PAULA TRUÖL — CURRICULUM VITAE

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RESEARCH INTERESTS

Low-dimensional topology, in particular knots and links, knot concordance and cobordisms, braids, notions of braid positivity, knotted surfaces, 3- and 4-manifolds, and Heegaard Floer and Khovanov homology. Connections to (geometric) group theory, complex geometry, contact and symplectic topology.

EMPLOYMENT

12/2025 – 11/2027	**Postdoctoral fellow**, University of Glasgow, UK. Supported by an SNSF Postdoc.Mobility fellowship. Mentor: Brendan Owens.
10/2023 – 11/2025	**Postdoctoral fellow**, Max Planck Institute for Mathematics (MPIM), Bonn, Germany. Mentor: Arunima Ray.
07/2019 – 07/2023	**Scientific assistant**, ETH Zurich, Switzerland.
10/2018 – 04/2019	**Student teaching assistant**, Ulm University, Germany.
08/2017 – 05/2018	**Teaching assistant**, Syracuse University, NY, USA.
10/2013 – 07/2017	**Student teaching assistant**, Ulm University, Germany.
02/2015 – 04/2015	**Internship** at UZWR (Scientific Computing Centre Ulm) in Ulm, Germany. Project work on fluid dynamics using numerical methods.

EDUCATION

07/2019 – 06/2023	**Doctor of Science** in Mathematics, ETH Zurich, Switzerland. Thesis: *On notions of braid positivity and knot concordance*. Supervisor: Peter Feller.
08/2016 – 02/2019	**Master of Science** in Mathematics (1.0, with distinction), Ulm University, Germany. Thesis: *Massey products and linking numbers*. Supervisor: Stefan Wewers.
08/2017 – 05/2018	**Master of Science** in Mathematics (GPA 4.0), Syracuse University, NY, USA. Dual-degree exchange programme with Ulm University.
10/2012 – 08/2016	**Bachelor of Science** in Mathematics (1.5), Ulm University, Germany. Thesis: *Das Existenzproblem von Hurwitz.* Supervisor: Stefan Wewers.
09/2014 – 02/2015	**Visiting Semester**, ETH Zurich, Switzerland.
07/2012	**Abitur** (1.0) at Bertha-von-Suttner-Gymnasium, Neu-Ulm, Germany.

SELECTED FELLOWSHIPS AND AWARDS

12/2025 – 11/2027	**Swiss National Science Foundation Postdoc.Mobility fellowship**. Project 230329: *Concordance of braid positive knots*. CHF 111,600.
08/2017	**Fulbright Travel Grant**. €2,000.
10/2014 – 09/2017	**Talanx Scholarship**. €10,800 (€300 monthly).
10/2012 – 09/2014	**Deutschlandstipendium** (Ulm University/Federal Ministry of Education and Research and EY Foundation/Rotary Club Ulm). €7,200 (€300 monthly).

RESEARCH PROGRAMME

Participation in the **AIM Online Research Community** *4-Dimensional Topology* organised by Miriam Kuzbary, Maggie Miller, Juanita Pinzón-Caicedo and Hannah Schwartz in Spring 2021.

PREPRINTS

2. **The Conway knot has infinite concordance order**, with C. Donatone, M. Kegel and L. Lewark. Submitted. *ArXiv:2606.30422*.

1. **On $\mathscr{T}$-positive links**, with B. Bode. Submitted. *ArXiv:2605.10502*.

PUBLICATIONS

9. **Braid positive surgery diagrams**, with M. Kegel. *Glasg. Math. J.*, published online (2026), pp. 1–6. *ArXiv:2512.14589*.

8. **On the detection of knots by their traces in high dimensions**, with V. Bais, A. Di Prisa, D. Hartman, C.-S. Hsueh, M. Kegel, A. Merz, M. Pencovitch, A. Ray, D. Santoro and L. Wakelin. *Proc. London Math. Soc.* 133: e70226 (2026). *ArXiv:2511.07251*.

7. **Non-complex cobordisms between quasipositive knots**, with M. Borodzik. *J. Math. Pures Appl.* (9) 207 (2026), Paper No. 103842, 11 pp. *ArXiv:2504.04894*.

6. **Algorithms in 4-manifold topology**, with S. Bastl, R. Burke, R. Chatterjee, S. Dey, A. Durst, S. Friedl, D. Galvin, A. García Rivas, T. Hirsch, C. Hobohm, C.-S. Hsueh, M. Kegel, F. Kern, S. M. S. Lee, C. Löh, N. Manikandan, L. Mousseau, L. Munser, M. Pencovitch, P. Perras, M. Powell, J. P. Quintanilha, L. Schambeck, D. Suchodoll, M. Tancer, A. Thiele, M. Uschold, S. Veselá, M. Weiß and M. von Wunsch-Rolshoven. *Algebr. Geom. Topol.* 26-8 (2026), pp. 3017–3049. *ArXiv:2411.08775*.

