

Dr. Alexandra J. Tetarenko (she/her/elle)

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Current Position

Assistant Professor July 2023 – present
University of Lethbridge, Lethbridge, AB, Canada

Research and Employment History

NASA Hubble Fellowship Program – Einstein Fellow October 2021 – June 2023
Texas Tech University, Lubbock, TX, USA

EAO Fellow September 2018–September 2021
East Asian Observatory (EAO)
James Clerk Maxwell Telescope (JCMT)
Hilo, HI, USA

Graduate Student September 2012–August 2018
University of Alberta, Edmonton, AB, Canada

Research Assistant September 2011–December 2011
University of Calgary, Calgary, AB, Canada

Education¹

Ph.D., Physics September 2014–August 2018
Thesis Title: “*Constraining the physics of relativistic jets with radio through (sub-)millimetre properties of X-ray binaries*”
Supervisor: Gregory Sivakoff
University of Alberta, Edmonton, AB, Canada

M.Sc., Physics September 2012–August 2014
Supervisor: Gregory Sivakoff
University of Alberta, Edmonton, AB, Canada

B.Sc. (Hons), First Class, Astrophysics September 2006–June 2012
University of Calgary, Calgary, AB, Canada

Grants, Fellowships, and Awards

I have earned over 1 Million CAD in grants, fellowships, and awards so far in my career. **This has allowed me to fund my research completely independently since 2016.**

Canada Research Chair (Tier II) in Black Hole Astrophysics (600,000 CAD) 2025–2030

University of Lethbridge Faculty of Arts & Science Outreach Grant (5000 CAD) 2024–2025

¹Electronic copies of my theses can be found at the UAlberta Education & Research Archive (*PhD link* and *MSc link*).

<i>NSERC Discovery Launch Supplement (12500 CAD)</i>	2024–2029
<i>NSERC Discovery Grant (145000 CAD)</i>	2024–2029
<i>Canadian Space Agency JWST Cycle 2 AO (50000 CAD)</i>	2024–2026
<i>University of Lethbridge Early Career Seed Grant (5000 CAD)</i>	2024–2025
<i>University of Lethbridge SGS Graduate Student Funds (28800 CAD)</i>	2025–2027
<i>University of Lethbridge Startup Grant (100000 CAD)</i>	2023–2028
<i>NASA Einstein Fellowship (284000 USD / 351587 CAD)</i>	2021–2024
<i>EAO Fellowship (225000 USD / 278546 CAD)</i>	2018–2021
<i>Canadian Astronomical Society J. S. Plaskett Medal (750 CAD + Gold Medal)</i>	2019
<i>Marie Skłodowska-Curie Actions Seal of Excellence</i>	2018
<i>Natural Sciences and Engineering Research Council of Canada (NSERC) Post-Graduate Doctoral Scholarship (PGS-D; 42000 CAD)</i>	2016–2018
<i>University of Alberta Doctoral Prize of Distinction (15800 CAD)</i>	2016–2018
<i>University of Alberta Science Graduate Scholarship (2875 CAD)</i>	2016
<i>Queen Elizabeth II Graduate Scholarship – Doctoral Level (15000 CAD)</i>	2014–2015
<i>University of Alberta Graduate Student Teaching Award</i>	2014
<i>Queen Elizabeth II Graduate Scholarship – Masters Level (10800 CAD)</i>	2012–2013
<i>Dean’s Merit Admissions Award, Faculty of Science (1000 CAD)</i>	2006
<i>University of Calgary Admissions Scholarship (1250 CAD)</i>	2006

International Activities

I am currently **involved in 12 high level international collaborations**, studying various aspects of black hole physics, with astronomers across the globe.

GRAIN: I am a key member and co-I of an interdisciplinary team of Canadian researchers in the Canadian GRavitational wave Astrophysics Infrastructure Network (GRAIN) project. The GRAIN project has been recently submitted to the Canadian Foundation for Innovation (CFI) grants program, aiming to fund instrumentation upgrades to ground-based gravitational wave detectors and provide high performance software infrastructure to analyze the resulting data.

PRIMA: I am an active member of the team developing the science case for this next-generation far-IR probe which was recently selected for study by NASA.

GOFAST-XRB: I am the PI of a Gemini Large Program, GOFAST-XRB (Gemini Optical FAST timing of X-Ray Binaries), which received a total of 150 hrs of telescope time across the ‘Alopeke/Zorro instruments located on the Gemini North/South telescopes. This program aims to perform the first coherent census of X-ray binary optical variability across different compact objects, timescales (sub-seconds-months), and accretion regimes. These Gemini data are paired with NICER X-ray observations to track matter propagating from inflow to outflow in X-ray binaries, and gain insights into jet physics, particle acceleration, and how these processes relate to the accretion flow. Currently GOFAST-XRB consists of an international team of 12 members, across 7 countries.

PITCH-BLACK: I am the PI of a James Clerk Maxwell Telescope (JCMT) Large Program, PITCH-BLACK (Polarization and Timing CHARACTERISTICS of BLACK hole jets²), which received a total of 256 hrs of telescope time using the SCUBA-2/POL-2 instruments. This program aims to use sub-mm timing and polarimetry to sample jet production in a range of different sources and accretion regimes, allowing us to gain crucial insights into jet physics, particle acceleration, and how these processes depend on the accretion flow properties. Currently PITCH-BLACK consists of an international team of 43 members, across 13 countries. Participating multi-wavelength programs include the following facilities: ALMA; AstroSAT; ATCA; Gemini ‘Alopeke/Zorro; GTC HiPERCAM; HXMT; JWST; LMT; MAXI; NICER; NTT; SALT; Swift; ULTRACAM; VLA; VLT VISIR/HAWK-I.

Next-Generation Event Horizon Telescope (ngEHT): I am an active member of two ngEHT science working groups (WG): (1) Transients WG and (2) Algorithms and Inference WG. For the latter, I am co-lead of the dynamic imaging and modelling focus group.

EHT: I am an active member of the Event Horizon Telescope (EHT) collaboration (over 300 members, across 50 institutions in 20 countries). In particular, I am a co-lead of the time domain working group, leading over 30 team members to explore how to extract physical information from time-varying quantities in the data. I am part of the team that is using VLBI data on X-ray binaries to test and develop imaging algorithms. I also lead an effort to determine the feasibility of observing X-ray binary systems with the EHT.

S4-CMB: I am an active member of the Sources WG, led by Anna Ho (UC Berkley) and Joaquin Vieira (Uillinois), for the next-generation ground-based cosmic microwave background experiment (S4-CMB). In particular, I contribute to advancing the science case for the instrument and designing pipelines/analyses to use the S4-CMB data for transient science. The S4-CMB instrument will consist of 21 telescopes at the South Pole and in the Chilean Atacama desert that surveys the sky at millimetre wavelengths.

STROBE-X: I am an active member of the Science WG, led by Thomas Maccarone (Texas Tech), for this probe-class X-ray observatory designed for X-ray timing and spectroscopy. In particular, I contribute to advancing the science case for the instrument in the area of accretion/ejection processes of black holes.

Search for Astrophysical Neutrinos: I am responsible for radio followup of astrophysical neutrino source candidates, to track the spectro-polarimetric evolution of the candidate source at radio frequencies (working in concert with the global particle physics IceCube Collaboration, over 300 members, across 50 institutions in 12 countries). The goal of this project is to determine if neutrino generating events are associated with an injection of energy that moves down a jet (e.g., IceCube Collaboration 2019, Science, 361, 6398 eaat1378; Tetarenko et al. 2019, ATel, 12926, 1). Collaborators include G. Sivakoff (PI; University of Alberta, Canada), G. Hallinan (Caltech, USA), A. Kimball (NRAO, USA), Kunal Mooley (Caltech, USA), S. Myers (NRAO, USA), and J. Miller-Jones (Curtin University, Australia).

²<https://tetarenk.github.io/PITCH-BLACK>

JACPOT XRB: I am a core member of the JACPOT XRB (Jet Acceleration and Collimation Probe Of Transient X-Ray Binaries) collaboration, which includes J. Miller-Jones (PI; Curtin University, Australia), G. Sivakoff (University of Alberta, Canada), D. Russell (NYU Abu Dhabi, UAE), D. Altamirano (University of Southampton, UK), R. Fender (Oxford University, UK), S. Markoff (UvA, Netherlands), E. Koerding (RU Nijmegen, Netherlands), and S. Heinz (University of Wisconsin, USA), among others. This group coordinates multi-wavelength observations of accreting black holes.

MAVERIC: I am a member of the MAVERIC (Milky Way ATCA/VLA Exploration of Radio sources In Clusters) collaboration, using radio and X-ray observations to identify accreting compact objects in globular clusters (e.g., Tetarenko et al. 2016, MNRAS, 460, 345). Collaborators include J. Strader (PI) and L. Chomiuk (Michigan State University, USA), J. Miller-Jones (Curtin University, Australia), T. Maccarone (Texas Tech University, USA), C. Heinke and G. Sivakoff (University of Alberta, Canada), and C. Knigge (University of Southampton, UK), among others.

Swift Galactic Bulge Survey: I am responsible for radio frequency followup of new faint X-ray transient sources found with the Swift Galactic Bulge Survey (e.g., Shaw et al. 2020, MNRAS 492, 4344; Tetarenko et al. 2017, ATel, 10422, 1). Collaborators include T. Maccarone (PI; Texas Tech University, USA), C. Heinke and G. Sivakoff (University of Alberta, Canada), N. Degenaar and R. Wijnands (UvA, Netherlands), J. Strader (Michigan State University, USA), J. Kennea (Penn State University, USA), and J. in 't Zand (SRON, Netherlands), among others.

Refereed Publications

I have **led 10 peer-reviewed journal articles, co-authored a further 74**, and accrued a **total of 7610 citations** (including publishing in high impact journals: *Science*, *Nature*, and *Nature Astronomy*), leading to an **h-index of 34**.

To assess my contribution to these publications, my name is **highlighted in bold**. In astrophysics publications, the first-author is most often the individual who has done the most work on the project and written the paper. The one exception is for large collaborations, where the author list is ordered alphabetically.

To assess the impact of my publications, I include the number of citations, the impact factor of the journal publishing the article, and mark publications which represent major scholarly contributions to the field with a ★ symbol.

All of these data are taken from the SAO/NASA Astrophysics Data System³, which is the standard bibliographic database for Astrophysics.

