

Marco Moraschini

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Personal Data

Name **Marco**.
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Place of Birth **Milan (MI)**.
Date of Birth **January 21, 1991**.
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Working Address **Fakultät für Mathematik, Universität Regensburg, 93040 Regensburg, Office M310.**

Positions and Titles

01/01/2019 **Postdoctoral researcher**, *University of Regensburg*, Funded by SFB Higher Invariants
31/12/2021 1085, Mentor Prof. Dr. Clara Löh.
2016-2019 **Cultore della Materia of Differential Geometry and Topology**, *Qualified as an expert in that subject - Teaching assistant*, Università di Pisa, Pisa.

Education

01/11/2015 **Ph.D. in Mathematics**, *Università di Pisa*, Pisa, Ottimo cum Laude.
06/12/2018
Title of the thesis *On Gromov's theory of multicomplexes: the original approach to bounded cohomology and simplicial volume*
DOI <https://doi.org/10.13131/unipi/etd/11242018-182437>
Advisor Prof. Roberto Frigerio
08/10/2013 **Master Degree**, *Università degli Studi di Milano-Bicocca*, Milano, 110/110 cum
23/07/2015 Laude.
Title of the thesis *Topological complexity and applications*
Advisor Prof. Davide Luigi Ferrario
Co-Advisor Prof. Aniceto Murillo
24/08/2010 **Bachelor Degree**, *Università degli Studi di Milano-Bicocca*, Milano, 110/110 cum
15/10/2013 Laude.
Title of the thesis *Weak Convergence and Wiener Measure*
Advisor Prof. Francesco Caravenna

Research

Research interests

- **Simplicial volume and bounded cohomology.**
- **Low dimensional topology and hyperbolic geometry.**
- **Geometric group theory.**
- **Homotopy theory.**

Preprints (submitted)

- (8) **M. Moraschini, A. Savini**, Multiplicative constants and maximal measurable cocycles in bounded cohomology, <https://arxiv.org/abs/1912.09731>.
- (7) **D. Fauser, C. Löh, M. Moraschini, J. P. Quintanilha**, Stable integral simplicial volume of 3-manifolds, <https://arxiv.org/abs/1910.06120.pdf>.
- (6) **M. Moraschini, A. Savini**, A Matsumoto-Mostow result for Zimmer's cocycle of hyperbolic lattices, <https://arxiv.org/abs/1909.00846.pdf>.

Publications

- (5) **C. Löh, M. Moraschini**, Simplicial volume via normalised cycles, To appear in **Proceedings of the American Mathematical Society**, <https://doi.org/10.1090/proc/15201>.
- (4) **R. Frigerio, M. Moraschini**, Gromov's theory of multicomplexes with applications to bounded cohomology and simplicial volume, To appear in **Memoirs of the American Mathematical Society**, <https://arxiv.org/abs/1808.07307.pdf>.
- (3) **R. Frigerio, M. Moraschini**, Ideal simplicial volumes of manifolds with boundary, To appear in **International Mathematics Research Notices (IMRN)**, <https://doi.org/10.1093/imrn/rny302>.
- (2) **R. Frigerio, M. Moraschini**, On volumes of truncated tetrahedra with constrained edge lengths, **Periodica Mathematica Hungarica**, 79 (1) (2019) pp. 32-49. <https://link.springer.com/article/10.1007/s10998-018-00277-8>
- (1) **M. Moraschini, A. Murillo**, Abstract sectional category in model structures on topological spaces, **Topology and its Applications**, 199 (2016), pp. 23-31. <https://www.sciencedirect.com/science/article/pii/S0166864115005179>

Reports

- (1) **M. Moraschini**, Stable integral simplicial volume of 3-manifolds, **Oberwolfach Reports**, 7/2020. <https://publications.mfo.de/handle/mfo/3714>

Forthcoming talks

- 16-19/02/2021 **TBA, Invited speaker**, Real and complex manifolds. The mathematical heritage of Edoardo Vesentini, Scuola Normale Superiore. Pisa
- 6/10/2020 **Stable integral simplicial volume**, *Trends in Low-Dimensional Topology*, Virtual seminar organized by mathematicians from Rutgers University, Georgia Tech, North Carolina State University, Duke University, MIT. Boston

