

Will Dana

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Department of Mathematics
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EDUCATION	University of Michigan , Ann Arbor, MI Ph.D. in Mathematics (advisor: David Speyer)	expected May 2023
	University of Washington , Seattle, WA B.S. with Departmental Honors in Mathematics	June 2017
RESEARCH EXPERIENCE	Research interests: Representations of finite-dimensional algebras, Coxeter groups, root systems	
	Publications: "Walls of Shards and Filtrations of Shard Modules of Preprojective Algebras". In preparation. "Shard Modules" (with David Speyer and Hugh Thomas). In preparation. "Stability of Stretched Root Systems, Root Posets and Shards". <i>The Electronic Journal of Combinatorics</i> , vol. 28, iss. 34 (2021) "Algebraic Properties of Generalized Graph Laplacians: Resistor Networks, Critical Groups, and Homological Algebra" (with David Jekel, Avi Levy, Austin Stromme, and Collin Litterell). <i>SIAM Journal on Discrete Mathematics</i> , vol. 32, iss. 2 (2018)	
	Research talks: Canadian Mathematical Society Winter Meeting Combinatorics Seminar (U. Michigan) Graduate Student Combinatorics Conference (U. Minnesota) Online Talks to Explain Representation Stability (U. Michigan)	December 2022 October 2021 April 2021 February 2021
	Poster sessions: Algebraic Combinatorics Virtual Expedition Graduate Meeting on Combinatorial Commutative Algebra (U. Minnesota) Algebraic Combinatorics Virtual Expedition	June 2022 May 2022 June 2021
	Other conferences and workshops: Open Problems in Algebraic Combinatorics (U. Minnesota) Conference on Geometric Methods in Representation Theory (U. Missouri) Workshop on Combinatorial Algebraic Geometry (Fields Institute) Graduate Summer School in Algebraic Group Actions (Fields Institute)	May 2022 November 2019 June 2018 June 2018
	Learning seminar talks at U. Michigan: "Combinatorial Reciprocity: Counting Through the Looking-Glass" Student Combinatorics Seminar "Parametrizing triangulations: the associahedron and the secondary polytope" Student Combinatorics Seminar "The HOMFLYPT polynomial of a knot" Learning Seminar in Algebraic Combinatorics "Quiver representations, reflection, and the Dynkin diagrams" Student Combinatorics Seminar	February 2022 October 2021 September 2021 February 2021

“Hecke algebras at roots of unity” Online Talks to Explain Representation Stability	November 2020
“Hilbert polynomials and the BKK theorem” Student Algebraic Geometry Seminar	October 2020
“An introduction to matroids: the good, the bad, and the ugly” Student Combinatorics Seminar	October 2020
“BN-pairs and the associated buildings” Online Talks to Explain Representation Stability	September 2020
“Schur functors in characteristic p : $\text{Rep}(S_d)$ as a Serre quotient” Online Talks to Explain Representation Stability	March 2020
“Almost split sequences and different flavors of finiteness” Student Representation Theory Seminar	February 2020
“Some pointed reflections on quiver representations and Coxeter groups” Student Combinatorics Seminar	January 2020
“A biased introduction to weighted projective space” Student Algebraic Geometry Seminar	October 2019
“Matroids II: representability and the curse of the forbidden minors” Student Combinatorics Seminar	September 2019
“Free hyperplane arrangements” Student Combinatorics Seminar	March 2019
“Quotients of affine space by finite groups” Student Algebraic Geometry Seminar	March 2019
“Electrifying random trees” Student Combinatorics Seminar	October 2018
“An introduction to hyperplane arrangements and the Orlik-Solomon algebra” Student Combinatorics Seminar	March 2018
“Invariant theory and Hilbert’s 14th problem” Student Algebraic Geometry Seminar	February 2018
“Learning to count with the Weil conjectures for curves” Student Algebraic Geometry Seminar	December 2017
“Function field analogies, the ABC conjecture, and the ABC theorem” Student Arithmetic Seminar	November 2017
“An introduction to the critical group of a graph and discrete harmonic functions” Student Combinatorics Seminar	September 2017
Other expository talks:	
“Managing multiple maps’ matrices with mirrors” Kalamazoo College colloquium	October 2022
“Managing multiple maps’ matrices with mirrors” University of Michigan Math Club	September 2022

**TEACHING
EXPERIENCE**

Teaching at U. Michigan:	
M-STEM Academy Level 2: preparation for Calculus I (instructor of record)	July 2022
Math 115: Calculus I (replacement instructor of record)	March – April 2022
Math 105: Data, Functions, and Graphs (instructor of record)	Fall 2021
Math 116: Calculus II (instructor of record)	Winter 2019
Math 116: Calculus II (instructor of record)	Fall 2018
Math 115: Calculus I (instructor of record)	Winter 2018
Math 105: Data, Functions, and Graphs (instructor of record)	Fall 2017
Graduate student minicourses at U. Michigan:	
Representations of Quivers and Lie Algebras	Summer 2021

	Representation Theory of Finite-Dimensional Algebras	Summer 2020
	Teaching at U. Washington:	
	Math 334–335–336: Advanced Honors Calculus (course assistant)	2015 – 2017
	Mentoring and enrichment:	
	Course Assistant, Graph Theory (MMSS high school summer program)	2020 – 2021
	Mentor, Canada/USA Mathcamp (high school summer program)	Summer 2019
	Teaching Assistant, U. Washington Mathematics REU	2016 – 2017
	Professional development:	
	Rackham-CRLT Seminar on Preparing Future Faculty	May 2022
	Inquiry Based Learning Working Group, Alliance for Michigan IBL	2021
SERVICE & LEADERSHIP	Lab of Geometry at Michigan mentor	Fall 2022
	U. Michigan graduate student minicourse organizer	Summer 2022
	MiSciWriters blog content editor	2021 – 2022
	Student Combinatorics Seminar organizer	2019 – 2022
	Directed Reading Program mentor (undergraduate independent study)	2019 – 2022
	Let’s Talk About Teaching Lunch organizer	2019 – 2021
	Math Mondays in Ypsilanti (middle school outreach program)	2019 – 2020
HONORS & AWARDS	G. Cleaves Byers Endowment for Collegiate Mathematics Education	2022
	Math Department Graduate Summer Fellowship (U. Michigan)	2018 – 2019
	Dean’s Medal in the Natural Sciences (U. Washington)	2017
	Summa cum laude (U. Washington)	2017
	Outstanding Graduating Senior in Mathematics (U. Washington)	2017
	2016 Putnam Exam Honorable Mention (U. Washington)	2017
	NSF Graduate Research Fellowship Honorable Mention	2017
	Phi Beta Kappa Honor Society (U. Washington)	2016