

Ezra Sukay
sukay@uchicago.edu

EDUCATION

The University of Chicago, Chicago, IL
BS in Astrophysics with Honors June 2021
Advisor: Prof. Michael Gladders
Thesis: Characterizing the Size and Star Formation History of a Bright Strongly Lensed ETG at $z=1.02$

RESEARCH EXPERIENCE

Lawrence Berkeley National Lab, Berkeley, CA
Science Undergraduate Laboratory Internship
Advisors: Professor Xiaosheng Huang & Dr. David Schlegel August 2021 - Present
Building strong lens models with Lenstronomy for Hubble Space Telescope and Dark Energy Camera Legacy Survey (DECaLS) data to characterize lens galaxies and find low mass dark matter halos.

The University of Chicago, Chicago, IL
COOL-LAMPS- Chicago Optically-selected strong Lenses - Located At the Margins of Public Surveys
Advisor: Professor Michael Gladders Jan. 2020 - Present
Searching through public surveys for strong gravitational lenses and following up discoveries with the Magellan Telescopes, Gemini North, and the Nordic Optical Telescope. Spectrophotometrically characterizing cluster and lensed galaxies to determine their star formation history and reconstructing their source plan morphology to study galaxy evolution.

HAWC+: Far Infrared Polarization in M17
Advisor: Professor Doyal Harper April 2018 - Jan. 2021
Studying the interstellar medium (ISM) in star forming HII regions with infrared data from the High-resolution Airborne Wideband Camera (HAWC+) on the Stratospheric Observatory for Infrared Astronomy (SOFIA).

PUBLICATIONS

E. Sukay, M.D. Gladders, G. Khullar, et al., *COOL-LAMPS II. Characterizing the Size and Star Formation History of a Bright Strongly Lensed Early-Type Galaxy at Redshift 1.02*, In Preparation. **Paper writing, lens search, data analysis, and figure contributions.**
G. Khullar, K. Gozman, [...], **E. Sukay**, et al., *COOL-LAMPS I. An Extraordinarily Bright Lensed Galaxy at Redshift 5.04*, *ApJ* 906, 107 (2021). **Paper writing, lens search, figure, and data reduction and analysis contributions.**
J. Michail, P. Ashton, [...], **E. Sukay**, et al., *Far Infrared Polarization of the OMC-1 Star Forming Region*, *ApJ* 907, 46 (2021). **Data reduction and analysis contributions.**
M. Martienz, M.D. Gladders, [...], **E. Sukay**, et al., *COOL-LAMPS III. Discovery of a 26''.0 Wide-Separation Lensed Quasar*, In Preparation. **Observing and lens search contributions.**

POSTERS

E. Sukay, M.D. Gladders, G. Khullar, et al. *COOL-LAMPS: Characterizing the Size and Star Formation History of a Strongly Lensed Early-Type $z=1$ Galaxy*. 2021, *AAS* 237.
E. Sukay, A. Gui, X. Huang, et al. *Strong Gravitational Lens Modeling as an Exploration of Parameter Covariance*. LBNL Science Undergraduate Laboratory Internship Fall 2021 Poster Session.

AWARDS & HONORS

Chambliss Astronomy Achievement Student Award (AAS Poster Award) Jan. 2021
The Jane Morton and Henry C. Murphy Award May 2020
For exceptional and unique contributions to the University community.
The Maroon Key Society (University of Chicago undergraduate honor society) 2019 - 2021

PRESENTATIONS

COOL-LAMPS Collaboration Meeting: <i>CJ1323 - An Early-type Lensed Galaxy at $z=1$</i>	June 2021
UChicago Astrophysics Honors Thesis Presentation	June 2021
University of Chicago Astronomy Chalk Talk: <i>Research from the COOL-LAMPS Collab.</i>	Jan. 2021
Yerkes Intern Presentations: <i>Modeling HAWC+'s PSF</i>	July 2018

OBSERVING EXPERIENCE AND PROPOSALS

McDonald Observatory (VIRUS-P):	
Discovery & Confirmation of Galaxy & Cluster Scale Lenses (3 nights)	April 2021
Magellan Telescopes (LDSS3/PISCO/IMACS):	
Discovery & Confirmation of Galaxy & Cluster Scale Lenses (4 nights)	2020 - 2021

UCO Lick Shane 2022A S023, PI: Schlegel, **Co-I: Sukay**, *Spectroscopy for Strong Gravitational Lensing Systems with HST* 6 nights

JWST - Cycle 1 GO Proposal 2566, PI: Khullar, **Co-I: Sukay**, *Characterizing Stellar Mass Assembly and Physical Properties in the Brightest Galaxy in the Redshift >5 Universe* 20 hours

HST - Cycle 28 GO Proposal 16444, PI: Dahle, **Co-I: Sukay**, *A bright arc behind an extreme cluster lens at $z=1.5$* 3 orbits

Gemini North Director's Discretionary Time, PI: Gladders, **Co-I: Sukay**, *The OII Doublet in the Brightest Galaxy Known at $z>5$* 1.3 hours

Gemini-N and Gemini-S Fast Turnaround program, PI: Khullar, **Co-I: Sukay**, *GMOS Spectroscopic follow-up of COOL-LAMPS early type galaxies* 2 nights

Magellan (LDSS3, IMACS, FOURSTAR and FIRE), PI: Gladders, **Co-I: Sukay**, *Observations of high-redshift gravitationally lensed galaxies* 3 nights

Data reduction: Gemini North (GNIRS), SOFIA (HAWC+)

TEACHING EXPERIENCE

The University of Chicago, Chicago, IL

Teaching Assistant, The Physics of Stars July 2020

Graded homework and coding projects, helped write coding projects, wrote homework solutions, led students through remote observations, and held office hours for 24 high school students.

Teaching Assistant, Observational Techniques in Astrophysics April 2020 - June 2020

Guided 30 undergraduate students through projects and remote observations.

Learning Assistant, Waves, Optics, & Heat April 2019 - June 2019

Assisted a TA in guiding two sections of 20 undergraduate students through introductory physics labs and improved lab content.

LEADERSHIP & OUTREACH

The University of Chicago, Chicago, IL

Out in STEM (oSTEM)

President April 2019 - June 2021

Created monthly Hot Cocoa Chats with Professors to connect students to mentors and research opportunities and hosted weekly board game nights.

Acquiring funding for and organizing travel to the annual national conference.

Event Planner June 2018 - April 2019

Hosted weekly social teas, planned and organized events, such as movie nights and dinners, for undergraduate and graduate students.

Ryerson Astronomical Society

President

June 2019 - Jan 2021

Planning and hosting weekly talks and public observing.

Planning quarterly dark sky camping trips and an annual trip to Yerkes Observatory.

Outreach Officer

June 2018 - June 2019

Publicizing club events and assisting the president in their duties.

Yerkes Observatory, Williams Bay, WI

Intern

June 2018 - Aug. 2018

Designed, set up, and ran diffraction experiments for 20 high schoolers on the "Great Refractor."

Ran stations at weekly star parties to introduce star gazing and astronomy to the public.

COMMITTEE INVOLVEMENT

The University of Chicago Astronomy & Astrophysics Department, Chicago, IL

Equality & Inclusion Council, Undergrad Rep

Oct. 2019 - May 2020

TECHNICAL SKILLS

Languages

Proficient: Python

Familiar: IRAF, SQL

Software

Proficient: GALFIT, Prospector, Lenstronomy, SAOImageDS9, Unix, Git, LaTeX

Familiar: LENSTOOL, PyLenstool