## Curriculum Vitae

**Christopher J. Kloxin, Ph.D.**

Materials Science & Engineering

Chemical & Biomolecular Engineering

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### Professional Employment

2020-present Associate Professor  
Department of Materials Science & Engineering and   
Department of Chemical & Biomolecular Engineering,   
University of Delaware, Newark, DE

2022-present Director of the Materials Science & Engineering Graduate Program

2020-present Director of the University of Delaware Center for Click Chemistry (UD3C)

2014-present Affiliate Assistant Professor of the Department of Biomedical Engineering

2014-present Affiliate, Delaware Environmental Institute (DENIN)

2014-present Affiliate, Center for Composite Materials (CCM)

2014-present Affiliate, Center for Fuel Cells and Batteries (CFCB)

2014-present Faculty, Center of Research in Polymers and Soft Matter (CRiSP) – formerly Center for Molecular and Engineering Thermodynamics (CMET)

2014-2020 Assistant Professor  
Department of Materials Science & Engineering and   
Department of Chemical & Biomolecular Engineering,   
University of Delaware, Newark, DE

2011-2014 Research Assistant Professor  
Department of Materials Science & Engineering and   
Department of Chemical & Biomolecular Engineering,   
University of Delaware, Newark, DE

2010 Research Assistant Professor  
Department of Chemical & Biological Engineering,   
University of Colorado, Boulder, CO

2006-2009 Post-doctoral Research Associate  
*Advisor: Christopher N. Bowman*  
Department of Chemical & Biological Engineering,   
University of Colorado, Boulder, CO

### Education

Ph.D. in Chemical Engineering, 2006

Thesis topic: “Investigating Aqueous PEO-PPO-PEO Triblock Copolymer Dispersion Dynamics with Colloidal Sphere Thermal Motion,”

*Advisor: John H. van Zanten*

Department of Chemical and Biomolecular Engineering,North Carolina State University, Raleigh, NC

B.S. in Chemical Engineering, 1999

Department of Chemical Engineering, University of Colorado, Boulder, CO

### Teaching Experience

2013-present University of Delaware, Newark, DE

* MSEG 211 – Thermodynamics and Statistical Mechanics (S21, S22)
* MSEG 835 – Principles of Polymer Physics (S21, S22)
* MSEG 803 – Equilibria in Material Systems (F15, F16, F17, F18, F19)
* CHEG 825 – Chemical Engineering Thermodynamics (F16, F18, F19)
* MSEG 667 – Macromolecular Design and Bio-conjugations (S15, S16, S18, S19)
* CHEG 345 – Chemical Engineering Lab I (S13, S14) – Co-instructors: Prasad Dhurjati, Mark Shifflet, and Feng Jiao

2011 University of Colorado, Boulder, CO

* CHEN 5383 – Polymer Physics (S11) – Co-instructor, Kristi Anseth

### Honors and Awards

* *Polymer Chemistry* Pioneering Investigators 2021
* ACS PMSE Young Investigator 2018
* McNair Scholars Outstanding Research Advisor Award 2015
* University of Delaware Research Foundation (UDRF) Award 2012 & 2014

### Publication Record

#### Publication Statistics

[*Google Scholar*](http://scholar.google.com/citations?user=YgGPvrwAAAAJ) (7/26/2022): 6,076 citations (832 in 2021); h-index, 30; i10-index, 45; i100-index, 14.

[*Web of Science*](http://www.researcherid.com/rid/D-1633-2010) (7/26/2022): 4,599 citations (660 in 2021); h-index, 28; i10-index, 42; i100-index, 13.



#### Publication List (\* indicates corresponding author)

*June 2011-present (University of Delaware listed as address)*

56. Nairiti J Sinha, Yi Shi, Yao Tang, **Christopher J Kloxin**, Jeffery G. Saven, Antonio Faraone, Grethe V. Gensen, Darrin J Pochan, “Intramolecular structure and dynamics in computationally designed peptide-based polymers displaying tunable chain stiffness,” *Physical Review Materials*, **5** (9) 095601 (2021). DOI: [10.1103/PhysRevMaterials.5.095601](https://udwinprod-my.sharepoint.com/personal/cjk_udel_edu/Documents/CV/dx.doi.org/10.1103/PhysRevMaterials.5.095601)

55. Bryan P Sutherland, Mukund Kabra, **Christopher J Kloxin**\*, “Expanding the thiol–X toolbox: photoinitiation and materials application of the acid-catalyzed thiol–ene (ACT) reaction,” *Polymer Chemistry*, **12** (10) 1562-1570 (2021). DOI: [10.1039/D0PY01593H](https://dx.doi.org/10.1039/D0PY01593H)

54. Kyunghee Kim, **Christopher J Kloxin**, Jeffery G Saven, Darrin J Pochan, “Nanofibers Produced by Electrospinning of Ultrarigid Polymer Rods Made from Designed Peptide Bundlemers,” *ACS Applied Materials & Interfaces* **13** (22) 26339-26351 (2021). DOI: [10.1021/acsami.1c04027](https://dx.doi.org/10.1021/acsami.1c04027)

53. Melissa B Gordon, **Christopher J Kloxin**, Norman J Wagner, “Structural and rheological aging in model attraction-driven glasses by Rheo-SANS,” *Soft Matter*, **17** (4) 924-935 (2021). DOI: [10.1039/D0SM01373K](https://dx.doi.org/10.1039/D0SM01373K)

52. Nairiti J Sinha, **Christopher J Kloxin**, Jeffery G Saven, Grethe V Jensen, Zvi Kelman, Darrin J Pochan, “Recombinant expression of computationally designed peptide-bundlemers in Escherichia coli,” *Journal of Biotechnology* **330** 57-60 (2021). DOI: [10.1016/j.jbiotec.2021.03.004](https://dx.doi.org/10.1016/j.jbiotec.2021.03.004)

