Sean K. Terry

Personal

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Appointments

Postdoctoral Associate, University of Maryland, College Park — 2023 – Present
Postdoctoral Scholar, University of California, Berkeley — 2020 – 2023

Education

The Catholic University of America, Ph.D., Physics — 2020
The Catholic University of America, M.S., Physics — 2018
George Mason University, B.S., Astronomy/Physics — 2015
Northern Virginia Community College, A.S., Gen. Science — 2012

Research Areas

Gravitational microlensing by stars, exoplanets, & black holes, adaptive optics, instrumentation, galactic bulge stellar populations

Service & Professional Activities

Professional Activities

Member – *Roman* Galactic Exoplanet Survey (RGES) Project Infrastructure Team (PIT) — 2023
Lead Organizer – KAPA Annual Science Meeting (KASM) — 2021,2022
UC Berkeley Astronomy Climate Advisory Committee — 2022–2023
Collaborator – UCLA Galactic Center Group — 2020–2023
Project Science Team – Keck All-Sky Precision Adaptive Optics (KAPA) — 2020–2023
Representative – Annual GSFC Administrator's Congressional Visits — 2016

Professional Memberships

Member – American Astronomical Society (AAS) — 2015–Present
Member – Society for Personality and Social Psychology (SPSP) — 2017–2020
Member – Seers Exoplanet Environments Collaboration (SEEC) — 2016–2020

Panels & Reviews

HST Cycle 29
TESS Cycle 4

Referee for *ApJ, A&A*

Outreach

Instructor, *AstroTech*, University of California Berkeley, Berkeley, CA — 2021,2022
Guest Scientist, STEM-Day, Garfield High School, Woodbridge, VA — 2017
CUA Booth, Annual Astronomy Festival on the Mall, Washington, DC — 2015–2017
Proctor, GMU Public Observing Nights, Fairfax, VA — 2013–2015

Teaching

Introduction to Astrophysics – UC Berkeley — 2023
Exoplanets in Fact & Fiction – American University — 2019
Astronomy for non-STEM Majors – George Mason University (TA) — 2014
Introduction to Astrophysics – George Mason University (TA) — 2013

Advising

High School Students

Viveka Chaudry – current: Sidwell Friends School 2022

Undergraduates

Allen Chen – UC Berkeley 2022–2023
Theo Pedapolu – UC Berkeley 2021
Ishaan Gandhi – Harvey Mudd College (current: securities industry) 2016
Anshula Gandhi – MIT (current: University of British Columbia M.Sc.) 2016
Mackenzie Kynoch – Dartmouth (current: software industry) 2015

Grants Awarded

Lead or Co-lead

Hubble Space Telescope Multi-Cycle #17081–
"*Mass Measurement of a Candidate Balck Hole Microlens with Systematic Error Control*"
Principle Investigator: D. P. Bennett/S. K. Terry (co-PI)
October 01, 2022 – November 30, 2025

Hubble Space Telescope Cycle 28 #16509
"*Detection of the Astrometric Microlensing Signal by the Binary Black Hole Candidate MOA-2019-BLG-284*"
Principle Investigator: S. K. Terry
April 05, 2021 – September 30, 2021

Notable Co-Investigator

NASA/Roman Project Infrastructure Team (PIT)
"*Roman Galactic Exoplanet Survey*"
Principle Investigator: S. Gaudi
October 01, 2023 – September 30, 2028

Keck Semester 2021B | 2023B
"*Finding Black Holes with Astrometric Microlensing*"
Principle Investigator: J. R. Lu
August 03, 2021 – September 03, 2021 | May 18, 2023 – July 16, 2023

Keck Semester 2021A
"*Testing Core Accretion with Microlens Planet Host Star Masses*"
Principle Investigator: D. P. Bennett
May 17, 2021 – July 13, 2021

Hubble Space Telescope Cycle 27 #16067
"*Mass Measurement of Isolated Black Hole Candidate MOA-2019-BLG-284L via Lensed Image Separation*"
Principle Investigator: D. P. Bennett
March 13, 2020 – September 14, 2020

Observing

HST (WFC3/UVIS), 26 orbits 2021–
Keck (NIRC2/OSIRIS), 14 nights 2019–
GMU 0.8m, 16 nights 2013–2015

Talks

Selected invited talks

6. "Measuring the Masses of Exoplanets and Compact Objects with the Roman Galactic Bulge

Time Domain Survey", *Roman* Virtual Lecture Series, Caltech/Ipac, April 2023

5. "Directly Measuring the Mass of Microlensing Exoplanets with the Roman Space Telescope", University of California San Diego, January 2022
4. "Discovering and Characterizing Exoplanets", Universidad Nacional Autónoma de Honduras, December 2021
3. "PSF-Reconstruction, AIROPA, and the KAPA Project", University of California Los Angeles, June 2021
2. "Comparing HST Observations of Bulge Stars to Galactic Population Synthesis Models in Preparation for the WFIRST Microlensing Survey", NASA GSFC, November 2019
1. "Probing the Galactic Bulge Stellar Population as Precursor Science for WFIRST", University of Maryland, May 2018

