

Perrine Jouteur

PhD student

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Education

Overview

- 2023– (expected end in 2026) **PhD thesis**, *Université de Reims Champagne-Ardenne*, advisor : Sophie Morier-Genoud
Title : q -analogues of real numbers : geometric, combinatorial and analytical aspects.
- 2019–2023 **École Normale Supérieure**, *Rennes*
- 2022–2023 **Master degree (second year)**, *Sorbonne Université, Paris*
Lie theory by David Hernandez, Homology theory by Baptiste Rognerud, Algebraic topology by Julien Marché and Ilia Itenberg, Character varieties by Adrien Brochier and Emmanuel Letellier.
- 2021–2022 **Agrégation**, *Université de Rennes 1*
National most competitive and highest teaching qualification. Rank : 25 (out of 2 888 candidates).
- 2020–2021 **Master degree (first year)**, *Université de Rennes 1*
Mention Très bien.
- 2019–2020 **Bachelor's degree with a double major**, *Université de Rennes 1*
Mathematics and Computer science.
- 2017–2019 **Preparatory classes**, *Lycée Camille Guérin, Poitiers*

Research internships

- 2023 **Master 2 internship**, *Université de Reims Champagne-Ardenne*, supervisor : Sophie Morier-Genoud
Title : Cyclic sieving phenomenon and application to the Grassmanian.
- 2021 **Master 1 internship**, *Oslo University*, supervisor : Paul Arne Østvær
Title : A_1 -homotopy theory and contractible varieties.
- 2020 **Undergraduate thesis**, *Université Paris Cité*, supervisor : Daniel Juteau
Title : Linear representations of finite groups.

Research

Papers

- 2026 **Plane geometry of q -rationals and Springborn operations**, *arXiv:2603.04295*
avec Olga Paris-Romaskevich et Alexander Thomas
- 2026 **A mirror deformation of Markov numbers**, *arXiv:2602.14802*
avec Léa Bittmann, Ezgi KantarcıOğuz, Melody Molander et Emine Yıldırım
- 2026 **q -rationals, link invariants and webs**, *arXiv:2602.09426*
avec Hoel Queffelec
- 2025 **On q -deformed Markov numbers. Cohn matrices and perfect matchings with weighted edges**, *arXiv:2507.19080 (accepted in Annals of Combinatorics)*
Joint work with Sam Evans, Sophie Morier-Genoud and Valentin Ovsienko
- 2025 **Symmetries of the q -deformed real projective line**, *arXiv:2503.02122*
- 2024 **Bureau representation of B_4 and quantization of the rational projective plane**, *Comptes Rendus. Mathématique, Volume 363 (2025), pp.89-107*
arXiv:2407.20645

