

Jessica Speedie

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Education

Ph.D. Astronomy (<i>In progress</i>) University of Victoria, Canada Thesis: A Millimeter/sub-millimeter View into the Earliest Stages of Planet Formation	Sep. 2020 - [Aug. 2025] <i>Advisor: Prof. Ruobing Dong</i>
B.Sc. Honours Integrated Science (<i>Summa Cum Laude</i>) McMaster University, Canada Thesis: Formation and evolution of ring systems in planet-forming disks	Sep. 2016 - Apr. 2020 <i>Advisor: Prof. Ralph Pudritz</i>
B.Mus. (<i>Not Completed</i>) Humber College of Creative & Performing Arts, Canada Jazz Performance (Guitar), GPA: 90%	Sep. 2015 - Apr. 2016 <i>Principal teacher: David Occhipinti</i>
College Certificate Humber College of Creative & Performing Arts, Canada Introduction to Commercial Jazz (Guitar), GPA: 90%	Sep. 2014 - Apr. 2015 <i>Principal teacher: Nathan Hiltz</i>

Professional Appointments

[🔗](#) indicates number of lead author papers resulting from appointment; [📄](#) undergraduate-refereed journal

Graduate Researcher Department of Physics & Astronomy, University of Victoria 🔗🔗🔗 Advisor: Prof. Ruobing Dong	Sep. 2020 - Present Victoria, BC, Canada
Undergraduate Researcher Department of Physics & Astronomy, McMaster University 🔗 Advisor: Prof. Ralph Pudritz	May - Jul. 2020 Hamilton, ON, Canada
Undergraduate Researcher Canadian Institute for Theoretical Astrophysics, University of Toronto 🔗 Advisor: Dr. J. J. Zanazzi	May - Aug. 2019 Toronto, ON, Canada
Undergraduate Researcher Institute for Research on Exoplanets, University of Montréal 📄 Advisor: Prof. David Lafrenière	May - Aug. 2018 Montréal, QC, Canada
Undergraduate Researcher Department of Physics & Astronomy, McMaster University 📄 Advisor: Prof. Laura Parker	Jul. - Aug. 2017 Hamilton, ON, Canada

Publication Summary

Author of **10 publications**, including **6 lead author papers** with one published in **Nature** ([ADS Library](#)).

Talks Summary

I have given **37 talks**, including 12 invited and 4 public talks. Full listing at the end of CV.

Successful Observing Proposals

PI · ALMA · 30.6 hrs A cloudlet-capture origin of late infall streamers in the AB Aur system	2024.1.01060.S
PI · ALMA · 9.7 hrs Kinematic signatures of gravitational instability in a planet-forming disk	2023.1.00491.S
PI · ALMA · 13.4 hrs Putting kinematic planetary detection techniques to the test in HD 97048	2022.1.01266.S
Co-I · ALMA · 9.1 hrs Inspecting the planetary signature in the continuum disc around HD 97048	2022.1.01682.S

Funding & Awards

\$1,000 CAD · University of Victoria Fellowship - Doctoral University of Victoria	2024
\$10,000 USD · ALMA Ambassador National Radio Astronomy Observatory (Travel funding)	2024
\$105,000 CAD · NSERC Canada Graduate Scholarship - Doctoral (Ph.D. funding)	2022-2025
5x \$5,000 CAD · President's Research Scholarship University of Victoria	2020, 2021, 2022, 2023, 2024

