

AMY WIEBE

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University of British Columbia Okanagan Kelowna, British Columbia, Canada

EDUCATION

- 2019 **PhD in Mathematics**
University of Washington, Seattle
Advisor: Rekha Thomas, Thesis: *Realization spaces of polytopes and matroids*
- 2013 **MSc in Mathematics**
Simon Fraser University, Canada
Advisor: Jonathan Jedwab, Thesis: *Constructions of complex equiangular lines*
- 2010 **BSc in Mathematics**
Simon Fraser University, Canada
First Class Honours

ACADEMIC POSITIONS

- Sept 2022 – Assistant Professor, Department of Computer Science, Mathematics, Physics and Statistics,
University of British Columbia Okanagan, Canada
- Sept 2021 – Sept 2022 PIMS/NSERC Postdoctoral Fellow, *Simon Fraser University, Canada*
- Oct 2019 – Sept 2021 BMS Dirichlet Postdoctoral Fellow, *Freie Universität Berlin, Germany*

AWARDS

- 2021 – 2024 PIMS Postdoctoral Fellowship
- 2021 – 2023 NSERC Postdoctoral Fellowship
- 2018 Douglas Lind Fellowship, University of Washington
- 2015 Excellence in Teaching award, University of Washington
- 2015 – 2017 NSERC Canada Graduate Scholarship - Doctoral (offered),
NSERC Postgraduate scholarship - Doctoral (held)
- 2014 – 2016 McFarland Fellowship, University of Washington
- 2014 Dean's Convocation Medal, Simon Fraser University
- 2013 Graduate Fellowship, Simon Fraser University
- 2011 – 2012 CD Nelson Entrance Scholarship, Simon Fraser University
- 2011 Provost's Prize of Distinction, Simon Fraser University
- 2011 NSERC Canada Graduate Scholarship - Master's
- 2010, 2008, 2007 NSERC Undergraduate Student Research Award
- 2009 Ken & Su Jang Women in Science Scholarship, Simon Fraser University
- 2008 Goel Memorial Scholarship, Simon Fraser University
- 2007 Undergraduate Research Prize, Simon Fraser University

PUBLICATIONS

- 2023 “General non-realizability certificates for spheres with linear programming” (with J. Gouveia, and A. Macchia), *Journal of Symbol Computation*, vol. 114, pp. 172–192.
- 2022 “Combining realization space models of polytopes” (with J. Gouveia, and A. Macchia), *Discrete & Computational Geometry*, vol. 69, pp. 505–542.
- 2020 “Combinatorial methods for Minkowski tensors of polytopes” (with N. Livchitz, and B. Sert), *Submitted*, [arXiv.org/abs/2007.12893](https://arxiv.org/abs/2007.12893).
- 2020 “Slack Ideals in Macaulay2” (with A. Macchia), *In: A. Bigatti, J. Carette, J. Davenport, M. Joswig, T. de Wolff (eds) Mathematical Software—ICMS 2020. Springer Lecture Notes in Computer Science*, vol. 12097, pp. 222–231.
- 2020 “Projectively unique polytopes and toric slack ideals” (with J. Gouveia, A. Macchia, and R. R. Thomas), *J. Pure Appl. Algebra*, vol. 224, no. 5.
- 2019 “The slack realization space of a matroid” (with M. Brandt), *Algebraic Combinatorics*, vol. 2, no. 4, pp. 663–681.
- 2019 “The slack realization space of a polytope” (with J. Gouveia, A. Macchia, and R. R. Thomas), *SIAM J. Discrete Math.*, vol. 33, no. 3, pp. 1637–1653.
- 2016 “Constructions of complex equiangular lines from mutually unbiased bases” (with J. Jedwab), *Des. Codes Cryptogr.*, vol. 80, pp. 73–89.
- 2015 “A simple construction for complex equiangular lines” (with J. Jedwab), *In: C. Colbourn (ed) Algebraic Design Theory and Hadamard Matrices. Springer Proceedings in Mathematics and Statistics (PROMS)*, vol. 133, pp. 159–169.
- 2015 “Large sets of complex and real equiangular lines” (with J. Jedwab), *J. Comb. Theory (Series A)*, vol. 134, pp. 98–102.
- 2010 “A new source of seed pairs for Golay sequences of length 2^m ” (with F. Fiedler, and J. Jedwab), *J. Comb. Theory (Series A)*, vol. 117, pp. 589–597.
- 2009 “Yes or No to Clickers in a Large Calculus Course Based on Instructor and Student Feedback Analysis” (with P. Menz and V. Jungic), *Proceedings of Improving University Teaching 34th International Conference*.

TALKS

- June 2023 Session: Design Theory and Coding Theory, **CanADAM**, University of Winnipeg, Winnipeg, Canada.
- May 2023 **Circuit Diameters and Augmentation Workshop**, University of Colorado Denver, Denver, Colorado.
- July 2022 **Tutte Colloquium**, University of Waterloo*, Waterloo, Canada.
- June 2022 Minisymposium: WCOM, **CAIMS Annual Meeting**, University of British Columbia Okanagan, Kelowna, Canada.
- April 2022 **Emergent Research: The PIMS Postdoctoral Fellow Seminar**, Canada*.
- March 2022 **Operations Research Seminar**, Simon Fraser University, Burnaby, Canada.
- February 2022 **Discrete Math Seminar**, University of Massachusetts*, Amherst, Massachusetts.
- February 2022 **Combinatorics and Geometry Seminar**, University of Washington, Seattle, Washington.

