

PHILIP STEVEN MUIRHEAD

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- EDUCATION** *Doctor of Philosophy*, 2011
Cornell University, Ithaca, NY
Field: Astronomy
Concentrations: Infrared Astronomy, Astrophysics, Radiophysics, Applied Physics, Planetary Studies
Dissertation Title: *Externally Dispersed Interferometry for Terrestrial Exoplanet Detection*
- Master of Science*, 2008
Cornell University, Ithaca, NY
Field: Astronomy
- Bachelor of Science*, 2005
University of Michigan, Ann Arbor, MI
College of Literature Science & The Arts, Honors Program, Residential College
Concentrations: Astronomy and Astrophysics, General Physics
- POSITIONS & FELLOWSHIPS** *Assistant Professor of Astronomy*, Department of Astronomy, Institute for Astrophysical Research, Boston University, Boston, MA, July 2014 - present
- Hubble Postdoctoral Fellow*, Institute for Astrophysical Research, Boston University, Boston, MA, Aug 2013 - June 2014
- Postdoctoral Scholar*, Division of Physics, Math and Astronomy, California Institute of Technology, Pasadena, CA, July 2011 - July 2013
- Postdoctoral Associate*, Center for Astrophysics and Planetary Science, Cornell University, Ithaca, NY, June 2011
- Z. Carter Patten '25 Graduate Fellow*, Department of Astronomy, Cornell University, Ithaca, NY, 2010-2011
- NASA New York Space Grant Graduate Fellow*, Department of Astronomy, Cornell University, Ithaca, NY, 2010-2011
- NASA Earth and Space Sciences Graduate Fellow*, Department of Astronomy, Cornell University, Ithaca, NY, 2007-2010
- HONORS & AWARDS** Anacapa Scholar, Thacher School, Ojai, CA, 2015
- Cranston W. and Edna B. Shelley Award for Research in Astronomy, Cornell University, 2009

Honors Program, University Honors (all semesters), James B. Angell Scholar (2005), University of Michigan

GRANTS AS PI Boston University Arts Initiative, *The Art of Astrophysics: A Competition for the BU Community*, \$900, 2015

NASA Exoplanet Research Program, *Mass-Radius-Luminosity-Rotation Relationships for M Dwarf Planet-Hosting Stars in Preparation for the TESS, Gaia and JWST Era*, \$371932, 2015-2018

Massachusetts Space Grant Consortium, *Using Cassini Data on Saturn to Correctly Interpret Exoplanet Atmosphere Measurements*, \$5500, Summer 2014

NASA Hubble Fellowship, *Characterizing the Smallest Extrasolar Planets with Kepler and the Discovery Channel Telescope*, \$347700, 2013-2014 (fellowship abdicated on July 2014 upon starting as faculty at BU)

JPL Director's Research and Development Fund Award, *Lock-In Amplified Externally Dispersed Interferometry (LAEDI)*, External PI, \$195032, 2012-2013

NASA Earth and Space Sciences Graduate Fellowship, *Searching for Terrestrial Exoplanets with the TripleSpec Externally Dispersed Interferometer*, \$84000, 2007-2010

Numerous grants for conference and research-related travel, including the AAS International Travel Grant Award, several Cornell Conference Travel Grant awards and the Cornell Research Travel Grant Competition Award, applied toward residence at the University of California Space Sciences Laboratory in the Spring of 2010.

GRANTS AS CO-I NSF Research Experience for Undergraduates Site, *REU Site: Magnetic Fields on Planetary to Cosmic Scales - a Joint Program in Astrophysics and Space Science at Boston University*, \$216079, 2014-2017

INVITED TALKS Colloquium, Department of Astronomy, The University of Texas, Austin, TX, Nov 2015

Anacapa Scholar Public Talk, Thacher School, Ojai, CA, Oct 2015

Colloquium, The Observatories of the Carnegie Institution for Science, Pasadena, CA, Oct 2015

Astrophysics Seminar, Center for Interdisciplinary Exploration and Research in Astrophysics (CIERA), Northwestern University, Evanston, IL, May 2015

