Andrea Seppi

Curriculum Vitae

Nationality	**Italian**.
Birthdate	**15th April 1988**.
Birthplace	**Trieste, Italy**.
Marital status	**Married, one child**.

▬▬ Employment

Jan 2019 - **Chargé de Recherche CNRS**, *Université Grenoble Alpes (France)*, Institut Fourier.

Jan 2018 - **Post-Doc researcher**, *University of Luxembourg*, Mathematics Research Unit.
Dec 2018

Jan 2016 - **Post-Doc researcher**, *University of Pavia (Italy)*, Department of Mathematics and
Dec 2017 Statistics.

▬▬ Education and qualifications

Nov 2012 - **PhD in Mathematics**, *University of Pavia (Italy)*, Department of Mathematics.
Dec 2015 Thesis "Surfaces in constant curvature three-manifolds and the infinitesimal Teichmüller
Theory", advisor Prof. Francesco Bonsante

Oct 2010 - **Master in Mathematics**, *University of Trieste (Italy)*, Department of Mathematics
Oct 2012 and Statistics, grade 110/110 summa cum laude.
Thesis "Spherical orbifolds of dimension three", advisor Prof. Mattia Mecchia

Sep 2007 - **Bachelor in Mathematics**, *University of Trieste (Italy)*, Department of Mathematics
Oct 2010 and Statistics, grade 110/110 summa cum laude.
Thesis "The implications of the Axiom of Choice in Topology and Functional Analysis",
advisor Prof. Gino Tironi

Publications and preprints

Submitted articles

34. Andrea Seppi, Graham Smith, and Jérémy Toulisse. On complete maximal submanifolds in pseudo-hyperbolic space. *Preprint, ArXiv 2305.15103, 60 pages*, 2023

33. Oliviero Malech, Mattia Mecchia, and Andrea Seppi. The multiple fibration problem for seifert 3-orbifolds. *Preprint, ArXiv 2302.06443, 51 pages*, 2023

32. Francesco Bonsante, Andrea Seppi, and Peter Smillie. Completeness of convex entire surfaces in Minkowski 3-space. *Preprint, ArXiv 2207.10019, 53 pages*, 2022

Accepted articles

31. Filippo Mazzoli, Andrea Seppi, and Andrea Tamburelli. Para-hyperKähler geometry of the deformation space of maximal globally hyperbolic Anti-de Sitter three-manifolds. *To appear, Memoirs of the AMS, 111 pages*

30. Stefano Riolo and Andrea Seppi. Character varieties of a transitioning Coxeter 4-orbifold. *To appear, Groups, Geometry and Dynamics, 51 pages*

29. Francesco Bonsante, Andrea Seppi, and Peter Smillie. Complete CMC hypersurfaces in Minkowski $(n+1)$-space. *To appear, Communications in Analysis and Geometry, 31 pages*

Published articles

28. Diptaishik Choudhury, Filippo Mazzoli, and Andrea Seppi. Quasi-fuchsian manifolds close to the Fuchsian locus are foliated by CMC surfaces. *Math. Ann., DOI 10.1007/s00208-023-02625-7*, 2023

27. Xin Nie and Andrea Seppi. Affine deformations of quasi-divisible convex cones. *Proceedings of the London Mathematical Society, DOI 10.1112/plms.12537*, 2023

26. Xin Nie and Andrea Seppi. Hypersurfaces of constant Gauss-Kronecker curvature with Li-normalization in affine space. *Calculus of Variations and PDE*, 62(4), 2023

25. Christian El Emam and Andrea Seppi. On the Gauss map of equivariant immersions in hyperbolic space. *Journal of Topology*, 15(1):238–301, 2022

24. Christian El Emam and Andrea Seppi. Rigidity of minimal Lagrangian diffeomorphisms between spherical cone surfaces. *J. Éc. Polytech., Math.*, 9:581–600, 2022

23. Stefano Riolo and Andrea Seppi. Geometric transition from hyperbolic to anti-de Sitter structures in dimension four. *Ann. Sc. Norm. Super. Pisa, Cl. Sci. (5)*, 23(1):115–176, 2022

