

Education

- May 2006 **Ph.D. in Mathematics**, *Georgia Institute of Technology*, Atlanta, GA
DISSERTATION: Small Scale Stochastic Dynamics for Particle Image Velocimetry Applications.
ADVISOR: Peter J. Mucha.
- April 2001 **B.S. and M.Sc. in Mathematics**, *ETH Zürich*, Switzerland
THESIS: Energy Estimates and Variational Formulation for Nonreflecting Boundary Conditions.
ADVISOR: Marcus Grote.

Appointments

- 2023–present **Associate Chair for Faculty Affairs**, *Department of Mathematics*, University of Utah, Salt Lake City UT.
- 2018–present **Associate Professor**, *Department of Mathematics*, University of Utah, Salt Lake City, UT.
- 2021–2022 **Sabbatical Leave**, *Department of Mathematics*, University of Utah, Salt Lake City, UT.
- 2010–2018 **Assistant Professor**, *Department of Mathematics*, University of Utah, Salt Lake City, UT.
- Spring 2018 **Family Medical Leave**, *Department of Mathematics*, University of Utah, Salt Lake City, UT.
- Fall 2016 **Family Medical Leave**, *Department of Mathematics*, University of Utah, Salt Lake City, UT.
- 2007–2010 **Research Associate**, *Courant Institute of Mathematical Sciences*, New York University, New York, NY
Mentor: Michael Shelley.
- 2006–2007 **Postdoctoral Fellow**, *Department of Mathematics*, University of North Carolina, Chapel Hill, NC
Mentor: Gregory Forest.

Awards and Fellowships

- 2023–2024 UPSTEM Faculty Fellow, Utah Pathways to STEM Faculty Learning Community
- April 2020 A Room of One's Own!, https://services.math.duke.edu/~pierce/AR000_2020.shtml, canceled due to COVID 19.
- April 2014 Faculty Undergraduate Teaching Award, Department of Mathematics, University of Utah.

Publications

- [1] N. Willis and C. Hohenegger. Three-dimensional viscous steady streaming in a rectangular channel past a cylinder. *SIAM Journal on Applied Mathematics*, February 2024. Revisions submitted, <https://doi.org/10.48550/arXiv.2306.16594>.
- [2] C. H. Tan, C. Hohenegger, and B. Osting. An isoperimetric sloshing problem in a shallow container with pinned contact line. *Applied Mathematics and Optimization*, 87, February 2023. <https://doi.org/10.1007/s00245-022-09936-2>.
- [3] N. Willis, C. H. Tan, C. Hohenegger, and B. Osting. High spots for the ice-fishing problem with surface tension. *SIAM Journal on Applied Mathematics*, 82(4):1312–1335, July 2022. <https://doi.org/10.1137/21M1458879>.
- [4] C. Hohenegger and S. A. McKinley. Reconstructing complex fluid properties from the behavior of fluctuating immersed particles. *SIAM Journal on Applied Mathematics*, 78(4):2200–2226, August 2018. <https://doi.org/10.1137/17M1131660>.
- [5] S. C. Cook, C. Hohenegger, and T. Shinar. A micro-macro framework for analyzing steric and hydrodynamic interactions in gliding assays. *SIAM Journal on Multiscale Modeling & Simulation*, 15(4):1768–1796, December 2017. <https://doi.org/10.1137/17M1113503>.
- [6] C. Hohenegger and S. A. McKinley. Fluid-particle dynamics for passive tracers advected by a thermally fluctuating viscoelastic medium. *Journal of Computational Physics*, 340:688–711, July 2017. <http://dx.doi.org/10.1016/j.jcp.2017.03.053>.
- [7] C. H. Tan, C. Hohenegger, and B. Osting. A variational characterization of fluid sloshing with surface tension. *SIAM Journal on Applied Mathematics*, 77(3):995–1019, June 2017. <http://dx.doi.org/10.1137/16M1104330>.

