

UNIVERSITÀ DEGLI STUDI DI MILANO

Procedura di selezione per la chiamata a professore di I fascia da ricoprire ai sensi dell'art. 18, comma 1, della Legge n. 240/2010 per il settore concorsuale 01/A3 - ANALISI MATEMATICA, PROBABILITÀ E STATISTICA MATEMATICA,

(settore scientifico-disciplinare MAT/05 - ANALISI MATEMATICA)

presso il Dipartimento di MATEMATICA "FEDERIGO ENRIQUES,

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## **Luca Massimo Andrea Martinazzi**

### **CURRICULUM VITAE**

#### **INFORMAZIONI PERSONALI (NON INSERIRE INDIRIZZO PRIVATO E TELEFONO FISSO O CELLULARE)**

COGNOME	MARTINAZZI
NOME	LUCA MASSIMO ANDREA
DATA DI NASCITA	05/06/1981

#### **INSERIRE IL PROPRIO CURRICULUM**

##### **TITOLI DI STUDIO**

Laurea in Matematica: Università di Pisa. Voto: 110/110 e lode. Data: 13/05/2004

Relatore: Prof. Mariano Giaquinta

Controrelatore: Prof. Giovanni Alberti

Titolo della tesi: Il problema di Plateau non parametrico in codimensione arbitraria.

Diploma della Scuola Normale Superiore di Pisa. Voto 70/70 e lode. Data: 14/06/2004

Relatore: Prof. Mariano Giaquinta

Ph.D. in Matematica, ETH Zurigo. Data 5/3/2009

Relatore: Prof. Michael Struwe

Corelatori: Prof. Tristan Rivière e Prof. Andrea Malchiodi

Titolo della tesi: Concentration-Compactness phenomena in conformal geometry

##### **STUDI**

10/2000-09/2004 Università di Pisa e Scuola Normale Superiore di Pisa

09/2004-08/2005 Stanford University, CA (Graduate Student)

10/2005-09/2007 ETH Zurich (Graduate Student)

##### **POSIZIONI**

04/2009-09/2009 Postdoc, ETH Zurich

10/2009-08/2011 Junior visitor, Centro di Ricerca Matematica Ennio De Giorgi, Pisa

09/2011-06/2013 Hill assistant professor, Rutgers University (NJ)

07/2013-09/2017 SNF-Professor, University of Basel

10/2017-oggi Professore associato, Università di Padova

## PUBBLICAZIONI

### Monografie

- [1] The non-parametric problem of Plateau in arbitrary codimension - Master thesis, (2004) available at <http://www.arXiv.org/pdf/math.AP/0411589>
- [2] (With M. Giaquinta) An introduction to the regularity theory for elliptic systems, harmonic maps and minimal graphs, 2nd Edition, Edizioni della Normale, Pisa 2012 (1st edition 2005).
- [3] Concentration-Compactness phenomena in conformal geometry, Ph.D. Thesis, ETH Zurich (2009).

### Articoli di ricerca

- [1] Classification of solutions to the higher order Liouville's equation on  $\mathbb{R}^{2m}$ , Math. Z. 263 (2009), 307-329.
- [2] Conformal metrics on  $\mathbb{R}^{2m}$  with constant Q-curvature, Rend. Lincei. Mat. Appl. 19 (2008), 279-292.
- [3] Concentration-compactness phenomena in higher order Liouville's equation, J. Funct. Anal. 256 (2009), 3743-3771.
- [4] A threshold phenomenon for embeddings of  $H_0^m$  into Orlicz spaces, Calc. Var. Partial Differential Equations. 36 (2009), 493-506.
- [5] (With Mircea Petrache) Asymptotics and quantization for a mean-field equation of higher order, Comm. Partial Differential Equations 35 (2010), 1-22.
- [6] (With M. Struwe) Quantization for an elliptic equation of order  $2m$  with critical exponential non- linearity. Math. Z. 270 (2012), 453-487.
- [7] (with M. Petrache) Existence of solutions to a higher dimensional mean-field equation on manifolds, Manuscripta Math. 133 (2010), 115-130.
- [8] Quantization for the prescribed Q-curvature equation on open domains, Commun. Contemp. Math. 13 (2011), 533-551.
- [9] (With L. Ambrosio and G. De Philippis) Gamma-convergence of nonlocal perimeter functionals, Manuscripta Math. 134 (2011), 377-403.
- [10] A note on n-axially symmetric harmonic maps minimizing the relaxed energy, J. Funct. Anal. 261 (2011), 3099-3117.
- [11] (With C. Mantegazza) A note on quasilinear parabolic equations on manifolds. Ann. Scuola Norm. Sup. Pisa Cl. Sci. (5) Vol XI (2012), 1-18.
- [12] (with A. Malchiodi) Critical points of the Moser-Trudinger functional on a disk, J. Eur. Math. Soc. (JEMS) 16 (2014), 893-908.

