

# Curriculum Vitae

## Personal information

Surname, First name  
E-mail  
Telephone  
Homepage  
Nationality

**Wiederrecht, Sebastian**  
sebastian.wiederrecht@gmail.com  
+82-42-878-9212  
<https://www.wiederrecht.com>  
German

## Work experience

Dates  
Position held  
Employer

15/07/2022 – present  
Postdoctoral research fellow  
Discrete Mathematics Group, 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

Dates  
Position held  
Employer

01/04/2015 – 30/04/2016  
Student researcher  
Lehrstuhl II für Mathematik at RWTH Aachen University,  
Aachen, 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.  
63rd IEEE Symposium on Foundations of Computer Science (FOCS 2022).
- *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).
- *Excluding a Planar Matching Minor in Bipartite Graphs*, with Archontia C. Giannopoulou, Stephan Kreutzer.  
Journal of Combinatorial Theory, Series B
- *Packing even directed cituits quarter-integrally* with Maximilian Gorsky, Ken-ichi Kawarabayashi, Stephan Kreutzer.  
(preprint, submitted) arXiv.org: <https://arxiv.org/abs/2311.16816>.

## Academic activities

2023	Co-organiser of a one week workshop on the theory of <i>vertex minors</i> with the Discrete Mathematics Group at IBS.
2023	Co-organiser of the minisymposium <i>Structural graph theory</i> at the canadian Discrete and Algorithmic Mathematics (CanaDAM) conference 2023.
2022	Co-organiser of the one week workshop <i>Directed minors and graph structure theory</i> within the Sparse (Graphs) Coalition.
2017	Member of the organising committee of the <i>Highlights of Algorithms</i> (HALG) conference 2017. (Designed the current logo.)
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> ( <a href="https://www.langenachtderwissenschaften.de/">https://www.langenachtderwissenschaften.de/</a> ).

## Awards

2020	<b>Best student presentation award</b> at 6th Annual International Conference on Algorithms and Discrete Applied Mathematics (CALDAM) for the presentation of the paper <i>Parameterized Algorithms for Directed Modular Width</i> . <a href="http://acsdm.org/acsdm/awards/">http://acsdm.org/acsdm/awards/</a>
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## Grants

2022	<b>Walter Benjamin Fellowship (DFG)</b> Research grant for a two year position as a postdoctoral fellow issued by the German Research Foundation (declined in favor of current position).
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**Peer reviewed for**

**Journals**

Journal of Combinatorial Theory, Series B

SIAM Journal of Discrete Mathematics

ACM Transactions on Algorithms

Electronic Journal of Combinatorics

Discrete Mathematics

Information Processing Letters

**Conferences**

Symposium on the Theory of Computing (STOC)

Symposium on Discrete Algorithms (SODA)

International Colloquium on Automata, Languages and Programming (ICALP)

European Symposium on Algorithms (ESA)

International Workshop on Graph-theoretic Concepts in Computer Science (WG)

International Symposium on Algorithms and Computation (ISAAC)

International Symposium on Parameterized and Exact Computation (IPEC)

European Conference on Combinatorics, Graph Theory and Applications (EUROCOMB)

**Talks**

(selected, a detailed list can be found on my homepage under <https://www.wiederrecht.com/activities>)

upcoming

*Packing even directed circuits quarter-integrally* (SIAM Conference on Discrete Mathematics 2024, Spokane, Washington, USA)

*Bipartite treewidth* (55th Southeastern International Conference on Combinatorics 2024, Florida Atlantic University, Florida, USA)

*Bipartite treewidth* (29th KIAS Combinatorics Workshop, )

2023

*Universal obstructions in graph minors* (10th Slovenian Conference on Graph Theory, minisymposium on algorithmic graph theory, Kranjska gora, Slovenia, 2023)

*Universal obstructions in graph minors* (CanaDAM 2023, minisymposium on structural graph theory, 2023)

*Excluding single-crossing matching minors in bipartite graphs* (ACM-SIAM Symposium on Discrete Algorithms (SODA 2023), Florence, Italy)

