

# Louis-Simon Guité

MASTER'S STUDENT IN SOLAR PHYSICS, UNIVERSITY OF MONTREAL

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## Education

### MSc in Astrophysics (Final GPA 4.3/4.3, Dean's Honor List)

UNIVERSITY OF MONTREAL

Thesis: Statistical and Observational Study of Sympathetic Solar Flares

Supervisors: Prof. Paul Charbonneau, Dr. Antoine Strugarek (CEA Paris-Saclay)

Montréal, Canada

2023 – 2025

### BSc in Physics (Final GPA 4.3/4.3)

UNIVERSITY OF MONTREAL

Montréal, Canada

2019 – 2022

### Collegial Studies in Natural Sciences (Average: 94%)

CÉGEP DE DRUMMONDVILLE

Drummondville, Canada

2017 – 2019

## Research Experience

### MSc Visiting Student, CEA Paris-Saclay

Supervisor: Dr. Antoine Strugarek

- Research stay working on the statistics of sympathetic solar flares using multiple instruments

Paris, France

2024

### Astrophysics Research Intern, University of Oxford

Supervisors: Prof. Martin Bureau & Dr. Johanna Hartke

- Establishing robust methods for detecting planetary nebulae in nearby galaxies using the SITELLE instrument on the Canada-France-Hawaii Telescope

Oxford, UK

2022

### Senior Thesis Project, University of Oslo – Rosseland Center for Solar Physics

Supervisors: Prof. Sven Wedemeyer & Dr. Ana Belén Griñón Marin

- On the dynamics of magnetic active regions on the solar surface using CRISP/SST spectro-polarimetric data

Remotely

2022

### Astrophysics Research Intern, University of Montreal

Supervisor: Prof. Julie Hlavacek-Larrondo

- Obtaining the first large-scale kinematic maps of the filamentary nebula around M87 using integral field spectroscopy data taken by the SITELLE instrument on the Canada-France-Hawaii Telescope

Montréal, Canada

2021

### Astrophysics Research Intern, University of Montreal

Supervisor: Prof. Julie Hlavacek-Larrondo

- Obtaining the first high-contrast images of candidate exoplanets around the X-ray binary RXJ 1744.7-2713
- 3 nights of remote imaging at the 10m telescope of the W.M. Keck Observatory

Montréal, Canada

2020

## Publications

### Published

**L-S. Guité**, P. Charbonneau, A. Strugarek. 2025. *Avalanching Together: A Model for Sympathetic Flaring*. Published in Solar Physics, DOI 10.1007/s11207-025-02501-4

**L-S. Guité**, A. Strugarek, P. Charbonneau. 2025. *Flaring together: A preferred angular separation between sympathetic flares on the Sun*. *Astronomy & Astrophysics*, DOI:10.1051/0004-6361/202452381

- A figure from this article was selected by *Astronomy & Astrophysics* as a **Featured Image** in Vol. 694 (February 2025)

- This article was selected by *Astronomy & Astrophysics* as a **Research Highlight**

- M. Prasow-Émond, J. Hlavacek-Larrondo, K. Fogarty, J. Rameau, D. Mawet, **L.-S. Guité** et al. 2022. *The First High-Contrast Images of X-Ray Binaries: Detection of Candidate Companions in the  $\gamma$ Cas Analog RX J1744.72713*. Published in The Astronomical Journal, DOI 10.3847/1538-3881/ac6d57
- T. Bégin, J. Hlavacek-Larrondo, C.L. Rhea, M. Gendron-Marsolais, B. McNamara, **L. Guité** et al. 2022. *Extended radio emission in the galaxy cluster MS 0735.6+7421 detected with the Karl G. Jansky Very Large array*. Published in MNRAS, DOI 10.1093/mnras/stac3526
- C.L. Rhea, J. Hlavacek-Larrondo, L. Rousseau-Nepton, B. Vigneron, **L.-S. Guité**. 2021. *LUCI: A Python package for SITELLE spectral analysis*. Published in RNAAS, DOI 10.3847/2515-5172/ac2517

## Academic Experience

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### ESA Academy Space Weather Training Course

Libin, Belgium

- Learn the basic principles of space weather monitoring, forecasting and modeling as well as its impacts on human infrastructures and technologies

2024

### Introduction to Astronomical Instrumentation Summer School

Dunlap Institute (Remotely)

- Learn the basic principles of radio, infrared, optical, and X-ray instrumentation, and learning the operation of detectors and spectrographs

2021

### Instrumentation & Observation training – Mont-Mégantic Observatory

Notre-Dame-des-Bois, Canada

- Maintenance of the 1.6m Mont-Mégantic Observatory telescope and operation of instruments (PESTO, CPAPIR, SPIOMM) during a 3-night observation run

2022

## Awards & Scholarships

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2025	<b>Best Master's student presentation award</b> , Center for Research in Astrophysics of Quebec (CRAQ)	
2024	<b>Student Excellence Scholarship</b> , University of Montreal	\$ 5,000
	<b>Student Mobility Grant</b> , University of Montreal	\$ 3,000
	<b>International Internship Scholarship</b> , Center for Research in Astrophysics of Quebec (CRAQ)	\$ 3,000
	<b>Student Mobility Grant</b> , Les Offices jeunesses internationales du Québec (LOJIQ)	\$ 800
	<b>Master's training scholarship</b> , Fonds de recherche du Québec - Nature et technologies (FRQNT)	\$ 20,000
2023	<b>Hydro-Québec Excellence Scholarship</b> , Hydro-Québec Foundation	\$ 10,000
	<b>Canada Graduate Research Scholarship - Master's program</b> , Natural Sciences and Engineering Research Council (NSERC)	\$ 17,500
2022	<b>Undergraduate Research Scholarship</b> , Institute for Data Valorization (IVADO)	\$ 7,500
	<b>Mitacs Globalink Research Scholarship</b> , Mitacs	\$ 6,000
	<b>Student Mobility Grant</b> , Les Offices jeunesses internationales du Québec (LOJIQ)	\$ 750
2021	<b>Undergraduate Research Scholarship</b> , Institute for Data Valorization (IVADO)	\$ 7,500
	<b>National Award of Canada</b> , International Astronomy & Astrophysics Competition (IAAC)	

