

## Education

- Harvard University  
PhD - Astronomy and Astrophysics May, 2018  
MS - Astronomy and Astrophysics May, 2013
- University of California, Santa Cruz  
BS - Astrophysics with Honors May, 2010  
BS - Molecular, Cellular and Developmental Biology with Honors May, 2010

## Positions

- Lindheimer post-doctoral fellow; CIERA, Northwestern University  
*Mentor: Claude-André Faucher-Giguère* 2018 –
- Research fellow, graduate student; Harvard University, Astronomy and Astrophysics  
*Advisor: Lars Hernquist & Laura Blecha* 2014 – 2018  
*Advisor: Ramesh Narayan & Alexander Tchekovskoy* 2011 – 2014
- Junior Specialist; University of California, Santa Cruz (UCSC); Astronomy and Astrophysics  
*Advisor: Enrico Ramirez-Ruiz* 2009 – 2011
- Research Intern; SETI at Home, Space Sciences Laboratory, Berkeley, CA  
*Advisor: Dan Werthimer* Summer 2008
- Research Assistant; UCSC, Santa Cruz Institute for Particle Physics (SCIPP)  
*Advisor: Bruce Schumm* 2006 – 2008

## Publications

- [Massive Black Hole Binary Inspiral And Spin Evolution In A Cosmological Framework](#)  
Sayeb, M.; Blecha, L.; **Kelley, L.Z.**; Gerosa, D.; Kesden, M.; Thomas, J.  
Submitted [arXiv:2006.06647](#)
- [Considerations for the Observability of Kinematically Offset Binary AGN](#)  
**Kelley, L.Z.**;  
Submitted [arXiv:2005.10255](#)
- [Massive BH Binaries as Periodically-Variable AGN](#)  
**Kelley, L.Z.**; Haiman, Z.; Sesana, A.; Hernquist, L.  
Monthly Notices of the Royal Astronomical Society, 485, 2 [arXiv:1809.02138](#) May, 2019
- [Single sources in the low-frequency gravitational wave sky: properties and time to detection by pulsar timing arrays](#)  
**Kelley, L.Z.**; Blecha, L.; Hernquist, L.; Sesana, A.; Taylor, S.  
Monthly Notices of the Royal Astronomical Society, 477, 1 [arXiv:1711.00075](#) Jun, 2018
- [The Gravitational Wave Background from Massive Black Hole Binaries in Illustris: spectral features and time to detection with pulsar timing arrays](#)  
**Kelley, L.Z.**; Blecha, L.; Hernquist, L.; Sesana, A.; Taylor, S.  
Monthly Notices of the Royal Astronomical Society, 471, 4 [arXiv:1702.02180](#) Nov, 2017
- [Testing the binary hypothesis: pulsar timing constraints on supermassive black hole binary candidates](#)  
Sesana, A.; Haiman, Z.; Kocsis, B.; **Kelley, L.Z.**;  
The Astrophysical Journal, 856, 1 [arXiv:1703.10611](#) Mar, 2017
- [An Open Catalog for Supernova Data](#)  
Guillochon, J.; Parrent, J.; **Kelley, L.Z.**; Margutti, R.  
The Astrophysical Journal, 835, 1 [arXiv:1605.01900](#) Jan, 2017

- [Massive Black Hole Binary Mergers in Dynamical Galactic Environments](#)  
**Kelley, L.Z.**; Blecha, L.; Hernquist, L. Oct, 2016  
Monthly Notices of the Royal Astronomical Society, 462, 4 [arXiv:1606.01900](#)
- [Recoiling black holes: prospects for detection and implications of spin alignment](#)  
Blecha, L.; Sijacki, D.; **Kelley, L.Z.**; Torrey, P.; Vogelsberger, M.; et. al. Feb, 2016  
Monthly Notices of the Royal Astronomical Society, 456, 1 [arXiv:1508.01524](#)
- [Tidal Disruption and Magnetic Flux Capture: Powering a Jet from a Quiescent Black Hole](#)  
**Kelley, L.Z.**; Tchekhovskoy, A.; Narayan, R. Oct, 2014  
Monthly Notices of the Royal Astronomical Society, 445, 4 [arXiv:1410.0366](#)
- [Electromagnetic transients as triggers in searches for gravitational waves from compact binary mergers](#)  
**Kelley, L.Z.**; Mandel, I.; Ramirez-Ruiz, E. Jun, 2013  
Physical Review D, 87, 12 [arXiv:1209.3027](#)
- [The Distribution of Coalescing Compact Binaries in the Local Universe: Prospects for Gravitational-Wave Observations](#)  
**Kelley, L.Z.**; Ramirez-Ruiz, E.; Zemp, M.; Diemand, J.; Mandel, I. Dec, 2010  
The Astrophysical Journal Letters, 725, L91 [arXiv:1011.1256](#)

