

Vincent Vatter

CONTACT INFORMATION

Department of Mathematics
University of Florida
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EDUCATION

Rutgers University, New Brunswick, New Jersey USA
Ph.D., Mathematics, January 2006
Dissertation: The structure and enumeration of permutation classes
Advisor: Prof. Doron Zeilberger

Michigan State University, East Lansing, Michigan USA
B.S. with honors, Mathematics, August 2001

APPOINTMENTS

University of Florida, Gainesville, Florida, USA
University Term Professor, 2017–present
Associate Professor, 2014–present
Assistant Professor, 2010–2014

Dartmouth College, Hanover, New Hampshire, USA
John Wesley Young Research Instructor, 2008–2010

DIMACS, Piscataway, New Jersey, USA
Visiting Researcher, 2007–2008

University of St Andrews, St Andrews, Fife, Scotland
Research Fellow, 2005–2007

PUBLICATIONS

Significant publications are marked with boxes.

56. **Containing all permutations**, preprint. With Michael Engen.
55. **An elementary proof of Bevan’s theorem on the growth of grid classes of permutations**, *Proceedings of the Edinburgh Mathematical Society*, to appear. With Michael Albert.
54. **On the growth of merges and staircases of permutation classes**, *Rocky Mountain Journal of Mathematics*, to appear. With Michael Albert and Jay Pantone.
53. **Growth rates of permutation classes: categorization up to the uncountability threshold**, *Israel Journal of Mathematics*, to appear. With Jay Pantone.
52. **Growth rates of permutation classes: from countable to uncountable**, *Proceedings of the London Mathematical Society*, to appear.
51. **On the dimension of downsets of integer partitions and compositions**, *Australasian Journal of Combinatorics*, to appear. With Michael Engen.
50. **Rationality for subclasses of 321-avoiding permutations**, *European Journal of Combinatorics*, **78** (2019), 44–72. With Michael Albert, Robert Brignall, and Nik Ruškuc.
49. **A counterexample regarding labelled well-quasi-ordering**, *Graphs and Combinatorics*, **34**, no. 6 (2018), 1395–1409. With Robert Brignall and Michael Engen.
48. **Universal layered permutations**, *Electronic Journal of Combinatorics*, **25 (3)** (2018), Paper #P3.23, 5 pp. With Michael Albert, Michael Engen, and Jay Pantone.