- [13] Conformal metrics on  $\mathbb{R}^{2m}$  with constant Q-curvature and large volume, *Ann. Inst. Henri Poincaré (C)*, 30 (2013), 969-982.
- [14] (with T. Jin, A. Maalaoui, J. Xiong) Existence and asymptotics for solutions of a non-local Q- curvature equation in dimension three, *Calc. Var. Partial Differential Equations* 52 (2015), 469-488.
- [15] (with A. Hyder) Conformal metrics on  $\mathbb{R}^{2m}$  with constant Q-curvature, prescribed volume and asymptotic behavior, *Discr. Cont. Dynamical Systems - A* 35 (2015), 283-299.
- [16] (with F. Da Lio, T. Rivière) Blow-up analysis of a nonlocal Liouville-type equation, *Analysis & PDE*. 8 no. 7 (2015), 1757-1805.
- [17] (with A. Maalaoui, A. Schikorra) Blow-up behaviour of a fractional Adams-Moser-Trudinger type inequality in odd dimension, *Comm. Partial Differential Equations* 41 (2016), 1593-1618.
- [18] (with S. Iula, A. Maalaoui), A fractional Moser-Trudinger type inequality in one dimension and its critical points, *Differential and Integral Equations* 29 (2016), 455-492.
- [19] Fractional Adams-Moser-Trudinger inequalities, *Nonlinear Analysis* 127 (2015) 263-278.
- [20] (with F. Da Lio), The nonlocal Liouville-type equation in  $\mathbb{R}$  and conformal immersions of the disk with boundary singularities, *Calc. Var. Partial Differential Equations* (2017), 56:152.
- [21] (with G. Mancini), The Moser-Trudinger inequality and its extremals on a disk via energy estimates, *Calc. Var. Partial Differential Equations* (2017), 56:94.
- [22] (with A. Hyder, S. Iula) Large blow-up sets for the prescribed Q-curvature equation in the Euclidean space, *Commun. Contemp. Math.* 20 (2018), 1750026 (19 pages).
- [23] (with A. Hyder) Gluing metrics with prescribed Q-curvature and different asymptotic behaviour in dimension 6, preprint (2018).
- [24] (with O. Druet, A. Malchiodi, P-D. Thizy) Multi-bumps analysis for Trudinger-Moser nonlinearities II- Existence of solutions of high energies, preprint (2018).
- [25] (with A. de la Torre, A. Hyder, Y. Sire), The non-local mean-field equation on an interval, *Commun. Contemp. Math.* (to appear).
- [26] (with A. Hyder, G. Mancini), Local and nonlocal singular Liouville equations in Euclidean spaces, preprint (2018).

## Conference proceedings

- [1] An application of Q-curvature to an embedding of critical type, *Oberwolfach Reports* 6 (2009). 1997-2000.
- [2] Recent results and open problems on conformal metrics on  $\mathbb{R}^n$  with constant Q-curvature, *Extended Conference Abstracts*, Spring 2013, CRM Barcelona.

[3] (with F. Da Lio, T. Rivière), The fractional Liouville equation in dimension 1 Geometry, Compactness and quantization, RIMS Proceedings, Kyoto 2017.

