Gabriel LAROTONDA

Nationality: Argentine.

Work Address: Departamento de Matemática, Facultad de Ciencias Exactas y Naturales, University of Buenos Aires. Ciudad Universitaria, Pabellón I, (C1428EGA) Buenos Aires, Argentina.

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Academic Degrees

1. Ph.D. in Mathematics, Facultad de Ciencias Exactas y Naturales, University of Buenos Aires (2005). Dissertation Title: "Geodesic Convexity, Symmetric Spaces and Hilbert-Schmidt Operators". Advisor: Esteban Andruchow.
2. Licenciado en Ciencias Matemáticas, FCEN UBA (1999). Thesis Title: "Some Metric Aspects of Noncommutative Geometry".

Current Positions

1. Profesor Asociado, regular, part-time, at the Departamento de Matemática, Facultad de Ciencias Exactas y Naturales, University of Buenos Aires, since 2024.
2. Profesor Adjunto, regular, full-time, at the Departamento de Matemática, FCEN UBA, since 2019.
3. Researcher at CONICET since 2007: with workplace at the Instituto Argentino de Matemática "Alberto P. Calderón" (IAM) from 2007 to 2024, and since 2025 as Principal Researcher (Investigador Principal) at the Instituto de Matemática Alberto Santaló (IMAS).
4. Category III Researcher, according to the Incentives Program of the Ministry of Science and Education of the Argentine Republic, since 2011.

Formal Verification and Computer-Assisted Mathematics

- Lean 4 libraries (open source)
  - `lc-analysis`: Michal–Bastiani differential calculus on locally convex spaces. Integrals, ODEs and flows, real and complex analytic maps, exponential laws for $C^{k,l}$ maps, direct limits, Silva spaces, Krein spaces.
    `https://github.com/glaroton/lc-analysis`
  - `lc-manifolds`: manifolds modeled on locally convex spaces. Tangent and vector bundles, vector fields, connections, sprays and geodesics, differential forms and de Rham theory, symplectic, complex and Kähler structures, Finsler and pseudo-Riemannian metrics (including Krein signatures), manifolds of mappings $C^l(M, N)$, and $\mathrm{Diff}(M)$ as a manifold.
    `https://github.com/glaroton/lc-manifolds`
  - About 96,000 lines and 5,400 declarations in total, with no unproved statements. Each library has a LaTeX blueprint that presents the mathematics and links every result to its Lean proof. Both have continuous integration and generated documentation.

  - `gc-zk`: Lean 4 / Mathlib formalization of zero-knowledge proofs from privacy-free garbled circuits (the Jawurek–Kerschbaum–Orlandi protocol, CCS 2013, over the Free-XOR garbling of Zahur, Rosulek and Evans). Correctness, authenticity in the random oracle model, the protocol with ideal and real commitments and oblivious transfers, adaptive authenticity, and cut-and-choose. It has a LaTeX blueprint.
    `https://github.com/glaroton/gc-zk`
  - `shamir-lean`: Lean 4 / Mathlib formalization of Shamir's secret sharing (1979). Theorems for reconstruction (correctness) and for uniform and indistinguishable shares (perfect secrecy), with an axiom check for the standard Lean axioms.
    `https://github.com/glaroton/shamir-lean`
- Mathlib
  - In preparation: a contribution to Mathlib giving quotients of locally convex spaces their locally convex structure. It comes with an analysis of dependencies and design alternatives.
- Research program
  - Designed a layered program for formalizing infinite-dimensional Lie theory: calculus, manifolds, Lie groups, and current research. Its targets are diffeomorphism groups, geometric hydrodynamics, coadjoint orbits, and Banach–Lie groups and groupoids.
- AI-assisted formalization
  - Directed large-scale formal proof development with AI coding agents (Claude Code): mathematical design, architecture decisions, verification of sources, and quality control.
- Technical skills
  - Lean 4 and Mathlib: tactic proofs, the typeclass system and instance design, library architecture.
  - Tooling: Lake, leanchecker, leanblueprint, git, GitHub Actions, LaTeX.

