Sami H. **Assaf**

PROFESSOR OF MATHEMATICS

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Education

2007	Ph.D.	**University of California Berkeley**, MATHEMATICS	(advisor: Mark Haiman)
2001	B.A.	**University of Notre Dame**, HONORS MATHEMATICS AND PHILOSOPHY	*summa cum laude*

Employment

2022 –	**University of Southern California**, PROFESSOR OF MATHEMATICS
2019 – 2022	**University of Southern California**, ASSOCIATE PROFESSOR OF MATHEMATICS
2012 – 2018	**University of Southern California**, ASSISTANT PROFESSOR OF MATHEMATICS
2011 – 2012	**Berkeley Quantitative**, SENIOR QUANTITATIVE RESEARCH ANALYST
2008 – 2011	**Massachusetts Institute of Technology**, C.L.E. MOORE INSTRUCTOR
Sp – 2008	**Mathematical Sciences Research Institute**, POSTDOCTORAL FELLOW
2007 – 2008	**University of Pennsylvania**, NSF POSTDOCTORAL RESEARCH FELLOW

Grant Support

RESEARCH GRANTS

2023–2026	**National Science Foundation, Individual Grant**, DMS-2246785	*$210,000*
2022–2027	**Simons Foundation, MPS-Collaboration Grants for Mathematicians**, Award 953878, S.A.	*$42,000*
2018–2021	**National Science Foundation, Individual Grant**, DMS-1763336	*$150,000*
2017–2022	**Simons Foundation, MPS-Collaboration Grants for Mathematicians**, Award 524477, S.A.	*$42,000*
2013–2015	**National Science Foundation, Individual Grant**, DMS-1265728	*$110,000*
2011	**National Science Foundation, Individual Grant**, awarded by NSF; declined by PI	*$100,000*
2007–2011	**National Science Foundation, Mathematical Sciences Postdoctoral Research Fellowship**, DMS-0703567	*$108,000*

TRAVEL GRANTS

06/2017	**Association for Women in Mathematics Travel Grant**, London, UK	*$3,000*
02/2012	**Association for Women in Mathematics Travel Grant**, Nagoya, Japan	*$2,000*
05/2009	**Association for Women in Mathematics Travel Grant**, Valparaiso, Chile	*$2,000*
05/2006	**King Juan Carlos I of Spain Travel Grant for the ICM 2006**, Madrid, Spain	*$5,000*

Honors & Awards

2024	**Dean's Leadership Fellow for Physical Sciences and Mathematics**, University of Southern California
2024	**Mentoring Award for Faculty Mentoring Graduate Students**, University of Southern California
2023	**Endowed Chair, Gabilan Distinguished Professor of Mathematics**, University of Southern California
2017	**Mentoring Award for Faculty Mentoring Undergraduates**, University of Southern California
2012	**Endowed Chair, Gabilan Assistant Professor of Mathematics**, University of Southern California
2007	**Herb Alexander Prize, for an outstanding dissertation in pure math**, UC Berkeley
2005	**Outstanding Graduate Student Instructor Award**, UC Berkeley
2002	**National Defense Science and Engineering Graduate Research Fellowship**, US DOD
2001	**National Science Foundation Graduate Research Fellowship**, National Science Foundation
2001	**Koletis Award for Excellence in Mathematics**, University of Notre Dame
2001	**Alice T. Schafer Prize, runner-up**, Association for Women in Mathematics

Research Papers

As is convention in mathematics, authors are listed alphabetically. Graduate students* and postdoctoral scholars† are indicated.

