Rakvi

Assistant Professor · Mathematics

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Education

Cornell University — *Ithaca, New York, USA*

Doctor of Philosophy (Ph.D.) in Mathematics — *Aug 2015 - May 2021*

- Advisor: Dr. David Zywina

UM-DAE Centre for Excellence in Basic Sciences — *Mumbai, India*

Integrated M.Sc. in Mathematics — *Aug 2010 - May 2015*

- Masters thesis advisor: Prof. Eknath Ghate

Professional Experience

September 2025 -	**Assistant Professor**, The University of Maine
September 2024 - August 2025	**Lecturer**, The University of Maine
July 2021 - July 2024	**Hans Rademacher Instructor**, University of Pennsylvania

Research

Published/Accepted

Rakvi, A Classification of genus 0 modular curves with a rational point, Ph.D. Thesis, arXiv:2105.14623, published in Mathematics of Computation, https://doi.org/10.1090/mcom/3907.

Jacob Mayle, Rakvi, Serre Curves Relative to Obstruction Modulo 2, arXiv:2210.06645, Accepted in LMFDB, Computation and Number Theory, published in Contemporary Mathematics Volume: 796; 2024; 373 pp.

G Yuvan Shankar, Rakvi, Possible torsion of elliptic curves over cyclic cubic fields of conductor between 1 to 100, Accepted in Involve (2024).

Rakvi, On possibilities of 3-adic Galois images associated to isogeny-torsion graphs, arXiv:2307.04074, Accepted in International Journal of Number Theory (2025).

Preprints

Rakvi, A Classification of genus 0 prime power level modular curves over number fields with a point, arXiv:2208.02452.

Rakvi, On Possible Genus 0 Galois Images of non CM Elliptic Curves over Rationals, arXiv:2307.03302.

Awards, Fellowships, & Grants

Jan 2020 - May 2020	**Hutchinson Fellowship**, Department of Mathematics, Cornell University
2015-2016	**Graduate Student Fellowship**, Cornell University
2013-2014	**National Board for Higher Mathematics (NBHM) M.Sc. Fellowship** , Department of Atomic Energy (DAE), India

2010-2015 **INSPIRE Fellowship**, Department of Science and Technology, India

Talks and Research Conferences

Talks

Elliptic Curves, Isogenies, and Adelic Indices: UMaine Colloquium, December 2024.

On Three Adic Galois Images associated to Isogeny Torsion Graphs of non CM Elliptic Curves defined over Rationals: Invited for AMS Special Session on Arithmetic Geometry with a view towards computation at Joint Maths Meetings (JMM), January 2024.

On Possible Genus 0 Galois Images of non CM Elliptic Curves defined over Rationals : Invited for Algebra Seminar, Brown University, November 2023.

On Three Adic Galois Images associated to Isogeny Torsion Graphs of non CM Elliptic Curves defined over Rationals: Invited for Philadelphia Area Number Theory Seminar at Temple University, September 2023.

Serre Curves Relative to Obstructions Modulo 2: Invited for LuCaNT Conference at ICERM, Brown University, July 2023.

On Three Adic Galois Images associated to Isogeny Torsion Graphs of non CM Elliptic Curves defined over Rationals: Algebra Seminar at University of Pennsylvania, May 2023.

Serre Curves Relative to Obstructions Modulo 2: Invited for Philadelphia Area Number Theory Seminar at Temple University, January 2023.

Classification of Genus 0 Modular Curves with a Rational Point: Algebra Seminar at University of Pennsylvania, September 2021.

Classification of Genus 0 Modular Curves with a Rational Point: Invited for GAUSS Seminar at University of Iowa, April 2021.

Classification of Genus 0 Modular Curves with a Rational Point: Connecticut Number Theory Conference (CTNT), June 2020.

On Classification of Genus 0 Modular Curves with a Rational Point: Number Theory Seminar at Cornell University, February 2020.

Computing Models for Genus 0 Modular Curves: Lightning Talk given at Arithmetic of Low-Dimensional Abelian Varieties, ICERM, Brown University, June 2019.

Action of finite subgroups: Student Project Presentation at Arizona Winter School, March 2019.

Conferences

LMFDB Workshop, MIT, July 14-18, 2025.

LuCaNT Conference, ICERM, Brown University, July 7-11, 2025.

Algebraic Points on Curves, ICERM, Brown University, June 23-27, 2025.