- [8] C. Hohenegger, R. Durr, and D. M. Senter. Mean first passage time in a thermally fluctuating viscoelastic fluid. *Journal of Non-Newtonian Fluid Mechanics*, 242:48–56, April 2017. <http://dx.doi.org/10.1016/j.jnnfm.2017.03.001>.
- [9] C. Hohenegger. On equipartition of energy and integrals of Generalized Langevin Equations with generalized Rouse kernel. *Communications in Mathematical Sciences*, 15(2):539–554, January 2017. <http://dx.doi.org/10.4310/CMS.2017.v15.n2.a10>.
- [10] N. B. Murphy, E. Cherkaev, C. Hohenegger, and K. M. Golden. Spectral measure computations for composite media. *Communications in Mathematical Sciences*, 13(4):825–862, 2015. <http://dx.doi.org/10.4310/CMS.2015.v13.n4.a1>.
- [11] C. Hohenegger, S. Cook, and T. Shinar. Dimensional reduction of a multiscale continuum model of microtubule gliding assays. *SIAM Journal on Applied Mathematics*, 74(5):1338–1353, 2014. <http://dx.doi.org/10.1137/140961535>.
- [12] C. Hohenegger, B. Alali, K. R. Steffen, D. K. Perovich, and K. M. Golden. Transition in the fractal geometry of Arctic melt ponds. *The Cryosphere*, 6:1157–1162, 2012. <http://dx.doi.org/10.5194/tc-6-1157-2012>.
- [13] C. Hohenegger and M. J. Shelley. Dynamics of complex biofluids. In Ben Amar, Goriely, Müller, and Cugliandolo, editors, *New Trends in the Physics and Mechanics of Biological Systems, Les Houches Summer School, Session XCII*, volume 92, chapter 3, pages 65–92. Oxford, 2011.
- [14] C. Hohenegger and M. J. Shelley. Stability of active suspensions. *Physical Review E*, 81:046311, 2010. <http://dx.doi.org/10.1103/PhysRevE.81.046311>.
- [15] Society of Rheology. *Modeling aspects of two-bead microrheology*, 2008.
- [16] C. Hohenegger and M. G. Forest. Two-bead microrheology: Modeling protocols. *Physical Review E*, 78:031501, 2008. <http://dx.doi.org/DOI:10.1103/PhysRevE.78.031501>.
- [17] C. Hohenegger and M. G. Forest. Direct and inverse modeling for stochastic passive microbead rheology. In *PAMM*, volume 7. ICIAM, 2007.
- [18] C. Hohenegger and P. J. Mucha. Statistical reconstruction of velocity profiles for nanoparticle image velocimetry. *Siam Journal on Applied Mathematics*, 68:239–252, 2007. <http://dx.doi.org/10.1137/050648043>.
- [19] R. Sadr, C. Hohenegger, H. Li, P. J. Mucha, and M. Yoda. Diffusion-induced bias in near-wall velocimetry. *Journal of Fluid Mechanics*, 577:443–456, 2007. <http://dx.doi.org/10.1017/S0022112007005150>.
- [20] W. Bangerth, M. Grote, and C. Hohenegger. Finite element method for time dependent scattering: Nonreflecting boundary conditions, adaptivity, and energy decay. *Computer Methods in Applied Mechanics and Engineering*, 193:2453–2482, 2004. <http://dx.doi.org/10.1016/j.cma.2004.01.021>.

