

MICHELLE M. DRISCOLL

Northwestern University
Department of Physics and Astronomy
Evanston, IL United States

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driscollphysicslab.org

MAJOR PROFESSIONAL INTERESTS

I am an experimental soft condensed matter physicist, and my lab's focus is to understand, characterize, and control soft materials. The central theme of my work is that emergent structure formation can be used a powerful tool to understand disordered, nonequilibrium systems. I use advanced imaging methods and develop image analysis techniques to extract and characterize this structure formation in a variety of soft matter systems such as complex fluids, driven suspensions, and gels.

EDUCATION

- | | |
|--|------|
| University of Chicago
Ph.D, Physics (advisor: Sidney R. Nagel) | 2014 |
| University of Texas, Austin
B.S. in Physics with honors
B.S. in Mathematics | 2007 |

APPOINTMENTS

- | | |
|--|-------------|
| Northwestern University
Associate Professor, Department of Physics and Astronomy | 2024 - |
| Northwestern University
Assistant Professor, Department of Physics and Astronomy | 2017 - 2024 |
| New York University
Postdoctoral Research Associate, Center for Soft Matter Research (Advisor: Paul Chaikin) | 2014 - 2017 |

RESEARCH SUPPORT

Current Support

- **National Science Foundation DMR-2311698** 2023 - 2026
Division of Materials Research, Condensed Matter Physics
“Collaborative Research: Gel rupture under simple and dynamic loading: manipulation of failure mode via patterned heterogeneity in soft materials”
PI: Caroline Czeszepanski, Co-PI: Michelle Driscoll, Co-PI: Giuseppe Buscarnera
Driscoll lab award: \$399,883
- **Northwestern Institute on Complex Systems** 2023 - 2024
Complex Challenges for a Complex Future Seed Funding Initiative
“Northwestern Science Communication Collective: Developing a Shared Storytelling Language”
PIs: Michelle, Katherine Amato, Jennifer Dunn, Erin Courtney
award amount: \$15,000
- **National Science Foundation DMR-2004176** 2020 - 2024
Division of Materials Research, Condensed Matter Physics

“Collaborative Research: Impact of a colloidal suspension droplet: Suspension flows at extreme shear rates”

PI: Michelle Driscoll, Co-PI: Xiang Cheng

Driscoll lab award: \$254,637

- **National Science Foundation DMR-2011854** 2020 - 2026
Division of Materials Research, Condensed Matter Physics
“University of Chicago Materials Research Science and Engineering Center”
PI: Margaret Gardel, Co-PI: Michelle Driscoll
Driscoll lab award: \$300,000

Previous Support

- **Center for Engineering Sustainability and Resilience, Northwestern University** 2020 - 2022
Seed Funding Initiative
“ViSER (Visualizing Suspension Electro-Rheology)”
PI: Jeffrey Richards, Co-PI: Michelle Driscoll
Driscoll lab award: \$30,000
- **National Science Foundation CBET-1706562** 2017 - 2021
Division of Chemical, Bioengineering, Environmental & Transport Systems Division, Particulate & Multiphase Processes
“Magnetic microrollers as a platform for active transport”
PI: Aleksander Donev, Co-PI: Michelle Driscoll
Driscoll lab award: \$150,726
- **National Science Foundation DMR-1420709** 2018 - 2020
Division of Materials Research, Condensed Matter Physics
“University of Chicago Materials Research Science and Engineering Center, SuperSeed Funding”
PI: Margaret Gardel, Co-PI: Michelle Driscoll
Driscoll lab award: \$90,000

PUBLICATIONS

Underlined names indicate Driscoll lab Northwestern student or postdoc co-authors.

