

# Santiago Arango-Piñeros

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Updated: February 14, 2024

## EDUCATION

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### Emory University

Ph.D. in Mathematics. Advisors: [David Zureick-Brown](#) and [John Voight](#).

Atlanta, Georgia, USA

2020–2025 (Expected)

### Instituto de Matemática Pura e Aplicada

M.S. in Mathematics.

Rio de Janeiro, Brazil

2017–2019

### Universidad de Los Andes

B.S. in Mathematics.

Bogotá, Colombia

2011–2016

### Universidad de Los Andes

B.S. in Environmental Engineering.

Bogotá, Colombia

2011–2016

## RESEARCH INTERESTS

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- **General:** Number Theory, Arithmetic Geometry.
- **Specific:** Arithmetic Statistics. I am actively thinking about abelian varieties over finite fields and counting rational points with bounded height on stacky curves.

## PUBLICATIONS AND PREPRINTS

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3. **Frobenius distributions of low dimensional abelian varieties over finite fields**, with Deewang Bhamidipati and Soumya Sankar. ([arXiv](#))
2. **Mertens' theorem for Chebotarev sets**, with Daniel Keliher and Christopher Keyes.  
*International Journal of Number Theory*, Vol. 18, No. 08, pp. 1823–1842, April 2022.
1. **The global field Euler function**, with Juan Diego Rojas.  
*RIMS*, Volume 7, Article 19, September 2020.

## INVITED TALKS

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- **Amherst College.** Five College Number Theory Seminar. Spring 2024  
*Counting minimal integral points on  $x^2 + y^2 = z^4$  and 5-isogenies of elliptic curves.*
- **Dartmouth College.** Algebra and Number Theory Seminar. Spring 2024  
*Counting minimal integral points on  $x^2 + y^2 = z^4$  and 5-isogenies of elliptic curves.*
- **University of Georgia (UGA).** Algebra and Number Theory Seminar. Spring 2024  
*Counting minimal integral points on  $x^2 + y^2 = z^4$  and 5-isogenies of elliptic curves.*
- **AWM Symposium.** Rethinking Number Theory Special Session. Fall 2023  
 *$q$ -Weil Galois groups of abelian surfaces.*

- **AMS Spring Central Sectional.** Special Session on Arithmetic Statistics I. Spring 2023  
*q-Frobenius distributions of abelian varieties.*
- **University of South Carolina.** Algebra, Geometry, and Number Theory Seminar. Spring 2023  
*q-Frobenius distributions of abelian varieties.*

## CONTRIBUTED TALKS

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- **University of Georgia (UGA).** Palmetto Number Theory Series XXXVII. Fall 2023  
*Counting minimal integral points on  $x^2 + y^2 = z^4$  and 5-isogenies of elliptic curves.*
- **CIRM, Marseille.** Arithmetic statistics conference. Spring 2023  
*q-Frobenius distributions of abelian varieties.*
- **University of South Carolina.** Palmetto Number Theory Series XXXV. Fall 2022  
*q-Frobenius distributions of abelian varieties.*
- **University of Wisconsin-Madison.** (Poster) Arithmetic and topology over Global fields. Fall 2022  
*q-Frobenius distributions of abelian varieties.*
- **Clemson University.** (Virtual) at PAJAMAS III. Fall 2021  
*Mertens' theorem for Chebotarev sets*
- **University of Connecticut.** (Pre-recorded video) at CTNT 2020. Fall 2020  
*Global field totients.*
- **University of British Columbia.** PIMS Workshop in Arithmetic Topology. Fall 2019  
*An invitation to Arithmetic Equivalence.*

## SEMINAR PRESENTATIONS (EXPOSITORY)

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- **Belyi's Theorem.** Graduate student algebra and number theory seminar at Emory. Spring 2024
- **Serre's open image theorem.** Graduate student algebra and number theory seminar at Emory. Fall 2023
- **CM of elliptic curves.** Graduate student algebra and number theory seminar at Emory. Spring 2023
- **Frobenius distributions of AVs.** Graduate student algebra and number theory seminar at Emory. Fall 2022
- **Lang's conjecture.** Unlikely intersections learning seminar at Emory. Fall 2022
- **Group schemes.** Reading seminar in Abelian varieties at Emory. Spring 2022
- **$\ell$ -adic representations.** Graduate student algebra and number theory seminar at Emory. Spring 2022
- **The winding quotient.** Learning seminar on Mazur's theorem at Emory. Spring 2022
- **The Weil conjectures.** Graduate student algebra and number theory seminar at Emory. Spring 2022
- **Moduli of elliptic curves.** Learning seminar on modular forms and modular curves at Emory. Fall 2021
- **Modular curves over  $\mathbb{Q}$ .** Learning seminar on modular forms and modular curves at Emory. Fall 2021
- **Modular Jacobians.** Learning seminar on modular forms and modular curves at Emory. Fall 2021
- **Artin-Schreier theory.** Graduate student algebra and number theory seminar at Emory. Fall 2021
- **Schanuel's theorem.** Graduate student algebra and number theory seminar at Emory. Spring 2021
- **A Mertens-Chebotarev theorem.** Graduate student algebra and number theory seminar at Emory. Spring 2021
- **The Lang-Trotter Conjecture.** Graduate student algebra and number theory seminar at Emory. Fall 2020
- **Global field totients.** Graduate student algebra and number theory seminar at Emory. Fall 2020
- **Decomposition groups of plane curves.** Master thesis presentation at IMPA. Spring 2019
- **Bernoulli numbers and the Riemann zeta function.** Graduate student seminar at IMPA. Fall 2018
- **Fermat's last theorem for regular primes.** Graduate student seminar at IMPA. Spring 2018
- **Moduli spaces of elliptic curves.** Undergraduate Thesis presentation at Los Andes. Fall 2017

