

Curriculum Vitae

LAUREN WILLIAMS

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 Cambridge, MA 02138
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Employment:

2019 – Harvard University, Dwight Parker Robinson Professor of Mathematics.
 2018 – Harvard University, Professor.
 2018 – Sally Starling Seaver Professor at the Radcliffe Institute.
 2016 – University of California, Berkeley, Professor.
 2013 – 2016 University of California, Berkeley, Associate Professor.
 2009 – 2013 University of California, Berkeley, Assistant Professor.
 2006 – 2009 Harvard University, Benjamin Peirce Assistant Professor and NSF Postdoctoral Fellow.
 2005 – 2006 University of California, Berkeley, NSF Postdoctoral Fellow, with *Bernd Sturmfels*.

Short-term positions:

Spring 2017 von Neumann Fellow, Institute for Advanced Study.
 Fall 2016 Visiting Professor, Columbia University.
 Fall 2009 Postdoctoral Scholar at MSRI.
 June 2009 Professeur invitée at Laboratoire d'informatique, Université Paris 6.
 Spring 2008 Viterbi Endowed Postdoctoral Scholar at MSRI.

Education:

2001 – 2005 Massachusetts Institute of Technology, Ph.D. in Mathematics received June 2005.
Advisor: Richard Stanley
 2000 – 2001 Cambridge University, Part III of the Mathematical Tripos (with Distinction)
 1996 – 2000 Harvard University, A.B. in Mathematics (*magna cum laude*)
Spring 1998 spent at the Budapest Semesters in Mathematics program.

Scientific/Academic Honors:

2019 – 2022 National Science Foundation FRG DMS-1854316
 2019 – 2022 National Science Foundation research grant DMS-1854512
 2018 London Math Society Hardy Lectureship
 2016 – 2019 National Science Foundation research grant DMS-1600447
 2016 AWM-Microsoft Research Prize in algebra and number theory
 2014 Rose Hills Innovator award
 2014 Fondation Sciences Mathématiques de Paris Junior Chaire
 2014 Simons Fellow
 2014 Distinguished Undergraduate Teaching Award (awarded by MUSA)
 2013 France-Berkeley Fund
 2013 Prytanean Faculty Award
 2012 Fellow of the American Mathematical Society
 2011 – 2016 National Science Foundation CAREER award DMS-1049513
 2012 – 2014 Hellman Family Faculty Fund
 2009 – 2011 Alfred P. Sloan Research Fellow

2009 – 2012	National Science Foundation research grant DMS-0854432
2008	Viterbi Endowed Postdoctoral Scholar at MSRI
2005	Runner up for the AIM Five-Year Fellowship
2005	National Science Foundation Postdoctoral Fellowship
2004 – 2005	National Science Foundation Graduate Fellowship
2002 – 2004	National Defense Science and Engineering Graduate Fellowship
2000 – 2002	National Science Foundation Graduate Fellowship
2004	Charles and Jennifer Johnson Prize, MIT departmental award
2004	Formal Power Series and Algebraic Combinatorics Conference Prize
1999	Barry Goldwater Scholarship
1998	Director’s Summer Program at the National Security Agency
1997	Research Experience for Undergraduates at the University of Minnesota, Duluth
1996	Presidential Scholar
1996	USA Today All-Academic Scholar
1995	Mathematical Olympiad Program
1994	Research Science Institute at the Massachusetts Institute of Technology

Research Interests:

Algebraic, enumerative, and topological combinatorics, and their connections with algebraic geometry, representation theory, and physics. In particular: total positivity, cluster algebras, statistical mechanics, tropical geometry.

Publications:

available at <http://www.math.berkeley.edu/~williams>

1. (with Khrystyna Serhiyenko and Melissa Sherman-Bennett) *Combinatorics of cluster structures in Schubert varieties*, to appear in the Proceedings of the London Mathematical Society.
2. (with Konstanze Rietsch) *Newton-Okounkov bodies, cluster duality and mirror symmetry for Grassmannians*, to appear in Duke Mathematical Journal.
3. (with Sylvie Corteel and Olya Mandelshtam) *Cylindric rhombic tableaux and the two-species ASEP on a ring*, to appear in Birkhauser’s Progress in Mathematics series (birthday volume for Kolya Reshetikhin).
4. (with Steven Karp and Yan Zhang) *Decompositions of amplituhedra*, to appear in Annales de l’Institut Henri Poincaré D.
5. (with Sylvie Corteel) *Macdonald-Koornwinder moments and the two-species exclusion process*, to appear in Selecta Mathematica.
6. (with Sylvie Corteel and Olya Mandelshtam) *Combinatorics of the two-species ASEP and Koornwinder moments*, Advances in Mathematics, 321 (2017), 160–204.
7. (with Steven Karp) *The $m = 1$ amplituhedron and cyclic hyperplane arrangements*, to appear in International Mathematics Research Notices.
8. (with Federico Ardila and Felipe Rincon) *Positively oriented matroids are realizable*, Journal of the European Mathematical Society, 19 (2017), 815 – 833.
9. (with Bernd Sturmfels and Emmanuel Tsukerman) *Symmetric matrices, Catalan paths, and correlations*, Journal of Combinatorial Theory Series A, 144 (2016), 496–510.
10. *A positive Grassmannian analogue of the permutohedron*, Proceedings of the AMS, 144 (2016), 2419–2436.