- 29/02/2020 **Stable integral simplicial volume of 3-manifolds**, *Invited speaker*, Workshop Pisa 2020: varietà reali e complesse: geometria, topologia ed analisi armonica, Scuola Normale Superiore.
(Cancelled because of COVID-19)
- [Talks](#)
- 07/05/2020 **Simplicial volume via normalised cycles**, *LKS Seminar*, Universität Regensburg, Regensburg (Online seminar).
- 14/02/2020 **Stable integral simplicial volume of 3-manifolds**, *Invited speaker*, Manifolds and Oberwolfach groups, MFO (Mathematisches Forschungsinstitut Oberwolfach).
- 27/01/2020 **Volumen simplicial entero estable de 3-variedades**, *Invited speaker to the ses-*
31/01/2020 *sion: Topology*, V Congreso de Jóvenes Investigadores de la RSME, Universitat Jaume Castellón de la Plana I.
- 12/12/2019 **Stable integral simplicial volume of 3-manifolds**, *AG Topologie Seminars*, KIT Karlsruhe (Karlsruher Institut für Technologie).
- 6/12/2019 **Stable integral simplicial volume of 3-manifolds**, *Invited speaker*, Bavarian Ausburg Geometry and Topology Meeting VI, Universität Ausburg.
- 23/11/2019 **On Gromov's theory of multicomplexes: the original approach to bounded Pisa cohomology and simplicial volume**, *Invited speaker as the winner of the prize "Best PhD Thesis"*, PhD Talent 2019, Lightning talk.
- 01/08/2019 **Ideal simplicial volume of manifolds with boundary**, *Invited speaker*, Workshop Heidelberg on Bounded Cohomology, Universität Heidelberg.
- 09/07/2019 **Simplicial volume of non-compact manifolds**, *BAD (Borsisti, Assegnisti, Dot-*
Bologna *torandi) Seminars*, Mathematical Department of Bologna.
- 03/06/2019 **Simplicial volume and amenable covers**, *Junior Geometry and Topology Seminar*, Warwick Warwick University.
- 15/04/2019 **Simplicial volume and amenable coverings**, *Colloquium of the Department of Milan Mathematics*, Mathematical Department of Milano-Bicocca.
- 08/04/2019 **Gromov's theory of multicomplexes with applications to closed manifolds**, Karlsruhe *Invited speaker*, Workshop: Riemannian and Simplicial Volume, KIT (Karlsruher Institut für Technologie).
- 05/02/2019 **Simplicial volume and amenable coverings**, *SFB-Lectures*, Universität Regensburg Regensburg.
- 22/11/2018 **Why do we care about multicomplexes?**, *Baby Geometri Seminars*, Mathematical Pisa Department of Pisa.
- 18/10/2018 **Una introducción al volumen simplicial ideal**, *VII Encuentro des Jóvenes Barcelona Topólog@s*, CRM de Barcelona.
- 17/09/2018 **An introduction to ideal simplicial volume**, *Invited speaker to the session: Ge-*
Wrocław *ometric Topology, Manifolds, and Group Actions*, Joint meeting of the Italian Mathematical Union, the Italian Society of Industrial and Applied Mathematics and the Polish Mathematical Society, University of Wrocław.
- 23/05/2018 **An introduction to ideal simplicial volume**, *Oberseminar Globale Analysis*, Uni- Regensburg versität Regensburg.

- 18/05/2018 **An introduction to ideal simplicial volume**, *AG Topologie Seminars*, KIT (Karlsruher Institut für Technologie).
- 17/05/2018 **An introduction to simplicial volume**, *Geometry graduate colloquium*, ETH Zürich.
- 11/04/2018 **An introduction to ideal simplicial volume**, *Seminari di Geometria*, Mathematical Department of Pisa.
- 02/03/2018 **Simplicial volume: when volume becomes a topological invariant**, *Insalate di Matematica*, Mathematical Department of Milano-Bicocca.
- 04/12/2017 **Lecture on mathematical good manners: the Gromov Norm**, *BAD (Borsisti, Assegnisti, Dottorandi) Seminars*, Mathematical Department of Bologna.
- 20/10/2016 **Categoría seccional abstracta en diferentes estructuras de modelo sobre los espacios topológicos**, *V Encuentro de Jóvenes Topólogos*.
- 02/12/2015 **Topological invariants in model categories**, *Baby Geometri Seminars*, Mathematical Department of Pisa.
- 25/06/2015 **On abstract topological complexity in model categories over topological spaces**, *InSeGTo (Interesantísimo Seminario de Geometría y Topología)*, Mathematical Department of Málaga.
- [Poster sessions and lightening talks](#)
- 09/09/2019 **Multicomplexes, bounded cohomology and simplicial volume**, *Of coarse! Quasi-isometries and groups: rigidity and classification*, Centro Polivalente, Lightening talk.
- 02/07/2019 **Simplicial volume**, *Young Geometric Group Theory VIII*, Facultad de Economía y Empresa (Campus Sarriko de la UPV/EHU), Lightening talk.
- 19/10/2018 **Volumen simplicial ideal**, *XXV Encuentro de Topología*, Poster.
- 12/03/2018 **Ideal simplicial volume**, *Young Geometric Group Theory VII*, Congress Center, Les Diablerets, Poster.
- 1-3/02/2018 **Ideal simplicial volume**, *Workshop 2018, Varietà reali e complesse: geometria, topologia e analisi armonica*, Scuola Normale Superiore, Poster.
- 11/09/2017 **Ideal simplicial volume**, *Ventotene International Workshop 2017: Moduli Spaces*, Poster.
- 21/10/2016 **El volumen simplicial: una introducción**, *XXIII Encuentro de Topología*, Poster.

