Manipulating Multi-Scale Structures in Polymer Coatings to Optimize Interfacial Properties, *ACS Applied Polymer Materials* **2019**, *1(9)*, 2249-2266; DOI:10.1021/acsapm.9b00302
54. [20] Brannum, M.; Auguste, A.; Donovan, B.; Godman, N.; Malatujv, V.; Steele, A.; **Korley, L.T.J.**; Wnek, G.E.; White, T.; Deformation and Elastic Recovery of Acrylate-based Liquid Crystalline Elastomers, *Macromolecules* **2019**, *52 (21)*, 8248-8255; DOI:10.1021/acs.macromol.9b01092
55. [11] Redondo, A.; Chatterjee, S.; Brodard, P.; **Korley, L.T.J.**; Gunkel, I.; Weder, C.; Steiner, U.; Melt-Spun Nanocomposite Fibers Reinforced with Aligned Tunicate Nanocrystals, *Polymers* **2019**, *11*, 1912; DOI:10.3390/polym11121912
56. [9] Redondo, A.; Jang, D.; **Korley, L.T.J.**; Gunkel, I.; Steiner, U.; Electrospinning of Cellulose Nanocrystal-Reinforced Polyurethane Fibrous Mats, *Polymers* **2020**, *12(5)*, 1021; DOI:10.3390/polym12051021
57. [13] Van de Voorde, K.; Pokorski, J. P.; and **Korley, L.T.J.**; Exploring morphological effects on the mechanics of blended PLA/PCL extruded fibers fabricated using multilayer coextrusion, *Macromolecules* **2020**, *53(13)*, 5047-5055; DOI:10.1021/acs.macromol.0c00289
58. [26] Hore, M.J.A.; **Korley, L.T.J.**; and Kumar, S.K.; Introduction to Special Topic: Polymer-Grafted Nanoparticles, *Journal of Applied Physics* **2020**, *128*, 030401; DOI:10.1063/5.0019326
59. [25] Thompson, C.B.; **Korley, L.T.J.**; 100th Anniversary of Macromolecular Science Viewpoint: Engineering Supramolecular Materials for Responsive Applications – Design and Functionality, *Invited Viewpoint, ACS Macro Letters* **2020**, *9*, 1198–1216; DOI:10.1021/acsmacrolett.0c00418
60. [28] Beckett, L.E.; Lewis, J.T.; Tonge, T.K.; **Korley, L.T.J.**; Enhancement of the mechanical properties of hydrogels with continuous fibrous reinforcement, *ACS Biomaterials Science and Engineering* **2020**, *6(10)*, 5453–5473; DOI: 10.1021/acsbiomaterials.0c00911
61. [59] Mahajan, J.; O'Dea, R.; Norris, J.; **Korley, L.T.J.**; Epps, III, T.H.; Aromatics from Lignocellulosic Biomass: A Platform for High-Performance Thermosets, *Invited Perspective, ACS Sustainable Chemistry and Engineering* **2020**, *8(40)*, 15072–15096; DOI:10.1021/acssuschemeng.0c04817
62. [2] Narayan, R.; Saltzberg, M.; Epps, T. H., III; **Korley, L.T.J.**; Trump, P. V.; Powell, B.; Kettner, D.; Zieler, H.; Atkinson, D.; *Industrial Biotechnology Journal* **2020** (Roundtable

Discussion), Virtual Congressional Education Briefing: End of Life for Bioplastics; DOI:10.1089/ind.2020.29228.rna

63. [212] **Korley, L.T.J.**; Epps, T.H., III; Helms, B.A.; Ryan, A.J.; Polymer Upcycling – Adding Value and Tackling Circularity, *Science* **2021**, *373*, 66–69, *Invited Article*; DOI: 10.1126/science.abg4503
64. [11] Amitrano, A.; Mahajan, J.S.; **Korley, L.T.J.**; Epps, T.H., III; Estrogenic activity of lignin-derivable alternatives to bisphenol A assessed via molecular docking simulations, *RSC Advances* **2021**, *11*, 22149-22158; DOI:10.1039/D1RA02170B
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67. [7] Jang, Daseul; Thompson, C.T.; Chatterjee, S.; **Korley, L.T.J.**; Engineering bio-inspired peptide-polyurea hybrids with thermoresponsive shape memory behaviour, *Molecular Systems Design & Engineering* **2021**, *6*, 1003-1015, *Invited Article*; DOI: 10.1039/D1ME00043H
68. [4] Pandala, Narendra; LaScola, Michael; Tang, Yanchun; **Korley, L.T.J.**; Lavik, Erin; Screen Printing Tissue Models Using Chemically Cross-Linked Hydrogel Systems: A Simple Approach To Efficiently Make Highly Tunable Matrices, *ACS Biomaterials Science and Engineering* **2021**, *7* (11), 5007–5013; DOI: 10.1021/acsbiomaterials.1c00902
69. [4] **Korley, L.T.J.**; Ware, T. H.; Introduction to Special Topic: Programmable liquid crystal elastomers, *Journal of Applied Physics* **2021**, *130*, 220401; DOI:10.1063/5.0078455
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74. [14] Hinton, Z.R.; Kots, P.A.; Vlachos, D.G.; Soukaseum, M.; Epps, T.H., III; **Korley, L.T.J.**: Antioxidant-Induced Catalyst Transformations in the Hydrocracking of Polyethylene Waste, *Green Chemistry*, **2022**, *24*, 7332 - 7339; DOI: 10.1039/D2GC02503E, **Invited Journal Cover**
75. [7] Kim, D.; Hinton, Z.R.; Bai, P.; **Korley, L.T.J.**; Epps, T.H., III; Lobo, R.F.; Metathesis, Molecular Redistribution of Alkanes, and the Chemical Upgrading of Low-Density Polyethylene, *Applied Catalysis B – Environmental*, **2022**, *318*, 121873; DOI: 10.1016/j.apcatb.2022.121873
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77. [2] **Korley, L.T.J.**; McNeil, A.J.; Coates, G.W.; "Challenges and Opportunities in Sustainable Polymers", *Accounts of Chemical Research*, **2022**, *55(18)*, 2543; DOI:10.1021/acs.accounts.2c00534
78. [1] Mhatre, S.V.; Mahajan, J.; Epps, T.H., III; **Korley, L.T.J.**; Lignin-derivable alternatives to conventional non-isocyanate polyurethane thermosets with enhanced toughness, *Materials Advances*, **2022**, *4(1)*, 110-121; DOI:10.1039/d2ma00895e, **Invited Journal Cover**
79. [0] Wu, C.; Zhang, X.; Mahajan, J.S.; **Korley, L.T.J.**; Epps, T.H., III; Reduced genotoxicity of lignin-derivable replacements to bisphenol A studied using in silico, in vitro, and in vivo methods, *Mutation Research - Genetic Toxicology and Environmental Mutagenesis*, **2023**, *885*, 503577; DOI:10.1016/j.mrgentox.2022.503577
80. Redondo, A.; Bast, L.K.; Djeghdi, K.; Airoidi, M.; Velasquez, S.T.R.; Jang, D.; **Korley, L.T.J.**; Steiner, U.; Bruns, N.; Gunkel, I.; Rendering polyurethane hydrophilic for efficient cellulose reinforcement in melt-spun nanocomposite fibers, *Advanced Materials Interfaces*, **2023**, *10(9)*, 202201979; DOI:10.1002/admi.202201979
81. Yan, T.; Balzer, A.H.; Herbert, K.M.; Epps, T.H., III; **Korley, L.T.J.**; Dynamic Covalent Chemistries to Enable Circularity in Polymeric Materials, *Chemical Science*, **2023**, *14*, 5243-5265; DOI: 10.1039/D3SC00551H, **Invited Review Article**
82. [1] Jang, D.; Beckett, L.E.; Keum, J.; **Korley, L.T.J.**; Leveraging peptide-cellulose interactions to tailor the hierarchy and mechanics of peptide-polymer hybrids, *Journal of Materials Chemistry B*, **2023**, *11*, 5594-5606 (Invited, 10<sup>th</sup> Anniversary Issue), DOI: 10.1039/d3tb00079f
83. Gupta, Y.; Beckett, L. E.; Sadula, S.; Vargheese, V.; **Korley, L.T.J.**; Vlachos, D.G.; Bio-based Molecular Imprinted Polymers for Separation and Purification of Chlorogenic Acid Extracted from Food Waste, *Separation and Purification Technology Journal*, **2023**, *327*, 124857, DOI:10.1016/j.seppur.2023.124857

84. Thomas, J.; Hinton, Z.; **Korley, L.T.J.**; Peptide-Polyurea Hybrids: A Platform for Tunable, Thermally-stable, and Injectable Hydrogels, *Soft Matter*, **2023**, DOI: 10.1039/D3SM00780D

### Submitted

1. Redondo, A.; Jang, D.; Weder, C.; **Korley, L.T.J.**; Steiner, U.; Neat PU Fibers: a Comprehensive Study of the Polymer Orientation on the Mechanical Properties, *Journal of Polymer Science*, **2023**
2. Beckett, L.E.; Lewis, J.T.; Tonge, T.; **Korley, L.T.J.**; Predicting the tensile and compressive modulus of electrospun fiber mat-reinforced hydrogels using the Halpin-Tsai equations, *Polymer*, **2023**

### Intellectual Property (Patents, Invention Disclosures) [#] citations as of May 9, 2022

1. [6] **Korley, L. T.**; Stone, D.A.; Wnek, G. E.; Wanasekara, N.D. "Polymer composite and method of forming same", US 9,797,075 B2, October 24, 2017
2. [2] **Korley, L. T.**; Wnek, G. E.; Jordan, A.; "Fiber reinforced hydrogels and methods of making same", US 10,286,585 B2, May 14, 2019
3. Epps, III, T.; **Korley, L.T.J.**; Mahajan, J.S.; Behbahani, H.S.; Green, M.; "Bio-Based Polysulfones and Uses Thereof", Invention Disclosure, May 21, 2019
4. Nandi, M.; O'Dea, R.; Epps, III, T.; **Korley, L.T.J.**; "Depolymerization of Polyurethanes: Regeneration of Isocyanates Via Chemical Recycling", Invention Disclosure, March 9, 2022
5. Gupta, Y.; Beckett, L.E.; Sadula, S.; Vlachos, D.G.; **Korley, L.T.J.**; "Bio-Based Polymers for the Purification of High Commercial Value Chemicals Extracted from Plants, Food Waste, and Non-Food Biomass", Invention Disclosure, October 19, 2022
6. Mahtre, S.V.; Mahajan, J.S.; Epps, III, T.; **Korley, L.T.J.**; "Lignin-Derived and Performance-Enhanced Non-Isocyanate Polyurethane Thermosets", Invention Disclosure, December 14, 2022
7. Jang, D.; Wong, Y-T.; **Korley, L.T.J.**; "Water-Responsive Polymer Nanocomposites Comprised of Polymer-Peptide Hybrid Matrix and Cellulose Fillers", March 23, 2023

### Invited Conference Presentations

1. TA Instruments Users Meeting, "Elucidating Structure-property Relationships in Elastomers, Nanocomposites, and Multi-layered Films: A Macro@CWRU Perspective". Thermal Analysis Session, May 5, 2008. **Invited Speaker**
2. American Chemical Society, PMSE Young Investigator Symposium, San Francisco, CA. "Bio-inspired Strategies for Mechanical Enhancement", March 24, 2010. **Invited Speaker**
3. First Annual Meeting of NSF's ENG/BRIGE Principal Investigators, NSF, Arlington, VA. August 1-3, 2010. **Invited Speaker**
4. University of Minnesota/IPrime Toughness Workshop, Minneapolis, MN, "Bio-inspired Strategies for Mechanical Enhancement", January 14, 2010. **Invited Speaker**
5. Gordon Conference: Polymers, Mount Holyoke College, South Hadley, MA. "Bio-inspired design of mechanically-enhanced materials", June 14, 2011. **Invited Speaker**

6. ACS National Meeting, Denver, CO. Session: Function through Macromolecular Assembly, "Bio-inspired fillers for mechanical enhancement", August 31, 2011. **Invited Speaker**
7. ACS National Meeting, Denver, CO. Session: Symposium in Memory of Professor Anne Hiltner, "Combining forced-assembly and self-assembly to generate mechanically-enhanced, multi-functional materials", August 31, 2011. **Invited Speaker**
8. APS, Boston, MA. "Nature-inspired fillers for mechanical enhancement", March 2012. **Invited Speaker**
9. TA Instruments Users Meeting, "Elucidating Structure-property Relationships in Elastomers, Nanocomposites, and Multi-layered Films: A Macro@CWRU Perspective". Thermal Analysis Session, April 30, 2012. **Invited Speaker**
10. IUPAC World Polymer Congress, "Mechanical tuning in bio-inspired polymer nanocomposites", June 24-29, 2012. **Invited Speaker**
11. "Towards Mechanically-tunable Materials Inspired by Nature", 244<sup>th</sup> ACS National Meeting, Philadelphia, PA. Polymeric Biomaterials Symposium, August 2012. **Invited Speaker**
12. NEO Microscopy Meeting, "Lessons from Nature: Tuning Mechanics in Polymeric Materials", February 20, 2013. **Invited Speaker**
13. 245<sup>th</sup> ACS National Meeting, New Orleans, LA, "Reinforcement of bio-inspired elastomers via control of secondary structure", April 7-11, 2013. **Invited Speaker**
14. 245<sup>th</sup> ACS National Meeting, New Orleans, LA, "Multilayer co-extrusion as a platform for combining forced assembly and self-assembly", April 7-11, 2013. **Invited Speaker**
15. 245<sup>th</sup> ACS National Meeting, New Orleans, LA, "From REU student to professor: The role of mentoring in the polymer science and engineering", April 7-11, 2013. **Invited Speaker.**
16. University of Philippines, Diliman, Institute of Chemistry, MACROManila, "Tailoring mechanics via lessons from nature", May 22-23, 2013. **Invited Speaker**
17. CWRU, MACRO Frontiers 2013, "Mechanical tuning in bio-inspired polymer nanocomposites", June 6-8, 2013. **Invited Speaker**
18. 246<sup>th</sup> ACS National Meeting, PMSE: Bioconjugates and Hybrid Biomaterials, Indianapolis, IN, "Polymer-peptide hybrids: Tuning mechanics via secondary structure", September 8-12, 2013. **Invited Speaker**
19. Polymers for Advanced Technologies (PAT) 2013, Berlin, Germany, "Designer materials: Taking cues in mechanics from Nature", September 29 – October 3, 2013. **Invited Speaker & Nominated, Young Talent Award (1 of 6 internationally) Polymers for Advanced Technologies, 2013**
20. 3<sup>rd</sup> Annual Chinese Chemical Society – Polymer Division/ACS-PMSE Joint Symposium, Shanghai, China, "Multilayer co-extrusion as a platform for combining forced assembly and self-assembly", October 15, 2013. **Invited Speaker**
21. 3<sup>rd</sup> Annual Chinese Chemical Society – Polymer Division/ACS-PMSE Joint Symposium, Tsinghua University, Beijing, China, "Multilayer co-extrusion as a platform for combining forced assembly and self-assembly", October 17-18, 2013. **Invited Speaker**
22. AIChE, San Francisco, CA. *Emerging Areas in Polymer Science and Engineering Plenary session*, "Tunable and Responsive Polymer Nanocomposites Inspired By Nature", November 3-8, 2013. **Invited Plenary Speaker**
23. 247<sup>th</sup> ACS National Meeting, PMSE: Supramolecular Assembly and Gelation in Organic Solvents, Dallas, TX., "Controlled dispersion and inherent percolation in polymer composites via supramolecular assembly and filler design", March 16, 2014. **Invited Speaker**
24. 248<sup>th</sup> ACS National Meeting, PMSE: Functional Supramolecular Polymers, San Francisco, CA. "Functional fillers (and architectures) for mechanical enhancement of polymeric systems", August 12, 2014. **Invited Speaker**
25. 2nd International Conference on Bioinspired and Biobased Chemistry & Materials, Nice, France. "Polymer-Peptide Hybrids: Tuning Mechanics via Nature's Building Blocks", October 15, 2014.

