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Emily Pentzer, PhD

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Professional Experience

Associate Professor of Materials Science and Engineering; Associate Professor of Chemistry, Texas A&M University (College Station, TX): July 2019-present.

Frank Hovorka Assistant Professor of Chemistry, Case Western Reserve University (Cleveland, OH): July 2017-June 2019.

Adjunct Professor, Macromolecular Science and Engineering, Case Western Reserve University (Cleveland, OH): July 2016-June 2019.

Assistant Professor of Chemistry, Case Western Reserve University (Cleveland, OH): July 2013-June 2017.

Postdoctoral Associate, University of Massachusetts Amherst Polymer Science and Engineering (Amherst, MA): July 2010-May 2013. Project title: *Synthesis and assembly of n-type and p-type materials for organic photovoltaic applications* (Advisor: Prof. Todd Emrick).

Education

Ph.D. Chemistry. *Northwestern University* (Evanston, IL): Aug 2005-May 2010. Thesis title: *RCM and ROMP: Metathesis routes to novel monomers and degradable polymers* (Advisor: Prof. SonBinh T. Nguyen).

B.S. Chemistry *Butler University* (Indianapolis, IN): Aug 2001-May 2005. Highest honors, summa cum laude. Thesis title: *Isolation and identification of compounds in caramelized carbohydrates* (Advisor: Prof. Anne Wilson).

Current Research Areas

Tailoring organic materials properties using chemical modification for applied scientific endeavors

http://caslabs.case.edu/pentzer/

1. 2D particles surfactants and their use to architect the intimate connection of dissimilar materials
2. Novel polymer backbone chemistries from chain growth polymerizations
3. Stimuli responsive and redox active small molecules

Selected Awards & Honors

2020	Bedford North Lawrence High School Wall of Fame
2019	CWRU Faculty Diversity Excellence Award
2018	CWRU Diekhoff Award for Distinguished Graduate Mentoring (nominee)
2017	CWRU Outstanding Professor Award from Engineering Groups
2017	PMSE Young Investigator (an award from the PMSE division of ACS)
2016	NSF CAREER Award
2015	CWRU Glennan Fellowship

2014	CWRU Carl Wittke Award for Undergraduate Teaching (nominee)
2014	ACS Petroleum Research Fund New Investigator Award
2009	Northwestern Univ. Gelewitz Award for outstanding chemistry graduate student
2006	National Science Foundation Graduate Research Fellow
2005	Butler University Corrine Welling Scholarship
2003	Eli Lilly Science Scholar

Professional Memberships

2016-present	Royal Society of Chemistry (RSC)
2015-present	International Polymer Colloids Group (IPCG)
2015-present	Microscopy Society of Northeast Ohio (MSN)
2013-2015	American Association for the Advancement of Science (AAAS)
2006-present	American Chemical Society (ACS, PMSE and POLY divisions)
2004-present	Iota Sigma Pi National Honor Society of Women in Chemistry

Publications

Undergraduate co-authors are underlined. *High school co-authors are italicized*.

In Preparation

2. Principles and Applications of Oil-in-Oil Emulsions. Zia, A.; **Pentzer, E**.*; Thickett, S.*; Kempe, K.*
1. The Role of the Cation in the Assembly of Transition Metal Oxide Nanocomposites from Charged Precursors. Pachuta, K.; Berger, M.-H.; **Pentzer, E.**; Sehirlioglu, A.*

Submitted or In Revisions

3. Charge Transport in Chemically Exfoliated Li_xCoO_2 2D Nanoflakes. Crowley, K.; Pachuta, K.; Radha, S.; Sehirlioglu, A.; **Pentzer, E.**; Lambrecht, W.; Gao, X.*
2. Pickering Bubbles of Perfluoropropane Stabilized by Modified Graphene Oxide as Dual-Modality Ultrasound and Photoacoustic Contrast Agent. De Leon, A.; Wei, P. McMillan, M.; Yan, D.; Hemmingsen, C.; **Pentzer, E**.*; Exner, A.*
1. Redox Active Small Molecule Salts in Deep Eutectic Solvents: Synthesis, Characterization, and Activity. Chen, B.; Mitchell, S.; **Pentzer, E.***; Gurkan, B.*

Independent Career

34. Encapsulation of Ionic Liquids for Tailored Applications. Luo, Q.; **Pentzer, E.*** *ACS Applied Materials & Interfaces,* accepted. Invited as part of *Young Investigator Forum.*
33. Lewis Acid Activated Reactions of Silyl Ketenes for the Preparation of α-Silyl Carbonyl Compounds. Mitchell, S.; Xiang, Y.; Matthews, R.; Amburgey, A.; **Pentzer, E**.* *Journal of Organic Chemistry,* **2019**, 84, 14461-14468. DOI: 10.1021/acs.joc.9b01859
32. Efficient Sizing of Single Layer Graphene Oxide with Optical Microscopy under Ambient Conditions. Luo, Q.; Wirth, C.*; **Pentzer, E.*** *Carbon,* **2020**, 157, 395-401. DOI: 10.1016/j.carbon.2019.10.047

