

Joshua Wrigley

Curriculum Vitae

j.wrigley@qmul.ac.uk • jlwrigley.github.io • +44 7532 069 073

School of Mathematical Sciences, Mile End Road, London E1 4NS, UK

Research interests

Topos theory, model theory, logic, type theory, category theory.

Appointments

Apr.–Dec. 2024 **Queen Mary, University of London** – London, UK
Research Assistant,
Principal investigator: [Prof. Ivan Tomašić](#).

Education

2020 – 2024 **Università degli Studi dell’Insubria** – Como, Italy
Dottorato di ricerca in informatica e matematica del calcolo (PhD),
Thesis: *Doctrinal and Groupoidal Representations of Classifying Topoi*,
Awarded *cum laude*,
Supervisor: [Prof. Olivia Caramello](#).

2019 – 2020 **Lincoln College, University of Oxford** – Oxford, UK
Masters in Mathematics (MMath), Classification: First class,
Dissertation: *Aspects of Stone Duality for Boolean Algebras*,
Supervisor: [Prof. Hilary Priestley](#).

2016 – 2019 **Lincoln College, University of Oxford** – Oxford, UK
Bachelor of Mathematics (BA), Classification: First class.

Publications

2024 **Some Properties of Internal Locale Morphisms Externalised,**
Theory and Applications of Categories, Vol. 41, 2024, No. 35, pp 1160-1202 ([link](#)).

2024 **The Representing Localic Groupoid for a Geometric Theory**, with Graham Manuell,
Expositions in Theory and Applications of Categories, 2024, No. 2, pp 1-41 ([link](#)).

Preprints

- 2024 **Topoi with enough points and topological groupoids**, [arXiv:2408.15848](#).
- 2024 **Existentially closed models and locally zero-dimensional toposes**, with Mark Kamsma, [arXiv:2406.02788](#).
- 2023 **On Topological Groupoids that Represent Theories**, [arXiv:2306.16331](#).
- 2023 **The Geometric Completion of a Doctrine**, [arXiv:2304.07539](#).

Teaching experience

- 2023 – 2024 **Graduate tutor** (Università degli Studi dell’Insubria)
Topics in category theory – 36 hrs (course lecturer: [Prof. Olivia Caramello](#)).
- 2022 – 2023 **Graduate tutor** (Università degli Studi dell’Insubria)
Topos theory – 36 hrs (course lecturer: [Prof. Olivia Caramello](#)).
- 2021 – 2022 **Undergraduate tutor** (Università degli Studi dell’Insubria)
- *Algebra 1* – 12 hrs (course lecturer: [Prof. Valerio Monti](#)),
 - *Algebra 2* – 12 hrs (course lecturer: [Prof. Valerio Monti](#)),
 - *Geometria 1* – 12 hrs (course lecturer: [Prof. Olivia Caramello](#)).

Honours and scholarships

- 2020 Insubria-Huawei scholarship,
A studentship for research into Grothendieck toposes for Information and Computation, with the aim to further the development of the theory of topos-theoretic ‘bridges’ in connection with relevant topics in classical model theory, duality and non-classical logics;
- 2020 L.H. Martin Prize;
- 2019 [Lord Crewe Scholarship](#);
- 2018 [Lincoln College Scholarship](#);
- 2017 [Stewart Exhibition](#).

Presentations

- 1 July, 2024 **A bi-equivalence between topoi with enough points and a localisation of topological groupoids.** ([Abstract](#)),
Topology, Algebra and Categories in Logic 2024, Universitat de Barcelona, Spain.
- Apr. 15, 2024 **A topos-theoretic framework for reconstruction theorems in model theory.** ([Abstract](#)),
12th Symposium on Compositional Structures, University of Birmingham, UK.
Recording available [here](#).
- Dec. 18, 2023 **A cylindrical Diaconescu's equivalence.** ([Abstract](#)),
4th ItaCa Workshop, Università degli Studi di Torino, Turin, Italy.
- Sept. 28, 2023 **Topological groupoids for classifying toposes.** ([Abstract](#)),
ItaCa Fest 2023, (online),
Recording available [here](#).
- July 4, 2023 **When are there enough model isomorphisms? Representing groupoids for classifying toposes.** ([Abstract](#)),
Category Theory 2023, Université catholique de Louvain, Louvain-la-Neuve, Belgium,
Recording available [here](#).
- May 30, 2023 **Eliminating imaginaries and adding structure: how does the geometric completion fit in?** ([Abstract](#)),
Workshop on Doctrines and Fibrations, Università degli Studi di Padova, Padua, Italy,
Recording available [here](#).
- Apr. 21, 2023 **The Geometric and Sub-Geometric Completions of Doctrines,**
11th Symposium on Compositional Structures, École Polytechnique, Palaiseau, France,
Recording available [here](#).
- Nov. 24, 2022 **Dynamical Objects: Categorical and Topos-Theoretic Techniques for Deep Neural Networks** ([Abstract](#)),
Matematica per l'Intelligenza Artificiale e il Machine Learning - Giovani ricercatori, Politecnico di Torino, Turin, Italy.
- Sept. 23, 2022 **The Geometric Completion of a Doctrine** ([Abstract](#)),
Categories and Companions Symposium, (online),
Recording available [here](#).
- July 18, 2022 **Notions of 'Point' in Point-Free Topology,**
Domoschool - International Alpine School of Mathematics and Physics, Association ARS.UNIVCO, Domodossola, Italy.

- Dec. 20, 2021 **A Topos-Theoretic Perspective on Properly Discontinuous Actions** ([Abstract](#)),
2nd ItaCa Workshop, Università degli Studi di Genova, Genoa, Italy,
Recording available [here](#).
- June 29, 2021 **The Logic and Geometry of Localic Morphisms**,
Toposes Online, Università degli Studi dell'Insubria and l'IHES, (online),
Recording available [here](#).
- June 9, 2021 **From Lindenbaum-Tarski Algebras to Classifying Toposes** ([Abstract](#)),
Categories and Companions Symposium, (online),
Recording available [here](#).

Service

- Sept. 8-9, 2022 **Local Organiser**
9th Symposium on Compositional Structures, Como, Italy.

Languages

English (fluent), Italian (advanced, B2/C1).

References

Prof. Olivia Caramello,
Università degli Studi dell'Insubria,
E-mail: olivia.caramello@uninsubria.it.

Prof. Maria Emilia Maietti,
Università degli Studi di Padova,
Tel: +39 334 856 6814,
E-mail: maietti@math.unipd.it.