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**Christopher Monaghan**  
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**Department of Earth, Planetary, and Space Science**  
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## **Education**

**University of California, Los Angeles** ..... March 2026 - Present  
PhD in Planetary Science  
Research Supervisor: Professor Björn Benneke

**University of Montreal** ..... May 2024 - April 2026  
M.Sc. in Physics  
GPA: 4.3/4.3  
Research Supervisor: Professor Björn Benneke

**University of Calgary** ..... Sept. 2019 - May 2023  
B.Sc. Honours in Astrophysics, First Class  
GPA: 3.94/4.00  
Dean's List: 2019-2020, 2020-2021, 2021-2022

## **Academic Research**

**M.Sc. Thesis** ..... May 2024 - April 2026  
*University of Montreal*  
*Supervisor: Professor Björn Benneke*

Observations of thermal emissions from rocky exoplanets using the James Webb Space Telescope. Analysis of infrared radiation emitted by exoplanets using observations of their secondary eclipses. Investigation of closely orbiting lava worlds and gas giants. Computational analysis of exoplanet composition, atmospheric structure, and climate.

**Undergraduate Honours Research Thesis** ..... Sept. 2022 - April 2023  
*University of Calgary*  
*Supervisor: Dr. Rene Plume*

Studying the evolution of chemical abundances surrounding high-mass protostars. Comparison between the evolutionary cycles of complex organics and warm carbon chain molecules from hot corino and warm carbon chain chemistry, respectively. Chemical modelling of known sources using pNautilus and Python, determination of carbon chain molecules in high mass star forming regions and evolutionary model for IRAS-20126. Research contributed to Freeman et al. (2023).

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**PURE Research Studentship** ..... May 2022 - Jan. 2023  
*University of Calgary*

*Supervisor: Dr. Denis Leahy*

Analysis and Survey of UV-emitting Supernova Remnants in the M31 Galaxy. Computational analysis of source luminosity using a variety of custom written python scripts. Spectral comparison to known Milky Way sources via line flux examinations. Research contributed to Leahy et al. (2023).

## **Publications**

**Monaghan, C.,** Yee, S. W., Benneke, B., et al. 2025. “NIRSpec G395M Eclipse of WASP-107 b reveals a low eccentricity”, *in preparation*.

Connors, N. J., **Monaghan, C.,** Benneke, B., & Dang, L. 2025. “Thick CO<sub>2</sub> Atmosphere Unlikely For Potential Exo-Venus GJ 3929 b”, *in preparation*.

**Monaghan, C.,** Connors, N. J., Benneke, B., Coulombe, L. P., & Roy, P. A. 2025. “Uniform Reinterpretation of Rocky Exoplanet Secondary Eclipse Observations and the Impact of Stellar and Orbital Uncertainties”, *The Astronomical Journal*, 171, 5. <https://doi.org/10.3847/1538-3881/ae5ba5>

Coulombe, L. P., and 27 others including **Monaghan, C.,** 2025. “Possible presence of volatiles on the warm super-Earth TOI-270 b”, *The Astronomical Journal*, 170, 4. <https://doi.org/10.3847/1538-3881/adfc6a>

Connors, N. J., **Monaghan, C.,** Benneke, B., & Dang, L. 2025. “Uniform Reanalysis of JWST MIRI 15  $\mu$ m Exoplanet Eclipse Observations Using Frame-normalized Principal Component Analysis”, *The Astrophysical Journal Letters*, 989, L11. <https://doi.org/10.3847/2041-8213/adee0d>

**Monaghan, C.,** Roy, P. A., Benneke, B., et al. 2024. “Low 4.5  $\mu$ m Dayside Emission Disfavours a Dark Bare-Rock scenario for the Hot Super-Earth TOI-431 b”, *The Astronomical Journal*, 169, 239. <https://doi.org/10.3847/1538-3881/adbe75>

Freeman, O., Bottinelli, S., Plume, R., Caux, E., **Monaghan, C.,** & Mookerjee, B. 2023. “Parsec scales of carbon chain and complex organic molecules in AFGL 2591 and IRAS 20126”, *Astronomy & Astrophysics*, 678, A18. <https://doi.org/10.1051/0004-6361/202347263>

Leahy, D., **Monaghan, C.,** & Ranasinghe, S. 2023. “Discovery of 20 UV Emitting SNRs in M31 with UVIT”, *The Astronomical Journal*, 165, 116. <https://doi.org/10.3847/1538-3881/acb68d>

## **Awards & Grants**

**Canadian Student Participation in Space Conferences and Training Events Grant** ..... CSA, 2025, \$1,550  
**Canadian Graduate Scholarship - Master’s Program** ..... NSERC, 2025, \$27,000  
**FRQNT Master’s Research Scholarship** ..... FRQ, 2025, (declined), \$20,000  
**FESP Excellence Scholarship in the Department of Physics** ..... University of Montreal, 2024, \$10,000  
**2024 Centennial Scholarship** ..... University of Montreal, 2024, \$10,000  
**Jean-Marc Lauzon Excellence Grant** ..... University of Montreal, 2024, \$5,000  
**Louise McKinney Post-Secondary Scholarship** ..... University of Calgary, 2022, \$2,500  
**NSERC Undergraduate Student Research Award** ..... University of Calgary, 2022, (declined), \$7,500  
**Program for Undergraduate Research Experience Award** ..... University of Calgary, 2022, \$7,500  
**Jason Lang Scholarship** ..... University of Calgary, 2021, \$1,000  
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| <b>President's Admission Scholarship</b> .....  | University of Calgary, 2019, \$5,000             |
| <b>Copp Family Scholarship</b> .....            | University of Calgary, 2019, \$4,190             |
| <b>Gold Standard Entrance Scholarship</b> ..... | University of Alberta, 2019, (declined), \$6,000 |
| <b>Alexander Rutherford Scholarship</b> .....   | Government of Alberta, 2019, \$2,500             |
| <b>Excellence in Mathematics</b> .....          | Westmount Charter High School, 2019              |

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## ***Seminars & Workshops***

**Rocky Worlds 4** ..... January 2026  
*University of Groningen*  
Presenter (Talk) & Attendee

**ExoCLIMES VII Conference** ..... July 2025  
*Université de Montréal*  
Presenter (Poster) & Attendee

**ExoSLAM Workshop** ..... July 2025  
*Université de Montréal*  
Attendee

**AstroQuebec Annual Seminar** ..... May 2025  
Presenter (Talk) & Attendee

**2023 Sagan Summer Workshop - Characterizing Exoplanet Atmospheres** ..... July 2023  
*California Institute of Technology*  
Attendee (Remote)

**Summer 2023 Online Lecture Series in Particle & Condensed Matter Physics** ..... July 2023  
*University of Tennessee*  
Presenter (Talk) & Attendee (Remote)

**CaNoRock XXI Exchange Program** ..... March 2023 - April 2023  
*Andøya Space Center, Norway*

Hands on experience in sounding rocket and payload instrument design in an active launch site. Construction and testing of magnetometer sensor equipment. Wiring and connection to rocket payload. Data collection and analysis in Python. Effective communication and teamwork necessary for successful payload design and launch.

## ***Relevant Work Experience***

**High School Chemistry Laboratory Technician** ..... Aug. 2019 - July 2023  
*Westmount Charter High School*

Development and execution of various laboratory procedures in a team-oriented environment. Completion of goals within time constraints. Flexibility to adhere to changes in plans if necessary. Organization of lab stations and handling of various chemical compounds. Planning of future laboratory procedures, and ensuring that all procedures are safe and effective for a learning environment.