

AKIRA TOMINAGA

Johns Hopkins University
Department of Mathematics
Krieger 201

atomina1@jh.edu
website: <https://atomina1.github.io>

ACADEMIC INTERESTS

Homotopy theory. Especially, topological modular forms, spectral algebraic geometry, chromatic homotopy theory and algebraic K-theory.

EDUCATION

Johns Hopkins University

- Ph.D., Mathematics (expected graduation: May 2026).
- Advisor: David Gepner.

The University of Tokyo

- B.S., Mathematics, (March 2020).
- Advisor: Toshitake Kohno.

PREPRINTS

3. **Verlinde bundles and strange duality in equivariant topological modular forms** (joint with Langwen Hui and Dan Berwick-Evans). In preparation.
2. **Twisted C_n -equivariant Topological Modular Forms** (joint with Mayuko Yamashita and Ying-Hsuan Lin). preprint. [arXiv link](#)
1. **Topological Jacobi forms.** In Preparation. Draft is available [on my website](#)

INVITED TALKS

7. *Topological Jacobi Forms.* Algebra and Number Theory day, Johns Hopkins University, November 2025.
6. *Topological Jacobi Forms.* Topology Seminar, University of Illinois, Urbana-Champaign, November 2025.
5. *Topological Jacobi Forms.* AMS sectional meeting, Denver, August 2025.
4. *S^1 and cyclic equivariant topological modular forms.* Topology Seminar, Copenhagen University, March 2025.
3. *Circle Equivariant Elliptic Cohomology and Jacobi Forms.* Topology Seminar, MPIM, January 2025.
2. *Circle Equivariant Elliptic Cohomology and Jacobi Forms.* Differential Topology Seminar, Kyoto University, May 2024.
1. *Circle Equivariant Elliptic Cohomology and Jacobi Forms.* Topology Seminar, RIKEN, August 2023.

¹Updated October 28, 2025

CONTRIBUTED TALKS

1. *Computation on Topological Jacobi Forms.* Stockholm, KTH, June 2024.

SEMINAR TALKS

12. *The conjugate filtration on de Rham stack.* Seminar on Prismatic F -gauges, Johns Hopkins University, September 2025.
11. *Height 2 calculation: on β -families.* Yatsugatake Workshop on chromatic homotopy theory, Japan, September 2024.
10. *Transchromatic Character Maps.* Morava E -theory Seminar, Johns Hopkins University, February 2024.
9. *Hopf Rings, Dieudonné Modules, and $E^*\Omega^2 S^3$.* eCHT Seminar on Hopf Rings, online, February 2024.
8. *Morava K -theory of Eilenberg-Maclane Spaces.* Chromatic Homotopy Theory Seminar, Johns Hopkins University, November 2023.
7. *Locally Compact Abelian Groups.* Condensed Math Seminar, Johns Hopkins University, October 2023.
6. *What is algebraic K -theory?.* What is... Seminar, Johns Hopkins University, December 2022.
5. *Homogeneous Functors and Cross Effects.* Learning Seminar on Goodwillie Calculus, Johns Hopkins University, November 2022.
4. *Introduction to Simplicial Sets and Quasicategory.* Derived Deformation Theory Seminar, Johns Hopkins University, September 2021.
3. *On the groups of $J(X)$.* eKan Seminar, Online, December 2020.
2. *Quillen's Theorem.* CU Topology Seminar, University of Colorado, Boulder, October 2019.
1. *The Axioms of Steenrod Algebras and a proof of Adem relations.* Winter School of Algebraic Topology, Shinshu University, February 2019.

TEACHING EXPERIENCE

Johns Hopkins University

Teaching Assistant

- Linear Algebra (Fall 2021).
- Calculus 2 for Physical Science and Engineering (Spring 2022).
- Honors Algebra 2 (Spring 2022).
- Calculus 2 for Physical Science and Engineering (Fall 2022).
- Calculus 2 for Biological and Social Sciences (Spring 2023).
- Precalculus (Fall 2023).
- Calculus 2 (Fall 2025).

Grader

- Algebraic Topology 1 (Fall 2022).
- Honors Complex Analysis (Fall 2023).
- Differential Geometry (Fall 2025).

Mentor for Directed Reading Program

- Introduction to Topology (Fall 2021).
- Category Theory (Spring 2022).
- Set Theory (Fall 2022).
- Characteristic Classes (Spring 2023).
- Topological Data Analysis (Fall 2023).
- Rational Points on Elliptic Curves (Spring 2024).

ORGANIZATION

Seminars

- Co-organizer of *JHU Topology Seminar*, since 2023. Seminar [website](#).

Professional society chapter

- Co-organizer of *JHU Directed Reading Program*, since 2023. Program [website](#).

PROFESSIONAL TRAVELS

- Exchange Student at University of Colorado Boulder, Mentor: Agnés Beaudry (September - November 2019).
- Visitor at Kyoto University, Mentor: Mayuko Yamashita (May 2024).
- Visiting scholar at Max Plank Institute for Mathematics, Mentor: David Gepner (January - March 2025).

CONFERENCES ATTENDED

- *Yatsugatake Workshop on chromatic homotopy theory*. Yamanashi, Japan, 2024.
- *Talbot Workshop on Topological Cyclic Homology*. Texas, USA, 2024.
- *IAS Park City Workshop on Motivic Homotopy*. Utah, USA, 2024.
- *Homotopical Methods in Manifolod Topology*. Copenhagen University, Denmark, 2024.
- *Recent Advances in Algebraic K-theory*. IHES, France, 2023.
- *Homotopy Theory in honor of Paul Goerss*. Northwestern University, USA, 2023.
- *Mastecllass on Higer Representation Theory*. Copenhagen University, Denmark, 2023.
- *Séminaire de mathématiques supérieures*. PIMS, Canada, 2022.
- *Workshop on Derived Geometry*. Centre de Recerca Mathmática, Spain, 2022.
- *Midwest Topology Seminar*. Chicago University, USA, 2019.
- *Summer School on Equivariant Homotopy Theory*. Fudan University, China, 2019.
- *The Second International Undergraduate Mathematics Summer School*. The University of Tokyo, Japan, 2019.
- *Winter School on Algebraic Topology*. Shinshu University, Japan, 2019.
- *Spring School on Algebraic Topology*. Shinshu Univierstiy, Japan, 2016.

AWARDS

- Owens Fellowship, JHU (2020-2023).
- Dissertation Fellowship, JHU (2026 Spring).