# Alyssa Bulatek

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## Education

2020 – Present **PhD Candidate**, University of Florida, *Gainesville, FL*
Astronomy
Advisor: Adam Ginsburg

2020 – 2022 **Master of Science**, University of Florida, *Gainesville, FL*
Astronomy

2016 – 2020 **Bachelor of Arts**, Macalester College, *St. Paul, MN*
Physics (Honors; Astronomy emphasis) and Applied Mathematics/Statistics, cum laude
*Design and Modal Analysis of an Ultra-wideband Receiver for Green Bank Observatory*
Advisor: Steve White

## Appointments

2020 – Present **Graduate Student** (under Dr. Adam Ginsburg), *University of Florida*

Summer 2019 **Summer Student** (under Steve White), *Green Bank Observatory*

Summer 2018 **NSF REU Student** (under Dr. Judy Pipher and Craig McMurtry), *University of Rochester*

2017 – 2018 **Research Assistant** (under Dr. John Cannon), *Macalester College*

Summer 2017 **NSF REU Student** (under Dr. Kevin Flaherty), *Wesleyan University*

## Fellowships, Scholarships, and Awards

Dec. 2022 Astro Award for Distinguished Service and Citizenship, *UF Astronomy Department*

Dec. 2022 Astro Award for Distinguished Teaching by a Graduate Student, *UF Astronomy Department*

2020 – 2025 Graduate School Fellowship, *University of Florida*

May 2020 Russell B. Hastings Award, *Macalester College Physics and Astronomy Department*

2016 – 2020 DeWitt Wallace Distinguished Scholarship, *Macalester College*

2017 – 2018 Minnesota Space Grant Consortium Scholarship, *MnSGC*

## Publications

### First Author

in prep. [2] *BLS I: A molecular line survey of a warm core and the medium around it in G0.253+0.016*
**A. Bulatek**, A. Ginsburg, M. G. Santa-Maria, K. Immer, D. Jeff, P. Lansing

2308.08665 [1] *The 107 GHz methanol transition is a dasar in G0.253+0.016*
The Astrophysical Journal, Volume 956, Issue 2 (2023)
**A. Bulatek**, A. Ginsburg, J. Darling, C. Henkel, K. Menten

### Contributing Author

2401.09749 [6] *Thermal Properties of the Hot Core Population in Sagittarius B2 Deep South*
The Astrophysical Journal, Volume 962, Issue 1 (2024)
D. Jeff, A. Ginsburg, **A. Bulatek**, N. Budaiev, Á. Sánchez-Monge, M. Bonfand, C. Battersby, F. Meng, P. Schilke, A. Schmiedeke

2308.16050 [5] *JWST reveals widespread CO ice and gas absorption in the Galactic Center cloud G0.253+0.016*
The Astrophysical Journal, Volume 959, Issue 1 (2023)
A. Ginsburg, A. T. Barnes, C. D. Battersby, **A. Bulatek**, S. Gramze, J. D. Henshaw, D. Jeff, X. Lu, E. A. C. Mills, D. L. Walker

2110.11367 [4] *A wind-blown bubble in the Central Molecular Zone cloud G0.253+0.016*
Monthly Notices of the Royal Astronomical Society, Volume 509, Issue 4 (2021)
J. D. Henshaw, M. R. Krumholz, N. O. Butterfield, J. Mackey, A. Ginsburg, T. J. Haworth, F. Nogueras-Lara, A. T. Barnes, and 11 additional authors, including **A. Bulatek**

2004.12176 [3] **Measuring Turbulent Motion in Planet-forming Disks with ALMA: A Detection around DM Tau and Nondetections around MWC 480 and V4046 Sgr*
The Astrophysical Journal, Volume 895, Issue 2 (2020)
K. Flaherty, A. M. Hughes, J. B. Simon, C. Qi, X.-N. Bai, **A. Bulatek**, S. M. Andrews, D. J. Wilner, Á. Kóspál
**Received an IOP Publishing Top Cited Paper Award in 2023.*

