Muryel Guolo

Department of Physics & Astronomy
Johns Hopkins University
Baltimore, USA

Email: mguolop1@jhu.edu
Homepage: https://muryelgp.github.io
Nationality: Brazilian

Research Interests

- Observational High Energy Astrophysics; Time-Domain Astronomy; Multi-Wavelength Wide-Field Surveys
- Accretion Physics; Tidal Disruption Events; X-ray Quasi-Periodic Eruptions; X-ray Binaries, IMBHs, Energetic Transients

Education and Appointments

Ph.D., Astrophysics, Johns Hopkins University, USA — 2021 – Expected June 2026
- Thesis: Black Hole Accretion in the Time-Domain Era
- Advisor: Prof. Suvi Gezari

Science Intern, European Southern Observatory, Chile — 2021

M. Sc., Astrophysics, Federal University of Santa Catarina, Brazil — 2019–2020

B. Sc., Physics, Federal University of Santa Catarina, Brazil — 2015–2018

Successful Observing Proposals as P.I.

Total funding obtained as PI: ~ **$510k**

- *Hubble Space Telescope* Cycle 33: one GO program (as Co-PI), 12 orbits
- *Hubble Space Telescope* Cycle 32: one program joint with *XMM-Newton*, 5 orbits
- *XMM-Newton* AO 24: two GO programs, totaling 336ks ($80k)
- *XMM-Newton* AO 23: three GO programs, totaling 566ks ($217k)
- *XMM-Newton* AO 22: two DDT observations, totaling 120ks
- *NICER* Cycle 7: two GO programs, totaling 426ks ($77k)
- *NICER* Cycle 6: two GO programs, totaling 160ks ($77k)
- *NICER* Cycle 5: numerous DDT/ToO observations, totaling > 500ks
- *Swift* Cycle 20: one GO program, totaling 45ks ($38k)
- *Swift* ToO: numerous , totaling > 100ks
- *Chandra* Cycle 24: one DDT observation, 25ks ($21k)
- Gemini: five programs (2021A to 2022B), totaling 8h
- APO ARC 3.5m: numerous programs, totaling > 4 full-nights

Publications

Peer-Reviewed as of September 2025:

- As first author: 7 (Citations: **218**, ADS Library)
- Total: 35 (Citations: **1082**, ADS Library)
- H-index: **18**.

Publications Submitted or in Preparation

(*) **Guolo, M.**, Mummery, A., van Velzen, S., Gezari, S, et al., *Compact Accretion Disks in the Aftermath of Tidal Disruption Events: Parameter Inference from Joint X-ray Spectra and UV/Optical Photometry Fitting*, Submitted to ApJ.

(*) Yao. Y., et al. (including **Guolo. M.**), Review Chapter *"Tidal Disruption Events"*, on Springer Series Book *"Repeating Extragalactic Nuclear Transients"*, in Prep.

First Author Publications

(7) **Guolo, M.**, Mummery, A., Ingram, A., Nicholl, M, et al., 2025, *A Time-dependent Solution for GSN 069 Disk Evolution and the Nature of Long-lived Tidal Disruption Events*, Accepted, In Press ApJ (arXiv:2504.20148).

(6) **Guolo, M.**, Mummery, A., Wevers, T., Nicholl, M, et al., 2025, *The properties of GSN 069 accretion disk from a joint X-ray and UV spectral analysis: stress-testing quasi-periodic eruption models*, ApJ, 985, 146.

(5) **Guolo, M.** & Mummery, A., 2025, *The Size of Accretion Disks from Self-consistent X-Ray Spectra and UV/Optical/NIR Photometry Fitting: Applications to ASASSN–14li and HLX–1*, ApJ, 978 167.

(4) **Guolo, M.**, Pasham, D., Zajaček., Coughlin, E., Gezari, S., et al., 2024, *X-ray eruptions every 22 days from the nucleus of a nearby galaxy*, Nature Astronomy, 8, 347.