Presentations

Invited

- January 2024 Joint Mathematics Meetings, San Francisco, CA, Session on Diffusive Systems in the Natural Sciences
- April 2022 Applied Mathematics Seminar, Northwestern University.
- April 2022 Applied Mathematics Seminar, University of California, Davis.
- May 2021 Applied Mathematics Seminar, University of New Mexico.
- Nov. 2019 SIAM Louisiana-Texas Sectional Meeting, SMU Dallas, TX, Session on Modeling and Simulation of Dynamics in Biological and Complex Fluids.
- Oct. 2019 Applied Mathematics Seminar, University of California, Merced.
- June 2019 Mathematical Fluids, Materials, and Biology Conference, Ann Arbor, MI.
- Apr. 2018 Undergraduate Colloquium, University of Utah.
- Oct. 2017 Stochastic Seminar, University of Utah.
- Sep. 2017 Applied Mathematics Seminar, University of Utah.
- May 2017 Modeling Complex Fluids and Gels Conference, Salt Lake City, UT.
- Apr. 2017 Applied and Computational Mathematics Seminar, University of Arizona.
- Nov. 2016 Undergraduate Colloquium, University of Utah.
- Nov. 2016 Department Colloquium, Utah State University.
- May 2016 SIAM MAMS, Philadelphia, PA, Session on Numerical Methods for Low Reynolds Number Suspensions of Passive and Active Particles.
- April 2016 Applied Mathematics Seminar, University of California, Merced.
- April 2016 Applied Mathematics Seminar, Brigham Young University.
- March 2015 SIAM CSE, Salt Lake City, UT, Session on Comp. Approaches and Multi-scale Modeling of Complex Fluids.

- May 2014 Frontier Probability Days, Tucson, AZ.
- April 2014 Applied Mathematics Seminar, University of Wisconsin Madison.
- March 2014 Center for Computational Sciences Seminar, Tulane University.
- Jan. 2014 Aspen Center for Physics, Biophysics.
- March 2013 Biomathematics Seminar, University of Florida.
- Feb. 2013 Biomathematics Seminar, University of San Diego.
- Oct. 2012 AMS Southeastern Sectional Meeting, Tulane University, Session on Diffusion Processes in Biology.
- Aug. 2012 SIAM LS, San Diego, CA, Session on Biological Locomotion.
- May 2012 Frontiers in Applied Mathematics, New Jersey Institute of Technology, NJ.
- April 2012 Undergraduate colloquium, University of Utah.
- March 2012 Applied Mathematics Seminar, University of North Carolina, Chapel Hill.
- Aug. 2011 ICIAM 2011, Vancouver, BC, Canada, Session on Microrheology.
- Aug. 2011 ICIAM 2011, Vancouver, BC, Canada, Session on Modeling and Simulation in Biological Fluids.
- May 2011 SIAM DS, Snowbird, UT, Session on Dynamics of Microswimmers.
- March 2011 Bio-mathematics conference at the University of Florida, Gainesville, FL.
- Nov. 2011 Applied Mathematics Seminar, Georgia Institute of Technology.

Contributed

- Nov. 2023 76th Annual Meeting of the Division of Fluid Dynamics, Atlanta, GA, Session on Biofluids.
- Nov. 2018 71th Annual Meeting of the Division of Fluid Dynamics, Atlanta, GA, Session on Rheology.
- Nov. 2016 69th Annual Meeting of the Division of Fluid Dynamics, Portland, OR, Session on Rheology.
- Nov. 2014 67th Annual Meeting of the Division of Fluid Dynamics, San Francisco, CA, Session on Rheology.
- Nov. 2012 65th Annual Meeting of the Division of Fluid Dynamics, San Diego, CA, Session on Biofluids.

Co-author

- June 2017 Probabilistic Perspectives on nonlinear PDEs, International Centre for Mathematics, Edinburgh, UK (S. McKinley).
- Oct. 2016 AMS Western Fall Sectional Meeting, University of Denver, CO (S. McKinley).
- April 2015 IMACS 9th Ann. Conf. on Nonlinear Evolution Equations and Wave Phenomena, Athens, GA (S. McKinley).
- Jan. 2015 Tulane University, Math Colloquium (S. McKinley).
- May 2014 Frontier in Probability Days, Tucson, AZ (S. McKinley).
- April 2014 SoCal Fluids UCLA, Los Angeles, CA (S. Cook).
- May 2013 University of California, Riverside, Applied Math and PDE Seminar (T. Shinar).

Conferences, Workshops and Summer Schools

- May 2019 Women In Numerical Methods for PDEs and their Applications, BIRS, Canada.
- July 2018 Complex Fluids in Biological Systems, BIRS, Canada.
- Jan. 2014 Aspen Center for Physics Winter Conference on Active Fluids, Aspen, CO.
- Oct. 2012 Mathematical and Computational Challenges in Cilia- and Flagella-Induced Fluid Dynamics, Columbus, OH.
- Nov. 2010 63th Annual Meeting of the Division of Fluid Dynamics, Long Beach, CA.

