

Spencer Daugherty

spencer.page.daugherty@gmail.com. spdaugherty.github.io. they/them.

Experience

- Burnett Meyer Postdoctoral Fellow** Aug 2024 -
University of Colorado Boulder. Advisor: Nat Thiem.
- Ph.D. Mathematics** May 2024
North Carolina State University. Advisors: Laura Colmenarejo, Sarah Mason.
- B.A. Mathematics** 2019
Mount Holyoke College.

Research Interests

Algebraic and Enumerative Combinatorics. I am interested in problems on the quasisymmetric and noncommutative symmetric functions, specifically those surrounding Schur-like bases and combinatorial Hopf algebras. I also work on chromatic symmetric functions, (q, t) -Catalan numbers, and parking functions.

Publications and Preprints

- Schur-like Bases and their Colored Generalizations** 2024
S. Daugherty. Doctoral Thesis.
- Extended Schur Functions and Bases Related by Involutions** 2024
S. Daugherty. arXiv:2401.02502. Extended abstract to appear in the proceedings of FPSAC 2024.
- Combinatorics of Generalized Parking Function Polytopes** 2024
M. Bayer, S. Borgwardt, T. Chambers, S. Daugherty, A. Dawkins, D. Deligeorgaki, H. Liao, T. McAllister, A. Morrison, G. Nelson, A. Vindas-Meléndez. arXiv:2401.02502. Submitted.
- A Generalization of the Dual Immaculate Functions in Partially Commutative Variables.** 2023
S. Daugherty. arXiv:2309.08518. To appear in the Electronic Journal of Combinatorics.
- Nimber Sequences of Node-Kayles Games** 2020
S. Brown, S. Daugherty, E. Fiorini, B. Maldonado, S. Rainville, R. Waechter, T. Wong. Journal of Integer Sequences.

Current Projects

- Stembridge Codes and e -positivity of Chromatic Symmetric Functions**
K. Celano, S. Daugherty, S. Sundaram.
- Combinatorial Statistics and the q, t -Catalan Numbers**
S. Daugherty, J. Lentfer.
- A Bijective Approach to Chromatic Symmetric Functions of Trees**
S. Daugherty, B. Kagy, I. Klein.
- t -Metered Parking Functions**
P. Harris, M. McClinton

Teaching

Instructor of Record NCSU	2020-2024
Applied Differential Equations, Finite Math, Calculus II, Calculus III. 6 semesters total, 60-180 students per class.	
Preparing the Professoriate Fellow NCSU	2023-2024
Professional development that gives doctoral students mentoring, teaching, and future faculty preparation experience.	
Math Instructor NC Governor's School East	2022
Graph Theory. Four-week long course for gifted high school students.	
Teaching Assistant NCSU	2019-2020
Calculus I, Calculus II, Applied Differential Equations.	

Talks and Posters

Michigan State University Virtual Seminar Talk	Upcoming
Extended Schur Functions and Bases Related By Involutions	
Formal Power Series and Algebraic Combinatorics (Bochum) Talk	Upcoming
Mid-Atlantic Algebra, Geometry, and Combinatorics Workshop Poster	Dec 2, 2023
University of Waterloo Seminar Talk	Nov 9, 2023
Combinatorics of Generalize Parking Function Polytopes	
University of North Carolina Wilmington Seminar Talk	Mar 15, 2024
A Partially Commutative Generalization of the Dual Immaculate Functions	
Okinawa Institute of Science and Technology Talk	Feb 9, 2024
UAlbany Women in Algebra and Combinatorics Poster	Apr 29, 2023
AlGeCom XIII Poster	Apr 15, 2023
NCSU Pure Graduate Seminar Talk	Nov 21, 2022
Schur-like Bases of NSym and QSym: Properties of the Shin Functions	
Wake Forest Colloquium Talk	Oct 19, 2023
NCSU Algebra and Combinatorics Seminar Talk	Oct 18, 2023
CAGE Seminar Talk	Sep 19, 2023
Chromatic Symmetric Functions of Trees	
Triangle Area Graduate Math Conference Talk	Sep 30, 2023
Combinatorial Statistics and q, t-Catalan Numbers	
NCSU Pure Graduate Seminar Talk	Sept 18, 2023

Workshop and Program Participation

Summer School in Algebraic Combinatorics Leipzig, Germany	Upcoming
AlCoVR Workshop in Dynamical Algebraic Combinatorics Virtual Reality	Upcoming
Graduate Research Workshop in Combinatorics Laramie, Wyoming	2023