

Juliana S. M. Karp

they/them | juliana.karp@yale.edu | juliana-karp.github.io | github [@juliana-karp](https://github.com/juliana-karp)

EDUCATION

University of Washington

PhD in Astronomy, NSF Graduate Research Fellow and ARCS Scholar

Seattle, WA

beginning September 2025

Yale University

Bachelor's of Science in Astrophysics

New Haven, CT

May 2025

RESEARCH EXPERIENCE

Senior Thesis: Spectroscopic Gravitational Lens Search

Fall 2024 – Present

Yale University

New Haven, CT

- Searching for strong galaxy-galaxy gravitational lens candidates in Dark Energy Spectroscopic Instrument (DESI) survey data, as a continuation of summer 2024 research at LBNL.
- PIs: Nikhil Padmanabhan and David Schlegel.

SULI Intern: Spectroscopic Gravitational Lens Search

Summer 2024

Ernest O. Lawrence Berkeley National Laboratory

Berkeley, CA

- Identified 168 strong gravitational lens candidates in DESI data via a background [O II] emission line search of luminous red galaxy spectra.
- PI: David Schlegel.

Undergraduate Researcher: Simulating Diffuse Cluster Gas

Spring 2024

Yale University

New Haven, CT

- Explored covering fraction and velocity dispersion of neutral hydrogen in IllustrisTNG Fornax-like galaxy clusters.
- PI: Daisuke Nagai.

SR-EIP Intern: The Environment Around NGC 4993

Summer 2023

Stanford Kavli Institute for Particle Astrophysics and Cosmology

Stanford, CA

- Identified 11 new members of the NGC 4993 group, calculated a group halo mass of $10^{13} M_{\odot}$, and evaluated and improved targeting strategies for the DESI Low-Z Secondary Target program.
- PI: Risa Wechsler.

SEA Intern: Anisotropic Satellite Galaxy Quenching

Summer 2022

Stanford Kavli Institute for Particle Astrophysics and Cosmology

Stanford, CA

- Showed that anisotropic satellite galaxy quenching is a natural consequence of hierarchical structure formation in two state-of-the-art cosmological galaxy formation models, UniverseMachine and IllustrisTNG, and is therefore not a reliable indicator of supermassive black hole feedback.
- PI: Risa Wechsler.

PUBLICATIONS

- **Karp, J. S. M.**, Lange, J. U., & Wechsler, R. H. 2023, ApJ Letters, 949, L13. [doi:10.3847/2041-8213/acd3e9](https://doi.org/10.3847/2041-8213/acd3e9).
Anisotropic Satellite Galaxy Quenching: A Unique Signature of Energetic Feedback by Supermassive Black Holes?

TEACHING EXPERIENCE

ASTR 220 Tutor

Spring 2025

Yale University Poorvu Center for Teaching and Learning

New Haven, CT

- Teaching one-on-one advanced introductory astronomy focused on galaxies, black holes, and cosmology.

ASTR 110 Tutor

Fall 2024

Yale University Poorvu Center for Teaching and Learning

New Haven, CT

- Teaching one-on-one introductory astronomy focused on planetary and stellar evolution.

Asternoise Teaching Tool

Spring 2023

Independent Teaching Project

New Haven, CT

- Coded a visualization teaching tool to explain how CCD noise adds and affects data collection under different observing conditions. Used by Prof. Malena Rice in Yale's ASTR 255 course. [Web app](#) and [github code](#).

OUTREACH EXPERIENCE

AstroSibs Coordinator

2023 – 2025

Department of Astronomy, Yale University

New Haven, CT

- Paired 40+ Yale astronomy undergraduates, graduate students, and postdocs for small-group mentoring re astronomy careers, academia, coursework, research, applications, and community.
- Organized professional development workshops, e.g. advice for undergraduates applying to REUs and PhDs.
- Hosted bimonthly department-wide holiday parties and socials to increase belonging within the department.
- Met weekly with my matched AstroSibs to share insights, feedback, and advice.

Astronomy Climate and Diversity Committee Member

2024 – 2025

Department of Astronomy, Yale University

New Haven, CT

- Helped plan Python Research Preparation Series for first-year undergraduates and develop strategies to recruit more astronomy students from underrepresented backgrounds.

