Tarraneh Eftekhari

60 Garden Street, MS-10 ⋄ Cambridge, MA 02138
teftekhari@cfa.harvard.edu ⋄ www.tarraneheftekhari.com

EDUCATION

Harvard University 2015–
Ph.D, Astronomy and Astrophysics

Harvard University 2015–2017
A.M., Astronomy and Astrophysics

University of New Mexico 2010–2014
B.S. Astrophysics, *Magna Cum Laude*
Minor in Mathematics

EMPLOYMENT

Harvard University 2015–
Graduate Research Assistant
Advisor: Edo Berger

HarvardX 2017–2019
Content Developer
The FDA and Prescription Drugs: Current Controversies in Context
Science of the Physical Universe 30: Super-Earths and Life
Fundamentals of Neuroscience Part 3: The Brain

Harvard University 2015–2016
Laboratory Assistant
Advisor: Lincoln Greenhill
Development of a Low-Noise Amplifier for the Large Aperture Experiment to Detect the Dark Ages

University of New Mexico 2013–2015
Undergraduate Research Assistant
Advisor: Greg Taylor
A Low Frequency Survey of Giant Pulses from the Crab Pulsar

Long Wavelength Array Radio Telescope 2013–2015
Telescope Operator

Netherlands Institute for Radio Astronomy (ASTRON) 2014
Summer Research Assistant
Advisor: Richard Fallows
Heliospheric Faraday Rotation from the Crab Pulsar

TEACHING

Harvard University 2018–2019
Head Teaching Fellow
Science of the Physical Universe 22: From the Big Bang to the Brontosaurus and Beyond

Harvard University 2017
Teaching Fellow
Science of the Physical Universe 22: From the Big Bang to the Brontosaurus and Beyond

AWARDS

ALMA Cycle 6 Student Observing Support 2018
NSF Graduate Research Fellowship Honorable Mention 2017
Bok Center Certificate of Distinction in Teaching, *Harvard University* 2017
New Mexico Space Grant Consortium Scholarship 2014
University of New Mexico Undergraduate Research Award 2013

SERVICE & OUTREACH

Beacon Hill Seminars, Unveiling the Cosmos 2018–
Seminar Coordinator

ComSciCon 2018
Local Organizing Committee

Cambridge Explores the Universe 2018
Volunteer with Chandra VR Table

National Collegiate Research Conference 2018
Poster Judge

Harvard Science in the News 2016–
Waves Team Blog Writer
DayCon Lecture Series Chair

Chandra X-ray Observatory 2017
Peer Review Facilitator

Wellesley College 2017
Graduate Student Panel

Science Club for Girls 2016–2017
Leaders in STEM Mentor
Tech Team Mentor

YouthAstroNet 2016–2017
Digital Mentor

Harvard University Women in Stem — 2016−2017
Mentor

UNM Campus Observatory — 2013−2015
Telescope Operator

TELESCOPE TIME ALLOCATIONS (AS PI)

VLA	28 hr
Chandra	105 ks
ALMA	15 hr
Arecibo	15 hr
VLBA	3 hr

TECHNICAL SKILLS

Computer Languages python, LaTeX, html
Astronomical Software CASA, CIAO, XSPEC, DS9, Genesys RF & Microwave Design

PRESENTATIONS

Localizing Fast Radio Bursts and Their Host Galaxies [CITA/Dunlap Institute, 2019]

A Radio Source Coincident with a Superluminous Supernovae [Institute for Theory and Computation Luncheon, Harvard, 2019]

Millimeter Transients in the Era of CMB Surveys [Astrophysics with the CMB-S4 Survey, University of Chicago, 2019]

A Radio Source Coincident with the Superluminous Supernova PTF10hgi [Columbia University, Department of Astronomy Pizza Lunch, 2019]

Identifying the Host Galaxies of Fast Radio Bursts [FRBs and their Possible Neutron Star Origins, 2019]

Tidal Disurption Events and Fast Radio Bursts [Transients Group Meeting, CIERA Northwestern University, 2018]

