

# Damian Dąbrowski

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## Employment

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### University of Jyväskylä

Postdoctoral researcher

2021–2023

## Education

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### 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

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- *Integrability of orthogonal projections, and applications to Furstenberg sets* (with T. Orponen and M. Villa). Preprint (2021). 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*. To appear in *Ann. Acad. Sci. Fenn. Math.* (2020). arXiv:2011.12717
- *An  $\alpha$ -number characterization of  $L^p$  spaces on uniformly rectifiable sets* (with J. Azzam). Preprint (2020). arXiv:2009.10111
- *Cones, rectifiability, and singular integral operators*. To appear in *Rev. Mat. Iberoam.* (2020). arXiv:2006.14432
- *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.* (2021).
- *Characterization of Sobolev-Slobodeckij spaces using curvature energies*. *Publ. Mat.* 63 (2019), 663–677.

## Talks

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### 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

<b>Virtual Maxwell Analysis Seminar</b> <i>Cones, rectifiability, and singular integral operators</i>	<b>Edinburgh, UK</b> <i>Apr. 2020</i>
<b>Seminari d'Anàlisi de Barcelona</b> <i>Cones, rectifiability, and singular integral operators</i>	<b>Barcelona, Spain</b> <i>Feb. 2020</i>
<b>Invited talk at the Real Analysis session of V Congreso de Jóvenes Investigadores de la RSME</b> <i>On the importance of rectifiable sets</i>	<b>Castelló, Spain</b> <i>Jan. 2020</i>
<b>Contributed talk at a workshop in geometry and analysis</b> <i>Cones and rectifiability</i>	<b>Warsaw, Poland</b> <i>Oct. 2019</i>
<b>Contributed talk at BAC conference</b> <i>Rectifiability of measures via optimal transport</i>	<b>Barcelona, Spain</b> <i>Jun. 2019</i>
<b>Contributed talk at HAPDE conference</b> <i>Rectifiability of measures via optimal transport</i>	<b>Helsinki, Finland</b> <i>Jun. 2019</i>
<b>Contributed talk at a calculus of variations winter school</b> <i>Rectifiability of measures via optimal transport</i>	<b>Toulouse, France</b> <i>Feb. 2019</i>
<b>Seminari d'Anàlisi de Barcelona</b> <i>Rectifiability of measures via optimal transport</i>	<b>Barcelona, Spain</b> <i>Jan. 2019</i>
<b>Very Informal Seminar, Universitat Autònoma de Barcelona</b> <i>Rectifiable Dr Jekyll and purely unrectifiable Mr Hyde</i>	<b>Barcelona, Spain</b> <i>May 2018</i>
<b>Contributed talk at a GMT workshop</b> <i>Integral Menger curvature</i>	<b>Toulouse, France</b> <i>Sep. 2016</i>

## Scientific interests

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- geometric measure theory
- harmonic analysis
- partial differential equations

## Short research stays and visits

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<b>University of Edinburgh</b> <i>Research stay</i>	<i>Feb. 2020 – May. 2020</i>
<b>IMPAN (Warsaw)</b> <i>Simons semester on geometry and analysis</i>	<i>Oct. 2019</i>
<b>University of Bonn</b> <i>Erasmus exchange semester</i>	<i>Oct. 2015 – Feb. 2016</i>

## Scholarships

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- 2017 – 2020:** Barcelona Graduate School of Mathematics PhD scholarship
- 2016 – 2017:** Warsaw Center of Mathematics and Computer Science scholarship
- 2015 – 2017:** Scholarship from the “Curvature energies for non-smooth subsets of Euclidean spaces” grant
- 2013 – 2017:** University of Warsaw Chancellor’s scholarship, awarded to top 5-10% of all students
- 2012 – 2015:** Scholarship from the “Kierunki zamawiane” government programme

## Teaching and other activities

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### 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

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**Polish:** native language

**English:** fluent

*CAE - A, IELTS - 8.0*

**Spanish:** good working knowledge

**German:** basic