Andrea Seppi

Curriculum Vitae

Nationality Italian. Birthdate 15th April 1988. Birthplace Trieste, Italy. Marital status Married, two children.

Employment

- Oct 2024 **Professore Ordinario (Full Professor)**, Università degli Studi di Torino (Italy), present Dipartimento di Matematica "Giuseppe Peano".
- Jan 2019 Chargé de Recherche CNRS, Université Grenoble Alpes (France), Institut Fourier. Sep 2024
- Jan 2018 **Post-Doc researcher**, *University of Luxembourg*, Mathematics Research Unit. Dec 2018
- Jan 2016 **Post-Doc researcher**, *University of Pavia (Italy)*, Dipartimento di Matematica. Dec 2017

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

Grants

- ERC Consolidator Grant "GENERATE: GeomEtry and aNalysis for (*G*, *X*)-structurEs and their defoRmATion spacEs", PI, €1.676.870, June 2024 May 2029
- ANR JCJC, project "GAPR: Geometry and Analysis in the Pseudo-Riemannian setting", PI, €175.900, Oct 2022 May 2024
- ANR Tremplin ERC Starting Grant project "EMERGE: Espaces de déforMations dEs stRuctures GéométriquEs", PI, €113.500, Aug 2023 May 2024
- Franco-American grant Thomas Jefferson, project "Deformation Spaces of Geometric Structures and their Geometry", co-PI (with Sara Maloni), \$20.000, Sep 2022 Aug 2024
- Initiatives de Recherche Stratégiques IRS (Université Grenoble Alpes), project "Geometric structures and Deformation Spaces", PI, €10.000, Jan 2020 Dec 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

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.

Editorial

- 2025 pres. Editor for "Bulletin des sciences mathématiques".
- 2020 2025 Editor for the proceedings journal "Actes du séminaire Théorie Spectrale et Géométrie", published by Centre Mersenne.

Responsibilities and services

- Member of the Board of the European School of Differential Geometry, 2025 ongoing
- Member of the Scientific Council and Department Council of the Institut Fourier, Université Grenoble Alpes, 2022 2024
- Referee for the PhD theses of Agnese Janigro (2022), Nicholas Rungi (2023), Adam Chalumeau (2024), Alex Moriani (2025), Roméo Troubat (2025)
- Committee member for the PhD defences of Suzanne Schlich (2023), Nicholas Rungi (2023), Samuel Bronstein (2024), Adam Chalumeau (2024), Alex Moriani (2025), Roméo Troubat (2025)
- Member of the hiring committee for "Maître de conferences" positions, Sorbonne Université (2021)
- Referee (quick opinion or full report) for more than 40 international journals, among which: Acta Mathematica, Advances in Mathematics, Annales Scientifiques de l'ENS, American Journal

of Mathematics, Duke Mathematics Journal, Forum of Mathematics - Sigma, Geometric and Functional Analysis, Geometry and Topology, Journal of the American Mathematical Society, Journal of Differential Geometry, Journal of Topology, Proceedings of the LMS, Publications Mathématiques de l'IHES.

Students supervision

PhD students

- Antoine Ablondi (from September 2024, Université Grenoble Alpes, co-supervised with François Fillastre)
- Farid Diaf (from September 2021, Université Grenoble Alpes)
- Enrico Trebeschi (from September 2021, Università di Pavia, co-supervised with Francesco Bonsante)
- Diptaishik Choudhury (February 2019 April 2023, University of Luxembourg and Université Grenoble Alpes, co-supervised with Greg McShane and Jean-Marc Schlenker)

Master

- Bryan Toto *Epstein hypersurfaces in hyperbolic space* (Université Grenoble Alpes, 2025)
- Keeran Poirot Affine differential geometry (Université Grenoble Alpes, 2024)
- 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, cosupervised 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)

Events

Scientific committees

- European School of Differential Geometry, June-July 2026, L'Aquila, Italy
- Workshop "Higher dimensional hyperbolic geometry", September 2025, Ventotene, Italy

