

## Education

- Oct 2020 - Currently **PhD in Mathematics**, *University of Leeds*, UK  
 Research area → Categorical Logic & Dependent Type Theory.  
 Research topics → (hyper)doctrines; quantifier completions of doctrines; fibrations; simple (co)product completions of fibrations; gödel doctrines/fibrations; categorified quantifier-freeness; categorical semantics for (fragments of) first order logic; dialectica categories; dialectica construction; dialectica completion; propositional type theory; propositional  $\Sigma$  and  $\Pi$  types; propositional  $\eta$  and  $\beta$  computation rules; syntactic categories; categorical semantics for dependent type theories; display map classes; bicategorical semantics; bicategories with a display map classes; categories with attributes; propositional versus judgemental in dependent type theory; propositional type theory; conservativity; path categories; coherence.  
 Supervisors → Nicola Gambino (University of Manchester); Federico Olimpieri (University of Leeds); Michael Rathjen (University of Leeds).
- Sept 2017 - Dec 2019 **MSc in Mathematics**, *University of Trento*, Italy  
 Final mark → *Cum laude*. Thesis defense on the 19<sup>th</sup> of December 2019.  
 Visiting positions → Academic year 2017/18 attended at the University of Trento (Italy). Academic year 2018/19 attended at Utrecht University (the Netherlands) as Erasmus+ student. Fall 2019 (from September to December) attended at Utrecht University as master's candidate holder of a thesis research scholarship.  
 Thesis supervisor → Jaap van Oosten (Utrecht University).  
 Thesis co-examiner → Roberto Zunino (University of Trento).  
 Thesis title → *Generalised Gluing and Exact Completion of Path Categories*.
- Sept 2014 - Sept 2017 **BSc in Mathematics**, *University of Trento*, Italy  
 Final mark → *Cum laude*. Thesis defense on the 25<sup>th</sup> of September 2017.  
 Thesis supervisor → Stefano Baratella (University of Trento).  
 Thesis co-examiner → Edoardo Ballico (University of Trento).  
 Thesis title → *Elements of Category Theory*.

## Publications and preprints

- Mar 2023 **A conservativity result for homotopy elementary types in dependent type theory**  
 2303.05623v1 *Preprint*.
- May 2022 **Dialectica principles via Gödel doctrines**  
 ScienceDirect Link *Theoretical Computer Science*.  
 2205.07093v1 Together with Davide Trotta and Valeria de Paiva.
- Mar 2022 **Dialectica logical principles: not only rules, extended version**  
 JLC Link *Journal of Logic and Computation (LFCS 2022 post-conference volume)*.  
 Together with Davide Trotta and Valeria de Paiva.
- Sept 2021 **Dialectica logical principles**  
 Springer Link *Logical Foundations of Computer Science 2022*.  
 2109.08064v1 Together with Davide Trotta and Valeria de Paiva.
- Aug 2021 **The Gödel fibration**  
 LIPIcs Link *LIPICs, volume 202, proceedings of Mathematical Foundations of Computer Science 2021*.  
 Together with Davide Trotta and Valeria de Paiva.

- Apr 2021 **The Gödel fibration**, *extended version*  
 2104.14021v1 Some of the contents published in *LIPICs*, volume 202, *proceedings of MFCS 2021*.  
 Together with Davide Trotta and Valeria de Paiva.
- Oct 2020 **Quantifier completions, choice principles and applications**  
 2010.09111v3 *Submitted*.  
 Together with Davide Trotta.

