

Nicolas Cowan | Associate Professor | McGill University

Tier 2 Canada Research Chair in Planetary Climate

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Canada

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[Research Website](#)

Employment & Education

- **McGill University**, Montréal, QC
Associate Professor, Physics and Earth & Planetary Sciences (6/2019–)
Assistant Professor, Physics and Earth & Planetary Sciences (8/2015–5/2019)
- **Space Science Institute**, Boulder, CO
Senior Research Scientist (7/2015–12/2015)
- **Amherst College**, Amherst, MA
Assistant Professor, Physics & Astronomy (7/2014–6/2015)
- **Northwestern University**, Evanston, IL
CIERA Postdoctoral Fellow, Physics & Astronomy (9/2010–8/2014)
Research Assistant Professor, Earth & Planetary Sciences (12/2012–8/2014)
- **University of Washington**, Seattle, WA
Research Associate, Astronomy (9/2009–8/2010)
Ph.D. Astronomy, w/Certificate in Astrobiology 12/2009
- **McGill University**, Montréal, QC
B.Sc. Physics w/First Class Honours, 2/2004

Awards & Honours

- Arthur B. McDonald Fellow (2023–2025)
- Canadian Association of Physicists Lecturer (2025)
- College of New Scholars, Royal Society of Canada (2022–2029)
- Tier 2 Canada Research Chair in Planetary Climate (2019–2029)
- Heising-Simons Scialog Fellow: Signatures of Life in the Universe (2021, 2022)
- Finaliste du Prix du Québec pour la Relève scientifique (2021)
- Canadian Astronomical Society's Harvey B. Richer Gold Medal (2019)
- Kavli Frontiers Fellow (2013, 2015)
- CIERA Postdoctoral Fellowship (2010–2014)
- NASA Group Achievement Award for EPOXI Mission (2010)
- NSERC Postgraduate Scholarship—Doctoral (2006–2009)
- FRQNT Master's Scholarship (2004–2006)

Instrument Planning & Leadership

- Ariel, ESA's approved and adopted M4 mission (700M €) scheduled to launch in 2029.
→ Canadian Co-PI and member of Ariel Science Team (2023–)
→ Member of Ariel Consortium (2018–)

- Near Infrared Planet Searcher (NIRPS) on 3.6 m telescope at La Silla, Chile
→ Member of Science Team (2021–)
- SpectroPolarimètre Infra-Rouge (SPIRou) on Canada–France–Hawaii Telescope
→ Canadian lead of atmospheric characterization for PLANETS (2024–)
→ Member of Science Legacy Survey (2018–2022)
- James Webb Space Telescope’s Near Infrared Imager and Slitless Spectrograph (JWST/NIRISS)
→ Transiting Planet Working Group (2016–)
- Habitable Worlds Observatory (planned NASA flagship for 2040’s)
→ Steering Committee for Exoplanet Characterization Working Group (2024)
- Extrasolar Planet Polarimetry Experiment (ÉPPÉ), CSA Microsat Concept
→ Science Co-PI (2018–2019)
- Large UV–Visible–Infrared telescope (LUVOIR), NASA flagship mission concept
→ CSA representative on Science and Technology Definition Team (2016–2020)

Funding

- Tier 2 Canada Research Chair (2024–2029): \$500,000 for 1 investigator
Planetary Climate
- Heising-Simons Foundation unsolicited proposal (2024–2026): \$60,000 USD for 2 investigators
Radiant Beginnings: The Impact of Solar UV on the Evolution of Life
- CSA James Webb Space Telescope GO2 (2023–2025): \$50,000 for 1 investigator
Panchromatic Phase Curve of the Highest-S/N Hot Neptune
- CSA James Webb Space Telescope GO2 (2023–2025): \$50,000 for 1 investigator
Exometeorology: Weather on an Isolated World Beyond Our Own
- CSA James Webb Space Telescope GO2 (2023–2025): \$50,000 for 2 investigators
Dancing 1–14 micron spectra to solve the cloudy and chemical puzzle of brown dwarf variability
- Arthur B. McDonald Fellowship (2023–2025): \$250,000 for 1 investigator
Atmospheres and Climates of Exoplanets
- Royal Society International Exchange (2023–2025): £11,930 for 2 investigators
McGill-Exeter Exoplanet Collaboration (MEEC)
- Heising-Simons Scialog (2022–2024): \$50,000 USD for 1 investigator
Volatile Reservoirs and the Habitability of M-Earths
- CSA James Webb Space Telescope GO1 (2022–2024): \$30,000 for 1 investigator
A Hell of a Phase Curve: Mapping the Surface and Atmosphere of a Lava Planet
- NSERC Discovery Grant (2021–2026): \$375,000 for 1 investigator
The Surfaces and Atmospheres of Exoplanets
- IAU Office of Astronomy for Development (2019–2020): €5000 for education and outreach
Astronomy in Indigenous Communities
- Tier 2 Canada Research Chair (2019–2024): \$600,000 for 1 investigator
Planetary Climate
- FRQNT Équipe (2018–2021): \$212,000 for 4 investigators
Caractérisation d’atmosphères d’exoplanètes avec le télescope spatial James Webb
- FRQNT Regroupement Stratégique (2017–2023): \$2,598,000 for 25 investigators
Centre the Recherche en Astrophysique du Québec (CRAQ)

- NSERC Discovery Grant (2016–2021): \$135,000 for 1 investigator
Observing the Atmospheres and Surfaces of Earth Analogs
- NSERC CREATE (2016–2022): \$1,650,000 for 10 investigators
Technologies for Exo-Planetary Science (TEPS)
- McGill Start-Up Funds (2015–2020): \$150,000 for 1 investigator
McGill Exoplanet Characterization Alliance (MEChA)
- CSA Space Exploration Concept Study (2018–2019): \$175,000 for 6 investigators
Extrasolar Planet Polarimetry Explorer (ÉPPÉ)
- FRQNT Nouveau Chercheur (2017–2019): \$40,000 for 1 investigator
The Climate of Short-Period Planets: Clouds and Temperature Gradients

International & National Service

- Hubble Space Telescope Allocation Committee (2025)
→ Vice Chair of Panel on Exoplanet and Planet Formation
→ Member of Executive Committee
- Comité d'évaluation pour bourses doctorales du Fond de recherche du Québec (2024–)
- NSERC Physics Evaluation Group
→ Alternate Chair for Astrophysics (2025)
→ Member (2021–)
- Centre de recherche en astrophysique du Québec (CRAQ)
→ Conseil Scientifique et de Direction (2023–)
→ Comité pour l'équité, la diversité & l'inclusion (2023–)
- Institut de recherche sur les exoplanètes (iREx)
→ Conseil Scientifique (2018–)
- Time Allocation Committees: Hubble Space Telescope, Spitzer Space Telescope, CanTAC (Gemini Telescopes and Canada-France-Hawaii Telescope)
- Reviewer: Austrian Science Fund, CanTAC, Cottrell Scholar Award, CRC Press, European Research Council, FWO Pegasus, NASA ROSES/PATM, NASA Exoplanet Research Program, NASA Interdisciplinary Consortia for Astrobiology Research, NSERC Discovery Grant (Geosciences and Physics), NSERC Steacie Fellowship, STFC Astronomy Grants Panel, National Research Council of Canada
- Referee: Astronomy & Astrophysics (A&A), A&A Letters, Astrophysical Journal (ApJ), ApJ Letters, Astrobiology, Experimental Astronomy, Icarus, IEEE Spectrum, Journal of Geophysical Research, Monthly Notices of the Royal Astronomical Society (MNRAS), MNRAS Letters, Nature, Nature Astronomy, Publications of the Astronomical Society of the Pacific, Space Science Series
- Canadian Space Agency's Strategic Planning Exercise (2022–2023)
→ Co-Investigator for Astrobiology Topical Team
→ Co-Investigator for Exoplanet Astronomy Topical Team
→ Co-Investigator for Planetary Atmospheres Topical Team
- Association of Canadian Universities for Research in Astronomy (ACURA)
→ Vice Chair of Board (2021–2022)
→ Member of Board (2019–2022)

