

Department of Mathematics and Statistics
Boston University
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Boston, MA 02215

Citizenship: Colombian
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CURRICULUM VITAE

Employment

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

Education

- 2023 **PhD in Mathematics**, Dartmouth College, Hanover, New Hampshire, USA.
 Advisor: John Voight.
 Thesis: “Triangular modular curves of low genus and geometric quadratic Chabauty”.
- 2021 **M.A. in Mathematics**, Dartmouth College, Hanover, New Hampshire, USA.
- 2019 **M.S. in Mathematics**, Colorado State University, Fort Collins, Colorado, USA.
 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

- [8] **The integral Hasse principle for stacky curves associated to a family of generalized Fermat equations**, with Christopher Keyes, Andrew Kobin, Manami Roy, Soumya Sankar, and Yidi Wang, [arXiv:2509.13248](https://arxiv.org/abs/2509.13248).
- [7] **Integral points on two elliptic curves: Appendix to The general ternary form can be recovered by its Hessian**, by **Ciro Ciliberto and Giorgio M. Ottaviani**, with Jerson Caro Reyes, [arXiv:2406.05382](https://arxiv.org/abs/2406.05382). Accepted to Doc. Math.
- [6] **On invariants of Artin-Schreier curves**, with Heidi Goodson, Elisa Lorenzo García, Beth Malmskog, and Renate Scheidler, [arXiv:2401.08843](https://arxiv.org/abs/2401.08843). Accepted to Assoc. Women Math. Ser.
- [5] **Local heights on hyperelliptic curves and quadratic Chabauty**, with Alexander Betts, Sachi Hashimoto, and Pim Spelier, [arXiv:2401.05228](https://arxiv.org/abs/2401.05228). Accepted to Trans. Amer. Math. Soc.
- [4] **The classifying element for quotients of Fermat curves**, with Rachel Pries, Comm. Algebra 52 (2024), no. 10, 4327–4341.
- [3] **A database of basic numerical invariants of Hilbert modular surfaces**, with Eran Assaf, Angelica Babei, Ben Breen, Edgar Costa, Aleksander Horawa, Jean Ki-effer, Avinash Kulkarni, Grant Molnar, Sam Schiavone, and John Voight, Contemp. Math., vol. 796 (2024), Amer. Math. Soc., Providence, RI, 285–312.

- [2] **Geometric quadratic Chabauty and p -adic heights**, with Sachi Hashimoto and Pim Spelier, *Expo. Math.* 41 (2023), no. 3, 631–674.
- [1] **Enumerating triangular modular curves of low genus**, with John Voight, *Res. Number Theory* 9:3 (2023).

Invited Talks

Lecture Series

- Fall 2025 **Preliminary Arizona Winter School**, *Lecturer for virtual course on Analysis and implementation of algorithms in number theory.*

Conference Talks

- Jul 2026 **Curves, Abelian Varieties and Related Topics (CAVARET)**, Universitat de Barcelona, Barcelona, Catalonia, Spain (planned).
- Jun 2025 **Arithmétique, Géométrie, Cryptographie et Théorie des Codes ($\text{AgC}^2\mathbb{T}$)**, CIRM, Marseille, France.
- Mar 2025 **2025 Latinx in the Mathematical Sciences Conference (LatMath)**, *Special Session on Algebra and Number Theory*, Institute for Pure and Applied Mathematics (IPAM) at UCLA, Los Angeles, California, USA.
- Apr 2024 **Texas Algebraic Geometry Symposium (TAGS)**, *Texas A&M University*, College Station, Texas, USA.
- Sep 2023 **AWM Research Symposium**, *Special Session on Recent Advances in Curves and Abelian Varieties*, Clark Atlanta University, Atlanta, Georgia, USA.
- 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, Massachusetts, USA.
- Aug 2022 **Fifteenth Algorithmic Number Theory Symposium (ANTS-XV)**, University of Bristol, Bristol, UK.
- 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, *virtual*.

