

MANAMI ROY

CONTACT INFORMATION

Department of Mathematics

Fordham University

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EMPLOYMENT

Peter M. Curran Visiting Assistant Professor
Department of Mathematics, Fordham University

August 2019 - present

EDUCATION

University of Oklahoma, Norman, OK, USA

2014-2019

Ph.D. in Mathematics

Advisor: Dr. Ralf Schmidt

GPA: 4.0/4.0

IISER Kolkata, Mohanpur, Nadia, West Bengal, India

2011-2014

M.S. of the Integrated Ph.D. Program in Mathematics

Advisor: Dr. Saugata Bandyopadhyay and Dr. Kaneenika Sinha

GPA: 9.54/10.0 (3.8/4.0)

M.Sc. rank at IISER, Kolkata in Mathematics: **First**

Bethune College, University of Calcutta, Kolkata, India

2009 - 2011

B.Sc.(Honors) in Mathematics

Percentage grade: 82.5%

B.Sc. rank all over the University of Calcutta in Mathematics: **Third**

RESEARCH INTEREST

Number theory and arithmetic geometry; broadly comes under the Langlands Program. Specifically, I am interested in automorphic forms, local-global representation theory, elliptic curves, L -functions and classical modular forms. Recently, I have been working on some projects in partition theory, hypergeometric series, and computational number theory.

PUBLICATION

1. *The completed standard L -function of modular forms on G_2* , with Fatma Çiçek, Giuliana Davidoff, Sarah Dijols, Trajan Hammonds, and Aaron Pollack, Mathematische Zeitschrift **302** (2022), 483517, DOI: <https://doi.org/10.1007/s00209-022-03067-8>.
2. *Representations attached to elliptic curves with a non-trivial odd torsion point*, with Alexander J. Barrios, Bulletin of the London Mathematical Society, published online, 16 pages, 2022, DOI: 10.1112/blms.12660, arXiv preprint (<https://arxiv.org/abs/2106.15722>).
3. *Local Data of Rational Elliptic Curves with non-Trivial Torsion*, with Alexander J. Barrios, Pacific Journal of Mathematics **318** (2022), No.1,1-42, DOI: <https://doi.org/10.2140/pjm.2022.318.1>.
4. *Congruences for dimensions of spaces of Siegel cusp forms and 4-core partitions*, with Chiranjit Ray and Shaoyun Yi, The Ramanujan Journal **58**, 1011-1023 (2022), DOI: 10.1007/s11139-021-00481-0.

5. *Paramodular forms coming from elliptic curves*, J. Number Theory **233** (2022), 126-157, DOI: 10.1016/j.jnt.2021.06.007.
6. *On counting cuspidal automorphic representations for $GS(4)$* , with Ralf Schmidt and Shaoyun Yi), Forum Mathematicum **33** (2021), no. 3, 821-843, DOI: 10.1515/forum-2020-0313.
7. *Level of Siegel modular forms constructed via sym^3 lifting*, Automorphic forms and related topics, 225227, Contemp. Math., **732** (2019), 225-227, Amer. Math. Soc., DOI: 10.1090/conm/732/14798.
8. *Elliptic curves and paramodular forms*, University of Oklahoma doctoral dissertation, 2019.

PREPRINTS

9. *Dimension formulas for Siegel modular forms of level 4*, with Ralf Schmidt and Shaoyun Yi, and an appendix by Cris Poor and David S. Yuen, arXiv preprint (<https://arxiv.org/abs/2207.02747>), 46 pages, 2022.
10. *Classical and adelic Eisenstein series*, with Ralf Schmidt and Shaoyun Yi, arXiv preprint (<https://arxiv.org/abs/2109.07649>), 38 pages, 2021.
11. *Generalized Ramanujan-Sato Series Arising from Modular Forms*, with Angelica Babei, Lea Beneish, Holly Swisher, Bella Tobin, and Fang-Ting Tu, arXiv preprint (<https://arxiv.org/abs/2202.13253>), 33 pages, 2022.
12. *Prime isogenous discriminant twins over number fields*, with Alexander J. Barrios, Alyson Deines, Maila Hallare, and Piper H, 17 pages, 2022, Preprint available on request.

