

REBECCA JENSEN-CLEM

CURRICULUM VITAE

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EDUCATION & EMPLOYMENT

2017 - Present Miller Fellow, UC Berkeley Astronomy Department
2017 Ph.D. California Institute of Technology, Astrophysics
Thesis: *A Toolbox for Exoplanet Exploration*
Advisor: Prof. Shrinivas Kulkarni
2014 M.S. California Institute of Technology, Astrophysics
2012 B.S. Massachusetts Institute of Technology, Physics

RESEARCH INTERESTS

Exoplanet imaging and polarimetry, wavefront sensing and control, signal detection theory, brown dwarfs and low mass stars, stellar multiplicity, CubeSats.

AWARDS & SCHOLARSHIPS

2017 Everhart Distinguished Graduate Student Lecturer Award
2012 - 2016 NSF Graduate Research Fellowship
2011 Massachusetts Space Grant for JPL summer internship
2011 The Lockheed Martin Prize for Excellence in Systems Engineering

GRANTS

2018 - 2020 PI, Heising-Simons Foundation, \$338k
Demonstrating Predictive Wavefront Control at W. M. Keck Observatory
2018 - 2020 PI, NSF Astronomy and Astrophysics Grants, \$159k
Collaborative Research: Determining Properties of Brown Dwarf Atmospheres With High-Precision Spectro-Polarimetry

OBSERVING PROGRAMS

2017 PI, Gemini/GPI, 9.5 hours, Program GS-2017B-Q-16
2017 PI, Gemini/GPI, 4.7 hours, Program GS-2017B-Q-17
2016 Co-I (lead), VLT/SPHERE, 1 night, Program 098.C-0864
2015 PI, Gemini/GPI, 9.5 hours, Program GS-2015B-Q-11
2015 PI, P200/P3K, 3 nights, Observing run 3559

PROFESSIONAL SERVICE

2018 - Present ExoPAG Executive Committee member
2018 - Present Postdoc representative to UC Berkeley Astronomy Department Climate Committee

- 2016 - Present Co-lead for ExoPAG Study Analysis Group 19: Exoplanet Imaging Metrics
 2015 - Present Referee/reviewer for JATIS, AJ, NASA XRP, NASA NESSF
 2016 - 2017 Caltech Graduate Title IX Advisory Board member
 2013 - 2014 Co-founder/organizer of the Interplanetary Small Satellite Conference, Pasadena, CA
 2011 Founder of JPL Summer Intern CubeSat Symposium, Pasadena, CA

TEACHING

- 2017, 2018 Guest lecture and demo on adaptive optics for C249: Planetary Astrophysics at UCB
 2017 Certificate of Interest in University Teaching (Caltech Project for Effective Teaching)
 2015 Akamai Workforce Initiative Mentor Workshop
 2014 TA for Optical Astronomy Instrumentation Lab, Caltech
 2014 TA for Basic Astronomy and the Galaxy, Caltech
 2013 TA for Astronomical Measurements and Instrumentation, Caltech

ADVISING

- 2018 Advised UC Berkeley undergraduates **Eden McEwen**, **Aditya Sengupta**, and **Shide Dehghani** in summer research on predictive wavefront control, including Compute And Control for Adaptive Optics (CACAO) code installation, pyramid wavefront sensor modeling, and predictive control code performance analysis, respectively.
 2015 Co-advised Akamai Workforce Initiative summer intern **Jasmine Feliciano** on re-designing the post-AO Ten MilliArc-Second (TMAS) camera at Palomar Observatory.

INVITED TALKS

- 2018 TMT Science Forum (scheduled for December 2018), Pasadena, CA
 2018 University of Notre Dame Astrophysics Seminar, Notre Dame, IN
 2018 University of California Berkeley Astronomy Colloquium, Berkeley, CA
 2018 Women in Science & Engineering (WISE) Seminar Series, Berkeley, CA
 2018 Leiden Observatory Lunch Talk, Leiden, Netherlands
 2018 Herzberg Astronomy Seminar Series, Victoria, BC
 2018 University of British Columbia Physics & Astronomy Colloquium, Vancouver, BC
 2017 JPL Astrophysics Lunch Seminar
 2016 UC Berkeley Center of Integrative Planetary Science Seminar, Berkeley, CA
 2016 STScI Star and Planet Formation Seminar, Baltimore, MD
 2016 UCLA iPLEX Lunch Seminar, Los Angeles, CA
 2011 JPL Exoplanet Science Seminar, Pasadena, CA

CONTRIBUTED TALKS

- 2018 ExSoCal, Pasadena, CA
 2018 Exoplanet Exploration Program Analysis Group (ExoPAG) Meeting #18, Cambridge, MA
 2018 AAS Winter Meeting, Washington, DC
 2018 ExoPAG Meeting #17, Washington, DC
 2017 Bay Area Exoplanet Meeting #22, NASA Ames Conference Center, CA
 2017 ExSoCal, Pasadena, CA
 2017 AAS Winter Meeting, Grapevine, TX

