Laura Cladek

CONTACT INFORMATION

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RESEARCH INTERESTS

Harmonic analysis, additive combinatorics, geometric measure theory

EDUCATION

Ph.D., Mathematics, University of Wisconsin–Madison, 2006

- Dissertation Topic: Multiplier Theorems, Square Function Estimates, and Bochner Riesz Means Associated With Rough Domains.
- Advisor: Andreas Seeger

EXPERIENCE

- NSF Assistant Adjunct Professor, University of California, Los Angeles, 2017-Present
- Visiting Assistant Professor at the University of British Columbia, 2016–2017

PUBLICATIONS

1. Additive energy of regular measures in one and higher dimensions, and the fractal uncertainty principle (with Terence Tao). arXiv Ars Inveniendi Analytica (2021), Paper No. 1, 38 pp.
2. Upper and lower bounds on the rate of decay of the Favard curve length for the four-corner Cantor set (with Blair Davey and Krystal Taylor), Indiana U. Math. J., to appear.
3. Discrete Analogues in Harmonic Analysis: Directional Maximal Functions in $\mathbf{Z}^2$ (with Ben Krause). IMRN, to appear.
4. Spherical means on the Heisenberg group: stability of a maximal function estimate (with Theresa Anderson, Malabika Pramanik, and Andreas Seeger). To appear, Journal d'Analyse Math.
5. Directional maximal function along the primes. (with Polona Durcik, Ben Krause, and José Madrid). Publ. Mat. 65 (2021), 841–858.
6. A discrete Carleson theorem along the primes with a restricted supremum. (with Kevin Henriot, Ben Krause, Izabella Łaba, and Malabika Pramanik). Math. Z. 289 (2018), no. 3-4, 1033–1057.
7. Sparse bounds for pseudodifferential operators (with David Beltran). J. Anal. Math. 140 (2020), no. 1, 89–116.
8. Sparse domination of Hilbert transforms along curves (with Yumeng Ou). Math. Res. Lett. 25 (2018), no. 2, 415–436.
9. Improved endpoint bounds for the lacunary spherical maximal operator (with Ben Krause). Submitted.
10. Radial Fourier Multipliers in $\mathbf{R}^3$ and $\mathbf{R}^4$. Anal. PDE. 11 (2018), no. 2, 467–498.
11. On the square function associated with generalized Bochner-Riesz means Ind. Univ. Math. J. 66 (2017), no. 6, 2205–2238.
12. New L^p bounds for Bochner-Riesz multipliers associated with convex planar domains with rough boundary. Preprint.
13. Multiplier transformations associated to convex domains in $\mathbf{R}^2$. J. Geom. Anal. 26 (2016), no. 4, 3129–3175.

Talks

- *Bochner-Riesz multipliers associated to convex planar domains with rough boundary*, U. Penn Analysis Seminar (Oct 27, 2015)
- *Bochner-Riesz multipliers associated to convex planar domains with rough boundary*, AMS Joint Mathematics Meeting, Special Session on Recent Developments in Dispersive Partial Differential Equations and Harmonic Analysis, Seattle Washington (Jan 6, 2016)
- *Bochner-Riesz multipliers associated to convex domains in the plane*, University of Rochester Analysis Seminar (Mar 25, 2016)
- *Radial Fourier Multipliers in* $\mathbf{R}^3$, Conference in Harmonic Analysis in Honor of Michael Christ, Madison (May 19, 2016)
- *Radial Fourier Multipliers*, UBC, Harmonic Analysis Seminar (Sep 26, 2016)
- *Radial Fourier Multipliers*, MSRI, Connections for Women: Harmonic Analysis (Jan 20, 2017)
- *Endpoint bounds for the lacunary spherical maximal operator*, Joint UCLA/Caltech Analysis Seminar (Apr 17, 2017)
- *Endpoint bounds for the lacunary spherical maximal operator*, Madison, Analysis seminar (Mar 31, 2017)
- *Radial Fourier multipliers*, Caltech, Joint UCLA/Caltech Analysis Seminar (Oct 6, 2017)
- *Spherical averages and Radon transforms*, American Institute of Mathematics, Sparse domination (Oct 12, 2017)
- *Discrete analogues in harmonic analysis: Directional maximal functions*, ICM 2018 Satellite Conference in Harmonic Analysis, Brazil (July 24-29, 2018)
- *Quantitative Additive Energy Estimates for Regular Sets and Connections to Discretized Sum-Product Theorems*, Institute for Pure and Applied Mathematics, Quantitative Linear Algebra seminar series (May 10, 2018)
- Analytic and Discrete Aspects of Finite Point Configurations, Centre International de Rencontres Mathématiques (Jan 4-8, 2021); cancelled due to COVID
- *Additive energy of regular measures in one and higher dimensions, and the fractal uncertainty principle*, University of Birmingham Analysis Seminar (Mar 17, 2021)
- *Additive energy of regular measures in one and higher dimensions, and the fractal uncertainty principle*, AMS Spring Western Sectional Meeting (virtual), Special Session on Analysis, Combinatorics, and Geometry of Fractals (May 1, 2021)
- *Additive Energy of Regular Measures and the Fractal Uncertainty Principle in High Dimensions*, Fourier restriction online (Mar 1, 2021)
- *Additive energy of regular measures in one and higher dimensions, and the fractal uncertainty principle*, Joint UCLA/USC Analysis Seminar (Nov 9, 2021)
- *Additive energy of regular measures in one and higher dimensions, and the fractal uncertainty principle*, Yale Analysis Seminar (Nov 11, 2021)

Forthcoming Talks

- UC Riverside fractal research group seminar (Nov 2021)
- Harmonic Analysis and related topics, Barcelona, Spain (June 13–17, 2022)

Teaching Experience

Winter	2016	Lecturer, 104 (Differential Calculus with Applications to Commerce and Social Sciences)
Fall	2018	Lecturer, Math 131AH (Real Analysis Honors)
Winter	2019	Lecturer, Math 33AH (Linear Algebra and Applications Honors)
Winter	2020	Lecturer, Math 131A (Real Analysis)
Spring	2020	Lecturer, Math 33A (Linear Algebra and Applications)
Spring	2020	Lecturer, Math 131A (Real Analysis)
Winter	2021	Lecturer, Math 33AH (Linear Algebra and Applications Honors)
Spring	2021	Lecturer, Math 131A (Real Analysis)
Fall	2021	Lecturer, Math 131A (Real Analysis)

Honors, Grants, Awards

2017–2021 National Science Foundation Postdoctoral Research Fellowship #1703715, $150,000

Service

- Organizer, Women in Math at Wisconsin, 2016
- Co-organizer, Joint UCLA/Caltech analysis seminar, 2017–2019