Division 15 Space Science Seminar, Southwest Research Institute (SwRI), San Antonio, TX, March 2015

Invited Talk, The 11th Meeting of the NASA Exoplanet Exploration Program and Analysis Group, Seattle, WA, Jan 2015

Colloquium, Department of Astronomy, Cornell University, Ithaca, NY, Aug 2014

Colloquium, Department of Astronomy, Wesleyan University, Middletown, CT, Feb 2014

Plenary Review Talk, 45th Annual Meeting of the Division of Planetary Sciences of the American Astronomical Society, Denver, CO, Oct 2013

Joint Astrophysics Colloquium, Dept. of Physics, McGill University, Montreal, CA, Oct 2013

Colloquium, Lowell Observatory, Flagstaff, AZ, Sept 2013

Colloquium, Harvard-Smithsonian Center for Astrophysics, Cambridge, MA, Sept 2013

Astrophysics Seminar, Dept. of Astronomy, Boston University, Boston, MA, March 2013

Colloquium, Dept. of Physics and Astronomy, California State University, Northridge, CA, Nov 2012

Invited Talk, 2012 Palomar Science Meeting, Pasadena, CA, Nov 2012

Colloquium, Institute for Astronomy, University of Hawaii, Honolulu, HI, Oct 2012

Colloquium, Dept. of Physics, Harvey Mudd College, Claremont, CA, Sept 2012

Invited Talk, 2012 Sagan Summer Workshop, NExSci, Pasadena, CA, July 2012

Joint Colloquium, NRAO/Dept. of Astronomy, University of Virginia, Charlottesville, VA, April 2012

Joint Colloquium, The Dunlap Institute/Dept. of Astronomy and Astrophysics, University of Toronto, Toronto, Ontario, Jan 2012

Colloquium, Space Sciences Laboratory, University of California, Berkeley, CA, Nov 2010

PROFESSIONAL SERVICE NASA Exoplanet Research Program Review Panelist

NASA/NOAO WIYN Telescope Allocation Committee Review Panelist

NASA K2 Guest Observer Review Panel Chair

NASA K2 Guest Observer Review Panelist

NASA Earth and Space Sciences Fellowship External Reviewer

OPTICON Telescope Proposal External Reviewer

NASA Astrophysics Research and Analysis Program (APRA) Review Panelist

Spitzer Space Telescope Large Program Review Panelist

Spitzer Space Telescope Small Program Telescope Allocation Committee Member

Caltech Optical Observatories Telescope Allocation Committee Member

Referee for *The Astrophysical Journal* and *The Astrophysical Journal Letters*

Referee for *Publications of the Astronomical Society of the Pacific*

Organizer for the Tuesday Lunch Talks at Boston University

Organizer for the Astronomy Tea Talks at Caltech

Moderator for the Morning Astro-ph Discussions at Caltech

SOC Member for the *2009 Palomar Science Meeting*

Cofounder and first president (2006/07) of the Astronomy Graduate Network (AGN), an official Cornell student organization promoting professional development among astronomy graduate students.

PROFESSIONAL MEMBERSHIPS American Astronomical Society

SPIE - The International Society for Optics and Photonics

TEACHING Instructor, Boston University, GRS AS 712: *Radiative Processes in Astrophysics*, Spring 2015.

Instructor, Boston University, CAS AS 202: *Principles of Astronomy I*, Fall 2014.

Teaching Assistant, Cornell University, Astronomy 102/104: *Our Solar System*, Spring 2006.

Teaching Assistant, Cornell University, Astronomy 101/103: *The Nature of the Universe*, Fall 2005.

OBSERVING Keck Observatory I and II Telescopes, Palomar Observatory 200-inch Hale Telescope, Lowell Observatory Discovery Channel Telescope, NASA Infrared Telescope Facility, Lowell Observatory 72-inch Perkins Telescope, Lowell Observatory 42-inch Hall Telescope, Center for High-Angular Resolution Astronomy (CHARA, Mt. Wilson Observatory).

SOFTWARE Interactive Data Language (IDL, including GUI interfaces and object-oriented), C/C++, Python, Perl, Zemax and Zemax Programming Language (ZPL), SolidWorks, LabView.

