Justin Owen

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Education

Texas A&M University College Station, TX
PhD. Mathematics *2014 - 2019*

- Research Area: Numerical Analysis
- Advisor: Dr. Alan Demlow
- Qualifying Exams Passed: Applied/Numerical Analysis & Real Analysis

Stony Brook University Stony Brook, NY
M.A. Physics *2011 - 2013*

- Master's Thesis: "Simulation of Electron Beam Dynamics in the 22 MeV Accelerator for a Coherent Electron Cooling Proof of Principle Experiment"

Harriet L. Wilkes Honors College of Florida Atlantic University Jupiter, FL
B.A. Mathematics *2006 - 2010*
B.A. Physics *2006 - 2010*

Research Interests

- Numerical Analysis of Partial Differential Equations
- Surface Finite Elements
- Eigenvalue Problems
- Adaptive Finite Element Methods
- Approximation Theory

Publications

1. A. Bonito, A. Demlow, and J. Owen, *A Priori Error Estimates for Finite Element Approximations to Eigenvalues and Eigenfunctions of the Laplace-Beltrami Operator*, SIAM J. Numer. Anal., to appear
2. J. Owen and R. S. Strichartz, *Boundary value problems for harmonic functions on a domain in the Sierpinski gasket*, Indiana Univ. Math. J., 61 (2012), pp. 319–335
3. R. M. Schmitt and J. Owen, *Acoustic impediography: Imaging surface acoustic impedance using 1-3 piezo-composite for integrated fingerprinting*, in Proceedings - Electronic Components and Technology Conference, 05 2011, pp. 1296–1299

Presentations/Posters

- *"A Brief Introduction to Finite Elements"* (Talk)
  - Gathering in Graduate Expository Mathematics (GIG'EM) Conference, Texas A&M University March 2018
- *"Geometric Superconvergence in FEM Approximation of Eigenvalues of the Laplace-Beltrami Operator"* (Talk)
  - Finite Element Rodeo, Louisiana State University March 2018
- *"Geometric Superconvergence in the Surface Eigenvalue Problem"* (Poster)
  - International Conference on Current Trends and Challenges in Numerical Solutions of Partial Differential Equations, Purdue University July 2017
- *"Finite Element Approximation of Eigenvalue Clusters of the Laplace-Beltrami Operator"* (Talk)
  - SIAM Conference on Computational Science and Engineering, Atlanta, GA February 2017
- *"Boundary Value Problems on the Sierpinski Gasket"* (Poster)
  - Mathematical Association of America & American Mathematical Society joint conference, San Francisco, CA January 2010

Work Experience

Texas A&M University College Station, TX

Graduate Teaching Assistant *Aug. 2015 - Present*

- Numerical Analysis (MATH 609) . . . . . 1 Semester
- Numerical Partial Differential Equations (MATH 610) . . . . . 1 Semester
- Numerical Methods (MATH 417) . . . . . 2 Semesters
- Engineering Mathematics I (MATH 151) . . . . . 1 Semester

Instructor of Record *Summer 2018*

- Business Calculus (MATH 142) . . . . . 1 Semester

Sonavation inc. Palm Beach Gardens, FL

Research Associate *Dec. 2013 - July 2014*

- Developed new biometrics for fingerprint sensors based off of ultrasonic imaging. Designed experimental setups, programmed firing patterns for ultrasonic transducers, analyzed data using MATLAB, evaluated transducer quality using measurements with laser vibrometer. Documented the work in reports which were presented weekly. Mentored a team of interns.

Research Associate *Aug. 2010 - July 2011*

- Performed finite element analysis of ultrasonic transducers and analyzed data from numerical experiments using MATLAB. Documented findings in reports and presented them in weekly meetings. Mentored interns.

Undergraduate Intern *Aug. 2009 - Aug. 2010*

- Performed finite element analysis of ultrasonic transducers and analyzed both experimental and numerical data using MATLAB.

Brookhaven National Lab Brookhaven, NY
Graduate Research Assistant *May 2013 - Dec. 2013*

- Simulated the electron beam for coherent electron cooling proof of principle experiment and helped design the user interface for the coherent electron cooling experiment controls.

Stony Brook University Stony Brook, NY
Graduate Teaching Assistant *Aug. 2011 - May 2013*

- Taught labs for calculus based physics 1 and 2 courses.

Computer Skills

- **Programming and Markup Languages:** MATLAB, C++, Python, Git, LaTeX
- **Github:** https://github.com/jowen6

Awards, Grants & Honours

Texas A&M University Graduate Merit Fellowship 2014-2018
Harriet L. Wilkes Honors College Kenan Scholar 2009
Mathematics Association of America Certificate of Recognition 2009
Harriet L. Wilkes Honors College LIFE Scholar 2008-2009
Harriet L. Wilkes Honors College Fred and Kit Bigony Scholar 2007-2008

Conferences/Workshops Attended

- Numerical Analysis of Coupled and Multi-Physics Problems with Dynamic Interfaces, Casa Matematica Oaxaca July 2018
- Numerical Analysis and Approximation Theory meets Big Data, Banff International Research Station April 2018
- GIG'EM Conference, Texas A&M University March 2018
- Finite Element Rodeo, Louisiana State University March 2018
- International Conference on Current Trends and Challenges in Numerical Solutions of Partial Differential Equations, Purdue University July 2017
- SIAM Conference on Computational Science and Engineering, Atlanta, GA February 2017
- IMA PI Graduate Student Conference on FEM for Eigenvalue Problems, Michigan Technological University August 2016
- Finite Element Rodeo, Texas A&M University March 2016
- Geometric PDEs and Their Approximations Winter School, Texas A&M University January 2016
- United States Particle Accelerator School, Ft. Collins, CO June 2013

- Mathematical Association of America & American Mathematical Society joint math meeting, San Francisco, CA January 2010
- 42nd annual Mathematical Association of America meeting of the Florida section, Florida Gulf Coast University February 2009
- 41st annual Mathematical Association of America meeting of the Florida section, Florida Southern College February 2008
- 40th annual Mathematical Association of America meeting of the Florida section, Tallahassee Community College February 2007
- Mathematical Association of America & American Mathematical Society joint math meeting, New Orleans, LA January 2007