

Chen Wang, PhD

122 S Campus Dr, Room 217
Department of Materials Science and Engineering
University of Utah
Salt Lake City, UT
Email: chen.wang@utah.edu
Office: 801-581-6597
Google Scholar link

EDUCATION

| | | |
|--|---|--------------------|
| Ph.D. Chemical Engineering | University of Colorado Boulder | 2012 - 2016 |
| M.S. Polymer Chemistry | Beijing University of Chemical Technology | 2009 - 2012 |
| B.S. Polymer Materials and Eng. | Beijing University of Chemical Technology | 2005 - 2009 |

RESEARCH INTEREST

Polyester synthesis and depolymerization
Mechanics of photopolymers
Flexible substrates for electronics

PROFESSIONAL APPOINTMENTS

| | |
|---|-----------------------|
| Assistant Professor of MSE , University of Utah, Salt Lake City, UT | 2022 - present |
| Postdoctoral Researcher , National Renewable Energy Laboratory, Golden, CO | 2019 - 2021 |
| Materials Scientist , Formlabs Inc., Somerville, MA | 2017 - 2019 |
| Research Assistant , University of Colorado Boulder, Boulder, CO | 2012 - 2017 |

HONORS and AWARDS

| | |
|---|------------------|
| Outstanding Mentor for Interns and Postdocs, NREL | 2020 |
| Director's Award, NREL | 2020 |
| Recognition Award for Contributions in Photopolymerizations, by IUCRC | 2016 |
| Graduate School Student Travel Grant, University of Colorado Boulder | 2016 |
| GAANN award for Functional Materials (travel grant), University of Colorado Boulder | 2014 |
| Renmin Scholarship, Beijing University of Chemical Technology | 2007-2010 |

TEACHING EXPERIENCE

| | |
|--|------------------|
| Instructor University of Utah | Fall 2022 |
| <i>Introduction to Materials Science and Engineering</i> , undergraduate level (Student Course Feedback, SCF: 5.8/6.0) | |
| <i>Elements of Materials Science and Engineering</i> , undergraduate level (SCF: 5.1/6.0) | |

Part-time Instructor University of Colorado Boulder

Spring 2016

Chemical Engineering Reaction Kinetics, undergraduate level (Faculty Course Questionnaire, FCQ: 5.2/6.0)

Chemical Engineering Biokinetics, undergraduate level (FCQ: 5.3/6.0)

Advanced Teaching Assistant University of Colorado Boulder

Fall 2014

Reaction Engineering, graduate level

Teaching Assistant University of Colorado Boulder

Fall 2012

General Chemistry for Engineers, undergraduate level

FIRST-AUTHORED PUBLICATIONS

6. **Wang C.**; Mavila, S.; Worrell, B.T.; Xi, W.; Goldman, T.; Bowman, C. N. The Productive Exchange of Thiols and Thioesters to Form Dynamic Polythioester-Based Polymers, *ACS Macro Letters*, **2018**, 7(11), 1312
5. **Wang C.**; Goldman, T.; Worrell, B.T.; McBride, M.K.; Alim, M.; Bowman, C.N. Recyclable and repolymerizable thiol-X photopolymers, *Materials Horizons*, **2018**, 5(6), 1042
4. **Wang C.**; Zieger, M.; Schenzel, A.; Wegener, M.; Wilenbacher, J.; Barner-Kowollik, C.; Bowman, C.N. Photoinduced tetrazole-based functionalization of off-stoichiometric clickable microparticles, *Advanced Functional Materials*, **2017**, 27(7), 1605317
3. **Wang C.**; Zhang, X.; Podgorski, M.; Xi, W.; Shah, P.; Stansbury, J.; Bowman, C.N. Monodispersity/narrow polydispersity crosslinked microparticles prepared by step-growth thiol-Michael addition dispersion polymerizations, *Macromolecules*, **2015**, 48(23), 8461
2. **Wang C.**; Chatani, S.; Podgorski, M.; Bowman, C.N. Thiol Michael addition miniemulsion polymerizations: functional nanoparticles and reactive latex films, *Polymer Chemistry*, **2015**, 6(20), 3758
1. **Wang C.**; Podgorski, M.; Bowman, C.N. Monodisperse functional microspheres from step-growth "click" polymerizations: preparation, functionalization and implementation, *Materials Horizons*, **2014**, 1(5), 535

