

# Gianluca Basso

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## EDUCATION

**PhD in Information Systems and in Pure and Applied Mathematics | Université de Lausanne, Università degli Studi di Torino**

November 2015 – June 2020 | Thesis: Compact Metrizable Structures via Projective Fraïssé Theory, With an Application to the Study of Fences. • Supervisors: Riccardo Camerlo and Jacques Duparc. Defense: 08.06.2020 in Lausanne, Switzerland.

**Laurea Magistrale in Matematica | Università di Pisa**

September 2013 – October 2015 | Master Thesis: Quotients of projective Fraïssé limits. • Supervisor: Riccardo Camerlo (Politecnico di Torino) • Grade: 110/110 cum Laude.

**Laurea Triennale in Matematica | Università degli Studi di Torino**

September 2009 – April 2013 | Grade: 100/110.

## EMPLOYMENT HISTORY

**May 2023 - April 2024**

*Assegno di Ricerca*, postdoc at Università di Torino.

**November 2021 - April 2023**

*UNIL/CHUV Postdoc mobility fellowship* to conduct research at Université Claude Bernard Lyon 1.

**September 2022 - January 2023**

*Chargé de cours (Lecturer)* for the class "Gödel and Recursivity" at École Polytechnique Fédérale de Lausanne.

**November 2020 - October 2021**

*IMPULSION Program* postdoc at Université Claude Bernard - Lyon 1. Postdoctoral mentor: Todor Tsankov.

**November 2015 - October 2020**

*Assistant Diplômé* at Université de Lausanne.

**September 2017 - March 2018**

I won a six months grant of 7500€ to help Prof. L. Motto Ros and Prof. M. Viale with the realization of the e-course **Elementi di Logica Matematica** in the context of the project Start@Unito of Università degli Studi di Torino (<http://start.unito.it>).

**August 2012 - August 2013**

In 2012 I have founded Officine Grandi Ripetizioni (<http://www.officinegrandiripe.altervista.org>). My colleagues and I have helped dozens of college and high school students overcome their problems in mathematics and physics.

**January 2012 - July 2012**

I won a grant for a part-time collaboration (150 hours) to work with prof. A. Capietto (Università degli studi di Torino) on the project: Disabilità e Nuove Tecnologie. I have explored some solutions to the challenges that visually impaired mathematics students have to face.

## TEACHING

**SUPERVISION OF STUDENTS:** I supervised five Bachelor Projects in Mathematical Logic, Ramsey Theory and Set Theory. I also supervised Daphné Rosset's Master Project *Combinatorial Cardinal Characteristics of the Continuum* at EPFL.

### TEACHING ACTIVITIES:

- Lecturer for **Gödel and Recursivity** (Autumn 2022) at École Polytechnique Fédérale de Lausanne.
- I have obtained the **qualification** to teach mathematics in secondary schools in Italy (grades 6-13). Competition classes: A026, A028 - STEM 2020.
- Teaching Assistant for **Computational Complexity I** (Autumn 2019, Autumn 2020) at Université de Lausanne, and **Set Theory** (Autumn 2015, Autumn 2017, Spring 2019, Spring 2020) and **Gödel and Recursivity** (Autumn 2016, Autumn 2018) at École Polytechnique Fédérale de Lausanne.
- Co-creator, with Prof. L. Motto Ros and Prof. M. Viale of the e-course **Elementi di Logica Matematica** in the context of the project start@unito of Università degli Studi di Torino (<http://start.unito.it>).

**SCIENTIFIC SOCIETIES:** From 2020 to 2023 I was an active member of the **ANR Project AGRUME** (<http://math.univ-lyon1.fr/~tsankov/agrume/>). From 2015 to 2020 I was a board member of the Swiss Graduate Society for Logic and Philosophy of Science (<http://sgslps.ch>). I am a member of the Italian societies ALLA and UMI.

