

Filippo Baroni

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Education

DPhil	University of Oxford , Mathematics Thesis title: <i>Certifying hyperbolicity of fibred knots and 3-manifolds</i> Advisor: Marc Lackenby	Oct 2021 – present
Scholarship	Scuola Normale Superiore di Pisa , Mathematics	Oct 2016 – July 2021
MS	University of Pisa , Mathematics Thesis title: <i>Realisability of branching data with a short partition</i> Advisor: Carlo Petronio	Oct 2019 – July 2021
BS	University of Pisa , Mathematics Thesis title: <i>Singular homology of fibred spaces</i> Advisor: Riccardo Benedetti	Oct 2016 – June 2019

Publications

Classification of genus-two surfaces in S^3	2024
Accepted for publication in <i>Algebraic & Geometric Topology</i>	
Uniformly polynomial-time classification of surface homeomorphisms	2025
In <i>Mathematische Annalen</i>	
Solution of the Hurwitz problem with a length-2 partition	2024
With Carlo Petronio In <i>Illinois Journal of Mathematics</i> 68.3, pp. 479-511	
The Proportionality Principle via Bounded Cohomology	2022
In <i>Bounded Cohomology and Simplicial Volume</i> , pp.118-131, Cambridge University Press	

Talks

BRIJGES seminar , University of Bristol Title: <i>Algorithmic classification of surface homeomorphisms</i>	Oct 2024
Geometry seminar , University College London Title: <i>Algorithmic classification of surface homeomorphisms</i>	June 2024
Junior geometry seminar , University of Cambridge Title: <i>Algorithmic classification of surface homeomorphisms</i>	May 2024
Manchester geometry seminar , University of Manchester Title: <i>Algorithmic classification of surface homeomorphisms</i>	Apr 2024
Purdue topology seminar , Purdue University Title: <i>Algorithmic classification of surface homeomorphisms</i>	Apr 2024
Log cabin workshop: Big mapping class groups , Young, AZ, USA Title: <i>Actions on hyperbolic spaces</i>	Jan 2024
DAGGER seminar , University of Warwick Title: <i>Navigating the curve graph with train tracks</i>	Nov 2023
Log cabin workshop: Surfaces in 3-manifolds , Young, AZ, USA Title: <i>The virtual fibering theorem</i>	Jan 2023

BabyGeometri seminar, University of Pisa Mar 2022
Title: *An algorithm for unknot recognition*

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

Teaching

College tutor, St Catherine's College, Oxford Apr 2022 – present
I taught *Analysis, Linear algebra, Groups, and Geometry* to first-year students.
I also occasionally taught *Graph theory* to second-year students.
The tutorials were held in small groups of 1 or 2 students.

Tutor, University of Oxford Oct 2022 – Mar 2023
I taught *Set theory* and *Low-dimensional topology and knot theory*.
The classes were held in groups of 10-15 students.

Teaching assistant, University of Oxford Oct 2021 – Mar 2022
I marked the problem sheets of *Geometry of surfaces* and *Low-dimensional topology and knot theory*.