- NSERC CREATE program *Technologies for Exo-Planetary Sciences*
→ Deputy Director (2018–2023)
→ Acting Director (2019)
- Canadian Time Allocation Committee (CanTAC)
→ Chair of Galactic Panel (2020–2021)
→ Member of Galactic Panel (2018–2021)
- Comité d'évaluation interdisciplinaire du Fond de recherche du Québec (2018–2021)
- Hubble Space Telescope – Transiting Exoplanet Survey Satellite Advisory Committee (2019)
- Moderator of arXiv astro-ph Earth and Planetary category (2016–2018)
- Undergraduate Fellowships Committee, Institute for Research on Exoplanets (2017–2018)
- Seminar Coordinator for TEPS CREATE Program (2015–2018)
- ACURA-CASCA Thirty Meter Telescope Alternative Site Committee (2016)
- Consultant for Rio Tinto Alcan Planetarium Exo Show (2016)
- Canadian Space Agency's *Origins* and *Astrobiology* Topical Teams
- Hubble Exoplanet Advisory Committee (2015–2016)
- Executive Committee of the NASA Exoplanet Program Analysis Group (2013–2016)
→ Chair of ExoPAG SAG-X: *Exoplanet Atmospheres with JWST and Beyond* (2013–2015)

Conference Organizing

- SOC for *Exoplanets VI* (Porto, PT, 2026)
- SOC for *Ariel Summer School IV* (Fréjus, FR, 2025)
- Lead Organizer, Workshop on Fermi's Paradox (Montreal, QC, 2024)
- Co-Organizer, Rencontre annuelle du CRAQ (Saint-Alexis-des-Monts, QC, 2024)
- SOC for *Extreme Solar Systems V*, (Christchurch, New Zealand, 2024)
- SOC for 5th Shaw–IAU Workshop on Astronomy for Education (2023)
- *ExoClimes* Steering Committee (2015–2022)
- SOC for *Extreme Solar Systems IV* (Reykjavik, Iceland, 2019)
- SOC for *Exoclimes V* (Oxford, UK, 2019)
- Co-Chair, *Canadian Astronomical Society Meeting 2019* (Montréal, QC)
- Co-Organizer, *Multi-dimensional characterization of distant worlds 2018* (Ann Arbor, MI)
- SOC for CRAQ 2017 Summer School: *Exoplanet Atmospheres* (Montréal, QC)
- Chair of *ExoClimes IV* (Squamish, BC, 2016)
- Co-Convener, “Mapping Other Worlds” at *Pathways to Habitable Planets II* (Bern, CH)
- SOC of *ExoClimes III* (Davos, CH, 2014)
- Chair of *ExoClimes II* (Aspen, CO, 2012)
- Co-Convener, “The Geoscience of Exoplanets” at *AGU 2011* (San Francisco, CA)
- SOC for *Future of Astronomy Conference 2011* (Evanston, IL)
- LOC for *Astrobiology Graduate Student Conference 2009* (Seattle, WA)

McGill Teaching

Table 1 summarizes all of my teaching at McGill to date.

Table 1. McGill Teaching and Student Evaluations

| Course Number | Title | Semester | Enrollment | Excellent Course | Excellent Teacher |
|---------------|---------------------|----------|-----------------|---------------------------|---------------------------|
| EPSC/ANAT-182 | Astrobiology | W2016 | 136 | 3.9(1.1) /4.0(0.1) | 4.1(1.2) /4.3(0.3) |
| PHYS-641 | Obs. Astrophysics | F2016 | 10 | 4.2(0.8) /4.0(0.5) | 4.4(0.9) /4.2(0.5) |
| EPSC/PHYS-186 | Astrobiology | W2017 | 67 | 4.3(1.0) /4.1(0.4) | 4.6(0.6) /4.3(0.5) |
| ATOC/PHYS-404 | Climate Physics | F2017 | 7 | 4.7(0.6) /4.1(0.5) | 4.7(0.6) /4.3(0.5) |
| EPSC/PHYS-186 | Astrobiology | W2018 | 44 | 4.4(0.5) /4.1(0.5) | 4.5(0.6) /4.3(0.5) |
| PHYS-642 | Radiative Processes | W2018 | 9 | 4.5(0.5) /4.0(0.8) | 5.0(0.0) /4.1(0.8) |
| PHYS-214 | Intro. Astrophysics | F2018 | 29 | 4.4(0.9) /4.0(0.8) | 4.5(1.0) /4.1(0.8) |
| EPSC/PHYS-186 | Astrobiology | W2019 | 78 | 4.1(1.3) /4.1(0.5) | 4.4(1.2) /4.3(0.5) |
| ATOC/PHYS-404 | Climate Physics | F2019 | 14 | 5.0(0.0) /4.1(0.5) | 5.0(0.0) /4.3(0.5) |
| EPSC-645 | Planets | *W2020 | [†] 21 | 4.0(1.7) /4.1(0.9) | 4.3(1.2) /4.2(0.6) |
| EPSC/PHYS-186 | Astrobiology | *W2020 | 90 | 3.7(1.5) /4.1 | 4.2(1.0) /4.4 |
| ATOC/PHYS-404 | Climate Physics | *F2020 | 16 | 4.9(0.4) /4.1(0.5) | 4.8(0.4) /4.1(0.5) |
| EPSC/PHYS-186 | Astrobiology | *W2021 | 89 | 4.7(0.6) /3.8 | 4.7(0.6) /4.0 |
| ATOC/PHYS-404 | Climate Physics | F2021 | 30 | 4.5(0.5) /4.1 | 4.5(0.5) /4.1 |
| EPSC-645 | Planets | *W2022 | [†] 18 | [‡] N/A | [‡] N/A |
| EPSC/PHYS-186 | Astrobiology | *W2022 | 108 | 4.3(0.8) /3.7 | 4.8(0.5) /3.9 |

Note. — The boldfaced numbers are my scores and standard deviation, while the numbers after the slash are the departmental averages. *W2020 was disrupted by the COVID-19 pandemic, F2020 and W2021 were taught remotely, and W2022 was hybrid. [†]EPSC-645 Planets was co-taught with Prof. John Moores and was offered at both McGill and York and also attracted students from UdeM and Bishop’s—I report the total enrollment. [‡]If too few students complete evaluations, then the results are not released for fear of violating their anonymity.

