

## M. Lisa Manning

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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> <a href="https://mmanning.expressions.syr.edu">https://mmanning.expressions.syr.edu</a>
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	<b>University of California, Santa Barbara, California, USA</b> 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  <b>University of Virginia, Charlottesville, Virginia USA</b> B.S. Physics, <i>with highest distinction</i> , 2002 B.A. Mathematics, 2002	
ACADEMIC POSITIONS	<b>2020-</b> <b>2019-</b> <b>2019-</b> <b>2015-2019</b> <b>2011-2015</b> <b>2008-2011</b>	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	<b>2019</b> <b>2019</b> <b>2018</b> <b>2018</b> <b>2016</b> <b>2016</b> <b>2015</b> <b>2014</b> <b>2014</b> <b>2014</b> <b>2013</b> <b>2008-2011</b> <b>2004-2008</b> <b>2003-2004</b> <b>2002</b>	APS Fellow, American Physical Society DCMF. 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	<b>NIH-R01 HD099031</b> 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	<b>NSF-POLS- 2014192</b> Modeling Tumor Invasion with Spheroids Embedded in Extracellular Matrix, <i>Jen Schwarz(PI), Mingming Wu(co-PI)</i> .
7/2020-6/2023	\$369,914	<b>NSF-DMR-1951921</b> Predicting dynamics in unstable and active solids.
7/2016-6/2023	\$873,000	<b>Simons Foundation 454947</b> Cracking the Glass Problem Collaboration.
7/2016-6/2021	\$500,000	<b>Simons Foundation 446222</b> Simons Investigator: Mathematical Modeling of Living Systems.
5/2015-4/2020	\$ 1,020,000	<b>NIH-1R01GM117598</b> Quantitative Modeling of Cell Shape Changes During Organogenesis. <i>Jeff Amack (co-PI)</i> .
7/2016-6/2020	\$686,000	<b>NSF-PHY-1607416</b> 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	<b>NSF-DMR-CMMT 1352184 CAREER</b> Flow, Failure, and Migration in Glassy Materials.
7/2017-6/2019	\$25,000	<b>Cottrell Collaborative Award</b> 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	<b>NSF ACI-1541396</b> 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	<b>Scialog</b> Gordon and Betty Morre Foundation.
6/2015-5/2018	\$ 75,000	<b>Cottrell Scholar</b> Research Corporation.
6/2014-5/2016	\$ 50,000	<b>Sloan Fellowship</b> Alfred P. Sloan Foundation.
7/2013-7/2017	\$ 290,978 co-PI	<b>NSF-BMMB-CMMI 1334611</b> 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 2021	Elizabeth Lawson-Keister
expected 2022	Julia Giannini