(3) **Guolo, M.**, Gezari, S., Yao, Y., van Velzen, S., et al., 2024, *A systematic analysis of the X-ray emission in optically selected tidal disruption events: observational evidence for the unification of the optically and X-ray selected populations*, ApJ, 966, 160.

(2) **Guolo, M.**, Ruschel-Dutra, D., Grupe, D., Peterson, B., et al., 2021, *The Eddington ratio-dependent 'changing look' events in NGC 2992*, MNRAS, 508, 1.

(1) **Guolo, M.**, Ruschel-Dutra, D., Storchi-Bergmann, T., et al., 2021, *Exploring the AGN-Merger Connection in Arp 245 I: Nuclear Star Formation and Gas Outflow in NGC 2992*, MNRAS, 502, 3618.

Major Contribution Publications

(5) Mummery, A., **Guolo, M.**, Matthews, J., et al., 2025, *Galaxy scale consequences of tidal disruption events: extended emission line regions, extreme coronal lines and infrared-to-optical light echoes*, Accepted, in Press MNRAS, arXiv:2503.14163.

(4) Wevers, T., **Guolo, M.**, Lockwood, S., Mummery, A., et al., 2025, *Time-resolved Hubble Space Telescope UV observations of an X-ray quasi-periodic eruption source*, ApJL, 980, L1.

(3) Yao, Y.; **Guolo, M.**; Tombesi, F., et al., 2024, *Subrelativistic Outflow and Hours-timescale Large-amplitude X-Ray Dips during Super-Eddington Accretion onto a Low-mass Massive Black Hole in the Tidal Disruption Event AT2022lri*, ApJ, 976 , 34.

(2) Nicholl, M.; Pasham, D. R.; Mummery, A., **Guolo, M.**, et al., 2024, *Quasi-periodic X-ray eruptions years after a nearby tidal disruption event*, Nature, 634, 804.

(1) Yao, Y., Lu, W., **Guolo, M.**, et al., 2022, *The Tidal Disruption Event AT2021ehb: Evidence of Relativistic Disk Reflection, and Rapid Evolution of the Disk-Corona System*, ApJ, 937, 1.

Additional Co-Author Publications

(23) E. Baron, C. Ashall, et al. **(incl. Guolo, M.)**, 2025, *JWST Observations of SN 2024ggi I: Interpretation and Model Comparison of the Type II Supernova 2024ggi at 55 days Past Explosion*, Accepted, in Press ApJ, arXiv:2507.18753.

(22) Masterson, M., De, K., et al. **(incl. Guolo, M.)**, 2025, *JWST's First View of Tidal Disruption Events: Compact, Accretion-Driven Emission Lines & Strong Silicate Emission in an Infrared-selected Sample*, ApJL, 988, L48.

(21) Coulter, D. A., Pierel, J. D. R., DeCoursey, C., et al. **(incl. Guolo, M.)**, 2025, *Discovery of a likely Type II SN at z=3.6 with JWST*, Accepted, in Press ApJ arXiv:2501.05513.

(20) Siebert, M. R., DeCoursey, C., Coulter, D. A., et al. **(incl. Guolo, M.)**, 2024, *Discovery of a Relativistic Stripped-envelope Type Ic-BL Supernova at z=2.83 with JWST*, ApJL, 972, L13.

(19) Pierel, J. D. R., Engesser, M., Coulter, D. A., et al. **(incl. Guolo, M.)**, 2024, *Discovery of an Apparent Red, High-velocity Type Ia Supernova at z=2.9 with JWST*, ApJL, 971, L32.

(18) Pasham, D., Coughlin, E. R., **Guolo, M.**, et al., 2024, *A Potential Second Shutoff from AT2018fyk: An Updated Orbital Ephemeris of the Surviving Star under the Repeating Partial Tidal Disruption Event Paradigm*, ApJL, 971, L31.

