Michael Wallner

Curriculum Vitae

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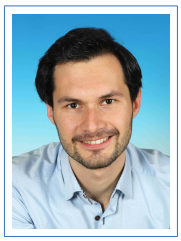

Personal

Date of birth	December 3rd, 1987 (36 years) in Oberwart
Citizenship	Austria
Family status	married (2017), 1 son (2020), 1 daughter (2021)

Education

12/2023 **Habilitation in Mathematics**, *TU Wien*, Austria.

11/2013–01/2017 **PhD in Mathematics**, *TU Wien*, Austria, Analytic combinatorics, discrete mathematics, lattice paths, compacted trees.
Dissertation: „Combinatorics of Lattice Paths and Tree-like Objects“ supervised by Prof. Dr. Bernhard Gittenberger
Promotio sub auspiciis prasidentis rei publicae (Graduation with highest national distinction), awarded on 05/12/2017 by the Austrian president Dr. Alexander Van der Bellen

09/2011–09/2012 **Master of Science (MSc)**, *Brunel University London*, United Kingdom, Computational Mathematics with Modelling.
Focus: FEM- and BEM-Methods for PDEs, Variational Calculus, Perturbation Theory, Integral Equations, Monte Carlo Methods for Asset Pricing
Thesis Title: "Algebraic Multigrid Methods for Higher-Order Finite Element Discretization with Parallelization" supervised by Prof. Dr. Matthias Maischak
Graduated with highest distinction

07/2011–10/2013 **Master of Science (Dipl.-Ing.)**, *TU Wien*, Austria, Technical Mathematics in the Computer Sciences.
Focus: Discrete Mathematics, Calculus, Algebra, IT Security, Cryptography, Programming
Thesis Title: "Lattice Path Combinatorics" supervised by Prof. Dr. Michael Drmota
Graduated with highest distinction

10/2008–07/2011 **Bachelor of Science (BSc)**, *TU Wien*, Austria, Technical Mathematics in the Computer Sciences.
Thesis Title: "Polynomials over finite fields" supervised by Prof. Dr. Michael Drmota
Graduated with highest distinction

07/2007–01/2008 **Military service**, *Medic*, Austria.

09/2002–06/2007 **HTL Pinkafeld, Abteilung EDV und Organisation**, Austria.
Austrian Matura passed with distinction

PhD thesis at TU Wien

Title	*Combinatorics of Lattice Paths and Tree-like Objects*
Supervisor	Ao.Univ.Prof. Dr. Bernhard Gittenberger, TU Wien
Description	The thesis is concerned with the enumerative and asymptotic analysis of directed lattice paths and tree-like structures. In the first part, several new models for lattice paths are introduced and some of their characterizing parameters, such as the number of returns to zero, or their average height and final altitude are analyzed. In the second part, enumerative and asymptotic results on compacted binary trees are solved. Such trees are a special class of directed acyclic graphs arising from a compressing method.
TU Wien	The TU Wien is one of the main universities in Vienna, Austria. It has more than $28\,000$ students enrolled in 18 bachelor's, 33 master's, and 3 PhD programs; it has 8 faculties and about $5\,000$ staff members ($3\,800$ academics). The university's teaching and research focuses on computer science, quantum physics, engineering, and natural sciences. For more information see www.tuwien.at.

Academic work experience

Since 02/2020 **Postdoc and PI (FWF J 4162 and P 34142)**, *TU Wien, Institute of Discrete Mathematics and Geometry, Vienna*, 1 year return phase of FWF J 4162; FWF Stand-Alone Project P 34142.

02/2018–01/2020 **Postdoc as Erwin Schrödinger Fellow (FWF J 4162)**, *Université de Bordeaux, Laboratoire Bordelais de Recherche en Informatique (LaBRI), Bordeaux*.

09/2017–12/2017 **Postdoc**, *Université Paris 13, Laboratoire d'Informatique de Paris Nord (LIPN), Paris*.

05/2017–07/2017 **Postdoc**, *Academia Sinica, Institute of Statistical Science, Taipei*.

