Lucas Bouck

Contact

Email: lbouck@umd.edu

Google Scholar: https://scholar.google.com/citations?user=l0xOyq8AAAAJ&hl=en

Education

University of Maryland Ph.D. in Applied Mathematics, August 2018- May 2023 (Expected)
Advisor: Prof. Ricardo H. Nochetto

George Mason University B.S., Mathematics, August 2014 - May 2018
Honors in the Major and Summa Cum Laude
Advisor: Prof. Harbir Antil

Positions Held

NSF Graduate Research Fellow, University of Maryland, September 2018 - current (funding used September 2020 - current)

Research Assistant, University of Maryland January 2020-August 2020
Supervisor: Prof. Ricardo H. Nochetto

Teaching Assistant, University of Maryland, August 2019- December 2019

Summer Undergraduate Research Fellowship, National Institute of Standards and Technology May 2017-August 2017
Supervisor: Dr. Ian H. Bell

Awards

- Mark E. Lachtman Award, UMD, May 2022. Awarded for excellence in research
- Aziz-Osborn Gold Medal in Teaching, UMD, May 2020.
- NSF Graduate Research Fellowship April 2018
- Brin Fellowship, UMD, April 2018
- Klaus Fischer Academic Achievement Award in Mathematics, GMU, May 2018.
- Goldwater Scholarship Honorable Mention, March 2017
- Amer Bešlagić Award, GMU, April 2016
- University Scholarship, GMU, August 2014.
- Dean's List, GMU, Fall 2014-Spring 2018

Papers

In Preparation

1. L. Bouck, R.H. Nochetto. "Projection Free Method for Full Frank-Oseen Model of Liquid Crystals" 2022.

Preprints

2. L. Bouck, R.H. Nochetto, S. Yang. "Reduced Membrane Model for Liquid Crystal Polymer Networks: Asymptotics and Computation." *https://arxiv.org/abs/2210.02710* 2022.
3. L. Bouck, R.H. Nochetto, S. Yang. "Convergent FEM for a membrane model of liquid crystal polymer networks." *https://arxiv.org/abs/2209.04754*, 2022.

4. L. Bouck, R.H. Nochetto, V. Yushutin. "A hydrodynamical model of nematic liquid crystal films with a general state of orientational order" *https://arxiv.org/abs/2207.11588*, 2022.

Published

5. I.H. Bell, B.K. Alpert, and L. Bouck. "ChebTools: A C++11 (and Python) Library for Working with Chebyshev Expansions." *Journal of Open Source Software*. 2018.

Research Talks

1. Mini-symposium at SIAM Texas/Louisiana Section Meeting, Houston, TX, November 4-6, 2022
2. Analysis Seminar at University of Texas, Austin, TX, November 2, 2022
3. Mid Atlantic Numerical Analysis Day, Philadelphia, PA, October 28, 2022
4. Finite Element Circus, Pittsburgh, PA, October 21-22, 2022
5. Student Research Talks, George Mason University, Fairfax, VA, September 23, 2022
6. Contributed talk at Sayas Numerics Day, University of Maryland, Baltimore County September 17, 2022
7. Numerical Analysis Seminar, University of Maryland, College Park, MD, September 2022
8. Mini-symposium at International Conference on Continuous Optimization, Bethlehem, PA July 25-28 2022
9. Mini-symposium at SIAM Annual Meeting, Pittsburgh, PA July 11-15, 2022
10. Applied Mathematics Seminar TU Dresden, DE May 31, 2022
11. Contributed Talk Workshop on Nonlinear Bending, University of Freiburg, DE May 23-25, 2022
12. Math Institute Seminar University of Freiburg, DE May 19, 2022
13. Institute for Numerical Simulation Seminar at University of Bonn, DE May 16, 2022
14. Student Research Talks George Mason University, Fairfax, VA, April 15, 2022
15. Finite Element Circus, Gainesville, FL, April 8-9, 2022
16. Finite Element Circus, State College, PA, November 5-6, 2021
17. Student Research Talks George Mason University, Fairfax, VA, February 2018
18. Applied and Computational Math Seminar Talk George Mason University, Fairfax, VA, September 2017
19. Naval Research Lab, Washington, D.C., May 2017
20. Mini-symposium at SIAM Central States Section Meeting, Ft. Collins, CO, September 2017
21. Summer Undergraduate Research Fellowship Colloquim Talk, NIST, Boulder, CO, August 2017
22. Extreems-Qed Undergraduate Research Conference, University of William and Mary, Williamsburg, VA, March 2017
23. Shenadoah Undergraduate Math and Statistics Conference, James Madison University, Harrisonburg, VA, September 2016

Posters

1. SciPy Conference 2018, Austin, TX, July 2018
2. Joint Mathematics Meetings (JMM) 2018 Student Poster Session, San Diego, CA, January 2018
3. JMM 2017 Student Poster Session, Atlanta, GA, January 2017 **Outstanding Poster Award (Top 15%)**

Teaching

University of Maryland (UMD)

Teaching Assistant

Fall 2019: Calculus I

Directed Reading Program

Spring 2022: Daniel Schug *Topic: Mathematical Image Processing*

Fall 2021: Sophia Hu *Topic: Matrix Factorization for Data Science*

Spring 2020: Zhenyu Yue *Topic: Quadrature for Highly Oscillatory Integrals*
Next Position: PhD student in the AMSC program at The University of Maryland

George Mason University (GMU)

Undergraduate Learning Assistant

Spring 2017: Calculus III

Tutor at Math Learning Center

Fall 2016 - Spring 2018

Grader

Fall 2015: Discrete Mathematics

Professional Service

Seminars Organized at UMD

Spring 2021: Research Interaction Team (RIT) on Liquid Crystal Elastomers
co-organized with Ricardo H. Nochetto and Shuo Yang

Fall 2020: RIT on Liquid Crystals: Modeling, Theory, and Numerics
co-organized with Ricardo H. Nochetto

Spring 2020: RIT on Liquid Crystals: Modeling, Theory, and Numerics
co-organized with Ricardo H. Nochetto

Student Seminar Talks at UMD

Student PDE Seminar September 26, 2022

Student PDE Seminar March 9, 2022

Volunteering at UMD

Introductory Activities Coordinator for Girls Talk Math Program June 17-18, 2019

Refereeing

Mathematics of Computation, SIAM Journal of Numerical Analysis, Interfaces and Free Boundaries, Computers & Mathematics with Applications, Computer Methods in Applied Mechanics and Engineering,