Jared Splinter

PhD Candidate

Jared Splinter
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Education

McGill University, Montréal, QC, Canada
M.Sc. → Ph.D., Earth & Planetary Sciences *(September 2021 -)*

- Supervisor: Dr. Nicolas Cowan
- Fast- tracked from MSc to PhD in September 2023
- Cumulative GPA: 4.0/4.0

University of British Columbia, Vancouver, BC, Canada
Master of Data Science, MDS *(2021)*

- Capstone Project with Vancouver Whitecaps FC (MLS) that used Machine Learning algorithms to predict player performance.
- 92.4% Cumulative Average

University of British Columbia, Vancouver, BC, Canada
B.Sc., Astronomy *(2019)*

- Undergraduate Thesis Title: *The Effects of Outer Giant Planets on a Primordial System of Tightly Packed Inner Planets (STIP)*
    - Supervisor: Dr. Aaron Boley
- Dean's Honour List in Final Year

Experience

McGill University | Department of Earth & Planetary Sciences
Teaching Assistant | *September 2021 - Present*

- Assisted with 7 EPSC courses at McGill (currently acting as Teaching Assistant for 8th course
- Lead and manage tutorials of 20+ students, helping to teach course material in a focused manner

University of British Columbia | Department of Medicine
Research Assistant/Technician | *October 2019 - September 2020*
Part-time Lab Volunteer | *May 2018 - September 2018*

- Prepared scripts to run mcDESPOT analysis (multicomponent-driven equilibrium single pulse observation of T1 and T2) to estimate myelin water fraction.
- Assist patients/controls as they obtain MRI scans & perform cognitive testing
- Assist with clinical tasks by interacting with patients to obtain consent to participate in studies
    - Coordinate with doctors/neurologists and other researchers

University of British Columbia | Department of Physics & Astronomy
Part-time Lab Volunteer | *September 2018 - September 2019*

- Used Rebound & ReboundX software in Python to create simulations investigating planetary dynamics of Systems of Tightly Packed Inner Planets (STIPs) in presence of Outer Planets
    - Continuation of Undergraduate Thesis Topic

University of British Columbia | Department of Psychology
Research Assistant/Technician | *October 2015 - September 2019*
Part-time Lab Volunteer | *August 2012-August 2013, July 2014- April 2015*

- Wrote image analysis program to automate cell counting in images with MATLAB
- Worked under the WorkLearn Program; Microscopy, Animal Care, Video Analysis, Data Collection and Entry, Inventory, Basic Histology, Tissue and Chemical Preparation.

Publications

Google Scholar | NASA ADS

Supervised Undergraduate students

Refereed Publications:

1. **Splinter, J.,** Coulombe, L-P., Frazier, R., Cowan, N.B., … (**incl Collins, S.**) et al. (2025**)**. Precise Constraints on WASP-121 b's Energy Budget from its JWST NIRISS/SOSS Phase Curve. *The Astronomical Journal*, *170(6)*, *323*.
2. Allart, R., Coulombe, L. P., Carteret, Y., **Splinter, J.**, Dang, L., Bourrier, V., ... & Turner, J. D. (2025). A complex structure of escaping helium spanning more than half the orbit of the ultra-hot Jupiter WASP-121 b. *Nature Communications*, *16*(1), 10822.
3. Pelletier, S., Coulombe, L. P., **Splinter, J.**, Benneke, B., MacDonald, R. J., Lafrenière, D., … & Turner, J. D. (**Accepted to A&A**). Enriched volatiles and refractories but deficient titanium on the dayside atmosphere of WASP-121b revealed by JWST/NIRISS. *arXiv e-prints*, arXiv-2508.
4. Krishnamurthy, V., Carteret, Y., Piaulet-Ghorayeb, C., **Splinter, J.**, Doshi, D., Radica, M., ... & Turner, J. D. (2025). Continuous helium absorption from the leading and trailing tails of WASP-107b. *Nature Astronomy.*
5. Sikora, J. T., Rowe, J. F., **Splinter, J.**, Barat, S., Dang, L., Cowan, N. B., ... & Quintana, E. V. (2024). Seasonal Changes in the Atmosphere of HD 80606b Observed with JWST's NIRSpec/G395H. *The Astronomical Journal*, *170(2)*, *105*.
6. Darveau-Bernier, A., Albert, L., Talens, G. J., Lafrenière, D., Radica, M., Doyon, R., ..., **Splinter JEJ** & Turner, J. D. (2022). ATOCA: an algorithm to treat order contamination. Application to the NIRISS SOSS mode. *Publications of the Astronomical Society of the Pacific*, *134*(1039), 094502.
7. Yagi S, **Splinter JEJ**, Tai D, Wong S, Wen Y, & Galea LAM. (2020). Sex differences in maturation and attrition of adult neurogenesis in the hippocampus. *Eneuro*, *7*(4), ENEURO.0468-19.2020.
8. Duarte-Guterman, P, Lieblich,SE, Qiu W, **Splinter JEJ**, Go KA, Casanueva-Reimon L, & Galea L (2020). Oxytocin has sex-specific effects on social behaviour and hypothalamic oxytocin immunoreactive cells but not hippocampal neurogenesis in adult rats. *Hormones and behavior*, *122*, 104734.

