



Prof. Dr. Christian W. Pester

Associate Professor of Materials Science and Engineering
University of Delaware, Newark, DE 19716, USA.

Appointments

- Since 2024 Associate Professor**
University of Delaware, Newark, DE 19716, USA – *Department of Materials Science and Engineering*
- 2024 Visiting Alexander von Humboldt Foundation Research Fellow**
Technische Universität Braunschweig, D-38100 Braunschweig, Germany – *Clinical Psychology*
Leibniz Institute for Resilience Research, D-55122 Mainz, Germany
- 2023 – 2024 Associate Professor**
The Pennsylvania State University, University Park, PA 16801, USA – *Department of Chemical Engineering, Department of Chemistry (Courtesy), Department of Materials Science and Engineering (Courtesy).*
- Since 2020 Thomas K. Hepler Early Career Professor in Chemical Engineering**
- 2017-2023 Assistant Professor**
The Pennsylvania State University, University Park, PA 16801, USA – *Department of Chemical Engineering, Department of Chemistry (Courtesy), Department of Materials Science and Engineering (Courtesy).*
- 2014 – 2017 Alexander von Humboldt Feodor Lynen Research Fellow**
Materials Department & Materials Research Laboratory, University of California at Santa Barbara, Santa Barbara, CA 93106, USA. **Hosts:** Prof. Edward J. Kramer (deceased 12/2014) and Prof. Craig J. Hawker.

Education and Training

- 2009 – 2013 Doctorate Studies in Physical Chemistry, Dr. rer. nat. (*summa cum laude*)**
DWI Leibniz Institute for Interactive Materials, RWTH Aachen University, D-52074 Aachen, Germany.
Advisor: Prof. Alexander Böker; **Ph.D. Thesis:** “Block Copolymers in Electric Fields.”
- 2004 – 2009 Diploma in Polymer and Colloid Chemistry, Dipl.-Chem.**
University of Bayreuth, D-95447 Bayreuth, Germany.

Awards and Recognition

- 2024 **Tosoh Award for Excellence in Polymer Science** Tosoh Bioscience.
- 2023 **ACS Polymers Au: Rising Star** American Chemical Society.
- 2023 **Journal of Materials Chemistry A: Emerging Investigator** Royal Chemical Society.
- 2023 **IUPAC Young Observer** for the 52nd IUPAC General Assembly and 49th World Chemistry Congress.
- 2022 **PMSE Young Investigator** American Chemical Society.
- 2022 **NSF CAREER Award** National Science Foundation (CBET).
- 2021 **Dean’s Climate and Diversity Award** Pennsylvania State University College of Science (Nominee).
- 2021 **IUPAC Young Observer** for the 51st IUPAC General Assembly and 48th World Chemistry Congress.
- 2020 **Thomas K. Hepler Early Career Professorship** in Chemical Engineering (The Pennsylvania State University).
- 2019 **ACS PRF DNI** Petroleum Research Fund Doctoral New Investigator Award (American Chemical Society).
- 2016 **Science as Art Award** by the Materials Research Society (MRS Spring Meeting 2016).
- 2016 **Art of Science Award** by the Center for Science and Engineering Partnerships (UCSB).
- 2015 **International Research Fellowship Award** by the International Center for Materials Research (UCSB).
- 2015 **Dow Travel Fellowship** by the Dow Materials institute and the Materials Research Laboratory (UCSB).
- 2014 **Feodor Lynen Award** of the Alexander von Humboldt Foundation.
- 2014 **Borchers Medal** in recognition of outstanding Ph.D. thesis (*summa cum laude*, RWTH Aachen University).
- 2012 **Young Scientist Travel Grant** by the International Union of Crystallography President’s Fund.

External Support

Total external funding raised: \$3,140,995

- 2024 – 2027 \$450,000 **National Science Foundation.** (PI): DMR, Award No. 2404937
Morphologically Adaptive Nanocomposite Elastomers

2024 – 2024	\$10,685	Alexander von Humboldt Foundation. (PI) <i>Interrogating STEM Graduate Student Mental Health and the Influence of Education Systems in Germany and the United States.</i>
2023 – 2026	\$500,000	National Institute of Standards and Technology. (Co-PI) <i>Workforce development in measurement needs for improved sorting efficacy to facilitate recycling of post-consumer plastics.</i>
2023 – 2023	\$65,140	Daktronics Inc. (Single PI) <i>Anti-graffiti Coatings for Scoreboards and LED Video Displays.</i>
2022 – 2027	\$500,000	National Science Foundation CAREER. (PI): CBET, Award No. 2143628. <i>CAREER: Photocatalytic Optical Fibers.</i>
2021 – 2023	\$186,609	Corning, Incorporated. (PI): <i>Photomask-free Patterning of Glass: Surface-initiated Growth of Polymer Brushes for Designer Surfaces.</i>
2020 – 2024	\$500,000	National Science Foundation EFRI-E3P. Award No. 2029397, Co-PI, 50% internal credit, <i>EFRI E3P: Sustainable and Circular Engineering for the Elimination of End-of-life Plastics: A Framework for Assessment, Design, and Innovation.</i>
2020 – 2023	\$300,000	3M Company. (Single PI): <i>Fundamental Understanding and Control of Surface-Initiated Radical Graft Polymerizations.</i>
2020 – 2024	\$80,000	The Pennsylvania State University. Thomas K. Hepler Early Career Professorship.
2019 – 2021	\$110,000	American Chemical Society. Petroleum Research Fund (ACS PRF), Award 60304-DNI7. <i>Heterogeneous Photoredox Polymerization Catalysis.</i>
2022 – 2023	\$10,000	The Pennsylvania State University. MRI Materials Matter at the Human Level Seed Grant <i>Accessible, Low-cost, Antibacterial Powders made from Sand.</i>
2020 – 2023	\$403,561	National Science Foundation REU. Senior personnel.
2019 – 2019	\$25,000	The Pennsylvania State University. MRI-IEE seed grant, <i>Direct Conversion of Chemical Energy to Electricity: Chemivoltaics.</i>

Publications (independent career)

[†]Advised graduate student; [‡]Undergraduate author; * corresponding author.

58. P. Pereira[†], W. Slear, Savage*, and **C. W. Pester***. Influence of metal salts and metal triflates on post-consumer poly(ethylene terephthalate) hydrolysis. *In preparation* **2024**.
57. J. Capets[‡], S.F. Yost[†], B. D. Vogt, and **C. W. Pester***. Rapid self-healing of robust surface-tethered covalent adaptable coatings. *Adv. Funct. Mater.* **2024** (doi : 10.1002/adfm.202406277).
56. S. Freeburne[†], and **C. W. Pester***. UV-Light Crosslinked Photocatalytic Polymer Gels for Batch and Continuous Flow Reactions. *Polym. Chem.* **2024**, 15, 2634.
55. B. Hunter[†], J. L. Sacco, K. Katterle[‡], J. Kirigo, T. K. Wood, E. W. Gomez*, and **C. W. Pester***. Photoactive polymer coatings for antibacterial applications. *Eur. Polym. J.* **2024**, 213, 113090. [Invited contribution to themed collection: 2024 Materials Today EPJ Award.](#)
54. P. Pereira[†], W. Slear, A. Testa[‡], K. Reasons, P. Guirguis, P. Savage*, and **C. W. Pester***. Fast Hydrolysis for Chemical Recycling of PET. *RSC Sustainability* **2024**, 2, 1508.
53. B. Hunter[†], K. Bell[†], and **C. W. Pester***. Photolabile SI-PET-RAFT initiators for wavelength-selective grafting and de-grafting of polymer brushes. *ACS Appl. Polym. Mater.* **2024**. (doi: 10.1021/acsapm.3c02460)
52. P. Pereira[†], P. Savage*, and **C. W. Pester***. Acid catalyst screening for hydrolysis of post-consumer PET waste and exploration of acidolysis. *Green Chemistry* **2024**, 26, 1964.
51. S. D. K. Seera[†] and **C. W. Pester***. Surface-initiated PET-RAFT via the Z-group approach. *ACS Polymers Au* **2023**, 3, 428). [Invited contribution to themed collection: ACS Polymers Au 2023 rising stars.](#)
50. **C. W. Pester***, H.-A. Klok*, and E. M. Benetti*. Opportunities, Challenges and Pitfalls in Making, Characterizing and Understanding Polymer Brushes. *Macromolecules* **2023**, 56, 9915.
49. S. Freeburne[†], J. L. Sacco, E. W. Gomez, and **C. W. Pester***. Effects of Surface-Immobilization on Photobleaching of Xanthene Dye Photocatalysts. *Macromol. Chem. Phys.* **2023**, 224, 2300283.
48. S. F. Yost[†], **C. W. Pester***, B. D. Vogt*. Molecular Mass Engineering for Filaments in Material Extrusion Additive Manufacturing. *J. Polym. Sci.* **2023**, 62, 2616.
47. S. Freeburne[†], B. Hunter[†], K. Bell[†], and **C. W. Pester***. Heterogeneous Photocatalysts for Light-Mediated Polymerization. *Chem. Photo Chem.* **2023**, 7, e202300090. [Invited contribution.](#)

