

Fabio Punzo – Curriculum Vitae

Personal data

- Born on May 27, 1981 in Formia (LT), Italy
- Office address: via Bonardi 9, 20133 Milano; Building 14 “La Nave”, Politecnico di Milano, Campus Leonardo, office 414.
- e-mail: fabio.punzo@polimi.it

Education

- PhD in Mathematics (XX ciclo) obtained on May 7th, 2009 at Università di Roma “Sapienza”, Department of Mathematics

PhD Thesis: Well-posedness of degenerate elliptic and parabolic problem

Evaluation Committee: Prof. M. Bertsch, S. Kamin, A. Lunardi

Advisor: Prof. Alberto Tesei

- M. Sc. in Mathematics obtained on September 29th, 2004 at Università di Roma “Sapienza”, grade: 110 cum laude
Thesis: Minimizzanti Assolute ed Equazione di Aronsson
Supervisor: Prof. Antonio Siconolfi

Qualification

- Qualification (*Abilitazione nazionale*) for the position of *professore di I fascia* (full professor), area 01/A3 (Mathematical Analysis, Probability and Mathematical Statistics); valid from July 2018.

Employments

- *Professore di II fascia di Analisi Matematica* (Associate Professor in Mathematical Analysis) at the Department of Mathematics of Politecnico di Milano, from February 6st 2017 to present.
- *Professore di II fascia di Analisi Matematica* (Associate Professor in Mathematical Analysis) at the Department of Mathematics and Computer Science (DeMaCS) of Università della Calabria, from October 31st, 2015 to February 5st 2017.
- *Ricercatore a tempo determinato di tipo a)* (fixed term researcher) at the Department of Mathematics “F. Enriques” of Università degli Studi di Milano from December 23rd, 2013 to October 30th, 2015.
- *Assegnista di ricerca* (post-doc) from December 1st, 2011 to November 30th, 2013 at the Department of Mathematics “G. Castelnuovo”, Università di Roma “Sapienza”
- *Assegnista di ricerca* (post-doc) from July 1st, 2010 to June 30th, 2011 at the Department of Mathematics “G. Castelnuovo”, Università di Roma “Sapienza”; supervision: Prof. Alberto Tesei

- *Assegnista di ricerca* (post-doc) from March 1st, 2009 to February 28th, 2010 at the Department of Mathematics “G. Castelnuovo”, Università di Roma “Sapienza”; supervision: Prof. Alberto Tesei

Research interests

- Well-posedness of degenerate elliptic and parabolic problems with unbounded coefficients
- The porous medium equation, the fast diffusion equation
- Elliptic and parabolic equations on Riemannian manifolds
- Mean curvature flow on Riemannian manifolds
- Nonlocal equations
- Global Analysis