Journal Articles

- [20] *Unconstrained dynamic gel swelling generates transient surface deformations*, Alyssa VanZanten, Shih-Yuan Chen, Michelle M. Driscoll, and Caroline R. Szczepanski, *in review*, preprint: [arXiv:2406.15224](https://arxiv.org/abs/2406.15224)
- [19] *Wobbling and Migrating Ferrofluid Droplets*, Aaveg Aggarwal, Shih-Yuan Chen, Eleftherios Kirkinis, Mohammed Imran Khan, Bei Fan, Michelle M. Driscoll, and Monica Olvera de la Cruz, *in review*, preprint: [arXiv:2406.08289](https://arxiv.org/abs/2406.08289)
- [18] *Restructuring a passive colloidal suspension using a rotationally driven particle*, Shih-Yuan Chen, Hector Lopez-Rios, Monica Olvera de la Cruz, Michelle M. Driscoll, **Soft Matter**, 20, 2151-2161 (2024).
- [17] *A simple catch: thermal fluctuations enable hydrodynamic trapping of microrollers by obstacles*, Ernest B. van der Wee, Brendan C. Blackwell, Florencio Balboa Usabiaga, Andrey Sokolov, Isaiah Katz, Blaise Delmotte, Michelle M. Driscoll, **Science Advances**, 9(10):eade0320, (2023).
- [16] *Rupture dynamics of flat colloidal films*, Phalguni Shah, Eleanor Ward, Srishti Arora, Michelle M. Driscoll, **Physical Review Fluids**, 8 024002 (2023).
- [15] *FSVPy: A Python-based Package for Fluorescent Streak Velocimetry (FSV)*, Han Lin, Brendan C. Blackwell, Connor C. Call, Shanliangzi Liu, Claire Liu, Michelle M. Driscoll, Jeffery J. Richards, **Journal of Rheology** 67, 197 (2023).
- [14] *Coexistence of solid and liquid phases in shear jammed colloidal drops*, Phalguni Shah, Srishti Arora, Michelle M. Driscoll, **Communications Physics** 5, 222 (2022).

- [13] *Heterogeneity-stabilized homogeneous states in driven media*, Zachary G. Nicolaou, Daniel J. Case, Ernest B. van der Wee, Michelle M. Driscoll, and Adilson E. Motter, **Nature Communications** 12, 4486 (2021).
- [12] *Gel rupture during dynamic swelling*, Keshie Leslie, Robert Doane-Solomon, Srishti Arora, Sabrina Curley, Caroline Szczepanski, Michelle M. Driscoll, **Soft Matter**, 17(6), 1513-1520 (2021).
- [11] *Sedimentation of a Colloidal Monolayer Down an Inclined Plane*, Brennan Sprinkle, Sam Wilken, Shake Karapetyan, Michio Tanaka, Zhe Chen, Joseph R. Cruise, Blaise Delmotte, Michelle M. Driscoll, Paul Chaikin, Aleksandar Donev, **Physical Review Fluids** 6, 034202 (2021).
- [10] *Driven dynamics in dense suspensions of microrollers*, Brennan Sprinkle, Ernest B. van der Wee, Yixiang Luo, Michelle M. Driscoll, and Aleksandar Donev, **Soft Matter** 16(34):7982-8001 (2020).
- [9] *Magneto-capillary dynamics of amphiphilic Janus particles at curved liquid interfaces*, Wenjie Fei, Michelle M. Driscoll Paul Chaikin, Kyle Bishop, **Soft Matter** 14, 23:4661-4665 (2018).
- [8] *A minimal model for a hydrodynamic fingering instability in microroller suspensions*, Blaise Delmotte, Michelle M. Driscoll, Paul Chaikin, Aleksandar Donev, **Physical Review Fluids** 2, 114301 (2017).
- [7] *Hydrodynamic shocks in microroller suspensions*, Blaise Delmotte, Michelle M. Driscoll, Paul Chaikin, Aleksandar Donev, **Physical Review Fluids**, 2, 092301 (2017).
- [6] *Unstable fronts and motile structures formed by microrollers*, Michelle M. Driscoll, Blaise Delmotte, Mena Youssef, Stefano Sacanna, Aleksandar Donev, Paul Chaikin, **Nature Physics** 13: 375-379 (2017).
- [5] *The role of rigidity in controlling material failure*, Michelle M. Driscoll, Brian Chen, Thomas Beuman, Stephan Ulrich, Sidney Nagel, Vincenzo Vitelli, **Proceedings of the National Academy of Sciences** 113 (39), 10813-10817 (2016).
- [4] *Geometric control of failure behavior in perforated sheets*, Michelle M. Driscoll, **Physical Review E** 90, 062404 (2014).
- [3] *Creation of prompt and thin-sheet splashing by varying surface roughness or increasing air pressure*, Andrzej Latka, Ariana Strandburg-Peshkin, Michelle M. Driscoll, Cacey Stevens, Sidney Nagel, **Physical Review Letters** 109, 054501 (2012).
- [2] *Ultrafast interference imaging of air in splashing dynamics*, Michelle M. Driscoll and Sidney Nagel, **Physical Review Letters** 107 154502 (2011).
- [1] *Thin film formation during splashing of viscous liquids*, Michelle M. Driscoll, Cacey Stevens, Sidney Nagel, **Physical Review E** 82 036302 (2010).

