

Kevin Iván Piterman - Curriculum Vitae

Personal information

Date and place of birth January 25, 1992, City of Buenos Aires, Argentina
Nationality Argentina
Current Position Postdoctoral researcher at Vrije Universiteit Brussel
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Education

10/2016 – 12/2019 Ph.D. in Mathematics (University of Buenos Aires).
Thesis: “Homotopy properties of the p -subgroup complexes”.
Advisor: Prof. E. G. Minian. Final qualification: outstanding.
03/2012 – 06/2016 Master of Mathematics (University of Buenos Aires).
Thesis: “*El tipo homotópico de los posets de p -subgrupos¹*”.
Advisor: Prof. E. G. Minian. Final qualification: 10 over 10.

Positions

07/2024 – 06/2027 Postdoctoral researcher at Vrije Universiteit Brussel (Belgium).
Host: Prof. L. Vendramin.
05/2022 – 06/2024 Postdoctoral researcher at Philipps-Universität Marburg
(Germany). Host: Prof. V. Welker.
12/2019 – 04/2022 Postdoctoral researcher at the University of Buenos Aires
(Argentina). Host: Prof. E. G. Minian.
10/2016 – 12/2019 PhD candidate at the University of Buenos Aires (Argentina).
Host: Prof. E. G. Minian.

Fellowships and awards

07/2024 – 06/2027 FWO Junior Postdoctoral Fellowship.
Awarded by FWO (Research Foundation - Flanders).
05/2022 – 06/2024 Alexander von Humboldt Research Fellowship for postdocs.
Awarded by Alexander von Humboldt Foundation.
04/2020 – 04/2022 CONICET Postdoctoral Fellowship.
Awarded by CONICET, Argentina.
04/2017 – 03/2020 CONICET Doctoral Fellowship.
Awarded by CONICET, Argentina.

¹ The homotopy type of the p -subgroup posets.

Other awards, fellowships, and grants

- 1) **FWO travel grant.** Obtained in May 2024 for a research stay in Buenos Aires (July 8-19, 2024), hosted by Profs. J. A. Barmak. Full coverage of accommodation, meals and travel expenses.
- 2) **FWO bench fee.** Obtained as part of the FWO Junior Postdoctoral Fellowship (3 years, from July 2024 to June 2027).
- 3) **Humboldt's subsidy towards research costs.** Granted by the Alexander von Humboldt Foundation as part of the Humboldt Fellowship program (24 months, from July 2022 to June 2024).
- 4) **Heidelberg Laureate Forum.** SAP grant awarded to attend the 9th Heidelberg Laureate Forum.
- 5) **Max-Planck Institute for Mathematics (Bonn).** Obtained in June 2021 for a postdoc position at the MPIM of Bonn from June 1st, 2022, to May 31st, 2023. Declined for incompatibility with the Humboldt Fellowship awarded shortly after.
- 6) **Junior Fellowship Program.** Obtained in April 2021 to attend the research program "Higher Algebraic Structures in Algebra, Topology and Geometry", at the Institut Mittag-Leffler (January 14-April 29, 2022). Monthly allowance plus accommodation and full coverage of travel expenses.
- 7) **Oberwolfach Leibniz Fellowship.** Obtained in April 2021 for a second research stay at MFO (January 30-April 24, 2021). Accommodation, meals and full coverage of travel expenses.
- 8) **Oberwolfach Leibniz Fellowship.** Obtained in May 2020 for a research stay at MFO, Germany (August 22-November 11, 2021). Accommodation, meals and full coverage of travel expenses.
- 9) **UMALCA Travel Grant.** Obtained in July 2018 to attend XXI Brazilian Topology Meeting (Brazil). Full coverage of travel expenses (approx. 415 USD).

List of publications²

- 1) (with B. Brück and V. Welker) The common basis complex and the partial decomposition poset. *Int. Math. Res. Not.* (2024). [doi 10.1093/imrn/rnae177](https://doi.org/10.1093/imrn/rnae177)
- 2) * (with S. D. Smith) Some results on Quillen's conjecture via equivalent-poset techniques. *J. Comb. Algebra* (2024). [doi 10.4171/jca/95](https://doi.org/10.4171/jca/95).
- 3) (with V. Welker) Homotopy properties of the complex of frames of a unitary space. *J. London Math. Soc.* **110** (2024), e:12978.
- 4) * Maximal subgroups of exceptional groups and Quillen's dimension. *Algebra Number Theory* **18** (2024), no. 7, 1375-1401.
- 5) On the frame complex of symplectic spaces. *J. Algebra* **642** (2024), 65--94.
- 6) (with S. D. Smith) Eliminating components in Quillen's conjecture. *J. Algebra* **607**, Part A (2022), pp. 681-732.
- 7) * An approach to Quillen's conjecture via centralisers of simple groups. *Forum Math. Sigma* **9** (2021), Paper No. e48, 23 pp.

