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📍 School of Mathematics & Statistics, University of Glasgow,  
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## RESEARCH INTERESTS

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**Low-dimensional topology**, in particular braids, knots and links, knot concordance and cobordisms, 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 an SNSF Postdoc.Mobility fellowship.  
Mentor: Brendan Owens.

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-Cacedo and Hannah Schwartz in Spring 2021.

## PREPRINTS

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2. **On  $\mathcal{T}$ -positive links**, with B. Bode. Submitted. [ArXiv:2605.10502](#).
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. Submitted. [ArXiv:2511.07251](#).

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

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8. **Braid positive surgery diagrams**, with M. Kegel.  
*Glasg. Math. J.* (2026) pp. 1-6. DOI: 10.1017/S0017089526100913. [ArXiv:2512.14589](#).
7. **Non-complex cobordisms between quasipositive knots**, with M. Borodzik.  
*J. Math. Pures Appl.* (9) 207:11 (2026). Id/No 103842. [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.* (accepted for publication ). [ArXiv:2411.08775](#).
5. **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. [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.* (accepted for publication ). [ArXiv:2210.06612](#).
2. **On the nonorientable four-ball genus of torus knots**, with F. Binns, S. Kang and J. Simone.  
*Algebr. Geom. Topol.* 25-4 (2025), pp. 2209–2251. [ArXiv:2109.09187](#).
1. **The upsilon invariant at 1 of 3-braid knots**.  
*Algebr. Geom. Topol.* 23-8 (2023), pp. 3763–3804. [ArXiv:2109.09187](#).

Preprint versions of all these articles can be found 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.  
06/2026\* [Berlin-Brandenburg Workshop VII: Knot theory and its applications](#), Berlin.  
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.

## 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.

\* means planned.

## SUPERVISION

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

## TEACHING

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

## TEACHER TRAINING

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

## OUTREACH ACTIVITIES

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- 03/2026 Co-organizer of **GROW@Dresden 2026** (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 “*What is mathematics research like?*” at **GROW@Frankfurt 2025**.
- 12/2024 Invited speaker at **Tea Time with Women in Mathematics**, Bonn.
- 04/2024 Volunteer at the mentoring lunch at **GROW@Bonn 2024**.
- 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.

## CONFERENCE AND SEMINAR ORGANIZATION

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- 12/2026 (planned) **Workshop on Knotted Surfaces**, University of Glasgow, Dec 7–11. Joint with Simi Hellsten, Frieda Kern and Mark Powell.
- 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.
- 09/2024 **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. Joint variously with Raphael Appenzeller, Emilio Corso, Luca De Rosa, Xenia Flamm, Francesco Fournier Facio, Martina Jørgensen and Yannick Krifka.

## 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,  
[Matthew Hedden](#), Michigan State University,  
[Lukas Lewark](#), ETH Zurich,  
[Viktoriya Ozornova](#), MPIM Bonn (Teaching),  
[Arunima Ray](#), University of Melbourne,

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