Alice P. Curtin

PhD Candidate, McGill University
Vanier Canada Graduate Scholar

Contact

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Research Interests

Fast radio bursts, Pulsars, Radio Telescopes, Magnetars, Galactic Magnetic Field, Very Long Baseline Interferometry, Compact Object Mergers, Interstellar Medium

Education

Doctor of Philosophy, Physics, McGill University Sept. 2021 - Present

Thesis: *Probing the Origins of FRBs using CHIME: High-energy Counterpart Searches and Burst Morphology*

Advisor: Victoria Kaspi

General GPA: 4.0

Master of Science, Physics, McGill University Sept. 2019 – Feb. 2022

Thesis: *The Canadian Hydrogen Intensity Mapping Experiment Fast Radio Burst Project: Monitoring the Interference Environment and Studying the Bursting Behaviour of SGR 1935+2154*

Advisor: Victoria Kaspi

General GPA: 4.0

Bachelor of Arts Degree, Physics & Astronomy, Carleton College Sept. 2015 - June 2019

Thesis: *Jets in Active Galactic Nuclei*

Advisor: Joel Weisberg

General GPA: 3.75

Research Experience

McGill University Sept. 2019 - Present

As part of the CHIME/FRB & CHIME/Outrigger Collaborations

Vanier Canada Graduate Scholar

Carleton College Jan. 2016 – Aug. 2024

Under Joel Weisberg & Joanna Rankin

University of Utah June – Aug. 2018

Under David Kieta as a part of VERITAS & HAWC

Awards and Recognitions

President's Prize for Public Engagement, as a part of the McGill Eclipse team, 2025
Marcel Grossman Award, as part of the CHIME/FRB team 2024
McGill Physics Travel Grant, *$4000 (total)* 2024, 2023, 2022
McGill Faculty of Science Funding for Science in Space Outreach Initiative, *$5000* 2023
Best Talk at CASCA, Penticton, BC 2023
"*Calibrating the CHIME/FRB Outriggers using Pulsars and the VLBA"*
Honorable Mention for EPO Poster at CASCA, Penticton, BC 2023
"*Science in Space How to Telescope – Designing and building telescopes in Minecraft to encourage belonging and equitable spaces in STEM"*
McGill Department of Physics Community Building Award, *$1000* 2023
Vanier Canada Graduate Fellow, NSERC, McGill University, *$150000* 2022 - 2025
Ranked #6 out of all NSERC Vanier Candidates in Canada
2022 Brockhouse Canada Prize*,* as part of the CHIME team 2022
Lancelot M. Berkeley – New York Community Trust Prize, 2022
as part of the CHIME/FRB team
AAS Berkeley Prize, as part of the CHIME/FRB team. 2022
McGill University McPhee Fellowship, *$10000* 2020
Governor General's Innovation Award*,* as part of the CHIME team 2020
Distinction in Physics & Astronomy Bachelor Degree, Carleton College 2019
Distinction on Physics Thesis, "*Jets in Active Galactic Nuclei,"* Carleton College 2019
Honorable Mention for Research on SS 433, University of Utah 2018
Mike Ewers Award, Minnesota Space Grant Consortium, Carleton College, *$1000* 2018
Minnesota Space Grant Consortium Award, Carleton College, *$1000* 2016

Publications

Lead Author Articles

1. **Curtin** et al. (2025), Discovery and Localization of the Swift-Observed FRB 20241228A in a Star-forming Host Galaxy, Submitted to ApJ,
2. **Curtin** et al. (2024), Morphology of 20 Repeating Fast Radio Burst Sources at Microsecond Time Scales with CHIME/FRB, Accepted in ApJ, https://arxiv.org/html/2411.02870v1

3. **Curtin,** Weisberg, and Rankin (2024) Determining the Magnetic Field in the Galactic Plane from New Arecibo Pulsar Faraday Rotation Measurements, ApJ, 975, 215, https://doi.org/10.3847/1538-4357/ad7b15
4. **Curtin** et al. (2024), Constraining Near-simultaneous Radio Emission from Short Gamma-Ray Bursts Using CHIME/FRB, ApJ, 972, 125, https://doi.org/10.3847/1538-4357/ad5c65
5. **Curtin** et al. (2023), Limits on Fast Radio Burst-like Counterparts to Gamma-Ray Bursts Using CHIME/FRB, ApJ, 954, 154, https://doi.org/10.3847/1538-4357/ace52f

