

# Filippo Baroni

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🌐 [filippobaroni.github.io](https://filippobaroni.github.io)

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## Education

- 2021 – **DPhil**, *University of Oxford*  
Advisor: Marc Lackenby
- 2016 – 2021 Student of mathematics at *Scuola Normale Superiore di Pisa*
- 2019 – 2021 **Master's degree**, *University of Pisa*  
Advisor: Carlo Petronio  
Degree thesis: *Realisability of branching data with a short partition*
- 2016 – 2019 **Bachelor's degree**, *University of Pisa*  
Advisor: Riccardo Benedetti  
Degree thesis: *Singular homology of fibred spaces*

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## Publications and preprints

- 2024 *Uniformly polynomial-time classification of surface homeomorphisms*, preprint ([arXiv:2402.00231](https://arxiv.org/abs/2402.00231))
- 2023 *Classification of genus-two surfaces in  $S^3$* , preprint ([arXiv:2309.05387](https://arxiv.org/abs/2309.05387))
- 2024 *Solution of the Hurwitz problem with a length-2 partition* (with Carlo Petronio), accepted for publication in *Illinois Journal of Mathematics*
- 2022 *The Proportionality Principle via Bounded Cohomology*, in *Bounded Cohomology and Simplicial Volume* (pp. 118–131), Cambridge University Press

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## Invited speaker

- Jun 2024 “Geometry seminar”, *University College London*  
Talk: *Algorithmic classification of surface homeomorphisms*
- May 2024 “Junior geometry seminar”, *University of Cambridge*  
Talk: *Algorithmic classification of surface homeomorphisms*
- Apr 2024 “Manchester geometry seminar”, *University of Manchester*  
Talk: *Algorithmic classification of surface homeomorphisms*
- Apr 2024 “Purdue topology seminar”, *Purdue University*  
Talk: *Algorithmic classification of surface homeomorphisms*
- Jan 2024 “Log cabin workshop: Big mapping class groups”, Young, AZ, USA  
Talk: *Actions on hyperbolic spaces*
- Nov 2023 “DAGGER seminar”, *University of Warwick*  
Talk: *Navigating the curve graph with train tracks*
- Jan 2023 “Log cabin workshop: Surfaces in 3-manifolds”, Young, AZ, USA  
Talk: *The virtual fibering theorem*
- Mar 2022 “Seminario BabyGeometri”, *University of Pisa*  
Talk: *An algorithm for unknot recognition*

Feb 2021 “International young seminar on bounded cohomology and simplicial volume”, *online*  
Talk: *The proportionality principle via bounded cohomology*

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## Teaching

Apr–Jun 2024 Tutor for *Pure maths*, St Catherine’s College, Oxford  
Jan–Mar 2024 Tutor for *Pure maths and Graph theory*, St Catherine’s College, Oxford  
Oct–Dec 2023 Tutor for *Pure maths*, St Catherine’s College, Oxford  
Apr–Jun 2023 Tutor for *Graph theory*, St Catherine’s College, Oxford  
Jan–Mar 2023 Tutor for *Low-dimensional topology and knot theory*, University of Oxford  
Oct–Dec 2022 Tutor for *Set theory*, University of Oxford  
Oct–Dec 2022 Tutor for *Graph theory*, St Catherine’s College, Oxford  
Apr–Jun 2022 Tutor for *Graph theory*, St Catherine’s College, Oxford  
Jan–Mar 2022 Teaching assistant for *Low-dimensional topology and knot theory*, University of Oxford  
Oct–Dec 2021 Teaching assistant for *Geometry of surfaces*, University of Oxford

*Updated on June 30, 2024.*