

# Emanuel Roth

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**Date & Place of Birth** | *October 9 1998, Brunei*

**Address** | *Edinburgh, United Kingdom*

**Languages** | *Fluent in English and German, basic command in Tagalog and Chinese*

**Citizenship** | *German, Filipino*

## Education

**University of Edinburgh** | *PhD Student in Mathematics* **2024 - 2028**

- Mathematics PhD supervised by Johan Martens **2024 - 2028**  
Topic: A symplectic approach to global Springer theory (the symplectic geometry of moduli spaces of parahoric Higgs bundles)

**University of Heidelberg** | *Bachelors and Masters Student in Mathematics* **2017 - 2024**

- Mathematics Master supervised by Florent Schaffhauser: *Note 1,7* **2022 - 2024**  
Topic: “Harder-Narasimhan filtrations of decorated vector bundles”.
- Mathematics Master Erasmus exchange student: *University of Vienna* **Winter Semester 2022 - 2023**
- Mathematics Bachelor: *Note 2,1* **2017 - 2022**  
Topic: “The Mitchell embedding theorem”

## Teaching

**Further Complex Variables** | *University of Edinburgh* **Winter Semester 2025**  
**General Topology** | *University of Edinburgh* **Winter Semester 2025**  
**Honours Analysis - Skills** | *University of Edinburgh* **Winter Semester 2025**  
**Proofs and Problem Solving** | *University of Edinburgh* **Summer Semester 2025**  
**Fundamentals of Pure Mathematics** | *University of Edinburgh* **Winter Semester 2024**  
**Mathematics for Physicists 3** | *University of Heidelberg* **Winter Semester 2023 - 2024**  
**Mathematics for Physicists 2** | *University of Heidelberg* **Summer Semester 2023**  
**Linear Algebra 2** | *University of Heidelberg* **Summer Semester 2022**  
**Linear Algebra 1** | *University of Heidelberg* **Winter Semester 2021 - 2022**  
**Preliminary Courses** | *University of Heidelberg* **October 2021**  
**Preliminary Courses** | *University of Heidelberg* **October 2020**

## Preprints

**Harder-Narasimhan Filtrations of Decorated Vector Bundles** - with Florent Schaffhauser - [arxiv:2511.17371v1](https://arxiv.org/abs/2511.17371)

## Selection of Conferences and Visits

**Enumerative Geometry and Geometric Representation Theory** | *Università di Pisa* **June 2025**  
**Spring School: Group Actions and Symplectic Singularities** | *University of Lille* **June 2025**  
**Stratifications of Higgs bundle moduli spaces** | *Universidade de Santiago de Compostela* **May 2025**  
**Research Visit, meeting Florent Schaffhauser** | *University of Heidelberg* **February 2025**  
**Winter School on Algebraic Geometry** | *Lancaster University* **16 - 20 December 2024**  
**Moduli Spaces of Vector Bundles and Curves** | *Université de Cergy-Pontoise* **11 - 13 December 2023**

## Talks and Seminars

- Organized AGQ reading group on stacks.
- Given talks in AGQ reading groups: Geometric invariant theory, Enumerative geometry, Geometric representation theory, stacks.
- Talk in AGQ Conference and GEARS (Glasgow Edinburgh Algebra Research Student Seminar) December 2025.