

# Arash Bahramian

## Curriculum Vitæ

Postdoctoral researcher  
Dept. of Physics and Astronomy  
Michigan State University  
East Lansing, MI 48824

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<https://bersavosh.github.io/>

### Employment

2016 - present Michigan State University, East Lansing, Michigan, USA  
Postdoctoral research associate

### Education

2011 - 2016 Ph.D. Physics  
University of Alberta, Edmonton, Alberta, Canada  
Advisor: C.O. Heinke  
Dissertation: *Behavior of low-mass X-ray binaries and their formation in globular clusters*

2007 - 2011 B.Sc. Physics  
Isfahan University of Technology, Isfahan, Iran

### Teaching and Mentoring experience

2017 Research Experiences for Undergraduates (REU) project mentor  
Jacob August Davidson  
Project: Classification of companion star in a Galactic X-ray binary (Davison et al., in prep.)  
Michigan State University, East Lansing, MI

2011 - 2016 Teaching assistant  
Physics 124, 130, 131, 144, Astronomy 120, 122  
University of Alberta, Edmonton, Alberta, Canada

### Fellowships and Awards

2015 Andrew Stewart Memorial Graduate Research Prize  
*University of Alberta*

2013 Best Student Poster Award  
*Canadian Astronomical Society Meeting 2013 (Vancouver, Canada)*

2013 Graduate Student Teaching Award  
*Faculty of Science, University of Alberta*

### Experience and analysis skills

- X-ray spectroscopy and imaging analysis (*Chandra*, *Swift/XRT*, *Swift/BAT*, *NuSTAR*, *XMM-Newton*, *MAXI*)
- Ultraviolet imaging and photometry analysis (*Swift/UVOT*)
- Optical photometry and spectroscopy analysis (*SOAR/GHTS*, *Gemini/GMOS*)
- Conducting optical observations (*SOAR* observatory)
- Near-Infrared spectroscopy and imaging analysis (*Gemini/NIFS*, *Gemini/GNIRS*, *Gemini/FLAMINGOS-2*)
- Programming: Python, C++, R, Mathematica, MATLAB, Fortran
- Major astronomical packages: AstroPy, AstroML, CIAO, HEASoft (XSpec, Xronos, XStar, FTools), IRAF

### Professional Talks

2017 Dec Penn State University (State College, Pennsylvania, USA)

2017 May American Museum of Natural History (New York, New York, USA)

2017 Apr Ohio University (Athens, Ohio, Michigan, USA), **Invited Talk**

2017 Mar Compact Objects in Michigan 5 (East Lansing, Michigan, USA)

2016 Dec University of Michigan (Ann Arbor, Michigan, USA), **Invited Talk**

2016 Dec University of Western Ontario (London, Canada), **Invited Talk**

2016 Aug	Institute for Research in Fundamental Sciences (Tehran, Iran), <b>Invited Talk</b>
2016 June	Canadian Astronomical Society Meeting 2012 (Winnipeg, Canada)
2015 Dec	Modelling and Observing Dense Stellar Systems conference 2015 (Kobe, Japan), <b>Invited Talk</b>
2015 June	European Week of Astronomy and Space Science 2015 (Tenerife, Spain)
2015 June	Max Planck Institute for Radio-astronomy (Bonn, Germany)
2015 June	Texas Tech. University (Lubbock, Texas, USA), <b>Invited Talk</b>
2014 Jul	International Conference on Physics of Neutron Stars 2014 (St.Petersburg, Russia)
2012 Jun	Canadian Astronomical Society Meeting 2012 (Calgary, Canada)
2010 Jun	Carpathian Summer School of Physics 2010 (Sinaia, Romania)

