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📍 School of Mathematics & Statistics, University of Glasgow,  
University Place, Glasgow, G12 8QQ, UK

## RESEARCH INTERESTS

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**Low-dimensional topology**, in particular braids, knots and links, cobordisms, knot concordance, knotted surfaces, Khovanov and Heegaard Floer homology, 3- and 4-manifolds.

## EMPLOYMENT

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12/2025 – 11/2027 **Postdoctoral fellow**, [University of Glasgow](#), Glasgow, UK.  
Supported by SNSF Postdoc.Mobility fellowship 230329.

10/2023 – 11/2025 **Postdoctoral fellow**, [Max Planck Institute for Mathematics](#), Bonn, Germany.  
Mentor: Arunima Ray.

07/2019 – 07/2023 **Scientific assistant**, [ETH Zurich](#), Zurich, Switzerland.

10/2018 – 04/2019 **Teaching assistant**, [Ulm University](#), Ulm, Germany.

08/2017 – 05/2018 **Teaching assistant**, [Syracuse University](#), Syracuse, NY, USA.

10/2013 – 07/2017 **Teaching assistant**, [Ulm University](#), Ulm, Germany.

## EDUCATION

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07/2019 – 06/2023 **Doctor of Science** in Mathematics, [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 (1.0, with distinction), [Ulm University](#), Ulm, Germany. Minor: Computer Science.  
Thesis: *Massey products and linking numbers*. Supervisor: Stefan Wewers.

08/2017 – 05/2018 **Master of Science** in Mathematics (GPA 4.0), [Syracuse University](#), Syracuse, NY, USA.

10/2012 – 08/2016 **Bachelor of Science** in Mathematics (1.5), [Ulm University](#), Ulm, Germany.  
Minor: Physics.  
Thesis: *Das Existenzproblem von Hurwitz*. Supervisor: Stefan Wewers.

09/2014 – 02/2015 **Visiting semester**, [ETH Zurich](#), Zurich, Switzerland.

## SELECTED AWARDS

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12/2025 – 11/2027 **Swiss National Science Foundation Postdoc.Mobility fellowship**.  
[Project 230329: Concordance of braid positive knots](#).

2017 **Fulbright Travel Grant**.

2014 – 2017 **Talanx Scholarship**.

2013 – 2014 **Deutschlandstipendium** Scholarship (Ulm University, EY Foundation).

2012 – 2013 **Deutschlandstipendium** Scholarship (Ulm University, Rotary Club Ulm).

## 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.

## PREPRINTS

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1. **On the detection of knotted spheres 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. [ArXiv:2511.07251](#).

## PUBLISHED AND ACCEPTED PAPERS (IN REVERSE ORDER OF ACCEPTANCE)

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8. **Strongly quasipositive links are concordant to infinitely many strongly quasipositive links**. Accepted for publication in *Proc. Amer. Math. Soc.* [ArXiv:2210.06612](#).
7. **Braid positive surgery diagrams**, with M. Kegel.  
Accepted for publication in *Glasg. Math. J.* [ArXiv:2512.14589](#).
6. **Non-complex cobordisms between quasipositive knots**, with M. Borodzik.  
Accepted for publication in *J. Math. Pures Appl.* (2025), DOI. [ArXiv:2504.04894](#).
5. **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.  
Accepted for publication in *Algebr. Geom. Topol.*. [ArXiv:2411.08775](#).
4. **Minimal cobordisms between thin and thick torus knots**, with S. Baader, L. Lewark and F. Misev. *Proc. Edinb. Math. Soc., II. Ser.* 69, no. 1 (2026), pp. 177–183.
3. **On the nonorientable four-ball genus of torus knots**, with F. Binns, S. Kang and J. Simone. *Algebr. Geom. Topol.* 25-4 (2025), pp. 2209–2251.
2. **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.
1. **The upsilon invariant at 1 of 3-braid knots**.  
*Algebr. Geom. Topol.* 23-8 (2023), pp. 3763–3804.

Preprint versions of these articles are available on [arXiv](#).


## CONFERENCE PROCEEDINGS (NOT PEER-REVIEWED)

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5. **MATRIX-MFO Tandem Workshop: Invariants in Low-Dimensional Topology. Combinatorics, Geometry, and Computation**, with S. Friedl, J. Licata, S. Tillmann. *Oberwolfach Rep.* 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, L. Wakelin. *Oberwolfach Rep.* 21 (2024), no. 3, pp. 2511–2550.
3. **Notions of braid positivity and knot concordance**. *Oberwolfach Rep.* 21 (2024), no. 3, pp. 2511–2550.
2. **Strongly quasipositive knots are concordant to infinitely many strongly quasipositive knots**. *Oberwolfach Rep.* 20 (2023), no. 1, pp. 172–174.
1. **Concordance of positive braid knots**. *Oberwolfach Rep.* 18 (2021), no. 3, pp. 2360–2362.

