Anna Brosowsky

Contact Information

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Education

University of Michigan

Ph.D. in Mathematics (May 2024)
Advisor: Karen E. Smith
Thesis Title: *The Cartier Core Map and F-Graded Systems*

M.S. in Mathematics (December 2022)

Cornell University

May 2018
B.A. in Mathematics (Summa Cum Laude)
Minor in Computer Science

Employment

University of Nebraska–Lincoln
August 2024–present — NSF Postdoctoral Associate

Publications

A. Brosowsky, J. Page, T. Ryan, and K. E. Smith. *Geometry of smooth extremal surfaces*, Journal of Algebra, Vol 646 (2024) pp 376-411. arXiv:2110.15908, MR4711041

A. Brosowsky. *The Cartier core map for Cartier algebras*, Journal of Algebra, Vol 630 (2023) pp 274-296. arXiv:2203.01911, MR4586749

A. Brosowsky, S. Chepuri, and A. Mason. *Parametrizations of k-nonnegative matrices: cluster algebras and k-positivity tests*, Journal of Combinatorial Theory, Series A, Vol 174 (2020) article 105217. arXiv:1712.05037, MR4081512.

Preprints

A. Brosowsky, H. Du, M. Krishna, S. Nair, J. Page, and T. Ryan. *Maximal skew sets of lines on a Hermitian surface and a modified Bron-Kerbosch algorithm.* Preprint, submitted. arxiv:2211.16580

Honors and Awards

2024	NSF Mathematical Sciences Postdoctoral Research Fellowship
2024	Rackham Outstanding GSI Award
2022	Gabrielle & Sophie Rainich Fellowship
2018	Outstanding Poster Award, MAA Undergrad Poster Session, JMM
2018	Elected to Phi Beta Kappa

Conference Talks

September 2024 — *Some two variable limit F-signatures*
KUMUNU, University of Missouri

May 2024 — *Cartier algebras through the lens of p-families*
URiCA, University of Nebraska–Lincoln

January 2024 — *Cartier algebras through the lens of p-families*
Special Session on Recent Developments in Commutative Algebra at the JMM

October 2023 *Cartier algebras through the lens of p-families*
AMS Fall Central Sectional, Creighton University

March 2023 *The Cartier core map for Cartier algebras*
AMS Spring Southestern Sectional, Georgia Tech

October 2022 *The Cartier core map for Cartier algebras*
AMS Fall Western Sectional, University of Utah

September 2016 *Recursions and Colored Hilbert Schemes*
Women in Mathematics in the Northeast Conference, Smith College

August 2016 *Poincaré Polynomial of Moduli Space via Weil Conjectures*
Young Mathematician's Conference, Ohio State University

Seminar Talks

November 2024 *Cartier algebras through the lens of p-families*
Arizona State University Number Theory & Algebra Seminar

October 2024 *Cartier algebras through the lens of p-families*
University of Nebraska–Lincoln Commutative Algebra Seminar

November 2023 *Cartier algebras through the lens of p-families*
Centro de Investigación en Matemáticas Alg. Geometry & Comm. Algebra Seminar

October 2023 *Cartier algebras through the lens of p-families*
University of Utah Commutative Algebra Seminar

September 2023 *Cartier algebras through the lens of p-families*
University of Michigan Commutative Algebra Seminar

October 2022 *The Cartier core map for Cartier algebras*
University of Illinois at Chicago Commutative Algebra Seminar

September 2022 *The Cartier core map for Cartier algebras*
University of Michigan Commutative Algebra Seminar

September 2022 *The Cartier core map for Cartier algebras*
University of New Mexico Algebra & Geometry Seminar

Posters

January 2023 *The Cartier core map for Cartier algebras*
AWM Poster Session at the JMM

May 2022 *Cartier core map for Cartier algebras*
KUMUNU Poster Session

January 2018 *Cluster Algebras and k-positivity Tests*
MAA Undergraduate Poster Session at the JMM

Expository Talks

October 2024 *Introduction to strong F-regularity*
UNL Commutative Algebra Reading Seminar

November 2023 *Measuring F-singularities numerically*
UM Student Commutative Algebra Seminar

November 2023 — *Introduction to cohomological F-singularities*
UM Student Commutative Algebra Seminar

September 2023 — *Introduction to liason theory*
UM Student Commutative Algebra Seminar

February 2023 — *Workshop on Macaulay2*
UM Student Commutative Algebra Seminar

January 2023 — *How to tell when an ideal is homogeneous*
UM Student Commutative Algebra Seminar

October 2022 — *Using volumes to compute properties of ideals*
UM Student Commutative Algebra Seminar

February 2022 — *An Introduction to Determinantal Rings*
UM Student Commutative Algebra Seminar

November 2021 — *Cluster Algebras*
UM Student Commutative Algebra Seminar

December 2020 — *Spectral Properties of Graph Laplacians*
UM Student Combinatorics Seminar

October 2022 — *Introduction to Strong F-regularity*
UM Student Commutative Algebra Seminar

November 2018 — *Primary Decomposition*
UM Student Commutative Algebra Seminar

September 2017 — *An Introduction to Gröbner Bases*
Cornell Undergrad Math Club

April 2017 — *Graphs and Probability*
Cornell Undergrad Math Club

Teaching Experience

University of Michigan

Fall 2018, Winter 2019, Winter 2020, Fall 2020, Fall 2023 & Winter 2024	Instructor of Record, Calculus I (Math 115)
July 2022 & July 2023	Math Level III Instructor, M-STEM Academies
Fall 2022	Grader, Commutative Algebra (Math 614)
Fall 2019	Instructor of Record, Calculus II (Math 116)

Cornell University

Spring 2016, Fall 2017, & Spring 2018	TA, Intro to Analysis of Algorithms (CS 4820)
Spring 2015, Fall 2015, Spring 2016, & Fall 2016	TA, Intro to Computing in Python (CS 1110)

Professional Activities

Fall 2023 – Winter 2024 **Co-organizer**, UM Commutative Algebra Seminar

Fall 2022 – Winter 2024 **Co-organizer**, UM Student Comm. Algebra Seminar

Fall 2022 **Grad Student Mentor**, UM Math Intro Program
Instructor support position. Duties included: providing instructor observations & feedback, assisting with teaching team organization, and substitute teaching.

Fall 2022 – Winter 2024 **Member**, UM Math Grad Student Advisory Committee
Bring grad student issues & concerns to Math Graduate Chair.

Winter 2022 **Mentor**, UM Lab of Geometry
Co-supervised an undergrad research project on configurations of lines on smooth extremal surfaces; led to a preprint which has been submitted to a journal.

Fall 2021 **Grad Co-coordinator**, Calculus I (Math 115)
Course organizational position. Duties included: writing homework assignments & exam questions, and providing instructor observations & feedback.

Fall 2020 – Winter 2024 **Mentor**, Twoples Directed Reading Program
Each semester, get paired with an undergrad mentee from a school without a local DRP. Meet weekly on Zoom to supervise reading & final project.

May 2020 – 2022 **Team Member**, UM Foundational Course Initiative
Part of a team revising Calculus I with a focus on student support. Helped with design & implementation of 3 new mastery assessments.

July 2018 **Counselor**, MathPath Summer Camp
Assisted with office hours, math questions, and classes. Co-designed & co-taught a one week course on network flows. Supervised and looked after well-being of 11–14 year old campers both day-to-day and on outings.

Relevant Skills

Languages: English (native speaker), German (basic)
Programming: Python, Java, Macaulay2, LaTeX