Tathagata Mandal   Curriculum Vitae

CONTACT INFORMATION

Adamas University, Kolkata
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RESEARCH INTERESTS

I am interested in Algebraic Number Theory and Arithmetic Geometry. In particular, I have interest in

- Modular forms and Galois representations.
- Arithmetic of modular curves.
- Iwasawa theory of elliptic curves and modular forms.
- p-adic L-functions.

POSITIONS

- Assistant Professor at Adamas University (29.08.2024 to present)
- Visiting Scientist at ISI Kolkata (01.08.2021 to 31.07.2024)
- Institute Postdoc at IIT Kanpur (31.12.2018 to 30.03.2021)
- Senior Student Research Associate at IIT Kanpur (October 2018 - December 2018)
- PhD at IISER Pune from 2013 to 2018

EDUCATION

IISER Pune, India

Ph.D., Mathematics, August 2013 - November 2018
- Thesis: *Some properties of elliptic modular forms at the supercuspidal primes*
- Adviser: Dr. Debargha Banerjee

Visva-Bharati University, Santiniketan, India

M.Sc. in Mathematics, 2010-2012. [88.33% Marks]

B.Sc. in Mathematics (Hons.), 2007-2010. [76.5 % Marks]

AWARDS

[1] NBHM Postdoctoral Fellowship, 2021.

[2] Best graduate student (Mathematics) of the year 2017 at IISER Pune.

[3] IISER Pune Ph.D. fellowship (Aug 2013 - July 2018), MHRD, Govt. of India.

[4] CSIR- NET under Lecturership Category in June 2012.

TEACHING EXPERIENCE

Adamas University, India

• Engineering Mathematics II	Jan - Apr 2025
• Differential Equation	Jan - Apr 2025
• Engineering Mathematics I	Aug - Nov 2024
• Discrete Mathematics	Aug - Nov 2024
• Mathematical Analysis	Aug - Nov 2024
• Complex Analysis	Aug - Nov 2024

IISER Pune, India

Teaching Assistant (Tutor and grading)

- MTH 102 : Multivariable Calculus   Spring 2015
- MTH 201 : Linear Algebra   Fall 2015
- MTH 326 : Complex Analysis   Spring 2016

IIT Kanpur, India

Teaching Assistant (grading)

- MTH 102: Linear algebra and ODE   Spring 2019
- MTH 204A: Abstract Algebra   Spring 2019
- MTH102A: Linear algebra and ODE   Spring 2020
- MSO202A & MSO203B: Complex analysis & PDE   Fall 2020

Teaching Assistant (Tutor and grading)

- MTH 101A   Fall 2019

PUBLICATIONS   [1] Supercuspidal ramifications and traces of adjoint lifts (with Debargha Banerjee), **Journal of Number theory**, Volume 201, August 2019, Pages 292-321.

[2] A note on quadratic twisting of epsilon factors for modular forms with arbitrary nebentypus (with Debargha Banerjee), **Proceedings of the American Mathematical Society** 148(4):1509–1525, 2020.

[3] Multiplicities in Selmer groups and root numbers for Artin twists (with Somnath Jha and Sudhanshu Shekhar), **Journal of Number theory**, Volume 238, Sep 2022, P. 147-182.

[4] Two properties of symmetric cube transfers of modular forms (with Debargha Banerjee, Sudipa Mondal), **https://doi.org/10.48550/arXiv.2304.14555** (34 pages), to appear in **Journal of Number theory**.

PREPRINTS   [1] Contribution of symmetric power transfers to the cuspidal cohomology of GL_n (with Sudipa Mondal), **https://doi.org/10.48550/arXiv.2308.06846** (12 pages).

[2] On the change of epsilon factors for symmetric square transfers under twisting and applications (with Sudipa Mondal), **https://doi.org/10.48550/arXiv.2312.04505** (19 pages).

[3] Quadratic twists of elliptic curves of 2-Selmer rank 1. (11 pages)

[4] On congruences between modular forms and Selmer groups, *preprint* (13 pages).

CONFERENCE   [1] Second Pune-Mumbai Number theory Seminar
                  Sep 25-26, 2015, IISER Pune, India.

[2] Third Pune-Mumbai Number theory Seminar
    Sep 16-17, 2016, TIFR, Mumbai, India.

[3] Theoretical and Computational Aspects of the Birch and Swinnerton-Dyer Conjecture
    Dec 12-22, 2016, ICTS, Bengaluru, India.

[4] Fourth Pune-Mumbai Number theory Seminar
    Feb 16-17, 2018, IIT Bombay, India.

[5] International Conference on Perfectoid Spaces
    Sep 09-20, 2019, ICTS, Bengaluru, India.

[6] NCM Workshop on Modular Forms and Galois Representations
     Dec 11-17, 2019, IISER Tirupati, India.

[7] Recent Developments Around p-Adic Modular Forms (Online)
     30 Nov- 4 Dec, 2020, ICTS, Bengaluru, India.

[8] Number Theory Meeting on Ramanujan's 135th birth year
     27 Feb to 01 Mar 2023, IIT Kanpur, India.

[9] Rational Points on Modular Curves
     Sep 11-22, 2023, ICTS, Bengaluru, India.

TALKS

[1] IISER Pune, graduate student seminar, 16 Oct, 2015
     Title: *Res-inf exact sequence in group cohomology*

[2] IISER Pune, In-house Mathematics Symposium, 8 Sep, 2017
     Title: *Modular endomorphism algebras at supercuspidal primes*

[3] IIT Bombay, Fourth Pune-Mumbai Number theory Seminar, 16 Feb, 2018
     Title: *Modular endomorphism algebras at supercuspidal primes*

[4] ICTS Bengaluru, International Conference on Perfectoid Spaces , 19 Sep, 2019
     Title: *On quadratic twisting of epsilon factors for modular forms with arbitrary nebentypus*

[5] ICTS Bengaluru, Recent Developments Around p-Adic Modular Forms (Online), 3 Dec, 2020. Link: https://www.icts.res.in/program/p-adicmodularforms2020/talks
     Title: *Multiplicities in Selmer groups and root numbers for Artin twists.*

[6] IISER Kolkata, IINMM 2022, 1 June, 2022
     Title: *Multiplicities in Selmer groups and root numbers for Artin twists.*

EXPERTISE

Significant experience with Sage, a mathematical software.