### ORGANIZATION OF SCIENTIFIC MEETINGS:

- I was one of the organizers of the **ANR AGRUME 2021 meeting** which took place from September 1-4, 2021 in Colmar (<http://math.univ-lyon1.fr/~basso/agrume.html>).
- I was the main organizer of the **Young Set Theory Workshop 2018** which took place on June 25-29, 2018 at the Bernoulli Center in Lausanne (<http://youngsettheory2018.altervista.org>).
- I was the main organizer of the spring 2017 semestral meeting of the SGLSPS on **Borel Reducibility of Equivalence Relations** (<http://sgslps.ch/past/s17>) and was involved in the organization of several other meeting of the Society.
- I have taken part in the organization of many events hosted by the Mathematical Logic group of Turin, as the September 2017 conference **Descriptive Set Theory in Turin**.

### PRIZES, FELLOWSHIPS AND QUALIFICATIONS:

- **INDAM travel fellowship**, 3000 EUR plus travel expenses for a month long research visit in Waterloo, Ontario. (<https://www.altamatematica.it/wp-content/uploads/2022/12/Graduatoria-2022-2023.pdf>)
- **UNIL/CHUV Postdoc.Mobility Fellowship**, additional funding to the SNF Early Postdoc.Mobility call, 18 month fellowship to conduct research abroad, funding: 75000 CHF (70000 EUR).
- **Qualification MCF 25**, n° 21225358141, campagne 2021. Qualification to become *Maître de conférences* in France.
- **Abilitazione A026, A028 - STEM 2020**. I have obtained the qualification to teach mathematics in secondary schools in Italy (grades 6-13).
- **Swissuniversity funding**. 10000 CHF for Cotutelle de Thèse.
- **Premio AILA 3+2 2016** for the best Master Thesis in Logic in Italy.

## PERSONAL SKILLS

### LANGUAGE SKILLS:

- **Italian:** Mother tongue
- **English:** Mother tongue
- **French:** Fluent
- **Chinese:** HKS1 (basic)

**PROGRAMMING SKILLS:** Node.js • CSS • HTML • Python • PHP • Javascript • JQuery • MySQL • DynamoDB • Shell • Mathematica • Matlab • C++

## PUBLICATIONS IN PEER-REVIEWED SCIENTIFIC JOURNALS

- **Gianluca Basso** and Todor Tsankov, *The topological dynamics of kaleidoscopic groups*, Adv. Math., **416** (2023), 108915.  
DOI: <https://doi.org/10.1016/j.aim.2023.108915>
- **Gianluca Basso** and Andy Zucker, *Topological dynamics beyond Polish groups*, Comment. Math. Helv. 96 (2021), no. 3, 589–630  
DOI: <https://doi.org/10.4171/cmh/521>
- **Gianluca Basso** and Riccardo Camerlo, *Fences, their endpoints, and projective Fraïssé theory*, Trans. Amer. Math. Soc. **374** (2021), no. 6, 4501–4535.  
DOI: <https://doi.org/10.1090/tran/8366>
- **Gianluca Basso**, *Compact Metrizable Structures via Projective Fraïssé Theory With an Application to the Study of Fences [thesis abstract]*. Bull. Symb. Log. **26** (2020), no. 3-4, 299–300  
DOI: <https://doi.org/10.1017/bsl.2020.38>
- **Gianluca Basso** and Riccardo Camerlo, *Arcs, hypercubes, and graphs as quotients of projective Fraïssé limits*, Math. Slovaca **67** (2017), no. 6, 1281–1294.  
DOI: <https://doi.org/10.1515/ms-2017-0051>

## SUBMITTED ARTICLES

- **Gianluca Basso**, Alessandro Codenotti and Andrea Vaccaro, *Surfaces and other Peano continua with no generic chains*.  
ArXiv: <https://arxiv.org/abs/2403.08667>

## PREPRINTS

- **Gianluca Basso** and Andy Zucker, *Topological groups with tractable minimal dynamics*.

