Kathryn V. Lester

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Education

Ph.D. in Astronomy, Georgia State University	2020
M.S. in Physics, Georgia State University	2017
B.S. in Astrophysics, Lehigh University	2014

Appointments & Experience

Visiting Assistant Professor 2023 – present
Mount Holyoke College
- Teaching introductory astronomy courses for non-science majors and upper level courses for astronomy majors

NASA Postdoctoral Fellow 2020 – 2023
Ames Research Center, with Dr. Steve Howell
- Searched for companions around TESS exoplanet hosts using high resolution imaging
- Determined visual orbits and astrophysical parameters of close binaries hosting planets

Graduate Research Assistant 2014 – 2020
Georgia State University, with Dr. Douglas Gies
- Determined visual and spectroscopic orbits of A- and F-type binary stars using the CHARA Array.
- Completed photometric, spectroscopic, and apsidal motion analyses of the K2 eclipsing binary, BW Aquarii.

Teaching Experience

Mount Holyoke College, Instructor 2023 – present
- ASTR 100: Stars & Galaxies – introductory astronomy course for non-science majors.
- ASTR 226: Cosmology – intermediate level course for science majors.
- ASTR 335: Astrophysics II – upper level stellar structure course for astronomy majors.
- ASTR 352: Astrophysics III – upper level extragalactic course for astronomy majors.

Georgia State University, Teaching Assistant 2014 – 2017
- ASTR 1010 – weekly labs for introductory stellar astronomy course.
- ASTR 1020 – weekly labs for introductory extragalactic astronomy course.

First Author Publications

My full publication record is listed on ADS here and on the last page. (9 first-author, 34 total, h-index = 14)

9. "Visual Orbits and Alignments of Planet Hosting Binary Systems"
K. V. Lester, S. B. Howell, R. A. Matson, et al. 2023, AJ, 166, 166

8. "Visual Orbits of Spectroscopic Binaries with the CHARA Array. IV. HD 61859, 89822, 109510, and 191692"
K. V. Lester, G. Schaefer, F. Fekel, et al. 2022, AJ, 164, 228

7. "Determining Which Binary Component Hosts the TESS Transiting Planet".
K. V. Lester, S. B. Howell, D. R. Ciardi, & R. A. Matson. 2022, AJ, 164, 56

6. "Speckle Observations of TESS Exoplanet Host Stars. II. Stellar Companions at 1-1000 au and Implications for Small Planet Detection".
K. V. Lester, R. A. Matson, S. B. Howell, et al. 2021, AJ, 162, 75

5. "Visual Orbits of Spectroscopic Binaries with the CHARA Array. III. HD 8374 and HD 24546".
   K. V. Lester, F. Fekel, M. Muterspaugh, et al. 2020, AJ, 160, 58

4. "Visual Orbits of Spectroscopic Binaries with the CHARA Array. II. the eclipsing binary HD 185912".
   K. V. Lester, D. R. Gies, G. Schaefer, C. Farrington, et al. 2019, AJ, 158, 6

3. "Visual Orbits of Spectroscopic Binaries with the CHARA Array. I. HD 224355".
   K. V. Lester, D. R. Gies, G. Schaefer, C. Farrington, et al. 2019, AJ, 157, 140L

2. "A Photometric, Spectroscopic, and Apsidal Motion Analysis of Eclipsing Binary BW Aquarii".
   K. V. Lester & D. R. Gies. 2018, AJ, 156, 8.

1. "A Young Eclipsing Binary and its Luminous Neighbors in Sh 2-252E".
   K. V. Lester, D. R. Gies, & Z. Guo. 2016, AJ, 152, 194.

Fellowships & Awards

Massachusetts Space Grant Consortium student fellowship ($6,500)	Summer 2024
NASA Award for time on the Keck Observatory ($12,000)	2023 – 2025
NASA Award for time on the WIYN Observatory ($5,000)	2023 – 2024
NASA Postdoctoral Fellowship ($285,000)	2020 – 2023
Outstanding Advanced Graduate Student Award, Georgia State University	2020
Outstanding Second Year Graduate Student, Georgia State University	2016
Departmental Honors, Lehigh University	2014

Invited Talks

Mount Holyoke College Astronomy Club 2024
Talk: "Journey to Becoming an Astronomy Professor and Researcher".

Planetary Science Institute 2023
Seminar: "Characterizing Planet Host Binary Systems".

CHARA & VLTI Science Meeting 2022
Review Talk: "Binary Star Science Using Interferometry".

AAS Splinter Session: Stars and the ISM with Gemini's Fast Turnaround Observations 2022
Talk: "Speckle & Long Baseline Interferometry of Binary Stars". [cancelled due to COVID]

NSF virtual site visit at the CHARA Array 2020
Talk: "Visual Orbits of Spectroscopic Binaries".

CHARA Summer School 2020
Talk: "Observing and Data Reduction with CLIMB".