Seminar Talks

- May 2025 **University of Sydney**, *Computational Algebra Seminar*, Sydney, NSW, Australia.
- Oct 2024 **University of Virginia**, *Ramanujan-Serre Seminar*, Charlottesville, Virginia, USA.
- Jun 2024 **Utrecht University**, *XL Rational Points Consortium's meeting*, Utrecht, Netherlands.
- Apr 2024 **Virginia Tech University**, *VT Algebra Seminar*, Blacksburg, Virginia, USA.

- Apr 2024 **Dartmouth College**, *Algebra and Number Theory Seminar*, Hanover, New Hampshire, USA.
- Mar 2024 **Emory University**, *Algebra and Number Theory Seminar*, Atlanta, Georgia, USA.
- Feb 2024 **University of Connecticut**, *Algebra Seminar*, Storrs, Connecticut, USA.
- Dec 2023 **Brown University**, *Algebra/Number Theory Seminar*, Providence, Rhode Island, USA.
- Oct 2023 **Boston University**, *Number Theory Seminar*, Boston, Massachusetts, USA.
- Oct 2023 **Wesleyan University**, *Algebra and Number Theory Seminar*, Middletown, Connecticut, USA.
- Dec 2022 **The Ohio State University**, *Number Theory Seminar*, Columbus, Ohio, USA.
- Nov 2022 **Rice University**, *Algebra, Algebraic Geometry and Number Theory Seminar*, Houston, Texas, USA.
- Apr 2022 **Colorado State University**, *Number Theory LAB*, Fort Collins, Colorado, USA.

Lightning Talks

- Jan 2024 **Simons Collaboration on Arithmetic Geometry, Number Theory, and Computation Annual Meeting 2024**, New York, New York, USA.
- Jul 2023 **LMFDB, Computation, and Number Theory (LuCaNT)**, ICERM, Providence, Rhode Island, USA.
- Jan 2023 **Simons Collaboration on Arithmetic Geometry, Number Theory, and Computation Annual Meeting 2023**, New York, New York, USA.

Teaching Experience

Boston University

- Fall 2025 **Algebra 1**, CAS MA 741.
- Spring 2025 **Discrete Mathematics**, CAS MA 293.
- Fall 2024 **Modern Algebra I**, CAS MA 541.
- Spring 2024 **Introduction to Graph Theory**, CAS MA 433.
- Fall 2023 **Linear Algebra**, CAS MA 242.

Dartmouth College

- Winter 2023 **Introduction to Mathematics Beyond Calculus: *the abc conjecture***, Math 17.
- Fall 2021 **Introduction to Calculus**, Math 1.

Colorado State University

- Fall 2019 - Summer 2020 **Paced Algebra to Calculus electronically**, Assistant Director, Colorado State University.
- Duties:** managing undergraduate employees, discussions with students about academic progress and needs, and working with students through violations of the academic honesty code.

- Summer 2019 **Linear Algebra I**, *Math 369*.
Spring 2019 **Calculus for Physical Scientists I**, *Math 160*.
Fall 2018 **Calculus for Physical Scientists II**, *Math 161*.
Summer 2018 **Calculus for Physical Scientists III**, *Math 261*.

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.
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.

Mentoring

- 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).
Winter 2022 **Directed Reading Program**, Dartmouth College, Hanover, New Hampshire. Advised two mathematics undergraduate students on elliptic curves.
Winter 2021 **Directed Reading Program**, Dartmouth College, Hanover, New Hampshire. Advised one undergraduate student on introduction to algebraic geometry.
Fall 2019 - Spring 2020 **Putnam Seminar**, *coach*, Colorado State University, Fort Collins, Colorado.

Outreach

- Mar 2025 **Panel discussion: Experiences in Academia**, *panelist*, Harvard Undergraduate Gender Inclusivity in Math, Harvard University, Cambridge, Massachusetts.
Oct 2024 **Webinar: The Field of Mathematics**, *speaker*, ScienceHolic (*online*).
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.
Apr 2022 **Panel discussion: Life With a Math Major**, *panelist*, Western Algebraic Geometry Symposium (WAGS), Colorado State University, Fort Collins, Colorado.

