Christopher L. Wirth (CLW)

Chemical and Biomolecular Engineering	*(phone)*	216-645-3023
Macromolecular Science and Engineering (courtesy)	*(email)*	wirth@case.edu
Case School of Engineering	*(web)*	wirthlab.org
Case Western Reserve University (CWRU)	*(linkedin)*	linkedin.com/in/colloidsrcool
Cleveland, OH	*(office)*	AW Smith 153

Highlights

- **Graduate Degrees Awarded**: 5 PhD, 5 MS Thesis
- **Research Team:** 1 PhD, 2 Postdocs, 5 Undergraduates, 1 Visiting Researcher, 1 High school Student
- **Publication record summary:** Forty-one (41) published refereed journal articles, book chapters, and proceedings, thirty-one (31) from independent career and three (3) in review. Forty-one (41) invited seminars.
- **Research support summary:** $5.4M Research Funding for CLW, $7.7M Total, Twenty (20) funded proposals as Lead PI. Co-Chair and leader of the R&D Chemicals & Coatings Subcommittee within the $15M NSF NEO-SMART Engine.
- **National Science Foundation CAREER Award**, 2018 – 2023
- **Teaching:** Consistently high teaching evaluations across undergraduate, graduate, core, and elective courses. New teaching modalities and content developed to reach non-traditional students. Evidence for high quality teaching at two institutions. Received Nord Grant in 2022 for classroom innovation.
- **Leadership:** Chair of Programming, American Institute of Chemical Engineers (AIChE) Area 01C Interfacial Phenomena; Career and Educational Operating Council (CEOC), AIChE; Cluster Lead in Advanced Materials and Manufacturing for the CWRU Interdisciplinary Research Building (IRB); Cleveland Leadership Center Bridge Builders Class of 2027; Dean's Fellow for Industry Engagement
- **Mentorship:** Nominee for John S. Diekhoff Award for Excellence in Graduate Mentoring and J. Bruce Jackson, MD, Award for Excellence in Undergraduate Mentoring

Research Summary

Our lab is focused on complex fluids, colloids, and interfacial science, all of which are materials or phenomena profoundly relevant to coatings, food, chemical products, and batteries. The approach our lab takes bridges fundamental science to use-inspired research, seeking to develop new knowledge facilitated through novel experiments and theoretical tools. The common thread through our projects is material systems composed of nano- to micrometer scale 'colloidal' particles that are anisotropic, away from equilibrium, or in crowded environments. Beginning at Cleveland State University (CSU) and now at CWRU, we continue to develop fundamental understanding for the fabrication, processing, and utilization of these materials for use in mature and next generation applications.
Fundamentals: Colloid and Interface Science, Complex Fluids, Active Matter, Imaging
Applications: Coatings, Lubricants, Energy Storage and Production, Manufacturing

Mentorship and Teaching Summary

My primary goal as a faculty member is to effectively train engineers and scientists to pursue their career goals. My own experience in the way a Science, Technology, Engineering, and Mathematics (STEM) degree can transform the socioeconomic status of an individual has shaped this goal. This is my goal regardless of the setting, either in the classroom or in the laboratory. Further, my mentorship in both the laboratory as research advisor and classroom as teacher is guided by this goal. Innovations on this front include developing online learning modules for blended classrooms and new, chemical product focused content, meant to attract and retain non-traditional and underrepresented students.

Appointments

July 2022 -	**Associate Professor** Chemical and Biomolecular Engineering Department Macromolecular Science and Engineering Department (Courtesy) Case School of Engineering Case Western Reserve University
2024 - 2025	**Visiting Research Scientist - Sabbatical** Dow Packaging & Specialty Plastics & Hydrocarbons The Dow Chemical Company
2020 to 2022	**Assistant Professor** Chemical and Biomolecular Engineering Department Case School of Engineering Case Western Reserve University
2014 to 2019	**Assistant Professor** Chemical and Biomedical Engineering Department Washkewicz College of Engineering Cleveland State University
2013 – 2014	**Postdoctoral Scholar** Chemical Engineering Department Soft Matter, Rheology, and Technology Laboratory KU Leuven *Mentors: Jan Vermant (ETH Zurich) and Michael De Volder (Cambridge)*
2012	**Research Chemist** Insight Group - Automotive Coatings Coatings Innovation Center PPG Industries, Inc. *Mentors: Kevin Gallagher (PPG) and Shelley Anna (CMU)*

Education

2012	**PhD in Chemical Engineering** Carnegie Mellon University (CMU) *Mentors: Dennis C. Prieve and Paul J. Sides*
2007	**BS in Chemical Engineering** University at Buffalo, The State University of New York

Honors and Awards

2026 - Dean's Fellow for Industry Engagement
2026 - Cleveland Leadership Center Bridge Builders Program
2026 Emerging Leader, American Electrophoresis Society
2026 L.E. Scriven Young Investigator Award, International Society of Coating Science and Technology
2026 J. Bruce Jackson, MD Award for Excellence in Undergraduate Mentoring (*Nominee*)
2025 AIChE Herb Epstein Award for Technical Programming (*Nominee*)
2025 John S. Diekhoff Award for Excellence in Graduate Mentoring (*Nominee*)
2024 John S. Diekhoff Award for Excellence in Graduate Mentoring (*Nominee*)
2024 American Chemical Society Principal Investigator Development in Sustainability Award
2024 J. Bruce Jackson, MD Award for Excellence in Undergraduate Mentoring (*Nominee*)
2022 Nord Grant Recipient
2022 John S. Diekhoff Award for Excellence in Graduate Mentoring (*Nominee*)
2021 John S. Diekhoff Award for Excellence in Graduate Mentoring (*Nominee*)
2018 CSU Faculty Merit Recognition Award

2018 National Science Foundation CAREER Award
2017 American Chemical Society Doctoral New Investigator Award
2012 Ken Meyer Award for Excellence in Graduate Research
2012 Robert R. Rothfus Graduate Fellowship
2011 Roy W. Weiland Graduate Fellowship
2011 Carnegie Institute of Technology Bertucci Graduate Fellowship
2009 Elected President of the Chemical Engineering Graduate Student Association
2007 Achievement Rewards for College Scientists (ARCS) Scholarship

