OLIVIA RAE COOPER

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RESEARCH INTERESTS

Massive galaxy evolution at high redshift ($z > 3$); multi-wavelength observations of massive galaxies (including dusty star-forming galaxies, early quiescent galaxies, reionization era galaxies)

EDUCATION

Ph.D., The University of Texas at Austin *expected 2026*
Advisor: Caitlin Casey GPA: 4.0/4.0

B.A., Smith College *2016 – 2020*
Astronomy (Highest Honors) and Physics, Concentration in Climate Change GPA: 3.9/4.0
Senior Honors Thesis: *Tales From Our Dusty, Warped Past: Lensing Environments of Planck-Selected Submillimeter Galaxies Observed With Gemini*
Advisor: James Lowenthal

PROFESSIONAL APPOINTMENTS

The University of Texas at Austin *Sep 2020 – present*
NSF Graduate Research Fellow *2022 – present*

Smith College *Sep 2016 – May 2020*
STRIDE Scholar *2016 – 2018*

Caltech LIGO Lab
LIGO Summer Undergraduate Research Fellow *Jun 2019 – Aug 2019*

University of Utah
Physics & Astronomy NSF REU Fellow *Jun 2018 – Aug 2018*

AWARDS & HONORS

OGS Summer Fellowship, *UT Austin Graduate School* 2022
NSF Graduate Research Fellowship, *NSF GRFP* 2022
Dean's Excellence Fellowship, *UT Austin College of Natural Sciences* 2020
Mary Dailey Irvine Prize (for an astronomy thesis), *Five College Astronomy Department* 2020
Astronomy Dep't Prize for Excellence in Astronomy & Astrophysics, *Smith College* 2020
Florence Augusta Merriam Bailey Prize (for environmental problem solving), *Smith College* 2020
Goldwater Scholarship, *Barry M. Goldwater Foundation* 2019
Chambliss Student Award Honorable Mention, *233rd AAS Meeting* 2019
Grand Prize (selected for NSF REU Conference), *University of Utah REU Symposium* 2018
Dean's List, *Smith College* 2016-17, 2017-18

OBSERVING & GRANTS

Awarded Time (PI only)

VIRUS, Hobby-Eberly Telescope (10 hr) 2022-3
Extending a complete census of Lyman-α Emitters in the SSA22 Protocluster at z=3.1

GNRIS, Gemini North (3.8 hr) 22A
Spectroscopic determination of the relationship between a luminous X-ray AGN and a strongly lensed HyLIRG at $z = 3.55$

VIRUS, Hobby-Eberly Telescope (7 hr) 2022-2
Extending a complete census of Lyman-α Emitters in the SSA22 Protocluster at z=3.1

Band 4 imaging, ALMA (9 hr) Cycle 8
Needle in a haystack: Identifying the highest-redshift candidate DSFGs using 2mm imaging

GMOS imaging, Gemini South (1.25 hr) 21B
Comprehensive Lens Characterization for a Hyperluminous DSFG at $z = 2$

Triple Spec, Palomar Observatory P200 Telescope (1 half night) Summer 2019
Phase-resolved spectroscopy of ultra-compact binaries as candidate LISA verification sources

Observing Experience

LRIS, Keck I (remote, 3 nights)	Feb-Mar 2022
MOSFIRE, Keck I (local/remote, 5 nights)	Jan-Feb 2022
WIYN 2.1 m Telescope, Kitt Peak National Observatory (remote)	Jul-Aug 2019
Triple Spec on P200 Telescope, Palomar Observatory (local)	Aug 13, 2019
WIYN 0.9 m Telescope, Kitt Peak National Observatory (local)	Jan 14-19, 2019
16" Telescope, Smith College McConnell Observatory (local)	Fall 2016-Spring 2020

Grants

NRAO Student Observing Support Grant (Advising PI: C. Casey) $28,143

PUBLICATIONS

Statistics *(as of 8 Jul 2022, source: Google Scholar)* Link to ADS
number of accepted refereed papers: 4
number of first-authored refereed papers: 1
h-index: 3

Refereed Publications

4. **Cooper, O. R.**, Casey, C. M., Zavala, J. A., Champagne, J. B., da Cunha, E., Kartaltepe, J. S., Long, A. S., Spilker, J. S., Staguhn, J.*Searching far and long I: Pilot ALMA 2mm follow-up of bright dusty galaxies as a redshift filter.* 2022 ApJ 930, 32, arXiv:2203.14973
3. Katz, M. L., **Cooper, O. R.**, Coughlin, M. W., Burdge, K. B., Breivik, K., Larson, S. L. *GPU-Accelerated Periodic Source Identification in Large-Scale Surveys: Measuring P and $\dot{P}$.* 2021 MNRAS 503, 2, arXiv:2006.06866
2. Ashok, A., Zasowski, G. Seth, A., Hasselquist, S., Bergsten, G., **Cooper, O.**, Boardman, N., Bizyaev, D., Goytia, S. M., García-Hernández, D. A., Roman-Lopes, A. *The APOGEE Library of Infrared SSP Templates (A-LIST): High-resolution Simple Stellar Population Spectral Models in the H Band.* 2021 AJ 161, 4, arXiv:2012.15773
1. **Cooper, O.**, Keeley, A., Merenlender, A. *Curriculum gaps for adult climate literacy.* 2019 Conservation Science and Practice, e102, https://doi.org/10.1111/csp2.102

Technical Reports & Non-refereed Publications

Observing and Modeling Ultracompact Binaries Detectable by LISA, technical final paper published on LIGO DCC: LIGO-T1900360-v1

Dissecting the Chemodynamics of Stellar Populations in M31 with APOGEE-2, formal final report submitted to University of Utah REU

Selected Abstracts & Proceedings

Lensing Masses of 8 Planck-selected Gravitationally Lensed Sub-millimeter Galaxies. Poster session at: American Astronomical Society 235th Winter Meeting; 2020 January 5; Honolulu, HI.