Review Articles

- [2] *Drop Impact Dynamics of Complex Fluids: A Review*, Phalguni Shah and Michelle M. Driscoll, **Soft Matter**, 20:4839-4858 (2024)
- [1] *Leveraging collective effects in externally driven suspensions: Experiments and Simulations*, Michelle M. Driscoll and Blaise Delmotte, **Current Opinion in Colloid and Interface Science** 40:42-57 (2019).

Reviews and Editorial Contributions (non-peer reviewed)

- [3] *EDITORIAL: Dissertation Award in Statistical and Nonlinear Physics of APS for Dr. Adrian van Kan*, Sebastian Deffner, Michelle M. Driscoll, Juergen Kurths, Sidney Redner, Greg Voth, *Chaos*, 33 (11): 110401 (2023)
- [2] *Microgravity makes fully mobile droplets measurable*, Michelle M. Driscoll, *Nature News & Views* (2022): 247-248.
- [1] *An engaging look at the physics of fluids*, book review of *Liquid Rules* (Miodownik), Michelle M. Driscoll, *Physics Today* 72 (8) 54 (2019)

INVITED PRESENTATIONS

- [37] External Speaker (scheduled) January 2025
APS CUWiP 2025 at Fermilab, Batavia, IL USA
- [36] “*Microrollers meet boundaries: trapping, structure, & more*” February 2024
Mechanical Engineering Departmental Seminar, Michigan State University, East Lansing, MI USA
- [35] “*Microrollers meet boundaries: trapping, structure, & more*” December 2023
Fluid Dynamics Research Consortium Seminar, Pennsylvania State University, State College, PA USA
- [34] “*Drop impact of complex fluids: shear jamming with free surfaces*” November 2023
Applied Physical Sciences Colloquium, University of North Carolina, Chapel Hill, NC USA
- [33] “*Gel Rupture during dynamic swelling*” June 2023
CECAM Workshop: 3D cracks and crack stability, Lausanne, Switzerland
- [32] “*Drop impact of complex fluids: shear jamming with free surfaces*” June 2023
Complex Systems/Biophysics Seminar, North Carolina State University, Raleigh, NC USA
- [31] “*Drop impact of complex fluids: shear jamming with free surfaces*” January 2023
Chemical Engineering Department Seminar, University of Illinois at Chicago, Chicago, IL USA
- [30] “*Emergent structure in magnetic microrollers*” January 2023
Aspen winter physics conference, *Active matter in complex environments*
- [29] “*Drop impact of complex fluids: shear jamming with free surfaces*” December 2022
MRSEC Seminar, Brandeis University, Waltham, MA USA
- [28] “*Microrollers make motifs: Emergent structure in a driven colloidal suspension*” November 2022
Materials Research Society Fall Meeting, Boston, USA
- [27] “*Drop impact of complex fluids: shear jamming with free surfaces*” October 2022
Condensed Matter Seminar, University of Massachusetts Amherst, Amherst, MA
- [26] “*Suspension drops under extreme stress*” September 2022
Seminar, PMMH-ESPCI, Paris, France
- [25] “*Emergent structure in magnetic microrollers*” September 2022
WE-Heraeus Summer School “Active Matter and Complex Media”, Corsica, France
- [24] “*Drop impact of complex fluids: shear jamming with free surfaces*” September 2022
Physics Seminar, Department of Physics and Materials Science, University of Luxembourg, Luxembourg
- [23] “*Drop impact of complex fluids: shear jamming with free surfaces*” September 2022
Physics Department Colloquium, UC Merced, Merced, CA USA
- [22] “*A simple catch: hydrodynamic trapping of microrollers*” August 2022
Lorentz Center workshop: “Active matter: the next 25 years”, Leiden, Netherlands
- [21] “*Suspension drops under extreme stress*” July 2022
BIRS Workshop: Equilibrium and non-Equilibrium Pattern Formation in Soft Matter: From Elastic Solids to Complex Fluids, Kelowna, BC Canada
- [20] “*Emergent structure in magnetic microrollers*” June 2022
Mini-synposium: “Dynamics and instabilities of flows with particles across length scales”, U.S. National Congress on Theoretical and Applied Mechanics, Austin, TX, USA
- [19] “*Suspension drops under extreme stress*” April 2022
Condensed Matter Seminar (virtual), School of Physics and Astronomy, Tel Aviv University, Israel
- [18] “*Suspension drops under extreme stress*” March 2022
Nonlinear Dynamics Seminar, Center for Nonlinear Dynamics, University of Texas at Austin, Austin, TX USA

