AHMANE Amar

✉ amar.ahmane@ens-paris-saclay.fr
🌐 perso.eleves.ens-rennes.fr/people/amar.ahmane
○ PommeBleue
in amar-ahmane

"The mathematician's patterns, like the painter's or the poet's must be beautiful; the ideas like the colours or the words, must fit together in a harmonious way. Beauty is the first test: there is no permanent place in the world for ugly mathematics." — G. H. Hardy

Education

|	
2025 – Today	**M2 AMS**, *Université Paris-Saclay*, France Master of Science in Mathematical Modelling.
2024 – 2025	**M1 Hadamard**, *École Normale Supérieure Paris-Saclay*, Gif-sur-Yvette, France Master of Science 1 in Mathematics. Courses included Algebra, Functional Analysis, Probability Theory, Algebraic Topology, Geometry, Numerical Optimization and Mathematical tools for Image Processing. The end of year was spent in a research internship on the topic of Numerical Analysis of Stochastic Differential Equations on Lie Groups.
2023 – 2024	**Magistère of Mathematics (1st year)**, *École Normale Supérieure de Rennes*, Rennes, France Result : Success at the entrance exam of the ENS Paris-Saclay (Rank 9).
2021 – 2023	**MP2I/MPI***, *Lycée Paul Valéry*, Paris 12e Result : accepted into l'École Normale Supérieure de Rennes.

Work experience and internships

Research experience

|	
April 2025 — July 2025	**Research internship**, *Korteweg-de Vries Institute for Mathematics*, Amsterdam, Netherlands Research Internship done at the end of my first year of Masters (M1 Jacques Hadamard). It was supervised by Sonja Cox and Erwin Luesink. You can access my report here. During this internship, I worked on : ○ Symplectic techniques for stochastic differential equations on symplectic manifolds; ○ A proof of the ergodicity of the invariant measures of Langevin Diffusions on compact Lie groups under the assumption of Hörmander's condition.

May 2024 — July 2024	**Research internship**, *Laboratoire de Mathématiques d'Orsay*, Orsay, France
	Magistère de mathématiques de Rennes students must spend at least six weeks in a research internship at the end of the first year. Anne Vaugon supervised mine at the Laboratoire de Mathémaitques d'Orsay. You can access my report here (there's only a french version for now).
	During this internship, I worked on :
	○ Basics of Morse Theory;
	○ A proof of the classification of compact, connected, orientable and closed surfaces.
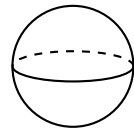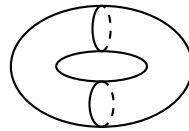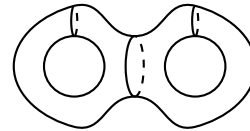
$$T_0 = \mathbb{S}^2 \qquad T_1 = \mathbb{S}^2 \qquad T_2 = \mathbb{T}^2 \# \mathbb{T}^2$$

Work experience

Sep 2024 – Today	**Mathematics examiner (Khôlleur MPI/MPI*)**, *Lycée Paul Valéry*, Paris 12e
	I select exercises and grade CPGE students in weekly mathematics oral exams of 1 hour duration.
Since 2022	**Private lessons in Mathematics**, *Independant*

Computer Skills

Programming	Java, OCaml, C, Python, Javascript.
Tools	LaTeX, git, UNIX systems.

Languages

French	Fluent
English	C1
Arabic	Fluent

Interests

Academic	Numerical Analysis, Analysis of SDEs and SPDEs, Probability Theory, Analysis of PDEs, Mathematics for Medical Imagery, Differential Geometry, Calculus of Variations and Optimal Transport
Other	Video games (Minecraft, Strategy games, construction and management simulation), Tarot, 3D art...