

Samuel McCarty

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Education

University of Washington

Seattle, WA

Double major in Physics and Astronomy

09/2021 – Present

Cumulative GPA: 3.96/4.0, Physics: 3.97, Astronomy: 3.95

Departmental honors in both majors

Expected graduation: 06/2025

Harvard University

Cambridge, MA

Astronomy & Astrophysics PhD Program

Starting Fall 2025

Research

Radio Strong Lensing

03/2024 – Present

Professor Liam Connor (Harvard CfA)

Forecasting expected strong gravitational lenses in upcoming wide-field radio surveys, techniques for identifying them, and their application to important questions in astronomy.

– [McCarty and Connor \(2024\)](#), *Strong Gravitational Lensing With Upcoming Wide-Field Radio Surveys*, submitted to MNRAS in November.

– Presenting my findings at an invite-only [strong lensing workshop](#) at the Center for Astrophysics | Harvard & Smithsonian and the monthly DSA-2000 community science meeting early next year.

Cosmic Sheets & Filaments

05/2023 – Present

Professor Matthew McQuinn (University of Washington)

This project aims to understand the structure of the IGM in sheets and filaments of the cosmic web using hydrodynamic cosmological simulations.

– *Structure of Cosmic Sheets and Filaments*

05/17/2024

Oral presentation at the Mary Gates Research Symposium.

Virtual Planetary Laboratory Student Researcher

01/2025 – Present

Professor Victoria Meadows (University of Washington)

Creating an ML classification pipeline to distinguish between biological and non-biological exoplanet observations for the planned Habitable Worlds Observatory.

**Extracurricular
Activities**

Student Quasar Absorption Diagnosticians (SQuAD) 06/2023 – 01/2024
Professor Jessica Werk (University of Washington) & 01/2025 – Present
A group of student researchers working on analyzing the composition and kinematics of the circumgalactic medium using QSO absorption spectra and other methods. Currently using bright stars in the galactic halo to study the Milky Way's own CGM.

Undergraduate Research Assistant 03/2023 – 04/2024
UW Nanopore Lab, Jens Gundlach (University of Washington)
This lab develops nanopore DNA sequencing methods. Worked on a project using MCMC biomolecular simulations to understand internal variables in the experiments.

Husky Sattelite Lab 09/2023 – 06/2024
A satellite building club with a competitive application process. Worked on a project designing the mission plan for our 2030 lunar orbiting satellite. This involved complex and multidisciplinary optimization strategies to balance scientific goals, propulsion capabilities, longevity requirements, etc.

Exploring Strong Gravitational Lensing 04/24/2024
~45-minute public outreach talk for Astronomy on Tap Seattle. [Video here.](#)

Outreach Coordinator 09/2022 – 06/2023
University of Washington Astronomy Department, Seattle WA
Managed the UW Planetarium and other outreach efforts.

Physics Undergraduate Mentorship Program Leadership Team 01/2024 – Present
Leadership position in a program for advanced undergraduates to mentor new physics majors.

UW Mobile Planetarium Volunteer 09/2022 – Present
A student-run portable planetarium show aiming to bring astronomy education to students in typically underrepresented populations.

Phi Delta Theta Executive Social Chair 03/2023 – 12/2024
Organize events, manage a budget of ~\$40,000/quarter. Top leadership position in an organization of 100+ people.

**Awards/
Accomplishments**

Caltech Summer Undergraduate Research Fellowship 2024

Top Graduating Senior (Physics)

Hans G. Dehmelt Scholarship 2024

An award for academic merit and experimental physics research from the endowment of Nobel Laureate Hans G. Dehmelt.

Mary Gates Research Scholarship 2024

Merit scholarship for undergraduate research from the Mary Gates Endowment.

Baer Prize 2024

Awarded annually to an Astronomy undergraduate for excellence in academics, research, and outreach.

Greek Man of the Year 2023

Awarded to a member of UW Greek Life for outstanding contributions and achievements within his fraternity, the Greek Community, the University, and surrounding local communities.

93rd percentile Physics GRE (970/990)

Dean's List every quarter in college

AP Scholar Award

Perfect score on the ACT

**Observing
Experience**

Local Volume Mapper, Las Campanas Observatory 11/14/24 - 02/01/25

Weekly remote operation of the LVM instruments for its optical integral-field spectroscopic survey.

Hale 200 Inch Telescope, Palomar Observatory 08/14/2024

Optical follow-up of a radio-selected gravitational lens candidate.

ARCSAT 0.5m Telescope, Apache Point Observatory 04/22-23/2024

Photometry of a short period contact eclipsing binary.