5. **Minimal cobordisms between thin and thick torus knots**, with S. Baader, L. Lewark and F. Misev. *Proc. Edinb. Math. Soc.* (2) 69 (2026), no. 1, pp. 177–183. *ArXiv:2405.13719*.

4. **3-braid knots with maximal 4-genus**, with S. Baader, L. Lewark and F. Misev. *Trans. Amer. Math. Soc. Ser. B* 11 (2024), pp. 600–621. *ArXiv:2303.11918*.

3. **Strongly quasipositive links are concordant to infinitely many strongly quasipositive links**. *Proc. Amer. Math. Soc. Ser. B* 13 (2026), pp. 159–174. *ArXiv:2210.06612*.

2. **On the nonorientable four-ball genus of torus knots**, with F. Binns, S. Kang and J. Simone. *Algebr. Geom. Topol.* 25 (2025), no. 4, pp. 2209–2251. *ArXiv:2109.09187*.

1. **The upsilon invariant at 1 of 3-braid knots**. *Algebr. Geom. Topol.* 23 (2023), no. 8, pp. 3763–3804. *ArXiv:2108.03674*.

Preprint versions of all my articles can be found on arXiv.

CONFERENCE PROCEEDINGS (NOT PEER-REVIEWED)

6. **The Conway knot has infinite concordance order**, with C. Donatone, M. Kegel and L. Lewark. *Oberwolfach Reports* 23 (2026), preliminary version, pp. 23–25.

5. **MATRIX-MFO Tandem Workshop: Invariants in Low-Dimensional Topology. Combinatorics, Geometry, and Computation**, with S. Friedl, J. Licata and S. Tillmann (as editors). *Oberwolfach Reports* 21 (2024), no. 3, pp. 2511–2550.

4. **Obstructing ribbon clasp number one**, with D. Celoria, A. Di Prisa, J. Howie, J. Licata, F. Misev, L. Schambeck and L. Wakelin. *Oberwolfach Reports* 21 (2024), no. 3, pp. 2528–2530.

3. **Notions of braid positivity and knot concordance**. *Oberwolfach Reports* 21 (2024), no. 3, pp. 2543–2546.

2. **Strongly quasipositive knots are concordant to infinitely many strongly quasipositive knots**. *Oberwolfach Reports* 20 (2023), no. 1, pp. 172–174.

1. **Concordance of positive braid knots**. *Oberwolfach Reports* 18 (2021), no. 3, pp. 2360–2362.

DOCTORAL THESIS

On notions of braid positivity and knot concordance. *ETH Zurich* (2023).

INVITED TALKS AT CONFERENCES AND WORKSHOPS

10/2026 Journées de topologie quantique (quantum topology days), IMJ-PRG, Paris.
07/2026 Young Women in Geometric Topology, HCM, Bonn.
07/2026 Low-dimensional topology, MFO Oberwolfach.
06/2026 Berlin–Brandenburg Workshop VII: Knot theory and its applications, HU Berlin.
10/2025 Trisections and related topics, CIRM, Marseille.
11/2024 IberoSing International Workshop 2024: Low-dimensional Topology & Singularity Theory, UPM Madrid.
07/2024 Mini-symposium *Knot theory and low-dimensional manifolds*, European Congress of Mathematics, University of Seville.
04/2024 33rd NRW Topology Meeting, University of Wuppertal.
04/2024 Manifolds and groups in Bologna II, University of Bologna.
09/2023 Leaning into Topology Workshop, University of Pisa.
09/2023 Swiss Knots, University of Regensburg.
06/2023 Mini workshop on low-dimensional topology, University of Bern.
03/2023 The low-dimensional workshop, Rényi Institute, Budapest.
11/2022 Paroles aux jeunes chercheuses et chercheurs en géométrie et dynamique, Université Paris-Saclay, Orsay.
09/2022 Mini-symposium *Algebra and Low-Dimensional Topology*, DMV Annual Meeting, FU Berlin.
06/2022 Surfaces in 4-manifolds, Le Croisic.

