

Tarraneh Eftekhari

CIERA, Northwestern University ◊ 1800 Sherman Ave, 8th Floor ◊ Evanston, IL 60201
teftekhari@northwestern.edu ◊ www.tarraneheftekhari.com

EDUCATION

HARVARD UNIVERSITY	2021
Ph.D. , Astronomy and Astrophysics	
• Thesis: Unveiling the Transient Radio and Millimeter Sky	
• Advisor: Edo Berger, Ph.D.	
HARVARD UNIVERSITY	2017
M.A. , Astronomy and Astrophysics	
UNIVERSITY OF NEW MEXICO	2015
B.S. , Astrophysics, Minor in Mathematics, <i>Magna Cum Laude</i>	

RELATED EMPLOYMENT

CIERA POSTDOCTORAL FELLOW (Northwestern University)	2021–
CONTENT DEVELOPER (HarvardX)	2017–2020
• University Chemistry: Molecular Foundations and Global Frontiers	
• Reclaiming Argument: An Introduction to Logical Reasoning	
• 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	
LABORATORY ASSISTANT (Harvard University)	2015–2016
• Development of a Low-Noise Amplifier for the Large Aperture Experiment to Detect the Dark Ages	
• Supervisor: Lincoln Greenhill, Ph.D.	
TELESCOPE OPERATOR (Long Wavelength Array, University of New Mexico)	2013–2015
SUMMER RESEARCH ASSISTANT (ASTRON)	2014
• Heliospheric Faraday Rotation from the Crab Pulsar	
• Supervisor: Richard Fallows, Ph.D.	

TEACHING & MENTORING

RESEARCH ADVISOR (Northwestern University)	2021 -
Yuxin Dong, Graduate Student	
<i>Potential Analogs of the First Repeating Fast Radio Burst</i>	
HEAD TEACHING FELLOW (Harvard University)	Spring 2017, 2018, 2019
<i>Science of the Physical Universe 22: From the Big Bang to the Brontosaurus and Beyond</i>	
Prof: Irwin Shapiro, Ph.D.	

AWARDS

ALMA Ambassador	2021
CIERA Postdoctoral Fellowship	2021
ALMA Cycle 7 Student Observing Support	2019
ALMA Cycle 6 Student Observing Support	2018
National Science Foundation Graduate Research Fellowship Honorable Mention	2017

Harvard University Bok Center Certificate of Distinction in Teaching	2017
La Serena School for Data Science Full Scholarship	2017
New Mexico Space Grant Consortium Scholarship	2014
University of New Mexico Undergraduate Research Award	2013

TELESCOPE TIME ALLOCATIONS (AS PI)

Very Large Array (VLA)	133.6 hr
Atacama Large Millimeter/submillimeter Array (ALMA)	39 hr
Very Long Baseline Array (VLBA)	3 hr
Arecibo	15 hr
Chandra (<i>Total Support Funding: \$130,686 USD</i>)	190 ks
Submillimeter Array	7 tracks

OUTREACH AND SERVICE

Tutor, <i>Northwestern Prison Education Program</i>	2021–
Referee for <i>ApJ</i> , <i>ApJL</i> , & <i>MNRAS</i>	2019–
Seminar Coordinator, <i>Beacon Hill Seminars</i>	2018–2020
Speaker Chair and Blog Writer, <i>Harvard Science in the News</i>	2016–2019
Mentor to first-year graduate students, <i>Harvard Astronomy</i>	2019
Graduate student panelist, <i>Smithsonian Astrophysical Observatory Solar Physics REU</i>	2019
Local Organizing Committee, <i>ComSciCon</i>	2018
Poster Judge, <i>National Collegiate Research Conference</i>	2018
Volunteer, <i>Cambridge Explores the Universe</i>	2018
Peer Review Facilitator, <i>Chandra Cycle 19 Peer Review</i>	2017
Graduate student panelist, <i>Wellesley College</i>	2017
Mentor, <i>Science Club for Girls</i>	2016–2017
Digital Mentor, <i>YouthAstroNet</i>	2016–2017
Mentor, <i>Harvard University Women in Stem</i>	2016
Telescope Operator, <i>University of New Mexico</i>	2013–2015

PROFESSIONAL DEVELOPMENT

GROWTH Astronomy School: Follow up of transients in the era of multi-messenger astronomy	2019
ICRAR/CASS Radio School	2019
Jerusalem Winter School in Theoretical Physics, The Physics of Astronomical Transients	2018
La Serena School of Data Science: Applied Tools for Data Driven Sciences	2017
NRAO Synthesis Imaging Workshop	2014, 2016