Publications in refereed journals

1. M. A. Pozio, F. Punzo, A. Tesei, *Criteria for well-posedness of degenerate elliptic and parabolic problems*, J. Math. Pures Appl. **90**, (2008) 353-386;
2. F. Punzo, *On the Cauchy problem for nonlinear parabolic equations with variable density*, J. Evol. Equations **9**, (2009) 429-447;
3. F. Punzo, *Uniqueness and nonuniqueness of bounded solutions to singular nonlinear parabolic equations*, Nonlin. Anal. TMA **70** (2009) 3020-3029;
4. F. Punzo, A. Tesei, *Uniqueness of solutions to degenerate elliptic problems with unbounded coefficients*, Ann. Inst. H. Poincaré, Anal. Non Linéaire **26** (2009) 2001-2024;
5. F. Punzo, A. Tesei, *On the refined maximum principle for elliptic and parabolic degenerate problems*, Nonlin. Anal. TMA **70** (2009) 3047-3055;
6. F. Punzo, *Phragmén-Lindelöf principles for fully nonlinear equations with unbounded coefficients*, Comm. Pure Appl. Anal. **9** (2010) 1439-1461;
7. F. Punzo, A. Tesei, *On a semilinear parabolic equation with inverse-square potential*, Rendiconti Lincei: Mat. e Appl. **21** (2010) 359-396;
8. M.A. Pozio, F. Punzo, A. Tesei, *Uniqueness and nonuniqueness of solutions to parabolic problems with singular coefficients*, DCDS-A **30** (2011) 891-916;
9. F. Punzo, *On support of solutions to singular nonlinear parabolic equations in bounded domains*, Interf. Free Bound. **13** (2011) 397-410;
10. F. Punzo, *On well-posedness of semilinear parabolic and elliptic equations in the hyperbolic space* J. Diff. Eq. **251** (2011) 1972-1989;
11. F. Punzo, *Uniqueness and support properties of solutions to singular quasilinear parabolic equations on surfaces of revolution*, Ann. Mat. Pura Appl. **191** (2012) 311-338;
12. F. Punzo, *Support properties of solutions to nonlinear parabolic equations with variable density in the hyperbolic space*, DCDS-S **5**(2012), 657-670;
13. C. Bandle, F. Punzo, A. Tesei, *Existence and nonexistence of patterns on Riemannian manifolds*, J. Math. Anal. Appl. **387** (2012) 33-47;
14. F. Punzo, *Blow-up of solutions to semilinear parabolic equations on Riemannian manifolds with negative sectional curvature*, J. Math. Anal. Appl. **387** (2012) 815-827;
15. F. Punzo, *Well-posedness of the Cauchy problem for nonlinear parabolic equations with variable density in the hyperbolic space*, Nonlin. Diff. Eq. Appl. **19** (2012) 485-501;

16. F. Punzo, *On well-posedness of the semilinear heat equation on the sphere*, J. Evol. Eq. **12** (2012) 571-592;
17. F. Punzo, *Uniqueness and Nonuniqueness of Solutions to Quasilinear Parabolic Equations with a Singular Coefficient on Weighted Riemannian Manifolds*, Asympt. Anal. **79** (2012) 273-301;
18. F. Punzo, *Existence of patterns on surfaces of revolution without boundary*, Nonlin. Anal. TMA, **77** (2013) 94-102
19. F. Punzo, *Liouville theorems for fully nonlinear elliptic equations on spherically symmetric Riemannian manifolds*, Nonlin. Diff. Eq. Appl., **20** (2013) 1295-1315;
20. F. Punzo, *Uniqueness of solutions to degenerate parabolic and elliptic equations in weighted Lebesgue spaces*, Math. Nachr. **286** (2013) 1043-1054;
21. G. Grillo, M. Muratori, F. Punzo, *Conditions at infinity for the inhomogeneous filtration equation*, Ann. I. H. Poincaré-AN **31** (2014) 413-428;
22. F. Punzo, *Global existence for the nonlinear heat equation on Riemannian manifolds with negative sectional curvature*, Riv. Mat. Univ. Parma **5** (2014) 113-138;
23. F. Punzo, G. Terrone, *On well-posedness for the Cauchy problem for a fractional porous medium equation with variable density in one space dimension*, Diff. Int. Eq. **27** (2014) 461-482;
24. F. Punzo, G. Terrone, *On the Cauchy problem for a general fractional porous medium equation with variable density*, Nonlin. Anal. TMA **98** (2014) 27-47;
25. F. Punzo, T. Savitska, *Local versus nonlocal interactions in a reaction-diffusion system of population dynamics*, Rend. Lincei Mat. Appl. **25** (2014) 191-216;
26. F. Punzo, G. Terrone, *On a fractional sublinear elliptic equation with a variable coefficient*, Applicable Anal. **94** (2015) 800-818;
27. S. Kamin, F. Punzo, *Prescribed conditions at infinity for parabolic equations*, Comm. Cont. Math. **17** no. 1 (2015) pp. 1-19;
28. H. Matano, F. Punzo, A. Tesei, *Front propagation for nonlinear diffusion on the hyperbolic space*, J. Eur. Math. Soc. **17** (2015) 1199-1227;
29. A. Pisante, F. Punzo, *Allen-Cahn Approximation of Mean Curvature Flow in Riemannian Manifolds II, Brakke's flows*, Comm. Cont. Math. **17** (2015) no. 5, pp. 1-19 ;
30. F. Punzo, E. Valdinoci, *Uniqueness in weighted Lebesgue spaces for a class of fractional parabolic and elliptic equations*, J. Diff. Eq. **258** (2015) 555-587;
31. F. Punzo, *Uniqueness for the heat equation in Riemannian manifolds*, J. Math. Anal. Appl. **424** (2015) 402-422;
32. G. Grillo, M. Muratori, F. Punzo, *On the asymptotic behaviour of solutions to the fractional porous medium equation with variable density*, Discr. Cont. Dyn. Syst.-A **35** (2015) 5927-5962;
33. P. Mastrolia, D.D. Monticelli, F. Punzo *Nonexistence results for elliptic differential inequalities with a potential on Riemannian manifolds*, Calc. Var. Part. Diff. Eq. **54** (2015) 1345-1372;
34. G. Grillo, M. Muratori, F. Punzo, *Fractional porous media equations: existence and uniqueness of weak solutions with measure data*, Calc. Var. Part. Diff. Eq. **54** (2015) 3303-3335;
35. A. Pisante, F. Punzo, *Allen-Cahn Approximation of Mean Curvature Flow in Riemannian Manifolds I, uniform estimates*, Ann. Sc. Norm. Sup. Pisa Cl. Sci. **15** (2016), 309-341;
36. F. Punzo, *Propagation and extinction of fronts for semilinear parabolic equations on negatively curved Riemannian manifolds*, Nonlin. Anal. **131** (2016) 325-345;
37. C. Bandle, P. Mastrolia, D.D. Monticelli, F. Punzo, *On the stability of solutions of semilinear elliptic equations with Robin boundary conditions on Riemannian manifolds*, SIAM J. Math. Anal. **48** (2016) 122-151;
38. S. Kamin, F. Punzo, *Dirichlet conditions at infinity for parabolic and elliptic equations*, Nonlin. Anal. **138** (2016) 156-175;