47. **Generating permutations with restricted containers**, *Journal of Combinatorial Theory Series A*, **157** (2018), 205–232. With Michael Albert, Cheyne Homberger, Jay Pantone, and Nathaniel Shar.
46. **Linear clique-width for hereditary classes of cographs**, *Journal of Graph Theory*, **84**, no. 4 (2017), 501–511. With Robert Brignall and Nicholas Korpelainen.
45. **The complexity of pattern matching for 321-avoiding and skew-merged permutations**, *Discrete Mathematics & Theoretical Computer Science*, **18**, no. 2 (2016), 17 pp. With Michael Albert, Marie-Louise Lackner, and Martin Lackner.
44. **An Erdős–Hajnal analogue for permutation classes**, *Discrete Mathematics & Theoretical Computer Science*, **18**, no. 2 (2016), 5 pp.
43. **On the effective and automatic enumeration of polynomial permutation classes**, *Journal of Symbolic Computation*, **76** (2016), 84–96. With Cheyne Homberger.
42. **Pattern-avoiding involutions: exact and asymptotic enumeration**, *Australasian Journal of Combinatorics*, **64** (2016), 88–119. With Miklós Bóna, Cheyne Homberger, and Jay Pantone.
41. **Two vignettes on full rook placements**, *Australasian Journal of Combinatorics*, **64** (2016), 77–87. With Jonathan Bloom.
40. **A simple proof of a theorem of Schmerl and Trotter for permutations**, *Journal of Combinatorics*, **6** (2015), 47–54. With Robert Brignall.
39. **Well-quasi-order for permutation graphs omitting a path and a clique**, *Electronic Journal of Combinatorics*, **22 (2)** (2015), Paper #P2.20, 21 pp. With Aistis Atminas, Robert Brignall, Nicholas Korpelainen, and Vadim Lozin.
38. **Permutation classes**, in *Handbook of Enumerative Combinatorics*, Miklós Bóna, ed. CRC Press (2015), 754–833.
37. **Inflations of geometric grid classes of permutations**, *Israel Journal of Mathematics*, **205** (2015), 73–108. With Michael Albert and Nik Ruškuc.
36. **On the Rearrangement Conjecture for generalized factor order over \mathbb{P}** , *Discrete Mathematics & Theoretical Computer Science*, proceedings of FPSAC 2014, (2014), 217–228. With Jay Pantone.
35. **A stack and a pop stack in series**, *Australasian Journal of Combinatorics*, **58(1)** (2014), 157–171. With Rebecca Smith.
34. **Inflations of geometric grid classes: three case studies**, *Australasian Journal of Combinatorics*, **58(1)** (2014), 27–47. With Michael Albert and Mike Atkinson.
33. **Geometric grid classes of permutations**, *Transactions of the American Mathematical Society*, **365** (2013), 5859–5881. With Michael Albert, Mike Atkinson, Mathilde Bouvel, and Nik Ruškuc.
32. **Large infinite antichains of permutations**, *Pure Mathematics and Applications (Pu.M.A.)*, **24** (2013), 47–57. With Michael Albert and Robert Brignall.
31. **Generating and enumerating 321-avoiding and skew-merged simple permutations**, *Electronic Journal of Combinatorics*, **20 (2)** (2013), P44, 11 pp. With Michael Albert.
30. **Finding regular insertion encodings for permutation classes**, *Journal of Symbolic Computation*, **47** (2012), 259–265.
29. **Counting $(3 + 1)$ -avoiding permutations**, *European Journal of Combinatorics*, **33** (2012), 49–61. With Mike Atkinson and Bruce Sagan.
28. **On points drawn from a circle**, *Electronic Journal of Combinatorics*, **18 (1)** (2011), P223, 10 pp. With Steve Waton.
27. **Small permutation classes**, *Proceedings of the London Mathematical Society*, **103** (2011), 879–921.
26. **Subclasses of the separable permutations**, *Bulletin of the London Mathematical Society*, **43** (2011), 859–870. With Michael Albert and Mike Atkinson.

25. **Simple extensions of combinatorial structures**, *Mathematika*, **57** (2011), 193–214. With Robert Brignall and Nik Ruškuc.
24. **On partial well-order for monotone grid classes of permutations**, *Order*, **28** (2011), 193–199. With Steve Waton.
23. **Maximal independent sets and separating covers**, *American Mathematical Monthly*, **118** (2011), 418–423.
22. **On convex permutations**, *Discrete Mathematics*, **311** (2011), 715–722. With Michael Albert, Steve Linton, Nik Ruškuc, and Steve Waton.
21. **Problems and conjectures presented at the problem session**, in *Permutation Patterns*, Steve Linton, Nik Ruškuc, and Vincent Vatter, ed. Cambridge University Press (2010), 339–344.
20. **Small configurations in simple permutations**, *European Journal of Combinatorics*, **31** (2010), 1781–1784.
19. **Permutation classes of every growth rate above 2.48188** , *Mathematika*, **56** (2010), 182–192.
18. **Counting 1324, 4231-avoiding permutations**, *Electronic Journal of Combinatorics*, **16** (1) (2009), Research article 135, 9 pp. With Michael Albert and Mike Atkinson.
17. **Almost avoiding permutations**, *Discrete Mathematics*, **309** (2009), 6626–6631. With Robert Brignall, Shalosh B. Ekhad, and Rebecca Smith.
16. **The enumeration of permutations sortable by pop stacks in parallel**, *Information Processing Letters*, **109** (2009), 626–629. With Rebecca Smith.
15. **A sharp bound for the reconstruction of partitions**, *Electronic Journal of Combinatorics*, **15** (1) (2008), Note 23, 4 pp.
14. **Reconstructing compositions**, *Discrete Mathematics*, **308** (2008), 1524–1530.
13. **Simple permutations: decidability and unavoidable substructures**, *Theoretical Computer Science*, **391** (2008), 150–163. With Robert Brignall and Nik Ruškuc.
12. **Simple permutations and algebraic generating functions**, *Journal of Combinatorial Theory Series A*, **115** (2008), 423–441. With Robert Brignall and Sophie Huczynska.
11. **Decomposing simple permutations, with enumerative consequences**, *Combinatorica*, **28** (2008), 385–400. With Robert Brignall and Sophie Huczynska.
10. **Enumeration schemes for restricted permutations**, *Combinatorics, Probability, and Computing*, **17** (2008), 137–159.
9. **Maximal and maximum independent sets in graphs with at most r cycles**, *Journal of Graph Theory*, **53** (2006), 283–314. With Bruce E. Sagan.
8. **Maximal independent sets in graphs with at most r cycles**, *Journal of Graph Theory*, **53** (2006), 270–282. With Goh Chee Ying, Koh Khee Meng, and Bruce E. Sagan.
7. **Grid classes and the Fibonacci dichotomy for restricted permutations**, *Electronic Journal of Combinatorics*, **13** (2006), Research article 54, 14pp. With Sophie Huczynska.
6. **The Möbius function of a composition poset**, *Journal of Algebraic Combinatorics*, **24** (2006), 117–136. With Bruce E. Sagan.
5. **Finitely-labeled generating trees and restricted permutations**, *Journal of Symbolic Computation*, **41** (2006), 559–572.
4. **Profile classes and partial well-order for permutations**, *Electronic Journal of Combinatorics* **9** (2) (2003), Research article 17, 30 pp. With Maximillian Murphy.
3. **Bounding quantities related to the packing density of $1(\ell + 1)\ell \dots 2$** , *Advances in Applied Mathematics*, **33** (2004), 633–653. With Martin Hildebrand and Bruce E. Sagan.
2. **Permutations avoiding two patterns of length three**, *Electronic Journal of Combinatorics*, **9** (2) (2003), Research article 6, 19 pp.

