

# Calliope Ryan-Smith

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## Education

2021–Present **Ph.D** (in progress). Supervisors: Dr Asaf Karagila, Dr Andrew Brooke-Taylor, Dr Vincenzo Mantova  
Expected to finish 2025. *University of Leeds*

2020–2021 **M.Math**, Mathematics *University of Cambridge*

2017–2020 **B.A**, Mathematics *University of Cambridge*

## Grants

2021 **Mathematical Sciences Doctoral Training Partnership**  
*EPSRC*, grant number [EP/W523860/1].

## Research interests

Mathematical logic: Intersections of model theory and set theory.

Set theory: Cardinal characteristics; generalised Cantor space; theory of forcing; large cardinals; choiceless constructions; combinatorial objects.

Model theory: Classification theory; abstract elementary classes; independence property; generalised logic.

## Publications

2024 **The Hartogs–Lindenbaum spectrum of symmetric extensions**  
*Math. Log. Quart.* **70** (2024), no. 2, 210–223  
DOI:[10.1002/malq.202300047](https://doi.org/10.1002/malq.202300047), arXiv:[2309.12100](https://arxiv.org/abs/2309.12100)

2024 **Which pairs of cardinals can be Hartogs and Lindenbaum numbers of a set?**  
(with A. Karagila) *Fund. Math.* **267** (2024), no. 3, 231–241  
DOI:[10.4064/fm231006-14-8](https://doi.org/10.4064/fm231006-14-8), arXiv:[2309.11409](https://arxiv.org/abs/2309.11409)

Accepted **Stratifiable formulae are not context-free**  
*Notre Dame J. Form. Log.*  
arXiv:[2304.10291](https://arxiv.org/abs/2304.10291)

## Submitted for publication

2024 **Proper classes of maximal  $\theta$ -independent families from large cardinals**  
arXiv:[2408.10137](https://arxiv.org/abs/2408.10137)

2024 **Upwards homogeneity in iterated symmetric extensions**  
(with J. Schilhan and Y. Wei) arXiv:[2405.08639](https://arxiv.org/abs/2405.08639)

2024 **String dimension: VC dimension for infinite shattering**  
arXiv:[2402.18250](https://arxiv.org/abs/2402.18250)

2024 **Local reflections of choice**  
arXiv:[2412.13785](https://arxiv.org/abs/2412.13785)

## Teaching experience

Workshop leader (“2022” means “2022-23 academic year”):

2022	Coding theory ( <i>2nd year</i> )
2024	Core mathematics ( <i>1st year</i> )
2022–23	Discrete mathematics ( <i>2nd year</i> )
2022	Elementary differential calculus ( <i>1st year</i> )
2022–24	Logic ( <i>2nd year</i> )
2023	Real analysis ( <i>2nd year</i> )
2024	Real analysis ( <i>1st year</i> )
2023	Sets, Sequences and Series ( <i>1st year</i> )

## Other activities

**Peer reviewing.** Reviewer for *Fundamenta Mathematicae* and the *Pacific Journal of Mathematics*.

**Local organisation.** Organiser of local seminars, reading groups, and conferences at the University of Leeds:

- arXiv Café (weekly seminar, main organiser)
- Inner Model Theory (weekly reading group, main organiser)
- Postgraduate Researcher Conference 2022 (conference for all mathematics Ph.D students at the University of Leeds to speak on their research to a general mathematical audience)
- British Postgraduate Model Theory Conference 2023 (international conference for Ph.D students researching model theory to give talks, with tutorials by senior researchers)

**Presentations.** Frequent speaker at seminars and conferences, both for presenting research and introducing a general audience to various areas of mathematical logic.

Local seminars and conferences include:

- Meeting Group of Model Theorists
- Postgraduate Logic Seminar
- Postgraduate Pure Seminar
- Sets Seminar
- Models and Sets Seminar
- Postgraduate Researcher Conference (2022–24)
- 120 Years of Choice Conference (poster presented)

Non-local seminars and conferences include:

- Séminaire Général de Logique (IMJ-PRG, Paris, France, 2024)
- Set Theory in the UK (Various locations, United Kingdom, 2023–24)
- Winter School in Abstract Analysis (Hejnice, Czech Republic 2024)
- Generalised Baire Spaces and Large Cardinals Workshop (Bristol, United Kingdom, 2024)