Alix MATHIEU
PhD Student

linkedin.com/in/alix-mathieu-fr https://alixm1.github.io
+33 6 43 80 17 50 alix.mathieu@unicaen.fr
20 rue de Strasbourg, 14000 Caen, France
April 13, 2001, Auxerre, France

Education

2025 - Present **PhD in Mathematics**, Université de Caen Normandie (LMNO), under the supervision of Veronika Ertl.

2024 - 2025 **Master 2 Research**, UFR ST, Marie et Louis Pasteur University (UMLP) (Ex. University of Franche-Comté (UFC)), Besançon, France. Specializing in Number Field Theory, Algebra.

2021 - 2025 **Magistère of Mathematics** (University degree), UFR ST, University of Franche-Comté, Besançon, France. (Research initiation in mathematics)

2024 **100th Successful Candidate** of Agrégation externe de Mathématiques (competitive examination for some teaching positions in France's education system)

2022 - 2024 **Master Mathematics**, UFR ST, University of Franche-Comté, Besançon, France. (Grade : ∼ pass 60-70%)

2021 - 2022 **3rd year of Bachelor of Mathematics**, UFR ST, University of Franche-Comté, Besançon, France. (Grade: ∼ pass 70-80 %)

2019 - 2021 **CPGE MPSI/MP**, (Preparatory class - Mathematics-Physics), Lycée Saint-Louis, Paris

Professional experience

Present / **September 2024** — **Colleur de Mathématiques (Mathematics Exam preparation tutor), Lycée Carnot, Dijon, France**

- 2 hours per week - Oral interrogation of 1st year of equivalent Bachelor
- Creation of sheets of exercises in Algebra/Analysis/Probability for oral interrogation.

Oral | Preparation | Interrogation

January 2023 / **September 2022** — **Internship High School Teacher, Lycée Jules Haag, Besançon, France**

- Classroom teaching observation (∼ 5 months)
- Assisting a class teacher (∼ 5 months)
- Taking charge of a class and teaching for a week

Teaching | Observation | Assisting teacher

Workshop and Seminars Attended

2026 « Arithmetic Geometry Preprint Seminar » about "Injectivity failure in crystalline comparisons", after Caro-d'Addezio, by Veronika Ertl in IMJ (Jussieu, Paris)

2025 « Géométrie algébrique et théorie des nombres en Bourgogne Franche-Comté » day in Dijon, with algebraic teams of Besançon and Dijon

2025 École d'Hiver (Master's Winter School) in Pierrefontaine-Les-Varans, organized by Cécile Armana and Carlotta Donadello, UFR ST, Marie et Louis Pasteur University

2025 Weekly seminar of algebraic number theory team of LmB (UMLP)

2025 Weekly workgroup on prismatic cohomology with algebraic number theory team of LmB (UMLP)

2024 École d'Hiver (Master's Winter School) in Pierrefontaine-Les-Varans, organized by Cécile Armana and Yulia Kuznetsova, UFR ST, University of Franche-Comté

Organisation

2025-Present **Co-Organizer of of the PhD Students retreat**, Bayeux

Talks at the Caen young researchers seminar

10/2026 **Une introduction aux vecteurs de Witt : relier la caractéristique p à la caractéristique 0**

Research Related Activities - Projects

Research Master's Project January 2025 - July 2025

About Crystalline and Rigid Cohomology

The aim of this project was to study an article of Fontaine about Crystalline Cohomology and on a letter from Berthelot to Nekovar about Rigid Cohomology.

Crystalline | Rigid | Cohomology

Research Master's Project September 2024 - January 2025

Construction of Derived functors

The aim of this project was to construct derived functors and to look at some particular examples such as Ext and Tor functors.

Functors | Flat/Projective/Injective Module | Cohomology | Commutative Algebra

3rd year Magister's Project September 2024 - January 2025

A Dwork Theorem on the rationality of the zeta function

The aim of this project was to study the proof of Dwork's theorem about the rationality of the zeta function using p-adic analysis.

Polygons of Newton | Zeta Function | p-adic field

2nd year Magister's Project 2022 - 2023

A proof of Wiener's Theorem

The aim of this project was to introduce Banach algebras, to study the spectrum on such Banach algebras and then to study a Wieners theorem on fourier series, and to give an efficient proof via complex analysis and Banach algebras.

Analysis | Fourier series | Complex analysis | Wiener

Bachelor's Project 2021 - 2022

L'intégrale : Pré-quel, apparition et évolution

In 2001, the Lebesgue integral turned 100. The aim of this project was to find out how we arrived at it. From the beginning of the measurement of figures in antiquity, through the introduction of infinitesimal calculus, to the different integrals (Cauchy, Riemann, Lebesgues...).

Integration | History | Construction

Language

- **French:** Native
- **English:** Proficient
- **Spanish:** Beginner

Technical Skills

- LaTeX
- Python
- Pari-GP

References

Veronika Ertl

CPJ, Université de Caen Normandie

@ veronika.ertl@unicaen.fr

+33 2 31 56 74 58

Christine Huyghe

Research Director CNRS, Marie et Louis Pasteur University

@ christine.huyghe@cnrs.fr

+33 3 81 66 63 28