PREPRINTS (accessible via http://arxiv.org)

46. **Sami Assaf** and Nantel Bergeron. "A combinatorial formula for multiplying Schubert polynomials by Schur polynomials"

45. **Sami Assaf**. "An insertion algorithm for multiplying Demazure characters by Schur polynomials". arXiv:2109.05651

PUBLICATIONS

44. **Sami Assaf**, Anne Dranowski†, and Nicolle González†. "Extremal tensor products of Demazure crystals". In: *Algebr. Represent. Theory* 27.1 (2024), pp. 627–638

43. **Sami Assaf** and Danjoseph Quijada*. "Monk's rule for Demazure characters of the general linear group". In: *Electron. J. Combin.* 30.2 (2023), Paper No. 2.54, 39

42. Sam Armon*, **Sami Assaf**, Grant Bowling*, and Henry Ehrhard*. "Kohnert's rule for flagged Schur modules". In: *J. Algebra* 617 (2023), pp. 352–381

41. **Sami Assaf**, Anne Dranowski†, and Nicolle González†. "Extremal tensor products of Demazure crystals are direct sums of Demazure crystals". In: *Sém. Lothar. Combin.* 89B (2023), Art. 12, 11

40. **Sami Assaf**. "Queer dual equivalence graphs". In: *J. Comb.* 14.1 (2023), pp. 21–51

39. **Sami H. Assaf**. "A bijective proof of Kohnert's rule for Schubert polynomials". In: *Comb. Theory* 2.1 (2022), Paper No. 5, 9pp

38. **Sami Assaf**. "Demazure crystals for Kohnert polynomials". In: *Trans. Amer. Math. Soc.* 375.3 (2022), pp. 2147–2186

37. **Sami Assaf** and Stephanie van Willigenburg. "Skew key polynomials and a generalized Littlewood-Richardson rule". In: *European J. Combin.* 103 (2022), Paper No. 103518

36. **Sami H. Assaf**. "Weak dual equivalence for polynomials". In: *Ann. Comb.* 26.3 (2022), pp. 571–591

35. **Sami Assaf** and Dominic Searles†. "Kohnert polynomials". In: *Experimental Mathematics* 31.1 (2022), pp. 93–119

34. **Sami Assaf** and Nicolle González*. "Affine Demazure crystals for specialized nonsymmetric Macdonald polynomials". In: *Algebr. Comb.* 4.5 (2021), pp. 777–793

33. **Sami H. Assaf**. "A generalization of Edelman-Greene insertion for Schubert polynomials". In: *Algebr. Comb.* 4.2 (2021), pp. 359–385

32. **Sami Assaf** and Nicolle González*. "Demazure crystals for specialized nonsymmetric Macdonald polynomials". In: *J. Combin. Theory Ser. A* 182 (2021), pp. 105463, 75

31. **Sami Assaf** and Ezgi Kantarci Oğuz*. "Toward a Local Characterization of Crystals for the Quantum Queer Superalgebra". In: *Ann. Comb.* 24.1 (2020), pp. 3–46

30. **Sami H. Assaf** and David E. Speyer. "Specht modules decompose as alternating sums of restrictions of Schur modules". In: *Proc. Amer. Math. Soc.* 148.3 (2020), pp. 1015–1029

29. **Sami Assaf** and Nantel Bergeron. "Flagged (P, ρ) -partitions". In: *European J. Combin.* 86 (2020), p. 103085

28. **Sami Assaf** and Stephanie van Willigenburg. "Skew key polynomials and the key poset". In: *Sém. Lothar. Combin.* 82B (2020), Art. 77, 12

27. **Sami Assaf** and Dominic Searles†. "Skew polynomials and extended Schur functions". In: *Sém. Lothar. Combin.* 82B (2020), Art. 31, 12

26. **Sami Assaf**. "An inversion statistic for reduced words". In: *Adv. in Appl. Math.* 107 (2019), pp. 1–21

25. **Sami Assaf** and Nicolle S. González*. "Crystal graphs, key tabloids, and nonsymmetric Macdonald polynomials". In: *Sém. Lothar. Combin.* 80B (2018), Art. 81, 12

24. **Sami Assaf** and Danjoseph Quijada*. "A Pieri rule for key polynomials". In: *Sém. Lothar. Combin.* 80B (2018), Art. 78, 12

23. **Sami Assaf** and Ezgi Kantarcı Oğuz*. "Crystal graphs for shifted tableaux". In: *Sém. Lothar. Combin.* 80B (2018), Art. 26, 12

22. **Sami Assaf**. "Nonsymmetric Macdonald polynomials and a refinement of Kostka-Foulkes polynomials". In: *Trans. Amer. Math. Soc.* 370.12 (2018), pp. 8777–8796

