Lars Becker

Personal Information

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Research Interests

My research interests are in harmonic analysis. More specifically, I am interested in extending bounds for maximal modulations of singular integral operators, such as Carleson's theorem, to larger classes of operators. This includes, for example, singular integral operators with kernels supported on submanifolds, or singular integral operators on spaces of homogeneous type. Besides that, I am interested in finding the optimal constants in classical Fourier extension inequalities.

Education

2022 - current	PhD student in harmonic analysis, University of Bonn
	Advisor: Christoph Thiele
2021 - 2022	Master of Mathematics, University of Bonn
	Final grade: 1.0
2018 - 2021	Bachelor of Mathematics, University of Bonn
	Final grade: 1.0

Teaching Experience

2019 - 2023	**University of Bonn**
	Tutor for the Lectures Analysis I – III, Introduction to PDE, Introduction to Functional Analysis
	Conducting problem solving sessions and correcting homework

Papers and Preprints

- *Discrete Brunn-Minkowski Inequality for subsets of the cube* (with Paata Ivanisvili, Dmitry Krachun and José Madrid). arXiv:2404.04486

- *A degree one Carleson operator along the paraboloid.* arXiv:2312.01134

- *Dimension-free Remez Inequalities and norm designs* (with Ohad Klein, Joseph Slote, Alexander Volberg and Haonan Zhang). arXiv:2310.07926

- *Sharp Fourier extension for functions with localized support on the circle.* arXiv:2304.02345

- *Maximal polynomial modulations of singular Radon transforms.* Journal of Functional Analysis, 2024, Vol. 286, no. 6, pp. 110299

Awards

2021	Bachelor Prize of the BMG, for being among the best graduates of the bachelor's degree program in mathematics for the graduating class of 2020/21 in Bonn
2018	First prize at the German national Math Olympiad
2017	First prize at the German national Math Olympiad

CONFERENCES AND SUMMER SCHOOLS

2023   Summer school 'Analysis of multiple ergodic averages', Kopp, Germany, participant

2023   Workshop 'Incidence Problems in Harmonic Analysis, Geometric Measure Theory, and Ergodic Theory', Oberwolfach, Germany, participant

2023   Conference 'Harmonic Analysis and Partial Differential Equations', Bonn, Germany, participant

2022   Summer school 'Nodal domains and landscape functions', Kopp, Germany, participant