Professional Service

2025 - **Chair**, AIChE Ruckenstein Award Planning Committee
2025 - **Member**, AIChE, Career and Education Operating Council (CEOC)
2024 - **Chair for Programming**, 01C Interfacial Phenomena, AIChE Annual Meeting
2024 **Chair**, ACS Fall, "Colloid and Surface Chemistry in Energy and Sustainability"
2024 **National Awards Communications Chair**, ACS Colloid and Surface Science Division
2024 - **NSF REU Mentor**, REU: Synthesis, Assembly and Characterization of Soft Matter Systems, Cleveland State University Department of Physics
2023 **Chair**, AIChE Annual Meeting "Interfacial Phenomena in Energy and Sustainability"
2023 **Vice-Chair for Programming**, 01C Interfacial Phenomena, AIChE Annual Meeting
2023 **Chair**, AIChE Annual Meeting "Connecting the Dots in Industry"
2023 **National Awards Communications Chair**, ACS Colloid and Surface Science Division
2022 **Vice-Chair for Programming**, 01C Interfacial Phenomena, AIChE Annual Meeting
2022 **Symposium Organizer**, Janus Nanomaterials, 2023 MRS Spring Meeting
2022 **Chair**, AIChE Annual Meeting "Connecting the Dots in Industry"
2022 **National Awards Communications Chair**, ACS Colloid and Surface Science Division
2021 **Vice-Chair for Programming**, 01C Interfacial Phenomena, AIChE Annual Meeting
2020 **Co-Chair**, AIChE Annual Meeting (Virtual) "Electrokinetics and Interfacial Phenomena in Liquids"
2020 **Co-Chair**, AIChE Annual Meeting (Virtual) "Connecting the Dots in Industry"
2020 **Chair**, ACS National March Meeting (Virtual) "Basic Research in Colloids, Surfactants and Interfaces"
2019 **NSF REU Mentor**, REU: Synthesis, Assembly and Characterization of Soft Matter Systems, Cleveland State University Department of Physics
2019 **Chair**, AIChE Annual Meeting "Particulate and Multiphase Flows: Emulsions, Bubbles, and Droplets"
2019 **Chair**, AIChE Annual Meeting "Interfacial Transport Phenomena"
2019 **Chair**, AIChE Annual Meeting "Active Colloidal Systems"
2019 **Co-Chair**, AIChE Annual Meeting "Soft Matter Electrokinetics"
2019 **Co-Chair**, AIChE Annual Meeting "Particulate and Multiphase Flows: Colloids and Grains"
2018 **NSF REU Mentor**, REU: Synthesis, Assembly and Characterization of Soft Matter Systems, Cleveland State University Department of Physics
2018 **Chair**, AIChE Annual Meeting "Soft Matter Electrokinetics"
2018 **Co-Chair**, AIChE Annual Meeting "Active Colloids"
2018 **Co-Chair**, 92nd ACS Colloids and Surface Science Symposium, "Colloidal and Surface Forces"
2017 **NSF REU Mentor**, REU: Synthesis, Assembly and Characterization of Soft Matter Systems, Cleveland State University Department of Physics
2017 **Chair**, American Institute of Chemical Engineers Annual Meeting (AIChE) Annual Meeting "In of Honor of Dennis Prieve's Retirement – 1 & 2"
2017 **Chair**, AIChE Annual Meeting "Active Colloidal Systems"
2017 **Co-Chair**, AIChE Annual Meeting "Emulsions and Foams"

2016 **Chair**, American Institute of Chemical Engineers Annual Meeting (AIChE), "Soft Matter Electrokinetics: Particles, Drops, and Bubbles"
2016 **Chair**, AIChE Annual Meeting "Active Colloidal Systems 1"
2016 **Co-Chair**, AIChE Annual Meeting "Emulsions and Foams"
2015 **Chair**, AIChE Annual Meeting "Soft Matter Electrokinetics: Particles, Drops, and Bubbles"
2015 **Panelist**, AIChE Annual Meeting Young Professionals Panel
2015 **Co-Chair**, 89th ACS Colloids and Surface Science Symposium Poster Session
2015 **Judge**, Choose Ohio First Poster Session
2015 - **Proposal Reviewer** for *NASA, ACS, BSF, and NSF.*
2014 **Judge**, AES/AIChE Annual Meeting Poster Session
2014 **Co-Chair**, AIChE Annual Meeting "Soft Matter Electrokinetics: Particles, Drops, and Bubbles"
2014 **Meeting Chair**, The Gordon Research Seminar on Colloidal, Macromolecular, and Polyelectrolyte Solutions
2013 **Instructor**, 14th European School on Rheology
2013 **Co-Chair**, AIChE Annual Meeting "Electrokinetic behavior of Micro- and Nano-Particles: Directed Assembly Under Electric Fields"
2013 **Judge**, AES/AIChE Annual Meeting Poster Session
2012 - **Reviewer** for *ACS Nano, ACS Applied Polymer Materials, Soft Matter, Physical Review E, Industrial and Engineering Chemistry Research, Langmuir, Electrophoresis, Colloids and Surfaces A, Soft Matter, Biomicrofluidics, Energy and Fuels, AIChE Journal, Journal of Colloid and Interface Science, and Materials.*
2012 **Chair**, AIChE Annual Meeting "Electrokinetic behavior of Micro- and Nano-Particles: Directed Assembly Under Electric Fields"

Journal Publications (*%student/trainee in group, #invited or editor's choice)*

44) **Impact of Surface Preparation on the Propulsion of Catalytic Janus Colloids and Implications for Reproducibility** M Haroon%, M Lau%, and CL Wirth, *arXiv:2611.00274, (under review)*
43) **Semantic Data Management Workflows for Materials Science: Applications in Formulation Science and Synchrotron X-ray Diffraction** VD Tran, EI Barcelos, N Khansur, I Giammattei, P Dwivedi, O Dernek, QD Tran, CL Wirth, RH French *(under review)*
42) **Semantically-driven Scientific Workflows with MDS-Onto: Suspension Formulation and Polymer Degradation Studies** EI Barcelos, QD Tran, HH Aung, VD Tran, G Ponon, R Kundu, M Francis, I Giammattei, R Mehdi, O Dernek, SG Liang, KR Henrikson, P Dwivedi%, Y Wu, CL Wirth, RH French, LS Bruckman *(under review)*
41) **Coupled interfacial phenomena suppress propulsion in catalytic Janus colloids#** M Haroon% and CL Wirth, *Physical Review E 113, L033404 (2026).*
40) **Microfluidic capillary transit velocity as a functional measure for sickle cell disease and in vitro-derived red blood cells** S Oshabaheebwa, Y Du, CL Wirth, Z Sekyonda, B Benson, P Fadaei, YB Ley, U Goreke, NM Perez, P Giannikopoulo, DN Nguyen, M Suster, P Mohseni, UA Gurkan, *Lab on a Chip 26.4 (2026): 976-990.*
39) **Impact of Surfactant and Flow Rate on the Electrical Properties of Activated Carbon Black Suspensions** KJ Lee%, JJ Wainright, and CL Wirth, *ACS Applied Engineering Materials (2025), 3, 9, 2943–2950*
38) **An algorithm for solving the inverse problem in total internal reflection microscopy** A Doicu, DS Eremenko, CL Wirth, T Wriedt, *Journal of Quantitative Spectroscopy and Radiative Transfer 345 (2025): 109534.*
37) **Direct measurement of surface interactions experienced by sticky microcapsules made from environmentally benign materials** H Yu% and CL Wirth, Journal of Colloid and Interface Science 683 (2025): 1028-1039

36) **Impact of resin molecular weight on drying kinetics and sag of coatings** MW Issa[%], SV Barancyk, RM Rock, JF Gilchrist, and CL Wirth, Progress in Organic Coatings 194 (2024): 108618

35) **Surfactant-Driven Dynamic Changes in Rheology of Activated Carbon Slurry Electrodes** M Das[%], KJ Lee[%], and CL Wirth, ACS Applied Materials & Interfaces 16.32 (2024): 42049-42058

34) **An advanced light scattering imaging model for total internal reflection microscopy considering a stratified medium** A Doicu, DS Eremenko, CL Wirth, T Wriedt, Journal of Quantitative Spectroscopy and Radiative Transfer (2024), 320, 108964.

