

BRIDGET EILEEN TENNER

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EMPLOYMENT

DePaul University <i>Professor</i>	2017 to present
DePaul University <i>Associate Professor</i>	2011 to 2017
DePaul University <i>Assistant Professor</i>	2007 to 2011
Massachusetts Institute of Technology <i>Research Affiliate</i>	2006 to 2007
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Institut Mittag-Leffler <i>Research Visitor, Algebraic and Enumerative Combinatorics Program</i>	2020
Reykjavík University <i>Research Visitor, School of Computer Science</i>	2008, 2009, 2014, 2016
University of Washington <i>Research Visitor, Department of Mathematics</i>	2013
Microsoft Research <i>Research Visitor, Theory Group</i>	2005
Institut Mittag-Leffler <i>Research Visitor, Algebraic Combinatorics Program</i>	2005

EDUCATION

Massachusetts Institute of Technology PhD Mathematics Advisor: Richard P. Stanley	2006
Harvard University AM Mathematics	2002
Harvard University AB Mathematics, <i>magna cum laude</i>	2002

HONORS AND AWARDS

National Science Foundation Research Grant, DMS-2054436	2021 to 2024
Simons Foundation Collaboration Grant	2013 to 2022
Excellence in Research Award, DePaul University, College of Science & Health	2020
Faculty Research & Development Grant, DePaul University, College of Science & Health	2020
Competitive Research Leave, DePaul University, University Research Council	2020

Faculty Research & Development Grant, DePaul University, College of Science & Health	2018
Faculty Research & Development Grant, DePaul University, College of Science & Health	2016
Conference Grant, DePaul University, University Research Council	2013 to 2014
Faculty Research & Development Grant, DePaul University, College of Science & Health	2013
Competitive Research Leave, DePaul University, University Research Council	2013
Competitive Research Grant, DePaul University, University Research Council	2012 to 2013
Faculty Research & Development Grant, DePaul University, College of LA&S	2011
Faculty Research & Development Grant, DePaul University, College of LA&S	2009
Summer Research Stipend, DePaul University, College of Liberal Arts & Sciences	2008
National Science Foundation Postdoctoral Research Fellowship	2007
Sigma Xi, Massachusetts Institute of Technology chapter	2005
National Science Foundation Graduate Research Fellowship	2002 to 2006
Applied Mathematics Fellowship, Massachusetts Institute of Technology	2002 to 2003
Herbert James Alexander Award in Mathematics, Harvard University	2002
Phi Beta Kappa, Alpha Iota chapter	2002
Certificate of Distinction in Teaching, Harvard University	2000
John Harvard Scholarship	1999 to 2002
Harvard College Scholarship	1998 to 1999

RESEARCH INTERESTS

Combinatorics – algebraic, enumerative, and topological

PUBLICATIONS

1. **Boolean intersection ideals of permutations in the Bruhat order**
arXiv:2107.12844
2. **Intersecting principal Bruhat ideals and grades of simple modules** (with V. Mazorchuk)
arXiv:2106.08169
3. **Odd diagrams, Bruhat order, and pattern avoidance** (with F. Brenti and A. Carnevale)
arXiv:2009.08865
4. **Discrete geometry for electoral geography** (with M. Duchin)
arXiv:1808.05860
5. **Interval posets for permutations**
Order, to appear
6. **Interval structures in the Bruhat and weak orders**
Journal of Combinatorics, to appear
7. **Admissible pinnacle orderings** (with Irena Rusu)
Graphs and Combinatorics, Volume 37, 2021, 1205–1214
8. **Sós permutations** (with S. Bockting-Conrad, Y. Kashina, and T. Kyle Petersen)
American Mathematical Monthly, Volume 128, 2021, 407–422
9. **Star factorizations and noncrossing partitions**
Discrete Mathematics, Volume 344, 2021, Article 112428

