Asimina S. Hamakiotes

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asiminah.github.io

Education

University of Connecticut — Storrs, CT
Ph.D. in Mathematics — 2020 – Present
Advisor: Álvaro Lozano-Robledo
Masters in Mathematics — 2020 – 2022

Macaulay Honors at Baruch College — New York City, NY
B.A. in Mathematics — 2016 – 2020
Minors: Philosophy, Interdisciplinary Minor with Honors in New York City Studies

- Honors Thesis: Asimina Hamakiotes, *The Distribution of the Greatest Common Divisors of Elements in Quadratic Integer Rings*, Baruch College CUNY Library (2020).

Budapest Semesters in Mathematics — Budapest, Hungary
Study abroad program — Spring 2019

Employment

Institute for Defense Analyses (IDA) — Princeton, NJ
Center for Communications Research - Princeton (CCR-P), *Summer Associate* — Fall 2023 –Present

Research Interests

Algebraic number theory and arithmetic geometry. Elliptic curves and Galois representations.

Publications

1. Asimina S. Hamakiotes and Álvaro Lozano-Robledo, *Elliptic curves with complex multiplication and abelian division fields*, to appear in the Journal of the London Mathematical Society (2024).

2. Eduardo Dueñez, Asimina S. Hamakiotes, and Steven J. Miller, *Sums of Powers by L'Hopital's Rule*, to appear in Fibonacci Quarterly (2024).

3. Alyson Deines, Asimina S. Hamakiotes, Andreea Iorga, Changningphaabi Namoijam, Manami Roy, and Lori D. Watson, *Towards a classification of p^2-discriminant ideal twins over number fields*, to appear in Research Directions in Number Theory: Women in Numbers VI (2024).

4. John Cullinan, Shanna Dobson, Linda Frey, Asimina S. Hamakiotes, Roberto Hernandez, Nathan Kaplan, Jorge Mello, and Gabrielle Scullard, *The probability of non-isomorphic group structures of isogenous elliptic curves in finite field extensions, II*, Journal of Number Theory, Vol. 266, 131-165 (2025).

5. Asimina Hamakiotes, Aaron Kriegman, and Wei-Lun Tsai, *Asymptotic Distribution of the Partition Crank*, Ramanujan Journal, Vol. 56, 803-820 (2021).

6. Michael Allen, Nicholas Anderson, Asimina Hamakiotes, Ben Oltsik, and Holly Swisher, *Eta-quotients of prime or semiprime level and elliptic curves*, Involve, Vol. 13, No. 5, 879-900 (2020).

Preprints

1. Asimina S. Hamakiotes, *The maximal abelian extension contained in a division field of an elliptic curve over $\mathbb{Q}$ with complex multiplication*, submitted.

In Preparation

1. Asimina S. Hamakiotes and Jun Bo Lau, *Genus formulas for families of modular curves.*
2. Alyson Deines, Asimina S. Hamakiotes, Andreea Iorga, Changningphaabi Namoijam, Manami Roy, and Lori D. Watson, *Towards a classification of n-discriminant ideal twins over number fields.*
3. Santiago Arango-Piñeros, María Chara, Asimina S. Hamakiotes, Kiran Kedlaya, and Gustavo Rama, *Bounds for the relative class number problem for function fields.*

Awards

- Graduate Fellowship for STEM Diversity ($20,000 annually) — 2022 - Present
- Predoctoral Fellowship from The Graduate School and Math Department, UConn ($8,078) — Spring 2025
- Summer Doctoral Dissertation Fellowship from The Graduate School, UConn ($2,000) — Summer 2024
- Louis J. DeLuca Teaching Award: Excellence in Teaching ($400) — 2023–2024
- Conference Participation Award from The Graduate School, UConn ($750) — Spring 2024
- CLAS Course Improvement Mini Grant ($1,500) — Summer 2022
  (Created a module for an inquiry-based mathematical modeling course.)
- NCAA Woman of the Year Semifinals — 2019–2020
- Kanner Prize for Outstanding Baruch Honors Thesis — 2019–2020
- CUNY Athletic Conference Female Scholar-Athlete of the Year — 2019–2020
- Dr. Jane Katz Academic, Athletics, and Community Service Award — 2019–2020
- Meyer Scholar Recipient, Merit Based Scholarship ($4,000) — 2018
- 2nd place in Traders@MIT (largest algorithmic collegiate trading competition) — 2017