Uncovering the Mystery of Fast Radio Bursts [New Hampshire Astronomical Society, 2018]

Radio Monitoring of the Tidal Disruption Event Swift J164449.3+573451 [Jerusalem Winter School in Theoretical Physics, The Physics of Astronomical Transients, 2018]

On the Association of Fast Radio Bursts and Their Hosts [Workshop on Fast Radio Bursts, McGill University, 2017]

Longterm Multi-wavelength Monitoring of the Relativistic Tidal Disruption Event Swift J164449.3+573451, [American Astronomical Society 229th Meeting 2017]

Tidal Disruption Events: A Multi-Wavelength Approach, [Time-Domain Astrophysics: Incorporating Observations, Theory, and Computation in the American Northeast, 2016]

A Low Frequency Survey of Giant Pulses from the Crab Pulsar, [American Astronomical Society 225th Meeting 2015]

PUBLICATIONS

26. T. Eftekhari, E. Berger, B. Margalit, et al., *"A Radio Source Coincident with the Superluminous Supernova PTF10hgi: Evidence for a Central Engine and an Analogue of the Repeating FRB121102?"*, 2019, *In Press*

25. Margutti et al., *"An embedded X-ray source shines through the aspherical AT2018cow: revealing the inner workings of the most luminous fast-evolving optical transients"*, 2018, *APJ*

24. Margalit et al., *"Unveiling the Engines of Fast Radio Bursts, Super-Luminous Supernovae, and Gamma-Ray Bursts"*, 2018, *MNRAS*

23. Villar et al., *"Spitzer Space Telescope Infrared Observations of the Binary Neutron Star Merger GW170817"*, 2018, *ApJL*

22. Alexander et al., *"A Decline in the X-ray through Radio Emission from GW170817 Continues to Support an Off-Axis Structured Jet"*, 2018, *ApJL*

21. T. Eftekhari et al., *"Associating Fast Radio Bursts with Extragalactic Radio Sources: General Methodology and a Search for a Counterpart to FRB 170107"*, 2019, *ApJ*

20. Cantiello et al., *"A Precise Distance to the Host Galaxy of the Binary Neutron Star Merger GW170817 Using Surface Brightness Fluctuations"*, 2018, *ApJL*

19. Margutti et al., *"The Binary Neutron Star event LIGO/VIRGO GW170817 a hundred and sixty days after merger: synchrotron emission across the electromagnetic spectrum"*, 2018, *ApJL*

18. T. Eftekhari, E. Berger, B. A. Zauderer, et al., *"Radio Monitoring of the Tidal Disruption Event Swift J164449.3+573451. III. Late-time Jet Energetics and a Deviation from Equipartition"*, 2017, *Submitted to ApJ*

17. C. Guidorzi, R. Margutti, D. Brout, D. Scolnic, W. Fong, K. D. Alexander, P. S. Cowperthwaite, J. Annis, E. Berger, P. K. Blanchard, R. Chornock, D. L. Coppejans, **T. Eftekhari**, J. A. Frieman, D. Huterer, M. Nicholl, M. Soares-Santos, G. Terreran, V. A. Villar, P. K. G. Williams, 2017, ''Improved Constraints on H0 from a combined analysis of gravitational-wave and electromagnetic emission from GW170817", 2017, *Submitted to ApJL*

