

# Arthur Troupel

*PhD student at IMJ-PRG, Université Paris Cité, under the supervision of Pierre Fima*

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26 years old



## Current position

2021-2025 **PhD in Mathematics**, *Institut Mathématiques de Jussieu - Paris Rive Gauche*, Paris, Free wreath products of quantum groups and approximation properties.  
Under the supervision of Pierre Fima.

## Research papers

2024 **Operator algebras of free wreath products, with P. Fima**, *Advances in Mathematics*.

## Education

2020-2021 **Master 2 in Mathematics**, *Sorbonne-Université*, Paris, Master 2 de Mathématiques fondamentales de Paris centre, with highest honors.  
2019-2020 **Master 1 in Mathematics**, *ENS Ulm/Université Paris-Diderot*, Paris.  
2018-2019 **Bachelor's Degree in Mathematics**, *ENS Ulm/Université Paris-Diderot*, Paris, Licence 3, with highest honors.  
2018 **Admission to the École Normale Supérieure de Paris**, rank 35.

## Research experiences

2021-2022 **Pre-PhD internship**, *Université de Paris, IMJ-PRG*, Compact quantum groups: representation theory and approximation theorems, under the supervision of Pierre Fima.  
2021 **M2 internship**, *Université de Paris*, Cyclic homology of schemes, under the supervision of Denis Perrot.  
Proof of an expression of the L-functions associated to a projective scheme in terms of the determinant of a certain endomorphism on a newly defined *archimedean* cyclic homology.  
2020 **M1 internship**, *Northwestern University, Evanston*, Studies on  $\mathcal{D}$ -modules and birational geometry, duration: 1 month on-site, 5 months total, under the supervision of Mihnea Popa.  
Proof of the rationality of the roots of the Bernstein-Sato polynomial.  
2019 **Bachelor thesis**, *ENS Paris*, Mon premier  $\mathcal{D}$ -module, in association with Antoine Le Calvez, under the supervision of Quentin Guignard.

## Teaching experiences

2022-2025 **Teaching at Université Paris Cité**, *Mathematic exercise sessions for first to third year students in Mathematics and Computer science; tutoring; oral interrogations*, General analysis and algebra (first and second year) / Probabilities (second and third year).  
2018-2020 **Teaching in CPGE**, *Oral interrogations, weekly*, Mathematics, MPSI, Lycée Louis-le-Grand and Lycée Saint-Louis, Paris.

## Languages

French (mother tongue), English (fluent), Spanish (upper-intermediate), Italian (basics), Japanese (basics).

## Service

- 2022-2025 **Scientific Council**, *Representative of the PhD students at the Scientific Council of the Mathematical department of Université Paris Cité.*
- Nov 2022 **Master-PhD student get-together**, *Organisation of the get-together afternoon for Master students and PhD students at IMJ-PRG.*

## Contributed and invited talks

- Dec 2023 Arbre de Noël Franco-allemand du Groupe de Recherche en Géométrie Non-commutative à Metz.
- Nov 2023 University of Glasgow Analysis Seminar, Glasgow, Scotland, United Kingdom.
- Oct 2023 University of Waterloo Analysis Seminar, Waterloo, Ontario, Canada.
- Feb 2023 Séminaire d'Analyse Harmonique Non Commutative de l'Université de Caen Normandie, France.
- Feb 2023 Quantum Group Seminar online.
- Feb 2023 Séminaire de l'équipe Algèbres d'Opérateurs de l'IMJ-PRG, Paris, France.
- Dec 2022 Workshop: "Quantum Groups: Current Trends and New Perspectives", University of Oslo, Norway.
- Dec 2022 Arbre de Noël du Groupe de Recherche en Géométrie Non-commutative, Institut des Hautes Études Scientifiques, Bures-sur-Yvette, France.

## Conferences and workshops attended

- Oct 2024 Conference "Higher structures in Noncommutative Geometry and Quantum Algebra", Lille
- Jul 2024 Rencontre "Equivalence orbitale", Besse-en-Chandesse, Auvergne, France
- Apr 2024 Conference "Group operator algebras and Non commutative geometry", CIRM, Marseille, France
- Dec 2023 Conference ANR "Harmonic analysis on groups and quantum groups", Université de Besançon Franche-Comté.
- Sep-Nov 2023 Thematic Program in  $C^*$ -algebras and applications, The Fields Institute, Toronto.
- Aug 2023 YMC\*A 2023, KU Leuven, Belgium.
- Jun 2023 Conference "Groups and Operator Algebras", Institut Mathématique d'Orsay, France.
- Nov 2022 Rencontre de l'ANR "Noncommutative analysis on groups and quantum groups", Cabourg, France.
- Sep 2022 Workshop: "Noncommutative harmonic analysis and quantum groups", Będlewo, Poland.
- Aug 2022 YMC\*A 2022, University of Oslo, Norway.
- Jun 2022 50th Canadian Operator Symposium, University of Ottawa, Ontario.
- May-Jun 2022 Workshop: "Topological Quantum Groups,  $C^*$ -Tensor Categories, and Subfactors", University of Waterloo, Ontario.
- May 2022 Conference: "Operator algebras and Group Dynamics", Centre international de Rencontres en Mathématiques (CIRM), Marseille, France.
- Dec 2021 Winter School: "Geometry and analysis of quantum groups", University of Oslo, Norway.
- Nov 2021 Workshop: "Quantum Probability and Non-Commutative Harmonic Analysis", University of Leiden, Netherlands (online).

## Advisor

- 2021- Pierre Fima, Maître de conférences at Université de Paris, pierre.fima@imj-prg.fr

## Other

- 2023 Minor part extra in the movie "Le Théorème de Marguerite" (Marguerite's theorem) by Anna Novion.