11. (with Clélia Pech and Konstanze Rietsch) *On Landau-Ginzburg models for quadrics and flat sections for Dubrovin connections*, Advances in Mathematics (Zelevinsky issue), 300 (2016), 275–319.
12. (with Federico Ardila and Felipe Rincon) *Positroids and non-crossing partitions*, Transactions of the AMS, 368 (2016), 337–363.
13. (with Emmanuel Tsukerman) *Bruhat interval polytopes*, Advances in Mathematics 285 (2015), 766–810.
14. (with Yuji Kodama) *The full Kostant-Toda hierarchy on the positive flag variety*, Communications in Mathematical Physics, 335 (2015), 247–283.
15. (with Yuji Kodama) *KP solitons and total positivity for the Grassmannian*, Inventiones Mathematicae, 198 (2014), 637–699.
16. (with Tomohiro Sasamoto) *Combinatorics of the asymmetric exclusion process on a semi-infinite lattice*, Journal of Combinatorics, 5 (2014).
17. *Cluster algebras: an introduction*, Bulletin of the American Mathematical Society, 51 (2014), 1–26.
18. (with Yuji Kodama) *A Deodhar decomposition of the Grassmannian and the regularity of KP solitons*, Advances in Mathematics, 244 (2013), 979–1032.
19. (with Kelli Talaska) *Network parameterizations of the Grassmannian*, Algebra and Number Theory, 7 (2013), 2275–2311.
20. (with Yuji Kodama) *Combinatorics of KP solitons from the real Grassmannian*, Algebras, quivers and representations, 155–193, Abel Symp., 8, Springer, Heidelberg, 2013.
21. (with Gregg Musiker and Ralf Schiffler) *Bases for cluster algebras from surfaces*, Compositio Mathematica 149 (2013), 217–263.
22. (with Gregg Musiker) *Matrix formulae and skein relations for cluster algebras from surfaces*, International Mathematics Research Notices, 2012, article ID rns118v2.
23. (with Yuji Kodama) *KP solitons, total positivity, and cluster algebras*, Proceedings of the National Academy of Sciences, published online ahead of print May 11, 2011, doi:10.1073/pnas.1102627108.
24. (with Sylvie Corteel, Richard Stanley, and Dennis Stanton) *Formulae for Askey-Wilson moments and enumeration of staircase tableaux*, Transactions of the AMS 364 (2012), no. 11, 6009–6037.
25. (with Sylvie Corteel) *Tableaux combinatorics for the asymmetric exclusion process and Askey-Wilson polynomials*, Duke Mathematical Journal, Volume 159, Number 3, September 2011, 385–415.
26. (with Gregg Musiker and Ralf Schiffler) *Positivity for cluster algebras from surfaces*, Advances in Mathematics, Volume 227, Issue 6, August 2011, 2241–2308.
27. (with Sylvie Corteel) *Staircase tableaux, the asymmetric exclusion process, and Askey-Wilson polynomials*, Proceedings of the National Academy of Sciences, published online ahead of print March 26, 2010, doi:10.1073/pnas.0909915107.
28. (with Thomas Lam) *A Markov chain on permutations which is Schubert positive?*, Experimental Mathematics, Volume 21, Issue 2, 2012, 189–192.
29. (with Sylvie Corteel and Matthieu Josuat-Verges) *The Matrix Ansatz, orthogonal polynomials, and permutations*, Advances in Applied Mathematics, Volume 46, special issue in honor of Dennis Stanton, January 2011, 209–225.

