Philip S. Cowperthwaite

Contact Information

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Citizenship USA

Research Interests Electromagnetic counterparts to gravitational wave events. Theoretical modeling of optical transients associated with neutron star mergers (e.g., kilonovae). Joint GW-EM data as a probe of neutron star physics. Physics of rapidly evolving optical transients.

Education

Harvard University, Cambridge, Massachusetts USA
A.M., Astronomy, Spring 2015
Ph.D., Astronomy, Spring 2018
- From Design to Detection: Joint Gravitational Wave and Electromagnetic Astronomy
- Advisor: Prof. Edo Berger

The University of Maryland at College Park, College Park, Maryland USA
B.S., Summa Cum Laude, Astronomy with High Honors, Spring 2013
B.S., Summa Cum Laude, Physics, Spring 2013
- Minor in Mathematics

Positions

Carnegie Observatories, Pasadena, California USA
NASA Hubble Postdoctoral Fellow, 2018-2021

Awards

National Aeronautics and Space Administration
- Hubble Postdoctoral Fellow, 2018-2021

American Astronomical Society
- Rodger Doxsey Travel Prize, 2018

Harvard University
- Fireman Thesis Prize, 2018
- Harvard Horizons Finalist, 2018
- Merit Fellowship, 2017–2018
- John Parker Bequest Grant, 2017–2018
- John P. and Carol J. Merrill Graduate Fellow, 2014–15

National Science Foundation
- Graduate Research Fellowship, 2013–18
- Research Experience for Undergraduates Summer Fellowship, 2012

University of Maryland, College Park
- University Medal Finalist, 2013
- J.R. Dorfman Prize for Outstanding Undergraduate Research, 2013

Center for Research and Exploration in Space Science and Technology
- Summer Research Fellowship, 2011

The State of Maryland
- Howard P. Rawlings Grant, 2010–2012
- Maryland Delegates Grant, 2010–12

Professional Service

US ELT Program – Transients and Multi-Messenger Astronomy Group
LSST - Transients and Variable Stars Group
ComSciCon – Local Organizing Committee 2017
ApJL, Nature Astronomy, MNRAS, PRL, PASJ – Referee
American Physical Society – Member
American Astronomical Society – Member

Previous Research Experience

NSF Graduate Research Fellow, Harvard University
Optical Follow-Up of Gravitational Wave Events **Fall 2013 to Spring 2018**
- Advisor: Prof. Edo Berger

REU Summer Research Internship, Smithsonian Astrophysical Observatory
Infrared Spectroscopy of Blazars **Summer 2012**
- Advisors: Drs. Howard A. Smith and Raffaele D'Abrusco

Undergraduate Research Assistant, The University of Maryland, College Park
*Numerical Simulations of Accretion Flows** **Fall 2012 to Summer 2013**
X-Ray Spectroscopy of Active Galactic Nuclei† **Fall 2010 to Spring 2012**
Visualizations of Black Hole Accretion Flows **Spring 2010 to Fall 2010**
- Advisor: Prof. Christopher S. Reynolds

*Senior Thesis, Awarded High Honors
†Joint Space Science Institute Undergraduate Research Scholar

CRESST Summer Research Internship, NASA/Goddard Space Flight Center
Visualizations of Merging Black Hole Binaries **Summer 2011**
- Advisors: Drs. John Baker and Bruno Giacomazzo

Mentoring Experience

Research Advisor for Undergraduates, Harvard University
- Mahlet Shiferaw – Galaxy Catalogs for GW/EM Follow-Up – Summer 2017
- Samuel Liu – Data Science Techniques for Light Curve Analysis – Summer 2016

Teaching Experience

Graduate Teaching Fellow, Harvard University
- Astronomy 16 – Stellar and Planetary Astronomy – Spring 2016
- Astronomy 200 – Radiative Processes – Fall 2014
  - Certificate of Teaching Excellence – Bok Center for Teaching

Undergraduate Teaching Assistant, University of Maryland College Park
- Astronomy 100 – Introduction to Astronomy – Fall 2011 to Spring 2013
- Astronomy 120 – Introductory Astrophysics – Fall 2012 (Grader)

Observing Proposals

I am a PI or Co-I on long-running programs designed to search for and characterize electromagnetic counterparts to gravitational wave events across a large fraction of the electromagnetic spectrum. Instruments for which I have reduced and analyzed public data, but not proposed for time, are indicated with an asterisk.