84. **A.J. Tetarenko**, P. Gandhi, and D. Pawar, 2025, “Rapid far-infrared spectral timing of X-ray binaries with PRIMA”, *JATIS*, 11, 031603, doi: 10.1117/1.JATIS.11.3.031603 (Journal Impact Factor: 1.7)
83. C.M. Wood, and 16 co-authors including **A.J. Tetarenko**, 2025, “The Ejection of Transient Jets in Swift J1727.8–1613 Revealed by Time-Dependent Visibility Modelling”, *ApJ Letters in press*, arXiv: 2503.03073 (Journal Impact Factor: 8.374)
82. F.M. Vincentelli, and 15 co-authors including **A.J. Tetarenko**, 2025, “Sub-second optical/near-infrared quasi-periodic oscillations from the black hole X-ray transient Swift J1727.8-1613”, *MNRAS in press*, arXiv: 2503.20862 (Journal Impact Factor: 5.231)

³<http://adsabs.harvard.edu>

81. *J. Roder, the Event Horizon Telescope Collaboration, including A.J. Tetarenko, 2025, “A multi-frequency study of sub-parsec jets with the Event Horizon Telescope”, A&A, 695, A233 (Journal Impact Factor: 5.4)*
80. *The Event Horizon Telescope Collaboration, including A.J. Tetarenko, 2025, “The persistent shadow of the supermassive black hole of M87: II. Model comparisons and theoretical interpretations”, A&A, 693, A265 (Citations: 3, Journal Impact Factor: 6.5)*
79. *P. Gandhi, and 46 co-authors including A.J. Tetarenko, 2025, “Rapid Mid-Infrared Spectral-Timing with JWST. I. The prototypical black hole X-ray Binary GRS 1915+105 during a MIR-bright and X-ray-obscured state”, MNRAS, 537, 1385–1403 (Citations: 4, Journal Impact Factor: 5.231)*
78. *A.K. Baczko, the Event Horizon Telescope Collaboration, including A.J. Tetarenko, 2024, “The putative center in NGC 1052”, A&A, 692, A205 (Citations: 2, Journal Impact Factor: 5.4)*
77. *J.C. Algaba, the Event Horizon Telescope Collaboration, including A.J. Tetarenko, 2024, “Broadband multi-wavelength properties of M87 during the 2018 EHT campaign including a very high energy flaring episode”, A&A, 692, A140 (Citations: 10, Journal Impact Factor: 5.4)*
76. *A. Raymond, the Event Horizon Telescope Collaboration, including A.J. Tetarenko, 2024, “First Very Long Baseline Interferometry Detections at $870\mu\text{m}$ ”, AJ, 168, 130 (Citations: 12, Journal Impact Factor: 6.263)*
75. *E.C. Pattie, T.J. Maccarone, A.J. Tetarenko, J.C.A. Miller-Jones, M. Picardo Marcano, and L.E. Rivera Sandoval, 2024, “Variable radio emission of neutron star X-ray binary Ser X-1 during its persistent soft state”, ApJ, 970, 126 (Journal Impact Factor: 5.580)*
74. *F. Carotenuto, R. Fender, A.J. Tetarenko, S. Corbel, A.A. Zdziarski, G. Shaik, A.J. Cooper, and I. Di Palma, 2024, “Constraining the physical properties of large-scale jets from black hole X-ray binaries and their impact on the local environment with blast-wave dynamical models”, MNRAS, 533, 4188–4209 (Citations: 5, Journal Impact Factor: 5.231)*
73. *C. Wood, and 23 co-authors including A.J. Tetarenko, 2024, “Swift J1727.8–1613 has the Largest Resolved Continuous Jet Ever Seen in an X-ray Binary”, ApJ Letters, 971, L9 (Citations: 18, Journal Impact Factor: 8.374)*
72. *★ The Event Horizon Telescope Collaboration, including A.J. Tetarenko, 2024, “First Sagittarius A* Event Horizon Telescope Results. VIII. Physical Interpretation of the Polarized Ring”, ApJ Letters, 964, L26 (Citations: 62, Journal Impact Factor: 8.374)*
71. *★ The Event Horizon Telescope Collaboration, including A.J. Tetarenko, 2024, “First Sagittarius A* Event Horizon Telescope Results. VII. Polarization of the Ring”, ApJ Letters, 964, L25 (Citations: 52, Journal Impact Factor: 8.374)*
70. *J. Chakraborty, R. Arcodia, E. Kara, G. Miniutti, M. Giustini, A.J. Tetarenko, et al., 2024, “Testing EMRI models for Quasi-Periodic Eruptions with 3.5 years of monitoring eRO–QPE1”, ApJ, 965, 12 (Citations: 31, Journal Impact Factor: 5.580)*

69. ★ *T.D. Russell, N. Degenaar, J. van den Eijnden, T. Maccarone, **A.J. Tetarenko**, C. Sanchez-Fernandez, J.C.A. Miller-Jones, E. Kuulkers, and M. Del Santo, 2024, “Thermonuclear explosions on neutron stars reveal the speed and feeding of their jets”, Nature, 627, 763–766 (Citations: 10, Journal Impact Factor: 43.070)*
68. *The Event Horizon Telescope Collaboration, including **A.J. Tetarenko**, 2024, “The Persistent Shadow of the Supermassive Black Hole of M87 I: Observations, Calibration, Imaging, and Analysis”, A&A, 681, A79 (Citations: 37, Journal Impact Factor: 6.5)*
67. *G.F. Paraschos, the Event Horizon Telescope collaboration including **A.J. Tetarenko**, 2024, “Ordered magnetic fields around the 3C 84 central black hole”, A&A, 682, L3 (Citations: 16, Journal Impact Factor: 56.5)*
66. ★ *C. Echiburu-Trujillo, **A.J. Tetarenko**, and 36 co-authors, 2024, “Chasing the break: Tracing the full evolution of a black hole X-ray binary jet with multi-wavelength spectral modeling”, ApJ, 392, 116 (Citations: 14, Journal Impact Factor: 5.580)*
65. *The Event Horizon Telescope Collaboration, including **A.J. Tetarenko**, 2023, “First M87 Event Horizon Telescope Results IX: Detection of Near-horizon Circular Polarization”, ApJ Letters, 957, L20 (Citations: 64, Journal Impact Factor: 8.374)*
64. *P. Torne, the Event Horizon Telescope collaboration including **A.J. Tetarenko**, 2023, “A Search for Pulsars around SgrA* in the First Event Horizon Telescope Data Set”, ApJ, 959, 14 (Citations: 12, Journal Impact Factor: 5.580)*
63. *F. Roelofs, the Event Horizon Telescope collaboration including **A.J. Tetarenko**, 2023, “Polarimetric Geometric Modeling for mm-VLBI Observations of Black Holes”, ApJ Letters, 957, L21 (Citations: 9, Journal Impact Factor: 8.374)*
62. ★ *A. Bahramian, E. Tremou, **A.J. Tetarenko**, and 12 co-authors, 2023, “MAXI J1848–015: The First Detection of Relativistically Moving Outflows from a Globular Cluster X-ray Binary”, ApJ Letters, 948, L7 (Citations: 9, Journal Impact Factor: 8.374)*
61. *C. Wood, J. Miller-Jones, A. Bahramian, S. Tingay, T. Russell, **A.J. Tetarenko**, and 14 co-authors, 2023, “Time-dependent visibility modelling of a relativistic jet in the X-ray binary MAXI J1803–298”, MNRAS, 522, 70–89 (Citations: 8, Journal Impact Factor: 5.231)*
60. ★ *F.M. Vincentelli, J. Neilsen, **A.J. Tetarenko**, and 20 co-authors, 2023, “A shared accretion instability for black holes and neutron stars”, Nature, 615, 45–49 (Citations: 19, Journal Impact Factor: 43.070)*
59. *B. Prather, the Event Horizon Telescope collaboration including **A.J. Tetarenko**, 2023, “Comparison of Polarized Radiative Transfer Codes used by the EHT Collaboration”, ApJ, 950, 35 (Citations: 14, Journal Impact Factor: 5.580)*
58. *A.K. Hughes, G.R., Sivakoff, C.E. Macpherson, J.C.A. Miller-Jones, **A.J. Tetarenko**, and 16 co-authors, 2023, “Short Timescale Evolution of the Polarized Radio Jet during V404 Cygni’s 2015 Outburst”, MNRAS, 521, 185–207 (Citations: 3, Journal Impact Factor: 5.231)*

57. *S. Jorstad, the Event Horizon Telescope Collaboration including **A.J. Tetarenko**, 2023, “The Event Horizon Telescope Image of the Quasar NRAO 530”, ApJ, 943, 170 (Citations: 21, Journal Impact Factor: 5.580)*
56. *T.J. Maccarone, E.C. Pattie, and **A.J. Tetarenko**, 2022, “The simultaneity of emission from approaching and receding jets”, MNRAS Letters, 517, L76–L80 (Citations: 2, Journal Impact Factor: 8.938)*
55. *S. Issaoun, the Event Horizon Telescope Collaboration including **A.J. Tetarenko**, 2022, “Resolving the Inner Parsec of the Blazar J1924-2914 with the Event Horizon Telescope”, ApJ, 934, 145 (Citations: 38, Journal Impact Factor: 5.580)*
54. ★ *The Event Horizon Telescope Collaboration, including **A.J. Tetarenko**, 2022, “First Sagittarius A* Event Horizon Telescope Results. I. The Shadow of the Supermassive Black Hole in the Center of the Milky Way”, ApJ Letters, 930, L12 (Citations: 1180, Journal Impact Factor: 8.374)*
53. ★ *The Event Horizon Telescope Collaboration, including **A.J. Tetarenko**, 2022, “First Sagittarius A* Event Horizon Telescope Results. II. EHT and Multiwavelength Observations, Data Processing, and Calibration”, ApJ Letters, 930, L13 (Citations: 278, Journal Impact Factor: 8.374)*
52. ★ *The Event Horizon Telescope Collaboration, including **A.J. Tetarenko**, 2022, “First Sagittarius A* Event Horizon Telescope Results. III. Imaging of the Galactic Center Supermassive Black Hole”, ApJ Letters, 930, L14 (Citations: 325, Journal Impact Factor: 8.374)*
51. ★ *The Event Horizon Telescope Collaboration, including **A.J. Tetarenko**, 2022, “First Sagittarius A* Event Horizon Telescope Results. IV. Variability, Morphology, and Black Hole Mass”, ApJ Letters, 930, L15 (Citations: 285, Journal Impact Factor: 8.374)*
50. ★ *The Event Horizon Telescope Collaboration, including **A.J. Tetarenko**, 2022, “First Sagittarius A* Event Horizon Telescope Results. V. Testing Astrophysical Models of the Galactic Center Black Hole”, ApJ Letters, 930, L16 (Citations: 408, Journal Impact Factor: 8.374)*
49. ★ *The Event Horizon Telescope Collaboration, including **A.J. Tetarenko**, 2022, “First Sagittarius A* Event Horizon Telescope Results. VI. Testing the Black Hole Metric”, ApJ Letters, 930, L17 (Citations: 484, Journal Impact Factor: 8.374)*
48. *J. Farah, the Event Horizon Telescope Collaboration including **A.J. Tetarenko**, 2022, “Selective Dynamical Imaging of Interferometric Data”, ApJ Letters, 930, L18 (Citations: 24, Journal Impact Factor: 8.374)*
47. *M. Wielgus, N. Marchili, I. Marti-Vidal, G.K. Keating, V. Ramakrishnan, P. Tiede, E. Fomalont, S. Issaoun, J. Neilsen, M.A. Nowak, L. Blackburn, C.F. Gammie, C. Goddi, D. Haggard, D. Lee, M. Moscibrodzka, **A.J. Tetarenko**, and the Event Horizon Telescope Collaboration, 2022, “Millimeter Light Curves of Sagittarius A* Observed during the 2017 Event Horizon Telescope Campaign”, ApJ Letters, 930, L19 (Citations: 97, Journal Impact Factor: 8.374)*

