

# Alyssa Bulatek

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## Education

- 2020 – Present **PhD Student**, *University of Florida*, Gainesville, FL.  
Astronomy
- 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  
Thesis: “[Design and Modal Analysis of an Ultra-wideband Receiver for Green Bank Observatory](#)”  
GPA: 3.74/4.00, cum laude

## Research Experience

### Graduate

- 2020 – Present **Graduate Research Assistant**, *University of Florida*, Gainesville, FL.
- Uncovering molecular tracers for star formation processes in The Brick (G0.253+0.016)
  - Explored young stellar object-identifying capabilities of proposed Pa  $\alpha$  small satellite mission
  - Advisor: Adam Ginsburg

### Undergraduate

- 2019 **Summer Student**, *Green Bank Observatory*, Green Bank, WV.
- Calculated predicted efficiency of new ultra-wideband receiver for pulsar timing with the GBT
  - Advisor: Steve White
- 2018 **NSF REU Student Researcher**, *University of Rochester*, Rochester, NY.
- Developed first-order correction for signal-dependent interpixel capacitance in IR detectors
  - Advisors: Judy Pipher and Craig McMurtry
- 2018, 2017 **Undergraduate Student Researcher**, *Macalester College*, St. Paul, MN.
- Imaged four galaxies in neutral hydrogen for the first time using data from the VLA
  - Advisor: John Cannon
- 2017 **NSF REU Summer Fellow**, *Wesleyan University*, Middletown, CT.
- Imaged and modeled three circumstellar disks using data from ALMA
  - Advisor: Kevin Flaherty (now at Williams College)

## Employment, Service, and Extracurricular Activities

- 2021 – 2022 **Teaching Assistant**, *University of Florida*.
- AST 3018: Astronomy and Astrophysics I (Spring 2022)
  - AST 3018: Astronomy and Astrophysics I (Fall 2021)
- 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 2018)

Fall 2017 **Physics Laboratory Assistant**, *Macalester College*.

- PHYS 331: Modern Physics (Fall 2017)

### [Service and Extracurricular Activities](#)

2022 – Present **Member**, LGBTQ+ Presidential Advisory Committee (LPAC), *University of Florida*.

2022 – Present **Administrative Assistant**, Lunar Plume Alleviation Device (PAD) Team.

2022 – Present **Outreach Coordinator**, Graduate Astronomy Organization (GAO), *University of Florida*.

2022 – Present **GSC Representative**, Astronomy Department, *University of Florida*.

2021 – 2022 **Secretary**, Graduate Astronomy Organization (GAO), *University of Florida*.

2019 – 2020 **Stitcher**, Costume Shop, 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*.

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## **Publications**

*The titles of these publications link to an online version.*

5. Albrecht, P. et al. 2023, *AIAA SCITECH 2023 Forum*, AIAA 2023-0068.  
[“3D Printed Lunar Landing Pad Design Iteration and Analysis”](#)
4. Flaherty, K. et al. 2020, *The Astrophysical Journal*, 895, 109.  
[“Measuring turbulent motion in planet-forming disks with ALMA: A detection around DM Tau and non-detections around MWC 480 and V4046 Sgr”](#)
3. **Bulatek, A.** 2020, *Macalester Journal of Physics and Astronomy*, 8, 1.  
[“Design and Modal Analysis of an Ultra-wideband Receiver for Green Bank Observatory”](#)
2. Cannon, J. et al. 2018, *Astrophysical Journal Letters*, 864, L14.  
[“Delayed Stellar Mass Assembly in the Low Surface Brightness Dwarf Galaxy KDG 215”](#)
1. Bralts-Kelly, L. et al. 2017, *Astrophysical Journal Letters*, 848, L10.  
[“First Characterization of the Neutral ISM in Two Local Volume Dwarf Galaxies”](#)

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## **Presentations**

*The titles of these presentations link to an online version, where applicable.*

### [Graduate](#)

21. **Poster**, [New Eyes on the Universe: SKA and ngVLA](#), *Vancouver, Canada*, May 2023.  
[A methanol deep field survey of distant galaxies with ngVLA using dasars](#) (flash talk)
20. **Poster**, [Protostars and Planets VII](#), *Kyoto, Japan*, April 2023.  
[Which spectral lines trace what physical processes in the Galactic Center? First results: line list and LTE modeling](#)
19. **Panel**, AL1GN STEM Cohort, *virtual*, December 2022.
18. **Panel**, Astronomy and Astrophysics Society, *University of Florida*, November 2022.  
Graduate Student Panel
17. **Panel**, Astronomy and Astrophysics Society, *University of Florida*, October 2022.  
Women in Astronomy Panel

16. **Talk**, Astronomy Graduate Symposium, *University of Florida*, October 2022.  
Dased and not confused: absorption of the Cosmic Microwave Background by methanol ([slides](#))
15. **Poster**, [From Stars to Galaxies II](#), *Gothenburg, Sweden*, June 2022.  
[Which spectral lines trace what physical processes in the GC? First results: line identification](#)
14. **Masters thesis defense**, *University of Florida (virtual)*, March 2022.  
Which spectral lines trace what physical processes in the Galactic Center? ([slides](#), [talk](#))
13. **Talk**, Astronomy Graduate Symposium, *University of Florida (virtual)*, October 2021.  
Which spectral lines trace what physical processes in the Galactic Center? ([slides](#))
12. **Contributed talk**, ISM 2021, *Beirut (virtual)*, May 2021.  
Which lines trace what physical processes in the GC? Building a toolkit, brick by Brick ([slides](#), [talk](#))
11. **iPoster Plus**, AAS 237, *virtually anywhere*, January 2021.  
131.05. A Search for Young Stellar Objects for the PASHION Mission ([poster](#), [talk](#))