- [17] “*Suspension drops under extreme stress*” February 2022
SPREE Seminar Series, Civil and Environmental Engineering, Northwestern University, Evanston, IL USA
- [16] “*Emergent structure in magnetic microrollers*” November 2021
Fluids Seminar (virtual), Cornell University, Ithaca, NY, USA
- [15] “*Suspension drops under extreme stress*” February 2021
Seminar (virtual), LadHyX, École polytechnique, Paris, France
- [14] “*Emergent structure in magnetic microrollers*” September 2020
Physics Department Colloquium (virtual), Emory University, Atlanta, GA USA
- [13] “*Emergent structure in magnetic microrollers*” August 2020
Microscopy & Microanalysis 2020 meeting (virtual), Milwaukee, WI USA
- [12] “*Suspension drops under extreme stress*” January 2020
Physics Department Colloquium, Illinois Institute of Technology, Chicago, IL USA
- [11] “*Suspension drops under extreme stress*” November 2019
Fluids Seminar, University of Illinois Urbana-Champaign, Urbana, IL USA
- [10] *Critters: stable clusters born from an unstable front* April 2019
Keynote Speaker, Chicago Area SIAM Student Conference, Chicago, IL USA
- [9] *Critters: stable clusters born from an unstable front* March 2019
CECAM Workshop: Emergent dynamics and self-assembly of out-of-equilibrium colloids, Lausanne, Switzerland
- [8] *Critters: stable clusters born from an unstable front* March 2018
American Physical Society, March Meeting, Los Angeles, CA USA
- [7] “*Mind the gap: a cascade of instabilities created by rotating beads near a floor*” February 2018
Computations in Science Seminar, University of Chicago, Chicago, IL USA
- [6] “*Mind the gap: a cascade of instabilities created by rotating beads near a floor*” January 2018
Wednesdays@NICO, Northwestern Institute on Complex Systems, Evanston, IL USA
- [5] “*Mind the gap: a cascade of instabilities created by rotating beads near a floor*” November 2017
Condensed Matter/AMO Seminar, University of Michigan, Ann Arbor, MI USA
- [4] “*Mind the gap: a cascade of instabilities created by rotating beads near a floor*” August 2016
Active and Smart Matter Workshop, Syracuse University, Syracuse, NY USA
- [3] *Meta-fracturing of networks* September 2014
Soft–Meta Matter Workshop, University of Chicago, Chicago, IL
- [2] “*Viscous splashing: where is the air?*” December 2012
Fluids Seminar, Brown University, Providence, RI
- [1] “*Ultrafast interference of splashing dynamics: where is the air?*” March 2012
American Physical Society March Meeting, Boston, MA

CONTRIBUTED PRESENTATIONS AND GROUP MEMBER PRESENTATIONS

All talks were presented by the first author; starred number (*) indicates presentation delivered by NU student or postdoc.

- [33]* “*Flopping a ferrofluid marble uphill*” March 2024
Shih-Yuan Chen, Addison Benz, Natalya Guiden, Michelle M. Driscoll
American Physical Society March Meeting, Minneapolis, MN USA
- [32] “*Things fall apart: understanding and controlling self-rupture during dynamic swelling*” March 2024
Michelle M. Driscoll, Caroline Szczepanski, Shih-Yuan Chen, Alyssa VanZanten, Samira Khan
American Physical Society March Meeting, Minneapolis, MN USA