Previous Research and Teaching Positions

1. Profesor Adjunto, regular, part-time, at the Departamento de Matemática, FCEN UBA, from 2015 to 2024.
2. Investigador Docente Category C (Profesor Adjunto), regular, full-time, at the Instituto de Ciencias, National University of General Sarmiento, from 2007 to 2017.
3. Profesor Adjunto, interim, part-time, at the Departamento de Matemática, FCEN UBA, from 2008 to 2015.

Other Academic Activities

1. Invited Professor at the University of Nevada, Reno. October 2026.
2. Organizer of the five-week thematic program (together with T. Goliński, B. Tumpach, C. Vizman) "Infinite dimensional Geometry: Theory and Applications", Erwin Schrödinger International Institute for Mathematics and Physics (Vienna), January–February 2025.

3. Member of the Scholarship Committee (Mathematics area) of the National Scientific and Technical Research Council (CONICET, Argentina): 2013, 2014, 2023, 2024, 2025.
4. Invited Professor at the Department of Mathematics of the University of Białystok (Poland), July 2018, February 2019, July 2024.
5. Invited Professor at the Department of Mathematics of the University of Los Andes, Colombia. November 2023.
6. Invited Professor at the Department of Mathematics of the University of Vienna, Austria. July and August 2021.
7. Member of the Advisory Committee (Mathematics area) of CONICET (2015, 2016, 2021).
8. Doctoral Thesis Jury Member at the University of Buenos Aires: 2012, 2013, 2016, 2020 (Ph.D. students: Daniel Galicer, Ariel Molinuevo, Román Villafañe, Rodrigo Cardeccia, Eugenio Borghini; Advisors: Daniel Carando, Fernando Cukierman, Verónica Dimant, Santiago Muro, Gabriel Minian respectively), and at the National University of La Plata, 2009, 2018 (Ph.D. students: María Laura Arias, Eduardo Ghiglioni; Advisors: Gustavo Corach, Jorge Antezana).
9. Jury Member for Faculty Positions at the National University of the Center (UNICENPBA), November 2019.
10. Organizer of the symposium (together with A. Varela) "Linear Algebra and Geometry", within the framework of the ILAS 2017 Congress (International Linear Algebra Society), Iowa State University, July 2017.
11. Evaluator for the Admissions Advisory Committee (Mathematics) of CONICET (2010, 2015, 2016, 2022).
12. Evaluator for the Mathematics Advisory Committee (Promotions and Projects) of CONICET, 2017.
13. Invited Professor at the Department of Mathematics, University of Ljubljana, Slovenia, July 2016.
14. Invited Professor at the Department of Mathematics and Computer Science, University of Santiago de Chile, January 2012.
15. Organizer (together with Guillermo Henry) of the Differential Geometry Seminar of the Faculty of Exact and Natural Sciences, UBA (since 2015).
16. Representative of UNGS in the national standards development group for Mathematics Teacher Training Programs of the University Council of Exact and Natural Sciences of Argentina, 2010–2011.
17. Acting as evaluator of PICT projects in the areas of differential geometry and functional analysis, for ANPCyT, since 2010, and for CONICET, since 2009.
18. Jury Member for numerous Bachelor's Theses at the Faculty of Exact and Natural Sciences of UBA, since 2009.
19. Design and teaching of the doctoral courses: "Metric Problems" (FCEN UBA, 2009 and 2014), "Riemannian Geometry of Symmetric Spaces" (FCEN UBA, 2010), "Geometry and Functional Analysis I" (ICI-UNGS, 2010), "Connections and Metrics" (ICI-UNGS, 2010), "Smooth and Homogeneous Structures" (FCEN UBA, 2011), "Differential and Metric Geometry" (FCEN UBA, 2012), "Differential Topology"

(FCEN UBA, 2013).