Grants

Funded

- Sep. 2023 Cuffless models to infer blood pressure from bioimpedance, NSF-EBMS 2319920, co-Pi (PI Benjamin Sanchez Terrones, co-PI Braxton Osting), Amount \$450,000, Duration 09/2023-08/2026.
- Aug. 2022 RTG: Optimization and Inversion for the 21st Century Workforce, NSF-DMS 2136198, co-PI (PI Ken Golden, co-PIs Elena Cherkaev, Fernando Guevara Vasquez, Akil Narayan, Amount \$2,498,692, Duration 07/2022-06/2027.
- Mar.2022 College of Science: FY22 VPR Seed grant, University of Utah: Estimating blood pressure using biophysical-informed machine learning models, PI (PI Braxton Osting, co-PI Benjamin Sanchez-Terrones), Amount \$35'000, Duration 03/2022-03/2023.
- Aug. 2014 Collaborative research: Diffusion of foreign particles in complex fluids, NSF DMS Applied Mathematics, PI (co-PI Scott McKinley).NSF-DMS 1413378, Amount \$166'000, Duration 07/2014-06/2020 (no cost extensions).
- May 2014 Passive and active suspensions in complex fluids, Collaborative Grants for Mathematicians, Simons Foundation, PI. Award 317887, returned due to subsequently awarded NSF DMS.

Not funded

- Nov. 2019 Modeling, Simulation and Inverse Problems in Viscoelastic Steady Streaming Flows, PI, NSF-DMS, Applied Mathematics.
- Nov. 2018 Inference of bulk fluid properties and error quantifications for complex fluids, PI, NSF-DMS, Applied Mathematics.
- Nov. 2017 Analysis of fluid interface dynamics with surface tension, PI (co-PI B. Osting), NSF-DMS, Applied Mathematics.
- Nov. 2016 The effect of surface tension on fluid sloshing dynamics, PI (co-PI Braxton Osting), NSF-DMS, Applied Mathematics.
- Dec. 2014 Collaborative research: Efficient algorithms for large scale simulations in fluid mixtures of filaments and motors, NSF DMS Computational Sciences, PI (co-PI Tamar Shinar).
- Nov. 2013 Collaborative research: Emergent phenomena in fluid mixtures of filaments and motors, NSF DMS Mathematical Biology, PI (co-PI Tamar Shinar).

Teaching Experience

- 2018–present **Associate Professor**, *Department of Mathematics, University of Utah*, Salt Lake City, UT
Enhanced Intro DE's (MATH 2281): Spring 2023 (10 students), Spring 2024 (10 students): *Designed a new enhanced differential course for students in the Honors College to follow the newly designed 2271 (honors linear algebra) and add content to the existing 2080 (ordinary differential equation).*
Introduction to Applied Mathematics (MATH 5710): Fall 2022 (10 students).
Applied complex variables (MATH 3160): Fall 2022 (34 students), Spring 2021 (33 students, online), Fall 2020 (35 students, online).
Accelerated Engineering Calculus II (MATH 1321): Spring 2020 (24 students), Spring 2019 (38 students).
Fluid Dynamics (MATH 6750): graduate class, Fall 2023 (12 students), Fall 2019 (9 students).
Applied Complex Variables and Asymptotic Methods (MATH 6720): graduate class, Spring 2021 (7 students), Spring 2019 (5 students): *streamlined the syllabus by introducing a new textbook and implemented changes to new qualifying exams system (homework, midterm, final).*
Accelerated Engineering Calculus I (MATH 1311): Fall 2019 (36 students), Fall 2018 (37 students).
- 2010–2018 **Assistant Professor**, *Department of Mathematics, University of Utah*, Salt Lake City, UT
Engineering Calculus I (MATH 1310): Fall 2012 (45 students), Fall 2016 (35 and 45 students).
Accelerated Engineering Calculus I (MATH 1311): Fall 2017 (16 students).
Engineering Calculus II (MATH 1320): Spring 2013 (35 students).
Calculus III (MATH 2210): Spring 2012 (80 and 70 students).
Differential Equations and Linear Algebra (MATH 2250): Fall 2013 (60 students).
Engineering Vector Calculus and Partial Differential Equations (MATH 3140): Spring 2014 (25 students), Fall 2014 (35 students), Spring 2015 (25 students).
Math Modeling (MATH 5740/6870): Spring 2016 (20 students).
Applied Complex Variables and Asymptotic Methods (MATH 6720): graduate class, Spring 2017 (7 students).
Fluid Dynamics (MATH 6750): graduate class, Fall 2011 (12 students), Fall 2013 (7 students), Fall 2017–Spring 2018 (15 students, together with A. Fogelson).
Accelerated Engineering Calculus II (MATH 1280): Fall 2010 (35 students), Spring 2011 (30 students).

