

# Kristen Dage

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## Research Interests

globular clusters, X-ray binaries, accretion physics, extragalactic astronomy, & high energy phenomena

## Appointments

- 2020 - present    **Postdoctoral Fellow**  
McGill Space Institute  
Montréal, Québec, Canada
- 2020                **Postdoctoral Research Associate**  
Michigan State University  
East Lansing, Michigan, USA

## Education

- 2015 - 2020    **Michigan State University**, East Lansing, MI  
Ph.D. Astronomy and Astrophysics July 2020  
Advisor: S.E. Zepf  
Thesis: Long Term Optical and X-Ray Monitoring of Black Hole Candidates in Extragalactic Globular Clusters
- 2015 - 2017    **Michigan State University**, East Lansing, MI  
M.S. Astronomy and Astrophysics
- 2012 - 2014    **University of Michigan-Dearborn**, Dearborn MI  
B.S. Physics

## Observing Proposals

- 2020                **Gemini South 2021A**: Searching for Evidence of Outflows In Globular Cluster X-Ray Binary M87-GCULX1, 7.2 hours, **PI: K. Dage**
- 2020                **HST Cycle 28**: Far-ultraviolet insights into multiple populations in extragalactic globular clusters, **PI: S. Zepf**
- 2020                **NuSTAR Cycle 6**: Complete Spectral Characterisation of a Newly Discovered ULX, 40ks and \$20,000 USD, **PI: K. Dage**
- 2019                **Swift** Target of Opportunity proposals, 14ks
- 2019                **Chandra Cycle 21**: “A high spatial resolution X-ray survey of the halo of M87”, **PI: S. Zepf**
- 2018                **Chandra Cycle 20**: “The Nature of the Two Globular Cluster ULXs in the Galaxy NGC 4472”, **PI: S. Zepf**

## Awards

- 2020                **Sherwood K. Haynes Graduate Physics Award for Outstanding Graduate Student**, Dept. Physics & Astronomy, Michigan State University
- 2020                **MSI Postdoctoral Fellowship**, McGill Space Institute, Montréal, Québec, Canada
- 2019                **MSU College of Natural Science Dissertation Completion Fellowship**, \$7500 USD
- 2019                **AAS International Travel Grant**, \$2000 USD
- 2014                **Outstanding Physics Student**, Dept. Natural Sciences, University of Michigan-Dearborn

## Teaching Experience

- 2018      **Certificate in Inclusive Inquiry STEM Education** from the Institute for Scientist & Engineer Educators Professional Development Program (ISEE PDP), Santa Cruz, CA
- 2018      **Astronomy Instructor** - GUPPY (Gifted University for Parents and Precocious Youth) Designed curriculum and instructed a class for 5th-6th graders through MSU's Gifted and Talented Education program. East Lansing, MI
- 2015 - 2018      **Teaching Assistant**  
ISP 205L -Visions of the Universe  
Michigan State University, East Lansing, MI

## Undergraduate Research Supervision

- 2021      Yifan Sun (McGill University)
- 2021      Jeff Huang (McGill University)
- 2020 - 2021      Emma Barbisan (McGill University)
- 2020 - 2021      Jade Ducharme (McGill University)
- 2020 - 2021      Sneha Nair (McGill University)
- 2020 - 2021      Wasundara Athukoralalage (Michigan State University & Wielenga Scholars Program)
- 2019      Noah Vowell (University of Michigan-Dearborn)
- 2018      Omid Noroozi (Michigan State University)

## Analysis and Software

- X-ray spectroscopy, imaging and timing analysis (*Chandra*, *XMM-Newton*, *RXTE/ASM*, *Swift/BAT*, *MAXI*)
- Optical spectroscopy (*SOAR/GHTS*, *Gemini/GMOS*, *VLT/FORS2*)
- Ultraviolet imaging and photometry (*Swift/UVOT*, *GALEX*)
- Infrared imaging (*Spitzer/IRAC*)
- Gamma-ray binned likelihood analysis (*Fermi/LAT*)
- Conducting optical observations (*SOAR* observatory, Snow Solar Telescope)
- Programming: Python (astropy, numpy, scipy, scikit-learn, matplotlib, Keras), Mathematica
- Major astronomical packages: AstroPy, CIAO, HEASoft (XSpec, FTools), IRAF, Fermitools

