

Marc Abboud

Doctor in Mathematics

POSITIONS

- 02/2026 – **Maître-assistant** at Université de Neuchâtel.
03/2024 – 01/2026 **Postdoc** at Université de Neuchâtel working with Jérémy Blanc.
09/2023 – 02/2024 **Visiting researcher** at BICMR, Beijing, China.

EDUCATION

- 2020–2023 **PhD in Mathematics, Rennes University**
Under the supervision of Serge Cantat and Junyi Xie.
Sur la dynamique des endomorphismes des surfaces affines.
Jury: Jérémy Blanc, Serge Cantat, Charles Favre, Thomas Gauthier (referee), Mattias Jonsson (referee), Juan Souto, Junyi Xie, Susanna Zimmerman.
- 2019–2020 **Data scientist intern, Tinyclues, Paris**
[link of the company.](#)
- 2018–2019 **Master Degree in Cryptography, Diderot university**
Master thesis in post-quantum cryptography at PQShield, Oxford.
- 2017–2018 **Second year of Master degree in Mathematics, Orsay university and École Normale Supérieure, Paris**
Master thesis under the supervision of Serge Cantat on *nilpotent groups acting on complex algebraic varieties.*
- 2016–2017 **First year of Master degree in Mathematics, École Normale Supérieure, Paris**
First semester at École Normale Supérieure.
Second semester at *Courant Institute of Mathematical Science*, New York. Internship in algebraic geometry under the supervision of Yuri Tschinkel.
- 2015–2016 **Last year of undergraduate in Mathematics, École Normale Supérieure, Paris**
- 2013–2015 **Classes préparatoires MPSI-MP*, Lycée Saint Louis, Paris**

PUBLICATIONS

Published and accepted articles

- 2025 A local version of the arithmetic Hodge index theorem for quasiprojective varieties. Accepted at *Transactions of the AMS*. [\[arxiv\]](#)
- 2025 Intersection of orbits of loxodromic automorphisms of affine surfaces. Accepted at *Algebra and Number theory*. [\[arxiv\]](#)
- 2021 Actions of nilpotent groups on complex algebraic varieties. *International Mathematics Research Notices*.
- 2019 Cryptographic Divergences: New Techniques and New Applications. SCN 2020. With Thomas Prest.

Prepublications

- 2026 On the algebraicity of first dynamical degrees of regularisable rational maps. To appear.
- 2026 Plane cremona maps preserving a euclidean volume form. With Jérémy Blanc and Stéphane Lamy. To appear.
- 2026 Dynamical degrees of twisted rational maps. With Junyi Xie. [\[arxiv\]](#)
- 2026 Uniform bound on common periodic points in families of regular automorphisms of the affine plane. With Yugang Zhang. [\[arxiv\]](#)
- 2025 A dynamical characterisation of affine cubic surfaces of Markov type. [\[arxiv\]](#)
- 2024 Rigidity of periodic points for loxodromic automorphisms of affine surfaces. Submitted. [\[arxiv\]](#)

2024	Unlikely intersections problem for automorphisms of Markov surfaces. [arxiv]
2023	On the dynamics of endomorphisms of affine surfaces. Submitted. [arxiv]
<i>PhD thesis</i>	
2023	Sur la dynamique des endomorphismes des surfaces affines. [pdf]

TEACHING

Université de Neuchâtel

2026	Undergraduate course: vector analysis. Master course: Dynamics of rational maps.
2025	Master course on p -adic analysis and applications to dynamics.
2024	Master course on Polynomial automorphisms of the affine plane.

BICMR, Beijing

2023	Mini course on Valuative Techniques for Dynamics over Affine Surfaces.
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University of Rennes

2020–2022	Cryptography Master, <i>Fast algorithm on polynomials and graph theory</i> . Lectures, exercise sessions and computer lab sessions.
2020–2022	Preparation for the french exam <i>Agrégation</i> (master level). Lectures on finitely generated abelian groups, field theory and topology on sets of matrices.

