

# CLAIRE LAMMAN

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*Last Updated: 04/21/23*

## EDUCATION

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### Harvard University

*Aug 2019 - Present*

PhD program, Astronomy and Astrophysics

### University of Colorado Boulder

*Aug 2015 - May 2019*

Astrophysical and Planetary Sciences Department

Cumulative GPA: 3.87/4.0

BA Astronomy, Summa Cum Laude (Astrophysics Track)

Department GPA: 3.85/4.0

BA Physics

## SELECTED AWARDS

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### 2019 NSF GRFP Fellow

*Awarded through the Graduate Research Fellowship Program*

### University of Colorado Outstanding Undergraduate

*Top honor for CU Boulder's College of Arts and Sciences Fall 2019 graduating class*

### Chambliss Astronomy Achievement Award

*For undergraduate poster at 231st American Astronomical Society Meeting*

### Boettcher Scholar

*Merit-based, four-year, full-ride scholarship to any Colorado university*

### 2018 Jacob Van Ek Scholar

*"One of the highest honors in CU's College of Arts & Sciences" recognizing superior academic achievement and outstanding contributions to the university*

## RESEARCH EXPERIENCE

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### Dark Energy Spectroscopic Instrument (DESI)

*Aug 2019 - Present*

*A global collaboration to create a spectroscopic map of galaxies*

- Tested fiber assignment algorithm
- Studied the intrinsic alignment of Luminous Red Galaxies
- Modeled a survey bias in the orientation of galaxies

### Large M Dwarf Multiplicity Study

*Aug 2017 - Aug 2019*

*Independent Research Project under the guidance of Zachory Berta-Thompson*

- Further analyzed data resulting from 2017 REU project
- Compared and combined results to previous multiplicity surveys and Gaia DR2
- Created catalog of nearby M dwarfs multiples
- Currently writing honors thesis on overall multiplicity trends

### REU at the University of Hawai'i

*May 2017 - Aug 2017*

*Worked with Christoph Baranec at the Institute for Astronomy*

- Analyzed visual images of M dwarfs taken by the Robo-AO system on Kitt Peak
- Conceived, created, and used a Graphical User Interface to perform a series of visual checks on over 7,000 observations

- Successfully tested above program on the Robo-AO Kepler Asteroseismic Survey
- Selected and obtained further imaging of 11 targets using NIRC2 on the KECK II telescope

### **Fine Scale CMB Anisotropy Measurements**

Jan 2017 - May 2017

*At CU with Nils Halverson*

- Analyzed data from the 10m mm-wave South Pole Telescope
- Investigated a series of unexplained gaps in the detector readout

### **Kilodegree Extremely Little Telescope (KELT) Follow-up**

Dec 2015 - May 2017

*As part of the CU KELT team led by Erica Ellingson and Zachory Berta-Thompson*

- Became part of a global exoplanet follow-up network
- Observed and analyzed potential exoplanet transits using the university's 18" telescope

### **Searching for Supernovae**

Aug 2016 - Dec 2016

*Independent study with Erica Ellingson*

- Processed galaxy images from Las Cumbres Observatory
- Helped assess an experimental Python pipeline

## **OUTREACH AND TEACHING**

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### **Created Planetarium Film**

#### **"5000 Eyes: Exploring the Universe with DESI"**

March 2023

*In Collaboration with DESI and Fiske Planetarium*

- Granted \$73,000 from DESI's discretionary funding to create 25-minute planetarium film
- Conceived, wrote, directed
- Film translated into 4+ languages
- To be shown at 100+ planetariums around the world

### **DESI's Education and Outreach Committee**

Sept 2021 - Present

- Write blog posts
- Create comics and other artwork
- Edit material, including video scripts and museum exhibits

### **Astronomy Teaching Fellow**

Fall '20, '21, and '22

*Harvard University*

- AY 17: Galaxies and Cosmology
- Help develop class material, lead weekly sessions, hold office hours, grade

### **Fiske Planetarium**

Sept 2015 - Aug 2019

*At CU Boulder*

- Presented over 300 astronomy shows to the public and school groups
- Present specialty public talks (topics include gravitational waves, cosmology, exoplanets, and M dwarfs)
- Mentor four undergraduate presenters
- Work with guest lecturers and professors to develop theater shows
- Train and evaluate other student employees
- Additional Roles: theater operator, outreach trip leader, laserist

### **NASA Film Grant**

Jan 2017 - Present

*To develop and disseminate a series of short planetarium films*

- Conceived and wrote scripts about Parker Solar Probe and Transiting Exoplanet Survey Satellite
- Help design and conduct research on public interest/knowledge about NASA and space topics

### **Learning Assistant**

Aug 2016 - Dec 2016

*For Stars and Galaxies for Non-Majors, taught by Doug Duncan*

- Independently led two recitations a week
- Worked with students in office hours and one-on-one sessions
- Graded recitation activities, homework, and exams

### **CU STARS**

Aug 2015 - Present

*University group for astronomy outreach and STEM inclusivity*

- Visit under-privileged Colorado high schools to teach astronomy lessons
- Helped organize group trip to my high school, Cañon City
- Operate telescopes and interact with the public for observatory open houses
- On-campus outreach, such as eclipse viewings and setting up solar telescope/IR camera around campus

### **Imiloa Astronomy Center**

June 2017 - Aug 2017

*Planetarium and Hawai'ian cultural center*

- Volunteered while in Hilo, Hawaii for an REU
- Co-presented public show
- Made two short videos about my current research for future student visitors

