Rong Zhou

Research Interests

Arithmetic Geometry and Number Theory.

Employment

- Associate Professor–University of Cambridge. September 2023-present.
- Assistant Professor (University Lecturer)–University of Cambridge. July 2020-2023.
- Research Associate–Imperial College London. January 2020-June 2020.
- Gibbs Assistant Professor–Yale University. Fall 2019.
- Member–Institute for Advanced Study. 2017-2019.

Education

Harvard University

Ph.D. in Mathematics 2012- 2017

- Dissertation Topic: Mod p isogeny classes on Shimura varieties with parahoric level structure
- Advisor: Mark Kisin

University of Cambridge – St John's College

B.A. in Mathematics, 2008- 2011

- First class all three years. Final mark: 100/100 (Second Wrangler)

M.Math in Mathematics (Part III), 2011- 2012

- Graduated with Distinction

Papers/ Publications

Q. He, R. Zhou *On the basic locus of GSpin Shimura varieties with vertex stabilizer level*, arXiv:2505.08911, 71 pages, submitted.

M. Kisin, R. Zhou *Strongly compatible systems associated to semistable abelian varieties*, arXiv:2505.02165, 44 pages, submitted.

M. Kisin, G. Pappas, R. Zhou, *Integral models of Shimura varieties with parahoric level structure, II*, arXiv:2409.03689, 88 pages, submitted.

M. Kisin and R. Zhou, *Independence of ℓ for Frobenius conjugacy classes attached to abelian varieties*, **Ann. Math.**, 81 pages, to appear.

G. Pappas, R. Zhou, *On the smooth locus of affine Schubert varieties*, **Math. Ann.**, 392, pp. 1483–1501,
DOI https://doi.org/10.1007/s00208-025-03123-8 (2025)

X. He, R. Zhou, Y. Zhu *Stabilizers of irreducible components of affine Deligne–Lusztig varieties*, **J. Eur. Math. Soc.**, 27 , no. 6, pp. 2387–2441,
DOI 10.4171/JEMS/1414 (2024)

R. Zhou *Isogeny classes in Shimura varieties with absolutely special level structure*, Appendix to *Mod p points on Shimura varieties of parahoric level* by P. Van Hoften.
DOI: https://doi.org/10.1017/fmp.2024.22 (2024)

R. Zhou, *Motivic cohomology of quaternionic Shimura varieties and level raising*, **Ann. Sci. École Norm. Sup.**, (4) 56, 1231–1297,
DOI: 10.24033/asens.2554 (2023)

A. Shankar and R. Zhou, *Serre-Tate theory for Hodge-type Shimura varieties*, **Math.**

Z. 297, 1249-1271,
DOI, https://doi.org/10.1007/s00209-020-02556-y (2021)

R. Zhou *Mod p isogeny classes on Shimura varieties with parahoric level structure* **Duke Math. J.** 169 (15), 2937-3031,
DOI: 10.1215/00127094-2020-0021 (2020)

X. He and R. Zhou, *On the connected components of affine Deligne-Lusztig varieties* **Duke Math. J.** 169 (14), 2697-2765
DOI: 10.1215/00127094-2020-0020 (2020)

R. Zhou and Y. Zhu, *Twisted orbital integrals and irreducible components of affine Deligne Lusztig varieties.* **Camb. J. Math.** 8, no. 1, pp. 149–241,
DOI: https://dx.doi.org/10.4310/CJM.2020.v8.n1.a3 (2020)

K. Ascher, K. Dasaratha, A. Perry, R. Zhou *Derived equivalences and rational points on $K3$ surfaces* Proceedings of the AIM workshop: Brauer groups and obstruction problems: moduli spaces and arithmetic,
DOI: https://doi.org/10.1007/978-3-319-46852-5 (2017)

