

SAGNIK MUKHERJEE

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Nationality: Indian
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EDUCATION

University of Minnesota, Twin Cities

August, 2022 -

Ph.D. in Mathematics.

Research Interest: Representation theory, Harmonic Analysis, Langlands Program, Number Theory.

Chennai Mathematical Institute

August, 2019 - April, 2022

B.Sc. Hons. in Mathematics & Computer Science.

Selected Courses: Algebraic Geometry, Algebraic Number theory, Analysis, Differential Equations
Differential Geometry, Discrete Math, Analysis of Algorithms.

PAPERS

(With T. Jaklitsch, T. C. Martinez, S. J. Miller) *Connections of Class Numbers to the Group Structure of Generalized Pythagorean Triples*. December, 2021. [arXiv:2112.03663](#). Accepted at *Rocky Mountain Journal of Mathematics*.

RESEARCH PROJECTS

Derivatives of a Representation and its Analytic Application

January, 2024 - Present

Finding codimension of Schwartz Space inside the "Kirillov model", and apply it to study the behavior of Whittaker functions, computing Rankin-Selberg L -functions, etc.

Advisor: Dihua Jiang

On Distinguished Representations

January 2025 - Present

Investigating whether the pair (G, H) is distinguished for $G = \mathrm{GL}_{2n+1}$, $H = \mathrm{Sp}_{2n}$ and $G = \mathrm{GL}_{2n}$, $H = P(\mathrm{Sp}_{2n})$

Mentor: Chen Wan

Asymptotic Behavior of Whittaker Functions

May 2025 - Present

Mentor: Ben Brubaker

Polymath Jr. REU

June, 2021 - August, 2021

Research on Connections between Class groups and the structure of solutions of Pell- type equation. Results accepted in a journal.

Mentor: Steven J. Miller

CONFERENCES, SEMINARS AND DELIVERED TALKS

Lie Theory Seminar

University of Minnesota, Twin Cities

Participant: SL_2 Stable and Invariant Trace Formula

Spring, 2025

Arizona Winter School

University of Arizona

Participant: Representation of p -adic groups

March, 2025

Lie Theory Seminar

University of Minnesota, Twin Cities

Speaker: On Plancherel Formula

September-October, 2024

Summer School on Relative Langlands Duality

University of Minnesota, Twin Cities

Participant

November, 2023

Lie Theory Seminar

University of Minnesota, Twin Cities

Speaker: Bernstein Center of a p -adic Groups and its Structure

November, 2023

ICCGNFRT 2021

Kerala School of Mathematics (Virtual)

Speaker: Connections of Class Numbers to the Group Structure of Generalized Pythagorean Triples

October, 2021

TEACHING EXPERIENCE

University of Minnesota, Twin Cities:

August 2022 - December 2025

- Teaching Assistant of *Calculus-1* (August 2022 - December 2022), *Linear Algebra and Differential Equation* (January 2023 - May 2024), *Calculus-2* (September 2024-December 2024), *Pre-Calculus* (January 2025-May 2025).
Linear Algebra and Differential Equation (September 2025-December 2025).
Led weekly Discussions and graded weekly assignments.
- Lecturer of *Linear Algebra and Differential Equation* (June 2024-July 2024)

Chennai Mathematical Institute:

January 2021 - May 2022

- Discussion leader and grader of *Analysis II* (Spring 2021), *Calculus* (Fall 2021), *Differential Equation* (Spring 2022).
Delivered lectures.

Ramanujan School of Mathematics

December 2019 - May 2022

- Trainer for the National Math Olympiads and IMO. Have trained hundreds of students for Math Olympiads, Undergraduate and Graduate Entrance examinations at prestigious research institutes (Indian Statistical Institute, Tata Institute of Fundamental Research, etc.)

LANGUAGES

Programming/Markup:

- \LaTeX · C++ · Python · Haskell

AWARDS

Ruth Kahn Fellowship

2023

- 3-month fellowship awarded by the Department of Mathematics, University of Minnesota, for summer research at the University.

ShriRam Scholarship

2019-2022

- Awarded by *Chennai Mathematical Institute* for performance in the Admission Test for B.Sc. Programme.
Institution fee waiver and monthly stipend.

DST INSPIRE Scholarship

2019-2022

- Awarded by INSPIRE, a scholarship facility organized by the Department of Science and Technology of the Government of India, to students in the top 1% in the State Board of Higher Secondary Examination.

EXTRACURRICULAR ACTIVITY & OUTREACH PROGRAMS

AMS Students Chapter at University of Minnesota

August 2022- Present

- Currently, holding the position of "Treasurer" of the board. Have been the "Treasurer Apprentice" of the management board since August 2022. Actively participated in organizing many mathematical social events, for example, "Intro to Research Seminars", "Pet AMS", "Pi Day", etc.