### [Undergraduate](#)

10. **Honors thesis defense**, *Macalester College (virtual)*, April 2020.  
Design and Modal Analysis of an Ultra-wideband Receiver for Green Bank Observatory ([slides](#), [talk](#))
9. **Poster**, CUWiP 2020 Minnesota, *University of Minnesota, Twin Cities*, January 2020.  
[Designing and testing an ultra-wideband receiver for the Green Bank Telescope](#)
8. **Panel**, CUWiP 2020 Minnesota, *University of Minnesota, Twin Cities*, January 2020.  
Undergraduate Research Opportunities Panel
7. **Poster**, AAS 235, *Honolulu, HI*, January 2020.  
[175.17. Designing and testing an ultra-wideband receiver for the Green Bank Telescope](#)
6. **Talk**, *Green Bank Observatory*, August 2019.  
[Designing and testing an ultra-wideband receiver for the Green Bank Telescope](#)
5. **Poster**, AAS 233, *Seattle, WA*, January 2019.  
[245.04. Signal-Dependent Interpixel Capacitance in HgCdTe Detector Arrays for NEOCam](#)
4. **Poster**, Student Research Showcase, *Macalester College*, September 2018.  
[Signal-Dependent Interpixel Capacitance in HgCdTe Detector Arrays for NEOCam](#)
3. **Talk**, Physics REU Symposium, *University of Rochester*, August 2018.  
[Signal-Dependent Interpixel Capacitance in HgCdTe Detector Arrays for NEOCam](#)
2. **Talk**, KNAC Student Research Symposium, *Colgate University*, October 2017.  
[Constraining Dust Structure in Three Protoplanetary and Transitional Disks](#)
1. **Poster**, Student Research Showcase, *Macalester College*, September 2017.  
[Constraining Dust Structure in Protoplanetary Disks around V4046 Sgr, MWC480, and DM Tau](#)

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## **Fellowships, Scholarships, and Awards**

- 2022 Astro Award for Distinguished Service and Citizenship, *UF Astro*
- 2022 Astro Award for Distinguished Teaching by a Graduate Student, *UF Astro*
- 2020 – 2025 Graduate School Fellowship, *University of Florida*
- May 2020 Russell B. Hastings Award, *Physics and Astronomy Department, Macalester College*
- 2016 – 2020 DeWitt Wallace Distinguished Scholarship, *Macalester College*
- 2017 – 2018 Minnesota Space Grant Consortium Scholarship

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## Conferences and Workshops

- 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, Minnesota*  
June 2022 [From Stars to Galaxies II](#), *Göteborg, 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 \(AAS\)](#), *virtually anywhere*  
Jan. 2020 [Conferences for Undergraduate Women in Physics \(CUWiP\) 2020](#), *Minneapolis, Minnesota*  
Jan. 2020 [235th Meeting of the American Astronomical Society \(AAS\)](#), *Honolulu, Hawai'i*  
Oct. 2019 [Alda Center for Communicating Science Workshop](#), *Macalester College*  
Jan. 2019 [233rd Meeting of the American Astronomical Society \(AAS\)](#), *Seattle, Washington*

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## Professional Society Memberships

- 2020 – Present [American Association for the Advancement of Science \(AAAS\)](#)  
2018 – 2022 [American Astronomical Society \(AAS\)](#)  
2018 – 2020 [Macalester College Society of Physics Students \(SPS\)](#)  
2018 – 2019 [American Physical Society \(APS\)](#)

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## Public Outreach

- Dec. 2022 **Panel**, [Celebrating Today's Female Astronomers](#), Hippodrome Theatre.  
Dec. 2022 **Presentation**, [SEFS](#), [GEMS Light Up the Night](#).  
July 2022 **Podcast interview**, [The Up & Coming Show](#).  
[Episode #8 - Alyssa Bulatek \(Astronomy / Star Formation / Black Holes\)](#)  
2022 – Present **Volunteer**, UF Campus Teaching Observatory.
  - Spring 2022: portable planetarium visits to 3 elementary schools
  - Dec. 2022: [Mars Closest Approach Event](#)
  - May 2022: Lunar Eclipse Night

Oct. 2021 **Presentation**, [SEFS](#), [Objects in the Sky](#), first grade.  
Aug. 2021 **Presentation**, [SEFS](#), [Spectral Detective Work: Finding Molecules in Space](#), eighth grade.  
2020 – 2021 **Pen pal**, [Letters to a Pre-Scientist](#).  
Nov. 2019 **Host**, [Statewide Star Party](#), Macalester College Observatory.  
Apr. 2019 **Interview**, [Radio Astronomy on WMCN 91.7 FM \(Macalester College Radio\)](#).  
[Radio Astronomy s4e6: 3, 2, 1 Blast Off! \(feat. High Power Rocketry at Macalester\)](#)  
Nov. 2017 **Interview**, [Radio Astronomy on WMCN 91.7 FM \(Macalester College Radio\)](#).  
[Radio Astronomy s2e8: Dust w/ Alyssa Bulatek](#)

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## 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 (pending).

- 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.