HARDWARE Optical design and alignment, lock-in amplifiers, piezo operation, optical fibers, detector operation and readout, control systems, machining (press, mill, lathe).

SELECTED MEDIA APPEARANCES *The Best Bet for Alien Life May Be in Planetary Systems Very Different From Ours*, WIRED Science, January 2015, <http://www.wired.com/2015/01/alien-life-m-dwarf-planets/>

Recent solar storm signals mass increase in sun's activity, The Daily Free Press, September 2014, <http://dailyfreepress.com/2014/09/25/recent-solar-storm-signals-increase-in-suns-activity/>

Gravity-Bending Find Leads to Kepler Meeting Einstein, NASA Press Release, April 2013, <http://www.jpl.nasa.gov/news/news.php?release=2013-124>

Nearby Tau Ceti may host two planets suited to life, NewScientist, December 2012, http://www.newscientist.com/article/dn23021-nearby-tau-ceti-may-host-two-planets-suited-to-life.html.VMj1_e r F9hU

Three Earthlike planets identified by Cornell astronomers, Cornell Chronicle and Press Release, April 2012, <http://www.news.cornell.edu/stories/2012/04/astronomers-identify-three-extrasolar-planets>

NASA's Kepler Mission Finds Three Smallest Exoplanets, NASA Press Release, January 2012, <http://www.jpl.nasa.gov/news/news.php?release=2012-009>

PUBLICATIONS As first-author, refereed:

- [1] P. S. Muirhead, A. W. Mann, A. Vanderburg, T. D. Morton, A. Kraus, M. Ireland, J. J. Swift, G. A. Feiden, E. Gaidos, and J. Z. Gazak. Kepler-445, Kepler-446 and the Occurrence of Compact Multiples Orbiting Mid-M Dwarf Stars. *ApJ*, 801:18, March 2015.
- [2] P. S. Muirhead, J. Becker, G. A. Feiden, B. Rojas-Ayala, A. Vanderburg, E. M. Price, R. Thorp, N. M. Law, R. Riddle, C. Baranec, K. Hamren, E. Schlawin, K. R. Covey, J. A. Johnson, and J. P. Lloyd. Characterizing the Cool KOIs. VI. H- and K-band Spectra of Kepler M Dwarf Planet-candidate Hosts. *ApJS*, 213:5, July 2014.
- [3] P. S. Muirhead. Using gravitational lensing to measure stellar properties. *SPIE Newsroom*, November 2013.
- [4] P. S. Muirhead, A. Vanderburg, A. Shporer, J. Becker, J. J. Swift, J. P. Lloyd, J. Fuller, M. Zhao, S. Hinkley, J. S. Pineda, M. Bottom, A. W. Howard, K. von Braun, T. S. Boyajian, N. Law, C. Baranec, R. Riddle, A. N. Ramaprakash, S. P. Tendulkar, K. Bui, M. Burse, P. Chordia, H. Das, R. Dekany, S. Punyadi, and J. A. Johnson. Characterizing the Cool KOIs. V. KOI-256: A Mutually Eclipsing Post-common Envelope Binary. *ApJ*, 767:111, April 2013.
- [5] P. S. Muirhead, K. Hamren, E. Schlawin, B. Rojas-Ayala, K. R. Covey, and J. P. Lloyd. Characterizing the Cool Kepler Objects of Interests. New Effective Temperatures, Metallicities, Masses, and Radii of Low-mass Kepler Planet-candidate Host Stars. *ApJL*, 750:L37, May 2012.
- [6] P. S. Muirhead, J. A. Johnson, K. Apps, J. A. Carter, T. D. Morton, D. C. Fabrycky, J. S. Pineda, M. Bottom, B. Rojas-Ayala, E. Schlawin, K. Hamren, K. R. Covey, J. R. Crepp, K. G. Stassun, J. Pepper, L. Hebb, E. N. Kirby, A. W. Howard, H. T. Isaacson, G. W. Marcy, D. Levitan, T. Diaz-Santos, L. Armus, and J. P. Lloyd. Characterizing the Cool KOIs. III. KOI 961: A Small Star with Large Proper Motion and Three Small Planets. *ApJ*, 747:144, March 2012.
- [7] P. S. Muirhead, J. Edelstein, D. J. Erskine, J. T. Wright, M. W. Muterspaugh, K. R. Covey, E. H. Wishnow, K. Hamren, P. Andelson, D. Kimber, T. Mercer, S. P. Halverson, A. Vanderburg, D. Mondo, A. Czeszumaska, and J. P. Lloyd. Precise Stellar Radial Velocities of an M Dwarf with a Michelson Interferometer and a Medium-Resolution Near-Infrared Spectrograph. *PASP*, 123:709–724, June 2011.

