

Damian Dąbrowski

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Employment

University of Jyväskylä

Postdoctoral researcher

2021–2025

Education

Universitat Autònoma de Barcelona

PhD in Mathematics

2017 – 2021

Thesis: Rectifiability of Radon measures

University of Warsaw

MSc in Mathematics

2015 – 2017

Thesis: Characterization of Sobolev-Slobodeckij spaces using geometric curvature energies

University of Warsaw

BSc in Mathematics (*summa cum laude*)

2012 – 2015

Thesis: Hausdorff dimension of Besicovitch sets

Papers

- *Analytic capacity and dimension of sets with plenty of big projections* (with M. Villa). Preprint (2022). arXiv:2204.05804
- *Structure of sets with nearly maximal Favard length* (with A. Chang, T. Orponen, M. Villa). Preprint (2022). arXiv:2203.01279
- *Integrability of orthogonal projections, and applications to Furstenberg sets* (with T. Orponen and M. Villa). To appear in Adv. Math. arXiv:2107.04471
- *The measures with L^2 -bounded Riesz transform satisfying a subcritical Wolff-type energy condition* (with X. Tolsa). Preprint (2021). arXiv:2106.00303
- *Two examples related to conical energies*. Ann. Fenn. Math. 47 (2022), no. 1, 261–281.
- *An α -number characterization of L^p spaces on uniformly rectifiable sets* (with J. Azzam). To appear in Publ. Mat. arXiv:2009.10111
- *Cones, rectifiability, and singular integral operators*. Published online in Rev. Mat. Iberoam. (2021).
- *Necessary condition for the L^2 boundedness of the Riesz transform on Heisenberg groups* (with M. Villa). Preprint (2020). arXiv:2004.01117
- *Necessary condition for rectifiability involving Wasserstein distance W_2* . Int. Math. Res. Not. IMRN 2020 (2020), no. 22, 8936–8972.
- *Sufficient condition for rectifiability involving Wasserstein distance W_2* . J. Geom. Anal. 31 (2021), 8539–8606.
- *Characterization of Sobolev-Slobodeckij spaces using curvature energies*. Publ. Mat. 63 (2019), 663–677.

Grants and awards

Academy of Finland Postdoctoral Researcher grant

Quantitative rectifiability and harmonic measure beyond the Ahlfors-David-regular setting

2022 – 2025

Vicent Caselles award

Thesis prize

2022

Short research stays and visits

HIM (Bonn)

Trimester Programme on Interactions between GMT, Singular integrals, and PDE

Feb. – Mar. 2022

University of Edinburgh

Research stay

Feb. – May 2020

IMPAN (Warsaw)

Simons semester on geometry and analysis

Oct. 2019

University of Bonn

Erasmus exchange semester

Oct. 2015 – Feb. 2016

Talks

Seminari d'Anàlisi de Barcelona

Vitushkin's conjecture and sets with plenty of big projections

Barcelona, Spain

Jun. 2022

Bilbao Analysis and PDE seminar

Vitushkin's conjecture and sets with plenty of big projections

Bilbao, Spain

Jun. 2022

Invited talk at the HIM Workshop on Harmonic analysis, Singular Integrals and PDEs

Vitushkin's conjecture and sets with plenty of big projections

Bonn, Germany

Feb. 2022

Invited talk at the Geometric Analysis session of "Finnish Mathematical Days 2022"

Vitushkin's conjecture and sets with plenty of big projections

Tampere, Finland

Jan. 2022

Contributed talk at a conference "AGENT Forum"

On measures with L^2 bounded Riesz transform: to AD regularity and beyond!

Helsinki, Finland

Oct. 2021

Contributed talk at a conference "Rajchman, Zygmund, Marcinkiewicz"

On measures with L^2 bounded Riesz transform: to AD regularity and beyond!

Warsaw, Poland

Oct. 2021

Jyväskylä Geometric Analysis Seminar

On measures with L^2 bounded Riesz transform: to AD regularity and beyond!

Jyväskylä, Finland

May 2021

Seminari Informal de Matemàtiques de Barcelona

On measures, projections, and measures of projections

Barcelona, Spain

Mar. 2021

Virtual Maxwell Analysis Seminar

Cones, rectifiability, and singular integral operators

Edinburgh, UK

Apr. 2020

Seminari d'Anàlisi de Barcelona

Cones, rectifiability, and singular integral operators

Barcelona, Spain

Feb. 2020

Invited talk at the Real Analysis session of V Congreso de Jóvenes Investigadores de la RSME

On the importance of rectifiable sets

Castelló, Spain

Jan. 2020

Contributed talk at a workshop in geometry and analysis

Cones and rectifiability

Warsaw, Poland

Oct. 2019

Contributed talk at BAC conference

Rectifiability of measures via optimal transport

Barcelona, Spain

Jun. 2019

Contributed talk at HAPDE conference

Rectifiability of measures via optimal transport

Helsinki, Finland

Jun. 2019

Contributed talk at a calculus of variations winter school

Rectifiability of measures via optimal transport

Toulouse, France

Feb. 2019

Seminari d'Anàlisi de Barcelona

Rectifiability of measures via optimal transport

Barcelona, Spain

Jan. 2019

Very Informal Seminar, Universitat Autònoma de Barcelona

Rectifiable Dr Jekyll and purely unrectifiable Mr Hyde

Barcelona, Spain

May 2018

Contributed talk at a GMT workshop

Integral Menger curvature

Toulouse, France

Sep. 2016

Scientific interests

- geometric measure theory
- harmonic analysis
- partial differential equations

Teaching and other activities

University of Jyväskylä

Teaching assistant

- Real Analysis – MSc in Mathematics

Autumn 2021/2022

Universitat Autònoma de Barcelona

Teaching assistant

- Mathematics – BSc in Microbiology
- Calculus – BSc in Telecommunications Engineering

Spring 2018/2019

Autumn 2018/2019

Universitat Autònoma de Barcelona

Co-organizer of the Very Informal Seminar

2018 – 2019

University of Warsaw

Grader

- Mathematical Analysis I – BSc in Mathematics

Autumn 2016/2017

Languages

Polish: native language

English: fluent

CAE - A, IELTS - 8.0

Spanish: good working knowledge

German: basic

Finnish: basic