Lindsey A. Kwok

NASA Hubble Fellow
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RESEARCH POSITIONS

NASA Hubble Fellow | Northwestern University	2025
CIERA Postdoctoral Fellow | Northwestern University	2024 – 2025
NASA FINESST Fellow | Rutgers University	2022 – 2024
Research Assistant | Palomar Transient Factory (iPTF), Caltech	2016 – 2017
Summer Undergraduate Research Fellow | LIGO, Caltech	2015
Summer Undergraduate Research Fellow | JPL, Caltech	2014

EDUCATION

Ph.D., Physics and Astronomy | Rutgers University — Oct 2024
Advisor: Prof. Saurabh W. Jha

B.S., Physics | California Institute of Technology — June 2017
Advisors: Prof. Mansi M. Kasliwal & Dr. Ragnhild Lunnan

PROPOSALS & GRANTS as PI (total >$1.2M)

JWST Cycle 3+4 Program | 40 hours | GO 5232 | $138k + $253k
"Getting Late Early: Mid-Infrared Spectroscopy of White Dwarf Supernovae"

JWST Cycle 2 Program | 8 hours | DD 6591 | $50k
"Cracking the Cosmic Calcium Conundrum: discovering the origin of Ca-rich transient SN 2024uj with late-time infrared spectroscopy"

JWST Cycle 3 Program | 13.4 hours | GO 6811 | $50k
"So Close, Yet So Faint: NIR+MIR Spectroscopy of the Nearest SN Iax 2024vjm"

NASA Hubble Fellowship | 3 years | $317k
"Determining the Astrophysical Origins of White-Dwarf Supernovae with JWST Infrared Spectroscopy"

CIERA Postdoctoral Fellowship | 3 years | $276k
"Characterizing the Infrared Behavior and Evolution of White-Dwarf Supernovae"

NASA FINESST Fellowship | 3 years | $150k

ACCEPTED TELESCOPE PROPOSALS as PI

Keck 10 m Telescope, Northwestern | 1 night 2025B
Constraining the Progenitors of Type Ia Supernovae with Near- Infrared Spectroscopy

Gemini 8 m Telescopes (North and South), NOIRLab | 20.5 hr 2025B – 2026A
Panchromatic Spectroscopy of Exploding White Dwarfs to Determine their Origins

Very Large Telescope (VLT) 8 m, ESO | 5 hr DD 2025A
Dust in SN Ia 2021aefx at 1000 days: follow-up with optical spectroscopy

Gemini 8 m Telescopes (South), NOIRLab | 4.44 hr DD 2025A
Panchromatic evolution of SN Ia 2025cy with Gemini + JWST

JWST, STScI | 40 hr Cycle 3 + 4
"Getting Late Early: Mid-Infrared Spectroscopy of White Dwarf Supernovae"

JWST, STScI | 13.4 hr DD Cycle 3
"So Close, Yet So Faint: NIR+MIR Spectroscopy of the Nearest SN Iax 2024vjm"

JWST, STScI | 8 hr DD Cycle 2
"Cracking the Cosmic Calcium Conundrum: discovering the origin of Ca-rich transient SN 2024uj with late-time infrared spectroscopy"

Southern African Large Telescope 9 m, Rutgers | 36.7 hr 2024A – 2024B
SALT Followup of JWST Supernovae

AWARDS & HONORS

NASA Hubble Fellowship 2025
Richard J. Plano Dissertation Prize | Rutgers 2025
Richard J. Plano Outstanding Teaching Assistant Award | Rutgers 2024
CIERA Postdoctoral Fellowship 2024
Robert A. Schommer Prize | Rutgers 2023
for outstanding research in astrophysics
NASA FINESST Fellowship 2022 – 2024
FI: L. Kwok, Admin-PI: S. W. Jha | $150,000
Machine Learning X Science Summer School Internship 2022
Flatiron Institute | Center for Computational Astrophysics
Rutgers Academy for the Scholarship of Teaching and Learning (RASTL) Fellow | Rutgers 2022 – 2024

NSF Graduate Research Fellowship Program Honorable Mention	2021
Rutgers DELTA-P Certificate of Training in Physics Education	2019
Caltech Summer Undergraduate Research Fellow at LIGO	2015
Caltech Summer Undergraduate Research Fellow at JPL	2014