## INVITED TALKS AT CONFERENCES AND WORKSHOPS

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- 07/2026\* Young Women in Geometric Topology, Bonn.
- 10/2025 Trisections and related topics, Marseille.
- 11/2024 IberoSing International Workshop 2024: Low-dimensional Topology & Singularity Theory, Madrid.
- 07/2024 Mini-symposium *Knot theory and low dimensional manifolds*, European Congress of Mathematics, 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, .
- 11/2022 Paroles aux jeunes chercheuses et chercheurs en géométrie et dynamique, Orsay.
- 09/2022 Mini-symposium *Algebra and Low-Dimensional Topology*, DMV Annual Meeting 2022, Berlin.
- 06/2022 Surfaces in 4-manifolds, Le Croisic.

## INVITED TALKS AT SEMINARS

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- 02/2026 Geometry and Topology Seminar, Glasgow.
- 01/2026 Geometry Seminar, MPI MiS Leipzig.
- 10/2025 Algebra and Geometry Seminar, Neuchâtel.
- 07/2025 Oberseminar Global Analysis and Geometry, Regensburg.
- 06/2025 Séminaire Géométrie des Espaces Singuliers, Lille.
- 05/2025 Geometry seminar, ETH Zurich.
- 12/2024 Oberseminar Topologie, University of Bonn.
- 09/2024 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 Geometry & Topology Seminar, 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 and Topology Seminar, CIRGET, Montréal, online, .
- 06/2022 LKS-Seminar, Regensburg.
- 05/2022 Geometry & Topology 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.

## INVITED TALKS AT GRADUATE COLLOQUIA

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- 12/2023 Pitt AWM Student Seminar, Pittsburgh, online.
- 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.
- 04/2021 Geometric Topology Grad and Postdoc Seminar (GT GAPS), online.

\* means planned.

## CONTRIBUTED TALKS AT CONFERENCES AND WORKSHOPS

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- 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](#), 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 [Invariants and Structures in Low-Dimensional Topology](#), MFO Oberwolfach, short talk.

## OTHER CONFERENCES AND WORKSHOPS ATTENDED

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- 07/2026\* [Low-dimensional Topology](#), MFO Oberwolfach.
- 06/2026\* [Geometry and Topology in Low Dimensions: Lasting Trends and Emerging Directions](#), Budapest.
- 12/2025 [Workshop on surfaces in 4-manifolds](#), Regensburg.
- 10/2025 [36. NRW Topology Meeting](#), Bonn.
- 07/2025 [Categorification in Low Dimensional Topology](#), Bochum.
- 06/2025 [Swiss Knots](#), Geneva.
- 09/2024 [Workshop on 4-manifolds and algorithms](#), Regensburg.
- 02/2024 [Winter Braids XIII](#), Montpellier.
- 09/2023 [GRAZP: Groups and Rigidity Around the Zimmer Program](#), Ventotene.
- 07/2023 [Gauge Theory and Topology: in Celebration of Peter Kronheimer's 60th Birthday](#), Oxford.
- 01/2023 [Winter school on singularities and low-dimensional topology](#), Budapest.
- 08/2022 [Frontiers in Geometry and Topology Summer School](#), Trieste.
- 04/2022 [Braids in Low-Dimensional Topology](#), ICERM, Providence.
- 08/2021 [Perspectives on quantum link homology theories](#), Universität Regensburg.
- 07/2021 [Tech Topology Summer School](#), Georgia Institute of Technology, online.
- 07/2021 [Swiss Knots](#), Fribourg.
- 06/2021 [NCNGT: Nearly Carbon Neutral Geometric Topology Conference](#), online.
- 06/2020 [NCNGT: Nearly Carbon Neutral Geometric Topology Conference](#), online.
- 02/2020 [Winter Braids X](#), Pisa.
- 10/2019 [Regional workshop on foliations and 3-manifolds](#), Universität Regensburg.
- 10/2019 [Low-dimensional topology workshop](#), Universität Regensburg.
- 09/2019 [Workshop on 4-manifolds](#), Max Planck Institute for Mathematics Bonn.
- 09/2019 [Of coarse! Quasi-isometries and groups: rigidity and classification](#), Ventotene.
- 07/2019 [Swiss Knots](#), ETH Zurich.
- 10/2017 27th annual *Route 81* conference on commutative algebra and algebraic geometry, Cornell University, Ithaca, NY, USA.

## SUPERVISION

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- 02/2025 – 10/2025 **Master thesis** by Chiara Donatone at Università degli Studi di Milano.  
Thesis title: *On RBG links and knot traces*.  
Co-supervision with Diego Matessi.  
Will continue as PhD student at the University of Glasgow.
- 06/2024 – 06/2025 **Master thesis** by Frieda Kern at the University of Bonn.  
Thesis title: *Linking number obstructions to satellite homomorphisms*.  
Co-supervision with Peter Teichner.  
Continues as [PhD student](#) at the University of Glasgow.

