

Hans HÖNGESBERG

Homepage: <https://hoengesberg.com>

Email: hans.hoengesberg@fmf.uni-lj.si

University of Ljubljana | Faculty of Mathematics and Physics | Jadranska 21, 1000 Ljubljana, Slovenia

ACADEMIC POSITIONS

from 05/2024	Postdoctoral research fellow , University of Ljubljana, Slovenia
2023 – 2024	Assistant professor , Institute of Mathematics of the Polish Academy of Sciences (IMPAN) in Kraków, Poland
2021 – 2023	Postdoctoral research fellow , University of Vienna, Austria
2017 – 2021	Predocctoral research fellow , University of Vienna, Austria
2017	Undergraduate research assistant , University of Vienna, Austria
2012 – 2013	Student assistant , Julius-Maximilians-University of Würzburg, Germany

RESEARCH INTERESTS

My research lies within enumerative and algebraic combinatorics. I am specially interested in alternating sign matrices and related objects such as integer and plane partitions, Young tableaux, lozenge tilings as well as symmetric functions.

HIGHER EDUCATION

JUN 2021	PhD (Dr. rer. nat.) in MATHEMATICS University of Vienna, Austria Thesis: <i>The Monotone Triangle Perspective on Alternating Sign Arrays</i> Advisor: Ilse FISCHER <i>passed with distinction</i>
JUN 2017	Master of Science (M.Sc.) in MATHEMATICS University of Vienna, Austria Thesis: <i>Refined Enumeration Formulae Related to Halved Monotone Triangles</i> Advisor: Ilse FISCHER <i>passed with distinction</i>
SEP 2013	Bachelor of Arts (B.A.) in PHILOSOPHY AND MATHEMATICS Julius-Maximilians-University of Würzburg, Germany Thesis: <i>Der Wahrheitsbegriff axiomatischer Sätze aus Sicht kritischer und formalistischer Theorie (The Concept of Truth of Axiomatic Sentences in Critical Philosophy and Hilbertian Formalism)</i> Advisor: Karl-Heinz LEMBECK <i>passed with distinction</i>
JUL 2013	Bachelor of Science (B.Sc.) in MATHEMATICS Julius-Maximilians-University of Würzburg, Germany Thesis: <i>Kettenbruchentwicklung in algebraischen Zahlkörpern (Continued Fraction Expansion in Algebraic Number Fields)</i> Advisor: Jörn STEUDING <i>final grade: very good</i>

SCHOLARSHIPS AND GRANTS

05/2024 – 4/2027	Erwin Schrödinger Fellowship Austrian Science Fund (FWF), project J 4810 <i>Alternating Sign Arrays: Symmetry & Symmetric Functions</i> Grant Size: 183,430 €
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SCIENTIFIC ACTIVITIES

JOURNAL PAPERS

6. I. FISCHER, H. HÖNGESBERG, Alternating sign matrices with reflective symmetry and plane partitions: $n + 3$ pairs of equivalent statistics and a Cauchy-type identity, *Forum of Mathematics, Sigma* **13**, e168 (2025). DOI: [10.1017/fms.2025.10104](https://doi.org/10.1017/fms.2025.10104).
5. S. ALBION, T. EISENKÖBL, I. FISCHER, M. GANGL, H. HÖNGESBERG, C. KRATTENTHALER, M. RUBEY, A generalization of conjugation of integer partitions, *The Electronic Journal of Combinatorics* **32** (2), P2.37 (2025). DOI: [10.37236/13489](https://doi.org/10.37236/13489).
4. S. P. ALBION, I. FISCHER, H. HÖNGESBERG, F. SCHREIER-AIGNER, Skew symplectic and orthogonal characters through lattice paths, *European Journal of Combinatorics* **122**, 104000 (2024). DOI: [10.1016/j.ejc.2024.104000](https://doi.org/10.1016/j.ejc.2024.104000).
3. H. HÖNGESBERG, A fourfold refined enumeration of alternating sign trapezoids, *The Electronic Journal of Combinatorics* **29** (3), P3.42 (2022). DOI: [10.37236/9933](https://doi.org/10.37236/9933).
2. H. HÖNGESBERG, Weight-preserving bijections between integer partitions and a class of alternating sign trapezoids, *Annals of Combinatorics* **26**, 673–699 (2022). DOI: [10.1007/s00026-022-00588-1](https://doi.org/10.1007/s00026-022-00588-1).
1. H. HÖNGESBERG, Refined enumeration of halved monotone triangles and applications to vertically symmetric alternating sign trapezoids, *Journal of Combinatorial Theory, Series A* **177**, 105336 (2021). DOI: [10.1016/j.jcta.2020.105336](https://doi.org/10.1016/j.jcta.2020.105336).

CONFERENCE PROCEEDINGS

4. I. FISCHER, H. HÖNGESBERG, F. SCHREIER-AIGNER, Alternating sign matrices and descending plane partitions: a linear number of equivalent statistics, *Proceedings of the 35th Conference on Formal Power Series and Algebraic Combinatorics (Davis), Séminaire Lotharingien de Combinatoire* **89B.69** (2023). [Extended Abstract](#).
3. H. HÖNGESBERG, Weight-preserving bijections between integer partitions and a family of alternating sign trapezoids, *Proceedings of the 33rd Conference on Formal Power Series and Algebraic Combinatorics (Ramat Gan), Séminaire Lotharingien de Combinatoire* **85B.80** (2021). [Extended Abstract](#).
2. H. HÖNGESBERG, On a fourfold refined enumeration of alternating sign trapezoids, *Proceedings of the 32nd Conference on Formal Power Series and Algebraic Combinatorics (Online), Séminaire Lotharingien de Combinatoire* **84B.76** (2020). [Extended Abstract](#).
1. H. HÖNGESBERG, N. OSWALD, J. STEUDING, Complex continued fractions with constraints on their partial quotients, *Voronoi's Impact on Modern Science* **5(1): Proceedings of the 5th International Conference on Analytic Number Theory and Spatial Tessellations**, 1–14 (2013).