10. **Forced perimeter in Elnitksy polygons**
Enumerative Combinatorics and Applications, Volume 1, 2021, Article S2R2
11. **The range of repetition in reduced decompositions**
Advances in Applied Mathematics, Volume 122, 2021, Article 102107
12. **Enumerating in Coxeter groups**
Advances in Mathematical Sciences, Proceedings of 2019 AWM Research Symposium, Springer, 2020, 75–82
13. **Broken bricks and the pick-up sticks problem** (with T. Kyle Petersen)
Mathematics Magazine, Volume 93, 2020, 175–185
14. **Tiling-based models of perimeter and area**
Advances in Applied Mathematics, Volume 119, 2020, Article 102059
15. **Accumulation charts for instant-runoff elections** (with G. S. Warrington)
Notices of the American Mathematical Society, Volume 66, 2019, 1793–1799
16. **The pinnacle set of a permutation** (with R. Davis, S. A. Nelson, and T. K. Petersen)
Discrete Mathematics, Volume 341, 2018, 3249–3270
17. **Enumerations relating braid and commutation classes** (with S. Fishel, E. Milićević, and R. Patrias)
European Journal of Combinatorics, Volume 74, 2018, 11–26
18. **Poset edge densities, nearly reduced words, and barely set-valued tableaux** (with V. Reiner and A. Yong)
Journal of Combinatorial Theory, Series A, Volume 58, 2018, 66–125
19. **Parabolic double cosets in Coxeter groups** (with S. C. Billey, M. Konvalinka, T. K. Petersen, and W. Slofstra)
Electronic Journal of Combinatorics, Volume 25, 2018, P1.23
20. **Rhombic tilings and Bott-Samelson varieties** (with L. Escobar, O. Pechenik, and A. Yong)
Proceedings of the American Mathematical Society, Volume 146, 2018, 1921–1935
21. **Prolific permutations and permuted packings: downsets containing many large patterns** (with D. Bevan and C. Homberger)
Journal of Combinatorial Theory, Series A, Volume 153, 2018, 98–121
22. **Sorting permutations: games, genomes, and cycles** (with K. L. M. Adamyk, E. Holmes, G. R. Mayfield, D. J. Moritz, M. Scheepers, and H. C. Wauck)
Discrete Mathematics, Algorithms and Applications, Volume 9, 2017, Article 1750063
23. **Reduced word manipulation: patterns and enumeration**
Journal of Algebraic Combinatorics, Volume 46, 2017, 189–217
24. **Parabolic double cosets in Coxeter groups (extended abstract)** (with S. C. Billey, M. Konvalinka, T. K. Petersen, and W. Slofstra)
Discrete Mathematics and Theoretical Computer Science Proceedings, FPSAC 2016, 2016, 275–286
25. **A balanced Diplomacy tournament** (with A. Ash, J. M. Ash, T. L. McMurry, and A. J. Schwenk)
Journal of Combinatorial Mathematics and Combinatorial Computing, Volume 96, 2016, 245–264

26. **Coincidence among families of mesh patterns** (with A. Claesson and H. Ulfarsson)
Australasian Journal of Combinatorics, Volume 63, 2015, 88–106
27. **Intervals and factors in the Bruhat order**
Discrete Mathematics and Theoretical Computer Science, Volume 17, 2015, 383–396
28. **The depth of a permutation** (with T. K. Petersen)
Journal of Combinatorics, Volume 6, 2015, 145–178
29. **On the expected number of commutations in reduced words**
Australasian Journal of Combinatorics, Volume 62, 2015, 147–154
30. **How to write a permutation as a product of involutions (and why you might care)**
(with T. K. Petersen)
Integers, Volume 13, 2013, A63
31. **Mesh patterns with superfluous mesh**
Advances in Applied Mathematics, Volume 51, 2013, 606–618
32. **Coincidental pattern avoidance**
Journal of Combinatorics, Volume 4, 2013, 311–326
33. **Fingerprint databases for theorems** (with S. C. Billey)
Notices of the American Mathematical Society, Volume 60, 2013, 1034–1039
34. **A combinatorial proof of symmetry among minimal star factorizations**
Discrete Mathematics, Volume 312, 2012, 2482–2490
35. **Repetition in reduced decompositions**
Advances in Applied Mathematics, Volume 49, 2012, 1–14
36. **Derangement frequency in the boolean complex** (with K. Ragnarsson)
Raust, Volume 8, 2011, 43–46
37. **Sort-invariant non-messing-up**
Electronic Journal of Combinatorics, Volume 18(1), 2011, P222
38. **Homology of the boolean complex** (with K. Ragnarsson)
Journal of Algebraic Combinatorics, Volume 34, 2011, 617–639
39. **The γ -vector of a barycentric subdivision** (with E. Nevo and T. K. Petersen)
Journal of Combinatorial Theory, Series A, Volume 118, 2011, 1364–1380
40. **Spotlight tiling**
Annals of Combinatorics, Volume 14, 2011, 553–568
41. **Boolean complexes for Ferrers graphs** (with A. Claesson, S. Kitaev, and K. Ragnarsson)
Australasian Journal of Combinatorics, Volume 48, 2010, 159–173
42. **Boolean complexes and boolean numbers**
Discrete Mathematics and Theoretical Computer Science Proceedings, FPSAC 2010, 2010, 1049–1056
43. **The Möbius function of the permutation pattern poset** (with E. Steingrímsson)
Journal of Combinatorics, Volume 1, 2010, 39–52

