

Caprice L. Phillips

Curriculum Vitae

The Ohio State University
Department of Astronomy
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RESEARCH INTERESTS

brown dwarf and exoplanet atmosphere detection and characterization, habitability, and substellar evolution

EDUCATION

- **The Ohio State University** Columbus, OH
Ph.D. Astronomy
- Graduate Certificate In College Education and University Teaching (In Progress)
Expected 2024
- **The University of Texas at Austin** Austin, TX
M.A. Astronomy
Thesis Title: *2M0443+3723 B: A Young Companion at the Substellar Boundary with Potential Membership in the β Pictoris Moving Group*
May 2019
- **University of Arkansas at Little Rock** Little Rock, AR
B.S. Physics; Minor: Mathematics
December 2015

RESEARCH POSITIONS

- **Graduate Student Researcher, Advisor: Dr. Ji Wang** Columbus, OH
Department of Astronomy, The Ohio State University
2019–Present
 - Investigating whether biosignatures on gas dwarfs are detectable on the upcoming *JWST* & *Twinkle* missions
- **Graduate Student Researcher, Advisor: Dr. Brendan Bowler** Austin, TX
Department of Astronomy, The University of Texas at Austin
2017–2019
 - Characterized the physical and empirical properties of a candidate benchmark brown dwarf companion in the β Pictoris Moving Group
- **Undergraduate Student Researcher, Advisor: Dr. Tony Hall** Little Rock, AR
Department of Physics & Astronomy, The University of Arkansas at Little Rock
2014–2015
 - Performed a comparative study of meteorites & unknown samples for composition determination using Raman spectroscopy, petrography, and a chemical test for nickel
- **Undergraduate Student Researcher, Advisor: Dr. Alois Adams** Little Rock, AR
Department of Physics & Astronomy, The University of Arkansas at Little Rock
2014
 - Investigated the probability of intelligent observers on confirmed exoplanets identifying Earth as a confirmed exoplanet through the transit method of detection

AWARDS, GRANTS AND HONORS

○ 2 nd place BlackInX Interdisciplinary Twitter Research Poster Competition	2021
○ OSU College of Arts & Sciences, ASC Student Success Grant (\$2500)	2021
○ Hayes Graduate Research Forum Mathematical and Physical Sciences -Third Place (OSU)	2021
○ Two Sigma Diversity PhD Research Grant (\$2000)	2021
○ Hayes Graduate Research Forum Selected Participant (OSU)	2021
○ Two Sigma Diversity PhD Fellowship Finalist	2021
○ ExoExplorers Program (ExoPAG Executive Committee/NASA Exoplanet Exploration Program)	2021
○ 3 rd place BlackInPhysics 3MT competition	2020
○ Inclusive Graduate Education Network Travel Award	2019
○ LSSTC Data Science Fellowship (Large Synoptic Survey Telescope Corporation)	2018
○ Dean's Strategic Fellowship (UT Austin)	2016
○ Astronomy Graduate Excellence Fellowship (UT Austin)	2016
○ Outstanding Senior Award (McNair Scholars Program)	2016
○ Ronald E. McNair Scholars Program (UALR)	2014-2016
○ College of Arts, Letters, and Sciences Ambassador (UALR)	2014-2015
○ Friday Fellows Scholarship Program for Leadership and Service (UALR)	2012-2014
○ Shepherd Poverty Studies Intern (UALR)	2013

OBSERVING EXPERIENCE

Keck II, NIRC2, LGS, Mauna Kea Observatory, (P.I. B. Bowler)	1 night
LBT, MODS/LBC, Mount Graham International Observatory, (Queue Observing)	8 nights

REFEREED PUBLICATIONS

Phillips, C., Wang, Ji., Edwards, B, Gaudi, S, *Exploring the Lower Boundary of the Fulton Gap with Twinkle: A Biosignature Study of the Terrestrial-like Planet - LTT 1445 Ab, in prep*

Phillips, C., Wang, Ji., Kendrew, S., Green, T., Hu, R., Valenti, J., Panero, W, Schulze, J, *Detecting Biosignatures in the Atmospheres of Gas Dwarf Planets with the James Webb Space Telescope, accepted to ApJ, [arXiv:2109.12132](#)*

Phillips, C., Bowler, B., Mace, G., Liu, M., Sokal., K, 2020, The Astrophysical Journal, 896, 173, [2MASS J04435686+3723033 B: A Young Companion at the Substellar Boundary with Potential Membership in the \$\beta\$ Pictoris Moving Group](#)

