

Adam A. Miller

CIERA Fellow | Program Director, LSSTC Data Science Fellowship Program

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ACADEMIC POSITIONS

CIERA Fellow Northwestern University	2018–Present
LSSTC Data Science Fellowship Program Northwestern University	
Program Director	2018–Present
Director of Program Development and Communications	2016–2018
Public Education and Outreach Lead Zwicky Transient Facility	2014–2016
NASA Hubble Postdoctoral Fellow Jet Propulsion Laboratory	2013–2016

EDUCATION

Ph.D, Astronomy University of California, Berkeley	2013
M.A., Astronomy University of California, Berkeley	2012
M.Phil, Physics University of Cambridge	2007
S.B., Physics Massachusetts Institute of Technology	2006
S.B., Theater Massachusetts Institute of Technology	2006

SELECTED HONORS AND AWARDS

CIERA Fellow Northwestern University	2018–Present
NASA Hubble Postdoctoral Fellow	2013–2016
National Science Foundation Graduate Research Fellowship	2008–2012
Chancellor’s Fellowship UC Berkeley	2007–2008
Gates Cambridge Scholar	2006–2007
Louis Sudler Prize in the Arts MIT	2006
Burchard Scholar MIT	2004–2005

RESEARCH INTERESTS

I am an optical survey astronomer working at the intersection of time-domain astronomy and data science with an aim towards improving our understanding of stellar evolution. My recent efforts have focused on coupling machine learning methods with results from citizen science projects to streamline the discovery and classification of electromagnetic transients. This has enabled a special research program to study supernovae in the hours after explosion, which provides unique insight into the explosion mechanism and progenitor systems.

Working with data from the SDSS, PanSTARRS1, *Gaia*, PTF, ZTF, and ASAS surveys, I have: (i) built machine learning algorithms to classify stellar sources and infer their fundamental physical properties, (ii) probed the progenitor systems of Type Ia supernovae, (iii) observed super luminous supernovae to understand the death of the most massive stars, (iv) discovered outbursts from young stellar objects to examine accretion processes during star formation, and (v) identified previously overlooked, bright R Cor Bor stars to probe the late stages of low-mass stellar evolution.

EDUCATION AND PUBLIC OUTREACH

I am the Program Director for the LSSTC Data Science Fellowship Program (DSFP). Since its inception, I have been responsible for the curriculum development and day-to-day operations of the DSFP. The DSFP is a unique training program for graduate students in astronomy and astrophysics that selects ~20 fellows annually to attend six week-long schools over the course of two years. DSFP fellows receive instruction and hands-on training for a wide variety of data science topics. Fellows also benefit from a fostering environment that emphasizes community building within the program. The DSFP supplements the traditional graduate curriculum, providing the training necessary to cope with the LSST data deluge. All DSFP materials are made public via GitHub. In 2018, I received a \$500,000 grant from the NSF to continue the DSFP.

Previously, I served as the EPO lead for the Zwicky Transient Facility (ZTF). I am also the PI of two citizen science projects ([Zwicky's Stellar Sleuths](#) and the [Zwicky Chemical Factory](#)) that engage hundreds of volunteers and students. Additionally, I have given multiple non-technical talks on my research.

SELECTED FIRST AUTHOR PUBLICATIONS

1. A. A. Miller, R. Chornock, D. A. Perley, et al. (2009) "The Exceptionally Luminous Type II-Linear Supernova 2008es." *Astrophysical Journal*, 690, 1303
2. A. A. Miller, Y. Cao, T. Prio, et al. (2018) "Early Observations of the Type Ia Supernova iPTF 16abc: A Case of Interaction with Nearby, Unbound Material and/or Strong Ejecta Mixing." *Astrophysical Journal*, 852, 100
3. A. A. Miller, M. R. Magee, A. Polin, et al. (2020) "The Spectacular Ultraviolet Flash from the Peculiar Type Ia Supernova 2019yvq." *Astrophysical Journal*, 898, 1, 56
4. A. A. Miller, J. S. Bloom, J. W. Richards, et al. (2015) "A Machine-learning Method to Infer Fundamental Stellar Parameters from Photometric Light Curves." *Astrophysical Journal*, 798, 122
5. A. A. Miller, et al. (2017) "Preparing for Advanced LIGO: A Star-Galaxy Separation Catalog for the Palomar Transient Factory." *Astronomical Journal*, 153, 73
6. A. A. Miller, L. A. Hillenbrand, K. R. Covey, et al. (2011) "Evidence for an FU Orionis-like Outburst from a Classical T Tauri Star." *Astrophysical Journal*, 730, 80

