Kerstin N. Nordstrom

Department of Physics
Mount Holyoke College
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Interests

Soft matter, granular materials, complex fluids, rheology, biophysics, robophysics, MEMS, networks

Professional Appointments

Associate Professor, 2020-present
−Department of Physics, Mount Holyoke College

Guest Associate Professor, Spring 2022
−Department of Earth and Space Science, Osaka University (visiting Prof. Hiroaki Katsuragi)

Clare Boothe Luce Assistant Professor, 2014-2020
−Department of Physics, Mount Holyoke College

Postdoctoral Researcher 2011-2014
−Prof. Wolfgang Losert's group, IREAP, University of Maryland
−Impact dynamics in a granular bed, collective dynamics of epithelial and embryonic cells

Education

University of Pennsylvania, Philadelphia, Pennsylvania

- Ph.D. Physics, December 2010 (M.S., Physics, 2006)

−Thesis Title: "Jamming and Flow of Soft Particle Suspensions"
−Advisors: Doug Durian and Jerry Gollub

Bryn Mawr College, Bryn Mawr, PA

- B.A., Physics and Mathematics, with honors, 2004

−Thesis Title: "A Solid State NMR Relaxation Study of 1,3-dimethoxy-4-tert-butylcalix[4]arene"
−Advisor: Peter Beckmann

Grants

−2019-26: NSF CAREER: Mesoscale Analysis of Dense Granular Flows ($615,296) - (PI)
−2018: NSF MRI ($516,249)- Acquisition of a Confocal Microscope at Mount Holyoke (Co-PI)
−2018-22: Cottrell Scholar Award ($100,000) - "Flow in Amorphous Systems: Understanding Dynamics Across Scales" - (PI)
−2018-22: MHC-Fund The Future ($149,837) "Active Soft Matter: Connecting Microscale Motion to Macroscale Behavior" (PI)
−2016-18: ACS-PRF ($55,000) "Dense Granular Flows: Connecting Dynamics Across Scales" (PI)

Awards and Fellowships

Love Your Lyons Award, "Best New Faculty" at Mount Holyoke College, 2015

AAAS Mass Media Fellow, 2012
−Placement site: *Raleigh News and Observer*.

Teaching Fellow, Center for Teaching and Learning, 2005
−School of Arts and Sciences, University of Pennsylvania

Chairman's Teaching Award, 2005
−Department of Physics and Astronomy, University of Pennsylvania

Peer-Reviewed Publications

22. Abigail Tadlock*, Lori McCabe, and Kerstin Nordstrom "Soft Particle Flow in Varying Gravity," under review at *Physical Review E*

21. Linda Zhang*, Madison Swirtz, and Kerstin Nordstrom, "(Asian)American students and physics identity", accepted to *Physical Review: Physics Education Research* (2024)

20. Anna Belle Harada*, Emma Thackray*, and Kerstin N. Nordstrom,"Silo flow and clogging in the presence of an obstacle," *Physical Review Fluids* 7, 053301 (2022)

19. Judith Beck, Justin C. Burton, Martin Kamela, Michelle P. Kuchera, Amy J. Lovell, Kerstin Nordstrom, Thinley Tenzin, and Julie Ziffer, "Reflections on Physics Education and Communication with Tibetan Monastics," *Frontiers in Communication* 6, 731074 (2021)

18. Grace Cai*, Emma Thackray*, Anna Belle Harada*, and Kerstin N. Nordstrom,"Mesoscale metrics on approach to the clogging point", *Granular Matter* 23, 69 (2021)

17. Anna Belle Harada* and Kerstin Nordstrom, "Gravity-Driven Flow and Clogging in the Presence of An Intruder," *Traffic and Granular Flow*, Springer (2020)

16. Tamia Williams*, Simone Hyater-Adams, Kathleen Hinko, Claudia Fracchiolla, Kerstin Nordstrom, and Noah Finkelstein, "The Intersection of Identity and Performing Arts for Black Physicists," *PERC Proceedings* (2018)

15. E. Thackray* and K. N. Nordstrom, "Gravity-driven granular flow in a silo: Characterizing local forces and rearrangements" *EPJ Web of Conferences* 140, 03087 (2017)