51. Paige J LeValley, Bryan Sutherland, Jennifer Jaje, Sandra Gibbs, Mark Jones, Rikhav Gala, **Christopher J Kloxin**, Kristi L Kiick, April M Kloxin; “On-demand and tunable dual wavelength release of antibody using light-responsive hydrogels,” *ACS Applied Bio Materials* **3** (10) 6944-6958 (2020). DOI: [10.1021/acsabm.0c00823](https://doi.org/10.1021/acsabm.0c00823)

50. Stephen Ma, Eden M Ford, Lisa A Sawicki, Bryan Sutherland, Nicole I Halaszynski, Benjamin Carberry, Norman J Wagner, April M Kloxin, **Christopher J Kloxin**\*; “Surface Chemical Functionalization of Wrinkled Thiol–ene Elastomers for Promoting Cellular Alignment,” *ACS Applied Bio Materials* **3** (6) 3731-3740 (2020). DOI: [10.1021/acsabm.0c00346](https://doi.org/10.1021/acsabm.0c00346)

49. Sutherland, B.P.; LeValley, P.J.; Bischoff, D.J.; Kloxin, A.M.; **Kloxin C.J.\***; “Sequence-defined vinyl sulfonamide click nucleic acids (VS-CNAs) and their assembly into dynamically responsive materials,” *Chemical Communications* **56** (76), 11263-11266 (2020). DOI: [10.1039/D0CC04235H](http://dx.doi.org/10.1039/D0CC04235H)

48. LeValley, P.J.; Neelarapu, R.; Sutherland, B.P.; Dasgupta, A.; **Kloxin, C.J.\***; Kloxin, A.M.\* “Photolabile linkers: exploiting labile bond chemistry to control mode and rate of hydrogel degradation and protein release,” *Journal of the American Chemical Society*, **142** (10) 4671-4679 (2020) DOI: [10.1021/jacs.9b11564](https://doi.org/10.1021/jacs.9b11564)

47. “Polyelectrolyte character of rigid rod peptide bundlemer chains constructed via hierarchical self-assembly,” *Soft Matter* **15**, 9858-9870 (2019) DOI: [10.1039/C9SM01894H](https://doi.org/10.1039/C9SM01894H)

46. Wu, D.; Sinha, N.; Lee J.; Zhang, H.; Saven, J.\*; **Kloxin, C.J.\***, Pochan, D.J.\*, "Polymers with Controlled Assembly and Rigidity Made with Click-functional Peptide Bundles," *Nature* **574** (7780) 658-662 (2019) DOI: [10.1038/s41586-019-1683-4](https://doi.org/10.1038/s41586-019-1683-4)

45. El-Zaatari, B.M.; Tibbits, A.C.; Yan, Y.; **Kloxin, C.J.**\*, “Photoinitiated Copper(I) Catalyzed Azide-Alkyne Cycloaddition Reaction for Anion Conductive Polymer Network Synthesis,” *ACS Macro Letters* **8** 795-799 (2019) DOI: [10.1021/acsmacrolett.9b00324](http://dx.doi.org/10.1021/acsmacrolett.9b00324)

44. Sutherland, B.P.; El-Zaatari, B.M.; Halaszynski, N.I.; French, J.M.; Bai, S.; **Kloxin, C.J.\***, “On-Resin Macrocyclization of Peptides Using Vinyl Sulfonamides as a Thiol-Michael ‘Click’ Acceptor,” *Bioconjugate Chemistry* **29** (12) 3987-3992 (2018) DOI: [10.1021/acs.bioconjchem.8b00751](file:///C:\Users\cjk\Google%20Drive\CV\dx.doi.org\10.1021\acs.bioconjchem.8b00751)

43. Nicastro, K.H.; **Kloxin, C.J.\***; Epps, T.H.\*, “Potential Lignin-Derived Alternatives to Bisphenol A in Diamine-Hardened Epoxy Resins,” *ACS Sustainable Chemistry and Engineering* **6** (11) 14812-14819 (2018). DOI: [10.1021/acssuschemeng.8b03340](file:///C:\Users\cjk\Google%20Drive\CV\dx.doi.org\10.1021\acssuschemeng.8b03340)

1. Ma, S.J.; Wagner, N.J.; **Kloxin, C.J.\***; “Copper ligand and anion effects: controlling the kinetics of the photoinitiated copper(I) catalyzed azide—alkyne cycloaddition polymerization,” *Polymer Chemistry* **9** 4772-4780 (2018). DOI: [10.1039/C7PY00623C](file:///C:\Users\cjk\Google%20Drive\CV\dx.doi.org\10.1039\C7PY00623C)

41. Ma, S.J.; Wagner, N.J.; **Kloxin, C.J.\***; “Rapid and Controlled Photo-induced Thiol-Ene Wrinkle Formation via Flowcoating,” *Materials Horizons* **5** 514-520 (2018). DOI: [10.1039/C8MH00118A](file:///C:\Users\cjk\Google%20Drive\CV\dx.doi.org\10.1039\C8MH00118A)

40. Gordon, M.B.; Wang, S.; Knappe, G.A.; Wagner, N.J.; Epps, T.H. & **Kloxin C.J.\***; “Force-induced cleavage of a labile bond for enhanced mechanochemical crosslinking,” *Polymer Chemistry* **8** (42) 6485-6489 (2017). DOI: [10.1039/C7PY01431G](http://dx.doi.org/10.1039/C7PY01431G).

39. Shete, A.U. & **Kloxin C.J.\***; “One-pot blue-light triggered tough interpenetrating polymeric network (IPN) using CuAAC and methacrylate reactions,” *Polymer Chemistry* **8** (24) 3668-3673 (2017). DOI: [10.1039/C7PY00623C](http://dx.doi.org/10.1039/C7PY00623C) [cover].