## Talks

### In conferences and workshops

- June 2022 **What is a dependent type theory?**  
*Leeds School of Mathematics PGR Conference 2023 (link here)*.  
 An introduction to what dependent type theories are and how they are used to do mathematics.
- June 2023 **Strictifying Path Categories**  
 YouTube Recording *Workshop on Doctrines & Fibrations (link here)*.  
 Slides About a coherence result for path categories (j.w.w. van den Berg and Otten).
- May 2023 **Propositional dependent type theories: a conservativity result for homotopy elementary types**  
 Slides *Homotopy Type Theory 2023 (link here)*.  
 About 2303.05623v1.
- May 2023 **Weak type theories: a conservativity result for homotopy elementary types**  
 Slides *DutchCATS (link here)*.  
 About 2303.05623v1.
- Dec 2022 **A conservativity-like result for a propositional type theory**  
 YouTube Recording *3rd ItaCa Workshop (link here)*.  
 About 2303.05623v1.
- July 2022 **Dialectica: fibrations and logical principles**  
 YouTube Recording *Applied Category Theory 2022 (link here)*.  
 Slides About 10.1007/978-3-030-93100-1\_22 (2109.08064v1) and 2205.07093v1.
- June 2022 **Propositional in Dependent Type Theory**  
*Leeds School of Mathematics PGR Conference 2022 (link here)*.  
 An introduction to homotopy type theory and its motivation.
- Jan 2022 **Dialectica completion & dialectica logical principles**  
 Slides *26<sup>th</sup> Yorkshire and Midlands Category Theory Seminar. (link here and here)*  
 About 2104.14021v1 and 10.1007/978-3-030-93100-1\_22 (2109.08064v1).
- Dec 2021 **Dialectica completion & Gödel fibrations**  
*2nd ItaCa Workshop (link here)*.  
 About 2104.14021v1 and 10.1007/978-3-030-93100-1\_22 (2109.08064v1).
- Dec 2021 **Dialectica logical principles**  
*Eighth Symposium on Compositional Structures (link here)*.  
 About 2104.14021v1 and 10.1007/978-3-030-93100-1\_22 (2109.08064v1).
- July 2021 **The Gödel Fibration**  
 Poster *Applied Category Theory 2021 (link here)*. Poster presentation.  
 About 2104.14021v1 and 10.4230/LIPICs.MFCS.2021.87.
- June 2021 **Quantifier completions of doctrines**  
 YouTube Recording *Categories and Companions Symposium 2021 (link here)*.  
 About 2010.09111v3.

### In seminars

- June 2023 **Coherence in the semantics of dependent types**  
*Leeds Postgraduate Logic Seminar 2022/23*.  
 On the re-indexing problem in models of dependent type theories.
- June 2023 **Coherence for Extensional, Intensional and Propositional Identities**  
*Category Theory Lunch*.  
 About a coherence result for path categories (j.w.w. van den Berg and Otten).

- May 2023 **Propositional dependent type theories: a conservativity result for homotopy elementary types**  
*Category Theory Lunch.*  
 About [2303.05623v1](#).
- Apr 2023 **Left & right adjoint fibration splittings**  
*Category Theory Lunch.*  
 About the two ways of splitting a given Grothendieck fibration.
- Feb 2022 **Towards the notion of Propositional Dependent Sum Types**  
*Proofs, Constructions, Computations and Categories.*  
 About my PhD research on Propositional Type Theory.
- Nov 2021 **On the notion of exact completion**  
*Leeds Postgraduate Logic Seminar 2021/22.*  
 On the exact/quotient completion of lex cats/path cats/doctrines.
- Nov 2021 **Existential, universal and dialectica completion**  
*Proofs, Constructions, Computations and Categories.*  
 About [2104.14021v1](#) and [10.4230/LIPIcs.MFCS.2021.87](#).
- Oct 2021 **Regular (first-order) logic symbols & doctrines**  
*Groningen Mathematics PhD Seminar.*  
 About doctrines and generalised Tarski's semantics.
- May 2021 **Regular logic symbols & doctrines**  
*Leeds Pure Postgraduate Seminar 2020/21.*  
 Introduction to doctrines.
- Apr 2019 **On the strong conceptual completeness**  
*Student Seminar Ultracategories 2019 ([link here](#)).*  
 About [Ultracategories](#) by Jacob Lurie.
- Feb 2019 **On ultraproducts and ultrafunctors**  
*Student Seminar Ultracategories 2019 ([link here](#)).*  
 About [Ultracategories](#) by Jacob Lurie.