GRANTS RECEIVED AS PI

NSF CyberTraining: Cyber Infrastructure Users \$499,251 <i>The LSSTC Data Science Fellowship Program</i>	2018
LSSTC Enabling Science Grant \$40,000 <i>Variable Classes Revealed!</i>	2017
NASA Hubble Fellowship \$318,500 <i>Machine Learning as a Gateway to Astronomical Discovery</i>	2013

ACCEPTED TELESCOPE PROPOSALS AS PI (last 5 years)

Awards include >30 hr on 6+ m telescopes in past 5 years

MMT 6.5 m Telescope, Northwestern 5 nights <i>The MMT-NU Transient Alliance</i>	2021A
Keck 10 m Telescopes, Northwestern 2.5 nights <i>NUKE-ET: Northwestern University-Keck Environments of Extreme Transients</i>	2020B
Gemini 8 m Telescopes, NOAO 13.2 hr <i>A Rapid Response to the Youngest ZTF Explosions</i>	2020B
Gemini 8 m Telescopes, NOAO 2.8 hr <i>Constraining Type Ia Supernova Explosion Models Through He I Detection</i>	2020B
MMT 6.5 m Telescope, Northwestern 5 nights <i>The MMT-NU Transient Alliance</i>	2020A
Gemini 8 m Telescopes, NOAO 13.2 hr <i>A Rapid Response to the Youngest ZTF Explosions</i>	2020A
MMT 6.5 m Telescope, Northwestern 3.5 nights <i>The MMT-NU Transient Alliance</i>	2019B
Hubble Space Telescope, STScI 2 orbits <i>Caught in the Act: UV spectroscopy of the ejecta-companion collision from a SN Ia</i>	Cycle 27
MMT 6.5 m Telescope, Northwestern 5 nights <i>The MMT-NU Transient Alliance</i>	2019A
Las Cumbres Observatories 1 m Telescopes, NOAO 25 hr <i>Young Explosions: A ZTF Census of Stars in the Hours to Days After Death</i>	2019A
Keck 10 m Telescopes, Northwestern 5 nights <i>NUKE-ET: Northwestern University-Keck Environments of Extreme Transients</i>	2018B
Gemini 8 m Telescopes, NOAO 9.6 hr	2018B

Rapid-response Spectroscopy of Young Explosions

MMT 6.5 m Telescope, Northwestern 1 night	2018B
<i>Caught in the Act: Revealing the Progenitors of Type Ia Supernovae in the Hours After Explosion</i>	
Las Cumbres Observatories 1 m Telescopes, NOAO 25 hr	2018B
<i>Young Explosions: A ZTF Census of Stars in the Hours to Days After Death</i>	
Las Cumbres Observatories 1 m Telescopes, NOAO 40 hr	2018A
<i>Young Explosions: A ZTF Census of Stars in the Hours to Days After Death</i>	
Hubble Space Telescope, STScI 2 orbits	Cycle 25
<i>Caught in the Act: UV spectroscopy of the ejecta-companion collision from a SN Ia</i>	
Palomar 48 in Telescope, Palomar Transient Factory 840 hr	2016B
<i>Color Me Intrigued: A 2 Filter ZTF Precursor Survey</i>	

STUDENT MENTORING AND RESEARCH

As Program Director of the LSSTC DSFP, I provide mentorship and career development advice to all DSFP fellows. To date 30 fellows have graduated from the DSFP, many of whom are early career graduate students still working towards their Ph.D. Five fellows have received their Ph.D, three of whom are now working as astronomy postdocs.