## **PUBLICATIONS**

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**C. Lamman** et al., "Intrinsic Alignment as an RSD Contaminant in the DESI Survey", *Published in MNRAS April 2023*. arXiv: 2209.03949

DESI Collaboration et al., "Overview of the Instrumentation for the Dark Energy Spectroscopic Instrument", *Published in AJ May 2022*. arXiv: 2205.10939

Tianjun et al., "TESS discovery of a sub-Neptune orbiting a mid-M dwarf TOI-2136", *Published in MNRAS August, 2022*. arXiv: 2202.10024

**C. Lamman**, C. Baranec, Z. K. Berta-Thompson, N. M. Law, J. Schonhut-Stasik, C. Ziegler, M. Salama, R. Jensen-Clem, D. A. Duev, R. Riddle, S. R. Kulkarni, J. G. Winters, J. M. Irwin, "Robo-AO M Dwarf Multiplicity Survey", *Published in AJ April 2020*. arXiv: 2001.05988

J. Schonhut-Stasik, D. Huber, C. Baranec, **C. Lamman**, M. Salama, R. Jensen-Clem, D. A. Duev, R. Riddle, S. R. Kulkarni, N. M. Law, "Robo-AO Kepler Asteroseismic Survey. II. Do Stellar Companions Inhibit Stellar Oscillations?", *Published in ApJ January 2020*. arXiv: 1910.03803

## **PRESENTATIONS - RESEARCH**

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**Fake Redshift-Space Distortions: How intrinsic alignment of galaxies will bias clustering statistics for the DESI survey** March 2023

- *Conference Talk* - Hol-IA: a holistic approach to galaxy intrinsic alignments, The Lorentz Center

**Fake Redshift-Space Distortions: How intrinsic alignment of galaxies will bias clustering statistics for the DESI survey** March 2023

- *Seminar* - DESI Lunch, Lawrence Berkeley National Laboratory
  
- Fake Redshift-Space Distortions** March 2023
- *Seminar* - Lunch Seminar, Astrophysics and Planetary Sciences at CU Boulder
  
- Galaxy Alignment in Cosmology** March 2023
- *Invited Talk* - Astromerique Speaker Series, University of Montreal CIELA Institute
  
- Calculating Cosmological Clustering Correlations with Claire** March 2023
- *Invited Talk* - Center For Astrophysics Department Research Forum
  
- Fake Redshift-Space Distortions: How intrinsic alignment of galaxies will bias clustering statistics for the DESI survey** December 2022
- *Conference Talk* - Cosmology on the Beach
  
- Tidal Alignments as an RSD contaminant Outreach with DESI** October 2022
- *Invited Speaker* - LSST-DESC Intrinsic Alignment Meeting
  
- Fake Redshift-Space Distortions: How intrinsic alignment of galaxies will bias clustering statistics for the DESI survey** October 2022
- *Invited Speaker* - CCAPP Seminar, Ohio State University
  
- Fake Redshift-Space Distortions** September 2022
- *Invited Speaker* - Tufts Astro Seminar
  
- Fake Redshift-Space Distortions: How intrinsic alignment of galaxies will bias clustering statistics for the DESI survey** September 2022
- *Invited Talk* - Ralf Bender's Group Seminar, MPE
  
- Fake Redshift-Space Distortions: How intrinsic alignment of galaxies will bias clustering statistics for the DESI survey** Aug 2022
- *Invited Talk* - Kavli Institute for the Physics and Mathematics of the Universe
  
- A False Quadrupole: How tidal alignments of galaxies bias DESI clustering** July 2022
- *Conference Talk* - From galaxies to cosmology with deep spectroscopic surveys
  
- Precision Cosmology: It's time to sweat the small stuff** April 2022
- *Invited Talk* - Center For Astrophysics Department Research Forum
  
- Robo-AO M Dwarf Multiplicity Survey** June 2018  
*Conference Talk*
- C. Lamman, C. Baranec, N. M. Law, Z. K. Berta-Thompson, C. Ziegler, J. Schonhut-Stasik, "Robo-AO M Dwarf Multiplicity Survey", 2018, in American Astronomical Society Meeting Abstracts #232, Vol. 232, 306.01
  
- Robo-AO M Dwarf Multiplicity Survey** Jan 2018  
*Conference Poster*
- C. Lamman, C. Baranec, N. M. Law, Z. K. Berta-Thompson, C. Ziegler, J. Schonhut-Stasik, in American Astronomical Society Meeting Abstracts #231, Vol. 231, 306.01

## PRESENTATIONS - OUTREACH

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### **Women in Cosmology**

April 2023

- *Invited Lecture* - Tufts ExCollege: The Universe Illuminated by Women

### **“5000 Eyes” Premiere Director Talk**

March 2023

- *Public Talk* - Fiske Planetarium, CU Boulder

### **“5000 Eyes” Premiere DESI Panel**

March 2023

- *Invited Panelist* - Chabot Planetarium, Lawrence Berkeley National Laboratory

### **Creating a Planetarium Film**

June 2022

- *Conference Talk* - DESI Collaboration Meeting

### **REU Program: Grad Student Life**

July 2021

- *Invited Panelist* - Harvard University

### **Admitted Students Day: Session on Undergraduate Research**

April 2018

- *Invited Panelist* - University of Colorado Boulder