

Connor Simpson

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INTERESTS algebraic geometry, matroids, combinatorics, commutative algebra

EDUCATION **University of Wisconsin – Madison** 2018–2024
PhD Mathematics
Cornell University 2014–2018
BA Mathematics

PAPERS Numbered chronologically by arXiv date.

Journal

4. Spencer Backman, Christopher Eur, and Connor Simpson. “Simplicial generation of Chow rings of matroids”. *J. Eur. Math. Soc. (JEMS)* (to appear 2023+). arXiv: 1905.07114.
3. Thomas Hameister, Sujit Rao, and Connor Simpson. “Chow rings of vector space matroids”. *J. Combin.* 12.1 (2018), pp. 55–83. arXiv: 1802.04241.
2. Karola Mészáros, Connor Simpson, and Zoe Wellner. “Flow polytopes of partitions”. *Electron. J. Combin.* 26.1 (2019). arXiv: 1707.03100.
1. Peter Bernstein, Cashous Bortner, Sam Coskey, Shuni Li, and Connor Simpson. “The set splittability problem”. *Australian J. Comb.* 75 (2019). arXiv: 1611.01542.

Preprint

7. Xuhua He, Connor Simpson, and Kaitao Xie. “Total positivity for matroid Schubert varieties”. *Preprint* (2023). arXiv: 2310.18925.
6. Jörg Schürmann, Connor Simpson, and Botong Wang. “A new generic vanishing theorem on homogeneous varieties and the positivity conjecture for triple intersections of Schubert cells”. *Submitted* (2023). arXiv: 2303.13833.
5. Colin Crowley, June Huh, Matt Larson, Connor Simpson, and Botong Wang. “The Bergman fan of a polymatroid”. *Submitted* (2022). arXiv: 2207.08764.

In preparation

8. Colin Crowley, Connor Simpson, and Botong Wang. “Polymatroid Schubert varieties”. *In preparation* (2023).

AWARDS 2022 **NSF Grant DMS-2206872 (\$20,000)**
To hold GradMoCCA, a meeting on combinatorial commutative algebra.
Foreign Language and Area Studies Fellowship
Funded by US Dept of Education. Used to study Mandarin at Middlebury Language School

2021 **Henry Schaerf Mathematics Graduate award**
“given to a graduate student who has demonstrated promise in their academic work”
Outstanding TA award
“given to TAs who have demonstrated excellence in teaching over multiple semesters”

	2018	NSF Graduate Research Fellowship Program, Honorable Mention Cornell University, <i>summa cum laude</i> honors	
INVITED TALKS	2024	Suzhou workshop on matroid theory	
	2023	Nankai University Center for Combinatorics	
	2022	Fields Institute matroids seminar AMS Fall Central Sectional CA+ (“Commutative Algebra Plus”)	
	2020	Geometric combinatorics mini-symposium at SIAM DM20 (cancelled due to COVID) Cornell combinatorics seminar (cancelled due to COVID)	
	2019	Matroids Day	
SOFTWARE		“Complex Paint” A program for exploring fractals. Still used to teach Ithaca High School’s “Fractals & Chaos” class, though I handed off maintenance duties in 2016.	2014–2016
SERVICE		Directed reading program (DRP) coorganizer DRP provides mentors for undergraduates reading about math topics of their choice.	2020–2021
		Directed reading program mentor Mentored undergraduates reading about combinatorics and Coxeter groups.	Fall 2019, 2020
		Madison Math Circle coorganizer	2019–2021
ORGANIZING		Matroids Day 2022 Conference on matroids and related areas at UW Madison.	November 2022
		GradMoCCA Brought together over 60 early career researchers in combinatorial commutative algebra.	May 2022
		Sage at Wisconsin Mini-workshop to teach people to use Sage and Python for math research.	November 2019
TEACHING		All teaching is as a TA.	
		Math 340 (Linear algebra)	Fall 2022
		Math 222 (Calculus II)	Spring 2022
		Math 114 (Precalculus)	Fall 2021
		Tutorial program	Spring 2021
		Math 211 (Business calculus)	Fall 2019, 2020
		Math 234 (Calculus III)	Spring 2019
		Math 221 (Calculus)	Fall 2018
LANGUAGES		English (native), Mandarin (basic)	
CITIZENSHIP		USA, UK	
LAST UPDATE		January 10, 2024	