20. CONICET Fellow (postgraduate initiation scholarship). April 2000 – March 2004.

Participation in University Governance and Administration

1. Chair (Director) of the Departamento de Matemática of FCEN, since August 2026.
2. Deputy Director of the Departamento de Matemática of FCEN, since November 2025.
3. Academic Secretary of the Departamento de Matemática of FCEN, since 2024.
4. Faculty Selection Committee of the Departamento de Matemática of FCEN, since 2020.
5. Coordinator of the Mathematics Area (Department Chair) of the Instituto de Ciencias, National University of General Sarmiento, 2015–2016.
6. Coordinator of the Mathematics area of the Instituto de Ciencias of UNGS (equivalent to Department Chair), 2007–2008.

Participation in Research Projects

Current

1. Director of the UBACyT 2023 Project, No. 20020220400256BA. Title: Geometry and Optimization on Differentiable Manifolds. FCEN UBA.

Previous

2. Researcher in the ANPCyT project, PICT2019-04060. Title: Geometry and Functional Analysis. Director: E. Andruchow.
3. Researcher in the multi-year research project PIP 2016 112201, CONICET. Title: Operator Theory and Differential Geometry.
4. Researcher in the ANPCyT project, PICT 2015-1505. Title: Operator Theory and Applications.
5. Researcher in the ANPCyT project, PICT 2010-2478. Title: Metric Spaces of Operators. 2010–2014.
6. Director of the UNGS project, ICI 30/1072. Title: Banach-Finsler Manifolds and Applications. 2009–2012.
7. Researcher in the multi-year research project PIP 2010 0757, CONICET. Title: Geometry, Operators and Inequalities. 2010–2014.
8. Researcher in the ANPCyT project, PICTO 2008-00076. Title: Trace-class Operator Algebras. 2010–2012.
9. Researcher in the UNGS project, ICI 30/1071. Title: Geometry, Operators and Inequalities. 2009–2013.
10. Assistant Researcher in the UNGS project, ICI 30/1039. Title: Geometry and Operators. 2005–2009.
11. Researcher in the ANPCyT project, PICT 2004, No. 26107. Title: Geometry, Operators and Matrices. 2006–2008.
12. Researcher in the multi-year research project PIP 2005-2006 5690, CONICET. Title: Differential Geometry and Operators. 2005–2006.
13. Training Researcher in the UNGS project, ICI 30/1015. Title: Geometry and Analysis in Operator Algebras. 2001–2005.

14. Training Researcher, CONICET postgraduate fellow (initiation scholarship), in the ANPCyT project, PICT 97-2259. Title: Metric Problems in Operator Algebras. 2000–2004.

Supervision of Fellows, Thesis Students and Researchers

1. Ph.D. Theses Supervised:
   - Iván Rey "Finsler Geometry of Groups with Bi-invariant Distances", March 2026 (UBA)
   - José Luna "Structure Group of a JB-algebra and its Action on the Cone of Positive Elements", December 2022 (UBA).
   - Manuel López Galván "Riemannian Geometry of Operator Groups and Homogeneous Spaces", March 2016 (UBA).
   - Martín Miglioli "Infinite-dimensional Homogeneous Spaces", June 2015 (UBA).
2. Supervisor of Researchers: Martín Miglioli (Assistant Researcher CONICET, 2018–2025).
3. Director of Postdoctoral Fellowships: Martín Miglioli (CONICET Postdoctoral Fellowship, 2016–2017). Martin Mansilla (CONICET Postdoctoral Fellowship, 2020–2022).
4. Director of Doctoral Initiation Scholarships for René Elencwajg, Martín Miglioli and Yaneth Hernández; ANPCyT, CONICET and CONICET/Latin American respectively, in 2011, 2011 and 2012 respectively. Co-director of the ANPCyT Initiation Scholarship for Manuel López Galván 2012–2014, and of the CONICET type II postgraduate scholarship (2015–2016). Director of the CONICET Doctoral Scholarships for José Luna (2017–2022) and for Iván Rey (2017–2023).
5. Bachelor's Theses in Mathematical Sciences Supervised (Facultad de Ciencias Exactas y Naturales, University of Buenos Aires):
   (a) Julián Masliah (July 2024 *The Willmore Conjecture*),
   (b) Cecilia De Vita (June 2021 *Euler-Arnold Equations and Totally Geodesic Subgroups*),
   (c) Darío Aza (March 2019 *The Euler-Arnold Equations in the Virasoro Group*),
   (d) Iván Rey (March 2017 *On the Geometry of Grassmann Manifolds*),
   (e) José Luna (March 2017 *Curvature in Lie-Finsler Groups with Left-invariant Metric*),
   (f) Franco Arrejoría (March 2017 *Lipschitz Functions of Operators*),
   (g) Marcos Cossarini (March 2012 *Equations of Classical Mechanics*),
   (h) Manuel López Galván (September 2011 *Integrability of Banach-Lie Algebras*),
   (i) René Elencwajg (April 2010 *Inequalities in Spaces of Operators*).
6. Bachelor's Theses in progress: Matias Conde, Juan Pablo Otero (since 2023). Facultad de Ciencias Exactas y Naturales, University of Buenos Aires.
7. Co-Director of Scholarships from the Teaching Training Program of the National University of General Sarmiento: Abel Klobouk (2008–2009); Virginia Carnelli (2008–2009); Cristina Herrera (2007–2008); Ana María Maffei (2007–2008); Emanuel Lastra (2005–2006); Lucas Catalano (2004–2005).