POPULAR
MATHEMATICS
WRITING

1. **Pattern frequency sequences and internal zeros**, *Advances in Applied Mathematics*, **28** (2002), 395–420. With Miklós Bóna and Bruce E. Sagan.
2. **Percolating possibilities**, in *50 Visions of Mathematics*, Sam Parc, ed. Oxford University Press (2014). With Colva Roney-Dougal.
1. **Of pancakes, mice, and men**, Plus magazine. With Colva Roney-Dougal.
<https://plus.maths.org/content/pancakes-mice-and-men>

TALKS

Key: ○ = local, ● = contributed, * = invited, □ = keynote

- **Universal permutations**
Undergraduate Mathematics Society, University of Florida, November 28, 2018.
- * **Less appreciated facets of permutation patterns**
Genomics, Pattern Avoidance, and Statistical Mechanics, held at Schloss Dagstuhl, Leibniz-Zentrum für Informatik, Wadern, Germany, November 6, 2018.
- **Substructure-equivalence of combinatorial objects**
Combinatorics Seminar, University of Florida, October 23, 2018.
- **The substitution decomposition of matchings and RNA secondary structures**
Permutation Patterns 2018, held at Dartmouth College, July 13, 2018.
- * **Sorting with restricted containers**
Experimental Mathematics Seminar, Rutgers University, April 27, 2017.
- **An Erdős–Hajnal-type result for permutations**
Combinatorics Seminar, University of Florida, April 11, 2017.
- * **Growth rates of permutation classes: from countable to uncountable**
48th Southeastern International Conference on Combinatorics, Graph Theory & Computing, Florida Atlantic University, March 6, 2017.
- * **Growth rates of permutation classes**
AMS Central Sectional Meeting, University of St. Thomas (Minneapolis), October 29, 2016.
- * **On the growth of grid classes and staircases of permutations**
Workshop on Analytic and Probabilistic Combinatorics, Banff International Research Station, October 25, 2016.
- **Growth rates of permutation classes: from countable to uncountable**
Permutation Patterns 2016, held at Howard University, Washington D.C., June 29, 2016.
- * **Generating permutations with restricted containers**
AMS Southeastern Sectional Meeting, University of Georgia, March 6, 2016.
- * **The substitution decomposition of RNA secondary structures**
Pattern Avoidance and Genome Sorting, held at Schloss Dagstuhl, Leibniz-Zentrum für Informatik, Wadern, Germany, February 15, 2016.
- **An Erdős–Hajnal-type result for permutations**
Permutation Patterns 2015, held at De Morgan House, London, England, June 18, 2015.
- * **Fox’s growth rate theorem**
Permutation Patterns 2015, held at De Morgan House, London, England, June 17, 2015.
- * **Sorting permutations with \mathcal{C} -machines**
AMS Southeastern Sectional Meeting, Georgetown University, March 8, 2015.
- **Maximal independent sets and separating covers**
Combinatorics Seminar, University of Florida, November 6, 2014.
- * **Growth rates of permutation classes**
Pure Mathematics Seminar, University of Melbourne (Australia), August 1, 2014.