Publications

18 total (5 first author)

18. **Terry, S. K.**, Bennett, D. P., Bhattacharya, A., Chaudhry, V., et al. "MOA-2007-BLG-192: Resolving the Lowest Mass Microlens Star Hosting a Planet", 2023, *in prep*
17. Vandorou, A., Dang, L., Bennett, D. P., Koshimoto, N., & 11 coauthors including **Terry, S. K.**, "OGLE-2016-BLG-1195Lb: A Sub-Neptune Beyond the Snow Line of an M-dwarf Confirmed by Keck AO", 2023, *submitted 05/23*
16. Bhattacharya, A., Bennett, D. P., Beaulieu, J., & 11 coauthors including **Terry, S. K.**, "Confirmation of Color-dependent Centroid Shift Measured After 1.8 Years with HST", 2023, *AJ*, 165, 206
15. **Terry, S. K.**, Lu, J. R., Turri, P., Ciurlo, A., et al. "AIROPA IV: Validating Point Spread Function Reconstruction on Various Science Cases", 2023, *JATIS*, 9(1), 019007
14. **Terry, S. K.**, Bhattacharya, A., Bennett, D. P., Bond, I.A., et al. "Adaptive Optics Imaging Can Break the Central Caustic Cusp Approach Degeneracy in High-magnification Microlensing Events", 2022, *AJ*, 164, 217
13. Ciurlo, A., Turri, P., Witzel, G., & 12 coauthors including **Terry, S. K.**, "AIROPA II: Modeling Instrumental Aberrations for Off-Axis Point Spread Functions in Adaptive Optics", 2022, *JATIS*, 8(3), 038007
12. Lu, J. R., **Terry, S. K.**, Turri, P., et al. "AIROPA: Off-axis adaptive optics PSF reconstruction in simulation, on-bench, and on-sky", 2022, *SPIE Proc.*, 12185, 3Y
11. Wizinowich, P., Lu, J. R., Cetre, S., & 31 coauthers including **Terry, S. K.**, "Keck All sky Precision Adaptive optics program overview", 2022, *SPIE Proc.*, 12185, 193-207
10. Chu, D., Ning, W., Do, T., & 8 coauthors including **Terry, S. K.**, "Evaluating the performance of the Keck Observatory adaptive optics systems on crowded field data using different adaptive optics configurations", 2022, *SPIE Proc.*, 12185, 45
9. Turri, P., Lu, J. R., Witzel, G., & 7 coauthors including **Terry, S. K.**, "AIROPA III: Testing Simulated and On-Sky Data", 2022, *JATIS*, 8(3), 039002
8. Lam, C., Lu, J. R., Udalski, A., & 44 coauthors including **Terry, S. K.**, "An Isolated Mass Gap Black Hole or Neutron Star Detected with Astrometric Microlensing", 2022, *ApJL*, 933, L23
7. Lam, C., Lu, J. R., Udalski, A., & 44 coauthors including **Terry, S. K.**, "Supplement: An Isolated Mass Gap Black Hole or Neutron Star Detected with Astrometric Microlensing", 2022, *ApJS*, 260, 55
6. Blackman, J., Beaulieu, J., Bennett, D. P., & 11 coauthors including **Terry, S. K.**, "A Jovian Analog Orbiting a White Dwarf Star", 2021, *Nature*, 598, 272

5. Bhattacharya, A., Bennett, D. P., Beaulieu, J., & 11 coauthors including **Terry, S. K.**, "MOA-2007-BLG-400Lb: A Super-Jupiter Mass Planet Orbiting a Galactic Bulge K-dwarf Revealed by Keck Adaptive Optics Imaging", 2021, *AJ*, 162, 60
4. **Terry, S. K.**, Bhattacharya, A., Bennett, D. P., Bond, I.A., et al. "MOA-2009-BLG-319Lb: A Sub-Saturn Planet Inside the Predicted Mass Desert", 2021, *AJ*, 161, 54
3. **Terry, S. K.**, Barry, R. K., Bennett, D. P., Bhattacharya, A., Anderson, J., Penny, M. T., "Comparing Observed Stellar Kinematics and Surface Densities in a Low Latitude Bulge Field to Galactic Population Synthesis Models", 2020, *ApJ*, 889, 126
2. Bennett, D. P., Bhattacharya, A., Beaulieu, J., & 9 coauthors including **Terry, S. K.**, "Keck Observations Confirm a Super-Jupiter Planet Orbiting M-dwarf OGLE-2005-BLG-071L", 2020, *AJ*, 159, 68
1. Bennett, D. P., Bhattacharya, A., Anderson, J., & 15 coauthors including **Terry, S. K.**, "Confirmation of the Planetary Microlensing Signal and Star and Planet Mass Determinations for Event OGLE-2005-BLG-169", 2015, *ApJ*, 808, 169