

Xiaoguang (William) Wang, Ph.D. Assistant Professor

Department of Chemical and Biomolecular Engineering / Core Faculty at Sustainability Institute, The Ohio State University
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Google scholar: https://scholar.google.com/citations?hl=en&user=o_wCiXYAAAAJ&view_op=list_works

EDUCATION

- B.S. Chemical Engineering, Zhejiang University, China, 2008
M.S. Chemical Engineering, Zhejiang University, China, 2011
Thesis: RAFT-Mediated ab Initio Emulsion Polymerization (Advisor: Yingwu Luo; Shiping Zhu, McMaster University, Canada)
Ph.D. Chemical Engineering, University of Wisconsin-Madison, 2016
Dissertation: Liquid Crystal-Templated Assembly of Colloids and Molecules (Advisor: Nicholas L. Abbott)

PROFESSIONAL EXPERIENCE

- 2019/01–Present Assistant Professor, Department of Chemical and Biomolecular Engineering, The Ohio State University
2019/01–Present Core Faculty, Sustainability Institute, The Ohio State University
2016/09–2018/12 Postdoctoral Fellow, School of Engineering and Applied Sciences, Harvard University (Advisor: Joanna Aizenberg)

HONORS AND AWARDS

- 2024 NSF CAREER Award (DMR Polymers)
2024 ACS Polymeric Materials: Science and Engineering (PMSE) Early Investigator Award
2024 College of Engineering Lumley Research Award, The Ohio State University
2022, 2023 *Nano-Micro Letters* ESI Top Article Award
2022 Defense Advanced Research Projects Agency (DARPA) Riser
2021 *Journal of Materials Chemistry A* Emerging Investigator
2016 Outstanding Self-Financed Students Abroad, China
2011 Outstanding Graduate, Zhejiang University, China
2009 Evonik Scholarship, Evonik–Degussa GmbH, Germany
2008 Outstanding Undergraduate, Zhejiang University, China
2008 Outstanding Undergraduate, Zhejiang Province, Educational Office of Zhejiang Province, China
2008 National Scholarship, Education Ministry of China
2007 Air Products Scholarship, Air Products and Chemicals, Inc., USA
2007 Sanhe Pharmachem Scholarship, Sanhe Pharmachem Co. Ltd., China
2007 First Prize of Research and Innovation Scholarship, Zhejiang University, China
2006 Mitsui Chemicals Scholarship, Mitsui Chemicals, Inc., Japan

PROFESSIONAL ACTIVITIES

- Guest Editor Frontiers in Bioengineering and Biotechnology
Member American Institute of Chemical Engineers
Member American Chemical Society
Member American Physical Society
Session Chair, Co-Chair Application Opportunities Through Unconventional Liquid Crystal Science, Gordon Research Conference, Liquid Crystals, 2023; Polymer Network and Gels, AIChE Annual Meeting, 2022, 2023; Emulsions and Foams, AIChE Annual Meeting, 2022, 2023; Fundamentals of Interfacial Phenomena, AIChE Annual Meeting, 2022, 2023; Special Topics in Colloids, AIChE Annual Meeting, 2022; Carbon Nanomaterials: Synthesis, Functionalization, Assembly, and Applications, AIChE Annual Meeting, 2021
Seminar Chair, Co-Chair Gordon-Kenan Research Seminar, Gordon Research Conference, Liquid Crystals, 2015
NSF Reviewer DMR Polymers

RESEARCH GRANTS

External Grants:

- 2 CAREER: Controlling Chain Conformation in Amorphous Polymers through Soft Nanoscale Confinement
PI: **Wang, X.**
Award Number: 2339425
Sponsoring Organization: NSF DMR Polymers
Start and End Date: 2024/08/01–2029/07/31
Amount of Award from Contract Source: \$666,742
1 Collaborative Research: Inkjet Printing Framework by Droplet Impact-induced Ink Release from Liquid Crystal Receiving Substrate
PI: **Wang, X.**
Award Number: 2227991
Sponsoring Organization: NSF CMMI Advanced Manufacturing
Start and End Date: 2023/07/01–2026/06/30
Amount of Award from Contract Source: \$358,360

Internal Grants:

- 7 Topological Dipole Lattices in Geometrically Confined Nematic Liquid Crystals.
PI: **Wang, X.**
Sponsoring Organization: OSU Institute for Materials Research Kickstart Facility Grant
Start and End Date: 2024/01/01–2024/12/31
Amount of Award from Contract Source: \$2,500
- 6 Design of Low-Cost Thermoelectric Materials Based on MXene/Carbon Composites.
PI: **Wang, X.**
Sponsoring Organization: OSU Sustainability Institute
Start and End Date: 2020/07/01–2021/06/30
Amount of Award from Contract Source: \$25,000
- 5 Design of Low-Cost Thermoelectric Materials Based on MXene Composites
PI: **Wang, X.**
Sponsoring Organization: OSU Institute for Materials Research Kickstart Facility Grant
Start and End Date: 2021/04/15–2022/04/14
Amount of Award from Contract Source: \$2,500
- 4 Deformation Behavior of Nano-Architected Liquid Crystal Elastomers
PI: **Wang, X.**
Sponsoring Organization: OSU Institute for Materials Research Kickstart Facility Grant
Start and End Date: 2020/04/15–2021/04/14
Amount of Award from Contract Source: \$2,500
- 3 Effect of Polymer Chain Sequence and Architecture on Phase Behavior and Thermomechanical Response of Liquid Crystalline Copolymers Consisting of Oblate and Prolate Liquid Crystal Monomers
PI: **Wang, X.**
Sponsoring Organization: OSU Institute for Materials Research
Start and End Date: 2022/06/07–2023/09/06
Amount of Award from Contract Source: \$40,000
- 2 Sustainable Materials and Zero Waste
Sponsoring Organization: OSU Sustainability Institute, OSU Wexner Medical Center, OSU Facilities Operations and Development
PI: Gabel, L. Co-PIs: **Wang, X.** etc.
Start and End Date: 2022/03/01–2023/06/30
Amount of Award from Contract Source: \$175,000; Wang amount: \$150,000
- 1 Development of a Biobased Packaging Film Made From Food Waste and Designed with Accelerated Degradation Capabilities in Landfills.
PI: Pascall, M. Co-PIs: **Wang, X.**; Yousef, A.; Ezeji, T.
Sponsoring Organization: OSU Sustainability Institute
Start and End Date: 2023/05/01–2024/08/31
Amount of Award from Contract Source: \$25,000

COMPLETE LIST OF PUBLICATIONS

- 59 Lv, H.; Yao, Y.; Yuan, M.; Chen, G.; Wang, Y.; Rao, L.; Li, S.; Kara, U. I.; Dupont, R. L.; Zhang, C.; Chen, B.; Liu, B.; Zhou, X.; Wu, R.; Adera, S.; Che, R.; Zhang, X.; **Wang, X.**
Functional Nanoporous Graphene Superlattice.
Nature Communications 2024, 15, 1295.
- 58 Liu, J.; Yang, H.; Kara, U. I.; Boerner, E.; Luo, Y.; Yu, H.; Xu, Y.; **Wang, X.**; Huang, K.
A Facile Synthesis of Stable Copper-Based Core-Shell Catalysts for Highly Efficient 4-Nitrophenol Reduction and Benzyl Alcohol Oxidation.
Chemical Engineering Journal 2024, 479, 147778.
- 57 Becerra, D.; Xu, Y.; **Wang, X.**; Hall, L.
Impact of Molecular-level Structural Disruption on Relaxation Dynamics of Polymers with End-on and Side-on Liquid Crystal Moieties.
ACS Nano 2023, 17, 24790–24801.
- 56 Xu, H.; Zhou, Y.; Daniel, D.; Herzog, J.; **Wang, X.**; Sick, V.; Adera, S.
Droplets Attraction and Coalescence Mechanism on Textured Oil-Impregnated Surfaces.
Nature Communications 2023, 14, 4901.
- 55 Yu, L.; Wang, R.; Li, S.; Kara, U. I.; Boerner, E. C.; Chen, B.; Zhang, F.; Jian, Z.; Li, S.; Liu, M.; Wang, Y.; Liu, S.; Yang, Y.; Wang, C.; Zhang, W.; Yao, Y.; **Wang, X.**; Wang, C.
Experimental Insights into Conformational Ensembles of Assembled β -Sheet Peptides.
ACS Central Science 2023, 9, 1480–1487.
- 54 Borbora, A.; Xu, Y.; Dey, S.; Wang, X.; Yao, Y.; Mandal, B. B.; **Wang, X.**; Manna, U.
Lubricated Interfaces Enabling Simultaneous Pulsatile and Continuous Chemical Release Modes.
Advanced Materials 2023, 35, 2302264.
- 53 Zhang, W.; Wang, R.; Liu, M.; Li, S.; Vokoun, A. E.; Deng, W.; Dupont, R. L.; Zhang, F.; Li, S.; Wang, Y.; Liu, Z.; Zheng, Y.; Liu, S.; Yang, Y.; Wang, C.; Yu, L.; Yao, Y.; **Wang, X.**; Wang, C.