21. **Sami Assaf** and Anne Schilling. "A Demazure crystal construction for Schubert polynomials". In: *Algebr. Comb.* 1.2 (2018), pp. 225–247

20. **Sami Assaf**. "Toward the Schur expansion of Macdonald polynomials". In: *Electron. J. Combin.* 25.2 (2018), Paper 2.44, 20

19. **Sami Assaf**. "Shifted dual equivalence and Schur P-positivity". In: *J. Comb.* 9.2 (2018), pp. 279–308

18. **Sami Assaf** and Dominic Searles[†]. "Kohnert tableaux and a lifting of quasi-Schur functions". In: *J. Combin. Theory Ser. A* 156 (2018), pp. 85–118

17. **Sami Assaf**. "Tableau models for Schubert polynomials". In: *Sém. Lothar. Combin.* 78B (2017), Art. 12, 12

16. **Sami Assaf** and Dominic Searles[†]. "Slide polynomials". In: *Sém. Lothar. Combin.* 78B (2017), Art. 11, 12

15. **Sami Assaf** and Dominic Searles[†]. "Schubert polynomials, slide polynomials, Stanley symmetric functions and quasi-Yamanouchi pipe dreams". In: *Adv. Math.* 306 (2017), pp. 89–122

14. **Sami Assaf**, Noah Forman, and Jim Pitman. "The quantile transform of simple walks and Brownian motion". In: *Electron. J. Probab.* 20 (2015), no. 90, 39

13. **Sami H. Assaf**. "Dual equivalence graphs I: A new paradigm for Schur positivity". In: *Forum Math. Sigma* 3 (2015), e12, 33

12. **Sami H. Assaf** and Sara C. Billey. "Affine dual equivalence and k-Schur functions". In: *J. Comb.* 3.3 (2012), pp. 343–399

11. **Sami Assaf**, Persi Diaconis, and Kannan Soundararajan. "Riffle shuffles with biased cuts". In: *24th International Conference on Formal Power Series and Algebraic Combinatorics (FPSAC 2012)*. Discrete Math. Theor. Comput. Sci. Proc., AR. Assoc. Discrete Math. Theor. Comput. Sci., Nancy, 2012, pp. 445–456

10. **Sami Assaf**, Persi Diaconis, and K. Soundararajan. "A rule of thumb for riffle shuffling". In: *Ann. Appl. Probab.* 21.3 (2011), pp. 843–875

9. **Sami H. Assaf** and Peter R. W. McNamara. "A Pieri rule for skew shapes". In: *J. Combin. Theory Ser. A* 118.1 (2011), pp. 277–290

8. **Sami H. Assaf**. "Cyclic derangements". In: *Electron. J. Combin.* 17.1 (2010), Research Paper 163, 14

7. **Sami H. Assaf** and Peter R. W. McNamara. "A Pieri rule for skew shapes". In: *22nd International Conference on Formal Power Series and Algebraic Combinatorics (FPSAC 2010)*. Discrete Math. Theor. Comput. Sci. Proc., AN. Assoc. Discrete Math. Theor. Comput. Sci., Nancy, 2010, pp. 133–144

6. **Sami Assaf** and Adriano Garsia. "A kicking basis for the two column Garsia-Haiman modules". In: *21st International Conference on Formal Power Series and Algebraic Combinatorics (FPSAC 2009)*. Discrete Math. Theor. Comput. Sci. Proc., AK. Assoc. Discrete Math. Theor. Comput. Sci., Nancy, 2009, pp. 103–114

5. **Sami Assaf**, Persi Diaconis, and K. Soundararajan. "Riffle shuffles of a deck with repeated cards". In: *21st International Conference on Formal Power Series and Algebraic Combinatorics (FPSAC 2009)*. Discrete Math. Theor. Comput. Sci. Proc., AK. Assoc. Discrete Math. Theor. Comput. Sci., Nancy, 2009, pp. 89–102

4. **Sami H. Assaf**. "A combinatorial realization of Schur-Weyl duality via crystal graphs and dual equivalence graphs". In: *20th Annual International Conference on Formal Power Series and Algebraic Combinatorics (FPSAC 2008)*. Discrete Math. Theor. Comput. Sci. Proc., AJ. Assoc. Discrete Math. Theor. Comput. Sci., Nancy, 2008, pp. 141–152