14. E. D. Cubuk, R. J. S. Ivancic, S. S. Schoenholz, D. J. Strickland, A. Basu, Z. S. Davidson, J. Fontaine, J. L. Hor, Y.f R. Huang, Y. Jiang, N. Keim, K. D. Koshigan, J. Lefever, T. Liu, X.G. Ma, D. J. Magagnosc, Emily Morrow, C. P. Ortiz, J. M. Rieser, A. Shavit, T. Still, Y. Xu, Y. Zhang, K. N. Nordstrom, P. E. Arratia, R. W. Carpick, D. J. Durian, Z. Fakhraai, D. J. Jerolmack, Daeyeon Lee, Ju Li, R. Riggleman, K. T. Turner, A. G. Yodh, D. S. Gianola, A. J. Liu,"Structure-property relationships from universal signatures of plasticity in disordered solids," *Science* 358, 1033 (2017)

13. K. N. Nordstrom, D. S. Dorsch, W. Losert, A. G. Winter, V, "A Microstructural View of Burrowing with a Bioinspired Digging Robot," *Physical Review E* **92** 044202 (2015).

12. (Invited Book Chapter) K.N. Nordstrom and W. Losert, "Microstructure Evolution During Impact using Refractive Index Matched Granular Matter," part of *Rapid Penetration into Granular Media*, Elsevier (2015), M. Iskander editor.

11. A. Basu, Y. Xu, T. Still, P. E. Arratia, Z. Zhang, K. N. Nordstrom, J. P. Gollub, D. J. Durian, and A. G. Yodh, "Rheology of Soft Colloids Near Rigidity Onset: Critical Scaling, Thermal, and Non-thermal Responses," *Soft Matter* **10**, 2017 (2014).

10. M. Harrington, M. Lin*, K. N. Nordstrom, and W. Losert, "Experimental Measurements of Orientation and Rotation of Dense 3D Packings of Spheres," *Granular Matter* **16**, 185 (2014).

9. K. N. Nordstrom, E. Lim*, M. Harrington, and W. Losert, "Granular Dynamics During Impact," *Physical Review Letters* **112**, 228002 (2014).

8. R.M. Lee, D.H. Kelley, K.N. Nordstrom, N.T. Ouellette, and W. Losert, "Quantifying stretching and rearrangement in epithelial sheet migration," *New Journal of Physics* **15** 025036 (2013).

7. N. Murdoch, B. Rozitis, K. Nordstrom, S.F. Green, P. Michel, T-L. de Lophem, and W. Losert,

"Granular Convection in Microgravity," *Physical Review Letters* **110**, 018307 (2013).

6. N. Murdoch, P. Michel, D.C. Richardson, K. Nordstrom, C.R. Berardi*, S.F. Green, and W. Losert, "Numerical simulations of granular dynamics II. Particle dynamics in a shaken granular material," *Icarus*, **219**, 321 (2012).

5. K.N. Nordstrom, J.P. Gollub, and D.J Durian, "Dynamical Heterogeneities in Sheared Suspensions," *Physical Review E,* **84**, 021403 (2011).

4. K.N. Nordstrom, E. Verneuil, W.G. Ellenbroek, T.C. Lubensky, J.P. Gollub, and D.J. Durian, "Centrifugal compression of soft particle packings: theory and experiment," *Physical Review E*, **82**, 041403 (2010).

3. K.N. Nordstrom, E. Verneuil, P.E. Arratia, A. Basu, Z. Zhang, A.G. Yodh, J.P. Gollub, and D.J. Durian, "Microfluidic Rheology of Soft Colloids Above and Below Jamming," *Physical Review Letters*, **105**, 175701 (2010).

2. F.J. Byfield, Q. Wen, I. Levental, K. Nordstrom, P.E. Arratia, R.T. Miller, and P.A. Jamney, "Absence of Filamin A Prevents Cells from Responding to Stiffness Gradients on Gels Coated with Collagen but not Fibronectin," *Biophysical Journal*, **96**, 5095 (2009).

1. P.A. Beckmann, J. Rosenberg*, K. Nordstrom*, C.W. Mallory, and F.B. Mallory, "CF3 rotation in 3-(trifluoromethyl)phenanthrene: Solid state F-19 and H-1 NMR relaxation and Bloch-Wangsness-Redfield theory," *Journal of Physical Chemistry A*, **110**, 3947 (2006).

