

M. Lisa Manning

CONTACT INFORMATION	Physics Building 229B Department of Physics Syracuse University Syracuse, NY 13244 USA	<i>Voice:</i> 805.403.0808, 315.443.3920 <i>Fax:</i> 315.443.9103 <i>E-mail:</i> mmanning@syr.edu <i>Web:</i> https://mmanning.expressions.syr.edu
RESEARCH INTERESTS	Biophysics and Soft Matter. Modeling and analysis of collective and emergent behavior in biological tissues, as well as structure, deformation, and flow in glassy materials using theory and simulations.	
EDUCATION	University of California, Santa Barbara, California, USA Ph.D. Physics, September 2008 Dissertation title: <i>Effective temperature and strain localization in amorphous solids</i> Committee: Jean Carlson (advisor), James Langer, Ralph Archuleta M.A. Physics, May 2005 University of Virginia, Charlottesville, Virginia USA B.S. Physics, <i>with highest distinction</i> , 2002 B.A. Mathematics, 2002	
ACADEMIC POSITIONS	2020- 2019- 2019- 2015-2019 2011-2015 2008-2011	William R. Kenan, Jr. Professor of Physics, Syracuse University. Director, Bioinspired Institute, Syracuse University. Professor, Syracuse University. Associate Professor, Syracuse University. Assistant Professor, Syracuse University. Postdoctoral Fellow, Princeton University.
AWARDS AND FELLOWSHIPS	2021 2019 2019 2018 2018 2016 2016 2015 2014 2014 2014 2013 2008-2011 2004-2008 2003-2004 2002	Member, NAS Condensed Matter and Materials Research Committee. APS Fellow, American Physical Society DCMP. Emerging Leader Alumni Award, UC Santa Barbara. Top 10 Scientists to Watch List, Science News. Maria Goeppert Mayer Award, American Physical Society. Simons Investigator MMLS, Simons Foundation. IUPAP Young Investigator Prize, C3 (Statistical Physics) commission. Cottrell Scholar, Research Corporation. Scialog Fellow, Moore Foundation & Research Corporation. Physics Department Teaching Award, Phys 211, Syracuse University. Research Fellow, Alfred P. Sloan Foundation. Physics Department Teaching Award, Phys 576, Syracuse University. Postdoctoral fellowship, Princeton Center for Theoretical Science. National Science Foundation Graduate Research Fellowship, NSF. National Science Foundation Graduate K-12 Education Fellowship, NSF. Barry M. Goldwater Scholarship, University of Virginia.
EXTERNAL SUPPORT	10/2020-9/2025 \$2.1M	NIH-R01 HD099031 Four-dimensional prediction and quantification of how physical forces impact organogenesis in zebrafish. <i>With collaborator Jeff Amack, Upstate Medical University.</i>

9/2020-8/2023	\$450,000 co-PI	NSF-POLS- 2014192 Modeling Tumor Invasion with Spheroids Embedded in Extracellular Matrix, <i>Jen Schwarz(PI), Mingming Wu(co-PI)</i> .
7/2020-6/2023	\$369,914	NSF-DMR-1951921 Predicting dynamics in unstable and active solids.
7/2016-6/2023	\$873,000	Simons Foundation 454947 Cracking the Glass Problem Collaboration.
7/2016-6/2021	\$500,000	Simons Foundation 446222 Simons Investigator: Mathematical Modeling of Living Systems.
5/2015-4/2020	\$ 1,020,000	NIH-1R01GM117598 Quantitative Modeling of Cell Shape Changes During Organogenesis. <i>Jeff Amack (co-PI)</i> .
7/2016-6/2020	\$686,000	NSF-PHY-1607416 Predicting How Fluid-Solid Transitions in Cancer Tumors Help Govern Invasion and Metastasis. <i>With co-PIs Cristina Marchetti and Jennifer Schwarz</i> .
6/2014-5/2019	\$ 450,000	NSF-DMR-CMMT 1352184 CAREER Flow, Failure, and Migration in Glassy Materials.
7/2017-6/2019	\$25,000	Cottrell Collaborative Award Workshop on developing authentic partnerships between Minority Serving Institutions and Primarily White Institutions. <i>PI, with 13 additional co-PIs</i> .
7/2015-6/2018	\$396,068 co-PI	NSF ACI-1541396 CC*DNI Engineer: Leading the Way for Research Computing at Syracuse University and Beyond. <i>With Samuel Scozzafava,PI and 3 other co-PIs</i> .
7/2015-6/2017	\$ 56,250	Scialog Gordon and Betty Morre Foundation.
6/2015-5/2018	\$ 75,000	Cottrell Scholar Research Corporation.
6/2014-5/2016	\$ 50,000	Sloan Fellowship Alfred P. Sloan Foundation.
7/2013-7/2017	\$ 290,978 co-PI	NSF-BMMB-CMMI 1334611 Utilization of Smart Materials <i>Jay Henderson(PI) and Chris Turner (co-PI)</i> .