46. *B. Georgiev, the Event Horizon Telescope Collaboration including **A.J. Tetarenko**, 2022, “A Universal Power-law Prescription for Variability from Synthetic Images of Black Hole Accretion Flows”, ApJ Letters, 930, L20 (Citations: 34, Journal Impact Factor: 8.374)*
45. *A. Broderick, the Event Horizon Telescope Collaboration including **A.J. Tetarenko**, 2022, “Characterizing and Mitigating Intraday Variability: Reconstructing Source Structure in Accreting Black Holes with mm-VLBI”, ApJ Letters, 930, L21 (Citations: 34, Journal Impact Factor: 8.374)*
44. *P. Saikia, and 29 co-authors including **A.J. Tetarenko**, 2022, “A multi-wavelength study of GRS 1716–249 in outburst : constraints on its system parameters”, ApJ, 932, 38 (Citations: 13, Journal Impact Factor: 5.580)*
43. *F. Carotenuto, **A.J. Tetarenko**, and S. Corbel, 2022, “Modeling the kinematics of the decelerating jets from the black hole X-ray binary MAXI J1348–630”, MNRAS, 511, 4826–4841 (Citations: 22, Journal Impact Factor: 5.231)*
42. *A. Zdziarski, **A.J. Tetarenko**, and M. Sikora, 2022, “Jet Parameters in the Black-Hole X-Ray Binary MAXI J1820+070”, ApJ, 925, 189 (Citations: 27, Journal Impact Factor: 5.580)*
41. *K. Satopathy, the Event Horizon Telescope Collaboration including **A.J. Tetarenko**, 2022, “The Variability of the Black-Hole Image in M87 at the Dynamical Time Scale”, ApJ, 925, 13 (Citations: 37, Journal Impact Factor: 5.580)*
40. *S. Mairs, J. Dempsey, G. Bell, H. Parsons, M.J. Currie, P. Friberg, X-J. Jiang, **A.J. Tetarenko**, and 19 more co-authors, 2021, “A Decade of SCUBA–2: A Comprehensive Guide to Calibrating 450 μ m and 850 μ m Continuum Data at the JCMT”, AJ, 162, 191 (Citations: 51, Journal Impact Factor: 6.263)*
39. *C.M. Wood, and 16 co-authors including **A.J. Tetarenko**, 2021, “The Varying Kinematics of Multiple Ejecta from the Black Hole X-ray Binary MAXI J1820+070”, MNRAS, 505, 3393–3403 (Citations: 38, Journal Impact Factor: 5.231)*
38. *★ **A.J. Tetarenko**, P. Casella, J.C.A. Miller-Jones, G.R. Sivakoff, J.A. Paice, F.M. Vincentelli, T.J. Maccarone, P. Gandhi, V.S. Dhillon, T.R. Marsh, T.D. Russell, and P. Uttley, 2021, “Measuring fundamental jet properties with multi-wavelength fast timing of the black hole X-ray binary MAXI J1820+070”, MNRAS, 504, 3862–3883 (Citations: 53, Journal Impact Factor: 5.231)*
37. *F. Carotenuto, S. Corbel, E. Tremou, T.D. Russell, A. Tzioumis, R.P. Fender, P.A. Woudt, S.E. Motta, J.C.A. Miller-Jones, **A.J. Tetarenko**, and G.R. Sivakoff, 2021, “The hybrid radio/X-ray correlation of the black hole transient MAXI J1348–630”, MNRAS Letters, 505, L58–L63 (Citations: 22, Journal Impact Factor: 5.194)*
36. *M. Janssen, the Event Horizon Telescope Collaboration including **A.J. Tetarenko**, 2021, “Event Horizon Telescope observations of the jet launching and collimation in Centaurus A”, Nature Astronomy, 5, 1017–1028 (Citations: 116, Journal Impact Factor: 10.5)*
35. *P. Kockerlakota, the Event Horizon Telescope Collaboration including **A.J. Tetarenko**, 2021, “Constraints on black-hole charges with the 2017 EHT observations of M87*”, PhRvD, 103, 104047 (Citations: 254, Journal Impact Factor: 4.833)*

34. R. Narayan, the Event Horizon Telescope Collaboration including **A.J. Tetarenko**, 2021, “The Polarized Image of a Synchrotron Emitting Ring of Gas Orbiting a Black Hole”, ApJ, 912, 35 (Citations: 68, Journal Impact Factor: 5.580)
33. Event Horizon Telescope Collaboration, including **A.J. Tetarenko**, 2021, “Broadband Multi-wavelength Properties of M87 During the 2017 Event Horizon Telescope Campaign”, ApJ Letters, 911, L11 (Citations: 100, Journal Impact Factor: 8.374)
32. F. Carotenuto, S. Corbel, E. Tremou, T.D. Russell, A. Tzioumis, R.P. Fender, P.A. Woudt, S.E. Motta, J.C.A. Miller-Jones, J. Chauhan, **A.J. Tetarenko**, G.R. Sivakoff, I. Heywood, A. Horesh, A.J. van der Horst, E. Koerding, and K.P. Mooley, 2021, “The black hole transient MAXI J1348-630: evolution of the compact and transient jets during its 2019/2020 outburst”, MNRAS, 504, 444–468 (Citations: 59, Journal Impact Factor: 5.231)
31. ★ Event Horizon Telescope Collaboration, including **A.J. Tetarenko**, 2021, “First M87 Event Horizon Telescope Results VIII – Magnetic Field Structure near The Event Horizon”, ApJ Letters, 910, L13 (Citations: 529, Journal Impact Factor: 8.374)
30. ★ Event Horizon Telescope Collaboration, including **A.J. Tetarenko**, 2021, “First M87 Event Horizon Telescope Results VII – Polarization of the Ring”, ApJ Letters, 910, L12 (Citations: 364, Journal Impact Factor: 8.374)
29. C. Goddi, the Event Horizon Telescope Collaboration including **A.J. Tetarenko**, 2021, “Polarimetric properties of Event Horizon Telescope targets from ALMA”, ApJ Letters, 910, L14 (Citations: 87, Journal Impact Factor: 8.374)
28. ★ J.C.A Miller-Jones, and 25 co-authors including **A.J. Tetarenko**, 2021, “Cygnus X–1 contains a 21-solar mass black hole – implications for massive star winds”, Science, 371, 1046–1049 (Citations: 212, Journal Impact Factor: 41.063)
27. S. E. M. de Haas, T.D. Russell, N. Degenaar, S. Markoff, **A.J. Tetarenko**, B. E. Tetarenko, J. van den Eijnden, J.C.A. Miller-Jones, A.S. Parikh, R.M. Plotkin, and G.R. Sivakoff, 2021, “Diskjet coupling changes as a possible indicator for outbursts from GX 339–4 remaining within the X-ray hard state”, MNRAS, 502, 521–540 (Citations: 11, Journal Impact Factor: 5.231)
26. B.E. Tetarenko, A.W. Shaw, E.R. Manrow, P.A. Charles, J.M. Miller, T.D. Russell, and **A.J. Tetarenko**, 2021, “Using Optical Spectroscopy to Map the Geometry and Structure of the Irradiated Accretion Discs in Low-mass X-ray Binaries: The Pilot-Study of MAXI J0637–430”, MNRAS, 501, 3406–3420 (Citations: 17, Journal Impact Factor: 5.231)
25. A. Bahramian, C.O. Heinke, J.A. Kennea, T.J. Maccarone, P.A. Evans, R. Wijnands, N. Degenaar, J.J.M. in’t Zand, A.W. Shaw, L.E. Rivera Sandoval, S. McClure, **A.J. Tetarenko**, J. Strader, E. Kuulkers, G.R. Sivakoff, 2021, “The Swift Bulge Survey: Motivation, strategy, and first X-ray results”, MNRAS, 501, 2790–2809 (Citations: 28, Journal Impact Factor: 5.231)

24. D. Kantzas, S. Markoff, T. Beuchert, M. Lucchini, A. Chhotray, C. Ceccobello, **A.J. Tetarenko**, J.C.A. Miller-Jones, M. Bremer, J.A. Garcia, V. Grinberg, P. Uttley, and J. Wilms, 2021, “A new lepto-hadronic model applied to the first simultaneous multiwavelength data set for Cygnus X–1”, *MNRAS*, 500, 2112–2126 (Citations: 29, Journal Impact Factor: 5.231)
23. R. Urquhart, A. Bahramian, J. Strader, L. Chomiuk, S.M. Ransom, Y. Wang, C.O. Heinke, V. Tudor, J.C.A. Miller-Jones, **A.J. Tetarenko**, T.J. Maccarone, G.R. Sivakoff, L. Shishkovsky, S.J. Swihart, and E. Tremou, 2020, “The MAVERIC Survey: New compact binaries revealed by deep radio continuum observations of the Galactic globular cluster Terzan 5”, *ApJ*, 904, 147 [19 pages] (Citations: 19, Journal Impact Factor: 5.580)
22. T.D. Russell, M. Lucchini, **A.J. Tetarenko**, and 25 co-authors, 2020, “Rapid compact jet quenching in the Galactic black hole candidate X-ray binary MAXI J1535–571”, *MNRAS*, 498, 5772–5785 (Citations: 39, Journal Impact Factor: 5.231)
21. ★ **A.J. Tetarenko**, E.W. Rosolowsky, J.C.A. Miller-Jones, and G.R. Sivakoff, 2020, “Jet-ISM Interactions near the Microquasars GRS 1758-258 and 1E 1740.7-2942”, *MNRAS*, 497, 3504–3524 (Citations: 14, Journal Impact Factor: 5.231)
20. J. van den Eijnden, and 20 co-authors including **A.J. Tetarenko**, 2020, “The variable radio counterpart of Swift J1858.6–0814”, *MNRAS*, 496, 4127–4140 (Citations: 17, Journal Impact Factor: 5.231)
19. ★ J. Bright, and 27 co-authors including **A.J. Tetarenko**, 2020, “An extremely powerful long-lived superluminal ejection from the black hole MAXI J1820+070”, *Nature Astronomy*, 4, 697–703 (Citations: 97, Journal Impact Factor: 10.5)
18. P. Atri, and 20 co-authors including **A.J. Tetarenko**, 2020, “A radio parallax to the black hole X-ray binary MAXI J1820+070”, *MNRAS Letters*, 493, L81-L86 (Citations: 103, Journal Impact Factor: 5.194)
17. A. Shaw, and 14 co-authors including **A.J. Tetarenko**, 2020, “The Swift Bulge Survey: optical and near-IR follow-up featuring a likely symbiotic X-ray binary and a focused wind CV”, *MNRAS*, 492, 4344–4360 (Citations: 16, Journal Impact Factor: 5.231)
16. T.D. Russell, **A.J. Tetarenko**, and 20 co-authors, 2019, “Disk-jet coupling in the 2017/2018 outburst of the Galactic black hole candidate X-ray binary MAXI J1535-571”, *ApJ*, 883, 198 [21 pages] (Citations: 90, Journal Impact Factor: 5.580)
15. A.S. Parikh, T.D. Russell, R. Wijnands, J.C.A. Miller-Jones, G.R. Sivakoff, and **A.J. Tetarenko**, 2019, “Rapidly evolving disk-jet coupling during re-brightenings in the black hole transient MAXI J1535-571”, *ApJ Letters*, 878, L28 [6 pages] (Citations: 26, Journal Impact Factor: 8.374)
14. ★ J.C.A. Miller-Jones, **A.J. Tetarenko**, and 19 co-authors, 2019, “A rapidly changing jet orientation in the stellar-mass black-hole system V404 Cygni”, *Nature*, 569, 374-377 (Citations: 93, Journal Impact Factor: 43.070)

