

# CURRICULUM VITAE - LEONE SLAVICH

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**BIRTH** 22/05/1984 Genova, Italy

**CURRENT POSITION** Associate Professor in Mathematics, Università di Pavia, Italy (March 2023-)

Italian National Scientific Habilitation in Geometry and Algebra

Abilitazione Scientifica Nazionale di seconda fascia, Settore 01/A2 Geometria e Algebra

Valid until 01/02/2032

## PREVIOUS POSITIONS

Researcher (RTDB) in Mathematics, Università di Pavia, Italy (March 2020-March 2023)

Researcher (RTDA) in Mathematics, Università di Pisa, Italy (June 2018 - February 2020)

Post-Doc in Mathematics at Università di Pisa, Italy

(February 2016 - January 2018 )

Post-Doc in Mathematics at Università di Bologna, Italy

(February 2015 - January 2016)

## EDUCATION

### April 2014 PhD in Mathematics

- **Institution:** Università degli Studi di Firenze, Florence (Italy).
- **Thesis:** *Hyperbolic 4-manifolds and the 24-cell*
- **Advisor:** Bruno Martelli

**2011-2014** PHD student in Mathematics at Università degli Studi di Firenze, Florence (Italy).

### July 2010 Master thesis in Mathematics

- **Institution:** Università di Pisa, Pisa (Italy)
- **Thesis:** *Strutture algebriche e topologiche nella musica del ventesimo secolo*
- **Advisors** Moreno Andreatta, Francesca Acquistapace

**2003-2010** Undergraduate student in Mathematics at Università di Pisa, Pisa (Italy).

## RESEARCH PROJECTS

I have been part of the following research projects:

**2012-2016** FIRB project: “Geometria e topologia delle varietà in dimensione bassa” (Geometry and topology of low-dimensional manifolds). National coordinator: prof. Bruno Martelli.

**2017-2020** PRIN project: “Geometry, Topology and Harmonic analysis’. National coordinator prof. Filippo Bracci

## ATTENDED SEMINARS, CONFERENCES AND SCHOOLS

**2011-2014** Cycle of PHD seminars, Università degli Studi di Firenze, Florence (Italy)  
(organizer of the seminar cycle in 2012).

**2011-2020** Cycle of Geometry seminars, Università degli Studi di Pisa, Pisa (Italy).

**2012** Surface groups in Paris, IHP Paris (France).

**2012** Summer school on automorphisms of free groups, CRM Bellaterra (Spain).

**2012** Winter Braids III, Institut Fourier, Grenoble (France).

**2013** Geometry master class, Research program on Teichmüller theory,  
ESI Wien (Austria).

**2013** Geometric topology in Cortona, Indam meeting, Cortona (Italy).

**2013** Geometric Topology in New York, Columbia University, New York (USA).

**2013** 9th Rowan Hamilton Geometry Workshop, Trinity college, Dublin (Ireland).

**2014** Intensive period on Teichmüller theory and surfaces in 3-manifolds,  
Centro De Giorgi, Pisa (Italy).

**2015** Curve conference, University Paris 6, Paris (France).

- 2016** Advanced School on Geometric Group Theory and Low-Dimensional Topology: Recent Connections and Advances - ICTP, Trieste (Italy).
- 2017** Geometric topology in Cortona, Indam meeting, Cortona (Italy).
- 2017** Dynamics on representation varieties, Centre Henri Lebesgue, Rennes (France).
- 2019** Geometric structures in Nice, Université de Nice, Nice (France).
- 2019** Mini-workshop *Reflection groups in negative curvature*, MFO, Oberwolfach (Germany).
- 2019** CUSO Summer school *Géométrie, topologie et arithmétique de façon hyperbolique*, Les Diablerets (Switzerland).
- 2022** Arithmetic groups and 3-manifolds, Max Planck Institute for Mathematics, Bonn (Germany).
- 2020-** Cycle of Geometry seminars, Università degli Studi di Pavia, Pavia (Italy).

