CHRISTOPHER LINDSAY

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EDUCATION

Yale University — August 2020 - Present
Astronomy PhD Candidate. (M.S., M.Phil. in Astronomy, 2022) — *New Haven, CT*

University of Southern California (USC) — August 2016 - May 2020
B.S. Astronomy; B.A. Environmental Studies; Jazz Studies Minor — *Los Angeles, CA*

RESEARCH EXPERIENCE

Graduate Research in Stellar Astrophysics (Gruber Science Fellow) — August 2020 - present
Advisor: Professor Sarbani Basu — *Yale University*

- Using asteroseismic data and modelling techniques to investigate interior mixing and angular momentum transport processes in evolved solar-type oscillating stars.
- Determining fundamental stellar parameters, especially age, for asteroseismic targets with the goal of improving our understanding of our Milky Way's formation and exoplanet system evolution.
- Investigating stellar flares and solar flare in *TESS*, *Kepler*, and Solar Dynamics Observatory (SDO) data with machine learning. Advising Yale University Senior Daniel Chang.

Undergraduate/Graduate Research in Helioseismology — August 2016 - August 2020
Advisor: Professor Edward Rhodes — *University of Southern California*

- Processed solar oscillation data from the Solar Dynamics Observatory and Solar and Heliospheric Observatory satellites in order to examine solar atmospheric properties across multiple solar cycles.
- Supported NASA's JUNO mission and took heliosismic data at the Mount Wilson Observatory.

PUBLICATIONS

[Listed Here in a Public ADS Library]

First Author Papers

- **Christopher Lindsay**, Joel Ong, and Sarbani Basu. 2024 (*ApJ*, 965:171) *Fossil Signatures of Main-sequence Convective Core Overshoot Estimated through Asteroseismic Analyses*
- **Christopher Lindsay**, Joel Ong, and Sarbani Basu. 2023 (*ApJ*, 950:19) *Near-Core Acoustic Glitches are Not Oscillatory: Consequences for Asteroseismic Probes of Convective Boundary Mixing*
- **Christopher Lindsay**, Joel Ong, and Sarbani Basu. 2022 (*ApJ*, 931:116) *Mixed Mode Asteroseismology of Red Giant Stars Through the Luminosity Bump*

Co-author Papers

- Joel Ong, **Christopher Lindsay**, et al. 2024 (*in Review, ApJ*) *Resolving an Asteroseismic Catastrophe: Structural Diagnostics from p-mode Phase Functions off the Main Sequence.*
- Claudia Reyes, et al. (inc. **Christopher Lindsay**) 2024 (*in Review, Nature*) *Acoustic modes in M67 cluster stars trace deepening convective envelopes.*
- Daniel Chang*, **Christopher Lindsay**, and Sarbani Basu 2024 (*in prep*) *Using Convolutional Neural Networks to Detect Solar Flares using Sun-as-a-star Observations.* *Supervised Student
- Hans Deeg, et.al. (incl. **C. Lindsay**) 2021 (*in press, JAAVSO*) *Maintaining the Ephemeris of 20 CoRoT Planets: Transit Minimum Times and Potential Transit Timing Variations*
- J. Cabrera, et.al. (incl. **C. Lindsay**) 2015 (*in press, A&A*) *Transiting exoplanets from the CoRoT space mission XXVII. CoRoT-28b, a planet orbiting an evolved star, and CoRoT-29b, a planet showing an asymmetric transit*

Non-Refereed Papers

· Asali, Y, Gerbig, K., Ghosh, A., **Lindsay, C.**, Shen, Z., & Geha, M. 2022 (*in press, Bulletin of the AAS, 54(1)*) *A Standardized Framework for Collecting Graduate Student Input in Faculty Searches*

INVITED TALKS

Astro Seminar Talk at the American Museum of Natural History November 14th, 2023
Probing the Evolution and Internal Structures of Stars with Asteroseismology *New York City, USA*

IfA Astrocoffee Talk at the University of Hawai'i January 13th, 2023
Prospects for Probing the Evolution and Internal Structures of Stars with Asteroseismology *Honolulu, USA*

TEDx Talk at the University of Southern California March 25th, 2022
Exoplanet Astronomy and the Nobel Prize Hidden in Plain Sight *Los Angeles, USA*

CONTRIBUTED CONFERENCE PRESENTATIONS

TESS Science Conference 3 at MIT: Contributed Talk July/August 2024
Asteroseismic modeling of metal-poor, α-rich giants in the Halo *Cambridge, MA*

TASC8/KASC15: Contributed Talk July 2024
Age Dating α-element Enhanced Stars in the Galactic Halo with Asteroseismology *Porto, Portugal*

Third workshop on Artificial Intelligence for Space-Science Research: Talk May 2024
Detecting Solar Flares in Sun-as-a-Star Observations with Conv. Neural Networks *Melbourne, Australia*

TASC7/KASC14: Contributed Talk and Served on the LOC July 2023
Fossil Signatures of Main-Sequence Convective Cores *Honolulu, Hawai'i*

TASC6/KASC13: Poster and Pitch Talk July 2022
Red Giant Seismology: Seismic Signatures of Convective Overshoot *Leuven, Belgium*