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12. **A.J. Tetarenko**, G.R. Sivakoff, J.C.A. Miller-Jones, M. Bremer, K.P. Mooley, R.P. Fender, C. Rumsey, A. Bahramian, D. Altamirano, S. Heinz, D. Maitra, S.B. Markoff, S. Migliari, M.P. Rupen, D.M. Russell, T.D. Russell, and C.L. Sarazin, 2019, “Tracking the variable jets of V404 Cygni during its 2015 outburst”, *MNRAS*, 482, 2950-2972 (Citations: 27, Journal Impact Factor: 5.231)
11. M.C. Baglio, and 31 co-authors including **A.J. Tetarenko**, 2018, “A wildly flickering jet in the black hole X-ray binary MAXI J1535–571”, *ApJ*, 867, 114 [15 pages] (Citations: 28, Journal Impact Factor: 5.580)
10. A. Bahramian, J. Strader, L. Chomiuk, C.O. Heinke, J.C.A. Miller-Jones, N. Degenaar, **A.J. Tetarenko**, V. Tudor, E. Tremou, L. Shishkovsky, R. Wijnands, T.J. Maccarone, G.R. Sivakoff, and S. Ransom, 2018, “The MAVERIC survey: A transitional millisecond pulsar candidate in Terzan 5”, *ApJ*, 864, 28 [10 pages] (Citations: 19, Journal Impact Factor: 5.580)
9. ★ IceCube Collaboration, and many co-authors including **A.J. Tetarenko**, 2018, “Multimessenger observations of a flaring blazar coincident with high-energy neutrino IceCube-170922A”, *Science*, 361, eaat1378 (Citations: 969, Journal Impact Factor: 41.063)
8. **A.J. Tetarenko**, A. Bahramian, R. Wijnands, C.O. Heinke, T.J. Maccarone, J.C.A. Miller-Jones, J. Strader, L. Chomiuk, N. Degenaar, G. Sivakoff, D. Altamirano, A. Deller, J. Kennea, K.L. Li, R.M. Plotkin, T.D. Russell, and A.W. Shaw, 2018, “A radio frequency study of the accreting millisecond X-ray pulsar, IGR J16597-3704, in the globular cluster NGC 6256”, *ApJ*, 854, 125 [8 pages] (Citations: 13, Journal Impact Factor: 5.580)
7. ★ **A.J. Tetarenko**, P.A. Freeman, E.W. Rosolowsky, J.C.A. Miller-Jones, and G.R. Sivakoff, 2018, “Mapping Jet-ISM Interactions near X-ray Binaries with ALMA: A GRS 1915+105 Case Study”, *MNRAS*, 475, 448-468 (Citations: 22, Journal Impact Factor: 5.231)
6. R. Dodson, and 8 co-authors including **A.J. Tetarenko**, 2017, “The Science Case for Simultaneous mm-Wavelength Receivers in Radio Astronomy”, *New Astronomy Reviews*, 79, 85-102 (Citations: 8, Journal Impact Factor: 6.933)
5. ★ **A.J. Tetarenko**, G.R. Sivakoff, J.C.A. Miller-Jones, E.W. Rosolowsky, G. Petitpas, M. Gurwell, J. Wouterloot, R. Fender, S. Heinz, D. Maitra, S.B. Markoff, S. Migliari, M.P. Rupen, A.P. Rushton, D.M. Russell, T.D. Russell, and C.L. Sarazin, 2017, “Extreme Jet Ejections from the Black Hole X-ray Binary V404 Cygni”, *MNRAS*, 469, 3141-3162 (Citations: 77, Journal Impact Factor: 5.231)
4. **A.J. Tetarenko**, A. Bahramian, G.R. Sivakoff, E. Tremou, M. Linares, V. Tudor, J.C.A. Miller-Jones, C.O. Heinke, L. Chomiuk, J. Strader, D. Altamirano, N. Degenaar, T. Maccarone, A. Patruno, A. Sanna, R. Wijnands, 2016, “Disc-jet coupling in the Terzan 5 neutron star X-ray binary EXO 1745-248”, *MNRAS*, 460, 345-355 (Citations: 34, Journal Impact Factor: 5.231)

3. P.A. Curran, and 23 co-authors including **A.J. Tetarenko**, 2015, “Radio polarimetry as a probe of unresolved jets: the 2013 outburst of XTE J1908+094”, *MNRAS*, 451, 3975-3985 (Citations: 14, Journal Impact Factor: 5.231)
2. T.D. Russell, and 27 co-authors including **A.J. Tetarenko**, 2015, “Radio monitoring of the hard state jets in the 2011 outburst of MAXI J1836-194”, *MNRAS*, 450, 1745-1759 (Citations: 56, Journal Impact Factor: 5.231)
1. **A.J. Tetarenko**, G.R. Sivakoff, P.A. Curran, J.C.A. Miller-Jones, T.D. Russell, I. Coulson, S. Heinz, D. Maitra, S.B. Markoff, S. Migliari, G. Petitpas, D. Russell, M.P. Rupen, C.L. Sarazin, 2015, “Sub-mm Jet Properties of the X-Ray Binary Swift J1745-26”, *ApJ*, 805, 30 [10 pages] (Citations: 21, Journal Impact Factor: 5.580)

Non-Refereed Publications

I have contributed to the science cases outlined in three white papers, including one for the recently released Astro 2020 Decadal Survey in the United States, in which my science area of accretion driven jets was highly featured. Additionally, I have led and co-authored Society of Photo-Optical Instrumentation Engineers (SPIE) papers, based on newly commissioned astronomical instruments and newly developed computational tools.

9. The ngVLA Transition Advisory Committee, including **A.J. Tetarenko**, 2025, “VLA+VLBA to ngVLA Transition Option Concepts”, arXiv: 2501.06333
8. The Event Horizon Telescope Collaboration, including **A.J. Tetarenko**, 2024, “Mid-Range Science Objectives for the Event Horizon Telescope”, arXiv: 2410.02986
7. M. Diaz Trigo, T. Maccarone, and **A.J. Tetarenko**, 2024, “The Millimeter Transient Sky: Present Opportunities and Perspectives”, *European Astronomical Society Messenger*, 192, 51–53
6. A. Moullet, and co-authors including **A.J. Tetarenko**, 2023, “PRIMA General Observer Science Book”, arXiv: 2310.20572
5. G. Keating, and 17 co-authors including **A.J. Tetarenko**, 2023, “Time-domain Astrophysics with the Sub-Millimeter Array”
4. **A.J. Tetarenko**, H. Parsons, S. Graves, and J. Dempsey, 2020, “Automated Project Completion Forecasting”, *Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, Volume 11449 – Observatory Operations: Strategies, Processes, and Systems VIII*, 1144919, arXiv: 2012.06927, doi: 10.1117/12.2561634
3. I. Mizuno, and 41 co-authors including **A.J. Tetarenko**, 2020, “Commissioning of Nāmaikanui on the JCMT”, *Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, Volume 11453 – Millimeter, Submillimeter, and Far-Infrared Detectors and Instrumentation for Astronomy, 114533T*, arXiv: 2012.07349, doi: 10.1117/12.2561742 (Citations: 3)

2. *S. Mairs, and 13 co-authors including A.J. Tetarenko, 2019, “Submillimetre Transient Science in the Next Decade”, EAO Sub-millimetre Futures Series, arXiv: 1912.01620 (Citations: 1)*
1. *T.J. Maccarone, and 11 co-authors including A.J. Tetarenko, 2019, “Compact Stellar Jets”, Astro 2020 Decadal Survey on Astronomy and Astrophysics, Bulletin of the American Astronomical Society, Vol. 51, Issue 3, id. 186, arXiv: 1904.11845 (Citations: 1)*

Astronomers Telegram: The Astronomers Telegram (ATel) is a publication system used to rapidly report on astronomical observations, particularly dealing with transient objects. I have **led 15 ATel’s** and been a **co-author on 28 ATel’s** (Total Citations: 148). A list of these ATel’s can be found on the SAO/NASA Astrophysics Data System (<http://adsabs.harvard.edu>).

Professional Experience

I have acted as a support astronomer and participated in instrument commissioning for the James Clerk Maxwell Telescope, observed at multiple telescopes, served as a member of fellowship hiring committees and NASA grant review committees, as well as led research meetings/seminars at multiple institutions. **This is a high level of professional experience for an early-career researcher.**

Support Astronomer – Provided users with full support before, during, and after their observing run. Duties included: liaising between the observatory and the user; helped plan and setup observations; assisted with data reduction and analysis; and provided a safety briefing, computing tutorial, and tour of James Clerk Maxwell Telescope facilities to visiting observers (September 2018 – August 2021; USA).

Observer – Operated and helped maintain the telescope during observations at the Submillimeter Array and James Clerk Maxwell Telescope facilities on Maunakea. This includes participating in several Event Horizon Telescope global mm-VLBI observing campaigns (USA).

Instrument Commissioning Team Member – Performed commissioning work for the Nāmakanui heterodyne instrument on the James Clerk Maxwell Telescope. Responsibilities included: reduced and checked the data taken with the new ‘Ū‘ū receiver; and designed and documented standard spectral setups for users (July 2020 – August 2021; USA).

NASA Reviewer – Acted as a subject-matter expert in a NASA peer review. Responsibilities include reviewing and grading proposals (May 2022; USA).

Postdoctoral Fellowship Hiring Committee Member – Vetted, interviewed, and graded candidates for the East Asian Observatory Fellowship Programs (January – March 2020 & 2021; USA).

