Kéva Djambaé

PhD Candidate in Mathematics — Arithmetic Geometry

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Profile

PhD candidate in mathematics specializing in explicit arithmetic geometry. My research focuses on abelian varieties, isogeny cycles, and the explicit construction of field automorphisms, with connections to Galois actions on torsion points and class field theory. My thesis is co-supervised by the GAATI Laboratory at the University of French Polynesia (UPF) and the Institute of Mathematics of Marseille (I2M), Aix-Marseille University.

Research areas

Keywords: Finite and local fields, abelian varieties, elliptic curves, isogenies, endomorphism rings, torsion points, Galois actions, class field theory, scheme theory

AMS Classification: 11G20, 14G15, 12F10, 11S31, 11G07

Tools: Magma, SageMath

Education

2023–2027 **PhD in Mathematics**, *University of French Polynesia*
Thesis: *Endomorphisms and Galois Actions on Torsion Points*.
Supervisors: Prof. David Kohel (I2M) and Prof. Gaëtan Bisson (GAATI). Member of the ATI team at I2M and the GAATI Laboratory at UPF. Funded by Doctoral School 469.

2022 **Master 2 in Fundamental Mathematics — Research track**, *Aix-Marseille University*
Thesis: *Autour du douzième problème de Hilbert* (in French). Three-month research internship at I2M, funded by a scholarship. Qualified for the French *Agrégation* examination in mathematics (*admissible*).

2020 **Master 2 in Fundamental Mathematics — Agrégation preparation track**, *Aix-Marseille University*
Passed the French CAPES examination in mathematics.

2016 **Bachelor's degree in Mathematics and Computer Science, Mathematics track**, *Aix-Marseille University*

2013 **Preparatory classes for the *Grandes Écoles*, MPSI track**, *Lycée Thiers, Marseille*

2012 **French Baccalauréat, science track, mathematics specialization**, *Lycée Thiers, Marseille*

Publications and research work

Article accepted for publication

2026 ***Automorphisms of finite fields from isogeny cycles***
Accepted for publication in *Finite Fields and Their Applications*, vol. 118 (2027), article 102922.
DOI: 10.1016/j.ffa.2026.102922 arXiv:2603.19428 HAL: hal-05555215.

Research note deposited on HAL

2026 ***Automorphismes de corps finis à partir de cycles d'isogénies***, *2026 UPF Doctoral Days (*Doctoriales*)*
Research note associated with the Doctoriales talk. HAL: hal-05581754.

Work in progress

Automorphisms of local fields from isogeny cycles (2026–).

Magma code: Code illustrating the examples in the article: GitHub repository.

Scientific service

2026– **Referee**, Bulletin des Sciences Mathématiques

Talks

Forthcoming research seminars

November 20, 2026 ***Explicit construction of Galois Groups***, *Number Theory Seminar, Institut de Mathématiques de Bordeaux (IMB)*, Bordeaux

November 26, 2026 ***Explicit construction of Galois Groups***, *Arithmetic Seminar, UMPA*, Lyon

December 3, 2026 ***Explicit construction of Galois Groups***, *ATI Seminar, I2M*, Marseille

December 11, 2026 ***Explicit construction of Galois Groups***, *Seminar on Effective Geometry and Algebra, IRMAR*, Rennes

January 11, 2027 ***Explicit construction of Galois Groups***, *Number Theory Seminar, Institut Fourier*, Grenoble

Research and laboratory seminars

April 15, 2026 — ***Explicit construction of Galois Groups***, *Number Theory Seminar, University of New South Wales*, Sydney

April 7–10, 2026 — ***Explicit construction of Galois Groups***, *South Pacific Mathematics Exchange Seminar (SOUPAMES), ANU*, Canberra
Seminar organized by the ANU–CNRS France–Australia Mathematical Sciences and Interactions international research laboratory (FAMSI).