### Accepted Observatory Proposals (as PI)

1. *“Verifying a new candidate transitional millisecond pulsar”*, The Karl G. Jansky Very Large Array and Chandra Observatory, 2018A, Awarded a total of 2.4 hours time.
2. *“Determining nature of a peculiar high-energy binary in a globular cluster”*, Gemini Observatory, Term 2017B, Awarded 3.5 hours time.
3. *“NIR photometry of very faint X-ray transients”*, SOAR Observatory, Term 2017A, Awarded 7 hours time.
4. *“Determining the nature of donor stars in sub-luminous transient X-ray binaries”*, Gemini Observatory, Terms 2016A, 2017A, 2017B, Awarded 20 hours time.
5. *“Near-infrared spectroscopy of unusual transient X-ray binaries”*, Gemini Observatory, Term 2015A, Awarded 6 hours time.
6. *“The Heartbeat of the Cannonball: Searching for pulsations from the Sgr A East NS.”*, XMM-Newton, Cycle AO13, Awarded 17 hours time.
7. 2 NuSTAR Target of Opportunity proposals on new X-ray transients, Awarded a total of 23 hours for two different targets.
8. 50 Swift Target of Opportunity proposals, Awarded a total of 40 hours time for 30 different targets.

### Press releases

2017	<i>“MSU contributes to LIGO’s merging neutron star discovery”</i>
2017	<i>“Star Discovered in Closest Known Orbit Around Likely Black Hole”</i>
2016	<i>“Clandestine Black Hole May Represent New Population”</i>

### Astronomy/Science Public Outreach Activities

2016	Volunteer, International observe the moon night, Michigan State University Observatory
2011 - 2015	Volunteer, weekly observing events, University of Alberta Observatory
2014	Teaching Assistant, University of Alberta Observatory
2014	Volunteer, Women in scholarship, engineering, science and technology Conference, University of Alberta