- **Strongly/broadly rational/algebraic permutation classes**
Permutation Patterns 2014, held at East Tennessee State University, July 7, 2014.
- **Rational generating functions for 321-avoiding subclasses**
Combinatorics Seminar, University of Florida, October 1, 2013.
- **A structural proof of Stanley-Wilf?**
Permutation Patterns 2013, held at Université Paris Diderot (Paris 7), Paris, France, July 2, 2013.
- * **The Marcus-Tardos resolution of the Füredi-Hajnal and Stanley-Wilf conjectures**
Clemson REU Program, Clemson University, June 10, 2013.
- **Geometric grid classes of permutations**
Graduate Mathematics Association Colloquium, University of Florida, March 27, 2013.
- * **321-avoiding permutations**
Experimental Mathematics Seminar, Rutgers University, March 7, 2013.
- * **Subclasses of the separable permutations**
AMS-MAA Joint Meetings, San Diego, California, January 12, 2013
- **Small permutation classes**
Plenary talk, Permutation Patterns 2012, held at Strathclyde University, Glasgow, Scotland, June 12, 2012.
- * **Enumeration schemes and the insertion encoding**
Experimental Mathematics Seminar, Rutgers University, April 26, 2012.
- **Geometric grid classes of permutations**
Canadian Mathematical Society Winter Meeting, Toronto, Canada, December 11, 2011.
- * **Geometric grid classes of permutations**
26th Clemson Mini-Conference on Discrete Mathematics and Algorithms, Clemson University, October 27, 2011.
- * **Geometric grid classes of permutations**
Pure Mathematics Colloquium, University of St Andrews, Scotland, July 21, 2011.
- **Geometric grid classes of permutations**
23rd British Combinatorial Conference, held at the University of Exeter, England, July 7, 2011.
- * **The structure of permutation classes**
Computer and Information Sciences Seminar, University of Strathclyde, Glasgow, Scotland, June 28, 2011.
- * **Grid classes of permutations**
Experimental Mathematics Seminar, Rutgers University, May 12, 2011.
- * **Geometric grid classes of permutations**
AMS Spring Southeastern Section Meeting, held at Georgia Southern University, March 12, 2011.
- **Rational classes of permutations**
SIAM Conference on Discrete Mathematics, held in Austin, Texas, June 16, 2010.
- **Teaching Shalosh to sort by reversals**
From $A = B$ to $Z = 60$ (Conference in Honor of Doron Zeilberger's 60th Birthday), held at Rutgers University in New Brunswick, New Jersey, May 27, 2010.
- * **Growth rates of permutation classes**
Pure Mathematics Colloquium, University of St Andrews, Scotland, May 20, 2010.
- * **Growth rates of permutation classes**
Joint Combinatorics Seminar, Saint Michael's College & The University of Vermont, March 24, 2010.

