

Edwina Aylward

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Research Interests

Arithmetic geometry; elliptic and hyperelliptic curves; parity conjectures; local Galois representations.

Education

2023–2027 (expected)	University College London <i>PhD in Mathematics, London School of Geometry and Number Theory</i> Supervisor: Vladimir Dokchitser. EPSRC-funded doctoral student.	London, UK
2022–2023	University of Cambridge <i>Master of Advanced Study in Mathematics (Part III), Trinity College</i> Distinction (88%); ranked 20th of 282 students.	Cambridge, UK
2018–2022	Trinity College Dublin <i>B.A. (Mod) in Mathematics</i> First-class honours (92%); first in class; Gold Medal for academic merit.	Dublin, Ireland

Research Papers

- **E. Aylward**, “On the integral 2-adic Tate module of elliptic curves”, [arXiv:2608.17725](#), 2026.
- **E. Aylward**, L. Cowland Kellock, V. Dokchitser and E. Lupoian, “Reduction Types of Genus 2 Curves”, [arXiv:2607.07558](#), 2026.
- **E. Aylward**, “Tamagawa numbers and positive rank of elliptic curves”, *Mathematical Proceedings of the Cambridge Philosophical Society* (2026), [doi:10.1017/S0305004126101947](#).

Invited Talks

Jun 2026	<i>Tamagawa numbers and positive rank of elliptic curves.</i> “EnCounteRs with Don” ECR event, Durham University.
Apr 2026	<i>On the integral 2-adic Tate module of elliptic curves.</i> Tamagawa numbers of curves meeting, Malvern.
Nov–Dec 2025	<i>ℓ-parity results over global function fields.</i> London Junior Number Theory Seminar, King’s College London, and Linfoot Number Theory Seminar, University of Bristol.
Nov 2025	<i>p-parity conjecture for twists of hyperelliptic curves by Artin representations.</i> Manchester Number Theory Seminar, University of Manchester.
Nov 2024	<i>Rank predictions: parity vs. L-value approaches.</i> Junior Number Theory Seminar, University of Warwick.

Contributed Talks and Posters

Jul 2025	<i>Reduction types of genus 2 curves (poster).</i> Regensburg GAP Days 1, University of Regensburg.
Jul 2025	<i>Reduction types of genus 2 curves.</i> LMFDB, Computation, and Number Theory (LuCaNT) 2025, ICERM, Providence, Rhode Island.
Apr 2025	<i>Reduction types of genus 2 curves.</i> Women in Number Theory and Geometry Spring Retreat (WINGs), Haydock.
Mar 2025	<i>Elliptic curves with positive rank.</i> Elliptic Curves in the Cotswolds, Stonehouse.
Aug 2024	<i>Artin formalism and BSD.</i> Young Researchers in Algebraic Number Theory VI, University of Oxford.

Organisation

May–Jun 2026	Organiser, Surfaces Study Group, UCL: designed and coordinated an eight-week programme on the arithmetic and geometry of algebraic surfaces.
13–16 Apr 2026	Co-organiser, Women in Number Theory and Geometry Spring Retreat (WINGs): four-day research retreat for 50 early-career women and gender-minority researchers in number theory and geometry.

- 3–4 Mar 2025 Co-organiser, Elliptic Curves in the Cotswolds, Stonehouse: two-day research meeting bringing together 20 participants.
- 2024–2025 Co-organiser, London Junior Number Theory Seminar.

Teaching Experience

Tutorials and grading in Algebra II and Number Theory (UCL); tutorials and grading in Metric Spaces and Topology, Linear Algebra I, and Introduction to Abstract Algebra (King’s College London); tutorials in Combinatorics (Trinity College Dublin).

Scholarships and Prizes

- **Trinity Studentship in Mathematics** (2022), Trinity College, Cambridge: studentship covering course fees and living expenses for the MAST.
- **George Moore Scholarship** (2022): scholarship support for postgraduate study; partial funding accepted alongside the Trinity Studentship.
- **Bishop Law Prize** (2022), Trinity College Dublin: awarded for graduating first in class.
- **Hamilton Prize** (2021), awarded by the Royal Irish Academy.

Computational Projects

- Contributed local root number data for genus 2 curves to the L-functions and Modular Forms Database (LMFDB).
- Developed the [companion website](#) for the paper *Reduction Types of Genus 2 Curves*.

Conferences and Workshops Attended

- Sep 2026 Young Researchers in Algebraic Number Theory (forthcoming), University of Bristol, UK.
- Jul 2026 CAVARET 2: Curves, Abelian Varieties and Related Topics, University of Barcelona, Spain.
- Jul 2026 Seventeenth Algorithmic Number Theory Symposium (ANTS XVII), University of Groningen, Netherlands.
- Jun 2026 “*EnCounteRs with Don*” ECR event, Durham University, UK.
- Apr 2026 Women in Number Theory and Geometry (WINGS), Cheltenham, UK.
- Apr 2026 Tamagawa numbers of curves meeting, Malvern, UK.
- Sep 2025 Algebraic and geometric methods for Diophantine problems, Pisa, Italy.
- Jul 2025 Regensburg GAP Days 1, University of Regensburg, Germany.
- Jul 2025 LMFDB Workshop, Massachusetts Institute of Technology, USA.
- Jul 2025 LMFDB, Computation, and Number Theory (LuCaNT), ICERM, Providence, Rhode Island, USA.
- Apr 2025 Women in Number Theory and Geometry (WINGS), Haydock, UK.
- Mar 2025 Elliptic Curves in the Cotswolds, Stonehouse, UK.
- Aug 2024 Young Researchers in Algebraic Number Theory, University of Oxford, UK.