

**WARREN E. SHULL**

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**EMPLOYMENT AND EDUCATION**

<b>Emory University</b> , Atlanta, GA	2018-present	Visiting Assistant Prof.
<b>Emory University</b> , Atlanta, GA	May 2018	Ph.D. in Mathematics
<b>St. Olaf College</b> , Northfield, MN	May 2013	B.A. in Mathematics

**TEACHING EXPERIENCE**

**Visiting Assistant Professor, Emory University**

<b>Multivariable Calculus</b>	<i>Spring 2020</i>
<b>Differential Equations</b>	<i>Summer &amp; Fall 2019</i>
<b>Math for Quantitative Sciences</b>	<i>Fall 2019/Spring 2020</i>
<ul style="list-style-type: none"><li>• Hybrid of Linear Algebra and Multivariable Calculus</li><li>• Includes a lab in which students work in groups on Python code</li></ul>	
<b>Calculus 2</b>	<i>Spring 2019</i>
<b>Calculus 1</b>	<i>Fall 2018</i>
<ul style="list-style-type: none"><li>• Total of 160 students across 3 sections</li></ul>	

**Graduate Teaching, Emory University**

<b>Instructor: Calculus 1</b>	<i>2015 - 2017</i>
<b>Teaching Assistant: Linear Algebra</b>	<i>2014, 2016</i>
<b>Walk-in Tutor: Calculus 1 and 2</b>	<i>2013 - 2014</i>
<b>Grader: Foundations of Mathematics, Multivariable Calculus, and Life Science Calculus</b>	<i>various dates</i>

**Undergraduate Teaching, St. Olaf College**

<b>Tutor, Grader, and Teaching Assistant</b>	<i>2009 - 2013</i>
<ul style="list-style-type: none"><li>• Assisted students on a walk-in or extended basis with calculus, linear algebra, real analysis, and Python code</li></ul>	

**RESEARCH EXPERIENCE**

<b>Emory University</b>	<i>Fall 2013 - present</i>
<ul style="list-style-type: none"><li>• Two papers on spanning trees to appear: Discrete Mathematics, Journal of Combinatorial Mathematics and Combinatorial Computing</li><li>• Referee: Discrete Mathematics, Journal of Combinatorial Designs, Journal of Graph Theory</li></ul>	

**Graduate Research Workshop in Combinatorics***Summer 2016 - 2017*

- Collaborated with other Combinatorial mathematicians on two problems each summer
- Continued joint work on at least one problem, paper accepted to European Journal of Combinatorics

**Budapest Semester in Mathematics***Fall 2012*

- Collaborative research project in geometric graph theory, published in Discrete Mathematics
- Took several courses in advanced combinatorics

**REU****California State U., San Bernardino***Summer 2012*

- Proved the absence of totally geodesic surfaces in two hyperbolic knots
- Researched knot theory with the guidance of Dr. Rolland Trapp
- Attended presentations on a variety of knot theory topics at the 2012 UnKnot Conference

**Math Research Assistant****St. Olaf College***June 2011 - Spring 2013*

- Worked with Dr. Kaisa Taipale on triangle puzzle multiplication in Schubert calculus
- Developed state machine that facilitates additional binary string calculations
- Proved several important lemmas using my state machine

**Physics Research Assistant****St. Olaf College***Summer 2011*

- Analyzed and compared data on atomic transition probabilities
- Measured the temperature of Cerium discharges by analyzing excited state populations
- Assisted scientists in taking transition probability data at NIST Spectroscopy Lab

**PUBLICATIONS**

Ronald Gould, Warren Shull. *On Spanning Trees with few Branch Vertices*, Emory University. To appear in *Discrete Mathematics*.

Jinha Kim, Ryan R. Martin, Tomas Masarik, Warren Shull, Heather Smith, Andrew Uzzell, Zhiyu Wang. *Local Dimension*, Graduate Research Workshop in Combinatorics, accepted to European Journal of C. See <https://arxiv.org/abs/1803.08641>

Ronald Gould, Warren Shull. *On a Conjecture on Spanning Trees with few Branch Vertices*, Emory University, Spring 2017. To appear in *Journal of Combinatorial Mathematics and Combinatorial Computing*.