1808.07108 [2] *Delayed Stellar Mass Assembly in the Low Surface Brightness Dwarf Galaxy KDG 215*
The Astrophysical Journal Letters, Volume 864, Issue 1 (2018)
J. M. Cannon, Z. Shen, K. B. W. McQuinn, J. Bartz, L. Bralts-Kelly, **A. M. Bulatek**, S. Chinski, R. N. Ford, A. J. R. Gordon, G. Helmel, S. Hollenbach, and 9 additional authors

1709.10161 [1] *First Characterization of the Neutral ISM in Two Local Volume Dwarf Galaxies*
The Astrophysical Journal Letters, Volume 848, Issue 1 (2017)
L. Bralts-Kelly, **A. M. Bulatek**, S. Chinski, R. N. Ford, H. E. Gilbonio, G. Helmel, R. McGlasson, A. Mizener, J. M. Cannon, S. Kaisin, I. Karachentsev, G. Denn

### Software Development

[1] *pyspeckit/pyspeckit: Version 1.0.0 - First full release w/ paper*
Zenodo (2022)
A. Ginsburg, J. Mirocha, V. Sokolov, J. Pineda, M. de Val-Borro, B. Sipőcz, E. Rosolowsky, A. Youngblood, I. Petrashkevich, M. Craig, and 6 additional authors, including **A. Bulatek**

### Conference Proceedings

[3] *Lunar PAD Vacuum Flow Visualization Experiment for 3D Lunar/Planetary Landing Pads*
AIAA SciTech 2024 Forum, AIAA 2024-2542 (2024)
P. J. Albrecht, **A. Bulatek**, A. I. Campbell, H. Carson, V. Murai, A. Nicola, K. Schang, K. Smith

[2] *An Ultra-wideband Feed Horn for the Green Bank Telescope*
URSI GASS 2023, 1299 (2023)
S. White, R. Simon, J. Nelson, G. Watts, R. Lynch, L. Jensen, **A. Bulatek**, M. Harris, S. Ransom

[1] *3D Printed Lunar Landing Pad Design Iteration and Analysis*
AIAA SciTech 2023 Forum, AIAA 2023-0068 (2023)
P. J. Albrecht, H. Carson, **A. Bulatek**, A. I. Campbell, L. Martin, M. Oswalt, V. Murai, K. Schang, A. Nicola, E. Romo, K. Smith

### Non-Refereed Publications

[1] *Design and Modal Analysis of an Ultra-wideband Receiver for Green Bank Observatory*
Macalester Journal of Physics and Astronomy, Volume 8, Issue 1 (2020)
**A. Bulatek**

## Certificates

Dec. 2024 Center for the Integration of Research, Teaching and Learning (CIRTL) Associate Certificate

## Teaching

'21 – '22, '25 Astronomy Teaching Assistant, *University of Florida*
- AST 3722: Techniques of Observational Astronomy I (Fall 2025)
- AST 2034: Stars and the Nuclear Arms Race (Summer 2025)
- AST 3018: Astronomy and Astrophysics I (Spring 2022)
- AST 3018: Astronomy and Astrophysics I (Fall 2021)

2018, 2025 Private Tutor (advanced high school/introductory college physics and mathematics)

Apr. 2024 Guest Lecturer, *Macalester College*
- PHYS 440: Observational Astronomy

2018 – 2020 Astronomy Preceptor, *Macalester College*
- PHYS 440: Observational Astronomy (Spring 2020)
- PHYS 460: Astrophysics (Spring 2019)
- PHYS 113: Modern Astronomy I (Spring 2018)

2018 – 2020 Physics Tutor, *Macalester College*

'20, '17 – '18 Physics Grader, *Macalester College*
- PHYS 468: Statistical Mechanics (Spring 2020)
- PHYS 113: Modern Astronomy I (Spring 2018)
- PHYS 227: Principles of Physics II (Spring 2018)
- PHYS 226: Principles of Physics I (Fall 2017)
- PHYS 331: Modern Physics (Fall 2017)

Fall 2019 Public Night Telescope Operator, *Macalester College Observatory*

Fall 2018 Writing Assistant, *Macalester College*
- PHYS 194: The Cosmos

Fall 2017 Physics Laboratory Assistant, *Macalester College*
- PHYS 331: Modern Physics