- Single-Molecule Visualization Determines Conformational Sub-State Ensembles in β -Sheet-Rich Peptide Fibrils.
Science Advances 2023, 9, adg7943.
- 52 Chang, Y.; Cai, X.; Syahirah, R.; Yao, Y.; Xu, Y.; Jin, G.; Bhute, V. J.; Torregrosa-Allen, S.; Elzey, B. D.; Won, Y.-Y.; Deng, Q.; Lian, X.; **Wang, X.**; Eniola-Adefeso, O.; Bao, X.
CAR-Neutrophil Mediated Delivery of Tumor-Microenvironment Responsive Nanodrugs For Effective and Safe Glioblastoma Chemoimmunotherapy.
Nature Communications 2023, 14, 2266.
- 51 Lv, H.; Yao, Y.; Li, S.; Wu, G.; Zhao, B.; Zhou, X.; Dupont, R. L.; Kara, I. U.; Zhou, Y.; Xi, S.; Liu, B.; Che, R.; Zhang, J.; Xu, H.; Adera, S.; Wu, R.; **Wang, X.**
Graphene With Staggered, Ordered Nanometer-Sized Pores Converts Electromagnetic Waves to Electricity.
Nature Communications 2023, 14, 1982.
- 50 Wang, C.; Liu, L.; **Wang, X.**
Editorial: The Hierarchical Organization of Supramolecular Systems: From Fundamentals to Biomedical Applications, Vol. II.
Frontiers in Bioengineering and Biotechnology 2023, 11, 1177799.
- 49 Zhang, M.; Vokoun, A. E.; Chen, B.; Deng, W.; Dupont, R. L.; Xu, Y.; **Wang, X.**
Advancements in Droplet Reactor Systems Represent New Opportunities in Chemical Reactor Engineering: A Perspective.
The Canadian Journal of Chemical Engineering 2023, 101, 5189–5207.
- 48 Dhar, M.; Kara, U. I.; Das, S.; Xu, Y.; Mandal, S.; Dupont, R. L.; Boerner, E. C.; Chen, B.; Yao, Y.; **Wang, X.**; Manna, U.
Design of a Self-Cleanable Multilevel Anticounterfeiting Interface Through Covalent Chemical Modulation.
Materials Horizons 2023, 10, 2204–2214.
- 47 Xu, Y.; Yao, Y.; Deng, W.; Fang, J.-C.; Dupont, R. L.; Zhang, M.; Copar, S.; Tkalec, U.; **Wang, X.**
Magnetoccontrollable Droplet Mobility on Liquid Crystal-Infused Porous Surfaces.
Nano Research 2023, 16, 5098–5107.
- 46 Yao, Y.; Bennett, R. K. A.; Xu, Y.; Rather, A. M.; Li, S.; Cheung, T. C.; Bhanji, A.; Kreder, M. J.; Daniel, D.; Adera, S.; Aizenberg, J.; **Wang, X.**
Wettability-based Ultrasensitive Detection of Amphiphiles Through Directed Concentration at Disordered Regions in Self-Assembled Monolayers.
Proceedings of the National Academy of Sciences of the United States of America 2022, 119, e2211042119.
- 45 Xu, Y.; Chang, Y.; Yao, Y.; Zhang, M.; Dupont, R. L.; Rather, A. M.; Bao, X.; **Wang, X.**
Modularizable Liquid Crystal-Based Open Surfaces Enable Programmable Chemical Transport and Feeding Using Liquid Droplets.
