

Rose K. Cersonsky

Education

- 2014–2019 **Doctor of Philosophy**, *University of Michigan*, Ann Arbor, MI
(expected) Macromolecular Science and Engineering GPA: 3.74/4.0
Thesis: "Designing Particle Shapes for Self-Assembly of Novel Colloidal Crystals"
Thesis Advisor: Prof. Sharon Glotzer
- 2010–2014 **Bachelor of Science in Engineering**, *University of Connecticut*, Storrs, CT GPA: 3.86/4.0
Materials Science and Engineering
Minor Concentration: Computer Science and Engineering
Magna Cum Laude, Honors Degree
Theses: "Optimization of Polymer Fluorescence for Explosives Detection" – *Advisor: Prof. Mu-Ping Nieh*
"Design Rules for RTM Polyimides Composites" – *Advisors: Prof. Serge Nakhmanson, Dr. Hillary Huttenhower*

Professional Experience

- 2014–present **Graduate Student Researcher under Prof. Sharon Glotzer**, *University of Michigan*, Ann Arbor, MI
Investigated the role of shape in free energy optimization of colloidal crystals and design of novel photonic materials
Contributed to open-source software packages for simulation and data management (HOOMD-blue and signac)
Current Projects: "When *don't* colloids form FCC?", "Design Rules for Omnidirectional Photonic Crystals"
- 2014–present **Freelance Tutor**, *WyzAnt, Inc.*, Ann Arbor, MI
Mentored and tutored middle and high school students in mathematics and computer programming
- Summer 2013 **Intern, Polymeric Materials**, *Pratt and Whitney*, East Hartford, CT
Developed surface treatments to promote adhesion, processing for polymer foams and repair for coatings
- Summer 2012 **Intern, Structural Alloys**, *Pratt and Whitney*, East Hartford, CT
Investigated effects of microstructural imperfections in jet engine alloys
- 2012–2014 **Undergraduate Student Researcher under Prof. Mu-Ping Nieh**, *Self-Assembled Functional Nanomaterials Laboratory*, Storrs, CT
Investigated the effects of polymer composition and film preparation on film fluorescence
- 2011–2014 **Tutor, Engineering Tutoring Center**, *University of Connecticut*, Storrs, CT
2011 **Tutor and Teacher, BRIDGE Program**, *University of Connecticut*, Storrs, CT

Publications

5. **R. K. Cersonsky**, J. Antonaglia, B. D. Dice, S. C. Glotzer, "Understanding Photonic Band Gaps in 3D Crystals". *In Preparation*.
4. **R. K. Cersonsky**, J. Dshemuchadse, J. Antonaglia, G. van Anders, S. C. Glotzer, "Pressure-Tunable Band Gap in an Entropic Crystal". *Phys. Rev. Mat.* <https://doi.org/10.1103/PhysRevMaterials.2.125201>
3. **R. K. Cersonsky**, G. van Anders, P. M. Dodd, and S. C. Glotzer, "Relevance of Packing in Colloidal Self-Assembly," (2018). *Proceedings of the National Academy of Sciences*. <https://doi.org/10.1073/pnas.1720139115>
2. **R. K. Cersonsky**, L. L. Foster, T. Ahn, R. J. Hall, H. L. van der Laan, T. F. Scott, "Augmenting Primary and Secondary Education with Polymer Science and Engineering," (2017). *Journal of Chemical Education*. <https://doi.org/10.1021/acs.jchemed.6b00805>
1. **R. K. Cersonsky**, H.-S. Jang, M.-P. Nieh, "Optimization of Polymer Fluorescence for Explosives Detection," (2014). UConn Digital Commons.

Seminar and Conference Presentations

Seminars

3. "Designing Particle Shapes for Self-Assembly of Novel Colloidal Crystals." Seminar, Oxford University, Oxford, Great Britain. Oct. 2018.
2. "Designing Particle Shapes for Self-Assembly of Novel Colloidal Crystals." Visiting Researcher Presentation, Eidgenoessische Technische Hochschule (ETH), Zurich, Switzerland. Sept. 2018.

