

# Torsten Ueckerdt

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## CONTACT INFORMATION

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Institute of Theoretical Informatics  
Karlsruhe Institute of Technology (KIT)  
Am Fasanengarten 5  
76131 Karlsruhe, Germany

*Phone:* +49 (0)721 608 473 34  
*E-mail:* torsten.ueckerdt@kit.edu  
*www:* [link to homepage]

## PERSONAL INFORMATION

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*Place and Date of Birth:* Berlin, Germany | 28 April 1983  
*Citizenship:* Germany  
*Civil status:* Married, three children (aged 9, 12, 15)

## EDUCATION

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### Karlsruhe Institute of Technology, Germany

Habilitation, Department of Mathematics **Dec 2017**

*Habilitation Thesis:* Coloring and Covering – Geometric Graphs and Hypergraphs.  
*Area of Study:* Structural Graph Theory, Discrete Geometry, Extremal Graph Theory.

### Technische Universität Berlin, Germany

Ph.D., Mathematics, *Summa Cum Laude* **Nov 2011**

*Dissertation:* Geometric Representations of Graphs with Low Polygonal Complexity.  
*Committee:* Stefan Felsner (Supervisor), Stephen Kobourov, Jan Kratochvíl.  
*Area of Study:* Contact and Intersection Graphs, Algorithms, Planar Graphs, Complexity.

Diploma (M.Sc.), Mathematics, *Summa Cum Laude* **April 2008**

*Thesis:* Calculating Short Integral Cycle Bases of Graphs.  
*Supervisor:* Rolf H. Möhring.  
*Area of Study:* Algorithmic Graph Theory.

## EMPLOYMENT

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### Karlsruhe Institute of Technology – Computer Science, Germany

Interim Professor (W3) **April 2020 – present**

Substitution for Dorothea Wagner  
*Group:* Algorithmics I  
Supervision of PhD students Paul Jungeblut and Laura Merker

Teaching on Bachelor and Master level

Lecturer and Teaching Assistant for lectures and seminars  
→ Detailed List of Courses  
Supervisor of 7 Bachelor students and 8 Master students  
Reviewer of 14 Bachelor students and 10 Master students

Postdoctoral Research Assistant **Oct 2017 – March 2020**  
*“Graphs and Algorithms”*  
Group: Algorithmics I  
Head of Group: Dorothea Wagner

**Karlsruhe Institute of Technology – Mathematics, Germany**

Postdoctoral Research Assistant **Sept 2012 – Sept 2017**  
*“Graph Theory and Combinatorics”*  
Group: Discrete Mathematics  
Head of Group: Maria Axenovich  
Habilitation: December 2017

Teaching on Bachelor and Master level

Lecturer and Teaching Assistant for lectures and seminars  
Conceptual design and realization of 2 lectures and 6 seminars  
Supervisor of 1 Diploma student, 7 Bachelor students, and 4 Master students  
2nd Reviewer of 3 Diploma students, 6 Bachelor students, and 3 Master students

**Technische Universität Berlin, Germany**

Postdoctoral Research Stipendiary **July 2012 – Aug 2012**  
*“Geometric Intersection Graphs”*  
Member of the group of Friedrich Eisenbrand

**Charles University in Prague, Czech Republic**

Postdoctoral Research Assistant **Aug 2011 – July 2012**  
Head of Group: Jan Kratochvíl

Project supported by European Science Foundation (ESF) **Aug 2011 – July 2012**  
*“GraDR – Graph Drawings and Representations”*  
Part of the Program Graphs in Geometry and Algorithms (EuroGIGA)

**Technische Universität Berlin, Germany**

Research Assistant **May 2008 – July 2011**

Project of German Science Foundation (DFG) **May 2008 – July 2011**  
*“Graphenorientierungen in Ebene und Raum”*  
(Orientations of Graphs in the Plane and 3-Space)

Associated Member of DFG **Jan 2009 – Nov 2011**  
Research Training Group *“Methods for Discrete Structures”*

Undergraduate Teaching Assistant **Oct 2004 – Aug 2007**

## SCIENTIFIC MEETINGS (SINCE PHD)

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### Conference Talks and Invited Lectures