Agnes Scott College 2019
Colloquium: "Visual & Spectroscopic Orbits of Binary Stars".

Competitive Observing Time Awarded

Gemini Observatory
Speckle imaging of binary stars and planet host stars using 'Alopeke & Zorro (76 hours total) 2021B – 2024B

WIYN Observatory
Spectroscopic orbits of exoplanet host binary stars using NEID (52 hours total) 2022A – 2024B

The CHARA Array
Visual orbits of binary stars using MIRC-X/MYSTIC (30 hours) 2024B

Las Cumbres Observatory
Spectroscopic orbits of binary stars using NRES (37 hours total) 2023A, 2024B

Keck Observatory
Spectroscopic orbits of exoplanet host binary stars using HIRES (5 hours) 2023A

Cerro Tololo Inter-American Observatory
Spectroscopic orbits of exoplanet host binary stars using CHIRON (10 hours) 2023A

Professional Service

Grant Proposal Reviewer 2021 – 2024
Provided science review and grading for NASA FINNESST and XRP proposals.

Telescope Allocation Committee Member
Provided external science review for a Canadian Gemini TAC. 2024
Provided science review, grading, and discussion of NOIRLab telescope proposals. 2022 – 2023

Journal Referee 2019, 2021
Reviewed submitted manuscripts for JAAVSO and ApJS.

Department Service

Career Panel Member 2019 – present
Participated in several panel discussions about graduate school and career paths for undergraduate students.

Research Bootcamp Volunteer 2024
Contributed to a week-long introduction to research for Five Colleges summer interns.

Thesis Prize Committee 2024
Helped chose Mary Irvine Prize for a distinguished senior thesis by a Five Colleges astronomy student.

Astronomy Peer Advising Leaders 2016 – 2020
President & Mentor
- Proposed for university funding and maintained the club's budget.
- Lead monthly mentor meetings and delegated tasks for upcoming events.
- Organized and lead new student orientation, professional development workshops, and mock qualifying exams for graduate students.
- Provided advice and support during monthly one-on-one meetings with junior graduate student mentees.

Outreach

STEMPOC Mixer Volunteer 2023 – present
Represented the astronomy faculty at a mixer for STEM students of color, talked about influential astronomers of color and the astronomy program at Mount Holyoke.

Williston Observatory Volunteer 2023 – present
Operated historic reflector & lawn telescopes and answered questions from the public during open houses.

Podcast Guest 2021
Spoke about my search for companions to TESS exoplanet hosts on the "365 Days of Astronomy" podcast.

Hard Labor Creek Observatory Volunteer 2014 – 2020
Operated telescopes and answered questions from the public during monthly open houses.

Solar Eclipse Event 2017
Operated solar telescopes and engaged with the public during a solar eclipse viewing party.

Girl Scout Workshop Volunteer 2014 – 2017
Assisted with workshop activities, including building pinhole cameras and filter wheels.

Observing Experience

Gemini Observatory 2020 – 2023
8.1m telescope – 110 nights – speckle interferometry

WIYN Observatory 2022
3.5m telescope – 5 nights – multi-object spectroscopy

The CHARA Array 2017 – 2020
Six 1.0m telescopes – 73 nights – long baseline interferometry

Apache Point Observatory 2016 – 2020
3.5m telescope – 49 nights – echelle spectroscopy

Hard Labor Creek Observatory 2015
0.6m telescope – 7 nights – relative photometry

Wyoming Infrared Observatory 2013
2.3m telescope – 15 nights – longslit spectroscopy

Skills & Tools

Observations	Longslit & echelle spectroscopy, long-baseline & speckle interferometry, relative photometry
Data Analysis	Radial velocities, interferometric visibilities, binary orbit fitting, light curve modeling
Programming	Python, IDL, IRAF, HTML/CSS (basic)
Software	LaTeX, Microsoft Office, MESA, DS9, ELC, Period04, PyKE, Photoshop (basic)
Operating Systems	Mac, Linux, Windows
Foreign Languages	French (intermediate)

Memberships

Planetary Science Institute, associate research scientist 2023 – present
American Astronomical Society, full member 2014 – present

Contributed Talks & Posters

243rd AAS Meeting, "Visual Orbits & Alignments of Planet Hosting Binary Systems" 2024

EPRV5 Meeting, "Orbits & Inclinations of Planet Host Binaries" (poster) 2023

241st AAS Meeting, "Detection Sensitivity of Transiting Planets in Single vs Binary Stars" 2023

NASA Postdoc Program Symposium, "How Does Host Star Multiplicity Affect Planet Formation?" 2022

Bay Area Exoplanet Meeting, "Which Binary Component Hosts the TESS Transiting Planet?" 2022

240th AAS Meeting, "Which Binary Component Hosts the TESS Transiting Planet?" (poster) 2022

Bay Area Exoplanet Meeting, "Close Companions of TESS Exoplanet Host Stars" 2021

237th AAS Meeting, "Close Companions of TESS Exoplanet Host Stars" (poster) 2021

235th AAS Meeting, "Visual Orbits of Spectroscopic Binaries with the CHARA Array" (dissertation talk) 2020

