

# Marco Abbadini

POSTDOCTORAL RESEARCHER

Université Catholique de Louvain, Belgium, Research Institute in Mathematics and Physics

✉ marco.abbadini@uclouvain.be | 🏠 <https://marcoabbadini-uni.github.io>

## Research profile

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My research develops *Stone-type categorical dualities* and representation theorems linking the algebraic semantics of *logic* with topological structures. I combine methods from universal algebra, topology and category theory to study structures arising from logic, including MV-algebras, lattice-ordered groups, and hyperdoctrines.

### MAJOR FUNDING & PROJECTS

- **FSR Incoming Postdoctoral Fellowship** (UCLouvain, Belgium), 2025–2028.  
Project: *CatCoD: Categorical Commutators and Dualities*.  
Supervisor: Marino Gran.
- **Marie Skłodowska-Curie Postdoctoral Fellowship (MSCA PF)** (University of Birmingham, UK), 2023–2025.  
Project: *DCPOS: Dualities via Compactness, Openness and their Symmetry*.  
Supervisor: Achim Jung.

### SELECTED PUBLICATIONS

- **M. Abbadini**, V. Marra, L. Spada. *Stone–Gelfand duality for metrically complete lattice-ordered groups*. *Advances in Mathematics* (2025).
- **M. Abbadini**, P. Aglianò, S. Fioravanti. *Varieties of MV-monoids and positive MV-algebras*. *Journal of Algebra* (2025).
- **M. Abbadini**, I. Di Liberti. *Duality for coalgebras for Vietoris and monadicity*. *Journal of Symbolic Logic* (2025).

### KEY HIGHLIGHTS

- **Publications:** 18 peer-reviewed journal papers, with venues such as *Advances in Mathematics*, *Journal of Algebra*, *Journal of Symbolic Logic*, *JPAA*, *TAC*, etc.
- **Invited talks:** invited plenary talks at international conferences, such as *Topology, Algebra, and Categories in Logic 2026* (Kraków, Poland) and *BLAST 2023* (Charlotte, USA).
- **Teaching:** experience as teaching assistant and adjunct professor; scheduled course holder (2025/26); co-supervision of BSc theses.
- **National qualifications:** Italian ASN (Seconda Fascia, 2024); French qualification as *maître de conférences* in Mathematics and Computer Science (2023).

Full publication list, talks, teaching and service appear in the following pages.

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## Academic positions

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### **FSR Incoming Postdoctoral Fellowship**

2025/09/01 – present

UNIVERSITÉ CATHOLIQUE DE LOUVAIN (BELGIUM), RESEARCH INSTITUTE IN  
MATHEMATICS AND PHYSICS.

- Awarded by the Université Catholique de Louvain.
- Project: *CatCoD: Categorical Commutators and Dualities*.
- Supervisor: Marino Gran.

### **Marie Skłodowska-Curie Postdoctoral Fellowship (MSCA PF)**

2023/09/01 – 2025/08/31

UNIVERSITY OF BIRMINGHAM (UK), SCHOOL OF COMPUTER SCIENCE.

- Awarded after EU MSCA evaluation; funded by UK Research and Innovation under the Horizon Europe funding guarantee.
- Project: *DCPOS: Dualities via ComPactness, Openness and their Symmetry*.
- Supervisor: Achim Jung.

### **PostDoc**

2020/12/01 – 2023/08/31

UNIVERSITY OF SALERNO (ITALY), DEPARTMENT OF MATHEMATICS.

- Project: *Łukasiewicz logic, MV-algebras and duality*.
- Supervisor: Luca Spada.

## Education

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### PhD • Mathematics

2017/09/25 – 2021/04/09

UNIVERSITY OF MILAN (ITALY), DEPARTMENT OF MATHEMATICS.

- Title of the thesis: *On the axiomatisability of the dual of compact ordered spaces.*
- Supervisor: Vincenzo Marra.
- Date of defense: 9 April 2021.
- Final grade: Excellent with honours.
- Three years, fully funded by the University of Milan.
- Abstract published in the Bulletin of Symbolic Logic. DOI: 10.1017/bsl.2021.54.

### MS • Mathematics

2015/11/01 – 2017/07/19

UNIVERSITY OF MILAN (ITALY), DEPARTMENT OF MATHEMATICS.