3. **Sami H. Assaf**. "A generalized major index statistic". In: *Sém. Lothar. Combin.* 60 (2008/09), Art. B60c, 14

2. **Sami Hayes Assaf**. *Dual equivalence graphs, ribbon tableaux and Macdonald polynomials*. Thesis (Ph.D.)–University of California, Berkeley. ProQuest LLC, Ann Arbor, MI, 2007, p. 78

1. **Sami Assaf**, Li-Chung Chen, Tegan Cheslack-Postava, Benjamin Cooper, Alexander Diesl, Thomas Garrity, Mathew Lepinski, and Adam Schuyler. "A dual approach to triangle sequences: a multidimensional continued fraction algorithm". In: *Integers* 5.1 (2005), A8, 39

Additional Student Papers Advised (not co-authored)

1. Ezgi Kantarcı Oğuz. "A note on Jing and Li's type B quasisymmetric Schur functions". In: *Ann. Comb.* 23.1 (2019), pp. 159–170

2. George Wang. "A cornucopia of quasi-Yamanouchi tableaux". In: *Electron. J. Combin.* 26.1 (2019), Paper No. 1.10, 21

3. Nicolle S. González. "Categorical Bernstein operators and the boson-fermion correspondence". In: *Selecta Math. (N.S.)* 26.4 (2020), Paper No. 51, 64

4. Ezgi Kantarcı Oğuz. "A shifted analogue to ribbon tableaux". In: *J. Comb.* 11.1 (2020), pp. 169–202

5. Ezgi Kantarcı Oğuz. "Descent polynomials, peak polynomials and an involution on permutations". In: *Sém. Lothar. Combin.* 82B (2020), Art. 41, 7

6. George Wang. "Locks fit into keys: a crystal analysis of lock polynomials". In: *Ann. Comb.* 24.4 (2020), pp. 767–789

7. Peter Kagey. "Expected value of letters of permutations with a given number of k-cycles". arXiv:2112.05281. 2021

8. Sam Armon. "A proof of the $\frac{n!}{2}$ conjecture for hook shapes". In: *Ann. Comb.* 27.4 (2023), pp. 819–832

9. Henry Ehrhard. "A crystal analysis of P-arrays". arXiv:2205.01834. 2022

10. Sam Armon. "Foata-like bijections and science fiction". In: *Sém. Lothar. Combin.* 89B (2023), Art. 78, 10

11. Peter Kagey. "Spinning switches on a wreath product". In: *J. Combin. Theory Ser. A* 200 (2023), Paper No. 105795, 29