Leader of the East Asian Observatory Science Seminar Series – Organized and led science seminars at the East Asian Observatory⁴ (September 2018 – August 2021; USA).

Leader of the Astrophysics Research Group Meetings – Organized and led group seminars and journal club at the University of Alberta (September 2014 – August 2018; Canada).

Service to the Community

I have served on telescope allocation committees and user committees, refereed papers, and helped organize large international conferences. **I am an active member in the global astronomical community, where I continue to contribute my efforts to growing this community.**

⁴<https://www.eaobservatory.org/jcmt/science/seminars>

Telescope Allocation Committees – James Clerk Maxwell Telescope (time allocation panel member, external science referee); Neil Gehrels Swift Observatory (served as co-chair); NuSTAR X-ray Observatory (served as deputy panel chair and chair); James Webb Space Telescope (panel member of stellar physics review and external expert reviewer for large programs); National Radio Astronomy Observatory (panel member), CanTAC (panel member for Gemini and CFHT).

Journal Referee – Nature, The Astrophysical Journal and Letters (*ApJ*, *ApJL*); Monthly Notices of the Royal Astronomical Society and Letters (*MNRAS*, *MNRAS Letters*); Astronomy and Astrophysics (*A&A*); Publications of the Astronomical Society of Japan (*PASJ*).

International Conference Organization – Microquasar Workshop (SOC, Sep 2025; Italy), COSPAR Sessions (SOC, 2024 South Korea and 2026 Italy), JCMT User Meeting (SOC, June 2024; Malaysia), European Astronomical Society Meeting Special Session (SOC, July 2023; Poland); EHT Collaboration Meetings (LOC/SOC, December 2019, 2020, 2024; USA); JCMT Users Meeting (SOC, November 2019; Taiwan), Canadian Astronomical Society Meeting (LOC, June 2017; Canada).

co-Lead of SMARTNet Users Committee – Organizing and leading a group tasked with designing and implementing updates to the Simultaneous Multiwavelength Astronomy research in Transients NETWORK (SMARTNet⁵) that make this service more useful to the community (July 2021 – present).

ngVLA Transition Advisory Group Member – The next-generation Very Large Array (ngVLA) is future radio telescope project whose construction should begin this decade. This group aims to develop, quantitatively assess, and evaluate a set of possible transition options from the current facilities (VLA/VLBA) to the ngVLA (March 2022 – present).

Member of the Event Horizon Telescope’s Speakers Bureau – This committee organizes and distributes opportunities for Event Horizon Telescope members to present results at scientific conferences (June 2023 – present).

Member of the ULeithbridge NSERC USRA Committee – This committee reviews and grades student proposals for these undergrad research awards (Jan 2024 – present).

Member of the ULeithbridge Internal Scholarships Adjudication Committee – This committee reviews and grades graduate applications for internal scholarships and awards (Aug 2024 – present).

Member of the ULeithbridge NSERC TriCouncil Adjudication Committee – This committee reviews and grades graduate applications for NSERC Masters and Doctoral scholarships (Sep 2024 – present).

Member of the CASCA Awards Committee – This committee is responsible for administering the awards process for the Canadian Astronomical Society (CASCA), including the call for nominations and the evaluation of the portfolios for the awards (Sep 2024 – present).

Invited Conference Talks

I have been invited to give **20 review talks**, at **20 conferences in 12 different countries**, over the past **6 years**. This establishes my credentials as a respected researcher in my field.

<i>James Clerk Maxwell Telescope Users Meeting (Chiang Mai, Thailand)</i>	July 2025
<i>Canadian Association of Physicists (CAP) Congress 2025 (Saskatoon, SK, Canada)</i>	June 2025
<i>Canadian Astronomical Society Annual Meeting 2025 (Halifax, NS, Canada)</i>	June 2025
<i>MAXI 15 Year Workshop for Time Domain Astronomy (Tokyo, Japan)</i>	December 2024

⁵<https://www.isdc.unige.ch/smartnet/>

<i>COSPAR 2024 (Busan, South Korea)</i>	July 2024
<i>10th Micro-quasar Workshop (Crete, Greece)</i>	May 2023
<i>“Improving Black Hole Accretion Models with Plasma Theory” (Princeton, NJ, USA)</i>	February 2023
<i>“Magnetism & Accretion” (Cape Town, South Africa)</i>	January 2023
<i>American Astronomical Society Annual Meeting 2023 (Seattle, WA, USA)</i>	January 2023
<i>”Broadening Horizons: exploring multi-band capabilities for the ngEHT” (Cambridge, MA, USA)</i>	August 2022
<i>S4–CMB Science Working Group Workshop (USA [Virtual Meeting])</i>	July 2022
<i>“Black Hole Accretion Under the Microscope” (Madrid, Spain)</i>	June 2022
<i>9th Microquasar Workshop (Cagliari, Italy [Virtual Meeting])</i>	September 2021
<i>“Science at the Horizon: The next generation EHT” (USA [Virtual Meeting])</i>	February 2021
<i>COSPAR 2021 (Sydney, Australia [Virtual Meeting])</i>	January 2021
<i>“Chandra Frontiers in Time-Domain Science” (USA [Virtual Meeting])</i>	October 2020
<i>“Science with the Submillimeter Array: Present and Future” (Taipei, Taiwan)</i>	November 2019
<i>“From Winds to Jets: The Role of Outflows in Compact Binaries” (Amsterdam, Netherlands)</i>	July 2019
<i>Canadian Astronomical Society Annual Meeting 2019 (Montreal, QC, Canada)</i>	June 2019
<i>High Energy Astrophysics Division of the American Astronomical Society Annual Meeting (Monterey, CA, USA)</i>	March 2019

Seminars and Colloquia

I have given **25 invited colloquia/seminars, at institutions in 8 different countries, over the last 9 years**. These experiences have helped me forge new collaborations and build my research network.

<i>Prairie Universities Physics Seminar Series – University of Calgary (Calgary, AB, Canada)</i>	March 2025
<i>University of Lethbridge Physics and Astronomy Colloquium (Lethbridge, AB, Canada)</i>	February 2025
<i>APEGA – Association of Professional Engineers and Geoscientists of Alberta Webinar (Lethbridge, AB, Canada)</i>	January 2025
<i>University of Alberta Physics and Astronomy Colloquium (Edmonton, AB, Canada)</i>	November 2024
<i>International Centre for Radio Astronomy Research Astrophysics Colloquium (Perth, Australia)</i>	July 2024
<i>STROBE-X Science Meetings (USA; Virtual Talk)</i>	April 2023
<i>CfA Seminar (Cambridge, MA, USA)</i>	April 2023
<i>International Centre for Radio Astronomy Research Astrophysics Colloquium (Perth, Australia)</i>	March 2023
<i>HAA Colloquium Series (Victoria, BC, Canada; Virtual Talk)</i>	December 2022

<i>NRAO Colloquium Series (Socorro, NM, USA)</i>	July 2022
<i>JCMT–Malaysia Users Meeting (Malaysia; Virtual Talk)</i>	March 2022
<i>Astronomical Observatory of Cagliari Colloquium (Cagliari, Italy; Virtual Talk)</i>	February 2022
<i>University of Oxford SPIMAX Seminar Series (Oxford, UK; Virtual Talk)</i>	December 2021
<i>Texas Tech University Colloquium (Lubbock, TX, USA; Virtual Talk)</i>	November 2021
<i>ngVLA Summer Talk Series (Socorro, NM, USA; Virtual Talk)</i>	August 2021
<i>University of Southampton Astrophysics Seminar (Southampton, UK; Virtual Talk)</i>	April 2021
<i>ASIAA Astrophysics Colloquium (Taipei, Taiwan; Virtual Talk)</i>	January 2021
<i>Texas Tech University Astrophysics Seminar (Lubbock, TX, USA; Virtual Talk)</i>	October 2020
<i>CfA High Energy Astrophysics Seminar (Cambridge, MA, USA; Virtual Talk)</i>	October 2020
<i>Michigan State University Astrophysics Colloquium (Lansing, MI, USA; Virtual Talk)</i>	July 2020
<i>International Centre for Radio Astronomy Research Astrophysics Colloquium (Perth, Australia)</i>	June 2019
<i>East Asian Observatory Science Seminar (Hilo, HI, USA)</i>	November 2018
<i>University of Southampton Astrophysics Seminar (Southampton, UK)</i>	October 2017
<i>Anton Pannekoek Institute High Energy Colloquium (Amsterdam, Netherlands)</i>	October 2017
<i>JCMT Seminar (Hilo, HI, USA)</i>	February 2016

Contributed Conference Talks

I have been awarded contributed talks about my research at **30 conferences in 11 different countries, over the past 10 years**. This speaks to the consistency of my scientific output and the high value of my scientific results.

<i>European Astronomical Society Annual Meeting 2024 (Padova, Italy)</i>	July 2024
<i>10th Anniversary ALMA Canadian Symposium (Canada [Virtual Meeting])</i>	March 2023
<i>High Energy Astrophysics Division of the American Astronomical Society Annual Meeting (Waikaloa, HI, USA)</i>	March 2023
<i>38th New Mexico Symposium (Socorro, NM, USA)</i>	February 2023
<i>NHFP Symposium 2022 (USA [Virtual Meeting])</i>	September 2022
<i>Black Hole Accretion Workshop (Charleston, SC, USA)</i>	August 2022
<i>Gemini Science Meeting 2022 (Seoul, South Korea [Hybrid Meeting])</i>	July 2022
<i>COSPAR 2022 (Athens, Greece)</i>	July 2022
<i>Canadian Astronomical Society Annual Meeting 2022 (Canada [Virtual Meeting])</i>	May 2022
<i>NHFP Symposium 2021 (USA [Virtual Meeting])</i>	October 2021
<i>Timing X-ray Binaries (Istanbul, Turkey [Virtual Meeting])</i>	October 2021
<i>The Past, Present, and Future of the VLA: Celebrating 40 years (Socorro, NM, USA [Virtual Meeting])</i>	August 2021

<i>European Astronomical Society Annual Meeting 2021</i> (Europe [Virtual Meeting])	July 2021
<i>American Astronomical Society Annual Meeting 2021</i> (USA [Virtual Meeting])	June 2021
<i>Canadian Astronomical Society Annual Meeting 2021</i> (Canada [Virtual Meeting])	May 2021
<i>COSPAR 2021 (2 Contributed Talks; Sydney, Australia [Virtual Meeting])</i>	January 2021
<i>EHT Collaboration Meeting 2020 (USA [Virtual Meeting])</i>	December 2020
<i>SPIE: Astronomical Telescopes and Instrumentation</i> (USA [Virtual Meeting])	December 2020
<i>American Astronomical Society Annual Meeting 2020</i> (Honolulu, HI, USA)	January 2020
<i>EHT Collaboration Meeting 2019 (Hilo, HI, USA)</i>	December 2019
<i>JCMT Users Meeting 2019 (Taipei, Taiwan)</i>	November 2019
<i>COSPAR 2018 (Pasadena, CA, USA)</i>	July 2018
<i>Astrophysical Frontiers in the Next Decade and Beyond: Planets, Galaxies, Black Holes, and the Transient Universe (Portland, OR, USA)</i>	June 2018
<i>“From quiescence to outburst: when microquasars go wild”</i> (Ile de Porquerolles, France)	September 2017
<i>European Week of Astronomy and Space Science Meeting 2017: Astrophysical Jets Symposium (Prague, Czech Republic)</i>	June 2017
<i>Canadian Astronomical Society Annual Meeting 2017</i> (Edmonton, AB, Canada)	May 2017
<i>“Shining into the Heart of Darkness: Black Hole Accretion and Jets” (Kathmandu, Nepal)</i>	September 2016
<i>“Stellar Remnants at the Junction” (Junction, TX, USA)</i>	June 2016
<i>Canadian Astronomical Society Annual Meeting 2014</i> (Quebec City, QC, Canada)	June 2014

Press Releases and Newsletters

I have had seven of my research papers result in major world-wide press campaigns, had my science featured in *Sky & Telescope Astronomy Magazine*, contributed four newsletter articles highlighting my science at different telescopes, and been a subject interviewed for an article in a *National Canadian Astronomy magazine*.

