Arathy Venugopal

PhD student
Dept. of Mathematics
IISER Tirupati

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EDUCATION

•PhD   *Aug 2022 onwards*
Indian Institute of Science Education and Research, Tirupati   CGPA (Phd coursework): 9.7/10

•BSMS Dual degree   *2016-2021*
Indian Institute of Science Education and Research, Tirupati   CGPA: 8.8/10

•12th Grade (AISSCE)   *2016*
St.Antony's Public School, Anakkal (Board: CBSE)   Percentage: 94.4%

•10th Grade (AISSE)   *2014*
St.Antony's Public School, Anakkal (Board: CBSE)   CGPA: 10/10

ACHEIVEMENTS/FELLOWSHIPS

- Academic excellence award 2024, IISER Tirupati
- Qualified CSIR-NET lectureship (October 2022)
- Received Provisional offer for INSPIRE fellowship 2021
- Recipient of INSPIRE-SHE (2016-2021)

PRESENTATIONS/TALKS

- Poster presentation titled "On mod-p reduction of certain crystalline representations" at PMRF Symposium 2025.

CONFERENCES/WORKSHOPS ATTENDED

- Women in Numbers 2025 , hosted by IISER Pune (January 2025)
- Introduction to p-adic local Langlands program, NCMW, conducted at IIT Jammu (September 2024)
- New directions in Rational points , Chennai Mathematical Institute (January 2024)
- Conference on Rational Points on Modular curves (September 2023)
- Workshop on Elliptic Curves conducted by National Centre for Mathematics at IISER Trivandrum (April 2023).
- Intercity Number theory Conference hosted by Chennai Mathematical Institute (Feb 2023).
- Workshop on Group theory and Related Areas organized by IIIT Allahabad (Online) (Nov 2022).
- Vijyoshi National Science Camp 2016 held at IISc Bangalore (Dec 2016)

PROJECTS

- **MS Thesis (2020-2021)- Complex representations of** $\mathrm{GL}_n(F_q)$ under the guidance of **Dr. Venkatasubramanian C.G, IISER Tirupati**: In this project, we classified all the irreducible representations of $\mathrm{GL}_2(F_q)$ using Piatetski-Shapiro's approach. Several concepts like induction and Jacquet module, used in the thesis, could be generalized appropriately to construct the irreducible representations of $\mathrm{GL}_2(F)$, where F is a p-adic field.
- **(Jan - April 2019)-Representation theory of finite groups** under the guidance of **Dr. Shalini Bhattacharya, IISER Tirupati**: Aim of this project was to understand topics in Representation theory like Character theory, Frobenius Reciprocity, Mackey's irreducibility criterion etc. and to compute Character table of various groups like Dihedral Groups, Symmetric Groups etc.
- **(Aug- Nov 2019)-Topological Groups and Haar Measure** under the guidance of **Dr. Venkatasubramanian C.G, IISER Tirupati.**
- **(May-June 2018)-Counting using Chebyshev polynomials** under the guidance of **Dr. B. Sury, Indian Statistical Institute, Bangalore.**

RESEARCH INTERESTS AND VALUES

I am interested in Algebraic Number theory and Representation theory. I work on Galois representations and associated mod-p reduction problems. Alongside my academic interests, I am committed to fostering a respectful, inclusive, and collaborative research environment, where knowledge is shared openly and all individuals are valued irrespective of their background or identity.

Teaching assistance

- (November 2023- present)- External teaching assistantship at S.V. Engineering college, Tirupati.
- (May 2023)-Worked as tutor for Annual Foundation School-II 2023 organised by NCM at Mepco Schlenk Engineering College, Sivakasi.
- (Jan - July 2022)-Worked as Teaching Assistant in IISER Tirupati. Courses - Probability and Statistics, Linear Algebra, Basic Structures in Mathematics, Single variable Calculus.

References

- Dr. Nagaraj D. S.,
Professor, Dept. of Mathematics,
IISER Tirupati
Email: dsn@iisertirupati.ac.in
- Dr. Anilatmaja Aryasomayajula
Associate Professor, Dept. of Mathematics,
IISER Tirupati.
Email: anil.arya@labs.iisertirupati.ac.in

- Dr. Shalini Bhattacharya (PhD Supervisor),
Assistant Professor,
School of Mathematics and Statistics,
University of Hyderabad
Email: shalinib@uohyd.ac.in