

# Victor Reiner

## Office

School of Mathematics  
University of Minnesota  
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## Addresses

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Minneapolis, MN 55419  
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## Research Interests

Algebraic, geometric, and topological combinatorics

## Education

<i>Massachusetts Institute of Technology</i>	<i>September 1986–June 1990</i>
Ph.D. in Mathematics	
Thesis Advisor : Richard Stanley	
Thesis title : Quotients of Coxeter complexes and P-partitions	
<i>Princeton University</i>	<i>September 1982–June 1986</i>
A.B. in Mathematics	

## Experience

<i>Professor, University of Minnesota</i>	<i>Fall 2001–present</i>
<i>Associate Professor, University of Minnesota</i>	<i>Fall 1997–Fall 2001</i>
<i>Assistant Professor, University of Minnesota</i>	<i>Fall 1993–Fall 1997</i>
<i>Dunham Jackson Assistant Professor, University of Minnesota</i>	<i>Fall 1990–Spring 1993</i>

## Honors and awards

<i>NSF Postdoc Fellowship (Mentor: D. Stanton)</i>	<i>September 1992–August 1995</i>
<i>Alfred P. Sloan Research Fellow</i>	<i>September 1996–August 1998</i>
<i>Univ. of Minnesota McKnight Land Grant Professor</i>	<i>July 1996–June 1998</i>
<i>Univ. of Minnesota Taylor Career Development Award</i>	<i>June 1997</i>
<i>Univ. of Minnesota Distinguished McKnight Professor</i>	<i>July 2003–present</i>
<i>Fellow of the AMS</i>	<i>September 2012 – present</i>
<i>Member-at-Large of the AMS Council</i>	<i>February 2018 – January 2021</i>

## Editorships

<i>Editor-in-Chief of Journal of Algebraic Combinatorics</i>	<i>2000–2005</i>
<i>Member of Editorial Board of ORDER</i>	<i>1998–2007</i>
<i>Associate Editor of Journal of the AMS</i>	<i>2004–2009</i>
<i>Member of Editorial Board of Algebra and Number Theory</i>	<i>2007–present</i>
<i>Member of Editorial Board of Journal of Combinatorial Theory Ser. A</i>	<i>2015–2020</i>
<i>Member of Editorial Board of Algebraic Combinatorics</i>	<i>2017–present</i>
<i>Member of Editorial Board of Combinatorial Theory</i>	<i>2021–present</i>
<i>Member of Editorial Board of Confluentes Mathematici</i>	<i>2023–present</i>

## Grants

<i>PI on NSF RTG grants in Combinatorics at Minnesota</i>	<i>2012-2018, 2018-2024</i>
<i>Traditional NSF grants</i>	<i>1999–2002, 2003–2006, 2007–2009, 2010-2015, 2016-21, 2021-24</i>
<i>Co-PI on Israeli BSF US-Israel Binational grant</i>	<i>2004-2006</i>

