

Erica Hammerstein

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RESEARCH INTERESTS

Time domain astronomy; Sky surveys; Multi-wavelength discovery, classification, and characterization of astrophysical transients, particularly black hole-related transients; Studies of tidal disruption events and their host galaxies; Accretion and jet physics; Supermassive black hole and host galaxy connections

EDUCATION

Ph.D., Astronomy, University of Maryland, College Park	May 2024
Thesis: <i>Population Studies of Tidal Disruption Events and their Hosts: Understanding Host Galaxy Preferences & the Origin of the UV/Optical Emission</i>	
Advisors: Brad Cenko and Sylvain Veilleux	
M.Sc., Astronomy, University of Maryland, College Park	2020
Advisor: Suvi Gezari	
B.Sc., Astronomy, University of Michigan, Ann Arbor	2018

RESEARCH EXPERIENCE

Graduate Research Assistant, University of Maryland/GSFC	2019 – 2024
REU Research Assistant, Wayne State University	Summer 2017
Undergraduate Research Assistant, University of Michigan	2016-2018
UROP Research Assistant, University of Michigan	2015-2016

PUBLICATIONS

- Total publications (including submitted) / as **first author**: 25 / 5
- Citations: >970 / >**140**
- h-index: 13 / **4**
- 25/11/1 TNS Classification Reports/AstroNotes/Discovery Reports, 6 GCN Circulars, 3 ATels

First Author Publications

- [5] **Hammerstein, E.**, Cenko, S. B., Gezari, S., et al. 2023 The Astrophysical Journal, 957, 86.
Integral Field Spectroscopy of 13 Tidal Disruption Event Hosts from the Zwicky Transient Facility Survey
- [4] **Hammerstein E.**, van Velzen S., Gezari S., et al. 2023 The Astrophysical Journal, 942, 9.
The Final Season Reimagined: 30 Tidal Disruption Events from the ZTF-I Survey
- [3] **Hammerstein E.**, Gezari S., van Velzen S., et al. 2021 The Astrophysical Journal, 908, L20.

Tidal Disruption Event Hosts Are Green and Centrally Concentrated: Signatures of a Post-merger System

[2] **Hammerstein E.**, Gültekin K., King A. 2019 *The Astrophysical Journal*, 875, 82.

Probing the Jet Turnover Frequency Dependence on Black Hole Mass and Mass Accretion Rate

[1] **Hammerstein E. K.**, Cackett E. M., Reynolds M. T., et al. 2018 *Monthly Notices of the Royal Astronomical Society*, 478, 4317.

Constraining the inclination of the low-mass X-ray binary Cen X-4

Co-Author Publications

[20] Dodd, S. A., Nukala, A., Connor, I., et al. 2023 *The Astrophysical Journal*, 959, L19.

Mid-infrared Outbursts in Nearby Galaxies: Nuclear Obscuration and Connections to Hidden Tidal Disruption Events and Changing-look Active Galactic Nuclei

[19] Stein R., Mahabal A., Reusch S., et al. 2023 arXiv e-prints, arXiv:2312.00139.

t_descore: An Accurate Photometric Classifier for Tidal Disruption Events

[18] Srinivasaragavan, G. P., Swain, V., O'Connor, B. M., et al. 2023 arXiv e-prints, arXiv:2310.14397.

Characterizing the Ordinary Broad-lined Type Ic SN 2023pel from the Energetic GRB 230812B

[17] Somalwar, J. J., Ravi, V., Dong, D. Z., et al. 2023 arXiv e-prints, arXiv:2310.03791.

VLAASS tidal disruption events with optical flares I: the sample and a comparison to optically-selected TDEs

[16] Somalwar, J. J., Ravi, V., Yao, Y., et al. 2023 arXiv e-prints, arXiv:2310.03782.

The first systematically identified repeating partial tidal disruption event

[15] Mummery, A., van Velzen, S., Nathan, E., et al. 2023 *Monthly Notices of the Royal Astronomical Society*, 527, 2452.

Fundamental scaling relationships revealed in the optical light curves of tidal disruption events

[14] Ward C., Gezari S., Nugent P., et al. 2023 arXiv e-prints, arXiv:2309.02516.

Panic at the ISCO: the visible accretion disks powering optical variability in ZTF AGN

[13] Ghosh R., Laha S., Meyer E., et al. 2023 *The Astrophysical Journal*, 955, 3.

A Reemerging Bright Soft X-Ray State of the Changing-look Active Galactic Nucleus 1ES 1927+654: A Multiwavelength View

[12] Guolo M., Gezari S., Yao Y., et al. 2023 arXiv e-prints, arXiv:2308.13019.

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

[11] O'Connor B., Troja E., Ryan G., et al. 2023 *Science Advances*, 9, eadi1405.

A structured jet explains the extreme GRB 221009A

[10] Srinivasaragavan G. P., O'Connor B., Cenko S. B., et al. 2023 *The Astrophysical Journal*, 949, L39.

A Sensitive Search for Supernova Emission Associated with the Extremely Energetic and Nearby GRB 221009A

[9] Yao Y., Ravi V., Gezari S., et al. 2023 arXiv e-prints, arXiv:2303.06523.

Tidal Disruption Event Demographics with the Zwicky Transient Facility: Volumetric Rates, Luminosity Function, and Implications for the Local Black Hole Mass Function

[8] Andreoni I., Coughlin M. W., Perley D. A., et al. 2022 *Nature*, 612, 430.