As the first-author's advisor/mentor, refereed:

- [8] R. Jensen-Clem, P. S. Muirhead, M. Bottom, Wallace J. K., G. Vasisht, and J. A. Johnson. Attaining Doppler Precision of 10 cm s⁻¹ with a Lock-in Amplified Spectrometer. *PASP in press*, 127, November 2015.
- [9] P. A. Dalba, P. S. Muirhead, J. J. Fortney, M. M. Hedman, P. D. Nicholson, and M. J. Veyette. The Transit Transmission Spectrum of a Cold Gas Giant Planet. *ApJ in press*, October 2015.
- [10] M. Bottom, P. S. Muirhead, J. A. Johnson, and C. H. Blake. Optimizing Doppler Surveys for Planet Yield. *PASP*, 125:240–251, March 2013.

As co-author, refereed:

- [11] L. Yu, J. N. Winn, M. Gillon, S. Albrecht, S. Rappaport, A. Bieryla, F. Dai, L. Delrez, L. Hillenbrand, M. J. Holman, A. W. Howard, C. X. Huang, H. Isaacson, E. Jehin, M. Lendl, B. T. Montet, P. Muirhead, R. Sanchis-Ojeda, and A. H. M. J. Triaud. Tests of the Planetary Hypothesis for PTFO 8-8695b. *ApJ*, 812:48, October 2015.
- [12] J. J. Swift, B. T. Montet, A. Vanderburg, T. Morton, P. S. Muirhead, and J. A. Johnson. Characterizing the Cool KOIs. VIII. Parameters of the Planets Orbiting Keplers Coolest Dwarfs. *ApJS*, 218:26, June 2015.
- [13] J. J. Swift, M. Bottom, J. A. Johnson, J. T. Wright, N. McCrady, R. A. Wittenmyer, P. Plavchan, R. Riddle, P. S. Muirhead, E. Herzig, J. Myles, C. H. Blake, J. Eastman, T. G. Beatty, S. I. Barnes, S. R. Gibson, B. Lin, M. Zhao, P. Gardner, E. Falco, S. Criswell, C. Nava, C. Robinson, D. H. Sliski, R. Hedrick, K. Ivarsen, A. Hjelstrom, J. de Vera, and A. Szentgyorgyi. Miniature Exoplanet Radial Velocity Array (MINERVA) I. Design, Commissioning, and First Science Results. *Journal of Astronomical Telescopes, Instruments, and Systems*, 1(2):027002, April 2015.
- [14] B. T. Montet, J. A. Johnson, P. S. Muirhead, A. Villar, C. Vassallo, C. Baranec, N. M. Law, R. Riddle, G. W. Marcy, A. W. Howard, and H. Isaacson. Characterizing the Cool KOIs. VII. Refined Physical Properties of the Transiting Brown Dwarf LHS 6343 C. *ApJ*, 800:134, February 2015.
- [15] H. Ngo, H. A. Knutson, S. Hinkley, J. R. Crepp, E. B. Bechter, K. Batygin, A. W. Howard, J. A. Johnson, T. D. Morton, and P. S. Muirhead. Friends of Hot Jupiters. II. No Correspondence between Hot-jupiter Spin-Orbit Misalignment and the Incidence of Directly Imaged Stellar Companions. *ApJ*, 800:138, February 2015.
- [16] G. Torres, D. M. Kipping, F. Fressin, D. A. Caldwell, J. D. Twicken, S. Ballard, N. M. Batalha, S. T. Bryson, D. R. Ciardi, C. E. Henze, S. B. Howell, H. T. Isaacson, J. M. Jenkins, P. S. Muirhead, E. R. Newton, E. A. Petigura, T. Barclay, W. J. Borucki, J. R. Crepp, M. E. Everett, E. P. Horch, A. W. Howard, R. Kolbl, G. W. Marcy, S. McCauliff, and E. V. Quintana. Validation of 12 Small Kepler Transiting Planets in the Habitable Zone. *ApJ*, 800:99, February 2015.
- [17] M. Zhao, J. G. O'Rourke, J. T. Wright, H. A. Knutson, A. Burrows, J. Fortney, H. Ngo, B. J. Fulton, C. Baranec, R. Riddle, N. M. Law, P. S. Muirhead, S. Hinkley, A. P. Showman, J. Curtis, and R. Burruss. Characterization of the Atmosphere of the Hot Jupiter HAT-P-32Ab and the M-dwarf Companion HAT-P-32B. *ApJ*, 796:115, December 2014.

