Eric S. Harper

Advisor: Sharon C. Glotzer
University of Michigan, Department of Materials and Science and Engineering
Ann Arbor, Michigan 48105
Address: 1695 Broadway St., Apt. 204, Ann Arbor, MI 48105
Phone: (home) 734-780-7727; (cell) 937-287-8441
Email: harperic@umich.edu
URL: www.harperic.com

Current Position

Ph.D. Candidate, Materials Science and Engineering, University of Michigan

- Thesis Topic: The Nature of the Entropic Bond
- Lead Developer of analysis software package *Freud*
- Junior system administrator for group computational resources

Areas of Specialization

Computational Nanoscience: Entropy-driven self-assembly

- Programming: Python, C++ (CUDA, MPI, OpenMP, Intel Thread Building Blocks), OpenGL
- Web Development: HTML, CSS, Javascript
- Remote Unix/Linux system usage and administration including flux at UM, Blacklight and Pittsburgh, and Stampede at UT-Austin
- Simulation Techniques: Molecular Dynamics, Monte Carlo

Appointments Held

2010 – 2011: *Consultant*, Composite Technical Services, Dayton, OH
2008 – 2009: *Undergraduate Research Assistant*, Air Force Research Laboratories (AFRL), Wright-Patterson Air Force Base

Education

2017: Ph.D. in Materials Science and Engineering, University of Michigan

- Thesis Topic: The Nature of the Entropic Bond
- Michigan Institute for Computations Discovery and Engineering Graduate Certificate in *Computational Discovery and Engineering*

2014: MS in Materials Science and Engineering, University of Michigan. GPA: 3.774/4.000
2011: Bachelor of Chemical Engineering, University of Dayton. GPA: 3.92/4.00

Publications and Talks

Journal Articles

[1] Shape Allophiles Improve Entropic Assembly, E. S. Harper, R. L. Marson, J. A. Anderson, G. van Anders, and S. C. Glotzer, Soft Matter, 2015, 11, 7250-56. DOI: 10.1039/c5sm01351h. *Cover: 7 October 2015*

Poster Sessions

2015: Entropic Bonding in Colloidal Systems, Engineering Graduate Symposium, University of Michigan
2015: *Love Triangles*, MRS *Science as Art* Competition, MRS Fall Meeting
2014: Shape Allophiles Improve Entropic Assembly, Engineering Graduate Symposium, University of Michigan
2013: Self-assembly of complementary shape alloys, CyberInfrastructure Days, University of Michigan

2013: Self-assembly of complementary shape alloys, Engineering Graduate Symposium, University of Michigan

Talks

2016: Shape Allophiles Improve Entropic Assembly, Oral Presentation, APS Spring Meeting
2015: Shape Allophiles Improve Entropic Assembly, Oral Presentation, MRS Fall Meeting

Scientific Software Development

Freud: *(unreleased)*, lead developer
Plato: *(unreleased)*, developer
Hoomd-Blue: developer

Teaching

2015: GSI, Materials Science & Engineering Undergraduate Lab
2012: Teaching Assistant, VSCSE Parallel Programming
2011: Head Robotics Coordinator, Summer Honors Institute, University of Dayton
2010 – 2011: Teaching Associate, Chemical Engineering Department, University of Dayton

Service to the Profession

2015 – 2016: Scientific Computing Student Club, founding member and President
2014 – 2017: Advisor, Tau Beta Pi, MI Γ Chapter
2009 – 2011: President, Tau Beta Pi, OH Θ Chapter

Grants, Honors, & Awards

2012 – 2014: NSF Open Data IGERT Fellow, University of Michigan
2011 – 2012: William F. Hawkins Fellow, University of Michigan
2010 – 2011: Tau Beta Pi Geico Scholar

Professional Organizations

2014: APS
2009: Tau Beta Pi
2008: ACS
2007: AIChE