Teaching

- Winter Semester 2019/2020 **Lecturer**, *Bounded cohomology and simplicial volume*, Master course at the Faculty of Mathematics (Regensburg), 6 ECTS.
- Academic Year 2016/2017 **Teaching Support**, *Istituzioni di Geometria (Differential Geometry)*, Mathematics, Pisa.
Second Semester
- 2017/2018 **Examination Board - Cultore della Materia**, *Geometry and Differential Topology*, Mathematics, Pisa.

Academic Year **Teaching Support**, *Geometry I*, Physics, Pisa.
2016/2017
Second
Semester

Academic Year **Teaching Support**, *Geometry I*, Physics, Pisa.
2016/2017
First Semester

2016/2017 **Examination Board - Cultore della Materia**, *Geometry and Differential Topology*,
Mathematics, Pisa.

Research visiting period

24/02/2020 - **Research period at Univeristà di Pisa (Prof. R. Frigerio).**
29/12/2020
Pisa

10/12/2019 - **Reserach period at Karlsruher Instut für Technologie (Prof. R. Sauer).**
13/12/2019
Karlsruhe

09/07/2019 - **Research period at Università degli studi di Bologna (PhD A. Savini).**
12/07/2019
Bologna

14/10/2015 - **Research period at Università di Málaga (Prof. A. Murillo).**
23/10/2015
Málaga

25/02/2015 - **Studying period for writing the master thesis funded by the Extra project (Uni-**
05/07/2015 **versità degli studi di Milano-Bicocca, Università di Málaga (Prof. A. Murillo).**
Málaga

Organizational experience

21/09/2020 - **Virtual workshop on Simplicial volumes and bounded cohomology, Universität**
25/09/2020 *Regensburg*, Co-organizers: Caterina Campagnolo, Clara Löh e Roberto Frigerio.

Summer **International young seminar on bounded cohomology and simplicial volume,**
semester 2020 *Online seminars on Zoom*, Co-organizer: Caterina Campagnolo (ENS-Lyon), https://homepages.uni-regensburg.de/~mom33723/IYSBC_SV.html.

01/10/2016 **Co-organizers of Seminari dei Baby Geometri, Università di Pisa, [http://](http://people.dm.unipi.it/babygeometri/)**
31/10/2018 people.dm.unipi.it/babygeometri/.

Projects

01/01/2019 - **Member of SFB Higher Invariants 1085, Founded by DFG, (Regensburg).**
present

01/01/2016 - **Member of GNSAGA, Founded by Indam, (Italy).**
present

Prizes

23/11/2019 **PhD thesis prize**, *One of the best two PhD thesis in Mathematics, Physics, Informatics and Earth Science defended during the academic year 2018/2019 at the University of Pisa.*

Grants

9 - 15/02/2020 **Oberwolfach Leibniz Graduate Students (OWLG)**, *Grant for graduate students and recent postdocs (up to an amount of 200 euros for travel costs).*

Scholarships and Contracts

01/01/2019 - 31/12/2021 **3-years postdoc funded by the project SFB Higher Invariants 1085**, *Universität Regensburg.*

01/01/2015 - 31/10/2018 **Ph.D. Scholarship**, *Università di Pisa.*

16/04/2018 - 30/06/2018 **Teaching Support**, *Istituzioni di Geometria (Differential Geometry)*, Mathematics, Pisa.

01/06/2017 - 30/09/2017 **Teaching Support**, *Geometry I*, Physics, Pisa.

20/10/2016 - 20/12/2016 **Teaching Support**, *Geometry I*, Physics, Pisa.

2015 **Scholarship for writing the master thesis abroad**, *Extra Project*, Università degli studi di Milano-Bicocca.

Workshops, Conferences and Schools attended

10/02/2020 - 14/02/2020 **Manifolds and groups**, *MFO (Mathematisches Forschungsinstitut Oberwolfach)*, Oberwolfach (Germany).