INVITED TALKS

1. Millimeter Transients in the Era of Next Generation CMB Surveys
Pennsylvania State University Transients Group 2021
2. Millimeter Transients in the Era of CMB-S4
CMB-S4 Spring 2021 Collaboration Meeting 2021
3. An Overview of FRB Environments
The Astrophysics of Fast Radio Bursts, Flatiron Institute 2020
4. Localizing Fast Radio Bursts and Their Host Galaxies
Toronto FRB Day, CITA/Dunlap Institute 2019
5. Identifying the Host Galaxies of Fast Radio Bursts
FRBs and their Possible Neutron Star Origins, Amsterdam 2019

6. A Radio Source Coincident with the Superluminous Supernova PTF10hgi
Columbia University, Department of Astronomy Pizza Lunch 2019
7. A Radio Source Coincident with a Superluminous Supernovae
Institute for Theory and Computation Luncheon, Harvard University 2019

PUBLIC TALKS

1. Uncovering the Mystery of Fast Radio Bursts
Gloucester Area Astronomy Club 2021
2. Uncovering the Mystery of Fast Radio Bursts
New Hampshire Astronomical Society 2018

CONFERENCE CONTRIBUTIONS

1. Millimeters Transient in the Era of CMB Surveys (*Talk*)
Spoken-WERRD Symposium 2021
2. Unveiling the Progenitors of Superluminous Supernovae with Radio
and Millimeter Observations (*Talk*)
Narayan Group Meeting, Center for Astrophysics | Harvard and Smithsonian 2020
3. Unveiling the Progenitors of Superluminous Supernovae with Radio
and Millimeter Observations (*Talk*)
TUNA Talk, National Radio Astronomy Observatory 2020
4. Late-time Radio Observations of Superluminous Supernovae: Implications for
Central Engines and Fast Radio Bursts (*Talk*)
Compact Objects Group Meeting, Flatiron Center for Computational Astrophysics 2020
5. Late-time Radio and Millimeter Observations of Superluminous Supernovae
and Long Gamma-ray Bursts (*Poster*)
Royal Astronomical Society Early Career Poster Exhibition 2020
6. Millimeter Transients with CMB-S4 (*Talk*)
CMB-S4 Spring 2020 Collaboration Meeting, Lawrence Berkeley National Laboratory 2020
7. Millimeter Transients in the Era of CMB Surveys (*Talk*)
Astrophysics with the CMB-S4 Survey, University of Chicago 2019
8. Tidal Disruption Events and Fast Radio Burst (*Talk*)
Transients Group Meeting, CIERA Northwestern University 2018
9. Radio Monitoring of the Tidal Disruption Event Swift J1644+57 (*Poster*)
Jerusalem Winter School in Theoretical Physics, The Physics of Astronomical Transients 2018
10. On the Association of Fast Radio Bursts and Their Hosts (*Talk*)
Workshop on Fast Radio Bursts, McGill University 2017
11. Multi-wavelength Monitoring of the Relativistic TDE Swift J1644+57 (*Poster*)
American Astronomical Society 229th Meeting 2017
12. Tidal Disruption Events: A Multi-Wavelength Approach (*Talk*)
Time-Domain Astrophysics in the American Northeast 2016
13. A Low Frequency Survey of Giant Pulses from the Crab Pulsar (*Poster*)
American Astronomical Society 225th Meeting 2015 2015

PUBLICATIONS

I have been an author on 42 publications (refereed/under review), including **8 first-author publications** [**132 total citations**], and 1 second-author publication. A full listing of my publications can be found on the [ADS](#).