GD 2021 09/2021 • CanaDAM 2021 05/2021 • EuroCG 2021 04/2021 • Workshop on Graph Theory & Combinatorics in Thuringia 07/2020 • Graphs & Optimization seminar at LaBRI 07/2020 • FOCS 2019 11/2019 • DMV Annual Meeting 2019 09/2019 • GD2019 09/2019 • GD 2018 09/2018 • 1<sup>st</sup> Southwestern German Workshop on Graph Theory 08/2018 • ANR Meeting: “Embedded Graphs and their Oriented Structures” 02/2016 • GD 2015 09/2015 • Graduate Workshop: “Recent Trends in Graph Drawing: Curves, Graphs, and Intersections” 09/2015 • 5PCC 09/2014 • Monday Lecture of Methods for Discrete Structures RTG 01/2013 • CanaDAM 2013 • Computer Science Colloquium Würzburg 04/2013 • SODA 2013 01/2013 • EuroCG 2012 03/2012 • CSASC 2011 09/2011 • CanaDAM 2011 05/2011

### Workshop Attendances

Ninth Workshop on Geometry and Graphs in Barbados 01/2022 • Banff workshop on “Graph Product Structure Theory” 11/2021 • Dagstuhl seminar “Sparsity in Algorithms, Combinatorics and Logic” 09/2021 • Workshop “Generalized coloring numbers and friends” of the Sparse Graphs Coalition 02/2021 • Shonan Meeting on “Trends and Perspectives for Graph Drawing and Network Visualization” 02/2020 • Eighth Annual Workshop on Geometry and Graphs in Barbados 02/2020 • Heiligkreuztal Workshop on Graph and Network Visualization 07/2019 • Seventh Annual Workshop on Geometry and Graphs in Barbados 03/2019 • Dagstuhl seminar “Beyond-Planar Graphs: Combinatorics, Models and Algorithms” 02/2019 • Order and Geometry Workshop 09/2018 • Heiligkreuztal Workshop on Graph and Network Visualization 09/2018 • Dagstuhl seminar “Beyond-Planar Graphs: Algorithmics and Combinatorics” 11/2016 • Order and Geometry Workshop 09/2016 • Bertinoro Workshop on Graph Drawing 03/2016 • Bertinoro Workshop on Graph Drawing 03/2014 • Dagstuhl seminar: “Drawing Graphs and Maps with Curves” 04/2013 • Bertinoro Workshop on Graph Drawing 2013 03/2013 • Dagstuhl seminar: “Putting Data on the Map” 06/2012 • Bertinoro Workshop on Graph Drawing 2012 03/2012 • Fall School 2011 in Beroun, Czech Republic 10/2011

### Research Stays

Jagiellonian University in Kraków, Poland 10/2020 • Université Libre de Bruxelles, Belgium 04/2018 • Jagiellonian University in Kraków, Poland 12/2017 • Technische Universität Berlin, Germany 11/2017 • Jagiellonian University in Kraków, Poland 05/2017 • Technische Universität Berlin, Germany 09/2014 • Technische Universität Berlin, Germany 10-11/2013 • Durham University, UK 10/2013 • Eberhard Karls Universität Tübingen, Germany 08/2013 • Julius-Maximilians-Universität Würzburg, Germany 05/2013 • University of Arizona, USA 01/2013 • Université Libre de Bruxelles, Belgium 11/2012

### Professional Service

Associate editor *Annals of Combinatorics Journal* since Oct 2019

Program committee

38th European Workshop on Computational Geometry (EuroCG 2022)  
36th International Symposium on Computational Geometry (SoCG 2020)  
36th European Workshop on Computational Geometry (EuroCG 2020)  
27th International Symposium on Graph Drawing and Network Visualization (GD 2019)

Workshop organizer

Workshop “Geometric graphs and hypergraphs” of the Sparse Graphs Coalition  
1<sup>st</sup> Southwestern German Workshop on Graph Theory

Reviewer for project proposals for the German Science Foundation (DFG)

Permanent member of the selection committee for M.Sc. Computer Science at KIT

Member of selection committees for professorships at KIT

## RESEARCH

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### Interests

*Structural Graph Theory*: Especially Graph Covering and Decomposition, Extremal Problems, Sparsity, Vertex and Edge Coloring, Ramsey Theory, and Ordered Graphs.

*Geometric Graph Theory*: Especially Geometric Intersection and Contact Graphs, Planar Graphs, Graph Drawing, Delauney Graphs, and Topological Graph Theory.

*Partially Ordered Sets (Posets)*: Especially Representations, Geometric Posets, Dimension Theory, Lattices, and Cover Graphs.

*Geometry*: Especially Discrete and Combinatorial Geometry, Geometric Arrangements, Proximity Hypergraphs, Coverings,  $\varepsilon$ -Nets, and Polytopes.

*Algorithms*: Especially Optimization and Approximation, Recognition, and NP-Hardness.