16. B. P. Abbott et al., ''A gravitational-wave standard siren measurement of the Hubble constant", 2017, *Nature*

15. P. S. Cowperthwaite, E. Berger, V. A. Villar, B. D. Metzger, M. Nicholl, R. Chornock, P. K. Blanchard, W. Fong, R. Margutti, M. Soares-Santos, K. D. Alexander, S. Allam, J. Annis, D. Brout, D. A. Brown, R. E. Butler, H.-Y. Chen, H. T. Diehl, Z. Doctor, M. R. Drout, **T. Eftekhari**, B. Farr, D. A. Finley, R. J. Foley, J. A. Frieman, C. L. Fryer, J. Garca-Bellido, M. S. S. Gill, J. Guillochon, K. Herner, D. E. Holz, D. Kasen, R. Kessler, J. Marriner, T. Matheson, E. H. Neilsen, Jr., E. Quataert, A. Palmese, A. Rest, M. Sako, D. M. Scolnic, N. Smith, D. L. Tucker, P. K. G. Williams, E. Balbinot, J. L. Carlin, E. R. Cook, F. Durret, T. S. Li, P. A. A. Lopes, A. C. C. Loureno, J. L. Marshall, G. E. Medina, J. Muir, R. R. Muoz, M. Sauseda, D. J. Schlegel, L. F. Secco, A. K. Vivas, et al., ''The Electromagnetic Counterpart of the Binary Neutron Star Merger LIGO/VIRGO GW170817. II. UV, Optical, and Near-IR Light Curves and Comparison to Kilonova Models", 2017, ApJ, 848, L17

14. M. Nicholl, E. Berger, D. Kasen, B. D. Metzger, J. Elias, C. Briceno, K. D. Alexander, P. K. Blanchard, R. Chornock, P. S. Cowperthwaite, **T. Eftekhari**, W. Fong, R. Margutti, V. A. Villar, P. K. G. Williams, W. Brown, J. Annis, A. Bahramian, D. Brout, D. A. Brown, H.-Y. Chen, J. C. Clemens, E. Dennihy, B. Dunlap, D. E. 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, ApJ, 848, L18

13. R. Chornock, E. Berger, D. Kasen, P. S. Cowperthwaite, M. Nicholl, V. A. Villar, K. D. Alexander, P. K. Blanchard, **T. Eftekhari**, W. Fong, R. Margutti, P. K. G. Williams, J. Annis, D. Brout, D. A. Brown, H.-Y. Chen, M. R. Drout, R. J. Foley, J. A. Frieman, C. L. Fryer, D. E. Holz, T. Matheson, B. D. Metzger, E. Quataert, A. Rest, M. Sako, D. M. Scolnic, N. Smith, M. Soares-Santos, ''The Electromagnetic Counterpart of the Binary Neutron Star Merger LIGO/VIRGO GW170817. IV. Detection of Near-infrared Signatures of r-process Nucleosynthesis with Gemini-South", 2017, ApJ, 848, L19

12. Raffaella Margutti, E. Berger, W. Fong, C. Guidorzi, K. D. Alexander, B.D. Metzger, P. K. Blanchard, P. S. Cowperthwaite, R. Chornock, **T. Eftekhari**, M. Nicholl, V. A. Villar, P. K. G. Williams, J. Annis, D. A. Brown, H.Y. Chen, Z. Doctor, J. A. Frieman, D. E. Holz, M. Sako, M. Soares-Santos, ''The Electromagnetic Counterpart of the Binary Neutron Star Merger LIGO/VIRGO GW170817. V. Rising X-ray Emission from an Off-Axis Jet", 2017, ApJ, 848, L20

11. K. D. Alexander, E. Berger, W. Fong, P. K. G. Williams, C. Guidorzi, R. Margutti, B. D. Metzger, J. Annis, P. K. Blanchard, D. Brout, D. A. Brown, H.-Y. Chen, R. Chornock, P. S. Cowperthwaite, M. Drout, **T. Eftekhari**, J. Frieman, D. E. Holz, M. Nicholl, A. Rest, M. Sako, M. Soares-Santos, V. A. Villar, ''The Electromagnetic Counterpart of the Binary Neutron Star Merger LIGO/VIRGO GW170817. VI. Radio Constraints on a Relativistic Jet and Predictions for Late-Time Emission from the Kilonova Ejecta", 2017, ApJ, 848, L21

10. P. K. Blanchard (Harvard/CfA), E. Berger, W. Fong, M. Nicholl, J. Leja, C. Conroy, K. D. Alexander, R. Margutti, P. K. G. Williams, Z. Doctor, R. Chornock, V. A. Villar, P. S. Cowperthwaite, J. Annis, D. Brout, D. A. Brown, H.-Y. Chen, **T. Eftekhari**, J. A. Frieman, D. E. Holz, B. D. Metzger, A. Rest, M. Sako, M. Soares-Santos, ''The Electromagnetic Counterpart of the Binary Neutron Star Merger LIGO/VIRGO GW170817. VII. Properties of the Host Galaxy and Constraints on the Merger Timescale", 2017, ApJ, 848, L22