Invited for Annual Simons Collaboration Meeting, January 2025.

The Mordell conjecture 100 years later, MIT, July 2024.

ANTS XVI, MIT, July 2024.

Connecticut Number Theory Research Conference (CTNT), June 2024.

Invited for Annual Simons Collaboration Meeting, January 2024.

LuCaNT Conference, ICERM, Brown University, July 2023.

Invited for Annual Simons Collaboration Meeting, January 2023.

Invited for Modular curves workshop II, MIT, Contributed code for computing model and j-map for genus 0 modular curves for LMFDB, November 2022.

Invited for Modular curves workshop I , MIT, Contributed code for computing model and j-map for genus 0 modular curves with a rational point for LMFDB, March 2022.

Upstate Number Theory Conference, Union College, October 2021.

Connecticut Number Theory Research Conference (CTNT), June 2020.

Arizona Winter School, March 2020.

Arithmetic of Low-Dimensional Abelian Varieties, ICERM, Brown University, June 2019.

Upstate Number Theory Conference, Cornell University, April 2019.

Arizona Winter School, March 2019.

15th Canadian Number Theory Association (CNTA) meeting at Laval University, Quebec city, July 2018.

Connecticut Number Theory Research Conference (CTNT), June 2018.

Upstate Number Theory Conference, University at Buffalo, April 2018.

Arizona Winter School, March 2017.

Southern New England Conference on quadratic and Modular forms, Wesleyan University, Connecticut, June 2016.

Teaching Experience

Spring 2025	**MATH 127 Calculus II**, Instructor
Spring 2025	**MATH 465 Theory of Numbers**, Instructor
Fall 2024	**MATH 116 Introduction to Calculus**, Instructor
Spring 2024	**MATH 370 Abstract Algebra**, Instructor
Spring 2024	**MATH 314 Linear Algebra**, Instructor
Fall 2023	**MATH 1300 Introduction to Calculus**, Instructor
Spring 2023	**MATH 1410 Multivariable Calculus**, Instructor
Spring 2023	**MATH 350 Number Theory**, Instructor
Spring 2022	**MATH 1300 Introduction to Calculus**, Instructor
Fall 2021	**MATH 370 Algebra I**, Instructor
Fall 2021	**MATH 312 Linear Algebra**, Instructor
Spring 2021	**MATH 1340 Strategy, Cooperation, and Conflict**, Grader
Fall 2020	**MATH 3320 Introduction to Number Theory**, Grader
Fall 2019	**MATH 1120 Calculus II**, Instructor
Spring 2019	**MATH 1110 Calculus I**, Instructor
Fall 2018	**MATH 2210 Linear Algebra**, Teaching Assistant
Spring 2018	**MATH 4500 Matrix Groups**, Grader
Spring 2018	**MATH 3360 Applicable Algebra**, Grader
Fall 2017	**MATH 2210 Linear Algebra**, Teaching Assistant
Spring 2017	**MATH 2210 Linear Algebra**, Teaching Assistant
Fall 2016	**MATH 3320 Introduction to Number Theory**, Grader

Mentoring

April 2023-August 2023	**Yukun Zhao**, Expository project titled ”Elliptic Curves and L-functions”	*University of Pennsylvania and Wuhan University, China*
February 2023 - March 2024	**G Yuvan Shankar**, Undergraduate Research Project on Torsion of Elliptic Curves over Cubic Number Fields	*Indian Institute of Technology, Guwahati, India*

Outreach and Teaching Workshops

August 2023- May 2024	**SAIL (Structured, Active, In-Class Learning) Workshop**,	*University of Pennsylvania*
January 2023- May 2023	**Math Teaching Workshop**,	*University of Pennsylvania*
May 2019 October 2018	**Math Discovery Workshops**, Visited elementary schools in Ithaca, New York for outreach **Math Explorers' Club**, Instructed a module on Mathematical Induction for Grades 8-12 students	*Cornell University*

Programming Skills

MAGMA, SAGE, C++, Mathematica, Python, Fortran 95

Department Service

2021-2022, 2023-2024	**Prize Committee**, Member	*University of Pennsylvania*
2022-2023	**Prelim Committee**, Member	*University of Pennsylvania*

Mathematical Community Service

- Referee for the Journal de Théorie des Nombres de Bordeaux
- Reviewer for Mathematical Reviews (MathSciNet)
- Referee for Mathematical Proceedings of the Cambridge Philosophical Society