

JAMES N. WILKING

Department of Chemical & Biological Engineering and Center for Biofilm Engineering
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Education:

University of California, Los Angeles, CA — Ph.D in Chemistry September 2008
Dissertation: Structure and Rheology of Metastable Nanoscale Emulsions
Advisor: Thomas G. Mason
Rutgers University, Camden, NJ — M.S. in Chemistry May 2002
Thesis: Synthesis and Characterization of Poly(2-phenoxy *p*-phenylene vinylene)
Advisor: Georgia A. Arbuckle-Keil
Rutgers University, Camden, NJ — B.S. in Chemistry May 2001

Experience:

Montana State University, Bozeman, MT—Assistant Professor November 2013-present
Harvard University, Boston, MA —Postdoctoral Fellow, SEAS September 2008-October 2013
Mentors: David Weitz and Michael Brenner
UCLA, Graduate Research Assistant June 2005-September 2008
UCLA, Graduate Teaching Assistant Counselor September 2004-May 2005
UCLA, Graduate Teaching Assistant September 2002-August 2004
Rutgers University Graduate Research Assistant September 2001-May 2002
Atlas Van Lines—CDL Class A Licensed Tractor-Trailer Driver January 1999-August 2002

Honors:

- MSU Faculty Award for Excellence (2018)
- CBE Outstanding Faculty Award (2015)
- NSF CAREER Award (2015)
- UCLA Dissertation Award (2008)
- UCLA Graduate Division Dissertation Year Fellowship (2007-2008)
- ACS Award for Scholarly Achievement in Chemistry (2001)

Peer-Reviewed Publications: (*h*-index \geq 19, *i10*-index \geq 21, total citations \geq 2100)

28. B. Sidar, B. R. Jenkins, S. Huang, J. R. Spence, S. T. Walk, and **J. N. Wilking**, Long-Term Flow through Human Intestinal Organoids with the Gut Organoid Flow Chip (GOFlowChip), *Lab on a Chip*, Advance Article (2019). doi: [10.1039/c9lc00653b](https://doi.org/10.1039/c9lc00653b)
27. T. A. Sebrell, M. Hashimi, B. Sidar, R. Wilkinson, L. Kirpotina, M. T. Quinn, Z. Malkoc, P. J. Taylor, **J. N. Wilking**, D. Bimczok, A Novel Gastric Spheroid Co-culture Model Reveals Chemokine-Dependent Recruitment of Human Dendritic Cells to the Gastric Epithelium *Cellular and Molecular Gastroenterology and Hepatology*, 8, 1 (2019). doi: [10.1016/j.jcmgh.2019.02.010](https://doi.org/10.1016/j.jcmgh.2019.02.010). Featured on journal cover.
26. A. D. Benjamin, R. Abbasi, M. Owens, R. J. Olsen, T. B. LeFevre, D. J. Walsh, **J. N. Wilking**, Light-Based 3D Printing of Hydrogels with High Resolution Channels, *Biomedical Physics & Engineering Express*, 5, 2 (2019). doi: [10.1088/2057-1976/aad667](https://doi.org/10.1088/2057-1976/aad667).
Featured #3 in BPEX “Most Read” list with >2700 downloads.
eLetter in response to *Science* 364, 6439 (2019). doi:[10.1126/science.aav9750](https://doi.org/10.1126/science.aav9750).
25. L. Thrane, E. Berglund, **J. N. Wilking**, D. Vodak, J. D. Seymour, NMR Relaxometry to Characterize Drug Structural Phase in a Porous Construct, *Molecular Pharmaceuticals* 15, 7 (2018). doi: [10.1021/acs.molpharmaceut.8b00144](https://doi.org/10.1021/acs.molpharmaceut.8b00144).

