
Education

Bachelor of Science, With Highest Distinction, (April 2023) Major: Highest Honors in Mathematics, The University of Michigan, Ann Arbor, GPA: 4.0

Ph.D. in Mathematics, (in progress, since Fall 2023) Princeton University

Selected Awards

2021-2023 Barry Goldwater Scholarship

2022, 2023 Frank and Brennie Morgan Prize for Outstanding Research in Mathematics by an Undergraduate Student - Honorable Mention

2023-2028 National Science Foundation Graduate Research Fellowship

2021-2023 Alice Webber Glover Scholarship in Mathematics

2023 Wirt and Mary Cornwell Prize in Mathematics

2023 Centennial Fellowship in the Natural Sciences and Engineering, Princeton University

Employment

Winter 2021, Winter 2022 Grader for Math 592 (The First Year Graduate Course in Algebraic Topology) - 10 hours/week

Fall 2022 Course Assistant for Math 295 (Honors Mathematics I) - 10 hours/week

Publications - Papers

1. Equivariant cohomology and the super reciprocal plane of a hyperplane arrangement, *Algebraic and Geometric Topology*, 22, no. 3, (2022), 991-1015.

2. Noether's problem for orientation p -subgroups of symmetric groups, *Comm. in Algebra* 46 (2018) 5261-5272

3. On Weil reciprocity in motivic cohomology, *Math. Z.* 303 (2023), no. 3, Paper No. 57, 12 pp.

4. Actads, *Science China Math. (Springer-Verlag)*, 65, (2022), 1909-1952

5. Notes on equivariant homology with constant coefficients, *Pacific J. Math.* 309, (2020) 381-399

6. On completion and the evenness conjecture for homotopical equivariant cobordism, preprint, 2021, <https://krizsophie.github.io/EvennessConjecture22051.pdf>
7. Some remarks on Mackey functors, 2022, <https://arxiv.org/abs/2205.12192>
8. On the local cohomology of L -shaped integral FI -modules, *J. Algebra*, 611, (2022) 149-174.
9. Some examples of simple generic FI -modules in positive characteristic, *Represent. Theory*, 27, (2023) 1194-1207.
10. On the Frobenius type of semisimple pre-Tannakian categories in characteristic $p > 0$, preprint, 2022, <https://krizsophie.github.io/VerlindePosCombined22054.pdf>
11. On the canonicity of the singularities of quotients of the Fulton-MacPherson compactification, *Proc. Amer. Math. Soc.*, 152, (2024) 2725-2730.
12. Arbitrarily high growth in quasi-pre-Tannakian categories, 2023, <https://krizsophie.github.io/ACUCategoryFinal24031.pdf> (accepted for publication in *Michigan Mathematical Journal*).
13. Quantum Delannoy categories, preprint, 2023, <https://krizsophie.github.io/QuantumDelannoyCategory23111.pdf>
14. On semisimplicity and deformations of quasi-pre-Tannakian categories, preprint, 2024, <https://krizsophie.github.io/Deformations24101.pdf>
15. Interpolation of general affine groups and semidirect products of symplectic groups with Heisenberg groups via representation stability, preprint, 2024, <https://krizsophie.github.io/FIPModules24031.pdf>
16. Oscillator representations and semisimple pre-Tannakian categories, preprint, 2024, <https://krizsophie.github.io/WeilShale24051.pdf>
17. The Delannoy tree category, preprint, 2024, <https://krizsophie.github.io/DelannoyTrees24098.pdf>
18. Howe duality over finite fields I: the two stable ranges, 2024, arXiv: [2412.15346](https://arxiv.org/abs/2412.15346)
19. Howe duality over finite fields II: explicit stable computation, 2025, arXiv: [2506.22983](https://arxiv.org/abs/2506.22983)
20. Howe duality over finite fields III: full computation and the Gurevich-Howe conjectures, 2025, arXiv: [2506.22986](https://arxiv.org/abs/2506.22986)

Publications - Books

(joint with I.Kriz) Introduction to Algebraic Geometry, 470 pp. 2021, Springer-Birkhauser, ISBN 978-3-030-62644-0, <https://link.springer.com/book/10.1007/978-3-030-62644-0>

Selected Conferences/Talks

1. Equivariant Cohomology and the Super Reciprocal Plane of a Hyperplane Arrangement, *Equivariant Geometry and Topology session, CMS Winter Meeting, Niagara Falls, 2016*
2. On Weil Reciprocity in Motivic Cohomology, *Special Session in Structured Homotopy Theory, AMS Fall Central Sectional Meeting, October 2018*
3. On Equivariant Homology with Constant Coefficients, *Algebraic Topology Seminar, University of Michigan, October 2020*
4. On the Structure of Simple Generic FI -Modules in Positive Characteristic, *OTTERS Seminar, University of Michigan, February 2022*
5. A Counterexample to the Homotopical Evenness Conjecture and a Completion Theorem, *Topology Seminar, University of Minnesota, February 2022*
6. On Representation Stability of Symmetric Groups in Positive Characteristic, *Stability in Topology, Arithmetic, and Representation Theory, Purdue University, March 2022*
7. Some Results on Modular Representation Stability of Symmetric Groups, *AMS-SIAM Special Session on Research in Mathematics by Undergraduates and Students in Post-baccalaureate Programs, April 2022*
8. *WARTHOG, Workshop on Algebra and Representation Theory, Eugene, Oregon, June 2022*
9. A Completion Theorem and a Counterexample to the Evenness Conjecture for Homotopical Equivariant Cobordism, *Seminar in Equivariant Bordism and Applications, UNAM-Oaxaca, Mexico, October 2022*
10. Some Computations on FI -Modules, *Higher Invariants in Equivariant and Geometric Topology, University of Miami, May 2023*
11. Some Recent Results on Homotopical and Geometrical Equivariant Complex Cobordism, *Equivariant Bordism Theory and Applications, Banff International Research Station, CMO, Oaxaca, Mexico, June 2023,*
12. T -Algebras and the Vector Delannoy Category, *Stability in Topology, Arithmetic, and Representation Theory, Purdue University, July 2023*
13. Oligomorphic Spectra, *Special Session in Homotopy Theory, AMS Fall Central Sectional Meeting, October 2023*
14. Vector Delannoy Categories and Further Developments, *Symmetric Tensor Categories and Representation Theory, Institute for Pure and Applied Mathematics at UCLA, January 2024*
15. New Developments in Symmetric Tensor Categories, *International Workshop of Algebraic Topology, July 2024*

16. Interpolated Group Theory, *Special Session on Representation Theory and Tensor Categories, Joint Meeting of the NZMS, AustMS, and AMS, December 2024*
17. Categories and Representation Theories, *International Workshop of Algebraic Topology, Conference in Honor of Prof. Peter May, March 2025*
18. Evenness and Completion in Equivariant Stable Cobordism, *Special Session on Interactions of Equivariant Bordism and Low Dimensional Topology, Mathematical Congress of the Americas, July 2025*

Other Activities

- 2024 **Mentor**, *Directed Reading Program*, Princeton University
- 2022 **Volunteer, Mentor**, *Math Corps*, educational program for middle and high school students, University of Michigan
- 2019-2020 **Volunteer**, *Readers and Best*, children's literacy program, University of Michigan
- 2022-present **Reviewer**, *Mathematical Reviews/MathSciNet*
- 2018-2022 **Reviewer**, *zbMATH*
- Member**, *American Mathematical Society*

Languages

- English First language
- French Advanced

Hobbies

- Piano: <https://krizsophie.github.io/#piano>
- Painting