22. Xin Nie and Andrea Seppi. Regular domains and surfaces of constant Gaussian curvature in 3-dimensional affine space. *Anal. PDE*, 15(3):643–697, 2022

21. François Fillastre and Andrea Seppi. Generalization of a formula of Wolpert for balanced geodesic graphs on closed hyperbolic surfaces. *Annales Henri Lebesgue*, 3:873–899, 2020

20. Mattia Mecchia and Andrea Seppi. On the diffeomorphism type of Seifert fibred spherical 3-orbifolds. *Rend. Istit. Mat. Univ. Trieste*, 52:1–39, 2020

19. Andrea Seppi. Maximal surfaces in Anti-de Sitter space, width of convex hulls and quasiconformal extensions of quasisymmetric homeomorphisms. *Jour. Eur. Math. Soc. (JEMS)*, 21(6):1855–1913, 2019

18. Francesco Bonsante, Andrea Seppi, and Peter Smillie. Entire surfaces of constant curvature in Minkowski 3-space. *Math. Ann.*, 374(3-4):1261–1309, 2019

17. Francesco Bonsante and Andrea Seppi. Equivariant maps into Anti-de Sitter space and the symplectic geometry of $\mathbb{H}^2 \times \mathbb{H}^2$. *Trans. Amer. Math. Soc.*, 371(8):5433–5459, 2019

16. Mattia Mecchia and Andrea Seppi. Isometry groups and mapping class groups of spherical 3-orbifolds. *Math. Zeitschrift*, 292(1291-1314), 2019

15. Andrea Seppi. On the maximal dilatation of quasiconformal minimal Lagrangian extensions. *Geometriae Dedicata*, 203:25–52, 2019

14. Francesco Bonsante and Andrea Seppi. Area-preserving diffeomorphisms of the hyperbolic plane and *K*-surfaces in anti-de Sitter space. *J. Topol.*, 11(2):420–468, 2018

13. Andrea Seppi. The flux homomorphism on closed hyperbolic surfaces and Anti-de Sitter three-dimensional geometry. *Complex Manifolds*, 4(1):183–199, 2018

12. Francesco Bonsante, Andrea Seppi, and Andrea Tamburelli. On the volume of Anti-de Sitter maximal globally hyperbolic three-manifolds. *Geom. Funct. Anal. (GAFA)*, 27(5):1106–1160, 2017

11. Francesco Bonsante and Andrea Seppi. Spacelike convex surfaces with prescribed curvature in (2+1)-Minkowski space. *Adv. in Math.*, 304:434–493, 2017

10. Andrea Seppi. Minimal discs in hyperbolic space bounded by a quasicircle at infinity. *Comment. Math. Helv.*, 91(4):807–839, 2016

9. Francesco Bonsante and Andrea Seppi. On Codazzi tensors on a hyperbolic surface and flat Lorentzian geometry. *Int. Math. Res. Not. (IMRN)*, (2):343–417, 2016

8. Mattia Mecchia and Andrea Seppi. Fibered spherical 3-orbifolds. *Rev. Mat. Iberoam.*, 31(3):811–840, 2015

Proceedings

7. Andrea Seppi and Enrico Trebeschi. The half-space model for pseudo-hyperbolic space. *To appear in "Proceedings of the X International Meeting on Lorentzian Geometry", Springer Verlag*, 2021

6. François Fillastre and Andrea Seppi. A remark on one-harmonic maps from a Hadamard surface of pinched negative curvature to the hyperbolic plane. *Josai Mathematical Monographs*, 13:163–171, 2021

5. Andrea Seppi. Examples of geometric transition from dimension two to four. *Actes du séminaire Théorie Spectrale et Géométrie*, 35:163–196, 2017-2019

4. Andrea Seppi. Spacelike surfaces of constant Gaussian curvature in Lorentz-Minkowski space. In *Differential Geometry in Lorentz-Minkowski space (Rafael López Camino ed.)*, pages 143–167. EUG, Granada, 2017

