

Stephanie Dodson

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Education

Brown University <i>PhD, Applied Mathematics</i> <i>Master of Science, Applied Mathematics</i>	Providence, RI <i>Expected May 2019</i> <i>2015</i>
University of Massachusetts, Amherst <i>Bachelor of Science, Mathematics</i> <i>Bachelor of Science, Physics</i> Commonwealth Honors College Scholar with Greatest Distinction, Summa cum laude	Amherst, MA <i>2014</i> <i>2014</i>

Research Experience

Brown University <i>PhD Thesis: Wave Propagation in Spatially Extended Systems</i> Advised by Dr. Björn Sandstede, Division of Applied Mathematics Analyzing instabilities arising in spiral and planar waves in PDE models through the use of numerical and analytical techniques.	Providence, RI <i>June 2015 - Present</i>
National Oceanic and Atmospheric Administration <i>NSF Graduate Research Internship Program</i> Advised by Dr. Steven Bograd and Dr. Elliott Hazen Collaborating with an interdisciplinary team to design an agent-based model of blue whale movement off the coast of California.	Monterey, CA <i>June 2018 - Present</i>
MIT Lincoln Laboratory <i>Computing and Analytics Intern</i> Advised by Dr. Jeremy Kepner and Dr. Darrell Rieke Assisted in creating and validating a new algorithm for fast genetic sequency analysis using parallel computing techniques in Matlab.	Lexington, MA <i>June 2013 - August 2014</i>
University of Massachusetts, Amherst <i>Undergraduate Honors Thesis</i> Advised by Dr. Benjamin Brau, Physics Department Analyzed collision data from the Large Hadron Collider and measured ratio of W to Z boson production as a check for the Standard Model of Particle Physics.	Amherst, MA <i>September 2012 - May 2014</i>

Honors and Awards

Fellowships

- 2018 **National Science Foundation Graduate Internship Program**
- 2015 **National Science Foundation Graduate Research Fellowship**
- 2013 **William F. Field Alumni Scholar**, University of Massachusetts, Amherst

Awards

- 2018 **Association for Women in Mathematics Poster Prize**, SIAM Annual Meeting
- 2017 **Red Sock Award for Poster Presentation**, SIAM Conference on Applications of Dynamical Systems
- 2014 **Best Paper Award**, IEEE High Performance Extreme Computing Conference

Publications

- 2018 H.M. McNamara, **S. Dodson**, Y-L Huang, E.W. Miller, B. Sandstede, and A.E. Cohen. *Geometry-Dependent Arrhythmias in Electrically Excitable Tissues*, Cell Systems, October 2018, doi.org/10.1016/j.cels.2018.08.013 **Available here on Cell Systems.**
- 2015 A. Conard, **S. Dodson**, J. Kepner, and D.O. Rieke, *Using a Big Data Database to Identify Pathogens in Protein Data Space*, New England Database Day (NEDB), 2015, Cambridge, MA.
- 2015 **S. Dodson**, D.O. Rieke, J. Kepner, N. Chiu, and A. Shcherbina, *Rapid Sequence Identification of Potential Pathogens Using Techniques from Sparse Linear Algebra*, IEEE Symposium on Technologies for Homeland Security (HST), 2015. **Available here on arXiv.**
- 2014 **S. Dodson**, D.O. Rieke, and J. Kepner, *Genetic Sequence Matching Using D4M Big Data Approaches*, IEEE High Performance Extreme Computing (HPEC) conference, 2014. **Available here on arXiv.**

Presentations

Invited Talks

- 2018 **SIAM Annual Meeting**
Line Defects and Alternans: Period-Doubling Instabilities in Spiral Waves in MS138 Nonlinear Waves, Long-time Dynamics, and Stability, Portland, OR, July 13, 2018.
- 2018 **SIAM Conference on Nonlinear Waves and Coherent Structures**
Stability of Spiral Waves in Models of Cardiac Tissue in MS41 Spatial Dynamics: Local and Global Results, Anaheim-Orange County, CA, June 14, 2018.
- 2017 **Boston University Dynamical Systems Seminar**
Stability of Spiral Waves in Cardiac Dynamics, Boston, MA, October 2, 2017.

