

# Erin G Teich

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## Postdoctoral Appointments

### 2018 - Present    **University of Pennsylvania, Philadelphia PA**

Postdoctoral researcher in Danielle Bassett's group, Department of Bioengineering

## Education

### 2012 - 2018    **University of Michigan, Ann Arbor MI**

Ph.D., Applied Physics  
Cumulative GPA 4.0/4.0  
Thesis: *Local Structure in Hard Particle Self-Assembly and Assembly Failure*  
Advisor: Sharon C. Glotzer

### 2007 - 2011    **Brown University, Providence RI**

Sc.B. Magna Cum Laude with Honors, Physics  
Cumulative GPA 4.0/4.0  
Thesis: *Probing Molecular Dynamics using a Solid State Nanopore: DNA Capture and Recapture*  
Advisor: Derek Stein  
*Semester abroad at National University of Singapore, 2010, GPA 5.0/5.0*

## Employment

### 2011 - 2012    **AmeriCorps, Chicago IL**

Served with Notre Dame AmeriCorps Chicago  
*Staff member at Marillac House Family Services Department and after-school program*

## Publications

13. **E.G. Teich**, M. Cieslak, B. Giesbrecht, J.M. Vettel, S.T. Grafton, T.D. Satterthwaite, and D.S. Bassett, "Crystallinity characterization of white matter in the human brain," *New Journal of Physics* **23**, 073047 (2021).
12. **E.G. Teich**, K.L. Galloway, P.E. Arratia, and D.S. Bassett, "Crystalline shielding mitigates structural rearrangement and localizes material memory in jammed systems under oscillatory shear," *Science Advances* **7**, eabe3392 (2021).
11. K. Je, S. Lee, **E.G. Teich**, M. Engel, and S.C. Glotzer, "Entropic formation of a thermodynamically stable colloidal quasicrystal with negligible phason strain," *Proc. Natl. Acad. Sci. USA* **118**, e2011799118 (2021).
10. **E.G. Teich**, G. van Anders, and S.C. Glotzer, "Particle shape tunes fragility in hard polyhedron glass-formers," *Soft Matter* **17**, 600 (2021).
9. M. Linkova, **E.G. Teich** and D.S. Bassett, "Tackling Academia's Publication Inequities," *Physics* **13**, 191 (2020).

8. J.D. Dworkin, K.A. Linn, **E.G. Teich**, P. Zurn, R.T. Shinohara, and D.S. Bassett, "The extent and drivers of gender imbalance in neuroscience reference lists," *Nature Neuroscience* **23**, 918 (2020).
7. W. Zygmunt, **E.G. Teich**, G. van Anders, and S.C. Glotzer, "Topological order in densely packed anisotropic colloids," *Physical Review E* **100**, 032608 (2019).
6. R.L. Marson, **E.G. Teich**, J. Dshemuchadse, S.C. Glotzer, and R.G. Larson, "Computational self-assembly of colloidal crystals from Platonic polyhedral sphere clusters," *Soft Matter* **15**, 6288 (2019).
5. S. Lee, **E.G. Teich**, M. Engel, and S.C. Glotzer, "Entropic colloidal crystallization pathways via fluid-fluid transitions and multidimensional prenucleation motifs," *Proc. Natl. Acad. Sci. USA* **116**, 14843 (2019).
4. **E.G. Teich**, G. van Anders, and S.C. Glotzer, "Identity crisis in alchemical space drives the entropic colloidal glass transition," *Nature Communications* **10**, 64 (2019).
3. J.E. Taylor, **E.G. Teich**, P.F. Damasceno, Y. Kallus, and M. Senechal, "On the Form and Growth of Complex Crystals: The Case of Tsai-Type Clusters," *Symmetry* **9**, 188 (2017).
2. **E.G. Teich**, G. van Anders, D. Klotsa, J. Dshemuchadse, and S.C. Glotzer, "Clusters of polyhedra in spherical confinement," *Proc. Natl. Acad. Sci. USA* **113**, E669 (2016).
1. Z. Jiang, M. Mihovilovic, **E. Teich**, and D. Stein, "Passive and Electrically Actuated Solid-State Nanopores for Sensing and Manipulating DNA," *Nanopore-based technology: Single molecule characterization and DNA sequencing*, edited by M.E. Gracheva (Humana Press, Springer, New York, 2012).