POSTDOCTORAL ASSOCIATES	2012-15	Dapeng (Max) Bi	Ph.D. Brandeis 2012
	2015-16	Jonathan Dawson	Ph.D. MPI-PKS 2012
	2015-18	Matthias Merkel	Ph.D. MPI-PKS 2015
	2016-19	Peter Morse	Ph.D. U. Oregon 2016
	2016-19	Daniel Sussman	Ph.D. Illinois 2014
	2017-19	Gonca Erdemci-Tandogan	Ph.D. UC Riverside 2017
	2019-20	Sudeshna Roy	Ph.D. Twente Netherlands 2017
	2018-21	Amanda Parker	Ph.D. UC Berkley 2018
	2018-	Varda Hagh	shared, Ph.D. Arizona State 2018
	2019-	David Richard	shared, Ph.D. Mainz Germany 2018
	2019-	Paula Sanematsu	Ph.D. LSU 2015
	2019-	Ojan Damavandi	Ph.D. Michigan 2019
	PEER-REVIEWED PUBLICATIONS	<p><b>47.</b> 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,” <i>accepted to PRX</i>, 2020, ()).</p>	
<p><b>46.</b> David Richard* Geert Kapteijns* Julia A. Giannini, M. Lisa Manning, and Edan Lerner, “A simple and broadly-applicable definition of shear transformation zones,” <i>accepted to Phys. Rev. Lett</i>, 2020, (<a href="https://arxiv.org/abs/2007.08181">https://arxiv.org/abs/2007.08181</a>).</p>			
<p><b>45.</b> 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,” <i>Biophysical Journal</i> <b>119</b>, 11, (<a href="https://doi.org/10.1016/j.bpj.2020.10.026">https://doi.org/10.1016/j.bpj.2020.10.026</a>).</p>			
<p><b>44.</b> 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,” <i>Physical Review Materials</i> <b>4</b>, 113609, (2020). <a href="https://doi.org/10.1103/PhysRevMaterials.4.113609">https://doi.org/10.1103/PhysRevMaterials.4.113609</a></p>			
<p><b>43.</b> Peter Morse, Merlijn van Deen, Sven Wijtmans, Martin Van Hecke, M. L. Manning, “Two classes of events in sheared particulate matter,” <i>Physical Review Research</i> <b>2</b>, 023179, (2020). <a href="https://link.aps.org/doi/10.1103/PhysRevResearch.2.023179">https://link.aps.org/doi/10.1103/PhysRevResearch.2.023179</a></p>			
<p><b>42.</b> 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,” <i>Proceedings of the National Academy of Sciences</i> <b>201916418</b>, 2020, (<a href="https://doi.org/10.1073/pnas.1916418117">https://doi.org/10.1073/pnas.1916418117</a>).</p>			
<p><b>41.</b> 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,” <i>Soft Matter</i> <b>16</b>, 3325-3337, (2020). <a href="https://doi.org/10.1039/C9SM01084J">https://doi.org/10.1039/C9SM01084J</a></p>			
<p><b>40.</b> Rathbun L, Colicino E, Coyne S, Reilly N, Erdemci-Tandogan G, Garrastegui A, Freshour J, Santra P, Manning ML, Amack J, Hehnly H., “Cytokinetic bridge triggers de novo lumen formation in vivo,” <i>Nature Communications</i> <b>11</b>, 1269, (2020). <a href="https://www.nature.com/articles/s41467-020-15002-8">https://www.nature.com/articles/s41467-020-15002-8</a></p>			

- 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 TALKS **125+ invited talks total**

- 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 Society of Nonlinear, Statistical, Soft Matter Physics) Seminar, Nov 17
- 2020 Invited virtual talk, Biological Physics and Physical Biology seminar, October 16
- 2020 Invited virtual seminar, DAMTP Statistical Physics and 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.
- 2018 Invited talk, Theory and Biology meeting, Simons Foundation (April).
- 2018 Cell and Molecular Biology seminar, Harvard University (March).
- 2018 Invited Award Talk, APS meeting Los Angeles (March).
- 2017 Invited talk, Mechanobiology subgroup, Am. Soc. Cell Bio. (Dec).
- 2017 Physics Colloquium, Washington University St. Louis (Oct).
- 2017 Physics Colloquium, North Carolina A&T (Sept).
- 2017 Physics Colloquium, University of Chicago (May).
- 2017 Systems Biology seminar, Harvard University (April).

## TEACHING

**Syracuse University**, Syracuse, NY USA

<b>Fall 2018</b>	<i>Phys/Ben/Cen/Bio 635</i> Physical Cell Biology
<b>Spring 2017, Spring 2018, Fall 2019</b>	<i>Physics 215</i> Honors Introductory Physics
<b>Fall 2015</b>	<i>Physics 399/600</i> Practicum in Science Teaching
<b>Spring 2015, Spring 2013, Fall 2011</b>	<i>Physics 576</i> Introduction to Solid State Physics
<b>Fall 2012, Spring 2014(2)</b>	<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
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.
2012-15	Coordinator, Soft Interfaces IGERT orientation and student seminar.
2012-	Oral exam committee member, Xingbo Yang, Jorge Lopez, Sean Sweeney, Jikai Wang (Physics), Kevin Davis, Megan Brasch, Fred Donelson, Shiyan 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-	Graduate Academic Advisor: Sven Wijtmans, Craig Fox, Jie Yang, Fu-Hao Chen (Physics).
2011-13	Chair('13) and co-Chair, Undergraduate Research Day, Physics Department.
2011-13	Coordinator: condensed matter theory group meeting.



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- APS GSNP, Elected Member at Large.
- 2020 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.