CO-AUTHORED PUBLICATIONS

19. McBride, M.K.; Worrell, B.T.; Brown, T.; Cox, L.M.; Sowan, N.; **Wang, C.**; Podgorski, M.; Martinez, A.M.; Bowman, C.N. Enabling Applications of Covalent Adaptable Networks (CANs). *Annual Review of Chemical and Biomolecular Engineering*, **2019**, 10, 175
18. Mavila, S.; Worrell, B.T.; Culver, H.R.; Goldman, T.M.; **Wang, C.**; Lim, C.H.; Domaille, D.W.; Pattanayak, S.; McBride, M.K.; Musgrave, C.B.; Bowman, C.N. Dynamic and Responsive DNA-like Polymers. *Journal of the American Chemical Society*, **2018**, 140(42), 13594
17. Worrell, B.T.; McBride, M.K.; Lyon, G.B.; Cox, L.M.; **Wang, C.**; Mavila, S.; Lim, C.H.; Coley, H.M.; Musgrave, C.B.; Ding, Y.; Bowman, C.N. Bistable and Photoswitchable States of Matter. *Nature communications*, **2018**, 9(1), 2804

16. Worrell, B.T.; Mavila, S.; **Wang, C.**; Kontour, T.; Lim C.H.; McBride, M.K.; Musgrave, C.; Shoemaker R.K.; Bowman C.N. A User's Guide to the Thiol-Thioester Exchange in Organic Media: Scope, Limitations, and Applications in Material Science. *Polymer Chemistry*, **2018**, 9(36), 4523
15. Zhang, D.; Liu, Z.; Konetski, D.; **Wang, C.**; Worrell, B.T.; Bowman, C.N. Liposomes formed from photo-cleavable phospholipids: in situ formation and photo-induced enhancement in permeability. *RSC Advances*, **2018**, 8(26), 14669
14. Konetski, D.; Mavila, S.; **Wang, C.**; Worrell, B.T.; Bowman, C.N. Production of dynamic lipid bilayers using the reversible thiol-thioester exchange reaction. *Chemical Communications*, **2018**, 54(58), 8108
13. Alim, M.D.; Glugla, D.J.; Mavila, S.; **Wang, C.**; Nystrom, P.D.; Sullivan, A.C.; McLeod, R.R.; Bowman, C.N. High Dynamic Range (Δn) Two-Stage Photopolymers via Enhanced Solubility of a High Refractive Index Acrylate Writing Monomer. *ACS applied materials & interfaces*, **2017**, 10(1), 1217
12. Cox, L. M.; Sun, X.; **Wang, C.**; Sowan, N Killgore, J. P.; Long, R.; Wu, H.-A.; Bowman, C. N.; Ding, Y. Light-Stimulated Permanent Shape Reconfiguration in Cross-Linked Polymer Microparticles. *ACS Applied Materials & Interfaces*, **2017**, 9(16), 14422
11. Alimohammadi F.; **Wang, C.**; Durham, O. Z.; Norton, H. R.; Bowman C. N.; Shipp, D. A. Radical Mediated Thiol-ene/yne Dispersion Polymerizations. *Polymer*, **2016**, 105, 180
10. Podgorski, M.; **Wang, C.**; Yuan, Y.; Konetski, D.; Smalyukh, I.; Bowman, C. N. Pristine Polysulfone Networks as A New Class of Polysulfide-derived High-performance Functional Materials. *Chemistry of Materials*, **2016**, 28 (14), 5102
9. Zhang, X.; Xi, W.; **Wang, C.**; Podgorski, M.; Bowman, C. N. Visible-Light-Initiated Thiol-Michael Addition Polymerizations with Coumarin-Based Photobase Generators: Another Photoclick Reaction Strategy. *ACS Macro Letters*, **2016**, 5, 229
8. Kaastrup, K.; Aguirre-Soto, A.; **Wang, C.**; Bowman, C. N.; Stansbury, J.; Sikes, H. D. UV-Vis/FT-NIR in-situ Monitoring of Visible-Light Induced Polymerization of PEGDA Hydrogels Initiated by Eosin/Triethanolamine/O₂. *Polymer Chemistry*, **2016**, 7 (3), 592
7. Podgorski, M.; **Wang, C.**; Bowman, C. N. Multiple Shape Memory Polymers Based on Laminates Formed from Thiol-Click Chemistry Based Polymerizations. *Soft Matter*, **2015**, 11, 6852
6. Xi, W.; Pattanayak S.; **Wang C.**; Fairbanks, B.; Gong, T.; Wagner, J.; Kloxin, C. J.; Bowman, C. N. Clickable nucleic acids: sequence-controlled periodic copolymer/oligomer synthesis by orthogonal thiol-X reactions, *Angewandte Chemie International Edition*, **2015**, 54(48), 14462
5. Berg, G. J.; McBride, M. K.; **Wang, C.**; Bowman, C. N. New Directions in the Chemistry of Shape Memory Polymers. *Polymer*, **2014**, 55, 5849
4. Chatani, S.; **Wang, C.**; Podgorski, M.; Bowman, C. N. Triple Shape Memory Materials Incorporating Two Distinct Polymer Networks Formed by Selective Thiol-Michael Addition Reactions. *Macromolecules*, **2014**, 47, 4949
3. Chatani, S.; Podgorski, M.; **Wang, C.**; Bowman, C. N. Facile and Efficient Synthesis of Dendrimers and One-Pot Preparation of Dendritic-Linear Polymer Conjugates via a Single Chemistry: Utilization of Kinetically Selective Thiol-Michael Addition Reactions. *Macromolecules*, **2014**, 47, 4894