9. W. Fong (Hubble Fellow, Northwestern/CIERA), E. Berger, P. K. Blanchard, R. Margutti, P. S. Cowperthwaite, R. Chornock, K. D. Alexander, B. D. Metzger, V. A. Villar, M. Nicholl, **T. Eftekhari**, P. K. G. Williams, J. Annis, D. Brout, D. A. Brown, H.-Y. Chen, Z. Doctor, H. T. Diehl, D. E. Holz, A. Rest, M. Sako, M. Soares-Santos, ''The Electromagnetic Counterpart of the Binary Neutron Star Merger LIGO/VIRGO GW170817. VIII. A Comparison to Cosmological Short-duration Gamma-ray Bursts", 2017, ApJ, 848, L23

8. D.C. Price, L.J. Greenhill, A. Fialkov, G. Bernardi, H. Garsden, B.R. Barsdell, J. Kocz, M.M. Anderson, S.A. Bourke, J. Craig, M.R. Dexter, J. Dowell, M.W. Eastwood, **T. Eftekhari**, S.W. Ellingson, G. Hallinan, J.M. Hartman, R. Kimberk, T.J.W. Lazio, S. Leiker, D. MacMahon, R. Monroe, F. Schinzel, G.B. Taylor, D. Werthimer, D.P. Woody, ''Design and characterization of the Large-Aperture Experiment to Detect the Dark Age (LEDA) radiometer systems", 2017, *Submitted to MNRAS*

7. M. D. Cranmer, B. R. Barsdell, D. C. Price, J. Dowell, H. Garsden, V. Dike, **T. Eftekhari**, A. M. Hegedus, J. Malins, K. S. Obenberger, F. Schinzel, K. Stovall, G. B. Taylor, L. J. Greenhill, ''Bifrost: a Python/C++ Framework for High-Throughput Stream Processing in Astronomy", 2017, JAI

6. T. Eftekhari E. Berger, ''Associating Fast Radio Bursts with Their Host Galaxies", 2017, *Accepted to ApJ*

5. M. Nicholl, P. K. G. Williams, E. Berger, V. A. Villar, K. D. Alexander, **T. Eftekhari**, B. D. Metzger, *"Empirical constraints on the origin of fast radio bursts: volumetric rates and host galaxy demographics as a test of millisecond magnetar connection"*, 2017, ApJ, 843, 84

4. T. Eftekhari, K. Stovall, J. Dowell, F. K. Schinzel, G. B. Taylor, *"A Low Frequency Survey of Giant Pulses from the Crab Pulsar"*, 2016, ApJ, 829, 62.

3. G. Bernardi, J.T.L. Zwart, D. Price, L.J. Greenhill, A. Mesinger, J. Dowell, **T. Eftekhari**, S.W. Ellingson, J. Kocz, F. Schinzel. *"Bayesian Constraints on the Global 21-cm Signal from the Cosmic Dawn"*, MNRAS, 461, 3.

2. J. Kocz, L.J Greenhill, B.R. Barsdell, D. Price, G. Bernardi, S. Bourke, M.A. Clark, J. Craig, M. Dexter, J. Dowell, **T. Eftekhari**, S. Ellingson, G. Hallinan, J. Hartman, A. Jameson, D. MacMahon, G. Taylor, F. Schinzel, D. Werthimer. *"Digital Signal Processing using Stream High Performance Computing: A 512-input Broadband Correlator for Radio Astronomy"*, JAI, 4, 50003.

1. K. Stovall, P. S. Ray, J. Blythe, J. Dowell, **T. Eftekhari**, A. Garcia, T. J. W. Lazio, M. McCrackan, F. K. Schinzel, G. B. Taylor. *"Pulsar Observations Using the First Station of the Long Wavelength Array and the LWA Pulsar Data Archive"*, ApJ, 808, 156.