* Indicates that an event happened virtually

- August 2021 Minisymposium: Symbolic Combinatorics, **SIAM AG21**, Texas A&M*, College Station, Texas.
- May 2021 **Combinatorics Seminar**, KTH*, Stockholm, Sweden.
- May 2021 Special Session: Algebraic and Combinatorial Aspects of Polytopes, **AMS Western Sectional Meeting**, San Francisco State University*, San Francisco, California.
- April 2021 **Graduate Student Meeting on Applied Algebra and Combinatorics**, University of Copenhagen*, Denmark.
- April 2021 **Discrete Math Seminar**, Simon Fraser University*, Burnaby, Canada.
- April 2021 **Algebraic Combinatorics Seminar**, University of Waterloo*, Waterloo, Canada.
- December 2020 **Women in Combinatorics Colloquium**, Virtual, Canada.
- May 2020 (~~POSTPONED~~). **Chow Lectures**, Max Planck Institute, Leipzig, Germany.
- February 2020 **Research Seminar on Discrete and Convex Geometry**, Technische Universität Berlin, Germany.
- December 2019 **Women in Algebra and Symbolic Computations**, Bad Dürkheim, Germany.
- October 2019 **Discrete Geometry Seminar**, Freie Universität Berlin, Germany.
- May 2019 Session: Combinatorial Optimization, **CanADAM**, Simon Fraser University, Vancouver, Canada.
- July 2018 Session: Algebraic and Geometric Aspects of Semidefinite Programming, **ISMP**, Bordeaux, France.
- June 2018 6th **Encuentro Colombiano de Combinatoria (ECCO18)**, Universidad del Norte, Barranquilla, Colombia.
- May 2018 **Discrete Math Seminar**, Simon Fraser University, Burnaby, Canada.
- April 2018 Special Session: Commutative Algebra, **AMS Sectional Meeting**, Portland State University, Portland, Oregon.
- March 2018 **Discrete Geometry Seminar**, Freie Universität Berlin, Germany.
- Feb 2018 **Seminar on Nonlinear Algebra**, MPI, Leipzig, Germany.
- July 2017 Minisymposium: Semidefinite Optimization and Convex Algebraic Geometry, **SIAM AG17**, Georgia Institute of Technology, Atlanta, Georgia.
- February 2014 **Discrete Math Seminar**, Simon Fraser University, Burnaby, Canada.
- June 2012 Special Session: Combinatorics, **CMS Summer Meeting**, Regina, Canada.
- December 2010 Special Session: Theory and Application of Sequences and Arrays, **CMS Winter Meeting**, Vancouver, Canada.
- July 2010 **Canadian Undergraduate Mathematics Conference**, University of Waterloo, Waterloo, Canada.

POSTERS

- August 2014 **Symposium on Computation and Mathematics**, Simon Fraser University, Burnaby, Canada.
- August 2010 **Computational Mathematics Day**, IRMACS, Simon Fraser University, Burnaby, Canada.
- January 2009 MAA Poster Session on Research by Undergraduate Students, **AMS/MAA Joint Meetings**, Washington D.C.
- August 2008 **Rising Stars of Research**, University of British Columbia, Vancouver, Canada.

SELECTED CONFERENCE PARTICIPATION

- August 2023 **MAA MathFest**, Tampa, Florida (*Project NExT*).
- March 2023 **Gender Equity in the Mathematical Study (GEMS) of Combinatorics**, American Institute of Mathematics, San Jose, California.
- January 2023 **MAA MathFest**, Boston, Massachusetts (*Project NExT*).
- August 2022 **MAA MathFest**, Philadelphia, Pennsylvania (*Project NExT*).
- June 2022 **Canadian Applied and Industrial Mathematics Society Annual Meeting**, University of British Columbia Okanagan, Kelowna, Canada (*Optimization theme leader, Mini-symposium organizer*).
- Sept 2021 **Gender Equity in the Mathematical Study (GEMS) of Combinatorics**, Virtual*.
- July 2021 **Convex Geometry Minicourse**, MPI Leipzig*, Germany (*Organizer*).
- June 2021 **Workshop on Mathematics and Racial Justice**, MSRI*, Berkeley, California.
- July 2020 **International Congress on Mathematical Software (ICMS)**, TU Braunschweig*, Germany.
- March 2020 **Combinatorial Coworkspace** – a session in algebraic and geometric combinatorics, Kleinalpsee, Austria.
- December 2019 **Research Retreat** of the Thematic Einstein Semester *Algebraic Geometry - Varieties, Polyhedra, Computation*, Döllnsee, Germany.
- December 2019 **Einstein Workshop on Polytopes and Algebraic Geometry**, Freie Universität Berlin, Germany (*Organizer*).
- October 2017 **Geometric and topological combinatorics: Modern techniques and methods**, MSRI, Berkeley, California.
- September 2017 **Introductory Workshop: Geometric and Topological Combinatorics**, MSRI, Berkeley, California.
- August 2017 **Bridging Continuous and Discrete Optimization Boot Camp**, Simons Institute for the Theory of Computing, Berkeley, California.
- July 2017 **Applied Macaulay2 Tutorials**, Georgia Institute of Technology, Atlanta, Georgia.
- August 2016 **Summer School on Real Algebraic Geometry and Optimization**, Georgia Institute of Technology, Atlanta, Georgia.
- January 2015 **Mathematics of Communications: Sequences, Codes and Designs Workshop**, BIRS, Banff, Canada.

