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 01/02/2034
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

2022- PRIN project:"Geometry and topology of manifolds", project no. F53D23002800001

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, Universitè 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, Universitè de Neuchâtel, Neuchâtel (Switzerland).

2019 August 26-September 8, IMPA, Rio de Janeiro (Brazil).

CONFERENCE TALKS

2011 April 7: *Conference Rencontres mathematique/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).

2025 January 7: *Hyperbolic manifolds, their submanifolds and fundamental groups*, IMPA, Rio de Janeiro, Brazil.

2025 April 28: *Leaning towards higher rank*, Università di Pisa, Pisa (Italy).

INVITED TALKS

2014 May 28, Oberseminar Geometrie, Université de Fribourg, Fribourg (Switzerland)

2019 February 26, Geometry seminars, Universitè 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)

2025 February 6, Incontro Ricercatori in Matematica UniPV 2025, Pavia (Italy)

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 trialitarian hyperbolic lattices are not LERF*, International Mathematics Research Notices, Volume 2024, Issue 13, 10081-10087. doi: 10.1093/imrn/rnae053

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,
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)https://doi.org/10.10

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)

2023-2024 Geometria e Algebra (Linear Algebra),
Department of Engineering - Università di Pavia (60 hours)

2023-2024 Algebra 1,
Department of Mathematics - Università di Pavia with prof. Alberto Canonaco (24 hours)

2023-2024 Geometria 1,
Department of Mathematics - Università di Pavia with prof. Pietro Pirola (36 hours)

2024-2025 Geometria e Algebra (Linear Algebra),
Department of Engineering - Università di Pavia (60 hours)

2024-2025 Geometria 2,
Department of Mathematics - Università di Pavia with prof. Lidia Stoppino (48 hours)

STUDENTS SUPERVISED
Bachelor degree

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

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

Master's degree

2024 Serena Carrozzoli: Gruppi di Lie e reticoli: l'analisi di $SL_n(\mathbb{Z})$ come reticolo in $SL_n(\mathbb{R})$.

PHD students

2024- Mario Cajumi (ongoing)

Last update: 13/05/2025