

# Corinne L. Carpenter

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## EDUCATION

### Ph.D., Chemical Engineering

University of California, Santa Barbara

June 2017

### B.S., Chemical Engineering

University of Massachusetts, Amherst

*Minor:* Applied Mathematics

May 2013

*Honors:* Cum Laude

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## PUBLICATIONS

1. CARPENTER, C. L., Nicaise, S., Theofanis, P. L., Shykind, D., Berggren, K. K., Delaney, K. T., Fredrickson, G. H., "Orientational preference in multilayer block copolymer nanomeshes with respect to layer-to-layer commensurability," *Macromolecules* 50, 20 (2017).
2. Farmer, T. C., CARPENTER, C. L., Doherty, M. F., "Polymorph selection by continuous crystallization." *AICHE Journal* 62, 9 (2016).
3. CARPENTER, C. L., Delaney, K. T., Fredrickson, G. H., "Suppression of thermal fluctuation placement errors in linear arrays of block copolymer cylinders." *Proceedings of SPIE* 10146 (2017).
4. CARPENTER, C. L., Delaney, K. T., Fredrickson, G. H., "Directed self-assembly of diblock copolymers in multi-VIA configurations: effect of chemopatterned substrates on defectivity." *Proceedings of SPIE* 9779 (2016). **2016 Hiroshi Ito Memorial Award for the Best Student Paper**
5. CARPENTER, C. L., Delaney, K. T., Laachi, N., Fredrickson, G. H., "Directed self-assembly of diblock copolymers in cylindrical confinement: effect of underfilling and air-polymer interactions on configurations." *Proceedings of SPIE* 9423 (2015).
6. CARPENTER, C. L., Christmann, A. M., Hu, L., Fampiou, I., Muniz, A.R., Ramasubramaniam, A., and Maroudas, D.M., "Elastic properties of graphene nanomeshes." *Applied Physics Letters* 104, 141911 (2014).
7. CARPENTER, C. L., Ramasubramaniam, A., Maroudas, D., "Mechanical properties of irradiated single-layer graphene." *Applied Physics Letters* 103, 013102 (2013).
8. CARPENTER, C. L., Ramasubramaniam, A., Maroudas, D., "Analysis of vacancy-induced amorphization of single-layer graphene." *Applied Physics Letters* 100, 203105 (2012).

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## ANALYTICAL SKILLS

**Simulation:** Self-consistent field theory, molecular dynamics, Monte Carlo

**Software:** MATLAB, Microsoft Excel, Powerpoint, LAMMPS

**Languages:** C++, Python, L<sup>A</sup>T<sub>E</sub>X, Bash

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## PROFESSIONAL EXPERIENCE

### Graduate Research Scientist

University of California, Santa Barbara

Sept. 2013-Aug. 2017

Santa Barbara, CA

- Generated independent computational research that guided industrial research efforts through a 3+ year collaboration with Intel Corporation
- Analyzed large, complex data sets using C++, Python, and MATLAB to produce unbiased results and informative visualizations
- Presented technical research to both industry-specific (SPIE Advanced Lithography 2015 and 2016) and general audiences (APS March Meeting 2016)
- Developed new simulation and analysis tools and create added functionality for research group and collaborators

**Summer Graduate Research Intern**

Intel Corporation

Jun. 2015-Sept. 2015

Hillsboro, OR

- Worked on nondisclosure work to perform computational analysis and develop rigorous morphological theory
- Coordinated with both theoretical and experimental groups to inform simultaneous research projects
- Synthesized independent research in a collaborative industrial setting

**Undergraduate Research Scientist**

University of Massachusetts, Amherst

Jun. 2011-Sept. 2013

Amherst, MA

- Performed independent, self-guided research using molecular dynamics simulations in LAMMPS and analysis scripts in C++ to study the crystal structure and mechanical properties of defected graphene
- Generated three first-author peer-reviewed articles in Applied Physics Letters
- Presented results at research-level conference to general engineering audience (2012 AIChE Annual Meeting)

**LEADERSHIP EXPERIENCE**

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**Graduate Student Association**

Departmental Representative for Chemical Engineering

Mar. 2016-Jun. 2017

- Represent departmental interests at the university-wide level
- Promote increased representation from the College of Engineering

**Chemical Engineering Graduate Student Symposium**

Co-Chair

May 2016-Sept. 2016

- Led committee to promote graduate students to visitors from industry and national labs
- Organized team of graduate students and coordinated with department staff

**Graduate Recruitment**

Co-organizer

Jan. 2016-Mar. 2016

- Planned recruitment weekends for prospective graduate students visiting from universities across the country
- Facilitated information sessions, tours, and meetings to ensure satisfactory answers to all visitors' questions