

# DR. WEI CHIEH (MASON) NG

McGill University + Trottier Space Institute at McGill

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## EDUCATION

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**Massachusetts Institute of Technology (MIT)** Sep 2018 - May 2024

Ph.D. in Physics, Conferred May 30, 2024

Advisor: Professor Deepto Chakrabarty; GPA: 4.60/5.00

Thesis: Multifaceted Understanding of Accreting Neutron stars and their Environments

**The University of Auckland** 2017

Bachelor of Science (Honours) in Physics

Advisor: Professor Richard Easter; GPA: 8.63/9.00

Thesis: Inflationary Model Selection ft. Dark Matter in the CMB

**The University of Auckland** 2014 - 2016

Bachelor of Science

Majors: Physics and Mathematics; GPA: 8.74/9.00

## RESEARCH EXPERIENCE

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**McGill University + Trottier Space Institute at McGill** Sep 2024 - Present

*Postdoctoral Researcher (partially funded by FRQNT)*

Uncovering the emission mechanism and local magneto-ionic environments of fast radio bursts with radio polarimetry, multiwavelength counterparts to fast radio bursts, and follow-up of pulsar candidates from multiwavelength all-sky surveys

**MIT Kavli Institute for Astrophysics and Space Research** May 2024 - Aug 2024

*Postdoctoral Research Associate*

X-ray pulsation searches, timing, spectroscopic, and polarimetric analyses of pulsars (NICER/NuSTAR/Chandra/IXPE/XMM-Newton/Swift/RXTE/AstroSat data)

**Massachusetts Institute of Technology** Sep 2018 - May 2024

*Graduate Research Assistant, Advisor: Prof. Deepto Chakrabarty*

X-ray pulsation searches, timing, spectroscopic, and polarimetric analyses of pulsars (NICER/NuSTAR/Chandra/IXPE/XMM-Newton/Swift/RXTE/AstroSat data)

**Australian National University** Feb 2018 - Jul 2018

*Graduate Research Assistant, Advisor: Prof. Martin Asplund*

Modeling stellar atmospheres in 3D with different magnetic field configurations and strengths

**Swinburne University of Technology** Dec 2017 - Feb 2018

*Summer Vacation Scholar, Advisors: Dr. Nikki Nielsen and Assoc. Prof. Glenn Kacprzak*

Kinematics of the OVI Circumgalactic Medium: Halo Mass Dependence and Outflow Signatures

**The University of Auckland** Feb 2017 - Nov 2017

*BSc (Honours) Student, Advisor: Prof. Richard Easter*

Inflationary Model Selection ft. Dark Matter in the CMB

**Australian National University**

Nov 2016 - Feb 2017

*Summer Scholar, Advisors: Assoc. Prof. Christian Wolf and Dr. Christopher Onken*

Diagnosing poor seeing of the SkyMapper telescope

**The University of Auckland**

Dec 2015 - Feb 2016

*Summer Research Scholar, Advisor: Assoc. Prof. Jan Jamie Eldridge*

Modelling the emergent spectra of hot, massive stars to update the Binary Population and Spectral Synthesis (BPASS) code

## PROFESSIONAL SERVICE

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**Proposal Reviewer**

2024 - Present

*NICER General Observer Cycle 7; Chandra Cycle 27; ESO Period 116; subject-matter expert reviewer in a NASA peer review (2025)*

**Science Team Member**

2024 - Present

*CHIME Collaboration (CHIME/FRB and CHIME/Pulsar)*

**Journal Referee**

2023 - Present

*Journals: ApJ, MNRAS, A&A, pyOpenSci, PASJ, JURA*

**Graduate Student Member → Science Team Member (after 06/2024)**

2021 - Present

*IXPE Collaboration [Working Groups: Science Analysis and Simulations, Magnetars, and the Accreting White Dwarfs and Neutron Stars]*

**Graduate Student Member → Science Team Member (after 06/2024)**

2019 - Present

*NICER Science Team [Working Groups: Searches and Multiwavelength Coordination (from 2019), Bursts and Accretion Physics (from 2020), and Magnetars & Magnetospheres (from 2021)]*

## PUBLICATIONS

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Also part of over **50 Astronomer's Telegrams** and GCN Circulars (led 13 of them).

### First-author

6) **Mason Ng**, et al. 2024. *NICER Discovery that SRGA J144459.2-604207 is an Accreting Millisecond X-ray Pulsar*. ApJ, 968L, 7. DOI: 10.3847/2041-8213/ad4edb

5) **Mason Ng**, et al. 2024. *X-ray and Radio Monitoring of the Neutron Star Low Mass X-ray Binary 1A 1744-361*. ApJ, 966, 232. DOI: 10.3847/1538-4357/ad35bd

4) **Mason Ng**, et al. 2022. *Spectral Evolution of Ultraluminous X-ray Pulsar NGC 300 ULX-1*. ApJ, 940, 138. DOI: 10.3847/1538-4357/ac9965

3) Herman L. Marshall, **Mason Ng**, et al. (IXPE Collaboration + Norbert S. Schulz, Deepto Chakrabarty) 2022. *Observations of 4U 1626-67 with the Imaging X-ray Polarimetry Explorer*. ApJ, 940, 70. DOI: 10.3847/1538-4357/ac98c2

