

# Gabriele Lobbia

*Postdoc in Mathematics*

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## Professional Experience

- Jan 2022– **Postdoctoral Researcher**, Masaryk University, Brno, Czech Republic.  
Aug-Dec 2021 **Part-Time Researcher**, Masaryk University, Brno, Czech Republic, working with John Bourke on skew monoidal categories, multicategories and connections with higher dimensional categories.  
2019–2021 **Teaching Assistant**, University of Leeds, UK.  
Feb 2017 **Substitute Teacher**, Liceo Falcone Borsellino, Arese (MI), Italy.

## Education

- 2018–2022 **PhD in Mathematics**, *School of Mathematics*, University of Leeds, UK.  
Funded by an EPSRC Scholarship, Oct 2018 – Feb 2022,  
Supervisors: Dr. N. Gambino and Prof. P. Martin  
Thesis Title: Pseudomonads, Relative Monads and Strongly Finitary Notions of Multicategory  
Defense: 28 February 2022, Leeds, UK  
Examiners: Prof. M. Fiore and Dr. J. Faria Martins  
2016–2018 **ALGANT Master Program Degree (M.S.)**.  
Università degli studi di Milano 110/110 cum laude, Universität Regensburg 1.0/1.0  
Advisor: Prof. Dr. Denis-Charles Cisinski  
Thesis Title: Kan Complexes as a Univalent Model of Type Theory  
2013–2016 **Laurea Triennale in Matematica (B.S.)**, *Università degli studi di Milano*, 110/110.

## Research Interests

Category theory, higher category theory, categorical logic, universal algebra, multicategories, monoidal categories, skew structures, sketches, categorical algebra.

## Publications and Preprints

- 2023\* **A finite approach to representable multicategories and related structures**  
preprint, available at [arXiv:2312.06237](https://arxiv.org/abs/2312.06237).  
2023\* **Some Remarks on the Interchange in Gray-categories**, with Nicola Di Vittorio  
preprint, available at [arXiv:2310.03503](https://arxiv.org/abs/2310.03503).  
2023 **A skew approach to enrichment for Gray-categories**, with John Bourke  
*Advances in Mathematics*, vol. 434:109327, preprint available at [arXiv:2212.12358](https://arxiv.org/abs/2212.12358).  
2023 **KZ-pseudomonads and Kan Injectivity**, with Ivan Di Liberti and Lurdes Sousa  
to appear in *Theory and Applications of Categories* special volume in honour of Marta Bunge,  
preprint [arXiv:2211.00380](https://arxiv.org/abs/2211.00380).  
2023 **Distributive laws for relative monads**  
*Applied Categorical Structures*, 37 (19), preprint available at [arXiv:2007.12982](https://arxiv.org/abs/2007.12982).  
2021 **On the formal theory of pseudomonads and pseudodistributive laws**, with Nicola Gambino  
*Theory and Applications of Categories*, 37 (2), pp. 14-56.

## Scholarships, Awards and Grants

- 2018–2022 EPSRC PhD Scholarship  
Fall 2017–Spring 2018 Erasmus Grant to study in Regensburg, Germany

## Conference Talks

- 2023 **A Skew Approach to Enrichment for Gray-categories**, PSSSL 107, Athens, contributed, April.  
2022 **Kan Injectivity and KZ-monads**, SYCO 9, Como, contributed, September.  
2021 **Finitary Definitions of Multicategory**, CT20→21, Genova, contributed, September.  
2019 **The Formal Theory of Pseudomonads**, 1st ItaCa Workshop, Milano, contributed, December.  
**The Formal Theory of Pseudomonads**, Postgraduate Conference in Category Theory and its Applications, Leicester, invited, November.