SEMINARS & COLLOQUIA

STScI Exoplanet, Star, and Planet Formation Seminar Series (<i>virtual</i>)	January 2022
The American Astronomical Society 239th Meeting (<i>special session, Salt Lake City, Utah</i>)	January 2022
The Pennsylvania State University CEHW Astronomy Seminar (<i>virtual</i>)	November 2021
National Society of Black Physicists Innovate Seminar Series (<i>virtual</i>)	September 2021
American Physical Society: "Quarks to Cosmos" (<i>virtual</i>)	April 2021
NASA JPL Exoplanet Seminar (<i>virtual</i>)	March 2021
Exoplanet Explorers (ExoExplorers) Science Series (<i>virtual</i>)	February 2021
College of Charleston, Department of Physics and Astronomy Colloquium (<i>virtual</i>)	October 2020

CONFERENCE RESEARCH TALKS

Detectability of Biosignatures in Temperate Gas Dwarfs with Twinkle (contributed talk), *Twinkle and the Next Generation of Exoplanet Scientists Conference*, September 2021

Detecting Biosignatures in the Atmospheres of Gas Dwarf Planets with the James Webb Space Telescope (contributed talk), *AbGradCon*, September 2021

Constraining Detection Limits for Potential Biosignatures in super-Earth Atmospheres with JWST (contributed talk), *ExoPAG 23*, January 2021, virtual due to COVID-19

Detecting Biosignatures in the Atmospheres of Gas Dwarf Planets with the James Webb Space Telescope (contributed talk), *Bay Area Exoplanet Meeting*, June 2021, virtual due to COVID-19

Constraining Detection Limits for Potential Biosignatures in super-Earth Atmospheres with JWST (contributed talk), *National Society of Black Physicists*, November 2020, virtual due to COVID-19 2M0443+3723

B: A Young Companion at the Substellar Boundary with Potential Membership in the β Pictoris Moving Group (contributed talk), *National Society of Black Physicists*, November 2019, Providence, RI

Detecting Biosignatures in the Atmospheres of Gas Dwarf Planets with the James Webb Space Telescope, *Edward F. Hayes Graduate Research Forum*, April 2021

Can We Detect Ammonia in the Atmospheres of super-Earths with the James Webb Space Telescope?, *Black In Physics 3MT Competition*, October 2020

RESEARCH POSTERS

Detecting Biosignatures in the Atmospheres of Gas Dwarf Planets with the James Webb Space Telescope, *BlackInX Conference* (poster), July 2021

Detecting Biosignatures in the Atmospheres of Gas Dwarf Planets with the James Webb Space Telescope, *Two Sigma Diversity PhD Finalist Reception*, March 2021

Phillips, C., Bowler, B., Liu, Michael C., Mace, Gregory N., Sokal, Kimberly, American Astronomical Society Meeting Abstracts (poster), 231, 349.04

Martinez, R, Bozek, B, Drew, P, Manning, S, **Phillips, C**, Equity & Inclusivity Efforts of the Department of Astronomy at The University of Texas at Austin, *Women in Astronomy IV Conference* (poster), July 2017, Austin, TX

TEACHING APPOINTMENTS

- **Academic Facilitator, URSA Program** Columbus, OH
Polaris Program, The Ohio State University March - August 2021
 - Created and implemented physics and astronomy curriculum, along with teaching and leading discussions during daily courses focused on exoplanets for incoming underrepresented first-year undergraduates to OSU
- **Teaching Assistant, ASTR 1141, “Life in the Universe”** Columbus, OH
Department of Astronomy, The Ohio State University Fall 2020 & Spring 2021
 - Graduate TA for undergraduate course with focus on astrobiology and nature of life in the universe
- **Teaching Assistant, ASTR 3350, “Astronomical Observation and Data Analysis”** Columbus, OH
Department of Astronomy, The Ohio State University Fall 2020
 - Graduate TA for undergraduate course with focus on modern astronomy with contemporary data analysis methods implemented in the Python programming language
- **Teaching Assistant, ASTR 309N, “Lives and Deaths of Stars”** Austin, TX
Department of Astronomy, The University of Texas at Austin Spring 2019
 - Graduate TA for undergraduate course on supernovas, white dwarfs, neutron stars, and black holes

Teaching Assistant, ASTR 321, “The Future of Humanity”

Department of Astronomy, The University of Texas at Austin

Austin, TX

Spring & Fall 2018

- Graduate TA for upper-division undergraduate writing astronomy course based on technological advancement. Graded and provided constructive feedback on written assignments

• Teaching Assistant, ASTR 309C, “Birth of Stars & Planets”

Austin, TX

Fall 2017

Department of Astronomy, The University of Texas at Austin

- Graduate TA for undergraduate astronomy course focused on star & planet formation

