

# JOSEPH P MACMANUS

N0.27, The Andrew Wiles Building  $\diamond$  Oxford, OX2 6GG

## EDUCATION

- Exp. 2025 St Anne's College, University of Oxford  
DPhil in Mathematics  
Supervisor: Prof Panagiotis Papazoglou.
- 2021 Balliol College, University of Oxford  
MSc in Mathematics and Foundations of Computer Science, with Distinction  
Diss.: *Splitting Theory of Groups*, with Prof Panagiotis Papazoglou.
- 2020 University of Bristol  
BSc in Mathematics and Computer Science, with First Class Honours  
Thesis: *Decision Problems within Combinatorial Group Theory*, with Dr Philipp Schlicht.
- 2017 Ysgol Aberconwy Sixth Form
- 2017 Coleg Llandrillo

## TEACHING EXPERIENCE

- 2023 – 2025 Graduate Development Scholar — St Anne's College, Oxford  
*Subjects taught:*  
- Analysis I,  
- Linear Algebra I.
- 2022 – 2023 Class Tutor — University of Oxford  
*Subjects taught:*  
- C2.4 Infinite Groups;  
- ASO Group Theory,  
- A3 Rings and Modules (Revisions),  
- M4 Geometry (Revisions).  
  
*The Queen's & Merton Colleges, and Intercollegiate.*
- 2021 – 2023 Teaching Assistant — University of Oxford  
*Subjects taught:*  
- B3.5 Topology & Groups,  
- C3.2 Geometric Group Theory,  
- B1.2 Set Theory;  
- M4 Geometry,  
- A3 Rings and Modules,  
- A5 Topology.  
  
*The Queen's College, and Intercollegiate.*

2019 – 2020 Teaching Assistant — University of Bristol

*Subjects taught:*

- Algorithms,
- Data Structures & Algorithms,
- Combinatorics.

2018 – 2023 Private Tutor — Metatutor; Tutorful; Blue Education

## OUTREACH WORK

2023 – 2024 Outreach Class Tutor – Balliol College, Oxford

*Topics:*

- Eigenvalues and Linear Algebra,
- Hamming Codes.

2021 Outreach Class Tutor – UNIQ Summer School, Oxford

## PUBLICATIONS AND PREPRINTS

- [1] MacManus, J. P. (2023). Accessibility, planar graphs, and quasi-isometries. *Pre-print*.
- [2] MacManus, J. P. (2022). Deciding if a hyperbolic group splits over a given quasiconvex subgroup. *In review*.
- [3] Alexandru, C. -M., Bridgett-Tomkinson, E., Linden, N., MacManus, J. P., Montanaro, A., & Morris, H. (2020). Quantum speedups of some general-purpose numerical optimisation algorithms. *Quantum Science and Technology*, 5(4), 045014.

## CONTRIBUTED TALKS

1. *Characterising surface groups* — ECSTASy, University of Southampton (August 2023).
2. *Understanding limit sets via finite automata* — PGTC, Heriot-Watt University (July 2023).

## SEMINAR TALKS

1. *Reasons to be accessible* — Junior Topology and Group Theory Seminar, University of Oxford (October 2023).
2. *Planar Cayley graphs and accessibility* — Junior Topology and Group Theory Seminar, University of Oxford (May 2023).
3. *Splitting detection, and limit set complements* — Junior Geometry Seminar, University of Cambridge (April 2023).
4. *Will it split? Recognising edge groups in hyperbolic groups* — BRIJGeS, University of Bristol (February 2023).

5. *Detecting topological features of the Gromov boundary* — Junior Topology and Group Theory Seminar, University of Oxford (March 2022).

## LIGHTNING TALKS

1. *Decision problems in group theory* — Graduate school on Geometric Group Theory and Low Dimensional Topology, ICMAT (May 2022).

## OTHER ACTIVITIES

- 2022 – 2023 Junior Seminar Organiser — University of Oxford  
Junior Topology and Group Theory
- 2022 Admissions Interviewer — St Edmund Hall, Oxford
- 2021 Maths Admissions Test (MAT) Marker — University of Oxford
- 2019 Quantum Information Research Internship — University of Bristol  
With Dr Ashley Montanaro and Prof Noah Linden.

## SCHOLARSHIPS, GRANTS, AND PRIZES

- 2023 – 2025 Graduate Development Scholarship — St Anne's College, Oxford
- 2021 – 2025 HDP Scholarship — Heilbronn Institute for Mathematical Research
- 2020 Postgraduate Grant — The James Pantyfedwen Foundation
- 2020 Graphcore Prize — University of Bristol
- 2019 Top Student in 2nd Year Maths and Comp Sci. — University of Bristol
- 2019 Undergraduate Summer Research Bursary — University of Bristol

## MISCELLANEOUS

- 2020 – Present Associate Membership, London Mathematical Society
- 2019 – Present Mathematics Blog, [jpmacmanus.me/blog](https://jpmacmanus.me/blog)
- 2019 Bristol PLUS Award, University of Bristol

## LANGUAGES

- English (native), Welsh (intermediate).