

# Curriculum Vitae

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## Personal Information

Name: Sebastian Peter Siebertz  
Date of birth: 20th February 1984  
Place of birth: Bergisch Gladbach, Germany  
Nationality: German

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## Contact

Postal Address Institute of Informatics  
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## Employment

### Uniwersytet Warszawski

10/2016 – present Marie Skłodowska-Curie Fellow (supported by the National Science Centre of Poland and the European Union's Horizon 2020 research and innovation programme) at the Institute of Informatics of the University of Warsaw.

### Technische Universität Berlin

10/2015 – 09/2016 Post-doctoral research assistant at the Institute for Software Engineering and Theoretical Computer Science at Technische Universität Berlin.  
05/2011 – 09/2015 Research assistant at the Institute for Software Engineering and Theoretical Computer Science at Technische Universität Berlin.  
02/2014 – 02/2015 Parental leave

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## Education

05/2011 – 09/2015 **Technische Universität Berlin**

### PhD studies in theoretical computer science

Doctoral dissertation: *Nowhere Dense Classes of Graphs: Characterizations and Algorithmic Meta-Theorems*, grade: summa cum laude  
Supervisor: Professor Stephan Kreutzer

10/2004 – 04/2011 **RWTH Aachen University**

**Studies in computer science**

Diploma thesis: *Dynamic Definability*.

Supervisor: Professor Erich Grädel

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## Awards

- 2015 Best paper award at 41st International Workshop on Graph-Theoretic Concepts in Computer Science, WG 2015, for the paper *Covering and Colouring Nowhere Dense Classes of Graphs*, co-authored with Martin Grohe, Stephan Kreutzer, Roman Rabinovich and Konstantinos Stavropoulos.

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## Publications

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### Submitted / in preparation

- [1] J. van den Heuvel, P. Ossona de Mendez, R. Rabinovich, and S. Siebertz. *On the generalised colouring numbers of graphs that exclude a fixed minor*. Submitted to the European Journal of Combinatorics, 2016. <http://arxiv.org/abs/1602.09052>
- [2] S. Kreutzer, R. Rabinovich, and S. Siebertz. *Polynomial Kernels and Wideness Properties of Nowhere Dense Graph Classes*. Submitted to the Twenty-Eighth Annual ACM-SIAM Symposium on Discrete Algorithms, SODA 2017. <http://arxiv.org/abs/1608.05637>
- [3] S. Kreutzer, R. Rabinovich, S. Siebertz, and G. Weberstädt. *Structural Properties and Constant Factor-Approximation of Strong Distance- $r$  Dominating Sets in Sparse Directed Graphs*. Submitted to the Thirty-Fourth International Symposium on Theoretical Aspects of Computer Science, STACS 2017.
- [4] P. Ossona de Mendez, R. Rabinovich, and S. Siebertz. *Distributed approximations for generalised domination problems on classes of bounded expansion*. In preparation.

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### 2016

- [5] S. Akhoondian Amiri, S. Schmid, and S. Siebertz. *A local constant factor approximation for the minimum dominating set problem on bounded genus graphs*. ACM Symposium on Principles of Distributed Computing, PODC 2016, to appear. <http://arxiv.org/abs/1602.02991>
- [6] P. G. Drange, M. S. Dregi, F. V. Fomin, S. Kreutzer, D. Lokshtanov, M. Pilipczuk, M. Pilipczuk, F. Reidl, S. Saurabh, S. Siebertz, F.S. Villaamil and S. Sikdar. *Kernelization and sparseness: the case of dominating set*. 33rd International Symposium on Theoretical Aspects of Computer Science, STACS 2016. <http://arxiv.org/abs/1411.4575>
- [7] M. Grohe, S. Kreutzer, and S. Siebertz. *Deciding first-order properties of nowhere dense graphs*. Journal of the ACM, 2016, to appear. <http://arxiv.org/abs/1311.3899v2>
- [8] S. Kreutzer, M. Pilipczuk, R. Rabinovich, and S. Siebertz. *The generalised colouring numbers on classes of bounded expansion*. 41st International Symposium on Mathematical Foundations of Computer Science, MFCS 2016, to appear. <http://arxiv.org/abs/1606.08972>