38. Tibbits, A.C.; Yan, Y.S.; & **Kloxin, C.J.\***, “Covalent Incorporation of Ionic Liquid into Ion‐Conductive Networks via Thiol–Ene Photopolymerization,” *Macromolecular Rapid Communications* 1700113 (2017). DOI: [10.1002/marc.201700113](http://dx.doi.org/10.1002/marc.201700113)

37. Gordon, M.B.; **Kloxin, C.J.**; & Wagner, N.J., “The rheology and microstructure of an aging thermoreversible colloidal gel,” *Journal of Rheology* **61** (1) 23-34 (2017). DOI: [10.1122/1.4966039](http://dx.doi.org/10.1122/1.4966039)

36. El-Zaatari, B.M.; Shete, A.U.; Adzima, B.J.; & **Kloxin, C.J.**\*, “Towards understanding the kinetic behaviour and limitations in photo-induced copper(I) catalyzed azide-alkyne cycloaddition (CuAAC) reactions,” *Physical Chemistry Chemical Physics* **18** (36) 25504-25511 (2016) DOI: [10.1039/C6CP04950H](http://dx.doi.org/10.1039/C6CP04950H).

35. Shete, A.U.; El-Zaatari, B.M.; French, J.M.; & **Kloxin, C.J.**\*, “Blue-light activated rapid polymerization for defect-free bulk Cu(I)-catalyzed azide-alkyne cycloaddition (CuAAC) crosslinked networks,” *Chemical Communications*, **52** 10574-10577 (2016) DOI: [10.1039/C6CC05095F](http://dx.doi.org/10.1039/C6CC05095F)

34. T.F. Scott, J.C. Furgal, & **C.J. Kloxin**, “Expanding the Alternating Propagation–Chain Transfer-Based Polymerization Toolkit: The Iodo–Ene Reaction,” *ACS Macro Letters* **4** 1404-1409 (2015) DOI: [10.1021/acsmacrolett.5b00640](http://dx.doi.org/10.1021/acsmacrolett.5b00640)

33. M.B. Gordon, J.M. French, N.J. Wagner & **C.J. Kloxin**\*, “Dynamic Bonds in Covalently Crosslinked Polymer Networks for Photoactivated Strengthening and Healing,” *Advanced Materials* **27** (48) 8007-8010 (2015) DOI: [10.1002/adma.201503870](http://dx.doi.org/10.1002/adma.201503870)

32. W. Xi, S. Pattanayak, C. Wang, B. Fairbanks, T. Gong, J. Wagner, **C.J. Kloxin**, & C.N. Bowman, “Clickable Nucleic Acids: Sequence-Controlled Periodic Copolymer/Oligomer Synthesis by Orthogonal Thiol-X Reactions,”, *Angewandte Chemie International Edition* **54** (48) 14462-14467 (2015) DOI: [10.1002/anie.201506711](http://dx.doi.org/10.1002/anie.201506711)

31. Tibbits, A.C.; Mumper, L.E.; **Kloxin, C.J.\***; & Yan, Y.S.\*, “A Single-Step Monomeric Photo-Polymerization and Crosslinking via Thiol-Ene Reaction for Hydroxide Exchange Membrane Fabrication,” *Journal of The Electrochemical Society*. **162** (10) F1206-F1211 (2015) DOI: [10.1149/2.0321510jes](http://dx.doi.org/10.1149/2.0321510jes)

30. Xi, W.; Peng, H.; Aguirre-Soto, A.; **Kloxin, C.J.**; Stansbury, J.; & Bowman, C.N., “Spatial and Temporal Control of Thiol-Michael Addition via Photo-caged Superbase in Photopatterning and Two-stage Polymer Networks Formation,” *Macromolecules* **47** (18) 6159-6165 (2014) DOI: [10.1021/ma501366f](http://dx.doi.org/10.1021/ma501366f).