## Publications

### Appeared:

1. “Free modules of relative invariants of finite groups”, *Stud. in Appl. Math.*, **81**(1989), 181–184.
2. “Quotients of Coxeter complexes and P-partitions”, *Mem. AMS. 460*, **95**(1992), 1–134.
3. “Signed posets”, *J. Comb. Theory, Ser. A*, **62**(1993), 324–360.
4. (with M. Hawrylycz) “The lattice of closure relations of a poset”, *Alg. Universalis*, **30** (1993), 301–310.
5. (with P. H. Edelman) “Free hyperplane arrangements between  $A_{n-1}$  and  $B_n$ ”, *Math. Zeit.*, **215**(1994), 347–365.
6. “Signed permutation statistics”, *Eur. J. Comb.*, **14**(1993), 553–567.
7. “Signed permutation statistics and cycle type”, *Eur. J. Comb.*, **14**(1993), 569–579.
8. “Upper binomial posets and signed permutation statistics”, *Eur. J. Comb.*, **14**(1993), 581–588.
9. (with P. H. Edelman) “A counterexample to Orlik’s conjecture”, *Proc. AMS*, **118**(1993), 927–929.
10. (with P. H. Edelman) “H-shellings and h-complexes”, *Adv. Math*, **106**(1994), 36–62.
11. (with G. Ziegler) “Coxeter-associahedra”, *Mathematika*, **41**(1994), 364–393.
12. (with P. H. Edelman) “Not all free arrangements are  $K(\pi, 1)$ ”, *Bull. AMS*, **32** (1995), 61–65.
13. (with M. Shimozono) “Key polynomials and a flagged Littlewood-Richardson rule”, *J. Comb. Theory, Ser. A*, **70** (1995), 107–143.
14. “Descents and one-dimensional characters for classical Weyl groups”, *Disc. Math*, **140**(1995), 129–140.
15. (with M. Shimozono) “Specht series for column-convex diagrams”, *J. Algebra*, **174** (1995), 489–522.
16. (with M. Shimozono) “Plactification”, *J. Algebraic Comb.* **4** (1995), 331–351
17. “On Göbel’s bound for invariants of permutation groups”, *Archiv der Math.*, **65** (1995), 475–480.
18. “The distribution of descents and length in a Coxeter group”, *Elec. J. Comb.*, **2** (1995), R25, 20pp.
19. (with P. H. Edelman) “Free arrangements and rhombic tilings”, *Disc. and Computational Geom.*, **15** (1996), 307–340.
20. (with P. H. Edelman) “The higher Stasheff-Tamari posets”, *Mathematika*, **43** (1996), 127–154.

21. (with S. V. Fomin, C. Greene, and M. Shimozono) “Balanced Diagrams, reduced decompositions, Schur functions, and Schubert polynomials”, *Europ. J. Comb.*, **18** (1997), 373–389.
22. “Non-crossing partitions for classical reflection groups”, *Discrete Math.*, **177** (1997), 195–222.
23. (with P. H. Edelman) “Catalan triangulations of the Möbius band”, *Graphs and Combinatorics*, **13** (1997), 231–243.
24. (with M. Shimozono) “Straightening for standard monomials on Schubert varieties”, *J. Algebra*, **195** (1997), 130–140.
25. (with D. Stanton) “Unimodality of differences of specialized Schur functions”, *J. Algebraic Comb.*, **7** (1998), 91–107.
26. (with P. H. Edelman) “Visibility complexes and the Baues problem for triangulations in the plane”, *Disc. and Computational Geom.*, **20** (1998), 35–59
27. (with J. A. Eagon) “Resolutions of Stanley-Reisner rings and Alexander duality”, *J. Pure and Appl. Algebra*, **130** (1998), 265–275.
28. (with Irena Peeva and Bernd Sturmfels) “How to shell a monoid”, *Math. Annalen*, **310** (1998), 379–393.
29. (with M. Shimozono) “Percent-avoiding, northwest shapes and peelable tableaux”, *J. Comb. Thy. Ser. A*, **82** (1998), 1–73
30. (with H. Burgiel) “Two signed associahedra”, *New York J. Math*, **4** (1998), 83–95.
31. (with I. Peeva and V. Welker) “Cohomology of real diagonal subspace arrangements via resolutions”, *Compositio Mathematica*, **117** (1999), 99–115.
32. (with J. Herzog and V. Welker) “The Koszul property in affine semigroup rings”, *Pacific J. Math.*, **186** (1998), 39–65.
33. “An interpretation for the Tutte polynomial”, *Europ. J. Combin.*, **20** (1999), 149–161.
34. (with A. Duval), “Perron-Frobenius type results and discrete versions of nodal domain theorems”, *Lin. Algebra. Appl.*, **294** (1999), 259–268.
35. (with W. Kook and D. Stanton) “A convolution formula for the Tutte polynomial”, *J. Comb. Theory Ser. B*, **76** (1999), 297–300.
36. “The generalized Baues problem”, in *New perspectives in algebraic combinatorics* (Billera, Björner, Greene, Simion, Stanley, eds.), MSRI publications **38**, Cambridge Univ. Press, 1999.
37. (with J. Herzog and V. Welker) “Componentwise linear ideals and Golod rings”, *Michigan J. Math.* **46** (1999), 211–223.
38. (with M. Shimozono) “Flagged Weyl modules for two-column shapes”, *J. Pure Appl. Algebra* **141** (1999), 59–100.
39. (with W. Kook and D. Stanton) “Combinatorial Laplacians of matroid complexes”, *Journal of the Amer. Math. Soc.* **13** (2000), 129–148.
40. (with V. Welker) “A homological lower bound for order dimension of lattices”, *Order* **16** (1999), 165–170.