44. **Partitioning a planar graph of girth ten into a forest and a matching** (with A. Bassa, J. Burns, J. Campbell, A. Deshpande, J. Farley, M. Halsey, S.-Y. Ho, D. J. Kleitman, S. Michalakis, P.-O. Persson, P. Pylyavskyy, L. Rademacher, A. Riehl, M. Rios, J. Samuel, A. Vijayarathy, and L. Zhao)
Studies in Applied Mathematics, Volume 124, 2010, 213–228
45. **Obtainable sizes of topologies on finite sets** (with K. Ragnarsson)
Journal of Combinatorial Theory, Series A, Volume 117, 2010, 138–151
46. **Domino tiling congruence modulo 4**
Graphs and Combinatorics, Volume 25, 2009, 625–638
47. **Optimizing linear extensions**
SIAM Journal on Discrete Mathematics, Volume 23, 2009, 1450–1454
48. **Homotopy type of the boolean complex of a Coxeter system** (with K. Ragnarsson)
Advances in Mathematics, Volume 222, 2009, 409–430
49. **Relations on generalized degree sequences** (with C. J. Klivans and K. L. Nyman)
Discrete Mathematics, Volume 309, 2009, 4377–4383
50. **Pattern avoidance and the Bruhat order**
Journal of Combinatorial Theory, Series A, Volume 114, 2007, 888–905
51. **A non-messing-up phenomenon for posets**
Annals of Combinatorics, Volume 11, 2007, 101–114
52. **On expected factors in reduced decompositions in type B**
European Journal of Combinatorics, Volume 28, 2007, 1144–1151
53. **Reduced decompositions and permutation patterns**
Journal of Algebraic Combinatorics, Volume 24, 2006, 263–284
54. **The combinatorics of reduced decompositions**
PhD Thesis, Massachusetts Institute of Technology, 2006
55. **Tiling parity results and the holey square solution**
Electronic Journal of Combinatorics, Volume 11(2), 2005, R17

PRESENTATIONS

Algebra/Rep. Theory/Homological Methods Seminar, Universität Stuttgart	December 2021
Perspectives on Permutations, Research Community in Algebraic Comb., ICERM	August 2021
CSH Colloquium, 10th Anniversary Celebration, DePaul University	April 2021
Discrete Mathematics Seminar, University of South Carolina – Columbia	April 2021
Combinatorics Seminar, Michigan State University	March 2021
International Women’s Day Seminar, New Trier High School	March 2021
Joint Seminar, ICE-TCS/GSSI	February 2021
AWM Seminar, Michigan State University	November 2020
Algebra and Combinatorics Seminar, Texas A&M University	October 2020
Institute Seminar, Institut Mittag-Leffler, Sweden	February 2020
Metropolitan Math Club of Chicago	December 2019
Harvard Data Science Review Symposium, Harvard University	October 2019
CDM Research Colloquium, DePaul University	October 2019