2x \$1,500 CAD · University of Victoria Graduate Award University of Victoria	2021 & 2022
\$5,125 CAD · The R. M. Petrie Memorial Fellowship University of Victoria	2021
\$5,200 CAD · NSERC Michael Smith Foreign Study Supplement (Travel funding)	2021
\$17,500 CAD · NSERC Canada Graduate Scholarship - Master's (MSc. funding)	2020
\$15,000 CAD · British Columbia Graduate Scholarship (Declined)	2020
Chancellor's Gold Medal Nomination Dep. of Physics & Astronomy, McMaster University	2019
\$800 CAD · The University Senate Scholarship McMaster University	2019
\$625 CAD · The Boyd McLay Scholarship in Physics McMaster University	2019
\$9,500 · NSERC Undergraduate Student Research Award University of Toronto (Research funding)	2019
\$8,400 CAD · NSERC Undergraduate Research Award McMaster University (Declined)	2019
\$1,600 CAD · The Gladys A. Young Scholarship McMaster University	2018
\$600 CAD · The Gerald and Verna Simpson Memorial Scholarship McMaster University	2018
\$6,000 CAD · Trottier Excellence Grant for Summer Interns University of Montréal (Research funding)	2017
\$500 CAD · Peter Harris Memorial Award Humber College of Creative & Performing Arts	2016
\$300 CAD · CJA Sousa Liberal Studies Achievement Award Humber College of Creative & Performing Arts	2015
\$2,500 CAD · Academic Award of Excellence Humber College of Creative & Performing Arts	2015
\$1,750 CAD · RBC Scholarship for Emerging Artists Merriam School of Music	2014

Service & Leadership

☆ indicates peer-elected leadership roles

National & International

Associate Member NAASC ALMA Primer Video Working Group	2024-Present
Associate→Core Member SKA Cradle of Life Science Working Group	2023-Present
☆ Vice Chair Canadian Astronomical Society Graduate Student Committee (2 terms)	2023-Present
ALMA Ambassador National Radio Astronomy Observatory	2024-2025
University Representative Canadian Astronomical Society Graduate Student Committee	2022-2023

Institutional

☆ Department Representative Graduate Student Society Council, University of Victoria	2021-2022
☆ Vice Chair Physics & Astronomy Graduate Student Association, University of Victoria	2021-2022
☆ Student Affairs Officer Physics & Astronomy Graduate Student Association, University of Victoria	2020-2021
☆ Co-President Undergraduate Academic Astronomy Club, McMaster University	2018-2020
☆ Vice President of Functions Undergraduate Academic Astronomy Club, McMaster University	2017-2018
1st-Year Representative Undergraduate Academic Astronomy Club, McMaster University	2016-2017

Professional

Journal Referee <i>MNRAS</i> , <i>ApJ</i> , <i>ApJL</i> , <i>Nature Astronomy</i>	2022-Present
Co-Organizer & Website 🔗 Guide to Applying for Astronomy Postdocs, CASCA Online Workshop Series	2025
Co-Lead Organizer CASCA AGM Graduate Student Workshop, Saint Mary's University	2025
LOC & Website 🔗 From Stars to Life: Celebrating the Scientific Legacy of Ralph Pudritz, McMaster University	2025
Lead Organizer 🔗 ALMA Data Processing Workshop, University of Victoria	2024
Review Panelist ALMA Archival Student Observing Support Awards	2024
Co-Lead Organizer CASCA AGM Graduate Student Workshop, York University	2024
Usability Reviewer Data Observatory Cloud Interferometric Radio Astronomical Imaging Platform	2024
User Feedback Group Canadian Network for Astronomy Research Science Platform	2023-2024
External Reviewer UK National High Performance Computing Resources Grant Program	2021

Teaching & Mentorship

Teaching Assistant (Cumulative total: 24 months)

ASTRO 150 Concepts in Modern Astronomy (20 undergrads, 1 semester), University of Victoria	2021
PHYS 110 Introductory Physics (30 undergrads, 1 semester), University of Victoria	2020
ISCI 2A18 Advanced Calculus (55 undergrads, 4 semesters), McMaster University	2018-2020

Instructional Workshops

Instructor ALMA Data Processing Workshop (1 day), University of Victoria 🔗	Oct. 2024
Tutorial Support 20th Synthesis Imaging Summer School (2 days), Socorro, New Mexico 🔗	May 2024

Guest Lecturer (2 classes)

ISCI 2A18 Advanced Calculus (55 undergrads, 2 times), McMaster University	2019-2020
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Research Mentor (5 students)