POSTER PRESENTATIONS

- **245th Meeting of the American Astronomical Society (January 2025):** [Spectroscopic Identification of Strong Gravitational Lensing Candidates with DESI](#).
- **The Department of Energy's Student Undergraduate Laboratory Internships at Lawrence Berkeley National Laboratory (August 2024):** [Toward a Catalog of Strong Gravitational Lenses with the Dark Energy Spectroscopic Instrument](#).
- **243rd Meeting of the American Astronomical Society (January 2024):** [Characterizing the Environment around NGC 4993 and the Coma Cluster to Determine the Conditions for the Formation and Merger of Binary Neutron Stars](#).
- **The Leadership Alliance's Summer Research Early Identification Program at Stanford University (August 2023):** [Characterizing the Environment around NGC 4993 and the Coma Cluster with the Dark Energy Spectroscopic Instrument](#).

TALKS

- **Yale Undergraduate Kickoff (September 2024):** Spectroscopic Identification of Strong Gravitational Lens Candidates with DESI.
- **Meeting of Astrophysics Students at Stanford University (July 2023):** Anisotropic Satellite Galaxy Quenching: A Unique Signature of Energetic Feedback by Supermassive Black Holes?
- **Yale Galaxy Lunch (March 2023):** Anisotropic Satellite Galaxy Quenching: A Unique Signature of Energetic Feedback by Supermassive Black Holes?
- **Yale Undergraduate Kickoff (September 2022):** Exploring the Causes of Anisotropic Satellite Galaxy Quenching in UniverseMachine and IllustrisTNG.
- **Stanford Summer Undergraduate Research Program Final Presentation (August 2022):** Exploring the Causes of Anisotropic Satellite Galaxy Quenching in UniverseMachine and IllustrisTNG.

AWARDS & FELLOWSHIPS

- **National Science Foundation (NSF) Graduate Research Fellowship Program** (\$159,500, 2025-2030)
- **Achievement Rewards for College Scientists (ARCS) Foundation Fellowship** (\$22,000, 2025-2028)
- **AAS Chambliss Astronomy Achievement Student Awards, Winner** (2025)
- **U.S. Department of Energy's Science Undergraduate Laboratory Internships** (\$9,500, 2024)
- **AAS Chambliss Astronomy Achievement Student Awards, Honorable Mention** (2024)
- **The Leadership Alliance's Summer Research Early Identification Program** (\$4,000, 2023)
- **Yale French Department Henry W. Scott Prize, 2nd Place** (\$250, 2022)
- **Yale Summer Experience Award** (\$4,000, 2022)
- **French Baccalaureate Diploma with International Option and Highest Honors** (2021)

RELEVANT COURSEWORK

Yale University

ASTR 610: Theory of Galaxy Formation
ASTR 465: The Evolving Universe
ASTR 356: Astrostatistics and Data Mining
ASTR 360: Interstellar Matter and Star Formation
ASTR 330: Scientific Computing in Astrophysics
ASTR 320: Physical Processes in Astronomy
ASTR 310: Galactic and Extragalactic Astronomy
ASTR 255: Research Methods in Astrophysics
ASTR 210: Stars and Their Evolution
PHYS 439: Basic Quantum Mechanics
PHYS 430: Electromagnetic Fields and Optics
PHYS 410: Advanced Classical Mechanics
MATH 246: Ordinary Differential Equations
MATH 225: Linear Algebra
MATH 120: Multivariable Calculus

UC Berkeley Summer Session

ASTR 9: Select Topics in Astronomy: Python Programming

OTHER INTERESTS

- **Swimming:** Yale Club Swim Team, USA Masters Swimming, & USA Swimming (2012–Present).
- **Figure Skating:** Co-Captain, Board Member, and Skater, Yale Collegiate Figure Skating Club (2021–2025). Supervised practice sessions, handled \$15,000 annual budget, organized team social events, planned trips to competitions, ran annual ice show, choreographed programs for competition and ice show.

SKILLS & QUALIFICATIONS

Memberships: American Astronomical Society (2023-present), San Francisco Amateur Astronomers (2015-2022)

Programming Languages: Python, Unix

Languages: English (native), French (fluent), Spanish (proficient)