39. P. Mastrolia, D.D. Monticelli, F. Punzo, *Nonexistence of solutions to parabolic differential inequalities with a potential on Riemannian manifolds*, Math. Ann. **367** (2017), 929-963.
40. F. Punzo, E. Valdinoci, *Prescribed conditions at infinity for fractional parabolic and elliptic equations with unbounded coefficients*, ESAIM: CoCV **24** (2018) 105-127
41. F. Punzo, M. Strani, *Dirichlet boundary conditions for degenerate nonlinear parabolic equations*, Potential Anal. **47** (2017) 151-168
42. D. Monticelli, F. Punzo, B. Sciunzi, *Nonexistence of stable solutions to quasilinear elliptic equations on Riemannian manifolds*, J. Geom. Anal. **27** (2017) 3030-3050
43. G. Grillo, M. Muratori, F. Punzo, *The porous medium equation with large initial data on negatively curved Riemannian manifolds*, J. Math. Pures Appl. **113** (2018) 195-226
44. D. D. Monticelli, P. Mastrolia, F. Punzo, *Elliptic and parabolic equations with Dirichlet conditions at infinity on Riemannian manifolds*, Adv. Diff. Eq. **23** (2018) 89-108
45. L. Montoro, F. Punzo, B. Sciunzi, *Pointwise estimates for solutions of semilinear parabolic equations with a potential*, Rend. Lincei Mat. Appl. **29** (2018) 255-288
46. L. Montoro, F. Punzo, B. Sciunzi, *Qualitative properties of singular solutions to nonlocal problems*, Ann. Mat. Pura Appl. **197** (2018) 941-964
47. D. Monticelli, F. Punzo, *Nonexistence results for elliptic differential inequalities with a potential in bounded domains*, DCDS-A **38** (2018) 675-695
48. C. Bandle, D.D. Monticelli e F. Punzo. "Reaction–diffusion problems on time– dependent Riemannian manifolds: stability of periodic solutions", SIAM J. Math. Anal. **50** (2018) 6082–6099.
49. G. Grillo, M. Muratori, F. Punzo, *The porous medium equation with measure data on negatively curved Riemannian manifolds*, J. Eur. Math. Soc. **20** (2018) , 2769-2812.
50. D. D. Monticelli, K. R. Payne, F. Punzo, *Poincaré inequalities for Sobolev spaces with matrix weights and applications to degenerate partial differential equations*, Proc. Royal Soc. Edinb. Sec. A **149** (2019), 61-100.
51. M. Muratori, F. Punzo, *Porous medium equations on manifolds with critical negative curvature: unbounded initial data*, Appl. Anal. **98** (2019) 1756-1772
52. G. Grillo, M. Muratori, F. Punzo, *Blow-up and global existence for the porous medium equation with reaction on a class of Cartan–Hadamard manifolds*, J. Diff. Eq. **266** (2019) 4305-4336
53. D. Monticelli, F. Punzo, *Distance from submanifolds with boundary and applications to Poincaré inequality and to elliptic and parabolic equations*, J. Diff. Eq. **267** (2019) 4274-4292
54. G. Catino, D.D. Monticelli, F. Punzo, *The Poisson equation on manifolds with positive essential spectrum*, Calc. Var. Part. Diff. Eq. **58** (2019), 146, 16 pp
55. F. Punzo, *Integral conditions for uniqueness of solutions to degenerate parabolic equations*, J. Diff. Eq. **267** (2019) 6555-6573
56. D.D. Monticelli, F. Punzo, M. Squassina, *Nonexistence for hyperbolic problems on Riemannian manifolds*, Asympt. Anal. **120** (2020) 87-101
57. G. Grillo, M. Muratori, F. Punzo, *Uniqueness of very weak solutions for a fractional filtration equation*, Adv. Math. . (2020) 107041, 35 pp
58. G. Catino, D.D. Monticelli, F. Punzo, *The Poisson equation on Riemannian manifolds with weighted Poincaré inequality at infinity*, Ann. Mat. Pura Appl. (to appear) DOI 10.1007/s10231-020-01014-0
59. G. Meglioli, F. Punzo, *Blow-up and global existence for solutions to the porous medium equation with reaction and slowly decaying density*, J. Diff. Eq. . **269** (2020) 8918-8958.
60. G. Meglioli, F. Punzo, *Blow-up and global existence for solutions to the porous medium equation with reaction and fast decaying density*, Nonlin. Anal. **203** (2021) 112187.