- Title of the thesis: *The algebraic structure of probability measures and expectations.*
- Supervisor: Vincenzo Marra.
- Final grade: 110/110 cum laude.

### BS • Mathematics

2012/07/16 – 2015/10/21

UNIVERSITY OF MILAN (ITALY), DEPARTMENT OF MATHEMATICS.

## Grants and awards

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### GRANTS AND FELLOWSHIPS

- 2025-2028     **FSR Incoming Postdoctoral Fellowship.** Awarded by Université Catholique de Louvain (Belgium). 3 years.
- 2023-2025     **Marie Skłodowska Curie Postdoctoral Fellowship (MSCA PF).** (220,908.48€; 187,096.00£.)  
Host institution: University of Birmingham (UK), School of Computer Science. Scientific Area: Mathematics. Awarded after EU MSCA evaluation; funded by UK Research and Innovation under the Horizon Europe funding guarantee (grant number EP/Y015029/1, Project “DCPOS”).

### NATIONAL QUALIFICATIONS

- 2024     **Italian “Abilitazione Scientifica Nazionale - Seconda Fascia”.**
- 2023     **French national qualification as maître de conférences (associate professor) in Computer Science.**
- 2023     **French national qualification as maître de conférences (associate professor) in Mathematics.**

### SCOLARSHIPS AND AWARDS

- 2023      **Scholarship to conduct one month of research abroad.** Host institution: University of Birmingham (UK), School of Computer Science. Awarded by the Italian National Institute of High Mathematics ‘Francesco Severi’ (INDAM). Declined, as a Marie Skłodowska-Curie Postdoctoral Fellowship was awarded for the same period.
- 2017–2020      **PhD scholarship.** Three years, fully funded. Awarded by the University of Milan (Italy).
- 2016/17, Fall      **Erasmus scholarship.** One Semester. Awarded by the University of Milan (Italy), on behalf of the E.U.
- 2015/16, Spr.      **Erasmus scholarship.** One Semester. Awarded by the University of Milan (Italy), on behalf of the E.U.
- 2012/09/11      **INDAM Merit Award for Outstanding First-Year Mathematics Students (Top 80 nationwide).** Awarded by the Italian National Institute of High Mathematics ‘Francesco Severi’ (INDAM).

## Publications

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### PUBLICATIONS IN INTERNATIONAL PEER-REVIEWED JOURNALS

1. M. Abbadini, G. Bezhanishvili, L. Carai. On the lack of colimits in various categories of BAOs and Heyting algebras. *Theory and Applications of Categories*, accepted. Preprint available at arXiv:2507.07489.
2. M. Abbadini, L. Spada. The unification type of Łukasiewicz logic with a bounded number of variables. *The Journal of Symbolic Logic*, accepted. DOI: 10.1017/jsl.2025.10149. Preprint available at arXiv:2504.19011.
3. M. Abbadini, V. Marra, L. Spada. Stone-Gelfand duality for metrically complete lattice-ordered groups. *Advances in Mathematics*, 461:110067 (2025). DOI: 10.1016/j.aim.2024.110067.
4. M. Abbadini, I. Di Liberti. Duality for coalgebras for Vietoris and monadicity. *The Journal of Symbolic Logic*, 90(3):1022–1055 (2025) DOI: 10.1017/jsl.2024.14.
5. M. Abbadini, P. Aglianò, S. Fioravanti. Varieties of MV-monoids and positive MV-algebras. *Journal of Algebra*, 677:690–744 (2025). DOI: 10.1016/j.jalgebra.2025.04.027.
6. M. Abbadini, F. Guffanti. Quantifier-free formulas and quantifier alternation depth in doctrines. *Journal of Pure and Applied Algebra*, 229(8):108004 (2025). DOI: 10.1016/j.jpaa.2025.108004.
7. M. Abbadini, D. Hofmann. Barr-coexactness for metric compact Hausdorff spaces. *Theory and Applications of Categories*, 44(6):196–226 (2025). URL: <http://www.tac.mta.ca/tac/volumes/44/6/44-06abs.html>.
8. M. Abbadini, G. Bezhanishvili, L. Carai. Vietoris endofunctor for closed relations and its de Vries dual. *Topology Proceedings*, 64:213–250 (2024). URL: <https://topology.nipissingu.ca/tp/reprints/v64/>.
9. M. Abbadini, G. Bezhanishvili, L. Carai. MacNeille completions of subordination algebras. *Cahiers de Topologie et Géométrie Différentielle Catégoriques*, 65(2):151–199 (2024). URL: <https://cahierstgdc.com/wp-content/uploads/2024/04/ABBADINI-AI-LXV-2.pdf>.