Radio: VLA, ATCA, ALMA
Infrared: Magellan/FIRE, MMT/MMIRS, Spitzer/IRAC*
Optical: Blanco/DECam, Magellan/IMACS and LDSS3-C, MMT/MMTCam*
X-Ray: Chandra, NuSTAR, XMM-Newton

Technical Skills

Programming: Python, R, C/C++/C#, Perl, Rust, Mathematica, MATLAB, Git
Science Applications: DS9, HEASoft, *Spitzer* SMART software, CIAO, IDL, IRAF

Publications

As of October 29, 2019 I am an author on 51 publications (9 as first author), my h-index is 26 and my publications have 3897 citations. Noteworthy papers are shown here. A full publication list is included.

Gomez, S., Hosseinzadeh, G., Cowperthwaite, P. S., & et al. "A Galaxy-Targeted Search for the Optical Counterpart of the Candidate NS-BH Merger S190814bv with Magellan" 2019, arXiv:1908.08913

Hosseinzadeh, G., Cowperthwaite, P. S., Gomez, S., & et al. "Follow-up of the Neutron Star Bearing Gravitational-wave Candidate Events S190425z and S190426c with MMT and SOAR" 2019, ApJL, 880, L4

Cowperthwaite, P. S., Villar, V. A., Scolnic D. M., & Berger E., "LSST Target-of-Opportunity Observations of Gravitational Wave Events: Essential and Efficient" 2018, ApJ, 874, 88

Cowperthwaite, P. S., Berger, E., Rest, A., & et al., "The LIGO "Dry-Run": An Empirical Study of Contamination in Wide-Field Optical Follow-Up of Gravitational Wave Events" 2018, ApJ, 858, 18

Cowperthwaite, P. S., Berger, E., Villar, V. A., & 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, ApJL, 848, L17

Cowperthwaite, P. S., Berger, E., Soares-Santos, M., & et al., "A DECam Search for an Optical Counterpart to the LIGO Gravitational-wave Event GW151226" 2016, ApJL, 826, L29

Cowperthwaite, P. S., & Berger, E., "A Comprehensive Study of Detectability and Contamination in Deep Rapid Optical Searches for Gravitational Wave Counterparts" 2015, ApJ, 814, 25

Cowperthwaite, P. S., & Reynolds, C. S. "Nonlinear Dynamics of Accretion Disks with Stochastic Viscosity," 2014, ApJ, 791, 126

Cowperthwaite, P. S., Massaro, F., D'Abrusco, R., & et al., "Identification of New Blazar Candidates With Multifrequency Archival Observations," 2013, AJ, 146, 110

Cowperthwaite, P. S. & Reynolds, C. S., "The Central Engine Structure of 3C120: Evidence for a Retrograde Black Hole or a Refilling Accretion Disk," 2012, ApJ, 752, L21

Presentations

As of October 29, 2019 I have given 32 presentations of which 29 have been talks and 3 have been posters.

References

Prof. Edo Berger (eberger@cfa.harvard.edu; +617-495-7914)
- Professor, Astronomy, Harvard University

Prof. Brian Metzger (bdm2129@columbia.edu; +212-854-9702)
- Associate Professor, Department of Physics, Columbia University

Prof. Raffaella Margutti (raffaella.margutti@northwestern.edu; +847-491-8637)
- Assistant Professor, Department of Physics & Astronomy, Northwestern University

Dr. Tony Piro (piro@carnegiescience.edu; +626-304-0297)
- Staff Astronomer, Carnegie Observatories

Philip S. Cowperthwaite

Publications

Updated Oct 29, 2019. The most recent version of this list may be found online at http://pscastro.com. ADS citation counts are shown in square brackets. I am an author on 51 publications (9 as first author), my h-index is 26 and my publications have 3897 citations.

Publication List

51. EA Huerta, G Allen, I Andreoni, ···, **PS Cowperthwaite**, & et al. *"Enabling real-time multi-messenger astrophysics discoveries with deep learning."* 2019, Nature Reviews Physics 1 600-608 [6].

50. A Hajela, R Margutti, KD Alexander, ···, **PS Cowperthwaite**, & et al. *"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."* 2019, ? [2].