Scientific Publications

1. G. Larotonda, M. Miglioli, *Convexity of sums of eigenvalues of a segment of unitaries*, Linear Algebra Appl. 730 (2025), pp. 73–96.
2. E. Andruchow, G. Larotonda, L. Recht, *Conjugate points in the Grassmann manifold of a C^*-algebra*, J. Geom. Phys. 218 (2025) paper no. 105654.
3. T. Goliński, G. Larotonda, A. B. Tumpach, *Nijenhuis operators on Banach homogeneous spaces*, Atti Accad. Naz. Lincei Cl. Sci. Fis. Mat. Natur. 35 (2025), no. 4, pp. 713–739.
4. G. Larotonda, J. Luna, *Connections and Finsler geometry of the structure group of a JB-algebra*, J. Math. Anal. Appl. 550 (2025), no. 1, Paper No. 129506, 28 pp.
5. G. Larotonda, A. B. Tumpach, *Totally geodesic submanifolds in the manifold SPD of symmetric positive-definite real matrices*. Inf. Geom. 7 (2024), suppl. 2, S913–S942.
6. G. Larotonda, I. Rey, *Weakly invariant norms: geometry of spheres in the space of skew-Hermitian matrices*. Linear Algebra Appl. 678 (2023), 136–168.
7. G. Larotonda, M. Miglioli, *Hofer's metric in compact Lie groups*. Groups, Geometry and Dynamics 17 (2023) no. 3, 839–898.
8. G. Larotonda, J. Luna, *On the structure group of an infinite dimensional JB-algebra*. J. Algebra 622 (2023), 366–403.
9. D. Beltita, G. Larotonda, *Unitary group orbits versus groupoid orbits of normal operators*. J. Geom. Anal. 33 (2022) no. 3, 95, 44pp.
10. G. Larotonda, *Metric geometry of infinite dimensional Lie groups and their homogeneous spaces*. Forum Math. 31 (2019), no. 6, 1567–1605.
11. E. Andruchow, E. Chiumiento, G. Larotonda, *Canonical sphere bundles of the Grassmann manifold*. Geometriae Dedicata 203 (2019), 179–203.
12. G. Larotonda, *The case of equality in Young's inequality for the s-numbers in semifinite von Neumann algebras*. J. Operator Theory 81 (2019) no. 1, 157–173.
13. E. Andruchow, E. Chiumiento, G. Larotonda, *Geometric significance of Toeplitz kernels*. J. Funct. Anal. 275 (2018), no. 2, 329–355.
14. G. Larotonda, *The case of equality in Hölder's inequality for operators and matrices*. Math. Proc. R. Ir. Acad. 118A (2018), no. 1, 1–4.
15. G. Larotonda, *Young's (in)equality for compact operators*. Studia Math. 233 (2016) 169–181.
16. T. Bottazzi, R. Elencwajg, G. Larotonda, A. Varela, *Inequalities related to Bourin and Heinz means with a complex parameter*. J. Math. Anal. Appl. 426 (2015), no. 2, 65–773.
17. E. Andruchow, G. Larotonda, L. Recht, A. Varela, *The left invariant metric on the general linear group*, J. Geom. Phys. 86 (2014), 241–257.
18. J. Antezana, G. Larotonda, A. Varela, *Optimal paths for symmetric actions in the unitary group*, Comm. Math. Phys. 328 (2014), no. 2, 481–497.
19. E. Andruchow, E. Chiumiento, G. Larotonda, *The group of L^2 isometries of H^1_0*, Studia Math. 217 (2013), 193–217.
20. J. Antezana, G. Larotonda, A. Varela, *Thompson type formulae*, J. Funct. Anal. 262 (2012) no. 4, 1515–1528.