30. (with Konstanze Rietsch) *Discrete Morse theory for totally non-negative flag varieties*, Advances in Mathematics, Volume 223, Issue 6, April 2010, 1855–1884.
31. (with Jean-Christophe Novelli and Jean-Yves Thibon) *Combinatorial Hopf algebras, noncommutative Hall-Littlewood functions, and permutation tableaux*, Advances in Mathematics, Volume 224, Issue 4, July 2010, 1311–1348.
32. (with Konstanze Rietsch) *The totally nonnegative part of G/P is a CW complex*, Transformation Groups, special issue for Kostant’s birthday, Volume 13, 2008, 839–853.
33. (with Thomas Lam) *Total positivity for cominuscule Grassmannians*, New York Journal of Mathematics, Volume 14, 2008, 53–99.
34. (with Alex Postnikov and David Speyer) *Matching polytopes, toric geometry, and the non-negative part of the Grassmannian*, Journal of Algebraic Combinatorics, Volume 30, Issue 2 (2009), 173–191.
35. (with Alex Postnikov and Vic Reiner) *Faces of generalized permutohedra*, Documenta Mathematica, Volume 13, 2008, 207–273.
36. (with Robin Chapman) *A conjecture of Stanley on alternating permutations*, Electronic Journal of Combinatorics, Volume 14 (1), 2007.
37. (with Sylvie Corteel) *A Markov chain on permutations which projects to the PASEP*, International Mathematics Research Notices, article ID mm055, 2007.
38. (with Sylvie Corteel) *Tableaux combinatorics for the asymmetric exclusion process*, Advances in Applied Mathematics, Volume 39, Issue 3, September 2007, 293–310.
39. *Shelling totally nonnegative flag varieties*, Journal für die reine und angewandte Mathematik (Crelle’s Journal), Issue 609, Aug. 2007, 1–22.
40. (with Einar Steingrímsson) *Permutation tableaux and permutation patterns*, Journal of Combinatorial Theory Series A, Volume 114, Issue 2, February 2007, pages 211–234.
41. (with Federico Ardila and Victor Reiner) *Bergman complexes, Coxeter arrangements, and graph associahedra*, Séminaire Lotharingien de Combinatoire (electronic), Volume 54A, 2006 (B54Aj).
42. (with Federico Ardila and Carly Klivans) *The positive Bergman complex of an oriented matroid*, European Journal of Combinatorics, Volume 27, Issue 4, May 2006, pages 577–591.
43. (with David Speyer) *The tropical totally positive Grassmannian*, Journal of Algebraic Combinatorics, Volume 2, Number 2, September 2005, pages 189–210.
44. *Enumeration of totally positive Grassmann cells*, Advances in Mathematics, Volume 190, Issue 2, January 2005, pages 319–342.
45. *On exact n -step domination*, Ars Combinatoria, Volume LVIII, January, 2001.
46. *Enumerating up-side self-avoiding walks*, Electronic Journal of Combinatorics, Volume 3 (1), 1996.

Preprints: available at <http://www.math.berkeley.edu/~williams>

1. (with Pavel Galashin and Alex Postnikov) *Higher secondary polytopes and regular plabic graphs*, <http://front.math.ucdavis.edu/1909.05435>.
2. (with Sylvie Corteel and Olya Mandelshtam) *From multiline queues to Macdonald polynomials via the exclusion process*, <http://front.math.ucdavis.edu/1811.01024>.

Conference and Seminar Talks:

- 2019 July *SIAM conference on applied algebraic geometry* (plenary speaker), Bern.
 June *Cluster algebras, geometry, mathematical physics*, RIMS, Kyoto.
 Apr. *Coven-Wood lectures at Wesleyan*, Middletown.
 Apr. *Open Neighborhood seminar*, Harvard University, Cambridge.
 Apr. *Harvard Woman in Math and Statistics conference*, Cambridge.
 Apr. *Discrete Math Days of the NorthEast*, University of Massachusetts, Amherst.
 Mar. *Colloquium*, Temple University, Philadelphia.
 Jan. *Representation theory connections to (q, t) -combinatorics*, Banff, Canada.
 Jan. *Between topology and quantum field theory: celebrating Dan Freed's 60th birthday*, Austin.
- 2018 Dec. *Applied Mathematics colloquium*, Brown University, Providence.
 Nov. *Harvard-MIT combinatorics seminar*, Cambridge.
 Oct. *Harvard-CMSA Random matrix and probability theory seminar*, Cambridge.
 Sept. *Geometry and representation theory at the interface of Lie algebras and quivers*, Bochum.
 Sept. *Algebraic geometry northeastern series*, Brown University, Providence.
 July *Hardy Lecture*, University of Birmingham.
 July *Hardy Lecture*, University of Leeds.
 July *Hardy Lecture*, University of Edinburgh.
 July *Hardy Lecture*, University of Kent, Canterbury.
 July *Hardy Lecture*, University of Cambridge.
 July *Hardy Lecture*, University of Oxford.
 June *Hardy Lecture*, London Mathematical Society, London.
 June *Encuentro Colombiano de Combinatoria* (4 lectures), Universidad del Norte, Barranquilla.
 May *The mathematical legacy of Bert Kostant*, Massachusetts Institute of Technology, Cambridge.
 May *Colloquium*, University of California, Davis.
 May *Enumerative combinatorics*, Mathematisches Forschungsinstitut Oberwolfach.
 Mar *Cluster algebras: twenty years on*, Luminy.
 Jan *Connections for women: enumerative geometry beyond numbers*, MSRI, Berkeley.
 Jan *Special functions and combinatorics (in honor of Stanton's 65th birthday)*, San Diego.
- 2017 Oct *Geometric and topological combinatorics: modern techniques and methods*, MSRI, Berkeley.
 Sep *CA+*, University of Minnesota, Minneapolis.
 Sep *Integrability across Mathematics and Physics*, University of California, Berkeley.
 Aug *XXII Coloquio Latinoamericano*, Quito.
 June *Canadian Discrete and Algorithmic Mathematics Conference*, Toronto.
 June *Mathematical physics seminar*, Perimeter Institute, Toronto.
 May *Mid-Atlantic algebra, geometry, and combinatorics workshop*, Philadelphia.
 Apr *Scattering amplitudes: from gauge theory to gravity*, KITP, Santa Barbara.
 Apr *Colloquium*, Center for communications and computing, Princeton.
 Apr *Discrete geometry and combinatorics seminar*, Cornell University, Ithaca.
 Apr *Colloquium*, Stony Brook University, Stony Brook.
 Mar *Colloquium*, Princeton University, Princeton.
 Mar *Colloquium*, Rutgers, New Brunswick.
 Mar *Geometry, combinatorics and integrable systems seminar*, Ohio State, Columbus.
 Mar *Workshop on homological mirror symmetry*, Institute for Advanced Study, Princeton.
 Mar *Combinatorics seminar*, MIT, Cambridge.
 Feb *Workshop on asymptotic representation theory*, Institut Henri Poincare, Paris.
 Jan *Members seminar*, Institute for Advanced Study, Princeton.
- 2016 Sep *Quantum integrable systems and stochastic processes*, Cargese.
 June *Positivity in Algebraic Combinatorics*, KIAS, Seoul.