02/2017–04/2017 **Postdoc**, *TU Wien, Institute of Discrete Mathematics and Geometry, Vienna*.

09/2015–01/2017 **External lecturer**, *FH Campus Wien - University of Applied Sciences, Vienna*.
Small group tutoring in "Calculus 1" for electrical engineering students.

11/2013–04/2017 **Graduate teaching and research assistant**, *TU Wien, Institute of Discrete Mathematics and Geometry, Vienna*.
Research in FWF project SFB F50-03; teaching and teaching administration in computer science BSc courses.

10/2012–01/2013 **Undergraduate teaching assistant**, *TU Wien, Institute of Analysis and Scientific Computing, Vienna*.
Small group tutoring in numerical mathematics.

Career breaks

11/2022–03/2023 Paternity leave for my daughter Monika

01/2021–03/2021 Paternity leave for my son Albert

Grants

01/2023–12/2024 OeAD WTZ/PHC Amadeus FR 01/2023 *Asymptotic behavior of combinatorial structures*, Principal investigator, 8k€

04/2021–12/2024 FWF Stand-Alone Project P 34142 *Stretched exponentials and beyond*, Principal investigator, 400k€

02/2018–03/2021 FWF Erwin Schrödinger-Fellowship J 4162 *Combinatorial and probabilistic study of higher dimensional lattice paths and tree-like structures*, Principal investigator, 157k€

12/2017–12/2019 Exzellenzstipendium für sub auspiciis Praesidentis Promovierende (Scholarship of excellence), 9k€

2012–2013 TUtheTOP Excellence programme at TU Wien

Supervision

Since 2022 PhD student Manosij Ghosh Dastidar, TU Wien

Since 2023 MSc student Florian Schager, TU Wien

Teaching

TU Wien

2022/2023 Discrete Mathematics

2021/2022 Discrete Methods

2021/2022 Discrete Mathematics

2015/2016 Discrete Methods, Analysis for Computer Science

2014/2015 Discrete Methods, Analysis for Computer Science, Algebra and Discrete Mathematics

2013/2014 Discrete Methods, Algebra and Discrete Mathematics

2012/2013 Numerical Analysis

FH Campus Wien - University of Applied Sciences

2016/2017 Analysis 1

2015/2016 Analysis 1

Lecture

2015 Invited course "An Invitation to Analytic Combinatorics and Lattice Path Counting", 3rd ALEA in Europe Young Researchers' Workshop, University of Bath, UK

Research areas

My main interest lies within analytic combinatorics, with an emphasis both on exact and asymptotic results for the enumeration and applications to number theory. In line with this interest, my main focus areas are lattice paths and tree-like structures, but I am also interested in finding other applications.

Number theory	Divisibility by prime numbers, generating functions, integer partitions and compositions
Discrete objects	Random walks, trees and tree-like objects (phylogenetic networks, DFAs, DAGs), Young tableaux
Limit laws	Enumeration, generating functions, probability distributions, random generation

Scientific activity

Publications	32 published (peer-reviewed), 1 to appear, 2 submitted; see Section Publications.
Talks	68 talks and 4 poster presentations at international events; see Sections Talks and Posters.
Reviews	Article reviewing for international journals and conferences:

- Journal of Combinatorial Theory, Series A
- Combinatorial Theory
- Electronic Journal of Combinatorics
- Annals of Combinatorics
- Discrete Mathematics
- Discrete Mathematics and Theoretical Computer Science
- Journal of Integer Sequences
- Séminaire Lotharingien de Combinatoire
- Online Journal of Analytic Combinatorics
- Proceedings of Formal Power Series and Algebraic Combinatorics (FPSAC)
- Proceedings of the International Meeting on Probabilistic, Combinatorial and Asymptotic Methods for the Analysis of Algorithms (AofA)
- Proceedings of the International Conference on Lattice Path Combinatorics & Applications
- Birkhäuser Science Lecture Notes in Applied and Numerical Harmonic Analysis series
- Mathematical Reviews (`https://mathscinet.ams.org`)
- Zentralblatt (`https://zbmath.org`)

