

Benjamin Z. Webb

Education

- Spring 2010 (expected) **Ph.D. in Mathematics**, *Georgia Institute of Technology*, Atlanta, Georgia.
Minor: *Dynamics and Stochastics*. Dissertation: *Isospectral graph reductions, estimates of matrices spectra, and eventual negative Schwarzian systems*. Advisor: Leonid Bunimovich.
- 2004 **M.S. in Mathematics**, *Brigham Young University*, Provo, Utah.
Thesis: Problems Related to the Extended Zermelo Model. Advisor: Christopher Grant.
- 2002 **B.S. in Mathematics**, *Brigham Young University*, Provo, Utah.
Minor in Philosophy
- 2002 **B.A. in German**, *Brigham Young University*, Provo, Utah.

Research Interests

Dynamical systems, graph theory, and their applications to biology. In particular, spectral and graph theoretic properties of dynamical networks, eigenvalue approximation theorems, graph reductions, and one-dimensional dynamical systems.

Publications and Preprints

1. Isospectral graph reductions. Submitted, September 2009 (with L. Bunimovich). Preprint on-line at arXiv.org.
2. Dynamical Networks, Isospectral Graph Reductions, and Improved Estimates of Matrices Spectra. Submitted, November 2009 (with L. Bunimovich). Preprint on-line at arXiv.org.
3. Resistance and conductance in structured zermelo tournaments. *Advances in Applied Mathematics*, Available on-line June 2009 (with G. Conner and C. Grant)
4. Dynamics of functions with an eventual negative Schwarzian derivative. *Discrete and Continuous Dynamical System Ser. A*, 24, 4 August 2009, 1393-1408.
5. Schwarzian derivative of iterated functions. *Mathematica Demonstration*, <http://demonstrations.wolfram.com/TheSchwarzianDerivativeOfIteratedFunctions/>

Talks:

- Sept. 2009 SIAM graduate student seminar, School of Mathematics, Georgia Institute of Technology.
- Oct. 2008 PennState, 2008 Workshop in Dynamical Systems and Related Topics.
- Oct. 2008 Research Horizons seminar, School of Mathematics, Georgia Institute of Technology.
- Apr. 2008 Computational Neuroscience Workshop, Georgia State University (poster presentation)

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Scientific/Academic Honors:

Fall 2009 Recipient of the *Bob Price research award*, School of Mathematics, Georgia Institute of Technology.

Professional Activity

Referee for the journals *Chaos*, *Mathematical Biosciences*, and *Discrete and Continuous Dynamical Systems*

Fall 2008- Organizer of the Graduate Instructor seminar for the School of Mathematics, Georgia Institute of Technology

Fall 2009- Vice-President of the SIAM student chapter for the School of Mathematics, Georgia Institute of Technology

Academic and Research Positions

Research Assistant

2009 Fall School of Mathematics, Georgia Institute of Technology

2007 Spring Center for the Study of Systems Biology, Georgia Institute of Technology

Instructor Full responsibility for course including supervision of graduate and/or undergraduate teaching assistants.

2009 Summer Survey of Calculus

2009 Spring Differential Equations

2008 Summer Finite Mathematics

2007 Summer Multivariable Calculus

2006 Summer Survey of Calculus

2005 Spring Calculus I

2005 Winter Calculus I

2004 Fall Calculus I

2004 Spring Introduction to Calculus

2004 Winter Calculus II

2003 Fall Calculus I

2003 Spring Calculus I

2003 Winter Calculus I

2002 Fall College Algebra

Teaching Assistant Leading recitation, holding office hours, and grading.

2008 Fall Precalculus (one section)

2008 Spring Linear and Discrete Math (two sections)

2007 Fall Multivariable Calculus (three sections)

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2006 Fall Calculus I (two sections)
2006 Spring Calculus II (two sections)
2005 Fall Calculus I (two sections)
2002 Winter College Algebra Lab (five sections)

Conferences recently attended

April 2009 Workshop on Dynamical Systems and Related Topics, University of Maryland
October 2008 PennState Workshop in Dynamical Systems and Related Topics
April 2008 Atlanta Computational Neuroscience Workshop, Georgia State University
April 2008 Workshop on Dynamical Systems and Related Topics, University of Maryland
October 2006 PennState Workshop in Dynamical Systems and Related Topics