26. Conference on Deformation, Yield and Fracture in Polymers (DYFP2015), Rolduc Abbey, Kerkrade, NL, "Exploiting the structural diversity in Nature as a path towards mechanical enhancement", April 2, 2015. **Invited Speaker**
27. 250<sup>th</sup> ACS National Meeting, POLY: Herman Mark Scholars Award Symposium in Honor of Stuart Rowan, Boston, MA, "Harnessing the power of phase interactions - tailoring mechanics via supramolecular motifs", August 16, 2015. **Invited Speaker**
28. 250<sup>th</sup> ACS National Meeting, POLY: Henry A. Hill Centennial Symposium: Innovation in Polymer Science, Boston, MA. "New Fabrication Strategy toward functional fiber mats and composites", August 18, 2015. **Invited Speaker**
29. 250<sup>th</sup> ACS National Meeting, POLY: Herman Mark Young Scholars Award Symposium in Honor of Bradley Olsen, Boston, MA, "Polymer-peptide hybrids: tuning mechanics via nature's building blocks", August 19, 2015. **Invited Speaker**
30. AIChE, Salt Lake City, Utah. *Mechanics and Structure in Polymers*, "From Multilayer Films to Nanoscale Fibers: Probing the Connection Between Assembly and Mechanics, November 10, 2015. **Invited Speaker**
31. MRS Fall Meeting, H11 Multifunctionality in Polymer-Based Materials, Gels and Interfaces, Boston, MA. "Exploiting structural diversity in Nature: Supramolecular Associations and Hierarchical Organization Drive Mechanical Tunability in Polymer Composites and Networks", December 4, 2015. **Invited Speaker**
32. Pacific Polymer Conference 14 (PPC 14), 3B – Advanced Processing, Kauai, Hawaii, "New fabrication strategy toward functional fiber mats and composites", December 11, 2015. **Invited Speaker**
33. Pacificchem, Current Polyurethane Science, Honolulu, Hawaii, "Polyurethane-peptide hybrids: Hierarchy and mechanics inspired by nature", December 19, 2015.
34. Academic Research and Leadership Network, 2016 Research Symposium, MIT, Cambridge, MA, "Bio-inspired Approaches to Mechanical Tuning: Fiber Innovations", March 25, 2016. **Invited Speaker**
35. GRC Bioinspired Materials, Les Diablerets Conference Center, Les Diablerets, Switzerland, "Exploiting the structural diversity in Nature: mechanical implications in elastomers, composites, and fibers", June 5-10, 2016. **Invited Speaker**
36. 252<sup>nd</sup> ACS Fall National Meeting, Division of Polymer Chemistry, Advanced Functional Biopolymers and Biomaterials, Philadelphia, PA. "Toward fibrous biomaterial scaffolds: Manufacturing and functionalization strategies", August 21, 2016. **Invited Speaker**
37. 252<sup>nd</sup> ACS Fall National Meeting, Division of Colloid and Surface Chemistry: Synergy at the Bio-Nano Interface, Philadelphia, PA. "Tuning mechanics via structural interplay in polymer-peptide hybrids", August 21, 2016. **Invited Speaker**
38. Biennial Meeting of the GDCh-Division Macromolecular Chemistry, Halle, Germany. "Utilizing concepts of mechanics, transport, and assembly in Nature – towards responsive materials", September 11-13, 2016. **Invited Speaker (1 of only 2 US invitees)**
39. MRS Fall, Boston, MA. "Inspired by Nature: scalable fabrication of functional fiber scaffolds and fiber-reinforced hydrogels", November 27-30, 2016. **Invited Speaker**
40. ACS Layered Polymeric Systems Conference, Pacific Grove, CA. "Transforming layered materials into mechanically-robust fibers and hydrogels", February 21-24, 2017. **Invited Speaker**
41. APS, New Orleans, LA. "Structural Interplay - Tuning Mechanics in Peptide-Polyurea Hybrids", March 13-17, 2017. **Invited Speaker**
42. 1<sup>st</sup> Pan-American Polymer Science Conference, São Paulo, Brazil. "Mechanical tuning in Nature-inspired elastomers and gels, March 22-24, 2017. **Invited Speaker**

43. 3<sup>rd</sup> Functional Polymeric Material conference, Rome, Italy. “Utilizing concepts of mechanics, transport, and assembly in Nature – towards responsive, fibrous materials”, July 7-10, 2017. ***Invited Speaker***
44. APS, Los Angeles, CA. Symposium: Lessons from Biological Soft Materials and Their Applications, “Hierarchy and architecture - tailoring physical associations toward functional networks and gels”, March 5-9, 2018. ***Invited Speaker***
45. SPIE Smart Structures/NDE Symposium, Bioinspiration, Biomimetics, and Bioreplication VII, “Utilizing concepts of mechanics, transport, and assembly in nature: towards responsive materials”, March 4-8, 2018. ***Invited Speaker***
46. ACS, New Orleans, LA. ACS Award in Applied Polymer Science: Symposium in Honor of Paula T. Hammond, “Hierarchy-mediated mechanics in peptide-polyurea hybrids”, March 18-22, 2018. ***Invited Speaker***
47. 4<sup>th</sup> Annual Functional Polymeric Materials Conference, Nassau, Bahamas. “Manipulating phase interactions and mechanics in supramolecular systems”, June 5-8, 2018. ***Invited Speaker***
48. NOBCCChE, Orlando, FL. “Programmable responses in hygromorphic bilayer composites”, September 17-20, 2018. ***Invited Speaker***
49. ACS POLY 2018 Polycondensation Workshop, Alexandria, VA. “Manipulating hierarchy, mechanics, and function in polyurea-peptide hybrids”, October 14-17, 2018. ***Invited Speaker***
50. International Symposium on Stimuli-Responsive Materials, Windsor, CA. “Engineering Responsive, Bilayer Composites via Strategic Control of Fiber Alignment and Interfacial Assembly”, October 21-23, 2018. ***Invited Speaker***
51. AIChE, MSED, Polymer Processing and Rheology Session, Pittsburgh, PA. “Transforming Layered Materials into Mechanically-Robust Fibers and Hydrogels”, October 28-November 2, 2018. ***Invited Speaker***
52. NE Section ACS/NE Region NOBCCChE, Boston, MA. “Utilizing concepts of mechanics, transport, and assembly in Nature – towards responsive materials via strategic control of architecture and alignment”, February 28, 2019. ***Invited Speaker***
53. ACS, Orlando, FL. Polymers & Biomimicry, “Biologically-inspired supramolecular systems: architecture and mechanics”, March 31-April 4, 2019. ***Invited Speaker***
54. ACS, Orlando, FL. Polymer Bioconjugates, “Manipulating hierarchy, mechanics, and function in polyurea-peptide hybrids”, March 31-April 4, 2019. ***Invited Speaker***
55. Polymer GRS, Mount Holyoke, MA. June 8-9, 2019. ***Invited Keynote Speaker***
56. Polymer GRC, Mount Holyoke, MA. “Interplay of Assembly, Alignment, and Architecture in Biologically-Inspired, Polymer Composites. June 9-14, 2019. ***Invited Speaker***
57. ACS, San Diego, CA. PMSE Future Faculty Symposium, “Nature-inspired strategies for reinforcement of polymer gels and composites”. August 25-29, 2019. ***Invited Keynote Speaker***
58. XVIII Brazilian MRS Meeting 2019, Symposium B - Biological, biopolymer-based and bio-inspired materials, “Gradient Architectures and Tunable Mechanics in Biologically-inspired, Supramolecular Semi-Interpenetrating Networks”, September 22 – 26, 2019. ***Invited Speaker***
59. NOBCCChE, St. Louis, MO, Lloyd N. Ferguson Award Lecture, “Transforming Layered Materials into Mechanically-Robust Fibers and Hydrogels”, November 20, 2019. ***Invited Speaker***
60. APS 2020, Denver, Colorado, Responsive Polymers, Soft Materials, and Hybrids, “Silk-inspiration: hierarchy, assembly, and mechanics in polyurea-polypeptide hybrids”, March 2-6, 2020. ***Invited Speaker (Canceled)***

61. APS 2020, Denver, Colorado, Dillon Medal Symposium in Honor of Rodney Priestley, “Exploiting supramolecular associations in interpenetrating networks and elastomers”, March 2-6, 2020. **Invited Speaker (Canceled)**
62. 2nd Pan American Congress of Nanotechnology, “Transforming Layered Materials: Mechanically-Robust, Films, Fibers and Hydrogels”, March 4-7, 2020. **Plenary Speaker (Withdrawn)**
63. ACS, Philadelphia, PA. US – Israel Joint Symposium, Polymeric Materials: From Synthesis to Application, “Manipulating hierarchy, mechanics, and function in polyurea-peptide hybrids”, March 22-26, 2020. **Invited Speaker (Rescheduled 2021)**
64. ACS, Philadelphia, PA. Bio-Inspired Macromolecular Materials, “Lessons from pine cones: Structural hierarchy and programmable actuation in hygromorphic composites”, March 22-26, 2020. **Invited Speaker (Canceled)**
65. ACS, Philadelphia, PA. Next Generation of Functional Polymeric Materials: Correlating Structure, Property & Application, “Transforming layered materials into mechanically-robust fibers and hydrogels”, March 22-26, 2020. **Invited Speaker (Rescheduled 2022)**
66. AIChE, Women in Chemical Engineering (WIC Symposium), “Bio-inspiration: A Tale of Dreams Realized”, November 14, 2020. **Keynote Speaker**
67. MRS Joint Spring and Fall Meeting, Boston, MA. F.SM01: Lessons from Nature—From Biology to Bioinspired Materials “Exploiting supramolecular associations in interpenetrating networks and elastomers”, November 28 – December 4, 2020. **Invited Speaker**
68. American Association for the Advancement of Science (AAAS) Annual Meeting, Sustaining a Passion for Sustainable Materials: From Molecules to Manufacturing Session, February 8, 2021. **Invited Speaker**
69. Adhesion Society Annual Meeting, “Hierarchy and Architecture - Tailoring Physical Associations Toward Functional Networks”, February 24, 2021. **Plenary Speaker**
70. APS 2021, Virtual Meeting, Dillon Medal Symposium in Honor of Rodney Priestley, “Exploiting supramolecular associations in interpenetrating networks and elastomers”, March 15, 2021. **Invited Speaker**
71. ACS, Philadelphia, PA. Bio-Inspired Macromolecular Materials, “Lessons from pine cones: Structural hierarchy and programmable actuation in hygromorphic composites”, April 8, 2021. **Invited Speaker**
72. Middle Atlantic Regional Meeting of the American Chemical Society 2021, June 11, 2021. **Plenary Speaker**
73. MSDE Symposium 2021: Frontiers in Molecular Engineering, Panel Discussion on Polymer Upcycling and Sustainability, June 17, 2021. **Invited Panelist**
74. 15th International Conference on Materials Chemistry, Royal Chemical Society, Dublin, Ireland. “Bio-inspired and Sustainable Design: Towards Functional Materials”, July 12-15, 2021. **Keynote Speaker**
75. ACS, Atlanta, GA. “Manipulating hierarchy, mechanics, and function in polyurea-peptide hybrids”, ACS Macro Letters/Biomacromolecules/Macromolecules Young Investigator Award, August 2021. **Invited Speaker**
76. National Academies of Sciences, Engineering, and Medicine (NASEM), Convergent Manufacturing - A Future of Additive, Subtractive, and Transformative Manufacturing. “Bio-inspiration”, November 15, 2021. **Invited Panelist (virtual)**
77. ACS, San Diego, CA. “Tunable mechanics enabled by the molecular design of hierarchical polymer-peptide hybrids”, Molecular Design of Polymers with Multi-scale Mechanical Properties, March 20, 2022. **Invited Speaker**
78. ACS, San Diego, CA. “Transforming layered materials into mechanically-robust fibers and fiber-reinforced hydrogels”, Next Generation of Functional Polymeric Materials: Correlating Structure, Property, and Application: Tailored Processes for Advanced Polymeric Materials, March 22, 2022. **Invited Speaker**