10. M. Abbadini, G. Bezhanishvili, L. Carai. A generalization of de Vries duality to closed relations between compact Hausdorff spaces. *Topology and its Applications*, 337:108641 (2023). DOI: 10.1016/j.topol.2023.108641.
11. M. Abbadini, L. Reggio. Barr-exact categories and soft sheaf representations. *Journal of Pure and Applied Algebra*, 227(12):107413 (2023). DOI: 10.1016/j.jpaa.2023.107413.
12. M. Abbadini, P. Jipsen, T. Kroupa, S. Vannucci. A finite axiomatization of positive MV-algebras. *Algebra Universalis*, 83:28 (2022). DOI: 10.1007/s00012-022-00776-3.
13. M. Abbadini, L. Spada. Are locally finite MV-algebras a variety? *Journal of Pure and Applied Algebra*, 226(4):106858 (2022). DOI: 10.1016/j.jpaa.2021.106858.
14. M. Abbadini. Equivalence à la Mundici for commutative lattice-ordered monoids. *Algebra Universalis*, 82:45 (2021). DOI: 10.1007/s00012-021-00736-3.
15. M. Abbadini, L. Reggio. On the axiomatisability of the dual of compact ordered spaces. *Applied Categorical Structures*, 28(6):921–934 (2020). DOI: 10.1007/s10485-020-09604-y.
16. M. Abbadini. Operations that preserve integrability, and truncated Riesz spaces. *Forum Mathematicum*, 32(6):1487–1513 (2020). DOI: 10.1515/forum-2018-0244.
17. M. Abbadini. Dedekind  $\sigma$ -complete  $\ell$ -groups and Riesz spaces as varieties. *Positivity*, 24(4):1081–1100 (2020). DOI: 10.1007/s11117-019-00718-9.
18. M. Abbadini. The dual of compact ordered spaces is a variety. *Theory and Applications of Categories*, 34:1401–1439 (2019). URL: <http://www.tac.mta.ca/tac/volumes/34/44/34-44abs.html>.

## PROCEEDINGS IN INTERNATIONAL PEER-REVIEWED CONFERENCES

19. M. Abbadini, F. Di Stefano, L. Spada. Unification in Łukasiewicz logic with a finite number of variables. In *Information Processing and Management of Uncertainty in Knowledge-Based Systems*, 1239:622–633. Springer International Publishing, 2020. DOI: 10.1007/978-3-030-50153-2\_46.

## PREPRINTS

20. M. Abbadini, D. Mundici. Unital Specker  $\ell$ -groups and boolean multispaces. Under review. Preprint available at arXiv:2508.21500.
21. M. Abbadini, A. Jung. On the symmetry behind duality. Under review. Preprint available at arXiv:2507.18245.
22. M. Abbadini, A. Přenosil. Duality for finitely valued algebras. Under review. Preprint available at arXiv:2505.11490.
23. M. Abbadini, F. Guffanti. Freely adding one layer of quantifiers to a Boolean doctrine. Under review. Preprint available at arXiv:2410.16328.

## Talks

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### INVITED PLENARY TALKS AT INTERNATIONAL CONFERENCES

1. Topology, Algebra, and Categories in Logic 2026, Kraków, Poland. (20–24 July 2026)  
*TBA.*
2. Boolean algebras, Lattices, Universal Algebra, Set Theory, Topology 2023, University of North Carolina at Charlotte, NC, USA. (17 May 2023)  
*Positive MV-algebras.*

### INVITED TALKS AT SPECIAL SESSIONS IN INTERNATIONAL CONFERENCES

3. 2024 Association for Symbolic Logic North American Annual Meeting. Iowa State University, IA, USA. Invited to the Special Session on Algebraic Logic. (15 May 2024)  
*A duality for metrically complete lattice-ordered groups.*