Working groups

- 2024- **Women in Noncommutative Algebras and Representation Theory IV (WINART) workshop**, led by Léa Bittmann and Emine Yıldırım, with Melody Molander and Ezgi Kantarcı Oğuz
Research working group on q -deformed Markov numbers
- 2024-2026 **PhD students working group**, *Université de Reims Champagne-Ardenne*, with Hugo Mathevet, Yoann Demesmay and Valentin Massicot
Reading the book *Enveloping Algebras*, by Dixmier
- 2023-2024 **GT Clusters, quivers and geometry**, *IMJ-PRG (Paris)*, organized by Pierre-Guy Plamondon and Bernhard Keller
Reading group on the paper *The positive Grassmannian, the Amplituhedron, and Cluster Algebras*, by Lauren K. Williams
- Talks**
- 2026, February **Quantum deformation of rational numbers, a combinatorial perspective**
Algebra seminar, University of Connecticut, USA
- 2026, January **Combinatoire des déformations quantiques de rationnels**
Séminaire SPACE, Institut Denis Poisson, Tours
- 2026, January **The combinatorics of cluster algebras via q -deformed rational numbers**
Oberseminar Kombinatorik, Bochum, Germany
- 2025, November **Déformation quantique de rationnels, en combinatoire et au-delà**, *Team seminar, 1h*
LMPA (Calais), France
- 2025, August **Quantized symmetries of the real projective line**, *Short talk, 20min*
Summer School on Markov Numbers and the Combinatorics of Cluster Algebras (Istanbul), Turkey
- 2025, June **Une déformation des nombres de Markov**, *PhD seminar, 20min*
LMR (Reims), France
- 2025, June **Déformations quantiques de rationnels et au-delà**, *Team seminar, 1h*
IMAG (Montpellier), France
- 2025, May **Quantized rational numbers, from every angles**, *Team seminar, 1h*
ICJ (Lyon), France
- 2025, April **Analogues quantiques de nombres, un tour d'horizon**, *PhD seminar, 1h*
IRMAR (Rennes), France
- 2025, March **Analogues quantiques de nombres via la représentation de Burau**, *Team seminar, 1h*
LAMFA (Amiens), France
- 2025, March **Mirror deformation of Markov numbers**, *Workshop report, 20min*
WINART Workshop at BIRS (Banff), Canada
- 2025, February **Analogues quantiques des nombres rationnels**, *Team seminar, 1h*
LIB (Dijon), France
- 2025, February **Burau representation of B_4 and q -deformed rational projective plane**, *Short talk, 30min*
Winterbraids XIV, Institut de Mathématiques de Bordeaux, France
- 2024 **Quantum analogues of rational numbers**, *PhD seminars, 1h*
LAMFA (Amiens), LMBP (Clermont-Ferrand), LPP (Lille) and LMR (Reims), France
- Summer and Winter schools**
- 2025, August **Markov Numbers and the Combinatorics of Cluster Algebras**, *Istanbul, Turkey*
- 2025, February **Winterbraids XIV**, *Bordeaux, France*
- 2024, May **CHARMS Summer School**, *Versailles, France*
- 2023, July **Workshop on Kac-Moody geometry**, *Kiel, Germany*
- Attended conferences**
- 2025, December **Journées SL2R**, *Louvain-la-Neuve, Belgium*
- 2025, December **Deformed algebraic structures and applications**, *ICJ, Lyon, France*

- 2025, May **Frieze patterns in Algebra, Combinatorics and Geometry**, *CIRM, France*
With presentation of a poster : Symmetries of the q -deformed real projective line
- 2025, March **WINART IV**, *Banff, Canada*
- 2025, March **Colloque Tournant du RT Algèbre**, *Clermont-Ferrand, France*
- 2024, October **New Trends in Geometry, Combinatorics and Mathematical Physics**, *Oléron, France*
With presentation of a poster : Bureau representation of B_4 and q -deformed rational projective plane
- 2024, May **Cluster categories and mirror symmetry (ANR CHARMS)**, *Strasbourg, France*
- 2024, March **Continued fractions and SL_2 -tilings**, *Durham, England*
- 2024, March **Réseau Thématique Algèbre**, *CIRM, France*
- 2023, November **Journées SL2R**, *Metz, France*

Experience

Teaching

- 2025-2026 **Research referent for MathEnJeans**, *Lycée Franklin Roosevelt, Reims*
Supervising a workshop for high school students, yearly.
- 2025 **Lecturer in Calculus**, *Université de Reims Champagne-Ardenne*
Calculus for undergraduate students, 28h.
- 2024 **Lecturer in Calculus**, *Université de Reims Champagne-Ardenne*
Calculus for undergraduate students, 64h.
- 2023 **Teaching assistant in Linear Algebra**, *Université de Reims Champagne-Ardenne*
Main teacher : Loïc Poulain d'Andecy. Travaux dirigés for undergraduate students, 58h.
- 2019-2021 **Tutoring**, *Lycée Bréquigny, Rennes*
Helping high school students with their homework.

Administrative

- 2025-2026 **Leader of LMR PhD students**, *Université de Reims Champagne-Ardenne*
Organizer of PhD seminars, manager of the website, representative of PhD students.

Popularization

- 2025 **Exposition Femmes de science de l'URCA**, *Library university of Reims*
Podcast and poster about research in mathematics and women, organized by Claire Levêque
- 2019 **Mathematical workshop in Fête de la science**, *Université Paris Diderot*
Workshop for general audience with puzzles and games

Computer skills

- Programming Python, OCaml, Sage
- Word processing Office suite, \LaTeX , Wikipedia articles
- Other Geogebra

Language

- French Native speaker
- English Fluent, 920 at TOEIC 2021

Hobbies

- Walking In town or in nature
- Aïkido Two years of practice
- Climbing Sporadic activity
- Reading Novels, short stories, poetry. These days I am fond of science-fiction.