#### Submitted/Under Review

2. K.L. Galloway, **E.G. Teich**, X. Ma, C. Kammer, I.R. Graham, N.C. Keim, C. Reina, D.J. Jerolmack, A.G. Yodh, and P.E. Arratia, "Relationships among structure, memory, and flow in sheared disordered materials," *under review*.
1. L. Baldauf, **E.G. Teich**, G. van Anders, P. Schall, and L. Rossi, "Shape and Interaction Decoupling for Colloidal Pre-Assembly," *under review*, *arXiv:1909.10361*.

## Fellowships and Awards

Selected speaker, Rising Stars in Soft and Biological Matter Symposium, University of Chicago	2020
ProQuest Distinguished Dissertation Award, Honorable Mention, Rackham Graduate School	2018
Finalist, GSNP Student Speaker Award, APS March Meeting	2018
Regents Fellowship, University of Michigan Board of Regents	2017 - 2018 2012 - 2013
Blue Waters Graduate Fellowship	2016 - 2017
National Science Foundation Graduate Research Fellowship	2013 - 2016
Elected to Phi Kappa Phi	2014
Elected to Sigma Xi	2011
Elected to Phi Beta Kappa	2010
40 members selected from a junior class of approximately 1,484	

## Invited Talks

13. **E. Teich**, K.L. Galloway, P.E. Arratia, and D.S. Bassett, "Crystalline shielding localizes memory in jammed systems under oscillatory shear," Chemical Engineering Department Colloquium, TU Delft, virtual, Nov 2020.
12. **E. Teich**, "Crystalline shielding localizes memory in jammed systems under oscillatory shear," Rising Stars in Soft and Biological Matter Symposium, University of Chicago, virtual, Oct 2020.
11. **E. Teich**, "Local structure, multi-step crystallization, and glass formation in hard polyhedral systems," Recent Developments in Computer Simulation Studies in Condensed Matter Physics, Center for Simulation Physics, University of Georgia, Athens GA, Feb 2020.
10. **E. Teich**, S. Lee, M. Engel, and S.C. Glotzer, "Multi-step entropic colloidal crystallization pathways," BIRS-CMO Workshop on Soft Packings, Nested Clusters, and Condensed Matter, Oaxaca Mexico, Sept 2019.
9. **E. Teich**, "Local structure in hard particle systems," Short Course on Structures and Order in Soft Matter Physics, Soft Matter Topical Group, APS March Meeting, Boston MA, Mar 2019.
8. **E. Teich**, G. van Anders, and S.C. Glotzer, "Local structure in hard polyhedral glass-formers," SIAM Conference on Mathematical Aspects of Materials Science, Minisymposium: Mathematical Aspects of Programmable Self-assembly III, Portland OR, July 2018.
7. **E. Teich**, G. van Anders, and S.C. Glotzer, "Local structure in polyhedral glasses," Inorganic Chemistry Seminar, University of Oxford, Oxford UK, June 2018.
6. **E. Teich**, G. van Anders, and S.C. Glotzer, "Identity crises in hard polyhedral glass-formers," Unifying Concepts in Glass Physics VII, Bristol UK, June 2018.
5. **E. Teich**, G. van Anders, and S.C. Glotzer, "Local environments in glassy hard particle systems," Soft Packings, Nested Clusters, and Condensed Matter Session, Mathematical Congress of the Americas, Montreal Canada, July 2017.
4. **E. Teich**, G. van Anders, and S.C. Glotzer, "Identity crises in hard particle glasses," NCSA Blue Waters Symposium, Sunriver OR, May 2017.
3. **E. Teich**, G. van Anders, D. Klotsa, J. Dshemuchadse, and S.C. Glotzer, "Clusters of polyhedra in spherical confinement," SIAM Conference on Mathematical Aspects of Materials Science, Minisymposium O: Mathematical Crystallography II, Philadelphia PA, May 2016.
2. **E. Teich**, G. van Anders, D. Klotsa, J. Dshemuchadse, and S.C. Glotzer, "Clusters of polyhedra in spherical confinement," Geometry Seminar, Courant Institute, New York University, New York NY, Nov 2015.
1. **E. Teich**, G. van Anders, D. Klotsa, J. Dshemuchadse, and S.C. Glotzer, "Clusters of polyhedra in spherical confinement," Kinetic Networks: From Topology to Design Workshop, Santa Fe Institute, Santa Fe NM, Sept 2015.