24. T. A. Sebrell, B. Sidar, R. Bruns, R. A. Wilkinson, B. Wiedenheft, P. J. Taylor, B. A. Perrino, L. C. Samuelson, **J. N. Wilking**, D. Bimczok, Live imaging analysis of human gastric organoids reveals spontaneous rupture, inversion, rotation, and fusion events, *Cell and Tissue Res.*, 371, 293 (2018). doi: [10.1007/s00441-017-2726-5](https://doi.org/10.1007/s00441-017-2726-5).
23. X. Wang, S. A. Koehler, **J. N. Wilking**, N. N. Sinha, M. T. Cabeen, S. Srinivasan, A. Seminara, S. Rubinstein, Q. Sun, M. P. Brenner, and D. A. Weitz, Probing phenotypic growth in expanding *Bacillus subtilis* biofilms, *Applied Microbiology and Biotechnology*, 100, 4607 (2016). doi: [10.1007/s00253-016-7461-4](https://doi.org/10.1007/s00253-016-7461-4).
22. C. B. Chang, **J. N. Wilking**, S.-H. Kim, H. C. Shum and D. A. Weitz, Monodisperse Emulsion Drop Microenvironments for Bacterial Biofilm Growth, *Small*, 11, 3954 (2015). doi: [10.1002/smll.201403125](https://doi.org/10.1002/smll.201403125).
21. F. Scheffold, **J. N. Wilking**, J. Haberko, F. Cardinaux, and T. G. Mason, The jamming elasticity of emulsion droplets stabilized by ionic surfactants, *Soft Matter*, 10, 5040 (2014). doi: [10.1039/C4SM00389F](https://doi.org/10.1039/C4SM00389F).
20. J. N. Kheir, B. D. Polizzotti, L. M. Thomson, D. W. O'Connell, K. J. Black, R. W. Lee, **J. N. Wilking**, A. C. Graham, D. C. Bell, F. X. McGowan, Bulk Manufacture of Concentrated Oxygen Gas-Filled Microparticles for Intravenous Oxygen Delivery, *Adv. Healthcare Mater.*, 2, 8 (2013). doi: [10.1002/adhm.201200350](https://doi.org/10.1002/adhm.201200350).
19. A. Clark, C. Shi, B. Ng, **J. N. Wilking**, A. Ayzner, A. Stieg, B. Schwartz, T. Mason, Y. Rubin, S. Tolbert, Self-assembling semiconducting polymers-rods and gels from electronic materials, *ACS Nano*, 7, 962 (2013). doi: [10.1021/nn304437k](https://doi.org/10.1021/nn304437k).
18. **J. N. Wilking**, V. Zaboradaev, M. De Volder, R. Losick, M. P. Brenner, D. A. Weitz, Liquid transport facilitated by channels in *Bacillus subtilis* biofilms, *PNAS*, 110, 848 (2013). doi: [10.1073/pnas.1216376110](https://doi.org/10.1073/pnas.1216376110).
Featured in Editors' Choice, *Science*, 339, 121 (2013).
Featured in Research Highlights, *Nature Reviews Microbiology*, 11, 73 (2013).
17. W. J. Duncanson, M. Zieringer, O. Wagner, **J. N. Wilking**, A. Abbaspourrad, R. Haag, D. A. Weitz, Microfluidic synthesis of monodisperse porous microspheres with size-tunable pores, *Soft Matter*, 8, 10636 (2012). doi: [10.1039/C2SM25694K](https://doi.org/10.1039/C2SM25694K).
16. P. J. Lu, F. Giavazzi, T. E. Angelini, E. Zaccarelli, F. Jargstorff, A. B. Schofield, **J. N. Wilking**, M. B. Romanowsky, D. A. Weitz, and R. Cerbino, Characterizing concentrated, multiply-scattering and actively-driven fluorescent systems with Confocal Differential Dynamic Microscopy (ConDDM), *Phys. Rev. Lett.* 108, 218103 (2012). doi: [10.1103/PhysRevLett.108.218103](https://doi.org/10.1103/PhysRevLett.108.218103).
15. A. Seminara, T. E. Angelini, **J. N. Wilking**, H. Vlamakis, S. Ebrahim, R. Kolter, D. A. Weitz, and M. P. Brenner, Osmotic spreading of *Bacillus subtilis* biofilms driven by an extracellular matrix, *PNAS*, 109, 1116 (2012). doi: [10.1073/pnas.1109261108](https://doi.org/10.1073/pnas.1109261108).
14. **J. N. Wilking**, T. E. Angelini, A. Seminara, M. P. Brenner, and D. A. Weitz. Biofilms as complex fluids, *MRS Bulletin*, 26, 385 (2011). doi: [10.1557/mrs.2011.71](https://doi.org/10.1557/mrs.2011.71).
13. **J. N. Wilking**, C. B. Chang, M. M. Fryd, L. Porcar and T. G. Mason, Shear-induced disruption of dense nanoemulsion gels, *Langmuir*, 27, 9 (2011). doi: [10.1021/la200021r](https://doi.org/10.1021/la200021r).
12. **J. N. Wilking** and T. G. Mason, Optically driven nonlinear rotational microrheology of gelatin, *Phys. Rev. E* 77 (2008). doi: [10.1103/PhysRevE.77.055101](https://doi.org/10.1103/PhysRevE.77.055101).
11. **J. N. Wilking** and T. G. Mason, Multiple trapped states and angular Kramers hopping of complex dielectric shapes in a simple optical trap, *Europhys. Lett.* 81, 58005 (2008). doi: [10.1209/0295-5075/81/58005](https://doi.org/10.1209/0295-5075/81/58005).
Optical manipulation of the colloidal alphabet featured in:
Down to the Letter, Nature Technology Feature, 446, 940 (2007).
'Design and the Elastic Mind' Exhibition Website, The Museum of Modern Art (MoMA)
10. **J. N. Wilking** and T. G. Mason, Irreversible shear-induced vitrification of droplets into elastic nanoemulsions by extreme rupturing, *Phys. Rev. E* 75, 041407 (2007). doi: [10.1103/PhysRevE.75.041407](https://doi.org/10.1103/PhysRevE.75.041407).

