



MARA-IOANA POSTOLACHE

Peterhouse, Cambridge,
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PROFILE STATEMENT

Mathematics student, currently studying for my Master's Degree. My interests lie mainly within analysis and differential geometry.

HONORS AND AWARDS

- Scholarship in Mathematics, Peterhouse – 2022-present
- HMC Scholarship – 2019-2021

LANGUAGES

- Romanian – native
- English – fluent
- German – beginner

RESEARCH EXPERIENCE

Summer Research Intern (June 2024 – August 2024)

University of Cambridge – Cambridge, UK

- Research project titled “Infinite-dimensional geometry of diffusions”, supervised jointly by Prof. Clément Mouhot and Amélie Loher.
- Read into Otto calculus and gradient flow techniques for estimating convergence of solutions of PDEs.

Philippa Fawcett Intern (July 2023 – August 2023)

University of Cambridge – Cambridge, UK

- Group research project titled “Polynomials with many pre-periodic points”, supervised by Prof. Holly Krieger.
- Tried to improve bounds on the number of pre-periodic rational points of polynomials, then also looked at polynomial Henon maps with particularly long cycles.

PUBLICATIONS

Hénon maps with many rational periodic points

with H Kim, H Krieger, and V Szeto

Pre-print, result of my research project in summer 2023.

EDUCATION

Mathematical Tripos (MMath)

University of Cambridge, Cambridge, UK

Current 4th year student, expected graduation date: July 2025
Taking courses mostly in analysis and differential geometry.

Mathematical Tripos (BA)

University of Cambridge, Cambridge, UK

Class I (First Year), Class II Division 1 (Second and Third year)
Third Year courses: Algebraic Geometry, Algebraic Topology, Analysis of Functions, Differential Geometry, Galois Theory, Linear Analysis, Probability and Measure, Representation Theory, Riemann Surfaces

A-Levels

Royal Masonic School for Girls, Rickmansworth, UK

A*A*A*A* in Maths, Further Maths, Physics, and Computer Science

TALKS

An Introduction to Mean Curvature Flow

Part III Seminar Series, 6th December 2024

Otto Calculus and Gradient Flows on the Infinite-Dimensional Manifold of Probability Measures

Summer Research Festival, 14th October 2024

The X-Ray Transform and Geometric Inverse Problems

Archimedean Student Talks, 12th June 2024

Polynomials with many Rational Preperiodic Points

CMP Presentation Day, 23rd August 2023

EXTRACURRICULARS AND ACTIVITIES

CU Scout and Guide Club (2021-present)

Chair, Secretary, Webmaster, Marathon Co-organiser

- Part of the university student scout and guide group since start of first year, on committee since spring 2022.
- Completed a year as the Chair of the society, managing the entire committee through many unexpected role vacancies.
- Twice co-organiser of Marathon Challenge, an incident hike we put on for around 70 local scouts and guides aged 14 and over.

PROMYS Europe (July 2021 – August 2021)

First-year student

- Worked on open-ended Number Theory questions, making and proving my own hypotheses.
- Went from axioms of \mathbb{Z} to more advanced results like Legendre symbols and properties of related integer rings.
- Worked independently, as well as in a small group, sharing and connecting our statements and ideas.

Peterhouse Student Ambassador

Open Day Helper, Admissions Interview Helper

- Helped represent the college at the university open days in July 2023, September 2023, and July 2024.
- Also helped during the admission interview process in December 2023, guiding applicants around college.