33) **Engineered Polypeptides as a Tool for Controlling Catalytic Active Janus Particles**[#] MW Issa[%], D Calderon[%], O Kamlet[%], S Asaei, JN Renner, and CL Wirth, ACS Applied Engineering Materials 1 (8), 1983-1996

32) **Catch like Adhesion of Red Blood Cells to Laminin in Sickle Cell Disease** U Goreke, S Iram, G Singh, S Domínguez-Medina, Y Man, A Bode, R An, JA Little, CL Wirth, M Hinczewski, and UA Gurkan, *bioRxiv preprint 2022.11.12.515898, Biophysical Journal* (2023)

31) **Surfactant Induced Catastrophic Collapse of Carbon Black Suspensions used in Flow Battery Application** KJ Lee[%], M Das[%], M Pitell[%], and CL Wirth, *Journal of Colloid and Interface Science.* 2023 Mar 1;633:712-22.

30) **Three-Dimensional Sag Tracking in Falling Liquid Films** MW Issa[%], H Yu[%], MC Roffin, SV Barancyk, RM Rock, JF Gilchrist, and CL Wirth, *Langmuir* (2022), 38, 38, 11581–11589

29) **Anisotropic colloidal particles near a boundary**[#] J Yan[%] and CL Wirth, *Journal of Applied* Physics (2022) 131 (15), 150903.

28) **Elastic-Scattering Measurements of Single, Oriented, Optically Trapped Particles** JA Arnold, A Kalume, H Yu[%], CL Wirth, G Videen, and YK Pan, *Journal of Quantitative Spectroscopy and Radiative Transfer* (2022) 108223

27) **Scattering Morphology Resolved Total Internal Reflection Microscopy (SMR-TIRM) of Colloidal Spheres**[#] J Yan[%], D Efremenko, AA Vasilyeva, A Doicu, T Wriedt, and CL Wirth, *Computational Mathematics and Modeling* (2021): 1-8

26) **DLVO Energy Landscape of a Janus Colloid with a Non-Uniform Cap Thickness** S Rajupet[%], A Rashidi[%], and CL Wirth, *Physical Review E* (2021) 103, 032610

25) **Influence of PEG on the Clustering of Active Janus Colloids** M Kalil[%], NR Baumgartner, MW Issa[%], SD Ryan, and CL Wirth, *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, (2021) 627:127191

24) **Developing Scattering Morphology Resolved Total Internal Reflection Microscopy (SMR-TIRM) for Orientation Detection of Colloidal Ellipsoids** A Rashidi[%], S Domínguez-Medina[%], J Yan[%], D Efremenko, AA Vasilyeva, A Doicu, T Wriedt, and CL Wirth, *Langmuir* (2020) 36 (43), 13041-13050

23) **Single and Ensemble Response of Colloidal Ellipsoids to a Nearby AC Electrode** J Yan[%], A Rashidi[%], CL Wirth, *Colloids and Surfaces A: Physicochemical and Engineering Aspects* (2020), 606:125384

22) **Efficient Sizing of Single Layer Graphene Oxide With Optical Microscopy Under Ambient Conditions** Q Luo, CL Wirth, EB Pentzer, *Carbon* (2020) 157, 395-401

21) **Influence of Cap Weight On the Motion Of A Janus Particle Very Near A Wall** A Rashidi[%], S Razavi, and CL Wirth, *Physical Review E* (2020) 101, 042606

20) **Charged Nanoparticles Quench the Propulsion of Active Janus Colloids** MW Issa[%], NR Baumgartner, M Kalil[%], SD Ryan, and CL Wirth, *ACS Omega* (2019) 4, (8), 13034-13041

19) **A Light Scattering Model for Total Internal Reflection Microscopy of Geometrically Anisotropic Particles** A Doicu, AA Vasilyeva, DS Efremenko, CL Wirth, T Wriedt, *Journal of Modern Optics* (2019): 1–13

18) **Purification and Assembly of DNA-Stabilized Boron Nitride Nanotubes into Aligned Films** VR Kode, ME Thompson, C McDonald, J Weicherding, T Dobrila, PS Fodor, CL Wirth, G Ao, *ACS Applied Nano Materials* (2019) 2, (4), 2099-2105

17) **Local Measurement of Janus Particle Cap Thickness** A Rashidi[%], MW Issa[%], I Martin, A Avishai, S Razavi, and CL Wirth, *ACS Applied Materials and Interfaces* (2018) 10 (37), 30925 - 30929

16) **Combined Effect of Surface Oxidation and Residual Alcohol on the Mechanics of a Multiwall Carbon Nanotube Laden Interface** WD Ivancic[%] and CL Wirth, *Colloids and Surfaces A: Physicochemical and Engineering Aspects* (2018) 551, 42 - 49

15) **Motion of A Janus Particle Very Near a Wall** A Rashidi[%] and CL Wirth, *Journal of Chemical Physics* (2017) 147, 224906

14) **Response of A Doublet to A Nearby Dc Electrode of Uniform Potential** CL Wirth and Sri Harsha Nuthalapati[%], *Physical Review E* (2016) 94, 042614

13) **Langmuir Monolayer Characterization Via Polymer Microtensiometers** P Gijsenbergh, M Pepicelli, CL Wirth, J Vermant and R Puers, *Sensors & Actuators: A. Physical* (2015) 229, 110 – 117

12) **Fabrication of Planar Colloidal Clusters with Template-Assisted Interfacial Assembly** CL Wirth, MFL De Volder, and J Vermant, *Langmuir* (2015) 31, (5), 1632 - 1640.

11) **Weak Electrolyte Dependence in The Repulsion of Colloids at A Water-Oil Interface** CL Wirth, EM Furst and J Vermant, *Langmuir* (2014) 30, (10), 2670 - 2675.

