

# AMY WIEBE

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## 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

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## 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*

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## 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

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## PUBLICATIONS

- 2021 “General non-realizability certificates for spheres with linear programming” (with J. Gouveia, and A. Macchia), *Submitted*, <https://arxiv.org/abs/2109.15247>.  
 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 “Combining realization space models of polytopes” (with J. Gouveia, and A. Macchia), *Submitted*, [arXiv.org/abs/2001.11999](https://arxiv.org/abs/2001.11999).  
 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*.

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## TALKS

- 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.

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\* Indicates that an event happened virtually

- 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.
- April 2020 (POSTPONED). ~~**Graduate Student Meeting on Applied Algebra and Combinatorics**~~, University of Copenhagen, Denmark.
- 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.

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## 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.

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## SELECTED CONFERENCE PARTICIPATION

- Sept 2021 **Gender Equity in the Mathematical Study (GEMS) of Combinatorics**, Virtual\*.

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\* Indicates that an event happened virtually

- July 2021 **Convex Geometry Minicourse**, MPI Leipzig\*, Germany (*Organizer*).
- June 2021 **Workshop on Mathematics and Racial Justice**, MSRI\*, Berkeley, California, USA.
- July 2020 **International Congress on Mathematical Software (ICMS)**, TU Braunschweig\*, Germany.
- March 2020 **Combinatorial Coworkspace** – a session in algebraic and geometric combinatorics, Kleinwalsertal, 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*).
- July 2018 **International Symposium on Mathematical Programming (ISMP)**, University of Bordeaux, Bordeaux, France.
- 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.

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## TEACHING

### INSTRUCTOR OF RECORD

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.

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## SERVICE

- 2021 – Co-organizer, Operations Research Seminar, Simon Fraser University.  
 Jul 2021 Co-organizer, Convex Geometry Minicourse, MPI Leipzig (*hybrid*).  
 2020 – 2021 Co-organizer, Discrete Geometry Seminar, Freie Universität Berlin.  
 2019 – Social media and communication team lead, Network of Women in Combinatorics.  
 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.

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## 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  
 European Women in Mathematics