PRESENTATIONS

Invited Seminars & Talks

Physics Colloquium | Brigham Young University	*(scheduled)*	Nov 2025
Physics & Astronomy Colloquium | Rutgers University	*(scheduled)*	Oct 2025
Theoretical Astrophysics Center (TAC) Seminar | UC Berkeley		Sep 2025
100 Years of Supernova Science | Stockholm, Sweden		Aug 2025
Astro-ph Coffee | Ohio State University		Nov 2024
Astrophysics Seminar | Purdue University		Nov 2024
European Astronomical Society (EAS) Meeting | Padova, Italy		July 2024
Observers Group Meeting | CIERA / Northwestern University		Nov 2023
"Big Boom" Science Discussion | University of Arizona		Nov 2023
SuperNova Explosions (SNEx) Group Meeting | Technion University		June 2023
Astrophysics Seminar | Florida State University		Feb 2023
Astro-ph Coffee | Princeton University		Nov 2022
Astro-ph Coffee | Michigan State University		Oct 2022

Contributed Talks & Posters

Transients from Space | STScI | Baltimore, MD	Mar 2025
AAS Dissertation Talk | 243rd AAS Meeting | New Orleans, LA	Jan 2024
Improving JWST Data Products Workshop | STScI | Baltimore, MD	Nov 2023
Supernova Explosions: Theory and Observations | Haifa, Israel	Aug 2023
Transient and Variable Universe | UIUC | Urbana-Champaign, IL	June 2023
241st AAS Meeting | Seattle, WA	Jan 2023
First Science Results from JWST | STScI | Baltimore, MD *(poster)*	Dec 2022
SuperVirtual Science Meeting	Nov 2022
SuperVirtual Science Meeting *(poster)*	Nov 2021
229th AAS Meeting | Grapevine, TX *(poster)*	Jan 2017

TEACHING EXPERIENCE

Independent Instructor | Rutgers University — Summer 2023
PHY 110: Astronomy and Cosmology | online synchronous
introductory course about the structure of the universe and astronomical methods

Teaching Assistant | Rutgers University
PHY 115/116: Extended Analytical Physics — 2019 – 2020
Recitation Instructor | In-person & online synchronous
introductory classical mechanics for engineering majors
Developing Educational Leaders among TAs in Physics — Fall 2019
(DELTA-P) Seminar Course

Physics Teacher | The Westminster Schools | Atlanta, GA — 2018 – 2019
Honors and regular 9th Grade Physics; Coached FIRST Robotics

Instructor in Physics | Phillips Academy, Andover | Andover, MA — 2017 – 2018
PHY 400: College Physics, PHY 440: Astronomy (11th & 12th grade)

Undergraduate Teaching Assistant | Caltech — Spring 2016
PHY 6: Intermediate Physics Laboratory — Spring 2017

MENTORING EXPERIENCE

Research Mentor | Northwestern University
Saarah Hall (graduate student) — Spring 2025 – present

REACH Further Mentor | Northwestern University — Summer 2025
Zhiying Mei (high school student, 3 weeks)

Research Mentor | Rutgers University
Michaela Schwab — Winter 2023 – Spring 2025
(undergraduate honors thesis student + post-bac researcher)
Colin Macrie (undergraduate student) — 2023 – 2024
Teresa Boland (undergraduate honors thesis student) — 2022 – 2023

Co-Mentor | Google Summer of Code: TARDIS Collaboration — Summer 2021
Jaladh Singhal (undergraduate student from India)

Teaching Assistant & Residential Mentor | Summer Science Program (SSP)
CU Boulder | Boulder, CO | 36 high school students — Summer 2016
New Mexico Tech | Socorro, NM | 36 high school students — Summer 2017

OUTREACH & INCLUSION WORK

- Northwestern Research Experiences in Astronomy at CIERA for High School Students (REACH) Further mentor: 3-week research project, daily meetings, July 2025
- Northwestern REACH College + Career panelist: 06-27-2025
- Northwestern/CIERA REU Research Seminar speaker: 06-26-2025
- Guest lecture seminar talk to Northwestern's Integrated Science Program astrophysics survey course: 05-06-2025
- Public talk to STAR Astronomy Club in Monmouth County, NJ: 11-2-2023
- Physics demonstrations at minority-serving New Brunswick Health Sciences Technology High School: 12-1-2023, 12-2-2023, 3-24-2023, 6-9-2023, 11-16-2024, 11-17-2024, 2-1-2024, 2-2-2024
- Wiley research talk for Rutgers Upward Bound program serving first-generation college students and students from low-income families (virtual), 7-2-2022
- Physics demonstrations for Nature Thru Nurture program at minority-serving New Brunswick High School: 3-4-2022, 3-8-2022, 3-29-2022, 4-1-2022
- Physics demonstrations for Nature Thru Nurture program at minority-serving New Brunswick Middle School: 1-29-2020, 3-4-2020
- Participant in Rutgers Equity and Inclusion Journal Club
- Weekly ESL classes for 8 adult hispanic immigrants in local community from August 2019 – January 2021 (virtual after March 2020)
- Member of Phillips Academy, Andover Gender Studies Advisory Board, 2017 – 2018
- Supervised weekly STEM study sessions pairing female students with female tutors at Phillips Academy, Andover, 2017 – 2018
- Volunteered at Caltech Stargazing and Lecture Series, 2017
- Built spectrographs at Caltech with iChicas, an after-school program in Los Angeles for middle-school Latina girls interested in STEM, March 2017

