

Sebastian Wiederrecht

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German

Work experience

Dates
Position held
Employer

01/10/2024 – present
Assistant Professor
School of Computing, Korea Advanced Institute of Science and Technology (KAIST), Daejeon, South Korea

Dates
Position held
Employer

15/07/2022 – 30/09/2024
Postdoctoral research fellow
DIMAG, Institute for Basic Science (IBS), Daejeon, South Korea

Dates
Position held
Employer

01/06/2021 – 31/05/2022
Postdoctoral research fellow
LIRMM, Centre national de la recherche scientifique (CNRS), Montpellier, France

Dates
Position held
Employer

15/04/2016 – 16/05/2021
Researcher and course coordinator
Chair of Logic and Semantics at Technische Universität Berlin, Berlin, Germany

Education and training

Dates
Qualification
Honours
Thesis title
Supervisor
Committee
Name of organisation

15/04/2016 – 16/05/2021
Doctor rerum naturalium (Dr. rer. nat.)
Summa cum laude
Matching Minors in Bipartite Graphs
Professor Stephan Kreutzer
Professor Reinhard Diestel, Professor Sergey Norin
Technische Universität Berlin, Berlin, Germany

Dates
Qualification
Name of organisation

01/04/2011 – 31/03/2016
Master of Science (MSc) in Mathematics
RWTH Aachen University, Aachen, Germany

Research articles (selected)

- *Killing a vortex*,
with Dimitrios M. Thilikos.
Journal of the ACM (2024, extended abstract published at FOCS 2022).
- *Obstructions to Erdős Pósa Dualities for Minors*,
with Christophe Paul, Evangelos Protopapas, Dimitrios M. Thilikos
65th IEEE Symposium on Foundations of Computer Science (FOCS 2024).
- *A Flat Wall Theorem for Matching Minors in Bipartite Graphs*,
with Archontia C. Giannopoulou.
56th annual ACM Symposium on Theory of Computing (STOC 2024).
- *Packing even directed circuits quarter-integrally*
with Maximilian Gorsky, Ken-ichi Kawarabayashi, Stephan Kreutzer.
56th annual ACM Symposium on Theory of Computing (STOC 2024).
- *Polynomial bounds for the Graph Minor Structure Theorem*
with Maximilian Gorsky, Michał T. Seweryn.
66th IEEE Symposium on Foundations of Computer Science (FOCS 2025).
- *Optimal Bounds for the k -Disjoint Paths Problem*
with Dario Cavallaro, Maximilian Gorsky, Stephan Kreutzer, Dimitrios M. Thilikos.
accepted at FOCS 2026

Academic activities

2026 ⁺	◦ Invited Speaker at 48th Australasian Combinatorics Conference (48ACC) (url: https://48acc.github.io/) ◦ Invited Speaker at GROW 2026 (url: https://sites.google.com/impan.pl/grow2026)
2025	◦ Invited Speaker at Bertinoro Workshop on Algorithms and Graphs 2025 (url: https://bwag25.bici.events/home) ◦ Co-organisier and lecturer at <i>2025 Winter School on Graph Minors</i> at IBS - DIMAG.
2024	◦ Invited lecturer at the <i>2024 Advanced Parameterized Graph Algorithms</i> workshop (url: https://apga2024.weebly.com/). ◦ Invited lecturer at the <i>2024 Summer School on Combinatorics and Algorithms</i> at KAIST.
2023	◦ Co-organisier of a one week workshop on the theory of <i>vertex minors</i> with the Discrete Mathematics Group at IBS. ◦ Co-organisier of the minisymposium <i>Structural graph theory</i> at the canadian Discrete and Algorithmic Mathematics (CanaDAM) conference 2023.
2022	◦ Co-organisier of the one week workshop <i>Directed minors and graph structure theory</i> within the Sparse (Graphs) Coalition (url: https://sparse-graphs.mimuw.edu.pl/doku.php?id=start).
2016 - 2018	◦ Member of the organising committee for the representation of the TCS group of TU Berlin at the annual public outreach event <i>Lange Nacht der Wissenschaften</i> (url: https://www.langenachtderwissenschaften.de/).

