

DANIELE VALTORTA, born in 1985

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CURRENT POSITION

Oct 2022 —> Researcher (RTD-B) at Università degli studi di Milano Bicocca

PAST POSITIONS

Sept 2019 - Aug 2022 Teacher in Ticino (2 years at Mendrisio high school, 1 year in Locarno)

March 2017 - Aug 2019 SNSF Ambizione fellowship - University of Zuerich

Sept 2016 - Feb 2017 postdoc at UZH, Zuerich - CH
supervisor: prof. Camillo de Lellis

March 2016 - Aug 2016 postdoc at Max Planck Institute, Leipzig - DE
supervisor: prof. Emanuele Spadaro

Sep. 2013- Feb 2016 postdoc at EPFL, Lausanne - CH
supervisor: prof. Marc Troyanov, SNSF project n. 149539

VISITING PERIODS

22nd March-June 2025 (SCHEDULED) TEMPORARY MEMBER OF THE IAS, PRINCETON - USA
membership in the Institute for Advanced Study during Term II of the 2024-2025 year

Sept-Dec 2015 NORTHWESTERN UNIVERSITY, EVANSTON IL - USA
invited by prof. Aaron Naber

Sept-Dec 2014 NORTHWESTERN UNIVERSITY, EVANSTON IL - USA
part of the program "International Short visits" of the Swiss SNSF

Nov-Dec 2012 EPFL, LAUSANNE - CH
Invited under the supervision of prof. Marc Troyanov

July-Oct 2012 MASSEY UNIVERSITY, ALBANY-AUCKLAND - NZ
Under the supervision of prof. Gaven Martin

Sep-Dec 2011 M.I.T., CAMBRIDGE - USA
Invited under the supervision of prof. Aaron Naber

Sep-Dec 2010 M.I.T., CAMBRIDGE - USA
With a fellowship of UMI (Italian Mathematical Union)

EDUCATION

12 ottobre 2022 Abilitazione italiana all'insegnamento liceale in fisica e matematica (classe A027)
ottenuta tramite superamento concorso STEM 2022, riconosciuta dalla CDPE

23 June 2022 Abilitazione all'insegnamento liceale in matematica, ottenuta presso SUPSI Locarno

16 November 2021	Abilitazione all'insegnamento liceale in matematica (riconosciuta dalla CDPE - CH) ottenuta tramite superamento concorso STEM 2020, classe di concorso italiana A26
26 February 2013	PhD in Mathematica presso Università di Milano (EU) - Supervisor: Alberto Setti Thesis: <i>On the p-Laplace operator on Riemannian manifolds</i>
30 September 2009	Master (laurea specialistica) in Mathematica, 110/110 e lode, Università dell'Insubria (EU)
12 December 2007	Bachelor (laurea triennale) in Fisica, 110/110 e lode, Università dell'Insubria (EU)

LINGUISTIC SKILLS

ENGLISH	Fluent, Certificate of Advanced English, grade A. June 2011, CEFR level C2
ITALIAN	Mothertongue
FRENCH	Working knowledge, Certificate DELF, level B2, December 2015
GERMAN	Basic knowledge, Goethe-Zertifikat B1, July 2017

TALKS AND SEMINARS (given, not just attended)

34. November 2024	SEMINAR IN PARMA
34. September 2024	<i>MGT</i> ² - UNIVERSITÀ DI MILANO BICOCCA (EU)
33. July 2024	ICBS 2024 - BEIJING (CHINA)
32. July 2024	CONFERENCE: "GEOMETRY AND ANALYSIS ON METRIC SURFACES" - WARSAW (EU)
31. June 2024	REGULARITY THEORY FOR FREE BOUNDARY AND GEOMETRIC VARIATIONAL PROBLEMS IV - LEVICO TERME (EU)
30. May 2024	INVITED SEMINAR - ETH ZURICH (CH)
29. May 2024	INVITED SEMINAR - NCTS (ONLINE)
28. February 2024	INVITED SEMINAR - SISSA TRIESTE (EU)
27. January 2024	CONVEGNO NONLINEAR PDEs - UNIVERSITÀ DI PISA (EU)
26. May 2023	CONVEGNO DI ANALISI ARMONICA - UNIVERSITÀ DI MILANO BICOCCA (EU)
25. January 2022	UNIVERSITY OF BARCELONA, INVITED SEMINAR (EU)
24. January 2018	GEOMETRY DAY - UNIVERSITÀ DEGLI STUDI DELL'INSUBRIA (EU)
23. October 2017	SEMINAR AT MUENSTER UNIVERSITY (EU)
22. August 2017	"SNAP SUMMER SCHOOL" - NORTHWESTERN UNIVERSITY (USA)
21. August 2017	OBERWOLFACH - "PARTIAL DIFFERENTIAL EQUATIONS" WORKSHOP - (EU)
20. June 2017	"2017 NEVANLINNA COLLOQUIUM" - ETH ZUERICH (CH)
19. December 2016	WARWICK UNIVERSITY (UK) - WARWICK EPSRC SYMPOSIUM: GEOMETRIC PDES
18. October 2016	NANTES UNIVERSITY (EU) - INVITED SEMINAR

