# HANNAH BISH

hbish@stsci.edu ⋄ hannahbish.com
Space Telescope Science Institute
3700 San Martin Dr, Baltimore MD 21218, USA

## Education

**University of Washington**, Seattle WA, USA
Ph.D., Astronomy 2022
Advisor: Prof. Jessica Werk
Ph.D. Thesis: *Low-Velocity Gas Flows in the Milky Way's Halo*
M.S., Astronomy 2016

**Rutgers University**, New Brunswick NJ, USA
B.S., Astrophysics 2014
Advisor: Prof. Eric Gawiser
Senior Thesis: *Ly-α Emission in High-Redshift Galaxies*

## Professional Appointments

**Postdoctoral Fellow**, Space Telescope Science Institute, Baltimore MD, USA 2022 - present
Primary Research: *3D ISM Mapping Using UV Reflection Nebulae*
Supervisor: Dr. Joshua Peek

**Research Assistant**, University of Washington, Seattle WA, USA 2016 - 2022
Research: *Kinematics & Structure of Gas Flows in the Galactic Halo*
Advisor: Prof. Jessica Werk

**Teaching Assistant**, University of Washington, Seattle WA, USA 2014 - 2016
Courses Taught: Intro Astronomy (ASTR 101), The Planets (ASTR 150)

**Research Assistant**, Rutgers University, New Brunswick NJ, USA 2012 - 2014
Research: *Ly-α Emission Strength in Star-Forming Galaxies*
Advisor: Prof. Eric Gawiser

**REU Student**, American Museum of Natural History, New York NY, USA 2010
Research: *High Proper Motion Stars in the SUPERBLINK Survey*
Advisor: Prof. Sebastien Lepine

## Honors and Awards

Co-I, HST Proposal (HST-GO-17733), 30 orbits 2024
Title: *When Clouds Collide: Observing Gas Accretion onto the Milky Way's Disk*

AAS Rodger Doxsey Prize 2022

Co-I, HST Proposal (HST-GO-16679), 71 orbits 2021
Title: *Mainly on the Plane: Solving the Milky Way CGM Anomaly with Low-Latitude QSOs*

Graduate Student Prize for Research Excellence, University of Washington 2019

Graduate Student Presentation Award, Wolfe Symposium in Astrophysics 2018

Co-I, HST Proposal (HST-GO-15154), 17 orbits 2017
Title: *Tracing Gas Flows from Halo to Disk: Observing the Milky Way's Galactic Fountain*

ARCS Foundation Graduate Fellowship 2014 - 2017

Magna cum laude, Rutgers University 2014

Honors thesis in Astrophysics, Rutgers University 2014
Aresty Research Center Grant, Rutgers University 2013
Richard J. Plano Summer Research Internship Award 2013
Rutgers University Academic Excellence Award 2013

## Teaching, Mentoring, and Outreach

*Invited Speaker*, Astronomy on Tap, Baltimore MD 2024
*Invited Speaker*, New Jersey Astronomical Association, Glen Gardner NJ 2023
*Volunteer*, Math Alliance Graduate Recruiting for Underrepresented Students, virtual 2021
*Mentor*, Pre-Major in Astronomy Program (Pre-MAP), University of Washington 2016 - 2020
Supervised research of four undergraduate students
*Invited Speaker*, Everett Astronomical Society, Everett WA 2019
*Invited Speaker*, Astronomy on Tap, Seattle WA 2019
*Volunteer*, Meany Middle School Astronomy Outreach, Seattle WA 2019
*Organizer*, EquiTea Journal Club, University of Washington 2017 - 2019
Planned monthly discussions and workshops about issues of equity and inclusion
*Volunteer*, ARCS Educational Astronomy for Children & Parents, Seattle WA 2017
*Volunteer*, Planetarium Presenter for Visiting Groups, University of Washington 2016 - 2017
*Guest Lecturer*, Astronomy Course for Middle School Girls, University of Washington 2016
*Teaching Assistant*, University of Washington 2014 - 2016
ASTR 101: Intro Astronomy, four terms
ASTR 150: The Planets, two terms

