

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

RESEARCH EXPERIENCE

- **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
◦ Just Communities of Arkansas Leadership for Social Justice Program (UALR)	2011

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

REFERRED PUBLICATIONS

Phillips, C., Wang, Ji., Kendrew, S., Green, T., Hu, R., Valenti, J., Panero, W, Schulze,J, *Detecting Biosignatures in the Atmospheres of Gas Dwarfs Planets with the James Webb Space Telescope*, submitted

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](#)

INVITED TALKS, SEMINARS & COLLOQUIA

• The American Astronomical Society 239th Meeting	Salt Lake City, Utah
• <i>Special Session: The ExoExplorers: Early-Career Perspectives on the Intersection of Exoplanet Science</i>	January 2022
• The Pennsylvania State University CEHW Astronomy Seminar	Virtual
• <i>Detecting Potential Biosignatures in Gas Dwarf Atmospheres with JWST</i>	November 2021
• National Society of Black Physicists	Webinar
• <i>Innovative Seminar Series: Detecting Potential Biosignatures in Gas Dwarf Atmospheres with JWST</i>	September 2021
• Delta State University LSAMP Program	Virtual
• <i>Detecting Potential Biosignatures in Gas Dwarf Atmospheres with JWST</i>	TBD
• American Physical Society: “Quarks to Cosmos”	Webinar
• <i>Detecting Potential Biosignatures in Gas Dwarf Atmospheres with JWST</i>	April 2021
• NASA JPL Exoplanet Seminar	Webinar
• <i>Detecting Potential Biosignatures in Gas Dwarf Atmospheres with JWST</i>	March 2021

- **Exoplanet Explorers (ExoExplorers) Science Series** Webinar
Detecting Potential Biosignatures in Gas Dwarf Atmospheres with JWST February 2021
- **College of Charleston, Department of Physics and Astronomy, Colloquium** Webinar
Detecting Potential Biosignatures in super-earth Atmospheres with JWST October 2020

PRESENTATIONS

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

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 (contributed talk), *Bay Area Exoplanet Meeting*, June 2021, virtual due to COVID-19

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

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

Constraining Detection Limits for Potential Biosignatures in super-Earth Atmospheres with JWST (contributed talk), *ExoPAG 23*, January 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

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

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

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

Phillips, C, Exploring Practical Methods for Identifying Potential Meteorites, *McNair Research Symposium* (poster), September 2015, Little Rock, AR

Phillips, C, Earth as a Transiting Exoplanet, *American Association of Physics Teachers Arkansas–Oklahoma–Kansas Section Meeting* (poster), September 2014, Arkadelphia, AR

Phillips, C, Earth as a Transiting Exoplanet, *McNair Heartland Research Conference* (poster), September 2014, Kansas City, MO

Phillips, C, Earth as a Transiting Exoplanet, *McNair Research Symposium* (poster), September 2014, Little Rock, AR

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”** Austin, TX
Department of Astronomy, The University of Texas at Austin 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
Department of Astronomy, The University of Texas at Austin Fall 2017
 - Graduate TA for undergraduate astronomy course focused on star & planet formation
- **Teaching Assistant, ASTR 1301, “Introduction to Astronomy”** Little Rock, AR
Department of Physics & Astronomy, The University of Arkansas at Little Rock Spring 2014 & Fall 2015
 - Undergraduate TA for undergraduate introductory astronomy course
- **Teaching Assistant, PHYS 1122, “Elementary Physics II Laboratory”** Little Rock, AR
Department of Physics & Astronomy, The University of Arkansas at Little Rock Spring 2015
 - Undergraduate TA for laboratory physics section. Provided guidance and assistance to students conducting laboratory exercises
- **Lab Tutor, Student Support Services** Little Rock, AR
TRiO Programs, The University of Arkansas at Little Rock 2013-2014
 - Tutored undergraduate students in calculus, college algebra, pre-core mathematics, and elementary physics

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
- **BlackInAstro**
Lead organizer of [BlackInAstro](#)

PRESS/MEDIA COVERAGE

- 'Twinkle' satellite to scan for potentially habitable worlds ([Link](#)) 2021
- Astrobites: #BlackInAstro Experiences - Caprice Phillips ([Link](#)) 2021

OUTREACH

- **American Geological Union** Virtual
Invited panelist for exoplanet science with JWST October 2021
- **Black In Physics** Virtual
Organizer for Black In Physics Week 2021 August - 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** Virtual
Presenting a mentoring talk with girls aged 12-15 March 2021
- **Q&A Session with JWST** Virtual
Instagram outreach for James Webb Space Telescope February 2021
- **Westview High School** Virtual
Discussed with high school physics class about astronomy career February 2021
- **Committee on the Status of Minorities in Astronomy AAS Panel** Columbus, OH
Virtual Panelist for Anti-Blackness in Astronomy January 2021
- **The Women+ of Color Project** Virtual
Volunteer statement of purpose reading/feedback for program attendees October 2020
- **BlackInPhysics Panel** Columbus, OH
Virtual panelist for undergraduate discussion: "How to be a Successful Student" October 2020
- **American Astronomical Society Journal Author Series** Virtual
Discussion of paper published by the American Astronomical Society Journals September 2020
- **Women in Space Panel** Virtual
Live Q&A about astronomy careers for elementary, middle and high school students, virtual panel September 2020
- **OSU Students for the Exploration and Development of Space** Virtual
Invited guest speaker: "Searching for biosignatures on super-Earths with JWST" September 2020
- **Dear Grad Student Podcast** Virtual
Invited guest on podcast discussing life as a graduate student and graduate school general experiences September 2020
- **Space Draft: Tucson's Flavor of Astronomy on Tap** Virtual
Invited speaker: Virtual public talk: "Super-Earths to Brown Dwarfs: Mysterious In-between Objects" July 2020
- **Movement Consulting** Virtual
Invited speaker for discussion of unspoken rules of academia 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
• UT Austin Girls Days Festival <i>STEM festival for over 8,600 K-8th grade girls with activities and demos</i>	Austin, TX 2017, 2019
• Sleeping Bear Dunes National Lakeshore <i>Developed astronomy demonstrations for inaugural Astronomy Day & star parties</i>	Empire, MI Summer 2016
• Aviators Academy <i>Led an after-school outreach program for 6-11 students focused on STEM activities</i>	Little Rock, AR 2016
• Maria Mitchell Association <i>Hosted weekly solar telescope viewing and directed astronomy summer camps for preK-8th grader</i>	Nantucket, MA Summer 2014
• Arkansas Children's Hospital <i>Led science outreach programs for inpatients</i>	Little Rock, AR 2015
• Maker-faire <i>Maintained STEM focused makers booth</i>	North Little Rock, AR 2015
• Amazeum Tinkerfest <i>One day STEAM oriented festival</i>	Bentonville, AR 2014
• Girls of Promise <i>Led physics demos for 8th grade girls</i>	Little Rock, AR 2014-2015
• Discover UALR Day <i>Led physics demonstrations for prospective students</i>	Little Rock, AR 2014-2015
• Code/Interactive <i>Guided inner-city students through interactive astronomy lesson on two week outdoor excursion</i>	Bronx, NY Summer 2013

PROGRAMMING LANGUAGES & SOFTWARE

Python, \LaTeX , Git, HTML

PROFESSIONAL MEMBERSHIPS

American Astronomical Society
National Society of Black Physicists

Junior Member
Full Member