CAELEY V. PITTMAN

NSF Graduate Research Fellow at Boston University

UAT Keywords: Classical T Tauri stars, Protoplanetary disks, Planet formation

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EDUCATION

Boston University, Boston, MA
Ph.D. Candidate in Astronomy (Supervisor: Prof. Catherine Espaillat) — 2020–2026 (expected)
M.A. in Astronomy — Jan 2023

William Jewell College, Liberty, MO
B.A. in Physics and Oxbridge Honors Literature & Theory, *summa cum laude* — May 2020

University of Oxford, Oxford, UK
Visiting Student in Physics and English Language & Literature — Oct 2018–Jun 2019

RESEARCH APPOINTMENTS

Graduate Research Fellow, Boston University (Supervisor: Prof. C. Espaillat) — 2020–Present
Research Assistant, William Jewell College (Supervisor: Prof. P. Bunton) — 2019–2020
UM-CERN NSF-REU (Supervisors: Prof. H. Kagan, Dr. S. Roe, Dr. S. Shrestha) — Jun–Aug 2019
Research Assistant, University of Oxford (Supervisor: Prof. C. Lintott) — 2018–2019
Maria Mitchell Observatory NSF-REU (Supervisor: Prof. S. Gezari) — May–Aug 2018
Pillsbury Research Scholar, William Jewell College (Supervisor: Prof. M. Sherer) — Jun–July 2017

HONORS, AWARDS, AND SCHOLARSHIPS

GWISE Professional Development Grant, Boston University — Apr 2024
NSF Graduate Research Fellowship, National Science Foundation — Mar 2021
Phi Epsilon Honor Society, William Jewell College — Apr 2020
Faculty Award Finalist, William Jewell College — Apr 2020
Outstanding Senior Physics Major Award, William Jewell College — Apr 2020
Barry Goldwater Scholarship, National award — Apr 2019
James R. Eaton Scholarship for Achievement in Physics, William Jewell Coll. — Apr 2018 & 2019
Chambliss Astronomy Achievement Student Award, AAS — Jan 2019
Pritchard Award for Humanitarian Service, William Jewell College — Apr 2017
Dean's List, William Jewell College — 2016–2020

PUBLICATIONS (ADS)

16. T. Thanathibodee, C. Espaillat, N. Calvet (+4 coauthors incl. **C. Pittman**) "*Evidence of Rapid Dust Formation in the Inner Region of a Protoplanetary Disk.*" ApJL, in review.
15. D. Watson, M. Narang, **C. Pittman** (+41 coauthors) "*IPA. Accretion rate of a low-mass Class 0 protostar, measured via mid-infrared fluorescent OH emission.*" ApJ, in press.
14. M. Volz, C. Espaillat, **C. Pittman** (+6 coauthors) "*JWST Reveals Carbon-rich Chemistry in a Transitional Disk.*" AJ, 171, 39. 2025.
13. **C. Pittman**, C. Espaillat, T. Thanathibodee (+3 coauthors) "*The ODYSSEUS Survey. Spatial correlation of magnetospheric inclinations points to parsec-scale star-cloud connection.*" ApJL, 994, L57. 2025.
12. E. Fiorellino, J. Alcalá, C. Manara, **C. Pittman** (+9 coauthors) "*PENELLOPE VII: Revisiting empirical relations to measure accretion luminosity.*" A&A, 704, 42. 2025.
11. **C. Pittman**, C. Espaillat, Z. Zhu (+4 coauthors) "*The ODYSSEUS Survey. Using accretion and stellar rotation to reveal the star-disk connection in T Tauri stars.*" ApJ, 993, 181. 2025.
10. **C. Pittman**, C. Espaillat, C. Robinson (+20 coauthors) "*The ODYSSEUS Survey. Characterizing magnetospheric geometries and hotspot structures in T Tauri stars.*" ApJ, 992, 134. 2025.

