

Kenta Suzuki

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Research Interests

Algebraic Geometry, Representation Theory

Education

Princeton University

Doctorate in Mathematics

Princeton, NJ

Anticipated Graduation: May 2030

Massachusetts Institute of Technology

Bachelors of Science in Mathematics

Cambridge, MA

Graduated May 2025

- **GPA:** 5.0/5.0
- **Coursework:** Categorical Langlands and Shimura Varieties, Topological modular forms, Motives at p , Infinite-dimensional Lie algebras, Cohomology of p -adic analytic groups, Symplectic geometry in characteristic p .

Papers and Preprints

K. Suzuki, *The image of the constant sheaf under the geometric Langlands equivalence*, Aug 26, 2026
arXiv:2608.25357

K. Suzuki, *Geometric characterization of the group law in the Weyl group*, arXiv:2407.02752 Mar 25, 2025

K. Suzuki, *Trace Paley-Wiener theorem for Braverman-Kazhdan's asymptotic Hecke algebra*, Jul 3, 2024
arXiv:2407.02752

V. Krylov and K. Suzuki, *Subregular nilpotent orbits and explicit character formulas for modules over non-simply laced affine Lie algebras*, to appear in Mathematical Research Letters Jan 12, 2024

K. Suzuki, *Rationality of the Local Jacquet-Langlands Correspondence for $GL(n)$* , arXiv:2307.06039 Jul 12, 2023

K. Suzuki and Y. Xu, *The explicit Local Langlands Correspondence for G_2 II: character formulas and stability*, arXiv:2304.02630, submitted. Apr 2023

K. Suzuki and Y. Xu, *The explicit Local Langlands Correspondence for GSp_4 , Sp_4 , and stability (with an application to Modularity Lifting)*, arXiv:2304.02622, submitted. Apr 2023

K. Suzuki, *Gelfand-Kirillov dimension of representations of GL_n over a non-archimedean local field*, arXiv:2208.05139, submitted. Aug 2022

K. Suzuki and M. Zieve, *Meromorphic functions with the same preimages at several finite sets*, PRIMES website. Aug 2022

Research Talks

NUS: Fargues's categorical conjecture for elliptic parameters for $SL(n)$ Jun, 2025

CASL: Fargues's categorical conjecture for elliptic parameters for $SL(n)$ Jun, 2025

Stanford: Fargues's categorical conjecture for elliptic parameters for $SL(n)$ May 1, 2025

Academia Sinica: Cocenter of Braverman-Kazhdan's Asymptotic Hecke Algebra Dec 16, 2024

Yale: Trace Paley-Wiener theorem for Braverman-Kazhdan's Asymptotic Hecke Algebra Sep 16, 2024

MIT: Affine Kazhdan-Lusztig polynomials on the subregular cell Feb 23, 2024

MIT: The explicit Local Langlands Correspondence for G_2 and GSp_4 Oct 4, 2023

SPUR: Gelfand-Kirillov dimension of representations of p -adic GL_n Aug 5, 2022

Teaching and Mentoring

MIT PRIMES (Program for Research in Mathematics, Engineering, and Science)

Research mentor

Nov 2023 -

- Mentoring high-school student on computing affine Kazhdan-Lusztig polynomials and on the Temperley-Lieb algebra.
- Student my first year was semi-finalist in the S.-T. Yau Competition, my second year won Silver in the S.-T. Yau Competition.

SPUR+ Mentor

Research mentor

June 2026 - August 2026

- Mentored two undergraduate students on a project on the Gelfand-Tsetlin algebra in positive characteristic.

DRP (Directed Reading Program)

Research mentor

Sep 2025 -

- Mentored 4 undergraduate students on the knot theory, combinatorics, linear algebra, and algebraic geometry.

RSI (Research Science Institute)

Research mentor

Jun 2025 - Aug 2025

- Mentored high-school students on knot theory and the Temperley-Lieb algebra.
- One student was 4th place, and the other was Top 300 in Regeneron's Science Talent Search.

Awards and Honors

NSF GRFP (Graduate Research Fellowship Program)

2026 -

George Lusztig Mentor for PRIMES (MIT)

Dec 2024

Frank and Brennie Morgan Prize for Outstanding Research in Mathematics (national)

Oct 2024

Goldwater Scholar (national)

Mar 2024

Mitsui Mirai Research Grant

2024 - present

ANRI Fundamental Science Research Fellowship

Nov 2023

- Research and travel grant.

Hartley Rogers Jr. Prize for SPUR (MIT)

Aug 2022

William Lowell Putnam Competition Honorable Mention (national)

Dec 2021 and Dec 2023

Davidson Fellow Scholarship Honorable Mention (national)

2021

Ezoe Memorial Recruit Foundation Scholar

2021 - present

- Full tuition merit scholarship, stipend, and travel grant.

Masason Foundation Scholar

2018 - present

- Full tuition merit scholarship, research and travel grant.

Seminars

Seminar on Bezrukavnikov's equivalence

Co-Organizer

Spring 2026

- I co-organized a seminar, with Bhargav Bhatt, Jacob Lurie, and Mingjia Zhang, on Bezrukavnikov's equivalence.

Quantum Topology Seminar

Organizer

Fall 2025

- I organized a seminar on quantum topology at Princeton in the Fall of 2025.

First-year Seminar

Co-Organizer

Fall 2025

- I co-organized the seminar for first-year graduate students at Princeton.

STAGE (Seminar on Topics in Arithmetic, Geometry, Etc.)

Co-Organizer

Spring 2023, Fall 2024

- The STAGE seminar is a learning seminar for graduate students in number theory. The topic for Spring 2023 was *Shimura varieties*, and the topic for Fall 2024 is *Algebraic differential equations*.
- Planned the talk topics, collected speakers, and organized post-seminar social events.

Expository Talks

STAGE: Weights and the statement of Weil II	<i>Nov 20, 2025</i>
STAGE: Monodromy of the Kodaira–Parshin family	<i>May 8, 2025</i>
de Rham cohomology via stacks	<i>Oct 22 and Nov 1, 2024</i>
STAGE: Relationship of integrable connections to PDEs and n th order ODEs	<i>Sep 30, 2024</i>
STAGE: Criterion for the non-existence of rational p -torsion	<i>Nov 16, 2023</i>
Modularity/Fermat Seminar: Taylor-Wiles Deformations	<i>Nov 3, 2023</i>
K3 surface seminar: Orthogonal Shimura varieties and moduli of K3 surfaces	<i>Oct 16, 2023</i>
Modularity/Fermat Seminar: Langlands-Tunnell, Part I	<i>Sep 22, 2023</i>
STAGE: Complex tori and abelian varieties	<i>Feb 13, 2023</i>
STAGE: Review of Étale Cohomology	<i>Sep 20, 2022</i>