31. Zinc(II) Complex of Di(naphthylethynyl)azadipyrromethene with low synthetic complexity leads to OPV with high industrial accessibility. Wang, C.; Wei, P.; Ngai, J. H.L.; Rheingold, A.; Li, Y.; **Pentzer, E**.; Li, R.; Zhu, L.; Sauve, G.* *J. Mater. Chem. A*, **2019**, 7, 24614-24625. DOI: 10.1039/C9TA08654D
30. Electrically Conductive, Reduced Graphene Oxide Structures Fabricated by Inkjet Printing and Low Temperature Plasma Reduction. Sui, Y.; Hess-Dunning, A.; Wei, P.; **Pentzer, E**.; Sankaran, M.; Zorman, C.*Adv. Mater. Technol.,* **2019**, 1900834. DOI: 10.1002/admt.201900834
29. Metal-Free Deep Eutectic Solvents: Preparation, Physical Properties, and Significance. Gurkan, B.*; Squire, H.; **Pentzer, E.*** *Journal of Physical Chemistry Lett*ers, **2019**, 10, 7956-7964. DOI: 10.1021/acs.jpclett.9b01980
28. Oligomerization of Silyl Ketenes: Favoring Chain Extension over Backbiting. Xiang, Y.; Mitchell, S.; Rheingold, A. L.; Lambrecht, D. S.;* **Pentzer, E.*** *Macromolecules*, **2019**, 52, 6126-6134. DOI: 10.1021/acs.macromol.9b00752
27. Hybrid Ionic Liquid Capsules for Rapid CO_2 Capture. Huang, Q.; Luo, Q.; Wang, Y.; **Pentzer, E.***; Gurkan, B.* *Industrial & Engineering Chemistry Research*, **2019**, *58*, 10503-10509. DOI: 10.1021/acs.iecr.9b00314
26. Reprocessable 3D-Printed Conductive Elastomeric Composite Foams for Strain and Gas Sensing. Wei, P.; Leng, H.; Chen, Q.; Advincula, R.; **Pentzer, E**.* *ACS Applied Polymer Materials*, **2019**, 1, 885-892. DOI: 10.1021/acsapm.9b00118
25. Cation Deficiency Associated with the Chemical Exfoliation of Lithium Cobalt Oxide. Pachuta, K.; **Pentzer, E.**; Sehirlioglu, A.*; *Journal of the American Ceramics Society*, **2019**, 102, 5603-5612. DOI: 10.1111/jace.16382
24. Pickering Emulsion-Templated Encapsulation of Ionic Liquids for Contaminant Removal. Luo, Q.; Wang, Y.; Chen, Z.; Wei, P.; Yoo, E.; **Pentzer, E**.* *ACS Applied Materials & Interfaces*, **2019**, 11, 9612-9620. DOI: 10.1021/acsami.8b21881
23. Stabilization of Oil-in-Water Emulsions with Graphene Oxide and Cobalt Oxide Nanosheets and Preparation of Armored Polymer Particles. Edgehouse, K.; Escamilla, M.; *Wang, L*.; *Dent, R*.; Pachuta, K.; Kendall, L.; Wei, P.; Sehirlioglu, A.; **Pentzer, E.*** *Journal of Colloid Interfacial Science,* **2019**, *541*, 269-278. DOI: 10.1016/j.jcis.2019.01.092
22. The Synthesis of Highly Functionalized 2-Pyranone from Silyl Ketene. Xiang, Y., Reingold, A., **Pentzer, E.*** *ACS Omega*, **2018**, 3, 9419-9423. DOI: 10.1021/acsomega.8b01531
21. Ionic Liquid-Containing Pickering Emulsions Stabilized by Graphene Oxide-Based Surfactants. Luo, Q.; Wang, Y.; Yoo, E.; Wei, P.; **Pentzer, E.*** *Langmuir*, **2018**, 34, 10114-10122. DOI: 10.1021/acs.langmuir.8b02011
20. 2D Particles at Fluid-Fluid Interfaces: Assembly and Templating of Hybrid Structure for Advanced Applications. Wei, P.; Luo, Q.; Edgehouse, K.; Hemmingsen, C.; Rodier, B.; **Pentzer, E**.* *ACS Applied Materials & Interfaces*, **2018**, 10, 21765-21781. DOI: 10.1021/acsami.8b07178
19. pH Dependent Routes for the Modification of Graphene Oxide with Small Molecule Thiols. De Leon, A.; Mellon, M.; Advincula, R.; **Pentzer, E***. *RSC Advances*, **2018**, 8, 18388-18395. DOI: 10.1039/C8RA03300E.