12. Grant Bowling. "A sliding algorithm for peelable tableaux". arXiv: 2022

13. Peter Kagey. "Ranking and unranking restricted permutations". In: *Discrete Appl. Math.* 355 (2024), pp. 247–261

14. Henry Ehrhard. "Complete flagged homogeneous polynomials". arXiv:2305.03241. 2023

Presentations

INVITED CONFERENCES

06/2023	**Schubert Summer School,** invited speaker	*Champaign, IL*
05/2023	**AMS Invited Address,** plenary address for AMS Western Section Meeting	*Fresno, CA*
05/2022	**Open Problems in Algebraic Combinatorics,** plenary speaker	*Minnesota, MN*
05/2022	**Southern California Discrete Mathematics Symposium,** selected speaker	*Claremont, CA*
05/2021	**Diagrammatic and Combinatorial Methods in Representation Theory,** AMS Western Meeting	*(virtual)*
10/2020	**Graduate Research Opportunities for Women,** key note speaker	*(virtual)*
04/2020	**Algebraic Combinatorics Online Workshop,** Mittag Leffler Institute	*(virtual)*
01/2020	**Representations of Finite Groups and Related Structures,** Joint Mathematics Meeting	*Denver, CO*
09/2019	**Integrability, Combinatorics, and Representations,** invited speaker	*Hyères, France*
07/2019	**Formal Power Series and Algebraic Combinatorics,** refereed presentation	*Ljubljana, Slovenia*
04/2019	**Graduate Student Combinatorics Conference,** key note speaker	*Philadelphia, PA*
03/2019	**Asymptotic Algebraic Combinatorics,** Banff International Research Station	*Banff, Canada*
01/2019	**Representation Theory Connections to q,t-Combinatorics,** Banff International Research Station	*Banff, Canada*
10/2018	**Combinatorial and Categorical Aspects of Representation Theory,** AMS Western Meeting	*San Francisco, CA*
07/2018	**Formal Power Series and Algebraic Combinatorics,** plenary speaker	*Hanover, NH*
11/2017	**Combinatorial Representation Theory,** AMS Western Meeting	*Riverside, CA*
07/2017	**Formal Power Series and Algebraic Combinatorics,** refereed presentation	*London, England*
04/2017	**Algebraic Combinatorics,** AWM Research Symposium	*Los Angeles, CA*
02/2017	**WimSoCal Symposium,** key note speaker	*Los Angeles, CA*
08/2015	**Positivity in Algebraic Combinatorics,** Banff International Research Station	*Banff, Canada*
05/2015	**Classification of Multiplicity-Free Kronecker Products,** Banff International Research Station	*Banff, Canada*
11/2014	**Combinatorics and Complexity of Kronecker Coefficients,** American Institute of Mathematics	*Palo Alto, CA*
03/2013	**SUMR Reunion Conference honoring Frank Connolly,** University of Notre Dame	*South Bend, IN*
01/2013	**Groups, Representations and Applications,** Joint Mathematics Meeting	*San Diego, CA*
01/2013	**Algebraic Combinatorics and Representation Theory,** Joint Mathematics Meeting	*San Deigo, CA*
12/2012	**Rational Catalan Combinatorics,** American Institute of Mathematics	*Palo Alto, CA*
07/2012	**International conference on Schubert calculus,** Mathematical Society of Japan	*Osaka, Japan*
07/2012	**Formal Power Series and Algebraic Combinatorics,** refereed presentation	*Nagoya, Japan*
09/2011	**Symmetric Functions and Symmetric Group Characters,** AMS Southeast Meeting	*Winston-Salem, NC*
11/2010	**Quasisymmetric Functions,** Banff International Research Station	*Banff, Canada*
11/2010	**Algebraic and Topological Combinatorics,** AMS Central Meeting	*Notre Dame, IN*
09/2010	**Triangle Lectures in Combinatorics,** plenary speaker	*Durham, NC*
07/2010	**Affine Schubert Calculus,** Fields Institute	*Toronto, Canada*
06/2010	**Minisymposium on Combinatorial Representation Theory,** SIAM Discrete Math Conference	*Austin, TX*
04/2010	**Partition Theory and Combinatorics of Symmetric Functions,** AMS Central Meeting	*St Paul, MN*
04/2010	**Combinatorial Representation Theory,** AMS Central Meeting	*St Paul, MN*
03/2010	**Combinatorial representation theory,** Mathematisches Forschungsinstitut Oberwolfach	*Oberwolfach, Germany*
03/2010	**Localization techniques in equivariant cohomology,** American Institute of Mathematics	*Palo Alto, CA*
01/2010	**Enumerative Combinatorics,** Joint Mathematics Meeting	*San Francisco, CA*
10/2009	**Algebraic Combinatorics,** AMS Eastern Meeting	*University Park, PA*
07/2009	**Formal Power Series and Algebraic Combinatorics,** refereed presentation	*Hagenberg, Austria*
01/2009	**Algebraic Geometry and Related Fields,** Mathematical Sciences Research Institute	*Berkeley, CA*
10/2008	**Combinatorial Representation Theory,** AMS Western Regional Meeting	*Vancouver, Canada*

