

Andrea Tamburelli

University of Pisa
Department of Mathematics
Largo Bruno Pontecorvo 5
56127 Pisa

andrea_tamburelli@libero.it
<https://pagine.dm.unipi.it/~a019210>
Phone: +39 3393771950

EDUCATION

University of Luxembourg

Ph.D., Mathematics, June 2018.

Thesis: *Anti-de Sitter geometry: convex domains, foliations and volume.*

Advisor: Jean-Marc Schlenker.

University of Pisa

M.S., Mathematics, April 2015.

B.S., Mathematics, May 2013.

EMPLOYMENT

University of Pisa

Tenure-track Assistant Professor, March 2022 - present.

Rice University

Lovett Instructor, July 2018 - December 2022.

Adjunct Assistant Professor, January 2022 - June 2024.

RESEARCH INTERESTS

(Higher) Teichmüller theory, hyperbolic and anti-de Sitter geometry, bounded cohomology and simplicial volume, Higgs bundles.

GRANTS AND AWARDS

NSF-DMS 2005501: Geometric limits in higher Teichmüller Theory, PI, \$136,500.

Italian National Habilitation to Associate Professor (June 2022 - June 2033)

Mario Baldassarri Prize (UMI), for a paper published under the age of 30.

Franco Tricerri Prize (UMI), for the best Ph.D. thesis in Differential Geometry.

Simons travel grant (AMS): \$4,000.

Graduate Internship grant (GEAR).

PUBLICATIONS

Bonsante F., Seppi A., Tamburelli A. **On the volume of Anti-de Sitter maximal globally hyperbolic three-manifolds.**

Geom. Funct. Anal. 27 (2017), no. 5, pp. 1106-1160.

Tamburelli A. **Prescribing metrics on the boundary of anti-de Sitter 3-manifolds.** Int. Math. Res. Not. IMRN 2018, no. 5, pp. 1281-1313.

Tamburelli A. **Constant mean curvature foliation of domains of dependence in AdS_3 .** Trans. Amer. Math. Soc. 371 (2019), no. 2, pp. 1359-1378.

Tamburelli A. **Degeneration of globally hyperbolic maximal anti-de Sitter structures along pinching sequences.** Diff. Geom. Appl. 64 (2019), pp. 125-135.

Tamburelli A. **Polynomial quadratic differentials on the complex plane and light-like polygons in the Einstein Universe.**

Adv. Math. 352C (2019), pp. 483-515.

Chen Q., Tamburelli A. **Constant mean curvature foliation of globally hyperbolic (2+1)-spacetimes with particles.** Geom. Dedicata 201 (2019), pp. 281-315.

Tamburelli A. **Regular globally hyperbolic maximal anti-de Sitter structures.** J. Topol. 13 (2020), pp. 416-439.

Tamburelli A. **Fenchel-Nielsen coordinates on the augmented moduli space of anti-de Sitter structures.** Math. Zeitschrift. 297 (2021), pp. 1397-1419.

Tamburelli A. **Wild globally hyperbolic maximal anti-de Sitter structures.** J. Lond. Math. Soc. 103 (2021), no. 1, pp. 198-221.

Ouyang C., Tamburelli A. **Limits of Blaschke metrics.**

Duke Math. J. 170 (2021), no. 8, pp. 1683-1722.

Tamburelli A. **Riemannian metrics on the moduli space of GHMC anti-de Sitter structures.** Geom. Dedicata 213 (2021), pp 267–282.

Ouyang C., Tamburelli A., **Boundary of the Gothen components.**

Topol. Appl. 326 (2023), pp

Tamburelli A. **Degeneration of globally hyperbolic maximal anti-de Sitter structures along rays.** arXiv:1710.05827. To appear in Comm. Anal. Geom.

Tamburelli A., Wolf M. **Planar minimal surfaces with polynomial growth in the $\mathrm{Sp}(4, \mathbb{R})$ -symmetric space.** arXiv:2002.07295. To appear in Amer. J. Math.

Mazzoli F., Seppi A., Tamburelli A. **Para-hyperkähler geometry of the deformation space of maximal globally hyperbolic anti-de Sitter three-manifolds.**

arXiv:2107.10363. To appear in Memoirs of the AMS.

Ouyang C., Tamburelli A. **Length spectrum compactification of the $\mathrm{SO}_0(2, 3)$ -Hitchin component.** arXiv:2010.03499. To appear in Adv. Math.

Martone G., Ouyang C., Tamburelli A. **A closed ball compactification of a maximal component via cores of trees.** arXiv:2110.06106. Submitted.

PREPRINTS Rungi N., Tamburelli A. **Pseudo-Kähler geometry of properly convex projective structures on the torus.** arXiv:2112.08979. Submitted.

Rungi N., Tamburelli A. **Global Darboux coordinates for complete Lagrangian fibrations and an application to the deformation space of projective structures in genus one.** arXiv:2208.05336. Submitted.

Loftin J., Tamburelli A., Wolf M. **Limits of cubic differentials and buildings.** arXiv:2208.07532. Submitted.

Rungi N., Tamburelli A., **The $SL(3, \mathbb{R})$ -Hitchin component as an infinite dimensional pseudo-Kähler reduction.** arXiv:2306.02699. Submitted.

Tamburelli A. **On surfaces with finite total curvature in rank 2.**
Draft available on our webpage.