STUDENTS

M.Sc.

- Sept 2023 – Jeremiah Yoder, University of British Columbia Okanagan.
- Sept 2022 – Yiwen Chen, University of British Columbia Okanagan.

UNDERGRADUATE.

- May – Aug 2023 Nathania Hendradjaja, University of British Columbia Okanagan.

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TEACHING

INSTRUCTOR OF RECORD

- Winter 2023 (Term 1) Abstract Algebra I, Math 311, University of British Columbia Okanagan.
 (Term 2) Precalculus, Math 125, University of British Columbia Okanagan.
 (Term 2) Abstract Algebra II, Math 330, University of British Columbia Okanagan.
- Winter 2022 (Term 1) Precalculus, Math 125, University of British Columbia Okanagan.
 (Term 1) Abstract Algebra I, Math 311, University of British Columbia Okanagan.
- Summer 2016 Precalculus, Math 120, University of Washington.

TEACHING ASSISTANT

- Spring 2019 Calculus II, Math 125, University of Washington (online).
- Winter 2019 Discrete Optimization, Math 409, University of Washington (Grader).
 Fall 2018 Linear Optimization, Math 407, University of Washington (Grader).
- Spring 2017 Discrete Optimization, Math 409, University of Washington (Grader).
- Winter 2017 Precalculus, Math 120, University of Washington.
 Fall 2016 Calculus I, Math 124, University of Washington.
- Spring 2016 Precalculus, Math 120, University of Washington.
- Winter 2016 Precalculus, Math 120, University of Washington.
 Fall 2015 Precalculus, Math 120, University of Washington.
- Summer 2015 Precalculus, Math 120, University of Washington.
 Math Study Center, Math 120/124/125/126, University of Washington.
- Spring 2015 Calculus II, Math 125, University of Washington.
- Winter 2015 Precalculus, Math 120, University of Washington.
 Fall 2014 Calculus II, Math 125, University of Washington.
- Fall 2013 Cryptography, MACM 442/742, Simon Fraser University (Grader).
- Fall 2012 Coding Theory, Math 447/747, Simon Fraser University (Grader).
 Principles of Mathematics for Teachers, Math 190, Q Workshop, Simon Fraser University.

SUPPLEMENTARY TEACHING

- 2006 – 2011 Special Education Assistant, Pacific Academy High School, Vancouver, Canada.
 2002 – 2011 Private Tutor, Math/Science, Vancouver, Canada.

PROFESSIONAL DEVELOPMENT

- August 2022–2023 MAA Project NeXT Fellow, Red '22 cohort.

SERVICE

- Sept 2023 Program Committee, West Coast Optimization Meeting (WCOM), Simon Fraser University.
- 2022 – Present Co-organizer, COCANA Seminar, University of British Columbia Okanagan.
- 2021 – 2022 Co-organizer, Operations Research Seminar, Simon Fraser University.
- 2019 – Present Social media and communication team lead, Network of Women in Combinatorics.

- June 2022 Optimization Theme Co-organizer, CAIMS Annual Meeting, University of British Columbia Okanagan.
- July 2021 Co-organizer, Convex Geometry Minicourse, MPI Leipzig (*hybrid*).
- 2020 – 2021 Co-organizer, Discrete Geometry Seminar, Freie Universität Berlin.
- Dec 2019 Organizing committee, Einstein Workshop on Polytopes and Algebraic Geometry, Freie Universität Berlin.
- 2018 – 2019 Organizer, Graduate Student Optimization Seminar, University of Washington.
- 2017 – 2018 Undergraduate program committee member, University of Washington.
- 2017 – 2018 Leading teaching assistant, University of Washington.
Trained and mentored all incoming math and applied math graduate students and new teaching assistants.
- 2016 – 2018 Elected secretary, Student Chapter of the AWM, University of Washington.
- Fall 2016 Teaching assistant mentor, University of Washington.
Mentored a group of new math graduate students in teaching.
- 2011 – 2013 Elected secretary, Mathematics Graduate Caucus, Simon Fraser University.
- 2010 Elected secretary, Mathematics Student Union, Simon Fraser University.

MEMBERSHIPS

American Mathematical Society
Canadian Mathematical Society
SIAM—Activity group on Algebraic Geometry
Activity group on Discrete Mathematics
Activity group on Optimization
Association of Women in Mathematics
Mathematical Association of America