79. MRS, Honolulu, HI. "Harnessing the Diversity of Biomass in the Design of Performance-Advantaged, Polymeric Materials", Sustainable Polymeric Materials by Green Chemistry—Degradability and Resilience, May 9, 2022. **Invited Speaker**
80. Polymer Physics GRC, Mount Holyoke College, MA. "Structural interplay as a pathway towards functional biomaterials", July 24-29, 2022. **Invited Speaker (cancelled)**
81. Bioinspired Materials Conference, Andermatt, Switzerland, "Hierarchical tuning as a bio-inspired pathway for functional materials design", August 7-12, 2022. **Invited Speaker (cancelled)**
82. ACS, Chicago, IL. "Utilizing concepts of mechanics, transport, and assembly in nature – towards functional responsive materials", August 21-25, 2022. **Invited Speaker**
83. ACS, Chicago, IL. "Tackling the plastics waste challenge via catalytic innovations, macromolecular chemistry, and materials manufacturing", August 21-25, 2022. **Invited Speaker**
84. 93<sup>rd</sup> Annual Meeting of the Society of Rheology, Chicago, IL, "Material innovations inspired by Nature: Utilizing concepts of mechanics, transport, assembly, and sustainability", October 10, 2022. **Plenary Speaker**
85. 2022 AIChE Annual Meeting, Phoenix, AZ, Area 8, A Plenary: Emerging Areas in Polymer Science and Engineering I, "Tackling the Plastics Waste Challenge Via an Interdisciplinary Framework: Catalytic Innovations, Material Complexity, and Sustainable Polymer Design", November 15, 2022. **Plenary Speaker**
86. ACS, Indianapolis, IN, "Polymer network engineering for functional materials design", March 26-30, 2023. **Invited Speaker**
87. ACS, Indianapolis, IN, "Nature-inspired functional materials design", March 26-30, 2023. **Invited Speaker**
88. GRC Plastics Recycling and Upcycling: Towards Viable Interdisciplinary Solutions for Plastics Recycling and Redesign, "Re-Imagining Plastics Waste as a Valuable Feedstock", New Hampshire, NH, July 9-14, 2023. **Invited Speaker**
89. ACS, San Francisco, CA, E.V. Murphree Award in Industrial Chemistry: Symposium in Honor of Qinghuang Lin Session, "Material innovations inspired by Nature", August 14, 2023. **Invited Speaker**
90. ACS, San Francisco, CA, Polymeric Materials: From Synthesis to Application: USA-Israel Joint Symposium, "Sustainability as a Road Map of Materials Design", August 15, 2023. **Invited Speaker**
91. ACS Sustainable Polymer Workshop, TBD, Safety Harbor, FL, October 2023. **Invited Speaker**
92. PPG Technical Seminar, November 15, 2023. **Invited Speaker**
93. GRC on Colloidal, Macromolecular and Polyelectrolyte Solutions, "Sustainability as a Roadmap for (Functional) Materials Design", Ventura, CA; February 11-16, 2024. **Invited Speaker**
94. GRC Bioinspired Materials, Les Diablerets, Switzerland, June 16-21, 2024. **Invited Speaker**
95. GRC Polymer Physics, Mount Holyoke, MA, July 21-25, 2024. **Invited Speaker**

#### **Lectures, Seminars, and Panels (July 2007-Present)**

1. NASA Glenn, Cleveland, OH, "Manipulating Self-assembly Behavior in Nanostructured Materials", November 28, 2007. **Invited Speaker**
2. Rochester Institute of Technology, Department of Chemistry, "Manipulating Self-assembly Behavior in Nanostructured Materials", October 31, 2007. **Invited Speaker**
3. Lubrizol Corporation, "Mechanically-enhanced, Multi-functional Elastomers", December 12, 2008. **Invited Speaker**
4. Cleveland Society of Applied Spectroscopy, "Taking Shape: Confinement-induced Assembly of Block Copolymer Systems", February 26, 2009. **Invited Speaker**

5. Ohio Northern University, Department of Chemistry, Ada, OH, "Mechanically-enhanced, Multi-functional Materials", October 29, 2009. **Invited Speaker**
6. American Chemical Society, Columbus, OH, Local Section, "Bio-inspired Strategies for Material Toughening", September 21, 2010. **Invited Speaker**
7. 3M Technical Center, Minneapolis, MN, "Bio-inspired Strategies for Mechanical Enhancement", September 28, 2010. **Invited Speaker**
8. Iowa State University, Department of Material Science and Engineering, Ames, IA, "Mechanically-tunable Materials Inspired by Nature", December 2, 2010. **Invited Speaker**
9. P&G, Cincinnati, OH. "Exploring Barrier Properties of Liquid Crystalline Multilayer Films", November 19, 2010. **Invited Speaker**
10. Case Western Reserve University, Department of Chemical Engineering, Cleveland, OH, "Mechanically-tunable Materials Inspired by Nature", December 9, 2010. **Invited Speaker**
11. Northeastern University, Department of Chemical Engineering, Boston, MA. "Mechanically-Tunable Materials Inspired from Nature". September 19, 2011. **Invited Speaker**
12. DuPont Experimental Station, DuPont, Wilmington, DE. "Mechanically-Tunable Materials Inspired from Nature", November 2, 2011. **Invited Speaker**
13. University of Delaware, Department of Chemical Engineering, Newark, DE. "Mechanically-Tunable Materials Inspired from Nature", December 15, 2011. **Invited Speaker**
14. Andrews University, Department of Chemistry/Biochemistry, Berrien Springs, MI, February 2, 2012. **Invited Speaker**
15. Carnegie Mellon University, Department of Chemistry, Pittsburgh, PA. "Mechanically-Tunable Materials Inspired from Nature", March 8, 2012. **Invited Speaker**
16. University of Akron, Integrated Bioscience, Department of Biology, Akron, OH. "Mechanically-Tunable Materials Inspired from Nature", April 20, 2012. **Invited Speaker**
17. MIT, Program in Polymer Science and Technology (PPST), "Towards Mechanically-tunable Materials Inspired by Nature", May 16, 2012. **Invited Speaker**
18. University of Akron, Department of Polymer Engineering. "Lessons from Nature: Tuning Mechanics in Polymeric Materials", November 16, 2012. **Invited Speaker**
19. Syracuse University, Department of Biomedical Engineering. "Lessons from Nature: Tuning Mechanics in Polymeric Materials", December 5, 2012. **Invited Speaker**
20. 13<sup>th</sup> Annual Japanese-American Kavli Frontiers of Science Symposium, Beckman Center, Irvine, CA. November 30-December 2, 2012. **Poster**
21. Kentucky State University, Department of Chemistry, "Tailoring mechanics via combining forced assembly with self-assembly", February 7, 2013. **Invited Speaker**
22. University of Michigan, 37<sup>th</sup> Annual Symposium of the Macromolecular Science and Engineering Program, "Tunable Materials Inspired by Nature", October 24, 2013. **Invited Speaker**
23. Stanford University, Department of Materials Science and Engineering, "Design rules from Nature for new material development", November 14, 2013. **Invited Speaker**
24. University of Southern Mississippi, School of Polymers and High Performance Materials, "Lessons from Nature: Tuning Mechanics in Polymeric Materials", November 20, 2013. **Invited Speaker**
25. University of South Florida, Department of Chemical and Biomedical Engineering, "Lessons from Nature: Tuning Mechanics in Polymeric Materials", March 28, 2014. **Invited Speaker**
26. Université Savoie, Campus Scientifique, France. "From multilayer films to nanoscale fibers: probing the connection between assembly and mechanics, October 13, 2014. **Invited Speaker**
27. Kent State University, Liquid Crystal Institute, "Hierarchical organization in polymer thin films – towards enhanced mechanics and barrier properties", April 22, 2015. **Invited Speaker**

28. Cornell University, Department of Chemical and Biomolecular Engineering, Symposium in Honor of Prof. Claude Cohen, "Exploiting the structural diversity in Nature as a path towards mechanical enhancement", May 21, 2015. **Invited Speaker**
29. CWRU Macro/Brazil Workshop, Rio de Janeiro, "Exploiting the structural diversity in Nature as a path towards mechanical enhancement", July 11- July 13, 2015. **Invited Speaker**
30. NCCR Bio-inspired Materials Annual Center Conference 2015, Murten-Muntelier, Switzerland, "Polymer-peptide hybrids: tuning mechanics via nature's building blocks", September 14, 2015. **Invited Speaker**
31. Carnegie Mellon University, Department of Chemical Engineering, "Exploiting the structural diversity in Nature as a path toward mechanical enhancement", September 29, 2015. **Invited Speaker**
32. The Ohio State University, Department of Chemistry and Biochemistry, Columbus, OH. "Exploiting the structural diversity in Nature as a path towards mechanical enhancement", February 8, 2016. **Invited NOBCCHE Speaker**
33. University of Delaware, Department of Chemical and Biomolecular Engineering, Newark, DE. "Exploiting the structural diversity in Nature as a path towards mechanical enhancement", February 26, 2016. **Invited Speaker**
34. MIT Lincoln Laboratory, Lincoln, MA. "Bio-inspired Approaches to Mechanical Tuning", March 10, 2016. **Invited Speaker**
35. University of Massachusetts, Amherst. Graduate Students for Diversity in Science and Engineering (GSDSE) "Bio-inspired Approaches to Mechanical Tuning", April 21-22, 2016. **Invited Speaker**
36. MIT Program in Polymers and Soft Matter (PPSM), Cambridge, MA. "Utilizing concepts of mechanics, transport, and assembly in Nature – towards responsive materials", May 4, 2016. **Invited Speaker**
37. MIT, ICEO MLK Diversity Luncheon, "Bio-inspired Mechanics", May 18, 2016. **Invited Speaker**
38. Wright Patterson AFRL, "Hygromorphs - transport and mechanics derived from electrospun and gel fiber constructs", November 7, 2016. **Invited Speaker**
39. Cleveland State University, Chemical and Biomedical Engineering Department, "Utilizing concepts of mechanics, transport, and assembly in Nature – towards responsive materials via fibrous architectures", January 26, 2017. **Invited Speaker**
40. Georgia Institute of Technology, Chemical and Biomolecular Engineering Department, "Towards responsive, fibrous materials via a bio-inspired framework", September 20, 2017. **Invited Speaker**
41. Florida State University-Florida Agricultural and Mechanical University, Chemical and Biomedical Engineering Department, "Towards responsive, fibrous materials via a bio-inspired framework", December 1, 2017. **Invited Speaker**
42. University of Delaware, Center for Molecular and Engineering Thermodynamics, "Transforming Layered Materials into Mechanically-robust Fibers and Hydrogels", April 16, 2018. **Invited Speaker**
43. Arizona State University, Chemical Engineering Department, "Manipulating Architecture and Mechanics via Bio-inspired Design: Gels, Fibers, and Composites", November 5, 2018. **Invited Speaker**
44. Gore Corporation, Newark, DE, January 16, 2019. **Invited Speaker**
45. Princeton University, Chemical and Biological Engineering, "Manipulating Architecture and Mechanics via Bio-inspired Design: Gels, Fibers, and Composites", April 24, 2019. **Invited Speaker**
46. Johns Hopkins University, Department of Chemistry, "Silk-inspiration: hierarchy, assembly, and mechanics in polyurea-polypeptide hybrids", May 7, 2019. **Invited Speaker**

47. University of Pennsylvania, Polymer Program. “Manipulating Architecture and Mechanics via Bio-inspired Design: Fibers, Gels, and Composites”, November 22, 2019. **Invited Speaker**
48. Arkema, “Transforming Layered Materials into Mechanically-Robust Fibers and Hydrogels”, January 16, 2020. **Invited Speaker**
49. Braskem, “Transforming Layered Materials into Mechanically-Robust Fibers and Hydrogels”, October 9, 2020. **Invited Speaker**
50. University of Pennsylvania, Chemical and Biomolecular Engineering. “Bio-inspired pathways to manipulating architecture and mechanics in polymeric materials”, December 9, 2020. **Invited Speaker**
51. National Science Foundation (NSF) Bioeconomy Distinguished Lecture Series. “Bio-inspired and Sustainable Design: Towards Functional Materials”, January 14, 2021. **Invited Speaker**
52. Georgetown University, Department of Physics. “Bio-inspired pathways to manipulating architecture and mechanics in polymeric materials”, February 2, 2021. **Invited Speaker**
53. Cornell University, Department of Materials Science and Engineering. “Bio-inspired pathways to manipulating architecture and mechanics in polymeric materials”, April 22, 2020. **Invited Speaker**
54. University of California, Berkeley, Department of Chemical and Biomolecular Engineering, “Manipulating Architecture and Mechanics via Bio-inspired Design”, May 19, 2021. **Invited Speaker**
55. University of California, Irvine, Department of Chemical and Biomolecular Engineering, “Manipulating Architecture and Mechanics via Bio-inspired Design”, May 21, 2021. **Invited Speaker**
56. University of Washington, Molecular Engineering Seminar Series, “Manipulating Architecture and Mechanics via Bio-inspired Design”, May 25, 2021. **Invited Speaker**
57. 3M, “Bio-inspired and Sustainable Pathways to Manipulating Architecture and Mechanics in Polymeric Materials”, August 5, 2021. **Invited Speaker**
58. POLY PMSE Student Chapter Summer Seminar Series, “Silk Inspiration Manipulating Architecture and Mechanics in Polymer Peptide Hybrids”, August 26, 2021. **Invited Speaker**
59. Dow Chemical, Technical Community Organization (TCO) External Seminar Series, “Bio-inspired and Sustainable Design: Towards Functional Materials”, September 9, 2021. **Invited Speaker**
60. University of Wisconsin, Madison, Center for the Chemical Upcycling of Waste Streams, “Tackling the plastics waste challenge via catalytic innovations, macromolecular chemistry, sustainable feedstocks, and materials manufacturing”, October 28, 2021. **Invited Speaker**
61. University of California, Merced. Department of Materials Science and Engineering, “Bio-inspired and Sustainable Design: Towards Functional Materials”, November 2, 2021. **Invited Speaker**
62. FAMU/FSU, Department of Chemical and Biomedical Engineering, “Bio-inspired Design: Towards Functional Materials”, November 5, 2021. **Invited Speaker**
63. NYU Chemical and Biomolecular Engineering, “Manipulating Architecture and Mechanics via Bio-Inspired Design”, November 19, 2021. **Invited Speaker**
64. Virginia Tech MII Solvay Seminar, “Bio-inspired Design: Towards Functional Materials”, December 1, 2021. **Invited Speaker**
65. 16<sup>th</sup> Northeast Complex Fluids and Soft Matter (NCS) workshop, “Hierarchical pathways towards functional polymeric systems”, January 14, 2022. **Invited Keynote Speaker**
66. University of Minnesota, Department of Chemistry, “Bio-inspired and Sustainable Design: Towards Functional Polymeric Materials”, February 8, 2022. **Invited Speaker**
67. University of Illinois, Urbana-Champaign, Department of Materials Science and Engineering, Department of Chemical and Biomolecular Engineering, “Bio-inspired and Sustainable Design: Towards Functional Materials”, March 7, 2022. **Invited Speaker**