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## Editorial activities

- Spring 2023 **Reviewer**  
*Logical Methods in Computer Science.*
- Spring 2022 **Reviewer**  
*Logic Journal of the IGPL 2022 Volume 30.*
- July 2021 **Reviewer**  
*Workshop on Logic, Language, Information and Computation 2021.*
- June 2021 **Reviewer**  
*Mathematical Foundations of Computer Science 2021.*

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## Organisational duties

- June 2023 **Member of the Organising Committee**  
[Link](#) *Leeds School of Mathematics PGR Conference 2023.*
- July 2022 **Practical organiser**  
[Link](#) *Research School on Bicategories, Categorification and Quantum Theory.*
- June 2022 **Member of the Organising Committee**  
[Link](#) *Leeds School of Mathematics PGR Conference 2022.*

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## Visiting activities

Apr-May 2023 **ILLC, Amsterdam, Netherlands**

[Host](#). Benno van den Berg

Dec 2022 **University of Padua, Italy**

[Host](#). Maria Emilia Maietti

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## Teaching

- Spring 2023 **Core Mathematics**, University of Leeds  
Teaching assistance. *Exam marker.*
- Spring 2023 **Real Analysis**, University of Leeds  
Teaching assistance. *Homework marker.*
- Spring 2023 **Discrete Mathematics**, University of Leeds  
Teaching assistance. *Workshop teacher and homework marker.*
- Fall 2022 **Elementary Differential Calculus 1**, University of Leeds  
Teaching assistance. *Exam marker.*
- Fall 2022 **Intro to Applied Mathematics 1**, University of Leeds  
Teaching assistance. *Exam marker.*
- Fall 2022 **Further Linear Algebra**, University of Leeds  
Teaching assistance. *Workshop teacher and homework marker.*
- Spring 2022 **Real Analysis**, University of Leeds  
Teaching assistance. *Workshop teacher and homework and exam marker.*
- Fall 2021 **Groups & Vector Spaces**, University of Leeds  
Teaching assistance. *Exam marker.*
- Fall 2021 **Graph Theory**, University of Leeds  
Teaching assistance. *Exam marker.*
- Fall 2021 **Introduction to Geometry**, University of Leeds  
Teaching assistance. *Tutorial teacher and homework marker.*
- Spring 2021 **Introductory Linear Algebra**, University of Leeds  
Teaching assistance. *Tutorial teacher and homework marker.*
- Spring 2021 **Logic & Computation**, University of Leeds  
Teaching assistance. *Homework marker.*
- Fall 2020 **Further Linear Algebra**, University of Leeds  
Teaching assistance. *Exam marker.*
- Fall 2020 **Graph Theory**, University of Leeds  
Teaching assistance. *Exam marker.*

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## Participation in conferences, workshops, seminars, and schools

- July 2023 **Category Theory 2023**  
[Link](#) Conference. *UCLouvain.*
- June 2023 **Leeds School of Mathematics PGR Conference 2023**  
[Link](#) Conference. *University of Leeds.*
- May-June 2023 **Workshop on Doctrines & Fibrations**  
[Link](#) Workshop. *University of Padua.*
- May 2023 **Homotopy Type Theory 2023**  
[Link](#) Conference. *Carnegie Mellon University.*
- May 2023 **DutchCATS**  
[Link](#) Workshop. *ILLC, University of Amsterdam.*