## CONTRIBUTIONS TO INTERNATIONAL CONFERENCES

### Invited Talks

- October 2023 - *Chains on Peano continua, combinatorics and dynamics*, Generic Structures, Bedlevo, Poland.
- August 2022 - *Topological dynamics and kaleidoscopic groups,  $C^*$ -dynamics and Set theory in Paris*, Paris, France.
- June 2022 - *Topological dynamics of kaleidoscopic groups*, Model Theory and Applications, Cetraro, Italy.
- November 2021 - *The dynamics of kaleidoscopic groups*, Théorie des groupes et Dynamique, Aussois, France.
- September 2018 - *A Lelek like compact metrizable space*, UMI-SIMAI PTM Joint Meeting, Wrocław, Poland.
- June 2018 - *A Lelek-like disconnected compact metrizable space*, Descriptive Set Theory Day in Torino, Turin, Italy.
- May 2018 - *Finding Universal Compact Spaces, with Some Help from Logic*, Seminari cadenzati - Progetto di eccellenza, Politecnico di Torino, Turin, Italy.
- August 2016 - *Quotients of Projective Fraïssé Limits*, Scuola Estiva di Logica AILA 2016, Gargnano sul Garda, Italy.

### Contributed Talks and Seminars

- February 2024 - *Surfaces and other Peano continua with no generic chains*, Séminaire de Logique, Lyon.
- October 2023 - *Chains on Peano continua, combinatorics and dynamics*, Joint Analysis and Logic seminar, Waterloo, ON.

- October 2023 - *Chains on Peano continua, combinatorics and dynamics*, CMU Logic seminar, Pittsburgh.
- September 2023 - *Chains on Peano continua, combinatorics and dynamics*, UMI 2023, Pisa.
- April 2023 - *Dynamique topologique et groupes kaléidoscopiques*, Séminaire de Géométrie, Groupes et Dynamique, ENS Lyon.
- January 2023 - *Kaleidoscopic groups and the generic point property*, Logic group seminar, Waterloo, Canada.
- December 2022 - *Kaleidoscopic groups and the generic point property*, EGG seminar, EPFL, Lausanne, Switzerland.
- September 2022 - *Groups with the generic point property*, Cornell Logic Seminar, Cornell, USA.
- September 2022 - *The dynamics of kaleidoscopic groups*, European Set Theory Conference, Turin, Italy.
- February 2022 - *The dynamics of kaleidoscopic groups*, Oberseminar Modelltheorie, Geometrie und Gruppentheorie, Münster, Germany.
- September 2021 - *Topological dynamics beyond Polish groups, and the ambitability question*, Séminaire Général de Logique, Paris, France.
- September 2021 - *Topological dynamics beyond Polish groups*, AGRUME meeting in Colmar, Colmar, France.
- March 2021 - *Compact metrizable structures via projective Fraïssé theory*, UIC Logic Seminar, Chicago, USA.
- February 2021 - *Topological dynamics beyond Polish groups*, UC San Diego Group Actions Seminar, San Diego, USA.
- January 2021 - *Compact metrizable structures via projective Fraïssé theory*, Séminaire de Logique Lyon-Paris, France.
- September 2020 - *Topological dynamics beyond Polish groups*, Genoa logic group seminar, Genoa, Italy.
- June 2020 - *The universal minimal flow of topological groups beyond Polish*, Set-Top Zoominar, Wrocław, Poland.
- September 2017 - *Projective Fraïssé Limits of Partial Orders*, XXVI incontro dell’AILA, Padua, Italy.
- March and April 2017 - *Projective Fraïssé Limits of Partial Orders*, Logic in Turin – Advanced Seminars, Turin, Italy.
- December 2015 - *Quotients of Projective Fraïssé Limits*, Fifth Welcome home workshop, Turin, Italy.

## OUTREACH ACTIVITIES

- 2023 - I co-wrote an article on the history and formalization of natural numbers titled “Storia, formalismo e insegnamento: i numeri naturali” (“History, Formalism, and Teaching: The Natural Numbers”). It was published in the print version of the Italian quarterly journal *Archimede*, dedicated to the popularization of mathematics.
- October 2013– September 2015: Member of MaDE@DM, a student association dedicated to the public dissemination of mathematics, Università di Pisa. Planning, content creation, and performance of several science and mathematics output projects. One of them presented at *Festival della Scienza di Genova*.