Computer skills

Programming	Java, C++, Fortran, Matlab, Maple
Database	Oracle, MySQL, SAP
Network	Cisco CCNA-Education
Publishing	Latex, Microsoft Office, LibreOffice, HTML

Languages

German	Mother tongue
English	Proficiency (C2)
Hungarian	Independent user (B1)
French	Basic user (A2)

Interests

Guitar	17 years of attending the music school Oberwart, member of different ensembles, participation at several concerts, longterm member of the church ensemble Unterwart
Climbing	Member of Alpenverein Edelweiss (Austrian climbing society)
Other	Hiking, skiing, gym, board games, books

Esteem factors

2023	Member of programme committees of AofA2024 Bath and FPSAC2024 Bochum
2023	Editor of special DMTCS issue dedicated to Permutation Patterns 2023, Dijon

2022 Editor of special SLC issue dedicated to Lattice Path Conference 2021, CIRM

2021 Organizing committee member of *Lattice Path Combinatorics and Interactions* and co-editor of special issue, Luminy, France

2020 Program committee member of *Computational Logic and Applications*, online

2020 Scientific and organizing committee member of *L'École de Jeunes Chercheurs en Informatique Mathématique* (EJCIM2020), Bordeaux, France and online

2017 Organizing committee member of *ALEA in Europe Workshop*, Vienna, Austria

2017 Organizing committee member of the *European Conference on Combinatorics, Graph Theory and Applications*, Vienna, Austria

2016 Organizing committee member of the *4th ALEA in Europe Young Researcher's Workshop*, Vienna, Austria

2015 Organizing committee member of *AofA 2015*, Strobl, Austria

2014–today Administrator of the website for the weekly seminar Arbeitsgemeinschaft Diskrete Mathematik, TU Wien, Austria

2013–2017 Teaching support at the Institute of Discrete Mathematics and Geometry, TU Wien, Austria

2011–2012 Student representative for the programme "Computational Mathematics with Modelling", Brunel University London, UK

2007 Team leader during final year project "Vienna Online Diabetes Education" at HTBL Pinkafeld, First prize at school competition "Jugend Innovativ", category ICT

2007 Quality management technician after ISO 9001

Popularization

Since 2020 Member of the TUForMath team; responsible for interactions between mathematics and biology and school excursions in the Natural History Museum Vienna.

05/2021 Public lecture at TUForMath: *Das 1x1 des evolutinären Stammbaums (German)*, TU Wien, Austria, 06/05/2021.

09/2019 Newspaper article *Analysen von Algorithmen und Ahnenbäume* about my life in Bordeaux appeared in *"Die Presse"*, 13/09/2019.

08/2019 Magazine article *Pfade und Bäume in Bordeaux* about my experiences as a Schrödinger-Fellow in Bordeaux, *scilog–Magazin des Wissenschaftsfonds FWF*, 07/08/2019.

12/2018 Talk at the 7th Weihnachtskolloquium: *Asymptotic Enumeration of Compacted Binary Trees*, TU Wien, Austria, 21/12/2018.

Major research achievements

(1) Asymptotic enumeration of **phylogenetic networks** and other **minimal DFAs** using the Airy function

(2) Analyzing typical shapes of **periodic Young tableaux** and **periodic Pólya urns**

(3) Solving lattice path models including a conjecture by Donald Knuth on the asymptotics of **periodic LPs**

(4) Proving limit law schemes for generating functions with a focus on the **half-normal distribution**

(5) Counting and sampling gene families in phylogenetic **duplication-loss-transfer models**

Publications

The major research achievements and most important publications are marked by their respective number.

Peer-reviewed papers journals

submitted(1) *Enumerative and Distributional Results for d-combining Tree-Child Networks*
with Yu-Sheng Chang, Michael Fuchs, Hexuan Liu, and Guan-Ru Yu, 50 pages, preprint available at `arxiv.org/abs/2209.03850`.

submitted(3) *Phase transitions of composition schemes: Mittag-Leffler and mixed Poisson distributions*
with Cyril Banderier, Markus Kuba, 57 pages, preprint available at `arxiv.org/abs/2103.03751`.

to appear[3] *Walks avoiding a quadrant and the reflection principle*
with Mireille Bousquet-Mélou, European Journal of Combinatorics, 49 pages, preprint available at `arxiv.org/abs/2110.07633`.