² The papers marked with an asterisk * are my most relevant publications.

- 8) * (with E. G. Minian) The fundamental group of the p -subgroup complex. *J. London Math. Soc.* (2) **103** (2021), pp. 449-469.
- 9) (with I. Sadofschi Costa and A. Viruel) Acyclic 2-dimensional complexes and Quillen's conjecture. *Publ. Mat.* **65** (2021), no. 1, pp. 129-140.
- 10) A stronger reformulation of Webb's conjecture in terms of finite topological spaces. *J. Algebra* **527** (2019) pp. 280-305.
- 11) * (with E. G. Minian) The homotopy types of the posets of p -subgroups of a finite group. *Adv. Math.* **328** (2018) pp. 1217-1233.

Preprints (submitted)

- 12) Spherical p -group complexes arising from finite groups of Lie type (2024). [arXiv:2403.07489](https://arxiv.org/abs/2403.07489).
- 13) (with V. Welker) Posets arising from decompositions of objects in a monoidal category (2024). [arXiv:2208.12626](https://arxiv.org/abs/2208.12626).
- 14) (with I. Sadofschi Costa) Group actions on contractible 2-complexes II (2021). [arXiv:2102.11459](https://arxiv.org/abs/2102.11459).
- 15) Appendix to "I. Sadofschi Costa, Group actions on contractible 2-complexes I, [arXiv:2102.11458](https://arxiv.org/abs/2102.11458), 2021".

Books

- 16) (with L. Vendramin) *Algebra with GAP*. Submitted (2023).
Oberwolfach preprint available at <https://publications.mfo.de/handle/mfo/4023>.

Mathematical Notes

- 17) (with E. G. Minian) *Notas de topología diferencial. Cursos y Seminarios de Matemática, Fascículo 12³* (UBA). ISSN 1851-1481. Available at: <http://cms.dm.uba.ar/depto/public/serie B/serieB12.pdf>

Software

- 1) **Posets** (with X. Fernández and I. Sadofschi Costa) GAP package for computations related to posets and finite topological spaces.
Available at: <https://github.com/isadofschi/posets>.
- 2) **FASTPASC - From Algebraic Structures To Posets And Simplicial Complexes**, a GAP package for computation of p -subgroup posets, decomposition posets, frame complexes, and more. Available at: <https://github.com/kpiterman/FASTPASC>.

³ Notes on differential topology. Mathematical Courses and Seminars, Fascicle 12.

Last and upcoming selected talks

- 1) Oberwolfach Workshop “Finite groups, fusion systems and applications” **(invited)**, March 2025.
- 2) XXIV Coloquio Latinoamericano de Álgebra **(invited)**, July 2024.
- 3) Topology Seminar, University of Buenos Aires **(invited)**, July 2024.
- 4) BIRS Workshop “Skew Braces, Braids and the Yang-Baxter Equation” **(invited)**, May 2024.
- 5) Oberseminar in Münster University **(invited)**, April 2024.
- 6) Groups and Operator Algebras Seminar, University of Copenhagen **(invited)**, March 2024.
- 7) Oberseminar Geometrie, Topologie. Justus Liebig University Giessen **(invited)**, January 2024.
- 8) Oberwolfach Workshop “Geometric, Algebraic, and Topological Combinatorics” **(invited)**, December 2023.
- 9) Northern Group Theory conference in honour of Bernd Fischer, Bielefeld Universität **(invited)**, September 2023.
- 10) University of Málaga **(invited)**, September 2023.
- 11) Group, rings and the Yang-Baxter equation 2023, Blankenberge, June 2023.
- 12) KTH **(invited)**, April 2023.
- 13) II Encuentro RSME-UMA, Ronda **(invited)**, December 2022.
- 14) Simple groups, representation and applications. Isaac Newton Institute, University of Cambridge, July 2022.
- 15) Séminaire de Topologie Algébrique, Univ. Sorbonne Paris Nord **(invited)**, March 2022.
- 16) Institut Mittag-Leffler, January 2022.

