

# KYLE BINDER

 [bindercommakyle.github.io](https://github.com/bindercommakyle)  [binder.kyle@gmail.com](mailto:binder.kyle@gmail.com)

## EDUCATION

|   |  |
|---|--|
| <b>The Ohio State University</b><br><i>M.S. &amp; Ph.D. (Expected) in Mathematics</i> | 2019 – Spring 2025 (Expected)<br><i>Advisor: Eric Katz</i> |
| <b>Baylor University</b><br><i>B.A. in Mathematics and Linguistics</i>                | 2015 – 2019  |

## PAPERS

- The Unipotent Tropical Fundamental Group  
*with Eric Katz*  
Preprint (2024), [arXiv:2406.13973](https://arxiv.org/abs/2406.13973).
- Limit Sets and Internal Transitivity in Free Group Actions  
*with Jonathan Meddaugh*  
Preprint (2019), [arXiv:1908.07382](https://arxiv.org/abs/1908.07382).
- On 2-coloring the integers to forbid a distance and monochromatic translates of a triangle  
Geombinatorics **27** (2018), no. 4, 137–146.

## TALKS AND POSTERS

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| The Tropical Unipotent Fundamental Group<br><i>5 Minute Talk at Tropical Geometry: Moduli Spaces and Matroids Workshop</i>               | October 2024   |
| Higher Tor Groups of Matroids<br><i>5 Minute Talk at Workshop of the Kentucky–Ohio Algebra Alliance (KOALA)</i>                          | May 2024       |
| Higher Tor Groups of Matroids<br><i>OSU Combinatorics and Probability Seminar</i>  | April 2024     |
| What is the Cohomology of a Non-Compact Toric Variety?<br><i>Poster at Kentucky, Ohio, Indiana (KOI) Combinatorics Lectures</i>          | December 2023  |
| Higher Tor Groups of Stanley–Reisner Rings of Matroids<br><i>5 Minute Talk at Workshop of the Kentucky–Ohio Algebra Alliance (KOALA)</i> | May 2023       |
| The Tropical Unipotent Fundamental Group<br><i>20 Minute Talk at Workshop on Matroids and Tropical Combinatorics (MaTroCom)</i>          | January 2023   |
| A Survey of Tropical Cohomology<br><i>OSU Algebraic Geometry Seminar</i>   | September 2022 |
| The Geometries of Hyperplane Arrangement Complements<br><i>OSU Student Algebraic Geometry Seminar</i>                                    | April 2022     |
| $p$ -adic Integration on Hyperelliptic Curves<br><i>OSU Student Algebraic Geometry Seminar</i>   | February 2021  |

## AWARDS

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| Distinguished University Fellowship | 2019-2020, 2024-2025 |
| Tibor Radó Research Semester        | Spring 2021          |

## TEACHING

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|---|-------------|
| OSU MATH 1131 – Business Calculus<br><i>Recitation Instructor</i>               | Spring 2024 |
| OSU MATH 1131 – Business Calculus<br><i>Recitation Instructor</i>               | Autumn 2022 |
| OSU MATH 1148 – College Algebra<br><i>Recitation Instructor</i>                 | Autumn 2021 |
| OSU MATH 1148 – College Algebra<br><i>Recitation Instructor, Virtual (Zoom)</i> | Autumn 2020 |

## ORGANIZING

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| OSU Directed Reading Program (DRP)   | 2021 – 2025   |
| Kentucky, Ohio, Indiana (KOI) Combinatorics Lectures<br><i>Local Organizer</i> | December 2023 |