Anna Y. Q. Ho

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EDUCATION & APPOINTMENTS

2020–Present	Miller Fellow, U.C. Berkeley
2020–Present	Affiliate, Lawrence Berkeley National Laboratory
2020	Ph.D., California Institute of Technology, Astrophysics
	• Thesis: *The Landscape of Relativistic Stellar Explosions*
	• Advisor: Prof. Shri Kulkarni
2017	M.S., California Institute of Technology, Astrophysics
2014	B.S., Massachusetts Institute of Technology, Physics

FELLOWSHIPS AND AWARDS

2020	AAS Rodger Doxsey Travel Prize
2014–2019	National Science Foundation Graduate Research Fellowship
2019	Keck Institute for Space Studies Affiliate
2017	Garmire Scholarship, Caltech
2014–2015	Fulbright Student Research Grant
2014	MIT Karl Taylor Compton Prize
2014	MIT Ida M. Green Fellowship
2013	First Place, MIT DeWitt Wallace Prize for Science Writing for the Public
2012	MIT Burchard Scholar

PUBLISHED PAPERS IN REFEREED JOURNALS

First Author

[1] **Ho, A. Y. Q.**, Perley, D. A., Beniamini, P., et al. 2020, *ZTF20aajnksq (AT 2020blt): A Fast Optical Transient at $z \approx 2.9$ With No Detected Gamma-Ray Burst Counterpart*, The Astrophysical Journal, **905**, 98 (arXiv:2004.10406)

[2] **Ho, A. Y. Q.**, Kulkarni, S., R., et al. 2020, *SN2020bvc: a Broad-lined Type Ic Supernova with a Double-peaked Optical Light Curve and a Luminous X-ray and Radio Counterpart*, The Astrophysical Journal, **901**, 1 (arXiv:2004.10406)

[3] **Ho, A. Y. Q.**, Perley, D. A., et al. 2020, *The Koala: A Fast Blue Optical Transient with Luminous Radio Emission from a Starburst Dwarf Galaxy at $z = 0.27$*, The Astrophysical Journal, **895**, 1 (arXiv:1912.10354)

[4] **Ho, A. Y. Q.**, Corsi, A., et al. 2020, *The Broad-lined Ic Supernova ZTF18aaqjovh (SN 2018bvw): An Optically-discovered Engine-driven Supernova Candidate with Luminous Radio Emission*, The Astrophysical Journal, **893**, 132 (arXiv:1912.10354)

[5] **Ho, A. Y. Q.**, Goldstein, D. A., Schulze, S., et al. 2019, *Evidence for Late-stage Eruptive Mass-loss in the Progenitor to SN2018gep, a Broad-lined Ic Supernova: Pre-explosion Emission and a Rapidly Rising Luminous Transient*, The Astrophysical Journal, **887**, 169H (arXiv:1904.11009)

[6] **Ho, A. Y. Q.**, Phinney, E. S., Ravi, V., et al. 2019, *AT2018cow: a luminous millimeter transient*, The Astrophysical Journal, **871**, 73 (arXiv:1810.10880)

[7] **Ho, A. Y. Q.**, Kulkarni, S.R., Nugent, P. E. et al. 2018, *iPTF Archival Search for Fast Optical Transients*, The Astrophysical Journal Letters, **854**, 13 (arXiv:1712.00949)

[8] **Ho, A. Y. Q.**, Rix, H.-W., Ness, M. K., Hogg, D. W., et al. 2017, *Masses and Ages for 230,000 LAMOST Giants, via Their Carbon and Nitrogen Abundances*, The Astrophysical Journal, **841**, 40 (arXiv:1609.03195)

[9] **Ho, A. Y. Q.**, Ness, M. K., Hogg, D. W., et al. 2017, *Label Transfer from APOGEE to LAMOST: Precise Stellar Parameters for 450,000 LAMOST Giants*, The Astrophysical Journal, **836**, 5 (arXiv:1602.00303)