2) **Mason Ng**, Paul S. Ray, Peter Bult, Deepto Chakrabarty, et al. 2021. *NICER Discovery of Millisecond Pulsations and an Ultracompact Orbit in IGR J17494-3030*. ApJ, 908L, 15. DOI: 10.3847/2041-8213/abe1b4

1) **M. Ng**, N.M. Nielsen, G.G. Kacprzak et al. 2019. *Kinematics of the OVI Circumgalactic Medium: Halo Mass Dependence and Outflow Signatures*. ApJ, 886, 66. DOI: 10.3847/1538-4357/ab48eb

Non-refereed

1) **Mason Ng**, et al. 2024. *Tentative Blazar Candidate EP240709A Associated with 4FGL J0031.5-5648: NICER and Archival Multiwavelength Observations*. RNAAS, 8, 292. DOI: 10.3847/2515-5172/ad95ff

Co-author

\*\*\* indicates student advisee

61) Unnati Kashyap, et al. (7 co-authors including **Mason Ng** 2025. *First X-ray and radio polarimetry of the neutron star low-mass X-ray binary GX 17+2*. Accepted by ApJ. arXiv:2510.05284

60) A. Sanna, et al. (14 co-authors including **M. Ng** 2025. *The 2025 outburst of IGR J17511–3057: timing and spectral insights from NICER and NuSTAR*. Accepted by A&A. arXiv:2509.15581

\*\*\*59) Swati Ravi, **Mason Ng**, Herman L. Marshall, and Andrea Gnarini. 2025. *What’s the Buzz About GX 13+1? Constraining Coronal Geometry with QUEEN-BEE: A Bayesian Nested Sampling Framework for X-ray Polarization Rotation Analysis*. Submitted to ApJ. arXiv:2509.07059

58) Swarali Shivraj Patil, et al. (27 co-authors including **Mason Ng**) 2025. *A Spatial Gap in the Sky Distribution of Fast Radio Burst Detections Coinciding with Galactic Plasma Overdensities*. Submitted to ApJL. arXiv:2509.06721

57) Tuğba Boztepe, et al. (11 co-authors including **Mason Ng**) 2025. *The 2020 Superburst of 4U 1608–522 and its impact on the accretion disk*. Accepted by MNRAS. arXiv:2509.02713

56) CHIME/FRB Collaboration, et al. (including **Mason Ng**) 2025. *FRB 20250316A: A Brilliant and Nearby One-off Fast Radio Burst Localized to 13 pc Precision*. ApJ, 989L, 48. DOI: 10.3847/2041-8213/adf62f

55) Unnati Kashyap, et al. (5 co-authors including **Mason Ng**) 2025. *X-ray and radio polarimetry of the neutron star low mass X-ray binary GX 13+1*. Accepted by ApJ. arXiv:2508.05763

54) George Younes, et al. (21 co-authors including **Mason Ng**) 2025. *Timing and Spectral Evolution of the Magnetar 1E 1841–045 in Outburst*. ApJ, 989, 89. DOI: 10.3847/1538-4357/ade716

53) Fengqiu Adam Dong, Kaitlyn Shin, Casey Law, **Mason Ng**, et al. 2025. *CHIME/FRB Discovery of an Unusual Circularly Polarized Long-Period Radio Transient with an Accelerating Spin Period*. ApJ, 988L, 29. DOI: 10.3847/2041-8213/adeaab

52) Emma T. Chickles, et al. (38 co-authors including **Mason Ng**) 2024. *A Gravitational-wave-detectable Candidate Type Ia Supernova Progenitor*. ApJ, 987, 206. DOI: 10.3847/1538-4357/add34c

51) Unnati Kashyap, et al. (5 co-authors including **Mason Ng**) 2025. *X-ray polarization study of the neutron star low-mass X-ray binary GX 349+2*. ApJ, 986, 207. DOI: 10.3847/1538-4357/adda35

50) A. Tarana, et al. (16 co-authors including **M. Ng**) 2025. *X-ray spectro-polarimetry analysis of the weakly magnetized neutron star X-ray binary GX 9+1*. A&A, 698, 245. DOI: 10.1051/0004-6361/202554083

49) Alice Curtin, et al. (29 co-authors including **Mason Ng**) 2025. *Discovery and Localization of the Swift-Observed FRB 20241228A in a Star-forming Host Galaxy*. Submitted. arXiv:2506.10961

48) Unnati Kashyap, et al. (6 co-authors including **Mason Ng**) 2025. *X-ray and Radio Polarimetry of the Neutron Star Low-mass X-ray Binary 4U 1728–34*. ApJ, 985, 245. DOI: 10.3847/1538-4357/adceb9

