Kristen Dage

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McGill Space Institute, 3550 University Street
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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

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

2021 ***NuSTAR* Cycle 7**: Investigating pulsation transience in SMC X-1 during superorbital period excursion, **PI: M. Brumback**

2021 ***JWST* Cycle 1**: Do Massive Black Holes Come in Small Packages? A census of black holes in compact stellar systems in the Virgo cluster, 41.2 Primary Spacecraft Hours, **PI: M. Taylor**

2021 ***NICER* Cycle 3**: Monitoring SMC X-1's reprocessed emission during an epoch of superorbital period excursion, 120ks, **PI: K. Dage**

2020 **Gemini South 2021A**: Searching for evidence of outflows in globular cluster X-ray binary M87-GCULX1, 7.2 hours, **PI: K. Dage**

2020 **Chandra Cycle 22**: The LMXB population of NGC 3998: Testing for an extreme IMF, **PI: S. Zepf**

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, 4ks, **PI: K. Dage**

2019 **Chandra Cycle 21**: A high spatial resolution X-ray survey of the halo of M87, **PI: M. Peacock**

2019 **Swift** Target of Opportunity, 10ks, **PI: K. Dage**

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 Prize**
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

2021	**Guest Lecturer** Graduate High Energy Astrophysics McGill University, Montréal, QC, Canada
2018	**Certificate in Inclusive Inquiry STEM Education** Institute for Scientist & Engineer Educators Professional Development, Santa Cruz, CA
2018	**Astronomy Instructor** MSU's Gifted and Talented Education program, East Lansing, MI
2015 - 2018	**Teaching Assistant** Visions of the Universe Laboratory Michigan State University, East Lansing, MI
2011 - 2014	**German, Math, Physical Sciences Tutor** Academic Support Center Oakland Community College, Farmington Hills, MI
2011	**Teaching Assistant** Physical Science Oakland Community College, Farmington Hills, 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 at *SOAR* observatory, with over 300 hours experience
- Programming: Python (astropy, numpy, scipy, scikit-learn, matplotlib, Keras), Mathematica
- Major astronomical packages: AstroPy, CIAO, HEASoft (XSpec, FTools), IRAF, Fermitools

Academic Service

2021	External Reviewer: **CanTAC, AstroSat**
2021	**MSI Undergrad Awards Committee** Panel Member
2021	***NICER* Time Allocation Committee** Panel Member
2020 - 2021	**McGill Physics Equity, Diversity, and Inclusion Postdoc Liaison**, McGill University, Québec, Canada
2020	**X-Ray Binary Journal Club Organizer**, Michigan State University, Michigan, USA
2020	**Session Chair**, Compact Objects in Michigan 8
2019-2020	**co-founder MSU Stellar Mentoring Program** for MSU astronomy undergraduates, graduate students and postdocs
2018-2019	***Gemini* Fast-Turnaround Time Allocation Committee**
2016-2020	**MSU Astronomy Journal Discussion Organizer**, Michigan, USA

Invited Talks

2021 Mar	American Museum of Natural History, New York, USA
2021 Feb	Texas Tech University, Texas, USA
2021 Jan	Institute of Astrophysics-FORTH, Heraklion, Crete
2020 Dec	Science Briefing, NASA's Universe of Learning, Maryland, USA
2020 Feb	McGill Space Institute, Québec, Canada
2018 Aug	International Centre for Radio Astronomy Research, Western Aus., Australia
2017 Feb	Gemini South Observatory, Coquimbo, Chile

Conference and Seminar Talks

2021 Apr	LISA Canada Workshop
2020 Nov	CfA High Energy Phenomena Seminar
2020 Oct	Chandra Frontiers in Time-Domain Science
2020 Oct	McGill Space Institute Lunch Talk, Québec, Canada
2020 Jun	High Energy Astrophysics Division Virtual Seminar
2020 Jan	AAS 235, Hawaii, USA
2019 Nov	CfA High Energy Phenomena Seminar, Massachusetts, USA
2019 Mar	Compact Objects in Michigan 7, Michigan, USA
2019 Mar	17th HEAD Meeting, California, USA
2019 Jan	Michigan State University, Michigan, USA
2018 Apr	Compact Objects in Michigan 6, Michigan, USA
2017 Mar	Compact Objects in Michigan 5, Michigan, USA
2014 Apr	Compact Objects in Michigan 2, Michigan, USA

Public Talks

2021	STEM Week, Vanier College, Québec, Canada
2021	Abrams Planetarium Night Sky Chat, Michigan, USA
2020	MSU Science Festival Saturday Morning Science Talk, Michigan, USA
2020	Science Night at Bennett Woods Elementary School, Michigan, USA
2020	Quiet Adventures Symposium, Michigan, USA
2019	Astronomy on Tap, "Searching for Gamma Ray Counterparts to Low Mass X-Ray Binaries", Michigan, USA

2018	Astronomy on Tap, "History of Astronomy", Michigan, USA
2017	Capitol Area Astronomy Association, Michigan, USA
2017	Astronomy on Tap, "Observing in Chile", Michigan, USA

Outreach and Volunteer Activities

2021	Mentor, Supernova Foundation
2020-2021	McGill Space Institute Astronomy Trivia Nights co-organizer, Québec, Canada
2020	Astronomy Workshop Presenter, STEM Santa Fe, 2020 STEM Pathways for Girls conference, New Mexico, USA
2020	MSU Science Festival Exoplanet Demo, Michigan, USA
2020	Activities leader for Spartan Young Astronomer's Club, Michigan, USA
2019	Event Supervisor, Science Olympiad State levels Astronomy and Solar System divisions, Michigan, USA
2019	MSU Science Festival Expo Days Primary Astronomy Organizer, Michigan, USA
2019	IAU Women and Girls in Astronomy Month Event at Abrams Planetarium, Michigan, USA
2018	MSU Science Festival Expo Days (Primary Astronomy Organizer), Michigan, USA
2016	Volunteer at MSU Science Festival Expo Days, E Michigan, USA
2015	Volunteer, Science Exploration Days, Michigan, USA
2014	Volunteer, Science Olympiad Regional Solar System division, Michigan, USA

Publications

Refereed

14. **K. C. Dage**, N. Vowell, E. Thygesen, A. Bahramian, D. Haggard, K. Kovlakas, A. Kundu, T. J. Maccarone, J. Strader, R. Urquhart, S. E. Zepf, "Ultraluminous X-ray Sources in Seven Edge-On Spiral Galaxies", 2021, MNRAS (submitted)

13. T. Jayasinghe et al (including **K. Dage**), "The Loudest Stellar Heartbeat: Characterizing the Most Extreme Amplitude Heartbeat Star System", 2021, MNRAS (submitted)

12. **K.C. Dage**, A. Kundu, E. Thygesen, A. Bahramian, J.A. Irwin, D. Haggard, T.J. Maccarone, S. Nair, M.B. Peacock, J. Strader, S.E. Zepf, "Three Ultraluminous X-ray Sources in NGC 1316", 2021, MNRAS

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