49. W Fong, PK Blanchard, KD Alexander, ···, **PS Cowperthwaite**, & et al. *"The Optical Afterglow of GW170817: An Off-axis Structured Jet and Deep Constraints on a Globular Cluster Origin."* 2019, ApJL 883 L1 [5].

48. S Gomez, G Hosseinzadeh, **PS Cowperthwaite**, & et al. *"A Galaxy-Targeted Search for the Optical Counterpart of the Candidate NS-BH Merger S190814bv with Magellan."* 2019, ApJL 884 L55.

47. S Gomez, E Berger, M Nicholl, ···, **PS Cowperthwaite**, & et al. *"SN 2016iet: The Pulsational or Pair Instability Explosion of a Low-metallicity Massive CO Core Embedded in a Dense Hydrogen-poor Circumstellar Medium."* 2019, ApJ 881 87 [2].

46. G Hosseinzadeh, **PS Cowperthwaite**, S Gomez, & et al. *"Follow-up of the Neutron Star Bearing Gravitational-wave Candidate Events S190425z and S190426c with MMT and SOAR."* 2019, ApJL 880 L4 [6].

45. I Andreoni, S Anand, FB Bianco, ···, **PS Cowperthwaite**, & et al. *"A Strategy for LSST to Unveil a Population of Kilonovae without Gravitational-wave Triggers."* 2019, PASP 131 068004 [7].

44. FB Bianco, MR Drout, ML Graham, ···, **PS Cowperthwaite**, & et al. *"Presto-Color: A Photometric Survey Cadence for Explosive Physics and Fast Transients."* 2019, PASP 131 068002 [2].

43. D Milisavljevic, R Margutti, R Chornock, ···, **PS Cowperthwaite**, & et al. *"Achieving Transformative Understanding of Extreme Stellar Explosions with ELT-enabled Late-time Spectroscopy."* 2019, BAAS 51 481.

42. **PS Cowperthwaite**, HY Chen, B Margalit, & et al. *"Joint Gravitational Wave and Electromagnetic Astronomy with LIGO and LSST in the 2020's."* 2019, BAAS 51 361.

41. J Rho, D Milisavljevic, A Sarangi, ···, **PS Cowperthwaite**, & et al. *"Are Supernovae the Dust Producer in the Early Universe?."* 2019, BAAS 51 351.

40. M Graham, D Milisavljevic, A Rest, ···, **PS Cowperthwaite**, & et al. *"Discovery Frontiers of Explosive Transients: An ELT and LSST Perspective."* 2019, BAAS 51 339.

39. R Foley, KD Alexander, I Andreoni, ···, **PS Cowperthwaite**, & et al. *"Gravity and Light: Combining Gravitational Wave and Electromagnetic Observations in the 2020s."* 2019, BAAS 51 295 [1].

38. R Chornock, **PS Cowperthwaite**, R Margutti, & et al. *"Multi-Messenger Astronomy with Extremely Large Telescopes."* 2019, BAAS 51 237 [1].

37. M Soares-Santos, A Palmese, W Hartley, ···, **PS Cowperthwaite**, & et al. *"First Measurement of the Hubble Constant from a Dark Standard Siren using the Dark Energy Survey Galaxies and the LIGO/Virgo Binary Black-hole Merger GW170814."* 2019, ApJL 876 L7 [27].

36. **PS Cowperthwaite**, VA Villar, DM Scolnic, E Berger, & et al. *"LSST Target-of-opportunity Observations of Gravitational-wave Events: Essential and Efficient."* 2019, ApJ 874 88 [11].

35. Z Doctor, R Kessler, K Herner, ···, **PS Cowperthwaite**, & et al. *"A Search for Optical Emission from Binary Black Hole Merger GW170814 with the Dark Energy Camera."* 2019, ApJL 873 L24 [7].

34. A Ginsburg, BM Sipőcz, CE Brasseur, **PS Cowperthwaite**, & et al. *"astroquery: An Astronomical Web-querying Package in Python."* 2019, AJ 157 98 [6].

33. R Margutti, **P Cowperthwaite**, Z Doctor, & et al. *"Target of Opportunity Observations of Gravitational Wave Events with LSST."* 2018, ? [4].

32. KD Alexander, R Margutti, PK Blanchard, ···, **PS Cowperthwaite**, & et al. *"A Decline in the X-Ray through Radio Emission from GW170817 Continues to Support an Off-axis Structured Jet."* 2018, ApJ 863 L18 [75].