2023 *Dyck paths and inversion tables*
Permutation Patterns 2023, pages 142–144.

2023 *The binary digits of $n + t$*
with Lukas Spiegelhofer, Ann. Sc. Norm. Super. Pisa Cl. Sci. (5), 24(1):1–31, 2023, preprint available at `arxiv.org/abs/2005.07167`.

2022[3] *On the critical exponents of generalized ballot sequences in three dimensions and large tandem walks*
Aequationes mathematicae 96, 815–826 (2022), preprint available at `arxiv.org/abs/2105.12155`.

2021[1] *Compacted binary trees admit a stretched exponential*
with Andrew Elvey Price, Wenjie Fang, Journal of Combinatorial Theory, Series A, 177 (2021), 105306, 40 pages, preprint available at `arxiv.org/abs/1908.11181`.

2020[2] *Periodic Pólya Urns, the Density Method, and Asymptotics of Young Tableaux*
with Cyril Banderier, Philippe Marchal, Annals of Probability, Volume 48, Number 4 (2020), 1921–1965, preprint available at `arxiv.org/abs/1912.01035`.

2020[1] *Asymptotic Enumeration of Compacted Binary Trees of Bounded Right Height*
with Antoine Genitrini, Bernhard Gittenberger, Manuel Kauers, Journal of Combinatorial Theory, Series A, Volume 172, May 2020, 44 pages, preprint available at `arxiv.org/abs/1703.10031`.

2020[4] *A half-normal distribution scheme for generating functions*
European Journal of Combinatorics, Volume 87, Article ID 103138, 21 pages, June 2020, preprint available at `arxiv.org/abs/1610.00541`.

2020[5] *Counting and sampling gene family evolutionary histories in the duplication-loss and duplication-loss-transfer models*
with Cedric Chauve, Yann Ponty, Journal of Mathematical Biology, 80, pages 1353–1388(2020), preprint available at `arxiv.org/abs/1905.04971`.

2019[1] *A bijection of plane increasing trees with relaxed binary trees of right height at most one*
Theoretical Computer Science, Volume 755, 10 January 2019, pages 1–12, preprint available at `arxiv.org/abs/1706.07163`.

2019 *The Tu–Deng conjecture holds almost surely*
with Lukas Spiegelhofer, Electronic Journal of Combinatorics, Volume 26 (2019), no. 1, Paper 1.28, 28 pp., preprint available at `arxiv.org/abs/1707.07945`.

2018 *On the shape of random Pólya structures*
with Bernhard Gittenberger, Emma Yu Jin, Discrete Mathematics, Volume 341, Issue 4, April 2018, pages 896–911, preprint available at `arxiv.org/abs/1707.02144`.

2018 *Divisibility of binomial coefficients by powers of two*
with Lukas Spiegelhofer, Journal of Number Theory, Volume 192, November 2018, pages 221–239, preprint available at `arxiv.org/abs/1710.10884`.

2017 *An explicit generating function arising in counting binomial coefficients divisible by powers of primes*
with Lukas Spiegelhofer, Acta Arithmetica 181 (2017), 27–55, preprint available at `arxiv.org/abs/1604.07089`.

2017[3] *Lattice paths with catastrophes*
with Cyril Banderier, Discrete Mathematics & Theoretical Computer Science, September 29, 2017, Vol 19 no. 1, preprint available at `arxiv.org/abs/1707.01931`.

Peer-reviewed papers in books

2019 *Explicit formulas for enumeration of lattice paths: basketball and the kernel method*
with Cyril Banderier, Christian Krattenthaler, Alan Krinik, Dmitry Kruchinin, Vladimir Kruchinin and David Nguyen, Lattice Path Combinatorics and Applications, Developments in Mathematics, Springer-Verlag, Cham, 2019, pages 78–118, preprint available at `arxiv.org/abs/1609.06473`.