(17) Wevers, T., French, K. D., Zabludoff, A. I., et al. **(incl. Guolo, M.)**, 2024, *X-ray Quasi-periodic Eruptions and Tidal Disruption Events Prefer Similar Host Galaxies*, ApJL, 970, L23.

(16) Wevers, T., **Guolo, M.**, Pasham, D., Coughlin, E., et al., 2024, *Delayed X-ray Brightening Accompanied by Variable Ionized Absorption Following a Tidal Disruption Event*, ApJ, 963, 75.

(15) Pasham, D., Tombesi, F., Suková, P., Zajaček, M., et al. **(incl. Guolo, M.)**, 2024, *A Case for a Binary Black Hole System Revealed via Quasi-periodic Outflows*, Science Advances, 10, 13.

(14) Pasham, D., Zajaček, M., Nixon, C., Coughlin, E., et al. **(incl. Guolo, M.)**, 2024, *Lense-Thirring Precession after a Supermassive Black Hole Disrupts a Star*, Nature, 630, 325.

(13) Somalwar, J., Ravi, V., Yao, Y., **Guolo, M.**, et al., 2023, *The First Systematically Identified Repeating Partial Tidal Disruption Event*, submitted to ApJ, arXiv:2310.03782.

(12) Yao, Y., Lu, W., Harrison, F., Kulkarni, S., et al. **(incl. Guolo, M.)**, 2023, *The On-axis Jetted Tidal Disruption Event AT2022cmc: X-ray Observations and Broadband Spectral Modeling*, ApJ, 965, 39.

(11) Roxburgh, H., Ridden-Harper, R., Lane, Z., Rest, A., et al. **(incl. Guolo, M.)**, 2023, *A Comprehensive Investigation of*

Gamma-ray Burst Afterglows Detected by TESS, ApJ, 963, 89.

(10) Zeltyn, G., Trakhtenbrot, B., Eracleous, M., Yang, Q., et al. **(incl. Guolo, M.)**, 2024, *Exploring Changing-look Active Galactic Nuclei with the Sloan Digital Sky Survey V: First Year Results*, ApJ, 966, 85.

(9) Wang, Y., Pasham, D., Altamirano, D., Gurpide, A., et al. **(incl. Guolo, M.)**, 2024, *Rapid Dimming Followed by a State Transition: A Study of the Highly Variable Nuclear Transient AT2019avd over 1000+ Days*, ApJ, 962, 78.

(8) Jacobson-Galán, W., Dessart, L., Margutti, R., Chornock, R., et al. **(incl. Guolo, M.)**, 2023, *SN 2023ixf in Messier 101: Photo-ionization of Dense, Close-in Circumstellar Material in a Nearby Type II Supernova*, ApJL, 954, L42.

(7) Jencson, J., Pearson, J., Beasor, E., Lau, R., et al. **(incl. Guolo, M.)**, 2023, *A Luminous Red Supergiant and Dusty Long-period Variable Progenitor for SN 2023ixf*, ApJL, 952, L30.

(6) Pasham, D., Lucchini, M., Laskar, T., Gompertz, B., et al. **(incl. Guolo, M.)**, 2023, *The Birth of a Relativistic Jet Following the Disruption of a Star by a Cosmological Black Hole*, Nature Astronomy, 7, 88.

(5) Wevers, T., Coughlin, E., Pasham, D., **Guolo, M.**, et al., 2023, *Live to Die Another Day: The Rebrightening of AT2018fyk as a Repeating Partial Tidal Disruption Event*, ApJL, 942, L33.

(4) Zeltyn, G., Trakhtenbrot, B., Eracleous, M., Runnoe, J., et al. **(incl. Guolo, M.)**, 2023, *A Transient "Changing-look" Active Galactic Nucleus Resolved on Month Timescales from First-year Sloan Digital Sky Survey V Data*, ApJL, 939, L16.