31. VA Villar, **PS Cowperthwaite**, E Berger, & et al. *"Spitzer Space Telescope Infrared Observations of the Binary Neutron Star Merger GW170817."* 2018, ApJ 862 L11 [12].

30. J Guillochon, **PS Cowperthwaite**, & et al. *"Open Astronomy Catalogs API."* 2018, Research Notes of the American Astronomical Society 2 27 [2].

29. **PS Cowperthwaite**, E Berger, A Rest, & et al. *"An Empirical Study of Contamination in Deep, Rapid, and Wide-field Optical Follow-up of Gravitational Wave Events."* 2018, ApJ 858 18 [7].

28. R Margutti, KD Alexander, X Xie, ···, **PS Cowperthwaite**, & et al. *"The Binary Neutron Star Event LIGO/Virgo GW170817 160 Days after Merger: Synchrotron Emission across the Electromagnetic Spectrum."* 2018, ApJ 856 L18 [149].

27. M Cantiello, JB Jensen, JP Blakeslee, ···, **PS Cowperthwaite**, & et al. *"A Precise Distance to the Host Galaxy of the Binary Neutron Star Merger GW170817 Using Surface Brightness Fluctuations."* 2018, ApJ 854 L31 [42].

26. D Scolnic, R Kessler, D Brout, **PS Cowperthwaite**, & et al. *"How Many Kilonovae Can Be Found in Past, Present, and Future Survey Data Sets?."* 2018, ApJ 852 L3 [27].

25. VA Villar, J Guillochon, E Berger, ···, **PS Cowperthwaite**, & et al. *"The Combined Ultraviolet, Optical, and Near-infrared Light Curves of the Kilonova Associated with the Binary Neutron Star Merger GW170817: Unified Data Set, Analytic Models, and Physical Implications."* 2017, ApJL 851 L21 [134].

24. C Guidorzi, R Margutti, D Brout, ···, **PS Cowperthwaite**, & et al. *"Improved Constraints on H0 from a Combined Analysis of Gravitational-wave and Electromagnetic Emission from GW170817."* 2017, ApJ 851 L36 [46].

23. BP Abbott, R Abbott, TD Abbott, ···, **PS Cowperthwaite**, & et al. *"A gravitational-wave standard siren measurement of the Hubble constant."* 2017, Nature 551 85-88 [293].

22. W Fong, E Berger, PK Blanchard, ···, **PS Cowperthwaite**, & et al. *"The Electromagnetic Counterpart of the Binary Neutron Star Merger LIGO/Virgo GW170817. VIII. A Comparison to Cosmological Short-duration Gamma-Ray Bursts."* 2017, ApJL 848 L23 [60].

21. PK Blanchard, E Berger, W Fong, ···, **PS Cowperthwaite**, & et al. *"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, ApJL 848 L22 [55].

20. KD Alexander, E Berger, W Fong, ···, **PS Cowperthwaite**, & et al. *"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, ApJL 848 L21 [157].

19. R Margutti, E Berger, W Fong, ···, **PS Cowperthwaite**, & et al. *"The Electromagnetic Counterpart of the Binary Neutron Star Merger LIGO/Virgo GW170817. V. Rising X-Ray Emission from an Off-axis Jet."* 2017, ApJL 848 L20 [183].

18. R Chornock, E Berger, D Kasen, ···, **PS Cowperthwaite**, & et al. *"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, ApJL 848 L19 [179].

17. M Nicholl, E Berger, D Kasen, ···, **PS Cowperthwaite**, & et al. *"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 L18 [164].

16. **PS Cowperthwaite**, E Berger, VA Villar, & et al. *"The Electromagnetic Counterpart of the Binary Neutron Star Merger LIGO/Virgo GW170817. II. UV, Optical, and Near-infrared Light Curves and Comparison to Kilonova Models."* 2017, ApJL 848 L17 [291].

15. M Soares-Santos, DE Holz, J Annis, ···, **PS Cowperthwaite**, & et al. *"The Electromagnetic Counterpart of the Binary Neutron Star Merger LIGO/Virgo GW170817. I. Discovery of the Optical Counterpart Using the Dark Energy Camera."* 2017, ApJL 848 L16 [194].