*Game Theory*: Especially Two-Player-Games, On-Line Games on Graphs and Posets, Randomized Strategies and Nash-Equilibria.

### Publications

See Attachment

## TEACHING (SINCE PHD)

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### Karlsruhe Institute of Technology, Germany

#### Seminars

“Algorithmen für NP-schwere Probleme” (in German)	summer 2021
“Praxis der Software-Entwicklung” (Examiner)	summer 2021
“Energieinformatik” (Examiner)	winter 2020
“Algorithmen für NP-schwere Probleme” (in German)	summer 2020
“Praxis der Software-Entwicklung” (Examiner)	summer 2020
“Geometry, Graphs and Algorithms”	winter 2019
“Algorithmen für NP-schwere Probleme” (in German)	summer 2019
“Geometry, Graphs and Algorithms”	winter 2018
“Algorithmen für NP-schwere Probleme” (in German)	summer 2018
“Topics in Graph Theory and Combinatorics”	summer 2016
“Methods in Combinatorics”	winter 2015
“Graph Colouring and the Probabilistic Method”	winter 2014
“Topics in Graph Theory”	summer 2014
“Friday Seminar” (group seminar)	winter 2012 – summer 2017
“Extremal Set Theory”	winter 2012

## Lectures

<i>“Algorithmische Graphentheorie”</i> (in German)	summer 2021
<i>“Algorithmen für planare Graphen”</i> (in German)	summer 2021
<i>“Algorithmen für Routenplanung”</i> (Examiner)	summer 2021
<i>“Algorithmische Methoden zur Netzwerkanalyse”</i> (Examiner)	summer 2021
<i>“Algorithms for Graph Visualization”</i>	winter 2020
<i>“Theoretische Grundlagen der Informatik”</i> (in German)	winter 2020
<i>“Algorithmische Graphentheorie”</i> (in German)	summer 2020
<i>“Algorithmen für planare Graphen”</i> (in German)	summer 2020
<i>“Algorithmen für Routenplanung”</i> (Examiner)	summer 2020
<i>“Algorithmische Methoden zur Netzwerkanalyse”</i> (Examiner)	summer 2020
<i>“Algorithms for Graph Visualization”</i>	winter 2019
<i>“Algorithmische Graphentheorie”</i> (in German)	summer 2019
<i>“Theoretische Grundlagen der Informatik”</i> (in German)	winter 2018
→ teaching award of the Computer Science Department, KIT	
<i>“Algorithmische Graphentheorie”</i> (in German)	summer 2018
<i>“Theoretische Grundlagen der Informatik”</i> (Assistant, in German)	winter 2017
<i>“Combinatorics”</i>	summer 2017
<i>“Combinatorics in the Plane”</i>	winter 2016
<i>“Advanced Mathematics II”</i> (Assistant)	summer 2016
<i>“Graph Theory”</i> (Assistant)	winter 2015
<i>“Combinatorics”</i>	summer 2015
<i>“Graph Theory”</i> (Assistant)	winter 2013
<i>“Combinatorics in the Plane”</i>	summer 2013

## Charles University in Prague, Czech Republic

### Lecture

<i>“Combinatorics”</i>	summer 2012
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## REFeree ACTIVITIES (SINCE PHD)

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### Journals

Algorithmica • Combinatorica • Comp. Geom.-Theor. Appl. • Discrete Appl. Math. • Discrete Comput. Geom. • Discrete Math. • Electron. J. Comb. • Eur. J. Combin. • Inform. Process. Lett. • Internat. J. Combin. • Involve • J. Comb. Theory A • J. Comb. Theory B • J. Comb. Optim. • J. Comp. Geom. • J. Graph Algorithms Appl. • SIAM J. Discrete Math. • Symmetry • Theor. Comput. Sci.

### Conferences

ESA 2013 • GD 2013 • GD 2014 • SoCG 2014 • SODA 2014 • SOFSEM 2014 • WG 2014 • GD 2015 • ISAAC 2015 • SODA 2015 • STACS 2015 • WG 2015 • CCCG 2016 • GD 2016 • SODA 2017 • EuroComb 2017 • SoCG 2017 • ISAAC 2017 • LATIN 2018 • SoCG 2018 • SODA 2018 • COCOON 2018 • ESA 2018 • ISAAC 2018 • SOFSEM 2019 • SoCG 2019 • WG 2019 • GD 2019 • SoCG 2020 • EuroCG 2020 • MFCS 2020 • GD 2020 • SODA 2021 • EuroCG 2021 • SoCG 2021 • SODA 2022

last update: September 2021