18. Perylene diimide Bearing Different Trialkyl Silyl Ethers: Impact of Asymmetric Functionalization on Self-Assembly into Nanostructures. Matthews, R.; Swisher, J.; Hutchins, K.; **Pentzer, E.*** *Chemistry of Materials*, **2018**, 30, 3571-3577. DOI: 10.1021/acs.chemmater.8b01543
17. Carbon Capsules of Ionic Liquid for Enhanced Supercapacitor Performance. Luo, Q.; Wei, P.; Huang, Q.; Gurkan, B.*; **Pentzer, E**.* *ACS Applied Materials & Interfaces*, **2018**, 10, 16707-16714. DOI: 10.1021/acsami.8b01285
16. A Plastic Metal-Free Electric Motor by 3D Printing of Graphene-Polyamide Powder. De Leon, A.; Rodier, B.; Bajamundi, C.; Espera, A.; Wei, P.; Kwon, J.; *Williams, J.; Ilijasic, F*.; Advincula, R.*; **Pentzer, E**.* *ACS Applied Energy Materials*, **2018**, 1, 1726-1733. DOI: 10.1021/acsaem.8b00240
15. Accommodating Volume Change and Imparting Thermal Conductivity by Encapsulation of Phase Change Materials in Carbon Nanoparticles. Advincula, P. B. A.; de Leon, A.; Advincula, R.; **Pentzer, E.*** *Journal of Materials Chemistry A*, **2018**, 6, 2461-2467. DOI: 10.1039/C7TA09664J
14. Polymerizations in Oil-in-Oil Emulsions using 2D Nanoparticle Surfactants. Rodier, B. J.; de Leon, A.; Hemmingsen, C.; **Pentzer, E.*** *Polymer Chemistry*, **2018**, 9, 1547-1550. DOI: 10.1039/C7PY01819C (*Emerging Investigator Issue,* inside front cover)
13. Controlling Oil-in-Oil Pickering-Type Emulsions Using 2D Materials as Surfactant. Rodier, B.; de Leon, A.; Hemmingsen, C.; **Pentzer, E**.* *ACS Macro Letters*, **2017**, *6*, 1201-1206. DOI: 10.1021/acsmacrolett.7b00648
12. Polymerization of Silyl Ketenes: A Combined Computational and Experimental Approach. Xiang, Y.; Albrecht, B. J.; Tragesser, L.E.; McCaffrey, J.; Lambrecht, D.*; **Pentzer, E.*** *Polymer Chemistry*, **2017**, 8, 5381-5387. DOI: 10.1039/C7PY00858A
11. Distinct Chemical and Physical Properties of Janus Graphene Oxide. De Leon, A.; Rodier, B.; Luo, Q.; Wei, P.; Hemmingsen, C.; Abbasi, K.; Advincula, R.; **Pentzer, E.*** *ACS Nano*, **2017**, 11, 7485-7493. DOI:10.1021/acsnano.7b04020
10. Organofunctional Silanes for Stabilization of Aluminum-Doped Zinc Oxide Surfaces. Matthews, R.; Glasser, E.; Sprawls, S. C.; French, R. H.; Peshek, T.; **Pentzer, E**.*; Martin, I.* *ACS Applied Materials & Interfaces,* **2017**, *9*, 17620-17628. DOI: 10.1021/acsami.7b02638
9. Beyond Binary: Data Storage in Polymer Films with 0, 1, 2, and 3. Wei, P.; Li, B.; de Leon, A.; **Pentzer, E**.* *Journal of Materials Chemistry C,* **2017**, *5*, 5780-5786. (*Emerging Investigators Issue*). Highlighted in Chemistry World, Highlighted by AAAS. DOI: 10.1039/C7TC00929A
8. Simultaneous Reduction and Functionalization of Graphene Oxide via Ritter Reaction. De Leon, A.; Alonso, L.; Magdelena, J.; Advincula, R.; **Pentzer, E**.* *ACS Applied Materials & Interfaces*. **2017**, *9*, 14265-14272. DOI: 10.1021/acsami.7b01890
7. Polymer Composites with Photo-Responsive Phthalocyanine for Patterning in Colour and Fluorescence. Li, B.; Wei, P.; de Leon, A.; Frey, T.; **Pentzer, E**.* *European Polymer Journal*, **2017**, *89*, 399-405. DOI: 10.1016/j.eurpolymj.2017.02.042
6. Hollow microcapsules via stitching together of graphene oxide nanosheets with a di-functional small molecule. Luo, Q., Wei, P.; **Pentzer, E**.* *Carbon*. **2016**, 106, 125-131. DOI: 10.1016/j.carbon.2016.05.024
5. Polythioether Particles Armored with Graphene Oxide Nanosheets. Rodier, B. J.; Mosher, E. P.; Burton, S. T.; Matthews, R.; **Pentzer, E**.* *Macromolecular Rapid Communication*, **2016**, 37, 894-899. DOI: 10.1002/marc.201600093
4. Selective Mono-facial Modification of Graphene Oxide Nanosheets in Suspension. McGrail, B.T.; Magdelena, J.; Rodier, B.J.; Swisher, J.; Advincula, R.; **Pentzer, E**.* *Chem Comm*. **2016**, 52, 288-291. DOI: 10.1039/C5CC05596B

3. Interfacial Trapping in an Aged Discotic Liquid Crystal Semiconductor. Dawson, N.; Patrick, M. S.; Paul, S.; Ellman, B.; Semyonov, A. R.; Twieg, R. J.; Matthews, R.; **Pentzer, E.**; Singer, K. D.* *Journal of Applied Physics*, **2015**, *118*, 085502. DOI:10.1063/1.4929749
2. Polymer Composites for Thermoelectric Applications. McGrail, B.T.; Sehirlioglu, A.*; **Pentzer, E.*** *Angewandte Chemie*, **2015**, *54*, 1710-1723. DOI: 10.1002/anie.201408431
1. Rapid Covalent Functionalization of Graphene Oxide in Water. McGrail, B. T.; Rodier, B. J.; **Pentzer, E**.* *Chemistry of Materials*, **2014**, *26*, 5806-5811. DOI: 10.1021/cm5031409

