

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

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Unpublished.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

Referee

Journal of Number Theory

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 |