Professional Activities

Service at the University of Utah

- 2023–2024, 2020–2021 Chair EDI committee, Department of Mathematics.
- 2023–2024, 2020–2021 Member CoS EDI committee, College of Science.
- 2023–2024 Member Tenure Faculty Search committee, Department of Mathematics.
- 2023–2024 Ex-officio member Executive committee, Department of Mathematics.
- 2023–2024 Member Graduate Student and Postdoc Award committee, Department of Mathematics.
- 2022–2023 Chair Instructorship committee, Department of Mathematics.
- 2021 Internal Reviewer for the Chemical Engineering Department, Graduate School Review.
- 2019–2021 Member Executive Committee, Department of Mathematics.
- 2018–2021 Academic Senator for the College of Science.
- 2011–2021 Faculty advisor AWM, Department of Mathematics.
- 2018–2021 Member Engineering Mathematics committee, Department of Mathematics.
- 2018–2019 Faculty member Dean Search committee, College of Science.
- 2017–2018 Member Graduate Student committee, Department of Mathematics.

2012, Member Graduate Student Recruitment committee, Department of Mathematics.
 2015-2017
 Dec. 2016 College of Science Department-Driven Course and Curriculum Improvement program proposals review.
 2010-2015 Chair Departmental Colloquium, Department of Mathematics.

Outreach at the University of Utah

2023-2024 Science integrated lessons at Salt Lake City Center for Science Education (Rose Park), Salt Lake City.
 2023 Planned and participated in Math Day for ACCESS program for Women in Science and Mathematics, College of Science.
 2019 Science at Breakfast Talk, College of Science.
 2018, 2019 Guest speaker for the ACCESS program for Women in Science and Mathematics, College of Science.
 2016, 2017 Guest speaker at the Summer Math Program for High School Students, Department of Mathematics.
 Sept. 2016 OWLS Women in STEM Panel, University of Utah.
 2011-2014 Faculty member ACCESS program for Women in Sciences and Mathematics:
 Codes and Cryptography (06/25/2012-06/29/2012, 06/24/2013-06/28/2013, 06/23/2014-06/27/2014)
 The shape of everything (06/20/2011-06/24/2011).
 Oct. 2013 Science Night Live Talk (public lecture from the College of Science).
 2010, 2013 Science Day at the U talk.