- [31]* *“Piu salato il mare: The effect of salt on the shear thickening behavior of non-Brownian suspensions”* March 2024
Brian Seper, Anahita Mobaseri, Xiang Cheng, Michelle M. Driscoll
 American Physical Society March Meeting, Minneapolis, MN USA
- [30]* *“Rolling microshuttles: trapping and shipping colloids by pure hydrodynamics”* November 2023
Shih-Yuan Chen, Hector Manuel Lopez Rios, Monica Olvera de la Cruz, Michelle M. Driscoll
 American Physical Society Division of Fluid Dynamics Meeting, Washington, DC USA
- [29] *“Drop impact of dense suspensions: shear jamming with free surfaces”* March 2023
 Michelle M. Driscoll, Brian C. Seper, Phalguni Shah, Srishti Arora
 American Physical Society March Meeting, Las Vegas, NV USA
- [28]* *“Instabilities in polymeric fluid sheets, and the distinct roles of rheology and microstructure”* March 2023
Carly E. Galvin, Brendan C. Blackwell, Michelle M. Driscoll
 American Physical Society March Meeting, Las Vegas, NV USA
- [27]* *“Step into the Ring: the role of particle shape on deposition patterns in dense drying droplets”* 2023
Brian C. Seper, Sam Nielsen, Michelle M. Driscoll
 American Physical Society March Meeting, Las Vegas, NV USA
- [26]* *“Encountering obstacles: microrollers interacting in complex and structured environments”* March 2023
Shih-Yuan Chen, Hector Manuel Lopez de la Cerda Rios, Monica Olvera de la Cruz, Michelle M. Driscoll
 American Physical Society March Meeting, Las Vegas, NV USA
- [25]* *“Dynamics and fragmentation in complex fluid sheets created by impinging jets”* November 2023
Carly E. Galvin, Brendan C. Blackwell, Michelle M. Driscoll
 American Physical Society Division of Fluid Dynamics, Indianapolis, IN USA
- [24] *“A simple catch: thermal fluctuations enable hydrodynamic trapping of microrollers by obstacles”* November 2023
 Michelle M. Driscoll, Ernest B. van der Wee, Brendan C. Blackwell, Florencio Balboa Usabiaga, Andrey Sokolov,
Isaiah Katz, Blaise Delmotte
 American Physical Society Division of Fluid Dynamics, Indianapolis, IN USA
- [23]* *“Magnetic microrollers maneuvering in a structured fluid”* November 2023
Shih-Yuan Chen, Michelle M. Driscoll
 American Physical Society Division of Fluid Dynamics, Indianapolis, IN USA
- [22] *“Drop impact: Complex fluids under extreme stress”* October 2022
 Michelle M. Driscoll, Phalguni Shah, Srishti Arora
 Society of Rheology Annual Meeting, Chicago, IL USA
- [21]* *“Coexistence of liquid and solid phases in impacting colloidal drops”* June 2022
Phalguni Shah, Srishti Arora, Michelle M. Driscoll
 American Chemical Society Colloids and Surface Science Symposium, Golden, CO USA
- [20]* *“Microrollers make voids: generating wake fields in Stokes flow via hydrodynamics”* June 2022
Shih-Yuan Chen, Michelle M. Driscoll
 American Chemical Society Colloids and Surface Science Symposium,
 Golden, CO USA
- [19]* *“Dynamics of colloidal and viscous soap films: the role of viscosity”* March 2022
Phalguni Shah, Eleanor Ward, Srishti Arora, Michelle M. Driscoll
 American Physical Society March Meeting, Chicago, IL USA
- [18]* *“Gel rupture and surface instabilities during dynamic swelling”* March 2022
Shih-Yuan Chen, Keslie Leslie, Robert Doane-Solomon, Srishti Arora, Alyssa VanZanten, Caroline Szczepanski,
 Michelle M. Driscoll
 American Physical Society March Meeting, Chicago, IL USA

- [17]* *“Fluorescent streak velocimetry of non-Newtonian fluids”* March 2022
Brendan C. Blackwell, Han Lin, Connor C. Call, Michelle M. Driscoll, Jeffery J. Richards
 American Physical Society March Meeting, Chicago, IL USA
- [16]* *Keeping Our Sheet Together: Dynamics and Fragmentation in Yield-Stress Fluid Sheets* March 2022
Carly E. Galvin, Brendan C. Blackwell, Michelle M. Driscoll
 American Physical Society March Meeting, Chicago, IL USA (2022)
- [15]* *“Dimples and Voids in Dense Drying Drops”* March 2022
Brian C. Seper, Srishti Arora, Max Paik, Michelle M. Driscoll
 American Physical Society March Meeting, Chicago, IL USA
- [14] *“Drop impact of colloidal suspensions: effect of particle anisotropy”* November 2021
 Michelle M. Driscoll, Phalguni Shah, Lily Boyd, Ravi Chepuri, Srishti Arora
 American Physical Society Division of Fluid Dynamics, Phoenix, AZ USA
- [13]* *“Drying Colloidal Suspensions: Simple Patterns and Complex Flows”* November 2021
Brian C. Seper, Srishti Arora, Max Paik, Michelle M. Driscoll
 American Physical Society Division of Fluid Dynamics, Phoenix, AZ USA
- [12]* *Microrollers maneuvering complex geometries* March 2021
Brendan C. Blackwell, Michelle M. Driscoll
 American Physical Society March Meeting (virtual)
- [11]* *“Space and time cluster tomography of active system”* March 2021
 Daniel Matoz Fernandez, Sean Patrick Edblom Dougherty, Brendan C. Blackwell, Michelle M. Driscoll, Istvan Kovacs, Monica Olvera de la Cruz
 American Physical Society March Meeting (virtual)
- [10]* *“Gel rupture in a dynamic environment”* March 2021
Keslie Leslie, Robert Doane-Solomon, Srishti Arora, Sabrina Curley, Caroline Szczepanski, Michelle M. Driscoll
 American Physical Society March Meeting (virtual)
- [9]* *“Drop impact of anisotropic colloidal suspensions”* March 2021
Phalguni Shah, Ravi Chepuri, Srishti Arora, Michelle M. Driscoll
 American Physical Society March Meeting (virtual)
- [8]* *“Hydrodynamic trapping of microrollers by cylindrical obstacles”* November 2020
Ernest van der Wee, Floren Balbao Usabiaga, Michelle M. Driscoll
 American Physical Society Division of Fluid Dynamics (virtual)
- [7]* *“The Making and Breaking of Viscous Bubbles”* November 2020
Phalguni Shah, Eleanor Ward, Michelle M. Driscoll
 American Physical Society Division of Fluid Dynamics (virtual)
- [6]* *“To jam or not to jam?”* November 2019
Srishti Arora, Michelle M. Driscoll
 American Physical Society Division of Fluid Dynamics, Seattle, WA USA
- [5]* *“Life in the fast layer”*, November 2019
Ernest B. Van Der Wee, Brennan Sprinkle, Isaiah Katz, Mena Youssef, Stefano Sacanna, Aleksandar Donev, Michelle M. Driscoll
 American Physical Society Division of Fluid Dynamics, Seattle, WA USA
- [4]* *“Non-Newtonian bubbles: dynamics of colloidal film rupture”* November 2019
Phalguni Shah, Srishti Arora, Michelle M. Driscoll
 American Physical Society Division of Fluid Dynamics, Seattle, WA USA