- * **Genome rearrangements and simple permutations**
Mathematics Colloquium, University of Florida, February 18, 2010.
- * **Growth rates of permutation classes**
Combinatorics Seminar, University of Florida, February 17, 2010.
- * **Permutation classes with rational generating functions**
Experimental Mathematics Seminar, Rutgers University, December 10, 2009.
- * **Growth rates of permutation classes**
Experimental Mathematics Seminar, Rutgers University, February 26, 2009.
- o **Simple permutations and indecomposable graphs**
Combinatorics Seminar, Dartmouth College, February 5, 2009.
- o **Growth rates of permutation classes**
Mathematics Colloquium, Dartmouth College, October 2, 2008.
- * **On points drawn from a circle**
Summer Combo in Vermont, held at Saint Michael's College in Burlington, Vermont, July 25, 2008.
- **Small permutation classes**
Fifth International Conference on Permutation Patterns, held at the University of St Andrews in Scotland, June 12, 2007.
- **Permutation patterns as an example in the theory of relational structures**
Fourth International Conference on Permutation Patterns, held at Reykjavik University in Iceland, June 12, 2006.
- * **Discrete Morse theory and Möbius functions**
Topology Seminar, University of Texas – Austin, January 23, 2006.
- * **The amazing Loehr-Warrington ten to the power n conjecture**
AMS-MAA Joint Meetings, San Antonio, Texas, January 13, 2006.
- o **Defense of automatic (symbolic!) enumeration**
Experimental Mathematics Seminar, Rutgers University, November 17, 2005.
- o **Maximal independent sets in graphs**
Graduate Student Seminar, Rutgers University, November 16, 2005.
- * **Simple permutations**
Combinatorics and Probability Seminar, University of Pennsylvania, November 14, 2005.
- o **Packing densities of permutations**
REU Seminar, Rutgers University, July 12, 2005.
- * **Enumeration schemes for restricted permutations**
First International Workshop on Permutation Patterns, held at the University of Haifa, in Haifa, Israel, June 1, 2005.
- * **Enumeration schemes for restricted permutations**
CIRCA (Centre for Interdisciplinary Research in Computational Algebra) Seminar, University of St Andrews, Scotland, May 9, 2005.
- **Enumerative and structural applications of profile classes**
Third International Conference on Permutation Patterns, held at the University of Florida in Gainesville, Florida, March 9, 2005.
- o **The structure of permutation ideals**
Graduate Student Combinatorics Seminar, Rutgers University, February 14, 2005.
- o **Packing densities of permutations**
Graduate Student Combinatorics Seminar, Rutgers University, November 17, 2004.

- **Counting restricted permutations by computer**
Experimental Mathematics Seminar, Rutgers University, September 23, 2004.
- **To what extent can restricted permutation counting be automated?**
Second International Conference on Permutation Patterns, held at Malaspina University-College in Nanaimo, British Columbia, Canada, July 5, 2004.
- **Maximal independent sets in graphs with at most r cycles**
Graduate Student Combinatorics Seminar, Rutgers University, April 19, 2004.
- **Well-quasi-ordering and permutations**
Conference on Extremal Combinatorics honoring 200 years of Peter Frankl, Zoltán Füredi, Ervin Györi and János Pach, held at the Rényi Institute in Budapest, Hungary, April 7, 2004.
- **Partial well-order and permutations**
Graduate Student Combinatorics Seminar, Rutgers University, November 10, 2003.
- **Automatic generation of finitely-labeled generating trees for restricted permutations**
Experimental Mathematics Seminar, Rutgers University, October 30, 2003.
- **Restricted permutations**
Introduction to Mathematics at Rutgers, August 31, 2003.
- **Taming sets of permutations**
First International Conference on Permutation Patterns, held at the University of Otago in Dunedin, New Zealand, February 10, 2003.
- * **Partially well-ordered sets of permutations**
Combinatorics and Graph Theory Seminar, Michigan State University, January 6, 2003.
- **Internal zeros in frequency sequences**
Combinatorics and Graph Theory Seminar, Michigan State University, April 10, 2000.

RESEARCH VISITS

- The University of Otago (Dunedin, New Zealand), July–August 2016
- The University of Otago (Dunedin, New Zealand), July–August 2015
- The University of Otago (Dunedin, New Zealand), July–August 2014
- The Open University (Milton Keynes, England), June 2014
- The University of St Andrews (St Andrews, Scotland) and the Open University (Milton Keynes, England), May–June 2013
- The Open University (Milton Keynes, England) and the University of St Andrews (St Andrews, Scotland), May–August 2012
- The University of Otago (Dunedin, New Zealand), January 2012
- The University of St Andrews (St Andrews, Scotland), May–August 2011
- The University of St Andrews (St Andrews, Scotland), May 2010
- The University of Otago (Dunedin, New Zealand), September 2009
- The University of Bristol (Bristol, England) and the University of St Andrews (St Andrews, Scotland), June 2009
- The University of St Andrews (St Andrews, Scotland), May 2005