Organising committee

- Workshop "New Developments of Teichmüller Theory", September 2026, MFO Oberwolfach, Germany (with Ara Basmajian, Ken'ichi Ohshika and Maria Beatrice Pozzetti)
- Workshop "Differential geometry and related topics", December 2025, Turin, Italy (with Simon Chiossi, Anna Fino, Emilio Musso, Tommaso Pacini, Fabio Podestà, Alberto Raffero, Luigi Vezzoni Reto Buzano, Marco Radeschi)
- Conference "Moving to higher rank: from hyperbolic to Anosov" in honor of Dick Canary, July 2024, Cetraro, Italy (with Ilesanmi Adeboye, Francesco Bonsante, Martin Bridgeman, Ken

Bromberg, Stefano Francaviglia, Ursula Hamenstädt, François Labourie, Cyril Lecuire, Sara Maloni, Jean-Marc Schlenker)

- Workshops "Submanifolds of locally symmetric spaces", April 2024, Autrans, France (with François Fillastre, Daniel Monclair, Jérémy Toulisse and Nicolas Tholozan)
- Workshop "Paroles aux jeunes chercheuses et chercheurs du réseau Platon", November 2023, Grenoble, France (with François Dahmani, Erwan Lanneau, Anne Parreau, Ana Rechtman, Constantin Vernicos)
- Workshop "(MGT)²: Milan-Grenoble-Turin Meeting in Geometry and Topology": January 2023 in Grenoble, September 2023 in Turin, September 2025 in Grenoble (with Gérard Besson, Baptiste Devyver, Luciano Mari, Giona Veronelli)
- Workshop "TSG seminar 40th birthday", May 2022, Grenoble, France, (with Gérard Besson and Pierre Will)
- Workshop "Minimal surfaces and Labourie's conjecture", August 2022, Autrans, France (with Maria Beatrice Pozzetti and Jérémy Toulisse)
- Special session "Deformation spaces of geometric structures", joint meeting AMS-EMS-SMF, July 2022, Grenoble, France (with Sara Maloni and Nicolas Tholozan)
- Workshop "Anosov representations", September 2021, Aussois, France (with Fanny Kassel and Jérémy Toulisse)
- Workshop "Higher Teichmüller theory and related topics", June 2019 Pavia, Italy (with Francesco Bonsante and Gabriele Mondello)
- Weekly seminar "Théorie Spectrale et Géométrie" at Institut Fourier, Grenoble, from September 2019 to June 2025 (with Luca Rizzi and Pierre Py).
- Bi-weekly online seminar "Pangolin Seminar", from September 2020 to December 2021 (with Sébastien Alvarez, François Fillastre and Graham Smith)

Publications and preprints

Submitted articles

- 38. Manh-Tien Nguyen, Jean-Marc Schlenker, and Andrea Seppi. Weakly almost-Fuchsian manifolds are nearly-Fuchsian. *Preprint, ArXiv* 2501.12277, 18 pages, 2025
- 37. Zheng Huang, Ben Lowe, and Andrea Seppi. Uniqueness and non-uniqueness for the asymptotic Plateau problem in hyperbolic space. *Preprint, ArXiv* 2309.00599, 35 pages, 2023
- 36. Andrea Seppi, Graham Smith, and Jérémy Toulisse. On complete maximal submanifolds in pseudo-hyperbolic space. *Preprint, ArXiv* 2305.15103, 60 pages, 2023
- 35. Francesco Bonsante, Andrea Seppi, and Peter Smillie. Completeness of convex entire surfaces in Minkowski 3-space. *Preprint, ArXiv* 2207.10019, 53 pages, 2022 *Published articles*
- 34. Pierre Bayard and Andrea Seppi. Entire hypersurfaces of constant scalar curvature in Minkowski space. *Journal für die reine und angewandte Mathematik (Crelles Journal),* (824):167–201, 2025
- 33. Oliviero Malech, Mattia Mecchia, and Andrea Seppi. The multiple fibration problem for Seifert 3-orbifolds. *The Quarterly Journal of Mathematics, https://doi.org/10.1093/qmath/haaf009, 2025*
- 32. Filippo Mazzoli, Andrea Seppi, and Andrea Tamburelli. Para-hyperKähler geometry of the deformation space of maximal globally hyperbolic anti–de Sitter three-manifolds. *Mem. Amer. Math. Soc.*, 306(1546):v+107, 2025
- 31. Diptaishik Choudhury, Filippo Mazzoli, and Andrea Seppi. Quasi-Fuchsian manifolds close to the Fuchsian locus are foliated by constant mean curvature surfaces. *Math. Ann.*, 388(4):3981–4010, 2024