Selected Co-author

[1] De, K., et al. 2020, The Astrophysical Journal, *The Zwicky Transient Facility Census of the Local Universe I: Systematic search for Calcium rich gap transients reveal three related spectroscopic sub-classes*, The Astrophysical Journal, **905**, 58 (arXiv:2004.09029)

[2] Perley, D. A., et al. 2020, ApJ, *The Zwicky Transient Facility Bright Transient Survey. II. A Public Statistical Sample for Exploring Supernova Demographics* , The Astrophysical Journal, **904**, 35 (arXiv:2009.01242)

[3] Duffell, P. C. & **Ho, A. Y. Q.** 2020, *How Dense a CSM is Sufficient to Choke a Jet?*, The Astrophysical Journal, **900**, 193

[4] Szkody, P., Dicenzo, B., **Ho, A. Y. Q.**, et al. 2020, *Cataclysmic Variables from the First Year of the Zwicky Transient Facility*, Astronomical Journal, **159**, 198 (arXiv:2002.08447)

[5] Casey, A.R., **Ho, A. Y. Q.**, et al. 2019, *Tidal interactions between binary stars drives lithium production in low-mass red giants*, The Astrophysical Journal, **880**, 125 (arXiv:1902.04102)

[6] Graham, M. J. et al. 2019, *The Zwicky Transient Facility: Science Objectives*, Publications of the Astronomical Society of the Pacific, 131, 078001 (arXiv:1902.01945)

[7] Bellm, E. C. et al. 2019, *The Zwicky Transient Facility: System Overview, Performance, and First Results*, Publications of the Astronomical Society of the Pacific, 131, 018002 (arXiv:1902.01932)

[8] Ting, Y.-S., et al. 2017, *Measuring 14 Elemental Abundances with $R = 1800$ LAMOST Spectra*, The Astrophysical Journal Letters, **849**, L9 (arXiv:1708.01758)

[9] Hogg, D. W., et al. 2016, *Chemical tagging can work: Identification of stellar phase-space structures purely by chemical-abundance similarity*, The Astrophysical Journal, **833**, 262 (arXiv:1601.05413)

[10] Ness, M., et al. 2016, *Spectroscopic Determination of Masses (and Implied Ages) for Red Giants*, The Astrophysical Journal, **823**, 114 (arXiv:1511.08204)

[11] Ness, M., et al. 2015, *The Cannon: A data-driven approach to stellar label determination*, The Astrophysical Journal, **808**, 16 (arXiv:1501.07604)

SELECTED PUBLICITY

2021	**Quanta**, *New Kind of Space Explosion Reveals the Birth of a Black Hole*
2020	**Science News**, *A weird cosmic flare called the Cow now has company*
2020	**Science Daily**, *Astronomers discover new class of cosmic explosions*
2020	**Sky & Telescope**, *Two New Beasts for an Explosive Zoo*
2019	**Science News**, *The cosmic Cow may be a strange supernova*
2019	**The Washington Post**, *Scientists had never seen anything like this supernova*
2019	**WIRED**, *We may have finally spotted a star turning into a black hole*
2018	**Nature News**, *Holy Cow! Astronomers agog at mysterious new supernova*

PROFESSIONAL SERVICE

2019–Present	Referee/reviewer for ApJ, MNRAS, ApJL, Nature Astronomy
2017–2020	Interviewer, MIT Admissions
2019–2020	Graduate representative to the faculty, Astronomy Department
2017–2020	Graduate student mentor, Astronomy Department
2018	Graduate admissions committee, Astronomy Department
2018	Department representative, Graduate Student Council
2014	AAS Representative, Congressional Visits Day, Washington DC