As Post Doc, Graduate, and Undergraduate Student

13. Selective Nucleation of Poly(3-hexyl thiophene) Nanofibers on Multilayer Graphene Substrates. Acevedo-Cartagena, D.E.; Zhang, Y.; Trabanino, E.; **Pentzer, E.**; Emrick, T.; Briseno, A.L.; Hayward, R.C. *ACS Macro Letters,* **2015**, *4,* 483-487. DOI: 10.1021/acsmacrolett.5b00038
12. Morphology-Dependent Electronic Properties in Cross-linked (P3HT-b-P3MT) Block Copolymer Nanostructures. Baghgar, M.; Barnes, A.M.; **Pentzer, E.**, Wise, A.J.; Emrick, T.; Dinsmore, T.; Barnes, M.D. *ACS Nano,* **2014**, *8*, 8344-8349. DOI: 10.1021/nn502806d
11. Preparation of Low Band Gap Fibrillar Structures by Solvent Induced Crystallization. Wang, H.W.; **Pentzer, E.B.**; Emrick, T.; Russell, T. *ACS Macro Letters*, **2014**, *3*, 30-34. DOI: 10.1021/mz400431s
10. Cross-Linked Functionalized Poly(3-hexylthiophene) Nanofibers with Tunable Excitonic Coupling. Baghar, M.; **Pentzer, E.**; Wise, A.; Labastide, J.; Emrick, T.; Barnes, M. *ACS Nano*, **2013**, *7*, 8917-8923. DOI: 10.1021/nn403392b
9. Nanoscale Assembly into Extended and Continuous Structures and Hybrid Materials. Emrick, T.; **Pentzer, E.** *NPG Asia Materials,* **2013**, *5*, e43. DOI:10.1038/am.2012.73
8. Growth of Polythiophene/Perylene Tetracarboxydiimide Donor/Acceptor Shish-Kebab Nanostructures by Coupled Crystallization Modification. Bu, L.; **Pentzer, E.**; Bokel, F.; Emrick, T.; Hayward, R. *ACS Nano,* **2012**, *6*, 10924-10929. DOI: 10.1021/nn3043836
7. Probing Inter- and Intrachain Exciton Coupling in Isolated Poly(3-hexylthiophene) Nanofibers: Effect of Solvation and Regioregularity. Baghgar, M.; Labastide, J.; Bokel, F.; Dujovne, I.; McKenna, A.; Barnes, A. M.; **Pentzer, E.;** Emrick, T.; Hayward, R.; Barnes, M. D. *Journal of Physical Chemistry Letters*, **2012**, *3*, 1674-1649. DOI: 10.1021/jz3005909
6. Nanocomposite "Superhighways" by Solution Assembly of Semiconductor Nanostructures with Ligand-Functionalized Conjugated Polymers. **Pentzer, E.**; Bokel, F.; Hayward, R.; Emrick, T. *Advanced Materials,* **2012**, *24,* 2254-2258. DOI: 10.1002/adma.201104788
5. Sterically-Stabilized Nanoparticles in Solutions and at Interfaces. Miesch, C.; **Pentzer, E.**; Emrick, T. In *Comprehensive Polymer Science*, **2011**. doi:10.1016/B978-0-444-53349-4.00183-7
4. Assembly of Poly(3-Hexylthiophene)/CdSe Hybrid Nanowires by Co-crystallization. Bokel, F.; Sudeep, P.; **Pentzer, E.**; Emrick, T.; Hayward, R. *Macromolecules*, **2011**, *44*, 1768-1770.
3. Substrate Encapsulation: An Efficient Strategy for the RCM Synthesis of Unsaturated ϵ-Lactones. **Pentzer, E. B.**; Gadzikwa, T.G.; Nguyen, S.T. *Organic Letters*, **2008**, *10*, 5613-5615. (Highlighted in organic chemistry portal: http://www.organic-chemistry.org/Highlights/2009/15June.shtm)
2. Bioactive and Therapeutic ROMP Polymers. Smith, D.; **Pentzer, E. B**.; Nguyen, S. T. *Polymer Reviews*, **2007**, *47*, 419-459.
1. The Distribution of Fox Squirrel (Sciurus niger) Leaf Nests within Forest Fragments in Central Indiana. Salsbury, C. M.; Dolan, R. W.; **Pentzer, E. B.** *American Midland Naturalist*, **2004**, *151*, 369-377.

Key Collaborators

- Prof. Rigoberto Advincula (CWRU, Macromolecular Science and Engineering)
- Prof. Micah Green (Texas A&M, Chemical Engineering)

- Prof. Burcu Gurkan (CWRU, Chemical Engineering)
- Prof. Daniel Lambrecht (Florida Gulf Coast University, Chemistry)
- Prof. Alp Sehirlioglu (CWRU, Department of Materials Science and Engineering)

Invited Oral Presentations

2019: (18) National Chen Kung University (Tainan, Taiwan); National Taichung University (Hsinchu, Taiwan); Pacific Polymer Conference (PPC16, Singapore, invited); Pacific Polymer Conference (PPC16, Singapore, contributed); University of Georgia *Fall into Research* (Athens, GA, **Keynote**); National ACS Meeting, PMSE division (San Diego, CA); Polymers for Advanced Technologies (College Station, TX); Polymers Gordon Research Conference (Mount Holyoke, MA); Polymers Gordon Research Seminar (Mount Holyoke, MA); Central Eastern Regional Meeting of the ACS (Midland, MI); Massachusetts Institute of Technology (Program in Polymers and Soft Matter, Boston, MA); Advanced Polymers via Macromolecular Engineering (APME, Stellenbosch, South Africa, **Keynote**); University of California Los Angeles (Chemistry, Los Angeles, CA); University of Southern California (Chemistry, Los Angeles, CA); American Physics Society (DPOLY, Boston, MA); University of Kentucky (Chemistry, Lexington, KY); Georgetown University (Chemistry, Washington, DC); University of California San Diego (Nanoengineering, San Diego, CA).