Grants and Awards

2022	ERC Starting Grant 2023-2028 (€1,127,478). (Funded by EPSRC Frontier Research Guarantee grant)
2020	ICCM Best Paper Award–Gold Medal.
2019	New World Mathematics Prize–Gold Award.
2016-2017	Merit Research Fellowship (Graduate School of Arts and Sciences, Harvard University)

Invited Talks

Recent and selected invited talks:

2025: Journée Arithmétique (Paris 8); Princeton/IAS Arithmetic Geometry Seminar; BIRS–IASM workshop *New Tools in the Local and Global Langlands Program.*

2023–2024: Oberwolfach; MSRI; Berkeley; Bonn (Global Langlands, Shimura Varieties and Shtukas); Münster (Rapoport 75th Birthday conference); Oxford.

2020–2022: Princeton; Chicago; Northwestern; Rice; Warwick; London (×2); Cambridge.

2015–2019: IAS/Princeton (×2); AMS Special session; Yale (x2); Harvard (×2); Columbia (×2); Chicago; Northwestern; Minnesota; Maryland (×2); Johns Hopkins; Brown; Caltech; NCTS Conference on Shimura Varieties.

Postdoc/Student Supervision

2025-present: Bence Hevesi (Postdoc-Funded by my ERC Grant)
2024-25: Ruiqi Bai (Postdoc-Funded by my ERC Grant)
2025-present: Lucas Valle-Thiele (PhD student)
2024-present: Suvir Rathore (PhD student-Funded by my ERC Grant)
2022: Chester Smith (Summer Research for undergraduates)
2021: Yan Yau Cheng, Gabriel Corrigan (Summer Research for undergraduates)
2020-2025: Supervised 21 Part III Essays (Master's dissertation)

Teaching

❑ Courses Lectured:

Michaelmas	2025	Part II Galois Theory.
Michaelmas	2024	Part III Local Fields.
Michaelmas	2023	Part III Local Fields.
Lent	2023	Part IB Groups, Rings and Modules.
Michaelmas	2022	Part III Local Fields.
Lent	2022	Part IB Groups, Rings and Modules.
Michaelmas	2021	Part III Local Fields.
Michaelmas	2020	Part III Local Fields.

❑ Courses supervised:

Michaelmas	2025	Galois Theory
Lent	2025	Complex Analysis
Michaelmas	2021	Supervisor for IB Linear Algebra.

❑ Examining duties:

2025	CATAM (Computer-Aided Teaching of All Mathematics)
2023	CATAM
2022	CATAM

❑ Previous teaching:

Fall	2019	Math112, Calculus of functions in one variable.
Spring	2016	Teaching Fellow, Math21b, Linear Algebra.
Fall	2014	Teaching Fellow, Math99x, Tutorial: Complex multiplication of Elliptic curves (with Yihang Zhu).
Fall	2014	Course Assistant, Math233a, Theory of Schemes.
Fall	2013	Teaching Fellow, Math1a, Introduction to calculus.

Service

- ❑ Scientific committee for the 2027 edition of "Jeunes en arithmétique et variétés algébriques" (JAVA) summer school on 'Shimura varieties and ℓ-independence.'
- ❑ Referee for the following journals:
  - JAMS, Inventiones, Astérisque, JEMS, GAFA, Crelle, Algebra and Number Theory, Math. Ann., Forum Math. Sigma, Advances in Math., Math. Z., Canadian Journal of Math.
- ❑ Seminars organized:
  - Princeton/IAS Number Theory Seminar: 2018-19.
  - Cambridge Number Theory Seminar: 2020-present.
  - Various study groups and learning seminars, on topics including: The Gross-Zagier theorem, The Witt vector affine Grassmannian, Cycles on Shimura varieties and geometric Satake, Exceptional splittings of abelian surfaces, Prismatic cohomology, Categorical Langlands.
- ❑ Departmental service (Faculty of Mathematics, Cambridge):
  - Member of IT committee, 2024–present.
  - Part III admissions officer, 2023–25.
  - Hiring Committee for Associate Professorships, 2025–26.

Personal

Date of Birth: 01/18/1990