Additionally, I have supervised summer research projects for 15 high school, undergraduate, and graduate students over the course of my career. Past students include (* = project has resulted in publication):

2020 – Xander Hall* (Illinois Math and Science Academy)

2019 – Yuhan Yao* (Caltech), Xander Hall (Illinois Math and Science Academy), Nathan Hung (Northwestern)

2018 – Xander Hall (Illinois Math and Science Academy), Jack Foster (Stanford), Andrew Bowen (Northwestern), Nick Easton (Case Western Reserve University), Kristopher Mortensen* (Northwestern), Ethan Marx (Northwestern)

2017 – Yutaro Tachibana* (Tokyo Institute of Technology), Ava Polzin (Northwestern), Tanner Leighton (University of Minnesota), Nick Easton (Case Western Reserve University), Kristopher Mortensen (Northwestern), Ethan Marx (Northwestern)

2015 – Maya Kulkarni* (UC Berkeley)

2011 – Anthony Paredes (UC Berkeley)

2009 – Allison Merritt (UC Berkeley), Michelle Kislak (UC Berkeley)

INVITED TALKS

“Automating Variable Star Classification via Human-Machine Interaction” Zooniverse Workshop on Transient Astronomy, Twin Cities, MN. Nov 2020

“Gamut of Glass: Chasing (and Classifying) Transients with Telescopes Large and Small” University of Texas at Austin Astronomy Colloquium, Austin, TX. Feb 2020

“Machine Learning: the Answer to the LSST Time-Domain Classification Problem?” Hot-wiring the Transient Universe VI, Evanston, IL. Aug 2019

“Building a Better Future with Comprehensive Training Sets” Carnegie Mellon University Physics Colloquium, Pittsburgh, PA. Feb 2019

“Stellar Destinies: Reconstructing Star System Progenitors From Their Final Explosive Fates” Carnegie Mellon University Physics Colloquium, Pittsburgh, PA. Jan 2019

“Dancing with the Machines” University of Pittsburgh Astronomy Seminar, Pittsburgh, PA. Jan 2019

“Stellar Destinies: Reconstructing Star System Progenitors From Their Final Explosive Fates” University of Pittsburgh Physics Colloquium, Pittsburgh, PA. Jan 2019

“Stellar Destinies: Reconstructing Star System Progenitors From Their Final Explosive Fates” USC Physics Colloquium, Los Angeles, CA. Dec 2018

“Supernova Science Without Spectroscopy: an Examination of Time-Domain Science in the LSST Era” University of Wisconsin-Milwaukee Astrophysics Seminar, Milwaukee, WI. Nov 2017

“The Classification of Supernovae: Prospects and Challenges for the LSST Era” Supernovae: The LSST Revolution Workshop, Evanston, IL. Jun 2017

“Supernova Science Without Spectroscopy: an Examination of Time-Domain Science in the LSST Era” Stanford Astrophysics Colloquium, Palo Alto, CA. Mar 2017

“Enhanced Transient Discovery via Machine Learning: Insight from the Palomar Transient Factory” Supernovae Through the Ages, Rapa Nui, Chile. Aug 2016

“The PTF/ZTF Summer Schools” Dot Astronomy, Oxford, England. Jun 2016

"The Synthetic-Oversampling Method: Using Photometric Colors (and Light Curves?) to Discover Extremely Metal-poor Stars in Large Photometric Surveys" Big Data in Astronomy Workshop, Tel Aviv, Israel. Dec 2015

"A Photometric Method for Discovering Extremely Metal-Poor Stars" Databases in Networked Information Systems Meeting, Aizuwakamatsu, Japan. Mar 2015

"Machine-Learning Classification and Atmospheric Parameter Prediction" Databases in Networked Information Systems Meeting, Aizuwakamatsu, Japan. Mar 2014

"Young Stars: An iPTF Census of YSO Outbursts" Intermediate Palomar Transient Factory Collaboration Meeting, Santa Barbara, CA. Nov 2013