46. K. Bell[¶], B. Hunter[¶], M. Alvarez[‡], S. D. K. Seera,[¶] Y. Guo, S. H. Kim, and **C. W. Pester***. Hydrolysis-Resistant Heterogeneous Photocatalysts for PET-RAFT Polymerization in Aqueous Environments. *J. Mater. Chem. A* **2023**, *11*, 16616. [Invited contribution](#).
45. **C. W. Pester***, G. Noh*, and A. Fu. On the Importance of Mental Health in STEM. *ACS Polymers Au* **2023**, *3*, 295.
44. A. E. Masucci[¶], M. Ghasemi, **C. W. Pester***, and E. D. Gomez*. Enhancing Photoluminescence of Conjugated Nanoparticles through Graft Polymer Architectures. *Mater. Adv.* **2023**, *4*, 2586. [Invited contribution to themed collection: Young Investigator Honorees of the ACS PMSE Division; Selected for the 2023 Popular Advances collection](#).
43. K. Bell[¶], Y. Guo, S. Barker[‡], S. H. Kim, and **C. W. Pester***. Thermoresponsive Polymer Brush Photocatalytic Substrates for Wastewater Remediation. *Polym. Chem.* **2023**, *14*, 2662. [Invited contribution](#)
42. P. Pereira[¶], P. Savage*, and **C. W. Pester***. Neutral Hydrolysis of Post-consumer Polyethylene Terephthalate Waste in Different Phases. *ACS Sustainable Chem. Eng.* **2023**, *11*, 7203.
41. Y.-T. Lin, M. Fromel[¶], Y. Guo, R. Guest[¶], J. Choi, Y.-S. Li, H. Kaya, and **C. W. Pester***, S. H. Kim*. Elucidating Interfacial Chain Conformation of Superhydrophilic Polymer Brushes by Vibrational Sum Frequency Generation Spectroscopy. *Langmuir* **2022**, *38*, 14704.
40. K. Bell[¶], S. Freeburne[¶], A. Wolford, and **C. W. Pester***. Reusable Polymer Brush-Based Photocatalysts for PET-RAFT Polymerization. *Polym. Chem.* **2022**, *13*, 6120. [Polymer Chemistry Most Popular 2022](#)
39. E. M. Benetti* and **C. W. Pester***. Modulation of Polymer Brush Properties by Tuning Dispersity. *Adv. Mater. Interfaces* **2022**, *9*, 2201439. [Invited contribution](#).
38. M. Fromel[¶] and **C. W. Pester***. Polycarbonate Surface Modification via Aqueous SI-PET-RAFT. *Macromolecules* **2022**, *55*, 4907.
37. M. Fromel[¶], E. M. Benetti*, and **C. W. Pester***. Oxygen Tolerance in Surface-Initiated Reversible Deactivation Radical Polymerizations: Are Polymer Brushes Turning into Technology? *ACS Macro Lett.* **2022**, *11*, 415.
36. M. Fromel[¶], D. Sweeder[‡], S. Jang, T. A. Williams, S. H. Kim, and **C. W. Pester***. Superhydrophilic Polymer Brushes with High Durability and Anti-Fogging Activity. *ACS Appl. Polym. Mater.* **2021**, *3*, 5291. [Cover article](#).
35. K. Bell[¶], S. Freeburne[¶], M. Fromel[¶], H. J. Oh, and **C. W. Pester***. Heterogeneous Photoredox Catalysis Using Fluorescein Polymer Brush Functionalized Glass Beads. *J. Polym. Sci.* **2021**, *59*, 2844. [Cover article](#). [Invited contribution to Special Issue: Early Career Investigators](#).
34. M. Fromel[¶], R. L. Crisci III[‡], C. S. Sankhe, D. Reifsnnyder Hickey, T. B. Tighe, E. W. Gomez, and **C. W. Pester***. User-friendly Chemical Patterning with Digital Light Projection Polymer Brush Photolithography. *Eur. Polym. J.* **2021**, *158*, 110652. [Cover article](#). [Invited contribution to Special Issue: Synthesis and Application of Polymer Brushes for the Designing of Biointerfaces](#).
33. H. Kaya, D. Ngo, S. H. Hahn, M. Li[¶], H. He, B. Yedikardeş, I. Sökmen, **C. W. Pester**, N. J. Podraza, S. Gin, and S. H. Kim*. Estimating Internal Stress of Alteration Layer Formed on Corroded Glass through Spectroscopic Ellipsometry Analysis. *ACS Appl. Mater. & Interfaces* **2021**, *13*, 50470.
32. J. Poisson, A. M. Polgar, M. Fromel[¶], **C. W. Pester***, and Z. M. Hudson*. Preparation of Patterned and Multilayer Thin Films for Organic Electronics via Oxygen-Tolerant SI-PET-RAFT. *Angew. Chem. Int. Ed.* **2021**, *60*, 19988. [Hot paper](#).
31. G. Ng, P. Judzewitsch, M. Li[¶], **C. W. Pester**, K. Jung, and C. Boyer*. Synthesis of Polymer Brushes via SI-PET-RAFT for Photodynamic Inactivation of Bacteria. *Macromol. Rapid Commun.* **2021**, 2100106.
30. G. Ng, M. Li[¶], J. Yeow, K. Jung, **C. W. Pester***, and C. Boyer*. Benchtop Preparation of Polymer Brushes by SI-PET-RAFT: Effect of the Polymer Composition and Structure on Inhibition of Pseudomonas Biofilm. *ACS Appl. Mater. & Interfaces* **2020**, *12*, 49.
29. M. Li[¶], M. Fromel[¶], D. Ranaweera[‡], and **C. W. Pester***. Long-term Stability of Initiating Monolayers in Surface-initiated Controlled Radical Polymerizations. *Macromol. Rapid Commun.* **2020**, *41*, 2000337.
28. M. Li[¶] and **C. W. Pester***. Mixed Polymer Brushes for 'Smart' Surfaces. *Polymers* **2020**, *12*, 1553. [Invited contribution to Special Issue: The Next Generation in Polymer Research](#).
27. M. Fromel[¶], M. Li[¶], and **C. W. Pester***. Surface Engineering with Polymer Brush Photolithography. *Macromol. Rapid Commun.* **2020**, *41*, 2000177. [Invited contribution to Special Issue: The Australasian Polymer Symposium 2019](#).
26. R. Xie, A. R. Weisen, Y. Lee, M. A. Aplan, A. M. Fenton, A. Masucci[¶], F. Kempe, M. Sommer, **C. W. Pester***, R. H. Colby, and E. D. Gomez. Glass Transition Temperature from the Chemical Structure of Conjugated Polymers. *Nature Communications* **2020**, *11*, 893.