Advanced Materials 2022, 34, 2108788.
- 44 Rather, A. M.; Xu, Y.; Chang, Y.; Dupont, R. L.; Borbora, A.; Kara, U. I.; Fang, J.-C.; Mamtani, R.; Zhang, M.; Yao, Y.; Adera, S.; Bao, X.; Manna, U.; **Wang, X.**
Stimuli-Responsive Liquid Crystal-Infused Porous Surfaces for Manipulation of Underwater Gas Bubble Transport and Adhesion.
Advanced Materials 2022, 34, 2110085.
- 43 Borbora, A.; Dupont, R. L.; Yang, X.; **Wang, X.**; Manna, U.
Dually Reactive Multilayer Coatings Enable Orthogonal Manipulation of Underwater Superoleophobicity and Oil Adhesion via Post-Functionalization.
Materials Horizons 2022, 9, 991–1001.
- 42 Lou, Z.; Wang, Q.; Zhou, X.; Kara, U. I.; Mamtani, R. S.; Lv, H.; Zhang, M.; Yang, Z.; Li, Y.; Wang, C.; Adera, S.; **Wang, X.**
An Angle-Insensitive Electromagnetic Absorber Enabling a Wideband Absorption.
Journal of Materials Science and Technology 2022, 113, 33–39.
- 41 Lou, Z.; Wang, Q.; Kara, U. I.; Mamtani, R. S.; Zhou, X.; Bian, H.; Yang, Z.; Li, Y.; Lv, H.; Adera, S.; **Wang, X.**
Biomass-Derived Carbon Heterostructures Enable Environmentally Adaptive Wideband Electromagnetic Wave Absorbers.
Nano-Micro Letters 2022, 14, 11.
- 40 Zhang, W.; Liu, M.; Dupont, R. L.; Huang, K.; Yu, L.; Liu, S.; **Wang, X.**; Wang, C.
Conservation and Identity Selection of Cationic Residues Flanking the Hydrophobic Regions in Intermediate Filament Superfamily.
Frontiers in Chemistry 2021, 9, 752630.
- 39 Wang, C.; Liu, L.; **Wang, X.**
Editorial: The Hierarchical Organization of Supramolecular Systems - From Fundamentals to Biomedical Applications.
Frontiers in Bioengineering and Biotechnology 2021, 9, 754980.
- 38 Xu, Y.; Rather, A. M.; Yao, Y.; Fang, J.-C.; Mamtani, R. S.; Bennett, R. K. A.; Atta, R. G.; Adera, S.; Tkalec, U.; **Wang, X.**
Liquid Crystal-Based Open Surface Microfluidics Manipulate Liquid Mobility and Chemical Composition On Demand.
Science Advances 2021, 7, eabi7607.
- 37 Xu, Y.; Dupont, R. L.; Yao, Y.; Zhang, M.; Fang, J.-C.; **Wang, X.**
Random Liquid Crystalline Copolymers Consisting of Prolate and Oblate Liquid Crystal Monomers.
Macromolecules 2021, 54, 5376–5387.
- 36 Lv, H.; Zhou, X.; Wu, G.; Kara, U. I.; **Wang, X.**
Engineering Defects in 2D g-C₃N₄ for Wideband, Efficient Electromagnetic Absorption at Elevated Temperature.
Journal of Materials Chemistry A 2021, 9, 19710–19718.
- 35 Wang, C.; Biok, N. A.; Nayani, K.; **Wang, X.**; Yeon, H.; Ma, C.-K. D.; Gellman, S. H.; Abbott, N. L.

