# Curriculum Vitae
## Sebastian W. Hensel

### Personal Information


Nationality: German
Address: Mathematisches Institut der LMU München
Theresienstr. 39
80333 München
email: hensel@math.lmu.de


### Education

**1996-2005:** erzbischöfliches St. Ursula-Gymnasium Brühl,
Degree: Abitur (1,0)

### University Education

**December 2017:** Habilitation in mathematics at Rheinische Friedrich-Wilhelms-Universität Bonn

**December 2011:** PhD in mathematics at Rheinische Friedrich-Wilhelms-Universität Bonn (*magna cum laude*).

**October 2008:** Diplom in mathematics at Rheinische Friedrich-Wilhelms-Universität Bonn (1,0)

### Scholarships

- Research Member, MSRI program "Random and Arithmetic Structures in Topology", 2020
- Postdoctoral Fellowship am Mittag-Leffler Institut, Stockholm, January to May 2012
- Max-Planck IMPRS Promotionsstipendium 2008-2011
- Studienstiftung des Deutschen Volkes 2005-2008

### Employments

- Professor in pure mathematics (W2), LMU München, tenure track 2018-2023, permanent since 2023.
- Akademischer Rat auf Zeit, Universität Bonn, 2015-2018.
- L.E. Dickson Instructor, University of Chicago, 2012-2015.

### Grants

- Since 2020: Project "Geometry of Surface Homeomorphism Groups" (with Jonathan Bowden), part of DFG SPP 2026 "Geometry at Infinity"
- Conference "Groups and Dynamics in Geometry" (together with Mladen Bestvina, Alessandra Iozzi, Howard Masur, Bram Petri und Beatrice Pozzetti), moved to 2023

## Teaching Experience

– Teaching at LMU München (since 2018):

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|---|---|
| Summer semester 2018 | Lecture "Geometrie und Topologie von Flächen" |
| | Seminar "Hyperbolische Flächen" |
| Winter semester 2018/19 | Lecture "Differentiable Manifolds" |
| Summer semester 2019 | Lecture "Riemannian Geometry" |
| | Lecture "Mapping Class Groups" |
| Winter semester 2019/20 | Lecture "Topologie I" |
| | Seminar "Randomness and geometry of groups" (with M. Heydenreich) |
| Summer semester 2020 | Lecture "Topologie II" |
| | Seminar "Geometric Group Theory" |
| | Seminar "Curve Graphs and Hierarchies" |
| Summer semester 2021 | Lecture "Geometric Group Theory" |
| | Seminar "Teichmüller Theory" |
| Winter semester 2021/22 | Lecture "3-manifolds" |
| | Seminar "Flächen, topologisch, algebraisch und geometrisch" |
| | Seminar "Circle Packings" (with M. Heydenreich) |
| Summer semester 2022/23 | Lecture "Elementary Geometry" |
| | Lecture "Kleinian Groups" |
| Winter semester 2022/23 | Lecture "Differentiable Manifolds" |
| | Lecture "Global Riemannian Geometry" |
| Summer semester 2023 | Lecture "Riemannian Geometry" |
| Winter semester 2023/24 | Lecture "Geometric Group Geometry" |
| Summer semester 2024 | Lecture "Geometry" |
| Winter semester 2024/25 | Lecture "Topology II" |
| Summer semester 2025 | Lecture "Introduction to TeichmÃ¼ller theory" |

– 2015–2017 Teaching at Universität Bonn (3 lectures: Teichmüller theory, geometric group theory I & II)
– 2012–2015 Teaching at the University of Chicago (in total 9 courses of the "Analysis in $\mathbb{R}^n$" sequence)

## Advising

– 13 Master's theses (4 in Bonn, 9 at LMU München), currently five in progress.
– 32 Bachelor's theses (at LMU München), two in progress.
– 2 PhD students (at LMU München) in progress (with preliminary topics "Geometry of point-pushing maps", "Connectivity properties of the boundary of the disk graph")