GRANTS, HONORS, AND AWARDS

- University of Florida Term Professorship Award, 2017–2020.
- *Funded*, PI, Rationality and algebraicity of permutation classes, NSA Award H98230-16-1-0324, \$40,000 for 2016–2018 (2 years).
- *Funded*, PI, Conference on bijective and algebraic combinatorics, NSF Award DMS-1400098, \$12,000 for 2014.
- *Funded*, PI, The structure of permutation classes, NSF Award DMS-1301692, \$159,896 for 2013–2016 (3 years).
- *Funded (not accepted)*, PI, The structure of permutation classes, NSA, \$39,498 for 2013–2015 (2 years).
- *Funded*, Co-investigator, Infinite antichains of combinatorial structures, EPSRC¹ Award EP/J006130/1, £91,200 (\approx \$143,000 at the time) for 2012–2013 (1 year).
PI: Robert Brignall, The Open University, Milton Keynes, England.
- *Funded*, Co-investigator, The structure of permutation classes, EPSRC Award EP/J006440/1, £66,356 (\approx \$104,000 at the time) for 2012–2015 (3 years).
PI: Nik Ruškuc, University of St Andrews, St Andrews, Scotland.
- *Funded*, PI, The structure of permutation classes, NSA Award H98230-12-1-0207, \$40,000 for 2011–2013 (2 years).
- *Funded*, Co-PI, Conference on Permutation Patterns 2010, NSF Award DMS-1003908, \$14,460 for 2010.
PI: Sergi Elizalde, Dartmouth College, Hanover, New Hampshire.
- *Funded (not accepted)*, PI, NSF Postdoctoral Research Fellowship Award DMS-0703620, \$108,000 for 2008–2011 (2 years).
- DIMACS research awards, Summer 2004, Winter 2004, and Summer 2005.
- NSF Graduate Research Fellowship, honorable mention, 2002.
- NSF VIGRE Fellowship, Rutgers University Mathematics Department, 2001 – 2003.
- L.C. Plant Award, Michigan State University Mathematics Department, 2001.
- Herbert T. Graham Scholarship, Michigan State University Mathematics Department, 1999 – 2001.
- Mathematics Contest in Modeling, honorable mention, 1999 and 2000.

ADVISING

- Advisor to Ph.D. students
 - Advisor to Churni Gupta, University of Florida, 2016–present.
 - Advisor to Michael Engen, University of Florida, 2015–present.
 - Advisor to Jay Pantone, Ph.D., University of Florida, 2015. John Wesley Young Research Instructor, Dartmouth College (2015–2018); Assistant Professor, Marquette University (2018–present).
 - Advisor to Aziza Jefferson, Ph.D., University of Florida, 2015. Operations Researcher, Department of Defense (2015–present).
 - Co-advisor to Robert Brignall, Ph.D., University of St Andrews, 2007. Research Fellow, University of Bristol (2007–2010); Lecturer², Open University (2010–2015); Senior Lecturer², Open University (2015–present).
- External examiner for Ph.D. students

¹The Engineering and Physical Sciences Research Council (EPSRC) is roughly the British equivalent to the NSF.

²The British ranks of Lecturer and Senior Lecturer are roughly equivalent to the American ranks of Assistant and Associate Professor, respectively.

- Marie-Louise Bruner, Ph.D., Technische Universität Wien (Vienna University of Technology), 2015.
- Megan Martinez, Ph.D., Dartmouth College, 2015.
- Jonathan Bloom, Ph.D., Dartmouth College, 2014.
- Committee member for Ph.D. students
 - Daniel Gray, Ph.D. University of Florida, 2015.
 - Cheyenne Homberger, Ph.D., University of Florida, 2014.
- Initial graduate mentor to Lei Pan (2011–2013), Victoria Crawford (2012–2014), Jordan Draper (2012–2014), Junie Joseph (2012–2014), Daniel Rose (2012–2014), Anthony Van Duzer (2013–2015), Leo Betthausen (2014–2016), Charles Walker (2014–2016), Jesse Adamski (2015–2017), Ruyue (Julia) Yuan (2015–2017), Andrew Kriehn (2016–).
- University of Florida University Scholars Program mentor for Tim Dwyer (2011–2012) and James Fairbanks (2011–2012).
- Senior honors thesis advisor for Daniel Rose (2011–2012).