Joshua Adams Undergraduate research project, McMaster University	2024
Edward Stevenson Honours/MSc research project (1 paper), University of Cambridge	2023-2024
Scott Holtshousen Undergraduate research project, NRC Herzberg	2023
Gillian Bogert Masters research project, McMaster University	2021-2022
Elizabeth Patrascu Undergraduate research project, McMaster University	2021

Academic Mentor (2 students), Student-run mentorship programs

Breanna Cromptvoets (MSc student) University of Victoria	2021-2022
Dori Blakely (MSc student) University of Victoria	2021-2022

Public Outreach, DEI Efforts & Community Engagement

Astronomer-to-meet Canadian Youth Exploring Space, Vancouver Island (online)	Sep. 2024-Present
Speaker Island County Astronomical Society, Seattle, WA (online)	Nov. 2024
Speaker Royal Astronomical Society of Canada, Victoria, BC 🔗	Sep. 2024
Speaker Centre of the Universe Star Party (2 times) ▶	Aug. 2024
Sidewalk Astronomer Annual YYJ Science Rendezvous, Victoria, BC	May 2024
Student Advocate Indigenous Plan Implementation Project, University of Victoria	2022-2023
Speaker Verna J. Kirkness Program for Indigenous Youth, Victoria, BC	May 2021

Press & Media

Press Releases & News

AAS Nova "A Late-Stage Infall Renovation: Mapping the Circumstellar Disk of AB Aurigae"	2025
NRAO "ALMA Detects Hallmark 'Wiggle' of Gravitational Instability in Planet-Forming Disk"	2024
NRAO (North America), JAO (Worldwide), KIAA Peking (China), IoA Cambridge (UK), MIT (USA), UGA (USA)	
New York Times "There May Be More Than One Way To Form A Planet"	2024
UVic Office of Research Innovation "UVic PhD candidate reorients our view of planet formation"	2024
Natural Sciences & Engineering Research Council of Canada "Wiggles in a planet-forming disk"	2024
Saanich News "UVic researcher helps uncover secrets about how planets form"	2024


Radio Interviews

CBC Radio · On the Island "UVic Researcher Helps Uncover Secrets about How Planets Form"	2024
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Highlights

Science Exposed · Top 20 Finalist Natural Sciences & Engineering Research Council of Canada	2024
Graduate Student Highlight Canadian Astronomical Society / Société Canadienne d'Astronomie	2022
ngVLA Science Showcase eNews Article, National Radio Astronomy Observatory	2022

Conference Posters

6. Canadian Astronomical Society AGM University of Toronto, ON	Jun. 2024
5. ALMA At 10 Years: Past, Present, and Future Puerto Varas, Chile 	Dec. 2023
4. Canadian Astronomical Society AGM Dominion Radio Astrophysical Observatory (online) 	May 2021
3. Circumplanetary Disks & Satellite Formation Conference II ETH Zürich (online) 	Mar. 2021
2. Five Years After HL Tau: A new era in planet formation ESO, Chile (online) 	Dec. 2020
1. Physics Undergraduate Conference Western University, London, ON 	Mar. 2018

Workshop, School & Conference Participation

☆ indicates participation was competitive/application-based

Picture an Astronomer Symposium University of Chicago, IL (online)	Mar. 2025
☆ ALMA Ambassador Data Processing Training NRAO, Charlottesville, VA	Aug. 2024
☆ Spatio-spectral Modeling of Interferometric Data Workshop NAASC, Charlottesville, VA	May 2024
NRAO 20th Synthesis Imaging Workshop Socorro, NM	May 2024
☆ ALMA Ambassador Proposal Preparation Training NRAO, Charlottesville, VA	Feb. 2024
☆ Flatiron Computational Fluid Dynamics Summer School Flatiron Institute, NY	Jul.-Aug. 2023
NRAO 19th Synthesis Imaging Workshop , Charlottesville, VA	Jun. 2023
New Eyes on the Universe: SKA and ngVLA Vancouver, BC (online)	May 2023
Dustbusters School on Protostellar Discs & Planet Formation Gargnano del Garda, Italy	May 2022
Distorted Astrophysical Discs Kavli Institute, Cambridge, UK (online)	May 2021
Exomoon Discussion Event Columbia University, NY (online)	Nov. 2020
IMPRS 15th Summer School: Planet Formation Heidelberg, Germany (online)	Aug. 2020
Sagan Exoplanet Summer Workshop NASA Exoplanet Science Institute, Caltech, CA (online)	Jul. 2020
Canadian Astronomical Society Annual Meeting York University, Toronto, ON (online)	May 2020
Science of Early Life The Origins Institute, McMaster University, Hamilton, ON	Jun. 2018
Gravitational Waves Fall Meeting American Physical Society, Union College, Schenectady, NY	Nov. 2017

