

THOMAS BACKING

CONTACT INFORMATION

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EDUCATION

May 2016 Purdue University
PhD. in Mathematics Thesis: *Regularity of Solutions and the Free Boundary for a class of Bernoulli-type Parabolic Free Boundary Problems with Variable Coefficients*
Advisor: Prof. Donatella DANIELLI

Dec. 2008 Wayne State University
Bachelor of Science in Mathematics GPA: 3.92 · *Summa Cum Laude* · Phi Beta Kappa

WORK EXPERIENCE

Purdue University *Aug. 2016-Current* Lecturer, PURDUE UNIVERSITY
Taught undergraduate mathematics courses. Also responsible for the technical support and the discussion forum for applied calculus courses.

Purdue University *Jan. 2015-May 2016* Research Assistant, PURDUE UNIVERSITY
Carried out original research in mathematics on a full-time basis, both under the direction of my advisor and independently. Identified problems of interest, surveyed existing results in the literature, and devised and implemented solution strategies. Crafted a successful research proposal for a competitive research fellowship.

Purdue University *Aug. 2009-Dec. 2014* Teaching Assistant, PURDUE UNIVERSITY
Taught a variety of undergraduate mathematics course detailed in the Teaching Experience section. Responsibilities included lecturing, writing and grading of exams and quizzes, and computations of final grades.

Wayne State University *Aug. 2008-May 2009* Mathematics Tutor, WAYNE STATE UNIVERSITY
Assisted students in the Mathematics Help Room with undergraduate mathematics courses.

PUBLICATIONS & PREPRINTS

Nov 2016 *Regularity of Solutions to a Bernoulli-type Parabolic Free Boundary Problem with Variable Coefficients* (Backing, T.) *Nonlinear Analysis: Theory, Methods & Applications*, Volume 146, November 2016, Pages 59-73.

Nov 2016 *Regularity of the Free Boundary for a Bernoulli-Type Parabolic Problem with Variable Coefficients* (Backing, T.) *Nonlinear Analysis: Theory, Methods & Applications*, Volume 146, November 2016, Pages 74-99.

Preprint *Existence, Uniqueness and Regularity of Solutions for a Penalized Boundary Obstacle Problem* (Backing, T., Danielli, D.)

TEACHING EXPERIENCE

- Purdue University* Aug. 2016 - **Lecturer, PURDUE UNIVERSITY**
 Current
 Fall 2016 · *Applied Calculus*
 Taught approximately seventy students applied calculus. Also responsible for technical support for the LON-CAPA online homework system and moderating the Piazza discussion for the entire course, consisting of approximately 2000 traditional, IMPACT and distance students.
- Purdue University* Aug. 2009 - **Teaching Assistant, PURDUE UNIVERSITY**
 Dec. 2014
 Fall 2014 · *IMPACT Calculus*
 Flipped classroom Calculus class.
- Fall 2013 - Spring 2014 · *Calculus for the Life Sciences:*
 Taught Calculus for biology and pre-pharmacy students. Responsible for lectures, quizzies and exam writing. Determined final grades under guidance from course coordinator.
- Fall 2012 · *Algebra and Trigonometry*
 Taught algebra and trigonometry with full responsibility for lectures , quizzes, and final grade computations.
- Spring 2012 · *Multivariate Calculus*
 Recitation instructor for Calculus III.
- Spring 2011 · *Algebra and Trigonometry II*
 Taught algebra and trigonometry with full responsibility for lectures , quizzes, and final grade computations.
- Fall 2010 · *Multivariate Calculus*
 Recitation instructor for Calculus III (multivariate and vector calculus).
- Fall 2009 - Spring 2010 · *Calculus I for Engineers*
 Recitation instructor for Engineering Calculus I.

HONORS, AWARDS AND SCHOLARSHIPS

- Purdue University* June 2015 **Purdue Research Fellowship**
 Awarded Purdue Research Fellowship for the study of free boundary problems. Competitive award based on my grant proposal and body of work.
- Wayne State University May 2009 **C.S. Houh Award**
 Award recognizing exceptional achievement in mathematics for graduating senior.
- Wayne State University May 2009 **Phi Beta Kappa**
 Appointed to the membership of Phi Beta Kappa by sponsorship of mathematics faculty.
- Wayne State University Aug. 2006-
 Aug. 2008 **Presidential Scholarship**
 Highest academic scholarship bestowed by the university.

CONFERENCES, WORKSHOPS, AND TALKS

<i>Oct. 8th 2015</i>	Speaker in the Purdue PDE seminar.
<i>June 1-4, 2015</i>	6 th Symposium on Analysis and PDEs, Purdue University.
<i>Sept. 19-21, 2014</i>	Harmonic Analysis & PDEs, University of Chicago.
<i>June 30-July 11, 2014</i>	Inaugural Summer School in Analysis, University of Chicago.
<i>Nov. 16-17, 2013</i>	72nd Midwest PDE Seminar, Purdue University.

OTHER INFORMATION

<i>Languages</i>	ENGLISH · Native Speaker FRENCH · Reading
<i>Computer Skills</i>	Python, MATLAB, R, MS Office, L ^A T _E X