21. E. Andruchow, G. Larotonda, L. Recht, A. Varela, *A characterization of minimal Hermitian matrices*, Linear Algebra Appl. 436 (2012) no. 7, 2366–2374.
22. E. Andruchow, G. Larotonda, *Smooth paths of conditional expectations*. Int. J. Math. 22 (2011) no. 7, 1031–1050.
23. C. Conde, G. Larotonda, *Manifolds of semi-negative curvature*. Proc. London Math. Soc. (3) 100 (2010), 670–704.
24. C. Conde, G. Larotonda, *Spaces of nonpositive curvature arising from a finite algebra*. J. Math. Anal. Appl. 368, (2010), no. 2, 636–649.
25. E. Andruchow, E. Chiumiento, G. Larotonda, *Homogeneous manifolds from noncommutative measure spaces*. J. Math. Anal. Appl. 365, (2010), no. 2, 541–558.
26. E. Andruchow, G. Larotonda, *The rectifiable distance in the unitary Fredholm group*. Studia Math. 196 (2010), 151–178.
27. E. Andruchow, G. Larotonda, L. Recht, *Finsler geometry and actions of the p-Schatten unitary groups*. Trans. Amer. Math. Soc. 362 (2010), 319–344.
28. E. Andruchow, G. Larotonda, *Lagrangian Grassmannian in infinite dimension*. J. Geom. Phys. 59 (2009), no. 3, 306–320.
29. G. Larotonda, *Norm Inequalities in Operator Ideals*. J. Funct. Anal. 255 (2008), no. 11, 3208–3228.
30. E. Andruchow, G. Larotonda, *Hopf-Rinow Theorem in the Sato Grassmannian*. J. Funct. Anal. 255 (2008), no. 7, 1692–1712.
31. E. Andruchow, G. Larotonda, *Weak Riemannian Manifolds from Finite Index Subfactors*. Ann. Global Anal. Geom. 34 (2008), no. 3, 213–232.
32. G. Larotonda, *Nonpositive Curvature: A Geometric Approach to Hilbert-Schmidt Operators*. Differential Geom. Appl. 25 (2007), no. 6, 679–700.
33. E. Andruchow, G. Larotonda, *Nonpositively Curved Metric in the Positive Cone of a Finite von Neumann Algebra*. J. London Math. Soc. (2) 74 (2006), no. 1, 205–218.
34. G. Larotonda, *Unitary Orbits in a Full Matrix Algebra*. Integral Equations Operator Theory 54 (2006), no. 4, 511–523.
35. E. Andruchow, G. Larotonda, *Connes' Metric for States in Group Algebras*. Revista de la UMA, vol 44 (2003), no. 2, 49-56.

Conference and Workshop Papers

1. A. Futoransky, R. Fernandez, E. Garcia, G. Larotonda, S. D. Lerner, *WISCH: Efficient data signing via correlated signatures*. Presented at WTSC'26, the 10th Workshop on Trusted Smart Contracts, associated with Financial Cryptography 2026, St. Kitts, March 6, 2026 (paper 4 in the workshop pre-proceedings). To appear in *FC 2026 International Workshops: WTSC 2026, Voting 2026, CoDecFin 2026, CAAW 2026 and DeFi 2026, Revised Selected Papers*, Springer Lecture Notes in Computer Science (LNCS). Preprint: Cryptology ePrint Archive, Paper 2025/1650. `https://eprint.iacr.org/2025/1650`

Preprints (submitted for publication)

Mathematics

1. G. Larotonda, I. Rey, *Lie groups with bi-invariant distances* (2025), 25 pp. preprint arXiv:2511.09699.
2. G. Larotonda, *Short curves in homogeneous spaces of the unitary group for unitarily invariant norms* (2026), 9 pp. preprint arXiv:2610.31535.