68. Lehigh University, Humphrey Distinguished Lecture in Biomolecular Engineering, “Bio-inspired Design: Towards Functional Polymeric Materials”, April 20, 2022. **Invited Speaker**
69. University of Sheffield, Department of Chemistry, “Bio-inspired and Sustainable Design: Towards Functional Materials”, May 11, 2022. **Invited Speaker**
70. U.S. Naval Research Laboratory, Luminary Speaker Series HBCU/MI Internship Program, “Bio-inspired and Sustainable Design: Towards Functional Materials”, July 13, 2022. **Invited Speaker**
71. Oklahoma State University, Materials Science and Engineering Department, “Tackling the plastics waste challenge via catalytic innovations, macromolecular chemistry, sustainable feedstocks, and materials manufacturing”, September 28, 2022. **Invited Speaker**
72. Michigan State University, Chemical Engineering & Materials Science Department, “Bio-inspired and Sustainable Design: Towards Functional Polymeric Materials”, October 6, 2022. **Invited Speaker**
73. BASF, Committee for Scientific Innovation and Interaction (CSI<sup>2</sup>) Lecture Series, “Structural Interplay in Functional Materials Design”, October 19, 2022. **Invited Speaker**
74. International Symposium on Stimuli-Responsive Materials, Windsor, CA, “Exploiting Structural Diversity in the Design of Responsive and Adaptable Polymeric Materials”, October 23-25, 2022. **Plenary Speaker**
75. University of Maryland, College Park, Bioengineering Department, “Exploiting structural diversity in the design of responsive and adaptable materials”, November 4, 2022. **Invited Speaker**
76. UT Austin-Texas Distinguished Faculty Lectureship, Department of Chemical Engineering, “Designing materials via Nature’s blueprint”, November 29, 2022. **Invited Speaker**
77. University of Notre Dame, Chemical and Biomolecular Engineering, “Material innovations inspired by Nature – utilizing concepts of mechanics, transport, assembly, and sustainability”, December 6, 2022. **Invited Speaker**
78. Tufts University, Chemical and Biological Engineering, “Material innovations inspired by Nature – utilizing concepts of mechanics, transport, assembly, and sustainability”, December 12, 2022. **Invited Speaker**
79. University of Southern Mississippi, School of Polymer Science and Engineering, “Material innovations inspired by Nature - utilizing concepts of mechanics, transport, assembly, and sustainability”, February 8, 2023. **Invited Speaker**
80. Penn State University, “Designing materials via Nature’s blueprint”, March 1, 2023. **Invited Speaker**
81. Celanese Corporation, “Sustainability as a roadmap for materials design”, March 22, 2023. **Invited Speaker**
82. University of Florida, Materials Science and Engineering Department, “Designing materials via Nature’s blueprint”, April 4, 2023. **Invited Speaker**
83. Georgia Institute of Technology, Visions for Sustainable Polymers Symposium, “Sustainability as a roadmap for materials design”, April 4, 2023. **Invited Speaker**
84. Tallinn University of Technology, Department of Materials & Environmental Technology, April 26, 2023. **Invited Speaker**
85. Polytechnic University of Catalunya (UPC), Department of Chemical Engineering, May 4, 2023. **Invited Speaker**
86. University of Virginia, Chemical Engineering Department, “Designing materials via Nature’s blueprint”, August 31, 2023. **Invited Speaker**
87. Northwestern University, Materials Science and Engineering Department, TBD, May 7, 2024. **Invited Speaker**

### **Panels and Workshops (Invited)**

1. National Science Foundation (NSF) Biomaterials Workshop 2012 – Thin Films and Interfaces (Invited Participant)
2. National Science Foundation (NSF) Polymer Workshop 2016 –Societal Needs
3. National Science Foundation (NSF) Design Engineering Materials Workshop 2016
4. National Academies of Sciences, Engineering, and Medicine's draft report, "Frontiers of Materials Research: A Decadal Survey. *Reviewer*
5. US-UK Catalysis Workshop: Catalysis for the Circular Carbon Economy. March 10-11, 2021. *Invited Participant*
6. Sustainable Materials and Manufacturing Square Table, April 28-29, 2021. *Subject Matter Expert*
7. MSDE Symposium 2021: Frontiers in Molecular Engineering, June 17-18, 2021. *Panelist: Polymer upcycling and sustainability*
8. National Academies of Sciences, Engineering, and Medicine (NASEM), Workshop: Convergent Manufacturing -- A Future of Additive, Subtractive, and Transformative Manufacturing, November 15, 2021. *Panelist: Multifunctional Materials Design*
9. National Academies of Sciences, Engineering, and Medicine (NASEM), Innovations in Catalysis to Address Modern Challenges - A Hybrid Workshop, *Chemical Sciences Roundtable*, "Re-imagining Plastics Waste as a Valuable Feedstock", October 26, 2022. *Speaker*

### **Contributed Presentations**

1. American Institute of Chemical Engineers Annual Meeting; November 2009, Nashville, TN. *Speaker* – T.B. Abernathy; "Confinement of Elastomeric Block Copolymers via Forced Assembly"
2. American Institute of Chemical Engineers Annual Meeting; November 2009, Nashville, TN. *Speaker* – L.T.J. Korley; "Confinement-Induced Morphologies in Electrospun and Templated Block Copolymer/Polymer Derived Ceramic Precursor Nanocomposites"
3. American Institute of Chemical Engineers Annual Meeting; November 2009, Nashville, TN. *Speaker* – D.A. Stone; "Catalytic Thin Films for the Degradation of Organophosphates"
4. American Chemical Society Fall Meeting; August 2010, Boston, MA. *Speaker* – T.M. Burt; "Using Forced Assembly Co-extrusion to Confine the Self-assembly of Elastomeric Block Copolymers"
5. 43<sup>rd</sup> IUPAC World Chemistry Congress; August 4, 2011, San Juan, PR. *Speaker* – L.T.J. Korley; "Bio-inspired polymer nanocomposites"
6. American Institute of Chemical Engineers Annual Meeting; September 2011, Minneapolis, MN. *Presenter* – T.M. Burt; "Confinement of Elastomeric Block Copolymers via Forced Assembly"
7. XVIth International Congress on Rheology; August 5-10, 2012, Lisbon, Portugal. *Speaker* – L.T.J. Korley; "Hierarchically-assembled Multiblock Copolymers Inspired by Nature"
8. American Chemical Society National Meeting; August 2012, Philadelphia, PA. *Speaker* - J. Casey Johnson; "Bio-inspired, hierarchically-ordered peptidic polyurethane/ureas"
9. American Physical Society; March Meeting 2013, Baltimore, MD. *Speaker* - N. D. Wanasekara; "Utilizing Matrix-Filler Interactions in the Design of Stimuli-Responsive, Mechanically-Adaptive Electrospun Composites"
10. American Chemical Society National Meeting; April 2013, New Orleans, LA. *Speaker* - S. Monemian; "Superior Mechanical Properties of Bio-inspired Polymers through Supramolecular Chemistry"
11. American Physical Society; March Meeting 2014, Denver, CO. *Speaker*– N.D. Wanasekara; "Mechanical tuning of elastomers via peptide secondary structure"

12. Polymer Processing Society, June 2014, Cleveland, OH. *Speaker* – K.-S. Jang – “Thermal stability, miscibility, and self-assembly of liquid crystal/polymer composites for extrusion processing”
13. American Institute of Chemical Engineers, November 2014, Atlanta, GA. *Speaker* – A. M. Jordan; “An Examination of Post-Processing Orientation in Coextruded Poly ( $\epsilon$ -caprolactone) Fibers”
14. National Technical Association 86<sup>th</sup> Annual Conference, September 2015, Cleveland, OH. *Speaker* – S.L.M. Alexander, “Synthesis, Modeling, and Rheological Investigation of Polydiacetylene Gels”
15. AIChE Annual Meeting, November 2016, San Francisco, CA. *Speaker* – Alex M. Jordan, “Fiber-Reinforced Hydrogels: In Situ fabrication from Coextruded Polymeric Composites”
16. 255<sup>th</sup> ACS Meeting, March 2018, New Orleans, LA. *Speaker* -Symone L.M. Alexander, “Molecular gel composites: From solution to solid-state reversibility”
17. 255<sup>th</sup> ACS Meeting, March 2018, New Orleans, LA. *Speaker* – Chase B. Thompson, “Role of interfacial interactions in the toughening of supramolecular interpenetrating network elastomers”
18. 258<sup>th</sup> ACS Meeting, Fall 2019, San Diego, CA. *Speaker* – C.B. Thompson, “Bio-inspired supramolecular interpenetrating networks: Impacts of supramolecular confinement on mechanics and stimuli-responsive behavior”
19. 258<sup>th</sup> ACS Meeting, Fall 2019, San Diego, CA. *Speaker* – K.M. Van de Voorde, “Multilayer coextrusion production of tunable bioresorbable polyester fibers for tissue engineering”
20. 258<sup>th</sup> ACS Meeting, Fall 2019, San Diego, CA. *Speaker* – Sara T. R. Velasquez, “Tailoring the mechanical properties of bioinspired amphiphilic polymer conetwork composites”
21. ACS Meeting, Spring 2021 Virtual. *Speaker* – D. Jang; “Tuning shape memory response in polymer-peptide hybrids”
22. ACS Mid-Atlantic Regional Meeting, June 2021, Virtual. *Speaker* – F. Klincewicz; “Fabrication of Thermoresponsive Bilayer Hydrogels through Vat Photopolymerization Additive Manufacturing”
23. ACS Meeting, Spring 2022, San Diego, CA. *Speaker* – Z.R. Hinton; “Quantifying Challenges to Valorization Posed by Chemical Additives in Waste Polyethylene”
24. ACS Meeting, Spring 2022, San Diego, CA. *Speaker* – D. Jang; “Interplay of peptide secondary structure, microphase-separated morphology, and shape memory response in bioinspired peptide-polyurea hybrids”
25. North American Catalysis Society Meeting, May 2022, New York, NY. *Speaker* – D. Kim; “Molecular Redistribution of Alkanes and the Chemical Upcycling of Low-Density Polyethylene”
26. ACS Meeting, Fall 2023, San Francisco, CA. *Speaker* – *Sampanna Mhatre*; “Lignin-derivable alternatives to petroleum-derived non-isocyanate polyurethane thermosets with enhances toughness”
27. ACS Meeting, Fall 2023, San Francisco, CA. *Speaker* – *Jignesh Mahajan*; “Lignin-derivable, thermoplastic non-isocyanate polyurethanes with increased hydrogen bonding content and toughness as potential alternatives to petroleum-derived analogues”

### **Poster Presentations**

1. American Institute of Chemical Engineers Annual Meeting, November 18, 2008, Philadelphia, PA. *Presenter* – T.B. Abernathy; “Using Forced-Assembly Microlayer Co-extrusion to Produce Material Systems with Novel Properties”
2. Research ShowCASE; April 2009, Cleveland, OH. *Presenter* – T.M. Burt; “Confinement of Elastomeric Block Copolymers via Forced Assembly”

3. Central Regional Meeting of the American Chemical Society (CERMACS); May 2009, Cleveland, OH. *Presenter* – T.M. Burt; “Confinement of Elastomeric Block Copolymers via Forced Assembly”
4. Central Regional Meeting of the American Chemical Society (CERMACS); May 2009, Cleveland, OH. *Presenter* – J. Casey Johnson; “Hierarchically Designed Segmented Polyurethanes for High Performance Applications”
5. Central Regional Meeting of the American Chemical Society (CERMACS); May 2009, Cleveland, OH. *Presenter* – N.R. Wheeler; “Enhancing Toughness in a Crosslinked and Telechelic Supramolecular Polymer System”
6. Polymers Gordon Research Conference; June 23, 2009, South Hadley, MA. *Presenter* – L.T.J. Korley; “Mechanically-enhanced, Multi-functional Materials”
7. National Science Foundation Science and Technology Director’s Meeting; August 2010, Arlington, VA. *Presenter* – T.M. Burt; “Confinement of Elastomeric Block Copolymers via Forced Assembly”
8. American Physical Society; March Meeting 2011, Dallas, TX. *Speaker* - N. D. Wanasekara; “Hierarchical assembly of coil-rod-coil peptide-based copolymers”
9. ARVO 2011 Annual Meeting, Visionary Genomics; May 1, 2011. Fort Lauderdale, FL. *Presenter* – L.T.J. Korley; “Electrospun Polymer Micro- and Nanofibers as Biomaterials: Modulation of Optical Properties”
10. Polymers Gordon Research Conference; June 2011, South Hadley, MA. *Presenter* – J. Casey Johnson; Peptidic Coil-Rod-Coil Block Copolymers: Synthesis and Morphology”
11. PINO (Polymer Initiative of Northeast Ohio) Conference, Case Western Reserve University; June 2011, Cleveland, OH. *Presenter* – N.D. Wanasekara; “Hierarchical assembly of coil-rod-coil peptide-based copolymers”
12. American Physical Society (APS); March Meeting 2012, Boston, MA. *Presenter* - S. Monemian, “Confinement of Block Copolymer Nanocomposites within Nanoporous Templates”
13. Minority Faculty Development Workshop, March 15-18, 2012, Georgia Tech, Atlanta, GA. *Presenter* – L.T.J. Korley; “Bio-inspired Strategies for Mechanical Enhancement” (*Poster Winner*)
14. NSF STC Center for Layered Polymeric Systems Site Visit; April 2012, Cleveland, OH. *Presenter* – A.M. Jordan; “Confinement of Elastomeric Block Copolymers via Forced Assembly Co-extrusion”
15. PINO (Polymer Initiative of Northeast Ohio) Conference, Case Western Reserve University; June 2012, Cleveland, OH. *Presenter* – A.M. Jordan; “Confinement of Elastomeric Block Copolymers via Forced Assembly Co-extrusion”
16. MACRO Alumni Poster Session; September 29, 2012, Cleveland, OH. *Presenter* – S. Monemian; “Block Copolymer-Magnetite Composites”
17. 13<sup>th</sup> Annual Japanese-American Kavli Frontiers of Science Symposium, Beckman Center, Irvine, CA; November 30 - December 2, 2012. *Presenter* – L.T.J. Korley; “Lessons from Nature: Tuning Mechanics in Polymeric Systems”
18. PINO (Polymer Initiative of Northeast Ohio) Conference; June 2012, Cleveland, OH. *Presenter* – A.M. Jordan; “Forced assembly coextrusion as an approach to investigate confinement effects in phase separated block copolymers”
19. NSF STC Center for Layered Polymeric Systems Site Visit; April 2013, Cleveland, OH. *Presenter* – A. M. Jordan; Forced assembly coextrusion as an approach to investigate confinement effects in phase separated block copolymers”
20. A PINO (Polymer Initiative of Northeast Ohio) Conference; June 2013, Cleveland, OH. *Presenter* – A.M. Jordan; “Forced assembly coextrusion as an approach to investigate confinement effects in phase separated block copolymers”