2. Peng, H.; Nair, D.P.; Kowalski, B.A.; Xi, W.; Gong, T.; **Wang, C.**; Cole, M.; Cramer, N. B.; Xie, X.; McLeod, R. R.; Bowman, C. N. High Performance Graded Rainbow Holograms via Two-Stage Sequential Orthogonal Thiol Click Chemistry. *Macromolecules*, **2014**, *47*, 2306
1. Xie, J.; Wang, H.; Bai, H.; Yang, P.; Shi, M.; Guo, P.; **Wang, C.**; Yang, W.; Song, H. Worm-like Micelle Assisted Rod Coating: A General Method for Facile Fabrication of Large-Area Conductive Nanomaterial Thin Layer onto Flexible Plastics. *ACS Applied Materials Interfaces*, **2012**, *6*, 2891

PATENTS AND OTHER PUBLICATIONS

4. Wang, Musgrave. *US Provisional Patent*, **2022**
3. **Wang**, Beckham. Plastics Waste-derived Polymers and Resins and Methods of Making the Same, *US Provisional Patent*, **2020**
2. Bowman, Worrell, Lyon, McBride, **Wang**. Network Polymers and Methods of Making and Using Same, *US Patent*, **2017**
1. Bowman, **Wang**. Monodisperse Microspheres and Method of Preparing Same, *US Patent*, **2015**
0. Senguen, F. T. and **Wang, C.** Validating Isotropy in SLA Additive Manufacturing, *RadTech UV+EB Technology*, Issue 2, **2018**

INVITED TALKS AND SEMINARS

3. **Wang, C. et al.** Polyesters to Performance Thermoplastics and Thermosets, Rocky Mountain Mechanics Symposium, Bozeman, MT (2022)
2. **Wang, C. et al.** Upcycling Waste Polyesters to Performance Thermoplastics and Thermosets, ACS Green Chemistry & Engineering Conference, Seattle, WA (2020)
1. **Wang, C.** Recyclable and Repolymerizable Thermosetting Photopolymers, Zhejiang University, China (2019)
0. **Wang, C.** Recyclable and Repolymerizable Thermosetting Photopolymers, National Renewable Energy Laboratory, Golden, CO (2019)

CONFERENCE PARTICIPATION

14. **Wang, C.**; Henson, W. R. Bio-derived Carboxylic Acids. Oral Presentation, **Radtech 2020**, Orlando, FL (2020)
13. **Wang, C.** Click Polymerizations *en route* to Advanced Materials. Poster Presentation, **AICHE National Meeting**, San Francisco, CA (2016)
12. **Wang, C.**; Goldman T. M.; Worrell, B. T.; McBride, M. K.; Bowman, C. N. Recyclable and Repolymerizable Thiol-X Photopolymers. Poster Presentation, **Photopolymerization Symposium**, Esters Park, CO (2016)
11. **Wang, C.**; McBride, M. K.; Worrell, B. T.; Lyon, G. B.; Bowman, C. N. Thioesters in Photopolymerizations: A Route to Reconfigurable and Low Stress Polymers. Oral Presentation, **IUCRC Photopolymerization Meeting**, Esters Park, CO (2016)

