

Guillaume Payeur

PhD Student in physics at the Université de Montréal

Email: guillaume.payeur@umontreal.ca

Web: guilleumepayeur.github.io

About me

I am a PhD student in physics at the Université de Montréal, working under the supervision of Laurence Perreault-Levasseur. I'm also a member of the Ciela and Mila institutes. My research is at the intersection of cosmology/astrophysics and machine learning. Previously, I've also worked on aspects of theoretical cosmology and high-energy physics.

Degrees

- **Champlain College (CEGEP)**
Pure and Applied Science 2017 - 2019
- **McGill University (BSc)**
Honours Math & Physics 2019 - 2023
– GPA: 3.98/4
- **McGill University (MSc)**
Physics - High Energy Theory 2023 - 2025
– GPA: 4/4
- **Université de Montréal (PhD) (Ongoing)**
Physics 2025 - ????

Publications

4. Guillaume Payeur, Evan McDonough, and Robert Brandenberger. Do observations prefer thawing quintessence? *Physical Review D*, 111(12):123541, June 2025
<https://journals.aps.org/prd/abstract/10.1103/bggr-61nr>
3. Guillaume Payeur, Evan McDonough, and Robert Brandenberger. Swampland conjectures constraints on dark energy from a highly curved field space. *Physical Review D*, 110(10):106011, November 2024
<https://journals.aps.org/prd/abstract/10.1103/PhysRevD.110.106011>
2. Edward W. Kolb, Andrew J. Long, Evan McDonough, and Guillaume Payeur. Completely dark matter from rapid-turn multifield inflation. *Journal of High Energy Physics*, 2023(2):181, February 2023 [https://link.springer.com/article/10.1007/JHEP02\(2023\)181](https://link.springer.com/article/10.1007/JHEP02(2023)181)
1. Guillaume Payeur, Étienne Artigau, Laurence Perreault Levasseur, and René Doyon. Correlated read noise reduction in infrared arrays using deep learning. *The Astronomical Journal*, 163(6):292, may 2022
<https://iopscience.iop.org/article/10.3847/1538-3881/ac69d2>

Academic Awards & Scholarships

15. **NSERC Canada Graduate Scholarships — Doctoral program** Université de Montréal
Amount: 120 000\$ Fall 2025 - Summer 2027
14. **Dr & Mrs Milton Leong Fellowship** McGill University
Amount: 5 000\$ Fall 2024 - Winter 2025
13. **FRQNT Master's Training Scholarship** McGill University
Amount: 40 000\$ Fall 2023 - Summer 2025
12. **NSERC Canada Graduate Scholarship – Master's program** McGill University
Amount: 17 500\$ Fall 2023 - Winter 2024
11. **Lorne Trottier Fellowship** McGill University
Amount: 5 000\$ Fall 2023 - Winter 2024
10. **Trottier Space Institute Graduate Fellowship** McGill University
Amount: 2 000\$ Fall 2023 - Winter 2025
9. **First Class Honours in Mathematics and Physics** McGill University
Winter 2023
8. **Wing Hing Chang Scholarship in Science** McGill University
Amount: 800\$ Fall 2021 - Winter 2022
7. **NSERC Undergraduate Student Research Award** University of Victoria
Amount: 6 000\$ Summer 2021
6. **Dean's Honour List** McGill University
Fall 2020 - Winter 2021
5. **Bourse Hors UdeM** Université de Montréal
Amount: 4 000\$ Summer 2020
4. **Faculty of Science Scholarship** McGill University
Amount: 700\$ Fall 2020 - Winter 2021
3. **Dean's Honour List** McGill University
Fall 2019 - Winter 2020
2. **Dean's List** Champlain College
Winter 2018
1. **Dean's List** Champlain College
Fall 2018

Public Talks

4. **Do Observations Prefer Thawing Quintessence?** Montreal
Dark Side of the Universe 2025 2025
3. **Do Observations Prefer Thawing Quintessence?** Montreal
McGill HEP Theory Journal Club 2025
2. **Completely Dark Matter & the de Sitter Swampland Conjecture** Winnipeg
WITP Summer Symposium 2022
1. **Readout Noise & Machine Learning** Montreal
IREX End-of-Summer Presentations 2020

Teaching

Course Teaching assistant

Gave 1 course lecture

McGill - PHYS 362 Statistical Mechanics

Winter 2025

Course Teaching assistant

Gave 1 course lecture, and 6 tutorials

McGill - PHYS 346 Major Quantum Mechanics

Fall 2024

Course Teaching assistant

Gave 3 tutorials and 1 exam review session

McGill - PHYS 142 Electromagnetism and Optics

Winter 2024

Course Teaching assistant

Gave 1 course lecture and 4 tutorials

McGill - PHYS 251 Honours Classical Mechanics 1

Fall 2023

Other

Edith Engelberg Teaching Award

Classified as a finalist

McGill

2024-2025

Astromatic Hackaton

Classified in second place

Montreal

Summer 2022