PUBLICATIONS

(ORCID: 0000-0003-3108-1328)

**Whitesides is previous name*

First-Author Publications (6):

6. **Kwok, L. A.** et al. (2025), "JWST Spectroscopy of SN Ia 2022aaiq and 2024gy: Evidence for Enhanced Central Stable Ni Abundance and a Deflagration-to-Detonation Transition," eprint arXiv: arXiv:2510.09760

5. **Kwok, L. A.** et al. (2025), "JWST and Ground-based Observations of the Type Iax Supernovae SN 2024pxl and SN 2024vjm: Evidence for Weak Deflagration Explosions," ApJL, 989, L33, DOI: 10.3847/2041-8213/adf062
4. **Kwok, L. A.** et al. (2024), "Ground-based and JWST Observations of SN 2022pul: II. Evidence from Nebular Spectroscopy for a Violent Merger in a Peculiar Type-Ia Supernova," ApJ, 966, 135, DOI: 10.3847/1538-4357/ad2c0d
3. **Kwok, L. A.** et al. (2023), "A JWST Near- and Mid-infrared Nebular Spectrum of the Type Ia Supernova 2021aefx," ApJL, 944, L3, DOI: 10.3847/2041-8213/acb4ec
2. **Kwok, L. A.** et al. (2022), "UV Spectroscopy and TARDIS Models of Broad-lined Type-Ic Supernova 2014ad," ApJ, 937, 40, DOI: 10.3847/1538-4357/ac8989
1. ***Whitesides, L.** et al. (2017), "iPTF 16asu: A Luminous, Rapidly Evolving, and High-velocity Supernova," ApJ, 851, 107, DOI: 10.3847/1538-4357/aa99de

Co-Author Publications with Major Contribution (4):

**student mentored by L. Kwok*

4. Singh, M., **Kwok, L. A.**, et al. (2025), "Photometry and Spectroscopy of SN 2024pxl: A Luminosity Link Among Type Iax Supernovae," eprint arXiv: arXiv:2505.02943
3. *Schwab, M., **Kwok, L. A.**, et al. (2025), "The Remarkable Late-Time Flux Excess in Hubble Space Telescope Observations of the Type Iax Supernova 2012Z," eprint arXiv: arXiv:2504.01063
2. Siebert, M. R., **Kwok, L. A.**, et al. (2024), "Ground-based and JWST Observations of SN 2022pul: I. Unusual Signatures of Carbon, Oxygen, and Circumstellar Interaction in a Peculiar Type Ia Supernova," ApJ, 960, 88, DOI: 10.3847/1538-4357/ad0975
1. Larison, C., Jha, S. W., **Kwok, L. A.**, Camacho-Neves, Y., (2023) "Environmental Dependence of Type Ia Supernovae in Rich, Low-redshift Galaxy Cluster," ApJ, 961, 185, DOI: 10.3847/1538-4357/ad0e0f

Other Co-Authored Publications (22):

22. Pollin, J. M. et al. (including **L. Kwok**) (2025), "Multidimensional Nebular-Phase Calculations of Dynamically-Driven Double-Degenerate Double-Detonation Models for Type Ia Supernovae," eprint arXiv: arXiv:2507.05000