PREPRINTS

2. I. FISCHER, H. HÖNGESBERG, A Littlewood-type identity for Robbins polynomials. arXiv: [2505.09275](https://arxiv.org/abs/2505.09275) [[math.CO](#)].
1. I. FISCHER, H. HÖNGESBERG, The number of monotone trapezoids with prescribed bottom row. arXiv: [2502.09343](https://arxiv.org/abs/2502.09343) [[math.CO](#)].

POSTERS

6. 35th Conference on Formal Power Series and Algebraic Combinatorics (FPSAC 2023), Davis (California, USA), 07/2023.
5. [AlCoVE: an Algebraic Combinatorics Virtual Expedition](#), Online, 06/2023.
4. 89th Séminaire Lotharingien de Combinatoire and Brenti Fest (89th SLC), Bertinoro (Italy), 03/2023.
3. 33rd Conference on Formal Power Series and Algebraic Combinatorics (FPSAC 2021), Ramat Gan (Israel), 01/2022. [Poster](#).
2. [Lattice Paths, Combinatorics and Interactions](#), CIRM, Marseille (France), 06/2021. [Poster](#).

1. 32nd Conference on Formal Power Series and Algebraic Combinatorics ([FPSAC 2020](#)), Online, 07/2020.

SELECTED TALKS & WORKSHOPS

17. [KTH Combinatorics Seminar](#), KTH Stockholm (Sweden), 12/2025.
16. [Discrete mathematics seminar](#), University of Ljubljana (Slovenia), 11/2025.
15. [42 Years of Alternating Sign Matrices](#), University of Ljubljana (Slovenia), 09/2025.
14. 15th Nordic Combinatorial Conference ([NORCOM 2025](#)), Reykjavik (Iceland), 06/2025.
13. 93rd Séminaire Lotharingien de Combinatoire, Pocinho (Portugal), 03/2025. [Slides](#).
12. [Doctoral seminar](#), Alpen-Adria-Universität Klagenfurt (Austria), 11/2024.
11. [Discrete mathematics seminar](#), University of Ljubljana (Slovenia), 05/2024.
10. Core participant of the long program [Geometry, Statistical Mechanics, and Integrability](#) at the Institute for Pure & Applied Mathematics ([IPAM](#)) at UCLA, Los Angeles (California, USA), 04–05/2024.
9. 2nd Queer and Trans Mathematicians in Combinatorics, [QTMC 2023](#), London (UK), 07/2023.
8. [Arbeitsgemeinschaft Diskrete Mathematik](#), TU Wien (Austria), 05/2023.
7. [Algorithmic and Enumerative Combinatorics conference](#), Vienna (Austria), 07/2022. [Abstract](#). [Slides](#).
6. Séminaire virtuel de combinatoire du LaCIM, Montréal (Canada), 12/2020.
5. [Arbeitsgemeinschaft Diskrete Mathematik](#), TU Wien (Austria), 12/2020.
4. 83rd Séminaire Lotharingien de Combinatoire, Bad Boll (Germany), 09/2019. [Slides](#).
3. SFB F50 Seminar, RICAM, Universität Linz (Austria), 06/2019.
2. [Arbeitsgemeinschaft Diskrete Mathematik](#), TU Wien (Austria), 10/2018.
1. Workshop *Enumerative Combinatorics*, Mathematisches Forschungsinstitut Oberwolfach (Germany), 05/2018. [Report](#).

REVIEWS

Referee for *Ars Mathematica Contemporanea*, *Combinatorial Theory*, *Discrete Mathematics*, *Electronic Journal of Combinatorics*, *Monatshefte für Mathematik*.

TEACHING EXPERIENCE

SUPERVISION

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|------|--|--|
| 2023 | | Alexander Kargl (Bachelor student), <i>Stanley's shuffling theorem</i> |
| 2022 | | Helene Leitner (Bachelor student), <i>Completion of Latin squares</i> |

CLASSES

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| 2022 | | Assistance in preparing a new lecture series with exercise classes
<i>Discrete Mathematics and Computer Science</i> |
| 2021 | | <i>Combinatorics</i> , Exercise Classes |
| 2020 | | <i>Discrete Mathematics</i> , Exercise Classes |
| 2018 | | <i>Linear Algebra for Physicists</i> , Exercise Classes |
| 2019 | | |

WORKSHOPS

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| 07/2023 | | Workshop leader at the EAUMP-ICTP School on Enumerative Combinatorics , Arusha (Tanzania) |
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PROFESSIONAL ACTIVITIES

Organiser	Combinatorics Working Seminar, University of Vienna, 2019
Substitute Member	Fakultätskonferenz Mathematik, University of Vienna, since 2020
Member	Studienkonferenz Doktoratsstudium Naturwissenschaften, University of Vienna, 2018