

Personal Information

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Education

09/2009 - 06/2012 **Bachelor Degree in Mathematics**
Institution: Alma Mater Studiorum, University of Bologna.
09/2012 - 07/2014 **Master Degree in Mathematics**
Institution: Alma Mater Studiorum, University of Bologna.
10/2014 - 05/2018 **Ph.D. in Mathematics**
Institution: Alma Mater Studiorum, University of Bologna.
Supervisor: Prof. Stefano Francaviglia.
Thesis: *Numerical invariants and volume rigidity for hyperbolic lattices.*

Visiting period

02/2016 - 06/2016 **Institution: ETH, Zurich.**
Supervisor: Prof. Alessandra Iozzi and Prof. Marc Burger.
10/2019 **Institution: University of Regensburg**
Collaboration with Dr. Marco Moraschini.
11/2019 **Institution: University of Geneva**
Collaboration with Prof. Michelle Bucher.
01/2020 **Institution: University of Heidelberg**
Invited by Prof. Maria Beatrice Pozzetti.
05/2023 **Institution: University of Geneva**
Collaboration with Prof. Michelle Bucher.

Scientific career

02/2018-08/2018 **Scientific assistant**
Institution: ETH, Zurich.
09/2018-12/2018 **Senior scientific employee**
Institution: ETH, Zurich.
06/2019-08/2020 **PostDoc position**
Institution: Alma Mater Studiorum, University of Bologna.
09/2020-02/2023 **PostDoc position**
Institution: University of Geneva.
06/2023-09/2024 **Assistant Professor (Researcher of type A)**
Institution: Polytechnic University of Milano
10/2024-now **Associate Professor**
Institution: University of Milano Bicocca

Member of scientific projects/Grants/Awards

- 06/2019-08/2020 **Participant of PRIN**
Title project: *Real and complex manifolds: Topology, Geometry and Dynamics*.
Grant number: 2017JZ2SW5.
Institution of realization: University of Bologna.
- 09/2020-02/2023 **Participant of SNSF**
Title project: The topology and geometry of manifolds.
Grant number: 200020-192216.
Institution of realization: University of Geneva.

Teaching activities

Teaching assistant

- 02/2014 - 06/2014 **Topologia Algebrica 1**
Institution: Alma Mater Studiorum, University of Bologna.
Amount of hours: 10h.
- 09/2014 - 09/2015 **Geometria e Algebra T**
09/2015 - 09/2016 Institution: Alma Mater Studiorum, University of Bologna.
Amount of hours: 30h.
- 09/2016 - 12/2016 **Algebra 2**
Institution: Alma Mater Studiorum, University of Bologna.
Amount of hours: 12 h.
- 02/2018 - 06/2018 **Topology**
Institution: ETH.
Amount of hours: 24 h.
- 09/2020 - 12/2020 **Statistique et Methodologie Pharmaceutique**
Institution: University of Geneva.
Amount of hours: 24h.
- 02/2021 - 06/2021 **Geometrie 1**
02/2022 - 06/2022 Institution: University of Geneva.
Amount of hours: 24h.
- 02/2021 - 06/2021 **Les Mathematiques de John Conway**
Institution: University of Geneva.
Amount of hours: 12 h.
- 09/2021 - 12/2021 **Mathematiques generales**
Institution: University of Geneva.
Amount of hours: 24h.
- 09/2022 - 12/2022 **Nombres p-adiques et groupes p-adiques**
Institution: University of Geneva.
Amount of hours: 24h.
- 09/2022 - 12/2022 **Introduction to hyperplanes arrangements**
Institution: University of Geneva.
Amount of hours: 24h.
- 02/2024 - 06/2024 **Algebra Lineare e Geometria**
Institution: Politecnico di Milano.
Amount of hours: 30h.
- 10/2024 - 01/2025 **Algebra Lineare e Geometria**
Institution: University of Milano-Bicocca.
Amount of hours: 24h.

Teacher

- 09/2018 - 12/2018 **Introduction to Lie groups**
Institution: ETH.
Amount of hours: 24h.

- 09/2018 - 12/2018 **Proofs from the book**
Institution: ETH.
Amount of hours: 24h.
- 02/2020 - 04/2020 **Introduction to Lie groups (Ph.D. course)**
Institution: Alma Mater Studiorum, University of Bologna.
Amount of hours: 30h.
- 09/2021 - 12/2021 **Coordinator of the master students seminar "Geometry, groups and combinatorics"**
Institution: University of Geneva.
Amount of hours: 12h.
- 09/2023 - 12/2023 **Geometria e Algebra Lineare**
Institution: Politecnico di Milano.
Amount of hours: 48h.
- 10/2024 - 01/2025 **Geometria III**
Institution: University of Milano-Bicocca.
Amount of hours: 48h
- 03/2025 - 06/2025 **Geometria e Algebra Lineare**
Institution: University of Milano-Bicocca.
Amount of hours: 48h

