

Ndiamé Ndiaye

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EDUCATION

McGill University, Montreal, QC, Canada – *PhD in Mathematics*

Fall 2021 – Ongoing (Expected Fall 2025)

Thesis: Guarantee of Cliques and Uncertainty of Trees: Ramsey Theory and Leaf Powers

McGill University, Montreal, Quebec, Canada – *Masters in Mathematics*

Fall 2019 – Summer 2021

Thesis: Descending the Stable Matching Lattice: How many Strategic Agents are required to turn Pessimality to Optimality?

McGill University, Montreal, Quebec, Canada - *Joint Honours in Mathematics and Computer Science.*
(Distinction. First Class Honours in Mathematics and Computer Science)

Fall 2016 – Spring 2019

Academic Awards:

- Hydro-Québec Doctoral Fellowship (2021-2022)
- Lorne Trottier Science Accelerator Fellowship (2020)
- Canada Graduate Scholarships-Master's (CGS-M) (2020)
- McGill's 2018 William Moser Memorial Prize - *Highest rank at McGill in the Putnam Competition*

EXPERIENCE

McGill University, Montreal, Quebec, Canada – *Teaching Assistant*

Winter 2021, Winter 2022 and Winter 2023

- Held tutorials and office hours to help the students understand the courses MATH 240, COMP 362, and MATH 553.

D-Wave Systems Inc. - *Intern*

Summer 2019

- Study ways to improve the embedding of a clique onto the chimera graph.

McGill University, Montreal, Quebec, Canada - *Grader*

Winter 2018

- Correct assignments submitted by students from the MATH 240 course.
- Gave feedback to students to help them understand their mistakes to improve.

McGill University, Montreal, Quebec, Canada - *Researcher*

Summer 2017

- Studied surveys on the circular chromatic number of a graph.
- Developed an algorithm to compute the circular chromatic number of any given graph on Sage.
- Improved the lower bound on the circular chromatic number of the orthogonality graph.

Research

- Fields of interest: Graph Theory, Game Theory, Theoretical Computer Science.
- Current topics: Ramsey Theory, Stable Matching Problem, One-Sided Allocation Problem, Leaf Powers.

Peer-Reviewed Publications:

1. Dupré la Tour, M., Lafond, M., **Ndiaye N.** (2025) "Recognizing Leaf Powers and Pairwise Compatibility Graphs is NP-Complete", *SODA 2026 (arXiv:2510.19763)*
2. Connor, F., Langevin, L. **Ndiaye, N.**, Totschnig A., Vasishta R. and Vetta A. (2025) "The popular Dimension of Matchings", *WINE 2025 (arXiv: 2509.25150)*
3. Dupré la Tour, M., Lafond, M., **Ndiaye N.**, Vetta A. (2024) "k-Leaf Powers Cannot be Characterized by a Finite Set of Forbidden Induced Subgraphs for $k \geq 5$ ", *ICALP 2025 (arXiv:2407.02412)*
4. Jiang, S., **Ndiaye, N.**, Vetta, A. and Wu, Q. (2023). "The Price of Anarchy of Probabilistic Serial in One-Sided Allocation Problems" *Nineteenth Conference on Web and Internet Economics (WINE 2023)*, pp. 420-437
5. Brustle, N., Clusiau, S., Narayan, V., **Ndiaye, N.**, Reed, B., and Seamone, B. (2023). "The speed and threshold of the biased perfect matching and Hamilton cycle games". *Discrete Applied Mathematics*, 332, pp. 23-40,
6. **Ndiaye, N.**, Norin, S., and Vetta, A. (2021) "Descending the Stable Matching Lattice: How many Strategic Agents are required to turn Pessimality to Optimality?". *Proceedings of Algorithmic Game Theory*, pp. 281-295
7. Raymond, J., **Ndiaye, N.**, Rayaprolu, G., and King, A. (2020). "Improving performance of logical qubits by parameter tuning and topology compensation". *2020 IEEE International Conference on Quantum Computing and Engineering (QCE)*, pp. 295-305

Other Publications (Preprints):

8. Gupta, P., **Ndiaye, N.**, Norin, S., Wei, L. (2024). "Optimizing the CGMS upper bound on Ramsey numbers", *arXiv:2407.19026*
9. Hambardzumyan, L., Hatami, H., **Ndiaye N.** (2022). "On depth-3 circuits and covering number: an explicit counter-example", *arXiv:2210.08300*

Upcoming Publications:

10. **Ndiaye, N.**, Norin, S., (2025) "Minimal Blacklists in Random Stable Matchings"
11. **Ndiaye, N.**, Norin, S., (2025) "Stable Matchings with Types"

Ongoing Projects:

- Mim-width hardness
- Voting in Metric Spaces
- Envy Ratio of Random Serial Dictatorship.
- Hex when one player plays randomly.

Invited Talks:

- PIMS-UVic Discrete Math Seminar October 2022

Research Awards:

- 14th International Symposium on Algorithmic Game Theory Best Paper award (2021)

Seminars organized:

- XXVIIth ISM Graduate Student Colloquium (May 2025)
- McGill Discrete Mathematics and Optimization Seminar (Winter 2020, Fall 2022, Winter 2023)

Other Skills

- Fluent in French and English. Conversational level in Spanish.
- Programming (Mathematica, Python, Java, C++).