- Mar *Hot topics: cluster algebras and wall crossing*, MSRI, Berkeley.
- Mar *Colloquium*, California Institute of Technology, Pasadena.
- Feb *Nonequilibrium dynamics of stochastic and quantum integrable systems*, KITP.
- Jan *Total positivity, representation theory and physics* (4 lectures), University of Kent, UK.
- 2015 Nov *Breakthrough Prize Symposium*, University of California, Berkeley.
- Oct *Colloquium*, University of California, Los Angeles.
- Oct *Colloquium*, University of Southern California, Los Angeles.
- Oct *Colloquium*, University of San Francisco.
- July *Workshop on positive Grassmannians*, Centre de recherches mathématiques, Montreal.
- June *SIAM symposium on orthogonal polynomials* (plenary speaker), NIST, Gaithersburg.
- Apr. *Berkeley Math-Physics meeting*, University of California, Berkeley.
- Mar. *Colloquium*, University of Washington, Seattle.
- Feb. *Mathematical physics seminar*, University of Cambridge.
- Feb. *Algebra seminar*, Université de Caen Basse Normandie, Caen.
- Jan. *Séminaire d'algèbre*, Institut Henri Poincaré, Paris.
- Jan. *Number theory and algebraic geometry seminar*, Université Paris-Sud, Orsay.
- Jan. *Wachsfest (birthday conference of Michelle Wachs)*, University of Miami, Coral Gables.
- 2014 Dec. *Grassmannian geometry of scattering amplitudes*, California Institute of Technology, Pasadena.
- Dec. *Colloquium*, Université Lyon I, Villeurbanne.
- Oct. *Seminaire de combinatoire Philippe Flajolet*, Institut Henri Poincaré, Paris.
- Sep. *New geometric structures in scattering amplitudes*, University of Oxford.
- June *Stanley 70 (birthday conference of Richard Stanley)*, MIT, Cambridge.
- June *Colloquium*, University of California, Los Angeles.
- May *Representation Theory, Integrable Systems, Quantum Fields*, Northwestern University, Evanston.
- May *Colloquium*, University of Chicago, Chicago.
- May *Brandeis-Harvard-MIT-Northeastern Colloquium*, Harvard University, Cambridge.
- May *Combinatorics seminar*, Massachusetts Institute of Technology, Cambridge.
- Apr. *Statistical Mechanics seminar*, Department of Chemistry, University of California, Berkeley.
- Mar. *Free probability and the large N Limit IV*, University of California, Berkeley.
- Mar. *Colloquium*, Columbia University, New York.
- 2013 Dec. *Cluster Algebras workshop*, Mathematisches Forschungsinstitut Oberwolfach.
- Oct. *Physics and Mathematics of Scattering Amplitudes Program*, Simons Center, Stonybrook.
- May *Geometry and Physics* (3 lectures), Centre de Recherches Mathématiques in Montréal, Québec.
- May *Solitons in water waves and applications to tsunamis*, University of Texas, Edinburg.
- May *Women and Mathematics* (4 lectures), Institute for Advanced Study, Princeton.
- Mar. *Colloquium*, Washington University, St. Louis.
- Mar. *AWM Research Symposium* (plenary speaker), Santa Clara University, Santa Clara.
- Feb. *Algebra and discrete math seminar*, University of California, Davis.
- Jan. *Workshop on noncomm. algebraic geometry and representation theory*, MSRI, Berkeley.
- Jan. *Current Events Bulletin*, AMS-MAA Joint Meeting, University of California, San Diego.
- 2012 Oct. *Cluster algebras in combinatorics, algebra, and geometry*, MSRI, Berkeley.
- Oct. *Algebra, number theory, and combinatorics seminar*, University of Texas, Austin.
- Sep. *Triangle lectures in combinatorics*, North Carolina State University, Raleigh.
- Aug. *Connections workshop on cluster algebras and commutative algebra*, MSRI, Berkeley.
- Mar. *American Math Society Meeting* (plenary speaker), University of Hawaii at Manoa, Honolulu.
- Jan. *Introductory workshop: Lattice models and combinatorics*, MSRI, Berkeley.
- Jan. *Geometry-combinatorics-PDE seminar*, University of Texas, Austin.
- Jan. *Geometry-topology-combinatorics seminar*, University of Texas, Austin.

- Jan. *Algebraic combinatorics session*, AMS/MAA Joint Meeting, Boston.
Jan. *Algebra and combinatorics seminar*, Université Lyon I, Villeurbanne, France.
- 2011 Nov. *Colloquium*, University of California, Berkeley.
Oct. *Mathematical physics and probability*, University of California, Davis.
Sep. *Group theory and its connections*, AWM celebration, Brown University, Providence.
Sep. *Combinatorics seminar*, Massachusetts Institute of Technology, Cambridge.
Sep. *Brandeis-Harvard-MIT-Northeastern Colloquium*, Northeastern University, Boston.
Sep. *Cluster algebras, representation theory, and Poisson geometry*, Banff, Canada.
Aug. *Minicourse on total positivity* (five lectures), MSRI, Berkeley.
July *Tropical geometry and integrable systems*, Glasgow, UK.
June *Combinatoire énumérative et analytique*, LIAFA, Université Paris Diderot, Paris.
June *The Abel Symposium: Algebras, quivers and representations*, Balestrand, Norway.
June *Formal Power Series and Algebraic Combinatorics* (plenary speaker), Reykjavik, Iceland.
May *Examples of geometries*, Columbus, Ohio.
May *Algebraic Combinatorixx*, Banff, Canada.
May *Colloquium*, University of Oregon, Eugene.
Apr. *Representation theory, geometry, combinatorics seminar*, University of California, Berkeley.
Apr. *Combinatorics seminar*, University of Michigan, Ann Arbor.
Mar. *Combinatorics seminar*, Ohio State University, Columbus.
Feb. *Student Probability and PDE seminar*, University of California, Berkeley.
- 2010 Dec. *Random matrix theory and its applications II*, MSRI, Berkeley.
Nov. *Mentor lecture*, University of California, Berkeley.
Nov. *Student discrete math seminar*, University of California, Berkeley.
Aug. *Young Mathematicians Conference* (plenary speaker), Ohio State University, Columbus.
July *Combinatorics and mathematical physics*, University of Queensland, Brisbane.
June *Combinatorics seminar*, Université de Marne-la-Vallée, Champs-sur-Marne, France.
June *Working group on cluster algebras*, Université Paris Diderot, Paris.
June *Combinatorics seminar*, LIAFA, Université Paris Diderot, Paris.
May *Barrett Memorial Lectures, Discrete differential geometry*, University of Tennessee.
Apr. *Combinatorial stochastic processes*, University of California, Berkeley.
Mar. *Combinatorial representation theory*, Mathematisches Forschungsinstitut Oberwolfach.
Feb. *AWM Colloquium*, University of California, San Diego.
Feb. *Combinatorics and computer science day*, University of California, Berkeley.
Jan. *Probability seminar*, University of California, Berkeley.
Jan. *Mathematical physics and probability*, University of California, Davis.
- 2009 Nov. *Tropical structures in geometry and physics*, MSRI, Berkeley.
Nov. *Combinatorics seminar*, University of Washington, Seattle.
Nov. *Discrete math seminar*, University of California, Berkeley.
Oct. *Combinatorics seminar*, University of Minnesota, Minneapolis.
Oct. *Algebraic representation theory seminar*, University of Minnesota, Minneapolis.
Oct. *Workshop on two dimensional lattice models*, Institut Henri Poincaré, Paris.
Sep. *Algebra and discrete math seminar*, University of California, Davis.
Sep. *Representation theory, geometry, combinatorics seminar*, University of California, Berkeley.
Aug. *Connections for women workshop on tropical geometry*, MSRI, Berkeley.
July *Saturday in Discrete Mathematics*, Friedrich-Alexander University, Erlangen.
July *Seminaire de Laboratoire d'informatique*, Université Paris 6, Paris.
May *Combinatorics Seminar*, Université du Québec à Montréal, Montreal.
Apr. *Research Seminar*, Northeastern University, Boston.