Other Teaching

- *Making sense of phase resolved observations*, at Ariel Summer School (2025)
- *Atmospheres 101*, at CRAQ Exoplanet Atmospheres Summer School (2017)
- ASTR 112 *Alien Worlds*, Amherst College (Spring 2015)
- EARTH/ASTR 450/441 *Exoplanets as Planets*, Northwestern University (Winter 2013)
- ASTR 192 *Pre-Major in Astronomy Program*, University of Washington (Autumn 2007)

University Service

- Faculty Engagement Consultative Group re:FY2025

Department of Physics

- Chief Undergraduate Advisor (2017–2022)
- Undergraduate Curriculum Committee (2017–2021)
- Committee on Equity, Diversity and Inclusion (2020–2021)
- Hiring Committee for Undergraduate Coordinator (2020)
- Convocation Committee (2020)
- Work Disruption Committee (2020)
- Contingency Committee (2020)
- Preliminary Exam Review Committee (2019)

- Hiring Committee for Undergraduate Coordinator (2018)
- Exoplanet Search Committee (2017–2018)
- Exoplanet Search Committee (2016–2017)
- U1 Advisor (2016–2017)
- U0 Advisor (2015–2016)

Department of Earth & Planetary Sciences

- Departmental Tenure Committee (2020–2022)
- Committee on Equity, Diversity and Inclusion (2019–2022)
- Colloquium Committee (2018–2022)
- Graduate Admissions Committee (2017–2018)
- Graduate Student Awards Committee (2017)

Trottier Space Institute

- Moderator for *Climate & Habitability of Terrestrial Planets* Panel Discussion (Oct 2020)
- Co-Organizer for *Climate Through Deep Space and Time* Symposia (2020–)
- Planet Lunch organizer (2016–)
- Seminar Committee (2018–2019)

Thesis Committees

- *PhD Committee Member* for Han Lei (PhD Physics, 2025–)
- *PhD Committee Member* for Matias Casto-Tapia (PhD Physics, 2024–)
- *Membre du jury PhD* pour Raphaël Hardy (UdeM Physique, 2025)
- *Chair of PhD Preliminary Exam Committee* for Michael Caouette-Mansour (PHYS, 2024)
- *PhD Defense Committee Member* for Timothy Hallat (PHYS 2024)
- *PhD Committee Member* for Yan-Ting Chen (ATOC 2024)
- *MSc Examiner* for Amalia Karalis (PHYS, 2024)
- *Pro-Dean* for Ehsan Nateghinia (CIVE, 2024)
- *Comité de Suivi Individuel* du doctorant Pierre Larue (Université Grenoble Alpes, 2023–)
- *External Examiner* for Doctoral Thesis of Mantas Žilinskas (U. of Leiden, Astronomy 2023)
- *External Examiner* for Doctoral Thesis of Mario Morvan (UCL, Physics & Astronomy 2022)
- *MSc Committee Member* for Amalia Karalis (PHYS 2022–2024)
- *PhD Committee Member* for Elizabeth McBride (PHYS 2020–2023)
- *PhD Defense Internal Member* for Caitlin Beland (EPSC 2021)
- *PhD Defense External Member* for Jing Feng (ATOC 2021)
- *Membre du jury d'examen de maîtrise* pour Raphaël Hardy (UdeM/Physique, 2020)
- *PhD Committee Member* for Emilie Parent (PHYS, 2017–2021)
- *PhD Committee Member* for Rafael Fuentes (PHYS, 2018–2022)
- *PhD Defense External Member* Matthew Henry (ATOC 2019)

- *PhD Committee Member* for Paul Charlton (PHYS, 2017–2019)
- *Pro-Dean* for Bruno Marot (URBP, 2018)
- *Pro-Dean* for Karine Choquet (HGEN, 2018)
- *MSc External Reviewer* for David Berardo (PHYS, 2017)
- *MSc External Reviewer* for Ying Ran Lin (EPSC, 2017)
- *PhD Internal Examiner* for Anna Delahaye (PHYS, 2017)
- *PhD Defense External Member* for Walaa Al Tamini (PHYS, 2016)
- *PhD Defense External Member* Maziar Bani Shahabadi (ATOC, 2016)
- *PhD Defense External Member* Nina Bonaventura (PHYS, 2016)

Postdoctoral Advising (*coadvised)

8. Vigneshwaran Krishnamurthy, Postdoctoral Researcher at McGill University (Nov 2022–)
7. Giang Nguyen, Postdoctoral Researcher at McGill University (Oct 2022–)
6. Keavin Moore, Postdoctoral Researcher at McGill University (Jan–Jun 2024)
→ Risk analyst at BFL Canada
5. Anne Boucher, Postdoctoral Researcher at McGill University (2022–2023)
→ Researcher at Environment Canada
4. Amy Steele* w/Lee, MSI Postdoctoral Fellow at McGill University (2021–2023)
→ Director of Astronomy and Research at Yerkes Observatory
3. Thomas Navarro* w/Gomez & Merlis, MSI Fellow at McGill University (2019–2022)
→ Research scientist at Space Science Institute → Researcher at Environment Canada
2. Holly Sheets, iREx/Astro Postdoctoral Fellow at McGill University (2016–2018)
→ Lecturer in Physics and Astronomy at Sam Houston State University
1. Joel Schwartz, Postdoctoral Researcher at McGill University (2016–2017)
→ Teaches high school science in Chicagoland

Graduate Supervision (*coadvised)

16. Sarah Silverman, MSc EPS (F2024–).
Ice sheets on chaotically rotating M-Earths
15. Roman Akhmetshyn, MSc Physics (W2024–). *Mitacs and FRQNT Students in Exile awards*
Meteorological Mapping of Brown Dwarfs
14. Dhvani Doshi* w/Hezaveh, MSc→PhD Physics (F2023–). *NSERC & CRAQ Fellow*
Machine Learning in Service of High Precision Radial Velocity
13. Jennifer Glover, MSc→PhD Physics (F2023–). *NSERC Fellow*
Reflected Light at High Spectral Resolution
12. Georgia Mraz, PhD Physics (F2023–)
Ultra Hot Jupiters at High Spectral Resolution
11. Mahesh Herath, PhD EPS (F2021–). *FRQNT Fellow*
Thermal Evolution of Lava Planets
10. Jared Splinter* w/Lafrenière, MSc→PhD EPS (F2021–).
Spectral Phase Curves with the James Webb Space Telescope

9. Keavin Moore, PhD EPS (F2018–F2023). *Tomlinson & NSERC Fellow*
Coupled Models of Water on Terrestrial Planets Orbiting M-Dwarfs
→ Postdoc at McGill → Risk analyst at BFL Canada
8. Margaret Bruna, MSc Physics (W2021–F2022). *TEPS Fellow*
Combining photometry and astrometry to improve orbit retrieval of directly imaged exoplanets
→ Freelance work for Canadian Space Agency → Data analyst at Cresta
7. Lisa Dang, MSc→PhD Physics (F2016–S2022). *NSERC, IPAC & TEPS Fellow*
Characterizing the Climate of Distant Worlds [...] with the Spitzer Space Telescope
→ Banting Fellow at l'Université de Montréal → Assistant Prof. at the University of Waterloo
6. Taylor Bell* w/Bastien, MSc→PhD Physics (F2016–S2021). *NSERC & TEPS Fellow*
Characterizing ultra-hot Jupiters through theoretical modelling and precise observations
→ Postdoctoral researcher at NASA Ames → Staff astronomer at STScI
5. Dylan Keating, MSc→PhD Physics (F2016–S2021). *TEPS Fellow*
Comparative exoplanetology using thermal phase curves and Bayesian hierarchical modelling
→ Computer vision scientist at Vyoo
4. Melissa Marquette* w/Doyon, MSc EPS (F2018–S2021). *TEPS Fellow*
Laying the foundation for high resolution eclipse mapping of hot Jupiters
→ PhD student at the University of California Berkeley
3. Claire Guimond, MSc EPS (2016–2018). *TEPS Fellow*
Determining the orbit of directly-imaged exoplanets
→ PhD at the University of Cambridge → Postdoc at the University of Oxford
2. Joel Schwartz, PhD Physics Northwestern (2013–2016). *GK-12 Fellow*
I Think I See the Light Curve: The Good (and Bad) of Exoplanetary Inverse Problems
→ Postdoctoral researcher at McGill University
1. Sara Rastegar, MSc Physics Northwestern (2012–2014)
Seasonal variations of eccentric exoplanets
→ Adjunct Faculty, Harold Washington College