"Probabilistic Classification of Variable Stars: Machine Learning for Large Photometric Datasets" YSOVAR Collaboration Meeting, Madrid, Spain. Jun 2012

"The Very Brightest Supernovae: Nature's New Mysterious Explosions Defy Conventional Explanation" San Francisco Amateur Astronomers Meeting, San Francisco, CA. Jun 2012

"Transient Science With BigBOSS: Prospects for Follow Up and Discovery" BigBOSS Collaboration Meeting, Berkeley, CA. Feb 2011

"Transient Sources and Potential New Discoveries with ODI" Yale One Degree Imager Survey Meeting, New Haven, CT. Oct 2009

"The Search for Extrasolar Planets: First Steps Toward the Discovery of Extraterrestrial Life" Open Evenings at the Institute of Astronomy, Cambridge, England. Jan 2007

PUBLICATION LIST

As of Nov 2020: 87 refereed papers, 8400+ citations, h-index: 38 (>250 total papers and circulars)

1. L. Yan, D. A. Perley, S. Schulze, R. Lunnan, J. Sollerman, K. De, Z. H. Chen, C. Fremling, A. Gal-Yam, K. Taggart, T. W. Chen, I. Andreoni, E. C. Bellm, V. Cunningham, R. Dekany, D. A. Duev, C. Fransson, R. R. Laher, M. Hankins, A. Y. Q. Ho, J. E. Jencson, S. Kaye, S. R. Kulkarni, M. M. Kasliwal, V. Z. Golkhou, M. Graham, F. J. Masci, **A. A. Miller**, J. D. Neill, E. Ofek, M. Porter, P. Mr'oz, D. Reiley, R. Riddle, M. Rigault, B. Rusholme, D. L. Shupe, M. T. Soumagnac, R. Smith, L. Tartaglia, Y. Yao, & O. Yaron (2020) "Helium-rich Superluminous Supernovae from the Zwicky Transient Facility". *Astrophysical Journal Letters*, 902, 1, L8
2. A. Baldeschi, **A. Miller**, M. Stroh, R. Margutti, & D. L. Coppejans (2020) "Star Formation and Morphological Properties of Galaxies in the Pan-STARRS 3 π Survey. I. A Machine-learning Approach to Galaxy and Supernova Classification". *Astrophysical Journal*, 902, 1, 60
3. M. Bulla, **A. A. Miller**, Y. Yao, L. Dessart, S. Dhawan, S. Papadogiannakis, R. Biswas, A. Goobar, S. R. Kulkarni, J. Nordin, P. Nugent, A. Polin, J. Sollerman, E. C. Bellm, M. W. Coughlin, R. Dekany, V. Z. Golkhou, M. J. Graham, M. M. Kasliwal, T. Kupfer, R. R. Laher, F. J. Masci, M. Porter, B. Rusholme, & D. L. Shupe (2020) "ZTF Early Observations of Type Ia Supernovae. III. Early-time Colors As a Test for Explosion Models and Multiple Populations". *Astrophysical Journal*, 902, 1, 48
4. **A. A. Miller**, Y. Yao, M. Bulla, C. Pankow, E. C. Bellm, S. B. Cenko, R. Dekany, C. Fremling, M. J. Graham, T. Kupfer, R. R. Laher, A. A. Mahabal, F. J. Masci, P. E. Nugent, R. Riddle, B. Rusholme, R. M. Smith, D. L. Shupe, J. van Roestel, & S. R. Kulkarni (2020) "ZTF Early Observations of Type Ia Supernovae. II. First Light, the Initial Rise, and Time to Reach Maximum Brightness". *Astrophysical Journal*, 902, 1, 47
5. Y. Yao, K. De, M. M. Kasliwal, A. Y. Q. Ho, S. Schulze, Z. Li, S. R. Kulkarni, A. Fruchter, D. Rubin, D. A. Perley, J. Fuller, A. L. Piro, C. Fremling, E. C. Bellm, R. Burruss, D. A. Duev, M. Feeney, A. Gal-Yam, V. Z. Golkhou, M. J. Graham, G. Helou, T. Kupfer, R. R. Laher, F. J. Masci, **A. A. Miller**, B. Rusholme, D. L. Shupe, R. Smith, J. Sollerman, M. T. Soumagnac, & J. Zolkower (2020) "SN2019dge: A Helium-rich Ultra-stripped Envelope Supernova". *Astrophysical Journal*, 900, 1, 46
6. O. D. Fox, C. Fransson, N. Smith, J. Andrews, K. Azalee Bostroem, T. G. Brink, S. Bradley Cenko, G. C. Clayton, A. V. Filippenko, W.-f. Fong, J. S. Gallagher, P. L. Kelly, C. D. Kilpatrick, J. C. Mauerhan, **A. A. Miller**, E. Montiel, M. D. Stritzinger, T. Szalai, & S. D. Van Dyk (2020) "The slow demise of the long-lived SN 2005ip". *Monthly Notices of the Royal Astronomical Society*, 498, 1, 517