06/2008	**Formal Power Series and Algebraic Combinatorics**, refereed presentation	*Valparaiso, Chile*
04/2008	**MIT Women In Mathematics: A Celebration**, Massachussetts Institute of Technology	*Cambridge, MA*
01/2008	**Combinatorial Representation Theory**, Mathematical Sciences Research Institute	*Berkeley, CA*
09/2007	**Applications of Macdonald Polynomials**, Banff International Research Station	*Banff, Canada*
07/2007	**Formal Power Series and Algebraic Combinatorics**, refereed presentation	*Tianjin, P.R. China*
05/2007	**Combinatorial Hopf Algebras and Macdonald polynomials**, Le Centre de Rescherches Mathematiques	*Montreal, Canada*
04/2007	**Algebraic Combinatorics**, AMS Western Regional Meeting	*Tuscon, AZ*
07/2005	**Generalized Kostka polynomials**, American Institute of Mathematics	*Palo Alto, CA*

SEMINARS AND COLLOQUIA

10/2023	**CCMS Colloquium**, Claremont McKenna College	*Claremont, CA*
03/2023	**Combinatorics Seminar**, UC San Diego	*San Diego, CA*
03/2023	**Schubert Seminar**, Online Inter-University Seminar	*(virtual)*
04/2022	**Algebra Seminar**, University of Southern California	*Los Angeles, CA*
09/2020	**Algebraic Combinatorics Seminar**, Institute of Mathematical Sciences (IMSc)	*(virtual)*
11/2019	**Algebraic Combinatorics Seminar**, Fields Institute	*Toronto, CA*
04/2019	**Combinatorics and Algebraic Geometry Seminar**, University of Pennsylvania	*Philadelphia, PA*
11/2018	**Rising Stars Colloquium**, Pacific Institute for Mathematical Sciences	*Vancouver, Canada*
11/2018	**Combinatorics Seminar**, University of British Columbia	*Vancouver, Canada*
10/2018	**Combinatorics Seminar**, University of California Berkeley	*Berkeley, CA*
10/2018	**Colloquium**, California Institute of Technology	*Pasadena, CA*
09/2018	**Algebra Number Theory, Combinatorics Seminar**, Claremont McKenna College	*Claremont, CA*
09/2018	**Algebra and Combinatorics Seminar**, North Carolina State University	*Raleigh, NC*
09/2018	**Geometry Seminar**, University of North Carolina	*Chapel Hill, NC*
09/2017	**Combinatorics Seminar**, Stanford University	*Palo Alto, CA*
05/2017	**Combinatorics Seminar**, UCLA	*Los Angeles, CA*
04/2016	**Combinatorics Seminar**, California Institute of Technology	*Pasadena, CA*
04/2014	**Lie Theory Seminar**, University of Notre Dame	*South Bend, IN*
02/2013	**Algebra, Number Theory, Combinatorics Seminar**, Pomona College	*Claremont, CA*
02/2013	**Combinatorics Seminar**, UCLA	*Los Angeles, CA*
10/2012	**Colloquium**, North Carolina School of Science and Mathematics	*Durham, NC*
05/2012	**Colloquium**, University of Cape Town	*Cape Town, South Africa*
05/2012	**Undergraduate colloquium**, University of Cape Town	*Cape Town, South Africa*
02/2012	**Colloquium**, University of Southern California	*Los Angeles, CA*
10/2011	**Colloquium**, San Jose State University	*San Jose, CA*
10/2011	**Combinatorics Seminar**, MIT	*Cambridge, MA*
10/2011	**Colloquium**, San Francisco State University	*San Francisco, CA*
10/2011	**Combinatorics Seminar**, UC Berkeley	*Berkeley, CA*
05/2011	**Colloquium**, Carleton College	*Northfield, MN*
03/2011	**Colloquium**, Center for Communications Research	*La Jolla, CA*
03/2011	**Women in Math Lectures**, Smith College	*Northampton, MA*
02/2011	**Geometry Seminar**, University of North Carolina	*Chapel Hill, NC*
01/2011	**Colloquium**, University of Texas at Austin	*Austin, TX*
01/2011	**Special Colloquium**, UC San Diego	*La Jolla, CA*
02/2010	**Colloquium**, University of Southern California	*Los Angeles, CA*
02/2010	**Colloquium**, Dartmouth College	*Hanover, NH*
01/2010	**Distinguished Visiting Professor Lectures**, Bucknell University	*Lewisburg, PA*
01/2010	**Combinatorics Seminar**, University of Minnesota	*Minneapolis, MN*
01/2010	**Colloquium**, University of Minnesota	*Minneapolis, MN*