## International Conferences (as invited speaker)

- ICMAT Advanced School on Mapping Class Groups, Surface Subgroups, Bundles, and Group Extensions (2025)
- Huge Groups (2023, CRM Montreal)
- Mapping Class Groups and Out($F_n$) (2022, IHP Paris)
- Knots, Surfaces and 3-Manifolds (2021, Banff, virtual)
- Cornell Topology Festival 2021 (Cornell, virtual)
- DMV-Tagung 2019 (Geometry Section)
- Groups with hyperbolic features (2019, ETH Zürich)
- GAGTA 2018 (Seoul)
- Geometry of outer spaces and outer automorphism groups (2018, Warwick University)
- Manifolds and Groups (2017, Regensburg)
- Sixth Ahlfors-Bers-Colloquium (2014, Yale University)
- GEAR Junior Retreat (2014, Ann Arbor)
- Joint Mathematics Meetings 2014 (Special Session on Geometric Group Theory)
- Fifth Ahlfors-Bers Colloquium (2011, Rice University)

### Colloquia and Seminars (as invited speaker)

- *Austria*: Universität Wien
- *Canada*: McGill University
- *France*: Paris-Est Creteil, Sorbonne, Orsay (2 times)
- *Germany*: Universität Augsburg, Universität Bielefeld, Rheinische Friedrich-Wilhelms-Universität Bonn (5 times), Universität Heidelberg, KIT (2 times), Christian-Albrechts-Universität Kiel, Universität Regensburg (3 times)
- *Luxembourg*: Universite du Luxembourg
- *Netherlands*: Utrecht University
- *Poland*: University of Warsaw
- *Sweden*: Mittag-Leffler Institute, Stockholm University
- *Switzerland*: Universite de Lausanne
- *UK*: University of Cambridge, University of Glasgow (3 times), University of Warwick (2 times)
- *USA*: Boston College, Caltech, Columbia University, Cornell University, University of Chicago (4 times), Rice University, University of Illinois Chicago, University of Utah (5 times)

### Publications

30. *Multitwists in big mapping class groups*, with Federica Fanoni and George Domat, Algebraic & Geometric Topology 25 (2025) 3921–3929
29. *Rigidity of the Torelli subgroup in Out($F_N$)*, with Camille Horbez and Richard Wade, Rev. Mat. Iberoam. 41 (2025), no. 1, pp. 73–112

28. *Path-connectivity of the set of uniquely ergodic and cobounded foliations* with Jon Chaika, Geom Dedicata 218, 109 (2024)
27. *Linear Progress in Fibres*, with Vaibhav Gadre, Groups Geom. Dyn. 18 (2024), no. 3, pp. 1099–1129
26. *Strong Haken via Sphere Complexes*, with Jennifer Schultens, Algebraic & Geometric Topology 24-5 (2024), 2707–2719.
25. *Connectivity of the Gromov Boundary of the Free Factor Complex*, with Mladen Bestvina and Jon Chaika, Annales Henri Lebesgue, Volume 6 (2023), pp. 1291-1348.
24. *A projection from filling currents to Teichmüller space*, with Jenya Sapir, Proc. Amer. Math. Soc. 151 (2023), 3621–3633
23. *Rotation Sets and Actions on Curves*, with Jonathan Bowden, Kathryn Mann, Emmanuel Militon, and Richard Webb, 2021, Advances in Mathematics, Volume 408, Part B, 2022.
22. *Foliations from left orders* with Hyungryul Baik und Chenxi Wu, J. Korean Math. Soc. 2022; 59(4): 699-715.
21. *Quasi-morphisms on surface diffeomorphism groups*, with Jonathan Bowden and Richard Webb, Journal of the American Mathematical Society, Volume 35 (2022), 211-231.
20. *Handlebody Bundles and Polytopes* with Dawid Kielak, Algebraic & Geometric Topology 21-7 (2021), pp. 3445–3458.
19. *Big mapping class groups acting on homology* with Federica Fanoni and Nick Vlamis, Indiana Univ. Math. J. 70 (2021), 2261-2294
18. *(Un)distorted stabilisers in the handlebody group*, Journal of Topology, Volume 14, Issue 2, June 2021, pp. 460–487.
17. *The geometry of the handlebody groups II: Dehn functions*, with Ursula Hamenstädt, Michigan Math. J. 70(1), pp. 23-53 (March 2021).
16. *A Primer on Handlebody Groups*, Handbook of Group Actions (Vol. V), ALM 48, 2020, Ch.4, pp. 143–177
15. *The set of uniquely ergodic IETs is path-connected*, with Jon Chaika, Ergodic Theory and Dynamical Systems, Volume 39, Issue 2 February 2019, pp. 311-356.
14. *Rigidity and Flexibility for the handlebody group*, Commentarii Mathematici Helvetici, Volume 93, Issue 2, 2018, pp. 335–358.
13. *Exponential Torsion Growth for random 3-manifolds*, with Hyungryul Baik, David Bauer, Ilya Gekhtman, Ursula Hamenstädt, Thorben Kastenholz, Bram Petri, Daniel Valenzuela, 2016, arXiv:1607.00631, International Mathematics Research Notices, Vol. 2018, Issue 21, 2018, pp. 6497–6534
12. *Nielsen realisation for untwisted automorphisms of right-angled Artin groups*, with Dawid Kielak, Proceedings of the London Mathematical Society, Vol. 117, Issue 5, 2018, pp. 901–950.