- [18] G. H. Schaefer, T. T. Brummelaar, D. R. Gies, C. D. Farrington, B. Kloppenborg, O. Chesneau, J. D. Monnier, S. T. Ridgway, N. Scott, I. Tallon-Bosc, H. A. McAlister, T. Boyajian, V. Maestro, D. Mourard, A. Meilland, N. Nardetto, P. Stee, J. Sturmann, N. Vargas, F. Baron, M. Ireland, E. K. Baines, X. Che, J. Jones, N. D. Richardson, R. M. Roettenbacher, L. Sturmann, N. H. Turner, P. Tuthill, G. van Belle, K. von Braun, R. T. Zavala, D. P. K. Banerjee, N. M. Ashok, V. Joshi, J. Becker, and P. S. Muirhead. The expanding fireball of Nova Delphini 2013. *Nature*, 515:234–236, November 2014.
- [19] A. W. Howard, G. W. Marcy, D. A. Fischer, H. Isaacson, P. S. Muirhead, G. W. Henry, T. S. Boyajian, K. von Braun, J. C. Becker, J. T. Wright, and J. A. Johnson. The NASA-UC-UH ETA-Earth Program. IV. A Low-mass Planet Orbiting an M Dwarf 3.6 PC from Earth. *ApJ*, 794:51, October 2014.
- [20] E. B. Bechter, J. R. Crepp, H. Ngo, H. A. Knutson, K. Batygin, S. Hinkley, P. S. Muirhead, J. A. Johnson, A. W. Howard, B. T. Montet, C. T. Matthews, and T. D. Morton. WASP-12b and HAT-P-8b are Members of Triple Star Systems. *ApJ*, 788:2, June 2014.
- [21] S. Rappaport, J. Swift, A. Levine, M. Joss, R. Sanchis-Ojeda, T. Barclay, M. Still, G. Handler, K. Oláh, P. S. Muirhead, D. Huber, and K. Vida. M-dwarf Rapid Rotators and the Detection of Relatively Young Multiple M-Star Systems. *ApJ*, 788:114, June 2014.
- [22] H. A. Knutson, B. J. Fulton, B. T. Montet, M. Kao, H. Ngo, A. W. Howard, J. R. Crepp, S. Hinkley, G. Á. Bakos, K. Batygin, J. A. Johnson, T. D. Morton, and P. S. Muirhead. Friends of Hot Jupiters. I. A Radial Velocity Search for Massive, Long-period Companions to Close-in Gas Giant Planets. *ApJ*, 785:126, April 2014.
- [23] L. A. Hillenbrand, A. A. Miller, K. R. Covey, J. M. Carpenter, S. B. Cenko, J. M. Silverman, P. S. Muirhead, W. J. Fischer, J. R. Crepp, J. S. Bloom, and A. V. Filippenko. Highly Variable Extinction and Accretion in the Jet-driving Class I-type Young Star PTF 10nvg (V2492 Cyg, IRAS 20496+4354). *AJ*, 145:59, March 2013.
- [24] J. J. Swift, J. A. Johnson, T. D. Morton, J. R. Crepp, B. T. Montet, D. C. Fabrycky, and P. S. Muirhead. Characterizing the Cool KOIs. IV. Kepler-32 as a Prototype for the Formation of Compact Planetary Systems throughout the Galaxy. *ApJ*, 764:105, February 2013.
- [25] S. Ben-Ami, A. Gal-Yam, A. V. Filippenko, P. A. Mazzali, M. Modjaz, O. Yaron, I. Arcavi, S. B. Cenko, A. Horesh, D. A. Howell, M. L. Graham, J. C. Horst, M. Im, Y. Jeon, S. R. Kulkarni, D. C. Leonard, D. Perley, E. Pian, D. J. Sand, M. Sullivan, J. C. Becker, D. Bersier, J. S. Bloom, M. Bottom, P. J. Brown, K. I. Clubb, B. Dilday, R. C. Dixon, A. L. Fortinsky, D. B. Fox, L. A. Gonzalez, A. Harutyunyan, M. M. Kasliwal, W. Li, M. A. Malkan, I. Manulis, T. Matheson, N. A. Moskovitz, P. S. Muirhead, P. E. Nugent, E. O. Ofek, R. M. Quimby, J. W. Richards, N. R. Ross, K. J. Searcy, J. M. Silverman, N. Smith, A. Vanderburg, and E. S. Walker. Discovery and Early Multi-wavelength Measurements of the Energetic Type Ic Supernova PTF12gzk: A Massive-star Explosion in a Dwarf Host Galaxy. *ApJL*, 760:L33, December 2012.
- [26] H. E. Schlichting, E. O. Ofek, R. Sari, E. P. Nelan, A. Gal-Yam, M. Wenz, P. Muirhead, N. Javanfar, and M. Livio. Measuring the Abundance of Sub-kilometer-sized Kuiper Belt Objects Using Stellar Occultations. *ApJ*, 761:150, December 2012.
- [27] T. S. Boyajian, K. von Braun, G. van Belle, H. A. McAlister, T. A. ten Brummelaar, S. R. Kane, P. S. Muirhead, J. Jones, R. White, G. Schaefer, D. Ciardi,