14. BP Abbott, R Abbott, TD Abbott, ···, **PS Cowperthwaite**, & et al. *"Multi-messenger Observations of a Binary Neutron Star Merger."* 2017, ApJL 848 L12 [1088].

13. R Lunnan, R Chornock, E Berger, ···, **PS Cowperthwaite**, & et al. *"PS1-14bj: A Hydrogen-poor Superluminous Supernova With a Long Rise and Slow Decay."* 2016, ApJ 831 144 [52].

12. M Nicholl, E Berger, R Margutti, ···, **PS Cowperthwaite**, & et al. *"Superluminous Supernova SN 2015bn in the Nebular Phase: Evidence for the Engine-powered Explosion of a Stripped Massive Star."* 2016, ApJL 828 L18 [46].

11. **PS Cowperthwaite**, E Berger, M Soares-Santos, & et al. *"A DECam Search for an Optical Counterpart to the LIGO Gravitational-wave Event GW151226."* 2016, ApJL 826 L29 [40].

10. BP Abbott, R Abbott, TD Abbott, ···, **PS Cowperthwaite**, & et al. *"Supplement: Localization and Broadband Follow-up of the Gravitational-wave Transient GW150914 (2016, ApJL, 826, L13)."* 2016, ApJS 225 8 [41].

9. BP Abbott, R Abbott, TD Abbott, ···, **PS Cowperthwaite**, & et al. *"Localization and Broadband Follow-up of the Gravitational-wave Transient GW150914."* 2016, ApJL 826 L13 [197].

8. M Nicholl, E Berger, SJ Smartt, ···, **PS Cowperthwaite**, & et al. *"SN 2015BN: A Detailed Multi-wavelength View of a Nearby Superluminous Supernova."* 2016, ApJ 826 39 [74].

7. J Annis, M Soares-Santos, E Berger, ···, **PS Cowperthwaite**, & et al. *"A Dark Energy Camera Search for Missing Supergiants in the LMC after the Advanced LIGO Gravitational-wave Event GW150914."* 2016, ApJL 823 L34 [23].

6. M Soares-Santos, R Kessler, E Berger, ···, **PS Cowperthwaite**, & et al. *"A Dark Energy Camera Search for an Optical Counterpart to the First Advanced LIGO Gravitational Wave Event GW150914."* 2016, ApJL 823 L33 [56].

5. **PS Cowperthwaite**, E Berger *"A Comprehensive Study of Detectability and Contamination in Deep Rapid Optical Searches for Gravitational Wave Counterparts."* 2015, ApJ 814 25 [43].

4. **PS Cowperthwaite**, CS Reynolds *"Nonlinear Dynamics of Accretion Disks with Stochastic Viscosity."* 2014, ApJ 791 126 [15].

3. F Massaro, M Giroletti, R D'Abrusco, ⋯, **PS Cowperthwaite**, & et al. *"The Low-frequency Radio Catalog of Flat-spectrum Sources."* 2014, ApJS 213 3 [26].

2. **PS Cowperthwaite**, F Massaro, R D'Abrusco, & et al. *"Identification of New Gamma-Ray Blazar Candidates with Multifrequency Archival Observations."* 2013, AJ 146 110 [14].

1. **PS Cowperthwaite**, CS Reynolds *"The Central Engine Structure of 3C120: Evidence for a Retrograde Black Hole or a Refilling Accretion Disk."* 2012, ApJL 752 L21 [25].

Philip S. Cowperthwaite

List of Presentations

Updated Oct 12, 2019.