21. 248<sup>th</sup> ACS Meeting, August 2014, San Francisco, CA. *Presenter* – L.E. Matolyak; “All-organic ion-sensitive composites with electrospun nanofibers”
22. 253<sup>th</sup> ACS Meeting, Excellence in Graduate Polymer Research, April 2017, San Francisco, CA. *Presenter* – M.E. Leslie; “Bioinspired stimuli-responsive materials: Concurrent shape and color change in programmed cholesteric liquid crystal elastomers”
23. 253<sup>th</sup> ACS Meeting, April 2017, San Francisco, CA. *Presenter* – S.L.M. Alexander; “Tunable hygromorphism: Structural implications of low molecular weight gels and electrospun nanofibers in bilayer composites”
24. 255<sup>th</sup> ACS Meeting, March 2018, New Orleans, LA. *Presenter* – K.M. Van de Voorde; “Tailoring the mechanics and degradation of polyester fibers through manipulating structure and morphology”
25. Gore Poster Session, December 18, 2018, Newark, DE. *Presenter* – C.B. Thompson; “Chemical Gradients and Tunable Mechanics in *Nereis* Jaw Inspired Supramolecular Interpenetrating Networks”
26. GRC Polymers, June 9-14, 2019, Holyoke, MA. *Presenter* – C.B. Thompson; “Impacts of Morphology and Network Architecture on Stimuli-Responsive Behavior and Mechanics in Polychaete Jaw Inspired Supramolecular Interpenetrating Networks”
27. AIChE Annual Meeting, Orlando, FL. *Presenter* – S.L.M. Alexander; “Structural Guides: Influence of High Molecular Weight Polymer Additives on Low Molecular Weight Gels Towards Solid-State, Composites”, November 12, 2019
28. ACS Spring 2020, Virtual. *Presenter* – D. Jang; “Tuning shape memory response in polymer-peptide hybrids”, April 13, 2021
29. ACS National Meeting, Spring 2022, San Diego, CA. *Presenter* – J.A. Thomas; “Non-chain Extended Peptide-polyurea Hybrids as a Platform for Injectable Gels”
30. ACS National Meeting, Spring 2022, San Diego, CA. *Presenter* – F. Klincewicz; “Additive Manufacturing as a Platform for Thermally-responsive Bilayers”
31. American Institute of Chemical Engineers Annual Meeting, March 22, 2022, San Diego, CA. *Presenter* – Y.T. Wong; “Exploring the Relationship Between Architecture and Mechanics in Lignin-Derivable Polymer Networks”
32. Polyurethane Technical Conference, October 2022, National Harbor, MD. *Speaker* – *Sampanna Mhatre*; “Lignin-derivable non-isocyanate polyurethanes”
33. Polyurethane Technical Conference, October 2022, National Harbor, MD. *Speaker* – *Jignesh Mahajan*; “Lignin-derivable, sustainable, non-isocyanate polyurethanes”
34. NSF Grantees Conference: Nanotechnology for Sustainable Society, December 2022, Virtual. *Speaker* – *Sampanna Mhatre*; “Lignin-derivable non-isocyanate polyurethanes: Films, nanofibers, and nanocomposites”
35. NSF Nanoscale Science and Engineering Grantees Conference, December 2022, Virtual. *Speaker* – *Jignesh Mahajan* “Lignin-derivable, sustainable, non-isocyanate polyurethanes: Nanofibers and nanocomposites”
36. ACS Fall Meeting, August 2023, San Francisco, CA. *Speaker* – *Sampanna Mhatre*; “Lignin-derivable, potentially safer bisphenolic precursors for non-isocyanate polyurethanes with increased toughness”
37. ACS Fall Meeting, August 2023, San Francisco, CA. *Speaker* – *Jignesh Mahajan* “Lignin-derivable, potentially safer bisphenolic precursors for non-isocyanate polyurethanes with increased toughness”

### **Workshops Taught/Organized**

1. University of Minnesota/IPrime Toughness Workshop, Minneapolis, MN, “Bio-inspired Strategies for Mechanical Enhancement”, January 14, 2010. *Organizer*: Frank S. Bates.

2. "Personal Experiences during the Interview Process: *The Do's and Don'ts*", Future Faculty Workshop: Diverse Leaders of Tomorrow, July 19-21, 2010, Amherst, MA. *Organizer*: Gregory Tew (UMass Amherst)
3. "Promoting Diversity in Academia: The Importance of Mentoring", CWRU Power of Diversity Lecture Series, February 9, 2011. *Organizer*: Marilyn Mobley
4. "Personal Experiences during the Interview Process: *The Do's and Don'ts*", Future Faculty Workshop: Diverse Leaders of Tomorrow, June 19-21, 2011, Boston, MA. *Organizer*: Timothy Swager (MIT)
5. "Quick-start Professor", Path for Professorship, October 29, 2011; MIT, Boston, MA. *Organizer*: Dean Blanche Staton (MIT)
6. "Personal Experiences during the Interview Process: *The Do's and Don'ts*", Future Faculty Workshop: Diverse Leaders of Tomorrow, July 15-17, 2012; UCSB, Santa Barbara, CA. *Organizer*: Craig Hawker (UCSB)
7. "Developing Research Interests (Creating an Identity)", and "Getting Started - Running a Group", Future Faculty Workshop: Diverse Leaders of Tomorrow, July 15-17, 2013; GA Tech, Atlanta, GA. *Organizer*: Rosario Gerhardt (GA Tech)
8. "Developing Research Interests (Creating an Identity)", "Junior Faculty Panel Discussion "Unwritten Rules of the Path to Professorship Panel Discussion", Future Faculty Workshop: Diverse Leaders of Tomorrow, 2014; MIT, Cambridge, MA. *Organizers*: Timothy Swager and Jeremiah Johnson (MIT)
9. "How to ask Research Questions", Polymer Physics GRS, July 12-13, 2014.
10. "Preparing Proposals", Future Faculty Workshop: Diverse Leaders of Tomorrow, 2016; University of Delaware, Newark, DE. *Organizer*: Thomas Epps (UD)
11. 3<sup>rd</sup> Annual Academic Research and Leadership Symposium, March 25-26, 2016, Boston, MA. Faculty Development Symposium, "High Impact Publishing"
12. "Promoting Diversity in Academia: The Importance of Mentoring and STEM", University of Massachusetts, Amherst, Graduate Students for Diversity in Science and Engineering (GSDSE), April 22, 2016.
13. Faculty Diversity Workshop, CWRU, Cleveland, OH, "The Road to Tenure", May 2, 2016.
14. Strategies for Success", Future Faculty Workshop: Diverse Leaders of Tomorrow, 2016; University of Delaware, Newark, DE. *Organizers*: Emily Pentzer (CWRU), LaShanda Korley (CWRU), Thomas Epps (UD)
15. 2018 Academic Research and Leadership Network, Faculty Development Symposium; Research Network Symposium, March 23-24, 2018, NSBE, Pittsburgh, PA. *Organizers*: Chekesha Watson (Cornell), LaShanda Korley (UD), Valencia Koomson (Tufts)

## **Funding**

### ***Funded Proposals (Completed)***

#### **ACS PRF Starter G**

ACS PRF-47999-G7

"Hierarchically-assembled Segmented Polyurethanes: Mechanical Reinforcement in a Multi-phase Elastomeric System"

Amount: \$55,000 Project Period: May 1, 2008 – August 31, 2010

#### **NSF BRIGE**

NSF EEC-0824333

"BRIGE: Toughening Mechanisms in Supramolecular Networks with Photocrosslinkable" Moieties"

Amount: \$175,000 Project Period: August 15, 2008 – July 31, 2011

**DOD-ARO; Natick Labs**

W911QY-08-C-0142 (co-PI: Gary Wnek; co-PI: L.T.J. Korley)  
“Toward Thin and Tactile, Chem/Bio Agent-Protective Gloves” (co-PI)  
Amount: \$205,650 Project Period: October 1, 2008 – December 31, 2011

**NSF REU**

NSF DMR-0851620 (PI: David Schiraldi; co-PI: L.T.J. Korley)  
REU: Research Experience for Undergraduates in Polymer Science & Engineering  
Amount: \$270,000 Project Period: April 1, 2009 – March 31, 2012

**DOD Defense University Research Instrumentation Program (DURIP)**

W911NF-11-1-0343 (PI: Stuart Rowan; co-PI: L.T.J. Korley)  
“Mini-Mechanical Testing Machine”  
Amount: \$95,764 Project Period: August 18, 2011 – August 17, 2012

**3M Nontenured Faculty Grant**

“Advanced Materials: Combining self-assembly and confined-assembly”  
Amount: \$45,000 Project Period: July 1, 2010 – June 30, 2013

**CWRU Skin Diseases Research Center Pilot and Feasibility Program**

NIH AR039750 (PI: Gary Wnek; co-PI: L.T.J. Korley)  
“The Development of a Multilayered Drug Delivery System for Enhanced Administration of Silicon Phthalocyanine Photosensitizer (Pc4)”  
Amount: \$30,900 Project Period: August 1, 2010 – July 31, 2011

**NSLS Faculty/Student Research Support Program at BNL**

“Confinement-induced Assembly of Block Copolymers in Multilayer Films: In-situ Deformation Behavior”  
Amount: \$2,000 Project Period: September 1, 2010 – December 31, 2010

**ACS PRF New Directions**

“Biomimetic IPNs - harnessing the power of phase interactions”  
Amount: \$100,000 Project Period: September 1, 2012 – August 31, 2015

**Department of Education GAANN**

“Polymer Research and Education for a Sustainable Economy: A Graduate Assistance in Areas of National Need (GAANN) Proposal” (PI: Alexander Jamieson; co-PI: L.T.J. Korley; L. Zhu)  
Amount: \$659,625 Project Period: August 31, 2012 – August 30, 2015

**NSF-STC: Center for Layered Polymeric Systems (CLiPS)**

NSF DMR-0423914  
“CLiPS: Confinement-induced assembly” (PI: Eric Baer; Investigator: L.T.J. Korley)  
Amount: \$120,000/yr (to Korley) Project Period: July 1, 2007 – July 31, 2016

**NSF CAREER Award**

NSF DMR-0953236  
“CAREER: Hierarchical Polymeric Hybrids – Lessons from Nature in Mechanical Behavior”  
Amount: \$505,000 (including \$15,000 in REU Supplements) Project Period: August 1, 2010 – July 31, 2016

**The Sherwin-Williams Company**

“The Sherwin Williams - Case Western Reserve Partnership Fund”

Amount: \$125,000 Project Period: September 1, 2007 – August 30, 2014

**NSF CMMI**

“Nanofibers from Multilayered Forced Assembly Polymer Films” PI: Wnek, co-PI: Korley

Amount: \$299,963 Project Period: September 1, 2013 – August 31, 2017

**DuPont Young Professor Grant**

Amount: \$75,000 Project Period: September 1, 2011 – August 31, 2017

**NSF REU (*change of PI*)**

REU Site: Bioinspired Materials and Systems

Amount: \$ 358,444 Project Period: September 1, 2016 – August 31, 2019

**Chemours**

Optimization and Design of Next-Generation Low Surface Energy Fluoropolymer Coatings Technologies (PI: T. H. Epps, III; co-PIs: L.T.J. Korley; D. Burris)

Amount: \$170,694 Project Period: October 1, 2018 – September 30, 2019

**NSF DMR Polymers**

Harnessing the power of polymer phase interactions in the design of supramolecular interpenetrating networks

Amount: \$ 435,728 Project Period: July 1, 2016 – June 30, 2020

**ACS PRF**

Probing the Influence of the Assembly of Polymer Additives in the Reinforcement of Responsive Gels

Amount: \$110,000 Project Period: September 1, 2017 – August 31, 2020

**Gore**

Assessment of fiber-reinforced hydrogel systems: fundamental factors for effective enhancement (PI: Korley)

Amount: \$277, 360 Project Period: January 1, 2020 – March 31, 2022

***Funded Proposals (Current)*****PIRE: Bio-inspired Materials and Systems**

Amount: ~\$5,500,000 Project Period: September 1, 2017 – August 31, 2024

**NSF**

Growing Convergence Research (GCR): Life Cycle Management of Materials: Sustainable Biomass to Designer Polymer Systems (PI: T.H.Epps, III; Senior Personnel: L.T.J. Korley)

