

📍 Max Planck Institute for Mathematics, Vivatsgasse 7, 53111 Bonn, Germany

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### RESEARCH INTERESTS

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Low-dimensional topology, in particular braids, knots and knot concordance.

### EDUCATION

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- 07/2019 – 06/2023 **Doctor of Science** in Mathematics at ETH Zurich, Zurich, Switzerland.  
Thesis: *On notions of braid positivity and knot concordance*.  
Advisor: Peter Feller.
- 08/2016 – 02/2019 **Master of Science** in Mathematics at Ulm University (with distinction, 1.0), Ulm, Germany. Thesis: *Massey products and linking numbers*.
- 08/2017 – 05/2018 **Master of Science** in Mathematics (GPA 4.0) at Syracuse University, Syracuse, NY, USA.
- 10/2012 – 08/2016 **Bachelor of Science** in Mathematics (1.5) at Ulm University, Ulm, Germany. Thesis: *Das Existenzproblem von Hurwitz*.
- 09/2014 – 02/2015 **Exchange semester** at ETH Zurich, Zurich, Switzerland.

### EMPLOYMENT

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- 10/2023 – 09/2025 **Postdoctoral fellow** at the Max Planck Institute for Mathematics (MPIM), Bonn, Germany.
- 07/2019 – 07/2023 **Teaching assistant** at the Department of Mathematics, ETH Zurich, Zurich, Switzerland.
- 10/2013 – 04/2019 **Teaching assistant** at the Department of Mathematics and Economics, Ulm University, Ulm, Germany.
- 08/2017 – 05/2018 **Teaching assistant** at the Department of Mathematics, Syracuse University, Syracuse, NY, USA.

### PUBLICATIONS AND PREPRINTS

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5. **Minimal cobordisms between thin and thick torus knots**, with Sebastian Baader, Lukas Lewark, Filip Misev. [ArXiv:2405.13719](https://arxiv.org/abs/2405.13719).
4. **3-braid knots with maximal 4-genus**, with Sebastian Baader, Lukas Lewark, Filip Misev. *Trans. Amer. Math. Soc. Ser. B* 11 (2024), pp. 600–621.
3. **Strongly quasipositive links are concordant to infinitely many strongly quasipositive links**. [ArXiv:2210.06612](https://arxiv.org/abs/2210.06612).
2. **On the nonorientable four-ball genus of torus knots**, with Fraser Binns, Sungkyung Kang, and Jonathan Simone. *Algebraic & Geometric Topology* (accepted for publication). [ArXiv:2108.03674](https://arxiv.org/abs/2108.03674).
1. **The upsilon invariant at 1 of 3-braid knots**. *Algebr. Geom. Topol.* 23.8 (2023), pp. 3763–3804.

## RESEARCH SEMESTER

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Participant in the [AIM Online Research Community 4-Dimensional Topology](#) organized by Miriam Kuzbary, Maggie Miller, Juanita Pinzón-Caicedo and Hannah Schwartz in Spring 2021.

## INVITED TALKS AT CONFERENCES AND WORKSHOPS

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- 07/2024 Mini-symposium *Knot theory and low dimensional manifolds*, [ECM](#), Seville.
- 04/2024 [NRW Topology Meeting](#), Wuppertal.
- 04/2024 [Manifolds and groups in Bologna II](#), Bologna.
- 09/2023 [Leaning into Topology Workshop](#), Pisa.
- 09/2023 [Swiss Knots](#), Regensburg.
- 06/2023 Mini Workshop, Bern.
- 03/2023 [The low dimensional workshop](#), Budapest, [recording](#).
- 11/2022 [Paroles aux jeunes chercheuses et chercheurs en géométrie et dynamique](#), Orsay.
- 09/2022 Minisymposium *Algebra and Low-Dimensional Topology*, [DMV Annual Meeting 2022](#), Berlin.
- 06/2022 [Surfaces in 4-manifolds](#), Le Croisic.

## CONTRIBUTED TALKS AT CONFERENCES AND WORKSHOPS

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- 02/2024 [BTW4: Knot Floer Homology](#), Besse.
- 02/2023 [Winter Braids XII](#), Tours.
- 01/2023 [Low dimensional topology](#), MFO Oberwolfach.
- 05/2022 [Swiss-Mathematical-Society Doctoral Day 2022](#), Fribourg.
- 04/2022 [BTW2: Sliceness, exotic pairs, and quantum invariants](#), Aussois.
- 09/2021 [MATRIX-MFO Tandem Workshop: Invariants and Structures in Low-Dimensional Topology](#), MFO Oberwolfach, short talk.