61. F. Punzo, *Global solutions of semilinear parabolic equations on negatively curved Riemannian Manifolds*, J. Geom. Anal. **31** (2021) 543-559
62. G. Meglioli, F. Punzo, *Blow-up and global existence for the inhomogeneous porous medium equation with reaction*, Rend. Mat. Appl., Special Issue in the memory of M.A. Pozio, to appear
63. G. Grillo, G. Meglioli, F. Punzo, *Smoothing effects and infinite time blow-up for reaction diffusion equation: an approach based on Sobolev and Poincaré inequalities*, J. Math. Pures Appl., to appear
64. G. Grillo, G. Meglioli, F. Punzo, *Global existence of solutions and smoothing effect for classes of reaction-diffusion equations on manifolds*, J. Evol. Eq. (to appear)
65. G. Grillo, M. Muratori, F. Punzo, *Fast diffusion on noncompact manifolds: well-posedness theory and connections with semilinear elliptic equations*, Trans. Amer. Math. Soc. (to appear)

Preprints

1. G. Catino, P. Mastrolia, D.D. Monticelli, F. Punzo, *Four dimensional closed manifolds admit a weak harmonic Weyl metric*, submitted
2. C. Nobili, F. Punzo, *Uniqueness for degenerate parabolic equations in weighted L^1 spaces*, submitted