OBSERVING, DATA REDUCTION, PROGRAMMING EXPERIENCE

Radio	PI of 12 successful proposals: 9 VLA (119 hr), 2 VLBA (48 hr), 1 GMRT (3 hr) Experienced in VLA data reduction
Millimeter	PI of 13 successful proposals: 6 SMA (333 hr), 2 ALMA (13.5 hr), 5 NOEMA (59 hr) 5 nights of observing on the SMA
Optical	Designed and led observing programs on Palomar 60-inch and 200-inch, Keck (LRIS) PI of 1 successful proposal on Gemini-South (4.4 hr) 21 nights of observing on DBSP and LRIS Experienced in DBSP, LRIS, Gemini data reduction
X-ray	PI of 29 *Swift* ToO observations (155.5 ks) PI of 1 successful *Chandra* DDT proposal (20 ks) Experienced in *Swift*/XRT and *Chandra*/ACIS data reduction
Software	Python, CASA, LaTeX, Mathematica, HTML, Postgres, SQL

TEACHING

University Teaching

2016	TA for Ay1 at Caltech (undergraduate course, "The Evolving Universe") Recognized as "outstanding TA" by Caltech registrar
2015	TA for Ay122b at Caltech (graduate course, "Radio Astronomy")
2015	TA for Ay20 at Caltech (undergraduate course, "Basic Astronomy and the Galaxy")

Workshops

2018	Instructor, ZTF Summer School
2016	Lead Instructor, Gemini Observatory Workshop on Data-Driven Modeling of Spectra

K-12 Teaching

2019	2-day workshop for K-12 teachers, Huntington Library, Pasadena CA
2016	9-week class for 7-12 year olds, Institute for Educational Advancement, Pasadena CA
2010-2014	Designed and taught 12 classes for over 500 middle- and high-school students, MIT
2010	High-school teaching assistant for 1 month, Pueblo Pintado Navajo Reservation, NM

INVITED TALKS

2021	Seminar, Princeton Gravity Initiative (virtual) *The Landscape of Relativistic Stellar Explosions*
2021	Colloquium, Centre of Astrophysics and Supercomputing, Swinburne University of Technology (virtual) *The Landscape of Relativistic Stellar Explosions*
2021	Talk, BigBoom, University of Arizona (virtual) *The Landscape of Relativistic Stellar Explosions*
2021	Seminar, Center for Gravitation, Cosmology & Astrophysics, UW-Milwaukee (virtual)

The Landscape of Relativistic Stellar Explosions

2020 Astroseminar, Florida State University (virtual)
The Landscape of Relativistic Stellar Explosions

2020 Colloquium, Institute for Theory and Computation, Harvard CfA (virtual)
The Landscape of Relativistic Stellar Explosions

2019 Keck Institute for Space Studies, Pasadena, CA
Telescopes, Astronomical Discoveries, and Their Influence on Literature

2019 Stars and Planets Seminar, Harvard-Smithsonian CfA, Cambridge, MA
The Death Throes of a Stripped Massive Star

2019 SMA Seminar, Harvard-Smithsonian CfA, Cambridge, MA
SMA Observations of AT2018cow:
A Prototype for Millimeter Time-Domain Astronomy

2019 Brown Bag Lunch, MIT, Cambridge, MA
The Death Throes of a Stripped Massive Star

2019 UC Berkeley Department Lunch Talk, Berkeley, CA
The Death Throes of a Stripped Massive Star

2019 Press Panel, AAS Winter Meeting, Seattle, WA
Watching The Cow Shock Its Environment: The Millimeter-Wavelength Perspective

2016 Gemini Observatory, La Serena, Chile
The Cannon: *Data-Driven Spectral Modeling in the Era of Large Stellar Surveys*