9. T. Thanathibodee, C. Robinson, N. Calvet, C. Espaillat, **C. Pittman** (+5 coauthors) "*A Model of the C IV λλ 1548, 1550 Doublet Line in T Tauri Stars.*" ApJ, 975, 193. 2024.
8. C. Espaillat, T. Thanathibodee, Z. Zhu, (+11 coauthors incl. **C. Pittman**) "*Evidence for Dust Depletion in a Misaligned Protoplanetary Disk with JWST.*" ApJ, 973, 16. 2024.
7. J. Wendeborn, C. Espaillat, T. Thanathibodee, C. Robinson, **C. Pittman** (+18 coauthors) "*A Multi-wavelength, Multi-epoch Monitoring Campaign of Accretion Variability in T Tauri Stars from the ODYSSEUS Survey. III. Optical Spectra.*" ApJ, 972, 100. 2024.
6. J. Wendeborn, C. Espaillat, T. Thanathibodee, C. Robinson, **C. Pittman** (+6 coauthors) "*A Multi-wavelength, Multi-epoch Monitoring Campaign of Accretion Variability in T Tauri Stars from the ODYSSEUS Survey. II. Photometric Light Curves.*" ApJ, 971, 96. 2024.
5. J. Wendeborn, C. Espaillat, S. Lopez, T. Thanathibodee, C. Robinson, **C. Pittman** (+14 coauthors) "*A Multi-wavelength, Multi-epoch Monitoring Campaign of Accretion Variability in T Tauri Stars from the ODYSSEUS Survey. I. HST FUV and NUV Spectra.*" ApJ, 970, 118. 2024.
4. C. Espaillat, T. Thanathibodee, **C. Pittman** (+6 coauthors) "*JWST Detects Neon Line Variability in a Protoplanetary Disk.*" ApJL, 958, 4. 2023. (NASA Press Release)
3. M. Nelissen, A. Natta, P. McGinnis, **C. Pittman** (+2 coauthors) "*Correlation between the optical veiling and accretion properties: A case study of the classical T Tauri star DK Tau.*" A&A, 677, 64. 2023.
2. **C. Pittman**, C. Espaillat, C. Robinson (+21 coauthors) "*Towards a comprehensive view of accretion, inner disks, and extinction in classical T Tauri stars: an ODYSSEUS study of the Orion OB1b association.*" AJ, 164, 201. 2022.
1. C. Espaillat, G. Herczeg, T. Thanathibodee, **C. Pittman** (+58 coauthors) "*The ODYSSEUS Survey. Motivation and First Results: Accretion, Ejection, and Disk Irradiation of CVSO 109.*" AJ, 163, 114. 2022.

INVITED RESEARCH TALKS

"*Characterizing the Star-Disk-Cloud Connection in Classical T Tauri Stars.*" PLUNCH Seminar; 2025 Dec 8; UC Santa Cruz (Santa Cruz, CA).

"*Characterizing the Star-Disk-Cloud Connection in Classical T Tauri Stars.*" Origins Seminar; 2025 Dec 1; Steward Observatory (Tucson, AZ). Watch here.

"*The significance of HST to accretion studies in classical T Tauri stars.*" ULLYSES: Continuing the Voyage of Discovery; 2024 March 12; Space Telescope Science Institute (Baltimore, MD). Watch here.

"*Characterizing magnetospheric accretion and extinction in Orion OB1b with ULLYSES.*" Star & Planet Formation Seminar Series, Space Telescope Science Institute; 2022 October 31 (virtual meeting).

CONTRIBUTED RESEARCH TALKS (SELECTED)

"*Magnetospheric accretion variability in the HST ULLYSES sample.*" RAVEYSO; 2025 May 20; European Southern Observatory (Garching, Germany).

"*Modeling accretion in the HST ULLYSES T Tauri star survey: constraining the mass flux and UV radiation field in the inner disk.*" BAEM; 2024 July 19; UCSC (Santa Cruz, CA).

"*Modeling accretion in the HST ULLYSES sample: the most comprehensive NUV study of T Tauri star accretion.*" Cool Stars 22; 2024 June 24; UC San Diego (San Diego, CA). Watch here.

"*Characterizing the inner regions of classical T Tauri stars using HST, JWST, and ground-based observations.*" NE Star and Planet Formation Meeting; 2023 June 28; Harvard CfA (Cambridge, MA).

"*Measuring the Propensity for Planet Formation in Classical T Tauri Stars using JWST/MIRI and SMARTS/CHIRON.*" ERES Symposium; 2023 June 19; Yale (New Haven, CT).

"*Characterizing magnetospheric accretion and extinction in Orion OB1b with the ODYSSEUS Survey.*" Cool Stars 21, Accretion in Young and Cool Stars splinter session; 2022 July 7 (Toulouse, France).

"*Multi-column accretion shock modeling in T Tauri stars.*" Cool Stars 20.5 Topical Interest Room; 2021 March 2 (virtual conference).

"*Improving trigger efficiency for the ATLAS di-Higgs search.*" University of Michigan-CERN REU

final presentations; 2019 August 15; CERN (Meyrin, Switzerland).

"*Searching for Intermediate Mass Black Holes.*" Society of Physics Students Meeting; 2018 September 11; William Jewell College (Liberty, MO).

"*Searching for Intermediate Mass Black Holes in the Optical Time Domain.*" Science Speaker Series; 2018 August 8; Maria Mitchell Association (Nantucket, MA).