### INVITED TALKS AT INTERNATIONAL WORKSHOPS

4. International Workshop on Topological Methods in Logic (ToLo 7), Tbilisi, Georgia. (25 June 2025)  
*The unification type of Łukasiewicz logic with a bounded number of variables.*
5. Third Algebra Week (2023), University of Siena, Italy. (5 July 2023)  
*Positive subreducts of MV-algebras.*
6. Duality, Order, (Co)algebras, Topology and Related topics, online. (7 July 2021)  
*Unital commutative distributive  $\ell$ -monoids and their unit intervals.*
7. Third Algebra Week (2020), University of Siena, Italy. (June 2020) (Cancelled due to COVID-19 pandemic.)  
*Equivalence à la Mundici for lattice-ordered monoids.*

### INVITED TALKS AT NATIONAL WORKSHOPS

8. 4<sup>th</sup> Southern and Midlands Logic Seminar, University of Birmingham, UK. (13 December 2023)  
*Natural dualities.*

### CONTRIBUTED TALKS AT INTERNATIONAL PEER-REVIEWED CONFERENCES

9. 6<sup>th</sup> ItaCa Workshop, University of Milan, Italy. (22 December 2025)  
*The doctrinal Herbrand's theorem and its Stone dual.*
10. Australasian Association for Logic 2025 Conference, University of Queensland, Brisbane, Australia. (3 November 2025)  
*Natural duality for finitely valued algebras.*
11. 2025 Category Theory Octoberfest, Online. (25 October 2025)  
*On the category of metric compact Hausdorff spaces.*
12. Logic, Algebra and Truth Degrees (LATD 2025), University of Siena, Italy. (25 July 2025)  
*The algebraic structure of spaces of integrable function.*
13. Logic Colloquium 2025, TU Wien, Vienna, Austria (7 July 2025)  
*An algebraic version of Herbrand's theorem.*

14. 107th Workshop on General Algebra AAA107, Bern, Switzerland. (21 June 2025)  
*The algebraic structure of spaces of integrable functions.*
15. 110<sup>th</sup> Peripatetic Seminar on Sheaves and Logic (PSSL 110), Tallinn, Estonia. (3 May 2025)  
*Barr-coexactness of metric compact Hausdorff spaces.*
16. 38<sup>th</sup> Summer Conference on Topology and its Applications, University of Coimbra, Portugal. (9 July 2024)  
*Vietoris endofunctor for closed relations.*
17. Topology, Algebra and Categories in Logic 2024, University of Barcelona, Spain. (4 July 2024)  
*Vietoris endofunctor for closed relations and its de Vries dual.*
18. 104<sup>th</sup> Workshop on General Algebra “Arbeitstagung Allgemeine Algebra”, South-West University “Neofit Rilsk”, Blagoevgrad, Bulgaria. (10 February 2024)  
*Natural dualities with an infinite dualizing object.*
19. “Modalities in Substructural Logics: Theory, Methods and Applications” Workshop 2023, Vienna, Austria. (29 September 2023)  
*Stone duality for finitely valued algebras with a near-unanimity term.*
20. 108<sup>th</sup> Peripatetic Seminar on Sheaves and Logic, University of Palermo, Terrasini, Italy. (17 September 2023)  
*Soft sheaf representations in Barr-exact categories.*
21. Logic, Algebra and Truth Degrees 2023, Ivane Javakhishvili State University, Tbilisi, Georgia. (11 September 2023)  
*Free extensions.*
22. Logic Colloquium 2023, University of Milan, Italy. (8 June 2023)  
*Jónsson-Tarski duality beyond dimension 0.*
23. 3<sup>rd</sup> ItaCa Workshop, University of Pisa, Italy. (21 December 2022)  
*Comonadicity over Set of coalgebras of Vietoris functors.*
24. Topology, Algebra and Categories in Logic 2022, University of Coimbra, Portugal. (24 June 2022)  
*An approach à la de Vries for compact Hausdorff spaces and closed relations.*
25. Category Theory 20→21, University of Genoa, Italy. (1 September 2021)  
*The opposite of the category of compact ordered spaces is monadic over the category of sets.*
26. Boolean Algebras, Lattices, Universal Algebra, Set Theory, Topology 2021, New Mexico State University, Las Cruces, NM, USA, online. (13 June 2021)  
*The opposite of the category of compact ordered spaces as an infinitary variety.*
27. 99<sup>th</sup> Workshop on General Algebra “Arbeitstagung Allgemeine Algebra”, University of Siena, Italy. (21 February 2020)  
*Priestley duality above dimension zero: algebraic axiomatisability of the dual of compact ordered spaces.*
28. Topology, Algebra, and Categories in Logic 2019, University of Nice, France. (20 June 2019)  
*Norm-complete Abelian  $\ell$ -groups: equational axiomatization.*
29. PhDs in Logic XI, University of Bern, Switzerland. (25 April 2019)  
*Stone-Gelfand duality for groups.*

