Trevor J. Richards Curriculum Vitae

Contact Information

Monmouth College
Mathematics, Statistics, and Comp. Science
Center for Science and Business
Monmouth, IL 61462

(309)457-2184
trichards@monmouthcollege.edu
https://trevorjrichards.com/

Education

Ph.D., Mathematics, University of Florida, 2013
- Dissertation Title: On the conformal equivalence of meromorphic functions.
- Advisor: Dr. Michael Jury

M.S., Mathematics, University of Florida, 2009

B.S., Mathematics, University of Florida, 2006
- Minor in Philosophy

Research Interests

Real and complex analysis – especially the topology of the level sets of continuous functions (in the real case) and meromorphic functions (in the complex case).

Professional Experience

Monmouth College, Mathematics, Assistant Professor
2017 to present

Washington and Lee University, Mathematics, Visiting Assistant Professor
2014 to 2017

Virginia Tech University, Mathematics, Instructor
2013 to 2014

Publications

T. J. Richards, M. Younsi. *Computing polynomial conformal models for low degree Blaschke products.* Comp. Methods Funct. Theory, 19: 173-182, 2019.

T. J. Richards, S. Steinerberger. *Leaky roots and stable Gauss–Lucas theorems.* Comp. Var. Ellip. Equations, doi 10.1080/17476933.2019.1571051, 2019.

T. J. Richards, J. Yau. *Recognizing a difference quotient.* Pi Mu Epsilon Journal (To appear Fall 2019).

T. J. Richards. *Characterizing meromophic pseudo-lemniscates* Comp. Methods Funct. Theory, 18(4):609-616, 2018.

T. J. Richards, M. Younsi. *Conformal models and fingerprints of pseudo-lemniscates.* Constructive Approximation, 45(1): 129-141, 2017.

Publications (continued)

K. Beanland, P. D. Humke, T. J. Richards. *On Scottish Book problem 157.* Real Anal. Exchange, 41(2): 331-346, 2016.

T. J. Richards. *Conformal equivalence of analytic functions on compact sets.* Comp. Methods Funct. Theory, 16(4): 585-608, 2016.

T. J. Richards. *Level curve configurations and conformal equivalence of meromorphic functions.* Comp. Methods Funct. Theory, 15(2): 323-371, 2015.

Undergraduate Research Directed

Ashley Maurer, Shannon Wilbourne, *Supporting actuarial science at Monmouth College.*
Monmouth College, Summer 2018
Poster presented at Monmouth College August 2018 SOFIA Presentations

Molly Schoon, Nathan Smolcyzk, Allie Warfield, *Analyzing games of skill as games of chance.*
Monmouth College, Summer 2017
Poster presented at Monmouth College August 2017 SOFIA Presentations

Pengrui Wang, *Characterizing the direct products of directed semi-cycles.*
Washington and Lee University, Summer 2016
Poster presented at April 2017 MAA MD-DC-VA sectional meeting

Jimmy Yau, *Analytic and algebraic characterizations of the difference quotient of a real function.*
Washington and Lee University, Fall 2015
Resulting article currently under review

Conference and Seminar Presentations

Summer Symposium in Real Analysis XLII
Luzin-type Properties and the Difference Quotient. (June 2018)

Canadian Mathematics Society Winter Meeting
On the conformal modeling problem. (December 2016)

South Eastern Analysis Meeting (SEAM)
Conformal modeling by polynomials. (March 2016)

South Eastern Analysis Meeting (SEAM)
Level curves and conformal equivalence of analytic and meromorphic functions. (March 2015)

Conference and Seminar Presentations (continued)

University of Virginia Analysis Seminar
The conformal equivalence of polynomials and finite Blaschke products: A tale of three proofs. (November 2014)

South Eastern Analysis Meeting (SEAM)
Level curves and conformal equivalence of analytic and meromorphic functions. (March 2014)

Virginia Tech Dynamics and Complex Analysis Seminar
On the level curves of meromorphic functions. and others (August 2013)

University of Florida Mathematics Department Analysis Seminar
On meromorphic functions which share a level curve. and many others (Fall 2009–Fall 2012)

Presentations to Undergraduates

MAA IL-IN-MI Trisectional Meeting

Graphs and the infinite train. (March 2018)

Washington and Lee University Math, Munch, and Mingle (Undergraduate Seminar)

Polynomials: Your real intuitions in a complex world. (February 2016)

Washington and Lee University Math, Munch, and Mingle (Undergraduate Seminar)

An information theoretic proof of the infinitude of the prime numbers. (October 2015)

Washington and Lee University Analysis Seminar

On complex polynomials having prescribed critical values. (October 2014)

MAA Maryland–District of Columbia–Virginia Section Meeting

On the level curves of finite Blaschke products and polynomials. (April 2014)

Pi Mu Epsilon, University of Florida

Level curves of complex polynomials (rational functions can come too). (February 2011)

Finding the number of distinct zeros of a complex polynomial. (October 2009)

Talks and Sessions Organized

The Geometry of Complex Polynomials and Rational Functions, AMS Special Session, January 2020, Joint Mathematics Meetings

A Voyager from the Fourth Dimension, Speaker: Paul Humke, October 2017, Monmouth College Public Lecture

---

Workshops

Associated Colleges of the Midwest Institute on College Futures

Institute on Shared Governance. (July 2018)

Teaching Experience

Monmouth College
Elementary Functions, Calculus II, Linear Algebra, Complex Analysis, Actuarial Exam P Prep, Discrete Mathematics, Real Analysis, Introduction to the Liberal Arts

Washington and Lee University
Calculus I, Calculus III, Linear Algebra, Finite Math II, Fundamental Concepts of Mathematics, Complex Analysis

Virginia Tech University
Calculus I, Calculus III, Differential Equations

University of Florida
Math for Liberal Arts Majors, Pre-Calculus, Trigonometry, Calculus I, Calculus II, Calculus III, Differential Equations

Institutional and Other Service

Fall 2019-present	Served on Monmouth College Assessment Standing Committee
Summer 2018	Developed courses and four year plan for actuarial science study at Monmouth College (part of summer undergraduate research project)
Spring 2018-present	Served as faculty advisor for *Midwest Journal of Undergraduate Research*
Fall 2018	Referee for *Real Analysis Exchange*
Fall 2017 - present	Served as referee for *Midwest Journal of Undergraduate Research*
Fall 2017 - present	Assisted in administering Monmouth College Mathematics Capstone course
Summer 2017	Directed Monmouth College SOfIA project
Fall 2016	Referee for *Computational Methods and Function Theory*
Fall 2016	Administered WLU Problem of the Month
Summer 2016	Directed research project for Pengrui Wang
Fall 2015	Directed research project for Jimmy Yau
Fall 2014 to Present	Served as reviewer for *AMS Mathematical Reviews*
Fall 2014	Co-taught the Putnam exam prep course for Washington and Lee Univ. Putnam exam team

Scholarships and Awards

2006–2012	Teaching Assistant Scholarship University of Florida, full tuition waver and stipend
2010 & 2012	Student Travel Awards South Eastern Analysis Meeting
2008	Student Travel Award Association of Symbolic Logic, New York

Graduate Coursework

- Real Analysis
- Complex Analysis
- Logic
- Set Theory
- Algebra
- Topology
- Probability & Potential theory
- Functional Analysis
- Ergodic Theory & Dynamical Systems
- Differential Geometry
- Graph Theory

Relevant Software Skills

Mathematica
Matlab
Latex
Excel
Sakai, Blackboard (Online gradebooks and student interfaces.)