PROFESSIONAL
SERVICE

- Conference organization:
 - Member the Organizing Committee for *Permutation Patterns 2018*, held July 9–13, 2018 at Dartmouth College (New Hampshire).
 - Co-chair for the *Enumerative Combinatorics* special session, AMS-MAA Joint Meetings, held January 10–13, 2015 in San Antonio, Texas.
 - Chair of the Organizing Committee for *Bijjective and Algebraic Combinatorics: In Honor of Bruce Sagan's 60th Birthday*, held March 24 & 25, 2014 at the University of Florida.
 - Member of the Program Committee for *Formal Power Series and Algebraic Combinatorics (FPSAC) 2011*, held June 13–17, 2011 in Reykjavík, Iceland.
 - Co-chair of the Organizing Committee for *Permutation Patterns 2010*, held August 9–13, 2010 at Dartmouth College (New Hampshire).
 - Member of the Organizing Committee for *From $A = B$ to $Z = 60$* , a conference in honor of Doron Zeilberger's 60th birthday, held May 27 & 28, 2010 at Rutgers University (New Jersey).
 - Member of the Organizing Committee for *Permutation Patterns 2007*, held June 11–15, 2007 at the University of St Andrews (Scotland).
- Journal refereeing: *Advances in Applied Mathematics*, *Advances in Mathematics*, *Annals of Combinatorics*, *Applicable Analysis and Discrete Mathematics*, *Ars Combinatoria*, the *Australasian Journal of Combinatorics*, *Combinatorica*, *The Computer Journal*, *Discrete Applied Mathematics*, *Discrete Mathematics*, *Discrete Mathematics Algorithms and Applications*, *Discrete Mathematics & Theoretical Computer Science*, *Discussiones Mathematicae Graph Theory*, the *Electronic Journal of Combinatorics*, the *European Journal of Combinatorics*, *FILOMAT*, *Information Processing Letters*, *Involve*, the *Journal of Algebraic Combinatorics*, the *Journal of Combinatorial Theory Series A*, the *Journal of Combinatorics*, the *Journal of Integer Sequences*, the *Journal of Physics A: Mathematical and Theoretical*, the *Journal of Statistical Planning and Inference*, *Mathematics of Computation*, *Mathematics Magazine*, *Notices of the American Mathematical Society*, *Order*, *Proceedings of the American Mathematical Society*, *Pure Mathematics and Applications*, *Séminaire Lotharingien de Combinatoire*, the *Taiwanese Journal of Mathematics*, and *Transactions of the American Mathematical Society*.
- Conference refereeing: ESA (European Symposia on Algorithms), FPSAC (Formal Power Series and Algebraic Combinatorics), IWOCA (International Workshop on Combinatorial Algorithms), LATA (Language and Automata Theory and Applications), and SODA (ACM-SIAM Symposium on Discrete Algorithms).

- Grant reviewing:
 - Grant reviewer for the Initiatives Science Innovation Territoire Economie en Bourgogne-Franche-Comté program (France), 2018.
 - Panel member for the AMS / National Security Agency grants, 2015.
 - Panel member for the National Science Foundation, 2014.
 - EPSRC (United Kingdom) Peer Review College member, 2014–present.
 - Grant reviewer for the Icelandic Research Fund, 2014.
- Miscellaneous reviewing:
 - Book reviewer for the *LMS Newsletter*, 2012.
 - Referee for textbooks published by Birkhauser, Springer, and Wiley, 2015–present.
 - Reviewer for *Mathematical Reviews*, 2004–present.
- Editor of conference proceedings & special issues:
 - Editor (with Robert Brignall and Sergi Elizalde) of *Pure Mathematics and Applications*, vol. 22, no. 2 (2011), containing the proceedings of the conference *Permutation Patterns 2010*.
 - Editor (with Steve Linton and Nik Ruškuc) of the book *Permutation Patterns* (2010), vol. 376 of the London Mathematical Society Lecture Note Series, Cambridge University Press, Cambridge, England, containing the proceedings of the conference *Permutation Patterns 2007*.

DEPARTMENTAL
SERVICE

- Graduate Selection Committee: chair 2015–2017; member 2011–2015 and 2018–present.
- Steering Committee: member 2015–2017.
- Chair Search Committee: member 2017–2018.
- Faculty Search Committee: member 2018–2019.
- Combinatorics Exam Committee: chair 2018–2019; member 2010–2017.
- Graduate Committee: member 2013–2017.
- Robert Long Prize Committee: member 2012–2014.
- Colloquium, Conferences, Visitors, and Travel Committee: member 2010–2015.
- Hiring Plan Committee: member 2016–2017.
- Combinatorics Seminar: organizer 2010–2014, 2015–2016.