Committees

since 2026

- Editor for the Graph Theory section of the open access journal *Discrete Mathematics Theoretical Computer Science* (DMTCS)

2026

- Program Committee of *54th EATCS International Colloquium on Automata, Languages, and Programming* (ICALP 2027)

2025

- Member of the *Student Welfare Committee* at the School of Computing (KAIST)
- Program Committee of *Algorithms and Data Structures Symposium* (WADS 2025)
- Selection Committee for the DAAD scholarship programme for international students (based in Korea)

Awards

2020

Best student presentation award at 6th Annual International Conference on Algorithms and Discrete Applied Mathematics (CALDAM) for the presentation of the paper *Parameterized Algorithms for Directed Modular Width*. (url: <http://acsdm.org/acsdm/awards/>)

Grants

2022

Walter Benjamin Fellowship (DFG) Research grant for a two year position as a postdoctoral fellow issued by the German Research Foundation (declined in favour of the position at IBS).

Publications

Journals

- 2026 ◦ *Approximating branchwidth on parametric extensions of planarity*,
with Dimitrios M. Thilikos
Journal of Computer and System Sciences.
- *Two Disjoint Alternating Paths in Bipartite Graphs*,
with Archontia C. Giannopoulou
Combinatorica
- 2025 ◦ *Unavoidable induced subgraphs in graphs with complete bipartite induced minors*,
with Maria Chudnovsky, Meike Hatzel, Tuukka Korhonen, and Nicolas Trotignon,
SIAM Journal on Discrete Mathematics.
- *A note on the 2-factor Hamiltonicity Conjecture*,
with Maximilian Gorsky and Theresa Johanni,
Discrete Mathematics.
- *Braces of perfect matching width 2*,
with Archontia Giannopoulou and Meike Hatzel,
Electronic Journal of Combinatorics.
- 2024 ◦ *Killing a vortex*,
with Dimitrios M. Thilikos,
Journal of the ACM.
- 2023 ◦ *Excluding a Planar Matching Minor in Bipartite Graphs*,
with Archontia C. Giannopoulou, Stephan Kreutzer,
Journal of Combinatorial Theory, Series B.
- 2022 ◦ *Matching Theory and Barnette's Conjecture*,
with Maximilian Gorsky, Raphael Steiner,
Discrete Mathematics.
- *Colouring Non-Even Digraphs*,
with Marcelo Garlet Millani, Raphael Steiner,
Electronic Journal of Combinatorics.
- *Even Circuits in Oriented Matroids*,
with Karl Heuer, Raphael Steiner,
Combinatorial Theory.
- 2020 ◦ *Digraphs of Directed Treewidth One*,
Discrete Mathematics.
- 2018 ◦ *On Chordal Graph and Line Graph Squares*,
with Robert Scheidweiler,
Discrete Applied Mathematics.