Supervision activities

Co-supervisor of Bachelor degree thesis

Student: Emanuele Partenza.
Institution: University of Bologna.
Title of the thesis: *Topology of matrices groups.*

Co-supervisor of Ph.D. student

Student: Filippo Sarti.
Institution: University of Bologna.
Title of the thesis: *Numerical invariants for measurable cocycles*

Scientific activities

Organizer of Ph.D. students seminars

Institution: Alma Mater Studiorum, University of Bologna.
2016-2018

Member of Indam GNSAGA

2014-now

Reviewer for Zentralblatt, AMS

20 reviews

Referee

Journals: *Proc. Lond. Mat. Soc.*, *Topology Appl.*, *Ergodic Theory Dynam. Systems*

Language Skills

Italian	Mothertongue
English	C1
French	B2

Computer Skills

Office Tool	Good knowledge of Excel, PowerPoint, Word, Outlook
Matlab, Sagemath	Excellent User
R, Python, Html	Moderate User

Selected Talks

- 2018 *Rigidity of real hyperbolic lattices: a natural approach*, Baby geometry seminar, University of Pisa.
- 2018 *Rigidity at infinity of real hyperbolic lattices*, Geometry graduate colloquium, ETH.
- 2019 *Volume of measurable cocycles of real hyperbolic lattices*, Oberserminar, University of Regensburg.
- 2019 *Borel invariant of measurable cocycle of 3-manifold groups*, Seminaire Geometrie et Groupes, University of Geneva.
- 2019 *Euler number of measurable cocycles of surface groups*, Topics in Mathematics, University of Bologna.
- 2020 *A Mostow rigidity result for measurable cocycles of hyperbolic lattices*, University of Heidelberg.
- 2020 *Cartan invariant for measurable cocycles*, KIT, Zoom Online Seminar.
- 2020 *Incidence geometry and maximal measurable cocycles of complex hyperbolic lattices*, Seminaire Geometrie et Groupes, University of Geneva.
- 2021 *Continuous bounded cohomology, representations and multiplicative constants*, International Young Seminar on Simplicial Volume and Bounded Cohomology, Zoom Online.
- 2022 *Superrigidity for virtual actions of complex hyperbolic lattices*, Seminar of Geometry and Spectral Theory, Institute Fourier, Grenoble.
- 2022 *Sur la cohomologie mesurable des groupes de Lie*, Seminaire Geometrie et Groupes, University of Geneva.
- 2023 *Some explicit cocycles on Furstenberg boundaries*, Seminario di Algebra e Geometria, University of Bologna.
- 2023 *Cohomology of semisimple Lie groups*, Bicocca University, Milano
- 2023 *Zariski density and Kahler rigidity*, International Young Seminar on Simplicial Volume and Bounded Cohomology, Zoom Online.
- 2023 *Coomologia di gruppi di Lie*, Seminario informale di Algebra e Geometria, Politecnico di Milano.
- 2024 *Sulla coomologia di gruppi*, Seminar of the Department, University of Milano Bicocca.

Invited Talks at Conferences

- 09/2020 *Multiplicative constants and maximal measurable cocycles in bounded cohomology*, Virtual workshop: Simplicial Volumes and Bounded Cohomology
- 03/2023 *The mysterious ... punctured plane*, Manifolds and groups in Bologna

Attended Conferences/Workshop/School

- 05/2012 *ACAT, Applied and computational algebraic topology*, University of Bologna
- 06/2015 *CURVE, 2015*, University of Jussieu, Paris
- 07/2015 *Cohomology and large scale geometry*, University of Regensburg
- 09/2015 *Manifolds and groups*, Ventotene international workshop, Ventotene
- 02/2017 *Geometry, algebra and combinatorics of moduli spaces and configurations*
- 06/2017 *Geometric topology in Cortona*, Indam workshop, Cortona
- 07/2017 *Gear Junior Retreat*, University of Stanford, California
- 09/2017 *Moduli spaces*, Ventotene international workshop, Ventotene
- 02/2018 *Geometry, algebra and combinatorics of moduli spaces and configurations II*, Winter school, Dobbiaco

- 03/2018 *Young Geometric Group Theorists*, Les Diableretes
- 09/2022 *Recent advances in bounded cohomology and simplicial volume*, University of Regensburg
- 03/2023 *Manifolds and groups in Bologna*, University of Bologna
- 04/2024 *Manifolds and groups in Bologna*, University of Bologna

Research Interests

Rigidity at infinity of representations of lattices in semisimple Lie groups
 Numerical invariants and natural maps of measurable cocycles
 Parametrized class and orbital cohomology
 Virtual actions on dendrites
 Algebraic representability of virtual actions and trivialization
 Measurable cohomology of groups and groupoids
 Boundaries for ergodic groupoids