Lycée Saint Louis

2016–2018	Oral examinations in mathematics in MPSI <i>classes préparatoires</i> (undergraduate level).
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STUDENT SUPERVISION

2026	Reading project (first year Master thesis) — Abdelhamid Boumahdi.
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TALKS

September 2026	Cremona conference, Neuchâtel.
November 2025	Number theory seminar, Basel.
November 2025	Journées de Dynamiques, Paris.
October 2025	Number theory seminar, LMNO, Caen.
September 2025	Meeting of the ANR Dynatris, Dijon — mini course on Moriwaki heights.
July 2025	SRI in Algebraic Geometry, Fort Collins, Colorado — contributed talks (30 minutes).
March 2025	Ergodic theory and dynamical systems seminar, ETH, Zurich.
January 2025	États de la recherche: Arithmetic, Algebraic and Analytic dynamics, CIRM, Marseille.
November 2024	Algebra and Geometry seminar, Neuchâtel.
June 2024	Basel-Dijon-Neuchâtel-EPFL joint seminar, Dijon.
April 2024	Monthly Complex Dynamics Seminar, Institut Henri Poincaré.
November 2023	Algebra seminar, Jena university.
July 2023	Current themes in complex dynamics workshop, Toulouse.
May 2023	EPFL Lausanne, Algebraic geometry seminar.
May 2023	Université d'Angers, Séminaire de géométrie algébrique et topologie algébrique.
March 2023	Cambridge University, Algebraic Geometry seminar.
January 2023	12th swiss-french workshop in Algebraic Geometry, Charmey, Switzerland. Special year topic seminar, Institute of Advanced Studies, Princeton. University of Michigan, Ann Arbor. IUPUI, Indianapolis.

	2023 Joint Mathematics Meetings — special session on arithmetic dynamics, Boston.
September 2022	Seminar Algebra and Geometry, University of Basel.
March 2022	Iskovskikh seminar, HSE Moscow (online talk).

CONFERENCES I ATTENDED OR WILL ATTEND

July 2026	New trends in holomorphic dynamics in dimension one and higher, Orléans.
January 2026	15th swiss-french workshop in Algebraic Geometry in Charmey.
November 2025	BENDZ meeting (Basel-Dijon-EPFL-Neuchâtel-Zürich), Neuchâtel.
November 2025	Journées de Dynamiques, Paris.
September 2025	Meeting of the ANR Dynatros, Dijon.
July 2025	SRI in Algebraic Geometry, Fort Collins, Colorado.
June 2025	École d'été en mathématiques: le groupe de Cremona, Institut Fourier, Grenoble.
January 2025	États de la recherche: Arithmetic, Algebraic and Analytic dynamics, CIRM, Marseille.
January 2025	14th swiss-french workshop in Algebraic Geometry in Charmey.
July 2024	Birational geometry and dynamics, Les Diablerets.
May 2024	Workshop on algebraic transformation groups, Monte Verita.
July 2023	Current themes in complex dynamics workshop, Toulouse.
January 2023	12th swiss-french workshop in Algebraic Geometry in Charmey.
January 2023	2023 Joint Mathematics Meetings — special session on arithmetic dynamics.
September 2022	Complex analysis and dynamical systems, Oberwolfach.
June 2022	Conference in Saint-Jacut, mini-courses by Serge Cantat, Bertrand Deroin, Sébastien Gouezel.
January 2022	11th swiss-french workshop in Algebraic Geometry in Charmey.
October 2020	Conference in Saint-Jacut, mini-courses by Jérôme Buzzi, Sebastian Hurtado, Ludovic Marquis, Chloé Perrin.
September 2020	SCN 2020: 12th Conference on Security and Cryptography for Networks. Online conference.
March 2019	Oxford Post-Quantum Cryptography Workshop.

MATH RELATED ACTIVITIES

2021–2022	Co-organisator of the algebra and geometry PhD student seminar at IRMAR, link of the seminar . I gave 3 talks in this seminar throughout my PhD.
2021–2023	Creator and head of a math club for high school students at the University of Rennes, link of the club . Every other Saturday, a 2-hour lecture is given by a member of the math department at the university for high school students wanting to learn more about what kind of math we do in research.
2022	Math talk in high school about pavement and constructible numbers.
2020	I coached the french team at the <i>International tournament for young mathematicians</i> (link).
2020	I coached with Arthur Touati an all-female team that was created after the RJM 2019 (see below) at the TFJM (link), a national math tournament for high school students. We won the tournament!
2018–2019	Co-organisator of the <i>Rendez-vous des jeunes mathématiciennes</i> (RJM) with Arthur Touati and Élodie Maignant at École Normale Supérieure 2 years in a row. This is an event where around 20 female high school students spend a weekend at the École Normale Supérieure to do math, talk about math careers, talk with women researchers in mathematics and talk about stereotypes. link .

2016–2019

Participation at *Parimaths*, the math club for high school students of École Normale Supérieure. I gave lectures about Permutations, Algorithmic, Equivalence relations, Metric spaces.