

# 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

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

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

## Publications

### Refereed

11. S. Swihart et al (including **K. Dage**), “Discovery of a New Redback Millisecond Pulsar Candidate: 4FGL J0940.3-7610”, 2021, The Astrophysical Journal
10. J. M. Miller (including **K. Dage**), “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 (including **K. Dage**), “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 (including **K. Dage**), “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 (including **K. Dage**), “Optical spectroscopy and demographics of redback millisecond pulsar binaries”, 2018, The Astrophysical Journal
3. M. A. Tucker, et al (including **K. Dage**), “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 (including **Dage, K.**), “LIGO/Virgo S190814bv: SOAR spectroscopy of DECam candidates AT2019npw and AT2019num”, 2019, GCN 25484
6. Aydi, E. et al (including **Dage, K.**), “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 (including **Dage, K.**), “ASAS-SN Discovery of a Bright Candidate Microlensing Event ASASSN-19cq”, 2019, The Astronomer’s Telegram, No. 12495
3. Sarbadhicary, S. K., et al (including **Dage, K.**), “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