

# CLAIRE LAMMAN

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*Last Updated: 12/07/23*

## EDUCATION

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### Harvard University

*Aug 2019 - Present*

Advisor: Daniel Eisenstein

M.S Astrophysics

2022

PhD program, Astronomy and Astrophysics

in progress

### University of Colorado Boulder

*2015 - 2019*

Astrophysical and Planetary Sciences Department

B.A. Astronomy, Summa Cum Laude

Cumulative GPA: 3.87/4.0

B.A. Physics

Department GPA: 3.85/4.0

## SELECTED AWARDS

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### NSF GRFP 2019 - 2023

*National Science Foundation 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 2015 - 2019

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

### Jacob Van Ek Scholar 2018

*"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 creating a spectroscopic map of 40 million galaxies*

- Tested fiber assignment algorithm
- Modeled a survey bias due to galaxy orientations
- Studied the intrinsic alignment of Luminous Red Galaxies

### Large M Dwarf Multiplicity Study

Aug 2017 - Aug 2019

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

- 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

### **REU at the University of Hawai'i**

May 2017 - Aug 2017

*Worked with Christoph Baranec at the Institute for Astronomy*

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

## **PUBLICATIONS**

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**C. Lamman** et al., "Redshift-dependent RSD bias from Intrinsic Alignment with DESI Year 1 Spectra", submitted December 2023. [arxiv:2312.04518](#)

**C. Lamman** et al., "The IA Guide: A Breakdown of Intrinsic Alignment Formalisms", submitted September 2023. [arXiv: 2309.08605](#)

DESI Collaboration et al., "The Dark Energy Spectroscopic Instrument: Early Data Release", *Published AJ June 2023*. [arXiv: 2306.06308](#)

DESI Collaboration et al., "Validation of the Scientific Program for the Dark Energy Spectroscopic Instrument", Submitted to AJ June 2023. [arXiv: 2306.06307](#)

**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

## OUTREACH

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### **Created Planetarium Film**

#### **“5000 Eyes: Exploring the Universe with DESI”**

Premiered 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 5+ languages
- Downloaded by over 100 theaters around the world

### **ComSciCon, Leadership Team**

Fall ‘19 - Present

- Organizer of Flagship Workshops ‘20, ‘21, ‘22
- Co-chair of Flagship Local Organizing Committee ‘21, ‘22
- Chair of Flagship Application Committee, ‘21, ‘22

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

Sept 2021 - Present

- Co-Chair as of October 2023
- Write [blog posts](#)
- Create [comics and other artwork](#)
- Edit material, including video scripts and museum exhibits

### **Fiske Planetarium**

Sept 2015 - Aug 2019

*At University of Colorado, Boulder*

- Presented over 300 astronomy shows to the public and school groups
- 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 - Aug 2019

*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

**CU STARS**

Aug 2015 - Aug 2019

*University group for astronomy outreach and STEM inclusivity*

- Visit under-privileged Colorado high schools to teach astronomy lessons
- 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 during REU program
- Co-presented public show
- Made two short videos about my current research for future student visitors

**TEACHING**

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**Astronomy Teaching Fellow**

Fall '20, '21, and '22

*Harvard University, AY 17: Galaxies and Cosmology taught by Daniel Eisenstein*

- Help develop material, lead weekly sessions, hold office hours, grade, occasionally lecture main class
- Awarded Certificate of Student Recognition of Teaching all 3 years

**Observing Class Assistant**

Spring '23

*Harvard University*

- Assistant for intensive week-long department observing class consisting of lectures and tours of Arizona facilities

**Learning Assistant**

Fall '16

*CU Boulder, 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

**FORMAL MENTORING**

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**SAO-UMass Latino Initiative Program**

Summer '23

- Met regularly with CfA summer student to provide one-on-one career and research mentoring.

**CfA Peer-Mentoring Program**

Fall '21 - Current

- Peer Mentor for three first year graduate students

**Fiske Planetarium Mentoring Program**

'18- Fall '19

- Mentored four incoming undergraduate planetarium presenters

## SELECTED SERVICE

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### **Reviewer**

*Open Journal of Astrophysics*

### **Faculty Hiring Student Representative**

Spring '23

*Harvard Center for Astrophysics*

- One of two elected graduate student representatives; gathered and reported student sentiment to faculty hiring committee

### **Eisenstein Group Meeting Organizer**

Fall '21 - Summer '23

- Organize schedule and speakers

### **White Paper Contributions**

May '23

- CfA white paper, co-lead author "ComSciCon"
- CfA white paper, coauthor "A Harvard Planetarium: Opportunity for Growth and Outreach"
- Harvard Science Center white paper, coauthor "A Harvard Planetarium and Science Center Expansion"

### **Grad Student Social Hour Organizer**

Fall '19 - Spring '21

- Weekly social gathering for department graduate students

## INVITED RESEARCH TALKS

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**DESI Lunch Seminar, Lawrence Berkeley National Laboratory** March 2023

**Lunch Seminar, Astrophysics and Planetary Sciences at CU Boulder** March 2023

**Astromerique Speaker Series, University of Montreal CIELA Institute** March 2023

**Center For Astrophysics Department Research Forum** March 2023

**Johnathan Blazek's Group Meeting, Northeastern University** November 2022

**LSST-DESC Intrinsic Alignment Meeting, Virtual** October 2022

**CCAPP Seminar, Ohio State University** October 2022

**Tufts Astro Seminar** September 2022

**Ralf Bender's Group Seminar, MPE** September 2022

**Kavli Institute for the Physics and Mathematics of the Universe** Aug 2022

**Center For Astrophysics Department Research Forum** April 2022

## CONTRIBUTED TALKS

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- Hol-IA: A holistic approach to galaxy intrinsic alignments** March 2023  
 · *Workshop Talk, The Lorentz Center*
- Cosmology on the Beach** December 2022  
 · *Conference Talk, Cancún Mexico*
- From galaxies to cosmology with deep spectroscopic surveys** July 2022  
 · *Conference Talk, Marseille France*
- 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

## SELECTED OUTREACH PRESENTATIONS

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- Women in Cosmology Guest Lecture** 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
- North Shore Astronomy Club** Nov ‘21, Nov ‘23
- REU Program: Grad Student Life** July 2021  
 · *Invited Panelist* - Harvard University
- Skype a Scientist** Oct ‘20, Feb ‘21, Jan ‘21  
 · Presentation and chat with grades: 5, 3, and 9
- YouthAstroNet Astro Chat** April 2020

**CU Boulder Astrophysics and Planetary Sciences Commencement Speaker**      May 2019

**CU Boulder College of Arts and Sciences - Honors Graduate Address**      May 2019

**Admitted Students Day: Session on Undergraduate Research**      April 2018

· *Invited Panelist* - University of Colorado Boulder