Anton Ullrich
Carnegie Mellon University
7206 Wean Hall
15213 Pittsburgh, PA
E-Mail: aullrich@andrew.cmu.edu

Curriculum Vitae

Education

September 2025 – ongoing	Carnegie Mellon University, Pittsburgh, PA, United States Walter Noll Research Fellow, Postdoc mathematics
2022 – 2025	Max Planck Institute for Mathematics in the Sciences, Leipzig, Germany Ph.D. mathematics PhD thesis: "Heat Flow, Mean Curvature Flow and Their Related Schemes", advisor: Prof. Felix Otto
2020 – 2022	University of Bonn, Germany Master-studies mathematics (grade 1.0, excellent) Master's thesis: "Thresholding for generic mean curvature flow", advisor: Prof. Tim Laux
2017 – 2020	University of Bonn, Germany Bachelor-studies mathematics (grade 1.0, excellent) Bachelor's thesis: "Starke isoperimetrische Ungleichung" (Sharp isoperimetric inequality), advisor: Prof. Herbert Koch awarded bachelor prize of the BMG (Bonn Mathematical Society)
2009 — 2017	Georg-Cantor-Gymnasium, Halle, Germany graduation: Abitur (grade 1.0, excellent)

Research interests

Geometric flows

Calculus of variations

Parabolic partial differential equations

Publications and paper

Peer-Reviewed

2024 "Generic level sets in mean curvature flow are BV solutions", with Tim Laux, J. Geom. Anal. 34, 375 (2024). https://doi.org/10.1007/s12220-024-01819-y

Preprints

2025 "Equivalence of weak solution concepts for mean curvature flow", with Tim Laux, arXiv preprint arXiv:2510.16478

2024 "Median filter method for mean curvature flow using a random Jacobi algorithm", with Tim Laux, arXiv preprint arXiv:2410.07776
https://mathrepo.mis.mpg.de/Medianfilter/

2024 "The heat flow on glued spaces with varying dimension", arXiv preprint arXiv:2406.09996

Research stays

11/2025 University of Michigan, United States, visiting Selim Esedoḡlu

07/2025 Heidelberg University, Germany, visiting Tim Laux

04/2024 Regensburg University, Germany, visiting Tim Laux

04/2023 Heidelberg University, Germany, visiting Tim Laux

Contributed Talks & Poster presentation

11/2025	"AIM Seminar" University of Michigan, Michigan, United States
07/2025	"CNA seminar" Carnegie Mellon University, Pittsburgh, United States
07/2025	"Analysis AG seminar" Heidelberg University, Heidelberg, Germany
07/2025	Summer School "Geometric Analysis and PDEs", Poster, Chęciny, Poland
10/2024	"Dresden-Leipzig AG seminar day", Leipzig, Germany
08/2024	Conference "Free Boundary Problems: Theory and Application" — "Interfaces and Free Boundaries in Machine Learning", João Pessoa City, Brazil
10/2023	"Regiomontanus Seminar", Leipzig, Germany
07/2023	Summer School "Geometric Analysis and PDEs", Poster, Chęciny, Poland
07/2023	"Scientific retreat of the International Max Planck Research School (IMPRS)", Wittenberg, Germany
11/2022	"Scientific retreat of the IMPRS", Trebsen, Germany

Organization

10/2024 – 08/2025	Organization FLINTAQ*-lunches
09/2024	Organization of Conference "IMPRS Combo III: Cosmology and Quantum Information Theory", intended for all Ph.D. candidates in mathematics of the IMPRS, Leipzig new concepts: ethics lectures combined with a discussion
10/2023 – 04/2025	Ph.D. representative for the Max Planck Institute for Mathematics in the Sciences

Teaching experience

10/2024 – 12/2025	Supervision of a high-school student for the creation of a scientific work
2018 – 2021	Teaching assistant for:

	"Linear algebra 1", "Linear algebra 2", "Analysis 3", "Introduction to robotics", "Introduction to partial differential equations" and "Functional analysis and PDE"

Special accomplishments

2020 – 2022	Studienstiftung des deutschen Volkes, Scholarship of the German Academic Scholarship Foundation; awarded to approximately 0.25% of the German university student population
2015 — 2017	Besondere Lernleistung (special academic accomplishment, a voluntary research project) "2- und 3-dimensionale Gleichdicke" (curves and surfaces of constant width)
2007 — 2017	Participation in olympiads in mathematics, physics, chemistry, computer science and latin, for instance:
	International physics-olympiad, 3rd round
	International chemistry-olympiad, 4th round
	National computer science competition, 2nd round
	Certamen Franckianum, 2nd round
	National mathematics competition, 2nd round
	Mathematics Olympiad, up to the selection exams for the International Mathematics Olympics
2014	Scientific-practical-work "Erstellung virtueller Welten mit Fraktalen" (Creation of virtual worlds using fractals)

Attended Conferences and Workshops

10/2024	"Dresden-Leipzig AG seminar day", Leipzig, Germany
08/2024	Conference "Free Boundary Problems: Theory and Application", João Pessoa City, Brazil
05/2024	"IMPRS Combo II: Numerics in Algebra & Analysis", Leipzig, Germany
05/2024	"n-Cities Seminar", Leipzig, Germany

04/2024	Workshop on "Calculus of Variations and Partial Differential Equations", Regensburg, Germany
03/2024	"Scientific retreat of the IMPRS", Halle, Germany
02/2024	"Applications of Optimal Transportation", Oberwolfach, Germany
11/2023	"Workshop on Geometry and Machine Learning", Leipzig, Germany
11/2023	"IMPRS Combo I", Leipzig, Germany
07/2023	"Unfinished Business: Problems in Applied Geometric Measure Theory, Many-particle Systems, Epidemiology, and Phase Transitions", Bingen, Germany
07/2023	"Scientific retreat of the IMPRS", Wittenberg, Germany
07/2023	"Summer School on Geometric Analysis and PDEs", Chęciny, Poland
06/2023	"Calculus of Variations and Geometric Measure Theory", Pisa, Italy
05/2023	MPI MiS Summer School on "PDEs and Randomness", Leipzig, Germany
03/2023	Spring School "Recent trends in the mathematics of complex materials", Bonn, Germany
12/2022	"Théorie de la mesure géométrique et calcul des variations", Nancy, France
11/2022	"Scientific retreat of the IMPRS", Trebsen, Germany
08/2022	Hausdorff School: "Geometric Analysis", Bonn, Germany
11/2021	"Workshop on New Trends in Geometric PDEs", Münster, Germany
08/2021	Workshop on "Geometric and Applied Analysis", Hausdorff Center for Mathematics, Bonn, Germany

Special knowledge

Languages	German: native English: C1.1 Latin: advanced Latin certificate French: A1.1

Programming languages	C: course work C#: private projects, game development Python: private projects, course work, research projects Matlab: course work, research projects Rust: research projects js, css, html: website design

Hobbies and interests

	Literature Programming & making games Painting Teaching for olympiad preparation Board games
association membership	eLeMeNTe e.V. (math association to organize olympiads and math camps) QED e.V. (mathematics organization centered in Bavaria) CDE e.V. (organizes camps and events for people who attended "Deutsche Schüler-Akademie")

Pittsburgh, 30. October 2025