9. H. Guo, **J. N. Wilking**, D. Liang, T. G. Mason, J. L. Harden, and R. L. Leheny, Slow, nondiffusive dynamics in concentrated nanoemulsions, *Phys. Rev. E* 75, 041401 (2007).
doi: [10.1103/PhysRevE.75.041401](https://doi.org/10.1103/PhysRevE.75.041401).
8. T. G. Mason, **J. N. Wilking**, K. Meleson, C. B. Chang, S. M. Graves, Nanoemulsions: formation, structure, and physical properties, *J. Phys.: Condens. Matter* 18, R635 (2006). doi: [10.1088/0953-8984/18/41/R01](https://doi.org/10.1088/0953-8984/18/41/R01).
Featured in IoP Condensed Matter: Top Papers 2006 Showcase
7. T. G. Mason, S. M. Graves, **J. N. Wilking** and M. Y. Lin, Effective structure factor of osmotically deformed nanoemulsions, *Journal of Physical Chemistry: B* 110, 44, 22097 (2006). doi: [10.1021/jp0601623](https://doi.org/10.1021/jp0601623).
6. T. G. Mason, S. M. Graves, **J. N. Wilking**, M.Y. Lin, Extreme emulsification: formation and structure of nanoemulsions, *Condensed Matter Physics* 45, 193 (2006). doi: [10.5488/CMP.9.1.193](https://doi.org/10.5488/CMP.9.1.193).
5. **J. N. Wilking**, S. M. Graves, C. B. Chang, K. Meleson, M. Y. Lin and T. G. Mason, Dense cluster formation during aggregation and gelation of attractive slippery nanoemulsion droplets, *Phys. Rev. Lett.* 96, 015501 (2006).
doi: [10.1103/PhysRevLett.96.015501](https://doi.org/10.1103/PhysRevLett.96.015501).
4. S. Graves, K. Meleson, **J. N. Wilking**, M. Y. Lin and T. G. Mason, Structure of concentrated nanoemulsions, *J. Chem. Phys.* 122, 134703 (2005). doi: [10.1063/1.1874952](https://doi.org/10.1063/1.1874952).
3. **J. N. Wilking**, B. Hsieh and G. A. Arbuckle-Keil, Chlorine precursor route to poly(2-phenoxy *p*-phenylene vinylene): synthesis and characterization, *Synth. Met.* 149, 63 (2005). doi: [10.1016/j.synthmet.2004.11.004](https://doi.org/10.1016/j.synthmet.2004.11.004).
Featured on the cover of *Synthetic Metals*.
2. **J. N. Wilking**, C. J. Manning and G. A. Arbuckle-Keil, Characterization of an optoelectronic polymer, poly(2-phenoxy *p*-phenylene vinylene), and its precursor polymer by dynamic infrared spectroscopy, *Applied Spectroscopy* 53, 304 (2004). doi: [10.1366/000370204322886654](https://doi.org/10.1366/000370204322886654).
1. G. A. Arbuckle-Keil, Y. Liszewski, **J. N. Wilking** and B. Hsieh, *In situ* analysis of the thermal elimination reaction in the synthesis of poly(*p*-phenylene vinylene)(PPV) and PPV derivatives, ed. J. E. Puskas, T. E. Long and R. F. Storey (Kluwer Academic/Plenum Publishers, NY, 2003), pp. 173-186. doi: [10.1007/978-1-4615-0125-1_11](https://doi.org/10.1007/978-1-4615-0125-1_11).