10. **Wang, C.**; Bowman, C. N. Step-growth Clickable Micro/nano-Particles. Oral Presentation, **RadTech Annual Meeting**, Chicago, IL (2016)
9. **Wang, C.**; Bowman, C. N. Step-growth Clickable Micro/nano-particles. Oral Presentation, **ACS National Meeting**, San Diego, CA (2016)
8. **Wang, C.**; Bowman, C. N. Step-growth Clickable Micro/nano-particles. Oral Presentation, **ACS Colloidal and Surface Science Symposium**, Boston, MA (2016)
7. **Wang, C.**; Barner-Kowollik, C.; Bowman, C. N. Polymer μ Network: Preparation and Photo-induced Functionalization. Poster Presentation, **Photopolymerization Fundamentals**, Boulder, CO (2015)
6. **Wang, C.**; Chatani, S.; Podgórski, M.; Bowman, C. N. Functional Nanoparticles from Thiol-Michael Addition Miniemulsion Polymerizations. Poster Presentation, **IUCRC photopolymerization meeting**, Seattle, WA (2015)
5. **Wang, C.**; Podgórski, M.; Bowman, C. N. Heterogeneous Thiol-Michael Addition Polymerization for the Design of Functional Microparticles. Oral Presentation, **ACS National Meeting**, Denver, CO (2015)
4. **Wang, C.**; Bowman, C. N. Monodisperse Microspheres from Step-growth Click Polymerization. Poster Presentation, **IUCRC photopolymerization meeting**, Rocky Hill, CT (2014)
3. **Wang, C.**; Bowman, C. N. Monodisperse Microspheres from Step-growth Click Polymerization. Poster Presentation, **Hangzhou Polymer International Forum**, Hangzhou, China (2014)
2. **Wang, C.**; Gong, T.; Bowman, C. N. Polymer Networks formed by Simultaneous Photo-Induced Atom Transfer Radical Polymerization and Copper(I) Catalyzed Alkyne-Azide Cycloaddition. Poster Presentation, **Photopolymerization Fundamentals**, Jackson, WY (2013)
1. **Wang, C.**; McBride, M. K.; Gong, T.; Bowman, C. N. Novel Polymer Networks from Copper(I) Catalyzed Alkyne-Azide Cycloaddition. Poster Presentation, **IUCRC photopolymerization meeting**, Chicago, IL (2013)

MENTORING EXPERIENCE

Grant Musgrave, PhD Student, University of Utah (2021-)

Barnali Sutradhar, PhD Student, University of Utah (2022-)

Amelia Heiner, MS Student, University of Utah (2022-)

Caleb Reese, Postdoc, University of Utah (2022-)

Grant Musgrave, Post-bachelor Intern, NREL (2020)

Morgan Skala, Post-bachelor Intern, NREL (2020)

J. Michael Sieffert, SULI summer Intern, NREL (2020)

Pooja Reddy, undergraduate Summer Intern, Formlabs Inc. (2019)

Nicholas Bongiardina, undergraduate Independent Study Student, CU-Boulder (2016)

Trevor Goldman, undergraduate Independent Study Student, CU-Boulder (2015-2016)

Chelsea McConnell, 1st year graduate student, CU-Boulder (2014)

Dillon Love, 1st year graduate student, CU-Boulder (2014)

Brittany Earle, undergraduate Research Assistant, CU-Boulder (2014)

Amber Lane, undergraduate Research Assistant, CU-Boulder (2013)

SERVICE TO THE PROFESSION

Journal Referee Materials Horizons, Nature Communication Physics, Polymer Chemistry, Polymer, Chemical Communication, Journal of Materials Chemistry, Progress in Organic Coatings, Journal of Applied Polymer Science, Current Organic Chemistry, Polymer International, Polymers, Materials, Technologies, Polymer Reviews

Editorial Board RadTech UV+EB Magazine, 2017-present

Judge MIT Polymer Day, 2018 & 2019

Member Sustainable Packaging Coalition, American Chemical Society, American Institute of Chemical Engineers

Organizer StARs Symposium, CU-Boulder Chemical and Biological Engineering Department, 2014

Volunteer Tutoring immigrant students at Somerville High School, 2019