Lead Author Atels

1. **Curtin, A.P.** and CHIME/FRB Collaboration (2023) "Non-detection of radio emission from GRB 231115A with CHIME/FRB", ATel16341, https://www.astronomerstelegram.org/?read=16341
1. **Curtin, A. P.** and CHIME/FRB Collaboration (2024) "CHIME/FRB Updated Position for Repeating Source FRB 20240316A", ATel6780, https://www.astronomerstelegram.org/?read=16780

Other

Total of 26 co-authored works with ~1300 citations

1. Ng, Pandhi, Mckinven, Curtin, et al. (2024), Polarization properties of 28 repeating fast radio burst sources with CHIME/FRB, Accepted in ApJ, https://arxiv.org/abs/2411.09045
2. Shah et al. **incl. Curtin** (2024), A repeating fast radio burst source in the outskirts of a quiescent galaxy, Accepted ApJ, https://arxiv.org/abs/2410.23374
3. Andrew et al. **incl. Curtin** (2024), A VLBI Calibrator Grid at 600MHz for Fast Radio Transient Localizations with CHIME/FRB Outriggers, arXiv e-prints, https://arxiv.org/abs/2409.11476
4. Cassanelli et al. **incl. Curtin** (2024), A fast radio burst localized at detection to an edge-on galaxy using very-long-baseline interferometry, Nature Astronomy, https://doi.org/10.1038/s41550-024-02357-x
5. Sand, **Curtin** et al. (2024), Morphology of 137 Fast Radio Bursts down to Microseconds Timescales from The First CHIME/FRB Baseband Catalog, Accepted in ApJ, https://arxiv.org/abs/2408.13215.
6. Cook et al. **incl. Curtin** (2024), Contemporaneous X-ray Observations of 30 Bright Radio Bursts from the Prolific Fast Radio Burst Source FRB 20220912A, ApJ, 974, 170, https://doi.org/10.3847/1538-4357/ad6a13
7. Lanman et al. **incl. Curtin** (2024), CHIME/FRB Outriggers: KKO Station System and Commissioning Results, AJ, 168, 87, https://doi.org/10.3847/1538-3881/ad5838
8. Dong, Clarke, **Curtin** et al. (2024), The discovery of a nearby 421~s transient with CHIME/FRB/Pulsar, Submitted Nature, https://arxiv.org/pdf/2407.07480
9. CHIME/FRB Collaboration et al. **incl. Curtin** (2024), Updating the First CHIME/FRB Catalog of Fast Radio Bursts with Baseband Data, ApJ, 969, 145, https://doi.org/10.3847/1538-4357/ad464b

10. Nimmo et al. **incl. Curtin** (2024), Magnetospheric origin of a fast radio burst constrained using scintillation, Accepted Nature, https://doi.org/10.48550/arXiv.2406.11053
11. Pandhi et al. **incl. Curtin** (2024), Polarization Properties of 128 Nonrepeating Fast Radio Bursts from the First CHIME/FRB Baseband Catalog, ApJ, 968, 50, https://doi.org/10.3847/1538-4357/ad40aa
12. Mckinven et al. **incl. Curtin** (2024), A pulsar-like swing in the polarisation position angle of a nearby fast radio burst, Submitted to Nature, https://doi.org/10.48550/arXiv.2402.09304
13. Faber et al. **incl. Curtin** (2023), Morphologies of Bright Complex Fast Radio Bursts with CHIME/FRB Voltage Data, ApJ, 974, 274, https://doi.org/10.3847/1538-4357/ad59aa
14. Giri, Anderson, Chawla, **Curtin** et al. (2023), Comprehensive Bayesian analysis of FRB-like bursts from SGR 1935+2154 observed by CHIME/FRB, Submitted to ApJ, https://arxiv.org/abs/2310.16932
15. Rankin, Venkataraman, Weisberg and **Curtin** (2023), Polarization measurements of Arecibo-sky pulsars: Faraday rotations and emission-beam analyses, MNRAS, 524, 5042, https://doi.org/10.1093/mnras/stad2182
16. Sand et al. **incl. Curtin** (2023), A CHIME/FRB Study of Burst Rate and Morphological Evolution of the Periodically Repeating FRB 20180916B, ApJ, 956, 23, https://doi.org/10.3847/1538-4357/acf221
17. Pearlman et al. **incl. Curtin** (2023), Multiwavelength Constraints on the Origin of a Nearby Repeating Fast Radio Burst Source in a Globular Cluster, Accepted Nature Astronomy, https://arxiv.org/pdf/2308.10930
18. Lin et al. **incl. Curtin** (2023), Do All Fast Radio Bursts Repeat? Constraints from CHIME/FRB Far Sidelobe FRBs, ApJ, 975, 75, https://doi.org/10.3847/1538-4357/ad779d
19. CHIME/FRB Collaboration et al. **incl. Curtin** (2023), CHIME/FRB Discovery of 25 Repeating Fast Radio Burst Sources, ApJ, 947, 83, https://doi.org/10.3847/1538-4357/acc6c1
20. Cook et al. **incl. Curtin** (2023), An FRB Sent Me a DM: Constraining the Electron Column of the Milky Way Halo with Fast Radio Burst Dispersion Measures from CHIME/FRB, ApJ, 946, 58, https://doi.org/10.3847/1538-4357/acbbd0
21. CHIME/FRB Collaboration et al. **incl. Curtin** (2023), Erratum: "The First CHIME/FRB Fast Radio Burst Catalog" (2021, ApJS, 257, 59), ApJS, 264, 53, https://doi.org/10.3847/1538-4365/acb54c
22. CHIME/FRB Collaboration et al. **incl. Curtin** (2022), Sub-second periodicity in a fast radio burst, Nature, 607, 256, https://doi.org/10.1038/s41586-022-04841-8
23. CHIME/FRB Collaboration et al. **incl. Curtin** (2021), The First CHIME/FRB Fast Radio Burst Catalog, ApJS, 257, 59, https://doi.org/10.3847/1538-4365/ac33ab