10) **Electrolyte Dependence of Particle Motion Near an Electrode During Ac Polarization** CL Wirth, PJ Sides and DC Prieve, *Physical Review E* (2013) 87, 032302

9) **Single and Pairwise Motion of Particles Near an Ideally Polarizable Electrode** CL Wirth, RM Rock, PJ Sides and DC Prieve, *Langmuir* (2011) 27, (1), 9781-9791.

8) **The Imaging Ammeter** CL Wirth, PJ Sides, DC Prieve, *Journal of Colloid and Interface Science* (2011) 357, (1), 1-12.

7) **An Imaging Ammeter for Electrochemical Measurements** PJ Sides, CL Wirth, DC Prieve, *Electrochemical and Solid-State Letters* (2010) 13, (8), F10-F12.

6) **2D Assembly of Colloidal Particles On a Planar Electrode[#]** DC Prieve, PJ Sides, CL Wirth, *Current Opinion in Colloid & Interface Science* (2010) 15, (3), 160-174.

Book Chapters (*[%]student/trainee in group, [#]invited*)

5) **Light scattering model for the total internal reflection microscopy of nonspherical and inhomogeneous particles.** A Doicu, A Doicu, DS Eremenko, A Vasilyeva, CL Wirth, and T Wriedt, Radiative Transfer and Light Scattering (Volume 12), *published in summer 2026*

4) **Mechanisms for Directed Assembly of Colloidal Particles in Two Dimensions by Application of Electric Fields** PJ Sides, CL Wirth and DC Prieve. in Electrophoretic Deposition of Nanomaterials, 3-72. Eds. JH Dickerson and AR Boccaccini. Springer, 2012.

Conference Proceedings and Extended Abstracts (*[%]student/trainee in group, [#]invited*)

3) **Novel microfluidic rheology assay for in vitro-differentiated red blood cells: Enhancing quality control and therapeutic evaluation in sickle cell disease gene therapies.** S. Oshabaheebwa, Y Du Y, CL Wirth, Z Sekyonda, B Benson, P Fadaei, Y Ley, U Goreke, N Perez, P Giannikopoulos, D Nguyen, M Suster, P Mohseni, U Gurkan. *Blood 146* (2025): 6489

2) **Azimuthally Resolved Scattering Morphology Resolved Total Internal Reflection Microscopy (SMR-TIRM) of Colloidal Ellipsoids.** CL Wirth, J Yan[%], H Yu[%], DS Eremenko, AA Vasilyeva, A Doicu, T Wriedt, *Proceedings of the Bremen Workshop on Light Scattering 2024*

1) **A Polymer Microdevice for Tensiometry of Insoluble Components.** P Gijsenbergh, M Pepicelli, CL Wirth, J Vermant and R Puers, *Procedia Engineering* (2014) 87, 80 – 83

Patents (*%student/trainee in group, #invited*)

1) Q Luo, EB Pentzer, CL Wirth, **Process and System for Sizing Two-Dimensional Nanostructures**. US20200393364A1, United States Patent and Trademark Office

Invited Seminars (*%student/trainee in group, #invited*)

41) **Formulation Engineering of Complex Fluids Important to Energy**
CL Wirth; Energy Conversion Group (ECG), Lawrence Berkeley National Lab, April 2026

40) **Formulation Engineering of Complex Fluids Important to Energy**
CL Wirth; Department of Chemical and Biomedical Engineering, Cleveland State University, April 2026

39) **Formulation Engineering of Complex Fluids Important to Energy**
CL Wirth; Department of Chemical and Environmental Engineering, University of Cincinnati, February 2026

38) **Formulation Engineering for Energy Materials: From Flow Batteries to Catalyst Inks**
CL Wirth; Department of Chemical Engineering, University of Arkansas, December 2025

37) **Watching Paint Dry: Approaches to Track Drying and Defects in Coatings**
CL Wirth; Cleveland Coatings Society Technical Seminar, October 2025

36) **Formulation Engineering for Energy Materials: From Flow Batteries to Catalyst Inks**
CL Wirth; Paul P. Chevis Endowed Seminar, Department of Chemical Engineering and Materials Science, Michigan State University, October 2025

35) **Watching Paint Dry: Noninvasive Detection of Defects in Coatings and Films**
CL Wirth; PPG, Allison Park, May 2025

34) **Watching Paint Dry: Noninvasive Detection of Defects in Coatings and Films**
CL Wirth; Dow Terneuzen (NL), March 2025

33) **Noninvasive Detection of Defects in Coatings and Films**
CL Wirth; Dow Lake Jackson, February 2025

32) **Stability, Rheology, and Electrical Properties of Carbon Black Slurries for Flow Batteries**
CL Wirth; Department of Chemical and Biomolecular Engineering, Lehigh University, November 2024

31) **Interactions, dynamics, and rheology of crowded colloidal suspensions**
CL Wirth; National Renewable Energy Laboratory, November 2024

30) **Watching Paint Dry: Noninvasive Detection of Defects in Coatings**
CL Wirth; Dow Performance Materials & Coatings, November 2024

29) **Stability, Rheology, and Electrical Properties of Carbon Black Slurries for Flow Batteries**
CL Wirth; Department of Material Science and Engineering, West Virginia University, October 2024

28) **Anisotropic Colloidal Particles near a Boundary**
CL Wirth; Department of Chemistry, Case Western Reserve University, September 2024

27) **Watching paint dry: Non-invasive detection of defects and skinning in drying complex fluids**
CL Wirth; Ohio Soft Matter Meeting, May 2024

26) **Anisotropic colloidal particles near boundaries**
CL Wirth; University of Edinburgh, IIE Seminar, June 2023

25) **Dynamics of multiphase fluids: Applications in sagging films and flowing suspensions**
CL Wirth; Dow Industrial and Consumer Films, April 2023

24) **Anisotropic colloidal particles near boundaries**
CL Wirth; Department of Chemical Engineering, Rochester Institute of Technology, October 2022

23) **Anisotropic colloidal particles near boundaries**
CL Wirth; Department of Materials Science and Engineering, Alfred University, September 2022

22) **Stability of Carbon Black Slurry used in Flow Battery Applications**
CL Wirth; Pacific Northwest National Lab, July 2022

21) **Image Processing Challenges and Opportunities in Specialty Chemicals**
CL Wirth; MDS-Rely, June 2022

20) **Dynamics of Multiphase Fluids: Particle Interactions and Emulsion Stability**
CL Wirth; Lubrizol, June 2022

19) **Watching paint dry: Kinematics and Rheology of a Drying Thin Film**
CL Wirth; Dow Performance Materials & Coatings, June 2021

18) **Mapping Evanescent Wave Scattering from Colloidal Ellipsoids**
CL Wirth; Lomonosov Readings 2020. Section: Mathematical models and methods in electromagnetics for particles simulations, characterization and synthesis, December 2020