Manuscripts in Preparation

Mao Yasueda,* Lucy Sternberg*, Sulagna Saha*, Jiayi Wang*, Annissa Aamoum*, Lori McCabe, and Kerstin Nordstrom, "Statistical Properties of Active Granular Gases"

Other Relevant Publications and Media

ix. Imaan Moin, "Detecting Ghosts," *BBC Unexpected Elements*, October 2024

viii. Thomas Lu, "Why We See Rainbows" *NPR's Shortwave*, December 2020

vii. Christian Amyx, "Interview with Dr. Kerstin Nordstrom..." *Little Da Vincis Podcast*, August 2019

vi. Kerstin Nordstrom, "Harassment Experiences of LGBTQ+ Physicists (And What To Do About It)," *CSWP and COM Gazette*, 38(1), 2019.

v. K. N. Nordstrom, J. C. Conrad, K. E. Daniels, and J. L. Ross,"For SHE's a Jolly Good Fellow?" *APS News*, 27(4), (2018)

iv. James Morgan, "'RoboClam' could anchor submarines" *BBC News*, April 2014

iii. "Can You Dig the RoboClam?"" *Physics Central*, March 2014

ii. Amina Khan, "RoboClam: Robot inspired by the razor clam's amazing digging powers" *Los Angeles Times*, March 2014

i. C.D. Jones, K. N. Nordstrom, and D.J. Durian, "Rheology of Nearly Ideal 3D Foams." arXiv:1404.2857 (2014)

Invited Talks

Unless otherwise stated, these are 30-60 minute talks about current lab research, titles can be provided upon request (someday I may add them)

Virtual Colloquium
−February 16, 2024, Mississippi State University

Frontiers in Soft Matter and Macromolecular Networks
−Keynote
−October 20, 2023, University of San Diego

UMass Undergraduate Soft Matter Summer School
−June 8, 2023, UMass Amherst

APS March Meeting
−Focus Session B01: Jamming and Glassy Behavior
−March 6, 2023, Las Vegas NV

Gordon Research Conference on Granular Matter
−June 2022, Stonehill College

Research Seminar
−April 2022, Osaka University

APS March Meeting
−*Recruiting and Retaining Undergraduate Women in Physics*
−March 2021, virtual

17th Annual Northeastern Granular Materials Workshop
−June 14, 2019, New York University

Soft Matter Seminar
−April 26, 2019, Syracuse University

Undergraduate Colloquium
−April 25, 2019, Syracuse University

Condensed Matter Seminar
−April 10, 2019, Tufts University

Physics Colloquium (Note, not research talk. Same diversity talk given at BNL)
−February 12, 2019, University of Pennsylvania

Physics Colloquium
−February 11, 2019, Bryn Mawr College

Physics Colloquium
−October 31, 2018, Rochester Institute of Technology

"Diversity in Physics: Data, Analysis, and What to Do About It"
−Annual User's Meeting, June 13 2018, Brookhaven National Lab

Physics Colloquium
−November 29 2017, University of Rochester

Physics Colloquium
−November 8 2017, Clark University

Physics Colloquium
−February 7, Worcester Polytechnic Institute

Physics Colloquium
−December 1, 2016, Wesleyan University

Physics Colloquium
−March 25, 2016, Smith College

Condensed Matter Seminar
−February 23, 2016, University of Massachusetts

Physics Colloquium
−February 16, 2016, Amherst College

Condensed Matter and Biophysics Seminar
−September 24, 2013, NC State University

Applied Dynamics Seminar
−November 8, 2012, University of Maryland

NSF-MRSEC seminar
−January 21, 2011, University of Pennsylvania

Princeton Soft Matter Meeting
−December 16, 2010, Princeton University

NYU Soft Matter Meeting
−May 1, 2009, New York University

NSF-MRSEC seminar
−June 29, 2007, University of Pennsylvania

Teaching at Mount Holyoke

PHYS 100: Foundations of Physics
−F16, F18, F19, F20 [$n = 4$]
−Algebra-based course intended for pre-health students. (Mechanics, fluids, thermodynamics)
−Developed new laboratories with T. Herd and O. Hernandez-Daguer
−Used many ideas and methods developed in NEXUS project at UMD.