Book chapters

3. Farid Diaf and Andrea Seppi. The Anti-de Sitter proof of Thurston's earthquake theorem. In *"In the tradition of Thurston" vol. 3 (K. Ohshika and A. Papadopoulos ed.)*. Springer Verlag, 2023

2. Francesco Bonsante and Andrea Seppi. Anti-de Sitter geometry and Teichmüller theory. In *"In the tradition of Thurston: Geometry and Topology" (K. Ohshika and A. Papadopoulos ed.)*, pages 545–643. Springer Verlag, 2020

1. François Fillastre and Andrea Seppi. Spherical, hyperbolic and other projective geometries: convexity, duality, transitions. In *Eighteen essays on non-Euclidean geometry (V. Albenge and A. Papadopoulos ed.)*. European Mathematical Society Publishing House, 2019

PhD thesis

0. Andrea Seppi. *Surfaces in constant curvature three-manifolds and the infinitesimal Teichmüller theory*. PhD thesis, Università degli Studi di Pavia, 2015. 244 pages

Teaching

Jan 2022 - Jun 2022	**Holomorphic dynamics in one complex variable**, *Bachelor in Mathematics*, ENS Lyon. Reading group (50h, French). Topics: Riemann surfaces, Julia and Fatou sets, introduction to holomorphic dynamics in several complex variables.
Sep 2019 - Dec 2019	**Topologie B**, *Bachelor in Mathematics*, Université Grenoble Alpes. Exercise sessions (70h, French). Topics: Topology, normed vector spaces, continuous functions, completeness.
Oct 2018 - Dec 2018	**Curve algebriche e superfici di Riemann**, *Master in Mathematics*, University of Pavia. Lectures (48h, Italian), final exams. Topics: Riemann surfaces, holomorphic maps, holomorphic embeddings in complex projective space, Riemann-Roch theorem, line bundles.
Sep 2018 - Dec 2018	**Analysis for Applications**, *Bachelor in Computer Science*, University of Luxembourg. Lectures (28h, English), final exams. Topics: Limits, continuity, derivatives, Taylor series.
Feb 2018 - Apr 2018	**Analyse 4b**, *Bachelor in Science and Engineering - Physics*, University of Luxembourg. Lectures (15h, French), final exams. Topics: Differential calculus, introduction to PDE, Fourier series and transform.
Oct 2017 - Jan 2018	**Geometria**, *Bachelor in Civil and Enviromental Engineering*, University of Pavia, Italy. Lectures (60h, Italian), final exams. Topics: Linear algebra and affine geometry.
Oct 2016 - Jan 2017	**Analisi 1**, *Bachelor in Civil and Enviromental Engineering*, University of Pavia, Italy. Teaching assistantship (16h, Italian). Topics: Differential and integral calculus, sequences and series, ordinary differential equations.
Sep 2016 - Jan 2017	**Analytical Mechanics**, *Double Degree of University of Pavia and Tonjii University of Shanghai*, University of Pavia, Italy. Teaching and exercise sessions (24h, English), final exams. Topics: Systems of ordinary differential equations, theory of curves in Euclidean space, Cosserat theory for cables, rods and shells.
Sep 2016 - Oct 2016	**Matematica Corso B**, *Bachelor in Biotechnology*, University of Pavia, Italy. Preparatory course (10h, Italian). Topics: Analytical geometry.

Oct 2015 - Dec 2015	**Matematica Corso B**, *Bachelor in Biotechnology*, University of Pavia, Italy. Teaching assistantship (20h, Italian). Topics: Differential and integral calculus, linear algebra, ordinary differential equations.
Sep 2015 - Nov 2015	**Analytical Mechanics**, *Double Degree of University of Pavia and Tonjii University* *of Shanghai*, University of Pavia, Italy. Teaching and exercise sessions (24h, English), final exams. Topics: Systems of ordinary differential equations, theory of curves in Euclidean space, Cosserat theory for cables, rods and shells.
May 2015 - Sep 2015	**Geometria e Algebra**, *Bachelor in Civil and Enviromental Engineering*, University of Pavia, Italy. Exercise sessions (25h, Italian). Topics: Linear algebra and affine geometry.
Oct 2014 - Dec 2014	**Matematica Corso B**, *Bachelor in Biotechnology*, University of Pavia, Italy. Teaching assistantship (15h, Italian). Topics: Differential and integral calculus, linear algebra, ordinary differential equations.
Oct 2013 - Dec 2013	**Geometria e Algebra**, *Bachelor in Civil and Enviromental Engineering*, University of Pavia, Italy. Exercise sessions (25h, Italian). Topics: Linear algebra and affine geometry.

