

# 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] P. Ossona de Mendez, R. Rabinovich, and S. Siebertz. *Distributed approximations for generalised domination problems on classes of bounded expansion*. Submitted. <https://arxiv.org/abs/1702.02848>
- [2] S. Akhoondian Amiri, S. Schmid, and S. Siebertz. *Distributed Dominating Set Approximations beyond Planar Graphs*. Submitted. <https://arxiv.org/abs/1705.09617>
- [3] E. Eiben, M. Kumar, A. Mouawad, F. Panolan and S. Siebertz: *Lossy kernels for connected dominating set on sparse graphs*. Submitted.
- [4] M. Pilipczuk, S. Siebertz, and S. Toruńczyk. *Domination on sparse graphs made simple*. Submitted.
- [5] M. Pilipczuk, S. Siebertz, and S. Toruńczyk. *On the number of types in sparse graphs*. <https://arxiv.org/abs/1705.09336>
- [6] S. Kreutzer, P. Ossona de Mendez, R. Rabinovich, and S. Siebertz. *Algorithmic Properties of Sparse Digraphs*. <https://arxiv.org/abs/1707.01701>
- [7] S. Siebertz. *Reconfiguration on nowhere dense graph classes*. <https://arxiv.org/abs/1707.06775>

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### 2017

- [8] M. Grohe, S. Kreutzer, and S. Siebertz. *Deciding first-order properties of nowhere dense graphs*. Journal of the ACM 64(3), pages 17:1–17:32, 2017. <http://arxiv.org/abs/1311.3899v2>
- [9] 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*. European Journal of Combinatorics 66, pages 129–144, 2017. <http://arxiv.org/abs/1602.09052>
- [10] K. Eickmeyer, A. C. Giannopoulou, S. Kreutzer, O. Kwon, M. Pilipczuk, R. Rabinovich, and S. Siebertz. *Neighborhood Complexity and Kernelization for Nowhere Dense Classes of Graphs*. 44th International Colloquium on Automata, Languages, and Programming, ICALP 2017. <https://arxiv.org/abs/1612.08197>

- [11] J. van den Heuvel, S. Kreutzer, M. Pilipczuk, D. A. Quiroz, R. Rabinovich, and S. Siebertz. *Model-checking for successor-invariant first-order formulas on graph classes of bounded expansion*. 32nd Annual ACM/IEEE Symposium on Logic in Computer Science, LICS 2017. <https://arxiv.org/abs/1701.08516>
- [12] S. Kreutzer, R. Rabinovich, and S. Siebertz. *Polynomial Kernels and Wideness Properties of Nowhere Dense Graph Classes*. 28th Annual ACM-SIAM Symposium on Discrete Algorithms, SODA 2017. <http://arxiv.org/abs/1608.05637>
- [13] 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*. 34th International Symposium on Theoretical Aspects of Computer Science, STACS 2017. <http://drops.dagstuhl.de/opus/volltexte/2017/6986/pdf/LIPIcs-STACS-2017-48.pdf>
- [14] O. Kwon, M. Pilipczuk, and S. Siebertz. *On low rank-width colorings*. 43rd International Workshop on Graph-Theoretic Concepts in Computer Science, WG 2017. <https://arxiv.org/abs/1703.03304>

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## 2016

- [15] 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. <http://arxiv.org/abs/1602.02991>
- [16] 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>
- [17] 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. <http://arxiv.org/abs/1606.08972>
- [18] 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

- [19] 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)
- [20] 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>
- [21] 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

- [22] 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>
- [23] 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

- [24] 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

- [25] V. Engelmann, 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)
- [26] 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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## Selected talks

- [1] The parameterized complexity summer school, September 1–3, 2017, Vienna, Austria. *First-Order Model-Checking (invited talk)*.
- [2] International Colloquium on Automata, Languages, and Programming (ICALP 2017), July 10–14, 2017, Warsaw, Poland. *Neighborhood complexity and kernelization for nowhere dense classes of graphs*.
- [3] ACM-SIAM Symposium on Discrete Algorithms (SODA 2017), January 16–19, 2017, Barcelona, Spain. *Polynomial Kernels and Wideness Properties of Nowhere Dense Graph Classes*.
- [4] SIAM Conference on Discrete Mathematics, June 6–10, 2016, Georgia State University, Atlanta, Georgia, USA. *The splitter game on nowhere dense classes of graphs*.
- [5] Midsummer Combinatorial Workshop XX, July 28 – Aug 1, 2014, Charles University, Prague, Czech Republic. *Deciding first-order properties of nowhere dense graphs (invited talk)*.

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## Other research activities

1. Organiser of the *Workshop on Algorithms and Structure for Sparse Graphs*, July 14, 2017, Warsaw, Poland.
2. Co-organiser of *Computer Science Logic*, September 7–10, 2015, Berlin, Germany. Responsible for local organisation and the design and print of the conference poster.

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## Teaching Experience

- Winter Term 2017/18 - Lecturer for *Sparsity* (graduate course at the University of Warsaw, co-organized with Michał Pilipczuk).
- Summer Term 2015/16 - Lecturer for *Graph Decompositions and Applications in Algorithmics and Logic* (graduate course at TU Berlin 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)