- Summer 2021 **Exploring Mathematics Camp**, Dartmouth College, Hanover, New Hampshire.
Co-taught a two weeks program on knot theory and combinatorial games for high school and middle school students.
- 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.
- 2020–2023 **Dartmouth Fellowship**, Dartmouth College, Hanover, New Hampshire.
- Jul 2015 **Yerly's Scholarship**, University of Los Andes, Bogotá, Colombia.

Workshop grants

- Oct 2025 **BIRS Focussed Research Groups (co-PI)**, *Existence and enumeration of integral points on spherical stacky curves*.

Professional Service

- 2025 **NSF panel**, *panelist*.
- 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.
- 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.

Conferences Attended

- Jul 2025 **LMFDB, Computation, and Number Theory**, ICERM, Providence, Rhode Island, USA.
- Jun 2025 **Arithmétique, Géométrie, Cryptographie et Théorie des Codes ($\mathbb{A}gC^2\mathbb{T}$)**, CIRM, Marseille, France.
- Mar 2025 **Latinx in the Mathematical Sciences Conference (LatMath)**, Institute for Pure and Applied Mathematics (IPAM) at UCLA, Los Angeles, California, USA.
- Jan 2025 **Simons Collaboration on Arithmetic Geometry, Number Theory, and Computation Annual Meeting 2025**, New York, New York, USA.
- Jul 2024 **Sixteenth Algorithmic Number Theory Symposium (ANTS XVI)**, MIT, Boston, Massachusetts, USA.

- Jul 2024 **The Mordell conjecture 100 years later**, MIT, Boston, Massachusetts, USA.
- Jun 2024 **Curves, Abelian Varieties and Related Topics (CAVARET)**, Universitat de Barcelona, Barcelona, Catalonia, Spain.
- Apr 2024 **Texas Algebraic Geometry Symposium (TAGS)**, Texas A&M University, College Station, Texas, USA.
- Jan 2024 **Simons Collaboration on Arithmetic Geometry, Number Theory, and Computation Annual Meeting 2024**, New York, New York, USA.
- Jan 2024 **Joint Mathematics Meetings**, San Francisco, California, USA.
- Sep 2023 **AWM Research Symposium, Special Session on Recent Advances in Curves and Abelian Varieties**, Clark Atlanta University, Atlanta, Georgia, USA.
- Jul 2023 **LMFDB, Computation, and Number Theory**, ICERM, Providence, Rhode Island, USA.
- Jun 2023 **AMS Mathematics Research Communities: Explicit Computations with Stacks**, Java Center, New York, USA.
- 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, USA.
- Jan 2023 **Simons Collaboration on Arithmetic Geometry, Number Theory, and Computation Annual Meeting 2023**, New York, New York, USA.
- Jan 2023 **Joint Mathematics Meetings**, Boston, Massachusetts, USA.
- Oct 2022 **Québec–Maine Number Theory Conference**, Université Laval, Québec City, Québec, Canada.
- Oct 2022 **AMS Fall Eastern Sectional Meeting**, University of Massachusetts-Amherst, Amherst, Massachusetts, USA.
- 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, USA.
- Apr 2022 **Western Algebraic Geometry Symposium**, Colorado State University, Fort Collins, Colorado, USA.
- Mar 2022 **Modular curves workshop**, MIT, Cambridge, Massachusetts, USA.
- 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, USA.

- Jan 2020 **Joint Mathematics Meetings**, Denver, Colorado, USA.
- Nov 2019 **Western Algebraic Geometry Symposium**, University of Utah, Salt Lake city, Utah, USA.
- Nov 2019 **Front Range Number Theory Day**, Colorado State University, Fort Collins, Colorado, USA.
- Aug 2019 **Arithmetic and Algebraic Geometry**, University of Michigan, Ann Arbor, Michigan, USA.
- May 2019 **49th John H. Barrett Memorial Lectures**, University of Tennessee, Knoxville, Tennessee, USA.
- Aug 2018 **Arithmetic Geometry, Number Theory, and Computation**, MIT, Cambridge, Massachusetts, USA.
- Oct 2017 **SageDays 90: Women in Sage**, Harvey Mudd College, Claremont, California, USA.
- 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.

French: basic.