## BORSE DI STUDIO E RESEARCH GRANTS

10/2000 - 09/2004 Borsa della Scuola Normale Superiore di Pisa (posizione ottenuta: 6°)

10/2000 – 09/2004 Borsa INDAM (posizione ottenuta: 2°)

09/2004 – 08/2007 Stanford Graduate Fellowship

10/2005 – 09/2006 Scholarship of the Zurich Graduate School of Mathematics (25'000 CHF)

04/2008 – 09/2009 ETH Research grant “TH” no. ETH-02 08-2 (90'000 CHF)

02/2010 – 01/2011 Swiss National Foundation fellowship for prospective researchers PBEZP2-129520 (42'000 CHF).

07/2013 - 06/2017 Swiss National Foundation Professorship (1'411'031 CHF)

07/2017 - 06/2019 Swiss National Foundation Professorship – extended (546'387 CHF)

## EVENTI ORGANIZZATI

— June 10-14 2014: Conference “Recent advances in non-local and non-linear analysis: theory and applications”, organized with Francesca Da Lio, Rafe Mazzeo, Tristan Rivière at FIM, ETH Zurich.

— June 22-26 2014 and July 14-18 2014: Summer school on Geometric Measure Theory and Geometric Analysis, organized with Camillo De Lellis and Gianluca Crippa at the University of Basel.

— December 15-17 2014: Workshop “Nonlocal days” on non-local equations, organized with Enno Lenzmann and Tristan Rivière at the University of Basel.

## SEMINARI

23/10/2007 – ETH Zurich, weekly seminar of the Analysis group.

25/05/2009 – Cergy-Pontoise, conference “Geometric and nonlinear analysis”.

11/06/2009 – Centro De Giorgi, Scuola Normale Superiore di Pisa, research period “Geometric Flows and Geometric Operators”.

01/07/2009 – Centro De Giorgi, Scuola Normale Superiore di Pisa, workshop “Geometric Flows and Geometric Operators”.

04/08/2009 – Mathematisches Forschungsinstitut Oberwolfach, workshop "Partielle Differentialgleichungen".

17/09/2009 – Freie Universität Berlin, workshop "Variational Problems of Higher Order in Geometry".

04/11/2009 – Pisa, weekly seminar of Calculus of Variations.

05/05/2010 – SISSA, weekly seminar of the Functional Analysis group.

15/12/2010 – Pisa, weekly seminar of Calculus of Variations.

09/02/2011 – MIT (Boston), weekly geometry seminar.

11/02/2011 – MIT (Boston), mini-course on concentration-compactness.

16/02/2011 – Rutgers University (New Jersey), weekly non-linear analysis seminar.

18/02/2011 – Princeton University (New Jersey), weekly geometry seminar.

24/02/2011 – Columbia University (New York), weekly geometry seminar.

19-20/05/2011 – Rencontre de Mathématique, Université de Lyon, 4-hour mini-course.

02/06/2011 – SISSA (Trieste), conference "Higher order operators in geometry and physics".

29/11/2011 – Rutgers University (NJ), weekly non-linear analysis seminar.

23/05/2012 – Universität Basel, weekly analysis seminar.

25/05/2012 – EPF Lausanne, weekly analysis seminar.

29/05/2012 – ETH Zurich, weekly analysis seminar.

14/06/2012 – Hausdorff Center, Bonn, weekly analysis seminar.

18/10/2012 – City University of New York, weekly analysis seminar.

05/02/2013 – University of Pennsylvania, weekly analysis seminar.

15/04/2013 – John Hopkins University, Baltimore, weekly analysis seminar.

30/04/2013 – Rutgers University, weekly nonlinear analysis seminar.

04/07/2013 – CRM Barcelona, conference "Geometric analysis".

08/10/2013 – University of Rome - Tor Vergata.

03/02/2014 – University of Tuebingen, colloquium.

13/01/2015 – TIFR Bangalore, colloquium.

24/02/2015 – University of Lyon, analysis seminar.

27/04/2015 – University of Bern, colloquium.

14/07/2015 – Scuola Normale Superiore di Pisa.

13/08/2015 – Pontificia Universidade Catholica, Rio de Janeiro.

10/11/2015 – University of Nancy, weekly analysis seminar.

01/12/2015 – ETH Zurich, weekly analysis seminar.

18/05/2016 – Fields institute, Conference “Qualitative Aspects of the Theory of Nonlocal Equations”

23/06/2016 – University of Konstanz, Oberseminar.