## Contributed Presentations

16. **E. Teich**, K.L. Galloway, P.E. Arratia, and D.S. Bassett, "Crystalline shielding localizes memory in jammed systems under oscillatory shear," AIChE Annual Meeting, Boston MA, Nov 2021.

15. **E. Teich**, M. Cieslak, B. Giesbrecht, J.M. Vettel, S.T. Grafton, T.D. Satterthwaite, and D.S. Bassett, “Crystallinity characterization of white matter in the human brain,” APS Virtual March Meeting, Mar 2021.
14. **E. Teich**, “Crystallinity of fibrous white matter microstructure,” Kavli Seminar (virtual), Harvard University, Mar 2021.
13. **E. Teich**, K.L. Galloway, P.E. Arratia, and D.S. Bassett, “Local order and structural rearrangement in two-dimensional jammed systems under oscillatory shear,” APS Virtual March Meeting, Mar 2020.
12. **E. Teich**, K.L. Galloway, P.E. Arratia, and D.S. Bassett, “Mesoscopic network characterization of 2D jammed systems under oscillatory shear”, Granular and Particulate Networks, Max Planck Institute for the Physics of Complex Systems, Dresden, Germany, July 2019.
11. **E. Teich**, G. van Anders, and S.C. Glotzer, “Structural competition in hard polyhedral glass-formers,” 4th International Conference on Packing Problems, Yale University, New Haven CT, June 2019.
10. **E. Teich**, G. van Anders, and S.C. Glotzer, “Controlling fragility via geometry in hard particle glass-formers,” APS March Meeting, Boston MA, Mar 2019.
9. **E. Teich**, G. van Anders, and S.C. Glotzer, “Identity crises in hard polyhedral glass-formers,” AIChE Annual Meeting, Pittsburgh PA, Oct 2018.
8. **E. Teich**, G. van Anders, and S.C. Glotzer, “Identity crises in hard polyhedral glass-formers,” APS March Meeting, Los Angeles CA, Mar 2018.
7. R. Marson, **E. Teich**, J. Dshemuchadse, S.C. Glotzer, and R. Larson, “Diverse assembly behavior in colloidal Platonic polyhedral sphere clusters,” APS March Meeting, New Orleans LA, Mar 2017. *Pres. by R. Marson.*
6. **E. Teich**, G. van Anders, D. Klotsa, J. Dshemuchadse, and S.C. Glotzer, “Clusters of polyhedra in spherical confinement,” AIChE Annual Meeting, San Francisco CA, Nov 2016.
5. **E. Teich**, G. van Anders, D. Klotsa, J. Dshemuchadse, and S.C. Glotzer, “Clusters of polyhedra in spherical confinement,” Michigan Institute for Computational Discovery and Engineering Annual Symposium, Ann Arbor MI, Apr 2016. *Poster.*
4. **E. Teich**, G. van Anders, D. Klotsa, J. Dshemuchadse, and S.C. Glotzer, “Clusters of polyhedra in spherical confinement,” APS March Meeting, Baltimore MD, Mar 2016.
3. **E. Teich**, G. van Anders, D. Klotsa, and S.C. Glotzer, “Assemblies of Anisotropic Particles in Spherical Confinement,” UM Engineering Graduate Symposium, Ann Arbor MI, Nov 2014. *Poster. Awarded First Place, Material and Chemical Technology Technical Session.*
2. M. Mihovilovic, **E. Teich**, N. Hagerty, and D. Stein, “Non-Equilibrium DNA Dynamics Probed by Delayed Capture and Recapture by a Solid-State Nanopore,” APS March Meeting, Boston MA, Feb 2012. *Pres. by M. Mihovilovic.*
1. M. Mihovilovic, **E. Teich**, N. Hagerty, J. Chan, and D. Stein, “The Statistics of DNA Capture and Recapture by Solid-State Nanopores,” APS March Meeting, Dallas TX, Mar 2011. *Pres. by M. Mihovilovic.*