PH.D. STUDENTS
SUPERVISED

Spring 2017	Sven Wijtmans
Spring 2018	Giuseppe Passucci
Summer 2018	Michael Czajkowski
Spring 2020	Ethan Stanifer
Summer 2020	Preeti Sahu
expected 2022	Elizabeth Lawson-Keister
expected 2023	Julia Giannini
expected 2024	Kamalendu Paul

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|-------------------------|--|---|--|
| POSTDOCTORAL ASSOCIATES | 2012-15
2015-16
2015-18
2016-19
2016-19
2017-19
2019-20
2018-21
2019-21
2019-21
2018-
2019- | Dapeng (Max) Bi
Jonathan Dawson
Matthias Merkel
Peter Morse
Daniel Sussman
Gonca Erdemci-Tandogan
Sudeshna Roy
Amanda Parker
David Richard
Ojan Damavandi
Varda Hagh
Paula Sanematsu | Ph.D. Brandeis 2012
Ph.D. MPI-PKS 2012
Ph.D. MPI-PKS 2015
Ph.D. U. Oregon 2016
Ph.D. Illinois 2014
Ph.D. UC Riverside 2017
Ph.D. Twente Netherlands 2017
Ph.D. UC Berkley 2018
shared, Ph.D. Mainz Germany 2018
Ph.D. Michigan 2019
shared, Ph.D. Arizona State 2018
Ph.D. LSU 2015 |
|-------------------------|--|---|--|
- PEER-REVIEWED PUBLICATIONS
- 54.** Julia A. Giannini, David Richard, M. Lisa Manning, and Edan Lerner, “Bond-space operator disentangles quasi-localized and phononic modes in structural glasses,” *Phys. Rev. E* **104**, 044905, (2021). <https://doi.org/10.1103/PhysRevE.104.044905>
- 53.** Preeti Sahu, J. M. Schwarz, M. Lisa Manning, “Geometric signatures of tissue surface tension in a three-dimensional model of confluent tissue,” *New J. Phys.* **23**, 093043, (2021). <https://doi.org/10.1088/1367-2630/ac23f1>
- 52.** Elizabeth Lawson-Keister and M. Lisa Manning, “Review: Jamming and arrest of cell motion in biological tissues,” *Current Opinion in Cell Biology* **72**, 146-155, (2021). <https://doi.org/10.1016/j.ceb.2021.07.011>
- 51.** Paula C. Sanematsu, Gonca Erdemci-Tandogan, Himani Patel, Emma M. Retzlaff, Jeffrey D. Amack, M. Lisa Manning, “3D viscoelastic drag forces drive changes to cell shapes during organogenesis in the zebrafish embryo,” *Inaugural issue of Cells and Development* , (2021). <https://doi.org/10.1016/j.cdev.2021.203718>
- 50.** Gonca Erdemci-Tandogan and M. L. Manning, “Effect of cellular rearrangement time delays on the rheology of vertex models for confluent tissues,” *PLOS Comp. Bio* **17(6)** e1009049, 2021, (<https://journals.plos.org/ploscompbiol/article?id=10.1371/journal.pcbi.100904>).
- 49.** Peter K. Morse, Sudeshna Roy, Elisabeth Agoritsas, Ethan Stanifer, Eric I. Corwin, M. Lisa Manning, “A direct link between active matter and sheared granular systems,” *Proc. Nat. Acad. Sci.* **118 (18)** e2019909118, 2021, (<https://doi.org/10.1073/pnas.2019909118>).
- 48.** John Devany, Daniel M. Sussman, Takaki Yamamoto, M. Lisa Manning, Margaret L. Gardel, “Cell division Rate Controls Cell Shape Remodeling in Epithelia,” *Proc. Nat. Acad. Sci.* **118 (10)** e1917853118, 2021, (<https://doi.org/10.1073/pnas.1917853118>).
- 47.** Steffen Grosser, Juergen Lippoldt, Linda Oswald, Matthias Merkel, Daniel M. Sussman, Frederic Renner, Erik W. Morawetz, Steve Pawlizak, Anatol Fritsch, Lars Christian Horn, Bahriye Aktas, M. Lisa Manning, and Josef A. Ks, “Elongated cells fluidize malignant tissues,” *PRX* **11** 011033, 2021, (<https://doi.org/10.1103/PhysRevX.11.011033>).
- 46.** David Richard* Geert Kapteijns* Julia A. Giannini, M. Lisa Manning, and Edan Lerner, “A simple and broadly-applicable definition of shear transformation zones,” *Phys. Rev. Lett.* **126(1)** 015501, 2020, (<https://doi.org/10.1103/PhysRevLett.126.015501>).