1. "Designing Particle Shapes for Self-Assembly of Novel Colloidal Crystals." Seminar, École Polytechnique Lausanne (EPFL), Lausanne, Switzerland. Sept. 2018.

Oral Presentations

9. "Pressure-Tunable Photonic Band Gaps in an Entropic Crystal." Materials Research Society Fall Meeting, Boston, MA, Nov. 2018.
8. "Pressure-Tunable Photonic Band Gaps in an Entropic Crystal." American Institute of Chemical Engineers (AIChE) Annual Meeting, Pittsburgh, PA, Oct. 2018.
7. "Pressure-Tunable Photonic Band Gaps in an Entropic Crystal." Anisotropic Particles Symposium, Konstanz, Germany, Sept. 2018.
6. "Pressure-Tunable Photonic Band Gaps in an Entropic Crystal." Self-Assembly of Colloidal Systems, Bordeaux, France, Sept. 2018.
5. "Tunable Photonic Band Gaps in an Entropic Crystal." American Physical Society (APS) March Meeting, Los Angeles, CA, March 2018.
4. "Distinguishing Packing and Assembly Behavior via Phase Transitions in Shape Space." AIChE Annual Meeting, Minneapolis, MN, Nov. 2017.
3. "Distinguishing Packing and Assembly Behavior via Phase Transitions in Shape Space." Materials Research Society (MRS) Meeting, Phoenix, AZ, April 2017. **(2nd Place for Student Presentations)**
2. "Augmenting Primary and Secondary Education with Polymer Science and Engineering." American Chemical Society Meeting, San Francisco, CA, April 2017.
1. "Distinguishing Packing and Assembly Behavior via Phase Behavior in Shape Space." APS March Meeting, New Orleans, LA, March 2017.

Poster Presentations

8. "Tunable Photonic Band Gaps in an Entropic Crystal." Foundations of Molecular Modeling and Simulation (FOMMS), Delavan, WI, Jul. 2018.
7. "When does matter pack?" Macromolecular Science and Engineering Symposium, University of Michigan, Ann Arbor, MI, Oct. 2017.
6. "Distinguishing Packing and Assembly Behavior via Phase Behavior in Shape Space." Engineering Graduate Symposium, University of Michigan, Ann Arbor, MI, Nov. 2016. **(3rd Place for Student Posters)**
5. "Understanding Spatial Packing Through Variable Shape." Macromolecular Science and Engineering Symposium, University of Michigan, Ann Arbor, MI, Oct. 2016.
4. "Understanding Spatial Packing Through Variable Shape." Michigan Institute for Computational Discovery and Engineering Symposium, University of Michigan, Ann Arbor, MI, April 2016. **(3rd Place for Student Posters)**
3. "Shape-Based Molecular Dynamics Investigation of Protein Crystallization." Macromolecular Science and Engineering Symposium, University of Michigan, Ann Arbor, MI, Oct. 2015. **(1st Place for Student Posters)**
2. "Shape-Based Molecular Dynamics Investigation of Protein Crystallization." Soft Matter Summer School, University of Massachusetts, Amherst, MA, June 2015.
1. "Design Rules for Composites from RTM Polyimides." Senior Design Exposition, University of Connecticut, Storrs, CT, May 2014.

Professional Skills

Coding Proficiencies: Python (Advanced), MATLAB (Intermediate), Java (Intermediate-Advanced),
L^AT_EX, git, bash scripting, Scheme
Python packages: Matplotlib, NumPy, SciPy

Languages: English (Native), German (Intermediate), Spanish (Intermediate)

