*Curriculum Vitae*

# JAMES N. WILKING

Department of Chemical & Biological Engineering and Center for Biofilm Engineering
Montana State University, 214 Roberts Hall, Bozeman, MT 59717
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**Education:**

UCLA — PhD in Chemistry (Advisor: Thomas G. Mason) September 2008
Dissertation: *Structure and Rheology of Nanoemulsions*
Rutgers University — M.S. in Chemistry (Advisor: Georgia A. Arbuckle-Keil) May 2002
Thesis: *Synthesis and Characterization of Poly(2-phenoxy p-phenylene vinylene)*
Rutgers University — B.S. in Chemistry May 2001

**Experience:**

ULTSafety—Chief Technical Officer November 2020-present
Montana State University, Bozeman, MT—Associate Professor July 2020-present
Montana State University, Bozeman, MT—Assistant Professor November 2013-June 2020
Harvard University, Boston, MA —Postdoctoral Fellow, SEAS September 2008-October 2013
Mentors: David A. Weitz and Michael P. 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**:

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

**Peer-Reviewed Publications**: (*h*-index: 21, *i*10-index: 24, total citations ≥ 2600)

30. R. Abbasi, T. B. LeFevre, A. D. Benjamin, I. Thornton, and J. N. Wilking, Coupling Fluid Flow to Hydrogels with "Pop-it" Connections, (*submitted*).

29. L. W. Rogowski, J. Ali, X. Zhang, J. N. Wilking, H. C. Fu, M. J. Kim, Symmetry Breaking Propulsion of Magnetic Microspheres in Nonlinearly Viscoelastic Fluids, *Nature Communications*, 12, 1116 (2021) doi: 10.1038/s41467-021-21322-0.

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*, 19, 3552 (2019). doi: 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.
    Featured on journal cover.
    Featured in CMGH editorial (2019). doi: 10.1016/j.jcmgh.2019.04.005.

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.
    Featured #3 in BPEX "Most Read" list with > 6800 downloads.
    eLetter in response to *Science* 364, 6439 (2019). doi: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.

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.

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.

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.

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.

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.

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.

18. J. N. Wilking, V. Zaburdaev, 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.
    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.

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.

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.

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.

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.

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.

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.
    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.
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.
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.
   Featured in IoP Condensed Matter: Top Papers 2006 Showcase
   1000+ citations
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.
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.
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.
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.
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.
   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.
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.

**Funded Proposals:**

- *Enhanced Biofilm Imaging for DoD-Related Research at Montana State University and the Northwestern United States* (Dec. 2020) $778,000 with M. Fields, R. Gerlach, H. Smith, R. Carlson and C. Chang (all MSU) **role: co-PI.**
- *Expanding Screening Capacity to Enhance Montana's COVID-19 Response Capabilities*, Montana Governor's Office (Oct. 2020 – Dec. 2020) $778,000 with C. Chang and 8 other PIs (all MSU) **role: staff**.
- *Using the GoFlowChip to understand SARS-CoV-2 infection of the gastrointestinal mucosa of humans and bats*, NIH NIBIB U01 Competitive Supplement (Sept. 2020 – Aug. 2022) $956,136, with S. Walk, D. Bimczok, C. Chang, and M. Jutila (all MSU) **role: PI**.
- *MRI: Acquisition of a Multi-Modality Multi-Photon Digital Light Sheet Microscope in the Pacific Northwest to Support Bioengineering Research and Development*, NSF (Sept. 2020 – Aug. 2021) $1,081,462, with M. Fields, R. Gerlach, H. Smith and C. Chang (all MSU) **role: co-PI**.
- *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. Bimczok, C. Chang, and M. Jutila (all MSU) **role: PI**.