24. Josephy, Chawla, **Curtin,** et al. (2021), No Evidence for Galactic Latitude Dependence of the Fast Radio Burst Sky Distribution, ApJ, 923, 2, https://doi.org/10.3847/1538-4357/ac33ad
25. CHIME/FRB Collaboration et al. **incl. Curtin** (2020), A bright millisecond-duration radio burst from a Galactic magnetar, Nature, 587, 54, https://doi.org/10.1038/s41586-020-2863-y

Proposals

2025: **VLBA,** PI: Lazda, "Constraining the nebular model of fast radio bursts with three new localizations", Hours Acquired: 25
VLBA, DDT, PI: Lazda, "Unveiling compact radio emission associated with a local universe FRB", Hours Acquired: 8

2024**: VLBA, PI Curtin,** "Precise Pulsar Positions for CHIME/FRB Outrigger Calibration", Hours Acquired: 80

2023: **VLBA, PI Curtin**, "Precise Pulsar Positions for CHIME/FRB Outrigger Calibration", Hours Acquired: 180

2022: **VLBA, PI Curtin**, "Precise Pulsar Positions for CHIME/FRB Outrigger Calibration", Hours Acquired: 42

Invited & Contributed Talk

Seminars/Colloquium

University of Vermont, Physical Society Colloquium (Invited) Burlington, VT, 2025
Uncovering the Origins of Fast Radio Bursts using CHIME/FRB and its Outriggers

Marionopolis College, Seminar (Invited) Montreal, QC, 2024
Unveiling the Transient Night Sky

Institut d'Astrophysique Spatiale, Seminar (Invited) Paris, France, 2024
Fast Radio Bursts: Insights from CHIME/FRB and Future Prospects with the CHIME/FRB Outriggers

CIERA, Northwestern University, Seminar Evanston, IL, 2024
Fast Radio Bursts: Insights from CHIME/FRB and Future Prospects with the CHIME/FRB Outriggers

Caltech, Radio Seminar Pasadena, CA, 2024
Fast Radio Bursts: Insights from CHIME/FRB and Future Prospects with the CHIME/FRB Outriggers

McGill University, Seminar, (Invited) Montreal, QC, 2023
Building Connections: Science Outreach in the McGill Department of Physics and Trottier Space Institute

Dominion Radio Astrophysical Observatory Tech Talk (Invited) Online, 2021
Characterizing and Recording Radio Frequency Interference at the Canadian Hydrogen Intensity Mapping Experiment Fast Radio Burst Project

Conferences

Structure and polarization in the interstellar medium Online, 2024
A New Technique for Mapping the Galactic Magnetic Field using Pulsar Faraday Rotation Measurements

FRB 2024 Thailand, 2024
Microsecond Morphology and Polarization Analysis of 32 Repeating FRBs with CHIME/FRB