Visiting Graduate Students & Secondary Advising

6. Mathis Bouffard* w/R. Doyon (MSc Physics at Université de Montréal, 2024–)
TRAPPIST-1 with SPIROU
5. Vincent Yariv* w/X. Bonfils (Stage M2, spring–summer 2023)
Mesurer la rotation d'exoplanètes par les occultations observées à haute résolution spectrale
→ PhD student at Université Grenoble Alpes
4. Huiyi (Cheryl) Wang* w/E. Lee (MSc Physics 2021–2023)
Constraining the Formation Condition of Earth through Imprints of Primordial Solar Nebula within the Deep Mantle
→ Mechanical Engineering PhD at McGill University
3. T. Giang Nguyen* w/J. Moores (PhD ESSE, York University, 2019–2021)
Atmospheres and Oceans of Lava Worlds
→ Postdoc at McGill University
2. Lucas Teinturier, École Centrale de Lyon (MEng Intern, Winter–Summer 2020)
Removing Clouds from Disk-Integrated Images of Exoplanets
→ PhD student at Observatoire de Paris

1. Mathilde Mâlin, Université Paris-Sud (MSc Intern, Summer 2019)
Analytic Orbit Retrieval of Directly-Imaged Exoplanets
 → PhD student in Astronomy & Astrophysics at Observatoire de Paris

Undergraduate Researchers (*coadvised)

69. Anjara Trachsel-Bourbeau, McGill Physics (PHYS 459, Fall 2024 – Winter 2025)
Atmospheric Loss from Lava Planets
68. Caroline Deland, McGill Physics (PHYS 459, Fall 2024 – Winter 2025)
Atmospheric Loss from Lava Planets
67. Olivia Pereira* w/Allart, Physics & Computer Science (PHYS 459, Fall 2024 – Winter 2025)
Quick-Look Analysis of NIRPS Transit Spectra
66. Maria Bayder* w/Mahmoudi, Marianapolis Sciences (research intern, 05/2024–04/2025)
UV photodegradation of organics over geological time
65. Ben Coull-Neveu, Physics (PHYS 396, Fall 2023, TSI Fellow 2024, PHYS 459 2024–2025)
Target Selection for Ariel Mission
64. Mathis Bouffard* w/Krishanmurthy, McGill Physics (PHYS 459 and iREx intern, 2023–2024)
TRAPPIST-1 from the ground
 → MSc at Université de Montréal
63. Alexandra Rochon* w/Dang, McGill Physics & Geophysics (EPSC 482, Winter 2024)
Hot Jupiter Phase Curves
 Alexandra Rochon* w/Gomez & Navarro, Phys. & Geophys. (TSI Summer Researcher, 2023)
Ice Sheets on M-Earths
62. Madeleine Walkington* w/Krishanmurthy, McGill Physics (PHYS 459, 2023–2024)
TRAPPIST-1 from the ground
61. Karolina Sienko* w/Nguyen, McGill Physics (PHYS 449, Fall 2023)
Dynamics of multi-component lava planet atmospheres
60. William Eaton* w/Nguyen, McGill Physics & Geophysics (PHYS 449, Fall 2023)
Dynamics of multi-component lava planet atmospheres
59. Cathy Liang, McGill Physics (PHYS 449, Fall 2023)
Target Selection for Ariel Mission
58. Brenna Bordeniuk, McGill Physics (PHYS 396, Fall 2023)
Target Selection for Ariel Mission
57. Benjamin David* w/Moore, McGill Physics (PHYS 459, 2022–2023)
Water Cycling and Loss on Super-Earths
 → Data Analyst at Scotiabank
56. Albert Zhang* w/Moore, McGill Physics (PHYS 459, 2022–2023)
Water Cycling and Loss on Super-Earths
 → Consultant at Look Consulting
55. Tarik Bouchoutrouch-Ku* w/Dang, McGill Phys & CS (PHYS 489, Winter 2022)
Exoplanet microlensing with Spitzer
 → Software Developer at Calian Advanced Technologies
54. Calvin Coulbury, McGill Phys & AOS (PHYS 459, 2021–2022)
Analytic radiative-convective models
 → MSc student in Atmospheric & Oceanic Sciences at McGill University

53. Isabelle Sangha, McGill AOS (ATOC 480 & PHYS 396, 2021–2022)
Molecular spectroscopy and the greenhouse effect
→ PhD at the University of Cambridge
52. Dhvani Doshi, Waterloo Physics & Astronomy (iREx and TEPS S2021)
Transit Spectroscopy of Cloudy Earth
→ MSc at McGill University
51. Lan Xi Zhu, McGill Physics & CS (PHYS-396 W2019, paid S2019 and TEPS S2021)
Climate App 3.0
→ MSc student in Earth & Planetary Sciences at McGill University
50. Xueying Li* w/Bell, McGill Honours Math & Physics (PHYS-479 W2021 and SURA S2021)
Slepian Functions in Exoplanet Mapping
49. Thomas Villeneuve* w/Bell, McGill Honours Math & Physics (PHYS-479, Winter 2021)
Slepian Functions in Exoplanet Mapping
48. Saida Jaime Elizondo* w/Dang, McGill Physics & CS (PHYS-489, Winter 2021)
Lava Planet Phase Curves
→ ACE Consultant, Dynatrace
47. Samson Mercier* w/Dang, McGill Physics & CS (PHYS 489 W2021 and SURA S2021)
55 Cancri e, revisited
→ MSc at l'Université de Genève → PhD at MIT
46. Alexander Gass* w/Dang, McGill Physics & CS (PHYS 489, W2021 and TEPS S2021)
55 Cancri e, revisited
→ Software Developer, Morgan Stanley
45. Felix Thiel, McGill Physics & CS (PHYS-478, Fall 2020)
The Anti-Greenhouse on Titan
→ MSc student at Queen's University
44. Audrey Bourdon, McGill Physics (Honours Thesis 2019–2020, paid S2020)
Analytic orbit estimation
43. Margaret Bruna, McGill Physics (Honours Thesis 2019–2020, paid S2020–F2020)
Numerical orbit estimation
→ MSc student at McGill University
42. Numa Karolinski, McGill Physics & CS (Honours Thesis 2019–2020 and SURA 2020)
Analytic harmonic lightcurves
41. Lauryn Talbot, McGill Atmospheric Sciences & Physics (Fall 2019)
Developing Climate App modules
40. Youssef Bestavros, McGill Physics (SURA & TEPS intern and 396, Summer–Fall 2019)
Cloud Killer 2.0
→ Analyst at Héma-Québec
39. Agnibha Banerjee, IISER Kolkata Physics (MITACS Globalink Intern, Summer 2019)
Illumination of ultra-short period planets
→ PhD student at the Open University
38. Émilie Lafèche, McGill Planetary Sciences (iREx & USRA intern, Summer 2019)
Retrievals of planetary rotation
→ PhD student at Purdue University