21. Pearson, J. et al. (including **L. Kwok**) (2025), "Mid-Infrared Dust Evolution and Late-time Circumstellar Medium Interaction in SN 2017eaw," eprint arXiv: arXiv:2507.00125
20. Kumar, S. et al. (including **L. Kwok**) (2025), "The Search for Stable Nickel: Investigating the Origins of Type Ia Supernovae with Late-time NIR Spectroscopy from the Carnegie Supernova Project-II," eprint arXiv: arXiv:2504.17134
19. Shrestha, M. et al. (including **L. Kwok**) (2024), "Extended Shock Breakout and Early Circumstellar Interaction in SN 2024ggi," ApJL, 972, L15, DOI: 10.3847/2041-8213/ad6907
18. Shahbandeh, M. et al. (including **L. Kwok**) (2024), "JWST NIRSpec+MIRI Observations of the nearby Type IIP supernova 2022acko," eprint arXiv: arXiv:2401.14474
17. Shrestha, M. et al. (including **L. Kwok**) (2023), "Evidence of weak circumstellar medium interaction in the Type II SN 2023axu," ApJ, 961, 247 DOI:10.3847/1538-4357/ad11e1
16. Pearson, J. et al. (including **L. Kwok**) (2023), "Strong Carbon Features and a Red Early Color in the Underluminous Type Ia SN 2022xkq," ApJ 960, 29, DOI: 10.3847/1538-4357/ad0153
15. Dong, Y. et al. (including **L. Kwok**) (2023), "Characterizing the Rapid Hydrogen Disappearance in SN 2022crv: Evidence of a Continuum between Type Ib and IIb Supernova Properties," ApJ, 974, 316, DOI: 10.3847/1538-4357/ad710e
14. Tinyanont, S. et al. (including **L. Kwok**) (2023), "Keck Infrared Transient Survey I: Survey Description and Data Release 1," PASP, 136, 14201, DOI: 10.1088/1538-3873/ad1b39
13. Hosseinzadeh, G. et al. (including **L. Kwok**) (2023), "The Early Light Curve of SN 2023bee: Constraining Type Ia Supernova Progenitors the Apian Way," ApJL, 953, L15, DOI: 10.3847/2041-8213/ace7c0
12. Bostroem, K. A. et al. (including **L. Kwok**) (2023), "SN 2022acko: the First Early Far-Ultraviolet Spectra of a Type IIP Supernova," ApJL, 953, L18, DOI: 10.3847/2041-8213/ace31c
11. Singh, M. et al. (including **L. Kwok**) (2023), "Observational properties of a bright type Iax SN 2018cni and a faint type Iax SN 2020kyg," ApJ, 953, 93, DOI: 10.3847/1538-4357/acd559
10. DerKacy, J. M. et al. (including **L. Kwok**) (2023), "JWST Low-resolution MIRI Spectral Observations of SN 2021aefx: High-density Burning in a Type Ia Supernova," ApJL, 945, L2, DOI: 10.3847/2041-8213/acb8a8

9. Camacho-Neves, Y. et al. (including **L. Kwok**) (2023), "Over 500 Days in the Life of the Photosphere of the Type Iax Supernova SN 2014dt," ApJ, 951,67, DOI: 10.3847/1538-4357/acd558
8. Williamson, M. et al. (including **L. Kwok**) (2023), "SN 2019ewu: A Peculiar Supernova with Early Strong Carbon and Weak Oxygen Features from a New Sample of Young SN Ic Spectra," ApJL, 944, L49, DOI: 10.3847/2041-8213/acb549
7. Mayker Chen, N. et al. (including **L. Kwok**) (2023), "Serendipitous Nebular-phase JWST Imaging of SN Ia SN 2021aefx: Testing the Confinement of ^{56}Co Decay Energy," ApJL, 944, L28, DOI: 10.3847/2041-8213/acb6d8
6. Davis, K. W. et al. (including **L. Kwok**) (2022), "SN 2022ann: A type Icn supernova from a dwarf galaxy that reveals helium in its circumstellar environment," MNRAS, 523, 2530, DOI: 10.1093/mnras/stad1433
5. Pierel, J. D. R., et al. (including **L. Kwok**) (2022), "SALT3-NIR: Taking the Open-source Type Ia Supernova Model to Longer Wavelengths for Next-generation Cosmological Measurements," ApJ, 939, 11, DOI: 10.3847/1538-4357/ac93f9
4. Hosseinzadeh, G. et al. (including **L. Kwok**) (2022), "Constraining the Progenitor System of the Type Ia Supernova 2021aefx," ApJL, 933, L45, DOI: 10.3847/2041-8213/ac7cef
3. Fraser, M. et al. (including **L. Kwok**) (2021), "SN 2021csp – the explosion of a stripped envelope star within a H and He-poor circumstellar medium," eprint arXiv: 10.48550/arXiv.2108.07278
2. Barna, B. et al. (including **L. Kwok**) (2021), "SN 2019muj – a well-observed Type Iax supernova that bridges the luminosity gap of the class," MNRAS, 501, 1078, DOI: 10.1093/mnras/staa3543
1. Dong, Y. et al. (including **L. Kwok**) (2021), "Supernova 2018cuf: A Type IIP Supernova with a Slow Fall from Plateau," ApJ, 906, 56, DOI: 10.3847/1538-4357/abc417