Books

1. G. Catino, F. Punzo, *Esercizi Svolti di Analisi Matematica e Geometria 1*, Esculapio, 2020
2. G. Catino, F. Punzo, *Esercizi Svolti di Analisi Matematica e Geometria 2*, Esculapio 2020
3. G. Catino, F. Punzo *Esercizi Svolti di Analisi Matematica e Geometria 1 e 2*, Esculapio, 2020
4. M. Contedini, G. Grillo, F. Punzo, *Esercizi di Analisi Matematica I, Geometria e Algebra Lineare*, La Dotta, 2019.
5. G. Catino, F. Punzo, *Quesiti Teorici di Analisi Matematica e Geometria 1*, Esculapio 2020
6. G. Catino, F. Punzo, *Quesiti Teorici di Analisi Matematica e Geometria 2*, Esculapio 2020
7. G. Catino, F. Punzo, *Quesiti Teorici di Analisi Matematica e Geometria 1 e 2*, Esculapio 2020
8. A. Iannella, G. Meglioli, F. Punzo, *Precorso di Matematica*, Esculapio, 2020.

Talks at Conferences and Seminars

- *Uniqueness of bounded solutions to singular nonlinear parabolic equations*, workshop Liouville Theorems and Detours, Cortona, 18-24 May 2008.
- *Phragmén-Lindelöf principles for fully nonlinear elliptic equations with unbounded coefficients*, 6th European Conference on Elliptic and Parabolic Problems, Gaeta 25-29 May 2009.
- *Equazioni ellittiche e paraboliche degeneri*, Università degli Studi “Roma Tre”, Roma 18 December 2009.
- *Uniqueness of bounded solutions to nonlinear parabolic equations in the hyperbolic space*, International Conference on Partial Differential Equations, Poitiers 18-20 February 2010.
- *Existence of patterns for semilinear parabolic equations on surfaces of revolution*, Meiji University-Institute of Mathematical Sciences (Tokyo), May 10th 2010.
- *Phragmén-Lindelöf principles for fully nonlinear elliptic and parabolic equations with unbounded coefficients*, workshop Positivity: a key for fully nonlinear equations, Vietri sul Mare, May 31st-June 2nd 2010.

- *Aspetti qualitativi di equazioni semilineari paraboliche su varietà Riemanniane*, December 5th 2011, Università di Roma “Sapienza”.
- *Existence and nonexistence of patterns on Riemannian manifolds*, workshop Variational and geometric methods in pde's, Ancona, 18-21 April 2012.
- *Unicità, non unicità e proprietà del supporto di soluzioni dell'equazione dei mezzi porosi con densità variabile su varietà Riemanniane a simmetria sferica*, June 8th 2012, Politecnico di Milano.
- *Propagazione di fronti per equazioni paraboliche semilineari nello spazio iperbolico*, October 24th 2012, Università di Padova.
- *Sul problema di Cauchy per l'equazione dei mezzi porosi non locale con densità variabile*, May 17th 2013, Università di Milano.
- *Approssimazione di Allen-Cahn del moto per curvatura media su varietà Riemanniane*, November 21th 2013, Dipartimento di Matematica, Università di Roma “Sapienza”.
- *Approssimazione di Allen-Cahn del moto per curvatura media su varietà Riemanniane*, January 29th 2014, Università degli Studi di Milano.
- *Allen-Cahn approximation of mean curvature flow on Riemannian manifolds*, 8th European Conference on Elliptic and Parabolic Problems, Gaeta, 26-30 May 2014.
- *On the asymptotic behavior of solutions to the fractional weighted porous medium equation*, October 20th 2014, WIAS, Berlin.
- *Sul comportamento asintotico di soluzioni dell'equazione dei mezzi porosi non locale con densità variabile*, December 4th 2014, Università di Parma.
- *On the Asymptotic Behaviour of Solutions of the Fractional Porous Medium Equation with a Variable Density*, March 28th 2015, CoPDE 2015, TUM, Munich.
- *On the porous medium equation on negative curved Riemannian manifolds with measure initial data*, Università di Roma “Sapienza”, February 1st 2016.
- *Nonexistence of positive solutions for elliptic and parabolic equations with a potential on Riemannian manifolds*, April 12th 2016, Università di Roma Tor Vergata.
- *Nonexistence of positive solutions for elliptic and parabolic equations with a potential on Riemannian manifolds*, Workshop Gnampa, 20-23 June 2016.
- *On the porous medium equation on negative curved Riemannian manifolds with large initial data*, Conference Free Boundaries, pde's and related topics, Berlin, WIAS, 19-20 December 2016
- *Nonexistence of stable solutions to quasilinear elliptic equations on Riemannian manifolds*, Università Cattolica del Sacro Cuore di Brescia, 29-06-2017
- *On the porous medium equation on negatively curved Riemannian manifolds with large initial data*, Università di Roma Sapienza, 13-07-2017
- *On the porous medium equation on negatively curved Riemannian manifolds with large initial data*, University of Basel, 16-10-2017
- *On the porous medium equation on negatively curved Riemannian manifolds with large initial data*, Politecnico di Milano, 18-10-2017
- *On the porous medium equation on negative curved Riemannian manifolds with large initial data*, Variational and Geometrical Methods for Pde's, Università di Palermo, 16-17 November 2017
- *The Poisson Equation on Riemannian Manifolds*, Pde's friends, Politecnico di Torino, 21-22 June 2018

