

Curriculum Vitae - **Peter K. Blanchard**
National Science Foundation Graduate Research Fellow
Harvard-Smithsonian Center for Astrophysics
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Research Interests

Time-Domain Astrophysics (with a focus on rare transients)
Superluminous Supernovae
Gamma-Ray Bursts
Tidal Disruption Events
EM Counterparts of GW events
Transient Host Galaxies

Research Positions

National Science Foundation Graduate Research Fellow	2014 – present
Research Assistant, University of California, Berkeley <i>Advisor:</i> Dr. Alex Filippenko <i>Topics:</i> Supernova discovery with the Katzman Automatic Imaging Telescope and supernova follow-up with the Lick Observatory Nickel Telescope	2010 – 2013
Research Assistant, Harvard-Smithsonian Center for Astrophysics REU Program <i>Advisors:</i> Dr. Matthew Bayliss and Dr. Michael McDonald <i>Topic:</i> Searching for cooling signatures in strong lensing galaxy clusters	2012

Education

Harvard University, Ph.D. Astrophysics in progress <i>Advisor:</i> Dr. Edo Berger	conferral expected in May 2019
Harvard University, M.A. Astrophysics	2015
University of California, Berkeley, B.A. Physics and Astrophysics	2013

Fellowships and Awards

NSF Graduate Research Fellowship	2014 – present
Harvard University, Astronomy Department, Peirce Fellowship	2013
Highest Distinction in General Scholarship at Graduation, UC Berkeley	2013
UC Berkeley Astronomy Department Commencement Speaker and Citation Award	2013

Publications (see attached publication list)

6 first author (5 published, 1 submitted), 29 co-author

Successful PI Observing Proposals

Spectroscopic and Photometric Follow-up of SLSNe and TDEs

- 25 nights MMT 6.5m, 14 nights Magellan 6.5m, 24 nights FLWO 60-inch, 30 nights FLWO 48-inch in 2016B, 2016C, 2017A, 2017B, 2017C, 2018A, 2018B, and 2018C

UV Spectroscopy of the Nearby Superluminous Supernova SN2018bsz (PID 15488)

- 2 *HST* orbits with COS/FUV, 1 orbit with STIS/NUV in Cycle 25 (Director's Discretionary Time program)
- X-ray Study of a Tidal Disruption Event in an AGN Galaxy
- 20ks with *Chandra* in Cycle 20
- Nebular Phase Spectrum of an Unusual Superluminous Supernova
- 2 hours with Gemini/GMOS (Fast Turnaround program)
- Constraining the Late-Time Lightcurve Behavior of Three Diverse Superluminous Supernovae (PID 15162)
- 9 *HST* orbits of ACS/WFC (6 orbits in Cycle 25 and 3 orbits in Cycle 26)
- Chasing Two Superluminous Supernovae into the Nebular Phase
- 4 hours with Gemini/GMOS (Fast Turnaround program)
- Imaging and UV Spectroscopy of the Luminous and Unique Nuclear Transient PS16dtm (PID 14902)
- 1 *HST* orbit of STIS spectroscopy and imaging in Cycle 24 (Director's Discretionary Time program)
- Chasing a Fast Timescale Type I Superluminous Supernova into the Nebular Phase
- 2.5 hours with Gemini/GMOS (Fast Turnaround program)

Academic Presentations

Conference Presentations

Alex Filippenko's 60th Birthday Symposium (Aptos, CA), <i>poster</i>	Aug 2018
UC Santa Cruz Pre-Filippenkopalooza Meeting, <i>talk</i>	Aug 2018
Unveiling the Physics Behind Extreme AGN Variability (USVI), <i>talk</i>	Jul 2017
MIAPP Workshop on Superluminous Supernovae (Munich, Germany), <i>talk</i>	May 2017
Harvard Radcliffe Transients Workshop, <i>talk</i>	Nov 2016
Mysterious Connections Between SLSNe and GRBs (STScI), <i>talk</i>	May 2016
Time Domain Astrophysics with Swift (Clemson University, SC), <i>talk</i>	Oct 2015
<i>HST</i> 25th Anniversary Symposium (STScI), <i>poster</i>	Apr 2015
225th American Astronomical Society Meeting (Seattle, WA), <i>poster</i>	Jan 2015
221st American Astronomical Society Meeting (Long Beach, CA), <i>poster</i>	Jan 2013

Department Seminars

NOAO FLASH seminar, <i>talk</i>	Oct 2018
Northwestern University CIERA Theory Lunch, <i>talk</i>	Oct 2018
Dunlap Institute, University of Toronto, Special Seminar, <i>talk</i>	Oct 2018
Caltech Astronomy Tea Talk, <i>talk</i>	Sept 2018
Carnegie Observatories Lunch Talk, <i>talk</i>	Sept 2018
Harvard-Smithsonian CfA ITC Lunch, <i>talk</i>	Apr 2017
Harvard-Smithsonian CfA High-Energy Phenomena Seminar, <i>talk</i>	Dec 2015
Harvard AstroStats Group, invited talk	Oct 2015
Harvard-Smithsonian CfA REU Symposium, <i>talk</i>	Aug 2012

