JACKSON SIPPLE

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EDUCATION

University of Pennsylvania *Expected May 2025*
PhD Candidate in **Physics & Astronomy** Overall GPA: 3.96

University of California, Berkeley *May 2019*
Bachelors of Arts in **Astrophysics & Computer Science** Overall GPA: 3.74

RESEARCH

Graduate Researcher Summer 2021 - Current
Advisor: Adam Lidz *University of Pennsylvania*

- Theoretical/Computation work focused on the Epoch of Reionization (EoR) period of cosmology
- Currently working on constraining ultralight "fuzzy" dark matter models
- Performed model fitting using Markov-Chain Monte Carlo (MCMC) methods
- Previous work on considering the KSZ effect and UV Luminosity Functions as probes of Reionization

Undergraduate Researcher Summer 2018 & Summer 2019 - Spring 2020
Prof. Aaron Parsons (Hydrogen Epoch of Reionizaition Array (HERA) Team) *UC Berkeley*

- Developed a median filter implementation in PyCUDA for use in image denoising.
- Developed a CLEAN deconvolution implementation in PyCUDA for use in radio interferometry
- Updated interferometric visibility simulator for use in HERA telescope calibration
- Learned NVIDIA's parallel computing language extension CUDA in C++ and Python

Undergraduate Researcher Summer 2018 - Spring 2019
Prof. Alex Filippenko (Lick Observatory Supernova Search (LOSS)) *UC Berkeley*

- Analyzed images from the 0.76m Katzman Automatic Imaging Telescope (KAIT) to discover nearby supernovae and tidal disruption events
- Conducted remote all-night observations of astronomical transients using Lick Observatory's 1m Nickel telescope.

SELECTED PUBLICATIONS

[1] **Jackson Sipple**, Adam Lidz, Daniel Grin, and Guochao Sun (2024)
Fuzzy Dark Matter Constraints from the Hubble Frontier Fields
ArXiv preprint. DOI: 10.48550/arXiv.2407.17059

[2] **Jackson Sipple** and Adam Lidz (2024)
The Star Formation Efficiency during Reionization as Inferred from the Hubble Frontier Fields
The Astrophysical Journal 961 50. DOI: 10.3847/1538-4357/ad06a7

[3] Paul La Plante, **Jackson Sipple** and Adam Lidz (2022)
Prospects for kSZ^2-Galaxy Cross-correlations during Reionization
The Astrophysical Journal 928 162L. DOI: 10.3847/1538-4357/ac5752

TEACHING

Teaching Assistant Fall 2020 - Spring 2021
Electromagnetism & Optics Lab *University of Pennsylvania*

· Held 8 hours per week of virtual office hours during social distancing

Teaching Assistant Spring 2020
Astro 121 (Radio Astronomy Lab) *UC Berkeley*

· Assisted students with the use of lab equipment
· Updated the lab's data capture and analysis software

Undergraduate Student Instructor (uGSI) Fall 2017
Astro C10 (Introduction to General Astronomy) *UC Berkeley*

· Taught two weekly hour-long sections of $\sim$ 35 students each
· Created lesson plans, worksheets, and quizzes on my own
· Assisted in writing exam questions

Lab Assistant Summer 2017
CS 61C (Computer Architecture) *UC Berkeley*

· Answered students' conceptual questions six hours a week during 3 lab sections of $\sim$ 40 students each
· Evaluated students' verbal answers at the end of labs and awarded points based on those answers

ADDITIONAL EMPLOYMENT

Academic Reader Fall 2016 - Spring 2019
Astro C10 (Introduction to General Astronomy) - Fall 2016 & Summer 2017
Math 53 (Multivariable Calculus) - Summer 2017
Astro C12 (Planets) - Spring 2018 & Spring 2019
CS 161 (Computer Security) - Fall 2018 *UC Berkeley*

· Graded homework assignments
· Proctored exams

Administrative Assistant Summer 2016
Community Education Program *Orange Coast College*

· Assisted customers with general questions and enrollment
· Acted as a liaison between instructors and staff