## Seminar Talks

- 2023 **Some Remarks on the Interchange in Gray-categories**, Masaryk University Algebra Seminar, contributed, November.  
**A skew approach to enrichment for Gray-categories**, *ItaCa Fest 2023*, online, invited, October.  
**A skew approach to enrichment for Gray-categories Part 2**, Masaryk University Algebra Seminar, contributed, April.  
2022 **KZ-monads and Kan injectivity**, Masaryk University Algebra Seminar, contributed, May.  
2021 **A nice picture of 2-cats**, Se Mi Narri, Pavia online, invited, March.  
2020 **Distributive laws for relative monads**, Masaryk University Algebra Seminar, Brno online, invited, December.  
**Monoidal Categories vs Multicategories**, Postgraduate Logic seminar, Leeds online, contributed, November.  
**Distributive laws for relative monads**, Virtual Logic Seminar, Leeds online, contributed, June.  
**Everything is connected, everything is Yoneda**, Pure Postgraduate seminar, Leeds, contributed, February.  
**A Formal Approach to Generalisations of Monads**, Category Theory Seminar, Cambridge, invited, January.  
2019 **The Formal Theory of Pseudomonads**, Proofs, computations and constructions, Leeds, contributed, November.  
**A nice picture of 2-cats**, Pure Postgraduate Seminar, Leeds, contributed, March.  
2018 **Kan Complexes as a Univalent Model of Type Theory**, Postgraduate Logic seminar, Leeds, contributed, October.

## Conferences, Workshops and Summer/Winter Schools

- 2023 **CT 2023**, Louvain-la-Neuve, 2-8 July.  
**PSSSL 107** (Peripatetic Seminar on Sheaves and Logic), Athens, 2-3 April (contributed talk).  
2022 **3rd ItaCa Workshop**, Pisa, 21-22 December.  
**SYCO 9** (Symposium on Compositional Structures), Como, 8-9 September (contributed talk).  
**Bicategories, Categorification and Quantum Theory** (Summer School), Leeds, 11-15 July.  
**TACL 2022** (Topology, Algebra and Categories in Logic), Coimbra, 20-24 June.  
**PSSSL 106** (Peripatetic Seminar on Sheaves and Logic), Brno, 14-15 May.  
**ItaCa Fest 2022**, online, April-November.

- 2021 **2nd ItaCa Workshop**, Genova, 20-21 December.  
**CT20→21**, Genova, 30 August-4 September.  
**ItaCa Fest 2021**, online, April-June.
- 2020 **ItaCa Fest 2020**, online, June-December.
- 2019 **1st ItaCa Workshop**, Milano, 19-20 December (contributed talk).  
**SYCO 6** (Symposium on Compositional Structures), Leicester, 16-17 December.  
**Postgraduate Conference in Category Theory and its Applications**, Leicester, 18-19 November (invited talk).  
**CT 2019**, Edinburgh, 7-13 July.  
**Higher Topos Theory and Univalent Foundations** (Summer School), Leeds, 24-28 June.  
**PSSL 105** (Peripatetic Seminar on Sheaves and Logic), Palermo, 18-19 May.

## Teaching Experience

- 2019–2021 **Teaching assistant**, University of Leeds
- MATH1400 Modelling with Differential Equations, tutorials ( $\approx 10$  students), Spring 2020;
  - MATH1060 Introductory Linear Algebra, tutorials ( $\approx 10$  students), Spring 2020;
  - MATH2022 Groups and Vector Spaces, workshops ( $\approx 40$  students) Autumn 2019, marking/drop-in sessions Autumn 2020;
  - MATH1225 Introduction to Geometry, tutorials ( $\approx 10$  students), Autumn 2019;
  - MATH3044 Number Theory, marking, Spring 2019;
  - MATH1026 Sets, Sequences and Series, tutorials ( $\approx 10$  students), Spring 2019, 2021.
- Feb 2017 **Substitute Teacher** for a first year and a second year Scientifico classes and a first year Linguistico class, Liceo Scientifico e Linguistico “ G. Falcone – P. Borsellino” (Arese, MI, Italy)

## Other Professional Experience

- 2023– **Reviewer** for *Higher Structures* and *Applied Categorical Structures*.
- May 2022 **Organising Committee**, PSSL 106 (Peripatetic Seminar on Sheaves and Logic), Brno.
- 2020– **Social media manager** of ItaCa, the Italian community of category theory.
- 2019-2021 **Co-organiser** of the Pure Postgraduate Seminar, Leeds.
- June 2019 **Organising Committee**, Higher Topos Theory and Univalent Foundations Summer School, Leeds.

## Professional Memberships

- 2018–2021 Student member of the Association for Symbolic Logic

## Computer Skills

- Languages  $\text{\LaTeX}$ , C  
 Platforms Windows

## Languages

- Italian Native  
 English Fluent