# Arash Bahramian

## List of publications

### Refereed Publications

18. L E Rivera Sandoval, R Wijnands, N Degenaar, Y Cavecchi, C O Heinke, E M Cackett, J Homan, D Altamirano, **A Bahramian**, G R Sivakoff, J M Miller, A S Parikh. “*Extreme Quiescent Variability of the Transient Neutron Star Low-mass X-ray Binary EXO 1745248 in Terzan 5*” 2017, [MNRAS](#), **submitted**.
17. AW Steiner, CO Heinke, S Bogdanov, C Li, WCG Ho, **A Bahramian**, S Han. “*Constraining the Mass and Radius of Neutron Stars in Globular Clusters*” 2017, [ApJ](#), **submitted**.
16. A.J. Tetarenko, **A. Bahramian**, R. Wijnands, T.J. Maccarone, C.O. Heinke, J.C.A. Miller-Jones, J. Strader, L. Chomiuk, N. Degenaar, D. Altamirano, A. T. Deller, J.A. Kennea, R.M. Plotkin, T.D. Russell, A.W. Shaw, and G.R. Sivakoff, “*A radio frequency study of the accreting millisecond X-ray pulsar, IGR J16597-3704, in the globular cluster NGC 6256*”, 2017, [ApJ](#), **Accepted**.
15. A Sanna, **A Bahramian**, E Bozzo, C Heinke, D Altamirano, R Wijnands, N Degenaar, T Maccarone, A Riggio, T Di Salvo, R Iaria, M Burgay, A Possenti, C Ferrigno, A Papitto, G Sivakoff, L Burderi. “*Discovery of 105 Hz coherent pulsations in the ultracompact binary IGR J16597-3704*” 2017, [A&A](#), **Accepted**.
14. M Nicholl, E Berger, D Kasen, BD Metzger, J Elias, C. Briceno, KD Alexander, PK Blanchard, R Chornock, PS Cowperthwaite, T Eftekhari, W Fong, R Margutti, VA Villar, PKG Williams, W Brown, J Annis, **A Bahramian**, D Brout, DA Brown, HY Chen, JC Clemens, E Dennihy, B Dunlap, DE Holz, E Marchesini, F Massaro, N. Moskowitz, I Pelisoli, A Rest, F Ricci, M. Sako, M Soares-Santos, J Strader. “*The Electromagnetic Counterpart of the Binary Neutron Star Merger LIGO/Virgo GW170817. III. Optical and UV Spectra of a Blue Kilonova from Fast Polar Ejecta*” 2017, [ApJL](#), **848, 18**.
13. **A Bahramian**, CO Heinke, V Tudor, JCA Miller-Jones, S Bogdanov, TJ Maccarone, C Knigge, GR Sivakoff, L Chomiuk, J Strader, JA Garcia, T Kallman. “*The ultracompact nature of the black hole candidate X-ray binary 47 Tuc X9*” 2017, [MNRAS](#) **467 2199**.
12. BE Tetarenko, **A Bahramian**, RM Arnason, JCA Miller-Jones, S Repetto, CO Heinke, TJ Maccarone, L Chomiuk, GR Sivakoff, J Strader, F Kirsten, W Vlemmings. “*The first low-mass black hole X-ray binary identified in quiescence outside of a globular cluster*” 2016, [ApJ](#) **825 10**.
11. AJ Tetarenko, **A Bahramian**, GR Sivakoff, E Tremou, M Linares, V Tudor, JCA Miller-Jones, CO Heinke, L Chomiuk, J Strader, D Altamirano, N Degenaar, T Maccarone, A Patruno, A Sanna, R Wijnands. “*Disc-Jet Coupling in the Terzan 5 Neutron Star X-ray Binary EXO 1745248*” 2016, [MNRAS](#) **460 345**.
10. R Wijnands, N Degenaar, MA Padilla, D Altamirano, Y Cavecchi, M Linares, **A Bahramian**, CO Heinke. “*Low-level accretion in neutron-star X-ray binaries.*” 2015, [MNRAS](#) **454 1371**.
9. **A Bahramian**, CO Heinke, N Degenaar, L Chomiuk, R Wijnands, J Strader, WCG Ho, D Pooley. “*Limits on thermal variations in a dozen quiescent neutron stars over a decade.*” 2015, [MNRAS](#) **452 3475**.
8. N Degenaar, R Wijnands, **A Bahramian**, GR Sivakoff, CO Heinke, EF Brown, JK Fridriksson, J Homan, EM Cackett, A Cumming, JM Miller, D Altamirano, D Pooley. “*Neutron star crust cooling in the Terzan 5 X-ray transient Swift J174805.3-244637.*” 2015, [MNRAS](#) **451 2071**.
7. CO Heinke, **A Bahramian**, N Degenaar, R Wijnands. “*The nature of very faint X-ray binaries: hints from light curves.*” 2015, [MNRAS](#) **447 3034**.
6. EW Koch, **A Bahramian**, CO Heinke, K Mori, N Rea, N Degenaar, D Haggard, R Wijnands, G Ponti, JM Miller, F Yusef-Zadeh, F Dufour, WD Cotton, FK Baganoff, MT Reynolds. “*The 2013 outburst of a transient very faint X-ray binary, 23 arcsec from Sgr A\*.*” 2014, [MNRAS](#) **442 372**.
5. **A Bahramian**, JC Gladstone, CO Heinke, R Wijnands, R Kaur, D Altamirano. “*Revealing a new symbiotic X-ray binary with Gemini Near-infrared Integral Field Spectrograph.*” 2014, [MNRAS](#) **441 640**.
4. M Linares, **A Bahramian**, CO Heinke, R Wijnands, A Patruno, D Altamirano, J Homan, S Bogdanov, D Pooley. “*The neutron star transient and millisecond pulsar in M28: from sub-luminous accretion to rotation-powered quiescence.*” 2014, [MNRAS](#) **438 251**.

3. **A Bahramian**, CO Heinke, GR Sivakoff, D Altamirano, R Wijnands, J Homan, M Linares, D Pooley, N Degenaar, JC Gladstone. “*Discovery of the Third Transient X-Ray Binary in the Galactic Globular Cluster Terzan 5.*” 2014, [ApJ 780 127](#).
2. **A Bahramian**, CO Heinke, GR Sivakoff, JC Gladstone. “*Stellar Encounter Rate in Galactic Globular Clusters.*” 2013, [ApJ 766 136](#).
1. WS Stacey, CO Heinke, HN Cohn, PM Lugger, **A Bahramian**. “*An Examination of the X-Ray Sources in the Globular Cluster NGC 6652.*” 2012, [ApJ 751 62](#).

### **Astronomer’s Telegrams**

(The [Astronomer’s Telegram](#) is a publication system for quick report of astronomical observations.)

- I’ve led 22 Astronomer’s Telegrams as the PI.
- I’ve been involved in a total of 53 Astronomer’s Telegrams.

The complete list of my Astronomer’s Telegrams [as listed by ADS](#).