7. R. J. Bruch, A. Gal-Yam, S. Schulze, O. Yaron, Y. Yang, M. T. Soumagnac, M. Rigault, N. L. Strotjohann, E. Ofek, J. Sollerman, F. J. Masci, C. Barbarino, A. Y. Q. Ho, C. Fremling, D. Perley, J. Nordin, S. B. Cenko, S. Adams, I. Adreoni, E. C. Bellm, N. Blagorodnova, M. Bulla, K. Burdge, K. De, S. Dhawan, A. J. Drake, D. A. Duev, A. Dugas, M. Graham, M. L. Graham, J. Jencson, E. Karamehmetoglu, M. Kasliwal, Y.-L. Kim, S. Kulkarni, T. Kupfer, A. Mahabal, **A. A. Miller**, T. A. Prince, R. Riddle, Y. Sharma, R. Smith, F. Taddia, K. Taggart, R. Walters, & L. Yan (2020) "A large fraction of hydrogen-rich supernova progenitors experience elevated mass loss shortly prior to explosion". arXiv:2008.09986
8. M. T. Soumagnac, E. O. Ofek, J. Liang, A. Gal-yam, P. Nugent, Y. Yang, S. B. Cenko, J. Sollerman, D. A. Perley, I. Adreoni, C. Barbarino, K. B. Burdge, R. J. Bruch, K. De, A. Dugas, C. Fremling, M. L. Graham, M. J. Hankins, N. L. Strotjohann, S. Moran, J. D. Neill, S. Schulze, D. L. Shupe, B. M. Sipőcz, K. Taggart, L. Tartaglia, R. Walters, L. Yan, Y. Yao, O. Yaron, E. C. Bellm, C. Cannella, R. Dekany, D. A. Duev, M. Feeney, S. Frederick, M. J. Graham, R. R. Laher, F. J. Masci, M. M. Kasliwal, M. Kowalski, T. Kupfer, **A. A. Miller**, M. Rigault, & B. Rusholme (2020) "Early Ultraviolet Observations of Type II_n Supernovae Constrain the Asphericity of Their Circumstellar Material". *Astrophysical Journal*, 899, 1, 51
9. K. Paterson, W. Fong, A. Nugent, A. R. Escorial, J. Leja, T. Laskar, R. Chornock, **A. A. Miller**, J. Scharwächter, S. B. Cenko, D. Perley, N. R. Tanvir, A. Levan, A. Cucchiara, B. E. Cobb, K. De, E. Berger, G. Terreran, K. D. Alexander, M. Nicholl, P. K. Blanchard, & D. Cornish (2020) "Discovery of the Optical Afterglow and Host Galaxy of Short GRB 181123B at $z = 1.754$: Implications for Delay Time Distributions". *Astrophysical Journal Letters*, 898, 2, L32
10. **A. A. Miller**, M. R. Magee, A. Polin, K. Maguire, E. Zimmerman, Y. Yao, J. Sollerman, S. Schulze, D. A. Perley, M. Kromer, S. Dhawan, M. Bulla, I. Adreoni, E. C. Bellm, K. De, R. Dekany, A. Delacroix, C. Fremling, A. Gal-Yam, D. A. Goldstein, V. Z. Golkhou, A. Goobar, M. J. Graham, I. Irani, M. M. Kasliwal, S. Kaye, Y. L. Kim, R. R. Laher, A. A. Mahabal, F. J. Masci, P. E. Nugent, E. Ofek, E. S. Phinney, S. J. Prentice, R. Riddle, M. Rigault, B. Rusholme, T. Schweyer, D. L. Shupe, M. T. Soumagnac, G. Terreran, R. Walters, L. Yan, J. Zolkower, & S. R. Kulkarni (2020) "The Spectacular Ultraviolet Flash from the Peculiar Type Ia Supernova 2019yvq". *Astrophysical Journal*, 898, 1, 56
11. A. Horesh, I. Sfaradi, M. Ergon, C. Barbarino, J. Sollerman, J. Moldon, D. Dobie, S. Schulze, M. Perez-Torres, D. R. A. Williams, C. Fremling, A. Gal-Yam, S. R. Kulkarni, A. O'Brien, P. Lundqvist, T. Murphy, R. Fender, J. Belicki, E. C. Bellm, M. W. Coughlin, E. O. Ofek, V. Z. Golkhou, M. J. Graham, D. A. Green, T. Kupfer, R. R. Laher, F. J. Masci, **A. A. Miller**, J. D. Neill, Y. Perrott, M. Porter, D. J. Reiley, M. Rigault, H. Rodriguez, B. Rusholme, D. L. Shupe, & D. Titterton (2020) "A non-

