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Employment

07/2025 - present	Assistant Professor at Pontifical Catholic University of Chile (PUC).
01/2026 - 05/2026	Chern postdoc at SLMath.
08/2024 - 07/2025	Gibbs Assistant Professor at Yale University.
08/2023 - 07/2024	Postdoctoral Fellow at the Max Planck Max Planck Institute for Mathematics at Bonn.

Education

08/2018 - 05/2023	<i>PhD in Mathematics</i> , University of California Berkeley. Advisor: Ian Agol.
03/2017 - 07/2018	<i>MSc in Mathematics</i> , Pontifical Catholic University of Chile (PUC). Advisor: Jairo Bochi.
03/2013 - 12/2016	<i>BSc in Mathematics</i> , Pontifical Catholic University of Chile (PUC).

Scientific Work

14. *Regularity of Manhattan manifolds and exact dimensionality for relatively Anosov groups* (with Tianqi Wang). Preprint (2026), arXiv:2607.13730.
13. *A geometric correspondence for reparameterizations of geodesic flows* (with Stephen Cantrell and Dídac Martínez-Granado). Preprint (2024), arXiv:2605.02585.
12. *Stably tangential strict hyperbolization* (with Mauricio Bustamante and Stefano Riolo). Preprint (2026), arXiv:2604.05956.
11. *The joint translation spectrum and Manhattan manifolds* (with Stephen Cantrell and Cagri Sert). Preprint (2024), arXiv:2411.06375.
10. *Approximating hyperbolic lattices by cubulations* (with Nic Brody). Preprint (2024), arXiv:2404.01511.
9. *Approximate marked length spectrum in coarse geometry* (with Stephen Cantrell). Journal of the London Mathematical Society, **113** (1), e70437 (2026).
8. *Marked length spectrum rigidity from rigidity on subsets* (with Stephen Cantrell). International Mathematics Research Notices, **23**, 1-23 (2025).
7. *Rigidity phenomena and the statistical properties of group actions on CAT(0) cube complexes* (with Stephen Cantrell). Forum of Mathematics, Sigma, **13**:e-e150, 1-50 (2025).
6. *Manhattan geodesics and the boundary of the space of metric structures on hyperbolic groups* (with Stephen Cantrell). Commentarii Mathematici Helvetici, **100**, 11-59 (2025).
5. *On cubulated relatively hyperbolic groups*. Geometry & Topology, **27**, 575-640 (2023).
4. *The space of metric structures on hyperbolic groups*. Journal of the London Mathematical Society, **107**, 914-942 (2023).
3. *A new inequality about matrix products and a Berger-Wang formula*. Journal de l'École polytechnique - Mathématiques, **7**, 185-200 (2020).
2. *The avalanche principle and negative curvature*. Mathematische Zeitschrift, **294**, 1397-1412 (2020).
1. *Properties of sets of isometries of Gromov hyperbolic spaces*. Groups, Geometry, and Dynamics, **12**(3), 889-910 (2018).