Teaching at UConn

- MATH 2705W Technical Writing in Mathematics, Instructor — Fall 2024
- MATH 2705W Technical Writing in Mathematics, Instructor — Spring 2024
- MATH 1071Q Calculus for Business and Economics, Instructor — Fall 2023
- UConn Algebra Prelim Tutor (hired by department) — Summer 2023
- MATH 2210Q Applied Linear Algebra, Instructor — Spring 2023
- UConn Algebra Prelim Tutor (hired by department) — Winter 2022
- MATH 1020Q Problem Solving, Instructor — Fall 2022
- MATH 1132Q Calculus II, Teaching Assistant — Spring 2022
- MATH 1132Q Calculus II Honors, Teaching Assistant — Fall 2021
- MATH 1132Q Calculus II, Teaching Assistant — Spring 2021
- MATH 1131Q Calculus I, Teaching Assistant — Fall 2020

Mentoring

- Directed Reading Program, mentor to Giancarlo Stabler (project on number theory and geometry) — Fall 2024
- Directed Reading Program, mentor to Sarah Hocutt (project on mathematical cryptography) — Spring 2023
- Directed Reading Program, mentor to Sierra Woods (project on elliptic curves) — Spring 2022

Invited Conference Talks

- **2025 AMS Spring Eastern Sectional Meeting (Hartford, CT)** — 4/5/25 - 4/6/25
  Abelian extensions arising from elliptic curves with complex multiplication - Talk
  AMS Special Session on Counting and Asymptotics in Number Theory
- **Joint Mathematics Meetings (Seattle, WA)** — 1/8/25 - 1/11/25
  Towards a classification of p^2-discriminant ideal twins over number fields - Talk
  AMS Special Session on Rethinking Number Theory
- **2024 AMS Fall Eastern Sectional Meeting (Albany, NY)** — 10/19/24 - 10/20/24
  Abelian extensions arising from elliptic curves with complex multiplication - Talk
  AMS Special Session on Explicit Methods in Arithmetic Geometry
- **PAlmetto Number Theory Series XXXVIII (PANTS 38)** — 9/21/24 - 9/22/24
  Abelian extensions arising from elliptic curves with complex multiplication - Talk
  Wake Forest University
- **Sixteenth Algorithmic Number Theory Symposium (ANTS XVI)** — 7/15/24 - 7/19/24
  Abelian extensions arising from elliptic curves with complex multiplication - Lightning Talk
  Massachusetts Institute of Technology (MIT)
- **The Mordell conjecture 100 years later** — 7/8/24 - 7/12/24
  Towards a classification of p^2-discriminant ideal twins over number fields - Lightning Talk
  Massachusetts Institute of Technology (MIT)
- **Maine-Quebec Number Theory Conference** — 9/30/23 - 10/1/23
  Elliptic curves with complex multiplication and abelian division fields - Talk
  University of Maine
- **LMFDB, Computation, and Number Theory (LuCaNT)** — 7/10/23 - 7/14/23
  Elliptic Curves with CM and Abelian Division Fields - Lightning Talk
  Institute for Computational and Experimental Research in Mathematics (ICERM)
- **Joint Mathematics Meetings (Boston, MA)** — 1/4/23 - 1/7/23
  The Probability of Non-isomorphic Group Structures of Isogenous Elliptic Curves in Finite Field Extensions - Talk
  AMS Special Session on Rethinking Number Theory II
- **Conférence de théorie des nombres Québec-Maine** — 10/15/22 - 10/16/22
  Computing the Proportion of Sneaky Primes for Pairs of Elliptic Curves - Talk
  Université Laval
- **PAlmetto Number Theory Series XXXIV (PANTS 34)** — 9/24/22 - 9/25/22
  Computing the Proportion of Sneaky Primes for Pairs of Elliptic Curves - Talk
  University of North Carolina at Charlotte
- **Joint Mathematics Meetings (Denver, CO)** — 1/15/20 - 1/18/20
  Asymptotic Distribution of the Partition Crank
  MAA Undergraduate Student Poster Session **Received Honorable Mention*
- **Shenandoah Undergraduate Mathematics and Statistics Conference (SUMS)** — 9/21/19
  Asymptotic Distribution of the Partition Crank - Talk
  James Madison University
- **Nebraska Conference for Undergraduate Women in Mathematics (NCUWM)** — 1/25/19 - 1/27/19
  Eta-Quotients of Prime or Semiprime Level and Elliptic Curves - Talk
  University of Nebraska - Lincoln