## Academic Service

- 2020      **McGill Physics Equity, Diversity, and Inclusion Postdoc Liaison**, McGill University, Montréal, QC, Canada
- 2020      **Session Chair**, Compact Objects in Michigan 8
- 2020      **Professional Development Seminars Organizer** for junior graduate students and senior undergraduate students from Michigan State University and University of Michigan-Dearborn
- 2019-2020      **co-founder MSU Stellar Mentoring Program** for MSU astronomy undergraduates, graduate students and postdocs
- 2018-present      **Time Allocation Committees:** *NICER*, *Gemini* Fast-Turnaround
- 2016-2020      **MSU Astronomy Journal Discussion Organizer**, East Lansing, MI

## Invited Talks

- 2021 Jan      Institute of Astrophysics-FORTH, Heraklion, Crete
- 2020 Dec      Science Briefing, NASA's Universe of Learning, Baltimore, MD
- 2020 Nov      CfA High Energy Phenomena Seminar, Cambridge, MA
- 2020 Jun      High Energy Astrophysics Division Virtual Seminar
- 2020 Feb      McGill Space Institute, Montréal, QC, Canada

## Conference and Seminar Talks

|          |   |
|----------|---|
| 2020 Oct | Chandra Frontiers in Time-Domain Science, Cambridge, MA             |
| 2020 Oct | McGill Space Institute Lunch Talk, Montréal, QC, Canada             |
| 2020 Jun | High Energy Astrophysics Division Virtual Seminar                   |
| 2020 Jan | AAS 235, Honolulu, HI   |
| 2019 Nov | CfA High Energy Phenomena Seminar, Cambridge, MA                    |
| 2019 Mar | Compact Objects in Michigan 7, Detroit, MI                          |
| 2019 Mar | 17th HEAD Meeting, Monterey, CA                                     |
| 2019 Jan | Michigan State University, East Lansing, MI                         |
| 2018 Aug | International Centre for Radio Astronomy Research, Perth, Australia |
| 2018 Apr | Compact Objects in Michigan 6, Ann Arbor, MI                        |
| 2017 Mar | Compact Objects in Michigan 5, East Lansing, MI                     |
| 2017 Feb | Gemini South Observatory, La Serena, Chile                          |
| 2014 Apr | Compact Objects in Michigan 2, East Lansing, MI                     |

## Public Talks

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|------|---|
| 2021 | Abrams Planetarium Night Sky Chat   |
| 2020 | MSU Science Festival Saturday Morning Science Talk  |
| 2020 | Weekly series of at-home experiment-alongs with the Abrams Planetarium, with activities designed in mind for families stuck at home during the pandemic |
| 2020 | Science Night at Bennett Woods Elementary School Portable planetarium talks, Okemos, MI   |
| 2020 | Quiet Adventures Symposium Portable planetarium talks, East Lansing, MI   |
| 2019 | Astronomy on Tap, "Searching for Gamma Ray Counterparts to Low Mass X-Ray Binaries", Lansing, MI  |
| 2018 | Astronomy on Tap, "History of Astronomy", Lansing, MI   |
| 2017 | Capital Area Astronomy Association, East Lansing, MI  |
| 2017 | Astronomy on Tap, "Observing in Chile", Lansing, MI   |

## Outreach and Volunteer Activities

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| 2020 | Astronomy Workshop Presenter, STEM Santa Fe, 2020 STEM Pathways for Girls conference                   |
| 2020 | MSU Science Festival Exoplanet Demo  |
| 2020 | Activities leader for Spartan Young Astronomer's Club, East Lansing, MI                                |
| 2019 | Event Supervisor, Science Olympiad State levels Astronomy and Solar System divisions, East Lansing, MI |
| 2019 | MSU Science Festival Expo Days Primary Astronomy Organizer, East Lansing, MI                           |
| 2019 | IAU Women and Girls in Astronomy Month Event at Abrams Planetarium, East Lansing, MI                   |
| 2019 | Conference for Undergraduate Women in Physics volunteer, East Lansing, MI                              |
| 2018 | Volunteer at MSU Observatory's Nature Night, East Lansing, MI  |
| 2018 | MSU Science Festival Expo Days (Primary Astronomy Organizer), East Lansing, MI                         |
| 2016 | Volunteer at MSU Science Festival Expo Days, East Lansing, MI  |
| 2015 | Volunteer, Science Exploration Days, Dearborn, MI  |
| 2014 | Volunteer, Science Olympiad Regional Solar System division, Dearborn, MI                               |

