

CV Daniela Di Donato



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1 Education

April 2024 – present : Post doctoral researcher, University of Pavia, Italy, Department of Mathematics.

May 2022- April 2023: Post doctoral researcher, Università Politecnica delle Marche, Ancona, Italy.

January 2021- April 2022: Post doctoral researcher, SISSA, Trieste, Italy, Department of Mathematics

2020: Post doctoral researcher, Department of Mathematics and Statistics of the University of Jyväskylä, Finland.

2013-2017: PhD student, University of Trento, Trento, Italy, Department of Mathematics.

2009-2011: Laurea Magistrale (M.S.), University of Perugia, Perugia, Italy, Department of Mathematics.

2006-2009: Laurea Triennale (B.S.), University of Perugia, Perugia, Italy, Department of Mathematics.

2 Invited lecture

26/10/2021-6/11/2021, University of Fribourg (Switzerland), under the supervision of Prof. Le Donne.

3 Invitations to conferences

Seminar: “Rectifiability in Carnot groups”, AMS-UMI International Joint Meeting 2024, Advances in Geometric Control Theory and subelliptic PDEs, Palermo, July, 23 2024

Seminar: “A new point of view for intrinsically Lipschitz graphs in the Franchi, Serapioni and Serra Cassano sense in metric spaces”, Trento, New Trends in Geometric Variational PDEs, 21 February, 2023

Seminar: “A new point of view for intrinsically Lipschitz graphs in the Franchi, Serapioni and Serra Cassano sense in metric spaces”, Ancona (Italy), Variational Methods and Evolution Equations, 2 September, 2022

Seminar: “A new point of view for intrinsically Lipschitz graphs in the Franchi, Serapioni and Serra Cassano sense in metric spaces”, Padova (Italy), Mini-courses in Mathematical Analysis 2022, 22 June, 2022

Seminar: “Intrinsic Lipschitz sections in metric spaces”, SISSA (Italy), Junior Math Days, 22 December, 2021

4 Invitations to Departments’ seminars

Seminar: “Rectifiability in Carnot groups”, University of Pavia, 14 May 2024

Seminar: “Rectifiability in Carnot groups”, University of Bologna, Seminari Bruno Pini, 11 April, 2024

Seminar: “Rectifiability in Carnot groups”, SISSA (Italy), 5 November, 2021

Seminar: “Rectifiability in Carnot groups”, Fribourg (Switzerland), 3 November, 2021

Seminar: “ C^1 submanifolds and Lipschitz graphs in Carnot groups”, Jyväskylä (Finland), 19 October, 2020

Seminar: “Uniform intrinsic differentiability and regular surfaces in Carnot groups”, Pisa (Italy), 12 November, 2019

Final exam: “Intrinsic Differentiability and Intrinsic Regular Surfaces in Carnot groups”, University of Trento, Trento (Italy), November 9, 2017.

Seminar: “Intrinsic Differentiability and Intrinsic Regular Surfaces in Carnot groups”, University of Trento, Trento (Italy), October 4, 2016.

Seminar: “Intrinsic Regular Hypersurfaces in Carnot group of step 2”, University of Trento, Trento (Italy), October 8, 2015.

Seminar: “Coomologia di Cech”, University of Trento, Trento (Italy), May 7 2014.

5 Presentation of paper or Poster

Poster in Sub-Riemannian Geometry and Beyond. II, Jyväskylä (Finland), February 21, 2019.

6 Journals refereed

- Annali della Scuola Normale Superiore di Pisa
- Applied Mathematics and Optimization (Appl. Math. Opt.)
- Annales Academiae Scientiarum Fennicae Mathematica (Ann. Acad. Sci. Fenn. Math.)

- Journal of Topology and Analysis

7 Teaching Experience

Teaching Assistant:

2022-2023 Mathematical Analysis 2, Università Politecnica delle Marche-Ancona

2022-2023 Mathematical Analysis 1, Università Politecnica delle Marche-Ancona

2015-2016 Mathematical Analysis 1, University of Trento

2014-2015 Mathematical Analysis 1, University of Trento

2010-2011 Geometry 1, University of Perugia

Teacher of Mathematics and Physics:

September – December 2019 Liceo “Gandhi”, Merano (BZ)

2018-2019 (not all) Bolzano (BZ)

2017-2018 Liceo “Cantore”, Brunico (BZ)

2012-2013 Liceo paritario “Cameli”, Teramo (TE)