- [3]* “When microrollers meet anisotropy” June 2019
 Ernest van der Wee, Michelle M. Driscoll
 American Chemical Society Colloids and Surface Science Symposium, Atlanta, GA, USA
- [2]* “Colloidal drops under extreme stress” March 2019
 Srishti Arora, Michelle M. Driscoll
 American Physical Society March Meeting, Boston, MA USA
- [1]* “Rigid Bubbles: Novel Instabilities in Colloidal Film Rupture” March 2019
 Phalguni Shah, Srishti Arora, Michelle M. Driscoll
 American Physical Society March Meeting, Boston, MA USA

AWARDS AND HONORS

Post-doctoral Recognitions

- Outstanding Referee, Physical Review Letters (2023)
annual recognition given to about 150 of 88,600 active referees
- Faculty Honor Roll, Northwestern Office of Undergraduate Research (2022)
- Soft Matter Emerging Investigator (2021)

Pre-doctoral Awards, Honors, and Fellowships

- Yodh Prize, University of Chicago (2014)
awarded for outstanding research in experimental physics
- Robert A. Millikan Fellowship (2010-2013)
- Best Presentation, NSF Midwest MRSEC Symposium (2009)
- Schlumberger Undergraduate Research Fellowship (2006-2007)

PRESS

- phys.org, “A surprising way to trap a microparticle”, March 8, 2023.
- New Scientist Highlight: “Watch this strange fluid act like a solid and liquid at the same time”, June 2022.
- Colloids: A microscopic army, Nature Physics 13 324 (2017)
- Fluid Dynamics: The air down there, Nature Physics, 7 835 (2011)
- Ultrafast interference technique makes a splash, Phy. World, Oct 13, 2011.

PROFESSIONAL SERVICE AND RELATED ACTIVITIES

Membership

- American Physical Society
- American Chemical Society
- Society of Rheology

American Physical Society Service

- Member, Acrivos Award Committee, Division of Fluid Dynamics January 2024 - December 2025
- Poster Judge, Division of Soft Matter 2023
- Member, Selection Committee, Group on Statistical and Nonlinear Physics Dissertation Prize 2022
- Member-at-Large, Prairie Section 2020 - 2022
- Poster Judge, Division of Fluid Dynamics 2022
- Chair and co-organizer of invited session, “Flow and structure in dense suspensions” 2021
 March Meeting (virtual)
- Session Chair, “Drops: Complex Fluids” 2021
 Division of Fluid Dynamics Meeting

- Co-organizer, “Women in Fluids Networking Lunch” 2020
Division of Fluid Dynamics
- Session Chair, “Particle-Laden Flows: Let’s Get Together (Clustering)” 2017
Division of Fluid Dynamics

Conference Organization

- Member, Local Organizing Committee 2019
American Physical Society Conference for Undergraduate Women in Physics
co-developed initial conference proposal, chaired Finance and Poster Session Committees
- Co-Chair, Soft Matter Gordon Research Seminar 2017