equipartition shockwave traveling in a dense circumstellar environment around SN2020oi". arXiv:2006.13952

12. M. M. Kasliwal, S. Anand, T. Ahumada, R. Stein, A. Sagues Carracedo, I. Andreoni, M. W. Coughlin, L. P. Singer, E. C. Kool, K. De, H. Kumar, M. AlMualla, Y. Yao, M. Bulla, D. Dobie, S. Reusch, D. A. Perley, S. B. Cenko, V. Bhalerao, D. L. Kaplan, J. Sollerman, A. Goobar, C. M. Copperwheat, E. C. Bellm, G. C. Anupama, A. Corsi, S. Nisanke, I. Agudo, A. Bagdasaryan, S. Barway, J. Belicki, J. S. Bloom, B. Bolin, D. A. H. Buckley, K. B. Burdge, R. Burruss, M. D. Caballero-Garcia, C. Cannella, A. J. Castro-Tirado, D. O. Cook, J. Cooke, V. Cunningham, A. Dahiwale, K. Deshmukh, S. Dichiaro, D. A. Duev, A. Dutta, M. Feeney, A. Franckowiak, S. Frederick, C. Fremling, A. Gal-Yam, P. Gatkine, S. Ghosh, D. A. Goldstein, V. Z. Golkhou, M. J. Graham, M. L. Graham, M. J. Hankins, G. Helou, Y. Hu, W.-H. Ip, A. Jaodand, V. Karambelkar, A. K. H. Kong, M. Kowalski, M. Khandagale, S. R. Kulkarni, B. Kumar, R. R. Laher, K. L. Li, A. Mahabal, F. J. Masci, **A. A. Miller**, M. Mogotsi, S. Mohite, K. Mooley, P. Mroz, J. A. Newman, C.-C. Ngeow, S. R. Oates, A. S. Patil, S. B. Pandey, M. Pavana, E. Pian, R. Riddle, R. Sanchez-Ramirez, Y. Sharma, A. Singh, R. Smith, M. T. Soumagnac, K. Taggart, H. Tan, A. Tzanidakis, E. Troja, A. F. Valeev, R. Walters, G. Waratkar, S. Webb, P.-C. Yu, B.-B. Zhang, R. Zhou, & J. Zolkower (2020) "Kilonova Luminosity Function Constraints based on Zwicky Transient Facility Searches for 13 Neutron Star Mergers". arXiv:2006.11306
13. A. Y. Q. Ho, D. A. Perley, P. Beniamini, S. B. Cenko, S. R. Kulkarni, I. Andreoni, L. P. Singer, K. De, M. M. Kasliwal, C. Fremling, E. C. Bellm, R. Dekany, A. Delacroix, D. A. Duev, D. A. Goldstein, V. Z. Golkhou, A. Goobar, M. Graham, D. Hale, T. Kupfer, R. R. Laher, F. J. Masci, **A. A. Miller**, J. D. Neill, R. Riddle, B. Rusholme, D. L. Shupe, R. Smith, J. Sollerman, & J. van Roestel (2020) "ZTF20aajnksq (AT2020btl): A Fast Optical Transient at $z \approx 2.9$ With No Detected Gamma-Ray Burst Counterpart". arXiv:2006.10761