ADVISING & MENTORING

• The SciAccess Zenith Mentorship Program

Columbus, OH

Informal graduate student mentor for high school student in Space Science Mentoring Program

Fall 2020

• TAURUS Summer Research Program

Austin, TX

Informal graduate student mentor and developed imposter syndrome graduate student panel seminar

2017-2018

PROFESSIONAL SERVICE

• Executive Secretary

NASA UVOIR: SubO-Exoplanet Panel

2021

• BlackInAstro

Lead organizer of [BlackInAstro](#)

Virtual

2020-Present

• Black In Physics

Documentatin Lead organizer for Black In Physics Week 2021

Virtual

August - October 2021

PRESS/MEDIA COVERAGE

'Twinkle' satellite to scan for potentially habitable worlds ([Link](#))

2021

Scientists May Detect Signs of Extraterrestrial Life in the Next 5 to 10 Years ([Link](#))

2021

Astrobiters: #BlackInAstro Experiences - Caprice Phillips ([Link](#))

2021

OUTREACH

• Friends of Ohio State Astronomy and Astrophysics (FOSAA) event

Virtual

“Detecting Potential Biosignatures in the Atmospheres of Gas Dwarfs with JWST”

October 2021

• American Geological Union

Virtual

Invited panelist for exoplanet science with JWST

October 2021

• APS Public Engagement Webinar Series

Virtual

Invited panelist for talk on social media

July 2021

• The Big Fib Podcast

Virtual

Invited guest on podcast featuring stars & planets

June 2021

• Science Around Cincy

Columbus, OH

Invited Guest for YouTube series

June 2021

• Columbus School for Girls

Virtual

Invited speaker at the Columbus School for Girls

April 2021

• StriveHigher Inc

Virtual

Women's Herstory month: meet an astrophysicist and astronomer

March 2021

• Girls in STEM Program: Sponsored by the Museum of Discovery <i>Presenting a mentoring talk with girls aged 12-15</i>	Virtual March 2021
• Q&A Session with JWST <i>Instagram outreach for James Webb Space Telescope</i>	Virtual February 2021
• Westview High School <i>Discussed with high school physics class about astronomy career</i>	Virtual February 2021
• Committee on the Status of Minorities in Astronomy AAS Panel <i>Virtual Panelist for Anti-Blackness in Astronomy</i>	Columbus, OH January 2021
• The Women+ of Color Project <i>Volunteer statement of purpose reading/feedback for program attendees</i>	Virtual October 2020
• BlackInPhysics Panel <i>Virtual panelist for undergraduate discussion: "How to be a Successful Student"</i>	Columbus, OH October 2020
• American Astronomical Society Journal Author Series <i>Discussion of paper published by the American Astronomical Society Journals</i>	Virtual September 2020
• Women in Space Panel <i>Live Q&A about astronomy careers for elementary, middle and high school students, virtual panel</i>	Virtual September 2020
• OSU Students for the Exploration and Development of Space <i>Invited guest speaker: "Searching for biosignatures on super-Earths with JWST"</i>	Virtual September 2020
• Dear Grad Student Podcast <i>Invited guest on podcast discussing life as a graduate student and graduate school general experiences</i>	Virtual September 2020
• Space Draft: Tucson's Flavor of Astronomy on Tap <i>Invited speaker: Virtual public talk: "Super-Earths to Brown Dwarfs: Mysterious In-between Objects"</i>	Virtual July 2020
• Movement Consulting <i>Invited speaker for discussion of unspoken rules of academia</i>	Virtual July 2020
• Making Space for All Webinar Series <i>Invited for talk on exoplanets and habitability for inclusive and accessible astronomy webinar series</i>	Virtual May 2020
• The Columbus Astronomical Society <i>Presented a virtual talk with graduate students on the history of women in astronomy</i>	Virtual March 2020
• The Ohio State University Department of Astronomy Diversity Committee <i>Graduate student representative</i>	Columbus, OH 2019-Present
• Sequoia and Kings Canyon National Park <i>Designed evening program on natural skies & pop-up activities on natural skies & natural sounds</i>	Mineral King, CA Summer 2019
• UT Austin College of Natural Sciences <i>Presented a poster on Black Women in Astronomy for the Black Excellence in STEM Festival</i>	Austin, TX 2019
• Astronomy Students Association <i>Invited speaker: A Young Companion at the Substellar Boundary with Potential Membership in the BPMG</i>	Austin, TX April 2019
• Capital of Texas Undergraduate Research Conference <i>Graduate student judge</i>	Austin, TX 2018

PROFESSIONAL MEMBERSHIPS

American Astronomical Society
National Society of Black Physicists

Junior Member