Santiago Arango-Piñeros

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EDUCATION

Emory University   Atlanta, Georgia, USA
Ph.D. in Mathematics. Advisors: David Zureick-Brown and John Voight.   2020–2025 (Expected)

Instituto de Matemática Pura e Aplicada   Rio de Janeiro, Brazil
M.S. in Mathematics.   2017–2019

Universidad de Los Andes   Bogotá, Colombia
B.S. in Mathematics.   2011–2016

Universidad de Los Andes   Bogotá, Colombia
B.S. in Environmental Engineering.   2011–2016

RESEARCH INTERESTS

- **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

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

- *q*-Weil Galois groups of Abelian Surfaces at AWM Sympossium   Fall 2023
  Rethinking Number Theory Special Session

- *q*-Frobenius distributions of abelian varieties at AMS Spring Central Sectional   Spring 2023
  Special Session on Arithmetic Statistics I

- *q*-Frobenius distributions of abelian varieties at University of South Carolina   Spring 2023
  Algebra, Geometry, and Number Theory Seminar

Contributed Talks

- **Counting points on $x^2 + y^2 = z^4$ and 5-isogenies of elliptic curves** at UGA, Athens, GA.   Fall 2023
  PAlmetto Number Theory Series XXXVII.

- **q-Frobenius distributions of abelian varieties** at CIRM, Marseille.   Spring 2023
  Arithmetic Statistics Conference.

- **q-Frobenius distributions of abelian varieties** at University of South Carolina.   Fall 2022
  PAlmetto Number Theory Series XXXV.

- **q-Frobenius distributions of abelian varieties.** (poster) at University of Wisconsin-Madison.   Fall 2022
  Arithmetic and topology over Global fields.

- **Mertens' theorem for Chebotarev sets** (virtual) at Clemson University.   Fall 2021
  PAJAMAS III.

- **Global field totients** (pre-recorded video) at UCONN.   Fall 2020
  CTNT 2020

- **An invitation to Arithmetic Equivalence** at University of British Columbia.   Fall 2019
  PIMS Workshop in Arithmetic Topology.

Seminar Presentations (Expository)

- **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
- **ℓ-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 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

- **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

- 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

- **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

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

Scholarships

- CNPq Scholarship: Master's studies scolarship at IMPA.   2017–2019

Languages

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

Computing

Familiar with Python, SageMath, and MAGMA.