2019$^{(3)}$ *The kernel method for lattice paths below a line of rational slope*
with Cyril Banderier, Lattice Path Combinatorics and Applications, Developments in Mathematics, Springer, Springer-Verlag, Cham, 2019, pages 119–154, preprint available at `arxiv.org/abs/1606.08412`.

Peer-reviewed papers in proceedings

2022$^{(1)}$ *Enumeration of d-combining Tree-Child Networks*
with Yu-Sheng Chang, Michael Fuchs, Hexuan Liu, and Guan-Ru Yu, AofA2022, 12 pp., Philadelphia.

2021$^{(2)}$ *Young tableaux with periodic walls: counting with the density method*
with Cyril Banderier, SLC 85B.47, 12 pp., FPSAC2021, Ramat Gan.

2020$^{(3)}$ *More models of walks avoiding a quadrant*
with Mireille Bousquet-Mélou, LIPIcs, Vol. 159 - Aofa 2020, 8:1–8:14, Klagenfurt.

2020$^{(1)}$ *Asymptotics of minimal deterministic finite automata recognizing a finite binary language*
with Andrew Elvey Price, Wenjie Fang, LIPIcs, Vol. 159 - Aofa 2020, 11:1–11:13, Klagenfurt.

2020 *Latticepathology and symmetric functions (extended abstract)*
with Cyril Banderier, Marie-Louise Lackner, LIPIcs, Vol. 159 - Aofa 2020, 2:1–2:16, Klagenfurt.

2019$^{(3)}$ *Combinatorics of nondeterministic walks of the Dyck and Motzkin type*
with Élie de Panafieu, Mohamed Lamine Lamali, ANALCO 2019: 1–12, San Diego, 2019, preprint available at `arxiv.org/abs/1812.06650`.

2019 *De la probabilité de creuser un tunnel*
with Élie de Panafieu, Mohamed Lamine Lamali, AlgoTel 2019, Saint Laurent de la Cabrerisse, 2019, preprint available at HAL 02123269v1.

2018$^{(2)}$ *Periodic Pólya Urns and an Application to Young Tableaux*
with Cyril Banderier, Philippe Marchal, LIPIcs, Vol. 110 - Aofa 2018, 11:1-11:13, 2018, Uppsala, preprint available at `arxiv.org/abs/1806.03133`.

2018 *Rectangular Young tableaux with local decreases and the density method for uniform random generation*
with Cyril Banderier and Philippe Marchal, CEUR Workshop Proceedings 2113, GASCom 2018:60–68, Athens, 2018, preprint available at `arxiv.org/abs/1805.09017`.

2018 *Local time for lattice paths and the associated limit laws*
with Cyril Banderier, CEUR Workshop Proceedings 2113, GASCom 2018:69–78, Athens, 2018, preprint available at `arxiv.org/abs/1805.09065`.

2017 *Lattice paths with catastrophes*
with Cyril Banderier, Electronic Notes in Discrete Mathematics, 59:131-146, GASCom 2016, La Marana.

2017 *A note on the scaling limits of random Pólya trees*
with Bernhard Gittenberger and Emma Yu Jin, ANALCO 85–93, Barcelona, 2017, preprint available at `arxiv.org/abs/1606.08769`.

2016$^{(4)}$ *A half-normal distribution scheme for generating functions and the unexpected behavior of Motzkin paths*
AofA 2016, Krakow, Poland, pages 341–352, preprint available at `arxiv.org/abs/1605.03046`.

2016 *The reflection-absorption model for directed lattice paths*
with Cyril Banderier, Vienna Young Scientists Symposium, Vienna, pages 98–99.

2015$^{(3)}$ *Lattice paths of slope 2/5*
with Cyril Banderier, ANALCO, San-Diego, pages 105–113, preprint available at `arxiv.org/abs/1605.02967`.

2014 *Some reflections on directed lattice paths*
with Cyril Banderier, AofA 2014, Paris, pages 25–36, preprint available at `arxiv.org/abs/1605.01687`.