Proposal Reviewer and Panelist

- National Science Foundation, Engineering Division 2020, 2022
- National Science Foundation Graduate Research Fellowship Program 2018, 2021
- American Chemical Society, Petroleum Research Fund Grant Program 2022
selected for special recognition by ACS for excellence in peer reviewing

Journal Reviewer

Science Advances, Proceedings of the National Academy of Sciences, Nature Communications, Physical Review Letters, Journal of Fluid Mechanics, Advanced Functional Materials, Soft Matter, Physical Review E, Physics of Fluids, Langmuir

ADVISING

Postdoctoral Associates

- [4] Shih-Yuan Chen 2021 -
- [3] Brendan Blackwell 2020 - 2022
current position: Teaching Faculty, Chemical & Biological Engineering, University of Wisconsin, Madison
- [2] Srishti Arora 2018 - 2020
current position: Research Scientist, Institute for New Materials, Saarbrücken, Germany
- [1] Ernest van der Wee 2018 - 2020
current position: Microscopy Specialist at the Biology Imaging Center, Biology, Utrecht University

PhD students

- [5] Pamud Akalanka Bethmage 2022 -
- [4] Shankhadeep Man 2022 -
- [3] Samira Khan 2022 -
- [2] Brian Seper 2020 -
- [1] Phalguni Shah 2018 - 2022
current position: Research Engineer I, PPG, Pittsburg, PA USA

Masters students

- [2] Xinjue Wei 2019 - 2020
current position: Ph.D student, Northwestern University, Marko group
- [1] Joseph McCourt 2017 - 2018
current position: Postdoctoral Appointee, Argonne National Laboratory

Undergraduate students

[20]	Audra Rosenzweig	Spring 2024 -
[19]	Haley Shamah	Spring 2024 -
[18]	Chloe Fisher	Spring 2024
[17]	Jingbo (Kevin) Liu	Winter 2023 - Summer 2023
[16]	Sam Nielsen <i>current position: Ph.D student, Physics, Bradeis University</i>	Winter 2022 - Spring 2024
[15]	Desta Tewabe <i>current position: Masters Student, Materials Engineering, USC current position: Ph.D student, Physics, University of California, Santa Barbara</i>	Fall 2022 - Spring 2023
[14]	Carly Galvin <i>current position: Ph.D student, Physics, University of California, Santa Barbara</i>	Spring 2021 - Spring 2023
[13]	Aryeh Silver <i>current position: Masters student, Civil and Environmental Engineering, Northwestern University</i>	Winter 2022 - Summer 2022
[12]	Ivan Fithian <i>current position: Development Engineer at Delorean Power, Arlington, VA USA</i>	Fall 2019 - Fall 2022
[11]	Kelsey-Ann Leslie <i>current position: Research Engineer at Pykus Therapeutics, Lowell, MA USA</i>	Fall 2018-Spring 2022
[10]	Lily Boyd <i>current position: Master student, Teachers College, Columbia University, New York, NY USA</i>	Fall 2020 - Fall 2021
[9]	Malav Patel <i>current position: Ph.D student, Aerospace Engineering, Georgia Institute of Technology, Atlanta, GA USA</i>	Winter 2020 - Winter 2021
[8]	Max Paik <i>current position: Ph.D student, Computer Science, New York University New York, NY USA</i>	Winter 2020 - Winter 2021
[7]	Orion Forowycz <i>current position: Masters Student, Interdisciplinary Mathematics, Vienna University of Technology</i>	Spring 2017 - Fall 2019
[6]	Isaiah Katz <i>current position: Ph.D student, Statistics and Applied Probability, University of California, Santa Barbara</i>	Summer 2018 - Winter 2020
[5]	Yuchen Liu	Summer 2019
[4]	Gabriel Petersen	Summer 2019
[3]	Ravi Chepuri <i>current position: Ph.D student, Physics, University of Maryland</i>	Summer 2019
[2]	Margot Murray <i>current position: Associate, MultiPlan, New York, NY USA</i>	Winter 2019 - Spring 2019
[1]	Samuel Kim	Summer 2018

High School Students

[14]	Adriana Castelan	Summer 2024
[13]	Tayyab Khan	Summer 2024
[12]	Miguel Gomez	Summer 2024
[11]	Addison Benz	Summer 2023
[10]	Natalya Guiden	Summer 2023

[9] Raymundo Sandoval Valdez	Summer 2022
[8] Haneef Khan	Summer 2022
[7] Max Shepherd	Summer 2019
[6] Eleanor Ward	Summer 2019
[5] Robert Doane-Solomon	Summer 2019
[4] Ananya Visweswaran	Summer 2018
[3] Max Baliga	Summer 2018
[2] John Idler	Summer 2018
[1] Michael Frim	Summer 2018