14. A. Y. Q. Ho, D. A. Perley, S. R. Kulkarni, D. Z. J. Dong, K. De, P. Chandra, I. Andreoni, E. C. Bellm, K. B. Burdge, M. Coughlin, R. Dekany, M. Feeney, D. D. Frederiks, C. Fremling, V. Z. Golkhou, M. J. Graham, D. Hale, G. Helou, A. Horesh, M. M. Kasliwal, R. R. Laher, F. J. Masci, **A. A. Miller**, M. Porter, A. Ridnaia, B. Rusholme, D. L. Shupe, M. T. Soumagnac, & D. S. Svinkin (2020) "The Koala: A Fast Blue Optical Transient with Luminous Radio Emission from a Starburst Dwarf Galaxy at $z = 0.27$ ". *Astrophysical Journal*, 895, 1, 49
15. C. Fremling, **A. A. Miller**, Y. Sharma, A. Dugas, D. A. Perley, K. Taggart, J. Sollerman, A. Goobar, M. L. Graham, J. D. Neill, J. Nordin, M. Rigault, R. Walters, I. Andreoni, A. Bagdasaryan, J. Belicki, C. Cannella, E. C. Bellm, S. B. Cenko, K. De, R. Dekany, S. Frederick, V. Z. Golkhou, M. J. Graham, G. Helou, A. Y. Q. Ho, M. M. Kasliwal, T. Kupfer, R. R. Laher, A. Mahabal, F. J. Masci, R. Riddle, B. Rusholme, S. Schulze, D. L. Shupe, R. M. Smith, S. v. Velzen, L. Yan, Y. Yao, Z. Zhuang, & S. R.

- Kulkarni (2020) "The Zwicky Transient Facility Bright Transient Survey. I. Spectroscopic Classification and the Redshift Completeness of Local Galaxy Catalogs". *Astrophysical Journal*, 895, 1, 32
16. P. Szkody, B. D'Ercole, A. Y. Q. Ho, L. A. Hillenbrand, J. van Roestel, M. Ridder, I. DeJesus Lima, M. L. Graham, E. C. Bellm, K. Burdge, T. Kupfer, T. A. Prince, F. J. Masci, P. J. Mróz, V. Z. Golkhou, M. Coughlin, V. A. Cunningham, R. Dekany, M. J. Graham, D. Hale, D. Kaplan, M. M. Kasliwal, **A. A. Miller**, J. D. Neill, M. T. Patterson, R. Riddle, R. Smith, & M. T. Soumagnac (2020) "Cataclysmic Variables in the First Year of the Zwicky Transient Facility". *Astronomical Journal*, 159, 5, 198
 17. M. Nicholl, P. K. Blanchard, E. Berger, R. Chornock, R. Margutti, S. Gomez, R. Lunnan, **A. A. Miller**, W.-f. Fong, G. Terreran, A. Vigna-Gómez, K. Bhirimbhakdi, A. Bieryla, P. Challis, R. R. Laher, F. J. Masci, & K. Paterson (2020) "An extremely energetic supernova from a very massive star in a dense medium". *Nature Astronomy*, 4, 893
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