11/2009	**Geometry-Algebra-Singularities-Combinatorics Seminar**, Northeastern University	*Boston, MA*
11/2009	**Algebra Seminar**, University of Connecticut	*Storrs, CT*
11/2009	**Combinatorics Seminar**, University of Michigan	*Ann Arbor, MI*
10/2009	**Algebra and Combinatorics Seminar**, North Carolina State University	*Raleigh, NC*
03/2009	**Undergraduate Mathematics Association Lecture Series**, MIT	*Cambridge, MA*
03/2009	**Combinatorics and Algebraic Geometry Seminar**, University of Pennsylvania	*Philadelphia, PA*
01/2009	**Combinatorics Seminar**, UC San Diego	*La Jolla, CA*
10/2008	**Combinatorics Seminar**, MIT	*Cambridge, MA*
10/2008	**Probability Seminar**, MIT	*Cambridge, MA*
10/2008	**Combinatorics and Geometry Seminar**, University of Washington	*Seattle, WA*
04/2008	**Combinatorics Seminar**, MIT	*Cambridge, MA*
11/2007	**Combinatorics and Probability Seminar**, University of Pennsylvania	*Philadelphia, PA*
11/2007	**Algebra Seminar**, North Carolina State University	*Raleigh, NC*
10/2007	**Colloquium**, UC San Diego	*La Jolla, CA*
04/2007	**Combinatorics Seminar**, University of Minnesota	*Minneapolis, MN*
04/2007	**Colloquium**, University of Notre Dame	*South Bend, IN*
12/2006	**Combinatorics Seminar**, MIT	*Cambridge, MA*
11/2006	**Combinatorics and Probability Seminar**, University of Pennsylvania	*Philadelphia, PA*
11/2006	**Representation Theory, Geometry and Combinatorics Seminar**, UC Berkeley	*Berkeley, CA*
10/2006	**Discrete Mathematics and Representation Theory Seminar**, UC Davis	*Davis, CA*

Students Advised

GRADUATED PH.D. STUDENTS

08/2023 Ph.D. **Henry Ehrhard**, University of Southern California
Thesis title: *Colors, Kohnert's Rule, and Flagged Kostka Coefficients*
First position:

05/2023 Ph.D. **Grant Bowles**, University of Southern California
Thesis title: *Characters of Flagged Schur Modules and Compatible Slides*
First position: Integra FEC, Data Scientist

08/2022 Ph.D. **Peter Kagey**, University of Southern California
Thesis title: *Permutations, Statistics, and Switches*
First position: Harvey Mudd College, Visiting Assistant Professor

08/2021 Ph.D. **Danjoseph Quijada**, University of Southern California
Thesis title: *A Pieri rule for key polynomials*
First position: Art of Problem Solving, Instructor

05/2019 Ph.D. **Nicolle González**, University of Southern California
Thesis title: *Categorical operators and crystal structures on the ring of symmetric functions*
First position: UCLA, UC President's Postdoctoral Scholar

08/2018 Ph.D. **Ezgi Kantarcı Oğuz**, University of Southern California
Thesis title: *Advances in the combinatorics of shifted tableaux*
First position: KTH Royal Institute of Technology, Postdoctoral Scholar

GRADUATED MASTERS STUDENTS

05/2024 M.A. **John Borger**, University of Southern California
Thesis title: *Bijection between reduced words and balanced tableaux*
First position: West Point Academy, Lecturer

05/2023 M.A. **Reena Somani**, University of Southern California
Thesis title: *A proposed bijection for the K-Kohnert rule for Grothendieck polynomials*
First position: University of Chicago, Ph.D. Student

CURRENT GRADUATE STUDENTS

Ph.D. **Sam Armon**, University of Southern California

POSTDOCTORAL SCHOLARS

2024-2025 **Josh Swanson**, University of Southern California

2021-2024 **Anne Dranowski**, University of Southern California

2018-2021 **Brendan Pawlowski**, University of Southern California

2015-2018 **Dominic Searles**, University of Southern California

UNDERGRADUATE STUDENTS

2022-2023 **Reena Somani**, University of Southern California B.S.-M.A. 2023
Next position: Ph.D. student at Uiversity of Chicago