- *Blow-up and global existence for the porous medium equation with reaction on Cartan-Hadamard manifolds*, Joint Meeting SIAMI-UMI, Wroclaw 17-20 September 2018
- *The Poisson Equation on Riemannian Manifolds*, Tokyo University, 9 April 2019
- *Blow-up and global existence for the porous medium equation with reaction on Cartan-Hadamard manifolds*, International Conference on Elliptic and Parabolic Problems, Gaeta, 20-24 May 2019
- *Uniqueness of very weak solutions for a fractional filtration equation*, Brescia-Trento Nonlinear days, Trento 30-31 May 2019.
- *The Poisson Equation on Riemannian manifolds*, Nonlinear Diffusion Problems, Roma 11-13 September 2019.

Conferences and schools attended (without giving talks)

- International Symposium on Variational Methods and Nonlinear Differential Equations, Università “Roma Tre”, 10-14 January 2005
- Espalia 2006, Università di Roma “Sapienza”, 19-21 June
- Topics in PDE’s, Granada, 7-11 April 2008
- PDE, Sobolev spaces and continuity, Roma, 21-23 April 2008
- Topics in PDE’s, Barcellona, 5-9 May 2008
- NonlinearPde’s, Roma, 1-2 September 2008
- Viscosity, metric and control theoretic methods in nonlinear pde’s, Roma, 3-5 September 2008.
- Ill-posed problems, Roma, 29-30 November 2010
- Nonconvex evolution problems, Roma, 30 November-3 December 2010.
- Differential Equations and Dynamical Systems, Gaeta, 11-15 June 2012.
- New trends in nonlinear parabolic equations, Parma, 12-16 November 2012.
- Nonlinear parabolic and elliptic equations, Politecnico di Milano, 19-21 June 2013.
- Recent advances in partial differential equations and application, Università di Milano, 17-21 June 2013.
- A meeting with Louis Nirenberg, 10-13 June 2014, RISM Varese.
- Nonlinear evolution problems, 23-25 June 2014, Università di Roma “Sapienza”.
- Nonlocal and nonlinear diffusions and interactions: new methods and directions, 4-8 July 2016, Cetraro.

Stays at foreign research institutes

- Meiji University, Institute of Mathematical Sciences GCOE, Tokyo, from April 11th, 2010 to May 13th, 2010; invited by Prof. M. Mimura (Meiji University) and Prof. H. Matano (Tokyo State University)
- IST, Lisbon, one week in July 2012, invited by Dr. G. Terrone
- WIAS, Berlin, one week in October 2014, invited by Prof. E. Valdinoci
- Tokyo University, Institute of Mathematical Sciences, Tokyo, from April 7 to April 13, 2019.

