SHASHANK DHOLAKIA

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EDUCATION

Ph.D Astrophysics *May 2022 - Present*
Bright stars and their planets
University of Queensland

B.A. Astrophysics *August 2017 - Dec 2021*
Minor in CalTeach Science & Math Education
University of California, Berkeley

High School Diploma *July 2013 - June 2017*
Wilcox High School

RESEARCH POSITIONS

Undergraduate Researcher, Flatiron Institute *Fall 2020 - Feb 2022*
Topic: Fast transit models for rapidly-rotating stars (see paper 4)
Advisor: Dr. Rodrigo Luger

Research Intern, NASA AMES *Summer 2020*
Topic: Earth analogs from *Kepler* mission (see paper 3)
Funding: SETI Institute
Advisor: Dr. Jack Lissauer

Research Intern, Mazin Lab *Summer 2020*
Topic: Microwave Kinetic Inductance Detector (MKID) simulations
Funding: University of California, Santa Barbara
Advisor: Prof. Ben Mazin

Undergraduate Researcher, PALS Group, UC Berkeley *January 2017 - Dec 2021*
Topic: Long-period planets in *K2* and *TESS* (see paper 2)
Advisor: Prof. Courtney Dressing

Research Intern, NASA AMES *Summer 2017*
Topic: Planets in stellar clusters
Funding: SETI Institute
Advisor: Dr. Ann Marie Cody

Research Intern, NASA AMES *July 2015 - June 2018*
Topic: Discovery and follow-up of planet 2MASS J06101557+2436535 (see paper 1)
Advisor: Dr. Ann Marie Cody and Dr. Steve Howell

PUBLICATIONS

[4] **Dholakia, Shashank.**; Luger, Rodrigo; Dholakia, Shishir; *Fast Posterior Inference for Rapidly-rotating Stars: Semi-analytic Transit Models for Oblate, Gravity-darkened Stars in* starry. **manuscript in print at AJ**

[3] Rowe, Jason F.; Lissauer, Jack J.; Jontof-Hutter, Daniel; Dholakia, Shishir; **Dholakia, Shashank**; Livingston, John H. *Assessment of 's Candidate Earth Analog Planets.* **manuscript in prep.**

[2] Dholakia, S.[1]; **Dholakia, S.**[1]; Mayo, A. W.; Dressing, C. D.; *Constraining Orbital Periods from Nonconsecutive Observations: Period Estimates for Long-Period Planets in Six Systems Observed by K2 During Multiple Campaigns.* Astron. J, 2020.

[1] **Dholakia, S.**[1]; Dholakia, S.[1]; Cody, A.M; Howell, S. B.; Johnson, M. C.; Isaacson, H.; Everett, M. E.; Ciardi, D. R.; Howard, A. W; Shporer, A.; *A Substellar Companion to a Hot Star in K2's Campaign 0 Field.* PASP, 2019.

TALKS AND POSTERS

Invited Talks

- Dholakia, S.[1]; Dholakia, S.[1]; *A Search for Exoplanets in the Open Cluster Messier 35 and Koposov 62 Using a Novel Large-Scale Photometric Algorithm for the K2 Mission.* Kepler & K2 Mission Science Team, NASA AMES Research Center, CA, July. 2015.
- Dholakia, S.[1]; Dholakia, S.[1]; *A Search for Exoplanets in the Open Cluster Messier 35 and Koposov 62 Using a Novel Large-Scale Photometric Algorithm for the K2 Mission.* Lick Observatory VAN Talks, CA, Oct. 2015.
- Dholakia, S.[1]; Dholakia, S.[1]; *Citizen Science and Photometry on Exoplanets.* San Jose Astronomical Association Imaging SIG Talks, CA, May. 2016.

Contributed Talks

- Dholakia, S.; Luger, R., Dholakia, S.; *Constraining spin-orbit angles photometrically using a transit model for exoplanets orbiting rapidly-rotating stars.* AAS 239 Winter Meeting, Salt Lake City, UT, Jan. 2021 [accepted talk; meeting canceled due to COVID-19].
- Dholakia, S.[1]; Dholakia, S.[1]; *Mind the Gap: Period Constraints for Long Period Planets in Overlapping Fields with K2.* Bay Area Exoplanet Meeting, NASA AMES Research Center, CA, Sept. 2019.
- Dholakia, S.[1]; Dholakia, S.[1]; *Long Period Planets and Planetary Formation.* SPS Undergraduate Seminar, Berkeley, CA, Feb 2019.
- Dholakia, S.[1]; Dholakia, S.[1]; *A Substellar Companion to a Hot Star in K2's C0 M35 Field.* Bay Area Exoplanet Meeting, NASA AMES Research Center, CA, March 2018.
- Dholakia, S.[1]; Dholakia, S.[1]; *A Substellar Companion to a Hot Star in K2's C0 M35 Field.* CIPS Seminar Talk, Berkeley, CA, Feb 2018.

