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	Universität Bremen
	Institut 3 – Mathematik und Informatik
	Arbeitsgruppe Theoretische Informatik
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Employment

Universität Bremen

09/2019 – present Professor for Computer Science at University of Bremen, Head of the working group Theoretical Computer Science

Humboldt-Universität zu Berlin

10/2018 – 08/2019 Post-doctoral research assistant at the Chair for Algorithm Engeneering 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

2020

[1] O. Kwon, M. Pilipczuk, S. Siebertz: *On low rank-width colorings.* European Journal of Combinatorics 83, 2020.
https://www.sciencedirect.com/science/article/pii/S0195669819301039

[2] J. Nešetřil, P. Ossona de Mendez, R. Rabinovich, S. Siebertz: *Linear rankwidth meets stability.* Proceedings of the Thirty-first Annual ACM-SIAM Symposium on Discrete Algorithms, SODA 2020. https://arxiv.org/pdf/1911.07748.pdf

2019

[3] S. Siebertz: *Greedy domination on biclique-free graphs.* Information Processing Letters 145: 64-67, 2019. https://www.sciencedirect.com/science/article/pii/S0020019019300080

[4] E. Eiben, M. Kumar, A. E. Mouawad, F. Panolan, S. Siebertz: *Lossy Kernels for Connected Dominating Set on Sparse Graphs.* SIAM Journal on Discrete Mathematics 33(3): 1743-1771, 2019. https://epubs.siam.org/doi/10.1137/18M1172508

[5] S. Kreutzer, R. Rabinovich, S. Siebertz: *Polynomial Kernels and Wideness Properties of Nowhere Dense Graph Classes.* ACM Transactions on Algorithms 15(2): 24:1-24:19, 2019. https://dl.acm.org/citation.cfm?doid=3292530.3274652

[6] S. Amiri, S. Schmid, S. Siebertz: *Distributed Dominating Set Approximations beyond Planar Graphs.* ACM Transactions on Algorithms 15(3): 39:1-39:18, 2019.
https://dl.acm.org/citation.cfm?doid=3331056.3326170

[7] M. Pilipczuk, S. Siebertz: *Polynomial bounds for centered colorings on proper minor-closed graph classes.* Proceedings of the Thirtieth Annual ACM-SIAM Symposium on Discrete Algorithms, SODA 2019. https://epubs.siam.org/doi/10.1137/1.9781611975482.91

[8] G. Fabianski, M. Pilipczuk, S. Siebertz, S. Torunczyk: *Progressive Algorithms for Domination and Independence.* 36th International Symposium on Theoretical Aspects of Computer Science, STACS 2019. http://drops.dagstuhl.de/opus/volltexte/2019/10266/

[9] S. Kreutzer, I. Muzi, P. Ossona de Mendez, R. Rabinovich, S. Siebertz: *Algorithmic Properties of Sparse Digraphs.* 36th International Symposium on Theoretical Aspects of Computer Science, STACS 2019. http://drops.dagstuhl.de/opus/volltexte/2019/10285/

2018

[10] 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

[11] 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

[12] M. Grohe, S. Kreutzer, R. Rabinovich, S. Siebertz, K. Stavropoulos: *Coloring and Covering Nowhere Dense Graphs.* SIAM Journal on Discrete Mathematics, 32(4): 2467-2481, 2018.
https://epubs.siam.org/doi/10.1137/18M1168753

[13] 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

[14] 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/

[15] 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

[16] 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

[17] 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

[18] 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

[19] 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

[20] 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

[21] 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.

[22] 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.

[23] 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

[24] 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.

[25] 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

[26] 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

[27] 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

[28] 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

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

2015

[30] 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

[31] 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

[32] 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

[33] 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

[34] 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

[35] 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

2012

[36] 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

[37] E. Grädel and S. Siebertz. *Dynamic definability.* 15th International Conference on Database Theory, ICDT 2012. doi:10.1145/2274576.2274601

Selected talks

[1] *Nowhere dense graph classes and algorithmic applications (invited tutorial).* Highlights of Logic, Games and Automata, September 17 – 20, 2019, Warsaw, Poland.

[2] *On the generalised colouring numbers (invited talk).* WGT – Workshop on Graph Theory and Its Applications – IX, November 1 – 2, 2019, Istanbul, Turkey.

[3] *First-Order Model-Checking (invited talk).* The parameterized complexity summer school, September 1 – 3, 2017, Vienna, Austria.

[4] *Polynomial Kernels and Wideness Properties of Nowhere Dense Graph Classes.* ACM-SIAM Symposium on Discrete Algorithms (SODA 2017), January 16-19, 2017, Barclona, Spain.

[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).*

Community Service

1. Organizer of Dagstuhl Seminar 20121 – Sparsity in Algorithms, Combinatorics and Logic. Co-organized with Daniel Král' (Masaryk University, Brno, CZ), Michał Pilipczuk (University of Warsaw, PL) and Blair D. Sullivan (North Carolina State University, Raleigh, US), 60 participants. March 15 – 20, 2020.
2. Co-organiser (with Michał Pilipczuk) of the *Workshop on Algorithms and Structure for Sparse Graphs*, July 14, 2017, Warsaw, Poland.
3. 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.
4. PC member of MFCS 2020, FoSSaCS 2020, CSL 2018, Highlights of Logics Games and Automata 2018.

Teaching Experience

Winter Term 2019/20	- Lecturer for *Theoretische Grundlagen der Informatik I* (undergraduate course at University of Bremen). - Lecturer for *Sparsity* (graduate course at University of Bremen). - Lecturer for *Finite and algorithmic model theory* (graduate course at University of Bremen).
Winter Term 2018/19	Lecturer for *Algorithmic graph structure theory* (graduate course at Humboldt Universität zu Berlin).
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).
Assistance	I have been a Teaching Assistant TU Berlin for *Theoretical Foundations of Computer Science, Logic and Calculi* (undergraduate course with roughly 300 students), Teaching Assistant for *Algorithmic Graph Structure Theory* (graduate course), Teaching Assistant for *Logic and complexity* (graduate course), Teaching Assistant for *Logic, Games and Automata* (graduate course), Teaching Assistant for graduate seminar *Foundations of Data Integration* (responsible for student mentoring), Teaching Assistant for graduate seminar *Quantitative Verification and Timed Automata* (responsible for student mentoring), and 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)