- Apr. *Harvard-MIT-Brandeis-Northeastern Colloquium*, Brandeis University, Waltham.
- Mar. *Non-negativity is a quantum phenomenon*, Mathematisches Forschungsinstitut Oberwolfach.
- Jan. *Combinatorics seminar*, University of California, Berkeley.
- Jan. *Colloquium*, Tulane University, New Orleans.
- Jan. *Colloquium*, University of Southern California, Los Angeles.
- 2008 Dec. *International conference on cluster algebras and related topics*, Morelia, Mexico.
(three lectures on total positivity)
- Nov. *Faculty Colloquium*, Harvard University, Cambridge.
- July *Combinatorics and Statistical Physics*, Erwin Schrodinger Institute, Vienna.
- June *Formal Power Series and Algebraic Combinatorics*, Valparaiso, Chile.
- May *Geometry and Combinatorics Seminar*, Stanford University, Palo Alto.
- May *Geometry-Algebra-Combinatorics Seminar*, San Francisco State University, San Francisco.
- Apr. *MSRI Evans Lecture*, University of California, Berkeley.
- Apr. *CombinaTexas*, University of Texas, El Paso.
- Apr. *MIT Women in Mathematics: a celebration*, MIT, Cambridge.
- Apr. *Combinatorial representation theory*, AMS meeting, Indiana University, Bloomington.
- Jan. *Introductory workshop on combinatorial representation theory*, MSRI, Berkeley.
- 2007 Nov. *Algebra and combinatorics seminar*, Texas A& M University, College Station.
- Oct. *Dartmouth Discrete Math Day*, Hanover, New Hampshire.
- Oct. *Geometric combinatorics*, AMS meeting, DePaul University, Chicago.
- Sept. *Combinatorics seminar*, University of Michigan, Ann Arbor.
- July *Combinatorics seminar*, Universite de Marne-la-Vallee, Champs-sur-Marne, France.
- July *Formal Power Series and Algebraic Combinatorics*, Beijing, China.
- June *Interactions of Random Matrix Theory, Integrable Systems, Stochastic Processes*, Snowbird.
- May *Interactions of combinatorics and algebraic geometry*, Centre de Recherches Math., Montreal.
- May *Algebraic geometry and group actions*, Womens' program, IAS, Princeton.
- Apr. *Combinatorics/Lie Theory/Probability seminar*, University of Wisconsin, Madison.
- Apr. *Integrable systems and random matrices seminar*, Courant Institute, New York.
- Feb. *Valley geometry seminar*, Univ. of Massachusetts, Amherst.
- Jan. *Combinatorics seminar*, Ecole Polytechnique, Palaiseau, France.
- 2006 Dec. *Faculty Colloquium*, Harvard University, Cambridge.
- Nov. *Everytopic seminar*, Brandeis University, Waltham.
- Oct. *Combinatorial techniques in equivariant topology*, AMS meeting, Univ. of Connecticut, Storrs.
- Oct. *Algebraic and Analytic combinatorics*, AMS meeting, Univ. of Connecticut, Storrs.
- Oct. *Geometry-Algebra-Singularities-Combinatorics seminar*, Northeastern University, Boston.
- Oct. *Combinatorics seminar*, University of Washington, Seattle.
- Sept. *Colloquium*, University of Connecticut, Storrs.
- June *Combinatorics seminar*, LaBRI, Universite Bordeaux 1, Bordeaux, France.
- June *Permutation Patterns 2006*, Reykjavik University, Reykjavik, Iceland.
- May *Combinatorics seminar*, University of Kansas, Lawrence.
- Apr. *Combinatorics seminar*, University of California, San Diego.
- Apr. *Representation theory, geometry, combinatorics seminar*, University of California, Berkeley.
- Apr. *Combinatorics seminar*, Indiana University, Bloomington.
- Mar. *Combinatorics seminar*, Massachusetts Institute of Technology, Cambridge.
- Mar. *Applied Algebra Seminar*, York University, Toronto.
- Jan. *Colloquium*, University of Miami, Coral Gables.
- 2005 Dec. *Algebra seminar*, University of California, Santa Barbara.
- Nov. *Flavors of Groups, BIRS workshop*, Banff, Canada.