41. (with C. Athanasiadis, J. deLoera and F. Santos) “Fiber polytopes for the maps between cyclic polytopes”, *Europ. J. Combin.* **21** (2000), 19–47.
42. (with P. H. Edelman and J. Rambau) “On subdivision posets of cyclic polytopes”, *Europ. J. Combin.* **21** (2000), 85–101.
43. (with J. Roberts) “Minimal resolutions and the homology of chessboard and matching complexes”, *J. Algebraic Combinatorics* **11**(2000), 135–154.
44. (with P. H. Edelman), “Counting the interior points of a point configuration”, *Disc. and Comput. Geometry* **23** (2000), 1–13.
45. (with C. Athanasiadis and P. H. Edelman) “Monotone paths in polytopes”, *Math. Zeit.* **235** (2000), 315–334.
46. (with V. Welker and K. Yanagawa) “Local cohomology modules of Stanley-Reisner rings with supports in general monomial ideals”, *J. Algebra* **244** (2001), 706–736.
47. (with V. Welker) “Linear syzygies of Stanley-Reisner ideals”, *Math. Scand.* **89** (2001), 117–132.
48. (with P.H. Edelman and V. Welker) “Convex, pointed and free sets of an oriented matroid”, *Discrete Comput. Geom.* **27** (2002), 99–116.
49. (with D. Karaguezian and M. Wachs) “Matching complexes, bounded degree graph complexes and weight spaces of  $GL_n$ -Complexes”, *J. Algebra* **239** (2001), 77–92.
50. (with N.C. Leung) “The signature of a toric variety”, *Duke J. Math.*, **111**(2002), 253–286.
51. (with P. Orlik and A. Shepler) “The sign representation for Shephard groups” *Math. Annalen* **322** (2002), 477–492.
52. (with H. Christianson) “The critical group of a threshold graph”, *Lin. Alg. Appl.* **349**, (2002), 233–244.
53. “Equivariant fiber polytopes”, *Documenta Mathematica* **7** (2002), 113–132.
54. (with A. Duval), “Shifted simplicial complexes are Laplacian integral”, *Trans. Amer. Math. Soc.* **354** (2002), 4313–4344
55. “Note on a theorem of Eng”, *Ann. Comb.* **6** (2002), 117–118.
56. (with V. Gasharov) “Cohomology of smooth Schubert varieties in partial flag manifolds”, *J. London Math. Soc.* **66** (2002), 550–562.
57. (with B. Jacobson and A. Niedermaier) “Critical groups for complete multipartite graphs and Cartesian products of complete graphs”, *J. Graph Theory* **44** (2003), 231–250.
58. (with P.H. Edelman, S. Peterson, J. Stout) “Geochemical phase diagrams and Gale diagrams”, *SIAM J. Appl. Math.* **64**, 231–259
59. (with D. Stanton and V. Welker) “The Charney-Davis quantity for certain graded posets”, *Séminaire Lotharingien de Combinatoire* **50**(2003), 13pp.
60. (with J. Martin) “Factorization of some weighted spanning tree enumerators”, *J. Combin. Theory Ser. A* **104** (2003), 287–300.

