Sebastian Woodward

Mathematical Institute, University of Oxford
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Research interests

Geometric analysis and partial differential equations. Quantitative stability for almost-minimising maps of the Dirichlet energy and related energies arising in Skyrmion models, with a focus on settings in which exact minimisers fail to exist or become singular.

Education

2023–present DPhil in Mathematics, University of Oxford

Supervisor: Professor Melanie Rupflin | OxPDE group

Title: Quantitative Stability Estimates for almost minimising maps near simple bubble trees

2019–2023 MMath Mathematics, University of Warwick

First Class Honours | Master's supervisor: Professor Peter Topping

Preprints

1. A sharp quantitative stability result near infinitely concentrated minimisers.
   With M. Rupflin. arXiv preprint, March 2026. arXiv:2603.25361
2. Lojasiewicz estimates for a regularised Baby Skyrme Model. arXiv preprint, October 2026. arXiv:2610.37499
3. Bubble Tree Convergence for Minimisers of a Regularised Baby-Skyrme Model. arXiv preprint, October 2026. arXiv:2610.37457

Talks and poster presentations

April 2026 — Bath Analysis Seminar, University of Bath.
Quantitative Stability Estimate near Singular Minimisers

April 2026 — Junior PDE Seminar, University of Oxford.
Quantitative Stability Estimate near Singular Minimisers

March 2026 — YFAW, Cardiff. Short talk.
Quantitative Stability Estimate near Singular Minimisers

February 2026 — Calculus of Variations Conference, Bonn. Poster.
A sharp quantitative stability result near infinitely concentrated minimisers

January 2026 — ICMS Winter School: PDE in geometry and analysis.
A sharp quantitative stability result near infinitely concentrated minimisers

December 2025 — Junior Analysis and Probability Seminar, University of Warwick.
Quantitative Stability Estimate near Singular Minimisers

November 2025 — Junior PDE Seminar, University of Oxford.
Quantitative Stability Estimate near Singular Minimisers

October 2025 — Junior Geometry Seminar, University of Oxford.
Quantitative Stability Estimate near Singular Minimisers

September 2025 — Geometry, Analysis and Numerical Gravity Seminar, Queen Mary University.
Quantitative Stability Estimate near Singular Minimisers

August 2025 — Spectral Theory Workshop, Reading. Short talk.
Quantitative Stability Estimate near Singular Minimisers

British Isles Graduate Workshop VI. Lightning talk.

Teaching experience

University of Oxford — College teaching

2025–2026 Stipendiary Lecturer, St Hilda's College

Analysis I and II.

2024–2025 Out of College Tutor, Magdalen College

Prelims, Linear Algebra 2, and revision sessions.

2023–2024 Out of College Tutor, St Edmund Hall

Prelims Differential Equations and M5: Fourier Series and PDEs, for a visiting student.

University of Oxford — Departmental teaching

2024–2026 Tutor

C4.3 Functional Analytic Methods for PDEs (2024–2025 and 2025–2026).

2024–2025 Tutor

B4.3 Distribution Theory.

2023–2024 Teaching Assistant

B3.2 Geometry of Surfaces (two classes); B4.2 Functional Analysis II (one class).

University of Warwick

September 2022–July 2023 Graduate Teaching Assistant / Supervisor

Marked assignments for ten first-year students and led small-group sessions reviewing mathematical problems.

September 2022–July 2023 Maths Society Academic Support

Ran a weekly two-hour drop-in session supporting students across their mathematics courses and organised revision sessions for first- and second-year courses.