- 47) Rachael Stewart, et al. (17 co-authors including **Mason Ng**) 2025. *X-ray Polarization of the Magnetar 1E 1841–045*. ApJ, 985L, 35. DOI: 10.3847/2041-8213/adbffa
- 46) Vladislav Loktev, et al. (14 co-authors including **Mason Ng**) 2025. *Exploring polarization and geometry in the X-ray pulsar 4U 1538–52*. A&A, 698, 22. DOI: 10.1051/0004-6361/202554151
- 45) Kaitlyn Shin, et al. (30 co-authors including **Mason Ng**) 2025. *The CHIME/FRB Discovery of the Extremely Active Fast Radio Burst Source FRB 20240114A*. In review. arXiv:2505.13297
- 44) Bas Dorsman, et al. (12 co-authors including **Mason Ng**) 2025. *Parameter constraints for accreting millisecond pulsars with synthetic NICER data*. MNRAS, 538, 2853. DOI: 10.1093/mnras/staf438
- 43) María Alejandra Díaz Teodori, et al. (5 co-authors including **Mason Ng**) 2025. *NICER observations of type-I X-ray bursts from the ultra-compact X-ray binary M15 X-2*. A&A, 695, 44. DOI: 10.1051/0004-6361/202452243
- 42) A. Marino, et al. (34 co-authors including **M. Ng**) 2025. *Einstein Probe Discovery of EP J005245.1722843: A Rare Be-White Dwarf Binary in the Small Magellanic Cloud?* ApJ, 980L, 36. DOI: 10.3847/2041-8213/ad9580
- 41) Alessandro Papitto, et al. (24 co-authors including **M. Ng**) 2025. *Discovery of Polarized X-Ray Emission from the Accreting Millisecond Pulsar SRGA J144459.2–604207*. A&A, 694, 37. DOI: 10.1051/0004-6361/202451775
- 40) Brendan O’Connor, et al. (32 co-authors including **Mason Ng**) 2024. *Characterization of a Peculiar Einstein Probe Transient EP240408a: An Exotic Gamma-Ray Burst or an Abnormal Jetted Tidal Disruption Event?* ApJ, 979L, 30. DOI: 10.3847/2041-8213/ada7f5
- 39) Andrea Gnarini, et al. (13 co-authors including **Mason Ng**) 2024. *First spectropolarimetric observation of the neutron star low-mass X-ray binary GX 3+1*. A&A, 692, 123. DOI: 10.1051/0004-6361/202452642
- 38) Sofia V. Forsblom, et al. (15 Tier 1 co-authors including **Mason Ng**) 2024. *Probing the polarized emission from SMC X-1: the brightest X-ray pulsar observed by IXPE*. A&A, 691, 216. DOI: 10.1051/0004-6361/202450937
- 37) Robin H. D. Corbet, et al. (22 co-authors including **Mason Ng**) 2024. *Sharp Periodic Flares and Long-Term Variability in the High-Mass X-ray Binary XTE J1829–098 from RXTE PCA, Swift BAT and MAXI Observations*. ApJ, 976, 137. DOI: 10.3847/1538-4357/ad83b9
- 36) Yash Bhargava, Thomas D. Russell, **Mason Ng** et al. (13 co-authors) 2024. *X-ray and Radio Campaign of the Z-source GX 340+0 II: the X-ray polarization in the normal branch*. Accepted. arXiv:2411.00350.
- 35) Gaurava K. Jaisawal, et al. (16 co-authors including **Mason Ng**) 2024. *A Comprehensive Study of Thermonuclear X-Ray Bursts from 4U 1820–30 with NICER: Accretion Disk Interactions and a Candidate Burst Oscillation*. ApJ, 975, 67. DOI: 10.3847/1538-4357/ad794e
- 34) F. Ursini, et al. (13 co-authors including **M. Ng**) 2024. *X-ray spectropolarimetry of the bright atoll Serpens X-1*. A&A, 690, 200. DOI: 10.1051/0004-6361/202451584
- 33) Anna Bobrikova, et al. (24 Tier 1 co-authors including **Mason Ng**) 2024. *Discovery of a strong rotation of the X-ray polarization angle in the galactic burster GX 13+1*. A&A, 688, 170. DOI: 10.1051/0004-6361/202449318
- 32) Yash Bhargava, **Mason Ng** et al. (13 co-authors) 2024. *X-ray and Radio campaign of the Z-source GX 340+0: discovery of X-ray polarization and its implications*. In Review. arXiv:2405.19324

