

# DYLAN LAPLACE MERMOUD

Postdoctoral researcher in game theory, quantum algorithms and algebraic combinatorics  
Unité de Mathématiques Appliquées, ENSTA, Institut Polytechnique de Paris  
CEDRIC laboratory, Conservatoire National des Arts et Métiers

<https://dylanlaplacemermoud.github.io>  
[dylan.laplace@ensta.fr](mailto:dylan.laplace@ensta.fr)

## PERSONAL INFORMATION

---

Born in Saint-Michel (16), France, on October 25, 1996. French nationality.

## AREAS OF INTEREST

---

Discrete mathematics, cooperative game theory, combinatorial optimization, quantum algorithms, Coxeter groups, algebraic combinatorics, differential equations on combinatorial structures.

## EMPLOYMENT

---

**Postdoctoral researcher** Oct. 2023 – today

- ▷ Unité de Mathématiques Appliquées, ENSTA, Institut Polytechnique de Paris
- ▷ Secondary affiliation: CEDRIC laboratory, Conservatoire National des Arts et Métiers
- ▷ Supervisors: ANDREA SIMONETTO and SOUROUR ELLOUMI

**Teaching and research associate** Sept. 2022 – Aug. 2023

- ▷ Centre d'Économie de la Sorbonne, Université Paris I Panthéon-Sorbonne

**Doctoral contract employee** Sept. 2019 – Aug. 2022

- ▷ Centre d'Économie de la Sorbonne, Université Paris I Panthéon-Sorbonne

## EDUCATION

---

**Doctoral degree**, Mathematics, *Université Paris I Panthéon-Sorbonne* Sept. 2019 – Sept. 2023

- ▷ Title: “[Geometry of Set Functions in Game Theory: Combinatorial and Computational Aspects](#)”
- ▷ Supervisors: MICHEL GRABISCH and PETER SUHDÖLTER
- ▷ Reviewers: TAMÁS SOLYMOSSI and MARINA NUÑEZ, president of the jury: PHILIPPE BICH, jury members: JEAN-JACQUES HERINGS and PHILIPPE SOLAL

**Master degree**, Mathematics, *Sorbonne Université* Sept. 2017 – June 2019

- ▷ Jointly accredited by École Polytechnique and École Nationale des Ponts et Chaussées.

**Bachelor degree**, Mathematics, *Sorbonne Université* Sept. 2014 – June 2017

## PUBLICATIONS, PROCEEDINGS, AND PREPRINTS

---

### Publications

11. The algebraic structures of social organizations: the operad of cooperative games  
LAPLACE MERMOUD, D., ROCA I LUCIO, V.  
[Algebraic Combinatorics](#) • 2026 • 49 pages • [arXiv.2507.01969v2](#)

10. Variational quantum algorithms for permutation-based combinatorial problems: Optimal ansatz generation with applications to quadratic assignment problems and beyond  
LAPLACE MERMOUD, D., SIMONETTO, A., ELLOUMI, S.  
[Quantum](#), vol. 10, p. 1998 • 2026 • 36 pages • [arXiv.2509.05981v3](#)
9. Attraction of the core and the cohesion flow  
LAPLACE MERMOUD, D.  
[Theory and Decision](#), vol. 99, pp. 377–392 • 2025 • 15 pages • [arXiv.2507.02918](#)
8. Minimal balanced collections and their application to core stability and other topics of game theory  
LAPLACE MERMOUD, D., GRABISCH, M., SUDHÖLTER, P.  
[Discrete Applied Mathematics](#), vol. 341, pp. 60–81 • 2023 • 32 pages • [arXiv.2507.05898](#)

## Proceedings

7. Scaling QAOA: transferring optimal adiabatic schedules from small-scale to large-scale variational circuits  
NZONGANI, U., LAPLACE MERMOUD, D., BRAIDA, A.  
[2026 IEEE Conference on Quantum Control, Computing and Learning](#) • 2026 • 6 pages • [arXiv.2602.14986](#)
6. Combinatorics on social configurations  
LAPLACE MERMOUD, D., POPOLI, P.  
[Electronic Proceedings in Theoretical Computer Science](#), vol. 403, pp. 128–133 • 2024 • 6 pages

