

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

Telescopic, multiplicative, and rational extensions of summations, with *Robert Dawson*
Forthcoming. arXiv:2105.04592

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

Expository Notes

Fast-growing series are transcendental, with *Robert Dawson*
Unpublished. arXiv:2102.12995

Manuscripts in Preparation

Reactive means and the prisoner's dilemma, *with Feng Fu*

Multiplicative summations into algebraically closed fields, *with Robert Dawson*

Odd, spoof quasiperfect factorizations, *with Jonathan Hales*

Teaching Experience

Dartmouth College, Hanover, NH (Instructor)

Math 1 (Algebra and Calculus) Fall 2020

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

Math 100 / Computer Science 49/149 (Decision Theory) Spring 2021

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 2017 BYU Student Research Conference	March 4, 2017
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

Fast-growing series are transcendental Dartmouth Graduate Student Seminar (virtual)	April 21, 2021
Coalgebras and Hopf algebras Reading Seminar on Affine Group Schemes (virtual)	April 15, 2021
Absurd equalities and Runge's method: the degenerate case Dartmouth Algebra and Number Theory Seminar (virtual)	March 30, 2021
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 <i>zbMATH Open</i>	2021 - Present
Referee <i>Journal of Number Theory</i>	2018
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 Algebra and Number Theory Seminar Organizer	2019 - Present
Dartmouth Graduate Student Council Finance Officer	2021 - Present
Dartmouth Graduate Student Council Representative for Math Department	2020 - 2021
◦ <i>Service Committee Member</i>	2020 - 2021
◦ <i>Mentorship Committee Member</i>	April 2021
◦ <i>Sexual Misconduct Survey Committee Member</i>	February 2021
◦ <i>Budget Committee Member</i>	August 2020
BYU Putnam Team Captain	2014 - 2016

Other

Mathematical Work

Math Tutor	2013 - Present
Undergraduate Researcher	2013 - 2016

Achievements and Honors

3 rd Place in Virginia Tech Regional Math Competition	October 2016
2 nd 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 • Hiking

Conferences and Summer Schools Attended

<i>Spring 2021 Algebraic Geometry Northeastern Series</i>	May 4-5, 2021
Virtual	
<i>21st Algebra, Geometry and Combinatorics Day</i>	April 10, 2021
Virtual	
<i>2021 Joint Mathematics Meetings</i>	January 6-9, 2021
Virtual	
<i>Fall 2020 Algebraic Geometry Northeastern Series</i>	October 23-25, 2020
Virtual	

2020 <i>Maine-Québec Number Theory Conference</i> Virtual	September 26-27, 2020
14 th <i>Algorithmic Number Theory Symposium</i> Virtual	June 29 - July 4, 2020
<i>UNCG Summer School in Computational Number Theory and Algebra: Ergodic Theory with Applications to Continued Fractions</i> Virtual	May 18-22, 2020
2019 <i>Maine-Québec Number Theory Conference</i> University of Maine, Orono	October 5-6, 2019
<i>Fall 2019 Algebraic Geometry Northeastern Series</i> Boston College, Boston	September 20-22, 2019
33 rd <i>Automorphic Forms Workshop</i> Duquesne University, Pittsburgh	March 6-10, 2019
<i>Building Bridges: 4th EU/US Summer School + Workshop on Automorphic Forms and Related Topics</i> Alfréd Rényi Institute of Mathematics, Budapest	July 9-20, 2018
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