

Dr. Trevor Franklin

University of Colorado Boulder
Chemical and Biological Engineering * JSCBB E1B45
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EDUCATION

Cornell University	Ithaca, NY
M.S. & Ph.D. in Chemical & Biomolecular Engineering	2018 – 2022
Specialization: <i>Polymer thin film design for surface-bacteria communication and solvent-free nanoparticles synthesis</i>	
Tufts University	Medford, MA
B.S. in Chemical & Biological Engineering	2006 – 2010
Specialization: <i>Small-scale research mash protocol development and wort analysis</i>	

PROFESSIONAL EXPERIENCE

University of Colorado Boulder , Teaching Assistant Professor, <i>Boulder, CO</i>	2024-Present
Cornell University , Postdoctoral Associate & NSF STEM Education Research Fellow	2023 – 2024
Cornell University , Graduate Researcher	2018 – 2022
University of Colorado Boulder , Professional Research Assistant	2017 – 2018
Shining Mountain Waldorf School , College Counselor, <i>Boulder, CO</i>	2015 – 2018
The Best U LLC , CEO/Founder, <i>Boulder, CO</i>	2014 – 2018
Seamless Toy Company , Marketing Coordinator, <i>Boulder, CO</i>	2013 – 2014
Tufts University Undergraduate Admissions , Assistant Director of Admissions	2010 – 2013

TEACHING EXPERIENCE

<u>University of Colorado Boulder:</u>	
Chemical Process Synthesis	<i>CHEN 4520 – Fall 2024</i>
Biomedical Engineering Principles & Methods	<i>BMEN 2100 – Fall 2024</i>
<u>Cornell University:</u>	
Feast! Chemical and Biomolecular Engineering Processes and Products Through Food	<i>ENGRI 1120 – Fall 2023</i>
Intergroup Dialogue for Graduate Students & Postdoctoral Scholars	<i>Summer 2021 & 2022</i>
Intergroup Dialogue Project Workshops & Short Courses	<i>2021-2023</i>
Heat & Mass Transfer, <i>Guest Lecturer</i>	<i>CHEME 3240 – 2022-2023</i>
Career Perspectives, <i>Guest Lecturer</i>	<i>CHEME 2010 – Fall 2022</i>
<u>Secondary Education:</u>	
College and Career Opportunities, <i>Shining Mountain Waldorf School, Boulder, CO</i>	<i>Fall 2015 – Spring 2018</i>