- **Joint Mathematics Meetings (Baltimore, MD)** 1/16/19 - 1/19/19
  Eta-Quotients of Prime or Semiprime Level and Elliptic Curves
  MAA Undergraduate Student Poster Session
- **Shenandoah Undergraduate Mathematics and Statistics Conference (SUMS)** 10/13/18
  Eta-Quotients of Prime/Semiprime Level and Elliptic Curves - Talk
  James Madison University
- **Women in Mathematics in New England Conference (WIMIN)** 9/22/18
  Eta-Quotients of Prime or Semiprime Level and Elliptic Curves - Talk
  Smith College

Invited Seminar Talks

- **Abelian extensions arising from elliptic curves with complex multiplication**
  Louisiana State University Algebra and Number Theory Seminar 1/21/25
- **Abelian extensions arising from elliptic curves with complex multiplication**
  University of Minnesota Graduate Student Number Theory Seminar 12/10/24
- **Abelian extensions arising from elliptic curves with complex multiplication**
  University of Virginia Ramanujan-Serre Number Theory Seminar 12/6/24
- **Abelian extensions arising from elliptic curves with complex multiplication**
  CUNY Graduate Center Arithmetic Geometry Seminar 12/3/24
- **Abelian extensions arising from elliptic curves with complex multiplication**
  Ohio State University Number Theory Seminar 11/25/24
- **Abelian extensions arising from elliptic curves with complex multiplication**
  Cornell University Number Theory Seminar 11/15/24
- **Elliptic curves with complex multiplication and abelian division fields**
  Joint Columbia-CUNY-NYU Number Theory Seminar 3/7/24
- **Elliptic curves with complex multiplication and abelian division fields**
  Brown University Algebra/Number Theory Seminar 2/26/24
- **Elliptic curves with complex multiplication and abelian division fields**
  Greek Algebra & Number Theory Seminar (online) 2/19/24
- **Elliptic curves with complex multiplication and abelian division fields**
  University of Washington Number Theory Seminar 1/23/24
- **Guest Lecture on complex multiplication and Galois representations**
  Graduate Course on Elliptic Curves at Wake Forest University 11/20/23
- **Computing the proportion of sneaky primes for pairs of elliptic curves with and without CM**
  unQVNTS (Québec-Vermont Number Theory Seminar) at the University of Vermont 3/30/23
- **Computing the proportion of sneaky primes for pairs of elliptic curves**
  Oregon State University Number Theory Seminar (online) 10/18/22

Local Seminar Talks

- **How many ways can you sum $1+2+\cdots+n$?**
  UConn Math Club 10/30/24
- **Abelian Galois extensions and division points**
  UConn S.I.G.M.A. Seminar 4/19/24
- **Construction of elliptic curves with large rank**
  UConn Number Theory Reading Group 2/29/24
- **Linear congruences**
  Undergraduate Course on Number Theory at UConn 2/20/24