61. (with P. Webb) “The combinatorics of the bar resolution in group cohomology”, *J. Pure Appl. Algebra* **190** (2004), 291–327.
62. (with S. Hirschman) “Note on the Pfaffian matrix-tree theorem”, *Graphs Combin.* **20** (2004), 59–63.
63. (with D. Stanton and D. White) “The cyclic sieving phenomenon”, *J. Combin. Theory Ser. A* **108** (2004), 17–50.
64. (with C. Athanasiadis) “Noncrossing partitions for the group  $D_n$ ”, *SIAM J. Discrete Math.* **18** (2004), 397–417
65. (with E. Babson) “Coxeter-like complexes”, *Disc. Math. and Theor. Comp. Sci.* **6** (2004), 223–251.
66. (with V. Welker) “On the Charney-Davis and Neggers-Stanley conjectures”, *J. Combin. Theory Ser. A* **109** (2005), 247–280.
67. (with E.N. Miller) “Reciprocal domains and Cohen-Macaulay  $d$ -complexes in  $\mathbf{R}^d$ ”, *Elec. J. Combin.* **11(2)** (2004-2005),#N1.
68. “Note on the expected number of Yang-Baxter moves applicable to reduced decompositions”, *Europ. J. Combin.* **26**(2005), 1019–1021.
69. (with J. Martin) “Cyclotomic and simplicial matroids”, *Israel J. Math.* **150** (2005), 229–240.
70. (with D. Stanton and P. Webb) “Springer’s regular elements over arbitrary fields”, *Math. Proc. Camb. Phil. Soc.* **141** (2006), 209–229.
71. (with E.N. Miller) “Stanley’s simplicial poset conjecture, after Masuda”, *Comm. in Algebra* **34** (2006), 1049–1053
72. (with F. Ardila and L. Williams) “Bergman complexes, Coxeter arrangements, and graph associahedra”, *Sem. Lothar. Combin.* **54Aj** (2006),25 pp.
73. (with M. Develin and J. Martin) “Rigidity theory for matroids”, *Comm. Math. Helv.* **82** (2007), no. 1, 197–233.
74. (with M. Develin and J. Martin) “Classification of Ding’s Schubert varieties: finer rook equivalence”, *Canad. J. Math.* **59** (2007), no. 1, 36–62.
75. (with K. Shaw and S. van Willigenburg) “Coincidences among skew Schur functions”, *Adv. Math.* **216** (2007), 118–152. (with corrigendum, *Adv. Math.* **220** (2009), no. 5, 1655–1656.)
76. (with A. Galambos) “Acyclic sets of linear orders via the Bruhat orders”, *Social Choice and Welfare* **30** (2008), 245–264.
77. (with C. Klivans) “Shifted set families, degree sequences, and plethysm”, *Elec. J. Combin.* **15 (1)** (2008), paper R14, 35 pp.
78. (with H. Barcelo and D. Stanton) “Bimahonian distributions”, *J. London Math. Soc.* **77** (2008), 627–646.
79. (with F. Brenti and Y. Roichman) “Alternating subgroups of Coxeter groups”, *J. Comb. Theory Ser. A*, **115** (2008), 845–877.
80. (with A. Postnikov and L. Williams) “Faces of simple generalized permutohedra”, *Doc. Math.* **13** (2008), 207–273.