Students supervision

PhD students

- Farid Diaf (from September 2021, Université Grenoble Alpes, co-supervised with Gérard Besson)
- Enrico Trebeschi (from September 2021, Università di Pavia, co-supervised with Francesco Bonsante)
- Diptaishik Choudhury (February 2019 - April 2022, University of Luxembourg and Université Grenoble Alpes, co-supervised with Greg McShane and Jean-Marc Schlenker)

Master

- Antoine Ablondi – *A differential approach to Weil-Petersson geometry* (ENS Lyon, 2023)
- Oliviero Malech – *The geometry of Seifert 3-orbifolds* (SISSA and University of Trieste, co-supervised with Mattia Mecchia, 2021)
- Enrico Trebeschi – *The half-space model of pseudo-hyperbolic space* (Università di Bologna, co-supervised with Stefano Francaviglia, 2021)
- Farid Diaf – *Anti-de Sitter proof of Thurston's earthquake theorem* (Université Paris Saclay, 2021)
- Mohamed Boukholkhal – *On moduli space of planar polygons and Morse theory* (Université Claude Bernard Lyon 1, 2021)

Bachelor

- Joseph Paoli – *Deux applications de la géométrie hyperbolique à la géométrie euclidienne* (ENS Lyon, 2021)
- Paulo José Portinha Rodrigues – *How to compute the sum of $1/n^2$ by solving triangles* (University of Luxembourg, 2018)
- Daniel Zuk – *Smooth billiards and the Poncelet Theorem* (University of Luxembourg, 2018)

Prizes and awards

Mar 2018   **Premio Mario Baldassarri 2017**.
National prize for a paper in algebra, geometry or number theory published under the age of 30.

Feb 2018   **Premio INDAM UMI SIMAI 2014-2017**.
National prize for best 4 PhD theses in Mathematics.

Dec 2016   **Premio Michele Cuozzo 2016**.
Prize issued by Università di Roma Tor Vergata for best national PhD thesis in Mathematics.

Mar 2014   **Premio Marco Reni 2010-2013**.
Prize issued for best Master's thesis in Mathematics defended at Università di Trieste.

Qualifications

Dec 2019   **Italian national habilitation for the role of full professor**.
Valid from 07/01/2020 to 07/01/2029.

Sep 2018   **Italian national habilitation for the role of associate professor**.
Valid from 18/09/2018 to 18/09/2027.

Grants

- ANR JCJC, project "GAPR: Geometry and Analysis in the Pseudo-Riemannian setting", PI, €175.900, 2022-2026
- ANR Tremplin ERC Starting Grant project "EMERGE: Espaces de déforMations dEs stRuctures GéométriquEs", PI, €113.500, 2023-2025
- Franco-American grant Thomas Jefferson, project "Deformations of geometric structures on higher-dimensional manifolds", co-PI (with Sara Maloni), $20.000, 2022-2024
- Initiatives de Recherche Stratégiques IRS (Université Grenoble Alpes), project "Geometric structures and Deformation Spaces", PI, €10.000, 2020-2021
- Franco-Swiss grant Germaine de Staël, project "DeGH: Deformations of geometric structures on higher-dimensional manifolds", co-PI (with Stefano Riolo), €6.674, 2020-2021
- PEPS JCJC, project "Geometric Structures and their Deformation Spaces", PI, €4.500, 2022
- Équipe-action grant (Université Grenoble Alpes), project "TOFU: Topologie Effective et Calcul", member (PIs Francis Lazarus and Greg McShane), €200.000, 2020-2023