- Nov. *Algebraic combinatorics and geometry session*, AMS meeting, University of Oregon, Eugene.
 Nov. *Colloquium*, Rice University, Houston.
 Oct. *Bay Area Discrete Math Day*, University of California, Davis.
 Oct. *Representation theory seminar*, Stanford University, Palo Alto.
 Oct. *Algebraic combinatorics session*, AMS meeting, Bard College, Annandale-on-Hudson.
 Sep. *Combinatorics seminar*, University of California, Berkeley.
 Sep. *Algebra-Geometry-Combinatorics seminar*, San Francisco State University, San Francisco.
 Jun. *Formal Power Series and Algebraic Combinatorics*, University of Messina, Italy.
 Jun. *Algebraic combinatorics session*, AMS/ German Math. Society meeting in Mainz, Germany.
 May *Institute seminar*, Mittag-Leffler Institute, Djursholm, Sweden.
 Apr. *Combinatorics seminar*, University of Pennsylvania, Philadelphia.
 Apr. *Combinatorics seminar*, Massachusetts Institute of Technology, Cambridge.
 Mar. *Combinatorics seminar*, University of Minnesota, Minneapolis.
 Feb. *Colloquium*, University of Miami, Coral Gables.
 Jan. *Theory group seminar*, Microsoft Research, Seattle.
 Jan. *Tropical geometry session*, AMS/MAA National Meeting in Atlanta, Georgia.
- 2004 Oct. *Lie Theory seminar*, University of Wisconsin, Madison.
 Oct. *Theory group seminar*, Microsoft Research, Seattle.
 Oct. *Combinatorics seminar*, University of Washington, Seattle.
 Sep. *Combinatorics seminar*, University of Michigan, Ann Arbor.
 Jul. *Geometric Combinatorics at the Park City Mathematics Institute*, Park City, Utah.
 Jun. *Formal Power Series and Algebraic Combinatorics*, University of British Columbia.
 Apr. *Valley geometry seminar*, University of Massachusetts, Amherst.
 Apr. *Combinatorics seminar*, University of California, San Diego.
 Apr. *Combinatorics seminar*, University of California, Berkeley.
 Feb. *Combinatorics seminar*, Massachusetts Institute of Technology, Cambridge.
 Jan. *Lattice theory session*, AMS/MAA National Meeting in Phoenix, Arizona.
- 2003 Dec. *Working group on polytopes*, Mathematical Sciences Research Institute, Berkeley, California.
 Oct. *Amoebas and tropical geometry workshop*, American Institute of Mathematics, Palo Alto.
 Sep. *Commutative algebra and algebraic geometry seminar*, University of California, Berkeley.
 May *Zeilberger miniconference*, Massachusetts Institute of Technology, Cambridge.
 Apr. *Combinatorics, topology, convexity*, Spring School in Jerusalem.