2017-2018 **Sabrina Enriques**, University of Southern California B.A. 05/2018
Next position: NSF Graduate Research Fellow in Mathematics at University of California, Davis

2015-2016 **George Wang**, University of Southern California, B.S. 05/2016
Next position: NSF Graduate Research Fellow in Mathematics at University of Pennsylvania

2010-2011 **Jon Schneider**, Massachusetts Institute of Technology

Professional Activities

SERVICE TO THE UNIVERSITY OF SOUTHERN CALIFORNIA

2024-25 **Dean's Leadership Fellow for Physical Sciences and Mathematics**, USC Dornsife

2022-25 **Women in Science and Engineering Advisory Committee**, USC Dornsife

04/2018 **Mentoring Award Selection Committee**, USC Office of the Provost

02/2018 **Internal Grant Reviewer**, USC Zumberge Individual Grants

2014-15 **Candidate Interviewer**, USC Dornsife Trustee and Presidential Scholarships

03/2014 **Visions and Voices interdiciplinary program**, "Truth Values"PIs: Sami Assaf, KC Cole

SERVICE TO THE USC DEPARTMENT OF MATHEMATICS

2023– **Director of Graduate Studies**, Department of Mathematics

2022–2023 **Associate Director of Graduate Studies**, Department of Mathematics

2016– **Website Committee, Combinatorics page**, Department of Mathematics

2012– **USC Combinatorics Seminar**, founder and ongoing organizer

2011–2022 **Library services**, Department of Mathematics Faculty liaison

2012–2013 **USC Undergraduate Math Club**, Faculty organizer for creation

SERVICE TO OTHER DEPARTMENTS OF MATHEMATICS

2009–2011 **Organizer of the Combinatorics Seminar**, MIT

2008–2008 **Organizer of the Postdoc Seminar**, Mathematical Sciences Research Institute

2004–2005 **Member of the Mathematics Department Webpage Committee**, UC Berkeley

2003–2004 **President of the Noetherian Ring**, UC Berkeley

2001–2002 **Co-organizer of the Mentor Lecture Series**, UC Berkeley

SERVICE TO PROFESSIONAL ORGANIZATIONS

2019–2021 **AMS Nominating Committee (chair in 2020)**, American Mathematical Society (elected)

2013–2016 **AWM / AMS Noether Lecture Committee**, American Mathematical Society (appointed)

Conference Organization

05/2023	**AMS Western Section Meeting**, Special Session organizer	*Fresno, CA*
05/2022	**Southern California Discrete Mathematics Symposium**, organizing committee	*Claremont, CA*
04/2021	**Southern California Discrete Mathematics Symposium**, organizing committee	*Los Angeles, CA*
07/2020	**Formal Power Series and Algebraic Combinatorics**, program committee	*Ramat-Gan, Israel*
05/2020	**AMS Western Section Meeting**, Special Session organizer	*Fresno, CA*
01/2020	**Southern California Discrete Mathematics Symposium**, organizer	*Los Angeles, CA*
05/2019	**Southern California Discrete Mathematics Symposium**, organizer	*Claremont, CA*
05/2018	**Southern California Discrete Mathematics Symposium**, organizer	*Los Angeles, CA*
11/2017	**AMS Western Section Meeting**, Special Session organizer	*Riverside, CA*
01/2011	**Joint Mathematics Meeting**, organizer for AWM Schafer Minisymposium	*New Orleans, LA*
04/2008	**Bay Area Discrete Math Day**, local organizer	*Berkeley, CA*

Outreach for Pre-K to 12 students

2022–2025	**Venice Math Circle**, Founder and director, serving grades 5-8
2017–2020	**Venice Math Circle**, Founder and director, serving grades PreK–3
04/2017	**UCLA Math Circle**, Special Lecturer for grades 9–12
04/2014	**Mirman School Math Day**, Keynote speaker for grades K–8
10/2012	**North Carolina School of Science and Mathematics**, Colloquium speaker for grades 11–12