- 31) Birendra Chhotaray, et al. (6 co-authors including **Mason Ng**) 2024. *Long-term study of the first Galactic ultraluminous X-ray source Swift J0243.6+6124 using NICER*. ApJ, 963, 132. DOI: 10.3847/1538-4357/ad235d
- 30) Jeremy Heyl, et al. (10 Tier 1 co-authors including **Mason Ng**) 2024. *The detection of polarized x-ray emission from the magnetar 1E 2259+586*. MNRAS, 527, 12219. DOI: 10.1093/mnras/stad3680
- 29) Manoj Mandal, et al. (12 co-authors including **Mason Ng**) 2023. *Probing spectral and timing properties of the X-ray pulsar RX J0440.9+4431 in the giant outburst of 2022-2023*. MNRAS, 526, 771. DOI: 10.1093/mnras/stad2767
- 28) Roberto Turolla, et al. (15 Tier 1 co-authors including **Mason Ng**) 2023. *IXPE and XMM-Newton observations of the Soft Gamma Repeater SGR 1806–20*. ApJ, 954, 88. DOI: 10.3847/1538-4357/aced05
- 27) Christian Malacaria, et al. (19 Tier 1 co-authors including **Mason Ng**) 2023. *A polarimetric-oriented X-ray stare at the accreting pulsar EXO 2030+375*. A&A, 675, 29. DOI: 10.1051/0004-6361/202346581
- 26) A. C. Albayati, et al. (12 co-authors including **M. Ng**) 2023. *Thermonuclear Type-I X-ray Bursts and Burst Oscillations from the Eclipsing AMXP Swift J1749.4–2807*. MNRAS, 524, 2477. DOI: 10.1093/mnras/stad1892
- 25) Paul A. Draghis, et al. (9 co-authors including **Mason Ng**) 2023. *The Spin of a Newborn Black Hole: Swift J1728.9–3613*. ApJ, 947, 39. DOI: 10.3847/1538-4357/acc1c8
- 24) Mayura Balakrishnan, et al. (14 co-authors including **Mason Ng**) 2023. *The Black Hole Candidate Swift J1728.9–3613 and the Supernova Remnant G351.9–0.9*. ApJ, 947, 38. DOI: 10.3847/1538-4357/acc1c9
- 23) G. C. Mancuso, et al. (10 co-authors including **M. Ng**) 2023. *Detection of millihertz quasi-periodic oscillations in the low-mass X-ray binary 4U 1730–22 with NICER*. MNRAS, 521, 5616. DOI: 10.1093/mnras/stad949
- 22) G. K. Jaisawal, et al. (9 co-authors including **M. Ng**) 2023. *On the cyclotron absorption line and evidence of the spectral transition in SMC X-2 during 2022 giant outburst*. MNRAS, 521, 3951. DOI: 10.1093/mnras/stad781
- 21) Silvia Zane, et al. (26 Tier 1 co-authors including **Mason Ng**) 2023. *A strong X-ray polarization signal from the magnetar 1RXS J170849.0–400910*. ApJ, 944L, 27. DOI: 10.3847/2041-8213/acb703
- 20) Giulia Illiano, et al. (21 co-authors including **Mason Ng**) 2022. *Timing analysis of the 2022 outburst of SAX J1808.4–3658: hints of an orbital shrinking*. ApJ, 942L, 40. DOI: 10.3847/2041-8213/acad81
- 19) C. Malacaria, et al. (13 co-authors including **M. Ng**) 2022. *The unaltered pulsar: GRO J1750–27, a super-critical X-ray neutron star that does not blink an eye*. A&A, 669, 38. DOI: 10.1051/0004-6361/202245123
- 18) Sergey S. Tsygankov, et al. (17 Tier 1 co-authors including **Mason Ng**) 2022. *The X-ray polarimetry view of the accreting pulsar Cen X-3*. ApJ, 941L, 14. DOI: 10.3847/2041-8213/aca486
- 17) Peter Bult, et al. (13 co-authors including **Mason Ng**) 2022. *The thermonuclear X-ray bursts of 4U 1730–22*. ApJ, 940, 81. DOI: 10.3847/1538-4357/ac9b26
- 16) Roberto Taverna, et al. (21 Tier 1 co-authors including **Mason Ng**) 2022. *Polarized x-rays from a magnetar*. Science, 378, 646. DOI: 10.1126/science.add0080