## Teaching

<b>University of Pennsylvania Department of Bioengineering</b> <i>Guest lectured for BE 566 Fall/Spring, Network Neuroscience, taught by Prof. D.S. Bassett</i>	Philadelphia PA, 2019-2021
<b>University of Michigan Department of Physics</b> <i>Taught PHYS 160, Honors Introduction to Mechanics, as a substitute for Prof. G. van Anders</i>	Ann Arbor MI, 2018
<b>University of Michigan NextProf Fall Engineering Workshop</b> <i>Selected to attend a national workshop aimed at preparing future faculty from underrepresented communities in the sciences</i>	Ann Arbor MI, 2017
<b>Girls Who Code</b> , Ypsilanti Community High School <i>Developed and taught lessons in HTML and JavaScript to girls in 9th grade</i>	Ypsilanti MI, 2017
<b>826michigan</b> <i>Volunteered with weekly after-school homework help sessions</i>	Ypsilanti MI, 2016 - 2017
<b>University of Michigan College of Engineering</b> <i>Tutored Condensed Matter physics to a Masters student</i>	Ann Arbor MI, 2015
<b>University of Michigan Applied Physics Program</b> <i>Tutored Quantum Mechanics to first-year Applied Physics PhD students</i>	Ann Arbor MI, 2013 - 2014
<b>Brown University Academic Support Staff</b> <i>Worked as a physics tutor</i>	Providence RI, 2011

## Mentorship

### Undergraduates

Sam Simon, University of Pennsylvania, Department of Physics	B.A. 2023
Kathryn Xu, University of Pennsylvania, Department of Physics	B.A. 2023
Larissa Woryk, University of Michigan, Department of Materials Science and Engineering	B.S.E. 2017

## Service and Outreach

<b>Reviewer</b> , ACS Nano, Contemporary Mathematics, New Journal of Physics	
<b>Organizer</b> , Penn Network Visualization Summer Internship Program <i>Co-organizing a summer program for aspiring scientists and artists in high schools throughout Philadelphia (postponed until 2021)</i>	Philadelphia PA, 2020
<b>Juror</b> , International Young Physicists' Tournament: US National Tournament <i>Evaluated experimental presentations of teams of high-schoolers as part of a scientific jury panel</i>	Philadelphia PA, 2019
<b>Females Excelling More in Math, Engineering and the Sciences</b> <i>Led groups and ran physics demonstrations at the annual Science Saturday Capstone Event</i>	Ann Arbor MI, 2014 - 2016, 2018
<b>University of Michigan Girls in Science and Engineering</b> <i>Helped run the physics portion of an annual summer camp for girls in 8th and 9th grade</i>	Ann Arbor MI, 2013 - 2017
<b>4H-STEM outreach</b> <i>Gave physics demonstrations to children in elementary and middle school</i>	Ann Arbor MI, 2016

**Conference for Undergraduate Women in Physics**

*Worked as a volunteer*

Ann Arbor MI, 2015

**University of Michigan Physics Olympiad**

*Worked as a volunteer*

Ann Arbor MI, 2014

**Society for Women in Physics**

*Worked as a volunteer at "Girl Scouts Physics Day"*

Ann Arbor MI, 2013

**Brown University Women in Science and Engineering**

*Co-coordinated the physics subgroup*

Providence RI, 2009 - 2011

## **Professional Membership**

American Physical Society

American Institute of Chemical Engineers