Patents:

- *Elastic Vitrification of Emulsions by Droplet Rupturing*
T. G. Mason, J. N. Wilking, S. M. Graves, and K. Meleson, US Pat. App. 12/518,792, filed Jan. 22, 2008.
- *Systems and Methods for Producing Multi-Component Colloidal Structures*
T. G. Mason, J. N. Wilking, US Pat. App. 12/670,913, filed Aug. 27, 2008.
- *Systems and Methods of Templating Using Particles such as Colloidal Particles*
D. A. Weitz, R. S. Koltzenburg, J. B. Rieger, A. R. Studart and J. N. Wilking,
Int. Pat. App. PCT/US2010/000748, filed Dec. 03, 2010.

Invited Talks:

- *Crystal Pressure in Nanoscale Pores*, Montana Molecular, 06/2019.
- *Microbial Biofilms: Structure, Transport, and Dynamics*, SIAM Snowbird, 05/2019.
- *Microbial Biofilms: Structure, Transport, and Dynamics*, U. of Utah, Math Biology Seminar, 04/2019.
- *Flow and Mechanics in Biology*, Worcester Polytechnic Institute, ChemE Colloquium, 12/2018.
- *Engineering Biofilms with 3D Printing*, Steris Corporation, R&D Conference, St. Louis 10/2018.
- *Advances in 3D Hydrogel Printing for Biofilm Engineering*, Biofilm Sci. & Tech. Meeting, Bozeman 07/2018.
- *Structure and Mechanics of Microbial Biofilms*, National ACS Meeting, New Orleans 03/2018.
- *Crystal Pressure in Nanoscale Pores*, UCLA, Physical Chemistry Seminar, 12/2017.
- *Structuring Biofilms Using 3D Printing*, Biofilm Sci. & Tech. Meeting, Bozeman, 07/2017.

