

Nicole M. Ford

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EDUCATION	McGill University , Doctor of Philosophy, Physics <i>Advisor:</i> Daryl Haggard	2023 – Present
	McGill University , Master of Science, Physics <i>Advisors:</i> Daryl Haggard & John Ruan	2021 – 2023
	Williams College , Bachelor of Arts, Astrophysics & Studio Art Highest Honors in Astrophysics <i>Advisor:</i> Anne Jaskot	2016 – 2020
EXPERIENCE	Graduate Researcher - High Energy Astrophysics Trottier Space Institute at McGill (TSI) <i>Advisors:</i> Professor Daryl Haggard & Professor John Ruan	Aug 2021 – Present
	• (PhD) Monitoring X-ray flux and variability of several low luminosity AGNs targeted by the <i>Event Horizon Telescope</i> collaboration to learn about their accretion and links to radio/multi-wavelength emission. • (MSc) Identified ion absorption signatures for different types of kilonovae using simulated spectra and machine learning techniques, and developed kilonova observational follow-up code for use with <i>CFHT</i>.	
	Research Intern - Computational Astrophysics Lawrence Berkeley National Laboratory, DOE SULI Program <i>Advisors:</i> Dr. Ann Almgren, Dr. Donald Willcox, & Dr. Sherwood Richers	Aug 2020 – July 2021
	• Simulated Type I x-ray bursts and neutrino emission around neutron stars/mergers using adaptive mesh refinement (AMReX, Castro codes) and particle-in-cell (Emu code) techniques.	
	Undergraduate Thesis Researcher - Galaxy Observations Williams College, Clare Boothe Luce Scholar Program <i>Advisor:</i> Professor Anne Jaskot	2019 – 2020
	• Tested indicators for ionizing radiation escape in nearby star forming galaxies using <i>Hubble</i> & <i>SDSS</i> spectra.	
	Research Intern - Cosmic Ray Observations CERN and University of Geneva, Boston University Geneva Physics Program <i>Advisor:</i> Dr. Maura Graziani	Jan – Jul 2019
	• Tracked solar activity via the <i>Alpha Magnetic Spectrometer</i>'s measured cosmic ray positron/electron ratio.	
HONORS & AWARDS	Research Assistant - Galaxy Observations University of Massachusetts, Amherst, Williams College Summer Science Research Fellowship <i>Advisor:</i> Professor Anne Jaskot	May – Aug 2018
	• Searched for ionizing radiation escape in Green Pea galaxies' gas ionization structures using <i>Hubble</i> data.	
	REU Intern - Planet Transit Observations Wellesley College, Keck Northeast Astronomy Consortium (KNAC) NSF REU program <i>Advisor:</i> Professor Kim McLeod	May – Aug 2017
	• Searched for light curve planet transits, collaboration with the Kilodegree Extremely Little Telescope group.	
HONORS & AWARDS	Doctoral Research Award , Fonds de recherche du Québec – Nature et technologies	2023-2027
	McGill Bicentennial Art & Science Exhibition "Traditional Media" Prize , McGill University	2022
	McGill Space Institute Fellowship , McGill University	2021-present
	AAS Chambliss Astronomy Achievement Award , Undergraduate Student Prize Winner	2020
HONORS & AWARDS	Clare Boothe Luce Scholar , Williams College	2018

PUBLICATIONS *Refereed Contributions*

von Fellenberg, S. D., et al. (*incl.* **Ford, N. M.**), Mid-infrared extinction toward the Galactic center, *Submitted to ApJ*. [ads]

Ford, N. M., Nowak, M., Ramakrishnan, V., et al., Tracking X-ray Variability in Next Generation EHT LLAGN Targets, *ApJ* 981.2 (2025). [ads]

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). [ads]

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). [ads]

Ford, N. M., Vieira, N., Ruan, J. J., Haggard, D., KilonovAE: Exploring Kilonova Spectral Features with Autoencoders, *ApJ* 961.1 (2024). [ads]

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). [ads]

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). [ads]

Flury, S., et al. (*incl.* **Ford, N. M.**), The Low-Redshift Lyman Continuum Survey II: New Insights into LyC Diagnostics, *ApJ* 930.2 (2022). [ads]

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). [ads]

Richers, S., Willcox, D. E., **Ford, N. M.**, and Myers, A., Particle-in-Cell Simulation of the Neutrino Fast Flavor Instability, *PRD* 104.10 (2021). [ads]

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). [ads]

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). [ads]

Non-Refereed Contributions

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). [ads]

Ford, N. M., KilonovAE: Exploring Kilonova Spectral Features with Autoencoders, *McGill University Masters Thesis* (2023).