- T. Henry, M. López-Morales, S. Ridgway, D. Gies, W.-C. Jao, B. Rojas-Ayala, J. R. Parks, L. Sturmann, J. Sturmann, N. H. Turner, C. Farrington, P. J. Goldfinger, and D. H. Berger. Stellar Diameters and Temperatures. II. Main-sequence K- and M-stars. *ApJ*, 757:112, October 2012.
- [28] J. A. Johnson, J. Z. Gazak, K. Apps, P. S. Muirhead, J. R. Crepp, I. J. M. Crossfield, T. Boyajian, K. von Braun, B. Rojas-Ayala, A. W. Howard, K. R. Covey, E. Schlawin, K. Hamren, T. D. Morton, G. W. Marcy, and J. P. Lloyd. Characterizing the Cool KOIs. II. The M Dwarf KOI-254 and Its Hot Jupiter. *AJ*, 143:111, May 2012.
- [29] B. Rojas-Ayala, K. R. Covey, P. S. Muirhead, and J. P. Lloyd. Metallicity and Temperature Indicators in M Dwarf K-band Spectra: Testing New and Updated Calibrations with Observations of 133 Solar Neighborhood M Dwarfs. *ApJ*, 748:93, April 2012.
- [30] A. A. Miller, L. A. Hillenbrand, K. R. Covey, D. Poznanski, J. M. Silverman, I. K. W. Kleiser, B. Rojas-Ayala, P. S. Muirhead, S. B. Cenko, J. S. Bloom, M. M. Kasliwal, A. V. Filippenko, N. M. Law, E. O. Ofek, R. G. Dekany, G. Rahmer, D. Hale, R. Smith, R. M. Quimby, P. Nugent, J. Jacobsen, J. Zolkower, V. Velur, R. Walters, J. Henning, K. Bui, D. McKenna, S. R. Kulkarni, C. R. Klein, M. Kandrashoff, and A. Morton. Evidence for an FU Orionis-like Outburst from a Classical T Tauri Star. *ApJ*, 730:80, April 2011.
- [31] A. A. West, D. P. Morgan, J. J. Bochanski, J. M. Andersen, K. J. Bell, A. F. Kowalski, J. R. A. Davenport, S. L. Hawley, S. J. Schmidt, D. Bernat, E. J. Hilton, P. Muirhead, K. R. Covey, B. Rojas-Ayala, E. Schlawin, M. Gooding, K. Schluns, S. Dhital, J. S. Pineda, and D. O. Jones. The Sloan Digital Sky Survey Data Release 7 Spectroscopic M Dwarf Catalog. I. Data. *AJ*, 141:97, March 2011.
- [32] B. Rojas-Ayala, K. R. Covey, P. S. Muirhead, and J. P. Lloyd. Metal-rich M-Dwarf Planet Hosts: Metallicities with K-band Spectra. *ApJL*, 720:L113–L118, September 2010.
- [33] J. D. Monnier, M. Zhao, E. Pedretti, N. Thureau, M. Ireland, P. Muirhead, J.-P. Berger, R. Millan-Gabet, G. Van Belle, T. ten Brummelaar, H. McAlister, S. Ridgway, N. Turner, L. Sturmann, J. Sturmann, and D. Berger. Imaging the Surface of Altair. *Science*, 317:342–, July 2007.