2018: (37) Case Western Reserve University (Macromolecular Science, Cleveland, OH); Boston University (Materials Science, Boston, MA); International Stimuli Responsive Symposium (Healdsburg, CA); University of Houston (Chemistry, Houston, TX); Colorado State University (Chemistry, Fort Collins, CO); Johns Hopkins University (Chemistry, Baltimore, MD); Carnegie Mellon University (Chemistry, Pittsburgh, PA); National ACS Meeting, ENFL division (Boston, MA); National ACS Meeting, PMSE division (Boston, MA); National ACS Meeting, POLY division (Boston, MA); MACRO2018 RSC Polymer Chemistry Symposium (Cairns, Australia); MACRO2018 Smart and Functional Polymers Symposium (Cairns, Australia); University of New South Wales (Sydney, Australia); Lubrizol (Painesville, OH); Johannes Gutenburg University Mainz (Chemistry, Mainz, Germany); Adolphe Merkle Institute (Fribourg, Switzerland); Texas A&M (Materials Science and Engineering, College Station, TX); BASF (Wyandott, MI); Promerus Corporation (Brecksville, OH); Wright Patterson Air Force Base (Fairborn, OH); Miami University (Chemistry, Oxford, OH); Cleveland Section of the American Chemical Society Meeting in Miniature (Oberlin, OH, **Plenary**); University of Minnesota (Chemistry, Minneapolis, MN); National ACS Meeting, POLY division (New Orleans, CA, invited, one of the 25 "must see" talks from C&E News); McMaster University (Chemistry, Toronto, ON, Canada); University of Toronto (Chemistry, Toronto, ON, Canada); Northwestern University (Chemistry, Evanston, IL); Northwestern University (Diversity talk, Evanston, IL); Columbia University (Chemistry, New York, NY); University of Pittsburgh (Chemistry, Pittsburgh, PA); Creighton University (Omaha, NE); Kansas State University (Manhattan, KS); Florida State University (Tallahassee, FL); University of Florida (Gainesville, FL); Southern Methodist University (Dallas, TX); Texas Tech University (Lubbock, TX); University of Delaware (Newark, DE).

2017: (19) PC15 (Xiamen, China); Macromex 2018 (Los Cabos, Mexico); Texas A&M (Chemistry, College Station, TX); Cleveland State University (Chemistry, Cleveland, OH); National AS Meeting, COLL division (Washington, DC); National ACS Meeting, ENFL division (Washington, DC); ACS POLY division (Washington, DC); GPC2017 (Atlanta, GA, invited); 3rd Functional Polymeric Materials Conference (Rome, Italy, invited); Emergent Macromolecular Systems at CUNY (New York, NY, invited); Cleveland State University (Cleveland, OH); UC San Diego (chemistry, San Diego, CA); Cal Poly San Luis Obispo (San Luis Obispo, CA); National Meeting of

the American Chemical Society (San Francisco, CA); UMass Amherst (Amherst, MA); Penn State University (State College, PA); Butler University (Indianapolis, IN); Hunter College (New York, NY); University of Akron (Akron, OH).

2016: (14) Australasian Polymer Symposium (Lorne, Australia, **Keynote**); Denison University (Granville, OH); Wright State University (Dayton, OH); PC2016 (Changchun, China); 5th Zing Polymer Chemistry Conference (Malahide, Ireland); ACS Workshop on Polymer Composites and High Performance Materials (Sonoma, CA); Warwick Polymers Conference (Warwick, UK); USA-Japan Conference on Polymer Chemistry (Niseko, Japan); Regional Meeting of the American Chemical Society (Cincinnati, OH); Tosoh Bioscience Polymer Characterization Symposium (Akron, OH); The Ohio State University (Columbus, OH); National Meeting of the American Chemical Society (San Diego, CA); University of Maine (Orono, ME); University of New Hampshire (Durham, NH).

2015: (11) Pacifichem 2015 (Honolulu, HI); CWRU (Materials Science and Engineering, Cleveland, OH); University of Southern Mississippi (Polymer science, Hattiesburg, MS); Tulane University (New Orleans, LA); University of Mississippi (Oxford, MS); University of Memphis (Memphis, TN); National Meeting of the American Chemical Society (Boston, MA); Fusion conference on Functional Polymeric Materials (Ascot, England); International Polymer Colloids Group Conference (Durham, NH); Wright Patterson Air Force base (Fairborn, OH); National Meeting of the American Chemical Society (Denver, CO)

2014: (9) Fusion Conference on Functional Polymeric Materials (Cancun, Mexico); National Meeting of the American Chemical Society (Dallas, TX); University of Florida (Gainesville, FL, student chapter seminar speaker); CWRU (Chemical Engineering Department, Cleveland, OH); National Meeting of the American Chemical Society (San Francisco, CA); John Carroll University (Cleveland, OH); Youngstown State University (Youngstown, OH); International Symposium on Stimuli Responsive Materials (Sonoma, CA); Zing Polymer Chemistry Conference (Cancun, Mexico)

2013: (8) CWRU (Physics Department, Cleveland, OH); University of Pittsburgh (Pittsburgh, Pennsylvania); National Meeting of the American Chemical Society (Indianapolis, Indiana); University of Zimbabwe (Harare, via Skype); Case Western Reserve University (Cleveland, Ohio); University of Georgia (Athens, Georgia); University of Maine (Orono, Maine); Washington University (St. Louis, Missouri)

2012: (3) New Mexico Institute of Mining and Technology; (Socorro, New Mexico); University of Washington (Seattle, Washington); National Meeting of the American Chemical Society (San Diego, CA)

2011: (2) Oak Ridge National Lab (Oak Ridge, Tennessee); Energy Frontiers Research Summit and Forum (Washington, DC)