1. Xi, W.;Scott, T.F.; **Kloxin, C.J.**; & Bowman, C.N., “Click Chemistry in Materials Science,” *Advanced Functional Materials* **24** (18) 2572-2590 (2014) [cover] DOI: [10.1002/adfm.201302847](http://dx.doi.org/10.1002/adfm.201302847)
2. Chantani, S.; **Kloxin, C.J.**; & Bowman, C.N., “The power of light in polymer science: photochemical processes to manipulate polymer formation, structure, and properties,” *Polymer Chemistry* **5** 2187-2201 (2014) DOI: [10.1039/C3PY01334K](http://dx.doi.org/10.1039/C3PY01334K).
3. Ma, S.J.; Mannino S.J.; Wagner, N.J.; & **Kloxin**, **C.J.­\***, “Photodirected Formation and Control of Wrinkles on a Thiol−ene Elastomer,” *ACS Macro Letters* **2** 474-477 (2013) DOI: [10.1021/mz400166e](http://dx.doi.org/10.1021/mz400166e).
4. **Kloxin C.J.** & Bowman C.N., “Covalent adaptable networks: smart, reconfigurable and responsive network systems,” *Chemical Society Reviews* **42** (17), 7161-7173 (2013) DOI: [10.1039/C3CS60046G](http://dx.doi.org/10.1039/C3CS60046G).
5. Xi, W.; Krieger, M.; **Kloxin C.J.**; & Bowman, C.N., “A New Photoclick Reaction Strategy: Photo-induced Catalysis of the Thiol-Michael Addition via a Caged Primary Amine,” *Chemical Communications* **49** (40) 4504-4506 (2013) DOI: [10.1039/C3CC41123K](http://dx.doi.org/10.1039/C3CC41123K).
6. Adzima, B.J.; **Kloxin, C.J.**; DeForest, C.A.; Anseth, K.S.; & Bowman, C.N., “Photofixation lithography in Diels—Alder Networks,” *Macromolecular Rapid Communications* **33** (24) 2092-2096 (2012) DOI: [10.1002/marc.201200599](http://dx.doi.org/10.1002/marc.201200599).
7. Xi, W.; Chen, W.; **Kloxin, C.J**.; & Bowman, C.N., “Nitrogen-centered Nucleophiles Catalyzed Thiol-Vinylsulfone Addition, Another Thiol-ene “Click” Reaction,” *ACS Macro Letters* **1** (7) 811-814 (2012) DOI: [10.1021/mz3001918](http://dx.doi.org/10.1021/mz3001918).
8. Park, H.Y.; **Kloxin, C.J.**; Abuelyaman, A.S.; Oxman, J.D.; & Bowman, C.N., “Novel dental restorative materials having low polymerization shrinkage stress via stress relaxation by addition-fragmentation chain transfer,” **28** (11) 1113-1119 (2012) *Dental Materials* DOI: [10.1016/j.dental.2012.06.012](http://dx.doi.org/10.1016/j.dental.2012.06.012).
9. Park, H.Y.; **Kloxin, C.J.**; Abuelyaman, A.S.; Oxman, J.D.; & Bowman, C.N., “Stress relaxation via addition-fragmentation chain transfer in high Tg, high conversion methacrylate-based systems,” *Macromolecules* **45** (14) 5640-5646 (2012) DOI: [10.1021/ma300228z](http://dx.doi.org/10.1021/ma300228z)
10. Park, H.Y.; **Kloxin, C.J.**; Fordney, M.F.; & Bowman, C.N., “Stress reduction and Tg enhancement in ternary thiol–yne–methacrylate systems via addition–fragmentation chain transfer,” *Macromolecules* **45** (14) 5647-5652 (2012) DOI: [10.1021/ma300225q](http://dx.doi.org/10.1021/ma300225q)
11. Bowman, C.N.; & **Kloxin, C.J.\*;** “Covalent Adaptable Networks: Incorporation of Reversible Bond Structures in Crosslinked Polymer Networks,” *Angewandte Chemie International Edition* [Highlight], **51** (18) 4272-4274 (2012) DOI: [10.1002/anie.201200708](http://dx.doi.org/10.1002/anie.201200708).
12. Koehler, K.C.; Durackova, A.; **Kloxin, C.J.**; & Bowman, C.N., “Kinetic and thermodynamic measurements for the facile property prediction of Diels-Alder-conjugated materials,” *AIChE Journal*, (2012) DOI: [10.1002/aic.13733](http://dx.doi.org/10.1002/aic.13733).
13. Park, H.Y.; **Kloxin, C.J.**; Fordney, M.F.; & Bowman, C.N., “Stress Relaxation of Trithiocarbonate-Dimethacrylate-based Dental Composites,” *Dental Materials*. **28** (8) 888-893 (2012) DOI: [10.1016/j.dental.2012.04.016](http://dx.doi.org/10.1016/j.dental.2012.04.016).
14. Scott, T.F.; **Kloxin, C.J.**; Forman D.; McLeod, R.R. & Bowman, C.N., “Principles of voxel refinement in optical direct write lithography,” *Journal of Materials Chemistry* **21** (37) 14150-14155 (2011) DOI: [10.1039/C1JM11915J](http://dx.doi.org/10.1039/C1JM11915J).

*Prior to June 2011*

1. **Kloxin, C.J.**; Scott, T.F.; Park, H.; & Bowman, C.N., “Mechanophotopatterning on a Photoresponsive Elastomer”, *Advanced Materials* **23** (17) 1977-1981 (2011) DOI: [10.1002/adma.201100323](http://dx.doi.org/10.1002/adma.201100323) [[Frontispiece](http://onlinelibrary.wiley.com/doi/10.1002/adma.201190062/abstract)].

This work was featured in *Nature* “News and Views” by Prof. Huck **472** (7344) 425 (2011) DOI: [10.1038/472425a](http://dx.doi.org/10.1038/472425a).

1. Tanner, S.A.; Amin, S.; **Kloxin, C.J.**; & van Zanten, J.H., “Microviscoelasticity of Soft Repulsive Sphere Dispersions: Tracer Particle Microrheology of Triblock Copolymer Micellar Liquids and Soft Crystals”, *Journal of Chemical Physics* **134** (17) 174903 (2011) DOI: [10.1063/1.3578183](http://dx.doi.org/10.1063/1.3578183).
2. Adzima, B.J.; Tao, Y.; **Kloxin, C.J.**; DeForest, C.A.; Anseth, K.S.; & Bowman, C.N., “Spatial and temporal control of the alkyne—azide cycloaddition by photoinitiated Cu(II) reduction”, *Nature Chemistry* **3**, 258-261 (2011) DOI: [10.1038/nchem.980](http://dx.doi.org/10.1038/nchem.980).
3. Park, H.Y.; **Kloxin, C.J**; Scott, T.F.; & Bowman, C.N., “Stress relaxation by addition-fragmentation chain transfer in highly crosslinked thiol-yne networks”, *Macromolecules* **43** (24) 10188-10190 (2010) DOI: [10.1021/ma1020209](http://dx.doi.org/10.1021/ma1020209).
4. Park, H.Y.; **Kloxin, C.J.**; Scott, T.F.; & Bowman, C.N., “Covalent adaptable networks as dental restorative resins: Stress relaxation by addition-fragmentation chain transfer in allyl sulfide containing resins”, *Dental Materials* **26** (10) 1010-1016 (2010) DOI: [10.1016/j.dental.2010.06.007](http://dx.doi.org/10.1016/j.dental.2010.06.007).
5. Kloxin, A.M.; **Kloxin, C.J.**; Bowman, C.N.; & Anseth, K.A., “Mechanical properties of cellularly responsive hydrogels and their experimental determination”, *Advanced Materials* **22** (31) 3484-3494 (2010) DOI: [10.1002/adma.200904179](http://dx.doi.org/10.1002/adma.200904179).
6. Adzima, B.J.; **Kloxin, C.J.**; & Bowman, C.N., “Externally triggered healing of a thermoreversible covalent network via self-limited hysteresis heating,” *Advanced Materials* **22** (25) 2784-2787 (2010) DOI: [10.1002/adma.200904138](http://dx.doi.org/10.1002/adma.200904138).
7. **Kloxin, C.J.**; Scott, T.F.; Adzima, B.J.; & Bowman, C.N., “Covalent adaptable networks (CANs): A unique paradigm in crosslinked polymers,” *Macromolecules* **43** (6) 2643-2653 (2010) DOI: [10.1021/ma902596s](http://dx.doi.org/10.1021/ma902596s). [Cover]
8. **Kloxin, C.J.** & van Zanten, J.H., “High pressure phase diagram of an aqueous PEO-PPO-PEO triblock copolymer system via probe diffusion measurements” *Macromolecules* **43** (4) 2084-2087 (2010) DOI: [10.1021/ma902571h](http://dx.doi.org/10.1021/ma902571h).