Manuscripts submitted and Under Review:

1. Ashtari, R., **Collins, S.**, **Splinter, J.**, Stevenson, K. B., Parmentier, V., Brande, J., ... & Zhang, X. (*Under Review*). Heat Reveals What Clouds Conceal: Global Carbon & Longitudinally Asymmetric Chemistry on LTT 9779 b. *arXiv preprint arXiv:2510.04863*.
2. Lim, O., Doyon, Rene., MacDonald R.J. … **(incl Splinter, J.)** et al. (Under

Review). Atmospheric Reconnaissance of TRAPPIST-1 f with JWST NIRISS SOSS: No Evidence for the Transit Light Source Effect.

3. Frazier, R.C., Rauscher, E., Kennedy, T.D, **Splinter, J.** et al. (*Under Review)* Interpretation of the WASP-121 b NIRISS Spectroscopic Phase Curve with General Circulation Models.

Awards

- **Leroy Memorial Fellowship - $6,200** *2025-2026*
  Awarded to an outstanding student based on academic record in the department of Earth and Planetary Sciences.
- **Canadian Space Agency - Canadian Student Participation in Space Conferences and Training Events Grant - $1600** *2025*
  Grant awarded to Canadian students to attend a conference or workshop in space science
- **Alexander A. McGregor Fellowship - $14,000** *2024-2025*
  Awarded to an outstanding student based on academic record in the department of Earth and Planetary Sciences.
- **J.B. Lynch Fellowship - $15,000** *2023-2024*
  Awarded to an outstanding student in the department of Earth and Planetary Sciences.
- **John F. Prochnau Fellowship - $500** *2022-2023*
  Awarded to one or more outstanding graduate students on basis of academic merit by the department of Earth and Planetary Sciences

Successful Observing Proposals

JWST Cycle 2 - *Panchromatic Phase Curve of the Highest-S/N Hot Neptune.*
24.98 hours, PI: Ian Crossfield, Co-I includes J Splinter

Conference Abstracts & Workshops

First-Author Presentations

1. **Splinter JEJ**, Coumbe L-P, Frazier R, Cowan N, & the NEAT GTO *Atmospheric Heat Transport in WASP-121b using a NIRISS/SOSS Phase Curve.* ExoClimes VII. Montreal, Canada. July 2025. Poster.
2. **Splinter JEJ**, Cowan N, *Constraining the Energy Budget of the Ultra-hot Jupiter WASP-121b using a NIRISS/SOSS Phase Curve.* Centre de recherche en astrophysique du Québec Annual Meeting. St-Alexis-des-Monts, Canada. May 2025. Presentation.
3. **Splinter JEJ**, Cowan N, *A First Look at the JWST Phase Curve of WASP-121b with NIRISS/SOSS.* Centre de recherche en astrophysique du Québec Annual Meeting. St-Alexis-des-Monts, Canada. May 2024. Presentation.
4. **Splinter JEJ**, Cowan N, Doshi D. *Performance of Longitudinally Resolved Spectral Retrieval for Future Exoplanet Observations.* Exoclimes VI. Exeter, UK. June 2023. Poster.
5. **Splinter JEJ**, Cowan N, *Using Longitudinally Resolved Spectra on Exoplanet Phase Curves.* Centre de recherche en astrophysique du Québec Annual Meeting. St-Alexis-des-Monts, Canada. May 2023. Presentation.
6. **Splinter JEJ**, Yagi S, Puri T, Galea LAM. *Creating automated cell counting programs to uncover sex differences in the neural stem cell population in the dentate gyrus of adult Sprague-Dawley rats.* International Behavioral Neuroscience Society. Cairns, Australia. June 2019. Poster.