25. M. Li[¶], M. Fromel[¶], D. Ranaweera[‡], S. Rocha[‡], C. Boyer^{*}, and **C. W. Pester^{*}**. SI-PET-RAFT: Surface-Initiated Photoinduced Electron Transfer-Reversible Addition–Fragmentation Chain Transfer Polymerization. *ACS Macro Lett.* **2019**, *8*, 374. [Cover article, most read list.](#)

Publications (doctorate and postdoctoral)

24. **C. W. Pester^{*}**, B. Narupai, K. M. Mattson, D. P. Bothman, D. Klinger, K. W. Lee, E. H. Discekici, and C. J. Hawker^{*}. Engineering Surfaces through Sequential Stop-Flow Photopatterning. *Adv. Mater.* **2016**, *28*, 9292. [Highlighted by NSF Science 360, MRS Bulletin, and UC Santa Barbara press release.](#)
23. B. Narupai, Z. A. Page, N. J. Treat, A. J. McGrath, **C. W. Pester**, E. H. Discekici, N. D. Dolinski, G. F. Meyers, J. Read de Alaniz, C. J. Hawker. Simultaneous Preparation of Multiple Polymer Brushes under Ambient Conditions using μ L Volumes. *Angew. Chem. Int. Ed.* **2018**, *57*, 13433.
22. B. Oschmann, J. Lawrence, M. W. Schulze, J. M. Ren, A. Anastasaki, Y. Luo, M. D. Nothling, **C. W. Pester**, K. T. Delaney, L. A. Connal, A. J. McGrath, P. G. Clark, C. M. Bates, and C. J. Hawker. Effects of Tailored Dispersity on the Self-Assembly of Dimethylsiloxane–Methyl Methacrylate Block Co-Oligomers. *ACS Macro Lett.* **2017**, *6*, 668.
21. Z. A. Page, B. Narupai, **C. W. Pester**, R. Bou Zerdan, A. Sokolov, D. S. Laitar, S. Mukhopadhyay, S. Sprague, A. J. McGrath, J. W. Kramer, P. Trefonas, and C. J. Hawker. Novel Strategy for Photopatterning Emissive Polymer Brushes for Organic Light Emitting Diode Applications. *ACS Central Science* **2017**, *3*, 654.
20. **C. W. Pester**, C. Liedel, M. Ruppel, and A. Böker. Block copolymers in electric fields. *Prog. Polym. Sci.* **2017**, *64*, 182. [Invited contribution.](#)
19. K. M. Mattson, **C. W. Pester**, W. R. Gutekunst, A. T. Hsueh, E. H. Discekici, Y. Luo, B. V. K. J. Schmidt, P. G. Clark, and C. J. Hawker. Metal-Free Removal of Polymer Chain Ends Using Light. *Macromolecules* **2016**, *49*, 8162.
18. C. C. Kathrein, **C. W. Pester**, M. Ruppel, M. Jung, M. Zimmermann, and A. Böker. Reorientation Mechanisms of Block Copolymer / CdSe Quantum Dot Composites under Application of an Electric Field. *Soft Matter* **2016**, *12*, 8417.
17. B. Narupai, J. E. Poelma, **C. W. Pester**, Alaina J. McGrath, E. P. Toumayan, Y. Luo, J. W. Kramer, P. G. Clark, Paresch C. Ray, and C. J. Hawker. Hierarchical Comb Brush Architectures via Sequential Light-mediated Controlled Radical Polymerizations. *J. Polym. Sci., Part A: Polym. Chem.* **2016**, *54*, 2276. [Front cover.](#)
16. Y. Luo, B. Kim, D. Montarnal, Z. Mester, **C. W. Pester**, A. McGrath, G. Hill, E. J. Kramer, G. H. Fredrickson, and C. J. Hawker. Improved Self-assembly of Poly(dimethylsiloxane-*b*-ethylene oxide) using a Hydrogen-bonding Additive. **2016**, *J. Polym. Sci., Part A: Polym. Chem.* **2016**, *54*, 2200.
15. E. H. Discekici, **C. W. Pester**, N. J. Treat, J. Lawrence, K. M. Mattson, B. Narupai, E. Toumayan, Y. Luo, P. G. Clark, J. Read de Alaniz, and C. J. Hawker. A Simple Benchtop Approach to Polymer Brush Nanostructures using Visible Light and Metal-free Atom Transfer Radical Polymerization. *ACS Macro Lett.* **2016**, *5*, 258.
14. **C. W. Pester**, J. E. Poelma, B. Narupai, S. N. Patel, G. M. Su, T. E. Mates, Y. Luo, C. K. Ober, C. J. Hawker, and E. J. Kramer. Ambiguous Anti-fouling Surfaces: Facile Synthesis by Light-mediated Radical Polymerization. *J. Polym. Sci., Part A: Polym. Chem.* **2016**, *54*, 253. [Front cover. Invited contribution to a special issue honoring Prof. Edward J. Kramer.](#)
13. **C. W. Pester**, K. Schmidt, M. Ruppel, H. G. Schoberth, and A. Böker. Electric Field-induced Order-order Transition from Hexagonally Perforated Lamellae to Lamellae. *Macromolecules* **2015**, *48*, 6206.
12. C. X. Wang, A. Braendle, M. S. Menyo, **C. W. Pester**, E. E. Perl, I. Arias, C. J. Hawker, and D. Klinger. Catechol-based Layer-by-layer Assembly of Composite Coatings: A Versatile Platform to Hierarchical Nano-materials. *Soft Matter* **2015**, *11*, 6173.
11. Y. Luo, D. Montarnal, S. Kim, W. Shi, K. P. Barteau, **C. W. Pester**, P. D. Hustad, M. D. Christianson, G. H. Fredrickson, E. J. Kramer, and C. J. Hawker. Poly(dimethylsiloxane-*b*-methyl methacrylate): A Promising Candidate for Sub-10 nm Patterning. *Macromolecules* **2015**, *48*, 3422.
10. R. Tiwari, D. Hönders, S. Schipmann, B. Schulte, P. Das., **C. W. Pester**, U. Klemradt, and A. Walther. A Versatile Synthesis Platform to Prepare Uniform, Highly Functional Microgels via Click-type Functionalization of Latex Particles. *Macromolecules* **2014**, *47*, 2257.
9. M. Ruppel, **C. W. Pester**, K. M. Langner, G. J. A. Sevink, H. G. Schoberth, V. S. Urban, J. Mays, and A. Böker. Electric Field-induced Selective Disordering in Lamellar Block Copolymers. *ACS Nano* **2013**, *7*, 3854.
8. Ö. Nazli, **C. W. Pester**, A. Konradi, A. Böker, and P. van Rijn. Cross-linking Density and Temperature Effects on the Self-assembly of SiO₂-PNIPAAm Core-shell Particles at Interfaces. *Chem. Eur. J.* **2013**, *19*, 5586. [Inside cover.](#)
7. H. G. Schoberth, **C. W. Pester**, M. Ruppel, V. S. Urban, and A. Böker. Orientation-dependent Order-disorder Transition Temperatures of Block Copolymer Lamellae in Electric Fields. *ACS Macro Letters* **2013**, *2*, 469.

6. C. Liedel, K. A. Schindler, M. Pavan, C. Lewin, **C. W. Pester**, R. Shenhar, and A. Böker. Electric Field Induced Alignment of Block Copolymer/Nanoparticle Blends. *Small*, **2013**, 9, 3276.
5. C. Liedel, **C. W. Pester**, M. Ruppel, M. Pavan, C. Lewin, R. Shenhar, and A. Böker. Block Copolymer Nanocomposites in Electric Fields: Kinetics of Alignment. *ACS Macro Letters* **2013**, 2, 53.
4. **C. W. Pester**, A. Konradi, B. Varnholt, A. Böker, and P. van Rijn. Responsive Macroscopic Materials from Self-assembled Cross-linked SiO₂-PNIPAAm Core-shell Structures. *Adv. Funct. Mater.* **2012**, 22, 1724. [Frontispiece](#).
3. C. Liedel, **C. W. Pester**, M. Ruppel, V. S. Urban, and A. Böker. Beyond Orientation: The Impact of Electric Fields on Block Copolymers. *Macromol. Chem. Phys.* **2012**, 213, 259. [Front cover](#).
2. **C. W. Pester**, M. Ruppel, H. G. Schoberth, K. Schmidt, C. Liedel, P. van Rijn, K. A. Schindler, S. G. Hittl, T. Czubak, J. Mays, V. S. Urban, and A. Böker. Piezoelectric Properties of Non-polar Block Copolymers. *Adv. Mater.* **2011**, 23, 4047. [Front Cover](#), [Highlighted by the European Synchrotron Radiation Facility, ESRF](#). (ESRF poster, and www.esrf.eu).
1. K. Schmidt, **C. W. Pester**, H. G. Schoberth, H. Zettl, K. A. Schindler, and A. Böker. Electric field Induced Gyroid-to-cylinder Transitions in Concentrated Diblock Copolymer Solutions. *Macromolecules* **2010**, 43, 4268.