Canadian Astronomical Society Annual Meeting Toronto, ON, 2024
Building more equitable spaces in STEM through game-based learning

FRB 2023 Online, 2023
A High-Time Resolution Study of 24 Repeating FRBs with CHIME/FRB

Canadian Astronomical Society Annual Meeting Penticton, BC, 2023
Calibrating the CHIME/FRB Outriggers using Pulsars and the VLBA

FRB 2022 Busan, SK, 2022
Searching for FRB-like Counterparts to GRBs using the First CHIME/FRB Catalog

Centre for Research in Astrophysics of Quebec Annual Meeting Quebec, 2022
Searching for FRB-like Counterparts from GRBs using the First CHIME/FRB Catalog

RFI 2022 Online, 2022
Radio Frequency Interference at the Canadian Hydrogen Intensity Mapping Experiment Fast Radio Burst Project

RFI 2022 Online, 2022
A New Pipeline for Characterizing and Recording Radio Frequency Interference for the Canadian Hydrogen Intensity Mapping Experiment Fast Radio Burst Project

Other

McGill University, Seminar for High School Students Montreal, QC, 2025
Uncovering the transient night sky

Rutgers Journal Club Online, 2025
Uncovering the Origins of Fast Radio Bursts using CHIME/FRB and its Outriggers

McGill University Transient Discussion Journal Club Montreal, QC, 2025

A New Technique for Mapping the Galactic Magnetic Field using Pulsar Faraday Rotation Measurements

MIT Kavli Institute Tea Talk Boston, MA, 2024
Fast Radio Bursts: Insights from CHIME/FRB and Future Prospects with the CHIME/FRB Outriggers

UC Berkeley Astronomy Lunch Talk Berkeley, CA, 2024
Constraining FRB-like Emission from SGRBs using CHIME/FRB

Astronomy on Tap, Montreal Montreal, QC, 2023
A mysterious bump in the night

Northwestern CIERA Observer's Group Meeting Online, 2023
Calibrating the CHIME/Outriggers for Fast Radio Burst Localizations

WVU Astronomy Journal Club Online, 2023
Calibrating the CHIME/FRB Outriggers using Pulsars and the VLBA

Posters

Canadian Astronomical Society Annual Meeting Toronto, ON, 2024
Constraining Simultaneous FRB-like Radio Emission from SGRBs using CHIME/FRB

FRB 2023 Online**,** 2023
Constraining FRB-like Radio Emission from 28 SGRBs using CHIME/FRB

Canadian Astronomical Society Annual Meeting Penticton, BC, 2023
Science in Space: How to Telescope – building telescopes in Minecraft to encourage belonging and equitable spaces in STEM

FRB 2022 Busan, SK, 2022
Calibrating the CHIME/FRB Outriggers using Pulsars and the VLBA

FRB 2021 Online, 2021
Constraining FRB-like Counterparts from GRBs with the First CHIME/FRB Catalog

American Astronomical Society Annual Meeting Seattle, WA, 2019
VERITAS Observations of Very High-Energy Gamma-rays from the Microquasar SS 433

Leadership and Community Involvement

CHIME/FRB Run Coordinator Summer 2025 - Present
Co-convenor of Counterparts Working Group, CHIME Winter 2025 - Present
Co-chair of Scientific Organizing Committee for FRB 2025 Fall 2024 - Present
Co-chair of Local Organizing Committee for FRB 2025 Fall 2024 - Present
Co-founder and organizer of CHIME/FRB's social media Fall 2024 - Present

Co-founder and convener of FRB Early Career Researcher Journal Club Fall 2023 - Present
Co-founder and principal coordinator of Science in Space Outreach Initiative, McGill University, Trottier Space Institute, Dell Technologies/Girls Who Game Spring 2022 - Present
Pipeline Expert & Admin, CHIME/FRB Fall 2023 - Summer 2025
Graduate student coordinator for Physics Outreach[1] Fall 2021 - Summer 2025
Co-organizer Outreach Session for CASCA 2025 (Invited) Spring 2025
Convener of McGill Transient Discussion, McGill Spring 2022 – Winter 2025
Writer for Astrobites, Astrobites Winter 2021 – Fall 2024
CIBC Spring Break Camp on Space, Toronto, ON Spring 2024
Judge & Delegate Selection Committee Member for CCUWiP Conference Winter 2024
Mentorship Panelist for Graduate School, Montreal Fall 2023
Co-organizer, Graduate-level AstroStatistics Reading Course, McGill University Fall 2023
Multi-National Outreach Alliance, McGill University Fall 2020
Student Volunteer for Goodsell Observatory, Carleton College Summer 2016 - Summer 2019
Science Summer Educator, Berkshire Museum, Pittsfield, MA Summer 2017
Student Leader for Young Summer Astronomy Experience, Carleton College Summer 2016