30. Boolean Algebras, Lattices, Universal Algebra, Set Theory, Topology 2018, University of Denver, CO, USA. (10 August 2018)  
*Operations that preserve integrability, and truncated Riesz spaces.*

### CONTRIBUTED TALKS AT NATIONAL PEER-REVIEWED CONFERENCES

31. XXVIII Logic Meeting of the Italian Association of Logic and its Applications, Udine, Italy. (4 September 2024)  
*Vietoris endofunctor for closed relations and its de Vries dual.*
32. XXVII Meeting of the Italian Association for Logic and its applications (AILA), Università della Campania “L. Vanvitelli”, Caserta, Italy. (13 September 2023)  
*Duality for metrically complete Abelian  $\ell$ -groups.*

### TALKS AT LOCAL SEMINARS

33. Université Catholique de Louvain, Belgium. Junior Colloquium. (29 October 2025)  
*Bridging Ordered Groups and Topology: Representation Theorems and Categorical Dualities.*
34. University of Birmingham, UK. (5 June 2025)  
*On de Groot and Lawson self-dualities.*
35. University of Birmingham, UK. (8 May 2025)  
*Freely adding a layer of Heyting implication to a distributive lattice.*
36. University of Salerno, Italy. (24 April 2025)  
*An algebraic version of Herbrand’s theorem.*
37. Université Catholique de Louvain, Louvain-la-Neuve, Belgium. Category Theory Seminar. (7 January 2025)  
*Coalgebraic flavour of metric compact Hausdorff spaces.*
38. University of Milan, Italy. Logic, Algebra and Categories. (31 October 2024)  
*Quantifier-free fragments and quantifier alternation depth in doctrines.*
39. University of Manchester, UK. (9 October 2024)  
*Quantifier-free fragments and quantifier alternation depth in doctrines.*
40. University of Padua, Italy. (2 May 2024)  
*Quantifier alternation depth in universal Boolean doctrines.*
41. University of Birmingham, UK. (23 November 2023)  
*An abstraction of the unit interval with Euclidean topology and denominators.*
42. Université Catholique de Louvain, Louvain-la-Neuve, Belgium. Category Theory Seminar. (13 November 2023)  
*Soft sheaf representations in Barr-exact categories.*
43. University of Bern, Switzerland. Bern Logic Seminar. (20 April 2023)  
*Positive MV-algebras.*
44. University of the Witwatersrand, Johannesburg, South Africa. (30 March 2023)  
*Unique embeddability property.*



45. Paris-Saclay University, Laboratoire Méthodes Formelles (LMF), Paris, France, online. (4 January 2023)  
*An abstraction of the unit interval with denominators.*
46. University of Padua, Italy, online. (5 December 2022)  
*Dualities for compact Hausdorff spaces.*
47. Université Paris Cité, IRIF, France. Sémantique. (25 November 2022)  
*A generalization of de Vries duality to closed relations between compact Hausdorff spaces.*
48. University of Amsterdam, Institute for Logic, Language and Computation, Netherlands, online. Lectures on Logic and its Mathematical Aspects (LLAMA seminar). (11 May 2022)  
*Free extension for universal algebras.*
49. New Mexico State University, USA, online. Algebra Seminar. (14 March 2022)  
*Free extension for universal algebras.*
50. University of Caserta, Italy. Model theory seminar. (14 February 2022)  
*Positive MV-algebras.*
51. University of Denver, USA, online. Nonclassical Logic Webinar. (5 May 2021)  
*Is the category of locally finite MV-algebras equivalent to an equational class?*
52. University of Denver, USA, online. Nonclassical Logic Seminar. (8 May 2020)  
*Equivalence à la Mundici for lattice-ordered monoids.*
53. University of Salerno, Italy. (23 January 2020)  
*Equivalence à la Mundici for lattice-ordered monoids.*
54. University of Nice, France. Groupe de travail ‘Dualité de Stone, langages formels et logique’. (3 October 2019)  
*On concrete dual adjunctions.*
55. Czech Academy of Sciences, Prague, Czech Republic. Applied Mathematical Logic Seminar. (6 February 2019)  
*The dual of compact ordered spaces is a variety.*
56. University of Salerno, Italy. (13 December 2018)  
*Archimedean Cauchy-complete MV-algebras form a variety.*
57. University of Milan, Italy. Workshop “PhD<sup>2</sup> - PhD days” (6 July 2018)  
*Operations that preserve integrability: characterization and related algebraic structures.*