45. Diogo E. P. Pinto, Gonca Erdemci-Tandogan, M. Lisa Manning, and Nuno A. M. Araujo, “The cell adaptation time sets a minimum length scale for patterned substrates,” *Biophysical Journal* **119**, 11, (<https://doi.org/10.1016/j.bpj.2020.10.026>).
44. D. Richard, M. Ozawa, S. Patinet, E. Stanifer, B. Shang, S. Ridout, B. Xu, G. Zhang, P. Morse, J.-L. Barrat, L. Berthier, M.L. Falk, P. Guan, A. Liu, K. Martens, S. Sastry, D. Vandembroucq, E. Lerner, and M.L. Manning, “Predicting plasticity in disordered solids from structural indicators,” *Physical Review Materials* **4**, 113609, (2020). <https://doi.org/10.1103/PhysRevMaterials.4.113609>
43. Peter Morse, Merlijn van Deen, Sven Wijtmans, Martin Van Hecke, M. L. Manning, “Two classes of events in sheared particulate matter,” *Physical Review Research* **2**, 023179, (2020). <https://link.aps.org/doi/10.1103/PhysRevResearch.2.023179>
42. Xun Wang*, Matthias Merkel*, Leo B. Sutter*, Gonca Erdemci-Tandogan, M. Lisa Manning, Karen E. Kasza., “A solid-to-fluid transition is predicted by cell shape and alignment in an anisotropic tissue of the developing fly embryo,” *Proceedings of the National Academy of Sciences* **201916418**, 2020, (<https://doi.org/10.1073/pnas.1916418117>).
41. Preeti Sahu, Daniel M. Sussman, Matthias Rbsam, Aaron F. Mertz, Valerie Horsley, Eric R. Dufresne, Carien M. Niessen, M. Cristina Marchetti, M. Lisa Manning, J. M. Schwarz., “Small-scale demixing in confluent biological tissues,” *Soft Matter* **16**, 3325-3337, (2020). <https://doi.org/10.1039/C9SM01084J>
40. Rathbun L, Colicino E, Coyne S, Reilly N, Erdemci-Tandogan G, Garrastegui A, Freshour J, Santra P, Manning ML, Amack J, Hehly H., “Cytokinetic bridge triggers de novo lumen formation in vivo,” *Nature Communications* **11**, 1269, (2020). <https://www.nature.com/articles/s41467-020-15002-8>
39. Preeti Sahu*, Janice Kang*, Gonca Erdemci-Tandogan, M. Lisa Manning, “Linear and nonlinear mechanical responses can be quite different in models for biological tissues,” *Soft Matter* **16**, 1850-1856, (2020). DOI: 10.1039/C9SM01068H
38. Michael Czajkowski, Daniel M. Sussman, M. Cristina Marchetti, M. Lisa Manning, “Glassy Dynamics in Models of Confluent Tissue with Mitosis and Apoptosis,” *Soft Matter*, arXiv:1905.01603, (2019).
37. Matthias Merkel, Karsten Baumgarten, Brian P. Tighe, M. Lisa Manning., “A unifying perspective on rigidity in under-constrained materials,” *Proc. Nat. Acad. Sci* **116**, 6560-6568, (2019). <https://doi.org/10.1073/pnas.1815436116>
36. M.E. Brasch*, G. Passucci*, A. Gulvady, C. E. Turner, M. L. Manning, J. H. Henderson, “Nuclear position relative to the Golgi body and nuclear orientation are differentially responsive indicators of cell polarized motility,” *PLOS ONE*, 2019, (<https://doi.org/10.1371/journal.pone.0211408>).
35. G. Passucci, M.E. Brasch, V. J. H. Henderson, M. L. Manning, “Identifying the mechanisms that generate super-diffusivity in mouse fibroblast trajectories on 2D substrates,” **PLOS Comp. Bio**, 2019, (<https://doi.org/10.1371/journal.pcbi.1006732>, arxiv:1712.05049).