(3) Wang, Y., Baldi, R., del Palacio, S., **Guolo, M.**, et al., 2023, *The Radio Detection and Accretion Properties of the Peculiar Nuclear Transient AT2019avd*, MNRAS, 520, 2417.

(2) Masterson, M., Kara, E., Pasham, D., D'Orazio, D., et al. **(incl. Guolo, M.)**, 2023, *Unusual Hard X-ray Flares Caught in NICER Monitoring of the Binary Supermassive Black Hole Candidate AT2019cuk / Tick Tock / SDSS J1430+2303*, ApJL, 945, L34.

(1) Wevers, T., Nicholl, M., **Guolo, M.**, Charalampopoulos, P., et al., 2022, *An Elliptical Accretion Disk Following the Tidal Disruption Event AT2020zso*, A&A, 666, A6.

Conference Talks

06/2025 (**solicited**)	X-ray Quasi-Periodic Eruptions & Repeating Nuclear Transients, Madrid, Spain
09/2024 (contributed)	Galactic and Extragalactic X-ray Transients, Theory and Observations, Warsaw, Poland
09/2024 (contributed)	Tidal Disruption Events and Nuclear Transients: Entering the Data-Rich Era, Crete, Greece
04/2024 (**invited**)	Anticipating the Rising Tide of Tidal Disruption Events, Santa Barbara, CA, USA
04/2024 (contributed)	21st Meeting of the High energy Astrophysics Division, Horseshoe Bay, TX, USA
06/2023 (contributed)	The Transient and Variable Universe Conference, Urbana, IL, USA

Seminars

06/2025	High-Energy Astrophysics Group Seminars, University of Oxford, UK.
09/2024	Lunch Talk, Leiden Observatory, Leiden, Netherlands
04/2023	NuSTAR Science Group Meeting, Caltech, Pasadena, CA, USA
04/2023	Time-Domain Astronomy Group Meeting, Caltech, Pasadena, CA, USA

Service, Teaching & Supervising

2023–present	Journal Referee for Nature Astronomy, A&A, A&A Letters, ApJ, ApJ Letters (~6 manuscripts)
2023	Supervised an undergraduate research project during the summer, on AGN variability studies.
2021	Teaching Assistant for General Physics I (ran weekly problem solving sections)
2021	Lecturer for General Physics Laboratory I (gave weekly lab lectures on mechanics experiments)

Technical Skills

Coding	Over 10 years of experience with Python; proficient in C++, Fortran, and Bash
X-ray Data	Experienced in the reduction and analysis of data from most modern NASA/ESA missions (*Chandra*, *XMM-Newton*, *Swift*, *NICER*, *NuSTAR*); extensive expertise in X-ray spectral fitting (XSPEC/pyXSPEC/BXA), including development of new spectral models and application of modern statistical techniques (Bayesian inference)
UV/Optical/IR Data	Skilled in the reduction and analysis of photometry, long-slit spectroscopy, and integral field unit (IFU) spectroscopy from ground- and space-based instruments
Open-Source Software Development	⋆ `diskSED/kerrSED`: X-ray spectral models for TDEs and accretion-driven transients (Main Developer: GitHub). ⋆ `FitTeD`: Fitting transients with disks — package for light curve modeling of transient accretion systems (Collaborator Developer: BitBucket).

Professional References

Prof. Suvi Gezari
Associate Professor of Astronomy
University of Maryland, US

Dr. Andrew Mummery
Bahcall Fellow
Institute for Advanced Studies, US

Prof. Matt Nicholl
Reader in Astrophysics
Queen's University Belfast, UK

Prof. Sjoert van Velzen
Astronomy Professor
University of Leiden, Netherlands

Prof. Adam Ingram
Senior Lecturer in Astrophysics
Newcastle University, UK

Prof. Timothy Heckman
Hermann Pfund Professor
Johns Hopkins University, US