## OTHER TALKS AND POSTERS

58. Autumn school “Proof and Computation”, Fischbachau, Germany. 5-minute lightning talk. (19 September 2024)  
*Algebras of logic, step-by-step.*
59. XXI Congresso dell’Unione Matematica Italiana, University of Pavia, Italy. Poster. (2 September 2019)  
*Dualità di Stone-Gelfand per i gruppi.*

## Seminars and mini-courses for students

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[Seminar for PhD students and Postdoctoral Researchers in Computer Science](#). University of Birmingham (UK), School of Computer Science. (25 February 2025)  
*The algebras of classical first-order logic.*

[Seminar for PhD students and Postdoctoral Researchers in Computer Science](#). University of Birmingham (UK), School of Computer Science. (11 February 2025)  
*The sequent calculus whose semantics admits the empty structure.*

[3-hour course for PhD Students and Postdoctoral Researchers in Computer Science](#). University of Birmingham (UK), School of Computer Science. (17 and 24 October 2024)  
*Stone duality.*

[Seminar for graduate students in Mathematics](#). New Mexico State University (USA), online. (24 March 2022)  
*Lawvere's algebraic theories.*

[Seminar for students of the course "Universal Algebra"](#). University of Salerno (Italy). (28 May 2021)  
*The algebraic approach to Constraint Satisfaction Problems (CSP).*

[Seminar for students of the course "Algebra 2"](#). University of Milan (Italy). (5 December 2019)  
*The Rubik's Cube. Ideas to create a solution strategy.*

## Outreach

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**Outreach blog post** on *Maddmaths!* (Italian outreach platform in mathematics) about Stone duality and its recent developments. M. Abbadini, *Attraverso lo specchio*. Link. (6 May 2025)

**Organizer and volunteer in educational events for the general public**, illustrating through games the hidden mathematical mechanisms of gambling and the systematic disadvantage for the player. *Slotmob* (5 June 2015) and *Apericena d'azzardo* (11 April 2014).

## Supervision

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2025/09/01 **Member of PhD Support Committee (*comité d'accompagnement*)**. *Université Catholique de Louvain (Belgium), Research Institute in Mathematics and Physics.*

- PhD Student: François Cayphas.
- The role of the support committee is to advise the PhD student and to take part in the confirmation review, held about eighteen months after the beginning of the PhD.
- PhD Starting date: 1 September 2025.

2022/10/24 **Co-supervision of Bachelor thesis**. *University of Salerno (Italy), Department of Mathematics.*

- Title: *Universal constructions in Algebra and in Category Theory.*
- Student: Chiara Carratù.
- Date of defense: 24 October 2022.

- 2021/09/28 **Co-supervision of Bachelor thesis.** *University of Salerno (Italy), Department of Mathematics.*
- Title: *Lawvere's theories: an algebraic approach to Universal Algebra.*
  - Student: Maria Bevilaqua.
  - Date of defense: 28 September 2021.

## Teaching

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- 2022/23, Fall **Teaching assistant.** *University of Salerno (Italy), Department of Chemistry and Biology.*
- Course: *Mathematical Methods for Environmental Sciences.*
  - For students in the first year of the bachelor's degree in Environmental Sciences.
  - Tasks: exercise classes.
  - 20 h.

- 2022/23, Fall **Teaching assistant.** *University of Salerno (Italy), Department of Mathematics.*
- Course: *Mathematical Logic.*
  - For students in the third year of the bachelor's degree in Mathematics.
  - Tasks: exercise classes.
  - 20 h.