- 34.** Tristan Sharp, Matthias Merkel, M. Lisa Manning, Andrea J. Liu, “Statistical properties of 3D cell geometry from 2D slices,” **PLOS ONE**, 2019, (<https://doi.org/10.1371/journal.pone.0209892>).
- 33.** Gonca Erdemci-Tandogan, Madeline Clark, Jeff Amack, M. L. Manning, “Tissue flow induces shape change during morphogenesis,” *Biophysical Journal* **115**, 2259-2270, (2018). <https://doi.org/10.1016/j.bpj.2018.10.028>
- 32.** M. Czajkowski, Dapeng Bi, M. L. Manning, M. C. Marchetti, “A Hydrodynamic Model for the Density-Independent Flocking Transition in Confluent Tissues,” *Soft Matter* **14**, 5628-5642, (2018). doi:10.1039/C8SM00446C
- 31.** Fabio Giavazzi, Matteo Paoluzzi, Marta Macchi, Dapeng Bi, Giorgio Scita, M. Lisa Manning, Roberto Cerbino, M. Cristina Marchetti, “Flocking Transition in Confluent Tissues,” *Soft Matter* **14**, 3471-3477, (2018). doi: 10.1039/C8SM00126J
- 30.** Daniel M. Sussman, M. Paoluzzi, M. Cristina Marchetti, M. Lisa Manning, “Anomalous glassy dynamics in simple models of dense biological tissue,” *Euro. Phys. Lett.* **121**, 36001, (2018). doi: 10.1209/0295-5075/121/36001
- 29.** Agnik Dasgupta, Matthias Merkel, Andrew E. Jacob, Jonathan Dawson, M. Lisa Manning and Jeffrey D. Amack, “Asymmetric cell volume changes regulate epithelial remodeling of the left-right organizer,” *eLife* **7**, e30963, (2018). doi: 10.7554/eLife.30963
- 28.** Daniel Sussman, Jennifer Schwarz, M. Cristina Marchetti, M. Lisa Manning, “Soft yet sharp interfaces in vertex-based models for confluent tissues,” *Editor’s suggestion in Phys. Rev. Letters* **120**, 058001, (2018). <https://doi.org/10.1103/PhysRevLett.120.058001>, Corresponding Synopsis
- 27.** Matthias Merkel and Lisa Manning, “A geometrically controlled rigidity transition in a model for confluent 3D tissues,” *Fast Track communication, New Journal of Physics* **20**, 022002, (2018). <https://doi.org/10.1088/1367-2630/aaaa13>
- 26.** X. Yang, Dapeng Bi, M. Czajkowski, M. Merkel, M. L. Manning, M. C. Marchetti, “Correlating Cell Shape and Cellular Stress in Motile Confluent Tissues,” *Proc. Nat. Acad. Sci.* **114**, 12663-12668, (2017). DOI: 10.1073/pnas.1705921114
- 25.** Sven Wijtmans and M. L. Manning, “Disentangling defects and sound modes in disordered solids,” *Soft Matter (cover article)* **12**, 5649-5655, (2017). DOI: 10.1039/C7SM00792B
- 24.** Matthias Merkel and M. Lisa Manning, “Using cell deformation and motion to predict forces and collective behavior in morphogenesis,” *Seminars in Developmental Biology* **67**, 161-169, (2017). DOI: 10.1016/j.semcd.2016.07.029
- 23.** Dapeng Bi, X. Yang, M. C. Marchetti, M. L. Manning, “Motility-driven glass transitions in biological tissues,” *Phys. Rev X* **6**, 021011, (2016). <http://dx.doi.org/10.1103/PhysRevX.6.021011>
- 22.** Dapeng Bi, J. Lopez, J. Schwarz, M. L. Manning, “A density-independent rigidity transition in biological tissues,” *Nature Physics* **11**, 1074-1079, (2015). DOI: 10.1038/nphys3471

