

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

- [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 Kieffer, 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 (AgC²T)**, CIRM, Marseille, France.
- Mar 2025 **2025 Latnix 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 Latnix 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 ($\mathbb{A}_g^{C^2\mathbb{T}}$)**, CIRM, Marseille, France.
- Mar 2025 **Latex 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.