6. **Kloxin, C.J.** & van Zanten, J.H., “Microviscoelasticity of adhesive hard sphere dispersions: Tracer particle microrheology of aqueous Pluronic L64 solutions”, *Journal of Chemical Physics* **131** (13) 134904 (2009) DOI: [10.1063/1.3238570](http://dx.doi.org/10.1063/1.3238570).

5. **Kloxin, C.J.**; Scott, T.F.; & Bowman, C.N., “Stress relaxation via addition-fragmentation chain transfer in a thiol-ene photopolymerization,” *Macromolecules* **42** (7) 2551-2556(2009) DOI: [10.1021/ma802771b](http://dx.doi.org/10.1021/ma802771b).

1. Fairbanks, B.D.; Scott, T.F.; **Kloxin, C.J.**; Anseth, K.S.; & Bowman, C.N., “Thiol-yne photopolymerizations: Novel mechanism, kinetics, and step-growth formation of highly cross-linked networks,” *Macromolecules* **42** (1), 211-217 (2009) DOI: [10.1021/ma801903w](http://dx.doi.org/10.1021/ma801903w).
2. Scott, T.F.; **Kloxin, C.J.**; Draughon, R.B.; & Bowman, C.N., “Nonclassical dependence of polymerization rate on initiation rate observed in thiol-ene photopolymerizations,” Macromolecules **41 (9)**, 2987-2989 (2008) DOI: [10.1021/ma8002505](http://dx.doi.org/10.1021/ma8002505).
3. Bowman, C.N. & **Kloxin, C.J.**, “Toward an enhanced understanding and implementation of photopolymerization reactions,” AIChE Journal **54** (11), 2774-3037 (2008) DOI: [10.1002/aic.11678](http://dx.doi.org/10.1002/aic.11678) [Cover].
4. Adzima, B.J.; Aguirre, H.A.; **Kloxin, C.J.**; Scott, T.F.; & Bowman, C.N., “Rheological and chemical analysis of reverse gelation in a covalently cross-linked Diels-Alder polymer networks,” Macromolecules **41** (23), 9112-9117 (2008) DOI: [10.1021/ma801863d](http://dx.doi.org/10.1021/ma801863d).

#### Book Chapter

1. **Kloxin, C.J.**, “Reversible covalent bond formation as a strategy for healable polymer networks,” in the RSC Polymer Chemistry Series entitled, “Healable Polymer Systems”, Edited by Wayne Hayes and Barnaby Greenland (2013).

### Intellectual Property

* Pochan, DJ; **Kloxin, CJ**, Saven JG; Wu, D; Villegas, J; Zhang, H; “Peptidic Macromolecular Assemblies,” WO 2019/040498; PCT/US2017/47375, Filed
* **Kloxin CJ**; Gordon, MB, Wagner, NJ; Epps, TH; Knappe, GA; Wang, S.; “Stress-responsive compositions and uses thereof,” US Patent #10,968,301, April 6, 2021.
* Bowman, C.N.; **Kloxin, C.J.**; Stansbury, J.; Gong, T.; McBride, M., “Composite compositions and methods of preparing the same,” US Patent #9,701,792, July 11, 2017
* Bowman, C.N.; **Kloxin, C.J.**; Xi, W.; Gong, T. Pattanayak, S., "Thiol-X Click Foldamers for Polymer Affinity and Catalysis Libraries,” US Patent #10,017,510; Issued July 10, 2018.
* Bowman C.N.; **Kloxin, C.J.**; Xi, W., “Click Nucleic Acids (CNAs),” US Patent #9,879,012; Issued January 30, 2018.
* Bowman, C.N.; **Kloxin, C.J.**; & Adzima, B.J., “Photoinduced Alkyne—Azide Click Reactions,” US Patent #9,176,380; Issued November 3, 2015.
* Bowman, C.N.; Adzima, B.J.; & **Kloxin, C.J.**, “Radio Frequency Magnetic Field Responsive Polymer Composites,” US Patent #9,044,902; Issued June 2, 2015.
* Bowman, C.N.; **Kloxin, C.J.**; & Adzima, B.J., “Novel Thermoreversible Network Scaffolds and Methods of Preparing Same" US Patent #9,012,127; Issued April 21, 2015.
* Bowman C.N.; **Kloxin, C.J.**; Park, H.Y.; Leung, D., “Stress relief for crosslinked polymers,” US Patent #8,455,565; Issued November 4, 2014.
* Abuelyaman, A.S.; Oxman J.D.; Yang Y.; Bowman C.N.; Park, H.Y.; & **Kloxin, C.J.**, “Disulfide monomers comprising ethylenically unsaturated groups suitable for dental compositions” US Patent #8,455,565; Issued June 4, 2013.
* Bowman C.N.; Park, H.Y.; **Kloxin, C.J.**; Abuelyaman, A.S.; Oxman J.D.; & Yang Y., “Disulfide monomers comprising ethylenically unsaturated norbornyl groups suitable for dental compositions” US Patent #8,431,626; Issued April 30, 2013.
* Thap, D.; West, P.R.; Gurney, J.A; Kalamen, J.; & **Kloxin, C.J.**, “Photosensitive polymer composition and element containing photosensitive polyamide and mixture of acrylates,” US Patent #5,925,498; Issued July 20, 1999.

