

Hannah Dykaar

Astrophysics Graduate Student
University of Toronto

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(a) Education

University of Toronto Toronto, ON Astrophysics Ph.D., expected 2024
McGill University Montreal, QC Honours Physics B.Sc., 2018

(b) Research Experience

2018 – present Research Assistant, Astronomy and Astrophysics, University of Toronto
Supervisors: Bryan Gaensler and Maria Drout
2017 – 2018 Undergraduate Research Assistant, Physics, McGill University
Supervisor: Daryl Haggard
2016 Undergraduate Research Assistant, Physics and Astronomy, University of Waterloo
Supervisors: Robert Mann and Niayesh Afshordi

(c) Honours and Awards

2021 Walter C. Sumner Memorial Fellowship
2020 NSERC Postgraduate Scholarship - Doctoral
2019 NSERC Canada Graduate Scholarship - Master's
2018 CITA Graduate Fellowship
2017 Dr. Robert E. Bell Science Undergraduate Research Award
2016 NSERC Undergraduate Student Research Award

(d) Publications

Articles published or accepted in refereed journals

1. **Dykaar, Hannah**, Maria R. Drout, B. M. Gaensler, David L. Kaplan, Tara Murphy, As-saf Horesh, Akash Anumalapudi, Dougal Dobie, Laura N. Driessen, Emil Lenc, and Adam Stewart, An Untargeted Search for Radio-Emitting Tidal Disruption Events in the VAST Pilot Survey, arXiv e-prints , arXiv:2406.08371 (2024), [arXiv:2406.08371 \[astro-ph.HE\]](https://arxiv.org/abs/2406.08371) .
2. Vikram Ravi, **Dykaar, Hannah**, Jackson Codd, Ginevra Zaccagnini, Dillon Dong, Maria R. Drout, B. M. Gaensler, Gregg Hallinan, and Casey Law, FIRST J153350.8+272729: The Radio Afterglow of a Decades-old Tidal Disruption Event, **925**, 220 (2022), [arXiv:2102.05795 \[astro-ph.HE\]](https://arxiv.org/abs/2102.05795) .
3. Kaya Mori, Charles J. Hailey, Shifra Mandel, Yve E. Schutt, Matteo Bachetti, Anna Coerver, Frederick K. Baganoff, **Dykaar, Hannah**, Jonathan E. Grindlay, Daryl Haggard, Keri Heuer, Jaesub Hong, Benjamin J. Hord, Chichuan Jin, Melania Nynka, Gabriele Ponti, and John A. Tomsick, NuSTAR and Chandra Observations of New X-Ray Transients in the Central Parsec of the Galaxy, *The Astrophysical Journal* **885**, 142 (2019), [arXiv:1910.03459 \[astro-ph.HE\]](https://arxiv.org/abs/1910.03459) .
4. **Dykaar, Hannah**, Robie A. Hennigar, and Robert B. Mann, Hairy black holes in cubic quasi-topological gravity, *Journal of High Energy Physics* **2017**, 45 (2017), [arXiv:1703.01633 \[hep-th\]](https://arxiv.org/abs/1703.01633) .
5. Jahed Abedi, **Dykaar, Hannah**, and Niayesh Afshordi, Echoes from the abyss: Tentative evidence for Planck-scale structure at black hole horizons, *Physical Review D* **96**, 082004 (2017), [arXiv:1612.00266 \[gr-qc\]](https://arxiv.org/abs/1612.00266) .

Non-refereed contributions

5. Marion Burnichon, **Dykaar, Hannah**, Melania Nynka, John J. Ruan, Daryl Haggard, and Phil Evans, Combined XMM-Newton and Chandra observations of the X-ray light curve plateau in GW170817, *The Astronomer's Telegram* **11924**, 1 (2018).
6. Jahed Abedi, **Dykaar, Hannah**, and Niayesh Afshordi, Comment on: “Low significance of evidence for black hole echoes in gravitational wave data”, arXiv e-prints , arXiv:1803.08565 (2018), [arXiv:1803.08565 \[gr-qc\]](https://arxiv.org/abs/1803.08565) .

(e) Conference Presentations

1. Searching for tidal disruption events with radio surveys, Poster presentation at Canadian Astronomical Society Conference, Toronto, Canada (2024).
2. An untargeted search for tdes in the radio regime, Oral presentation at KITP Workshop: Towards a Physical Understanding of Tidal Disruption Events, Santa Barbara, USA (2024).
3. Searching for tidal disruption events with vast, Oral Presentation at The Transient Universe Workshop, Corsica, France (2023).
4. Searching for tidal disruption events with vlass and vast, Poster presentation at The VLA Sky Survey in the Multiwavelength Spotlight, Socorro, USA (2022).
5. The discovery of a decades-old tidal disruption event using first and vlass, Oral presentation at VLASS Transients Workshop, Virtual (2021).
6. Search for tidal disruption events in the vast pilot survey, Poster presentation at Canadian Astronomical Society Conference, Virtual (2021).
7. Wide area search for long-duration radio transients, Poster presentation at Canadian Astronomical Society Conference, Montreal, Canada (2019).
8. Chandra analysis of an x-ray transient, Oral presentation at Canadian Undergraduate Physics Conference, Ottawa, Canada (2017).

(f) Public Lectures

1. Tidal disruption events: When a black hole destroys a star, Astronomy on Tap Toronto (2023).
2. Tidal disruption events: When a black hole destroys a star, AstroTours, University of Toronto (2022).

(g) Successful Proposals for Competitive Telescope Time

Proposed Spectroscopic Followup of Radio-Identified TDE Candidates 2022A, 2022B, 2023A
Principal-Investigator
Gemini-South

Follow-up of transients from the ASKAP Variables and Slow Transients survey 2022
Co-Investigator
Australia Telescope Compact Array

(h) Teaching Experience

Head Teaching Assistant

AST201: Stars and Galaxies

Winter 2020

AST101: The Sun and its Neighbours

Fall 2019

Teaching Assistant

AST251: Life on Other Worlds

Winter 2023,2024

AST101: The Sun and its Neighbours

Fall 2018, Fall 2020-2023

AST201: Stars and Galaxies

Winter 2018, Winter 2020-2022

(i) Leadership, Service and Outreach

- 2022 AstroTours Keynote **Co-Director**
Co-led and organized an annual talk at the University of Toronto.
- 2021 – 2022 Graduate Astronomy Student Association **Co-President**
Led and represented the graduate astronomy students. Attended faculty meetings, handled political issues, helped the treasurer draft the budget, organized parts of the prospective student visit, and chaired meetings.
- 2021 Manuscript reviewer for Monthly Notices of the Royal Astronomical Society
- 2020 – 2022 Ask An Astronomer Volunteer
Answered astronomy-related questions from the public over email.
- 2019 – 2021 AstroTours **Co-Director**
Co-led and organized a monthly series of public astronomy talks and demonstrations at the University of Toronto.
- 2019 – 2020 Graduate Student Mentor
Mentored a first year astronomy graduate student as well as a final year undergraduate physics student at the University of Toronto through an organized mentorship program.
- 2018 – 2019 Graduate Astronomy Student Association's Mediation Committee
Created a report on the financial situation of the astronomy graduate students, and mediated any potential issues or disputes involving students.
- 2018 Girls in STEM Program Volunteer
Helped run a science workshop for about 50 grade 6–8 female students at the University of Toronto.