17. April 2016	MAX PLANCK INSTITUTE - LEIPZIG (EU) - AG SEMINAR
16. February 2016	WARWICK UNIVERSITY (UK) - INVITED SEMINAR
15. January 2016	MAX PLANCK POTSDAM - "GEOMETRIC MEASURE THEORY" SEMINAR
14. October 2015	NOTRE DAME UNIVERSITY (SOUTH BEND, INDIANA, USA) - Invited seminar
13. December 2014	MONTREAL UNIVERSITY - Invited seminar
12. October 2014	"SPECIAL DAY ON EIGENFUNCTIONS OF THE LAPLACIAN" - NORTHWESTERN UNIVERSITY
11. February 2014	ETH ZURICH - Invited seminar
10. September 2013	UNIVERSITY OF FRIBOURG - Invited seminar
9. December 2013	"THE JOY OF GEOMETRY" - EPFL LAUSANNE
8. September 2013	UNIVERSITÀ DI MILANO BICOCCA - Invited seminar
7. August 2013	"2013 NEVANLINNA COLLOQUIUM" - UNIVERSITY OF HELSINKI
6. June 2013	POLITECNICO DI MILANO - Invited seminar
5. May 2013	UNIVERSITY OF PARIS 13 - Invited seminar
4. November 2012	EPFL, LAUSANNE - Invited seminar
3. October 2012	UNIVERSITY OF AUCKLAND - Invited seminar
2. May 2012	UNIVERSITÀ FEDERICO II, NAPOLI - Invited seminar
1. December 2011	M.I.T., CAMBRIDGE - USA - Geometric analysis seminar

CONFERENCES, WORKSHOPS AND SUMMER SCHOOLS ATTENDED

August 2013	LES DIABLERETS CH <i>Summer School "Metric Geometry" - CUSO (Swiss doctoral program)</i>
June 2011	SMS 2011 MONTREAL - CA <i>Metric Measure Spaces: Geometric and Analytic Aspects</i>
April 2011	CENTRO DE GIORGI, PISA, ITALY - EU <i>Ricci Solitons days</i>
June 2010	CETRARO, ITALY - EU <i>CIME course on Ricci Flow and Geometric Applications</i>
August 2008	PERUGIA, ITALY - EU <i>SMI (Summer School in Mathematics), courses on Differential Geometry - Differential Equations</i>

RESEARCH GRANTS AND FELLOWSHIPS

March 2017-Aug 2019	SNSF AMBIZIONE GRANT <i>Main applicant, grant for postdoc at UZH</i>
Sept-Dec 2014	SNSF (CH) INTERNATIONAL SHORT VISIT, N. IZK0Z2_157452 <i>Main applicant, grant for a visit to Northwestern university (USA)</i>

2014	GNAMPA (IT-EU) PROJECT FUNDING FOR TRAVELS AND HOSTING VISITORS <i>Co-author of the project, main applicant: Debora Impera</i>
Jan 2013 - Dec 2015	SNSF (CH) PROJECT FUNDING, PROJECT N. 149539 <i>Co-author of the project, under the supervision of prof. Marc Troyanov</i>
2013	GNAMPA (IT-EU) PROJECT FUNDING FOR TRAVELS AND HOSTING VISITORS <i>Co-author of the project, main applicant: Michele Rimoldi</i>
Sept-Dec 2010	UMI (IT-EU) FELLOWSHIP FOR MIT <i>Fellowship for a visiting semester at MIT (USA) from the Italian mathematical union</i>
2007-2009	INDAM (IT-EU) FELLOWSHIP FOR MASTER PROGRAM <i>Fellowship for Master program in mathematics</i>

PRIZES AND FELLOWSHIPS

2024	ICBS 2024 - BEIJING CHINA <i>ICBS Frontier of Science Award</i>
2009	PHD AT SISSA <i>1st in the rank for a PhD position in mathematics at SISSA (Trieste, Italy - EU) Position refused</i>
2004	SCUOLA NORMALE SUPERIORE DI PISA <i>7th in rank for the admission to the physics bachelor program in Scuola normale di Pisa. Position refused</i>
2004	IPHO <i>Bronze medal at the international physics olympiads</i>