- *3D Printing of Microbial Communities for Optimal Resource Processing*, U.S. Army Research Office (May 2019 – April 2021), $679,000 ($227,000 contingent on Congressional approval in Y3) with M. Fields, (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 and S. Warnat (both 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, Boston University, and Florida Institute of Tech, **role: collaborator** (co-I status dropped to retain NIH Young Investigator status).
- *Collaborative Research: Nonlocal Interfaces in Biological Systems*, NSF, DMS (August 2018 – July 2021), $151,052; with S. McCalla (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 (~$200,000 to Wilking Lab) **role: co-PI**.
- *CAREER: Exploring Biofilm Material Properties with Micromechanical Tools* NSF, DMR (June 2015 – May 2020), $503,396; **role: PI**.
- *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 R. Gerlach, M. Fields, D. Bimzcok and S. Walk, **role: PI**.
- *Characterizing Microbial Biofilms in NASA Water Recovery Systems using Micromechanical Tools* NASA EPSCoR (January 2015 – October 2015) $50,364, **role: PI**.

**Invited Talks:**

- *Introduction to Small Angle Neutron Scattering*, Montana Tech (Zoom), 02/2021.
- *3D Printing of Microbial Biofilms,* ACS National Meeting, Philadelphia, PA (canceled due to COVID19, 03/2020).
- *Microbial Biofilms: Structure, Transport, and Dynamics,* AIChE Annual Meeting, Orlando, FL, 10/2019.
- *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:**
• *3D Printing of Biofilms*, Army Research Lab, Adelphi, MD 02/2020.
• *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.

**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); 6 lectures (2014-2021)
  - 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); 3 lectures (2019, 2020)
  - Chemical Engineering (ECHM100); 2 lectures (2016, 2019)
  - Principles of Biomedical Engineering (EBIO461); 1 lecture (2020)
• *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:**
• *Postdoctoral scholars advised at MSU:*
  - Barkan Sidar, PhD Chemical Engineering (Jan. 2020 – present)
  - Zahra Mahdieh, PhD Materials Science (Sept. 2020 – present)
• *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)
  - Ema Robinson, PhD Chemistry (Oct. 2019 – February 2020)
  - Ondřej Chlumský, visiting PhD student; University of Chem. & Tech., Prague (March 2020 – Sept. 2020)
  - Cam Dudiak, MS Applied Math (Aug. 2020 – 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 – Spring 2020)
  - Geoffrey Zath, ChBE (Summer 2015 – present)
  - Rana Amyotte, Education (Grad. Rep.; Summer 2015 – Summer 2016)
  - Shawna Pratt, ChBE (Summer 2015 – Summer 2019)
  - Nick Reichart, Chemistry (December 2017 – present)
  - Sobia Anjum, ChBE (Summer 2014 – present)
  - Lori Ray, ChBE (Summer 2015 – present)
  - Amir Darabi-Noferesti, ME (February 2020– present)
• *Undergraduate researchers advised at MSU:* 29 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); Research Technologist, Children's Hospital of Chicago

- 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); Talen Energy, System Engineer
- Khalid Alanazi, ChBE (August 2016 – May 2017); co-founder, Food Innovation MT
- 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
- Ethan John*, ChBE (September 2018 – September 2019); ChemE PhD Program, Colorado State
- Jacob Rotert*, ChBE (June 2018 – present)
- Lora Frische*, ChBE (August 2018 – present)
- Cati Carmody*, ME (July 2018 – present)
- Kathleen Ostrem, Microbiology (September 2019 – present)
- Sydney Ross, ChBE (September 2019 – present)
- Atticus Cummings*, ChBE (January 2020 – present)
- Kaylan Wait, ChBE (Sept. 2020 – present)
- Delaney Stine, ChBE (Sept. 2020 – 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).

**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.

**Memberships & Affiliations**: (vary by year)

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

**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, 2020, 2021.
• 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 Fall Meeting, 2018, 2019, 2020.
• Session co-organizer "Microbes at Biomedical Interfaces" AIChE National Fall Meeting, 2020.

**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.
• Center for Biofilm Engineering Imaging Core Manager Search Committee Member, Spring 2018.

**University Service:**
• 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, 02/2019.

**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 125$^{th}$ 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.

**References:**

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