A very luminous jet from the disruption of a star by a massive black hole

[7] Yao Y., Lu W., Guolo M., et al. 2022 *The Astrophysical Journal*, 937, 8.

The Tidal Disruption Event AT2021ebb: Evidence of Relativistic Disk Reflection, and Rapid Evolution of the Disk-Corona System

- [6] Goodwin A. J., van Velzen S., Miller-Jones J. C. A., et al. 2022 Monthly Notices of the Royal Astronomical Society, 511, 5328.
AT2019azh: an unusually long-lived, radio-bright thermal tidal disruption event
- [5] Frederick S., Gezari S., Graham M. J., et al. 2021 The Astrophysical Journal, 920, 56.
A Family Tree of Optical Transients from Narrow-line Seyfert 1 Galaxies
- [4] Ahumada T., Singer L. P., Anand S., et al. 2021 Nature Astronomy, 5, 917.
Discovery and confirmation of the shortest gamma-ray burst from a collapsar
- [3] Ward C., Gezari S., Frederick S., et al. 2021 The Astrophysical Journal, 913, 102.
AGNs on the Move: A Search for Off-nuclear AGNs from Recoiling Supermassive Black Holes and Ongoing Galaxy Mergers with the Zwicky Transient Facility
- [2] Stein R., van Velzen S., Kowalski M., et al. 2021 Nature Astronomy, 5, 510.
A tidal disruption event coincident with a high-energy neutrino
- [1] van Velzen S., Gezari S., **Hammerstein E.**, et al. 2021 The Astrophysical Journal, 908, 4.
Seventeen Tidal Disruption Events from the First Half of ZTF Survey Observations: Entering a New Era of Population Studies

PROPOSALS (as PI*)

DeVeny/LMI, Lowell Discovery Telescope	2022B* : 5 nights, 2023A* : 5 nights, 2023B* : 6 nights, 2024A* : 5 nights
SED machine (SEDM), P60	2021 – 2023* : 70 hours
KCWI, Keck-II telescope	2021B (PI: Gezari): 1 night
XRT/UVOT, <i>Swift</i>	2021 – present: 14 ToO requests, 52ks approved

OBSERVING EXPERIENCE

Keck-II telescope, Keck Observatory	1 night
Keck Cosmic Web Imager (KCWI)	
Lowell Discovery Telescope (LDT), Lowell Observatory	40+ nights
DeVeny optical spectrograph	
Large Monolithic Imager (LMI)	
2.4-m Hiltner Telescope, MDM Observatory	3 nights
Ohio State Multi-Object Spectrograph (OSMOS)	

SELECTED TALKS

<i>Invited Talk</i>	KITP TDE Conference	2024
<i>Dissertation Talk</i>	243rd AAS Meeting, New Orleans, Louisiana	2024
<i>Invited Seminar</i>	Multi-messenger Seminar, Carnegie Mellon University	2023
<i>Invited Talk</i>	Lowell Discovery Telescope Partners' meeting, virtual	2023
<i>Invited Seminar</i>	Galaxy/AGN Journal Club, STScI/JHU	2023
<i>Invited Seminar</i>	Galread, Princeton University	2023

<i>Contributed Talk</i>	DMV Astrophysics Graduate Student Conference	2023
<i>Invited Seminar</i>	Data Analysis Seminar, George Washington University	2023
<i>Contributed Talk</i>	241st AAS Meeting, Seattle, Washington	2023
<i>Contributed Talk</i>	Lowell Discovery Telescope Partners' meeting, virtual	2022
<i>Invited Talk</i>	Workshop on Supermassive Black Holes, Cornell University	2022
<i>Contributed Talks</i>	ZTF Team meetings in Chicago, Paris, and virtual	2020 – 2022
<i>Invited Seminar</i>	CIERA Observational Astronomy Lunch, Northwestern	2022
<i>Contributed Talk</i>	240th AAS Meeting, Pasadena, California	2022
<i>Invited Seminar</i>	CGCA Seminar, University of Wisconsin – Milwaukee	2022

LEADERSHIP & PROFESSIONAL SERVICE

Journal Referee, AAS Journals	
Department of Astronomy Faculty Search Committee	2023 – 2024
Department of Astronomy Service Award	2023
UMD CMNS Dean's Graduate Advisory Council	2022 – present
Astronomy Graduate Council Representative	2021 – present
Department of Astronomy FAMILÉ ¹ Search Committee	2022 – 2023
Astronomy Graduate Council Vice President	2021 – 2023
Graduate Admissions Interviewer	2020 – 2023
Department of Astronomy Chair Review Committee	2021 – 2022
Prospective Graduate Student Visit Coordinator	2019 – 2021
Gemini Fast Turnaround Proposal Reviewer	2021

TEACHING, MENTORING, & OUTREACH

UMD Space Science Outreach Cooperative Volunteer	2023 – present
Skype a Scientist Volunteer	2019 – present
Volunteer Classroom Outreach Coordinator/Educator St. Michael School, Livonia, MI	2017 – 2023
Maryland Day Volunteer	2022
GRAD-MAP Winter Workshop Research Mentor	2019, 2021
GROWTH Summer School TA	2021
GRAD-MAP Python bootcamp TA	2019
TA for ASTR101	Fall 2018, Spring 2019

PRESS COVERAGE

AAS Nova highlight of my study of 30 TDEs published in ApJ	2023/01
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¹ <https://faculty.umd.edu/famile-initiative>