Santiago Arango-Piñeros

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Education

Emory University — Atlanta, Georgia, USA
Ph.D. in Mathematics, Advisor: David Zureick-Brown. — 2020–2025 (Expected)

Instituto de Matemática Pura e Aplicada — Rio de Janeiro, Brazil
M.S. in Mathematics, Advisor: Carolina Araujo. — 2017–2019

Universidad de Los Andes — Bogotá, Colombia
B.S. in Mathematics, Advisor: Guillermo Mantilla-Soler. — 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: Frobenius distributions of abelian varieties, low degree points on modular curves, and counting rational points by height on varieties and stacks.

Publications and Preprints

[1] S. Arango-Piñeros, D. Bhamidipati, and S. Sankar, *Frobenius distributions of low dimensional abelian varieties over finite fields*, 2023. arXiv: 2306.02237 [math.NT].

[2] S. Arango-Piñeros, D. Keliher, and C. Keyes, "Mertens' theorem for chebotarev sets", *International Journal of Number Theory*, pp. 1–20, 2022.

[3] S. Arango-Piñeros and J. D. Rojas, "The global field euler function", *Research in the Mathematical Sciences*, vol. 7, no. 3, pp. 1–21, 2020.

Invited Talks

- 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

- q**-Frobenius distributions of abelian varieties** at CIRM. — 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)

- **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 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)

Outreach

- Mentor at TWOPLES. — Fall 2020
  I advised Camilo Martinez (Universidad del Cauca) and Leonardo Méndez (UNAM).

Organization

- **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 Attended

- **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.