- 15) Tolga Guver, et al. (13 co-authors including **Mason Ng**) 2022. *Burst-Disk Interaction in 4U 1636–536 as observed by NICER*. ApJ, 935, 154. DOI: 10.3847/1538-4357/ac8106
- 14) Peter Bult, et al. (17 co-authors including **Mason Ng**) 2022. *The Discovery of the 528.6 Hz Accreting Millisecond X-Ray Pulsar MAXI J1816–195*. ApJ, 935L, 32. DOI: 10.3847/2041-8213/ac87f9
- 13) A. Sanna, et al. (14 co-authors including **M. Ng**) 2022. *MAXI J1957+032: a new accreting millisecond X-ray pulsar in an ultra-compact binary*. MNRAS, 516L, 76. DOI: 10.1093/mnrasl/slac093
- 12) Kishalay De, et al. (26 co-authors including **Mason Ng**) 2022. *SRGA J181414.6–225604: A New Galactic Symbiotic X-Ray Binary Outburst Triggered by an Intense Mass-loss Episode of a Heavily Obscured Mira Variable*. ApJ, 935, 36. DOI: 10.3847/1538-4357/ac7c6e
- 11) A. Marino, et al. (20 co-authors including **M. Ng**) 2022. *Outflows and spectral evolution in the eclipsing AMXP SWIFT J1749.4–2807 with NICER, XMM-Newton and NuSTAR*. MNRAS, 515, 3838. DOI: 10.1093/mnras/stac2038
- 10) A. Sanna, et al. (17 co-authors including **M. Ng**) 2022. *On the peculiar long-term orbital evolution of the eclipsing accreting millisecond X-ray pulsar SWIFT J1749.4–2807*. MNRAS, 514, 4385. DOI: 10.1093/mnras/stac1611
- 9) R. M. Ludlam, et al. (10 co-authors including **Mason Ng**) 2022. *Radius Constraints from Reflection Modeling of Cygnus X-2 with NuSTAR and NICER*. ApJ, 927, 112. DOI: 10.3847/1538-4357/ac5028
- 8) The LIGO Scientific Collaboration; the Virgo Collaboration; the KAGRA Collaboration (including **Mason Ng**) 2022. *Search for continuous gravitational waves from 20 accreting millisecond X-ray pulsars in O3 LIGO data*. Phys. Rev. D 105, 022002. DOI: 10.1103/PhysRevD.105.022002
- 7) Pasham, D.R., et al. (18 co-authors including **Mason Ng**) 2021. *Evidence for a compact object in the aftermath of the extragalactic transient AT2018cow*. Nat Astron., 6, 249. DOI: 10.1038/s41550-021-01524-8
- 6) Yuhan Yao, et al. (27 co-authors including **Mason Ng**) 2021. *A Comprehensive X-ray Report on AT2019wey*. ApJ, 920, 121. DOI: 10.3847/1538-4357/ac15f8
- 5) Teruaki Enoto, **Mason Ng** et al. 2021. *A Month of Monitoring the New Magnetar Swift J1555.2–5402 during an X-Ray Outburst..* ApJ, 920L, 4. DOI: 10.3847/2041-8213/ac2665
- 4) Peter Bult, et al. (including **Mason Ng**) 2021. *Long term coherent timing of the accreting millisecond pulsar IGR J17062–6143*. ApJ, 912, 120. DOI: 10.3847/1538-4357/abf13f
- 3) D. J. K. Buisson, et al. (including **Mason Ng**) 2021. *Dips and eclipses in the X-ray binary Swift J1858.6–0814 observed with NICER*. MNRAS, 503, 5600. DOI: 10.1093/mnras/stab863
- 2) Peter Bult, et al. (12 co-authors including **Mason Ng**) 2021. *The X-ray bursts of XTE J1739–285: a NICER sample*. ApJ, 907, 79. DOI: 10.3847/1538-4357/abd54b
- 1) J.J. Eldridge, E.R. Stanway, et al. (7 co-authors including **M. Ng**) 2017. *Binary Population and Spectral Synthesis Version 2.1: construction, observational verification and new results*. PASA, 34, 58. DOI: 10.1017/pasa.2017.51

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## ACCEPTED OBSERVING PROPOSALS AS PI

**Chandra (GO Cycle 27)**

2025

*Target-Of-Opportunity Chandra Observations of High-B Radio Pulsars: Searching for Magnetar Metamorphoses (60 ks).*

|   |                |
|---|----------------|
| <b>NuSTAR (GO Cycle 11)</b>   | 2025           |
| <i>Target-Of-Opportunity NuSTAR Observations of High-B Radio Pulsars: Searching for Magnetar Metamorphoses (150 ks).</i>                          |                |
| <b>IXPE (AO2)</b>   | 2024           |
| <i>X-ray Polarimetric Observations of Type I X-ray Bursts from the Clocked Burster (630 ks).</i>  |                |
| <b>NuSTAR (DDT)</b>   | 2024           |
| <i>Simultaneous NuSTAR/IXPE Observations of the Neutron Star Low-Mass X-ray Binary GX 17+2 (20 ks).</i>   |                |
| <b>NuSTAR (DDT)</b>   | 2024           |
| <i>Simultaneous NuSTAR/IXPE Observations of the Neutron Star Low-Mass X-ray Binary GX 340+0 (40 ks).</i>  |                |
| <b>HST Cycle 32 (co-PI)</b>   | 2024           |
| <i>An ultraviolet time-domain survey of the compact binary population in 47 Tucanae; ~ 150k USD.</i>  |                |
| <b>Chandra (DDT)</b>  | 2023           |
| <i>Tracking the Ne X Accretion Disk Line Emission of Ultracompact X-ray Binary 4U 1626–67 Across a Torque Reversal (60 ks).</i>                   |                |
| <b>NuSTAR (DDT)</b>   | 2023           |
| <i>Monitoring the Pulse Profile and Spectroscopic Evolution Across the Latest Torque Reversal of 4U 1626–67 (90 ks).</i>                          |                |
| <b>NICER (AO5)</b>  | 2023           |
| <i>Detecting Millisecond X-ray Pulsations and Confirming the Ultracompact Nature of the Low Mass X-ray Binary 4U 1850–087 (20 ks); ~ 43k USD.</i> |                |
| <b>NICER (AO4)</b>  | 2022           |
| <i>Time-Resolved Spectroscopic and Polarimetric Studies of 4U 1626–67 with NICER and IXPE (40 ks); ~ 44k USD.</i>                                 |                |
| <b>Swift ToO Observations</b>   | 2022 - Present |
| <i>Total of 26.6 ks over 4 sources</i>  |                |
| <b>NICER ToO Observations</b>   | 2021 - Present |
| <i>Total of 532 ks over 20 sources</i>  |                |

