

Eduardo Reyes

Faculty of Mathematics, Office 144
Pontifical Catholic University of Chile
Rolando Chuaqui Building, San Joaquín Campus
Avda. Vicuña Mackenna 4860, Santiago, Chile

eduardoreyes@uc.cl
<https://reyes-eduardo.github.io>

Employment

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|-------------------|---|
| 01/2026 - 05/2026 | Chern postdoc at SLMath. |
| 07/2025 - present | Assistant Professor at Pontifical Catholic University of Chile (PUC). |
| 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

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| 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

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. Submitted.
9. *Approximate marked length spectrum in coarse geometry* (with Stephen Cantrell). To appear in the Journal of the London Mathematical Society, arXiv:2410.01965.
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).

Invited Talks

- Oct 20 2025 SANTAS seminar, Variedades hiperbólicas aritméticas e hiperbolización estricta.
- Oct 10 2025 PUC Colloquium, *Complejos cúbicos y curvatura no positiva*.
- May 6 2025 CUNY Geometry and Topology Seminar, *Approximating hyperbolic lattices by cubulations*.
- 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 2025 GGT Session, STDC, *Metric structures, Green metrics, and reparametrizations of the geodesic flow*.
- Mar 4 2025 Joint IAS/PU Groups and Dynamics Seminar, *Approximating hyperbolic lattices by cubulations*.
- Feb 18 2025 Rutgers Geometry and Topology Seminar, *The space of metric structures on hyperbolic groups*.
- Nov 21 2024 Cornell Dynamics Seminar, *The joint translation spectrum*.
- Oct 30 2024 Brown Geometry & Topology Seminar, *Approximating hyperbolic lattices by cubulations*.
- Oct 25 2024 HIT Geometric Group Theory Seminar, Manhattan curves and manifolds and metric structures on hyperbolic groups.
- Oct 7 2024 Wisconsin-Madison Group Actions and Dynamics Seminar, *Approximating hyperbolic lattices by cubulations*.
- Sep 24 2024 Tufts Geometric Group Theory and Topology Seminar, *Approximating hyperbolic lattices by cubulations*.
- Jul 22 2024 Algebraic Topology Session, CLA, PUC, *Cubulable relatively hyperbolic groups and virtual specialness*.
- Jul 17 2024 UCH Colloquium, *Complejos cúbicos y curvatura no positiva*.
- Jun 5 2024 Randomness and Geometry Seminar (Thematic Program on Randomness and Geometry at Fields Institute), *Approximating hyperbolic lattices by cubulations*.
- Jun 4 2024 Randomness and Geometry Seminar (Thematic Program on Randomness and Geometry at Fields Institute), *Marked length spectrum rigidity on hyperbolic groups*.
- May 24 2024 Lille Geometry and Dynamics Seminar, *Comparing length functions for actions on CAT(0) cube complexes*.
- 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*.
- Mar 15 2024 GGSE, Warwick, *Approximating hyperbolic lattices by cubulations*.
- Jan 23 2024 Vienna Geometry and Analysis on Groups Seminar, *Comparing group actions on CAT(0) cube complexes*.
- 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 19 2023 Dynamical Systems Session, XCI Meeting of SOMACHI, *Comparación estadística de acciones en complejos cúbicos CAT(0)*.
- 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*.
- Oct 26 2023 MPIM Oberseminar Differentialgeometrie, *Approximating hyperbolic lattices by cubulations*.
- Oct 18 2023 Bonn GGT Seminar, *Comparing group actions on CAT(0) cube complexes*.

- Jul 7 2023 PUCV Dynamical Systems Seminar, *Geodesic currents and the space of metric structures on hyperbolic groups.*
- Jun 7 2023 UCH Colloquium, *Grupos, topología en dimensiones bajas, y curvatura no positiva.*
- Jun 4 2023 GTiNY, New York, *The space of metric structures on hyperbolic groups.*
- May 1 2023 Chicago Dynamics Seminar, *Geodesic currents and the space of metric structures on hyperbolic groups.*
- Feb 9 2023 KIT Topology and Geometric Group Theory Seminar, *The space of metric structures on hyperbolic groups.*
- Feb 3 2023 UC Riverside Geometry-Topology Seminar, *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.*
- Aug 22 2022 PUC Dynamical Day, *Continuity of Bowen-Margulis measures for hyperbolic groups.*
- Jun 21-25 2021 GGTwB II, Online, Minicourse, *Cubulated groups and virtual specialness.*
- May 13 2021 GGT Session, STDC, *Cubulated relatively hyperbolic 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

- 5-9 Jan 2026 AGREGA 5. UCH, Chile.
- 25-28 Nov 2026 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.
- 13-17 May 2024 Conference: Homology Growth in Topology and Group Theory. Bonn, Germany.
- 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.
- 8-10 Jan 2024 Meeting: Topolodías en Santiago. PUC, Chile.
- 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.
- 25-27 Feb 2022 Texas Geometry and Topology Conference. UT Dallas, US.
- 21 Jun-2 Jul 2021 School: Geometric Group Theory without Boundaries. Online.
- 17-21 May 2021 SIAM Conference on Applied Linear Algebra. Online.

- 12-15 May 2021 Spring Topology and Dynamical Systems Conference. Online.
- 6-10 Jul 2020 Topology Students Workshop. 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).
- 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

- 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 2025 MAT2544, Topology.

Instructor, Yale

Spring 2025 Math 222, Linear Algebra with Applications.

Fall 2024 Math 120, Multivariable Calculus.

Graduate Student Instructor (T.A.), UC Berkeley

- Spring 2023 Math 55, Discrete Mathematics.
- Spring 2022 Math 55, Discrete Mathematics.
- Fall 2021 Math 16A, Analytic Geometry and Calculus.
- Spring 2021 Math 55, Discrete Mathematics.
- Fall 2020 Math 1B, Calculus.
- Spring 2020 Math 55, Discrete Mathematics.
- Spring 2019 Math 1B, Calculus.
- Fall 2018 Math 1A, Calculus.

Tutoring, PUC

- 2017 - Spring 2018 Instructor of Mathematics Research Workshop (TIM). Course for Talented High School Students. Mathematics Department.
- 2017 Tutor of Mathematical Reasoning Program (PRM). Lectures given to High School Teachers of Primary Instruction Society (SIP). Mathematics Department.

T.A., PUC

- 2014-2017 T.A. for several courses in the Mathematics Department, including *Pre-Calculus, Calculus, Number Theory, Group and Ring Theory, Dynamical Systems, Real Analysis, Algebraic Geometry, Complex Variables*.