8 Summer/Winter Schools

- Advances in Geometric Control Theory and subelliptic PDEs, AMS-UMI International Joint Meeting 2024, Palermo, July 23-24, 2024

- Inverse Problems, AMS-UMI International Joint Meeting 2024, Palermo, July 25-26, 2024

- New Trends in Geometric Variational PDEs, Trento, February 20-22, 2023

- Recent and new perspectives in Nonlinear Analysis, Urbino, Università degli Studi di Urbino Carlo Bo, November 3-4, 2022

- Variational Methods and Evolution Equations, Ancona (AN), September 1-2, 2022

- Geometric Analysis in Metric Measure Spaces, Levico Terme (TN), June 30-2 July, 2022

- 12th School on Analysis and Geometry in Metric Spaces, Levico Terme (TN), June 27-29, 2022

- Mini-courses in Mathematical Analysis 2022, Padova, June 20-24, 2022

- Junior Math Days, SISSA, Trieste 20-23 December, 2021

- PaPa - Padua Paris sub-Riemannian seminar, Padova, September 6-7, 2021

- Sub-Riemannian Seminars, world wide web, October 2020- March 2021

- SRGI conference: Sub-Riemannian Geometry and Interactions, world wide web, Paris, September 7-11, 2020

- International sub-Riemannian seminar, world wide web, April – June 2020.

- Sub-Riemannian Geometry and Beyond. II, Jyväskylä (Finland), February 11-22, 2019.

- CIME-CIRM Course on New Trends on Analysis and Geometry in Metric Spaces, Levico Terme (Italy), June 26-30, 2017.
- XXVII Convegno Nazionale di Calcolo delle Variazioni. Levico Terme (Italy), February 6-10, 2017.
- A Mathematical Tribute to Ennio De Giorgi. Pisa (Italy), September 18-23, 2016.
- Singular Phenomena and Singular Geometries. Pisa (Italy), June 20-23, 2016.
- XXVI Convegno Nazionale di Calcolo delle Variazioni. Levico Terme (Italy), January 18-22, 2016.
- Ninth School on Analysis and Geometry in Metric Spaces. Levico Terme (Italy), July 6-10, 2015.
- Research Term on Analysis and Geometry in Metric Spaces. Madrid (Spain), 17-30 May 2015.
- Mini-courses and workshop on Geometric Analysis in the Heisenberg group. Bologna (Italy), March 4-6, 2015.
- XXV Convegno Nazionale di Calcolo delle Variazioni. Levico Terme (Italy), February 2-6, 2015.
- Summer School on Geometric Measure Theory and Geometric Analysis. University of Basel (Switzerland), June 23-27, 2014.
- Eighth School on Analysis and Geometry in Metric Spaces. Levico Terme (Italy), June 15-20, 2014.
- Corso Estivo di Matematica – Perugia 2013. Perugia (Italy), August 2013.

9 Projects

- January - December 2020: European Research Council (ERC Starting Grant 713998 GeoMeG ‘Geometry of Metric Groups’ (participant). PI: Enrico Le Donne. Website: <http://research.jyu.fi/geomeg/>
- January - December 2020: Academy of Finland (grant 288501 ‘Geometry of subRiemannian groups’ (participant). PI: Enrico Le Donne
- January - December 2020: grant 322898 ‘Sub-Riemannian Geometry via Metric-geometry and Lie-group Theory’ (participant). PI: Enrico Le Donne. Website: https://converis.jyu.fi/converis/portal/detail/Project/32471357?lang=en_GB
- January 2021 - April 2022: European Social Fund, Project ” Assegni di ricerca FSE SISSA 2020” (operation code FP2012369501/2020), (participant), Website: <https://www.sissa.it/it/progetti-attivi-por-fse-20142020>
- April 2024 - March 2026: PRIN 2022 ” *Inverse problems in PDE: theoretical and numerical analysis*” n. 2022B32J5C funded by MUR, Italy, and by the European Union – Next Generation EU, (participant). PI: Luca Rondi
- April 2024 - March 2026: Progetto FRG 9-FONDO RICERCA GIOVANI 2023 (participant).

