

# Caprice L. Phillips

## *Curriculum Vitae*

The Ohio State University  
Department of Astronomy  
140 W. 18th Ave  
McPherson Laboratory 4036  
Columbus, OH, 43210

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## RESEARCH INTERESTS

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Exoplanet atmospheres, habitability, brown dwarf characterization, planetary formation and evolution and substellar evolution

## 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, GRANTS AND HONORS

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◦ 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 <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)	8 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*, 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

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- **The Pennsylvania State University CEHW Astronomy Seminar** TBD  
*Detecting Potential Biosignatures in Gas Dwarf Atmospheres with JWST* November 2021
- **American Physical Society: "Quarks to Cosmos"** Webinar  
*Detecting Potential Biosignatures in Gas Dwarf Atmospheres with JWST* April 2021
- **NASA JPL Exoplanet Seminar** Webinar  
*Detecting Potential Biosignatures in Gas Dwarf Atmospheres with JWST* 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

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- 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*, 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 Dwarf 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  $\beta$  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 APPOINTMENTS

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- **Academic Facilitator, URSA Program** Columbus, OH  
*Polaris Program, The Ohio State University* March 2021-Present
  - Creating and implementing 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

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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 organizer of [BlackInAstro](#)*

## PRESS/MEDIA COVERAGE

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

# OUTREACH

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• <b>APS Public Engagement Webinar Series</b> <i>Invited panelist for talk on social media</i>	Columbus, OH July 2021
• <b>The Big Fib Podcast</b> <i>Invited guest on podcast featuring stars &amp; planets</i>	Columbus, OH June 2021
• <b>Columbus School for Girls</b> <i>Invited speaker at the Columbus School for Girls</i>	Columbus, OH April 2021
• <b>StriveHigher Inc</b> <i>Women's Herstory month: meet an astrophysicist and astronomer</i>	Columbus, OH March 2021
• <b>Girls in STEM Program: Sponsored by the Museum of Discovery</b> <i>Presenting a mentoring talk with girls aged 12-15</i>	Columbus, OH March 2021
• <b>Q&amp;A Session with JWST</b> <i>Instagram outreach for James Webb Space Telescope</i>	Columbus, OH February 2021
• <b>Westview High School</b> <i>Discussed with high school physics class about astronomy career</i>	Columbus, OH February 2021
• <b>Committee on the Status of Minorities in Astronomy AAS Panel</b> <i>Virtual Panelist for Anti-Blackness in Astronomy</i>	Columbus, OH January 2021
• <b>The Women+ of Color Project</b> <i>Volunteer statement of purpose reading/feedback for program attendees</i>	Columbus, OH October 2020
• <b>BlackInPhysics Panel</b> <i>Virtual panelist for undergraduate discussion: "How to be a Successful Student"</i>	Columbus, OH October 2020
• <b>American Astronomical Society Journal Author Series</b> <i>Discussion of paper published by the American Astronomical Society Journals</i>	Columbus, OH September 2020
• <b>Women in Space Panel</b> <i>Live Q&amp;A about astronomy careers for elementary, middle and high school students, virtual panel</i>	Columbus, OH September 2020
• <b>OSU Students for the Exploration and Development of Space</b> <i>Invited guest speaker: "Searching for biosignatures on super-Earths with JWST"</i>	Columbus, OH September 2020
• <b>Dear Grad Student Podcast</b> <i>Invited guest on podcast discussing life as a graduate student and graduate school general experiences</i>	Columbus, OH September 2020
• <b>Space Draft: Tucson's Flavor of Astronomy on Tap</b> <i>Invited speaker: Virtual public talk: "Super-Earths to Brown Dwarfs: Mysterious In-between Objects"</i>	Columbus, OH July 2020
• <b>Movement Consulting</b> <i>Invited speaker for discussion of unspoken rules of academia</i>	Columbus, OH July 2020
• <b>Making Space for All Webinar Series</b> <i>Invited for talk on exoplanets and habitability for inclusive and accessible astronomy webinar series</i>	Columbus, OH May 2020
• <b>The Columbus Astronomical Society</b> <i>Presented a virtual talk with graduate students on the history of women in astronomy</i>	Columbus, OH March 2020
• <b>The Ohio State University Department of Astronomy Diversity Committee</b> <i>Graduate student representative</i>	Columbus, OH 2019-Present
• <b>Sequoia and Kings Canyon National Park</b> <i>Designed evening program on natural skies &amp; pop-up activities on natural skies &amp; natural sounds</i>	Mineral King, CA Summer 2019
• <b>UT Austin College of Natural Sciences</b> <i>Presented a poster on Black Women in Astronomy for the Black Excellence in STEM Festival</i>	Austin, TX 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 2014*
- **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,  $\text{\LaTeX}$ , Git, HTML

## PROFESSIONAL MEMBERSHIPS

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American Astronomical Society  
National Society of Black Physicists

Junior Member  
Full Member