TEACHING EXPERIENCE (university level)

2024	Università Milano Bicocca - EU <i>Functional Analysis</i> Functional analysis for math master students
2024	Università Milano Bicocca - EU <i>Calculus I</i> Basic calculus for students of material science
2023	Università Milano Bicocca - EU <i>Innovazione nell'insegnamento della matematica e della Fisica</i> Corso per abilitazione di docenti di matematica e fisica per liceo (classe A27)
2023	Università Milano Bicocca - EU <i>Functional Analysis</i> Functional analysis for math master students
2023	Università Milano Bicocca - EU <i>Calculus I</i> Basic calculus for students of material science
2023	Università Milano Bicocca - EU <i>TA for Geometry I</i> Basic topology for math students
2022	Università Milano Bicocca - EU <i>Analysis for biotechnology</i>

	Calculus course for students of biotechnology
2017	UZH - CH <i>PhD Course</i> Reifenberg theorem and singularities of harmonic maps
2016 - 2017	UZH - CH <i>Teaching assistant</i> Analysis - under prof. Camillo de Lellis
2014 - 2015	EPFL - CH <i>Teaching assistant</i> Geometry II for I year Bachelor students, spring semester (28 hours)
2013	EPFL - CH <i>Main Teaching assistant</i> Differential Gemetry for III year Bachelor students, fall semester (28 hours)
2013	Politecnico di Milano, sede di Como, Italy - EU <i>Esercitazioni</i> (tutorial) Mathematical Analysis II, for undergraduate students (48 hours)
2013	Università degli Studi dell'Insubria, Como, Italy - EU <i>Esercitazioni</i> (tutorial) Mathematical Analysis for undergraduate students (12+24 hours)
2012	Massey University, Albany-Auckland - NZ <i>Lectures in Advanced Analysis</i> (Postgraduate Course in Mathematics) Replacing prof. Gaven Martin (28 hours) - with evaluation letter
from 2005 to 2012	Liceo Scientifico (scientific high school) Italy - EU <i>Corsi di eccellenza</i> (extra courses) Selected topics in maths and physics (70 hours)
2012	Università degli Studi dell'Insubria, Como, Italy - EU <i>Esercitazioni</i> (tutorial) Functional Analysis (10 hours)
2011	M.I.T Math Learning Center, Cambridge - USA <i>Tutorial for undergraduate students</i> Basic mathematics (56 hours) - with evaluation letter
2010	Università degli Studi dell'Insubria, Como, Italy - EU <i>Esercitazioni</i> (tutorial) Mathematical Analysis (10 hours)
2010	M.I.T Math Learning Center, Cambridge - USA <i>Tutorial for undergraduate students</i> Basic mathematics (20 hours)

 TEACHING EXPERIENCE (supervision of master students)

2023	Susanna Bertolini, Milano Bicocca (EU) <i>Supervision of thesis, with Xavier Fernandez-Real</i> Thesis: On the Obstacle Problem: a study of the singular set
2018	Mattia Vedovato, Padova (EU) - Zurich (CH) <i>Supervision of thesis, with Camillo de Lellis</i> Thesis: Quantitative estimates for the singular strata of minimizing Harmonic maps