Organization

- Co-organizer (with Luciano Mari and Giona Veronelli) of the workshops "(MGT)^2: Milan-Grenoble-Turin Meeting in Geometry and Topology": January 2023 in Grenoble, September 2023 in Turin
- Co-organizer (with Gérard Besson and Pierre Will) of the workshop "TSG seminar 40th birthday", Grenoble (France), May 2022
- Co-organizer (with Maria Beatrice Pozzetti and Jérémy Toulisse) of the workshop "Minimal surfaces and Labourie's conjecture", Autrans (France), August 2022
- Co-organizer (with Sara Maloni and Nicolas Tholozan) of the special session "Deformation spaces of geometric structures", joint meeting AMS-EMS-SMF, Grenoble (France), July 2022
- Co-organizer (with Fanny Kassel and Jérémy Toulisse) of the workshop "Dynamics of Anosov representations", Aussois (France), September 2021
- Co-organizer (with Francesco Bonsante and Gabriele Mondello) of the workshop "Higher

Teichmüller theory and related topics", Pavia (Italy), June 2019

- Since September 2019, organizer of the weekly seminar "Théorie Spectrale et Géométrie" at Institut Fourier, Grenoble.
- Since September 2020, co-organizer (with Sébastien Alvarez, François Fillastre and Graham Smith) of the bi-weekly online seminar "Pangolin Seminar"

▬▬▬ Responsibilities

2022 -	**Member of Department Council of the Institut Fourier**.
2023	**Referee and commitee member for the PhD thesis of Nicholas Rungi (SISSA)**.
2023	**Commitee member for the PhD thesis of Suzanne Schlich (University of Lille)**.
2022	**Referee of the PhD thesis of Agnese Janigro (University of Pavia)**.
2021	**Member of the hiring committee for 2 "Maître de conferences" positions at Sorbonne Université**.

▬▬▬ Editorial and reviewer services

2020 -	**Editor for the proceedings journal "Actes du séminaire Théorie Spectrale et Géométrie", published by Centre Mersenne**.
2016 -	**Referee for international journals**. Acta Mathematica, Advances in Mathematics, Annales Scientifiques de l'ENS (x2), American Journal of Mathematics, Bulletin of the Korean Mathematical Society, Calculus of Variations and PDEs, Communications in Contemporary Mathematics, Compositio Mathematica, Geometriae Dedicata (x3), Geometric and Functional Analysis, Geometry and Topology (x2), Illinois Journal of Mathematics, International Mathematics Research Notices (x3), Journal of the American Mathematical Society, Journal of the Australian Mathematical Society, Journal of Topology, Manuscripta Mathematica, Proceedings of the AMS, Proceedings of the LMS, Publicacions Matemàtiques, Revista Matemática Complutense, Transactions of the AMS.
2016 - 2019	**Reviewer for Mathematical Reviews**, *38 reviews*.

▬▬▬ Invited lectures

Mini-courses

TBD	**Minimal Lagrangian maps in Teichmüller theory**, *University of Belgrade*, Serbia.
Sep 2023	**Anti-de Sitter geometry and applications to hyperbolic surfaces**, *Thematic Programme "Geometry beyond Riemann: Curvature and Rigidity"*, Erwin Schrödinger Institute, Austria.
Mar 2023	**Counting surfaces in three-dimensional hyperbolic manifolds**, *Geometry, Probability and their Synergies*, Les Diablerets, Switzerland.

Conference talks

Aug 2023	**Teichmüller Theory: Classical, Higher, Super and Quantum**, *Oberwolfach*, Germany.
Jun 2023	**L'espace de Teichmüller: de la basse dimension à l'infini et au-delà**, *Montpellier*, France.

May 2023   **Minimal Surfaces in Symmetric Spaces**, *Granada*, Spain.

Mar 2023   **Non-positive curvature in manifolds and groups**, *Bologna*, Italy.

Dec 2022   **XII Symposium - Mathematics and Applications (hybrid)**, *Belgrade*, Serbia.

Oct 2022   **Zero mean curvature surfaces in the Lorentz-Minkowski space and related areas (series of 2 talks, hybrid)**, *Shiv Nadar University*, India.

