

Employment

July 2023 - present **Research Assistant Professor**, Department of Mathematics and Statistics, Boston University, Boston, Massachusetts.

Education

- 2023 **PhD in Mathematics**, Dartmouth College, Hanover, New Hampshire.
Advisor: John Voight.
Thesis title: “Triangular modular curves of low genus and geometric quadratic Chabauty”.
- 2021 **M.A. in Mathematics**, Dartmouth College, Hanover, New Hampshire.
- 2019 **M.S. in Mathematics**, Colorado State University, Fort Collins, Colorado.
Advisor: Rachel Pries.
Thesis title: “Rational points of low degree on Fermat curves through the Jacobian variety”.
- 2016 **B.S. in Mathematics**, University of Los Andes, Bogotá, Colombia.

Publications

- 2023 **Geometric quadratic Chabauty and p -adic heights**, with Sachi Hashimoto and Pim Spelier, *Exp. Math. Special Issue in Honor of B. Edixhoven* (2023).
- 2023 **Enumerating triangular modular curves of low genus**, with John Voight, *Res. Number Theory* 9:3 (2023).

Accepted

A database of basic numerical invariants of Hilbert modular surfaces, *accepted to Contemp. Math.*, with Eran Assaf, Angelica Babei, Ben Breen, Edgar Costa, Aleksander Horawa, Jean Kieffer, Avinash Kulkarni, Grant Molnar, Sam Schiavone, and John Voight.

Preprints

The classifying element for quotients of Fermat curves, with Rachel Pries. Submitted.

Local heights on hyperelliptic curves and quadratic Chabauty, with Alexander Betts, Sachi Hashimoto, and Pim Spelier.

On invariants of Artin-Schreier curves, with Heidi Goodson, Elisa Lorenzo García, Beth Malmskog, and Renate Scheidler. Submitted.

Selected Talks

- Jan 2024 **Simons Collaboration on Arithmetic Geometry, Number Theory, and Computation Annual Meeting 2024**, New York, New York, (*lightning talk*).
- Dec 2023 **Brown Algebra/Number Theory Seminar**, *Brown University*, Providence, Rhode Island.

- Oct 2023 **Boston University Number Theory Seminar**, *Boston University*, Boston, Massachusetts.
- Oct 2023 **Algebra and Number Theory Seminar**, *Wesleyan University*, Middletown, Connecticut.
- Sep 2023 **AWM Research Symposium**, *Special Session on Recent Advances in Curves and Abelian Varieties*, Clark Atlanta University, Atlanta, Georgia.
- Jan 2023 **Simons Collaboration on Arithmetic Geometry, Number Theory, and Computation Annual Meeting 2023**, New York, New York, (*lightning talk*).
- Dec 2022 **Number Theory Seminar**, *The Ohio State University*, Columbus, Ohio.
- Nov 2022 **Algebra, Algebraic Geometry and Number Theory Seminar**, *Rice University*, Houston, Texas.
- Oct 2022 **AMS Fall Eastern Sectional Meeting**, *Special Session on Latinx and Hispanics in Combinatorics, Number Theory, Geometry and Topology*, University of Massachusetts Amherst, Amherst, MA.
- Aug 2022 **Fifteenth Algorithmic Number Theory Symposium (ANTS-XV)**, University of Bristol, Bristol, UK.
- Apr 2022 **Number Theory LAB**, Colorado State University, Fort Collins, Colorado.
- Apr 2022 **Explicit Methods in Modularity**, *virtual*.
- Feb 2022 **XXIII International Symposium on Mathematical Methods Applied to Sciences**, San José, Costa Rica.
- Dec 2021 **A Series of Trimester Programs on Triangle Groups, Belyi Uniformization, and Modularity**, Bhaskaracharya Pratishthana, Prune, India.
- Jun 2017 **XXI Colombian Congress of Mathematics**, National University of Colombia, Bogotá, Colombia.
- Nov 2016 **Matemáticas por Estudiantes**, University of Los Andes, Bogotá, Colombia.

Teaching Experience

Instructor of Record

- Spring 2024 **Graph Theory**, CAS MA 433, Boston University.
- Fall 2023 **Linear Algebra**, CAS MA 242, Boston University.
- Winter 2023 **Introduction to Mathematics Beyond Calculus: *the abc conjecture***, Math 17, Dartmouth College.
- Fall 2021 **Introduction to Calculus**, Math 1, Dartmouth College.
- Summer 2019 **Linear Algebra I**, Math 369, Colorado State University.
- Spring 2019 **Calculus for Physical Scientists I**, Math 160, Colorado State University.
- Fall 2018 **Calculus for Physical Scientists II**, Math 161, Colorado State University.
- Summer 2018 **Calculus for Physical Scientists III**, Math 261, Colorado State University.

