

# Paul Cahen

PhD student  
Université Lyon 1

## Preprints

- 2026+ *The critical Ising Magnetization Field can be reconstructed from its +/- interfaces*, joint work with Christophe Garban and Avelio Sepúlveda.
- 2026+ *Stochastic domination for FK percolation and sharp thinning thresholds for the Ising energy field*, joint work with Avelio Sepúlveda.

## Invited talks

- Feb. 2026 *The critical Ising Magnetization Field can be reconstructed from its +/- interfaces*, 50-minute talk at Les Diablerets (annual one-week conference in statistical mechanics and percolation, <https://swissmaprs.ch/events/workshop-in-mathematical-physics-2026/>).
- Jan. 2026 *On a new stochastic domination for FK percolation*, 30-minute talk given at the PISA summer school (<https://pisa.mat.uc.cl/>).

## Education

- 2024– **PhD student**, supervised by Christophe Garban and co-supervised by Avelio Sepúlveda.
- 2023–2024 **M2 in Mathematics of Randomness** at Université Paris-Saclay / Orsay (highest honors), followed by an M2 thesis supervised by Christophe Garban, entitled *Planar random fields arising from statistical physics models, and level lines*.
- 2021–2022 **M2 in Fundamental Mathematics** at Jussieu (highest honors), followed by an M2 thesis supervised by Arthur-César Le Bras and Valentin Hernandez, entitled *Construction of an action of  $\widehat{\mathbb{G}_m}$  on  $p$ -adic modular forms*.
- 2019–2024 **Student, École Normale Supérieure de Paris (Ulm)**, Department of Mathematics and Applications (DMA).

## Participation in summer schools and conferences

- Mar. 2026 participation in the workshop “Correlations in percolation, noise sensitivity and Chaos” in Grenoble (no talk given).
- Feb. 2026 participation in the annual Les Diablerets conference (invited talk given).
- Jan. 2026 participation in the PISA summer school in Santiago, Chile (invited talk given).
- Dec. 2025 participation in the workshop “Topological phase transitions and localization of random fields” in Santiago, Chile (no talk given).
- June 2025 participation in the PIMS summer school (talk given).
- Feb. 2025 participation in the Winterschool in Roma (talk given).

July 2024 participation in the Saint-Flour summer school (no talk given).

## Research internships

2024 Five-month internship supervised by Christophe Garban, at Université Lyon 1, on random complex geometry and the Gaussian free field.

2022 M2 internship supervised by Valentin Hernandez and Arthur-César Le Bras, on arithmetic geometry and  $p$ -adic modular forms.

2021–2022 Six-month internship in the Department of Mathematics at the University of Cambridge (United Kingdom), supervised by Jack Thorne (Professor at Trinity College).

## Awards

2020 Joint third prize in the SMF Junior competition, with team UPP.

2018 Gold medal at the International Mathematical Olympiad.

2018 First prize in the Concours Général de Mathématiques.

2018 First prize (perfect score) at the Benelux Mathematical Olympiad.

2017 First prize in the national edition of the TFJM, team *Cantor se Gauss d'un Poincarré*.

2017 Silver medal at the French National Mathematical Olympiad.

2016 Bronze medal at the Junior Balkan Mathematical Olympiad.

## Languages

French native language

English C1 level

Spanish C1 level

Italian B1–B2 level