Alyssa Bulatek

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Last updated May 11, 2023

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)

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*.

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"

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

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

Sept. 2022 From Cells to Galaxies (Radio Astronomy/Medical Imaging) Workshop, *St. Paul, Minnesota*

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

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.

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

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.

SEFS stands for Scientist in Every Florida School.