

# Alyssa Bulatek

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📄 [abulatek.github.io](https://github.com/abulatek)

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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.*

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

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](#), *Göteborg, 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](#)

## Fellowships, Scholarships, and Awards

- 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

## Professional Development

- Nov. 2021 [IAA Severo Ochoa Advanced School on Star Formation](#), *Granada, Spain*  
 Oct. 2019 Alda Center for Communicating Science Workshop, *Macalester College*

## 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 **Presentation**, *SEFS*, [GEMS Light Up the Night](#).
- 2022 – Present **Volunteer**, UF Campus Teaching Observatory.
- 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.