## PRESENTATIONS

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\* = Virtual

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| <b>*Invited Talk - CHORD Baseband Development Team</b>                              | Sep 2025 |
| <i>Operation of the Baseband Pipeline in CHIME</i>                                  |          |
| <b>Contributed Talk - FRB 2025 - Montréal, Canada</b>                               | Jul 2025 |
| <i>Polarization Properties of Fast Radio Bursts from CHIME Baseband Catalog 2</i>   |          |
| <b>Invited Talk - Joint NICER/IXPE Workshop 2024</b>                                | Jul 2024 |
| <i>IXPE Data Analysis with ixpeobssim</i>   |          |
| <b>Seminar - Chungbuk National University</b>                                       | Jul 2024 |
| <i>Multifaceted Understanding of Accreting Neutron stars and their Environments</i> |          |

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| <b>Seminar - Chungnam National University</b><br><i>Exploring the Frontier of Physics with Neutron Stars</i>  | Jul 2024 |
| <b>Contributed Talk - COSPAR - Busan, South Korea</b><br><i>Understanding Polarization Angle Variations in Neutron Stars</i>  | Jul 2024 |
| <b>Contributed Talk (Substitution) - COSPAR - Busan, South Korea</b><br><i>Magnetar X-ray Polarization Results and Implications</i>   | Jul 2024 |
| <b>Seminar - INAF-OAR</b><br><i>Probing the Atoll/Z Continuum with Neutron Star Low Mass X-ray Binary 1A 1744–361</i>   | Jun 2024 |
| <b>Seminar - INAF-IAPS</b><br><i>Probing the Atoll/Z Continuum with Neutron Star Low Mass X-ray Binary 1A 1744–361</i>  | Jun 2024 |
| <b>Poster - XMM-Newton 2024 Science Workshop: The X-ray Mysteries of Neutron Stars and White Dwarfs</b><br><i>Probing the Atoll/Z Continuum with Neutron Star Low Mass X-ray Binary 1A 1744–361</i>   | Jun 2024 |
| <b>Contributed Talk - 21st Divisional Meeting of the High Energy Astro. Division</b><br><i>Probing the Atoll/Z Continuum with Neutron Star Low Mass X-ray Binary 1A 1744–361</i>  | Apr 2024 |
| <b>Dissertation Talk - 243rd Meeting of the American Astronomical Society</b><br><i>X-ray and Radio Monitoring of the Neutron Star Low Mass X-ray Binary 1A 1744–361: Quasi Periodic Oscillations, Transient Ejections, and a Disk Atmosphere</i> | Jan 2024 |
| <b>*Invited Talk - Washington University in St. Louis</b><br><i>Multifaceted Understanding of Accreting Neutron stars and their Environments: An X-ray Polarimetric Focus</i>   | Dec 2023 |
| <b>Special Astrophysics Seminar - McGill University</b><br><i>Multifaceted Understanding of Accreting Neutron stars and their Environments: An X-ray Polarimetric Focus</i>   | Dec 2023 |
| <b>Department Lunch Talk (Astronomy) - UC Berkeley</b><br><i>Multifaceted Understanding of Accreting Neutron stars and their Environments: An X-ray Polarimetric Focus</i>  | Nov 2023 |
| <b>Astronomy Tea Talk - Caltech</b><br><i>Multifaceted Understanding of Accreting Neutron stars and their Environments: An X-ray Polarimetric Focus</i>   | Nov 2023 |
| <b>KIPAC Tea Talk - Stanford University</b><br><i>Understanding Neutron Star Geometry through the Lens of X-ray Polarization</i>  | Nov 2023 |
| <b>Seminar - NASA Goddard Space Flight Center</b><br><i>Probing the Accretion Geometry of Neutron Stars with X-ray Polarization</i>   | Oct 2023 |
| <b>Seminar - U.S. Naval Research Laboratory</b><br><i>Probing the Accretion Geometry of Neutron Stars with X-ray Polarization</i>   | Oct 2023 |
| <b>Seminar - University of Michigan</b><br><i>Probing the Accretion Geometry of Neutron Stars with X-ray Polarization</i>   | Oct 2023 |
| <b>Poster - 20th Divisional Meeting of the High Energy Astrophysics Division</b><br><i>Discovery of a 7.8 Hz QPO from the High-Intensity Outburst of Dipping NS LMXB 1A 1744–361</i>  | Mar 2023 |



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| <b>Poster - 20th Divisional Meeting of the High Energy Astrophysics Division</b><br><i>IXPE Observations of the Pulsar 4U 1626–67</i>   | Mar 2023 |
| <b>Contributed Talk - 241st Meeting of the American Astronomical Society</b><br><i>IXPE Observations of the Pulsar 4U 1626–67</i>   | Jan 2023 |
| <b>Seminar - Nanyang Technological University</b><br><i>IXPE Observations of the Neutron Star Low-Mass X-ray Binary 4U 1626–67</i>  | Dec 2022 |
| <b>Seminar - JAXA/ISAS</b><br><i>IXPE Observations of the Neutron Star Low-Mass X-ray Binary 4U 1626–67</i>   | Nov 2022 |
| <b>Seminar - Kyoto University</b><br><i>IXPE Observations of the Neutron Star Low-Mass X-ray Binary 4U 1626–67</i>  | Nov 2022 |
| <b>*Contributed Talk - Astrophysical Polarimetry in the Time-Domain Era</b><br><i>IXPE Observations of the Pulsar 4U 1626–67</i>  | Sep 2022 |
| <b>Contributed Talk - COSPAR - Athens, Greece</b><br><i>IXPE Observations of the Pulsar 4U 1626–67</i>  | Jul 2022 |
| <b>Poster - 19th Divisional Meeting of the High Energy Astrophysics Division</b><br><i>NICER Pulsation Search and Spectroscopy of the Original Black Widow Pulsar, PSR B1957+20</i> | Mar 2022 |
| <b>Poster - Celebrating 20 Years of Chandra Science Symposium</b><br><i>Spectral Evolution of NGC 300 ULX-1</i>   | Dec 2019 |
| <b>Invited Talk - Auckland Astronomical Society</b><br><i>Modelling the spectra of hot stars</i>  | Aug 2016 |
| <b>Talk - Royal Astronomical Society of New Zealand Conference</b><br><i>Modelling the spectra of hot stars</i>   | Apr 2016 |

