

# Grant Molnar

# Curriculum Vitae

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

**MA, Mathematics**, *Dartmouth College*, Hanover, NH Fall 2018 - Winter 2020  
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

## Teaching Experience

**Dartmouth College**, Hanover, NH (Instructor)

Math 8 (Multivariable Calculus) Fall 2021  
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

## Other Work Experience

Math Tutor 2013 - Present  
BYU Putnam Team 2014 - 2016  
Undergraduate Researcher 2013 - 2016  
Math Circles Counselor 2013 - 2015

## 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*

Submitted for publication. [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*

## 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

33<sup>rd</sup> Automorphic Forms Workshop

**The arithmetic of modular grids**

July 17, 2018

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

<b>Zagier duality in level <math>p</math> modular spaces</b> 32 <sup>nd</sup> Automorphic Forms Workshop	March 21, 2018
<b>Zagier duality in level <math>p</math> modular spaces</b> 2018 BYU Student Research Conference	March 3, 2018
<b>Zagier duality in level <math>p</math> modular spaces</b> Modular Forms are Everywhere Conference	May 24, 2017
<b>Weakly holomorphic modular forms of level 11</b> 31 <sup>st</sup> Automorphic Forms Workshop	March 7, 2017
<b>Weakly holomorphic modular forms of level 11</b> 2017 BYU Student Research Conference	March 4, 2017
<b>Congruence relations in modular forms of prime levels greater than 7</b> 2015 BYU Student Research Conference	March 21, 2015
<b>Residues and independence numbers of graphs</b> 2014 BYU Student Research Conference	March 15, 2014

## Other Talks

<b>Fast-growing series are transcendental</b> Dartmouth Graduate Student Seminar (virtual)	April 21, 2021
<b>Coalgebras and Hopf algebras</b> Reading Seminar on Affine Group Schemes (virtual)	April 15, 2021
<b>Absurd equalities and Runge's method: the degenerate case</b> Dartmouth Algebra and Number Theory Seminar (virtual)	March 30, 2021
<b><math>p</math>-adic Hodge theory</b> Reading Seminar on Classical and Quadratic Chabauty (virtual)	March 2, 2021
<b>Odd, spoof quasiperfect factorizations</b> Dartmouth Algebra and Number Theory Seminar (virtual)	February 9, 2021
<b>A primer in social choice theory</b> Dartmouth Graduate Student Seminar (virtual)	January 20, 2021
<b>Examples of Kedlaya's algorithm</b> Reading Seminar on Classical and Quadratic Chabauty (virtual)	November 19, 2020
<b>The LCM product and Grönwall's theorem</b> Dartmouth Algebra and Number Theory Seminar (virtual)	November 17, 2020
<b>Reactive means and the prisoner's dilemma</b> Dartmouth Graduate Student Seminar (virtual)	October 7, 2020
<b>Formal summation of divergent series: an algebraic approach</b> Dartmouth Algebra and Number Theory Seminar (virtual)	April 28, 2020
<b>On the infinitude of the natural numbers</b> Dartmouth Graduate Student Seminar	February 12, 2020
<b>Variations of Hodge structures</b> Reading Seminar on Shimura Varieties	November 26, 2019
<b>Hodge structures</b> Reading Seminar on Shimura Varieties	November 14, 2019
<b>Savage's expected utility and making good decisions</b> Dartmouth Graduate Student Seminar	November 13, 2019

