Sean K. Terry

PERSONAL

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APPOINTMENTS

Postdoctoral Scholar, University of California, Berkeley — November 2020 – Present

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 exoplanets
Astrometric microlensing
Adaptive optics
Galactic bulge stellar kinematics and populations

SERVICE & PROFESSIONAL ACTIVITIES

Professional Activities

SOC co-chair – KAPA Annual Science Meeting (KASM) — 2021
Project Science Team – Keck All-Sky Precision Adaptive Optics (KAPA) — 2020–present
Representative – Annual GSFC Administrator's Congressional Visits — 2016
LOC – 19th International Conference on Microlensing — 2015

Professional Memberships

Member – UCLA Galactic Center Group — 2020–present
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 and Reviews

HST Cycle 29 — 2021
TESS Cycle 4 — 2021

TEACHING EXPERIENCE

Guest Lecturer (American U.), *Complex Problems Seminar: Exoplanets in Fact & Fiction* — 2019
Teaching Assistant (GMU), *Astronomy for non-STEM Majors* — 2014
Teaching Assistant (GMU), *Introduction to Astrophysics* — 2013

ADVISING

Students

Theo Pedapolu – current: UC Berkeley — 2021

NASA Goddard Summer Interns

Ishaan Gandhi – Harvey Mudd College (graduated) — 2016
Anshula Gandhi – MIT (graduated) — 2015
Mackenzie Kynoch – Dartmouth (graduated) — 2015

Outreach

Instructor, AstroTech 2021, University of California Berkeley, Berkeley, CA	2021
Guest Speaker, 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
MATHCOUNTS ambadassor & judge, TJ High School, VA	2013−2014

Grants Awarded

Hubble Space Telescope Cycle 28 Grant #16509
"*Detection of the Astrometric Microlensing Signal by the Binary Black Hole Candidate MOA-2019-BLG-284*"
Principle Investigator: S. K. Terry
March 09, 2021 − November 31, 2021

Keck Semester 2021B
"*Finding Black Holes with Astrometric Microlensing*"
Principle Investigator: J. R. Lu
August 03, 2021 − September 03, 2021

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

Keck Semester 2020B
"*Confirmation of a Massive Black Hole Microlens Candidate*"
Principle Investigator: D. P. Bennett
August 2, 2020 − August 11, 2020

Observing

HST (WFC3/UVIS), 4 orbits	2021
Keck 10m (NIRC2/OSIRIS), 10.5 nights	2019−2021
GMU 0.8m, 16 nights	2013−2015

Talks & Proceedings

14 talks (4 invited†, 10 contributed)

14. "Direct Mass Measurements for Microlensing Exoplanets", University of California Berkeley, September 2021
13. †"PSF-Reconstruction, AIROPA, and the KAPA Project", University of California Los Angeles, June 2021
12. †"A Sub-Saturn Exoplanet Inside the Mass Desert Predicted by Core Accretion", University of Maryland, November 2020
11. "Roman Space Telescope Mass-measurement Method Determines a Mass of $66 \pm 8 M_{\oplus}$ for MOA-2009-BLG-319Lb", Chesapeake Bay Area Exoplanet Meeting (chExo) #8, June 2020
10. †"Comparing HST Observations of Bulge Stars to Galactic Population Synthesis Models in Preparation for the WFIRST Microlensing Survey", NASA GSFC, November 2019
9. †"Probing the Galactic Bulge Stellar Population as Precursor Science for WFIRST", University of Maryland, May 2018
8. "Preparing for the WFIRST Microlensing Survey: Stellar Populations in the Galactic Bulge", George Mason University, November 2017
7. "Precursor Science for the WFIRST Mission", Sagan Exoplanet Summer Workshop, Caltech, August 2017

6. "A Deep Study of the Stanek Field as Precursor Science for the WFIRST Microlensing Field of Regard", George Washington University, July 2017
5. "Bayesian Modeling of Gravitational Microlensing Events", George Washington University, June 2016
4. "A New Toolkit for Modeling Gravitational Microlensing Events", The College of William & Mary, March 2016
3. "Exoplanet Detection with WFIRST", The Catholic University of America, July 2015
2. "A New Near-IR Luminosity Function in the WFIRST Microlensing Fields", 19th International Conference on Gravitational Microlensing, January 2015
1. "Light Curve Analysis of HD 189733b, WASP-33b and KELT-1b", George Mason University, November 2013

Publications

9 total (5 first author)

9. **Terry, S. K.**, Lu, J. R., Turri, P., Ciurlo, A., et al. "AIROPA IV: Validation with Various Science Cases", 2021, *in prep*
8. **Terry, S. K.**, Bennett, D. P., Bhattacharya, A., Bond, I.A., et al. "First Direct Identification of a Multi-Star Microlens System Hosting a Planet", 2021, *in prep*
7. **Terry, S. K.**, Bhattacharya, A., Bennett, D. P., Bond, I.A., et al. "A New Method to Break the Central Perturbation Degeneracy in High Magnification Microlensing Events", 2021, *in prep*
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

Skills

`Python, FORTRAN, IDL, gnu, Git, Bash, HTML5, C++`

References

Available upon request.