## VISITING PERIODS

- 2009** October-December, Visiting Student at IRCAM, Paris (France).
- 2019** February 25-March 1, Department of Mathematics, Université de Neuchâtel, Neuchâtel (Switzerland).
- 2019** August 26-September 8, IMPA, Rio de Janeiro (Brazil).

## CONFERENCE TALKS

- 2011** April 7: *Conference Rencontres mathématique/musique*, IRMA, Strasbourg (France)
- 2017** February 24: *Workshop 2017: Varietà reali e complesse: geometria, topologia e analisi armonica*, Scuola Normale Superiore, Pisa (Italy)
- 2019** April 12: Mini-workshop *Reflection groups in negative curvature*, MFO, Oberwolfach, Germany.
- 2023** March 24: Indam Day *Non-positive curvature in manifolds and groups*, Department of Mathematics, Università di Bologna, Bologna (Italy).
- 2023** September 5: *22nd congress of the Italian Mathematical Union (UMI)*, Section 17 (Topology and Differential Geometry) Department of Mathematics, Università di Pisa, Pisa (Italy).

## INVITED TALKS

- 2014** May 28, Oberseminar Geometrie, Université de Fribourg, Fribourg (Switzerland)
- 2019** February 26, Geometry seminars, Université de Neuchâtel, Neuchâtel (Switzerland)
- 2019** September 29, Geometry seminars, IMPA, Rio de Janeiro (Brazil)
- 2020** December 8, Topology and Dynamics seminars, University of Florida, (USA) (online seminar)
- 2022** May 24, Algebra and Geometry Seminar, Università di Bologna, Bologna (Italy)
- 2023** May 25, Geometry and Topology seminar, Institute of Mathematics of Marseille (I2M), Marseille (France)

**RESEARCH INTERESTS:** Low-dimensional topology, geometric topology, hyperbolic geometry, Teichmüller theory, Kleinian group theory, hyperbolic manifolds in high dimensions, deformations of hyperbolic reflection groups, arithmetic group theory, Coxeter group theory

## LANGUAGES

- Italian (Native language)
- English (Fluent)
- French (Basic)

## PUBLICATIONS

- *A geometrically bounding hyperbolic link complement*, Algebraic & Geometric Topology 15-2 (2015) 1175-1197; doi: 10.2140/agt.2015.15.1175

- *Some hyperbolic 4-manifolds with low volume and number of cusps*, Topology and its Applications 191 (2015) 1-9; doi: 10.1016/j.topol.2015.05.004
- A. Kolpakov, L. Slavich: *Symmetries of hyperbolic 4-manifolds*, International Mathematics Research Notices, Volume 2016, Issue 9, 2677-2716; doi: 10.1093/imrn/rnv210
- A. Kolpakov, L. Slavich: *Hyperbolic 4-manifolds, colorings and mutations*, Proc. London Math. Soc. 113 (2) (2016): 163-184; doi: 10.1112/plms/pdw025
- *The complement of the figure-eight knot geometrically bounds*, Proceedings of the American Mathematical Society 145(3) (2017), 1275-1285; doi: 10.1090/proc/13272
- A. Kolpakov, A. Reid, L. Slavich, *Embedding arithmetic hyperbolic manifolds*, Math. Res. Lett. 25 (2018), 1305–1328; doi: 10.4310/MRL.2018.v25.n4.a12
- S. Riolo, L. Slavich: *New hyperbolic 4-manifolds of low volume*, Algebraic & Geometric Topology 19-5 (2019) 2653-2676; doi: 10.2140/agt.2019.19.2653
- B. Martelli, S. Riolo, L. Slavich: *Compact hyperbolic manifolds without spin structures*, Geometry & Topology 24, Issue 5 (2020), 2647-2674; doi: 10.2140/gt.2020.24.2647
- A. Kolpakov, S. Riolo, L. Slavich: *Embedding non-arithmetic hyperbolic manifolds*, Math. Res. Lett. Vol. 29, No. 1 (2022), 247-274; doi: 10.4310/MRL.2022.v29.n1.a7
- B. Martelli, S. Riolo, L. Slavich: *Convex plumbings in closed hyperbolic 4-manifolds*, Geometriae Dedicata 212 (2020), 243-259; doi: 10.1007/s10711-020-00557-z.
- L. Ferrari, A. Kolpakov, L. Slavich: *Cusps of hyperbolic 4-manifolds and rational homology spheres*, Proceedings of the London Mathematical Society 123 (2021), 636-648; doi: 10.1112/plms.12421.
- M. Belolipetski, N. Bogachev, A. Kolpakov, L. Slavich: *Subspace stabilisers in hyperbolic lattices*, preprint arXiv:2105.06897
- N. Bogachev, L. Slavich, H. Sun: *Arithmetic triangular hyperbolic lattices are not LERF*, preprint arXiv:2310.20611, to appear on International Mathematics Research Notices.