37. Zachary Yetman* w/Bell, John Abbot College Pure & Applied Sciences (Winter 2019)
Accelerating energy balance models
→ BEng student in Aerospace Engineering at Concordia University
36. Nicholas Vieira, McGill Physics (Winter 2019)
Cloud Killer
→ MSc student at McGill University
35. Claude Cournoyer-Cloutier, McGill Physics (Honours Research 2018–2019)
Determining the rotation rate of directly-imaged planets
→ MSc student at McMaster University
34. Jérémie Gagnon, McGill Physics (Honours Research 2018–2019)
Analytic lightcurves of exoplanets
33. Elisa Jacquet, McGill Physics (Fall 2018)
Removing clouds from maps of Earth
→ MSc→PhD at Imperial College London
32. Anthony Courchesne, McGill Computer Science (Fall 2018)
Climate App 2.0
→ MEng Université de Montréal → ML Engineer at Maneva
31. Emily Pass, University of Waterloo Physics & Astronomy (iREx & USRA intern 2018)
Estimating dayside temperatures of exoplanets
→ PhD student in Astronomy at Harvard University
30. Juliette Geoffrion, McGill Physics (Summer 2018)
Removing clouds from EPIC maps of Earth
→ MSc student in Physics at Université de Montréal
29. Claudia Bielecki, McGill Physics (Summer 2018)
Eccentricity is Not Responsible for Odd Harmonics
→ MSc in Physics at Université de Montréal
28. Shereen Elaidi, McGill Honours Math & CS (Summer Intern 2018)
Analytic lightcurves of exoplanets
→ MSc in Mathematical Physics at McGill University
27. Evelyn Macdonald, McGill Physics (Honours Research 2017–2018 & SURF intern 2018)
Empirical infrared transit spectrum of Earth
→ PhD at University of Toronto → PDF at University of Vienna
26. Jack Sklar, McGill Physics & CS (Winter 2018)
Gaussian Processes to estimate exoplanet spectra
→ Research Fellow at NIAID → Data Scientist at NIST
25. Laurent Jacob* w/Sheets, Université de Montréal Physics (iREx Fellow 2017)
Searching for refraction in transit lightcurves
→ Data Scientist in Montréal
24. Veenu Suri* w/Rauscher, University of Michigan Astronomy & CS (2015–2017)
Eclipse mapping of exoplanets
→ High School teacher in Illinois → Physics teacher at Bronx Prep High
23. Jackson Hoffart* w/Schwartz, McGill Physics (Honours Research 2016–2017)
Gaussian Process model of Spitzer detector
→ Machine Learning Engineer in Toronto → Analyst at 2° Investing Initiative

22. Maximilien Lamberti* w/Schwartz, McGill Physics (Honours Research 2016–2017)
Gaussian Process model of Spitzer detector
→ Data Scientist in Berlin → MEng at UC Berkeley
21. Holly Marginson, McGill Earth & Planetary Sciences (Honours Research 2016–2017)
Exoplanet lightcurve analysis
→ Tutor at Progressive Learning Academy
20. Louis Richez, McGill Physics (Independent Research 2016)
Mapping Earth with EPIC data
→ Medical Physics at McGill University
19. Élie Bouffard, Université de Sherbrooke Physics (iREx Fellow 2016)
Periodograms of Kepler hot Jupiters
→ MSc student at McGill University → Analyst-Programmer at Giro Inc.
18. Sudarsan Sundarajan* w/Dang (Google Summer of Code 2016)
Spitzer data reduction pipeline
→ Associate Software Engineer at NortonLifeLock Inc.
17. Diana Jovmir, McGill Mathematics & Physics (Summer intern 2016)
Out-of-transit baseline for parameter estimation
→ MSc at University of Montréal → Analyst at Statistics Canada
16. Victoria Chayes* w/Haggard, Bard College Math & Physics (2015–2016)
Inclination-dependence of exoplanet lightcurves
→ PhD student at Rutgers University
15. Dhruv Bisaria, McGill Physics (2016)
Marginalizing over limb-darkening for transit fits
→ PhD student in Astronomy at Queen’s University
14. Brendan Gordon, McGill Computer Science (2016)
Using Compute Canada for MCMC error analysis
→ MD student at the University of Manitoba
13. Lisa Dang, McGill Physics (2015)
Cross-validation for error estimation
→ PhD student at McGill University
12. Jyotsana Singh, McGill Earth & Planetary Sciences (2015)
Eclipse uncertainties
→ making music in Montréal
11. Daniel Law, Amherst College Math & Computer Science (2015)
Photometry of exoplanets
→ Data Scientist at Facebook
10. Mashiyat Zaman, Amherst College Astronomy (2015)
Evaluating Uncertainty Estimators of Occultation Models
→ Data Engineer at RCO
9. Ned Kleiner, Amherst College Physics (2015)
Mapping exoplanets
→ PhD student in Earth & Planetary Sciences at Harvard University
8. Wanda Feng, Smith College Astronomy (2014–2015)
Energy balance models of eccentric planets
→ PhD student at Arizona State University

7. Christopher Hansen, Northwestern Physics & Astronomy (2013–2014)
Atmospheric retrieval in the face of systematic errors
→ Product Specialist at Qualtrics
6. Pablo Fuentes, University of Chile Astronomy (2011–2013)
Harmonic Reflected and Thermal Lightcurves
→ Monitor at Observatorio Astronomico Andino
5. Talia Strait, Northwestern Physics & Astronomy (2011–2013)
The effects of clouds on rotational unmixing
→ Director, Digital Analytics at Catalina USA
4. Louis Shekhtman, Northwestern Physics & Astronomy (2011)
Ellipsoidal variations in short-period planets
→ PhD student at Bar-Ilan University → Postdoc at Northeastern University
3. Carl Majeau* w/Agol, Columbia University Computer Science (2010)
Two-dimensional Infrared Map of an Extrasolar Planet
→ Computer programmer in New York City
2. James Bushong* w/Agol, University of Washington Astronomy (2008)
Transits and secondary eclipses of HD 189733 with Spitzer
→ Quality Assurance Engineer at Amazon
1. Virginia Klemm* w/Agol, Astronomy at University of Washington (2006)
Photometry with Spitzer
→ National Weather Service Meteorologist

Public Lectures

31. *Vie extraterrestre: lunes glacées vs. exoplanètes*, Astro en Fût (Jan 2025)
30. *Eclipses: what are they and what are they good for?* Astro McGill, March 2024
29. Montreal Field Naturalists Club (online, Feb 16, 2022)
28. Marianopolis Physics Society (Oct 26, 2021)
27. Club d'astronomie Mont-Tremblant (online, 1 juin 2021)
26. Royal Astronomical Society of Canada (online, Jan 2021)
25. Sun & Science (online, July 2020)
24. Astronomie en fût, Sans Taverne, Montréal, QC (Nov 2019)
23. Pint of Science, Montréal, QC (May 2019)
22. Soup & Science, Montréal, QC (Jan 2019)
21. Homer's Physics, Montréal, QC (Sep 2018)
20. Resident Astronomer, Camp Nominique (Aug 2018)
19. Astronomie en fût, L'île Noire, Montréal, QC (Apr 2018)
18. Solar Eclipse Fireside Chat, Sun Valley ID (Aug 2017)
17. Lunch Talk, Santa Fe Institute, NM (Jul 2017)
16. Pint of Science, Montréal, QC (May 2017)
15. Astronomie en fut, Montréal, QC (Apr 2017)
14. Royal Montreal Curling Club, Montréal, QC (Apr 2017)
13. Physics Matters, Montréal, QC (Apr 2017)

12. Royal Astronomical Society of Canada, Ottawa, ON (Feb 2017)
11. Soup & Science, Montréal, QC (Jan 2017)
10. Homer's Physics, Montréal, QC (Nov 2016)
9. Astro Night, Montréal, QC (Jul 2016)
8. Astro Talk, Montréal, QC (Nov 2015)
7. Benjamin Dean Astronomy Lecture, San Francisco, CA (Dec 2014)
6. *SciTech Cafe*, Amherst, MA (Sep 2014)
5. Lake County Astronomical Society, Fox Lake, IL (Oct 2013)
4. *Chicago Ideas Week*, Chicago, IL (Oct 2013)
3. *From Our Own Backyard to the World*, Evanston, IL (Sep 2013)
2. Tacoma Astronomical Society, Tahoma, WA (Sep 2007)
1. Boeing Employees' Astronomical Society, Seattle, WA (Apr 2007)

