

Philip S. Cowperthwaite

CONTACT INFORMATION	Philip S. Cowperthwaite Department of Astronomy Harvard University Cambridge, MA 02138	<i>Office:</i> +1-617-495-4141 <i>Mobile:</i> +1-301-788-3369 <i>E-mail:</i> pcowpert@cfa.harvard.edu
CITIZENSHIP	USA	
RESEARCH INTERESTS	Electromagnetic counterparts to gravitational wave events. Contamination in optical transient surveys. Optical survey design and optimization.	
EDUCATION	Harvard University , Cambridge, Massachusetts USA M.S., Astronomy, Spring 2015 Ph.D., Astronomy, Expected Spring 2018 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 <ul style="list-style-type: none">• Minor in Mathematics	
AWARDS	Harvard University <ul style="list-style-type: none">• Merit Fellowship 2017–2018• John Parker Bequest Grant 2017–2018• John P. and Carol J. Merrill Graduate Fellow, 2014–15 National Science Foundation <ul style="list-style-type: none">• Graduate Research Fellowship, 2013–18 (Funded: 2013–2016)• Research Experience for Undergraduates Summer Fellowship, 2012 University of Maryland, College Park <ul style="list-style-type: none">• University Medal Finalist, 2013• J.R. Dorfman Prize for Outstanding Undergraduate Research, 2013 Center for Research and Exploration in Space Science and Technology <ul style="list-style-type: none">• Summer Research Fellowship, 2011 The State of Maryland <ul style="list-style-type: none">• Howard P. Rawlings Grant, 2010–12• Maryland Delegates Grant, 2010–12	
MEMBERSHIPS	ComSciCon - Local Organizing Committee 2017 American Physical Society – Member American Astronomical Society – Junior Member	
RESEARCH EXPERIENCE	NSF Graduate Research Fellow , Harvard University <i>Optical Follow-Up of Gravitational Wave Events</i> <ul style="list-style-type: none">• Advisor: Prof. Edo Berger	Fall 2013 to Present

	<p>REU Summer Research Internship, Smithsonian Astrophysical Observatory</p> <p><i>Infrared Spectroscopy of Blazars</i> Summer 2012</p> <ul style="list-style-type: none"> • Advisors: Drs. Howard A. Smith and Raffaele D’Abrusco
	<p>Undergraduate Research Assistant, The University of Maryland, College Park</p> <p><i>Numerical Simulations of Accretion Flows</i> Fall 2012 to Summer 2013</p> <ul style="list-style-type: none"> • Advisor: Prof. Christopher S. Reynolds • Senior Thesis, Awarded High Honors <p><i>X-Ray Spectroscopy of Active Galactic Nuclei</i> Fall 2010 to Spring 2012</p> <ul style="list-style-type: none"> • Advisor: Prof. Christopher S. Reynolds • Joint Space Science Institute Undergraduate Research Scholar <p><i>Visualizations of Black Hole Accretion Flows</i> Spring 2010 to Fall 2010</p> <ul style="list-style-type: none"> • Advisor: Prof. Christopher S. Reynolds
	<p>CRESST Summer Research Internship, NASA/Goddard Space Flight Center</p> <p><i>Visualizations of Merging Black Hole Binaries</i> Summer 2011</p> <ul style="list-style-type: none"> • Advisors: Drs. John Baker and Bruno Giacomazzo
MENTORING EXPERIENCE	<p>Harvard University, Cambridge, Massachusetts USA</p> <p><i>Research Advisor for Undergraduates</i></p> <ul style="list-style-type: none"> • Mahlet Shiferaw – Galaxy Catalogs for GW/EM Targeted Follow-Up – Summer 2017 • Samuel Liu – Data Science Techniques for Light Curve Analysis – Summer 2016
TEACHING EXPERIENCE	<p>Harvard University, Cambridge, Massachusetts USA</p> <p><i>Graduate Teaching Fellow</i></p> <ul style="list-style-type: none"> • Astronomy 16 – Stellar and Planetary Astronomy – Spring 2016 • Astronomy 200 – Radiative Processes – Spring 2014 <p>University of Maryland College Park, College Park, Maryland USA</p> <p><i>Undergraduate Teaching Assistant</i></p> <ul style="list-style-type: none"> • Astronomy 100 – Introduction to Astronomy – Fall 2011 to Spring 2013 • Astronomy 120 – Introductory Astrophysics – Fall 2012 (Grader)
OBSERVATIONAL EXPERIENCE	<p>Blanco Telescope, Cerro Tololo Inter-American Observatory, Chile</p> <ul style="list-style-type: none"> • DECam – DES-GW LIGO Follow-up 2017B Semester – 20 hours • DECam – DES-GW LIGO Follow-up 2017A Semester – 25 hours • DECam – DES-GW LIGO Follow-up 2016B Semester – 50 hours • DECam – DES-GW LIGO Follow-up 2015B Semester – 30 hours <p>Magellan Telescope, Las Campanas Observatory, Chile</p> <ul style="list-style-type: none"> • Clay 6.5m – LDSS3-C – 3 nights • Baade 6.5m – IMACS – 8 nights <p>MMT, Fred Lawrence Whipple Observatory, USA</p> <ul style="list-style-type: none"> • BlueChannel – 3 nights

TECHNICAL SKILLS Programming: Python, R, C/C++, Perl, Mathematica, MATLAB, Git

Science Applications: SAO DS9, HEASoft, *Spitzer* SMART software, IDL Astrolib Tools, VISIT, Gnuplot, IRAF

PUBLISHED
WORKS

Cowperthwaite, P. S., & Berger, E., “The LIGO “Dry-Run”: An Empirical Study of Contamination in Wide-Field Optical Follow-Up of Gravitational Wave Events” 2017, *In Prep*