- 21.** S Pawlizak, A Fritsch, S Grosser, D Ahrens, T Thalheim, S Riedel, T Kiessling, M Zink, ML Manning, and JA Kaes, “Testing the differential adhesion hypothesis across the epithelial-mesenchymal transition,” *New Journal of Physics* **17**, 24 August, (2015). DOI: 10.1088/1367-2630/17/8/083049, Corresponding New Journal of Physics Perspective Article
- 20.** J-A Park, JH Kim, D Bi, JA Mitchel, NT Qazvini, K Tantisira, CY Park, M McGill, S-H Kim, R Steward, Jr., S Burger, W Qiu, SH Randell, A Kho, D Tambe, C Hardin, SA Shore, E Israel, DA Weitz, DJ Tschumperlin, ST. Weiss, EP Henske, ML Manning, JP Butler, J M Drazen, JJ Fredberg, “Unjamming transition to cellular hypermobility in the asthmatic airway epithelium,” *Nature Materials* **14**, 1040-1048, (2015). DOI: 10.1038/nmat4357, Corresponding Nature Material News and Views Article
- 19.** Danielle S. Bassett, Eli T. Owens, Mason A. Porter, M. Lisa Manning, Karen E. Daniels, “Extraction of Force-Chain Network Architecture in Granular Materials Using Community Detection,” *Soft Matter (cover article)* **11**, 2731-2744, (2015). DOI: 10.1039/C4SM01821D
- 18.** M. L. Manning and A. J. Liu, “A random matrix definition of the boson peak,” *Europhys. Lett.* **109**, 36002, (2015). DOI: 10.1209/0295-5075/109/36002
- 17.** Craig Fox, Lisa Manning, and Jeff Amack, “Automated tracking of beads in the ciliated zebrafish organ of asymmetry to quantify the role of fluid flow in left-right patterning,” *Methods in Cell Biology; Methods in Cilia & Flagella* **127**, 175-187, (2015). <https://doi.org/10.1016/bs.mcb.2014.12.010>
- 16.** Xingbo Yang, M. Lisa Manning and M. Cristina Marchetti, “Aggregation and Segregation of confined active particles,” *Soft Matter* **10**, 6477-6484, (2014). DOI: 10.1039/C4SM00927D, Commentary in Journal Club for Condensed Matter Physics
- 15.** R. M. Baker, M. E. Brasch, M. L. Manning, J. H. Henderson, “Automated, contour-based tracking and analysis of cell behavior over long timescales in environments of varying complexity and cell density,” *J. Roy. Soc. Interface* **11(97)**, 20140386, (2014). DOI: 10.1098/rsif.2014.0386
- 14.** Dapeng Bi, J. Lopez, J. Schwarz, M. L. Manning, “Energy barriers and cell migration in densely packed tissues,” *Soft Matter* **10**, 1885-1890, (2014). DOI: 10.1039/C3SM52893F, Commentary in Journal Club for Condensed Matter Physics
- 13.** T. Idema, J. O. Dubuis, L. Kang, M. L. Manning, P. C. Nelson, T. C. Lubensky, and A. J. Liu, “The syncytial Drosophila embryo as a mechanically excitable medium,” *PLOS ONE* **8(10)**, e77216, (2013). DOI: 10.1371/journal.pone.0077216
- 12.** E.-M. Schoetz, M. Lanio, J. Talbot, and M. L. Manning, “Glassy dynamics in three dimensional embryonic tissues,” *J. Roy. Soc. Interface* **10(89)**, 20130726, (2013). DOI: 10.1098/rsif.2013.0726
- 11.** J. D. Amack, M. L. Manning, “Knowing the Boundaries: Extending the Differential Adhesion Hypothesis in Embryonic Cell Sorting,” *Science* **338 (6104)**, 212-215, (2012). DOI: 10.1126/science.1223953
- 10.** G. Wang, M. L. Manning, and J. D. Amack, “Regional Cell Shape Changes Control Form and Function of Kupffer’s Vesicle in the Zebrafish Embryo,” *Dev. Bio.* **370 (1)**, 52-62, (2012). DOI: 10.1016/j.ydbio.2012.07.019