11. *Stability in Outer Space*, with Ursula Hamenstädt, Groups, Geometry, and Dynamics, Vol. 12, Issue 1, 2018, pp. 359–398.
10. *Relative Nielsen Realisation by Gluing: Limit Groups and Free Products*, with Dawid Kielak. Michigan Journal of Mathematics, Vol. 67, Issue 1 (2018), pp.199–223.
9. *Moving homology classes in finite covers of graphs*, with Benson Farb. Israel Journal of Mathematics, Vol. 220, Issue 2 (2017), pp. 605–615
8. *Finite covers of graphs, their primitive homology, and representation theory*, with Benson Farb. New York Journal of Mathematics, Vol. 22 (2016), pp. 1365–1391
7. *1-slim triangles and uniform hyperbolicity for arc and curve graphs*, with Piotr Przytycki and Richard Webb. Journal of the European Mathematical Society, Volume 17, Issue 4 (2015), pp. 755–762.
6. *Spheres and projections for* $\mathrm{Out}(F_n)$,
with Ursula Hamenstädt, 2011. Journal of Topology 8 (2015), 65-92.
5. *Realisation and dismantlability*, with Damian Osajda and Piotr Przytycki. Geometry & Topology 18 (2014) 2079–2126.
4. *Isoperimetric inequalities for the handlebody groups*, with Ursula Hamenstädt. Transactions of the American Mathematical Society 365 (2013), 5313-5327.
3. *The geometry of the handlebody groups I: Distortion*, with Ursula Hamenstädt. Journal of Topology and Analysis, Volume 4, Issue 1 (2012).
2. *The ending lamination space of the five-punctured sphere is the Nöbeling curve* with Piotr Przytycki,
J. London Math. Soc. 84(1) (2011), 103–119.
1. *Iterated grafting and holonomy lifts of Teichmüller space.* Geometria Dedicata, Volume 155, Number 1 (2011), 31–67.

## Preprints

- *Approximating stable translation lengths on fine curve graphs*, with Federica Fanoni and Frédéric Le Roux, 2025.
- *Rotation sets and axes in the fine curve graph for torus homeomorphisms*, with Frédéric Le Roux, 2025.
- *Ergodic Measures in Strata*, with Mladen Bestvina and Jon Chaika, 2025.
- *Path-connectivity of Thick Laminations, and Markov Processes with Thick Limit Sets*, with Jon Chaika, 2025.
- *From curve graphs to fine curve graphs and back*, with Federica Fanoni, 2025.
- *Towards the boundary of the fine curve graph*, with Jonathan Bowden and Richard Webb, 2024.
- *Measure equivalence rigidity of the handlebody groups*, with Camille Horbez, 2021.
- *Homological Approximations to the Handlebody Group*, 2017