

Bennet Goeckner

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Seattle, WA 98195

PROFESSIONAL EXPERIENCE **University of Washington**
Postdoctoral Scholar/Acting Assistant Professor, September 2018–Present

EDUCATION **University of Kansas**
Ph.D. in Mathematics, 2018
M.A. in Mathematics, 2015
Washington University in St. Louis
A.B. in Mathematics, 2011

AWARDS 2019–2022 AMS-Simons Travel Grant
2018 Florence Black Award for Excellence in Teaching
University of Kansas
2016 Paul F. Conrad Scholarship for Academic Merit
University of Kansas

RESEARCH ARTICLES *Minkowski summands of cubes.* Joint with F. Castillo, J. Doolittle, M.S. Ross, and L. Ying. Submitted for publication. [arXiv:2009.07252](https://arxiv.org/abs/2009.07252)

Lattice polytopes from Schur and symmetric Grothendieck polynomials. Joint with M.M. Bayer, S. Hong, T. McAllister, M. Olsen, C. Pinckney, J. Vega, and M. Yip. Submitted for publication. [arXiv:2005.09628](https://arxiv.org/abs/2005.09628)

Partition and Cohen–Macaulay extenders. Joint with J. Doolittle and A. Lazar. Submitted for publication. [arXiv:1911.12791](https://arxiv.org/abs/1911.12791)

Resolving Stanley’s conjecture on k -fold acyclic complexes. Joint with J. Doolittle. Submitted for publication. [arXiv:1811.08518](https://arxiv.org/abs/1811.08518)

Manifold matching complexes. Joint with M.M. Bayer and M. Jelić Milutinović. *Mathematika* 66(4), (2020), 973–1002.

Higher nerves of simplicial complexes. Joint with H. Dao, J. Doolittle, K. Duna, B. Holmes, and J. Lyle. *Algebraic Combinatorics*, Volume 2 (2019) no. 5, 803–813.

Universal partial words over non-binary alphabets. Joint with C. Groothuis, C. Hettle, B. Kell, P. Kirkpatrick, R. Kirsch, and R. Solava. *Theoretical Computer Science* 713 (2018), 56–65.

A non-partitionable Cohen–Macaulay simplicial complex. Joint with A.M. Duval, C.J. Klivans, and J.L. Martin. *Advances in Mathematics* 299 (2016), 381–395.

The symbol † indicates a course with a significant **active learning** component.

University of Washington

Course Instructor

- Math 300 (Introduction to Mathematical Reasoning) – Autumn 2019
- Math 308 (Matrix Algebra) – Autumn 2018, Winter 2019, Spring 2019†
- Math 407 (Linear Optimization) – Winter 2021 (Upcoming)
- Math 409 (Discrete Optimization) – Spring 2021 (Upcoming)
- Math 441 (Topology) – Summer 2019 (Co-instructed with Jonathan Beardsley)
- Math 445 (Geometry for Teachers) – Summer 2019†
- Math 461 (Combinatorial Theory I) – Winter 2020†
- Math 462 (Combinatorial Theory II) – Spring 2020
- Math 600 (Graduate Reading Course) – “Oriented Matroids” Winter 2020

Undergraduate Research Mentor

- “Matching graphs,” two students, Fall 2019–Present
 - *Iterated matching graphs* by Fran Herr and Legrand Jones (submitted)
 - *A characterization of two-dimensional Buchsbaum matching complexes*, joint with Herr, Jones, and Rowan Rowlands (in preparation)
- “Powers of higher nerves,” three students, Spring 2019
 - **SageMath** code to efficiently compute powers of higher nerves by Madeline Brown, Spencer Kraiser, and Zhongyan Wang

University of Kansas

Course Instructor

- Math 101 (College Algebra) – Spring 2013
- Math 115 (Calculus I) – Fall 2012, Spring 2014
- Math 121 (Calculus I) – Summer 2014, Fall 2015

Teaching Assistant

- Math 121 (Calculus I) – Fall 2013, Fall 2014
- Math 122 (Calculus II) – Spring 2015
- Math 126 (Calculus II) – Spring 2016, Fall 2016, Spring 2018
- Math 127 (Calculus III) – Spring 2017
- Math 147 (Honors Calculus III) – Fall 2017

Graduate Research Consultant

- Math 145 (Honors Calculus I) – Fall 2017†

Type polytopes and products of simplices

- AMS Special Session on Algebraic, Geometric and Topological Combinatorics, Fall Central Sectional Meeting, September 2020 (Online)

Partition and Cohen–Macaulay extenders

- Applied Combinatorial Topology Minisymposium, 8th European Congress of Mathematics, University of Primorska, Slovenia, July 2020 (Postponed)
- Combinatorics Seminar, University of Kansas, February 2020

Manifold matching complexes

- AMS Special Session on Research from the Rocky Mountain-Great Plains Graduate Research Workshop in Combinatorics, Joint Mathematics Meetings, Denver, Colorado, January 2020
- Mathematics Colloquium, Western Washington University, January 2020
- Mathematics Colloquium, Seattle University, November 2019

Resolving Stanley's conjecture on k -fold acyclic complexes

- AMS Special Session on Geometric and Topological Combinatorics, [University of Florida](#), November 2019
- Discrete Math Seminar, [University of British Columbia](#), September 2019
- AMS Special Session on Algebraic and Geometric Combinatorics, [University of Hawaii](#), March 2019
- Combinatorics and Geometry Seminar, [University of Washington](#), October 2018

Decompositions of simplicial complexes

- Undergraduate Mathematics Conference, [Creighton University](#), October 2017
- AMS Special Session on Geometric and Combinatorial Commutative Algebra, [University of North Texas](#), September 2017
- Combinatorics Seminar, [Kansas State University](#), March 2017
- Math Club, [Washington University in St. Louis](#), November 2015

A non-partitionable Cohen–Macaulay complex

- Algebra-Geometry-Combinatorics Seminar, [University of Illinois, Urbana-Champaign](#), February 2017
- Discrete Math Seminar, [University of Nebraska–Lincoln](#), September 2016
- Combinatorics Seminar, [University of Miami](#), October 2015
- AMS Special Session on Enumerative and Algebraic Combinatorics, [Loyola University Chicago](#), October 2015
- Convex Geometry Summer School, [Berlin Mathematical School](#), June 2015

CONFERENCE
ORGANIZATION

Co-organizer of Geometric and Topological Combinatorics Mini-symposium (with Isabella Novik), SIAM Conference on Discrete Mathematics 2020. (Postponed)

Organizing Committee Chair, Graduate Student Combinatorics Conference 2017

- Funded in part by NSF Grant DMS-1700464 (\$17,000) and the Combinatorics Foundation (\$5,000)
- 107 participants in attendance from 47 institutions

SERVICE AND
OUTREACH

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|----------------|---|
| 2020–Present | UW Math Department Graduate Admissions Committee |
| 2020 | Graduate Online Combinatorics Colloquium Panelist |
| 2019–Present | UW Math Department Diversity Committee |
| 2019–Present | UW Evidence-Based Teaching Program |
| 2019 | University of Washington Math Hour Olympiad Judge |
| 2017–Present | Science Mentor, <i>Frontiers for Young Minds, Mathematics</i> |
| 2016, 2017 | Math Awareness Month Workshop Lead Organizer University of Kansas |
| 2014–2017 | Vice President of Mathematics Graduate Student Organization University of Kansas |
| 2014, '15, '18 | Math Awareness Month Workshop Volunteer University of Kansas |