Mittag-Leffler Institute, Conference “Geometric and Physical aspects of Trudinger-Moser type inequalities”.

20/12/2016 -- Università di Milano.

17/01/2017 -- University of Frankfurt, weekly analysis seminar

18/01/2017 -- University of Giessen, weekly analysis seminar

23/01/2017 -- University of Salzburg, weekly analysis seminar

16/02/2017 -- Scuola Normale Superiore di Pisa, weekly analysis seminar

06/03/2017 -- University of Cergy-Pontoise, analysis seminar

09/03/2017 -- University of Pau, analysis seminar

07/06/2017 -- RIMS Kyoto, conference “Analysis on Shapes of Solutions to Partial Differential Equations”

10/06/2017 -- Osaka City University, “37th South Osaka Applied Mathematics Seminar”

03/04/2018 -- Birs workshop “Physical, Geometrical and Analytical Aspects of Mean Field Systems of Liouville Type”

10/04/2018 -- UBC Vancouver.

01/05/2018 -- Rutgers, Nonlinear analysis seminar.

02/05/2018 -- CUNY, Nonlinear Analysis and PDEs seminar.

03/05/2018 -- Princeton, Special seminar in geometric analysis.

22/05/2018 -- University of Copenhagen, Copenhagen-Lund Lectures.

23/05/2018 -- University of Pisa.

24/09/2018 -- University of Cagliari

09/10/2018 -- University of Lyon

31/10/2018 -- University of Ferrara

06/11/2018 -- ETH Zurich, Analysis seminar

15/11/2018 -- University of Bologna

22/11/2018 -- University of Rome La Sapienza.

## STUDENTI DI DOTTORATO E POSTDOC

— Ali Hyder, from TIFR Bangalore (PhD student 07/2013-06/2017)

— Stefano Iula, from Universit`a di Roma, La Sapienza (PhD student 07/2013-06/2017)

— Dr. Ali Maalaoui, From Rutgers university (Postdoc 07/2013-06/2014)

— Dr. Armin Schikorra, from MPI Leipzig (Postdoc 07/2014-01/2015)

— Dr. Gabriele Mancini, from SISSA (Postdoc since 10/2015)

— Dr. Federica Sani, from Universit`a di Milano (Postdoc 08/2016-11/2016)

— Dr. Azahara de la Torre Pedraza, from UPC Barcelona (Postdoc 01/2017-03/2018)

— Dr. Luca Battaglia, from Universita` di Roma La Sapienza (Postdoc 06/2017-07/2017)

— Dr. Cheikh Ndiaye, from University of Giessen (Postdoc 03/2017-09/2017)

## DIDATTICA

Presso l'ETH Zurich (2005-2009) ho organizzato e diretto i seguenti gruppi di esercizi:

1. Partial differential equations (Prof. Farkas)
2. Differential geometry (Prof. Christodoulou)
3. PDEs in Differential geometry (Prof. Salamon)
4. Functional analysis I and II (Prof. Struwe)
5. Analysis I/II (Prof. Lang)
6. Mathematics II (Prof. Thurnheer)

A Rutgers ho tenuto i seguenti corsi:

1. Calculus (Fall 2011)
2. Multivariable Calculus (Fall 2011)
3. Advanced Calculus for Engineering (Spring 2012)
4. Calculus (Fall 2012)
5. Ordinary differential equations (Spring 2013)

All'università di Basilea ho tenuto i seguenti corsi:

1. Proseminar (Fall 2014)
2. Differential geometry (Spring 2015)
3. Probability (Spring 2016)
4. Calculus of Variations (Spring 2017)

Presso la PUC-Rio nel 2016 ho tenuto un corso di regolarità ellittica.

All'università di Padova ho tenuto i seguenti corsi:

1. Analysis 1 (Fall 2017)
2. Analisi Superiore 1 (with Giovanni Colombo) (Fall 2017)
3. Analysis 1 (Fall 2018)
4. Complements of Analysis – @ Scuola Galileiana (Fall 2018)
5. Calculus of Variations (Spring 2019)

Data

19/03/2019

Luogo

Padova