PUBLICATIONS AND PREPRINTS

19. PREPRINT: N. EDELEN, A. NABER, D. VALTORTA
Rectifiable Reifenberg and uniform positivity under almost calibrations
PREPRINT
Available at [arXiv:2405.03593](https://arxiv.org/abs/2405.03593)
18. PREPRINT: N. EDELEN, A. NABER, D. VALTORTA
Quantitative Reifenberg theorem for measures
PREPRINT
Available at [arXiv:1612.08052](https://arxiv.org/abs/1612.08052)
17. PREPRINT: A. NABER, D. VALTORTA
Energy Identity for Stationary Harmonic Maps
PREPRINT
Available at [arXiv:2401.02242](https://arxiv.org/abs/2401.02242)
16. [PVV24] PREPRINT: S. PIGOLA, D. VALTORTA AND G. VERONELLI
Approximation, regularity and positivity preservation on Riemannian manifolds
NONLINEAR ANALYSIS TMA
Available at [arXiv:2301.05159](https://arxiv.org/abs/2301.05159)
15. [NV17a] A. NABER, D. VALTORTA
Rectifiable-Reifenberg and the regularity of stationary and minimizing harmonic maps
ANNALS OF MATHEMATICS
Available at <https://doi.org/10.4007/annals.2017.185.1.3>
14. [Val12b] D. VALTORTA
Sharp estimate on the first eigenvalue of the p -Laplacian
NONLINEAR ANALYSIS. THEORY, METHODS & APPLICATIONS
Available at <https://doi.org/10.1016/j.na.2012.04.012>
13. [DLMSV18] C. DE LELLIS, A. MARCHESE, E. SPADARO, D. VALTORTA
Rectifiability and upper Minkowski bounds for singularities of harmonic Q -valued maps
COMMENTARII MATHEMATICI HELVETICI
Available at <https://doi.org/10.4171/CMH/449>
12. [HSV19] J. HIRSCH, S. STUWARD, D. VALTORTA
Rectifiability of the singular set of multiple-valued energy minimizing harmonic maps
TRANSACTIONS OF THE AMERICAN MATHEMATICAL SOCIETY
Available at <https://doi.org/10.1090/tran/7595>
11. [NV20] A. NABER, D. VALTORTA
The singular structure and regularity of stationary varifolds
JOURNAL OF THE EUROPEAN MATHEMATICAL SOCIETY (JEMS)
Available at <https://doi.org/10.4171/jems/987>
10. [ENV19] N. EDELEN, A. NABER, D. VALTORTA
Effective Reifenberg theorems in Hilbert and Banach spaces
MATHEMATISCHE ANNALEN
Available at <https://doi.org/10.1007/s00208-018-1770-0>
9. [NV19] A. NABER, D. VALTORTA
Energy identity for stationary Yang Mills
INVENTIONES MATHEMATICAE
Available at <https://doi.org/10.1007/s00222-019-00854-9>
8. [NVV19] A. NABER, D. VALTORTA, G. VERONELLI
Quantitative regularity for p -harmonic maps

COMMUNICATIONS IN ANALYSIS AND GEOMETRY
Available at <https://doi.org/10.4310/CAG.2019.v27.n1.a4>

7. [NV18] A. NABER, D. VALTORTA
Stratification for the singular set of approximate harmonic maps
MATHEMATISCHE ZEITSCHRIFT
Available at <https://doi.org/10.1007/s00209-018-2068-3>
6. [NV17b] A. NABER, D. VALTORTA
Volume estimates on the critical sets of solutions to elliptic PDEs
COMMUNICATIONS ON PURE AND APPLIED MATHEMATICS
Available at <https://doi.org/10.1002/cpa.21708>
5. [CNV15] J. CHEEGER, A. NABER, D. VALTORTA
Critical sets of elliptic equations
COMMUNICATIONS ON PURE AND APPLIED MATHEMATICS
Available at <https://doi.org/10.1002/cpa.21518>
4. [NV14] A. NABER, D. VALTORTA
Sharp estimates on the first eigenvalue of the p -Laplacian with negative Ricci lower bound
MATHEMATISCHE ZEITSCHRIFT
Available at <https://doi.org/10.1007/s00209-014-1282-x>
3. [MV13] L. MARI, D. VALTORTA
On the equivalence of stochastic completeness and Liouville and Khas'minskii conditions
TRANSACTIONS OF THE AMERICAN MATHEMATICAL SOCIETY
Available at <https://doi.org/10.1090/S0002-9947-2013-05765-0>
2. [Val12a] D. VALTORTA
Reverse Khas'minskii condition
MATHEMATISCHE ZEITSCHRIFT
Available at <https://doi.org/10.1007/s00209-010-0790-6>
1. [VV11] D. VALTORTA, G. VERONELLI
Stokes' theorem, volume growth and parabolicity
TOHOKU MATH. J.
Available at <https://doi.org/10.2748/tmj/1318338948>

