

# Muryel Guolo

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## 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 October 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*, [ApJ, 992, 114](#).
- (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 Co-Author 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](https://arxiv.org/abs/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](https://arxiv.org/abs/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](https://arxiv.org/abs/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](https://arxiv.org/abs/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 ( <i>Chandra</i> , <i>XMM-Newton</i> , <i>Swift</i> , <i>NICER</i> , <i>NuSTAR</i> ); 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	★ <b>diskSED/kerrSED</b> : X-ray spectral models for TDEs and accretion-driven transients (Main Developer: <a href="#">GitHub</a> ). ★ <b>FitTeD</b> : Fitting transients with disks — package for light curve modeling of transient accretion systems (Collaborator Developer: <a href="#">BitBucket</a> ).

## **PROFESSIONAL REFERENCES**

### **Prof. Suvi Gezari**

Associate Professor of Astronomy  
University of Maryland, US

### **Prof. Matt Nicholl**

Reader in Astrophysics  
Queen's University Belfast, UK

### **Prof. Adam Ingram**

Senior Lecturer in Astrophysics  
Newcastle University, UK

### **Dr. Andrew Mummery**

Bahcall Fellow  
Institute for Advanced Studies, US

### **Prof. Sjoert van Velzen**

Astronomy Professor  
University of Leiden, Netherlands

### **Prof. Timothy Heckman**

Hermann Pfund Professor  
Johns Hopkins University, US