Joshua P. Bowman

CONTACT INFORMATION

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RESEARCH INTERESTS

Flat surfaces, Teichmüller theory, Veech groups, hyperbolic geometry

EDUCATION

Cornell University, Ithaca, NY
Ph.D. candidate, Mathematics, expected graduation May 2009

Cornell University, Ithaca, NY
M.S., Mathematics, August 2006

St. Olaf College, Northfield, MN
B.A. *summa cum laude*, Mathematics and music, May 1999

PAPERS

"Teichmüller geodesics, Delaunay triangulations, and Veech groups"
Proceedings of the International Workshop on Teichmüller Theory and Moduli Problems, to appear

"Orientation-reversing involutions of the genus 3 Arnoux–Yoccoz surface and related surfaces"
Proceedings of the Fourth Ahlfors–Bers Colloquium, to appear

"Holomorphic families of complex structures on the odd cohomology of a surface"
in preparation

AWARDS

Hutchinson Fellowship, Cornell University, Spring 2008

VIGRE Fellowship, Cornell University, Fall 2003 to Spring 2006

Buntrock Scholar, St. Olaf College, September 1995 to May 1999

National Merit Scholar, 1995

CONFERENCE PRESENTATIONS

Delaunay triangulations of flat surfaces
at the Graduate Conference in Algebra and Topology,
Binghamton University, Binghamton, NY, 8 November 2008

Applications of Delaunay triangulations to Teichmüller theory
at "Dynamics in Teichmüller space",
Station Biologique, Roscoff, France, 2 June 2008

Applications of Delaunay triangulations to Teichmüller theory
at the Fourth Ahlfors–Bers Colloquium,
Rutgers University, Newark, NJ, 8 May 2008

Teichmüller geodesics and Veech groups
at the International Workshop on Teichmüller Theory and Moduli Problems
Harish-Chandra Research Institute, Allahabad, India, 7 January 2006

A computational search for stabilizers of Teichmüller geodesics
at "Conformal Dynamics, Hyperbolic Geometry, and Continued Fractions"
Centre International de Rencontres Mathématiques, Luminy, France, 13 June 2005

SEMINAR PRESENTATIONS

Some variational and asymptotic methods in the study of complex structures
Cornell Lie Groups Seminar, 24 October 2008

Preparing teaching and research statements
Cornell Teaching Seminar, 17 September 2008

The cocycle of life
Olivetti Club, 22 April 2008

Visualizing Veech groups
Cornell Dynamical Systems Seminar, 30 November 2007

Klein's quartic, 'tis of thee, sweet curve of genus 3, of thee I sing
Olivetti Club, 6 November 2007

Delaunay triangulations of flat surfaces
Section de Mathématiques, Ecole Polytechnique Fédérale de Lausanne, 20 March 2007

Delaunay triangulations and bicuspid surfaces (following work of Veech)
Teichmüller Theory Seminar, Université de Provence, 2 February 2007

Pseudo-Anosov maps of a surface-ally docious (If you say it loud enough you'll always sound precocious)
Olivetti Club, 4 April 2006

All I really need to know I learned from polygons
St. Olaf College Mathematics Department Colloquium, 21 March 2006

Veech groups of flat surfaces
Cornell Dynamical Systems Seminar, 5 December 2005

Translation with a capital T, and that rhymes with B, and that stands for billiards!
Olivetti Club, 20 September 2005

Project calculus: incorporating long-term projects in your calculus classroom
(co-presented with Jonathan Needleman)
Cornell Teaching Seminar, 27 April 2005

Here a ball, there a ball, everywhere a unit ball: Royden's theorem on isometries of Teichmüller space
Olivetti Club, 29 March 2005

Enlivening the classroom: reducing teachers' and students' stress with humor
Cornell Teaching Seminar, 2 February 2005

The plants go marching n by n: garden variety affine and projective planes
Olivetti Club, 24 February 2004

TEACHING AND TUTORING EXPERIENCE

Cornell University, Ithaca, NY

Teaching Assistant and Instructional Teaching Assistant Fall 2004 to 2008

Courses taught:

- Math 1910, Calculus for Engineers, *instructor*
- Math 1920, Calculus for Engineers, *teaching assistant*
- Math 2230, Theoretical Linear Algebra and Calculus, *teaching assistant*

Duties:

- As an instructor, I prepared daily lectures and constructed exams and quizzes; I also tested and edited in-class calculus workshops for the engineering school.
- As a teaching assistant, I held weekly review sessions, graded weekly assignments, and contributed to exam-writing.

Peace Corps, Guinea, West Africa

Teacher September 2000 to June 2002

- Taught 9th and 10th grade mathematics, including algebra and geometry, to over 200 students, and 12th grade differential calculus
- Founded a club for exploring and reviewing science and mathematics

Memphis, TN, and **Minneapolis**, MN

Tutor October 2002 to May 2003 (Memphis)
October 1999 to May 2000 (Minneapolis)

- Tutored high school students in algebra and geometry

St. Olaf College, Northfield, MN

Tutor September 1997 to May 1999

- Tutored in subjects ranging from elementary calculus to complex analysis

Academic Assistant September 1996 to May 1997

- Worked with students to improve study skills, both general and subject-specific

OUTREACH

4H Career Explorations June 2007, July 2008

- This program is designed to expose teens in 4H to a variety of career opportunities.
- I co-developed and co-led sessions on mathematical thinking and game theory.

Expanding Your Horizons April 2008

- This program is designed to nurture girls' interest in math and science.
- I co-developed and co-led a session on understanding patterns in quipus.

DEPARTMENTAL ACTIVITIES

Organizer

Dynamical systems seminar (2008–2009)

Olivetti Club (2005)

Fall picnic (2003, 2004, 2007, 2008)

Spring concert (2008, 2009)

Participant

Dynamical systems seminar (2005–present)

Teaching seminar (2004–present)

Spring concert (2004–2008)

OTHER SKILLS

Computing: LaTeX, MetaPost, word processing, MATLAB

French: speak, read, and write fluently

Other languages studied: German, Arabic, Maninkakan