Siyuan Cai, Gillian Grindstaff, Andras Gyarfás, Warren Shull. *Non-crossing monochromatic subtrees and staircases*, Budapest Semesters in Mathematics, Elective Undergraduate Research, Fall 2012. Journal of Discrete Mathematics, 2014. See <http://www.hindawi.com/journals/jdm/2014/731519/>

D. E. Nitz, J. J. Curry, M. J. Buuck, N. P. Mitchell, A. D. DeMann, W. E. Shull. *Transition Probabilities for Neutral Cerium from Boltzmann Analysis of Fourier Transform Spectra*. Journal of Physics B: Atomic, Molecular, and Optical Physics. January 26, 2018.

## Drafts

Warren Shull, *Totally Geodesic Surfaces in Hyperbolic Knot Complements*, California State University San Bernardino REU, 2012. See <http://www.math.csusb.edu/reu/WS12.pdf>

Warren Shull, Kaisa Taipale, Erik Wyatt. Combinatorics of Puzzles. Unfinished draft of paper. See <https://sites.google.com/site/kaisataipale/publications/puzzle-rule>.

## PRESENTATIONS

31st Cumberland Conference on Combinatorics, Graph Theory, and Computing, University of Central Florida, May 2019; presented paper “On Spanning Trees with few Branch Vertices”

Joint Math Meetings, January 2019, presented paper “On Spanning Trees with few Branch Vertices”

Conference on Combinatorics and its Applications, Nanyang Technological University, Singapore, July 2018; presented both papers on spanning trees

Spelman College, March 2018; presented both papers on spanning trees

Joint Mathematics Meetings, San Diego, January 2018; presented paper “On Spanning Trees with few Branch Vertices”

31st Midwestern Conference on Combinatorics and Combinatorial Computing, University of West Georgia, October 2017; presented paper “On Spanning Trees with few Branch Vertices”

29th Cumberland Conference on Combinatorics, Graph Theory, and Computing, Vanderbilt University, May 2017; presented paper “On a Conjecture on Spanning Trees with few Branch Vertices”

48th Southeastern International Conference on Combinatorics, Graph Theory, and Computing, Florida Atlantic University, March 2017; presented paper “On a Conjecture on Spanning Trees with few Branch Vertices”

## WORKSHOPS

DePaul University Workshop on Inquiry Based Learning, June 2018

Center for the Integration of Research, Teaching, and Learning, Problem Based Learning Workshop, May 2018

Graduate Research Workshop in Combinatorics, Denver, CO, July 2017; paper *Local Dimension* accepted by European Journal of Combinatorics

Graduate Research Workshop in Combinatorics, University of Wyoming, July 2016

## **SERVICE**

Emory Math Circle, 2013-2014 and 2018-present

- Mentor middle and high school students at a variety of levels
- Introduce students to math topics that aren't usually discussed in school

Faculty hiring focus group, St. Olaf College, Spring 2012

- Observed presentations from three tenure track Algebra candidates and discussed strengths and weaknesses with current faculty

## **OTHER CONFERENCES AND ACTIVITIES**

Atlanta Lecture Series in Combinatorics and Graph Theory, 2015-present (three per year)

Joint Mathematics Meetings, Atlanta, January 2017

47th Southeastern International Conference on Combinatorics, Graph Theory & Computing, Florida Atlantic University, March 2016

AMS Sectional Meetings, University of Memphis, October 2015

Joint Math Meetings Undergraduate Poster Session, San Diego Convention Center, San Diego, January 2013

Undergraduate Knot Theory Conference, Denison University, Granville, Ohio, July 2012

Atomic Transition Probabilities in Cerium, Undergraduate Research Symposium, sponsored by Midstates Consortium for Math and Science, University of Chicago, September 2011