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Current Affiliation

Institute of Science Tokyo, Specially Appointed Associate Professor (2018–present)

Academic History

- **Postdoctoral Fellow**, Tokyo University of Science, April 2017–September 2018.
- **Research Assistant**, Sophia University, October 2016–March 2017.
- **JSPS Postdoctoral Fellow**, Kyushu University, September 2014–September 2016 under host Professor Masanobu Kaneko.
- **Research Fellow**, University of Warwick, July 2012–June 2014.
- **Guest Researcher**, Max Planck Institute for Mathematics, Bonn, January–March 2013.
- **Ph.D. in Mathematics**, University of Warwick, July 2012, under Professor Samir Siksek.
- **Junior Research Fellow**, Indian Statistical Institute, Bangalore, 2007–2008.
- **Master of Mathematics**, Indian Statistical Institute, Bangalore, 2005–2007.
- **B. Sc. in Mathematics**, St. Stephen's College, University of Delhi, 2002–2005.

Research Interests

Number Theory, Modular Forms, Automorphic Forms, Automorphic Representations

Preprints

- (Joint with E. M. Baruch, M. Karameris) *Hecke Subalgebras and Local Newforms for the Metaplectic Double Cover of $\mathrm{SL}_2(\mathbb{Q}_p)$* , arXiv:2608.29922.
- (Joint with M. Chida, S. Wakatsuki) *Rankin–Cohen Brackets and Linear Relations*, in preparation.
- (Joint with R. Abdellatif) *p -modular Iwahori–Hecke algebras and their simple modules for the p -adic metaplectic SL_2* , in preparation.
- (Joint with E. M. Baruch) *The GL_2 Hecke Algebra of Level p^2 and Whittaker Functions*, in preparation.

Publications

- (Joint with E. M. Baruch) *A Hecke algebra of level 4 and Whittaker functions*, Proc. Japan Acad. Ser. A Math. Sci. 101(4) (2025), 19–23.
- (Joint with J. T. Dimabayao) *A variant of the congruent number problem*, Kyushu Journal of Mathematics 78(2) (2024), 413–432.
- (Joint with E. M. Baruch) *Newforms of half-integral weight: The minus space counterpart*, Canadian Journal of Mathematics, **72**, Issue 2 (2020), 326–372.
- (Joint with E. M. Baruch) *Newforms of half-integral weight: The minus space of $S_{k+1/2}(\Gamma_0(8M))$* , Israel Journal of Mathematics **232** (2019) 41–73.
- (Joint with E. M. Baruch) *Hecke algebras, new vectors and newforms on $\Gamma_0(m)$* Mathematische Zeitschrift, **287** (2017), Issue 1-2, 705–733.

- (Joint with N. Kumar) *A note on the Fourier coefficients of half-integral weight modular forms*, Arch. Math. (Basel) **102** (2014), no. 04, 369–378.
- *Hecke operators in half-integral weight*, J. Théor. Nombres Bordeaux **26** (2014), no. 01, 233–251.
- *Explicit applications of Waldspurger’s Theorem*, LMS J. Comp. Math. **16** (2013), 216–245.
- *On Shimura’s decomposition*, Int. J. Number Theory **9** (2013), no. 06, 1431–1445.
- *Eigenforms of Half-Integral Weight*, PhD thesis, University of Warwick, July 2012.
- (Joint with B. Sury) *Some vanishing sums involving binomial coefficients in the denominator*, Albanian J. Math. **2** (2008), no. 1, 27–32.

Conference Proceedings

- $\pi/4$ -Congruent number problem, WINJ2022 Conference proceedings, October 2022.
- *Hecke Algebra of level p^2* , WINJ2021 Conference proceedings, October 2021, 69–79.
- *Hecke Algebras, New Vectors and New Spaces*, The Computational and Theoretical Aspects of Elliptic Curves, Mathematical Lectures from Peking University (2019), 69–79.
- *On distinguishing representations of different conductor*, WINJ11 Conference proceedings, October 2018, 77–81.
- *Newforms of half-integral weight*, WINJ10 Conference proceedings, October 2017, 95–104.
- *Minus space of half-integral weight forms* Proceedings of the 10th Fukuoka Symposium on Number Theory, 2016.
- *Hecke algebras, new vectors and characterization of the new spaces*, RIMS Kôkyûroku 1973, November 2015, 55–63.
- *Hecke algebras, new vectors and new spaces*, WINJ8 Proceedings, October 2015, 90–100.

Teaching and Mentoring

- **Mentor**, YSEP Program, 2026 (1st Semester).
- **Lecturer** Graduate Course in Modular Forms, 2024 (1st Semester), 2022 (2nd Semester).
- **Lecturer**, Linear Algebra I/II, Calculus I/II, Institute of Science Tokyo, 2018–present.
- **Lecturer**, Topics in Number Theory, University of Warwick, Fall 2013.

External Funding and Awards

- **Research Program at CIRM** *Modular Langlands and Shimura correspondences for p -adic metaplectic groups*, 8–19 September, 2025.
- **TokyoTech School of Science Teaching award**, includes a grant of 800,000 JPY, Period: 2024/04/01–2025/03/31.
- **FY2018 Grant-in-Aid for Early-Career Scientists** as a Principal Investigator; Project number: 18K13396; Research area: Algebra; Budget: 3,300,000 JPY; Period: 2018/04/01–2025/03/31.
- **FY2014 JSPS Postdoctoral Fellowship for Foreign Researchers** and **FY2014 Grant-in-Aid for JSPS fellows**, awarded by JSPS, under host researcher Professor Masanobu Kaneko; Project number: 14F04319, Research area: Algebra, Budget: 2,300,000 JPY, Period: 2014/04/25–2017/03/31.
- **INSPIRE Faculty award**, by Indian National Science Academy (INSA). This is a tenure-track position with research and travel grant for 5 years which I had to decline to take up the JSPS.
- **Technion Postdoctoral Fellowship**, awarded by Technion - Israel Institute of Technology for a period of 12 months which I had to decline to take up the JSPS.