<b>Geometric and generalized calculus</b> Dartmouth Graduate Student Seminar	October 8, 2019
<b>Summing divergent series</b> Dartmouth Graduate Student Seminar	July 31, 2019
<b>Real analysis: a nonstandard approach</b> Dartmouth Graduate Student Seminar	April 17, 2019
<b>Why save the universe? Set theory with a universal set</b> Dartmouth Graduate Student Seminar	January 16, 2019
<b>The arithmetic of modular grids</b> Dartmouth Graduate Student Seminar	September 26, 2018
<b>The arithmetic of modular grids</b> BYU Master's Thesis Defense	June 22, 2018
<b>Dioids and idempotent geometry II</b> BYU Algebra Seminar	March 13, 2018
<b>Dioids and idempotent geometry I</b> BYU Algebra Seminar	February 27, 2018
<b>Zagier duality in level <math>p</math> modular spaces</b> BYU Number Theory Seminar	February 22, 2018
<b>Average values of arithmetic functions</b> BYU Number Theory Seminar	October 12, 2017
<b>Weakly holomorphic modular forms of level 11</b> BYU Number Theory Seminar	February 9, 2017
<b>Generating functions for canonical bases of certain level 11 weakly holomorphic modular forms</b> BYU Number Theory Seminar	January 26, 2017
<b>High rank elliptic curves with prescribed torsion</b> BYU Number Theory Seminar	December 1, 2016
<b>Heuristics for elliptic curves of high rank</b> BYU Number Theory Seminar	October 20, 2016
<b>A lemma regarding the Feit-Thompson conjecture</b> BYU Number Theory Seminar	November 12, 2015
<b>Algebraic number theory and the Feit-Thompson conjecture</b> BYU Number Theory Seminar	October 1, 2015
<b>On Hensel's lemma</b> BYU Number Theory Seminar	February 12, 2015
<b>On Newton polynomials</b> BYU Number Theory Seminar	March 27, 2014

## Service and Synergistic Activities

<b>Referee</b> <i>Journal of Number Theory</i>	2018 - Present
<b>Reviewer</b> <i>zbMATH Open</i>	2021 - Present

## 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

## Other

Dartmouth Algebra and Number Theory Seminar Organizer	2019 - Present
Dartmouth Graduate Student Council Finance Officer	2021 - Present
◦ <i>Budget Committee Member</i>	August - September 2021
Dartmouth Graduate Student Council Representative for Math Department	2020 - 2021
◦ <i>Service Committee Member</i>	2020 - 2021
◦ <i>Budget Committee Member</i>	August 2020
BYU Putnam Team Captain	2014 - 2016

## Other

### Achievements and Honors

3 <sup>rd</sup> Place in Virginia Tech Regional Math Competition	October 2016
2 <sup>nd</sup> 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 • Git

### Academic Interests

Analytic Number Theory • Arithmetic Geometry • Game Theory • Logic

### Personal Interests

Reading • Writing • Philosophy • Hiking

## Conferences and Summer Schools Attended

2021 <i>Maine-Québec Number Theory Conference</i>	October 2-3, 2021
Virtual	
<i>Spring 2021 Algebraic Geometry Northeastern Series</i>	May 4-5, 2021
Virtual	
21 <sup>st</sup> <i>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	
<i>2020 Maine-Québec Number Theory Conference</i>	September 26-27, 2020
Virtual	
<i>14<sup>th</sup> Algorithmic Number Theory Symposium</i>	June 29 - July 4, 2020
Virtual	
<i>UNCG Summer School in Computational Number Theory and Algebra: Ergodic Theory with Applications to Continued Fractions</i>	May 18-22, 2020
Virtual	
<i>2019 Maine-Québec Number Theory Conference</i>	October 5-6, 2019
University of Maine, Orono	
<i>Fall 2019 Algebraic Geometry Northeastern Series</i>	September 20-22, 2019
Boston College, Boston	
<i>33<sup>rd</sup> Automorphic Forms Workshop</i>	March 6-10, 2019
Duquesne University, Pittsburgh	
<i>Building Bridges: 4<sup>th</sup> EU/US Summer School + Workshop on Automorphic Forms and Related Topics</i>	July 9-20, 2018
Alfréd Rényi Institute of Mathematics, Budapest	
<i>32<sup>nd</sup> Automorphic Forms Workshop</i>	March 19-22, 2018
Tufts University, Medford	
<i>Modular Forms are Everywhere</i>	May 15-26, 2017
Max Planck Institute for Mathematics, Bonn	
<i>31<sup>st</sup> Automorphic Forms Workshop</i>	March 6-9, 2017
East Tennessee State University, Johnson City	
<i>2017 BYU Student Research Conference</i>	March 4, 2017
Brigham Young University, Provo	
<i>2016 Connecticut Summer School in Number Theory</i>	August 8-14, 2016
University of Connecticut, Storrs	
<i>2015 BYU Student Research Conference</i>	March 21, 2015
Brigham Young University, Provo	
<i>2014 BYU Student Research Conference</i>	March 15, 2014
Brigham Young University, Provo	