

# Andrew Mayo

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## Education

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### University of California, Berkeley

*PhD Student (advisor: Courtney Dressing)*

*M.A. Astrophysics*

Berkeley, CA

*expected 2023*

*2019*

### Technical University of Denmark

*Visiting PhD Student (advisor: Lars Buchhave)*

Kongens Lyngby, Denmark

*December 2017 - June 2018*

### University of Copenhagen

*Fulbright Fellow, PhD Dual Degree Student (advisor: Lars Buchhave)*

Copenhagen, Denmark

*expected 2023*

### Harvard University

*B.A. Physics and Astrophysics (2013)*

*Highest honors, Magna cum laude, GPA: 3.834*

Cambridge, MA

*2017*

## Appointments

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NSF Graduate Research Fellow at University of California, Berkeley

August 2018 - present

PhD Dual Degree Student at University of Copenhagen

August 2017 - present

Fulbright Fellow at University of Copenhagen and Danish Technical University

August 2017 - June 2018

Summer Undergraduate Research Fellow at Caltech

June 2016 - August 2016

Researcher at Harvard-Smithsonian CfA

May 2016 - June 2016

Herchel Smith and PRISE Fellow at Harvard-Smithsonian CfA

June 2015 - August 2015

Researcher at Indiana University

June 2014 - August 2014

## Research Interests

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My research involves detecting and characterizing small, Earth-like planets orbiting other stars. I develop new methods to find and study planetary systems, characterize host star properties in order to better understand orbiting planets, and validate planet candidates by distinguishing bona fide planets from false positives.

## Awards

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- 2017 National Science Foundation Graduate Research Fellow
- 2017 Fulbright Scholar
- 2016 Caltech Summer Undergraduate Research Fellow
- 2015 Program for Research in Science and Engineering Fellow
- 2015 Herchel Smith-Harvard Undergraduate Science Research Fellow
- 2013 National Merit Finalist

## Publications

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### Refereed (2 first author, 14 total)

- Mayo A. W. et al. “An 11 Earth-mass, Long-period Sub-Neptune Orbiting a Sun-like Star” *The Astronomical Journal*, 158, 165 (2019).
- Mayo A. W. et al. “275 Candidates and 149 Validated Planets Orbiting Bright Stars in K2 Campaigns 0-10” *The Astronomical Journal*, 155, 136 (2018).

- Malavolta, L., **Mayo, A. W.** et al., “An ultra-short period rocky super-Earth with a secondary eclipse and a Neptune-like companion around K2-141” *The Astronomical Journal*, 155, 107 (2018).
- Dholakia, S., Dholakia, S., **Mayo A. W.** et al. “Constraining Orbital Periods from Nonconsecutive Observations: Period Estimates for Long-Period Planets in Six Systems Observed by K2 During Multiple Campaigns” (2020, in press). *This paper was led by undergraduate students that I co-advised.*
- Rice, K., Malavolta, L., **Mayo A. W.** et al. “Masses and radii for the three super-Earths orbiting GJ 9827, and implications for the composition of small exoplanets” *Monthly Notices of the Royal Astronomical Society*, stz130 (2019).
- Vanderburg, A., Rappaport, S. A., **Mayo A. W.** “Detecting Exomoons via Doppler Monitoring of Directly Imaged Exoplanets” *The Astronomical Journal*, 156, 184 (2018).
- Rodríguez Martínez, R., Ballard, S., **Mayo A. W.** et al. “Characterization of Low Mass K2 Planet Hosts Using Near-Infrared Spectroscopy” *The Astronomical Journal*, 158, 135 (2019).
- Rampalli, R. et al. **including Mayo A. W.** “A Hot Saturn Near (but Unassociated with) the Open Cluster NGC 1817” *The Astronomical Journal*, 158, 62 (2019).
- Dattilo, A. et al. **including Mayo A. W.** “Identifying Exoplanets with Deep Learning. II. Two New Super-Earths Uncovered by a Neural Network in K2 Data” *The Astronomical Journal*, 157, 169 (2019).
- Damasso, M. et al., **including Mayo A. W.** “So close, so different: characterization of the K2-36 planetary system with HARPS-N” *Astronomy & Astrophysics*, 624, 38 (2019).
- Rodriguez, J. E. et al., **including Mayo A. W.** “A Compact Multi-planet System with a Significantly Misaligned Ultra Short Period Planet” *The Astronomical Journal*, 156, 245 (2018).
- Vanderburg, A. et al., **including Mayo A. W.** “Zodiacal Exoplanets in Time (ZEIT). VII. A Temperate Candidate Super-Earth in the Hyades Cluster” *The Astronomical Journal*, 156, 46 (2018).
- Rodriguez, J. E. et al., **including Mayo A. W.** “A Multi-Planet System Transiting the  $V = 9$  Rapidly Rotating F-Star HD 106315” *The Astronomical Journal*, 153, 256 (2017).
- Vanderburg, A. et al., **including Mayo A. W.** “Two Small Planets Transiting HD 3167” *The Astrophysical Journal Letters*, 829, L9 (2016).