Amount: \$3,599,999 Project Period: December 1, 2019 – November 30, 2024

**NSF**

CAS: Lignocellulosic building blocks towards high-performance and sustainable polysulfones and polyurethanes (PI: L.T.J. Korley)

Amount: \$511,883 Project Period: June 1, 2020 – May 31, 2024

**NSF**

University of Delaware MRSEC - Center for Hybrid, Active, and Responsive Materials (CHARM) (PI: T. Epps, III; co-PI: L.T.J. Korley)  
Amount: \$18,000,000 Project Period: September 1, 2020 – August 31, 2026

**DOE**

EFRC: Center for Plastics Innovation (PI: L.T.J. Korley)  
Amount: \$11,650,000 Project Period: August 1, 2020 – July 31, 2024

**State of Delaware**

DE STATE CPI KORLEY  
Amount: \$275,000 Project Period: January 1, 2022 – July 31, 2024

**US Army DEVCOM**

Formulation and Evaluation of Biomass-Derived Polymers for High-Performance Applications (PI: T.H. Epps, III; co-PI: Korley)  
Amount: \$1,350,000 Project Period: September 1, 2022 – August 31, 2023

**DOE**

Microbial community engineering tools for enhancing polyolefin degradation and valorization (PI: M. Blenner; co-PI: Korley)  
Amount: \$9,529,560 Project Period: September 1, 2022 – August 31, 2027

**Chemours**

Understanding Proton Exchange Membrane Ionomer Degradation and recycling (PI: Korley)  
Amount: \$233,975 Project Period: September 1, 2023 – August 31, 2027

***Proposals (Pending)*****NSF EPSCoR/State of Delaware**

RII Track-1: The Delaware Sustainability & Policy Hub for a Circular Economy (PI: M. Ierapetritou; co-PI: Korley)  
Amount: \$24,000,000 Project Period: October 1, 2023 – September 30, 2028

**Accepted Beamline Proposals**

"Confinement-induced Assembly of Block Copolymers in Multilayer Films: In-situ Deformation Behavior", BNL X27C, September - December 2010

"Confinement-induced Assembly of Block Copolymers in Multilayer Films: In-situ Deformation Behavior", BNL X27C, September - December 2011

"Confinement-induced Assembly of Block Copolymers in Multilayer Films: In-situ Deformation Behavior", BNL X27C, May - August 2012

"In-situ tensile deformation of nanofiber composites produced via forced-assembly coextrusion", BNL X27C, September - December 2013

"Investigation of the Structural Evolution of Self-assembling Nanoscale Fillers using In-situ SAXS/WAXS", Argonne National Lab, APS 12-ID-B, Run Cycle 2015-3

"Investigation of the Structural Evolution of Self-assembling Nanoscale Fillers using In-situ SAXS/WAXS", Argonne National Lab, APS 12-ID-B, Run Cycle 2016-1

## **Researchers Supervised**

### **Ph.D. Students Completed**

1. Tiffani M. Burt (nee Abernathy) – *Structure-property Relationships of Block Copolymers Confined via Forced-Assembly Co-extrusion for Enhanced Physical Properties*, 10/6/12 (Executive Director, Sustainability, Digital & Smart Packaging – Sealed Air)
2. J. Casey Johnson – *Hierarchically-assembled Elastomers Inspired by Nature*, 6/16/14 (Research Investigator, DuPont – Circleville Research Lab)
3. Nandula D. Wanasekara – *Responsive Mechanics in Composite Materials* - 08/2014 (Senior Research Scientist, Callaghan Innovation)
4. Keon-Soo Jang – *Exploring Mechanics via Structural Interplay in Supramolecular Networks, Melt-Extruded Fibers, and Liquid Crystal/Polymer Blends* - 10/7/15 (University of Suwon)
5. Seyedali Monemian\* - *Tuning Mechanics of Bio-Inspired Polymeric Materials through Supramolecular Chemistry* – 5/2016
6. Alex M. Jordan – *Fiber-Composite In Situ Fabrication: Multilayer Coextrusion As An Enabling Technology* – 06/28/16 (Assistant Professor, Department of Engineering and Technology, University of Wisconsin-Stout)
7. Lindsay E. Matolyak – *Design of Hierarchy in Polymers via Synthesis and Fabrication Methods* - 09/7/17 (Research Chemist, PPG)
8. Symone L.M. Alexander – *Exploring Interfaces of Nanofiber Networks Functioning As Hierarchical Additives In Polymer Nanocomposites* - 06/14/18 (Assistant Professor, Auburn University)
9. Michelle Leslie Brannum – *Functional Performance of Liquid Crystal Elastomers* – 01/18/19 (Chief, AFRL Commander's Action Group (CAG))
10. Chase Thompson (MSEG) – *Utilizing Self-Assembly and Covalent Crosslinking to Control Mechanics and Stimuli-Response in Supramolecular Polymer Networks* 07/22/2020 (Post-doc, NIST)
11. Kristian Van de Voorde (MSEG) - *Exploring Morphological Effects on Bulk Material Properties of Co-Extruded Nanofiber Blends* 11/15/2021 (Post-doc, DOD)
12. Daseul Jang (MSEG) - *Leveraging a Peptide-Polyurea Hybrid Platform to Develop Mechanically-Tunable and Stimuli-Responsive Materials* 03/24/2023 (Scientist, Carbon Reform)

### **M.S. Students Completed**

1. Nicholas R. Wheeler – *Tunable Supramolecular Elastomers*, 9/9/11 (Ph.D. CWRU, 2017)
2. Bingrui Li – *Peptide PU Hybrid Networks*, 3/26/16 (Oak Ridge National Laboratory)
3. Ada Anyanwu (MSEG) – *Hygromorphic Composites*, 4/30/19
4. Akash Vaidya (CBE) – *Biologically-inspired Networks and Elastomers*, 2020

### **Ph.D. Students Current**

#### *University of Delaware*

1. Jignesh Mahajan (MSEG, Co-advised T. H. Epps, III) – *Biomass Components in Isocyanate-Free Polyurethanes* 07/2023 (expected)
2. Francis Klincewicz (MSEG, UNIDEL Fellow) – *Multifunctional Fibers* 07/2023 (expected)
3. Jessica Thomas (MSEG) – *Supramolecular Polymeric Systems* 07/2024 (expected)
4. Yu-Tai Wong (CBE) – *IPNs and Networks derived from Biomass* 07/2024 (expected)
5. Maida Mahmood (MSEG, Co-advised T. H. Epps, III) – *Lignin-derived Catalysts and Polymeric Systems* 07/2024 (expected)
6. Sampanna Mhatre (MSEG, Co-advised T.H. Epps, III) – *Bio-based Non-isocyanate Polyurethanes* 12/2025 (expected)

7. Haesoo Lee (CBE, Co-advised T.H. Epps, III) – *Depolymerization Strategies for Polyureas* 12/2023 (expected)
8. Jackie Arnold (CBE) – TBD
9. Catherine Lewis (MSEG) - TBD

### **M.S. Students Current**

N/A

### **Visiting Researchers**

1. Kevin van der Ploeg – Wageningen University, The Netherlands 2/2018-07/2018, *Supramolecular Semi-IPN Nanocomposites*
2. Catherine Lewis (UD MSEG) – *Reinforced Hydrogels* Summer 2022

### **Postdoctoral Researchers**

1. Linden Bolisay – Peptide-based Polyurethane Elastomers (2007-2008) \*now at L'Garde, Inc., Senior Materials Engineer
2. Jong Keum – Scattering Phenomena in Confined BCP-Iron Oxide Nanocomposites and Confined BCP Multilayered Films (2009) \*now at Oak Ridge National Laboratory, X-ray Scientist
3. David A. Stone – Thin, Breathable, and Protective Elastomeric Composites (2009 – 2010) \*now at PPG, Research Chemist
4. Vidya Viswanath – Functional Fiber Scaffolds (2015-2016)\* now at UNIFI Mfg., Inc., Materials Technology Scientist
5. Sourav Chatterjee – Peptide-hybrids toward functional gels and actuators (2018-2019)
6. Yanchun Tang – Polymer-reinforced gels (2018-2020)
7. Laura Beckett – Fiber-reinforced hydrogels and reconfigurable networks (2019- )
8. Zachary Hinton (co-advised with T.H. Epps, III) – Probing additive influence on plastics depolymerization (2020-2023)
9. Garrett Bass (co-advised with T.H. Epps, III) – Lignin-derived thermoplastics (2020-2022)
10. Tianwei Yan (co-advised with T.H. Epps, III) – Valorization of plastics waste via chemical transformation (2021- 2023)
11. Mridula Nandi (co-advised with Thomas H. Epps, III) – Polyurethane depolymerization and sustainable polyurethane development (2021- 2023)
12. Alex Balzer (co-advised with Thomas H. Epps, III) - Foamed structures to enable deconstruction technology (2022- )
13. Zoé Schyns – Plastics valorization (2023 - )
14. Subhash Kalidindi – Functional polymeric engineering (2023 - )
15. Luca Kim (co-advised with Thomas H. Epps, III) – Sustainable chemistry

### **Undergraduate Students (current students in bold) (non-UD/CWRU researchers in italics)**

1. Dr. Ajay Sapre – “Peptide Synthesis & Bioactive Elements for Skin Cancer Therapeutics” (2007 – 2010) \* Ph.D. UC San Diego (Prof. Sadik Esener)
3. David H. Jones – “Thermally-stable Liquid Crystal Assembly in Multilayered Films” (2007-2011) \* MS, Fall 2011 at Penn State (Prof. Mike Hickner)
4. Matthew Shaughnessy – “Peptide Assembly” (Fall 2007)
5. Curtis Holmes – “Confined BCP Assembly” (Fall 2007)
6. Emily Hoffman – “Well-defined Networks” (Spring 2008)
7. Jessica Patz – “Study of the Mechanical and Rheological Behavior of Polyurethane Nanocomposites” (REU, Penn State Erie, Summer 2008) MS, CWRU (Prof. João Maia)
8. Sean Carr – “Polyurethane Elastomers” (Fall 2008)

9. Nirosha Wimalasena – “Deposition Methods for Tailoring Film Surfaces for Enzymatic Functionalization” (Spring 2009)
10. *Christopher Hendrix* – “Control of Peptide Secondary Structures in PBLG by Mixing with POSS functionalized with PBLG” (REU, Cornell University, Summer 2009 – funded ACS PRF Starter G)
11. *David Clark* – “Thermomechanical Analysis of Styrenic Block Copolymers” (REU, Delta State University, Summer 2009)
12. *Kristen Uitenham* – “Electrospinning Catalytic Mat for the Degradation for Chemical Warfare Agents” (REU, North Carolina Agricultural and Technical State University, Summer 2009)
13. Sarah Jacobs – “Supramolecular Elastomers – Synthetic Development” (2009-2011)
14. Kenneth Keisel – “Multilayered Elastomeric BCPs” (Fall 2009)
15. Alex M. Jordan – “Confinement-induced Assembly of BCPs and Dielectric Polymers in Multilayered Architectures” (2010 – 2011) \*now Graduate Student at CWRU (Prof. L.T.J. Korley)
16. Kristina Vaci – “Supramolecular Oligomeric Toughening” (Spring 2010)
17. *Jesse Gadley* - “Bimodal Supramolecular Elastomers” (REU, Penn State Erie, Summer 2010) \*now Graduate Student at CWRU (Prof. João Maia)”
18. *Mayo Adigun* – “Synthesis of PDMS-PBLG-PDMS” (REU, Fisk University, Summer 2010)
19. *Kyle Comeau* – “Self-assembling Nanofibers as Polymer Additives” (REU, Youngstown State University, Summer 2010)
20. Ryan Boyan – “Electrospun Polymer Composites” (Spring 2010)
21. Carmen Kakish - “Thin Film Behavior of Styrenic BCPs” (Fall 2011)
22. Elena Stachew – “Tailored Drug Delivery from Electrospun Composites” (2011 – 2012) \* Ph.D. Candidate, Biomimicry Fellow, University of Akron
23. Benjamin Yavitt - “Tailored Drug Delivery from Electrospun Composites” (2011 – 2012) \*Ph.D., UMass Amherst
24. Gerardo Ortega – “Small Molecule Gelators as Composite Fillers” (2011 – 2012) & “Supramolecular Toughening” (2013)
25. Jonathan Breon – “Polystyrene Reinforced with Highly Aligned Crosslinked Electrospun SBS Fibers” (REU, Penn State, Summer 2011)
26. *Isaiah Simpson* – “Volume Swelling Mediated Morphological Control” (REU, GA Tech, Summer 2011-funded by NSF CAREER supplement)
27. Jake Farkas – “Analysis of Mechanical Properties of SEPS-PS and Synthesis of Polyurethane” (Fall 2011)
28. William (Bill) Lenart – “Connection between Crystal Orientation and Mechanics in PVDF-TFE Multilayered Films) \*now Graduate Student, Fall 2013 at CWRU (Prof. Michael J.A. Hore)
29. Symone Cook (Alexander) – “The Development of Photoresponsive Filler for Use in EO-EPI Composites & Synthetic Variations toward Responsive Peptide Copolymers” (REU, Howard University, Summer 2012- funded by NSF CAREER supplement) \*Ph.D. CWRU, 2018
30. Nicholas Schindler – “Liquid Crystal Synthesis and Assembly” (Fall 2012)
31. Emily Vrbensky – “Magnetic Nanorods and Nanotubes” (Spring 2013 – Spring 2014)
32. Tyler Marotta- “Effect of Strain Rate and Temperature on Elastic Modulus in PMMA/SEPS Multilayered Films” (2012 – 2013) \*Ph.D. Candidate, University of Cincinnati
33. *Rose Galley* – “Strain Rate Effects in Confined BCP Multilayer Films” (REU, Purdue University, Summer 2013)
34. Shadi Ahmadmehrabi – “Gel Assembly and Fiber Formation” (Spring 2014) \*Medical School, Cleveland Clinic
35. Evan Ostrowski – “Peptide hybrids” (Spring 2014) \*Ph.D. Candidate, Princeton University