Aug 2022   **Journées GDR Tresses**, *Amiens*, France.

Jun 2022   **UGA - McMaster Joint Workshop (hybrid)**, *Hamilton*, Canada.

Jun 2022   **Athanase Papadopoulos' 65th birthday conference**, *Istanbul*, Turkey.

Jun 2022   **A geometric analysis meeting in UniTo**, *Turin*, Italy.

Jan 2022   **Geometry Winter Workshop in Luxembourg**, *University of Luxembourg*.
Sadly cancelled due to covid positivity

Nov 2021   **XI Symposium - Mathematics and Applications (hybrid)**, *Belgrade*, Serbia.

Aug 2021   **First Geometry Meeting IM-UFRJ (online)**, *Rio de Janeiro*, Brasil.

Feb 2021   **X International Meeting on Lorentzian geometry (online)**, *Córdoba*, Spain.

Oct 2020   **Teichmüller Theory: Classical, Higher, Super and Quantum (hybrid)**, *CIRM Luminy*, France.

Mar 2020   **Dynamical aspects of Pseudo-Riemannian geometry**, *Braga*, Portugal.

Sep 2019   **21st meeting of the Italian Mathematical Society – Special session "Topology and Differential Geometry"**, *Pavia*, Italy.

Jan 2019   **Conference on geometric structures, representations of surface groupes and hyperbolic groups**, *Nice*, France.

Sep 2018   **Joint Italian-Polish meeting – Special session "Geometric Topology, Manifolds, and Group Actions"**, *Wroclaw*, Poland.

Jul 2018   **Higgs Bundles and Harmonic Maps of Riemann Surfaces**, *Oaxaca*, Mexico.

Sep 2017   **Moduli spaces**, *Ventotene*, Italy.

Jun 2017   **Teichmüller theory and geometric structures on 3-dimensional manifolds**, *University of Luxembourg*, Luxembourg.

Jun 2017   **Geometric Topology in Cortona**, *Cortona*, Italy.

Apr 2017   **Young Researcher Workshop on Differential Geometry in Minkowski Space**, *Granada*, Spain.

Apr 2017   **Differential Geometry Days**, *Torino*, Italy.

Apr 2017   **Current Problems in Theoretical Physics**, *Vietri sul Mare*, Italy.

Sep 2016   **Analytic Aspects of Higher Teichmüller Theory**, *Rutgers University*, Newark, USA.

Jul 2015   **3-dimensional geometric structures, representations of surface groups and related topics**, *University of Luxembourg*, Luxembourg.

Sep 2014	**Regards croisés sur les structures géométriques et la géométrie lorentzienne**, *Université d'Avignon et des pays de Vaucluse*, Avignon, France.
Jun 2014	**Teichmüller Theory and surfaces in 3-manifolds**, *Centro Ennio de Giorgi*, Pisa, Italy.

Seminars by invitation

2023	**Bruxelles, Tours, Luxembourg.** **online: IISc Geometry and Topology seminar.**
2022	**Paris 6, Paris 7, Oxford, Grenoble.**
2021	**Genève, Nice, Montpellier.** **online: Princeton, University of Connecticut.**
2020	**EPFL, Luxembourg.** **online: Pangolin seminar, Paris 7, Roma Sapienza, Séminaire Géométrie et Dynamique, University of Virginia.**
2019	**Tours, Toulouse, Strasbourg, Grenoble, IHES, Fribourg.**
2018	**Grenoble, Neuchâtel, Avignon, Marseille, Bilbao, Luxembourg, Nancy.**
2017	**Heidelberg, Toulouse, Paris 6, Paris 7, Bordeaux, Strasbourg.**
2016	**Roma Tor Vergata, KIAS Seoul, Luxembourg, Montpellier, Avignon.**
2015	**Roma Sapienza, Paris 6.**
2014	**Erlangen.**
2013	**Fribourg.**

Languages

Italian	**Mother tongue**
English	**Fluent**
French	**Fluent**
Spanish	**Fluent**