Cryptography (IACR ePrint Archive)

1. A. Futoransky, F. Barbàra, R. Fernandez, G. Larotonda, S. D. Lerner, *TRAPGC-DV: Trapdoor Garbled Circuit Designated Verification of Groth16 on Bitcoin* (2026), Cryptology ePrint Archive, Paper 2026/1430.
   `https://eprint.iacr.org/2026/1430`
2. A. Futoransky, F. Barbàra, R. Fernandez, G. Larotonda, S. D. Lerner, *OHMG: One hot modular garbling* (2025), Cryptology ePrint Archive, Paper 2025/2338.
   `https://eprint.iacr.org/2025/2338`
3. A. Futoransky, G. Larotonda, F. Barbara, *A note on the security of the BitVM3 garbling scheme* (2025), Cryptology ePrint Archive, Paper 2025/1291.
   `https://eprint.iacr.org/2025/1291`
4. A. Futoransky, F. Barbara, R. Fernandez, G. Larotonda, S. D. Lerner, *TOOP: A transfer of ownership protocol over Bitcoin* (2025), Cryptology ePrint Archive, Paper 2025/964.
   `https://eprint.iacr.org/2025/964`

Books

1. *Functional Analysis. An Advanced Course*, by G. Larotonda. Edited by the Department of Mathematics of FCEN, UBA, "Undergraduate Courses" Collection, Fascicle 14, 2021.
2. *Linear Algebra and Multivariable Calculus. An Introductory Course*, by G. Larotonda. Edited by the Department of Mathematics of FCEN, UBA, "Undergraduate Courses" Collection, Fascicle 13, 2021.
3. *Curves and Surfaces (with an Introduction to Riemannian Geometry)*, by G. Larotonda & A. Varela. Edited by the Department of Mathematics of FCEN, UBA, "Undergraduate Courses" Collection, Fascicle 10, 2020.
4. *Geometric Structures for Banach Manifolds*, by G. Larotonda (2012). UNGS, "Science, Innovation and Technology" collection.
5. *Calculus and Analysis*, by G. Larotonda. Edited by the Department of Mathematics of FCEN, UBA, "Undergraduate Courses" Collection, Fascicle 3, 2010.

Service as Reviewer, Referee and Editor

1. Reviewer for: *Mathematical Reviews* (American Mathematical Society) and *Zentralblatt für Mathematik* (European Mathematical Society).
2. Referee for: *Advances in Operator Theory, AIMS Mathematics, Bulletin of the London Mathematical Society, Crelle's Journal, Electronic Research Archive, Indagationes Mathematicae, Integral Equations and Operator Theory, International Mathematics Research Notices, Journal of Differential Geometry, Journal of Functional*

Analysis, Journal of Geometric Mechanics, Journal of Geometry and Physics, Journal of Mathematical Analysis and Applications, Journal of Operator Theory, Linear Algebra and its Applications, Linear and Multilinear Algebra, Mathematicae Notae, Mathematica Scandinavica, Mathematische Annalen, Mathematische Nachrichten, Positivity, Revista de la Real Academia de Cs. Serie A Matemáticas, Revista de la Unión Matemática Argentina, Results in Mathematics, Rocky Mountain Journal of Mathematics, Studia Mathematica, St. Petersburg Mathematical Journal.

3. Editor for: *Advances in Operator Theory (Springer) 2023–*.

Outreach, Monographs and Textbooks

1. *Differential Geometry*, by G. Larotonda (2022), with revisions, to be published in 2026.
2. *Axiomatic Geometry*, by G. Larotonda (2021).
3. *Classification of Quadrics*, by G. Larotonda (2021).