PUBLICATIONS

1. Bao N., Szilvasi T., Tripathi A., **Franklin T.**, Wolter T.J., Shu H., Twieg R., Yang R., Mavrikakis M., Abbott N. (2024) Design of Chemoresponsive Liquid Crystals Using Metal-Coordinating Polymer Surfaces. *ACS Applied Materials & Interfaces*, 17 (1), 2425-2435.
2. Shindler S., **Franklin T.**, Yang R. (2024) Prevention and Characterization of Thin Film Defects Induced by Contaminant Aggregates in Initiated Chemical Vapor Deposition. *The Journal of Chemical Physics*, 160 (14), 144904.
3. **Franklin T.** (2024) Work In Progress: Development of a Taxonomy of Undergraduate Engineering Admissions Practices and Protocols. *2024 ASEE Annual Conference & Exhibition*, 1-9.
4. Armada J., Sabatino S. **Franklin T.**, Godwin A. (2024) Radical Redesign of an Introductory Chemical and Biomolecular Engineering Course for Student Motivation. *2024 AIChE Annual Meeting*.
5. Chen P., Khlyustova A., **Franklin T.**, Yang R. (2024) Chemical Vapor Deposition of Ultrathin Zwitterionic Polymer Coatings. *2024 AIChE Annual Meeting*.
6. **Franklin T.**, Godwin A., Berger E.J. (2023) Bridging Conventional Admissions Metrics and Undergraduate Engineering Student Non-Cognitive and Affective Factors. *2023 IEEE Frontiers in Education Conference (FIE)*, 1-8.
7. **Franklin T.**, Yang R. (2023) Controlling Morphology of Polymer Particles Synthesized from Condensed Monomer Droplets. *Chemistry of Materials*, 35 (13), 4955-4946.
8. Cheng Y., Ma X., **Franklin T.**, Yang R., Moraru C.I. (2023) Mechano-Bactericidal Surfaces: Mechanisms, Nanofabrication, and Prospects for Food Applications. *Annual Review of Food Science and Technology*, 14, 449-472.
9. Feng Z., Cheng Y., Khlyustova A., Wani A., **Franklin T.**, Varner J.D., Hook A.L., Yang R. (2023) Virtual High-Throughput Screening of Vapor-Deposited Amphiphilic Copolymers for Inhibiting Biofilm Formation. *Advanced Materials Technologies*, 8, 2201533.
10. Lang J., Ma X., Liu S.S., Streever D.L., Serota M., **Franklin T.**, Loew E.R., Yang R. (2022) On-Demand Synthesis of Antiseptics at the Site of Infection for Treatment of Otitis Media. *Nano Today*, 47, 101672.
11. **Franklin T.**, Streever D.L., Yang, R. (2022) Versatile and Rapid Synthesis of Polymer Nanodomains via Template- and Solvent-Free Condensed Droplet Polymerization. *Chemistry of Materials*, 34 (13), 5960-5970.
12. **Franklin T.**, Wu Y., Lang J., Li S., Yang R. (2021) Design of Polymeric Thin Films to Program Microbial Iron Acquisition, Biofilm Growth, and Virulence. *Biomacromolecules*, 22 (12). ****Journal Cover****
13. Chen P., Lang J., **Franklin T.**, Yu Z., Yang R. (2021) Reduced Biofilm Formation at the Air-Liquid-Solid Interface via Introduction of Surfactants. *ACS Biomaterials Science & Engineering*, 9 (7), 3923-3934.
14. **Donadt T.B.**, Yang R. (2021) Amphiphilic Polymer Thin Films with Enhanced Resistance to Biofilm Formation at the Solid-Liquid-Air Interface. *Advanced Materials Interfaces*, 8 (5), 2001791.
15. **Franklin T.**, Yang R. (2020) Vapor-Deposited Biointerfaces and Bacteria: An Evolving Conversation. *ACS Biomaterials Science & Engineering*, 6 (1), 182-197. ****Journal Cover****
16. Myren T.H, Lilio A.M., Huntzinger C.G., Horstman J.W., Stinson T.A., **Donadt T.B.**, Moore C., Lama B., Funke H.H., Luca O.R. (2018) Manganese N-Heterocyclic Carbene Pincers for the Electrocatalytic Reduction of Carbon Dioxide. *Organometallics*, 38 (6), 1248-1253.
17. **Donadt T.B.**, Lilio A.M., Stinson T.A., Lama B., & Luca O.R. (2018) DOSY NMR and Normal Pulse Voltammetry for the Expedient Determination of Number of Electrons Exchanged in Redox Events. *ChemistrySelect*, 3 (25), 7410-7415. ****Top 10% download from ChemistrySelect****

PRESENTATIONS

Invited Talks

1. **Reading Education Literature.** Engineering Education Teaching and Research Methods. Cornell University, 2024.
2. **Dialogue in the Workplace Panel.** Intergroup Dialogue Project Directions for Dialogue Conference. Cornell University, 2023.

3. Austin Hooey Graduate Research Excellence Award Seminar. **Lost vs. Overlooked - Finding a Vapor-Deposition-Based Route to Polymer Particles and Pursuing Belonging in Engineering.** Cornell University, 2023.
4. **Journey to Science Seminar.** Onondaga Community College, 2021.

Conference Presentations

1. **Franklin T. Work In Progress: Development of a Taxonomy of Undergraduate Engineering Admissions Practices and Protocols.** ASEE Annual Conference & Exhibition, June 2024, Portland, OR.
2. **Franklin T., Godwin A., Berger E.J. Bridging Conventional Admissions Metrics and Undergraduate Engineering Student Non-Cognitive and Affective Factors.** IEEE Frontiers in Education Conference, October 2023, College Station, Texas.
3. **Franklin T., Wu Y., Lang J., Li S., Yang R. Polymer Thin Films Designed to Decrease Microbial Pathogenicity by Altering Metabolic Activity.** Materials Research Society Spring Meeting & Exhibit, May 2022, Honolulu, HI.
4. **Donadt T.B., Streever D.L., Yang R. Versatile Polymer Nanoparticle Synthesis Using Initiated Chemical Vapor Deposition.** American Institute of Chemical Engineers Annual Meeting, November 2021, Boston, MA.
5. **Donadt T.B., Streever D.L., Yang R. Versatile Polymer Nanoparticle Synthesis Using Initiated Chemical Vapor Deposition.** AVS 67th International Symposium & Exhibition, October 2021, Virtual.
6. **Donadt T.B., Yang, R. Zwitterionic and Fluorinated Amphiphilic Coatings with Enhanced Resistance to Biofilm Formation.** American Institute of Chemical Engineers Annual Meeting, November 2020, Virtual.
7. **Donadt T.B., Wu Y., Li S., Yang, R. Biointerfacial Design to Manipulate Siderophore Production by *Pseudomonas aeruginosa* without Soluble Chemical Intervention.** American Institute of Chemical Engineers Annual Meeting, November 2020, Virtual.

