Kyle Binder

</> bindercommakyle.github.io ✉ binder.kyle@gmail.com

Education

The Ohio State University   2019 – Spring 2025 (Expected)
M.S. & Ph.D. (Expected) in Mathematics   *Advisor: Eric Katz*

Baylor University   2015 – 2019
B.A. in Mathematics and Linguistics

Papers

Tor Groups of the Stanley–Reisner Ring of a Matroid
    Preprint (2024), arXiv:2412.05732.

The Unipotent Tropical Fundamental Group
    with Eric Katz
    Preprint (2024), arXiv:2406.13973.

Limit Sets and Internal Transitivity in Free Group Actions
    with Jonathan Meddaugh
    Preprint (2019), arXiv: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

The Tropical Unipotent Fundamental Group   October 2024
    5 Minute Talk at Tropical Geometry: Moduli Spaces and Matroids Workshop   Goethe University Frankfurt

Higher Tor Groups of Matroids   May 2024
    5 Minute Talk at Workshop of the Kentucky–Ohio Algebra Alliance (KOALA)   University of Kentucky

Higher Tor Groups of Matroids   April 2024
    OSU Combinatorics and Probability Seminar

What is the Cohomology of a Non-Compact Toric Variety?   December 2023
    Poster at Kentucky, Ohio, Indiana (KOI) Combinatorics Lectures   The Ohio State University

Higher Tor Groups of Stanley–Reisner Rings of Matroids   May 2023
    5 Minute Talk at Workshop of the Kentucky–Ohio Algebra Alliance (KOALA)   The Ohio State University

The Tropical Unipotent Fundamental Group   January 2023
    20 Minute Talk at Workshop on Matroids and Tropical Combinatorics (MaTroCom)   Queen Mary University

A Survey of Tropical Cohomology   September 2022
    OSU Algebraic Geometry Seminar

The Geometries of Hyperplane Arrangement Complements   April 2022
    OSU Student Algebraic Geometry Seminar

p-adic Integration on Hyperelliptic Curves   February 2021
    OSU Student Algebraic Geometry Seminar

Honors and Awards

Distinguished University Fellowship	2019-2020, 2024-2025
Tibor Radó Research Semester	Spring 2021
Phi Beta Kappa	Fall 2018

Teaching

OSU MATH 1131 – Business Calculus   Spring 2024
Recitation Instructor

OSU MATH 1131 – Business Calculus   Autumn 2022
Recitation Instructor

OSU MATH 1148 – College Algebra   Autumn 2021
Recitation Instructor

OSU MATH 1148 – College Algebra   Autumn 2020
Recitation Instructor, Virtual (Zoom)

Organizing

OSU Directed Reading Program (DRP)   2021 – 2025
The DRP pairs undergraduates with a graduate student mentor.
Students read a math book together, and the undergraduate gives a final presentation.

Kentucky, Ohio, Indiana (KOI) Combinatorics Lectures   December 2023
Local Organizer: Helped with setting and cleaning up,
provided local directions.