- Dec 2022 **3rd ItaCa Workshop**  
[Link](#) Workshop. *University of Pisa.*
- Oct 2022 - Currently **Category Theory Lunch**  
 Seminar. *Leeds & Manchester Category & Type Theory Group, University of Manchester.*
- July 2022 **School on Univalent Mathematics**  
[Link](#) Summer school. *Cortona, Scuola Matematica Interuniversitaria.*
- July 2022 **Applied Category Theory 2022**  
[Link](#) Conference. *University of Strathclyde.*
- July 2022 **Research School on Bicategories, Categorification and Quantum Theory**  
[Link](#) Summer school. *University of Leeds.*
- June 2022 **Leeds School of Mathematics PGR Conference 2022**  
[Link](#) Conference. *University of Leeds.*
- May 2022 **WG6 kick-off meeting. Syntax and Semantics of Type Theories**  
[Link](#) Workshop. *Stockholm University.*
- May - July 2022 **Category Theory Lunch**  
 Seminar. *Logic Group of the School of Mathematics, University of Leeds.*
- Apr 2022 **Midlands Graduate School in the Foundations of Computer Science**  
[Link](#) School. *University of Nottingham.*
- Mar 2022 **Workshop on Polynomial Functors**  
[Link](#) Online workshop. *Topos Institute.*
- Dec 2021 **2nd ItaCa Workshop**  
[Link](#) Workshop. *University of Genoa.*
- Dec 2021 **Eighth Symposium on Compositional Structures**  
[Link](#) Workshop. *Tallinn University of Technology.*
- Sept 2021 - May 2022 **Proofs, Constructions, Computations and Categories**  
 Seminar. *Logic Group of the School of Mathematics, University of Leeds.*
- Sept 2021 **Unifying Themes in Geometry**  
[Link](#) Online school. *Lake Como School of Advanced Studies.*
- Sept 2021 **Continuity, Computability, Constructivity 2021**  
[Link](#) Online workshop. *University of Birmingham.*
- Sept 2021 **Category Theory 2021**  
[Link](#) Conference. *University of Genoa.*
- Aug 2021 **46<sup>th</sup> International Symposium on Mathematical Foundations of Computer Science 2021**  
[Link](#) Conference. *EATCS.*
- July 2021 **Toposes Online**  
[Link](#) Online conference. *IHES and University of Insubria.*
- July 2021 **Logic Colloquium 2021**  
 Online conference.
- July 2021 **Applied Category Theory 2021**  
[Link](#) Online conference.
- June 2021 **Categories and Companions Symposium**  
[Link](#) Online conference. *MATRIX and AMSI.*
- Apr 2021 - Currently **ItaCa Fest 2021**  
[Link](#) Online seminar. *ItaCa.*
- Mar 2021 **Workshop on Polynomial Functors**  
[Link](#) Online workshop. *Topos Institute.*
- Mar - July 2021 **Category Theory Lunch**  
 Online seminar. *Logic Group of the School of Mathematics, University of Leeds.*
- Oct 2020 - Currently **Postgraduate Logic Seminar**  
 Seminar. *Logic Group of the School of Mathematics, University of Leeds.*

- Oct 2020 - Currently **Leeds-Ghent Virtual Logic Seminar**  
[Link](#) Online seminar. *Logic Group of the School of Mathematics, University of Leeds.*
- Oct 2020 - Currently **Models and Sets Seminar**  
[Link](#) Online seminar. *Logic Group of the School of Mathematics, University of Leeds.*
- June - Dec 2020 **ItaCa Fest 2020**  
[Link](#) Online seminar. *ItaCa.*
- Oct 2020 - Currently **Yorkshire and Midlands Category Theory Seminar**  
 Seminar. *London Mathematical Society.*
- June 2019 **Higher Topos Theory and Univalent Foundations**  
[Link](#) Summer school & conference. *University of Leeds.*
- Feb - May 2019 **Student Seminar Ultracategories**  
[Link](#) Seminar. *Utrecht University.*
- June 2018 **Toposes in Como**  
[Link](#) Summer school & conference. *University of Insubria.*

## Awards, grants and scholarships

- 2023 **Grant**  
 Full funding ([link here](#)) for a EuroProofNet CA20111 STSM ([link here](#)) research visit to Amsterdam (hosted by Benno van den Berg).
- 2020 **Scholarship**  
 Offer of a full funding for a PhD in the School of Mathematics at the University of Leeds (UK).
- 2020 **Scholarship**  
 Offer of a full funding for a PhD in Mathematics at the University of Western Ontario (Canada).
- 2020 **Scholarship**  
 Offer of a full funding for a PhD in the School of Computer Science at the University of Birmingham (UK).
- 2019 **Scholarship**  
 Funding for 4 months (from September 2019 to December 2019) of international mobility for thesis research.
- 2019 **Merit award**  
 A merit-based money prize (University of Trento) for my BSc.
- 2018 **Scholarship**  
 Funding for 10 months (from September 2018 to June 2019) of international mobility in the academic year 2018/19 in partner Universities in the framework of the Erasmus+ Programme Countries.

## Language skills

- Italian **Native speaker**
- Venetian of Treviso **Very good user**, non-native speaker  
 Variety of the area of Feltre, Valdobbiadene and the Quartier del Piave of the venetian dialect continuum.
- English **Good user**  
 IELTS academic band score. 7.0 (January 2019). This corresponds to a Level C1 on the CEFR.
- French **Pre-intermediate user**

## Other activities

- Stack Exchange **Active member** of [Mathematics Stack Exchange Community](#)  
 This is a well-known website for university-level mathematics Q&As. [Link to my account.](#)

Teaching **Secondary School Teaching**

About 150 hours (some of which in the framework of a project organised by my high-school) of private lessons in mathematics to high-school students.