Lunnan, R.; Chornock, R.; Berger, E.; Milisavljevic, D.; Jones, D. O.; Rest, A.; Fong, W.; Fransson, C.; Margutti, R.; Drout, M. R.; Blanchard, P. K.; Challis, P.; Cowperthwaite, P. S.; & et al., “PS1-14bj: A Hydrogen-poor Superluminous Supernova With a Long Rise and Slow Decay” 2016, *ApJ*, 831, 144

Nicholl, M.; Berger, E.; Margutti, R.; Chornock, R.; Blanchard, P. K.; Jerkstrand, A.; Smartt, S. J.; Arcavi, I.; Challis, P.; Chambers, K. C.; Chen, T. -W.; Cowperthwaite, P. S.; & et al., “Superluminous Supernova SN 2015bn in the Nebular Phase: Evidence for the Engine-powered Explosion of a Stripped Massive Star” 2016, *ApJ*, 828, 18

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*, 826L, 29

Abbott, B. P., Abbot, R., Abbott, T.D., & et al., “Supplement: Localization and Broadband Follow-up of the Gravitational-wave Transient GW150914” 2016, *ApJS* , 225, 8 (Author List Alphabetical, Truncated)

Abbott, B. P., Abbot, R., Abbott, T.D., & et al., “Localization and Broadband Follow-up of the Gravitational-wave Transient GW150914” 2016, *ApJL* , 826L, 13A (Author List Alphabetical, Truncated)

Nicholl, M., Berger, E., Smartt, S. J., Margutti, R., Kamble, A., Alexander, K. D., Chen, T. -W., Inserra, C., Arcavi, I., Blanchard, P. K., Cartier, R., Chambers, K. C., Childress, M. J., Chornock, R., Cowperthwaite, P. S., & et al., “SN 2015BN: A Detailed Multi-wavelength View of a Nearby Superluminous Supernova” 2016, *ApJ*, 826, 39

Annis, J., Soares-Santos, M., Berger, E., Brout, D., Chen, H., Chornock, R., Cowperthwaite, P. S., & et al., “A Dark Energy Camera Search for Missing Supergiants in the LMC after the Advanced LIGO Gravitational-wave Event GW150914” 2016, *ApJL*, 823L, 34

Soares-Santos, M., Kessler, R., Berger, E., Annis, J., Brout, D., Buckley-Geer, E., Chen, H., Cowperthwaite, P. S., & et al., “A Dark Energy Camera Search for an Optical Counterpart to the First Advanced LIGO Gravitational Wave Event GW150914” 2016, *ApJL*, 823L, 33

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

Massaro, F., Giroletti, M., D’Abrusco, R., Masetti, N., Paggi, A., Cowperthwaite, P. S., & et al., “The Low-frequency Radio Catalog of Flat-spectrum Sources,” 2014, ApJS, 213, 3

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

CONFERENCES
AND
PRESENTATIONS

August 2017 , “CTC Theory Lunch, UMD Department of Astronomy” College Park, MD

- Talk Given: “Deep and Rapid Optical Follow-Up of GW Triggers with DECam”

August 2017 , “Electromagnetic Signatures of r-process Nucleosynthesis in Neutron Star Binary Mergers” Seattle, WA

- Talk Given: “Overview: EM Observations of Kilonovae”
- Talk Given: “Deep and Rapid Optical Follow-Up of GW Triggers with DECam”

June 2017 , “Generation-GW: Diving into Gravitational Waves” St. Thomas, USVI

- Talk Given: “Deep and Rapid Optical Follow-Up of GW Triggers with DECam”

November 2016 , “Time-Domain Astrophysics: Incorporating Observations, Theory, and Computation in the American Northeast” Cambridge, MA

- Talk Given: “The State of Optical follow-up of GW Events”

June 2016 , “Gravitational Wave and Astronomy Workshop 2016” Cape Cod, MA

- Talk Given: “DECam Searches for Optical Counterparts to Gravitational Wave Events”

April 2016 , “APS April Meeting 2016” Salt Lake City, Utah

- Talk Given: ”Identifying Electromagnetic Counterparts to Gravitational Wave Triggers With DECam.”

June 2015 , “Gravitational Wave and Astronomy Workshop 2015” Osaka, Japan

- Award Talk Given: “A Comprehensive Study of Detectability and Contamination in Deep Rapid Optical Searches for Gravitational Wave Counterparts”
- Poster Presented: “A Comprehensive Study of Detectability and Contamination in Deep Rapid Optical Searches for Gravitational Wave Counterparts”
- Poster Award: 2nd place

January 2013 , “221st AAS Meeting” Long Beach, CA

- Poster Presented: “Piercing the Continuum of *WISE* selected blazars”

August 2012, “Summer REU Colloquium Series”, Smithsonian Astrophysical Observatory, Cambridge, MA.

- Talk given: “The *Spitzer* view of *WISE* selected blazars”

June 2012, “Energetic Astronomy” Annapolis, MD

- Poster Presented: “The Central Engine Structure of 3C120: Evidence for a Retrograde Black Hole or a Refilling Accretion Disk”

REFERENCES

Prof. Edo Berger (e-mail: eberger@cfa.harvard.edu; phone: +617-495-7914)

- Professor, [Astronomy, Harvard University](#)

Prof. Brian Metzger (e-mail: bdm2129@columbia.edu; phone: +212-854-9702)

- Assistant Professor, [Department of Physics, Columbia University](#)

Prof. Daniel E. Holz (e-mail: dholz@uchicago.edu; phone: +773-834-3306)

- Associate Professor, [KICP, The University of Chicago](#)

Prof. Daniel Eisenstein (e-mail: deisenstein@cfa.harvard.edu; phone: +617-495-7530)

- Professor, [Astronomy, Harvard University](#)