Observing and Modeling Ultracompact Binaries Detectable by LISA. Presentation at: LIGO SURF Summer Symposium; 2019 August 23; Pasadena, CA.

Comparing Rotation of Low Mass Stars in Coma Berenices and IC 348. Poster session at: Five College Astronomy Department Spring Symposium; 2019 May 3; Amherst, MA.

Follow-up Transit Photometry of K2 and TESS Exoplanet Candidates. Poster session at: Smith College's Celebrating Collaborations; 2019 April 20; Northampton, MA.

Dissecting the Chemodynamics of Stellar Populations in M31 with APOGEE-2. Poster session at: American Astronomical Society 233rd Winter Meeting; 2019 January 8; Seattle, WA.

Dissecting the Motions of Stellar Populations in M31. Poster session at: NSF REU Symposium; 2018 October 28-29; Washington D.C.

Chemodynamics of Stellar Populations in M31. Poster session at: University of Utah Summer Symposium; 2018 August 2; Salt Lake City, UT.

INVITED & CONTRIBUTED TALKS

COSMOS 2022 Meeting, COSMOS Collaboration (Contributed) 12 Jul 2022
Bright and Early: Efficient Identification of Massive Galaxies at $z > 4$

Cosmos Seminar, UT Austin Astronomy Department (Contributed) 14 Apr 2022
Taking census of the extreme in the early Universe: Massive galaxy evolution at $z \sim 3 - 6$

Student Seminar, Parsec Institute at University of Montreal (Invited) 15 Feb 2022
Searching Far and Long: ALMA 2mm Follow-up of Bright Dusty Galaxies as a Redshift Filter

CosmoFREDDIE Seminar, Institute for Astronomy (Invited) 20 Jan 2022
Searching Far and Long: ALMA 2mm Follow-up of Bright Dusty Galaxies as a Redshift Filter

Writing about Astronomy course, UMass Amherst Astronomy Department (Invited) 22 Sep 2021
How to read science papers: An Astrobites perspective

Extragalactic Seminar, UT Austin Astronomy Department (Contributed) 26 Apr 2021
Dusty needles in a haystack: 2mm survey of DSFGs in SSA22

SERVICE, OUTREACH, & MENTORSHIP

Leadership

COSMOS-Web Outreach Committee Chair 2022 – present
organize and manage outreach, informal publication, social media, education, and citizen science efforts from the COSMOS-Web team

Graduate Student Representative 2022 – 2023
serve as graduate student liasion within the department, attend faculty meetings, host student town halls, serve on graduate admissions committee

Astrobites Climate Committee Chair 2021 – present
founder and co-chair for climate change committee within Astrobites, post ∼1 climate/astro related post per month, host special Earth Week programming

Summer Program Social Event Coordinator 2021 – present
organized social events for the summer scholars in the REU & TAURUS program and the graduate students, planned average one event per week for 10 weeks each summer

Refereeing & Reviews

External Reviewer for Canadian Time Allocation Committee 2022

Mentorship

Undergraduate Research Advisor 2022 – present
research co-advisor with Prof. Casey for undergraduate students Alfonso Melendez, Mia Fong, and Jake Magee working on the WERLS project

TAURUS/REU informal mentor 2021 – present
graduate student mentor for students (Marie Barry, 2021; Courtney Reed, 2022) in UT Austin's NSF REU and TAURUS programs

GUMMY mentor 2020 – present
graduate student mentor for astronomy undergraduate students at UT Austin, advising on courses and careers in astronomy

Outreach

Astrobites Writer 2021 – present
writer for collaboration of graduate students that summarize astronomy articles into bite-size pieces that the public can understand

Climate Change and Human Health Outreach 2019
created and executed outreach program in my hometown (Willits, CA) at the local hospital and school to raise awareness about how climate change affects our health, specifically in the context of wildfires

Climate Migration in the Northern Hilltowns 2019
conducted interviews and compiled GIS data to support rural towns in Western MA as they apply for state Municipality Vulnerability Program grants

Maria Mitchell Women in STEM Symposium Notetaker 2018
took notes at salon-style discussions regarding the experience of women in STEM and problem solving for the future

Light Pollution Awareness Exhibit 2018
created and presented a slideshow of astrophotography at Smith College Concinnity Fest to raise awareness about light pollution

Star Parties 2016 – 2020
host public star parties at Smith College's observatory and use 16" telescope and eyepiece to look at and describe astronomical objects

TECHNICAL SKILLS

Programs & Languages: python, Matlab, Mathematica, Unix, IRAF/pyRAF
Software: git, LaTeX, Microsoft Office, AstroImageJ, JSkyCalc, LoggerPro, Adobe Photoshop, DS9, Gemini DRAGONS, Aquamacs/emacs, EAZY photo-z, nway, SExtractor, CASA

RELEVANT WORK EXPERIENCE

Physics 117 Grader, *Smith College Physics Department* Sept 2018 – Dec 2018
Grade homework for introductory physics class
Astronomy TA, *Smith College Astronomy Department* Jan 2018 – May 2019
Tutor STEM and non-STEM undergraduates in astronomy courses,
administer and evaluate constellation identification and telescope operation quizzes

PROFESSIONAL MEMBERSHIPS

American Association for the Advancement of Science member May 2020 – present

Elected Sigma Xi	May 2020 – present
American Astronomical Society member	Sept 2018 – present
American Physical Society member	June 2019 – present