

Valentin Huguin | Assistant professor of mathematics

LAMFA (Laboratoire Amiénois de Mathématique Fondamentale et Appliquée)
Université de Picardie Jules Verne
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French national, born on November 17, 1994.

Academic career

Employment

Assistant professor of mathematics

Université de Picardie Jules Verne 2025–

Walter Craig Postdoctoral Fellow

University of Toronto 2023–2025

○ Supervisor: Michael Yampolsky.

Postdoctoral fellow in mathematics

Constructor University (formerly Jacobs University Bremen) 2021–2023

○ Supervisor: Igors Gorbovickis.

Education

Ph.D. in mathematics

Institut de Mathématiques de Toulouse (Université Paul Sabatier) 2018–2021

○ Title: *Algebraic study of the periodic points and multipliers of a rational map*,

○ Advisors: Xavier Buff and Jasmin Raissy,

○ Referees: Laura DeMarco and Charles Favre,

○ Examiners: Arnaud Chéritat, Thomas Gauthier, Rafe Jones, Sarah Koch.

Master's degree in mathematics – second year

Université Paul Sabatier and École Normale Supérieure de Rennes, with honors 2017–2018

Four-month research internship at Institut de Mathématiques de Toulouse (Université Paul Sabatier):

○ Title: *Preperiodic points and unlikely intersections*,

○ Advisors: Xavier Buff and Jasmin Raissy.

Preparation to the agrégation of mathematics

Université de Rennes 1 and École Normale Supérieure de Rennes, with high honors 2016–2017
The agrégation is a competitive examination for civil service in the French public education system, Ranked 11th nationally.

Master's degree in mathematics – first year

Université de Rennes 1 and École Normale Supérieure de Rennes, with high honors 2015–2016

Six-week research internship at School of Mathematical Sciences (University of Nottingham):

○ Title: *The escaping set in complex dynamics*,

○ Advisor: Daniel A. Nicks.

Bachelor's degree in mathematics

Université de Rennes 1 and École Normale Supérieure de Rennes, with high honors 2014–2015

Five-week research internship at Laboratoire de Mathématiques d'Orsay (Université Paris-Sud):

○ Title: *Concentration-compactness principle and applications*,

○ Advisor: Frédéric Rousset.

Classes préparatoires aux grandes écoles – MPSI-MP*

Lycée Chateaubriand (Rennes)

2012–2014

Two-year intensive undergraduate program with specialization in mathematics and physics.

Research

Research interests.....

Complex dynamics, algebraic dynamics, arithmetic dynamics.

Articles.....

Moduli spaces of polynomial maps and multipliers at small cycles: arXiv:2412.19335, 2024.

Entire maps with rational preperiodic points and multipliers (with X. Buff and I. Gorbovickis): *Ergodic Theory Dynam. Systems* **45** (2025), no. 9, 2636–2658.

Entire or rational maps with integer multipliers (with X. Buff, T. Gauthier and J. Raissy): To appear in *Algebraic, Complex, and Arithmetic Dynamics*, Simons Symp., Springer; arXiv:2212.03661, 2023.

Rational maps with rational multipliers: *J. Éc. polytech. Math.* **10** (2023), 591–599.

Quadratic rational maps with integer multipliers: *Math. Z.* **302** (2022), no. 2, 949–969.

Unicritical polynomial maps with rational multipliers: *Conform. Geom. Dyn.* **25** (2021), 79–87.

Simultaneously preperiodic integers for quadratic polynomials: *New York J. Math.* **27** (2021), 363–378.

Other works.....

Étude algébrique des points périodiques et des multiplicateurs d'une fraction rationnelle: Ph.D. thesis, <https://tel.archives-ouvertes.fr/tel-03466529>, 2021.

Research mini-courses.....

Series of three lectures

Entire or rational maps with integer or rational multipliers

October 2023

Department of Mathematics (University of Toronto)

Research talks.....

On geometric complexity of Julia sets VI

Moduli spaces of polynomial maps and multipliers at small cycles

August 2025

Mathematical Research and Conference Center (Będlewo)

Degeneration techniques for rational maps

Moduli spaces of polynomial maps and multipliers at small cycles

May 2025

Mathematics Institute (University of Warwick)

Séminaire Analyse

Moduli spaces of polynomial maps and multipliers at small cycles

April 2025

Institut de Mathématiques de Bordeaux (Université de Bordeaux)

Dynamics Seminar

Moduli spaces of polynomial maps and multipliers at small cycles

February 2025

Department of Mathematics (University of Toronto)

