

Joshua Wrigley

jwrigley@uninsubria.it • josh.l.wrigley@gmail.com • +44 7532 069 073

Via Valleggio 11, Como 22100 (CO), Italy

Research interests

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

Education

- | | |
|----------------|---|
| 2020 – Present | Università degli Studi dell’Insubria – Como, Italy
Dottorato di ricerca in informatica e matematica del calcolo,
Supervisor: Prof. Olivia Caramello . |
| 2019 – 2020 | Lincoln College, University of Oxford – Oxford, UK
Masters in Mathematics (MMath), Classification: First class,
Dissertation: <i>Aspects of Stone Duality for Boolean Algebras</i> ,
Supervisor: Prof. Hilary Priestley . |
| 2016 – 2019 | Lincoln College, University of Oxford – Oxford, UK
Bachelor of Mathematics (BA), Classification: First class. |

Preprints

- | | |
|------|---|
| 2023 | The Geometric Completion of a Doctrine , arXiv:2304.07539 . |
| 2023 | Some Properties of Internal Locale Morphisms Externalised , arXiv:2301.00961 . |

Teaching experience

- | | |
|----------------|--|
| 2022 – Present | Graduate tutor (Università degli Studi dell’Insubria)
<i>Topos theory</i> – 36 hrs (course lecturer: Prof. Olivia Caramello). |
| 2021 – 2022 | Undergraduate tutor (Università degli Studi dell’Insubria) <ul style="list-style-type: none">• <i>Algebra 1</i> – 12 hrs (course lecturer: Prof. Valerio Monti),• <i>Algebra 2</i> – 12 hrs (course lecturer: Prof. Valerio Monti),• <i>Geometria 1</i> – 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](#).

Research experience

- 2019 **Summer Research Project**, Mathematical Institute, University of Oxford,
Algebraic and relational models for certain non-classical propositional logics,
Supervisor: [Prof. Hilary Priestley](#),
Awarded an Undergraduate Research Bursary by the Mathematical Institute.
- 2018 **Summer Research Project**, Mathematical Institute, University of Oxford,
Integration in finite terms,
Supervisor: [Prof. Kevin McGerty](#),
Awarded an Undergraduate Research Bursary by the [London Mathematical Society](#).

Presentations

- 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).
- July 18, 2022 **Notions of 'Point' in Point-Free Topology**,
Domoschool - International Alpine School of Mathematics and Physics, Association
ARS.UNI.VCO, 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.

Technical skills

Software and Programming Languages

ΛT_EX, MATLAB, Agda.

Languages

English (fluent), Italian (advanced), Chinese Mandarin (conversational).

References

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