REU Invited Lecture, Boise State University	July 2019
Permutation Patterns 2019 (<i>plenary speaker</i>), Zurich, Switzerland	June 2019
George Kitchen Memorial Lecture, Kalamazoo College	May 2019
Mathematics Colloquium, Kalamazoo College	May 2019
Math Club, DePaul University	May 2019
AWM Research Symposium, Rice University	April 2019
Chicago Eng Fun Talk Series, Google, Inc.	March 2019
QED Symposium (<i>plenary speaker</i>), Math Circles of Chicago	December 2018
Departmental Colloquium, University of Illinois at Chicago	November 2018
Rataj Lecture Series in the Mathematical Sciences, Loyola University	October 2018
Algebra & Combinatorics at LaCIM, Conf. for the 50th Anniversary of CRM	September 2018
Tutorial Lectures, Lake Michigan Workshop on Comb. & Graph Theory, Notre Dame	April 2018
Math Club, DePaul University	October 2017
Permutation Patterns 2017, Reykjavík University	June 2017
REU Invited Lecture, Boise State University	June 2017
Research Lecture, Algebraic Combinatorixx 2, Banff International Research Station	May 2017
Permutation Patterns 2016, Howard University	June 2016
Algebra, Geometry, and Combinatorics Seminar, University of Illinois	May 2016
Alumni University Lecture, DePaul University	April 2016
Departmental Colloquium, Michigan Technological University	November 2015
AMS Fall Central Sectional Meeting, two Special Sessions, Loyola University	October 2015
REU Invited Lecture, Boise State University	June 2015
Midwest Combinatorics Conference (<i>invited speaker</i>), University of Minnesota	May 2015
Joint Mathematics Meetings, AMS Special Session, San Antonio, TX	January 2015
Discrete Mathematics Seminar, University of British Columbia, Canada	November 2014
OEIS50/Sloane75 (<i>invited speaker</i>), Rutgers University	October 2014
Mathematics and Actuarial Science Colloquium, Butler University	September 2014
Undergraduate Colloquium in the Mathematical Sciences, Loyola University	September 2014
Applied Mathematics Colloquium, Illinois Institute of Technology	September 2014
Stanley@70, Massachusetts Institute of Technology	June 2014
Mathematics Colloquium, Dartmouth College	April 2014
Algebraic Lie Theory Seminar, University of Colorado	December 2013
Fun Fact Friday, DePaul University	November 2013
Research Colloquium, School of Computing, DePaul University	October 2013
AMS Fall Central Sectional Meeting, Special Session, Washington Univ. in St. Louis	October 2013
Combinatorics Seminar, University of Washington	March 2013
Undergraduate Mathematics Research Colloquium, University of North Texas	January 2013
Millican Colloquium, University of North Texas	January 2013
Joint Mathematics Meetings, AMS Special Session, San Diego, CA	January 2013
MathFest, Combinatorics and Matrices	August 2012
Fun Fact Friday, DePaul University	April 2012
CombinaTexas (<i>plenary speaker</i>), Southwestern University	April 2012
Algebra, Geometry, and Combinatorics Seminar, University of Illinois	April 2012
Joint Mathematics Meetings, MAA Invited Paper Session, Boston, MA	January 2012