- Cationic Side Chain Identity Directs Hydrophobically-Driven Self-Assembly of Amphiphilic β -Peptides in Aqueous Solution. *Langmuir* 2021, 11, 3288–3298.
- 34 Xu, Y.; Rather, A. M.; Song, S.; Fang, J.-C.; Dupont, R. L.; Kara, U. I.; Chang, Y.; Paulson, J. A.; Qin, R.; Bao, X.; **Wang, X.** Ultrasensitive and Selective Detection of SARS-CoV-2 using Thermotropic Liquid Crystals and Image-based Machine Learning. *Cell Reports Physical Science* 2020, 1, 100276.
- 33 Xu, Y.; Yao, Y.; **Wang, X.** Liquid Crystal Polymeric Skins "Sweat" to Provide Real-Time Drug Delivery. *Matter* 2020, 3, 606–608.
- 32 Yu, L.; Zhang, W.; Luo, W.; Dupont, R. L.; Xu, Y.; Wang, Y.; Tu, B.; Xu, H.; **Wang, X.**; Fang, Q.; Yang, Y.; Wang, C.; Wang, C. Molecular Recognition of Human Islet Amyloid Polypeptide Assembly by Selective Oligomerization of Thioflavin-T. *Science Advances* 2020, 6, eabc1449.
- 31 Fuster, H. A.; Wang, X.; **Wang, X.**; Bukusoglu, E.; Spagnolie, S. E.; Abbott, N. L. Programming van der Waals Interactions with Complex Symmetries into Microparticles using Liquid Crystallinity. *Science Advances* 2020, 6, eabb1327.
- 30 Zhang, C. T.; Liu, Y.; Wang, X.; **Wang, X.**; Kolle, S.; Balazs, A.; Aizenberg, J. Patterning Non-Equilibrium Morphologies in Stimuli-Responsive Gels Through Topographical Confinement. *Soft Matter* 2020, 16, 1463–1472.
- 29 Xu, Y.; Yao, Y.; Yu, H.; Shi, B.; Gao, S.; Zhang, L.; Miller, A. L.; Fang, J.-C.; **Wang, X.**; Huang, K. Nanoparticle-Encapsulated Hollow Porous Polymeric Nanosphere Frameworks as Highly Active and Tunable Size-Selective Catalysts. *ACS Macro Letters* 2019, 8, 1263–1267.
- 28 Miao, W.; Yao, Y.; Zhang, Z.; Ma, C.; Li, S.; Tang, J.; Liu, H.; Liu, Z.; Wang, D.; Camburn, M. A.; Fang, J.-C.; Hao, R.; Fang, X.; Zheng, S.; Hu, N.; **Wang, X.** Micro-/Nano-Voids Guided Two-Stage Film Cracking on Bioinspired Assemblies for High-Performance Electronics. *Nature Communications* 2019, 10, 3862.
- Prior to OSU:**
- 27 Yao, Y.; Waters, J. T.; Shneidman, A. V.; Cui, J.; **Wang, X.**; Mandsberg, N. K.; Li, S.; Balazs, A. C.; Aizenberg, J. Multiresponsive Polymeric Microstructures With Encoded Predetermined and Self-Regulated Deformability. *Proceedings of the National Academy of Sciences of the United States of America* 2018, 115, 12950–12955.
- 26 Kim, Y.-K.; **Wang, X.**; Mondkar, P.; Bukusoglu, E.; Abbott, N. L. Self-Reporting and Self-Regulating Liquid Crystals. *Nature* 2018, 557, 539–544.