## Preprints

5. On the closest balanced game  
GARCIA-SEGADOR, P., GRABISCH, M., LAPLACE MERMOUD, D., MIRANDA, P.  
[arXiv preprint arXiv.2601.15318](#) (Under review) • 2025 • 31 pages
4. Sampled-based guided quantum walk: Non-variational quantum algorithm for combinatorial optimization  
NZONGANI, U., LAPLACE MERMOUD, D., DI MOLFETTA, G., SIMONETTO, A.  
[arXiv preprint arXiv.2509.15138](#) (Revised and resubmitted) • 2025 • 27 pages
3. Diffusion in dynamic networks with time-varying inputs to allocate responsibility  
VAN DEN ENDE, R., LAPLACE MERMOUD, D.  
[arXiv preprint arXiv.2301.02728](#) • 2025 • 25 pages
2. Projection onto the core: An optimal reallocation to correct market failure  
LAPLACE MERMOUD, D.  
[arXiv preprint arXiv.2411.11810](#) • 2024 • 30 pages
1. On the formation of steady coalitions  
LAPLACE MERMOUD, D.  
[arXiv preprint arXiv.2410.05087](#) • 2024 • 21 pages

## RESEARCH VISITS

---

- ▷ MICHEL GRABISCH at the [Algorithmic game theory in socioeconomics \(AGATE\)](#) center  
Charles University, Prague, Czech Republic • one or two weeks • 2026 (forthcoming)
- ▷ MĀRIS OZOLS and KRYSTAL GUO at the [Discrete Mathematics and Quantum Information group](#)  
Universiteit van Amsterdam and CWI, The Netherlands • two weeks • 2025
- ▷ STEFAN WÖRNER at the [Quantum Computational Science group](#)  
IBM Research Europe - Zurich, Suisse • one week • 2025
- ▷ VICTOR ROCA I LUCIO at the [Laboratory for Topology and Neurosciences](#)  
École Polytechnique Fédérale de Lausanne (EPFL), Suisse • one week • 2023
- ▷ PIERRE POPOLI at the [Laboratory of Discrete Mathematics](#)  
Université de Liège, Belgique • one week • 2023

## TEACHING

---

### Lectures

- ▷ Quantum computing 2025 – 2026  
MPRO & ensIIE • Master 2 in informatics • 6h
- ▷ Game theory 2024 – 2026  
ENSTA & Institut Polytechnique de Paris • Master 1 in mathematics • 7h30 • [Lecture notes](#)

### Tutorials

- ▷ Quantum computing 2025 – 2026  
MPRO & ensIIE • Master 2 in informatics • 15h
- ▷ Game theory 2024 – 2026  
ENSTA & Institut Polytechnique de Paris • Master 1 in mathematics • 10h
- ▷ Graph theory 2023 – 2026  
ENSTA & Institut Polytechnique de Paris • Master 1 in mathematics • 16h30
- ▷ Linear programming 2020 – 2023  
Université Paris I Panthéon-Sorbonne • Master 1 in mathematics • 24h
- ▷ Topology and differential calculus 2022 – 2023  
Université Paris I Panthéon-Sorbonne • Bachelor 3 in mathematics/informatics • 42h
- ▷ Microeconomics 2022 – 2023  
Université Paris I Panthéon-Sorbonne • Bachelor 3 in mathematics/informatics • 48h
- ▷ Linear algebra 2022 – 2023  
Université Paris I Panthéon-Sorbonne • Bachelor 2 in mathematics/informatics • 30h
- ▷ Linear algebra 2019 – 2023  
Université Paris I Panthéon-Sorbonne • Bachelor 3 in economics • 36h
- ▷ Python programming 2019 – 2020  
Université Paris I Panthéon-Sorbonne • Bachelor 1 in mathematics/informatics • 48h

## SUPERVISION

---

- ▷ Bruno Galibert (2025), Master 1 student, on “Quantum circuit simplification”.  
– Funded by a Quantum-Saclay grant.
- ▷ Qui Loc Phan (2024), Master 1 student, on “Quantum circuit design and combinatorial optimization”.

## AWARDS AND FUNDINGS

---

- ▷ Laureate of the *Quantum-Saclay* grant, one internship funding (2025).
- ▷ Laureate of the *Passeport pour le Master* scholarship from Sorbonne Université Foundation, fully funded 5 years of study (2014-2019).

## RESPONSIBILITIES

---

- ▷ Member of the board of directors of Sorbonne Université (2018-2020), member of the board of the mathematics department of Sorbonne Université (2018-2020).

## REFEREEING

---

- ▷ Journal of Mathematical Economics, 4OR - A Quarterly Journal of Operations Research, Annals of Operations Research (x2), IEEE International Conference on Quantum Control, Computing and Learning (x2), CEMRACS 2025 – Quantum Computing.

## COMMUNICATIONS

---

- ▷ Session organization

1. “Quantum computing for combinatorial optimization” at [Programme Gaspard Monge \(PGMO\) days 2025](#), Palaiseau, France (2025).

- ▷ Upon invitation

2. [SIAM Conference on Optimization \(OP26\)](#), Edinburgh, United Kingdom (forthcoming, 2026).
3. 18th [Ordered Structures in Games and Decisions](#) in Michel Grabisch’s honor, Paris, France (2025).
4. 16th [Ordered Structures in Games and Decisions](#) conference, Paris, France (2023).
5. 22nd [Society for the Advancement of Economic Theory \(SAET\)](#) conference, Paris, France (2023).
6. [GO22: Games and Optimization 2022](#), Saint-Étienne, France (2022).