36. Jonathon Perry – “Soft Segment Synthesis for Bio-inspired Polyurethane/urea” (REU, Kentucky State University, Summer 2014)
37. Samuel Shiao – “Polymer dispersed Liquid Crystals” (Fall 2014)
38. Jenna Mancusco – “Quantification of Cross-link Density in Poly(acrylic acid)” (Spring 2015)
39. Thomas Cotey – “Polymer Composites” (Spring 2015 – Spring 2016)
40. Kristin Jones – “Electrospinning of peptide polymer hybrids” (REU Summer 2015 – NSF CAREER supplement, Fall 2015, Spring 2016) B.S. Chemical Engineering, \*M.S. Candidate, Rutgers University
41. Helen Zhao – “Enhancing Gelator Mobility via Solvent Annealing” (Fall 2015)
42. Justin Lee – “Dye Elution Study of SSY in a Multi-component Composite System” (Fall 2015)
43. Jeremy Chai – “Nafion Actuation – Implications for PAA” (Spring 2015 – Fall 2015)
44. James Covello – “Supramolecular Networks” (Fall 2016 – Fall 2017)
45. Bailey Flint – “Biocompatible PEG Hydrogels Synthesized under Mild Conditions for Tissue Scaffold Engineering” (Spring 2017)
46. *Brendan Cheng* – “Mechanical and Moisture-Absorbing Properties of Electrospun Polyurethane Elastomer-Hydrogel Blends for Prosthetic Applications” (REU, Duke University, co-advised with Gary Wnek, Summer 2017)
47. Jonathan Petrozzini – “Blended Extruded Fibers” (Fall 2017; transferred to Cornell University)

#### *University of Delaware*

1. Mya Soukaseum – “Polymer-reinforced Gels” (CBE, UD, Volunteer, Summer 2019 - Summer 2021; *Currently Ph.D. Student at Drexel University*)
2. *Sofia Rose Alfieri* – “3D-printing of Hydrogels” (Biological Engineering, Purdue University, Volunteer, Summer 2019)
3. Erica Hild – “3D-printing of Hydrogels” (BME, UD, Volunteer, Winter 2020 – Spring 2020, Winter 2021-Spring 2022)
4. Juan Marcelo Hinojosa Davalos – “Supramolecular Nanocomposites” (CBE, UD, Volunteer, Winter 2020 – Spring 2020)
5. Will Quinta – “Bilayer modeling” (MSEG, UD, NSF PIRE REU, Summer 2020)
6. Eduardo Nombera-Bueno – “Sustainable Material Additive Manufacturing (CBE/MSEG, Summer Scholars, Summer 2020)
7. Victoria Walters - “Lead Capture Membranes” (MSEG, UD, Volunteer, Fall 2020)
8. Will Quintana – “Prediction of Actuation of 3D Printed Bilayers” (MSEG, Summer Scholars, Summer 2020)
9. Will Quintana – “UV Post Cure and Crosslink Density of 3D Printed Hydrogel Bilayers” (MSEG, Summer Scholars, Summer 2021)
10. Erica Hild– “Additive Manufacturing of Peptide Nanocomposites” (BME, Winter 2022)
11. Anvita Gonthina – “Sustainable Functional Materials” (CBE, Summer Scholars, Summer 2022)
12. Erica Hicks – “Incorporation of Rigid Peptide Rod Assemblies into Hydrogel Networks” (Chemistry, Delaware State University, MRSEC REU Summer 2022)
13. Jess Williams (co-advised with Thomas H. Epps, III) – “Lignin-derivable non-isocyanate polyurethane (NIPU)-epoxy hybrid thermosets with tunable thermal properties” (Chemistry, Johns Hopkins University, MRSEC REU Summer 2023)

#### **Undergraduate Senior Research Projects Supervised**

##### *UD*

1. Mya Soukaseum – “Mechanics of Fiber-reinforced Hydrogels” (Fall 2020, Spring 2021)

2. Eduardo Nombera- Bueno – “Effects of Exfoliated Clay Nanoparticles and Cellulose Nanocrystals on Thermal and Mechanical Properties of Non-isocyanate Polyurethanes” (Fall 2022, Spring 2023)

#### *CWRU*

1. David Jones - “Thermally-stable Liquid Crystal Assembly in Multilayered Films” (May 2011), (B.S. Engineering Physics)
2. Steven Vesole – “Antibiotic loaded Cyclodextrin Hydrogels” (Fall 2009, Advisor: H. von Recum)
3. Benjamin Yavitt - “Electrospinning Polypeptides: The Search for Secondary Structure Effect on Mechanical Properties” (Fall 2011 – Spring 2012)
4. Gerardo Ortega – “Tunable Fiber Diameter Through Variation in Co-Solvent Solution” (Spring 2014)
5. Emily Vrbensky – “UV-initiated Crosslinking of PEO and PETA for a Tunable Fibrous Scaffold” (Fall 2015)
6. Thomas Cotey – “Analysis of Low Molecular Weight Gel Composites” (Fall 2015)
7. Shadi Ahmadmehrabi – “Electrospinning Aligned Nanofiber Mats using Parallel Electrodes” (Spring 2016)
8. Laura Childers – “Electrospinning: Polymer-Peptide Hybrids and Drug Elution Constructs” (Spring 2017)
9. Alex Leong – “Gelator Incorporation in IPNs” (Fall 2017)

#### **High School Students Supervised (current students in bold)**

1. Edmund Lewis, East High School, Cleveland, OH (2007-2009)
2. Davon Johnson, East Technical High School, Cleveland, OH (2009-2010)
3. Gerardo Ortega, Cloverleaf High School, Lodi, OH (Summer 2009), B.S. Chemical Engineering, CWRU 2014
4. Tanautica Bush, Shaw High School, East Cleveland, OH (2011 – 2013)
5. Terrisa Nguyen, New West Technical High School, Cleveland, OH (2014-2016)
6. Sri Vidya Uppalapati, Beachwood High School, Beachwood, OH (2014-2016)
7. Catherine McCarthy, Laurel School, Shaker Heights, OH (2017)

#### **Student Awards**

1. Tiffani M. Burt, *Selected Participant* 2011 - 13<sup>th</sup> National School of Neutron and X-ray; Oak Ridge National Laboratory and Argonne National Laboratory
2. Tiffani M. Burt, Verhosek Travel Fund Award, Spring 2011
3. J. Casey Johnson, Verhosek Travel Fund Award, Spring 2011
4. Alex M. Jordan, *Selected Participant* 2013 - 15<sup>th</sup> National School of Neutron and X-ray; Oak Ridge National Laboratory and Argonne National Laboratory
5. Lindsay E. Matolyak, NSF Graduate Research Fellowship *Honorable Mention* 2013, 2014
6. Lindsay E. Matolyak, PPG Award, PINO, 2015
7. Symone L.M. Alexander, NSF Graduate Research Fellow, 2015
8. Michelle E. Leslie, DOD Science, Mathematics and Research for Transformation (SMART) Scholar, 2015
9. Kristen van der Voorde, NSF Graduate Research Fellow, 2017
10. Symone L.M. Alexander, Covestro Graduate Student Award Competition Winner, 2017
11. Symone L.M. Alexander, PMSE Graduate Student Travel Award, 2018
12. Francis Klinecicz, UNIDEL Award (5 yr), 2018
13. Chase B. Thompson, MSEG Outstanding Graduate Student Service Award, 2019
14. Chase B. Thompson, 2019 CHRNS Summer School on the Fundamentals of Neutron Scattering – Spectroscopy

15. Kris Van de Voorde - *Selected Participant* 2020 - National School of Neutron and X-ray; Oak Ridge National Laboratory and Argonne National Laboratory
16. Joanne Norris – DENIN Fellowship Award, 2019
17. Eduardo Nombera-Bueno, ACS Scholarship, 2020
18. Jessica Thomas, *Selected Participant* BioPACIFIC MIP, Summer School 2022
19. Eduardo Nombera, Hispanic Scholarship Program, 2020
20. Sampanna Mhatre - UD Materials Science & Engineering's Annual 3rd Year Student Symposium Award, 2022
21. Jackie Arnold – Morton '58 and Donna Collins Chemical Engineering Fellowship, 2023
22. Jignesh Mahajan – UD MSEG Outstanding Student Research Assistant Award, 2023
23. Stephanie Synnott – UD MSEG Outstanding Undergraduate Service Award, 2023
24. Jignesh Mahajan – UD MSEG Outstanding Graduate Research Award, 2023
25. Jignesh Mahajan – ACS Summer School on Green Chemistry and Sustainable Energy, Colorado School of Mines, Golden, CO, 2023

### **Thesis, Qualifying Exam, and Thesis Proposal Committees**

I have served or am currently serving on the following graduate student committees. The primary advisor is noted in parentheses.

#### *University of Delaware*

#### **First Year Qualifying Exam**

##### *UD Chemical and Biomolecular Engineering*

1. Robert O'Dea, 1<sup>st</sup> Yr Qualifier (Thomas H. Epps, III) 2018
2. Arjita Kulshreshtha, 1<sup>st</sup> Yr Qualifier (Arthi Jayaraman) 2018
3. Bader Jarai, 1<sup>st</sup> Yr Qualifier (Catherine Fromen) 2018
4. Mukund Kabra, 1<sup>st</sup> Yr Qualifier (Chris Kloxin) 2018
5. Kartik Bomb, 1<sup>st</sup> Yr Qualifier (Cathy Fromen, April Kloxin) 2019
6. Zijie Wu, 1<sup>st</sup> Yr Qualifier (Arthi Jayaraman) 2019
7. Haesoo Lee, 1<sup>st</sup> Yr Qualifier (Norman Wagner) 2019
8. Jordan Willie, 1<sup>st</sup> Yr Qualifier (Thomas H. Epps, III) 2019
9. Kim Jihyuk, 1<sup>st</sup> Yr Qualifier (Norman Wagner; Antonio Faraone; Arthi Jayaraman) 2021
10. Shizhao Lu, 1<sup>st</sup> Yr Qualifier (Arthi Jayaraman) 2021
11. Oluwadare Badejo, 1<sup>st</sup> Yr Qualifier (Marianthi Ierapetritou) 2021
12. Mruthula Rammohan, 1<sup>st</sup> Yr Qualifier (Thomas H. Epps, III; Millie Sullivan) 2021
13. Jessie Sun, 1<sup>st</sup> Yr Qualifier (Dion Vlachos) 2022
14. Jamael Ajah, 1<sup>st</sup> Yr Qualifier (Thomas H. Epps, III) 2022
15. Chas Fields, 1<sup>st</sup> Yr Qualifier (Dion Vlachos; Raul Lobo) 2022
16. Christine Oberhausen, 1<sup>st</sup> Yr Qualifier (Dion Vlachos) 2022
17. Minh Tran, 1<sup>st</sup> Yr Qualifier (Alexandra Bayles) 2022
18. Sonia Li, 1<sup>st</sup> Yr Qualifier (Thomas H. Epps, III) 2022
19. Ross Klauer, 1<sup>st</sup> Yr Qualifier (Mark Blenner; Kevin Solomon) 2023
20. Pedro Antonio Reis Moura (Dion Vlachos) 2023
21. Jackie Ngu (Dion Vlachos) 2023
22. Tristan Herrera (Thomas H. Epps, III) 2023

#### **Thesis Committees**

##### *UD Chemical and Biomolecular Engineering*

1. Priyanka Ketkar (Thomas H. Epps, III) 2018
2. Josh Meisenhelter (Chris Kloxin) 2020
3. Mukund Kabra (Chris Kloxin) Ph.D. 2023

4. Zijie Wu (Arthi Jayaraman) 2020
5. Robert O'Dea (Thomas H. Epps, III) Ph.D. 2022
6. Arjita Kulshreshtha (Arthi Jayaraman) Ph.D. 2022
7. Chas Fields (Dion Vlachos; Raul Lobo) 2023
8. Christine Oberhausen (Dion Vlachos; Raul Lobo) 2023

*UD Materials Science and Engineering*

1. Colleen Murray (Erik Thostenson) M.S. Thesis 2020
2. Gregory Peterson (Thomas H. Epps, III) Ph.D. 2021
3. Keith Coasey (Michael Mackay) Ph.D. 2022
4. Sai Patkar (Kristi Kiick) Ph.D. 2023
5. Zachary Swain (Michael Mackay) Expected 2023
6. Derek J. Bischoff (Michael Mackay) Expected 2023

**Senior Thesis Committee**

1. Christopher Johnson (Self-Assembly of Tapered Brush-Coil Polymers on Surfaces in Dilute Solution; Arthi Jayaraman) 2019-2020, Second Reader

**Qualifying Exam**

*UD Materials Science and Engineering*

1. Gregory Peterson (Thomas H. Epps, III)
2. Keith Coasey (Michael Mackay)
3. Sai Patkar (Kristi Kiick)
4. Yao Tang (Darrin Pochan)
5. Zachary Swain (Michael Mackay)
6. Derek J. Bischoff (Michael Mackay)
7. Amanda McCahill (Darrin Pochan)
8. Albree Weisen (Darrin Pochan; Chris Kloxin)

*UD Biomedical Engineering*

1. N'Dea Irvin-Choy (Emily Day, Jason Gleghorn) Ph.D. 2023

*UD Chemistry*

1. Elorm Awuyah (Laure Kayser) (M.S.)

**CWRU**

1. Vishwas Pethe, M.S. 2007 (Anne Hiltner and Eric Baer, Macromolecular Science and Engineering)
2. Charles Sing, M.S. 2008 (Christoph Weder, Macromolecular Science and Engineering)
3. Jill Kunzelman, Ph.D. 2009 (Christoph Weder, Macromolecular Science and Engineering)
4. Joseph Lott, Ph.D. 2010 (Christoph Weder, Macromolecular Science and Engineering)
5. Marlena Washington, Ph.D. 2010 (John Protasiewicz, Chemistry)
6. Mohit Gupta, Ph.D. 2010 (David Schiraldi, Macromolecular Science and Engineering)
7. Yeheng Wu, Ph.D. 2010 (Kenneth Singer, Physics)
8. Mark Burnworth, Ph.D. 2011 (Stuart Rowan, Macromolecular Science and Engineering)
9. Blayne McKenzie, Ph.D. 2011 (Stuart Rowan, Macromolecular Science and Engineering)
10. Jack Johnson III, Ph.D. 2011 (David Schiraldi, Macromolecular Science and Engineering)
11. Lauren Buerkle, Ph.D. 2011 (Stuart Rowan, Macromolecular Science and Engineering)
12. Deepak Langhe, Ph.D. 2011 (Eric Baer, Macromolecular Science and Engineering)
13. Yuxin Wang, Ph.D. 2012 (David Schiraldi, Macromolecular Science and Engineering)
14. Chuan-Yar (Yaya) Lai, Ph.D. 2012 (Eric Baer, Macromolecular Science and Engineering)

