

Lindsey A. Kwok

CIERA Postdoctoral Fellow

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RESEARCH POSITIONS

CIERA Postdoctoral Fellow Northwestern University	2024
NASA FINESST Fellow Rutgers University	2022 – 2024
Rutgers Academy for the Scholarship of Teaching and Learning (RASTL) 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 Advisor: Prof. Saurabh W. Jha	Oct 2024
B.S., Physics California Institute of Technology Advisors: Prof. Mansi M. Kasliwal & Dr. Ragnhild Lunnan	June 2017

PROPOSALS & GRANTS as PI (total \$800k)

JWST Cycle 3+4 Program 40 hours GO 5232 \$138k + will request ~\$140k <i>“Getting Late Early: Mid-Infrared Spectroscopy of White Dwarf Supernovae”</i>
JWST Cycle 2 Program 8 hours DD 6591 \$50k <i>“Cracking the Cosmic Calcium Conundrum: discovering the origin of Ca-rich transient SN 2024uj with late-time infrared spectroscopy”</i>
JWST Cycle 3 Program 13.4 hours GO 6811 \$50k <i>“So Close, Yet So Faint: NIR+MIR Spectroscopy of the Nearest SN Iax 2024vjm”</i>
CIERA Postdoctoral Fellowship 3 years \$276k <i>“Characterizing the Infrared Behavior and Evolution of White-Dwarf Supernovae”</i>
NASA FINESST Fellowship 3 years \$150k <i>“Modeling the Near-Infrared Spectral Diversity of Thermonuclear Supernovae”</i>

AWARDS & HONORS

Richard J. Plano Outstanding Teaching Assistant Award Rutgers	2024
CIERA Postdoctoral Fellowship	2024
Robert A. Schommer Prize Rutgers	2023
<i>for outstanding research in astrophysics</i>	
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	
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

Astrophysics Seminar Purdue University	<i>(scheduled)</i> 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 (SNE _x) Group Meeting Technion University	June 2023
Astrophysics Seminar Florida State University (FSU)	Feb 2023
Astro-ph Coffee Princeton University	Nov 2022
Astro-ph Coffee Michigan State University	Oct 2022

Contributed Talks & Posters

AAS Dissertation Talk 243 rd 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
241 st AAS Meeting Seattle, WA	Jan 2023
First Science Results from JWST, Baltimore MD (<i>poster</i>)	Dec 2022
SuperVirtual Science Meeting	Nov 2022
SuperVirtual Science Meeting (<i>poster</i>)	Nov 2021
229 th AAS Meeting Grapevine, TX (<i>poster</i>)	Jan 2017

TEACHING EXPERIENCE

Independent Instructor Rutgers University	Summer 2023
PHY 110: Astronomy and Cosmology online synchronous <i>introductory course about the structure of the universe and astronomical methods</i>	
Teaching Assistant Rutgers University	
PHY 115/116: Extended Analytical Physics	2019 – 2020
Recitation Instructor In-person & online synchronous <i>introductory classical mechanics for engineering majors</i>	
Developing Educational Leaders among TAs in Physics (DELTA-P) Seminar Course	Fall 2019
Physics Teacher The Westminster Schools Atlanta, GA	2018 – 2019
Honors and regular 9 th Grade Physics; Coached FIRST Robotics	
Instructor in Physics Phillips Academy, Andover Andover, MA	2017 – 2018
PHY 400: College Physics, PHY 440: Astronomy (11 th & 12 th grade)	
Undergraduate Teaching Assistant Caltech	Spring 2016
PHY 6: Intermediate Physics Laboratory	Spring 2017

MENTORING EXPERIENCE

Research Mentor Rutgers University	
Michaela Schwab	Winter 2023 – present
(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

- 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 (4):

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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/10.3847/1538-4357/aa99de)

Co-Author Publications with Major Contribution (2):

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](https://doi.org/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](https://doi.org/10.3847/1538-4357/ad0e0f)

Other Co-Authored Publications (19):

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](https://doi.org/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](https://arxiv.org/abs/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](https://doi.org/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](https://doi.org/10.3847/1538-4357/ad0153)
15. Dong, Y. et al. (including **L. Kwok**) (2023), “SN 2022crv: IIb, Or Not IIb: That is the Question,” submitted to *ApJ*, eprint arXiv: [10.48550/arXiv.2309.09433](https://arxiv.org/abs/10.48550/arXiv.2309.09433)
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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://arxiv.org/abs/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](https://doi.org/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](https://doi.org/10.3847/1538-4357/abc417)