Research stays

08/07/2024 – 19/07/2024	Research stay at the University of Buenos Aires.
16/10/2023 – 21/10/2023	Research stay at the Vrije Universiteit Brussel.
11/09/2023 – 15/09/2023	Research stay at the University of Málaga.
19/02/2023 – 04/03/2023	Research in pairs at MFO with L. Vendramin.
04/09/2022 – 16/09/2022	Research in pairs at CIRM with L. Vendramin.
22/08/2021 – 13/11/2021	Research stay as Oberwolfach Leibniz Fellow at MFO.
30/01/2021 – 20/04/2021	Research stay as Oberwolfach Leibniz Fellow at MFO.
29/05/2018 – 22/06/2018	Research stay at the University of Málaga.

Participation in research projects

- 1) 2024-2027. FWO Senior Grant (G004124N), “Skew braces and applications”. PI: L. Vendramin.
- 2) 2023-2026. FWO-CNRS: Cooperation between Belgium and France. PIs: V. Lebed, L. Vendramin.

- 3) 2021-2025. OZR3762 “Algebraic structures associated with the Yang-Baxter equation”. PI: L. Vendramin.
- 4) PICT-2019-02338 “Topology and combinatoric and geometric group theory”. PI: E. G. Minian.
- 5) UBACyT 2020 20020190100099BA “Algebraic topology and geometric and combinatorial group theory”. PI: E. G. Minian.
- 6) PIP 2017-2019 11220170100357CO “Algebraic topology and applications”. PI: E. G. Minian.
- 7) UBACyT 2017 20020160100081BA “Homotopy theory and geometric group theory”. PI: E. G. Minian.
- 8) PICT-2017-2997 “Algebraic topology and applications”. PI: E. G. Minian.

Organisation of conferences

- 1) Local organiser of “Groups, rings and the Yang-Baxter equation 2023”, taking place in Blankenberge, from 19-23 June, 2023. <https://www.ilariacolazzo.info/gryb2023/>.
- 2) (with J.M. Cantarero López) Organiser of special session “Grupos y topología” at the II Encuentro RSME-UMA, taking place in Ronda, 12-16 December, 2022. <http://www.rsmeuma2022.uma.es/index.php/sesiones-especiales/>.

Participation in workshops (selected)

- 1) “Finite groups, fusion systems and applications”, MFO, March 2025.
- 2) “Skew Braces, Braids and the Yang-Baxter Equation”, BIRS, May 2024.
- 3) “Geometric, Algebraic, and Topological Combinatorics”, MFO, December 2023.
- 4) “Skew Braces and the Yang-Baxter equation”, MFO, February 2023.
- 5) “The algebra of the Yang-Baxter equation”, Będlewo, July 2022.
- 6) “Higher Algebraic Structures in Algebra, Topology and Geometry”, Institut Mittag-Leffler, January 2022.

Evaluation committee

- 1) Charlotte Roelants, “Fourier analysis on finite groups”. Master’s thesis defence at Vrije Universiteit Brussel, June 2024.

Teaching experience

03/2020 – 07/2022	<i>Jefe de Trabajos Prácticos</i> (“Lead” Teaching Assistant). At the Department of Mathematics, FCEN – UBA.
03/2017 – 02/2020	<i>Ayudante de Primera</i> (Teaching Assistant). At the Department of Mathematics, FCEN – UBA.
04/2015 – 02/2017	<i>Ayudante de Segunda</i> (Undergraduate Teaching Assistant). At the Department of Mathematics, FCEN – UBA.

I have taught several different courses at the University of Buenos Aires. Some of the advanced courses include Topology and Differential Topology, and more basic courses Calculus I and II (for several careers), Linear Algebra, Numeric Methods for Biology, Probability and Statistics for Computer Science and Physics, and Advanced Calculus. Typically, these courses include students from different careers (even in the same subject), with around 50 students per class. Each course lasts 16 weeks, with a weekly load of 10 hours, spread over two days of 5 hours each (2 hours for lectures and 3 hours for practical sessions).

Teaching responsibilities as Lead TA/TA (*Jefe de Trabajos Prácticos/Ayudante de Primera*) include: teaching, designing exercises and exams, grading, addressing student questions, coordinating the syllabus jointly with the lead professor, and handling administrative tasks related to the course. These positions involve conducting the practical sessions (3 hours per session), where teaching usually lasts between 1 and 2 hours, followed by collaborative interaction with other assistants to address student questions and related tasks (also during office hours).