

Ezra Sukay
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3400 N. Charles Street, Baltimore, MD 21218

EDUCATION

Johns Hopkins University

Baltimore, MD

Ph.D. Candidate in Astrophysics

Expected Graduation: June 2027

Thesis: *Mapping Metals and Star Formation Histories in Distant Galaxies*

Advisors: Dr. Susan Kassin and Prof. Timothy Heckman

Masters in Physics

May 2024

The University of Chicago

Chicago, IL

B.S. in Astrophysics with Honors

June 2021

Honors Thesis: *Characterizing the Size & Star Formation History of a Bright Strongly Lensed ETG at $z=1$*

Advisor: Prof. Michael Gladders

RESEARCH EXPERIENCE

Johns Hopkins University

Baltimore, MD

Graduate Research Assistant

Advisors: Dr. Susan Kassin & Prof. Timothy Heckman

Aug. 2022 - Present

Uncovering the mechanisms fueling galaxy winds by studying how the incidence of winds correlates with stellar mass, star formation rate, and morphology. Fitting spatially resolved spectrophotometric data using BEAGLE to measure stellar mass, star formation rate, and dust attenuation of galaxies.

Lawrence Berkeley National Lab

Berkeley, CA

Science Undergraduate Laboratory Internship

Advisors: Professor Xiaosheng Huang & Dr. David Schlegel

Aug. 2021 - May 2022

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

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 - Aug. 2021

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*, *ApJ* **940**, 42 (2022).

M. Klein, K. Sharon, [...], **E. Sukay**, et al., *COOL-LAMPS. VI. Lens Model and New Constraints on the Properties of COOL J1241+2219, a Bright $z = 5$ Lyman Break Galaxy and its $z = 1$ Cluster Lens*, *ApJ* **963**, 44 (2024).

Y. Zhang, V. Manwadkar, [...], **E. Sukay**, et al., *COOL-LAMPS IV: A Sample of Bright Strongly-Lensed Galaxies at $3 < z < 4$* , *ApJ* **950**, 58 (2023).

M. Martienz, M.D. Gladders, [...], **E. Sukay**, et al., *COOL-LAMPS III. Discovery of a 26''.0 Wide-Separation Lensed Quasar*, *ApJ* **946**, 63 (2023).

G. Khullar, K. Gozman, [...], **E. Sukay**, et al., *COOL-LAMPS I. An Extraordinarily Bright Lensed Galaxy at Redshift 5.04*, *ApJ* **906**, 107 (2021).

J. Michail, P. Ashton, [...], **E. Sukay**, et al., *Far Infrared Polarization of the OMC-1 Star Forming Region*, *ApJ* **907**, 46 (2021).

PRESENTATIONS

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| Observatoire de Paris Meduon Galaxy Journal Club | Dec. 2024 |
| CEA Paris Saclay Galaxy Journal Club | Dec. 2024 |
| 2024 Santa Cruz Galaxy Workshop: <i>The Coffee Pot Galaxy at $z=2$</i> (slides) | Aug. 2024 |
| University of Chicago Astronomy Chalk Talk: <i>CJ1323 - An Early-type Lensed Galaxy at $z=1$</i> | April 2022 |
| COOL-LAMPS Collaboration Meeting: <i>CJ1323 - An Early-type Lensed Galaxy at $z=1$</i> | June 2021 |
| University of Chicago 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 |

POSTERS

E. Sukay, S. Kassin, W. Wang, et al. *At $z \sim 1$, Outflows Come from All Directions In Disturbed & Merging Galaxies*. 2023, JWST First Light Boston.

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

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| 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 2 GO Proposal 4291, PIs: Kassin and Pacifici, **Co-I: Sukay**, Galaxy angular momentum alignment with filaments at $z \sim 3$: The effect of large scale structure on galaxies 67.8 hours

ALMA - Cycle 10 2023.1.00430.S PI: Whitaker, **Co-I: Sukay**, Detecting Dust in a Sample of Lensed Quiescent Galaxies at Cosmic Noon

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

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

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

AWARDS & HONORS

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| Maryland Space Grant Consortium Fellow | Jan. 2025 - May. 2025 |
| Maryland Space Grant Observatory Fellow | Jan. 2024 - Dec. 2024 |
| William H. Miller III Fellow | Aug. 2022 - Aug. 2023 |
| 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 |

LEADERSHIP & OUTREACH

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| Johns Hopkins University | Baltimore, MD |
| <u>Maryland Space Grant Observatory</u> | |
| Observatory Fellow | Jan. 2024 - Dec. 2024 |
| Volunteer | Oct. 2022 - Dec. 2023, Jan. 2025-Present |
| Operating the 20" Morris W. Offit Telescope at public observation nights and engaging with the attendees. | |
| Hosting K-12 tours, training new users, and managing the observatories schedule. | |
| The University of Chicago | Chicago, IL |
| <u>Out in STEM (oSTEM)</u> | |
| 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. | |
| <u>Ryerson Astronomical Society</u> | |
| President | June 2019 - Dec. 2020 |
| Outreach Officer | June 2018 - June 2019 |
| Planned and hosted weekly lectures and public observing. | |
| Planned dark sky camping trips and an annual trip to Yerkes Observatory. | |
| 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, i.e. observing and blind and visually-impaired accessible demos, at weekly public star parties. | |

TEACHING EXPERIENCE

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| The University of Chicago | Chicago, IL |
| Teaching Assistant: The Physics of Stars & Observational Techniques in Astrophysics | 2020 |
| Learning Assistant: Waves, Optics, & Heat | Spring 2019 |

COMMITTEE INVOLVEMENT

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| The University of Chicago Astronomy & Astrophysics Department | Chicago, IL |
| Equality & Inclusion Council, Undergrad Representative | Oct. 2019 - May 2020 |

TECHNICAL SKILLS

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| Languages | Proficient: Python Familiar: IRAF and SQL |
| Software | Proficient: LaTeX, Git, BEAGLE, GALFIT, Prospector, & DS9 |