Funding

(as principal investigator)

- Principal Investigator (P.I.) of the research project funded by GNAMPA INdAM 2019
- Winner of FABBR funded by MIUR, December 2017, evaluation 60/60
- P.I. of the research project “Proprietà qualitative di equazioni ellittiche e paraboliche nonlineari”, funded by GNAMPA INdAM, 2016;
- P.I. of the research project “Analisi Globale, PDE’s e strutture solitoniche”, funded by GNAMPA INdAM, 2015;
- P.I. of the research project “Analisi Globale ed Operatori Degeneri finanziato” funded by GNAMPA INdAM, 2014;
- P.I. of the research project “Equazioni ellittiche e paraboliche”, funded by Università degli Studi di Milano, 2014;
- P.I. of the research project “Avvio alla ricerca-Equazioni paraboliche nonlineari”, funded by Università di Roma “Sapienza”, 2012.

(as participant)

- Participant to the research project funded by GNAMPA INdAM 2020, P.I. Prof. D. D. Monticelli
- Participant to the PRIN project 2017, funded by MIUR (local coordinator Prof. F. Gazzola).
- Member of the research group Analisi e Applicazioni of Politecnico di Milano, from 2017, P.I. Prof. F. Gazzola
- Participant to the research project “Equazioni Diffusive Non-Lineari in Contesti Non-Euclidei e Disuguaglianze Funzionali Associate”, funded by GNAMPA INdAM 2017, P.I. Dr. Matteo Muratori
- Participant to the PRIN project 2012 "Aspetti variazionali e perturbativi nei problemi differenziali nonlineari" , funded by MIUR (local coordinator Prof. E. Valdinoci);
- Participant to research projects funded by Università di Roma “Sapienza”, from 2009 to 2012 (P.I. Prof. A. Tesei);
- Participant to the PRIN project 2007 “Mathematical Population Theory: methods, models, comparison with data” (local coordinator Prof. A. Tesei).

Other activities

- Member of the Faculty Board of the PhD "Scienze Matematiche", Università di Milano, from 19-05-2014 to 30-10-2015
- Member of the Faculty Board of the PhD “Matematica e Informatica”, Università della Calabria. dal 11-04-2016 al 05-02-2017
- Member of the Faculty Board of the PhD “Data Analytics and Decision Sciences”, Politecnico di Milano 8-3-2018– present
- Supervisor of the PhD student Giulia Meglioli, Politecnico di Milano, from November 2018-present
- Supervisor (in collaboration with Prof. K.R. Payne and Dr. M. Maggis) for the M. Sc. thesis in Mathematics *Financial models and degenerate parabolic equations*, candidate Anna Allegrini, Università degli Studi di Milano, December 17th 2015.

- Supervisor (in collaboration with Dr. L. Muglia) for the B. Sc. thesis in Mathematics *Principi di Massimo e applicazioni*, candidate Chiara Megalizzi, Università della Calabria, September 21st 2016.
- Supervision of the post-doc Dr. Matteo Muratori, from January 1st to June 30th 2015, at Università degli Studi di Milano.
- Organizer (with P. Mastrolia and D.D. Monticelli) of the workshop Global Analysis and PDE's@unimi, 27-28 November 2014, Università degli Studi di Milano.
- Organizer of some seminars in PDE's at Università degli Studi di Milano and Università della Calabria.
- Co-organizer (with V. Vespri and others) of the workshop "Harnack's inequalities and nonlinear operators", funded by INdAM, Cortona 18-24 June 2017
- Editor (with D. Andreucci, D.D. Monticelli, U. Gianazza, V. Vespri) of the book *Harnack Inequality and Nonlinear Operators*, Springer INdAM Series (to appear)
- Member of two Evaluation Commettes for selections of associate professor in Mathematical Analysis, Sapienza Università di Roma (2018 and 2019).
- Member of some Evaluation Commettes for selections of teaching assistants in Mathematical Analysis and Geometry, Politenico di Milano, (2017-present)
- Further studies: *diploma* in Saxophone, in Jazz Music, and in Clarinet at Conservatorio Statale di Musica "O. Respighi" di Latina, a.a. 1998/99, 2002/03, 2003/04.