81. (with U. Nagel) “Betti numbers of monomial ideals and shifted skew shapes”, *Electron. J. Combin.* **16** (2009), no. 2, Special volume in honor of Anders Bjorner, Research Paper 3, 59 pp.
82. (with A. Miller), “Differential posets and Smith normal forms”, *Order* **26** (2009), no. 3, 197–228.
83. (with A. Yong and A. Woo), “Presenting the cohomology of a Schubert variety”, *Trans. Amer. Math. Soc.* **363** (2011), no. 1, 521–543.
84. (with D. Stamate), “Koszul incidence algebras, affine semigroups and Stanley-Reisner ideals”, *Adv. Math.* **224** (2010), no. 6, 2312–2345.
85. (with L. Billera and N. Jia) “A quasisymmetric function for matroids”, *Europ J. Combin.* **30** (2009), no. 8, 1727–1757.
86. (with D. Stanton) “ $(q, t)$ -analogues and  $GL_n(\mathbf{F}_q)$ ”, *J. Algebraic Combin.* **31** (2010), no. 3, 411–454.
87. (with D. Bessis) “Cyclic sieving of noncrossing partitions for complex reflection groups”, *Ann. Comb.* **15** (2011), no. 2, 197–222.
88. (with A. Broer, L. Smith and P. Webb), “Extending the Coinvariant Theorems of Chevalley, Shephard-Todd, Mitchell, and Springer”, *Proc. Lond. Math. Soc.* **103** (2011) 747 – 785.
89. (with A. Berget and S.-P. Eu) “Constructions for cyclic sieving phenomena”, *SIAM J. Disc. Math.* **25** (2011), no. 3, 1297–1314.
90. (with S. Fu, D. Stanton, N. Thiem) “The negative  $q$ -binomial”, *Elec. J. Combin.* **19** (2012), P36.
91. (with A. Berget, A. Manion, M. Maxwell, and A. Potechin), “Critical groups of line graphs”, *Annals Comb.* **16** (2012), 449–488.
92. (with A. Boussicault, V. Feray, and A. Lascoux) “Linear extension sums as valuations of cones”, *J. Algebraic Combin.* **35** (2012), 573–610.
93. (with V. Feray), “ $P$ -partitions revisited”, *J. Commut. Algebra* **4** (2012), 101–152.
94. (with J. Rambau), “A survey of the higher Stasheff-Tamari orders”, in “Associahedra, Tamari Lattices and related structures” (Tamari Memorial Festschrift), *Progress in Math.* **299**, Birkäuser, 2012.
95. (with Y. Roichman) “Diameter of graphs of reduced words and galleries”, *Trans. Amer. Math. Soc.* **365** (2013), 2779–2802.
96. (with F. Hivert), “A multivariate ‘inv’ hook formula for forests”, *Ramanujan J.* **31** (2013), 33–51.
97. (with W. Messing) “A universal coefficient theorem for Gauss’s lemma”, *J. Commut. Algebra* **5** (2013), 299–307.
98. (with G. Musiker) “The cyclotomic polynomial topologically”, *J. Reine. Angew. Math.* **687** (2014), 113–132.
99. (with F. Saliola and V. Welker), “Spectra of symmetrized shuffling operators”, *Mem. Amer. Math. Soc.* **228** (2014), No. 1072.

