

Nicole M. Ford

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INTERESTS	Active Galactic Nuclei; Accretion; Jets; Galactic Center; Interstellar Medium; Compact Object Mergers; High Energy Astrophysics; Spectroscopy; Timing and Variability Techniques	
EXPERIENCE	NSERC / FRQNT Graduate Fellow - Active Galactic Nuclei Trottier Space Institute at McGill (TSI) <i>Advisor:</i> Professor Daryl Haggard	2023 – Present
	Graduate Research Assistant - Neutron Star Mergers Trottier Space Institute at McGill (TSI) <i>Advisors:</i> Professor Daryl Haggard & Professor John Ruan	2021 – 2023
	DOE SULI Researcher - Computational Astrophysics Lawrence Berkeley National Laboratory <i>Advisors:</i> Dr. Ann Almgren, Dr. Donald Willcox, & Dr. Sherwood Richers	2020 – 2021
	Clare Boothe Luce Scholar - Star Forming Galaxies Williams College <i>Advisor:</i> Professor Anne Jaskot	2019 – 2020
	BU Geneva Physics Researcher - Solar Cosmic Rays CERN, University of Geneva, and Boston University <i>Advisor:</i> Dr. Maura Graziani	Winter – Summer 2019
	Science Research Fellow - Star Forming Galaxies University of Massachusetts, Amherst <i>Advisor:</i> Professor Anne Jaskot	Spring – Summer 2018
	NSF REU Fellow - Exoplanet Transits Wellesley College / Keck Northeast Astronomy Consortium (KNAC) <i>Advisor:</i> Professor Kim McLeod	Spring – Summer 2017
EDUCATION	Doctor of Philosophy in Physics , McGill University <i>Advisor:</i> Daryl Haggard	2023 – Present
	Master of Science in Physics , McGill University <i>Advisors:</i> Daryl Haggard & John Ruan	2021 – 2023
	Bachelor of Arts in Astrophysics & Studio Art , Williams College Highest Honors in Astrophysics <i>Advisor:</i> Anne Jaskot	2016 – 2020
HONORS & AWARDS	NSERC Doctoral Scholarship, \$120,000 over 36 months <i>Awarded by the Natural Sciences and Engineering Research Council of Canada.</i>	2026
	FRQNT Doctoral Research Award, \$100,000 over 48 months	2023

Awarded by Fonds de recherche du Québec – Nature et technologies. Ranked 1st of 15 candidates in the Astronomy & Astrophysics category.

SciArt200 "Traditional Media" Prize, \$200 2022

Awarded by McGill University for their Bicentennial Art & Science Exhibition

Trottier Space Institute Fellowship, \$3000 over 36 months 2021-2024

Awarded by McGill University

Chambliss Astronomy Achievement Award 2020

Awarded by the American Astronomical Society in the "Undergraduate" category

Clare Boothe Luce Scholar, Williams College 2018

PUBLICATIONS **Summary:** Three first-author refereed publications; twelve as a lead co-author, including one refereed publication led by a graduate student mentee.

Total citations: 760. h-index: 9.

NB: * marks an undergraduate or graduate student under my supervision.

First Author:

- [3] **Ford, N. M.**, Balakrishnan, M., von Fellenberg, S., et al., "Ionization Structure and Metal Enrichment of the Galactic Center Minispiral Observed with JWST", *ApJ*, *in press*.
- [2] **Ford, N. M.**, Nowak, M., Ramakrishnan, V., et al., "Tracking X-ray Variability in Next Generation EHT LLAGN Targets", *ApJ* 981.2 (2025).
- [1] **Ford, N. M.**, Vieira, N., Ruan, J. J., Haggard, D., "KilonovAE: Exploring Kilonova Spectral Features with Autoencoders", *ApJ* 961.1 (2024).

Co-Author:

- [15] Sumners, Z.*, **Ford, N. M.**, et al., "The Demographics of Sagittarius A* X-ray Flares over 25 Years with Chandra", *ApJ* (*in press*).
- [14] Balakrishnan, M., et al., (*incl.* **Ford, N.M.**), "Infrared Line Diagnostics Fail to Constrain Sgr A*'s UV Output", *ApJ* 1008.1 (2026).
- [13] Michail, J. et al. (*incl.* **Ford, N. M.**), "Detection and Evolution of Linear Polarization of the Galactic Center Transient MAXI J1744-294", *ApJ* 1003.1 (2026).
- [12] Michail, J., et al. (*incl.* **Ford, N. M.**), "First Mid-infrared Detection and Modeling of a Flare from Sgr A*. II. Submillimeter Polarimetry and Spectral Energy Distribution", *ApJ* 997.2 (2026).
- [11] Roychowdhury, T., et al. (*incl.* **Ford, N. M.**), "Photometric Constraints on Intermediate-mass Black Holes in the Galactic Centre", *PASP* 127.11 (2025).