Committee Memberships

SKA Transient Science Working Group Winter 2025 - Present
CHIME RFI Committee Fall 2024 - Present
CASCA Climate Committee Summer 2024 - Present
McGill Physics Outreach Committee Graduate Student Member[1] Spring 2020 - Present
CERC EDI Action Plan Committee Fall 2024 - Spring 2025
Astrobites Admin Committee Member, Astrobites Fall 2023 - Fall 2024
Astrobites Social Media Chair, Astrobites Fall 2021 - Fall 2024
Astrobites Climate Change Committee Member, Astrobites Fall 2021 - Fall 2024
Action Plan Task Force for EDI Committee, McGill University Summer 2020 - Spring 2021
Values Statement Task Force for EDI Committee, McGill University Summer 2020
Physics Department Curriculum Committee, Carleton College Fall 2018 - June 2019

Teaching & Mentorship Experience

Undergraduate Mentees

[1] Approximately 240 hrs per year spent on Outreach initiative coordination and facilitation including public talks, school visits, and large-scale event coordination. This totals >1200 hours since 2020. Longest standing non-staff member.

Audrey Bernier, Co-supervised with J. Hessels	Summer 2025
Melanie Szpigiell, Co-supervised with V. Kaspi	Summer 2025
Sloane Sirota**,** Co-supervised with V. Kaspi	Summer 2023 - Winter 2024
Sandhya Rotoo, Co-supervised with V. Kaspi	Summer 2022

Labs and Courses

McGill University

Lab Designer, Facilitator and Grader for Introductory Physics Course	Summer - Fall 2020
Lab Assistant and Grader for Introductory Electricity and Magnetism	Fall 2019
Lab Assistant and Grader for Introductory Mechanics	Fall 2019

Carleton College

Grader for Math 341, Fourier Series and Boundary Values Problems	Spring 2019
Lab Assistant for Physics 165, Electricity and Magnetism	Winter 2019
Problem Solving Facilitator for First and Second Year Physics	Winter 2019

Academic Service

Reviewer for MNRAS — 2023 - Present

Skills

Computer Skills: Advanced in IDL**;** Advanced in Python; Proficient in Unix, Mathematica and Excel**;** Experience with C++ and ROOT
Language Skills: Spanish (Proficient), French (Proficient)

Science Communication Articles & Media

1. **A.P. Curtin,** *Some "not so fast" fast radio bursts*, Astrobites, November 2022
2. **A.P. Curtin,** *An FRB way off in the distance*, Astrobites, October 2022
3. **A.P. Curtin,** *Have we found the origins of fast radio bursts?*, Astrobites, September 2022
4. **A.P. Curtin,** *Could some short and long gamma-ray bursts have the same parents?*, Astrobites, May 2022
5. **A.P. Curtin,** *You'll be a limbo star. How (s)low can you go?*, Astrobites, February 2022
6. **A.P. Curtin,** *Let's get building (some terrestrial planets)!*, Astrobites, December 2021
7. **A.P. Curtin,** *Another Mysterious Fast Radio Burst Detected… Are We One Step Closer to Discovering their Origins?*, Astrobites, November 2021
8. **A.P. Curtin,** *New Radio Source Towards the Center of our Galaxy — Say whaaaat*, Astrobites, October 2021
9. **A.P. Curtin,** *A Fast Radio Burst in a Rather Peculiar Location*, Astrobites, August 2021

10. **A.P. Curtin,** *If you had $100 million, how would you look for aliens?*, Astrobites, May 2021
11. **A.P. Curtin,** *FRBs are spiraling out of control*, Astrobites, March 2021
12. **A.P. Curtin,** *Three Little Outliers in a Sea of Planets, Stars, and Brown Dwarfs*, Astrobites, February 2021
13. **A.P. Curtin,** Instagram reel on Nanograv gravitational wave detection, Astrobites, July 2023, *3000 views*
14. **A.P. Curtin,** Instagram reel on renewable energy in the South Pole, Astrobites, December 2023, *1500 views*
15. **A.P. Curtin,** Instagram reel on 7 eclipse facts, Astrobites, April 2024, *260000 views*