## Presentations

### Science Presentations

Nov. 2024 Talk, UF Astronomy Graduate Symposium, *Gainesville, FL* (recording)

Oct. 2024 Poster, Astraeus Institute Launch Event, *Gainesville, FL*

Aug. 2024 Talk, ACES Boston Workshop, *Cambridge, MA*

May 2024 **Invited colloquium**, *Green Bank Observatory, Green Bank, WV*

Sept. 2023 Candidacy talk, *University of Florida, Gainesville, FL* (recording)

May 2023 Poster, New Eyes on the Universe: SKA and ngVLA, *Vancouver, Canada* (flash talk)

Apr. 2023 Poster, Protostars and Planets VII, *Kyoto, Japan*

Oct. 2022 Talk, UF Astronomy Graduate Symposium, *Gainesville, FL*

June 2022 Poster, From Stars to Galaxies II, *Gothenburg, Sweden*

Mar. 2022 Masters thesis defense, *University of Florida (virtual,* recording)

Oct. 2021 Talk, UF Astronomy Graduate Symposium, *virtual*

May 2021 **Contributed talk**, ISM 2021, *Beirut (virtual,* recording)

Jan. 2021 iPoster Plus, AAS 237, *virtual* (recording)

### Outreach Presentations

Oct. 2024 Presentation, Radio Astronomy Q&A (11th/12th grade), *SEFS (virtual,* recording)
Jan. 2024 Presentation, Objects in the Sky (first grade), *SEFS (virtual)*
May 2023 Social media interview, *@skaobservatory*
Dec. 2022 Presentation, GEMS Light Up the Night, *SEFS (virtual)*
July 2022 Podcast interview, *The Up & Coming Show*
Oct. 2021 Presentation, Objects in the Sky (first grade), *SEFS (virtual)*
Aug. 2021 Presentation, Spectral Detective Work (eighth grade), *SEFS (virtual)*
Nov. 2019 Host, Statewide Star Party, *Macalester College Observatory*
Apr. 2019 Radio interview, "Radio Astronomy," *WMCN 91.7 FM (Macalester College Radio)*
Nov. 2017 Radio interview, "Radio Astronomy," *WMCN 91.7 FM (Macalester College Radio)*

### Undergraduate Presentations

Apr. 2020 Honors thesis defense, *Macalester College (virtual,* recording)
Jan. 2020 Poster, CUWiP 2020 Minnesota, *Minneapolis, MN*
Jan. 2020 Poster, AAS 235, *Honolulu, HI*
Aug. 2019 Lunch talk, Green Bank Observatory, *Green Bank, WV*
Jan. 2019 Poster, AAS 233, *Seattle, WA*
Sept. 2018 Poster, Macalester College Student Research Showcase, *St. Paul, MN*
Aug. 2018 Talk, University of Rochester Physics REU Symposium, *Rochester, NY*
Oct. 2017 Talk, KNAC Student Research Symposium at Colgate University, *Hamilton, NY*
Sept. 2017 Poster, Macalester College Student Research Showcase, *St. Paul, MN*

## Panels

July 2023 Graduate School, UF Astro REU, *Gainesville, FL*
Apr. 2023 Celebrating Today's Female Astronomers, Hippodrome Theatre, *Gainesville, FL*
Dec. 2022 AL1GN STEM Cohort, *virtual*
Nov. 2022 Graduate School, UF Astronomy and Astrophysics Society, *Gainesville, FL*
Oct. 2022 Women in Astronomy, UF Astronomy and Astrophysics Society, *Gainesville, FL*
Jan. 2020 Undergraduate Research Opportunities, CUWiP 2020 Minnesota, *Minneapolis, MN*