Public Presentations

Harvard-Smithsonian CfA Observatory Night, <i>talk</i>	Feb 2018
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Teaching

Harvard University Certificate of Distinction in Teaching	2014, 2016
Harvard College, Astro 100: Observational Methods, Teaching Fellow	2016

Harvard College, SPU 21: Stellar Understanding of the Cosmos, Teaching Fellow 2014

Service and Outreach

Reviewer for The Astrophysical Journal 2018 – present

Harvard-Smithsonian Center for Astrophysics Observatory Night 2015 – present

- Assist with public outreach program that includes a lecture followed by observing with telescopes

Mentor for a CfA REU Student 2015

Harvard Observing Project 2014 – 2015

- Conducted observing sessions to engage Harvard community members in astronomy

Bryce Canyon National Park Astronomy Volunteer 2010

- Conducted stargazing programs for park visitors

Professional Organizations

American Astronomical Society member 2012 – present

Observing Experience

Optical Imaging and Long-Slit Spectroscopy

- 43 nights: MMT 6.5m (Blue Channel, Binospec, MMTCam), Magellan 6.5m (IMACS, LDSS3c), FLWO 60-inch (FAST)
- 20+ nights: Nickel and Shane Telescopes at Lick Observatory

Optical Echelle Spectroscopy

- 1 night: Magellan 6.5m (MagE)

NIR Imaging and Spectroscopy

- 4 nights: Magellan 6.5m (FourStar, FIRE)

Publications (6 first author, 29 co-author)

First Author Journal Publications

1. **Blanchard, P. K.**, Nicholl, M., Berger, E., et al. 2018, “The Type I Superluminous Supernova PS16aqv: Lightcurve Complexity and Deep Limits on Radioactive Ejecta in a Fast Event”, *ApJ*, 865, 9
2. **Blanchard, P. K.**, Berger, E., Fong, W., et al. 2017, “The Electromagnetic Counterpart of the Binary Neutron Star Merger LIGO/Virgo GW170817. VII. Properties of the Host Galaxy and Constraints on the Merger Timescale”, *ApJ*, 848, L22
3. **Blanchard, P. K.**, Nicholl, M., Berger, E., et al. 2017, “PS16dtm: A Tidal Disruption Event in a Narrow-line Seyfert 1 Galaxy”, *ApJ*, 843, 106
4. **Blanchard, P. K.**, Berger, E., & Fong, W. 2016, “The Offset and Host Light Distributions of Long Gamma-Ray Bursts: A New View From *HST* Observations of *Swift* Bursts”, *ApJ*, 817, 144
5. **Blanchard, P. K.**, Bayliss, M. B., McDonald, M., et al. 2013, “Searching for Cooling Signatures in Strong Lensing Galaxy Clusters: Evidence Against Baryons Shaping the Matter Distribution in Cluster Cores”, *ApJ*, 772, 24

First Author Journal Submissions

1. **Blanchard, P. K.**, Nicholl, M., Berger, E., et al. 2018, “A Hydrogen-Poor Superluminous Supernova with Enhanced Iron-Group Absorption: A New Link Between SLSNe and Broad-Lined Type Ic SNe”, arXiv:1810.11051, *Submitted to ApJ*

Co-Author Journal Publications

1. Margutti, R., et al. (*incl.* **Blanchard, P. K.**) 2018, “An embedded X-ray source shines through the aspherical AT2018cow: revealing the inner workings of the most luminous fast-evolving optical transients”, arXiv:1810.10720, *Submitted to ApJ*
2. Nicholl, M., **Blanchard, P. K.**, Berger, E., et al. 2018, “One Thousand Days of SN2015bn: HST Imaging Shows a Light Curve Flattening Consistent with Magnetar Predictions”, *ApJ*, 866, L24
3. Nicholl, M., Berger, E., **Blanchard, P. K.**, et al. 2018, “Nebular-phase spectra of superluminous supernovae: physical insights from observational and statistical properties”, arXiv:1808.00510, *Submitted to ApJ*
4. Alexander, K. D., Margutti, R., **Blanchard, P. K.**, et al. 2018, “A Decline in the X-Ray through Radio Emission from GW170817 Continues to Support an Off-axis Structured Jet”, *ApJ*, 863, L18
5. Villar, V. A., et al. (*incl.* **Blanchard, P. K.**) 2018, “Spitzer Space Telescope Infrared Observations of the Binary Neutron Star Merger GW170817”, *ApJ*, 862, L11
6. Eftekhari, T., et al. (*incl.* **Blanchard, P. K.**) 2018, “Associating Fast Radio Bursts with Extragalactic Radio Sources: General Methodology and a Search for a Counterpart to FRB 170107”, *ApJ*, 860, 73
7. Margutti, R., et al. (*incl.* **Blanchard, P. K.**) 2018, “The Binary Neutron Star Event LIGO/Virgo GW170817 160 Days after Merger: Synchrotron Emission across the Electromagnetic Spectrum”, *ApJ*, 856, L18
8. Coppejans, D. L., et al. (*incl.* **Blanchard, P. K.**) 2018, “Jets in Hydrogen-poor Superluminous Supernovae: Constraints from a Comprehensive Analysis of Radio Observations”, *ApJ*, 856, 56
9. Cantiello, M., et al. (*incl.* **Blanchard, P. K.**) 2018, “A Precise Distance to the Host Galaxy of the Binary Neutron Star Merger GW170817 Using Surface Brightness Fluctuations”, *ApJ*, 854, L31
10. Guidorzi, C., et al. (*incl.* **Blanchard, P. K.**) 2017, “Improved Constraints on H_0 from a Combined Analysis of Gravitational-wave and Electromagnetic Emission from GW170817”, *ApJ*, 851, L36
11. Villar, V. A., et al. (*incl.* **Blanchard, P. K.**) 2017, “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”, *ApJ*, 851, L21

