

## EDUCATION

### University of Oxford, United Kingdom

Ph.D (D.Phil) in Computer Science 2013 — April 2017 (submitting)

Thesis title: *The geometry of composition and the algebra of entanglement.*

Supervisor: Bob Coecke

### Università degli Studi di Pavia, Italy

M.Sc (Laurea Magistrale) in Mathematics 2011 — 2013

Thesis title: *Nonstandard functional interpretations and categorical models.*

Advisor: Ludovico Pernazza

Co-advisor: Benno van den Berg (ILLC, UvA) Graded 110/110 *cum laude*

### Utrecht University, The Netherlands

Visiting Student, Mathematical Institute 2013

### IUSS - Istituto Universitario di Studi Superiori, Pavia, Italy

Class of Science and Technology 2008 — 2013

### Università degli Studi di Pavia, Italy

B.Sc (Laurea Triennale) in Mathematics 2008 — 2011

Thesis title: *Logic and syntax. The descriptive complexity of formal languages.*

Advisor: Pierluigi Minari (Università degli Studi di Firenze)

Co-advisor: Samuele Antonini Graded 110/110 *cum laude*

## PUBLICATIONS

[3] A Topological Perspective on Interacting Algebraic Theories.

Single-author. In *Proceedings 13th International Conference on Quantum Physics and Logic (QPL) 2016*, volume 236 of EPTCS, pages 70-86, 2017.

[2] A Diagrammatic Axiomatisation for Qubit Entanglement.

Single-author. In *30th Annual ACM/IEEE Symposium on Logic in Computer Science (LICS) 2015*, pages 573-584, IEEE, 2015.

[1] Nonstandard Functional Interpretations and Categorical Models.

Joint work with Benno van den Berg. To appear in *Notre Dame J. Formal Logic* 58 (3), 2017.

## TALKS

(\*INVITED)

*Algebraic theories as directed spaces.*

6 December 2016, St John's College, Cambridge, United Kingdom.

*A topological perspective on interacting algebraic theories.*

9 June 2016, Quantum Physics and Logic, Glasgow, United Kingdom.

25 June 2016, Higher Dimensional Rewriting and Applications, Porto, Portugal.

*\*String diagrams and the algebra of entanglement.*

14 January 2016, Séminaire PPS, IRIF, Université Paris Diderot, France.

7 March 2016, Category Theory Seminar, Université Libre de Bruxelles, Belgium.

*A diagrammatic axiomatisation of the GHZ and W quantum states.*

17 July 2015, Quantum Physics and Logic, Oxford, United Kingdom.

*A diagrammatic axiomatisation for qubit entanglement.*

9 July 2015, Logic in Computer Science (LICS), Kyoto, Japan.

*String diagrams and multipartite entanglement.*

15 October 2014, Celebrating 10 years of CQM, Oxford, United Kingdom.

*\*Dalle interpretazioni funzionali all'aritmetica nonstandard.*

28 August 2014, Seminario di Logica Permanente, Gargnano, Italy.

*\*Functional interpretations and categorical models of nonstandard arithmetic.*

11 September 2013, Colloquium on Mathematical Logic, Amsterdam, The Netherlands.

AWARDS	<p><b>Best Student Paper.</b> Quantum Physics and Logic (QPL). 2015 For my contribution <i>A diagrammatic axiomatisation of the GHZ and W quantum states.</i></p> <p><b>Premio AILA 3+2.</b> Italian Association of Logic and Applications (AILA). 2014 For the Best Master's Thesis in Logic defended at an Italian university in the Academic Year 2012-2013.</p> <p><b>Premio Migliore Laureato.</b> Università degli Studi di Pavia. 2014 For the Top Graduate from the Department of Mathematics in the Academic Year 2012-2013.</p>
GRANTS	<p><i>EPSRC - Engineering and Physical Sciences Research Council, Department of Computer Science, and Wolfson College, Oxford</i> 2013 — 2016 Combined studentship: EPSRC Doctoral Training Partnership, Departmental Studentship for Doctoral Study, and Isaiah Berlin Scholarship.</p> <p><i>Erasmus Student Placement</i> 2013 Studentship for a research project at the Mathematical Institute, Utrecht University, under the supervision of Benno van den Berg.</p> <p><i>IUSS - Istituto Universitario di Studi Superiori, and Collegio Ghislieri, Pavia</i> 2008 — 2013 Undergraduate studentship and place in college.</p>
RESEARCH INTERESTS	<p><i>Higher category theory.</i> Higher algebraic theories, higher-dimensional rewriting. String diagrams. Notions of weakness and semi-strictness. Aspects of combinatorial topology. Connections with homotopy theory and directed topology.</p> <p><i>Proof theory.</i> Categorical semantics. Linear logic and other substructural logics.</p> <p><i>Quantum theory.</i> Foundational aspects. Diagrammatic languages for quantum computation, categorical semantics. Operational aspects of entanglement.</p>
TEACHING	<p><b>University of Oxford</b>, United Kingdom <i>Department of Computer Science</i> 2015 — 2016 Teaching assistant for the course <i>Categories, Proofs and Processes</i>, aimed at students of Mathematics and Computer Science.</p> <p><b>Università degli Studi di Pavia</b>, Italy <i>Faculty of Engineering</i> 2012 — 2013 Teaching assistant for undergraduate courses in linear algebra and geometry for students of Industrial and Civil Engineering.</p> <p><i>Faculty of Science</i> 2012 Lecturer of a short course of preliminary mathematics for first-year students of Mathematics and Physics.</p>
LANGUAGES	<p><b>Italian</b>, <b>Bosnian-Croatian-Serbian</b> (bilingual native), <b>English</b> (near-native), <b>French</b> (advanced), <b>Latin</b> (reading).</p>