Séminaire Analyse <i>Around the multiplier spectrum in complex dynamics</i> Institut de Recherche Mathématique Avancée (Université de Strasbourg)	January 2025
Arithmetic, Algebraic and Analytic Dynamics <i>Moduli spaces of polynomial maps and multipliers at small cycles</i> Centre International de Rencontres Mathématiques (Marseille)	January 2025
Séminaire SymPA <i>Moduli spaces of polynomial maps and multipliers at small cycles</i> LAMFA (Université de Picardie Jules Verne)	January 2025
Dynamics Seminar <i>Moduli spaces of polynomial maps and multipliers at small cycles</i> Department of Mathematics (Cornell University)	December 2024
Mini-symposium Holomorphic Dynamics (as part of the conference XLIV Dynamics Days Europe) <i>Moduli spaces of polynomial maps and multipliers at small cycles</i> Constructor University (Bremen)	July 2024
Dynamics Seminar <i>Entire or rational maps with integer or rational multipliers</i> Department of Mathematics (University of Toronto)	September 2023
7th Hanseatic Dynamical Systems Day <i>Rational maps with rational multipliers</i> Fachbereich Mathematik (Universität Hamburg)	June 2023
Séminaire Orléans <i>Rational maps with rational multipliers</i> Institut Denis Poisson (Université d'Orléans)	June 2023
Length spectrum of rational maps <i>Rational maps with integer or rational multipliers</i> Centre de Mathématiques Laurent Schwartz (École polytechnique)	October 2022
New Trends in Holomorphic Dynamics <i>Dynamics of Koch postcritically finite endomorphisms</i> Palazzone di Cortona	August 2022
Journées ANR Fatou <i>Dynamics of Koch postcritically finite endomorphisms</i> Institut Denis Poisson (Université d'Orléans)	June 2022
Séminaire Dynamique et Probabilités <i>Quadratic rational maps with integer multipliers</i> LAMFA (Université de Picardie Jules Verne)	May 2021
Arithmetic Dynamics International Online Seminar <i>Unicritical polynomial maps with rational multipliers</i>	April 2021
Séminaire de systèmes dynamiques <i>Unicritical polynomial maps with rational multipliers</i> Institut de Mathématiques de Toulouse (Université Paul Sabatier)	February 2021
Dynamics and Group Geometry Early Researchers Seminar <i>Unicritical polynomial maps with rational multipliers</i> Mathematics Institute (University of Warwick)	December 2020
Topics in Complex Dynamics 2019 <i>Simultaneously preperiodic integers for quadratic polynomials</i> Institut de Matemàtica (Universitat de Barcelona)	March 2019

Séminaire de systèmes dynamiques

Simultaneously preperiodic integers for quadratic polynomials
Institut de Mathématiques de Toulouse (Université Paul Sabatier)

March 2019

Postgraduate Conference in Complex Dynamics 2019

Simultaneously preperiodic integers for quadratic polynomials
De Morgan House (London)

February 2019

Teaching experience

Supervision.....

Three-month internship of Adrien Kachkachi

Some equidistribution problems in holomorphic dynamics
Third-year undergraduate student at Université Paul Sabatier

2022

Courses taught.....

2025–2026, Université de Picardie Jules Verne:

- *Méthodes et techniques de calcul* (first-year course), tutorial sessions.
- *Statistiques pour psychologues* (first-year course), lectures and tutorial sessions.
- *Analyse pour l'agrégation* (fifth-year course), lectures and tutorial sessions.
- *Probabilités et statistique* (first-year course), tutorial sessions.
- *Courbes paramétrées* (first-year course), tutorial sessions.

2024–2025, University of Toronto Mississauga:

- *Complex Variables* (third-year course), lectures.
- *Introduction to Mathematical Proofs* (first-year course), lectures.

2023–2024, University of Toronto Mississauga:

- *Complex Variables* (third-year course), lectures.
- *Differential Equations I* (second-year course), lectures.

2020–2021, Université Paul Sabatier:

- *Mathématiques* (first-year course), tutorial sessions.
- *Topologie* (third-year course), oral examinations.
- *Algèbre* (first-year course), practical sessions in the computer laboratory.
- *Analyse* (first-year course), practical sessions in the computer laboratory.
- *Algèbre 6* (third-year course), oral examinations.

2019–2020, Université Paul Sabatier:

- *Mathématiques* (first-year course), tutorial sessions.
- *Topologie* (third-year course), oral examinations.
- *Algèbre* (first-year course), practical sessions in the computer laboratory.
- *Analyse* (first-year course), practical sessions in the computer laboratory.

2018–2019, Université Paul Sabatier:

- *Mathématiques* (first-year course), tutorial sessions.
- *Analyse* (first-year course), lectures and tutorial sessions.

Service

Organization of scientific events.....

Séminaire SymPA (with F. Gheeraert)
LAMFA (Université de Picardie Jules Verne)

2025–

**Mini-symposium Holomorphic Dynamics (as part of the conference
XLIV Dynamics Days Europe)** (with T. Firsova and I. Gorbovickis)
Constructor University (Bremen)

July 2024

Refereeing activities

Review of research articles for 7 mathematics journals.

Skills

Languages: French (native), English (fluent).

Computer skills: $\text{\LaTeX}$, Python, SageMath, HTML, CSS, Magma.