

Curriculum Vitae

Julian Weigt

May 2023

Basic Information

Name: Julian Weigt
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Studies and positions

2011 - 2014	Bachelor of Science in Physics	University of Jena Advisor: Prof. Bernd Brüggemann, Tim Dietrich Thesis: Oppenheimer-Snyder Collapse
2013 - 2015	Bachelor of Science in Mathematics	University of Jena Advisor: Prof. Daniel Lenz, Marcel Schmidt Thesis: Measurable Equidecomposition
2015 - 2016	Erasmus Exchange Student	Lund University
2016 - 2018	Master of Science in Mathematics	University of Bonn Advisor: Prof. Christoph Thiele Thesis: Almost-Orthogonality of Restricted Haar Functions
2018 - 2022	Doctoral Student	Aalto University Advisor: Prof. Juha Kinnunen Thesis: Endpoint Regularity of Maximal Functions in Higher Dimensions date of defense: 21.10.2022
2022 -	Postdoctoral researcher	University of Warwick PI: Dr. David Bate

Publications

- [10] Kim Myrskyläinen, Carlos Pérez, and Julian Weigt. “Weighted fractional Poincaré inequalities via isoperimetric inequalities”. In: *arXiv e-prints* (2023). submitted. arXiv: 2304.02681 [math.CA].
- [9] Julian Weigt. “Endpoint regularity of maximal functions in higher dimensions”. English. Doctoral thesis. School of Science, 2022, 60 + app. 120. ISBN: 978-952-64-0949-8 (electronic), 978-952-64-0948-1 (printed). URL: <http://urn.fi/URN:ISBN:978-952-64-0949-8>.
- [8] Julian Weigt. “The Variation of the Uncentered Maximal Operator with respect to Cubes”. In: *arXiv e-prints* (2021). submitted. arXiv: 2109.10747.
- [7] Constantin Bilz and Julian Weigt. “The one-dimensional centred maximal function diminishes the variation of indicator functions”. In: *arXiv e-prints* (2021). submitted. arXiv: 2107.12404.
- [6] David Beltran, Cristian González-Riquelme, José Madrid, and Julian Weigt. “Continuity of the gradient of the fractional maximal operator on $W^{1,1}(\mathbb{R}^d)$ ”. In: *arXiv e-prints* (2021). to appear in: *Math. Res. Let.* arXiv: 2102.10206.
- [5] Julian Weigt. “Endpoint Sobolev bounds for fractional Hardy-Littlewood maximal operators”. English. In: *Math. Z.* 301.3 (2022), pp. 2317–2337. ISSN: 0025-5874. DOI: 10.1007/s00209-022-02969-x.
- [4] Julian Weigt. “Variation of the dyadic maximal function”. English. In: *Int. Math. Res. Not.* 2023.4 (2023), pp. 3576–3596. ISSN: 1073-7928. DOI: 10.1093/imrn/rnac027.
- [3] Julian Weigt. “Variation of the uncentered maximal characteristic function”. English. In: *Rev. Mat. Iberoam.* 38.3 (2022), pp. 823–849. ISSN: 0213-2230. DOI: 10.4171/RMI/1312.
- [2] João P. G. Ramos, Olli Saari, and Julian Weigt. “Weak differentiability for fractional maximal functions of general L^p functions on domains”. In: *Adv. Math.* 368 (2020), pp. 107144, 25. ISSN: 0001-8708. DOI: 10.1016/j.aim.2020.107144. URL: <https://doi.org/10.1016/j.aim.2020.107144>.
- [1] Julian Weigt. “Almost-orthogonality of restricted Haar functions”. In: *Proc. Amer. Math. Soc.* 148.2 (2020), pp. 601–609. ISSN: 0002-9939. DOI: 10.1090/proc/14752. URL: <https://doi.org/10.1090/proc/14752>.

Invited Talks

05.02.2019	Helsinki University, Geometric and Functional Analysis Seminar	Almost orthogonality of restricted Haar functions
12.03.2021	UCLA Analysis and PDE Seminar	Endpoint regularity of the dyadic and the fractional maximal function
13.12.2021	OIST Nonlinear Analysis Seminar Series	Higher dimensional techniques for the regularity of maximal functions
15.12.2021	OIST Nonlinear Analysis Seminar Series	Higher dimensional techniques for the regularity of maximal functions
17.06.2022	Izmir Mathematical Days – IV	Higher dimensional techniques for the regularity of maximal functions

Participation

- 2017/10 Summer School on Decoupling and Polynomial Methods in Analysis,
Kopp, Germany
- 2018/09 Summer School on Unique Continuation and Inverse Problems,
Kopp, Germany
- 2019/06 Barcelona Analysis Conference,
Barcelona, Spain
- 2019/07 Summer School: Restriction Theory
BCAM-UPV/EH, Bilbao, Spain
- 2021/09 Summer School on Brascamp-Lieb inequalities,
Kopp, Germany
- 2022/06 11th International Conference on Harmonic Analysis and Partial Differential Equations
El Escorial, Madrid, Spain
- 2022/08 28th Nordic Congress of Mathematicians
Aalto University, Finland
- 2022/09 IWOTA 2022
Krakow, Poland

Funding and Awards

- 2019/01 - 12 grant by the Vilho, Yrjö and Kalle Väisälä Foundation of the Finnish Academy of Science and Letters
- 2020/01 - 12 grant by the Vilho, Yrjö and Kalle Väisälä Foundation of the Finnish Academy of Science and Letters
- 2021/07 - 2022/06 doctoral scholarship by the Magnus Ehrnrooth foundation of the Finnish Society of Science and Letters
- 2023/06 Aalto University doctoral thesis award 2023 in the School of Science

Teaching

2013	Teaching Assistant	Mathematik für Geowissenschaftler, Jena
2014	Teaching Assistant	Lineare Algebra II für Lehramtsstudenten, Jena
2014	Teaching Assistant	Lineare Algebra I, Jena
2015	Teaching Assistant	Analysis II, Jena
2016	Teaching Assistant	Analysis I, Bonn
2018	Head Assistant	Partial Differential Equations, Aalto University
2019	Head Assistant	Differential and Integral Calculus 3, Aalto University
2019	Head Assistant	Measure and Integral, Aalto University
2020	Head Assistant	Differential and Integral Calculus 3, Aalto University
2020	Head Assistant	Harmonic Analysis, Aalto University
2020	Head Assistant	Measure and Integral, Aalto University
2021	Head Assistant	Differential and Integral Calculus 2, Aalto University
2021	Head Assistant	Measure and Integral, Aalto University