- 25 Bukusoglu, E.; Martinez-Gonzalez, J. A.; **Wang, X.**; Zhou, Y.; de Pablo, J. J.; Abbott, N. L. Strain-Induced Alignment and Phase Behavior of Blue Phase Liquid Crystals Confined to Thin Films. *Soft Matter* 2017, 13, 8999–9006.
- 24 Wang, C.; Ma, C. D.; Yeon, H.; **Wang, X.**; Gellman, S. H.; Abbott, N. L. Non-Additive Interactions Mediated by Water at Chemically Heterogeneous Surfaces: Non-ionic Polar Groups and Hydrophobic Interactions. *Journal of the American Chemical Society* 2017, 139, 18536–18544.
- 23 **Wang, X.**; Zhou, Y.; Kim, Y.-K.; Miller, D. S.; Zhang, R.; Martinez-Gonzalez, J. A.; Bukusoglu, E.; Zhang, B.; Brown, T. M.; de Pablo, J. J.; Abbott, N. L. Patterned Surface Anchoring of Nematic Droplets at Miscible Liquid–Liquid Interfaces. *Soft Matter* 2017, 13, 5714–5723.
- 22 Bukusoglu, E.; **Wang, X.**; Zhou, Y.; Martinez-Gonzalez, J. A.; Rahimi, M.; Wang, Q.; de Pablo, J. J.; Abbott, N. L. Positioning Colloids at the Surfaces of Cholesteric Liquid Crystal Droplets. *Soft Matter* 2016, 12, 8781–8789.
- 21 **Wang, X.**; Bukusoglu, E.; Abbott, N. L. A Practical Guide to the Preparation of Liquid Crystal-Templated Microparticles. *Chemistry of Materials* 2017, 29, 53–61.
- 20 **Wang, X.**; Bukusoglu, E.; Miller, D. S.; Pantoja, M. A. B.; Xiang, J.; Lavrentovich, O. D.; Abbott, N. L. Synthesis of Optically Complex, Porous and Anisometric Polymeric Microparticles by Templating from Liquid Crystalline Droplets. *Advanced Functional Materials* 2016, 26, 7343–7351.
- 19 Zhou, Y.; Bukusoglu, E.; Martinez-Gonzalez, J. A.; Rahimi, M.; Roberts, T.; Zhang, R.; **Wang, X.**; Abbott, N. L.; de Pablo, J. J. Structural Transitions in Cholesteric Liquid Crystal Droplets. *ACS Nano* 2016, 10, 6484–6490.
- 18 **Wang, X.**; Kim, Y.-K.; Bukusoglu, E.; Zhang, B.; Miller, D. S.; Abbott, N. L. Experimental Insights into the Nanostructure of the Cores of Topological Defects in Liquid Crystals. *Physical Review Letters* 2016, 116, 147801.
- 17 Eimura, H.; Miller, D. S.; **Wang, X.**; Abbott, N. L.; Kato, T. Self-Assembly of Bioconjugated Amphiphilic Mesogens Having Specific Binding Moieties at Aqueous–Liquid Crystal Interfaces. *Chemistry of Materials* 2016, 28, 1170–1178.
- 16 Carter, M. C. D.; Miller, D. S.; Jennings, J.; **Wang, X.**; Mahanthappa M. K.; Abbott, N. L.; Lynn, D. M.