## Presentations

### Oral:

IAU GA XXIII - *LightCube: A 3D Model of the Local UV Interstellar Radiation Field* 2024
AAS #243 353.06 - *LightCube: A 3D Model of the Local UV Interstellar Radiation Field* 2024
University of Wisconsin - *LightCube: A 3D Model of the Local UV Interstellar Radiation Field* 2023
Carnegie Observatories - *LightCube: A 3D Model of the Local UV Interstellar Radiation Field* 2023
AAS #241 245.03D - *Galactic Gas Flows from Halo to Disk* 2023
AAS #236 205.03 - *QuaStar: A First Look at the Milky Way's Hidden CGM* 2020
Wolfe Symposium in Astrophysics - *Milky Way Gas Kinematics at the Disk-Halo Interface* 2018
MUSYC LAE Meeting - *SED Properties of z∼2-3 LAEs* 2013
Rutgers University - *MCMC SED Fitting in CANDELS* 2013
Tri-State Astronomy Conference - *Physical Properties of LAEs at z = 2.1* 2013
CANDELS Team Meeting - *To Stack or Not to Stack: SED Properties of z=2.1 LAEs* 2013
MUSYC LAE Meeting - *SpeedyMC Results for z=2.1 LAEs with CANDELS SEDs* 2012

### Posters:

AAS #225 143.55 - *What Determines the Strength of Lyα Emission in Star-Forming Galaxies?* 2015
AAS #223 145.05 - *To Stack or Not to Stack: Physical Properties of LAEs at z = 2.1* 2014
Aresty Research Symposium - *To Stack or Not to Stack: Physical Properties of LAEs at z = 2.1* 2014
AAS #221 147.32 - *Physical Properties of Lyman Alpha Emitters in CANDELS* 2013

# Journal Articles

## First Author:

1. **Bish, H.V.**; Peek, J.E.G.; Murray, C.; Gordon, K.; Clark, S.; Hamden, E. "*LightCube: A 3-D Model of the Local Interstellar Radiation Field*" (in prep.)
2. **Bish, H.V.**; Werk, J.K.; Di Teodoro, E.M.; Peek, J.E.G.; Putman, M.E.; Zheng, Y. "*Differential Low-Velocity Accretion at the Milky Way's Disk-Halo Interface*" (in prep.)
3. **Bish, H.V.**; Tollerud, E.; Hamanowicz, A. "*The Connection Between the CGM of Milky Way Analogs and Their Satellite Populations*" (in prep.)
4. **Bish, H.V.**; Werk, J.K.; Peek, J.E.G.; Putman, M.E.; Zheng, Y. "*QuaStar: Measuring the Milky Way's Obscured Low-Velocity Circumgalactic Medium*" 2021, ApJ, 912, 8
5. **Bish, H.V.**; Werk, J.K.; Prochaska, J.X.; Rubin, K.H.R.; Zheng, Y.; O'Meara, J.M.; Deason, A.J. "*Galactic Gas Flows from Halo to Disk: Tomography and Kinematics at the Milky Way's Disk-Halo Interface*" 2019, ApJ, 882, 76

## Co-Authored:

1. Tollerud, E.J.; Hamanowicz, A.; **Bish, H.V.**. "*COS-SAGA I: The Circumgalactic Medium of NGC3067 and its Lone Satellite*" (in prep.)
   – Contribution: Reduced and analyzed COS spectrum, assisted with metallicity calculation.
2. Werk, J.K.; Tchernyshyov, K.; **Bish, H.V.**; Zheng, Yong; Putman, Mary; Peek, Joshua; Schiminovich, David. "*The Plane Quasar Survey: First Data Release*"
   – Contribution: Carried out four half-nights of observations, reduced data for catalog.
3. Werk, J.K., Rubin, K.H.R., **Bish, H.V.**; Prochaska, J.X.; Zheng, Y.; O'Meara, J.M.; Lenz, D.; Hummels, C.; Deason, A.J. "*The Nature of Ionized Gas in the Milky Way Galactic Fountain*" 2019, ApJ, 887, 89
   – Contribution: Data reduction and analysis of low ions, two figures, scientific discussion.
4. Vargas, C.J., **Bish, H.V.**, Acquaviva, V., Gawiser, E.J., Finkelstein, S.L., Ciardullo, R., Ashby, M., Feldmeier, J., Ferguson, H., Gronwall, C., Guaita, L., Hagen, A., Koekemoer, A., Kurczynski, P., Newman, J., & Padilla, N. "*To Stack or Not to Stack: Spectral Energy Distribution Properties of Ly-Emitting Galaxies at z=2.1*". 2013, ApJ, 783, 26.
   – Contribution: SED fitting and primary data analysis, six figures, scientific discussion.

# References

**Jessica K. Werk**
jwerk@uw.edu
Associate Professor
Department of Astronomy, University of Washington

**Joshua E. G. Peek**
jegpeek@stsci.edu
Associate Astronomer, Project Scientist
Data Science Mission Office, Space Telescope Science Institute

**Jason Xavier Prochaska**
xavier@ucolick.org
Professor of Astronomy & Astrophysics
Department of Astronomy & Astrophysics, University of California, Santa Cruz