

Curriculum Vitae

Personal Information

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

Contact

Postal Address Humboldt-Universität zu Berlin
Institut für Informatik, Chair for Algorithm Engineering
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Employment

Humboldt-Universität zu Berlin

10/2018 – present Post-doctoral research assistant at the Chair for Algorithm Engineering at Humboldt-Universität zu Berlin

Uniwersytet Warszawski

10/2016 – 09/2018 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 Chair for Software Engineering and Theoretical Computer Science at Technische Universität Berlin.
05/2011 – 09/2015 Research assistant at the Chair for Software Engineering and Theoretical Computer Science at Technische Universität Berlin.
02/2014 – 02/2015 Parental leave

Education

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

PhD studies in theoretical computer science

Doctoral dissertation: *Nowhere Dense Classes of Graphs: Characterisations 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

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.

Publications

— 2018

- [1] S. Siebertz: *Reconfiguration on Nowhere Dense Graph Classes*. The Electronic Journal of Combinatorics, 25(3):P3.24, 2018.
<http://www.combinatorics.org/ojs/index.php/eljc/article/view/v25i3p24>
- [2] A. Mouawad, N. Nishimura, V. Raman, S. Siebertz: *Vertex Cover Reconfiguration and Beyond*. Algorithms 11(2), 2018. <https://www.mdpi.com/1999-4893/11/2/20/pdf>
- [3] P. Ossona de Mendez, R. Rabinovich, and S. Siebertz. *Distributed approximations for generalised domination problems on classes of bounded expansion*. 30th ACM Symposium on Parallelism in Algorithms and Architectures, SPAA 2018. <https://arxiv.org/abs/1702.02848>
- [4] J. Gajarský, S. Kreutzer, J. Nešetřil, P. Ossona de Mendez, M. Pilipczuk, S. Siebertz, S. Toruńczyk: *First-order interpretations of bounded expansion classes*. 45th International Colloquium on Automata, Languages, and Programming, ICALP 2018.
<http://drops.dagstuhl.de/opus/volltexte/2018/9130/>
- [5] M. Pilipczuk, S. Siebertz, and S. Toruńczyk. *On the number of types in sparse graphs*. 33rd Annual ACM/IEEE Symposium on Logic in Computer Science, LICS 2018.
<https://arXiv.org/abs/1705.09336>
- [6] M. Pilipczuk, S. Siebertz and S. Toruńczyk. *Parameterized circuit complexity of model-checking on sparse structures*. 33rd Annual ACM/IEEE Symposium on Logic in Computer Science, LICS 2018. <https://arxiv.org/abs/1805.03488>
- [7] W. Nadara, M. Pilipczuk, R. Rabinovich, F. Reidl, S. Siebertz: *Empirical Evaluation of Approximation Algorithms for Generalized Graph Coloring and Uniform Quasi-Wideness*. 17th International Symposium on Experimental Algorithms, SEA 2018.
<https://arxiv.org/abs/1802.09801>
- [8] E. Eiben, M. Kumar, A. Mouawad, F. Panolan and S. Siebertz: *Lossy kernels for connected dominating set on sparse graphs*. 35th International Symposium on Theoretical Aspects of Computer Science, STACS 2018. <https://arxiv.org/abs/1706.09339>

2017

- [9] M. Grohe, S. Kreutzer, and S. Siebertz. *Deciding first-order properties of nowhere dense graphs*. Journal of the ACM, 2017. <http://arxiv.org/abs/1311.3899v2>
- [10] 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, 2017. <http://arxiv.org/abs/1602.09052>
- [11] 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.
- [12] 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.
- [13] 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>
- [14] 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.
- [15] O. Kwon, M. Pilipczuk, and S. Siebertz. *On low rank-width colorings*. 43rd International Workshop on Graph-Theoretic Concepts in Computer Science, WG 2017.

2016

- [16] 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>
- [17] 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>
- [18] 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>
- [19] 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)

2015

- [20] 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)

- [21] 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>
- [22] 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>

2014

- [23] 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>
- [24] 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>

2013

- [25] 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)

2012

- [26] 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)
- [27] 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)

Selected talks

- [1] ACM/IEEE Symposium on Logic in Computer Science (LICS 2018), July 9, 2018, Oxford, UK. *On the number of types in sparse graphs*.
- [2] The parameterized complexity summer school, September 1–3, 2017, Vienna, Austria. *First-Order Model-Checking (invited talk)*.
- [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)*.

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.
3. PC member of CSL 2018, Highlights of Logics Games and Automata 2018.

Teaching Experience

- Winter Term 2017/18 - Lecturer for *Sparsity* (graduate course at the University of Warsaw, co-organized with Dr. Michał Pilipczuk).
- Summer Term 2015 - 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 300 students, responsible for producing exercise material and teaching exercise courses).
- Summer Term 2012 - 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 - 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 300 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 - Teaching Assistant for *Logic, Games and Automata* (graduate course, responsible for producing exercise material and teaching exercise courses).

Language skills

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