

Department of Mathematics, Dartmouth College, 245 Kemeny Hall, Hanover, NH 03755
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Education

- PhD, Mathematics**, *Dartmouth College*, Hanover, NH Fall 2018 - Present
Advisor: John Voight
- MS, Mathematics**, *Brigham Young University*, Provo, UT Winter 2017 - Summer 2018
Advisors: Michael Griffin and Paul Jenkins
Thesis: *The arithmetic of modular grids*
- BS, Mathematics**, *Brigham Young University*, Provo, UT Fall 2013 - Fall 2016

Awards and Fellowships

- Dartmouth Graduate Fellowship Fall 2018 - Summer 2023
- Gridley Fund for Graduate Mathematics Fall 2018 - Summer 2019
- NSF Graduate Research Fellowship Honorable Mention April 2018
- BYU Academic Scholarship Spring 2015 - Winter 2016
- BYU Math Department Scholarship Fall 2016
- BYU Math Department Scholarship Fall 2015
- BYU Academic Scholarship Fall 2013 - Winter 2014

Research Publications and Preprints

- The arithmetic of modular grids**, with *Michael Griffin and Paul Jenkins*
Submitted for publication. arXiv:2012.14403
- Odd, spoof perfect factorizations**, with the *BYU Computational Number Theory Group*
Submitted for publication. arXiv:2006.10697
- Zagier duality for level p weakly holomorphic modular forms**, with *Paul Jenkins*
The Ramanujan Journal **50**, 93–109 (2019). arXiv:1709.10023
- Graphs with the strong Havel-Hakimi property**, with *Michael Barrus*
Graphs and Combinatorics **32**, 1689–1697 (2016). arXiv:1505.00085

Manuscripts in Preparation

- Reactive means and the prisoner's dilemma**, with *Feng Fu*
- Telescopic, multiplicative, and rational extensions of summations**, with *Robert Dawson*
- Multiplicative summations into algebraically closed fields**, with *Robert Dawson*
- Odd, spoof quasiperfect factorizations**, with *Jonathan Hales*

Expository Notes

Fast-growing series are transcendental, with *Robert Dawson*

Unpublished. arXiv:2102.12995

Teaching Experience

Dartmouth College, Hanover, NH (Instructor)

Math 1 (Algebra and Calculus) Fall 2020

Dartmouth College, Hanover, NH (Teacher's Assistant)

Math 23 (Differential Equations) Winter 2020

Math 3 (Calculus) Fall 2019

Math 22 (Linear Algebra) Spring 2019

Math 22 (Linear Algebra) Fall 2018

Brigham Young University, Provo, UT (Instructor)

Math 112 (Calculus I) Summer 2017

Brigham Young University, Provo, UT (Teacher's Assistant)

Math 112 (Calculus I) Fall 2017

Math 113 (Calculus II) Winter 2017

Brigham Young University, Provo, UT (Grader)

Math 570 (Matrix Analysis) Winter 2017

Math 112 (Calculus I) Fall 2015

Conference Talks

Formal summation of divergent series

September 26, 2020

2020 Maine-Québec Number Theory Conference (virtual)

The arithmetic of modular grids

October 5, 2019

2019 Maine-Québec Number Theory Conference

The arithmetic of modular grids

March 8, 2019

33rd Automorphic Forms Workshop

The arithmetic of modular grids

July 17, 2018

Building Bridges: 4th EU/US Summer School + Workshop on Automorphic Forms

Zagier duality in level p modular spaces

March 21, 2018

32nd Automorphic Forms Workshop

Zagier duality in level p modular spaces

March 3, 2018

2018 BYU Student Research Conference

Zagier duality in level p modular spaces

May 24, 2017

Modular Forms are Everywhere Conference

Weakly holomorphic modular forms of level 11

March 7, 2017

31st Automorphic Forms Workshop

Weakly holomorphic modular forms of level 11

March 4, 2017

2017 BYU Student Research Conference

Congruence relations in modular forms of prime levels greater than 7 2015 BYU Student Research Conference	March 21, 2015
Residues and independence numbers of graphs 2014 BYU Student Research Conference	March 15, 2014

Seminar Talks

p-adic Hodge theory Reading Seminar on Classical and Quadratic Chabauty (virtual)	March 2, 2021
Odd, spoof quasiperfect factorizations Dartmouth Algebra and Number Theory Seminar (virtual)	February 9, 2021
A primer in social choice theory Dartmouth Graduate Student Seminar (virtual)	January 20, 2021
Examples of Kedlaya's algorithm Reading Seminar on Classical and Quadratic Chabauty (virtual)	November 19, 2020
The LCM product and Grönwall's theorem Dartmouth Algebra and Number Theory Seminar (virtual)	November 17, 2020
Reactive means and the prisoner's dilemma Dartmouth Graduate Student Seminar (virtual)	October 7, 2020
Formal summation of divergent series: an algebraic approach Dartmouth Algebra and Number Theory Seminar (virtual)	April 28, 2020
On the infinitude of the natural numbers Dartmouth Graduate Student Seminar	February 12, 2020
Variations of Hodge structures Reading Seminar on Shimura Varieties	November 26, 2019
Hodge structures Reading Seminar on Shimura Varieties	November 14, 2019
Savage's expected utility and making good decisions Dartmouth Graduate Student Seminar	November 13, 2019
Geometric and generalized calculus Dartmouth Graduate Student Seminar	October 8, 2019
Summing divergent series Dartmouth Graduate Student Seminar	July 31, 2019
Real analysis: a nonstandard approach Dartmouth Graduate Student Seminar	April 17, 2019
Why save the universe? Set theory with a universal set Dartmouth Graduate Student Seminar	January 16, 2019
The arithmetic of modular grids Dartmouth Graduate Student Seminar	September 26, 2018
The arithmetic of modular grids BYU Master's Thesis Defense	June 22, 2018
Dioids and idempotent geometry II BYU Algebra Seminar	March 13, 2018
Dioids and idempotent geometry I BYU Algebra Seminar	February 27, 2018