17) **Influence of Nanoparticles on the Dynamics and Clustering of Active Colloids Proximate to a Boundary**[$]
CL Wirth; First Global Symposium on Janus Particles, October 2020

16) **Probing the dynamics of colloidal particles in complex fluids and crowded environments**
CL Wirth; Department of Macromolecular Science and Engineering, Case Western Reserve University, February 2020

15) **Measuring the Dynamics of Colloidal Particles with Evanescent Wave Scattering**
CL Wirth; Louisiana Consortium for Neutron Scattering, Louisiana State University, January 2020

14) **Complex Colloidal Particles Near Boundaries**
CL Wirth; Department of Physics, Wayne State University, October 2019

13) **Complex Colloidal Particles Near Boundaries**
CL Wirth; Department of Chemical and Biological Engineering, Colorado School of Mines, September 2019

12) **Complex Colloidal Particles Near Boundaries**
CL Wirth; Department of Chemistry, Cleveland State University, May 2019

11) **Brownian Dynamic Simulation and Mapping Evanescent Wave Scattering from Anisotropic Particles**
A Rashidi[%] and CL Wirth; Bremen Workshop on Light Scattering, Universität Bremen (Germany), March 2019

10) **Non-invasive measurement of kinematics and rheology in a drying paint**
CL Wirth; PPG Industries, March 2019

9) **Influence of cap weight on the motion of a Janus particle very near a wall**
A Rashidi[%] and CL Wirth; College of Polymer Science and Polymer Engineering Seminar, University of Akron, December 2018

8) **Dynamics of colloidal particles in a fluid: Applications in rheology and surface force measurement**
CL Wirth; Sherwin-Williams Company, September 2018

7) **The motion of a Janus particle very near a wall**
A Rashidi[%] and CL Wirth; Chemical Engineering Department, Colloids, Polymers, and Surfaces Seminar, Carnegie Mellon University, November 2017

6) **Microstructure of nanoparticle laden foams in porous media: Applications in unconventional oil and gas recovery**
CL Wirth; Department of Biological, Geological and Environmental Sciences, Cleveland State University, October 2017

5) **Brownian dynamics of a spherical Janus particle near a boundary as a tool to investigate TIRM**
A Rashidi[%] and CL Wirth; Chemical and Biomolecular Engineering Department, Complex Fluids Engineering Seminar, University of Pennsylvania, June 2017

4) **Brownian dynamics of a spherical Janus particle near a boundary as a tool to investigate TIRM**
A Rashidi[%] and CL Wirth; Chemical Engineering Department, Complex Fluids Engineering Seminar, Lehigh University, June 2017

3) **Total Internal Reflection Microscopy of a Janus Sphere**
A Rashidi[%] and CL Wirth; Chemical and Biomolecular Engineering Department, University of Toledo, March 2017

2) **Total Internal Reflection Microscopy of a Janus Sphere**
A Rashidi[%] and CL Wirth; Chemical and Biomolecular Engineering Department, Ohio University, February 2017

1) **Directed Assembly of Isotropic and Anisotropic Colloidal Particles**
CL Wirth; Chemical and Biomolecular Engineering Department, Case Western Reserve University, March 2015

Postdoctoral Scholars Trained as Research Advisor (*yrs. advised, [&]CSU student*)

67) **Dr. KangJin Lee,** (2025 - present)
Project: *Formulation and coatability of catalyst inks*

66) **Dr. Shweta Sharma,** (2026 - present)
Project: *Non-invasive detection of defects during coatings manufacturing*

65) **Dr. Hairou Yu,** (2025 - 2026)
Project: *Direct measurement of colloidal interactions mediated by ionomer*
Current Position: *Postdoctoral Scholar, UC Berkeley*

64) **Dr. Prateek Dwivedi,** (2024 - 2026)
Project: *Non-invasive detection of defects during coatings manufacturing*

63) **Dr. Sithara Vinod,** (2023 - 2025)
Project: *Imaging Kinematics of Multiphase Fluid Systems*

62) **Dr. Mohandas,** (2021 - 2023)
Project: *Microstructure of Carbon Black Suspensions for Flow Batteries*
Current Position: *Lab Manager, Universität Wien*

61) **Dr. Aidin Rashidi,** (2020)
Project: *Microstructure of nanoparticle laden foams in porous media*
Current Position: *Research Chemist at the Sherwin-Williams Company*

60) **Dr. Sergio Dominguez-Medina,** (2019 – 20)
Project: *Simulation of evanescent wave scattering from anisotropic particles*
Current Position: *Optics Engineer at Folio Photonics*

Doctoral Students Trained as Research Advisor (*yrs. advised, [&]CSU student*)

59) **Muhammad Haroon**, PhD in Chemical Engineering (2023 - present)
Thesis: *Dynamics of a Catalytically Active Janus Particle very near a Boundary*

57) **Kangjin Lee**, PhD in Chemical Engineering (2021 - 2025)
Thesis: *Stability of Carbon Black Suspensions for Flow Batteries*
Current Position: *Postdoctoral Scholar, CWRU/Novagard*

56) **Hairou Yu**, PhD in Chemical Engineering (2021 - 2025)
Thesis: *Fabrication and Deposition of Red Blood Cell Mimicking Synthetic Capsules*
Current Position: *Postdoctoral Scholar, UC Berkeley*

55) **Marola Issa**, PhD in Chemical Engineering (2020 - 2024)
Thesis: *Kinematics and Rheology of a Drying Complex Fluid*
Current Position: *Senior TS&D Scientist at Dow*

54) **Jiarui Yan[&]**, PhD in Chemical Engineering (2018 - 2023)
Thesis: *Development of a Rotational Mount for SMR-TIRM*
Current Position: *Research Chemist at Momentive*

53) **Aidin Rashidi**[&], PhD in Chemical Engineering (2015 – 20)
Thesis: *Kinematics and Rheology of a Drying Complex Fluid*
Current Position: *Research Chemist at the Sherwin-Williams Company*

Masters Students Trained as Research Advisor (*yrs. advised,* [&]*CSU student*)

52) **Hairou Yu**, BUCT BS/MS in Chemical Engineering (2020 – 21)
Project: *Kinematics and Rheology of a Drying Complex Fluid*
Current Position: *Postdoctoral Scholar, UC Berkeley*

51) **Mingji Li**, BUCT BS/MS in Chemical Engineering (2020 – 21)
Project: *Measuring the Electrophoretic Mobility of a Janus Particle*

50) **Lilavathi M Gould**[&], MS Project in Chemical Engineering (2019 – 20)
Project: *Kinematics and Rheology of a Drying Complex Fluid*
Current Position: *Project Engineer at Master Builder Solutions*