January 26, 2026 — **Automorphisms of finite fields arising from an elliptic curve**, *GAATI Laboratory Seminar*, Tahiti

May 13, 2025 — **Galois action and elliptic curves**, *GAATI Laboratory Seminar*, Tahiti

Doctoral days, outreach, and dissemination

May 2026 — **Number Theory Viewed through the Lens of Geometry**, *2026 UPF Doctoral Days (*Doctoriales*)*, Tahiti
15-minute talk; associated research note deposited on HAL. HAL: hal-05581754.

May 21, 2026 — **Presentation of my research**, *Economic, Social, Environmental and Cultural Council of French Polynesia*, Tahiti
30-minute presentation for a non-specialist audience.

April 7–10, 2026 — ***Number theory through the lens of geometry***, *Outreach talk, SOUPAMES, ANU*, Canberra

May 2025 — **Elliptic Curves over Finite Fields**, *2025 UPF Doctoral Days*, Tahiti
Outreach talk and poster. HAL: hal-05575112.

July 22, 2022 — **Mathematics outreach workshop**, *École de la deuxième chance*, Marseille
Designed and led the workshop at the invitation of J. Youssef.

Teaching

Higher education

2024–2027 — **Teaching Assistant**, *University of French Polynesia*, First-year Mathematics–Engineering Sciences program (L1 SPI): matrix calculus, numerical and algebraic calculus, and integral calculus
176 hours in total: 48 hours in 2024–2025, then 64 hours in each of 2025–2026 and 2026–2027. Three tutorial groups in both 2025–2026 and 2026–2027. Authored Tutorial 0 (diagnostic assessment) and Tutorial 1 bis (additional exercises) for Numerical and Algebraic Calculus; prepared and published tutorial sheets and revision materials.

2026–2027 — **Undergraduate project supervision (L1)**, *University of French Polynesia*
Supervision of a group of three first-year undergraduate students working on roots of unity.

2016 — **Teaching observation internship, MPSI**, *Lycée Thiers, Marseille*
Report: *Reflections on the Teaching of Mathematics in Higher Education*.

Secondary education and training

2023–2024 — **Trainee Certified Teacher**, *Lycée Honoré Daumier, Marseille*, Seconde and Première general-track classes (approximately Grades 10–11)

2020–2024 — **Mathematics Teacher**, *Institut Louis Germain, Marseille*, Students from 6^{e} through 2de

2020– — **Private tutoring and training**, *Independent tutor*

2020 — **Instructor**, *Hippocampe Program, IREM, Aix-Marseille University*

2017–2019 — **Education Assistant**, *Lycée Nelson Mandela, Marseille*

Collective responsibilities

2025–2027 — **Elected member, Research Committee**, *University of French Polynesia*, Punaauia
Representative of PhD students in the Science, Technology and Health sector.

2025–2027 — **Elected member, Disciplinary Committee**, *University of French Polynesia*, Punaauia
Student section.

Schools and Conferences Attended

2026 — **Arizona Winter School**, *University of Arizona*, Tucson
Full funding.

March 2026 — **SAGA^2 — Seminar on Algebraic Geometry and its Applications**, *University of French Polynesia*, Tahiti

August 2025 — **Rene 2025**, *University of French Polynesia*, Tahiti

June 2025 — **AGCT 2025 — Arithmetic, Geometry, Cryptography and Coding Theory**, *CIRM*, Marseille

May 2024 — **Amusec**, *CIRM*, Marseille

April 2024 — **CAIPI Symposium**, *FRUMAM*, Marseille

June 2023 — **AGCT 2023**, *CIRM*, Marseille

Seminars attended — ATI Seminar (I2M, Marseille) and GAATI Seminar (UPF, Tahiti), since 2023; online number theory seminar (2023–2025).

Languages and skills

Languages	French (native), English (C2), German (basic), Shingazidja (basic)
Computing	Magma, Python/SageMath, C/C++, LaTeX, HTML5, CSS, PHP