Poster Presentations

- **Dholakia S.**; Luger R.; Dholakia S.; *Efficient transit light curves for oblate and rapidly rotating stars.* TESS Sci Con II, Aug 2021.
- **Dholakia, S.**; Dholakia, S.; Mayo, A. W.; Dressing, C. D.; *Mind the Gap 2: Period Constraints for Long-Period Planets in Overlapping Fields.* Kepler-K2 Science Conference V, March 2019.
- Dholakia, S.; **Dholakia, S.**; Mayo, A. W.; Dressing, C. D.; *Mind the Gap 1: New Constraints for Six Planet Candidate Systems in K2 C5, C16, and C18 data* Kepler-K2 Science Conference V, March 2019.
- **Dholakia, S.**[1]; Dholakia, S.[1]; Cody, A.M; *A Search for Exoplanets in the Open Star Clusters Messier 35 and Koposov 62 Using A Photometric Algorithm for the K2 Mission.* AAS 229, Grapevine TX, Jan 2017.
- Dholakia, S.; **Dholakia S.**; Cody, A. M.; *A Search and Exploration of Multi-Exoplanet Systems Via Transit Timing Variation (TTV) Algorithms for the K2 Mission.* AAS 229, Grapevine TX, Jan 2017.

AWARDS

- 1st Place Grand Award in Physics, Intel International Science and Engineering Fair (2015)
- California State Science Fair Project of the Year (2015)
- Pricilla and Bart Bok Award 1st place, Intel International Science and Engineering Fair (2016 & 2015)

- Young Astronomy Photographer of the Year (Royal Greenwich Observatory) (2014)

RESEARCH SKILLS & EXPERIENCE

Observation	Photometry, Speckle Interferometry, AO imaging, RV Spectroscopy
Software	Python (Astropy, Scipy, Pandas, Lightkurve, Emcee, Vespa, etc.), LaTeX
Instrumentation	Polarimeters, soldering, breadboard circuits, telescope control
Other	Astrophotography

Relevant Coursework:
Astrophysical Techniques (ASTRON203), Astro Data Science Lab (ASTRON128), Intro to Optical Eng. (EE118), Optical and IR Astro Lab (ASTRON 120), Planetary Astrophysics (ASTRON162), Stellar Astrophysics (ASTRON160), Quantum Mechanics (PHYS5c, PHYS137a), Intro to Experimental Physics (PHYS 5b PHYS5c), Structure and Interpretations of Computer Science (CS61a).

Awarded Telescope Time:
Co-I: Gran Telescopio Canarias (2019B), 2 nights; Doppler tomography (PI E. Palle)
Co-I: Gemini/GRACES (2018B), 10 hours; Doppler tomography (PI M. Johnson)
Co-I: NASA-Keck (2017A), 1 night; Radial Velocity spectroscopy (PI A. M. Cody)
Co-I: LCOGT 0.4m (2016B), 6 hours; Transit photometry (PI D. Ciardi)

Observed on:
WIYN 3.5-meter/DSSI: Speckle Interferometry
Lick ShaneAO/ShARCS: Adaptive Optics Imaging
Leuschner 30": Transit photometry
iTelescope 17" CDK: Transit photometry
10", 4" refractor & others: Transit photometry, low-res spectroscopy, astrophotography, outreach public viewing

Analyzed or Reduced Data From:
Kepler Space Telescope: Photometry, Images:
Transiting Exoplanet Survey Satellite (TESS): Photometry, Images
Spitzer Space Telescope: Photometry, Images
W. M. Keck Observatory: Radial velocity spectra
LCOGT 0.4-meter telescope, iTelescope 0.5-meter: Transit photometry

TEACHING AND OUTREACH

Beginner's Guide to the Universe Fall 2019-Spring 2021

· Created and co-taught a 2-unit DeCal class on physics/astrophysics for nonmajors called Beginner's Guide to the Universe (along with students Nicholas Rui, Shishir Dholakia).

Berkeley Astro Nights Fall 2018- Fall 2019

· Operated portable telescopes and rooftop 17" telescope monthly for Berkeley Astro Nights. Objects observed included Jupiter, Saturn, Venus, Andromeda Galaxy (M31).

CalTeach Field Placements Fall 2019-Spring 2021

· Visited and taught 1st-12th graders science for five semesters at local Berkeley public schools (Thousand Oaks Elementary, Willard Middle School, Roosevelt Middle School, Albany High, El Cerrito High).

[1]Equal contribution to the work or jointly given talk