PHYS 150: Phenomena of Physics
−S17, S19, S20, S21 [$n = 4$]
−Second semester of the pre-health sequence. (Electricity, magnetism, light, nuclear physics)
−Developed new laboratories with T. Herd.
−Used many ideas and methods developed in NEXUS project at UMD.
−In addition to lecturing, developed and co-taught (S19, S20) laboratories with T. Herd and O. Hernandez-Daguer

PHYS 110: Force, Motion and Energy
−F14, S15, F15, S16, F22, F23 [$n = 6$]
−Calculus-based mechanics course required for majors.
−In addition to lecturing, developed and co-taught (F14, S15) laboratories with T. Herd.

PHYS 201: Electromagnetism
−S15 [$n = 1$]
−Developed and taught laboratories only (A. Arango lecture instructor).

PHYS 220: Intermediate Lab in Physics
−S24 [$n = 1$]
−Developed and taught inquiry-based laboratories in electronics, modern, and nuclear physics.
−Students keep lab notebooks, write 3 lab reports in LaTeX, and give 3 oral presentations
−Students perform a self-directed final research project, presenting at a public poster session on the last day of class.

PHYS 315: Analytical Mechanics
−S16, S17, S21, S23 [$n = 4$]
−Upper-level classical physics course, required for those considering graduate school, and highly recommended for those with interests in fluids or mechanical engineering.
−Developed computational physics modules to complement analytical problem sets.
−Students submit a final paper, developing skills in LaTeX, scientific writing, and figure design.

PHYS 326: Statistical Mechanics
−F15, F16, F18, F20, F22, F23 [$n = 6$]
−Upper-level course, required for those considering graduate school and highly recommended for those with interests in materials science or biological systems.
−Developed computational physics modules to complement analytical problem sets.
−Students submit a final paper, developing skills in LaTeX, scientific writing, and figure design.

COLL 115: The Future of Jobs: The Dual Challenges of Globalization & Robotization
−S16. Two-credit general education course. Co-taught with 7 other instructors.
−In addition to lecturing and facilitating discussion about robotics during the lecture, I developed a laboratory to teach students the principles of actuation and grip in various kinds of robot arms (i.e. electro-mechanical, pneumatic). My colleagues in computer science developed complementary labs about sensing/sensors (L. Ballasteros) and programming robots (A. St. John).

FYSEM: The Future is Female: Science Fiction By Women
−F19
−Discussion based and writing intensive course of science fiction novels, short stories, and literary criticism by women and nonbinary authors.

Undergraduate Research at Mount Holyoke

Independent Study Students
−Pa Chia Thao (F15, S16, F16) "Investigation of Granular Avalanches in Reduced Gravity"
−Kiera McCabe (F17, S18) "Video analysis of impact into granular fluids"
−Phoebe Seltzer (F16) "Culturing and Observing Flagellated Swimmers"
−Haley Lucian (F16, S17) "Active Colloids: The Collective Dynamics of C. reinhardtii"
−Lilliana Beckmann (S16, F17, S18, F18) "Microfluidic Investigation of Particulate Fluids"
−Keelin Quirk (S18, F18, S19, F19, S20) "Microfluidic flows as biological models" (HONORS THESIS, SUMMA CUM LAUDE)
−Grace Cai (F17, S18) "Molecular dynamics simulation of granular flows in a quasi-two-dimensional silo" (HONORS THESIS)
−Emma Thackray (F16, S17, F17, S18) "Linking flow intermittencies to material structure in a quasi-two-dimensional granular silo" (HONORS THESIS)
−Tamia Williams (F17, S18) "The Intersection of Identity and Performing Arts of Black Physicists" (HONORS THESIS)
−Nina Gilkyson (S19, F19, S20, F20, S21) "Quantifying Stress in Photoelastic Particles"
−Juniper Glass-Klaiber (S19, F19) "Quantifying Stress in Photoelastic Particles"
−Anna Belle Harada (S18, F18, S19) "Granular Flow Around an Obstacle"