100. (with D. Tseng) “Critical groups of covering, voltage and signed graphs”, *Discrete Mathematics* **318** (2014), 10–40
101. (with D. Stanton and D. White) “What is ... cyclic sieving?”, *Notices of the Amer. Math. Soc.* **61** (2014), 169–171.
102. (with J. Lewis and D. Stanton) “Reflection factorizations of Singer cycles”, *J. Algebraic Combin.* **40** (2014), 663–691.
103. (with D. Armstrong and B. Rhoades) “Parking spaces”, *Adv. Math.* **269** (2015), 647–706.
104. (with J. Martin, M. Maxwell, and S. O. Wilson) “Pseudodeterminants and perfect square spanning tree counts”, *J. Combinatorics* **6** (2015), 295–325.
105. (with M. Develin and M. Macauley) “Toric partial orders”, *Trans. Amer. Math. Soc.* **368** (2016), 2263–2287
106. (with J. Lewis) “Circuits and Hurwitz action in finite root systems”, *New York J. Math.* **22** (2016) 1457–1486
107. (with J. Huang and J. Lewis) “Absolute order in general linear groups” *Journal of the London Mathematical Society*, **95** (2017), 223–247.
108. (with J. Lewis and D. Stanton) “Invariants of  $GL_n(\mathbf{F}_q)$  in polynomials mod Frobenius powers”, *Proc. Royal Soc. Edinburgh Sect. A* **147** (2017), 831–873.
109. (with V. Ripoll and C. Stump) “On non-conjugate Coxeter elements in well-generated reflection groups”, *Math. Zeit.* **285** (2017), 1041–1062.
110. (with P. Hersh; and appendix with S. Sam) “Representation stability for cohomology of configuration spaces in  $\mathbf{R}^d$ ”, *Intl. Math. Res. Notices IMRN* **2017**, 1433–1486.
111. (with E. Sommers) “Weyl group  $q$ -Kreweras numbers and cyclic sieving”, *Annals of Combinatorics* **22** (2018), 819–874.
112. (with B. Tenner and A. Yong) “Poset edge densities, nearly reduced words, and barely set-valued tableaux”, *J. Combin. Theory Ser. A* **158** (2018), 66–125.
113. (with G. Benkart and C. Klivans) “Chip firing on Dynkin diagrams and McKay quivers”, *Math. Zeit.* **290** (2018), 615–648.
114. (with Elise delMas and Thomas Hameister) “A refined count of Coxeter element factorizations”, *Elec. J. Comb.* **25** (2018), Paper 1.28, 11 pp.
115. (with N. Early) “On configuration spaces and Whitehouse’s lifts of the Eulerian representations”, *J. Pure Appl. Algebra* **223** (2019), 4524–4535.
116. (with A. Shepler) “Invariant derivations and differential forms”, *Proc. Lond. Math. Soc.* **119** (2019), 329–357.
117. (with Z. Hamaker) “Weak order and descents for monotone triangles”, *Europ. J. Combin.* **86** (2020), 22pp.
118. (with D. Grinberg and J. Huang) “Critical groups for Hopf algebra modules”, *Math. Proc. Camb. Phil. Soc.* **168** (2020), 473–503.

119. (with R. Adin and Y. Roichman) “On cyclic descents for tableaux”, *Intl. Math. Res. Notices* **24** (2020), 10231–10276.
120. (with R. Adin, I. Gessel, and Y. Roichman) “Cyclic quasisymmetric functions”, *Sém. Lothar. Combin.* **82B** (2020), Art. 67, 12 pp.
121. (with A. Conca and L. Katthän) “The Koszul homology algebra of the second Veronese is generated by the lowest strand”, *J. Algebra* **571** (2021), 179–189.
122. (with A. Shepler and E. Sommers) “Invariant theory for coincidental reflection groups” *Math. Zeit.* **298**, 787–820.
123. (with G. Dorpalen-Barry and Jang Soo Kim) “Whitney numbers for poset cones”, *Order* **38** (2021), 283–322.
124. (with A. Mason and S. Sridhar) “Cyclic sieving for cyclic codes”, *Finite Fields Appl.* **73** (2021), Paper No. 101846, 12 pp.
125. (with Galen Dorpalen-Barry and Polymath Jr.) Filtering cohomology of ordinary and Lagrangian Grassmannians, *Involve* **15** (2022), 271–288.
126. (with E. Bullock, A. Kelley, K. Ren, G. Shemy, D. Shen, B. Sun, Z. Zhang); Topology of Augmented Bergman Complexes. *Electron. J. Combin.* **29** (2022), Paper No. 1.31.
127. (with A. Adams) “Stanley-Reisner rings equivariantly described and a colorful Hochster formula”, *J. Commut. Algebra* **15** (2023), no. 2, 151–176.
128. (with S. Brauner and P. Commins) “Invariant theory for the free left-regular band and a  $q$ -analogue”. *Pacific J. Math.* **322** (2023), no. 2, 251–280.
129. (with Ayah Almousa, Michael Perlman, Alexandra Pevzner, Keller VandeBogert) “Equivariant resolutions over Veronese rings”, *J. London Math. Soc.* **109** (2024), 39pp.

