Loïs Faisant

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https://loisft.github.io/

CURRENT **POSITION**

ISTA, Klosterneuburg, Austria

Since Dec.2023

Postdoctoral researcher, IST-BRIDGE program. Group of Timothy Browning.

Marie Skłodowska-Curie fellow.

EDUCATION

Université Grenoble Alpes, France

Sept.2020-Aug.2023

PhD in Mathematics. Advisor: Emmanuel Peyre.

Title: Stabilisation phenomena in moduli spaces of curves.

Defended on July 3, 2023.

Jury members: Margaret Bilu, David Bourqui, Timothy Browning (reviewer), Antoine

Chambert-Loir (reviewer), Olivier Debarre, Jean Fasel, Emmanuel Peyre.

Université Grenoble Alpes, France

Sept.2019-Aug.2020

Master 2 in mathematics (algebraic geometry and topology), with highest honours. Master thesis supervised by E. Peyre, entitled Autour d'une conjecture de Manin géométrique [pdf] (Jan.-June.2020)

École polytechnique, Palaiseau, France

Sept.2016-Aug.2020

3rd and 4th years of bachelor studies (Sept.2016-Aug.2018)

Master 1 in mathematics, MsC level (Sept.2018-Aug.2019)

Master 2 in mathematics at Université Grenoble Alpes (Sept.2019-Aug.2020)

Engeenering degree (Sept.2016-Aug.2019)

(courses in pure and applied maths, physics, computer sciences, plus courses in humanities and social studies, foreign languages and sport)

Military internship at Lycée Militaire de Saint-Cyr-l'École (Oct.2016-Mar.2017)

Trainee engineer at DxOMark Image Labs (May-Aug.2018)

Trainee research assistant at the Mathematisch Instituut, Universiteit Leiden, Nederlands, supervised by Peter J. Bruin (April-July.2019)

Lycée Louis-le-Grand, Paris, France

Sept.2013-June.2016

Preparatory classes (mathematics and physics)

Lycée Marguerite-de-Navarre, Bourges, France

Sept.2010-June.2013

Scientific baccalaureate

RESEARCH WORKS

In preparation [see webpage]

- (7) On the classical and motivic Manin-Peyre conjectures for quintic del Pezzo surfaces over function fields, joint with C. Bernet and J. Glas.
- (6) A Poisson formula for split algebraic tori and applications to motivic zeta functions, joint with M. Bilu.
- (5) Motivic delta method and diagonal hypersurfaces, joint with T. Browning.
- (4) On triples of squareful polynomials in positive characteristic, joint with A. Mirzaee.

Preprint

(3) Motivic counting of rational curves with tangency conditions via universal torsors, 2025. [arXiv]

Publications

- (2) Motivic distribution of rational curves and twisted products of toric varieties, Feb. 2023, Algebra & Number Theory, 19(5), 883-965. [published version] [arXiv]
- (1) Geometric Batyrev-Manin-Peyre for equivariant compactifications of additive groups, Beiträge zur Algebra und Geometrie / Contributions to Algebra and Geometry, 2022. [published version] [arXiv][pdf]
- (0) Stabilisation phenomena in moduli spaces of curves, PhD thesis, Université Grenoble Alpes, available on HAL. 179 pages.

MENTORING

- Ali Mirzaee (ISTernship fellow, summer 2024) worked with me on a counting problem concerning triples of squareful polynomials in positive characteristic.
- Melody Dawson (ISTernship fellow, summer 2025), "Eisenstein series of explicit flag varieties".

TEACHING EXPERIENCE

• 2024-2025 - ISTA

During Spring 1, Tanguy Vernet and I teached together a twelve-lectures-long graduate course about "Some Applications of *p*-adic Integration to Geometry and Arithmetics" at ISTA.

- 2022-2023 Université Grenoble Alpes
- MAT302 Series and improper integrals (L2, exercise sessions, 28h)
- MAT309 Algebra and Arithmetics (L2, exercise sessions, 36h)
- 2021-2022 Université Grenoble Alpes
- MAT201 Mathematics for engineering sciences (L1, course & exercise sessions, 64h)
- 2020-2021 Université Grenoble Alpes
- MAT201 Mathematics for engineering sciences (L1, course & exercise sessions)
- MAT404 Bilinear algebra, quadratic forms, Fourier analysis (L2, exercise sessions)
- 2019-2020 Lycée Champollion, Grenoble

Oral examiner in mathematics for students of preparatory classes

• 2016-2017 - Lycée Militaire de Saint-Cyr-l'École (Military High School) Teaching assistant (sciences), 5 months

OTHER ACTIVITIES

- \bullet Elected member of the Council of UGA's College of Doctoral Studies, 03/2021 12/2022
- \bullet Elected alternate member of UGA's Research Commission, 11/2022 07/2023
- Research initiation workshops for middle school students, spring 2022
- During my years at Institut Fourier, organisation of several reading groups for graduate students in algebraic geometry.
- Reviewer for zbMath and MathSciNet since 2023.

TALKS

Conferences

- Fano Varieties in Cetraro, Grand Hotel San Michele, Cetraro, Italy, Sept. 13th, 2024. From point counting to motivic distribution of rational curves on Fano varieties.
- Asymptotic behaviour of rational curves, at the Algebraic Geometry and Complex Geometry meeting, CIRM, November 28, 2022 [video]

Seminars

2025

- Algebraic Geometry Seminar @ Utrecht University, NL, May 20, 2025.
- Research Seminar Algebra, Number Theory and Discrete Mathematics, Hannover, Germany, May 15, 2025.
- Bath Arithmetic Geometry Seminar, UK, May 6, 2025.
- Séminaire de Théorie des Nombres, Institut Fourier, Grenoble, France, March 20, 2025.
- Online Seminar Arithmetic Geometry and Algebraic Groups, June 20, 2025.