Invited Conference Talks & Reviews

25. *Observing Atmospheric Dynamics of Exoplanets*, **Exoclimes VII**, QC (July 2025)
24. *Phase Curves at Low and High Resolution*, **Atmospherix Workshop**, online (Nov 2024)
23. *Volatile Loss from Exoplanets*, **Journées SF2A**, FR (June 2023)
22. *Searching for Exoplanet Biosignatures*, **Optimal Exoplanet Imagers**, NL (Feb 2023)
21. *M-Earth Habitability*, **Japanese Astrobiology Center Symposium**, Zoom (Dec 2022)
20. *Lava Planet Dynamics and Observables*, **JWST Exoplanet Celebration**, DE (Nov 2022)
19. *Phase Curves with Ariel*, **Ariel Consortium Meeting**, IT (Oct 2022)
18. *If an exoplanet varies, then map it*, **Diversity of Rocky Planets**, NL (Sep 2022)
17. *Habitable Exoplanets*, **What is Our Future in Space?**, QC (May 4, 2022)
16. *Global Energy Budgets with TESS+ARIEL Phases*, **ARIEL Meeting**, online (Oct 2020)
15. *Small-Satellite Astronomy*, **Long Range Planning Town Hall at CSA**, QC (Oct 2019)
14. *McGill Exoplanet Characterization*, **AGU-AAS Kavli Exoplanets**, IS (Aug 2019)
13. *Richer Prize Talk: McGill Exoplanet Characterization*, **CASCA Meeting**, QC (June 2019)
12. *Char. Terrestrial Exoplanets*, **Compar. Climate of Terr. Planets 3**, TX (Aug 2018)
11. *The Future of Direct Imaging from Space*, **Exoclipse**, ID (Aug 2017)
10. *Energy Budgets of Short Period Planets*, **CASCA Meeting**, AB (May 2017)
9. *Energy Budgets of Short Period Planets*, **Exoplanets I**, CH (Jul 2016)
8. *Short Period Planets*, **Kavli Frontiers of Science**, CA (Nov 2015)
7. *Transiting Temperate Terrestrials*, **Expl. the Uni. with JWST**, NL (Oct 2015)
6. *Water On and In Rocky Worlds*, **Comp. Clim. of Terr. Planets 2**, CA (Sep 2015)
5. *Hot Jupiters*, **Stochastic Flows and Climate Modeling**, CO (Jun 2012)
4. *Phase Variations of WASP-12b*, **Future of Astronomy**, IL (Sept 1, 2011)
3. *EPOXI Observations of Earth*, **Exoplanet Sci. from SS Probes**, CA (May 2010)
2. *Obs. in the Cruise Phase of a Mission*, **The View from 5 AU**, CA (March 2010)
1. *Thermal Phase Variations of Planets*, **Exoplanets for Planet. Sci.**, FL (2010)

Colloquia & Seminars

66. Astronomy Seminar, **University of Amsterdam** (April 2025)
65. Astronomy Lunch Talk, **University of Groningen** (April 2025)
64. CAP Lecture, **Université de Québec à Trois-Rivières** (Feb 2025)
63. Astronomy Seminar, **Université Laval** (Feb 2025)
62. Astronomy Seminar, **University of Exeter** (Oct 2024)
61. Earth Sciences Seminar, **Freie Universität Berlin** (April 2024)
60. Observatory Lunch Talk, **University of Leiden** (April 2024)
59. Physics Colloquium, **Queen's University** (Feb 2024)
58. Trottier Space Institute Seminar, **McGill University** (Jan 2024)
57. Astronomy Colloquium, **Université de Genève et EPFL** (May 2023)
56. Astronomy Seminar, **Torino Observatory** (March 2023)
55. Astro Seminar, **Institut de planétologie et d'astrophysique de Grenoble** (Oct 2022)
54. Astrophysics Seminar, **University of Waterloo** (March 9, 2022, online)
53. Astronomy Colloquium, **Northern Arizona University** (Mar 8, 2021, online)
52. Redpath Museum Seminar, **McGill University** (Jan 29, 2021, online)
51. Earth & Planetary Sciences Symposium, **Harvard University** (Nov 2, 2020, online)
50. Origins Seminar, **University of Arizona** (Mar 2020, online)
49. Physics Colloquium, **Carleton University** (Feb 2020)
48. Physics & Astronomy Colloquium, **McMaster University** (Nov 2019)
47. Atmospheres, Oceans & Climate Colloquium, **MIT** (Apr 2019)
46. Atmospheric & Oceanic Sciences Seminar, **McGill University** (Feb 2019)
45. Astrophysics Colloquium, **Jet Propulsion Laboratory** (May 2018)
44. Geology Colloquium, **University of Colorado** (Apr 2018)
43. Physics Colloquium, **Royal Military College of Canada** (Feb 2018)
42. Physics Colloquium, **Université de Montréal** (Dec 2017)
41. Physics Colloquium, **University of Oregon** (Oct 2017)
40. Astrophysics Seminar, **Los Alamos National Laboratory** (Jul 2017)
39. TEPS Seminar, **York University** (May 2017, online)
38. Astronomy Seminar, **University of Michigan** (Mar 2017)
37. Geology Colloquium, **St. Lawrence University** (Oct 2016)
36. Astronomy Seminar, **Université de Montréal** (Apr 2016)
35. Astrophysics Colloquium, **NASA Goddard** (Mar 2016)
34. Astronomy Colloquium, **MIT** (Sep 2015)
33. Geoscience Seminar, **ETH** (Jul 2015)
32. Astronomy Seminar, **Université de Genève** (Jul 2015)
31. Physics Colloquium, **NYU Abu Dhabi** (May 2015)
30. Physics Seminar **McGill University** (Feb 2015)
29. Astronomy Colloquium, **University of Massachusetts** (Nov 2014)

28. Theoretical Astrophysics Colloquium, **University of Arizona** (Oct 2014)
27. Physics Seminar, **Trinity College** (Sep 2014)
26. Physics Seminar, **Bard College** (Sep 2014)
25. Joint Astronomy Colloquium, **Max Planck Institute for Astronomy** (Jul 2014)
24. Seminar, **Institut de Planétologie et d’Astrophysique de Grenoble** (Jul 2014)
23. Astronomy Seminar, **Adler Planetarium** (May 2014)
22. Astrophysics Seminar, **Jet Propulsion Laboratory** (May 2014)
21. Astronomy Colloquium, **Space Telescope Science Institute** (Apr 2014)
20. Geosciences Colloquium, **Texas Tech University** (Mar 2014)
19. Physics & Astronomy Colloquium, **Amherst College** (Mar 2014)
18. ITC Seminar, **Harvard-Smithsonian CfA** (Dec 2013)
17. Astronomy Colloquium, **Ohio State University** (Aug 2013)
16. Institute of Astronomy, **University of Cambridge** (Apr 2013)
15. Astronomy Colloquium, **University of Florida** (Apr 2013)
14. Earth, Atmospheric & Planetary Sciences Colloquium, **Purdue University** (Apr 2013)
13. Physics Seminar, **San Francisco State University** (Feb 2013)
12. Earth and Planetary Sciences Colloquium, **Northwestern University** (Nov 2012)
11. Astronomy Colloquium, **California Institute of Technology** (Nov 2012)
10. Center for Space and Habitability Colloquium, **University of Bern** (Apr 2012)
9. Physics and Astronomy Colloquium, **University of Western Ontario** (Apr 2012)
8. Astrophysics Colloquium, **University of Illinois**, (Nov 2011)
7. Astronomy Colloquium, **University of Michigan** (Feb 2011)
6. Astronomy & Astrophysics, **Michigan State University** (Feb 2011)
5. Cosmology Seminar, **UC Davis** (Mar 2010)
4. Natural Science Colloquium, **Seattle University** (Feb 2010)
3. Astrophysics Seminar, **Institute for Advanced Study** (Jan 2010)
2. Astronomy Seminar, **Hertzberg Institute of Astrophysics** (Oct 2009)
1. Planetary Science Seminar, **NASA Goddard Space Flight Center** (Sep 2009)

Refereed Publications

155 publications (53 led by group members)

[Google Scholar](#): $\gtrsim 10^4$ citations, $h=52$, $i10=113$

[NASA Astrophysics Data System](#): $\gtrsim 8000$ citations, $h=49$, $i10=115$

Group members bolded: **undergrads**, **grads**, **postdocs**.