COMPUTATIONAL PROJECT

[Database for Groups, \$L\$ -functions and Modular Forms Database \(LMFDB\)](#), June 2020-present

SELECTED TEACHING EXPERIENCE

Fordham Univeristy

as Primary Instructor and Course Organizer

Finite Mathematics	Math 1100	Spring 2022
Math for Business Finite	Math 1108	Fall 2020, 2022, Spring 2022
Calculus I	Math 1206	Fall 2019, 2021, 2022
Calculus II	Math 1207	Summer 2020, 2021
Multivariable Calculus II	Math 2005	Spring 2020
Linear Algebra I	Math 2006	Spring 2021, 2022
Abstract Algebra I	Math 3005	Fall 2020, 2021

University of Oklahoma

as Primary Instructor

Trigonometry and Precalculus	Math 1523	Fall 2017, Spring 2018
College Algebra	Math 1503	Summer 2017

as Teaching Assistant

Discrete Mathematics	Fall 2018
Differential and Integral Calculus II	Spring 2017
Calculus and Analytic Geometry I	Fall 2016, Summer 2017
Mathematics Capstone course on Unsolved Problems in Mathematics	Spring 2015
Calculus and Analytic Geometry II	Fall 2015

NOTABLE TEACHING ACTIVITIES

- Helped reforming the Math for Business Finite course as a coordinated course at Fordham University
- In my online Abstract Algebra class, I have used [Gathertown](#) online platform to create an interactive group work environment. It created balance between lecture-based classes and “flipped classroom”.
- I have taught Trigonometry and Precalculus course in an active inquiry-based learning setting, where class time was spent volleying between short lectures and group work.
- I have taken a few RUME (Research in Undergraduate Mathematics Education) courses in University of Oklahoma which have been helpful to identify a student’s perspective in a class.
- I have mentored for undergraduate directed reading program in University of Oklahoma.
- In the course [Mathematics Capstone course on Unsolved Problems in Mathematics](#), I helped students with group work, projects, coding in Sage.

PROJECT LEADERSHIP

Isogenous Discriminant Twins over Number Fields*

March 21-26, 2023

- co-lead of a project with Alyson Deines.
- This project is a part of the collaborative research workshop [Women in Number Theory 6](#).

Elliptic curves with non-trivial isogeny

July 2021-present

- co-leading a project with Alexander Barrios.
- six-person group (of an undergraduate student, a graduate student and four postdocs) project started at [RNT: Rethinking Number Theory 2](#), a collaborative research workshop.

GRANTS

AMS-Simons Travel Grant

2022-2024

- A \$5,000 grant to be used for research-related travel.

American Institute of Mathematics (AIM) SQuaRE

2023-2026

- Project Title: Weight Three Paramodular Forms, (with Cris Poor, Jerry Shurman, and Dave Yuen).

HONORS AND AWARDS

- *Association for Women in Mathematics travel grant* to present at AWM JMM Graduate Student Poster Session 2019
- *American Mathematical Society Travel Grant \$500 Travel Grant* to attend JMM 2019.
- *MGSA Good Mentor Award*, University of Oklahoma, 2019
- *Best Poster Award* at TORA X, University of North Texas 2019
- *Department of Mathematics Graduate Fellowship*, University of Oklahoma, 2015 - 2019
- *Harold Huneke Graduate Scholarship*, University of Oklahoma, 2016
- *Richard V. Andree Memorial Scholarship*, University of Oklahoma, 2015
- [Inspire Fellowship](#) for PhD, India, 2013
- [CSIR National Eligibility Test \(NET\) for JRF](#), India, 2014

- [Graduate Aptitude Test in Engineering \(GATE\)](#), 2014
- M.Sc. rank at IISER, Kolkata in Mathematics: *First*, 2014
- B.Sc. rank all over the University of Calcutta in Mathematics: *Third*, 2011

INVITED TALKS

AMS Special Session on Rethinking Number Theory I, JMM 2023	Jan 4, 2023*
AMS Special Session on Number theory at non-PhD granting institutions I, JMM 2023	Jan 5, 2023*
UBC Number Theory Seminar	Oct 19, 2022*
Mathematics Colloquium, Ashoka University, India	Sep 13, 2022
Stat-Math Unit Seminar, ISI Delhi, India	Sep 7, 2022
Representations and Characters: Revisiting the Works of Harish-Chandra and Andre Weil	Jul 14, 2022
AMS Special Session on Recent Advances on the Langlands Program	May 15, 2022
Explicit Methods for Modularity Session	Apr 12, 2022
AMS Special Session on Rethinking Number Theory , Joint Mathematics Meetings 2022	Apr 7, 2022
AMS Special Session on A Showcase of Number Theory at Undergraduate Institutions Joint Mathematics Meetings 2022	Apr 6, 2022
International Seminar on Automorphic Forms	Dec 7, 2021
Johns Hopkins Number Theory Seminar	Nov 17, 2021
Oregon State University Number Theory Seminar	Nov 2, 2021
PRiME (Pomona Research in Mathematics Experience)	Jul 30, 2021
Queen Mary University of London Algebra and Number Theory Seminar	Mar 12, 2021
The Ohio State University Number Theory Seminar	Feb 15, 2021
Number Theory, Cryptography, and Coding Theory Seminar, Clemson University	Jan 25, 2021
Number Theory Seminar, Queen's University	Jan 22, 2021
VaNTAGe Math	Dec 8, 2020
Algebra and Number Theory Seminar , Louisiana State University	Nov 3, 2020
Algebra Seminar , University of North Texas	Oct 23, 2020
Workshop on Arithmetic Geometry, Number theory and Computation, ICERM	Jun 2, 2020