FIRST AUTHOR PUBLICATIONS

1. *Extragalactic Millimeter Transients in the Era of Next Generation CMB Surveys*
T. Eftekhari, E. Berger, B. D. Metzger, et al.
2021, Submitted to ApJ, pp. 23 ([arXiv: 2110.05494](#))
2. *Late-time Radio and Millimeter Observations of Superluminous Supernovae and Long Gamma-Ray Bursts: Implications for Obscured Star Formation, Central Engines, and Fast Radio Bursts*
T. Eftekhari, B. Margalit, C. M. B. Omand, et al.
2021, ApJ, 912, 21, pp. 23 ([arXiv:2010.06612](#))
3. *Wandering Massive Black Holes or Analogs of the First Repeating Fast Radio Burst?*
T. Eftekhari, E. Berger, B. Margalit, B. D. Metzger, P. K. G. Williams
2020, Astrophysical Journal, 895, 98, pp. 10 ([arXiv:2001.02688](#))
4. *A Radio Source Coincident with the Superluminous Supernova PTF10hgi: Evidence for a Central Engine and an Analogue of the Repeating FRB121102?*
T. Eftekhari, E. Berger, B. Margalit, et al.
2019, Astrophysical Journal Letters, 876, L10, pp. 10 ([arXiv:1901.10479](#))
5. *Associating Fast Radio Bursts with Extragalactic Radio Sources: General Methodology and a Search for a Counterpart to FRB 170107*
T. Eftekhari, E. Berger, P. K. G. Williams, P. K. Blanchard
2018, Astrophysical Journal, 860, 73, pp. 9 ([arXiv:1802.09525](#))
6. *Radio Monitoring of the Tidal Disruption Event Swift J164449.3+573451. III. Late-time Jet Energetics and a Deviation from Equipartition*
T. Eftekhari, E. Berger, B. A. Zauderer, et al.
2018, Astrophysical Journal, 854, 86, pp. 12 ([arXiv:1710.07289](#))
7. *Associating Fast Radio Bursts with Their Host Galaxies*
T. Eftekhari & E. Berger
2017, Astrophysical Journal, 849, 162, pp. 7 ([arxiv:1705.02998](#))
8. *A Low Frequency Survey of Giant Pulses from the Crab Pulsar*
T. Eftekhari, K. Stovall, J. Dowell, F. K. Schinzel, G. B. Taylor
2016, Astrophysical Journal, 829, 62, pp. 8 ([arxiv:1607.08612](#))

SECOND AUTHOR PUBLICATIONS

1. *Radio Monitoring of the Tidal Disruption Event Swift J164449.3+573451. IV. The Slow Fade*
Y. Cendes, **T. Eftekhari**, E. Berger, E. Polisensky et al., 2021, ApJ, 908, 125

PUBLICATIONS AS NTH AUTHOR

1. *Chronicleing the Host Galaxy Properties of the Remarkable Repeating FRB 20201124A*
W. Fong et al., 2021, arXiv:2106.11993
2. *The emergence of a new source of X-rays from the binary neutron star merger GW170817*
A. Hajela, et al., 2021, arXiv:2104.02070

3. *Probabilistic Association of Transients to their Hosts (PATH)*
K. Aggarwal, et al., 2021, ApJ, 911, 95
4. *A Late-Time Galaxy-Targeted Search for the Radio Counterpart of GW190814*
K. D. Alexander, et al., 2021, Accepted to ApJ
5. *Radio Observations of an Ordinary Outflow from the Tidal Disruption Event AT2019dsg*
Y. Cendes, et al., 2021, Accepted to ApJ
6. *The Broad-band Counterpart of the Short GRB 200522A at $z=0.5536$: A Luminous Kilonova or a Collimated Outflow with a Reverse Shock?*
W. Fong et al., 2020, Accepted to ApJ
7. *The Tidal Disruption Event AT 2018hyz II: Light-curve modelling of a partially disrupted star*
S. Gomez, M. Nicholl, P. Short, R. Margutti, K. D. Alexander, P. K. Blanchard, E. Berger, **T. Eftekhari**, et al., 2020, MNRAS, 497, 1952
8. *AT 2018cow VLBI: No Long-Lived Relativistic Outflow*
M. F. Bietenholz, R. Margutti, D. Coppejans, K. D. Alexander, M. Argo, N. Bartel, **T. Eftekhari**, D. Milisavljevic, G. Terreran, E. Berger, 2020, MNRAS, 491, 4735
9. *Two years of non-thermal emission from the binary neutron star merger GW170817: rapid fading of the jet afterglow and first constraints on the kilonova fastest ejecta*
A. Hajela et al., 2019, ApJ, 886, L17
10. *A Galaxy-Targeted Search for the Optical Counterpart of the Candidate NS-BH Merger S190814bv with Magellan*
S. Gomez, G. Hosseinzadeh, P. S. Cowperthwaite, V. A. Villar, E. Berger, T. Gardner, K. D. Alexander, P. K. Blanchard, R. Chornock, M. R. Drout, **T. Eftekhari**, et al. 2019, ApJ, 884, L55
11. *The Optical Afterglow of GW170817: An Off-axis Structured Jet and Deep Constraints on a Globular Cluster Origin*
W. Fong, P. K. Blanchard, K. D. Alexander, J. Strader, R. Margutti, A. Hajela, V. A. Villar, Y. Wu, C. S. Ye, E. Berger, R. Chornock, D. Coppejans, P. S. Cowperthwaite, **T. Eftekhari**, et al. 2019, ApJ, 883, L1
12. *Follow-up of the Neutron Star Bearing Gravitational Wave Candidate Events S190425z and S190426c with MMT and SOAR*
G. Hosseinzadeh et al., 2019, ApJ, 880, L4
13. *An embedded X-ray source shines through the aspherical AT2018cow: revealing the inner workings of the most luminous fast-evolving optical transients*
R. Margutti et al., 2019, ApJ, 872, 18
14. *Unveiling the Engines of Fast Radio Bursts, Super-Luminous Supernovae, and Gamma-Ray Bursts*
B. Margalit et al., 2018, MNRAS, 481, 2407
15. *Spitzer Space Telescope Infrared Observations of the Binary Neutron Star Merger GW170817*
V. A. Villar, P. S. Cowperthwaite, E. Berger, P. K. Blanchard, S. Gomez, K. D. Alexander, R. Margutti, R. Chornock, **T. Eftekhari** G. G. Fazio, J. Guillochon, J. L. Hora, M. Nicholl, P. K. G. Williams, 2018, ApJ, 862, L11
16. *A Decline in the X-ray through Radio Emission from GW170817 Continues to Support an Off-Axis Structured Jet*
K. D. Alexander, R. Margutti, P. K. Blanchard, W. Fong, E. Berger, A. Hajela, **T. Eftekhari**, et al., 2018, ApJ, 863, 18L