- 2017 ExoPAG Meeting #15, Grapevine, TX
- 2016 1st International Vortex Workshop, Pasadena, CA
- 2016 AAS Winter Meeting, Kissimmee, FL
- 2012 IEEE Aerospace Meeting, Big Sky, MT
- 2011 JPL Summer Intern CubeSat Symposium, Pasadena, CA
- 2011 The Next 40 Years of Exoplanets, Cambridge, MA
- 2011 AAS Winter Meeting, Seattle, WA

FIRST AUTHOR

- [4] **Jensen-Clem, R.**; Mawet, D.; Gomez Gonzalez, C. A.; Absil, O.; Belikov, R.; Currie, T.; Kenworthy, M. A.; Marois, C.; Mazoyer, J.; Ruane, G.; Tanner, A.; Cantalloube, F. “[A New Standard for Assessing the Performance of High Contrast Imaging Systems](#),” 2018, *AJ*, 155 19.
- [3] **Jensen-Clem, R.**; Duev, D.; Riddle, R.; Salama, M.; Baranec, C.; Law, N.; Kulkarni, S.; Ramprakash, A. N. “[The Performance of the Robo-AO Laser Guide Star Adaptive Optics System at the Kitt Peak 2.1 m Telescope](#),” 2018, *AJ*, 155 32.
- [2] **Jensen-Clem, R.**; Millar-Blanchaer, M.; Mawet, D.; Graham, J. R.; Wallace, J. K.; Macintosh, B.; Hinkley, S.; Wiktorowicz, S. J.; Perrin, M. D.; Marley, M. S.; Fitzgerald, M. P.; Oppenheimer, R.; Ammons, S. M.; Rantakyro, F. T.; Marchis, F. “[Point Source Polarimetry with the Gemini Planet Imager: Sensitivity Characterization with T5.5 Dwarf Companion HD 19467 B](#),” 2016, *ApJ*, 820, 111.
- [1] **Jensen-Clem, R.**; Muirhead, P. S.; Bottom, M.; Wallace, J. K.; Vasisht, G.; Johnson, J. A., “[Attaining Doppler Precision of 10 cm s⁻¹ with a Lock-in Amplified Spectrometer](#),” 2015, *PASP*, 127, 957. pp. 1105-1112.

CO-AUTHOR

- [10] Ziegler, C., et al. “[Robo-AO Kepler Survey. V. The Effect of Physically Associated Stellar Companions on Planetary Systems](#),” 2018, *AJ*, 156, 83.
- [9] Giles, H. A. C., et al. “[K2-140b - an eccentric 6.57d transiting hot Jupiter in Virgo](#),” 2018, *MNRAS*, 475 2.
- [8] Ziegler, C., et al. “[Robo-AO Kepler Survey. IV. The Effect of Nearby Stars on 3857 Planetary Candidate Systems](#),” 2018, *AJ*, 155, 161.
- [7] Nielsen, E. L., et al. “[Evidence That the Directly Imaged Planet HD 131399 Ab Is a Background Star](#),” 2017, *AJ*, 154 218.
- [6] Ruane, G., et al. “[Deep Imaging Search for Planets Forming in the TW Hya Protoplanetary Disk with the Keck/NIRC2 Vortex Coronagraph](#),” 2017, *AJ*, 154, 73.
- [5] Adams, E. R., et al. “[Ultra-short-period Planets in K2 with Companions: A Double Transiting System for EPIC 220674823](#),” 2017, *AJ*, 153, 82.
- [4] Vanderburg, A., et al. “[Two Small Planets Transiting HD 3167](#),” 2016, *ApJL*, 827, L10.
- [3] Vanderburg, A., et al. “[Five Planets Transiting a Ninth Magnitude Star](#),” 2016, *ApJL*, 827, L10.
- [2] Millar-Blanchaer, M. A., et al. “[Beta Pictoris’ Inner Disk in Polarized Light and New Orbital Parameters for Beta Pictoris b](#),” 2015, *ApJ*, 811, 18.
- [1] Babuscia, A., et al. “[Inflatable antenna for cubesats: Motivation for development and antenna design](#),” 2013, *Acta Astronautica*, Volume 91, p. 322-332.

CONFERENCE PROCEEDINGS

- [4] Salama, M., et al. “Robo-AO Kitt Peak: status of the system and deployment of a sub-electron readnoise IR camera to detect low-mass companions,” 2016, *Proc. SPIE* 9909, Adaptive Optics Systems V, 99091A.
- [3] Babuscia, A., et al. “CommCube 1 and 2: A CubeSat series of missions to enhance communication capabilities for CubeSat,” 2013, *IEEE Aerospace Conference*, Big Sky, MT, pp. 1-19.
- [2] **Jensen-Clem, R.**; Wallace, J. K.; Serabyn, E. “Characterization of the phase-shifting Zernike wavefront sensor for telescope applications”. 2012, *IEEE Aerospace Conference*, Big Sky, MT, pp. 1-7.
- [1] Wallace, J. K., et al. “Phase-shifting Zernike interferometer wavefront sensor,” 2011, *Proc. SPIE* 8126, Optical Manufacturing and Testing IX, 81260F.