Invited and Keynote Presentations

Invited Conference Contributions

15. **Polymer Brushes as Heterogeneous Photocatalysts**. TOSOH Polymer Conference (Raleigh, NC, **2024**)
14. **Polymer Brushes as Heterogeneous Photocatalysts**. ACS Mid Atlantic Regional Meeting (University Park, PA, **2024**)
13. **Polymer Brush-based Heterogeneous Photocatalysis**. ACS POLY Controlled Radical Polymerization Workshop (Charleston, SC, **2023**).
12. **Heterogeneous Photoredox Catalysis using Polymer Brush-functionalized Glass Beads**. 44th South African Chemical Institute (SACI) National Convention (Stellenbosch, South Africa **2023**)
11. **Oxygen-tolerant Photopolymerization for the Design of Functional Surfaces**. ACS Fall National Meeting, *ACS PMSE Young Investigator Symposium* (Chicago, IL, **2022**).
10. **Heterogeneous Photoredox Catalysis using Polymer Brush-functionalized Glass Beads**. ACS Fall National Meeting (Chicago, IL, **2022**).
9. **SI-PET-RAFT for the Design of Advanced Functional Surfaces**. ACS Spring National Meeting 2022, Session: Synthesis, Characterization, and Application of Polymer Brushes (San Diego, CA, **2022**).
8. **Surface-Initiated PET-RAFT for the Engineering of Advanced Surfaces**. ACS POLY Controlled Radical Polymerization Workshop (Charleston, SC, **2021**).
7. **Patterned and Functional Coatings via Oxygen Tolerant Photopolymerization**. Bayreuth Polymer Symposium BPS (GER, virtual, **2021**).
6. **Photochemistry in Surface Engineering**. Photochemistry Spotlight: Shining Light on the Big Questions in Photochemistry Symposium (Lehigh University, virtual, **2020**).
5. **Chemical Patterning through Light-Mediated Surface-Initiated Polymerization**. 37th Australasian Polymer Symposium (Twin Towers, Sunshine Coast, AUS, **2019**).
4. **Patterned Polymer Brushes for Solution-Processable OLEDs**. Makromolekulares Kolloquium (Freiburg, GER, **2019**).
3. **Shining Light on Polymer Surfaces**. Brisbane Soft Matter Materials Symposium (Brisbane, AUS, **2019**).
2. **Surface Engineering Through Stop-Flow Solution Exchange Lithography**. ACS Fall 2019 National Meeting & Exposition (San Diego, CA, **2019**).
1. **Effects of Electric Fields on Block Copolymer Nanostructures**. P.2010 (Halle, GER, **2010**).

Invited University Seminars

36. **Synthesis and Application of Advanced Functional Polymer Brush Coatings**. PPG Industries (Allison Park, PA **2024**).
35. **Synthesis and Application of Advanced Functional Coatings and Materials**. The University of Delaware, Department of Materials Science and Engineering (Newark, DE **2024**).
34. **Synthesis and Application of Advanced Functional Polymer Brush Coatings**. Arizona State University, Department of Chemical Engineering (Tempe AZ, **2023**).
33. **Engineering Surfaces through Light-Mediated Polymerization**. University of Regensburg (Regensburg, GER, **2022**).
32. **Engineering Surfaces through Light-Mediated Polymerization**. Albert Ludwig University of Freiburg (Freiburg, GER, **2022**).
31. **Design of Advanced Functional Surfaces using Oxygen-tolerant Photopolymerization**. Westfälische Wilhelms-Universität Münster, CRC Colloquium (Münster, GER, **2022**).
30. **Engineering Surfaces through Light-Mediated Polymerization**. Universität Potsdam, Chair of Polymer Materials and Polymer Technologies (Potsdam, GER, **2022**).

29. **Design of Advanced Functional Surfaces using Oxygen-tolerant Photopolymerization.** Martin-Luther-Universität Halle Wittenberg, Institute of Physics (Halle, GER, 2022).
28. **Engineering Surfaces through Light-Mediated Polymerization.** Leibniz Institute for Polymer Research, IPF (Dresden, GER, 2022).
27. **Engineering Surfaces through Light-Mediated Polymerization.** Karlsruhe Institute of Technology, KIT (Karlsruhe, GER, 2022).
26. **Design of Advanced Functional Surfaces using Oxygen-tolerant Photopolymerization.** University of Delaware, Chemical and Biomolecular Engineering (Newark, DE 2022).
25. **Design of Advanced Functional Surfaces using Oxygen-tolerant Photopolymerization.** Portland State University, Department of Chemistry (virtual, 2022).
24. **Design of Advanced Functional Surfaces using Oxygen-tolerant Photopolymerization.** University of Pennsylvania, Department of Chemical and Biomolecular Engineering (Philadelphia, PA, 2022).
23. **Engineering Surfaces through Light-Mediated Polymerization.** University of Massachusetts, Amherst, Department of Polymer Science and Engineering (Amherst, MA, 2022).
22. **Engineering Functional Surfaces via Oxygen-tolerant Photopolymerization.** University of Minnesota, Department of Chemical Engineering and Materials Science (Minneapolis, MN, 2022).
21. **Design of Advanced Functional Surfaces using Oxygen-tolerant Photopolymerization.** University of Colorado Boulder, Chemical and Biological Engineering Department (Boulder, CO, 2022).
20. **Light-Mediated Surface-Initiated Polymerization for the Design of Functional Surfaces.** Colorado State University, Department of Chemistry (Fort Collins, CO, 2022).
19. **Shining Light on Polymer Surfaces.** University of California BioPACIFIC MIP Seminar (Santa Barbara, CA, 2022)
18. **Engineering Functional Surfaces using Oxygen-Tolerant Photopolymerization.** University of Pittsburgh, Swanson School of Engineering (Pittsburgh, PA, 2022).
17. **Engineering and Characterization of Functional Polymer Surfaces.** Bucknell University, Chemical Engineering Department (Lewisburg, PA, 2022).
16. **Surface Engineering with Polymer Brush Photolithography.** University of Illinois Chicago, Chemical Engineering (virtual, 2021).
15. **Shining Light on Polymers.** 3M Company (virtual, 2020).
14. **Surface Engineering with Polymer Brush Photolithography.** University of South Florida, College of Engineering Seminar Series (virtual, 2020).
13. **Engineering Surfaces through Light-Mediated Polymerization.** AbbVie Inc. (virtual, 2020).
12. **Shining Light on Polymers.** University of New South Wales (Sydney, AUS, 2019).
11. **Engineering Surfaces through Light-Mediated Polymerization.** ALBIS PLASTIC GmbH (Hamburg, GER, 2019).
10. **Engineering Surfaces through Light-Mediated Polymerization.** Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, EM-ISFM Soft Matter and Functional Materials (Berlin, GER, 2019).
9. **Engineering Chemical Patterns via Surface-Initiated PET-RAFT Polymerization.** Carnegie Mellon University, Chemical Engineering Department. Colloids, Polymers, and Surfaces (CPS) seminar series (Pittsburgh, PA, 2019).
8. **Chemical Patterning with Surface-grafted Polymers.** Rijksuniversiteit Groningen (Groningen, NL, 2018).
7. **Engineering 2D and 3D Polymer Structures via External Regulation.** Yale University (New Haven, CT, 2018).
6. **External Regulation of Polymers in Two and Three Dimensions.** Millennium Café (University Park, PA, 2018).
5. **Electric Fields and Light-mediated Chemistry: Engineering Ordered Polymer Structures in Two and Three Dimensions.** Max Planck Institute of Colloids and Interfaces (Potsdam, GER, 2016).
4. **Fabrication of 2D and 3D Polymer Structures via External Regulation.** Fraunhofer Institute for Applied Polymer Research (Potsdam, GER, 2016).
3. **Solution Exchange Lithography: A Versatile Tool for Surface Engineering.** North Carolina State University (Raleigh, NC, USA, 2016).
2. **External Regulation of Block Copolymer Structures.** Cornell University (Ithaca, NY, 2015).
1. **Controlling Block Copolymer Structures through External Stimuli.** National Institute of Standards and Technology (NIST, Gaithersburg, MD, 2015).

Patents

4. **C. W. Pester**, E. Leonhardt, S. D. K. Seera, M. Li. Method for preparing glass nanostructures and nanostructured substrates thereof. U.S. Patent Application No. 63/528219, filed July 21, 2023.
3. C. J. Hawker, Z. A. Page, B. Narupai, and **C. W. Pester**. Photopatterned growth of electronically active brush polymers for light emitting diode displays. U.S. Patent No. US 10,211,400 B2, February 19, 2019.

2. C. J. Hawker, Z. A. Page, B. Narupai, and **C. W. Pester**. Photopatterned growth of electronically active brush polymers for light emitting diode displays. U.S. Patent Application No. 15/476470, filed March 31, **2017**.
1. K. M. Mattson, C. J. Hawker, **C. W. Pester**, W. R. Gutekunst, and B. V. K. J. Schmidt. Catalytic polymer modification. U.S. Patent Application No. 62/363552, filed July 18, **2016**.

