

## RESEARCH INTERESTS

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- The lives of exoplanets: formation, evolutionary processes, and long-term fates.
- Exoplanet discovery and characterization.
- Measurement and interpretation of stellar variability (rotation; pulsations; occultations).

## EDUCATION AND APPOINTMENTS

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|---|-----------------|
| • California Institute of Technology  | Pasadena, CA    |
| • <i>51 Pegasi b Fellowship in Planetary Astronomy. Advisor: Hillenbrand</i>            | 09/2021–08/2024 |
| • Princeton University  | Princeton, NJ   |
| • <i>Ph.D, Astrophysics; M.Sc, Astrophysics. Advisor: Winn</i>                          | 09/2016–08/2021 |
| • Massachusetts Institute of Technology   | Cambridge, MA   |
| • <i>Physics Ph.D. program (transferred after completing first year). Advisor: Winn</i> | 09/2015–08/2016 |
| • University of Southern California   | Los Angeles, CA |
| • <i>B.Sc, Physics; B.A, Mathematics; Minor, Astronomy (GPA: 3.97/4)</i>                | 09/2011–05/2015 |

## PUBLICATION SUMMARY

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*Refereed & under review publications:* 32 (6 first author; 1 second author).

*Unrefereed publications:* 1 (1 first author).

*Total citations to publications:* 2,109 (141 first & second author; 346 many author; 1622 code).

A full listing of my publications is available in the publication list below, and [online](#).

## PRESENTATION SUMMARY

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Over my graduate studies, I have spoken on my research at 16 national and international meetings (12 contributed talks; 4 invited talks; 1 colloquium; 1 invited panel; and 4 posters). They are listed below.

## AWARDS

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2020–21 Charlotte Elizabeth Procter Fellowship *Honorific fellowship for final-year Princeton Ph.D. students.*

05/2015 USC Discovery Scholar *University fellowship based on research portfolio towards graduate study.*

04/2014 Goldwater Scholarship *National fellowship for undergraduates pursuing careers in STEM.*

05/2013 NIST Summer Undergraduate Research Fellowship

2011–15 USC Trustee and University Scholarships *Full tuition award and merit stipend.*

## GRANTS AND TELESCOPE TIME SUMMARY

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During my graduate studies, I helped write the grants that support my main dissertation project, the Cluster Difference Imaging Photometric Survey. I led ground-based observing programs to confirm planet candidates from this survey. This involved winning telescope time through national competitions, both as Principal Investigator (6 proposals; 22.5 nights) and as Co-Investigator (5 proposals; 89 nights).

## SERVICE & PUBLIC ENGAGEMENT

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- *Skype a Scientist:* Spring 2020 — present. Gave 6 public talks (remotely) in K-12 classrooms.
- *Resident Graduate Student:* Fall 2018 — present. Resident advisor to 30 undergraduates per year. Encouraged a civilized and supportive residential environment; hosted star-gazing nights, office hours, and social events.
- *Observing Outreach Organizer:* Fall 2016 — Fall 2019. Organized over 20 public observing events at Princeton's department telescope. Led outreach team to host groups ranging from 10 to 100 people; separately hosted private groups (*e.g.*, middle and high-school classes; student clubs; university staff).

**First & second author**

8. Bouma, L., Hartman, J., et al. *Cluster Difference Imaging Photometric Survey. II. TOI 837: A Young Validated Planet in IC 2602*. AJ, 160, 5, 239 (2020).
7. Bouma, L., Winn, J., et al. *PTFO 8-8695: Two Stars, Two Signals, No Planet*. AJ, 160, 2, 86 (2020).
6. Bouma, L., Winn, J., et al. *WASP-4 is Accelerating Toward the Earth*. ApJL, 893, 2 (2020).
5. Bouma, L., Hartman, J., et al. *Cluster Difference Imaging Photometric Survey. I. Light Curves of Stars in Open Clusters from TESS Sectors 6 & 7*. ApJS, 245, 13 (2019).
4. Bouma, L., Winn, J., et al. *WASP-4b Arrived Early for the TESS Mission*. AJ, 157, 217 (2019).
3. Bouma, L., Masuda, K., Winn, J. *Biases in Planet Occurrence Caused by Unresolved Binaries in Transit Surveys*. AJ, 155, 244 (2018).
2. Penev, K., Bouma, L., et al. *Empirical Tidal Dissipation in Exoplanet Hosts From Tidal Spin-Up*. AJ, 155, 165 (2018).
1. Bouma, L., Winn, J., et al. *Planet-Detection Simulations for Several Possible TESS Extended Missions*. arXiv:1705.08891 (2017). Non-refereed white paper.