Graduate Teaching Assistant

- Spring 2021 **Multivariable Calculus**, *Math 13*, Dartmouth College.
Fall 2020 **Calculus of Functions of one and Several Variables**, *Math 8*, Dartmouth College.
Spring 2018 **Calculus for Physical Scientists II**, *Math 161*, Colorado State University.
Fall 2017 **Calculus for Biological Scientists I**, *Math 155*, Colorado State University.

Recitation Leader

- Spring 2017 **Integral Calculus and Differential Equations**, University of Los Andes.
Spring 2016 **Linear Algebra I**, University of Los Andes.
Fall 2015 **Integral Calculus and Differential Equations**, University of Los Andes.

Other Appointments

- Fall 2019 - **Paced Algebra to Calculus electronically (PACe)**, *Assistant Director*, Colorado
Summer State University.
2020 This is the online precalculus program of Colorado State University. My duties included managing about 20 undergraduate employees, having discussions with students about their academic progress and needs, and working with students through violations of the academic honesty code.

Mentoring and Outreach

- Sep 2023 **Panel discussion: *Research Collaboration Conferences and Networks for Women***, *panelist*, AWM Research Symposium: Special Session on Recent Advances in Curves and Abelian Varieties, Clark Atlanta University, Atlanta, Georgia.
Apr 2023 **Sonia Kovalevsky Day**, *co-organizer*, Dartmouth College, Hanover, New Hampshire.
Mar 2023 **Arizona Winter School: Unlikely Intersections**, *teaching assistant*, University of Arizona, Tucson, Arizona.
Fall 2022 **Preliminary Arizona Winter School 2022: Heights and Model Theory**, *teaching assistant*, (Online).
Apr 2022 **Panel discussion: *Life With a Math Major***, *panelist*, Western Algebraic Geometry Symposium (WAGS), Colorado State University, Fort Collins, Colorado.
Winter 2022 **Directed Reading Program**, Dartmouth College, Hanover, New Hampshire.
Advised two mathematics undergraduate students on elliptic curves.
Summer **Exploring Mathematics Camp**, Dartmouth College, Hanover, New Hampshire.
2021 Co-taught a two weeks program on knot theory and combinatorial games for high school and middle school students.
Winter 2021 **Directed Reading Program**, Dartmouth College, Hanover, New Hampshire.
Advised one undergraduate student on introduction to algebraic geometry.
Fall 2019 - **Putnam Seminar**, *coach*, Colorado State University, Fort Collins, Colorado.
Spring 2020
Jun 2017 **Panel discussion: Women in Mathematics**, *panelist*, XXI Colombian Congress of Mathematics, Universidad Nacional de Colombia, Bogotá, Colombia.

Academic Honors and Awards

- Jan 2023 **Graduate Student Travel Grant to 2023 JMM**, American Mathematical Society.
Sep 2020 **Dartmouth Fellowship**, Dartmouth College, Hanover, New Hampshire.

Jul 2015 **Yerly's Scholarship**, University of Los Andes, Bogotá, Colombia.

Service

- Jan 2024 **JMM special session: Arithmetic geometry with a view toward computation**, *co-organizer*, San Francisco, California.
- Fall 2021 - **Dartmouth Algebra and Number Theory Seminar**, *co-organizer*, Dartmouth College, Hanover, New Hampshire.
- Spring 2022
- Fall 2019 - **AMS chapter**, *secretary*, Colorado State University, Fort Collins, Colorado.
- Spring 2020
- Fall 2019 - **SPLINTER seminar**, *co-organizer*, Colorado State University, Fort Collins, Colorado.
- Spring 2020
- Fall 2016 **Student Representative, Mathematics Department**, University of Los Andes, Bogotá, Colombia.

Local Talks

- Sep 2022 **Introduction to computations in MAGMA**, *Reading Seminar in Number Theory*, Dartmouth College, Hanover, New Hampshire.
- Jan 2022 **Introduction to Hilbert modular forms**, *Reading Seminar in Number Theory*, Dartmouth College, Hanover, New Hampshire.
- Nov 2021 **Enumerating triangular modular curves of low genus**, *Algebra and Number Theory Seminar*, Dartmouth College, Hanover, New Hampshire.
- Oct 2021 **Origami and math**, *Graduate Student Seminar*, Dartmouth College, Hanover, New Hampshire.
- May 2021 **First homology of quotients of Fermat curves**, *Algebra and Number Theory Seminar*, Dartmouth College, Hanover, New Hampshire.
- Apr 2021 **Group schemes: basic constructions**, *Reading Seminar in Number Theory*, Dartmouth College, Hanover, New Hampshire.
- Feb 2021 **p -adic heights on Jacobians**, *Reading Seminar in Number Theory*, Dartmouth College, Hanover, New Hampshire.
- Oct 2020 **The Jacobian variety**, *Number Theory Seminar*, Dartmouth College, Hanover, New Hampshire.
- Dec 2019 **Mathematics and origami**, *Greenslopes seminar*, Colorado State University, Fort Collins, Colorado.
- Nov 2019 **Quotients of Fermat curves**, *lightning talk*, *Number Theory Day*, Colorado State University, Fort Collins, Colorado.
- Nov 2019 **Rational points of low degree**, *Number Theory LAB*, Colorado State University, Fort Collins, Colorado.
- Apr 2019 **Rational points of low degree on Fermat curves**, *lightning talk*, *Number Theory Day*, University of Colorado, Boulder, Colorado.
- Dec 2018 **Rational points of low degree on Fermat curves**, *master's defense*, Colorado State University, Fort Collins, Colorado.