10 Published or Accepted Papers

- [12] D.Di Donato, Le Donne, “Intrinsically Lipschitz sections and applications to metric group”, accepted to *Communications in Contemporary Mathematics*, 2024
- [11] V.Ambrosio, D.Di Donato, “An existence result for a fractional critical (p,q) -Laplacian problem with discontinuous nonlinearity”, *Mediterranean Journal of Mathematics*, 20, 288 (2023), <https://doi.org/10.1007/s00009-023-02478-z>
- [10] D.Di Donato, “The intrinsic Hopf-Lax semigroup vs. the intrinsic slope”, *Journal of Mathematical Analysis and Applications*, Volume 523, Issue 2, 15 July 2023, 127051, <https://doi.org/10.1016/j.jmaa.2023.127051>.
- [9] D.Di Donato, “Some remarks about intrinsic Lipschitz and tame maps in Carnot groups of step 2”, *Riv. Mat. Univ. Parma*, Volume 14, Number 1, 2023, <http://www.rivmat.unipr.it/vols/2023-14-1/index-vol14-1.html>
- [8] G.Antonelli, D.Di Donato, S.Don, “Distributional solutions of Burgers’ type equations for intrinsic graphs in Carnot group of step 2”, *Potential Analysis*, Volume 59, pages 1481–1506, (2023), <https://doi.org/10.1007/s11118-022-09992-x>
- [7] G.Antonelli, D.Di Donato, S.Don, E.Le Donne, “Characterizations of uniformly differentiable co-horizontal intrinsic graphs in Carnot groups”, accepted to *Annales de l’Institut Fourier*, 2022, arXiv:2005.11390
- [6] D.Di Donato, K.Fässler, “Extensions and corona decompositions of low-dimensional intrinsic Lipschitz graphs in Heisenberg groups”, *Annali di Matematica Pura e Applicata* 201, 453–486 (2022) <https://link.springer.com/article/10.1007/s10231-021-01124-3>
- [5] D.Di Donato, K.Fässler, T.Orponen, “Metric rectifiability of H -regular surfaces with Hölder continuous horizontal normal”, *International Mathematics Research Notices*, Volume 2022, Issue 22, November 2022, Pages 17909–17975 (2021), <https://doi.org/10.1093/imrn/rnab227>, arXiv:1906.10215
- [4] D.Di Donato – “Intrinsic Lipschitz graphs in Carnot groups of step 2”, *Annales Academiæ Scientiarum Fennicæ Mathematica*, Volumen 45, (2020), 1013–1063, <https://doi.org/10.5186/aasfm.2020.4556>
- [3] D.Di Donato – “Intrinsic differentiability and Intrinsic Regular Surfaces in Carnot groups”, *Potential Analysis*, Volumen 54, 1–39, 2021, <https://link.springer.com/article/10.1007/s11118-019-09817-4>
- [2] D.Di Donato – “Intrinsic differentiability and Intrinsic Regular Surfaces in Carnot groups”, PhD thesis at University of Trento, 2017
- [1] D.Di Donato, D.Mugnai – “On a Highly Nonlinear Self-Obstacle Optimal Control Problem”, *Applied Mathematics Optimization*: Vol. 72, Issue 2 (2015), Page 261–290. <https://link.springer.com/article/10.1007/s00245-014-9279-8>

11 Preprints

- [a] D.Di Donato, “Normed spaces using intrinsically Lipschitz sections and Extension Theorem for the intrinsically Hölder sections”, preprint, arxiv.2301.01735
- [b] D.Di Donato, “Non-symmetric intrinsic Hopf-Lax semigroup vs. intrinsic Lagrangian”, preprint, arxiv.2211.12822
- [c] D.Di Donato, “Intrinsic Lipschitz sections of no-linear quotient maps”, preprint, arxiv.2206.07792
- [d] D.Di Donato, “Intrinsic Cheeger energy for the intrinsically Lipschitz constants, preprint, arxiv.2205.15851
- [e] D.Di Donato, “Intrinsically quasi-isometric sections in metric spaces”, preprint, arxiv.2205.03351
- [f] D.Di Donato, “Intrinsically Hölder sections in metric spaces”, preprint, arxiv.2205.02688
- [g] D.Di Donato, “A note about intrinsically Lipschitz constants”, preprint, arxiv.2205.02404
- [h] D.Di Donato, “Intrinsically Lipschitz graphs on semidirect products of groups”, preprint, arxiv.2205.02403
- [i] D.Di Donato, “Ahlfors-David regularity of intrinsically quasi-symmetric sections in metric spaces”, preprint, arxiv.2205.02400
- [l] D.Di Donato, “Intrinsic Lipschitz maps vs. Lagrangian type solutions in Carnot groups of step 2”, preprint, arXiv:2108.02298

12 Language

Italian : mother tongue
English: Level C1