Professional Activities:

- Editorial: Editor for *Advances in Applied Mathematics*, February 2012 - present
 Editor for *Journal of Combinatorial Theory Series A*, August 2014 - present

- Organization: ICERM program on combinatorial algebraic geometry, spring 2021
 Mirror symmetry and cluster algebras, Cambridge, UK, July 2019
 SIAM session on cluster algebras and positivity, Bern, July 2019
 Faces of integrability, CRM, Montreal, April 29–May 17, 2019
 MIT-Harvard-Microsoft combinatorics seminar, fall 2018 to present
 Combinatorics and beyond: Sergey Fomin’s mathematics, Michigan, November 2018
 MSRI hot topics: cluster algebras and wall-crossing, March 2016
 MSRI program on cluster algebras, fall 2012
 MSRI joint connections workshop on commutative algebra and cluster algebras, August 2012
 Bay Area Discrete Math Day, March 2012
 UC Berkeley Combinatorics seminar, spring 2006, and spring 2010 to present
 ICERM Workshop on cluster algebras and statistical physics, August 2011
 MSRI Graduate Workshop on cluster combinatorics and cluster algebras, August 2011
 MIT Combinatorics seminar, spring 2007 to spring 2009
 MSRI workshop on combinatorics and tropical geometry, fall 2009
 AMS special session on matroids at San Francisco State University, April 2009
 Member of the program committee for FPSAC, summer 2009
- Service: Undergraduate major advisor, fall 2011 to spring 2014
 Faculty sponsor for Berkeley chapter of Association of Women in Math, spring 2010 to spring 2014
 Faculty sponsor for the Berkeley math tournament for high school students, fall 2011 to spring 2013
 Assistant Director of Graduate Studies, Harvard math department, fall 2007 to spring 2009
 Board of advisors for Girls’ Angle, a math club for (middle-school) girls, fall 2008 to present
 Board of advisors for Math prize for girls, fall 2010 to present

Ph.D. Students supervised:

- Adam Kalman (UC Berkeley, PhD 2014)
 Alfredo Najera Chavez (co-supervised with Bernhard Keller; Université Paris 7, PhD 2015)
 Olya Mandelshtam (UC Berkeley, PhD 2016)
 Steven Karp (UC Berkeley, PhD 2017)
 Anastasia Chavez (co-supervised with Federico Ardila; UC Berkeley, PhD 2017)
 Emmanuel Tsukerman (co-supervised with Bernd Sturmfels; UC Berkeley, PhD 2017)
 Felix Gotti (UC Berkeley, PhD 2019)
 Melissa Sherman-Bennett (UC Berkeley, in progress)
 Mario Sanchez (co-supervised with Federico Ardila; UC Berkeley, in progress)
 Donghyun Kim (UC Berkeley, in progress)
 Charles Wang (co-supervised with Bernd Sturmfels; Harvard, in progress)

Postdoctoral researchers mentored:

- 2010-2013 Kelli Talaska, NSF Postdoctoral Fellow, UC Berkeley.
 spring 2013 Max Glick, RTG Postdoctoral Fellow, UC Berkeley.
 fall 2013 Natasha Blitvic, FQRNT Fellow, UC Berkeley.
 2013-2014 Florian Block, Humboldt Fellow, UC Berkeley.
 2013-2016 Yan Zhang, Morrey Assistant Professor, UC Berkeley.
 2015-2018 Khrystyna Serhiyenko, NSF Postdoctoral Fellow, UC Berkeley.

Undergraduate senior theses supervised:

- 2008-2009 Kevin Carde, Harvard.
 2006-2007 Yan Zhang, Harvard.

Teaching Activities:

- 2019 Spring Algebraic Combinatorics (Math 155r) at Harvard.
- 2018 Fall Freshman Seminar at Harvard.
- 2018 Spring Discrete Mathematics (Math 55) at Berkeley.
- 2017 Fall Hot topics in mathematics (Math 270) at Berkeley.
- 2016 Fall Topics in Cluster algebras, Columbia University.
- 2014 Fall Cluster algebras at Institut Henri Poincare, Paris.
- 2014 Spring Discrete Mathematics (Math 55) at Berkeley.
- 2013 Fall Graduate Algebraic Combinatorics (Math 249) at Berkeley.
- 2012 Spring Abstract Algebra (Math 113) at Berkeley.
- 2011 Fall Discrete Mathematics (Math 55) at Berkeley.
- 2011 Spring Topics in algebra: cluster algebras (Math 274) at Berkeley.
- 2010 Fall Discrete Mathematics (Math 55) at Berkeley.
- 2010 Spring Graduate Algebraic Combinatorics (Math 249) at Berkeley.
- 2009 Spring Probability (Math 154) at Harvard.
- 2008 Fall Topics in Combinatorial Representation Theory (Math 277) at Harvard.
- 2007 Fall Algebraic Combinatorics (Math 155r) at Harvard.
- 2007 Spring Multivariable Calculus (Math 21a) at Harvard.
- 2006 Fall Algebraic Combinatorics (Math 192r) at Harvard.