Synthetic Mimics of Bacterial Lipid A Trigger Optical Transitions in Liquid Crystal Droplets at Pictogram-per-Milliliter Concentrations.

Langmuir 2015, 31, 12850–12855.

- 15 Bukusoglu, E.; Pantoja, M. A. B.; Mushenheim, P. C.; **Wang, X.**; Abbott, N. L.
Design of Responsive and Active (Soft) Materials using Liquid Crystals.
Annual Review of Chemical and Biomolecular Engineering 2016, 7, 163–196.
- 14 **Wang, X.**; Yang, P.; Mondiot, F.; Li, Y.; Miller, D. S.; Chen, Z.; Abbott, N. L.
Interfacial Ordering of Thermotropic Liquid Crystals Triggered by the Secondary Structures of Oligopeptides.
Chemical Communications 2015, 51, 16844–16847.
- 13 Bukusoglu, E.; **Wang, X.**; Martinez-Gonzalez, J. A.; de Pablo, J. J.; Abbott, N. L.
Stimuli- Responsive Cubosomes Formed from Blue Phase Liquid Crystals.
Advanced Materials 2015, 27, 6892–6898.
- 12 Ma, C. D.; Adamiak, L.; Miller, D. S.; **Wang, X.**; Gianneschi, N. C.; Abbott, N. L.
Liquid Crystal Interfaces Programmed with Enzyme-Responsive Polymers and Surfactants.
Small 2015, 11, 5747–5751.
- 11 **Wang, X.**; Miller, D. S.; Bukusoglu, E.; de Pablo, J. J.; Abbott, N. L.
Topological Defects in Liquid Crystals as Templates for Molecular Self-Assembly.
Nature Materials 2016, 15, 106–112.
- 10 Rahimi, M.; Roberts, T. F.; Armas-Perez, J. C.; **Wang, X.**; Bukusoglu, E.; Abbott, N. L.; de Pablo, J. J.
Nanoparticle Self-Assembly at the Interface of Liquid Crystal Droplets.
Proceedings of the National Academy of Sciences of the United States of America 2015, 112, 5297–5302.
- 9 **Wang, X.**; Miller, D. S.; de Pablo, J. J.; Abbott, N. L.
Organized Assemblies of Colloids Formed at the Poles of Micrometer-Sized Droplets of Liquid Crystal.
Soft Matter 2014, 10, 8821–8828.
- 8 **Wang, X.**; Miller, D. S.; de Pablo, J. J.; Abbott, N. L.
Reversible Switching of Liquid Crystalline Order Permits Synthesis of Homogeneous Populations of Dipolar Patchy Microparticles.
Advanced Functional Materials 2014, 24, 6219–6226.
- 7 Miller, D. S.; **Wang, X.**; Abbott, N. L.
Design of Functional Materials Based on Liquid Crystalline Droplets.
Chemistry of Materials 2014, 26, 496–506.
- 6 Whitmer, J. K.; **Wang, X.**; Mondiot, F.; Miller, D. S.; Abbott, N. L.; de Pablo, J. J.
Nematic-Field-Driven Positioning of Particles in Liquid Crystal Droplets.
Physical Review Letters 2013, 111, 227801.
- 5 Miller, D. S.; **Wang, X.**; Buchen, J.; Lavrentovich, O. D.; Abbott, N. L.
Analysis of the Internal Configurations of Droplets of Liquid Crystal Using Flow Cytometry.
Analytical Chemistry 2013, 85, 10296–10303.
- 4 Mondiot, F.; **Wang, X.**; de Pablo, J. J.; Abbott, N. L.
Liquid Crystal-Based Emulsions for Synthesis of Spherical and Non-Spherical Particles with Chemical Patches.
Journal of the American Chemical Society 2013, 135, 9972–9975.
- 3 Luo, Y.; **Wang, X.**; Li, B.; Zhu S.
Toward Well-Controlled ab Initio RAFT Emulsion Polymerization of Styrene Mediated by 2-(((Dodecylsulfanyl)Carbonothioyl)Sulfanyl)Propanoic Acid.
Macromolecules 2010, 44, 221–229.
- 2 Luo, Y.; **Wang, X.**; Zhu, Y.; Li, B.; Zhu S.
Polystyrene-Block-Poly(n-Butyl Acrylate)-Block-Polystyrene Triblock Copolymer Thermoplastic Elastomer Synthesized via RAFT Emulsion Polymerization.
Macromolecules 2010, 43, 7472–7481.
- 1 **Wang, X.**; Luo, Y.; Li, B.; Zhu S.
Ab Initio Batch Emulsion RAFT Polymerization of Styrene Mediated by Poly(Acrylic Acid-b-Styrene) Trithiocarbonate.
Macromolecules 2009, 42, 6414–6421.

CHAPTERS IN BOOKS

- 1 Rather, A. M.; Xu, Y.; Dupont, R. L.; **Wang, X.**
Polymeric Membranes in Wastewater Treatment.
Book Title: *Nanoscale Engineering of Biomaterials: Properties and Applications*. Editors: Pandey, L.; Hasan, A. Springer Nature. 2022, 487–515.

PATENTS

- 11 **Wang, X.**; Zhang, M.
Droplet Impact-Induced Chemical Release From Structured Fluids.
US Patent Application No. 63/498,861.
- 10 **Wang, X.**; Dupont, R. L.; Zhang, M.
Polymerization in Liquid Crystals.
US Patent Application No. 63/466,487.

- 9 **Wang, X.**; Lv, H.
Materials and Methods of Use Thereof.
US Patent Application No. 63/412,615.
- 8 **Wang, X.**; Yang, X.
Detection of a Biological Amphiphile Using Visual Inspection of a Nanostructured Substrate.
US Patent Application No. 63/414,981.
- 7 **Wang, X.**; Xu, Y.; Rather, A. M.
Liquid Crystal-Infused Porous Surfaces and Methods of Making and Use Thereof.
US Patent Application No. 63/143,501.
- 6 **Wang, X.**; Qin, R.; Bao, X.; Xu, Y.; Rather, A. M.
Liquid Crystal Biosensor with Ultrahigh Sensitivity and Selectivity.
International Patent Publication No. WO/2022/036323.