Talks & Seminars

☆ indicates invited; ★ indicates public talk

37. ☆ **PSF Coffee, Max-Planck-Institute for Astronomy** | Heidelberg, Germany Nov. 2024
36. **Institute for Theoretical Astrophysics** | Heidelberg University, Heidelberg, Germany Nov. 2024
35. ★ **Island County Astronomical Society** | Seattle, WA (online) Nov. 2024
34. **Born in Fire: Eruptive Stars and Planet Formation** | Santiago, Chile (online) Sep. 2024
33. ★ **Royal Astronomical Society of Canada** | Victoria, BC  Sep. 2024
32. ★ **Centre of the Universe Star Party** | Dominion Astrophysical Observatory (2 times)  Aug. 2024
31. **New Heights in Planet Formation** | ESO, Garching, Germany Jul. 2024
30. **Physics & Astronomy Research Night** | University of Victoria, BC Mar. 2024
29. **Planet Formation Group, CfA | Harvard & Smithsonian** | Cambridge, MA Feb. 2024
28. **Planet Formation Lab, EAPS, MIT** | Cambridge, MA Feb. 2024
27. ☆ **Department of Physics & Astronomy** | McMaster University, Hamilton, ON Jan. 2024
26. **NRC Herzberg Astronomy & Astrophysics Research Centre** | DAO Science Tea, Victoria, BC  Nov. 2023
25. ☆ **Center for Simulational Physics, University of Georgia** | Athens, GA Aug. 2023
24. **University of Victoria Astronomy Summer Seminar** | Victoria, BC  Jul. 2023
23. ☆ **Center for Integrative Planetary Science (CIPS)** | UC Berkeley, CA (online) Mar. 2023
22. **Disks and Planets Across ESO Facilities** | ESO, Garching, Germany (online)  Nov. 2022
21. ☆ **TUNA Lunch Talk** | National Radio Astronomy Observatory / UVA, Charlottesville, VA Nov. 2022
20. **CITA Planet Day** | Canadian Institute for Theoretical Astrophysics, University of Toronto, ON Aug. 2022
19. ☆ **Institute of Astronomy, University of Cambridge** | Cambridge, UK Aug. 2022
18. ☆ **Department of Physics & Astronomy, University College London** | London, UK Aug. 2022
17. ☆ **Astronomy & Astrophysics Group, University of Warwick** | Coventry, UK Jul. 2022
16. ☆ **Department of Physics & Astronomy, Queen Mary University** | London, UK Jul. 2022
15. **Stars & Planets Group, Imperial College London** | London, UK Jul. 2022
14. ☆ **Astrophysics Seminar, University of Leicester** | Leicester, UK Jun. 2022
13. **Dept of Astronomy, Institute for Advanced Study** | Tsinghua University (online) Jun. 2022
12. **Canadian Astronomical Society Annual Meeting** | University of Waterloo, ON (online) May 2022
11. ☆ **Jets and Accretion Discs Study Group** | Joint ALMA Observatory, Santiago, CL (online) May 2022
10. ☆ **Planet Formation Group** | CCA, Flatiron Institute, NY (online) Mar. 2022
9. **Planet Formation Group, CfA | Harvard & Smithsonian** | Cambridge, MA (online) Nov. 2021
8. **Planet-forming Disks: From Surveys to Answers** | Leiden, The Netherlands (online)  Sep. 2021
7. **University of Victoria Astronomy Summer Seminar** | Victoria, BC (online) Aug. 2021
6. ★ **Verna J. Kirkness Program for Indigenous Youth** | University of Victoria, BC May 2021
5. **Undergraduate Astronomy Research Symposium** | McMaster University, Hamilton, BC (online) Mar. 2021
4. **Five Years After HL Tau: A new era in planet formation** | ESO, Chile (online)  Dec. 2020
3. **Synthesis Undergraduate Research Symposium** | McMaster University, Hamilton, ON Apr. 2019
2. **Canadian Conference for Undergraduate Women in Physics** | Ottawa, ON (1st prize best talk) Jan. 2019
1. **Synthesis Undergraduate Research Symposium** | McMaster University, Hamilton, ON Apr. 2018