CHARA Science Meeting, "Visual Orbits of Spectroscopic Binaries" 2019

233rd AAS Meeting, "Visual Orbit and Physical Parameters of the Spectroscopic Binary HD 224355" 2019

Georgia Regional Astronomers Conference, "Visual Orbit of the Spectroscopic Binary HD 224355" 2018

GSU Women In STEM Conference, "Visual & Spectroscopic Orbits of Binary Stars" 2018

231st AAS Meeting, "A Photometric, Spectroscopic & Apsidal Motion Analysis of BW Aqrs" (poster) 2018

Contributed Publications

My full publication record is listed on ADS here.

36. Hori, Y., Fukui, A., Hirano, T., et al. 2024, AJ, 167, 289.
35. Littlefield, C., Howell, S. B., Ciardi, D. R., et al. 2024, AJ, 167, 74.
34. **Lester, K. V.**, Howell, S. B., Matson, R. A., et al. 2023, AJ, 166, 166.
33. Mistry, P., Pathak, K., Prasad, A., et al. 2023, AJ, 166, 9.
32. Vowell, N., Rodriguez, J. E., Quinn, S. N., et al. 2023, AJ, 165, 268.
31. Tey, E., Huang, C. X., Kunimoto, M., et al. 2023, AJ, 165, 93.
30. Knudstrup, E., Gandolfi, D., Nowak, G., et al. 2023, MNRAS, 519, 5637.
29. **Lester, K. V.**, Schaefer, G. H., Fekel, F. C., et al. 2022, AJ, 164, 228.
28. **Lester, K. V.**, Howell, S. B., Ciardi, D. R., et al. 2022, AJ, 164, 56.
27. E. V., Weiss, L. M., Dressing, C. D., et al. 2022, AJ, 163, 293.
26. Mann, A. W., Wood, M. L., Schmidt, S. P., et al. 2022, AJ, 163, 156.
25. Wysocki, P., Gies, D., Shepard, K., et al. 2022, AJ, 163, 177.
24. Bouma, L. G., Curtis, J. L., Masuda, K., et al. 2022, AJ, 163, 121.
23. Wilson, T. G., Goffo, E., Alibert, Y., et al. 2022, MNRAS, 511, 1043.
22. Wittenmyer, R. A., Clark, J. T., Trifonov, T., et al. 2022, AJ, 163, 82.
21. Schanche, N., Pozuelos, F. J., Gunther, M. N., et al. 2022, A&A, 657, A45.
20. Wong, I., Shporer, A., Zhou, G., et al. 2021, AJ, 162, 256.
19. Wells, R. D., Rackham, B. V., Schanche, N., et al. 2021, A&A, 653, A97.
18. Hedges, C., Hughes, A., Zhou, G., et al. 2021, AJ, 162, 54.
17. **Lester, K. V.**, Matson, R. A., Howell, S. B., et al. 2021, AJ, 162, 75.
16. Wang, L., Gies, D. R., Peters, G. J., et al. 2021, AJ, 161, 248.
15. Howell, S. B., Scott, N. J., Matson, R. A., et al. 2021, Frontiers in Astronomy, 8, 10.
14. Whelan, D. G., Chojnowski, S. D., Labadie-Bartz, J., et al. 2021, AJ, 161, 67.
13. Gies, D. R., **Lester, K. V.**, Wang, L., et al. 2020, ApJ, 902, 25.

12. **Lester, K. V.**, Fekel, F. C., Muterspaugh, M., et al. 2020, AJ, 160, 58.
11. Wang, L., Gies, D. R., **Lester, K. V.**, et al. 2020, AJ, 159, 4.
10. Shepard, K., Gies, D. R., **Lester, K. V.**, et al. 2020, ApJ, 888, 82.
9. **Lester, K. V.**, Gies, D. R., Schaefer, G. H., et al. 2019, AJ, 158, 218.
8. **Lester, K. V.**, Gies, D. R., Schaefer, G. H., et al. 2019, AJ, 157, 140.
7. Morris, B., Dorn-Wallenstein, T., Levesque, E., et al. 2019, JOSS, 4, 1130.
6. Chojnowski, S. D., Labadie-Bartz, J., Rivinius, T., et al. 2018, ApJ, 865, 76.
5. **Lester, K. V.** & Gies, D. R. 2018, AJ, 156, 8.
4. **Lester, K. V.**, Gies, D. R., & Guo, Z. 2016, AJ, 152, 194.
3. Bentz, M. C., Batiste, M., Seals, J., et al. 2016, ApJ, 831, 2.
2. Gies, D. R., Matson, R. A., Guo, Z., et al. 2015, AJ, 150, 178.
1. Kobulnicky, H. A., Kiminki, D. C., Lundquist, M. J., et al. 2014, ApJs, 213, 34.