- 2021/22, Fall **Adjunct Professor.** *University of Salerno (Italy), Department of Chemistry and Biology.*
- Course: *Mathematics 1.*
  - For students in the first year of the bachelor's degree in Environmental Sciences.
  - Joint with Serafina Lapenta.
  - Tasks: classes (16 h), office hours, preparation and evaluation of written exams, conduction of oral examinations.

- 2021/22, Fall **Teaching assistant.** *University of Salerno (Italy), Department of Mathematics.*
- Course: *Mathematical Logic.*
  - For students in the third year of the bachelor's degree in Mathematics.
  - Tasks: exercise classes.
  - 20 h.

- 2021/2022 **"Cultore della materia".** *University of Salerno (Italy), Department of Computer Science.*
- Course: *Discrete Mathematics.*
  - For students in the first year of the bachelor's degree in Computer Science.
  - Tasks: exam assistant (2h).

- 2021/2022 **"Cultore della materia".** *University of Salerno (Italy), Department of Chemistry and Biology.*
- Course: *Mathematics 1.*
  - For students in the first year of the bachelor's degree in Environmental Sciences.
  - Tasks: exam assistant.

2019/20, Fall **Teaching Assistant.** *University of Milan (Italy), Department of Mathematics.*

- Course: *Algebra 2*.
- For students in the second year of the bachelor's degree in Mathematics.
- Tasks: exercise classes (28h), office hours (3h), exam assistant (4h).

Additionally, I completed the Italian **teacher-training program “24 CFU”**: 24 ECTS (university credits), covering didactic methods and technologies, educational psychology and pedagogy (University of Milan, 2019/2020).

## Participation in research projects

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### **DCPOS: Dualities via ComPactness, Openness and their Symmetry**

*2023 Sep – Present*

UNIVERSITY OF BIRMINGHAM (UK)

- Role: [Experienced Researcher](#).
- Marie Skłodowska Curie Postdoctoral Fellowship (MSCA PF), EU Horizon 2020, delivered by the UK Research and Innovation (UKRI) under the UK government's Horizon Europe funding guarantee. Grant number EP/Y015029/1.

### **MOSAIC: Modalities in Substructural Logics: Theory, Methods and Applications**

*2021 Dec – 2023 Sep*

UNIVERSITY OF SALERNO (ITALY)

- Role: [Team member](#).
- Funded by the European Union, Rise-MSCA-2020, Project 101007627.
- Secondments:
  - 2-month research visit to M. A. Moshier, Chapman University, Orange, CA, USA (2022).
  - 1-month research visit to C. van Alten, University of the Witwatersrand, Johannesburg, South Africa (2023).

### **Theory and applications of resource sensitive logics**

*2019 Dec – 2022 Dec*

UNIVERSITY OF SALERNO (ITALY)

- Role: [Team member](#).
- Funded by the Italian Ministry of University and Research, PRIN project n. 20173WKCM5.

## Organisation of conferences and seminars

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### **Series of seminars in logic**

*2023/04/17 – 2023/06/17*

UNIVERSITY OF SALERNO (ITALY), DEPARTMENT OF MATHEMATICS

- Role: [organizer](#).
- 6 seminars + 1 final workshop.

### **Conference “LATD 2022 and MOSAIC 2022 Kick Off Meeting”**

*2022/09/05 – 2022/09/10*

PAESTUM (ITALY)

- Role: [member of the organizing committee](#).
- International conference (84 participants).

### **Workshop “PhD<sup>2</sup>ays 2020”**

*2020/12/09 – 2020/12/11*

UNIVERSITY OF MILAN (ITALY), ONLINE

- Role: [member of the organizing committee](#).
- Local workshop, in which PhD students expose the research to postgraduate students (~ 35 participants).