Other Skills: Microsoft Office, Statistical Analysis

Honors and Awards

Honors

- Oct. 2018 **Towner Award for Graduate Research**, *University of Michigan*, Honorable Mention
- Oct. 2018 **Charles G. Overberger Award for Excellence in Research**, *University of Michigan*
- Jan. 2018 **North Campus Martin Luther King Spirit Award**, *University of Michigan*
- Oct. 2017 **Nonna Hamilton Student Service Award**, *University of Michigan*
- 2016, 2017 **Prof. Albert and Mrs. Yee Student Leadership Award**, *University of Michigan*
- April 2017 **Chapter of the Year**, *American Chemical Society POLY/PMSE*
- May 2014 **Commencement Speaker**, *University of Connecticut*

- May 2014 **Outstanding Academic Achievement Award, School of Engineering, University of Connecticut**
- 2013 **Marshall Scholarship Finalist**
- 2013 **Rhodes Scholarship Nominee**
- 2012-2014 **New England Scholar, University of Connecticut**
- 2011 **Babbidge Scholar, University of Connecticut**
- 2010-2014 **Dean's List, University of Connecticut**

Fellowships and Scholarships

- 2018-present **Rackham Predoctoral Fellowship, University of Michigan**
- Dec. 2017 **Science Communication Fellow, Museum of Natural History, University of Michigan**
- July 2014 **Michigan Institute for Computational Discovery and Engineering Fellowship, University of Michigan**
- 2014-2018 **Rackham Merit Fellowship, University of Michigan**
- 2013-2014 **GE Advanced Materials Endowment Scholarship, University of Connecticut**
- 2012-2013 **Art McEvily Academic Scholarship, University of Connecticut**
- 2010-2014 **Academic Excellence Scholarship, University of Connecticut**

Travel Awards

- Jul. 2018 **National Science Foundation FOMMS Travel Award, National Science Foundation**
- Jan. 2018 **Ovshinsky Student Travel Award, Americal Physical Society**
- Jan. 2018 **DCOMP Travel Award, Americal Physical Society**

Professional Affiliations

- 2016-present **American Institute of Chemical Engineers**
- 2016-present **Materials Research Society**
- 2016-present **American Chemical Society**
- 2015-present **American Physical Society (APS)**
- 2012-present **Alpha Sigma Mu**

Service

- 2017 **Student Ally, University of Michigan Diversity, Equity, and Inclusion Strategic Plan**
- 2015-present **University of Michigan ACS POLY/PMSE Student Chapter**
 - 2017-present Outreach Chair Emeritus
 - 2015-2017 Outreach Chair
- 2010-2014 **United Technologies Corporation UConn Engineering Ambassadors**
 - 2013-2014 Vice President
 - 2012-2013 Director of Curriculum Development and Organizational Resources
 - 2010-2012 Middle School Outreach Coordinator
- 2013-2014 **Vice President, Curation, TEDxUConn**

Event Organization

- Oct. 2018 **Student Coordinator, Macromolecular Science and Engineering Symposium**
- June 2018, **Creator, Lead Organizer, Research Education and Activities for Classroom Teachers (REACT)**
- June 2017 Developed and lead one-day workshop for Michigan K-12 STEM teachers on UM campus, including student talks, lab tours, and demonstrations of hands-on activities by student organizations. Coordinated participation from multiple research groups and student organizations across 8 UM departments. Expanded event from 19 participants in 2017 to 53 participants in 2018
- June 2016 **Organizer, The Life and Death of Plastics, University of Michigan XPlore Engineering**
- Sept. 2013 **Head Curator, Master of Ceremonies, TEDxUConn 2013: "Future in Focus"**

Performing Arts

- 2015 **The Crowell Opera House, Crowell, MI**
Big Fish Featured Actor

2008-2013 **The Gary-The Olivia at the Abbey of Regina Laudis, Bethlehem, CT**

Fiorello! Dora (Principle Role)

South Pacific Featured Ensemble

The Pajama Game Ensemble

West Side Story Ensemble

2013 **UConn Dramatic PAWS, Storrs, CT**

Never Alone Carol (Principle Role, Original Cast)

Sherlock Holmes and the Case of the Jersey Lily Professor Moriarty (Principle Role)

Interests

Running (**Baltimore Marathon Finisher 2016**), Calligraphy, Bridge, Backgammon, Hiking