Student Awards

- 2024 **Patricia Pereira: Chemical Engineering ChE Excellence in Research Award.** *Penn State University*
- 2024 **Brock Hunter: Graduate Research Fellowship.** *National Science Foundation*
- 2022 **Marvin Alvarez: 1st Place MESD Undergraduate Poster Competition.** *AIChE Annual Meeting 2022.*
- 2022 **Patricia Pereira: 1st Place Poster Competition.** *PSU Materials Research Institute Materials Day 2022.* Title: Chemical recycling of PET waste via hydrolysis.
- 2021 **Sierra Yost: Science, Mathematics and Research for Transformation (SMART) Scholarship,** *U.S. Department of Defense (DOD).*
- 2021 **Kirsten Bell: Honorary Presentation Award,** *McWhirter Graduate Research Symposium.*
- 2021 **Ashley Masucci: 1st Place in MESD Student Poster Competition,** *AIChE Annual Meeting 2021.* Title: Conjugated graft polymers for electrochemical transistors.
- 2021 **Michele Fromel: Student Oral Presentation Award (1st place)** *College of Engineering Research Symposium.* Title: Aqueous, Oxygen-Tolerant SI-RAFT for the Production of Functional Hydrophilic Polymer Brush Surfaces.
- 2021 **Michele Fromel: Graduate School Endowed Fellowship,** *The Pennsylvania State University College of Engineering*
- 2020 **Ashley Masucci: NASA Pennsylvania Space Grant Consortium (PSGC) Fellowship award.**
- 2019 **Mingxiao Li: Art in Science Award (1st place),** *College of Engineering Research Symposium.* Title: Chicago on a Silicon Wafer (Polymer Brushes Grown via Visible Light).
- 2019 **Michele Fromel: Student Poster Competition Award (1st place),** *AIChE 2019 Mid-Atlantic Student Regional Conference.* Title: SI-PET-RAFT: Surface-Initiated Photoinduced Electron Transfer-Reversible Addition-Fragmentation Chain Transfer Polymerization.
- 2019 **Michele Fromel: Student Poster Competition Award (3rd place),** *College of Engineering Research Symposium.* Title: SI-PET-RAFT: Surface-Initiated Photoinduced Electron Transfer-Reversible Addition-Fragmentation Chain Transfer Polymerization.

Selected Synergistic Activities

ACS PMSE Early Career Investigator and Future Faculty Symposium Organizer. Since 2023

ACS PMSE International Advisory Committee. Since 2023

ACS PMSE Member-at-Large. Elected for Years 2022-2023.

IUPAC Young Observer. International Union of Pure and Applied Chemistry (IUPAC).

Advisory Council Member. German Academic International Network (GAIN), Elected.

Professional Memberships: American Chemical Society (ACS); Deutsche Physikalische Gesellschaft (DPG); American Physical Society (APS); American Institute of Chemical Engineers (AIChE).

Conference Organization: APS March Meeting 2022 (Session Organizer and Session Chair); ACS Spring Meeting 2022 (Session Organizer and Session Chair); APS March Meeting 2021 (Session Organizer and Session Chair); AIChE Annual Meeting 2021 (Session Organizer and Session Chair); AIChE Annual Meeting 2020 (Session Organizer and Session Chair); Makromolekulares Kolloquium 2019 (Session Chair); AIChE Annual Meeting 2019 (Session Organizer); 37th Australasian Polymer Symposium 2019 (Session Chair); 92nd ACS Colloid & Surface Science Symposium 2018 (Conference Organizer and Session Chair); AIChE Annual Meeting 2018 (Session Chair).

Judge: DPOLY Poster Competition (APS March Meeting 2021), 8A Excellence in Graduate Polymer Research award committee (AIChE Annual Meeting 2021), MESD Student Poster Competition (AIChE Annual Meeting 2020), AIChE Mid-Atlantic Student Regional Conference 2019 (University Park, PA), DPOLY Division Poster Competition (APS March Meeting 2019), PMSE Doolittle Award (ACS Fall Meeting 2019), PMSE Doolittle Award (ACS Fall Meeting 2018), McWhirter Graduate Research Symposium (Penn State, 2018).

Peer Review (Manuscripts): ACS Applied Polymer Materials; ACS Macro Letters; Macromolecules; ACS Chemistry of Materials; ACS Sustainable Chemistry & Engineering; Advanced Materials; Advanced Materials Technologies; Advanced Functional Materials; Journal of the American Chemical Society; Journal of Materials Science; Langmuir; Macromolecular Chemistry and Physics; Beilstein Journal of Organic Chemistry; RSC Advances; Macromolecular Rapid Communications; MDPI Polymers; MDPI Polymer Physics; Journal of Polymer Science; Journal of Biomaterials Science; European Polymer Journal; Industrial &

Engineering Chemistry Research; Cell Reports Physical Science; Polymer Chemistry; Progress in Polymer Science. RSC Chemical Communications.

Peer Review (Grant Proposals): American Chemical Society Petroleum Fund (ACS PRF); National Science Foundation (NSF DMR and CBET); National Accelerator Laboratory (SLAC); Stanford Synchrotron Radiation Light source (SSRL); Deutsche Forschungsgemeinschaft (DFG). Alexander von Humboldt Foundation (AvH).

Student Mentoring

Alumni (5)

Mingxiao Li (Ph.D., 2022, Henkel AG & Co. KGaA), **Michele Fromel** (Ph.D., 2022, Avery Dennison Co.), **Kirsten Bell** (PhD, 2023, Dow Chemical), **Ashley Masucci** (PhD, 2023, co-advised with E. D. Gomez, Exxon Mobil), **Sarah Freeburne** (ChE, 2020-2024, Dow Chemical), **Sai Dileep Kumar Seera** (M.Sc., 2022-2024)

Current Graduate Students (4)

Yixing Cao (ChE, 2024-present, co-advised with P. Savage), **Tim Schmitt** (ChE, 2023-present, co-advised with B. Vogt), **Brock Hunter** (ChE, 2023-present), **Sierra Yost** (ChE, 2021-present, co-advised with B. Vogt), **Patricia Alexandra Fernandes Pereira** (ChE, 2021-present, co-advised with P. Savage),

Former Graduate Students (1)

Bahareh Kheilnezhad (ChE, 2024).

Visiting Graduate Students (2)

Jade Poisson (2019, PhD student, University of British Columbia, Canada – Advisor: Z. Hudson), **Jochem Zijlstra** (2023, PhD student, University of Groningen, Netherlands – Advisor: P. van Rijn).

Current Undergraduate Students (1)

Jacob Capets (ChE, 2022-present).

Undergraduate Alumni (19)

Dillan Dantos (ChE, 2024), **Benjamin Love** (ChE, 2024), **Ryan Nagle** (ChE, 2023), **Angelo Testa** (ChE, 2023), **Samuel Barker** (ChE, 2022-2023), **Dominic Hoffman** (ChE, 2021-2022), **Adam Wolford** (ChE, Honors Student, 2021-2022), **Lauren Peterman** (ChE, Honors Student, 2021-2022), **Haiming Lu** (ChE, 2022), **Devon Sweeder** (Chem, Honors Student, 2021-2022), **Vraj-kumar Patel** (ChE, 2018-2020), **Dhanesh Ranaweera** (ChE, 2018-2020), **Michael Sundy** (ChE, 2018-2020), **Lauren Chamberlain** (Chem, 2018-2020), **Raymond Crisci** (ChE, 2019-2020), **Kyler Lilly** (ChE, 2019-2020), **Gihoon Hyung** (ChE, 2019-2020), **Michelot Bien-Aime** (Chem, 2019-2020), **Brett Nathaniel Rosoff-Verbit** (MatSE, 2017).

Research Experience for Undergraduates (REU) Students (8)

Kira Katterle (2023, NSF REU, Ohio State), **Marvin Alvarez** (2022, NSF REU, Dallas College), **Caroline Werther** (2019, NSF REU, University of Louisiana), **Sergio Rocha-Fernandez** (2018, NSF REU, Cabrillo College), **Sarah Freeburne** (2018, NSF REU, University of Kansas), **Irina Doichinova** (2018, PSU REU). **Prior to Independent Career: Cinthya Luna**, California Alliance for Minority Participation (2015, CAMP, UCSB), **Daniel Flores**, Research Internships in Science & Engineering (2014, RISE, UCSB).