Prior to OSU:

- 5 Abbott, N. L.; Kim, Y.-K.; **Wang, X.**; Bukusoglu, E.
Activated Release of Droplets of Target Material Trapped in Anisotropic Fluids.
WO Patent App. WO 2017/218635 A2.
- 4 Abbott, N. L.; Pantoja, M. A. B.; **Wang, X.**
Method of Detection of Volatile Organic Compounds Using Liquid Crystals that Form a Blue Phase.
US Patent 9,863,923.
- 3 **Wang, X.**; Luo, Y.
Method for Preparing Reversible Addition-Fragmentation Chain Transfer Emulsion Polymerization.
Chinese Patent Publication CN101591403.
- 2 **Wang, X.**; Luo, Y.
Method for Preparing High Molecular Weight and Segmented Polymers by Reversible Addition-Fragmentation Chain Transfer Emulsion Polymerization.
Chinese Patent CN101591405.
- 1 **Wang, X.**; Luo, Y.
Implementation Method of Reversible Addition Fragmentation Chain Transfer Emulsion Polymerization.
Chinese Patent CN101955555.

INVITED PRESENTATIONS

- 9 **Wang, X.** Anisotropic Solvent-Aligned Polymerization. *ACS Fall Meeting, Denver*. 2024/08/20.
- 8 **Wang, X.** Controlling Chain Conformation in Amorphous Polymers Through Liquid Crystal Confinement. *APS March Meeting, Minneapolis*. 2024/03/08.
- 7 **Wang, X.** Novel Applications of Liquid Crystals in Materials Synthesis and Manufacturing. *University of California, Los Angeles*. 2024/02/02.
- 6 **Wang, X.** Liquid Crystal-Infused Porous Surfaces with Molecular Order-Dependent Slipperiness and Cargo Release. *ACS National Meeting, Indianapolis*. 2023/03/27.
- 5 **Wang, X.** Liquid Crystal-Infused Porous Surfaces with Molecular Order-Dependent Slipperiness and Cargo Release. *Cleveland State University*. 2022/02/24.
- 4 **Wang, X.** Liquid Crystal-Infused Porous Surfaces with Molecular Order-Dependent Slipperiness and Cargo Release. *University in Ljubljana, Slovenia*. 2022/02/03.
- 3 **Wang, X.** Liquid Crystal-Based Open (Surface) Microfluidics Enable Independent Manipulation of Liquid Mobility and Chemical Composition. *The University of Memphis*. 2021/02/19.
- 2 **Wang, X.** Design of High Performance Polymer Composite Electronics Based on Nanowire Structures. *ACS Central Regional Meeting, Columbus*. 2020/05/29.
- 1 **Wang, X.** Design of Functional Materials Inspired by Natural Hierarchical Structures. *Kent State University*. 2019/12/04.

MENTORSHIP

M.S. Advisor

<u>Student</u>	<u>Year</u>	<u>Thesis Title</u>
Fang, Jen-Chun	2020	Functional Surface Based on Liquid Crystal
Zhou, Xiaodi	2020	Thermomechanical and Solvent-Responses for Liquid-Crystalline Elastomers with Nanowire Structure
Mamtani, Rajdeep	2021	A New Technique to Detect and Visualize Microscale Airflow: Microstructure Confined Thermotropic Liquid Crystal
Zhang, Meng	Current	

Ph.D. Advisor

<u>Student</u>	<u>Year</u>	<u>Thesis Title</u>
Dupont, Robert L.	Current	
Kara, Ufuoma I.	Current	
Azadi, Fatemeh	Current	
Weible, Alan	Current	

Post-Doctoral Advisor

<u>Name</u>	<u>Year</u>	<u>Research Topics</u>
Xu, Yang	2019–2023	Liquid Crystal-Infused Porous Polymeric Substrates
Lv, Hualiang	2020–2023	Nanomaterials for Electromagnetic Wave Absorbing Materials
Rather, Adil	2020–2022	Wettability of Liquid Crystal Films

Research Associates/Technicians

<u>Name</u>	<u>Year</u>
Chen, Boyuan	Current

COURSES TAUGHT

CBE 3508 Thermodynamics
CBE 3610 Kinetics and Reactor Design
CBE 5194 Responsive Soft Matter in Chemical Engineering

SERVICES**College Committees**

College of Engineering Undergraduate Honors Committee	2022–present
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Department Committees

Graduate Studies Committee	2020–present
Safety Committee	2020–present
Seminar Committee	2020–2022