- *Structure, Transport, and Mechanics in Human Gut Organoids*, SES Annual Meeting, Boston, 07/2017.
- *Mechanics and Flow in Microbial Biofilms*, Biophysical Society Annual Meeting, New Orleans, 02/2017.
- *Structure and Mechanics of Microbial Biofilms*, Solvay, Philadelphia, 08/2016.
- *Structure and Mechanics of Microbial Biofilms*, SIAM NWCS16, Philadelphia, 08/2016.
- *Osmotic Pressure-Induced Rupturing of Organoids*, Biofilm Sci. & Tech. Meeting, Bozeman, 07/2016.
- *Introduction to Biofilms*, Conference for Food Protection 2016 Biennial Meeting, Boise, 04/2016.
- *Biofilms as Materials*, Biofilm Sci. & Tech. Meeting, Bozeman, 07/2015.
- *Biofilms as Materials*, EuroBiofilms Conference, Brno, Czech Republic, 06/2015.
- *Micromechanical Techniques for the Study of Soft Materials*, Sherwin Williams, 09/2014.
- *Flow & Mechanics in Composite Materials*, CNLD Physics Seminar, UT Austin, 08/2014.
- *Tools for Measuring Biofilm Mechanical Properties*, Biofilm Sci. & Tech. Meeting, Bozeman, 07/2014.
- *Bugs & Drugs: Flow and Mechanics in Soft Materials*, MSU, ChBE Seminar, 03/2013.
- *Bugs & Drugs: Flow and Mechanics in Soft Materials*, UNC, Chemistry Seminar, 03/2013.
- *Soft Materials with Biomedical Applications*, Brown, BME Seminar, 03/2013.
- *Flow and Mechanics in Soft Materials*, UCSD, Physics Seminar, 03/2013.
- *Liquid Transport through Channels in Biofilms*, MIT, Mechanics in Biology Seminar, 09/2012.
- *Bugs, Drugs and Soft Matter Science*, University of Reno, MechE Seminar, 11/2011.
- *Mechanics of Bacillus subtilis Biofilms*, Center for Biofilm Engineering Seminar, MSU, 09/2011.
- *NanoPharmaceuticals: On the Way to Faster Drug Delivery*, Museum of Science, Boston, 08/2011.
- *Dissecting Mosquitoes with Fluid Flow*, Sanaria, Rockville, MD, 07/2011.
- *Dissecting Mosquitoes with Millifluidics*, Kavli Foundation, Harvard, 05/2011.

Contributed Talks:

- *Crystal Pressure in Nanoscale Pores*, University of San Diego, Physics Seminar, 11/2018.
- *3D Printing of Biofilms*, AIChE Annual Meeting, Pittsburgh, 10/2018.
- *Biofilms as Soft Materials*, CU Boulder, Soft Materials Research Center Seminar, 09/2018.
- *High-Speed Imaging of Noxious Weed Seed Dispersal*, MSU Innovation Roadshow, Bozeman 09/2018.
- *Biofilms as Materials*, Notre Dame, Biofilm Mechanics NSF Workshop, 04/2018.
- *3D Printing Soft Hydrogels for Biofilm Engineering*, MSU Thermal Biology Institute, Bozeman, 04/2018.
- *Inhibiting Biofilm Spreading by the Incorporation of "Cheaters"*, MSU Applied Math, Bozeman, 03/2018.
- *The Science of Squishy Stuff*, 125th Anniversary Faculty Symposium, MSU, 02/2018.
- *Flow & Mechanics in B. subtilis Biofilms*, MSU MBI Seminar, Bozeman, 02/2016.
- *Spatiotemporal Evolution of Bacterial Biofilm Colonies*, APS March Meeting, Denver, 03/2014.
- *Flow & Mechanics in Composite Materials*, MSU Physics Colloquium, Bozeman, 11/2014.
- *Mapping Gene Expression in B. subtilis Biofilms*, MSU Applied Math, Bozeman, 02/2014.
- *Soft Materials Science & Biofilms*, MSU Center for Biofilm Engineering, Bozeman, 02/2014.
- *Liquid Transport Facilitated by Channels in Biofilms*, Nobel Conference, Stockholm, 08/2013.
- *Structuring Drugs with Colloidal Templates*, APS March Meeting, Boston, 03/2012.
- *Genetic Control of Rheology in Bacterial Biofilms*, APS March Meeting, Portland, 03/2010.
- *Rheology of Dense Bacterial Biofilms*, ACS Colloids, NYC, 06/2009.
- *Stability and Dynamics of Complex Dielectric Shapes in a Simple Optical Trap*, SPIE, 08/2008.
- *Irreversible Shear-Induced Elastification of "Nanonaise"*, Society of Rheology, Monterey, 08/2008.
- *Irreversible Shear-Induced Elastification of "Nanonaise"*, APS March Meeting, New Orleans, 03/2008.
- *Monitoring the Drug-Induced Rheological Response of a Live Cell through Bio-Microrheology*, Biophysical Society Annual Meeting, Long Beach, 02/2008.
- *Optically Trapping LithoParticles of Complex Shapes: Colloidal Alphabet Soup*, SPIE, San Diego, 08/2007.
- *Nonlinear Microrheology of Dilute Aqueous Polymer and Biopolymer Solutions*, APS, New Orleans, 03/2005.
- *Optically Driven Nonlinear Microrheology*, ACS, San Diego, 03/2005.
- *Coupled Rotational and Translational Two-particle Microrheology*, SPIE, Denver, 08/2004.