### Invited Presentations

*June 2011-present*

1. “Responsive Materials Created from Bundlemer Structures,”  
   “A Peptide-based Macromonomer Approach to Create Rod-like Polymers,”  
    Pacifichem 2020 Congress, Honolulu, HI, December 16-21, 2021.
2. “Bundlemers: A Peptide-based Macromonomer Approach to Polymerization,” Seminar at University of Illinois Urbana-Champaign, Materials Science and Engineering, Urbana, IL, November 13, 2020.
3. “Bundlemers: A Peptide-based Macromonomer Approach to Hierarchical Materials Construction,” Seminar at Cal Poly, Chemistry and Biochemistry, San Luis Obispo, CA, March 6, 2020.
4. “Bundlemers: A Peptide-based Macromonomer Approach to Hierarchical Materials Construction,” Seminar at University of Wisconsin, Materials Science, Madison, WI, November 14, 2019.
5. “Network Formation and Functionalization via the Photo-CuAAC Reaction,” Photopolymerization Fundamentals 2019, Monterey, CA, September 14-18, 2019.
6. “Bundlemer Polymerization: A Peptide-based Macromonomer Approach to Hierarchical Materials Synthesis,” Seminar at the Air Force Research Lab, Dayton, OH, June 21, 2019.
7. “Externally Triggered Healing in Covalent Adaptable Networks”, APS National Meeting, Boston, MA, March 4-8, 2019.
8. “Bundlemer Polymerization: A Peptide-based Macromonomer Approach to Hierarchical Materials Synthesis”, PMSE Young Investigator Award, ACS National Meeting, Boston, MA, August 19-23, 2018.
9. “Click-based Covalent Adaptable Networks,” POLY Symposium on Vitrimers and Other Covalent Adaptable Networks, ACS National Meeting, Boston, MA, August 19-23, 2018.
10. “Interpenetrating Networks via Simultaneous Photoinitiation of Orthogonal Monomer Chemistries,” 5th European Symposium of Photopolymer Science (ESPS), Mulhouse, France, September 2-6, 2018.
11. “Photoinitiated Interpenetrating Triazole-Methacrylate Networks,” RadTech 2018, Chicago, IL, May 7-9, 2018.
12. “Photoclick-based Network Forming Strategies”, Seminar at Picatinny Arsenal, NJ, April, 19, 2018,
13. “Photoinitiated CuAAC-Methacrylate Interpenetrating Polymer Networks,” POLY Symposium on Photochemistry and Polymers, ACS National Meeting, New Orleans, LA, March 18-22, 2018.
14. “Photo-induced stress modulation in an elastomer substrate,” Frontiers of Photoactive Soft Matter (FSM) Workshop”, Boulder, CO, September 18-19, 2017.
15. “Orthogonal Network Forming Strategies using the Photoinitiated Copper-catalyzed Azide-Alkyne Cycloaddition Reaction,” Photopolymerization Fundamentals 2017, Boulder, CO, September 17-20, 2017.
16. “Clicking Together Modular Peptide Assemblies,” POLY Herman F. Mark Award Session in honor of Christopher Bowman, ACS National Meeting, Washington DC, August 22, 2017.
17. “Point and Click Synthesis: The Utilization of Photo-enabled Click Reactions in Polymer Formation and Modification,” Delaware ACS Meeting “ChemVets,” Wilmington, DE, November 11, 2015.
18. “Point and Click Network Formation,” Annual AIChE National Meeting, Salt Lake City, UT, November 9, 2015.
19. “Ion Conductive Network Formation using Photoinitiated Click Reactions,” Photopolymerization Fundamentals 2015, Boulder, CO, September 16, 2015.
20. “Point-and-Click Chemistry in Dental Materials,” Seminar at NIST AADR, Gaithersburg, MD, July, 24, 2015.
21. “Engineering Polymer Networks using a Few Good Reactions,” Seminar at the City College of New York (CCNY), Department of Chemical Engineering, New York City, NY, March 31, 2014.
22. “Mechanopatterned Polymer Networks via Light-Mediated, Chain Transfer Approaches,” 21st Biennial Polymer Network Meeting, Jackson Hole, WY, August 14, 2012.
23. “Mechanically Assisted Photolithography,” CIMTEC 2012 - 4th International Conference *Smart Materials, Structures and Systems*, Montecatini Terme, Italy, June 10, 2012.
24. “Novel Polymer Networks and Mechanopatterned Materials via Light-mediated, Chain Transfer Approaches,” Seminar at 3M, St. Paul, MN, December 16, 2011.
25. “Reversible Covalent Chemistry in Polymer Networks,” Seminar at Dentsply International Inc., Milford, DE, July 29, 2011.
26. “Photochemical and Thermal Covalent Adaptable Networks,” Seminar at Army Research Laboratory, Aberdeen, MD, March 10, 2010.