Ford, N. M., Optical Properties of Low-Redshift Star-Forming Galaxies with Potential Ionizing Radiation Escape, *Williams College Honors Thesis* (2020). [online]

SELECT CONFERENCE & SEMINAR TALKS	<i>Talk:</i> Harvard Center for Astrophysics / Black Hole Initiative Invited Talk	August 2025
	<i>Talk:</i> The Event Horizon Telescope Collaboration Summer Meeting	July 2025
	<i>Talk:</i> University of Toronto Canadian Institute for Theoretical Astrophysics Invited Talk	June 2025
	<i>Talk:</i> The Event Horizon Telescope Collaboration Winter Meeting	December 2024
	<i>Talk:</i> Joint NICER/IXPE Workshop 2024	July 2024
	<i>Talk:</i> Event Horizon Telescope Collaboration Summer Meeting	May 2024
	<i>Talk:</i> Centre de Recherche en Astrophysique du Québec Summer Meeting	May 2024
	<i>Poster:</i> 21st American Astronomical Society High Energy Astrophysics Division Meeting	April 2024
	<i>Talk:</i> The Event Horizon Telescope Collaboration Winter Meeting	December 2023

	<i>Talk:</i> Centre de Recherche en Astrophysique du Québec Summer Meeting	May 2023
	<i>Talk:</i> Bishop's University Invited Talk	March 2023
	<i>Talk:</i> American Astronomical Society 237th Meeting	January 2023
	<i>Talk:</i> Centre de Recherche en Astrophysique du Québec Summer Meeting	May 2022
	<i>Poster:</i> American Astronomical Society 237th Meeting	January 2021
	<i>Poster:</i> American Astronomical Society 235th Meeting in Honolulu, HI	January 2020
	<i>Poster & Talk:</i> Conference for Undergraduate Women in Physics at Yale	January 2020
	<i>Talk:</i> KNAC Fall 2019 Conference at Vassar College	October 2019
	<i>Poster:</i> KNAC Fall 2018 Conference at Middlebury College	October 2018
	<i>Talk:</i> KNAC Fall 2017 Conference at Wesleyan University	October 2017
OBSERVING TIME ALLOCATIONS	Chandra DDT April 2025: "Chandra/Event Horizon Telescope Study of Messier 84: Jets and Accretion Inflow", 40 ks, PI: N. M. Ford James Webb Space Telescope Cycle 4: "A Joint Mid-IR and X-ray Investigation of the Physics Driving Sgr A*'s Flares", 34.4 hr, PI: J. Hora (Co-I: N. M. Ford) GMVA+APEX 2025 Session I: "Collimation and acceleration of the M84 jet: synergy with EHT", 3.4 hr, PI: D. Nair (Co-I: N. M. Ford) EVN+eMERLIN 2025 Session I: "Collimation and acceleration of the M84 jet: synergy with EVN+eMERLIN and EHT", 9 hr, PI: D. Nair (Co-I: N. M. Ford) Chandra+HST+VLA Cycle 26 & 27: "Community Discovery Program: CXO/VLA/HST observations of GW-detected compact mergers in O4", 470 ks (Chandra) and 33 orbits (HST) and 33 hr (VLA), PI: D. Haggard, R. Margutti, W. F. Fong, S. Campana (Co-I: N. M. Ford) NuSTAR+NICER Cycle 10: "NuSTAR/NICER/Event Horizon Telescope Studies of Low Luminosity AGNs: Jets and Accretion", 50 ks (NuSTAR) and 42 ks (NICER), PI: N. M. Ford VLA (Director's Discretionary Time): "Concurrent Radio Coverage of 6 September 2024 Multiwavelength Campaign of Sgr A*", 7 hr, PI: J. Michail, (Co-I: N. M. Ford) ALMA Cycle 11: "Imaging M84 at < 50 gravitational radii: jets and accretion inflow", 8 hr, PI: N. Nagar, (Co-I: N. M. Ford) James Webb Space Telescope Cycle 2: "Sgr A* as Particle Accelerator: What Drives the Black Hole's Variable IR and X-ray Emission?", 29.88 hr, PI: J. Hora (Co-I: N. M. Ford) Gemini North 2023A: "Tick Tock: A Spectroscopic Investigation into an Imminently Merging Supermassive Black Hole Binary Candidate", 7.8 hr, PI: N. M. Ford	
COMPUTER TIME ALLOCATIONS	Senior Investigator on a NERSC 2021 Allocation, <i>Neutrino Flavor Transformation in Neutron Star Mergers</i> (18 M MPP hours) Co-Investigator on a NERSC 2021 Allocation, <i>Three-dimensional studies of white dwarfs, massive stars, and neutron star systems</i> (30 M MPP hours) Senior Investigator on a BRIDGES/2 2021 Allocation, <i>Neutrino Flavor Instabilities in Neutron Star Mergers</i> (4000 GPU hours)	
TEACHING	Teaching Assistant, McGill University Department of Physics <i>Supervisor:</i> Prof. Katelin Schutz Teaching Assistant, Williams College Hopkins Observatory <i>Supervisors:</i> Dr. Steven Souza & Dr. Kevin Flaherty	Aug 2021 – Dec 2021 2017 – 2020

