

# Sophie Kriz

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## *Curriculum Vitae*

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### 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**, (beginning in Fall 2023) Princeton University

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### Selected Courses

Math 631/632: Algebraic Geometry I/II, Math 697: Low-dimensional Topology, Math 695: Algebraic Topology, Math 731: Algebraic Groups, Math 676: Class Field Theory, Math 732: Introduction to Singularities, Math 738: Category Theory for Representation Theorists, Math 678: Modular Forms, Math 700: Independent Study on  $D$ -Modules and the Riemann-Hilbert Correspondence (Supervisor: Prof. M. Mustata), Math 777: Theta Correspondence

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### National Awards

- 2021-2023 Barry Goldwater Scholarship
- 2022 Frank and Brennie Morgan Prize for Outstanding Research in Mathematics by an Undergraduate Student - Honorable Mention
- 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

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### University Awards

- 2021 Evelyn O. Bychinsky Award in Mathematics
- 2021 George Piranian Excellence in Mathematical Writing Award
- 2021 William J. Branstrom Freshman Prize
- 2021-2023 Alice Webber Glover Scholarship in Mathematics
- 2022 Frank Raymond Award in Geometry & Topology
- 2022 Sophomore Honors Award with Distinction
- 2023 Wirt and Mary Cornwell Prize in Mathematics
- 2023 Centennial Fellowship in the Natural Sciences and Engineering, Princeton University

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## Employment

Winter 2021, Grader for Math 592 (The First Year Graduate Course in Algebraic Topology) - 10 hours/week  
Winter 2022  
Fall 2022 Course Assistant for Math 295 (Honors Mathematics I) - 10 hours/week

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## 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, no. 2, (2020) 381-399
6. On Completion and the Evenness Conjecture for Homotopical Equivariant Cobordism, preprint, 2021, <https://krizophie.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. On the Structure of Simple Generic  $FI$ -Modules in Positive Characteristic, preprint, 2022, <https://krizophie.github.io/FunctorsDLambda22051.pdf>
10. On the Frobenius Type of Semisimple Pre-Tannakian Categories in Characteristic  $p > 0$ , preprint, 2022, <https://krizophie.github.io/VerlindePosCombined22054.pdf>
11. On the Canonicity of the Singularities of Quotients of the Fulton-MacPherson Compactification, preprint, 2022, <https://krizophie.github.io/Canonicity22061.pdf>

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## 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>

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## 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, upcoming*

## Other Activities

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

## Languages

- English First language
- French Advanced

## Hobbies

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

Painting