- [10] von Fellenberg, S. D., et al. (*incl.* **Ford, N. M.**), "Mid-infrared extinction toward the Galactic center", ApJ 995.2 (2025).
- [9] von Fellenberg, S. D., et al. (*incl.* **Ford, N. M.**), "First Mid-infrared Detection and Modeling of a Flare from Sgr A*", ApJL 979.1 (2025).
- [8] Algaba, J. C. et al. (*incl.* **Ford, N. M.**), "Broadband Multi-wavelength Properties of M87 during the 2018 EHT Campaign including a Very High Energy Flaring Episode", A&A 692, A140 (2024).
- [7] Vieira, N., Ruan, J. J., Haggard, D., **Ford, N. M.**, et al., "Spectroscopic r-Process Abundance Retrieval for Kilonovae II: Lanthanides in the Inferred Abundance Patterns of Multi-Component Ejecta from the GW170817 Kilonova", ApJ 962.1 (2024).
- [6] Vieira, N., Ruan, J. J., Haggard, D., **Ford, N. M.**, et al., "Spectroscopic r-Process Abundance Retrieval for Kilonovae I: The Inferred Abundance Pattern of Early Emission from GW170817", ApJ 944.2 (2023).
- [5] Flury, S., et al. (*incl.* **Ford, N. M.**), "The Low-Redshift Lyman Continuum Survey II: New Insights into LyC Diagnostics", ApJ 930.2 (2022).
- [4] Flury, S., et al. (*incl.* **Ford, N. M.**), "The Low-redshift Lyman Continuum Survey. I. New, Diverse Local Lyman Continuum Emitters", ApJS 260.1 (2022).
- [3] Richers, S., Willcox, D. E., **Ford, N. M.**, "Neutrino fast flavor instability in three dimensions", PRD 104.10 (2021).
- [2] Richers, S., Willcox, D. E., **Ford, N. M.**, and Myers, A., "Particle-in-Cell Simulation of the Neutrino Fast Flavor Instability", PRD 103.8 (2021).
- [1] Harpole, A., **Ford, N. M.**, Eiden, K., Zingale, M., Willcox, D. E., Cavecchi, Y., Katz, M. P., "Dynamics of Laterally Propagating Flames in X-ray Bursts. II. Realistic Burning & Rotation", ApJ 912.36 (2021).

Proceedings & White Papers:

- [2] Turriziani, S. et al. (*incl.* **Ford, N. M.**), "Advancing Fundamental Physics and Cosmology with high-resolution X-ray imaging" NASA PhysPAG High-Resolution X-ray Imaging White Paper (2026).
- [1] Nair, D. et al. (*incl.* **Ford, N. M.**), "Demographics of black holes at $< 100R_g$ scales: accretion flows, jets, and shadows", Proceedings of the 16th EVN Symposium (2024).

Astronomer's Telegrams:

- [1] Michail, J. et al. (*incl.* **Ford, N. M.**), "Quick Radio Brightening of Galactic Center Transient MAXI J1744-294 at 33 and 43 GHz", 2025, ATEL 17174.