## TEACHING

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Winter 2024/25	<b>University of Bonn/MPIM Bonn</b> Lecturer for <b>Topics in 3-manifold topology</b> (Master in Mathematics).
	<b>ETH Zurich</b>
Spring 2022	Course organizer for <b>Analysis II</b> (Bachelor in Civil, Geospatial, or Environmental Engineering).
Fall 2021	Course organizer for <b>Analysis I</b> (Bachelor in Civil, Geospatial, or Environmental Engineering).
Spring 2021	Course organizer for <b>Topologie</b> (Bachelor in Mathematics).
Fall 2020	Course organizer for <b>Lineare Algebra I</b> (Bachelor in Mathematics, Physics, or Interdisciplinary Sciences).
Spring 2020	Course organizer for <b>Algebraic Topology II</b> (Bachelor or Master in Mathematics).
Fall 2019	Teaching assistant for <b>Complex Analysis</b> (Bachelor in Mathematics, Physics, or Interdisciplinary Sciences).
	<b>Syracuse University</b>
Spring 2018	Teaching assistant for <b>Calculus III</b> .
Fall 2017	Teaching assistant for <b>Calculus III</b> .
	<b>Ulm University</b>
Summer 2019	Instructor for <b>Linear Algebra Review Course</b> (Bachelor in Computer Science and Engineering).
Winter 2013/14 – Summer 2019	Student teaching assistant for <b>Analysis I-III</b> and <b>Linear Algebra I-II</b> .

## TEACHER TRAINING

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Winter 2024/25	Participation in the <b>Teaching Mentoring Program</b> , Hausdorff School for Mathematics in Bonn. Mentors: Viktoriya Ozornova and Arunima Ray (both MPIM Bonn).
09/2021	Certificate <b>Learning to Teach</b> . Program for doctoral teaching assistants, ETH Zurich. Teaching project: <i>How to teach writing proofs—classroom assessment techniques in mathematics classes</i> .

## OUTREACH ACTIVITIES

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03/2026	Co-organizer of <b>GROW@Dresden 2026</b> (Graduate Research Opportunities for Women at Dresden 2026), March 26-27, joint with Anita Behme, Türkü Özlüm Çelik, Heather Harrington, Oana Padurariu, Andreas Thom.
03/2025	Invited panelist for panel discussion “ <i>What is mathematics research like?</i> ” at <b>GROW@Frankfurt 2025</b> .
12/2024	Invited speaker at <b>Tea Time with Women in Mathematics</b> , Bonn.
04/2024	Volunteer at the mentoring lunch at <b>GROW@Bonn 2024</b> .
03/2023	<i>Work as a PhD Student</i> , invited short talk, <b>MindPhair 2023</b> , ETH Zurich (job-fair for mathematicians, physicists and computational scientists).
03/2022	<i>Work as a PhD Student</i> , invited short talk, <b>MindPhair 2022</b> , ETH Zurich.

## CONFERENCE AND SEMINAR ORGANIZATION

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- 02/2026 – [ArXiv seminar](#), University of Glasgow.  
10/2023 – 11/2025 [Low-dimensional topology seminar](#), MPIM Bonn.  
09/2024 [MATRIX-MFO Tandem Workshop: Invariants in Low-Dimensional Topology. Combinatorics, Geometry, and Computation](#), Mathematisches Forschungsinstitut Oberwolfach, Sept 22–27, joint with Stefan Friedl, Joan Licata and Stephan Tillmann.  
09/2020 – 07/2023 [Geometry Graduate Colloquium](#), ETH Zurich, funded by the Zurich Graduate School in Mathematics.

## OTHER ACADEMIC SERVICE AND ACTIVITIES

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- MPIM Bonn**  
09/2024 Member of the Postdoc Representative Selection Committee.
- ETH Zurich**  
09/2021 – 07/2023 Co-organizer of get-togethers for women in math at ETH Zurich and the 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.  
05/2020 – 05/2023 Member of the Board of [VMM](#) (Association of the Mid-level Academic Faculty at the Department of Mathematics).  
10/2022 Co-organizer of the first D-MATH (Post)Doctoral Welcome Day.  
05/2021 – 05/2022 Mid-level faculty representative in the Department Conference.
- Ulm University**  
10/2016 – 07/2017 Member of the Mathematics Student Council (Fachschaft Mathematik) at the Department of Mathematics and Economics.

## REFEREEING AND REVIEWING

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- 2024 – present **Referee** and **quick opinions** for *Algebr. Geom. Topol.*, *Bull. Lond. Math. Soc.* and *Pac. J. Math.*  
2024 – present **Reviewer** for [zbMATH Open](#).

## REFERENCES

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- [Peter Feller](#), University of Neuchâtel, peter.feller@unine.ch.  
[Matthew Hedden](#), Michigan State University, mhedden@math.msu.edu.  
[Lukas Lewark](#), ETH Zurich, lukas.lewark@math.ethz.ch.  
[Viktoriya Ozornova](#), MPIM Bonn (Teaching), viktoriya.ozornova@mpim-bonn.mpg.de.  
[Arunima Ray](#), University of Melbourne, aru.ray@unimelb.edu.au.