GILLIAN DORA BELTZ-MOHRMANN

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EDUCATION

Ph.D., Astrophysics, Vanderbilt University — expected 2022
Advisor: Andreas Berlind
Thesis: *Developing an Accurate Probe of the Galaxy-Halo Connection: Baryonic Effects, Small-Scale Galaxy Clustering, and Halo Model Extensions*

M.A., Astrophysics, Vanderbilt University — 2018

B.A., Astrophysics, German, *cum laude*, Wellesley College — 2016
Advisors: Kim McLeod, James Battat

HONORS & AWARDS

Vanderbilt Physics & Astronomy Dept. - Most Outstanding Student Publication Award — 2020
Vanderbilt Data Science Symposium - Graduate Student Poster Competition (1st place) — 2019
Vanderbilt Akunuri V. Ramayya Award for Outstanding Teaching Assistant — 2018
Vanderbilt Provost Graduate Fellowship — 2016–2021
Undergraduate Chambliss Astronomy Achievement Award (Honorable Mention) — 2016
Wellesley College Sarah Frances Whiting Medal for Achievement in Astronomy — 2014

GRANTS

XSEDE - Awarded 58.4k Node Hours (2.8M CPU hours) on Stampede2 — 2019, 2020
Vanderbilt Physics & Astronomy Dept. - McMinn Research Grants ($3,000 total) — 2019, 2020
Vanderbilt College of Arts and Sciences - Graduate Summer Research Award ($1,900) — 2018

PUBLICATIONS

Submitted & Published

5. Szewciw, A. O., **Beltz-Mohrmann, G. D.**, Berlind, A. A., Sinha, M., 2021, "Toward Accurate Modeling of Galaxy Clustering on Small Scales: Constraining the Galaxy-Halo Connection with Optimal Statistics", The Astrophysical Journal, in press, arXiv:2110.03701

4. **Beltz-Mohrmann, G. D.**, Berlind, A. A., 2021, "The impact of baryonic physics on the abundance, clustering, and concentration of halos", The Astrophysical Journal, 921, 112

3. **Beltz-Mohrmann, G. D.**, Berlind, A. A., Szewciw, A. O., 2020, "Testing the Accuracy of Halo Occupation Distribution Modelling using Hydrodynamical Simulations", Monthly Notices of the Royal Astronomical Society, 491, 5771

2. Dale, D. A., **Beltz-Mohrmann, G. D.**, Egan, A. A., Hatlestad, A. J., Herzog, L. J., Leung, A. S., McLane, J. N., Phenicie, C., Roberts, J. S., Barnes, K. L., Boquien, M., Calzetti, D., Cook, D. O., Kobulnicky, H. A., Staudaher, S. M., van Zee, L., 2016, "Radial Star Formation Histories in Fifteen Nearby Galaxies", The Astronomical Journal, 151, 4

1. Souza, S. P., **Beltz-Mohrmann, G.**, Sami, M., 2014, "The Light Curve and Period of MT696", The Journal of the American Association of Variable Star Observers, 42, 154

In Preparation

1. **Beltz-Mohrmann, G. D.**, Szewciw, A. O., Berlind, A. A., Sinha, M., 2022, "Toward Accurate Modeling of Galaxy Clustering on Small Scales: Extensions to the Standard Halo Model", in preparation.

RECENT TALKS & POSTERS

Invited Talks

High-Energy and AstroPhysics Seminar, University of Utah — Jan. 2022
Developing an Accurate Probe of the Galaxy-Halo Connection

Kavli Institute for Particle Astrophysics and Cosmology Seminar, Stanford University — Dec. 2021
Developing an Accurate Probe of the Galaxy-Halo Connection

Kavli Institute for Cosmological Physics Seminar, University of Chicago — Nov. 2021
Developing an Accurate Probe of the Galaxy-Halo Connection

Galaxies and AGN Journal Club talk, Johns Hopkins University — July 2021
The impact of baryonic physics on the abundance, clustering, & concentration of halos

Galaxy Lunch talk, Yale University — March 2021
The impact of baryonic physics on the abundance, clustering, & concentration of halos

Contributed Talks

Kavli Institute for Theoretical Physics: Galaxy-Halo Connection Across Cosmic Time — Aug. 2020
HMF Discrepancies between Hydrodynamic and DMO Simulations

Universität Innsbruck: The Connection Between Galaxies and Dark Matter Halos — March 2020
Taking Halo Modeling to the Next Level

Contributed Posters

The First Shanghai Assembly on Cosmology and Galaxy Formation — Nov. 2019
Taking HOD Modeling to the Next Level: Results from SDSS & Hydrodynamic Simulations

Santa Cruz Galaxy Workshop — Aug. 2019
Can We Ignore Baryons in Halo Modeling?

COMPUTATIONAL SKILLS & EXPERIENCE

Languages: PYTHON, C, MATLAB, BASH, GIT, LaTeX

Parallel Computing: MPI, OPENMP

Co-Investigator & Allocation Manager of LasDamas Project — 2017–present
Experience running cosmological N-body simulations using GADGET-2 & GADGET-4 generating power spectra and initial conditions using CAMB and 2LPTIC, identifying spherical overdensity halos using ROCKSTAR, and running large MCMC parameter searches

TEACHING & OUTREACH

Teaching

- Co-mentored high school student Caleigh Dennis — 2017–2019
  Two-time 1st place winner at Middle Tennessee Science & Engineering Fair
- Graduate Teaching Assistant, *Intro Astronomy Lab*, Vanderbilt University — 2016–2019
- Physics Tutor, Wellesley College — 2013–2016

Outreach

- AAS (virtual) Congressional Visits Day — Sept. 2020
- Science Day with Nashville Girl Scout Troop — March 2019
- Meet the Astronomer Night at Dyer Observatory — Oct. 2018
- Vanderbilt Student Volunteers for Science — Fall 2016
- Whitin Observatory Volunteer, Wellesley College — 2012–2016

PRE-DOCTORAL RESEARCH POSITIONS

LIGO Summer Undergraduate Research Fellow, Caltech — Summer 2015
NSF Summer REU, University of Wyoming — Summer 2014
Summer Research Fellow, Keck Northeast Astronomy Consortium, Williams College — Summer 2013
Undergraduate Research Assistant, Wellesley College — 2013–2016