- *Characterization of a new PPV Derivative: Poly(2-phenoxy p-phenylene vinylene)*, ACS, Orlando, 04/2002.

Funded Proposals:

- *Integration of mononuclear phagocytes into the human gastrointestinal GOFLOWChip for investigation of luminal antigen sampling*, NIH NIBIB U01(Sept. 2019 – Aug. 2024), \$3,011,525, with S. Walk, D. Bimzcok, C. Chang, and M. Jutila, (MSU), role: PI.
- *3D Printing of Microbial Communities for Optimal Resource Processing*, U.S. Army Research Office (May 2019 – April 2021), \$679,000 total (\$227,000 contingent on Congressional approval) with M. Fields (co-PI), Micro. & Immuno., MSU, role: PI.
- *Development of 3D-Printing for Multi-Material Hierarchical Design*, MSU COE Thorson Excellence in Engineering Research (TEER) Grant (June 2019 – May 2020), \$25,000, with C. Ryan (PI) and S. Warnat (co-PI), Mech. E., MSU, role: co-PI.
- *Modeling Gastric Mucus Layer Physiology*, NIH-NIGMS (August 2018 – July 2022) \$1,400,00 total (\$140,000 to Wilking Lab); with U. of Utah (lead), Boston University, and Florida Institute of Tech, role: collaborator (co-PI status dropped on submission to retain NIH Young Investigator status).
- *Collaborative Research: Nonlocal Interfaces in Biological Systems*, NSF, DMS (August 2018 – July 2021), \$151,052; with S. McCalla (PI), Applied Math, MSU, role: co-PI.
- *Building Genome-to-Phenome Infrastructure for Regulating Methane in Deep and Extreme Environments* NSF, OIA (September 2017 – August 2021), with South Dakota School of Mines and University of Oklahoma. \$1,800,000 to MSU with R. Gerlach lead (~\$200,000 to Wilking Lab); role: senior personnel
- *MRI: Acquisition of Optical Coherence Tomography at Montana State University* NSF, CBET (August 2016 – July 2017), \$105,000 from NSF with \$45,000 cost match from MSU; with co-PIs R. Gerlach, M. Fields, D. Bimzcok and S. Walk, role: PI.
- *CAREER: Exploring Biofilm Material Properties with Micromechanical Tools* NSF, DMR (June 2015 – May 2020), \$503,396; role: PI.
- *Characterizing Microbial Biofilms in NASA Water Recovery Systems using Micromechanical Tools* NASA EPSCoR (January 2015 – October 2015) \$50,364; role: PI.

Teaching:

- *Courses taught at MSU:*
 - Downstream Processing (EBIO439; 3 credits):
6 semesters; 301 students total; average eval. score: 3.26/4.00.
 - Biomedical Materials Engineering (EMAT464; 3 credits):
5 semesters; 240 students total; average eval. score: 3.20/4.00.
 - Bioengineering Lab II (EBIO443; 3 credits);
co-taught all semesters two other faculty; 4 semesters; 142 students total; average eval. 3.19/4.00.
- *Courses developed at MSU:*
 - Biomedical Materials Engineering (EMAT464); Fall 2014; co-developed w/ Ron June.
- *Senior design group mentorship:* Senior design mentor for EBIO411: 2015, 2018.
- *Guest lectures taught at MSU:* (11 total)
 - Biofilm Engineering (EBIO566); 5 lectures (2014, 2015, 2016, 2017, 2018)
 - Fluid Mechanics (ECHM321); 1 lecture (2015)
 - General Microbiology Lab (BIO360); 1 lecture (2018)
 - Transport Phenomena (ECHM533); 1 lecture (2016)
 - Molecules of Life (BIOM107); 2 lectures (2018, 2019)
 - Soft Materials (EBIO591); 2 lectures (2019)
- *Courses taught at UCLA as teaching assistant:* (Fall 2002 – Spring 2005)
 - Atomic and Molecular Structure, Equilibria, Acids and Bases (2 academic quarters)
 - Thermodynamics, Electrochemistry and Kinetics (1 academic quarter)