PHD STUDENTS **Nicholas Rungi** (Thesis defense Oct 2023, then postdoc at Université Grenoble Alpes)

STUDENTS
SUPERVISION **Chumeng Di, Ethan Levin, and Arie Ogranovich** (REU, Summer 2021)

SERVICE **Workshop: Geometric aspects of Higgs bundles**, Sunriver, Co-organizer, 2019.
Texas Geometry and Topology Conference, Rice University, Co-organizer, 2018.
Reading seminars, Rice University, Organizer, 2018-2021.
Colloquium committee member, Rice University, 2018-2020.
Colloquium committee chair, Rice University, 2020-2021.
Reviewer for MathSciNet and zbMATH, 2018-2022.
Referee for Proc. Lond. Math. Soc., IMRN, Nonlinear Analysis, Tunisian J. Math., Contemporary Math., J. Topol., GAFA, Trans. Amer. Math. Soc., J. Geom. Phys., Bull. Iranian Math. Soc., Comment. Math. Helv., Geom. Dedicata.

INVITED
TALKS **Differential Geometry Seminar**, Heidelberg University, 2023.
PRIN Conference, University Roma Tor Vergata, 2023.
Minimal surfaces in symmetric spaces, BIRS Granada, 2023.
Geometry and Topology Seminar, Indian Institute of Science (online), 2023.
Colloquium, York University, 2023.
Colloquium, Auburn University, December 2022.
Colloquium, The Ohio State University, 2022.
Colloquium, University of Tennessee, Knoxville, 2022.
Colloquium, Michigan State University (online), 2022.
Colloquium, Rutgers University, Newark, 2022
Colloquium, Auburn University, January 2022.
Colloquium, University of Illinois (online), Chicago, 2022.
Geometric Analysis seminar, University of Copenhagen (online), 2022.
Colloquium, Florida State University, 2021.
Nearly Carbon Neutral Geometric Topology conference, online conference, 2021.
Colloquium, Texas Tech (online), 2021.
Colloquium, Aarhus Universitet (online), 2021.
Geometry and Geometric Analysis seminar, UMass, Amherst (online), 2021.

Colloquium, SISSA (online), 2021.
Geometry seminar, University of Virginia (online), 2021.
Geometry and Analysis seminar, ETH Zürich (online), 2020.
Colloquium, Fudan University (online), 2020.
Colloquium, Heidelberg University (online), 2020.
Geometry and Topology seminar, University of Luxembourg (online), 2020.
Colloquium, University of Manchester (online), 2020.
AMS Sectional meeting, University of Tennessee (online), Chattanooga, 2020.
Topology seminar, Rice University, 2020.
Dynamical aspects of Pseudo-Riemannian geometry, Braga (Portugal), 2020.
FRG Lecture series, University of Michigan, Ann Arbor, 2019.
Minicourse on anti-de Sitter geometry, Chern Institute of Mathematics, 2019.
Geometry seminar, Tianjin University, 2019.
Geometry and Topology seminar, Caltech, 2019.
Topology seminar, Princeton, 2019.
Geometry and Topology seminar, University of Luxembourg, 2019.
Higgs bundles and harmonic maps of Riemann surfaces, Oaxaca, 2018.
Junior GEAR Retreat, Stanford, 2017.
Darboux Seminar, Université de Montpellier, 2017.
Geometry and Topology seminar, Università degli Studi di Pavia, 2016.
Paroles aux jeunes chercheurs en géométries et groupes, Strasbourg, 2016.
Geometry and topology seminar, University of Luxembourg, 2015.

WORKSHOPS
 ATTENDED

Geometric Group Theory and Low-Dimensional Topology, Trieste, 2016.
Geometry, Topology and Dynamics of Moduli Spaces, Singapore, 2016.
Days in representation theory and harmonic analysis, Luxembourg 2016.
Third retreat of the GEAR network, Stanford, 2017.
Geometry and physics of Higgs bundles II, Chicago, 2017.
Current trends on spectral data for Higgs bundles III, Chicago 2017.
Texas Geometry and Topology Conference, Houston, 2018.
Holomorphic differentials in Mathematics and Physics, MSRI, 2019.

TEACHING

University of Pisa

Spring 2024: Calculus 1.
 Fall 2023: Hyperbolic geometry, Calculus 1.
 Spring 2023: Calculus 1.
 Fall 2022: Linear Algebra, Calculus 1.

Rice University

Spring 2022: Multivariable Calculus (Math 212).
 Fall 2021: Multivariable Calculus (Math 212).
 Summer 2021: Summer Undergraduate Research (Math 479).
 Spring 2021: Multivariable Calculus (Math 212), Lie Theory (Math 371).
 Fall 2020: Calculus 1 (Math 101).
 Spring 2020: Calculus 1 (Math 101), Multivariable Calculus (Math 212).
 Spring 2019: Geometry (Math 366), Elements of Analysis (Math 302).
 Fall 2018: ODE and Linear Algebra (Math 211).

University of Luxembourg

Fall 2017: Teaching assistant for Calculus 1a, 1b.

Fall 2016: Teaching assistant for Calculus 1a, 1b.

Spring 2016: Teaching assistant for Calculus 2a, 2b.

Fall 2015: Teaching assistant for Calculus 1a, 1b, 1c.

REFERENCES

Prof. Michael Wolf
Department of Mathematics
Georgia Tech
(713) 348-6293
mwolf40@gatech.edu

Prof. William Goldman
Department of Mathematics
University of Maryland
(301) 405-5124
wmg@umd.edu

Prof. Jean-Marc Schlenker
Mathematics Research Unit
University of Luxembourg
+352 46 66 44 5438
jeanmarc.schlenker.math@gmail.com

Prof. Jeffrey Danciger
Department of Mathematics
University of Texas at Austin
(512) 471-1140
jdanciger@math.utexas.edu

Prof. Francis Bonahon
Department of Mathematics
University of Southern California
(213) 740-2390
fbonahon@usc.edu

Prof. Stephen Wang (TEACHING)
Department of Mathematics
Rice University
(713) 348-3467
sswang@rice.edu