2022

*Killing a vortex* (63rd IEEE Symposium on Foundations of Computer Science (FOCS 2022), Denver, USA)

*Matching minors & the permanent* (Seymour's 70th, Lyon, France)

*On tangles and cops & robber in digraphs* (10th Workshop on GRaph Searching, Theory and Applications (GRASTA 2022), Porquerolles, France)

2021

*Digraph minors and matching theory* (Workshop *Directed minors and graph structure theory* within the Sparse (Graphs) Coalition; online)

*Even circuits in oriented matroids* (Graphs and Matroids Seminar, University of Waterloo, Waterloo, Canada; online)

*Matching minors* (Forschungsseminar Diskrete Mathematik, University of Hamburg, Germany; online)

## Teaching experience

15/04/2016 –  
16/05/2021

Courses taught

**Course coordinator**, Technische Universität Berlin

Course coordinator for *Algorithmic Graph Structure Theory* (graduate course, responsible for producing exercise material and teaching exercise courses; course taught in English)

Course coordinator for *Diskrete Strukturen* (undergraduate course with roughly 400 students, responsible for producing exercise material, managing student assistants, producing and supervising exams, and teaching exercise courses; course taught in German)

Course coordinator for *Extremal Combinatorics* (graduate course, responsible for producing exercise material and teaching exercise courses; course taught in English)

Course coordinator for *Game Theory* (graduate course, responsible for producing exercise material and teaching exercise courses; course taught in English)

Course coordinator for *Logik* (undergraduate course with roughly 400 students, responsible for producing exercise material, managing student assistants, producing and supervising exams, and teaching exercise courses; course taught in German)

01/04/2014 –  
30/09/2015

Courses taught

**Teaching assistant**, RWTH Aachen University

Teaching assistant for *Höhere Mathematik I, II and III* (undergraduate courses with more than 1000 engineering students each, teaching exercise courses; courses taught in German)

## Mentoring Activities

Co-supervision of  
Bachelor Theses

Rudi Schneider: *Catching an invisible robber on digraphs using few cops*

Maximilian Gorsky: *Bricks of Low Connectivity*

Henri Tannenber: *Packing and Hitting Directed Cycles in Non-Even Digraphs in Polynomial Time*

Ahmed Khelifi: *On 3-dicographs*

Co-supervision of  
Master Theses

Maximilian Gorsky: *Towards a Characterization of König Graphs*

Internships

Fanny Hauser: *Directed graph searching games*

## Publications

### Journals

- 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 346.2 (2023): 113249
- *Colouring Non-Even Digraphs*, with Marcelo Garlet Millani, Raphael Steiner.  
The Electronic Journal of Combinatorics, 29(4), P4-9.
- *Even Circuits in Oriented Matroids*, with Karl Heuer, Raphael Steiner.  
Combinatorial Theory, 2 (1), #3.
- 2020 – *Digraphs of Directed Treewidth One*  
Discrete Mathematics 343.12: 112124.
- 2018 – *On Chordal Graph and Line Graph Squares*, with Robert Scheidweiler.  
Discrete Applied Mathematics 243: 239–247.

### Peer-reviewed conferences

- 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. Springer, Cham, 2021. 615-628.
- *The Flat Wall Theorem for Bipartite Graphs with Perfect Matchings*, with Archontia C. Giannopoulou  
Extended Abstracts EuroComb 2021 (pp. 429–435). Birkhäuser, Cham.
- 2020 – *Parameterized Algorithms for Directed Modular Width*, with Raphael Steiner.  
Conference on Algorithms and Discrete Applied Mathematics. Springer, Cham.
- 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) (pp. 1-9). IEEE.
- *Cyclewidth and the Grid Theorem for Perfect Matching Width of Bipartite Graphs*, with Roman Rabinovich, Meike Hatzel.  
International Workshop on Graph-Theoretic Concepts in Computer Science (pp. 53-65). Springer, Cham.
- 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.  
International Workshop on Graph-Theoretic Concepts in Computer Science (pp. 252-265). Springer, Cham.