GEORGE H. SEELINGER—CV

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RESEARCH INTERESTS

Algebraic combinatorics: symmetric functions, Schubert calculus, Macdonald polynomials

EDUCATION

Doctor of Philosophy, Mathematics — University of Virginia, Charlottesville, Virginia
Advisor: Jennifer Morse — *Expected May 2021*

Master of Science, Mathematics — Loyola University Chicago, Chicago, Illinois
August 2015

Bachelor of Science, summa cum laude — Loyola University Chicago, Chicago, Illinois
Major: Mathematics and Computer Science — *May 2015*
Interdisciplinary Honors

PUBLICATIONS

K-theoretic Catalan functions — arxiv:2010.01759
Joint with Jonah Blasiak and Jennifer Morse

· Submitted (2020). Preprint available on arXiv.org.

Canonical idempotents of multiplicity-free families of algebras — arxiv:1606.08900
Joint with Stephen Doty and Aaron Lauve

· L'Enseignment Mathematique, **64** (2018) 23–63.

A shuffle theorem for paths under any line
Joint with J. Blasiak, M. Haiman, J. Morse, and A. Pun

· In preparation.

RESEARCH TALKS

Junior Mathematician Research Archive — December 1, 2020

· Title: *K-theoretic Catalan functions*

Philadelphia Area Combinatorics and Algebraic Geometry Seminar — February 6, 2020
University of Pennsylvania

· Title: *K-theoretic Catalan functions*

Garsiafest 90: Future Directions in Algebraic Combinatorics — June 18, 2019
The Scripps Seaside Forum, San Diego, CA. Lightning Talk

· Title: *Raising operators in Schubert calculus*

Mid-Atlantic Algebra, Combinatorics, and Geometry Workshop — May 4, 2019
Drexel University. Poster

· Title: *K-theoretic Catalan functions*

Sage Days 65 — June 11, 2015
Loyola University Chicago

· Title: *Orthogonal idempotents in semisimple Brauer algebras*

EXPOSITORY TALKS

University of Virginia Representation Theory Reading Seminar 2016 – 2020
Seminar talks on various topics; selected titles listed

- k-Schur functions as Schubert representatives for the affine Grassmannian Spring 2020
- Introduction to the affine Grassmannian Spring 2020
- Chern class computations, flag manifolds, and the Grassmannian Spring 2019
- Schur-Q functions and related combinatorics Fall 2018
- Applications of the Jacobson-Morozov Theorem Fall 2017
- The principal, subregular, and minimal nilpotent orbits Fall 2016

University of Virginia Integrable Probability and Combinatorics Seminar 2019
Seminar talks on various topics

- Multispecies ASEP and nonsymmetric Macdonald polynomials Fall 2019
- A q-analogue of de Finetti's theorem Spring 2019
- Extreme characters of $U(\infty)$ Spring 2019

Undergraduate Math Club October 2, 2018
University of Virginia

- Title: Generating functions: a mathematical link

TEACHING EXPERIENCE

Instructor of Record University of Virginia

- MATH 1310: Calculus I (flipped classroom) *Fall 2019*
- MATH 1220: Survey of Calculus II *Spring 2018*
- MATH 1210: Survey of Calculus I *Fall 2017*

HONORS, AWARDS, AND FELLOWSHIPS

- Dorothy M. Batten Jefferson Fellowship, 2016–2021, by the Jefferson Scholars Foundation, UVa
- Phi Beta Kappa Honor Society, inducted May 7, 2015
- Alpha Sigma Nu Honor Society, induced October 14, 2014

SERVICE AND OUTREACH

Department

- **Member and Webmaster, Association for Women in Mathematics** Fall 2018–Present
  Help maintain the UVa AWM chapter's website and developed a blog for other members to post content.
- **Mentor, Directed Reading Program at University of Virginia** Fall, 2018
  Guided my undergraduate DRP mentee, Dylan Hunt, through a machine learning textbook and helped him prepare for a presentation at UVa's Math Club.
- **UVa Math Ambassador** Fall 2017– Spring 2019
  UVa's Mathematics outreach program to Albemarle County and Charlottesville city schools.
- **Panelist, Prospective Graduate Student Open House** Spring 2018

Professional

- **Organizing committee, Mid-Atlantic Algebra, Geometry, and Combinatorics Workshop** Spring, 2020
  Cancelled due to Covid-19
- **Contributor, SageMath (Open-Source Computer Algebra Software)** 2013, 2015, 2018

University

- **Jefferson Scholar Selection Weekend Seminar Planner and Leader, Jefferson Scholars Foundation, UVa** Spring 2020
  Cancelled due to Covid-19
- **Jefferson Scholar Selection Weekend Seminar Planner, Jefferson Scholars Foundation, UVa** Spring 2019
- **Panelist, Institute for Leadership and Citizenship Graduate School Panel Jefferson Scholars Foundation, UVa** Summer 2018
- **Member, Sujack Teaching Award Committee, Loyola University Chicago** Spring 2015

MATHEMATICAL SOFTWARE CONTRIBUTIONS

Contributions to SageMath `http://sagemath.org`

- Implementation of Young's Raising Operators (ticket #26939) Fall 2018
- Implement Jucys-Murphys elements for Brauer algebra (ticket #18798) Summer 2015
- Major improvement to usability of diagram algebras (tickets #18707,18720,18762) Summer 2015
- Initial implementation of diagram algebras (ticket #14234) Spring 2013

k-Combinat for Sage `https://github.com/MareoRaft/k_combinat_for_sage/`

- Maintain and improve code relating to Catalan functions

CONFERENCES ATTENDED

- Hilbert schemes, categorification, and combinatorics, UC Davis June 19–23, 2019
- Garsiafest, Scripps Seaside Forum, San Diego, CA June 17–20, 2019
- Algebra, Geometry and Combinatorics Day, Loyola University Chicago May 25, 2019
- Mid-Atlantic Algebra, Geometry, and Combinatorics (MAAGC) Worksohp, Drexel University May 3–4, 2019
- Triangle Lectures in Combinatorics, Wake Forest University March 30, 2019
- Combinatorics and beyond: the many facets of Sergey Fomin's mathematics, University of Michigan November 8–11, 2018
- Workshop on Representation Theory, Combinatorics, and Geometry, University of Virginia October 19–21, 2018
- Women's Intellectual Network Research Symposium, University of Virginia September 15, 2018
- Joint Mathematics Meetings, San Diego, CA January 10–13, 2018
- AMS Fall Central Sectional Meeting, Loyola University Chicao October 2–4, 2015
- Sage Days 65, Loyola University Chicago June 8–12, 2015
- AMS Spring Western Sectional Meeting, University of Colorado Boulder April 13–14, 2013
- Sage-Combinat Days 40, Institute for Mathematics and its Applications at University of Minnesota July 9–13, 2012
- Sage Days 38, Centre de Recherches Mathématique, Montreal May 7–11, 2012

TECHNICAL STRENGTHS

Computer Languages	Proficiency with: Python, Sage, Java and Scala. Experience with: Mathematica, R and C/C++.
Languages	Fluent: English Elementary Proficiency: French, Italian