Teaching

Courses

ChE 220: Introduction to Chemical Engineering Thermodynamics. Undergraduate core, 268 students total (Fall 2020, Fall 2019, Spring 2019, Fall 2017).

ChE 320: Chemical and Phase Equilibria. Undergraduate core, 136 students total (Fall 2022, Fall 2021).

ChE 497: Experimental Polymer Science and Engineering. Undergraduate elective, 19 students total (Fall 2023).

ChE 520: Polymer Science and Engineering. Graduate elective, 52 students total (Fall 2023, Fall 2022, Fall 2021).

ChE 597: Electroactive and Conductive Polymers. Graduate elective, 49 students total (Fall 2020, Spring 2020, Fall 2018).

ChE 597: Department seminar series. Graduate core, 243 students total (Spring 2020, Fall 2019, Spring 2019, Fall 2018, Spring 2018).

Guest Lectures and Panels

Summer 2022 Presentation “Effective Figures and Graphics” to REU summer students.

Summer 2021 Presentation “Effective Figures and Graphics” to REU summer students.

Fall 2020 Chem 110H: Chemical Principles I (B. Lear).

- Fall 2019** ChE 590: Effective Figures and Graphics (P. Savage).
Spring 2019 ChE 296: Panelist (S. Velegol).
Fall 2018 ChE 110: Guest lecturer in Undergraduate Symposium (R. Rioux).

Outreach

- 2022 Graduate Women in STEM. Science Demos During Park Forest Elementary's Field Day.
2021 Virtual Science Festival 2021: Turning Milk into Plastic (Virtual, Penn State University).
2021 ENVISION: STEM Career Day Supporting Young Women (Virtual, Penn State University).
2021 Interview. Penn State AIChE podcast: "Who are your professors? Dr. Christian Pester & Enrique Gomez"
2020 Young Women in STEM (YWIS) High school outreach workshop (Virtual, Penn State University).
2020 Interview. How Science Happens Podcast: "Surface Functionalization"
2019 Graduate Elective Class (ChE597) excursion to BASF (Monaca, PA).
2018 Graduate Elective Class (ChE597) excursion to BASF (Monaca, PA).
Since 2017 Chemical Engineering Coffee Hour (Penn State University).
2015-2017 Graduate Students for Diversity in Science (GSDS, UCSB).
2015-2017 Education programs of the Material Research Laboratory (MRL, UCSB).

Professional Development

- 2022 **Red Folder Webinar: Helping Students in Distress.** Participant. The Pennsylvania State University (University Park, PA, USA).
2021 **Safer People Safer Places – Transgender and Gender Inclusion 101.** Participant. The Pennsylvania State University (University Park, PA, USA).
2018 **ACS New Faculty Workshop.** Participant. *American Chemical Society* (Washington D.C., USA).
2018 **Project Catalyst: How to Engineer Engineering Education.** Participant. *Bucknell University* (Lewisburg, PA, USA).
2018 **NSF CAREER workshop.** Participant. The Pennsylvania State University (University Park, PA, USA).
2018 **Chemical Engineering New Faculty workshop.** Participant. The Pennsylvania State University (University Park, PA, USA).

Conference Contributions

Presenting author is underlined.

2023

65. P. Pereira, P. E. Savage, **C. W. Pester**. *Oral Presentation: Process advances and kinetics models for hydrolytic depolymerization of post-consumer polyethylene terephthalate (PET).* *AIChE Annual Meeting 2023* (Orlando, FL).
64. **C. W. Pester**. *Oral Presentation: Reusable Polymer Brush-Based Photocatalysts for Organic Synthesis, Polymerization, and Wastewater Treatment.* *AIChE Annual Meeting 2023* (Orlando, FL).
63. **C. W. Pester**. *Oral Presentation: Reusable Polymer Brush-based Photocatalysts for Light-mediated Polymerization.* *IUPAC CHAINS World Congress 2023* (The Hague, NL).
62. **C. W. Pester**. *Oral Presentation: Durable Anti-fogging Coatings via Surface-initiated Photopolymerization.* *APS March Meeting 2023* (Las Vegas, NV, USA).

2022

61. M. Alvarez, K. Bell, **C. W. Pester**. *Poster Presentation: Enabling Usage of Heterogeneous Photocatalysts in Aqueous Solutions.* *AIChE Annual Meeting 2022* (Phoenix, AZ, USA).
60. M. Fromel and **C. W. Pester**. *Oral Presentation: Engineering of Super-hydrophilic Coatings through Surface-initiated Polymerization.* *AIChE Annual Meeting 2022* (Phoenix, AZ, USA).
59. P. Pereira, P. Savage, and **C. W. Pester**. *Oral Presentation: Screening Catalysts for Hydrothermal Recycling of Post-Consumer PET Waste.* *AIChE Annual Meeting 2022* (Phoenix, AZ, USA).
58. A. E. Masucci, **C. W. Pester**, and E. D. Gomez. *Oral Presentation: Side Chain Engineering of Conjugated Grafted Polymers for Electrochemical Transistors.* *AIChE Annual Meeting 2022* (Phoenix, AZ, USA).
57. K. E. Bell, S. Freeburne, and **C. W. Pester**. *Poster Presentation: Enhancing Synthetic Transformations through Heterogeneous Photoredox Catalysis.* *AIChE Annual Meeting 2022* (Phoenix, AZ, USA).

56. K. E. Bell, S. Freeburne, and **C. W. Pester**. *Oral Presentation: Oxygen Tolerant Controlled Polymerization with Recyclable Micron-Scale Heterogeneous Photocatalysts. AIChE Annual Meeting 2022* (Phoenix, AZ, USA).
55. S. Freeburne, K.E. Bell, D. Hoffman, and **C. W. Pester**. *Poster Presentation: Photocatalytic Polymer Brush Glass Beads for Heterogeneous Photoredox Catalysis in Continuous Flow. ACS National Meeting 2022* (Chicago, IL, USA).
54. R. Guest, M. Fromel, and **C. W. Pester**. *Poster Presentation: Influence of Initiator Carbon Spacer Length on Surface-initiated RAFT. ACS National Meeting 2022* (Chicago, IL, USA).
53. K. E. Bell, S. Freeburne, and **C. W. Pester**. *Oral Presentation: Photocatalytic Polymer Brush Glass Beads for Heterogeneous Photoredox Polymerization Catalysis. ACS National Meeting 2022* (Chicago, IL, USA).
52. K. E. Bell, S. Freeburne, and **C. W. Pester**. *Oral Presentation: Improving Synthetic Transformations through Heterogeneous Photoredox Catalysis. College of Engineering Research Symposium 2022* (University Park, PA, USA).