Nov 2017 **The 15th Theorem**, *SPLINTER seminar*, Colorado State University, Fort Collins, Colorado.

Conferences Attended

- Jan 2024 **Simons Collaboration on Arithmetic Geometry, Number Theory, and Computation Annual Meeting 2024**, New York, New York.
- Jan 2024 **Joint Mathematics Meetings**, San Francisco, California.
- Sep 2023 **AWM Research Symposium, Special Session on Recent Advances in Curves and Abelian Varieties**, Clark Atlanta University, Atlanta, Georgia.
- Jul 2023 **LMFDB, Computation, and Number Theory**, ICERM, Providence, Rhode Island.
- Jun 2023 **AMS Mathematics Research Communities: Explicit Computations with Stacks**, Java Center, New York.
- Mar 2023 **Women in Numbers 6**, Banff International Research Station, Banff, Alberta, Canada.
- Mar 2023 **Arizona Winter School 2023: Unlikely Intersections**, University of Arizona, Tucson, Arizona.
- Jan 2023 **Simons Collaboration on Arithmetic Geometry, Number Theory, and Computation Annual Meeting 2023**, New York, New York.
- Jan 2023 **Joint Mathematics Meetings**, Boston, Massachusetts.
- Oct 2022 **Québec–Maine Number Theory Conference**, Université Laval, Québec City, Québec.
- Oct 2022 **AMS Fall Eastern Sectional Meeting**, University of Massachusetts-Amherst, Amherst, Massachusetts.
- Aug 2022 **Fifteenth Algorithmic Number Theory Symposium (ANTS XV)**, University of Bristol, UK.
- Jul 2022 **Park City Mathematics Institute Summer Session**, Institute for Advanced Study, Park City, Utah.
- Apr 2022 **Western Algebraic Geometry Symposium**, Colorado State University, Fort Collins, Colorado.
- Mar 2022 **Modular curves workshop**, MIT, Cambridge, Massachusetts.
- Feb 2022 **XXIII International Symposium on Mathematical Methods Applied to Sciences**, San José, Costa Rica, *virtual*.
- Oct 2021 **The Maine-Quebec number theory conference**, University of Maine, *virtual*.
- Sep 2020 **Quebec-Maine Number Theory Conference**, Université Laval, *virtual*.
- Apr 2020 **Front Range Number Theory Day**, *virtual*.
- Mar 2020 **Arizona Winter School 2020: Nonabelian Chabauty**, University of Arizona, Tucson, Arizona.
- Jan 2020 **Joint Mathematics Meetings**, Denver, Colorado.
- Nov 2019 **Western Algebraic Geometry Symposium**, University of Utah, Salt Lake city, Utah.
- Nov 2019 **Front Range Number Theory Day**, Colorado State University, Fort Collins, Colorado.
- Aug 2019 **Arithmetic and Algebraic Geometry**, University of Michigan, Ann Arbor, Michigan.

- May 2019 **49th John H. Barrett Memorial Lectures**, University of Tennessee, Knoxville, Tennessee.
- Aug 2018 **Arithmetic Geometry, Number Theory, and Computation**, MIT, Cambridge, Massachusetts.
- Oct 2017 **SageDays 90: Women in Sage**, Harvey Mudd College, Claremont, California.
- Jun 2017 **XXI Colombian Congress of Mathematics**, Universidad Nacional de Colombia, Bogotá, Colombia.
- Jul 2016 **V Latin American Congress of Mathematics**, Universidad del Norte, Barranquilla, Colombia.
- Jul 2015 **XX Colombian Congress of Mathematics**, Universidad Nacional de Colombia, Manizales, Colombia.

Memberships

American Mathematical Society (AMS).

Technical Skills

Fluent in: Latex, Magma, and SageMath.

Experience with: GAP, Git, and Macaulay2.

Languages

Spanish: native speaker.

English: fluent.