ANNA PARLAK

Krener Assistant Professor
University of California, Davis

abparlak@ucdavis.edu
https://annaparlak.github.io

EMPLOYMENT

University of California Davis, United States *July 2022 - now*
Krener Assistant Professor

University of Oxford, United Kingdom *May 2021 - July 2022*
Postdoctoral Research Associate in Pure Mathematics
(Funded by the Simons Investigator Award 409745 of Vladimir Marković)

EDUCATION

University of Warwick, United Kingdom *October 2017 - August 2021*
Mathematics, PhD ▶ Advisor: Saul Schleimer
Thesis: *Veering triangulations and polynomial invariants of three-manifolds*

University of Gdańsk, Poland *October 2015 - July 2017*
Mathematics, MSc ▶ Advisor: Michał Stukow
Thesis: *Roots in the mapping class group of a nonorientable surface*

University of Gdańsk, Poland *October 2012 - July 2015*
Mathematics, BSc ▶ Advisor: Witold Rosicki
Thesis: *Relations between knots and planar graphs: Tait's constructions, Fox colourings and quandles*

University of Gdańsk & Medical University of Gdańsk, Poland *October 2010 - July 2013*
Biotechnology, BSc ▶ Advisor: Stanisław Ołdziej
Final project: *Phosphorylation–induced conformational changes of tau protein*

SELECTED AWARDS

- Craig A. Tracy Research Prize 2024 (University of California, Davis)
- Warwick Mathematics Institute 2022 Thesis Prize (University of Warwick)
- The Minister of Science and Higher Education Scholarship 2016/2017 (Poland)

RESEARCH INTERESTS

low-dimensional topology • dynamics on 3-manifolds • polynomial invariants of 3-manifolds • pseudo-Anosov flows • veering triangulations • mapping class groups

SOFTWARE

I regularly contribute to `Veering`, a Python package for working with transverse taut and veering ideal triangulations. For instance, I am the sole author of the `carried_surface` and `mutation` modules, and have collaborated with Saul Schleimer and Henry Segerman on a handful of other modules, including `flow_cycles`, `taut_polynomial`, and `veering_polynomial`.

`Veering` can be used to conduct computational experiments, test hypotheses, find examples of veering triangulations with specific properties, and formulate new conjectures based on generated data. Its free availability as a Python package makes it a useful resource for the broader mathematics community.

PAPERS AND PREPRINTS

1. *Arbitrarily large veering triangulations with a vanishing taut polynomial*
   Submitted. `arXiv:2309.01752 [math.GT]`.
2. *Mutations and faces of the Thurston norm ball dynamically represented by multiple distinct flows*
   To appear in Geometry&Topology. `arXiv:2303.17665 [math.GT]`.
3. *The taut polynomial and the Alexander polynomial*
   J. Topol., 16: 720-756 (2023). `arXiv:2101.12162 [math.GT]`.
4. *Computation of the taut, the veering and the Teichmüller polynomials*
   Exp. Math., 33:1, 1-26 (2024). `arXiv:2009.13558 [math.GT]`.
5. *Roots of Dehn twists on nonorientable surfaces* (with Michał Stukow)
   J Knot Theor Ramif, Vol. 28, No. 12, 1950077 (2019). `arXiv:1701.00531 [math.GT]`.
6. *Roots of crosscap slides and crosscap transpositions* (with Michał Stukow)
   Period Math Hung, Vol. 75, Issue 2, pp. 413 – 419 (2017). `arXiv:1601.06096 [math.GT]`.