Poster Session, Algebraic Combinatorixx, Banff International Research Station	May 2011
Mathematics Colloquium, University of Virginia	December 2010
WILDCATS Seminar, University of Kentucky	October 2010
Algebra Seminar, DePaul University	October 2010
Poster Session, Formal Power Series and Algebraic Combinatorics, San Francisco	August 2010
Algebraic Geometry Seminar, University of Iowa	April 2010
Combinatorics Seminar, University of Wisconsin	November 2009
Combinatorics Seminar, Massachusetts Institute of Technology	October 2009
Combinatorics Seminar, Reykjavík University, Iceland	August 2009
Women in Mathematics Lecture Series, Massachusetts Institute of Technology	May 2009
Mathematics Colloquium, City College of New York	March 2009
Mathematics Colloquium, Wellesley College	March 2009
Student Seminar, Wellesley College	March 2009
Combinatorics Seminar, Massachusetts Institute of Technology	December 2008
Mathematics Colloquium, Tufts University	December 2008
Midwest Graph Theory Conference, Illinois Institute of Technology	November 2008
Algebra Seminar, University of Illinois at Chicago	October 2008
Combinatorics Seminar, University of Illinois at Chicago	October 2008
Combinatorics Seminar, Reykjavík University, Iceland	July 2008
ICE-TCS Research Seminar, Reykjavík University, Iceland	June 2008
AMS Spring Central Section Meeting, Special Session, Indiana University	April 2008
Combinatorics Seminar, University of Michigan	February 2008
Introductory Workshop on Combinatorial Representation Theory, MSRI	January 2008
Graph Theory & Combinatorics Seminar, University of Illinois	October 2007
Combinatorics Seminar, Indiana University	October 2007
Special Combinatorics Seminar, University of Wisconsin	January 2007
Mathematics Colloquium, DePaul University	January 2007
Applied Mathematics Seminar, Illinois Institute of Technology	November 2006
Combinatorics Seminar, University of Illinois at Chicago	November 2006
ICE-TCS Research Seminar, Reykjavík University, Iceland	January 2006
Theory Group Seminar, Microsoft Research, Seattle, Washington	October 2005
Combinatorics Seminar, University of Washington	October 2005
Combinatorics Seminar, University of California, Berkeley	September 2005
Discrete Geometry and Combinatorics Seminar, Cornell University	September 2005
Poster Session, Formal Power Series and Algebraic Combinatorics, Italy	June 2005
Institute Seminar, Institut Mittag-Leffler, Sweden	April 2005
P-doc Seminar, Institut Mittag-Leffler, Sweden	April 2005
Combinatorics Seminar, Massachusetts Institute of Technology	September 2004

OFFICIAL POSITIONS IN PROFESSIONAL ORGANIZATIONS

Joint Mathematics Meetings 2022, Seattle	2021 to present
<i>Special Session Organizer</i>	

Order <i>Editorial Board Member</i>	2020 to present
National Alliance for Doctoral Studies in the Mathematical Sciences <i>Mentor</i>	2020 to present
Annals of Combinatorics <i>Editorial Board Member</i>	2019 to present
Formal Power Series and Algebraic Combinatorics 2022, Bangalore, India <i>Organizing Committee Member</i>	2019 to present
Mathematical Association of America's Mathematical Communication <i>Editorial Board Member</i>	2016 to present
Formal Power Series and Algebraic Combinatorics <i>Executive Committee Member</i>	2015 to present
Association for Women in Mathematics Mentor Network <i>Mentor</i>	2014 to present
Research Community in Algebraic Combinatorics, ICERM <i>Group Leader</i>	2021 to 2022
Formal Power Series and Algebraic Combinatorics 2017, London, England <i>Session Chair</i>	2017
Algebraic Combinatorixx 2, Banff, Canada <i>Group Leader</i>	2016 to 2017
Formal Power Series and Algebraic Combinatorics 2016, Vancouver, Canada <i>Program Committee Member</i>	2014 to 2016
Formal Power Series and Algebraic Combinatorics 2014, Chicago, Illinois <i>Conference Chair</i> <i>Session Chair</i>	2011 to 2014
Formal Power Series and Algebraic Combinatorics 2013, Paris, France <i>Program Committee Member</i> <i>Session Chair</i>	2011 to 2013
AMS 2010 Fall Central Section Meeting, University of Notre Dame <i>Special Session Organizer</i> <i>Session Chair</i>	2010
Midwest Graph Theory Conference <i>Session Chair</i>	2008

PROFESSIONAL ACTIVITIES & SERVICE

Journal, grant, and conference referee

Advances in Applied Mathematics; Advances in Mathematics; Annals of Combinatorics; Australasian Journal of Combinatorics; Discrete Mathematics; Electronic Journal of Combinatorics; European Journal of Combinatorics; Graphs and Combinatorics; Icelandic Research Fund; International Conference on Formal Power Series and Algebraic Combinatorics; Italian Journal of Pure and Applied Mathematics; Journal of Algebraic Combinatorics; Journal of Combinatorial Theory, Series A; Journal of Combinatorics; Journal of Integer Sequences;