CONTRIBUTED TALKS

2021 Talk, Compact Objects and Supernovae Journal Club, STScI
The Landscape of Engine-Driven Stellar Explosions

2021 Lunch Talk, UC Berkeley
The Routine Discovery of Optical Afterglows Without a GRB Trigger

2020 Dissertation Talk, AAS Annual Winter Meeting, Hawaii
The Landscape of Engine-Driven Stellar Explosions

2019 Lunch Talk, ASIAA, Taiwan
The Landscape of Engine-Driven Stellar Explosions

2019 Seminar, National Tsing Hua University, Taiwan
The Landscape of Engine-Driven Stellar Explosions

2019 Colloquium, National Central University, Taiwan
The Landscape of Engine-Driven Stellar Explosions

2019 SMA Workshop, ASIAA, Taiwan
SMA Observations of AT2018cow: A New Class of Luminous Millimeter Transient

2019 ZTF Collaboration Meeting, Seattle, WA
The Landscape of Engine-Driven Stellar Explosions

2019 STScI Spring Symposium, Baltimore, MD
The Death Throes of a Stripped Massive Star

2019 ZTF-Theory Network Meeting, KITP, Santa Barbara, CA
The Death Throes of a Stripped Massive Star

2018 ZTF-Theory Network Meeting, KITP, Santa Barbara, CA
AT2018cow: A Rapid Ultraviolet Transient

2017 GROWTH Annual Meeting, Milwaukee, WI
Dirty Fireballs and Orphan Afterglows:
A Broader Landscape of Relativistic Explosions with ZTF

2016 NRAO Lunch Seminar, Socorro, NM
The Cannon: *Data-Driven Spectral Modeling in the Era of Large Stellar Surveys*

2015 Boutiques & Experiments Conference, Caltech, Pasadena, CA
Using The Cannon *to Exploit the Overlap Between Kepler & APOGEE*

2015 SDSS-IV Collaboration Meeting, IFT UAM-CSIC, Madrid, Spain

	Survey Cross-Calibration Using The Cannon: *APOGEE Labels from LAMOST Spectra*
2015	The Local Group Astrostatistics Conference, U. Mich, Ann Arbor, USA *Survey Cross-Calibration Using* The Cannon: *APOGEE Labels from LAMOST Spectra*
2014	MPIA-AIP Milky Way & Local Volume Meeting, AIP, Potsdam, Germany The Cannon: *A New Data-Driven Method for Retrieving Stellar Parameters and Abundances*
2014	Max Planck Institute for Astronomy, Heidelberg, Germany *Rotation Measures of Globular Cluster Pulsars as a Unique Probe of the Galactic Magnetic Field*
2013	NRAO, Charlottesville, VA *Rotation Measures of Globular Cluster Pulsars as a Unique Probe of the Galactic Magnetic Field*
2012	NRAO, Charlottesville, VA *Studies of Millisecond Pulsars in the Globular Cluster Terzan 5*

SCIENCE POLICY

2018-2020	Founder and Chair, Science Policy Committee, Caltech Graduate Student Council
2017-2019	Vice President, Science and Engineering Policy At Caltech (Student Club)
2017	International Summer Symposium on Science and World Affairs, Germany One of 40 international researchers selected to participate Talk title: *Towards a Framework for Space Traffic Control*
2017	Selected by Caltech to participate in Congressional Visits Day, Washington DC
2014	Selected by the American Astronomical Society to participate in Congressional Visits Day, Washington DC

PUBLIC OUTREACH

2015-Present	Lecturer, amateur astronomy societies and observatories
2015-2020	Volunteer, Caltech Astronomy Outreach program
2014–2015	Volunteer, Center for Astronomy Education and Outreach, Heidelberg, Germany
2014	AAS Astronomy Ambassadors Workshop, AAS 223rd Meeting
2012–2013	Lecturer and volunteer, McCormick Public Observatory, Charlottesville VA

WRITING

2020	Cover article for *Scientific American* December issue
2019	Article on AT2018cow for Submillimeter Array Newsletter
2018	Article on cosmic forensics for Caltech Letters platform
2015	Press release for the Max Planck Institute of Astronomy, Heidelberg, Germany
2015	Blog post for the UniverseToday news site
2014	Blog post on Congressional Visits Day for the American Astronomical Society
2010-2014	Blogger, MIT admissions website
2011	Article for MIT News