155. Constraining the Scattered Light properties of LTT 9779 b Using HST/WFC3 UVIS
M. Radica et al. (incl. **Nicolas B. Cowan**)
Monthly Notices of the Royal Astronomical Society, submitted, 2025
154. JWST NEAT: NIRISS/SOSS Transmission Spectrum of the Super-Earth GJ 357b, a Favourable Target for Atmospheric Retention
J. Taylor et al. (incl. **Nicolas B. Cowan**)
Monthly Notices of the Royal Astronomical Society, submitted, 2025

153. Diving into the planetary system of Proxima with NIRPS. Breaking the meter per second barrier in the infrared
Suárez Mascareño et al. (incl. **Nicolas B. Cowan**)
Astronomy & Astrophysics, submitted, 2025
152. NIRPS quantifies the extent of thermal water dissociation in the dayside photosphere of the ultra-hot Jupiter WASP-121b
Bazinet et al. (incl. **Nicolas B. Cowan**)
Astronomy & Astrophysics, submitted, 2025
151. [Transmission spectroscopy of WASP-52 b with JWST NIRISS: Water and helium atmospheric absorption, alongside prominent star-spot crossings](#)
M. Fournier-Tondreau et al. (incl. **Nicolas B. Cowan**)
Monthly Notices of the Royal Astronomical Society, submitted, 2024
150. Continuous helium absorption from the leading and trailing tails of WASP-107b
V. Krishnamurthy et al. (incl. **J. Splinter**, **D. Doshi**, **N.B. Cowan**)
Nature Astronomy, under review, 2024
149. NIRPS joining HARPS at the ESO 3.6. On-sky performance and science objectives
Bouchy et al. (incl. **Nicolas B. Cowan**)
Astronomy & Astrophysics, under review, 2024
148. Hydride ion continuum hides absorption signatures in the NIRPS near-infrared transmission spectrum of the ultra-hot gas giant WASP-189b
Vaulato et al. (incl. **Nicolas B. Cowan**)
Astronomy & Astrophysics, under review, 2024
147. [OGLE-2016-BLG-1195L b: A sub-Neptune Beyond the Snow Line of an M-dwarf Confirmed by Keck AO](#)
Aikaterini Vandorou, **Lisa Dang**, David Bennett, Naoki Koshimoto, Sean Terry, Jean-Philippe Beaulieu, Christophe Alard, Aparna Bhattacharya, Joshua Blackman, **Tarik Bouchoutrouch-Ku**, Andrew Cole, **Nicolas Cowan**, Jean-Baptiste Marquette, Clément Ranc, and Natalia Reksini
AAS Journals, under review, 2024
146. A Moderate Albedo for WASP-80 b Revealed by JWST/NIRISS Eclipse Spectroscopy
Kim Morel et al. (incl. **Nicolas B. Cowan**)
AAS Journals, under review, 2024
145. [Seasonal Changes in the Atmosphere of HD 80606b Observed with JWST's NIRSpec/G395H](#)
James T. Sikora, Jason F. Rowe, **Jared Splinter**, Saugata Barat, Lisa Dang, **Nicolas B. Cowan**, Thomas Barclay, Knicole D. Colón, Jean-Michel Désert, Stephen R. Kane, Joe Llama, Hinna Shivkumar, Keivan G. Stassun, and Elisa V. Quintana
AAS Journals, under review, 2024
144. No substantial secondary atmosphere or high-altitude clouds on the habitable-zone exo-Earth TRAPPIST-1g
Benneke et al. (incl. **Nicolas B. Cowan**)
Nature, under review, 2023.
143. [Lava planets interior dynamics govern the long-term evolution of their magma oceans](#)
Charles-Édouard Boukaré, Daphné Lemasquerier, **Nicolas B. Cowan**, Henri Samuel and James Badro
Nature Astronomy, under review, 2023.

142. [Stellar Contamination and the Atmosphere Composition of TRAPPIST-1c from JWST NIRISS](#)
Michael Radica et al. (incl. **Nicolas B. Cowan**)
Astrophysical Journal Letters, in press, 2025
141. [NIRPS detection of delayed atmospheric escape from WASP-69 b](#)
Romain Allart et al. (incl. **Nicolas B. Cowan**)
Astronomy & Astrophysics, in press, 2024
140. [The JWST Weather Report from the Isolated Exoplanet Analog SIMP 0136+0933](#)
Allison McCarthy et al. (incl. **Nicolas B. Cowan**)
Astrophysical Journal Letters, in press, 2024
139. [Phase-resolved reflected-light and thermal-emission spectroscopy of an ultra-hot exo-Neptune](#)
Louis-Philippe Coulombe et al. (incl. **Nicolas B. Cowan**)
Nature, in press, 2024.
138. [Chemical Fingerprints: High-Resolution Spectroscopy on 31 M Dwarfs with SPIRou](#)
Farbod Jahandar, et al. (incl. **Nicolas B. Cowan**)
Astrophysical Journal, 978, 154, 2025
137. [A Comprehensive Analysis Spitzer 4.5 \$\mu\text{m}\$ Phase Curve of Hot Jupiters](#)
Lisa Dang et al. (incl. **Nicolas B. Cowan**)
Astronomical Journal, 169, 32, 2025
136. [Thermal evolution of lava planets](#)
Mahesh Herath, Charles-Édouard Boukaré, **Nicolas B. Cowan**
Monthly Notices of the Royal Astronomical Society, 535, 2404, 2024.
135. [Clouds on lava planets and where to find them](#)
T. Giang Nguyen, **Nicolas B. Cowan**, Lisa Dang
Astronomical Journal, 168, 287, 2024.
134. [Detection of CO from the Night-side of the Highly Irradiated Exoplanet WASP-33b](#)
Georgia Mraz, Antoine Darveau-Bernier, **Anne Boucher**, **Nicolas B. Cowan**, David Lafrenière, Charles Cadieux
Astrophysical Journal Letters, 975, 42, 2024.
133. [Water Evolution & Inventories of Super-Earths Orbiting Late M-Dwarfs](#)
Keavin Moore, **Benjamin David**, **Albert Zhang**, **Nicolas B. Cowan**
Astrophysical Journal, 972, 131, 2024
132. [Probing atmospheric escape through metastable HeI triplet lines in 15 exoplanets observed with SPIRou](#)
Adrien Masson et al. (incl. **Nicolas B. Cowan**)
Astronomy & Astrophysics, 688, 179, 2024.
131. [A roadmap to the efficient and robust characterization of temperate terrestrial planet atmospheres with JWST](#)
de Wit, Doyon, et al. (incl. **Nicolas B. Cowan**)
Nature Astronomy, 8, 810, 2024.
130. [Transmission Spectroscopy of the Habitable Zone Exoplanet LHS 1140 b with JWST/NIRISS](#)
Cadieux, Charles; Doyon, René; MacDonald, Ryan J.; Turbet, Martin; Artigau, Étienne; Lim, Olivia; Radica, Michael; Fauchez, Thomas J.; Salhi, Salma; Dang, Lisa; Albert, Loïc; Coulombe, Louis-Philippe; **Cowan, Nicolas B.**; Lafrenière, David; L'Heureux, Alexandrine; Piaulet-Ghorayeb, Caroline; Benneke, Björn; Cloutier, Ryan; Charnay, Benjamin; Cook, Neil J.; Fournier-Tondreau, Marylou; Plotnykov, Mykhaylo; Valencia, Diana
Astrophysical Journal Letters, 970, 2, 2024.