#### Primary Advisor

- [The effect of differential accretion on the Gravitational Wave Background and the present day MBH Binary population](#)  
Siwek, M.; **Kelley, L.Z.**; Hernquist, L. Submitted [arXiv:2005.09010](#)
- [Forward-Modeling of Double Neutron Stars: Insights from Highly-Offset Short Gamma-ray Bursts](#)  
Zevin, M.; **Kelley, L.Z.**; Nugent, A.; Fong, W.; Berry, C. P. L.; Kalogera, V. Submitted [arXiv:1910.03598](#)
- [Probing Massive Black Hole Binary Populations with LISA](#)  
Katz, M.; **Kelley, L.Z.**; Dosopoulou, F.; Berry, S.; Blecha, L.; Larson, S. Jan, 2020  
Monthly Notices of the Royal Astronomical Society, 491, 2 [arXiv:1908.05779](#)

#### Contributions & Non-refereed Papers

- [Multi-Messenger Astrophysics with Pulsar Timing Arrays](#)  
**Kelley, L.Z.**; Charisi, M.; Burke-Spolaor, S.; et al. Mar, 2019  
White Paper: Astro2020 Decadal Review [arXiv:1903.07644](#)
- [The NANOGrav 11-Year Data Set: Limits on Gravitational Waves from Individual Supermassive Black Hole Binaries](#)  
the NANOGrav Collaboration; (Aggarwal, K.; et al.) Jul, 2019  
The Astrophysical Journal, 880, 2 [arXiv:1812.11585](#)
- [The Astrophysics of Nanohertz Gravitational Waves](#)  
Burke-Spolaor, S.; Taylor, S.R.; Charisi, M.; et al. Jun, 2019  
The Astronomy and Astrophysics Review, 27, 1 [arXiv:1811.08826](#)
- [The IllustrisTNG Simulations: Public Data Release](#)  
Nelson, D.; Springel, V.; Pillepich, A.; et al. May, 2019  
Comp. Astro. & Cosmo. 6, 1 [arXiv:1812.05609](#)
- [Supermassive Black-hole Demographics & Environments With Pulsar Timing Arrays](#)  
Taylor, S.R.; Burke-Spolaor, S.; Baker, P.T.; et al. Mar, 2019  
White Paper: Astro2020 Decadal Review [arXiv:1903.08183](#)
- [Swift J1644+57 gone MAD: the case for dynamically-important magnetic flux threading the black hole in a jetted tidal disruption event](#)  
Tchekhovskoy, A.; Metzger, B.D.; Giannios, D.; **Kelley, L.Z.** Jan, 2014  
Monthly Notices of the Royal Astronomical Society, 437, 3 [arXiv:1301.1982](#)

## Talks

- CGCA Seminar; UWM, Milwaukee, WI Oct. 4, 2019
- TAPIR Seminar; Caltech, Pasadena, CA Jun. 13, 2019
- NANOGrav Meeting; U.W. Bothell, Bothell, WA Mar. 29, 2019
- Astrophysics Seminar; U. Florida, Gainesville, FL Feb. 27, 2019
- Astronomy Seminar; U. Connecticut, Storrs, CT Apr. 25, 2018
- Theoretical Astrophysics Seminar; U. Florida, Gainesville, FL Apr. 18, 2018
- High Performance Computing Meeting, Keynote Lecture; U. Mass Amherst May 25, 2017
- ITC Lunch Seminar; Harvard University, Cambridge, MA Mar. 1, 2017
- TAPIR Seminar; CalTech, Pasadena, CA Dec. 2, 2016
- Cosmology Group Seminar; LBNL, Berkeley, CA Nov. 29, 2016
- U.S. Radio/Millimeter/Submillimeter Science Futures II; Baltimore, MD Aug. 8, 2016
- NANOGrav Meeting; CalTech, Pasadena, CA Mar. 17, 2016
- Astrophysics Seminar; University of Birmingham, Birmingham, UK Aug. 15, 2013
- Astrophysics Seminar; MIT Kavli Institute, Cambridge, MA Jan. 24, 2011