Talks, Conferences, Seminars and Short Courses

1. Conference "Convexity of the eigenvalues of a segment of unitaries", Mathematics Department Colloquium, University of Nevada, Reno, USA. October 22, 2026.
2. Conference "Lie groups with bi-invariant metrics", 2026 Matrix Seminar, University of Nevada, Reno, USA. October 16, 2026.
3. Conference "Connections in Grassmann Manifolds", Thematic Programme: Infinite dimensional geometry, Erwin Schrödinger Institute, Vienna. Visit funded by the ES Institute. January 22, 2025.
4. Short Course "Infinite dimensional Grassmann manifolds", XIV School in Geometry and Physics, Białystok, Poland, July 8–12, 2024. Invited and funded by a project of the University of Białystok.
5. Invited Conference, "Conjugate points in the Grassmann manifold of a C^*-algebra", XLI Workshop on Geometric Methods in Physics, University of Białystok, Poland, July 5, 2024.
6. Conference (virtual) "Convexity of the sums of eigenvalues of a one-parameter group of unitary matrices", International Workshop on Matrix Analysis and Quantum Information Theory, University of Sciences, Hue City, Vietnam, June 5, 2024.
7. Seminar of Functional Analysis of the Department of Mathematics of the University of Los Andes, talk "Conjugate points in an infinite-dimensional Grassmann manifold", Bogotá, Colombia, November 22, 2023.
8. Short Course "Amenability and Group Algebras", Department of Mathematics of the University of Los Andes, Bogotá, Colombia, November 2023.
9. Conference (virtual) "An inequality for weakly invariant norms", Workshop in matrix analysis and its applications. University of Quy Nhon, Vietnam. July 8, 2023.
10. Invited Conference, "Kähler Geometry of a coadjoint orbit", 5th School and Workshop on Functional Analysis and Geometry, Argentine Institute of Mathematics "Alberto P. Calderón", CONICET, Buenos Aires. October 28, 2022.
11. Conference (virtual), "Differentiable and Kähler geometry in the coadjoint orbit of a nuclear operator", XXXIX Workshop on Geometric Methods in Physics, University of Białystok, Poland. June 15, 2022.
12. Conference (in person), "Hamiltonian actions of compact Lie groups and their induced geometry", 2021 finite and infinite dimensional meeting on Lie groupoids, Poisson geometry and integrability. University of Vienna, Austria. August 17, 2021. Invited and funded by a CNRS project.
13. Conference (virtual), "Finsler geometry of a compact Lie group by means of a momentum polytope", 2021 1st symposium in Momentum Polytope Theory, Madrid,

July 8, 2021.