- Chemical Energetics and Change (1 academic quarter)
- General and Organic Chemistry Laboratory (2 academic quarters)
- Organic Chemistry Laboratory (2 academic quarters)
- *Teaching assistant counselor at UCLA*: Office of Instructional Development (04-05 year)
Mentored incoming class of graduate students to develop teaching skills and techniques.

Advising:

- *Graduate students advised at MSU*: (*indicates degree completion)
 - Barkan Sidar*, PhD Chemical Engineering (Spring 2014 – Spring 2019); instructor, ChBE MSU
 - Emily Berglund*, MS Chemical Engineering (Summer 2015 – Spring 2017); instructor, Carroll College
 - Reha Abbasi, PhD Chemical Engineering (Sept. 2016 – present)
 - Thomas LeFevre, PhD Chemical Engineering (Sept. 2016 – present)
 - Jason Zeng, PhD Chemical Engineering (Jan. 2019 – present)
 - Isaak Thornton, PhD Mechanical Engineering (Jan. 2019 – present)
- *Member of graduate committees at MSU*: (not as primary advisor)
 - Robert Schaefer, ChBE (May 2014 – July 2016)
 - Rehab Al-Kaby, ChBE (Summer 2015 – Spring 2017)
 - Jonathan Martinson, Microbiology, (Summer 2015 – present)
 - Geoffrey Zath, ChBE (Summer 2015 – present)
 - Rana Amyotte, Education (Grad. Rep.; Summer 2015 – present)
 - Shawna Pratt, ChBE (Summer 2015 – present)
 - Nick Reichart, Chemistry (December 2017 – present)
- *Undergraduate researchers advised at MSU*: 26 total (*obtained internal funding (e.g. USP, INBRE, NASA))
 - Jake TeSelle*, ME (January 2014 – December 2014); Crooked Yard Hops (founder), Bozeman, MT
 - Taylor Reese*, ChBE (May 2014 – May 2015); Takeda Pharmaceuticals, Athens, GA
 - Martina Van Hoy*, ChBE (June 2014 – August 2014)
 - Merve Gokce*, ChBE (August 2014 – May 2015); Tarabios Inc., Istanbul, Turkey
 - Elif Yagci*, ChBE (September 2014 – May 2015)
 - Michael Vigers*, ChBE (January 2015 – July 2015); ChemE PhD Program, UCSB
 - Emily Berglund*, ChBE (January 2015 – May 2015); instructor, Carroll College, Helena, MT
 - Furkan Kurtoglu, ChBE (January 2015 – May 2015); MSc Student at Gebze Tech. Univ., Turkey
 - Merve Evcil, ChBE (January 2015 – May 2015); Mustafa Nevzat İlaç, Turkey
 - Miguel Strunk*, ChBE (May 2015 – May 2016); Mesa Laboratories, Bozeman, MT
 - Youra Moeun*, ChBE (August 2015 – June 2018); ChemE PhD Program, U. of Indiana
 - Ben Grodner*, ChBE (March 2017 – June 2018); Biomed. Eng. PhD Program, Cornell
 - Mert Aytac, ChBE (January 2016 – August 2016); Student at University Canada West
 - Aaron Benjamin*, ME (January 2017 – June 2018); Data Sciences International, MN
 - Madison Owens*, ChBE (June 2016 – December 2017); BP Process Engineer
 - Robert Olsen*, ChBE (August 2017 – May 2019)
 - Khalid Alanazi, ChBE (August 2016 – May 2017)
 - Jason Zeng, ChBE (May 2018 – December 2018); ChemE PhD Program, MSU
 - Begum Baybali, ChBE (December 2018 – May 2019)
 - David Brown, ChBE (September 2017 – December 2017); Nelson Laboratories, NV
 - Jacob Rotert*, ChBE (June 2018 – present)
 - Lora Frische, ChBE (August 2018 – present)
 - Ethan John*, ChBE (September 2018 – September 2019)
 - Cati Carmody*, ME (July 2018 – present)
 - Kathleen Ostrem, Microbiology (September 2019 – present)
 - Sydney Ross, ChBE (September 2019 – present)