**To appear:** (none currently)

**Submitted:** (none currently)

**In preparation:**

(with R. Angarone and A. Nathanson) “Chow rings of matroids as permutation representations”, arXiv:2309.14312

(with D. Smith) “Sandpile groups for cones over trees”, arXiv:2402.15453

(with H. Burson) “A  $q$ -Lucas Littlewood Lemma”.

(with M. Aguiar and S. Brauner) “Configuarion spaces and peak representations”

**Book editing:** (with P. Hersh, T. Lam, P. Pylyavskyy) “Selected works of Richard P. Stanley”, Amer. Math. Soc., 2017.

(with P. Hersh, T. Lam, P. Pylyavskyy) “The mathematical legacy of Richard P. Stanley”, Amer. Math. Soc., 2016.

(with E. Miller and B. Sturmfels) “Geometric combinatorics: lectures from the Park City Math Institute Summer School 2004” IAS/Park City Mathematics Series **13**, Amer. Math. Soc., 2007.

**Journal volumes:** (with E. Koelink and M. Ismail) “A tribute to Dennis Stanton” *Adv. in Appl. Math.* **46** (2011), no. 1-4, 114.

**Book chapter:** (with K. Fowler) “Recommended resources in combinatorics”, in *Using the mathematics literature*, Kris Fowler, ed. Marcel-Dekker, New York, 2004.

**Book reviews:** Review of “Combinatorics of minuscule representations” by R.M. Green, or *Bull. Lond. Math. Soc.* **47** (2015), 370–374.



## Graduate Students

### Masters Level:

Debbie M. Zollinger, defended April 1994  
Thesis title: Equivalence classes of reduced words.

Michelle Raymond, defended June 1998.  
Thesis title: Posets of rook placements on rectangular boards.

Sam Peterson, defended June 2000  
(co-advisors: Paul Edelman, and James Stout of Univ. Minnesota Geology Department).  
Thesis title: Oriented matroid analysis of thermochemical reaction systems.

Ádám Galambos, defended June 2004  
Thesis title: Acyclic sets of linear orders.

### Doctoral Level:

#### *Past:*

1. Guy David Bailey, defended March 1997.  
Thesis title: Tilings of zonotopes- discriminantal arrangements, oriented matroids, and enumeration.
2. Xun Dong, defended June 2001.  
Thesis title: The topology of bounded-degree graph complexes and finite free resolutions.
3. Nathan Reading, defended April 2002.  
Thesis title: On the structure of Bruhat order.  
(2002 Dept. Outstanding Thesis prize)
4. Kyle Calderhead, defended May 2002.  
Thesis title: Variations on the slopes problem.
5. Muge Taskin, defended May 2006.  
Thesis title: Properties of four partial orders on standard Young tableaux.
6. Sangwook Kim, defended July 2007.  
Thesis title: Topology of diagonal arrangements and flag enumerations of matroid base polytopes.
7. Molly Maxwell, defended September 2007.  
Thesis title: Enumerating self-dual spanning trees and self-dual matroid bases.
8. Brendon Rhoades, defended June 2008.  
Thesis title: Cyclic sieving and promotion.
9. Andrew Berget, defended August 2009.  
Thesis title: Symmetries of tensors.
10. Patrick Byrnes, defended November 2012. Thesis title: Structural aspects of differential posets.