**Many author**

24. Günther, M. et al., incl. Bouma, L. *Complex Modulation of Rapidly Rotating Young M Dwarfs: Adding Pieces to the Puzzle*. AAS journals, submitted. arXiv: 2008.11681.
23. Guerrero, N. et al., incl. Bouma, L. *The TESS Objects of Interest Catalog from the TESS Prime Mission*. AAS journals, submitted.
22. Stassun, K. et al., incl. Bouma, L. *Discovery and Characterization of a Rare Magnetic Hybrid  $\beta$  Cephei Slowly Pulsating B-type Star in an Eclipsing Binary in the Young Open Cluster NGC 6193* AJ, accepted. arXiv:2102.06151.
21. Tofflemire, B. et al., incl. Bouma, L. *TESS Hunt for Young and Maturing Exoplanets (THYME) V: A Sub-Neptune Transiting a Young Field Star*. AJ, accepted. arXiv:2102.06066.
20. Zhou, G. et al., incl. Bouma, L. *Two young planetary systems around field stars with ages between 10–170 Myr from TESS*. AJ, 161, 2 (2021).
19. Dawson, B. et al., incl. Bouma, L. *Precise transit and radial-velocity characterization of a resonant pair: a warm Jupiter TOI-216c and eccentric warm Neptune TOI-216b*. AJ, 161, 161 (2021).
18. Daylan, T. et al., incl. Bouma, L. *TESS discovery of a super-Earth and three sub-Neptunes hosted by the bright, Sun-like star HD 108236*. AJ, 161, 85 (2021).
17. Fridlund, M. et al., incl. Bouma, L. *The TOI-763 system: sub-Neptunes orbiting a Sun-like star*. MNRAS, 498, 3 (2020).
16. Rowden, P., et al., incl. Bouma, L. *TIC 278956474: Two Close Binaries in One Young Quadruple System Identified by TESS*. AJ, 160, 2 (2020).
15. Patra, K. et al., incl. Bouma, L. *The Continuing Search For Evidence of Tidal Orbital Decay For Hot Jupiters*. AJ, 159, 150 (2020).
14. Jordán, A. et al., incl. Bouma, L. *TOI-677 b: A Warm Jupiter ( $P=11.2d$ ) on an eccentric orbit transiting a late F-type star*. AJ, 159, 145 (2020).
13. Soares-Furtado, M. et al., incl. Bouma, L. *A Catalog of Periodic Variables in Open Clusters M 35 and NGC 2158*. ApJS, 246, 15 (2020).
12. Rodríguez Martínez, R. et al., incl. Bouma, L. *KELT-25b and KELT-26b: A Hot Jupiter and a Substellar Companion Transiting Young A-Stars Observed by TESS*. ApJS, 246, 15 (2020).
11. Newton, E. et al., incl. Bouma, L. *TESS Hunt for Young and Maturing Exoplanets (THYME): A Planet in the 45 Myr Tucana-Horologium Association*. ApJL, 880, 1, L17 (2019).

10. Quinn, S. et al., incl. Bouma, L. *Near-resonance in a system of sub-Neptunes from TESS*. AJ, 158, 177 (2019).
9. Günther, M. et al., incl. Bouma, L. *A Super-Earth and two sub-Neptunes transiting the bright, nearby, and quiet M-dwarf TOI-270*. Nature Astronomy (2019).
8. Dawson, B. et al., incl. Bouma, L. *TOI-216b and TOI-216c: Two warm, large exoplanets in or slightly wide of the 2:1 orbital resonance*. AJ, 158, 65 (2019).
7. Shporer, A. et al., incl. Bouma, L. *TESS Full Orbital Phase Curve of the WASP-18b System*. AJ, 157, 178 (2019).
6. Zhan, Z. et al., incl. Bouma, L. *Complex Rotational Modulation of Rapidly Rotating M Stars Observed with TESS*. ApJ, 876, 127 (2019).
5. Rappaport, S. et al., incl. Bouma, L. *Deep long asymmetric occultation in EPIC 204376071*. MNRAS, 485, 2681 (2019).
4. Rodriguez, J. et al., incl. Bouma, L. *An Eccentric Massive Jupiter Orbiting a Sub-Giant on a 9.5 Day Period Discovered in the TESS Full Frame Images*. AJ, 157, 191 (2019).
3. Burt, J. et al., incl. Bouma, L. *Simulating the M-R Relation From APF Followup of TESS Targets: Survey Design and Strategies for Overcoming Mass Biases*. AJ, 156, 255 (2018).
2. Louie, D. et al., incl. Bouma, L. *Simulated JWST/NIRISS Transit Spectroscopy of Anticipated TESS Planets Compared to Select Discoveries from Space-Based and Ground-Based Surveys*. PASP 130d 4401 (2018).
1. Campante, T. et al., incl. Bouma, L. *The asteroseismic potential of TESS: Exoplanet-Host Stars*. ApJ, 830, 2 (2016).