129. [Helium in Exoplanet Exospheres: Orbital and Stellar Influences](#)
Vigneshwaran Krishnamurthy, Nicolas B. Cowan
Astronomical Journal, 168, 30, 2024.
128. [Identification of the Top TESS Objects of Interest for Atmospheric Characterization of Transiting Exoplanets with JWST](#)
Hord et al. (incl. **Nicolas B. Cowan**)
Astronomical Journal, 167, 233, 2024.
127. [Super-Earth LHS3844b is tidally locked](#)
Lyu, Koll, **Cowan**, Hu, Kreidberg, and Rose
Astrophysical Journal, 964, 152, 2024.
126. [Near-Infrared Transmission Spectroscopy of HAT-P-18 b with NIRISS: Disentangling Planetary and Stellar Features in the Era of JWST](#)
Fournier-Tondreau et al. (incl. **Nicolas B. Cowan**)
Monthly Notices of the Royal Astronomical Society, 528, 3354, 2024.
125. [Muted Features in the JWST NIRISS Transmission Spectrum of Hot-Neptune LTT 9779 b](#)
Radica et al. (incl. **Nicolas B. Cowan**)
Astrophysical Journal Letters, 962, 20, 2024.
124. [TOI-4860 b, a short-period giant planet transiting an M3.5 dwarf](#)
Almenara et al. (incl. **Nicolas B. Cowan**)
Astronomy & Astrophysics, 683, 166, 2024.
123. [New Mass and Radius Constraints on the LHS 1140 Planets — LHS 1140 b is Either a Temperate Mini-Neptune or a Water World](#)
Cadieux et al. (incl. **Nicolas B. Cowan**)
Astrophysical Journal Letters, 960, 3, 2023.
122. [Characterizing the Near-infrared Spectra of Flares from TRAPPIST-1 During JWST Transit Spectroscopy Observations](#)
Howard et al. (incl. **Nicolas B. Cowan**)
Astrophysical Journal, 959, 64, 2023.
121. [The Role of Magma Oceans in Maintaining Surface Water on Rocky Planets Orbiting M-Dwarfs](#)
Keavin Moore, Nicolas B. Cowan, Charles-Édouard Boukaré
Monthly Notices of the Royal Astronomical Society, 526, 6235, 2023
120. [Stellar contamination and no evidence for an atmosphere in the JWST/NIRISS transmission spectrum of TRAPPIST-1 b](#)
Olivia Lim, Björn Benneke, René Doyon, Ryan J. MacDonald, Caroline Piaulet, Étienne Artigau, Louis-Philippe Coulombe, Michael Radica, Alexandrine L’Heureux, Loïc Albert, Salma Salhi, Pierre-Alexis Roy, Laura Flagg, Marylou Fournier-Tondreau, Jake Taylor, Neil J. Cook, David Lafrenière, **Nicolas B. Cowan**, Lisa Kaltenegger, Julien de Wit, Jason F. Rowe, Néstor Espinoza, Antoine Darveau-Bernier, and Lisa Dang
Astrophysical Journal Letters, 955, 22, 2023.
119. [Homogeneous search for helium in the atmosphere of 11 gas giant exoplanets with SPIRou](#)
R. Allart, P.-B. Lemée-Joliecoeur, Y. Jaziri, D. Lafrenière, E. Artigau, N. Cook, A. Darveau-Bernier, C. Cadieux, A. Boucher, V. Bourrier, E. K. Deibert, S. Pelletier, M. Radica, R. Cloutier, **N.B. Cowan**, X. Delfosse, J.-F. Donati, R. Doyon, P. Figueria, T. Forveille, P. Fouqué, G. Hébrard, E. Gaidos, P.G. Gu, F. Kiefer, Á Kóspál, R. Jayawardhana, E. Martioli,

- L.A. Dos Santos, H. Shang, J. Turner
Astronomy & Astrophysics, 677, 164, 2023
118. [Awesome SOSS: Transmission Spectroscopy of WASP-96b with NIRISS/SOSS](#)
Michael Radica, Luis Welbanks, Néstor Espinoza, Jake Taylor, Louis-Philippe Coulombe, Adina D. Feinstein, Jayesh Goyal, Nicholas Scarsdale, Loïc Albert, Priyanka Baghel, Jacob L. Bean, Jasmina Blečić, David Lafrenière, Ryan J. MacDonald, Maria Zamyatina, Romain Allart, Étienne Artigau, Neil James Cook, **Nicolas B. Cowan**, Lisa Dang, Marylou Fournier-Tondreau, Doug Johnstone, Michael R. Line, Stefan Pelletier, Pierre-Alexis Roy, Geert Jan Talens, Joseph Filippazzo, Klaus Pontoppidan, Kevin Volk
Monthly Notices of the Royal Astronomical Society, 524, 835, 2023
117. [Chasing rainbows and ocean glints: Inner working angle constraints for the Habitable Worlds Observatory](#)
Sophia R. Vaughan, Kimberly Bott, Sarah L. Casewell, **Nicolas B. Cowan**, David S. Doelman, Timothy D. Gebhard, Matthew Kenworthy, Johan Mazoyer, Maxwell A. Millar-Blanchaer, Daphne M. Stam, Victor J. H. Trees, Olivier Absil, Lisa Altinier, Pierre Baudoz, Ruslan Belikov, Alexis Bidot, Jayne L. Birkby, Markus J. Bonse, Bernhard Brandl, Alexis Carlotti, Elodie Choquet, Dirk van Dam, Niyati Desai, Kevin Fogarty, Jules Fowler, Kyle van Gorkom, Yann Gutierrez, Olivier Guyon, Sebastiaan Y. Haffert, Olivier Herscovici-Schiller, Adrien Hours, Roser Juanola-Parramon, Evangelia Kleisioti, Lorenzo König, Maaïke van Kooten, Mariya Krasteva, Iva Laginja, Rico Landman, Lucie Leboulleux, David Mouillet, Mamadou N'Diaye, Emiel H. Por, Laurent Pueyo, Frans Snik
Monthly Notices of the Royal Astronomical Society, 524, 5477, 2023
116. [Warm Jupiters Beyond the Tidal Synchronization Limit May Exhibit a Wide Range of Secondary Eclipse Depths](#)
Emily Rauscher, **Nicolas B. Cowan** & Rodrigo Luger
Astronomical Journal, 165, 261, 2023
115. [CO or no CO? Narrowing the CO abundance constraint and recovering the H₂O detection in the atmosphere of WASP-127b using SPIRou](#)
Anne Boucher, David Lafrenière, Stefan Pelletier, Antoine Darveau-Bernier, Michael Radica, Romain Allart, Étienne Artigau, Neil J. Cook, Florian Debras, René Doyon, Charles Cadieux, Ryan Cloutier, Pía Cortés-Zuleta, **Nicolas B. Cowan**, Xavier Delfosse, Jean-François Donati, Thierry Forveille, Eric Gaidos, Konstantin Grankin, Guillaume Hébrard, Jorge H. C. Martins, Eder Martioli, Adrien Masson, and Sandrine Vinatier
Monthly Notices of the Royal Astronomical Society, 522, 5062, 2023
114. [The Roasting Marshmallows Program with IGRINS on Gemini South I: Composition and Climate of the Ultra Hot Jupiter WASP-18 b](#)
Matteo Brogi, Vanessa Emeka-Okafor, Michael R. Line, Siddharth Gandhi, Lorenzo Pino, Eliza M.-R. Kempton, Emily Rauscher, Vivien Parmentier, Jacob L. Bean, Gregory N. Mace, **Nicolas B. Cowan**, Evgenya Shkolnik, Joost P. Wardenier, Megan Mansfield, Luis Welbanks, Peter Smith, Jonathan J. Fortney, Jayne L. Birkby, Joseph A. Zalesky, **Lisa Dang**, Jennifer Patience, Jean-Michel Désert
Astronomical Journal, 165, 91, 2023
113. [Combining Photometry and Astrometry to Improve Orbit Retrieval of Directly Imaged Exoplanets](#)
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