

RESEARCH INTERESTS

Mathematics. Algebraic geometry. Moduli spaces. Algebraic stacks. Geometric Invariant Theory. Enumerative invariants.

EMPLOYMENT

Ritt Assistant Professor

Non-tenure track
Columbia University

August 2024-
current

EDUCATION

DPhil in Mathematics

University of Oxford
Supervised by Prof. Frances Kirwan and Prof. Fabian Haiden
Thesis title: *Refined Harder–Narasimhan filtrations in moduli theory*

October 2020-
July 2024

Research visit

Cornell University
Worked with Prof. Daniel Halpern-Leistner
Funded by the Brettschneider Fund

August 2022-
December 2022

Part III of the Mathematical Tripos (MASt)

University of Cambridge
Funded by “La Caixa” Foundation
Merit

2019-2020

Erasmus year

Université Paris-Sud and École Normale Supérieure - Ulm
End-of-degree dissertation: *Le groupe de Galois absolu de $C(t)$* , supervised by Prof. Olivier Wittenberg

2018-2019

Degree in Mathematics (four-year-long programme)

University of Zaragoza
Extraordinary prize. Graduated top of year.
Average grade: 9.32 out of 10.

2015-2019

RESEARCH OUTPUT

1. *Relative étale slices and cohomology of moduli spaces* (joint with Mark Andrea de Cataldo and Andrés Fernández Herrero). Preprint. [Link](#).
2. Appendix to Stability Conditions in Geometric Invariant Theory, by Ruadhaí Dervan. Preprint. [Link](#).
3. Refined Harder-Narasimhan filtrations in moduli theory. Preprint. [Link](#).

TALKS

- University of Oxford (April 2024).
- University of Warwick (April 2024).
- University of Cambridge (January 2024).
- University of Edinburgh (October 2023).
- University of Glasgow (October 2023).
- Vector Bundles on Algebraic Curves conference in Essen (August 2023).

- Oxford Algebraic Geometry seminar (April 2023).
- University of Southern Denmark (June 2023).

TEACHING

- Instructor for Calculus II, two sections (Columbia, Fall 2024).
- Tutor for C3.5 Lie Groups (Oxford, Michaelmas Term 2023).
- Revision classes for Part C2.3 Representation theory of Semisimple Lie Algebras (Oxford, Trinity Term 2023).
- Tutor for B3.3 Algebraic Curves (Oxford, Hilary Term 2022).
- TA for C3.4 Algebraic Geometry (Oxford, Michaelmas Term 2021).
- TA for C2.6 Scheme Theory (Oxford, Hilary Term 2021).
- TA for C2.7 Category Theory (Oxford, Michaelmas Term 2020).

SELECTED AWARDS

- La Caixa Foundation Scholarship: Postgraduate studies in Europe (2019-2020).
- Scholarship Severo Ochoa – ICMAT: Introduction to Research 2019.
- International Mathematics Competition for University Students: Second Prize (2018) and Third Prize (2017).
- 51 Spanish Mathematical Olympiad, National Round: Bronze Medal (2015).
- 51 Spanish Mathematical Olympiad, Aragón Round: First Prize (2015) and Second Prize (2014).

CONFERENCES ATTENDED

- Workshop on Moduli, Simons Centre for Geometry and Physics (July 2024).
- Equivariant methods in geometry, programme at the Newton Institute, Cambridge (January-March 2024).
- Vector Bundles on Algebraic Curves, (VBAC), University of Duisburg-Essen (August 2023).
- Cohomological Hall algebras and Vertex algebras, Isle of Skye (April 2023).
- Quivers, Clusters, Moduli and Stability, University of Oxford (January 2023).
- AGNES, University of Massachusetts (November 2022).
- Route 81 conference on Commutative Algebra and Algebraic Geometry, Queen's University (September 2022).
- Vector Bundles on Algebraic Curves, University of Warwick (July 2022).
- Geometry and Arithmetic of Moduli Spaces, Scuola Normale Superiore (July 2022).
- Moduli Spaces and Stability Conditions, Levico Terme (July 2022).
- GAeL (June 2022).
- Invariants in Algebraic Geometry, Dijon (May 2022).
- Arithmetic and Geometry of Varieties with trivial canonical bundle, Oslo (December 2021).
- Summer school in derived and triangulated categories, Wuppertal (September 2021).
- GAeL, online (July 2021).
- JAE School of Mathematics, ICMAT (2017 and 2019).

ORGANISATION

- Junior Geometry Seminar, University of Oxford, organiser (2021-2022).

OTHERS

- Degree in the Professional Music Conservatory of Zaragoza, Specialised in piano (2011-2017).
- Chetham's International Summer School and Festival for Pianists (2017).
- Volunteer at Club Excursionista del Salvador, mountaineering club for children. (2014-2018).

LANGUAGES

- Spanish: Native speaker.
- English: Fluent.
- French: Fluent.