Teaching activity

(at Università di Roma "Sapienza")

- Precourse in Mathematics, B.Sc. in Chemistry, a.y. 2007-08
- Teaching Assistant for Calculus (Prof. M.V. Marchi; Prof. A. Ardito), B. Sc. in Chemistry, a.y. 2007-08
- Teaching Assistant for Linear Algebra (Prof. M.V. Marchi; Prof. A. Ardito) B. Sc. Chemistry, a.y. 2007-08
- Precourse in Mathematics, a.a. 2008-09
- Teaching Assisant for Calculus 1 (Prof. A. Tesei; Prof. C. Cassisa), B. Sc. in Mathematics, a.y. 2008-09
- Teaching Assistant for Linear Algebra (Prof. M. V. Marchi), B.Sc. in Chemistry, a.y. 2008-09
- Teaching Assistant for Mathematical Analysis 1 (Prof. S. Finzi Vita), B. Sc. in Mathematics, a.y. 2008-09
- Precourse in Mathematics, a.a. 2009-10
- Teaching Assistant for Analysis (Prof. L. Lamberti, E. Montefusco, V. Nesi, M.A. Pozio), B.Sc. in Physics, a.y. 2009-10
- Teaching Assistant for Analysis, B.Sc. in Physics, a.y. 2010-11
- Teaching Assistant for Calculus 1 (Prof. C. Mascia, V. Nesi, A. Pisante), B.Sc. in Mathematics, a.y. 2011-12

- Teaching Assistant for Mathematical Analysis 1 (Prof. F. Pacella), B.Sc. in Mathematics, a.y. 2011-12
- Teaching Assistant for Mathematics 2, B. Sc. in Architecture, a.y. 2011-12
- Precourse in Mathematics, B.Sc. in Architecture, a.y. 2012-13
- Teaching Assistant for Mathematical Analysis 2 (Prof. I. Capuzzo Dolcetta, M.A. Pozio), B. Sc. in Mathematics, a.y. 2012-13

(at Università degli Studi di Milano)

- Teaching Assistant for Mathematical Analysis 2 (Prof. M. Vignati), B. Sc. in Physics, a.y. 2013-14
- Mathematical Analysis 4 (one half of the course), B. Sc. in Physics, a.y. 2013-14
- Teaching Assistant for Real Analysis (Prof. M. Calanchi), M.D. in Mathematics, a.y. 2014-15.
- Teaching Assistant for Complements of Mathematics (Prof. M. Tarallo), B.Sc. in Computer Science, a.y. 2014-15.

(at Università della Calabria)

- Mathematics (one half of the course), B. Sc. in Natural Sciences, a.y. 2015-16
- Mathematical Analysis 1 - first part (one half of the course), B.Sc. in Computer Engineering, a.y. 2015-16
- Mathematical Analysis 1-second part, B. Sc. in Computer Engineering, a.y. 2015-16
- Mathematical Analysis 1-second part, B. Sc. in Civil Engineering, a.y. 2015-16
- Mathematical Analysis 1-first part, B.Sc. in Computer Engineering, a.y. 2016-17, I semester,
- Mathematical Analysis, B. Sc. in Materials Science, a.y. 2016-17, I semester.

(at Politecnico di Milano)

- Mathematical Analysis II, B. Sc. in Management and Production Engineering, a.y. 2016/17, 2017/18, 2018/19, 2019/20, 2020/21 (II sem.).
- Analysis and Geometry 1, B. Sc. in Aerospace, Energetic and Mechanical Engineering, a.y. 2017/18, 2018/19
- PhD course “Maximum Principle for Elliptic and Parabolic Equation” (with D. D. Monticelli), Politecnico di Milano, a.y. 2017/18, 2018/19
- Mathematical Analysis II, B. Sc. in Mathematical Engineering, a.y. 2019-20, 2020-21 (I sem.).

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