Theses

2022 *Combinatorial analysis of directed acyclic graphs, Young tableaux, and lattice paths*
Habilitation thesis, TU Wien, Vienna.

2016 *Combinatorics of lattice paths and tree-like structures*
PhD thesis, TU Wien, Vienna.

2013 *Lattice path combinatorics*
Master's thesis, TU Wien, Vienna.

2012 *Algebraic multigrid methods for higher-order finite element discretization with parallelization*
Master's thesis, Brunel University, London.

2011 *Polynome über endlichen Körpern*
Bachelor's thesis, TU Wien.

Talks

All events are links leading to the respective venues. Invited talks (not counting seminars) are marked with a "*", international conferences by "^{I}".

63 *Young tableaux with periodic walls: counting with the density method*, SFB F50 Algorithmic and Enumerative Combinatorics veteran status seminar, Admont, Austria, December 2022.

62 *Walks avoiding a quadrant and the reflection principle*, Joint MATHEXP-PolSys Seminar, Inria Saclay (Palaiseau), France, October 2022.

61* *Limit laws for lattice paths with catastrophes*, Department of Mathematics, Guest lecture, Klagenfurt, Austria, September 2022.

60^{I*} *Phase transitions of composition schemes: Mittag-Leffler and mixed Poisson distributions*, Algorithmic Enumerative Combinatorics Conference (AEC), Wien, Austria, July 2022.

59* *Walks Avoiding a quadrant and the reflection principle*, Groupe de travail "Transcendence et Combinatoire", Online/IHP Paris, France, May 2022.

58 *Phase transitions of composition schemes: Mittag-Leffler and mixed Poisson distributions*, Arbeitsgemeinschaft Diskrete Mathematik, Online/TU Wien, Austria, April 2022.

57 *Phase transitions of composition schemes: Mittag-Leffler and mixed Poisson distributions*, Probability, Statistics and Combinatorics Seminar, Online/Uppsala University, Sweden, February 2022.

56 *Young Tableaux with Periodic Walls: Counting with the Density Method*, Arbeitsgemeinschaft Diskrete Mathematik, Online/TU Wien, Austria, January 2022.

55 *Young Tableaux with Periodic Walls: Counting with the Density Method*, Seminar Combinatoire et interactions, Online/Bordeaux, France, November 2021.

54^I *Compacted binary trees and minimal automata admit stretched exponentials*, DMV-ÖMG Jahrestagung 2021, Passau (Online), September 2021.

53 *More Models of Walks Avoiding a Quadrant*, SFB In-person Meeting, Linz, Austria, August 2021.

52^{I*} *Stretched exponentials and beyond*, 32nd International Conference on Probabilistic, Combinatorial and Asymptotic Methods for the Analysis of Algorithms (AofA 2021), Online/Klagenfurt, Austria, June 2021.

51^{*I} *Compacted binary trees and minimal automata admit stretched exponentials*, CanaDAM 2021, Online, Canada, May 2021.

50^{*I} *More Models of Walks Avoiding a Quadrant*, CanaDAM 2021, Online, Canada, May 2021.

49* *Das 1x1 des evolutinären Stammbaums (German)*, public lecture for a general audience held online at TUForMath, TU Wien (Online), Austria, May 2021.

48 *Periodic Pólya urns and asymptotics of Young tableaux*, Arbeitsgemeinschaft Diskrete Mathematik, TU Wien, Austria, March 2021.

47 *Compacted binary trees and minimal automata admit stretched exponentials*, Arbeitsgemeinschaft Diskrete Mathematik, TU Wien, Austria, January 2021.

46^I *Compacted binary trees admit stretched exponentials*, Computational Logic and Applications (CLA 2020), online, October 2020.

45^I *Latticepathology and Symmetric Functions*, 31st International Conference on Probabilistic, Combinatorial and Asymptotic Methods for the Analysis of Algorithms (AofA 2020), online, October 2020.