- Press release accompanying the 2024 *Nature* result on jet responses to neutron star X-ray bursts (ULethbridge News⁶).
- Press release accompanying the 2023 *Nature* result on accretion instabilities in neutron star and black hole systems (Texas Tech Today⁷).

⁶<https://www.ulethbridge.ca/unews/article/radio-and-x-ray-telescopes-spot-giant-explosions-launching-matter-space-neutron-stars>

⁷<https://today.ttu.edu/posts/2023/03/Stories/Neutron-Star-Cosmic-Fireworks-Shed-Light-on-Old-Black-Hole-Mystery>

- Press releases accompanying the 2022 *Event Horizon Telescope* results on Sgr A* (Texas Tech Today⁸).
- Press releases accompanying the 2021 *Science* result on the new black hole mass of Cygnus X–1 (EAO⁹).
- Press release accompanying the 2020 *Nature Astronomy* result on the jet ejections of MAXI J1820+070 (EAO¹⁰).
- Press releases accompanying the 2019 *Nature* result on the rapidly precessing jets of V404 Cygni (EAO¹¹).
- Press release accompanying the 2018 *Science* result on the first astrophysical ultra high energy neutrino detection from a blazar source (UAlberta¹²).
- Every month, the National Radio Astronomy Observatory (NRAO) publishes articles for their next-generation Very Large Array (ngVLA) science showcase, which aims to highlight ngVLA science topics. In March 2022, Dr. Tetarenko contributed an article based on her work on the jets launched by the black hole X-ray binary MAXI J1348–630, entitled “*Decelerating jets from X-ray binaries*”¹³.
- Sky & Telescope Astronomy Magazine published a story in December 2021 highlighting Dr. Tetarenko’s work on MAXI J1820+070, entitled “*Astronomers watch black hole jet launch*” by Lyndie Chou¹⁴.
- SkyNews Astronomy Magazine published a story in the April 2021 issue on Canadian astronomers in Hawaii, entitled “*Dispatches from Hawaii*” by Sahar Fatima¹⁵. Dr. Tetarenko was one of four Canadians interviewed for this piece highlighting their scientific research and outreach efforts in the Hawaiian community.
- Every week, the Neutron Star Interior Composition Explorer (NICER, aboard the International Space Station) team highlights important scientific results utilizing data from the NICER mission. In March 2021, Dr. Tetarenko’s work on MAXI J1820+070 was one of these NICER Science Nuggets, entitled “*NICER teams up with multi-wavelength facilities to study the Galactic black hole system MAXI J1820+070*”¹⁶.
- Every year, the Sub-millimeter Array and the East Asian Observatory’s James Clerk Maxwell Telescope publish newsletters highlighting key science results; Dr. Tetarenko’s work was highlighted twice:
 - “*Extreme Flaring Activity During the 2015 Outburst of Black Hole X-ray Binary V404 Cygni*”¹⁷.
 - “*Extreme Jet Ejections from the Stellar-Mass Black Hole V404 Cygni*”¹⁸.

⁸<https://today.ttu.edu/posts/2022/05/Stories/Astronomers-Reveal-First-Image-of-Black-Hole-at-the-Heart-of-Our-Galaxy>

⁹<https://www.eaobservatory.org/jcmt/2021/02/jcmt-astronomer-helps-size-up-the-first-black-hole-ever-detected/>

¹⁰<https://www.eaobservatory.org/jcmt/2020/03/jcmt-astronomer-helps-shed-new-light-on-black-hole-ejections/>

¹¹<https://www.eaobservatory.org/jcmt/2019/04/9389/>

¹²<https://www.ualberta.ca/physics/about-the-department/physics-news/2018/july/cosmic-neutrino-discovery-icecube.html>

¹³<https://science.nrao.edu/enews/15.3/index.shtml#jets>

¹⁴<https://skyandtelescope.org/astronomy-news/astronomers-watch-black-hole-jet-launch/>

¹⁵SkyNews Article Access

¹⁶https://heasarc.gsfc.nasa.gov/docs/nicer/science_nuggets/20210325.html

¹⁷https://www.cfa.harvard.edu/sma/Newsletters/pdfFiles/SMA_NewsJan2016.pdf

¹⁸<https://www.eaobservatory.org/jcmt/wp-content/uploads/sites/2/2019/09/EAO-NEWS-5.pdf>

Allocated Observing/Computational Time

I have **led 32 unique successful proposals** (14 accepted for multiple semesters) and I have **co-authored 47 unique successful proposals** (16 accepted for multiple semesters), on **25 different telescopes/ instruments**, totaling **over 5000 hrs of telescope time** over the last 8 years. My longest running observing programs have been granted observing time for up to 13 continuous 6-month semesters. I currently lead a large program on the James Clerk Maxwell Telescope (256 hrs), and I am also part of a team who received computational time on Amazon Web Services (grant amount of 14000 USD/17345 CAD) through the AstroCompute in the Cloud program.

Telescopes are colour-coded by the wavelength regime in which they operate (**radio/sub-mm**, **infrared/optical**, **UV**, **X-ray**), with the most competitive facilities (based on oversubscription rate) additionally underlined. The DDT (Directors Discretionary Time) label indicates proposals that were awarded time outside of the normal semester/cycle to observe extraordinary objects (I have 22 successful DDT proposals).

PI: “GOFAST–XRB: Gemini Optical FAST timing of X-Ray Binaries”

Gemini ‘Alopeke/Zorro Large Program, 2024B–2027B; 150 hrs

NICER DDT (August 2024); 12 ks

PI: “Constraining the emission mechanisms in the white dwarf pulsar AR Sco with JCMT”

JCMT DDT (May 2024); 3.5 hrs

PI: “Probing the Jet Response to Neutron Star X-ray Bursts”

NOEMA Summer 2024; 8.0 hrs

SMA 2024A; 33.0 hrs

PI: “Constraining Black Hole Jet Formation with ALMA and JWST”

ALMA DDT (March 2024); 1.1 hrs

PI: “Mapping Jet-ISM Interactions near X-ray Binaries with Astrochemistry”

ALMA Cycle 10; 2.7 hrs 12m array + 8.8 hrs ACA

PI: “Optical Fast Timing of the New Transient Black Hole Swift J1727.8–1613 with SOAR/HRCam”

SOAR HRCam DDT (September 2023); 1.0 hrs

PI: “Constraining black hole jet formation and evolution with SCUBA-2 and JWST observations of GRS 1915+105”

JCMT DDT (May 2023); 1.0 hrs

PI: “Probing Relativistic Jets through mm-VLBI of X-ray Binaries”

GMVA (inter-continental mm-array) 2021B/2023B; 11 hrs/16 hrs

ALMA (as part of GMVA array) Cycle 10; 16 hrs

NuSTAR DDT (October 2021); 40 ks

NICER DDT (October 2021); 40 ks

PI: “Probing Relativistic Jets through Sub-mm Timing Observations of X-ray Binaries”

ALMA Cycle 8; 8 hrs

ALMA & **VLT** HAWK–I – Cycle 11; 9 hrs + 5 hrs

PI: “Probing Relativistic Jets through Radio Timing Observations of X-ray Binaries”

VLA 2021B–2023A; 12 hrs

VLA & **ALMA** – 2025A–2026A; 24 hrs + 11 hrs

PI: “Probing Relativistic Jets through Optical Timing Observations of X-ray Binaries”

Gemini ‘Alopeke/Zorro, 2020B–2022B; 40 hrs

PI: “Searching for Jet Eclipses in GRS 1915+105”

JCMT DDT (Oct 2021); 0.5 hrs

PI: “Using sub-mm wavelengths as a new window to study the jets launched by accreting white dwarfs”

JCMT DDT (Nov 2020); 3 hrs

PI: “Investigating Jet-Accretion Coupling During a Peculiar State in GRS 1915+105”

VLA DDT (May 2020); 12 hrs

PI: “The PITCH-BLACK Survey – Sub-Millimetre Polarimetry and Timing of Relativistic Jets with JCMT SCUBA-2/POL-2”

JCMT Large program, SCUBA-2/POL-2 2020A-2022B; 256 hrs

PI: “A Radio Timing Study of the Relativistic Jets from Cygnus X-3”

VLA DDT (April 2019); 8 hrs

JCMT DDT (April 2019); 8 hrs

PI: “Mapping Jet-ISM Interaction Zones near Black Hole X-ray Binaries with HERA”

IRAM 30m Summer 2018, Summer 2019, Winter 2020; 33.0 hrs per semester

PI: “Mapping Jet-ISM Interaction Zones near Black Hole X-ray Binaries with HARP”

JCMT HARP 2018A/B, 2020A; 8.0 hrs per semester

PI: “Mapping Jet-ISM Interactions in X-ray Binaries”

ALMA Cycle 5; 2.6 hrs ACA array

ALMA Cycle 7; 2.3 hrs 12m array

PI: “Constraining Jet Formation and Evolution with Transient X-ray Binaries”

ALMA Cycle 4, Cycle 5, Cycle 6, Cycle 7, Cycle 9; 4.6 hrs per cycle

PdBI/NOEMA Summer 2014 – Winter 2020; 12 hrs per semester

SMA 2013B – 2019B; 32 hrs per semester

CARMA 2014A; 24 hrs per semester

JCMT SCUBA-2 2014A – 2019B; 12 hrs per semester

PI: “Mapping Jet-ISM Interactions in the Prototypical Microquasar GRS 1915+105”

ALMA Cycle 3; 1 hr 12 m array, 4 hrs ACA array

PI: “Probing the Mechanisms that Drive Relativistic Jets through Time-resolved Observations of X-ray Binaries”