9. M. L. Manning and A. J. Liu, "Vibrational modes identify soft spots in a sheared disordered packing," *Phys. Rev. Lett.* **107**, 108302, (2011). DOI: 10.1103/PhysRevLett.107.108302
8. K. Chen, M. L. Manning, P. J. Yunker, W. G. Ellenbroek, Z. Zhang, A. J. Liu, and A. G. Yodh, "Measurement of Correlations between Low-Frequency Vibrational Modes and Particle Rearrangements in Quasi-Two-Dimensional Colloidal Glasses," *Phys. Rev. Lett.* **107**, 108301, (2011). DOI: 10.1103/PhysRevLett.107.108301
7. M. L. Manning, R. A. Foty, M. S. Steinberg, and E.-M. Schoetz, "Coaction of intercellular adhesion and cortical tension specifies tissue surface tension," *Proc. Nat. Acad. Sci.* **107**, 28 12517-12522, (2010). DOI: 10.1073/pnas.1003743107
6. E. G. Daub, M. L. Manning and J. M. Carlson, "Pulse-like, crack-like and supershear earthquake ruptures with shear strain localization," *J. Geophys. Res.* **115**, B05311, (2010). DOI: 10.1029/2009JB006388
5. M. L. Manning, E. G. Daub, J. S. Langer and J. M. Carlson, "Rate dependent shear bands in a shear transformation zone model for amorphous solids," *Phys. Rev. E* **79**, 016110, (2009). DOI: 10.1103/PhysRevE.79.016110
4. E. G. Daub, M. L. Manning and J. M. Carlson, "Shear strain localization in elastodynamic rupture simulations," *Geo. Res. Lett.* **35**, L12310, (2008). DOI: 10.1029/2008GL033835
3. J. S. Langer and M. L. Manning, "Steady-state, effective-temperature dynamics in a glassy material," *Phys. Rev. E* **76**, 056107, (2007). DOI: 10.1103/PhysRevE.76.056107
2. M. L. Manning, J. S. Langer and J. M. Carlson, "Strain localization in a shear transformation zone model for amorphous solids," *Phys. Rev. E* **76**, 056106, (2007). DOI: 10.1103/PhysRevE.76.056106
1. M. Manning, J. M. Carlson and J. Doyle, "Highly Optimized Tolerance in dense and sparse resource regimes," *Phys. Rev. E* **72**, 016108, (2005). DOI: 10.1103/PhysRevE.72.016108

