

# Francesco Fournier-Facio

## Curriculum Vitae

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### Education

- since Feb 2020 **PhD Mathematics**, Eidgenössische Technische Hochschule Zürich (ETHZ). Advisor: Prof. Dr. A. Iozzi.
- 2021 - 2022 Awarded the ETH Doc.Mobility Grant for a joint project with Yash Lodha at Universität Wien and University of Hawai'i.
- Sep 2018 - Jan 2020 **MSc Mathematics**, ETHZ. 6/6 GPA: With distinction. Winner of the Willi-Studer-Preis.
- Sep 2015 - Jul 2018 **BSc Mathematics**, Ecole Polytechnique Fédérale de Lausanne (EPFL). 5.37/6 GPA.

### Accepted papers

- Apr 2022 *Braided Thompson groups with and without quasimorphisms*. Joint with Yash Lodha and Matthew C. B. Zaremsky. 22 pages. To appear in *Algebraic & Geometric Topology*.
- Nov 2021 *Bounded cohomology and binate groups*. Joint with Clara Löh and Marco Moraschini. 33 pages. To appear in *Journal of the Australian Mathematical Society*.
- Jun 2021 *Bounded cohomology of finitely presented groups: Vanishing, non-vanishing and computability*. Joint with Clara Löh and Marco Moraschini. 30 pages. To appear in *Annali della Scuola Normale Superiore di Pisa, Classe di Scienze*.
- Nov 2020 *Normed amenability and bounded cohomology over non-Archimedean fields*. 92 pages. To appear in *Memoirs of the American Mathematical Society*.

### Preprints

- Jan 2023 *Ulam stability of lamplighters and Thompson groups*. Joint with Bharatram Rangarajan. 27 pages.
- Dec 2022 *Property (NL) for group actions on hyperbolic spaces*. Joint with Sahana Balasubramanya and Anthony Genevois, with Appendix by Alessandro Sisto. 44 pages.
- Nov 2022 *Finitely presented left orderable monsters*. Joint with Yash Lodha and Matthew C. B. Zaremsky. 12 pages.
- Nov 2022 *Hopfian wreath products and the stable finiteness conjecture*. Joint with Henry Bradford. 28 pages.
- Nov 2022 *Aut-invariant quasimorphisms on groups*. Joint with Richard D. Wade. 17 pages.
- Sep 2022 *Median quasimorphisms on  $CAT(0)$  cube complexes and their cup products*. Joint with Benjamin Brück and Clara Löh. 34 pages.
- Aug 2022 *No quasi-isometric rigidity for proper actions on  $CAT(0)$  cube complexes*. Joint with Anthony Genevois. 12 pages.

- Dec 2021 *Finitely generated simple left orderable groups with vanishing second bounded cohomology.* Joint with Yash Lodha. 18 pages.
- Nov 2021 *Second bounded cohomology of groups acting on 1-manifolds and applications to spectrum problems.* Joint with Yash Lodha. 28 pages.
- May 2021 *Ultrametric analogues of Ulam stability of groups.* 87 pages.
- Jan 2020 *Infinite sums of Brooks quasimorphisms and cup products in bounded cohomology.* Master Thesis; Supervisor: Prof. Dr. A. Iozzi. 66 pages.
- Jan 2019 *Comments on "Discrete groups, expanding graphs and invariant measures" by Alexander Lubotzky.* Semester paper; Supervisor: Prof. Dr. A. Iozzi. 74 pages.

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## Book

- 2021 *Bounded cohomology and simplicial volume.* Edited jointly with Caterina Campagnolo, Nicolaus Heuer and Marco Moraschini. Also chapter author. Published in the *London Mathematical Society Lecture Note Series*.

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## Conference and Colloquium Talks

- Jul 2023 GAGTA 2023, Erwin Schrödinger Institute (Vienna), invited talk. *TBA*.
- Jun 2023 Workshop on orderings and groups, ICMAT (Madrid), invited talk. *TBA*.
- Mar 2023 Manifolds and groups in Bologna, Università di Bologna, invited talk. *Groups not acting on hyperbolic spaces.*
- Jan 2023 8th KTGU Mathematics workshop for young researchers, Kyoto University, invited talk. *Aut-invariant quasimorphisms on groups.*
- Oct 2022 University of Hawai'i, Colloquium talk. *Unveiling the spectrum of stable commutator length.*
- Sep 2022 Recent advancements in bounded cohomology, Universität Regensburg, invited talk. *Bounded cohomology over non-Archimedean fields.*
- Jul 2022 Summer Topology conference, Universität Wien, special session talk. *Braided Thompson groups and their quasimorphisms.*
- Sep 2021 Young Topologists and Geometers section of DMV-ÖMG-Jahrestagung 2021, contributed talk. *New examples in the bounded cohomology of finitely generated groups.*