Published/Accepted Papers

- A. Savini, *The ω -Borel invariant of representations into $SL(n, \mathbb{C}_\omega)$* , Groups Geom. Dyn. **13** (2019), n. 3, 767–1131.
- A. Savini, *Rigidity at infinity for lattices in rank-one Lie groups*, J. Top. Anal. **12** (2020), n. 1, 113–130.
- S. Francaviglia, A. Savini, *Volume rigidity at ideal points of the character variety of hyperbolic 3-manifolds*, Ann. Sc. Norm. Super. Pisa Cl. Sci., Vol. XX (2020), 1325–1344, issue 4.
- A. Savini, *Entropy rigidity for foliations by strictly convex projective manifolds*, Pure Appl. Math. Q. **17** (2021), n. 1, 575–589
- A. Savini, *Algebraic hull of maximal measurable cocycles of surface groups into Hermitian Lie groups*, Geom. Dedicata **213** (2021), n. 1, 375–400
- A. Savini, *Equivariant maps for measurable cocycles with value into higher rank Lie groups*, Pacific J. Math. **312** (2021), n. 2, 505–525.
- F. Sarti, A. Savini, *Superrigidity of maximal measurable cocycles of complex hyperbolic lattices*, Math. Z. **300** (2022), n. 1, 421–433.
- A. Savini, *A note on the elementarity of virtual dendro-morphisms of higher rank lattices*, Proc. Amer. Math. Soc. **150** (2022), n. 11, 4995–5008.
- M. Moraschini, A. Savini, *Multiplicative constants and maximal measurable cocycles in bounded cohomology*, Ergodic Theory Dynam. Systems, **42** (2022), n. 11, 3490–3525
- M. Moraschini, A. Savini, *A Matsumoto-Mostow result for Zimmer’s cocycles of hyperbolic lattices*, Trans. Groups **27** (2022), n. 4, 1337–1392
- A. Savini, *Natural maps for measurable cocycles of compact hyperbolic manifolds*, J. Inst. Math. Jussieu **22** (2023), n. 1, 421–448
- A. Savini, *Rigidity at infinity for the Borel function of the tetrahedral reflection lattice*, Algeb. Geom. Top. **23** (2023), n. 4, 1583–1600
- F. Sarti, A. Savini, *Parametrized Kahler class and Zariski dense orbital 1-cohomology*, Math. Res. Lett. **30** (2023), n. 6, 1895–1929
- A. Savini, *Continuous bounded cohomology, representations and multiplicative constants*, in the collection *Bounded Cohomology and Simplicial Volume*, LMS Lecture Notes 49 (2023), Cambridge University Press, 108–117

- L. Battista, S. Francaviglia, M. Moraschini, F. Sarti, A. Savini, *Bounded cohomology of exact forms*, Proc. Amer. Math. Soc **152** (2024), n.1 , pp. 71–80
- A. Savini, *On trivializability of rank-one cocycle with an invariant field of projective measures*, Europ. J. Math. **10** (2024), n. 1, Paper n. 8
<https://doi.org/10.1007/s40879-023-00721-1>
- A. Savini, *Borel invariant for measurable cocycles of 3-manifold groups*, J. Top. Anal. **16** (2024), n. 3, 385–408
- A. Savini, *Orbital cohomology and Kahler rigidity*,
<https://arxiv.org/pdf/2209.09109>, to appear in Sémin. Théor. Spectr. Géom, University of Grenoble, 2023+

Submitted preprints

- F. Sarti, A. Savini, *Boundary maps and reducibility for cocycles into the isometry group of $CAT(0)$ -spaces*, <https://arxiv.org/abs/2005.10529>, submitted
- A. Savini, *Parametrized Euler class and semicohomology theory*,
<https://arxiv.org/pdf/2101.11971.pdf>, submitted
- M. Bucher, A. Savini, *Some explicit cocycles on the Furstenberg boundary for products of isometries of hyperbolic spaces and $SL(3, \mathbb{K})$* ,
<https://arxiv.org/pdf/2209.10331>, submitted
- F. Sarti, A. Savini, *Measurable bounded cohomology of measured groupoids*,
<https://arxiv.org/pdf/2304.07765>, submitted
- M. Bucher, A. Savini, *Alternating cochains on Furstenberg boundaries and measurable cohomology*, <https://arxiv.org/abs/2306.17294>, submitted
- M. Bucher, A. Savini, *Kernels in measurable cohomology of transitive actions*,
<https://arxiv.org/pdf/2308.13335>, submitted
- F. Sarti, A. Savini, *Boundaries and equivariant maps for ergodic groupoids*,
<https://arxiv.org/pdf/2402.15355>, submitted

Not published

- E. Manfredi, A. Savini, *Fibered knots and links in lens spaces*,
<https://arxiv.org/pdf/1502.03345.pdf>.
- A. Savini, *Asymptotically Moebius maps and rigidity for the hyperbolic plane*,
<https://arxiv.org/abs/1906.10563>.