TALKS

2024	May:	*St. Louis Topology Conference: Flows and Foliations in 3-manifolds*, WashU
	Jan:	Algebra and Number Theory Seminar, Oregon State University (virtual)
2023	Nov:	*66th Texas Geometry and Topology Conference*, Rice University
	Nov:	Highway CA-17 Groups, Geometry, and Topology Seminar, SJSU&UC Santa Cruz
	Sep:	Topology Seminar, Oklahoma State University (virtual)
	Sep:	Geometric Topology Seminar, Columbia University
	Sep:	Geometry and Topology Seminar, Temple University
	Sep:	Topology/Geometry Seminar, Rutgers – New Brunswick
	Jun:	*Knots, Surfaces, and 3-Manifolds*, Casa Matemática Oaxaca
	Apr:	Australian Geometric Topology Webinar (virtual)
	Apr:	*Computational Problems in Low-dimensional Topology III*, Rutgers–Newark (short talk)
	Mar:	Topology seminar, UC Berkeley
	Jan:	*Oberwolfach: Low-dimensional topology* (short talk)
2022	Nov:	Geometry/Topology seminar, UC Davis
	Jul:	*AMS-EMS-SMF International Meeting*, Grenoble
	May:	Geometry and Topology Seminar, University of Bristol
	May:	Junior Topology and Group Theory Seminar, University of Oxford
	Apr:	*Mapping class group and* $\mathrm{Out}(F_n)$, Institut Henri Poincaré (short talk)
	Mar:	Geometry and Topology Seminar, Washington University in St. Louis (virtual)
2021	Nov:	North Meets South Colloquium, University of Oxford
	Jun:	*Nearly Carbon Neutral Geometric Topology Conference* (virtual)
	Apr:	Topology and Geometric Group Theory Seminar, Cornell University (virtual)
	Mar:	Topology Seminar, University of Texas at Austin (virtual)
	Feb:	Topology Seminar, University of Oxford
	Jan:	Algebra/Topology Seminar, University of Copenhagen (virtual)
2020	Nov:	Junior Topology and Group Theory Seminar, University of Oxford (virtual)
	Nov:	Topology Seminar, University of California Riverside (virtual)
	Nov:	Topology Seminar, Oklahoma State University (virtual)
2019	Oct:	Bristol Junior Geometry Seminar, University of Bristol
	May:	Junior Geometry and Topology Seminar, University of Warwick
	Feb:	Mathematics Postgraduate Seminar, University of Warwick
2018	Jan:	Junior Geometry and Topology Seminar, University of Warwick
2017	Jul:	*Young Topologists Meeting*, Stockholm

2016	Sep:	*The 19th International Workshop for Young Mathematicians*, Jagiellonian University
	May:	*18th Andrzej Jankowski Memorial Lecture Mini Conference*, University of Gdańsk
2015	Sep:	*The 18th International Workshop for Young Mathematicians*, Jagiellonian University

TEACHING

University of California, Davis

2024/2025	Instructor, MAT21B **Integral Calculus** (2 × Fall, 1 × Spring)
	Instructor, MAT21C **Partial Derivatives and Series** (1 × Spring)
2023/2024	Instructor, MAT21B **Integral Calculus** (1 × Fall, 1 × Spring)
	Instructor, MAT108 **Introduction to Abstract Mathematics** (1 × Fall, 1 × Spring)
2022/2023	Instructor, MAT21A **Differential Calculus** (2 × Fall, 1 × Spring)
	Instructor, MAT21B **Integral Calculus** (1 × Spring)

University of Warwick

2020/2021	Teaching assistant, MA131 **Analysis I** (term 1)
2019/2020	**Supervisor** for 10 first year Maths undergraduates (2 groups, terms 1 & 2)
	Teaching assistant, MA131 **Analysis I** (term 1)
	Teaching assistant, MA131 **Analysis II** (term 2)
2018/2019	**Supervisor** for 10 first year Maths+Physics undergraduates (2 groups, terms 1 & 2)
	Teaching assistant, MA3H6 **Algebraic Topology** (term 2)

SERVICE

2023/2024	Mentor in the UC Davis Directed Reading Program (Fall and Winter quarters)
2021/2022	Early Career Researcher Committee (Oxford)
	Whitehead Library Committee (Oxford)
2018/2019	Organizer of the Topology Reading Seminar (Warwick)

I have refereed for multiple mathematical journals (either general or specializing in topology or dynamical systems) as well as for Mathematical Reviews.

Last updated: August 25th, 2024