Natural Sciences and Engineering Research Council of Canada; National Security Agency; Notices of the American Mathematical Society; Order; Rocky Mountain Journal of Mathematics; SIAM Journal of Discrete Mathematics

Research advisor

Doctoral student	2017 to present
Master's degree student	2016
Undergraduate Summer Research Program participants	2011, 2012

Database of Permutation Pattern Avoidance 2005 to present

<http://math.depaul.edu/bridget/patterns.html>
Creator and Maintainer

Service – DePaul University

Faculty Committee on Appeals	2019 to present
SafeZone Ally	2012 to present
Committee on Learning and Teaching	2015 to 2018
Grade Challenge Review Board	2011 to 2017
Committee on Conflict of Interest in Sponsored Projects	2015 to 2017
Stonewall Awards Selection Committee	2015 to 2016
Academic Integrity Board	2010 to 2013

Service – DePaul University College of Science and Health

CSH Promotion and Tenure Committee	2017 to present
Curriculum Committee	2014 to 2019
Editorial Board Member, <i>DePaul Discoveries</i>	2014 to 2018
Committee to Recognize Distinguished Teaching	2015 to 2016
<i>Committee Chair</i>	2015 to 2016

Service – DePaul University Department of Mathematics

Diversity, Equity, and Inclusion Committee	2020 to present
Advising Committee	2018 to present
Promotion and Tenure Committee	2017 to present
<i>Committee Chair</i>	
MAMEd Committee	2015 to 2019
Adjunct Personnel Committee	2016 to 2017
Mathematics Tutoring Room	2015 to 2017
<i>Coordinator</i>	
Scholarship Committee	2013 to 2017
Faculty Search Committee	2015 to 2016
Assessment Committee	2014 to 2015
MS in Pure Mathematics Committee	2013 to 2015
Website Design Committee	2012 to 2015
Discrete Mathematics Co-Coordinator	2011 to 2013
Undergraduate Curriculum Committee	2007 to 2012
<i>Committee Chair</i>	2008 to 2010, 2011 to 2012
Library Committee	2009 to 2012
Computer Usage Committee	2007 to 2009

Committee Chair

2008 to 2009

TEACHING EXPERIENCE

DePaul University	2007 to present
Calculus I, II, and III; Calculus with Integrated Precalculus I, II, and III; Calculus for Mathematics Teachers I and III; College Algebra & Precalculus; Combinatorics; Discrete Mathematics I and II; Foundations of Mathematics for Elementary Teachers I and II; Intermediate Algebra; Introduction to Mathematical Reasoning (<i>traditional and IBL</i>); Introduction to Quantitative Reasoning; Linear Algebra; Mathematical Pedagogy: Theory and Practice (<i>seminar</i>); Multivariable Calculus I and II; Quantitative Reasoning & Technological Literacy I; Precalculus; Research in Combinatorics; Theory of Numbers; Topics in Calculus and Differential Equations; Topics in Combinatorics; Topics in Discrete Mathematics; Topology (<i>IBL</i>); Trigonometry	
<i>Course development:</i> Mathematics and Politics	
<i>DePaul Online Teaching Series</i>	2020-2021
<i>Finding Balance Learning Community</i>	2020-2021
New Trier High School	2006 to 2007
AP Calculus AB; Algebra II	
Massachusetts Institute of Technology	2003 to 2004
Calculus; Linear Algebra	
Seminars for Endorsement in Science And Mathematics Education	2001 to 2003
Algebra; Number Theory; Probability	
Harvard University	1999 to 2002
Calculus, Series & Differential Equations; Linear Algebra & Differential Equations; Multivariable Calculus	

PERSONAL INFORMATION

Professional singer
 Church of the Ascension, Chicago
 Bella Voce, Chicago
 Trinity Church, Boston

Interviewer, Harvard College Admissions

Volunteer, Evanston Hospital Infant Special Care Unit

Citizen of the United States of America