SELECTED INVITED **150+** invited talks total

TALKS

- 2021 Invited seminar, Johns Hopkins Mechanical Eng. Oct 14
- 2021 Invited talk, Q Cell Bio symposium, Munich Oct 14
- 2021 Invited Physics Colloquium, University of Pennsylvania Oct 13
- 2021 Invited seminar, UT Austin Center for Comp. Oncology Sept 22
- 2021 Plenary lecture, Liquid Matter Conference July 22
- 2021 Invited keynote Powders and Grains July 5
- 2021 Invited keynote Brazilian Physics Conference June 24
- 2021 Invited seminar, Imperial College May 28
- 2021 Invited seminar, GEOMPACK series May 5
- 2021 Invited seminar, Pitt BioEngineering April 22
- 2021 Invited virtual physics colloquium, UC Berkeley March 29
- 2021 Invited talk, APS March Meeting March 19

- 2021 Invited physics colloquium, University of Mexico City March 4
- 2021 Invited talk, EMBO/EMBL Symposium March 3
- 2021 Invited talk, Mechanobiology Subgroup at the Biophysical Society Feb 22
- 2021 Invited seminar, Maths in the Life Science Univ. of Manchester Feb 22
- 2021 Invited Physics colloquium, McGill University Feb 19
- 2021 Invited seminar, Edith and Ely Broad Distinguished Lecture Series, USC Feb 16
- 2021 Invited seminar, UPenn Physical Oncology Jan 25
- 2021 Invited seminar, IST Austria Soft Matter Jan 22
- 2021 Invited seminar, MSC Paris Jan 20
- 2020 Keynote Speaker, Cambridge Centre for Physical Biology Annual Meeting, Dec 16
- 2020 Invited virtual talk, Simons Glass Collaboration Seminar Nov 18
- 2020 Invited talk, NSCS (Israeli Nonlinear, Statistical, Soft Matter Physics), Nov 17
- 2020 Invited virtual talk, Biological Physics and Physical Biology seminar, October 16
- 2020 Invited virtual seminar, DAMTP Soft Matter Seminar, Cambridge UK, Oct 13
- 2020 Plenary talk (virtual), Dutch Biophysics 2020, October 6
- 2020 Turing Lecture (virtual), Physics of Living Matter 15, Marseille, France, Oct 2
- 2020 Invited virtual talk, CENTURI seminar, Marseille France, September 30
- 2020 Invited talk, Cell. and Biomolecular Eng. Conf., San Juan, Puerto Rico Jan 4.

- 2019 Invited talk, Soft matter and Biophysics seminar, UC Santa Barbara, October.
- 2019 Invited talk, Soft matter and Biophysics seminar, UC Santa Barbara, October.
- 2019 Plenary talk, International Conference on Glass Physics, Beijing, China, September.
- 2019 Invited talk, Cell Adhesion Gordon Research Conference, Les Diablerets, Switzerland, June.
- 2019 Invited talk, Canadian Biophysical Society Meeting, UTM Toronto, May.
- 2019 Invited Seminar, Center for Computational Biology, Flatiron Institute, May.
- 2019 Cracking the Glass Problem Simons Collaboration, NYC, March.
- 2019 Physics Colloquium, Cornell University, February.
- 2019 Physics Colloquium, GA Tech, January.
- 2018 Geometry and Morphogenesis Conference, Harvard, December.
- 2018 Distinguished Lecture, Haverford Physics Department, November
- 2018 Biophysics seminar, Princeton University, November.
- 2018 Applied Math Seminar MIT, September.
- 2018 Unifying Concepts in Glass Physics, Bristol, UK, June.
- 2018 Conceptual Legacy of On Growth and Form, St. Andrews, Scotland, June.