- **Best Talk Award**, awarded by London Mathematical Society during Graduate Student Meeting 2011.
- **Warwick Impact Award** under Professor Samir Siksek, Research area: Number Theory, covers stipend and travel grants for the academic year 2011–2012.
- **Warwick Postgraduate Research Scholarship**, awarded by University of Warwick, covers stipend and fees for the period 2008–2011.
- **Overseas Research Students Award (ORS) and University of Nottingham Scholarship 2008**, awarded by University of Nottingham, covers stipend and tuition fees for three years. I had to decline this to join PhD program at University of Warwick.
- **Junior Research Fellowship**, awarded by Indian Statistical Institute, covers stipend and contingency grant for 2007–2008.
- **Certificate of Junior Research Fellowship in Mathematical Sciences**, awarded by the Council of Scientific and Industrial Research Fellowship Scheme of the Government of India, 2007.
- **NBHM M. Sc. Scholarship** awarded by the National Board for Higher Mathematics, Government of India for the period 2005–2007.

Selected Seminar and Conference Talks

Talks outside Japan

- February 10, 2025: **Invited speaker** at IMath Seminar, University of the Philippines Diliman.
- September 19, 2024: **Invited speaker** at Séminaires GAT in LAMFA, UPJV.
- September 19, 2021: **Invited speaker** at Modular forms: Conference in honour of Prof. B. Ramakrishnan's 60th birthday (via Zoom).
- May 6, 2020: **Invited speaker** at International Seminar on Automorphic Forms (via Zoom).
- March 14, 2019: **Invited speaker** at International Conference on Number Theory, IISER Thiruvananthapuram.
- February 13, 2019: **Invited speaker** at Number Theory Conference, IMSc, Chennai.
- June 25, 2017: **Poster presentation** at the conference “Automorphic forms on reductive groups and their covers: In honour of Solomon Friedberg”, ETH Zurich.
- October 24–25, 2017: **Invited lecture series** at Department of Mathematics, POSTECH, Korea.
- April 7, 2016: **Invited speaker** at *Explicit Methods in Number Theory: Conference in Honour of John Cremona's 60th Birthday*, University of Warwick.
- December 12, 2014: **Invited speaker** at China-Indo Conference on Theoretical and Computational aspects of Elliptic curves, BICMR, Beijing.

Talks within Japan

- March 2, 2026: **Invited speaker** at Japan-India Mathematics Symposium on L-Functions and Multiple Zeta Functions, Sophia University.
- January 30, 2019: **Invited speaker** at *Number Theory Mini Workshop* at Sophia University.
- July 19, 2018: **Invited speaker** at *Number Theory Mini Workshop* at Kanazawa University.
- March 23, 2018: **Invited speaker** at *Automorphic forms/representations on covering groups*, Okayama University.
- March 13, 2018: **Invited speaker** at *Analytic Number Theory Seminar*, RIKEN, Wako.
- February 22, 2018: **Speaker** at *11th Young Mathematicians Conference on Zeta Functions*, Ehime University.

- January 17, 2018: Speaker at *RIMS Workshop on Modular forms and Automorphic Representation*, RIMS Kyoto.
- May 19, 2017: **Invited speaker** at *Waseda Number Theory seminar*, Waseda University.
- February 21, 2017: **Invited speaker** at *The 10th Young Mathematicians Conference on Zeta Functions*, Nagoya University.
- July 15, 2016: **Invited speaker** at *Analytic Number Theory Seminar*, Nagoya University.
- May 1, 2015: **Invited speaker** at *Waseda Number Theory seminar*, Waseda University.
- February 21, 2015: **Invited speaker** at *Workshop on Computational Number Theory with Implementations 2015*, Kyushu University.
- February 3, 2015: **Invited speaker** at *RIMS Workshop on Modular forms and Automorphic Representations*, RIMS Kyoto.

Professional Activities

- **Co-organizer**, 数論幾何学セミナー, Institute of Science Tokyo (2019–present).
- **Co-organizer**, *Zeta Functions and Their Representations*, RIMS, Kyoto University, March 8–10, 2027.
- **Organizer**, *Number Theory in Tokyo*, Tokyo Institute of Technology, March 20–24, 2023.

Public Outreach

- **Co-organizer**, 中高生向けイベント「社会の中の数学」, Institute of Science Tokyo, November 21, 2026.
- **Co-organizer and Speaker**, 女子中高生向けワークショップ「社会の中の数学」, Institute of Science Tokyo, March 8, 2025.
- **Speaker** and mentor at *Summer Camp for Female Undergraduate Students in Mathematical and Information Sciences*, September 9–11, 2024, organized by RIKEN AIP, Tokyo Institute of Technology, University of Tokyo and Keio University.
- **Speaker** at *Global Seminar*, Meizen High School Fukuoka as a part of *JSPS Science Dialogue Program*, October 2015.
- **Magazine Articles:**
 - (Joint with Y. Yatagawa) 東京科学大学理科教育振興事業女子中高生向けワークショップ「社会の中の数学」, 数学通信, 2025.
 - *Mathematics—A Truly Universal Language*, Parts 1–2, SuriJoshi, “Real Life”, web articles, June–July 2025.
 - Brillante 2, Office for the Promotion of Gender Equality, Kyushu University, 2016.
 - JSPS Quarterly, No. 54, published by JSPS, Winter 2015.