## TEACHING

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- **Instructor of record** at Emory University Fall 2023  
*Calculus 1 (MATH-111)*
- **Instructor of record** at Emory University Fall 2022  
*Calculus 1 (MATH-111)*
- **Teaching Assistant** at Emory University Spring 2022  
*Calculus for Life Sciences (MATH-116)*
- **Teaching Assistant** at Emory University Fall 2021  
*Linear Algebra (MATH-221)*
- **Grader** at Emory University Spring 2021  
*Mathematical Statistics II (MATH-362)*
- **Grader** at Emory University Fall 2020  
*Calculus II (MATH-112)*
- **Teaching Assistant** at Universidad de Los Andes Spring 2020  
*Cálculo Diferencial (MATE 1203)*
- **Teaching Assistant** at Universidad de Los Andes Fall 2019  
*Cálculo Diferencial (MATE 1203)*
- **Teaching Assistant** at Universidad de Los Andes Spring 2019  
*Cálculo Vectorial (MATE 1207)*
- **Teaching Assistant** at Universidad de Los Andes Spring 2019  
*Cálculo Diferencial (MATE 1203)*

## MENTORING AND OUTREACH

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- Mentor at **Preliminari Arizona Winter School**: Abelian Varieties over Finite Fields. Fall 2023  
*I was a Problem Set Leader (teaching assistant) for the workshop.*
- Mentor at **TWOPLES**. Fall 2023  
*I advised Sérgio Maciel.*
- Mentor at **TWOPLES**. Fall 2020  
*I advised Camilo Martinez (Universidad del Cauca) and Leonardo Méndez (UNAM).*

## ORGANIZATION

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- **2023**
  - **RAGE**. Reading about Algebraic Groups at Emory.  
Co-organizers: Raman Parimala.
- **2022**
  - **JUICE**. Just an Unlikely Intersections Colloquium at Emory.  
Co-organizers: Roberto Hernández.
- **2021**
  - **GASES**. Geometric Arithmetic Statistics Emory Seminar.  
Co-organizers: Christopher Keyes, David Zureick-Brown.
- **2020**

- **EARS**. Emory ARithmetic Statistics, Student Seminar.  
Co-organizers: Christopher Keyes, David Zureick-Brown.  
(I lectured a total of 12 hours during this seminar)
- Introduction to modular forms. Bogotá Number Theory Seminar.  
Co-organizers: Xavier Caicedo, José Miguel Cruz.  
(I lectured a total of 14 hours during this seminar)

- **2019**

- **Arithmetic Equivalence**. Bogotá Number Theory Seminar.  
Co-organizers: Guillermo Mantilla-Soler, José Miguel Cruz.  
(I lectured a total of 10 hours during this seminar)

## CONFERENCES AND WORKSHOPS ATTENDED

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• <b>Palmetto Number Theory Series XXXVII</b> . Athens, GA.	December 2023
• <b>AWM Symposium</b> . Atlanta, GA.	October 2023
• <b>LuCaNT: LMFDB, Computation, and Number Theory</b> . ICERM, Providence RI.	July 2023
• <b>MRC: Explicit computations with stacks</b> . Buffalo, NY.	June 2023
• <b>Arithmetic Statistics Conference at CIRM</b> . Marseille, France.	May 2023
• <b>AMS 2023 Spring Central Sectional Meeting. Arithmetic Statistics I</b> . Cincinnati, OH.	April 2023
• <b>AWS 2023: Unlikely Intersections</b> . Tucson, AZ.	March 2023
• <b>Introductory workshop: Diophantine Geometry</b> . MSRI, Berkeley, CA.	February 2023
• <b>Connections workshop: Diophantine Geometry</b> . MSRI, Berkeley, CA.	February 2023
• <b>Palmetto Number Theory Series XXXV</b> . Columbia, SC.	December 2022
• <b>Arithmetic and topology over global fields</b> . Madison, WI.	October 2022
• <b>Palmetto Number Theory Series XXXV</b> . Columbia, SC.	December 2022
• <b>AGNES: Summer school in higher dimensional moduli</b> . Providence, RI.	August 2022
• <b>PCMI: Graduate school in number theory informed by computation</b> . Park City, UT.	July 2022
• <b>CTNT: Connecticut summer school in number theory</b> . Storrs, CT.	June 2022
• <b>ADDING: Anabelian days down in Georgia</b> . Athens, GA.	May 2022
• <b>GAGS: Georgia Algebraic Geometry Symposium</b> . Atlanta, GA.	April 2022
• <b>AWS 2022: Automorphic forms beyond <math>GL_2</math></b> . Tucson, AZ.	March 2022
• <b>ICM: International Congress of Mathematics</b> . Rio de Janeiro, Brazil.	August 2018

## SCHOLARSHIPS

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• CNPq Scholarship: Master's studies scholarship at IMPA.	2017–2019
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## LANGUAGES

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- **Spanish**: native speaker.
- **English**: proficient.
- **Portuguese**: proficient.

## COMPUTING

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Familiar with Python, **SageMath**, and **MAGMA**.