TEACHING

Syracuse University, Syracuse, NY USA

Spring 2021	<i>Physics 750</i> Advanced Topics in Condensed Matter Physics
Fall 2018	<i>Phys/Ben/Cen/Bio 635</i> Physical Cell Biology
Spring 2017, Spring 2018, Fall 2019	<i>Physics 215</i> Honors Introductory Physics
Fall 2015	<i>Physics 399/600</i> Practicum in Science Teaching
Spring 2015, Spring 2013, Fall 2011	<i>Physics 576</i> Introduction to Solid State Physics
Fall 2012, Spring 2014(2)	<i>Physics 211</i> General Physics I: Mechanics

DEPARTMENTAL
AND UNIVERSITY
SERVICE

2019-	Director, Bioinspired Institute at Syracuse University
2019-	Faculty Liaison to the Women in Physics group
2021	P&T committee, Paulsen, Physics Department
2021	Panelist, Women in Leadership workshop, May 9
2020	Presentation to the CNY Alumni group, Jan 10
2013 -	Panelist for Women in Science and Engineering (WiSE) workshops: Dual Career, Writing a Dissertation, Peer Mentoring.
2017-19	Faculty Liaison to Women in Science and Engineering Postdoc Group
2017-18	Co-chair, Physics Department Strategic Planning Research Committee
2017-18	Member, Physics Department Faculty Planning Committee
2016-17	Chair, Faculty Search committee in soft matter/biophysics
2016	Co-chair, Conference for Undergraduate Women in Physics
2015	Co-chair, Working Group of Syracuse Biomaterials Institute
2015	Member, Faculty Advisory Committee for College of Medicine
2014-15	Member, Soft Matter Experimental Physics Faculty Search Committee.
2014-15	Member, College of Arts and Sciences Dean Search Committee.
2012-	Oral exam committee member, Xingbo Yang, Jorge Lopez, Sean Sweeney, Jikai Wang (Physics), Kevin Davis, Megan Brasch, Fred Donelson, Shiyun Sun (Bio. Eng.).
2011-	Thesis committee: Shiliyang Xu, Zhenwei Yao, Jorge Lopez (Physics), Kosmas Diveris (Math-Chair), Sean Delaney (Chemistry-Chair), Thomas Juliano, (Chemistry - Chair), Megan Brasch (BMCE - Chair), Jeremy Schar (Chem-Chair), Lindsay Rathburn (Biology-Chair).
2011-13	Chair('13) Undergrad Research Day, Physics Department.

PROFESSIONAL
ACTIVITIES AND
OUTREACH

- NSF Reviewer and Review Panelist.
- 2019- Editorial Board Member, Biophysical Journal
- 2008- Referee: Nature, Science, Proc. Nat. Acad. Science, Roc. Soc. Interface, Phys. Rev. Letters, Phys. Rev. E, Phys. Rev. B, Phys. Bio., Biophys. J., Sci. Reports, New Jour. Phys., PLOS Comp. Bio, J. Cell Science, eLife, and Rev. Mod. Phys.
- 2017-20 APS GSNP, Elected Member at Large.
- 2019 Program Committee, 2019 ACS International Conference on Glass, Boston MA
- 2019 Chair, Gordon Research Conference Soft Condensed Matter, New London, NH
- 2017-19 Editorial Board Member, Physical Review Applied
- 2018 Public Lecture, Simons Foundation NYC, March 7
- 2018 PI and Co-organizer, Workshop for partnerships between MSIs (Minority-Serving Institutions) and PWIs (Primarily White Institutions), UC Irvine
- 2017 APS GSOF T Program committee member.
- 2019 Lecturer, Boulder Condensed Matter Summer School. Also 2017 and 2015
- 2017 Public Lecture, Boulder CO, July
- 2015-17 APS GSOF T Membership committee chair.
- 2017 Public Lecture, Aspen CO, March
- 2016 Co-organizer, Workshop on the Physics of Development and Disease, Aspen Center for Physics (March).
- 2015 Co-organizer, Random walks and nonlinearity in the life of cells workshop MPI-PKS Dresden (May).
- 2014 Guest lecturer, Multiscale integration of biological systems, Institute Curie.
- 2014 Syracuse Soft Matter Program public lecture, “The sound of disorder”.
- 2013- Guest Editor, New J. Phys. issue on Multicellularity and Active Matter.
- 2012 Jr. Science Cafe Seminar, Museum of Science and Technology (MoST), Syracuse NY
- 2006 Invited Speaker and Chaperone: Conference for Undergraduate Women in Physics, USC.