#### Code

3. Bhatti, W. Bouma, L., and Yee S. *cdips-pipeline: difference-imaging photometry pipeline*. [Link](#).
2. Bhatti, W. Bouma, L., and Wallace J. *astrobase: package for variable star astronomy*. [Link](#).
1. Astropy Collaboration et al., incl. Bouma, L. *The Astropy Project*. AJ, 156, 123 (2018).

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#### SELECTED GRANTS

- 06/2020 Co-I: TESS Cycle 3 GI Program G03064 (PI: Hartman).  
 07/2019 Co-I: TESS Cycle 2 GI Program G022117 (PI: Hartman).  
 07/2018 Co-I: TESS Cycle 1 GI Program G011103 (PI: Hartman).

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#### SELECTED OBSERVING PROGRAMS

- 12/2020 PI: NOIRLab Minerva-Australis (4 nights).  
 12/2020 Co-I: NOAO LCOGT 1 m and 2 m (PI: Hartman, 2021A-0045).  
 11/2020 PI: Magellan/PFS (2 nights; Princeton internal).  
 10/2020 PI: TESS DDT  
 06/2020 PI: NOIRLab CTIO1.5m/CHIRON (4 nights); AAT/Veloce (2.5 nights).  
 06/2020 Co-I: NOAO LCOGT 1 m and 2 m (PI: Hartman, 2020B-0013).  
 05/2020 PI: Magellan/PFS (2 nights; Princeton internal).  
 12/2019 Co-I: NOAO LCOGT 1 m and 2 m (PI: Hartman, 2020A-0005).  
 12/2019 PI: NOAO CTIO1.5m/CHIRON (3 nights); AAT/Veloce (2.5 nights).  
 11/2019 PI: Magellan/PFS (1 night; Princeton internal).  
 06/2019 Co-I: NOAO LCOGT 1 m and 2 m (PI: Hartman, 2019B-0160).

## PRESENTATION LIST

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- *Snapshots of Planet Evolution taken by the Cluster Difference Imaging Photometric Survey*  
Penn State CEHW: Seminar (Invited talk). 04/2021  
THYME 2020 Conference (Invited plenary). 12/2020
- *Two Young Transiting Exoplanets: One Was, One Was Not*  
JPL: Astrophysics Colloquium (Invited talk). 10/2020  
Caltech: Dix Planetary Science Seminar (Contributed talk). 10/2020  
UCLA: Physics and Astronomy Lunch Talk Series (Contributed talk). 09/2020
- *PTFO 8-8695: Two Stars, Two Signals, No Planet*  
ExSoCal 2020 (Online, poster). 09/2020  
TESS Science Team Meeting #19 (Contributed talk). 06/2020
- *Short-Period Giant Planets: Origins and Fates*  
University of Chicago exoplanet group (Contributed talk). 03/2020
- *Planets Around Other Stars*  
Princeton Club of Chicago — Research on the Road Alumni Meeting (Invited talk). 03/2020
- *TESS Planet Candidates in Open Clusters*  
Extreme Solar Systems IV (Poster). 08/2019  
TESS Science Team Meeting #18 (Contributed talk). 12/2019
- *Homogeneous Light Curves for Stars in Clusters from TESS*  
STScI TESS Data Workshop (Invited talk). 02/2019
- *The Early Arrival of WASP-4b*  
TESS Science Conference I (Contributed talk). 01/2019  
Princeton Thunch Seminar (Contributed talk). 07/2019
- *Extending the Planet Search with TESS*  
TESS Science Conference I (Invited panel). 01/2019  
TESS Science Team Meeting #16 (Contributed talk). 10/2018
- *How do Unresolved Binaries Bias Transit Survey Occurrence Rates?*  
Exoplanets II (Poster). 06/2018
- *Planet-Detection Simulations for Several Possible TESS Extended Missions*  
TESS Science Team Meeting #10 (Contributed talk). 12/2016  
NExScI Sagan Summer Workshop (Poster). 05/2016  
TESS Science Team Meetings #8 (Contributed talk). 02/2016  
TESS Science Team Meetings #7 (Contributed talk). 12/2015

## PROFESSIONAL ACTIVITIES

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Chair of [Emerging Researchers in Exoplanet Science \(ERES\) 2021](#).

Member of the American Astronomical Society (AAS).

Member of the TESS Science Team.

Organizer of the TESS Extended Mission Working Group.

Referee for *Astrophysical Journal Letters* (1 article; 2020–), *Astronomical Journal* (1 article; 2020–), *Monthly Notices of the Royal Astronomical Society* (3 articles; 2019–).