Grant Molnar Curriculum Vitae

Department of Mathematics, Dartmouth College, 245 Kemeny Hall, Hanover, NH 03755
Grant.S.Molnar.GR@dartmouth.edu

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 (Calculus of One and Several Variables)	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

Multiplicative summations into algebraically closed fields, *with Robert Dawson*
Submitted for publication. arXiv:2111.09938

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*
Journal of Number Theory (2021). 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

Counting 7-isogenies, *with John Voight*

Odd, spoof quasiperfect factorizations, *with Jonathon Hales*

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

Visualizing Basel's problem, *with Mits Kobayashi*

Git Projects

Spoof Quasiperfect Factorizations Fall 2021

`https://github.com/grantmolnar/Spoof-Quasiperfect-Factorizations`

Conference Talks

The LCM product and Grönwall's theorem October 3, 2021
2021 Maine-Québec Number Theory Conference (virtual)

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^{rd} 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
32^{nd} 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
31^{st} 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 March 21, 2015
2015 BYU Student Research Conference

Residues and independence numbers of graphs March 15, 2014
2014 BYU Student Research Conference

Other Talks

Inverse semigroups: groups without identity November 9, 2021
Dartmouth Graduate Student Seminar

Counting 7-isogenies November 8, 2021
Dartmouth Algebra and Number Theory Seminar

A sober look at pointless topology September 21, 2021
Dartmouth Graduate Student Seminar

Fast-growing series are transcendental April 21, 2021
Dartmouth Graduate Student Seminar (virtual)

Coalgebras and Hopf algebras April 15, 2021
Reading Seminar on Affine Group Schemes (virtual)

Absurd equalities and Runge's method: the degenerate case March 30, 2021
Dartmouth Algebra and Number Theory Seminar (virtual)

p-adic Hodge theory March 2, 2021
Reading Seminar on Classical and Quadratic Chabauty (virtual)

Odd, spoof quasiperfect factorizations February 9, 2021
Dartmouth Algebra and Number Theory Seminar (virtual)

A primer in social choice theory January 20, 2021
Dartmouth Graduate Student Seminar (virtual)

Examples of Kedlaya's algorithm November 19, 2020
Reading Seminar on Classical and Quadratic Chabauty (virtual)

The LCM product and Grönwall's theorem November 17, 2020
Dartmouth Algebra and Number Theory Seminar (virtual)

Reactive means and the prisoner's dilemma October 7, 2020
Dartmouth Graduate Student Seminar (virtual)

Formal summation of divergent series: an algebraic approach April 28, 2020
Dartmouth Algebra and Number Theory Seminar (virtual)

On the infinitude of the natural numbers February 12, 2020
Dartmouth Graduate Student Seminar

Variations of Hodge structures November 26, 2019
Reading Seminar on Shimura Varieties

Hodge structures November 14, 2019
Reading Seminar on Shimura Varieties

Savage's expected utility and making good decisions November 13, 2019
Dartmouth Graduate Student Seminar

Geometric and generalized calculus October 8, 2019
Dartmouth Graduate Student Seminar

Summing divergent series July 31, 2019
Dartmouth Graduate Student Seminar

Real analysis: a nonstandard approach April 17, 2019
Dartmouth Graduate Student Seminar

Why save the universe? Set theory with a universal set January 16, 2019
Dartmouth Graduate Student Seminar

The arithmetic of modular grids September 26, 2018
Dartmouth Graduate Student Seminar

The arithmetic of modular grids June 22, 2018
BYU Master's Thesis Defense

Dioids and idempotent geometry II March 13, 2018
BYU Algebra Seminar

Dioids and idempotent geometry I February 27, 2018
BYU Algebra Seminar

Zagier duality in level p modular spaces February 22, 2018
BYU Number Theory Seminar

Average values of arithmetic functions October 12, 2017
BYU Number Theory Seminar

Weakly holomorphic modular forms of level 11 February 9, 2017
BYU Number Theory Seminar

Generating functions for canonical bases of certain level 11 weakly holomorphic modular forms January 26, 2017
BYU Number Theory Seminar

High rank elliptic curves with prescribed torsion December 1, 2016
BYU Number Theory Seminar

Heuristics for elliptic curves of high rank October 20, 2016
BYU Number Theory Seminar

A lemma regarding the Feit-Thompson conjecture November 12, 2015
BYU Number Theory Seminar

Algebraic number theory and the Feit-Thompson conjecture October 1, 2015
BYU Number Theory Seminar

On Hensel's lemma February 12, 2015
BYU Number Theory Seminar

On Newton polynomials March 27, 2014
BYU Number Theory Seminar

Leadership and Community Service

Referee

Journal of Number Theory 2018 - Present

Reviewer

zbMATH Open 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
- ○ *Budget Committee Member* Summer 2021

Dartmouth Graduate Student Council Representative for Math Department 2020 - 2021
- ○ *Service Committee Member* 2020 - 2021
- ○ *Budget Committee Member* Summer 2020

BYU Putnam Team Captain 2014 - 2016

Computer Skills

Fluent in...

Bash • Python • SageMath • LaTeX

Experience with...

C++ • HTML • Git • Magma • Mathematica • MatLab

Other

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
Gold Palm Eagle Scout	December 2012
Black Belt in Taekwondo	August 2012

Special Training

Dartmouth Mathematics Teaching Seminar	Spring 2020
BYU Mathematics Teaching Seminar	Fall 2018

Academic Interests

Analytic Number Theory • Arithmetic Geometry • Game Theory • Logic

Personal Interests

Reading • Writing • Philosophy • Hiking • Rock-Climbing

Conferences and Summer Schools Attended

2021 *Maine-Québec Number Theory Conference* — October 2-3, 2021
Virtual

Spring 2021 *Algebraic Geometry Northeastern Series* — May 4-5, 2021
Virtual

21^{st} *Algebra, Geometry and Combinatorics Day* — April 10, 2021
Virtual

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

14^{th} *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

33^{rd} *Automorphic Forms Workshop* — March 6-10, 2019
Duquesne University, Pittsburgh

Building Bridges: 4^{th} *EU/US Summer School + Workshop on Automorphic Forms and Related Topics* — July 9-20, 2018
Alfréd Rényi Institute of Mathematics, Budapest

32^{nd} *Automorphic Forms Workshop* — March 19-22, 2018
Tufts University, Medford

Modular Forms are Everywhere May 15-26, 2017
Max Planck Institute for Mathematics, Bonn
31^{st} *Automorphic Forms Workshop* March 6-9, 2017
East Tennessee State University, Johnson City
2017 *BYU Student Research Conference* March 4, 2017
Brigham Young University, Provo
2016 *Connecticut Summer School in Number Theory* August 8-14, 2016
University of Connecticut, Storrs
2015 *BYU Student Research Conference* March 21, 2015
Brigham Young University, Provo
2014 *BYU Student Research Conference* March 15, 2014
Brigham Young University, Provo