## TECHNICAL SKILLS

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|                                   |  |
|-----------------------------------|--|
| <b>Programming</b>                | Python, HTML/CSS, IDL, L <sup>A</sup> T <sub>E</sub> X |
| <b>High Performance Computing</b> | OpenMP, MPI, Slurm                                     |

## HONORS & AWARDS

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|---|------|
| Young Scientist Participant for the Hong Kong Laureate Forum 2025 (1 of ~200 selected globally)                 | 2025 |
| 73rd Lindau Nobel Laureate Meeting (Physics) participant (1 of ~650 selected globally)                          | 2024 |
| Fonds de Recherche du Québec - Nature et Technologies (FRQNT) Postdoctoral Fellowship                           | 2024 |
| Bruno Rossi Prize [shared], High Energy Astrophysics Division of the AAS, as a Member of the IXPE Science Team  | 2024 |
| Bruno Rossi Prize [shared], High Energy Astrophysics Division of the AAS, as a Member of the NICER Science Team | 2022 |
| School of Science Service Fellowship ( <i>Massachusetts Institute of Technology</i> )                           | 2022 |
| Graduate Service Award, Physics Department ( <i>Massachusetts Institute of Technology</i> )                     | 2021 |
| Department of Physics Scholarship, 2017 ( <i>The University of Auckland</i> )                                   | 2016 |
| University of Auckland Postgraduate Honours/PG Diploma Scholarships   | 2016 |

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| Joyce Mary Clark Scholarship ( <i>The University of Auckland</i> )                       | 2016        |
| First in Course Award (x6) ( <i>The University of Auckland</i> )                         | 2014 - 2017 |
| Scholarship ( <i>New Zealand Qualifications Authority</i> )                              | 2014        |
| The Trusts Charitable Foundation Scholarship ( <i>The Trusts Charitable Foundation</i> ) | 2013        |
| Dux Litterarum ( <i>Lynfield College</i> )   | 2013        |

## RESEARCH SUPERVISION

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| <b>Nicole Mulyk</b><br><i>McGill PhD Student (co-supervised with Prof. Victoria Kaspi)</i>                           | 2024 - 2025    |
| <b>Daniel Amouyal</b><br><i>McGill Master's Student (co-supervised with Prof. Victoria Kaspi)</i>                    | 2024 - 2025    |
| <b>Ruth M. E. Kelly</b><br><i>Visiting MIT Graduate Student from UCL (co-supervised with Dr. Herman Marshall)</i>    | 2024           |
| <b>Swati Ravi</b><br><i>MIT PhD Student (co-supervised with Dr. Herman Marshall)</i>                                 | 2023 - Present |
| <b>Claire McLellan-Cassivi</b><br><i>MIT Undergraduate Research Student (co-supervised with Dr. Herman Marshall)</i> | 2023           |

## TEACHING EXPERIENCE

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|---|--------------------------|
| TA = Teaching Assistant   |                          |
| <b>Co-Lecturer for (Graduate) High Energy Astrophysics</b><br><i>Department of Physics, McGill University</i>                                 | Spring 2025              |
| <b>TA for (Graduate) Astrophysics I</b><br><i>Department of Physics, Massachusetts Institute of Technology</i>                                | Spring 2021, Spring 2022 |
| <b>TA for "Introduction to Astronomy" and "Modern Astrophysics"</b><br><i>Department of Physics, Massachusetts Institute of Technology</i>    | Spring 2020              |
| <b>Marker (5 applied mathematics courses across all undergraduate levels)</b><br><i>Department of Mathematics, The University of Auckland</i> | 2015 - 2017              |
| <b>TA (Physics) for Planets, Stars and Galaxies</b><br><i>Department of Physics, The University of Auckland</i>                               | 2015 - 2017              |
| <b>TA for Advancing Physics I</b><br><i>Department of Physics, The University of Auckland</i>   | 2015                     |

## LEADERSHIP & SERVICE

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|---|----------------|
| <b>TSI Seminar Committee Member</b><br><i>Organizing the weekly TSI Seminar series, including inviting speakers</i>                                       | 2025 - Present |
| <b>Fast Radio Bursts 2025 Local Organizing Committee</b><br><i>Organizing group hotel bookings and audiovisual technology for the FRB 2025 conference</i> | 2024 - 2025    |