Zagier duality in level p modular spaces BYU Number Theory Seminar	February 22, 2018
Average values of arithmetic functions BYU Number Theory Seminar	October 12, 2017
Weakly holomorphic modular forms of level 11 BYU Number Theory Seminar	February 9, 2017
Generating functions for canonical bases of certain level 11 weakly holomorphic modular forms BYU Number Theory Seminar	January 26, 2017
High rank elliptic curves with prescribed torsion BYU Number Theory Seminar	December 1, 2016
Heuristics for elliptic curves of high rank BYU Number Theory Seminar	October 20, 2016
A lemma regarding the Feit-Thompson conjecture BYU Number Theory Seminar	November 12, 2015
Algebraic number theory and the Feit-Thompson conjecture BYU Number Theory Seminar	October 1, 2015
On Hensel's lemma BYU Number Theory Seminar	February 12, 2015
On Newton polynomials BYU Number Theory Seminar	March 27, 2014

Service and Synergistic Activities

Reviewer

zbMATH Open

K-12 Outreach

Utah Math Olympiad Committee Member	2015 - Present
Exploring Mathematics Camp Leader (Graph Theory)	July 27-31, 2020
Exploring Mathematics Camp Leader (Cryptography)	July 13-17, 2020
Activity Station Leader at Lebanon Ward Pi Day	March 7, 2020
Volunteer at Dartmouth Sonia Kovalevsky Day	May 11, 2019
Activity Station Leader at Dartmouth Science Day	May 4, 2019
Math Circles Guest Speaker on Tropical Algebra	February 24, 2018
Math Circles Guest Speaker on Continued Fractions	October 21, 2017
Proofreader for Utah State Math Contest	February 2017
Math Circles Counselor	2013 - 2015

Other

Dartmouth Graduate Student Council Representative for Math Department	2020 - Present
◦ <i>Service Committee Member</i>	2020 - Present
◦ <i>Sexual Misconduct Survey Committee Member</i>	February 2021
◦ <i>Budget Committee Member</i>	August 2020
Dartmouth Algebra and Number Theory Seminar Coordinator	2019 - Present

BYU Putnam Team Captain

2014 - 2016

Other

Mathematical Work

Math Tutor

2013 - Present

Undergraduate Researcher

2013 - 2016

Achievements and Honors

3rd Place in Virginia Tech Regional Math Competition

October 2016

2nd Place in Search for High Rank Elliptic Curve at 2016 CTNT

August 2016

Eagle Scout

December 2012

Black Belt in Taekwondo

August 2012

Special Training

Dartmouth Mathematics Teaching Seminar

Spring 2020

BYU Mathematics Teaching Seminar

Fall 2018

Computer Skills

Python • C++ • SageMath • Magma • Mathematica

Academic Interests

Analytic Number Theory • Arithmetic Geometry • Game Theory • Logic

Personal Interests

Reading • Writing • Philosophy • Rock-Climbing

Conferences and Summer Schools Attended

2021 Joint Mathematics Meetings

January 6-9, 2021

Virtual

Fall 2020 Algebraic Geometry Northeastern Series

October 23-25, 2020

Virtual

2020 Maine-Québec Number Theory Conference

September 26-27, 2020

Virtual

14th Algorithmic Number Theory Symposium

June 29 - July 4, 2020

Virtual

UNCG Summer School in Computational Number Theory and Algebra:

Ergodic Theory with Applications to Continued Fractions

May 18-22, 2020

Virtual

2019 Maine-Québec Number Theory Conference

October 5-6, 2019

University of Maine, Orono

Fall 2019 Algebraic Geometry Northeastern Series

September 20-22, 2019

Boston College, Boston

33rd Automorphic Forms Workshop

March 6-10, 2019

Duquesne University, Pittsburgh

Building Bridges: 4th EU/US Summer School +

Workshop on Automorphic Forms and Related Topics

July 9-20, 2018

Alfréd Rényi Institute of Mathematics, Budapest

32 nd <i>Automorphic Forms Workshop</i> Tufts University, Medford	March 19-22, 2018
<i>Modular Forms are Everywhere</i> Max Planck Institute for Mathematics, Bonn	May 15-26, 2017
31 st <i>Automorphic Forms Workshop</i> East Tennessee State University, Johnson City	March 6-9, 2017
2017 <i>BYU Student Research Conference</i> Brigham Young University, Provo	March 4, 2017
2016 <i>Connecticut Summer School in Number Theory</i> University of Connecticut, Storrs	August 8-14, 2016
2015 <i>BYU Student Research Conference</i> Brigham Young University, Provo	March 21, 2015
2014 <i>BYU Student Research Conference</i> Brigham Young University, Provo	March 15, 2014