

Curriculum Vitae

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Pigola Stefano

Assistant professor

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Education

- PhD in Mathematics, Università degli Studi di Milano, 2004. Thesis: “Maximum and comparison principles at infinity on Riemannian manifolds”. Advisor: Prof. Marco Rigoli.
- B.A. in Mathematics, Università degli Studi di Milano, 1998/99. Thesis “Il teorema di Bernstein e alcune sue generalizzazioni”. Advisor: Prof. Marco Rigoli.

Research interests

My research activity is in the field of Geometric Analysis. So far, contributions have been given in the following topics.

- (A) Maximum and comparison principles at infinity for non-linear operators.
- (B) Functions and potential theory on Riemannian manifolds.
- (C) Vanishing and finiteness results for L^p -harmonic sections of vector bundles.
- (D) Qualitative behavior of solutions of semilinear elliptic PDEs of geometric nature.
- (E) Analytic and geometric aspects of p -harmonic maps.
- (F) Obata's type characterizations of Riemannian domains by means of differential systems.
- (G) Analytic and geometric aspects of Riemannian manifolds with densities with applications to gradient Ricci solitons and self-shrinkers.
- (H) Rigidity results for the sharp Sobolev constant on Riemannian manifolds.
- (I) Stochastic properties of Riemannian manifolds with applications to geometry and PDEs.

- (L) Geometric properties of prescribed mean curvature graphs over complete manifolds with boundary.

Publications

1. S. Pigola, M. Rimoldi *Complete self-shrinkers confined into some regions of the space*. Annals Global Anal. Geom. (to appear)
2. G.P. Bessa, S. Pigola, A.G. Setti, *On the L^1 -Liouville property of stochastically incomplete manifolds*. Potential Anal. (to appear)
3. G.P. Bessa, S. Pigola, A.G. Setti, *Spectral and stochastic properties of the f -Laplacian, solutions of PDEs at infinity and geometric applications*. Rev. Mat. Iberoam. **29** (2013), no. 2, 579–610.
4. S. Pigola, M. Rimoldi, *Characterizations of model manifolds by means of certain differential systems*. Canad. Math. Bull. **55** (2012), no. 3, 632–645.
5. S. Pigola, G. Veronelli, *Remarks on L^p -vanishing results in geometric analysis*. Internat. J. Math. **23** (2012), no. 1, 1250008, 18 pp.
6. S. Pigola, A.G. Setti, *The Feller property on Riemannian manifolds*. J. Funct. Anal. **262** (2012), no. 5, 2481–2515.
7. S. Pigola, M. Rigoli, M. Rimoldi, A.G. Setti, *Ricci almost solitons*. Ann. Sc. Norm. Super. Pisa Cl. Sci. (5) **10** (2011), no. 4, 757–799.
8. S. Pigola, M. Rimoldi, A.G. Setti, *Remarks on non-compact gradient Ricci solitons*. Math. Z. **268** (2011), no. 3-4, 777–790.
9. I. Holopainen, S. Pigola, G. Veronelli, *Global comparison principles for the p -Laplace operator on Riemannian manifolds*. Potential Anal. **34** (2011), no. 4, 371–384.
10. S. Pigola, G. Veronelli, *Uniform decay estimates for finite-energy solutions of semi-linear elliptic inequalities and geometric applications*. Differential Geom. Appl. **29** (2011), no. 1, 35–54
11. S. Pigola, G. Veronelli, *Lower volume estimates and Sobolev inequalities*. Proc. Amer. Math. Soc. **138** (2010), no. 12, 4479–4486.
12. S. Pigola, M. Rigoli, A.G. Setti, *Existence and non-existence results for a logistic-type equation on manifolds*. Trans. Amer. Math. Soc. **362** (2010), no. 4, 1907–1936.
13. S. Pigola, G. Veronelli, *On the homotopy class of maps with finite p -energy into non-positively curved manifolds*. Geom. Dedicata **143** (2009), 109–116.
14. S. Pigola, M. Rigoli, A.G. Setti, *Aspects of potential theory on manifolds, linear and non-linear*. Milan J. Math. **76** (2008), 229–256
15. S. Pigola, M. Rigoli, A.G. Setti, *A finiteness theorem for the space of L^p harmonic sections*. Rev. Mat. Iberoam. **24** (2008), no. 1, 91–116.