**Committee Member**

2024 - 2025

*AAS Working Group for International Students and Researchers in Astronomy. Working group established to support members of the American Astronomical Society who are international scholars, and US citizens who plan to study/conduct research overseas.*

**Vice-Chair**

2023 - 2024

*Graduate Research and Development (GRAD) Coalition. Assisting the co-Chairs and members of the GRAD Caucus in the House of Representatives to present issues and concerns by graduate students and provide a platform to discuss possible legislative solutions. Successfully organized an in-person Congressional briefing in October 2023 on the topic of graduate advising/mentorship.*

**Graduate Student Member**

2020 - 2022

*Graduate Admissions Committee, Department of Physics, MIT. Worked with the Graduate Admissions Chair to review applications from applicants to the MIT Physics PhD program.*

**Co-Organizer**

2020 - 2022

*Physics Graduate Application Assistance Program, Department of Physics, MIT. Co-led the establishment of mentoring-based physics PhD application assistance programs as well as virtual webinars. Successfully co-developed a proposal for funding graduate student mentors.*

**MIT Graduate Student Council External Affairs Board**

2019 - 2023

*Vice-Chair (2022-2023), Development (2020-2022), Public Outreach (2019-2020). Led the groundwork for the annual MIT Research Slam (2020); led the writing and publishing of the monthly advocacy newsletter (2021-2023); led multiple in-person trips with 8 to 10-student teams to Washington D.C. to meet with Congressional offices to advocate for graduate student concerns. I have overseen the scheduling for over 100 Congressional offices and committees over two trips.*

**Committee Member (Graduate Student)**

2019 - 2024

*MIT Open Space Programming Advisory Committee. Advising the Open Space Programming team on activities and programming for the Kendall Square Open Space by providing graduate student input and acting as a liaison.*

**MITvote Graduate Liaison**

2018 - 2023

*MITvote. Developing and sending informational emails on voting in local, state, and federal elections during election seasons.*

**Volunteer Observer**

2018 - 2024

*MIT Sidewalk Astrogazers. Have participated in over a dozen pop-up public astrogazing events so far and trained other students in operating the telescopes.*

**Executive Member**

2017

*Science Students' Association. Introduced the annual Science Trivia, and worked with other executive members to obtain funding from the various departments for this new association.*

**President**

2015 - 2017

*The Physics Association of The University of Auckland (PAUA). Introduced the annual Physics Careers Panel Discussion, organized monthly social gatherings ("Fluid Dynamics"), introductory Python workshops, and research seminars for undergraduate students.*

**OUTREACH AND PANELS****Graduate School Information Session**

Sep 2025

*Panelist for a Q&A session (> 20 attendees) for undergraduates at McGill Physics*

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| <b>Physics Graduate Application/Admissions Information Session</b><br><i>Speaker for a virtual presentation and Q&amp;A session (&gt; 45 attendees) for undergraduates of IISER Bhopal</i>   | Jul 2023 |
| <b>Physics Graduate Application/Admissions Information Session</b><br><i>Speaker for an in-person presentation and Q&amp;A session (&gt; 15 attendees) for undergraduates of the Nanyang Technological University in Singapore</i>   | Dec 2022 |
| <b>Physics Graduate Applications Panel for Cenca Bridge</b><br><i>Panelist for a live virtual webinar (&gt; 5 attendees) to talk about the graduate admissions process. This panel was particularly for the Central American-Caribbean Bridge in Astrophysics students</i> | Apr 2022 |
| <b>PhysGAAP Webinar for Prospective Applicants</b><br><i>Panelist for a live virtual webinar (&gt;90 attendees) to talk about the graduate admissions process</i>  | Dec 2021 |
| <b>International Graduate School Panel</b><br><i>Panelist for a live virtual webinar (&gt;10 attendees) to talk about international opportunities for graduate school to current undergraduate students in New Zealand</i>   | Nov 2021 |
| <b>PGSC Career Panel</b><br><i>In-person panelist on a career panel (&gt; 20 attendees); spoke about physics graduate admissions</i>   | Nov 2021 |
| <b>Site 4 Art Kits &amp; Stargazing Program</b><br><i>In-person presentation to two dozen graduate students and their family from all backgrounds about neutron stars</i>  | Nov 2021 |
| <b>Discord Panel for Physics/Astro Graduate School Applicants</b><br><i>Panelist for a live virtual panel (&gt; 20 attendees); spoke about physics graduate admissions</i>   | Oct 2021 |
| <b>PhysGAAP Webinar for Prospective Applicants</b><br><i>Panelist for a live virtual webinar (&gt;140 attendees) to talk about the graduate admissions process</i>   | Sep 2021 |
| <b>Physics Information Session for MSRP Students</b><br><i>Panelist for a live virtual panel (&gt;20 attendees) to talk about the graduate school</i>  | Jul 2021 |
| <b>Graduate Admissions Panel for MIT SPS</b><br><i>Panelist for a live virtual panel (&gt;20 attendees) to talk about the graduate admissions</i>  | May 2021 |
| <b>Graduate School Panel for UPRM</b><br><i>Panelist for a live virtual panel (&gt;20 attendees) to talk about the graduate admissions</i>   | Sep 2020 |