Contributed Talks

- 2018 **Brown University SIAM/AWM Math Slam**
Stability of Spiral Waves in Models of Cardiac Tissue, Providence, RI, April 12, 2018.
- 2018 **Advancing Women's Impact in Mathematics Symposium (AWIMS)**
Spectral Stability of Spiral Waves in Models of Cardiac Tissue, Worcester Polytechnic Institute, Worcester, MA, April 7, 2018.
- 2018 **Dynamics Days**, Ignite Talk
Stability of Spiral Waves in Cardiac Dynamics, Denver, CO, January 4-6, 2018.
- 2017 **Applied Math Graduate Student Seminar**
Stability of Spiral Waves in Cardiac Dynamics, Brown University, Providence, RI, November 6, 2017.
- 2017 **Applied Math Days**
Spiral Waves in Cardiac Dynamics, Rensselaer Polytechnic Institute, Troy, New York, April 7-8, 2017.
- 2017 **Applied Math Graduate Student Seminar**
Spiral Waves in Cardiac Dynamics, Brown University, Providence, RI, February 27, 2017.
- 2015 **Applied Math Graduate Student Seminar**
Pinned Spiral Waves in Cardiac Tissue Brown University, Providence, RI, September 2015.

- 2015 **IEEE Symposium on Technologies for Homeland Security (HST)**
Rapid Sequence Identification of Potential Pathogens Using Techniques from Sparse Linear Algebra, Waltham, MA, April 14-16 2015.
- 2014 **IEEE High Performance Extreme Computing (HPEC) conference**
Genetic Sequencing Matching Using D4M Big Data Approaches, Waltham, MA, September 9-11, 2014.
- 2014 **Massachusetts Statewide Undergraduate Research Conference**
Measurement of the Ratio of the W to Z Boson Production in Events with Bottom Hadronic Quark Jets, Amherst, MA, April 25, 2014.
- 2013 **Women in Mathematics in New England**
Comparing D4M Genetic Sequence Analysis with BLAST, Northampton, MA, September 21, 2013.
- 2012 **Women in Mathematics in New England**
*RNA-Seq Analysis of *Aspergillus fumigatus* Infected Airway Cells: Unifying the Innate Immune Response and Iron Metabolism*, Northampton, MA, September 22, 2012.

Posters

- 2018 **SIAM Annual Meeting**, AWM Poster Session
Spectral Properties of Spiral Waves in the Karma Model, Portland, OR, July 9-14, 2018.
- 2018 **Dynamics Days**
Spectral Stability of Spiral Waves in Models of Cardiac Tissue, Denver, CO, January 4-6, 2018.
- 2017 **SIAM Conference on Applications of Dynamical Systems**
Spectral Properties of Spiral Waves in the Karma Model, Snowbird, Utah, May 21-25, 2017.
- 2017 **Dynamics Days**
Spectral Properties of Spiral Waves in the Barkley Model, Silver Spring, Maryland, January 4-6, 2017.
- 2012 **Undergraduate Research Conference at the Interface of Biology and Mathematics**
*RNA-Seq Analysis of *Aspergillus fumigatus* Infected Airway Cells: Unifying the Innate Immune Response and Iron Metabolism*, Knoxville, TN, November 17-18, 2012.

Workshops and Summer Schools

- 2018 NOAA Ocean Satellite Data Course, University of Washington, Seattle, WA, August 28 – 30, 2018.
- 2017 MBI-NIMBioS-CAMBAM Summer Graduate Program: Connecting Biological Data with Mathematical Models, NIMBioS, Knoxville, TN, June 18 – 23, 2017.
- 2016 Gene Golub SIAM Summer School, Drexel University, Philadelphia, PA, July 25 – August 5, 2016.
- 2016 Séminaire de Mathématiques Supérieures: Dynamics of Biological Systems, University of Alberta, Edmonton, Alberta, Canada, May 30 – June 11, 2016.
- 2015 Brown-ICERM-Kobe Summer Simulation School, Brown University, Providence, RI and Kobe University, Kobe, Japan, August 17 – 31, 2015.

- 2013 NSF RTG Workshop: Integrating Dynamics and Stochastics, Division of Applied Mathematics, Brown University, November 22, 2013.
- 2012 Modeling and Simulation in Systems Biology, Research Experience for Undergraduates with the Laubenbacher Research Group at Virginia Bioinformatics Institute, Virginia Tech, Blacksburg, VA, Summer 2012.