27/01/2020 - 31/01/20 **V Congreso de Jóvenes Investigadores de la RSME**, *Universitat Jaume I*, Castellon de la Plana (Spain).

05/12/2019 - 06/12/2019 **Bavarian Geometry and Topology Meeting VI**, *Universität Augsburg*, Augsburg (Germany).

09/09/2019 - 14/09/2019 **Of course! Quasi-isometries and groups: rigidity and classification**, *Centro Polivalente*, Venototene (Italy).

29/07/2019 - 02/08/2019 **Workshop on Bounded Cohomology**, *Mathematikon Heidelberg*, Heidelberg (Germany).

31/06/2019 - 05/07/2019 **Young Geometric Group Theory VIII**, *Facultad de Economía y Empresa (Campus Sarriko de la UPV/EHU)*, Bilbao (Spain).

08/04/2019 - 11/04/2019 **Workshop: Riemannian and simplicial volume**, *KIT*, Karlsruhe (Germany).

21/02/2019 - 23/02/2019 **Workshop su varietà reali e complesse: geometria, topologia e analisi complessa**, *SNS Pisa*, Pisa (Italy).

22/01/2019 - 25/01/2019 **Groups, geometries and spaces in honour of Alessandra Iozzi**, *ETH Zürich*, Zürich (Switzerland).

- 19/10/2018 **XXV Encuentro de Topología**, *Institut d'Estudis Catalans*, Barcelona (Spain).
20/10/2018
- 16/10/2018 **VII Encuentro des Jóvenes Topólogos**, *CRM de Barcelona*.
18/10/2018
Barcelona
- 17/09/2018 **Joint meeting of the Italian Mathematical Union, the Italian Society of Industrial and Applied Mathematics and the Polish Mathematical Society**, *University of Wrocław*.
20/09/2018
Wrocław
- 02/07/2018 **Representation varieties and geometric structures in low dimensions**, *Mathematics Institute, Warwick University*, Coventry (U.K.).
06/07/2018
- 03/03/2018 **Topological and Homological Methods in Group Theory**, *Faculty of Mathematics, Bielefeld University*, Bielefeld (Germany).
06/03/2018
- 12/03/2018 **Young Geometric Group Theory VII**, *Congress Center*, Les Diablerets
16/03/2018 (Switzerland).
- 1/02/2018 **Workshop 2018, Varietà reali e complesse: geometria, topologia e analisi armonica**, *Scuola Normale Superiore*, Pisa (Italy).
3/02/2018
- 25/09/2017 **Higher Invariants: Manifolds and Groups**, *Universität Regensburg*, Regensburg
29/09/2017 (Germany).
- 11/09/2017 **Ventotene International Workshop 2017: Moduli Spaces**, *Centro Polivalente*,
16/09/2017 Venototene (Italy).
- 19/06/2017 **Group Actions and Cohomology in Non-Positive Curvature**, *Isaac Newton Institute*,
24/06/2017 Cambridge (U.K.).
- 04/06/2017 **Indam Meeting: Geometric Topology in Cortona**, *Palazzone*, Cortona (Italy).
10/06/2017
- 20/03/2017 **Young Geometric Group Theory Meeting VI**, *Mathematical Institute*, Oxford
24/03/2017 (U.K.).
- 21/10/2016 **XXIII Encuentro de Topología**, *Universidad de Málaga*, Málaga (Spain).
22/10/2016
- 18/10/2016 **V Encuentro de Jóvenes Topólogos Espanoles**, *Universidad de Málaga*, Málaga
20/10/2016 (Spain).
- 20/06/2016 **Geometric Analysis, Metric Geometry and Topology**, *Institut Fourier*, Grenoble
01/07/2016 (France).
- 23/05/2016 **Advanced School on Geometric Group Theory and Low-Dimensional Topology: Recent Connections and Advances**, *ICTP*, Trieste (Italy).
03/06/2016
- 29/06/2015 **4th Spanish Young Topologists Meeting**, *Universidad Complutense*, Madrid
02/07/2015 (Spain).

Languages

- Italian Native Speaker
- English *ETS - Toeic Listening and Reading* (B2 Level) Total score 830/990, Listening 405/495 and Reading 425/495 (06/11/2014)
- French *Diplôme d'études en langue française (DELF)* (B1 Level) (22/06/2009); École de langues "Langue Onze Toulouse" (B2 Level) (30/07/2012 - 10/07/2012)
- Spanish B2 Level
- German A1 Level

Mathematical software

Basic knowledge in programming with SageMath and MatLab