JOSEPH P MacMANUS

N0.27, The Andrew Wiles Building ⋄ 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, II,
- Linear Algebra I, II.
- Groups and Group Actions,
- Part A Topology.

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., Mineh, L. (2024). Tiling in some nonpositively curved groups. *Pre-print.*

[2] MacManus, J. (2023). Accessibility, planar graphs, and quasi-isometries. *Pre-print.*

[3] MacManus, J. (2022). Deciding if a hyperbolic group splits over a given quasiconvex subgroup. *In review.*

[4] Alexandru, C. -M., Bridgett-Tomkinson, E., Linden, N., MacManus, J., 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. *Groups quasi-isometric to planar graphs* — Geometry and Topology Seminar, University of Warwick (Upcoming, February 2024).

2. *Reasons to be accessible* — Junior Topology and Group Theory Seminar, University of Oxford (October 2023).

3. *Planar Cayley graphs and accessibility* — Junior Topology and Group Theory Seminar, University of Oxford (May 2023).

4. *Splitting detection, and limit set complements* — Junior Geometry Seminar, University of Cambridge (April 2023).

5. *Will it split? Recognising edge groups in hyperbolic groups* — BRIJGeS, University of Bristol (February 2023).

6. *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   Seminar Organiser — University of Oxford
Junior Topology and Group Theory

2022 – 2023   Admissions Interviewer — University of Oxford
Colleges:
- St Anne's College,
- St Edmund Hall.

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 – 2024   Associate Membership, London Mathematical Society

2019 – 2024   Mathematics Blog, `jpmacmanus.me/blog`

2019   Bristol PLUS Award, University of Bristol