- 30. Francesco Bonsante, Andrea Seppi, and Peter Smillie. Complete CMC hypersurfaces in Minkowski (*n* + 1)-space. *Comm. Anal. Geom.*, 31(4):799–845, 2023
- 29. Xin Nie and Andrea Seppi. Affine deformations of quasi-divisible convex cones. *Proceedings of the London Mathematical Society*, 127(1):35–83, 2023
- 28. Xin Nie and Andrea Seppi. Hypersurfaces of constant Gauss-Kronecker curvature with Linormalization in affine space. *Calculus of Variations and PDE*, 62(4), 2023
- 27. Stefano Riolo and Andrea Seppi. Character varieties of a transitioning Coxeter 4-orbifold. *Groups, Geometry and Dynamics*, 16(3):779–842, 2022
- 26. Christian El Emam and Andrea Seppi. On the Gauss map of equivariant immersions in hyperbolic space. *Journal of Topology*, 15(1):238–301, 2022
- 25. Christian El Emam and Andrea Seppi. Rigidity of minimal Lagrangian diffeomorphisms between spherical cone surfaces. J. Éc. Polytech., Math., 9:581–600, 2022
- 24. 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
- 23. 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
- 22. 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
- 21. Mattia Mecchia and Andrea Seppi. On the diffeomorphism type of Seifert fibred spherical 3-orbifolds. *Rend. Istit. Mat. Univ. Trieste*, 52:1–39, 2020
- 20. 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
- 19. Francesco Bonsante, Andrea Seppi, and Peter Smillie. Entire surfaces of constant curvature in Minkowski 3-space. *Math. Ann.*, 374(3-4):1261–1309, 2019
- 18. 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
- 17. Mattia Mecchia and Andrea Seppi. Isometry groups and mapping class groups of spherical 3-orbifolds. *Math. Zeitschrift*, 292(1291-1314), 2019
- 16. Andrea Seppi. On the maximal dilatation of quasiconformal minimal Lagrangian extensions. *Geometriae Dedicata*, 203:25–52, 2019
- 15. 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
- 14. Andrea Seppi. The flux homomorphism on closed hyperbolic surfaces and Anti-de Sitter three-dimensional geometry. *Complex Manifolds*, 4(1):183–199, 2018
- 13. 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
- 12. Francesco Bonsante and Andrea Seppi. Spacelike convex surfaces with prescribed curvature in (2+1)-Minkowski space. *Adv. in Math.*, 304:434–493, 2017
- 11. Andrea Seppi. Minimal discs in hyperbolic space bounded by a quasicircle at infinity. *Comment. Math. Helv.*, 91(4):807–839, 2016
- 10. 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

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

Proceedings

- 8. Andrea Seppi. Maximal submanifolds of pseudo-hyperbolic space and their applications. In *Oberwolfach reports*, number 33. 2023
- 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
- 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
- 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 III: Geometry and Dynamics*" (*K. Ohshika and A. Papadopoulos ed.*), pages 67–104. Springer Berlin, 2024
- 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