2010: **(1)** Clean Energy Connections Conference and Opportunity Fair (Springfield, MA)

2009: **(1)** Graduate Research Symposium of the Gordon Research Conference on Macromolecular Materials (Ventura, CA)

2008: **(1)** NATO Advanced Summer Institute on New Materials via Metal Mediated Macromolecular Engineering: From Complex to Nano Structures (Antalya, Turkey)

Journal Referee

ACS Macro Letters, ACS Applied Nano Materials, ACS Applied Polymer Materials, ACS Applied Materials and Applied Interfaces, Advanced Composite Materials, Advanced Materials, Advanced Materials Interfaces, Angewandte Chemie, Chemical Communications, Chemical Engineering Journal, Chemical Science, Chemistry: an Asian Journal, Chemistry of Materials, ChemSusChem, European Polymer Journal, Industrial and Engineering Chemistry Research, Journal of Chemical Education, Journal of Colloid and Interface, Journal of the American Chemical Society, Journal of Materials Chemistry A, Journal of Materials Chemistry C, Journal of Organic Chemistry, Journal of Power Sources, Langmuir, Macromolecules, Macromolecular Materials and Engineering, Polymer, Polymer Chemistry

Ad Hoc Reviewer and Panelist

- Beckman Foundation (2019)
- Department of Energy
    - Stanford Linear Accelerator (2018)
    - Molecular Foundry at LBNL (2018, 2019)
- University of Tasmania thesis member (2018)
- Netherlands Organization for Scientific Research (2017)
- National Science Foundation
    - Division of Materials Research (2017, 2018)
    - Division of Chemistry (2017, 2018)
    - Division of Solid State and Materials Chemistry (2017)
    - Division of Chemical, Bioengineering, Environmental, and Transport Systems (2017)
    - Center review (2017, 2019)
- American Chemical Society Petroleum Research Fund (2016, 2017, 2018, 2019)
- American Chemical Society- POLY division Henkel award (2014, 2015)
- CWRU School of graduate studies panel on Writing a Thesis (panelist, 2017)
- NASA NSPIRES fellowship program (2014, 2015)
- AIAA Propulsion and Energy Forum on Advanced Terrestrial Energy Technologies (panelist, 2014)
- Careers in academic chemistry at Northwestern University chemistry (panelist, 2014)

National and International Service

- Associate Editor, *Polymer Chemistry* (a journal of the RSC), 2015-present
- Editorial Advisory Board Member
    - *ACS Applied Materials & Interfaces* (a journal of the ACS), 2020-present
    - *Journal of Polymer Science* (a journal of Wiley), 2019-present
    - *Macromolecules* (a journal of the ACS), 2017-present
- Topic Reviewer (of submitted symposia), Pacifichem2020
- Guest Editor for journal special issues
    - *Journal of Physical Chemistry, 2020*
    - *Polymer Chemistry, Pioneering Investigators*, 2019
    - *Polymer Chemistry, Pioneering Investigators*, 2017
- Mentor for NSF sponsored *Future Faculty Workshop: Grooming Diverse Leaders for the Future*, 2016-present
    - Co-organizer at CWRU (2017)
- Scientific advisory board: Tosoh GPC Conference (2017)
    - Co-organizer for GPC2019

- Symposium organizer
    - 2D Materials and their Composites (Pacifichem 2020, December 2020), with Per Zetterlund, Elodie Bourgett-Lami, Hideto Minami
- Symposium organizer at national ACS meetings
    - *The Next Generation of Functional Polymeric Materials: Correlating Structure, Property, and Application* (ACS Philadelphia, PMSE division, spring 2020), with Zachariah Page, AJ Boydston
    - *PMSE Future Faculty Symposium* (ACS San Diego, PMSE division, fall 2019), with Cole DeForest
    - *PMSE Young Investigator Awards* (ACS Boston, PMSE division, fall 2018), with Cole DeForest
    - *Janus Particles: Synthesis, Characterization, and Application* (ACS San Francisco, PMSE division, spring 2017), with Daeyeon Lee, Stefan Bon, Steffano Saccana
    - *Polymer Chemistry (RSC) Lectureship Series* (ACS San Francisco, POLY division, spring 2017), with Jeremiah Johnson, Wei You
    - *Design Principles of Functional Macromolecular Materials* (ACS Denver, PMSE division, spring 2015) with Luis Campos, Karen Wooley, AJ Boydston
- Discussion leader
    - Gordon Conference for Polymers (Mt. Holyoke, MA, summer 2015)
    - Gordon Conference for Polymers (Mt. Holyoke, MA, summer 2017)
    - Power Hour Leader at GRC on Polymers (Mt. Holyoke, MA, summer 2017)
    - Power Hour Leader at GRC on Polymers (Mt. Holyoke, MA, summer 2019)
- ACS POLY division Publicity Chair, 2015-present
- ACS POLY and PMSE student chapter coordinator, 2014-2017
- Cleveland ACS Meeting in Miniature, Judge (Baldwin Wallace, spring 2014)
- ShowCASE, Judge (CWRU, spring 2014)
- Chemistry Women Mentorship Network, 2013-present

University, College, and Department Service

During time at Texas A&M

- Engineering Honors Faculty Coordinator (Materials Science & Engineering), 2019-present
- Faculty Search Committee (Chemistry), 2019
- Website Committee (Chemistry), 2019-present
- Faculty Advisory Council, College of Science (representing Materials Science & Engineering), 2019-present