17. *A Precise Distance to the Host Galaxy of the Binary Neutron Star Merger GW170817 Using Surface Brightness Fluctuations*
M. Cantiello et al., 2018, ApJ, 854, 31L
18. *The Binary Neutron Star event LIGO/VIRGO GW170817 a hundred and sixty days after merger: synchrotron emission across the electromagnetic spectrum*
R. Margutti et al., 2018, ApJ, 856, 18L
19. *Design and characterization of the Large-Aperture Experiment to Detect the Dark Age (LEDA) radiometer systems* D. Price et al., 2018, MNRAS, 478, 4193
20. *Improved Constraints on H_0 from a combined analysis of gravitational-wave and electromagnetic emission from GW170817*
C. Guidorzi et al., 2017, ApJ, 851, 36L
21. *A gravitational-wave standard siren measurement of the Hubble constant*
B. P. Abbott et al., 2017, Nature, 551, 85
22. *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*
P. S. Cowperthwaite et al., 2017, ApJ, 848, 17L
23. *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*
M. Nicholl et al., 2017, ApJ, 848, L18
24. *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*
R. Chornock et al., 2017, ApJ, 848, L19
25. *The Electromagnetic Counterpart of the Binary Neutron Star Merger LIGO/VIRGO GW170817. V. Rising X-ray Emission from an Off-Axis Jet*
R. Margutti et al., 2017, ApJ, 848, L20
26. *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*
K. D. Alexander et al., 2017, ApJ, 848, L21
27. *The Electromagnetic Counterpart of the Binary Neutron Star Merger LIGO/VIRGO GW170817. VII. Properties of the Host Galaxy and Constraints on the Merger Timescale*
P. K. Blanchard et al., 2017, ApJ, 848, L22
28. *The Electromagnetic Counterpart of the Binary Neutron Star Merger LIGO/VIRGO GW170817. VIII. A Comparison to Cosmological Short-duration Gamma-ray Bursts*
W. Fong et al., 2017, ApJ, 848, L23
29. *Bifrost: a Python/C++ Framework for High-Throughput Stream Processing in Astronomy*
M. D. Cranmer, B. R. Barsdell, D. C. Price, J. Dowell, H. Garsden, V. Dike, **T. Eftekhari**, et al., 2017, JAI, 6, 1750007
30. *Empirical constraints on the origin of fast radio bursts: volumetric rates and host galaxy demographics as a test of millisecond magnetar connection*
M. Nicholl, P. K. G. Williams, E. Berger, V. A. Villar, K. D. Alexander, **T. Eftekhari**, B. D. Metzger, 2017, ApJ, 843, 84
31. *Bayesian Constraints on the Global 21-cm Signal from the Cosmic Dawn*
G. Bernardi, J. T. L. Zwart, D. Price, L. J. Greenhill, A. Mesinger, J. Dowell, **T. Eftekhari**, S. W. Ellingson, J. Kocz, F. Schinzel, 2016, MNRAS, 461, 3

32. *Digital Signal Processing using Stream High Performance Computing: A 512-input Broadband Correlator for Radio Astronomy*
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**, et al., JAI, 2015, 4 50003
33. *Pulsar Observations Using the First Station of the Long Wavelength Array and the LWA Pulsar Data Archive*
K. Stovall, P. S. Ray, J. Blythe, J. Dowell, **T. Eftekhari**, A. Garcia, A.; T. J. W. Lazio, M. McCrackan, F. K. Schinzel, G. B. Taylor, ApJ, 2015, 808, 156