

Michael Morrow, Ph.D.

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Education

University of Kentucky, Kentucky, USA

Ph.D. Mathematics

Advisor: Uwe Nagel

May 2024

University of Kentucky, Kentucky, USA

M.S. Mathematics

April 2021

Central Washington University, Washington, USA

B.S. Mathematics

June 2019

Research Interests

Computational and combinatorial commutative algebra, asymptotic algebra

Publications and Preprints

Computing Gröbner Bases and Free Resolutions of OI -Modules

with U. Nagel, J. Algebra **662** (2025), pp. 702-723. Available at [arXiv:2303.06725](#).

The OIGroebnerBases Package for Macaulay2

submitted, 2023. Available at [arXiv:2310.04891](#).

Symmetric Free Resolutions

with U. Nagel, in preparation.

Software

OIGroebnerBases.m2

a Macaulay2 package, 2023. Available at github.com/morrowmh/OIGroebnerBases.

Also available as part of the official [Macaulay2](#) release as of version 1.23.

FIResolutions.m2

a Macaulay2 package, in preparation. See github.com/morrowmh/FIResolutions.

Awards and Fellowships

Summer Research Fellowship

University of Kentucky

Summer 2023

Eaves Fellowship

University of Kentucky

Summer 2022

Dale and Mary Jo Comstock Scholarship

Central Washington University

Spring 2019

Talks and Presentations

Computational Methods for OI -Modules

- Ph.D. Thesis Defense, University of Kentucky

April 2024

Syzygy Computations in OI -Modules

- (Invited) Joint Mathematics Meetings, San Francisco, CA
- (Invited) CMS Winter Meeting, Montreal, QC

January 2024
December 2023

Finite Computation of Gröbner Bases for OI -Modules

- (Invited) Algebra and Geometry Seminar, University of New Mexico
- Qualifying Talk, University of Kentucky

October 2023
December 2021

Computing Gröbner Bases and Free Resolutions of OI -Modules

- (Poster) BrianFest, University of Nebraska-Lincoln

August 2023

Gröbner Bases and Syzygies of Sequences of Related Ideals

- Spectra Survey of Mathematics Conference, University of Kentucky
- (Invited) AMS Fall Southeastern Sectional Meeting, University of Tennessee-Chattanooga

May 2023
October 2022

Computing Free Resolutions of OI-Modules

- Algebra Seminar, University of Kentucky

November 2022

Equivariant Gröbner Bases

- Master's Talk, University of Kentucky

April 2021

Conferences and Workshops

Joint Mathematics Meetings

San Francisco, CA

January 2024

BrianFest

University of Nebraska-Lincoln

August 2023

Summer CAMP

Professional development workshop

University of Nebraska-Lincoln

August 2023

Commutative Algebra and its Interaction with Algebraic Geometry

SLMath summer school

University of Notre Dame

May 2023

Spectra Survey of Mathematics Conference

University of Kentucky

May 2023

AMS Fall Southeastern Sectional Meeting

University of Tennessee-Chattanooga

October 2022

WARTHOG

Infinite-dimensional methods in commutative algebra

University of Oregon

June 2022

Macaulay2 Conference

Cleveland State University

May 2022

Teaching Experience

Instructor of Record, University of Kentucky

- Contemporary Math
- Matrix Algebra
- College Algebra

Spring 2024

Spring 2023

Summer 2021, Summer 2020

Recitation Leader, University of Kentucky

- Elementary Calculus
- Calculus II
- Calculus III
- Calc for Life Sciences
- Finite Math
- Algebra and Trig for Calculus

Fall 2023 (Lead TA*), Spring 2020

Fall 2022

Spring 2022

Fall 2021

Spring 2021

Fall 2020, Fall 2019

Algebra Prelim Peer Coach**, University of Kentucky

May 2023, December 2022

*: mentors other TAs and provides peer observations and feedback

**: organizes several 3-hour long group problem sessions and coaches peers on test-taking strategies

Service and Outreach

UKY MathLab Undergraduate Research Project Leader

University of Kentucky

Fall 2023

Algebra Seminar Organizer

University of Kentucky

Fall 2023

Graduate Student Peer Mentor Program

University of Kentucky

Fall 2020 - Fall 2022

Julia Robinson Math Festival

University of Kentucky

November 2019

Kittitas Valley Math Circle

Central Washington University

September 2017 - June 2019