During time at CWRU

- Mentor, Beckman Scholars Program at CWRU, 2018
- Seminar coordinator, department of chemistry, 2017-2019
- Swagelock Center for Surface Analysis of Materials internal advisory board member, 2016-2018
- University Safety Committee, 2015-2019
- Department of Chemistry Safety Committee, 2016-2019
- Faculty Advisor for Chemistry Graduate Student Association (CGSA), 2016-2019
- Graduate Recruitment and Admissions Committee, Chemistry Department CWRU, 2013-2019
- Co-organizer and presenter: lunch-and-learn on “How to Apply to Graduate School”, 2015-2019
- Faculty Search Committees

  - CWRU Chemistry, Fall 2018
  - CWRU Macromolecular Science and Engineering, Spring 2018
  - CWRU Chemistry, Fall 2017
  - CWRU Macromolecular Science and Engineering, Fall 2016
- ShowCASE program board member, CWRU, 2014-2015
- Case Western Reserve University Innovation Summit, attendee, 2015
- Presenter: Organic electronics summer school in northeast Ohio, 2015, 2016
- Institute for Advanced Materials (IAM) internal advisory board member, CWRU, 2014-2016
- ARPA-e summit in Washington, D.C., CWRU representative, 2014
- UC Center for Laboratory Workshop, CWRU representative, 2014

Student Awards and Fellowships

- Outstanding Presentation Award for Graduate Student at ACS Cleveland MiM
  - Awarded: Kevin Pachuta 2018; Kevin Pachuta 2019
- Outstanding Presentation for Undergraduate Student at ACS Cleveland MiM
  - Awarded: Paul Advincula 2018
- NASA, *Harriet G. Jenkins Graduate Research Fellowship* for Mr. Bradley Rodier
  - 2013-2017; $172,000
- CWRU, *PSURG or SOURCE Summer Research Scholarship*
  - Mr. Blaise Whitesell 2017, $4,000
  - Ms. Christina Hemmingsen 2017, $4,000
  - Mr. Eric Mosher 2016, $4,000
  - Mr. Spencer Burton 2015, $4,000
- ShowCASE poster award for graduate student
  - Honorable mention: Ms. Rachael Matthews 2015
- ShowCASE poster award for undergraduate student
  - Honorable mention: Ms. Riki Drout 2016
  - 2nd place: Ms. Emily Glasser 2018; Ms. Madelyn McMillan 2019

PhD Committee Member

- **Chemistry (CWRU)**
  - Angel Placeres-Beltran
  - Jayvic Jiminez
  - Chunlai Wang (PhD 2019)
  - Regina DiScipio (PhD 2018)
  - Sandra Pejic (PhD 2018)
  - Christopher McCleese (PhD 2016)
  - Andrew Kollar (chair, MS 2016)
- **Other Departments (CWRU)**
  - Xiaolong Lang (Macromolecular Science and Engineering, PhD 2018)
  - Symone Cook (Macromolecular Science and Engineering, PhD 2018)
  - Melanie Hutnik (Macromolecular Science and Engineering, PhD 2017)
  - Mingze Sun (Macromolecular Science and Engineering, PhD 2017)
  - Lindsey Montak (Macromolecular Science and Engineering, PhD 2017)
  - Joey Magdalena (Macromolecular Science and Engineering, PhD 2016)
  - Brian Michal (Macromolecular Science and Engineering, PhD 2016)
  - Qiong Wu (Macromolecular Science and Engineering, PhD 2016)

- Abdulkerim Gok (Materials Science and Engineering, MS 2015)

Mentees

Current Mentees

- Postdocs
  - Dr. Peiran Wei (2019-present)
- PhD students
  - Ms. Qinmo Luo (2015-present, chemistry)
  - Ms. Sarah Mitchell (2016-present, chemistry)
  - Ms. Katelynn Edgehouse (2017-present, chemistry)
  - Mr. Kevin Pachuta (2016-present, materials science and engineering, joint with Alp Sehirlioglu)
  - Ms. Maria Escamilla (2018-present, chemistry)
  - Ms. Sarah Lak (2018-present, chemistry)
  - Ms. Ciera Cipriani (2019-present, materials science and engineering)
  - Ms. Yifei Wang (2019-present, materials science and engineering)
  - Mr. Wenhao Hu (2019-present, chemistry)
  - Mr. Huaxian Cao (2019-present, chemical engineering, joint with Micah Green)
- Masters Students
  - Mr. Samanvaya Gaur (2019-present, materials science and engineering)
- Undergraduate Students
- High School Students

Past Mentees (CWRU)

- Postdocs:
  - Dr. Brendan McGrail (2013-2015, now at Sartomer)
  - Dr. Al de Leon (2016-2017, now at ThermoFisher)
- PhD students:
  - Dr. Peiran Wei (2013-2019, now postdoc at Texas A&M)
  - Dr. Yuanhui Xiang (2013-2019, now postdoc at Notre Dame)
  - Dr. Rachael Matthews (2013-2018, now at ColorTech)
  - Dr. Brad Rodier (2013-2017, now at Rochal Industries)
  - Mr. Bowen Li (2017-2018, transferred to group of Prof. Greg Tochtrop, CWRU)
- MS Students:
  - Ms. Yifei Wang (2017-2019, now PhD student at Texas A&M materials science)
  - Mr. Houming Leng (2017-2019)
  - Mr. Nolan Kovach (2017-2018, now PhD student at Colorado School of Mines chemistry)
  - Mr. Bowen Li (2014-2017, now PhD student at CWRU chemistry)
  - Ms. Qinmo Luo (2014-2016, now PhD student at CWRU chemistry)
- Undergraduate Students:
  - Ms. Christina Hemmingsen (2016-2019)
  - Ms. Madelyn McMillen (2018-2019)
  - Ms. Alexis Amburgey (2018-2019)
  - Mr. Hobart Chen (2018-2019)
  - Mr. David Yan (2018-2019)
  - Mr. John Kwon (2016-2018)