2021

51. K. E. Bell, S. Freeburne, M. Fromel, and **C. W. Pester**. *Poster Presentation: Fluorescein Polymer Brush Functionalized Glass Beads for Heterogeneous Photocatalysis. ACS POLY Controlled Radical Polymerization Workshop 2021* (Charleston, SC, USA).
50. M. Fromel, D. Sweeder, R. L. Crisci III, M. Li, D. Ranaweera, and **C. W. Pester**. *Poster Presentation: Polymer Brushes for Advanced Photolithography and Functional Surface Coatings. ACS POLY Controlled Radical Polymerization Workshop 2021* (Charleston, SC, USA).
49. K. E. Bell and **C. W. Pester**. *Oral Presentation: Advancing Heterogeneous Photoredox Catalysis through Fluorescein Polymer Brush Functionalized Glass Surfaces. Penn State Department of Chemical Engineering Graduate Research Symposium 2021* (University Park, PA, USA).
48. M. Fromel and **C. W. Pester**. *Oral Presentation: Functional and Patterned Polymer Brushes via Surface-Initiated Controlled Radical Polymerization. Penn State Department of Chemical Engineering Graduate Research Symposium 2021* (University Park, PA, USA).
47. M. Fromel, D. Sweeder, S. Jang, T. A. Williams, S. H. Kim, and **C. W. Pester**. *Poster Presentation: Superhydrophilic Polymer Brushes with High Durability and Anti-Fogging Activity. Penn State Materials Research Institute Materials Day 2021* (University Park, PA, USA).
46. M. Li and **C. W. Pester**. *Poster Presentation: User-Friendly Surface Engineering with Polymer Brushes. AIChE Annual Meeting 2021* (Boston, MA, USA).
45. K. E. Bell, S. Freeburne, and **C. W. Pester**. *Oral Presentation: Solid-Supported Photoredox Polymerization Catalysis. AIChE Annual Meeting 2021* (Boston, MA, USA).
44. M. Li, M. Fromel, D. Ranaweera, and **C. W. Pester**. *Oral Presentation: Comparison of Long-Term Stability of Initiating Monolayers in Surface-Initiated Controlled Radical Polymerizations. AIChE Annual Meeting 2021* (Boston, MA, USA).
43. M. Fromel, M. Li, D. Ranaweera, D. Sweeder, and **C. W. Pester**. *Oral Presentation: Light-mediated Polymerization for the Engineering of Advanced Surfaces. AIChE Annual Meeting 2021* (Boston, MA, USA).
42. A. E. Masucci, **C. W. Pester**, and E. D. Gomez. *Poster Presentation: Conjugated Grafted Polymers for Electrochemical Transistors. AIChE Annual Meeting 2021* (Boston, MA, USA).
41. M. Fromel, D. Sweeder, and **C. W. Pester**. *Oral Presentation: Super-hydrophilic Anti-fogging Coatings via Aqueous Surface-initiated Photopolymerization. AIChE Annual Meeting 2021* (Boston, MA, USA).
40. M. Fromel, D. Sweeder, and **C. W. Pester**. *Oral Presentation: Super-hydrophilic Anti-fogging Coatings via Aqueous Surface-initiated Photopolymerization. National Graduate Research Polymer Conference 2021* (Virtual).
39. M. Li, M. Fromel, D. Ranaweera, and **C. W. Pester**. *Oral Presentation: Comparison of Long-Term Stability of Initiating Monolayers in Surface-Initiated Controlled Radical Polymerizations. College of Engineering Research Symposium 2021* (University Park, PA, USA).
38. M. Fromel and **C. W. Pester**. *Oral Presentation: Super-Hydrophilic Anti-Fogging Coatings via Surface-Initiated Photopolymerization. College of Engineering Research Symposium 2021* (University Park, PA, USA).
37. A. E. Masucci, **C. W. Pester**, and E. D. Gomez. *Oral Presentation: Conjugated Grafted Polymers for Electrochemical Transistors. ACS National Meeting 2021* (Virtual).
36. M. Fromel, D. Sweeder, S. Jang, T. Williams, S. Kim, and **C. W. Pester**. *Oral Presentation: Durable anti-fogging coatings using surface-tethered polymer brushes. IUPAC CCCE 2021 – 48th world chemistry congress & 10th Canadian chemistry conference and exhibition* (Virtual).

35. **C. W. Pester**, *Oral Presentation*: On the Stability of Initiators for Surface-initiated Controlled Radical Polymerization. *APS March Meeting 2021*. (Virtual).

2020

34. M. Fromel, M. Li, D. Ranaweera, and **C. W. Pester**. *Poster Presentation*: Comparison of the Stability of Initiating Monolayers for Surface-Initiated Controlled Radical Polymerizations. *Penn State Materials Research Institute Materials Day 2020* (University Park, PA, USA).
33. **C. W. Pester**. *Oral Presentation*: Polymer Brush Photolithography. *AIChE Annual Meeting 2020* (Virtual).
32. M. Fromel, M. Li, D. Ranaweera, and **C. W. Pester**. *Poster Presentation*: Surface-Initiated Controlled Radical Polymerizations for Reproducible and Patterned Films. *AIChE Annual Meeting 2020* (Virtual).
31. **C. W. Pester**. *Oral Presentation*: Polymer Brush Photolithography. *AIChE Annual Meeting 2020* (Virtual).
30. J. Poisson, A. M. Polgar, M. Fromel, **C. W. Pester**, and Z. M. Hudson. *Poster Presentation*: Oxygen-tolerant surface-initiated polymerization for multilayer organic electronics. *Canadian Chemistry Conference and Exhibition 2020* (Virtual).

2019

29. M. Li, M. Fromel, K. Bell, A. Masucci, S. Freeburne, and **C. W. Pester**. *Poster Presentation*: Shining Light on Polymers. *Penn State Materials Research Institute Materials Day 2019* (University Park, PA, USA).
28. M. Sundy, D. Ranaweera, M. Li, and **C. W. Pester**. *Poster Presentation*: Stability of initiator monolayers and characterization of SI-RAFT polymer brushes. *ACS 9th Annual Undergraduate Poster Symposium 2019* (University Park, PA).
27. M. Li, M. Fromel, D. Ranaweera, and **C. W. Pester**. *Oral Presentation*: Binary Polymer Brushes for Switchable Surface Properties via Light-mediated Radical Polymerizations. *College of Engineering Research Symposium 2019* (University Park, PA).
26. M. Fromel, M. Li, C. Boyer, and **C. W. Pester**. *Poster Presentation*: SI-PET-RAFT: Surface-Initiated Photoinduced Electron Transfer-Reversible Addition-Fragmentation Chain Transfer Polymerization. *College of Engineering Research Symposium 2019* (University Park, PA).
25. M. Fromel, M. Li, C. Boyer, and **C. W. Pester**. *Poster Presentation*: SI-PET-RAFT: Surface-Initiated Photoinduced Electron Transfer-Reversible Addition-Fragmentation Chain Transfer Polymerization. *AIChE Mid-Atlantic Student Regional Conference 2019* (University Park, PA).
24. M. Li and **C. W. Pester**. *Oral Presentation*: Switching mixed polymer brush surfaces through external stimulation. *APS March Meeting 2019* (Boston, MA, USA).

2018

23. **C. W. Pester**, M. Li, K. M. Mattson, D. Lunn, G. Su, and M. Brady. *Oral Presentation*: Surface-Initiated Polymerization as a Tool for Chemical Patterning. *AIChE Annual Meeting 2018*. (Pittsburgh, PA).
22. S. Freeburne and **C. W. Pester**. *Poster Presentation*: Solid-Supported Phenylphenothiazine Photopolymerization Catalysts. *AIChE Annual Meeting 2018*. (Pittsburgh, PA).
21. **C. W. Pester**, K. M. Mattson, M. Li, D. Lunn, G. Su, and M. Brady. *Oral Presentation*: Surface-grafted Polymer Brushes for Dynamic Surfaces. *ACS Fall Meeting 2018* (Boston, MA, USA).
20. M. Li and **C. W. Pester**. *Poster Presentation*: Surface-grafted Mixed Polymer Brushes. *Gordon Research Conference Polymer Physics 2018*, (South Hadley, MA, USA).
19. M. Li and **C. W. Pester**. *Poster Presentation*: Surface-grafted Mixed Polymer Brushes. *92nd ACS Colloid and Surface Science Symposium 2018* (University Park, PA, USA).
18. **C. W. Pester**, M. Li, K. M. Mattson, D. Lunn, M. Brady, and G. Su. *Oral Presentation*: Binary and Mixed Brushes for Adaptive Surfaces. *92nd ACS Colloid and Surface Science Symposium 2018* (University Park, PA, USA).
17. **C. W. Pester**, K. M. Mattson, D. Lunn, M. Brady, and G. Su. *Oral Presentation*: Binary and Mixed Brushes for Dynamic Surfaces. *APS March Meeting 2018* (Los Angeles, CA, USA).

2017

16. **C. W. Pester**. *Poster Presentation*: Polymers in Electric Fields and Sequential Photopatterning. *Penn State Materials Research Institute Materials Day 2017* (University Park, PA, USA).
15. **C. W. Pester**, K. M. Mattson, D. Bothman, D. Klinger, K. Lee, E. Discekici, B. Narupai, and C. J. Hawker. *Oral Presentation*: Solution Exchange Lithography: A Versatile Tool for Sequential Surface Engineering. *APS March meeting 2017* (New Orleans, LA, USA).