49) **Sri Harsha Nuthalapati**[&], MS Project in Chemical Engineering (2015 – 18)
Project: *Simulating the Self-Assembly of Prolate Ellipsoids at an Interface*

48) **Kevin Gardella**[&], MS in Physics (2018 - 19)
Project: *2D Convective Assembly of Colloidal Particles*
Current Position: *Teacher at Midview High School*

47) **Mohammed Khalil**[&], MS Thesis in Chemical Engineering (2019 - 20)
Thesis: *Influence of Hydrogen Peroxide and Depletants on the Clustering of Active Janus Particles*

46) **Michael March**[&], MS Project in Chemical Engineering (2019 – 20)
Project: *Fabrication and Operation of a Flow-Focusing Microfluidic Device for Foam Generation*
Current Position: *Technical Director at GuardTop, LLC*

45) **Nicholas Turner**[&], MS Project in Chemical Engineering (2014 – 15)
Project: *Electrophoretic Deposition of Dendritic Copper onto Carbon Graphite Heat Spreader*
Current Position: *Project Engineer at GrafTech*

44) **Cornelius Obasanjo**[&], MS Thesis in Chemical Engineering (2014 – 16)
Thesis: *The Response of an Ellipsoidal Colloid Particle in an A/C Field*
Current Position: *PhD Student at Queen's University*

43) **Selwin Varghese**[&], MS Thesis in Chemical Engineering (2015 - 17)
Thesis: *Watching Paint Dry with Passive Microrheology*

42) **Venkateswara Rao Kode**[&], MS Project in Chemical Engineering (2015 – 17)
Project: *Production of polystyrene ellipsoidal colloidal particles via film stretching*
Current Position: *Assistant Professor at The University of Tennessee at Chattanooga*

41) **Mehul Gamara**[&]**,** MS Project in Chemical Engineering (2016 - 17)
Project: *Fabricating Patchy Particles by Glancing Angle Deposition*
Current Position: *Quality Engineer at DePuy Synthes Companies*

40) **William Ivancic**[&], MS Thesis in Chemical Engineering (2015 - 17)
Thesis: *Effect of Surface Oxidation on the Mechanics of Carbon Nanotube Laden Interfaces*
Current Position: *Process Engineer at Lincoln Electric*

39) **Jiarui Yan**[&], MS Thesis in Chemical Engineering (2017 - 18)
Thesis: *Kinetics and Ensemble Dynamics of Colloidal Ellipsoids Near an A/C Electrode*
Current Position: *Research Chemist at Momentive*

38) **William Tuttle**[&], MS Project in Chemical Engineering (2016 - 17)
Project: *Automation of ImageJ Particle Tracking Functions*
Current Position: *Director Operations at BASF*

Undergraduate Students Trained as Research Advisor (*yrs. advised,* [&]*CSU student*)

37) **Karoun Goudsouzian,** BS in Chemical Engineering (2026 - present)
36) **Leah Coats,** BS in Chemical Engineering (2026 - present)
35) **Kazutada Nakao,** BS in Physics (2026 - present)
34) **Mitchell Lau,** BS in Chemical Engineering (2026 - present)
33) **Ritchie Ngompe**, BS in Chemical Engineering (2025 - present)
32) **Lucas Zimmer,** BA in Chemistry (Oberlin College and Conservatory, 2025)
31) **Jintian Xue**, BEng in Chemical Engineering and Technology (Tianjin University, 2024)
30) **Snehal Choudhury**, BS in Chemical Engineering (2024 - 2026)
29) **Veran Stanek**, BS in Physics (Rochester Institute of Technology, 2024)
28) **Anders White**, BS in Chemical Engineering (2024)
27) **Samhita Vasudevan**, BS in Chemical Engineering (2023 - 2025)
26) **Parker Holmes**, BS in Chemical Engineering (University of Tulsa, 2022)
25) **Olivia Kamlet**, BS in Chemical Engineering (2022)
24) **Brian Cameron**, BS in Chemical Engineering (University of Akron, 2022)
23) **Diego Calderon**, BS in Biology (2021 - 2023)
22) **James Nettles**, BS in Biomedical Engineering (2021 - 2022)
21) **Hanjoo Oliver Lee**, BA in Chemistry and Psychology (2021 - 2022)
20) **John Mays**, BS in Computer Science (2021 - 2023)
19) **Matthew Pitell**, BS in Chemical Engineering (2021 - 2023)
18) **Isabel Papenbrock Romero**, BS in Chemical Engineering (2021 - 2022)
17) **Peter Howard**, BS in Chemical Engineering (LSU, 2019)
16) **Tyler Leibengood**, BS in Physics (YSU, 2019)
15) **Steven Bengele**[&], BS in Chemical Engineering (2019)
14) **Mandy Huynh**, BS in Chemical Engineering (2019)
13) **Sarah Buchahine**[&], BS in Chemical Engineering (Honors, 2018 - 19)
12) **Kenneth Gregg**, BS in Physics (University of Akron, 2018)
11) **Naik Yusifi**[&], BS in Chemical Engineering (2018)
10) **Marissa Trivisonno**[&], BS in Chemical Engineering (2018 - 19)
9) **Marola Issa**[&], BS in Chemical Engineering (2018 - 20)
8) **TJ Markiewicz**, BS in Biomedical Engineering (2017)
7) **Payton Lewis**[&], BS in Chemical Engineering (Honors, 2017 - 18)
6) **Nandini Padaraju**[&], BS in Chemical Engineering (2017 - 2018)
5) **John Juchnowski**[&]**,** BS in Chemical Engineering (2015 - 2017)
4) **Jason Wolf**[&], BS in Mechanical Engineering (2015)
3) **Ian Burns**[&], BS in Mechanical Engineering (2015)
2) **Richard Schmitt**[&], BS in Chemical Engineering (2015 - 16)
1) **William Ivancic**[&], BS in Chemical Engineering (2015 - 16)

Students Supervised as Committee Member ([&]*CSU student*)

25) **Ke Wang**, PhD Materials Science and Engineering (EMSE)
24) **Terril Vallikalam**, PhD Chemical and Biomolecular Engineering (ECHE)
23) **Negar Shaghaghi**, PhD Macromolecular Science and Engineering (EMAC)
22) **Shruti Krishna Radhakrishnan**, PhD ECHE
21) **Samuel Ojo**, PhD Civil and Environmental Engineering (ECIV) (graduated summer 2026)
20) **Sogol Asaei**, PhD ECHE (graduated summer 2026)
19) **Steven Vecchi**, PhD EMAC (graduated fall 2025)
18) **Vincent Tam**, PhD ECHE (graduated summer 2025)
17) **Lianna Johnson**, PhD ECHE (graduated spring 2025)
16) **Maura Sepesy**, PhD ECHE (graduated spring 2023)
15) **Jacob Hostert**, PhD ECHE (graduated spring 2023)

