

Matthew Habermann

CV of Matthew Habermann

Personal Information

DoB 12-09-1992,
Place of Birth London,
Citizenship Australian & British

Employment

2021– **Research assistant (wissenschaftlicher Mitarbeiter)**, *The University of Hamburg*.
Mentor: Tobias Dyckerhoff

Education

- 2017-2021 **PhD in Mathematics**, *University College London, as part of the London School of Geometry and Number Theory*.
Advisor: Yankı Lekili (Imperial College London)
Thesis title: Homological mirror symmetry for invertible curve singularities
- 2016 **Bachelor of Science in Mathematics with Honours Class I**, *University of Queensland, Brisbane*.
Thesis title: Gauge construction and the Yang–Mills heat flow over real four-manifolds
Advisor: Huy The Nguyen
- 2011-2015 **Bachelor of Science with an Extended Major in Mathematics**, *University of Queensland, Brisbane*.
Includes an exchange year studying at the Technical University of Munich
- 2011-2016 **Diploma of Languages (German)**, *University of Queensland, Brisbane*.

Awards

- University College London Overseas Research Scholarship
- University of Queensland Dean's Commendations for academic excellence
- University of Queensland Exchange Travel Grant for academic merit.

Research interests

- Symplectic topology, algebraic geometry, representation theory, homological mirror symmetry

Publications

- Homological Berglund-Hübsch mirror symmetry for curve singularities, Joint with Jack Smith. *J. Symplectic Geom.* Volume 18 (2020), no. 6, 1515-1574. arXiv: 1903.01351
- Homological mirror symmetry for invertible polynomials in two variables. To appear in *Quantum Topology* (2021). arXiv: 2003.01106.

Preprints

- Homological mirror symmetry for nodal staky curves. arXiv:2101.12178. Submitted

Invited talks

- April 2021 Homological mirror symmetry nodal stacky curves, Korean Institute of Advanced Study Geometry Seminar (virtual)
- Mar 2021 Homological mirror symmetry nodal stacky curves, UCGEN seminar (virtual)
- Feb 2021 Homological mirror symmetry nodal stacky curves, Higher structures seminar (virtual)
- Feb 2021 Homological mirror symmetry nodal stacky curves, Freemath seminar (virtual)
- Oct 2020 Homological mirror symmetry for two variable invertible polynomials, FD-Seminar, University of Bonn (Virtual)
- Jul 2020 Homological mirror symmetry for two variable invertible polynomials, Fanosearch research group, Imperial College London (Virtual)
- Jan 2020 Homological mirror symmetry for invertible polynomials in two variables, Junior geometry at the University of Cambridge

Other talks

- Sep 2020 Homological mirror symmetry for non-commutative deformations of weighted projective planes, Symplectic Cut (virtual)
- Jun 2020 On the immersion classes of nearby Lagrangians, Symplectic Cut (Virtual)
- Mar 2020 Homological mirror symmetry for two variable invertible polynomials, Symplectic Cut (Virtual)
- Feb 2020 A stability phenomenon for symplectic packing, Symplectic Cut
- Nov 2019 Bussi's construction of the perverse sheaf of vanishing cycles, Symplectic Cut
- Jun 2019 Applications of the log PSS map to Lagrangian embeddings and computations of symplectic cohomology, Symplectic Cut
- May 2019 An introduction to homological mirror symmetry for invertible polynomials, KCL/UCL junior geometry seminary
- Feb 2019 Refined disk potentials for immersed Lagrangian surfaces, Symplectic Cut
- Nov 2018 Homotopy groups and Hopf fibrations, ICL junior geometry
- Oct 2018 Topological Fukaya categories of punctured surfaces, Symplectic Cut
- Jul 2018 The Fukaya-Seidel category with applications, BIG Workshop, Jersey
- May 2018 Symplectomorphisms of \mathbb{CP}^2 and $S^2 \times S^2$, Symplectic Cut
- Feb 2018 Invertibles in quantum cohomology and π_1 of symplectic automorphism groups, Symplectic Cut
- Dec 2017 (Non)displaceability of toric fibres via symplectic reduction, Symplectic Cut
- Aug 2016 The Heisenberg vertex algebra, University of Queensland QFT Seminar
- Apr 2016 The reverse Poincaré inequality, University of Queensland Analysis Seminar
- Mar 2016 Higher regularity for harmonic maps, University of Queensland Analysis Seminar
- Mar 2016 Structure theory for \mathfrak{sl}_2 , University of Queensland QFT Seminar

Conference Attendance

- Aug 2019 International conference on symplectic topology, IMPA, Rio de Janeiro
- Mar 2019 Categorical Symplectic Topology, University of Cambridge

Workshop Attendance

- Aug 2019 School of symplectic topology, IMPA, Rio de Janeiro
- Jul 2018 British Isles Geometry Conference, Jersey
- Nov 2016 W-Algebras, University of Melbourne
- Jan 2016 Calculus of Variations, RMIT University Melbourne

Seminars Organised

- Sep 2019 – Symplectic cut seminar, with Yankı Lekili
present
- Sep 2019 – The UCL/KCL junior geometry seminar, with Daniel Platt
Jun 2020

Teaching Experience

- 2018-Present **Tutor**, *King's College London*.
- Algebraic Geometry, 2021
 - Galois Theory, 2021
 - Topology, 2019
 - Linear Algebra and Geometry I, 2019
 - Algebraic Curves, 2018, 2019
 - Linear Algebra and Geometry II, 2019
- 2019 **Summer School Tutor**, *London School of Economics*.
- ME306: Real Analysis
- 2017 **Tutor**, *University of Melbourne*.
- MAST10006: Calculus II,
 - MAST20029: Engineering Mathematics.
- 2013-2016 **Tutor**, *University of Queensland*.
- MATH1050: Mathematical Foundations
 - MATH1051: Calculus and Linear Algebra I,
 - MATH1052: Multivariate Calculus and Ordinary Differential Equations,
 - MATH2400: Mathematics Analysis,
 - MATH3405: Differential Geometry,
 - MATH3403: Partial Differential Equations,
 - STAT2201: Analysis of Engineering and Scientific Data (super tutor).

Languages

- English **Native**
- German **Advanced**
- French **Intermediate**