

Florian Aigner

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Education

2015–2019 **PhD in Mathematics**, *University of Vienna*, passed with distinction.

Thesis Refined counting of alternating sign arrays

Adviser Ilse Fischer

2014–2015 **MSc in Mathematics**, *University of Vienna*, passed with distinction.

Thesis Height functions and the ring of adeles over a global field

Adviser Joachim Schwermer

2010–2014 **BsC in Mathematics**, *University of Vienna*, passed with distinction.

Thesis 1 Algebraic Stars , Adviser: Herwig Hauser

Thesis 2 Clifford Algebren, Adviser: Joachim Schwermer

2010–2014 **Studies in Physics**, *University of Vienna*.

2010 **Matura**, *Oberstufen Realgymnasium der Diözese Linz*, Austria.

Academic Employment

2021– **PostDoc Position**, *University of Vienna*, Austria.

2020 **External lecturer**, *McGill University*, Canada.

2020 **External lecturer**, *Université du Québec à Montréal*, Canada.

2019–2021 **PostDoc Position**, *Université du Québec à Montréal* , Canada.

2015–2019 **PhD Position**, *University of Vienna*, Austria.

2015–2017 **External lecturer**, *University of Vienna*, Austria.

2012–2014 **Teaching assistant**, *University of Vienna*, Austria.

Research interests

Algebraic, enumerative and bijective combinatorics and its relation to algebra, probability theory, geometry and physics.

Awards

2019 **Award of Excellence - Austrian State Prize for exceptional dissertation**, *Staatspreis für die besten Dissertationen*.

2015 **Honorary prize - Austrian State Prize for exceptional graduation**, *Würdigungspreis-Staatspreis für die besten Diplom- und Masterabschlüsse*.

Research Grants

- 2019–2022 **Principal Investigator of the Erwin Schrödinger Fellowship**, J 4387, *Symmetric functions and alternating sign matrices*, Austrian Science Fund (FWF), €164.330.
- 2021 **Principal Investigator of a Mitacs Globalink Research Internship**, *Missing bijections for alternating sign matrices and related combinatorial objects*, Funding for two international students within a summer research project.

Publications (peer-reviewed)

- [1] F. Aigner. Fully packed loop configurations: polynomiality and nested arches. *Elect. J. Combin.*, 25(1), 2018.
- [2] F. Aigner. Refind enumerations of alternating sign triangles. *Adv. Appl. Math.*, 111:101921, 2019.
- [3] F. Aigner. A new determinant for the Q -enumeration of alternating sign matrices. *J. Combin. Theory Ser. A*, 180:105412, 2021.
- [4] F. Aigner and G. Frieden. $qRSt$: A probabilistic Robinson–Schensted correspondence for Macdonald polynomials. *Int. Math. Res. Not. IMRN*, 05 2021.

Conference Proceedings (peer-reviewed)

- [5] F. Aigner. Fully packed loop configurations: polynomiality and nested arches (extended abstract). *DMTCS proc. BC*, pages 1–12, 2016. FPSAC 2016.
- [6] F. Aigner. Refind enumerations of alternating sign triangles (extended abstract). *Sém. Lothar. Combin.*, 78B:Art. 60, 2017. FPSAC 2017.
- [7] F. Aigner, I. Fischer, M. Konvalinka, P. Nadeau, and V. Tewari. Alternating sign matrices and totally symmetric plane partitions (extended abstract). *Sém. Lothar. Combin.*, 84B:Art. 77, 2020. FPSAC 2020.

Preprints (non-peer-reviewed)

- [8] F. Aigner and I. Fischer. The relation between alternating sign matrices and descending plane partitions: $n+3$ pairs of equivalent statistics. *arXiv:2106.11568*, 2021.

Talks

- Nov 2020 Arbeitsgemeinschaft Diskrete Mathematik, Technical University Vienna, Vienna, Austria.
- Oct 2020 Algebraic Combinatorics Seminar, University of Waterloo, Waterloo, Canada.
- Oct 2020 Dartmouth Combinatorics Seminar, Dartmouth College, Hanover, USA.
- Mar 2020 Applied Algebra Seminar, York University, Toronto, Canada.

- Oct 2019 Séminaire de combinatoire du LaCIM, Université du Québec à Montréal, Montréal, Canada.
- Nov 2018 PhD Colloquium, University of Vienna, Vienna, Austria.
- Oct 2018 Séminaire Combi du Plateau de Saclay, École polytechnique, Paris, France.
- Jul 2018 4th Algorithmic and Enumerative Combinatorics Summer School, Research Institute for Symbolic Computation, Hagenberg, Austria.
- Mar 2018 Vienna Doctoral School Student Retreat, Zwettl, Austria.
- May 2017 SFB-Colloquium, Johannes Kepler University Linz, Linz, Austria.
- Apr 2017 Vienna Doctoral School Student Retreat, Strobl, Austria.
- Sep 2016 77th Séminaire Lotharingien de Combinatoire, Strobl, Austria.
- Apr 2016 Arbeitsgemeinschaft Diskrete Mathematik, Technical University Vienna, Vienna, Austria.

Poster presentations

- Jun 2021 Lattice Paths, Combinatorics and Interactions, Online / CIRM, Marseille, France.
- Jul 2020 32th Formal Power Series and Algebraic Combinatorics, Online.
- Sep 2017 Interscience - First interdisciplinary symposium of the Vienna Doctoral Schools, University of Vienna, Vienna, Austria.
- Jul 2017 29th Formal Power Series and Algebraic Combinatorics, Queen Mary University of London, London, United Kingdom.
- Jan 2017 Introductory school at CIRM, Centre International de Rencontres Mathématiques, Marseille, France.
- Jul 2016 28th Formal Power Series and Algebraic Combinatorics, Simon Fraser University, Vancouver, Canada.

Teaching

At the Université du Québec à Montréal.

- 2020 Séminaire de combinatoire: Plane Partitions

At McGill University.

- 2020 Math133: Linear Algebra and Geometry

At the University of Vienna.

- 2017 Exercise Class for “Mathematics teaching studies - elementary geometry and vector algebra”
- 2016 Exercise Class for “Graph theory and discrete optimization”
- 2015 Exercise Class for “Number Theory”

Student Supervision

- Summer 2021 Farzan Byramji, Xinyu Gao (Mitacs Globalink Research Internship)
Missing bijections for alternating sign matrices and related combinatorial objects

Administrative activities

- 2021 Organiser, 18th Combinatorial Algebra meets Algebraic Combinatorics, Online.
- 2019–2021 Organiser, Séminaire de combinatoire du LaCIM, Université du Québec à Montréal, Montréal.
- 2018–2019 Organiser, Combinatorics Working Seminar, University of Vienna.
- 2017–2018 Student speaker of the Vienna Doctoral School Mathematics.
- 2017 Organiser, Interdisciplinary symposium Interscience (200 participants), University of Vienna.

Peer review activities

- Mathematical Reviews
- Annales de la Faculte des Sciences de Toulouse

Further activities

- 2006–2010 Austrian Mathematical Olympiad. Best result: 7th place at the austrian federal competition in 2010
- 2008–2010 Austrian Physics Olympiad