- **Elliptic curves with complex multiplication and abelian division fields**
  UConn Algebra Seminar 1/17/24
- **Introduction to Magma and Sage**
  UConn Number Theory Reading Group 10/23/23
- **Infinitude of the primes**
  UConn Math Club 9/20/23
- **Frequently asked questions on quant interviews**
  UConn S.I.G.M.A. Seminar 9/15/23
- **Sums of powers by L'Hopital's rule**
  UConn Math Club 2/22/23
- **Computationally hard problems and their uses in cryptography: RSA and DLP**
  UConn S.I.G.M.A. Seminar 2/17/23
- **Computing the genus of modular curves**
  UConn Number Theory Reading Group 12/12/22
- **Creating a modular, inquiry-based modeling course**
  UConn Math Teaching Workshop 12/9/22
- **Genus of a modular curve**
  UConn Number Theory Reading Group 12/2/22
- **Computationally hard problems and their uses in cryptography**
  UConn Math Club 10/5/22
- **Computing the proportion of sneaky primes for pairs of elliptic curves**
  UConn S.I.G.M.A. Seminar 9/30/22
- **Computing the proportion of sneaky primes for pairs of elliptic curves**
  UConn Algebra Seminar 9/14/22
- **Lubin-Tate formal group laws**
  UConn Number Theory Reading Group 2/26/21

Instructional Schools and Workshops Attended

- **Téoria de Números en las Américas 2** 9/8/24 - 9/13/24
  Project: Lower bounds for relative class numbers of function fields.
- **Modular Curves Workshop 3 at MIT** 3/11/24 - 3/15/24
  This conference is an activity of the Simons Collaboration in Arithmetic Geometry, Number Theory, and Computation. I helped compute models of universal elliptic curves and created family pages for modular curves.
- **Arizona Winter School (AWS)** 3/2/24 - 3/6/24
  Topic: Abelian Varieties. Project group (Joseph Silverman): Canonical heights on abelian varieties.
- **Sage Days at the Center for Communications Research, La Jolla (CCR-L)** 2/5/24 - 2/9/24
  Worked on SageMath development: edited source code and fixed issues posted on GitHub.
- **Preliminary Arizona Winter School (PAWS)** 10/2/23 - 11/10/23
  PAWS is a virtual program on topics related to the upcoming AWS. Topic: Elliptic Curves and Abelian Varieties.
- **Statistiques Arithmétiques** 5/15/23 - 5/19/23
  Conference on Arithmetic Statistics in CIRM, France.
- **École de printemps en statistiques arithmétiques** 5/8/23 - 5/12/23
  Research school on Arithmetic Statistics in CIRM, France. Courses on Galois representations and statistics, complex multiplication, class field theory, and Frobenius distributions.
- **Women In Numbers 6 (WIN6)** 3/26/23 - 3/31/23
  Project: Isogenous discriminant twins over number fields.
- **Arizona Winter School (AWS)** 3/4/23 - 3/8/23
  Topic: Unlikely Intersections. Study group: Special point problems and their arithmetic.

- **Symposium sur la géométrie arithmétique et ses applications (SAGA)** 1/30/23 - 2/3/23
  Research school: Introduction to SAGA in CIRM, France. Courses on Galois representations and modular forms, modularity and diophantine applications, local-global principles, and Jacobians and models of curves.
- **Preliminary Arizona Winter School (PAWS)** 10/3/22 - 11/11/22
  PAWS is a virtual program on topics related to the upcoming AWS. Topic: Heights in Diophantine geometry.
- **PCMI Graduate Summer School, Utah** 7/17/22 - 8/6/22
  Park City Mathematics Institute (PCMI) Graduate Summer School in Number Theory Informed by Computation.
- **Rethinking Number Theory 3 (RNT3)** 6/20/22 - 7/1/22
  Virtual workshop. Project on computing the proportion of sneaky primes for pairs of elliptic curves.
- **Connecticut Summer School in Number Theory (CTNT)** 6/6/22 - 6/12/22
  Courses on algebraic number theory, local fields, introduction to Galois theory, and the Chebotarev density theorem.
- **PCMI Graduate Summer School (Virtual)** 7/26/21 -7/30/21
  Park City Mathematics Institute (PCMI) Graduate Summer School in Number Theory Informed by Computation.
- **Arizona Winter School (AWS)** Spring 2021
  AWS Virtual School in Number Theory was a 12 week program featuring four online lecture series (and problem solving sessions) on modular forms, modular groups, an exploration of the p-adic numbers and modular forms, and quadratic forms and the local global principle.
- **Connecticut Summer School in Number Theory (CTNT)** 6/8/20 - 6/12/20
  Virtual courses on sieves, infinite Galois theory, computations in number theory research, curves over finite fields, and p-adic functions on $\mathbb{Z}_p$.