Selected Invited Talks

- Aug 13 2026 Algebraic Topology Session, XXV CLA, PUC Lima, *Strict hyperbolization of flat manifolds.*
- Aug 12 2026 Group Theory Session, XXV CLA, PUC Lima, *Metric structures, Green metrics, and reparameterizations of the geodesic flow.*
- Aug 4 2026 Strong convergence, random matrices and discrete subgroups of Lie groups, *Strict hyperbolization of flat manifolds.*
- Jul 23 2026 Groups and their Actions Session, XXXIV COMCA, *Variedades hiperbólicas e hiperbolización estricta.*
- Jul 22 2026 Dynamical Systems Session, XXXIV COMCA, *Reparameterizaciones del flujo geodésico en variedades de curvatura negativa.*
- May 18 2026 Chicago Dynamics Seminar, *A geometric correspondence for reparameterizations of geodesic flows.*
- Apr 17 2026 Caltech Geometry and Topology seminar, *Strict hyperbolization of flat manifolds.*
- Apr 6 2026 Rice Topology seminar, *Strict hyperbolization of flat manifolds.*
- Apr 17 2025 Oklahoma Karcher Colloquium, *Deformation spaces of isometric group actions.*
- Apr 10 2025 Young Geometric Group Theory XIII, Copenhagen, *Green metrics and metric structures on hyperbolic groups* (Plenary Speaker).
- Mar 4 2025 Joint IAS/PU Groups and Dynamics Seminar, *Approximating hyperbolic lattices by cubulations.*
- Oct 30 2024 Brown Geometry & Topology Seminar, *Approximating hyperbolic lattices by cubulations.*
- Oct 7 2024 Wisconsin-Madison Group Actions and Dynamics Seminar, *Approximating hyperbolic lattices by cubulations.*
- Jul 22 2024 Algebraic Topology Session, XXIV CLA, PUC, *Cubulable relatively hyperbolic groups and virtual specialness.*
- Apr 30 2024 KIT Topology and Geometric Group Theory Seminar, *Approximating hyperbolic lattices by cubulations.*
- Apr 19 2024 GTA, Gran Bilbao V, *Cubulable relatively hyperbolic groups and virtual specialness.*
- Feb 28 2024 Warwick Ergodic Theory and Dynamical Systems Seminar, *Comparing length functions for actions on $CAT(0)$ cube complexes.*
- Jan 23 2024 Vienna Geometry and Analysis on Groups Seminar, *Comparing group actions on $CAT(0)$ cube complexes.*
- Dec 5 2023 MPI MiS Geometry Seminar, *Approximating hyperbolic lattices by cubulations.*
- Nov 17 2023 Cambridge Geometric Group Theory Seminar, *Approximating hyperbolic lattices by cubulations.*
- Oct 30 2023 Luxembourg Geometry & Topology Seminar, *Approximating hyperbolic lattices by cubulations.*
- May 1 2023 Chicago Dynamics Seminar, *Geodesic currents and the space of metric structures on hyperbolic groups.*
- Dec 1 2022 Princeton Topology Seminar, *The space of metric structures on hyperbolic groups.*
- Nov 17 2022 UC Davis Geometry/Topology Seminar, *The space of metric structures on hyperbolic groups.*
- Nov 6 2022 Workshop in Dynamical Systems and Related Topics, Penn State, *Continuity of Bowen-Margulis measures for hyperbolic groups.*
- Jun 21-25 2021 GGTwB II, Online, Minicourse, *Cubulated groups and virtual specialness.*
- Mar 24 2021 McGill GGT Seminar, *Cubulated relatively hyperbolic groups and virtual specialness.*
- Feb 23 2021 Yale Geometry and Topology Seminar, *Cubulated relatively hyperbolic groups and virtual specialness.*

Selected Meetings Attended

10-14 Aug 2026	XXV Coloquio Latinoamericano de Álgebra. Lima, Perú.
3-7 Aug 2026	Workshop: Strong convergence, random matrices and discrete subgroups of Lie groups. Ciudad de Mexico, Mexico.
22-24 Jul 2026	XXXIV Congreso de Matemáticas Capricornio. La Serena, Chile.
25-28 Nov 2025	XCIII Meeting of the Chilean Mathematical Society. Vicuña, Chile.
7-11 Apr 2025	Workshop: Young Geometric Group Theory XIII. Copenhagen, Denmark.
14-17 Nov 2024	Workshop in Dynamical Systems and Related Topics. Penn State, US.
22-26 Jul 2024	XXIV Coloquio Latinoamericano de Álgebra. PUC, Chile.
28 May-8 June 2024	Thematic Program on Randomness and Geometry. Fields Institute, Toronto, Canada.
15-19 Apr 2024	Conference: GTA Gran Bilbao V. Bilbao, Spain.
8-12 Apr 2024	Conference: Young Geometric Group Theory XII. Bristol, UK.
18-22 Mar 2024	Conference: Topological and Homological Methods in Group Theory. Bielefeld, Germany.
15 Mar 2024	Meeting: Groups and Geometry in South England. Warwick, UK.
18-21 Dec 2023	XCI Meeting of the Chilean Mathematical Society. UCH, Chile.
2-4 Jun 2023	Workshop: Geometric Topology in New York. Columbia University, US.
13-17 Feb 2023	Conference: Young Geometric Group Theory XI. Münster, Germany.
3-6 Nov 2022	Workshop in Dynamical Systems and Related Topics. Penn State, US.
5-9 Sep 2022	Workshop: Modern advances in geometric group theory. University of Manchester, UK.
6-9 Apr 2022	Joint Mathematics Meetings. Online.
24-28 Feb 2020	Conference: Young Geometric Group Theory IX. Saint-Jacut-de-la-Mer, France.