14) **Siddharth Rajupet**, MS ECHE (graduated summer 2021)
13) **Venkateswara Rao Kode**[&], PhD Chemical and Biomedical Engineering (ChBME) (graduated spring 2021)
12) **Blas Quiroga**[&]**,** MS ChBME Thesis (graduated fall 2020)
11) **Sepehr Dejdar**[&]**,** MS ChBME Thesis (graduated summer 2020)
10) **Adriaan Riet,** PhD ECHE (graduated spring 2020)
9) **Jeremy Loss**[&], MS ChBME Thesis (graduated spring 2019)
8) **Kara Ufuoma**[&], MS ChBME Thesis (graduated summer 2018)
7) **Kevin Otto**[&], MS ChBME Thesis (graduated spring 2015)
6) **Tara Diba**[&], MS ChBME Thesis (CSU, graduated fall 2015)
5) **James Deyling**[&], MS ChBME Thesis (graduated fall 2016)
4) **Aaron Moran**[&], DRE ChBME (graduated 2018)
3) **Richard Schmitt**[&], MS ChBME (graduated 2018)
2) **Supriya Upadyay**[&], MS ChBME (graduated 2018)
1) **Claudine Lacdao**[&], MS ChBME (graduated 2017)

Courses Taught ([$]*new course,* [&]*CSU course)*

11)	**ECHE 225**	Thermal and Fluid Sciences (fall 25)
10)	[$]**ECHE 370**	AIChE Competition Laboratory (fall 23, fall 25, spring 26)
9)	**ECHE 330/430**	Design and Production of Fermented Beverages (summer 23, 25)
8)	**ECHE 466**	Colloid Science (fall 21)
7)	**ECHE 365**	Measurements Laboratory (spring 21 – 24, spring 26)
6)	**ENGR 225**	Thermodynamics, Fluid Dynamics, Heat and Mass Transfer (fall 20, fall 22, fall 23)
5)	[&]**ESC 720**	Research Communications (fall 17, fall 18)
4)	[$,&]**CHE 444/544**	Colloidal and Interfacial Phenomena (fall 14, fall 16, fall 18, fall 19)
3)	[&]**CHE 506**	Advanced Transport Phenomena (spring 16, spring 18, spring 19)
2)	[&]**ESC 301**	Fluid Mechanics (summer 15, spring 17, spring 18)
1)	[$,&]**CHE 594/694**	Colloidal Hydrodynamics and Electrokinetics (fall 15)

Outreach, Teacher Development, and Other Mentorship Activities

3) **Leader of Education and Outreach Experiential Activities:** A multi-component Colloid and Interface Science (CIS) program in collaboration with regional partners. The goal of this program is to encourage more students to pursue a career in STEM by focusing on the everyday applications of CIS. The program thus far has included three components between 2019 - 2023, namely: (i) *Experiential Learning:* Week-long program seeking to have high school students learn about the broad area of CIS and subsequently focus effort on learning about one specific product. (ii) *Engineering Design:* Summer-long program with high school students participating in an engineering design project. The piece of hardware should facilitate testing a hypothesis or measure a specific material property of a complex fluid. (iii) *Course Content Development:* Initial implementation was integrated into a CIS Course. The goal of the program was to have students demonstrate an ability to identify structure-property relationships in microstructured chemical products. Some examples of projects included measuring the rheology of mayonnaise, the durability of nail polish, and the sag properties of various paints.

2) **Highschool Research Experiences:** Following the conclusion of various outreach initiatives tied to my NSF CAREER award, my focus has shifted toward providing summer research internships for high school students. This transition included hosting students from University School and Hawken during the summers of 2025 and 2026. Additionally, I participated in the ACS SEED program in 2025, a project dedicated to providing immersive, summer-long laboratory experiences for economically disadvantaged high school students who work directly alongside my graduate researchers. These combined efforts are

designed to foster laboratory proficiency and provide meaningful experiences that encourage individuals from all backgrounds to pursue and remain in STEM fields.

1) **Mentorship in Undergraduate Research:** Mentor for REU NSF #1659541/2244106: Synthesis, Assembly and Characterization of Soft Matter Systems. Ten-week program running in the summer from which six (6) undergraduate researchers were mentored in the lab of CLW. Home institutions of these students included Oberlin College, Rowan University, University of Akron, Youngstown State University, Louisiana State University, and Rochester Institute of Technology. The goal of the program was to involve sophomore and junior physics and engineering majors in meaningful interdisciplinary research projects.

External Research Support

23) **Amount** $621,050
Agency National Science Foundation
Title Equipment: MRI Track 1: Acquisition of a High-Speed Confocal Imaging System for Dynamic Physical and Biological Soft Systems
Role Lead PI
Duration September 1st, 2026 – August 31st, 2029

22) **Amount** $15,000,000
Agency National Science Foundation
Title Northeast Ohio Strengthening Manufacturing for American Resilience through Technology (NEOSMART)
Role Senior Personnel
Duration March 1st, 2026 – February 28th, 2028

21) **Amount** $1,750,000
Agency NIST/ Commerce, Justice, Science; Energy and Water Development
Title Advanced Product Manufacturing Technology Initiative
Role Lead PI & Director
Duration September 1st, 2026 – August 31st, 2028

20) **Amount** $92,710
Agency Sherwin-Williams
Title Phase IV: University Challenge Grant: Engineering Janus Particles as Adhesion Additives for Low Energy Surfaces
Role Lead PI
Duration June 1st, 2026 – January 30th, 2027

19) **Amount** $78,070
Agency Novagard
Title Rheological and Stability Measurements to Improve the Formulation of Sealant & For Adhesive Materials
Role Lead PI
Duration May 15th, 2026 - November 15th, 2026

18) **Amount** $85,553
Agency Sherwin-Williams
Title Phase III: Modification of the free interface of paint with Janus particles
Role Lead PI
Duration December 15th, 2025 – April 30th, 2026

17) **Amount** $82,640
Agency NSF MDS Rely IUCRC
Title Non-invasive detection of defects during coatings manufacturing
Role Lead PI
Duration January 1st, 2025 – December 31st, 2025

16) **Amount** $82,991
Agency Sherwin-Williams
Title Phase II: Noninvasive detection of skin formation on the free surface of bulk paint
Role Lead PI
Duration September 1st, 2024 – April 30th, 2025

15) **Amount** $50,000
Agency American Chemical Society Petroleum Research Foundation
Title Sustainable Formulation of Packaging Materials: Films, Packaging, and Coatings
Role Lead PI
Duration August 1st, 2024 – May 31st, 2025

14) **Amount** $76,780
Agency NSF MDS Rely IUCRC
Title Non-invasive detection of defects during coatings manufacturing
Role Lead PI
Duration January 1st, 2024 – December 31st, 2024

