Marco Linton

Personal Information

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Academic Positions

2027-	Ramon y Cajal Research Fellow, *Instituto de Ciencias Matemáticas (ICMAT)*.
2024-2027:	Severo Ochoa Postdoctoral Research Associate, *Instituto de Ciencias Matemáticas (ICMAT)*.
2022-2024:	Postdoctoral researcher, *University of Oxford*. Dawid Kielak's group.

Education

2018–2022:	PhD in Mathematics: *University of Warwick*. Supervised by Saul Schleimer. Thesis title: *One-relator hierarchies*.
2017–2018:	MSc in Mathematics, *Imperial College London*. First class honours with distinction.
2014–2017:	BSc in Mathematics and Computer Science, *University of York*. First class honours with distinction.

Research intersests

Coherence, compact cores, splittings, L^2-invariants, group cohomology, free groups, one-relator groups, hyperbolic groups, quasi-convex subgroups.

Preprints

1. *Finite complete rewriting systems for graphs of free groups with applications to free-by-cyclic, one-relator, and three-manifold groups*, (with Robert Gray), 2026, arXiv:2607.07496.
2. *Coherent RFRS groups* (Appendix to main article by Sam P. Fisher and Pablo Sánchez-Peralta), 2026, arXiv:2603.16763.
3. *The finitely generated intersection property in fundamental groups of graphs of groups* (with Jordi Delgado, Jone Lopez de Gamiz Zearra, Mallika Roy and Pascal Weil), 2025, arXiv:2512.12635.
4. *Group pairs, coherence and Farrell–Jones Conjecture for* K_0 (with Andrei Jaikin-Zapirain and Pablo Sánchez-Peralta), 2025, arXiv:2510.023518.
5. *The geometry of subgroups of mapping tori of free groups*, 2025, arXiv:2510.03145.
6. *Pullbacks and intersections in categories of graphs of groups* (with Jordi Delgado, Jone Lopez de Gamiz Zearra, Mallika Roy and Pascal Weil), 2025, arXiv:2508.04362.
7. *On the intersections of finitely generated subgroups of free groups: reduced rank to full rank*, 2021, arxiv:2108.10814.

Publications

8. *The theory of one-relator groups: history and recent progress*, (with Carl-Fredrik Nyberg-Brodda), 2025, Chapter to appear in Recent Progress in Mathematics, KIAS Springer Ser. Math., 2., available at arXiv:2501.18306.
9. *Lifting relations in right orderable groups*, 2024, Accepted for publication at J. Lond. Math. Soc., available at arXiv:2412.17057.
10. *Embedding finitely generated free-by-cyclic groups in {finitely generated free}-by-cyclic groups*, 2025, Int. Math. Res. Not. **2026** (2026), no. 4: MR5035094.
11. *Residually rationally solvable one-relator groups*. Bull. Lond. Math. Soc. **58** (2025), no. 1: MR5019869.
12. *Group rings of three-manifold groups* (with Dawid Kielak). Proc. Amer. Math. Soc. **152** (2024), no. 5, 1939–1946; MR4728464.
13. *On the coherence of one-relator groups and their group algebras* (with Andrei Jaikin-Zapirain). Ann. of Math. (2) **201** (2025), no. 3, 909–959. MR4899802.
14. *Virtually free-by-cyclic groups* (with Dawid Kielak). Geom. Funct. Anal. **34** (2024), no. 5, 1580–1608; MR4792841.
15. *Hyperbolic one-relator groups*. Canad. J. Math. **78** (2026), no. 1, 35–61. MR5020065.
16. *One-relator hierarchies*. Duke Math. J. **174** (2025), no. 4, 747–802. MR4905535.
17. *The fully compressed subgroup membership problem*. J. Algebra **628** (2023), 562–583; MR4579901.

Invited Conference Talks

Jul. 2026	Arithmetic Groups, High-dimensional Expanders and L^2-invariants (Brin Mathematics Research Center): *The Hanna Neumann conjecture and submultiplicativity of L^2-Betti numbers.*.
Jun. 2026	Young Geometric Group Theory XIV (KIAS): *Hanna Neumann bounds for cubulated locally quasi-convex hyperbolic groups*.
Jun. 2026	*Sapir distinguished Lecture* at GAGTA (CUNY): *One-relator groups: past, present and future*.
Aug. 2025	Algebraic and Analytic Methods in Group Theory in Warsaw (IMPAN): *Coherence of group pairs*.
Aug. 2025	Operators, Graphs, Groups Colloquium (Newton Institute): *The geometry of subgroups of free-by-cyclic groups*.
Jul. 2025	JAE School of Mathematics (ICMAT): *How complicated can a group with a single defining relation really be?*
Jun. 2025	Geometric Group Theory and Related Topics (Peking University): *Quasi-convex subgroups of free-by-cyclic groups*.
Jan. 2025	RSME's 7th Congress of Young Researchers (University of the Basque country): *The geometry of free-by-cyclic groups*.
Sep. 2024	Combinatorial Non-positive Curvature (Banff International Research Station): *Lifting relations in right orderable groups*.
May. 2024	Barcelona Weekend in Group Theory (Universitat Politècnica de Catalunya): *The relation gap and relation lifting problems for groups with cyclic relation modules*.