## Professional Societies

Society for Industrial and Applied Mathematics, American Physical Society, American Astronomical Society

## Publications

### Refereed

11. S. Swihart **et al.**, "Discovery of a New Redback Millisecond Pulsar Candidate: 4FGL J0940.3-7610", 2021, The Astrophysical Journal
10. J. M. Miller **et al.**, "A New Candidate Transitional Millisecond Pulsar in the Sub-luminous Disk State: 4FGL J0407.7-5702", 2020, The Astrophysical Journal
9. S. Swihart **et al.**, "A New Likely Redback Millisecond Pulsar Binary with a Massive Neutron Star: 4FGL J2333.1-5527", 2020, The Astrophysical Journal
8. **K.C. Dage**, S.E. Zepf, E. Thygesen, A. Bahramian, A. Kundu, M.B. Peacock, T. J. Maccarone, J. Strader, "X-Ray Spectroscopy of Newly Identified ULXs Associated With M87's Globular Cluster Population", 2020, Monthly Notices of the Royal Astronomical Society
7. **K.C. Dage**, S.E. Zepf, A. Bahramian, J. Strader, Thomas J. Maccarone, M.B. Peacock, A. Kundu, M. Steele, C. Britt, "Slow Decline and Rise of the Broad [OIII] Emission Line in Globular Cluster Black Hole Candidate RZ2109", 2019, Monthly Notices of the Royal Astronomical Society
6. E. Aydi, **et al.** "Flaring, Dust Formation, And Shocks In The Very Slow Nova ASASSN-17pf (LMCN 2017-11a)", 2019, The Astrophysical Journal
5. **K.C. Dage**, S.E. Zepf, M.B. Peacock, A. Bahramian, O. Noroozi, A. Kundu, T.J. Maccarone, "X-Ray Spectral Variability of Ultraluminous X-Ray Sources in Extragalactic Globular Clusters", 2019, Monthly Notices of the Royal Astronomical Society.
4. Strader, J.; **et al.** "Optical spectroscopy and demographics of redback millisecond pulsar binaries", 2018, The Astrophysical Journal
3. M. A. Tucker, **et al.** "ASASSN-18ey: The Rise of a New Black-Hole X-ray Binary" 2018, The Astrophysical Journal
2. **K.C. Dage**, W.I. Clarkson, P.A. Charles, S. Laycock, I-C. Shih "A Search for Spin-Superorbital Period Correlation in SMC X-1", 2018, Monthly Notices of the Royal Astronomical Society.
1. **K. C. Dage**, S. E. Zepf, A. Bahramian, A. Kundu, T. J. Maccarone, M. B. Peacock, "X-Ray Variability from the Ultraluminous Black Hole Candidate X-ray Binary in the Globular Cluster RZ 2109", 2018, The Astrophysical Journal

### Unrefereed

7. Tucker, D., **et al.**, "LIGO/Virgo S190814bv: SOAR spectroscopy of DECAM candidates AT2019npw and AT2019num", 2019, GCN 25484
6. Aydi, E. **et al.**, "SOAR classification of ASASSN-19qv as a classical nova in the SMC", The Astronomer's Telegram, No. 12907
5. Strader, J.; Chomiuk, L.; **Dage, K.**; Prieto, J. L.; Stanek, K. Z., "Spectroscopic classification of ASASSN-19kz as a young Type II supernova in NGC 2207", The Astronomer's Telegram, No. 12706
4. Sokolovsky, K.V. **et al.**, "ASAS-SN Discovery of a Bright Candidate Microlensing Event ASASSN-19cq", 2019, The Astronomer's Telegram, No. 12495
3. Sarbadhicary, S. K., **et al.**, "SOAR optical spectroscopy of the Wolf-Rayet star WR96 during the dimming event", The Astronomer's Telegram, No. 12511
2. **Dage, K.**, et al, "Spectroscopic Classification of SN 2018agk with SOAR/Goodman", 2018, The Astronomer's Telegram, No. 11433
1. Bahramian, A., Strader, J., **Dage K.**, "SOAR/Goodman optical spectroscopy of MAXI J1820+070", 2018, The Astronomer's Telegram, No. 11424