Benjamin York

Storrs, CT benjamin.york@uconn.edu

Education

University of Connecticut 2019 – Present
Ph.D. in Mathematics, Advisor: Álvaro Lozano-Robledo *Storrs, CT*

Bowdoin College 2015 – 2019
B.A. in Mathematics *Brunswick, ME*

Research Interests

My current research project is finding adelic Galois representations attached to elliptic curves with complex multiplication. More broadly, I am interested in Diophantine equations and arithmetic geometry.

Invited Talks

Joint Mathematics Meetings, Boston Jan. 5th 2023
On the adelic image of Galois representations attached to elliptic curves with CM *Boston, MA*
- Joint with Álvaro Lozano-Robledo

Mathematics Continued Conference Oct. 22nd 2022
An Exploration of Size and Distance *Storrs, CT*

AMS Eastern Sectional Meeting Oct. 1st 2022
On the adelic image of Galois representations attached to elliptic curves with CM *Amherst, MA*
- Joint with Álvaro Lozano-Robledo

Semimar Talks

Complex Tori and Modular Curves - A Four Part Lecture Oct. 2022
UConn Number Theory Seminar *Storrs, CT*

Infinite Galois Theory March 26th 2021
UConn Number Theory Seminar *Storrs, CT*

Finite Extensions of $\mathbb{Q}_p$ Oct. 9th 2020
UConn Number Theory Seminar *Storrs, CT*

Hensel's Lemma & Automorphisms of $\mathbb{Q}_p$ July 30th 2020
UConn Number Theory Seminar *Storrs, CT*

Orders of Imaginary Quadratic Number Fields Oct. 18th 2019
UConn Number Theory Seminar *Storrs, CT*

Instructional Schools/Workshops

UConn Number Theory Seminar Sept. 2019 - Present
Topics:
- Complex Multiplication on Elliptic Curves
- p-Adic Numbers and p-Adic Analysis
- Local Class Field Theory
- Units of Cyclic Cubic Number Fields
- Modular Forms and Modular Curves

Preliminary Arizona Winter School (PAWS) Oct. 3rd - Nov. 11th 2022

Topic:

- Heights in Diophantine geometry

Connecticut Summer School in Number Theory (CTNT) June 6th - 11th 2022

Topics:

- Algebraic Number Theory
- Local Fields
- The Chebotarev Density Theorem
- An Introduction to Galois Representations

Connecticut Summer School in Number Theory (CTNT) June 8th - 12th 2020

Topics:

- Sieves
- Infinite Galois Theory
- Computations in Number Theory Research
- Curves over Finite Fields
- p-adic Functions on $\mathbb{Z}_p$

REU in Fractal Analysis May 26th - Aug. 4th 2018

UConn, Advisor: Luke Rogers *Storrs, CT*

- Investigated the question "Are eigenfunctions of the Laplacian on the harmonic Sierpinski gasket Lipschitz continuous?"
- Studied known results on Laplacians of post-critically finite (PCF) self-similar sets.
- Produced results in the affirmative on a class of PCF self-similar sets, including the unit interval and Sierpinski gasket.

Independent Research in Number Theory June 26th - Aug. 4th 2017

Bowdoin College, Advisor: Michael King *Brunswick, ME*

- Project aimed to contribute to understanding of Hermite's problem on representing cubic irrationals as repeating expansions.
- Defined new class of continued fraction-like representations, generalizing usual continued fraction expansion.

Awards & Honors

Smyth Mathematics Prize 2019

Bowdoin College

$100\pi - \epsilon$ **prize** 2016

Bowdoin College

Teaching Experience

MATH 2110Q Multivariable Calculus Spring 2023

Teaching Assistant *UConn*

MATH 1071Q Calculus for Business and Economics Fall 2022

Instructor *UConn*

MATH 2110Q Multivariable Calculus Spring 2022

Teaching Assistant *UConn*

MATH 1020Q Problem Solving Fall 2021

Instructor *UConn*

MATH 1020Q Problem Solving Spring 2020

Instructor *UConn*

MATH 1020Q Problem Solving Fall 2020
Instructor *UConn*

MATH 1132Q Calculus II Spring 2020
Teaching Assistant *UConn*

MATH 1131Q Calculus I Fall 2019
Teaching Assistant *UConn*

MATH 2603 Introduction to Analysis Fall 2018
Teaching Assistant *Bowdoin College*

Specialized Skills

Programming Languages: Magma (advanced); SAGE, Python (intermediate); PARI/GP, Java (novice)
Software: LaTeX, Microsoft Excel
Other: Library based research