  - Mr. Paul Advincula (2016-2018, now PhD student at Rice Chemistry)
  - Ms. Emily Glasser (2015-2018, now in Law School)
  - Mr. Spencer Burton (2013-2017, now PhD student at Northwestern University)
  - Mr. Eric Mosher (2013-2017, now PhD student at Johns Hopkins University)
  - Mr. Blaise Whitesell (2016-2017)
  - Ms. Taylor Frey (2015-2017, now PhD student at UC Irvine)
  - Ms. Riki Drout (2014-2016, now PhD student at Northwestern University)
  - Mr. Tyler Densmore (2014-2016, now MD student at Ohio University)
  - Ms. Emily Young (2013-2016, now MD student at Dartmouth)
  - Ms. Hayley Yocum (2016)
  - Mr. Jordan Swisher (2013-2015, now PhD student at UPitt Chemistry)
  - Mr. Edward Peng (2013-2015, now MD student at Indiana University)
  - Ms. Mar Tickerhoof (2014-2015)
  - Mr. Denny Chen (2014-2015, joint with Mohan Sankaran in Chemical Engineering)
  - Ms. Kelly Peterson (2013-2015, joint with Roger French in Materials Science, now PhD student at UCSB)
  - Ms. Jennifer Tang (2014-2015, joint with Alp Sehirlioglu in Materials Science)
- REU Students:
  - Mr. Michael Lu-Diaz (2017, now PhD student in chemistry at UMass Amherst)
  - Mr. Michael Mellon (2016)
  - Ms. Laura Alfonso (2016, now PhD student in chemistry at University of Illinois Chicago)
  - Ms. Laura Abelquist (2015)
  - Ms. Anna Davies (2015, now PhD student in chemistry at Northwestern)
- High school students:
  - Louisa Wang (2018-2019)
  - Ms. RhayAuna Dent (summer 2017, 2018 through ACS SEED program)
  - Mr. Jaylen Williams (summer 2016, 2017 through ACS SEED program, now UG biology major at Miami University, Ohio)
  - Mr. Fisher Ilijasic (summer 2017)
  - Ms. Stasha Vaden (summer 2015, through ACS SEED program)
  - Ms. Daphney Bonner (summer 2014, 2015, through ACS SEED program, 2016, now UG biology major at Howard University)
  - Ms. Kim Gliebe (2013-2014, chemical engineering BS at UDayton, now PhD student at CWRU in Materials Science)
  - Ms. Jillian Wilkerson (2013-2014)

Courses Taught

During time at Texas A&M

- MSEN420: Polymer Science (Fall 2019)

During time at CWRU

- CHEM435: Synthetic Methods in Organic Chemistry (Fall 2013, 2014, 2017)
- CHEM398: Senior Capstone in Chemistry (Spring 2014, 2016, 2018)
- CHEM397: Undergraduate Independent Research (Fall 2013,2014, 2015, 2016, 2017, 2018; Spring 2014, 2015, 2016, 2018)
- CHEM324: Organic Chemistry (Spring 2014, 2015, 2016)
- CHEM323: Organic Chemistry (Fall 2015, 2016, 2017, 2018)

- Guest lecturer:
    - CHEM316/416: Frontiers in Inorganic Chemistry (Spring 2016)
    - USNA288S: Silicon: From Sand to Smartphone (Spring 2016, 2017)

Research Support

Current Funding

- *CAREER: Asymmetric Functionalization of 2-D Nanomaterials for Tailored Assemblies* (NSF, Award #1551943)
    - 2016-2021; $550,000
- *Collaborative Research: Next Generation Rigid Rod Materials through Combined Computation and Experimentation* (NSF Chemistry, MSN, collaborator: Daniel Lambrecht, UPitt Chemistry)
    - 2018-2021; $335,861
- *Exploiting Small Molecule Building Blocks to Architect Polymers with Enhanced Performance as Dielectric Materials* (American Chemical Society: New Directions)
    - 2019-2021; $110,000
- Energy Frontier Research Center: *Breakthrough Electrolytes for Energy Storage* (Department of Energy, lead PI: Robert Savinell, CWRU Chemical Engineering)
    - 2018-2021; $10,750,000
- *Controlled Nanostructures of Atomically thin 2D Oxides for Next Generation Functional Materials* (AFOSR, lead PI: Alp Sehirlioglu, CWRU Materials Science and Engineering)
    - 2017-2022; $1,203,583

Completed Funding

- NSF REU: *Case Chemistry REU Site* (Co-PI, Grant #1359022)
    - 2015-2018; $212,519
- *A Radical Approach to Conjugated Polymers* (American Chemical Society, Doctoral New Investigator; Award #55563-DNI7)
    - 2015-2017; $110,000

Pending Funding

- Preproposal for *CCI Phase I: NSF Center for Sustainable Chemical Separations* (NSF CCI, lead PI: Mark Shiflett, University of Kansas)
- *Salt Hydrate Eutectic Thermal Energy Storage for Building Thermal Regulation* (DOE BENEFIT, lead PI: Patrick Shamberger, Texas A&M Materials Science and Engineering)