INVITED & CONTRIBUTED TALKS	Conferences & Workshops:	
	Chandra's Dynamic Universe, Cambridge, MA	2026
	Black Holes and Blue Notes, Montréal, Canada	2026
	(Invited) EHT Collaboration Virtual Winter Meeting, Online	2025
	EHT Collaboration Summer Meeting, Berlin, Germany	2025
	ISSI Workshop, Bern, Switzerland	2025
	EHT Collaboration Virtual Winter Meeting, Online	2024
	(Session Chair) Joint NICER/IXPE Workshop, Washington, D.C.	2024
	EHT Collaboration Summer Meeting, Mexico City, Mexico	2024
	CRAQ Annual Meeting, Lac-à-l'Eau-Claire, QC	2024
	EHT Collaboration Virtual Winter Meeting, Online	2023
	Shorter Institutional Talks:	
	Harvard Black Hole Initiative, Cambridge, MA	2025
	Canadian Institute for Theoretical Astrophysics, Toronto, ON	2025
	Posters:	
	CASCA 2026, Montréal, Canada	2026
	IAU Symposium 405 – Galactic Center, Brno, Czechia	2026
	AAS HEAD 21, Horseshoe Bay, TX	2024
	AAS 241, Seattle, WA	2021
	(Chambliss Winner) AAS 235, Honolulu, HI	2020
OBSERVING TIME ALLOCATIONS	Principal Investigator:	
	Chandra DDT (40 ks)	2025
	"Chandra/Event Horizon Telescope Study of Messier 84: Jets and Accretion In-flow" (PI: N. M. Ford)	
	Swift TOO (10 ks)	2025
	"Event Horizon Telescope Studies of Low Luminosity AGNs: Jets and Accretion in NGC 4261" (PI: N. M. Ford)	
	NuSTAR Cycle 10 (50 ks) + NICER (42 ks)	2024
	"NuSTAR/NICER/Event Horizon Telescope Studies of Low Luminosity AGNs: Jets and Accretion" (PI: N. M. Ford)	
	Gemini North 2023A (7.8 hr)	2023
	"Tick Tock: A Spectroscopic Investigation into an Imminently Merging Super-massive Black Hole Binary Candidate" (PI: N. M. Ford)	
	Co-Investigator:	
	Chandra Cycle 28 (100 ks) + JWST (36 hrs)	2026
	"Probing Particle Injection in Sgr A*'s Flares with Joint Chandra X-ray and JWST	

MIR Observations" (PI: J. Michail)

Chandra Cycle 28 (470 ks) + HST (33 hrs) + VLA (31 hrs) 2026
 "Community Discovery Program: Panchromatic CXO/VLA/HST Observations of NS Mergers" (Co-PIs: S. Campana, W.-f. Fong, D. Haggard, R. Margutti)

ALMA DDT (20.5 hrs) 2025
 "Full-Stokes Submillimeter Coverage during a JWST / Chandra-led Multiwavelength Campaign of Sgr A*" (PI: J. Michail)

VLA 2025b (28 hrs) 2025
 "VLA Observations of Sgr A* in Support of Possible SMA, MIRI, Chandra Monitoring" (PI: J. Michail)

JWST Cycle 4 (34.4 hrs) + Chandra (100 ks) 2025
 "A Joint Mid-IR and X-ray Investigation of the Physics Driving Sgr A*'s Flares" (PI: J. Hora)

GMVA+APEX Session I (3.4 hrs) 2025
 "Collimation and acceleration of the M84 jet: synergy with EHT" (PI: D. Nair)

EVN+eMERLIN Session I (9 hrs) 2025
 "Collimation and acceleration of the M84 jet: synergy with EVN+e-MERLIN and EHT" (PI: D. Nair)

Chandra Cycle 26 & 27 (470 ks) + HST (33 hrs) + VLA (33 hrs) 2025
 "Community Discovery Program: CXO/ VLA/ HST observations of GW-detected compact mergers in O4" (Co-PIs: D. Haggard, R. Margutti. W. F. Fong, S. Campana)

ATNF Long Baseline Array Semester 2025APR (24 hrs) 2025
 "The collimation and acceleration of radio jets: Synergy with the EHT" (PI: D. Kim)

VLA DDT (7 hrs) 2024
 "Concurrent Radio Coverage of 6 September 2024 Multiwavelength Campaign of Sgr A*" (PI: J. Michail)

ALMA Cycle 11 (8 hrs) 2024
 "Imaging M84 at < 50 gravitational radii: jets and accretion inflow" (PI: N. Nagar)

JWST Cycle 2 (30 hrs) + Chandra (75 ks) 2024
 "Sgr A* as Particle Accelerator: What Drives the Black Hole's Variable IR and X-ray Emission?" (Co-PIs: J. Hora, D. Haggard, G. Witzel)

COMPUTER
TIME
ALLOCATIONS

Senior Investigator:

NERSC Allocation, (18 M MPP hours) 2021
 "Neutrino Flavor Transformation in Neutron Star Mergers"

BRIDGES/2 Allocation (4000 GPU hours) 2021
 "Neutrino Flavor Instabilities in Neutron Star Mergers"

Co-Investigator:

	NERSC Allocation (30 M MPP hours) "3D studies of white dwarfs, massive stars, and neutron star systems"	2021
TEACHING & MENTORSHIP EXPERIENCE	Graduate Mentees:	
	Nora Salem, McGill University (MSc) <i>Co-supervisor:</i> Mayura Balakrishnan	Fall 2026 – present
	Zach Sumners, McGill University (MSc) <i>Thesis:</i> "Disentangling Observations of the Galactic Center with Score-Based Diffusion Models"	Summer 2024 – Fall 2026
	Undergraduate Mentees:	
	Olivia Pereira, McGill University (U3) <i>Co-supervisor:</i> Nicholas Vieira	Spring 2025 – Summer 2025
	Chaitanya Kumar, University of Toronto (U3)	Spring 2024 – Summer 2024
	Marissa Lindon, McGill University (U3) <i>Co-supervisor:</i> Nicholas Vieira	Winter 2023 – Summer 2023
	Charlotte Garcia, McGill University (U3) <i>Co-supervisor:</i> Nicholas Vieira	Winter 2023 – Spring 2023
	Teaching Assistantships:	
	Department of Physics, McGill University <i>Supervisor:</i> Prof. Katelin Schutz	Fall 2021
	Hopkins Observatory, Williams College <i>Supervisors:</i> Dr. Steven Souza & Dr. Kevin Flaherty	2017 – 2020
ACADEMIC SERVICE	Early Career Council Americas Representative, EHT	2025 – present
	Reviewer, The Astrophysical Journal	2025 – present
	Executive Secretary, NASA GO Review Panel	2024 – present
	Session Chair, Joint NICER/IXPE Workshop	2024
COMMUNITY ENGAGEMENT	Public Talks:	
	Astronomy On Tap, Montreal, QC "Black Holes: The Cosmic Vacuum Cleaners"	2023
	Trottier Space Institute Lunch Talk, Montreal, QC "Intro to Science Visualization"	2022
	McGill Bicentennial Space Week, Montreal, QC "How To Be an Astrophysicist"	2022
	Outreach & Inreach:	
	Astronomy on Tap Organizer, McGill / University of Montreal	2024 – present
	Scientista McGill Mentor, McGill University	2023 – present

Science in Space Mentor, TSI and Dell Technologies	2022 – present
Observatory Guide, McGill Observatory	2022 – 2023
Graduate Seminar Coordinator, TSI	2022 – 2024
AstroMcGill Outreach Coordinator, TSI	Winter 2022 – Summer 2022
Physics Hackathon Judge, McGill Department of Physics	2021 – 2023
STEM Mentor, Fab Fem Organization	2020 – 2021
Wavelength / WaGMiPhAst Co-President, Williams College	2016 – 2020
<i>Student organization supporting marginalized groups in physics and astronomy.</i>	

Media & Press Coverage:

Space.com	2025
"James Webb Space Telescope watches our Milky Way galaxy's monster black hole fire out a flare"	
Harvard & Smithsonian CfA	2025
"Scientists Make First-Ever Detection of Mid-IR Flares in Sgr A*"	
Max Planck Institute for Radio Astronomy	2025
"First-Ever Detection of a Mid-Infrared Flare in Sagittarius A*, the central source of the Milky Way"	
Canadian Institute for Theoretical Astrophysics / University of Toronto	2025
"First-Ever Detection of Mid-IR Flares in Sgr A* - the Supermassive Black Hole at the Galactic Center"	
Phys.org	2025
"First-ever detection of a mid-infrared flare in Sagittarius A*, the Milky Way's supermassive massive black hole"	
Live Science	2025
"James Webb telescope captures 1st 'mid-infrared' flare from Milky Way's supermassive black hole"	
Earth.com	2025
"World's most powerful telescope captures a ghostly flare in the galactic heart"	
NICER / ISS Science Nugget	2025
"Preparing for the Sombrero's shadow"	
McGill News	2024
"McGill researchers help uncover rare gamma-ray flare from a distant black hole"	

MEMBERSHIPS	Event Horizon Telescope Collaboration	2023 – present
	<i>Early Career Council; AGN and Multi-wavelength Working Groups</i>	
	CASTOR Time Domain Science Working Group	2022 – present
	AstroQuébec / CRAQ	2021 – present
	Canadian Astronomical Society	2021 – present
	American Astronomical Society	2020 – present