12. Abbott, B. P., et al. (*incl.* **Blanchard, P. K.**) 2017, “A gravitational-wave standard siren measurement of the Hubble constant”, *Nature*, 551, 85
13. Fong, W., Berger, E., **Blanchard, P. K.**, et al. 2017, “The Electromagnetic Counterpart of the Binary Neutron Star Merger LIGO/Virgo GW170817. VIII. A Comparison to Cosmological Short-duration Gamma-Ray Bursts”, *ApJ*, 848, L23
14. Alexander, K. D., et al. (*incl.* **Blanchard, P. K.**) 2017, “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”, *ApJ*, 848, L21
15. Margutti, R., et al. (*incl.* **Blanchard, P. K.**) 2017, “The Electromagnetic Counterpart of the Binary Neutron Star Merger LIGO/Virgo GW170817. V. Rising X-Ray Emission from an Off-axis Jet”, *ApJ*, 848, L20
16. Chornock, R., et al. (*incl.* **Blanchard, P. K.**) 2017, “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”, *ApJ*, 848, L19
17. Nicholl, M., et al. (*incl.* **Blanchard, P. K.**) 2017, “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”, *ApJ*, 848, L18
18. Cowperthwaite, P. S., et al. (*incl.* **Blanchard, P. K.**) 2017, “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”, *ApJ*, 848, L17
19. Soares-Santos, M., et al. (*incl.* **Blanchard, P. K.**) 2017, “The Electromagnetic Counterpart of the Binary Neutron Star Merger LIGO/Virgo GW170817. I. Discovery of the Optical Counterpart Using the Dark Energy Camera”, *ApJ*, 848, L16
20. Abbott, B. P., et al. (*incl.* **Blanchard, P. K.**) 2017, “Multi-messenger Observations of a Binary Neutron Star Merger”, *ApJ*, 848, L12
21. Nicholl, M., et al. (*incl.* **Blanchard, P. K.**) 2017, “The Superluminous Supernova SN 2017egm in the Nearby Galaxy NGC 3191: A Metal-rich Environment Can Support a Typical SLSN Evolution”, *ApJ*, 845, L8
22. Margutti, R., et al. (*incl.* **Blanchard, P. K.**) 2017, “X-Rays from the Location of the Double-humped Transient ASASSN-15lh”, *ApJ*, 836, 25
23. Nicholl, M., et al. (*incl.* **Blanchard, P. K.**) 2017, “An Ultraviolet Excess in the Superluminous Supernova Gaia16apd Reveals a Powerful Central Engine”, *ApJ*, 835, L8
24. Fong, W., et al. (*incl.* **Blanchard, P. K.**) 2016, “The Afterglow and Early-type Host Galaxy of the Short GRB 150101B at $z = 0.1343$ ”, *ApJ*, 833, 151
25. Lunnan, R., et al. (*incl.* **Blanchard, P. K.**) 2016, “PS1-14bj: A Hydrogen-poor Superluminous Supernova With a Long Rise and Slow Decay”, *ApJ*, 831, 144

26. Villar, V. A., et al. (*incl.* **Blanchard, P. K.**) 2016, “The Intermediate Luminosity Optical Transient SN 2010da: The Progenitor, Eruption, and Aftermath of a Peculiar Supergiant High-mass X-Ray Binary”, ApJ, 830, 11
27. Nicholl, M., et al. (*incl.* **Blanchard, P. K.**) 2016, “Superluminous Supernova SN 2015bn in the Nebular Phase: Evidence for the Engine-powered Explosion of a Stripped Massive Star”, ApJ, 828, L18
28. Nicholl, M., et al. (*incl.* **Blanchard, P. K.**) 2016, “SN 2015BN: A Detailed Multi-wavelength View of a Nearby Superluminous Supernova”, ApJ, 826, 39
29. Mauerhan, J. C., et al. (*incl.* **Blanchard, P. K.**) 2013, “The unprecedented 2012 outburst of SN 2009ip: a luminous blue variable star becomes a true supernova”, MNRAS, 430, 1801