## Awards and Honors

- NSF AAG (1910209; Co-PI, \$714k) 2019  
*Impacts of massive Black Hole formation and evolution pathways on Gravitational Wave sources*
- NASA ATP (19-ATP19-0031; Collaborator) 2019  
*Probing the AGN/Galaxy Connection with a Novel, Explicit Feedback Implementation*
- Lindheimer Fellowship CIERA, Northwestern University 2018
- Smith Family Graduate Science and Engineering Fellowship Harvard 2011, 2012
- Kenneth and Ann Thimann Scholarship UCSC 2011
- Dean's Award, Chancellor's Award
- Steck Award - *best undergraduate senior thesis*

## Teaching Experience

- Lecturer, Harvard Banneker and Aztlán Institutes  
Python For Astrophysics Summer, 2017
- Lecturer, Harvard Banneker and Aztlán Institutes  
Order of Magnitude Astrophysics Summer, 2016
- Distinction in Teaching Award Harvard Bok Center, Spring 2014
- Teaching Fellow, Dept. of Astronomy and Astrophysics, Harvard University  
Astr 16 - Stellar and Planetary Astrophysics Feb. – May 2014  
Astr 17 - High Energy Astrophysics Sep. – Dec. 2013
- Teacher's Assistant, Dept. of Astronomy and Astrophysics, UC Santa Cruz  
Astr 111 - Order of Magnitude Astrophysics Sep. – Dec. 2010

## Greater Impact & Outreach

### Service, Committees & Tools

- Volunteer: Adler After Dark / Astronomy on Tap Chicago Aug. 2019
- SOC: COSPAR 2020, Sydney, Australia Aug. 2020
- SOC: NANOGrav Spring Meeting, UW Bothell Mar. 2019
- SOC: Conference for Undergraduate Women in Physics (CUWiP), Northwestern U. Jan. 2019
- AAS Site Visit Team 2019 –
- NANOGrav Equity & Climate Committee 2018 –
- Public Safety Committee, Harvard University 2017 – 2018
- Public data release: *contributor to the 2015 & 2018 Illustris public data releases*
- Open-source software: *contributor to the numpy, astropy & matplotlib python packages*
- Referee: ApJ, ApJ Letters, MNRAS, MNRAS Letters
- Reviewer: HST DDT, NASA FINESST

### Talks

- Supermassive Black Holes, Active Galactic Nuclei & Quasars  
Astronomy on Tap Chicago; Evanston, IL Dec 12, 2019
- Active Galactic Nuclei: the Fire at Galaxy Centers  
Chicago Astronomical Society, Adler Planetarium; Chicago, IL Oct 8, 2019
- What is Astronomy and being an Astronomer?  
Jouett Middle School (*AVID classrooms*); Charlottesville, VA Sep 22, 2019
- The New Era Of Gravitational Wave Astrophysics  
Pint of Science; Boston, MA May 23, 2016
- The Era of Gravitational Wave Astrophysics  
Society of Physics Students, UMass Boston; Boston, MA Apr 7, 2016
- Harvard Observing Program for Undergraduates  
Harvard University; Cambridge, MA 2014 – 2015
- Gravity, Relativity and Black Holes  
Light, Relativity and Spacetime  
Orbits, Dynamics and Space Travel  
Cogitania; Brookline, MA May 4, 2014  
May 18, 2014  
Jun 1, 2014

### Mentoring

- Northwestern University Physics & Astronomy  
REU Advisor (*with Prof. Faucher-Giguère*) 2019
- Northwestern University Physics & Astronomy  
Graduate student mentor 2018 –
- Harvard Banneker & Aztlán Institutes (summer program)  
Research Supervisor 2017  
Student Mentor 2015 – 2016
- Harvard Department of Astronomy and Astrophysics  
Graduate student peer mentor 2014 – 2016
- Tutoring:  
Cogitania; Brookline, MA 2013 – 2014  
Academic Aptos Tutoring Center; Aptos, CA 2007 – 2009