−Annissa Aamoum (F19, S20, F20, S21, F21, S22) "Collective Behavior of Robot Swarms"
−Linda Zhang (F19, S20) "The Intersection of Identities for Asian and Asian American Students"
−Nikita Waskiewicz (F19, S20) "Confocal Microscopy of Shear-Thickening Suspensions"
−Charlotte Young (S21, F21, S22) "Confocal Microscopy of Clogging"
−Abigail Tadlock (F20, S21, F21, S22, F22, S23) "Granular Flow in Varying Gravity" (HONORS THESIS, SUMMA CUM LAUDE)
−Casey Roepke (F20, S21) "Granular Flow Around an Obstacle"
−Anna Maria Moran (S21, F21, F22, S23) "Soft Robot Actuators with Granular Fluids" (HONORS THESIS)
−Lucy Sternberg (F21, S22, F22, S23) "Collective Behavior of Robot Swarms"
−Shanen Rose Arellano (F22, S23, F23, S24) "Contact Mechanics of Photoelastic Particles"
−Sasha Toole (F22, S23, F23, S24) "Microfluidic model of periarterial flow" (HONORS THESIS, SUMMA CUM LAUDE)
−Janice Bi (S23) "Building a Dobsonian Telescope"
−Latika Joshi (F23) "Soft Particle Simulations in Varying Gravity"
−Giselle Dencker (F23, S24) "Granular Collective Motion in Silo Flow"
−Ama Abrokwa (F23, S24) "Granular Networks"

Summer Research Students (Funding Source)
−2023: Giselle Dencker (NSF), Ama Abrokwa (NSF), Latika Joshi (NSF)
−2022: Sulagna Saha (FtF), Jiayi Wang (FtF), Shanen Arellano (NSF), Elliot Candela (NSF)
−2021: Lucy Sternberg (FtF), Charlotte Young (NSF)
−2020: Abigail Tadlock (NSF), Casey Roepke (NSF), Annissa Aamoum (FtF)
−2019: N. Gilkyson (NSF), J. Glass-Klaiber (NSF), Annissa Aamoum (FtF), Keelin Quirk (CBL)
−2018: Grace Cai (PRF), Anna Belle Harada (PRF)
−2017: Grace Cai (PRF), Ariel Kane-Esrig (PRF), Kiera McCabe (CBL), AB Harada (CBL)
−2016: Emma Thackray (CBL), Lilliana Beckmann (CBL), Isabelle Kim (LYNK)
−2015: Emma Thackray (CBL), Lilliana Beckmann (CBL)

Institutional Service

Science Advisory Board, 2022-present

Faculty Planning and Budget Committee, 2020-2024

Pre-Health Committee, 2019-2021

NCAA Faculty Athletics Representative, 2018-2021

Phi Beta Kappa Prize Committee, Spring 2018

Faculty Planning and Budget Committee, Spring 2016
−Semester leave replacement

Student Experience Working Group, Fall 2015
−Part of Strategic Planning Process
−Subcommittee on Retention

Goldwater Selection Committee, Fall 2015 and Fall 2016

Departmental Service

Chair, 2022-present

Academic Advising
−2023-24: 13 total (9 majors)
−2022-23: 19 total (13 majors)

−2021-22: 19 total (13 majors)
−2021-22: 0 (on leave)
−2020-21: 17 total (12 majors)
−2019-20: 15 total (10 majors)
−2018-19: 17 total (10 majors)
−2017-18: 0 (on leave)
−2016-17: 19 total (16 majors)
−2015-16: 12 total (10 majors)

Search Committees
−Fall 2015: Assistant Professor
−Spring 2016: Visiting Professor
−Summer 2018: Physics Technician
−Spring 2019: Physics Lab Director
−Spring 2021: Visiting Professor
−Fall 2022: Physics Technician (chair of search)
−Spring 2023: Visiting Lecturer/Lab Instructor (chair of search)
− Fall 2023: Assistant Professor

APS IDEA Network Committee, ongoing since 2020
−Committee to address climate issues, diversity, and inclusion (long term) in the department

Society of Physics Students Advisor, 2014-2018

Professional Service

PeGS 2.0 / Photoelasticimetry Workshop Organizer
− Co-organizer with Ted Brzinski
− 1st meeting in November 2023, planned follow-up for summer 2024
− 15 attendees shared techniques and advances in PE techniques, planned/needed updates for software

Postdoctoral Supervision
− Dr. Lori McCabe 2022-2025

Gordon Conference on Granular Matter
− Elected to chair line in 2022
− Serving as co-vice chair in 2024, then chair in 2026