STUDENT RESEARCH SUPERVISION	Olivia Pereira , McGill University (U3)	May 2025 – Aug 2025
	Chaitanya Kumar , University of Toronto (U3)	May 2024 – Aug 2024
	Marissa Lindon , McGill University (U3) (co-supervised w/Nicholas Vieira)	Jan 2023 – Aug 2023
	Charlotte Garcia , McGill University (U3) (co-supervised w/Nicholas Vieira)	Jan 2023 – Apr 2023
ACADEMIC SERVICE	Publication Referee , The Astrophysical Journal	2025 – present
	Executive Secretary , NuSTAR Cycle 11 General Observer Review Panel	April 2025
	Executive Secretary , NICER Cycle 7 General Observer Review Panel	November 2024
	Chair , <i>NICER Science II</i> Session at the Joint NICER/IXPE Workshop	July 2024
SCIENCE COMMUNICATION	"Preparing for the Sombrero's shadow", NICER / ISS Science Nugget. [online]	March 2025
	"Black Holes: The Cosmic Vacuum Cleaners", Astronomy On Tap, Montreal, QC	Sept 2023
	"Intro to Science Visualization", Trottier Space Institute Lunch Talk, Montreal, QC	Oct 2022
	"How To Be an Astrophysicist", McGill Bicentennial Space Week, Montreal, QC	May 2022
OUTREACH & INREACH	Astronomy on Tap Organizing Committee , McGill / University of Montreal	Sept 2024 – present
	Scientista McGill Mentor , McGill University	Sept 2023 – present
	Science in Space Mentor , TSI and Dell Technologies: Girls Who Game	Oct 2022 – present
	Observatory Guide , McGill Anna I. MacPherson observatory	Sept 2022 – Sept 2023
	Graduate Seminar Coordinator , TSI	Sept 2022 – Jan 2024
	AstroMcGill Outreach Coordinator , TSI	Jan 2022 – Aug 2022
	Physics Hackathon Judge , Department of Physics	Nov 2021, 2022, 2023
	STEM Mentor , Fab Fem Organization	Mar 2020 – Mar 2021
PROFESSIONAL MEMBERSHIPS	Women & Gender Minorities in Physics & Astronomy Co-President , Williams College	2016 – 2020
	Event Horizon Telescope Collaboration	Aug 2023 – present
	AGN, Time Domain, and Multi-wavelength Working Groups	
	CASTOR Time Domain Science Working Group	2022 – present
	Centre de Recherche en Astrophysique du Québec	2021 – present
	Canadian Astronomical Society	2021 – present
	American Astronomical Society	2020 – present