

Scott M. Bailey

CONTACT INFORMATION

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EDUCATION

Northwestern University, Evanston, Illinois USA

Ph.D., Mathematics, June 2008.

- Area of Study: Algebraic Topology, stable homotopy theory
- Thesis: Topological Splitting of Spectra Related to tmf
- Advisor: Paul G. Goerss

Cornell University, Ithaca, New York USA

B.A., Mathematics, May 2002.

- *Magna cum Laude*, with distinction in all subjects.
- Thesis: Inside the Lévy Dragon (see Publications)
- Advisor: Robert S. Strichartz

RESEARCH EXPERIENCE

University of Rochester, Rochester, New York USA

Visiting Assistant Professor

2008–Present

My research lies in a branch of algebraic topology called stable homotopy theory. I am interested in understanding chromatic “blue shift” of the root invariant. In particular, my research focuses on understanding how the Tate spectrum functor turns v_n -periodic cohomology theories (such as $BP\langle n \rangle$) into v_n -torsion.

Northwestern University, Evanston, Illinois USA

Graduate Student

2002–2008

Advisor: Paul G. Goerss

My research concentrated on the topological splitting of the spectrum $bo \wedge tmf$, where bo is the spectrum representing connective real K -theory and tmf the spectrum representing topological modular forms of Hopkins. Earlier work has focused on v_n -self maps of finite p -local spectra which lie in the center of their endomorphism rings.

Cornell University, Ithaca, New York USA

Undergraduate Student

2001–2002

Advisor: Robert S. Strichartz

Together with Robert Strichartz and Theodore Kim, I studied the interior of the Lévy Dragon fractal, which until then was not explored in much detail. We developed a program to implement various algorithms we created to map the interior and then boundary of its components. It was determined that the interior is tame, made up of a finite number of shapes with at most countable number of edges (see <http://www.mathlab.cornell.edu/~twk6>).

Louisiana State University, Baton Rouge, Louisiana USA

Research Experiences for Undergraduates

Summer 2001

Advisors: Jerome W. Hoffman, Robert Perlis

My research focused on a project combining graph theory, homological and abstract algebra along with some number theory. At the end of the summer, I wrote a draft which will hopefully be submitted for publication in the near future.

PUBLICATIONS

Bailey, S.M.; Strichartz, R.S.; Kim, T. *Inside the Lévy Dragon*. Amer. Math. Monthly **109** (2002), no. 8, 689–703.

Bailey, S.M. *On the spectrum $bo \wedge tmf$* (submitted for publication).

Bailey, S. *Graph Jacobians and Mackey Functors* (preprint).

TEACHING
EXPERIENCE

University of Rochester, Rochester, New York USA

Visiting Assistant Professor

2008–Present

Calculus I: Differential Calculus of One Variable Functions.

Calculus IIA: Integral Calculus of One Variable Functions.

Quest Calculus IIA: Integral Calculus with workshops.

Northwestern University, Evanston, Illinois USA

Gateway Science Workshop Mentor

2007–2008

Differential and integral calculus.

Instructor

2007–2008

Precalculus Mathematics.

Differential Calculus of One Variable Functions.

Integral Calculus of One Variable Functions.

Differential Calculus of Multivariable Functions.

Multiple Integration and Vector Calculus.

Teaching Assistant

2002–2008

Calculus - single/multivariable.

Fourier series and partial differential equations.

Linear and abstract algebra.

Game theory.

TRAINING

Northwestern University, Evanston, Illinois USA

Critical Student Issues Panel, 2007.

Teaching Certificate Program, 2005–2006.

Teaching Assistant Fellows Program, 2004–2005.

PRESENTATIONS

The connective K -theory of tmf . Penn State Altoona Geometry/Topology Seminar. December 11, 2008.

On the Tate spectrum of tmf at the prime 2. University of Rochester Topology Seminar. November 21, 2008.

-. The 1044th AMS Meeting (Southeast Section). Huntsville, AL. October 24–26, 2008.

-. The 1043rd AMS Meeting (Central Section). Kalamazoo, MI. October 17–19, 2008.

The splitting of $bo \wedge tmf$. The 1033rd AMS Meeting (Southeast Section). Murfreesboro, TN. November 3–4, 2007.

Inside the Lévy Dragon fractal. The 969th AMS Meeting (Central Section). Columbus, OH. September 21–23, 2001.

-. Northwestern Undergraduate Math Society. Evanston, IL. 2004, 2005.

A Performance by the Klein Four. Annual Meeting of the Illinois Section of the MAA. 2006.

-. Hope College Mathematics Department Colloquium. Holland, MI. 2006.

HONORS AND
MEMBERSHIPS

2007–2008 Outstanding Graduate Teacher Award. Northwestern University Weinberg College of Arts and Sciences.

2007 Outstanding TA Award. Northwestern University Mathematics Department.

Member of the AMS, 2002–present.

National Society of Collegiate Scholars, 2001–present.

Golden Key Honor Society, 2001–present.

Thomas J. Watson Memorial Scholarship. IBM, 1998.

New York State Merit Scholarship, 1998.