13) **Amount** $20,258
Agency Sherwin-Williams
Title Noninvasive detection of skin formation on the free surface of bulk paint
Role Lead PI
Duration September 1st, 2023 – November 30th, 2023

12) **Amount** $350,000
Agency National Science Foundation
Title Measuring the non-uniform surface interactions experienced by a Janus particle
Role Lead PI
Duration September 1st, 2023 – August 31st, 2026

11) **Amount** $95,778
Agency Lubrizol
Title Engineering Fluid Formulations to Improve Spray Cooling
Role Lead PI
Duration April 1st, 2023 – December 31st, 2023

10) **Amount** $49,399
Agency NSF MDS Rely IUCRC
Title Non-invasive detection of defects during coatings manufacturing
Role Lead PI
Duration April 1st, 2023 – December 31st, 2023

9) **Amount** $50,000
Agency Lubrizol
Title Determining the mechanism of demulsification for different chemical treaters
Role Lead PI
Duration March 1st, 2022 – November 30th, 2022

8) **Amount** $2,815,000 (Wirth: $875,226)
Agency Department of Energy
Title Enabling Long Duration Metal Hybrid Redox Flow Batteries
Role Co-PI
Duration March 1st, 2021 – March 1st, 2024

7) **Amount** $537,470 (Wirth: $233,447 + $10,110 as NSF REU supplement)
Agency National Science Foundation – Fluid Dynamics
Title GOALI: Collaborative Research: Non-invasive measurement of kinematics and rheology in a drying complex fluid
Role Lead PI
Duration January 1st, 2020 - December 31st, 2022

6) **Amount** $16,394
Agency PPG Industries
Title Developing the Variable Angle Inspection Microscope (VAIM) to measure kinematics of drying paint
Role Lead PI
Duration June 1st, 2019 – December 31st, 2019

5) **Amount** $20,000 (Wirth: $10,000)
Agency Cleveland Foundation
Title Internet of Things (IoT) Enabled Chemical Analysis
Role Co-PI
Duration January 1st, 2019 – December 31st, 2019

4) **Amount** $500,000 (+ $77,620 as NSF INTERN supplement)
Agency National Science Foundation – Particulate and Multiphase Processes
Title CAREER: Interrogating dense anisotropic colloidal suspensions with SMR-TIRM
Role Lead PI
Duration September 1st, 2018 – August 31st, 2023

3) **Amount** $61,181
Agency PPG Industries
Title Development of a Particle Based Non-Invasive Inspection Technique for Paint – Phase II
Role Lead PI
Duration January 1st, 2018 – December 31st, 2018

2) **Amount** $110,000
Agency American Chemical Society Petroleum Research Foundation
Title Microstructure and Transport of Nanoparticle Laden Foams in Porous Media
Role Lead PI
Duration September 1st, 2017 – August 31st, 2020 (No cost extension)

1) **Amount** $59,710
Agency PPG Industries
Title Development of a Particle Based Non-Invasive Inspection Technique for Paint – Phase I
Role Lead PI
Duration January 1st, 2017 – December 31st, 2017

Pending External Proposals

4) **Amount** $2,692,446
Agency DoW - AFOSR
Title DURIP: Autonomous Integrated Testbed for Developing Defense-Critical Multiphase Materials and Products
Role Lead PI
Duration June 18th, 2027 - June 17th, 2028

3) **Amount** $351,030
Agency Novagard
Title Formulation Engineering of Multiphase Reactive 'Part B' Materials
Role Lead PI
Duration November 11th, 2026 - November 10th, 2028

2) **Amount** $29,404
Agency PPG Industries
Title Sprint: Evaluation of Sag in Rheologically Complex Fluids
Role Lead PI
Duration February 1st, 2026 – April 30th, 2026

1) **Amount** $199,548,588
Agency NIST
Title Collaborative Human-centered AI for Resilient Manufacturing (CHARM) Institute
Role Senior Personnel
Duration June 1st, 2025 – May 31st, 2030

University Service

36) Case School of Engineering Graduate Education Committee (fall 2026 –)
35) Chair, University Research Committee (fall 2026 -)
34) AIChE Student Chapter Advisor (fall 2025 –)
33) University Research Committee (fall 2025 -)
32) Faculty Senate Representative, CSE (fall 2025 -)
31) Chair, Graduate Recruitment Committee (fall 2025 -)
30) Cluster Lead, Advanced Materials and Manufacturing, Susi IRB (spring 2024 -)
29) Scribe, ECHE Tenure and Promotion Committee (fall 2023)
28) CSE Representative, Faculty Development Council (fall 2023 - spring 2024)
27) Contributing Member, ECHE Diversity Committee (fall 2022 -)
26) Chair, Graduate Recruitment Committee (fall 2022 - spring 2024)
25) Chair, Case School of Engineering Graduate Education Committee (fall 2022 – spring 2024)
24) AIChE Student Chapter Advisor (fall 2021 – fall 2023)
23) Case School of Engineering Graduate Education Committee (fall 2020 – spring 2022)
22) Graduate Admission and Recruitment Committee (fall 2019 – summer 2022)

21) College of Engineering Ad-hoc Diversity Committee (CSU, spring 2019)
20) University Space Committee (CSU, fall 2018 – spring 2019)
19) College of Engineering Dean's Diversity Council (CSU, fall 2018 – spring 2019)
18) ChBME Qualifier Committee, (CSU, fall 2018 – spring 2019)
17) Textbook Adoption Committee, (CSU, spring 2018)
16) Search Committee, Lecturer (CSU, spring – summer 2015)
15) Search Committee, Advancement Officer (CSU, fall 2015 – spring 2016)
14) Search Committee, AVP for Research (CSU, spring 2016)
13) ESC120 Curriculum Committee (CSU, spring – summer 2015)
12) Dean's Ad-hoc Committee (CSU, spring – summer 2015)
11) Graduate Student Award Review Committee (CSU, spring 2016)
10) Department Secretary (CSU, fall 2014 - spring 2016)
9) Bell Lectureship/Seminar Series Planning Committee (CSU, fall 2016 – fall 2019)
8) University Research Council (CSU, fall 2016 – spring 2019)
7) Patent Review Committee (CSU, fall 2016 – spring 2019)
6) Retreat Planning Ad-hoc Committee (CSU, summer 2015 & 2016)
5) New Engineering Building Renovation Sub-Group (CSU, fall 2014)
4) College of Engineering Research Working Group (CSU, fall 2016)
3) College of Engineering Graduate Student Working Group (CSU, fall 2015 – sp. 2016)
2) Engineering Student Recruitment Committee (CSU, spring 2015)
1) Reviewer for Undergraduate Research Award (CSU, spring 2016)