Presentation — Talk

2019 Nov	*Department Seminar, Albert Einstein Institute, Potsdam, Germany* "Electromagnetic Follow-Up of Gravitational Wave Events from O3 and Beyond"
2019 Oct	*Hubble Postdoctoral Fellows Workshop, NASA Headquarters, Washington, D.C.* "Electromagnetic Follow-Up of Neutron Star Bearing Gravitational Wave Events from the Third Advanced LIGO and Virgo Observing Run"
2019 May	*LSST Detection of Optical Counterparts of Gravitational Waves Workshop, Columbia University, New York, NY* "Survey Strategies for Kilonovae"
2019 Mar	*Hubble Postdoctoral Fellows Symposium, STScI, Baltimore, MD* "Chasing Optical Counterparts to Gravitational Wave Events with Next-Generation Facilities"
2018 Dec	*Future By The Future Workshop, Columbia University, New York, NY* "Chasing EM Counterparts with Next-Generation Facilities"
2018 Oct	*Deep Learning for Multi-Messenger Astrophysics, Urbana, Illinois* "Finding Kilonovae In Next Generation Wide-Field Surveys"
2018 Aug	*TeVPA 2018, Berlin, Germany* "An r-process Kilonova Associated with the Gravitational Wave Event GW170817"
2018 June	*Carnegie Tea Talk, Carnegie Observatories, Pasadena, CA* "Prospects For GW-EM Astronomy In The Next Decade"
2018 May	*Fireman Prize Talk, Harvard, Cambridge, MA* "From Design to Detection: Joint Gravitational Wave and Electromagnetic Astronomy"
2018 May	*Sackler Conference 2018: Gravitational Wave Astrophysics, Cambridge, MA* "Panelist on Future of EM Follow-Up"
2018 April	*Harvard Public Thesis Defense, Harvard, Cambridge, MA* "From Design to Detection: Joint Gravitational Wave and Electromagnetic Astronomy"
2017 Dec	*ITC Luncheon Talk, Harvard, Cambridge, MA* "Local Cosmology with Gravitational Waves"
2017 Nov	*BHI Journal Club, Harvard, Cambridge, MA* "GW170817: Light Curves and Modeling"
2017 Nov	*CosmoFest, Harvard, Cambridge, MA* "Local Cosmology with Gravitational Waves"
2017 Nov	*High Energy Lunch Talk, Harvard, Cambridge, MA* "An r-process Kilonova Associated with the Gravitational Wave Event GW170817"
2017 Oct	*Thunch Talk, Princeton, Princeton, NJ* "GW170817: The Dawn of Joint Gravitational Wave and Electromagnetic Astronomy"
2017 Oct	*ITC Luncheon Talk, Harvard, Cambridge, MA* "GW170817: Light Curves and Modeling"
2017 Oct	*Monday Tea Talk, Caltech, Pasadena, CA* "GW170817: The First Joint Gravitational Wave and Electromagnetic Detection"
2017 Oct	*Lunch Talk, Carnegie Observatories, Pasadena, CA* "Deep and Rapid Optical Follow-Up of GW Triggers with DECam"
2017 Oct	*Astrophysics Seminar, Fermilab, Batavia, IL* "Deep and Rapid Optical Follow-Up of GW Triggers with DECam"
2017 Sep	*Theory Lunch, Northwestern University, Evanston, IL* "Deep and Rapid Optical Follow-Up of GW Triggers with DECam"
2017 Sep	*CTC Theory Lunch, UMD, College Park, MD* "Deep and Rapid Optical Follow-Up of GW Triggers with DECam"

2017 Aug *INT Workshop and Conference, University of Washington, Seattle, WA*
"Deep and Rapid Optical Follow-Up of GW Triggers with DECam"

2017 Aug *INT Workshop and Conference, University of Washington, Seattle, WA*
"Overview: EM Observations of Kilonovae"

2016 Nov *Time-Domain Astronomy Workshop, Radcliffe Institute, Cambridge, MA*
"Deep and Rapid Optical Follow-Up of GW Triggers with DECam"

2016 Jun *GWPAW Workshop 2016, Cape Code, MA*
"DECam Searches for Optical Counterparts to Gravitational Wave Events"

2016 Apr *APS April Meeting 2016, Salt Lake City, UT*
"Identifying Electromagnetic Counterparts to Gravitational Wave Triggers With DECam"

2015 Jun *GWPAW Workshop 2015, Osaka, Japan*
"A Comprehensive Study of Detectability and Contamination in Deep Rapid Optical Searches for Gravitational Wave Counterparts"

2012 Aug *Summer REU Colloquium Series, Harvard-Smithsonian CfA, Cambridge, MA*
"The Spitzer View of WISE selected blazars"

Presentation — Poster

2015 Jun *GWPAW Workshop 2015, Osaka, Japan*
"A Comprehensive Study of Detectability and Contamination in Deep Rapid Optical Searches for Gravitational Wave Counterparts"

2013 Jan *221st AAS Meeting, Long Beach, CA*
"Piercing the Continuum of WISE selected blazars"

2012 Jun *Energetic Astronomy, JSI Workshop, Annapolis MD*
"The Central Engine Structure of 3c120: Evidence for a Retrograde Black Hole or a Refilling Accretion Disk"