SERVICE ACTIVITIES

Journal Reviewer: *The Astrophysical Journal*

ODYSSEUS Collaboration Website, Database and Membership Management (2020–Present)

Human-Computer Interaction Group Study Volunteer, NASA Ames (15 Aug 2024)

AAS Congressional Visit Day: Advocated for Astro2020 Decadal Survey priorities by meeting with the White House Office of Science and Technology Policy and congressional representatives (19 April 2023)

GBH Education Content Advisor: Content reviewer for NOVA's *Ultimate Space Telescope* (Aug 2022)

SCIENCE OUTREACH

2025 Total Lunar Eclipse Outreach: Hosted a lunar eclipse viewing event in Bodrum, Türkiye, operating a telescope and explaining the science of eclipses in both English and Turkish (7 Sept 2025)

2024 Total Solar Eclipse Outreach: Won a grant from the BU Graduate Women in Science & Engineering group to be the resident astronomer for the Choctaw Nation's total solar eclipse event in Millterton, OK (8 April 2024)

Skype a Scientist: Gave a talk on the science of eclipses for the Pamunkey Regional Library in Atlee, VA (Remote presentation; 5 April 2024); Met with a third- through sixth-grade girls astronomy club to discuss my research and answer their questions about the field (19 November 2020)

Invited talk at the North Shore Amateur Astronomy Club: Presented a public talk on planet formation research in the era of *JWST*. (1 Dec 2023)

Preparing and teaching interactive physics lessons: Led weekly sessions with William Jewell College's physics department at Schumacher Elementary School in Liberty, MO; Primitivo Garcia Elementary School in Kansas City, MO (Fall 2019-Spring 2020); and the Freedom Institute in Kansas City, MO, a summer school program for underprivileged students (Summer 2017)

Future Teacher's Conference (William Jewell College): Taught physics demonstrations to regional high school students who intend to become teachers (16 September 2019)

Observatory open nights and tours about the history of astronomy: Led public open nights at Boston University Observatory (2021–2023) and William Jewell College Observatory (2019–2020), and led both tours and open nights at the Maria Mitchell Observatory (2018)

2017 Total Solar Eclipse Outreach: Presented a public talk to 125 people on the science of lunar and solar eclipses and operated a solar telescope for viewing (21 August 2017)

TEACHING AND MENTORSHIP EXPERIENCE

Undergraduate Research Mentor, Sophia Lopez, Boston University	Fall 2024–Spring 2025
Graduate Teaching Fellow, The Solar System (AS 101), Boston University	Fall 2020
Physics, Math, and Writing Tutor, William Jewell College	Fall 2017-Spring 2018
Physics Lab Assistant, William Jewell College	Fall 2017-Spring 2018

ACCEPTED PROPOSALS AND OBSERVING EXPERIENCE

Gemini 2026A	Awarded 18.3 hours on Gemini/GHOST (PI: C. Espaillat)
TNO Cycle 13	Awarded 13 hours on TNO/MRES (PI: **C. Pittman**)
HST Cycle 33	Awarded 30 orbits through GO 18119 (PI: C. Espaillat)
LCOGT 2025B	Awarded 23 hours on NRES and Sinistro (PI: **C. Pittman**)
IRTF 2024B	Awarded 37.5 hours on SpeX (PI: C. Espaillat)
HST Cycle 32	Awarded 9 orbits through GO 17701 (PI: T. Thanathibodee)
JWST Cycle 2	Awarded 5.5 hours through GO 4564 (PI: C. Espaillat)
HST Cycle 31	Awarded 6 orbits through GO 17521 (PI: C. Espaillat)

NOIRLab 2024A	Awarded 15.7 hours and $6000 on WIYN/NEID (PI: **C. Pittman**)
Infrared Telescope Facility	4.7 hours on IRTF/SpeX, *August-September 2022*
Maria Mitchell Observatory	Operated 17" and 24" telescopes, *Nantucket, MA, June-August 2018*
Palomar Observatory	1 night on 200" Hale Telescope, *Pasadena, CA, 20 July 2018*
Lowell Observatory	Operated 31" telescope, *Flagstaff, AZ, 8-12 June 2017*

CONTRIBUTED POSTER PRESENTATIONS

"*Explaining NUV-NIR continuum excesses in T Tauri stars with magnetospheric accretion.*" Cool Stars 21; 2022 July 7; Toulouse, France.

"*Improving trigger efficiency for the ATLAS di-Higgs search.*" CUWiP; 2020 January 18; The University of Oklahoma (Norman, Oklahoma).

"*Improving trigger efficiency for the ATLAS di-Higgs search.*" 2019 Physics Congress; 2019 November 16; Providence, Rhode Island.

"*Searching for Intermediate Mass Black Holes Using Optical Variability.*" 233rd AAS Meeting; 2019 January 9; Seattle, WA. *Received Chambliss Award for this presentation.*

"*Determining the Pulsation Periods of Sub-Dwarf B Variable Stars.*" SPS Zone 12 Meeting; 2018 February 17; Truman State University (Kirksville, MO).

WORKSHOPS

How to Create a Supportive Research Environment for Grad Students, AAS/APS	20 Nov 2025
Science Policy Writing Course, National Science Policy Network	8 Nov 2025
Building Successful Collaborative Relationships with Policymakers, BU	11 Apr 2023
The Inner Regions of Protoplanetary Disks, Ringberg Castle, Germany	18–21 Sept 2022
17th Synthesis Imaging Workshop, NRAO	29 June - 17 July 2020
Zwicky Transient Facility Summer School, Caltech	July 2018

PROGRAMMING

Advanced: Python, Computing cluster batch systems
Intermediate: Fortran, MATLAB, IDL, SQL/ADQL, C++ (CERN ROOT)