

CURRICULUM VITAE

LAURA VENIERI

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P.O. Box 68 (Gustaf Hällströmin katu 2b)
FI-00014 University of Helsinki, Finland

Email: laura.venieri@helsinki.fi

EDUCATION

2013-2017 **Doctor of Philosophy** (Department of Mathematics and Statistics, University of Helsinki, Finland)

Doctoral dissertation in Mathematics entitled: "Dimension estimates for Kakeya sets defined in an axiomatic setting"

Thesis advisor: Prof. Pertti Mattila

Main completed courses: geometric measure theory, fractal sets, Fourier transform and Hausdorff dimension, metric geometry, various courses about scientific writing and communication, Finnish language

2011-2013 **Master degree in Mathematics** (University of Bologna, Italy)

Grade: 110/110 cum laude

Main subjects: analysis, geometry, differential equations

Experience abroad: Erasmus student at the University of Helsinki, Finland (9 months)

2008-2011 **Bachelor degree in Mathematics** (University of Bologna, Italy)

Main subjects: calculus, linear algebra, probability, informatics, numerical analysis

WORK EXPERIENCE

September 2017-present **Postdoctoral researcher** (Department of Mathematics and Statistics, University of Helsinki, Finland)

Research interests: geometric measure theory in Euclidean spaces, Carnot groups and more general metric spaces

2013- 2017 **Doctoral student** (Department of Mathematics and Statistics, University of Helsinki, Finland)

Research topics: geometric measure theory in Euclidean spaces and Carnot groups

Teaching assistant in various courses (see Teaching experience below)

2008-2013 Private tutor in mathematics for high school students in Bologna, Italy

PUBLICATIONS AND PREPRINTS

- Tuomas Orponen, Laura Venieri. A note on expansion in prime fields. *Preprint, arXiv*: 1801.09591
- Tuomas Orponen, Laura Venieri. Improved bounds for restricted families of projections to planes in \mathbb{R}^3 . *Preprint, arXiv*: 1711.08934
- Antti Käenmäki, Tuomas Orponen, Laura Venieri. A Marstrand-type restricted projection theorem in \mathbb{R}^3 . *Preprint, arXiv*: 1708.04859
- Pertti Mattila, Laura Venieri. A comparison of Euclidean and Heisenberg Hausdorff measures. *Preprint, arXiv*: 1705.04066
- Laura Venieri. Dimension estimates for Kakeya sets defined in an axiomatic setting. *Annales Academiæ Scientiarum Fennicæ Mathematica Dissertationes*, DOI: 10.5186/aasfmd.2017.161, 2017
- Laura Venieri. Heisenberg Hausdorff Dimension of Besicovitch Sets. *Analysis and Geometry in Metric Spaces*. Volume 2, Issue 1, ISSN (Online) 2299-3274, DOI: 10.2478/agms-2014-0013, 2014

GRANTS

- Full-year grant for work on doctoral dissertation from the Vilho, Yrjö ja Kalle Väisälä Foundation (Finnish Academy of Science and Letters), August 2016 - July 2017
- Half-year grant for work on doctoral dissertation from Alfred Kordelin Foundation, January-June 2016
- Erasmus mobility grant to study 9 months at University of Helsinki, Finland, September 2012-May 2013

TALKS AND POSTERS

- "A characterization of extremal sets for the dimension comparison in the Heisenberg group", conference "Subriemannian Geometry and Beyond", Jyväskylä, Finland, February 19-23, 2018
- "Restricted projections to lines and planes \mathbb{R}^3 ", Finnish Mathematical Days, Joensuu, Finland, January 4-5, 2018
- "A Marstrand-type theorem for a one-dimensional family of projections in \mathbb{R}^3 ", Geometric Analysis Seminar, Aalto University (Finland), November 8, 2017
- Presentation of a poster "A Marstrand-type theorem for a family of projections in \mathbb{R}^3 " at the conference "Harmonic Analysis and Geometric Measure Theory" (Marseille, France), October 2-6, 2017
- "Dimension estimates for generalized Kakeya sets in an axiomatic setting", Young Researchers in Mathematics Conference, St Andrews, United Kingdom, August 1-4, 2016
- "Dimension estimates for Kakeya sets generalized to certain metric spaces", Geometric Analysis Seminar, University of Helsinki (Finland), February 9, 2016

- Presentation of a poster “Hausdorff Dimension of Besicovitch sets with respect to the Heisenberg metric” at the conference Fractals and Related Fields III, Ile de Porquerolles, France, September 19-25, 2015
- “Hausdorff Dimension of Besicovitch sets with respect to the Heisenberg metric”, Geometric Analysis Seminar, University of Helsinki (Finland), November 25, 2014
- “Hausdorff Dimension of Besicovitch sets with respect to the Heisenberg metric”, Geometric Analysis Seminar, Aalto University (Finland), September 30, 2014

SUMMER SCHOOLS AND WORKSHOPS ATTENDED

- Course on Optimal Mass Transportation and Geometric Inequalities, Jyväskylä Summer School (Jyväskylä, Finland), August 7-11, 2017
- New trends on Analysis and Geometry in Metric Spaces (Levico Terme, Trento, Italy), June 26-30, 2017
- Courses about Bernoulli convolutions and Dimension theory of Smooth Dynamical Systems, Jyväskylä Summer School (Jyväskylä, Finland), August 10-21, 2015
- Ninth School on Analysis and Geometry in Metric Spaces (Levico Terme, Trento, Italy), July 6-10, 2015
- Mini-courses and workshop on Geometric Analysis in the Heisenberg group (Bologna, Italy), March 4-6, 2015
- MAnET Workshop: Sub-Riemannian Analysis, PDE and Applications (Bern, Switzerland), January 26-30, 2015
- Part of trimester "Geometry, Analysis and Dynamics on SubRiemannian Manifolds" (Institut Henri Poincaré, Paris), September 8-27, 2014
- Eighth School on Analysis and Geometry in Metric Spaces (Levico Terme, Trento, Italy), June 16-20, 2014

TEACHING EXPERIENCE

- Teaching Assistant in Geometric measure theory and singular integrals (University of Helsinki, Finland). Spring 2017
- Teaching tutor for various bachelor's level mathematics courses (University of Helsinki, Finland), Fall 2016
- Teaching Assistant in Topology 1 (University of Helsinki, Finland), Spring 2016
- Teaching Assistant in Fractal Sets in Analysis (University of Helsinki, Finland), Spring 2015
- Teaching Assistant in One-dimensional Dynamics (University of Helsinki, Finland), Spring 2014

ADDITIONAL SKILLS

- Languages: native Italian
professional working proficiency in English (Level C1)
elementary proficiency in Finnish and German
- Technological skills: basic programming in Python, Matlab