2020	<b>Undergraduate Student Research Award</b> , Natural Sciences and Engineering Research Council (NSERC)	\$ 6,000
	<b>Undergraduate Research Grant Supplement</b> , Fonds de recherche du Québec - Nature et technologie (FRQNT)	\$ 2,000
	<b>National Award of Canada</b> , International Astronomy & Astrophysics Competition (IAAC)	
2019	<b>Departmental Scholarship</b> , Physics Department - University of Montreal	\$ 2,500
2017	<b>Academic Medal of Excellence of Canada</b> , Governor General of Canada	

## Presentations

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### TALKS

*From the Sun to Earth: The Effects of Solar Magnetism on Our Planet (Outreach talk).* Mont-Mégantic Popular Astronomy Festival, Notre-Dame-des-bois, July 2025

*The CRAQ calendar: Astrophysical research in pictures (Outreach talk).* Center for Research in Astrophysics of Quebec (CRAQ) Annual Meeting, St-Alexis-des-Monts, May 2025

*Synchronized Eruptions: Exploring Sympathetic Solar Flares.* Center for Research in Astrophysics of Quebec (CRAQ) Annual Meeting, St-Alexis-des-Monts, May 2025

- **Best Master's student presentation award**

*Synchronized Eruptions: Exploring Sympathetic Solar Flares.* Scientific Seminars, Collège Jean-de-Brébeuf, Montréal, April 2025

*Flaring together: A preferred angular separation between sympathetic solar flares.* SDO 2025 Science Workshop: A Gathering of the Helio-hive, Boulder Colorado, February 2025

*Flaring together: A preferred angular separation between sympathetic flares on the Sun.* Canadian Solar Workshop, Station de biologie des Laurentides, QC, November 2024

*Statistics of Sympathetic Flares in the Solar Orbiter era.* STIX Team Meeting, Paris, June 2024

*Measuring the kinematics and physical properties of plasma inside a solar active region using approximations to the radiative transfer equation .* Senior Thesis Talk, Rosseland Center for Solar Physics-University of Oslo, July 2022

*Characterization of Planetary Nebulae in Nearby Galaxies using SITELLE.* Conference of summer interns, University of Montreal's Physics Department, August 2022

*The First Large Scale Kinematics Maps of the Filamentary Nebula around M87.* Conference of summer interns, University of Montreal's Physics Department, August 2021.

*The First High-Contrast Images of near X-ray binaries.* Conference of summer interns, University of Montreal's Physics Department, August 2020

## POSTERS

*The First High-Contrast Observations of X-ray binaries: the case of the  $\gamma$  Cas analog RXJ 1744.7-2713.* Keck Science Meeting, virtual, September 2020

*The First High-Contrast Images of near X-ray binaries.* CASCA AGM, virtual, May 2020

## Teaching & Tutoring Experience \_\_\_\_\_

### Teaching Assistant

Université de Montréal

- Astronomy & Astrophysics (2025)
- Electricity & Optics (2021-2022)

### Tutor (Physics and mathematics)

- SOSprof (2025)
- Cégep de Drummondville (2019)

## Professional Experience \_\_\_\_\_

### Scientific & Astronomy Outreach – Mont-Mégantic Observatory & ASTROLab

Notre-Dame-des-Bois, Canada

- Interacting with the public through astronomy related activities
- Guided visits of the Observatoire du Mont-Mégantic and its 1.6m telescope
- Supervised and operated the telescope during public observation nights

2019

## Outreach \_\_\_\_\_

### Research highlight on my Master's thesis project

2025

- CEA Paris-Saclay website  
[https://irfu.cea.fr/en/Phoce/Vie\\_des\\_labos/Ast/ast.php?t=fait\\_marquant&id\\_ast=5352](https://irfu.cea.fr/en/Phoce/Vie_des_labos/Ast/ast.php?t=fait_marquant&id_ast=5352)

### Presenter, Astrophysics Discovery Day

2024 & 2025

- Outreach presentation to college students on my Master's research in solar physics

### Volunteer, Astronomy on Tap Montreal

2024

- Help the organization for the smooth running of the astronomy related talks and quizzes with the public

### Invited Collaborator, Researcher's Night

2023

- Exhibition of my astrophotography portfolio to engage and inspire the public, at the Planétarium de Montréal

## Extracurricular activities \_\_\_\_\_

### Project Manager, Center for Research in Astrophysics of Quebec Annual Calendar

2024 & 2025

- Managed planning, coordination, and production of the CRAQ's annual calendar (120+ hour project)
- Astronomy calendar sent to deputies, funding agencies and students to showcase the research conducted in astrophysics across Quebec
- <https://www.astro.umontreal.ca/~opiommm/Calendars/2024.html>

### Invited Student, Roundtable discussion

2023

- Discuss student research funding with NSERC/CRSNG President

**Student Seminar Coordinator**

2021

- Organized weekly seminars for summer interns of the University of Montreal's Physics Student Association

**University of Montreal Cross-country and Track Team Member**

2019 – 2025

- Balanced 12+ hours per week training with full academic course load.
- USports Academic All-Canadians Award (2019, 2021, 2022 & 2023)
- Competed at the Canadian University Cross-Country Championships, Halifax (2022) & London, Ontario (2023)