11. Alex R. Miller, defended August 2013.  
Thesis title: Reflection arrangements and ribbon representations.
12. Jia Huang, defended August 2013.  
Thesis title: 0-Hecke algebra actions on flags, polynomials and Stanley-Reisner rings.
13. Sebastian A. Csar, defended July 2014.  
Thesis title: Root and weight semigroup rings for signed posets
14. Rob Edman, defended May 2015.  
Thesis title: Diameter and coherence of monotone path graphs
15. Kevin Dilks, defended August 2015.  
Thesis title: Involutions on Baxter Objects, and q-gamma nonnegativity
16. Theodosios Douvropoulos, Thesis title: Applications of geometric techniques in Coxeter-Catalan combinatorics, defended August 2017.
17. Eric Stucky, Thesis title: Cyclic Actions in Combinatorial Invariant Theory, defended June 2021.
18. Galen Dorpalen-Barry, Thesis title: Cones of Hyperplane Arrangements, defended July 2021.
19. Sarah Brauner, Thesis title: Symmetries of Rings From Combinatorics and Configuration Spaces , defended May 2023

*Current:*

(Elise DelMas, completed preliminary oral exam summer 2015, on hiatus).

Sasha Pevzner, completed preliminary oral exam fall 2021.

Patty Commins, completed preliminary oral exam fall 2021.

Trevor Karn, completed preliminary oral exam spring 2022.

Dorian Smith, completed preliminary oral exam summer 2023.

Anastasia Nathanson, completed preliminary oral exam summer 2023

Elise Catania, completed preliminary oral exam fall 2023

**Other grad student mentorship**

Dumitru Stamate, Fulbright scholar from Romania, 2006-2008

## Postdoctoral mentorship

### *Past:*

Jesus de Loera, Geometry Center postdoc, 1996–1998.

Woong Kook, Univ. of Minnesota postdoc, 1997–1998.

Mark de Longueville, Minnesota Dunham Jackson asst. prof., 2000–2001.

Geanina Tudose, NSERC postdoc, 2002.

Tamon Stephen, IMA postdoc, 2003-2004.

Jeremy Martin, NSF postdoc, 2002–2004.

Michael Develin, AIM Fellow, 2004-2005.

Alex Yong, NSERC postdoc and Minnesota Dunham Jackson asst. prof., 2005-2007.

Drew Armstrong, NSF postdoc, 2006 – 2008.

Sen-Peng Eu, Taiwanese postdoctoral fellowship, 2006–2007

Ben Howard, IMA postdoc, 2006–2007.

Milena Hering, IMA postdoc, 2006–2008.

Ricky Liu, NSF postdoc, 2010–2011.

Jed Yang, NSF RTG postdoc, 2013–2016.

Zach Hamaker, IMA postdoc, 2014-2016.

Brendan Pawlowski, Univ. of Minnesota postdoc, 2014-2015.

Joel Lewis, NSF RTG postdoc, 2012–2014, NSF Postdoc, 2014-2017.

Lukas Katthän, German DFG Fellow, 2016-2017.

Nick Early, NSF RTG postdoc, 2017-2018.

Darij Grinberg, Minnesota Dunham Jackson asst. prof., 2016-2019.

Sam Hopkins, NSF postdoc, 2018-2021.

Hannah Burson, visiting postdoc 2020-2023.

### *Current:*

Ayah Almousa, RTG postdoc 2021-2022, PFP postdoc 2022-2024

### **Research with undergraduates**

Since 2000, I have mentored roughly 100 undergraduates in REU's, solo or in some cases, co-mentored with some combination of my colleagues Christine Berkesch, Ben Brubaker, Gregg Musiker, Pasha Pylyavskyy, and Dennis Stanton. I have also advised several undergrad Latin Honors Theses. See reports on all of these at

[www.math.umn.edu/~reiner/REU/REU.html](http://www.math.umn.edu/~reiner/REU/REU.html)

[www.math.umn.edu/~reiner/HonorsTheses/honors\\_theses.html](http://www.math.umn.edu/~reiner/HonorsTheses/honors_theses.html).

### **Personal**

Born April 30, 1965 in Utica, NY.