APS Division of Soft Matter (DSOFT) Executive Committee
− Elected member at large 2020-2023
− Awards Committee (2023 chair, 2022 member)

APS Division of Fluid Dynamics (DFD) Educational and Career Outreach Committee
− Organized Women in Fluids Virtual Lunch for 2021 DFD Meeting

Referee / Reviewer
−*PLoS One, Physical Review Letters, Physical Review E, Granular Matter, Physica D, The Biophysicist*
− (grants) NASA, Army Research Office, ACS Petroleum Research Fund, Research Corp, NSF

APS Committee on the Status of Women in Physics (CSWP)
−Selected as a member in 2013, three year term 2014-2017.
−Maria Goeppert Mayer Award Selection Committee, Vice Chair (2014); Chair (2015)
−March Meeting CSWP Invited Session, Panelist (2016), Session Chair (2017)
−Subcommittee on sexual harrassment, 2016-present

−In 2018, the subcommittee drafted and published new "Effective Practices for Recruiting and Retaining Women in Physics" on APS website.
−Trained to run Communication and Negotiation Skills Workshops in 2017.

- July 23, 2020, Virtual over Zoom
- January 22, 2019, Rensselaer Polytechnic Institute
- January 19, 2019, CUWiP @ UMass
- March 7 2018, APS March Meeting, Los Angeles, CA
- January 13 2018, Conference for Undergraduate Women in Physics, RIT
- November 28 2017, University of Rochester

Other Conference and Workshop Participation since 2014

For brevity, I have excluded items prior to my appointment at MHC. Prior participation upon request. For ease of reading, I sort by conference, and describe if my lab group had multiple talks/posters at a meeting. Titles provided upon request.

APS March Meeting
−1 Contributed Talk, 1 Poster
−Sasha Toole (MHC '24) was the presenting author on poster
−Lori McCabe (postdoc) was the presenting author of talk
−(myself) Organizer and Facilitator: LGBT+ Roundtable Discussion
−March 2024, Minneapolis, MN

Society of Engineering Science Annual Meeting
−1 Contributed Talk, Lori McCabe (postdoc) was the presenting author
−October 2023, Minneapolis, MN

NE Granular Materials Workshop
−June 2023, UMass Amherst

APS March Meeting
−1 Contributed Talk, 2 Posters (in addition to KN invited talk)
−Abigail Tadlock (MHC '23) was the presenting author on the contributed talk
−Anna Maria Moran (MHC '23) was the presenting author on one poster
−Lori McCabe (postdoc) was the presenting author on one poster
−(myself) Organizer and Facilitator: LGBT+ Roundtable Discussion
−March 2023, Las Vegas, NV

APS March Meeting
−Contributed Talk
−Abigail Tadlock (MHC '23) was the presenting author
−March 2022, Chicago, IL

AAPT Winter Meeting
−Contributed Talk
−Linda Zhang (MHC '20) was the presenting author
−held virtually 2021

APS March Meeting
−Contributed Talk
−Keelin Quirk (MHC '20) was the presenting author
−held virtually 2020

APS DFD Meeting
−Contributed Talk
−November 23-26 2019, Seattle, WA

Traffic and Granular Flow 2019
−Selected oral presentation from abstracts
−July 2-5, 2019, Universidad de Navarra, Pamplona, Spain

APS March Meeting
−2 Contributed Talks
−Anna Belle Harada (MHC '19) was the presenting author on one talk.
−March 4-8, 2019, Boston, MA

Gordon Research Conference, Granular Matter
−Poster
−July 2018, Stonehill College

APS March Meeting
−Communication and Negotiation Skills Workshop Leader
−Organizer and Facilitator: LGBT+ Roundtable Discussion
−March 5-9, 2018, Los Angeles, CA

APS March Meeting
−Invited Session Chair/Organizer: Women in Physics: Understanding and Improving the Climate
−Organizer and Facilitator: LGBT+ Roundtable Discussion
−March 13-17, 2017, New Orleans, LA

Annual Meeting of the APS Division of Fluid Dynamics
−Contributed Talk
−November 20-22, 2016, Portland, OR

Gordon Research Conference, Granular Matter
−Poster (Emma Thackray presenting)
−July 2016, Stonehill College

