

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 α 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)

Extracurricular Activities

2022 – 2023 **Outreach Coordinator**, *Graduate Astronomy Organization, University of Florida*.

2022 – 2023 **GSC Representative**, *Astronomy Department, University of Florida*.

2021 – 2022 **Secretary**, *Graduate Astronomy Organization, 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 **Women in Physics and Astronomy Reading Group**, *Macalester College*.

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](#)”

Presentations

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

Graduate

14. **Poster**, [From Stars to Galaxies II](#), *Göteborg, Sweden*, June 2022.
[Which spectral lines trace what physical processes in the GC? First results: line identification](#)
13. **Masters thesis defense**, *University of Florida (virtual)*, March 2022.
Which spectral lines trace what physical processes in the Galactic Center? ([slides](#), [talk](#))
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)

Public Outreach

- May 2022 **Telescope operator/host**, *Lunar Eclipse Night*, UF Campus Teaching Observatory.
 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](#)

Awarded Telescope Time

Principle Investigator

- Future **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 (pending).
- 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 (pending).