- *Undergraduate researchers advised at Harvard University:*
 - Suhare Adam (June 2009 – August 2009)
 - Caitlin Dillard (June 2010 – August 2010)
 - Jimmy Huang (June 2011 – August 2011)
 - Alimatou Ndiaye (June 2013 – August 2013)
- *Undergraduate Research Mentor at Harvard University* for students conducting independent research projects for the course “Science & Cooking” (Fall semesters: 2010, 2011).

Memberships & Affiliations: (varies by year)

- American Chemical Society
- American Physical Society
- Materials Research Society
- American Society for Microbiology
- American Institute of Chemical Engineers
- Biophysical Society

Professional Service:

- Journal review for *PNAS*, *Journal of Physical Chemistry B*, *Journal of Rheology*, *Langmuir*, *Biofouling*, *Soft Materials*, *Journal of Biophotonics*, *Biofilms and Microbiomes*, *Soft Matter*, *Lab on a Chip*.
- Proposal review for the NIST Center for Neutron Research.
- Review panel member for NSF: 2014, 2015, 2016, 2017, 2018, 2019.
- Review panel member for NSF GRFP: 2018.
- Review panel member for NASA NSPIRES: 2017.
- Session chair Biofilm Sci. & Tech. Meeting, Bozeman 07/2015, 07/2018.
- Session co-chair “Microbes at Biomedical Interfaces” AIChE National Meeting, 11/2018, 11/2019.

Departmental Service:

- ChBE Graduate Admissions Committee, 2014 – present.
- Center for Biofilm Engineering Executive Committee, 08/2015 – present.
- AIChE Regional Student Conference Poster Judge, 04/2018.
- Research Presentation to ECHM100, 11/2016.
- Center for Biofilm Engineering Imaging Core Manager Search Committee Member, Spring 2018.

University Service:

- Member of Hearing Board for Academic Misconduct, MSU, 04/2015.
- INBRE Review Panel Member, MSU, 03/2014.
- USP Review Panel Member, MSU, 02/2018.
- MSU Friday presentations, 10/2014, 01/2015, 03/2015 (twice).
- MSU NSF CAREER Session Panels, 02/2016, 02/2017, 02/2018.
- Honors Symposium Presentation, 10/2016.
- Research Booth at Nanodays/Microdays, 02/2017.

Outreach:

- Lego Assembly, First Lego League Competition, Bozeman, MT, 12/2018.
- Workshop on optical coherence tomography to CBE industrial associates, Bozeman, 07/2018.
- Molecular gastronomy presentation at “STEM days” Morning Star Elementary, 04/2018.
- 10×10 research presentation at the MSU Innovation Roadshow, 09/2018 (see above in “Invited Presentations”).
- Presentation at the 125th Anniversary Faculty Symposium, MSU, 02/2018 (see above in “Invited Presentations”).
- Developed “Science & Cooking” Peaks and Potentials week-long workshops, Summers 2015, 2018.
- MT Science Olympiad “Talk and Tour”, 12/2015.
- Project Judge, First Lego League Competition, Bozeman, MT, 02/2014.

- Science Fair Mentor, Chief Joseph Middle School, Bozeman, MT, 12/2013 – 02/2014.
- Volunteer for “Science & Cooking for Kids” at Harvard University, 07/2013.
- Volunteer for public science lectures at Harvard University, 12/2012.
- Public science lecture at Boston Museum of Science, 08/2011.