PRECISE REFERENCES FOR THE PUBLICATIONS

- [CNV15] J. CHEEGER, A. NABER, and D. VALTORTA, Critical sets of elliptic equations, *Comm. Pure Appl. Math.* **68** (2015), 173–209. MR 3298662. <http://dx.doi.org/10.1002/cpa.21518>. Available at <https://doi.org/10.1002/cpa.21518>.
- [DLMSV18] C. DE LELLIS, A. MARCHESI, E. SPADARO, and D. VALTORTA, Rectifiability and upper Minkowski bounds for singularities of harmonic Q -valued maps, *Comment. Math. Helv.* **93** (2018), 737–779. MR 3880226. <http://dx.doi.org/10.4171/CMH/449>. Available at <https://doi.org/10.4171/CMH/449>.
- [ENV19] N. EDELEN, A. NABER, and D. VALTORTA, Effective Reifenberg theorems in Hilbert and Banach spaces, *Math. Ann.* **374** (2019), 1139–1218. MR 3985109. <http://dx.doi.org/10.1007/s00208-018-1770-0>. Available at <https://doi.org/10.1007/s00208-018-1770-0>.
- [HSV19] J. HIRSCH, S. STUWARD, and D. VALTORTA, Rectifiability of the singular set of multiple-valued energy minimizing harmonic maps, *Trans. Amer. Math. Soc.* **371** (2019), 4303–4352. MR 3917224. <http://dx.doi.org/10.1090/tran/7595>. Available at <https://doi.org/10.1090/tran/7595>.
- [MV13] L. MARI and D. VALTORTA, On the equivalence of stochastic completeness and Liouville and Khas'minskii conditions in linear and nonlinear settings, *Trans. Amer. Math. Soc.* **365** (2013), 4699–4727. MR 3066769. <http://dx.doi.org/10.1090/S0002-9947-2013-05765-0>. Available at <https://doi.org/10.1090/S0002-9947-2013-05765-0>.

- [NV14] A. NABER and D. VALTORTA, Sharp estimates on the first eigenvalue of the p -Laplacian with negative Ricci lower bound, *Math. Z.* **277** (2014), 867–891. MR 3229969. <http://dx.doi.org/10.1007/s00209-014-1282-x>. Available at <https://doi.org/10.1007/s00209-014-1282-x>.
- [NV17a] ———, Rectifiable-Reifenberg and the regularity of stationary and minimizing harmonic maps, *Ann. of Math.* (2) **185** (2017), 131–227. MR 3583353. <http://dx.doi.org/10.4007/annals.2017.185.1.3>. Available at <https://doi.org/10.4007/annals.2017.185.1.3>.
- [NV17b] ———, Volume estimates on the critical sets of solutions to elliptic PDEs, *Comm. Pure Appl. Math.* **70** (2017), 1835–1897. MR 3688031. <http://dx.doi.org/10.1002/cpa.21708>. Available at <https://doi.org/10.1002/cpa.21708>.
- [NV18] ———, Stratification for the singular set of approximate harmonic maps, *Math. Z.* **290** (2018), 1415–1455. MR 3856859. <http://dx.doi.org/10.1007/s00209-018-2068-3>. Available at <https://doi.org/10.1007/s00209-018-2068-3>.
- [NV19] ———, Energy identity for stationary Yang Mills, *Invent. Math.* **216** (2019), 847–925. MR 3955711. <http://dx.doi.org/10.1007/s00222-019-00854-9>. Available at <https://doi.org/10.1007/s00222-019-00854-9>.
- [NV20] ———, The singular structure and regularity of stationary varifolds, *J. Eur. Math. Soc. (JEMS)* **22** (2020), 3305–3382. MR 4153109. <http://dx.doi.org/10.4171/jems/987>. Available at <https://doi.org/10.4171/jems/987>.
- [NVV19] A. NABER, D. VALTORTA, and G. VERONELLI, Quantitative regularity for p -harmonic maps, *Comm. Anal. Geom.* **27** (2019), 111–159. MR 3951022. <http://dx.doi.org/10.4310/CAG.2019.v27.n1.a4>. Available at <https://doi.org/10.4310/CAG.2019.v27.n1.a4>.
- [PVV24] S. PIGOLA, D. VALTORTA, and G. VERONELLI, Approximation, regularity and positivity preservation on Riemannian manifolds, *Nonlinear Anal., Theory Methods Appl., Ser. A, Theory Methods* **245** (2024), 19 (English), Id/No 113570. <http://dx.doi.org/10.1016/j.na.2024.113570>.
- [Val12a] D. VALTORTA, Reverse Khas'minskii condition, *Math. Z.* **270** (2012), 165–177. MR 2875827. Zbl 06006376. <http://dx.doi.org/10.1007/s00209-010-0790-6>. Available at <http://arxiv.org/abs/1005.2401>.
- [Val12b] ———, Sharp estimate on the first eigenvalue of the p -Laplacian, *Nonlinear Anal.* **75** (2012), 4974–4994. MR 2927560. <http://dx.doi.org/10.1016/j.na.2012.04.012>. Available at <https://doi.org/10.1016/j.na.2012.04.012>.
- [VV11] D. VALTORTA and G. VERONELLI, Stokes' theorem, volume growth and parabolicity, *Tohoku Math. J. (2)* **63** (2011), 397–412. MR 2851103. <http://dx.doi.org/10.2748/tmj/1318338948>. Available at <https://doi.org/10.2748/tmj/1318338948>.