## INVITED TALKS IN SEMINARS

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- 09/2024 (planned) [Séminaire de Géométrie, Algèbre, Dynamique et Topologie](#), Dijon.
- 05/2024 [Séminaire de Géométrie et Topologie de Marseille](#), Marseille.
- 05/2024 [Oberseminar Topologie](#), Münster.
- 04/2024 [Glasgow Geometry & Topology Seminar](#), Glasgow.
- 03/2024 [MPIM Oberseminar](#), MPIM Bonn.
- 12/2023 [Pitt AWM Student Seminar](#), Pittsburgh, online.
- 12/2023 [Low-dimensional topology seminar](#), MPIM Bonn.
- 11/2023 [MPIM Topology Seminar](#), MPIM Bonn, short talk.
- 05/2023 [Low-dimensional topology seminar](#), MPIM Bonn.
- 12/2022 [Geometry and Topology Seminar](#), CIRGET, Montréal, online, [recording](#).
- 06/2022 [LKS-Seminar](#), Regensburg.
- 05/2022 [Caltech GT Seminar](#), Caltech, online.
- 05/2022 [Oberseminar Geometrie](#), Fribourg.
- 02/2022 [Knot Online Seminar \(K-OS\)](#), online.
- 04/2021 [AIM Online Research Community 4-Dimensional Topology](#), lightning talk.
- 04/2021 [Geometric Topology Grad and Postdoc Seminar \(GT GAPS\)](#), online.

## INVITED TALKS IN GRADUATE COLLOQUIUMS

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10/2023	Geometry Graduate Colloquium, ETH Zurich.
10/2022	Bern–Fribourg Graduate Seminar, Bern.
05/2022	Baby Geometri Seminar, Pisa.
04/2022	Bernoullis Tafelrunde, Basel.
11/2021	Zurich Graduate Colloquium, Zurich.

## OUTREACH TALKS

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03/2023	<i>Work as a PhD Student</i> , short talk at the MindPhair 2023 at ETH Zurich (job-fair for mathematicians, physicists and computational scientists).
03/2022	<i>Work as a PhD Student</i> , short talk at the MindPhair 2022 at ETH Zurich.

## AWARDS

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2017	<b>Fulbright Travel Grant.</b>
2014 – 2017	<b>Talanx Scholarship</b> (now <a href="#">HDI Stiftung</a> ).
2013 – 2014	<b>Deutschlandstipendium:</b> Ulm University and Ernst & Young Foundation Scholarship.
2012 – 2013	<b>Deutschlandstipendium:</b> Ulm University and Rotary Club Ulm Scholarship.

## TEACHING EXPERIENCE

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	<b>University of Bonn/MPIM Bonn</b>
06/2024 – 06/2025	Supervision of <i>Master thesis</i> by Frieda Kern (co-supervision with Peter Teichner).
Winter 2024/25	Lecturer for <i>Topics in 3-manifold topology</i> .
	<b>ETH Zurich</b>
Spring 2022	Course organizer for <i>Analysis II</i> (Civil/Geospatial/Environmental Engineering Bachelor).
Fall 2021	Course organizer for <i>Analysis I</i> (Civil/Geospatial/Environmental Engineering Bachelor).
09/2021	Certificate <i>Learning to Teach</i> .
Spring 2021	Course organizer for <i>Topology</i> .
Fall 2020	Course organizer for <i>Linear Algebra I</i> .
Spring 2020	Course organizer for <i>Algebraic Topology II</i> .
Fall 2019	Teaching assistant for <i>Complex Analysis</i> .
	<b>Syracuse University</b>
Spring 2018	Teaching assistant for <i>Calculus III</i> .
Fall 2017	Teaching assistant for <i>Calculus III</i> .
	<b>Ulm University</b>
Summer 2019	Teaching assistant for <i>Linear Algebra Review Course</i> (Computer Science and Engineering Bachelor).
Winter 2013/14 – Summer 2019	Student teaching assistant for <i>Analysis I-III</i> , <i>Linear Algebra I-II</i> . Corrector, tutor in Matlab and exercise group leader.

## CONFERENCE AND SEMINAR ORGANIZATION

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- 10/2023 – present Co-organizer of the [Low-dimensional topology seminar](#) at MPIM Bonn.
- 09/2024 Co-organizer of the [MATRIX-MFO Tandem Workshop: Invariants in Low-Dimensional Topology. Combinatorics, Geometry, and Computation](#) at Mathematisches Forschungsinstitut Oberwolfach, Sept 22–27, 2024.
- 09/2020 – 07/2023 Co-organizer of the [Geometry Graduate Colloquium](#) at ETH Zurich (funded by the Zurich Graduate School in Mathematics).

## OTHER PROFESSIONAL SERVICE

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- Ongoing Referee for *Pacific Journal of Mathematics*, reviewer for *zbMATH Open*.
- 09/2021 – 07/2023 Co-organizer of get-togethers for women in math at ETH Zurich and University of Zurich (funded by the Zurich Graduate School in Mathematics).
- 08/2021 – 07/2023 Elected member of the Nachdiplom Lectures Committee at the Department of Mathematics of ETH Zurich.
- 05/2020 – 05/2023 Board member of the Association of the Mid-level Academic Faculty at the Department of Mathematics ([VMM](#)) of ETH Zurich.
- 10/2022 Co-organizer of the first D-MATH (Post)Doctoral Welcome Day at ETH Zurich.
- 05/2021 – 05/2022 Representative of the Mid-level Academic Faculty in the Department Conference of the Department of Mathematics of ETH Zurich.