

Ezra Sukay
esukay1@jhu.edu
3400 N. Charles Street, Baltimore, MD 21218

EDUCATION

Johns Hopkins University

Ph.D. Student, Astronomy & Astrophysics
William H. Miller III Fellow
Advisor: Dr. Susan Kassin

Baltimore, MD
Expected Graduation: June 2027

The University of Chicago

B.S. in Astrophysics with Honors
Advisor: Prof. Michael Gladders

Chicago, IL
June 2021

Thesis: Characterizing the Size and Star Formation History of a Bright Strongly Lensed ETG at $z=1.02$

RESEARCH EXPERIENCE

Lawrence Berkeley National Lab

Science Undergraduate Laboratory Internship

Advisors: Professor Xiaosheng Huang & Dr. David Schlegel

August 2021 - May 2022

Confirming the redshifts of strong gravitational lensing systems with KAST (UCO Lick) to inform strong lensing models. Characterizing lens galaxies with Hubble Space Telescope data and searching for low mass dark matter halos by building Lenstronomy and GIGA-Lens models.

The University of Chicago

COOL-LAMPS: Chicago Optically-selected strong Lenses - Located At the Margins of Public Surveys

Advisor: Professor Michael Gladders

Chicago, IL
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*, arXiv [2203.11957](https://arxiv.org/abs/2203.11957) (2022).

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.**

PRESENTATIONS

University of Chicago Astronomy Chalk Talk: *CJ1323 - An Early-type Lensed Galaxy at $z=1$* April 2022

COOL-LAMPS Collaboration Meeting: *CJ1323 - An Early-type Lensed Galaxy at $z=1$* June 2021

UChicago Astrophysics Honors Thesis Presentation June 2021

University of Chicago Astronomy Chalk Talk: *Research from the COOL-LAMPS Collab.* Jan. 2021

Yerkes Intern Presentations: *Modeling HAWC+'s PSF* July 2018

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

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. *Confirming and Modeling Strong Gravitational Lenses in the DESI Imaging Surveys*. LBNL Science Undergraduate Laboratory Internship Spring 2022 Poster Session.

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.

OBSERVING EXPERIENCE AND PROPOSALS

Lick Observatory (Kast):	
Spectroscopic Followup for Strong Gravitational Lensing Systems (6 nights)	Feb. - April 2022
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 (5 nights)	2020 - 2021

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

KECK NIRES 2022B Proposal ID U164, PI: Schlegel, **Co-I: Sukay**, *Strong Lensing Redshifts* 1.5 nights

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

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

LEADERSHIP & OUTREACH

The University of Chicago Chicago, IL
Out in STEM (oSTEM)

President (April 2019 - June 2021), Event Planner (June 2018 - April 2019)

Acquired ~\$2k in funding for and organized travel to the 2019 national conference for 8 students.
Created and organized monthly Hot Cocoa Chats with Professors to connect students to mentors and research opportunities.
Created biweekly board game nights and organized weekly social teas and quarterly movie nights.

Ryerson Astronomical Society

President (June 2019 - Dec. 2021), Outreach Officer (June 2018 - June 2019)

Planned and hosted weekly lectures and public observing.
Planned quarterly dark sky camping trips and an annual trip to Yerkes Observatory.

Yerkes Observatory

Intern

Williams Bay, WI
June 2018 - Aug. 2018

Designed, set up, and ran diffraction experiments for 20 high schoolers on the "Great Refractor."
Ran stations, i.e. observing and BVI accessible demos, at weekly public star parties.

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.

COMMITTEE INVOLVEMENT

The University of Chicago Astronomy & Astrophysics Department

Chicago, IL

Equality & Inclusion Council, Undergrad Representative

Oct. 2019 – May 2020

TECHNICAL SKILLS

Languages

Proficient: Python
Familiar: IRAF and SQL

Software

Proficient: Unix, Git, LaTeX, DS9, GALFIT, Prospector, and MacOS/Linux/Windows
Familiar: Pypelt, Lenstronomy, LENSTOOL, and PyLenstool