Tyler Bongers – Postdoctoral Lecturer, Washington University in St. Louis

CONTACT INFORMATION

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RESEARCH INTERESTS

Quasiconformal maps, geometric measure theory, harmonic and complex analysis.

EDUCATION

Michigan State University
Ph.D., Mathematics, May 2018
Advisor: Ignacio Uriarte-Tuero
Dissertation: Applications of Geometric Measure Theory to Complex and Quasiconformal Analysis

Colorado State University - Pueblo
B.S., Mathematics, May 2012

- Summa cum laude, distinguished graduate in mathematics
- Minor in computational mathematics

Colorado State University - Pueblo
B.S., Physics, May 2012

- Summa cum laude, distinguished graduate in physics
- Emphasis and minor in chemistry

PUBLICATIONS

Tyler Bongers, *Improved Hölder Regularity of Quasiconformal Maps*, Ann. Acad. Sci. Fenn. Math. 44 (2019), no. 2, 973-985.

Tyler Bongers, *Stretching and Rotation Sets of Quasiconformal Maps*, Ann. Acad. Sci. Fenn. Math. 44 (2019), no. 1, 103-123.

Tyler Bongers, *Geometric Bounds for Favard Length*, Proc. Amer. Math. Soc. 147 (2019), 1447-1452.

PREPRINTS

Tyler Bongers, Zihua Guo, Ji Li, and Brett Wick, *Commutators of Hilbert Transforms along Monomial Curves*, arXiv:1909.02118. Submitted for publication.

SEMINARS AND CONFERENCE PRESENTATIONS

Contributed talks:

Commutators of the Hilbert transform along a parabola, Contributed Talk, Ohio River Analysis Meeting, University of Cincinnati (March 2019)

Geometric regularity of quasiconformal maps, Contributed Talk, Mid-Atlantic Analysis Meeting, VA Tech (November 2018)

Stretching and rotation sets of quasiconformal maps, Contributed Talk, Second Northeastern Analysis Meeting, SUNY Albany (October 2017)

Optimal Transfer Orbits in 3-Dimensional Systems, MAA Rocky Mountain Sectional Meeting (April 2012)

Optimal Transfer Orbits in 3-Dimensional Systems, Pikes Peak Regional Undergraduate Mathematics Conference, Colorado College (February 2012)

Colloquia:

Stretching and rotation sets of quasiconformal maps, Saint Louis University (February 2019)

Stretching and rotation sets of quasiconformal maps, Northern Illinois University (October 2018)

Seminars:

Regularity of quasiconformal maps, Analysis Seminar, WUSTL (April 2019)

Geometric distortion properties of quasiconformal maps, Analysis Seminar, WUSTL (October 2018)

Hölder regularity of quasiconformal maps, Analysis Seminar, MSU (March 2018)

Stretching and rotation sets of quasiconformal maps, Analysis Seminar, MSU (October 2017)

Posters:

Stretching and rotation sets of quasiconformal maps, Poster Presentation, 2017 Global Research Symposium - Geometry, Analysis and Probability at KIAS, Seoul, Korea (May 2017)

On Constructible Sets, MAA Undergraduate Poster Session, 2012 Joint Mathematics Meetings, Boston. (January 2012)

Teaching Experience

Instructor roles, Washington University in St. Louis

2019	Fall	MATH 318 (Calculus of Several Variables – applications of linear algebra to calculus, and introduction to manifolds)
2019	Spring	MATH 308 (Mathematics for the Physical Sciences – continuation of vector calculus, PDEs, and calculus of variations)
2019	Spring	MATH 233 (Calculus III)
2018	Fall	MATH 217 (Differential Equations)

Instructor roles, Michigan State University

2017	Fall	MTH 299 (Transitions – introduction to proofs course for mathematics majors and minors)
2015	Fall	MTH 202 (Elementary Geometry for Teachers)
2015	Summer	MTH 234 (Calculus III)
2014	Summer	MTH 132 (Calculus I)
2013	Fall	MTH 124 (Survey of Calculus I)

Teaching assistant roles, Michigan State University

2018 Spring	Teaching Assistant, MTH 133 (Calculus II)
2017 Spring	Teaching Assistant, MTH 235 (Differential Equations)
2016 Fall	Teaching Assistant, MTH 235 (Differential Equations)
2016 Spring	Teaching Assistant, MTH 235 (Differential Equations)
2014 Fall	Teaching Assistant, MTH 235 (Differential Equations)
2014 Spring	Teaching Assistant, MTH 235 (Differential Equations)

Other Teaching and Mentoring

MAA Project NExT

2019	Silver '19 Project NExT Fellow

Michigan State University

2017	Mentoring of Undergraduate Learning Assistants, Lyman Briggs College
2016–2017	Center for Instructional Mentoring, Lead Teaching Assistant
2016	Course and Curriculum Development for Differential Equations
2014–2017	Math Learning Center, Lead Teaching Assistant

Honors and Awards

2018	Dissertation Completion Fellowship Michigan State University, College of Natural Sciences
2018	Graduate Student Travel Grant for JMM 2019 American Mathematical Society
2018	Douglas A. Spragg Endowed Fellowship in Mathematics Michigan State University, Department of Mathematics
2018	Paul and Wilma Dressel Endowed Scholarship Michigan State University, Department of Mathematics
2017	Teaching Assistant Award for Excellence in Teaching Michigan State University, Department of Mathematics
2015	Dissertation Continuation Fellowship Michigan State University, College of Natural Sciences
2015	Teaching Assistant Award for Excellence in Teaching Michigan State University, Department of Mathematics
2014	Paul and Wilma Dressel Endowed Scholarship Michigan State University, Department of Mathematics
2012	Recruiting Fellowship Michigan State University, College of Natural Sciences
2012	Outstanding Presentation, 2012 Joint Mathematics Meetings MAA Undergraduate Student Poster Session

Service

Reviewer for AMS *Mathematical Reviews*, 2019–.

Organized the MSU Student Analysis and PDE Seminar, 2015–2016.

Languages and Relevant Skills

English (native speaker), Spanish (working knowledge)

Python, Matlab, LaTeX