Service to the scientific community

2022-2024 Member local organizational committee DFD (APS) Annual Meeting 2024
 2023-present Reviewer for Physics of Fluids
 2020-present Reviewer for the Journal of Computational Physics
 2017-present Reviewer for SIAM Applied Mathematics.
 2017-2018 Reviewer for International Journal of Mechanical Sciences and Applied Mathematical Modeling.
 2010-present Reviewer for Physical Review E and Physical Review Letters.
 2021 NSF Panel DMS/Geophysical flows and Fluid Dynamics.
 2020 NSF Panel CBET/Particulate and Multiphase.
 March 2016 Simons Foundation Collaborative Grants Review.
 Jan. 2015 NSF Panel: Panel I - CBET/Particulate and Multiphase.
 November Organizer (with S. McKinley): Modeling and Simulation of Dynamics in Biological and Complex Fluids,
 2019 SIAM Louisiana-Texas Sectional Meeting
 March 2015 Organizer (with E. Lushi): Computational Approaches and Multi-scale Modeling of Complex Fluids, SIAM Conference on Computational Science and Engineering.
 June 2013 Organizer (with S. McKinley and A. Donev): Multiscale computation of fluctuating hydrodynamics and microscale mechanics, SIAM Conference on Mathematical Aspects of Material Sciences.
 Oct. 2011 Organizer: Understanding bio-fluids via modeling, simulation and analysis at the AMS Western Sectional Meeting, University of Utah.

Mentoring

2024-present ACCESS mentor of Kaylee Pho.
 2023-2024 First year graduate mentor of Zoe Plzak, Department of Mathematics.
 2022-present Graduate mentor of Filip Belik, Department of Mathematics.
 2022-present Member supervisory committee for Henry Crandall, ECE.
 2017-2022 Ph.D. Advisor of Nathan Willis, Department of Mathematics (postdoc at the University of California Merced).
 2022 Member Ph.D. committee of RK Yoon, Department of Mathematics.
 2016-2021 Ph.D. Advisor of Chee Han Tan together with Braxton Osting, Department of Mathematics (postdoc at Wake Forest University).
 2020-2021 First year graduate mentor for Samantha Linn, Department of Mathematics.
 2020 Member oral Ph.D. committee of RK Yoon, Departments of Mathematics.
 2020 Member Ph.D. committee of Rebecca Terry, Department of Mathematics.
 2020 Member Ph.D. committee of Priscilla Elizondo, Department of Mathematics.
 2020 Member Ph.D. committee of Kathryn Link, Departments of Mathematics.
 2019 ACCESS and REU Advisor of Emma Coates.
 2019 Member Masters in statistics committee of Huy Dinh, Department of Mathematics.

- 2019 Member oral Ph.D. committee of Hallie Elich and Andrew Watson, Department of Mathematics.
- 2018 Member Ph.D. committee of Ryan Viertel, Departments of Mathematics.
- 2018 Member Ph.D. committee of Seyed Amir Mirbagheri, Mechanical Engineering Department.
- 2017 REU Advisor of Adam Lee.
- 2017 Member Ph.D. committee of Mehdi Jabbarzadeh, Mechanical Engineering Department.
- 2017 Member oral Ph.D. committee of Kyle Gaffney, Rebecca Terry and Ryan Viertel, Department of Mathematics.
- 2017 Member oral Ph.D. committee of Seyed Amir Mirbagheri, Mechanical Engineering Department.
- 2017 Member Ph.D. committee of Bin Xu, Department of Mathematics.
- 2016-2017 REU Advisor of Max Carlson together with Braxton Osting.
- 2016 Member Ph.D committee of Cheryl Zapata-Allegro and Pavel Bezdek, Department of Mathematics.
- 2016 Member oral Ph.D committee of Priscilla Elizondo, Department of Mathematics.
- 2015 Member oral Ph.D committee of Kelly MacArthur, Department of Mathematics.
- 2013-2015 REU Advisor of Dennis Michael Senter, currently a graduate student at UNC Chapel Hill.
- 2013-2015 Kyle Steffen (advisors Ken Golden and Yekaterina Epstein): graduate research project.
- 2014 Member oral Ph.D committee of Bin Xu, Pavel Bezdek and Victor Camacho, Department of Mathematics.
- 2014 Member Ph.D committee of Ross Magi, Department of Mathematics.
- 2014 ACCESS mentor of Maria David.
- 2013-2014 REU Advisor of Ryan Durr.

Collaborators

- Scott McKinley, Department of Mathematics, Tulane University
- Braxton Osting, Department of Mathematics, University of Utah
- Benjamin Sanchez-Terrones, Electrical and Computer Engineering, University of Utah

Professional Memberships

- AWM, APS, SIAM