Posters

1. **Franklin T., Streever D.L., Yang R. Versatile, Solvent-Free Technique to Synthesize Polymer Nanoparticles.** Materials Research Society Spring Meeting & Exhibit, May 2022, Honolulu, HI.
2. **Donadt T.B., Wu Y., Lang J., Li S., Yang, R. Polymeric Thin Films Designed to Direct *Pseudomonas aeruginosa* Iron Scavenging, Biofilm Growth, and Pathogenicity.** AVS 67th International Symposium & Exhibition, October 2021, Virtual.
3. **Donadt T.B. Wu Y., Li S., Yang, R. Pyridine-Rich Polymer Coating Directs Iron Uptake Behavior and Virulence of *Pseudomonas aeruginosa*.** Intel Chemical & Biomolecular Engineering Graduate Research Symposium, January 2021, Ithaca, NY.
4. **Donadt T.B., Lilio A.M., Stinson T.A., and Luca O.R. Development of chiral main group metal complexes for atom transfer catalysis.** American Chemical Society Rocky Mountain Regional Meeting, October 2017, Loveland, CO.
5. **Donadt T.B., Myren T.H., Lilio A.M, and Luca O.R. Synthesis and characterization of tripodal copper catalysts for solar fuel production.** American Chemical Society Rocky Mountain Regional Meeting, October 2017, Loveland, CO.

INTELLECTUAL PROPERTY

1. **Polymer nanoparticles via condensed droplet polymerization.** International application no. PCT/US2022/74424
2. **Solvent-free incorporation of therapeutic molecules into polymer nanoparticles using condensed droplet polymerization.** Provisional patent application no. 63/364,341
3. **Amphiphilic copolymer with zwitterionic and fluorinated moieties.** Non-provisional patent application no. 17/454,763
4. **Versatile, rapid, solvent-free polymer nanoparticles synthesis via condensed droplet polymerization.** Provisional patent application no. 63/228,480

AWARDS & HONORS

National Science Foundation (NSF) STEM Education Individual Postdoctoral Research Fellowship, 2023
Expanding the Inquiry into Undergraduate Engineering Admissions to Broaden Engineering Participation,
Awarded \$ 363,752

AVS Biomaterials Interfaces Division 1st Place Poster Presentation, 2021

AVS National Graduate Research Award, 2021

American Institute of Chemical Engineers Microbes at Biomedical Interfaces Graduate Student Competition Award, 2021

Colman Inclusive Leadership Program, 2021

Cornell University Intergroup Dialogue Project Fellow, 2021 - 2024

Cornell University Graduate School Early Career Exemplary Service Award, 2020

National Science Foundation (NSF) Graduate Research Fellow, 2020 – 2022

National Defense Science and Engineering Graduate 2020 Fellowship Awardee, 2020

Tau Beta Pi Engineering Honor Society Member, 2009 – Present

USTFCCCA Two-time All-Academic Award, 2008 & 2010

EXTERNAL SERVICE

National Science Foundation STEM Education Postdoctoral Fellowship Program Review Panel, 2024

AIChE Education Division (EdDiv) Membership Committee, 2024 – Present

Chemical Engineering Education (CEE) Journal Reviewer, 2024 - Present

INTERNAL SERVICE AT CU BOULDER

ChBE Undergraduate Committee, 2024 – Present

ChBE Ambassadors Leader, 2024 - Present

Certificate Development, 2024

Undergraduate Course Assistants Assignment Coordinator, 2024 - Present

OUTREACH

CU Boulder CEAS Engineering Sampler, 2024

Advancing Science and Policy Congressional Visit, 2021

Research Education and Activities for Community Teachers (REACT), 2020 & 2021

Graduate Student Ambassador, Office of Inclusion and Student Engagement, 2019 - 2022

Women's Outreach in Materials, Energy and Nanobiotechnology (W.O.M.E.N.) Outreach, 2019 - 2023

PROFESSIONAL SOCIETIES (PAST & PRESENT)

American Institute of Chemical Engineers

American Society for Engineering Education

Materials Research Society

AVS: Science and Technology of Materials