Service

2021-present	Served as a referee for publication.
2025-present	Coorganizer of Club de Matemáticas (with Constanza Del Campo), PUC.
2nd Semester 2026	Coorganizer of hyperbolic manifolds seminar (with Mauricio Bustamante), PUC.
2nd Semester 2025	Coorganizer of reading seminar on Fuchsian groups (with Mauricio Bustamante), PUC.
Fall 2024-Spring 2025	Coorganizer of the Geometry and Topology seminar (with Tam Cheetham-West), Yale.
Fall 2021-Spring 2023	Coorganizer of the student 3-manifold seminar (with Chi Cheuk Tsang), UC Berkeley.
Dec 2017	Organizing committee for the First Conference of math graduate students of Chile (PostMat), UCH, USACH, and PUC.
2017-Spring 2018	Organizer of the graduate student seminar, PUC.

Activities related to Mathematical Olympiads

2025-present	Academic Committee member for the Chilean Mathematical Olympiad.
Sep 2025	Grader for the Iberoamerican Mathematical Olympiad, Chile.
2016-2018	Instructor of the Chilean Team for International Math Olympiads (International, Cono Sur, and Iberoamerican).
Oct 2017	Grader for the Chilean Math Olympiad.
Sep 2017	Deputy Leader of the Chilean Team at the Iberoamerican Math Olympiad, Argentina.
Aug 2017	Deputy Leader of the Chilean Team at the Cono Sur Math Olympiad, Ecuador.
Oct 2016	Grader for the Chilean Mathematical Olympiad.
Sep 2016	Grader for the Iberoamerican Mathematical Olympiad, Chile.

Activities related to Outreach

- Jul 30 2026 *Club de Matemáticas* (with Constanza del Campo). Talk at III Simposio de Divulgación Matemática, Santiago.
- Oct 2025 *Geometría, corales y lechugas*. Talk at Expo Futuro Novato/a UC.
- Nov 2018 Volunteer for Julia Robinson Mathematics Festival (JRMF).
- Jul 2017 *Double Pendulum*. Stand at Math Festival, Vicuña.
- Jun 2017 *Mathematical Research Workshop*. Talk for Teachers at Explora Program, CONICYT, Santiago.
- Mar 2017 *Fractals: The beautiful representation of Chaos*. Exhibition Monitor for Oh! Santiago event, PUC.
- Mar 2016 *II Math Camp* (CaMat). Member of Academic Team, Santiago.

Teaching

Instructor, PUC

- 2nd Semester 2026 MAT1107, Introduction to Calculus.
- 2nd Semester 2026 MAT2544, Topology.
- 2nd Semester 2025 MAT2544, Topology.

Instructor, Yale

- Spring 2025 Math 222, Linear Algebra with Applications.
- Fall 2024 Math 120, Multivariable Calculus.

Honors, awards, and grants

- 2026-2029 ANID Fondecyt Iniciación grant 11260637: *Deformation spaces of isometric actions of hyperbolic groups*, Chilean government.
- 2017 Jorge Billeke award, Chilean Mathematical Society.
- 2017-2018 “Beca CONICYT” scholarship for Master studies, Chilean government.