## TEACHING

- 2015** Minicourse: The geometry and topology of low-dimensional manifolds,  
Department of Mathematics - Università di Bologna (10 hours)
- 2016** Geometria 1 (Linear algebra),  
Department of Physics - Università di Pisa with prof. Mario Salvetti (10 hours)
- 2016** Geometria e algebra lineare (Linear algebra),  
Department of Engineering - Università di Pisa with prof. Carlo Petronio (20 hours)
- 2017** Analisi 1 (Calculus),  
Department of Engineering - Università di Pisa with prof.ssa Maria Stella Gelli (20 hours)
- 2018-2019** Geometria e algebra lineare (Linear algebra),  
Department of Engineering - Università di Pisa with prof. Carlo Petronio (47 hours)
- 2018-2019** Matematica (General Mathematics),  
Department of Pharmacy - Università di Pisa with prof. Marcello Mamino (10 hours)
- 2019-2020** Analisi Matematica (Calculus),  
Department of Computer Science - Università di Pisa (60 hours)
- 2019-2020** Algebra lineare (Linear algebra),  
Department of Engineering - Università di Pisa with prof. Roberto Dvornicich (12 hours)
- 2019-2020** Geometria 2 (Geometry 2),  
Department of Mathematics - Università di Pavia with prof. Alessandro Ghigi (28 hours)
- 2019-2020** PHD course: Argomenti scelti di geometria iperbolica (Hyperbolic Geometry),  
Department of Mathematics - Università di Pisa with prof. Bruno Martelli (20 hours)
- 2020-2021** Algebra lineare (linear algebra),  
Department of Mathematics and Physics - Università di Pavia with prof. Giampietro Pirola (28 hours)
- 2020-2021** Istituzioni di Geometria,  
Department of Mathematics - Università di Pavia with prof. Francesco Bonsante (24 hours)

- 2020-2021** Complementi di Matematica per Scienze Chimiche (Mathematics),  
Department of Chemistry - Università di Pavia with prof. Stefano Lisini (24 hours)
- 2021-2022** Geometria e Algebra (Linear Algebra),  
Department of Engineering - Università di Pavia (60 hours)
- 2021-2022** PHD course: Gruppi di Lie e spazi (localmente) simmetrici (Lie groups and (locally) symmetric spaces), Department of Mathematics - Università di Pavia (26 hours)
- 2022-2023** Geometria e Algebra (Linear Algebra),  
Department of Engineering - Università di Pavia (60 hours)
- 2022-2023** Geometria superiore,  
Department of Mathematics - Università di Pavia with prof. Paola Frediani (24 hours)

## **STUDENTS SUPERVISED**

### **Bachelor degree**

2021 Alessia Greppi: Spazio di Teichmüller e coordinante di Fenchel-Nielsen.

2022 Elisa Caruso: Una dimostrazione geometrica dei teoremi di Bieberbach sui gruppi cristallo-grafici.

Last update: 01/11/2023