Contributed Abstracts

1. Vavasour I.M, Johnson P, Abel S, Ristow S, **Splinter JEJ**, Laule C, Tam R, Li D.K, Ackermans N, Schabas A.J., Chan, J., *Myelin Water Imaging Demonstrates Myelin Loss in Multiple Sclerosis Normal Appearing White Matter over Two Years.* International Society for Magnetic Resonance in Medicine Annual Meeting. May 2021
2. Qiu, W, Minielly N, Go K, Black, N, **Splinter JEJ**, Duarte-Guterman P, Galea LAM. *Pre-adolescent Oxytocin Treatment increases social investigation dependent on Sex and Maternal Fluoxetine Exposure*. Parental Brain Conference, Toronto, Canada. 2018.
3. Duarte-Guterman P, Qiu W, Go K, Casanueva L, **Splinter JEJ**, Perez E, Galea LAM. *Oxytocin increases social behaviour despite sex-dependent effects on adult hippocampal neurogenesis*. International Congress of Neuroendocrinology. Toronto, Canada. 2018.

Workshops Attended

1. **ExoSLAM Summer School** *(2023)* - fundamentals of atmospheres and climates on exoplanets for early career researchers (before ExoClimes VI conference)
2. **Ariel Fréjus school** *(2025)* - Transits, eclipses, and phase curves for probing the atmospheres of hot gaseous planets. Part of the Ariel summer school series (website).
3. **ExoSLAM II Summer School** (2025) - 'From Light to Knowledge' Observational techniques in exoplanet science from low-to-high resolution and machine learning. **(also an organizer/lecturer)** (website)
4. **Ringberg - Signal in the Noise** (2025) - Understanding noise sources from *James Webb Space Telescope* data from instrumentation systematics to light curve fitting

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Services & Committees

ExoClimes VII - Local Organizing Committee | Conference Series
VP Communications | *October 2023 - July 2025*
- Communication team with wider community, leading conference Social Media accounts

VP ExoSLAM II Summer School| *October 2023 - July 2025*
- Organizing Committee for 2nd ExoSLAM summer school series

VP Food and Dining | *June 2024 - July 2025*
VP Volunteer Coordinator| *June 2025-July 2025*
- 1 of 2 coordinators for ~20 volunteers for the conference.

Astronomy on Tap
Speaker Hunter | *September 2024 - Present*
- Organizing team to bring monthly astronomy presentations to the public at a local bar, acting to invite potential speakers. Website

Adams Club | McGill - Earth & Planetary Sciences Graduate Student Society
Graduate Research Day Chair| *April 2025*
- Chaired session during department Research Day

Department Rep| *September 2024 - Present*
- Graduate student representative to the department of Earth and Planetary Sciences

Sustainability Committee| *September 2023- June 2024*
- On committee to find ways to make department more sustainable

Grad Trip Organizer| *September 2023*
- Organized camping and canoeing trip for 19 graduate students in the department for 2 nights.

Social Rep| *September 2022- June 2023*

- Organized and ran 15+ social events for graduate students in the department of Earth & Planetary Sciences

UBC Astronomy Club | University of British Columbia

Social Media Coordinator | *September 2017- September 2018*

- Managed social media of one of largest clubs at UBC
- Assisted with organizing various events
- Started a series called "Space Sundays" to share astronomy facts on Sunday. The series continues to this day.

Student Research Advising

Sean Collins *(undergrad) - UBC | 2025*

- Energy Budget of LTT 9779b JWST NIRSpec Phase Curve (ADS link)

Teaching Roles

ExoSLAM II Summer School Lecture | *July 2025*

Teaching Assistant | McGill University | *September 2021 - Present*

Public Outreach

Discover the Universe - In an Astronomer's Shoes: Meet Canadian Astrophysicists *June 2025*

Part of a video series talking about my experience proposing for JWST time to high school students: (Youtube link)

Public AstroNight - "Planets Near and Far" *MSI/AstroMcGill Public Talk*, 28-Sep-2022 Public Talk and Q&A. Panelists: Prof. Eve Lee (MSI/McGill Physics), Dr. Thomas Navarro (MSI/McGill EPS), **Jared Splinter** (MSI/McGill EPS) (Youtube link)

McGill Media Quote - Experts: Canadian astronomers set to join Ariel space mission - McGill University

Wandering Astronomer at McGill Eclipse Fair - see news report for the total eclipse on April 8th, 2024! News Report

McGill Space Explorers - Expert Volunteer that send Physics students to local elementary schools to teach modules in Physics

Astronomy on Tap - Volunteer at events interacting with the public

24 Hours of Science 2025 - Volunteer at 24 hours of Science at McGill presenting physics modules to kids

Skills

Proficient in Python, R, and MATLAB. Possess extensive expertise in Data Science, encompassing but not limited to Machine Learning, Data Structures, Workflow, Statistics, and Data Visualization.