- [9] S. Siebertz. *Nowhere Dense Classes of Graphs: Characterisations and Algorithmic Meta-Theorems*. Doctoral Thesis. Universitätsverlag der TU Berlin, 2016.  
doi:[10.14279/depositonce-5011](https://doi.org/10.14279/depositonce-5011)

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## 2015

- [10] S. Akhoondian Amiri, L. Kaiser, S. Kreutzer, R. Rabinovich and S. Siebertz. *Graph searching games and width measures for directed graphs*. 32nd Symposium on Theoretical Aspects of Computer Science, STACS 2015. doi:[10.4230/LIPIcs.STACS.2015.34](https://doi.org/10.4230/LIPIcs.STACS.2015.34)
- [11] M. Grohe, S. Kreutzer, R. Rabinovich, S. Siebertz and K. Stavropoulos. *Colouring and covering nowhere dense graphs*. 41st International Workshop on Graph-Theoretic Concepts in Computer Science, WG 2015. <http://arxiv.org/abs/1602.05926>
- [12] J. van den Heuvel, P. Ossona de Mendez, R. Rabinovich and S. Siebertz. *On the generalised colouring numbers of graphs that exclude a fixed minor*. Electronic Notes in Discrete Mathematics, 2015. <http://arxiv.org/abs/1602.09052>

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## 2014

- [13] S. Akhoondian Amiri, A. Golshani, S. Kreutzer and S. Siebertz. *Vertex disjoint paths in upward planar graphs*. The 9th International Computer Science Symposium in Russia, CSR 2014. <http://arxiv.org/abs/1312.1526v1>
- [14] M. Grohe, S. Kreutzer and S. Siebertz. *Deciding first-order properties of nowhere dense graphs*. 46th Annual Symposium on the Theory of Computing, STOC 2014.  
<http://arxiv.org/abs/1311.3899v2>

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## 2013

- [15] M. Grohe, S. Kreutzer and S. Siebertz. *Characterisations of nowhere dense graphs (invited talk)*. ARCS Annual Conference on Foundations of Software Technology and Theoretical Computer Science, FSTTCS 2013. doi:[10.4230/LIPIcs.FSTTCS.2013.21](https://doi.org/10.4230/LIPIcs.FSTTCS.2013.21)

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## 2012

- [16] V. Engemann, S. Kreutzer and S. Siebertz. *First-order and monadic second-order model-checking on ordered structures*. 27th Annual ACM/IEEE Symposium on Logic in Computer Science, LICS 2012. doi:[10.1109/LICS.2012.38](https://doi.org/10.1109/LICS.2012.38)
- [17] E. Grädel and S. Siebertz. *Dynamic definability*. 15th International Conference on Database Theory, ICDT 2012. doi:[10.1145/2274576.2274601](https://doi.org/10.1145/2274576.2274601)

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## Talks in conferences, workshops and other institutes

- [1] International Symposium on Mathematical Foundations of Computer Science (MFCS 2016), August 22-26, 2016, Krakow, Poland. *The generalised colouring numbers on classes of bounded expansion*.
- [2] Research visit hosted by Professor Mikołaj Bojańczyk, June 20–24, 2016, seminar talk, University of Warsaw, Poland. *The splitter game on nowhere dense classes of graphs*.