16. S. Pigola, M. Rigoli, A.G. Setti, *Vanishing and finiteness results in geometric analysis. A generalization of the Bochner technique*. Progress in Mathematics, 266. Birkhäuser Verlag, Basel, 2008.
17. S. Pigola, M. Rigoli, A.G. Setti, *Constancy of p -harmonic maps of finite q -energy into non-positively curved manifolds*. Math. Z. **258** (2008), no. 2, 347–362
18. S. Pigola, M. Rigoli, A.G. Setti, *Some characterizations of space-forms*. Trans. Amer. Math. Soc. **359** (2007), no. 4, 1817–1828; **360** (2008), no. 7, 3943–3944
19. S. Pigola, M. Rigoli, A.G. Setti, *Maximum principles at infinity on Riemannian manifolds: an overview*. Workshop on Differential Geometry Mat. Contemp. **31** (2006), 81–128.
20. S. Pigola, M. Rigoli, A.G. Setti, *Some non-linear function theoretic properties of Riemannian manifolds*. Rev. Mat. Iberoam. **22** (2006), no. 3, 801–831.
21. S. Pigola, M. Rigoli, A.G. Setti, *Vanishing theorems on Riemannian manifolds, and geometric applications*. J. Funct. Anal. **229** (2005), no. 2, 424–461.
22. S. Pigola, M. Rigoli, A.G. Setti, *Maximum principles on Riemannian manifolds and applications*. Mem. Amer. Math. Soc. **174** (2005), no. 822
23. S. Pigola, M. Rigoli, A.G. Setti, *Some applications of integral formulas in Riemannian geometry and PDE's*. Milan J. Math. **71** (2003), 219–281.
24. S. Pigola, M. Rigoli, A.G. Setti, *Volume growth, "a priori" estimates, and geometric applications*. Geom. Funct. Anal. **13** (2003), no. 6, 1302–1328.
25. S. Pigola, M. Rigoli, A.G. Setti, *A remark on the maximum principle and stochastic completeness*. Proc. Amer. Math. Soc. **131** (2003), no. 4, 1283–1288
26. S. Pigola, M. Rigoli, A.G. Setti, *Maximum principles and singular elliptic inequalities*. J. Funct. Anal. **193** (2002), no. 2, 224–260.
27. S. Pigola, M. Rigoli, A.G. Setti, *Some remarks on the prescribed mean curvature equation on complete manifolds*. Pacific J. Math. **206** (2002), no. 1, 195–217.

Preprints

- *Spectral, stochastic and curvature estimates for submanifolds of highly negative curved spaces*. (Joint with G.P. Bessa and A.G. Setti) <http://arxiv.org/abs/1303.4101>
- *Global maximum principles and divergence theorems on complete manifolds with boundary*. (Joint with D. Impera and A.G. Setti) <http://arxiv.org/abs/1303.2853>
- *On the homotopy Dirichlet problem for p -harmonic maps*. (Joint with G. Veronelli) <http://arxiv.org/abs/1204.5430>
- *The topology at infinity of a manifold and $L^{q,p}$ Sobolev inequalities*. (Joint with A.G. Setti and M. Troyanov) <http://arxiv.org/abs/1007.1761>

Collaborators

- G. Pacelli Bessa, Federal University of Ceara, Brazil
- Illka Holopainen, University of Helsinki, Finland
- Debora Impera, Università di Milano Bicocca, Italy
- Jorge H. de Lira, Federal University of Ceara, Brazil
- Marco Rigoli, Università di Milano, Italy
- Michele Rimoldi, Università dell'Insubria, Italy
- Alberto G. Setti, Università di Milano, Italy
- Marc Troyanov, EPFL, Switzerland
- Giona Veronelli, Université Paris 13, France

Talks and mini-courses

- *Some geometric aspects of the potential theory on Riemannian manifolds.* Applied Mathematics Seminar, Pavia, April 23th, 2013.
- *Stochastic properties of manifolds: Liouville-type aspects.* Maceiò, February 2012. II workshop of Differential Geometry.
- *Global divergence theorems in nonlinear PDEs and Geometry.* Fortaleza, January 2012. Mini-course for the Summer School in Differential Geometry.
- *Geometric aspects of the p -Laplacian on complete manifolds.* Grenoble, September 2011. Workshop Geometric analysis II Institut Fourier - Brazil.
- *p -Laplacian and topology of manifolds.* Santiago de Compostela, December 2010. Conference in Geometry and Global Analysis.
- *Some analytic and geometric aspects of the p -Laplacian on Riemannian manifolds.* Bardonecchia, June 2009. Convegno Nazionale di Analisi Armonica.
- *Some vanishing and finiteness results on complete manifolds: a generalization of the Bochner technique.* Caramanico Terme, May 2007. Convegno Nazionale di Analisi Armonica.
- *Some vanishing and finiteness results on complete manifolds: a generalization of the Bochner technique.* Università degli Studi di Roma "La Sapienza", January 2007. Seminario di Topologia Algebrica e Differenziale.
- *Some topics in the theory of harmonic functions on complete Riemannian manifolds.* Università degli Studi di Milano Bicocca, July 2006.

Ph.D. Students

- Giona Veronelli, *Some analytic and geometric aspects of the p -Laplacian on Riemannian manifolds*, academic year 2010–2011. Current position: Maître de conférences at Université Paris 13. Personal webpage: <http://gionaveronelli.altervista.org/>

- Michele Rimoldi, *Rigidity results for Lichnerowicz-Bakry- Emery Ricci tensors*, academic year 2011–2012. Current position: Post-doc at Università dell’Insubria. Personal webpage: <http://michelerimoldi.altervista.org/>

Professional service

- Referee for: Note di Matematica, American Journal of Mathematics, Manuscripta Mathematica, Journal of Differential Equations, Journal of Mathematical Analysis and Applications, Journal of Geometry and Physics, Communications in Contemporary Mathematics, Monatshefte für Mathematik, Geometriae Dedicata.