2024

- Séminaire d'Arithmétique, Laboratoire Paul Painlevé, Lille, France, Nov. 28, 2024.
- Séminaire de Géométrie, CMLS, École polytechnique, Palaiseau, France, Nov. 27, 2024.
- Séminaire de Géométrie, LAMA, Chambéry, France, Nov. 21, 2024.
- Séminaire Algèbre et Géométries, Institut Fourier, Grenoble, France, Nov. 18, 2024.
- Séminaire Géométrie et Topologie, LMBA, Brest, France, Nov. 15, 2024.
- Browning Group Working Seminar, ISTA, Klosterneuburg, Austria, Nov. 12, 2024.
- Browning Group Working Seminar Expository talk: (Ir)Rationality of motivic zeta functions of varieties: curves with no rational point. ISTA, Klosterneuburg, Austria, May 22, 2024.
- Algebra and Number Theory Seminar, Universität Wien, April 23, 2024
- Séminaire Algèbre et Géométrie, LMV, Versailles, France, Feb. 6, 2024.

2023

- Séminaire Géométries, Institut Camille Jordan, Lyon, Dec. 15, 2023.
- Browning Group Working Seminar, ISTA, Wien, Nov. 15, 2023.
- Séminaire de Géométrie, IMB, Bordeaux, Nov. 10, 2023.
- Séminaire Algèbre Géométrie Algébrique Topologie Algébrique, IMAG, Montpellier, Oct. 26, 2023.
- Séminaire Variétés Rationnelles, Sorbonne Université, Paris, Oct. 20, 2023
- Séminaire de Topologie et Géométrie Algébriques, LAREMA, Angers, Oct. 13th, 2023.
- Séminaire de l'équipe Géométrie et Singularités, IRMAR, Rennes, May 25, 2023.
- Groups, Arithmetic & Algebraic Geometry Seminar, EPFL, Switzerland, May 16, 2023.

≤ 2022

- Comptage de courbes rationnelles de grand degré, Séminaire de théorie des nombres, Institut de Mathématiques de Bordeaux, December 9, 2022
- Comptage de courbes rationnelles de grand degré, Séminaire de Théorie des Nombres de l'Institut Fourier, June 16, 2022
- Comportements asymptotiques de courbes rationnelles, Séminaire de Géométrie du Laboratoire de Mathématiques de l'Université Savoie Mont Blanc (LAMA), April 7, 2022
- Asymptotic behaviour of rational curves, PhD Days, Institut Fourier, October 27, 2021
- Rational curves: asymptotic behaviour of moduli spaces, Comprehensible seminar (PhD students seminar at Institut Fourier), December 10, 2020

COMMUNITY

Events I attended:

- Logarithmic and non-archimedean methods in singularity theory, CIRM, France, Jan. 27-31, 2025.
- Birational geometry and number theory, ICMS, Scotland, UK, Oct.28–Nov.1, 2024.
- Fano Varieties in Cetraro, Grand Hotel San Michele, Cetraro, Italy, Sept. 9-13, 2024.
- JAVA 2024, Maison Clément, France, Jul.8-12, 2024.
- ÉPIGA Conference, Jussieu, Paris, June 10-14, 2024.
- Enumerative Geometry and Arithmetics, Lorentz Center, Leiden, Netherlands, March 11-15, 2024.
- Graz-ISTA Number Theory Days, TU Graz, Austria, February 1st, 2024.
- GDR GAGC Days, Poitiers, October 18-20, 2023.
- Working Group on Surfaces, Rennes, June 14-16, 2023.
- First meeting of the ERC project "Groups of Algebraic Transformations" in Rennes, May 22-26, 2023
- First meeting of the ANR project "FRACASSO", Bordeaux, March 9-10, 2023
- Non-Archimedian methods in arithmetic and geometry, Les Diablerets, Switerland, Feb. 12 17, 2023

- Algebraic Geometry and Complex Geometry meeting (organised by the CNRS research group of the same name), CIRM, November 28 December 2, 2022
- Summer School on Motivic Integration, Düsseldorf, September 12-16, 2022
- Géométrie Algébrique en Liberté (GAeL XIX), Orsay, May 23-29, 2022
- Rational Points on Higher-Dimensional Varieties, ICMS, Bayes Centre, Edinburgh, April 25-29, 2022
- Conférence en l'honneur d'Alexei N. Skorobogatov, Institut Henri-Poincaré, Paris, November 3-5, 2021
- Geometry via Arithmetic (online), Banff, Jully 11-16, 2021

• Einstein Institute International Undergraduate Workshop, HUJI, Jerusalem, Israel, October 2018

SKILLS French: native speaker.

English: working proficiency.

Spanish, Italian: spoken, read, written.

German: beginner.

Interest in learning other languages, like Chinese, Dutch, Breton...

Computer: LATEX, Sage/Python, used to know a bit of C/C++ and Java. Reg-

ularly playing around with Javascript to plot figures on websites.

OTHER Arts: photography, music. INTERESTS Sports: volley-ball, indoor

Sports: volley-ball, indoor & outdoor climbing, running, gravel biking.

June 26, 2025