Curriculum Vitae

Last name:	Mordant
First names:	Thomas, Jacques, Louis
Nationality:	French
Born on:	October 23rd, 1998, in Caen, France
Professional address:	Laboratoire de Mathématiques d'Orsay, Université Paris-Saclay Faculté des Sciences d'Orsay, Bâtiment 307 91405 Orsay Cedex, France
E-mail address:	`thomas.mordant@universite-paris-saclay.fr`
Website:	`https://www.imo.universite-paris-saclay.fr/en/perso/thomas-mordant/`

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–October 2025	**Hadamard Lecturer** at the Institut de Mathématiques d'Orsay
November 2025–	**CNRS researcher** 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.
2022–2025	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.
2024–2025	Supervision of a L3 project (Bachelor's thesis) at the Magistère de Mathématiques, Université Paris-Saclay, titled *Groupes de Lie et algèbres de Lie* and written by Anselme Bienfait, Alex Scofield, and Khâlis Selmane.
2025–2026	Co-organizer of the *Learning seminar on birational geometry* at the Institut de Mathématiques d'Orsay.
2025–2026	Supervision of a L3 project (Bachelor's thesis) at the Magistère de Mathématiques, Université Paris-Saclay, titled *Courbes elliptiques, tores complexes et j-invariant* and written by Gladys Champs, Youcef Kenane, and Dorian Padovan.

Administrative duties

March–November 2025	Member of the council of the Laboratoire 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*.
- September 23rd, 2025: *Semi-stabilité des hypersurfaces projectives singulières*, Institut de Mathématiques d'Orsay, *Journée de rentrée* (Welcome day) of the *Séminaire d'Arithmétique et Géométrie Algébrique*.
- November 4th, 2025: *Singularities of the minimal model program II*, Institut de Mathématiques d'Orsay, *Learning seminar on birational geometry*.
- April 3rd, 2026: *One variable proofs of the holonomy bounds I: Green functions on Riemann surfaces, geometry of numbers, and Arakelov geometry in dimension* ≤ 2 (prepared jointly with Luigi Martinelli who delivered the next lecture), Mathematisches Forschungsinstitut Oberwolfach, Arbeitsgemeinschaft *Arithmetic holonomy bounds and applications to irrationality*.
- November 4th, 2026: *A counterexample to the Jacobian conjecture in dimension three*, I.H.É.S., *Seed Seminar* of mathematics and physics.

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/theseseconddepotcorrige.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*, version 2, October 2026, 32 pages, to appear in *Manuscripta Mathematica*.

   `https://arxiv.org/abs/2506.22126v2`

5. *A path to advanced algebra*, volume I, with Yves Laszlo, Laurent Moonens, and Damien Simon, February 2026, to appear in *Hadamard series in mathematics* (EMS Press).

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.