

# Guillaume Payeur

Physics MSc Student at McGill University

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## About me

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I am a Master's student in physics at McGill University, working under the supervision of Robert Brandenberger and Evan McDonough. My research is at the intersection of theoretical cosmology and high energy physics. Previously I've also published research on applications of machine learning to physics. While I'm hardworking and committed to producing as much influential research as possible, I'm also an easy-going, cheerful and playful person.

## Degrees

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

## Publications

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4. Guillaume Payeur, Evan McDonough, and Robert Brandenberger. Do Observations Prefer Thawing Quintessence?, November 2024. arXiv:2411.13637 [astro-ph, physics:gr-qc, physics:hep-ph, physics:hep-th] <https://arxiv.org/abs/2411.13637>
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

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**NSERC Canada Graduate Scholarships — Doctoral program**  
*Amount: 120 000\$*

University of Montreal  
*Fall 2025 - Summer 2027*

**Dr & Mrs Milton Leong Fellowship**

*Amount: 5 000\$*

McGill University

*Fall 2024 - Winter 2025*

**FRQNT Master's Training Scholarship**

*Amount: 40 000\$*

McGill University

*Fall 2023 - Summer 2025*

**NSERC Canada Graduate Scholarship – Master's program**

*Amount: 17 500\$*

McGill University

*Fall 2023 - Winter 2024*

**Lorne Trottier Fellowship**

*Amount: 5 000\$*

McGill University

*Fall 2023 - Winter 2024*

**Trottier Space Institute Graduate Fellowship**

*Amount: 2 000\$*

McGill University

*Fall 2023 - Winter 2025*

**First Class Honours in Mathematics and Physics**

McGill University

*Winter 2023*

**Wing Hing Chang Scholarship in Science**

*Amount: 800\$*

McGill University

*Fall 2021 - Winter 2022*

**NSERC Undergraduate Student Research Award**

*Amount: 6 000\$*

University of Victoria

*Summer 2021*

**Dean's Honour List**

McGill University

*Fall 2020 - Winter 2021*

**Bourse Hors UdeM**

*Amount: 4 000\$*

University of Montreal

*Summer 2020*

**Faculty of Science Scholarship**

*Amount: 700\$*

McGill University

*Fall 2020 - Winter 2021*

**Dean's Honour List**

McGill University

*Fall 2019 - Winter 2020*

**Dean's List**

Champlain College

*Winter 2018*

**Dean's List**

Champlain College

*Fall 2018*

## Public Talks

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3. **Do Observations Prefer Thawing Quintessence?**

*McGill HEP Theory Journal Club*

Montreal

*Winter 2025*

2. **Completely Dark Matter & the de Sitter Swampland Conjecture**

*WITP Summer Symposium*

Winnipeg

*Summer 2022*

1. **Readout Noise & Machine Learning**

*IREX End-of-Summer Presentations*

Montreal

*Summer 2020*

## Teaching

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**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*

## Events

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**Astromatic 2022**  
*Classified in second place*

Montreal  
*Summer 2022*