Apr. 2024	Groups, Topology and Applications in Gran Bilbao V (University of the Basque Country): *The relation gap and relation lifting problems for groups with cyclic relation modules.*
Feb 2024	GAGTA (CIRM): *The coherence of one-relator groups.*
Jun. 2023	Groups and Computation (Stevens Institute of Technology): *How to prove one-relator groups are coherent.*
May 2023	Geometry of subgroups (Centre de Recherches Mathématiques): *The coherence of one-relator groups.*
May 2023	One-day special NYGT event in memory of Gilbert Baumslag and Benjamin Fine (City University of New York): *One-relator groups, virtually free-by-cyclic groups and coherence.*
Oct. 2022	Groups and Geometry in the South east (University College London): *Hyperbolic one-relator groups.*
Sep. 2022	Modern Advances in Geometric Group Theory (University of Manchester): *Simplifying Gersten's conjecture.*
Aug. 2021	World of groupcraft (online conference): *Fibre products, free groups and regular languages.*

Seminar Talks

May. 2026	Long-distance seminar on Geometric Group Theory in Mexico (Centro de Ciencias Matemáticas): *TBA.*
Mar. 2026	McGill Geometric Group Theory (McGill University): *Characterising local quasi-convexity.*
Mar. 2026	Geometry and Topology Seminar (University of Bristol): *Characterising local quasi-convexity.*
Jan. 2026	Algebra, Geometry and Topology Department Colloquium (Universidad Complutense de Madrid): *The geometry of one-relator groups.*
Nov. 2025	Geometry Seminar (Max Planck Institute Leipzig): *The geometry of mapping tori of graphs.*
Nov. 2025	Glasgow Geometry & Topology seminar (University of Glasgow): *Coherence of groups pairs.*
Apr. 2025	Geometric Group Theory Seminar (Univeristy of Bonn): *The geometry of free-by-cyclic groups.*
Apr. 2025	Madrid Group Theory Seminar (ICMAT): *The geometry of free-by-cyclic groups.*
Dec. 2024	Wroclaw Geometry Seminar (University of Wroclaw): *The geometry of free-by-cyclic groups.*
Nov. 2024	KIAS-Springer Lectures (Korean Institute for Advanced Study): *An overview of recent progress in the theory of one-relator groups.*
Oct. 2024	BG-UToledo Geometry and Topology Seminar (Bowling green University and University of Toledo): *The relation gap and relation lifting problems.*
Jul. 2024	Junior Topology and Group Theory Seminar (University of Oxford): *The relation gap and relation lifting problems.*
Mar. 2024	Géométrie dynamique (Université de Lille): *The coherence of one-relator groups.*
Mar. 2024	Geometry and Topology Hybrid (University of Warwick): *The coherence of one-relator groups.*
Mar. 2024	Algebraic Topology Seminar (University of Warwick): *The relation gap conjecture for groups with cyclic relation modules.*
Feb. 2024	Topology Seminar (Princeton University): *The coherence of one-relator groups.*

Jan. 2024	Geometric Group Theory Seminar (Univeristy of Bonn): *The coherence of one-relator groups.*
Nov. 2023	Geometry and Topology Seminar (University of Bristol): *The coherence of one-relator groups.*
Nov. 2023	Group Theory Seminar (Instituto Ciencias Matemáticas): *Virtually free-by-cyclic groups, one-relator groups and coherence.*
Nov. 2023	Group Theory Seminar (Universitat Politecnica de Catalunya): *The coherence of one-relator groups.*
Oct. 2023	Purdue Geometry and Geometric Analysis Seminar (Purdue University): *Coherence, non-positive immersions and L^2-Betti numbers.*
Oct. 2023	Manchester Algebra Seminar (University of Manchester): *Coherence, non-positive immersions and L^2-Betti numbers.*
Mar. 2023	Geometry and Analysis on Groups Research Seminar (Universität Wien): *Virtually free-by-cyclic groups.*
Dec. 2022	Algebra, Geometry and Topology Seminar (Heriot-Watt University): *Hyperbolic one-relator groups.*
Nov. 2022	Geometric Group Theory Seminar (University of Oxford): *Hyperbolic one-relator groups.*
Nov. 2022	Fudan Topology Seminar (Fudan University): *Hyperbolic one-relator groups.*
Oct. 2022	Dagger seminar (University of Warwick): *Posion subgroups for hyperbolic groups.*
May 2022	Pure Postgraduate Seminar (University of Southampton): *Poison subgroups. for hyperbolic groups.*
Apr. 2022	Geometry and topology online (University of Warwick): *Hyperbolicity of certain one-relator groups.*
Apr. 2022	Algebra seminar (University of Bristol): *Hyperbolicity of certain one-relator groups.*
Apr. 2022	New York Group Theory Seminar (City University of New York): *Hyperbolicity of certain one-relator groups.*
Apr. 2022	Geometry and Analysis on Groups Research Seminar (Universität Wien): *Primitivity rank, one-relator groups and hyperbolicity.*
Mar. 2022	Group theory seminiar (Universitat Politecnica de Catalunya): *Primititvity rank, one-relator groups and hyperbolicity*
Nov. 2021	Geometric group theory seminar (University of Cambridge): *When does a one-relator group have a quasiconvex hierarchy?*
Oct. 2021	Dagger seminar (University of Warwick): *Dynamics and isoperimetric inequalities for the double mapping torus.*
Apr. 2021	Pure PGR seminar (University of Southampton): *An ode to the fibre product graph.*
Jan. 2020	Bridjes seminar (University of Bristol): *Hierarchies for one-relator groups.*
Dec. 2019	Junior geometry and topology seminar (University of Oxford): *Hierarchies for one-relator groups.*
Dec. 2019	Postgraduate seminar (University of Warwick): *Hierarchies for one-relator groups.*
Nov. 2019	Dagger seminar (University of Warwick): *Hierarchies for one-relator groups.*
Feb. 2019	Gateway seminar (University of Warwick): *Dehn filling in relatively hyperbolic groups with torsion.*