Summer Research Programs

- **Summer Conference in Applied Mathematical Problems (SCAMP) at CCR-P** Summer 2024
  Participated in a 10 week collaborative research program at CCR-P, working on some of the most challenging mathematical problems in national security. Made fundamental contributions to mathematics of post-quantum cryptography. Explored theoretical mathematical problems using computer algebra systems and developed programs to aid testing new ideas. Regularly presented work and ideas in group settings and provided feedback to other participants. Published two internal papers documenting work done during the program.
- **Graduate Mathematics Program at the National Security Agency (NSA)** Summer 2023
  Received a Top Secret Sensitive Compartmented Information clearance with NSA special background investigation and full scope polygraph examination. Utilized and programmed on a Linux operating system. Researched and developed mathematical techniques applying numerical linear algebra to mission critical cryptographic problems. Briefed the Director of the NSA and government contractors at the Institute for Defense Analyses CCS-Bowie and CCR-Princeton on results. Published a paper internally within the agency mathematics community.
- **Number Theory REU at Texas A&M University**, *Advisor: Riad Masri* Summer 2019
  Researched and proved the equidistribution of the crank partition function with an effective asymptotic bound on the error. (Paper in the Ramanujan Journal.)
- **Number Theory REU at Oregon State University**, *Advisor: Holly Swisher* Summer 2018
  Researched modular forms and elliptic curves and produced results for eta-quotients of prime or semiprime level and elliptic curves. (Paper in the Involve Journal.)

Professional Services

- **UConn Algebra Seminar:** Co-organizer Fall 2024 – Spring 2025
  Invited speakers to UConn's algebra seminar and helped schedule and accommodate them.
- **MATHCOUNTS Eastern Chapter Competition:** Grader 2/17/24
  MATHCOUNTS is a high school coaching and competition program that brings to math achievement the same enthusiasm and prestige enjoyed by athletics.
- **UConn AMS Integration Bee for Undergraduates:** Judge 11/17/22
  An integration bee is like a spelling bee, but students take turns computing integrals instead of spelling words.

- **Mathematics Continued Conference (MCC):** Organizer 10/22/22
  The MCC at UConn is aimed at undergraduates to give them a glimpse of what grad school and math research is like.
- **Connecticut Summer School in Number Theory (CTNT):** Assistant 6/6/22 - 6/12/22
  Participated in and helped the organizers run both the summer school and conference.

Professional Activities

- **Math and Society (panelist)**, High School for Math, Science, and Engineering at CCNY 10/25/23
- **Bridging the Knowledge Gap in Math (panelist)**, Wiley 10/25/23
- **Graduate school panel (moderator)**, Mathematics Continued Conference 10/22/22
- **Successful Baruch Alumni Panel (panelist)**, Baruch College 11/9/21
- **Graduate school panel (panelist)**, Mathematics Continued Conference 10/23/21
- **Preparing for graduate school (panelist)**, UConn Math Club 4/21/21
- **Undergraduate math experience (panelist)**, Baruch Math Club 3/26/21
- **Undergraduate math research (panelist)**, UConn Math Club 11/11/20

Clubs/Leadership

- **UConn Number Theory Reading Group (NTRG):** Member Summer 2020 – Spring 2025
  We study various topics related to number theory. We have studied p-adic analysis, local class field theory, units of totally real cubic number fields, modular forms and modular curves, and computing ranks of elliptic curves. We are currently reading about Tate's thesis.
- **AWM Baruch Student Chapter:** President/Founder Fall 2019 – Spring 2020
  Started the Association for Women in Mathematics (AWM) Student Chapter at Baruch, organized events, shared knowledge and experience in math, research, math study abroad programs, internships, and mathematical jobs in industry.
- **Baruch Traders Club:** Trader Spring 2017 – Spring 2018
  Gained experience and knowledge of financial markets via trading simulations and trading seminars. Competed in various Baruch and intercollegiate trading competitions.

Languages

- English - fluent (U.S. Citizen)
- Greek - fluent (Dual Citizen)
- Spanish - proficient
- French - beginner

Computer Skills

- Magma
- SageMath
- Mathematica
- C++, Java, and Python