44^I *More Models of Walks Avoiding a Quadrant*, 31st International Conference on Probabilistic, Combinatorial and Asymptotic Methods for the Analysis of Algorithms (AofA 2020), online, October 2020.

43 *Periodic Pólya urns and asymptotics of Young tableaux*, Plateau Saclay Combinatorics Seminar, online and Paris, France, June 2020.

42 *Stretched exponentials for compacted binary trees and a class of minimal automata*, Séminaire d'algorithmique, UPEM, Paris, France, January 2020.

41 *Compacted binary trees admit a stretched exponential*, Seminar Combinatoire Énumérative et Algébrique, LaBRI, Bordeaux, France, December 2019.

40^{I} *Counting and Sampling Gene Families Evolutionary Histories*, 5th Algorithmic and Enumerative Combinatorics Summer School 2019, Hagenberg, Austria, July 2019.

39^{I} *Periodic Pólya urns and an application to Young tableaux*, SIAM Algebraic Combinatorics Conference, Bern, Switzerland, July 2019.

38^{I} *Asymptotic Enumeration of Compacted Binary Trees with Height Restrictions*, 30th International Conference on Probabilistic, Combinatorial and Asymptotic Methods for the Analysis of Algorithms (AofA 2019), CIRM, Marseille, France, July 2019.

37 *Counting and Sampling Gene Families Evolutionary Histories*, Seminar Combinatoire Énumérative et Algébrique, LaBRI, Bordeaux, France, April 2019.

36^{*I} *Periodic Pólya Urns and Asymptotics of Triangular Young tableaux*, Journées de combinatoire de Bordeaux, LaBRI, Bordeaux, France, February 2019.

35 *Periodic Pólya Urns and Asymptotics of Triangular Young tableaux*, Séminaires de Probabilités-Statistiques, Université de Versailles Saint-Quentin-en-Yvelines, Versailles, France, February 2019.

34^{*I} *Limit laws for lattice paths with catastrophes*, Joint Mathematics Meetings 2019, Baltimore, USA, January 2019.

33^{I} *A bijection of plane increasing trees with bounded relaxed binary trees*, 4th Algorithmic and Enumerative Combinatorics Summer School 2018, Hagenberg, Austria, July 2018.

32^{I} *Periodic Pólya urns and an application to Young tableaux*, 29th International Conference on Probabilistic, Combinatorial and Asymptotic Methods for the Analysis of Algorithms (AofA 2018), Uppsala, Sweden, June 2018.

31 *Periodic Pólya urns and an application to Young tableaux*, Seminar Combinatoire Énumérative et Algébrique, LaBRI, Bordeaux, France, June 2018.

30^{I} *Asymptotic Enumeration of Compacted Binary Trees with Height Restrictions*, Computational Logic and Applications, Sorbonne University, Paris, France, May 2018.

29^{*I} *Periodic Pólya urns and an application to Young tableaux*, Journée MathStic - Combinatoire, probabilités, et physique, LIPN, Paris, France, May 2018.

28^{I} *A bijection of plane increasing trees with bounded relaxed binary trees*, Journées ALEA, CIRM, Marseille, France, March 2018.

27 *Asymptotic Enumeration of Compacted Binary Trees with Height Restrictions*, Seminar of the Combinatoire Énumérative et Algébrique, LaBRI, Bordeaux, France, February 2018.

26* *Half-normal lattice paths*, PhD Seminars Mathematics, Ghent University, Belgium, December 2017.

25 *Asymptotic Enumeration of Compacted Binary Trees with Height Restrictions*, Seminar "Computations and Proofs", INRIA, France, December 2017.

24 *Lattice paths with catastrophes: limit laws and random generation*, Séminaire de Probabilités et Théorie Ergodique, Univeristé de Tours, France, November 2017.

23 *Limit laws for lattice paths with catastrophes*, séminaire de combinatoire, LIPN, Paris, France, September 2017.

22 *An introduction to lattice path counting (with catastrophes)*, PostDoc Seminar, Institute of Statistical Science, Academia Sinica, Taiwan, July 2017.