#### Contributed Presentations

1. “Hierarchical Assembly of Coiled-coil Peptides via Click Conjugation,” MRS National Meeting, Boston, MA, November 27, 2017.
2. “Photodirected Wrinkling via a Facile Two-stage Polymerization Scheme,” Zing 4th Annual Polymer Chemistry Conference, Cancun, MX, December 12, 2014.
3. “Recent Developments in APT-Based Polymerization Reactions: The Iodo-Ene Reaction”, AIChE National Meeting, Minneapolis, MN, October 2011.

*Prior to June 2011*

1. C.J. Kloxin, T.F. Scott, and C.N. Bowman, “Photomediated Thiol-ene Click Chemistry Methodologies for the Synthesis of Controlled Macromolecular Sequences”, Australasian Polymer Symposium, Coffs Harbour, Australia, February 2011.
2. C.J. Kloxin, B.J. Adzima, and C.N. Bowman, “Externally triggered healing of thermoreversible covalent adaptable network via self-limited hysteresis heating”, AIChE National Meeting, Salt Lake City, UT, November 2010.
3. C.J. Kloxin, H.Y. Park, T.F. Scott, and C.N. Bowman, “Reversible Addition-fragmentation Chain Transfer for Low Stress Thiol-ene/-yne Networks”, 240th American Chemical Society National Meeting, POLY, Boston, MA, August 2010.
4. C.J. Kloxin, H.Y. Park, T.F. Scott, and C.N. Bowman, “Addition-fragmentation Chain Transfer in Chemical Networks”, Macro2010, 43rd IUPAC World Polymer Congress, Glasgow, UK, July 2010.
5. C.J. Kloxin, T.F. Scott, and C.N. Bowman, “Photoreversible Covalent Adaptable Networks”, 11th Pacific Polymer Conference, Cairns, Australia, December 2009.
6. C.J. Kloxin, T.F. Scott, and C.N. Bowman, “Photochemical Adaptable Networks”, AIChE National Meeting, Nashville, TN, November 2009.
7. C.J. Kloxin, T.F. Scott, R.B. Draughon, and C.N. Bowman, “Photo-induced stress relaxation in thiol-ene polymer networks”, 235th American Chemical Society National Meeting, PMSE, New Orleans, LA, April 2008.
8. C.J. Kloxin, T.F. Scott, and C.N. Bowman, “Stress relaxation in cross-linked polymers”, Materials Research Society Spring Meeting, San Francisco, CA, April 2007.
9. C.J. Kloxin and J.H. van Zanten, “Probe Diffusion and Microrheology”, AIChE National Meeting, San Francisco, CA, March 2003.

*Poster Presentations:*

1. Kloxin, C.J., “Light-directed Surface Topography in Polymer Networks,” Gordon Research Conference, Macromolecular Materials, Ventura, CA, January 2013.
2. Kloxin, C.J., “Photo-induced delivery of siRNA-based therapeutics”, Butcher Symposium, Denver, CO., November 2009.
3. Kloxin, C.J.; Scott; T.F.; Draughon, R.B.; & Bowman, C.N., “Stress relaxation in thiol–ene polymer networks,” 3M IUCRC, Minneapolis, MN, April 2008.
4. Kloxin, C.J.; Scott, T.F.; Draughon, R.B.; & Bowman, C.N., “Stress relaxation in cross-linked polymers”, Photopolymerization Fundamentals Conference, Breckenridge, CO, June 2007.

### Advising

#### Current Researchers

**PhD students**:

* Albree Weisen MSE, F21-present
* Caitlin D’Ambrosio CBE, F21-present
* Tessa Posey CBE, F20-present
* Kenneth Crane-Moscowitz CBE, F20-present
* Joshua Meisenhelter CBE, F18-present
* Mukund Kabra CBE, F17-present

**Undergraduate Researchers**:

* Ben Smith MSE, Win22-present
* Julia Wolfe CBE, Sum22-present

#### Alumni of the C. Kloxin Group

**Post-doctoral Researchers (5)**: Stuart Dunn, PhD (Chemistry, January 2022-May 2022), Rajkumar Misra, PhD (Chemistry, April 2018-July 2019), Srimoyee Dasgupta, PhD (OChem, October 2015-December 2017); Dongdong Wu, PhD (OChem, August 2015-September 2017); Jonathan French, PhD (OChem, July 2014-July 2015)

**PhDs (7)**: Nicole Halaszynski (MSE, Sum22); Bryan P. Sutherland (MSE, F20); Bassil El-Zaatari (CBE, S18); Abhishek Shete (MSE, S18); Stephen J. Ma (CBE, S18); Melissa B. Gordon, PhD (CBE, F16), Andrew C. Tibbits, PhD (CBE, S17)

**Masters (3)**: Kaleigh Reno (CBE, Sum18); Samihita Kattekola (CBE, S17); Stephen Ekatan (MSE, F12)

**Undergraduate Researchers (22)**: Nolan Petrich (CBE, Sum20-sum22); Megan Dodge (CBE, REU-Lafayette, Sum22); Siamalan Krishnathas (CBE, REU-Georgia Tech, Sum22); Caitlin Iannetta (MSE, Win22-S22); Emily Linn (Chem/Bio, REU-UA, Sum21); Kate Christensen (CBE, W19-S20); Eric Chang (BME, Sum19); Grant Knappe (CBE, W16-S19); Derek Bischoff (CBE, Sum15-S19); Tessa Posey (BME, REU-SCarolina, Sum18); Zoeb Mohammedshah (CBE, REU-UPenn, Sum18); Colleen McGovern (CBE; REU-Lafayette, Sum17); Shelby Babcock (Chem; REU-ASU, Sum17); Shea Cole (CBE, W16-S17); Laura Mumper (CBE, Sum14-S17); Benjamin J. Carberry (CBE, Sum13-S16); Jonathan H. Galarraga (CBE, Sum13-S16); Justin M. Paloni (CBE, Sum13-S16); Thomas R. Cristiani (CBE, Sum12-S13); Samantha J. Mannino (CBE, W12-S14); John Affriol (CBE, Sum14); Stephanie Anderson (CBE, W13-Sum14).