Lead Author

6. **Speedie, J.**, Dong, R., Teague, R., Segura-Cox, D., et al. (2025), [ApJ Letters](#), 981(2), L30
Mapping the Impact Zones of Late Infall in the AB Aur Planet-Forming System
5. **Speedie, J.**, Dong, R., Hall, C., Longarini, C., et al. (2024), [Nature](#), 633, 58-62
Gravitational Instability in a Planet-Forming Disk
4. **Speedie, J.** & Dong, R. (2022), [ApJ Letters](#), 940(2), L43
Testing Velocity Kinks as a Planet Detection Method: Do velocity kinks in surface gas emission trace planetary spiral wakes in the midplane continuum?
3. **Speedie, J.**, Booth, R.A. & Dong, R. (2022), [ApJ](#), 930, 40 (22pp)
Observing Planet-driven Dust Spirals with ALMA
2. **Speedie, J.**, Pudritz, R.E., Cridland, A.J., Meru, F. & Booth, R.A. (2022), [MNRAS](#), 510(4), 6059-6084
Turbulent Disk Viscosity and the Bifurcation of Planet Formation Histories
1. **Speedie, J.** & Zanazzi, J. J. (2020), [MNRAS](#), 497(2), 1870-1883
The Structure and Stability of Extended, Inclined Circumplanetary Disk or Ring Systems

Co-Author

☆ indicates student mentees

4. Calcino, J., Price, D.J., Hilder, T., Christiaens, V., **Speedie, J.**, et al. (2025), [MNRAS](#), 537(3), 2695-2707
Anatomy of a Fall: Stationary and super-Keplerian spiral arms generated by accretion streamers in protostellar discs
3. Calcino, J., Norfolk, B., Price, D.J., Hilder, T., **Speedie, J.**, et al. (2024), [MNRAS](#), 534(3), 2904-2917
Observational Signatures of Circumbinary Discs II: Kinematic Signatures in Velocity Residuals
2. Longarini, C., Lodato, G., Clarke, C.J., **Speedie, J.**, et al. (2024), [A&A Letters](#), 686, L6
Angular momentum transport via gravitational instability in the Elias 2-27 disc
1. Stevenson, E.T.☆, Ribas, A., **Speedie, J.**, et al. (2024), [MNRAS](#), 530(4), 4802-4825
Searching for planet-driven dust spirals in ALMA visibilities

White/Community Papers (Non-refereed)

1. Benneke, B., Cowan, N., Rowe, J. et al. (incl. **Speedie, J.**), (2019), [Canadian Long Range Plan for Astronomy and Astrophysics White Papers, LRP2020](#). Exoplanet instrumentation in the 2020s: Canada's pathway towards searching for life on potentially Earth-like exoplanets

Undergraduate-refereed Journal Publications

2. **Speedie, J.** & Lafrenière, D. (2018), [The iScientist](#), 4(1), 3-14
Improved Surface Gravity and Mass Constraints for Substellar Objects from Spectral Line Profile Measurements at High Resolution in the Near-Infrared
1. **Speedie, J.** & Parker, L.C. (2017), [The iScientist](#), 3(1), 3-12
Star Formation and Morphology of Galaxies in Local Compact Groups