## Visits

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- 2025 **Czech Academy of Sciences, Prague (Czech Republic), Institute of Computer Science.** Visiting A. Přenosil and W. Poiger. 5 days.
- 2025 **Université catholique de Louvain, Louvain-la-Neuve (Belgium), Institut de Recherche en Mathématique et Physique.** Visiting M. Gran and delivering the talk “Coalgebraic flavour of metric compact Hausdorff spaces”. 4 days.
- 2024 **University of Aveiro (Portugal), Department of Mathematics.** Visiting D. Hofmann. 5 days.
- 2024 **University of Luxembourg (Luxembourg), Department of Mathematics.** Visiting F. Guffanti. 3 days.
- 2024 **Université catholique de Louvain, Louvain-la-Neuve (Belgium), Institut de Recherche en Mathématique et Physique.** Visiting M. Gran and delivering the talk “Soft sheaf representations in Barr-exact categories”. 2 days.
- 2023 **University of Bern (Switzerland), Mathematisches Institut.** Visiting G. Metcalfe and delivering the talk “Positive MV-algebras”. 3 days.
- 2023 **University of the Witwatersrand, Johannesburg (South Africa), Department of Computer Science.** Visiting C. van Alten and delivering the talk “Unique embeddability property”. Secondment within the MSCA–RISE research project “Mosaic” (Modalities in Substructural Logics: Theory, Methods and Applications). 1 month.
- 2023 **University of Aveiro (Portugal), Department of Mathematics.** Visiting D. Hofmann. 8 days.
- 2022 **Université Paris Cité, Paris (France), Institut de Recherche en Informatique Fondamentale (IRIF).** Visiting S. van Gool and delivering the talk “A generalization of de Vries duality to closed relations between compact Hausdorff spaces”. 3 days.
- 2022 **Chapman University, Orange (USA), Department of Mathematics.** Visiting M. A. Moshier. Secondment within the MSCA–RISE research project “Mosaic” (Modalities in Substructural Logics: Theory, Methods and Applications). 2 months.
- 2022 **Oxford University (UK), Department of Computer Science.** Visiting L. Reggio. 5 days.
- 2020 **University of Salerno (Italy), Department of Mathematics.** Visiting L. Spada and delivering the talk “Equivalence à la Mundici for lattice-ordered monoids”. 4 days.
- 2019 **University of Nice (France), Laboratoire Jean Alexandre Dieudonné.** Visiting W. Fussner and delivering the talk “On concrete dual adjunctions”. 3 days.

- 2019 **Czech Academy of Sciences, Prague (Czech Republic), Department of Computer Science.** Visiting L. Reggio and delivering the talk “The dual of compact ordered spaces is a variety”. 4 days.
- 2018 **University of Salerno (Italy), Department of Mathematics.** Visiting L. Spada and delivering the talk “Archimedean Cauchy-complete MV-algebras form a variety”. 6 days.

## VISITS HOSTED

- 2025 **L. Spada.** At Université catholique de Louvain (Belgium), Research Institute in Mathematics and Physics. 4 days.
- 2025 **R. N. Almeida.** At University of Birmingham (UK), School of Computer Science. 2 weeks.
- 2024 **S. van Gool.** At University of Birmingham (UK), School of Computer Science. 5 days.
- 2023 **A. Přenosil.** At University of Salerno (Italy), Department of Mathematics. 5 days.
- 2023 **F. Guffanti.** At University of Salerno (Italy), Department of Mathematics. 2 days

## Schools and courses

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- Sept. 2024 **“Proof and Computation” autumn school 2024** Fischbachau (Germany).
- June 2024 **Topology, Algebra and Categories in Logic 2024 Summer School.** Barcelona (Spain).
- April 2024 **Midlands Graduate School 2024.** Leicester (UK).
- 2023/24, Spr. **Course “Advanced Functional Programming” (with Agda).** University of Birmingham (UK).
- 2023/24, Fall **Course “Functional Programming” (with Haskell).** University of Birmingham (UK).
- 2023/24, Fall **Course “An introduction to the theory of profinite groups”.** University of Salerno (Italy).
- June 2022 **Topology, Algebra and Categories in Logic 2022 Summer School.** Praia de Mira (Portugal).
- June 2019 **Topology, Algebra and Categories in Logic 2019 Summer School.** Île de Porquerolles (France).

## Academic associations

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Member of the Italian Association for Logic and its Applications (AILA).

## Languages

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<b>Italian</b>	<b>C2.</b> (Mother tongue.)
<b>English</b>	<b>C1/C2.</b> (2017/02/18: TOEFL IBT 106/120.)
<b>French</b>	<b>B2.</b> (B2 Course completed at UCLouvain, a.y. 2025/2026.)
<b>Spanish</b>	<b>B2.</b>
<b>German</b>	<b>A2/B1.</b> (2016/10/12: B2 certificate issued by University of Stuttgart, Germany.)