CLAIRE LAMMAN

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EDUCATION

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

2019 NSF GRFP Fellow
Awarded through the Graduate Research Fellowship Program

Universtity 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

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

Creating Planetarium Film
"5000 Eyes: Exploring the Universe with DESI" June 2020 - Present
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

C. Lamman et al., "Intrinsic Alignment as an RSD Contaminant in the DESI Survey", *Submitted to MNRAS September 7, 2022.* arXiv:

B. Abareshi et al., "Overview of the Instrumentation for the Dark Energy Spectroscopic Instrument", *Submitted to AJ May 22, 2022.* arXiv: 2205.10939

Tianjun et al., 'TESS discovery of a sub-Neptune orbiting a mid-M dwarf TOI-2136", *Submitted to MNRAS Feb 21, 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", *Submitted to AJ Dec 11, 2018.*
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?", *Submitted to ApJ Oct 9, 2019.* arXiv: 1910.03803

PRESENTATIONS

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

Crating 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

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