Invited lectures

Mini-courses

- June 2025 **Quasi-Fuchsian, almost-Fuchsian and nearly-Fuchsian manifolds (3 hours, online)**, Shanghai Institute for Mathematics and Interdisciplinary Sciences, Shanghai, China.
- May 2024 **Pseudo-hyperbolic geometry, convex-cocompactness, maximal submanifolds (6 hours)**, *International workshop on Higher Teichmüller theory,* Chern Institute of Mathematics, Nankai University in Tianjin, China.
- Sep 2023 Anti-de Sitter geometry and applications to hyperbolic surfaces (4 hours), Thematic Programme "Geometry beyond Riemann: Curvature and Rigidity", Erwin Schrödinger Institute, Austria.
- Mar 2023 **Counting surfaces in three-dimensional hyperbolic manifolds (2 hours)**, *Geometry, Probability and their Synergies,* Les Diablerets, Switzerland.

Conference talks

- Jun 2024 European School of Differential Geometry, Granada, Spain.
- Dec 2023 XIII Symposium Mathematics and Applications (hybrid), Belgrade, Serbia.

- Oct 2023 Geometry beyond Riemann: Curvature and Rigidity, Erwin Schrödinger Institute, Vienna, Austria.
- 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

More than 50 talks in local seminars, among which: Bruxelles, ENS Lyon, EPFL Lausanne, Erlangen, Gèneve, Heidelberg, IHES, KIAS Seoul, Max Planck Institute Leipzig, Oxford, Paris - Sorbonne Université, Pisa, Princeton, Rome - La Sapienza.

Teaching

	Geometria e algebra lineare , <i>Corso di Laurea in Fisica</i> , Università di Torino. Lectures (72h, Italian).
-	Pseudo-Riemannian Geometry , <i>Master 2 in Mathematics "Geometry, Topology and Dynamical Systems"</i> , Université Grenoble Alpes. Lectures (36h, English).
	Differential Geometry , <i>Master 1 in Mathematics</i> , Université Grenoble Alpes. Lectures (21h, French).
	Holomorphic dynamics in one complex variable, Bachelor in Math., ENS Lyon. Reading group (24h, French).
-	Topologie B , <i>Bachelor in Mathematics</i> , Université Grenoble Alpes. Exercise sessions (70h, French).
	Curve algebriche e superfici di Riemann , <i>Master in Math.</i> , University of Pavia. Lectures (48h, Italian).
-	Analysis for Applications , <i>Bachelor in CS</i> , University of Luxembourg. Lectures (28h, English).
	Analyse 4b , <i>Bachelor in Engineering/Physics</i> , University of Luxembourg. Lectures (15h, French).
	Geometria , <i>Bachelor in Civil and Enviromental Engineering</i> , University of Pavia. Lectures (60h, Italian).
	Analisi 1 , <i>Bachelor in Civil and Enviromental Engineering</i> , University of Pavia. Teaching assistantship (16h, Italian).
-	Analytical Mechanics , <i>Double Degree Pavia/Tonjii University</i> , University of Pavia. Teaching and exercise sessions (24h, English).
-	Matematica Corso B , <i>Bachelor in Biotechnology</i> , University of Pavia, Italy. Preparatory course (10h, Italian).
	Matematica Corso B , <i>Bachelor in Biotechnology</i> , University of Pavia, Italy. Teaching assistantship (20h, Italian).

- Sep 2015 Analytical Mechanics, Double Degree Pavia/Tonjii University, University of Pavia.
- Nov 2015 Teaching and exercise sessions (24h, English).
- May 2015 **Geometria e Algebra**, *Bachelor in Civil/Enviromental Engineering*, Univ. of Pavia. Sep 2015 Exercise sessions (25h, Italian).
- Oct 2014 Matematica Corso B, Bachelor in Biotechnology, University of Pavia, Italy.
- Dec 2014 Teaching assistantship (15h, Italian).
- Oct 2013 **Geometria e Algebra**, *Bachelor in Civil/Enviromental Engineering*, Univ. of Pavia. Dec 2013 Exercise sessions (25h, Italian).
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Languages

Italian Mother tongue

English Fluent

- French Fluent
- Spanish Fluent