

# Caprice L. Phillips

## Curriculum Vitae

The Ohio State University  
Department of Astronomy  
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## EDUCATION

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- **The Ohio State University** Columbus, OH  
*Ph.D. Astronomy* Expected 2024
- **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  $\beta$  Pictoris Moving Group*
- **University of Arkansas at Little Rock** Little Rock, AR  
*B.S. Physics; Minor: Mathematics* December 2015

## RESEARCH EXPERIENCE

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- **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 with the MIRI, NIRSpec, and NIRISS instruments on the upcoming *JWST* mission
- **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 23 Myr Beta 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 AND HONORS

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- Two Sigma Diversity PhD Fellowship Finalist 2021
- ExoExplorers Program (ExoPAG Executive Committee/NASA Exoplanet Exploration Program) 2021
- 3<sup>rd</sup> 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

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Keck II, NIRC2, LGS, Mauna Kea Observatory, (P.I. B. Bowler)	1 night
LBT, MODS/LBC, Mount Graham International Observatory, (Queue Observing)	7 nights

## REFERRED PUBLICATIONS

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**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*, In Preparation

**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

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- **American Physical Society: “Quarks to Cosmos”** Columbus, OH  
*Invited Speaker: Detecting Potential Biosignatures in Gas Dwarf Atmospheres with JWST* April 2021
- **Jet Propulsion Laboratory Exoplanet Journal Club Lecture Series** Columbus, OH  
*Invited Speaker: Detecting Potential Biosignatures in Gas Dwarf Atmospheres with JWST* March 2021
- **College of Charleston, Department of Physics and Astronomy** Columbus, OH  
*Virtual colloquium talk: Detecting Potential Biosignatures in Super-earth Atmospheres with JWST* October 2020
- **Dear Grad Student Podcast** Columbus, OH  
*Invited guest on podcast discussing life as a graduate student and graduate school general experiences* September 2020
- **Movement Consulting** Columbus, OH  
*Invited speaker for discussion of unspoken rules of academia* July 2020

## PRESENTATIONS

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Detecting Biosignatures in the Atmospheres of Gas Dwarf Planets with the James Webb Space Telescope, *ExoExplorers Science Series*, February 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  $\beta$  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, 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*, July 2017, Austin, TX

Dark Sky Project, *UT Austin Graduate Student Postdoc Seminar*, February 2017, Austin, TX

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

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

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

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

## TEACHING EXPERIENCE

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- **Academic Facilitator, URSA Program** Columbus, OH  
*Polaris Program, The Ohio State University* Summer 2021
  - Teaching and leading discussions during daily courses focused on exoplanets for incoming 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

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- **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

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- **Executive Secretary**  
*NASA UVOIR: SubO-Exoplanet Panel*
- **BlackInAstro**  
*Lead co-organizer of BlackInAstro on Twitter @BlackInAstro* September 2020-Present

## PRESS/MEDIA COVERAGE

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- 'Twinkle' satellite to scan for potentially habitable worlds ([Link](#)) 2021

## OUTREACH

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- **StriveHigher Inc** Columbus, OH  
*Virtual story time reading on Mars for under-served K-5<sup>th</sup> graders in NYC* March 2021
- **Girls in STEM Program: Sponsored by the Museum of Discovery** Columbus, OH  
*Presenting a mentoring talk with girls aged 12-15* March 2021
- **Q&A Session with JWST** Columbus, OH  
*Instagram outreach for James Webb Space Telescope* February 2021
- **Westview High School** Columbus, OH  
*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** Columbus, OH  
*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** Columbus, OH  
*Discussion of paper published by the American Astronomical Society Journals* September 2020
- **Women in Space Panel** Columbus, OH  
*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** Columbus, OH  
*Invited guest speaker: "Searching for biosignatures on super-Earths with JWST"* September 2020
- **Space Draft: Tucson's Flavor of Astronomy on Tap** Columbus, OH  
*Invited speaker: Virtual public talk: "Super-Earths to Brown Dwarfs: Mysterious In-between Objects"* July 2020
- **Making Space for All Webinar Series** Columbus, OH  
*Invited for talk on exoplanets and habitability for inclusive and accessible astronomy webinar series* May 2020
- **The Columbus Astronomical Society** Columbus, OH  
*Presented a virtual talk with graduate students on the history of women in astronomy* March 2020

- **The Ohio State University Department of Astronomy Diversity Committee** Columbus, OH  
*Graduate student representative* 2019-Present
- **Sequoia and Kings Canyon National Park** Mineral King, CA  
*Designed evening program on natural skies & pop-up activities on natural skies & natural sounds* Summer 2019
- **UT Austin College of Natural Sciences** Austin, TX  
*Presented a poster on Black Women in Astronomy for the Black Excellence in STEM Festival* 2019
- **Astronomy Students Association** Austin, TX  
*Invited speaker: A Young Companion at the Substellar Boundary with Potential Membership in the BPMG* April 2019
- **Capital of Texas Undergraduate Research Conference** Austin, TX  
*Graduate student judge* 2018
- **UT Austin Girls Days Festival** Austin, TX  
*STEM festival for over 8,600 K-8th grade girls with activities and demos* 2017, 2019
- **Sleeping Bear Dunes National Lakeshore** Empire, MI  
*Developed astronomy demonstrations for inaugural Astronomy Day & star parties* Summer 2016
- **Aviators Academy** Little Rock, AR  
*Led an after-school outreach program for 6-11 students focused on STEM activities* 2016
- **Maria Mitchell Association** Nantucket, MA  
*Hosted weekly solar telescope viewing and directed astronomy summer camps for preK-8<sup>th</sup> grader* Summer 2015
- **Arkansas Children's Hospital** Little Rock, AR  
*Led science outreach programs for inpatients* 2015
- **Maker-faire** North Little Rock, AR  
*Maintained STEM focused makers booth* 2015
- **Amazeum Tinkerfest** Bentonville, AR  
*One day STEAM oriented festival* 2014
- **Girls of Promise** Little Rock, AR  
*Led physics demos for 8th grade girls* 2014-2015
- **Discover UALR Day** Little Rock, AR  
*Led physics demonstrations for prospective students* 2014-2015
- **Code/Interactive** Bronx, NY  
*Guided inner-city students through interactive astronomy lesson on two week outdoor excursion* Summer 2013

## PROGRAMMING LANGUAGES & SOFTWARE

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Python,  $\LaTeX$

## PROFESSIONAL MEMBERSHIPS

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American Astronomical Society  
National Society of Black Physicists

Junior Member  
Full Member