PdBI/NOEMA Winter 2016 – Winter 2019; 4 hrs per semester

SMA 2015B – 2018B; 8 hrs per semester

PI: “Constraining the Millimetre Properties of the Broad-band SED During the 2015 Outburst of V4641 Sgr”

SMA DDT (August 2015); 24 hrs

PI: “Constraining the Millimetre Properties of the Broad-Band SED During the Fading of the 2015 Outburst of V404 Cyg”

NOEMA DDT (July 2015); 4 hrs

PI: “Characterizing Rapid Radio Frequency Variability in Black Hole X-ray Binaries”

VLA & **Swift XRT** - 2015B/2016A; 4 hrs + 1 ks

co-I: “The first sample of jet properties from accreting black holes and neutron stars”

VLT & **XMM** – AO24; 9 hrs + 9 × 15ks

co-I: “Probing transient jet launching in stellar-mass black holes”

VLA & **VLBA** & **Swift XRT/NICER** – 2012A–2026A; 16 hrs + 52 hrs + 24–27 ks per semester

co-I: “A VLA survey of X-ray bursters”

VLA & **Swift XRT** – 2025A; 4 hrs + 12ks

co-I: “Simultaneous radio and X-ray of Cyg X-2: high accretion jet structure”

VLA & **NICER** – 2025A; 12 hrs + 43ks

co-I: “A VLBA Study of the Relativistic Jets from Cygnus X-3”

VLBA 2024B; 30.0 hrs

co-I: “Rapid variability and IR spectroscopy of a black hole X-ray binary jet”

Gemini Fast Turnaround Feb 2024; 5.1 hrs

co-I: “Investigating short timescale radio variability of Neutron Star jets”

VLA 2024A; 16.0 hrs

co-I: “Using thermonuclear explosions on accreting neutron stars to reveal jet speeds”

VLA & **ALMA** & **Swift XRT** – 2024A–2024B; 8.0 hrs + 6 hrs + 9 ks per semester

co-I: “The radio evolution of an exceptionally bright black hole X-ray binary outburst”

VLA DDT (October 2023); 12.0 hrs

co-I: “Multi-wavelength variability of a quiescent X-ray binary”

VLA DDT (October 2023); 5.0 hrs

co-I: “ALMA study of the most promising relativistic jet impact region in the Galaxy”

ALMA Cycle 10; 2.63 hrs ACA array

co-I: “Systematic MeerKAT Survey of Astrophysical Neutrinos”

MeerKAT 2023 Open Time; 26.0 hrs

co-I: “Measuring the size of the jet-launching region around a black hole”

VLT HAWK-I 112; 10.0 hrs

co-I: “Constraining black hole jet formation and evolution with SMA and JWST observations of GRS 1915+105”

SMA DDT (May 2023); 9.0 hrs

co-I: “What is the Origin of the Mysterious Infrared Excess in Quiescent Black Hole Binaries? ”

JWST Cycle 2; 7.43 Primary Spacecraft Hrs + 4.0 hrs joint ALMA time

co-I: “Phased sub-arrays and continuous light curves: A variability study of Sco X-1”

VLA 2023B; 6 hrs

co-I: “Black hole jet launching physics: triggering JWST with Swift”

Swift XRT Cycle 19 & **VLA**; 22 ks Swift XRT + 2.75 hrs VLA

co-I: “Searching for nuclear radio activity from the X-ray erupting source eRO-QPE1”

VLA 2023A; 3.5 hrs

co-I: “A jet-driven bow-shock near the black hole binary GRS 1915+105”

Chandra Cycle 24; 90 ks

co-I: “X-rays from highly variable Galactic radio sources: A new population of black hole X-ray binaries”

Chandra Cycle 24; 4 × 15 ks

co-I: “Investigating radio variability in Neutron Star jets: A Cyg X-2 pilot study”

VLA 2022B–2023A; 1.5 hrs

co-I: “Decoding the radio emission in Neutron Star X-ray Binary Ser X-1”

VLA 2022B–2023A; 4.5 hrs

co-I: “Fast Multi-Wavelength Variability from a BH”

NICER Cycle 3/4; 12 × 3.6 ks

co-I: “Correlated Radio-mm-X-ray timing of Cygnus X-1”

NICER Cycle 4; 10 ks

LMT 2021-S1; 4.5 hrs

co-I: “Radio Evolution of Astrophysical Candidates to Neutrino Candidate IceCube 21125A”

VLA DDT (Dec 2021); 7.0 hrs

co-I: “Identifying the outbursting X-ray binary in NGC 6440 & measuring its radio flux”

VLA DDT (Nov 2021); 2.75 hrs

co-I: “Disk, wind, and jet coupling in a black hole X-ray transient in outburst with HST and JWST”

HST Cycle 29; 3 Primary Spacecraft Orbits

co-I: “Black Hole Jet Launching Physics with MIRI ”

JWST Cycle 1; 6.6 Primary Spacecraft Hrs

co-I: “Is SS Cyg, the Prototypical Cataclysmic Variable, a Bright Sub-mm Transient?”

JCMT 2021B + DDT (Nov 2020); 27 hrs

co-I: “Monitoring of X-ray binary transient outbursts with the MWA ”

MWA 2020A/B; 30 hrs

co-I: “Revealing the nature of a new X-ray transient in the unusual Galactic cluster GLIMPSE-C01”

VLA DDT (Feb 2021); 2 hrs

co-I: “Unraveling the Complex X-ray Binary Population in the Core of Terzan 1”

VLA DDT (May 2020); 2.75 hrs

co-I: “Flares Echoing Through a Quiescent Black Hole Jet”

VLA DDT (May 2020); 25 hrs

co-I: “A multi-wavelength campaign to observe a bright black hole transient in transition”

INTEGRAL; 340 ks

co-I: “SMA 2019 DDT Request for Cygnus X3”

SMA DDT (April 2019); 8 hrs

co-I: “Radio Spectral and Polarimetric Evolution of an Astrophysical Neutrino Source”

VLA 2018B; 9 hrs

co-I: “Does CXOU J173324.6-332321 (Liller 1 X-2) Contain a Neutron Star or Black Hole?”

VLA DDT (May 2018); 1 hr

co-I: “Constraining jet physics with multi-lambda variability studies: MAXI J1820+070”

VLA DDT (April 2018); 7.5 hrs

co-I: “Black Holes in Transition: A Legacy ASTROSAT Project”

ASTROSAT A05,A07,A10; 864 ks

co-I: “Characterizing Rapid sub-mm Variability in a Bright Black Hole X-ray Binary Outburst”

ALMA Cycle 5; 4 hrs

co-I: “Disentangling the emission processes of X-ray binary outbursts with X-Shooter”

VLT XSHOOTER 101-102A; 7.4 hrs per semester

co-I: “Revealing the nature of X-ray binary jets with VISIR”

VLT VISIR/ERIS 96A –115A; 9 hrs per semester

co-I: “Jet/Accretion Coupling in Transient Neutron Star X-ray Binaries”

VLA 2017A-2018B & **Swift XRT**; 21 hrs + 18 ks **Swift XRT** per semester

co-I: “The evolving jet properties of transient black hole X-ray binaries”

ATCA OCTS 2015 – OCTS 2019; 24 hrs per semester

co-I: “Disc jet coupling in black hole X-ray binary outbursts”

LBA/ATCA OCTS 2011 – OCTS 2019; 24 hrs per semester

co-I: “Searching for the First Transient Black Hole X-ray Binary in a Globular Cluster”

ATCA OCTS 2015 – OCTS 2018; 9 hrs per semester

co-I: “First constraints on highly circularly polarized flares in Cataclysmic Variables”

VLA 2017A/B; 8 hrs

co-I: “Monitoring of the Extremely High Energy Neutrino IceCube-170922A Error Field”

VLA DDT (October 2017); 6 hrs

co-I: “Measuring the jet speed and structure in the X-ray binary Cygnus X-1 with KaVA & KVN”

KaVa/KVN (Korean radio arrays) 2016B; 21 hrs

co-I: “Simultaneous ASTROSAT + Multi-wavelength Observations of the Prototypical Transient Black Hole X-ray Binary GX 339-4”

ASTROSAT A02–A04; 120 ks per semester

co-I: “Rapid ID of the Next Transient X-ray Binary in a Galactic Globular Cluster”

VLA 2016A/B; 2.25 hrs

co-I: “Developing a CASA Image Variability Service within AWS”

AWS/SKA Astro-Compute Program

Grant Amount: \$14,000 USD in AWS Credits

co-I: “Does GRS 1736-297 Contain a Neutron Star or Black Hole”

VLA DDT (Feb 2016); 1hr

co-I: “The 2015 Re-burst of V404 Cygni”

VLA/VLBA DDT (Jan 2016); 5 hrs

co-I: “Compact Jet Evolution in the Black Hole X-ray Binary V4641 Sgr”

VLA DDT (Aug 2015); 7 hrs

co-I: “Jet Oscillation Events in the Early Outburst Stage of the 2015 V404 Cyg Outburst”; 4/5 hrs

VLA/VLBA

“The 2015 Outburst of V404 Cyg: A unique Opportunity to Probe Jet Physics”; 8 hrs **VLA**

“The broadband SED of the 2015 Outburst of V404 Cyg as it fades into Quiescence”; 3 hrs **VLA**

Collection of **VLA/VLBA** DDT’s (June/July 2015)

Teaching and Mentoring

I have extensive teaching and mentorship experience with different levels of students, ranging from high school to graduate students.

Undergraduate Courses Taught

- ASTR 2020 (Modern Astronomy; First year course).
- ASTR 2070 (Planetary Astronomy; First year course).
- ASTR 3020 (Galaxies and Cosmology; Second year course).

Graduate Theses Committee Participation

- Matthew Buchan (MSc, University of Lethbridge, June 2024).
- Jeremy Scott (PhD, University of Lethbridge, July 2024).

Mentoring and Supervisory Activity

- *Postdocs*
 - Qiana Hunt – University of Lethbridge, Canada (September 2024–Present):
Postdoctoral fellow working on joint ALMA and JWST data of the black hole system V404 Cygni.
- *Graduate Students*
 - Élodie Lescure – University of Lethbridge, Canada (September 2024–Present):
PhD thesis work using long wavelength spectral-timing and polarimetry to study accretion/ejection in black hole systems in our Galaxy.
 - Pau Bosch Cabot – University of Lethbridge, Canada (September 2024–Present):
PhD thesis work using astrochemical tracers to characterize the environments around black hole systems in our Galaxy.
 - Efren James Elomina – University of Lethbridge, Canada (September 2024–Present):
MSc thesis work on developing a data analysis pipeline to enable the use of speckle imagers in the optical wavebands to study accretion/ejection in black hole and neutron star systems in our Galaxy.
 - Eli Pattie – Texas Tech University, USA (November 2021–Present):
PhD thesis work studying X-ray and optical/infrared variability in X-ray binaries, as well as developing and testing new time-domain techniques.
 - Teresa Panurach – Michigan State University, USA (February 2022 – December 2022):
I participated as a mentor in the Hubble Fellows Mentoring Program, designed to provide professional and academic advice to PhD students from underrepresented communities who are conducting astronomy-related research and planning to apply for postdoctoral positions. With my guidance, my mentee, Teresa Panurach, went on to become the executive director of a STEM mentorship program serving three American Universities. I am continuing to collaborate of several research projects with Teresa.
 - Constanza Echiburu Trujillo – McGill University, Canada (February 2020–February 2024):
Masters thesis project analyzing broad-band multi-wavelength data during the 2018 outburst of the black hole X-ray binary MAXI J1820+070. Publication in preparation (Masters thesis completed August 2021). Coni is now working on a PhD program at the University of Colorado.
 - Andrew Hughes – University of Alberta, Canada (May 2018–August 2024):
Masters/PhD thesis work analyzing VLA radio polarization observations of the black hole X-ray binary V404 Cygni. Publication in preparation (Master thesis completed December 2020). Andrew has recently finished a PhD program at the University of Alberta, and is now a postdoctoral fellow at Oxford University.