14. Conference (virtual), "Geometry of weakly invariant norms in skew-Hermitian and unitary matrices", 2021 Operator Theory Seminar, "Simon Stoilow" Institute of Mathematics of the Romanian Academy, Romania. March 12, 2021.
15. Conference (virtual), "Inequalities and optimization in the special unitary group", 2020 Matrix Seminar, University of Nevada, Reno, USA. November 15, 2020.
16. Conference, "Norm preserving dilations & its applications to optimal paths in canonical sphere bundles", Matrix Equations and Matrix Inequalities Symposium, ILAS 2019, Rio de Janeiro, Brazil, July 8, 2019.
17. Conference, "Geodesics of the unitary group for weakly unitarily invariant norms", International Conference on Matrix Theory and Applications, Jeju. Organized by the Applied Algebra & Optimization Research Center. Korea, May 24, 2019. Invited and funded by Sungkyunkwan University.
18. Invited Conference, "Geodesics of the groups of isometries of a positive cone", Workshop: Advances in the Geometric and Analytic Theory of Convex Cones, Jeju. Organized by Sungkyunkwan University. Korea, May 28, 2019.
19. Course "Functional Analysis techniques in Optimization and Metrization problems", VII School in Geometry and Physics, Białowieża, Poland, June 28–July 2, 2018. Invited and funded by a project of the University of Białystok.
20. Invited Conference "Short geodesics for Ad invariant metrics in locally exponential Lie groups", XXXVII Workshop on Geometric Methods in Physics, University of Białystok, Poland, July 2, 2018.
21. Invited plenary conference, "On the geometry of positive cones as homogeneous metric spaces", Workshop: Order Structures, Jordan Algebras and Geometry, Lorentz Center, the Netherlands. Leiden, May 30, 2017. Invited and funded by a project of the Lorentz Center.
22. Invited plenary conference, "On the Geometry of the Grassmann manifold of Hardy spaces", XXXVI Workshop on Geometric Methods in Physics, organized by CRM and the University of Białystok. Poland, July 4, 2017. Invited and funded by a project of the University of Białystok.
23. Invited Conference, "Metric homogeneous spaces", Congress of Functional Analysis, Geometry & Physics. University of Los Andes, Bogotá, Colombia, November 16, 2016. Invited and funded by a project of the University of Los Andes.
24. Invited Conference, "Geometrical Significance of Toeplitz Kernels", 3rd School and Workshop on Functional Analysis and Geometry, Argentine Institute of Mathematics "Alberto P. Calderón", CONICET, Buenos Aires. September 30, 2016.
25. Conference "Quotient metrics and the cone of positive invertible matrices", Geometry and Order Structure in Matrices and Operators Symposium, International Linear Algebra Society Meeting (ILAS2016). Leuven, Belgium, July 12, 2016.
26. Invited Conference "Hölder's inequality for matrices and operators". XIII National Meeting of Analysts, Villa General Belgrano. April 15, 2016.
27. Invited Conference "Young's inequality for operators and matrices", Functional Analysis Session of the Annual Meeting of the Unión Matemática Argentina. Universidad Nacional del Litoral. September 19, 2015.
28. Invited Conference "Convex bodies and optimizers in matrix geometry", Matrix Geometries Symposium, International Linear Algebra Society Meeting (ILAS2014). I did not travel; I sent a communication. Seoul, South Korea, August 2014.
29. Invited Conference "Matrix norm inequalities and their applications in geometry", Advanced School and Workshop on Matrix Geometries, ICTP, Trieste. July 11, 2013.
30. Invited Conference "The group of L^2 isometries of H_0^1", Functional Analysis Session of the Fourth Latin American Congress of Mathematics (CLAM IV), Córdoba, August 7, 2012.
31. Invited Conference "The left-invariant metric of the general linear group", Mathematical Physics Session of CLAM IV, Córdoba, August 6, 2012.

32. Conference "Riemannian geometry techniques applied to non-Riemannian contexts", Seminar of the Department of Mathematics of the Faculty of Mathematics and Computer Science, University of Santiago de Chile. January 20, 2012. Invited and funded by a project of the University of Santiago de Chile.
33. Invited Conference "Models of geometry with nonpositive curvature", Dynamical Systems Seminar of the Faculty of Mathematics and Computer Science, University of Santiago de Chile. January 16, 2012.
34. Invited Conference "Cartan, Hadamard, and the role of operator inequalities". First School on Functional Analysis and Geometry (in honor of Professor Gustavo Corach), Argentine Institute of Mathematics "Alberto P. Calderón", CONICET, Buenos Aires. November 24, 2011.
35. Invited Conference, Annual Meeting of the Unión Matemática Argentina. Universidad Nacional de Tandil. September 30, 2010. Title: "Manifolds of nonpositive curvature".
36. Course "Geometric structures for differentiable manifolds", Annual Meeting of the Unión Matemática Argentina. Universidad Nacional de Tandil. September 2010.
37. Invited Conference, Annual Meeting of the Unión Matemática Argentina. Universidad Nacional de Mar del Plata. September 25, 2009. Title: "Convexity of the geodesic distance in unitary groups".
38. Invited Conference, "The rectifiable distance in the unitary group". IV Meeting on Differential Geometry (EGEO-2009). Universidad Nacional de Córdoba, La Falda (Córdoba). August 27, 2009.
39. Invited Conference, "Inequalities and dissipative operators". First Meeting on Functional and Harmonic Analysis, at the National Academy of Exact Sciences, Buenos Aires. December 17, 2008.