INVITED TALKS IN RESEARCH SEMINARS (* MEANS PLANNED)

11/2026* Algebraic Geometry and Differential Topology Seminar, Rényi Institute, Budapest.
02/2026 Geometry & Topology Seminar, University of Glasgow.
01/2026 Geometry Seminar, MPI MiS, Leipzig.
10/2025 Algebra and Geometry Seminar, University of Neuchâtel.
07/2025 Oberseminar Global Analysis and Geometry, University of Regensburg.
06/2025 Séminaire Géométrie des Espaces Singuliers, Université de Lille.
05/2025 Geometry Seminar, ETH Zurich.
12/2024 Oberseminar Topologie, University of Bonn.
09/2024 Séminaire de Géométrie, Algèbre, Dynamique et Topologie, Université de Bourgogne, Dijon.
05/2024 Séminaire de Géométrie et Topologie de Marseille, Aix-Marseille Université.
05/2024 Oberseminar Topologie, University of Münster.
04/2024 Geometry & Topology Seminar, University of Glasgow.
03/2024 MPIM Oberseminar, MPIM, Bonn.
11/2023 MPIM Topology Seminar, MPIM, Bonn, short talk.
05/2023 Low-dimensional topology seminar, MPIM, Bonn.
12/2022 Geometry & Topology Seminar, CIRGET, UQAM, Montréal, online.
06/2022 LKS-Seminar, University of Regensburg.
05/2022 Geometry & Topology Seminar, Caltech, Pasadena, CA, online.
05/2022 Oberseminar Geometrie, University of Fribourg.
02/2022 Knot Online Seminar (K-OS), online.
04/2021 AIM Online Research Community 4-Dimensional Topology, lightning talk, online.

INVITED TALKS AT GRADUATE COLLOQUIA

12/2023 Pitt AWM Student Seminar, University of Pittsburgh, PA, online.
10/2023 Geometry Graduate Colloquium, ETH Zurich.
10/2022 Bern–Fribourg Graduate Seminar, University of Bern.
05/2022 Baby Geometri Seminar (Pisa junior geometry seminar), University of Pisa.
04/2022 Bernoullis Tafelrunde, University of Basel.
11/2021 Zurich Graduate Colloquium, ETH Zurich and University of Zurich.
04/2021 Geometric Topology Grad and Postdoc Seminar (GT GAPS), online.

CONTRIBUTED TALKS AT CONFERENCES AND WORKSHOPS

09/2024	MATRIX-MFO Tandem Workshop: Invariants in Low-Dimensional Topology. Combinatorics, Geometry, and Computation, MFO Oberwolfach, short talk.
02/2024	BTW4: Knot Floer Homology, Besse.
02/2023	Winter Braids XII, University of Tours.
01/2023	Low-dimensional topology, MFO Oberwolfach.
05/2022	Swiss Mathematical Society Doctoral Day 2022, University of 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.

SUPERVISION

02/2025 – 10/2025	**Master's thesis** by Chiara Donatone at the University of Milan (on Erasmus in Bonn). Co-supervised with Diego Matessi. Thesis title: *On RBG links and knot traces*. Continues as a PhD student at the University of Glasgow (since 09/2026).
06/2024 – 06/2025	**Master's thesis** by Frieda Kern at the University of Bonn. Co-supervised with Peter Teichner. Thesis title: *Linking number obstructions to satellite homomorphisms*. Continues as a PhD student at the University of Glasgow (since 09/2025).

TEACHING

Lecturer/instructor

Winter 2024/25	**Topics in 3-manifold topology** (*Selected Topics in Topology*, Master's in Mathematics), University of Bonn. Design and teaching of the course, which met for 90 minutes per week for thirteen weeks with about 25–30 students (mostly Master's students). I also designed bi-weekly exercise sheets and examined 22 students in oral exams. Of the 15 students who completed the course evaluation, two thirds gave the course a grade of 1 and one third a grade of 2. The course evaluation is available on my course website.
Winter 2018/19	**Linear Algebra review course** (Bachelor's in Computer Science and Engineering), Ulm University. Approximately 15 hours of classroom teaching.

Course organiser/coordinator at ETH Zurich

Creation of problem sheets and solutions, creation, grading and organisation of exams; co-ordinating student teaching assistants; administrative tasks.

Spring 2022	**Analysis II** (Bachelor's in Civil, Geospatial or Environmental Engineering).
Autumn 2021	**Analysis I** (Bachelor's in Civil, Geospatial or Environmental Engineering).
Spring 2021	**Topologie** (Bachelor's in Mathematics).
Autumn 2020	**Lineare Algebra I** (Bachelor's in Mathematics, Physics or Interdisciplinary Sciences).
Spring 2020	**Algebraic Topology II** (Bachelor's and Master's in Mathematics).