- [3] SIAM Conference on Discrete Mathematics, June 6–10, 2016, Georgia State University, Atlanta, Georgia, USA. *The splitter game on nowhere dense classes of graphs.*
- [4] Methods for Discrete Structures, Colloquium, May 2, 2016, Technische Universität Berlin, Berlin, Germany. *Game characterisations of bounded expansion and nowhere dense classes of graphs.*
- [5] Research visit hosted by Dr Michał Pilipczuk, November 16–20, 2015, seminar talk, University of Warsaw, Poland. *First-order definable dominating sets on classes of bounded genus.*
- [6] Dagstuhl Seminar 15401 – Circuits, Logic and Games, September 28 – October 2, 2015, Schloss Dagstuhl. *On the generalised colouring numbers of proper minor closed classes.*
- [7] European Conference on Combinatorics, Graph Theory and Applications (EUROCOMB), August 31 – September 4, 2015, University of Bergen, Bergen, Norway. *On the generalised colouring numbers of graphs that exclude a fixed minor.*
- [8] Research visit hosted by Professor Jan van den Heuvel, June 1–5, 2015, seminar talk, London School of Economics and Political Science, Great Britain. *Algorithmic graph structure theory for sparse graphs: an overview and recent advances.*
- [9] Midsummer Combinatorial Workshop XX, July 28 – Aug 1, 2014, Charles University, Prague, Czech Republic. *Deciding first-order properties of nowhere dense graphs (invited talk).*
- [10] Algorithmic Model Theory Meeting, February 20–21, 2014, Universität Kassel, Kassel, Germany. *Algorithmic applications of sparse classes of graphs.*
- [11] Logic in Computer Science (LICS 2012), June 25–28, 2012, Dubrovnik, Croatia. *First-order and monadic second-order model-checking on ordered structures.*
- [12] Workshop on Finite and Algorithmic Model Theory, May 14–18, 2012, Les Houches, France. *Model-checking on ordered structures.*
- [13] International Conference on Database Theory (ICDT 2012), March 26–29, 2012, Berlin, Germany. *Dynamic definability.*
- [14] International Workshop on Logic and Computational Complexity (LCC 2011), June 25, 2011, Toronto, Canada. *Dynamic definability.*

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## Other research activities

1. Reviewer for ICALP 2014, ITCS 2014, JCSS 2014, MFCS 2014 (2), ICALP 2015, FOCS 2015, LMCS 2015, SIDMA 2015, DMTCS 2015, CSL 2015, ICDT 2015, LICS 2016, WG 2016, ICALP 2016 (2), TCS 2016, ICDT 2017, STACS 2017 (2).
2. Co-organiser of *Computer Science Logic*, September 7–10, 2015, Berlin, Germany. I was responsible for the design and print of the conference poster, as well as for local organisation.

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## Teaching Experience

Summer Term 2015/16 - Lecturer for *Graph Decompositions and Applications in Algorithmics and Logic* (graduate course with full responsibility, including organisation, selecting topics, and producing teaching material).

- Co-supervision of Bachelor Thesis: Moritz Zielke. *Empirical Evaluation of Splitter-Game Based Algorithms for the Dominating Set Problem.*
- Co-supervision of Bachelor Thesis: Alexander Court. *Empirical Evaluation of Approximation Algorithms for Graph Colouring Numbers.*
- Co-supervision of Bachelor Thesis: Frank Dehne. *Empirical Evaluation of Approximation Algorithms for Directed Tree-Width.*
- Winter Term 2015/16 - Teaching Assistant for *Theoretical Foundations of Computer Science, Logic and Calculi* (undergraduate course with roughly 250 students, responsible for producing exercise material and teaching exercise courses).
- Summer Term 2012/13 - Teaching Assistant for *Algorithmic Graph Structure Theory* (graduate course, responsible for producing exercise material and teaching exercise courses).
- Winter Term 2012/13 - Teaching Assistant for *Logic and complexity* (graduate course, responsible for producing exercise material and teaching exercise courses).
- Summer Term 2011/12 - Teaching Assistant for *Logic, Games and Automata* (graduate course, responsible for producing exercise material and teaching exercise courses).
- Teaching Assistant for graduate seminar *Foundations of Data Integration* (responsible for student mentoring).
- Winter Term 2011/12 - Theoretical Foundations of Computer Science, Logic and Calculi (undergraduate course with roughly 250 students, responsible for producing exercise material and teaching exercise courses).
- Teaching Assistant for graduate seminar *Quantitative Verification and Timed Automata* (responsible for student mentoring).
- Summer Term 2010/11 - Teaching Assistant for *Logic, Games and Automata* (graduate course, responsible for producing exercise material and teaching exercise courses).

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## Language skills

- German (native)
- English (fluent)
- French (beginner)