- *Undergraduate Students*

- Dev Khullar – University of Lethbridge, Canada (November 2023–Present):
Undergraduate summer research project characterizing the compact object population in the globular cluster Terzan 1 with Very Large Array observations. Funded by a highly competitive Chinook Summer Research Grant. Dev is continuing to do research in my group and has received the prestigious Shining Student Award for outstanding undergraduates.
- Emily Carver – University of Lethbridge, Canada (November 2023–Present):
Undergraduate summer research project analyzing Atacama Large Millimeter Array (ALMA) data of black hole X-ray binaries. Funded by a highly competitive Chinook Summer Research Grant. Emily is continuing to do research in my group and has received the prestigious Shining Student Award for outstanding undergraduates.
- Japnoor Manku – University of Lethbridge, Canada (April 2025–August 2025):
Undergraduate independent study research project analyzing NICER X-ray data of black hole X-ray binaries.
- Monica Coombs Rodriguez – University of Lethbridge, Canada (June 2025–August 2025):
Undergraduate summer research project analyzing Green Bank Telescope observations of the black hole X-ray binary Cyg X–1. Funded by the highly competitive MITACS Global Internship program.
- Raquel Ressler – University of Lethbridge, Canada (November 2024–April 2025):
Undergraduate independent study research project studying the populations of X-ray binary systems in other galaxies. Co-supervised with postdoctoral fellow Qiana Hunt.
- Keagan Creelman – University of Lethbridge, Canada (November 2024–April 2025):
Undergraduate independent study research project analyzing Atacama Large Millimeter Array (ALMA) data of black hole X-ray binaries.
- Victoria Chitruszko – University of Lethbridge, Canada (November 2023–August 2024):
Undergraduate independent study project developing an analysis pipeline for optical fast timing photometry of a galactic black hole system with data from SOAR HRCam. Victoria is currently working on a second undergraduate degree at the University of Lethbridge. Emily has also received the prestigious Shining Student Award at Ulethbridge.
- Diego Garcia – Texas Tech University, USA (November 2021–April 2022):
Continuing the work of a previous undergraduate student (Evan Manrow) analyzing UV/Optical observations of the Galactic X-ray binary population, to systematically estimate jet contributions in these wavebands. Diego contributed to building the analysis and modelling code-base for the project, and is continuing to work on his undergraduate degree at Texas Tech University.
- Evan Manrow – University of Michigan, USA (April 2020–August 2021):
Undergraduate research project analyzing UV/Optical observations of the Galactic X-ray binary population, to systematically estimate jet contributions in these wavebands. Evan contributed to the analysis and modelling code-base for the project, and is now finishing his undergraduate degree at the University of Michigan.
- Dalton Ronan – University of Alberta, Canada (January 2018–May 2018):
Undergraduate thesis project analyzing VLA radio observations of the blazar TSX 0506+056. Dalton is currently a developer at LodgeLink in Edmonton, Alberta, Canada.
- Pamela Freeman – University of Alberta, Canada (May 2016–August 2016):
Undergraduate research project analyzing molecular line observations from ALMA. Published in Tetarenko et al. 2018, MNRAS, 475, 448–486. Pamela is now working on a PhD program at the University of Calgary.

Fostering Dialogue on Best Practices in Graduate Supervision in Canada – I participated in this virtual conference series geared towards graduate supervisors hosted by York University (May 2024).

NHFP Fellows Mentoring Program – I am one of the mentors participating in this virtual mentorship program designed to provide professional and academic advice to PhD students who are conducting astronomy-related research and planning to apply for postdoctoral positions in the near future. The goals of this mentorship program are to: (1) make the process of launching a scientific career more transparent and equitable, and (2) to foster interactions that many students have been lacking during the COVID-19 pandemic (February 2022 – October 2023).

JCMT Virtual Workshop Guest Lecturer – Created and taught sub-mm heterodyne calibration techniques at the JCMT Virtual Training Workshop broadcasted to new JCMT users in Malaysia, Thailand, and Indonesia (December 2020).

University of Hawaii Guest Lecturer – Created and taught multiple astrophysics labs, as part of an undergraduate astrophysics course at the University of Hawaii at Hilo (ASTR 351L, March 2019, USA).

Astrophysics Research Group Graduate Student Advisor – Developed and implemented an Introduction to Grad School in Astrophysics tutorial series for incoming graduate students at the University of Alberta, covering computational techniques and software, presentation skills, and literature review basics (September 2014 – August 2018; Canada).

Teaching Assistant – Led laboratory sessions on the subjects of Mechanics (1st year), Engineering Physics (1st year) and Electromagnetic Theory (1st year) at the University of Alberta (September 2012 – April 2018; Canada).

University Observatory Assistant – Led and organized scientific sessions for both public (day-time solar & night-time) observing and undergraduate course lab requirements at the University of Alberta observatory (August 2017 – December 2017; Canada).

Physics and Mathematics Tutor – Tutored senior high school and first year university students in physics and mathematics (August 2010 – June 2012; Canada).

Outreach Activities

I have been involved in several different outreach activities, targeted at various age groups (from young children to adults). **My outreach efforts aim to get the local community excited about astronomy, as well as help to build scientific literacy and trust in the scientific method.**

Presenter – LCI High School Career Day (Lethbridge, Alberta, Canada, May 2025).

Exhibitor and Presenter – EPIC Day Career Fair (Lethbridge, Alberta, Canada, April 2025).

Keynote Speaker – Women in STEM Conference (Lethbridge, Alberta, Canada, February 2025).

Guest Speaker – ULethbridge Faculty of Arts & Science “3 key things” video series. This series aims to highlight three key insights about a professors research, making complex topics accessible and engaging for a broader audience (Lethbridge, Alberta, Canada, October 2024).

Guest Speaker – Royal Astronomical Society of Canada: Alberta Star Party (Alberta, Canada, September 2024).

Guest Speaker – Innovate Her Summer Camp for empowering young girls in STEM (Lethbridge, Alberta, Canada, August 2024).

Guest Speaker – Benjamin Dean Public Lecture Series: California Academy of Science (San Francisco, USA, May 2024).

Volunteer – Iniskim Future Students Day 2024 (Lethbridge, Alberta, Canada, March 2024).

Volunteer – ULethbridge Open House for Prospective Students (Lethbridge, Alberta, Canada, October 2023/2024).

Volunteer – ULethbridge New Student Orientation 2023 (Lethbridge, Alberta, Canada, September 2023).

Guest Speaker – Texas Tech AstroNight (Lubbock, USA, August 2022).

AstroNight Volunteer – As part of a monthly public outreach event at Texas Tech University, I help lead science demos and public observing sessions (Lubbock, USA, May 2022 – present).

Guest Speaker – Girl Guides Spirit of Nebraska (Virtual Event, USA, January 2022).

Guest Speaker – Nanaimo Astronomical Society Meeting (Virtual Event, Canada, January 2022).

Guest Speaker – James Webb Space Telescope Celebration: Wayne State College (Virtual Event, USA, November 2021).

Guest Speaker – NASA's Webb Space Telescope Community Events: Roswell New Mexico Public Library (Virtual Event, USA, November 2021).

Editor of Maunakea Observatories Science News – I identified astronomy results from Maunakea telescopes that would appeal to the public and wrote a short science summary to be posted on the Maunakea observatories outreach website¹⁹ (August 2019 – August 2021).

Journey Through the Universe Educator – As part of an annual Hawaii island wide outreach program²⁰, I created and led classroom activities to teach grade 4–6 students about black holes (March 2019 – present).

Astro Day Volunteer – As part of an annual public outreach event in Hilo, Hawaii, I helped create and lead activities to teach the public about how black holes form and how the Event Horizon Telescope works (May 2019).

Guest Speaker – Maunakea Skies Talk Series (Imiloa Astronomy Centre, USA, April 2019).

Guest Speaker – The Universe Tonight Talk Series (Maunakea Visitor Centre, USA, March 2019).

Professional Societies

Canadian Astronomical Society/Société Canadienne d'Astronomie (CASCA)

American Astronomical Society, High Energy Astrophysics Division (AAS, HEAD)

American Association of Variable Star Observers (AAVSO)

International Astronomical Union (IAU)

¹⁹<https://maunakeaobservatories.org>

²⁰<https://noirlab.edu/public/education/journey-through-the-universe/>

Other Skills

Computer Science: Expert knowledge of Linux and Macintosh operating systems. Expert at programming in Python, along with a basic knowledge of other languages such as IDL, FORTRAN, C++, and Perl. Experience with document/slide preparation in LaTeX and MS Office. Extensive experience with the implementation and use of cloud computing platforms. I also have experience with Bayesian statistical techniques and modelling, including the use of Markov-Chain Monte Carlo (MCMC) algorithms to solve different astronomical problems.

Programming: All of my publicly available codes can be found on github²¹. Some examples of recent coding projects I have worked on are as follows:

- Automated Project Completion Forecasting – Simulates Large Program observing at the James Clerk Maxwell Telescope. This code has been published in a SPIE conference proceeding paper and is actively being used by observatory staff to manage Large Program observing.
- jet-jitter – MCMC modelling of atmospheric jitter in Very Long Baseline Array (VLBA) radio images of the stellar-mass black hole system V404 Cygni.
- Radio timing in CASA – Creating high time resolution light curves from interferometric data sets.

Astronomical Data Analysis: Expert user of astronomical software designed for the reduction of interferometric and single dish radio/sub-mm data: CASA; Miriad; MIR; StarLink; and GILDAS. I have extensive experience analyzing data from the ALMA, Gemini, GMVA, IRAM 30m, JCMT, NOEMA, SMA, and VLA telescopes. Additionally, basic knowledge of X-ray data analysis tools such as, FTOOLS and XSpec, and experience with analysis of NICER, NuSTAR, RXTE, and Swift data.

²¹<https://github.com/tetarenk>