As first-author, unrefereed:

- [34] P. S. Muirhead, Z. J. Hall, and M. J. Veyette. HiJaK: the high-resolution J, H and K spectrometer. In *Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series*, volume 9147 of *Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series*, page 7, August 2014.
- [35] P. S. Muirhead, J. Edelstein, and J. Lloyd. Precise infrared radial velocimetry with the triplespec exoplanet discovery instrument: current performance and results. In *Astronomy of Exoplanets with Precise Radial Velocities*, page 27P, August 2010.
- [36] P. S. Muirhead, J. Edelstein, J. T. Wright, D. J. Erskine, M. W. Muterspaugh, K. R. Covey, M. R. Marckwordt, S. Halverson, D. Mondo, and J. P. Lloyd. Precise infrared radial velocimetry with the Triplespec Exoplanet Discovery Instrument: current performance and results. In *Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series*, volume 7735 of *Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series*, page 7, July 2010.

- [37] P. S. Muirhead, D. J. Erskine, J. Edelstein, T. S. Barman, and J. P. Lloyd. Radial Velocity Precision in the Near-Infrared with T-EDI. In N. C. Santos, L. Pasquini, A. C. M. Correia, and M. Romaniello, editors, *Precision Spectroscopy in Astrophysics*, pages 303–304, 2008.

As co-author, unrefereed:

- [38] P. Plavchan, D. Latham, S. Gaudi, J. Crepp, X. Dumusque, G. Furesz, A. Vanderburg, C. Blake, D. Fischer, L. Prato, R. White, V. Makarov, G. Marcy, K. Stapelfeldt, R. Haywood, A. Collier-Cameron, A. Quirrenbach, S. Mahadevan, G. Anglada, and P. Muirhead. Radial Velocity Prospects Current and Future: A White Paper Report prepared by the Study Analysis Group 8 for the Exoplanet Program Analysis Group (ExoPAG). *ArXiv e-prints*, March 2015.
- [39] M. Bottom, P. S. Muirhead, J. J. Swift, M. Zhao, P. Gardner, P. P. Plavchan, R. L. Riddle, E. Herzig, J. A. Johnson, J. T. Wright, N. McCrady, and R. A. Wittenmyer. Design, motivation, and on-sky tests of an efficient fiber coupling unit for 1-meter class telescopes. In *Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series*, volume 9147 of *Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series*, page 2, August 2014.
- [40] S. Dhital, T. D. Oswalt, P. S. Muirhead, K. L. Weisenburger, S. A. Barnes, K. A. Janes, A. A. West, K. R. Covey, S. Meibom, and T. F. Mizusawa. A Gyrochronology and Microvariability Survey of the Milky Way’s Older Stars Using Kepler’s Two-Wheels Program. *ArXiv e-prints*, September 2013.
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