## Conferences and Workshops

Aug. 2024 ACES Boston Workshop, *Cambridge, MA*
May 2023 New Eyes on the Universe: SKA and ngVLA, *Vancouver, Canada*
Apr. 2023 Protostars and Planets VII, *Kyoto, Japan*
Sept. 2022 From Cells to Galaxies (Radio Astronomy/Medical Imaging) Workshop, *St. Paul, MN*
June 2022 From Stars to Galaxies II, *Gothenburg, Sweden*
Nov. 2021 IAA Severo Ochoa Advanced School on Star Formation, *Granada, Spain*
May 2021 ISM 2021, *Beirut (virtual)*
Jan. 2021 237th Meeting of the American Astronomical Society, *virtual*
Jan. 2020 Conferences for Undergraduate Women in Physics (CUWiP) 2020, *Minneapolis, MN*
Jan. 2020 235th Meeting of the American Astronomical Society, *Honolulu, HI*
Oct. 2019 Alda Center for Communicating Science Workshop at Macalester, *St. Paul, MN*

Jan. 2019 233rd Meeting of the American Astronomical Society, *Seattle, WA*

## Service, Public Outreach, and Extracurriculars

### National Level

2023 – Present Board Member/Secretary, Alliance for the Low-Income and First-Generation Narrative

2020 – 2021 Pen Pal, Letters to a Pre-Scientist

### State Level

2021 – 2024 Volunteer, Scientist in Every Florida School (SEFS), *Florida Museum*

### University Level

2022 – Present Member, LGBTQ+ Presidential Advisory Committee, *University of Florida*

### Department Level

2025 – Present Star Party Host, *Rosemary Hill Observatory, University of Florida*

2023 – Present Executive Board Officer, Graduate Astronomy Organization, *University of Florida*

2022 – 2024 Outreach Coordinator, Graduate Astronomy Organization, *University of Florida*
Co-coordinator for 2023 – 2024

2022 – 2023 Graduate Student Council Representative, Astronomy Department, *University of Florida*

2021 – 2022 Secretary, Graduate Astronomy Organization, *University of Florida*

### Local Community Level

2022 – Present Organizer/Volunteer, *UF Astro Mobile Planetarium*; N. central FL el./middle school visits
12 school visits, 32+ individual shows

2023 – 2024 Organizer, *UF Shines Solar, Gainesville, FL*; middle/high school (summer) outreach

2022 – 2024 Volunteer, *UF Campus Teaching Observatory, Gainesville, FL*

### Extracurricular Activities

2022 – 2024 Administrative Assistant, Lunar Plume Alleviation Device Team

2019 – 2020 Stitcher, Theatre and Dance Department, *Macalester College*

2018 – 2020 Chief Operator, WMCN 91.7 FM (Macalester College Radio)

2017 – 2020 Cofounder/President/Treasurer/team member, High Power Rocketry at Macalester

Fall 2019 Member, Women in Physics and Astronomy Reading Group, *Macalester College*

## Supervision and Mentoring

2023 – Present P. Lansing (high school student)

## Observing Experience

2024 – Present **Rosemary Hill Observatory**, *Remote Experimental Team at RHO (RETRHO)*
9 nights in 24C, 11 nights in 25A (9 as senior operator)

2025 **GBT Semester 25A**, *From ACES to TENS: The Central Molecular Zone with MUSTANG*
1.75 hours on MUSTANG-2

2024 **GBT Semester 24A**, *From ACES to TENS: The Central Molecular Zone with MUSTANG*
6 hours on MUSTANG-2

## Awarded Telescope Time

### Principle Investigator

2022 – 2023 **JWST Cycle 1**, *Star Formation along the Galactic Dust Ridge: The Brick and Cloud C*
8.6 hours prime, 1.6 hours parallel (Co-PI)

2022 **GTC 2022A**, *OB Candidates in The Brick with EMIR*
2 hours

2021 **GTC 2021A**, *OB Candidates in The Brick with EMIR*
2 hours (not observed)

### Co-Investigator

2021 **ALMA Cycle 8**, *Star Formation in the Brick & Cloud C: Combining JWST with ALMA*
15.6 hours

## Professional Society Memberships

2018 – Present American Astronomical Society

2020 – 2022 American Association for the Advancement of Science

2018 – 2020 Macalester College Society of Physics Students

2018 – 2019 American Physical Society