Minicourses

Sep. 2027	I will give a minicourse at the Ventotene International Workshop 'Negatively Curved Immersions, Coherence and the Surface Subgroup Conjecture'.
Oct. 2026	I will give an 8 hour minicourse at the Shanghai Center for Mathematical Sciences on *Free-by-cyclic groups and their subgroups*.
Jun. 2026	I gave a 3 hour minicourse at 'Advanced school: Aspherical 2-complexes and their fundamental groups: past, present, and future' at the ICMAT on: *2-complexes with vanishing L^2-Betti numbers*.
Nov. 2024	I gave a 3 hour minicourse at the 'KIAS workshop on One RElator groups and other Aspects of GGT (KOREA-GGT)' on: *One-relator groups and the coherence property*.
Jul. 2024	I gave a 9 hour graduate course at the 'Topological and analytic methods in group theory' conference at the University of Hawaii on: *Coherence, homological coherence and one-relator groups*.
Apr. 2024	I gave an 8 hour minicourse to experts at the conference 'Groups, Topology and Applications in Gran Bilbao V' at the University of the Basque country on: *The coherence of one-relator groups*.

Supervision

- Alba Gonzalez Gonzalez (Masters student at Universidad Autónoma de Madrid), now pursuing a PhD at Oxford.
- Miguel Angel Royo Miguel (JAE summer school research student from Universidad de Zaragoza).

Panels and committees

- Director of the thesis committee for Pablo Sánchez Peralta's PhD defence (Universidad Autónoma de Madrid).
- Scientific committee for the conference 'Advanced school: Aspherical 2-complexes and their fundamental groups: past, present, and future.'
- Academic career panel at conference 'Topological and analytic methods in group theory.'
- Committee for Sam Fisher's confirmation of status (University of Oxford).

Teaching

In 2025 I taught the advanced algebra course at the Universidad Autonoma de Madrid (UAM) on *Geometric Group Theory*.

Support classes

Between 2018 and 2022 I worked as a teaching assistant for the University of Warwick. I provided support classes and marked assignments for the following courses:

- Discrete Mathematics and its Applications I.
- Algebra II.
- Geometry.

- Introduction to Topology.
- Algebraic Topology.

Awards and Grants

- Awatded a Ramon y Cajal grant (2025). Ranked number 1 in mathematical sciences.
- LMS research in pairs grant to visit Dr. Robert Gray (2023).
- Departmental funding for supervision of undergraduate summer project, *Finding solutions to the Post correspondence problem for free groups*, University of Oxford (2023).
- Winner of the prize for best MSc pure mathematics student, Imperial College London (2018).
- Winner of the Kathleen Ryan project prize for the best overall final year BSc project performance, University of York (2017).

Organisational activities

- Organiser for the conference *Young Geometric Group Theory XV* at the ICMAT in 2027.
- Organiser for the conference *Groups in Madrid* at the ICMAT in 2025.
- Organiser for the Dynamics and Group Geometry Early Researchers (DAGGER) seminar at the University of Warwick.
- Organiser for a reading group on 3-manifolds, following *An introduction to geometric topology* by Bruno Martelli.
- Organiser for a reading group on CAT(0) cube complexes, following *The structure of groups with a quasi-convex hierarchy* by Dani Wise.
- Organiser for a reading group on JSJ decompositions, following *JSJ decompositions of groups* by Vincent Guirardel and Gilbert Levitt.

Languages

- English: mothertongue
- Italian: fluent.
- Spanish: working knowledge.