Sarah Brauner

Vincent Hall Office 556
0488, 206 Church St SE,
Minneapolis, MN 55455

braun622@umn.edu
http://www-users.math.umn.edu/~braun622/
CV updated on December 5, 2019

Education	**University of Minnesota**	September 2017 – Present

PhD Candidate in Mathematics
    Advisor: Vic Reiner

M.S. in Mathematics	August 2019

    Major topic: combinatorics and reflection groups
    Minor topic: algebraic topology

Smith College	2016 - 2017

Post-Baccalaureate Program for Women in Mathematics, GPA: 4.0

Reed College	2012 - 2016

B.A. in Mathematics/Economics, GPA: 3.87

Papers

(With F. Glebe and D. Perkinson) "Enumerating Linear Systems on Graphs," arXiv:1906.04768, 2019.

(With T. Friedmann) "One Garnir to Rule Them All: On Specht Modules and the CataLAnKe Theorem," arXiv:1803.10918, 2018.

Conference Proceedings

(With F. Glebe and D. Perkinson) "Enumerating Linear Systems on Graphs"
Séminaire Lotharingien de Combinatoire **82B** (2019), Article # 17
Formal Power Series and Algebraic Combinatorics (FPSAC), Ljubljana, Slovenia.

Select Awards

NSF Graduate Research Fellowship	2019 - 2022
UMN College of Science and Engineering Graduate Fellowship	2017 - 2020
UMN School of Mathematics Naresh Jain Fellowship	2017 - 2020
Phi Beta Kappa, Reed College	2016
Meier Award for Distinguished Thesis in Economics, Reed College	2016
President Commendation for Academic Excellence, Reed College	2013, '14, '15, '16
McGill Lawrence Grant (to conduct research in South Africa), Reed College	2014

Invited Talks

Eulerian representations for finite reflection groups	2020

    Reed College Mathematics Colloquium
    Reed College, Portland, OR

Enumerating Linear Systems on Graphs	2019

    AMS Central Fall Sectional Meeting: Combinatorial Algebraic Geometry
    University of Wisconsin, Madison WI

    CAGE (Combinatorics, Algebra, and Geometry) Seminar
    Drexel University, Philadelphia PA

AMS Northeast Spring Sectional Meeting: Chip Firing and Divisor Theory
University of Hartford, Hartford CT

Smith College Mathematics Colloquium Lunch Talk
Smith College, Northampton MA

On Specht Modules and the CataLAnKe Theorem 2018
AMS Central Fall Sectional Meeting: Combinatorics in Algebra and Geometry
University of Michigan, Ann Arbor MI

Contributed Talks	**Enumerating Linear Systems on Graphs** (Poster)	2019

Formal Power Series and Algebraic Combinatorics (FPSAC)
Ljubljana, Slovenia

ALGECOM XVI
Loyola University, Chicago, IL

A generalization of the free Lie algebra and its representations 2018
USTARS (Underrepresented Students in Topology and Algebra) Conference
Reed College, Portland OR

Local Talks	**An introduction to reflection groups**	November 2019
	AMS Intro to Research Seminar	
	Topics in Hyperplane Arrangements (series)	Fall 2019
	Hyperplane Arrangement reading group	
	A guide to combinatorics at Minnesota	November 2019
	AWM Lunch talks	
	Eulerian representations for coincidental reflection groups	August 2019
	Student Representation Theory Seminar	
	Enumerating Linear Systems on Graphs	February 2019
	UMN Math Club	
	Garnir relations and Specht modules	March 2018
	Student Combinatorics Seminar	
	A generalization of the free Lie algebra	November 2017
	Student Combinatorics Seminar	

Teaching	**University of Minnesota**	
	TA, Calculus II for UMN Talented Youth Mathematics Program	2019 - 2020
	TA, UMN Combinatorics REU	Summer 2019
	BEAM (Bridge to Enter Advanced Mathematics)	
	Instructor and course designer, Logical Reasoning (for 6th graders)	Summer 2018
	Smith College	
	TA in Tutoring Center, Calculus I, II, III and Linear Algebra	2016 - 2017
	Reed College	
	TA in Tutoring Center, Calculus I, II, III and Linear Algebra	2014 - 2016
	Tutor for Introductory Analysis, Multivariate Calculus, Linear Algebra	2013 - 2016
	Grader, Math 382: Algorithms & Data Structures	Spring 2016
	TA and Grader, Microeconomic Theory	2015 - 2016
	TA and Grader, Introduction to Economics	2013 - 2014

Organizing	**Graduate Student Combinatorics Conference (GSCC) 2021**	April 2021

National weekend conference organized by and for graduate students.

   Co-organizer with E. Banaian, G. Dorpalen-Barry, E. Kelley, E. Stucky, L. Webster

Mathematics Project at Minnesota (MPM)   2019 - Present

A 4-day workshop for undergraduates from groups underrepresented in math to
build community and prepare students for a successful undergraduate career.

   Co-organizer with H. Chandramouli, E. Banaian, M. Philbin   January 2020
   Mentor: Planned and implemented several workshop sessions   January 2019

UMN Math Club   2018 - Present

Weekly club for undergraduate math majors to build community and foster
mathematical curiousity

   Co-organizer with M. Avery

UMN Graduate Student Combinatorics and Algebra Seminar   2018 - 2019

   Co-organizer with E. Banaian

CAUSE   2018 - 2019

Co-founding member of interdisciplinary group devoted to building community
and improving retention amongst underrepresented minorities in graduate programs at UMN

Mentoring	Research mentor for undergraduates N. Pham and A. Christiansen	2019 - Present

   Directing research project on chip-firing

Directed Reading Project (DRP) course on graph theory with S. Perron	2018
Mentor for undergraduate math majors through MPM	2018 - Present

   Assist with application materials for fellowships, REUs and graduate school

Mentor and host for incoming graduate students	2018 - 2019
UMN Women in Science and Engineering Graduate Mentor	2017 - 2019

   Mentor for UMN undergraduates interested in STEM

Reed College International Student Mentor	2013

Outreach	Teacher at Saturday Enrichment for MathCEP, University of Minnesota

Logic Games and Puzzles (grades 5-6)	April 2019
Fractals and Chaos (grades 5-6)	March 2018
Graph Theory (grades 7-8)	January 2018
Cryptology (grades 5-6)	December 2017
Volunteer math tutor for adults seeking GED, *Franklin Public Library*	2017 - 2019
MathFest Teaching Assistant: Platonic Solids (grades 6-8), *Reed College*	May 2016
Volunteer tutor for low-income youth (grades 9-12), *Friends of the Children*	2012 - 2016

Biography	Born January 9, 1993 in New York, NY
	Citizenship: United States