15. Joel Carr, Ph.D. 2013 (Eric Baer, Macromolecular Science and Engineering)
16. Shannon Armstrong, Ph.D. 2013 (Eric Baer, Macromolecular Science and Engineering)
17. Amanda Way, Ph.D. 2013 (Stuart Rowan, Macromolecular Science and Engineering)
18. Shannon Moore, Ph.D. 2013 (Melissa Knothe Tate, Biomedical Engineering)
19. Guojun Zhang, Ph.D. 2014 (Eric Baer, Macromolecular Science and Engineering)
20. Matt Herbert, Ph.D. 2015 (David Schiraldi, Macromolecular Science and Engineering)
21. Saide Tang, Ph.D. 2015 (Lei Zhu, Macromolecular Science and Engineering)
22. Alicia Smith-Train, PhD Candidate (Department of Sociology)
23. Si-Eun Kim, Ph.D. Candidate (Jon Pokorski, Macromolecular Science and Engineering)
24. Elvis Cudjoe, Ph.D. Candidate (Stuart Rowan, Macromolecular Science and Engineering)
25. Parker Lee, Ph.D. Candidate (Jon Pokorski, Macromolecular Science and Engineering)
26. Anuja Shirole, Ph.D. Candidate (Christoph Weder, Adolphe Merkle Institute, University of Fribourg, Switzerland)
27. William (Bill) Lenart (Michael J.A. Hore) Ph.D. March 2020
28. Susan Kozawa (Gary E. Wnek) Ph.D. April 2020

### **Teaching Experience and Qualifications**

#### *UD*

1. MSEG 667 Bio-inspired Materials: From Synthesis to Manufacturing (Fall, 2018)
2. MSEG 608 Introduction to Structure and Properties of Materials (Fall, 2019-2021)

#### *CWRU*

#### **Undergraduate (Required course for Polymers Track)**

1. EMAC 355 Polymer Analysis Laboratory (Spring, 2008 - 2017)

#### **Undergraduate**

1. USSO 290 E – The Evolution of Running (Spring 2015)
2. FSNA 156 – The Chemistry, Physics, and Engineering of Chocolate (Fall, 2015 - 2016)

#### **Graduate (Electives)**

1. EMAC 413 Polymers Plus Green Chemistry and Engineering (Fall 2009, Spring 2011, Fall 2012, Fall 2014, Fall 2016, Fall 2017)
2. EMAC 422 Polymers Plus Microscopy (Fall 2008, Fall 2011, Fall 2013, Fall 2015)
3. EMAC 427 Polymers Plus a Sustainable Economy (Fall 2013) Co-taught

### **Professional Service**

#### **Membership in Professional Societies**

1. American Chemical Society (2005 – present), Polymeric Materials Science and Engineering (PMSE) Division
2. American Physical Society (2010 – present), Division of Polymer Physics (DPOLY)
3. American Institute of Chemical Engineers (2005 – present), Materials Science and Engineering Division (MSED), Minority Faculty Forum, Minority Affairs Committee
4. The Philippine Polymer Society (PPS), Inaugural Honorary Member
5. Materials Research Society
6. American Institute for Medical and Biological Engineering (AIMBE), 2022-2023 Nominating Committee

#### **Leadership Positions in Professional Societies**

1. Member-at-Large American Chemical Society, PMSE Division, 2007-2009, 2012-2014; 2013-2015, 2016-2018, 2018-2020, 2020-2022 (*Elected Nationally*)
2. Founding Board Member, The Philippine Polymer Society (PPS)
3. Member, US National Committee for IUPAC

### **Conference/Program Committees**

1. Organizing Committee, 2019 China-America FOE
2. Planning Group Member, 15<sup>th</sup> Annual US/Japan Kavli Frontiers of Science Symposium
3. Planning Group Member, 14<sup>th</sup> Annual US/Japan Kavli Frontiers of Science Symposium
4. Symposium Co-organizer, "Functional Materials", ACS Regional Meeting, May 2009
5. Co-Chair, 20th Anniversary WIC Symposium - Celebrating Women in Chemical Engineering, AIChE Annual Meeting 2018
6. APS DPOLY, Session Organizer, "Polymer Networks, Gels, and Elastomers, March 2020
7. APS DPOLY, Short Course, Co-Organizer, "Sustainable Polymers: Physics of New Materials, Design for Sustainability, and End-of-Life, March 2022
8. ACS PMSE, Symposium Co-Organizer, Synthesis, Properties, and Application of Sustainable Polymers, Fall 2022

### **Chaired or Co-chaired Conference Sessions**

1. *Discussion Leader*, Polymers Gordon Research Conference, 2009
2. Nanoscale Structure in Polymers II, AIChE 2009 Annual Meeting
3. Nanoscale Structure in Polymers III, AIChE 2009 Annual Meeting
4. Structure and Properties in Polymers I, AIChE 2010 Annual Meeting
5. Macromolecular, Supramolecular and Nanotechnology - General Oral Session III, 43rd IUPAC World Chemistry Congress, San Juan, PR. August 2011
6. Morphology and Transport in Charged Polymers, Block Copolymers, Membranes, and Films, APS, March 2011
7. Nanoscale Structure in Polymers I, AIChE 2011 Annual Meeting
8. Nanoscale Structure in Polymers I, AIChE 2012 Annual Meeting
9. Discussion Leader, Bioinspired Gordon Research Conference, 2014
10. MRS, SM8, Advanced Polymers, 2017
11. ACS PMSE Spring 2018: A) Advances in Macromolecular Science and Engineering: Symposium in Honor of David Schiraldi; B) ACS Award in Applied Polymer Science in Honor of Paula T. Hammond
12. *Discussion Leader*, Polymer Physics Gordon Research Conference, 2018

### **Editorial Position(s)/Advisory Boards/External Reviewer**

*ACS Macro Letters*; January 1, 2023 (Associate Editor)  
*Molecular Systems Design & Engineering*; January 1, 2023  
Guest Editor, *Accounts of Chemical Research*, Special Issue: Sustainable Polymers 2022  
*Science*, October 2022 – present (Board of Reviewing Editors)  
*Journal of Applied Physics*, June 2018 – December 31, 2022 (Associate Editor)  
*NanoLetters*, January 2020 – present  
*JACS Au*, January 2021 - present  
*ACS Applied Materials & Interfaces*, January 2020-December 2022  
*Macromolecules/ACS Macro Letters*, January 1, 2012 to December 31, 2014  
*Journal of Materials Chemistry B*, January 1, 2014 – August 31, 2017  
*Bioconjugate Chemistry*, January 1, 2014 – August 31, 2018  
*Scientific Reports*, February 2015 – present  
*WHYY Health + Science Advisory Group*, March 2019 – June 2020  
External Reviewer, NC State University's Department of Textile Engineering, Chemistry, and Science, November 2019

### **Reviewer for Journals and Organizations**

*Journals*

ACS Applied Materials & Interfaces, ACS Macro Letters, ACS Nano, ACS Omega, ACS Sustainable Chemistry and Engineering, Acta Biomaterialia, Advanced Materials, Biomacromolecules, Chemical Communications, Chemistry of Materials, Composites Science and Technology, Encyclopedia of Polymer Science and Technology, Journal of Applied Polymer Science, Journal of Biomedical Research: Part A, Journal of Materials Chemistry, Journal of Polymer Science Part A Polymer Chemistry, Langmuir, Macromolecular Chemistry and Physics, Macromolecules, Nature Chemistry, Polymer, RSC Advances, Science, Soft Matter

#### *Funding Agencies*

**National Science Foundation (NSF)** Division of Materials Research (DMR); Chemical, Bioengineering, Environmental, and Transport Systems (CBET); Macromolecular, Supramolecular and Nanochemistry (MSN) Program, Research Infrastructure Improvement Initiative, Civil, Mechanical and Manufacturing Innovation (CMMI)

**Department of Energy (DOE)** Basic Energy Sciences (BES)

**American Chemical Society (ACS)** Petroleum Research Fund (PRF)

**Defense Threat Reduction Agency (DTRA)** Chemical and Biological Technologies Department

**Technology Foundation STW**, The Netherlands

**U.S.-Israel Binational Science Foundation**

#### *National Organizations*

Reviewer, National Academies of Sciences, Engineering, and Medicine's draft report, "Frontiers of Materials Research: A Decadal Survey"

#### **University, College, and Department Service at UD**

##### **University**

1. Chemical Safety and Infrastructure Working Group 2020
2. Strategic Planning, Expanding Interdisciplinary and Global Opportunities Committee 2020
3. VPRSI, Search Committee 2022
4. Chemical Hygiene Committee 2022

##### **College**

1. College of Engineering, Strategic Formulation Initiative and Strategic Plan Steering Committee (Industrial Engagement)
2. *Sister 2 Sister* Mentoring event for STEM women graduate students and post-docs
3. College of Engineering, Guiding Coalition Committee
4. College of Engineering, Search Committee for the Director of the Center for Composite Materials (CCM)

##### **Department**

1. CBE Selection Committee - Nominations for University Outstanding Thesis Prize
2. MSEG Faculty Search Committee, Chair 2018-2019
3. MSEG Graduate Committee

#### **University, College, and Department Service at CWRU**

##### **University**

1. President's Committee on Child Care Options, Vice Chair (September 2012 – 2015)
2. Women in Science and Engineering Roundtable (WISER), Committee Member, Appointed (August 2012 – 2017)
3. President's Advisory Council on Women (PACOW), Committee Member, Appointed. (August 2011 – May 2017)

4. Phi Sigma Rho Engineering Sorority, Faculty Mentor, (August 2009 – 2017)
5. Dean's Evaluation Committee (2017)
6. Swagelok Center for Surface Analysis of Materials Decision Group (2016-2017)

### **College**

1. Strategic Performance Committee, Committee Member, Appointed (February 2012 – August 2012)
2. CSE Undergraduate Committee, Fall 2013 - 2017
3. Platform Leader, Science and Technology Innovations, NSF CLiPS (2011 – 2016)
4. Faculty Panel on How to Write a Successful NSF CAREER Proposal (2013)
5. Committee for Strategic Planning in Materials (2016-2017)
6. Launch Committee, Julie Renner and Ya-Ting Lao Fall 2016 – Fall 2017

### **Department**

1. Faculty Search Committee, Chair Fall 2016
2. Thermal and X-ray Laboratory Facilities, Faculty Director (2009 – 2017)
3. REU, Co-Director (2009 – 2015)
4. REU, Director (2015 – 2017)
5. Undergraduate Macro Student Organization (ugMSO), Student Org Advisor (2012 – 2016)
6. Undergraduate Committee, Committee Member (2008 – Present), Chair (Fall 2013 – 2017)

### **Other External Service**

1. **AMERIPEN Education and Research Advisory Group (ERAG)**, Member, 2023
2. **Future Faculty Workshop**, Co-organizer, 2023, University of Delaware, Newark, DE; Texas A&M University, College Station, TX; Princeton University, Princeton, NJ; University of California, Irvine, Irvine, CA
3. **“Achieving Sustainability Goals”**, Roundtable discussion, U.S. Consulate, Barcelona, Spain, May 4, 2023
4. **U.S.- EU Dialogue on Sustainable Packaging**, “International Efforts to Reduce Packaging Waste” session, Brussels, Belgium, May 3, 2023
5. **AmCham EU’s Environmental Committee**, Roundtable discussion, Brussels, Belgium, May 2, 2023
6. **Ministry of Education & Research**, Roundtable discussion, Tallin, Estonia, April 26, 2023
7. **RIT ADVANCE Grant**, Women of Color Council (2022 – present)
8. **DOE BES**, Panelist, "Managing an EFRC", November 10, 2022
9. **National Academies of Sciences, Engineering, and Medicine**, Plastics Roundtable, Stakeholders Meeting, November 10, 2022
10. **National Renewable Energy Laboratory**, BioEnergy Technical Review Panel (2022 – present)
11. **Center for Sustainable Polymers, University of Minnesota**, External Advisory Board Member (2022-present)
12. **NSF and University of Chicago Sustainable Materials and Manufacturing Square Table**, Subject Matter Expert, April 28 – 29, 2021
13. **BioPACIFIC NSF Materials Innovation Platform**, External Advisory Member (2020 – present)
14. **National Centre of Competence in Research (NCCR) Bio-Inspired Materials (Fribourg, Switzerland)**, External Advisory Board Member (2014 – present)



15. **Future Faculty Workshop**, Invited Mentor, 2009 – 2018 (Carnegie Mellon, UMass Amherst, MIT, UCSB, GA Tech, UD, CWRU)
16. **Future Faculty Workshop**, Co-organizer, 2017, 2018, 2019 – Case Western Reserve University, Cleveland, OH; University of Delaware, Newark, DE; Princeton University, Princeton, NJ
17. **American Chemical Society**, Mentor in ACS Minority Scholars Program
18. **NSF CLiPS**, Polymer Envoy Advisor
19. **Citizens' Academy**, Introduced K – 1 underrepresented students at an urban charter school in the Cleveland area to polymer concepts. Introduced chemical engineering and plastics engineering to 4<sup>th</sup> grade students. Spring 2009, Fall 2010
20. **Many Faces of STEM**, Exposed Cleveland middle school students to role models (minority professors and administrators in CSE & CAS) in STEM disciplines and demonstrated key concepts in STEM. October 2008, November 2009
21. **Sister 2 Sister**, Engaged underrepresented, female undergraduates & graduate students in a roundtable discussion of concerns and strategies related to pursuing advanced degrees in STEM disciplines. 2008 - present
22. **McNair's Scholar 'Master Class' Speaker**, Discussed career paths and the importance of mentoring. July 2018