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## Selected Seminar Talks

- Apr 2023 ICMAT (Madrid), Group Theory Seminar. *Hopfian wreath products and the stable finiteness conjecture.*
- Feb 2023 University of Oxford, Geometric Group Theory Seminar. *Computing bounded cohomology of discrete groups.*
- Nov 2022 Fields Institute Toronto, Simons Distinguished Visitor Seminar. *Ulam stability of lamplighters and Thompson groups.*
- Nov 2022 Purdue University, Geometry Seminar. *Aut-invariant quasimorphisms.*
- Nov 2022 University at Albany, Algebra/Topology Seminar. *Hopfian wreath products and the stable finiteness conjecture.*
- Sep 2022 ENS Lyon, Groupe de Travail "Action!". *One-dimensional actions and bounded cohomology.*
- Jun 2022 Cambridge GGT Seminar. *Computing bounded cohomology of discrete groups.*

- Jan 2022 Texas A&M, Topology seminar. *New values in the spectra of stable commutator length and simplicial volume.*
- Jan 2022 UT Austin, Groups and dynamics seminar. *On the second bounded cohomology of some left orderable groups.*
- Dec 2021 EPFL, EGG Seminar. *Groups acting on 1-manifolds and their bounded cohomology.*
- Nov 2021 Universität Regensburg, SFB Seminar. *A dynamical approach to bounded cohomology vanishing.*
- Oct 2021 Universität Wien, Geometry and Analysis on Groups Seminar. *Stable commutator length and its values.*
- Mar 2021 IAS Princeton, Stability and Testability seminar. *Ultrametric stability problems.*
- Feb 2021 University of Hawai'i, Topological Groups seminar. *Normed  $p$ -adic amenability and bounded cohomology.*
- Jun 2020 Universität Regensburg, LKS seminar. *Normed  $p$ -adic amenability.*
- Dec 2019 Karlsruher Institut für Technologie (KIT), Geometry groups and topology seminar. *Decompositions of the free group and cup products in bounded cohomology.*

## Selected conferences and workshops

- Jun 2022 *Marc Burger's Prime.* ETHZ.
- Mar 2022 *Topological and Homological Methods in Group Theory.* Universität Bielefeld.
- Jan 2022 *Positivity in Lie groups.* IWH (Heidelberg).
- Sep 2021 *Counting problems.* Ventotene International Workshop.
- Jul 2021 *YGGT X.* Newcastle University - Online.
- Nov 2019 *Holomorphic Differentials in Mathematics and Physics.* Mathematical Sciences Research Institute (MSRI).
- Sep 2019 *Of coarse! Quasi-isometries and groups: rigidity and classification.* Ventotene International Workshop.
- Aug 2019 *Groups with hyperbolic features.* ETHZ.
- Feb 2019 *Super Strong Approximation in Groups.* Hebrew University of Jerusalem.
- Jan 2019 *Groups, geometries, and spaces in honour of Alessandra Iozzi.* ETHZ.

## Refereeing

Refereed papers for *Memoirs of the American Mathematical Society*, *Mathematical Research Letters*, *Revista Matemática Iberoamericana*, *Topology Proceedings* and *Confluentes Mathematici*.

## Organizing

- 2022-2023 ETHZ: Co-organizer of the *Geometry Graduate Colloquium*.
- 2021-2022 Co-organizer of the *International young seminar on bounded cohomology and simplicial volume*.
- 2020-2021 Co-organizer of the *International "What is?" seminar on bounded cohomology and simplicial volume*.
- 2020 ETHZ: Co-organizer of the *Online Geometry Seminar*.

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## Teaching

- 2021-2022 ETHZ: Supervisor of two Masters Theses, jointly with Alessandra Iozzi.
- 2022 ETHZ: Course organizer and Teaching assistant (TA) in Topology
- 2021 ETHZ: Course organizer and TA in Groups acting on trees.
- 2020 ETHZ: TA in Complex Analysis.
- 2019, 2020 ETHZ: TA in Topology.
- 2018 EPFL: TA in Mathematics for the *Mise à niveau* class.
- 2016, 2017 EPFL: TA in Calculus I for Electrical Engineering and Material Sciences (2016); Mechanical Engineering, Electrical Engineering, Material Sciences and Chemistry (2017).
- 2016-2017 EPFL: TA in Mathematics for Architecture.

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## Music

- Education Composition Classes with Riccardo Panfili (2011-2015) and Fabio Vacchi (2015-2018). Composition Masterclasses with Giorgio Battistelli (2012) and Luis Bacalov (2013-2014) at Accademia Chigiana di Siena, with Jean-Jacques Nattiez (2013) at Université de Montréal.
- Catalogue 14 compositions for chamber ensemble and orchestra. Performed in Italy, Argentina, Germany and Canada. Five times transmitted on national radio channels.
- Awards Winner of the International Composition Award *Bialas Förderpreis* from the Academy of Fine Arts of Munich, Germany (2016).
- Album *Sound of Light and Shadow* for *Fonè* (2013).
- Cinema Arranger for composer Pasquale Catalano in 2017, for the soundtracks of the films *Sono tornato* and *Napoli Velata*. The latter soundtrack was nominated to the Italian *David di Donatello*.

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## Languages

- Italian Mother tongue
- Spanish Second mother tongue
- English Fluent (C2)
- French Fluent (C2)
- German Advanced (B2-C1)