21 *Limit laws for lattice paths with catastrophes*, Seminar on Combinatorics, Institute of Mathematics, Academia Sinica, Taiwan, July 2017.

20 *The kernel method for lattice paths below a line of rational slope*, Algo@ISS-AS Seminar, Institute of Statistical Science, Academia Sinica, Taiwan, June 2017.

19^{I} *A note on the scaling limits of random Pólya trees*, Analytic Algorithmics and Combinatorics (ANALCO), Barcelona, Spain, January 2017.

18 *Compacted binary trees*, SFB F50 Algorithmic and Enumerative Combinatorics status seminar, Strobl, Austria, November 2016.

17 *A note on the scaling limits of random Pólya trees*, Arbeitsgemeinschaft Diskrete Mathematik, TU Wien, Austria, November 2016.

16^{I} *Lattice paths with catastrophes*, 77th Séminaire Lotharingien de combinatoire (SLC77), Strobl, Austria, September 2016.

15^{*I} *A half-normal distribution scheme for generating functions*, Asymptotic Analysis of Algorithms & Combinatorial Structures (A3CS), Paris, France, September 2016.

14^{I} *A half-normal distribution scheme for generating functions and the unexpected behavior of Motzkin paths*, 27th International Conference on Probabilistic, Combinatorial and Asymptotic Methods for the Analysis of Algorithms (AofA 2016), Kraków, Poland, July 2016.

13^{*I} *Lattice paths below a line of rational slope*, Final conférence of the MADACA project, Domaine de Chalès, France, June 2016.

12 *A half-normal distribution scheme for generating functions*, Arbeitsgemeinschaft Diskrete Mathematik, TU Wien, Austria, June 2016.

11^{*I} *An Invitation to Analytic Combinatorics and Lattice Path Counting*, ALEA in Europe Young Researchers' Workshop, University of Bath, Bath, UK, December 2015.

10 *Counting compacted trees*, SFB F50 Algorithmic and Enumerative Combinatorics status seminar, Strobl, Austria, December 2015.

9 *Why and when does the half-normal distribution appear in combinatorics?*, Séminaire de combinatoire, LIPN, Paris, France, September 2015.

8^{I} *A half-normal limit distribution scheme and applications to lattice paths*, 8th International Conference on Lattice Path Combinatorics & Applications, Cal Poly Pomona, USA, August 2015.

7* *The extension of a Rayleigh limiting distribution scheme*, SFB workshop on Lattice Walks, Hagenberg, Austria, May 2015.

6^{I} *Lattice paths of slope 2/5*, Analytic Algorithmics and Combinatorics (ANALCO), San Diego, USA, January 2015.

5 *Lattice paths of slope 2/5*, SFB F50 Algorithmic and Enumerative Combinatorics status seminar, Strobl, Austria, December 2014.

4 *Lattice paths of slope 2/5 – Solving a problem of Knuth*, Arbeitsgemeinschaft Diskrete Mathematik, TU Wien, Austria, November 2014.

3 *Some (more) reflections on lattice paths*, Probability seminar of the Université Francois Rabelais, Tours, France, September 2014.

2^{I} *Some reflections on lattice paths*, 25th International Conference on Probabilistic, Combinatorial and Asymptotic Methods for the Analysis of Algorithms (AofA 2014), Paris, France, June 2014.

1 *Some reflections on directed lattice paths*, Arbeitsgemeinschaft Diskrete Mathematik, TU Wien, Austria, May 2014.

Poster presentations

4 *Dyck paths and inversion tables*, Permutation Patterns 2023, Dijon, France, July 2023.

3 *Young Tableaux with Periodic Walls: Counting with the Density Method*, 33rd International Conference on Formal Power Series and Algebraic Combinatorics (FPSAC 2021), Online/Ramat-Gan, Israel, January 2022.

2 *Latticepathology and symmetric functions*, Lattice Paths, Combinatorics and Interactions, Online/CIRM, Marseille, France, July 2021.

1 *The reflection-absorption model for directed lattice paths*, VIENNA young SCIENTISTS SYMPOSIUM (VSS16), Vienna, Austria, June 2016.

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