Peer-reviewed Conferences

- 2026
 - *Quickly excluding an annotated planar graph*,
with Maximilian Gorsky, Evangelos Protopapas,
53rd International Colloquium on Automata, Languages, and Programming (ICALP 2026).
 - *The price of homogeneity is polynomial*,
with Maximilian Gorsky, Michał T Seweryn,
53rd International Colloquium on Automata, Languages, and Programming (ICALP 2026).
 - *Colorful Minors*,
with Evangelos Protopapas, Dimitrios M. Thilikos,
53rd International Colloquium on Automata, Languages, and Programming (ICALP 2026).
 - *Odd-Cycle-Packing-treewidth: On the Maximum Independent Set problem in odd-minor-free graph classes*,
with Mujin Choi, Maximilian Gorsky, Gunwoo Kim, Caleb McFarland,
53rd International Colloquium on Automata, Languages, and Programming (ICALP 2026).
 - *Catching Rats in H -minor-free Graphs*,
with Maximilian Gorsky, Giannos Stamoulis, and Dimitrios M. Thilikos,
Annual ACM-SIAM Symposium on Discrete Algorithms (SODA 2026).
 - *The Erdős-Pósa property for circle graphs as vertex-minors*,
with Rutger Campbell, J. Pascal Gollin, Meikte Hatzel, O-joung Kwon, Rose McCarty, and Sang-il Oum,
Annual ACM-SIAM Symposium on Discrete Algorithms (SODA 2026).
- 2025
 - *Polynomial Bounds for the Graph Minor Structure Theorem*,
with Maximilian Gorsky and Michał Seweryn,
IEEE 66th Annual Symposium on Foundations of Computer Science (FOCS 2025).
 - *Excluding an induced wheel minor in graphs without large induced stars*,
with Mujin Choi, Claire Hilaire, and Martin Milanič,
51st International Workshop on Graph-Theoretic Concepts in Computer Science (WG 2026).
 - *Twin-width one*,
with Jungho Ahn, Hugo Jacob, Noleen Köhler, Christophe Paul, Amadeus Reinald,
42nd International Symposium on Theoretical Aspects of Computer Science (STACS 2025).
- 2024
 - *Obstructions to Erdős Pósa Dualities for Minors*,
with Christophe Paul, Evangelos Protopapas, Dimitrios M. Thilikos,
65rd IEEE Symposium on Foundations of Computer Science (FOCS 2024).
 - *A Flat Wall Theorem for Matching Minors in Bipartite Graphs*,
with Archontia C. Giannopoulou,
56th annual ACM Symposium on Theory of Computing (STOC 2024).
 - *Packing even directed cituits quarter-integrally*,
with Maximilian Gorsky, Ken-ichi Kawarabayashi, Stephan Kreutzer,
56th annual ACM Symposium on Theory of Computing (STOC 2024).

- *Delineating Half-Integrality of the Erdős-Pósa Property for Minors*,
Christophe Paul, Evangelos Protopapas, Dimitrios M. Thilikos,
51st EATCS International Colloquium on Automata, Languages and Programming
(ICALP 2024).
 - *Approximating branchwidth on parametric extensions of planarity*,
with Dimitrios M. Thilikos,
50th International Workshop on Graph-Theoretic Concepts in Computer Science
(WG 2024).
- 2023
 - *Excluding a single-crossing matching minor in bipartite graphs*,
with Archontia C. Giannopoulou, Dimitrios M. Thilikos,
ACM-SIAM Symposium on Discrete Algorithms (SODA 2023).
 - *Kernelization for Graph Packing Problems via Rainbow Matching*,
with Stéphane Bessy, Marin Bougeret, Dimitrios M. Thilikos,
ACM-SIAM Symposium on Discrete Algorithms (SODA 2023).
- 2022
 - *Killing a vortex*,
with Dimitrios M. Thilikos,
63rd IEEE Symposium on Foundations of Computer Science (FOCS 2022).
- 2021
 - *Directed width parameters on semicomplete digraphs*,
with Frank Gurski, Dominique Komander, Carolin Rehs,
International Conference on Combinatorial Optimization and Applications.
- 2020
 - *Parameterized Algorithms for Directed Modular Width*,
with Raphael Steiner,
Conference on Algorithms and Discrete Applied Mathematics (CALDAM 2020).
- 2019
 - *On Polynomial-Time Congestion-Free Software-Defined Network Updates*,
with Saeed Akhoondian Amiri, Szymon Dudycz, Mahmoud Parham, Stefan Schmid,
2019 IFIP Networking Conference (IFIP Networking 2019).
 - *Cyclewidth and the Grid Theorem for Perfect Matching Width of Bipartite Graphs*,
with Roman Rabinovich, Meike Hatzel,
45th International Workshop on Graph-Theoretic Concepts in Computer Science
(WG 2019).
- 2018
 - *Congestion-Free Rerouting of Flows on DAGs*,
with Saeed Akhoondian Amiri, Szymon Dudycz, Stefan Schmid,
45th International Colloquium on Automata, Languages, and Programming
(ICALP 2018).
 - *On Perfect Linegraph Squares*,
with Meike Hatzel,
44th International Workshop on Graph-Theoretic Concepts in Computer Science
(WG 2018).

For a comprehensive list of my currently available preprints, check the *Publications* section on my homepage (url: <https://www.wiederrecht.com/publications>). Here, links to arxiv-versions of almost all of my articles are also available.