Study group in number theory , the Graduate Center, CUNY	Oct 11, 2019
Number Theory Seminar, ISI, Kolkata, India	Mar 15, 2019
Number Theory Seminar, IISER, Pune, India	Mar 8, 2019
RTG - Coding, Cryptography and Number Theory Seminar, Clemson University	Apr 3, 2017
Algebra Symposium, University of North Texas	Nov 5, 2016

CONTRIBUTED TALKS

Upstate Number Theory Conference	Oct 23, 2021
Maine-Qubec Number Theory Conference	Oct 3, 2021
PAJAMAS III	Sep 26, 2021
Madison Moduli Weekend , University of Wisconsin-Madison	Sep 26, 2020
MAAIM , Emory University	Nov 2, 2019
TORA X , University of North Texas	Apr 6, 2019
AMS Contributed Paper Session on Number Theory, III, Joint Mathematics Meetings	Jan 18, 2019
Communicating Mathematics Effectively, University of Washington	Jun 21, 2018
TORA IX , University of Oklahoma	Apr 7, 2018
UNCG Summer School in Computational Number Theory	May 22, 2017
31st Automorphic Forms Workshop, East Tennessee State University	Mar 7, 2017
Building Bridges 3rd EU/US Workshop on Automorphic Forms and Related Topics	Jul 21, 2016
Fordham Math Seminar , Fordham University	Fall & Spring 2020
Algebra and Representation Theory Seminar, University of Oklahoma	2016, 2018
Student Algebra Seminar, University of Oklahoma.	2015-2018
Category Theory Seminar, University of Oklahoma	2015
IISER-Kolkata, India	2012-2013

POSTER PRESENTATION

- *Some paramodular forms connected with elliptic curves*, AWM Workshop: Poster Presentations by Women Graduate Students, [Joint Mathematics Meetings](#), Jan 18, 2019.

- *Paramodular Forms Coming From Elliptic Curves*, [TORA X](#), Apr 6, 2019, *the poster received the best poster award at TORA X*.

TRAINING AND CERTIFICATION

- *The Departmental Teaching Certificate*, Department of Mathematics, University of Oklahoma, 2018
- *Teach College Mathematics*, a mandatory course for all teaching assistants in the Department of Mathematics, University of Oklahoma, 2015
- Advanced Tutor Training Programs for Business and Advanced Calculus, Department of Mathematics, University of Oklahoma, 2015
- *Professional Ethics Training course in Responsible Conduct of Research*, conducted by the National Institute of Health [NIH] and National Science Foundation [NSF], University of Oklahoma, 2015
- *Development for International Teaching Assistants*, University of Oklahoma, 2014

SYNERGISTIC ACTIVITIES

Conference, seminar and panel co-organization

- *New Developments in Number Theory Seminar*, [POINT](#), 2020-present
- *Lunch in the Time of Covid*, a series on topics that affect early-career mathematicians, 2020-present
- [TORA IX](#), University of Oklahoma, 2018
- *Graduate Student Seminar*, University of Oklahoma, 2018
- *Student Algebra Seminar*, University of Oklahoma, 2017

Outreach and Mentoring

- Undergraduate Directed Reading Program, University of Oklahoma, 2016-2018
- Tutor for Undergraduate Mathematics in the [Math Center](#), University of Oklahoma, 2014-2019
- Volunteer for [Math Day](#), University of Oklahoma, 2014-2019
- Volunteer work and poster presentation at Prof. S. N. Bose Science Agriculture and Book Fair for the department of mathematics and statistics, IISER Kolkata, 2012

Department Service

- Teaching observation and feedback for the adjunct instructors at Fordham University, 2020
- Helped reforming the Math for Business Finite course at Fordham University, 2020
- **Reviewer** for Mathematical Reviews, August 2021-present (4 articles reviewed so far)

COMPUTING SKILL

Python, C, Sage, Magma, Mathematica, Latex, LMFDB

MEMBERSHIPS

- [American Mathematical Society \(AMS\)](#)
- [Association for Women in Mathematics \(AWM\)](#)
- [Women in Number Theory](#)
- [People Online In Number Theory \(POINT\)](#)

REFERENCES

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