APS March Meeting
−2 Contributed Talks
−Emma Thackray (MHC '18) was the presenting author on one talk.
−March 14-18, 2016, Baltimore, MD

68th Annual Meeting of the APS Division of Fluid Dynamics
−November 22-24, 2015, Boston, MA

Gordon Research Conference, Soft Matter
−Poster
−August 2015, Colby-Sawyer College

67th Annual Meeting of the APS Division of Fluid Dynamics
−Contributed Talk
−November 23-25, 2014, San Francisco, CA

AAPT New Faculty Workshop
−November 13-16, 2014, College Park, MD

Outreach and Related Activities since 2014

For brevity, I have excluded items prior to my appointment at MHC. Prior participation upon request.

MHC Science Launch
−Part of Cottrell Scholar Award, pilot in 2019, funded for five years through NSF, program leader.
−Pre-orientation program for first year students interested in physical science.
−Workshops and lab activities.
−2019, 2022, will run again in 2024

SciTech Cafe (ongoing)
−Monthly public lectures in Western MA, attendance ≈100
−Co-organizer in 2017-18 (with K. Aidala), took over in 2018-19 season.
−Funding is guaranteed for several more years.

5C Physics Education Research Lunch (on hiatus)
−Co-organizer with Brokk Toggerson (UMass) and Gary Felder (Smith)
−Rotate campuses to discuss teaching research and best practices

Conference for Undergraduate Women in Physics (CUWiP), January 18-20 2019
−Organizing committee
−Communication and Negotiation Skills Workshop Leader
−UMass Amherst

"What can sandpiles tell us about traffic and cancer?" September 10, 2018
−Public Lecture at Nerd Nite in Northampton, MA

Soft Matter Day 3, July 27, 2018
−Co-organizer in collaboration with UMass Physics
−Invited Research Talks, Posters, Demonstrations (open to public)
−UMass Amherst

Emory-Tibet Science Initiative, 2017 and 2018
−Traveled to India to teach Buddhist monks (Topics: Electricity, magnetism, and light)

Conference for Undergraduate Women in Physics (CUWiP), January 12-14 2018
−Communication and Negotiation Skills Workshop Leader
−Rochester Institute of Technology

"Particle Physics: From Grains To Cells," August 2, 2017
−CBL Lecture to Summer Research Students, Amherst College

Soft Matter Day 2, July 21, 2017
−Head Organizer in collaboration with UMass Physics
−Invited Research Talks, Posters, Demonstrations (open to public)
−Mount Holyoke College

"You're Never Too Old to Play in the Sandbox," February 27, 2017
−Public Lecture at SciTech Cafe in Northampton, MA

Conference for Undergraduate Women in Physics (CUWiP), January 13-15 2017
−Panelist: *Academic and Non-Academic Career Opportunities*
−Harvard University

Soft Matter Day, July 22, 2016
−Head Organizer in collaboration with UMass Physics
−Invited Research Talks, Posters, Demonstrations (open to public)
−Mount Holyoke College

Conference for Undergraduate Women in Physics (CUWiP), January 15-17 2016
−Panelist: *Diversity Panel*, *Careers in Education and Academia*
−Wesleyan University

"The Physics of Superheroes," August 5, 2015
−Public Lecture at South Hadley Public Library

Technical Skills

- *Imaging and Microscopy*: brightfield, fluorescence, confocal, TEM, SEM, AFM, laser sheet scanning, high speed video
- *Image Analysis*: Particle tracking, particle image velocimetry, motion and network analysis, polariscope stress analysis
- *Micro/Nanofabrication*: Photolithography, e-beam lithography, soft lithography
- *Physical Analysis*: Rheometry, ultracentrifugation, dynamic light scattering
- *Chemical Analysis*: NMR, FT-IR, HPLC
- *Synthesis*: Gels, microgel particles, nanoparticles
- *Making*: CAD design, 3D printing, laser cutting, vacuum forming, pressure casting
- *Software*: Adobe CS, Matlab, Mathematica, Maple, Labview, Origin, Kaleidagraph, Igor, IDL, COMSOL, ImageJ, Pasco, Vernier
- *Languages* : C/C++, Fortran, Linux shell scripts, Python, HTML, LaTeX

Affiliations

- American Physical Society (APS)
- American Association for the Advancement of Science (AAAS)
- LGBT+ Physicists