

Curriculum Vitae

Last name: MORDANT
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Born on: October 23rd, 1998, in Caen, France
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Education

2013 **Baccalauréat** (High School Diploma), Specialty Mathematics, with highest honors
2015–2019 **Studies at the École Normale Supérieure** (Paris)
2015–2016 **BSc in Mathematics** (L3), Paris 11-ENS, with highest honors
2016–2017 **First year of Master's program in Mathematics** (M1), Paris 11-ENS, with highest honors
2017–2018 **MSc in Mathematics** (M2), Paris 6-ENS, with highest honors
2019 **Diploma of the École Normale Supérieure** (Paris), Main Specialty Mathematics
April 2023 **PhD in Mathematics, Institut de Mathématiques d'Orsay:** *Griffiths-Kato heights of pencils of projective varieties* (advisor: J.-B. BOST)

Professional experience

2019–2023 **PhD student in Mathematics** at the Institut de Mathématiques d'Orsay
2022– **Teaching in L3, Magistère de Mathématiques**, Université Paris-Saclay
September 2023– **Hadamard Lecturer** at the Institut de Mathématiques d'Orsay

Teaching and involvement in scientific events

2018–2020 Oral examinations in MP* (Classes Préparatoires) at the Lycée Hoche, Versailles.
July 2020 and 2021 Exercise sessions for the summer school for high-school students *Maths-Sciences* at the École Normale Supérieure.
2019–2022 Corrector of the *Marathon d'Orsay de Mathématiques*, organized by F. BOURGEOIS.
2021–2022 Co-organizer of the *Séminaire des doctorants* of the École Doctorale de Mathématiques Hadamard.
2022– Supervision of the students' oral presentations in L3, Magistère de Mathématiques, Université Paris-Saclay.
2023– Exercise sessions of the *Algèbre 2* course in second semester of L3, Magistère de Mathématiques, Université Paris-Saclay.
2023–2024 Supervision of a L3 project (Bachelor's thesis) at the Magistère de Mathématiques, Université Paris-Saclay, titled *Courbes elliptiques sur $\mathbb{C}$* and written by Traian DEMAIS and Sana EL ATTAR.
2024–2025 Co-organizer of the *Learning seminar on D-modules* at the Institut de Mathématiques d'Orsay.

Seminar and conference talks

- November 22nd, 2018: *Taquin bloc à changer*, École Normale Supérieure (Paris), Seminar *Maths pour tous*.
- April 14th, 2021: *Fibrés de Hodge et hauteurs de Griffiths*, Institut de Mathématiques d'Orsay, *Séminaire des doctorants* (Seminar of PhD students).
- June 1st, 2021: *Hauteurs de Griffiths-Kato des hypersurfaces*, Institut de Mathématiques d'Orsay, *Séminaire d'Arithmétique et Géométrie Algébrique*.
- August 30th, 2023: *Discriminant de polynômes homogènes à plusieurs variables : géométrie et arithmétique*, Institut de Mathématiques d'Orsay, *Journées de rentrée des Masters* (Welcome days for the Master's program) of the Fondation Mathématique Jacques Hadamard.
- October 4th, 2023: *Pinceaux d'hypersurfaces projectives et hauteurs de Griffiths-Kato*, École Polytechnique, *Séminaire de géométrie* of the Centre de Mathématiques Laurent Schwartz.
- April 22nd and 29th, 2024: *Bons espaces de modules d'après Alper : définitions et premiers résultats*, Institut de Mathématiques d'Orsay, *Groupe de travail sur les champs algébriques et les bons espaces de modules* (Learning seminar on algebraic stacks and good moduli spaces).
- May 15th, 2024: *Théorie géométrique des invariants et hypersurfaces projectives singulières*, Institut Henri Poincaré, Paris, *Séminaire du RÉGA* (Seminar of PhD students and postdocs in algebraic geometry).
- June 11th, 2024: *Griffiths heights of pencils of hypersurfaces and geometric invariant theory*, Chalmers University, Arithmetic geometry days *Gothenburg Freixit*.
- November 19th and 26th and December 3rd, 2024: *Modules with integrable connections on analytic and algebraic complex varieties: Regular connections and regular singular points in dimension 1*, Institut de Mathématiques d'Orsay, *Learning seminar on D-modules*.
- February 12th, 2025: *Géométrie, algèbre, arithmétique : jadis et naguère*, jointly with Jean-Benoît BOST, EDF Lab, *Paris-Saclay Summit 2025*.

Publications and preprints

0. PhD memoir: *Griffiths-Kato heights of pencils of projective varieties*, April 2023, xvi + 130 pages.
https://www.imo.universite-paris-saclay.fr/media/filer_public/d6/73/d673e66e-c6dc-401c-a94c-ed92a192b41d/thesesseconddepotcorrige.pdf
1. *Griffiths heights and pencils of hypersurfaces*, version 3, December 2024, to appear in the *Mémoires de la Société Mathématique de France*, 122 pages.
<https://arxiv.org/abs/2212.11019v3>
2. *A note on the semistability of singular projective hypersurfaces*, *Mathematische Zeitschrift* (2024) 306:67, 19 pages.
<https://arxiv.org/abs/2312.09774> and <https://rdcu.be/dBgnF>
3. *Pencils of projective hypersurfaces, Griffiths heights and geometric invariant theory. I*, June 2025, 40 pages.
<https://arxiv.org/abs/2506.15334>

4. *Pencils of projective hypersurfaces, Griffiths heights and geometric invariant theory. II Hypersurfaces with semihomogeneous singularities*, June 2025, 27 pages.

<https://arxiv.org/abs/2506.22126>

Other competences

Programming languages: Python, Caml, VerbTeX Pro

Languages:

English: full professional ability

German: high-school level

Italian: B1 level

Other interests

Musicology: music from the 18th and 19th centuries; operas by Mozart.