RESEARCH GROUP MEMBER AWARDS AND ACHIEVEMENTS

- Audra Rosenzweig, Summer Undergraduate Research Grant, NU Summer 2024
- Haley Shamah, Summer Undergraduate Research Grant, NU Summer 2024
- Shih-Yuan Chen, Travel Award, APS March Meeting, DSOFT (soft matter division in APS) March 2024
- Sam Nielsen, Travel Grant, (NU Office of Undergraduate Research) Winter 2024
- Sam Nielsen, Summer Undergraduate Research Grant, NU Summer 2023
- Jingbo (Kevin) Lu, Summer Year Undergraduate Research Grant, NU Summer 2023
- Carly Galvin, Travel Grant, (NU Office of Undergraduate Research) Winter 2023
- Carly Galvin, Summer Year Undergraduate Research Grant, NU Summer 2023
- Carly Galvin, Academic Year Undergraduate Research Grant, NU Winter 2022
- Carly Galvin, Summer Undergraduate Research Grant, NU Summer 2022
- Sam Nielsen, Summer Undergraduate Research Grant, NU Summer 2022
- Aryeh Silver, Summer Undergraduate Research Grant, NU Summer 2022
- Malav Patel, Summer Undergraduate Research Grant, NU Summer 2021
- Lily Boyd, Summer Undergraduate Research Grant, NU Summer 2021
- Max Paik, Summer Undergraduate Research Grant, NU Summer 2020
- Max Paik, Academic Year Undergraduate Research Grant, NU Winter 2020
- Srishti Arora, Best Poster, Soft Condensed Matter Gordon Research Conference August 2019
- Ravi Chepuri, Summer Undergraduate Research Grant, NU Summer 2019
- Yuchen Liu, Summer Undergraduate Research Grant, NU Summer 2019
- Gabriel Petersen, Summer Undergraduate Research Grant, NU Summer 2019
- Kelsey-Ann Leslie, Best Presentation (by Panel), Undergraduate Expo May 2019
- Phalguni Shah, Travel Award, APS March Meeting, GSOFT (soft matter group in APS) March 2019
- Isaiah Katz, Summer Undergraduate Research Grant, NU Summer 2018
- Samuel Kim, Summer Undergraduate Research Grant, NU Summer 2018

TEACHING

- PHYSICS 332-0: Statistical Mechanics (undergraduate), (Spring 2022, Spring 2023)
Development: Replaced a written final with a scaffolded final project. Students chose a research paper to write about, as well as give a short presentation on. This served two learning objectives: (1) helping students discover modern applications of the course material, and (2) receiving training in both written and oral scientific communication.
- PHYSICS 360-0: Advanced Laboratory (undergraduate), (Spring 2019, Fall 2019, Winter 2022, Winter 2023)
Development: Added additional condensed matter experiments to the course, one exploring the Hall effect and one exploring Brownian motion. The Hall effect experiment exposed students to basic electronics and cryogenic techniques, and the Brownian motion experiment introduced key ideas in both image analysis and colloidal physics.
- PHYSICS 416-0: Statistical Mechanics (graduate), (Winter 2018, Winter 2019)

OUTREACH

- Seminar Speaker, “All you can be with your degree”, (virtual) Syracuse University (2024)
- Panelist “Research Statement Best Practices (STEM)”, UChicagoGRAD Academic Job Market Summer Camp (2023)
- Panelist, STEAM (Science, Technology, Engineering, Arts, and Math) Speed Interviews (2019, 2020, 2021)
- Judge, Northwestern Undergraduate Research Expo (2018, 2019, 2020, 2021, 2022)
- SWEE “Career Day for Girls”, Lab tour (2020)
- Panelist, “Graduate Admissions”, APS CuWiP at University of Chicago (2020)
- Panelist “First Years as Faculty in STEM” panel, UChicago GRADUCon (2019)
- Panelist, “Graduate Admissions”, APS CuWiP at Northwestern (2019)
- “Science Mysteries”, SWEE Career Day (2018)
- Courant Splash lecturer, “Squashing droplets and popping bubbles” (2017)
- CSMR lab tour guide, NYU STEP program (2015, 2014)
- Director of Education, NSF REU Summer Program (2008, 2010, 2011)
- Physics with a Bang! (UChicago annual outreach event), High-speed photographer, Lab Guide, Tour Guide (2008-2013)
- Young Scientists Club, Andrew Carnegie Elementary School (2009-2010)
- Lecturer, Science Week at Ray School (2009)