Teaching assistant

Autumn 2019	**Complex Analysis** (Bachelor's in Mathematics, Physics or Interdisciplinary Sciences), ETH Zurich. Weekly exercise classes; grading of exercise sheets.
Spring 2018	**Calculus III**, Syracuse University. Three recitations per week and weekly office hours; creation and grading of quizzes; grading of exams.
Autumn 2017	**Calculus III**, Syracuse University.
Winter 2013/14 – Winter 2018/19	**Analysis I–III** and **Linear Algebra I–II**, Ulm University. Marking; Mathlab tutor (drop-in help centre), exercise-group tutor and exercise-group leader.

PEDAGOGICAL TRAINING

09/2024 – 01/2025	**Teaching Mentoring Programme**, Hausdorff School for Mathematics in Bonn. Mentors: Viktoriya Ozornova and Arunima Ray.
09/2021	Certificate **Learning to Teach**, ETH Zurich. Programme for doctoral teaching assistants. Duration: three classroom days and twelve hours of independent study.

CONFERENCE ORGANISATION

12/2026 **Workshop on Knotted Surfaces**, University of Glasgow, 7–11 December.
Funded by the EPSRC Centre for Doctoral Training in Algebra, Geometry, and Quantum Fields (AGQ CDT) and the Edinburgh Mathematical Society (£8,000 in total).
Joint with Simeon Hellsten, Frieda Kern and Mark Powell.

09/2024 **MATRIX-MFO Tandem Workshop: Invariants in Low-Dimensional Topology. Combinatorics, Geometry, and Computation**, MFO Oberwolfach, 22–27 September. Joint with Stefan Friedl, Joan Licata and Stephan Tillmann.

SEMINAR ORGANISATION

09/2026 – **Geometry & Topology Seminar**, University of Glasgow. Joint with Livio Ferretti.

02/2026 – 05/2026 **ArXiv seminar**, University of Glasgow. Joint with Livio Ferretti.

10/2023 – 11/2025 **Low-dimensional topology seminar**, MPIM, Bonn.
Joint variously with Xujia Chen, Daniel Galvin, Daniel Hartman, Roberto Ladu, Arunima Ray, Léo Schelstraete, Isaac Sundberg, Peter Teichner, Laura Wakelin and Hugo Zhou.

09/2020 – 07/2023 **Geometry Graduate Colloquium**, ETH Zurich.
Funded by the Zurich Graduate School in Mathematics.
Joint variously with Raphael Appenzeller, Emilio Corso, Luca De Rosa, Xenia Flamm, Francesco Fournier Facio, Martina Jørgensen and Yannick Krifka.

OUTREACH AND COMMUNITY-BUILDING ACTIVITIES

07/2026 Invited panellist at **Young Women in Geometric Topology**, HCM, Bonn.

03/2026 Co-organiser and panel moderator of **GROW@Dresden 2026** (Graduate Research Opportunities for Women), TU Dresden and MPI-CBG, 26–27 March. Joint with Anita Behme, Türkü Özlüm Çelik, Heather Harrington, Oana Padurariu and Andreas Thom.

03/2025 Invited panellist at **GROW@Frankfurt 2025**, Goethe University Frankfurt.

12/2024 Invited speaker at **Tea Time with Women in Mathematics**, University of Bonn.

04/2024 Volunteer at the mentoring lunch at **GROW@Bonn 2024**, MPIM, Bonn.

09/2021 – 07/2023 Co-organiser of **get-togethers for women in mathematics** at ETH Zurich and the University of Zurich. Funded by the Zurich Graduate School in Mathematics.

03/2023 *Work as a PhD Student*, invited short talk, **MindPhair 2023**, ETH Zurich
(Job fair for mathematicians, physicists and computational scientists).

03/2022 *Work as a PhD Student*, invited short talk, **MindPhair 2022**, ETH Zurich.

REFEREEING AND REVIEWING

2024 – **Refereeing** and providing **quick opinions** for *Algebr. Geom. Topol.*, *Bull. London Math. Soc.*, *Pac. J. Math.*, *Proc. Amer. Math. Soc.* and *Quantum Topol.*

2024 – **Reviewer** for *zbMATH Open*.

OTHER ACADEMIC SERVICES

09/2024 Member of the Postdoc Representative Selection Committee, MPIM, Bonn.

08/2021 – 07/2023 Elected member of the Nachdiplom Lectures Committee at the Department of Mathematics, ETH Zurich.

05/2020 – 05/2023 Member of the Board of VMM (Association of the Mid-level Academic Faculty at the Department of Mathematics), ETH Zurich.

10/2022 Co-organiser of the first D-MATH (Post)Doctoral Welcome Day, ETH Zurich.

05/2021 – 05/2022 Mid-level faculty representative in the Department Conference, ETH Zurich.

10/2016 – 07/2017 Member of the Mathematics Student Council (Fachschaft Mathematik) at the Department of Mathematics and Economics, Ulm University.