#### PhD Committees

Kubota Munetaka(MSE), Sandra Milev (CEE), Natalia Markiewicz (CBE), Zihan Zhang (MSE), Keith Coasey (MSE), Derek Bischoff (MSE), Jignesh Mahajan (MSE), Mingchun Ye (CBE), Quintin Baugh (MSE), Ahmad Naqi (MSE), Mi-Jen Kuo (CBE), Yu-Tian Wong (MSE), Yao Tang (MSE), Yi Shi (MSE), Akash Vaidya (MSE), Haesoo Lee (CBE), Faheem Muhammed (MSE), Haofu Huang (MSE), Zach Stillman (CBE), Olivia Bercher (Chem, 2022), Kyunghee Kim (MSE, 2021), Jennie Liao (Chem, 2018), Shuyu Xu (MSE, 2018), Sina Rezazadeh (Chem, 2020), Yu Tian (MSE, 2018), Lucas Dunshee (CBE, 2021), David Phan (CBE, 2020), Hojin Kim (CBE), Eden Ford (CBE), Paige LeValley (CBE, 2020), Kimberly Dennis (CBE, 2020), Jilian Melamed (BME, 2019), Eric Fowler (MSE, 2021), Hang Kuen Lau (MSE, 2018), Liang Gong (MSE, 2016), Kevin Dicker (MSE, 2018), Wenqiong Tang (MSE, 2014), Jeong Jae Wie (CBE, 2012)

### Service

#### National Service

MRS National Meeting

* 2021, Organizer of Symposium on, “Peptide and Protein Design for Responsive Materials” (April 17-23, 2021, Virtual).
* 2015, Organizer of Symposium on, “Shape Programmable Materials” (November 29-December 4, 2015, Boston, MA).
* 2013, Organizer of Symposium on, “Point-and-Click Synthesis—Implementations of Click Chemistry in Polymers” (December 1-6, 2013, Boston, MA).

ACS National Meeting

* Co-organizing (with Nicholas Peppas) the Herman F. Mark Award Session (within POLY) at the 254th ACS National Meeting in Washington, DC (August 20-24, 2017).

Organizing committee member for the Polymer Networks Group (PNG2012) international conference (formerly IUPAC). Organized the following sessions: “Reversible Networks”, “Biomaterials – Smart & Responsive”, and “Smart & Responsive I & II”; chair of “Responsive Gels” plenary session; managed conference web-site (August 12-16, 2012, Jackson Hole, WY).

AIChE National Meeting:

* *Area Chair*:
  + 22B Nanobiotechnology, (November 13-18, 2016, San Francisco, CA).
  + 22B Nanobiotechnology, (November 8-13, 2015, Salt Lake City, UT).
* *Session Chair*:
  + 08A Polymers, Polymer Networks and Gels I (November 17-22, 2013, San Francisco, CA).
  + 08A Polymers, Polymer Thermodynamics I (October 8-November 2, 2012, Pittsburgh, PA);
  + 08A Polymers, Self-healing and Adaptable Materials (October 16-21, 2011, Minneapolis, MN);

CIMTEC ("Smart and Multifunctional Materials, Devices, Structures”)

* 2016, International Advisor Board for of “Symposium A: Stimuli Responsive and Multifunctional Polymers: Progress in Materials and Applications," Italy (Andreas Lendlein, Programme Chair)

Advisory/Editorial Board

*Polymer Chemistry* (2017-present)

*Coatings* (2010-2019)

NSF Panelist

Reviewer for: *ACS Applied Materials and Interfaces, ACS Biomaterials, ACS Macro Letters, ACS Sustainable Chemistry and Engineering, Advanced Materials, Biomacromolecules, Biomaterials Science, Chemical Sciences, Chemical Communications, European Polymer Journal, Industrial Engineering Chemical Research, Journal of Applied Polymer Science, Journal of the American Chemical Society*, *Journal of Materials Chemistry A, Journal of Materials Chemistry B, Journal of Nanoparticle Research, Journal of Polymer Science A: Polymer Chemistry, Langmuir, Macromolecular Rapid Communications, Macromolecular Symposia, Macromolecules, Nature, Nature Chemistry, Nature Communications, New Journal of Chemistry,* *Polymer, Polymer, Polymer Chemistry, Science Advances, & Soft Matter.*

#### University

* Graduate Council Member (2019-2020)
* UD Undergraduate Research Program, Senior Thesis University Representative (i.e., “Third Reader”) (2014-5, 2015-6, 2016-7, 2017-8, 2018-9)
* Created a module for UD High Rise program (in conjunction with TeenSHARP) and delivered lecture (2021).

#### College

* Junior Faculty Advisory Council of COE (Fall 2014 to 2019)

#### Department

* MSE Graduate Program Director (July 2022 to present)
* MSE Grad Committee (Fall 2014 to June 2022)
* MSE Chair Search Committee (2022)
* MSE Faculty Search Committee (2018-2019)
* CBE Graduate Curriculum Committee (2018-2020)
* MSE Departmental Seminar Series Coordinator (Spring 2015 to Fall 2019)
* CBE Undergraduate Advising (Fall 2014 to Spring 2018)
* Chemistry Inorganic Faculty Search Committee (2015)
* MSE Departmental Awards Committee (Spring 2013)