- ▷ Conferences

7. 27th [ROADEF congress](#), Tours, France (2026).
8. 20th [European Meeting on Game Theory \(SING20\)](#), Maastricht, The Netherlands (2025).
9. [International Conference in Quantum Computing \(ICoQC2025\)](#), Paris, France (2025).
10. 26th [ROADEF congress](#), Champs-sur-Marne, France (2025).
11. [Programme Gaspard Monge \(PGMO\) days 2024](#), Palaiseau, France (2024).
12. 19th [European Meeting on Game Theory \(SING19\)](#), Besançon, France (2024).
13. 13th [Random Generation of Combinatorial Structures. Polyominoes and Tiling \(GASCom\)](#), Bordeaux, France (2024).
14. 18th [European Meeting in Game Theory \(SING18\)](#), Messina, Italy (2023).
15. 26th [Coalition Theory Network \(CTN\)](#) conference, Bielefeld, Germany (2023).
16. [Programme Gaspard Monge \(PGMO\) days 2021](#), Palaiseau, France (2021).
17. 16th [European Meeting in Game Theory \(SING16\)](#), Granada (remote), Spain (2021).

- ▷ Seminars

18. Universiteit van Amsterdam, [Discrete Mathematics and Quantum Information](#) group seminar, Amsterdam, The Netherlands (2025).
19. IBM Research Europe - Zurich, [Quantum Optimization project](#), Zurich, Switzerland (2025).
20. Université Aix-Marseille, [CANA](#) research group seminar, Marseille, France (2025).
21. [C12](#), R&D group seminar, Paris, France (2025).
22. Université Paris Cité, [IRIF](#) quantum team seminar, Paris, France (2025).
23. École Polytechnique, [PhiQus](#) team seminar, Palaiseau, France (2025).
24. Télécom Paris, [Curiosity](#) team seminar, Palaiseau, France (2025).
25. [Quandela](#), R&D group seminar, Massy, France (2025).
26. Conservatoire National des Arts et Métiers, [Combinatorial Optimization \(OC\)](#) group seminar, Paris, France (2025).

27. ENSTA - Institut Polytechnique de Paris, [Optimization and Command \(OC\) group seminar](#), Palaiseau, France (2025).
28. Centre d'Économie de la Sorbonne, "[Mathématique Discrète, Optimisation, Décision](#)" seminar, Paris, France (2024).
29. Université de Franche-Comté, "[young researchers](#)" day, Besançon, France (2024).
30. Institut Henri Poincaré, [Junior Parisian seminar in game theory](#), Paris, France (2023).
31. ENSTA - Institut Polytechnique de Paris, [Optimization and Command \(OC\) group seminar](#), Palaiseau, France (2023).
32. Paris School of Economics, [Doctorissimes](#), Paris, France (2022).
33. Centre d'Économie de la Sorbonne, Maths department days, Paris, France (2022).
34. Centre d'Économie de la Sorbonne, "[Network and Games](#)" seminar, Paris, France (2022).
35. Centre d'Économie de la Sorbonne, [PhD seminar](#), Paris, France (2021).
36. Institut Élie Cartan, [PhD seminar](#), Nancy, France (2021).

## REFERENCES

---

MICHEL GRABISCH

[michel.grabisch@univ-paris1.fr](mailto:michel.grabisch@univ-paris1.fr)

Honorary senior member of the Institut Universitaire de France  
Professor Emeritus at Université Paris I Panthéon-Sorbonne  
Head of the AGATE center and ERA chair holder at Charles University

FRÉDÉRIC MEUNIER

[frederic.meunier@enpc.fr](mailto:frederic.meunier@enpc.fr)

President of the French Operations Research & Decision Support Society (ROADEF)  
Researcher at CERMICS in the Optimization team and professor at École nationale des ponts et chaussées  
Associate professor at École polytechnique

SOUROUR ELLOUMI

[sourour.elloumi@ensta.fr](mailto:sourour.elloumi@ensta.fr)

Professor at ENSTA, Institut Polytechnique de Paris  
Head of the Optimization and Command team at ENSTA, Institut Polytechnique de Paris  
Member of the Combinatorial Optimization team at Conservatoire National des Arts et Métiers

ANDREA SIMONETTO

[andrea.simonetto@ensta.fr](mailto:andrea.simonetto@ensta.fr)

Research professor at ENSTA, Institut Polytechnique de Paris  
Member of the Optimization and Command team at ENSTA, Institut Polytechnique de Paris  
Member of the Combinatorial Optimization team at Conservatoire National des Arts et Métiers