Ph.D. and postdoctoral

14. **C. W. Pester**, B. Narupai, K. M. Mattson, D. P. Bothman, K. W. Lee, E. H. Discekici, D. Klinger, and C. J. Hawker. *Poster Presentation: Solution Exchange Lithography. Gordon Research Conference Polymer Physics 2016*, (South Hadley, MA, USA).
13. **C. W. Pester**, B. Narupai, K. M. Mattson, D. P. Bothman, K. W. Lee, E. H. Discekici, D. Klinger, and C. J. Hawker. *Poster Presentation: Solution Exchange Lithography. Gordon Research Seminar 2016*, (South Hadley, MA, USA).
12. **C. W. Pester**, B. Narupai, K. M. Mattson, D. P. Bothman, K. W. Lee, E. H. Discekici, D. Klinger, and C. J. Hawker. *Oral Presentation: Solution Exchange Lithography. MRS Spring Meeting 2016* (Phoenix, AZ, USA).
11. **C. W. Pester**, B. Narupai, K. M. Mattson, D. P. Bothman, K. W. Lee, E. H. Discekici, D. Klinger, and C. J. Hawker. *Poster Presentation: Solution Exchange Lithography. Materials Research Outreach Program Symposium 2016* (Santa Barbara, CA, USA).
10. **C. W. Pester**, B. Narupai, K. M. Mattson, D. P. Bothman, K. W. Lee, E. H. Discekici, D. Klinger, and C. J. Hawker. *Poster Presentation: Solution Exchange Lithography. Edward J. Kramer Memorial Symposium 2016* (Santa Barbara, CA, USA)
9. **C. W. Pester**, J. E. Poelma, C. J. Hawker, and E. J. Kramer. *Oral Presentation: Ambiguous Copolymer Surfaces from Light-mediated Radical Polymerization. DPG Spring Meeting 2015* (Berlin, Germany).
8. **C. W. Pester**, M. Ruppel, V. S. Urban, and A. Böker. *Oral Presentation: Time-resolved SAXS-studies of Copolymer Reorientation Mechanisms in Electric Fields. SAS 2012 Meeting 2012* (Sydney, Australia).
7. **C. W. Pester**, M. Ruppel, V. S. Urban, and A. Böker. *Oral Presentation: Weakly Segregated Polymers in Electric Fields. DPG Spring Meeting 2012* (Berlin, Germany).
6. **C. W. Pester**, M. Ruppel, V. S. Urban, and A. Böker. *Poster Presentation: Piezoelectricity in Non-polar Block Copolymers. JARA FIT Science Days 2011* (Schleiden, Germany).
5. **C. W. Pester**, M. Ruppel, H. G. Schoberth, V. S. Urban, and A. Böker. *Oral Presentation: Piezoelectric Properties of Non-polar Block Copolymers. MRS Spring Meeting 2011* (San Francisco, CA, USA).
4. **C. W. Pester**, M. Ruppel, H. G. Schoberth, V. S. Urban, and A. Böker. *Oral Presentation: Piezoelectric Properties of Non-polar Block Copolymers. DPG Spring Meeting 2011* (Dresden, Germany).
3. **C. W. Pester**, A. Böker, H. G. Schoberth, V. Olszowka, M. Hund, K. Schmidt, C. Liedel. *Oral Presentation: Effects of Electric Fields on Block Copolymer Nanostructures. P.2010 2010* in (Halle, Germany).
2. **C. W. Pester**, M. Ruppel, H. G. Schoberth, K. Schmidt, V. S. Urban, and A. Böker. *Poster Presentation: Electric field induced alterations of block copolymer domain spacings. SFB Symposium 2010* (Weingarten, Germany).
1. **C. W. Pester**, M. Ruppel, H. G. Schoberth, K. Schmidt, V. S. Urban, and A. Böker. *Poster Presentation: Electric field induced alterations of block copolymer domain spacings. DPG Spring Meeting 2010* (Regensburg, Germany).

Service**University**

2021 Faculty Search Committee MRI representative for a search for Agricultural Engineering.

Department

Since 2023 Graduate Student Association (GSA) faculty advisor.

Since 2021 Chair: Publicity Committee.

Since 2017 Publicity Committee.

2021-2021 Ad Hoc ChE Video Promotion Committee.

2019-2023 Chemical Engineering Safety Committee.

2019-2020 Safety Olympics Planning Committee.

2018-2020 Seminar Series.

2018-2019 Graduate Admissions.

2018-2019 Graduate Committee.

2018 McWhirter Fellowship Committee.

M.S. Committees

2021 Tylene Hilaire (Advisor: R. Hickey, MatSE).

- 2019 Abigail Fenton (Advisor: E. D. Gomez, ChE).
 2019 Jacob Piane (Advisor: B. Elacqua; Department of Chemistry).
 2018 Cory Jones (Advisor: M. Kumar, ChE).

Ph.D. and Comprehensive Committees

- Since 2022 Mohammadsadegh Laeini (Chemistry, Advisor: R. Hickey).
 2022 – 2023 Bharat Poudel (Chemistry, Advisor: R. Hickey).
 Since 2022 Karthik Arunagiri (ChE, Advisor: C. Arges).
 Since 2022 Po-Hao Lai (ChE, Advisor: E. D. Gomez)
 Since 2022 Andrew Wolfram (Chemistry, Advisor: E. Nacsa).
 2021 – 2024 Yi-Chen Lan (ChE, Advisor: E. D. Gomez)
 Since 2021 Cordelia Beck-Horton (Chemistry, Advisor: E. Nacsa).
 Since 2021 Krista Hirsch (Chemistry, Advisor: L. Zarzar).
 Since 2021 Momoka Nagamine (Chemistry, Advisor: I. Ozbolat).
 Since 2021 Stephen Wong (ChE, Advisor: E. D. Gomez).
 Since 2020 Dylan Babcock (Chemistry, Advisor: E. Nacsa).
 2020 – 2023 James G. Sutjianto (ChE, Advisor: E. D. Gomez).
 Since 2020 Margaret Lakomy (Chemistry, Advisor: R. Giri).
 2020 – 2024 Ritwick Kali (ChE, Advisor: S. Milner)
 2020 – 2022 Seshasayee Mahadevan Subramanya (ChE, Advisor: P. Savage).
 2019 – 2022 Ryan Fair (ChE, Advisor: E. D. Gomez).
 2019 – 2022 Abigail Fenton (ChE, Advisor: E. D. Gomez and R. Colby).
 2019 – 2022 Nayan Saika (ChE, Advisor: M. Hickner)
 2018 – 2022 Jake Piane (Chemistry, Advisor: E. Nacsa)
 2018 – 2021 Hongshen Liu (ChE, Advisor: S. Kim).
 2018 – 2021 Shreya Shetty (ChE, Advisor: E. D. Gomez and S. Milner).
 2018 – 2018 Sai Vineeth Bobbili (ChE, Advisor: S. Milner).
 2018 – 2021 Ismail Alperen Ayhan (ChE, Advisor: E. D. Gomez).
 2018 – 2020 Nagma Zerín (ChE, Advisor: J. Maranas).
 2018 – 2020 Clara Caparrelli (ChE, Advisor: M. Hickner)

Candidacy Exam Committee

- 2022 Guo, Y.; Cress, M.
 2021 Vonglis, M.; Ogrinc, A.; Li Y-S.; Afzal M.; Arunagiri, K.
 2020 Sacco, J.; Wong, J-W.; Sakit M.-N.; Wong, S., Lan, Y.-C.; Yeh, S.-L.; Chu, L.-K.
 2019 Maghirang K.; Lin, Y-T.; Kali, R.; Lee, J; Brickey, K.; Del Mundo, J.
 2018 Kim, M., Samineni, C., Tu, Y-M.; Fenton, A.,; Jabra, M.; Piane, J. (Chemistry)
 2017 Nayan, S.

Other Professional Experience

- 2020 **Research Consultant.** Abbvie Inc.
 Since 2008 **Recurring research periods at synchrotron X-ray radiation sources.** *European Synchrotron Radiation Facility* (ESRF, Grenoble, France); *Advanced Photon Source* (APS, Argonne, IL, USA); *Advanced Light Source* (ALS, Lawrence Berkeley National Laboratory, Berkeley, CA, USA); *National Synchrotron Light Source* (NSLS, Brookhaven National Laboratory, Brookhaven, NY, USA).
 2009-2014 **Recurring research periods for neutron radiation scattering.** *Institute Laue Languévin* (ILL, Grenoble, France); *High Flux Isotope Reactor* (HFIR), and *Spallation Neutron Source* (SNS) at Oak Ridge National Laboratory (ORNL, Oak Ridge, TN, USA); *NIST Neutron Center for Neutron Research* (National Institute of Standards and Technology, Gaithersburg, MD, USA).

- 2009-2011 **Synthesis of block copolymers via anionic polymerization.** Recurring research periods at the chair for macromolecular chemistry II at the University of Bayreuth (*Prof. A. H. E. Müller*).
- 10-12/2008 **REHAU AG + Co.** Internship; Research & Development department, 95111 Rehau, Germany (*supervision Dr. Uwe Kernchen*): introduction of fluorescent particles into polymers.
- 2007-2008 **Scientific co-worker.** Writing manuscripts regarding a lecture on „Colloidal Chemistry“ (*Prof. M. Ballauff*).