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

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 ***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** PHY 645 – 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** – GUPPY Designed curriculum and instructed classes for 5th-6th graders MSU's Gifted and Talented Education program, East Lansing, MI
2015 - 2018	**Teaching Assistant** Instructor of Record, ISP 205L – Astronomy Introductory astronomy laboratory, eight sections with ∼90 students per section 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** PSC 1560 – Physical Science Physical science lecture+lab course for non-majors, ∼ 30 students 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	**MSI Undergrad Awards Committee** Panel Member
2021	***NICER* Time Allocation Committee** Panel Member
2020 - present	**McGill Physics Equity, Diversity, and Inclusion Postdoc Liaison**, McGill University, Montréal, QC, Canada
2020	**X-Ray Binary Journal Club Organizer**, a group for female graduate and undergraduate students to discuss research techniques and high level science questions, Michigan State University, East Lansing, MI
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
2018-2019	***Gemini* Fast-Turnaround Time Allocation Committee**
2016-2020	**MSU Astronomy Journal Discussion Organizer**, East Lansing, MI

Invited Talks

2021 Mar	American Museum of Natural History, New York, USA
2021 Feb	Texas Tech University, Lubbock, TX
2021 Jan	Institute of Astrophysics-FORTH, Heraklion, Crete
2020 Dec	Science Briefing, NASA's Universe of Learning, Baltimore, MD
2020 Jun	High Energy Astrophysics Division Virtual Seminar
2020 Feb	McGill Space Institute, Montréal, QC, Canada
2018 Aug	International Centre for Radio Astronomy Research, Perth, Australia
2017 Feb	Gemini South Observatory, La Serena, Chile

Conference and Seminar Talks

2020 Nov	CfA High Energy Phenomena Seminar, Cambridge, MA
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 Apr	Compact Objects in Michigan 6, Ann Arbor, MI
2017 Mar	Compact Objects in Michigan 5, East Lansing, MI
2014 Apr	Compact Objects in Michigan 2, East Lansing, MI

Public Talks

2021	STEM Week, Vanier College, Montréal, QC, Canada
2021	Abrams Planetarium Night Sky Chat, East Lansing, MI
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	Capitol Area Astronomy Association, East Lansing, MI
2017	Astronomy on Tap, "Observing in Chile", Lansing, MI

Outreach and Volunteer Activities

2021	Interview for McGill Tribune
2020-present	McGill Space Institute Astronomy Trivia Nights co-organizer
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	Interview for the Red Cedar Log
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

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