Leadership and Service

Leadership

- 2018 - Present **Directed Reading Program**
Mentoring an undergraduate student pursuing an independent reading project on climate models, Division of Applied Mathematics, Brown University
- 2018 - Present **Treasurer**, *Brown University Association for Women in Mathematics Student Chapter*
- 2016 - 2017 **Applied Math Graduate Student Retreat**
Co-organized the annual fall retreat which serves to foster a collaborative research and learning environment for graduate students in the department. Led small group of peers in study of pattern formation in PDEs.
- 2015 - 2017 **President**, *Brown University Association for Women in Mathematics Student Chapter*. Chapter received the **Scientific Excellence Award** from the national AWM Executive Committee in 2016.
- 2015 - Present **Applied Math Undergraduate Graduate Mentoring Program**
Mentor and co-founder, Division of Applied Mathematics, Brown University
- 2014 - 2015 **Secretary**, *Brown University Association for Women in Mathematics Student Chapter*

Service

- 2018 - Present **Lefschetz Center for Dynamical Systems Seminar**
Co-organizer of weekly seminar, Division of Applied Mathematics, Brown University
- 2017 **Women's Intellectual Network Research Symposium, New England**
Lead organizer of regional conference to support and connect underrepresented researchers, Providence, RI
- 2017 **Judge**, AWM National Essay Contest: Biographies of Contemporary Women in Math
- 2016 - 2017 **Brown Math SLAM**
Co-organizer of this series of short mathematical talks
- 2015 - 2017 **Faculty-Graduate Liaison**, Division of Applied Mathematics, Brown University
Organized graduate student group budgets and facilitated communication between faculty and graduate students
- 2014 - Present **Event organizer** for Rose Whelan Society for Graduate Women in Math
Brown University

Teaching

Experience

- Summer 2017 **Instructor**, Applied Ordinary Differential Equations, Brown University
Spring 2016 **Teaching Assistant**, Method of Applied Mathematics I, Brown University
Fall 2015 **Teaching Assistant**, Applied Ordinary Differential Equations, Brown University

Pedagogical Training

- Spring 2018 **Sheridan Center Course Design Seminar**, Brown University
Seminar focused on composing realistic course goals and using principles of backward design to create effective forms of assessment
- 2017 - 2018 **Sheridan Center Teaching Consultant Program**, Brown University
Learned how to observe and provide constructive feedback on the teaching practices of diverse classrooms and subject areas.
- Fall 2016 **Sheridan Center Certificate I: Reflective Teaching**, Brown University
Introductory seminar which highlighted inclusive teaching practices, student engagement, and principles of learning design.

Travel Awards

- 2018 **SIAM Student Travel Award**
To attend and present an invited talk at the SIAM Annual Meeting, Portland, OR, July, 2018.
- 2018 **Association for Women in Mathematics**
To attend special sessions and present a poster at the SIAM Annual Meeting, Portland, OR, July, 2018.
- 2018 **Brown University Graduate School Conference Funding**
To attend and present an invited talk at the SIAM Conference on Nonlinear Waves and Coherent Structures, Anaheim - Orange County, CA, June, 2018.
- 2018 **Dynamics Days Conference**
Award from conference to attend and present poster and ignite talk, Denver, CO, January, 2018.
- 2017 **SIAM Student Travel Award**
To attend and present poster at the SIAM Conference on Applications of Dynamical Systems, Snowbird, UT, May 2017.
- 2017 **Brown University Graduate School Conference Funding**
To attend and present poster at the SIAM Conference on Applications of Dynamical Systems, Snowbird, UT, May 2017.
- 2017 **Brown University Graduate Student Council Funding**
To attend and present poster at the Dynamics Days conference, Silver Springs, MD, January, 2017.
- 2017 **Dynamics Days Conference**
Award from conference to attend and present poster, Silver Springs, MD, January, 2017.
- 2016 **Brown University Graduate Student Council Funding**
To attend Séminaire de Mathématiques Supérieures: Dynamics of Biological Systems summer school, University of Alberta, Edmonton, Alberta, Canada, May - June, 2016.

Professional Organizations

- o Association for Women in Mathematics, 2014 - Present
- o Mathematical Association of America, 2013 - Present
- o Society for Industrial and Applied Mathematics, 2013 - Present