#### Non-refereed

- Plavchan, P. et al., **including Mayo A. W.** “EarthFinder: A Precise Radial Velocity Probe Mission Concept For the Detection of Earth-Mass Planets Orbiting Sun-like Stars” arXiv:1803.03960 (2018).

#### Teaching, Mentoring, and Outreach

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- Spring 2020: Graduate Student Instructor for Astronomy C12 (The Planets).
- Fall 2019 - present: Participant in Wonderfest Science Envoy Program, a series of science communication workshops to improve public outreach and speaking skills.
- October 7, 2019: KPOO 89.5 FM radio interview with DJ Marilyn Fowler on exoplanets and current research.
- Fall 2018 - present: Co-advisor to Shishir Dholakia (UC Berkeley) and Shashank Dholakia (UC Berkeley).
- Fall 2018 - present: Leading Astronomy Movie Night twice per month for the Berkeley Astronomy Department and the general public with regular attendance of  $\sim 40$ .
- January 2020: Mentor to two international high school students visiting for one week via the 2020 Berkeley Winter Camp. Taught introductory Python and fundamentals of exoplanet detection.
- Spring 2019: Graduate Student Instructor for Astronomy 7B (Introduction to Astrophysics).
- Fall 2018: Graduate Student Instructor for Astronomy C13 (Origins: From the Big Bang to the Emergence of Humans).

## Talks/Presentations

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- “Exoplanets and the Search for Alien Life” 2020 Berkeley Winter Camp, UC Berkeley, Berkeley, CA, January 27, 2020.
- “The Smallest Open Cluster Planet Mass Ever Measured” Bay Area Exoplanet Meeting 30, NASA Ames Research Center, Moffett Field, CA, December 6, 2019.
- “An 11 Earth-Mass, Long-Period Sub-Neptune Orbiting a Sun-like Star” Graduate Student Postdoc Seminar, UC Berkeley, Berkeley, CA, September 27, 2019.
- “An 11 Earth-Mass, Long-Period Sub-Neptune Orbiting a Sun-like Star” Bay Area Exoplanet Meeting 30, NASA Ames Research Center, Moffett Field, CA, September 13, 2019.
- “Measuring the Masses of Long-Period Planet Kepler-538 b (and Kepler-37 d)” Bay Area Exoplanet Meeting 27, NASA Ames Research Center, Moffett Field, CA, December 14, 2018.
- “275 Candidates and 149 Validated Planets Orbiting Bright Stars in K2 Campaigns 0-10” Exoplanets II Conference, Cambridge, United Kingdom, July 2, 2018.
- “275 Candidates and 149 Validated Planets Orbiting Bright Stars in K2 Campaigns 0-10” Annual Danish Astronomy Meeting, Faaborg, Denmark, May 4, 2018.
- “275 Candidates and 149 Validated Planets Orbiting Bright Stars in K2 Campaigns 0-10” 231<sup>st</sup> American Astronomical Society Meeting, National Harbor, MD, January 4, 2018.
- “197 Candidates and 102 New Validated Planets in C0-C10 of K2” Harvard Astrophysics Senior Thesis Presentations, Cambridge, MA, March 31, 2017.
- “Why Can’t We Agree on the Mass of KOI-94d?” Caltech Summer Undergraduate Research Fellowship Seminar, Pasadena, CA, August 10, 2016.
- “Starspots: And What We can Learn from Them” Harvard Program for Research in Science and Engineering Seminar, Cambridge, MA, August 11, 2015.
- “Searching for Nomadic Planets with Gravitational Lensing” Indiana University Research Experience for Undergraduates Seminar, Bloomington, IN, July 29 2014.

## Posters

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- Mayo, Andrew et al. “An 11 Earth-Mass, Long-Period Sub-Neptune Orbiting a Sun-Like Star” 3rd Advanced School on Exoplanetary Science, Vietri sul Mare, Italy, May 27-31, 2019.
- Mayo, Andrew et al. “Measuring the Mass of Long-Period Planet Kepler-538b” Kepler & K2 Science Conference V, Glendale, CA, March 4-8, 2019.
- Mayo, Andrew et al. “197 Candidates and 102 Validated Planets in C0-C10 of K2” Kepler & K2 Science Conference IV, NASA Ames Research Center, Moffett Field, CA, June 19-23, 2017.
- Mayo, Andrew et al. “A Possible 5<sup>th</sup> Planet in the Kepler-89 System.” 229<sup>th</sup> American Astronomical Society Meeting Poster Session, Grapevine, TX, January 4, 2017.
- Mayo, Andrew et al. “Modeling Starspots on Kepler-78.” National Collegiate Research Conference Poster Session, Cambridge, MA, January 23, 2016.
- Mayo, Andrew et al. “Modeling Starspots on Kepler-78.” 227<sup>th</sup> American Astronomical Society Meeting Poster Session, Kissimmee, FL, January 5, 2016.