Cool Stars 21: Poster July 2022
Mixed Mode Asteroseismology of Red Giants Through the Luminosity Bump *Toulouse, France*

AAS 240: Contributed Talk June 15th 2022
Red Giant Seismology: Seismic Signatures of Convective Overshoot *Pasadena, CA*

TESS Science Conference 2: ePoster August 2021
Red Giant Seismology: Seismic Signatures of Convective Overshoot *Online and Cambridge, MA*

ADDITIONAL CONFERENCE AND WORKSHOPS ATTENDED

Porto Summer School on Asteroseismology 2024: from Pixels to Stellar Ages July 2024
Attended workshop as a student *Via do Conde, Portugal*

Life and Death: From Stars to Compact Objects August-September 2022
Attended workshop as a student *Asiago, Italy*

MESA Summer School 2022 August 2022
Attended workshop as a student *Santa Barbara, CA*

Fifty Years of the Skumanich Relations February 2022
Attended *Boulder, CO*

TEACHING FELLOW EXPERIENCE

ASTR 550: Stellar Astrophysics Fall 2023
Instructor: Professor Sarbani Basu *Yale University*

ASTR 120: Galaxies and the Universe Spring 2022
Instructor: Michael Faison *Yale University*

PHYS 401: Advanced Classical Physics Fall 2021
Instructor: Professor Nikhil Padmanabhan *Yale University*

ASTR 120: Galaxies & the Universe Summer 2021
Instructor: Professor Robert Zinn *Yale University*

ASTR 135: Archaeoastronomy Spring 2021
Instructor: Michael Faison *Yale University*

ASTR 155: Introduction to Astronomical Observing Fall 2020
Instructor: Michael Faison *Yale University*

ADDITIONAL WORK & SERVICE EXPERIENCE

McDougal Fellow: Graduate Student Professional Development August 2024 - Present
Graduate School of Arts and Sciences *Yale University*

· Contributing to the intellectual and professional development of the Yale graduate student community by holding professional development workshops and administering internship opportunities.

Graduate Student Affiliate, Benjamin Franklin College October 2022 - Present
Benjamin Franklin College *Yale University*

· Promoting interactions between undergraduates and graduate students and working with the Head of College, college staff, and undergraduate students to organize social and educational activities throughout the year.

Davidson Fellows Advisory Board Member July, 2024 - Present
Davidson Institute

· Review applications to the Davidson Institute Scholarship.

Chair and Representative, Yale Graduate Student Assembly May 2021 - May 2024
Yale Graduate School of Arts & Sciences *Yale University*

· Serving as the Astronomy department representative and Chair of the Yale Graduate School of Arts & Sciences' Graduate Student Assembly.

· Leading the Assembly from May 2023 through May 2024, managing meetings 100+ graduate student representatives and steering our advocacy work in collaboration with the Yale administration.

Local Organizing Committee Member 2023
Various Conferences *Yale University, University of Hawaii*

· Helped to plan and execute the TASC7/KASC14 asteroseismology workshop at the University of Hawaii in July, 2023.

· Planned and served as emcee during the Ivy+ Summit of student government leaders at Yale University in October, 2023.

FUNDING/PROPOSAL HISTORY

Co-I, TESS General Investigator Program (PI: Joel Ong) August 2024
Asteroseismic Probes of Convective Boundary Mixing with 200-Second TESS FFIS *$70,000*

Co-I, Yale TAC (PI: W. Garrett Levine) April 2024
Exoplanet Aeronomy with Keck and Palomar *1 Night on Keck/NIRSPEC; 1 Night on Palomar/WIRC*

Co-I, TESS General Investigator Program (PI: Joel Ong) August 2023
Magnetic Activity on Rapidly-Rotating Red Giants with 200-Second TESS FFIS *$70,000*

AWARDS, FELLOWSHIPS, AND HONORS

Yale Gruber Science Fellow August 2020 - Present
"Awarded to the most highly ranked applicants to Yale PhD programs in the life sciences, cosmology, and astrophysics. This Fellowship is the most prestigious award offered by Yale's Graduate School of Arts and Sciences to incoming science students in recognition of their outstanding accomplishments and exceptional promise." Includes Stipend and Tuition for the first two years of study and an additional $9,500 *award.*

USC Order of the Laurel and the Palm May 2020
"The highest honor accorded to undergraduates completing their programs of study. Less than one percent of undergraduates earning their degrees are selected as members of the Order of the Laurel and the Palm."

Yale Conference Travel Fund June 2021

USC Provost Research Fellowships May 2019 - May 2020

USC Summer Undergraduate Research Fund (SURF) Summers 2017 & 2018

USC Student Opportunities for Academic Research (SOAR) August 2016 - May 2018

USC Warren Bennis Scholars Leadership Program August 2018 - May 2020

USC Trustee Scholar (Full Tuition Remission) August 2016 - May 2020

USC University Scholarships August 2016 - May 2020

USC Resident Honors Program August 2016 - May 2020

USC Thematic Option Honors Program August 2016 - May 2020

Regeneron Science Talent Search (STS) Scholar 2017

Davidson Fellows Laureate ($50,000 award) 2016